

C

c *See*: centi.

C A programming language, standardized by ANSI and ISO, designed for systems programming but also well-suited for general problem solving. Features include concise expressions, well-designed control flow and data structures, and a broad range of operators. *Note*: B is an ancestor of C. *See also*: C++; ANSI C; block-structured language.

(C) 610.13-1993w

C++ A general-purpose programming language based on C, characterized by having facilities for performing object-oriented programming.

(C) 610.13-1993w

cabinet (1) An enclosure designed either for surface or flush mounting and provided with a frame, mat, or trim in which a swinging door or doors are or may be hung.

(NEC/NEC) [86]

(2) (power system communication equipment) An enclosure provided with an internal equipment mounting rack and hinged doors.

(PE/PSC) 281-1984w

(3) (electronic) A protective enclosure to house modules, backplane(s), I/O connector assemblies, internal cables, and other electronic, mechanical, and thermal devices. *Synonyms*: rack; box; rack; box.

(BA/C) 14536-1995

cabinet interface The cabinet interface provides within a cabinet the standardized mechanisms for mounting modules, backplane(s), and I/O connector assemblies, and for mounting other electronic, mechanical and thermal devices. The cabinet interface provides heat exchanging facilities, with standardized capabilities for transferring heat from modules and other heat sources within the cabinet, to external heat sink(s).

(C/BA) 14536-1995

cabinet for safe (burglar-alarm system) Usually a wood enclosure, having protective linings on all inside surfaces and traps on the doors, built to surround a safe and designed to produce an alarm condition in a protection circuit if an attempt is made to attack the safe. *See also*: protective signaling.

(EEC/PE) [119]

cable (1) (signal-transmission system) A transmission line or group of transmission lines mechanically assembled into a complex flexible form. *Note*: The conductors are insulated and are closely spaced and usually have a common outer cover which may be an electric portion of the cable. This definition also includes a twisted pair.

(MTT) 146-1980w

(2) (communication and control cables) An insulated conductor or combination of electric conductors that are insulated from each other. A shield is usually provided.

(PE/PSC) 789-1988w

(3) An assembly of one or more conductors within an enveloping protective sheath, constructed to allow use of the conductors separately or in groups. *See also*: transceiver cable; coaxial cable; drop cable; trunk cable; attachment unit interface cable; twinaxial cable; optical cable.

(C) 610.7-1995

(4) A conductor with insulation, or a stranded conductor with or without insulation and other coverings (single-conductor cable) or a combination of conductors insulated from one another (multiple-conductor cable). *See also*: spacer cable.

(NEC/T&D) C2-1997, C2.2-1960

(5) (fiber optics) *See also*: optical cable.

812-1984w

(6) *See also*: conductor.

(PE/T&D) 524-1992r

cable accessories (power cable systems) Those components of a cable system which cannot be readily disconnected from the cable and which will be subjected to the full test voltage applied to the cable system.

(PE) 400-1980s

cable armor A metallic element or envelope inserted in or around a cable sheath to provide mechanical protection against rodents, severe installation conditions, etc.

(PE/PSC) 789-1988w

cable assembly *See*: optical cable assembly; multifiber cable.

cable attenuation *See*: cable tilt.

cable bedding (power distribution, underground cables) A relatively thick layer of material, such as a jute serving, between two elements of a cable to provide a cushion effect, or gripping action, as between the lead sheath and wire armor of a submarine cable.

(PE) [4]

cable bond An electric connection across a joint in the armor or lead sheath of a cable, or between the armor or lead sheath and the earth, or between the armor or sheath of adjacent cables. *See also*: continuity cable bond; cross cable bond.

(EEC/PE) [119]

cable buggy *See*: conductor car.

cable bus An approved assembly of insulated conductors with fittings and conductor terminations in a completely enclosed, ventilated protective metal housing. The assembly is designed to carry fault current and to withstand the magnetic forces of such current. Cablebus shall be permitted at any voltage or current for which the spaced conductors are rated. Cablebus is ordinarily assembled at the point of installation from components furnished or specified by the manufacturer in accordance with instructions for the specific job.

(NEC/NEC) [86]

cable car A seat or basket-shaped device, designed to be suspended by a framework, and two or more sheaves arranged in tandem to enable a workman to ride a single conductor, wire, or cable. *Synonyms*: conductor car; bicycle; cable trolley.

(T&D/PE) 524-1992r

cable charging current Current supplied to an unloaded cable. *Note*: Current is expressed in rms amperes.

(SWG/PE) C37.100-1992

cable clamp A device designed to clamp cables together. It consists of a "U" bolt threaded on both ends, two nuts, and a base, and is commonly used to make temporary *bend back* eyes on wire rope. *Synonym*: Crosby clip.

(T&D/PE) 524-1992r

cable complement (communication practice) A group of pairs in a cable having some common distinguishing characteristic. *See also*: cable.

(EEC/PE) [119]

cable connection assembly The combination of the cable termination with the cable connection enclosure, GIS conductor end and removable conductor link.

(PE/IC) 1300-1996

cable connection enclosure The part of the GIS which surrounds the cable termination.

(PE/IC) 1300-1996

cable core (1) (A) (cable) The portion lying under other elements of a cable. **(B)** The core of a cable is the cylindrical center consisting of insulated conductors usually twisted together in pairs and in pairs arranged together in groups that lie under the sheath.

(T&D/PE/PSC) [10], 789-1988

(2) The portion of a cable that includes the conductor, the conductor shield, the insulation, and the extruded insulation shield.

(PE/IC) 1142-1995

cable core binder A wrapping of tapes or cords around the several conductors of a multiple-conductor cable used to hold them together. *Note*: Cable core binder is usually supplemented by an outer covering of braid, jacket, or sheath.

(T&D/PE) [10]

cable coupler (rotating machinery) A form of termination in which the ends of the machine winding are connected to the supply leads by means of a plug-and-socket device.

(PE) [9]

cable entrance fitting (pothead) A fitting used to seal or attach the cable sheath or armor to the pothead. *Note*: A cable entrance fitting is also used to attach and support the cable sheath or armor where a cable passes into a transformer removable cable terminating box without the use of potheads. *See also*: transformer.

(PE/TR) [107], [108]

cable fill The ratio of the number of pairs in use to the total number of pairs in a cable. *Note*: The maximum cable fill is the percentage of pairs in a cable that may be used safely and

economically without serious interference with the availability and continuity of service. *See also:* cable.

(EEC/PE) [119]

cable filler (1) The material used in multiple-conductor cables to occupy the interstices formed by the assembly of the insulated conductors, thus forming a cable core of the desired shape (usually circular). (T&D/PE) [10]

(2) (communication and control cables) The material used in multiple-pair cables to occupy the interstices formed by the assembly of the insulated conductors, and to form a cable core of the desired shape (usually circular). A material may be used that resists the entrance of water (nonhygroscopic) and ionizes at a higher voltage than air. (PE/PSC) 789-1988w

cable-fire break Material, devices, or an assembly of parts installed in a cable system, other than at a cable penetration of a fire-resistive barrier, to prevent the spread of fire along the cable system. (PE/SUB/EDPG) 690-1984r, 525-1992r

cableheads *See:* submersible entrance terminals.

cable in free air That portion of a cable not routed in either a raceway or an enclosure. (PE/NP) 384-1992r

cable in the zone of influence (wire-line communication facilities) A high dielectric cable which provides high-voltage insulation between conductors and between conductors and shield. (PE/PSC) 487-1980s

cable jacket (1) A protective covering over the insulation, core, or sheath of a cable. (NESC) C2-1997

(2) (communication and control cables) A thermoplastic or thermosetting covering that is extruded over a cable to provide physical protection and electrical insulation. (A) *inner jacket.* A jacket that is extruded over the cable core covering to provide additional dielectric strength when it is needed between the conductors and the shield. An inner jacket may be used in cables that are used for direct burial and also where high ground potential rise is to be withstood. (B) *outer jacket.* A jacket that is extruded over the cable shield. It also may be extruded over both the shield and a supporting messenger cable. (PE/PSC) 789-1988w

cable joint (1) (cable splice) A connection between two or more separate lengths of cable with the conductors in one length connected individually to conductors in other lengths and with the protecting sheaths so connected as to extend protection over the joint. *Note:* Cable joints are designated by naming the conductors between which the joint is made, for example, 1 single-conductor to 2 single-conductor cables; 1 single-conductor to 3 single-conductor cables; 1 concentric to 2 concentric cables; 1 concentric to 1 single-conductor cable; 1 concentric to 2 single-conductor cables; 1 concentric to 4 single-conductor cables; 1 three-conductor to 3 single-conductor cables. *See also:* branch joint; reducing joint. (T&D/PE) [10]

(2) (power cable joints) A complete insulated splice or group of insulated splices contained within a single protective covering or housing. In some designs, the insulating material may also serve as the protective covering. Insulated end caps are considered joints in this context. *See also:* straight joint; branch joint; transition joint; insulating (isolating) joint. (PE/IC) 404-1986s

cable Morse code A three-element code, used mainly in submarine cable telegraphy, in which dots and dashes are represented by positive and negative current impulses of equal length, and a space by absence of current. *See also:* telegraphy. (EEC/PE) [119]

cable penetration (cable-penetration fire stops, fire breaks, and system enclosures) (nuclear power generating station) An assembly or group of assemblies for electrical conductors to enter and continue through a fire-rated structural wall, floor, or floor-ceiling assembly. (PE/SUB/EDPG) 690-1984r, 525-1992r, 634-1978w

cable-penetration fire stop Material, devices, or an assembly of parts providing cable penetrations through fire-rated walls, floors, for floor-ceiling assemblies, while maintaining required fire rating. (PE/SUB/IC/EDPG) 848-1996, 690-1984r, 525-1992r

cable PHY *See:* cable physical layer.

cable physical layer The version of the physical layer applicable to the Serial Bus cable environment. (C/MM) 1394-1995

cable powered Supplying power to active CATV equipment (for example, amplifiers) from the coaxial cable. This ac or dc power does not interfere with the RF information signal. (LM/C) 802.7-1989r

cable pullback The pulling of one or more cables out of a conduit system for the express purpose of repulling the cables into the same conduit. *Note:* Cable pullback is normally performed to allow relocation of a portion of a conduit system or to avoid pullbys during the installation of additional cables. (PE/IC) 1185-1994

cable pullby The pulling of cable(s) into a conduit that already contains one or more cables. (PE/IC) 1185-1994

cable rack A device usually secured to the wall of a manhole, cable raceway, or building to provide support for cables. (T&D/PE) [10]

cable reel A drum on which conductor cable is wound, including one or more collector rings and associated brushes, by means of which the electric circuit is made between the stationary winding on the locomotive or other mining device and the trailing cable that is wound on the drum. *Note:* The drum may be driven by an electric motor, a hydraulic motor, or mechanically from an axle on the machine. *See also:* mine feeder circuit. (PE/EEC/MIN) [119]

cable segment (FASTBUS acquisition and control) A FAST-BUS segment consisting of a cable together with appropriate connectors for mating with devices. (NID) 960-1993

cable separator (power distribution, underground cables) A serving of threads, tapes, or films to separate two elements of the cable, usually to prevent contamination or adhesion. (PE) [4]

cable sheath (1) A tubular impervious metallic protective covering applied directly over the cable core. (PE/T&D/IC) [4], [10]

(2) (communication and control cables) The outer covering over the insulated conductors to provide mechanical and electrical protection for the conductors. In telephone-type cables, the sheath usually includes a shield, and may include armor. (PE/PSC) 789-1988w

(3) A conductive protective covering applied to cables. *Note:* A cable sheath may consist of multiple layers, of which one or more is conductive. (NESC/T&D) C2-1997, C2.2-1960

cable sheath insulator (pothead) An insulator used to insulate an electrically conductive cable sheath or armor from the metallic parts of the pothead or transformer removable cable terminating box in contact with the supporting structure for the purpose of controlling cable sheath currents. *See also:* transformer; transformer removable cable-terminating box. (PE/TR) [107], [108]

cable shield (communication and control cables) A conducting envelope, composed of metal strands, ribbon or sheet metal that encloses a wire, group of wires, or cable, so constructed that substantially every point on the surface of the underlying insulation or core wrap is at ground potential or at some predetermined potential with respect to ground. *See also:* duct edge fair-lead. (PE/PSC) 789-1988w

cable shielding (nuclear power generating station) (cable systems in power generating stations) (shielding and shield grounding) A nonmagnetic metallic material applied over the insulation of the conductor or conductors to confine the electric field of the cable to the insulation of the conductor or conductors. (PE/EDPG) 422-1977, 690-1984r

cable splicer A short piece of tubing or a specially formed band of metal generally used without solder in joining ends of portable cables for mining equipment. *See also:* mine feeder circuit. (PE/EEC/MIN) [119]

cable spreading room (cable systems) The cable spreading room is normally the area adjacent to the control room where cables leaving the panels are dispersed into various cable

trays for routing to all parts of the plant.

(PE/EDPG) 422-1977

cable-system enclosure (nuclear power generating station) (cable-penetration fire stops, fire breaks, and system enclosures) An assembly installed around a cable system to maintain circuit integrity, for a specified time, of all circuits within the enclosure when it is exposed to the most severe fire that may be expected to occur in the area.

(PE/SUB/EDPG) 690-1984r, 525-1992r

cable terminal (1) A device that provides insulated egress for the conductors. *Synonyms*: termination. (NESC) C2-1997

(2) (power work) A device that seals the end of a cable and provides insulated egress for the conductors. *Synonyms*: pot-head; end bell. (PE/T&D) [10]

cable termination Parts assembled onto the end of the cable to provide the electrical and mechanical interface into the gas-insulated environment. Typically this includes a solid insulation barrier between the cable/cable fluid and the gas insulation of the GIS. (PE/IC) 1300-1996

cable tilt (loss) The amount of RF signal attenuation by a given coaxial cable. Cable attenuation is mainly a function of signal frequency, cable length, and diameter. Cables attenuate higher frequency signals more than lower frequency signals (tilt). Cable losses are usually referenced to the highest frequency carried (greatest loss) on the cable.

(LM/C) 802.7-1989r

cable tray (1) (raceway systems for Class 1E circuits for nuclear power generating stations) A prefabricated metal raceway with or without covers consisting of siderails and bottom support sections. Bottom support sections may be ladder, trough, or solid. (PE/NP) 628-1987r

(2) (electric power systems in commercial buildings) A unit or assembly of units or sections, and associated fittings, made of metal or other noncombustible material forming a continuous rigid structure used to support cables.

(IA/PSE) 241-1990r

(3) A raceway resembling a ladder and usually constructed of metal. Other styles of trays include solid-bottom and channel type. (PE/IC) 848-1996

(4) A continuous rigid structure used to support cables. Cable trays include ladders, troughs, channels and other similar structures. Conduits are not included in this category.

(PE/IC) 817-1993w

cable tray system (raceway systems for Class 1E circuits for nuclear power generating stations) An assembly of metallic cable tray sections, fittings, supports, anchorages, and accessories that form a structural system to support wire and cables.

(PE/NP) 628-1987r

cable trolley *See*: cable car.

cable TV A communication system that simultaneously distributes several different channels of broadcast programs and other information to customers via a coaxial cable. Previously called community antenna television (CATV).

(LM/C) 802.7-1989r

cable type (nuclear power generating station) A cable type for purposes of qualification testing shall be representative of those cables having the same materials, similar construction, and service rating, as manufactured by a given manufacturer.

(PE/NP) 380-1975w

cable value *See*: manhole.

cab signal (1) A signal located in the engineman's compartment or cab indicating a condition affecting the movement of a train or engine and used in conjunction with interlocking signals and in conjunction with or in lieu of block signals. *See also*: automatic train control. (EEC/PE) [119]

(2) (system) A signal located in the cab, indicating a condition affecting the movement of a train and used in conjunction with interlocking signals and in conjunction with or in lieu of block signals. (VT) 1475-1999

cache (1) A buffer inserted between one or more processors and the bus, used to hold currently active copies of blocks from main memory. (C/BA) 896.3-1993w

(2) A small portion of high-speed memory used for temporary storage of frequently-used data, instructions, or operands. *See also*: instruction cache; disk cache; high-speed buffer; caching; cache architecture; data cache; cache memory.

(C) 610.10-1994w

(3) *See also*: copy. (C/PA) 1328.2-1993w, 1224.2-1993w

cache coherence A system of caches is said to be coherent with respect to a cache line if each cache and main memory in the coherence domain observes all modifications of that same cache line. A modification is said to be observed by a cache when any subsequent read would return the newly written value.

(C/BA) 1014.1-1994w, 10857-1994, 896.3-1993w, 896.4-1993w

cache agent A module that uses split transactions to assume all the rights and responsibilities of some number of remote cache modules. (C/BA) 896.4-1993w

cache line (1) Often called simply a "line." The unit of data on which coherence checks are performed, and for which coherence tag information is maintained. In SCI, a line consists of 64 data bytes. (MM/C) 1596-1992

(2) Often called simply a "line." The block of memory (sometimes called a "sector") that is managed as a unit for coherence purposes; i.e., cache tags are maintained on a per-line basis. SCI directly supports only one line size, 64 bytes.

(C/MM) 1596.5-1993

(3) Often simply called a "line," the block of memory (sometimes called a sector) that is managed as a unit for coherence purposes; i.e., cache tags are maintained on a per-line basis. Although the SCI line size influenced the RamLink packet sizes, coherence protocols are beyond the scope of this standard. (C/MM) 1596.4-1996

cache architecture (A) A computer architecture that employs an extremely high-speed memory block, called a cache, in which data is stored. **(B)** The organization of cache memory; for example, direct mapped cache, two-way set associative cache. (C) 610.10-1994

cache hit *See*: hit.

caching The process of accessing a cache.

(C) 610.10-1994w

cache memory (1) A buffer memory inserted between one or more processors and the bus, which is used to hold currently active copies of blocks of information from main memory.

(C/BA) 1014.1-1994w

(2) A buffer memory inserted between one or more processors and the bus, used to hold currently active copies of blocks from main memory. Cache memories exploit spatial locality by what is brought into a cache. Temporal locality is exploited by the strategy employed for determining what is removed from the cache. (C/BA) 10857-1994, 896.4-1993w

CAD *See*: computer-aided design.

CADD *See*: computer-aided design and drafting.

CADEM *See*: computer-aided engineering; computer-aided manufacturing; computer-aided design.

CADF *See*: commutated antenna direction finder.

CADM *See*: computer-aided manufacturing; computer-aided design.

CAE *See*: computer-aided engineering; computer-aided education.

case (1) A system of conductors forming an essentially continuous conducting mesh or network over the object protected and including any conductors necessary for interconnection to the object protected and an adequate ground. *See also*: Faraday cage. (EEC/PE) [119]

(2) emptydef;. *See also*: aerial platform.

(T&D/PE) 524-1992r

case antenna A multi-wire element whose wires are so disposed as to resemble a cylinder, in general of circular cross section; for example, an elongated cage. (AP/ANT) 145-1993

cage synchronous motor (rotating machinery) A salient pole synchronous motor having an amortisseur (damper) winding embedded in the pole shoes, the primary purpose of this winding being to start the motor. (PE) [9]

cage winding *See:* squirrel-cage winding.

caging (gyros) The process of orienting and mechanically locking one or more gyro axes or gimbals to a reference position. (AES/GYAC) 528-1994

CAI *See:* computer-assisted instruction; computer-aided inspection; computer-aided instruction.

CAL *See:* Conversational Algebraic Language; computer-assisted learning; computer-augmented learning.

calc algorithm *See:* hash function.

calc chain *See:* collision chain.

calculating punch A calculator, with card reader and card punch, that reads data from a punch card, performs some arithmetic operations or logic operations on the data, and punches the results on the same or another punch card. *Synonym:* multiplying punch. (C) 610.10-1994w

calculations (International System of Units (SI)) Errors in calculations can be minimized if the base and the coherent derived International System (SI) units are used and the resulting numerical values are expressed in power-of-ten notation instead of using prefixes. *See also:* prefixes and symbols; units and letter symbols. (QUL) 268-1982s

calculator (1) (A) A device capable of performing arithmetic. **(B)** A calculator as in definition (A) that requires frequent manual intervention. **(C)** Generally and historically, a device for carrying out logic and arithmetic digital operations of any kind. (C) [85]

(2) A device that is suitable for performing logic and arithmetic digital operations, but that requires manual intervention to initiate each operation. *See also:* calculating punch. (C) 610.10-1994w

calibrate (1) (monitoring radioactivity in effluents) Adjustment of the system and the determination of system accuracy using one or more sources traceable to the National Bureau of Standards (NBS). (NI) N42.18-1980r

(2) (radiological monitoring instrumentation) (plutonium monitoring) To determine the response or reading of an instrument relative to a series of known radiation values over the range of the instrument. (NI) N317-1980r, N320-1979r

(3) (radiation protection) To determine the response or reading of an instrument relative to a series of known radiation values over the range of the instrument or the strength of a radiation source relative to a standard. (NI) N323-1978r

(4) (airborne radioactivity monitoring) To adjust or determine or both: The response or reading of an instrument relative to a series of conventionally true values; or The strength of a radiation source relative to a standard or conventionally true value. (NI) N42.17B-1989r

calibrated Checked for proper operation at selected points on the operating characteristic. (IA/ICTL/IAC) [60]

calibrated-driving-machine test (rotating machinery) A test in which the mechanical input or output of an electric machine is calculated from the electric input or output of a calibrated machine mechanically coupled to the machine on test. *See also:* direct-current commutating machine; asynchronous machine. (PE) [9]

calibrated Marinelli beaker standard source (germanium semiconductor detector) A calibrated MBSS is an MBSS that has been calibrated by comparing its photon emission rate to that of a certified MBSS. *Note:* The photon emission rate as used in this standard is the number of photons per second resulting from the decay of radionuclides in the source and is thus higher than the detected rate at the surface. (NPS) 680-1978w

calibrated-solution Marinelli beaker standard source (germanium semiconductor detector) A calibrated-solution MBSS is a standard beaker that contains as its radioactive

filling material a solution that has been calibrated by comparing its photon emission rate at specified energies to that of a certified solution. *Note:* The photon emission rate as used in this standard is the number of photons per second resulting from the decay of radionuclides in the source and is thus higher than the detected rate at the surface. (NPS) 680-1978w

calibrated source *See:* radioactivity standard source.

calibration (1) (nuclear power generating station) Comparison of items of measuring and test equipment with reference standards or with items of measuring and test equipment of equal or closer tolerance to detect and quantify inaccuracies and to report or eliminate those inaccuracies. (PE/NP) 498-1985s

(2) (supervisory control, data acquisition, and automatic control) Adjustment of a device so that the output is within a specific range for particular values of the input. (PE/SUB) C37.1-1994

(3) The adjustment of a device to have the designed operating characteristics, and the subsequent marking of the positions of the adjusting means, or the making of adjustments necessary to bring operating characteristics into substantial agreement with standardized scales or marking. (SWG/PE/PSR) C37.100-1992, C37.90-1978s, [56], [6]

(4) (metering) Comparison of the indication of the instrument under test, or registration of the meter under test, with an appropriate standard. (ELM) C12.1-1988

(5) The process of determining the numerical relationship, within an overall stated uncertainty, between the observed output of a measurement system and the value, based on standard sources, of the physical quality being measured. (EMC/NI) 1140-1994r, N42.13-1986

(6) (germanium spectrometers) The determination of a value that converts a measured number into a desired physical quantity (e.g., pulse height into photon energy, or counts per second into emission rate). (NI) N42.14-1991

calibration error (1) (electric pipe heating systems) In operation, the departure under specified conditions of actual performance from performance indicated by scales, dials, or other markings on the device. *See also:* alarm signal. (PE/EDPG) 622A-1984r, 622B-1988r

(2) In the operation of a device, the departure, under specified conditions, of actual performance from performance indicated by scales, dials, or other markings on the device. *Note:* The indicated performance may be by calibration markings in terms of input or performance quantities (amperes, ohms, seconds, etc.) or by reference to a specific performance data recorded elsewhere. *See also:* setting error. (SWG/PE) C37.100-1992

calibration factor (A) (bolometer-coupler unit) The ratio of the substitution power in the bolometer attached to the side arm of the directional coupler to the microwave power incident on a nonreflecting load connected to the output port of the main arm of the directional coupler. *Notes:* 1. If the bolometer unit is attached to the main arm of the directional coupler, the calibration factor is the ratio of the substitution power in the bolometer unit attached to the main arm of the directional coupler to the microwave power incident upon a nonreflecting load connected to the output port of the side arm of the directional coupler. **(B) (bolometer units)** The ratio of the substitution power to the radio-frequency power incident upon the bolometer unit. The ratio of the bolometer-unit calibration factor to the effective efficiency is determined by the reflection coefficient of the bolometer unit. The two terms are related as follows:

$$K_b/\eta_e = 1 - |\Gamma|^2$$

where K_b , η_e , and Γ are the calibration factor's effective efficiency, and reflection coefficient of the bolometer unit, respectively. **(C) (calibration)** (loosely called antenna factor) The factor or set of factors that, at given frequency, expresses the relationship between the field strength of an electromagnetic wave impinging upon the antenna of a field-strength

meter and the indication of the field-strength meter. *Note:* The composite of antenna characteristics, balun and transmission line effects, receiver sensitivity and linearity, etc. *See also:* measurement system. (IM/HFIM) [40], 284-1968

(2) (A) (electrothermic unit) The ratio of the substituted reference power (dc, audio, or rf) in the electrothermic unit to the power incident upon the electrothermic unit for the same dc output voltage from the electrothermic unit at a prescribed temperature. *Notes:* 1. Calibration factor and effective efficiency are related as in the equation above, where K_b , η_e , and Γ are the calibration factor, effective efficiency, and reflection coefficient of the electrothermic unit, respectively. 2. The reference frequency is to be supplied with the calibration factor. **(B) (electrothermic-coupler unit)** The ratio of the substituted reference power (dc, audio, or rf) in the electrothermic unit attached to the side arm of the directional coupler to the power incident upon a nonreflecting load connected to the output port of the main arm of the directional coupler for the same dc output voltage from the electrothermic unit is attached to the main arm of the directional coupler, the calibration factor is the ratio of the substituted reference (dc, audio, or rf) power in the electrothermic unit attached to the main arm of the directional coupler to the power incident upon a nonreflecting load connected to the output port of the side arm of the directional coupler for the same dc output voltage from the electrothermic unit at a prescribed temperature. *Note:* The reference frequency is to be supplied with the calibration factor. (IM) 544-1975

calibration interval (test, measurement, and diagnostic equipment) The maximum length of time between calibration services during which each standard and test and measuring equipment is expected to remain within specific performance levels under normal conditions of handling and use. (BT) 511-1979w

calibration level (signal generators) The level at which the signal generator output is calibrated against a standard. *See also:* signal generator. (IM/HFIM) [40]

calibration markers *See:* calibration marks.

calibration marks (radar) (navigation aids) Indications superimposed on a display to provide a numerical scale of the parameters displayed. (AES/GCS) 686-1997, 172-1983w

calibration procedure (test, measurement, and diagnostic equipment) A document which outlines the steps and operations to be followed by standards and calibration laboratory and field calibration activity personnel in the performance of an instrument calibration. (MIL) [2]

calibration programming (power supplies) Calibration with reference to power-supply programming describes the adjustment of the control-bridges current to calibrate the programming ratio in ohms per volt. *Note:* Many programmable supplies incorporate a calibrate control as part of the reference resistor that performs this adjustment. (AES/PE) [41], [78]

calibration scale A set of graduations marked to indicate values of quantities, such as current, voltage, or time at which an automatic device can be set to operate. (SWG/PE) C37.100-1992

calibration voltage The voltage applied during the adjustment of a meter. *See also:* test. (ELM) C12.1-1982s

calibrator (oscilloscopes) The signal generator whose output is used for purposes of calibration, normally either amplitude or time or both. (IM) 311-1970w

caliche (cable plowing) Common sedimentary rock normally formed from ancient marine life. (T&D/PE) 590-1977w

call (1) (computers) The action performed by the calling party, or the operations necessary in making a call, or the effective use made of a connection between two stations. (COM/C) [85]

(2) (telephone switching systems) A demand to set up a connection. (COM) 312-1977w

(3) (A) (software) A transfer of control from one software module to another, usually with the implication that control will be returned to the calling module. *Contrast:* go to.

(B) (software) A computer instruction that transfers control from one software module to another as in definition (A) and, often, specifies the parameters to be passed to and from the module. **(C) (software)** To transfer control from one software module to another as in definition (A) and, often, to pass parameters to the other module. *Synonym:* cue. *See also:* call list; call by name; call by reference; call by value; calling sequence. (C) 610.12-1990

(4) (telecommunications) A measure of traffic intensity or event data. *Synonym:* call attempts per hour. *See also:* CCS; time-consistent traffic measures. (COM/TA) 973-1990w

call announcer (automatic telephone office) A device for receiving pulses and audibly reproducing the corresponding number in words so that it may be heard by a manual operator. (EEC/PE) [119]

call arrow An arrow that enables the sharing of detail between IDEF0 models (linking them together) or within an IDEF0 model. The tail of a call arrow is attached to the bottom side of a box. One or more page references are attached to a call arrow. (C/SE) 1320.1-1998

call attempts per hour A measure of traffic intensity or event data. *Synonym:* call. *See also:* time-consistent traffic measures; CCS. (COM/TA) 973-1990w

callback A function written as part of the application, associated with a specific widget resource, that is invoked as a result of a specific change of state associated with that widget. For example, the `XmNactivateCallback` resource of the `PushButton` widget points to the callback function that is called when the button is pushed. (C) 1295-1993w

call back A security procedure that verifies the identity of a terminal accessing a computer system by terminating the original connection and then reestablishing it by placing a new call to the terminal. (C) 610.7-1995

call by address *See:* call by reference.

call by location *See:* call by reference.

call by name A method for passing parameters, in which the calling module provides to the called module a symbolic expression representing the parameter to be passed, and a service routine evaluates the expression and provides the resulting value to the called module. *Note:* Because the expression is evaluated each time its corresponding formal parameter is used in the called module, the value of the parameter may change during the execution of the called module. *Contrast:* call by reference. (C) 610.12-1990

call by reference A method for passing parameters, in which the calling module provides to the called module the address of the parameter to be passed. *Note:* With this method, the called module has the ability to change the value of the parameter stored by the calling module. *Synonyms:* call by address; call by location. *Contrast:* call by value; call by name. (C) 610.12-1990

call by value A method of passing parameters, in which the calling module provides to the called module the actual value of the parameter to be passed. *Note:* With this method, the called module cannot change the value of the parameter as stored by the calling module. *Contrast:* call by name; call by reference. (C) 610.12-1990

call capacity The number of call attempts per busy hour that can be processed without exceeding various service standards. The capacity may alternatively be expressed in terms of originating-plus-incoming (O + I) calls that can be processed during the busy hour. (COM/TA) 973-1990w

call circuit (manual switching) A communication circuit between switching points used by the traffic forces for the transmission of switching instructions. (EEC/PE) [119]

call count Occurs when one digit of the called number is received by the system after dial tone or wink is sent. (COM/TA) 973-1990w

called diagram A decomposition diagram invoked by a calling box and identified by a page reference attached to a call arrow. (C/SE) 1320.1-1998

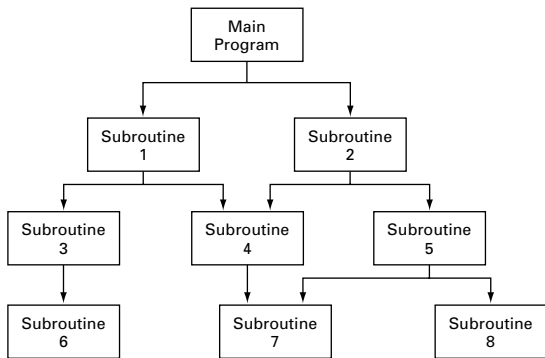
called-line release (telephone switching systems) Release under the control of the line to which the call was directed.

(COM) 312-1977w

call forwarding (telephone switching systems) A feature that permits a customer to instruct the switching equipment to transfer calls intended for his or her station to another station.

(COM) 312-1977w

call graph A diagram that identifies the modules in a system or computer program and shows which modules call one another. *Note:* The result is not necessarily the same as that shown in a structure chart. *Synonym:* tier chart; call tree. *Contrast:* structure chart. *See also:* data structure diagram; control flow diagram; state diagram; data flow diagram.



call graph

(C) 610.12-1990

call indicator A device for receiving pulses from an automatic switching system and displaying the corresponding called number before an operator at a manual switchboard.

(EEC/PE) [119]

calling box A box that is detailed by a decomposition diagram that is not the box's child diagram. A call arrow is attached to the bottom of a calling box.

(C/SE) 1320.1-1998

calling device (telephone switching systems) An apparatus that generates the signals required for establishing connections in an automatic switching system.

(COM) 312-1977w

calling line identification (telephone switching systems) Means for automatically identifying the source of calls.

(COM) 312-1977w

calling-line release (telephone switching systems) Release under the control of the line from which the call originated.

(COM) 312-1977w

calling-line timed release (telephone switching systems) Timed release initiated by the calling line.

(COM) 312-1977w

calling plug and cord A plug and cord that are used to connect to a called line.

(EEC/PE) [119]

calling sequence (1) (computers) A specified arrangement of instructions and data necessary to set up and call a given subroutine.

(C) [20], [85]

(2) (software) A sequence of computer instructions and, possibly, data necessary to perform a call to another module.

(C) 610.12-1990

call list The ordered list of arguments used in a call to a software module.

(C) 610.12-1990

call packing (telephone switching systems) A method of selecting paths in a switching network according to a fixed hunting sequence.

(COM) 312-1977w

call rate (telephone switching systems) The number of calls per unit of time.

(COM) 312-1977w

call reference A page reference attached to a call arrow.

(C/SE) 1320.1-1998

call splitting (telephone switching systems) Opening the transmission path between the parties of a call.

(COM) 312-1977w

call tone (telephone switching systems) A tone that indicates to an operator or attendant that a call has reached the position or console.

(COM) 312-1977w

call trace *See:* subroutine trace.

call tracing (telephone switching systems) A means for manually identifying the source of calls.

(COM) 312-1977w

call tree *See:* call graph.

call-type information (CTI) digits Digits sent to the switch from the central office service unit (COSU) via signaling on the utility telemetry trunk, per call, which specify the customer premise equipment (CPE) transmission interface (i.e., on-hook or off-hook operation). These information digits are assigned, on a trunk group basis, through the switch administration procedures.

(SCC31/AMR) 1390.3-1999, 1390.2-1999, 1390-1995

call waiting (telephone switching systems) A feature providing a signal to a busy called line to indicate that another call is waiting.

(COM) 312-1977w

call-waiting tone (telephone switching systems) A tone used in the call-waiting feature.

(COM) 312-1977w

calomel electrode *See:* calomel half-cell.

calomel half-cell (calomel electrode) A half-cell containing a mercury electrode in contact with a solution of potassium chloride of specified concentration that is saturated with mercurous chloride of which an excess is present. *See also:* electrochemistry.

(EEC/PE) [119]

calorie The quantity of heat required to raise one gram of water 1°F.

(IA/PSE) 241-1990r

calorimeter (laser maser) A device for measuring the total amount of energy absorbed from a source of electromagnetic radiation.

(LEO) 586-1980w

calorimetric test (rotating machinery) A test in which the losses in a machine are deduced from the heat produced by them. The losses are calculated from the temperature rises produced by this heat in the coolant or in the surrounding media. *See also:* asynchronous machine.

(PE) [9]

CAM *See:* computer-aided management; computer-aided manufacturing.

CAMA *See:* centralized accounting, automatic message.

CAMAC *See:* computer automated measurement and control.

CAMAC branch driver *See:* CAMAC parallel highway driver.

CAMAC branch highway *See:* CAMAC parallel highway.

CAMAC compatible crate A mounting unit for CAMAC plug-in units that does not conform to the full requirements for a CAMAC crate but in which CAMAC modules can be mounted and operated in accordance with the dataway requirements of IEEE Std 583-1975.

(NPS) 583-1975s

CAMAC crate A mounting unit for CAMAC plug-in units that includes a CAMAC dataway and conforms to the mandatory requirements for a CAMAC crate as specified in IEEE Std 583-1975.

(NPS) 583-1975s

CAMAC crate assembly An assembly of a CAMAC crate controller and one or more CAMAC modules mounted in a CAMAC crate (or CAMAC compatible crate), and operable in conformity with the dataway requirements of IEEE Std 583-1975.

(NPS) 583-1975s

CAMAC crate controller A functional unit that when mounted in the control station and one or more normal stations of a CAMAC crate (or CAMAC compatible crate) communicates with the dataway in accordance with IEEE Std 583-1975.

(NPS) 583-1975s

CAMAC data array (subroutines for CAMAC) The symbol *intc* represents an array of CAMAC data words. Each element of *intc* has the same form as the CAMAC data word variable *int*. The length of *intc* is given by the value of the first element of *cb* at the time the subroutine is executed. *See also:* control block; CAMAC data word.

(NPS) 758-1979r

CAMAC dataway An interconnection between CAMAC plug-in units which conforms to the mandatory requirements for a CAMAC dataway as specified in IEEE Std 583-1975.

(NPS) 583-1975s

CAMAC data word (subroutines for CAMAC) The symbol *int* represents a CAMAC data word stored in computer memory. The form is not specified, but the word must be stored in an addressable storage entity capable of containing twenty-four bits. In a computer or programming system which does not have an addressable unit of storage which can contain twenty-four bits, multiple units must be used.

(NPS) 758-1979r

CAMAC external addresses (subroutines for CAMAC) The symbol *exta* represents an array of integers each of which is a CAMAC register address. The form and information content of each element of *exta* must be identical to the form and information content of the quantity *ext*. The length of *exta* is given by the value of the first element of *cb* at the time the subroutine is executed. *See also*: control block; external address.

(NPS) 758-1979r

CAMAC module A CAMAC plug-in unit that when mounted in one or more normal stations of a CAMAC crate is compatible with IEEE Std 583-1975.

(NPS) 583-1975s

CAMAC parallel highway A standard highway (for a CAMAC system) in which the data is transferred in parallel and that conforms to the requirements of IEEE Std 596-1982. *Synonym*: CAMAC branch highway.

(NPS) 583-1975s

CAMAC parallel highway driver A unit that communicates via the CAMAC parallel highway with up to seven CAMAC crates and conforms to the requirements as specified in IEEE Std 596-1982. *Synonym*: CAMAC branch driver.

(NPS) 583-1975s

CAMAC plug-in unit A functional unit that conforms to the mandatory requirements for a plug-in unit as specified in IEEE Std 583-1975.

(NPS) 583-1975s

CAMAC serial highway A standard highway (for a CAMAC system) in which the data is transferred in bit or byte serial and which conforms to the requirements of IEEE Std 595-1982.

(NPS) 583-1975s

CAMAC system A system including at least one CAMAC crate assembly.

(NPS) 583-1975s

CAMAL *See*: CAMbridge ALgebra system.

cambium A layer of delicate meristematic tissue between the inner bark and the wood that produces all secondary growth in plants and is responsible for the annual rings of wood.

(T&D/PE) 751-1990

CAMbridge ALgebra system A programming language used to perform large scale formal algebraic manipulation, particularly in celestial mechanics and general relativity.

(C) 610.13-1993w

cam contactor (cam switch) A contactor or switch actuated by a cam. *See also*: control switch.

(VT/LT) 16-1955w

camera storage tube A storage tube into which the information is introduced by means of electromagnetic radiation, usually light, and read at a later time as an electric signal. *See also*: storage tube.

(ED) 158-1962w, [45]

camera tube (television) A tube for conversion of an optical image into an electrical signal.

(BT/AV) 201-1979w

cam-operated switch A switch consisting of fixed contact elements and movable contact elements operated in sequence by a camshaft. *See also*: switch. (IA/ICTL/IAC) [60], [84]

camping trailer A vehicular portable unit mounted on wheels and constructed with collapsible partial side walls that fold for towing by another vehicle and unfold at the campsite to provide temporary living quarters for recreational, camping, or travel use. *See also*: recreational vehicle.

(NESC/NEC) [86]

camp-on busy (telephone switching systems) A feature whereby a call encountering a busy condition can be held and subsequently connected automatically when the busy condition is required.

(COM) 312-1977w

cam-programmed (test, measurement, and diagnostic equipment) (A) A programming technique that uses a rotating shaft, having specifically oriented, eccentric projections that control a series of switches that set up the proper circuits for

a test. **(B)** A cam-follower system used to set positions or values of a shafted instrument for programming instructions to the test system. (MIL) [2]

camshaft position (electric power system) The angular position of the main shaft directly operating the governor-controlled valves.

(PE/PSE) 94-1991w

CAN *See*: cancel character.

can (1) (dry cell) A metal container, usually zinc, in which the cell is asserted and that serves as its negative electrode. *See also*: electrolytic cell.

(PE/EEC) [119]

(2) An indication of a permissible optional feature or behavior available to the application; the implementation shall support such features or behaviors as mandatory requirements.

(C/PA) 2003.2-1996

cancel (numerically controlled machines) A command that will discontinue any fixed cycles or sequence commands.

(IA/EEC) [61], [74]

cancel character (CAN) (A) A control character used by some convention to indicate that the data with which it is associated are in error or are to be disregarded. **(B)** An accuracy control character used to indicate that the data with which it is associated are in error or are to be disregarded.

(C) 610.5-1990

canceled video In moving-target indication (MTI), the video output remaining after the cancellation process. *See also*: clutter residue; moving-target indication. (AES) 686-1997

canceler That portion of the system in which unwanted signals, such as clutter, fixed targets, and other interference, are suppressed by a process of linear subtraction. (AES) 686-1997

cancellation ratio (A) In moving-target indication (MTI), the ratio of canceler voltage amplification for fixed-target echoes received with a fixed antenna, to the gain for a single pulse passing through the unprocessed channel of the canceler. *Note*: This measure of MTI performance, in which high performance is represented by a low numerical value, has been largely replaced by the MTI improvement factor. *See also*: moving-target indication. **(B)** In interference-reduction techniques other than MTI, the cancellation ratio is the ratio of interference output power in the absence of the technique to that when the technique is applied, when the system gains for the two cases are adjusted to provide equal noise outputs. *Note*: High performance is indicated by a high numerical value, generally expressed in decibels to avoid ambiguity between power and voltage ratios. (AES) 686-1997

cancelled video (radar moving-target indicator) The video output remaining after the cancellation process. *See also*: navigation. (AES/RS) 686-1982s, [42]

cancer promoter An agent that advances carcinogenesis after its initiation. (T&D/PE) 539-1990

candela (1) (illuminating engineering) The SI unit of luminous intensity. One candela is one lumen per steradian (lm/sr). Formerly, candle. *Notes*: 1. The fundamental luminous intensity definition in the SI is the candela in terms of a complete (blackbody) radiator. From this relation K_m and K_m , and consequently the lumen, are determined. One candela is defined as the luminous intensity of 1/600 000 of one square meter of projected area of a blackbody radiator operating at the temperature of solidification of platinum, at a pressure of 101 325 newtons per square meter ($N/m^2 = PA$). From 1909 until the introduction of the present photometric system on January 1, 1948, the unit of luminous intensity in the United States, as well as in France and Great Britain, was the "international candle," which was maintained by a group of carbon-filament vacuum lamps. For the present unit as defined above, the internationally accepted term is candela. The difference between the candela and the old international candle is so small that only measurements of high precision are affected. The following resolution was adopted at the Seizième Conférence Générale des Poids et Mesures (the Sixteenth General Conference on Weights and Measures) on October 11, 1979. The Conference had decided: (1) The candela is the luminous intensity, in a given direction, of a source emitting mono-

chromatic radiation of frequency 540×10^{12} Hz and whose radiant intensity in this direction is 1/683 watt per steradian. (2) The candela so defined is the base unit applicable to photopic quantities, scotopic quantities, and quantities to be defined in the mesopic domain. *See also*: luminous flux.

(EEC/IE) [126]

(2) (**metric practice**) The luminous intensity, in the perpendicular direction, of a surface of 1/600 000 square meters of blackbody at the temperature of freezing platinum under a pressure of 101 325 newtons per square meter (adopted by the 13th General Conference on Weights and Measures 1967).

(QUL) 268-1982s

(3) (**television**) The luminous intensity, in the perpendicular direction, of a 1/600 000 square meter surface of a blackbody at the freezing temperature of platinum under a pressure of 101 325 pascals. *Notes*: 1. Values for standards having other spectral distributions are derived by the use of accepted spectral luminous efficiency data for photopic vision. 2. From 1909 until the introduction of the present photometric system on January 1, 1948, the unit of luminous intensity in the United States, as well as in France and Great Britain, was the international candle, which was maintained by a group of carbon-filament vacuum lamps. For the present unit as defined above, the internationally accepted term is candela. The difference between the candela and the old international candle is so small that only measurements of high precision are affected.

(BT/AV) 201-1979w

candidate key (1) In a relational data model, any minimal set of attributes within a relation that forms a key that is a determinant of all attributes in the relation. *Note*: In normalization, one of the candidate keys of each relation is chosen as the primary key and the others are known as alternate keys. *See also*: compound key.

(C) 610.5-1990w

(2) An attribute, or combination of attributes, of an entity for which no two instances agree on the values.

(C/SE) 1320.2-1998

candle *See*: candela.

candlepower (illuminating engineering) (television) Luminous intensity expressed in candelas.

(BT/EEC/IE/AV) 201-1979w, [126]

can loss (rotating machinery) Electric losses in a can used to protect electric components from the environment. *See also*: asynchronous machine.

(PE) [9]

canned (rotating machinery) Completely enclosed and sealed by a metal sheath.

(PE) [9]

canned cycle *See*: fixed cycle.

canonical input processing The processing of terminal input in the form of text lines.

(C) 1003.5-1999

canonical model A data model that represents the inherent structure of the data, independent of any specific implementations.

(C) 610.5-1990w

canonical synthesis A technique for generating a canonical model from the relations in a database.

(C) 610.5-1990w

cant hook A tool similar to a peavey (except that it has a blunt end) used to turn a pole or stabilize it if necessary during installation.

(T&D/PE) 751-1990

capability (1) (power operations) The maximum load-carrying capability expressed in kilovolt-amperes (kVA) or kilowatts (kW) of generating equipment, other electrical apparatus, or system under specified conditions for a given time interval. *See also*: installed incremental transfer capability; dependable capability; second contingency incremental transfer capability; maximum capability; extended capability; system assured capability; first contingency incremental transfer capability; total for load capability; normal transfer capability; steam capability; system margin capability; pumped-storage hydro capability; hydro capability.

(2) A set of functions that are logically related by the common set of resources on which they operate.

(C/MM) 855-1990

capability margin (electric power supply) The difference between the "total capability for load" and the "system load responsibility." It is the margin of capability available to pro-

vide for scheduled maintenance, emergency outages, adverse system operating requirements, and unforeseen loads. *See also*: generating station.

(PE/PSE) [54]

capability module A set of functions within a capability that provide a class of support. Each module is intended to be provided in its entirety.

(C/MM) 855-1990

capacitance (1) (semiconductor diode) (semiconductor radiation conductor) The small-signal capacitance measured between the terminals of the diode or detector under specified conditions of bias and frequency. *See also*: rectification; semiconductor device; semiconductor.

(IM/ED/NPS/HFIM/NID) 314-1971w, 216-1960w,

325-1986s, 301-1976s

(2) A property expressible by the ratio of the time integral of the flow rate of a quantity, such as heat, or electric charge to or from a storage, divided by the related potential change. *Note*: Typical units are microfarads, Btu/°F, lb/psi, gal/ft.

(CS/PE/EDPG) [3]

(3) (A) (**outdoor apparatus bushings**) The main capacitance, C_1 , of a condenser bushing is the value in picofarads between the high-voltage conductor and the potential tap or the test tap. (B) (**outdoor apparatus bushings**) The tap capacitance, C_2 , of a condenser bushing is the value in picofarads between the potential tap and mounting flange (ground).

(C) (**outdoor apparatus bushings**) The capacitance, C , of a bushing without a potential or test tap is the value in picofarads between the high-voltage conductor and the mounting flange (ground).

(PE/TR) 21-1976

(4) (**VLF insulation testing**) Capacitance, as used here, and distinguished from power-frequency capacitance, is that value which would result from a measurement at VLF, that is, $0.1 \text{ Hz} \pm 25\%$. In magnitude, it would tend to be greater than the power-frequency capacitance, to the extent of increased contributions made by dipole and interfacial polarizations.

(PE/EM) 433-1974r

(5) (**of a semiconductor radiation detector**) The small-signal capacitance measured between terminals of the detector under specified conditions of bias and frequency.

(NPS) 300-1988r

(6) The ratio of a conductor's electrostatic charge to the potential difference between conductors (required to maintain that charge).

(PE/IC) 1143-1994r

(7) (A) (of bushing) The main capacitance, C_1 , of a bushing is the capacitance between the high-voltage conductor and the voltage tap or the test tap. (B) (of bushing) The tap capacitance, C_2 , of a capacitance graded bushing is the capacitance between the voltage tap and mounting flange (ground).

(C) (of bushing) The capacitance, C , of a bushing without a voltage or test tap is the capacitance between the high-voltage conductor and the mounting flange (ground).

(PE/TR) C57.19.03-1996

(8) That property of a system of conductors and dielectrics that permits the storage of electricity when potential differences exist between the conductors. Its value is expressed as the ratio of a quantity of electricity to a potential difference. A capacitance value is always positive.

(IA/MT) 45-1998

capacitance between two conductors, balanced *See*: balanced capacitance.

capacitance coupling *See*: coupling capacitance.

capacitance current (1) (electric submersible pump cable) Current required to charge the capacitor formed by the dielectric of the cable under test.

(IA/PC) 1017-1985s

(2) (**rotating machinery**) (or component) A reversible component of the measured current on charge or discharge of the winding that is due to the geometrical capacitance; that is, the capacitance as measured with alternating current of power or higher frequencies. With high direct voltage this current has a very short time constant and so does not affect the usual measurements.

(PE/EM) 95-1977r

(3) (**power cable systems**) Current that charges the capacitor that is formed by the capacitance of the cable under test.

(PE/IC) 400-1991

capacitance, detector *See*: detector capacitance.

capacitance, discontinuity *See*: discontinuity capacitance.

capacitance, effective *See*: effective capacitance.

capacitance graded bushing A bushing in which metallic or non-metallic conducting layers are arranged within the insulating material for the purpose of controlling the distribution of the electric field of the bushing, both axially and radially. (PE/TR) C57.19.03-1996

capacitance, input *See*: input capacitance.

capacitance meter An instrument for measuring capacitance. *Note*: If the scale is graduated in microfarads the instrument is usually designated as a microfarad meter. *See also*: instrument. (EEC/PE) [119]

capacitance, nonlinear element *See*: nonlinear element capacitance.

capacitance, output *See*: output capacitance.

capacitance potential device A voltage-transforming equipment or network connected to one conductor of a circuit through a capacitance, such as a coupling capacitor or suitable high-voltage bushing, to provide a low voltage such as required for the operation of instruments and relays. *Notes*: 1. The term "potential device" applies only to the network and is exclusive of the coupling capacitor or high-voltage bushing. 2. The term "capacitance potential device" indicates use with any type of capacitance coupling. 3. Capacitance potential devices and their associated coupling capacitors or bushings are designed for line-to-ground connection, and not line-to-line connection. The potential device is a single-phase device, and, in combination with its coupling capacitor or bushing, is connected line-to-ground. The low voltage thus provided is a function of the line-to-ground voltage and the constants of the capacitance potential device. Two or more capacitance potential devices, in combination with their coupling capacitors or bushings, may be connected line-to-ground on different high-voltage phases to provide low voltages of other desired phase relationships. 4. Zero-sequence voltage may be obtained from the broken-delta connection of the auxiliary windings or by the use of one device with three coupling capacitors or bushings. In the latter case, the three operating-tap connection-points are joined together and one device connected between this common point and ground. Although used in combination with three coupling capacitors or bushings, the device output and accuracy rating standards are based on the single-phase conditions. *See also*: outdoor coupling capacitor. 341

capacitance ratio (nonlinear capacitor) The ratio of maximum to minimum capacitance over a specified voltage range, as determined from a capacitance characteristic, such as a differential capacitance characteristic, or a reversible capacitance characteristic. *See also*: nonlinear capacitor. (ED) [46]

capacitance, short-circuit input *See*: short-circuit input capacitance.

capacitance, short-circuit output *See*: short-circuit output capacitance.

capacitance, short-circuit transfer *See*: short-circuit transfer capacitance.

capacitance, signal electrode *See*: electrode capacitance.

capacitance, stray *See*: stray capacitance.

capacitance-switching transient overvoltage ratio (high voltage air switches, insulators, and bus supports) The ratio of the peak value of voltage above ground, during the transient conditions resulting from the operation of the switch, to the peak value of the steady-state line-to-neutral voltage. *Note*: It is measured at either terminal of the switch, whichever is higher, and is expressed in multiples of the peak values of the operating line-to-ground voltages at the switch with the capacitance connected. (SWG/PE) C37.30-1971s, C37.100-1992

capacitance, target *See*: target capacitance.

capacitance unbalance detection function The detection of objectionable unbalance in capacitance between capacitor groups within a phase, such as that caused by blown capacitor fuses or faulted capacitors, and to initiate an alarm, the closing of the capacitor bypass switch, or both. (T&D/PE) 824-1994

capacitance unbalance, pair to ground The unbalance that exists between the capacitance of each conductor of pair *ab* to the grounded shield with all the other conductors connected to the shield. This is: $C_{UB,PG} = (C_{ag} + C_{ap}) - (C_{bg} + C_{bp})$, where C_{ag} and C_{bg} are capacitances between each conductor (*a* and *b*) to ground and C_{ap} and C_{bp} are capacitances between each conductor (*a* and *b*) and all other pairs connected together and grounded. (PE/PSC) 789-1988w

capacitance unbalance, pair to pair The unbalance in capacitance that exists between each conductor in a pair (*ab*) to each conductor in another pair (*cd*). This is: $C_{UB,PP} = (C_{ad} + C_{bc}) - (C_{ac} + C_{bd})$, where C_{ac} , C_{ad} , C_{bc} , and C_{bd} are direct capacitances between conductors. (PE/PSC) 789-1988w

capacitor braking (rotating machinery) A form of dynamic braking for induction motors in which a capacitor is used to magnetize the motor. *See also*: asynchronous machine. (PE) [9]

capacitive coupling *See*: electrical coupling.

capacitive current (1) (rotating machinery) (or component) A reversible component of the measured current on charge or discharge of the winding that is due to the geometrical capacitance; that is, the capacitance as measured with alternating current of power or higher frequencies. With high direct voltage this current has a very short time constant and so does not affect the usual measurements. (PE/EM) 95-1977r

(2) (maintenance of energized power lines) The component of the measured current that leads the applied voltage by 90° due to the geometrical capacitance of the tool or equipment. (T&D/PE) 516-1995

capacitive gap (nonlinear, active, and nonreciprocal waveguide components) (microwave receiver protectors) The distance between cone apices (apices) in a waveguide resonant structure. *See also*: resonant gap. (MTT) 457-1982w

capacitive load A lumped capacitance that is switched as a unit. (SWG/PE) C37.100-1992

capacitive weighting Response weighting by change of capacitance between fingers and bus bar, where the capacitance value is varied from electrode to electrode along the interdigital transducer. (UFFC) 1037-1992w

capacitor (1) (series capacitor) An assembly of one or more capacitor elements in a single container, with one or more insulated terminals brought out. (T&D/PE) 824-1994

(2) An element within a circuit consisting of two conductors, each with an extended surface exposed to that of the other, but separated by a layer of insulating material called the dielectric. *Note*: The dielectric is designed so the electric charge on one conductor is equal in value but opposite in polarity to that of the other conductor. *See also*: storage capacitor. (C) 610.10-1994w

(3) A device with the primary purpose of introducing capacitance into an electric circuit. Capacitors are usually classified, according to their dielectrics, as air capacitors, mica capacitors, paper capacitors, etc. (IA/MT) 45-1998

capacitor antenna (condenser antenna) An antenna consisting of two conductors or systems of conductors, the essential characteristic of which is its capacitance. *See also*: antenna. (CHM) [51]

capacitor bank An assembly at one location of capacitors and all necessary accessories, such as switching equipment, protective equipment, controls, etc., required for a complete operating installation. It may be a collection of components as-

sembled at the operating site or may include one or more piece(s) of factory-assembled equipment.power systems relaying. (T&D/PE) 18-1992, C37.99-2000

capacitor bank overcurrent protection Common name for all or part of the overcurrent protective equipment at a capacitor installation. (SWG/PE) C37.40b-1996

capacitor bus (series capacitor) The main conductors that serve to connect the capacitor assemblies in series with the line. (T&D/PE) 824-1994

capacitor bushing (outdoor apparatus bushings) A bushing in which cylindrical conducting layers are arranged coaxially with the conductor within the insulating material for the purpose of controlling the electric field of the bushing. *Synonym:* condenser bushing. (PE/TR) 21-1976

capacitor bypass switch (series capacitor) A switch device with moving and stationary contacts that functions as a means of bypassing the capacitor. This switch may also have the capability of inserting the capacitor against a specified level of current. (T&D/PE) [26]

capacitor-bypass-switch interlocking devices (series capacitor) Devices that perform the function of having all three integral bypass switches of a capacitor step take the same open or close position. (T&D/PE) [26]

capacitor control The device required to automatically switch shunt power capacitor banks.power systems relaying. (T&D/PE) 1036-1992, C37.99-2000

capacitor element (1) (series capacitor) An individual part of a capacitor unit consisting of coiled conductors separated by dielectric material. (T&D/PE) [26]

(2) The smallest unit of a capacitor consisting of metallic foil plates separated by a dielectric film made typically of a polymer, paper, or combination of the two materials. (T&D/PE) 824-1994

(3) (power systems relaying) A device consisting essentially of two electrodes separated by a dielectric. (PE) C37.99-2000

capacitor enclosure The case in which the capacitor is mounted. (EEC/PE) [119]

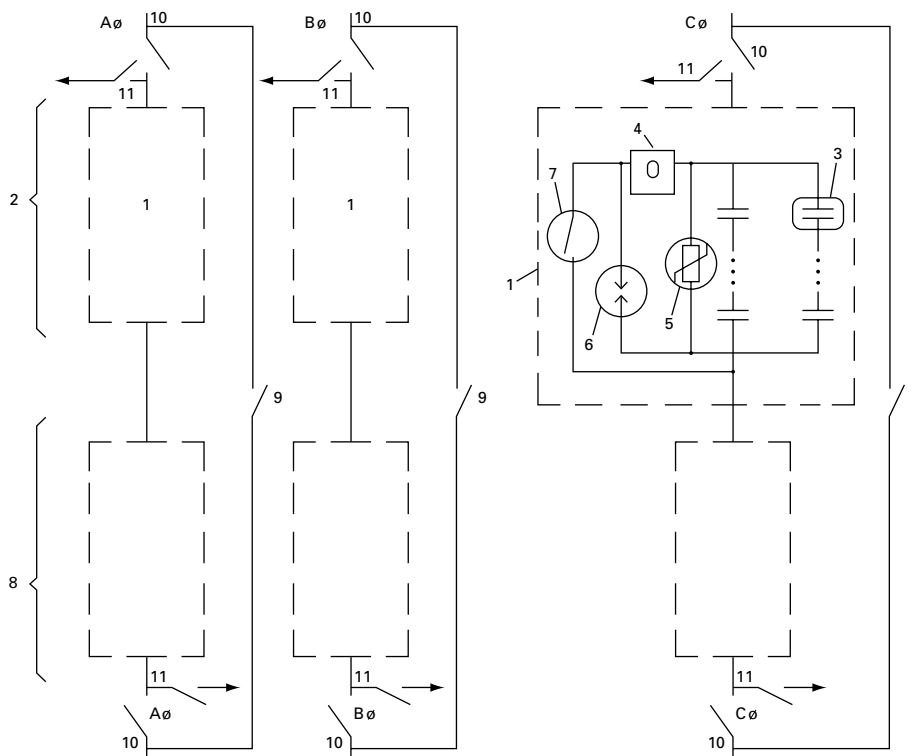
capacitor equipment (shunt power capacitors) An assembly of capacitors with associated accessories, such as fuses, switches, etc., all mounted on a common frame for handling, transportation, and operation as a single unit. (PE/T&D) 18-1992

capacitor fuse (series capacitor) A capacitor fuse that provides an externally visible indication of fuse operation. (T&D/PE) 824-1985s, 824-1994

capacitor group (series capacitor) An assembly of more than one capacitor connected in parallel between two buses or terminals. (SWG/PE/T&D) C37.82-1971s, 824-1994

capacitor group fuse *See:* capacitor line fuse.

capacitor, ideal *See:* ideal capacitor.



- 1—Capacitor segment (1 θ)
- 2—Capacitor switching step/Capacitor module (3 θ)
- 3—Capacitor group
- 4—Discharge current limiting damping device
- 5—Varistor
- 6—Bypass gap
- 7—Bypass switch
- 8—Additional switching steps when required
- 9—External bypass disconnect switch
- 10—External isolating disconnect switch
- 11—External grounding disconnect switch

Typical series capacitor bank nomenclature
capacitor group

capacitor indicating fuse (series capacitor) A capacitor fuse that provides an externally visible indication of fuse operation. (T&D/PE) 824-1985s, 824-1994

capacitor inrush current The transient charging current that flows in a capacitor when a capacitor bank is initially connected to a voltage source. power systems relaying. (T&D/PE) 1036-1992, C37.99-2000

capacitor line fuse (capacitor group fuse) (power systems relaying) A fuse applied to disconnect a faulted phase of a capacitor bank from a power system. (SWG/PE/T&D) C37.40b-1996, 1036-1992, C37.99-2000

capacitor loudspeaker *See*: electrostatic loudspeaker.

capacitor microphone *See*: electrostatic microphone.

capacitor motor A single-phase induction motor with a main winding arranged for direct connection to a source of power and an auxiliary winding connected in series with a capacitor. The capacitor may be directly in the auxiliary circuit or connected into it through a transformer. *See also*: two-value capacitor motor; permanent-split capacitor motor; capacitor-start motor; asynchronous machine. (PE) [9]

capacitor mounting strap A device by means of which the capacitor is affixed to the motor. (EEC/PE) [119]

capacitor outrush current The high-frequency, high-magnitude current discharge of one or more capacitors into a short circuit, such as into a failed capacitor unit connected in parallel with the discharging units, or into a breaker closing into a fault. power systems relaying. (PE/T&D) C37.99-2000, 1036-1992

capacitor pickup A phonograph pickup that depends for its operation upon the variation of its electric capacitance. *See also*: phonograph pickup. (EEC/ACO) [109]

capacitor platform A structure that supports the capacitor rack assemblies and all associated equipment and protective devices, and is supported on insulators compatible with line-to-ground insulation requirements. (T&D/PE) 824-1994

capacitor rack (series capacitor) A frame that supports one or more capacitors. (T&D/PE) 824-1994

capacitor segment A single-phase assembly of groups of capacitors that has its own voltage-limiting device and relays to protect the capacitors from overvoltages and overloads. *See also*: capacitor group. (T&D/PE) 824-1994

capacitor start-and-run motor A capacitor motor in which the auxiliary primary winding and series-connected capacitors remain in circuit for both starting and running. *See also*: asynchronous machine; permanent-split capacitor motor. (PE) [9]

capacitor-start motor A capacitor motor in which the auxiliary winding is energized only during the starting operation. *Note*: The auxiliary-winding circuit is open-circuited during running operation. *See also*: asynchronous machine. (PE) [9]

capacitor storage A type of storage that uses the capacitive properties of certain materials. (C) 610.10-1994w

capacitor(s) stored energy The value of energy, measured in Joules, that is stored in a capacitor or group of capacitors at a given instantaneous value of voltage.

$$E = \frac{CV^2}{2}$$

where

E = Energy in Joules

C = Capacitance in microfarads

V = instantaneous voltage in kilovolts

(SWG/PE) C37.40b-1996

capacitor switch A switch capable of making and breaking capacitive currents of capacitor banks.

(SWG/PE) C37.100-1992

capacitor switching step A three-phase function that consists of one or more capacitor segments per phase with capacitor bypass devices connected in parallel control devices, and provision for interlocked operation of the single-phase or three-phase switches when bypassing or inserting the capacitor seg-

ments. This is sometimes referred to as a capacitor module.

(T&D/PE) 824-1994

capacitor unbalance protection A protective system sensitive to unbalanced voltages and/or currents in a normally balanced capacitor bank. The imbalance may be the result of blown fuses or due to an insulation failure within the capacitor bank. (SWG/PE) C37.40b-1996

capacitor unit (1) (general) A single assembly of dielectric and electrodes in a container with terminals brought out. *See also*: indoor; outdoor; alternating-current distribution.

(T&D/PE) 18-1980s

(2) **(series capacitor)** An assembly of one or more capacitor elements in a single container, with one or more insulated terminals brought out. (T&D/PE) [26]

(3) An assembly of dielectric and electrodes in a container (case), with terminals brought out, that is intended to introduce capacitance into an electric power circuit. power systems relaying. (PE) C37.99-2000

capacitor unit fuse A fuse applied to disconnect an individual faulted capacitor from its bank. *Synonyms*: individual capacitor fuse; capacitor fuse.

(SWG/PE/T&D) C37.40b-1996, 1036-1992

capacitor voltage The voltage across two terminals of a capacitor. (ED) [46]

capacity (C) (1) (A) (data transmission) The number of digits or characters in a machine word regularly handled in a computer. **(B) (data transmission)** The upper and lower limits of the numbers which may be regularly handled in a computer. **(C) (data transmission)** The maximum number of binary digits that can be transmitted by a communications channel in one second. (PE) 599-1985

(2) **(nuclear power generating station)** Maximum output of a turbine generator unit. (PE/EDPG) 1020-1988r

(3) A measure of the ability to generate electric power, usually expressed in megawatts or kilowatts. Capacity can refer to the output of a single generator, a plant, an item of electrical equipment, an entire electric system, or a power pool. (PE/PSE) 858-1993w

(4) The combined weight for which the component is designed to be used. Combined weight includes the user's body weight and clothing, tools, and other objects borne or carried by the user. (T&D/PE) 1307-1996

(5) Generally, the total number of ampere-hours that can be withdrawn from a fully charged battery at a specific discharge rate and electrolyte temperature, and to a specific cutoff voltage. (SCC21) 937-2000

capacity charge The charge for generation or transmission capacity used or reserved on the seller's system. *Synonyms*: demand charge; reservation charge. (PE/PSE) 858-1993w

capacity emergency The operating situation that exists when a system is unable to supply its firm demand and regulating requirements. (PE/PSE) 858-1993w

capacity factor The ratio of the average load on a machine or equipment for the period of time considered to the capacity of the machine or equipment. *See also*: generating station. (T&D/PE/PSE) [10], 346-1973w

capacity, firm, purchases or sales (electric power supply)

Firm capacity that is purchased, or sold, in transactions with other systems and which is not from designated units, but is from the overall system of the seller. *Note*: It is understood that the seller treats this type of transaction as a load obligation. (PE/PSE) 346-1973w

capacity, heat *See*: heat capacity.

capacity limits (major) There are three major capacity categories that may limit the ultimate size of a switching system. The categories are termination capacity, call capacity, and traffic usage capacity. The fundamental hardware and software architecture of the switching system determines these major capacity limits. *See also*: traffic usage capacity; call capacity; termination capacity. (COM/TA) 973-1990w

capacity, specific unit, purchases or sales (electric power supply) Capacity that is purchased, or sold, in transactions with other systems and which is from a designated unit on the system of the seller. (PE/PSE) 346-1973w

capacity test (battery) A discharge of a battery at a constant current or a constant power to a specified voltage.

(SB/PE/EDPG) 1188-1996, 450-1995, 1106-1995

cap-and-pin insulator An assembly of one or more shells with metallic cap and pin, having means for direct and rigid mounting. *See also:* insulator. (EEC/IEPL) [89]

capstan A rotating shaft within a tape drive that pulls the tape across the read or write heads. (C) 610.10-1994w

capture effect (1) (modulation systems) The effect occurring in a transducer (usually a demodulator) whereby the input wave having the largest magnitude controls the output.

(Std100) 270-1964w

(2) The tendency of a receiver to suppress the weaker of two time-coincident signals within its passband.

(AES) 686-1997

capturing (accelerometer) (gyros) The use of a torquer (forcer) in a servo loop to restrain a gyro gimbal, rotor, or accelerometer proof mass to a specified reference position.

(AES/GYAC) 528-1994

car *See:* vehicle.

carabiner A connector component generally comprised of a trapezoidal or oval shaped body with a normally closed gate or similar arrangement which may be opened to permit the body to receive an object, and when released, automatically closes to retain the object. (T&D/PE) 1307-1996

carabiner, locking *See:* locking carabiner.

carabiner, manual locking *See:* manual locking carabiner.

carabiner, non-locking *See:* nonlocking carabiner.

car annunciator An electric device in the car that indicates visually the landings at which an elevator-landing signal-registering device has been actuated. *See also:* elevator.

(EEC/PE) [119]

carbon-arc lamp (illuminating engineering) An electric-discharge lamp employing an arc discharge between carbon electrodes. One or more of these electrodes may have cores of special chemicals that contribute importantly to the radiation.

(EEC/IE) [126]

carbon block protector An assembly of two or three carbon blocks and air gaps designed to a specific breakdown voltage. These devices are normally connected to telecommunication circuits to provide overvoltage protection and a current path to ground during such overvoltage. (PE/PSC) 487-1992

carbon brush (A) (motors and generators) A specific type of brush composed principally of amorphous carbon. *Note:* This type of brush is usually hard and is adapted to low speeds and moderate currents. (B) (motors and generators) A broader classification of brush, containing carbon in appreciable amount. *See also:* brush. (PE) [9]

carbon-consuming cell (carbon-combustion cell) A cell for the production of electric energy by galvanic oxidation of carbon. *See also:* electrochemistry. (PE/EEC) [119]

carbon-contact pickup A phonograph pickup that depends for its operation upon the variation in resistance of carbon contacts. *See also:* phonograph pickup. (EEC/PE) [119]

carbon-dioxide system (rotating machinery) A fire-protection system using carbon-dioxide gas as the extinguisher.

(PE) [9]

carbon-graphite brush A carbon brush to which graphite is added. This type of brush can vary from medium hardness to very hard. It can carry only moderate currents and is adapted to moderate speeds. *See also:* brush. (EEC/EM/LB) [101]

carbon noise (carbon microphones) The inherent noise voltage of the carbon element. *See also:* close-talking pressure-type microphones. (SP) 258-1965w

carbon-pressure recording facsimile That type of electromechanical recording in which a pressure device acts upon carbon paper to register upon the record sheet. *See also:* recording. (COM) 168-1956w

carbon telephone transmitter A telephone transmitter that depends for its operation upon the variation in resistance of carbon contacts. *See also:* telephone station.

(EEC/PE) [119]

car builder (1) The entity assembling or manufacturing the vehicle. (VT) 1475-1999

(2) The entity manufacturing the vehicle. (VT) 1476-2000

car, cable *See:* cable car.

carcinogen An agent that tends to produce cancer.

(T&D/PE) 539-1990

carcinotron (microwave tubes) (m-type backward-wave oscillator) A crossed-field oscillator tube in which an electron stream interacts with a backward wave on the nonreentrant circuit. The oscillation frequency is a function of anode-to-solve voltage. (ED) [45]

car, conductor *See:* conductor car.

card (1) (STD bus) A printed circuit board and components that make up the modules that plug in to the bus backplane.

(C/MM) 961-1987r

(2) (A) A generic term used as an abbreviation for a circuit board. (B) An input medium made of paperboard, formed in a uniform size and shape such that it may be punched or marked and sensed electronically. *See also:* magnetic card; mark-sensing card; punch card. (C) 610.10-1994

(3) (computers) *See also:* magnetic card; tape to card; punched card.

card cage A chassis in which a printed circuit board may be mounted. (C) 610.10-1994w

card code The set or combination of punched holes in a punch card that represent a character. (C) 610.10-1994w

card column A single vertical line of punch positions on a punch card. *Contrast:* card row. (C) 610.10-1994w

card deck A group of punch cards. (C) 610.10-1994w

card duplicator *See:* card reproducing punch.

card extender A device that provides access to components on a circuit card for testing purposes while maintaining all the electrical connections to the card.

(SWG/PE) C37.100-1992

card feed (1) (test, measurement, and diagnostic equipment) The mechanism that moves cards serially into a machine.

(MIL) [2]

(2) A mechanism that moves cards one at a time from the card hopper to the card path. (C) 610.10-1994w

card field (test, measurement, and diagnostic equipment) An area (one or more columns) of a card that is regularly assigned for the same information item. (MIL) [2]

card hopper (1) (computers) A device that holds cards and makes them available to a card-feed mechanism. *See also:* card stacker. (C) [85]

(2) The part of a card-processing device that holds the cards to be processed and makes them available to the card feed mechanism. *Synonym:* punched card holder. *Contrast:* card stacker. (C) 610.10-1994w

card image (1) (computers) A one-to-one representation of the contents of a punched card, for example, a matrix in which a 1 represents a punch and a 0 represents the absence of a punch. (C) [85]

(2) A representation of the hole patterns found in a punched card, for example, a matrix in which a one represents a punch and a zero represents the absence of a punch.

(C) 610.10-1994w

cardinality (1) (A) The number of elements in a set. (B) In a relational data model, the number of tuples in a relation.

(C) 610.5-1990

(2) The numeric relationship between entity sets, labeled as one to one (1-1), many to one (M-1), or many to many (M-N), which indicates the number of items in one entity set that could possibly be associated with the items in another entity set. (PE/EDPG) 1150-1991w

(3) A specification of how many instances of a first class may or must exist for each instance of a second (not necessarily distinct) class, and how many instances of a second class may

or must exist for each instance of a first class. For each direction of a relationship, the cardinality can be constrained. *See also:* cardinality constraint. (C/SE) 1320.2-1998

cardinality constraint (A) A kind of constraint that limits the number of instances that can be associated with each other in a relationship. *See also:* cardinality. **(B)** A kind of constraint that limits the number of members in a collection. *See also:* collection cardinality. (C/SE) 1320.2-1998

cardinal plane For an infinite planar array whose elements are arranged in a regular lattice, any plane of symmetry normal to the planar array and parallel to an edge of a lattice cell. *Notes:* 1. This term can be applied to a finite array, usually one containing a large number of elements, by the assumption that it is a subset of an infinite array with the same lattice arrangement. 2. This term is used to relate the regular geometrical arrangement of the array elements to the radiation pattern of the antenna. (AP/ANT) 145-1993

cardiogram *See:* electrocardiogram.

cardiovascular effect Effect pertaining to the system comprised of the heart and the blood vessels. (T&D/PE) 539-1990

car door (elevators) The sliding portion of the car or the hinged or sliding portion in the hoistway enclosure that closes the opening giving access to the car or to the landing. *See also:* hoistway. (PE/EEC) [119]

car-door contact An electric device, the function of which is to prevent operation of the driving machine by the normal operating device unless the car door or gate is in the closed position. *See also:* elevator. (EEC/PE) [119]

car-door closer A device or assembly of devices that closes a manually opened car door or gate by power other than by hand, gravity, springs, or the movement of the car. *See also:* elevator. (EEC/PE) [119]

card path In a card-processing device, a path along which cards are moved and guided. *See also:* card feed. (C) 610.10-1994w

card-processing device Any device that can read or write data to punch cards. *See also:* card reader; card reproducing punch; card punch. (C) 610.10-1994w

card-programmed (test, measurement, and diagnostic equipment) The capability of performing a sequence of tests according to instructions contained in one or a deck of punched cards. (MIL) [2]

card punch An output device that produces a record of data as hole patterns in punch cards. *Synonym:* automatic punch. *See also:* card reproducing punch; keypunch. (C) 610.10-1994w

card reader (1) (test, measurement, and diagnostic equipment) A mechanism that senses and obtains information from punched cards. (MIL) [2]

(2) An input device that reads or senses hole patterns in a punch card, transforming the data from hole patterns to electrical signals. *Synonym:* punched card reader. *See also:* card stacker; card hopper; card track; paper tape reader. (C) 610.10-1994w

(3) A device used to read a coded credential at an entry point. (PE/NP) 692-1997

card, relay *See:* relay armature card.

card reproducer *See:* card reproducing punch.

card reproducing punch A card-processing device that prepares one punch card, copying all or part of the data from another punch card. *Synonyms:* card reproducer; card duplicator. (C) 610.10-1994w

card row A single horizontal line of punch positions on a punch card. *Contrast:* card column. (C) 610.10-1994w

card set function generator (analog computer) A diode function generator whose values are stored and set by means of a punched card and a mechanical card-reading device. (C) 165-1977w

card sorter A sorting device that deposits punch cards in pockets selected according to the hole patterns in the cards. (C) 610.10-1994w

card stacker (1) (computers) An output device that accumulates punched cards in a deck. *See also:* card hopper. (MIL/C) [2], [20], [85]

(2) The part of a card-processing device that receives the cards after they have been processed. *Contrast:* card hopper. (C) 610.10-1994w

card tester (test, measurement, and diagnostic equipment) An instrument for testing and diagnosing printed circuit cards. (MIL) [2]

card-to-disk converter An input device that converts data from punch cards to disk storage. *See also:* card-to-tape converter; key-to-disk converter. (C) 610.10-1994w

card-to-tape converter An input device that converts data from punch cards to magnetic or paper tape. *See also:* card-to-disk converter; key-to-tape converter. (C) 610.10-1994w

card track That part of a card-processing device that moves and guides the card along the card path. (C) 610.10-1994w

car enclosure (elevators) Consists of the top and the walls resting on and attached to the car platform. *See also:* elevator. (EEC/PE) [119]

car-frame sling The supporting frame to which the car platform, upper and lower sets of guide shoes, car safety and hoisting ropes or hoisting-rope sheaves, or the plunger of a direct-plunger elevator are attached. *See also:* elevator. (EEC/PE) [119]

cargo vessel A vessel that carries bulk, containerized, or roll-on/roll-off dry cargo, and no more than 12 passengers. Research vessels, search and rescue vessels, and tugs are also considered to be cargo vessels. (IA/MT) 45-1998

car platform (elevators) The structure that forms the floor of the car and that directly supports the load. *See also:* hoistway. (EEC/PE) [119]

car retarder A braking device, usually power operated, built into a railway track and used to reduce the speed of cars by means of brake shoes that when set in braking position press against the sides of the lower portions of the wheels. *See also:* master controller; control machine; switch machine; trimmer signal. (EEC/PE) [119]

carriage The mechanism in a typewriter or other printing device that holds the paper and moves it past the printing position. *See also:* automatic carriage. (C) 610.10-1994w

carriage control tape (A) A tape that is used to control vertical tabulation of printing or display positions. **(B)** A tape that contains line feed and form feed control data for a printing device. (C) 610.10-1994

carriage restore key *See:* carriage return key.

<carriage-return> A character that in the output stream shall indicate that printing should start at the beginning of the same physical line in which the <carriage-return> occurred. The <carriage-return> shall be the character designated by '\r' in the C-language binding. It is unspecified whether this character is the exact sequence transmitted to an output device by the system to accomplish the movement to the beginning of the line. (C/PA) 9945-2-1993

carriage return (CR) (1) (typewriter) The operation that causes the next character to be printed at the left margin. (C) [85]

(2) A command or signal sent to a printer to instruct it to move to the beginning of the writing line. *Note:* Often used in conjunction with a line feed to move to the beginning of the next writing line. (C) 610.10-1994w

carriage return character (CR) A format effector that causes the print or display position to move to the first position on the same line. *Synonym:* new-line character. (C) 610.5-1990w

carriage return key A control key on a keyboard that initiates a carriage return. *Note:* Often used to terminate a command or to request its execution. *Synonyms:* carriage restore key; enter key. (C) 610.10-1994w

carried traffic (telephone switching systems) A measure of the calls served during a given period of time.

(COM) 312-1977w

carrier (1) (A) (data transmission) A wave having at least one characteristic that may be varied from a known reference value by modulation. **(B) (data transmission)** That part of the modulated wave that corresponds in a specified manner to the unmodulated wave, having, for example, the carrier-frequency spectral components. *Note:* Examples of carriers are a sine wave and a recurring series of pulses.

(PE/AP/ANT) 599-1985, 145-1993

(2) (overhead-power-line corona and radio noise) A continuous electromagnetic wave having a repeating variation in time and at least one characteristic that may be varied from a known reference value by modulation. *Note:* Examples of carriers are a sine wave and a recurring series of pulses.

(T&D/PE) 539-1990

(3) (semiconductor) A mobile conduction electron or hole. *See also:* semiconductor device. (MIL) [2]

(4) (electrostatography) The substance in a developer that conveys a toner, but does not itself become a part of the viewable record. *See also:* electrostatography.

(ED) 224-1965w, [46]

(5) (A) A continuous frequency capable of being modulated or impressed with a signal. *Synonym:* carrier wave. **(B)** An alternating current that oscillates at a fixed frequency, used to transmit a signal. (C) 610.7-1995

carrier amplifier (signal-transmission system) An alternating current amplifier capable of amplifying a prescribed carrier frequency and information side-bands relatively close to the carrier frequency. *See also:* signal. (IE) [43]

carrier-amplitude regulation The change in amplitude of the carrier wave in an amplitude-modulated transmitter when modulation is applied under conditions of symmetrical modulation. *Note:* The term "carrier shift," often applied to this effect, is deprecated. (AP/ANT) 145-1983s

carrier beat (facsimile) The undesirable heterodyne of signals each synchronous with a different stable reference oscillator causing a pattern in received copy. *Note:* Where one or more of the oscillators is fork controlled, this is called fork beat. *See also:* facsimile transmission. (COM) 168-1956w

carrier chrominance signal *See:* chrominance signal.

carrier-controlled approach system (CCA) (1) An aircraft carrier radar system providing information by which aircraft approaches may be directed via radio communication.

(AES/GCS) 172-1983w

(2) An aircraft carrier radar system providing information that facilitates direction of aircraft via radio communication.

(AES) 686-1997

carrier current The current associated with a carrier wave. *See also:* carrier. (PE) 599-1985w

carrier-current choke coil (capacitance potential devices) A reactor or choke coil connected in series between the potential tap of the coupling capacitor and the potential device transformer unit, to present a low impedance to the flow of power current and a high impedance to the flow of carrier-frequency current. Its purpose is to limit the loss of carrier-frequency current through the potential-device circuit. *See also:* outdoor coupling capacitor. (PE/EM) 43-1974s

carrier-current grounding-switch and gap Consists of a protective gap for limiting the voltage impressed on the carrier-current equipment and the line turning unit (if used); and a switch that, when closed, solidly grounds the carrier equipment for maintenance or adjustment without interrupting either high-voltage line or potential-device operation. *See also:* outdoor coupling capacitor. (PE/EM) 43-1974s

carrier detect A dc electrical signal presented by a modem to its associated terminal equipment when the modem is receiving a modulatory signal. (SUB/PE) 999-1992w

carrier extension The addition of nondata symbols to the end of frames that are less than slotTime bits in length so that the resulting transmission is at least one slotTime in duration.

(C/LM) 802.3-1998

carrier frequency (1) (A) (data transmission) (periodic carrier) The reciprocal of its period. *Note:* The frequency of a periodic pulse carrier is often called the pulse repetition frequency in a signal transmission system. **(B) (data transmission)** (modulated amplifier) The frequency that is used to modulate the input signal for amplification. (PE) 599-1985

(2) A unique frequency of a carrier that is used to carry data. *Note:* It is measured in cycles per second or hertz.

(C) 610.7-1995

carrier-frequency pulse A carrier that is amplitude modulated by a pulse. *Notes:* 1. The amplitude of the modulated carrier is zero before and after the pulse. 2. Coherence of the carrier (with itself) is not implied. (IM/WM&A) 194-1977w

carrier frequency range (transmitter) The continuous range of frequencies within which the transmitter may be adjusted for normal operation. A transmitter may have more than one carrier-frequency range. *See also:* radio transmitter.

(AP/BT/ANT) 145-1983s, 182-1961w

carrier frequency stability (radio transmitters) (transmitter performance) The measure of the ability to remain on assigned channel as determined on both a short-term (1 second) and a long-term (24 hour) basis. (VT) [37]

carrier, fuse *See:* fuse carrier.

carrier group (data transmission) The frequency band, 60 kHz to 108 kHz, containing twelve voice channels which serves as the basic building block of a larger system.

(PE) 599-1985w

carrier group alarm A combination of a carrier failure alarm and trunk conditioning, which is the process of disconnecting any trunk-group connections and making trunks busy.

(COM/TA) 1007-1991r

carrier isolating choke coil An inductor inserted, in series with a line on which carrier energy is applied, to impede the flow of carrier energy beyond that point. (IM) [120]

carrier modulation (data transmission) A process whereby a high-frequency carrier wave is altered by a signal containing the information to be transmitted. (PE) 599-1985w

carrier noise level (residual modulation) The noise produced by undesired variations of radio-frequency signal in the absence of any intended modulation. (AP/ANT) 145-1983s

carrier or pilot-wire receiver relay (power system device function numbers) A relay that is operated or restrained by a signal used in connection with carrier-current or direct-current (dc) pilot-wire fault relaying. (SUB/PE) C37.2-1979s

carrier-pilot-protection A form of pilot protection in which the communication means between relays is a carrier current channel. (SWG/PE) C37.100-1992

carrier power output (transmitter performance) The radio-frequency power available at the antenna terminal when no modulating signal is present. *See also:* audio-frequency distortion. (VT) [37]

carrier relaying protection A form of pilot protection in which high-frequency current is used over a metallic circuit (usually the line protected) for the communicating means between the relays at the circuit terminals. (SWG/PE) C37.100-1981s

carrier sense In a local area network, an ongoing activity of a data station to detect whether another station is transmitting. *Note:* The carrier sense signal indicates that one or more DTEs are currently transmitting.

(LM/C) 610.7-1995, 8802-3-1990s, 802.3-1998

carrier sense multiple access with collision detection A local area network access technique. When a station wants to gain access to the network, it listens for conflicting traffic and checks to see if the network is free. If the network is not free, it waits for a small amount of time and retries.

(C) 610.7-1995

carrier shift (1) (data transmission) The difference between the steady state, mark, and space frequencies in a system utilizing frequency shift modulation. (PE) 599-1985w

(2) *See also:* carrier-amplitude regulation.

(AP/ANT) 145-1983s

carrier suppression (radio communication) The method of operation in which the carrier wave is not transmitted. *See also:* modulation. (AP/ANT) 145-1983s

carrier system (1) (data transmission) A communication system using frequency multiplexing to a number of channels over a single path by modulating each channel upon a different carrier frequency and demodulating at the receiving point to restore the signals to their original form. (PE) 599-1985w

(2) A means for obtaining a number of channels over a single path, known as a carrier. (C) 610.7-1995

carrier tap choke coil A carrier-isolating choke coil inserted in series with a line tap. (IM) [120]

carrier telegraphy The form of telegraphy in which, in order to form the transmitted signals, alternating-current is supplied to the line after being modulated under the control of the transmitting apparatus. *See also:* telegraphy. (COM) [49]

carrier telephone channel A telephone channel employing carrier transmission. *See also:* channel. (EEC/PE) [119]

carrier-to-noise ratio (1) (A) The ratio of the powers of the carrier and the noise after specified band limiting and before any nonlinear process such as amplitude limiting and detection. *Note:* This ratio is expressed in many different ways, for example, in terms of peak values in the case of impulse noise and in terms of mean-squared values for other types of noise. (B) A combination of transmission media and equipment capable of accepting signals at one point and delivering related signals at another point. *See also:* amplitude modulation; information theory. (IT) [7]

(2) (data transmission) The ratio of the magnitude of the carrier to that of the noise after selection and before any nonlinear process, such as amplitude limiting and detection. The bandwidth used for measurement of the noise should be specified when using this ratio. (PE) 599-1985w

(3) (broadband local area networks) The carrier-to-noise ratio expresses the relationship between signaling and noise power on a communications medium. The ratio is normally referenced to a specific noise bandwidth that corresponds to the signaling bandwidth. (LM/C) 802.7-1989r

carrier transmission That form of electric transmission in which the transmitted electric wave is a wave resulting from the modulation of a single-frequency wave by a modulating wave. *See also:* carrier. (EEC/PE) [119]

carrier velocity (semiconductor) (nonlinear, active, and non-reciprocal waveguide components) The average velocity of the random thermal motion of electrons in *n*-type semiconductors and of holes in *p*-type semiconductors. (MTT) 457-1982w

carrier wave *See:* carrier.

carry (A) A character or characters, produced in connection with an arithmetic operation on one digit place of two or more number representations in positional notation, and forwarded to another digit place for processing there. (B) The number represented by the character or characters in definition (A). (C) Usually, a signal or expression as defined in definition (A) which arises in adding, when the sum of two digits in the same digit place equals or exceeds the base of the number system in use. *Note:* If a carry into a digit place will result in a carry out of the same digit place, and if the normal adding circuit is bypassed when generating this new carry, it is called a high-speed carry, or standing-on-nines carry. If the normal adding circuit is used in such a case, the carry is called a cascaded carry. If a carry resulting from the addition of carries is not allowed to propagate (for example, when forming the partial product in one step of a multiplication process), the process is called a partial carry. If it is allowed to propagate, the process is called a complete carry. If a carry generated in the most-significant-digit place is sent directly to the least-significant place (for example, when adding two negative numbers using nines complements) that carry is called an end-around carry. (D) A carry, in direct subtraction, is a signal or expression as defined in definition (A) that arises when the

difference between the digits is less than zero. Such a carry is frequently called a borrow. (E) To carry is the action for forwarding a carry. (F) A carry is the command directing a carry to be forwarded. *See also:* high-speed carry; end-around carry; standing-on-nines carry; complete carry; partial carry; cascaded carry. (C) 162-1963

(2) (A) (mathematics of computing) A mathematical process used in addition and subtraction, in which a value is generated when a sum or product in a digit place exceeds the largest number that can be represented in that digit place, and the value is transferred to the next higher digit place for processing there. *See also:* complete carry; partial carry; cascaded carry; standing-on-nines carry; half carry; high-speed carry; end-around carry. (B) (mathematics of computing) The value generated in definition (A). (C) (mathematics of computing) To perform the process defined in definition (A). (C) 1084-1986

car safety (counterweight safety) A mechanical device attached to the car frame or to an auxiliary frame, or to the counterweight frame, to stop and hold the car or counterweight in case of predetermined overspeed of free fall, or if the hoisting ropes slacken. *See also:* elevator. (EEC/PE) [119]

car-switch automatic floor-stop operation (elevators) Operation in which the stop is initiated by the operator from within the car with a definite reference to the landing at which it is desired to stop, after which the slowing down and stopping of the elevator is effected automatically. *See also:* control. (PE/EEC) [119]

car-switch operation (elevators) Operation wherein the movement and direction of travel of the car are directly and solely under the control of the operator by means of a manually operated car switch of continuous-pressure buttons in the car. *See also:* control. (PE/EEC) [119]

cartridge (1) A container holding some form of data medium such that the medium can be accessed without separating it from the container; for example, a magnetic tape cartridge or a font cartridge. *See also:* cassette. (C) 610.10-1994w

(2) A unit of physical media that contains one or more sides. (C/SS) 1244.1-2000

cartridge font A font that is stored on a font cartridge. (C) 610.10-1994w

cartridge fuse A low-voltage fuse consisting of a current-responsive element inside a fuse tube with terminals on both ends. (SWG/PE) C37.100-1992

cartridge size (of a cartridge fuse) The range of voltage and ampere ratings assigned to a fuse cartridge with specific dimensions and shape. (SWG/PE) C37.100-1992

cartridge-type bearing (rotating machinery) A complete ball or roller bearing assembly consisting of a ball or roller bearing and bearing housing that is intended to be inserted into a machine endshield. *See also:* bearing. (PE) [9]

cart, splicing *See:* splicing cart.

car-wiring apparatus *See:* wire; multiple-unit control.

cascade (1) (electrolyte cells) A series of two or more electrolytic cells or tanks so placed that electrolyte from one flows into the next lower in the series, the flow being favored by differences in elevation of the cells, producing a cascade at each point where electrolyte drops from one cell to the next. *See also:* tandem; electrowinning. (EEC/PE) [119]

(2) (broadband local area networks) The number of amplifiers connected in series. (LM/C) 802.7-1989r

(3) A multilevel repeater topology in which higher-level repeaters are connected through their local ports to the cascade port of lower-level repeaters.local area networks. (C) 8802-12-1998

cascade button A choice on a menu that, when activated, presents another menu with additional related choices. (C) 1295-1993w

cascade connection (cascade) A tandem arrangement of two or more similar component devices in which the output of one is connected to the input of the next. *See also:* tandem. (PE/EEC) [119]

cascade control (1) (street lighting system) A method of turning street lights on and off in sections, each section being controlled by the energizing and de-energizing of the preceding section. *See also:* direct-current distribution; alternating-current distribution. (T&D/PE) [10]

(2) (automatic control) *See also:* cascade control system. (PE/EDPG) [3]

cascade control system A control system in which the output of one subsystem is the input for another subsystem. *See also:* feedback control system. (IM/PE/EDPG) [120], [3]

casaded carry (mathematics of computing) A carry process in which the addition of two numerals results in a partial-sum numeral and a carry numeral that are in turn added together, this process being repeated until no new carries are generated.

Cascaded Carry

Augend	289594
Addend	320607
First Partial Sum	509191
First Partial Carry	101010
Second Partial Sum	600101
Second Partial Carry	010100
True Sum	610201

Contrast: high-speed carry. *See also:* partial carry; carry; partial sum. (C) [20], 1084-1986w

cascade development (electrostatography) Development in which the image-forming material is carried to the field of the electrostatic images by means of gravitational forces, usually in combination with a granular carrier. *See also:* electrostatography. (ED) 224-1965w, [46]

casaded thermoelectric device A thermoelectric device having two or more stages arranged thermally in series. *See also:* thermoelectric device. (ED) [46], 221-1962w

cascade matrix *See:* chain matrix.

cascade merge sort An unbalanced merge sort in which the distribution of the sorted subsets is based on the cascade numbers. *See also:* polyphase merge sort. (C) 610.5-1990w

cascade node (network analysis) A node (branch) not contained in a loop. (CAS) 155-1960w

cascade port The repeater port that enables a cascade connection to a higher-level repeater.local area networks. (C) 8802-12-1998

cascade rectifier (cascade rectifier circuit) A rectifier in which two or more similar rectifiers are connected in such a way that their direct voltages add, but their commutations do not coincide. *Note:* When two or more rectifiers operate so that their commutations coincide, they are said to be in parallel if the direct currents add, and in series if the direct voltages add. *See also:* power rectifier; rectifier circuit element; rectification. (IA/EEC/PCON) 59-1962w, [110]

cascade summing of X and gamma rays The simultaneous detection of two or more photons originating from a single nuclear disintegration that results in only one observed (summed) pulse. *Synonym:* coincidence summing. (NI) N42.14-1991

cascade thyristor converter A thyristor converter in which two or more simple converters are connected in such a way that their direct voltages add, but their commutations do not coincide. (IA/IPC) 444-1973w

cascade transitions Gamma rays in the radioactive decay of a single atom that are emitted sequentially and within the resolving time of the spectrometer. (NI) N42.14-1991

cascade-type voltage transformer (1) An insulated-neutral terminal type voltage transformer with the primary distributed on two or more cores electromagnetically coupled by coupling windings. The secondary is on the core at the neutral end of the primary. Each core is insulated from the other cores and is maintained at a fixed percentage of the voltage between the primary terminal and the neutral terminal. (PE/TR) [57]

(2) (instrument transformers) (power and distribution transformers) An insulated-neutral terminal type voltage transformer with the primary winding distributed on several

cores with the cores electromagnetically coupled by coupling windings. The secondary winding is on the core at the neutral end of the high-voltage winding. Each core of this type of transformer is insulated from the other cores and is maintained at a fixed voltage with respect to ground and the line-to-ground voltage. (PE/TR) C57.12.80-1978r

(3) A voltage transformer that has an insulated-neutral or grounded-neutral terminal and that has the primary winding subdivided into two or more (usually equal) series connected sections, mounted on one or more magnetic cores, and that has the secondary winding located about the core at the neutral end of the primary winding. The sections of the primary winding are coupled by "coupling windings." The cores, if more than one, are insulated from each other and connected to definite voltage levels along the primary winding. (PE/TR) C57.13-1993

casading (of switching devices) The application of switching devices in which the devices nearest the source of power have interrupting ratings equal to, or in excess of, the available short-circuit current, while devices in succeeding steps further from the source, have successively lower interrupting ratings. (SWG/PE) C37.100-1992

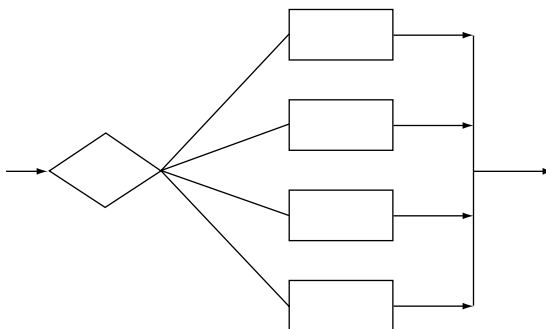
CASE *See:* computer-aided software engineering.

case (1) (storage battery) (storage cell) A multiple compartment container for the elements and electrolyte of two or more storage cells. Specifically, wood cases are containers for cells in individual jars. *See also:* battery. (EEC/PE) [119]

(2) (electrotyping) A metal plate to which is attached a layer of wax to serve as a matrix. (EEC/PE) [119]

(3) (semiconductor devices) The housing of a semiconductor device. (IA) [12]

(4) (software) A single-entry, single-exit multiple-way branch that defines a control expression, specifies the processing to be performed for each value of the control expression, and returns control in all instances to the statement immediately following the overall construct. *Synonym:* multiple exclusive selective construct. *Contrast:* if-then-else; go to; jump. *See also:* multiple inclusive selective construct.



case construct (software)

case

(C) 610.12-1990

(5) (accelerometer) (gyros) The structure that provides the mounting surfaces and establishes the reference axes. (AES/GYAC) 528-1994

case capacitance (nonlinear, active, and nonreciprocal waveguide components) (semiconductor) The fixed capacitance of an empty enclosure (neither semiconductor chip nor connecting wires or straps are present). (MTT) 457-1982w

case ground protection Overcurrent relay protection used to detect current flow in the ground or earth connection of the equipment or machine. (SWG/PE) C37.100-1992

case shift (telegraphy) The change-over of the translating mechanism of a telegraph receiving machine from letters-case to figures-case or vice versa. *See also:* telegraphy. (COM) [49]

CASE tool A software tool that aids in software engineering activities, including, but not limited to, requirements analysis and tracing, software design, code production, testing, docu-

ment generation, quality assurance, configuration management, and project management. *Note:* A CASE tool may provide support in only selected functional areas or in a wide variety of functional areas.

(C/SE) 1209-1992w, 1348-1995

CASE tool evaluation A process wherein various aspects of a CASE tool are measured against defined criteria and the results are recorded for future use. (C/SE) 1209-1992w

CASE tool selection A process wherein the data from one or more CASE tool evaluations are weighted and compared against defined criteria to determine whether one or more of the CASE tools can be recommended for selection.

(C/SE) 1209-1992w

Cassegrainian feed (communication satellite) A feed system used for parabolic reflector antennas, where a small hyperbolic subreflector is placed near the focus of the paraboloid. The Cassegrainian feed system prevents spillover to the back of the reflector; thus, a better noise performance is achieved.

(COM) [24]

Cassegrain reflector antenna A paraboloidal reflector antenna with a convex subreflector, usually hyperboloidal in shape, located between the vertex and the prime focus of the main reflector. *Notes:* 1. To improve the aperture efficiency of the antenna, the shapes of the main reflector and the subreflector are sometimes modified. 2. There are other alternate forms that are referred to as Cassegrainian. Examples include the following: one in which the subreflector is surrounded by a reflecting skirt and one that utilizes a concave hyperboloidal reflector. When referring to these alternate forms the term shall be modified in order to differentiate them from the antenna described in the definition. (AP/ANT) 145-1993

cassette A container holding some form of data medium on reels which are driven at their axis at a variable speed which allows the tape to be accessed without separating it from the container. *See also:* cartridge; magnetic tape cassette.

(C) 610.10-1994w

cast To treat an object of one type as an object of another type. *Contrast:* coerce. (C/SE) 1320.2-1998

casting (electrotyping) The pouring of molten electrotype metal upon tinned shells. (PE/EEC) [119]

casting out nines A method of checking addition, subtraction, or multiplication results by dividing decimal values by nine and comparing the remainders. *Synonym:* nines check.

(C) 1084-1986w

cat *See:* tractor, crawler; crawler tractor.

CAT *See:* computerized axial tomography; computer-assisted tomography; computer-aided testing.

catalog (1) (A) A directory of the location of files within a system. *See also:* file directory. **(B)** The set of all indices used to reference a file, database, or system. **(C)** The index to all other indices. **(D)** To enter information about a file, database, or system as in definitions (A) and (B). (C) 610.5-1990

(2) The metadata describing all the software objects that are a part of a single software collection (distribution or installed software object). Catalogs exist both in distributions and for installed software, although storage of catalogs for installed software is undefined within this standard. A catalog in a distribution shall always use the exported catalog structure, since it is required to be stored in a portable or exported catalog structure. A catalog for installed software shall use the exported catalog structure when information is listed with `swlist -v`. (C/PA) 1387.2-1995

catastrophic failure (1) (software) A failure of critical software. (C) 610.12-1990

(2) Failure that is both sudden and complete. (R) [29]

(3) A failure of any portion of the GIS due to internal or external faults that results in sufficient damage to that portion of the GIS that it cannot be returned to service without major repairs. (PE/SUB) C37.123-1996

catcher *See:* output resonator.

catcher space (velocity-modulated tube) The part of the tube following the drift space, and where the density modulated-

electron beam excites oscillations in the output resonator. It is the space between the output-resonator grids. *See also:* velocity-modulated tube. (ED) [45], [84]

categorization *See:* generalization.

category (1) In pattern recognition, a synonym for **pattern class**. (C) 610.4-1990w

(2) An attribute of an anomaly to which a group of classifications belongs. (C/SE) 1044-1993

(3) An attribute of an anomaly to which a group of classifications belongs. A specifically defined division in a system of classification; class. (C/SE) 1044.1-1995

category cluster *See:* subclass cluster.

category discriminator *See:* discriminator.

category entity An entity whose instances represent a subtype or subclassification of another entity (generic entity). *Synonyms:* subclass; subtype. (C/SE) 1320.2-1998

Category 3 balanced cabling Balanced 100 Ω and 120 Ω cables and associated connecting hardware whose transmission characteristics are specified up to 16 MHz. Commonly used by IEEE 802.3 10BASE-T installations.

(C/LM) 802.3-1998

Category 4 balanced cabling Balanced 100 Ω and 120 Ω cables and associated connecting hardware whose transmission characteristics are specified up to 20 MHz.

(C/LM) 802.3-1998

Category 5 balanced cabling Balanced 100 Ω and 120 Ω unshielded twisted-pair (UTP) cables and associated connecting hardware whose transmission characteristics are specified up to 100 MHz. (C/LM) 802.3-1998

catelectrotonus (electrobiological) Electrotonus produced in the region of the cathode. *See also:* excitability. (EMB) [47]

catenate *See:* concatenate.

cathode (1) (electron tube or valve) An electrode through which a primary stream of electrons enters the interelectrode space. *See also:* electrode. (ED) 161-1971w, [45]

(2) (semiconductor rectifier diode) The electrode to which the forward current flows within the cell. *See also:* semiconductor. (IA) 59-1962w, [12]

(3) (electrolytic) An electrode through which current leaves any conductor of the nonmetallic class. Specifically, an electrolytic cathode is an electrode at which positive ions are discharged, or negative ions are formed, or at which other reducing reactions occur. *See also:* electrolytic cell. (EEC/PE) [119]

(4) (thyristor) The electrode by which currents leaves the thyristor when the thyristor is in the ON state with the gate open-circuited. *Note:* This term does not apply to bidirectional thyristors. (ED/IA) [46], [62]

cathode border (gas) (gas tube) The distinct surface of separation between the cathode dark space and the negative glow. *See also:* discharge. (Std100) [84]

cathode cleaning (electroplating) Electrolytic cleaning in which the metal to be cleaned is the cathode. *See also:* battery. (EEC/PE) [119]

cathode coating impedance (electron tube) The impedance excluding the cathode interface (layer) impedance, between the the base metal and emitting surface of a coated cathode. (ED) 161-1971w, [45]

cathode, cold *See:* cold cathode.

cathode current *See:* electrode current; electronic controller.

cathode current, peak (A) (fault) The highest instantaneous value of a nonrecurrent pulse of cathode current occurring under fault conditions. *See also:* electrode current. **(B) (steady-state)** The maximum instantaneous value of a periodically recurring cathode current. *See also:* electrode current. **(C) (surge)** The highest instantaneous value of a randomly recurring pulse of cathode current. *See also:* electrode current. (ED) [45]

cathode dark space (gas tube) The relatively nonluminous region in a glow-discharge cold-cathode tube between the cathode glow and the negative glow. *Synonym:* Crookes dark space. *See also:* gas tube. (ED) [45]

cathode efficiency The current efficiency of a specified cathodic process. *See also:* electrochemistry.

cathode fall (gas) The difference of potential due to the space charge near the cathode. *See also:* discharge.

(ED) [45], [84]

cathode follower A circuit in which the output load is connected in the cathode circuit of an electron tube and the input is applied between the control grid and the remote end of the cathode load, which may be at ground potential. *Note:* The circuit is characterized by low output impedance, high input impedance, gain less than unity, and negative feedback.

(AP/BT/ANT) 145-1983s, 182A-1964w

cathode glow (gas tube) The luminous glow that covers all, or part, of the surface of the cathode in a glow-discharge cold-cathode tube, between the cathode and the cathode dark space. *See also:* gas tube.

(ED) 161-1971w, [45]

cathode heating time (vacuum tubes) The time required for the cathode to attain a specified condition; for example: a specified value of emission, or a specified rate of change of emission. *Note:* All electrode voltages are to remain constant during measurement. The tube elements must all be at room temperature at the start of the test. *See also:* operation time.

(ED) 161-1971w, [45]

cathode interface (layer) capacitance (electron tube) A capacitance that, in parallel with a suitable resistance, forms an impedance approximating the cathode interface impedance. *Note:* Because the cathode interface impedance cannot be represented accurately by the two-element resistance-capacitance circuit, this value of capacitance is not unique.

(ED) 161-1971w, [45]

cathode interface (layer) impedance (electron tube) An impedance between the cathode base and coating. *Note:* This impedance may be the result of a layer of high resistivity or a poor mechanical bond between the cathode base and coating.

(ED) 161-1971w, [45]

cathode interface (layer) resistance (electron tube) The low-frequency limit of cathode interface impedance.

(ED) 161-1971w, [45]

cathode, ionic-heated *See:* ionic-heated cathode.

cathode layer A molten metal or alloy forming the cathode of an electrolytic cell and which floats on the fused electrolyte, or upon which fused electrolyte floats. *See also:* fused electrolyte.

(EEC/PE) [119]

cathode luminous sensitivity (photocathodes) The quotient of photoelectric emission current from the photocathode by the incident luminous flux under specified conditions of illumination. *Notes:* 1. Since cathode luminous sensitivity is not an absolute characteristic but depends on the spectral distribution of the incident flux, the term is commonly used to designate the sensitivity to radiation from a tungsten filament lamp operating at a color temperature of 2870 kelvins. 2. Cathode luminous sensitivity is usually measured with a collimated beam at normal incidence. *See also:* phototube.

(ED/NPS) 161-1971w, 398-1972r

cathode modulation Modulation produced by application of the modulating voltage to the cathode of any electron tube in which the carrier is present. *Note:* Modulation in which the cathode voltage contains externally generated pulses is called cathode pulse modulation.

(EEC/PE) [119]

cathode, pool *See:* pool cathode.

cathode, preheating time *See:* preheating time cathode.

cathode pulse modulation Modulation produced in an amplifier or oscillator by application of externally generated pulses to the cathode circuit.

(AP/ANT) 145-1983s

cathode radiant sensitivity (photocathodes) The quotient of the photoelectric emission current from the photocathode by the incident radiant flux at a given wavelength under specified conditions of irradiation. *Note:* Cathode radiant sensitivity is usually measured with a collimated beam at normal incidence.

(ED/NPS) 161-1971w, 398-1972r

cathode-ray charge-storage tube A charge-storage tube in which the information is written by means of cathode-ray beam. *Note:* Dark-trace tubes and cathode-ray tubes with a long persistence are examples of cathode-ray storage tubes that are not charge-storage tubes. Most television camera tubes are examples of charge-storage tubes that are not cathode-ray storage tubes. *See also:* charge-storage tube.

(ED) 158-1962w

cathode-ray oscillograph An oscillograph in which a photographic or other record is produced by means of the electron beam of a cathode-ray tube. *Note:* The term "cathode-ray oscillograph" has frequently been applied to a cathode-ray oscillograph, but this usage is deprecated. *See also:* oscillograph.

(EEC/PE) [119]

cathode-ray oscilloscope An oscilloscope that employs a cathode-ray tube as the indicating device. *See also:* oscillograph.

(EEC/PE) [119]

cathode-ray storage A type of matrix storage in which a cathode ray beam is used to access data.

(C) 610.10-1994w

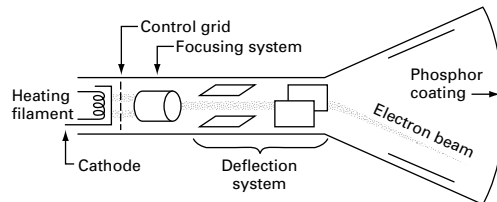
cathode-ray storage tube A storage tube in which the information is written by means of a cathode-ray beam. *See also:* storage tube.

(ED) 158-1962w

cathode-ray tube (1) (supervisory control, data acquisition, and automatic control) (station control and data acquisition) A display device in which controlled electron beams are used to present alphanumeric or graphical data on an electro-luminescent screen.

(SUB/PE/SWG-OLD) C37.1-1987s, C37.100-1992

(2) (computer graphics) An evacuated glass tube in which a beam of electrons is emitted and focused onto the phosphor-coated display surface of the tube. A beam deflection system moves the beam as required to generate an image.



cathode-ray tube

(C) 610.6-1991w

(3) An evacuated glass tube in a well-defined and controllable beam of electrons is focused onto a phosphor-coated display surface of the tube causing the phosphors to emit light. *Note:* A beam deflection system moves the beam as required to generate an image. *See also:* Williams-tube storage; storage tube.

(C) 610.10-1994w

cathode-ray-tube display area *See:* graticule area.

cathode ray tube display device A display device that presents data in visual form by means of controlled electron beams within a cathode ray tube.

(C) 610.6-1991w

cathode region (gas) (gas tube) The group of regions that extends from the cathode to the Faraday dark space inclusively. *See also:* discharge.

(EEC/ACO) [109], [84]

cathode spot An area on the cathode of an arc from which electron emission takes place at a current density of thousands of amperes per square centimeter and where the temperature of the electrode is too low to account for such currents by thermionic emission. *See also:* gas tube.

(EEC/ACO) [109]

cathode sputtering (gas) The emission of fine particles from the cathode (or anode) produced by positive ion (or electron) bombardment. *Synonym:* anode sputtering. *See also:* discharge.

(ED) [45], [84]

cathode terminal (1) (semiconductor devices) The terminal from which forward current flows to the external circuit. *Note:* In the semiconductor rectifier components field, the cathode terminal is normally marked positive. *See also:* semiconductor rectifier cell; semiconductor.

(IA) [62], [12], 59-1962w

(2) (**thyristor**) The terminal that is connected to the cathode. *Note:* The term does not apply to bidirectional thyristors. *See also:* anode. (IA/ED) 223-1966w, [12], [46]

cathodic corrosion An increase in corrosion of a metal by making it cathodic. *See also:* stray-current corrosion.

(IA) [71], [59]
cathodic polarization Polarization of a cathode. *See also:* electrochemistry. (IA) [59], [71]

cathodic protection Reduction or prevention of corrosion by making a metal the cathode in a conducting medium by means of a direct electric current (which is either impressed or galvanic). (IA) [59], [71]

catholyte The portion of an electrolyte in an electrolytic cell adjacent to a cathode. If a diaphragm is present, it is the portion of electrolyte on the cathode side of the diaphragm. *See also:* electrolytic cell. (EEC/PE) [119]

cation A positively charged ion or radical that migrates toward the cathode under the influence of a potential gradient. *See also:* ion. (IA) [59], [71]

CATV *See:* community antenna television.

CATV-type broadband medium *See:* community antenna television (CATV)-type broadband medium.

cat whisker A small, sharp-pointed wire used to make contact with a sensitive point on the surface of a semiconductor. (EEC/PE) [119]

caustic A point in space where geometric or ray optics theory predicts infinite field strength. (AP/PROP) 211-1997

caustic embrittlement Stress-corrosion cracking in alkaline solutions. (IA) [59], [71]

caustic soda cell A cell in which the electrolyte consists primarily of a solution of sodium hydroxide. *See also:* electrochemistry. (EEC/PE) [119]

caution Advisory in a software user document that performing some action may lead to consequences that are unwanted or undefined. *Contrast:* warning. (C/SE) 1063-1987r

cavitation (1) (liquid) Formation, growth, and collapse of gaseous and vapor bubbles due to the reduction of pressure of the cavitation point below the vapor pressure of the fluid at the working temperature. (SP) [32]

(2) (**hydroelectric power plants**) With respect to an operating hydraulic turbine, the formation of vapor-filled bubbles in high velocity, low pressure regions of the water passage—for example, around the turbine runner. The rapid collapse of the bubbles as they are propelled out of the low pressure region produces a pressure wave, which can erode nearby material. (PE/EDPG) 1020-1988r

cavitation damage Deterioration caused by formation and collapse of cavities in a liquid. (IA) [59]

cavity *See:* optical cavity; unloaded applicator impedance.

cavity dumpers (acousto-optic device) Generally, a fast rise-time pulse modulator used intracavity. (UFFC) [17]

cavity ratio (CR) A number indicating cavity proportions.

$$CR = \frac{5 \times (\text{height of C}) \times (\text{C} + \text{C width})}{(\text{C length}) \times (\text{C width})}$$

For cavities of irregular shape,

$$CR = \frac{2.5 \times (\text{C height}) \times (\text{C perimeter})}{(\text{area of C base})}$$

Note: The relationship between “cavity ratio” and “room coefficient” should be noted. If the entire room is considered as a cavity, the room height becomes the cavity height and CR = 10K_r. (EEC/IE) [126]

cavity resonator (1) A space normally bounded by an electrically conducting surface in which oscillating electromagnetic energy is stored, and whose resonant frequency is determined by the geometry of the enclosure. *See also:* waveguide. (AP/ANT) 145-1983s

(2) (**waveguide components**) A resonator formed by a volume of propagating medium bounded by reflecting surfaces. *See also:* waveguide resonator. (MTT) 147-1979w

cavity resonator frequency meter (waveguide components)

A cavity resonator used to determine frequency. *See also:* cavity resonator. (MTT) 147-1979w

CAX *See:* unattended automatic exchange.

C-band A radar-frequency band between 4 GHz and 8 GHz, usually in the International Telecommunications Union (ITU) allocated band 5.2–5.9 GHz. (AES) 686-1997

C battery A battery designed or employed to furnish voltage used as a grid bias in a vacuum-tube circuit. *See also:* battery. (EEC/PE) [119]

CBCT *See:* customer-bank communication terminal.

CBE *See:* computer-based education.

CBEMA *See:* Computer and Business Equipment Manufacturers Association.

CBL *See:* computer-based learning.

CCA *See:* carrier-controlled approach system.

CCB *See:* change control board; configuration control board.

CCD *See:* charge-coupled device.

C channel (1) A channel that provides an integer multiple of 64 kbit/s, full-duplex, isochronous clear channels. The “C” shall be used to indicate that this is a circuit-switched channel. C_m stands for a channel (m) times 64 kbit/s in size. In general, a C channel has the same characteristics as an ISDN B or H channel, except that it can be any multiple of 64 kbit/s in size, rather than only the ITU-T approved rates. There may be multiple C_m channels of varying sizes (n × C_m). For ISLAN4-T/ISLAN16-T, the following also applies: The maximum composite bandwidth allocated for the C channel(s) shall be limited by the application requirements for the P channel. That is, the available bandwidth that may be assigned for C channels shall be limited to the difference between the TDM payload field minus the bandwidth required for the P channel. In practice, the C channel size(s) will be effected by the interconnection facility(ies) between the AU and the ISDN wide area network (WAN). (C/LM) 802.9a-1995w

(2) A channel that provides an integer multiple of 64 kb/s, full duplex, isochronous clear channels. The “C” is used to indicate that this is a circuit-switched channel. C sub m\$ stands for a channel (m) times 64 kb/s in size. In general, a C channel has the same characteristics as an ISDN B or H channel, except that it can be any multiple of 64 kb/s in size, rather than only the CCITT approved rates. There may be multiple C channels of varying sizes (n × C). Note the following equivalencies:

$$C_1 = B = 64 \text{ kb/s}$$

$$C_6 = H_0 = 384 \text{ kb/s}$$

$$C_{24} = H_{11} = 1.536 \text{ Mb/s}$$

$$C_{30} = H_{12} = 1.920 \text{ Mb/s}$$

The maximum composite bandwidth allocated for the C channel(s) shall be limited by the application requirements for the P channel. That is, the available bandwidth that may be assigned for C channels shall be limited to the difference between the TDM payload field minus the bandwidth required for the P channel. In practice, the C channel size(s) will be effected by the interconnection facility(ies) between the AU and the ISDN wide area network (WAN). (LM/C/COM) 8802-9-1996

CCITT (Comité Consultatif International de Télégraphique et Téléphonique) *See:* Consultative Committee on International Telegraphy and Telephony; Comité Consultatif Internationale Télégraphique et Téléphonique.

CCITT Standard A standard recommended by CCITT (Consultative Committee on International Telegraphy and Telephony). *Notes:* 1. CCITT recommendations are published by lettered series. For example, the X-series, for equipment and protocols used with computer networks. 2. CCITT Standards are now designated as ITU-T Standards. *See also:* Consultative Committee on International Telegraphy and Telephony. (C) 610.7-1995

C conditioning A North American term for a type of conditioning that controls attenuation, distortion, and delay distortion, thus making transmission impairments of a circuit lie within specified limits. *See also:* D conditioning.

(C) 610.7-1995

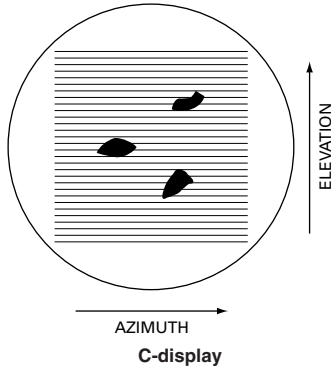
CCR *See:* condition code register.

CCS Hundreds of call seconds per hour. A measure of traffic intensity or event data. *Synonym:* call attempts per hour. *See also:* time-consistent traffic measures.

(COM/TA) 973-1990w

CD *See:* compact disc; collision detection.

C-display A rectangular display in which each target appears as an intensity-modulated blip with azimuth indicated by the horizontal coordinate and angle of elevation by the vertical coordinate.



(AES) 686-1997

CDL *See:* Computer Design Language.

CDO *See:* unattended automatic exchange.

CD1 *See:* clocked data one.

CDP *See:* commercial data processing.

CDR *See:* critical design review.

CD-ROM *See:* compact disc read-only memory.

CD-ROM storage A read-only form of optical storage employing compact discs to store information. (C) 610.10-1994w

CD state The state of an analog pin when it is isolated from the core circuit and all test circuits. *Note:* When a pin is in the CD state, there may be residual elements to which it remains connected. *See also:* core disconnect; residual element.

(C/TT) 1149.4-1999

CD0 *See:* clocked data zero.

C-effective A capacitance value, often computed as an approximation to a resistor/inductor/capacitor (RLC) network or a π -model, that characterizes the admittance of an interconnect structure at a particular driver. The reduction of real parasitics and pin capacitances to a C-effective allows the calculation of delay and slew values from cell characterization data which assumes a pure capacitive output load. *Synonym:* effective capacitance. (C/DA) 1481-1999

CEI (television) The initials of the official French name, Commission Électrotechnique Internationale, of the International Electrotechnical Commission (IEC). (BT/AV) 201-1979w

ceiling The result obtained by rounding a number up to the nearest integer. For example, the ceiling of 5.3 is 6. *Contrast:* floor. (C) 1084-1986w

ceiling area lighting (illuminating engineering) A general lighting system in which the entire ceiling is, in effect, one large luminaire. *Note:* Ceiling area lighting includes luminous ceilings and louvered ceilings. *See also:* luminous ceiling; louvered ceiling. (EEC/IE) [126]

ceiling cavity ratio (illuminating engineering) For a cavity formed by the ceiling, the plane of the luminaire, and the wall surfaces between these two planes, the CCR is computed by using the distance from the plane of the luminaire to the ceiling (h_c as the cavity height in the equations given in the definition of "cavity ratio." (EEC/IE) [126]

ceiling current (excitation systems for synchronous machines) The maximum direct current that the excitation system is able to supply from its terminals for a specified time. (PE/EDPG) 421.2-1990, 421.1-1986r

ceiling direct voltage (direct potential rectifier unit) The average direct voltage at rated direct current with rated sinusoidal voltage applied to the alternating-current line terminals, with the rectifier transformer set on rated voltage tap and with voltage regulating means set for maximum output. *See also:* rectification; power rectifier. (IA/EEC/PCON) [62], [110]

ceiling projector (illuminating engineering) A device designed to produce a well-defined illuminated spot on the lower portion of a cloud for the purpose of providing a reference mark for the determination of the height of that part of the cloud. (EEC/IE) [126]

ceiling ratio (illuminating engineering) The ratio of the luminous flux which reaches the ceiling directly to the upward component of the luminaire. (EEC/IE) [126]

ceiling voltage (1) (excitation systems for synchronous machines) The maximum direct voltage that the excitation system is able to supply from its terminals under defining conditions. *Notes:* 1. The no-load ceiling voltage is determined with the excitation system supplying no current. 2. The ceiling voltage under load is determined with the excitation system supplying ceiling current. 3. For excitation systems whose supply depends on the synchronous machine voltage and (if applicable) current, the nature of power system disturbance and specific design parameters of the excitation system and the synchronous machine influence the excitation system output. For such systems, the ceiling voltage is determined considering an appropriate voltage drop and (if applicable) current increase. 4. For excitation systems employing a rotating exciter, the ceiling voltage is determined at rated speed. (PE/EDPG) 421.1-1986r

(2) (excitation systems) The maximum direct voltage that the excitation system is able to supply from its terminals under defined conditions. (PE/EDPG) 421.2-1990

ceiling voltage, exciter nominal The ceiling voltage of an exciter loaded with a resistor having an ohmic value equal to the resistance of the field winding to be excited and with this field winding at a temperature of (A) 75°C for field windings designed to operate at rating with a temperature rise of 60°C or less; or (B) 100°C for field windings designed to operate at rating with a temperature rise greater than 60°C. (PE/EDPG) 421-1972s

ceilometer (navigation aid terms) An instrument for measuring the height of clouds. (AES/GCS) 172-1983w

celestial fix (navigation aid terms) A position fix established by observation of celestial bodies. (AES/GCS) 172-1983w

celestial-inertial navigation equipment (navigation aid terms) An equipment employing both celestial and inertial sensors. *Synonyms:* astro-inertial navigation equipment; stellar-inertial navigation equipment. (AES/GCS) 172-1983w

celestial mechanics (communication satellite) The mechanics of motion of celestial bodies, including satellites. (COM) [19]

celestial navigation (navigation aid terms) Navigation with the aid of celestial bodies. Applied principally to the measurement of the altitudes of a celestial body. (AES/GCS) 172-1983w

cell (1) (lead-acid batteries for photovoltaic systems) The basic electrochemical unit, characterized by an anode and a cathode used to receive, store, and deliver electrical energy. For a lead-acid system, the cell is characterized by a nominal two-volt potential. (PV) 937-1987s

(2) (batteries for photovoltaic systems) The basic electrochemical unit, characterized by an anode, a cathode, and electrolyte, used to receive, store, and deliver electrical energy. *Notes:* 1. For a nickel-cadmium cell, the nominal voltage is 1.2 V. 2. For a lead-acid cell, the nominal voltage is 2.0 V. (PV) 1013-1990, 1144-1996, 1145-1990s

- (3) **(test pattern language)** The element of a memory in which one bit is stored. (TT/C) 660-1986w
- (4) **(information storage)** An elementary unit of storage; for example, binary cell, decimal cell.
(C) 162-1963w, 270-1966w
- (5) A single, enclosed tubular space in a cellular metal floor member, the axis of the cell being parallel to the axis of the metal floor member. (NESC/NEC) [86]
- (6) The primary unit of information in the architecture of a Forth System. (C/BA) 1275-1994
- (7) A packet with fixed length. *Notes:* 1. Each cell has a 5 octet header and 48 octets of data. 2. This definition is specific to asynchronous transfer mode (ATM). (C) 610.7-1995
- (8) (A) A module used in assembling application-specific integrated circuits. (B) The storage position of one unit of information, such as a character, a bit, or a word. *See also:* storage cell. (C) 610.10-1994
- (9) A primitive in an integrated circuit library. Primitive means the timing properties of the cell are directly described in the DPCM without reference back to the application for the internal structure of the cell. This primitiveness typically is a result of the characterization of that cell by the semiconductor vendor, but it may instead be a result of the construction of a timing model for a subcircuit by the application, and its loading into the DPCM at run-time. For PDEF, cell refers to a logical instance, and a library primitive is called a gate. The term cell can arise in the context of the abstraction of a type of cell available in the library or in the concrete selection and placement of a cell in the final design. If the context is not clear, the terms cell type and cell instance (or just instance) shall be used. *See also:* cell type; instance.
(C/DA) 1481-1999
- (10) **(data management)** *See also:* data item; data element.
(C) 610.5-1990w
- (11) *See also:* memory cell. (ED) 1005-1998
- cell cavity (electrolysis)** The container formed by the cell lining for holding the fused electrolyte. *See also:* fused electrolyte.
(PE/EEC) [119]
- cell connector (storage cell)** An electric conductor used for carrying current between adjacent storage cells. *See also:* battery.
(EEC/PE) [119]
- cell constant (electrolytic cells)** The resistance in ohms of that cell when filled with a liquid of unit resistivity.
(PE/EEC) [119]
- cell cover** The transparent medium (glass, quartz, etc.) that protects the solar cells from space particulate radiation.
(AES/SS) 307-1969w
- cell instance** A particular, concrete appearance of a cell in the fully expanded (flattened, unfolded, elaborated) design description of an integrated circuit; also referred to elsewhere as an "occurrence." An instance is a "leaf" of the unfolded design hierarchy. In Physical Design Exchange Format (PDEF), this is a physical cluster or a logical cell. *See also:* cell; cell type; cluster; hierarchical instance.
(C/DA) 1481-1999
- cell library** A collection of cells used to design and lay out application-specific integrated circuits in accordance with the functional requirements of particular end users.
(C) 610.10-1994w
- cell line** An assembly of electrically interconnected electrolytic cells supplied from a source of dc power.
(NESC/IA/PC) 463-1993w, [86]
- cell line attachments and auxiliary equipment** Include, but are not limited to: auxiliary tanks; process piping; duct work, structural supports, exposed cell line conductors; conduits and other raceways; pumps, positioning equipment, and cell cut-out or by-pass electrical devices. Auxiliary equipment includes tools, welding machines, crucibles, and other portable equipment used for operation and maintenance within the electrolytic cell line working zone. In the cell line working zone, auxiliary equipment includes the exposed conductive surfaces of the ungrounded cranes and crane-mounted cell-servicing equipment.
(NESC/NEC) [86]
- cell line potential (electrolytic cell line)** The dc voltage applied to the positive and negative buses supplying power to a cell line.
(IA/PC) 463-1993w, 463-1977s
- cell line voltage (electrolytic cell line)** The dc voltage applied to the positive and negative buses supplying power to a cell line.
(IA/PC) 463-1993w, 463-1977s
- cell line working zone** The space envelope where operation or maintenance is normally performed on or in the vicinity of exposed energized surfaces of electrolytic cell lines or their attachments.
(IA/PC) 463-1993w
- cell-organized raster display device** A raster display device on which an image is constructed by a collection of rectangular characters, each character represented by an n-by-m set of illuminated control indicators.
(C) 610.10-1994w
- cell potential (electrolytic cells)** The dc voltage between the positive and negative terminals of one electrolytic cell.
(IA/PC) 463-1977s
- cell relay** A fast packet switching technology that provides a virtual circuit service for the transfer of cells. For example, asynchronous transfer mode is the most common type of cell relay. *See also:* frame relay.
(C) 610.7-1995
- cell size** The rated capacity of a lead-acid cell or the number of positive plates in a cell.
(SCC29) 485-1997
- cell switching** A technique used in data communications, in which messages are broken into fixed-size packets and forwarded to another party over the network. *Contrast:* packet switching.
(C) 610.7-1995
- cell type (1) (Class 1E lead storage batteries)** Cells of identical design (for example, plate size, alloy, construction details), but that may have differences in the number of plates and spacers, quantity of electrolyte, or length of container.
(PE/EDPG) 535-1979s
- (2) Name used to identify a particular cell in the library.
(C/DA) 1481-1999
- cell-type tube (microwave gas)** A gas-filled radio-frequency switching tube that operates in an external resonant circuit. *Note:* A tuning mechanism may be incorporated in either the external resonant circuit or the tube. *See also:* gas tube.
(ED) 161-1971w
- cellular metal floor raceway** The hollow spaces of cellular metal floors, together with suitable fittings, that may be approved as enclosures for electric conductors.
(NESC/NEC) [86]
- cellulose** Unbleached kraft insulation material from which paper and transformerboard are made, that is suitable for use in 65°C average winding temperature rise insulation systems.
(PE/TR) 1276-1997
- cell voltage (electrolytic cell line working zone)** The dc voltage between the positive and negative terminals of one electrolytic cell.
(IA/PC) 463-1993w
- cent** The interval between two sounds whose basic frequency ratio is the twelve-hundredth root of 2. *Note:* The interval, in cents, between any two frequencies is 1200 times the logarithm to the base of 2 of the frequency ratio. Thus, 1200 cents equal 12 equally tempered semitones equal 1 octave.
(SP/ACO) 157-1951w, [32]
- center** In text formatting, to format one or more lines of text so that the left and right margins are equal in size.
(C) 610.2-1987
- center-break switching device** A mechanical switching device in which both contacts are movable and engage at a point substantially midway between their supports.
(SWG/PE) C37.100-1992
- center-center point** A point on a VDT screen [cathode ray tube (CRT) face panel] that is both the horizontal and vertical midpoint. The center-center point is represented by the bisector of the horizontal and vertical center lines on the VDT screen.
(EMC) 1140-1994r
- center frequency (1) (frequency modulation)** The average frequency of the emitted wave when modulated by a symmetrical signal. *See also:* frequency modulation.
(AP/ANT) 145-1983s

(2) (**burst measurements**) The arithmetic mean of the two frequencies that define the bandwidth of a filter. *See also:* burst. (SP) 265-1966w

(3) (**spectrum analyzer (non-real time spectrum analyzer)**) That frequency which corresponds to the center of a frequency span. (IM) 748-1979w

center-frequency delay (1) The nominal group delay of the device at the center frequency f_o , generally expressed in microseconds, where f_o is defined as the lower band-edge frequency plus one-half the bandwidth (dispersive delay line). (UFFC) 1037-1992w

(2) The frequency delay of the device at the center frequency, F_0 , generally expressed in microseconds. (UFFC) [22]

centerline (navigation aid terms) The lows of the points equidistant from two reference points or lines, as the perpendicular bisector of the baseline of a hyperbolic system of navigation, such as loran. (AES/GCS) 172-1983w

center of distribution (primary distribution) The point from which the electric energy must be supplied if the minimum weight of conducting material is to be used. *Note:* The center of distribution is commonly considered to be that fixed point that, in practice, most nearly meets the ideal conditions stated above. (PE/T&D) [10]

center pivot irrigation machines A center pivot irrigation machine is a multi-motored irrigation machine that revolves around a central pivot and employs alignment switches or similar devices to control individual motors. (NESC/NEC) [86]

center wavelength (1) The wavelength that is the arithmetic mean of the half-maximum spectral intensity points of the transmitter. If the spectral intensity distribution is symmetric and singly peaked, the center wavelength is at maximum intensity. (C/BA) 1393-1999

(2) The average of two optical wavelengths at which the spectral radiant intensity is 50% of the maximum value. (C/LM) 802.3-1998

centi (mathematics of computing) A prefix indicating one hundredth (10^{-2}). (C) 1084-1986w

centimeter-gram-second electromagnetic system of units A system in which the basic units are the centimeter, gram, second, and abampere. *Notes:* 1. The abampere is a derived unit defined by assigning the magnitude one to the unrationalized magnetic constant (sometimes called the permeability of space). 2. Most electrical units of this system are designated by prefixing the syllable "ab-" to the name of the corresponding unit in the mksa system. Exceptions are the maxwell, gauss, oersted, and gilbert. (Std100) 270-1966w

centimeter-gram-second electrostatic system of units The system in which the basic units are the centimeter, gram, second, and statcoulomb. *Notes:* 1. The statcoulomb is a derived unit defined by assigning the magnitude 1 to the unrationalized electric constant (sometimes called the permittivity of space). 2. Each electrical unit of this system is commonly designated by prefixing the syllable "stat-" to the name of the corresponding unit in the International System of Units. (Std100) 270-1966w

centimeter-gram-second system of units A system in which the basic units are the centimeter, gram, and second. (Std100) 270-1966w

central alarm station (CAS) A continuously manned location that provides primary security system monitoring and communications functions. (PE/NP) 692-1997

central arbiter requester A module that requests access to the bus on a system that uses central arbitration. (C/BA) 896.4-1993w

central computer *See:* host computer.

central control room (nuclear power generating station) A continuously manned, protected enclosure from which actions are normally taken to operate the nuclear generating station under normal and abnormal conditions. (PE/NP) 567-1980w

central distribution frame grounding A type of grounding system where all signal grounds are referenced to a central point rather than at their respective signal sources. (PE/EDPG) 1050-1996

centralized accounting, automatic message (CAMA) (telephone switching systems) An arrangement at an intermediate office for collecting automatic message accounting information. (COM) 312-1977w

centralized computer network (1) A computer network configuration in which a central node provides computing power, control, or other services. *See also:* decentralized computer network. (LM/COM) 168-1956w

(2) A computer network in which a central node provides all network control functions and services to other nodes. *Contrast:* decentralized computer network. *See also:* distributed computer network. (C) 610.7-1995

centralized control (1) (electric pipe heating systems) A common (central) point where multiple control, alarm, or both signals or functions are brought together. With respect to electric pipe heating systems, centralized control/alarm stations usually consist of cabinets or panels where remote control, alarm, or both signals are brought together for a common output signal to the generating unit control room. (PE/EDPG) 622A-1984r

(2) (**electric heat tracing systems**) A common (central) point where multiple control, alarm, or both signals or functions are brought together. With respect to electric heat tracing systems, centralized control/alarm stations usually consist of cabinets or panels where remote control, alarm, or both signals are brought together for a common output signal to the generating unit control room. (PE/EDPG) 622B-1988r

(3) The local, remote, or programmed operations of more than one equipment or system from one central control station in a common area or room by a broadly skilled operator or supervisory system. (IA/MT) 45-1998

centralized polling A polling technique in which a single, central authority controls access to transmission medium. Each station is invited to transmit periodically according to a scheme or list. *Contrast:* distributed polling. (C) 610.7-1995

centralized test system (test, measurement, and diagnostic equipment) A test system that processes, records, or displays at a central location information gathered by test point data sensors at more than one remotely located equipment or system under test. (MIL) [2]

centralized traffic-control machine (railway practice) A control machine for operation of a specific type of traffic control system of signals and switches. *See also:* centralized traffic-control system. (EEC/PE) [119]

centralized traffic-control system (railway practice) A specific type of traffic control system in which the signals and switches for a designated section of track are controlled from a remotely located centralized traffic control machine. *See also:* electropneumatic interlocking machine; control machine; centralized traffic-control machine; block-signal system. (EEC/PE) [119]

central office (CO) (1) (telephone loop performance) The building, one or more switching systems, and related equipment contained therein that provide telephone service. (COM/TA) 820-1984r

(2) (**data transmission**) The place where communications common carriers terminate customer lines and locate the equipment which interconnects those lines. Usually the junction point between metallic pair and carrier system. (PE) 599-1985w

(3) (**telephone switching systems**) A switching entity that has one or more office codes and a system control serving a telecommunication exchange. (COM) 312-1977w

(4) A physical location where communications common carriers terminate customer lines and locate the switching devices that interconnect these lines. *Synonyms:* telephone exchange; local central office; exchange. *See also:* end office. (C) 610.7-1995

central office diagram (telephone switching systems) A simplified switching network plan for a given installation, specifying types and quantities of equipment and trunk groups and other parameters. (COM) 312-1977w

central office exchange (data transmission) The place where a communication common carrier locates the equipment which interconnects incoming subscribers and circuits. (PE) 599-1985w

central office service unit (COSU) A telephone company controller resident in a central office that connects to the utility controller and, via the utility telemetry trunk, to the switch. The COSU provides the function of originating and terminating calls to and from telemetry interface units (TIUs). For the COSU access method, the COSU performs a security check with the utility controller and places a call to the end user in response to the information sent to it by the utility controller. The COSU performs a security check and initiates a connection to the utility controller when called by the TIU. The COSU also provides a multiplexing interface between the utility controller and COSU and the COSU and TIU(s). The COSU may also provide traffic measurements. (AMR/SCC31) 1390-1995, 1390.2-1999, 1390.3-1999

central office service unit (COSU) access method An access method that utilizes the switched telephone network, comprised of a COSU, switch, and other network elements. This method provides for automatically invoking/ignoring certain switch-based telemetry communications capabilities and establishes a communications path between a utility/enhanced service provider (ESP) and a telemetry interface unit (TIU). (SCC31/AMR) 1390.3-1999, 1390.2-1999, 1390-1995

central processing unit (CPU) (1) The unit of a computing system that includes the circuits controlling the interpretation of instructions and their execution. (C/C) [20], [85]
(2) Describes that part of a computer that does the primary computational functions. Loosely describes the computer system other than connected input and output devices. (C/BA) 1496-1993w
(3) That unit of a computer system which fetches, decodes and executes programmed instructions and maintains the status of results as the program is executed. *Synonym:* central processor. *See also:* uniprocessor; processor. (C) 610.10-1994w

central processor *See:* central processing unit.

central services module A specific module that is required in all systems using the parallel system bus. Its services, such as starting certain bus operations and guaranteeing uniform initialization of all agents, are required by all agents on the parallel system bus. It is always located in a specific slot in the system backplane. *See also:* parallel system bus. (C/MM) 1296-1987s

central station (protective signaling) An office to which remote alarm and supervisory signaling devices are connected, where operators supervise the circuits, and where guards are maintained continuously to investigate signals. *Note:* Facilities may be provided for transmission of alarms to police and fire departments or other outside agencies. *See also:* protective signaling. (EEC/PE) [119]

central station equipment (protective signaling) The signal receiving, recording, or retransmission equipment installed in the central station. *See also:* protective signaling. (EEC/PE) [119]

central station switchboard (protective signaling) That portion of the central station equipment on or in which are mounted the essential control elements of the system. *See also:* protective signaling. (EEC/PE) [119]

central station system (central office system) (protective signaling) A system in which the operations of electric protection circuits and devices are signaled automatically to, recorded in, maintained, and supervised from a central station having trained operators and guards in attendance at all times. *See also:* protective signaling. (EEC/PE) [119]

central vision (illuminating engineering) The seeing of objects in the central or foveal part of the visual field, approximately two degrees in diameter. It permits seeing much finer detail than does peripheral vision. *Synonym:* foveal vision. (EEC/IE) [126]

central visual field (illuminating engineering) That region of the visual field that corresponds to the foveal portion of the retina. (EEC/IE) [126]

centrex CO (telephone switching systems) (company) The provision of centrex service by switching, station equipment, and attendant facilities located on the premises of the customer. (COM) 312-1977w

centrex CU (customer) (telephone switching systems) The provision of centrex service by switching, station equipment, and attendant facilities located on the premises of the customer. (COM) 312-1977w

centrex service (telephone switching systems) A service that provides direct inward dialing and identified outward dialing in accordance with the national numbering plan for stations served as they would be by a private branch exchange. (COM) 312-1977w

centrifugal actuator (rotating machinery) Rotor-mounted element of a centrifugal starting switch. *See also:* centrifugal starting switch. (PE) [9]

centrifugal-mechanism pin (governor pin) A component of the linkage between the centrifugal mechanism weights and the short-circuiting device. *See also:* centrifugal starting switch. (EEC/PE) [119]

centrifugal-mechanism spring (governor spring) A spring that opposes the centrifugal action of the centrifugal-mechanism weights in determining the motor speed at which the switch or short-circuiting device is actuated. *See also:* centrifugal starting switch. (EEC/PE) [119]

centrifugal-mechanism weights (governor weights) Moving parts of the centrifugal-mechanism assembly that are acted upon by centrifugal force. *See also:* centrifugal starting switch. (EEC/PE) [119]

centrifugal relay An alternating-current frequency-selective relay in which the contacts are operated by a fly-ball governor or centrifuge driven by an induction motor. (EEC/PE) [119]

centrifugal starting switch (rotating machinery) A centrifugally operated automatic mechanism used to perform a circuit-changing function in the primary winding of a single-phase induction motor after the rotor has attained a predetermined speed, and to perform the reverse circuit-changing operation prior to the time the rotor comes to rest. *Notes:* 1. One of the circuit changes that is usually performed is to open or disconnect the auxiliary winding circuit. 2. In the usual form of this device, the part that is mounted to the stator frame or end shield is the starting switch, and the part that is mounted on the rotor is the centrifugal actuator. (PE) [9]

Centronics The popular name for the parallel printer port used as the parallel interface for most printers and supported by most "MS-DOS compatible" PCs. The name is derived from the printer manufacturer that introduced this interface, Centronics Data Computer Corporation. This interface has never been formalized. Despite a basic similarity, many variations of this interface have been implemented in different peripherals and hosts. This specification describes the more prevalent variations of the "Centronics" interface and defines a family of signaling methods that are backward compatible with the typical "Centronics" interface. (C/MM) 1284-1994

Centronics connector The popular name for the 36-pin ribbon contact type connector commonly used for the parallel port on printers. (C/MM) 1284-1994

CEP *See:* circular probable error.

ceramic insulator Insulators made from porcelain or glass or a general class of rigid material. (T&D/PE) 957-1995

ceramic level *See*: ceramic level.

certify A statement that an asset has been assessed according to specified certification criteria. (C/SE) 1420.1a-1996

certificate of conformance (replacement parts for Class 1E equipment in nuclear power generating stations) (nuclear power quality assurance) A document signed by an authorized individual, certifying the degree to which items or services meet specified requirements. (PE/NP) 934-1987w, [124]r

certification (1) (nuclear power quality assurance) The act of determining, verifying, or attesting in writing to the qualifications of personnel, processes, procedures, or items in accordance with specified requirements. (PE/NP) [124]

(2) (A) (software) A written guarantee that a system or component complies with its specified requirements and is acceptable for operational use. For example, a written authorization that a computer system is secure and is permitted to operate in a defined environment. **(B) (software)** A formal demonstration that a system or component complies with its specified requirements and is acceptable for operational use. **(C) (software)** The process of confirming that a system or component complies with its specified requirements and is acceptable for operational use. (C) 610.12-1990

(3) (test, measurement, and diagnostic equipment) Attestation that a support test system is capable, at the time of certification demonstration, of correctly assessing the quality of the items to be tested. This attestation is based on an evaluation of all support test system elements and establishment of acceptable correlation among similar test systems. (MIL) [2]

certification artifact The tangible results from a certification process (e.g., inspection checklists, metrics, problem reports). (C/SE) 1420.1a-1996

certification criteria A set of standards, rules, or properties to which an asset must conform in order to be certified to a certain level. Certification criteria are defined by a certification policy. Certification criteria may be specified as a set of certification properties that must be met. (C/SE) 1420.1a-1996

certification levels The step-wise organization of a certification policy by a reuse library into increasingly more stringent certification processes and criteria. (C/SE) 1420.1a-1996

certification method A documented technique applied as part of a certification process (e.g., inspections, static analysis, testing, formal verification). (C/SE) 1420.1a-1996

certification policy The statement of a reuse library's standard process for asset certification, the levels of certification, the properties and criteria for each level and the methods employed. (C/SE) 1420.1a-1996

certification process The process of assessing whether an asset conforms to predetermined certification criteria appropriate for that class of asset. (C/SE) 1420.1a-1996

certification property A statement about some feature or characteristic of an asset that may be assessed as being true or false during a certification process. Properties may relate to what an asset is, what it does, or how it relates to its operating environment. An assessment of a certification quality factor is accomplished by assessing the underlying certification properties. (C/SE) 1420.1a-1996

certification quality factor A high level aspect of an asset (e.g., completeness, correctness, reusability) that is assessed during a certification process. A certification quality factor is a manifestation of one or more certification properties. (C/SE) 1420.1a-1996

certification tests (1) (surge arresters) Tests made, when required, to verify selected performance characteristics of a product or representative samples thereof. (SPD/PE) C62.1-1981s

(2) Tests run on a regular, periodic basis to verify that selected key performance characteristics of a product, or representative samples thereof, have remained within performance specifications. (SPD/PE) C62.11-1999, C62.62-2000

certified design test (station control and data acquisition) A test performed on a production model specimen of a generic type of equipment to establish a specific performance parameter of that genre of equipment. The condition and results of the test are described in a document that is signed and attested to by the testing engineer and other appropriate, responsible individuals. (SWG/PE/SUB) C37.100-1992, C37.1-1994

certified Marinelli beaker standard source (germanium semiconductor detector) An MBSS that has been calibrated as to photon emission rate at specified energies by a laboratory recognized as a country's national standardizing laboratory for radioactivity measurements and has been so certified by the calibrating laboratory. *Notes*: 1. The photon emission rate as used in this standard is the number of photons per second resulting from the decay of radionuclides in the source and is thus higher than the detected rate at the surface. 2. For the United States, the US National Bureau of Standards is the National Standardizing Laboratory. *Synonym*: certified MBSS. *See also*: certified solution; Marinelli beaker standard source; certified-solution Marinelli beaker standard source; Marinelli beaker. (NPS) 680-1978w

certified MBSS *See*: certified Marinelli beaker standard source.

certified radioactivity standard source (germanium detectors) A calibrated radioactive source, with stated accuracy, whose calibration is certified by the source supplier as traceable to the National Radioactivity Measurements System. (PE/EDPG) 485-1983s

certified reference material A reference material one or more of whose property values are certified by a technically valid procedure, accompanied by or traceable to a certificate or other documentation which is used by a certifying body. (NI) N42.23-1995

certified solution (germanium semiconductor detector) A liquid radioactive filling material that has been calibrated by a laboratory (for the United States, the US National Bureau of Standards) recognized as a country's National Standardizing Laboratory for radioactivity measurements and has been so certified by the calibrating laboratory. (NPS) 680-1978w

certified-solution Marinelli beaker standard source (germanium semiconductor detector) A standard beaker that contains a certified solution as its radioactive filling material. *See also*: certified Marinelli beaker standard source; Marinelli beaker; certified solution; Marinelli beaker standard source. (NPS) 680-1978w

certified-solution MBSS *See*: certified-solution Marinelli beaker standard source.

certified sources Sources that have been certified for radionuclide activity (Bq) concentration (Bq/g) or alpha, beta, x-, or gamma-ray emission rate (s⁻¹). (NI) N42.22-1995

certified unit (test, measurement, and diagnostic equipment) A unit whose demonstrated ability to perform in accordance with preestablished criteria has been attested. (MIL) [2]

certifying agency Organization that validates that equipment meets tests and standards. (IA) 515-1997

CFAR *See*: constant-false-alarm rate.

C₅₀ The difference in dB between the first 50 ms of reverberant decay energy and the remaining decay energy from 50 ms and later. It is a member of the class of acoustic measurements commonly known as early-to-late ratios. (COM/TA) 1329-1999

CGF *See*: computer generated force.

CGI *See*: Computer Graphics Interface.

CGM *See*: Computer Graphics Metafile.

cgs electromagnetic system of units *See*: centimeter-gram-second electromagnetic system of units.

cgs electrostatic system of units *See*: centimeter-gram-second electrostatic system of units.

cgs system of units *See*: centimeter-gram-second system of units.

chad (1) The piece of material removed when forming a hole or notch in a storage medium such as punched tape or punched cards. (MIL/C) [2], [85], [20]

(2) The bit of material resulting from punching a hole in a paper card or tape. *Synonym:* chip. (C) 610.10-1994w

chadded Pertaining to the punching of tape in which chad results. (C) [20], [85]

chadless Pertaining to the punching of tape in which chad does not result. (MIL/C) [2], [85], [20]

chadless tape (1) A punched tape wherein only partial perforation is completed and the chad remains attached to the tape. (IA) [61]

(2) Perforated tape that has been punched in such a way that chad is not formed. (C) 610.10-1994w

chaff Strips of lightweight metal or metallized material that are dispensed in large numbers (bundles) so as to simulate a true target, or, more usually, to create a large clutter signal that masks the detection of wanted targets. *Notes:* 1. Each bundle may contain thousands of individual reflectors whose lengths are related to the wavelength of the radar. 2. Chaff for use at HF and VHF frequencies is sometimes called "rope." 3. During WWII, chaff was called "window" in Great Britain and "Dueppel" in Germany. (AES) 686-1997

chafing strip *See:* drive strip.

chain (1) (navigation aids) A network of similar stations operating as a group for determination of position or for furnishing navigational information. (AES/GCS) 172-1983w

(2) **(mathematics of computing)** A sequence of bits used to construct a binary code. *See also:* chain code. (C) 1084-1986w

(3) **(data management)** *See also:* linked list. (C) 610.5-1990w

chain binder *See:* binder load.

chain code An arrangement in a cyclic sequence of some or all of the possible different n -bit words in which adjacent words are related such that each word is derivable from its neighbor by displacing the bits one place to the left or right, dropping the leading bit, and inserting a bit at the end. The value of the inserted bit needs only to meet the requirement that a word must not recur before the cycle is complete. For example, 000 001 010 101 011 111 110 100 000. . .

(C) [20], 1084-1986w, [85]

chain-drive machine (elevators) An indirect-drive machine having a chain as the connecting means. *See also:* driving machine. (EEC/PE) [119]

chained list (1) (software) A list in which the items may be dispersed but in which each item contains an identifier for locating the next item. *Synonym:* linked list. *See also:* list; identifier. (C/SE) 729-1983s

(2) **(data management)** *See also:* linked list. (C) 610.5-1990w

chain field *See:* link field.

chain hoist *See:* hoist.

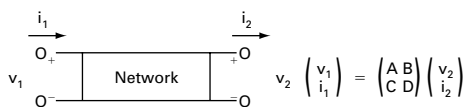
chaining (1) A method for storing records in which each record has a link field that is used to access subsequent records. (C) 610.5-1990w

(2) A mode of interaction optionally used by a DSA that cannot perform a directory operation itself; the DSA chains by invoking a directory operation of another DSA and then relaying the outcome to the original requester.

(C/PA) 1328.2-1993w, 1326.2-1993w, 1327.2-1993w, 1224.2-1993w

chaining search A search in which each item contains a means for locating the next item to be considered in the search. (C) 610.5-1990w

chain matrix The 2×2 matrix relating voltage and current at one port of a two-port network to voltage and current at the other port.



chain matrix

(CAS) [13]

chain printer An element printer in which the type slugs are carried by the links of a revolving chain, called a print chain. (C) 610.10-1994w

chain tugger *See:* hoist.

chain-type conveyor A conveyor using a driven endless chain or chains, equipped with flights that operate in a trough and move material along the trough. *See also:* conveyor. (EEC/PE) [119]

chair, boatswain *See:* boatswain's chair.

chalking (1) (composite insulators) The powdered surface on weathersheds consisting of particles of filler resulting from ultraviolet exposure. (T&D/PE) 987-1985w

(2) The development of loose removable powder at or just beneath a coating surface. (IA) [59]

(3) The powdered surface on the polymeric insulator consisting of particles of filler resulting from ultraviolet exposure or leakage current activity. (PE/IC) 48-1996

challenge (navigation aids) To cause an interrogator to transmit a signal which puts a transponder into operation. *See also:* interrogation. (AES/GCS) 172-1983w

change control *See:* configuration control.

change control board *See:* configuration control board.

change detection An image processing technique in which the pixels of two registered images are compared to detect differences. (C) 610.4-1990w

change dump A selective dump of those storage locations whose contents have changed since some specified time or event. *Synonym:* differential dump. *See also:* dynamic dump; snapshot dump; static dump; selective dump; memory dump; postmortem dump. (C) 610.12-1990

change-of-frame alignment A state that occurs when an off-line framer realigns the receiver to the proper frame alignment signal. *See also:* out-of-frame condition.

(COM/TA) 1007-1991r

change of state (COS) A significant change (as defined by a particular system) in the condition of a point being monitored, for example, a change in flow rate, temperature, voltage, etc. Usually associated with dual-status (that is, alarm/normal conditions). (PE/SUB) 1379-1997

change-over selector A device designed to carry, but not to make or break current, used in conjunction with a tap selector or arcing tap switch to enable its contacts, and the connected taps, to be used more than once when moving from one extreme position to the other. (PE/TR) C57.131-1995

change recording *See:* nonreturn-to-zero (change) recording.

changeover switch A switching device for changing electric circuits from one combination to another. *Note:* It is usual to qualify the term "changeover switch" by stating the purpose for which it is used, such as a series-parallel changeover switch, trolley-shoe changeover switch, etc. *See also:* multiple-unit control. (EEC/PE) [119]

change transaction A transaction that causes information in a master file to be changed. *See also:* delete transaction; add transaction; update transaction; null transaction. (C) 610.2-1987

CHANHI Abbreviation for upper channel corresponding to the half-amplitude point of a distribution. (NPS) 398-1972r

CHANLO Abbreviation for lower channel corresponding to the half-amplitude point of a distribution. (GSD) 200-1975w

Channel A control or data path established between two buses that allows information to flow from one bus to the other. The Channels specific to this standard are the CSR channels, the F2V and V2F data channels, the event channel, and the dual port memory Channel. (C/BA) 1014.1-1994w

channel (1) (A) (electric communication) A single path for transmitting electric signals, usually in distinction from other parallel paths. **(B) (electric communication)** A band of frequencies. *Note:* The word "path" is to be interpreted in a broad sense to include separation by frequency division or time division. The term "channel" may signify either a one-way path, providing transmission in one direction only, or a

two-way path, providing transmission in two directions.

(EEC/PE) [119], 599-1985

(2) (A) A path along which signals can be sent, for example, data channel, output channel. (B) The portion of a storage medium that is accessible to a given reading station. *See also*: track. (C) 162-1963

(3) A combination of transmission media and equipment capable of receiving signals at one point and delivering related signals at another point. *See also*: information theory.

(IT) 171-1958w

(4) (**illuminating engineering**) An enclosure containing the ballast, starter, lamp holders, and wiring for a fluorescent lamp, or a similar enclosure on which filament lamps (usually tubular) are mounted. (EEC/IE) [126]

(5) (**nuclear power generating station**) An arrangement of components and modules as required to generate a single protective action signal when required by a generating station condition. A channel loses its identity where single protective action signals are combined.

(PE/NP) 379-1994, 338-1987r, 603-1998

(6) (**metal-nitride-oxide field-effect transistor**) A surface layer of carriers connecting source and drain in an insulated-gate field-effect transistor (IGFET). This channel was formed by inversion with the help of a gate voltage, or by the presence of charges in the gate insulator, or by deliberate doping of the region. (ED) 581-1978w

(7) A band of frequencies dedicated to a certain service transmitted on the broadband medium.

(LM/C) 610.7-1995, 802.3u-1995s

(8) (**broadband local area networks**) The bandwidth required for the transportation of a signal. The bandwidth will vary according to the information being transported. A band of frequencies dedicated to a certain service transmitted on a broadband medium. (LM/C) 802.7-1989r

(9) (**speech telephony**) A means of one-way or two-way transmission provided by a vendor between two defined interface points. (The customer can realize a connection by connecting together channels from one or more vendors.) *Notes*: 1. "Provided by a vendor" means responsibility for the service and does not necessarily mean ownership of facilities. 2. Channels are provided either dedicated or switched. A dedicated channel may be a non-switched channel for the exclusive use of a customer for a contracted time period. A switched channel may be a channel established (set up and released) under customer control. 3. A channel may consist of two or more equipment items, such as transmission facilities, switching systems, etc. *See also*: connection.

(COM/TA) 823-1989w

(10) A logically independent data path between two Functions. Multiple channels can be used to reach different Functions or to represent independent instances of inter-unit communication (e.g., X.25 connections, I/O operations on different discs, datagrams to different network SAPs, etc.). Channels can either be provided by physically separate queues or by multiplexing a shared queue.

(C/MM) 1212.1-1993

(11) (A) A one-way path for transmission of signals between two or more points; for example, a data channel. *See also*: line; circuit; link. (B) In data transmission, either one-way path, providing transmission in one direction only, or two-way path, providing transmission in two directions. *Synonyms*: path. (C) 610.7-1995

(12) (A) A one-way path for transmission of signals between two or more points; for example, an output channel or a data channel. *Synonyms*: link; path; line. *See also*: circuit. (B) The portion of a storage medium that is accessible to a given reading or writing station, such as a track, or a band. (C) A two-way communications path between the central processor and its peripheral devices. (C) 610.10-1994

(13) The tester electronics associated with a digital input/output (I/O) pin that either drives or senses a particular node on the unit under test (UUT). (SCC20) 1445-1998

(14) The data path from any transmitting MIC to the next downstream receiving MIC. (LM/C) 8802-5-1998

(15) A single flow path for digital data or an analog signal, usually in distinction from other parallel paths. An IEEE 1451.2 channel provides a path for a single commodity or logical state, either real or virtual, using a single data model and a single set of physical units. (IM/ST) 1451.2-1997

(16) An instance of medium use for the purpose of passing protocol data units (PDUs) that may be used simultaneously, in the same volume of space, with other instances of medium use (on other channels) by other instances of the same physical layer (PHY), with an acceptably low frame error ratio due to mutual interference. Some PHYs provide only one channel, whereas others provide multiple channels. Examples of channel types are as shown in the following table:

Single channel	n-channel
Narrowband radio-frequency (RF) channel	Frequency division multiplexed channels
Baseband infrared	Direct sequence spread spectrum (DSSS) with code division multiple access

(C/LM) 8802-11-1999

(17) A physical or logical communication link to a single transducer or to a group of transducers considered as a single transducer. (IM/ST) 1451.1-1999

(18) (**overhead power lines**) *See also*: frequency band.

(T&D/PE) 539-1990

(19) *See also*: communication channel.

(SUB/PE) 999-1992w

channel address The portion of a full data transport address that specifies the channel to which the read or write is directed. (IM/ST) 1451.2-1997

channel-attached terminal A terminal that is connected directly to the computer by wires or cables. *Synonym*: locally-attached terminal. *Contrast*: link-attached terminal.

(C) 610.10-1994w

channel bank A device that multiplexes high-speed communication circuits into lower-speed communication channels; used primarily to digitize analog voice transmission.

(C) 610.7-1995

channel-busy tone (telephone switching systems) A tone that indicates that a server other than a destination outlet is either busy or not accessible. (COM) 312-1977w

channel calibration The adjustment of channel output such that it responds, with acceptable range and accuracy, to known values of the parameter that the channel measures, and the performance of a functional test. (PE/NP) 338-1987r

channel capacity (1) (data transmission) The maximum possible information rate through a channel subject to the constraints of that channel. *Note*: Channel capacity may be either per second or per symbol. (PE) 599-1985w

(2) (**software**) The maximum amount of information that can be transferred on a given channel per unit of time; usually measured in bits per second or in baud. *See also*: memory capacity; storage capacity. (C) 610.12-1990

channel check A qualitative assessment of performance carried out at designated intervals to determine if all elements of the channel are operating within their designated limits.

(PE/NP) 338-1987r

channel failure alarm (power-system communication) A circuit to give an alarm if a communication channel should fail. *See also*: power-line carrier. (PE) 599-1985w

channel group (data transmission) A number of channels regarded as a unit. *Note*: The term is especially used to designate part of a larger number of channels. (PE) 599-1985w

channel groupings Manufacturer specifications that define the inherent relationships between the channels of a multichannel Smart Transducer Interface Module. This grouping information is not normally used by the Smart Transducer Interface Module itself. This information will normally be used by Network Capable Application Processor applications to properly compose human readable displays or in formulating other

computations. For example, channel groupings can be used to indicate which channels represent the three vector axes of a three-axis vector measurement. (IM/ST) 1451.2-1997

channel hot electrons (CHE) Electrons that are generated by sufficiently high electric fields in the channel with energies that exceed the thermal equilibrium energy.

(ED) 1005-1998

channel insertion loss The static loss of a link between a transmitter and receiver. It includes the loss of the fiber, connectors, and splices. (C/LM) 802.3-1998

channeling, lattice *See*: lattice channeling.

channel lights (illuminating engineering) Aeronautical ground lights arranged along the sides of a channel of a water aerodrome. (EEC/IE) [126]

channel load factor (1) The fraction of channel operating time used to transfer the required volume of information between its terminals. (SUB/PE) C37.1-1994

(2) The percent of channel capacity in bits per second required to support the effective data rate for information exchange. (SWG/PE) C37.100-1992

channel, melting *See*: melting channel.

channel multiplier A tubular electron-multiplier with a continuous interior surface of secondary-electron emissive material. *See also*: camera tube; amplifier. (ED) [45]

channel_number A system-dependent, system-global value that is used by communicating Functions to designate a channel. (C/MM) 1212.1-1993

channel path The routing, switching and line links between an input-output channel and some peripheral device. *Note*: There may be multiple channel paths between a channel and a device. (C) 610.7-1995, 610.10-1994w

channel, radio *See*: radio channel.

channel router A machine used to determine a path between two points. *Note*: Often used in the design and layout of integrated circuits and printed circuit boards. (C) 610.10-1994w

channel spacing (radio communication) The frequency increment between the assigned frequency of two adjacent radio-frequency channels. *See also*: radio transmission; two-frequency simplex operation; single-frequency simplex operation; dispatch operation. (VT) [37]

channel service unit (CSU) A device that performs transmit and receive filtering, signal shaping, longitudinal balance, voltage isolation, equalization, and remote loopback testing in a digital communications environment. *Synonym*: digital modem. *See also*: data service unit. (C) 610.7-1995

channel supergroup (data transmission) A number of channel groups regarded as a unit. *Note*: The term is especially used to designate part of a larger number of channels. (PE) 599-1985w

channel, surface *See*: surface channel.

channel timeslots A timeslot that occupies a specified position(s) in a frame and is allocated to a particular time-derived channel. (COM/TA) 1007-1991r

channel utilization index The ratio of the information rate (per second) through a channel to the channel capacity (per second). *See also*: information theory. (IT) 171-1958w

Chapin chart *See*: box diagram.

char The name of a data-type in the C programming language that stands for character, or a group of eight bits that function as a single unit. (PE/SUB) 1379-1997

character (1) (A) An elementary mark or event that may be combined with others, usually in the form of a linear string, to form data or represent information. If necessary to distinguish from definition (B) below, such a mark may be called a "character event." **(B)** A class of equivalent elementary marks or events as in definition (A) having properties in common, such as shape or amplitude. If necessary to distinguish from definition (A) above, such a class may be called a "character design." There are usually only a finite set of character designs in a given language. *Notes*: 1. In "bookkeeper" there

are six character designs and ten character events, while in "1010010" there are two character designs and seven character events. 2. A group of characters, in one context, may be considered as a single character in another, as in the binary-coded-decimal system. *See also*: control character; numerical control; special character; check character; escape character. (C/MIL) 162-1963, [2]

(2) (data transmission) One of a set of elementary symbols which normally include both alpha and numeric codes plus punctuation marks and any other symbol which may be read, stored, or written and is used for organization, control, or representation of data. (PE) 599-1985w

(3) (computers) A letter, digit, or other symbol that is used to represent information. *See also*: alphanumeric; alphabetic. (C) 610.7-1995, 1084-1986w, 610.5-1990w, 610.12-1990

(4) A group of consecutive bits used to represent control or data information. Characters are of two types: normal characters (N_chars) or link characters (L_chars). *See also*: link character; normal character; control character; data character. (C/BA) 1355-1995

(5) A sequence of one or more bytes representing a single graphic symbol. *Note*: This term corresponds in the C Standard to the term *multibyte character*, noting that a single-byte character is a special case of multibyte character. Unlike the usage in the C Standard, *character* here has no necessary relationship with storage space, and byte is used when storage space is discussed. (PA/C) 9945-1-1996, 9945-2-1993

(6) A letter, digit, or other special form that is used as part of the organization, control, or representation of data. A character is often in the form of a spatial arrangement of adjacent or connected strokes. (PE/TR) C57.12.35-1996

(7) A sequence of one or more values of type `POSIX_CHARACTER`. *Note*: This definition of the term *character* applies when it is used by itself. It does not apply to qualified phrases containing the word character, such as `POSIX_CHARACTER`, `graphic character`, `Ada character`, and `character special file`. (C) 1003.5-1999

character-at-a-time printer A printer that prints a single character at a time. *Synonym*: serial printer. *Contrast*: page printer; line printer. (C) 610.10-1994w

character attribute A characteristic of a single text character. For example, expansion factor, spacing, height, up vector. (C) 610.6-1991w

character-based user interface A user interface in which commands must be expressed in characters entered on a keyboard. *Synonym*: text-based user interface. *Contrast*: graphical user interface. (C) 610.10-1994w

character boundary In character recognition, the largest rectangle, with a side parallel to the document reference edge, whose sides are tangential to a given character outline. (C) 610.2-1987

character class A named set of characters sharing an attribute associated with the name of the class. The classes and the characters that they contain are dependent on the value of the `LC_CTYPE` category in the current locale. (PA/C) 9945-2-1993

character code A code that uses unique numeric values to represent character data; for example, in ASCII the hexadecimal value 40 is used to represent the character "@"." (C) 610.5-1990w

character-deletion character A character within a line of terminal input specifying that it and the immediately preceding character are to be removed from the line; for example, if "\x" is the character-deletion character in the string "ABDC," the following would appear on the terminal: "ABC." *See also*: line-deletion character. (C) 610.5-1990w

character density (test, measurement, and diagnostic equipment) The number of characters that can be stored per unit area or length. (MIL) [2]

character device A printer or other peripheral device that receives data character by character. (C) 610.10-1994w

character display device A display device that provides a representation of data only in the form of characters. *Synonyms:* readout device; alphanumeric display device. *Contrast:* graphic display device. (C) 610.10-1994w

character distortion (data transmission) The normal and predictable distortion of data bit produced by characteristics of a given circuit at a particular transmission speed. (PE) 599-1985w

character fill To insert into a storage medium, as often as necessary, the representation of a specified filler character that does not itself convey data but that may delete unwanted data or initialize storage. *See also:* zero fill. (C) 610.5-1990w

character font (1) A set of graphic characters that are of the same size and style. *Synonym:* type font. *See also:* hand-printed character font; OCR-A; OCR-B; optical font; font disk. (C) 610.2-1987

(2) A family or related set of graphic characters that are of the same style of type. For example, Courier Bold Oblique. (C) 610.10-1994w

character form (microprocessor object modules) The printable character representation of binary information as opposed to bit pattern information. (C/MM) 695-1985s

character generator (1) A device that uses predefined character patterns to generate characters on a display surface. *See also:* stroke character generator; matrix character generator. (C) 610.6-1991w

(2) A device that forms character images on a display device or printer. (C) 610.10-1994w

character-indicator tube A glow-discharge tube in which the cathode glow displays the shape of a character, for example, letter, number, or symbol. (ED) [45]

character interval (data transmission) In start-stop operation the duration of a character expressed as the total number of unit intervals (including information, error checking and control bits, and the start and stop elements) required to transmit any given character in any given communication system. (PE) 599-1985w

characteristic (1) (A) (mathematics of computing) The integer part of a logarithm. *Contrast:* mantissa. **(B) (mathematics of computing)** For floating point arithmetic. *See also:* exponent. (C) 1084-1986

(2) (software) *See also:* data characteristic; software characteristic. (C) 610.12-1990

(3) (nuclear power quality assurance) Any property or attribute of an item, process, or service that is distinct, describable, or measurable. (PE/NP) [124]

(4) (semiconductor devices) An inherent and measurable property of a device. Such a property may be electrical, mechanical, thermal, hydraulic, electro-magnetic or nuclear and can be expressed as a value for stated or recognized conditions. A characteristic may also be a set of related values, usually shown in graphical form. (IA) [12]

characteristic curve (1) (illuminating engineering) A curve that expresses the relationship between two variable properties of a light source, such as candlepower and voltage, flux and voltage, etc. (EEC/IE) [126]

(2) (Hall generator) A plot of Hall output voltage versus control current, magnetic flux density, or the product of magnetic flux density and control current. (MAG) 296-1969w

characteristic curves (rotating machinery) The graphical representation of the relationships between certain quantities used in the study of electric machines. *See also:* asynchronous machine. (PE) [9]

characteristic distortion (telegraphy) A displacement of signal transitions resulting from the persistence of transients caused by preceding transitions. *See also:* telegraphy. (COM) [49]

characteristic element (surge arresters) The element that in a valve-type arrester determines the discharge voltage and the follow current. *See also:* surge arrester. (PE) [8]

characteristic equation (feedback control system) The relation formed by equating to zero the denominator of a transfer function of a closed loop. *See also:* feedback control system. (IM) [120]

characteristic harmonic (1) (converter characteristics) (self-commutated converters) Those harmonics produced by semiconductor converter equipment in the course of normal operation. In a six-pulse converter, the characteristic harmonics are the nontriple odd harmonics, for example, the 5th, 7th, 11th, 13th, etc. (IA/SPC) 936-1987w

(2) Those harmonics produced by semiconductor converter equipment in the course of normal operation. In a six-pulse converter, the characteristic harmonics are the nontriple odd harmonics, for example, the 5th, 7th, 11th, 13th, etc.

$$h = kq \pm 1$$

$k =$ any integer

$q =$ pulse number of converter

(IA/SPC) 519-1992

characteristic impedance (1) (A) (data transmission) (two-conductor transmission line for a traveling transverse electromagnetic wave). The ratio of the complex voltage between the conductors to the complex current on the conductors in the same transverse plane with the sign so chosen that the real part is positive. **(B) (data transmission) (coaxial transmission line).** The driving impedance of the forward-traveling transverse electromagnetic wave. (PE) 599-1985

(2) (circular waveguide) For a traveling wave in the dominant ($TE_{1,1}$) mode of a lossless circular waveguide at a specified frequency above the cutoff frequency,

- the ratio of the square of the root-mean-square voltage along the diameter where the electric vector is a maximum to the total power flowing when the guide is match terminated.
- the ratio of the total power flowing to the square of the total root-mean-square longitudinal current flowing in one direction when the guide is match terminated.
- the ratio of the root-mean-square voltage along the diameter where the electric vector is a maximum to the total root-mean-square longitudinal current flowing along the half surface bisected by the diameter when the guide is match terminated.

Note: Under definition (a) the power $W = V^2/Z_{(w,v)}$ where V is the voltage and $Z_{(w,v)}$ is the characteristic impedance defined in (a). Under definition (b) the power $W = I^2 Z_{(w,i)}$ where I is the current and $Z_{(w,i)}$ is the characteristic impedance defined in (b). The characteristic impedance $Z_{(v,i)}$ as defined in (c) is the geometric mean of the values given by (a) and (b). Definition (c) can be used also below the cutoff frequency. *See also:* waveguide; self-impedance.

(3) (rectangular waveguide) For a traveling wave in the dominant ($TE_{1,0}$) mode of a lossless rectangular waveguide at a specified frequency above the cutoff frequency,

- the ratio of the square of the root-mean-square voltage between midpoints of the two conductor's faces normal to the electric vector, to the total power flowing when the guide is match terminated.
- the ratio of the total power flowing to the square of the root-mean-square longitudinal current, flowing on one face normal to the electric vector when the guide is match terminated.
- the ratio of the root-mean-square voltage, between midpoints of the two conductor faces normal to the electric vector, to the total root-mean-square longitudinal current, flowing on one face when the guide is match terminated.

Note: Under definition (a) the power $W = V^2/Z_{(w,i)}$ where V is the voltage, and $Z_{(w,v)}$ the characteristic impedance defined in definition (a). Under definition (b) the power $W = 2I Z_{(w,i)}$ where I is the current and $Z_{(w,v)}$ the characteristic impedance defined in definition (b). The characteristic impedance $Z_{(v,i)}$

as defined in definition (c) is the geometric mean of the values given by definition (a) and definition (b). Definition (c) can be used also below the cutoff frequency. *See also:* self-impedance; waveguide.

(4) (two-conductor transmission line) (for a traveling transverse electromagnetic wave). The ratio of the complex voltage between the conductors to the complex current on the conductors in the same transverse plane with the sign so chosen that the real part is positive. *See also:* waveguide; self-impedance; transmission line.

(5) (coaxial transmission line) The driving impedance of the forward-traveling transverse electromagnetic wave. *See also:* self-impedance; transmission line. (MTT) 146-1980w

(6) (surge arresters) (surge impedance) The driving-point impedance that the line would have if it were of infinite length. *Note:* It is recommended that this term be applied only to lines having approximate electric uniformity. For other lines or structures the corresponding term is "iterative impedance." *See also:* self-impedance. (PE) [8]

(7) (overhead-power-line corona and radio noise) The ratio of the complex voltage of a propagation mode to the complex current of the same propagation mode in the same transverse plane with the sign so chosen that the real part is positive. *Note:* The characteristic impedance of a line with losses neglected is known as the surge impedance. *See also:* propagation mode. (T&D/PE) 539-1990

(8) The ratio of the complex value of voltage between the conductors to the complex value of current on the conductors in the same transverse plane with the sign so chosen that the real part is positive. (PE/PSC) 789-1988w

(9) (planar transmission lines) A parameter having the dimensions of impedance (volt per ampere = ohm) that characterizes a mode of propagation. For a transverse electromagnetic (TEM) mode propagating in a single direction on a two-conductor transmission line,

Z_0 = the ratio of voltage to current at any cross section or

$$Z_0 = R(Z/Y)$$

where

Z = series inductance per unit length

Y = shunt admittance per unit length of the transmission line

$$Z_0 = V^2/2P = 2P/I^2$$

where

P = time-average power transmitted through any cross section

V = amplitude of the voltage

I = amplitude of the current

For modes other than TEM, different definitions will not in general provide the same numerical value; in those cases, the definition of the characteristic impedance is dictated by custom and by its usefulness in the specific application in question. For most planar transmission lines, the fundamental propagation mode is not purely TEM and a characteristic impedance cannot be defined unambiguously. Techniques for defining and calculating impedances in these cases can be found in the literature. (MTT) 1004-1987w

(10) (of a symmetrical pair of coupled lines) The geometric mean of the even and odd mode characteristic impedances. (MTT) 1004-1987w

(11) (A) For a transmission line, the ratio of the complex voltage between the conductors to the complex current on the conductors, taken at a common reference plane for a single transverse electromagnetic (TEM) propagating wave. **(B)** For a wave guide, the ratio of the complex transverse electric field component at any point in the wave guide to the complex magnetic field component measured perpendicular to the electric field at the same point in the wave guide for a single propagating wave guide mode. **(C)** For an unbounded homogeneous medium, the ratio of the complex transverse elec-

tric field component at any point to the complex magnetic field component measured perpendicular to the electric field at the same point. *Note:* For example, for a linearly polarized transverse electromagnetic (TEM) wave propagating in the z -direction of an isotropic medium E_x/H_y is the characteristic impedance. (AP/PROP) 211-1997

characteristic insertion loss (1) (waveguide and transmission line)

The insertion loss in a transmission system that is reflectionless looking toward both the source and the load from the inserted transducer. *Notes:* 1. This loss is a unique property of the inserted transducer. 2. The frequency, internal impedance, and available power of the source and the impedance of the load have the same value before and after the transducer is inserted. *See also:* waveguide. (IM/HFIM) [40]

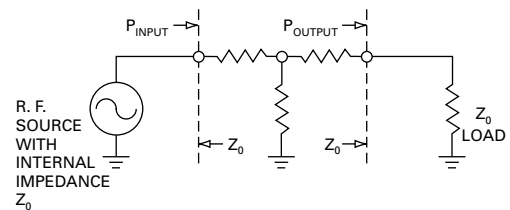
(2) (fixed and variable attenuators)

P_{INPUT} = Incident power from Z_0 source

P_{OUTPUT} = Net power into Z_0 load

Characteristic insertion loss =

$$10 \log_{10} \frac{P_{INPUT}}{P_{OUTPUT}} \text{ (dB)}$$



characteristic insertion loss

(NPS/NID) 309-1970s

characteristic insertion loss, incremental The change in the characteristic insertion loss of an adjustable device between two settings. *See also:* waveguide. (IM/HFIM) [40]

characteristic insertion loss, residual The characteristic insertion loss of an adjustable device at an indicated minimum position. *See also:* waveguide. (IM/HFIM) [40]

characteristic insertion phase shift (network analyzers) (waveguide and transmission line)

The phase shift occurring upon insertion of a device in a transmission system that is reflectionless looking toward both the source and the load from the insertion plane. *Notes:* 1. The frequency, incident power from the source port, and impedance of the load port are the same before and after the device is inserted. 2. The connectors of source and load ports mate directly. The device can be inserted and its connectors can mate directly with the connectors of the source and load ports. (IM/HFIM) 378-1986w

characteristic overflow *See:* exponent overflow.

characteristic phase shift For a two-port device inserted into a stable, nonreflecting system between the generator and its load, the magnitude of the phase change of the voltage wave incident upon the load before and after insertion of the device, or change of the device from initial to final condition. *Note:* The following conditions apply:

- The frequency, the load impedance, and the generator characteristics, internal impedance and available power, initially have the same values as after the device is inserted;
- the joining devices, connectors, or adapters belonging to the system conform to some set of standard specifications—the same specifications to be used by different laboratories, if measurements are to agree precisely;
- the nonreflecting conditions are to be obtained in uniform, standard sections of waveguide on the system sides of the connectors at the place of insertion.

See also: measurement system.

(IM) [38]

characteristics Those inherent factors of software development that may have a significant impact on productivity.

(C/SE) 1045-1992

characteristics related to the voltage collapse during chopping (high voltage testing) (chopped impulses) The characteristics of the voltage collapse during chopping are defined in terms of two points C and D at 70% and 10% of the voltage at the instant of chopping. The virtual duration of the voltage collapse is 1.67 times the time interval between points C and D. The virtual steepness of the voltage collapse is the ratio of the voltage at the instant of chopping to the virtual duration of voltage collapse. *Note:* The use of points C and D is for definition purposes only; it is not implied that the duration and steepness of chopping can be measured with any degree of accuracy using conventional measuring circuits.

(PE/PSIM) 4-1978s

characteristic telegraph distortion Distortion that does not affect all signal pulses alike, the effect on each transition depending upon the signal previously sent, due to remnants of previous transitions or transients that persist for one or more pulse lengths. *Note:* Lengthening of the mark pulse is positive, and shortening, negative. Characteristic distortion is measured by transmitting biased reversals, square waves having unequal mark and space pulses. The average lengthening or shortening of mark pulses, expressed in percent of unit pulse length, gives a true measure of characteristic distortion only if other types of distortion are negligible. *See also:* modulation.

(AP/ANT) 145-1983s

characteristic time (gyros) The time required for the output to reach 63% of its final value for a step input. *Note:* For a single-degree-of-freedom, rate-integrating gyro, characteristic time is numerically equal to the ratio of the float moment of inertia to the damping coefficient about the output axis. For certain fluid-filled sensors, the float moment of inertia may include other effects, such as that of transported fluid.

(AES/GYAC) 528-1994

characteristic underflow *See:* exponent underflow.

characteristic wave A wave that propagates in a homogeneous anisotropic medium with unchanging polarization. *See also:* extraordinary wave; ordinary wave.

(AP/PROP) 211-1997

characteristic wave impedance The wave impedance of a traveling wave, with the sign so chosen that the real part is positive. *Note:* In a given mode, in a homogeneously filled waveguide, this is constant for all points and all cross-sections.

(MTT) 146-1980w

character layer The layer of the protocol stack which specifies the representation of characters in terms of groups of consecutive bits. The character layer provides the service to the higher layers of the transmission of a continuous sequence of characters on a link.

(C/BA) 1355-1995

character outline In character recognition, the graphic pattern established by the stroke edges of a character.

(C) 610.2-1987

character printer A printer that can print only character text. *Contrast:* graphic printer.

(C) 610.10-1994w

character reader A reader that can recognize hand-written or printed characters using character recognition. *See also:* optical character reader; page reader; magnetic ink character reader.

(C) 610.10-1994w

character recognition The use of pattern recognition techniques to identify characters by automatic means. *See also:* magnetic ink character recognition; single-font character recognition; omni-font character recognition; optical character recognition.

(C) 610.2-1987

character representation system *See:* character set.

character set (1) (A) The set of all characters that is defined for a given system. **(B)** A finite set of unique characters upon which agreement has been reached and that is considered complete for some purpose; for example, all the letters, numbers, and symbols used in a language. **(C)** A finite set of unique representations called characters, made to denote and

distinguish data; for example, the 26 letters of the English alphabet; 0 and 1 of the boolean alphabet; the set of signals in the Morse code alphabet; and the 128 ASCII characters. *See also:* coded character set; numeric character set; alphanumeric character set; alphabetic character set.

(C) 610.5-1990

(2) Those characters that are available for encoding within the bar code symbol.

(PE/TR) C57.12.35-1996

character spacing reference line In character recognition, a vertical line that is used to evaluate the horizontal spacing of characters. *Note:* It may be a line that equally divides the distance between the sides of a character boundary or that coincides with the centerline of a vertical stroke.

(C) 610.2-1987

character special file A file that refers to a device. One specific type of character special file is a terminal device file.

(C/PA) 9945-1-1996, 1003.5-1999, 9945-2-1993

character special file for use with XTI calls A file of a particular type that is used for process-to-process communication. A character special file for use with XTI calls corresponds to a communications endpoint that uses a specified family of communications protocols.

(C) 1003.5-1999

character string (1) A sequence of characters; for example, the character string 72ZABC. *See also:* bit string.

(C) 610.5-1990w

(2) An ordered sequence of zero or more characters.

(C/PA) 1328-1993w, 1224-1993w, 1327-1993w

character string picture data Picture data that is associated with a picture specification that specifies at least one alphanumeric character.

(C) 610.5-1990w

character stroke In optical character recognition, a line, point, arc, or other mark used as a portion of a graphic character. For example, the dot over the letter i or the cross of the letter t.

(C) 610.2-1987

character type A data type whose members can assume the values of specified characters and can be operated on by character operators, such as concatenation. *Contrast:* enumeration type; logical type; real type; integer type.

(C) 610.12-1990

character variable A variable that may assume values of any character within some character set.

(C) 610.5-1990w

charactron A CRT display device that incorporates a metallic foil into which characters are embossed. The electron beam is directed to the location of a desired character on the foil and its image focused onto the display surface.

(C) 610.10-1994w

charge (1) (power operations) The amount paid for a service rendered or facilities used or made available for use. *See also:* terminations charge; facilities charge; wheeling charge; customer charge; connection charge; energy charge; demand charge.

(PE/PSE) 858-1987s

(2) (storage battery) (storage cell) The conversion of electric energy into chemical energy within the cell or battery. *Note:* This restoration of the active materials is accomplished by maintaining a unidirectional current in the cell or battery in the opposite direction to that during discharge; a cell or battery that is said to be charged is understood to be fully charged.

(EEC/PE) [119]

(3) (electric power supply) The amount paid for a service rendered or facilities used or made available for use.

(PE/PSE) 346-1973w

(4) The conversion of electrical energy into chemical energy within the battery.

(IA/PSE) 602-1996

(5) (induction and dielectric heating usage) *See also:* load.

charge, apparent *See:* apparent charge.

charge carrier (1) (x-ray energy spectrometers) (charged-particle detectors) (germanium gamma-ray detectors) (of a semiconductor) A mobile conduction electron or mobile hole.

(IM/ED/NID) 314-1971w, 216-1960w, 300-1988r,

301-1976s

(2) A mobile electron or hole.

(NPS) 325-1996

charge collection time (1) (x-ray energy spectrometers) (charged-particle detectors) (germanium gamma-ray detectors) (semiconductor) The time interval, after the passage of an ionizing particle, for the integrated current flowing between the terminals of the detector to increase from 10% to 90% of its final value. *Synonym:* charge sweep-out time.

(IM/NPS/HFIM/NID) 314-1971w, 759-1984r, 300-1988r, 325-1996

(2) (semiconductor radiation detectors) The time interval, after the passage of an ionizing particle, for the integrated current flowing between the terminals of the detector to increase from 10% to 93% of its final value.

(NID) 301-1976c

charge, connection *See:* connection charge.

charge-coupled device A storage device in which individual semiconductor components are connected to each other so that the electrical charge at the output of one device provides the input to the next.

(C) 610.10-1994w

charge, customer *See:* customer charge.

charged aerosol Ion comprised of charged particles, liquid or solid, suspended in air. Typical radius is in the range of 2×10^{-8} m to 2×10^{-7} m. Mobility is in the range of 10^{-9} m to 10^{-7} m²/Vs. *Note:* Historically, these have been referred to as large or Langevin ions. The use of the term "charged aerosols" is encouraged.

(T&D/PE) 1227-1990r

charge delay The time delay after answer supervision is recognized before the beginning of charge recording. In public telephone service (PTS), a call is defined as answered when the called party off-hook supervision duration exceeds the minimum chargeable duration (MCD) after an allowance equal to the worst possible inaccuracy known about the timing sensor has been applied. Should called supervision return on-hook before the MCD has elapsed, MCD timing may start again with the next called party off-hook transition.

(COM/TA) 973-1990w

charge-delay interval (telephone switching systems) The recognition time for a valid answer signal in message charging.

(COM) 312-1977w

charge, demand *See:* demand charge.

charge, energy *See:* energy charge.

charge, facilities *See:* facilities charge.

charge pump Circuitry that is used to create an on-chip voltage that is greater in magnitude than the voltage available from the device power supply. This voltage is typically used for the write operation.

(ED) 1005-1998

charge-resistance furnace A resistance furnace in which the heat is developed within the charge acting as the resistor. *See also:* electrothermics.

charge-sensitive preamplifier An amplifier preceding the main amplifier in which the output amplitude is proportional to the charge injected at the input. *See also:* voltage-sensitive preamplifier.

(NPS) 325-1996

charge, space *See:* space charge.

charge storage (semiconductor) (nonlinear, active, and non-reciprocal waveguide components) An electrical property of step recovery, dual mode, and p-i-n diodes. As the diode is driven into forward conduction by the first half-cycle of the incident signal, it stores a charge and appears as a low impedance. As the polarity of the incident signal reverses, the charge is extracted, and the diode remains in its low-impedance state until virtually all of the charge is removed, whereupon the diode rapidly switches to a high-impedance state.

(MTT) 457-1982w

charge-storage tube (electrostatic memory tube) A storage tube in which the information is retained on the storage surface in the form of a pattern of electric charges.

(ED) 158-1962w

charge sweep-out time *See:* charge collection time.

charge, termination *See:* termination charge.

charge-to-third-number call (telephone switching systems) A call for which the charges are billed to a number other than that of the calling or called number.

(COM) 312-1977w

charge transfer The process of charge movement, especially that occurring during a transient discharge.

(PE/T&D) 539-1990

charge transit time *See:* transit time.

charge voltage The voltage difference between the intruder and the receptor just prior to an ESD.

(SPD/PE) C62.47-1992r

charge, wheeling *See:* wheeling charge.

charging (1) (overhead power lines) The process, or the result of any process, by which an atom, molecule, molecular cluster, or aerosol acquires either a positive or a negative charge.

(PE/T&D) 539-1990

(2) (electrostatography) *See also:* sensitizing; electrostatography.

charging (capacitance) current Current resulting from charge absorbed by the capacitor formed by the capacitance of the bushing.

(PE/TR) C57.19.03-1996

charging circuit (surge generator) (surge arresters) The portion of the surge generator connections through which electric energy is stored up prior to the production of a surge. *See also:* surge arrester.

(PE) [8], 64

charging current (1) (transmission lines) The current that flows in the capacitance of a transmission line when voltage is applied at its terminals. *See also:* transmission line.

(T&D/PE) [10]

(2) The maximum continuous current at any charge voltage that may flow at the ESD simulator probe tip as measured to the return path of the simulator through a 1500 Ω resistor that is connected to the probe tip.

(EMC) C63.16-1993

charging inductor An inductive component used in the charging circuit of a pulse-forming network.

(MAG) 306-1969w

charging rack A device used for holding batteries for mining lamps and for connecting them to a power supply while the batteries are being recharged. *See also:* mine feeder circuit.

(EEC/PE/MIN) [119]

charging rate (1) (storage battery) (storage cell) The current expressed in amperes at which a battery is charged. *See also:* charge.

(EEC/PE) [119]

(2) The output current expressed in amperes at which the battery is charged.

(IA/PSE) 602-1996

charles or kino gun *See:* end injection.

chart (1) (navigation aids) A map intended primarily for navigation use.

(AES/GCS) 172-1983w

(2) (recording instrument) The paper or other material upon which the graphic record is made. *See also:* moving element.

(EEC/PE) [119]

chart-comparison unit (navigation aids) A device for the simultaneous viewing of a navigational chart in such a manner that one appears superimposed upon the other.

(AES/GCS) 172-1983w

chart mechanism (recording instrument) The parts necessary to carry the chart. *See also:* moving element.

(EEC/ERI) [111]

chart scale (recording instrument) The scale of the quantity being recorded, as marked on the chart. *Note:* Independent of and generally in quadrature with the chart scale is the time scale that is graduated and marked to correspond to the principal rate at which the chart is advanced in making the recording. This quadrature scale may also be used for quantities other than time. *See also:* moving element.

(EEC/PE) [119]

chart scale length (recording instrument) The shortest distance between the two ends of the chart scale. *See also:* instrument.

(EEC/PE) [119]

chassis (1) (printed-wiring boards) (frame connection) (equivalent chassis connection) A conducting connection to a chassis or frame, or equivalent chassis connection of a printed-

wiring board. The chassis or frame (or equivalent chassis connection of a printed-wiring board) may be at substantial potential with respect to the earth or structure in which this chassis or frame (or printed-wiring board) is mounted.

(GSD) 315-1975r

(2) A subrack that is in accordance with IEC 50. (C/BA) 1101.3-1993

(3) A subrack as specified in IEC 50. (C/BA) 1101.4-1993

chassis shield A shield that resides between two modules and attaches to the mainframe. (C/MM) 1155-1992

chatter A condition that results when transceiver electronics fail to shut down and the transceiver floods the network with random signals. *Synonym:* transceiver chatter. (C) 610.7-1995

chatter, relay *See:* relay chatter time; relay contact chatter.

CHDL *See:* computer hardware description language.

Chebyshev filter A filter whose pass-band frequency response has an equal-ripple shape brought about by the use of Chebyshev cosine polynomials as the approximating function. (CAS) [13]

check (1) (monitoring radioactivity in effluents) The use of a source to determine if the detector and all electronic components of the system are operating correctly. (NI) N42.18-1980r

(2) **(radiological monitoring instrumentation)** To determine if the detector and all electronic components of a system are operating satisfactorily by determining consistent response to the same source. (NI) N320-1979r

(3) **(instrument or meter)** Ascertain the error of its indication, recorded value, or registration. *Note:* The use of the word "standardize" in place of "adjust" to designate the operation of adjusting the current in the potentiometer circuit to balance the standard cell is deprecated. *See also:* test. (EEC/PE) [119]

(4) **(computer-controlled machines)** A process of partial or complete testing of either the "correctness of machine operations" or "the existence of certain prescribed conditions within the computer." A check of any of these conditions may be made automatically by the equipment or may be programmed. (C) 162-1963w, 270-1966w

(5) **(nuclear power generating station)** The use of a source to determine if the detector and all electronic components of the system are operating correctly. (PE/NP) 380-1975w

(6) **(A) (transmission line supporting structures)** A separation along the grain of the wood, the separation occurring across the annual rings. **(B) (transmission line supporting structures)** A lengthwise separation of the wood that usually extends across the rings of annual growth and commonly results from stresses set up in wood during seasoning. (T&D/PE) 751-1990

(7) **(software)** To verify the accuracy of data transmitted, manipulated, or stored by any unit or device in a computer. *See also:* automatic check; sequence check; check key; echo check; consistency check; check character. (C) 610.5-1990w

checkback (1) The retransmission from the receiving end to the initiating end of a coded signal or message to verify, at the initiating end, the initial message before proceeding with the transmitting of data or a command. (SWG/PE) C37.100-1992

(2) *See also:* check before operate. (PE) 599-1985w

check back The retransmission from the receiving end to the initiating end of a coded signal or message to verify, at the initiating end, the initial message before proceeding with the transmitting of data or a command. (SWG/PE) C37.100-1981s

checkback message The response from the receiving end to the initiating end of a coded signal or message. *See also:* complete checkback message; partial checkback message. (SWG/PE/SUB) C37.100-1992, C37.1-1987s

check before operate (data transmission) A message and control technique providing for confirmation of control request before operation. *Synonym:* checkback. (PE) 599-1985w

check bit A binary check digit. For example, a parity bit. (C) 1084-1986w

check bits (data transmission) Associated with a code character or block for the purpose of checking the absence of error within the code character or block. *See also:* data processing. (COM) [49]

check box A visual user interface control used to set and reset parameters that have only two (binary) values (e.g., True/False, On/Off, Active/Inactive). When the control is set, a visual indication is provided to indicate its state (e.g., the check box is filled). The user can reset the parameter by selecting the check box again. A check box can be within a group of check boxes. Normally a group of check boxes are not mutually exclusive. (C) 1295-1993w

check card A punch card so formatted as to be suitable for use as a negotiable bank check; for example, a U.S. series E bond. (C) 610.10-1994w

check character (1) A character used for the purpose of performing a check, but often otherwise redundant. (C) [20]

(2) **(A) (data management)** A character used for the purpose of performing a check. **(B) (data management)** A single character from a check key. (C) 610.5-1990

(3) A character added to a group of characters to provide data redundancy to permit error detection and error correction. (C) 610.7-1995

(4) A calculated character often included within a bar code symbol whose value is used for performing a mathematical check of the validity of the decoded data. (PE/TR) C57.12.35-1996

check code *See:* security code.

check digit (1) A digit used for the purpose of performing a check, but often otherwise redundant. *See also:* forbidden combination; check. (C) [20]

(2) **(mathematics of computing)** One of a set of redundant digits in a word, byte, character, or message that depends upon the remaining digits in such a fashion that if a digit changes, the error can be detected. (C) 1084-1986w

checking or interlocking relay (power system device function numbers) A relay that operates in response to the position of a number of other devices (or to a number of predetermined conditions) in an equipment, to allow an operating sequence to proceed, or to stop, or to provide a check of the position of these devices or of these conditions for any purpose. (PE/SUB) C37.2-1979s

check key A key that is used for the purpose of performing a check; for example, in the following example the check key is equal to the sum of the first and last digit in field *x*; this check key could be used to ensure that field *x* is accurate and complete.

record number	field <i>x</i>	check key
1	0125	5
2	1136	7
3	2228	10

(C) 610.5-1990w

checkout (1) (test, measurement, and diagnostic equipment)

A sequence of tests for determining whether or not a device or system is capable of, or is actually performing, a required operation or function. (MIL) [2]

(2) **(software)** Testing conducted in the operational or support environment to ensure that a software product performs as required after installation. (C) 610.12-1990

checkout equipment (test, measurement, and diagnostic equipment) Electric, electronic, optical, mechanical, hydraulic, or pneumatic equipment, either automatic, semiautomatic, or any combination thereof, which is required to perform the checkout function. (MIL) [2]

checkout time (test, measurement, and diagnostic equipment) Time required to determine whether designated characteristics of a system are within specified values. (MIL) [2]

checkpoint (1) (electronic computation) A place in a routine where a check, or a recording of data for restart purposes, is performed.

(2) (electronic navigation) *See also:* way point.
(AES/C/RS) 686-1982s, [85], [20]

(3) (software) A point in a computer program at which program state, status, or results are checked or recorded.
(C) 610.12-1990

check problem (A) (electronic computation) A routine or problem that is designed primarily to indicate whether a fault exists in the computer, without giving detailed information on the location of the fault. *Synonym:* check routine. *See also:* programmed check; test; diagnostic. **(B)** A test or problem that is chosen to determine whether an operations or computer program is operating properly. (C) 162-1963, 610.5-1990

check, programmed *See:* programmed check.

check, redundant *See:* redundant check.

check routine *See:* check problem.

check, selection *See:* selection check.

check solution (analog computer) A solution to a problem obtained by independent means to verify a computer solution.
(C) 165-1977w

check source (1) (radiological monitoring instrumentation) (liquid-scintillation counting) (radiation protection) (sodium iodide detector) (germanium detectors) A radioactivity source, not necessarily calibrated, that is used to confirm the continuing satisfactory operation of an instrument. Four types of check sources that are of the vial type may be used:
1) Flame-sealed glass (activity known)
2) Flame-sealed glass (activity unknown)
3) Screw-capped glass or plastic (activity known)
4) Screw-capped glass or plastic (activity unknown)

Check sources of the type (1) can be used for all measurements described in the standards listed below. Such sources are available from instrument manufacturers of radiochemicals. They are often designated as "unquenched standards."
(PE/EDPG) N320-1979r, N323-1978r, 485-1983s

(2) (liquid-scintillation counting) A radioactive source, not necessarily calibrated, that is used to confirm the continuing satisfactory operation of an instrument.
(NI/NPS) N42.15-1990, N42.12-1994, 309-1999

checksum (1) (microprocessor object modules) A deterministic function of a file's contents. If a file is copied and the checksum of the copy is different from the original, there has been an error in copying. (MM/C) 695-1985s

(2) A sum obtained by adding the digits in a numeral, or a group of numerals, usually without regard to meaning, position, or significance. This sum may be compared with a previously computed value to verify that no errors have occurred. *See also:* summation check; sideways sum.
(C) 610.7-1995, 1084-1986w

check summation (data transmission) A redundant check in which groups of digits are summed usually without regard for overflow, and that sum checked against a previously computed sum to verify accuracy. *See also:* checksum.
(PE) 599-1985w

check, transfer *See:* transfer check.

check valve *See:* blocking capacitor.

check, field-coil flange *See:* collar.

cheese antenna A reflector antenna having a cylindrical reflector enclosed by two parallel conducting plates perpendicular to the cylinder, spaced more than one wavelength apart. *Contrast:* pillbox antenna. (AP/ANT) 145-1993

chemical conversion coating A protective or decorative coating produced in situ by chemical reaction of a metal with a chosen environment. (IA) [59]

chemical vapor deposition technique (CVD) (fiber optics) A process in which deposits are produced by heterogeneous gas-solid and gas-liquid chemical reactions at the surface of a substrate. *Note:* The CVD method is often used in fabricating

optical waveguide preforms by causing gaseous materials to react and deposit glass oxides. Typical starting chemicals include volatile compounds of silicon, germanium, phosphorus, and boron, which form corresponding oxides after heating with oxygen or other gases. Depending upon its type, the preform may be processed further in preparation for pulling into an optical fiber. *See also:* preform.
(Std100) 812-1984w

Chicago grip *See:* conductor grip.

chief programmer (software) The leader of a chief programmer team; a senior-level programmer whose responsibilities include producing key portions of the software assigned to the team, coordinating the activities of the team, reviewing the work of the other team members, and having an overall technical understanding of the software being developed. *See also:* backup programmer; chief programmer team.
(C) 610.12-1990

chief programmer team (software) A software development group that consists of a chief programmer, a backup programmer, a secretary/librarian, and additional programmers and specialists as needed, and that employs procedures designed to enhance group communication and to make optimum use of each member's skills. *See also:* chief programmer; egoless programming; backup programmer. (C) 610.12-1990

child A widget that is the immediate inferior of the current widget in the widget instance hierarchy. *Synonym:* descendant. (C) 1295-1993w

child box A box in a child diagram. (C/SE) 1320.1-1998

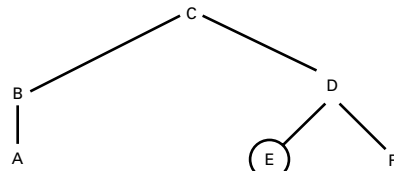
child diagram A decomposition diagram related to a specific box by exactly one child/parent relationship.
(C/SE) 1320.1-1998

child entity The entity in a specific relationship whose instances can be related to zero or one instance of the other entity (parent entity). (C/SE) 1320.2-1998

Child-Langmuir equation (thermionics) An equation representing the cathode current of a thermionic diode in a space-charge-limited-current state.
$$I = GV^{3/2}$$

where I is the cathode current, V is the anode voltage of a diode or the equivalent diode of a triode or of a multi-electrode valve or tube, and G is a constant (perveance) depending on the geometry of the diode or equivalent diode. *See also:* electron emission. (ED) [45], [84]

child node In a tree, a descendant node having a given node as its parent node. *Synonym:* daughter; son. *Contrast:* parent node. *See also:* sibling node.



E is a child node of node D

child node

(C) 610.5-1990w

(2) A node that "descends" from another node, i.e., all nodes except the root node. *See also:* parent node.
(BA/C) 1275-1994

(3) In the device tree, a descendant node that represents a device plugged into an Sbus.
(C/BA) 1275.4-1995, 1275.2-1994w

child process *See:* POSIX process.

child segment In a hierarchical database, a segment that has a parent segment and that is dependent on that segment for its existence. *Note:* If the parent segment is deleted, the child segment must be deleted. *Contrast:* parent node. *See also:* logical child segment; physical child segment; dependent segment; twin segment. (C) 610.5-1990w

CHILL A high-order language, standardized by CCITT (Consultative Committee on International Telephone & Telegraph, Geneva), used for communication applications.
(C) 610.13-1993w

Chinese binary *See*: column binary.

Chinese finger *See*: woven wire grip.

chip (1) (mechanical recording) The material removed from the recording medium by the recording stylus while cutting the groove.
(SP) [32]

(2) (nonlinear, active, and nonreciprocal waveguide components) (semiconductor) A small unpackaged functional element made by subdividing a wafer of semiconductor material. Sometimes referred to as a "die."
(MTT) 457-1982w

(3) A small piece of silicon or other semiconductive material on which circuits can be placed.
(C) 610.10-1994w

(4) A small unpackaged functional element made by subdividing a wafer of semiconductor material. Sometimes referred to as a die. Also used as a modifier to indicate an operation that applies to the entire chip as in chip enable or chip clear.
Synonym: integrated circuit.
(ED) 1005-1998

chip clear (A) Operation that causes the writing of all memory elements to a common "1" state. **(B)** Terminal to which the clear signal is applied (preferred usage).
(ED) 1005-1998

chip density The number of transistors implemented on a single integrated circuit.
(C) 610.10-1994w

chip enable (semiconductor memory) The inputs that when true permit input, internal transfer, manipulation, refreshing, and output of data, and when false cause the memory to be in a reduced power standby mode. *Note*: Chip enable is a clock or strobe that significantly affects the power dissipation of the memory. Chip select is a logical function that gates the inputs and outputs. For example, chip enable may be the cycle control of a dynamic memory or a power reduction input on a static memory.
(TT/C) 662-1980s

chip erase *See*: bulk erase.

chip-on-board testing A test of a component after it has been assembled onto a printed circuit board or other substrate; for example, using the facilities defined by IEEE Std 1149.1-1990.
(TT/C) 1149.1-1990

chip select (semiconductor memory) The inputs that when false prohibit writing into the memory and disable the output of the memory. *Note*: Chip enable is a clock or strobe that significantly affects the power dissipation of the memory. Chip select is a logical function that gates the inputs and outputs. For example, chip enable may be the cycle control of a dynamic memory or a power reduction input on a static memory.
(TT/C) 662-1980s

chirp A form of pulse compression that uses frequency modulation (usually linear) during the pulse.
(AES) 686-1997

chirp filter A filter whose group delay is a nonconstant function of the instantaneous frequency of the input signal.
(UFFC) 1037-1992w

chirping (fiber optics) A rapid change (as opposed to long-term drift) of the emission wavelength of an optical source. Chirping is often observed in pulsed operation of a source.
(Std100) 812-1984w

choice (1) (telephone switching systems) The position of an outlet in a group with respect to the order of selection.
(COM) 312-1977w

(2) The language-independent syntax for a family of datatypes constructed from a sequence of base datatypes, each associated with a name. A value of choice datatype contains, for exactly one name, a value of the corresponding datatype.
(C/PA) 1351-1994w

(3) A datatype constructed from a sequence of base datatypes, each associated with a name. A choice value contains, for exactly one name, a value of the corresponding datatype.
(C/PA) 1224.1-1993w

choice device A logical input device used to make a selection from a set of predefined menu options in a graphics system. A typical physical device is a function keyboard or a set of function keys. *Synonym*: button device.
(C) 610.6-1991w, 610.10-1994w

choke (waveguide) A device for preventing energy within a waveguide in a given frequency range from taking an undesired path. *See also*: waveguide.
(AP/ANT) [35]

choke coil An inductor used in a special application to impede the current in a circuit over a specified frequency range while allowing relatively free passage of the current at lower frequencies.
(CHM) [51]

choke flange (1) (microwave technique) A flange in whose surface is cut a groove so dimensioned that the flange may form part of a choke joint. *See also*: waveguide.
(AP/ANT) [35]

(2) (waveguide components) A flange designed with auxiliary transmission-line elements to form a choke joint when used with a cover flange.
(MTT) 147-1979w

choke joint (waveguide components) A connection designed for essentially complete transfer of power between two waveguides without metallic contact between the inner walls of the waveguides. It typically consists of one cover flange and one choke flange.
(MTT) 147-1979w

choke piston (waveguide) A piston in which there is no metallic contact with the walls of the waveguide at the edges of the reflecting surface; the short-circuit to high-frequency currents is achieved by a choke system. *Note*: This definition covers a number of configurations: dumbbell; Z-slot; inverted bucket; etc. *Synonyms*: choke plunger; noncontact plunger. *See also*: waveguide.
(AP/ANT) [35]

choke plunger *See*: choke piston.

choker *See*: traveler sling.

chop A sudden cessation of the flow of arc current during circuit interruption.
(PE/IC) 1143-1994r

chopped display (oscilloscopes) A time-sharing method of displaying output signals of two or more channels with a single cathode-ray-tube gun, at a rate that is higher than and not referenced to the sweep rate. *See also*: oscillograph.
(IM/HFIM) [40]

chopped frequency *See*: chopping rate.

chopped impulses (high voltage testing) Generally, chopping of an impulse is characterized by an initial discontinuity, decreasing the voltage, which then falls to zero with or without oscillations. See figures 1 and 3 to definition of "virtual origin O_1 ." *Note*: With some test objects or test arrangements, there may be a flattening of the crest or a rounding off of the voltage before the final voltage collapse. Similar effects may also be observed, due to imperfections of the measuring system. Exact determination of the parameters related to the chopping then requires special consideration.
(PE/PSIM) 4-1978s

chopped impulse voltage A transient voltage derived from a full impulse voltage that is interrupted by the disruptive discharge of an external gap or the external portion of the test specimen causing a sudden collapse in the voltage, practically to zero value. *Note*: The collapse can occur on the front, at the peak, or on the tail. *See also*: test voltage.

chopped impulse wave (surge arresters) An impulse wave that has been caused to collapse suddenly by a flashover.
(PE) [8], [84]

chopped lightning impulse A prospective full lightning impulse during which any type of discharge causes a rapid collapse of the voltage.
(PE/PSIM) 4-1995

chopped wave A voltage impulse that is terminated intentionally by sparkover of a gap.
(PE/SPD/T&D) 32-1972r, [10]

chopped-wave lightning impulse test (power and distribution transformers) A voltage impulse that is terminated intentionally by sparkover of a gap, which occurs subsequent to the maximum crest of the impulse wave voltage, with a specified minimum crest voltage, and a specified minimum time to flashover.
(PE/TR) C57.12.80-1978r

chopper (1) (analog computer) A mechanical, electrical, or electromechanical device that converts dc into a square wave. As applied to a direct-coupled operational amplifier, it is a modulator used to convert the dc at the summing junction to ac for amplifier and reinjection as a correcting voltage to reduce offset. (C) 165-1977w, 610.10-1994w

(2) A device for interrupting a current or a light beam at regular intervals. Choppers are frequently used to facilitate amplification. (COM/PE/EEC) [119]

(3) (capacitance devices) A special form of pulsing relay having contacts arranged to rapidly interrupt, or alternately reverse, the direct-current polarity input to an associated circuit. 31-1944w

chopper amplifier (signal-transmission system) A modulated amplifier in which the modulation is achieved by an electronic or electromechanical chopper, the resultant wave being substantially square. *See also:* signal. (IE) [43]

chopping frequency *See:* chopping rate.

chopping rate (oscilloscopes) (cathode-ray oscilloscopes) The rate at which channel switching occurs in chopped-mode operation. *See also:* oscillograph. (IM/HFIM) [40], 311-1970w

chopping transient blanking The process of blanking the indicating spot during the switching periods in chopped display operation. (IM) 311-1970w

chroma *See:* Munsell chroma.

chromatic adaptation (illuminating engineering) The process by which the chromatic properties of the visual system are modified by the observation of stimuli of various chromaticities and luminances. (EEC/IE) [126]

chromatic color (illuminating engineering) Perceived color possessing a hue. In everyday speech, the word "color" is often used in this sense in contradistinction to white, gray, or black. (EEC/IE) [126]

chromatic dispersion *See:* dispersion.

chromaticity (1) (general) The color quality of light definable by its chromaticity coordinates, or by its dominant (or complementary) wavelength and its purity, taken together. *See also:* color. (BT/AV) [34], [84]

(2) (illuminating engineering) The dominant or complementary wavelength and purity aspects of the color taken together, or of the aspects specified by the chromaticity coordinates of the color taken together. (EEC/IE) [126]

(3) (television) That color attribute of light definable by its chromaticity coordinates. *Note:* When a specific white, the value of dominant (or complementary) wavelength, and saturation are given, there will be a corresponding set of unique chromaticity coordinates. (BT/AV) 201-1979w

(4) (electric power systems in commercial buildings) The measure of the warmth or coolness of a light source, which is expressed in the Kelvin (K) temperature scale. (IA/PSE) 241-1990r

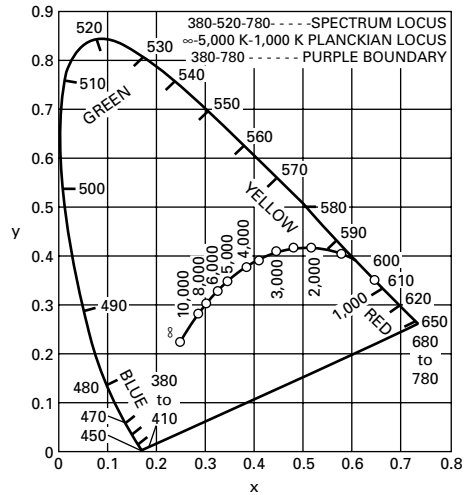
chromaticity coordinates of a color, x, y, z (illuminating engineering) The ratio of each of the tristimulus values of the color to the sum of the three tristimulus values. *See also:* tristimulus values of a light, X, Y, Z. (IE/EEC/BT/AV) [126], 201-1979w

chromaticity diagram (1) (illuminating engineering) A plane diagram formed by plotting one of the three chromaticity coordinates against another. (EEC/IE) [126]

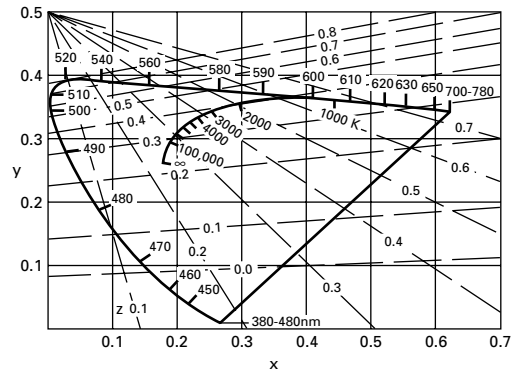
(2) (television) A plane diagram formed by plotting one chromaticity coordinate against another. *Notes:* 1. A commonly used chromaticity diagram is the 1931 CIE (x,y) diagram. 2. Another chromaticity diagram coming into use is defined in the 1960 CIE (u,v) uniform chromaticity system (UCS). In contrast with the CIE (x,y) diagram, chromaticities that have just noticeable differences (j, n, d) are spaced by essentially equal distances over the entire diagram. Coordinate values in the two systems are related by the transformations:

$$u = \frac{4x}{-2x + 12y + 3}$$

$$v = \frac{6y}{-2x + 12y + 3}$$



1931 CIE (x, y) chromaticity diagram
chromaticity diagram



1960 CIE-UCS (u, v) chromaticity diagram
chromaticity diagram

(BT/AV) 201-1979w

chromaticity difference thresholds (illuminating engineering) The smallest difference in chromaticity, between two colors of the same luminance, that makes them perceptibly different. The difference may be a difference in hue or saturation, or a combination of the two. (EEC/IE) [126]

chromaticity flicker (television) The flicker that results from fluctuation of chromaticity only. (BT/AV) 201-1979w

chrominance (1) (television) The colorimetric difference between any color and a reference color of an equal luminance, the reference color having a specified chromaticity. *Notes:* 1. In three-dimensional color space, chrominance is a vector that lies in a plane of constant luminance. In that plane, it may be resolved into components called chrominance components. 2. In color television transmission, for example, the chromaticity of the reference color may be that of a specified white. (BT/AV) 201-1979w

(2) (broadband local area networks) The portion of a video signal that contains color information. (LM/C) 802.7-1989r

chrominance channel (color television) Any path that is intended to carry the chrominance signal. (BT/AV) 201-1979w

chrominance channel bandwidth (color television) The bandwidth of the path intended to carry the chrominance signal. (BT/AV) 201-1979w

chrominance components *See*: chrominance.

chrominance demodulator (color television) A demodulator used for deriving video-frequency chrominance components from the chrominance signal and a sine wave of chrominance subcarrier frequency. (BT/AV) 201-1979w

chrominance modulator (color television) A modulator used for generating the chrominance signal from the video-frequency chrominance components and the chrominance subcarrier. (BT/AV) 201-1979w

chrominance primary (color television) A transmission primary that is one of two whose amounts determine the chrominance of a color. *Notes*: 1. Chrominance primaries have zero luminance and are nonphysical. 2. This term is obsolete because it is useful only in a linear system. (BT/AV) 201-1979w

chrominance signal (color television) The sidebands of the modulated chrominance subcarrier that are added to the luminance signal to convey color information. (BT/AV) 201-1979w

chrominance signal component (television) A signal resulting from suppressed-carrier modulation of a chrominance subcarrier voltage at a specified phase, by a chrominance primary signal such as the I Video Signal or the Q Video Signal. (BT) 204-1961w

chrominance subcarrier (color television) The carrier whose modulation sidebands are added to the luminance signal to convey color information. (BT/AV) 201-1979w

chronaxie (medical electronics) The minimum duration of time required to stimulate with a current of twice the rheobase. (EMB) [47]

chronic exposure Exposure over a relatively long time. (T&D/PE) 539-1990

chronometer (navigation aids) A time piece with a nearly constant rate. Set approximately to Greenwich Mean Time. (AES/GCS) 172-1983w

chunk A block of memory, typically 64 bits. (ED) 1005-1998

chute *See*: feed tube.

CI *See*: configuration item.

CIE *See*: Commission Internationale de l'Éclairage.

CIE (L*a*b*) uniform color space (illuminating engineering) A transformation of CIE tristimulus values X, Y, Z into three coordinates that define a space in which equal distances are more nearly representative of equal magnitudes of perceived color difference. This space is specially useful in cases of colorant mixtures, for example, dye-stuffs, paints. (EEC/IE) [126]

CIE (L*u*v*) uniform color space (illuminating engineering) A transformation of CIE tristimulus values X, Y, Z into three coordinates that define a space in which equal distances are more nearly representative of equal magnitudes of perceived color difference. This space is specially useful in cases where colored lights are mixed additively for example, color television. (EEC/IE) [126]

CIE standard chromaticity diagram (illuminating engineering) One in which the *x* and *y* chromaticity coordinates are plotted in rectangular coordinates. *Note*: The diagram may be based on the CIE 1931 Standard Observer or on the CIE 1964 Supplementary Standard Observer. *See also*: color matching functions. (EEC/IE) [126]

CIE standard colorimetric observer, 1931 Receptor of radiation whose colorimetric characteristics correspond to the distribution coefficients \bar{x}_λ , \bar{y}_λ , \bar{z}_λ adopted by the International Commission on Illumination in 1931. *See also*: color. (BT/AV) [34], [84]

CIGRE *See*: Conférence Internationale Des Grands Réseaux Electriques.

CIM *See*: computer input microfilm; computer-integrated manufacturing.

CINEMA A hardware description language with a compiler written in BCPL; contains normal control statements and also statements providing parallel execution of program statements. (C) 610.13-1993w

cine-oriented image In micrographics, an image appearing on a roll of microfilm in such a manner that the top edge of the image is perpendicular to the long edge of the film. *Synonyms*: portrait image; motion picture display. *Contrast*: comic-strip oriented image. (C) 610.2-1987

C interface The C language binding, defined in terms of ISO/IEC 9899: 1990. (C/PA) 1328-1993w, 1327-1993w

ciphertext Data produced through the use of encipherment, the semantic content of which is not available. *Note*: Ciphertext may itself be input to encipherment, producing superenciphered data. (C/LM) 802.10-1998

circadian rhythm Oscillation of biological processes with an approximate 24 h period regulated by external stimuli. (PE/T&D) 539-1990

circle diagram (A) (rotating machinery) Circular locus describing performance characteristics (current, impedance, etc.) of a machine or system. In case of rotating machinery, the term "circle diagram" has, in addition, some specific usages: The locus of the armature current phasor of an induction machine, or of some other type of asynchronous machine, displayed on the complex plane, with the shaft speed as the variable (parameter), when the machine operates at a constant voltage and at a constant frequency. **(B) (rotating machinery)** The locus of the current vector(s) of a nonsalient-pole synchronous machine, displayed in a synchronously rotating reference frame (Park transform, *d-q* coordinates), with the active component of the load, hence with the rotor displacement angle, as the variable (parameter), when the machine operates at a constant field current. **(C) (rotating machinery)** The locus of the current phasor(s) of (2) *See also*: asynchronous machine. (PE) [9]

circling guidance lights (illuminating engineering) Aeronautical ground lights provided to supply additional guidance during a circling approach when the circling guidance furnished by the approach and runway lights is inadequate. (EEC/IE) [126]

circuit (1) (A) The physical medium on which signals are carried across the AUI. The data and control circuits consist of an A circuit and a B circuit forming a balanced transmission system so that the signal carried on the B circuit is the inverse of the signal carried on the A circuit. **(B) (data transmission)** A network providing one or more closed paths. **(C)** An arrangement of interconnected components that has at least one input and one output terminal, and whose purpose is to produce at the output terminals a signal that is a function of the signal at the input terminals. *Synonyms*: physical circuit; network. *See also*: expansion board; channel; telecommunication circuit. **(D)** An arrangement of interconnected electronic components that can perform specific functions upon application of proper voltages and signals. *See also*: logic circuit; integrated circuit. (LM/C/COM/PE/TA) 8802-3-1990, 455-1985, 599-1985, 610.10-1994

(2) A conductor or system of conductors through which an electric current is intended to flow. (NEC/PE) C2-1997, 599-1985w

(3) (machine winding) The element of a winding that comprises a group of series-connected coils. A single-phase winding or one phase of a polyphase winding may comprise one circuit or several circuits connected in parallel. (PE) [9]

(4) An interconnection of electrical elements. *See also*: network. (CAS) [13]

(5) In networking, a means of communication of electrical or electronic signals between two points. *Synonym*: network. *See also*: telecommunication circuit; dial-up circuit; simplex circuit; four-wire circuit; two-wire circuit; foreign exchange circuit; leased circuit; channel. (C) 610.7-1995

(6) The physical medium on which signals are carried across the Attachment Unit Interface (AUI) for 10BASE-T or Media Independent Interface (MII) for 100BASE-T. For 10BASE-T, the data and control circuits consist of an A circuit and a B circuit forming a balanced transmission system so that the signal carrier on the B circuit is the inverse of the signal carried on the A circuit. (C/LM) 802.3-1998

circuit analyzer (multimeter) The combination in a single enclosure of a plurality of instruments or instrument circuits for use in measuring two or more electrical quantities in a circuit. *See also:* instrument. (EEC/PE) [119]

circuit, balanced *See:* balanced circuit.

circuit board A flat piece of insulating material, often multilayered, constituted of epoxy-glass or phenolic resin, on which electrical components are mounted and interconnected by etched copper foil so patterned as to form a circuit. *Note:* Sometimes referred to as a "board" or a "card." *See also:* printed circuit board. (C) 610.10-1994w

circuit bonding jumper The connection between portions of a conductor in a circuit to maintain required ampacity of the circuit. (NEC/NEC) [86]

circuit breaker (1) (general) (thyristor) A device designed to open and close a circuit by nonautomatic means, and to open the circuit automatically on a predetermined overload of current, without injury to itself when properly applied within its rating. *Notes:* 1. A circuit breaker is usually intended to operate infrequently, although some types are suitable for frequent operation.

(NEC/IA/IPC/PKG) 428-1981w, [86], 333-1980w

(2) A switching device capable of making, carrying, and breaking currents under normal circuit conditions and also making, carrying for a specified time, and breaking currents under specified abnormal conditions such as those of short circuit. (NEC) C2-1997

(3) **(packaging machinery)** An automatic device designed to open under abnormal conditions a current-carrying circuit without damage to itself. (IA/PKG) 333-1980w

(4) **(hydroelectric power plants)** A fast-acting switching device used to close and open an electric circuit and capable of interruption of fault currents. (PE/EDPG) 1020-1988r

(5) A mechanical switching device, capable of making, carrying, and breaking currents under normal circuit conditions and also, making and carrying for a specified time and breaking currents under specified abnormal circuit conditions such as those of short circuit. *Notes:* 1. A circuit breaker is usually intended to operate infrequently, although some types are for frequent operation. 2. The medium in which circuit interruption is performed may be designated by suitable prefix, that is, airblast circuit breaker, air circuit breaker, compressed-air circuit breaker, gas circuit breaker, oil circuit breaker, vacuum circuit breaker, oilless circuit breaker, etc. 3. Circuit breakers are classified according to their application or characteristics and these classifications are designated by the following modifying words or clauses delineating the several fields of application, or pertinent characteristics: High-voltage power—Rated above 1000 V ac. Molded-case—See separate definition. Low-voltage power—Rated 1000 V ac or below, or 300 V dc and below, but not including molded-case circuit breakers. Direct-current low-voltage power circuit breakers are subdivided according to their specified ability to limit fault-current magnitude by being called general purpose, high-speed, semi-high-speed, rectifier or anode. For specifications of these restrictions see latest revision of the applicable standard. (SWG/PE) C37.100-1992

circuit-breaker compartment (1) That portion of a switchgear assembly that contains one circuit breaker and the associated primary conductors and secondary control connection devices including current transformers. (SWG/PE) C37.20.1-1993r

(2) That portion of the switchgear assembly that contains one circuit breaker or other removable primary interrupting device and the associated primary conductors. (SWG/PE) C37.20.2-1993

circuit breaker downtime Time from the discovery of the failure until the breaker is returned to service.

(SWG/PE) C37.10-1995

circuit breaker, field discharge A circuit breaker having main contacts for energizing and deenergizing the field of a generator, motor, synchronous condenser, or rotating exciter, and having discharge contacts for short-circuiting the field through the discharge resistor at the instant preceding the opening of the circuit-breaker main contacts. The discharge contacts also disconnect the field from the discharge resistor at the instant following the closing of the main contacts. For direct-current generator operation, the discharge contacts may open before the main contacts close. *Note:* When used in the main field circuit of an alternating- or direct-current generator, motor, or synchronous condenser, the circuit breaker is designated as a main field discharge circuit breaker. When used in the field circuit of the rotating exciter of the main machine, the circuit breaker is designated as an exciter field discharge circuit breaker. *See also:* field discharge circuit breaker. (SWG/PE) C37.100-1992, C37.18-1979r

circuit breaker, general purpose low-voltage dc power A circuit breaker that, during interruption, does not limit the current peak of the available (prospective) fault current and may not prevent the fault current from rising to its sustained value. (SWG/PE) C37.100-1992, C37.14-1999

circuit-breaker grouping The three poles of a circuit breaker grouped in adjacent configuration along the line of the same row. (SWG/SUB/PE) C37.122-1983s, C37.100-1992

circuit breaker, high-speed low-voltage dc power A circuit breaker that, during interruption, limits the current peak to a value less than the available (prospective) fault current. (SWG/PE) C37.100-1992, C37.14-1999

circuit breaker interrupting rating For an unfused circuit breaker, the designated limit of available (prospective) current at which the circuit breaker is required to perform its short-circuit current duty cycle at rated maximum voltage under the prescribed test conditions. This current is expressed as the rms symmetrical value envelope at a time 1/2 cycle after short-circuit is initiated. (For dc breakers, the rated interrupting current is the maximum value of direct current.) (IA/MT) 45-1998

circuit breaker, rectifier low-voltage dc power A circuit breaker that carries the normal current output of one rectifier and that, during fault conditions, functions to withstand and/or interrupt abnormal current as required. (SWG/PE) C37.100-1992, C37.14-1999

circuit breaker, semi-high-speed low-voltage dc power A circuit breaker that, during interruption, does not limit the current peak of the available (prospective) fault current on circuits with minimal inductance but that does limit current to a value less than the sustained current available on higher-inductance circuits. (SWG/PE) C37.100-1992, C37.14-1999r

circuit bypass means (bypass) An assembly of parts which, when properly operated, closes the circuit between the line and load jaws. (ELM) C12.7-1993

circuit-commutated turn-off time (thyristor) The time interval between the instant when the principal current has decreased to zero after external switching of the principal voltage circuit and the instant when the thyristor is capable of supporting a specified principal voltage without turning on. *See also:* principal voltage-current characteristic. (IA/ED) 223-1966w, [46], [62], [12]

circuit components (thyristor) Those electrical controller devices that may conduct current during some part of the cycle. Instrumentation is excluded. *Note:* This definition may include devices within the controller that are used for the suppression of voltage and current transients. (IA/IPC) 428-1981w

circuit controller A device for closing and opening electric circuits. (EEC/PE) [119]

circuit efficiency (output circuit of electron tubes) The ratio of the power at the desired frequency delivered to a load at the output terminals of the output circuit of an oscillator or amplifier to the power at the desired frequency delivered by the electron stream to the output circuit. *See also:* network analysis. (ED) 161-1971w, [45]

circuit element A basic constituent part of a circuit, exclusive of interconnections. (EEC/PE) [119]

circuit interrupter (packaging machinery) A manually operated device designed to open under abnormal conditions a current-carrying circuit without damage to itself. (IA/PKG) 333-1980w

circuit limiter *See:* limiter circuit.

circuit malfunction analysis (test, measurement, and diagnostic equipment) The logical, systematic examination of circuits and their diagrams to identify and analyze the probability and consequence of potential malfunctions and for determining related maintenance and support requirements to investigate effects of failures. (MIL) [2]

circuit, multipoint *See:* multipoint circuit.

circuit noise meter An instrument for measuring circuit noise level. Through the use of a suitable frequency-weighting network and other characteristics, the instrument gives equal readings for noises that are approximately equally interfering. The readings are expressed as circuit noise levels in decibels above reference noise. *Synonym:* noise measuring set. *See also:* instrument. (EEC/PE) [119]

circuit pack A printed circuit board (PCB) populated with components, i.e., a PCB assembly. Also called a feature card. (SPD/PE) C62.38-1994r

circuit properties (thyristor) Those conditions which exist, or actions which take place, inside the controller during its operating cycle. (IA/IPC) 428-1981w

circuit simulator A software program that predicts a circuit's response to a given stimulus. (SCC20) 1445-1998

circuit switch (data transmission) A communications switching system which completes a circuit from sender to receiver at the time of transmission (as opposed to a message switch). (PE) 599-1985w

circuit switcher (1) A mechanical switching device with an integral interrupter, suitable for making, carrying, and interrupting currents under normal circuit conditions. It is also suitable for interrupting specified short-circuit current that may be less than its close and latch, momentary, and short-time current ratings. *Note:* This device may be suitable for transformer protection where the majority of faults are limited by the transformer and system impedance. (SWG/PE) C37.100-1992

(2) A circuit interrupting device with a limited interrupting rating as compared with a circuit breaker. It is often integrated with a disconnecting switch. Its design usually precludes the integration of current transformers (CTs). (PE/PSR) C37.113-1999

circuit-switched network A switched network having the capability to switch lines in different configurations to establish a continuous pathway between the sender and the recipient. (C) 610.7-1995

circuit switching (1) A method of communications where an electrical connection between calling and called stations is established on demand for exclusive use of the circuit until the connection is released. *See also:* store-and-forward switching; packet switching; message switching. (LM/COM) 168-1956w

(2) In data communications, a method of communication in which a dedicated communications path is set up between two devices through one or more intermediate switching nodes. *Synonym:* line switching. *See also:* message switching; space-division switching. (C) 610.7-1995

circuit switching element (inverters) A group of one or more simultaneously conducting thyristors, connected in series or parallel or any combination of both, bounded by no more than two main terminals and conducting principal current between

these main terminals. *See also:* self-commutated inverters. (IA) [62]

circuit switching system (telephone switching systems) A switching system providing through connections for the exchange of messages. (COM) 312-1977w

circuit transient recovery voltage *See:* inherent transient recovery voltage.

circuit voltage class (electric power system) A phase-to-phase reference voltage that is used in the selection of insulation class designations for neutral grounding devices. (SPD/PE) 32-1972r

circular array An array of elements whose corresponding points lie on a circle. *Note:* Practical circular arrays may include arrangements of elements that are congruent under translation or rotation. *Synonym:* ring array. (AP/ANT) 145-1993

circular Bayliss distribution *See:* Bayliss distribution.

circular electric wave (waveguide) A transverse electric wave for which the lines of electric force form concentric circles. (MTT) 146-1980w

circular grid array An array of elements whose corresponding points lie on coplanar concentric circles. (AP/ANT) 145-1993

circular interpolation (numerically controlled machines) A mode of contouring control that uses the information contained in a single block to produce an arc of a circle. *Note:* The velocities of the axes used to generate this arc are varied by the control. (IA/EEC) [61], [74]

circular list *See:* circularly-linked list.

circularly-linked list A linked list in which the last item contains a pointer to the first item. *Synonyms:* circular list; ring; chain. (C) 610.5-1990w

circularly polarized field vector At a point in space, a field vector whose extremity describes a circle as a function of time. *Note:* Circular polarization may be viewed as a special case of elliptical polarization where the axial ratio has become equal to one. (AP/ANT) 145-1993

circularly polarized plane wave A plane wave whose electric field vector is circularly polarized. (AP/ANT) 145-1993

circularly polarized wave (1) (general) An elliptically polarized wave in which the ellipse is a circle in a plane perpendicular to the direction of propagation. *See also:* radiation. (PE/EEC) [119]

(2) An electromagnetic wave for which the locus of the tip of the instantaneous electric field vector is a circle in a plane orthogonal to the wave normal. This circle is traced at a rate equal to the angular frequency of the wave with a left-hand or right-hand sense of rotation. *See also:* left-hand polarized wave; right-hand polarized wave. (AP/PROP) 211-1997

circular magnetic wave (waveguide) A transverse magnetic wave for which the lines of magnetic force form concentric circles. (MTT) 146-1980w

circular mil A unit of area equal to $\pi/4$ of a square mil (0.7854 square mil). The cross-sectional area of a circle in circular mils is therefore equal to the square of its diameter in mils. A circular inch is equal to one million circular mils. *Note:* A mil is one-thousandth part of an inch. There are 1974 circular mils in a square millimeter. (SWG) 341-1980

circular orbit (communication satellite) An orbit of a satellite in which the distance between the centers of mass of the satellite and of the primary body is constant. (COM) [19]

circular probable error (navigation aids) In two-dimensional error distribution, the radius of a circle encompassing half of all errors. (AES/GCS) 172-1983w

Circular Queue A software array of message storage locations for which the last cell is logically adjacent to the first. It is a first-in-first-out (FIFO) queue where the producer leads the consumer through the array, wrapping back to the first cell when the end is reached. (C/MM) 1212.1-1993

circular scanning (1) (radio) Scanning in which the direction of maximum response generates a plane or a right circular

cone whose vertex angle is close to 180 degrees.

(AP/ANT) [35]

(2) Scanning where the beam axis of the antenna generates a conical surface. *Note:* This can include the special case where the cone degenerates to a plane. (AP/ANT) 145-1993

circular shift (mathematics of computing) A variation of a logical shift in which the digits moved out of one end of a register, word, or numeral are returned at the other end. For example, + 231.702 shifted two places to the left becomes 3170.2+2. *Note:* A circular shift may be applied to the multiple precision representation of a number. *Synonyms:* end-around shift; cyclic shift; rotate; end-around carry shift; ring shift. (C) 1084-1986w

circular Taylor distribution *See:* circular Taylor distribution.

circulating current The current that flows through the transition impedance as a result of two taps being bridged during a tap change operation for resistance-type LTCs or being in the bridging position for reactance-type LTCs.

(PE/TR) C57.131-1995

circulating current fault (thyristor converter) A circulating current in excess of the design value. *Note:* In a double converter precaution must be taken to control circulating direct current between the forward and reverse sections.

(IA/IPC) 444-1973w

circulating memory *See:* circulating register.

circulating-power test Operation of a bipolar HVDC transmission system so that power flows in the opposite direction in each pole. High power levels up to system rating can be used for test purposes with losses and net reactive only being supplied from the ac network. *Synonym:* round-power test.

(PE/SUB) 1378-1997

circulating register (1) (data processing) A register that retains data by inserting it into a delaying means, and regenerating and reinserting the data into the register. (C) 162-1963w

(2) Shift register in which data that are moved out of one end of the register are reentered into the other end, as in a closed loop. *See also:* cyclic shift. (C) [20], [85], 610.10-1994w

circulating storage Dynamic storage in the form of a closed loop. *Synonym:* cyclic storage. *See also:* regenerative track.

(C) 610.10-1994w

circulation of electrolyte A constant flow of electrolyte through a cell to facilitate the maintenance of uniform conditions of electrolysis. *See also:* electrorefining. (EEC/PE) [119]

circulator (waveguide system) A passive waveguide junction of three or more arms in which the arms can be listed in such an order that when power is fed into any arm it is transferred to the next arm on the list, the first arm being counted as following the last in order. *See also:* transducer; waveguide.

(AP/ANT) [35], [84]

circulator coupled (isolated) port (nonlinear, active, and non-reciprocal waveguide components) With reference to a particular port of the circulator, a port to which waves pass from the reference port with low (high) insertion loss.

(MTT) 457-1982w

circum-aural receiver A receiver that surrounds and encloses the ear pinna without making intimate contact with it.

(COM/TA) 1206-1994

circumflex The character “^”. (C/PA) 9945-2-1993

CISC *See:* complex-instruction-set computer.

CISPR International Special Committee on Radio Interference.

citizens bands Frequency bands allocated for short-distance personal or business radio communication, radio signaling, and control of remote devices by radio. *Note:* The frequency bands may differ from country to country. The bands presently in use in the United States are 26.965–27.405 MHz; 72–76 MHz and 462.550–467.425 MHz.

(T&D/PE) 539-1990

CIU *See:* computer interface unit.

civil speed limit The maximum speed authorized for each section of track, as determined primarily by the alignment, profile, and structure. (VT/RT) 1474.1-1999

civil twilight (illuminating engineering) (morning and evening) Civil twilight ends in the evening when the center of the sun's disk is six degrees below the horizon and begins in the morning when the center of the sun's disk is six degrees below the horizon. *See also:* night. (EEC/IE) [126]

cladding (1) (fiber optics) The dielectric material surrounding the core of an optical waveguide. *See also:* tolerance field; core; optical waveguide; normalized frequency.

(Std100) 812-1984w

(2) A layer that surrounds the glass core of an optical fiber.

(C) 610.7-1995

cladding center (fiber optics) The center of the circle that circumscribes the outer surface of the homogeneous cladding, as defined under tolerance field. *See also:* cladding; tolerance field.

(Std100) 812-1984w

cladding diameter (fiber optics) The length of the longest chord that passes through the fiber axis and connects two points on the periphery of the homogeneous cladding. *See also:* core diameter; tolerance field; cladding.

(Std100) 812-1984w

cladding mode (fiber optics) A mode that is confined by virtue of a lower index medium surrounding the cladding. Cladding modes correspond to cladding rays in the terminology of geometric optics. *See also:* mode; bound mode; leaky mode; unbound mode; cladding ray.

(Std100) 812-1984w

cladding mode stripper (fiber optics) A device that encourages the conversion of cladding modes to radiation modes; as a result, the cladding modes are stripped from the fiber. Often a material having a refractive index equal to or greater than that of the waveguide cladding. *See also:* cladding mode; cladding.

(Std100) 812-1984w

cladding ray (fiber optics) In an optical waveguide, a ray that is confined to the core and cladding by virtue of reflection from the outer surface of the cladding. Cladding rays correspond to cladding modes in the terminology of mode descriptors. *See also:* cladding mode; guided ray; leaky ray.

(Std100) 812-1984w

claiming A ring state that occurs when a station detects that the active monitor functions are not being performed and at least one station is contending to become active monitor.

(C/LM) 8802-5-1998

clamp (converter circuit elements) (self-commutated converters) An auxiliary circuit element or combination of elements employed to limit the peak voltage or current of a semiconductor device. *See also:* clamping circuit.

(IA/SPC) 936-1987w

clamp, cable *See:* cable clamp.

clammer (data transmission) When used in broadband transmissions, it reinserts low frequency signal components that were not faithfully transmitted. (PE) 599-1985w

clamp, grounding *See:* grounding clamp.

clamp, hose *See:* strand restraining clamp.

clamping (1) (control) A function by which the extreme amplitude of a waveform is maintained at a given level. *See also:* feedback control system. (IA/ICTL/IAC) [60]

(2) (pulse operations) A process in which a specified instantaneous magnitude of a pulse is fixed at a specified magnitude. Typically, after clamping, all instantaneous magnitudes of the pulse are offset, the pulse shape remaining unaltered.

clamping circuit (1) (electronic circuits) A circuit that adds a fixed bias to a wave at each occurrence of some predetermined feature of the wave so that the voltage or current of the feature is held at, or “clamped,” to some specified level. The level may be fixed or adjustable. *See also:* clamp; clamper.

(EEC/PE) [119]

(2) A circuit used in analog computers to provide automatic hold and reset action electronically for the purpose of switching or supplying repetitive operation. *See also:* limiter circuit.

(C) 610.10-1994w, 165-1977w

clamping-in *See:* clipping-in.

clamping screw *See:* binding screw.

clamping voltage (1) (low voltage varistor surge arresters)

Peak voltage across the varistor measured under conditions of a specified peak pulse current and specified waveform.

Note: Peak voltage and peak current are not necessarily coincident in time. (PE) [8]

(2) The maximum magnitude of voltage across a surge-protective device during the passage of a specified surge current (e.g., 100 A, 8/20 μ s waveshape). (T&D/PE) 1250-1995

(3) The peak voltage across the surge-protective device measured under conditions of a specified surge current and specified current waveform. (SPD/PE) C62.62-2000

clamp, strand restraining *See:* strand restraining clamp.

clapper An armature that is hinged or pivoted.

(EEC/REE) [87]

class (1) A category into which objects are placed on the basis of both their purpose and their internal structure.

(C/PA) 1238.1-1994w, 1224.1-1993w, 1224-1993w

(2) A template for the creation of an object instance. The class defines the properties of an object. (SCC20) 1226-1998

(3) An abstraction of the knowledge and behavior of a set of similar things. Classes are used to represent the notion of "things whose knowledge or actions are relevant."

(C/SE) 1320.2-1998

(4) A collection of objects that share common characteristics and features. (IM/ST) 1451.1-1999

(5) *See also:* object class; pattern class; class of messages; OM class.

Class *See:* accuracy rating.

Class 0 unplanned outage (electric generating unit reliability, availability, and productivity) An outage that results from the unsuccessful attempt to place the unit in service. *See also:* starting failure. (PE/PSE) 762-1987w

Class 1, Division 2 locations (auxiliary devices for motors)

Basically those in which there may be flammable gas present due to a failure of a process system. Under normal conditions a flammable mixture of gas is not present.

(IA/PC) 303-1984s

Class 1E The safety classification of the electric equipment and systems that are essential to emergency reactor shutdown, containment isolation, reactor core cooling, and containment and reactor heat removal, or are otherwise essential in preventing significant release of radioactive material to the environment. (PE/NP) 603-1998

Class 1E circuits (design and installation of cable systems for Class 1E circuits in nuclear power generating stations) The safety classification of circuits that are essential to emergency reactor shutdown, containment isolation, reactor core cooling, and containment and reactor heat removal, or are otherwise essential in preventing a significant release of radioactive material to the environment. (PE/EDPG) 690-1984r

Class 1E control board, panel, or rack A control board, panel, or rack fitted with Class 1E equipment. (PE/NP) 420-1982

Class 1E electric systems *See:* nuclear power generating stations, class ratings.

Class 1 electric equipment *See:* nuclear power generating stations, class ratings.

Class I equipment Equipment in which protection against electric shock is achieved by using basic insulation, and providing a means of connecting the conductive parts, which are otherwise capable of assuming hazardous voltages if the basic insulation fails, to the protective ground conductor in the building wire. (EMC) 1140-1994r

Class I repeater A type of 100BASE-T repeater set with internal delay such that only one repeater set may exist between any two DTEs within a single collision domain when two maximum length copper cable segments are used.

(C/LM) 802.3-1998

Class 1 structures and equipment *See:* nuclear power generating stations, class ratings.

Class 1 termination Provides electric stress control for the cable insulation shield terminus; provides complete external

leakage insulation between the cable conductor(s) and ground; and provides a seal to the end of the cable against the entrance of the external environment and maintains the pressure, if any, of the cable system. (PE/IC) 48-1990s

Class 1 unplanned outage (electric generating unit reliability, availability, and productivity) (immediate) An outage that requires immediate removal from the existing state. *Note:* A Class 1 unplanned outage can be initiated from either the in-service or shutdown states. A Class 1 unplanned outage can also be initiated from the planned outage state. *See also:* extended planned outage. (PE/PSE) 762-1987w

Class II equipment Equipment in which protection against electric shock does not rely on basic insulation only, but also on the provision of additional safety precautions, such as double insulation or reinforced insulation. There is no provision for protective grounding or reliance upon installation conditions. (EMC) 1140-1994r

Class II repeater A type of IEEE 802.3 100BASE-T repeater set with internal delay such that only two or fewer such repeater sets may exist between any two DTEs within a single collision domain when two maximum length copper cable segments are used. (C/LM) 802.3-1998

Class 2 structures and equipment *See:* nuclear power generating stations, class ratings.

Class 2 termination Provides electric stress control for the cable insulation shield terminus; and provides complete external leakage insulation between the cable conductor (s) and ground. (PE/IC) 48-1990s

Class 2 transformer (power and distribution transformers)

A step-down transformer of the low-secondary-voltage type, suitable for use in class 2 remote-control low-energy circuits. It shall be of the energy-limiting type, or of a non-energy-limiting type equipped with an overcurrent device. *Note:* "Low-secondary-voltage," as used here, has a value of approximately 24 V. (PE/TR) C57.12.80-1978r

Class 2 unplanned outage (electric generating unit reliability, availability, and productivity) (delayed) An outage that does not require immediate removal from the in-service state but requires removal within 6 hours. (PE/PSE) 762-1987w

Class 3 structures and equipment *See:* nuclear power generating stations, class ratings.

Class 3 termination Provides electric stress control for the cable insulation shield terminus. *Note:* Some cables do not have an insulation shield. Termination for such cables would not be required to provide electric stress control. In such cases, this provision would not be part of the definition. (PE/IC) 48-1990s

Class 3 unplanned outage (electric generating unit reliability, availability, and productivity) (postponed) An outage that can be postponed beyond six hours but requires that a unit be removed from the in-service state before the end of the next weekend. *Note:* Classes 2 and 3 can only be initiated from the in-service state. (PE/PSE) 762-1987w

Class 4 unplanned outage (electric generating unit reliability, availability, and productivity) (deferred) An outage that will allow a unit outage to be deferred beyond the end of the next weekend but requires that a unit be removed from the available state before the next planned outage. (PE/PSE) 762-1987w

Class 90 insulation *See:* class ratings insulation.

Class 105 insulation *See:* class ratings insulation.

Class 105 insulation system Materials or combinations of materials such as cotton, silk, and paper when suitably impregnated or coated or when immersed in a dielectric liquid. *Note:* Other materials or combinations may be included in this class if by experience or accepted tests the insulation system can be shown to have comparable thermal life at 105°C.

(PE/TR) C57.12.80-1978r

Class 120 insulation system Materials or combinations of materials such as cotton, silk, and paper when suitably impregnated or coated or when immersed in a dielectric liquid; and which possess a degree of thermal stability which allows them

to be operated at a temperature 15°C higher than temperature index 105 materials. *Note:* Other materials or combinations may be included in this class if by experience or accepted tests the insulation system can be shown to have comparable thermal life at 120°C. (PE/TR) C57.12.80-1978r

Class 130 insulation *See:* class ratings insulation.

Class 150 insulation system Materials or combinations of sealed dry-type transformer, self-cooled (class GA) (power and distribution transformer) materials such as mica, glass fiber, asbestos, etc., with suitable bonding substances. *Note:* Other materials or combinations of materials may be included in this class if by experience or accepted tests the insulation system can be shown to have comparable thermal life at 150°C. (PE/TR) C57.12.80-1978r

Class 155 insulation *See:* class ratings insulation.

Class 180 insulation *See:* class ratings insulation.

Class 185 insulation system Materials or combinations of materials such as silicone elastomer, mica, glass fiber, asbestos, etc., with suitable bonding substances such as appropriate silicone resins. *Note:* Other materials or combinations of materials may be included in this class if by experience or accepted tests the insulation system can be shown to have comparable thermal life at 220°C. (PE/TR) C57.12.80-1978r

Class 220 insulation *See:* class ratings insulation.

Class 220 insulation system Materials or combinations of materials such as silicone elastomer, mica, glass fiber, asbestos, etc., with suitable bonding substances such as appropriate silicone resins. *Note:* Other materials or combinations of materials may be included in this class if by experience or accepted tests, the insulation system can be shown to have comparable thermal life at 220°C. (PE/TR) C57.12.80-1978r

Class A amplifier *See:* amplifier class ratings.

Class A component (seismic design of substations) Any component or system whose failure, malfunction, or need for repair prevents the proper operation of the substation during or after the design earthquake. (SUB/PE) 693-1984s

Class A modulator A Class-A amplifier that is used specifically for the purpose of supplying the necessary signal power to modulate a carrier. *See also:* modulation. (AP/BT/ANT) 145-1983s, 182-1961w

Class A operation *See:* amplifier class ratings.

Class A push-pull sound track A Class-A push-pull photographic sound track consists of two single tracks side by side, the transmission of one being 180° out of phase with the transmission of the other. Both positive and negative halves of the sound wave are linearly recorded on each of the two tracks. *See also:* phonograph pickup. (SP) [32]

Class A seismic component A component or system whose failure, malfunction, or need for repair prevents the proper operation of the gas-insulated substation during or after the design earthquake. (SWG/SUB/PE) C37.122-1983s, C37.122.1-1993, C37.100-1992

Class AB amplifier *See:* amplifier class ratings.

Class AB operation *See:* amplifier class ratings.

Class B amplifier *See:* amplifier class ratings.

Class B component (seismic design of substations) Any component or system whose failure, malfunction, or need for repair does not prevent the operation of the substation during or after the design earthquake. (SUB/PE) 693-1984s

Class B modulator A class-B amplifier that is used specifically for the purpose of supplying the necessary signal power to modulate a carrier. *Note:* In such a modulator the class-B amplifier is normally connected in push-pull. *See also:* modulation. (AP/BT/ANT) 145-1983s, 182-1961w

Class B operation *See:* amplifier class ratings.

Class B push-pull sound track A class-B push-pull photographic sound track consists of two tracks side by side, one of which carries the positive half of the signal only, and the

other the negative half. *Note:* During the inoperative half-cycle, each track transmits little or no light. *See also:* phonograph pickup. (SP) [32]

Class B seismic component A component or system whose failure, malfunction, or need for repair does not prevent the proper operation of the gas-insulated substation during or after the design earthquake. Class B components are designed to meet either normal building codes and national standards in force at the site or another lower-level design earthquake. Application of further design requirements is left to the discretion of the user. (SWG/SUB/PE) C37.122-1983s, C37.100-1992, C37.122.1-1993

Class C amplifier *See:* amplifier class ratings.

Class C operation *See:* amplifier class ratings.

class designation (watthour meter) The maximum of the load range in amperes. *See also:* load range; watthour meter—class designation. (ELM) C12.1-1981

classes of grounding (neutral grounding in electrical utility systems) A specific range of degree of grounding; for example, effectively and noneffectively. (PE/SPD) C62.92-1987r

classes of insulation systems (insulation systems of synchronous machines) The insulation systems usually employed in synchronous machines covered by this standard are defined below. These definitions, in general, correspond with the principles set forth in IEEE Std 1-1969, *IEEE Standard General Principles for Temperature Limits in the Rating of Electric Equipment and for the Evaluation of Electrical Insulation*, which is also the accepted basis for interpretation. (REM) [115]

class hierarchy (1) The tree-structured organization of classes. A widget class in this tree always supports all of the operations supported by its ancestor classes closer to the root of the tree, but might support them with different implementations and might also add new operations. (C) 1295-1993w
(2) An ordering of classes, in which a subclass is a specialization of its superclass. A class inherits attributes and relationships from its superclass and can define additional attributes and relationships of its own. (C/SE) 1420.1-1995

classical maximum usable frequency *See:* maximum usable frequency.

Class ID All classes have a descriptive header entry “Class ID,” the value of which is the Class ID (note capitalization). For any object of class `IEEE1451_Root`, the operation `Get-ClassID` returns a value, `class_id`, that has the same value as Class ID. (IM/ST) 1451.1-1999

classification (1) A choice within a category. (C/SE) 1044-1993

(2) A choice within a category to describe the category (attribute) of an anomaly. (C/SE) 1044.1-1995

(3) A grouping of objects on the basis of common characteristics. This is the normal method for grouping objects within an object-oriented programming environment. (SCC20) 1226-1998

(4) The manner in which the assets are organized for ease of search and extraction within a reuse library. (C/SE) 1517-1999

classification current (metal-oxide surge arresters for ac power circuits) The designated current used to perform the classification tests. (SPD/PE) C62.11-1993s, C62.11-1987s

classification lamp (classification light) A signal lamp placed at the side of the front end of a train or vehicle, displaying light of a particular color to identify the class of service in which the train or vehicle is operating. (PE/NP) 344-1975s

classification light *See:* classification lamp.

classification of arresters (1) Arrester classification is determined by prescribed test requirements. These classifications are: station valve arrester, intermediate valve arrester, distri-

bution valve arrester, secondary valve arrester, protector tube.
(PE/SPD) [8], C62.1-1981s

(2) Arrester classification is determined by prescribed test requirements. These classifications are: station, intermediate, distribution heavy duty, distribution normal duty, distribution light duty, secondary. (SPD/PE) C62.11-1993s

classification of insulation *See:* self-restoring insulation; internal insulation; external insulation; non-self-restoring insulation.

classification process The classification process is a series of activities, starting with the recognition of an anomaly through to its closure. The process is divided into four sequential steps interspersed with three administrative activities. The sequential steps are as follows: Step 1: Recognition; Step 2: Investigation; Step 3: Action; Step 4: Disposition. The three administrative activities applied to each sequential step are as follows: Recording; Classifying; Identifying impact.

(C/SE) 1044-1993

classification scheme A scheme for the arrangement or division of entities into groups based on properties that the entities have in common. (SCC32) 1489-1999

classifier *See:* decision rule.

classification current The designated current used to perform the classification tests. (SPD/PE) C62.11-1999

class-level attribute A mapping from the class itself to the instances of a value class. (C/SE) 1320.2-1998

class-level operation A mapping from the (cross product of the) class itself and the instances of the input argument types to the (cross product of the) instances of the other (output) argument types. (C/SE) 1320.2-1998

class-level responsibility A kind of responsibility that represents some aspect of the knowledge, behavior, or rules of the class as a whole. For example, the total `registeredVoterCount` would be a class-level property of the class `registeredVoter`; there would be only one value of `registeredVoterCount` for the class as a whole. *Contrast:* instance-level responsibility. (C/SE) 1320.2-1998

Class Name All classes have a descriptive header entry "Class," the value of which is the Class Name (note capitalization). For any Object, the operation `GetClassName` returns a value, `class_name`, that has the same value as Class Name.

(IM/ST) 1451.1-1999

class of messages A group of messages having in the Command fields of their respective HEADER packets command codes of commands belonging to a single class of commands. The name, C, of a class of messages is the same as the name of the class of commands that defines the class C.

(TT/C) 1149.5-1995

class-of-service indication (telephone switching systems) An indication of the features assigned to a switching network termination. (COM) 312-1977w

class-of-service tone (telephone switching systems) A tone that indicates to an operator that a certain class-of-service is appropriate to a call. (COM) 312-1977w

Class O insulation *See:* class ratings insulation.

Class over-220 insulation *See:* class ratings insulation.

Class over-220 insulation system Materials consisting entirely of mica, porcelain, glass quartz, and similar inorganic materials. *Note:* Other materials or combinations of materials may be included in this class if by experience or accepted tests the insulation system can be shown to have the required thermal life at temperatures over 220°C. (PE/TR) C57.12.80-1978r

class ratings insulation These temperatures are, and have been in most cases over a long period of time, benchmarks descriptive of the various classes of insulating materials, and various accepted test procedures have been or are being developed for use in their identification. They should not be confused with the actual temperatures at which these same classes of insulating materials may be used in the various specific types of equipment, nor with the temperatures on which specified temperature rise in equipment standards are based. (A) In the

following definitions the words accepted tests are intended to refer to recognized test procedures established for the thermal evaluation of materials by themselves or in simple combinations. Experience or test data, used in classifying insulating materials, are distinct from the experience or test data derived for the use of materials in complete insulation systems. The thermal endurance of complete systems may be determined by test procedures specified by the responsible technical committees. A material that is classified as suitable for a given temperature may be found suitable for a different temperature, either higher or lower, by an insulation system test procedure. For example, it has been found that some materials suitable for operation at one temperature in air may be suitable for a higher temperature when used in a system operated in an inert gas atmosphere. Likewise some insulating materials when operated in dielectric liquids will have lower or higher thermal endurance than in air. (B) It is important to recognize that other characteristics, in addition to thermal endurance, such as mechanical strength, moisture resistance, and corona endurance, are required in varying degrees in different applications for the successful use of insulating materials. A) *class 90 insulation.* Materials or combinations of materials such as cotton, silk, and paper without impregnation. *Note:* Other materials or combinations of materials may be included in this class if by experience or accepted tests they can be shown to have comparable thermal life at 90 degrees Celsius. B) *class 105 insulation.* Materials or combinations of materials such as cotton, silk, and paper when suitably impregnated or coated or when immersed in a dielectric liquid. *Note:* Other materials or combinations may be included in this class if by experience or accepted tests they can be shown to have comparable thermal life at 105 degrees Celsius. (C) *class 130 insulation.* Materials or combinations of materials such as mica, glass fiber, asbestos, etc., with suitable bonding substances. *Note:* Other materials or combinations of materials may be included in this class if by experience or accepted tests they can be shown to have comparable thermal life at 130 degrees Celsius. (D) *class 155 insulation.* Materials or combinations of materials such as mica, glass fiber, asbestos, etc., with suitable bonding substances. *Note:* Other materials or combinations of materials may be included in this class if by experience or accepted tests they can be shown to have comparable thermal life at 155 degrees Celsius. (E) *class 180 insulation.* Materials or combinations of materials such as silicone elastomer, mica, glass fiber, asbestos, etc., with suitable bonding substances such as appropriate silicone resins. *Note:* Other materials or combinations of materials may be included in this class if by experience or accepted tests they can be shown to have comparable thermal life at 180 degrees Celsius. (F) *class 220 insulation.* Materials or combinations of materials which by experience or accepted tests can be shown to have the required thermal life at 220 degrees Celsius. (G) *class over-220 insulation.* Materials consisting entirely of mica, porcelain, glass, quartz, and similar inorganic materials. *Note:* Other materials or combinations of materials may be included in this class if by experience or accepted tests they can be shown to have comparable thermal life at 90 degrees Celsius. B) class 105 insulation. Materials or combinations of materials such as cotton, silk, and paper when suitably impregnated or coated or when immersed in a dielectric liquid. *Note:* Other materials or combinations may be included in this class if by experience or accepted tests they can be shown to have the required thermal life at temperatures over 220 degrees Celsius.

(2) (A) *class O insulation.* *See also:* Class 90 insulation. (B) *class A insulation.*

- Cotton, silk, paper, and similar organic materials when either impregnated or immersed in a liquid dielectric.
- Molded and laminated materials with cellulose filler, phenolic resins, and other resins of similar properties.
- Films and sheets of cellulose acetate and other cellulose derivatives of similar properties.
- Varnishes (enamel) as applied to conductors.

Note: An insulation is considered to be impregnated when a suitable substance replaces the air between its fibers, even if this substance does not completely fill the spaces between the insulated conductors. The impregnating substances, in order to be considered suitable, must have good insulating properties; must entirely cover the fibers and render them adherent to each other and to the conductor; must not produce interstices within itself as a consequence of evaporation of the solvent or through any other cause; must not flow during the operation of the machine at full working load or at the temperature limit specified; and must not unduly deteriorate under prolonged action of heat. (C) *class B insulation.* Mica, asbestos, glass fiber, and similar inorganic materials in built-up form with organic binding substances. *Note:* A small proportion of class A materials may be used for structural purposes only. Glass fiber or asbestos magnet-wire insulations are included in this temperature class. These may include supplementary organic materials, such as polyvinyl acetal or polyamide films. The electrical and mechanical properties of the insulated winding must not be impaired by application of the temperature permitted for class B material. (The word “impaired” is here used in the sense of causing any change that could disqualify the insulating material for continuous service.) The temperature endurance of different class B insulation assemblies varies over a considerable range in accordance with the percentage of class A materials employed, and the degree of dependence placed on the organic binder for maintaining the structural integrity of the insulation. (D) *class H insulation.* Insulation consisting of:

- mica, asbestos, glass fiber, and similar inorganic materials in built-up form with binding substances composed of silicone compounds or materials with equivalent properties.
- silicone compounds in rubbery or resinous forms or materials with equivalent properties.

Note: A minute proportion of class A materials may be used only where essential for structural purposes during manufacture. The electrical and mechanical properties of the insulated winding must not be impaired by the application of the hottest-spot temperature permitted for the specific insulation class. The word “impaired” is here used in the sense of causing any change that could disqualify the insulating materials for continuously performing its intended function, whether creepage spacing, mechanical support, or dielectric barrier action. (E) *class C insulation.* Insulation consisting entirely of mica, porcelain, glass, quartz, and similar inorganic materials. (F) *class F insulation.* Materials or combinations of materials such as mica, glass fiber, asbestos, etc., with suitable bonding substances. Other materials or combinations of materials, not necessarily inorganic, may be included in this class if by experienced or accepted tests they can be shown to be capable of operation at 155°C. (IA/MT) 45-1983

cleaner (electroplating) A compound or mixture, used in degreasing, that is usually alkaline. (PE/EEC) [119]

cleaning (electroplating) The removal of grease or other foreign material from a metal surface, chiefly by physical means. *See also:* electroplating. (EEC/PE) [119]

cleanse instruction A cleanse (cache-control) instruction converts a line to the clean state (the data in cache and memory are the same). (C/MM) 1596-1992

cleanup data cycle A data cycle that is not accompanied by data transfer but is for the purpose of turning off the slave’s AD, PA, and PE drivers. (NID) 960-1993

clear (1) (A) To preset a storage or memory device to a prescribed state, usually that denoting zero. (B) To place a binary cell in the zero state. *See also:* nonlinear capacitor; reset. (C/ED) [46]

(2) (software) To set a variable, register, or other storage location to zero, blank, or other null value. *See also:* initialize; reset. (C) 610.12-1990

(3) To force the contents of one or more storage elements to the logic 0 state. (TT/C) 1149.5-1995

(4) To replace a variable, register, or other storage location with a zero, blank, or null value. (C) 610.10-1994w

(5) To preset a storage or memory device to a prescribed state, usually that denoting zero. *Note:* In the field of nonvolatile memories, “clear” conventionally means to set the outputs of the memory to the high logic level. (ED) 1005-1998

(6) Operator action to remove specific displays. (PE/NP) 692-1997

(7) The action that removes the outgoing signal from a link (i.e., clears the link) and prepares the Physical Medium Dependent (PMD) to receive a packet.local area networks. (C) 8802-12-1998

clear algorithm The timed sequence of signals necessary to clear the memory for a flash electrically erasable programmable read-only memory (EEPROM). (ED) 1005-1998

clearance (1) (A) (navigation aids) [instrument landing system (ILS)] The difference in depth of modulation (DDM) in excess of that required to produce full-scale deflection of the course-deviation indicator in flight areas outside the on-course sector; when the DDM is too low the indicator falls below full-scale deflection and the condition of low clearance exists. (B) (navigation aids) (air traffic control) Permission by a control facility to the pilot to proceed in a mutually understood manner. (AES/GCS) 172-1983

(2) The minimum separation between two conductors, between conductors and supports or other objects, or between conductors and ground. *See also:* tower. (PE/T&D) [10]

(3) (fence safety clearances in electric-supply stations) The separation between two conductors, between conductors and supports or other objects, or between conductors and ground. (PE/SUB) 1119-1988w

(4) (A) The condition in which a circuit has been deenergized to enable work to be performed more safely. A clearance is normally obtained on a circuit presenting a source of hazard prior to starting work. *Synonyms:* restriction; outage; permit. (B) The minimum separation between two conductors, between conductors and supports or other objects, or between conductors and ground or the clear space between any objects. (T&D/PE) 524-1992

(5) The clear distance between two objects measured surface to surface. (NEC) C2-1997

(6) (maintenance of energized power lines) *See also:* work permit. (T&D/PE) 516-1995

clearance antenna array (directional localizer) (navigation aid terms) The antenna array that radiates a localizer signal on a separate frequency within the pass band of the receiver and provides the required signals in the clearance sectors as well as a back course. (AES/GCS) 172-1983w

clearance lamps (illuminating engineering) Lighting devices for the purpose of indicating the width and height of a vehicle. (EEC/IE) [126]

clearance point The location on a turnout at which the carrier’s specified clearance is provided between tracks. (EEC/PE) [119]

clearances The separation between two conductors, between conductors and supports or other objects, or between conductors and ground. (PE/SUB) 1268-1997

clearance sector (instrument landing systems) (navigation aids) The sector extending around either side of the localizer from the course sector to the back course sector, and within which the deviation indicator provides the required offcourse indication. (AES/GCS) 172-1983w

clear area In character recognition, a specified area that is to be kept free of printing or other markings that are not related to machine readings. (C) 610.2-1987

clear channel assessment function That logical function in the physical layer (PHY) that determines the current state of use of the wireless medium (WM). (C/LM) 8802-11-1999

clear disturb The corruption of data in one location caused by the clearing of data at another location. (ED) 1005-1998

clearing (low-voltage air-gap surge-protective devices) (low voltage surge protective devices) The characteristic of some

- types of air gap surge arresters to exhibit a low resistance and then to revert to a high resistance state as a result of an external influence. (SPD/PE) C62.32-1981s, [8]
- clearing circuit** A circuit used for the operation of a signal in advance of an approaching train. (EEC/PE) [119]
- clearing-out drop (cord circuit or trunk circuit)** A drop signal that is operated by ringing current to attract the attention of the operator. (EEC/PE) [119]
- clearing source (low-voltage air-gap surge-protective devices) (low voltage surge protective devices)** A defined electrical source which is intentionally applied as a clearing stimulus to an air gap surge protective device under laboratory test conditions. This stimulus is intended to simulate conditions encountered during normal usage. (SWG/PE) C62.32-1981s, [8]
- clearing time (fuse)** The time elapsing from the beginning of an overcurrent to the final circuit interruption. *Note:* The clearing time is equal to the sum of melting time and arcing time. *Synonym:* total clearing time. (SWG/PE) [56]
- (2) (A) (mechanical switching device). The interval between the time the actuating quantity in the main circuit reaches the value causing actuation of the release and the instant of final arc extinction on all poles of the primary arcing contacts. *Note:* Clearing time is numerically equal to the sum of contact parting time and arcing time. (B) (total clearing time of a fuse). The time elapsing from the beginning of a specified overcurrent to the final circuit interruption, at rated maximum voltage. *Note:* The clearing time is equal to the sum of melting time and the arcing time. (SWG/PE/NP) C37.100-1992, 308-1980, C37.40-1993
- clearly discernable** Capable of being noticed easily and without close inspection. (SUB/PE) C37.123-1996
- clear packet** A packet used during initialization to empty link buffers and initialize the link. CSR state is unaffected; e.g., the node's address is unchanged by a "clear." Clear may be sent by any node that has lost synchronization in order to trigger reinitialization. (C/MM) 1596-1992
- clear sky (illuminating engineering)** A sky that has less than 30% cloud cover. (EEC/IE) [126]
- cleartext** Intelligible data, the semantic content of which is available. (LM/C) 802.10-1992
- cleat** An assembly of two pieces of insulating material provided with grooves for holding one or more conductors at a definite spacing from the surface wired over and from each other, and with screw holes for fastening in position. *See also:* raceway. (EEC/PE) [119]
- clerestory (illuminating engineering)** That part of a building which rises clear of the roofs or other parts and whose walls contain windows for lighting the interior. (EEC/IE) [126]
- CLI** *See:* cumulative leakage index.
- click (1)** A disturbance of a duration less than a specified value as measured under specified conditions. *See also:* electromagnetic compatibility. (EMC/IM) [53], C63.4-1991, [76]
- (2) The act of pressing and releasing a mouse button without moving the mouse pointer. (C) 1295-1993w
- client (1) (MULTIBUS)** An agent that requests services of a server. *See also:* server. (C/MM) 1296-1987s
- (2) Software that uses the interface. (C/PA) 1351-1994w, 1224-1993w, 1327-1993w, 1328-1993w
- (3) In networking, a station or program requesting a service. *Contrast:* server. (C) 610.7-1995
- (4) Software that uses an interface. (C/PA) 1224.1-1993w
- (5) Refers to the software component on one device that uses the services provided by a server on another device. (C/MM) 1284.4-2000
- (6) *See also:* batch client.
®MULTIBUS is a registered trademark of Intel Corporation.
- client application** An application program that makes use of Media Management System (MMS) services to manage its media. Examples of client applications include a backup program, a hierarchical storage manager, and an application that allows individual users to mount their own tapes. (C/SS) 1244.1-2000
- Client Cached Block Cookie** A particular Block Cookie associated with a Base Client. (IM/ST) 1451.1-1999
- client execution environment** The machine state that exists when a client program begins execution. (C/BA) 1275-1994
- client interface** A set of data and procedures giving a client program access to client interface services. (C/BA) 1275-1994
- client instance** A manifestation of the client that shares the input and output queues of the client with other instances. (C/PA) 1224.1-1993w
- client interface handler** A mechanism by which control and data are transferred from a client program to the firmware, and subsequently returned, for the purpose of providing client interface services. (C/BA) 1275-1994
- client layer** In the OSI model, refers to the data link and physical layers. *See also:* transport layer; network layer; presentation layer; physical layer; sublayer; data link layer; entity layer; application layer; session layer; logical link control sublayer; medium access control sublayer. (C) 610.7-1995
- client interface services** Those services that Open Firmware provides to client programs, including device tree access, memory allocation, mapping, console I/O, mass storage, and network I/O. (C/BA) 1275-1994
- Client object** Any object that invokes operations on other objects. (IM/ST) 1451.1-1999
- Client Port** An instance of the class IEEE1451_ClientPort or of a subclass thereof. (IM/ST) 1451.1-1999
- client program** A software program that is loaded and executed by Open Firmware (or a secondary boot program). (The client program may use services provided by the Open Firmware client interface.). (C/BA) 1275-1994
- client role** The location where the software is actually executed or used (as opposed to the target where it is actually installed). The configuration of software is performed by this role. (C/PA) 1387.2-1995
- client-server** In a communications network, the client is the requesting device and the server is the supplying device. For example, the user interface could reside in the client workstation while the storage and retrieval functions could reside in the server database. (C) 610.7-1995
- client-server communication** A communication pattern, where a specific object, the client, communicates in a one-to-one fashion with a specific server object, the server. (IM/ST) 1451.1-1999
- climber in training** A worker who is in training to become a qualified climber. (T&D/PE) 1307-1996
- climbing** The vertical movement (ascending and descending) and horizontal movement to access or depart the worksite. (NESC/T&D/PE) C2-1997, 1307-1996
- climbing space** The vertical space reserved along the side of a pole or structure to permit ready access for linemen to equipment and conductors located on the pole structure. (T&D/PE) 196-1951w, [10], C2.2-1960
- clinometer (navigation aids)** An instrument for indicating the degree of slope of the angle of roll or pitch of a vehicle, according to the plane in which it is mounted. (AES/GCS) 172-1983w
- clip (1) (charged-particle detectors) (x-ray energy spectrometers) (radiation detectors)** A limiting operation, such as the use of a high-pass filter or a nonlinear operation such as diode limiting of pulse amplitude. *Synonym:* clipping. *See also:* fuse clips; differentiated; contact clip. (NPS/NID) 325-1971w, 759-1984r, 301-1976s
- (2) (charged-particle detectors) A limiting operation, such as the use of a high-pass filter (differentiator) or a nonlinear operation to limit the amplitude of a pulse. The first usage is archaic. *Synonym:* clipping. (NPS) 300-1988r
- (3) *See also:* cable clamp. (PE/T&D) 524-1992r

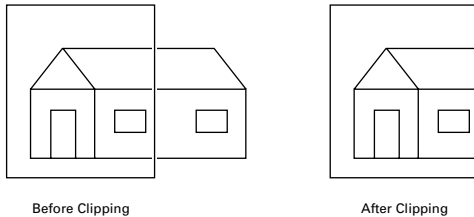
clipboard A software storage device that is used to store an object that is cut or copied from the screen and to retrieve an object that is pasted. (C) 1295-1993w

clipper (data transmission) A device that automatically limits the instantaneous value of the output to a predetermined maximum value. *Note:* The term is usually applied to devices which transmit only portions of an input wave lying on one side of an amplitude boundary. (PE) 599-1985w

clipper limiter A transducer that gives output only when the input lies above a critical value and a constant output for all inputs above a second higher critical value. *Synonym:* amplitude gate. *See also:* transducer. (AP/ANT) 145-1983s

clipping (1) (voice-operated telephone circuit) The loss of initial or final parts of words or syllables due to nonideal operation of the voice-operated devices. (EEC/PE) [119]

(2) (computer graphics) A computer graphics technique in which display elements lying totally outside a view area are made invisible and display elements lying partially inside a view area are scissored to remove the parts outside the view area before they are mapped to the display image. *Note:* In two-dimensional graphics, this view area is called the window; in three-dimensional graphics, it is called the view volume. *See also:* view volume; window; wrap-around; scissoring.



clipping

(C) 610.6-1991w

(3) *See also:* clip.

(NPS) 300-1988r

(4) *See also:* clipping-in; semiconductor; chip.

(PE/T&D) 524-1992r

clipping-in (conductor stringing equipment) The transferring of sagged conductors from the travelers to their permanent suspension positions and the installing of the permanent suspension clamps. *Synonyms:* clipping; clamping-in.

(T&D/PE) 524a-1993r, 524-1992r

clipping offset (conductor stringing equipment) A calculated distance, measured along the conductor from the plumb mark to a point on the conductor at which the center of the suspension clamp is to be placed. When stringing in rough terrain, clipping offsets may be required to balance the horizontal forces on each suspension structure. (T&D/PE) 524-1992r

clips *See:* fuse clips; contact clips.

CLIST A command language used in the IBM MVS environment. (C) 610.13-1993w

CLK A fixed-frequency clock signal. The main SBus timing signal. (C/BA) 1496-1993w

clock (1) (A) A device that generates periodic signals used for synchronization. **(B)** A device that measures and indicates time. *See also:* timer; real-time clock; master clock; wall clock; time-of-day clock. **(C)** A register whose content changes at regular intervals in such a way as to measure time. (C) [20], 610.10-1994

(2) A signal, the transitions of which (between the low and high logic level [or vice versa]) are used to indicate when a stored-state device, such as a flip-flop or latch, may perform an operation. (TT/C) 1149.5-1995, 1149.1-1990

(3) An object that measures the passage of time. The current value of the time measured by a clock can be queried and, possibly, set to a value within the legal range of the clock. (C/PA) 9945-1-1996, 1003.5-1999

(4) (A) A device that generates periodic, accurately spaced signals used for such purposes as timing, regulation of the operations of a processor, or generation of interrupts. **(B)** To

trigger a circuit to perform an operation, such as to accept data into a register. (C) 610.10-1994

(5) A device that generates periodic signals used for synchronization. A device that measures and indicates time. A register whose content changes at regular intervals in such a way as to measure time. (AMR/SCC31) 1377-1997

(6) *See also:* dynamometer.

(T&D/PE) 516-1987s, 524-1992r

clock accuracy The deviation from absolute accuracy per unit of time. In a hierarchical, master-slave synchronization plan, with one primary and at least one backup reference being designated for each local digital switch, the clock rate of the local switch is controlled by the master. Under that method of operation, the local digital switch should operate at zero nominal slips. If the link connecting the master switch to the slave switch is broken, the number of slips will depend on clock accuracy. (COM/TA) 973-1990w

clock cycle One period of the CLK signal, beginning with the rising edge of the signal and ending on the following rising edge of the signal. (C/BA) 1496-1993w

clocked data one (CD1) A Manchester-encoded data 1. A CD1 is encoded as a LO for the first half of the bit-cell and a HI for the second half of the bit-cell. (C/LM) 802.3-1998

clocked data zero (CD0) A Manchester-encoded data 0. A CD0 is encoded as a HI for the first half of the bit-cell and a LO for the second half of the bit-cell. (C/LM) 802.3-1998

clocked logic (power-system communication) The technique whereby all the memory cells (flip-flops) of a logic network are caused to change in accordance with logic input levels but at a discrete time. *See also:* digital. (PE) 599-1985w

clocked violation HI (CVH) A symbol that deliberately violates Manchester-encoding rules, used as a part of the Collision Presence signal. A CVH is encoded as a transition from LO to HI at the beginning of the bit cell, HI for the entire bit cell, and a transition from HI to LO at the end of the bit cell. (C/LM) 802.3-1998

clocked violation LO (CVL) A symbol that deliberately violates Manchester-encoding rules, used as a part of the Collision Presence signal. A CVL is encoded as a transition from HI to LO at the beginning of the bit cell, LO for the entire bit cell, and a transition from LO to HI at the end of the bit cell. (C/LM) 802.3-1998

clocking (data transmission) The generation of periodic signals used for synchronization. *See also:* data processing. (COM) [49]

clocking bit (1) In asynchronous transmission, a bit that signals a synchronization event. (C) 610.7-1995

(2) A bit containing an encoded signal, preceding the data within a data stream, or on a separate channel; used for establishing timing intervals. *See also:* synchronization bit; clock track. (C) 610.10-1994w

clock pulse *See:* clock signal.

clock reference (digital accelerometer) Basic system timing reference. (MTT) 457-1982w

clock, reference *See:* reference clock.

clock register *See:* timer.

clock signal A periodic signal used for synchronizing events. *Synonyms:* clock pulse; timing pulse. (C) 610.10-1994w

clockStrobe signal A packet that causes a node to record its time-of-day registers (if any) when it is received, and to record the duration of the propagation of the packet within the node. Used for precisely synchronizing multiple time-of-day clocks within a system. (C/MM) 1596-1992

clock tick An interval of time. A number of these occur each second. Clock ticks are one of the units that may be used to express a value found in type *clock_t*.

(C/PA) 9945-1-1996

clock track A track on which a pattern of signals, known as synchronization bits, is recorded to provide a timing reference. *Synonym:* timing track. *See also:* clocking bit.

(C) 610.10-1994w

clockwise arc (numerically controlled machines) An arc generated by the coordinated motion of two axes in which curvature of the path of the tool with respect to the workpiece is clockwise when viewing the plane of motion in the negative direction of the perpendicular axis. (IA) [61]

CLOS See: Common LISP Object System.

close To destroy a package instance. (C/BA) 1275-1994

close and latch The capability of a switching device to close (allow current flow) and immediately thereafter latch (remain closed) and conduct a specified current through the device under specified conditions. (SWG/PE) C37.100-1992

close coupling Any degree of coupling greater than the critical coupling. *Synonym:* tight coupling. *See also:* critical coupling; coupling. (EEC/PE) [119]

closed air circuit (rotating machinery) A term referring to duct-ventilated apparatus used in conjunction with external components so constructed that while it is not necessarily airtight, the enclosed air has no deliberate connection with the external air. *Note:* The term must be qualified to describe the means used to circulate the cooling air and to remove the heat produced in the apparatus. (PE) [9]

closed amortisseur An amortisseur that has the end connections connected together between poles by bolted or otherwise separable connections. (EEC/PE) [119]

closed architecture An architecture for which design parameters and specifications are not available to anyone except the manufacturer of the system. *Contrast:* open architecture. (C) 610.10-1994w

closed-circuit cooling (rotating machinery) A method of cooling in which a primary coolant is circulated in a closed circuit through the machine and if necessary a heat exchanger. Heat is transferred from the primary coolant to the secondary coolant through the structural parts or in the heat exchanger. (PE) [9]

closed-circuit principle The principle of circuit design in which a normally energized electric circuit, on being interrupted or de-energized, will cause the controlled function to assume its most restrictive condition. (EEC/PE) [119]

closed-circuit signaling (data transmission) That type of signaling in which current flows in the idle condition, and a signal is initiated by increasing or decreasing the current. (PE) 599-1985w

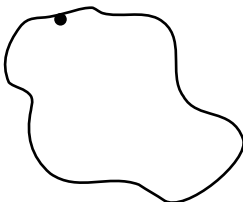
closed-circuit transition As applied to reduced-voltage controllers, including star-delta controllers, a method of starting in which the power to the motor is not interrupted during the starting sequence. *See also:* electric controller. (IA/ICTL/IAC) [60]

closed-circuit transition auto-transformer starting (rotating machinery) The process of auto-transformer starting whereby the motor remains connected to the supply during the transition from reduced to rated voltage. (PE) [9]

closed-circuit voltage (batteries) The voltage at its terminals when a specified current is flowing. *See also:* battery. (EEC/PE) [119]

closed construction Any building, building component, assembly or system manufactured in such a manner that all concealed parts of processes of manufacture cannot be inspected before installation at the building site without disassembly, damage, or destruction. (NESC/NEC) [86]

closed curve (image processing and pattern recognition) A curve whose beginning and ending points are the same point.



closed curve

(C) 610.4-1990w

closed loop (1) (automatic control) A signal path that includes a forward path, a feedback path, and a summing point and that forms a closed circuit. *See also:* feedback loop. (IA/ICTL/APP/IAC) [69], [60]

(2) (software) A loop that has no exit and whose execution can be interrupted only by intervention from outside the computer program or procedure in which the loop is located. *Contrast:* WHILE; UNTIL. (C) 610.12-1990

closed-loop control (1) (station control and data acquisition) A type of automatic control in which control actions are based on signals fed back from the controlled equipment or system. For example, RTUs can manage local voltage conditions by control of load tap changers and volt amperes reactive (VAR) control compensation equipment. (PE/SUB/SWG-OLD) C37.100-1992, C37.1-1994

(2) Pertaining to a control system in which the output is measured and compared with a standard representing the acceptable range, and any deviation from the standard is fed back into the system in a way that will reduce the deviation. *Synonym:* feedback control. *Contrast:* open-loop control. (C) 610.2-1987

closed-loop control system (1) (control system feedback) A control system in which the controlled quantity is measured and compared with a standard representing the desired performance. *Note:* Any deviation from the standard is fed back into the control system in such a sense that it will reduce the deviation of the controlled quantity from the standard. *See also:* control; network analysis. (PE/PEL/PSE/ET) 94-1970w, 111-1984w

(2) (high-power wide-band transformers) A system in which the controlled quantity is measured and compared with a standard representing the desired performance. Any deviation from the standard is fed back into the control system in such sense that it will reduce the deviation of the controlled quantity from the standard. (MAG) 264-1977w

closed-loop gain (operational gain) (power supplies) The gain, measured with feedback, is the ratio of voltage appearing across the output terminal pair to the causative voltage required at the input resistor. If the open-loop gain is sufficiently large, the closed-loop gain can be satisfactorily approximated by the ratio of the feedback resistor to the input resistor. *See also:* open-loop gain. (SP/EEC/PE) [32], [119]

closed-loop series street lighting system Street lighting system that employs two-wire series circuits in which the return wire is always adjacent. *See also:* alternating-current distribution; direct-current distribution. (EEC/PE) [119]

closed-loop testing (test, measurement, and diagnostic equipment) Testing in which the input stimulus is controlled by the equipment output monitor. (MIL) [2]

closed network A network that prevents outside access by eliminating external connections and external entry or use. *Contrast:* open network. (C) 610.7-1995

closed-numbering plan (telephone switching systems) A numbering plan in which a fixed number of digits is always dialed. (COM) 312-1977w

closed subroutine (1) A subroutine that can be stored at one place and can be connected to a routine by linkages at one or more location. *See also:* open subroutine. (C) [20], [85]

(2) (software) A subroutine that is stored at one given location rather than being copied into a computer program at each place that it is called. *Contrast:* open subroutine. (C) 610.12-1990

closed user group A specified group of network users who are permitted communications among themselves but not with other network users. (C) 610.7-1995

close-open operation (of a switching device) A close operation followed immediately by an open operation without purposely delayed action. *Note:* The letters CO signify this operation: Close-Open. (SWG/PE) C37.100-1992

close operation (of a switching device) The movement of the contacts from the normally open to the normally closed

position. *Note:* The letter C signifies this operation: Close.

(SWG/PE) C37.100-1992

close-talking microphone A microphone designed particularly for use close to the mouth of the speaker. *See also:* microphone.

(EEC/PE) [119]

close-talking pressure-type microphones An acoustic transducer that is intended for use in close proximity to the lips of the talker and is either hand-held or boom-mounted. *Notes:* 1. Various types of microphones are currently used for close-talking applications. These include carbon, dynamic, magnetic, piezoelectric, electrostrictive, and capacitor types. Each of these microphones has only one side of its diaphragm exposed to sound waves, and its electric output substantially corresponds to the instantaneous sound pressure of the impressed sound wave. 2. Since a close-talking microphone is used in the near sound field produced by a person's mouth, it is necessary when measuring the performance of such microphones to utilize a sound source that approximates the characteristics of the human sound generator.

(SP) 258-1965w

close-time delay-open operation (of a switching device) A close operation followed by an open operation after a purposely delayed action. *Note:* The letters CTO signify this operation: Close-Time Delay-Open.

(SWG/PE) C37.100-1992

closing coil (of a switching device) A coil used in the electromagnet that supplies power for closing the device. *Note:* In an air-operated, or other stored-energy-operated device, the closing coil may be the coil used to release the air or other stored energy that in turn closes the device.

(SWG/PE) C37.100-1992

closing operating time The interval during which the contacts move from the fully open position to the fully closed position.

(SWG/PE) C37.100-1992

closing relay A form of auxiliary relay used with an electrically operated device to control the closing and opening of the closing circuit of the device so that the main closing current does not pass through the control switch or other initiating device.

(SWG/PE/PSR) C37.100-1992, [56], [6]

closing time (of a mechanical switching device) The interval of time between the initiation of the closing operation and the instant when metallic continuity is established in all poles. *Notes:* 1. It includes the operating time of any auxiliary equipment that is necessary to close the switching device, and that forms an integral part of the switching device. 2. For switching devices that embody switching resistors, a distinction should be made between the closing time up to the instant of establishing a circuit at the secondary arcing contacts, and the closing time up to the establishment of a circuit at the main or primary arcing contacts, or both.

(SWG/PE) C37.100-1992

cloud chamber smoke detector (fire protection devices) A device which is a form of sampling detector. The air pump draws a sample of air into a high humidity chamber within the detector. After the air is in the humidity chamber, the pressure is lowered slightly. If smoke particles are present, the moisture in the air condenses on them forming a cloud in the chamber. The density of this cloud is then measured by the photoelectric principle. When the density is greater than a predetermined level, the detector responds to the smoke.

(NFPA) [16]

cloud pulse (charge-storage tubes) The output resulting from space-charge effects produced by the turning on or off of the electron beam. *See also:* charge-storage tube.

(ED) 158-1962w, 161-1971w

clouds *See:* fog.

cloudy sky (illuminating engineering) A sky that has more than 70% cloud cover.

(EEC/IE) [126]

CLR *See:* trunk circuit, combined line and recording; combined-line-recording trunk; recording-completing trunk.

cluster (1) (A) In image processing, a set of pixels in a digital image that are close to one another and similar in some way.

(B) In pattern recognition, a set of points in a feature space that are similar in some way. (C) 610.4-1990

(2) One or more contiguous sectors on a magnetic disk. *See also:* Remote Bridge.

(C/LM) 610.10-1994w, 802.1G-1996

(3) *See also:* subclass cluster. (C/SE) 1320.2-1998

(4) A grouping of cell instances and/or clusters that are constrained to each other due to physical location or some other shared characteristic(s). It is not valid to have a cell instance explicitly made a member of more than one cluster.

(C/DA) 1481-1999

cluster analysis (A) The detection and description of clusters in a digital image. **(B)** The detection and description of clusters in a feature space. (C) 610.4-1990

clustered word processing Word processing performed on a system composed of multiple work stations, each with its own memory but operating under the control of a master work station. *Contrast:* stand-alone word processing; shared-logic word processing; shared-resource word processing; dedicated word processing. (C) 610.2-1987

clutter (1) (navigation aids) Atmospheric noise, extraneous signals, etc., that tend to obscure the reception of a desired signal. (AES/GCS) 172-1983w

(2) Unwanted echoes, typically from the ground, sea, rain or other precipitation, chaff, birds, insects, meteors, and aurora. *Synonym:* background return. (AES) 686-1997

clutter attenuation (CA) In moving-target indication (MTI) or Doppler radar, the ratio of the clutter-to-noise ratio at the input to the processor, to the clutter-to-noise ratio at the output. *Note:* In MTI, a single value of CA will be obtained, while in Doppler radar the value will generally vary over the different target Doppler filters. In MTI, CA will be equal to MTI improvement factor if the targets are assumed uniformly distributed in velocity. *See also:* MTI improvement factor.

(AES) 686-1997

clutter cancellation *See:* clutter attenuation.

clutter detectability factor The predetection signal-to-clutter ratio that provides stated probability of detection for a given false alarm probability in an automatic detection circuit. *Note:* In MTI systems, it is the ratio after cancellation or Doppler filtering. (AES) 686-1997

clutter fence A barrier surrounding a ground-based radar to serve as an artificial horizon and suppress ground clutter.

(AES) 686-1997

clutter filter A filter or group of filters (filter bank) included in a radar for the purpose of rejecting clutter returns and passing target returns at Doppler frequencies different from the Doppler frequencies of clutter. *Note:* Moving-target indication (MTI) and pulsed-Doppler processors are examples.

(AES) 686-1997

clutter improvement factor *See:* moving-target indication improvement factor.

clutter map Computer-stored values of radar-measured clutter for each range-azimuth resolution cell or local region, used to set thresholds for each cell in a constant-false-alarm rate (CFAR) detection system or to adjust other processing parameters. (AES) 686-1997

clutter-referenced MTI A type of noncoherent MTI that uses clutter as a reference. *See also:* noncoherent MTI.

(AES/RS) 686-1990

clutter reflectivity The backscatter coefficient of clutter. *See also:* backscatter coefficient. (AES) 686-1997

clutter residue The uncanceled clutter power remaining at the output of an moving-target indication (MTI) or Doppler signal processor. *See also:* canceled video. (AES) 686-1997

clutter visibility factor The predetection signal-to-clutter ratio that provides stated probability of detection for a given false alarm probability on a display. *Note:* In moving-target indication (MTI) systems, it is the ratio after cancellation or Doppler filtering. (AES) 686-1997

CM *See*: configuration management.

CMC *See*: code for magnetic characters.

C-Message noise The noise on an idle channel or circuit, i.e., a channel or circuit with a termination and no signal (holding tone) at the transmitting end, measured through a C-Message weighting. The noise is expressed in dBnC.
(COM/TA) 743-1995

C-Message weighting (1) (data transmission) A noise weighting used in a noise measuring set to measure noise on a line that is terminated by a subset with a number 500 receiver or a similar subset. The meter scale readings are in dBm (C-Message).
(PE) 599-1985w

(2) (voice-frequency electrical-noise test) A weighting derived from listening tests to indicate the relative annoyance or speech impairment by an interfering signal of frequency *f* as heard through a "500-type" telephone set. The result, called "C-Message waiting," is shown in the corresponding figure.
(COM/TA) 469-1988w

(3) A frequency-weighting characteristic used for measurement of noise in voice-frequency communications circuits and designed to weight noise frequencies in proportion to their perceived annoyance effect in telephone service. The C-Message weighting is used to evaluate noise to the human ear, using a 500-type telephone set. (COM/TA) 743-1995

CMI *See*: computer-managed instruction.

CMOS *See*: complementary metal-oxide semiconductor.

CMRR *See*: common-mode rejection ratio.

CNC *See*: computer numerical control.

C network A network composed of three impedance branches in series, the free ends being connected to one pair of terminals, and the junction points being connected to another pair of terminals. *See also*: network analysis. (EEC/PE) [119]

C-Notch (analog voice frequency circuits) The measure of noise on a channel when a signal is present. A very narrow band-elimination filter (notch filter) is used with a C-Message filter to eliminate the holding tone at the measuring end of the circuit. *See also*: holding tone. (COM/TA) 743-1984s

C-Notched filter (telephone loop performance) A filter used in front of the noise detector in conjunction with the measurement of noise in certain systems. A tone is transmitted in

these systems to activate signal-dependent noise sources, but the tone power should not be included in the measurement. The C-Notched filter has a C-Message weighting transfer function with a sharp notch which removes this tone from the received signal before its power is measured.
(COM/TA) 820-1984r

C-Notched noise The noise power on a channel with a holding tone (signal) at the transmit end, measured through a C-Message weighting and a 1010 Hz notch filter in tandem.
(COM/TA) 743-1995

CO *See*: central office; unit operation; close-open operation.

coagulating current *See*: Tesla current.

coal cleaning equipment Equipment generally electrically driven, to remove impurities from the coal as mined, such as slate, sulphur, pyrite, shale, fire clay, gravel, and bone.
(EEC/PE) [119]

coalesce To combine two or more sets into one set. *See also*: merge; collate. (C) 610.5-1990w

coarse change-over selector A change-over selector that connects the tap winding to a coarse winding, a main winding, or to portions of the main winding.
(PE/TR) C57.131-1995

coarse chrominance primary* *See*: Q chrominance signal.

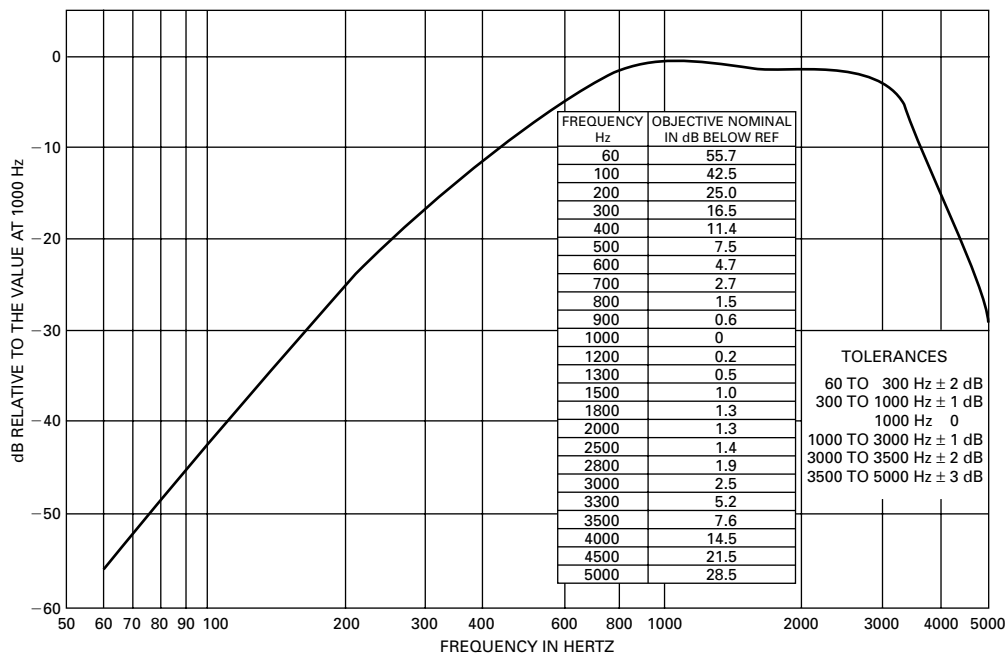
* Deprecated.

coarse/fine operation A winding arrangement in which a coarse change-over selector connects the tap winding to the coarse or main winding, and allows the use of the taps twice when travelling through the tapping range.
(PE/TR) C57.131-1995

coarse-fine control system A control system that uses some elements to reduce the difference between the directly controlled variable and its ideal value to a small value and that uses other elements to reduce the remaining difference to a smaller value. (IA/ICTL/IAC) [60]

coarse-grain parallel architecture Parallel architecture that uses between 2 and 16 processors. *Contrast*: fine-grain parallel architecture; medium-grain parallel architecture.
(C) 610.10-1994w

coarse winding A winding that extends the regulating range beyond the range of the finely tapped winding.
(PE/TR) C57.131-1995



Response in decibels indicating relative interfering effect, C-Message weighting.

C-Message weighting

- coast (1)** The mode of operation of a vehicle or train in which both tractive effort from the propulsion system and braking effort from the propulsion and friction brake systems are zero. *Note:* The inherent design characteristics of some propulsion systems require that a negligible level of electric brake be present in the coast mode. (VT) 1475-1999
- (2)** A radar memory feature that causes the range or angle tracking systems to continue to move in the same direction and at the same rate that an original target was moving. *Note:* Coast is invoked manually or automatically when the tracked target approaches a stronger echo (target or clutter) to prevent capture of the track by that echo or to maintain track over brief periods of signal loss. (AES) 686-1997
- coast time** *See:* run-down time.
- coated card** *See:* edge-coated card.
- coated fabric** A fabric or mat in which the elements and interstices may or may not in themselves be coated or filled but that has a relatively uniform compound or varnish finish on either one or both surfaces. *Synonym:* coated mat. *See also:* stator; rotor. (PE) [9]
- coated magnetic tape (magnetic powder-coated tape)** A tape consisting of a coating of uniformly dispersed, powdered ferromagnetic material (usually ferromagnetic oxides) on a non-magnetic base. *See also:* magnetic tape; phonograph pickup. (SP) [32]
- coated mat** *See:* coated fabric.
- coating (1) (electroplating)** The layer deposits by electroplating. *See also:* electroplating. (PE/EEC) [119]
- (2)** As defined by the Steel Structures Painting Council, a generic term for paints, lacquer, enamels, etc. A liquid, liquefiable, or mastic composition that has been converted to a solid protective, decorative, or functional adherent film after application as a thin layer. (SUB/PE) 1264-1993
- coax** A colloquial reference to coaxial cable. (C) 610.7-1995
- coaxial antenna** An antenna comprised of an extension to the inner conductor of a coaxial line and a radiating sleeve that in effect is formed by folding back the outer conductor of the coaxial line. *Contrast:* sleeve-dipole antenna. (AP/ANT) 145-1993
- coaxial cable (1)** A two-conductor (center conductor, shield system), concentric, constant impedance transmission line used as the trunk medium in the baseband system. (LM/C/LM/C) 802.3-1998, 8802-3-1990s
- (2) (broadband local area networks)** A cable with two conductors where one completely surrounds the other. Coax cables are unbalanced transmission lines that have an outer conductor that shields the center conductor from electrostatic interference. The two conductors are spaced by an insulating dielectric that, depending on the mechanical and material configuration, affects the speed, attenuation, and impedance of transmission. (LM/C) 802.7-1989r
- (3)** A cable consisting of a central conductor and an outer, concentric conductor. *Contrast:* twinaxial cable. *See also:* transceiver cable; trunk cable; shield; core; drop cable; attachment unit interface cable. (C) 610.7-1995
- coaxial cable interface** The electrical and mechanical interface to the shared coaxial cable medium either contained within or connected to the Medium Attachment Unit (MAU). Also known as the Medium Dependent Interface (MDI). (C/LM) 802.3-1998
- coaxial cable section** A single length of coaxial cable, terminated at each end with a male BNC connector. Cable sections are joined to other cable sections via BNC plug/receptacle barrel or Type T adapters. (LM/C) 8802-3-1990s, 802.3-1998
- coaxial cable segment (medium attachment units and repeater units)** A length of coaxial cable made up from one or more coaxial cable sections and coaxial connectors, and terminated at each end in its characteristic impedance. (LM/C) 8802-3-1990s, 802.3-1998
- coaxial conductor** An electric conductor comprising outgoing and return current paths having a common axis, one of the paths completely surrounding the other throughout its length. (IA) 54-1955w
- coaxial detector** A detector in which all or part of the two electrical contacts on the detector element are substantially coaxial. Typically one end of each contact configuration is closed (closed-ended coaxial detector), but both ends may be open (open-ended coaxial detector). (NPS) 325-1996
- coaxial detector, conventional-electrode geometry (germanium gamma-ray detectors)** Conventional-electrode geometry. A coaxial detector in which the outer contact is an n-type layer. (NPS) 325-1996
- coaxial detector, reverse-electrode geometry (germanium gamma-ray detectors)** A coaxial detector in which the outer contact is a p-type layer. (NPS) 325-1996
- coaxial relay** A relay that opens and closes an electric contact switching high-frequency current as required to maintain minimum losses. *See also:* relay. (SWG) 341-1986
- coaxial stop filter** A tuned movable filter set round a conductor in order to limit the radiating length of the conductor for a given frequency. *See also:* electromagnetic compatibility. (EMC/INT) [53], [70]
- coaxial stub** A short length of coaxial that is joined as a branch to another coaxial. *Note:* Frequently a coaxial stub is short-circuited at the outer end and its length is so chosen that a high or low impedance is presented to the main coaxial in a certain frequency range. *See also:* waveguide. (EEC/PE) [119]
- coaxial switch** A switch used with and designed to simulate the critical electric properties of coaxial conductors. (PE/PSE) 346-1973w
- coaxial transmission line (waveguide)** A transmission line consisting of two essentially concentric cylindrical conductors. (MTT) 146-1980w
- COBOL 85** A dialect of COBOL; developed as a standard language in 1985, and standardized by IEEE, ISO, and ANSI. (C) 610.13-1993w
- co-channel interference** Interference caused in one communication channel by a transmitter operating in the same channel. *See also:* radio transmission. (BT/AV) [34]
- cock** A pneumatic device having two positions, closed/shut and open/through. (VT) 1475-1999
- cocktail shaker sort** An exchange sort in which adjacent pairs of items are compared and exchanged, if necessary, and alternate passes through the set proceed in opposite directions. *Contrast:* bubble sort. (C) 610.5-1990w
- CODASYL** *See:* Conference on Data Systems Languages.
- CODASYL database** A database that adheres to the standards established by the Database Task Group of CODASYL. *Note:* A network database is generally accepted to be synonymous with a CODASYL database. (C) 610.5-1990w
- CODASYL model** A network database model defined by the CODASYL organization. The CODASYL model is based on sets that are used to specify associations between different record types that exist in a database. *Synonym:* flex model. (C) 610.5-1990w
- CODASYL set** *See:* set.
- code (microprocessor object modules)** Data or executable machine code. *See also:* relocatable code; absolute code. (MM/C) 695-1985s
- (2) (A) (computer terminology)** A character or bit pattern that is assigned a particular meaning; for example, a status code. **(B)** The characters or expressions of an originating or source language, each correlated with its equivalent expression in an intermediate or target language, for example, alphanumeric characters correlated with their equivalent six-bit expressions in a binary machine language. *Note:* For punched or magnetic tape; a predetermined arrangement of possible locations of holes or magnetized areas and rules for interpreting the various possible patterns. **(C)** Frequently, the set of expressions in the target language that represent the set of characters of the source language. **(D)** To encode is to express

given information by means of a code. **(E)** To translate the program for the solution of a problem on a given computer into a sequence of machine-language or pseudo instructions acceptable to that computer.

(C) 610.5-1990, 610.12-1990, 162-1963

(3) (A) (computer terminology) In software engineering, computer instructions and data definitions expressed in a programming language or in a form output by an assembler, compiler, or other translator. *See also:* source code; machine code; object code; microcode. **(B) (computer terminology)** To express a computer program in a programming language.

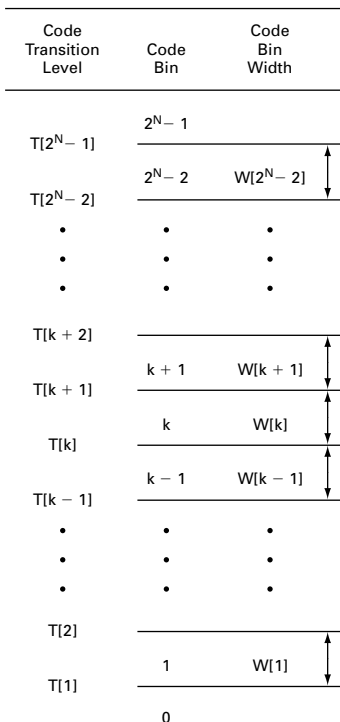
(C) 610.12-1990

(4) (A) (computer terminology) A set of rules used to convert data from one form of representation to another. *Synonym:* coding scheme; data element tag; data code. **(B) (computer terminology)** To represent data in symbolic form. **(C) (computer terminology)** Data that have been expressed in symbolic form. (C) 610.5-1990, 1084-1986

(5) (A) (computer terminology) Data that have been converted from one form of representation to another, using a set of rules as in definition (5A). *Synonym:* encoded data. *See also:* coded representation; symbol; code set. **(B) (computer terminology)** To convert data from one form of representation to another, using a set of rules as in definition (5A). *See also:* encode; decode. (C) 610.5-1990

code audit (software) An independent review of source code by a person, team, or tool to verify compliance with software design documentation and programming standards. Correctness and efficiency may also be evaluated. *See also:* tool; inspection; code; audit; efficiency; walk-through; correctness; static analysis. (C/SE) 729-1983s

code bin k A digital output that corresponds to a particular set of input values.



Definitions pertaining to input quantization

code bin K

(IM/WM&A) 1057-1994w

code bin width $W[k]$ The difference of the code transition levels that delimit the bin.

$$W[k] = T[k + 1] - T[k]$$

(IM/WM&A) 1057-1994w

code-bit In 100BASE-T, the unit of data passed across the Physical Medium Attachment (PMA) service interface, and the smallest signaling element used for transmission on the medium. A group of five code-bits constitutes a code-group in the 100BASE-X Physical Coding Sublayer (PCS).

(C/LM) 802.3-1998

code breakpoint A breakpoint that is initiated upon execution of a given computer instruction. *Synonym:* control breakpoint. *Contrast:* data breakpoint. *See also:* prolog breakpoint; dynamic breakpoint; static breakpoint; epilog breakpoint; programmable breakpoint. (C) 610.12-1990

codebook A combination of a coder and decoder operating in different directions of transmission in the same equipment.

(COM/TA) 1007-1991r

code character A particular arrangement of code elements representing a specific symbol or value.

(COM/PE) [49], 599-1985w

code classes (safety systems equipment in nuclear power generating stations) Levels of structural integrity and quality commensurate with the relative importance of the individual mechanical components of the nuclear power generating station. *Note:* For the recognized code classes, refer to the following documents: ANSI N18.2-1973, *Nuclear Safety Criteria for the Design of Stationary Pressurized Water Reactor Plants*; ANSI/ANS 51.8, *Nuclear Safety Criteria for the Design of Stationary Pressurized Water Reactor Plants*; ANSI/ASME BPV-III, *Boiler and Pressure Vessel Cod* and its latest addenda, Section III; ANSI/ANS 52.1-1980, *Nuclear Safety Criteria for Design of Stationary BWR Plants*.

(PE/NP) 627-1980r

code conversion (telephone switching systems) The substitution of a routing code for a destination code.

(COM) 312-1977w

code converter A converter that changes the representation of data from one code to another.

(C) 610.10-1994w, 610.5-1990w

coded arithmetic data Data stored in a form that is acceptable for arithmetic calculations without conversion to an intermediate form; for example, data stored in integer form.

(C) 610.5-1990w

coded character set A set of characters for which coded representations exist. *Synonyms:* coded representation; code set.

(C) 610.5-1990w

coded decimal *See:* binary coded decimal.

coded-decimal code The decimal number system with each decimal digit expressed by a code. (IA/EEC) [61], [74]

code-decode table A table that identifies a correspondence between encoded and decoded data items. *Synonym:* encode-decode table. (C) 610.5-1990w

code density The number of characters that can appear per unit of length. (PE/TR) C57.12.35-1996

coded fire-alarm system A local fire-alarm system in which the alarm signal is sounded in a predetermined coded sequence. *See also:* protective signaling. (EEC/PE) [119]

code distance *See:* hamming distance.

coded pulse A pulse compression waveform in which a long pulse is divided into many subpulses, with the phase of each subpulse assuming a discrete value (often 0 or π radians) chosen in a deterministic manner (as in Barker codes, which result in all time sidelobes being equal) or chosen in a pseudorandom manner (such as with linear recursive or maximal-length sequences). *See also:* Barker code.

(AES) 686-1997

coded representation The result of applying a code to a particular item of data. For example, the designation ORY for Paris International Airport, obtained by applying the international three-letter code for airports. *Synonym:* code value. *See also:* coded character set. (C) 610.5-1990w

coded track circuit A track circuit in which the energy is varied or interrupted periodically. (EEC/PE) [119]

- code element** One of the discrete conditions or events in a code, for example, the presence or absence of a pulse. *See also*: data processing; information theory. (COM) [49]
- code extension character** Any control character used to indicate that one or more of the succeeding coded representations are to be interpreted according to a different code or according to a different coded character set. (C) 610.5-1990w
- code for magnetic characters (CMC)** A set of rules used in magnetic ink character recognition. *See also*: magnetic ink character recognition. (C) 610.2-1987
- code generator (A) (software)** A routine, often part of a compiler, that transforms a computer program from some intermediate level of representation (often the output of a root compiler or parser) into a form that is closer to the language of the machine on which the program will execute. **(B) (software)** A software tool that accepts as input the requirements or design for a computer program and produces source code that implements the requirements or design. *Synonym*: source code generator. *See also*: application generator. (C) 610.12-1990
- code-group** A set of encoded symbols representing encoded data or control information. For 100BASE-T4, a set of six ternary symbols that, when representing data, conveys an octet. For 100BASE-TX and 100BASE-FX, a set of five code-bits that, when representing data, conveys a nibble. For 100BASE-T2, a pair of PAM5×5 symbols that, when representing data, conveys a nibble. For 100BASE-X, a set of ten bits that, when representing data, conveys an octet. (C/LM) 802.3-1998
- code-group alignment** In 100BASE-X, the receiver action that resets the existing code-group boundary to that of the comma or K28.5 character currently being received. (C/LM) 802.3-1998
- code-group slipping** In 100BASE-X, the receiver action to align the correct receive clock and code-group containing a comma. (C/LM) 802.3-1998
- code, idle channel** *See*: idle channel code.
- code inspection** *See*: inspection.
- code letter (locked-rotor kilovolt-amperes)** A letter designation under the caption "code" on the nameplate of alternating-current motors (except wound-rotor motors) rated 1/20 horsepower and larger to designate the locked-rotor kilovolt-amperes per horsepower as measured at rated voltage and frequency. (PE) [9]
- code of ethics standard** A standard that describes the characteristics of a set of moral principles dealing with accepted standards of conduct by, within, and among professionals. (C) 610.12-1990
- code, peak** *See*: peak code.
- coder (1) (general)** A device that sets up a series of signals in code form. (EEC/PE) [119]
- (2) (code transmitter)** A device used to interrupt or modulate the track or line current periodically in various ways in order to establish corresponding controls in the other apparatus. (EEC/PE) [119]
- code review** A meeting at which software code is presented to project personnel, managers, users, customers, or other interested parties for comment or approval. *Contrast*: formal qualification review; test readiness review; design review. (C) 610.12-1990
- code ringing (telephone switching systems)** Ringing wherein the number of rings or the duration, or both, indicate which system on a party line is being called. (COM) 312-1977w
- Code Rule Violation (CRV)** An analog waveform that is not the result of the valid Manchester-encoded output of a single optical transmitter. The collision of two or more 10BASE-FB optical transmissions will cause multiple CRVs. The preamble encoding of a single 10BASE-FP optical transmission contains a single CRV. (C/LM) 802.3-1998
- coder offset** The difference between the code that is supposed to result from a zero-voltage input to the encoder and the code that actually occurs. (COM/TA) 1007-1991r
- code set** The complete set of coded representations used by a particular code. For example, the set of three-letter codes used to represent airports. (C) 610.5-1990w, 1084-1986w
- code symbol** A 4B/5B encoded sequence of five bits representing a unique pattern. (C/LM) 802.9a-1995w
- code system** A system of control of wayside signals, cab signals, train stop or continuous train control in which electric currents of suitable character are supplied to control apparatus, each function being controlled by its own distinctive code. *See also*: block-signal system. (EEC/PE) [119]
- code trace** *See*: execution trace.
- code transition level** The boundary between two adjacent code bins. (IM/WM&A) 1057-1994w
- code transition level $T[k]$** The value of the recorder input parameter at the transition point between two given, adjacent code bins. The transition point is defined as the input value that causes 50% of the output codes to be greater than or equal to the upper code of the transition, and 50% to be less than the upper code of the transition. The transition level $T[k]$ lies between code bin $k-1$ and code bin k . *See also*: transition point. (IM/WM&A) 1057-1994w
- code translator** *See*: digital converter.
- code value** *See*: coded representation.
- code violation** Violation of a coding rule; e.g., the AMI coding rule where the code is corrupted by bipolar violation(s). (COM/TA) 1007-1991r
- code walk-through** *See*: walk-through.
- coding (1)** The process of transforming messages or signals in accordance with a definite set of rules. (COM) 270-1964w
- (2) (computers)** Loosely, a routine. *See also*: relative coding; straight-line coding; symbolic coding. (C) [20]
- (3) (test, measurement, and diagnostic equipment)** A part of the programming process in which a completely defined, detailed sequence of operation is translated into computer-entry language. (MIL) [2]
- (4) (A) (software)** In software engineering, the process of expressing a computer program in a programming language. **(B) (software)** The transforming of logic and data from design specifications (design descriptions) into a programming language. *See also*: software development process. (C) 610.12-1990
- (5)** Coding is the translation from the original set of bits (character) to a new set of bits (coded character) suitable for serial transmission. *See also*: decoding. (C/BA) 1355-1995
- coding delay* (navigation aids) (loran)** An arbitrary time delay in the transmission of pulse signals from the slave station to permit the resolution of ambiguities; the term "suppressed time delay" more accurately represents what is being accomplished and should be used instead of "coding delay." (AES/GCS) 172-1983w
- * Deprecated.
- coding fan** *See*: electrode radiator.
- coding scheme** *See*: code.
- coding siren** A siren having an auxiliary mechanism to interrupt the flow of air through the device, thereby enabling it to produce a series of sharp blasts as required in code signaling. *See also*: protective signaling. (EEC/PE) [119]
- coefficient of attenuation (illuminating engineering)** The decrement in flux per unit distance in a given direction within a medium. It is defined by the relation: $\Phi_{0e} - ux$ where Φ_x is the flux at any distance x from a reference point having flux Φ_0 . (EEC/IE) [126]
- coefficient of beam utilization (illuminating engineering)** The ratio of the luminous flux (lumens) reaching a specified area directly from a floodlight or projector to the total beam luminous flux (lumens). (EEC/IE) [126]
- coefficient of coupling** *See*: coupling coefficient.
- coefficient of grounding (COG) (1) (surge arresters) (power and distribution transformers)** The ratio (E_{LG}/E_{LL}) expressed as a percentage, of the highest root-mean-square line-to-ground power-frequency voltage (E_{LG}) on a sound phase,

at a selected location, during a fault to earth affecting one or more phases to the line-to-line power-frequency voltage (E_{LL}) that would be obtained, at the selected location, with the fault removed. *Notes:* 1. Coefficients of grounding for three-phase systems are calculated from the phase-sequence impedance components as viewed from the selected location. For machines use the subtransient reactance. 2. The coefficient of grounding is useful in the determination of an arrester rating for a selected location. 3. A value not exceeding 80% is obtained approximately when for all system conditions the ratio of zero-sequence reactance to positive-sequence reactance is positive and less than three and the ratio of zero-sequence resistance to positive-sequence reactance is positive and less than one. (PE/TR) C57.12.80-1978r, [8]

(2) The ratio E_{LG}/E_{LL} , expressed as a percentage, of the highest root-mean-square line-to-ground power-frequency voltage E_{LG} on a sound phase, at a selected location, during a fault to ground affecting one or more phases to the line-to-line power-frequency voltage E_{LL} that would be obtained, at the selected location, with the fault removed. *Notes:* 1. Coefficients of grounding for three-phase systems are calculated from the phase-sequence impedance components as viewed from the selected location. For machines, use the subtransient reactance. 2. The coefficient of grounding is useful in the determination of an arrester rating for a selected location. 3. A value not exceeding 80 percent is obtained approximately when for all system conditions the ratio of zero-sequence reactance to positive-sequence reactance is positive and less than three, and the ratio of zero-sequence resistance to positive-sequence reactance is positive and less than one.

28-1974

(3) The ratio, ELG/ELL (expressed as a percentage), of the highest root-mean-square (rms) line-to-ground power-frequency voltage ELG on a sound phase, at a selected location, during a fault to ground affecting one or more phases to the line-to-line power-frequency voltage ELL that would be obtained at the selected location with the fault removed.

(SPD/PE) C62.22-1997

coefficient of performance (1) (A) (thermoelectric cooling couple) The quotient of the net rate of heat removal from the cold junction by the thermoelectric couple by the electric power input to the thermoelectric couple. *Note:* This is an idealized coefficient of performance assuming perfect thermal insulation of the thermoelectric arms. *See also:* thermoelectric device. **(B) (thermoelectric cooling device)** The quotient of the rate of heat removal from the cooled body by the electric power input to the device. *See also:* thermoelectric device. **(C) (thermoelectric heating device)** The quotient of the rate of heat addition to the heated body by the electric power input to the device. *See also:* thermoelectric device. **(D) (thermoelectric heating couple)** The quotient of the rate of heat addition to the hot junction by the thermoelectric couple by the electric power input to the thermoelectric couple. *Note:* This is an idealized coefficient of performance assuming perfect thermal insulation of the thermoelectric arms. *See also:* thermoelectric device. (ED) [46], 221-1962 **(2) (heat pump)** Ratio of heating effect produced to the energy supplied. (IA/PSE) 241-1990r

coefficient of performance, reduced (thermoelectric device) The ratio of "a specified coefficient of performance" to "the corresponding coefficient of performance of a Carnot cycle." *See also:* thermoelectric device. (ED) [46], 221-1962w

coefficient of trip point repeatability *See:* trip-point repeatability coefficient.

coefficient of utilization (1) (electric power systems in commercial buildings) For a specific room, the ratio of the average lumens delivered by a luminaire to a horizontal work plane to the lumens generated by the luminaire's lamps alone. (IA/PSE) 241-1990r

(2) (illuminating engineering) The ratio of luminous flux (lumens) calculated as received on the work-plane to the rated luminous flux (lumens) emitted by the lamps alone. (It is

equal to the product of "room utilization factor" and "luminaire efficiency.") (EEC/IE) [126]

coefficient of variation The standard deviation, expressed as a percentage of the mean [i.e., (standard deviation/ \bar{x})(100)].

(NI) N42.17B-1989r

coefficient of zero error *See:* environmental coefficient.

coefficient potentiometer A parameter potentiometer that is used to represent a coefficient. (C) 610.10-1994w

coefficient sensitivity *See:* sensitivity coefficient.

coenetic variable In modeling, a variable that affects both the system under consideration and that system's environment.

(C) 610.3-1989w

coerce To treat an object of one type as an object of another type by using a different object. *Contrast:* cast.

(C/SE) 1320.2-1998

coercive field (E_c) (primary ferroelectric terms) The electric field required to switch the polarization from $P = \pm P_R$ to $P = 0$. The coercive field of a ferroelectric crystal depends on its thermal and electrical history, temperature, pressure, type of electrodes, magnitude, and waveshape of the applied switching voltage (that is, E_c increases as a function of the rate of polarization reversal). (UFFC) 180-1986w

coercive force (H_c) (magnetic core testing) The magnetic field strength at which the magnetic induction is zero, when the core material is in a symmetrically cyclically magnetized condition, with a specified maximum value of field strength (that is, loci of points on the hysteresis curve when $B = 0$).

(MAG) 393-1977s

cofactor *See:* path factor.

coffer (illuminating engineering) A recessed panel or dome in the ceiling. (EEC/IE) [126]

Coffing *See:* hoist.

Coffing hoist *See:* hoist.

coffin hoist *See:* hoist.

COG *See:* coefficient of grounding.

cogeneration The generation of electric energy and commercial or industrial quality heat or steam from a single facility.

(SUB/PE) 1109-1990w

cogging (rotating machinery) Variations in motor torque at very low speeds caused by variations in magnetic flux due to the alignment of the rotor and stator teeth at various positions of the rotor. *See also:* rotor; stator. (PE) [9]

cognitive process An internal human activity that receives, manipulates, and stores knowledge or information, or that controls actions according to this knowledge.

(PE/NP) 1082-1997

COGO *See:* COordinate GeOmetry.

cohered video (in radar moving-target indicator) Video-frequency signal output employed in a coherent system. *See also:* navigation. (AES/RS) 686-1982s

coherence (1) (metric practice) A characteristic of a coherent system. In such a system the product or quotient of any two unit quantities is the unit of the resulting quantity. The SI base units, supplementary units, and derived units form a coherent set. (QUL) 268-1982s

(2) (computer graphics) The property that neighboring pixels tend to possess similar attributes. (C) 610.6-1991w

(3) The correlation between electromagnetic fields at points separated in space, time, or both.

(AP/LEO/PROP) 211-1997, 586-1980w

coherence area (1) (fiber optics) The area in a plane perpendicular to the direction of propagation over which light may be considered highly coherent. Commonly the coherence area is the area over which the degree of coherence exceeds 0.88. *See also:* coherent; degree of coherence.

(Std100) 812-1984w

(2) (laser maser) A quantitative measure of spatial coherence. The largest cross-sectional area of a light beam, such that light from this area (passing through any two pin holes placed in this area) will produce interference fringes.

(LEO/PE) 586-1980w, [9]

coherence domain (1) A region in a multiple-cache system, inside of which, cache consistency measures are enforced. In a system that contains bus bridges, a coherence domain may or may not be extensible beyond the local bus through a bus bridge to remote buses.

(C/BA) 10857-1994, 896.3-1993w, 896.4-1993w

(2) A coherence domain is a region in a multiple-cache system in which cache consistency measures are enforced.

(C/BA) 1014.1-1994w

coherence function ($R(\vec{\Delta}, \tau)$) (1) (radio-wave propagation)

The expected value of the product of a component of the complex field (F_x) at a given location (\vec{r}) and time (t) and the complex conjugate of that field component (F_x^*) at a different location ($\vec{r} + \vec{\Delta}$) and time ($t + \tau$): *Notes:* 1. This definition assumes that the statistics of the fields are homogeneous and stationary. 2. The normalized coherence function, also called the mutual coherence function, is the coherence function divided by the expected value of the square of the magnitude of the field.

(AP/PROP) 211-1997

(2) (seismic qualification of Class 1E equipment for nuclear power generating stations) Defines a comparative relationship between two time histories. It provides a statistical estimate of how much two motions are related, as a function of frequency. The numerical range is from zero for unrelated, to 1.0 for related motions.

(PE/NP) 344-1987r

coherence length (1) (fiber optics) The propagation distance over which a light beam may be considered coherent. If the spectral linewidth of the source is $\Delta\lambda$ and the central wavelength is λ_0 , the coherence length in a medium of refractive index n is approximately $\lambda_0^2/n\Delta\lambda$. *See also:* degree of coherence; spectral width.

(Std100) 812-1984w

(2) The distance between two wavefronts of an electromagnetic wave, measured in the direction of propagation, over which the phase of these wavefronts remains sufficiently correlated to result in observable interference between them.

(AP/PROP) 211-1997

coherence line A data block for which cache consistency attributes are maintained. (C/BA) 10857-1994, 896.4-1993w

coherence time (τ_0) (1) (fiber optics) The time over which a propagating light beam may be considered coherent. It is equal to coherence length divided by the phase velocity of light in a medium; approximately given by $\lambda_0^2/c\Delta\lambda$, where λ_0 is the central wavelength, $\Delta\lambda$ is the spectral linewidth and c is the velocity of light in vacuum. *See also:* phase velocity; coherence length.

(Std100) 812-1984w

(2) (laser maser) A quantitative measure of temporal coherence. The maximum delay time which can be introduced between the two beams in a Michelson interferometer before the interference fringes disappear. (LEO) 586-1980w

(3) The time over which the mutual coherence function has decreased to $1/e$ at a given location.

(AP/PROP) 211-1997

coherent (1) (fiber optics) Characterized by a fixed phase relationship between points on an electromagnetic wave. *Note:* A truly monochromatic wave would be perfectly coherent at all points in space. In practice, however, the region of high coherence may extend only a finite distance. The area on the surface of a wavefront over which the wave may be considered coherent is called the coherence area or coherence patch; if the wave has an appreciable coherence area, it is said to be spatially coherent over that area. The distance parallel to the wave vector along which the wave may be considered coherent is called the coherence length; if the wave has an appreciable coherence length, it is said to be phase or length coherent. The coherence length divided by the velocity of light in the medium is known as the coherence time; hence a phase coherent beam may also be called time (or temporally) coherent. *See also:* coherence time; coherence length; degree of coherence; coherence area; monochromatic.

(Std100) 812-1984w

(2) (laser maser) A light beam is said to be coherent when the electric vector at any point in it is related to that at any

other point by a definite, continuous sinusoidal function.

(LEO) 586-1980w

coherent bandwidth *See:* frequency selective bandwidth.

coherent bundle *See:* aligned bundle.

coherent data-access operation A data-access operation, when used to access coherently cached data.

(C/MM) 1596.5-1993

coherent field In situations where the magnitude, phase, and/or vector direction of an electromagnetic field are random variables, the result of averaging the field over all random characteristics. Also called the mean or average field.

(AP/PROP) 211-1997

coherent integration Integration of radio frequency (RF), intermediate frequency (IF), or bipolar envelope signals over an interval in which phase or polarity is preserved. *Note:* Sometimes called "predetection integration." *See also:* integration.

(AES) 686-1997

coherent interrupted waves Interrupted continuous waves occurring in wave trains in which the phase of the waves is maintained through successive wave trains. *See also:* wavefront.

(EEC/PE) [119]

coherent moving-target indication The usual form of MTI in which a moving target is separated from large clutter echoes as a result of a pulse-to-pulse change in echo phase relative to the phase of a coherent reference oscillator. *See also:* moving-target indication.

(AES) 686-1997

coherent MTI *See:* coherent moving-target indication.

coherent processing interval The time during which the radar signal is received and processed coherently. *Note:* Such processing is usually for Doppler filtering. (AES) 686-1997

coherent pulse operation The method of pulse operation in which a fixed phase relationship is maintained from one pulse to the next. *See also:* pulse.

(EEC/PE) [119]

coherent radiation *See:* coherent.

coherent sampling Sampling of a periodic waveform in which there is an integer number of cycles in the data record. In other words, coherent sampling occurs when the following relationship exists:

$$f_s \cdot M_c = f_0 \cdot M$$

where

f_s is the sampling frequency.

M_c is the integer number of cycles in the data record.

f_0 is the frequency of the input.

M is the number of samples in the record.

(IM/WM&A) 1057-1994w

coherent signal processing Integration, filtering, or detection of an echo signal using the amplitude of the received signal and its phase referred to that of a reference oscillator or to the transmitted signal.

(AES) 686-1997

coherent transaction A transaction (typically read or write) that provides protocols for checking and maintaining consistency with other caches. Coherent transactions are expected to address a cache-line. For example, tightly coupled multiprocessors are expected to use coherent transactions when accessing shared-memory resident data.

(C/MM) 1212-1991s

coherent video Bipolar video obtained from a synchronous (coherent) detector.

(AES) 686-1997

cohesion (software) The manner and degree to which the tasks performed by a single software module are related to one another. Types include coincidental, communicational, functional, logical, procedural, sequential, and temporal. *Synonym:* module strength. *Contrast:* coupling.

(C) 610.12-1990

coho A term derived from coherent oscillator, coho designates an oscillator used in a coherent radar to provide a reference phase by which changes in the phase of successively received pulses may be recognized. *Note:* In practice, a coho usually operates at the receiver intermediate frequency.

(AES) 686-1997

coil (1) (general) An assemblage of successive convolutions of a conductor.

(2) (**rotating machinery**) A unit of a winding consisting of one or more insulated conductors connected in series and surrounded by common insulation, and arranged to link or produce magnetic flux. *See also:* rotor; stator. (PE) [9]

coil brace (1) A structure for the support or restraint for one or more coils. *Synonym:* coil support.

(2) (**v wedge, salient-pole construction**) A trapezoidal insulated insert clamped between field poles, to provide radial restraint for the field coil turns against centrifugal force and to brace the coils tangentially. *See also:* stator. (PE) [9]

coil end-bracing *See:* stator; end-winding support; rotor.

coil insulation (rotating machinery) The main insulation to ground or between phases surrounding a coil, additional to any conductor or turn insulation. *See also:* rotor; stator. (PE) [9]

coil insulation with its accessories (1) (insulation systems of synchronous machines) The coil insulation comprises all of the insulating materials that envelope the current-carrying conductors and their component turns and strands and form the insulation between them and the machine structure, and includes the armor tape, the tying cord, slot fillers, slot tube insulation, pole body insulation, and rotor-retaining ring insulation. (REM) [115]

(2) (**repair and rewinding of motors**) Comprises all of the insulating materials that envelop and separate the current-carrying conductors and their component turns and strands and form the insulation between them and the machine structure; includes wire coatings, varnish, encapsulants, slot insulation, slot fillers, tapes, phase insulation, pole-body insulation, and retaining ring insulation when present. *See also:* insulation system. (IA/PC) 1068-1996

coil lashing (rotating machinery) The binding used to attach a coil end to the supporting structure. *See also:* rotor; stator. (PE) [9]

coil loading Loading in which inductors, commonly called loading coils, are inserted in a line at intervals. *Note:* The loading coils may be inserted either in series or in shunt. As commonly understood, coil loading is a series loading in which the loading coils are inserted at uniformly spaced recurring intervals. *See also:* loading. (EEC/PE) [119]

coil pitch (rotating machinery) The distance between the two active conductors (coil sides) of a coil, usually expressed as a percentage of the pole pitch. *See also:* armature. (PE) [9]

coil probe A magnetic flux density sensor comprised of a coil of wire that produces an induced voltage proportional to the time derivative of the magnetic flux density. *Notes:* 1. To eliminate effects due to electric field induction, it is essential that the coil of wire be shielded. 2. Since the induced voltage is proportional to the time derivative of the magnetic flux density, the detector circuit of the sensor often contains an integrating stage to recover the waveform of the magnetic field. The integrating stage is also desirable, particularly for measurements of magnetic field strength with harmonic content, since this stage (i.e., its integrating property) eliminates the excessive weighting of the harmonic components in the voltage signal produced by the probe. 3. This probe can also be used to measure static (dc) magnetic flux density if the probe is rotated at a known rate.

(T&D/PE) 539-1990, 1308-1994

coil Q (dielectric heating) Ratio of reactance to resistance measured at the operating frequency. *Note:* The loaded-coil Q is that of a heater coil with the charge in position to be heated. Correspondingly, the unloaded-coil Q is that of a heater coil with the charge removed from the coil. (IA) 54-1955w

coil Q power factor *See:* coil Q .

coil section (rotating machinery) The basic electrical element of a winding comprising an assembly of one or more turns insulated from one another. (PE) [9]

coil shape factor (dielectric heating) A correction factor for the calculation of the inductance of a coil based on its diameter and length. (IA) 54-1955w

coil side (rotating machinery) Either of the two normally straight parts of a coil that lie in the direction of the axial length of the machine. *See also:* rotor; stator. (PE) [9]

coil-side separator (rotating machinery) Additional insulation used to separate embedded coil sides. *See also:* rotor; stator. (PE) [9]

coil space factor The ratio of the cross-sectional area of the conductor metal in a coil to the total cross-sectional area of the coil. *Note:* If the overall insulation, such as spool bodies or stop linings, is omitted from consideration when the space factor is calculated, the omission should be specifically stated. *See also:* asynchronous machine. (EEC/PE) [119]

coil span *See:* stator; coil pitch; rotor.

coil support *See:* coil brace.

coil support bracket (rotating machinery) A bracket used to mount a coil support ring or binding band. *See also:* stator; rotor. (PE) [9]

coin box A telephone set equipped with a device for collecting coins in payment for telephone messages. *See also:* telephone station. (EEC/PE) [119]

coin call (telephone switching systems) A call in which a coin collection device is used. (COM) 312-1977w

coincidence (radiation counters) The practically simultaneous production of signals from two or more counter tubes. *Note:* A genuine or true coincidence is due to signals from related events (passage of one particle or of two or more related particles through the counter tubes); an accidental, spurious, or chance coincidence is due to unrelated signals that coincide accidentally. *See also:* anticoincidence. (ED) [45]

coincidence circuit A circuit that produces a specified output pulse when and only when a specified number (two or more) or a specified combination of input terminals receives pulses within an assigned time interval. *See also:* anticoincidence; pulse. (NPS) 398-1972r

coincidence factor (electric power utilization) The ratio of the maximum coincident total demand of a group of consumers to the sum of the maximum power demands of individual consumers comprising the group both taken at the same point of supply for the same time. *See also:* generating station. (T&D/PE) [10]

coincidence summing *See:* cascade summing of X and gamma rays.

coincidental cohesion A type of cohesion in which the tasks performed by a software module have no functional relationship to one another. *Contrast:* temporal cohesion; sequential cohesion; procedural cohesion; logical cohesion; communicational cohesion; functional cohesion. (C) 610.12-1990

coincident-current selection The selection of a magnetic cell for reading or writing, by the simultaneous application of two or more currents. (C) [20]

coincident demand (1) (A) (radio-wave propagation) Any demand that occurs simultaneously with any other demand. (B) (**radio-wave propagation**) The sum of any set of coincident demands. (IA/PE/PSE) 241-1990, 858-1993

(2) Any demand that occurs simultaneously with any other demand, also the sum of any set of coincident demands. Information on these factors for the various loads and groups of loads is useful in designing the system. For example, the sum of the connected loads on a feeder, multiplied by the demand factor of these loads, will give the maximum demand that the feeder must carry. The sum of the individual maximum demands on the circuits associated with a load center or panelboard, divided by the diversity factor of those circuits, will give the maximum demand at the load center and on the circuit supplying it. The sum of the individual maximum demands on the circuits from a transformer, divided by the diversity factor of those circuits, will give the maximum demand on the distribution transformer. The sum of the maximum demand on all distribution transformers, divided

by the diversity factor of the transformer loads, will give the maximum demand on their primary feeder. By the use of the proper factors, as outlined, the maximum demands on the various parts of the system from the load circuits to the power source can be estimated. Allowances should also be made for future load expansion in these calculations.

(IA/PSE) 141-1993r

(3) (electric power utilization) Any demand that occurs simultaneously with any other demand; also the sum of any set of coincident demands. *See also:* alternating-current distribution. (PE/PSE) 346-1973w

coin-control signal (telephone switching systems) On a coin call, one of the signals used for collecting or returning coins.

(COM) 312-1977w

coin-denomination tone (telephone switching systems) The tone that indicates the value of coins when they are deposited in a coin telephone. (COM) 312-1977w

coin tone (telephone switching systems) A class-of-service tone that indicates to an operator that the call has originated from a coin telephone. (COM) 312-1977w

cold cathode A cathode that functions without the application of heat. *See also:* electrode. (EEC/PE) [119]

cold-cathode glow-discharge tube (glow tube) A gas tube that depends for its operation on the properties of a glow discharge. (ED) [45]

cold-cathode lamp (illuminating engineering) An electric-discharge lamp whose mode of operation is that of a glow discharge, and which has electrodes so spaced that most of the light comes from the positive column between them.

(EEC/IE) [126]

cold-cathode stepping tube A glow discharge tube having several main gaps with or without associated auxiliary gaps, and in which the main discharge has two or more stable positions and can be made to step in sequence, when a suitable shaped signal is applied to an input electrode, or a group of input electrodes. (ED) [45]

cold-cathode tube An electron tube containing a cold cathode. (ED) 161-1971w

cold-end termination (electrical heat tracing for industrial applications) The termination applied to the end of a heating cable where the power is supplied. (BT/AV) 152-1953s

cold lead (electrical heat tracing for industrial applications) An electrically insulated conductor used to connect a heating conductor to the branch-circuit conductors and designed so as not to produce any appreciable heat.

(BT/AV) 152-1953s

cold-lead connection An electrically insulated conductor used to connect a heating conductor to the branch-circuit conductors and designed so as not to produce appreciable heat.

(IA) 515-1997

cold reserve Thermal generating capacity available for service but not maintained at operating temperature.

(T&D/PE) [10]

cold shrink A joint that consists of a tube or a series of tubes that are applied over the conductor and reduced in diameter over the cable without the use of heat. (PE/IC) 404-1993

cold side *See:* unexposed side.

“cold” standby redundant UPS configuration Consists of two independent, nonredundant modules with either individual module batteries or a common battery.

(IA/PSE) 241-1990r

cold-start A sequence of events performed on the application of power that ensures a uniform initialization period for all agents, giving them the ability to begin operation from a known state. (C/MM) 1296-1987s

cold test *See:* passive test.

collaboration The cooperative exchange of requests among classes and instances in order to achieve some goal.

(C/SE) 1320.2-1998

collapsing loss The increase in required input signal-to-noise ratio to maintain given probability of detection for a given false alarm probability when resolution cells or samples con-

taining only noise are integrated along with those containing signal and noise. *Note:* This type of loss occurs, for example, when radar returns containing range, azimuth, and elevation information are constrained to a two-dimensional display.

(AES) 686-1997

collapsing ratio The ratio

$(m + n)/n$

where

m = number of noise-only samples

n = number of signal-plus-noise samples

(AES) 686-1997

collar (rotating machinery) (washer) Insulation between the field coil and the pole shoe (top collar) and between the field coil and the member carrying the pole body (bottom collar). *See also:* rotor; field-coil flange. (PE) [9]

collate (1) (mathematics of computing) To compare and merge two or more similarly ordered or sequenced sets onto one ordered set. For example, to arrange the set 1, 4, 9, 12, 18 and the set 2, 5, 10, 19 as the single set 1, 2, 4, 5, 9, 10, 12, 18, 19. (C) [20], [85], 1084-1986w

(2) (data management) To arrange items from two or more ordered subsets into one or more other subsets. The resulting subsets will commonly contain at least one item from each of the original subsets and may be ordered in some specified order that is not necessarily the order of any of the original subsets. *Contrast:* decollate. *See also:* merge; collating sequence; coalesce. (C) 610.5-1990w

collating element The smallest entity used to determine the logical ordering of strings. A collating element shall consist of either a single character, or two or more characters collating as a single entity. The value of the LC_COLLATE category in the current locale determines the current set of collating elements. *See also:* collation sequence.

(C/PA) 9945-2-1993

collating sequence An ordering assigned to a set of items, such that any two sets in that assigned order can be collated.

(C) [20], [85]

(2) (A) (data management) A sequence assigned to a set of items such that any two sets that are in that assigned order can be collated. **(B) (data management)** A specified arrangement of the items in a set used in sequencing. *Synonym:* sequence. *See also:* order. (C) 610.5-1990

collating significance Any attribute of a set that may be used to define a specified arrangement to be used in collating.

(C) 610.5-1990w

collation *See:* AND.

collation sequence The relative order of collating elements as determined by the setting of the LC_COLLATE category in the current locale. The character order, as defined for the LC_COLLATE category in the current locale defines the relative order of all collating elements such that each element occupies a unique position in the order. This is the order used in ranges of characters and collating elements in REs and pattern matching. In addition, the definition of the collating weights of characters and collating elements uses collating elements to represent their respective positions within the collation sequence. Multilevel sorting is accomplished by assigning one or more collation weights to elements, up to the limit

$\left\{ \text{COLL_WEIGHTS_MAX} \right\}$.

On each level, elements may be given the same weight (at the primary level, this is called an *equivalence class*) or may be omitted from the sequence. Strings that collate equally using the first assigned weight (primary ordering) are then compared using the next assigned weight (secondary ordering), and so on. (PA/C) 9945-2-1993

collator (1) A device to collate sets of punched cards or other documents into a sequence. (C) [20], [85]

(2) A device that compares and merges sets of punch cards or other documents into a sequence. (C) 610.10-1994w

collect call (telephone switching systems) A call for which the called customer agrees to pay. (COM) 312-1977w

collecting pit A pit built under oil-filled equipment to collect any accidental discharge of oil from that piece of equipment. (SUB/PE) 980-1994

collection cardinality A specification, for a collection-valued property, of how many members the value of the property, i.e., the collection, may or must have for each instance. *See also:* cardinality constraint. (C/SE) 1320.2-1998

collection class A kind of class in which each instance is a group of instances of other classes. (C/SE) 1320.2-1998

collection configuration In a collection of objects, the configuration is the enumeration of the members of the collection, and the specification of the allowed communications between the members. To configure a collection means to make the necessary changes to the collection and its members to make real the defined enumeration of members and the specification of allowed communication between members. (IM/ST) 1451.1-1999

collection efficiency (quantum yield) The number of carriers crossing the p-n junction per incident photon. (AES/SS) 307-1969w

collection property *See:* collection-valued property.

collection-valued A value that is complex, i.e., having constituent parts. *Contrast:* scalar. (C/SE) 1320.2-1998

collection-valued class A class in which each instance is a collection of values. *Contrast:* scalar-valued class. (C/SE) 1320.2-1998

collection-valued property A property that maps to a collection class. *Contrast:* scalar-valued property. (C/SE) 1320.2-1998

collector (1) (rotating machinery) An assembly of collector rings, individually insulated, on a supporting structure. *See also:* asynchronous machine. (PE) [9]

(2) (electron tube) An electrode that collects electrons or ions that have completed their functions within the tube. *See also:* electrode. (ED) 161-1971w

(3) (transistor) A region through which primary flow of charge carriers leaves the base. (ED) 216-1960w

collector grid (solar cells) A pattern of conducting material making ohmic contact to the active surface of a solar cell to reduce the series resistance of the device by reducing the mean path of the current carriers within the semiconductor. (AES/SS) 307-1969w

collector junction (semiconductor devices) A junction normally biased in the high-resistance direction, the current through which can be controlled by the introduction of minority carriers. *Note:* The polarity of the voltage across the junction reverses when a switching occurs. *See also:* semiconductor; transistor; semiconductor device. (ED/IA) 216-1960w, 270-1966w, [12]

collector plates Metal inserts embedded in the cell lining to minimize the electric resistance between the cell lining and the current leads. *See also:* fused electrolyte. (EEC/PE) [119]

collector ring (1) A metal ring suitably mounted on an electric machine that (through stationary brushes bearing thereon) conducts current into or out of the rotating member. *Synonym:* slip ring. *See also:* asynchronous machine. (EEC/PE) [119]

(2) An assembly of slip rings for transferring electrical energy from a stationary to a rotating member. (NESC/NEC) [86]

collector-ring lead insulation (rotating machinery) Additional insulation, applied to the leads that connect the collector rings to the windings of the rotating member, to prevent grounding to the metallic parts of the rotating members, and to provide electrical separation between leads. *See also:* rotor. (PE) [9]

collector-ring shaft insulation (rotating machinery) The combination of insulating members that insulate the collector

rings from the parts of the structure that are mounted on the shaft. *See also:* rotor. (PE) [9]

collimate (storage tubes) To modify the paths of electrons in a flooding beam or of various rays of a scanning beam in order to cause them to become more nearly parallel as they approach the storage assembly. *See also:* storage tube. (ED) 158-1962w

collimated beam (laser maser) Effectively, a parallel beam of light with very low divergence or convergence. (LEO) 586-1980w

collimating lens (storage tubes) An electron lens that collimates an electron beam. *See also:* storage tube. (ED) 158-1962w

collimation (fiber optics) The process by which a divergent or convergent beam of radiation is converted into a beam with the minimum divergence possible for that system (ideally, a parallel bundle of rays). *See also:* beam divergence. (Std100) 812-1984w

collimator (laser maser) An optical device for converting a diverging or converging beam of light into a collimated or parallel one. (LEO) 586-1980w

collinear array antenna A linear array of radiating elements, usually dipoles, with their axes lying in a straight line. (AP/ANT) 145-1993

collision (1) An unwanted condition that results from concurrent transmission on the physical medium. (LM/C) 8802-3-1990s

(2) (data management) In hashing, the occurrence of the same hash value for two or more different keys. *Synonym:* hash clash. *See also:* synonym. (C) 610.5-1990w

(3) The condition occurring when two MTM-Bus modules are simultaneously MTM-Bus drivers and are attempting to drive a MTM-Bus signal to complementary values (one driving logic 1, one driving logic 0). (TT/C) 1149.5-1995

(4) The condition when multiple packets/signals are observed simultaneously at a single point on the medium where the "listening" station is unable to function properly due to multiple signals being present. *See also:* forced collision; collision detect signal; contention; collision detection. (C) 610.7-1995

(5) A condition that results from concurrent transmissions from multiple data terminal equipment (DTE) sources within a single collision domain. (LM/C) 802.3-1998, 610.7-1995

collision-avoidance system (navigation aids) A system providing the means of detection and prevention of impending collision between vehicles. The system performs one or more of the following functions: detection of intruders in surrounding vicinity, evaluation of miss distance of a collision hazard, determination of precise maneuver needed to avoid the hazard, and specification of when an avoidance maneuver should be initiated. (AES/GCS) 172-1983w

collision chain A list used in hashing to hold all the keys for which the hash address is identical. *Synonym:* calc chain. (C) 610.5-1990w

collision detection The ability of a node to detect collision. *Note:* This term is contextually specific to IEEE Std 802.3. (C) 610.7-1995

collision detect signal A signal provided by the physical layer to the data link layer, to indicate collision detection. *Note:* This term is contextually specific to IEEE Std 802.3. (C) 610.7-1995

collision enforcement The emission of an encoded sequence by the transmitting node after a collision is detected, to ensure that all other transmitting nodes detect the collision. *Note:* This term is contextually specific to IEEE Std 802.3. (C) 610.7-1995

collision domain A single, half duplex mode CSMA/CD network. If two or more Media Access Control (MAC) sublayers are within the same collision domain and both transmit at the same time, a collision will occur. MAC sublayers separated by a repeater are in the same collision domain. MAC sublay-

- ers separated by a bridge are within different collision domains. (C/LM) 802.3-1998
- collision error** In networking, an indication that two or more nodes have attempted to transmit within the same time slot. *Note:* This term is contextually specific to IEEE Std 802.3. (C) 610.7-1995
- collision frequency** In a plasma, the average number of collisions per second of a particle of a given species with particles of another or of the same species. (AP/PROP) 211-1997
- collision presence (1)** The signal provided by the physical signaling sublayer to the physical medium attachment sublayer (within the data link layer) to indicate that multiple stations are contending for access to the transmission medium. (C) 610.7-1995
- (2)** A signal generated within the Physical Layer by an end station or hub to indicate that multiple stations are contending for access to the transmission medium. (C/LM) 802.3-1998
- collision resolution** In hashing, the process of applying further calculations or other means to resolve a collision. Methods include open-address hashing, separate chaining, and the use of buckets. *Synonym:* rehashing. (C) 610.5-1990w
- colloidal ions** Ions suspended in a medium, that are larger than atomic or molecular dimensions but sufficiently small to exhibit Brownian movement. (EEC/PE) [119]
- colon definition** A command defined as a sequence of previously existing commands. (C/BA) 1275-1994
- color (1) (television)** That characteristic of visual sensation in the photopic range that depends on the spectral composition of light entering the eye. (BT/AV) 201-1979w
- (2) (illuminating engineering)** (of a physical stimulus) One of the ways in which the word "color" may be used is to designate the property of light falling on the retina which causes it to generate an impression perceived as having or lacking a quality such as whiteness, redness, greenness, and the like. This property of light is determined by its spectral power distribution and may be specified in terms of its chromaticity and luminance. This same property of light may be imputed to a beam of light being propagated through space or originating at a distal stimulus. The distal stimulus itself may be described as colored because it gives off colored light. (EEC/IE) [126]
- color breakup (color television)** Any transient or dynamic distortion of the color in a television picture. *Note:* This effect may originate in videotape equipment, in a television camera, or in a receiver. In videotape recording or playback, it occurs as intermittent misphasing or loss of the chrominance signal. In a field-sequential system, it may be caused at the camera by rapid motion of the image on the camera sensor through motion of either the camera or the subject. It may be caused at the receiver by rapid changes in viewing conditions such as blinking or motion of the eyes. (BT/AV) 201-1979w
- color burst (color television)** The portion of the composite or noncomposite color-picture signal, comprising a few cycles of a sine wave of chrominance subcarrier frequency, that is used to establish a reference for demodulating the chrominance signal. (BT/AV) 201-1979w
- color-burst flag keying signal (television)** A keying signal used to form the color burst from a color-subcarrier signal source. *See also:* burst flag. (EEC/PE) [119]
- color-burst gate (television)** A keying or gating signal used to extract the color burst from a color-television signal. *See also:* television; burst gate. (PE/EEC) [119]
- color-burst keying signal** *See:* color-burst flag keying signal.
- color carrier** *See:* chrominance subcarrier.
- color cell** (repeating pattern of phosphors on the screen of a color-picture tube) The smallest area containing a complete set of all the primary colors contained in the pattern. *Note:* If the cells are described by only one dimension as in the line type of screen, the other dimension is determined by the resolution capabilities of the tube. (ED) 161-1971w
- color center (color picture tubes)** A point or region (defined by a particular color-selecting electrode and screen configuration) through which an electron beam must pass in order to strike the phosphor array of one primary color. *Note:* This term is not to be used to define the color-triad center of a color-picture tube screen. (ED) 161-1971w
- color code (1) (electrical)** A system of standard colors adopted for identification of conductors for polarity, etc., and for identification of external terminals of motors and starters to facilitate making power connections between them. *See also:* mine feeder circuit. (EEC/PE) [119]
- (2) (communication and control cables)** A system of standard colors used for identification of conductors. Colors identify the tip and ring conductors in pairs of a communications cable. Combinations of colors identify the pair numbers. Pair groups are bound with threads or tapes that are identified with color bands or with unit numbers and the names of the colors. (PE/PSC) 789-1988w
- color coder** *See:* color encoder.
- color comparison (illuminating engineering)** The judgement of equality, or of the amount and character of difference, of the color of two objects viewed under identical illumination. *Synonym:* color grading. (EEC/IE) [126]
- color contamination (color television)** An error of color rendition caused by incomplete separation of paths carrying different color components of the picture. *Note:* Such errors can arise in the optical, electronic, or mechanical portions of a color television system as well as in the electrical portions. (BT/AV) 201-1979w
- color coordinate transformation (color television)** Computation of the tristimulus values of colors in terms of one set of primaries from the tristimulus values of the same colors in another set of primaries. *Note:* This computation may be performing electrically in a color television system. (BT/AV) 201-1979w
- color correction (illuminating engineering)** (of a photograph or printed picture) The adjustment of a color reproduction process to improve the perceived-color conformity of the reproduction to the original. (EEC/IE) [126]
- color decoder (color television)** An apparatus for deriving the signals for the color display device from the color picture signal and the color burst. (BT/AV) 201-1979w
- color-difference signal (color television)** An electrical signal that, when added to the luminance signal, produces a signal representative to one of the tristimulus values (with respect to a stated set of primaries) of the transmitted color. (BT/AV) 201-1979w
- color difference thresholds (illuminating engineering)** The difference in chromaticity or luminance or both, between two colors, that makes them just perceptibly different. The difference may be a difference in hue, saturation, or brightness (lightness for surface colors), or a combination of the three. (EEC/IE) [126]
- color discrimination (illuminating engineering)** The perception of differences between two or more colors. (EEC/IE) [126]
- color display device** A display device that can display more than one color, in addition to the background color. *Contrast:* monochrome display device. *See also:* red, green, blue display device. (C) 610.6-1991w, 610.10-1994w
- color encoder (National Television System Committee color television)** An apparatus for generating either the noncomposite or the composite color picture signal and the color burst from camera signals (or equivalents) and the chrominance subcarrier. (BT/AV) 201-1979w
- color-field corrector (electron tube)** A device located external to the tube producing an electric or magnetic field that affects the beam after deflection as an aid in the production of uniform color fields. (ED) 161-1971w
- color flicker (television)** The flicker that results from fluctuation of both chromaticity and luminance. (BT/AV) 201-1979w

color fringing (color television) Spurious chromaticity at boundaries of objects in the picture. *Note:* Color fringing can be caused by a change in relative position of the televised object from field to field (in a field-sequential system), or by misregistration in either camera or receiver; in the case of small objects, it may cause them to appear separated into different color. (BT/AV) 201-1979w

colorfulness (illuminating engineering) (of a perceived color) The attribute according to which it appears to exhibit more or less chromatic color. For a stimulus of a given chromaticity, colorfulness normally increases as the absolute luminance is increased. (EEC/IE) [126]

color grading *See:* color comparison.

colorimetric purity (illuminating engineering) (of a light) The ratio L_1/L_2 , where L_1 is the luminance of the single frequency component which must be mixed with a reference standard to match the color of the light and L_2 is the luminance of the light. (EEC/IE) [126]

colorimetric shift (illuminating engineering) The change of chromaticity and luminance factor of an object color due to change of the light source. *See also:* resultant color shift; adaptive color shift. (EEC/IE) [126]

colorimetry (1) (illuminating engineering) The measurement of color. (EEC/IE) [126]

(2) (television) The techniques for the measurement of color and for the interpretation of the results of such measurements. *Note:* The measurement of color is made possible by the properties of the eye, and is based on a set of conventions. (BT/AV) 201-1979w

coloring (1) (electroplating) (chemical) The production of desired colors on metal surfaces by appropriate chemical action. *See also:* electroplating. (PE/EEC) [119]

(2) (buffing) Light buffing of metal surfaces, for the purpose of producing a high luster. *See also:* electroplating. (EEC/PE) [119]

color light signal A fixed signal in which the indications are given by the color of a light only. (EEC/PE) [119]

color look-up table A workstation-dependent table in which the entries specify the red, green, and blue intensity values that define the color of a pixel on the display surface. *Synonyms:* video look-up table; color map. *See also:* color mapping. (C) 610.6-1991w

color map *See:* color look-up table.

colormap A set of entries (*colorcells*) controlling the display of colors for a pixel by assigning numeric intensity values to each of red, blue, and green attributes of the pixel. (C) 1295-1993w

color mapping The use of the color look-up table to produce color output on the screen of a cathode ray tube. (C) 610.6-1991w

color match (colorimetry) (television) The condition in which the two halves of a structureless photometric field are judged by the observer to have exactly the same appearance. *Note:* A color match for the standard observer may be calculated. (BT/AV) 201-1979w

color matching (illuminating engineering) Action of making a color appear the same as a given color. (EEC/IE) [126]

color matching functions (illuminating engineering) (spectral tristimulus values) The tristimulus value per unit wavelength interval and unit spectral radiant flux. *Notes:* 1. Color-matching functions have been adopted by the International Commission on Illumination. They are tabulated as functions of wavelength throughout the spectrum and are the basis for the evaluation of radiant energy as light and color. The \bar{y} values are identical with the values of spectral luminous efficiency for photopic vision. 2. The \bar{x} , \bar{y} , and \bar{z} values for the 1931 Standard Observer are based on a two degree bipartite field, and are recommended for predicting matches for stimuli subtending between one degree and four degrees. Supplementary data based on a ten-degree bipartite field were adopted in 1964 for use for angular subtenses greater than four degrees.

See also: values of spectral luminous efficiency for photopic vision. (EEC/IE) [126]

color mixture (television) Color produced by the combination of lights of different colors. *Notes:* 1. The combination may be accomplished by successive presentation of the components, provided the rate of alternation is sufficiently high; or the combination may be accomplished by simultaneous presentation, either in the same area or on adjacent areas, provided they are small enough and close enough together to eliminate pattern effects. 2. A color mixture as here defined is sometimes denoted as an additive color mixture to distinguish it from combinations of dyes, pigments, and other absorbing substances. Such mixtures of substances are sometimes called subtractive color mixtures, but might more appropriately be called colorant mixtures. (BT/AV) 201-1979w

color mixture data *See:* tristimulus values.

color picture signal* *See:* noncomposite color picture signal; composite color picture signal.

* Deprecated.

color-picture tube An electron tube used to provide an image in color by the scanning of a raster and by varying the intensity of excitation of phosphors to produce light of the chosen primary colors. (ED) 161-1971w

color plane (multibeam color-picture tubes) A surface approximating a plane containing the color centers. (ED) 161-1971w

color-position light signal A fixed signal in which the indications are given by the color and the position of two or more lights. (EEC/PE) [119]

color preference index (illuminating engineering) (of a light source) Measure appraising a light source for enhancing the appearance of an object or objects by making their colors tend toward people's preferences. Judd's flattery index is an example. (EEC/IE) [126]

color printer A printer that utilizes multi-colored ribbons, pens, or ink supplies, allowing it to print in more than one color. (C) 610.10-1994w

color-purity magnet A magnet in the neck region of a color-picture tube to alter the electron beam path for the purpose of improving color purity. (ED) 161-1971w

color rendering index (illuminating engineering) (of a light source) Measure of the degree of color shift objects undergo when illuminated by the light source as compared with the color of those same objects when illuminated by a reference source of comparable color temperature. (EEC/IE) [126]

color-selecting-electrode system A structure containing a plurality of openings mounted in the vicinity of the screen of a color-picture tube (electron tubes), the function of this structure being to cause electron impingement on the proper screen area by using either masking, focusing, deflection, reflection, or a combination of these effects. *See also:* shadow mask. (ED) 161-1971w

color-selecting-electrode system transmission (electron tube) The fraction of incident primary electron current that passes through the color-selecting-electrode system. (ED) 161-1971w

color signal (color television) Any signal at any point for wholly or partially controlling the chromaticity values of a color television picture. *Note:* This is a general term that encompasses many specific connotations such as those conveyed by the words "color picture signal" (either composite or noncomposite), "chrominance signal color carrier signal," "luminance signal" (in color television). (BT/AV) 201-1979w

color sync signal (color television) A signal used to establish and maintain the same color relationships that are transmitted. *Note:* In Rules Governing Radio Broadcast Services, Part 3, of the Federal Communications Commission, the color sync signal consists of a sequence of color bursts that recur every line except for a specified time interval during the vertical

interval, each burst occurring on the back porch.

(BT/AV) 201-1979w

color temperature (1) (television) The absolute temperature of the full (blackbody) radiator for which the ordinates of the spectral distribution curve of emission are proportional (or approximately so) in the visible regions, to those of the distribution curve of the radiation considered, so that both radiations have the same chromaticity. *Note:* In certain countries, by extension, the term "color temperature" is used in the case of a selective radiator when, for the colorimetric standard observer, this radiator has the same color (or at least approximately the same color) as a full radiator at a certain temperature; this temperature is then called the color temperature of the selective radiator. (BT/AV) 201-1979w

(2) (illuminating engineering) (of a light source) The absolute temperature of a blackbody radiator having a chromaticity equal to that of the light source. (EEC/IE) [126]

color tracking (television) (A) The degree to which color balance is maintained over the complete range of the achromatic (neutral gray) scale. **(B)** A qualitative term indicating the degree to which constant chromaticity within the achromatic region in the chromaticity diagram is achieved on a color-display device over the range of luminances produced from a monochrome signal. *See also:* television. (BT/AV) [34]

color transmission (color television) The transmission of a signal wave for controlling both the luminance values and the chromaticity values in a picture. (BT/AV) 201-1979w

color triad (phosphor-dot screen) A color cell of a three-color phosphor-dot screen. (ED) 161-1971w

color triangle (television) A triangle drawn on a chromaticity diagram, representing the entire range of chromaticities obtainable as additive mixtures of three prescribed primaries represented by the corners of the triangle. (BT/AV) 201-1979w

Colpitts oscillator An electron tube or solid state circuit in which the parallel-tune tank circuit is connected between grid and plate, the capacitive portion of the tank circuit being comprised of two series elements, the connection between the two being at cathode potential with the feedback voltage obtained across the grid-cathode portion of the capacitor. *See also:* radio-frequency generator. (BT) 182A-1964w

column (1) (A) (positional notation) A vertical arrangement of characters or other expressions. **(B)** Loosely, a digital place. *See also:* place. **(C) (test pattern language)** A group of words or bits in a memory, identified by a common Y-address. **(D) (metal nitrite oxide semiconductor arrays)** A group of memory cells having a common sense amplifier that detects the state of the cell being addressed. **(E) (data management)** A vertically corresponding set of entries in a table. *Contrast:* row. *See also:* attribute. (ED/C/TT) 641-1987, 610.5-1990, 660-1986, 162-1963

(2) In a Physical Design Exchange Format (PDEF) datapath cluster, a cluster of cell, spare_cell, and/or cluster instances placed or constrained to be placed in the vertical (Y-axis) direction. *See also:* datapath; row. (C/DA) 1481-1999

column binary (1) Pertaining to the binary representation of data on punched cards in which adjacent positions in a column correspond to adjacent bits of data, for example, each column in a 12-row card may be used to represent 12 consecutive bits of a 36-bit word. (C) [20], [85]

(2) (mathematics of computing) Pertaining to the binary representation of data in which adjacent positions in a column correspond to adjacent binary digits. For example, each column in a 12-row card may be used to represent 12 consecutive bits of a binary word. *Synonym:* Chinese binary. *Contrast:* row binary. (C) 1084-1986w

(3) Pertaining to the binary representation of data on punch cards in which the weights of punch positions are assigned along card columns, for example, each column in a 12-row card may be used to represent 12 consecutive bits. *Synonym:* Chinese binary. *Contrast:* row binary. *See also:* binary card. (C) 610.10-1994w

column enable (semiconductor memory) The input used to strobe in the column address in multiplexed address random access memories (RAM). (TT/C) 662-1980s

column-major order A method for storing the elements of a matrix in computer memory, in which elements are ordered in a column-by-column manner; that is, all elements of column 1, followed by all elements of column 2, etc. *Contrast:* row-major order. (C) 610.5-1990w

column position A unit of horizontal measure related to characters in a line. It is assumed that each character in a character set has an intrinsic column width independent of any output device. Each printable character in the portable character set has a column width of one. The standard utilities, when used as described in this standard, assume that all characters have integral column widths. The column width of a character is not necessarily related to the internal representation of the character (numbers of bits or octets). The column position of a character in a line is defined as one plus the sum of the column widths of the preceding characters in the line. Column positions are numbered starting from 1. (C/PA) 9945-2-1993

column, positive *See:* positive column.

column select line The line that is determined by the column addresses (output of the Y decoder) that are used to select the appropriate access transistors during a read or write. (ED) 1005-1998

column select transistor The transistor, controlled by the column select line, that accesses the appropriate bit-line during a read or write cycle. (ED) 1005-1998

column sort *See:* distribution sort.

column split The capability of a punch card device to read or punch two parts of a card column independently. (C) 1084-1986w

column vector A matrix with only one column. That is, a matrix of size m -by-1. *Contrast:* row vector. (C) 610.5-1990w

COM *See:* computer output microfilm.

comb filter A filter whose insertion loss forms a sequence of narrow pass bands or narrow stop bands centered at multiples of some specified frequency. (CAS) [13]

combination An unordered sequence of items chosen from a set. *Contrast:* permutation. *See also:* forbidden combination. (C) 610.5-1990w

combinational Pertaining to a logic whose output values at any given instant depend only upon the input values at that time. *Contrast:* sequential. (C) 610.10-1994w

combinational circuit A logic circuit whose output values at any given instant depend only upon the input values at that time. *Synonym:* combinatorial circuit. *Contrast:* sequential circuit. *See also:* gate. (C) 610.10-1994w

combinational logic element (A) A device having zero or more input channels and one output channel, each of which is always in one of exactly two possible physical states, except during switching transients. *Note:* On each of the input channels and the output channel, a single state is designated arbitrarily as the "one" state, for that input channel or output channel, as the case may be. For each input channel and output channel, the other state may be referred to as the "zero" state. The device has the property that the output channel state is determined completely by the contemporaneous input-channel-state combination, to within switching transients. **(B)** By extension, a device similar to that in definition (A), except that one or more of the input channels or the output channel, or both, have a finite number, but more than two, possible physical states each of which is designated as a distinct logic state. The output channel state is determined completely by the contemporaneous input-channel-state combination, to within switching transients. **(C)** A device similar to that of definition (A) or (B), except that it has more than one output channel. *See also:* OR gate; AND gate. (C) 162-1963

combinational logic function A logic function in which there exists one and only one resulting combination of states of the

outputs for each possible combination of input states. *Note:* The terms “combinative” and “combinatorial” have also been used to mean “combinational.” (GSD) 91-1984r

combination buoy (navigation aids) A buoy that has more than one means of conveying intelligence. *See also:* buoy.

(AES/GCS) 172-1983w

combination controller A full magnetic or semimagnetic controller with additional externally operable disconnecting means contained in a common enclosure. The disconnecting means may be a circuit breaker or a disconnect switch. *See also:* electric controller. (IA/ICTL/IAC) [60]

combination current and voltage regulation That type of automatic regulation in which the generator regulator controls both the voltage and current output of the generator. *Note:* This type of control is designed primarily for the purpose of ensuring proper charging of storage batteries on cars or locomotives. *See also:* axle-generator system. (EEC/PE) [119]

combination detector (fire protection devices) A device that either responds to more than one of fire phenomena (heat, smoke, or flame) or employs more than one operating principle to sense one of these phenomena. (NFPA) [16]

combination effect An electric disturbance not caused by one of the following mechanisms, but to some extent by a combination of them: normal-mode noise (transverse or differential), common-mode noise (longitudinal), and common-mode to normal-mode conversions. *See also:* normal-mode. (PE/IC) 1143-1994r

combination electric locomotive An electric locomotive, the propulsion power for which may be drawn from two or more sources, either located on the locomotive or elsewhere. *Note:* The prefix “combination” may be applied to cars, buses, etc., of this type. *See also:* electric locomotive. (EEC/PE) [119]

combination lighting and appliance branch circuit A circuit supplying energy to one or more lighting outlets and to one or more appliance outlets. *See also:* branch circuit. (EEC/PE) [119]

combination microphone A microphone consisting of a combination of two or more similar or dissimilar microphones. Examples: Two oppositely phased pressure microphones acting as a gradient microphone; a pressure microphone and velocity microphone acting as a unidirectional microphone. *See also:* microphone. (EEC/PE) [119]

combination monopulse A form of monopulse employing amplitude comparison in one angular coordinate plane and phase comparison in the orthogonal coordinate plane. (AES) 686-1997

combination rubber tape The assembly of both rubber and friction tape into one tape that provides both insulation and mechanical protection for joints. (EEC/PE) [119]

combinations of pulses and waveforms *See:* bipolar pulse; double pulse; staircase.

combination starter (packaging machinery) A starter having manually operated disconnecting means built into the same enclosure with the magnetic contactor. (IA/PKG) 333-1980w

combination support (raceway systems for Class 1E circuits for nuclear power generating stations) A support that serves either raceways or different types of raceway(s) and other mechanical or electric systems such as heating, ventilating, and air-conditioning (HVAC) ducts, piping, and lighting fixtures. (PE/NP) 628-1987r

combination surge *See:* combination wave.

combination thermoplastic tape An adhesive tape composed of a thermoplastic compound that provides both insulation and mechanical protection for joints. (EEC/PE) [119]

combination-type surge protective device A surge protective device that incorporates both voltage-switching-type components and voltage-limiting-type components may exhibit

voltage switching, voltage limiting, or both voltage-switching and voltage-limiting behavior, depending upon the characteristics of the applied voltage. (SPD/PE) C62.48-1995

combination watch-report and fire-alarm system A coded manual fire-alarm system, the stations of which are equipped to transmit a single watch-report signal or repeated fire-alarm signals. *See also:* protective signaling. (EEC/PE) [119]

combination wave (1) The combination wave is delivered by a generator that applies a 1.2/50 voltage impulse across an open circuit and an 8/20 impulse current into a short circuit. The voltage and current and wave forms that are delivered to the surge protective device (SPD) are determined by the generator and the impedance of the SPD to which the surge is applied. The ratio of open-circuit voltage to peak short-circuit current is 2ω . (PE) C62.34-1996

(2) A surge delivered by an instrument that has the inherent capability of applying a 1.2/50-voltage wave across an open-circuit, and delivering an 8/20-current wave into a short circuit. The instantaneous impedance to which the combination wave is applied determines the exact wave that is delivered. The peak magnitudes of the voltage or current wave shall be specified. *Synonym:* combination surge. (SPD/PE) C62.62-2000

combinatorial circuit *See:* combinational circuit.

combined head *See:* read/write head.

combined-line-recording trunk (CLR) (telephone switching) A one-way trunk for operator recording and extending of toll calls. (COM) 312-1977w

combined mechanical and electrical strength (insulators) The loading in pounds at which the insulator fails to perform its function either electrically or mechanically, voltage and mechanical stress being applied simultaneously. *Note:* The value will depend upon the conditions under which the test is made. *See also:* insulator; tower. (T&D/PE) [10]

combined-stress aging A form of accelerated aging in which several stresses are applied simultaneously. Ideally, the relative levels of the stresses are adjusted to produce the anticipated effects of the operational and environmental stresses in service. (DEI/RE) 775-1993w

combined telephone set A telephone set including in a single housing all the components required for a complete telephone set except the handset which it is arranged to support. *Note:* Wall hand telephone sets are of this type, but the term is usually reserved for a self-contained desk telephone set to distinguish it from desk telephone sets requiring an associated bell box. A desk local-battery telephone set may be referred to as a combined set if it includes in its mounting all components except its associated local batteries. *See also:* telephone station. (EEC/PE) [119]

combined uncertainty The uncertainty resulting from combining category A and category B uncertainties, as defined by the Bureau International des Poids et Mesures (BIPM), using standard statistical methods. Category A uncertainties are evaluated by applying statistical methods to a series of repeated measurements and are characterized by the estimated standard deviation, s_A ; category B uncertainties are assigned to quantities whose variation is not explicitly observed. Category B uncertainties are determined by estimating from other information an approximation to a corresponding “standard deviation,” s_B , whose existence is assumed. They are combined as if they are all standard deviations. (NI) N42.14-1991

combined voltage and current influence (wattmeter) The percentage change (of full-scale value) in the indication of an instrument that is caused solely by a voltage and current departure from specified references while constant power at the selected scale point is maintained. *See also:* accuracy rating. (EEC/AII) [102]

combustible Capable of undergoing combustion in air, at pressures and temperatures that might occur during a fire in a building, or in a more severe environment when specified. (DEI) 1221-1993w

combustible materials (power and distribution transformers) Materials which are external to the apparatus and made of or surfaced with wood, compressed paper, plant fibers, or other materials that will ignite and support flame.

(PE/TR) C57.12.80-1978r

combustion A chemical process of oxidation that occurs at a rate fast enough to produce heat and usually light, either as a glow or flame.

(DEI) 1221-1993w

combustion control The regulation of the rate of combination of fuel with air in a furnace.

(T&D/PE) [10]

COM device *See:* computer output microfilmer.

come-along *See:* conductor grip.

comic-strip oriented image In micrographics, an image appearing on a roll of microfilm in such a manner that the top edge of the image is parallel to the long edge of the film. *Synonym:* landscape image. *Contrast:* cine-oriented image.

(Std100) 10.2-1987

COMIT One of the first languages designed to manipulate text strings; provides pattern matching and substitution capabilities.

(C) 610.13-1993w

Comité Consultatif Internationale Télégraphique et Téléphone (CCITT) (1) (data transmission) An advisory committee established under the United Nations in accordance with the International Tele-Communications Convention (Geneva 1959) Article 13, to study and recommend solutions for questions on technical operation and tariffs. The organization is attempting to establish standards for intercountry operation on a worldwide basis.

(PE) 599-1985w

(2) An international organization that studies and issues recommendations on issues related to communication technology. *Note:* Also known in English as International Telegraph and Telephone Consultative Committee.

(C) 610.10-1994w

comma In 1000BASE-X, the seven-bit sequence that is part of an 8B/10B code-group that is used for the purpose of code-group alignment.

(C/LM) 802.3-1998

comma- In 1000BASE-X, the seven-bit sequence (1100000) of an encoded data stream.

(C/LM) 802.3-1998

comma+ In 1000BASE-X, the seven-bit sequence (0011111) of an encoded data stream.

(C/LM) 802.3-1998

command (1) (logical link control) In data communications, an instruction represented in the control field of a protocol data unit (PDU) and transmitted by a logical link control (LLC). It causes the addressed LLC(s) to execute a specific data link control function.

(LM/PE/C/TR/CC) 799-1987w, 8802-2-1998

(2) (A) (electronic computation) One of a set of several signals (or groups of signals) that occurs as a result of interpreting an instruction; the commands initiate the individual steps that form the process of executing the instruction's operation. **(B) (electronic computation)** Loosely: an instruction in machine language. **(C) (electronic computation)** Loosely: a mathematical or logic operator. **(D) (electronic computation)** Loosely: an operation.

(MIL/C/Std100) [2], [20], [85], 162-1963

(3) An input variable established by means external to, and independent of, the feedback (automatic) control system. It sets, is equivalent to, and is expressed in the same units as the ideal value of the ultimately controlled variable. *See also:* feedback control system; set point.

(IA/ICTL/IAC) [60]

(4) (software) An expression that can be input to a computer system to initiate an action or affect the execution of a computer program; for example, the "log on" command to initiate a computer session.

(C) 610.12-1990

(5) A pulse, signal, or set of signals initiating one step in the performance of a controlled operation.

(SUB/PE) 999-1992w

(6) A procedure in the Forth programming language. The execution of a command performs some operation, usually affecting the state of one or more system resources in a predefined way. (New commands may be defined as sequences of previously defined commands. Most commands have hu-

man-readable names expressed as a sequence of textual characters.) *See also:* word name; Forth word.

(C/BA) 1275-1994

(7) Any communication from a commander to a message-based servant, consisting of a write to the servant's data low register, possibly preceded by a write to the data high or data high and data extended registers.

(C/MM) 1155-1992

(8) A directive to the shell to perform a particular task.

(C/PA) 9945-2-1993

(9) (A) In hardware, a control signal. **(B)** An expression that can be input to a computer system to initiate an action or affect the execution of a computer program; for example, the (log on) command to initiate a computer session. **(C)** Loosely, a mathematical or logic operator. **(D)** Loosely, a computer instruction.

(C) 610.10-1994

(10) A message from the host directed to the printer that may or may not include print data.

(C/MM) 1284.1-1997

(11) A package of information transmitted from the roadside to the vehicle that requests that the transponder on the vehicle perform a specific action.

(SCC32) 1455-1999

(12) The instruction sent from an initiator to a target directing the target to execute a specified process.

(C/MM) 1284.4-2000

command character *See:* control character.

command control (electric power system) An automatic generation control methodology that reduces unit control error irrespective of area control error.

(PE/PSE) 94-1991w

command-driven Pertaining to a system or mode of operation in which the user directs the system through commands. *Contrast:* menu-driven.

(C) 610.12-1990

commander A message-based device that is also a bus master and can control one or more servants.

(C/MM) 1155-1992

command group A set of commands with defined behaviors, the group as a whole providing some particular capability (for example, one command group is concerned with client program debugging).

(C/BA) 1275-1994

command guidance (navigation aid terms) Guidance in which information transmitted to a craft from an outside source causes it to follow a prescribed path.

(AES/GCS) 172-1983w

command interpreter The portion of a Forth system that processes user input and Forth language source code by accepting a sequence of textual characters representing Forth word names and executing the corresponding Forth words.

(C/BA) 1275-1994

command key Any control key on a keyboard used to represent a particular machine command.

(C) 610.10-1994w

command language (1) (software) A language used to express commands to a computer system. *See also:* command-driven.

(C) 610.12-1990

(2) A computer language used to express commands to a computer system and to control their execution. For example, job control language, or REXX. *Synonym:* command-level language. *See also:* interactive language; declarative language; rule-based language.

(C) 610.13-1993w

(3) A type of dialog in which a user composes entries to evoke a system response.

(PE/NP) 1289-1998

command language interpreter *See:* shell.

command-level language *See:* command language.

command line interface A means of invoking utilities by issuing commands from within a POSIX.2 shell, implying that neither graphics nor windows are required.

(C/PA) 1387.2-1995

command link (communication satellite) A data transmission link (generally earth to spacecraft or satellite) used to command a satellite or spacecraft in space.

(COM) [24]

command protocol data unit (PDU) (1) (logical link control) All PDU's transmitted by a logical link control (LLC) in which the C/R (command/response) bit is equal to "O."

(PE/TR) 799-1987w

(2) All PDUs sent by an LLC in which the C/R bit in the SSAP address field is equal to "0."

(C/LM/CC) 8802-2-1998

command rate (gyros) The input rate equivalent of a torquer command signal.

(AES/GYAC) 528-1994

command readout (numerically controlled machines) Display of absolute position as derived from position command. *Note:* In many systems the readout information may be taken directly from the dimension command storage. In others it may result from the summation of command departures.

(IA) [61]

command reference (power supplies) (servo or control system) The voltage or current to which the feedback signal is compared. As an independent variable, the command reference exercises complete control over the system output. *See also:* operational programming.

(AES) [41]

command.reset An initialization event that is initiated by a write to the RESET_START CSR.

(C/BA) 896.2-1991w, 896.10-1997

Command Resource Unavailable (CRU) bit A bit in the Bus Error register of all S-modules. An S-module sets this bit to indicate that resources required to complete execution of a command were not available and that the command was not executed.

(TT/C) 1149.5-1995

commands, class of One of the groups of MTM-Bus commands. Every MTM-Bus command is assigned to a command class.

(TT/C) 1149.5-1995

Command Sequence Error (CSE) bit A bit in the Bus Error register of all S-modules. An S-module sets this bit to indicate that the module has received a command that requires a previous enabling command without receipt of such an enabling command.

(TT/C) 1149.5-1995

command set A field in the Device ID message identifying the type of data expected by the peripheral. For example, a printer might use this field to report which page description language(s) it supports.

(C/MM) 1284-1994

command transfer The passing of command information over the system control signal group, from the bus owner to the replying agent(s), during the request phase of a transfer operation. Command information includes parameters for the impending transfer operation, as well as additional address space information not transmitted with the address transfer. *See also:* system control signal group; request phase.

(C/MM) 1296-1987s

command & US core;.reset An initialization event that is initiated by a write to the RESET_START register.

(C/MM) 1212-1991s

command X, receipt of Error-free receipt of the HEADER packet containing in its Command field the command code of X.

(TT/C) 1149.5-1995

comment (software) Information embedded within a computer program, job control statements, or a set of data, that provides clarification to human readers but does not affect machine interpretation.

(C) 610.12-1990

comment source statements Source statements that provide information to people reading the software source code and are ignored by the compiler.

(C/SE) 1045-1992

commercial character (A) One of the set of characters used commonly in commercial operations; for example, CR (credit) and DB (debit). **(B)** A character within a picture specification that represents one of the characters as in (A).

(C) 610.5-1990

commercial data processing Data processing performed to support a commercial organization or function.

(C) 610.2-1987

commercial grade dedication A process of evaluating (which includes testing) and accepting commercial grade items to obtain adequate confidence of their suitability for safety application.

(PE/NP) 7-4.3.2-1993

commercial grade item An item satisfying a), b), and c) below:

- Not subject to design or specification requirements that are unique to nuclear facilities

b) Used in applications other than nuclear facilities

c) Ordered from the manufacturer/supplier on the basis of specifications set forth in the manufacturer's published product description (for example, catalog)

(PE/NP) 7-4.3.2-1993

commercial grade part (replacement parts for Class 1E equipment in nuclear power generating stations) A part that is:

a) Not subject to design or specification requirements that are unique to nuclear power plants;

b) Used in applications other than nuclear power plants;

c) Ordered from the manufacturer/supplier on the basis of specifications set forth in the manufacturer's published product description (for example, a catalog).

(PE/NP) 934-1987w

commercial-off-the-shelf (COTS) Software defined by a market-driven need, commercially available, and whose fitness for use has been demonstrated by a broad spectrum of commercial users.

(C/SE) 1062-1998

commercial operation The acceptance, by the user, of the static var compensator (SVC) from the supplier.

(PE/SUB) 1031-2000

commercial power (1) (emergency and standby power)

Power furnished by an electric power utility company; when available, it is usually the prime power source. However, when economically feasible, it sometimes serves as an alternative or standby source. *Synonym:* utility power.

(IA/PSE) 446-1995

(2) Power furnished by an electric power utility company.

(IA/PSE) 1100-1999

commercial, residential, and institutional buildings All buildings other than industrial buildings and residential dwellings.

(IA/PSE) 241-1990r

commercial tank (electrorefining) An electrolytic cell in which the cathode deposit is the ultimate electrolytically refined product. *See also:* electrorefining.

(EEC/PE) [119]

commercial zone A zone that includes offices, shops, hotels, motels, service establishments, or other retail/commercial facilities as defined by local ordinances.

(PE/SUB) 1127-1998

commissioning The process of providing to the appropriate components, the information necessary for the designed communication between components.

(IM/ST) 1451.1-1999

Commission Internationale de l'Eclairage The initials CIE are the initials of the official French name of the International Commission on Illumination. This translated name is approved for usage in English-speaking countries, but at its 1951 meeting the Commission recommended that only the initials of the French name be used. The initials ICI, which have been used commonly in this country, are deprecated because they conflict with an important trademark registered in England and because the initials of the name translated into other languages are different.

(BT/AV) 201-1979w

commissioning tests (rotating machinery) Tests applied to a machine at site under normal service conditions to show that the machine has been erected and connected in a correct manner and is able to work satisfactorily. *See also:* asynchronous machine.

(PE) [9]

common *See:* common storage.

common ancestor constraint A kind of constraint that involves two or more relationship paths to the same ancestor class and states either that a descendent instance must be related to the same ancestor instance through each path or that it must be related to a different ancestor instance through each path.

(C/SE) 1320.2-1998

common area *See:* common storage.

common-battery central office *See:* common-battery office.

common-battery office (telephone switching systems) A central office that supplies transmitter and signaling currents for its associated stations and current for the central office equipment from a power source located in the central office.

(COM) 312-1977w

common-battery signaling (data transmission) A method of actuating a line or supervisory signal at the distant end of a telephone line by the closure of a direct-current (dc) circuit with the exchange providing the feeding current.

(PE) 599-1985w

common-battery switchboard A telephone switchboard for serving common-battery telephone sets.

(COM) [48]

common block *See*: common storage.

common bonding network (CBN) (A) The principal means for affecting bonding and earthing inside a building. (B) The set of metallic components that are intentionally or incidentally interconnected to form the (earthed) bonding network (a mesh) in a building. These components include structural steel or reinforcing rods, metallic plumbing, ac power conduit, equipment grounding conductors, cable racks, and bonding conductors. The CBN always has a mesh topology and is connected to the grounding electrode system. *Note*: The CBN may also be known in the public telephone network as an integrated ground plane.

(IA/PSE) 1100-1999

Common Business-Oriented Language (COBOL) A high-order programming language standardized by ANSI and ISO, designed for business applications. *See also*: common language; general-purpose programming language; IDS/1.

(C) 610.13-1993w

common carrier (1) In telecommunications, a public utility company that is recognized by an appropriate regulatory agency as having a vested interest and responsibility in furnishing communication services to the general public. *See also*: value-added service; specialized common carrier.

(LM/COM) 168-1956w

(2) *See also*: communications common carrier.

(C) 610.7-1995

common-cause failure (1) (reliability data for pumps and drivers, valve actuators, and valves) Two or more redundant component failures due to a single cause. The common-cause events that cause multiple failures are usually secondary events or events that exceed the design envelope of the component.

(PE/NP) 500-1984w

(2) **(nuclear power generating station safety systems)** Multiple failures attributable to a common cause.

(PE/NP) 379-1994, 603-1998, 933-1999

common-channel interoffice signaling (telephone switching systems) The use of separate paths between switching entities to carry the signaling associated with a group of communication paths.

(COM) 312-1977w

common class Defines those aspects of different software objects that are the same. The common classes for this standard are software_collections, software, and software_files. The names of these classes are also used to generically describe any object that shares that common class.

(C/PA) 1387.2-1995

common control (telephone switching systems) An automatic switching arrangement in which the control equipment necessary for the establishment of connections is shared, being associated with a given call only during the period required to accomplish the control function.

(COM) 312-1977w

common coupling *See*: common-environment coupling.

common data *See*: global data.

common device (of a supervisory system) A device in either the master or remote station that is required for the basic operation of the supervisory system and is not part of the equipment for the individual points. *Synonym*: basic device.

(SWG/PE) C37.100-1992

common-environment coupling A type of coupling in which two software modules access a common data area. *Synonym*: common coupling. *Contrast*: pathological coupling; content coupling; data coupling; control coupling; hybrid coupling.

(C) 610.12-1990

common equipment That complement of either the master or remote station supervisory equipment that interfaces with the interconnecting channel and is otherwise basic to the opera-

tion of the supervisory system, but is exclusive of those elements that are peculiar to and required for the particular applications and uses of the equipment.

(SWG/PE/SUB) C37.100-1992, C37.1-1987s

common language Any programming language that is used widely on a variety of computers; For example, BASIC, C, COBOL, and FORTRAN. *See also*: general-purpose programming language.

(C) 610.13-1993w

Common LISP A dialect of LISP that is widely accepted as the standard language for LISP. *See also*: CLOS.

(C) 610.13-1993w

Common LISP Object System An object-oriented language based on Common LISP.

(C) 610.13-1993w

common-mode (1) (general) The instantaneous algebraic average of two signals applied to a balanced circuit, both signals referred to a common reference. *See also*: oscillograph.

(IM/HFIM) [40]

(2) **(medical electronics)** (in-phase signal) A signal applied equally and in phase to the inputs of a balanced amplifier or other differential device.

(EMB) [47]

common-mode conversion (interference terminology) The process by which differential-mode interference is produced in a signal circuit by a common-mode interference applied to the circuit. Common-mode currents are converted to differential-mode voltages by impedances $R_1, R_2, R_3, R_4, R_5, R_R$, and c . The differential-mode voltage at the receiver resulting from the conversion is the algebraic summation of the voltage drops produced by the various currents in these impedances. Various of the impedances may be neglected at particular frequencies. At direct current,

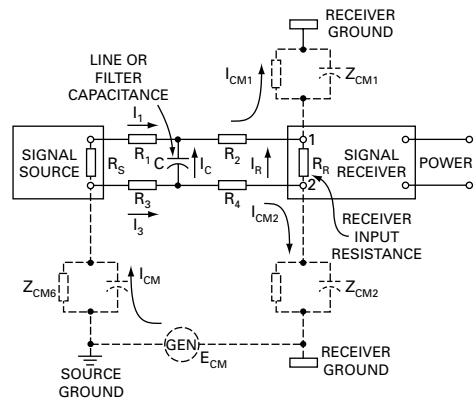
$$V_{CM} = I_r R_r \approx I_{CM1} (R_5 + R_1 + R_2) - I_{CM2} (R_3 + R_4)$$

At

$$f > \frac{I}{c(R_1 + R_3 + R_5)}$$

$$V_{CM} \approx I_c X_c \frac{R_R}{R_2 + R_4 + R_R}$$

See also: interference.



common-mode conversion

(IE) [43]

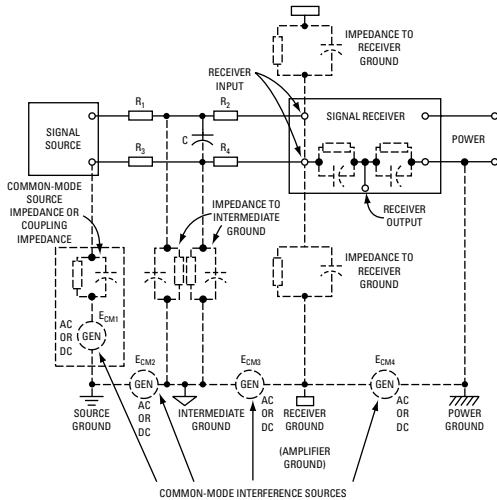
common-mode failure (nuclear power generating station) (safety systems equipment in nuclear power generating stations) Multiple failures attributable to a common cause.

(SWG/PE/NP) 627-1980r, 650-1979s, 649-1980s, 308-1980s, C37.100-1992

common-mode interference (1) (automatic null-balanced electrical instruments) Interference that appears between both signal leads and a common reference plane (ground) and causes the potential of both sides of the transmission path to be changed simultaneously and by the same amount relative to the common reference plane (ground). *See also*: interference.

(IE/EMC/PE/SUB) [43], C63.13-1991, C37.1-1994

(2) A form of interference that appears between any measuring circuit terminal and ground. *See also:* accuracy rating.



Common-mode interference sources and current paths. The common-mode voltage V_{CM} in any path is equal to the sum of the common-mode generator voltages in that path; for example, in the source-receiver path.

$$V_{CM} = E_{CM1} + E_{CM2} + E_{CM3}$$

common-mode interference

(EEC/SUB/PE/EMI) [112], C37.1-1994

common-mode noise (longitudinal) The noise voltage that appears equally, and in phase, from each current carrying conductor to ground. (IA/PSE) 1100-1999

common-mode outage *See:* common-mode outage event.

common-mode outage event A related multiple outage event consisting of two or more primary outage occurrences initiated by a single incident or underlying cause where the outage occurrences are not consequences of each other. *Note:* Primary outage occurrences in a common-mode outage event are referred to as common-mode outage occurrences or simply common-mode outages. Examples of common-mode outage events are a single lightning stroke causing trippouts of both circuits on a common tower, and an external object causing the outage of two circuits on the same right-of-way. *See also:* related multiple outage event. (PE/PSE) 859-1987w

common-mode overvoltage A signal level whose magnitude is less than the specified maximum safe common-mode signal but greater than the maximum operating common-mode signal. (IM/WM&A) 1057-1994w

common-mode overvoltage recovery time The time required for the recorder to return to its specified characteristics after the end of a common-mode overvoltage pulse. (IM/WM&A) 1057-1994w

common-mode radio noise Conducted radio noise that appears between a common reference plane (ground) and all wires of a transmission line causing their potentials to be changed simultaneously and by the same amount relative to the common reference plane (ground). (EMC) C63.4-1991

common-mode rejection (in-phase rejection) The ability of certain amplifiers to cancel a common-mode signal while responding to an out-of-phase signal. (EMB) [47]

common-mode rejection quotient (in-phase rejection quotient) The quotient obtained by dividing the response to a signal applied differentially by the response to the same signal applied in common mode, or the relative magnitude of a common-mode signal that produces the same differential response as a standard differential input signal. (EMB) [47]

common-mode rejection ratio (CMRR) (1) (signal-transmission signal) The ratio of the common-mode interference voltage at the input terminals of the system to the effect produced

by the common-mode interference, referred to the input terminals for an amplifier. For example,

$$CMRR = \frac{V_{CM} \text{ (root-mean-square) at input}}{\text{effect at output/amplifier gain}}$$

See also: interference. (IE) [43]

(2) **(oscilloscopes)** The ratio of the deflection factor for a common-mode signal to the deflection factor for a differential signal applied to a balanced-circuit input. *See also:* oscillograph.

(3) The ratio of the input common-mode signal to the effect produced at the output of the recorder in units of the input. (IM/WM&A) 1057-1994w

common mode signal The average value of the signals at the positive and negative inputs of a differential input waveform recorder. If the signal at the positive input is designated V_+ , and the signal at the negative input is designated V_- , then the common mode signal (V_{cm}) is

$$V_{cm} = \frac{V_+ + V_-}{2}$$

(IM/WM&A) 1057-1994w

common-mode to normal-mode conversion In addition to the common-mode voltages which are developed in the single conductors by the general environmental sources of electrostatic and electromagnetic fields, differences in voltage exist between different ground points in a facility due to the flow of ground currents. These voltage differences are considered common mode when connection is made to them either intentionally or accidentally, and the currents they produce are common mode. These common-mode currents can develop normal-mode noise voltage across unequal circuit impedances. (PE/SUB/EDPG) 422-1977, 525-1992r

common-mode voltage (1) The voltage that, at a given location, appears equally and in phase from each signal conductor to ground. (PE/PSR) C37.90.1-1989r

(2) The instantaneous algebraic average of two signals applied to a balanced circuit, with both signals referenced to a common reference. *Synonym:* longitudinal voltage. (LM/C) 802.3-1998

(3) **(surge withstand capability tests)** The voltage common to all conductors of a group as measured between that group at a given location and an arbitrary reference (usually earth). (SWG/PE/PSR) C37.100-1992, C37.90-1978s

(4) The instantaneous algebraic mean of two signals applied to a balanced circuit, where both signals are referred to a common reference. local area networks. (C) 8802-12-1998

common return A return conductor common to several circuits. *See also:* center of distribution. (T&D/PE) [10]

common services Data type and functional declarations defining an application procedural interface used to access and manipulate numerical and digital data, physical data units, mathematical functions and constants, unit conversion factors, and functions used by two or more interfaces. (SCC20) 1226-1998

common spectrum multiple access (communication satellite) A method of providing multiple access to a communication satellite in which all of the participating earth stations use a common time-frequency domain. Signal processing is employed to detect a wanted signal in the presence of others. Three typical approaches utilizing these techniques are spread spectrum, frequency-time matrix, and frequency-hopping. (COM) [19]

common storage A portion of main storage that can be accessed by two or more modules in a software system. *Synonyms:* common area; common block. *See also:* global data. (C) 610.12-1990, 610.10-1994w

common trunk (telephone switching systems) A trunk, link, or junctor accessible from all input groups of a grading. (COM) 312-1977w

common use Simultaneous use by two or more utilities of the same kind. (NECS) C2-1997

common winding (power and distribution transformers) (autotransformer) That part of the autotransformer winding that is common to both the primary and secondary circuits. *Synonym:* shunt winding.

(PE/TR) C57.15-1999, C57.12.80-1978r

communication (1) (data transmission) (electric systems) (telecommunications) The transmission of information from one point to another by means of electromagnetic waves.

(PE) 599-1985w

(2) The flow of information from one point, known as the source, to another, the receive.

(C) 610.10-1994w

communication access Passive and active attacks on information transmitted over communication channels and on the system's communication services themselves. This threat area assumes that an intruder has access to the communication media or the components (both hardware and software) that provide the communication services. (C/BA) 896.3-1993w

communication channel A facility that permits signaling between terminals.

(SUB/PE) 999-1992w

communicational cohesion A type of cohesion in which the tasks performed by a software module use the same input data or contribute to producing the same output data. *Contrast:* coincidental cohesion; functional cohesion; temporal cohesion; sequential cohesion; procedural cohesion; logical cohesion.

(C) 610.12-1990

communication band *See:* frequency band of emission.

communication circuits Electrical circuits supplying equipment and systems for voice, sound, or data transmission, such as telephone, engine order telegraph, data communication, interior communication, paging systems, wired music systems, fire and general alarm systems, smoke and fire detection systems, closed circuit television, navigational equipment, and microprocessor based automated alarm and control systems.

(IA/MT) 45-1998

communication conductor (measuring longitudinal balance of telephone equipment operating in the voice band) A conductor used in a communication network.

(COM/TA) 455-1985w

communication control character (1) A functional character intended to control or facilitate transmission over data networks. Control characters form the basis for character-oriented communications control procedures.

(LM/COM) 168-1956w

(2) (data management) *See also:* transmission control character.

(C) 610.5-1990w

communication facility (data transmission) Anything used or available for use in the furnishing of communication service.

(PE) 599-1985w

communication interface That part of the API devoted to communications with other application software, external data transport facilities, and devices.

(C/PA) 14252-1996

communication line *See:* telecommunication line.

communication lines (1) The conductors and their supporting or containing structures that are used for public or private signal or communication service, and which operate at potentials not exceeding 400 V to ground or 750 V between any two points of the circuit, and the transmitted power of which does not exceed 150 W. When operating at less than 150 V, no limit is placed on the transmitted power of the system. Under specified conditions, communication cables may include communication circuits exceeding the preceding limitation where such circuits are also used to supply power solely to communication equipment. *Note:* Telephone, telegraph, railroad-signal, data, clock, fire, police-alarm, cable television and other systems conforming with the above are included. Lines used for signaling purposes, but not included under the above definition, are considered as supply lines of the same voltage and are to be so installed. *See also:* electric supply lines.

(NESC/T&D) C2.2-1960

(2) The conductors and their supporting or containing structures that are used for public or private signal or communications service, and which operate at potentials not exceeding

400 V to ground or 750 V between any two points of the circuit, and the transmitted power of which does not exceed 150 W. When operating at less than a nominal voltage of 90 V, no limit is placed on the transmitted power of the system. Under specified conditions, communication cables may include communication circuits exceeding the preceding limitation where such circuits are also used to supply power solely to communications equipment. *Note:* Telephone, telegraph, railroad-signal, data, clock, fire, police-alarm, cable-television, and other systems conforming with the above are included. Lines used for signaling purposes, but not included under the above definition, are considered as supply lines of the same voltage and are to be so installed.

(NESC) C2-1997

communication provider A component of the system that provides the communications service through an endpoint.

(C) 1003.5-1999

communication reliability (mobile communication) A specific criterion of system performance related to the percentage of times a specified signal can be received in a defined area during a given interval of time. *See also:* mobile communication system.

(VT) [37]

communications architecture The hardware and software structure that facilitates the communications operations.

(C) 610.7-1995

communication satellite A satellite used for communication between two or more ground points by transmitting the messages to the satellite and retransmitting them to the participating ground station.

(COM) [24]

communications-based train control A continuous automatic train control system utilizing high-resolution train location determination, independent of track circuits; continuous, high capacity, bidirectional train-to-wayside data communications; and trainborne and wayside processors capable of implementing vital functions.

(VT/RT) 1474.1-1999

communications cable A cable that carries a low level of electric energy used for the transmission of communication frequencies. A telephone-type cable consists of two or more solid, insulated, twisted, paired and/or quadded, shielded or unshielded conductors ranging from No 19 to No 26 AWG, with either a shielded or unshielded sheath.

(PE/PSC) 789-1988w

communications common carrier (1) (data transmission) A company recognized by an appropriate regulatory agency as having a vested interest in furnishing communications services to the public at large.

(PE) 599-1985w

(2) In telecommunication, a public utility company that is recognized by an appropriate regulatory agency as having a vested interest in and responsibility for furnishing communications services to the general public. *Synonym:* common carrier.

(C) 610.7-1995

communications computer A computer that is specially designed to be an interface between another computer or terminal and a network, or to control data flow in a network. *See also:* switching computer; front-end computer; concentrator.

(C/COM) 610.7-1995, 168-1956w, 610.10-1994w

communications controller A dedicated computer that checks and manages data traffic through a network.

(C) 610.7-1995

communication security Protective measures for information transmitted between system components, over telecommunication links, and through networks to provide data confidentiality, integrity, and authenticity.

(C/BA) 896.3-1993w

communications endpoint *See:* endpoint.

communication services interface (CSI) The boundary across which access to services for interaction between internal application software entities and application platform external entities is provided.

(C/PA) 14252-1996

communications interface equipment (relays and relay systems associated with electric power apparatus) A portion of a relay system that transmits information from the relay logic to a communications link, or conversely to logic, for

example, audio tone equipment, a carrier transmitter-receiver when an integral part of the relay system.

(SWG/PE/PSR) C37.100-1992, C37.90-1978s

communications link (relays and relay systems associated with electric power apparatus) Any of the communications media, for example, microwave, power line carrier, wire line.

(PE/PSR) C37.90-1978s

communications network A network of communication circuits managed as a single unit. *See also:* computer network; value-added network.

(C) 610.7-1995

communications processor A computer that performs protocol (terminates one or more protocols layers) or network management functions.

(C) 610.7-1995

communications user An application that uses process-to-process communication services.

(C) 1003.5-1999

communications zone The area of space within which a beacon can communicate with transponders in or on passing vehicles.

(SCC32) 1455-1999

communications security The use of administrative, technical, or physical measures to deny unauthorized persons information from a computer or a communications network and to ensure the authenticity and integrity of such communications.

(C) 610.7-1995

communication theory (data transmission) The mathematical theory underlying the communication of messages from one point to another.

(PE) 599-1985w

community antenna television (CATV) *See:* cable TV.

community antenna television (CATV)-type broadband medium A broadband system comprising coaxial cables, taps, splitters, amplifiers, and connectors the same as those used in CATV or cable television installations.

(C/LM) 802.3-1998

community dial office (telephone switching systems) A small automatic central office that serves a separate exchange area that ordinarily has no permanently assigned central office operating or maintenance forces.

(COM) 312-1977w

community-of-interest (telephone switching systems) A characteristic of traffic resulting from the calling habits of the customers.

(COM) 312-1977w

commutated antenna direction finder (CADF) (navigation aid terms) A system using a multiplicity of antennas in a circular array and a receiver which is connected to the antennas in sequence through a commutating device for finding the direction of arrival of radio waves; the directional sensing is related to phase shift that occurs as a result of the communication.

(AES/GCS) 172-1983w

commutating angle (1) (rectifier circuits) The time, expressed in degrees, during which the current is commutated between two rectifying elements. *See also:* rectifier circuit element; rectification.

(IA) [62]

(2) (thyristor converter circuit) (μ) The time, expressed in degrees (one cycle of the ac wave form—360°), during which the current is commutated between two thyristor converter circuit elements.

(IA/IPC) 444-1973w

commutating capacitor (converter circuit elements) (self-commutated converters) A capacitor that provides commutating voltage for circuit-commutated thyristors in a self-commutated converter.

(IA/SPC) 936-1987w

commutating-field winding An assembly of field coils, located on the commutating poles, that produces a field strength approximately proportional to the load current. The commutating field is connected in direction and adjusted in strength to assist the reversal of current in the armature coils for successful commutation. This field winding is used alone, or supplemented by, a compensating winding. *See also:* asynchronous machine.

(EEC/PE) [119]

commutating group (1) (rectifier circuits) A group of rectifier-circuit elements and the alternating-voltage supply elements conductively connected to them in which the direct current of the group is commutated between individual elements that conduct in succession. *See also:* rectifier; rectification; circuit element.

(IA) [62]

(2) A group of thyristor converter circuit elements and the alternating-voltage supply elements conductively connected to them in which the direct current of the group is commutated between individual elements that conduct in succession.

(IA/IPC) 444-1973w

commutating impedance (1) (rectifier transformer) The impedance that opposes the transfer of current between two direct-current winding terminals of a commutating group, or a set of commutating groups. *See also:* rectifier transformer.

(Std100) C57.18-1964w

(2) (rectifier transformer) The impedance that opposes the transfer of current between two secondary winding terminals of a commutating group, or a set of commutating groups.

(PE/TR) C57.18.10-1998

commutating period (inverters) The time during which the current is commutated. *See also:* self-commutated inverters.

(IA) [62]

commutating pole (interpole) An auxiliary pole placed between the main poles of a commutating machine. Its exciting winding carries a current proportional to the load current and produces a flux in such a direction and phase as to assist the reversal of the current in the short-circuited coil.

(EEC/PE) [119]

commutating reactance (thyristor converter) The reactance that effectively opposes the transfer of current between thyristor converter circuit elements of a commutating group or set of commutating groups. *Note:* For convenience, the reactance from phase to neutral, or one half the total reactance in the commutating circuit, is the value usually employed in computations, and is designated as the commutating reactance.

(IA/IPC) 444-1973w

commutating reactance factor (rectifier circuits) The line-to-neutral commutating reactance in ohms multiplied by the direct current commutated and divided by the effective (root-mean-square) value of the line-to-neutral voltage of the transformer direct-current winding. *See also:* circuit element; rectification.

(IA) [62]

commutating reactance transformation constant A constant used in transforming line-to-neutral commutating reactance in ohms on the direct-current winding to equivalent line-to-neutral reactance in ohms referred to the alternating-current winding. *See also:* rectification.

(IA) [62]

commutating reactor (1) (converter circuit elements) (commutating inductor) (self-commutated converters) An inductor having one or more windings that modifies or couples the transient current produced by the commutating voltage.

(IA/SPC) 936-1987w

(2) (power and distribution transformers) A reactor used primarily to modify the rate of current transfer between rectifying elements.

(PE/TR) C57.12.80-1978r

commutating resistance (rectifier transformer) The resistance component of the commutating impedance. *See also:* rectifier transformer.

(Std100) C57.18-1964w

commutating voltage (1) (self-commutated converters) (circuit properties) The voltage that causes the current to commutate from one switching branch to another. *Notes:* 1. In an internally commutated converter, the commutating voltage is supplied by an ac (alternating current) source outside the converter. 2. In a self-commutated converter using switching devices that have turn-off capability, such as power transistors or gate turn-off thyristors, the commutating voltage results from the interruption of current in the outgoing device branch. 3. In a self-commutated converter using circuit-commutated thyristors, the commutating voltage is usually supplied by capacitors.

(IA/SPC) 936-1987w

(2) (ac adjustable-speed drives) The voltage that causes the current to commutate from one switching branch to another. *Note:* In an externally commutated converter, the commutating voltage is supplied by an ac source outside the converter.

(IA/ID) 995-1987w

commutation (1) (circuit properties) (ac adjustable-speed drives) (self-commutated converters) The transfer of

current from one converter switching branch to another.

(IA/SPC/ID) 936-1987w, 995-1987w

(2) (harmonic control and reactive compensation of static power converters) The transfer of unidirectional current between thyristor (or diode) converter circuit elements that conduct in succession.

(IA/IPC/SPC) 428-1981w, 519-1992, 444-1973w

commutation elements (semiconductor rectifiers) The circuit elements used to provide circuit-commutated turnoff time. *See also:* semiconductor rectifier stack. (IA) [62]

commutation factor (1) (rectifier circuits) The product of the rate of current decay at the end of conduction, in amperes per microsecond, and the initial reverse voltage, in kilovolts. *See also:* element; rectification. (IA) [62]

(2) (gas tube) The product of the rate of current decay and the rate of the inverse voltage rise immediately following such current decay. *Note:* The rates are commonly stated in amperes per microsecond and volts per microsecond. *See also:* rectification; heterodyne conversion transducer; gas tube. (ED) 161-1971w

commutation interval (self-commutated converters) (circuit properties) The time interval between the application of commutating voltage to a pair of commutating branches and the cessation of the resulting transient currents. *Note:* The commutation interval is the same as the overlap interval in an externally commutated converter in which the commutating voltage is supplied by the ac (alternating current) line.

(IA/SPC) 936-1987w

commutation shrink ring A member that holds the commutator-segment assembly together and in place by being shrunk on an outer diameter of and insulated from the commutator-segment assembly. *See also:* commutator. (EEC/PE) [119]

commutator (rotating machinery) An assembly of conducting members insulated from one another, in the radial-axial plane, against which brushes bear, used to enable current to flow from one part of the circuit to another by sliding contact.

(PE) [9]

commutator bars *See:* commutator segments.

commutator bore Diameter of the finished hole in the core that accommodates the armature shaft. *See also:* commutator.

(EEC/PE) [119]

commutator brush track diameter That diameter of the commutator segment assembly that after finishing on the armature is in contact with the brushes. *See also:* commutator.

(EEC/PE) [119]

commutator core The complete assembly of all of the retaining members of a commutator. *See also:* commutator.

(EEC/PE) [119]

commutator-core extension That portion of the core that extends beyond the commutator segment assembly. *See also:* commutator.

(EEC/PE) [119]

commutator inspection cover A hinged or otherwise attached part that can be moved to provide access to commutator and brush rigging for inspection and adjustment. *See also:* commutator.

(EEC/PE) [119]

commutator insulating segments (rotating machinery) The insulation between commutator segments.

(PE) [9]

commutator insulating tube (rotating machinery) The insulation between the underside of the commutator segment assembly and the core. *See also:* commutator.

(PE) [9]

commutator motor meter (seismic qualification of Class 1E equipment for nuclear Power generating stations) A motor type of meter in which the rotor moves as a result of the magnetic reaction between two windings, one of which is stationary and the other assembled on the rotor and energized through a commutator and brushed. *See also:* electricity meter.

(PE/NP) 344-1975s

commutator nut The retaining member that is used in combination with a vee ring and threaded shell to clamp the segment assembly. *See also:* commutator.

(EEC/PE) [119]

commutator riser (rotating machinery) A conducting element for connecting a commutator segment to a coil. *See also:* commutator.

(PE) [9]

commutator-segment assembly A cylindrical ring or disc assembly of commutator segments and insulating segments that are bound and ready for installation. *Note:* The binding used may consist of wire, temporary assembly rings, shrink rings, or other means. *See also:* commutator.

(EEC/PE) [119]

commutator segments (commutator bars) Metal current-carrying members that are insulated from one another by insulating segments and that make contact with the brushes. *See also:* commutator.

(EEC/PE) [119]

commutator shell The support on which the component parts of the commutator are mounted. *Note:* The commutator may be mounted on the shaft, on a commutator spider, or it may be integral with a commutator spider. *See also:* commutator.

(EEC/PE) [119]

commutator-shell insulation (rotating machinery) The insulation between the under (or in the case of a disc commutator, the back) side of the commutator assembled segments and the commutator shell. *See also:* commutator.

(PE) [9]

commutator vee ring The retaining member that, in combination with a commutator shell, clamps or binds the commutator segments together. *See also:* commutator.

(EEC/PE) [119]

commutator vee ring insulation (rotating machinery) The insulation between the V-ring and the commutator segments.

(PE) [9]

commutator vee-ring insulation extension (rotating machinery) The portion of the vee-ring insulation that extends beyond the commutator segment assembly. *See also:* commutator.

(PE) [9]

commuter rail A passenger railroad service that operates within metropolitan areas on trackage that usually is part of the general railroad system. The operations, primarily for commuters, are generally run as part of a regional system that is publicly owned, or by a railroad company as part of its overall service.

(VT/RT) 1474.1-1999

compact disc An optical disk that is compact in size, generally 4 to 5 inches in diameter. *See also:* CD-ROM storage; laser disk.

(C) 610.10-1994w

compact disc read-only memory *See:* CD-ROM storage.

compact disc storage *See:* CD-ROM storage.

compaction (software) In microprogramming, the process of converting a microprogram into a functionally equivalent microprogram that is faster or shorter than the original.

(C) 610.12-1990

companding (data transmission) A process in which compression is followed by expansion. *Note:* Companding is often used for noise reduction, in which case the compression is applied before the noise exposure and the expansion after the exposure.

(PE) 599-1985w, 270-1964w

compandor (data transmission) A combination of a compressor at one point in a communication path for reducing the amplitude range of signals followed by an expander at another point for a complementary increase in the amplitude range. *Note:* The purpose of a compandor is to improve the ratio of the signal to the interference entering in the path between the compressor and expander.

(PE) 599-1985w

company_id A 24-bit binary value used to identify a company within the context of the CSR Architecture. The `company_id` values are expected to be uniquely assigned to each company.

(C/MM) 1212-1991s

comparative tests (test, measurement, and diagnostic equipment) Comparative tests compare end item signal or characteristic values with a specified tolerance band and present the operator with a go/no-go readout; a go for signals within tolerances, and a no-go for signals out of tolerance.

(MIL) [2]

comparator (1) A circuit for performing amplitude selection between either two variables or between a variable and a constant.

(C) [20]

- (2) **(test, measurement, and diagnostic equipment)** A device capable of comparing a measured value with predetermined limits to determine if the value is within these limits. (MIL) [2]
- (3) **(analog computer)** A circuit, having only two logic output states, for comparing the relative amplitudes of two analog variables, or of a variable and a constant, such that the logic signal output of the comparator uniquely determines which variable is the larger at all times. (C) 165-1977w
- (4) **(software)** A software tool that compares two computer programs, files, or sets of data to identify commonalities or differences. Typical objects of comparison are similar versions of source code, object code, data base files, or test results. (C) 610.12-1990
- compare (1) (mathematics of computing)** To examine a quantity for the purpose of determining its relationship to zero. (C) 1084-1986w
- (2) **(data management)** To examine two items to determine their relative magnitudes, their relative positions in a given sequence, or whether they are identical. (C) 610.5-1990w
- comparer** A signal element that performs an AND logic function. (SWG/PE) C37.100-1992
- compare&swap** A data-access operation that conditionally stores a *next* value to a specified data type and returns the previous data value. The store occurs when the addressed memory value and a second *test* value are equal. When accessing uncached data, this data-access operation generates a compareSwap bus transaction. (C/MM) 1596.5-1993
- compare_swap** A bus transaction that takes a test value and a new value as inputs, compares the test value to the current contents of an address and, if equal, atomically writes the new value to the address and returns the old. (C/MM) 1212.1-1993
- compareSwap** A bus that conditionally stores a next argument to a specified data address and returns the previous data value from that address. The store occurs when the addressed memory value and a second *test* value are equal. In the CSR Architecture, this is called a compare_swap transaction. (C/MM) 1596.5-1993
- comparison (A) (data management)** The process of examining two or more items for identity, similarity, equality, relative magnitude, or for order in a sequence. **(B) (data management)** The result of such an examination as in (A). (C) 610.5-1990
- comparison amplifier (power supplies)** A high-gain non-inverting direct-current amplifier that, in a bridge-regulated power supply, has as its input the voltage between the null junction and the common terminal. The output of the comparison amplifier drives the series pass elements. (AES) [41]
- comparison bridge (power supplies)** A type of voltage-comparison-circuit whose configuration and principle of operation resemble a four-arm electric bridge. *See also:* error signal. (AES) [41]
- comparison lamp (luminous standards) (illuminating engineering)** A light source having a constant, but not necessarily known, luminous intensity with which standard and test lamps are successively compared. (IE/EEC) [126]
- compartment (GIS) (1) (packaging machinery)** A space within the base, frame, or column of the industrial equipment. (IA/PKG) 333-1980w
- (2) Any gas section of the gas-insulated substation assembly that provides gas isolation. (SUB/PE) C37.122-1993, C37.122.1-1993
- (3) Any gas section of the gas-insulated substation assembly that can be isolated from the system by internal or external means. (SWG/PE) C37.100-1992
- compass (navigation aid terms)** An instrument for indicating a horizontal reference direction relative to the earth. (AES/GCS) 172-1983w
- compass bearing (navigation aid terms)** Bearing relative to compass north. (AES/GCS) 172-1983w
- compass-controlled directional gyro** A device that uses the earth's magnetic field as a reference to correct a directional gyro. *Note:* The direction of the earth's field is sensed by a remotely located compass that is connected electrically to the gyro. (EEC/PE) [119]
- compass course (navigation aid terms)** Course relative to compass north. (AES/GCS) 172-1983w
- compass declinometer** *See:* declinometer.
- compass deviation** *See:* magnetic deviation.
- compass heading (navigation aid terms)** Heading relative to compass north. (AES/GCS) 172-1983w
- compass locator** *See:* nondirectional beacon.
- compass north (navigation aid terms)** The direction north as indicated by a magnetic compass. (AES/GCS) 172-1983w
- compass repeater (navigation aid terms)** That part of a remote-indicating compass system which repeats, at a distance, the indications of the master compass. (AES/GCS) 172-1983w
- compass rose (navigation aid terms)** A compass used to assist in aircraft magnetic compass compensation. (AES/GCS) 172-1983w
- compatibility (1) (696 interface devices) (general system)** The degree to which devices may be interconnected and used without modification, when designed to conform to IEEE Std 696-1983. (MM/C) 696-1983w
- (2) **(microcomputer system bus)** The degree to which devices may be interconnected and used without modification, when designed as defined in IEEE Std 796-1983. (C/MM) 796-1983r
- (3) **(color television)** The property of a color television system that permits substantially normal monochrome reception of the transmitted signal by typical unaltered monochrome receivers. (BT/AV) 201-1979w
- (4) **(programmable instrumentation)** The degree to which devices may be interconnected and used, without modification, when designed as defined throughout IEEE Std 488.1-1987 (for example, mechanical, electrical, or functional compatibility). (IM/AIN) 488.1-1987r
- (5) **(A) (software)** The ability of two or more systems or components to perform their required functions while sharing the same hardware or software environment. **(B) (software)** The ability of two or more systems or components to exchange information. *See also:* interoperability. (C) 610.12-1990
- (6) **(SBX bus)** The degree to which devices may be interconnected and used without modification. (C/MM) 959-1988r
- (7) **(STEbus)** The degree to which boards may be interconnected and used without modification when designed according to the specifications contained within IEEE Std 1000-1987. (C/MM) 1000-1987r
- compatibility interfaces (1) (medium attachment units and repeater units)** The medium dependent interface (MDI) coaxial cable interface and the attachment unit interface (AUI) branch cable interface, the two points at which hardware compatibility is defined to allow connection of independently designed and manufactured components to the baseband transmission system. (LM/C) 8802-3-1990s
- (2) The Medium Dependent Interface (MDI) cable, the Attachment Unit Interface (AUI) branch cable, and the Media Independent Interface (MII); the three points at which hardware compatibility is defined to allow connection of independently designed and manufactured components to a baseband transmission medium. (C/LM) 802.3-1998
- Compatibility Mode** An asynchronous, byte-wide forward (host-to-peripheral) channel with data and status lines used according to their original definitions. Compatibility Mode is backward compatible with many existing devices, including the PC parallel port, and is the base mode common to all compliant interfaces. (C/MM) 1284-1994
- Compatibility Mode forward data transfer phase** Begins when the host asserts nStrobe and ends following data hold time and nStrobe de-assertion. (Note that the host is not free

to send the next data byte until the peripheral acknowledges the transfer using nAck.) The host may not initiate negotiation to a new operating mode until the interface returns to Compatibility Mode forward idle phase. (C/MM) 1284-1994

Compatibility Mode forward idle phase When the interface is in Compatibility Mode with no data transfer in progress. The host may initiate a data transfer in Compatibility Mode or may initiate negotiation to a new operating mode.

(C/MM) 1284-1994

compatible Pertaining to a computer system or system component that is capable of handling data and programs intended for use with some other system or component. *See also*: downward compatible; upward compatible.

(C) 610.10-1994w

compatible device A device that supports any of a specified range of popular variants of the "Centronics" interface. Compatible devices will interoperate with compliant devices in Compatibility Mode only. (C/MM) 1284-1994

compelled data transfer protocol A technology-independent transfer mechanism in which the slave is compelled to provide a response before the master proceeds to the next transfer. (C/BA) 10857-1994, 1014.1-1994w, 896.4-1993w

compensated control system (control systems for steam turbine-generator units) An interconnected system that controls two or more variables (speed, load, pressure, etc.) with compensation designed to minimize the interaction between the controlled variables. (PE/EDPG) 122-1985s

compensated-loop direction-finder A direction-finder employing a loop antenna and a second antenna system to compensate polarization error. *See also*: radio receiver.

(EEC/PE) [119]

compensated repulsion motor A repulsion motor in which the primary winding on the stator is connected in series with the rotor winding via a second set of brushes on the commutator in order to improve the power factor and commutation.

(PE) [9]

compensated semiconductor (charged-particle detectors) (germanium gamma-ray detectors) (x-ray energy spectrometers) A semiconductor in which one type of impurity or imperfection (for example, donor) partially cancels the electric effects of the other type of impurity or imperfection (for example, acceptor).

(IM/NPS/ED/HFIM/NID) 314-1971w, 325-1996, 300-1988r, 301-1976s, 216-1960w

compensated series-wound motor A series-wound motor with a compensating-field winding. The compensating-field winding and the series-field winding may be combined into one field winding. *See also*: asynchronous machine.

(PE) 224-1965w, [9]

compensating-field winding (rotating machinery) Conductors embedded in the pole shoes and their end connections. It is connected in series with the commutating-field winding and the armature circuit. *Note*: A compensating-field winding supplements the commutating-field winding, and together they function to assist the reversal of current in the armature coils for successful commutation. *See also*: asynchronous machine. (PE/EEC) [119]

compensating-rope sheave switch A device that automatically causes the electric power to be removed from the elevator driving-machine motor and brake when the compensating sheave approaches its upper or lower limit of travel. *See also*: hoistway. (EEC/PE) [119]

compensation (control system feedback) A modifying of supplementary action (also, the effect of such action) intended to improve performance with respect to some specified characteristic. *Note*: In control usage, this characteristic is usually the system deviation. Compensation is frequently qualified as series, parallel, feedback, etc., to indicate the relative position of the compensating element. *See also*: equalization; feedback control system. (PE/EDPG) 421-1972s, [3]

compensation theorem States that if an impedance is inserted in a branch of a network, the resulting current increment

produced in any branch in the network is equal to the current that would be produced at that point by a compensating voltage, acting in series with the modified branch, whose value is, where I is the original current that flowed where the impedance was inserted before the insertion was made.

(EEC/PE) [119]

compensator (1) (rotating machinery) An element or group of elements that acts to modify the functioning of a device in accordance with one or more variables. *See also*: asynchronous machine. (PE) [9]

(2) (radio direction-finders) That portion of a direction-finder that automatically applies to the direction indication all or a part of the correction for the deviation. *See also*: radio receiver. (EEC/PE) [119]

(3) (excitation systems) A feedback element of the regulator that acts to compensate for the effect of a variable by modifying the function of the primary detecting element. *Notes*: 1. Examples are reactive current compensator and active current compensator. A reactive current compensator is a compensator that acts to modify the function of a voltage regulator in accordance with reactive current. An active current compensator is a compensator that acts to modify the function of a voltage regulator in accordance with active current. 2. Historically, terms such as equalizing reactor and cross-current compensator have been used to describe the function of a reactive compensator. These terms are deprecated. 3. Reactive compensators are generally applied with generator voltage regulators to obtain reactive current sharing among generators operating in parallel. They function in the following two ways.

1) Reactive droop compensation is the more common method. It creates a droop in generator voltage proportional to reactive current and equivalent to that which would be produced by the insertion of a reactor between the generator terminals and the paralleling point.

2) Reactive differential compensation is used where droop in generator voltage is not wanted. It is obtained by a series differential connection of the various generator current transformer secondaries and reactive compensators. The difference current for any generator from the common series current creates a compensating voltage in the input to the particular generator voltage regulator which acts to modify the generator excitation to reduce to minimum (zero) its differential reactive current.

3) Line drop compensators modify generator voltage by regulator action to compensate for the impedance drop from the machine terminals to a fixed point. Action is accomplished by insertion within the regulator input circuit of a voltage equivalent to the impedance drop. The voltage drops of the resistance and reactance portions of the impedance are obtained, respectively, in per unit quantities by an active compensator and a reactive compensator.

(PE/EDPG) 421-1972s

(4) (as applied to relaying) A transducer with an air-gapped core that produces an output voltage proportional to input current. The voltage modifies (or *compensates*) the voltage applied to the relay. (SWG/PE) C37.100-1992

compensatory leads Connections between an instrument and the point of observation so contrived that variations in the properties of leads, such as variations of resistance with temperature, are so compensated that they do not affect the accuracy of the instrument readings. *See also*: auxiliary device to an instrument. (EEC/PE) [119]

compensatory wiring techniques (coupling in control systems) Those wiring techniques which result in a substantial cancellation or counteracting of the effects of rates of change of electric or magnetic fields, without actually obstructing or altering the intensity of the fields. If the signal wires are considered to be part of the control circuit, these techniques change the susceptibility of the circuit. Example: twisting of signal and return wires associated with a susceptible instrument so as to cancel the voltage difference between wires

caused by an existing varying magnetic field. *See also:* suppressive wiring techniques; barrier wiring techniques. (IA/ICTL) 518-1982r

competent person One who, because of training, experience, and authority is capable of identifying and correcting hazardous or dangerous conditions in the fall arrest system or any component thereof under consideration, as well as its application and use with related equipment. (T&D/PE) 1307-1996

competitor (1) (NuBus) A master that participates in a particular arbitration contest. (C/MM) 1196-1987w

(2) A module actively participating in the current control acquisition cycle of the arbitration process. (C/BA) 10857-1994, 896.3-1993w, 896.4-1993w

compile (software) To translate a computer program expressed in a high-order language into its machine language equivalent. *Contrast:* interpret; assemble; decompile. (C) 610.12-1990

compile-and-go (software) An operating technique in which there are no stops between the compiling, linking, loading, and execution of a computer program. (C) 610.12-1990

compiler (software) A computer program that translates programs expressed in a high-order language into their machine language equivalents. *Contrast:* interpreter; assembler. *See also:* incremental compiler; cross-compiler; root compiler. (C) 610.12-1990

compiler code (software) Computer instructions and data definitions expressed in a form that can be recognized and processed by a compiler. *Contrast:* interpretive code; machine code; assembly code. (C) 610.12-1990

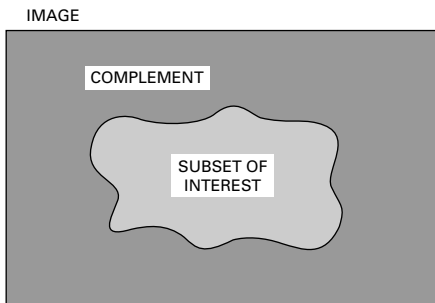
compiler directive source statements Source statements that define macros, or labels, or direct the compiler to insert external source statements (for example, an *include* statement), or direct conditional compilation, or are not described by one of the other type attributes. (C/SE) 1045-1992

compiler generator (software) A translator or interpreter used to construct part or all of a compiler. *Synonym:* metacompiler. (C) 610.12-1990

compiler specification language A specification language used to develop compilers. *See also:* LEX. (C) 610.13-1993w

complement (1) (mathematics of computing) A numeral derived from a given numeral by a specified subtraction rule. Often used to represent the negative of the number represented by the given numeral. *See also:* radix complement; diminished-radix complement. (C) 1084-1986w

(2) (image processing and pattern recognition) All points in an image that do not belong to a given subset of the image.



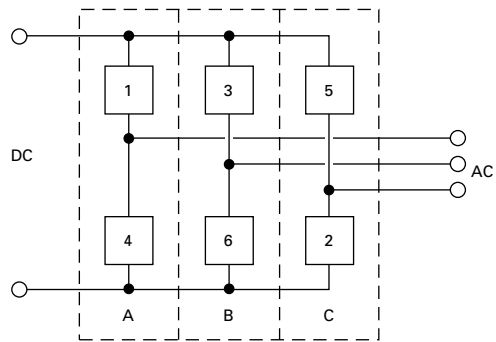
complement

(C) 610.4-1990w

(3) (test pattern language) Another number in which each zero bit has been replaced by a one and each one bit has been replaced by a zero. Ones complement is formed by interchanging all ones and zeros. This is equivalent to logical inversion. (TT/C) 660-1986w

complementary commutation (circuit properties) (self-commutated converters) Commutation occurs from one to the other of a complementary pair of principal switching branches arranged as a two-pulse group that conduct in alternate but

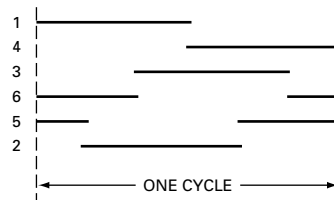
not necessarily equal time intervals. The commutation may be direct or indirect. *Note:* An example of a converter employing complementary commutation is given in the figures below.



Note: The principle switching branches 1-6 are numbered in the order in which they begin conduction.

a) Three 2-pulse commutating groups: A, B, C

complementary commutation



b) Conducting intervals of principle switching branches 1-6

(IA/SPC) 936-1987w

complementary function (automatic control) The solution of a homogeneous differential equation, representing a system or element, which describes a free motion. (PE/EDPG) [3]

complementary functions Two driving-point functions whose sum is a positive constant. (CAS) 156-1960w

complementary metal-oxide semiconductor A semiconductor technology in which circuits are composed of paired NMOS and PMOS devices; characterized by extremely low power dissipation when not changing states. (C) 610.10-1994w

complementary operation Two Boolean operations are complementary if the result of one operation is the negation of the result of the other, for all combinations of operands. For example, the AND and NAND operations are complementary. *Contrast:* dual operation. (C) 1084-1986w

complementary operator *See:* NOT.

complementary tracking (power supplies) A system of interconnection of two regulated supplies in which one (the master) is operated to control the other (the slave). The slave supply voltage is made equal (or proportional) to the master supply voltage and of opposite polarity with respect to a common point. (AES) [41]

complementary wavelength (1) (television) (color) The wavelength of a spectrum light that, when combined in suitable proportions with the light considered, yields a match with the specified achromatic light. *See also:* dominant wavelength. (BT/AV) 201-1979w

(2) (illuminating engineering) (of a light) The wavelength of radiant energy of a single frequency that, when combined in suitable proportion with the light, matches the color of a reference standard. (EEC/IE) [126]

complementation The process of obtaining a complement.

(C) 1084-1986w

complement base The numeral from which a given numeral is subtracted to obtain its complement. (C) 1084-1986w

complemented representation A positional notation system in which negative numbers are represented by their complements and positive numbers are represented in their usual

form. *See also*: twos-complement notation.

(C) 1084-1986w

complementer A device whose output data are a representation of the complements of the numbers represented by its input data. (C) 610.10-1994w

complement on n *See*: radix complement.

complement on nine *See*: nines complement.

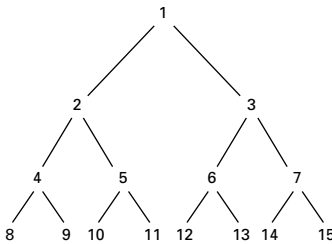
complement on $n - 1$ *See*: diminished-radix complement.

complement on one *See*: ones complement.

complement on ten *See*: tens complement.

complement on two *See*: twos complement.

complete binary tree A complete tree of order 2. *Note*: The nodes in the tree can be read sequentially from left to right; top to bottom. *Synonym*: full binary tree.



complete binary tree

(C) 610.5-1990w

complete carry (1) A carry process in which a carry resulting from addition of carries is allowed to propagate. Contrasted with partial carry. *See also*: carry. (C) 162-1963w

(2) (mathematics of computing) A carry process in which the carry digits are transferred and processed as they occur. *Contrast*: partial carry. (C) 1084-1986w

complete checkback message Message from the initiating end is interpreted by the receiving end. A new message is sent to the initiating end to verify error-free transmission and proper interpretation of the message.

(SWG/PE/SUB) C37.100-1992, C37.1-1987s

complete cluster *Contrast*: incomplete cluster. *See also*: total cluster. (C/SE) 1320.2-1998

complete connection An association of channels, switching systems, other functional units, and telephone sets set up to provide means to allow telephone users to converse.

(COM/TA) 823-1989w

completed call (telephone switching systems) An answered call that has been released. (COM) 312-1977w

complete diffusion (illuminating engineering) That in which the diffusing medium completely redirects the incident flux by scattering, that is, no incident flux can remain in an image-forming state. (EEC/IE) [126]

complete failure (1) Failure of equipment that is both sudden and total. *Synonym*: catastrophic failure.

(PE/NP) 933-1999

(2) *See also*: failure.

complete ICOM code A diagram feature reference in which dot notation joins an ICOM code to a diagram reference.

(C/SE) 1320.1-1998

completely immersed bushing A bushing in which both ends are intended to be immersed in an insulating medium such as oil or gas. (PE/TR) C57.19.03-1996

completely polarized wave A wave with no randomly polarized content. (AP/PROP) 211-1997

complete operating test equipment (test, measurement, and diagnostic equipment) Equipment together with the necessary detail parts, accessories, and components, or any combination thereof, required for the testing of a specified operational function. (MIL) [2]

complete outage state The component or unit is completely de-energized or is connected so that it is not serving any of its functions within the power system. (PE/PSE) 859-1987w

complete reference designation (electric and electronics parts and equipment) A reference designation that consists of a basic reference designation and, as prefixes, all the reference designations that apply to the subassemblies or assemblies within which the item is located, including those of the highest level needed to designate the item uniquely. The reference designation for a unit consists of only a number. (GSD) 200-1975w

complete tree A tree of order n in which each node has exactly n subtrees. *Synonym*: full tree. *See also*: heap. (C) 610.5-1990w

completion code A code communicated to a job stream processor by a batch program to influence the execution of succeeding steps in the input stream. (C) 610.12-1990

completion of a call The execution of a construct or entity is complete when the end of that execution has been reached, or when a transfer of control causes it to be abandoned. Completion due to reaching the end of execution, or due to the transfer of control of an *exit*, *return*, *goto*, *requeue*, or of the selection of a *terminate* alternative is normal completion. Completion is abnormal when control is transferred out of a construct due to abort or the raising of an exception. (C) 1003.5-1999

completion queue A DMA queue that is used primarily to pass I/O transaction-completion messages.

(C/MM) 1212.1-1993

complex capacitivity *See*: relative complex dielectric constant.

complex conductivity For isotropic media, at a particular point, and for a particular frequency, the ratio of the complex amplitude of the total electric current density to the complex amplitude of the electric field strength. *Note*: The electric field strength and total current density are both expressed as phasors, with the latter composed of the conduction current density plus the displacement current density. (AP/ANT) 145-1993

complex data Numeric data used to represent complex numbers. (C) 610.5-1990w

complex data structure *See*: nonprimitive data structure.

complex dielectric constant The complex permittivity of a physical medium in ratio to the permittivity of free space. *See also*: relative complex dielectric constant. (AP/ANT) 145-1993

complex electrical ground and test device A device with two terminal sets and a manually operated terminal selector switch for connecting either terminal set to the device ground connection system through a power-operated ground-making switch, complete with necessary isolation barriers and suitable interlocking. Voltage test ports may be provided. (SWG/PE) C37.20.6-1997

complex-instruction-set computer A computer with a very expansive and robust instruction set, incorporating several types of addressing modes and varying length instruction words. *Note*: Such instructions are usually stored in microcode. (C) 610.10-1994w

complexity (1) (A) (software) The degree to which a system or component has a design or implementation that is difficult to understand and verify. *Contrast*: simplicity. **(B) (software)** Pertaining to any of a set of structure-based metrics that measure the attribute in definition (A). (C) 610.12-1990

(2) (magnetic core testing) Under stated conditions, the complex quotient of vectors representing induction and field strength inside the core material. One of the vectors is made to vary sinusoidally and the other referenced to it. (MAG) 393-1977s

complex number A number consisting of a real part (a) and an imaginary part (b), expressed in the form $a + bi$, where $i^2 = -1$. (C) 610.5-1990w, 1084-1986w

complex permeability (μ) A macroscopic material property of a medium that relates the magnetic flux density, \vec{B} , to the magnetic field, \vec{H} , in the medium. For a monochromatic wave

in a linear medium, that relationship is described by the (phasor) equation:

$$\vec{B} = \bar{\mu} \cdot \vec{H}$$

where μ' , the complex permeability, is a tensor that is generally frequency dependent. For an isotropic medium, the tensor reduces to a complex scalar:

$$\mu = \mu' - j\mu''$$

where $\bar{\mu}$ is the real part of the permeability and μ'' accounts for losses.

(AP/PROP) 211-1990s

complex permittivity (1) For isotropic media, the ratio of the complex amplitude of the electric displacement density to the complex amplitude of the electric field strength. *See also:* relative complex dielectric constant. (AP/ANT) 145-1993

(2) A macroscopic material property of the medium that relates the electric field, \vec{E} to the electric flux density, \vec{D} , in the medium. For a monochromatic wave in a linear medium, that relationship is described by the (phasor) equation:

$$\vec{D} = \bar{\epsilon} \cdot \vec{E}$$

where $\bar{\epsilon}$, the complex permittivity, is a complex-valued tensor, generally frequency dependent. For an isotropic medium, the tensor reduces to a complex scalar:

$$\epsilon = \epsilon' - j\epsilon''$$

where ϵ' is the real part of the permittivity and ϵ'' accounts for losses. (AP/PROP) 211-1990s

complex plane (automatic control) A plane defined by two perpendicular reference axes, used for plotting a complex variable or functions of this variable, such as a transfer function. (PE/EDPG) [3]

complex polarization ratio For a given field vector at a point in space, the ratio of the complex amplitudes of two specified orthogonally polarized field vectors into which the given field vector has been resolved. *Note:* For these amplitudes to define definite phase angles, particular unitary vectors (basis vectors) must be chosen for each of the orthogonal polarizations. *See also:* plane wave; polarization vector.

(AP/ANT) 145-1993

complex power *See:* phasor power.

complex refractive index A dimensionless complex quantity, characteristic of a medium and so defined that its real part is the ratio of the phase velocity in free space to the phase velocity in the medium. The product of the imaginary part of the refractive index and the free space propagation constant is the attenuation constant in the medium.

(AP/PROP) 211-1990s

complex target A target composed of more than one scatterer within a single radar resolution cell. A target may be both complex and distributed. *See also:* distributed target.

(AES) 686-1997

complex tone (A) A sound containing simple sinusoidal components of different frequencies. **(B)** A sound sensation characterized by more than one pitch. (SP) [32]

complex variable (automatic control) A convenient mathematical concept having a complex value, that is having a real part and an imaginary part. *Note:* In control systems, the pertinent independent variable is a generalized frequency $s = \sigma + j\omega$ used in the Laplace transform. (PE/EDPG) [3]

complex waveforms *See:* waveforms produced by continuous time superposition of simpler waveforms; waveforms produced by operations on waveforms; waveforms produced by noncontinuous time superposition of simpler waveforms; combinations of pulses and waveforms; waveforms produced by magnitude superposition.

compliance A property reciprocal to stiffness. *See also:* control system, feedback; feedback control system.

(IA/ICTL/IAC) [60]

compliance extension (power supply) A form of master/slave interconnection of two or more current-regulated power sup-

plies to increase their compliance voltage range through series connection. *See also:* compliance voltage. (AES) [41]

compliance voltage (power supplies) The output voltage of a direct-current power supply operating in constant-current mode. *Note:* The compliance range is the range of voltages needed to sustain a given value of constant current throughout a range of load resistances. (AES) [41]

compliant device A device that supports either the Level 1 or Level 2 electrical interface, plus Compatible and Nibble Mode operation, as well as the negotiation phases necessary to transition between these two modes.

(C/MM) 1284-1994

Component An instance of a subclass of IEEE1451_Component. (IM/ST) 1451.1-1999

component (1) (reliability data for pumps and drivers, valve actuators, and valves) The largest entity of hardware for which data are most generally collected and expected to be reliable (for example, pump with motor, valve with operator, amplifier, pressure transmitter). It is generally an off-the-shelf item procured by the system designer as a basic building block for his system. It should be distinguished from seals, materials, nuts, bolts, and other piece parts from which the component is made. (PE/NP) 500-1984w

(2) (seismic design of substations) The devices and equipment which are assembled at the erection site, or readily removed or accessed for maintenance, and which perform a function (for example, power circuit breakers, disconnect switches, relays, sensors). (SUB/PE) 693-1984s

(3) (unique identification in power plants) A part or assembly of parts that is viewed as an entity for purposes of design, operation, and reporting. (PE/EDPG) 803-1983r

(4) (unique identification in power plants and related facilities) A part or assembly of parts considered an entity for purpose of design, operation, and reporting.

(PE/EDPG) 804-1983r

(5) (software) One of the parts that make up a system. A component may be hardware or software and may be subdivided into other components. *Notes:* 1. The terms "module," "component," and "unit" are often used interchangeably or defined to be subelements of one another in different ways depending upon the context. The relationship of these terms is not yet standardized. (C) 610.12-1990, 610.10-1994w

(6) Any part, assembly, or subdivision of a computer, such as a resistor, amplifier, power supply or rack.

(C) 610.10-1994w

(7) (electrical transmission facilities) A device that performs a major operating function and that is regarded as an entity for purposes of recording and analyzing data on outage occurrences. *Notes:* 1. Some examples of components are line sections, transformers, ac/dc converters, series capacitors or reactors, shunt capacitors or reactors, circuit breakers, line protection systems, and bus sections. 2. Sometimes it is necessary to subdivide a line section into segments to allow proper calculation of failure rates and exposure data. For example, if a line section is composed of an overhead line segment and an underground line segment, failure and exposure data for each line segment may be recorded separately.

(PE/PSE) 859-1987w

(8) (electric utility power systems) A part within or associated with a transformer that is viewed as an entity. This is usually a replaceable part; for example, main winding, tap changer motor, etc. (PE/TR) C57.117-1986r

(9) A piece of electrical or mechanical equipment, a line or circuit, or a section of a line or circuit, or a group of items that is viewed as an entity for the purposes of reliability evaluation. (IA/PSE) 493-1997

(10) A model, simulation, or database used or considered for use in a Distributed Interactive Simulation (DIS) exercise.

(C/DIS) 1278.4-1997

(11) A piece of equipment, a line or circuit, or a section of a line or circuit, or a group of items that is viewed as an entity for purposes of reliability evaluation. (IA) 399-1997

component assembly (1) (unique identification in power plants) An assembly of components, physically contiguous, which is viewed as a single entity for purposes of procurement, for example, boric-acid control panel.

(PE/EDPG) 803-1983r

(2) (unique identification in power plants and related facilities) An assembly of contiguous components, considered as a single entity for purpose of procurement, that is, boric acid control panel.

(PE/EDPG) 804-1983r

component data element A component of a data structure. *Synonym:* element.

(C) 610.5-1990w

component failure Malfunctions in the system hardware (e.g., failures in equipment, electronics, input/output device, distribution system), software (e.g., due to deadlock conditions, exceptions, error conditions), or media that are not precipitated through design flaws. Component failures could be manifested because of faulty equipment, unanticipated system events, or environmental effects (e.g., power surge, humidity, heat), and could result in denial of service conditions. However, failure of components that implement security mechanisms could result in the violation of the system security policy through unauthorized disclosure or modification of information, unauthorized receipt of services, or denial of service to legitimate users or critical functions.

(C/BA) 896.3-1993w

component function (1) (unique identification in power plants) The action performed by a component within a system.

(PE/EDPG) 803-1983r

(2) (unique identification in power plants and related facilities) The primary function performed by a component (element) within a system.

(PE/EDPG) 804-1983r

component function identifier (1) (unique identification in power plants and related facilities) A one to four character alpha-numeric code that identifies the function the component performs within the system.

(PE/EDPG) 804-1983r

(2) A one to four (1 to 4) character alphanumeric code that identifies the function that will be performed by a component. (Reference codes have been established for the basic functions performed by the principal components currently in use in nuclear and fossil-fueled power plants and related facilities.)

(PE/EDPG) 803.1-1992

Component Group An instance of the class `IEEE1451-ComponentGroup` or of a subclass thereof.

(IM/ST) 1451.1-1999

component hazard (reliability data) The instantaneous failure rate of a component or its conditional probability of failure versus time.

(PE/NP) 500-1977s

component profile A profile that is made up of a formally defined subset of a single standard.

(C/PA) 14252-1996

components (1) (safety systems equipment in nuclear power generating stations) Items from which equipment is assembled (for example, attachments, bearings, bolts, capacitors, connectors, governors, inspection access ports, instrument sensors, locking devices, position indicators, resistors, seals, sight glasses, springs, switches, transistors, tubes, wires, etc. *Note:* Certain items, for example, instrument sensors, may satisfy the definition of the term component or the term equipment as used in IEEE Std 627-1980. Where such items are included within defined boundaries of equipment items, they are correctly referred to as components. Where such items are installed outside of defined boundaries for equipment items and perform independent functions, they are correctly referred to as equipment.

(PE/NP) 627-1980r

(2) (switchgear assemblies for Class 1E applications in nuclear power generating stations) Items from which the switchgear assemblies are made (for example, power circuit breakers, instrument transformers, protective relays, control switches, primary insulation, etc.).

(SWG/PE) C37.100-1992, C37.82-1971s

(3) (accident monitoring instrumentation) Discrete items from which a system is assembled.

(PE/NP) 497-1981w

(4) (electric heat tracing systems) Items from which a system is assembled; for example, resistors, capacitors, wires, connectors, transistors, switches, etc.

(PE/EDPG/NP) 622B-1988r, 650-1979s, 622A-1984r, 323-1974s

(5) (nuclear power generating station) Items from which equipment is assembled. (For example, a component is a resistor, capacitor, wire, connector, spring, terminal block, bus support, etc.).

(PE/NP) 649-1980s

(6) Items from which the equipment is assembled. (For motors, typical components include stator coils, rotor bars, bearings, bolts, capacitors, internal thermal overload relays, connectors, instrument sensors, locking devices, seals, sight glasses, springs, switches, etc.).

(PE/NP) 334-1994r

(7) Discrete items from which a system is assembled. *Note:* Examples of components are: wires, transistors, switches, motors, relays, solenoids, pipes, fittings, pumps, tanks, valves, computer programs, computer hardware, or computer firmware.

(PE/NP) 603-1998

(8) Items from which the system is assembled.

(PE/NP) 933-1999

component side By convention, the side of the module seen furthest from row A of the connector. On single-sided modules, this is the side populated with circuit components. This is the right side when looking at an IEEE 1101.1 system through the front door.

(C/MM) 1101.2-1992

component standard (1) (software) A standard that describes the characteristics of data or program components.

(C) 610.12-1990

(2) One standard, within a set of standards, that is developed in accordance with the architecture, terminology, guidelines, and requirements set forth in the base document of the same set of standards, and that provides a detailed definition of a component part of the architecture.

(ATLAS) 1232-1995

component testing (1) (software) Testing of individual hardware or software components or groups of related components. *Synonym:* module testing. *See also:* system testing; integration testing; interface testing; unit testing.

(C) 610.12-1990

(2) Testing conducted to verify the correct implementation of the design and compliance with program requirements for one software element (e.g., unit, module) or a collection of software elements.

(C/SE) 1012-1998

composite bushing (outdoor apparatus bushings) A bushing in which the major insulation consists of several coaxial layers of different insulation materials.

(PE/TR) 21-1976

composite cable (communication practice) A cable in which conductors of different gauges or types are combined under one sheath. *Note:* Differences in length of twist are not considered here as constituting different types. *See also:* cable.

(PE/EEC) [119]

composite color picture signal (National Television System Committee color television) The electric signal that represents complete color picture information and all sync signals.

(BT/AV) 201-1979w

composite color signal (color television) The color-picture signal plus blanking and all synchronizing signals.

(BT/AV) 201-1979w

composite color sync [National Television System Committee (NTSC) color television] The signal comprising all the sync signals necessary for proper operations of a color receiver. *Note:* This includes the deflection sync signals to which the color sync signal is added in the proper time relationship.

(BT/AV) 201-1979w

composite conductor A composite conductor consists of two or more strands consisting of two or more materials. *See also:* conductor.

(T&D/PE) [10]

composite controlling voltage (electron tube) The voltage of the anode of an equivalent diode combining the effects of all individual electrode voltages in establishing the space-charge-limited currents. *See also:* excitation.

(ED) 161-1971w, [45]

composite data element A data element that contains two or more data elements that can be referred to either collectively or individually; for example, a data element named "date of birth" containing data elements "year," "month," and "day." *Synonyms:* molecular data element; data chain. *Contrast:* atomic data element. *See also:* data aggregate.

(C) 610.5-1990w

composited circuit A circuit that can be used simultaneously for telephony and direct-current telegraphy or signaling, separation between the two being accomplished by frequency discrimination. *See also:* transmission line.

(EEC/PE) [119]

composite error The maximum deviation of the output data from a specified output function. Composite error is due to the composite effects of hysteresis, resolution, nonlinearity, nonrepeatability, and other uncertainties in the output data. It is generally expressed as a percentage of half the output span.

(AES/GYAC) 528-1994

composite key A key comprised of two or more attributes.

(C/SE) 1320.2-1998

composite lens characteristic A modification of an impedance or mho characteristic in which the operating area on an R - X diagram is inherently restricted in the plus and minus R directions. The common area between two overlapping circles produces such a characteristic.

(SWG/PE) C37.100-1992

composite level (measuring the performance of tone address signaling systems) In two-tone signaling systems, the total power of the two tones comprising a specific signal present condition.

(COM/TA) 752-1986w

composite overhead groundwire with optical fibers (OPGW) Concentric-lay-stranded composite conductor for use as overhead groundwire with telecommunication capability. The conductor is constructed with a central optical fiber core surrounded by helically laid aluminum-clad wires, aluminum alloy wires, galvanized steel wires, or combinations thereof.

(T&D/PE) 524-1992r

composite picture signal (television) The signal that results from combining a blanked picture signal with the asynchronizing signal. *See also:* television.

(BT/AV) [34]

composite plate (electroplating) An electrodeposit consisting of two or more layers of metals deposited separately. *See also:* electroplating.

(PE/EEC) [119]

composite pulse (navigation aid terms) (pulse navigational systems) A pulse composed of a series of overlapping pulses received from the same signal source but by way of different paths.

(AES/GCS) 172-1983w

composite set An assembly of apparatus designed to provide one end of a composited circuit.

(EEC/PE) [119]

composite signal A signal that is composed of both ac and dc components.

(PEL) 1515-2000

composite signaling (telephone switching systems) A form of polar-duplex signaling capable of simultaneously serving a number of circuits using low-pass filters to separate the signaling currents from the voice currents.

(COM) 312-1977w

composite supervision The use of a composite signaling channel for transmitting supervisory signals between two points in a connection.

(EEC/PE) [119]

composite tomato characteristic A modification of an impedance or mho characteristic in which the operating area on an R - X diagram is inherently expanded in the plus and minus direction. The total area of two overlapping circles produces such a characteristic.

(SWG/PE) C37.100-1992

composite triple beat distortion The combination of all possible third-order beat frequencies ($F_1 \pm F_2 \pm F_3$) that occurs within a channel of the cable plant. *See also:* intermodulation distortion.

(LM/C) 802.7-1989r

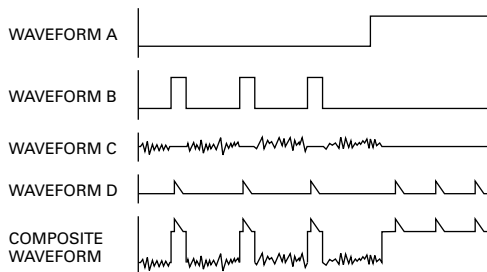
composite type A data type each of whose members is composed of multiple data items. For example, a data type called PAIRS whose members are ordered pairs (x,y). *Contrast:* atomic type.

(C) 610.12-1990

composite video signal The complete video signal. For monochrome systems, it comprises the picture, blanking, and synchronizing signals. For color systems it includes additional color synchronizing signals and color picture information.

(LM/C) 802.7-1989r

composite waveform (pulse terminology) A waveform that is, or that for analytical or descriptive purposes is treated as, the algebraic summation of two or more waveforms.



composite waveform

(IM/WM&A) 194-1977w

composite widget A parent widget that physically contains other widgets.

(C) 1295-1993w

compound (A) (rotating machinery) A definite substance resulting from the combination of specific elements or radicals in fixed proportions; distinguished from mixture.

(B) (rotating machinery) The intimate admixture of resin with ingredients such as fillers, softeners, plasticizers, catalysts, pigments, or dyes. *See also:* rotor.

(PE) [9]

compound cartridge An ordered set of cartridges that may be treated atomically.

(C/SS) 1244.1-2000

compound circular horn antenna A horn antenna of circular cross section with two or more abrupt changes of flare angle or diameter.

(AP/ANT) 145-1993

compound-filled (grounding device) (reactor, transformer) Having the coils/windings encased in an insulating fluid that becomes solid or remains slightly plastic at normal operating temperatures. *See also:* instrument transformer; reactor.

(SPD/PE) 32-1972r

compound-filled bushing (outdoor electric apparatus) A bushing in which the space between the inside surface of the porcelain/weather casing and the major insulation (or conductor where no major insulating is used) is filled with compound.

(PE/TR) 21-1976

compound filled joints (power cable joints) Joints in which the joint housing is filled with an insulating compound that is non-fluid at normal operating temperatures.

(PE/IC) 404-1986s

compound-filled transformer (power and distribution transformers) A transformer in which the windings are enclosed with an insulating fluid which becomes solid, or remains slightly plastic, at normal operating temperatures. *Note:* The shape of the compound-filled transformer is determined in large measure by the shape of the contain or mold used to contain the fluid before solidification.

(PE/TR) C57.12.80-1978r

compound horn antenna *See:* compound circular horn antenna; compound rectangular horn antenna.

compounding curve (direct-current generator) A regulation curve of a compound-wound direct-current generator. *Note:* The shunt field may be either self or separately excited. *See also:* direct-current commutating machine.

(EEC/PE) [119]

compound interferometer system An antenna system consisting of two or more interferometer antennas whose outputs are combined using nonlinear circuit elements such that grating lobe effects are reduced.

(AP/ANT) 145-1993

compound key A candidate key consisting of more than one attribute.

(C) 610.5-1990w

compound list *See:* list structure.

compound microstrip A microstrip line in which the substrate consists of two or more layers of different electromagnetic properties. (MTT) 1004-1987w

compound rectangular horn antenna A horn antenna of rectangular cross section in which at least one pair of opposing sides has two or more abrupt changes of flare angle or spacing. (AP/ANT) 145-1993

compound source-rectifier exciter (1) (excitation systems for synchronous machines) An exciter whose energy is derived from the currents and potentials of the ac terminals of the synchronous machine and converted to direct current by rectifiers. The exciter included the power transformers (current and potential), reactors, and rectifiers which may be either noncontrolled or controlled, including gate circuitry. It is exclusive of input control elements. (PE/EDPG) 421.1-1986r
(2) (synchronous machines) An exciter whose energy is derived from the currents and potentials of the alternating current terminals of the synchronous machine and converted to direct current by rectifiers. *Notes:* 1. The exciter includes the power transformers (current and potential), power reactors, and power rectifiers which may be either noncontrolled or controlled, including gate circuitry. 2. It is exclusive of input control elements. (PE/EDPG) 421-1972s

compound target* This term has been used to mean either complex target or distributed target. Because of its ambiguity, it is deprecated. (AES/RS) 686-1990
 * Deprecated.

compound-wound A qualifying term applied to a direct-current machine to denote that the excitation is supplied by two types of windings, shunt and series. *Note:* When the electromagnetic effects of the two windings are in the same direction, it is termed cumulative compound wound; when opposed, differential compound wound. *See also:* direct-current commutating machine. (EEC/PE) [119]

compound-wound generator A dc generator that has two separate field windings. One supplies the predominating excitation, and is connected in parallel with the armature circuit. The other supplies only partial excitation and is connected in series with the armature circuit. It is proportioned to require an equalizer connection for satisfactory parallel operation. (IA/MT) 45-1998

compound-wound motor A dc motor that has two separate field windings: one, usually the predominating field, connected in parallel with the armature circuit, and the other connected in series with the armature circuit. Speed and torque characteristics are between those of shunt and series motors. (IA/MT) 45-1998

compressed-air circuit breaker *See:* circuit breaker.

compressed file A file that has been transformed in a manner intended to reduce its size without loss of information. (C/PA) 1387.2-1995

compression (1) (data transmission) A process in which the effective gain applied to a signal is varied as a function of the signal magnitude, the effective gain being greater for small rather than for large signals. (PE) 599-1985w

(2) (television) The reduction in gain at one level of a picture signal with respect to the gain at another level of the same signal. *Note:* The gain referred to in the definition is for a signal amplitude small in comparison with the total peak-to-peak picture signal involved. A quantitative evaluation of this effect can be obtained by a measurement of differential gain. *See also:* white compression; black compression; television. (BT/AV) [34]

(3) (oscillography) An increase in the deflection factor usually as the limits of the quality area are exceeded. *See also:* oscillograph. (IM/HFIM) [40]

(4) (image processing and pattern recognition) *See also:* image compression. (C) 610.4-1990w

compressional wave A wave in an elastic medium that is propagated by fluctuations in elemental volume, accompanied by velocity components along the direction of propagation only.

Note: A compressional plane wave is a longitudinal wave.

(SP) [32]

compression gain $10 \log$ of the ratio of the magnitude of the peak power of a compressed pulse to the RMS noise power measured. For an unweighted chirp pulse compression system, the value is $10 \log$ (TB), where TB is the time bandwidth product (in decibels). (UFFC) 1037-1992w

compression joint (conductor stringing equipment) A tubular compression fitting designed and fabricated from aluminum, copper, or steel to join conductors or overhead ground wires. It is usually applied through the use of hydraulic or mechanical presses. However, in some cases, automatic, wedge, and explosive type joints are utilized. *Synonyms:* splice; sleeve; conductor splice. (T&D/PE) 524a-1993r, 524-1992r

compression point (nonlinear, active, and nonreciprocal waveguide components) The level of the output signal at which the gain of a device is reduced by a specified amount, usually expressed in decibels, as in the 1 dB compression point. (MTT) 457-1982w

compression ratio (gain or amplification) The ratio of (1) the magnitude of the gain (or amplification) at a reference signal level to (2) its magnitude at a higher stated signal level. *See also:* amplifier. (ED) 161-1971w

compressor (data transmission) A transducer, which for a given amplitude range of input voltages, produces a smaller range of output voltages. One important type of compressor employs the envelope of speech signals to reduce their volume range by amplifying weak signals and attenuating strong signals. (PE) 599-1985w

compressor-stator-blade-control system (gas turbines) A means by which the turbine compressor stator blades are adjusted by vary the operating characteristics of the compressor. *See also:* speed-governing system. (PE/EDPG) [5]

COM printer *See:* computer output microfilm printer.

compromise A violation of the security of a system such that an unauthorized disclosure of sensitive information may have occurred. (LM/C) 802.10-1992

computation *See:* implicit computation.

computational bandwidth The maximum number of operations per second a machine can perform. (C) 610.10-1994w

computational data *See:* fixed-point data.

computational model A model consisting of well-defined procedures that can be executed on a computer; for example, a model of the stock market, in the form of a set of equations and logic rules. (C) 610.3-1989w

compute-bound Pertaining to programs that have an abundance of computations. *Synonym:* process bound. *Contrast:* input-output bound. (C) 610.10-1994w

computed tomography (CT) A medical diagnostic technique in which a computer is used to produce an image of cross-sections of the human body by using measured attenuation of X rays through a cross-section of the body. *Synonym:* computer-assisted tomography. *See also:* computer-aided testing; computerized axial tomography. (C) 610.2-1987

computer (1) (A) (emergency and standby power) A machine for carrying out calculations. **(B) (emergency and standby power)** By extension, a machine for carrying out specified transformations on information.

(IA/C/PSE) 446-1987, 165-1977

(2) (A) (software) A functional unit that can perform substantial computation, including numerous arithmetic operations, or logic operations without intervention by a human operator during a run. **(B) (software)** A functional programmable unit that consists of one or more associated processing units and peripheral equipment, that is controlled by internally stored programs, and that can perform substantial computation, including numerous arithmetic operations or logic operations, without human intervention. *See also:* program. (C/SE) 729-1983

(3) A device that consists of one or more associated processing units and peripheral units, that is controlled by internally

stored programs, and that can perform substantial computations, including numerous arithmetic operations, or logic operations, without human intervention during a run. *Note:* May be stand alone, or may consist of several interconnected units.

(C) 610.10-1994w

computer-aided design (CAD) (computer graphics) The use of computers to aid in design layout and analysis. May include modeling, analysis, simulation, or optimization of designs for production. Often used in combinations such as CAD/CAM. *See also:* computer-aided engineering; computer-aided manufacturing; computer-aided design and drafting; design automation. (C) 610.2-1987, 610.6-1991w

computer-aided design and drafting (CADD) The use of computers to aid in design layout, drafting, and analysis. Often used as a synonym for computer-aided design.

(C) 610.6-1991w

computer-aided education (CAE) *See:* computer-assisted instruction.

computer-aided engineering (CAE) (1) (computer graphics) The use of computers to aid in engineering analysis and design. May include solution of mathematical problems, process control, numerical control, and execution of programs performing complex or repetitive calculations. *See also:* computer-aided manufacturing; computer-aided design.

(C) 610.2-1987, 610.6-1991w

(2) The application of computers to the engineering process. The term now commonly applies to any computer system or program that manipulates data for the purpose of assisting engineering, design, procurement, maintenance, etc.

(PE/EDPG) 1150-1991w

(3) A computer-based set of tools to assist in the design and development of integrated circuits.

(C/TT) 1450-1999

computer-aided inspection (CAI) The use of computers to inspect manufactured parts. *Synonym:* mechanical inspection.

(C) 610.2-1987

computer-aided instruction (CAI) The use of computers to present instructional material and to accept and evaluate student responses. *See also:* computer-assisted instruction; computer-based instruction. (C) 610.2-1987

computer-aided management (CAM) The application of computers to business management activities. For example, database management, control reporting, and information retrieval. *See also:* decision support system; management information system. (C) 610.2-1987

computer-aided manufacturing (CAM) (computer graphics) The use of computers and numerical control equipment to aid in manufacturing processes. May include robotics, automation of testing, management functions, control, and product assembly. Often used in combinations such as CAD/CAM. *See also:* computer-aided design; computer-aided engineering. (C) 610.2-1987, 610.6-1991w

computer-aided page makeup The use of computers to automate the formation of text and graphics into discrete camera-ready pages. *See also:* computer-aided typesetting; photo-composition. (C) 610.2-1987

computer-aided software engineering (CASE) The use of computers to aid in the software engineering process. May include the application of software tools to software design, requirements, tracing, code production, testing, document generation, and other software engineering activities.

(C/SE) 1348-1995, 610.12-1990

computer-aided testing (CAT) The use of computers to test manufactured parts. (C) 610.2-1987

computer-aided typesetting The use of computers at any stage of the document composition process. This may involve text formatting, input from a word processing system, or computer-aided page makeup. *Synonym:* computer typesetting. (C) 610.2-1987

Computer and Business Equipment Manufacturers Association The Secretariat for ASC X3-series standards on information technology. (C) 610.7-1995, 610.10-1994w

computer architecture The organizational structure of a computer system, including the hardware and the software. *Contrast:* computer network architecture. (C) 610.10-1994w

computer-assisted instruction (CAI) The use of computers to present instructional material and to accept and evaluate student responses. *Synonyms:* computer-assisted learning; computer-aided instruction; computer-aided education; computer-augmented learning. *See also:* computer-based instruction.

(C) 610.2-1987, 610.6-1991w

computer-assisted learning (CAL) *See:* computer-assisted instruction.

computer-assisted system A system that utilizes separate and standalone computers or processors for arithmetic computational and logic functions. All data manipulation and evaluation (e.g., alarm condition annunciation) functions are performed by the system. (IA/MT) 45-1998

computer-assisted tester (test, measurement, and diagnostic equipment) A test not directly programmed by a computer but that operates in association with a computer by using some arithmetic functions of the computer. (ML) [2]

computer-assisted tomography (CAT) *See:* computed tomography.

computer-augmented learning (CAL) *See:* computer-assisted instruction.

computer automated measurement and control (CAMAC) (1) A standard modular instrumentation and digital interface system. (NPS) 583-1982r

(2) (**FASTBUS acquisition and control**) An internationally standardized modular instrumentation and digital interface system as defined in IEEE Std 583-1982, *IEEE Standard Modular Instrumentation and Digital Interface System (CAMAC)*, and the corresponding documents EUR 4100-1972, *CAMAC: A Modular Instrumentation System for Data Handling*, and IEC Pub 516-1975, *A Modular Instrumentation System for Data Handling; CAMAC System.*; Compiler Automated Measurement and Control. (NID) 960-1986s

computer-based education (CBE) *See:* computer-based instruction.

computer-based instruction The use of computers to support any process involving human learning. *Synonyms:* computer-based education; computer-based learning. (C) 610.2-1987

computer-based learning (CBL) *See:* computer-based instruction.

computer-based simulation A simulation that is executed on a computer. *Synonym:* machine-centered simulation. *Contrast:* human-centered simulation. (C) 610.3-1989w

computer-based system A system that utilizes one or more embedded computers or processors to perform its functions. (IA/MT) 45-1998

computer channel *See:* input-output channel.

computer code A machine code for a specific computer.

(C) [20], [85]

computer component (analog computer) Any part, assembly, or subdivision of a computer, such as resistor, amplifier, power supply, or rack. (C) 165-1977w

computer conferencing A form of teleconferencing that allows one or more users to exchange messages on a computer network. *See also:* video conferencing. (C) 610.2-1987

computer control (electric power system) (physical process) A mode of control wherein a computer, using as input the process variables, produces outputs that control the process. *See also:* power system. (PE/PSE) [54]

computer-control state (1) (analog computer) One of several distinct and selectable conditions of the computer-control circuits. *See also:* potentiometer set; hold; reset; operate; balance check; static test. (C) 165-1977w

(2) In an analog computer, one of several distinct and selectable conditions of the control circuit. *See also:* operate; balance check; static test; hold; reset; potentiometer set.

(C) 610.10-1994w

computer control unit *See*: instruction control unit.

computer data (software) Data available for communication between or within computer equipment. Such data can be external (in computer-readable form) or resident within the computer equipment and can be in the form of analog or digital signals. *See also*: computer. (C/SE) 729-1983s

computer database *See*: database.

computer description language *See*: hardware description language.

Computer Design Language A design language for describing or designing computer architectures at the register level. (C) 610.13-1993w

computer diagram (analog computer) A functional drawing showing interconnections between computing elements, such interconnections being specified for the solution of a particular set of equations. *See also*: computer program; problem board. (C) 165-1977w

computer equation (machine equation) (analog computer) An equation derived from a mathematical model for use on a computer which is equivalent or proportional to the original equation. *See also*: scale factor. (C) 165-1977w

computer generated force (CGF) Simulation of entities on the virtual battlefield. CGF entities may be fully autonomous (needing no human direction) or semi-autonomous (requiring some direction by a human controller who is not a participant in the virtual events). CGF entities represent friendly, opposing forces (OPFOR), and neutral battlefield participants not portrayed by manned simulators. (DIS/C) 1278.3-1996

computer graphics (A) The branch of computer science concerned with methods of creating, modifying, or analyzing pictorial data. **(B)** The use of a computer in any discipline to create, modify, or analyze images. (C) 610.6-1991

Computer Graphics Interface (CGI) (A) A computer graphics standard that provides a method for exchanging device-independent data between graphics systems or device-dependent parts of a graphics system. It is under development by the American National Standards Institute (ANSI) and the International Standards Organization (ISO). **(B)** A method for exchanging device-independent data between graphics systems or device-dependent parts of a graphics system. (C) 610.6-1991

Computer Graphics Metafile (CGM) (A) A computer graphics standard that provides a method for recording graphical information in a metafile. It was developed by the American National Standards Institute (ANSI) and the International Standards Organization (ISO). **(B)** A method for recording graphical information in a metafile. (C) 610.6-1991

computer hardware Devices capable of accepting and storing computer data, executing a systematic sequence of operations on computer data, or producing control outputs. Such devices can perform substantial interpretation, computation, communication, control, or other logical functions. (C/SE) J-STD-016-1995

computer hardware description language *See*: hardware description language.

computer input microfilm (CIM) The input to a process that converts data contained on microform into machine-readable data. (C) 610.2-1987

computer instruction A machine instruction for a specific computer. (C) [20], [85]

(2) (A) (software) A statement in a programming language, specifying an operation to be performed by a computer and the addresses or values of the associated operands; for example, Move A to B. *See also*: instruction set; instruction format. **(B) (software)** Loosely, any executable statement in a computer program. (C) 610.12-1990, 610.10-1994

(3) (A) A statement in a computer language; specifying an operation to be performed by a computer and the address or values of the associated operands; for example, MOVE A to B. *See also*: machine instruction; operation field; operand field; address field. **(B)** An instruction expressed in machine language. (C) 610.10-1994

computer instruction code A code used to represent the instruction within an instruction set. *See also*: machine code. (C) 610.10-1994w

computer instruction set The collection of computer instructions possible on a given computer. *Synonym*: machine instruction set. (C) 610.10-1994w

computer-integrated manufacturing (CIM) Use of an integrated system of computer-controlled manufacturing centers. The centers may use robotics, design automation, or CAD/CAM (computer-aided design/computer-aided manufacturing) technologies. *See also*: flexible manufacturing system. (C) 610.2-1987

computer interface equipment (1) (surge withstand capability) A device that interconnects a protective relay system to an independent computer, for example, an analog to digital converter, a scanner, a buffer amplifier. (PE/PSR) C37.90-1978s

(2) A device that interconnects a protective relay system to an independent computer, for example, a scanner or a buffer amplifier. (SWG/PE) C37.100-1992

computer interface unit A device used to connect peripheral devices with a computer. (C) 610.10-1994w

computerized axial tomography (CAT) *See*: computed tomography.

computerized healthcare information systems *See*: patient care information system.

computer language A language designed to enable humans to communicate with computers. *See also*: system profile; workload model; programming language; design language. (C) 610.12-1990

(2) (A) A language designed to enable humans to communicate with computers and computer systems. **(B)** A language that is used to control, design, or define a computer or computer program. (C) 610.13-1993, 610.10-1994

computer literacy An understanding of the capabilities, operation, and applications of computers. (C) 610.2-1987

computer-managed instruction (CMI) The use of computers for management of student progress. Activities may include record keeping, progress evaluation, and lesson assignment. *See also*: computer-based instruction. (C) 610.2-1987

computer network (1) (software) A complex consisting of two or more interconnected computers. *See also*: computer. (C/SE) [20], 729-1983s, [85]

(2) An interconnection of assemblies of computer systems, terminals and communications facilities. (LM/COM) 168-1956w

(3) A structured connection of computer systems and peripheral devices that exchange data as necessary to perform the specific function of the network. *See also*: hierarchical computer network; homogeneous computer network; heterogeneous computer network; centralized computer network; decentralized computer network; distributed computer network. (C) 610.7-1995, 610.10-1994w

computer network architecture The logical structure and the operating principles, including those concerning services, functions, and protocols, of a computer network. *Contrast*: computer architecture. (C) 610.7-1995, 610.10-1994w

computer numerical control (CNC) Numerical control in which one or more machines that produce manufactured parts are linked together via a single computer. (C) 610.2-1987

computer operation (A) An operation which can be performed by a computer with a single instruction. **(B)** An operation performed by a functional unit within a computer. For example: an instruction fetch, or an addition. *Synonym*: machine operation. (C) 610.10-1994

computer output microfilm (COM) The end result of a process that converts and records data from a computer directly to a microform. (C) 610.2-1987

computer output microfilmer A device for producing computer output microfilm. *Synonym*: COM device. (C) 610.2-1987

computer output microfilm printer A page printer that produces a microimage of each page on a photographic film.

(C) 610.10-1994w

computer performance evaluation (software) An engineering discipline that measures the performance of computer systems and investigates methods by which that performance can be improved. *See also:* throughput; utilization.

(C) 610.12-1990

computer program (1) (general) A plan or routine for solving a problem on a computer, as contrasted with such terms as fiscal program, military program, and development program.

(MIL/C) [2], [20], [85]

(2) (analog computer) That combination of computer diagram, potentiometer list, amplifier list, trunk list, switch list, scaled equations, and any other documentation that defines the analog configuration for the particular problem to be solved. This term sometimes is used to include the problem patch board as well, and, in some loose usage, the computer program may be (incorrectly) used to refer solely to the program patch panel.

(C) 165-1977w

(3) (programmable digital computer systems in safety systems of nuclear power generating stations) A schedule or plan that specifies actions that may or may not be taken, expressed in a form suitable for execution by a programmable digital computer.

7432-1982w

(4) (computer terminology) A combination of computer instructions and data definitions that enable computer hardware to perform computational or control functions. *See also:* software.

(C/SE) J-STD-016-1995, 610.12-1990, 610.5-1990w, 610.10-1994w

computer program abstract (software) A brief description of a computer program that provides sufficient information for potential users to determine the appropriateness of the program to their needs and resources.

(C) 610.12-1990

computer program annotation *See:* comment.

computer program certification *See:* certification.

computer program component* (CPC) *See:* computer software component.

* Deprecated.

computer program configuration identification *See:* configuration identification.

computer program configuration item (CPCI) *See:* computer software configuration item.

computer program development plan *See:* software development plan.

computer program validation *See:* validation.

computer program verification *See:* verification.

computer resource allocation The assignment of computer resources to current and waiting jobs; for example, the assignment of main memory, input/output devices, and auxiliary storage to jobs executing concurrently in a computer system. *See also:* dynamic resource allocation; storage allocation.

(C) 610.12-1990

computer resources The computer equipment, programs, documentation, services, facilities, supplies, and personnel available for a given purpose. *See also:* computer resource allocation.

(C) 610.12-1990, 610.10-1994w

computer security Protection of information, system resources, and system services through controls provided by hardware and software mechanisms, including access controls, user authentication mechanisms, and audit facilities.

(C/BA) 896.3-1993w

computer security object An information object used to maintain a condition of security in computerized environments. Examples include: representations of computer or communications systems resources, security label semantics, modes of operation for cryptographic algorithms, and one-way hashing functions.

(C/LM) 802.10g-1995

computer simulation A simulation of the operation of a computer. *See also:* computer-based simulation.

(C) 610.3-1989w

computer software *See:* software.

computer software component (CSC) A functionally or logically distinct part of a computer software configuration item, typically an aggregate of two or more software units.

(C) 610.12-1990

computer software configuration item (CSCI) An aggregation of software that is designated for configuration management and treated as a single entity in the configuration management process. *Contrast:* hardware configuration item. *See also:* configuration item.

(C) 610.12-1990

computer system (1) (software) A system containing one or more computers and associated software.

(C) 610.12-1990

(2) A system containing one or more computers, peripheral devices and associated software. *Synonym:* computing system.

(C) 610.7-1995, 610.10-1994w

Computer System Simulation II (CSS/II) A simulation language that is based on the concepts used in GPSS, but specialized for use in modeling computer systems.

(C) 610.13-1993w

computer time *See:* time.

computer typesetting (CTS) *See:* computer-aided typesetting.

computer variable (1) A dependent variable as represented on the computer. *See also:* time.

(C) 165-1977w

(2) (machine variable) *See also:* scale factor.

(C) 165-1977w

computer word (1) A sequence of bits or characters treated as a unit and capable of being stored in one computer location.

(C) [20], [85]

(2) A unit of storage, typically a set of bits, that is suitable for processing by a given computer; for example, two bytes. *Synonyms:* machine word; fullword. *See also:* double word; word.

(C) 610.10-1994w

(3) (computer terminology) *See also:* word.

(C) 610.5-1990w, 610.12-1990, 1084-1986w

computing center A facility designed to provide computer services to a variety of users through the operation of computers and auxiliary hardware and through services provided by the facility's staff.

(C) 610.12-1990

computing elements (analog computer) A computer component that performs a mathematical operation required for problem solution. It is shown explicitly in computer diagrams, or computer programs.

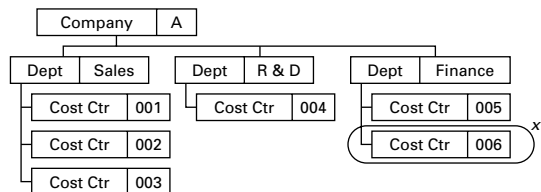
(C) 165-1977w

computing system *See:* computer system.

concatenate To append one item to the end of another so as to form a single unit in a contiguous pattern. For example, if we concatenate 'AP' with 'PLE,' the result is 'APPLE.' *Synonym:* catenate.

(C) 610.5-1990w

concatenated key (A) (data management) A key derived from the concatenation of two or more keys. *Synonyms:* multifield key; fully concatenated key. **(B) (data management)** A concatenation of the keys for the first N segments found in a hierarchical path. For example, in the structure below, the concatenated key for segment x is "AFINANCE006."



concatenated key

(C) 610.5-1990

concatenated transaction (1) A transaction where the request and response subactions are directly concatenated without a gap between the acknowledgment of the request and the response packet.

(C/MM) 1394-1995

(2) A split transaction comprised of concatenated subactions.

(C/MM) 1394a-2000

concatenation (fiber optics) (of optical waveguides) The linking of optical waveguides, end to end.

(Std100) 812-1984w

concave (image processing and pattern recognition) Pertaining to a region for which at least one straight line segment between two points of the region is not entirely contained within the region. *Contrast:* convex.

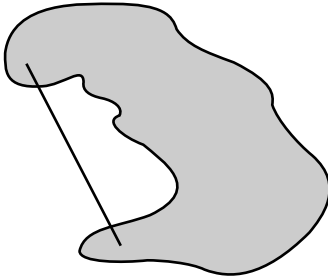


illustration of concave

(C) 610.4-1990w

concealed Rendered inaccessible by the structure or finish of the building. Wires in concealed raceways are considered concealed, even though they may become accessible by withdrawing them.

(NESC/NEC) [86]

concealed knob-and-tube wiring A wiring method using knobs, tubes, and flexible nonmetallic tubing for the protection and support of single insulated conductors concealed in hollow spaces of walls and ceilings of buildings.

(NESC/NEC) [86]

concentrate (metallurgy) The product obtained by concentrating disseminated or lean ores by mechanical or other processes thereby eliminating undesired minerals or constituents. *See also:* electrowinning.

(EEC/PE) [119]

concentrated winding (rotating machinery) A winding, the coils of which occupy one slot pole; or a field winding mounted on salient poles. *See also:* direct-current commutating machine; asynchronous machine.

(PE) [9]

concentration The quantity of radioactive material stated in terms of activity (or mass) per unit of volume or mass of a medium.

(NI) N42.23-1995

concentration cell (1) An electrolyte cell, the electromotive force of which is due to differences in composition of the electrolyte at anode and cathode areas.

(IA) [59]

(2) A cell of the two-fluid type in which the same dissolved substance is present in differing concentrations at the two electrodes. *See also:* electrochemistry.

(EEC/PE) [119]

concentration polarization (1) That part of the total polarization that is caused by changes in the activity of the potential-determining components of the electrolyte. *See also:* electrochemistry.

(EEC/PE) [119]

(2) That portion of the polarization of an electrode produced by concentration changes at the metal-environment interface.

(IA) [59]

concentrator (1) (telephone switching systems) A switching entity for connecting a number of inlets to a smaller number of outlets.

(COM) 312-1977w

(2) A device that provides communications capability between many low-speed, usually asynchronous channels and fewer high-speed, usually synchronous channels the sum of whose data rates is (usually) less than the sum of the data rates of the low-speed channels.

(LM/COM) 168-1956w

(3) (A) A device that combines incoming messages into a single message or that extracts individual messages from the data set in a single transmission sequence. *Note:* The former process is called "concentration" and the latter, "deconcentration." **(B)** A communications computer that provides communications capability between many low speed asynchronous channels and one or more high-speed synchronous channels. *See also:* multiplexer; data concentrator. **(C)** A device in token ring networks that contains multiple interconnected trunk coupling units.

(C) 610.7-1995, 610.10-1994

(4) A device that contains multiple interconnected trunk coupling units (TCUs). The concentrator contains two ports, referred to as *ring in* and *ring out*, to interface trunk cable.

(C/LM) 8802-5-1998

concentrator concentric electrode system (coaxial electrode system) (electrobiology) An electrode system that is geometrically coaxial but electrically unsymmetrical. Example: One electrode may have the form of a cylindrical shell about the other so as to afford electrical shielding. *See also:* electrobiology.

(EMB) [47]

concentricity error (fiber optics) When used in conjunction with a tolerance field to specify core/cladding geometry, the distance between the center of the two concentric circles specifying the cladding diameter and the center of the two concentric circles specifying the core diameter. *See also:* core diameter; cladding diameter; tolerance field; core; cladding.

(Std100) 812-1984w

concentricity of coaxial connectors (fixed and variable attenuators) Total indicator runout between the diameter of outer conductor and that diameter of that portion of inner conductor which engages with the corresponding diameters of mating connector. *Note:* This does not apply to precision connectors with only butt contacts.

(IM/HFIM) 474-1973w

concentric-lay cable A multiple-conductor cable composed of a central core surrounded by one or more layers of helically laid insulated conductors. *See also:* concentric-lay conductor.

(T&D/PE) [10]

concentric-lay conductor A conductor composed of a central core surrounded by one or more layers of helically laid wires. *Note:* In the most common type of concentric-lay conductor, all wires are of the same size and the central core is a single wire. *See also:* conductor.

(T&D/PE) [10]

concentric resonator (laser maser) A beam resonator comprising a pair of spherical mirrors having the same axis of rotational symmetry and positioned so that their centers of curvature coincide on this axis.

(LEO) 586-1980w

concentric winding (rotating machinery) A winding in which the two coil sides of each coil of a phase belt, or of a pole of a field winding, are symmetrically located so as to be equidistant from a common axis. *See also:* asynchronous machine.

(PE) [9]

concentric windings (power and distribution transformers) (of a transformer) An arrangement of transformer windings where the primary and secondary windings, and the tertiary winding, if any, are located in radial progression about a common core.

(PE/TR) C57.12.80-1978r

concentric-wound relay coil A coil with two or more insulated windings, wound one over the other.

(EEC/REE) [87]

concept A unit of thought constituted through abstraction on the basis of characteristics common to a group of entities.

(SCC32) 1489-1999

concept analysis The derivation of a system concept through the application of analysis. *See also:* analysis.

(C/SE) 1362-1998

concept level The level of verification activities at which vital functions and vital implementation requirements, imposed on the system's design and implementation by the safety assurance concept selected, are determined and identified.

(VT/RT) 1483-2000

concept of operations document (ConOps document) A user-oriented document that describes a system's operational characteristics from the end user's viewpoint. *Synonym:* operational concept description.

(C/SE) 1362-1998

concept phase (software) The period of time in the software development cycle during which the user needs are described and evaluated through documentation (for example, statement of needs, advance planning report, project initiation memo, feasibility studies, system definition, documentation, regulations, procedures, or policies relevant to the project).

(C/SE) 1012-1986s, 610.12-1990, 982.1-1988, 982.2-1988

conceptual data definition language A data definition language used to describe the format layout and contents of all data stored in a database, the result of which is a conceptual schema. *Note:* May also include authorization levels and validation procedures. (C) 610.5-1990w

conceptual design The process of developing a conceptual schema for a database. (C) 610.5-1990w

conceptual model (1) A simulation implementation-independent representation of the exercise architect's understanding of the exercise objectives, requirements, and environment. The model includes logic and algorithms and explicitly recognizes assumptions and limitations. (C/DIS) 1278.4-1997
(2) A model of the concepts relevant to some endeavor. (C/SE) 1320.2-1998

conceptual population (results from a measurement process) The set of measurements that would result from infinite repetition of a measurement process in a state of statistical control. (IM) 470-1972w

conceptual record A record within a conceptual view. (C) 610.5-1990w

conceptual schema (A) A description of the format and layout of the entire data contents of a database. *Note:* The schema is written using a conceptual data definition language. It may include authorization levels and validation procedures.
(B) The comprehensive, logical description of the information environment in which an enterprise exists, free of both the physical structure and application systems considerations. *Synonym:* enterprise view; conceptual model. *Contrast:* internal schema; external view. (C) 610.5-1990

conceptual switch A circuit feature, acting under the control of a digital control signal, that allows two circuit nodes to be electrically connected or isolated, as though there were a switch between them. *Note:* Depending on physical constraints, such as size, power consumption, and electrical characteristics, it may be possible in any particular application to implement all, some, or none of the conceptual switches by conventional complimentary metal oxide silicon (CMOS) transmission gates. *See also:* switch. (C/TT) 1149.4-1999

conceptual view The format and layout of the entire data content of a database, as described in a conceptual schema. *Note:* There may be many external views of a database, but only one conceptual view. (C) 610.5-1990w

concrete A class, instances of which are permitted either by direct instantiation or the instantiation of its concrete subclasses. (C/PA) 1328-1993w, 1224.1-1993w, 1327-1993w, 1238.1-1994w, 1224-1993w

concrete class (1) An OM class of which instances are permitted. (C/PA) 1328.2-1993w, 1326.2-1993w, 1327.2-1993w, 1224.2-1993w
(2) A class, instances of which are permitted either by direct instantiation or the instantiation of its concrete subclasses. (C/PA) 1327-1993w, 1224.1-1993w, 1328-1993w, 1224-1993w, 1238.1-1994w

concrete-encased ground electrode A grounding electrode completely encased within concrete, located within, and near the bottom of, a concrete foundation or footing or pad, that is in direct contact with the earth. *Synonym:* ufer ground. (IA/PSE) 1100-1999

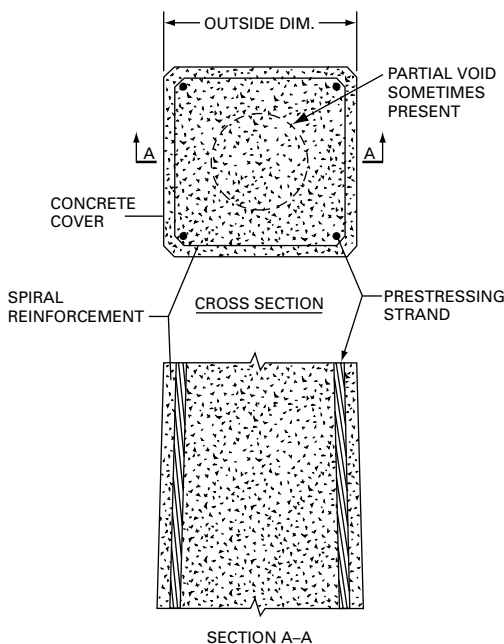
concrete model A model in which at least one component represented is a tangible object; for example, a physical replica of a building. (C) 610.3-1989w

concrete pole structures Structures consisting of one or more concrete poles. Other members of the structure may be reinforced concrete or other materials (i.e., wood, steel, aluminum). These structures are prefabricated, as opposed to being cast-in-place. Concrete pole structures may be manufactured in a variety of ways. A few examples are: Hollow or solid members; Different cross-sectional shape (i.e., round or square); Spun or statically cast (see figure below); Pretensioned, posttensioned, or nontensioned reinforcing steel; and Single-piece or multipiece poles. Combination of the above may be used to achieve the desired results (see figure below).

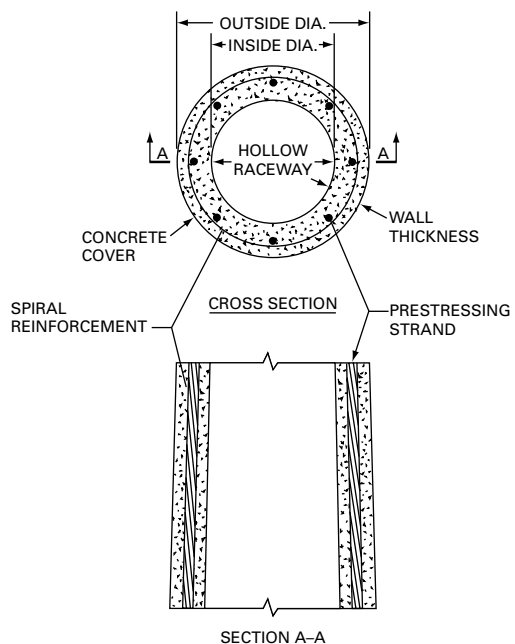
(T&D/PE) 1025-1993r

concrete quantity *See:* physical quantity.

STATIC CAST CONCRETE POLE



SPUN CAST CONCRETE POLE



various concrete pole sections

concrete-tight fitting (for conduit) A fitting so constructed that embedment in freshly mixed concrete will not result in the entrance of cement into the fitting. (EEC/REWS) [113]

concurrency The process of multiple users accessing and manipulating a data item simultaneously, with the data-base management system linking the transaction of each user so that the access appears to be sequential.

(PE/EDPG) 1150-1991w

concurrent (software) Pertaining to the occurrence of two or more activities within the same interval of time, achieved either by interleaving the activities or by simultaneous execution. *Synonym*: parallel. *Contrast*: simultaneous.

(C) 610.12-1990

concurrent bus operation In dual bus systems, "concurrent bus operation capable" describes buses capable of conducting simultaneous unrelated bus transactions. "Non-concurrent bus operation capable" describes buses capable of conducting a transaction on only one bus at a time. (C/BA) 14536-1995

concurrent engineering The simultaneous engineering of products and life cycle processes to ensure usability, producibility, and supportability, and to control life cycle and total ownership costs. (C/SE) 1220-1998

concurrent execution Functions that suspend the execution of the calling thread shall not cause the execution of other threads to be indefinitely suspended. (C/PA) 9945-1-1996

concurrent processes (software) Processes that may execute in parallel on multiple processors or asynchronously on a single processor. Concurrent processes may interact with each other, and one process may suspend execution pending receipt of information from another process or the occurrence of an external event. *See also*: sequential processes; execution. (C/SE) 729-1983s

concurrent reorganization (data management) Database reorganization in which users have access to the reorganized portion of the database while one or more reorganization processes are modifying other portions of the database.

(C) 610.5-1990w

condensed-mercury temperature (mercury-vapor tube) The temperature measured on the outside of the tube envelope in the region where the mercury is condensing in a glass tube or at a designated point on a metal tube. *See also*: gas tube. (ED) [45]

condenser *See*: capacitor; fuse condenser.

condenser antenna *See*: capacitor antenna.

condenser box *See*: subdivided capacitor.

condenser bushing *See*: capacitor bushing.

condenser loudspeaker *See*: electrostatic loudspeaker.

condenser microphone *See*: electrostatic microphone.

condition (1) (modeling and simulation) The values assumed at a given instant by the variables in a system, model, or simulation. *See also*: initial condition; boundary condition; state; final condition. (C) 610.3-1989w

(2) (data management) *See also*: item condition; record condition; atomic condition. (C) 610.5-1990w

(3) *See also*: initial condition. (C)

condition adverse to quality An all-inclusive term used in reference to any of the following: failures, malfunctions, deficiencies, defective items and non-conformances. A significant condition adverse to quality is one which, if uncorrected, could have a serious effect on safety, quality, or operability. (NI/PE/NP) N42.23-1995, [124]

conditional branch* *See*: conditional jump.

* Deprecated.

conditional branch instruction A branch instruction that specifies conditions and, if those conditions are met, changes the program flow to a new location. *See also*: branch instruction; conditional jump instruction. (C) 610.10-1994w

condition code register A flag register used to hold the status bits used to decide conditional branches. *Note*: These bits generally include: zero, negative, and overflow.

(C) 610.10-1994w

conditional control structure A programming control structure that allows alternative flow of control in a program depending upon the fulfillment of specified conditions, for example, case, if. . .then. . .else. . . . *See also*: program; flow of control; case; control structure. (C/SE) 729-1983s

conditional control transfer instruction *See*: conditional jump instruction.

conditional event A sequentially dependent event that will occur only if some other event has already taken place. *See also*: time-dependent event. (C) 610.3-1989w

conditional feature A feature or behavior referred to in a POSIX standard that need not be present on all conforming implementations. (C/PA) 13210-1994, 2003.1-1992

conditional implication *See*: implication.

conditional jump (1) To cause, or an instruction that causes, the proper one of two (or more) addresses to be used in obtaining the next instruction, depending upon some property of one or more numerical expressions or other conditions. *Synonym*: branch. *See also*: jump. (C) 162-1963w

(2) (software) A jump that takes place only when specified conditions are met. *Contrast*: unconditional jump.

(C) 610.12-1990

conditional jump instruction A jump instruction that specifies conditions and, if those conditions are met, changes program flow to a new location. *Contrast*: unconditional jump instruction. *See also*: conditional branch instruction.

(C) 610.10-1994w

conditionally invalid date-component value A date-component value that is improperly produced or improperly accepted by a system element dependent on other date-component values. *Note*: In the Gregorian calendar, the following are the conditionally invalid date-component values for dates following the adoption of the calendar:

- Values of the day-of-month equal to 29, 30, or 31 in February in years that are not leap years.
- Values of the day-of-month equal to 30 or 31 in February in years that are leap years.
- Values of the day-of-month equal to 31 in April, June, September, and November.
- Values of the day-of-year equal to 366 in years that are not leap years.

Normalization of invalid date-component values to valid date-component values does not constitute improper acceptance of a date-component. (C/PA) 2000.1-1999

conditional stability (linear feedback control system) A property such that the system is stable for prescribed operating values of the frequency-invariant factor of the loop gain and becomes unstable not only for higher values, but also for some lower values. *See also*: feedback control system.

(PE/EDPG) 421A-1978s

conditional transfer instruction *See*: conditional jump instruction.

condition code *See*: status code.

conditioning (1) The addition of equipment to or selection of communication facilities to provide the performance characteristics required for certain types of data transmission.

(LM/COM) 168-1956w

(2) (replacement parts for Class 1E equipment in nuclear power generating stations) Any additional work or process imposed upon a part that makes it different from nominally similar parts. *Note*: Conditioning may include calibration, adjustment, tuning, selection testing, "burn-in," heat treatment, machining, and similar processes. For example, if several parts are selected to test one that displays a special characteristic, the selected part is conditioned because it then displays a characteristic that makes it unique from parts with the same nominal description. (PE/NP) 934-1987w

(3) In telecommunication, a means to improve the performance of a line by reducing distortion and amplifying weak signals. For example, in telecommunication, line conditioning will bring attenuation, impedance, and delay characteristics

to within set limits. *Synonym:* line conditioning. *See also:* D conditioning; C conditioning. (C) 610.7-1995

conditioning stimulus (medical electronics) A stimulus of given configuration applied to a tissue before a test stimulus. (EMB) [47]

condition monitoring Observation, measurement, or trending of condition or functional indicators with respect to some independent parameter (usually time or cycles) to indicate the current and future ability to function within acceptance criteria. (PE/NP) 933-1999

condition variable (1) A synchronization object that allows a thread to suspend execution, repeatedly, until some associated predicate becomes true. A thread whose execution is suspended on a condition variable is said to be *blocked* on the condition variable. (C/PA) 9945-1-1996

(2) A synchronization object that allows a task to become blocked until it is unblocked by some event. The unblocking may occur spontaneously or as a result of a timeout or another task performing a condition-signaling operation on the condition variable. In use, condition variables are always associated with mutexes. (C) 1003.5-1999

Condition Variable Service An instance of the class IEEE1451.1.ConditionVariableService or of a subclass thereof. (IM/ST) 1451.1-1999

conductance (A) That physical property of an element, device, branch, network or system, that is the factor by which the mean square voltage must be multiplied to give the corresponding power lost by dissipation as heat or as other permanent radiation or loss of electromagnetic energy from the circuit. **(B)** The real part of admittance. *Note:* (A) and (B) are not equivalent but are supplementary. In any case where confusion may arise, specify the definition being used. (IM/HFIM) [40]

conductance coupling (interference terminology) The type of coupling in which the mechanism is conductance between the interference source and the signal system. *See also:* raceway; interference.

conductance, electrode *See:* electrode conductance.

conductance for rectification (electron tube) The quotient of (A) the electrode alternating current of low frequency by (B) the in-phase component of the electrode alternating voltage of low frequency, a high frequency sinusoidal voltage being applied to the same or another electrode and all other electrode voltages being maintained constant. *See also:* rectification factor. (ED) [45]

conductance relay A mho relay for which the center of the operating characteristic on the *R-X* diagram is on the *R*-axis. *Note:* The equation that describes such a characteristic is $Z - K \cos \theta$

where *K* is a constant and θ is the phase angle by which the input voltage leads the input current.

(SWG/PE) C37.100-1992

conducted emissions test site A site meeting specified requirements suitable for measuring radio interference voltages and currents emitted by an equipment under test (EUT).

(EMC) C63.4-1991

conducted heat The thermal energy transported by thermal conduction. *See also:* thermoelectric device. (ED) [46]

conducted interference Interference resulting from conducted radio noise or unwanted radio signals entering a transducer (receiver) by direct coupling. *See also:* electromagnetic compatibility. (EMC/T&D/PE) [53], 539-1990

conducted radio noise (1) Radio noise produced by equipment operation, which exists on the power line of the equipment and is measurable under specified conditions as a voltage or current. (EMC) C63.4-1988s

(2) Radio noise propagated along circuit conductors. *Note:* It may enter a transducer (receiver) by direct coupling or by an antenna as by subsequent radiation from some circuit element. *See also:* electromagnetic compatibility. (EMC) [53]

(3) (overhead power lines) Radio noise that is propagated by conduction from a source through electrical connections.

(T&D/PE) 539-1990

conducted spurious emission power (land-mobile communications transmitters) Any part of the spurious emission power output conducted over a tangible transmission path. Radiation is not considered a tangible path.

(EMC) 377-1980r

conducted spurious transmitter output (land-mobile communications transmitters) Any spurious output of a radio transmitter conducted over a tangible transmission path. *Note:* Power lines, control leads, radio frequency transmission lines and waveguides are all considered as tangible paths in the foregoing definition. Radiation is not considered a tangible path in this definition. (EMC) 377-1980r

conducting (conduction) period (1) (rectifier circuit element) (semiconductor) That part of an alternating voltage cycle during which the current flows in the forward direction. *Note:* The forward period is not necessarily the same as the conducting period because of circuit parameters and semiconductor rectifier diode characteristics. (IA) [12]

(2) (gas tube) That part of an alternating-voltage cycle during which a certain arc path is carrying current. (ED) [45]

conducting element (of a fuse) The conducting means, including the current-responsive element, for completing the electric circuit between the terminals of a fuse-holder or fuse unit. *Synonym:* fuse link.

(SWG/PE) C37.100-1992, C37.40-1993

conducting ground plane A conducting flat surface or plate that is used as a common reference point for circuit returns and electric or signal potentials, and that reflects electromagnetic waves. (EMC) C63.4-1991

conducting interval (self-commutated converters) (circuit properties) An interval during which the principal current flows through a blocking element. (IA/SPC) 936-1987w

conducting material A material, such as a metal, that has a very large number of free electrons that can easily be put into motion to create an electric current. *Contrast:* insulating material; semiconducting material. (C) 610.10-1994w

conducting mechanical joint The juncture of two or more conducting surfaces held together by mechanical means. *Note:* Parts jointed by fusion processes, such as welding, brazing, or soldering, are excluded from this definition.

(SWG/PE) C37.100-1992

conducting paint (rotating machinery) A paint in which the pigment or a portion of pigment is a conductor of electricity and the composition is such that when it is converted to a solid film, the electric conductivity of the film approaches that of metallic substances. (PE) [9]

conducting parts The parts that are designed to carry current or that are conductively connected therewith.

(IA/ICTL/IAC) [60]

conducting salts Salts that, when added to a plating solution, materially increase its conductivity. *See also:* electroplating. (EEC/PE) [119]

conduction band (semiconductor) A range of states in the energy spectrum of a solid in which electrons can move freely. *See also:* semiconductor. (ED) 216-1960w

conduction current (I_C) (1) (A) The component of the measured current in phase with the applied voltage that is delivered to the volume of the tool or equipment, due to the physical resistance of the material comprising the tool or equipment. **(B) (electric submersible pump cable) (leakage current)** Current resulting from conduction through the cable insulating medium or over surfaces. Corona discharge from external energized elements will be indicated as conduction current.

(IA/PE/T&D/PC/IC) 1017-1985, 516-1995, 400-1991

(2) Current in the specimen under steady-state conditions. *Notes:* 1. This is sometimes called "leakage" current. 2. Absorption and capacitive effects are assumed to have been made negligible under steady-state conditions. 3. Surface

leakage current is assumed excluded from the measured current. (PE) 402-1974w

(3) A current that is constant in time, that passes through the bulk insulation from the grounded surface to the high-voltage conductor, and that depends on the type of bonding material used in the insulation system. (PE/EM) 43-2000

conduction electrons (semiconductor) The electrons in the conduction band of a solid that are free to move under the influence of an electric field. *See also:* semiconductor.

(AES) [41]

conduction-through (thyristor converter) The failure to achieve forward blocking, during inverter operation, of an arm of a thyristor connection at the end of the normally conducting period, thus enabling the direct current to continue to pass during the period when the thyristor is normally in the off state. *Note:* A conduction-through occurs, for example, when the margin angle is too small or because of a misgating in the succeeding arm. (IA/IPC) 444-1973w

conductive (health care facilities) Adjective describing not only those materials, such as metals, which are commonly considered as electrically conductive, but also that class of materials which, when tested in accordance with NFPA standard 56A, 1978, have a resistance not exceeding 1 000 000 ohms. Such materials are required where electrostatic interconnection is necessary. (EMB) [47]

conductive clothing Clothing made of natural or synthetic material that is either conductive or interwoven with conductive thread to provide mitigation of effects of the electric fields of high-voltage energized electrical conductors and equipment.

(T&D/PE) 516-1995

conductive coating (rotating machinery) Conducting paint applied to the slot portion of a coil-side, to carry capacitive and leakage currents harmlessly between insulation and grounded iron. (PE) [9]

conductive coupling (1) (overhead power lines) The process of generating voltages and/or currents in conductive objects and electric circuits, otherwise unenergized, due to deposition of charge. (T&D/PE) 539-1990

(2) **(interference terminology)** *See also:* coupling; conductance coupling.

conductive heat release The energy released from a burning material to whatever is in direct contact with it.

(DEI) 1221-1993w

conductivity (σ) (1) (material) A factor such that the conduction-current density is equal to the electric-field intensity in the material multiplied by the conductivity. *Note:* In the general case it is a complex tensor quantity. *See also:* transmission line. (IM/HFIM) [40]

(2) A macroscopic material property that relates the conduction current density (J) to the electric field (\vec{E}) in the medium. *Note:* For a monochromatic wave in a linear medium, that relationship is described by the (phasor) equation:

$$\vec{J} = \sigma = \cdot \vec{E}$$

where

$\sigma =$ a tensor, generally frequency dependent

$\vec{J} =$ in phase with \vec{E}

For an isotropic medium, the tensor conductivity reduces to a complex scalar conductivity σ , in which case $\vec{J} = \sigma \vec{E}$.

(AP/PROP) 211-1997

conductivity chamber An instrument that determines the conductivity of the air. (T&D/PE) 539-1990

conductivity in physical media The real part of the complex conductivity. *See also:* complex permittivity.

(AP/ANT) 145-1983s

conductivity modulation (semiconductor) The variation of the conductivity of a semiconductor by variation of the charge-carrier density. *See also:* semiconductor device; semiconductor. (ED) 216-1960w

conductivity-modulation transistor A transistor in which the active properties are derived from minority-carrier modulation of the bulk resistivity of a semiconductor. *See also:* semiconductor; transistor. (ED) 216-1960w

conductivity, *n*-type (semiconductor) The conductivity associated with conduction electrons in a semiconductor. *See also:* semiconductor. (ED) 216-1960w

conductivity, *p*-type (semiconductor) The conductivity associated with holes in a semiconductor. *See also:* semiconductor. (AES/IA/ED) [41], [12], 270-1966w, 216-1960w

conductivity, thermal *See:* thermal conductivity.

conductor (1) (A) (general) A substance or body that allows a current of electricity to pass continuously along it. **(B) (general)** The portion of a lightning-protection system designed to carry the lightning discharge between air terminal and ground. (PE/NFPA) [9], [114]

(2) A material, usually in the form of a wire, cable, or bus bar, suitable for carrying an electric current. *See also:* open conductor; bundled conductor; covered conductor; grounded conductor; lateral conductor; insulated conductor; grounding conductor. (NESC/T&D) C2-1997, C2.2-1960

(3) **(power line maintenance)** A wire or combination of wires not insulated from one another, suitable for carrying an electrical current. However, it may be bare or insulated. *Synonyms:* wire; cable.

(T&D/PE) 524a-1993r, 30-1937w, 516-1995, 524-1992r, 1048-1990

(4) **(substation grounding)** A metallic substance that allows a current of electricity to pass continuously along it. As used in IEEE Std 837-1989, a conductor includes cable (wire), rods (electrodes), and metallic structures. (SUB/PE) 837-1989r

(5) A device made from conducting material; for example, a metal wire. (C) 610.10-1994w

conductor, bare *See:* bare conductor.

conductor car (conductor stringing equipment) A device designed to carry workmen and ride on sagged bundle conductors, thus enabling them to inspect the conductors for damage and install spacers and dampers where required. These devices may be manual or powered. *Synonyms:* cable buggy; cable car; spacer cart; spacing bicycle; spacer buggy.

(PE/T&D) 524-1992r

conductor, coaxial *See:* coaxial conductor.

conductor combination (substation grounding) The various conductors that may be joined by a connector.

(SUB/PE) 837-1989r

conductor-cooled (rotating machinery) A term referring to windings in which coolant flows in close contact with the conductors so that the heat generated within the principal portion of the windings reaches the cooling medium without flowing through the major ground insulation. (Std100) [84]

conductor cover Electrical protection equipment designed specifically to cover conductors *Synonyms:* hose; hard cover; eel; snake. *See also:* cover-up equipment. (T&D/PE) 516-1995

conductor, covered *See:* covered conductor.

conductor current connection interface The connection for transfer of conductor current from the GIS conductor to the cable termination. (PE/IC) 1300-1996

conductor grip A device designed to permit the pulling of a conductor without splicing on fittings, eyes, etc. It permits the pulling of a continuous conductor where threading is not possible. The designs of these grips vary considerably. Grips such as the Klein (Chicago) and Crescent utilize an open-sided, rigid body with opposing jaws and swing latch. In addition to pulling conductors, this type of grip is commonly used to tension guys and, in some cases, to pull wire rope. The design of the come-along (pocket-book, suitcase, four bolt, etc.) incorporates a bail attached to the body of a clamp that folds to completely surround and envelop the conductor. Bolts are then used to close the clamp and obtain a grip *Synonyms:* buffalo; six bolt; crescent; Kellm grip; four bolt; Kellm; Klein; seven bolt; suitcase; slip-grip; grip; pocketbook; Chicago grip; come-along. *See also:* conductor grip.

(T&D/PE) 524a-1993r, 524-1992r, 516-1995

conductor hook *See:* conductor lifting hook.

conductor insulation (rotating machinery) The insulation on a conductor or between adjacent conductors. (PE) [9]

conductor lifting hook (power line maintenance) A device resembling an open boxing glove designed to permit the lifting of conductors from a position above the conductors. Normally used during clipping-in operations. Suspension clamps are sometimes used for this purpose.

(T&D/PE) 516-1987s

conductor loading (mechanical) The combined load per unit length of a conductor due to the weight of the wire plus the wind and ice loads. *See also:* tower. (T&D/PE) [10]

conductor-loop resistance (telephone switching systems) The series resistance of the conductors of a line or trunk loop, excluding terminal equipment or apparatus.

(COM) 312-1977w

conductor loss That contribution to the attenuation constant of a propagating mode on a planar transmission line that represents losses attributed to the finite conductivity of the conductors involved. (MTT) 1004-1987w

conductor payout station *See:* tension site.

conductor safety A sling arranged in a vertical basket configuration, with both ends attached to the supporting structure and passed under the clipped-in conductor(s). These devices, when used, are normally utilized with bundled conductors to act as a safety device in case of insulator failure while workers in conductor cars are installing spacers between the subconductors, or as an added safety measure when crossing above energized circuits. These devices may be fabricated from synthetic fiber rope or wire rope. (T&D/PE) 524-1992r

conductor shielding (1) (power distribution, underground cables) A conducting or semiconducting element in direct contact with the conductor and in intimate contact with the inner surface of the insulation so that the potential of this element is the same as the conductor. Its function is to eliminate ionizable voids at the conductor and provide uniform voltage stress at the inner surface of the insulating wall.

(PE) [4]

(2) **(cable systems)** A conducting material applied in manufacture directly over the surface of the conductor and firmly bonded to the inner surface of the insulation.

(PE/EDPG) 422-1977

(3) An envelope that encloses the conductor of a cable and provides an equipotential surface in contact with the cable insulation. (NESC) C2-1997

conductor splice *See:* compression joint.

conductor support box A box that is inserted in a vertical run of raceway to give access to the conductors for the purpose of providing supports for them. *See also:* cabinet.

(EEC/PE) [119]

conductor temperature (1) (electrical heat tracing for industrial applications) The temperature of the heat-producing element.

(BT/AV) 152-1953s

(2) The temperature of a conductor. *Note:* The conductor is assumed to be isothermal (i.e., no axial or radial temperature variation) for all steady-state calculations and for all transient calculations where the time period of interest exceeds 1 min or the conductor consists of a single material. With transient calculations for times less than 1 min with nonhomogeneous ACSR conductors (i.e., aluminum conductor steel reinforced), the aluminum strands are isothermal; but the heat capacity of the steel core is assumed to be zero.

(T&D/PE) 738-1993

conduit (1) (aircraft) An enclosure used for the radio shielding or the mechanical protection of electric wiring in an aircraft. *Note:* It may consist of either rigid or flexible, metallic or nonmetallic tubing. Conduit differs from pipe and metallic tubing in that it is not normally used to conduct liquids or gases. *See also:* flexible metal conduit; rigid metal conduit.

(EEC/PE) [119]

(2) **(packaging machinery)** A tubular raceway for holding wires or cables, which is designed expressly for, and used solely for, this purpose. (IA/PKG) 333-1980w

(3) A structure containing one or more ducts. *Note:* Conduit may be designated as iron-pipe conduit, tile conduit, etc. If it contains only one duct it is called *single-duct conduit*; if it contains more than one duct it is called *multiple-duct conduit*, usually with the number of ducts as a prefix, for example, *two-duct multiple conduit*.

(NESC/T&D/PE) C2-1997, C2.2-1960, [10]

conduit body A separate portion of a conduit or tubing system that provides access through a removable cover(s) to the interior of the system at a junction of two or more sections of the system or at a terminal point of the system.

(NESC/NEC) [86]

conduit fitting An accessory that serves to complete a conduit system, such as bushings and access fittings. *See also:* raceway.

(EEC/REWS) [113]

conduit knockout *See:* knockout.

conduit run *See:* duct bank.

conduit system (raceway systems for Class 1E circuits for nuclear power generating stations) Any assembly of conduit sections, fittings, supports, anchorages, and accessories that form a structural system to support wire and cable. .

(PE/NP) 628-1987r

(2) Any combination of duct, conduit, conduits, manholes, handholes, and vaults joined to form an integrated whole.

(NESC) C2-1997

cone (1) (cathode-ray tubes) The divergent part of the envelope of the tube. *See also:* cathode-ray tube. (ED) [45]

(2) **(vision)** Retinal elements that are primarily concerned with the perception of detail and color by the light-adapted eye. *See also:* retina. (EEC/IE) [126]

cone of ambiguity (navigation aid terms) A generally conical volume of airspace above a navigation aid within which navigational information from that facility is unreliable.

(AES/GCS) 172-1983w

cone of nulls A conical surface formed by directions of negligible radiation. *See also:* antenna. (AP/ANT) [35]

cone of protection (lightning) The space enclosed by a cone formed with its apex at the highest point of a lightning rod or protecting tower, the diameter of the base of the cone having a definite relation to the height of the rod or tower. *Note:* This relation depends on the height of the rod and the height of the cloud above the earth. The higher the cloud, the larger the radius of the base of the protecting cone. The ratio of radius of base to height varies approximately from one to two. When overhead ground wires are used, the space protected is called a zone of protection or protected zone.

(T&D/PE) [10]

cone of silence (navigation aid terms) A conically shaped region above an antenna where the field strength is relatively weak because of the configuration of the antenna system.

(AES/GCS) 172-1983w

cone, leader *See:* leader cone.

cones (illuminating engineering) Retinal receptors which dominate the retinal response when the luminance level is high and provide the basis for the perception of color.

(EEC/IE) [126]

conference call (telephone switching systems) A call in which communication is provided among more than two main stations.

(COM) 312-1977w

conference connection A special connection for a telephone conversation among more than two stations.

(EEC/PE) [119]

Conférence Internationale Des Grands Réseaux Electriques An international organization concerned with large high voltage electric power systems. (PE) 599-1985w

Conference on Data Systems Languages (CODASYL) An organization that establishes industry standards for database structures. (C) 610.5-1990w

confidence limit The uncertainty associated with the estimate of a time- or frequency-domain instability measure from a finite number of measurements. (SCC27) 1139-1999

confidence test (test, measurement, and diagnostic equipment) A test primarily performed to provide a high degree of certainty that the unit under test is operating acceptably.

(MIL) [2]

confidence tester (test, measurement, and diagnostic equipment) Any test equipment, either automatic, semiautomatic, or manual, which is used expressly for performing a test or series of tests to increase the degree of certainty that the unit under test is operating acceptably.

(MIL) [2]

confidentiality The property of information that is not made available or disclosed to unauthorized individuals, entities, or processes.

(C/LM) 8802-11-1999

Configurable Startup Set A Component Group Object owned by an NCAP Block Object for use in bringing the system to a known state.

(IM/ST) 1451.1-1999

configuration (1) (A) (software) The arrangement of a computer system or component as defined by the number, nature, and interconnections of its constituent parts. **(B) (software)** In configuration management, the functional and physical characteristics of hardware or software as set forth in technical documentation or achieved in a product. *See also:* version. **(C)** The physical and logical elements of an information processing system, the manner in which they are organized and connected, or both. *Note:* May refer to hardware configuration or software configuration.

(C) 610.7-1995, 610.12-1990, 610.10-1994

(2) A collection of capability modules. (C/MM) 855-1990

(3) A process often synonymous with commissioning. Often includes the selection of attributes of an object that change its appearance or performance characteristics as opposed to its communication properties.

(IM/ST) 1451.1-1999

configuration audit *See:* physical configuration audit; functional configuration audit.

configuration baseline The configuration at a point in time recorded in documentation that fully describes the functional, performance, usability, interface requirement, and design characteristics, as appropriate to the stage of the life cycle.

(C/SE) 1220-1998

configuration control (software) An element of configuration management, consisting of the evaluation, coordination, approval or disapproval, and implementation of changes to configuration items after formal establishment of their configuration identification. *Synonym:* change control. *Contrast:* configuration status accounting; configuration identification. *See also:* engineering change; interface control; notice of revision; waiver; configuration item; deviation; specification change notice.

(C) 610.12-1990

configuration control board (software) A group of people responsible for evaluating and approving or disapproving proposed changes to configuration items, and for ensuring implementation of approved changes. *Synonym:* change control board. *See also:* configuration control.

(C) 610.12-1990

configuration control function The function that ensures that the resources of all *nodes* of a DQDB *subnetwork* are configured into a correct Dual Bus topology. The resources that are managed are the Head of Bus function, the *External Timing Source function*, and the *Default Slot Generator function*.

(LM/C) 8802-6-1994

configuration diagram *See:* block diagram.

configuration factor (illuminating engineering) The ratio of illuminance on a surface at point 2 (due to flux directly received from lambertian surface 1) to the exitance of surface 1. It is used in flux transfer theory $C_{1-2} = (E_2)/(M_1)$.

(EEC/IE) [126]

configuration identification (A) (software) An element of configuration management, consisting of selecting the configuration items for a system and recording their functional and physical characteristics in technical documentation. *Contrast:* configuration status accounting; configuration control. **(B) (software)** The current approved technical documentation for a configuration item as set forth in specifications, drawings, associated lists, and documents referenced therein. *See*

also: functional configuration identification; allocated configuration identification; product configuration identification; baseline.

(C) 610.12-1990

configuration index A document used in configuration management, providing an accounting of the configuration items that make up a product. *See also:* configuration item development record; configuration status accounting.

(C) 610.12-1990

configuration information The data or information that defines the operational limits and characteristics of a particular device. Depending on the device, this information is either manually downloaded into NVRAM or EEPROM, or is pre-programmed into EPROM.

(PE/SUB) 1379-1997

configuration item (software) An aggregation of hardware, software, or both, that is designated for configuration management and treated as a single entity in the configuration management process. *See also:* configuration identification; hardware configuration item; critical item; computer software configuration item.

(C) 610.12-1990

configuration item development record A document used in configuration management, describing the development status of a configuration item based on the results of configuration audits and design reviews. *See also:* configuration index; configuration status accounting.

(C) 610.12-1990

configuration management (1) (software) A discipline applying technical and administrative direction and surveillance to: identify and document the functional and physical characteristics of a configuration item, control changes to those characteristics, record and report change processing and implementation status, and verify compliance with specified requirements. *See also:* configuration control; configuration status accounting; configuration audit; configuration identification; baseline.

(C) 610.12-1990

(2) In networking, a management function that identifies, controls, collects data from, and provides data to, open network systems.

(C) 610.7-1995

configuration registers A device's A16 registers that are required for the system configuration process.

(C/MM) 1155-1992

configuration report server (CRS) A function that monitors and controls the stations of the ring. It receives configuration information from the stations on the ring and either forwards it to the network manager or uses it to maintain a configuration of the ring. It can also, when requested by a network manager, check the status of stations on the ring, change operational parameters of stations on the ring, and request that a station remove itself from the ring.

(C/LM) 8802-5-1998

configuration status accounting (software) An element of configuration management, consisting of the recording and reporting of information needed to manage a configuration effectively. This information includes a listing of the approved configuration identification, the status of proposed changes to the configuration, and the implementation status of approved changes. *Contrast:* configuration identification; configuration control. *See also:* configuration item development record; configuration index.

(C) 610.12-1990

configuration variable A named parameter, whose value is stored in nonvolatile memory, that controls some aspect of the firmware's behavior.

(C/BA) 1275-1994

configure To initialize a device so that it operates in a particular way. For instance, a customer may configure a device so the device never requests data link confirmations, using a variety of mechanisms (e.g., parameters in NVRAM, parameters in ROM, dip switches, or hardware jumpers).

(PE/SUB) 1379-1997

confinement (A) (software) Prevention of unauthorized alteration, use, destruction, or release of data during authorized access. **(B) (software)** Restriction on programs and processes so that they do not access or have influence on data, programs, or processes other than that allowed by specific authorization. *See also:* data; integrity.

(C/SE) 729-1983

confirm A primitive provided from one layer entity to another layer entity to verify that the entity generating the confirm primitive responded to a request primitive originating from the entity that received the confirm primitive.

(EMB/MIB) 1073.4.1-2000

conflict_error An error-status code that is returned when a transaction has been transmitted successfully, but a queue or usage conflict inhibits the transaction completion. A conflict_error status is returned to the original requester, which is expected to retry the transaction. This is different than a bus-dependent delay (wait or busy status), which delays the forwarding of a transaction or subaction across the bus.

(C/MM) 1212-1991s

confocal resonator (laser maser) A beam resonator comprising a pair of spherical mirrors having the same axis of rotational symmetry and positioned so that their focal points coincide on this axis.

(LEO) 586-1980w

conformal antenna An antenna (an array) that conforms to a surface whose shape is determined by considerations other than electromagnetic; for example, aerodynamic or hydrodynamic. *Synonym:* conformal array. (AP/ANT) 145-1993

conformal array *See:* conformal antenna.

conformance document (CD) (1) A document provided by an implementor that contains implementation details.

(C/PA) 1003.5b-1995

(2) The conformance document required by a standard that meets the requirements specified in that standard for such a document.

(C/PA) 2003-1997

Conformance Documentation Audit The process of reviewing a conformance document to ascertain that it meets the requirements of a base standard as specified by documentation assertions.

(C/PA) 2003-1997

conformance requirement A requirement stated in a base standard that identifies a specific requirement in a finite, measurable, and unambiguous manner. A conformance requirement by itself or in conjunction with other conformance requirements corresponds to an assertion. *Note:* Behavior and/or capabilities imposed upon an implementation by the base standard for the implementation to conform to that base standard.

(C/PA) 2003-1997

conformance test interface connector (CTIC) A defined connector for the purpose of conformance testing.

(C/LM) 11802-4-1994

Conformance Test Procedure (CTP) Manual procedures used in conjunction with other test methods to measure conformance.

(C/PA) 2003-1997

conformance tests (1) (power and distribution transformers)

(general) Tests that are specifically made to demonstrate conformity with applicable standards. (SWG/PE) [56]

(2) (mechanical switching device) (X-radiation limits for ac high-voltage power vacuum interrupters used in power switchgear). Those tests that are specifically made to demonstrate the conformity of switchgear or its component parts with applicable standards.

(SWG/PE) C37.40-1981s, C37.85-1972w, C37.60-1981r

(3) Tests that are made by agreement between the manufacturer and the purchaser at the time the order is placed. In some cases, by mutual agreement, certain Design Tests may be made as Conformance Tests. (PE/TR) C57.12.80-1978r

(4) Tests that demonstrate compliance with the applicable standards. The test specimen is normally subjected to all planned production tests prior to initiation of the conformance test program. *Note:* The conformance tests may, or may not, be similar to certain design tests. Demonstration of margin (capabilities) beyond the standards is not required.

(SWG/PE) C37.20.1-1993r, C37.20.4-1996, C37.20.2-1993, C37.20.3-1996, C37.100-1992

(5) Tests made, when required, to demonstrate selected performance characteristics of a product or representative samples thereof.

(SPD/PE) C62.11-1999

(6) (instrument transformers) A performance test to demonstrate compliance with the applicable standard(s). The test

specimen is normally subjected to all planned routine tests prior to initiation of the conformance test program. *Note:* The conformance tests may, or may not, be similar to certain design tests. Demonstration of margin (capabilities beyond the standard) is not required.

(SWG/PE/TR) C57.13.2-1986s, C37.21-1985r

(7) A test that is specifically made to demonstrate the continuing conformance of equipment with the applicable standard.

(SUB/PE) C37.122-1983s

Conformance Test Software (CTS) Test software used to ascertain conformance to standards. (C/PA) 2003-1997

conforming test result codes The complete list of test result codes associated with each assertion that a CTS can report for a conforming implementation. (C/PA) 2003-1997

conformity (1) (potentiometer) The accuracy of its output: used especially in reference to a function potentiometer.

(C) 165-1977w, 166-1977w

(2) (automatic control) (curve) The closeness with which it approximates the specified functional curve (for example logarithmic, parabolic, cubic, etc.). *Note:* It is usually expressed in terms of a nonconformity, for example the maximum deviation. For "independent conformity," any shift or rotation is permissible to reduce this deviation. For "terminal conformity," the specified functional curve must be drawn to give zero output at zero input and maximum output at maximum input, but the actual deviation at these points is not necessarily zero. (PE/EDPG) [3]

confounding variable *See:* uncontrolled variable.

congenital effect Existing at or from birth.

(T&D/PE) 539-1990

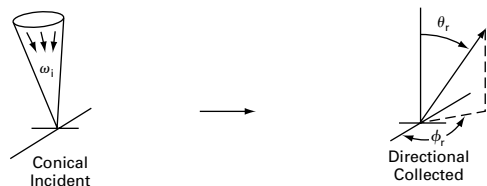
congestion In networking, a condition that occurs when the traffic exceeds the capacity of the network. *See also:* source quench; fair queuing. (C) 610.7-1995

congruencing An image processing technique in which two images of the same scene are transformed so that the size, shape, position, and orientation of all objects in one image are the same as those in the other image. (C) 610.4-1990w

conical array A two-dimensional array of elements whose corresponding points lie on a conical surface.

(AP/ANT) 145-1993

conical-directional reflectance Ratio of reflected flux collected over an element of solid angle surrounding the given direction to the incident flux limited to a conical solid angle. See the corresponding figure. *Note:* The direction and extent of the cone must be specified and the direction of collection and size of the solid angle "element" must be specified.



conical-directional reflectance

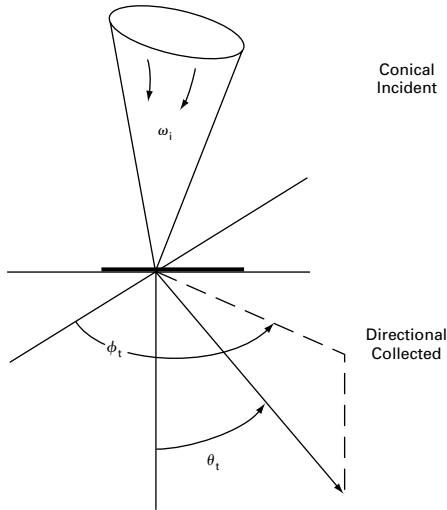
(EEC/IE) [126]

conical-directional transmittance Ratio of transmitted flux, collected over an element of solid angle surrounding the direction, to the incident flux to a conical solid angle. *Note:* The direction and extent of the cone must be specified and the direction of collection and size of the solid angle "element" must be specified. (EEC/IE) [126]

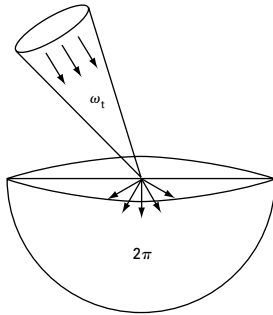
conical-hemispherical reflectance, $\rho(\omega_i; 2\pi)$ (illuminating engineering) Ratio of reflected flux collected over the entire hemisphere to the incident flux limited to a conical solid angle. *Note:* The direction and extent of the cone must be specified. (EEC/IE) [126]

conical-hemispherical transmittance, $\tau(\omega_i; 2\pi)$ (illuminating engineering) Ratio of transmitted flux collected over the entire hemisphere to the incident flux limited to a conical solid

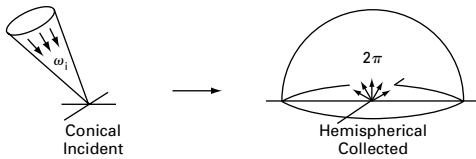
angle. (See the corresponding figure.). *Note:* The direction and extent of the cone must be specified.



Conical Incident



Hemispherical Collected



conical-hemispherical transmittance

(EEC/IE) [126]

conical horn A horn whose cross-sectional area increases as the square of the axial length. (SP) [32]

conical scanning (1) A form of sequential lobing in which the direction of maximum radiation generates a cone whose vertex angle is of the order of the antenna half-power beamwidth. *Note:* Such scanning may be either rotating or nutating according to whether the direction of polarization rotates or remains unchanged. *See also:* antenna. (AP/ANT) 149-1979r, 145-1993

(2) A form of angular tracking in which the antenna beam is offset from the tracking axis of the antenna. Rotation of the beam about the axis generates a cone whose vertex angle is of the order of the beamwidth. *Note:* Such scanning may be either rotating or nutating, according to whether the direction of polarization rotates or remains unchanged. The variation of signal amplitude as the beam scans provides information on the amount and direction of displacement of the target from the axis of rotation. (AES) 686-1997

conical-scan-on-receive-only (COSRO) A method of angle tracking in which only the receiving beam is conically scanned. (AES) 686-1997

conical wave (radio-wave propagation) A wave whose equi-phase surfaces asymptotically form a family of coaxial circular cones. (AP) 211-1977s

coning effect (gyros) The apparent drift rate caused by motion of an input axis in a manner that generally describes a cone. This usually results from a combination of oscillatory motions about the gyro principal axes. The apparent drift rate is a function of the amplitudes and frequencies of oscillations present and the phase angles between them. (AES/GYAC) 528-1994

conjugate bridge The detector circuit and the supply circuit are interchanged as compared with a normal bridge of the given type. *See also:* bridge. (EEC/PE) [119]

conjugate impedance An impedance the value of which is the complex conjugate of a given impedance. *Note:* For an impedance associated with an electric network, the complex conjugate is an impedance with the same resistance component and a reactance component the negative of the original. (SP/IM/HFIM) 151-1965w, 270-1966w, [40]

conjugate termination A termination whose input impedance is the complex conjugate of the output impedance of the source or network to which it is connected. *See also:* transmission line. (IM/HFIM) [40]

conjunction (1) The logical 'AND' operator. (C) 610.5-1990w, 1084-1986w

(2) The result of joining two conditions by the logical 'AND' operator. *Contrast:* disjunction. *See also:* conjunctive query. (C) 610.5-1990w

(3) The Boolean operation whose result has the value 1 if and only if each operand has the value 1. *Contrast:* nonconjunction. *See also:* AND gate. (C) 610.10-1994w

conjunctive query A database query formed by using one of the logical operators 'AND' and 'OR.'. (C) 610.5-1990w

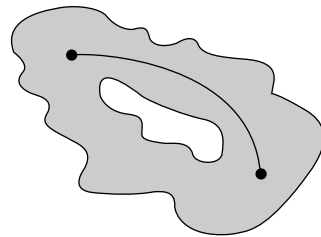
connect (1) The capability for communication, across a Group or LAN, between adjacent Bridges, or between the Bridge Ports of adjacent Bridges. *Contrast:* attach. (C/LM) 802.1G-1996

(2) Indicates that a device communications controller (DCC) has been physically attached to a bedside communications controller (BCC) port, by means of an interconnecting cable. Connect does not necessarily imply that communications have been logically established between the BCC and the DCC. (EMB/MIB) 1073.4.1-2000

connected (1) (networks) A network is connected if there exists at least one path, composed of branches of the network, between every pair of nodes of the network. *See also:* network analysis. (BT) 153-1950w

(2) (graph) A graph is connected if there exists at least one path between every pair of its vertices. (CAS) [13]

(3) (image processing and pattern recognition) Pertaining to a subset of an image, any two points of which can be joined by an arc that is entirely contained within the subset.



connected

(C) 610.4-1990w

(4) (maintenance of energized power lines) *See also:* bonded. (T&D/PE) 516-1987s, 524-1992r

connected load (1) The sum of the continuous ratings of the load-consuming apparatus connected to the system or any part thereof. *See also:* generating station. (T&D/PE) [10]

(2) (electric power systems in commercial buildings) The sum of the continuous ratings of the power consuming ap-

paratus connected to the system or any part thereof in watts, kilowatts, or horsepower. (IA/PSE) 241-1990r

(3) The connected transformer kVA, peak load, or metered demand (to be clearly specified when reporting) on the circuit or portion of circuit that is interrupted. When reporting, the report should state whether it is based on an annual peak or on a reporting period peak. (PE/T&D) 1366-1998

connected PHY A peer cable PHY at the other end of a particular physical connection from the local PHY.

(C/MM) 1394-1995

connected position (of a switchgear-assembly removable element) That position of the removable element in which both primary and secondary disconnecting devices are in full contact. (SWG/PE) C37.100-1992

connected slave A slave that is permitted to participate actively in the data transfer handshake. A selected slave that is not disabled (including a diverted slave), a reflecting slave, and an intervening slave are connected slaves. A disabled slave or, an unselected slave that is not intervening or reflecting, is not a connected slave. (MM/C) 896.1-1987s

connected system All segments of a connected system are capable of communicating directly with one another through SIs. Note that because of the route map table implementation of message paths, segments of a system that are connected electrically by SIs are not necessarily also logically connected in the sense used here. (NID) 960-1993

connected transaction A transaction in which both the request and response are performed within the same bus transaction.

(C/BA) 1014.1-1994w, 896.4-1993w, 10857-1994, 896.3-1993w

connecting rod (high voltage air switches, insulators, and bus supports) A component of a switch operating mechanism designed to transmit motion from an offset bearing or bell crank to a switch pole unit. *Synonym:* connecting shaft.

(SWG/PE) C37.30-1971s, C37.100-1992

connecting shaft *See:* connecting rod.

connecting wire A wire generally of smaller gauge than the shot-firing cord and used for connecting the electric blasting-cap wires from one drill hole to those of an adjoining one in mines, quarries, and tunnels. *See also:* mine feeder circuit.

(EEC/PE/MIN) [119]

connection (1) (rotating machinery) Any low-impedance tie between electrically conducting components. (PE) [9]

(2) **(nuclear power generating station) (cable, field splice, and connection qualification)** (design and installation of cable systems for Class 1E circuits in nuclear power generating stations) A cable terminal, splice, or hostile environment boundary seal at the interface of cable and equipment.

(PE/NP/EDPG) 383-1974r, 690-1984r

(3) (A) **(software)** A reference in one part of a program to the identifier of another part (that is something found elsewhere). (B) **(software)** An association established between functional units for conveying information. *See also:* functional unit; identifier; program. (C/SE) 729-1983

(4) An association of channels, switching systems, and other functional units set up to provide means for a transfer of information between two or more points in a telecommunications network. *Notes:* 1. A connection can also be one channel or a series of two or more channels regardless of the method used to interconnect them. 2. A transmission path that is considered as a connection by one vendor may be resold as a channel to the vendor's customers.

(5) An association established by a *layer* between two or more users of the layer service for the transfer of information. (C) 8802-6-1994

(6) A parallel interface state that is outside the scope of this standard and is not defined herein. This state is indicative of the state of the physical or logical connection between a host and the printer. Only in this state can data be transferred between a host and the printer. (C/MM) 1284.1-1997

(7) An association established between two or more endpoints or the transfer of data. (C) 1003.5-1999

(8) A persistent communications path between two endpoints. (C/MM) 1284.4-2000

connection and winding support insulation (1) (insulation systems of synchronous machines) The connection and winding support insulation includes all of the insulation materials that envelope the connections, which carry current from coil to coil or from bar to bar, and from field and armature coil terminals to the points of external circuit and attachment; and also the insulation of metallic supports for the winding. (REM) [115]

(2) **(repair and rewinding of motors for the petroleum and chemical industry)** Includes all of the insulation materials that envelop the connections that carry current from coil to coil, and from stationary or rotating coil terminals to the points of external circuit attachment; and the insulation of any metallic supports for the winding. *See also:* insulation system. (IA/PC) 1068-1996

connection assembly (Class 1E connection assemblies) Any connector or termination combined with related cables or wires as an assembly. This assembly may include environmental seals, but excludes fire stops, in-line splices, and containment electric penetration assemblies. (PE/NP) 572-1985r

connection charge (power operations) The amount paid by a customer for connecting the customer's facilities to the supplier's facilities. (PE/PSE) 858-1987s, 346-1973w

connection diagram (1) A diagram that shows the connection of an installation or its component devices, controllers, and equipment. *Notes:* 1. It may cover internal or external connections, or both, and shall contain such detail as is needed to make or trace connections that are involved. It usually shows the general physical arrangement of devices and device elements and also accessory items such as terminal blocks, resistors, etc. 2. A connection diagram excludes mechanical drawings, commonly referred to as wiring templates, wiring assemblies, cable assemblies, etc. (PE/IA/TR/IAC) [116], [60]

(2) **(packaging machinery)** A diagram showing the electrical connections between the parts comprising the control and indicating the external connections. (IA/PKG) 333-1980w

(3) A diagram showing the relation and connections of devices and apparatus of a circuit or a group of circuits. (SWG/PE) C37.100-1992

connection insulation (rotating machinery) (joint insulation) The insulation at an electric connection such as between turns or coils or at a bushing connection. *See also:* stator. (PE) [9]

connectionless confidentiality The protection of (N)-service data units from unauthorized disclosure during transmission from one (N+1)-entity to one or more (N+1)-entities, where each entity has an association with the physical layer, and no association is established for the transmission of data or for the application of the confidentiality service between the layer peer-entities themselves. (C/LM) 802.10-1998

connectionless integrity A service providing for the integrity of a single SDU. It may take the form of determining whether or not the received SDU has been modified. (C/LM) 802.10-1998

connectionless mode The transfer of data other than in the context of a connection. *See also:* connection mode; datagram. (C) 1003.5-1999

connectionless service (1) A kind of delivery service that treats each packet as a separate entity. Each packet contains all protocol layers and destination address at each intermediate node in the network. *Note:* Order of arrival of packets is not necessarily the same as order of transmission. *Synonym:* datagram. (C) 610.7-1995

(2) A kind of delivery service offered by most hardware that treats each packet or datagram as a separate entity containing the source and destination address. (C) 610.10-1994w

connection mode The transfer of data in the context of a connection. *See also:* connectionless mode. (C) 1003.5-1999

connection-oriented confidentiality The protection of all (N)-service data units from unauthorized disclosure during communications from one (N+1)-entity to one or more (N+1)-entities for which a security association is established for the transfer of data and for the application of confidentiality service between the entities themselves and between each entity and the physical layer. (C/LM) 802.10-1998

connection-oriented integrity A service providing for the integrity of all (N)-service data on a security association and detecting any modification, insertion, deletion, or replay of any data within an entire SDU sequence. (C/LM) 802.10-1998

connection-oriented service A kind of delivery service where different virtual circuit configurations are used to transmit messages. *Synonym:* virtual circuit service. (C) 610.7-1995

connection phase A beat that begins with the assertion of the address synchronization line followed by the release of an address acknowledge line. It is used to broadcast the address and command information. Modules determine whether they wish to take part in the transaction based on this information. (C/BA) 10857-1994, 896.4-1993w, 896.3-1993w

connections In-line and tee splices that are designed to join heating cables or heating cables and power leads. (IA/PC) 515.1-1995

connections of polyphase circuits *See:* star-connected circuit; zig-zag connection of polyphase circuits; mesh-connected circuit.

connector (1) A coupling device employed to connect conductors of one circuit or transmission element with those of another circuit or transmission element. *See also:* auxiliary device to an instrument. (IM/ELM/HFIM) [40], C12.8-1981r

(2) (wires) A device attached to two or more wires or cables for the purpose of connecting electric circuits without the use of permanent splices. (VT/LT) 16-1955w

(3) (splicing sleeve) A metal sleeve, that is slipped over and secured to the butted ends of the conductors in making up a joint. (T&D/PE) [10]

(4) (waveguides) A mechanical device, excluding an adapter, for electrically joining separable parts of a waveguide or transmission-line system. (AP/ANT) [35]

(5) (power cable joints) A metallic device of suitable electric conductance and mechanical strength, used to splice the ends of two or more cable conductors, or as a terminal connector on a single conductor. Connectors usually fall into one of the following types: solder, welded, mechanical, and compression or indent. Conductors are sometimes spliced without connectors, by soldering, brazing or welding. (PE/IC) 404-1986s

(6) (substation grounding) A metallic device of suitable electric conductance and mechanical strength used to connect conductors. (SUB/PE) 837-1989r

(7) (fiber optics) *See also:* optical waveguide connector. 812-1984w

(8) *See also:* connector link. (PE/T&D) 524-1992r

connector base (motor plug) (motor attachment plug cap) A device, intended for flush or surface mounting on an appliance, that serves to connect the appliance to a cord connector. (EEC/PE) [119]

connector insertion loss *See:* insertion loss.

connector link (conductor stringing equipment) A rigid link designed to connect pulling lines and conductors together in series. It will not spin and relieve torsional forces. *Synonyms:* bullet; link; link; slug; connector; connector. (T&D/PE) 524-1992r

connector, precision *See:* precision connector.

connector, rope *See:* rope connector.

connector switch (connector) A remotely controlled switch for connecting a trunk to the called line. (EEC/PE) [119]

connector thermal capacity (substation grounding) The ability of a connector to withstand the amount of current required to produce a specified temperature on the control conductor

without increasing the resistance of the connector beyond that specified in IEEE Std 837-1989. (SUB/PE) 837-1989r

connector, waveguide *See:* waveguide connector.

connect time In time-sharing computer systems, the time that a terminal or user is connected and able to communicate with a computer. *See also:* CPU time. (C) 610.10-1994w

conopulse A tracking radar that uses two simultaneous squinted beams that are rotated around the antenna boresight to produce, on a time-shared basis, monopulse angle-error signals in two orthogonal coordinates (such as azimuth and elevation). *Notes:* 1. Only two receivers are required rather than three as in the usual monopulse tracker. 2. Also called "konopulse" and "scan with compensation." (AES) 686-1997

consecutive Pertaining to the occurrence of two sequential events or items without the intervention of any other event or item; that is, one immediately after the other. (C) 610.12-1990

consecutive sequence computer A type of computer in which instructions are executed in an implicitly defined sequence unless a jump instruction specifies the storage location of the next instruction to be executed. *Contrast:* arbitrary sequence computer. (C) 610.10-1994w

consecutive spill method *See:* linear probing.

consequences The result(s) of (i.e., events that follow and depend upon) a specified event. (PE/NP) 1082-1997

conservation of radiance (fiber optics) A basic principle stating that no passive optical system can increase the quantity Ln^{-2} where L is the radiance of a beam and n is the local refractive index. Formerly called "conservation of brightness" or the "brightness theorem." *See also:* brightness; radiance. (Std100) 812-1984w

conservator (expansion tank system) (power and distribution transformers) A system in which the oil in the main tank is sealed from the atmosphere, over the temperature range specified, by means of an auxiliary tank partly filled with oil and connected to the completely filled main tank. (PE/TR) C57.12.80-1978r

conservator/diaphragm system (power and distribution transformers) A system in which the oil in the main tank is completely sealed from the outside atmosphere, and is connected to an elastic diaphragm tank contained inside a tank mounted at the top of the transformer. As oil expands and contracts within a specified temperature range the system remains completely sealed with an approximately constant pressure. (PE/TR) C57.12.80-1978r

conservator system An oil preservation system in which the oil in the main tank is sealed from the atmosphere, over the temperature range specified, by means of an ancillary tank partly filled with oil and connected to the completely filled main tank. *Synonym:* expansion tank system. (PE/TR) C57.15-1999

consist The makeup or composition (number and specific identity) of individual units on a train. (VT/RT) 1477-1998, 1475-1999, 1474.1-1999

consistency (software) The degree of uniformity, standardization, and freedom from contradiction among the documents or parts of a system or component. *See also:* traceability. (C) 610.12-1990

consistency check A check that verifies that an item of data is compatible with certain rules specified for that data. For example, one might wish to check the consistency between two data elements ORDER-DATE and DELIVER-DATE such that DELIVER-DATE may not be earlier than ORDER-DATE. *See also:* limit check; crossfooting check; range check; validity check. (C) 610.5-1990w

consol (navigation aid terms) A keyed C-W (continuous wave) short-baseline-radio navigation system operating in the L/MF (low- and medium frequency) band, generally useful to about 1500 nmi (nautical miles) (2800 kilometers [km]), and using three radiators to provide a multiplicity of overlapping lobes of dot-and-dash patterns which form equisignal hyperbolic

lines of position. These lines of position are moved slowly in azimuth by changing rf (radio frequency) phase, thus allowing a simple listening and counting of timing operation to be used to determine a line of position within the sector bounded by any pair of equisignal lines. (AES/GCS) 172-1983w

consolan (navigation aid terms) A form of consol using two radiators instead of three. (AES/GCS) 172-1983w

console (1) (telephony) A control cabinet located apart from the associated switching equipment arranged to control those functions for which an attendant or an operator is required. (SWG/COM) [48]

(2) **(telephony)** The part of a computer used for communication between the operator or maintenance engineer and the computer. (C) [85]

(3) **(telephone switching systems) (telephony)** A desk or desk-top cordless switchboard which may include display elements in addition to those required for supervisory purposes is required. (COM) 312-1977w

(4) **(supervisory control, data acquisition, data control) (station control and data acquisition) (telephony)** That component of the system that provides facilities for observation and control of the system (e.g., operator's console, maintenance console). *See also:* control panel; control; panel. (SWG/PE/SUB) C37.100-1992, C37.1-1994

(5) A device used as the primary means of communication with a human being, consisting of an input device, used for receiving information supplied by the human, and an output device, used for sending information to the human. (Typically, a console is either an ASCII terminal connected to a serial port or the combination of a text/graphics display device and a keyboard.) (C/BA) 1275-1994

(6) A functional unit used for communication between the computer operator and the computer. *Note:* May provide special-purpose keys, input devices, and display devices employed to operate and control the computer. *Synonyms:* console display; display console. *See also:* control panel. (C) 610.10-1994w

console display *See:* console.

console language The human language in which information is to be displayed on local or remote consoles. (C/MM) 1284.1-1997

consonant articulation (percent consonant articulation) The percent articulation obtained when the speech units considered are consonants (usually combined with vowels into meaningless syllables). *See also:* volume equivalent. (EEC/PE) [119]

conspicuity (illuminating engineering) The capacity of a signal to stand out in relation to its background so as to be readily discovered by the eye. (EEC/IE) [126]

constancy *See:* residual probe pickup.

constant (1) (computers) A quantity or data item whose value cannot change; for example, the data item FIVE, with an unchanging value of 5. *Contrast:* variable. *See also:* literal; figurative constant. (C) 610.12-1990

(2) **(A)** (As a noun) An instance whose identity is known at the time of writing. The identity of a constant state class instance is represented by #K, where K is an integer or a name.

(B) (As an adjective) The specification that an attribute or participant property value, once assigned, may not be changed, or that an operation shall always provide the same output argument values given the same input argument values. (C/SE) 1320.2-1998

(3) *See also:* time constant of integrator.

constant address *See:* base address.

constant-amplitude recording (mechanical recording) A characteristic wherein, for a fixed amplitude of a sinusoidal signal, the resulting recorded amplitude is independent of frequency. *See also:* phonograph pickup. (SP) [32]

constant available power source (transmission performance of telephone sets) A signal source with a purely resistive internal impedance and a constant open-circuit terminal voltage, independent of frequency. *Note:* Receiving is tested un-

der conditions of constant available power. A generator having an open-circuit voltage, E , and an internal voltage, R_0 , both constant with frequency, provides a constant available power of $E^2/4R_0$. When the load impedance is a resistance equal to R_0 , an impedance match exists and the maximum available power of $E^2/4R_0$, is dissipated in the load. When a generator with a constant open-circuit voltage and a constant internal resistance of the required value is not available, suitable test conditions for this type of measurement can be provided by a generator whose voltage is maintained at a constant value, E_0 , across its terminals in series with a resistance, R_0 . The generator and the resistance, R_0 , in series are then equivalent to a source of constant available power. (COM/TA) 269-1983s

constant-current (Heising) modulation A system of amplitude modulation wherein the output circuits of the signal amplifier and the carrier-wave generator or amplifier are directly and conductively coupled by means of a common inductor that has ideally infinite impedance to the signal frequencies and that therefore maintains the common plate-supply current of the two devices constant. *Note:* The signal-frequency voltage thus appearing across the common inductor appears also as modulation of the plate supply to the carrier generator or amplifier with corresponding modulation of the carrier output. (AP/ANT) 145-1983s

constant-current arc-welding power supply A power supply that has characteristically drooping volt-ampere curves producing relatively constant current with a limited change in load voltage. *Note:* This type of supply is conventionally used in connection with manual-stick-electrode or tungsten-inert-gas arc welding. (EEC/AWM) [91]

constant-current characteristic (electron tube) The relation, usually represented by a graph, between the voltages of two electrodes, with the current to one of them as well as all other voltages maintained constant. (ED) 161-1971w

constant-current charge (storage battery) (storage cell) A charge in which the current is maintained at a constant value. *Note:* For some types of lead-acid batteries this may involve two rates called the starting and finishing rates. *See also:* charge. (EEC/PE) [119]

constant-current (series) incandescent filament lamp transformer *See:* incandescent-filament-lamp transformer.

constant current loads A load that demands constant current even when the input voltage varies. *Note:* Typical of such loads is lighting when driven from an inverter ballast configuration. (VT) 1476-2000

constant-current (series) mercury-lamp transformer A transformer that receives power from a current-regulated series circuit and transforms the power to another circuit at the same or different current from that in the primary circuit. *Note:* It also provides the required starting and operating voltage and current for the specified lamp. Further, it provides protection to the secondary circuit, casing, lamp, and associated luminaire from the high voltage of the primary circuit. (EEC/LB) [98]

constant-current power supply A power supply that is capable of maintaining a preset current through a variable load resistance. *Note:* This is achieved by automatically varying the load voltage in order to maintain the ratio V_{load}/R_{load} constant. (AES) [41]

constant-current regulation (generator) That type of automatic regulation in which the regulator maintains a constant-current output from the generator. *See also:* axle-generator system. (EEC/PE) [119]

constant current retention (metal-nitride-oxide field-effect transistor) Retention inherent in the metal-nitride-oxide-semiconductor (MNOS) transistor when gate and drain are biased to result in a constant drain current during information storage. The time period is defined by the intersection of the high conduction (HC) threshold voltage curve obtained under constant current condition, with the low conduction (LC) threshold voltage curve obtained under zero bias condition,

when both are plotted against the logarithm of trd, the time elapsed between writing and the threshold voltage measurement. (ED) 581-1978w

constant-current street-lighting system (series street-lighting system) A street-lighting system employing a series circuit in which the current is maintained substantially constant. *Note:* Special generators or rectifiers are used for direct current while suitable regulators or transformers are used for alternating current. *See also:* alternating-current distribution; direct-current distribution. (T&D/PE) [10]

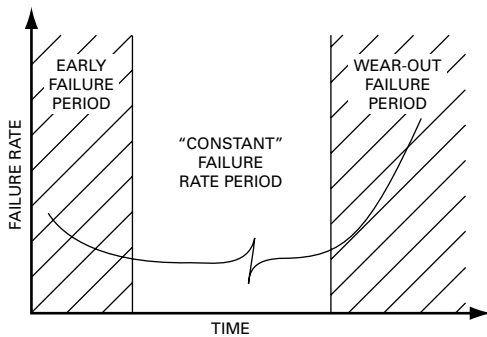
constant-current transformer (power and distribution transformers) A transformer that automatically maintains an approximately constant current in its secondary circuit under varying conditions of load impedance when supplied from an approximately constant-voltage source. *See also:* rated primary voltage of a constant current transformer; rated kilowatts; rated secondary current of a constant-current transformer; current regulation. (PE/TR) C57.12.80-1978r

constant cutting speed (numerically controlled machines) The condition achieved by varying the speed of rotation of the workpiece relative to the tool inversely proportional to the distance of the tool from the center of rotation. (EEC) [74]

constant-delay discriminator *See:* pulse decoder.

constant-failure period (software) The period of time in the life cycle of a system or component during which hardware failures occur at an approximately uniform rate. *Contrast:* wearout-failure period; early-failure period. *See also:* bathtub curve. (C) 610.12-1990

constant failure rate period That possible period during which the failures occur at an approximately uniform rate. *Note:* The curve in the figure below shows the failure rate pattern when the terms of minor failure, early failure period, and constant failure rate period all apply to the item.



constant failure rate period

(R/VT) [37]

constant-false-alarm rate A property of threshold or gain control devices that maintain an approximately constant rate of false target detections when the noise, and/or clutter levels, and/or ECM (electronic countermeasures) into the detector are variable. (AES/RS) 686-1990

constant-false-alarm rate receiver A radar receiver that maintains the output false-alarm rate constant in spite of the varying nature of the receiver noise level, echoes from the clutter environment, or from electronic countermeasures. *Note:* CFAR is usually achieved by establishing a threshold level that varies according to the local noise and/or clutter environment measured in the near vicinity of the target echo. (AES) 686-1997

constant-fraction discriminator (1) A discriminator in which the threshold is set at a fixed fraction of the input signal (instead of to a fixed amplitude). This is one of a class of timing discriminators. (NPS) 325-1996

(2) An amplitude discriminator in which the triggering threshold is set at a constant percentage of the input pulse amplitude independent of its size. (NPS) 300-1988r

constant-frequency control (power system) For a power system, a mode of operation under load-frequency control in which the area control error is directly proportional to the frequency error. (PE/PSE) 94-1991w

constant-horsepower motor *See:* constant-power motor.

constant-horsepower range (electric drive) The portion of its speed range within which the drive is capable of maintaining essentially constant horsepower. *See also:* electric drive. (IA/IAC) [60]

constant-linear-bit recording A method for recording information on a storage device whereby the rotational speed is kept constant, but the data rate (density) is varied with the track to ensure that data is stored with the same number of bits per inch in all tracks. *Contrast:* constant-linear-velocity recording. (C) 610.10-1994w

constant-linear-velocity recording A method for recording information on a circular disk whereby the rotational speed is varied so that the speed of the storage medium past the recording head is constant for all tracks on the disk. *Note:* Since the outer-most tracks are longer than the inner-most tracks, this allows the device to store more information there. *Synonym:* group code recording. *Contrast:* constant-linear-bit recording. (C) 610.10-1994w

constant-luminance transmission (color television) A type of transmission in which the sole control of luminance is provided by the luminance signal, and no control of luminance is provided by the chrominance signal. *Notes:* 1. In such a system, noise signals falling within the bandwidth of the chrominance channel produce only chromaticity variations at the outputs of the chrominance demodulators. Coarse-structured chromaticity variations thus produced are subjectively less objectionable than correspondingly coarse-structured luminance variations. 2. Because of the use of gamma correction in the camera, these ideal conditions are not completely realized, especially for colors of high saturation. (BT/AV) 201-1979w, [34]

constant multiplier (computers) A computing element that multiplies a variable by a constant factor. *See also:* electronic analog computer; multiplier. (C) 165-1977w, 166-1977w

constant-net-interchange control (power system) A mode of operation under load-frequency control in which the area control error is proportional to the net interchange error. (PE/PSE) 94-1991w

constant potential charge A charge in which the voltage at the output terminals of the charger is held to a constant value. (IA/PSE) 602-1996

constant power load A load that demands constant power from the source even when the voltage value drops such as when switching from the low-voltage power supply to the battery. *Note:* Typical of such loads are those that have their own built-in regulator such as propulsion control power supplies. (VT) 1476-2000

constant-power motor (constant-horsepower motor) A multispeed motor that develops the same related power output at all operating speeds. The torque then is inversely proportional to the speed. *See also:* asynchronous machine. (PE) [9]

constant-resistance (conductance) network A network having at least one driving-point impedance (admittance) that is a positive constant. (EEC/PE) [119]

constant-speed motor (electric installations on shipboard) A motor, the speed of normal operation of which is constant or practically constant. For example, a synchronous motor, an induction motor with small slip, or an ordinary dc shunt-wound motor. (IA/MT) 45-1983s

constant-torque motor Multispeed motor that is capable of developing the same torque for all design speeds. The rated power output varies directly with the speed. *See also:* asynchronous machine. (PE) [9]

constant-torque range (electric drive) The portion of its speed range within which the drive is capable of maintaining essentially constant torque. *See also:* electric drive. (IA/IAC) [60]

constant-torque resistor A resistor for use in the armature or rotor circuit of a motor in which the current remains practically constant throughout the entire speed range.

(IA/MT) 45-1998

constant-torque speed range The portion of the speed range of a drive within which the drive is capable of maintaining essentially constant torque.

(IA/ICTL/IAC) [60]

constant-velocity recording (mechanical recording) A characteristic wherein for a fixed amplitude of a sinusoidal signal, the resulting recorded amplitude is inversely proportional to the frequency. *See also*: phonograph pickup.

(SP) [32]

constant-voltage arc-welding power supply Power supply (arc welder) that has characteristically flat volt-ampere curves producing relatively constant voltage with a change in load current. This type of power supply is conventionally used in connection with welding processes involving consumable electrodes fed at a constant rate.

(EEC/AWM) [91]

constant-voltage charge (storage battery) (storage cell) A charge in which the voltage at the terminals of the battery is held at a constant value. *See also*: charge.

(PE/EEC) [119]

constant-voltage regulation (generator) That type of automatic regulation in which the regulator maintains constant voltage of the generator.

(PE/EEC) [119]

constant voltage retention (metal-nitride-oxide field-effect transistor) Retention inherent in the metal-nitride-oxide-semiconductor (MOS) transistor when source, drain, and substrate are grounded, and a fixed read bias VGR is maintained at the gate. The time period is defined by the intersection of the two high conduction (HC) and low conduction (LC) threshold voltage curves obtained under this condition when plotted versus the logarithm of t_{rd} , the time elapsed between writing and threshold voltage measurement.

(ED) 581-1978w

constant-voltage transformer (power and distribution transformers) A transformer that maintains an approximately constant voltage ratio over the range from zero to rated output.

(PE/TR) C57.12.80-1978r

constitutive parameters The permittivity and permeability of a medium. *See also*: permeability; permittivity.

(AP/PROP) 211-1997

constitutive relations (radio-wave propagation) Constraints imposed by the medium on the relationships between electric and magnetic field vectors and their respective flux density vectors.

(AP) 211-1977s

constrained painting *See*: grid constraint.

constraint (1) A restriction on software life cycle process (SLCP) development.

(C/SE) 1074-1997

(2) A limitation or implied requirement that constrains the design solution or implementation of the systems engineering process, is not changeable by the enterprise, and is generally nonallocable.

(C/SE) 1220-1998

(3) An externally imposed limitation on system requirements, design, or implementation or on the process used to develop or modify a system.

(C/SE) 1362-1998

(4) A statement that expresses measurable bounds for an element or function of the system. That is, a constraint is a factor that is imposed on the solution by force or compulsion and may limit or modify the design changes.

(C/SE) 1233-1998

(5) (A) A kind of **responsibility** that is a statement of facts that are required to be true in order for the constraint to be met. Classes have constraints, expressed in the form of logical sentences about property values. An instance conforms to the constraint if the logical sentence is true. Some constraints are inherent in the modeling constructs; other constraints are specific to a particular model and are stated in the specification language. **(B)** A rule that specifies a valid condition of data.

(C/SE) 1320.2-1998

(6) A timing property of a design that is supplied as a goal or objective to an electronic design automation (EDA) tool, such as logic synthesis, floorplanning, or layout. The tool shall not start out with a fixed design implementation; it shall build or

modify the design to meet the constraint. *See also*: timing check.

(C/DA) 1481-1999

constraints (1) Limits on the ranges of variables or system parameters because of physical or system requirements. *See also*: system.

(SMC) [63]

(2) A restriction placed on the control signal, control law, or state variables. *See also*: control system.

(CS/IM) [120]

(3) Conditions and/or resource requirement limitations affecting the process.

(C/SE) 1209-1992w

(4) Restrictions, resources, rules, etc., that limit Software Life Cycle Model selection, project planning, and management.

(C/SE) 1074.1-1995

construction The process of writing, assembling, or generating assets.

(C/SE) 1517-1999

construction agency *See*: constructor.

construction department *See*: constructor.

construction diagram A diagram that shows the physical arrangement of parts, such as wiring, buses, resistor units, etc. Example: A diagram showing the arrangement of grids and terminals in a grid-type resistor.

(IA/ICTL/IAC) [60]

construction stage The time related to the installation or modification of fixtures or structures, including services, foundations, steel, conductors, buildings, and grounding.

(PE/SUB) 1402-2000

construction test (Class 1E power systems and equipment)

A test to verify proper installation and operation of individual components in a system prior to operation of the system as an entity. It is assumed that the construction test does not verify the interconnected-system equipment external to that component. For example, the protective relays are bench tested by simulating fault conditions to verify conformance with approved characteristics. During bench tests the alarm, trip, and permissive-interlock functions that the protective relay circuits are to perform are not verified.

(PE/NP) 415-1986w

construction testing Performing required inspections and tests to ensure that completed installations are in accordance with contract requirements and the latest engineering and design information.

(PE/EDPG) 1248-1998

constructor (1) A party who undertakes the assembly and erection of a transmission structure for an owner, or an owner who undertakes all or part of a project alone. *Synonyms*: installer; contractor; construction department; construction agency.

(T&D/PE) 1025-1993r

(2) A party who undertakes the assembly and erection of a transmission structure. The constructor can be an owner or an agent acting for an owner. *Synonym*: construction department; construction agency; installer; contractor.

(T&D/PE) 951-1996

Consultative Committee on International Telegraphy and Telephony (CCITT) An international organization that studies and issues recommendations on issues related to communication technology. *Note*: In March 1993, the CCITT was reorganized and renamed to be the International Telecommunication Union (ITU) Telecommunications Standardization Sector (TSS).

(C) 610.7-1995

consumer (1) The node on a ringlet that strips a send packet from the ringlet and creates the echo packet that is returned to the producer.

(C/MM) 1596-1992

(2) A unit that removes messages from a DMA queue.

(C/MM) 1212.1-1993

consumption of idles Idle symbols arriving at a node may be discarded (after saving certain information) while other symbols that arrived earlier and were stored in the bypass FIFO are being transmitted. Consuming idles thus reduces the number of symbols stored in the bypass FIFO.

(C/MM) 1596-1992

consumer product An end item delivered to a customer.

(C/SE) 1220-1994s

contact (A) (general). A conducting part that co-acts with another conducting part to make or break a circuit. **(B)** (of a relay). A conducting part that acts with another conducting

part to make or break a circuit.

(SWG/SWG/PE/PSR) C37.30-1971, C37.100-1992, C37.90-1978

contact area (1) (photoelectric converter) The area of ohmic contact provided on either the p or n faces of a photoelectric converter for electric circuit connections. *See also:* semiconductor. (AES) [41]

(2) (solar cells) That area of ohmic contact provided on either the p or n surface of a solar cell for electric circuit connections. (AES/SS) 307-1969w

contact bounce (dial-pulse address signaling systems) (telephony) The intermittent and undesired opening of contacts during the closure of open contacts or opening of closed contacts. An irregular wavefront during transition from one state to the other is implied. (COM/TA) 753-1983w

contact chatter, relay *See:* relay contact chatter.

contact clip (of a mechanical switching device) The clip that the blade enters or embraces. (SWG/PE) C37.100-1992

contact clips *See:* fuse clips.

contact conductor (electric traction) The part of the distribution system other than the track rails, that is in immediate electric contact with current collectors of the cars or locomotives. *See also:* contact wire; trolley; underground collector or plow; multiple-unit control. (VT/LT) 16-1955w

contact converter (as applied to relaying) A buffer element used to produce a prescribed output as the result of the opening or closing of a contact. (SWG/PE) C37.100-1992

contact corrosion *See:* crevice corrosion.

contact current-carrying rating (of a relay) The current that can be carried continuously or for stated periodic intervals without impairment of the contact structure or interrupting capability. (SWG/PE/PSR) C37.100-1992, C37.90-1989r

contact current-closing rating (of a relay) The current that the device can close successfully with prescribed operating duty and circuit conditions without significant impairment of the contact structure. (SWG/PE) C37.100-1992

contact discharge method (1) A method of ESD testing in which the electrode of the ESD simulator is in firm contact with a conductive surface of the EUT or coupling plane prior to discharge. The discharge is actuated by a switching device (i.e., a relay) within the simulator. (EMC) C63.16-1993

(2) A method of ESD testing in which the electrode of the ESD simulator is in firm conductive contact with the UUT or coupling plane prior to and during the discharge. The discharge is actuated by a switching device, such as a relay, within the simulator. (SPD/PE) C62.38-1994r

contact flange (waveguide components) A flat flange used in conjunction with another flat flange to provide a contact joint. (MTT) 147-1979w

contact follow-up (relays, switchgear, and industrial control) The distance between the position one contact face would assume, were it not blocked by the second (mating) contact, and the position the second contact removed, when the actuating member is fixed in its final contact-closed position. *See also:* electric controller. (IA/ICTL/IAC) 74-1958w, [60]

contact gap (break) The final length of the isolating distance of a contact in the open position. *See also:* contactor. (IA/ICTL/IAC) [84], [60]

contact high recombination rate (semiconductor) A semiconductor-semiconductor or metal-semiconductor contact at which thermal equilibrium charge-carrier concentrations are maintained substantially independent of current density. *See also:* semiconductor device; semiconductor. (ED) 216-1960w

contact interrupting rating (of a relay) The current that the device can interrupt successfully with prescribed operating duty and circuit conditions without significant impairment of the contact structure. (SWG/PE/PSR) C37.100-1992, C37.90-1978s

contact, ion implanted *See:* ion-implanted contact.

contact joint (waveguide components) (contact coupling) A connection designed for essentially complete transfer of power between two waveguides by means of metallic contact between the inner walls of the waveguides. It typically consists of two contact flanges. (MTT) 147-1979w

contactless vibrating bell A vibrating bell whose continuous operation depends upon application of alternating-current power without circuit-interrupting contacts. *See also:* protective signaling. (EEC/PE) [119]

contact-making clock demand meter (metering) A device designed to close momentarily an electric circuit to a demand meter at periodic intervals. (ELM) C12.1-1982s

contact mechanism (demand meter) A device for attachment to an electricity meter or to a demand-totalizing relay for the purpose of providing electric impulses for transmission to a demand meter relay. *See also:* demand meter. (EEC/PE) [119]

contact, ohmic *See:* ohmic contact.

contact opening time (of a relay) The time a contact remains closed while in process of opening following a specified change of input. (SWG/PE) C37.100-1992

contactor (1) (thyristor) A device for repeatedly establishing and interrupting an electric power circuit. (IA/PE/IPC/TR) 428-1981w, C57.12.80-1978r

(2) A device which upon receipt of an electrical signal establishes or opens repeatedly an electrical circuit with a nominal current rating of 5 amperes minimum for its main contacts. (VT/LT) 16-1955w

contactor, load *See:* load switch or contactor.

contactor or unit switch A device operated other than by hand for repeatedly establishing and interrupting an electric power circuit under normal conditions. *See also:* control switch. (VT/LT) 16-1955w

contact parting time (of a mechanical switching device) The interval between the time when the actuating quantity in the release circuit reaches the value causing actuation of the release and the instant when the primary arcing contacts have parted in all poles. *Note:* Contact parting time is the numerical sum of release delay and opening time. (SWG/PE) C37.100-1992

contact piston (waveguide) (contact plunger) A piston with sliding metallic contact with the walls of a waveguide. *See also:* waveguide. (AP/ANT) [35]

contact plating The deposition, without the application of an external electromotive force, of a metal coating upon a base metal, by immersing the latter in contact with another metal in a solution containing a compound of the metal to be deposited. *See also:* electroplating. (EEC/PE) [119]

contact plunger *See:* contact piston.

contact position indicator A device that is located at or near the operating mechanism to indicate whether the main contacts are in the closed or open position. Typically, colors are used to indicate a closed or open position; red shall signify closed and green shall signify open. (SWG/PE) C37.100-1992

contact potential The difference in potential existing at the contact of two media or phases. *See also:* positive after-potential; negative after-potential; depolarization; electrolytic cell; depolarization front. (EEC/PE) [119]

contact-potential difference The difference between the work functions of two materials divided by the electronic charge. (ED) 161-1971w

contact pressure, final *See:* final contact pressure.

contact pressure, initial *See:* initial contact pressure.

contact race A circuit design condition wherein two or more independently operated contacts compete for the control of a circuit which they will open and close. (PE/PSR) [6]

contact rectifier A rectifier consisting of two different solids in contact, in which rectification is due to greater conductivity across the contact in one direction than in the other. *See also:* rectifier. (AP/ANT) 145-1983s

contacts Conducting parts which co-act to complete or to interrupt a circuit. (EEC/PE) [119]

(2) (A) (**nonoverlapping**) Combinations of two sets of contacts, actuated by a common means, each set closing in one of two positions, and so arranged that the contacts of one set open before the contacts of the other set close. *See also*: electric controller. (B) (**switching device**) (**auxiliary**) Contacts in addition to the main circuit contacts that function with the movement of the latter. *See also*: contactor. (C) (**overlapping, industrial control**) Combinations of two sets of contacts, actuated by a common means, each set closing in one of two positions, and so arranged that the contacts of one set open after the contacts of the other set have been closed. *See also*: electric controller. (IA/ICTL/IAC) [60]

contact surface That surface of a contact through which current is transferred to the coacting contact. (SWG/PE) C37.100-1992

contact voltage (human safety) A voltage accidentally appearing between two points with which a person can simultaneously make contact. (PE) [8], [84]

contact-wear allowance The total thickness of material that may be worn away before the co-acting contacts cease to perform adequately. *See also*: contactor. (SWG/PE/ICTL) C37.30-1971s, C37.100-1992

contact wire (trolley wire) A flexible contact conductor, customarily supported above or to one side of the vehicle. *See also*: contact conductor. (VT/LT) 16-1955w

container (1) A parent widget that defines a region containing zero or more subobjects of a given type. (C) 1295-1993w
(2) An ordered set of 1, 2, 4, or 8 contiguous bytes fully packed with one or more signed or unsigned field formats. (C/MM) 1596.5-1993

container class A class that defines an object that holds other objects. (SCC20) 1226-1998

containment (1) (valve actuators) (safety systems equipment in nuclear power generating stations) That portion of the engineered safety features designed to act as the principal barrier, after the reactor system pressure boundary, to prevent the release, even under conditions of a reactor accident, of unacceptable quantities of radioactive material beyond a controlled zone. (PE/NP) 382-1985, 627-1980r, 323-1974s, 383-1974r, 334-1974s, 650-1979s
(2) (**radiological monitoring instrumentation**) A structure or vessel which encloses the components of the reactor coolant pressure boundary or which serves as a leakage limiting barrier to radioactive material that could be released from the reactor coolant pressure boundary, or both. (NI) N320-1979r
(3) (**data management**) The result of placing all occurrences of a repeating group within the same logical record. (C) 610.5-1990w
(4) A relationship between two objects such that one is said to belong to, or form part of, the other. All objects except software_collection objects shall be contained within exactly one object. (C/PA) 1387.2-1995

contamination (rotating machinery) This deteriorates electrical insulation by actually conducting current over insulated surfaces, or by attacking the material reducing its electrical insulating quality or its physical strength, or by thermally insulating the material forcing it to operate at higher than normal temperatures. *Note*: Included here are: wetness or extreme humidity, oil or grease, conducting dusts and particles, non-conducting dusts and particles, and chemicals of industry. (PE/EM) 432-1976s

contend To actively and simultaneously vie for the attention of the MTM-Bus Master module (said of a group or one or more S-modules). (TT/C) 1149.5-1995

contending requester *See*: requester.

contending slave *See*: interrupt-acknowledge cycle.

content addressable storage *See*: associative memory.

content addressed storage *See*: associative storage.

content, average information *See*: information theory; average information content, per symbol.

content, conditional information *See*: information theory.

content coupling A type of coupling in which some or all of the contents of one software module are included in the contents of another module. *Contrast*: control coupling; hybrid coupling; common-environment coupling; data coupling; pathological coupling. (C) 610.12-1990

contention (1) (data transmission) A condition on a multipoint communication channel when two or more locations try to transmit at the same time. (PE) 599-1985w
(2) (**station control and data acquisition**) An operational condition in which two or more devices simultaneously try to use the same resource (e.g., communication channel, disk, memory). (SUB/PE) C37.1-1994
(3) A condition on a communications channel when two or more stations may try to seize the channel at the same time. (LM/COM) 168-1956w
(4) A condition that occurs when two or more devices simultaneously request the services of another device, network medium, or resource that can handle only one request at a time. *See also*: collision. (C) 610.7-1995
(5) An operational condition on a data communication channel in which no station is designated a master station. In contention, each station on the channel shall monitor the signals on the channel and wait for a quiescent condition before initiating a bid for circuit control. (SWG/PE) C37.100-1992

contention interval *See*: slot time.

contention resolution The management of contention for a communications resource so as to minimize collisions, resolve access order, and maximize utilization. (C) 610.7-1995

contents list In word processing, a list of stored information available for user selection. (C) 610.2-1987

context (1) Reflects the intended scope of a set of tests. Examples of context include manufacturing process test, maintenance test, design verification test, screening test, etc. (SCC20) 1226-1998
(2) The immediate environment in which a function (or set of functions in a diagram) operates. (C/SE) 1320.1-1998

context diagram A diagram that presents the context of the top-level function of an IDEF0 model, whose diagram number is $A-n$, where $0 \leq n \leq 9$. The one-box A-0 context diagram is a required context diagram; those with diagram numbers $A-1$, $A-2$, . . . , $A-9$ are optional context diagrams. (C/SE) 1320.1-1998

context editing A method of line editing in which the line to be viewed or altered is identified by specifying part or all of its contents. (C) 610.2-1987

context free The mode of API operation in which the underlying FTAM initiator establishes an FTAM Regime for the sole purpose of executing the requested operation, closing the regime once the operation is complete. (C/PA) 1238.1-1994w

context sensitive The mode of API operation in which the underlying FTAM initiator performs the requested operation, using a pre-existing FTAM Regime that is established and maintained independently of individual operation invocations. (C/PA) 1238.1-1994w

contiguous allocation A storage allocation technique in which programs or data to be stored are allocated a block of storage of equal or greater size, so that logically contiguous programs and data are assigned physically contiguous storage locations. *Contrast*: paging. (C) 610.12-1990

contiguous memory An area of storage that occupies consecutive or adjacent address locations. (C) 610.10-1994w

contingency The unexpected failure or outage of a system component(s) (generator, transmission line, breaker, switch, etc.). (PE/PSE) 858-1993w

continuation reference A reference that describes how the performance of all or part of a directory operation can be

continued at a different DSA or DSAs. *See also:* referral.

(C/PA) 1328.2-1993w, 1327.2-1993w, 1326.2-1993w, 1224.2-1993w

continuous rating (of diesel-generator unit) (of diesel-generator unit) The electric power output capability that the diesel-generator unit can maintain in the service environment for 8760 h of operation per year with only scheduled outages for maintenance. (PE/NP) 387-1995

continuing current (lightning) The low-magnitude current that may continue to flow between components of a multiple stroke. *See also:* direct-stroke protection. (T&D/PE) [10]

continuity cable bond A cable bond used for bonding of cable sheaths and armor across joints between continuous lengths of cable. *See also:* cable bond; cross cable bond. (T&D/PE) [10]

continuity test (1) (test, measurement, and diagnostic equipment) A test for the purpose of detecting broken or open connections and ground circuits in a network or device. (MIL) [2]

(2) (battery) A test on a cell/unit or battery to determine the integrity of its conduction path. (SB) 1188-1996

continuity tester (test, measurement, and diagnostic equipment) An electrical tester used to determine the presence and location of broken or open connections and grounded circuits. (MIL) [2]

continuity transfer relay contacts Sometimes used for relay contacts, make-break. (EEC/REE) [87]

continuous air monitor (cam) An instrument used to continuously sample and measure airborne radioactivity concentrations. (NI) N42.17B-1989r

continuous change model *See:* continuous model.

continuous corona (1) (corona measurement) Corona discharges that recur at regular intervals; for example, on approximately every cycle of an applied alternating voltage or at least once per minute for an applied direct voltage. (MAG/ET) 436-1977s

(2) (overhead-power-line corona and radio noise) Corona discharge that is either steady or recurring at regular intervals (approximately every cycle of an applied alternating voltage or at least several times per minute for an applied direct voltage). (T&D/PE) 539-1990

continuous cumulative demand The sum of (A) all previous billing period maximum demands, and (B) the highest demand to date for the present billing period. (ELM) C12.15-1990

continuous current (1) The maximum constant rms power frequency current that can be carried continuously without causing further measurable increase in temperature rise under prescribed conditions of test, and within the limitations of established standards. (PE/TR) C57.16-1996

(2) A current that is expected to continue for three hours or more. (IA/PSP) 1015-1997

continuous current rating The designated rms alternating or direct current that the connector can carry continuously under specified conditions. (T&D/PE) 386-1995

continuous-current tests Tests made at rated current, until temperature rise ceases, to determine that the device or equipment can carry its rated continuous current without exceeding its allowable temperature rise. (SWG/PE) C37.100-1992

continuous data Data of which the information content can be ascertained continuously in time. (IA) [61]

continuous duty (1) Operation at a substantially constant load for an indefinitely long time. (NESC/NEC) [86]

(2) Operation at a substantially constant load for an indefinitely long time. (For motors, the constant load is to be within the nameplate rating of the motor.) (PE/NP) 334-1994r

(3) A requirement of service that demands operation at a substantially constant current for an extended period of time. (PE/TR) C57.16-1996

(4) A requirement of service that demands operation at a constant load for an indefinite period of time. (IA/MT) 45-1998

continuous-duty current rating The rating in amperes that a meter socket will carry continuously under stated conditions, without exceeding the allowable temperature rise. A multiposition trough socket has an additional current rating that denotes the maximum ampere capacity of the line buses. (ELM) C12.7-1993

continuous-duty rating The rating applying to operation for an indefinitely long time. (AP/ANT) 145-1983s

continuous electrode A furnace electrode that receives successive additions in lengths at the end remote from the active zone of the furnace to compensate for the length consumed therein. *See also:* electrothermics. (EEC/PE) [119]

continuous enclosure (1) (generating station grounding) A type of isolated-phase bus in which the enclosure is electrically continuous over the full length of the bus. All enclosures are electrically tied together at each end of the bus. (PE/EDPG) 665-1987s

(2) A bus enclosure in which the consecutive sections of the enclosure are electrically bonded together to provide a continuous current path through the entire enclosure length. (SUB/PE) C37.122-1993, C37.122.1-1993

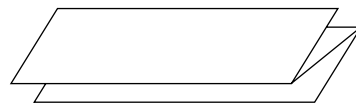
(3) A bus enclosure in which the consecutive sections of the enclosure for the same phase conductor are electrically bonded together to provide a continuous current path throughout the entire enclosure length. *Note:* Cross-connections to the other phase enclosures are made only at the extremities of the installation and at selected intermediate points. (SWG/PE) C37.100-1992

(4) A bus enclosure in which the consecutive sections of the housing along the same phase conductor are bonded together to provide an electrically continuous current path throughout the entire enclosure length. Cross-bondings, connecting the other phase enclosures, are made only at the extremities of the installation and at a few selected intermediate points. (PE/SUB) 80-2000

continuous exposure Exposure for durations exceeding the corresponding averaging time. Exposure for less than the averaging time is called *short-term exposure*. (NIR) C95.1-1999

continuous feed A mechanism enabling a printer to employ continuous form paper using friction feed or tractor feed. *Contrast:* single-sheet feed. (C) 610.10-1994w

continuous form (A) A series of connected paper forms, each divided by a tear-off perforation, that feeds continuously through a printing device. *Synonym:* Z-fold paper. *Contrast:* cut form. *See also:* burst. (B) Pertaining to a series of cards or paper as in (A). For example, continuous form cards or continuous form paper.



continuous form

(C) 610.10-1994

continuous inductive train control *See:* continuous train control.

continuous iteration A loop that has no exit. (C) 610.12-1990

continuous lighting (railway practice) An arrangement of circuits so that the signal lights are continuously energized. (EEC/PE) [119]

continuous load A load where the current continues for 3 h or more. (ELM) C12.7-1993

continuous load rating (power inverter unit) Defines the maximum load that can be carried continuously without exceeding established limitations under prescribed conditions of test, and within the limitations of established standards. *See also:* self-commutated inverters. (IA) [62]

continuously acting regulator (synchronous machines) A regulator that initiates a corrective action for a sustained infinitesimal change in the controlled variable.

(PE/EDPG) 421.1-1986r, 421-1972s

continuously adjustable inductor An adjustable inductor in which the inductance can have every possible value within its range. *Synonym:* variable inductor.

(Std100) 270-1966w

continuous model (A) A mathematical or computational model whose output variables change in a continuous manner; that is, in changing from one value to another, a variable can take on all intermediate values; for example, a model depicting the rate of air flow over an airplane wing. *Synonym:* continuous-variable model. **(B)** A model of a system that behaves in a continuous manner. *Contrast:* discrete model.

(C) 610.3-1989

continuous monitoring (I) The process of sampling the state of some phenomenon at a time interval shorter than the time constant of the phenomenon.

(SUB/PE) C37.122-1993, C37.122.1-1993

(2) The process of sampling the state of some phenomenon either continuously or at a sample interval of one second or less.

(SWG/PE) C37.100-1992

continuous noise Noise, the effect of which is not resolvable into a succession of discrete impulses. *See also:* electromagnetic compatibility.

(EMC) [53]

continuous operating current The current flowing through the surge protective device when energized at the maximum continuous operating voltage.

(PE) C62.34-1996

continuous periodic rating The load that can be carried for the alternate periods of load and rest specified in the rating and repeated continuously without exceeding the specified limitation.

(IA/ICTL/IAC) [60]

continuous-pressure operation (elevators) Operation by means of buttons or switches in the car and at the landings, any one of which may be used to control the movement of the car as long as the button or switch is manually maintained in the actuating position. *See also:* control.

(PE/EEC) [119]

continuous-progression code *See:* unit-distance code.

continuous pulse (thyristor) A gate signal applied during the desired conducting interval, or parts thereof, as a dc signal.

(IA/IPC) 428-1981w

continuous rating (1) (nuclear power generating station) (of diesel-generator unit) The electric power output capability that the diesel-generator unit can maintain in the service environment for 8760 hours of operation per (common) year with only scheduled outages for maintenance.

(PE/NP) 387-1984s

(2) (packaging machinery) The rating that defines the load that can be carried continuously without exceeding the temperature rating.

(IA/PKG) 333-1980w

(3) (power and distribution transformers) (electric equipment) The maximum constant load that can be carried continuously without exceeding established temperature-rise limitations under prescribed conditions. *See also:* rectification; duty.

(PE/TR) C57.12.80-1978r, C57.15-1968s

(4) (rotating electric machinery) The output that the machine can sustain for an unlimited period under the conditions of IEEE Std 11-1980 without exceeding the limits of temperature rise.

(PE/EM) 11-1980r

continuous service current (A) (thyristor converter) The value of direct current that a converter unit or section can supply to its load for unlimited time periods under specified conditions.

(B) (long-time) The rms value and duration (minutes) of direct current which may be applied to the converter unit or section within the service current profile. *Note:* This value establishes point B on the service current profile and it may be identical to the long-time test current. **(C)** (profile) The time-current profile that defines the allowable rms currents the converter section can sustain. *Note:* The profile is defined for times from zero to infinity, and the rms current derived

from any current-time diagram must not exceed this profile. **(D)** (short time) The peak rms value and duration (seconds) of direct current which may be applied to the converter unit or section within the service current profile. *Note:* This value establishes point C on the service current profile.

(IA/IPC) 444-1973

continuous simulation A simulation that uses a continuous model.

(C) 610.3-1989w

continuous simulation language A simulation language designed for use in describing continuous simulations.

(C) 610.13-1993w

continuous-speed adjustment Refers to an adjustable-speed drive capable of being adjusted with small increments, or continuously, between minimum and maximum speed. *See also:* electric drive.

(IA/ICTL/IAC) [60]

continuous-stream printer A printer that can print processed data off-line in a continuous form.

(C) 610.10-1994w

Continuous System Modeling Program III (CSMP III) A simulation language used to simulate the dynamics of continuous systems that use ordinary differential equations.

(C) 610.13-1993w

Continuous Systems Simulation Language (CSSL) A statement-oriented simulation language used to simulate the dynamics of continuous systems that are describable by ordinary differential equations.

(C) 610.13-1993w

continuous test (batteries) A service test in which the battery is subjected to an uninterrupted discharge until the cutoff voltage is reached. *See also:* battery; cutoff voltage.

(EEC/PE) [119]

continuous test current (thyristor converter) The value of direct current that a converter unit or section can supply to its load for unlimited time periods under specified conditions.

(IA/IPC) 444-1973w

continuous thermal burden (metering) (voltage transformer) The volt-ampere burden that the voltage transformer will carry continuously at rated voltage and frequency without causing the specified temperature limitations to be exceeded.

(ELM) C12.1-1982s

continuous thermal current rating factor (1) (instrument transformers) (RF) The factor by which the rated primary current of a current transformer is multiplied to obtain the maximum primary current that can be carried continuously without exceeding the limiting temperature rise from 30°C average ambient air temperature. The RF of tapped-secondary or multi-ratio current transformers applies to the highest ratio, unless otherwise stated. (When current transformers are incorporated internally as parts of larger transformers or power circuit breakers, they shall meet allowable average winding and hot spot temperature limits under the specific conditions and requirements of the larger apparatus).

(PE/TR) [57], C57.13-1993

(2) (power and distribution transformers) (RF) The specified factor by which the rated primary current of a current transformer can be multiplied to obtain the maximum primary current that can be carried continuously without exceeding the limiting temperature rise from 30°C ambient air temperature. (When current transformers are incorporated internally as parts of larger transformers or power circuit breakers, they shall meet allowable average winding and hot-spot temperatures under the specific conditions and requirements of the larger apparatus.).

(PE/PSR/TR) C37.110-1996, C57.12.80-1978r

continuous train control (continuous inductive train control) A type of train control in which the locomotive apparatus is constantly in operative relation with the track circuit and is immediately responsive to a change in the character of the current flowing in the track circuit of the track on which the locomotive is traveling. *See also:* automatic train control.

(EEC/PE) [119]

continuous-type control (electric power system) A control mode that provides a continuous relation between the deviation of the controlled variable and the position of the final

controlling element. *See also*: speed-governing system.

(PE/PSE) 94-1970w

continuous update *See*: supervisory control.

continuous update supervisory system (station control and data acquisition) A system in which the remote station continuously updates indication and telemetering to the master station regardless of action taken by the master station. The remote station may interrupt the continuous data updating to perform a control operation.

(SWG/PE/SUB) C37.100-1992, C37.1-1994

continuous-variable model *See*: continuous model.

continuous-voltage-rise test (rotating machinery) A controlled overvoltage test in which voltage is increased in continuous function of time, linear or otherwise. *See also*: asynchronous machine.

(PE) [9]

continuous wave (CW) (1) (data transmission) Waves, the successive oscillations of which are identical under steady-state conditions.

(PE) 599-1985w

(2) (laser maser) The output of a laser which is operated in a continuous rather than pulsed mode. In this standard, a laser operating with a continuous output for a period greater than 0.25 s is regarded as a CW laser.

(LEO) 586-1980w

(3) A sinusoidal wave that has reached a steady state value. Continuous wave noise would be noise at a single frequency (e.g., 60 Hz "hum").

(PE/IC) 1143-1994r

(4) A carrier that is not modulated or switched.

(C/LM) 802.3-1998

continuous wave Doppler radar A radar that transmits a continuous-wave signal and discriminates desired targets from other targets or clutter on the basis of the Doppler shift due to radial motion. *See also*: Doppler radar; continuous wave radar.

(AES) 686-1997

continuous wave radar A radar that transmits a continuous-wave signal. *See also*: continuous wave Doppler radar.

(AES) 686-1997

continuum *See*: baseline.

contour analysis In optical character recognition, a technique for locating the outline of a character by searching around its exterior edges with a spot of light.

(C) 610.2-1987

contoured beam antenna A shaped-beam antenna designed in such a way that when its beam intersects a given surface, the lines of equal power flux density incident upon the surface form specified contours. *See also*: footprint.

(AP/ANT) 145-1993

contour encoding An image compression technique in which a region that has a constant gray level is encoded by specifying only its border.

(C) 610.4-1990w

contouring control system (numerically controlled machines) A system in which the controlled path can result from the coordinated, simultaneous motion of two or more axes.

(EEC) [74]

contract (1) (diode-type camera tube) The ratio of the difference between the peak and minimum values of irradiance to the peak irradiance of an image or specified portion of an image.

$$C = \frac{E_p - E_m}{E_p} \times 100 \text{ (percent)}$$

(ED) 503-1978w

(2) A legally binding document agreed upon by the customer and supplier. This includes the technical and organizational requirements, cost, and schedule for a product. A contract may also contain informal but useful information such as the commitments or expectations of the parties involved.

(C/SE) 830-1998

(3) In project management, a legally binding document agreed upon by the customer and the hardware or software developer or supplier; includes the technical, organizational, cost, and/or scheduling requirements of a project.

(C/SE) 1362-1998

(4) A binding agreement between two parties, especially enforceable by law or similar internal agreement wholly within an organization, for supply of service or for the supply, development, production, operation, or maintenance of a software product.

(C/SE) 1062-1998

contract curve (rotating electric machinery) A specified machine characteristic curve that becomes part of the contract.

(PE/EM) 11-1980r

contract demand (power operations) The demand that the supplier of electric service agrees to have available for delivery. *See also*: alternating-current distribution.

(PE/PSE) 858-1993w, 346-1973w

contractor (1) (hydroelectric power plants) A device used for repetitive opening and closing operation of an electric circuit, and that has load-current interrupting capability. It has no fault-current interrupting capability.

(PE/EDPG) 1020-1988r

(2) (metal transmission structures) *See also*: constructor.

(T&D/PE) 951-1988s

(3) (power and distribution transformers) A device for repeatedly establishing and interrupting an electric power circuit.

(PE/TR) C57.12.80-1978r

contract start The date a contract to supply a static var compensator (SVC) becomes effective, and the user has given notice to proceed.

(PE/SUB) 1031-2000

contractual requirements Customer-imposed performance, logistics, and other requirements and commitments governing the scope of software development, delivery, or support.

(C/SE) 1074-1995s

contrast (1) (image processing and pattern recognition) The difference between the average brightness of two subsets of an image.

(C) 610.4-1990w

(2) (computer graphics) The relationship between the highest and lowest intensity levels of a display image, usually expressed as the ratio of light to dark.

(C) 610.6-1991w

(3) (display presentation) The subjective assessment of the difference in appearance of two parts of a field of view seen simultaneously or successively. (Hence: luminosity contrast, lightness contrast, color contrast, simultaneous contrast, successive contrast). *See also*: television; photometry.

(BT/AV) [34], [84]

(4) (electric power systems in commercial buildings) Indicates the degree of difference in light reflectance of the details of a task compared with its background.

(IA/PSE) 241-1990r

contrast control A control, associated with a picture-display device, for adjusting the contrast ratio of the reproduced picture. *Note*: The contrast control is normally an amplitude control for the picture signal. In a monochrome-television system, both average luminance and the contrast ratio are affected. In a color-television system, saturation and hue also may be affected. *See also*: television.

(EEC/PE) [119]

contrast ratio (1) (television) The ratio of the maximum to the minimum luminance values in a television picture or a portion thereof. *Note*: Generally, the entire area of the picture is implied, but smaller areas may be specified as in detail contrast.

(BT/AV) 201-1979w

(2) (amplitude, frequency, and pulse modulation) For any diffraction order, the ratio of the maximum light intensity to the minimum light intensity in the order, so that $C = I_{\max}/I_{\min}$, where C is the contrast ratio. *Note*: In the limiting case when the depth of modulation is equal to 1, the minimum light intensity is due to background light, so that $C = I_{\max}/I_b$. In the other extreme, when $m = 0$, the contrast ratio is equal to 1.

(UFFC) [17]

(3) (acoustically tunable optical filter) The ratio of the dynamic transmission at a given acoustic frequency and power level to the dynamic transmission with no applied acoustic power. *Note*: The contrast ratio is a measure of light leakage through the device. It should be specified for either a monochromatic or white light source input, and the angular spread of the input light.

(UFFC) [17]

contrast rendition factor (illuminating engineering) The ratio of visual task contrast with a given lighting environment to the contrast with sphere illumination. (EEC/IE) [126]

contrast sensitivity (illuminating engineering) The ability to detect the presence of luminance differences. Quantitatively, it is equal to the reciprocal of the brightness contrast threshold. *See also:* brightness contrast threshold. (EEC/IE) [126]

contrast stretching An image enhancement technique in which the contrast between image subsets and their complements is increased. (C) 610.4-1990w

contrast transfer function square-wave response (diode-type camera tube) The contrast transfer function or CTF represents the response of the imaging system in the spatial frequency domain to a square-wave input. A bar pattern represents a one-dimensional input to a two-dimensional imaging sensor. CTF is synonymous with the square-wave amplitude response, $R_{sq}(N)$. (ED) 503-1978w

contravariance A rule governing the overriding of a property and requiring that the set of values acceptable for an input argument in the overriding property shall be a superset (includes the same set) of the set of values acceptable for that input argument in the overridden property, and the set of values acceptable for an output argument in the overriding property shall be a subset (includes the same set) of the set of values acceptable for that output argument in the overridden property. (C/SE) 1320.2-1998

contributing cause A cause that, of itself, may not result in failure. (SWG/PE) C37.10-1995

control (1) (A) (electronic computation) Usually, those parts of a digital computer that effect the carrying out of instructions in proper sequence, the interpretation of each instruction, and the application of the proper signals to the arithmetic unit and other parts in accordance with this interpretation. **(B) (electronic computation)** In some business applications of mathematics, a mathematical check. (C) 162-1963

(2) (cryotron) An input element of a cryotron. (ED) [46]
(3) (packaging machinery) A device or group of devices that serves to govern in some predetermined manner the electric power delivered to the apparatus to which it is connected. (IA/PKG) 333-1980w

(4) (electric power systems in commercial buildings) Any device used for regulation of a system or component. (IA/PSE) 241-1990r

(5) (overhead power lines) In experiments, establishment of an untreated group of animals, plants, cells, etc., that serve as the basis for comparing responses of a similar, but treated, group that has been subjected (exposed) to some agent (i.e., an electric field). (T&D/PE) 539-1990

(6) A visual user interface element that is defined by IEEE Std 1295-1993. (C) 1295-1993w

(7) The execution of a system change by manual means, remote means, automatic means, or partially automatic means. (SWG/PE/SUB) C37.100-1992, C37.1-1987s

(8) In an IDEFO model, a condition or set of conditions required for a function to produce correct output. (C/SE) 1320.1-1998

control accuracy The degree of correspondence between the final value and the ideal value of the directly controlled variable. *See also:* feedback control system. (IA/ICTL/IAC) [60]

control action (automatic control) Of a control element or a controlling system, the nature of change of the output effected by the input. *Note:* The output may be a signal or the value of a manipulated variable. The input may be the control loop feedback signal when the command is constant, an actuating signal, or the output of another control element. One use of control action is to effect compensation. *See also:* compensation. (PE/EDPG) [3]

control acquisition (1) The total of all bus activity associated with acquiring exclusive control of the bus by a module. (C/BA) 896.3-1993w

(2) The total of all bus activity associated with acquiring exclusive control of the bus. (C/BA) 10857-1994, 896.4-1993w

control action, derivative *See:* derivative control action.

control action, proportional (1) Control action in which there is a continuous linear relation between the output and the input. *Note:* This condition applies when both the output and input are within their normal operating ranges. (IA/ICTL/IAC) [60]

(2) (automatic control) Action in which there is a linear relation between the output and the input of the controller. *Note:* The ratio of the change in output produced by the proportional control action to the change in input is defined as the proportional gain. (PE/PSE) 94-1970w

control action, proportional plus derivative Control action in which the output is proportional to a linear combination of the input and the time rate-of-change of input. *Note:* In the practical embodiment of proportional plus derivative control action the relationship between output and input, neglecting high frequency terms, is

$$\frac{Y}{X} = \pm P \frac{\frac{I}{s} + 1 + Ds}{\frac{bl}{s} + 1 + \frac{Ds}{a}} \quad \begin{matrix} a > 1 \\ 0 \leq b \ll 1 \end{matrix}$$

where
 a = derivative action gain
 D = derivative action time constant
 P = proportional gain
 s = complex variable
 X = input transform
 Y = output transform

Synonym: P.D. (CS/PE/EDPG) [3]

control action, proportional plus integral *See:* proportional plus integral control action.

control action, proportional plus integral plus derivative *See:* proportional plus integral plus derivative control action.

control and instrumentation cables (cable systems in substations) Insulated electrical conductors utilized to convey information or to intermittently operate devices controlling power switching or conversion equipment. The cross-sectional areas of the conductors are generally No. 6 American Wire Gage (AWG) or smaller, and the duty cycle is such that conductor heating is insignificant. 382

control and status register (CSR) (1) A memory-mapped register that is accessed through read and write transactions and is used to observe the state of a node or to control its operation. (C/BA) 896.9-1994w

(2) A register used to control the operation of a device and/or record the status of an operation. It is accessible through a separate address space in a FASTBUS device. CSR#0, mandatory for all devices, contains the manufacturer's ID for the device and a number of device status bits as well as some user-defined bits. (NID) 960-1993

(3) A register, storage location, or address that is used to control buses, interconnects, and multiple processor systems. (C/BA) 14536-1995

control and status registers (CSR) A set of registers, storage locations, and addresses that are used to control buses, interconnects, and multiple processor systems. (C/BA) 896.5-1993s

control and status register space (FASTBUS acquisition and control) A FASTBUS primary address cycle may specify with a code on the mode select (MS) control lines one of two separate address spaces in a device; CSR space and data space. CSR space contains registers for control of and status reporting registers for the device. Its allocation and usage is part of the FASTBUS specification. *Synonym:* CSR space. *See also:* data space. (NID) 960-1986s

control apparatus A set of control devices used to accomplish the intended control functions. *See also:* control. (IA/IAC) [60]

control area (1) (electric power) A power system, a part of a power system, or a combination of several power systems under common control for which a single area control error is defined. (PE/PSE) 94-1991w

(2) A storage area used to hold information necessary for the control of a task, function, or operation. (C) 610.10-1994w

(3) A power system, a part of a power system, or a combination of several power systems under common control, that uses tie-line bias control if it is part of an interconnected system. (PE/PSE) 858-1993w

control arrow An arrow or arrow segment that expresses IDEF0 control, i.e., an object type set whose instances establish a condition or set of conditions required for a function to produce correct output. The arrowhead of a control arrow is attached to the top side of a box. (C/SE) 1320.1-1998

control ball An input device consisting of a ball, rotatable about its center and recessed into a surface, used as a locator. *Synonym*: track ball. (C) 610.6-1991w

control battery A battery used as a source of energy for the control of an electrically operated device. (IA/ICTL/IAC) [60]

control block (1) (subroutines for CAMAC) The symbol *cb* represents an integer array having four elements. The contents of these elements are:

element 1	Repeat Count
element 2	Tally
element 3	LAM Identification
element 4	Channel Identification

The repeat count specifies the number of individual CAMAC actions or the maximum number of data words to be transferred. Some multiple action and block transfer subroutines permit termination of the sequence upon a signal from the addressed module. In such cases the repeat count represents an upper limit. The tally is the number of actions usually performed or the number of CAMAC data words actually transferred. If the block transfer or multiple action is terminated by the controller due to exhaustion of the repeat count, the tally will be equal to the repeat count; otherwise it may be less. The LAM identification is an integer value having the same form and information content as the variable *lam*. The channel identification is an integer value which identifies system-dependent facilities which may be necessary to perform the block transfer or multiple action. This number, if it is required, has the same form and content as the parameter *chan* and can be created by the subroutine CDCHN. (NPS) 758-1979r

(2) The circuitry within a computer that performs control functions such as decoding microinstructions and generating the internal control signals that perform requested operations. (C) 610.10-1994w

control board (control boards, panels, and racks) An assembly of panels on which are installed components and modules for monitoring, measuring, and controlling remotely operated systems and equipment. It provides a visual and physical interface between the operator and the systems. *Synonyms*: control switchboard; console; benchboard; control panel. (PE/NP) 420-1982

control breakpoint *See*: code breakpoint.

control bus (1) A bus that carries signals that regulate system operations. (C) 610.10-1994w

(2) A bus used to distribute power for operating electrically controlled devices. (SWG/PE) C37.100-1992

control cable (1) (cable systems in power generating stations) Cable applied at relatively low current levels or used for intermittent operation to change the operating status of a utilization device of the plant auxiliary system. (PE/EDPG) 422-1977

(2) **(communication and control cables)** A cable that usually carries relatively low current levels used for indication purposes to change the operating status of a utilization device of a plant auxiliary system. A control cable usually consists of

two or more insulated, unpaired, shielded or unshielded conductors. Sizes may be No 22, 20, 19, 18, or 16 AWG solid and No 14, 12, 10, or 9 AWG stranded or solid conductor. Control cable conductor insulation usually has voltage ratings of 300, 600, or 1000 V rms, 50–60 Hz. (PE/PSC) 789-1988w

(3) Cable used in a control function application, e.g., interconnection of control switches, indicating lights, relays, solenoids, etc. Generally the cable construction is 600 V or 1000 V, single or multiple conductors, typically in wire sizes 14 AWG (2.08 mm²), 12 AWG (3.31 mm²), 10 AWG (5.26 mm²), 9 AWG (6.63 mm²), or 8 AWG (8.37 mm²). (PE/IC) 1185-1994

control capacitor The element by which voltage is coupled to the floating gate for reading or writing. (ED) 1005-1998

control card A punch card containing input parameters for controlling the execution of a program or job. (C) 610.10-1994w

control center (1) (generating stations electric power system) An assembly of devices for the purpose of switching and protecting a number of load circuits. The control center may contain transformers, contactors, circuit breakers, protective and other devices intended primarily for energizing and de-energizing load circuits. (PE/EDPG) 505-1977r

(2) The facility from which instructions and signals are issued for controlling the bulk electric system, and, in some instances, the distribution system as well. (PE/PSE) 858-1993w

control character (1) A character whose occurrence in a particular context initiates, modifies, or stops a control operation, for example, a character to control carriage return. (C) [20], [85]

(2) (A) **(data management)** A character whose occurrence in a particular context initiates, modifies, or stops a control operation. A control character may be recorded for use in a subsequent action, and it may have a graphic representation in some circumstances. *Synonyms*: operational character; functional character; command character. *See also*: transmission control character; accuracy control character; print control character; device control character. (B) **(data management)** A character that initiates some kind of physical control action but is not printed on the output page. For example, line feed, tab, form feed. (C) 610.5-1990

(3) A character used for signaling purposes by the exchange, packet or transaction layers of the stack. Both N_chars and L_chars are used as control characters. *See also*: link character; normal character. (C/BA) 1355-1995

control characteristic (gas tube) A relation, usually shown by a graph, between critical grid voltage and anode voltage. *See also*: gas tube. (ED) 161-1971w

control circuit (1) (packaging machinery) The circuit that carries the electric signals directing the performance of the controller but does not carry the main power circuit. (IA/PKG) 333-1980w

(2) The circuit that carries the electric signals of a control apparatus or system directing the performance of the controller but that does not carry the main power circuit. (IA/MT) 45-1998

control circuit failure Failure attributed to the inability of the electrical control circuit to perform its function. (SWG/PE) C37.10-1995

control-circuit limit switch A limit switch the contacts of which are connected only into the control circuit. *See also*: control; switch. (IA/IAC) [60]

control circuit transformer (packaging machinery) A voltage transformer utilized to supply a voltage suitable for the operation of control devices. (IA/PKG) 333-1980w

control circuit voltage (packaging machinery) The voltage provided for the operation of shunt coil magnetic devices. (IA/PKG) 333-1980w

control compartment (packaging machinery) A space within the base, frame, or column of the machine, used for mounting the control panel. (IA/PKG) 333-1980w

control conductor (substation grounding) The conductor that is utilized to measure equivalent changes in temperature, size, etc., that are occurring in at least one of the conductors joined by the connector under test. (PE/SUB) 837-1989r

control coupling A type of coupling in which one software module communicates information to another module for the explicit purpose of influencing the latter module's execution. *Contrast:* hybrid coupling; data coupling; pathological coupling; content coupling; common-environment coupling. (C) 610.12-1990

control current (Hall effect devices) The current through the Hall plate that by its interaction with a magnetic flux density generates the Hall voltage. (MAG) 296-1969w

control current sensitivity (Hall effect devices) The ratio of the voltage across the Hall terminals to the control current for a given magnitude of magnetic flux density. (MAG) 296-1969w

control current terminals (Hall effect devices) The terminals through which the control current flows. (MAG) 296-1969w

control cut-out switch (land transportation vehicles) An isolating switch that isolates the control circuits of a motor controller from the source of energy. (VT/LT) 16-1955w

control data (software) Data that select an operating mode, direct the sequential flow of a program, or otherwise directly influence the operation of software; for example, a loop control variable. (C) 610.12-1990

control designation symbol A symbol that identifies the particular manner, permissible or required, in which an input variable (possibly in combination with other variables) causes the logic element to perform according to its defined function. (GSD) 91-1973s

control desk (console) A control switchboard consisting of one or more relatively short horizontal or inclined panels mounted on an assembly of such a height that the panel-mounted devices are within convenient reach of an attendant. (SWG/PE) C37.100-1992, C37.21-1985r

control device An individual device used to execute a control function. *See also:* control. (IA/IAC) [60]

control dial An input device, consisting of one or more rotating knobs or levers, that provides coordinate input data. (C) 610.6-1991w

control direction In T101, control direction is transmission from the controlling station (master/RTU) to the controlled station (RTU/IED). (PE/SUB) 1379-1997

control directory The directory below which the control_files for filesets and products are stored within exported catalogs for distributions and installed software. (C/PA) 1387.2-1995

control electrode (electron tube) An electrode used to initiate or vary the current between two or more electrodes. *See also:* electrode. (ED) 161-1971w

control-electrode discharge recovery time (attenuator tubes) The time required for the control-electrode discharge to deionize to a level such that a specified fraction of the critical high-power level is required to ionize the tube. *See also:* gas tube. (ED) 161-1971w

control enclosure (packaging machinery) The metal housing for the control panel, whether mounted on the industrial equipment or separately mounted. (IA/PKG) 333-1980w

control exciter (rotating machinery) An exciter that acts as a rotary amplifier in a closed-loop circuit. *See also:* asynchronous machine. (PE) [9]

control field (C) (1) The sequence of eight (or sixteen, if extended) bits immediately following the address field of a frame. This octet identifies the HDLC frame type. (EMB/MIB) 1073.3.1-1994

(2) A sequence of bits that identifies the type of frame being transmitted, and optionally, contains sequence or acknowledgment numbers. (C) 610.7-1995

(3) The field immediately following the DSAP and SSAP address fields of a PDU. The content of the control field is interpreted by the receiving destination LLC(s) designated by the DSAP address field:

1) As a command, from the source LLC designated by the SSAP address field, instructing the performance of some specific function; or

2) As a response, from the source LLC designated by the SSAP address field.

(C/LM/CC) 8802-2-1998

control_files The control scripts executed by the utilities, the INFO file describing the files in a fileset, and other files associated with a software object. (C/PA) 1387.2-1995

control flow The sequence in which operations are performed during the execution of a computer program. *Synonym:* flow of control. *Contrast:* data flow. (C) 610.12-1990

control flow architecture A computer architecture in which execution is controlled by the need for a particular result; that is, an instruction is executed only when its result is needed by another process. *Synonym:* Von Neumann architecture. *Contrast:* data flow architecture; Harvard class architecture. (C) 610.10-1994w

control flow diagram A diagram that depicts the set of all possible sequences in which operations may be performed during the execution of a system or program. Types include box diagram, flowchart, input-process-output chart, state diagram. *Contrast:* data flow diagram. *See also:* call graph; structure chart. (C) 610.12-1990

control flow trace *See:* execution trace.

control function *See:* supervisory control functions.

control function check Control and indication from a control-check relay. A check of master and remote station equipment by exercising a predefined component or capability. (SUB/PE) C37.1-1994

control gate A form of the control capacitor in which the top polysilicon gate, above the floating gate, of the memory transistor is connected to the word-line or control line. (ED) 1005-1998

control generator A generator, commonly used on electric motive power units for the generation of electric energy in proportion to vehicle speed, prime mover speed, or some similar function, thereby serving as a guide for initiating appropriate control functions. *See also:* traction motor. (EEC/PE) [119]

control grid (electron tube) A grid, ordinarily placed between the cathode and an anode, for use as a control electrode. *See also:* electrode; grid. (ED) 161-1971w

control hole *See:* designation hole.

control host The spaceborne fiber-optic data bus (SFODB) network management node. (C/BA) 1393-1999

control initiation The function introduced into a measurement sequence for the purpose of regulating any subsequent control operations in relation to the quantity measured. *Note:* The system element comprising the control initiator is usually included in the end device but may be associated with the primary detector or the intermediate means. *See also:* measurement system. (EEC/PE) [119]

control interaction factors In a proportional plus integral plus derivative control action unit, the ratio of the effective values to the values that would be measured when the product (integral action rate) (derivative action time constant) is zero. Example: Assume a control unit composed of elements whose ratios of output to input are $1 + D's$ and $P'(I'/s + 1)$ connected so that the output of one is the input of the other. The ratio of output to input of the combination is

$$\frac{Y}{X} = P'(1 + I'D') \left[\frac{I'/s}{1 + I'D'} + 1 + \frac{D's}{1 + I'D'} \right]$$

By comparison with the equation

$$\frac{Y}{X} = P \left[\frac{1}{s} + 1 + Ds \right]$$

it is seen that the effective values are

$P = P'(1 + I'D')$ = proportional gain

$I = I'/(1 + I'D')$ = integral action rate

$D = D'/(1 + I'D')$ = derivative action time constant.

When either I' or D' is set equal to zero the factor $1 + I'D'$ equals unity and the measured values are P' , I' and D' . Consequently, $1 + I'D'$ is the "proportional interaction factor" and $1/(1 + I'D')$ is both the "integral action rate interaction factor" and "derivative action time interaction factor."

(CS/PE/EDPG) [3]

control interface The interface to a device through which the operation and response of the device is controlled either by manual operation or by a system controller.

(SCC20) 993-1997

control key (CTRL) Any key on a keyboard that is used to control a process. *Note:* The control key, usually labelled "CTRL" is said to represent a control character, and when used in conjunction with another key, such as "C", the combination is said to represent the control character "CONTROL C" or "C". *Contrast:* typing key. *See also:* attention key; alternate key; cursor control key; escape key; enter key; shift key; function key; command key. (C) 610.10-1994w

controllability In comparison of processes, a qualitative term indicating the relative ease with which they can be controlled. *Note:* The type of disturbance for which the comparison is made should be specified. (CS/PE/EDPG) [3]

controllable A property of a component of a state whereby, given an initial value of the component at a given time, there exists a control input that can change this value to any other value at a later time. *See also:* control system. (IM) [120]

controllable, completely The property of a plant whereby all components of the state are controllable within a given time interval. *See also:* control system. (IM) [120]

control language *See:* job control language.

control law A function of the state of a plant and possibly of time, generated by a controller to be applied as the control input to a plant. *See also:* control system. (IM) [120]

control law, closed-loop A control law specified in terms of some function of the observed state. *See also:* control system. (IM) [120]

control law, open-loop A control law specified in terms of the initial state only and possibly of time. *See also:* control system. (IM) [120]

controlled access (communication satellite) A mode of operation of a communication satellite in which an earth station desiring access to the system must request and obtain access to the system via a network management facility. (COM) [19]

controlled area (laser maser) An area where the occupancy and activity of those within is subject to control and supervision for the purpose of protection from radiation hazards. (LEO) 586-1980w

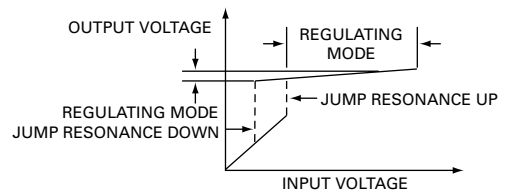
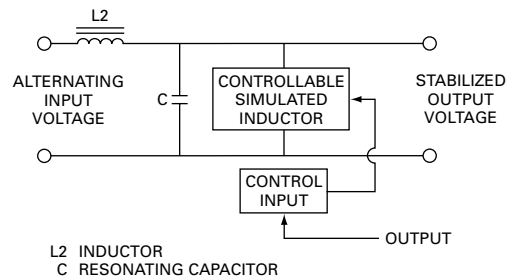
controlled-avalanche rectifier diode (semiconductor) A rectifier diode that has specified maximum and minimum breakdown-voltage parameters and is specified to operate under steady-state conditions in the breakdown region of its reverse characteristic. *See also:* breakdown. (IA) [12]

controlled carrier (floating carrier) (variable carrier) A system of compound modulation wherein the carrier is amplitude modulated by the signal frequencies in any conventional manner, and, in addition, the carrier is simultaneously amplitude modulated in accordance with the envelope of the signal so that the percentage of modulation, or modulation factor, remains approximately constant regardless of the amplitude of the signal. (AP/BT/ANT) 145-1983s, 182A-1964w

controlled ESD environment One in which an attempt is made to maintain charge levels on humans and objects below a certain level. Typical control measures include humidity

controls, equipment earth grounding, use of antistatic materials, ionized air, and high-resistance discharge paths for humans. (EMC) C63.16-1993

controlled ferroresonant regulators A regulator consisting basically of an inductor connected in series with a parallel combination of a capacitor and controllable simulated inductor. This combination is connected across the source as shown in the figure below. Stabilized output voltage is derived by inductive or conductive coupling to the parallel combination of C and the controllable simulated inductor. In a controlled ferroresonant regulator the controllable simulated inductor can be a combination of switching devices (such as thyristors or transistors) and linear or saturating inductors. This circuit, in combination with a control input to the simulated inductor, controls the flux swing (or simulated flux swing) in the saturated (or simulated saturating) inductor, thereby controlling the stabilized output voltage.



Controlled ferroresonant regulator schematic

Controlled ferroresonant regulators

(PEL) 449-1998

controlled list (A) A list whose access is controlled in some way; for example, access to an array is controlled by its index variable. **(B)** A list that can contain a finite number of entries. (C) 610.5-1990

controlled list data element A data element that is contained in a controlled list. (C) 610.5-1990w

controlled manual block signal system A series of consecutive blocks governed by block signals, controlled by continuous track circuits, operated manually upon information by telegraph, telephone, or other means of communication, and so constructed as to require the cooperation of the signalmen at both ends of the block to display a clear or permissive block signal. *See also:* block-signal system. (EEC/PE) [119]

controlled overvoltage test (rotating machinery) (dc leakage, measured current, or step voltage test) A test in which the increase of applied direct voltage is controlled and measured currents are continuously observed for abnormalities with the intention of stopping the test before breakdown occurs. (PE/EM) 95-1977r

controlled plasma switch (nonlinear, active, and nonreciprocal waveguide components) A triggered gas switch that uses an electron-beam-excited gaseous plasma in a waveguide to limit or switch radio frequency (rf) power. (MTT) 457-1982w

controlled rectifier A rectifier in which means for controlling the current flow through the rectifying devices is provided. *See also:* rectification; electronic controller. (EEC/PE) [119]

controlled slip The occurrence of a replication or deletion of all the information bits in a frame at the receiving terminal. (COM/TA) 1007-1991r

controlled-speed axle generator An axle generator in which the speed of the generator is maintained approximately constant at all vehicle speeds above a predetermined minimum. *See also:* axle-generator system. (EEC/PE) [119]

controlled system (automatic control) The apparatus, equipment, or machine used to effect changes in the value of the ultimately controlled variable. *See also:* control system. (PE/EDPG) [3]

controlled vented power fuse (installations and equipment operating at over 600 volts, nominal) A fuse with provision for controlling discharge circuit interruption such that no solid material may be exhausted into the surrounding atmosphere. The discharge gases shall not unite or damage insulation in the path of the discharge nor shall these gases propagate a flashover to or between grounded members or conduction members in the path of the discharge when the distance between the vent and such insulation or conduction members conforms to manufacturer's recommendations. (NESC/NEC) [86]

controller (1) (electric pipe heating systems) A device that regulates the state of a system by comparing a signal from a sensor located in the system with a predetermined value and adjusting its output to achieve the predetermined value. Controllers, as used in electric pipe heating systems, regulate temperatures on the system and can be referred to as temperature controllers or thermostats. Controller sensors can be mechanical (bulb, bimetallic) or electrical (thermocouple, resistance-temperature detector [RTD] thermistor). (PE/EDPG) 622A-1984r, 622B-1988r

(2) A device or group of devices that serves to govern, in some predetermined manner, the electric power delivered to the apparatus to which it is connected. (NESC/NEC) [86]

(3) **(packaging machinery)** A device or group of devices that serves to control in some predetermined manner the apparatus to which it is connected. (IA/PKG) 333-1980w

(4) The component of a system that functions as the system controller. A controller typically sends program messages to and receives response messages from devices. (IM/AIN) 488.2-1992r

(5) (A) A functional unit in a computer system that controls one or more units of the peripheral equipment. *Synonym:* peripheral control unit. *See also:* input-output controller; dual-channel controller. (B) In robotics, a processor that takes as input desired and measured position, velocity or other pertinent variables and whose output is a drive signal to a controlling motor or activator. (C) A device through which one can introduce commands to a control system. (C) 610.10-1994

(6) The entity that initiates RamLink transactions. There is exactly one controller on each RamLink ringlet. (C/MM) 1596.4-1996

(7) A device or group of devices used to control in a predetermined manner the electric power delivered to the apparatus to which it is connected. (IA/MT) 45-1998

(8) **(CAMAC system)** *See also:* CAMAC crate.

(9) *See also:* SBus Controller. (C/BA) 1496-1993w

Controller *See:* SBus Controller.

controller, automatic *See:* automatic controller.

controller characteristics (thyristor) The electrical characteristics of an ac power controller measured or observed at its input or output terminal. (IA/IPC) 428-1981w

controller current (thyristor) The current flowing through the terminals of the controller. (IA/IPC) 428-1981w

controller diagram (electric-power devices) A diagram that shows the electric connections between the parts comprising the controller and that shows the external connections. (IA/IAC) 270-1966w, [60]

controller equipment (thyristor) An operative unit for ac power control comprising one or more thyristor assemblies together with any input or output transformers, filters, other switching devices and auxiliaries required by the thyristor ac power controller to function. (IA/IPC) 428-1981w

controller faults (thyristor) A fault condition exists if the conduction cycles of some semiconductors are abnormal. (IA/IPC) 428-1981w

controller ON-state interval (thyristor) The time interval in which the controller conducts. *Note:* It is assumed that the starting instant of the controller ON-state interval is coincident with the starting instant of the trigger pulse. (IA/IPC) 428-1981w

controller power transformer (thyristor) A transformer within the controller employed to provide isolation or the transformation of voltage or current, or both. (IA/IPC) 428-1981w

controller section (thyristor) That part of a controller circuit containing the basic control elements necessary for controlling the load voltage. (IA/IPC) 428-1981w

controller, self-operated *See:* self-operated controller.

controllers for steel-mill accessory machines Controllers for machines that are not used directly in the processing of steel, such as pumps, machine tools, etc. *See also:* electric controller. (IA/IAC) [60]

controllers for steel-mill auxiliaries Controllers for machines that are used directly in the processing of steel, such as screw-downs and manipulators but not cranes and main rolling drives. *See also:* electric controller. (IA/IAC) [60]

controller, time schedule *See:* time schedule controller.

control line The line, connected to the memory transistor control element, that provides the reference voltage to the memory cell during a read and may provide a high voltage during a write cycle. (ED) 1005-1998

controlling element, final *See:* final controlling element.

controlling elements The functional components of a controlling system. *See also:* feedback control system. (IM/PE/EDPG) [120], [3]

controlling elements, forward *See:* forward controlling elements.

controlling means (of an automatic control system) Consists of those elements that are involved in producing a corrective action. (PE/PSE) 94-1970w

controlling section A length of track consisting of one or more track circuit sections, by means of which the roadway elements or the device that governs approach to or movement within a block are controlled. (EEC/PE) [119]

controlling system (1) (automatic control system without feedback) That portion of the control system that manipulates the controlled system. (IM/PE/EDPG) [120], [3]

(2) **(control system feedback)** The portion that compares functions of a directly controlled variable and a command and adjusts a manipulated variable as a function of the difference. *Note:* It includes the reference input elements; summing point; forward and final controlling elements; and feedback elements. *See also:* feedback control system. (IM/PE/EDPG) [120], [3]

controlling voltage, composite *See:* composite controlling voltage.

control loopback Loopback of output from one function to be control for another function in the same diagram. *Synonym:* feedback. (C/SE) 1320.1-1998

control machine (A) (railroad practice) An assemblage of manually operated levers or other devices for the control of signals, switches, or other units, without mechanical interlocking, usually including a track diagram with indication lights. *See also:* car retarder. (B) **(railroad practice)** A group of levers or equivalent devices used to operate the various mechanisms and signals that constitute the car retarder installation. *See also:* centralized traffic-control system; car retarder. (EEC/PE) [119]

control, manual *See:* manual control.

control mechanism (control systems for steam turbine-generator units) Includes all systems, devices, and mechanisms between a controller and the controlled valves. (PE/EDPG) 122-1985s

control metering point (1) (tie line) The location of the metering equipment that is used to measure power on the tie line for the purpose of control. *See also:* power system; center of distribution. (PE/PSE) [54]

(2) (electric power system) The actual or equivalent location of power flow measurement on an area tie line.

(PE/PSE) 94-1991w

control mode (thyristor) The starting instant of the controller ON-state interval is periodic. The control mode is defined only for steady state operation. *Note:* It is possible to combine several control modes, for example, ON-OFF control and phase control. *See also:* operation modes.

(IA/IPC) 428-1981w

control operator In the shell command language, a token that performs a control function. A control operator is one of the following symbols:

```
&
&&
(
)
;
;;
(newline)
|
||
```

The end-of-input indicator used internally by the shell is also considered a control operator. On some systems, the symbol ((is a control operator; its use produces unspecified results.

(C/PA) 9945-2-1993

control panel (1) (supervisory control, data acquisition, and automatic control) (station control and data acquisition) An assembly of man/machine interface devices.

(PE/SUB) C37.1-1987s

(2) The part of a console that contains switches, pushbuttons and indicators.

(C) 610.10-1994w

control point (project control point) A project agreed on point in time or times when specified agreements or controls are applied to the software configuration items being developed, e.g., an approved baseline or release of a specified document/code.

(C/SE) 828-1998

control point interfaces Master station or RTU (or both) element(s) that operate(s) to perform a control function.

(SUB/PE) C37.1-1994

control point selector (test, measurement, and diagnostic equipment) A device capable of selecting and controlling the proper stimuli, power of loads, and applying it to the unit under test, in accordance with instructions from the programming device.

(MIL) [2]

control position electric indicator A device that provides an indication of the movement and position of the various control surfaces or structural parts of an aircraft. It may be used for wing flaps, cowl flaps, trim tabs, oil-cooler shutters, landing gears, etc.

(EEC/PE) [119]

control positioning accuracy, precision, or reproducibility (numerically controlled machines) Accuracy, precision, or reproducibility of position sensor or transducer and interpreting system and including the machine positioning servo. *Note:* May be the same as machine positioning accuracy, precision, or reproducibility in some systems.

(IA) [61]

control power disconnecting device (power system device function numbers) A disconnecting device, such as a knife switch, circuit breaker, or pull-out fuse block, used for the purpose of respectively connecting and disconnecting the source of control power to and from the control bus or equipment. *Note:* Control power is considered to include auxiliary power which supplies such apparatus as small motors and heaters.

(SUB/PE) C37.2-1979s

control-power winding (power and distribution transformers) The winding (or transformer) that supplies power to motors, relays, and other devices used for control purposes. *Synonym:* control-power transformer. *See also:* high-voltage and low-voltage windings.

(PE/TR) C57.12.80-1978r, [57]

control-power transformer *See:* control-power winding.

control precision Precision evidenced by either the directly or the indirectly controlled variable, as specified.

(CS/PE/EDPG) [3]

control procedure The means used to control the orderly communication of information between stations on a data link.

(LM/COM) 168-1956w

controlling process The session leader that established the connection to the controlling terminal. Should the terminal subsequently cease to be a controlling terminal for this session, the session leader shall cease to be the controlling process.

(PA/C) 9945-1-1996, 1003.5-1999

controlling terminal A terminal that is associated with a session. Each session may have at most one controlling terminal associated with it, and a controlling terminal is associated with exactly one session. Certain input sequences from the controlling terminal cause signals to be sent to all processes in the process group associated with the controlling terminal.

(C/PA) 9945-1-1996, 1003.5-1999

control program *See:* supervisory program.

control punch *See:* designation hole.

control range The total inductive plus capacitive range of reactive current or megavar variation of the static var compensator (SVC), at the point of connection.

(PE/SUB) 1031-2000

control ratio (1) (gas tube) The ratio of the change in anode voltage to the corresponding change in grid voltage, with all other operating conditions maintained constant. *See also:* gas tube.

(ED) 161-1971w

(2) (power supplies) The required charge in control resistance to produce a one-volt change in the output voltage. The control ratio is expressed in ohms per volt and is reciprocal of the bridge current.

(AES) [41]

control read-only memory (CROM) A type of read-only storage in the control block of some processors which that the ROM has been programmed to decode the control logic.

(C) 610.10-1994w

control register A register in a computer or peripheral device, the contents of which control the operations of the computer or peripheral. *See also:* program counter; device register.

(C) 610.10-1994w

control relay An auxiliary relay whose function is to initiate or permit the next desired operation in a control sequence.

(SWG/PE) C37.100-1992

control ring *See:* grading ring.

control room complex (nuclear power generating station)

The complex that houses and protects plant operating personnel and control and instrumentation equipment. It includes the central control room, adjacent rooms that house supporting control equipment and instrumentation (sometimes known as the auxiliary equipment room), ventilation and life support equipment, and the cable spreading areas serving the equipment therein.

(PE/NP) 567-1980w

control SCADA function The capability of a supervisory system to selectively perform manual or automatic, or both, operation (singularly or in selected groups) of external devices. Control may be either analog (magnitude or duration) or digital.

(SUB/PE) C37.1-1994

control script A control_file associated with a software object that is executed by the software administration utilities.

(C/PA) 1387.2-1995

control sequence table (electric-power devices) A tabulation of the connections that are made for each successive position of the controller.

(IA/IAC) [60]

control signal Any signal that purposely affects the recording, processing, transmission or interpretation of data by a system element.

(C) 610.10-1994w

control signal one (CS1) An encoded control signal used on the Control In and Control Out circuits. A CS1 is encoded as a signal at half the bit rate (BR)/2.

(C/LM) 802.3-1998

control signal zero (CS0) An encoded control signal used on the Control In and Control Out circuits. A CS0 is encoded as a signal at the bit rate (BR). (C/LM) 802.3-1998

control space A dedicated area or compartment provided with equipment such as control consoles, gauge boards, control bench boards, switchboards, instrumentation, displays, control switches, communications, and other equipment for the local, remote, or programmed control and monitoring of equipment. The control system equipment may be operated by one or more individuals acting together or independently. (IA/MT) 45-1998

control span *See:* sag span.

control statement (software) A program statement that selects among alternative sets of program statements or affects the order in which operations are performed. For example, if-then-else, case. *Contrast:* assignment statement; declaration. (C) 610.12-1990

control station (1) (mobile communication) A base station, the transmission of which is used to control automatically the emission or operation of another radio station. *See also:* mobile communication system. (VT) [37]

(2) A facility that provides the individual responsible for controlling the simulation and that provided the capability to implement simulation control as PDUs on the DIS network. (DIS/C) 1278.3-1996

control store (software) In a microprogrammed computer, the computer memory in which microprograms reside. *See also:* microword; nanostore. (C) 610.12-1990, 610.10-1994w

control structure (software) A construct that determines the flow of control through a computer program. *See also:* conditional control structure; flow of control; computer program. (C/SE) 729-1983s

control switch A manually operated switching device for controlling power-operated devices. *Note:* It may include signaling, interlocking, etc., as dependent functions. (SWG/PE) C37.100-1992

control switchboard A type of switchboard including control, instrumentation, metering, protective (relays) or regulating equipment for remotely controlling other equipment. Control switchboards do not include the primary power circuit-switching devices or their connections. (SWG/PE) C37.100-1992, C37.21-1985r

control-switching point (telephone switching systems) A switching entity arranged for routing and control in the distance dialing network, at which intertoll trunks are interconnected. (COM) 312-1977w

control system (1) (broadly) An assemblage of control apparatus coordinated to execute a planned set of controls. *See also:* control. (IA/IAC) [60]

(2) A system in which a desired effect is achieved by operating on the various inputs to the system until the output, which is a measure of the desired effect, falls within an acceptable range of values. *See also:* network analysis; control; open-loop control system; transfer function; closed-loop control system. (MAG/PEL/ET) 264-1977w, 111-1984w

(3) **(automatic control)** A system in which deliberate guidance or manipulation is used to achieve a prescribed value of a variable. *Note:* It is subdivided into a controlling system and a controlled system. (PE/EDPG) [3]

(4) A system in which a desired effect is achieved by operating on inputs until the output, which is a measure of the desired effect, falls within an acceptable range of values. *See also:* open-loop control; automatic control; closed-loop control. (C/MAG) 610.2-1987, 264-1977w

control system, adaptive *See:* adaptive control system.

control system, automatic *See:* automatic control system.

control system, automatic feedback *See:* automatic feedback control system.

control system, cascade *See:* cascade control system.

control system, closed-loop *See:* closed-loop control system.

control system, coarse-fine *See:* coarse-fine control system.

control system, dual-mode *See:* dual-mode control system.

control system, duty factor *See:* duty factor control system.

control system, feedback *See:* feedback control system.

control system, floating *See:* floating control system.

control system, multiple-speed floating *See:* multiple-speed floating control system.

control system, multi-step *See:* step control system.

control system, on-off *See:* on-off control system.

control system, positioning *See:* positioning control system.

control system, ratio *See:* ratio control system.

control system, sampling *See:* sampling control system.

control system, single-speed floating *See:* single-speed floating control system.

control system, step *See:* step control system.

control system, two-step *See:* two-step control system.

control system, two-step neutral zone *See:* two-step control system.

control system, two-step single-point *See:* two-step control system.

control tape *See:* carriage control tape.

control terminal (mobile communication) (base station) Equipment for manually or automatically supervising a multiplicity of mobile and/or radio stations including means for calling or receiving calls from said stations. *See also:* mobile communication system. (VT) [37]

control total *See:* hash total.

control track (electroacoustics) A supplementary track usually placed on the same medium with the record carrying the program material. *Note:* Its purpose is to control, in some respect, the reproduction of the program, or some related phenomenon. Ordinarily, the control track contains one or more tones, each of which may be modulated either as to amplitude, frequency, or both. *See also:* phonograph pickup. (SP) [32]

control transfer instruction *See:* jump instruction.

control transformers (power and distribution transformers) Step-down transformers generally used in circuits which are characterized by low power levels and which contribute to a control function, such as in heating and air conditioning, printing, and general industrial controls. (PE/TR) C57.12.80-1978r

control unit (1) (digital computers) The parts that effect the retrieval of instructions in proper sequence, the interpretation of each instruction, and the application of the proper signals to the arithmetic unit and other parts in accordance with this interpretation. (C) [20], [85]

(2) **(mobile communication) (mobile station)** Equipment including a microphone and/or handset and loudspeaker together with such other devices as may be necessary for controlling a mobile station. *See also:* mobile communication system. (VT) [37]

(3) A functional unit of a computer that interprets and executes the instructions of a program in a prescribed sequence. *See also:* instruction control unit; main control unit. (C) 610.10-1994w

control valve (control systems for steam turbine-generator units) Those valves that control the energy input to the turbine and that are actuated by a controller through the control mechanism. (PE/EDPG) 122-1985s

control variable *See:* loop-control variable.

control voltage (1) The voltage applied to the operating mechanism of a device to actuate it, usually measured at the control power terminals of the mechanism. (SWG/PE) C37.100-1992

(2) Voltage that is provided for operating the controlled elements of the vehicle. *Note:* Control voltage may or may not be the same nominal potential as the battery voltage. *See also:* battery voltage. (VT) 1475-1999

control winding (1) (rotating machinery) An excitation winding that carries a current controlling the performance of a machine. *See also:* asynchronous machine. (PE) [9]

(2) (**saturable reactor**) A winding by means of which a controlling magnetomotive force is applied to the core. *See also*: magnetic amplifier. (EEC/PE) [119]

convection current In an electron stream, the time rate at which charge is transported through a given surface. *See also*: electron emission. (ED) 161-1971w, [45]

convection-current modulation The time variation in the magnitude of the convection current passing through a surface, or the process of directly producing such a variation. *See also*: electron emission. (ED) 161-1971w

convection heater A heater than dissipates its heat mainly by convection and conduction. (EEC/PE) [119]

convective discharge (medical electronics) (effluve) (electrical wind) (static breeze) The movement of a visible or invisible stream of particles carrying away charges from a body that has been charged to a sufficiently high voltage. (EMB) [47]

convective heat release The heat contained in the hot gases produced in a fire. (DEI) 1221-1993w

convenience outlet *See*: receptacle.

convention Any practice that is not formally standardized, but which is adopted by a group in a given situation. For example, programmers usually adopt the convention of indenting subordinate instructions in a routine so that the structure of the program is more easily visualized. *See also*: standard. (C) 610.7-1995, 610.10-1994w

conventional BIL (basic lightning impulse insulation level) The crest value of a standard lightning impulse for which the insulation shall not exhibit disruptive discharge when subjected to a specific number of applications of this impulse under specified conditions, applicable specifically to nonself-restoring insulations. (PE/SPD/C) C62.22-1997, 1313.1-1996

conventional BSL (basic switching impulse insulation level) The crest value of a standard switching impulse for which the insulation does not exhibit disruptive discharge when subjected to a specific number of impulses under specified conditions, applicable to nonself-restoring insulations. (PE/SPD/C) C62.22-1997, 1313.1-1996

conventional deviation of the disruptive discharge voltage (z) The difference between the 50% and 16% disruptive discharge voltages. (PE/PSIM) 4-1995

conventional-electrode coaxial detector (germanium gamma-ray detectors) Conventional-electrode geometry. A coaxial detector in which the outer contact is an n-type layer. (NPS) 325-1996

conventionally (true value of a quantity) The commonly accepted best estimate of the value of that quantity. This and its associated uncertainty will normally be determined by a national or transfer standard, or by a reference instrument that has been calibrated against a national or transfer standard, or by measurement quality assurance (MQA) with a national laboratory or qualified secondary laboratory. (NI) N42.17B-1989r

conventionally cooled (rotating machinery) A term referring to windings in which the heat generated within the principal portion of the windings must flow through the major ground insulation before reaching the cooling medium. (PE/REM) [9], [115]

conventionally true value The best estimate of the value determined by a primary or secondary standard, or by a reference instrument that has been calibrated against a primary or secondary standard. (NI) N42.20-1995

conventional withstand voltage (1) The voltage that an insulation system is capable of withstanding without failure or disruptive discharge under specified test conditions. (PE/C) 1313.1-1996

(2) The voltage that an insulation is capable of withstanding with a 0% probability of failure. (SPD/PE) C62.22-1997

conventions (1) (software) Requirements employed to prescribe a disciplined uniform approach to providing consistency in a software product, that is, uniform patterns or forms

for arranging data. *See also*: practices.

(C/SE) 610.12-1990, 983-1986w

(2) Accepted guidelines employed to prescribe a disciplined, uniform approach to providing consistency in a software item, for example, uniform patterns or forms for arranging data.

(C/SE) 730.1-1995

convergence (multibeam cathode-ray tubes) A condition in which the electron beams intersect at a specified point.

(ED) 161-1971w

convergence, dynamic *See*: dynamic convergence.

convergence electrode (multibeam cathode-ray tubes) An electrode whose electric field converges two or more electron beams. (ED) 161-1971w

convergence function A function or procedure that provides sufficient additional services to enable a *layer or sublayer* to provide the services expected by a particular higher layer user. (For example, the MAC Convergence Function enables the capabilities of the *Queued Arbitrated access function* to be enhanced to provide the *Medium Access Control (MAC) Sublayer* service to the *Logical Link Control Sublayer*.) (LM/C) 8802-6-1994

convergence magnet (multibeam cathode-ray tubes) A magnet assembly whose magnetic field converges two or more electron beams. (ED) 161-1971w

convergence plane (multibeam cathode-ray tubes) A plane containing the points at which the electron beams appear to experience a deflection applied for the purpose of obtaining convergence. (ED) 161-1971w

convergence protocol (1) A protocol that provides the convergence service for the provision of enhancements to an underlying service in order to provide for the specific requirements of the convergence service user.

(LM/C/COM) 8802-9-1996

(2) A protocol that provides the convergence service.

(LM/C) 15802-2-1995

convergence service A service that provides enhancements to an underlying service in order to provide for the specific requirements of the convergence service user.

(LM/C) 15802-2-1995

convergence surface (multibeam cathode-ray tubes) The surface generated by the point of intersection of two or more electron beams during the scanning process.

(ED) 161-1971w

convergence time (T_{\downarrow}) The time required to reach within 3 dB of maximum echo return loss, or 25 dB loss, whichever occurs first.

(COM/TA) 1329-1999

Conversation A set of MAC frames transmitted from one end station to another, where all of the MAC frames form an ordered sequence, and where the communicating end stations require the ordering to be maintained among the set of MAC frames exchanged. (C/LM) 802.3ad-2000

conversational (software) Pertaining to an interactive system or mode of operation in which the interaction between the user and the system resembles a human dialog. *Contrast*: batch. *See also*: online; interactive; real time.

(C) 610.12-1990

Conversational Algebraic Language (CAL) A general-purpose programming language used in time-sharing environments for solving numerical problems. (C) 610.13-1993w

conversational compiler *See*: incremental compiler.

converse inorder traversal The process of traversing a binary tree in a recursive fashion as follows: the right subtree is traversed, then the root is visited, then the left subtree is traversed. *Contrast*: converse postorder traversal; converse preorder traversal. *See also*: inorder traversal.

(C) 610.5-1990w

converse postorder traversal The process of traversing a binary tree in a recursive fashion as follows: the right subtree is traversed, then the left subtree is traversed, then the root is visited. *Contrast*: converse inorder traversal; converse preorder traversal. *See also*: postorder traversal.

(C) 610.5-1990w

converse preorder traversal The process of traversing a binary tree in a recursive fashion as follows: the root is visited, then the right subtree is traversed, then the left subtree is traversed. *Contrast:* converse inorder traversal; converse postorder traversal. *See also:* preorder traversal. (C) 610.5-1990w

conversion (1) (software) Modification of existing software to enable it to operate with similar functional capability in a different environment; for example, converting a program from Fortran to Ada, converting a program that runs on one computer to run on another. (C) 610.12-1990

(2) A general term covering the process of altering existing power switchgear equipment. (SWG/PE) C37.100-1992

(3) The process of altering existing power switchgear equipment from the original manufacturers design.

(SWG/PE) C37.59-1996

conversion efficiency (1) (electrical conversion) In alternating-current to direct-current conversion equipment, the ratio of the product of output direct-current and voltage to input watts expressed in percent. *Note:* It reflects alternating-current power capacity required for a given voltage and current output and does not necessarily reflect watts lost.

$$= \frac{(E_{dc})(I_{dc})}{P} \text{ (100 percent)}$$

(AES) [41]

(2) **(overall) (photoelectric converter)** The ratio of available power output to total incident radiant power in the active area for photovoltaic operation. *Note:* This depends on the spectral distribution of the source and junction temperature. *See also:* semiconductor. (AES) [41]

(3) **(klystron oscillator)** The ratio of the high-frequency output power to the direct-current power supplied to the beam. *See also:* velocity-modulated tube. (Std100) [84]

(4) **(solar cells)** The ratio of the solar cell's available power output (at a specified voltage) to the total incident radiant power. The cell active area shall be used in this calculation; that is, ohmic contact (but no grid lines) areas on the irradiated side shall be deducted from the total irradiated cell area to determine active area. The spectral distribution of the source and the junction temperature must be specified.

(AES/SS) 307-1969w

conversion factor *See:* calibration factor.

conversion loss (nonlinear, active, and nonreciprocal waveguide components) In a frequency converter (mixer), the ratio of the output power at the converted frequency to the available input power at the signal frequency; often expressed in decibels. (MTT) 457-1982w

conversion rate (A) (hybrid computer linkage components)

(analog-to-digital converter) The maximum rate at which the start conversion commands can be applied to the converter, to which the converter will respond by providing the desired signal at the output to within a given accuracy.

(B) (analog-to-digital converter with multiplexor with sample and hold) The maximum rate at which the start sample commands can be applied to the system to which the system will respond by providing the desired signal at the output to within a given accuracy. (Pre-selected channel). (C) 166-1977

conversion time (A) (hybrid computer linkage components) (analog-to-digital converter) That time required from the instant at which a conversion command is received and a final digital representation is available for external output to within a given accuracy. **(B) (analog-to-digital converter with multiplexor with sample and hold)** That time required from the time at which a sample command is received and a final digital representation is available for external output to within a given accuracy. (Pre-selected channel). (C) 166-1977

conversion transconductance (heterodyne conversion transducer) The quotient of (1) the magnitude of the desired output-frequency component of currents by (2) the magnitude of the input-frequency (signal) component of voltage when the impedance of the output external termination is negligible for

all of the frequencies that may affect the result. *Note:* Unless otherwise stated, the term refers to the cases in which the input-frequency voltage is of infinitesimal magnitude. All direct electrode voltages, and the magnitude of the local-oscillator voltage, must remain constant. *See also:* transducer; modulation. (ED) 161-1971w

conversion transducer (1) (general) A transducer in which the signal undergoes frequency conversion. *Note:* The gain or loss of a conversion transducer is specified in terms of the useful signal. *See also:* transducer. (PE/EEC) [119]

(2) An electric transducer in which the input and the output frequencies are different. *Note:* If the frequency-changing property of a conversion transducer depends upon a generator of frequency different from that of the input or output frequencies, the frequency and voltage or power of this generator are parameters of the conversion transducer. *See also:* heterodyne conversion transducer. (ED) 161-1971w

conversion voltage gain (conversion transducer) The ratio of the magnitude of the output-frequency voltage across the output termination, with the transducer inserted between the input-frequency generator and the output termination" to the magnitude of the input-frequency voltage across the input termination of the transducer. (ED) [45]

convert (data processing) To change the representation of data from one form to another, for example, to change numerical data from binary to decimal or from cards to tape. (C) [20], [85]

converter (1) (general) A machine or device for changing alternating-current power to direct-current power or vice versa. (PE) [9]

(2) **(A) (heterodyne reception) (frequency converter)** The portion of the receiver that converts the incoming signal to the intermediate frequency. **(B) (data transmission)** A device for changing one form of information language to another, so as to render the language acceptable to a different machine (that is, card to tape conversion). (PE) 599-1985

(3) **(facsimile)** A device that changes the type of modulation. *See also:* facsimile. (COM) 168-1956w

(4) A network or device for changing the form of information or energy. (IA/ICTL/APP/IAC) [69], [60]

(5) **(test measurement and diagnostic equipment)** A device that changes the manner of representing information from one form to another. (MIL) [2]

(6) A device that changes electrical energy from one form to another, as from alternating current to direct current. (NESC/NEC) [86]

(7) A device that changes electrical energy from one form to another. A semiconductor converter is a converter that uses semiconductors as the active elements in the conversion process. (IA/SPC) 519-1992

(8) A machine or device for changing dc power to ac power, for changing ac power to dc power, or for changing from one frequency to another. This definition covers several different power conversion functions, each of which is known by a separate term. *See also:* dc-dc converter; frequency converter; inverter; rectifier. (PEL/ET) 388-1992r

(9) A device capable of converting impulses from one mode to another, such as analog to digital, parallel to serial, or from one code to another. *See also:* code converter; digital-to-analog converter; power supply. (C) 610.10-1994w

(10) **(self-commutated converters) (ac adjustable-speed drives)** An operative unit for electronic power conversion, comprising one or more electronic switching devices and any associated components, such as transformers, filters, commutation aids, controls, and auxiliaries. *Synonym:* converter equipment. (IA/SPC/ID) 936-1987w, 995-1987w

(11) A type of repeater that converts the data signal from one media to another. (C/LM) 8802-5-1998

converter, analog-to-digital *See:* analog-to-digital converter.

converter, digital-to-analog *See:* digital-to-analog converter.

converter equipment *See:* converter.

converter, reversible power *See:* reversible power converter.

converter, static solid state *See*: static, solid-state converter.

converter switching element (ac adjustable-speed drives) A part of the converter circuit, bounded by two principal terminals, containing one or more semiconductor devices having the property of controllable or noncontrollable conduction in at least one direction.

(IA/ID/SPC) 995-1987w, 936-1987w

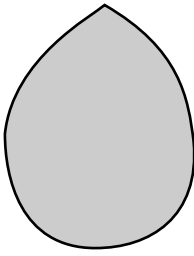
converter tube An electron tube that combines the mixer and local-oscillator functions of a heterodyne conversion transducer. *See also*: heterodyne conversion transducer.

(ED) 161-1971w, [45]

converting station (power operations) A station where machinery is used for changing alternating-current (ac) power to direct-current power or vice versa, or from one frequency to another.

(PE/PSE) 858-1987s

convex Pertaining to a region for which a straight line segment between any two points of the region is entirely contained within the region. *Contrast*: concave.



convex

(C) 610.4-1990w

convex programming In operations research, a particular type of nonlinear programming in which the function to be maximized or minimized and the constraints to be applied are appropriately convex or concave functions, respectively.

(C) 610.2-1987

conveyor A mechanical contrivance, generally electrically driven, that extends from a receiving point to a discharge point and conveys, transports, or transfers material between those points. *See also*: chain-type conveyor; shaker-type conveyor; vibrating-type conveyor; belt-type conveyor.

(EEC/PE) [119]

conveyor, belt-type *See*: belt-type conveyor.

conveyor, chain-type *See*: chain-type conveyor.

conveyor, shaker-type *See*: shaker-type conveyor.

conveyor, vibrating-type *See*: vibrating-type conveyor.

convolution efficiency The ratio of the power density of the desired output at frequency (ω_1 and ω_2) to the product of the power densities of the two inputs at frequencies ω_1 and ω_2 , respectively, in the convolution region, expressed in decibels.

(UFFC) 1037-1992w

convolution function (burst measurements) The integral of the function $x(\tau)$ multiplied by another function $y(-\tau)$ shifted in time by t

$$\int_{-\infty}^{\infty} x(\tau)y(t-\tau)d\tau$$

See also: burst.

(SP) 265-1966w

convolution integral (automatic control) A mathematical integral operation that is used to describe the time response of a linear element to an input function in terms of the weighting function of the element. The integral generally takes the form $\int_0^t f(x)g(t-x)dx$ where $f(x)$ is an arbitrary input, and $g(t-x)$ is a weighting function that extends backward from instant t through x as far as zero.

(PE/EDPG) [3]

convolver A three-port device whose output signal is the convolution of two time waveforms applied simultaneously to the input ports; convolution is achieved by physically passing the input signals over one another at the output transducer.

(UFFC) 1037-1992w

cookie A quantity used to indicate or signal to a recipient of data, significant changes in the state of the entity supplying the data. (IM/ST) 1451.1-1999

cooking unit, counter-mounted *See*: counter-mounted cooking unit.

coolant A fluid, usually air, hydrogen, or water, used to remove heat from a machine or from certain of its components. *Synonym*: cooling medium. (PE/EM) 67-1990r, [9]

cooled-input FET preamplifier (germanium gamma-ray detectors) A preamplifier in which the input field-effect transistor (FET) is cooled to achieve a reduction in noise.

(NPS) 325-1986s

cooler (heat exchanger) (rotating machinery) A device used to transfer heat between two fluids without direct contact between them. (PE) [9]

Coolidge tube An X-ray tube in which the needed electrons are produced by a hot cathode. (ED) [45]

cooling (power supplies) The cooling of regulator elements refers to the method used for removing heat generated in the regulating process. *Note*: Methods include radiation, convection, and conduction or combination thereof. (AES) [41]

cooling coil (rotating machinery) A tube through whose wall, heat is transferred between two fluids without direct contact between them. (PE) [9]

cooling, convection *See*: convection cooling.

convection cooling (power supplies) A method of heat transfer that uses the natural upward motion of air warmed by the heat dissipators. (AES/PE) [41], [78]

cooling duct *See*: ventilating duct.

cooling fin A metallic part of fin extending the cooling area to facilitate the dissipation of the heat generated in the device. *See also*: electron device. (ED) [45]

cooling, lateral force-air (power supplies) An efficient method of heat transfer by means of side-to-side circulation that employs blower movement of air through or across the heat dissipators. (AES/PE) [41], [78]

cooling medium *See*: coolant.

cooling system (1) (rectifier) Equipment, that is, parts and their interconnections, used for cooling a rectifier. *Note*: It includes all or some of the following: rectifier water jacket, cooling oils or fins, heat exchanger, blower, water pump, expansion tank, insulating pipes, etc. *See also*: rectification.

(IA) [62]

(2) (thyristor) Any equipment, that is, parts and their interconnections, used for cooling a thyristor controller. It includes all or some of the following: thyristor heat sink, cooling coils or fins, heat exchanger, fan or blower, water pump, expansion tank, insulating pipes, equipment enclosure, etc.

(IA/IPC) 428-1981w

(3) (thyristor converter) Equipment, that is, parts and their interconnections, used for cooling a thyristor converter. *Note*: It includes all or some of the following: thyristor heat sink, cooling coils or fins, heat exchanger, fan or blower, water pump, expansion tank, insulating pipes, etc.

(IA/IPC) 444-1973w

cooling system, direct raw-water (thyristor converter) A cooling system in which water, received from a constantly available supply, such as a well or water system, is passed directly over the cooling surfaces of the thyristor converter and discharged.

(IA/IPC) 444-1973w

cooling system, direct raw-water, with recirculation (thyristor converter) A direct raw-water cooling system in which part of the water passing over the cooling surfaces of the thyristor converter is recirculated and raw water is added as needed to maintain the required temperature, the excess being discharged.

(IA/IPC) 444-1973w

cooling system, forced-air (thyristor converter) An air cooling system in which heat is removed from the cooling surfaces of the thyristor converter by means of a flow of air produced by a fan or blower.

(IA/IPC) 444-1973w

cooling system, heat-exchanger (thyristor converter) A cooling system in which the coolant, after passing over the cooling

surfaces of the thyristor converter, is cooled in heat exchanger and recirculated. *Note:* Heat may be removed from the thyristor converter cooling surfaces by liquid or air using the following types of heat exchangers: water-to-water, water-to-air, air-to-water, air-to-air, and refrigeration cycle. The liquid in the closed system may be other than water, and the gas in the closed system may be other than air. (IA/IPC) 444-1973w

cooling system, natural-air (thyristor converter) An air cooling system in which heat is removed from the cooling surfaces of the thyristor converter only by the natural action of the ambient air. (IA/IPC) 444-1973w

cooling system regulating equipment (thyristor) Any equipment used for heating and cooling the thyristor controller, together with the devices for controlling and indicating its temperature. (IA/IPC) 428-1981w

cooling-water system (rotating machinery) All parts that are provided for the flow, treatment, or storage of cooling water. (PE) [9]

coordinate dimension word (numerically controlled machines) A word defining an absolute dimension. (IA/EEC) [61], [74]

coordinated operation (1) Operation of generation and transmission facilities of two or more interconnected systems to achieve greater reliability and economy. (PE/PSE) 858-1993w

(2) (hydro plants) Operation of a group of hydro plants and storage reservoirs so as to obtain optimum power benefits with due consideration to all other uses. (PE/PSE) 346-1973w

(3) (electric power supply) Operation of generation and transmission facilities of two or more interconnected electrical systems to achieve greater reliability and economy. (PE/PSE) 346-1973w

coordinated operation of hydroplants (power operations) Operation of a group of hydroplants and storage reservoirs so as to obtain optimum power benefits with due consideration to all other uses. (PE/PSE) 858-1987s

coordinated transpositions (electric supply or communication circuits) Transpositions that are installed for the purpose of reducing inductive coupling, and that are located effectively with respect to the discontinuities in both the electric supply and communication circuits. *See also:* inductive coordination. (PE/EEC) [119]

COordinate GeOMetry (COGO) A problem-oriented programming language used to solve coordinate geometry problems in civil engineering applications. (C) 610.13-1993w

coordinates A set of data values that specify a location. (C) 610.6-1991w

coordinate system (pulse terminology) Throughout the following, a rectangular Cartesian coordinate system is assumed in which, unless otherwise specified:

- 1) Time (t) is the independent variable taking along the horizontal axis, increasing in the positive sense from left to right.
- 2) Magnitude (m) is the dependent variable taken along the vertical axis, increasing the positive sense or polarity from bottom to top.
- 3) The following additional symbols are used:
 - a) e —The base of natural logarithms.
 - b) $a, b, c, \text{etc.}$ —Real constants that, unless otherwise specified, may have any value and either sign.
 - c) n —A positive integer.

(Std100)

coordinating entity (1) That part of an end system or interworking unit (IWU) responsible for the coordination and synchronization of functions belonging to the data and signalling subentities of the layer entity implementing a PSN access protocol. (C/LM) 802.9a-1995w

(2) That part of the Network Layer within an end system or interworking unit responsible for the coordination and synchronization of functions belonging to the Data and Signal-

ling subentities of the layer entity implementing a PSN access protocol. (LM/C/COM) 8802-9-1996

coordination dimension A reference dimension used to coordinate mechanical interfaces. This is not a manufacturing dimension with a tolerance.

(C/BA/MM) 1301.2-1993, 1301.4-1996, 1301.1-1991, 1301.3-1992r

coordination function The logical function that determines when a station operating within a basic service set (BSS) is permitted to transmit and may be able to receive protocol data units (PDUs) via the wireless medium (WM). The coordination function within a BSS may have one point coordination function (PCF) and will have one distributed coordination function (DCF). (C/LM) 8802-11-1999

coordination function pollable A station able to respond to a coordination function poll with a data frame, if such a frame is queued and able to be generated, and interpret acknowledgments in frames sent to or from the point coordinator. (C/LM) 8802-11-1999

coordination of protection The process of choosing settings or time delay characteristics of protective devices, such that operation of the devices will occur in a specified order to minimize customer service interruption and power system isolation due to a power system disturbance. (PE/PSR) C37.113-1999

coplanar strip transmission line A planar transmission line consisting of two parallel thin conducting strips of finite width, separated by a finite gap and affixed to the same plane surface of an insulating substrate of arbitrary thickness. (MTT) 1004-1987w

coplanar waveguide A planar transmission line consisting of a single thin conducting strip of finite width situated between two semi-infinite ground planes and separated from them by finite gaps, which are all affixed to the same plane surface of an insulating substrate of arbitrary thickness. (MTT) 1004-1987w

co-polarization That polarization that the antenna is intended to radiate [receive]. *See also:* polarization pattern. (AP/ANT) 145-1993

co-polar (radiation) pattern A radiation pattern corresponding to the co-polarization. *See also:* co-polarization. (AP/ANT) 145-1993

copper brush (rotating machinery) A brush composed principally of copper. *See also:* brush. (PE) [9]

copper-clad aluminum conductors Conductors drawn from a copper-clad aluminum rod with the copper metallurgically bonded to an aluminum core. The copper forms a minimum of 10 percent of the cross-sectional area of a solid conductor or each strand of a stranded conductor. (NESC/NEC) [86]

copper-clad steel Steel with a coating of copper welded to it, as distinguished from copper-plated or copper-sheathed material. (EEC/PE) [119]

copper-covered steel wire A wire having a steel core to which is bounded a continuous outer layer of copper. *See also:* conductor. (PE) [4], 64

copper losses *See:* load losses.

coprocessor (CP) (1) An optional processing unit (impl. dep. #4). (C/MM) 1754-1994

(2) A processor used in conjunction with a central processing unit, designed to perform specific functions that may not be executed efficiently by the central processing unit, for example: a floating-point coprocessor. (C) 610.10-1994w

coprocessor operate (CPop) instructions Instructions that perform coprocessor calculations, as defined by the CPop1 and CPop2 opcodes. CPop instructions do not include CBccc instructions, nor loads and stores between memory and the coprocessor. (C/MM) 1754-1994

copy (1) (A) (software) To read data from a source, leaving the source data unchanged, and to write the same data elsewhere in a physical form that may differ from that of the source. For example, to copy data from a magnetic disk onto a magnetic

tape. *Contrast:* move. **(B) (software)** The result of a copy process as in definition (A). For example, a copy of a data file. *See also:* soft copy; display; hard copy.

(C) 610.2-1987, 610.12-1990

(2) (A) (electronic data processing) To reproduce data leaving the original data unchanged. *See also:* transfer.

(B) (electronic data processing) To produce a sequence of character events equivalent, character by character, to another sequence of character events. *See also:* transfer.

(C) (electronic data processing) The sequence of character events produced in (B). *See also:* transfer. (C) 162-1963

(3) To duplicate text or graphic objects from the screen to the clipboard. (C) 1295-1993w

(4) (A) A copy of an entry stored in other DSA(s) through bilateral agreement. **(B)** A locally and dynamically stored copy of an entry resulting from a request (a cache copy).

(C/PA) 1328.2-1993, 1224.2-1993, 1327.2-1993, 1326.2-1993

copyback cache A cache memory scheme with the attribute that data written from the processor is normally written to the cache rather than the main memory. Modified data in the cache is written to the main memory to avoid loss of the data when a cache line flush or replacement occurs.

(C/BA) 10857-1994, 896.4-1993w

copyright The exclusive right granted to the owner of an original work of authorship, which is fixed in any tangible medium of expression, to reproduce, publish, perform, and/or sell the work. (C/SE) 1420.1b-1999

cord One or a group of flexible insulated conductors, enclosed in a flexible insulating covering and equipped with terminals. (EEC/PE) [119]

cord adjuster A device for altering the pendant length of the flexible cord of pendant. *Note:* This device may be a ratchet reel, a pulley and counterweight, a tent-rope stick, etc. (EEC/PE) [119]

cord circuit (telephone switching systems) A connecting circuit, usually terminating in a plug at one or both ends, used at switchboard positions in establishing telephone connections. (COM) 312-1977w

cord-circuit repeater A repeater associated with a cord circuit so that it may be inserted in a circuit by an operator. *See also:* repeater. (EEC/PE) [119]

cord connector A plug receptacle provided with means for attachment to flexible cord. (EEC/PE) [119]

cord grip (strain relief) A device by means of which the flexible cord entering a device or equipment is gripped in order to relieve the terminals from tension in the cord. (EEC/PE) [119]

cordless switchboard (telephone switching systems) A telecommunications switchboard in which manually operated keys are used to make connections. (COM) 312-1977w

core (1) (power and distribution transformers) An element made of magnetic material, serving as part of a path for magnetic flux. (PE/TR) C57.12.80-1978r

(2) (electronic information storage) *See also:* digital computer.

(3) (mechanical recording) The central layer or basic support of certain types of laminated media. (SP) [32]

(4) (electromagnet) The part of the magnetic structure around which the magnetizing winding is placed. (Std100) 270-1966w

(5) (fiber optics) The central region of an optical waveguide through which light is transmitted. *See also:* normalized frequency; cladding; optical waveguide. (Std100) 812-1984w

(6) (composite insulators) The axially aligned glass fiber reinforced resin rod that forms the mechanically load-bearing component of the insulator. (T&D/PE) 987-1985w

(7) (A) The central conductor element of a coaxial cable. *Note:* It is usually constructed of copper. **(B)** Single conductor in a cable (British usage). (C) 610.7-1995

core area (fiber optics) The cross sectional area enclosed by the curve that connects all points nearest the axis on the periphery of the core where the refractive index of the core exceeds that of the homogeneous cladding by k times the difference between the maximum refractive index in the core and the refractive index of the homogeneous cladding, where k is a specified positive or negative constant $k1$. *See also:* cladding; homogeneous cladding; core; tolerance field. (Std100) 812-1984w

core center (fiber optics) A point on the fiber axis. *See also:* fiber axis; optical axis. (Std100) 812-1984w

core circuit The part of the circuitry in an integrated circuit that provides the intended data manipulation function (as distinct from dedicated test circuitry). *Note:* Residual elements, which are permanently connected to the pin (i.e., in test mode as well as in normal function mode), are not regarded as being part of the core circuit. *See also:* residual element. (C/TT) 1149.4-1999

core diameter (fiber optics) The diameter of the circle that circumscribes the core area. *See also:* core; tolerance field; core area; cladding. (Std100) 812-1984w

core disconnect (CD) A facility provided within an analog boundary module (ABM) (usually mediated by a conceptual switch) that allows a pin to be disconnected from the core circuit so that the signal at the pin can be driven to any value within the pin's normal functional range without affecting the core circuit, and no value generated in the core circuit will affect the pin. *Notes:* 1. The core disconnect facility could be provided as part of the functional driver or receiver attached to the pin, e.g., by implementing a driver with high-Z capability. 2. It is necessary to document all residual elements that remain connected to the pin when it enters the CD state. *See also:* conceptual switch; core circuit; high-Z; residual element; CD state. (C/TT) 1149.4-1999

core duct (rotating machinery) The space between or through core laminations provided to permit the radial or axial flow of coolant gas. *See also:* rotor. (PE) [9]

core dump* *See:* memory dump.

* Deprecated.

core end plate (rotating machinery) A plate or structure at the end of a laminated core to maintain axial pressure on the laminations. (PE) [9]

core-form transformer (power and distribution transformers) A transformer in which those parts of the magnetic circuit surrounded by the windings have the form of legs with two common yokes. (PE/TR) C57.12.80-1978r

core length (rotating machinery) The dimension of the stator, or rotor, core measured in the axial direction. *See also:* stator; rotor. (PE) [9]

core loss (1) The power dissipated in a magnetic core subjected to a time-varying magnetizing force. *Note:* Core loss includes hysteresis and eddy-current losses of the core. (PE/TR) C57.12.80-1978r

(2) (synchronous machines) The difference in power required to drive the machine at normal speed, when excited to produce a voltage at the terminals on open circuit corresponding to the calculated internal voltage, and the power required to drive the unexcited machine at the same speed. *Note:* The internal voltage shall be determined by correcting the rated terminal voltage for the resistance drop only. (PE) [9], [84]

(3) (electronic power transformer) The measured power loss, expressed in watts, attributable to the material in the core and associated clamping structure, of a transformer that is excited, with no connected load, at a core flux density and frequency equal to that in the core when rated voltage and frequency is applied and rated load current is supplied. (PEL/ET) 295-1969r

(4) (power and distribution transformers) The power dissipated in a magnetic core subjected to a time-varying magnetizing force. Core loss includes hysteresis and eddy-current losses of the core. (PE/TR) C57.12.80-1978r

core-loss current The in-phase component (with respect to the induced voltage) of the exciting current supplied to a coil. *Note*: It may be regarded as a hypothetical current, assumed to flow through the equivalent core-loss resistance.

(CHM) [51]

core loss, open-circuit (rotating machinery) The difference in power required to drive a machine at normal speed, when excited to produce a specified voltage at the open-circuited armature terminals, and the power required to drive the unexcited machine at the same speed. (Std100) [84]

core-loss test (rotating machinery) A test taken on a built-up (usually unwound) core of a machine to determine its loss characteristic. *See also*: stator. (PE) [9]

core memory *See*: magnetic core.

core package (rotating machinery) The portion of core lying between two adjacent vent ducts or between an end plate and the nearest vent duct. (PE) [9]

corequisite The specification in a software object such that another software object shall be installed, in conjunction with the installation of the first, and configured in conjunction with the configuration of the first. (C/PA) 1387.2-1995

core, relay *See*: relay core.

core specification Synonym for IEEE Std 1275-1994, i.e., the standard that specifies the system-independent and bus-independent requirements for Open Firmware.

(C/BA) 1275.1-1994w, 1275.2-1994w

core storage A type of storage in which the data medium consists of magnetic cores. *Contrast*: semiconductor storage.

(C) 610.10-1994w

CORE System A prototype computer graphics standard that contains common concepts and practices of graphics programming. It was developed by an Association for Computing Machinery (ACM) Special Interest Group on Computer Graphics (SIGGRAPH) committee. (C) 610.6-1991w

core test (rotating machinery) FRA test taken on a built-up (usually unwound) core of a machine to determine its loss characteristics or its magnetomotive force characteristics, or to locate short-circuited laminations. *See also*: stator; rotor. (PE) [9]

Core Test Information Model (CTIM) The fundamental information entities required to describe tests, test specifications, test requirements, and other test entities within the AB-BETTM domain. The CTIM contains the significant types from which the component standards may be derived.

(SCC20) 1226-1998

core-type transformer A transformer in which those parts of the magnetic-circuit surrounded by the windings have the form of legs with two common yokes.

(PE/TR) C57.12.80-1978r

Coriolis acceleration (inertial sensors) That increment of acceleration relative to inertial space that arises from the velocity of a particle relative to a rotating coordinate system. Sometimes, the term Coriolis acceleration is also used to describe the apparent acceleration relative to a rotating coordinate system of a force-free moving particle.

(AES/GYAC) 528-1994

coriolis correction (navigation) (navigation aid terms) An acceleration correction that must be applied to measurements of acceleration with respect to a coordinate system relative to inertial space. (AES/GCS) 172-1983w

cornea (laser maser) The transparent outer coat of the human eye that covers the iris and the crystalline lens. It is the main refracting element of the eye. (LEO) 586-1980w

corner (waveguide technique) An abrupt change in the direction of the axis of a waveguide. *Synonym*: elbow. *See also*: waveguide. (AP/ANT) [35], [84]

corner frequency (1) The frequency at which the skin depth is equal to the thickness of the shield. (PE/IC) 1143-1994r

(2) (asymptotic form of Bode diagram) (control system feedback) The frequency indicated by a breakpoint, that is, the junction of two confluent straight lines asymptotic to the

log gain curve. *Note*: One breakpoint is associated with each distinct real root of the characteristic equation, one with each set of repeated roots, and one with each pair of complex roots. For a single real root, corner frequency (in radians per second) is the reciprocal of the corresponding time constant (in seconds), and the corresponding phase angle is halfway between the phase angles belonging to the asymptotes extended to infinity. *See also*: feedback control system.

(IM/PE/EDPG) [120], [3]

corner reflector (1) A reflecting object consisting of two or three mutually intersecting conducting flat surfaces. *Note*: Dihedral forms of corner reflectors are frequently used in antennas; trihedral forms with mutually perpendicular surfaces are more often used as radar targets. (AP/ANT) 145-1993

(2) (A) (antenna) A reflecting object consisting of two or three mutually intersecting conducting flat surfaces. *Note*: Dihedral forms of corner reflectors are frequently used in antennas; trihedral forms are more often used as radar targets.

(B) (radar) Two (dihedral) or three (trihedral) mutually intersecting conducting surfaces designed to return electromagnetic radiation towards its source. Also used as calibration devices. (AP/PROP) 211-1997

(3) Two (dihedral) or three (trihedral) orthogonal conducting surfaces, designed to return an incident electromagnetic wave toward its source. *Note*: A corner reflector is often used to provide a conspicuous radar target as a safety measure for a small sailboat, to enhance the detectability of a radar target on which it is mounted, or to calibrate a radar.

(AES) 686-1997

corner reflector antenna An antenna consisting of a feed and a corner reflector. (AP/ANT) 145-1993

corner, waveguide *See*: waveguide bend.

cornice lighting (illuminating engineering) Lighting comprising sources shielded by a panel parallel to the wall and attached to the ceiling, and distributing light over the wall.

(EEC/IE) [126]

corona (1) (air) A luminous discharge due to ionization of the air surrounding a conductor caused by a voltage gradient exceeding a certain critical value. *See also*: tower.

(T&D/PE/TR) [10], C57.19.03-1996

(2) (gas) A discharge with slight luminosity produced in the neighborhood of a conductor, without greatly heating it, and limited to the region surrounding the conductor in which the electric field exceeds a certain value. *See also*: partial discharge; discharge. (ED) [45], [84]

(3) (overhead-power-line corona and radio noise) A luminous discharge due to ionization of the air surrounding an electrode caused by a voltage gradient exceeding a certain critical value. *Note*: For the purpose of IEEE Std 539-1990, electrodes may be conductors, hardware, accessories, or insulators. (PE/T&D) 539-1990

(4) (partial discharge) (corona measurement) A type of localized discharge resulting from transient gaseous ionization in an insulation system when the voltage stress exceeds a critical value. The ionization is usually localized over a portion of the distance between the electrodes of the system.

(MAG/ET) 436-1977s

(5) (dc electric-field strength and ion-related quantities) A luminous discharge due to ionization of the air surrounding an electrode caused by a voltage gradient exceeding a certain critical value. (T&D/PE) 1227-1990r

(6) (non-preferred term) (power and distribution transformers) *See also*: partial discharge.

(PE/TR) C57.12.80-1978r

(7) (dry-type transformers) *See also*: partial discharge.

(PE/TR) C57.124-1991r

corona charging (electrostatography) Sensitizing by means of gaseous ions of a corona. *See also*: electrostatography.

(ED) [46]

corona-discharge tube A low-current gas-filled tube utilizing the corona-discharge properties. (ED) [45]

corona extinction gradient (overhead-power-line corona and radio noise) The gradient on that part of an electrode surface at which continuous corona last persists as the applied voltage is gradually decreased. (PE/T&D) 539-1990

corona extinction voltage (1) (corona measurement) The highest voltage at which continuous corona of specified pulse amplitude no longer occurs as the applied voltage is gradually decreased from above the corona inception value. Where the applied voltage is sinusoidal, the CEV is expressed as

$$1/\sqrt{2}$$

of the peak voltage.

(MAG/ET) 436-1977s

(2) (overhead-power-line corona and radio noise) The voltage applied to the electrode to produce the corona extinction gradient. (T&D/PE) 539-1990

corona inception gradient (overhead-power-line corona and radio noise) The gradient on that part of an electrode surface at which continuous corona first occurs as the applied voltage is gradually increased. *See also:* continuous corona.

(T&D/PE) 539-1990

corona inception test *See:* discharge inception test.

corona inception voltage (A) (corona measurement) The lowest voltage at which continuous corona of specified pulse amplitude occurs as the applied voltage is gradually increased. Where the applied voltage is sinusoidal, the CIV is expressed as

$$1/\sqrt{2}$$

of the peak voltage. **(B)** The voltage applied to the electrode to produce the corona inception gradient.

(MAG/T&D/PE/ET) 436-1977, 539-1990

corona level *See:* ionization extinction voltage.

corona loss Power lost due to corona process. On overhead power lines, this loss is expressed in watts per meter (W/m) or kilowatts per kilometer (kW/km). (T&D/PE) 539-1990

corona modes (overhead-power-line corona and radio noise)

Two principal modes of corona are the glow mode and the streamer mode. Their characteristics and occurrence depend on the polarity of the electrode, the basic ionization characteristics of the ambient air, and the magnitude, as well as the distribution of the electric field. Thus, the geometry of the electrodes, the ambient weather conditions, and the magnitude, as well as the polarity of the applied voltage, are the main factors determining corona modes. Corona modes that are possible during alternating half-cycles of the alternating-voltage waveform are essentially similar to those of corresponding direct-voltage corona modes when effects of space charges left behind from each preceding half-cycle are taken into account. *See also:* streamer mode; glow mode.

(PE/T&D) 539-1990

corona, overhead power lines Coronas occurring at the surfaces of power-line conductors and their fittings under the positive or negative polarity of the power-line voltage. *Notes:* 1. Surface irregularities such as stranding, nicks, scratches, and semiconducting or insulating protrusions are usual corona sites. 2. Dry or wet airborne particles in the proximity of power-line conductors and their fittings may cause corona discharges. 3. Weather has a pronounced influence on the occurrence and characteristics of overhead power-line coronas.

(T&D/PE) 539-1990

corona pulse (1) (corona measurement) A voltage or current pulse which occurs at some location in a transformer as a result of a corona discharge. (MAG/ET) 436-1977s

(2) (overhead-power-line corona and radio noise) A voltage or current pulse that occurs at some designated location in a circuit as a result of corona discharge.

(T&D/PE) 539-1990

corona shielding (rotating machinery) (corona grading) A means adapted to reduce potential gradients along the surface of coils. *See also:* asynchronous machine; direct-current commutating machine. (PE) [9]

corona voltmeter A voltmeter in which the crest value of voltage is indicated by the inception of corona. *See also:* instrument. (EEC/PE) [119]

coroutine (software) A routine that begins execution at the point at which operation was last suspended, and that is not required to return control to the program or subprogram that called it. *Contrast:* subroutine. (C) 610.12-1990

coroutines (software) Two or more modules that can call each other, but are not in a superior to subordinate relationship. *See also:* module. (C/SE) 729-1983s

corrected-compass course *See:* magnetic course.

corrected-compass heading *See:* magnetic heading.

correcting signal *See:* synchronizing signal.

correction (1) (mathematics of computing) (digital computers) A quantity (equal in absolute value to the error) added to a calculated or observed value to obtain the true value. *See also:* accuracy rating; error. (C) 162-1963w, 1084-1986w

(2) The evaluation of a multinomial function using information from the Calibration Transducer Electronic Data Sheet together with data from one or more channels.

(IM/ST) 1451.2-1997

(3) (analog computer) *See also:* error. (C) 165-1977w

correction angle* (navigation aid terms) The angular difference between heading and course of a vehicle. Preferably called drift-correction angle. (AES/GCS) 172-1983w

* Deprecated.

correction factor (metering) (instrument transformers) The factor by which the reading of a wattmeter or the registration of a watt-hour meter must be multiplied to correct for the effects of the error in ratio and the phase angle of the instrument transformer. This factor is the product of the ratio and phase-angle correction factors for the existing conditions of operation. (ELM) C12.1-1982s

correction rate The velocity at which the control system functions to correct error in register. (IA/ICTL/IAC) [60]

corrective action (1) (nuclear power quality assurance) Measures taken to rectify conditions adverse to quality and, where necessary, to preclude repetition. (PE/NP) [124]

(2) Intended to eliminate anomalies. Corrective actions include repair, replacement, calibration, alignment, and other services. *See also:* maintenance. (SCC20) 1226-1998

corrective maintenance (1) (availability, reliability, and maintainability) The maintenance carried out after a failure has occurred and intended to restore an item to a state in which it can perform its required function. (R) [29]

(2) (test, measurement, and diagnostic equipment) Actions performed to restore a failed or degraded equipment. It includes fault isolation, repair or replacement of defective units, alignment and checkout. (MIL) [2]

(3) (software) Maintenance performed to correct faults in hardware or software. *Contrast:* perfective maintenance; adaptive maintenance. (C) 610.12-1990

(4) Maintenance that is performed specifically to overcome existing faults. *Contrast:* preventive maintenance. (C) 610.10-1994w

(5) Reactive modification of a software product performed after delivery to correct discovered faults. (C/SE) 1219-1998

corrective network An electric network designed to be inserted in a circuit to improve its transmission properties, its impedance properties, or both. *See also:* network analysis. (EEC/PE) [119]

correctness (software) **(A)** The degree to which a system or component is free from faults in its specification, design, and implementation. **(B)** The degree to which software, documentation, or other items meet specified requirements. (C) The degree to which software, documentation, or other items meet user needs and expectations, whether specified or not. (C) 610.12-1990

correctness proof *See*: proof of correctness.

correct relaying-system performance The satisfactory operation of all equipment associated with the protective-relaying function in a protective-relaying system. It includes the satisfactory presentation of system input quantities to the relaying equipment, the correct operation of the relays in response to these input quantities, and the successful operation of the assigned switching device or devices.

(SWG/PE/PSR) C37.100-1992, C37.90-1978s

correct relay operation An output response by the relay that agrees with the operating characteristic for the input quantities applied to the relay. *See also*: correct relaying-system performance.

(SWG/PE/PSR) C37.100-1992, C37.90-1978s

correlation length The direction-dependent distance over which the mutual coherence function for fields or the covariance function for statistical properties of a medium or surface decreases to $1/e$ of its maximum value.

(AP/PROP) 211-1997

correlated color temperature (illuminating engineering) (of a light source) The absolute temperature of a blackbody whose chromaticity most nearly resembles that of the light source.

(EEC/IE) [126]

correlated gamma ray summing The simultaneous detection of two or more gamma rays originating from a single atom disintegration.

(NI) N42.12-1994

correlated jitter The portion of the total jitter that is related to the data pattern. Since every PHY receives the same pattern, this jitter is correlated among all similarly configured PHYs receiving the same data pattern and therefore may grow in a systematic way along the ring. Also referred to as *pattern jitter* or *systematic jitter*.

(C/LM) 8802-5-1998

correlated photon summing (germanium detectors) The simultaneous detection of two or more photons originating from a single nuclear disintegration.

(PE/NI/EDPG) 485-1983s, N42.12-1980s

correlation (test, measurement, and diagnostic equipment)

That portion of certification which establishes the mutual relationships between similar or identical support test systems by comparing test data collected on specimen hardware or simulators.

(MIL) [2]

correlation coefficient function (seismic qualification of Class 1E equipment for nuclear power generating stations) Defines a comparative relationship between two time histories. It provides a statistical estimate of how much two motions are related, as a function of time delay. The numerical range is from zero for unrelated, to +1.0 for related motions.

(PE/NP) 344-1987r

correlation detection (modulation systems) Detection based on the averaged product of the received signal and a locally generated function possessing some known characteristic of the transmitted wave. *Notes*: 1. The averaged product can be formed, for example, by multiplying and integrating, or by the use of a matched filter whose impulse response, when reversed in time, is the locally generated function. 2. Strictly, the foregoing definition applies to detection based on cross correlation. The term correlation detection may also apply to detection involving autocorrelation, in which case the locally generated function is merely a delayed form of the received signal.

(Std100) [123]

correlator A filter whose impulse response is the time-reversed complex conjugate of the coded waveform intended to be received.

(UFFC) 1037-1992w

correspondence *See*: fidelity.

corrosion (1) The deterioration of a substance (usually a metal) because of a reaction with its environment.

(IA) [59]

(2) A process of gradual weakening or destruction, usually by a chemical action.

(DEI) 1221-1993w

corrosion fatigue Reduction in fatigue life in a corrosive environment.

(IA) [59]

corrosion fatigue limit The maximum repeated stress endured by a metal without failure in a stated number of stress applications under defined conditions of corrosion and stressing.

(IA) [59]

corrosion rate The rate at which corrosion proceeds.

(IA) [59]

corrosion-resistant (power and distribution transformers)

So constructed, protected, or treated that corrosion will not exceed specified limits under specified test conditions.

(PE/TR) C57.12.80-1978r

corrosion-resistant parts (A) (electric installations on shipboard) General. Where essential to minimize deterioration due to marine atmospheric corrosion, corrosion-resisting materials, or other materials treated in a satisfactory manner to render them adequately resistant to corrosion should be used.

(B) (electric installations on shipboard) Corrosion-resisting materials. Silver, corrosion-resisting steel, copper, brass, bronze, copper-nickel, certain nickel-copper alloys, and certain aluminum alloys are considered satisfactory corrosion-resisting materials within the intent of the foregoing.

(C) (electric installations on shipboard) Corrosion-resistant treatments. The following treatments, when properly done and of a sufficiently heavy coating, are considered satisfactory corrosion-resistant treatments within the intent of the foregoing. Electroplating of: cadmium, chromium, copper, nickel, silver, and zinc, sheradizing, galvanizing dipping and painting. (Phosphate or suitable cleaning, followed by the application of zinc chromate primer or equivalent.)

(D) (electric installations on shipboard) Application. These provisions should apply to the following components: (1) Parts. Interior small parts which are normally expected to be removed in service, such as bolts, nuts, pins, screws, cap screws, terminals, brushholder studs, springs, etc. (2) Assemblies, subassemblies, and other units. Where necessary due to the unit function, or for interior protection, such as shafts within a motor or generator enclosure, and surface of stator and rotor. (3) Enclosures and their fastenings and fittings. Enclosing cases for control apparatus, outer cases for signal and communication systems (both outside and inside), and similar items together with all their fastenings and fittings which would be seriously damaged or rendered ineffective by corrosion.

(IA/MT) 45-1983

corrugated horn (antenna) A hybrid-mode horn antenna produced by cutting narrow transverse grooves of specified depth in the interior walls of the horn. *See also*: hybrid-mode horn.

(AP/ANT) 145-1993

corrupt data error (A) An error condition that results when hardware components fail or an external impulse enters into the system upsetting at least one data bit. **(B)** A condition that results from erratic hardware performance, characterized by introduction of a high degree of random errors in the data.

(C) 610.10-1994

cosecant-squared antenna A shaped-beam antenna in which the radiation intensity over a part of its pattern in some specified plane (usually the vertical) is proportional to the square of the cosecant of the angle measured from a specified direction in that plane (usually the horizontal). *Note*: Its purpose is to lay down a uniform field along a line that is parallel to the specified direction but that does not pass through the antenna. *See also*: antenna.

(AP/ANT) [35]

cosecant-squared beam antenna A shaped-beam antenna whose pattern in one principal plane consists of a main beam with well-defined side lobes on one side, but with the absence of nulls over an extended angular region adjacent to the peak of the main beam on the other side, with the radiation intensity in this region designed to vary as the cosecant-squared of the angle variable. *Note*: The most common applications of this antenna are for use in ground-mapping radars and target acquisition radars, since the cosecant-squared coverage provides constant signal return for targets with the same radar

cross section at different ranges but a common height.

(AP/ANT) 145-1993

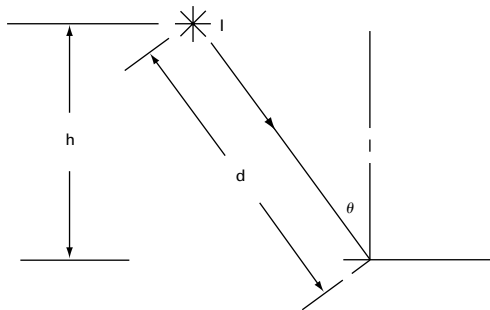
cosecant-squared pattern A vertical-plane antenna pattern in which the transmitting and receiving power gains vary as the square of the cosecant of the elevation angle. *Note:* The unique property of this pattern is that it results in the received echo signal being independent of range if

- The target is of constant radar cross section
- The target moves at constant altitude
- The earth's surface can be considered flat

See also: modified cosecant-squared antenna pattern.

(AES) 686-1997

cosine-cubed law (illuminating engineering) An extension of the cosine law in which the distance d between the source and surface is replaced by $h/\cos\theta$, where h is the perpendicular distance of the source from the plane in which the point is located. It is expressed by $E=(I \cos^3\theta)/h^2$. (See figure below.). *See also:* cosine law.



cosine-cubed law

(EEC/IE) [126]

cosine emission law *See:* Lambert's cosine law.

cosine law (illuminating engineering) A law stating that the illuminance on any surface varies as the cosine of the angle of incidence. The angle of incidence θ is the angle between the normal to the surface and the direction of the incident light. The inverse-square law and the cosine law can be combined as $E=(I\cos\theta)/d^2$. *See also:* inverse-square law.

(EEC/IE) [126]

cosmic noise Noise-like radio waves originating from extragalactic sources. (AP/PROP) 211-1997

cosmic radio waves *See:* cosmic noise.

COSRO *See:* conical-scan-on-receive-only.

Costas code A frequency-hopping pulse compression waveform in which a long pulse is divided into n subpulses with the frequency of each subpulse chosen from n contiguous frequencies in a manner first suggested by John P. Costas.

(AES) 686-1997

costate The state of the adjoint system. *See also:* control system. (CS/IM) [120]

cost of incremental fuel (electric power system) The ultimate replacement cost of the fuel that would be consumed to supply an additional increment of generation (usually expressed in cents per million British thermal units).

(PE/PSE) 94-1970w

costs (power operations) Monies associated with investment or use of electrical plant. *See also:* fixed investment costs.

(PE/PSE) 858-1987s

COSU *See:* central office service unit.

COTS *See:* commercial-off-the-shelf.

coulomb The unit of electric charge in SI units (International System of Units). The coulomb is the quantity of electric charge that passes any cross section of a conductor in one second when the current is maintained constant at one ampere. (Std100) 270-1966w

Coulomb's law (electrostatic attraction) The force of repulsion between two like charges of electricity concentrated at

two points in an isotropic medium is proportional to the product of their magnitudes and inversely proportional to the square of the distance between them and to the dielectric constant of the medium. *Note:* The force between unlike charges is an attraction. (Std100) 270-1966w

coulometer (voltmeter) An electrolytic cell arranged for the measurement of a quantity of electricity by the chemical action produced. *See also:* electricity meter. (PE/EEC) [119]

count A single response of the counting system. *See also:* tube count. (NI/NPS) 309-1999

count-down (transponder) The ratio of the number of interrogation pulses not answered to the total number of interrogation pulses received. (AES/RS) 686-1982s, [42]

counter (1) (test, measurement, and diagnostic equipment) (A) A device such as a register or storage location used to represent the number of occurrences of an event. (B) An instrument for storing integers, permitting these integers to be increased or decreased sequentially by unity or by an arbitrary integer, and capable of being reset to zero or to an arbitrary integer. (MIL) [2]

(2) (software) A variable used to record the number of occurrences of a given event during the execution of a computer program; for example, a variable that records the number of times a loop is executed. (C) 610.12-1990

(3) (A) A device with a finite number of states each of which represents a number which, upon receipt of an appropriate signal, can be incremented or decremented by a given constant. *Note:* The device may be capable of being set to a particular state such as zero. *See also:* reversible counter; modulo- n counter; keystroke counter; line counter. (B) A register or storage location used to accumulate the number of occurrences of some event. *See also:* program counter. (C) 610.10-1994

counter beam system Tunnel lighting system or luminaires having a light distribution that is greater in the opposite direction of travel. (RL) C136.27-1996

counter cells *See:* counter-electromotive-force cells.

counterclockwise arc (numerically controlled machines) An arc generated by the coordinated motion of two axes in which curvature of the path of the tool with respect to the workpiece is counterclockwise, when viewing the plane of motion in the negative direction of the perpendicular axis. (IA) [61]

counter electromotive force (any system) The effective electromotive force within the system that opposes the passage of current in a specified direction. (EEC/PE) [119]

counter-electromotive-force cells (counter cells) Cells of practically no ampere-hour capability used to oppose the battery voltage. *See also:* battery. (EEC/PE) [119]

counter-mounted cooking unit (A) A cooking appliance designed for mounting in or on a counter and consisting of one or more heating elements, internal wiring, and build-in or separately mountable controls. *See also:* wall-mounted oven. (B) An assembly of one or more domestic surface heating elements for cooking purposes, designed for flush mounting in, or supported by, a counter, and which assembly is complete with inherent or separately mountable controls and internal wiring. (NESC/NEC/C2) [86]

counterpoise (1) A system of conductors, elevated above and insulated from the ground, forming a lower system of conductors of an antenna. *Note:* The purpose of a counterpoise is to provide a relatively high capacitance and thus a relatively low impedance path to earth. The counterpoise is sometimes used in medium- and low-frequency applications where it would be more difficult to provide an effective ground connection. (AP/ANT) 145-1993

(2) A conductor or system of conductors arranged beneath the line; located on, above, or most frequently below the surface of the earth; and connected to the grounding systems of the towers or poles supporting the transmission lines. (PE/T&D/SPD/PSIM) 1243-1997, 81-1983, C62.23-1995

(3) *See also:* ground grid. (T&D/PE) 524-1992r

counter, radiation *See*: radiation counter.

counter tube (A) (externally quenched) A radiation-counter tube that requires the use of an external quenching circuit to inhibit reignition. **(B)** (gas-filled) A gas tube used for detection of radiation by means of gas ionization. **(C)** (gas-flow) A radiation-counter tube in which an appropriate gas-fill concentration is maintained by a flow of gas through the tube. **(D)** (Geiger-Mueller) A radiation-counter tube operated in the Geiger-Mueller region. **(E)** (self-quenched) A radiation-counter tube in which reignition of the discharge is inhibited by internal processes. (NI/NPS) 309-1999

counting channel (liquid-scintillation counting) A region of the pulse-height spectrum that is defined by upper and lower boundaries set by discriminators. (NI) N42.15-1990

counting efficiency (1) (radiation counter tubes) The average fraction of the number of ionizing particles or quanta incident on the sensitive area that produce tube counts. *Note*: The operating conditions of the counter and the condition of irradiation must be specified. (ED) 161-1971w

(2) (scintillation counters) The ratio of the average number of photons or particles of ionizing radiation that produce counts to the average number incident on the sensitive area. *Note*: The operating conditions of the counter and the conditions of irradiation must be specified. *See also*: scintillation counter. (NPS) 398-1972r

(3) (liquid-scintillation counting) The ratio of the count rate to the disintegration rate, usually expressed as a percentage:

$$E = (R/A) \times 100.$$

E = counting system efficiency

R = net count rate in an individual measurement, counts per minute

A = activity of the radionuclide contained in the check source.

(NI) N42.15-1990

(4) The ratio of the number of observed counts to the total number of ionizing particles impinging upon the counter surface when the counting rate is so low that dead-time correction is unnecessary. (NI/NPS) 309-1999

counting mechanism (of an automatic line sectionalizer or automatic circuit recloser) A device that counts the number of electrical impulses and, following a predetermined number of successive electrical impulses, actuates a releasing mechanism. It resets if the total predetermined number of successive impulses do not occur in a predetermined time. (SWG/PE) C37.100-1992

counting operation (of an automatic line sectionalizer or automatic circuit recloser) Each advance of the counting mechanism towards an opening operation. (SWG/PE) C37.100-1992

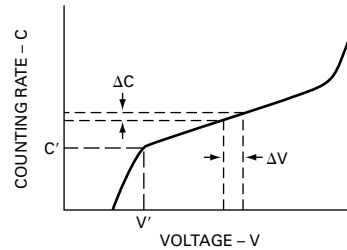
counting operation time (of an automatic line sectionalizer) The time between the cessation of a current above the minimum actuating current value and the completion of a counting operation. (SWG/PE) C37.100-1992

counting rate (1) Number of counts per unit time. *See also*: anticoincidence. (ED) [45]

(2) (germanium spectrometers) The rate at which detector pulses are being registered in a selected voltage interval. The unit is reciprocal seconds (i.e., s^{-1}). (NI) N42.14-1991

counting-rate meter (pulse techniques) A device that indicates the time rate of occurrence of input pulses averaged over a time interval. *See also*: scintillation counter. (NPS) 398-1972r

counting rate versus voltage characteristic (gas-filled radiation counter tube) The counting rate as a function of applied voltage for a given constant average intensity of radiation.



Counting rate-voltage characteristic in which

$$\text{relative plateau slope} = 100 \frac{\Delta C/C}{\Delta V}$$

$$\text{normalized plateau slope} = \frac{\Delta C/\Delta V}{C'/V'} = \frac{\Delta C/C'}{\Delta V/V'}$$

counting rate versus voltage characteristic

(ED/NI/NPS) 161-1971w, 309-1999

counting region A region that identifies the first and last memory location of a contiguous series to be summed in a multichannel analyzer. (NI) N42.15-1990

country beam *See*: upper (driving) beams.

country code (telephone switching systems) The one-, two-, or three-digit number that, in the world numbering plan, identifies each country or integrated numbering plan area in the world. The initial digit is always the world-zone number. Any subsequent digits in the code further define the designated geographical area normally identifying a specific country. On an international call, this code is dialed ahead of the national number. (COM) 312-1977w

counts, tube, multiple *See*: multiple tube counts.

counts, tube, spurious *See*: spurious tube counts.

couple (1) (storage cell) An element of a storage cell consisting of two plates, one positive and one negative. *Note*: The term couple is also applied to a positive and a negative plate connected together as one unit for installation in adjacent cells. *See also*: battery. (PE/EEC) [119]

(2) (thermoelectric) A thermoelectric device having two arms of dissimilar composition. *Note*: The term thermoelement is ambiguously used to refer to either a thermoelectric arm or to a thermoelectric couple, and its use is therefore not recommended. *See also*: thermoelectric device. (ED) [46]

coupled fine A transmission line with multiple guiding members whose propagating waves interact with each other.

(MTT) 1004-1987w

coupled modes (fiber optics) Modes whose energies are shared. *See also*: mode. (Std100) 812-1984w

coupler (1) (navigation aid terms) That portion of a navigational system which receives signals of one type from a sensor and transmits signals of a different type to an actuator. *See also*: autopilot coupler. (AES/GCS) 172-1983w

(2) (surge testing for equipment connected to low-voltage ac power circuits) A device, or combination of devices, used to feed a surge from a generator to powered equipment while limiting the flow of current from the power source into the generator. *See also*: coupling network. (SPD/PE) C62.45-1992r

(3) (fiber optics) *See also*: optical waveguide coupler.

812-1984w

coupler interface That facility of a basic operating unit that is designed to provide convenient connection to, and disconnection from, any other basic operating unit without requiring disassembly of any constituent part of either basic operating unit. This includes standardized mechanical, electrical, electronic, pneumatic, and other interfaces as required. (VT) 1473-1999

coupler, optical *See*: optical directional coupler.

coupling (1) (ground systems) The association of two or more circuits or systems in such a way that power or signal information may be transferred from one to another. *Note*: Coupling is described as close or loose. A close-coupled process has elements with small phase shift between specified varia-

bles; close-coupled systems have large mutual effect shown mathematically by cross-products in the system matrix.

(PE/PSIM) 81-1983

(2) **(rotating machinery)** A part or combination of parts that connects two shafts for the purpose of transmitting torque or maintaining alignment of the two shafts. (PE) [9]

(3) **(software)** The manner and degree of interdependence between software modules. Types include common-environment coupling, content coupling, control coupling, data coupling, hybrid coupling, and pathological coupling. *Contrast:* cohesion. (C) 610.12-1990

(4) **(waveguide)** The power transfer from one transmission path to a particular mode or form in another. *Note:* Small, undesired coupling is sometimes called isolation, decoupling, or cross coupling. (MTT) 146-1980w

(5) **(instrumentation and control equipment grounding in generating stations)** The mechanism by which an interference source produces interference in a signal circuit.

(PE/EDPG) 1050-1996

(6) The mode of propagation of disturbing energy from a power system to a telecommunications system. There are three forms of coupling between the two systems: magnetic (inductive) coupling, electric (capacitive) coupling, and conductive (resistive) coupling. In addition, coupling by electromagnetic radiation exists and is associated with propagation of radiation fields, e.g., radio frequency interference (RFI), electromagnetic pulse (EMP), and corona.

(PE/PSC) 487-1992

(7) The association of two or more circuits or systems in such a way that power or signal information may be transferred from one system or circuit to another.

(IA/PE/PSE) 1100-1999, 599-1985w

coupling aperture (coupling hole, coupling slot) (waveguide components) An aperture in the bounding surface of a cavity resonator, waveguide, transmission line, or waveguide component which permits the flow of energy to or from an external circuit. (MTT) 147-1979w

coupling capacitance (1) (ground systems) The association of two or more circuits with one another by means of capacitance mutual to the circuits. (PE/PSIM) 81-1983

(2) **(interference terminology)** The type of coupling in which the mechanism is capacitance between the interference source and the signal system; that is, the interference is induced in the signal system by an electric field produced by the interference source. *See also:* interference. (IE) [43]

coupling-capacitor voltage transformer (metering) A voltage transformer comprised of a capacitor divider and an electromagnetic unit so designed and interconnected that the secondary voltage of the electromagnetic units is substantially proportional to, and in phase with, the primary voltage applied to the capacitor divider for all values of secondary burdens within the rating of the coupling-capacitor voltage transformer. (ELM) C12.1-1988

coupling coefficient (1) (coefficient of coupling) The ratio of impedance of the coupling to the square root of the product of the total impedances of similar elements in the two meshes. *Notes:* 1. Used only in the case of resistance, capacitance, self-inductance, and inductance coupling. 2. Unless otherwise specified, coefficient of coupling refers to inductance coupling, in which case it is equal to $M/(L_1L_2)^{1/2}$, where M is the mutual inductance, L_1 the total inductance of one mesh, and L_2 the total inductance of the other. *See also:* network analysis. (IM/HFIM) [40]

(2) **(planar transmission lines)** A number used as a measure of the degree of interaction between the members of a coupled line. One commonly used definition of the coupling coefficient of a symmetrical coupled pair of transmission lines is K , a voltage or field ratio:

$$\frac{Z_{0e} - 1}{Z_{0o}}$$

$$\frac{Z_{0e} + 1}{Z_{0o}}$$

where Z_{0e} and Z_{0o} = even- and odd-mode characteristic impedances. (MTT) 1004-1987w

coupling coefficient, small-signal (electron stream) The ratio of (A) the maximum change in energy of an electron traversing the interaction space to (B) the product of the peak alternating gap voltage by the electronic charge. *See also:* electron emission; coupling coefficient; coupling. (ED) 161-1971w

coupling, conductance *See:* conductance coupling.

coupling efficiency (fiber optics) The efficiency of optical power transfer between two optical components. *See also:* coupling loss. (Std100) 812-1984w

coupling, electric *See:* electric coupling.

coupling factor (1) (lightning) The ratio of the induced voltage to the inducing voltage on parallel conductors. *See also:* direct-stroke protection. (T&D/PE) [10]

(2) **(directional coupler)** The ratio of the incident power fed into the main port, and propagating in the preferred direction, to the power output at an auxiliary port, all ports being terminated by reflectionless terminations. *See also:* waveguide. (IM/HFIM) [40]

(3) The ratio of the induced voltage to the inducing voltage on parallel conductors. For example, at the tower, the shield or coupling wires and tower crossarms are at practically the same potential (because of lightning stroke travel time). The stress across the insulator string is one minus the coupling factor multiplied by the tower top potential.

$$\text{Stress} = (1.0 - K_{fc}) \times V_{TT}$$

where

K_{fc} is the coupling factor

V_{TT} is the tower top voltage

(PE/SPD) C62.23-1995

coupling flange (rotating machinery) The disc-shaped element of a half coupling that permits attachment to a mating half coupling. *Synonym:* flange. *See also:* rotor. (PE) [9]

coupling function A mathematical, graphical, or tabular statement of the influence that one element or subsystem has on another element or subsystem, expressed as the effect/cause ratio of related variables or their transforms. *Note:* For a multi-terminal system described by m differential equations and having m input transforms $R_1 \dots R_m$ and m output transforms $C_1 \dots C_m$, the coupling functions consist of all effect/cause ratios which can be formed from transforms bearing unlike-numbered subscripts. (CS/PE/EDPG) [3]

coupling hole *See:* coupling aperture.

coupling, hysteresis *See:* hysteresis coupling.

coupling, inductance *See:* inductance coupling.

coupling, induction *See:* induction coupling.

coupling loop (waveguide components) A conducting loop that permits the flow of energy between a cavity resonator, waveguide, transmission line, or waveguide component and an external circuit. (MTT) 147-1979w

coupling loss (fiber optics) The power loss suffered when coupling light from one optical device to another. *See also:* lateral offset loss; insertion loss; gap loss; extrinsic joint loss; angular misalignment loss; intrinsic joint loss.

(Std100) 812-1984w

coupling, magnetic friction *See:* magnetic friction coupling.

coupling, magnetic-particle *See:* magnetic-particle coupling.

coupling network Electrical circuit for the purpose of transferring energy from one circuit to another. *See also:* coupler.

(SPD/PE) C62.45-1992r

coupling plane A metal plate to which discharges are applied to simulate electrostatic discharge to objects adjacent (vertically or horizontally) to the EUT. (EMC) C63.16-1993

coupling probe (waveguide components) A probe that permits the flow of energy between a cavity resonator, waveguide, transmission line, or waveguide component and an external circuit. (MTT) 147-1979w

coupling, radiation *See:* radiation coupling.

couplings (pothead) Entrance fittings which may be provided with a rubber gland to provide a hermetic seal at the point where the cable enters the box and may have, in addition, a threaded portion to accommodate the conduit used with the cable or have an armor clamp to clamp and ground the armored sheath on armor-covered cable. (PE/TR) [108]

coupling slat *See:* coupling aperture.

coupling, synchronous *See:* synchronous coupling.

coupling wire A conductor attached to the transmission line structure and below the phase wires, with proper clearance, and connected to the grounding system of the towers or the pole supporting the line. (SPD/PE) C62.23-1995

course (A) (navigation aids) The intended direction of travel, expressed as an angle in the horizontal plane between a reference line and the course line, usually measured clockwise from the reference line. **(B) (navigation aids)** The intended direction of travel as defined by a navigational facility. **(C) (navigation aids)** Common usage for "course line." (AES/GCS) 172-1983

course-deviation indicator *See:* course-line deviation indicator.

course line (navigation aids) The projection in the horizontal plane of a path (proposed path of travel). (AES/GCS) 172-1983w

course linearity (navigation aids) (instrument landing systems) A term used to describe the change in DDM (difference in depth of modulation) of the two modulation signals with respect to displacement of the measuring position from the course line but within the course sector. *Synonyms:* flight path; desired track. (AES/GCS) 172-1983w

course-line computer (navigation aids) A device, usually carried aboard a vehicle, to convert navigational signals such as VOR/DME (very high-frequency omnidirectional range/distance measuring equipment) into course extending between any desired points regardless of their orientation with respect to the source of the signals. (AES/GCS) 172-1983w

course-line deviation (navigation aids) The amount by which the track of a vehicle differs from its course line, expressed in terms of either an angular or linear measurement. (AES/GCS) 172-1983w

course-line deviation indicator (course deviation indicator) (navigation aids) A device providing a visual display of the direction and amount of deviation from the intended course. *Synonym:* flight-path-deviation indicator. (AES/GCS) 172-1983w

course made good (navigation aids) The direction from the point of departure to the position of the vehicle on the horizontal plane. (AES/GCS) 172-1983w

course push (pull) (navigation aids) An erroneous deflection of the indicator of a navigational aid, produced by altering the attitude of the receiving antenna. *Note:* This effect is a manifestation of polarization error and results in an apparent displacement of the course line. (AES/GCS) 172-1983w

course roughness (navigation aids) A term used to describe the imperfections in a visually indicated course when such imperfections cause the course indicator to make rapid erratic movements. *See also:* scalloping. (AES/GCS) 172-1983w

course scalloping *See:* scalloping.

course section width (instrument landing systems) The transverse dimension at a specified distance, or the angle in degrees between the sides of the course sector. *See also:* navigation. (AES/RS) 686-1982s, [42]

course sector (instrument landing systems) (navigation aid terms) A wedge-shaped section of airspace containing the course line and spreading with distance from the ground station; it is bounded on both sides by the loci of points at which the DDM (difference in depth of modulation) is a specified amount, usually the DDM giving full-scale deflection of the course-deviation indicator. (AES/GCS) 172-1983w

course-sector width (navigation aids) (instrument landing systems) The transverse dimension at a specified distance, or

the angle in degrees, between the sides of the course sector. (AES/GCS) 172-1983w

course sensitivity (navigation systems) (navigation aids) The relative response of a course-line deviation indicator to the actual or simulated departure of the vehicle from the course line. In VOR (very high-frequency) omnidirectional range), Tacan (tactical air navigation), or similar omnirange systems, course sensitivity is often taken as the number of degrees through which the omnibearing selector must be moved to change the deflection of the course-line deviation indicator from full scale on one side to full scale on the other, while the receiver omnibearing-input signal is held constant. (AES/GCS) 172-1983w

course softening (navigation aids) The intentional decrease in course sensitivity upon approaching a navigational aid such that the ratio of indicator deflection to linear displacement from the course line tends to remain constant. (AES/GCS) 172-1983w

courseware Instructional materials, such as software and student documentation, designed for use in computer-based instruction. (C) 610.2-1987

course width (navigation aids) Twice the displacement (of the vehicle), in degrees, to either side of a course line, which produces a specified indication on the course deviation indicator (usually the specified indication is full scale). (AES/GCS) 172-1983w

Coursewriter A programming language used to write instructional programs for computer-assisted instruction. (C) 610.13-1993w

cove lighting (illuminating engineering) Lighting comprising light sources shielded by a ledge or horizontal recess, and distributing light over the ceiling and upper wall. (EEC/IE) [126]

cover (power system communication equipment) A protective covering used to enclose or partially enclose equipment that may be mounted in a rack. (PE/PSC) 281-1984w

coverage Measure of the representative nature of situations to which a system is submitted during its validation compared to the actual situations it will be confronted with during its operational life. (C/BA) 896.9-1994w

coverage area (1) (mobile communication) The area surrounding the base station that is within the signal-strength contour that provides a reliable communication service 90 percent of the time. *See also:* mobile communication system. (VT) [37]

(2) The area surrounding the broadcast array that is within the signal strength contour that provides adequate reception. (T&D/PE) 1260-1996

covered conductor A conductor covered with a dielectric having no rated insulating strength or having a rated insulating strength less than the voltage of the circuit in which the conductor is used. (NESC/T&D/PE) C2-1997, [10], C2.2-1960

covered line An idealized planar transmission line with two conducting ground planes, parallel to the strip conductor. One of the ground planes has only a minor effect on the propagation properties of the line. (MTT) 1004-1987w

covered plate (storage cell) A plate bearing a layer of oxide between perforated sheets. *See also:* battery. (PE/EEC) [119]

cover flange (waveguide components) A flat flange used in conjunction with a choke flange to provide a choke joint. (MTT) 147-1979w

cover-up equipment (power line maintenance) Equipment designed to protect persons from energized parts in a specific work area. Many different types are available to cover conductors, insulators, dead-end assemblies, structures, and apparatus. Cover-up material may be either flexible or rigid. (T&D/PE) 516-1995

CP *See:* collision presence; coprocessor.

CPC *See:* computer program component.

CPCI *See*: computer program configuration item.

CPE *See*: circular probable error.

CPE active state A state in which the CPE performs a communications functions. (AMR) 1390-1995

CPE inactive state A state in which the CPE does not perform a communications function. (AMR) 1390-1995

CPE address The LSAP address at which the CPE may be reached. (LM/C) 15802-2-1995

CPE instance identifier The tuple of CPE address and CPE instance number that uniquely identifies a CPE instance within the LAN/MAN environment, within the limits of uniqueness of the CPE address and instance values used. (LM/C) 15802-2-1995

CPE instance number A number, allocated to the CPE at instantiation time, that distinguishes a CPE instance from all other CPE instances, past and present, associated with a particular CPE address. (LM/C) 15802-2-1995

CPM *See*: critical path method.

CPU *See*: central processing unit.

CPU busy time *See*: CPU time.

CPU time In time-sharing computer systems, the time devoted by the central processing unit to the execution of instructions of a particular process, task, or user. *Synonym*: CPU busy time. *See also*: connect time. (C) 610.10-1994w

CPU timer A feature of some computer systems that measures elapsed CPU time and that causes an interrupt when a previously specified amount of time has elapsed. (C) 610.10-1994w

CR *See*: carriage return character; carriage return; cavity ratio.

crab angle* *See*: drift angle; drift correction angle.

* Deprecated.

cracking (1) Rupture of the polymeric insulator material to depths equal to or greater than 0.1 mm. (PE/IC) 48-1996
(2) Rupture of the weathershed material to depths greater than 0.1 mm. (SPD/PE) C62.11-1999

cradle base (rotating machinery) A device that supports the machine at the bearing housings. (PE) [9]

crane A machine for lifting or lowering a load and moving it horizontally, in which the hoisting mechanism is an integral part of the machine. *Note*: It may be driven manually or by power and may be fixed or a mobile machine. (EEC/PE) [119]

crash (1) The sudden and complete failure of a computer system or component. *See also*: hard failure; disk crash; head crash. (C) 610.12-1990, 610.10-1994w
(2) To fail as in definition (A). (C) 610.10-1994w

crate (1) (CAMAC system) *See also*: CAMAC crate.

(2) (FASTBUS crate) The mechanical housing for FASTBUS modules in a crate segment. (NID) 960-1993

crate number (c) (subroutines in CAMAC) The symbol c represents an integer which is the crate number component of a CAMAC address. Crate number in this context can be either the physical crate number or it can be an integer symbol which is interpreted by the computer system software to produce appropriate hardware access information. (NPS) 758-1979r

crate segment (FASTBUS acquisition and control) A FASTBUS segment that consists of a backplane mounted on a FASTBUS crate and having connectors to mate with a multiplicity of FASTBUS modules. (NID) 960-1993

Crawford cell *See*: transverse-electromagnetic cell.

crawler *See*: crawler tractor.

crawler tractor (conductor stringing equipment) A tracked unit employed to pull pulling lines, sag conductor, level or clear pull and tension sites, and miscellaneous other work. It is also frequently used as a temporary anchor. Sagging winches on this unit are usually arranged in a vertical configuration. *Synonyms*: tractor; cat; crawler. (T&D/PE) 524-1992r, 524a-1993r

crawling (rotating machinery) The stable but abnormal running of a synchronous or asynchronous machine at a speed near to a submultiple of the synchronous speed. *See also*: asynchronous machine. (PE) [9]

cracking (1) (composite insulators) Surface microfractures of the weathershed material to depths less than 0.1 millimeter resulting from ultraviolet exposure. (T&D/PE) 987-1985w
(2) The small internal cracking around a point of mechanical stress that sometimes occurs in plastics. (PE/EDPG) 1184-1994

(3) Surface microfractures of the insulator material to depths less than 0.1 mm resulting from ultraviolet exposure. (PE/IC) 48-1996

CRC (1) violation If the transmitted and received CRC codes are not identical, a CRC violation has occurred, meaning one or more errors has occurred in transmission. (COM/TA) 1007-1991r

(2) The cyclic redundancy code used for error detection on each packet. (C/MM) 1596-1992

(3) *See also*: cyclic redundancy check. (C) 610.7-1995

CR differentiator A high-pass electrical filter section consisting of a capacitor in series with the signal path followed by a resistor across the path. (NPS) 325-1996

credentials Information supplied to authenticate a communication. (SCC32) 1455-1999

credit-card call (telephone switching systems) A call in which a credit-card identity is used for billing purposes. (COM) 312-1977w

creep (1) Continued deformation of material under stress. (IA/PSE) 241-1990r
(2) *See also*: watt-hour meter—creep. (ELM) C12.1-1988

creepage The travel of electrolyte up the surface of electrode or other parts of the cell above the level of the main body of electrolyte. *See also*: electrolytic cell. (EEC/PE) [119]

creepage distance (power and distribution transformers) The shortest distance between two conducting parts measured along the surface or joints of the insulating material between them. (SWG/PE/TR) C37.100-1992, C57.12.80-1978r

creepage surface (rotating machinery) An insulating-material surface extending across the separating space between components at different electric potential, where the physical separation provides the electrical insulation. *See also*: asynchronous machine. (PE) [9]

creep distance (1) (outdoor apparatus bushings) The distance measured along the external contour of the weather casing separating the metal parts which have the operating line-to-ground voltage between them. (PE/TR) 21-1976
(2) The shortest distance measured along the external contour of the insulating envelope that separates the metal part operating at line voltage and the metal flange at ground potential. (PE/TR) C57.19.03-1996

creeping stimulus *See*: accumulating stimulus.

creeping wave A wave propagating along a smooth convex surface that has diffracted into the shadow region. (AP/PROP) 211-1997

crest factor *See*: conductor grip.

coordination of insulation (1) (lightning insulation strength)

The steps taken to prevent damage to electric equipment due to overvoltages and to localize flashovers to points where they will not cause damage. *Note*: In practice, coordination consists of the process of correlating the insulating strengths of electric equipment with expected overvoltages and with the characteristics of protective devices. (PE/EEC) [8], [74]

(2) The selection of insulation strength consistent with expected overvoltages to obtain an acceptable risk of failure. (SPD/PE) C62.22-1997

crest factor (1) (germanium gamma-ray detectors) (x-ray energy spectrometers) (semiconductor radiation detectors) (charged-particle detectors) (of an average reading or root-mean-square voltmeter) The ratio of the peak voltage value that an average reading or root-mean-square voltmeter will accept without overloading to the full scale value of the range

being used for measurement.

(NPS/NID) 759-1984r, 301-1976s

(2) (ac voltmeter) The highest ratio of peak to rms voltage that can be applied to an ac voltmeter before overload sets in. The crest factor may depend upon the full-scale setting of the meter.

(NPS) 300-1988r

(3) (of a periodic function) The ratio of its crest (peak, maximum) value to its root-mean-square (rms) value.

(PE/TR) C57.12.80-1978r

(4) (electrical measurements in power circuits) (of a periodic function) The ratio of the peak value to the rms value $cf = y_p/y_{rms}$.

(PE/PSIM) 120-1989r

(5) (of a periodic function) The ratio of the peak value of a periodic function (y_{peak}) to the rms value (y_{rms}); $cf = y_{peak}/y_{rms}$.

(IA/PSE) 1100-1999

(6) (pulse carrier) The ratio of the peak pulse amplitude to the root-mean-square amplitude. *See also:* carrier.

(IM/AP/WM&A/ANT) 194-1977w, 145-1983s

(7) (of an rms voltmeter) The highest ratio of peak to rms voltage that can be applied to an ac voltmeter before overload sets in. The crest factor may depend on the full-scale setting of the voltmeter.

(NPS) 325-1996

(8) The ratio of the peak value to the rms value of an ac waveform measured under steady-state conditions. It is unitless, and the ratio for a pure sine wave is equal to $\sqrt{2}$.

$$cf = \frac{V_{in,pk}}{V_{in,rms}}$$

where

V_{in} = the voltage at the user input terminals.

(PEL) 1515-2000

crest value (1) (peak value) (power and distribution transformers) The maximum absolute value of a function when such a maximum exists.

(PE/C/TR) 1313.1-1996, C57.12.80-1978r

(2) (of a wave, surge, or impulse) The maximum value that a wave, surge, or impulse attains.

(SPD/PE) C62.11-1999, C62.62-2000

(3) (surge arresters) The maximum value that an impulse attains. *Synonym:* peak value.

(SPD/PE) C62.22-1997, C62.1-1981s, C62.11-1987s, 2-1978w

crest voltmeter A voltmeter depending for its indications upon the crest or maximum value of the voltage applied to its terminals. *Note:* Crest voltmeters should have clearly marked on the instrument whether readings are in equivalent root-mean-square values or in true crest volts. It is preferred that the marking should be root-mean-square values of the sinusoidal wave having the same crest value as that of the wave measured. *See also:* instrument.

(EEC/PE) [119]

crest working line voltage (vltwm) (thyristor) The highest instantaneous value of the line voltage excluding all repetitive and nonrepetitive transient voltages, but including voltage variations.

(IA/IPC) 428-1981w

crest working voltage (semiconductor rectifiers) (between two points) The maximum instantaneous difference of voltage, excluding oscillatory and transient overvoltages, that exists during normal operation. *See also:* semiconductor rectifier stack; rectification.

(IA/EEC/PCON) [62], [110]

crevice corrosion Localized corrosion as a result of the formation of a crevice between a metal and a nonmetal, or between two metal surface.

(IA) [59], [71]

criteria Parameters against which the CASE tool is evaluated, and upon which selection decisions are made.

(C/SE) 1209-1992w

critical angle (fiber optics) When light propagates in a homogeneous medium of relatively high refractive index (n_{high}) onto a planar interface with a homogeneous material of lower index (n_{low}), the critical angle is defined by $\arcsin(n_{low}/n_{high})$. *Note:* When the angle of incidence exceeds the critical angle, the light is totally reflected by the interface. This is termed "total internal reflection." *See also:* step index profile; ac-

ceptance angle; angle of incidence; reflection; refractive index; total internal reflection.

(Std100) 812-1984w

critical anode voltage *See:* gas tube; breakdown voltage.

critical branch (health care facilities) A subsystem of the Emergency System consisting of feeders and branch circuits supplying energy to task illumination, special power circuits, and selected receptacles serving areas and functions related to patient care, and which can be connected to alternate power sources by one or more transfer switches during interruption of normal power source.

(NEC/NESC/EMB) [47], [86]

critical build-up resistance (rotating machinery) The highest resistance of the shunt winding circuit supplied from the primary winding for which the machine voltage builds up under specified conditions.

(PE) [9]

critical build-up speed (rotating machinery) The limiting speed below which the machine voltage will not build up under specified condition of field-circuit resistance. *See also:* direct-current commutating machine.

(PE) [9]

critical characteristics (1) (replacement parts for Class 1E equipment in nuclear power generating stations) (equipment) Those properties or attributes that are essential for performance of an equipment's safety function.

(PE/NP) 934-1987w

(2) (replacement parts for Class 1E equipment in nuclear power generating stations) (parts) Those properties or attributes of the part that are essential to the safety function of the equipment in which the part is installed. *Note:* Typical critical characteristics are attributes such as dimensions, materials, electrical and temperature parameters, output tolerances, and fluid viscosity.

(PE/NP) 934-1987w

critical components Equipment whose failure will result in complete system or functional failure.

(PE/NP) 933-1999

critical component temperature The temperature of semiconductor components that are most susceptible to malfunction from high temperature.

(C/BA) 14536-1995

critical control command An MTM-Bus command that has significant effect on the operation of a module to a degree that, for added security, a message conveying such a command should be difficult to send unintentionally. This Standard provides that a message containing a critical control command has to be preceded by an Enable Module Control (EMC) message. If this procedure is not followed, a Command Sequence Error will occur.

(TT/C) 1149.5-1995

critical controlling current (cryotron) The current in the control that just causes direct-current resistance to appear in the gate, in the absence of gate current and at a specified temperature. *See also:* superconductivity.

(SPD/PE) 32-1972r

critical coupling That degree of coupling between two circuits, independently resonant to the same frequency, that results in maximum transfer of energy at the resonance frequency. *See also:* coupling.

(EEC/PE) [119]

critical current (1) (superconductor) The current in a superconductive material above which the material is normal and below which the material is superconducting, at a specified temperature and in the absence of external magnetic fields. *See also:* superconductivity.

(ED) [46]

(2) The first-stroke lightning current to a phase conductor which produces a critical impulse flashover voltage wave.

(PE/T&D) 1243-1997

critical damping The least amount of viscous damping that causes a single-degree-of-freedom system to return to its original position without oscillation after initial disturbance.

(PE/SUB) 693-1997

critical design review (CDR) (A) A review conducted to verify that the detailed design of one or more configuration items satisfy specified requirements; to establish the compatibility among the configuration items and other items of equipment, facilities, software, and personnel; to assess risk areas for each configuration item; and, as applicable, to assess the results of producibility analyses, review preliminary hardware product specifications, evaluate preliminary test planning, and evaluate the adequacy of preliminary operation and support

documents. *See also*: preliminary design review; system design review. (B) A review as in (A) of any hardware or software component. (C) 610.12-1990

critical dimension (waveguide) The dimension of the cross-section that determines the cutoff frequency. *See also*: waveguide. (EEC/PE) [119]

critical event simulation A simulation that is terminated by the occurrence of a certain event; for example, a model depicting the year-by-year forces leading up to a volcanic eruption, that is terminated when the volcano in the model erupts. *See also*: time-slice simulation. (C) 610.3-1989w

critical failure *See*: failure.

critical field (1) (magnetrons) The smallest theoretical value of steady magnetic flux density, at a steady anode voltage, that would prevent an electron emitted from the cathode at zero velocity from reaching the anode. *See also*: magnetron. (2) **(nonlinear, active, and nonreciprocal waveguide components)** In a gyromagnetic material that radio-frequency (rf) magnetic field level above which transfer of energy occurs from the uniform precession mode to spin waves; that is the field corresponding to nonlinear loss threshold. (MTT) 457-1982w

critical flashover voltage (CFO) The amplitude of voltage of a given waveshape that, under specified conditions, causes flashover through the surrounding medium on 50% of the voltage applications. (SPD/PE) C62.22-1997

critical freeze protection (electric pipe heating systems) The use of electric pipe heating systems to prevent the temperature of fluids from dropping below the freezing point of the fluid in important or critical outdoor (usually) piping systems at nuclear generating stations. An example of a critical freeze protection system is the heating for the nuclear service water system. (PE/EDPG) 622A-1984r, 622B-1988r

critical frequency (1) (data transmission) In radio propagation (by way of the ionosphere) the limiting frequency below which a wave component is reflected by, and above which it penetrates through, an ionospheric layer of vertical incidence. *Note*: The existence of the critical frequency is the result of electron limitation, that is, the inadequacy of the existing number of free electrons to support reflection at higher frequencies. (PE) 599-1985w

(2) **(network or system)** A pole or zero of a transfer or driving-point function. (CAS) [13]

(3) (of an ionospheric layer) The limiting frequency below which a normally-incident magneto-ionic wave component is returned by, and above which it penetrates through, an ionospheric layer. (AP/PROP) 211-1997

critical grid voltage (multielectrode gas tubes) The grid voltage at which anode breakdown occurs. *Note*: The critical grid voltage is a function of the other electrode voltages or currents and of the environment. *See also*: breakdown voltage. (ED) 161-1971w

critical head (power operations) The head at which the full-gate output of the hydroturbine equals the nameplate generator capacity. (PE/PSE) 858-1987s

critical heat flux The heat flux below which ignition is not possible. (DEI) 1221-1993w

critical high-power level (attenuator tubes) The radio-frequency power level at which ionization is produced in the absence of a control-electrode discharge. (ED) 161-1971w

critical humidity The relative humidity above which the atmospheric corrosion rate of a given metal increases sharply. (IA) [59]

critical hydro period (power operations) (electric power supply) Period when the limitations of hydroelectric energy supply due to water conditions are most critical with respect to system load requirements. (PE/PSE) 858-1987s, 346-1973w

critical impulse (of a relay) The maximum impulse in terms of duration and input magnitude that can be applied suddenly to a relay without causing pickup. (SWG/PE) C37.100-1992

critical impulse flashover voltage (CFO) (insulators) The crest value of the impulse wave that, under specified conditions, causes flashover through the surrounding medium on 50% of the applications. *See also*: impulse flashover voltage. (PE/T&D/SPD) 1410-1997, 32-1972r, 1243-1997

critical impulse time (of a relay) The duration of a critical impulse under specified conditions. (SWG/PE/PSR) C37.100-1992, C37.90-1978s

critical item (software) In configuration management, an item within a configuration item that, because of special engineering or logistic considerations, requires an approved specification to establish technical or inventory control at the component level. (C) 610.12-1990

criticality (1) (power operations) The state of an assembly of fissionable material in which a stable, self-sustaining chain reaction exists. At this condition a nuclear reactor will produce energy at a constant rate and the effective multiplication factor *keff* is exactly equal to 1. (PE/PSE) 858-1987s

(2) **(software)** The degree of impact that a requirement, module, error, fault, failure, or other item has on the development or operation of a system. *Synonym*: severity. (C) 610.12-1990

(3) A subjective description of the intended use and application of the system. Software criticality properties may include safety, security, complexity, reliability, performance, or other characteristics. (C/SE) 1012-1998

criticality analysis A structured evaluation of the software characteristics (e.g., safety, security, complexity, performance) for severity of impact of system failure, system degradation, or failure to meet software requirements or system objectives. (C/SE) 1012-1998

critical jamming ratio The ratio of conduit diameter (D) to cable diameter (d) that could result in the cable wedging or jamming in the conduit during the cable pull. (PE/IC) 1185-1994

critical load (1) That part of the load that requires continuous quality electric power for its successful operation. (IA/PSE) 241-1990r

(2) Devices and equipment whose failure to operate satisfactorily jeopardizes the health or safety of personnel, and/or results in loss of function, financial loss, or damage to property deemed critical by the user. (IA/PSE) 1100-1999

critical magnetic field (superconductor) The field below which a superconductor material is superconducting and above which the material is normal, at a specified temperature and in the absence of current. *See also*: superconductivity. (ED) [46]

critical mating dimension (standard connector) Those longitudinal and transverse dimensions assuring nondestructive mating with a corresponding standard connector. (IM/HFIM) 474-1973w

critical overtravel time (of a relay) The time following a critical impulse until movement of the responsive element ceases just short of pickup. (SWG/PE/PSR) C37.100-1992, C37.90-1978s

critical path In the critical path method, a path whose sum of activity times is greater than or equal to the sum of activity times for any other path through the network. *Note*: This sum of activity times is the shortest possible completion time of the overall project. (C) 610.2-1987

critical path method (CPM) A project management technique in which the activities that constitute a project are identified, dependencies among the activities are determined, a network of parallel and sequential activities is produced, an estimated time is assigned to each activity, and a sequence of activities taking the longest time (a critical path) is identified, determining the shortest possible completion time for the overall project. *See also*: program evaluation and review technique. (C) 610.2-1987

critical period That portion of the duty cycle that is the most severe, or the specified time period of the battery duty cycle. (PE/EDPG) 450-1995

critical piece first (software) A system development approach in which the most critical aspects of a system are implemented first. The critical piece may be defined in terms of services provided, degree of risk, difficulty, or other criteria. *See also:* top-down; bottom-up. (C) 610.12-1990

critical point (1) (feedback control system) (Nichols chart) The bound of stability for the $GH(j\omega)$ plot; the intersection of $|GH| = 1$ with $\text{ang } GH = -180^\circ$.

(2) **(Nyquist diagram)** The bound of stability for the locus of the loop transfer function $GH(j\omega)$; the $(-1, j0)$ point.

(PE/IM/EDPG) [3], [120]

critical process control (electric pipe heating systems) The use of electric heat tracing systems to increase or maintain, or both, the temperature of fluids (or processes) in important or critical mechanical piping systems including pipes, pumps, valves, tanks, instrumentation, etc., in nuclear power generating stations. An example of an important or critical mechanical piping system is the safety injection system.

(PE/EDPG) 622A-1984r, 622B-1988r

critical range Metric values used to classify software into the categories of acceptable, marginal, or unacceptable.

(C/SE) 1061-1998

critical rate-of-rise of OFF-state voltage (thyristor) The minimum value of the rate of rise of principal voltage which will cause switching from the OFF-state to the ON-state.

(IA/IPC) 428-1981w

critical rate-of-rise of ON-state current (thyristor) The maximum value of the rate-of-rise of ON-state current that a thyristor can withstand without deleterious effect. *See also:* principal current. (ED) [46]

critical section (software) A segment of code to be executed mutually exclusively with some other segment of code which is also called a critical section. Segments of code are required to be executed mutually exclusively if they make competing uses of a computer resource or data item. *See also:* segment; computer; code; data; execute. (C/SE) 729-1983s

critical service loads Station auxiliary loads that are sensitive to power supply disturbances and that have an immediate effect upon power transmission or whose outages could cause damage to the equipment. (SUB/PE) 1158-1991r

critical short-circuit ratio (CSCR) The SCR corresponding to the operation at maximum available power (MAP); for typical inverter design, $\text{CSCR} = 2$. *Note:* The following operational characteristics are associated with CSCR:

— CSCR represents the borderline between “stable” and “unstable” operating regions. For SCR values lower than the CSCR, the operation is in the “unstable” region of the ac voltage/dc power characteristic.

— If the operation is at unity power factor for systems at CSCR (i.e., the operation is at MAP), then the fundamental component of the temporary overvoltage (TOV_{FC}) at full load rejection would be near to $\sqrt{2}$.

— A resonance near the second harmonic will occur for systems operating at CSCR.

(PE/T&D) 1204-1997

critical software (software verification and validation plans) (software) Software whose failure could have an impact on safety, or could cause large financial or social loss.

(C/SE) 1012-1986s, 610.12-1990, 730-1998

critical speed (rotating machinery) A speed at which the amplitude of the vibration of a rotor due to shaft transverse vibration reaches a maximum value. *See also:* rotor.

(PE) [9]

critical stroke amplitude The amplitude of the current of the lightning stroke that, upon terminating on the phase conductor, would raise the voltage of the conductor to a level at which flashover is likely. (SUB/PE) 998-1996

critical success factor (CSF) A business system performance measurement that combines with other CSFs to form a key performance indicator (KPI). (C/PA) 1003.23-1998

critical system (health care facilities) A system of feeders and branch circuits in nursing homes and residential custodial care

facilities arranged for connection to the alternate power source to restore service to certain critical receptacles, task illumination and equipment. (EMB) [47]

critical temperature (superconductor) The temperature below which a superconductive material is superconducting and above which the material is normal, in the absence of current and external magnetic fields. *See also:* superconductivity. (ED) [46]

critical torsional speed (rotating machinery) A speed at which the amplitude of the vibration of a rotor due to shaft torsional vibration reaches a maximum value. *See also:* rotor. (PE) [9]

critical travel (of a relay) The amount of movement of the responsive element of a relay during a critical impulse, but not subsequent to the impulse.

(SWG/PE/PSR) C37.100-1992, C37.90-1978s

critical value Metric value of a validated metric that is used to identify software that has unacceptable quality.

(C/SE) 1061-1998

critical voltage (1) (magnetrons) The highest theoretical value of steady anode voltage, at a given steady magnetic flux density, at which electrons emitted from the cathode at zero velocity would fail to reach the anode. (ED) 161-1971w

(2) **(relay)** *See also:* relay critical voltage.

critical-voltage parabola (magnetrons) (cutoff parabola) The curve representing in Cartesian coordinates the variation of the critical voltage as a function of the magnetic induction. *See also:* magnetron. [84]

critical withstand current (surge) (impulse) The highest crest value of a surge of given waveshape and polarity that can be applied without causing disruptive discharge on the test specimen. (PE) [8]

CROM *See:* control read-only memory.

Crookes dark space *See:* cathode dark space.

Crosby *See:* cable clamp.

Crosby clip *See:* cable clamp.

cross acceleration (accelerometer) The acceleration applied in a plane normal to an accelerometer input reference axis.

(AES/GYAC) 528-1994

crossarm A horizontal member (usually wood or steel) attached to a pole, post, tower or other structure and equipped with means for supporting the conductors. *Note:* The crossarm is placed at right angles to conductors on straight line poles, but splits the angle on light corners. *See also:* tower.

(T&D/PE) [10]

crossarm guy A tensional support for a crossarm used to offset unbalanced conductor stress. (T&D/PE) [10]

cross-assembler (software) An assembler that executes on one computer but generates machine code for a different computer. (C) 610.12-1990

cross-axis sensitivity (accelerometer) The proportionality constant that relates a variation of accelerometer output to cross acceleration. This sensitivity varies with the direction of cross acceleration, and is primarily due to misalignment.

(AES/GYAC) 528-1994

crossband transponder (navigation) A transponder that replies in a different frequency band from that of the received interrogation. *See also:* navigation.

(AES/GCS/RS) 172-1983w, 686-1982s, [42]

crossbar switch (1) A switch having a plurality of vertical paths, a plurality of horizontal paths, and electromagnetically-operated mechanical means for interconnecting any one of the vertical paths with any one of the horizontal paths.

(PE/EDPG) [3]

(2) A switch having vertical and horizontal paths and an electromagnetically operated mechanical means for interconnection of any one vertical path with any one horizontal path. *See also:* step-by-step switch. (C) 610.7-1995

cross bar switch A relay-operated device that makes a connection between a line in a set of lines and a line in another set,

where the two sets are arranged along adjacent sides of a matrix of contacts or switch points. (C) 610.10-1994w

crossbar system An automatic switching system in which the selecting mechanisms are crossbar switches, common circuits select and test the switching paths and control the operation of the selecting mechanism, and the method of operation is one in which the switching information is received and stored by controlling mechanisms that determine the operations necessary in establishing a telephone connection. *See also*: step-by-step system; electronic switching system.

(C/PE/EEC) 610.7-1995, [119]

cross cable bond A cable bond used for bonding between the armor or lead sheath of adjacent cables. *See also*: continuity cable bond; cable bond. (T&D/PE) [10]

cross-category services A set of tools or features or both that has a direct effect on the operation of one or more components of the OSE, but is not in and of itself a stand-alone component. (C/PA) 14252-1996

cross check To test for accuracy by comparing the results of two different methods of computation. (C) 1084-1986w

cross-compiler (software) A compiler that executes on one computer but generates machine code for a different computer. (C) 610.12-1990

cross connect A group of connection points, often wall- or rack-mounted in a wiring closet, used to mechanically terminate and interconnect twisted-pair building wiring, local area networks. (LM/C) 802.3-1998, 8802-12-1998

cross connection (telephone switching systems) Easily changed or removed wire that is run loosely between equipment terminals to establish an electrical association. (COM) 312-1977w

cross-correlation (excitation systems) The cross-correlation of two random signals $x_1(t)$ and $x_2(t)$ is $R_{12}(t)$ defined by

$$R_{12}(t) = \int_0^t x_1(t - \tau)x_2(\tau)d\tau$$

If $x_1(t)$ is a random input to a linear stationary system and $x_2(t)$ is the response, then $R_{12}(t)$ is the inverse Laplace transform of the transfer function of the system.

(PE/EDPG) 421A-1978s

cross coupling (transmission medium) A measure of the undesired power transferred from one channel to another. *See also*: transmission line; coupling. (MTT) 146-1980w

cross-coupling coefficient (accelerometer) The proportionality constant that relates a variation of accelerometer output to the product of acceleration applied normal and parallel to an input reference axis. This coefficient can vary, depending on the direction of cross acceleration. (AES/GYAC) 528-1994

cross-coupling errors (inertial sensors) (gyros) The errors in the gyro output resulting from gyro sensitivity to inputs about axes normal to an input reference axis. (AES/GYAC) 528-1994

crossed-field amplifier (microwave tubes) A crossed-field tube or valve, with a nonreentrant slow-wave structure, used as an amplifier. (ED) [45]

crossed-field tube (microwave) A high-vacuum electron tube in which a direct, alternating, or pulsed voltage is applied to produce an electric field perpendicular both to a static magnetic field and to the direction of propagation of a radio-frequency delay line. *Note*: The electron beam interacts synchronously with a slow wave on the delay line. (ED) [45]

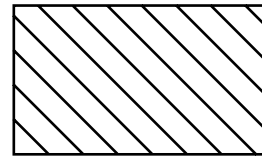
cross fire (data transmission) An interfering current in one telegraph or signaling channel resulting from telegraph or signaling current in another channel. (PE) 599-1985w

crossfooting check A consistency check in which two totals obtained by adding the same set of numbers in different sequences are compared. (C) 610.5-1990w

cross-grained wood Wood in which the fibers deviate from a line parallel to the sides of the piece. Cross-grain may be either diagonal or spiral grain or a combination of the two. (T&D/PE) 751-1990

crosshairs A set of two intersecting perpendicular lines whose intersection indicates a position on a graphical display device. *See also*: thumbwheel. (C) 610.6-1991w

crosshatch (A) A series of evenly spaced parallel lines within a closed boundary on a display surface. *See also*: hatch. **(B)** To insert a series of evenly spaced parallel lines as in (A).



crosshatch

(C) 610.6-1991

cross-index A link between two files containing related data. For example, in a library, the subject card catalog is a cross-index for the title and author card catalogs. *See also*: inverted file; cross-indexed file. (C) 610.5-1990w

cross-indexed file A file whose contents are linked with another file through a cross-index. *See also*: inverted file. (C) 610.5-1990w

cross-indexing (A) The process of linking entities in two files to facilitate searches performed on data contained in those files. **(B)** A method of linking entities as in (A). (C) 610.5-1990

crossing angle *See*: angle of cut.

crossing structure A structure built of poles and, sometimes, rope nets. It is used whenever conductors are being strung over roads, power lines, communications circuits, highways, or railroads, and is normally constructed in such a way as to prevent the conductor from falling onto or into any of these facilities in the event of equipment failure, broken pulling lines, loss of tension, etc. *Synonyms*: guard structure; temporary structure; H-frame; rider structure. (T&D/PE) 524-1992r

cross light (illuminating engineering) Equal illumination in front of the subject from two directions at substantially equal and opposite angles with the optical axis of the camera and a horizontal plane. (EEC/IE) [126]

cross modulation A type of intermodulation due to the modulation of the carrier of the desired signal by an undesired signal wave. (AP/PE/ANT) 145-1983s, 599-1985w

cross-modulation distortion (1) (nonlinear, active, and non-reciprocal waveguide components) A third-order distortion product that can occur when nonlinear devices are exposed simultaneously to two carriers of different frequency where modulation is present. It is measured by using two separate carriers and providing 100% modulation on one. The cross modulation is defined as the power in one sideband of the unmodulated carrier below the power of the carrier. (MTT) 457-1982w

(2) (broadband local area networks) Cross-modulation is the process where the modulation of one carrier is imposed onto another carrier. The exchange of modulation information involves the change of an amplifier's transfer characteristic brought about by a change in amplifier loading. The non-ideal amplifier has an associated compression and expansion characteristic that is dependent on amplifier loading. The change in load caused by the total power of signals and their modulation will create a variation in transfer gain. The change in load due to modulation change is normally the primary cause of cross-modulation. Broadband networks have data devices that have switched carrier transmissions that express cross-modulation as a change in transmission characteristics dependent on channel loading and traffic. (LM/C) 802.7-1989r

cross neutralization A method of neutralization used in push-pull amplifiers whereby a portion of the plate-cathode alternating voltage of each tube is applied to the grid-cathode circuit of the other tube. *See also*: feedback; amplifier. (AP/BT/ANT) 145-1983s, 182A-1964w

cross-office delay For a tandem call switched cross-office, the interval between starting time point and ending point. *See also:* ending point; starting point. (COM/TA) 973-1990w

crossover (cathode-ray tubes) The first focusing of the beam that takes place in the electron gun. *See also:* cathode-ray tube. (ED) [45], [84]

crossover, automatic voltage-current *See:* automatic voltage-current crossover.

crossover characteristic curve (navigation aid terms) (navigation systems such as VOR [very high-frequency omnidirectional range] and ILS [instrument landing system]) The graphical representation of the indicator current variation with change of position in the crossover region.

(AES/GCS) 172-1983w

crossover frequency (1) (frequency-dividing networks) The frequency at which equal power is delivered to each of two adjacent channels when all channels are properly terminated. *See also:* transition frequency. (SP) [32]

(2) **(automatic control)** *See also:* phase-crossover frequency; gain-crossover frequency.

crossover loss For a tracker that uses an offset beam, such as a conical scan tracker, the reduction in signal-to-noise ratio for a target on the tracking axis relative to that for a target on the peak two-way antenna gain of the beam. *Note:* The crossover loss factor is the ratio of the signal-to-noise ratio for a target on the peak two-way antenna gain to that for a target on the tracking axis. *See also:* conical scanning. (AES) 686-1997

crossover network *See:* dividing network.

crossover region (navigation systems) A loosely defined region in space containing the course line and within which a transverse flight yields information useful in determining course sensitivity and "flyability." (AES/GCS) 172-1983w

crossover spiral *See:* lead-over groove.

crossover time (1) (germanium gamma-ray detectors) (charged-particle detectors) The instant at which the waveform of a bipolar pulse passes through a designated level.

(NID) 301-1976s

(2) **(semiconductor radiation detectors)** The instant at which the transition between the two lobes of a bipolar pulse passes through a designated level (usually the baseline).

(NPS) 300-1988r

(3) (of a bipolar pulse) The instant at which the transition between the two lobes passes through a designated level (usually the baseline). At this level, the timing with respect to the initiating events is nearly invariant with pulse amplitude.

(NPS) 325-1996

crossover transition (liquid scintillation counting systems) A gamma ray occurring between two nonadjacent nuclear levels. (NI) N42.14-1991

crossover voltage, secondary-emission *See:* secondary-emission crossover voltage.

crossover walk (1) (germanium gamma-ray detectors) (charged-particle detectors) (of a pulse) The deviation of the crossover time for some variable, such as (pulse) amplitude. (NPS/NID) 325-1986s, 301-1976s

(2) **(semiconductor radiation detectors)** (of a pulse) A deviation of crossover time of a bipolar pulse due to a change in peak amplitude. *See also:* walk. (NPS) 300-1988r

crosspoint (telephone switching systems) A controlled device used in extending a transmission or control path.

(COM) 312-1977w

crosspoint switch (local area networks) A switching function that provides normal connections, wrap connections, breaks in the transmit, and local loopback for lobe testing in the wrap mode. (LM/C) 802.5c-1991r

cross polarization (1) In a specified plane containing the reference polarization ellipse, the polarization orthogonal to a specified reference polarization. *Note:* The reference polarization is usually the copolarization. (AP/ANT) 145-1993

(2) **(waveguide)** The polarization orthogonal to a reference polarization. *Note:* Two fields have orthogonal polarization if their polarization ellipses have the same axial ratio, major

axes at right angles, and opposite senses of rotation. *See also:* orthogonal polarization.

(MTT/AP/PROP) 146-1980w, 211-1997

(3) **(protective relaying)** The polarization of a relay for directionality using some proportion of the voltage from a healthy (unfaulted) phase(s). One example of this is quadrature polarization. In this case, the polarizing voltage is in quadrature to the faulted phase voltage.

(PE/PSR) C37.113-1999

cross-polarization discrimination The ratio of the power level at the output of a receiving antenna, nominally co-polarized with the transmitting antenna, to the output of a receiving antenna of the same gain but nominally orthogonally polarized to the transmitting antenna. (AP/PROP) 211-1997

cross polarization electronic countermeasures An ECM technique that transmits with a polarization orthogonal to the principal polarization of the victim radar. *Note:* Since cross-polarized antenna patterns are often very different from the normal, copolarized patterns, tracking might be disrupted. *See also:* electronic countermeasures. (AES) 686-1997

cross-polarization isolation The ratio of the wanted power to the unwanted power in the same receiver channel when the transmitting antenna is radiating nominally orthogonally polarized signals at the same frequency and power level.

(AP/PROP) 211-1997

cross-polar radiation pattern A radiation pattern corresponding to the polarization orthogonal to the co-polarization. *See also:* co-polarization. (AP/ANT) 145-1993

cross-polar side lobe level, relative The maximum relative partial directivity (corresponding to the **cross polarization**) of a side lobe with respect to the maximum partial directivity (corresponding to the **co-polarization**) of the antenna. *Note:* Unless otherwise specified, the cross-polar side lobe level shall be taken to be that of the highest side lobe of the cross-polar radiation pattern. (AP/ANT) 145-1993

cross product *See:* vector product.

cross protection An arrangement to prevent the improper operation of devices from the effect of a cross in electric circuits.

(EEC/PE) [119]

cross rectifier circuit A circuit that employs four or more rectifying elements with a conducting period of 90 electrical degrees plus the commutating angle. *See also:* rectification.

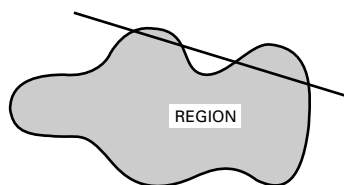
(EEC/PE) [119]

cross-reference generator (software) A software tool that accepts as input the source code of a computer program and produces as output a listing that identifies each of the program's variables, labels, and other identifiers and indicates which statements in the program define, set, or use each one. *Synonym:* cross-referencer. (C) 610.12-1990

cross-reference list (software) A list that identifies each of the variables, labels, and other identifiers in a computer program and indicates which statements in the program define, set, or use each one. (C) 610.12-1990

cross-referencer *See:* cross-reference generator.

cross section (1) (image processing and pattern recognition) The intersection of an n -dimensional image or region with an $(n-1)$ -dimensional object. For example, the intersection of a two-dimensional image or region with a straight line.



cross section

(C) 610.4-1990w

(2) Often used as a shortened form of radar cross section. *Note:* This term should be avoided when there is a possibility of confusion with geometric cross section.

(AES) 686-1997

(3) *See also:* radar cross section; scattering cross section; bistatic cross section; monostatic cross section; backscattering cross section. (ANT)

cross-sectional area (conductor) (cross section of a conductor)
The sum of the cross-sectional areas of its component wires, that of each wire being measured perpendicular to its individual axis. (PE) 599-1985w

crosstalk (1) (cable systems in power generating stations)
The noise or extraneous signal caused by ac or pulse-type signals in adjacent circuits. (PE/SUB/EDPG) 422-1977, 525-1992r

(2) (A) **(data transmission)** Undesired energy appearing in one signal path as a result of coupling from other signal paths. *Note:* Path implies wires, waveguides, or other localized or constrained transmission systems. (B) **(data transmission)** (electroacoustics) The unwanted sound reproduced by an electroacoustic receiver associated with a given transmission channel resulting from cross coupling to another transmission channel carrying sound-controlled electric waves or, by extension, the electric waves in the disturbed channel that result in such sound. *Note:* In practice, crosstalk may be measured either by the volume of the overheard sounds or by the magnitude of the coupling between the disturbed and the disturbing channels. In the latter case, to specify the volume of the overheard sounds, the volume in the disturbing channel must also be given. (PE) 599-1985

(3) Unwanted electric signals injected into a circuit by stray coupling. (ELM) C12.1-1981

(4) **(instrumentation and control equipment grounding in generating stations)** The noise or extraneous signal caused by ac or dc pulse-type signals in adjacent circuits. (PE/EDPG) 1050-1996

(5) **(telecommunications)** Undesired energy appearing in one path as a result of coupling from another path. Crosstalk is further classified as near-end, far-end, intelligible, or unintelligible. (COM/TA) 1007-1991r

(6) **(telecommunications)** Unwanted coupling between any two paths through the switching system. There are two situations of interest. In the first the crosstalk coupling loss of the system is linear; that is it is independent of applied disturbing signal level and is unaffected by other things, such as circuit noise. The other situation of interest arises with a digital switching system where the crosstalk coupling loss is nonlinear and is a function of applied disturbing signal level circuit noise, and encoder bias. Such systems will, under some conditions of circuit noise and coder bias, display crosstalk coupling loss that tends to decrease with decreasing disturbing signal level. *See also:* equal-level crosstalk coupling loss; crosstalk coupling loss. (COM/TA) 973-1990w

(7) **(multichannel)** The ratio of the signal induced in one channel to a common signal applied to all other channels. (IM/WM&A) 1057-1994w

(8) The noise or extraneous signal caused by ac or pulse-type signals in adjacent circuits (measurement of power frequency magnetic fields). (T&D/PE) 644-1994, 1308-1994

(9) An electromagnetic field in the space surrounding a cable circuit created by an electrical signal. This field induces currents and electromotive forces in other circuits located close enough to the disturbing cable circuit to be affected. (PE/IC) 1143-1994r

(10) (A) A type of noise characterized by unwanted coupling of a signal or the interaction of signals on two adjacent channels. *See also:* near end crosstalk. (B) Undesired energy appearing in one signal path as a result of coupling from other signal paths. (C) 610.7-1995

(11) Crosstalk is undesired energy appearing in one signal path as a result of coupling from other signal paths. (C/LM) 8802-5-1998

crosstalk coupling (crosstalk loss) Cross coupling between speech communication channels or their component parts. *Note:* Crosstalk coupling is measured between specified

points of the disturbing and disturbed circuits and is preferably expressed in decibels. *See also:* coupling. (PE/EEC) [119]

crosstalk coupling loss (telecommunications) The loss of the crosstalk path. *See also:* crosstalk. (COM/TA) 973-1990w

crosstalk, electron beam *See:* electron beam crosstalk.

crosstalk loss *See:* crosstalk coupling.

crosstalk unit Crosstalk coupling is sometimes expressed in crosstalk units through the relation

$$\text{Crosstalk units} = 10^{[6 - (L/20)]}$$

where L = crosstalk coupling in decibels. *Note:* For two circuits of equal impedance, the number of crosstalk units expresses the current in the disturbed circuit as millionths of the current in the disturbing circuit. *See also:* coupling. (EEC/PE) [119]

crowbar A protective circuit in a power distribution circuit that rapidly shorts the output voltage to ground when an over-voltage or other error condition occurs. (C) 610.10-1994w

CR-RC shaping (1) (germanium gamma-ray detectors) (x-ray energy spectrometers) (charged-particle detectors) The pulse shaping present in an amplifier that has a simple high-pass filter consisting of a capacitor and a resistor together with a simple low-pass filter, separated by impedance isolation. (Pulse shaping in such an amplifier cuts off at 6 dB (decibels) per octave at both ends of the band.) (NPS/NID) 301-1976s, 759-1984r

(2) **(semiconductor charged-particle detectors)** In an amplifier, the pulse shaping produced by a single-section high-pass network followed by a single-section low-pass network, with the two networks separated by an isolating stage and with both networks having the same time constant. (NPS) 300-1988r

(3) In an amplifier, the pulse shape produced by m CR high-pass filter sections (differentiators) in conjunction with n RC low-pass filter sections (integrators), all with the same time constant. If the input signal is a step function and no other high-pass sections are in the signal path, the pulse shape is unipolar if $m = 1$, bipolar if $m = 2$. For unipolar pulses, the waveform is described by

$$Kt^n - t/\tau$$

where K is a constant, τ is time, and t is the time constant of the differentiator. (NPS) 325-1996

CRS *See:* configuration report server.

CRT *See:* cathode-ray tube.

CRT display device A display device that displays data onto a phosphor coated display screen using controlled electron beams within a CRT. *Note:* Raster display devices and random-scan display devices are two major categories of CRT display devices. *See also:* penetration CRT display device; dark trace tube display device; raster display device; storage tube display device. (C) 610.10-1994w

crude metal Metal that contains impurities in sufficient quantities to make it unsuitable for specified purposes or that contains more valuable metals in sufficient quantities to justify their recovery. *See also:* electrorefining. (EEC/PE) [119]

crush loaded weight The weight of a vehicle when loaded with crew, all seats occupied, and standees to a specified maximum number. (VT) 1475-1999

crust A layer of solidified electrolyte. *See also:* fused electrolyte. (EEC/PE) [119]

CRV *See:* Code Rule Violation.

cryogenics (1) (general) The study and use of devices utilizing properties of materials near absolute-zero temperature. (C) [20], [85]

(2) **(laser maser)** The branch of physics dealing with very low temperatures. (LEO) 586-1980w

(3) A branch of technology concerned with devices that make use of the properties assumed by materials at temperatures near absolute zero. (C) 610.2-1987

cryogenic storage A type of storage that uses the superconductive and magnetic properties of certain materials at temperatures near absolute zero. (C) 610.10-1994w

cryotron (1) A superconductive device in which current in one or more input circuits magnetically controls the superconducting-to-normal transition in one or more output circuits, provided the current in each output circuit is less than its critical value. *See also:* superconductivity. (ED) [46]

(2) A device that makes use of the effects of extremely low temperatures on conductive materials such that small magnetic field changes can control large current changes. (C) 610.10-1994w

cryptography The discipline embodying principles, means, and methods for the transformation of data in order to hide its information content, prevent its undetected modification, and/or prevent its unauthorized use. (LM/C) 802.10-1992

crystal (A) (communication practice) A piezoelectric crystal. **(B) (communication practice)** A piezoelectric crystal plate. **(C) (communication practice)** A crystal rectifier. (PE/EEC) [119]

crystal-controlled oscillator *See:* crystal oscillator.

crystal diode A rectifying element comprising a semiconducting crystal having two terminals designed for use in circuits in a manner analogous to that of electron-tube diodes. *See also:* rectifier. (EEC/PE) [119]

crystal loudspeaker (piezoelectric loudspeaker) A loudspeaker in which the mechanical displacements are produced by piezoelectric action. (EEC/PE) [119]

crystal microphone (piezoelectric microphone) A microphone that depends for its operation on the generation of an electric charge by the deformation of a body (usually crystalline) having piezoelectric properties. *See also:* microphone. (EEC/PE) [119]

crystal mixer (mixer) A crystal receiver that can be fed simultaneously from a local oscillator and signal source, for the purpose of frequency changing. *See also:* waveguide. (Std100) [84]

crystal oscillator (crystal-controlled oscillator) An oscillator in which the principal frequency-determining factor is the mechanical resonance of a piezoelectric crystal. *See also:* oscillatory circuit. (BT) 182A-1964w

crystal pickup (piezoelectric pickup) A phonograph pickup that depends for its operation on the generation of an electric charge by the deformation of a body (usually crystalline) having piezoelectric properties. *See also:* phonograph pickup. (EEC/PE) [119]

crystal pulling A method of crystal growing in which the developing crystal is gradually withdrawn from a melt. (IA) [12]

crystal receiver A waveguide incorporating a crystal detector for the purpose of rectifying received electromagnetic signals. *See also:* waveguide. (AP/ANT) [35], [84]

crystals hierarchy (primary ferroelectric terms) Depending on their geometry, crystals are commonly classified into seven systems: triclinic (the least symmetrical), monoclinic, orthorhombic, tetragonal, trigonal, hexagonal, and cubic. The seven systems in turn are divided into point groups (crystal classes) according to their symmetry with respect to a point. There are 32 such crystal classes; 20 are piezoelectric. Piezoelectric crystals have the following property: if stress is applied along certain directions in the crystals, they develop an electric polarization whose magnitude is (within limits) proportional to the applied stress. Conversely, when an electric field is applied along certain directions in a piezoelectric crystal, the crystal is strained by an amount proportional to the applied field. Each crystal system contains at least one piezoelectric class. Ten of the 20 piezoelectric classes possess spontaneous electrical polarization; that is, they have a non-vanishing dipole moment per unit volume and are called polar. The ten polar crystal classes are designated 1, 2, m, 2mm, 4, 4mm, 3, 3m, 6, 6mm in the notation of Hermann and Mauguin, C₁, C₂, C_{1h}, C_{2v}, C₄, C_{4v}, C₃, C_{3v}, C₆, C_{6v}, respectively in the notation of Schoenflies. (UFFC) 180-1986w

crystal spots Spots produced by the growth of metal sulfide crystals upon metal surfaces with a sulfide finish and lacquer coating. The appearance of crystal spots is called spotting in. *See also:* electroplating. (EEC/PE) [119]

crystal-stabilized transmitter A transmitter employing automatic frequency control, in which the reference frequency is that of a crystal oscillator. *See also:* radio transmitter. (AP/ANT) 145-1983s

crystal systems The term "crystal" is applied to a solid in which the atoms are arranged in a single pattern repeated throughout the body. In a crystal the atoms may be thought of as occurring in small groups, all groups being exactly alike, similarly oriented, and regularly aligned in all three dimensions. Each group can be regarded as bounded by a parallelepiped and each parallelepiped regarded as one of the ultimate building blocks of the crystal. The crystal is formed by stacking together in all three dimensions replicas of the basic parallelepiped without any spaces between them. Such a building block is called a unit cell. Since the choice of a particular set of atoms to form a unit cell is arbitrary, it is evident that there is a wide range of choices in the shapes and dimensions of the unit cell. In practice, that unit cell is selected which is most simply related to the actual crystal faces and X-ray reflections, and which has the symmetry of the crystal itself. Except in a few special cases, the unit cell has the smallest possible size. In crystallography the properties of a crystal are described in terms of the natural coordinate system provided by the crystal itself. The axes of this natural system, indicated by the letters a, b, and, c, are the edges of the unit cell. In a cubic crystal, these axes are of equal length and are mutually perpendicular; in a triclinic crystal they are of unequal lengths and no two are mutually perpendicular. The faces of any crystal are all parallel to planes whose intercepts on the a, b, c axes are small multiples of unit distances or else infinity, in order that their reciprocals, when multiplied by a small common factor, are all small integers or zero. These are the indices of the planes. In this nomenclature we have, for example, faces (100), (010), (001), also called the a, b, c faces, respectively. In the orthorhombic, tetragonal, and cubic systems, these faces are normal to the a, b, c axes, 100, etc. Even in the monoclinic and triclinic systems, these faces contain respectively, the b and c, a and c, and, a and b axes. As referred to the set of rectangular axes X, Y, Z, these indices are in general irrational except for cubic crystals. Depending on their degrees of symmetry, crystals are commonly classified into seven systems: triclinic (the least symmetrical), monoclinic, orthorhombic, tetragonal, trigonal, hexagonal, and cubic. The seven systems, in turn, are divided into point groups (classes) according to their symmetry with respect to a point. There are 32 such classes, eleven of which contain enantiomorphous forms. Twelve classes are of too high a degree of symmetry to show piezoelectric properties. Thus twenty classes can be piezoelectric. Every system contains at least one piezoelectric class. (UFFC) 176-1978s

crystal-video receiver A receiver consisting of a crystal detector and a video amplifier. (EEC/PE) [119]

CSC *See:* computer software component.

CSCI *See:* computer software configuration item.

C-scope A cathode-ray oscilloscope arranged to present a C-display. (AES/RS) 686-1990

CSI *See:* communication services interface.

CSMA/CD LAN (1) Any local area network using the CSMA/CD access protocol. (LM/C) 802.1H-1995

(2) An IEEE 802.3 LAN is a CSMA/CD LAN, as is an Ethernet LAN. Most CSMA/CD networks are hybrids, carrying both Ethernet and IEEE 802 style frames. (LM/C) 802.1H-1995

CSMP III *See:* Continuous System Modeling Program III.

CSR *See:* control and status register.

CSR Architecture (1) IEEE Std 1212-1991, IEEE Standard Control and Status Register (CSR) Architecture for Microcomputer Buses. (C/MM) 1596-1992

(2) Refers to IEEE Std 1212-1991, the parent document of this series. It specifies the overall architecture of a node on conformant standard buses and specifically the structure and use of its CSRs and standard ROM locations.

(C/MM) 1212.1-1993

(3) ISO/IEC 13213: 1994 [ANSI/IEEE Std 1212, 1994 Edition], Information technology—Microprocessor systems—Control and Status Registers (CSR) Architecture for microcomputer buses.

(C/MM) 1394-1995

(4) Refers to IEEE Std 1212-1991.

(C/MM) 1596.5-1993, 1212-1991s

(5) ISO/IEC 13213: 1994 [ANSI/IEEE Std 1212, 1994 Edition] Information technology—Microprocessor systems—Control and Status Register (CSR) Architecture for microcomputer buses.

(C/MM) 1596.4-1996

CSR space *See*: control and status register space.

CSR unit architecture The logical component of a node that is accessed by I/O driver software. After the node is initialized and configured, the units normally operate independently. Note that one node could have multiple units (for example, processor, memory, and SCSI controller).

(C/BA) 896.3-1993w

CSS/II *See*: Computer System Simulation II.

CSSL *See*: Continuous Systems Simulation Language.

CSU *See*: channel service unit.

CT *See*: current transformer; computed tomography.

CTIC *See*: conformance test interface connector.

CTRL *See*: control key.

CTS *See*: computer typesetting.

CTS build system The hardware and software used to compile and configure a CTS.

(C/PA) 2003-1997

CTS execution system The hardware and system software on which the CTS is executed.

(C/PA) 2003-1997

cube tap *See*: multiple plug.

cubic meters per second (m³/s) (cubic meters per second)

Volume of water or liquid discharged per second under standard conditions.

(T&D/PE) 957-1995, 957-1987s

cubic natural spline (pulse terminology) A catenated piecewise sequence of cubic polynomial functions $p(1, 2)$, $p(2, 3)$, . . . , $p(n-1, n)$ between knots t_1m_1 and t_2m_2 , t_2m_2 and t_3m_3 , . . . , $t_{n-1}m_{n-1}$ and t_nm_n , respectively, wherein: (1) At all knots the first and second derivatives of the adjacent polynomial functions are equal, and (2) For all values of t less than t_1 and greater than t_n the function is linear. *See also*: waveforms produced by operations on waveforms.

(IM/WM&A) 194-1977w

cue *See*: call.

cumulative amplitude probability distribution (control of system electromagnetic compatibility) A cumulative distribution showing the probability that all amplitudes equal to, or above, a stated value are exceeded as a function of that value.

C63.12-1984

cumulative compound (rotating machinery) Applied to a compound machine to denote that the magnetomotive forces of the series and the shunt field windings are in the same direction. *See also*: magnetomotive force.

(PE) [9]

cumulative demand An indicating demand meter in which the accumulated total of maximum demands during the preceding periods is indicated during the period after the meter has been reset and before it is reset again. *Note*: The maximum demand for any one period is equal or proportional to the difference between the accumulated readings before and after reset.

(AMR/SCC31) 1377-1997

cumulative demand meter (or register) An indicating demand meter in which the accumulated total of maximum demands during the preceding periods is indicated during the period after the meter has been reset and before it is reset again. *Note*: The maximum demand for any one period is equal or proportional to the difference between the accumulated readings before and after reset. *See also*: electricity meter.

(ELM) C12.1-1982s

cumulative demand register (metering) A register that indicates the sum of the previous maximum demand readings prior to reset. When reset, the present reading is added to the previous accumulated readings. The maximum demand for the present reading period is the difference between the present and previous readings.

(ELM) C12.1-1982s

cumulative detection probability The probability that a target is detected on at least one of n successive scans or detection opportunities of a surveillance radar.

(AES) 686-1997

cumulative latency The time it takes for a signal element to travel from the active monitor's transmitter output to its receiver input.

(C/LM) 8802-5-1998

cumulative leakage index (broadband local area networks)

A measurement of cumulative RF signal leakage of a cable system. The measurement is usually specified for a given area.

(LM/C) 802.7-1989r

cumulative probability distribution *See*: probability distribution function.

cuprous chloride cell A primary cell in which depolarization is accomplished by cuprous chloride. *See also*: electrochemistry.

(EEC/PE) [119]

Curie temperature (electrical heating systems) The temperature at which the magnetic properties of a substance change from ferromagnetic to paramagnetic.

(IA/PC) 844-1991

Curie-Weiss temperature (primary ferroelectric terms) The intercept t_0 of the linear portion of the plot of $1/k$ versus T , in the region above the ferroelectric Curie point, where k is the small-signal relative dielectric permittivity measured at zero bias field along the polar axis, and T is the absolute temperature. *Note*: In many ferroelectrics, k follows the Curie-Weiss relation.

(UFFC) 180-1986w

curl A vector that has a magnitude equal to the limit of the quotient of the circulation around a surface element on which the point is located by the area of the surface, as the area approaches zero, provided the surface is oriented to give a maximum value of the circulation: the positive direction of this vector is that traveled by a right hand screw turning about an axis normal to the surface element when an integration around the element in the direction of the turning of the screw gives a positive value to the circulation. If the vector A of a vector field is expressed in terms of its three rectangular components A_x , A_y , and A_z , so that the values of A_x , A_y , and A_z are each given as a function of x , y , and z , the curl of the vector field (abbreviated $\text{curl } A$ or $\nabla \times A$) is the vector sum of the partial derivatives of each perpendicular to it, or curl

$$\text{curl } A = \nabla \times A = \begin{vmatrix} \mathbf{i} & \mathbf{j} & \mathbf{k} \\ \frac{\partial}{\partial x} & \frac{\partial}{\partial y} & \frac{\partial}{\partial z} \\ A_x & A_y & A_z \end{vmatrix}$$

$$= \mathbf{i} \left\{ \frac{\partial A_z}{\partial y} - \frac{\partial A_y}{\partial z} \right\} + \mathbf{j} \left\{ \frac{\partial A_x}{\partial z} - \frac{\partial A_z}{\partial x} \right\} + \mathbf{k} \left\{ \frac{\partial A_y}{\partial x} - \frac{\partial A_x}{\partial y} \right\}$$

$$= \mathbf{i}(D_y A_z - D_z A_y) + \mathbf{j}(D_z A_x - D_x A_z) + \mathbf{k}(D_x A_y - D_y A_x)$$

where \mathbf{i} , \mathbf{j} , and \mathbf{k} are unit vectors along the x , y , and z axes, respectively. Example: The curl of the linear velocity of points in a rotating body is equal to twice the angular velocity. The curl of the magnetic field strength at a point within an electric conductor is equal to k times the current density at the point where k is a constant depending on the system of units.

(Std100) 270-1966w

currency symbol character A character within a picture specification that represents the currency sign. *Note*: \$ is commonly used.

(C) 610.5-1990w

current (I) The flow of electrons within a wire or a circuit; measured in amperes.

(C) 610.7-1995

(2) **(general)** A generic term used when there is no danger of ambiguity to refer to any one or more of the currents specifically described. *Note*: (1) For example, in the expression "the current in a simple series circuit," the word current refers to the conduction current in the wire of the inductor and the displacement current between the plates of the capacitor. (2)

A direct current is a unidirectional current in which the changes in value are either zero or so small that they may be neglected. A given current would be considered a direct current in some applications, but would not necessarily be so considered in other applications. (Std100) 270-1966w

(3) The use of certain adjectives before "current" is often convenient, as in convection current, anode current, electrode current, emission current, etc. The definition of conducting current usually applies in such cases and the meaning of adjectives should be defined in connection with the specific applications. (Std100) 270-1966w

(4) Sum of the polarization and conductance currents. (PE) 402-1974w

current amplification (1) The ratio of the output current to the cathode current due to photoelectric emission at constant electrode voltages. *Notes:* 1. The term output current and photocathode current as here used does not include the dark current. 2. This characteristic is to be measured at levels of operation that will not cause saturation. *See also:* phototube. (ED/NPS) 161-1971w, 398-1972r

(2) **(magnetic amplifier)** The ratio of differential output current to differential control current. (MAG) 107-1964w

(3) The ratio of the signal output current to the current applied to the input. *See also:* amplifier. (ED) [45]

current, anode *See:* electrode current.

current attenuation Either a decrease in signal current magnitude, in transmission from one point to another, or the process thereof, or of a transducer, the scalar ratio of the signal input current to the signal output current. *Note:* By incorrect extension of the term "decibel," this ratio is sometimes expressed in decibels by multiplying its common logarithm by 20. It may be correctly expressed in decilogs. *See also:* decibel; attenuation. (SP) 151-1965w

current, average discharge *See:* average discharge current.

current balance ratio The ratio of the metallic-circuit current or noise-metallic (arising as a result of the action of the longitudinal-circuit induction from an exposure on unbalances outside the exposure) to the longitudinal circuit current or noise-longitudinal in sigma at the exposure terminals. It is expressed in microamperes per milliamperere or the equivalent. *See also:* inductive coordination. (EEC/PE) [119]

current-balance relay A balance relay that operates by comparing the magnitudes of two current inputs. (SWG/PE/PSR) C37.100-1992, C37.90-1978s

current-balancing device (thyristor) Device used to achieve satisfactory division of current among parallel connected semiconductor devices, for example, reactor, resistor, impedance. (IA/IPC) 428-1981w

current-balancing reactor A reactor used in semiconductor rectifiers to achieve satisfactory division of current among parallel-connected semiconductor diodes. *See also:* reactor. (PE/TR) [57]

current balancing transformer *See:* sharing transformer and current balancing transformer.

current carrier In a semiconductor, a mobile conduction electron or hole. (AES/SS) 307-1969w

current-carrying *See:* energized.

current-carrying capacity The maximum current that a contact is able to carry continuously or for a specified period of time. *See also:* contactor. (IA/IAC) [60], [84]

current-carrying part A conducting part intended to be connected in an electric circuit to a source of voltage. *Note:* Non-current-carrying parts are those not intended to be so connected. (SWG/NESC/T&D/PE) C2-1997, 516-1995, C37.100-1992, C37.40-1993, C37.30-1971s

current circuit (1) (ac high-voltage circuit breakers) That part of the synthetic test circuit from which the major part of the power frequency current is obtained. (SWG/PE) C37.081-1981r, C37.083-1999

(2) **(relays)** An input circuit to that is applied a voltage or a current which is a measure of primary current. (PE/PSR) C37.90.1-1989r

current clamp (self-commutated converters) (converter circuit elements) A clamp that limits the current through a semiconductor device. (IA/SPC) 936-1987w

current comparator (metering) A device by which the ratio of two currents and the phase angle between them can be measured precisely. *Note:* A common form of current comparator relies on a balance on ampere-turns produced by currents in two or more windings on one or more magnetic cores. (ELM) C12.1-1988

current compensator (excitation systems for synchronous machines) An element of the excitation system that acts to compensate for synchronous machine load current effects. *Notes:* 1. Examples are reactive current compensator and active current compensator. A reactive current compensator is a compensator that acts to modify the regulated voltage in accordance with reactive current. An active current compensator is a compensator that acts to modify the regulated voltage in accordance with active current. 2. Historically, terms such as equalizing reactor and cross current compensator have been used to describe the function of a reactive compensator. These terms are deprecated. 3. Reactive compensators are generally applied with synchronous machine voltage regulators to obtain reactive current sharing among synchronous machines operating in parallel. They function in the following two ways:

- a) Reactive droop compensation is the more common method. It creates a droop in synchronous machine terminal voltage proportional to reactive current and equivalent to that which would be produced by the insertion of a reactor between the synchronous machine terminals and the paralleling point.
- b) Reactive differential compensation is used where droop in synchronous machine voltage is not wanted. It is obtained by a series differential connection of the various synchronous machine, current transformer secondaries, and reactive compensators. The difference current for any synchronous machine from the common series current creates a compensating voltage in the input to the particular synchronous machine voltage regulator which acts to modify the synchronous machine excitation to reduce to minimum (zero) its differential reactive current.

4. Line drop compensators modify synchronous machine terminal voltage by regulator action to compensate for the impedance drop from the machine terminals to a fixed point in the external circuit. Action is accomplished by insertion of a voltage equivalent to the impedance drop within the regulator input circuit. The voltage drops of the resistance and reactance portions of the impedance are obtained, respectively, by an active compensator and a reactive compensator. (PE/EDPG) 421.1-1986r

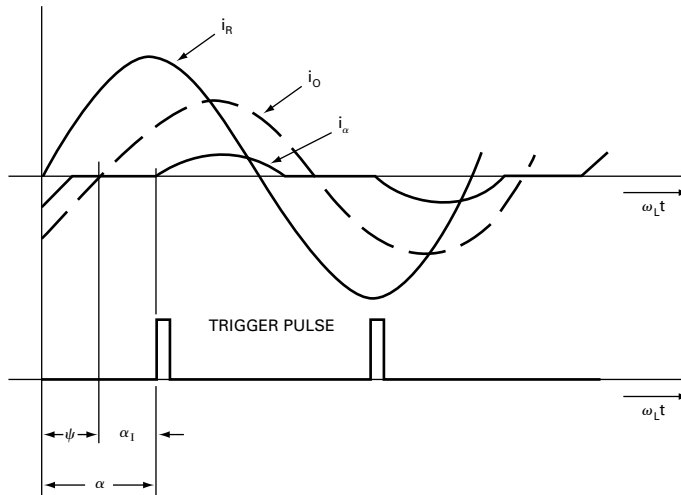
current, conduction *See:* conduction current.

current crest factor The ratio of the peak value of lamp current to the root-mean-square value of lamp current. (EEC/LB) [97]

current cutoff (power supplies) An overload protective mechanism designed into certain regulated power supplies to reduce the load current automatically as the load resistance is reduced. This negative resistance characteristic reduces overload dissipation to negligible proportions and protects sensitive loads. (AP/ANT) [35]

current cycle loop (substation grounding) The combination of conductors and connectors that carries the current of the circuit under test. (SUB/PE) 837-1989r

current delay angle (thyristor) The interval in electrical angular measure by which the starting instant of conduction is delayed in relation to operation that would occur with contin-



i_R = current in a control element with all control elements continuously gated and a resistive load

NOTE: In the case of a single phase controller i_R is in phase with the line voltage. The latter may be used as a convenient reference voltage to measure α

i_O = current in a control element with all control elements continuously gated and at the specified load

i_α = current in a control element with a trigger delay angle of α and at the specified load

α = angle of retard

α_1 = current delay angle

ψ = angle between i_R and i_O

NOTE: In the case of a single phase controller, ψ is identical with the load power factor angle.

current delay angle

uously gated control elements. See α_1 of the corresponding figure.

(IA/IPC) 428-1981w

current density (1) A generic term used where there is no danger of ambiguity to refer either to conduction-current density or to displacement-current density, or to both.

(Std100) 270-1966w

(2) A vector-point function describing the magnitude and direction of charge flow per unit area. The preferred unit is amperes per square meter (A/m^2).

(T&D/PE) 1227-1990r

current derived voltage A voltage produced by a combination of currents. *Note:* (1) The element used to create this voltage in a pilot system is popularly referred to as a filter. A typical example is a filter that is supplied three-phase currents and produces an output voltage proportional to the symmetrical component content of these currents. (For example, $V_F = K_1 IA_1 + K_2 IA_2 + K_0 IA_0$ where IA_1 , IA_2 , and IA_0 are the symmetrical components of the A phase current and the K are weighting factors.)

(PE/PSR) C37.95-1973s

current differential relay A relay designed to detect faults by measuring the current magnitude and phase angle difference between relay terminals of a transmission line.

(PE/PSR) C37.113-1999

current efficiency (specified electrochemical process) The proportion of the current that is effective in carrying out that process in accordance with Faraday's law. *See also:* electrochemistry.

(EEC/PE) [119]

current extent *See:* extensional set.

current generator (signal-transmission system) A two-terminal circuit element with a terminal current substantially independent of the voltage between its terminals. *Note:* An ideal current generator has zero internal admittance. *See also:* network analysis; signal.

(ED) 161-1971w

current injection method A synthetic test method in which the voltage circuit is applied to the test circuit breaker before power frequency current zero.

(SWG/PE) C37.100-1992, C37.083-1999, C37.081-1981r

current instance The package instance whose private data is currently accessible.

(C/BA) 1275-1994

current limit (1) The maximum output of the battery charger delivered to a discharged battery and load, usually stated as a percentage of output rating and with nominal input voltage supplied to the charger.

(IA/PSE) 602-1996

(2) A control function that prevents a current from exceeding its prescribed limits. *Note:* Current-limit values are usually expressed as percent of rated-load value. If the current-limit circuit permits the limit value to increase somewhat instead of being a single value, it is desirable to provide either a curve of the limit value of current as a function of some variable such as speed or to give limit values at two or more conditions of operation.

(IA/APP/IAC) [69], [60]

current-limit acceleration (electric drive) A system of control in which acceleration is so governed that the motor armature current does not exceed an adjustable maximum value. *See also:* electric drive.

(IA/ICTL/IAC) [60]

current-limit control (electric drive) A system of control in which acceleration, or retardation, or both, are so governed that the armature current during speed changes does not exceed a predetermined value. *See also:* electric drive.

(EEC/PE) [119]

current limiter (protection and coordination of industrial and commercial power systems) A device intended to function only on fault currents of high magnitude and that may not successfully open on lesser overcurrents regardless of time. Such a device should always be used in series with a fuse, contactor, or circuit breaker to protect against overloads and low-level short circuits. Current limiters are typically added to molded-case circuit breakers, power circuit breakers, or instantaneous circuit protectors.

(IA/PSP) 242-1986r

current limiting, automatic *See:* automatic current limiting.

current-limiting characteristic curve (of a current-limiting fuse) A curve showing the relationship between the maximum peak current passed by a fuse and the correlated root-mean-square available current magnitudes under specified voltage and circuit impedance conditions. *Synonyms:* peak let-

through characteristic curve; cutoff characteristic curve. *See also:* current-limiting fuse.

(SWG/PE) C37.100-1992, C37.40-1993

current-limiting fuse (protection and coordination of industrial and commercial power systems) A fuse that will interrupt all available currents above its threshold current and below its maximum interrupting rating, limit the clearing time at rated voltage to an interval equal to or less than the first major or symmetrical loop duration, and limit peak let-through current to a value less than the peak current that would be possible with the fuse replaced by a solid conductor of the same impedance. Note that current-limiting action only becomes effective at a specific value of current. Underwriters Laboratories (UL) only recognizes and permits labeling of Classes G, J, L, R, CC, and T as current limiting, although Class K fuses are, in fact, current limiting. Refer to the National Electrical Code (NEC), Section 240-60b, which prohibits fuse clips for current-limiting fuses accepting noncurrent-limiting fuses. *See also:* threshold current.

(IA/PSP) 242-1986r

current-limiting fuse unit (1) A fuse unit that, when its current-responsive element is melted by a current within the fuse's specified current-limiting range, abruptly introduces a high resistance to reduce current magnitude and duration, resulting in subsequent current interruption. *Notes:* 1. The values specified in standards for the threshold ratio, peak let-through current, and I^2t characteristics are used as the measures of current-limiting ability. 2. There are two classes of current-limiting fuse units—power and distribution. They are differentiated from one another by current ratings and minimum melting time-current characteristic.

(SWG/PE) C37.40-1993

(2) A fuse unit that, when it is melted by a current within its specified current-limiting range, abruptly introduces a high resistance to reduce the current magnitude and duration. *Note:* There are two classes of current-limiting fuse units—power and distribution. They are differentiated one from the other by current ratings and minimum melting time current characteristics. 2. The values specified in standards for the threshold ratio, peak let-through current, and I^2t characteristics are used as the measures of current-limiting ability.

(SWG/PE) C37.100-1992

current-limiting overcurrent protective device A device that, when interrupting currents in its current-limiting range, will reduce the current flowing in the faulted circuit to a magnitude substantially less than that obtainable in the same circuit if the device were replaced with a solid conductor having comparable impedance.

(NESC/NEC) [86]

current-limiting range (of a current-limiting fuse) That specified range of currents between the threshold current and the rated interrupting current within which current limitation occurs.

(SWG/PE) C37.100-1992

current-limiting reactor (1) (power and distribution transformers) A reactor intended for limiting the current that can flow in a circuit under short-circuit conditions, or under other operating conditions such as starting, synchronizing, etc. *See also:* reactor.

(PE/TR) C57.12.80-1978r, [57]

(2) A reactor connected in series with the phase conductors for limiting the current that can flow in a circuit under short-circuit conditions, or under other operating conditions, such as capacitor switching, motor starting, synchronizing, arc stabilization, etc.

(PE/TR) C57.16-1996

current-limiting resistor A resistor inserted in an electric circuit to limit the flow of current to some predetermined value. *See also:* feedback control system.

(EEC/PE/ICTL) [119]

current loss (electric instruments) In a voltage-measuring instrument, the value of the current when the applied voltage corresponds to nominal end-scale indication. *Note:* In other instruments it is the current in the voltage circuit at rated voltage. *See also:* accuracy rating.

(EEC/AII) [102]

current margin The difference between the steady-state currents flowing through a receiving instrument, corresponding,

respectively, to the two positions of the telegraph transmitter. *See also:* telegraphy.

(EEC/PE) [119]

current master *See:* master.

current of traffic The movement of trains on a main track in one direction specified by the rules.

(EEC/PE) [119]

current, peak *See:* peak current.

current phase-balance protection A method of protection in which an abnormal condition within the protected equipment is detected by the current unbalance between the phases of a normally balanced polyphase system.

(SWG/PE/PSR) C37.100-1992, C37.90-1978s

current, polarization *See:* polarization current.

current position (A) The position of the electron beam on a display surface following the most recently executed display command. *Synonym:* beam position. **(B)** A CORE System value that defines the current drawing location in world coordinates.

(C) 610.6-1991

current probe Used to measure dc, ac, or composite currents. DC current probes should measure dc and composite currents to within $\pm 1\%$ with a probe calibrator and $\pm 3\%$ without the calibrator. AC current probes should measure ac currents to within $\pm 5\%$. This accuracy should be maintained up to the worst case expected peak current. Proper bandwidth should also be ensured.

(PEL) 1515-2000

current pulsation (rotating machinery) The difference between maximum and minimum amplitudes of the motor current during a single cycle corresponding to one revolution of the driven load expressed as a percentage of the average value of the current during this cycle. *See also:* asynchronous machine.

(PE) [9]

current, rated *See:* rated current.

current rating (of a relay) The current at specified frequency that may be sustained by the relay for an unlimited period without causing any of the prescribed limitations to be exceeded.

(PE/SWG-OLD/PSR) C37.100-1992, C37.90-1978s

current rating, 60-hertz (arresters) A designation of the range of the symmetrical root-mean-square fault currents of the system for which the arrester is designed to operate. *Notes:* 1. An expulsion arrester is given a maximum current rating and may also have a minimum current rating. 2. The designation of the maximum and minimum current ratings of an expulsion arrester not only specifies the useful operating range of the arrester between those extreme values for symmetrical root-mean-square short-circuit current, but indicates that at the point of application of the arrester the root-mean-square short-circuit current for the system should neither be greater than the maximum nor less than the minimum current rating.

(PE/EEC) [119]

current ratio (series transformer) (mercury lamp) The ratio of the (root-mean-square) primary current to the root-mean-square secondary current under specified conditions of load.

(EEC/LB) [98]

current-recovery ratio (arc-welding apparatus) With a welding power supply delivering current through a short-circuited resistor whose resistance is equivalent to the load setting on the power supply, and with the short-circuit suddenly removed, the ratio of (A) the minimum transient value of current upon the removal of the short-circuit to (B) the final steady-state value is the current-recovery ratio.

(EEC/AWM) [91]

current regulation (1) (constant-current transformer) The maximum departure of the secondary current from its rated value, with rated primary voltage at rated frequency applied, and at rated secondary power factor, and with the current variation taken between the limits of a short-circuit and rated load. *Note:* This regulation may be expressed in per unit, or percent, on the basis of the rated secondary current.

(PE/TR) C57.12.80-1978r

(2) **(thyristor)** The method whereby the current is controlled to a specified value.

(IA/IPC) 428-1981w

current relay (1) (general) A relay that functions at a predetermined value of current. *Note:* It may be an overcurrent, undercurrent, or reverse-current relay. *See also:* relay. (EI) 1-1978s

(2) A relay that responds to current. (SWG/PE/PSR) C37.100-1992, C37.90-1978s

current-responsive element (of a fuse) That part with predetermined characteristics, the melting and severance or severances of which initiate the interrupting function of the fuse. *Note:* The current-response element may consist of one or more fusible elements combined with a strain element or other component(s), or both, that affect(s) the current-responsive characteristic. (SWG/PE) C37.100-1992, C37.40-1993

current ripple (rotating electric machinery) Current ripple, for the purposes of this standard, is defined as

$$\frac{(I_{\max} - I_{\min})}{(I_{\max} + I_{\min})} \times 100$$

expressed in percent where I_{\max} and I_{\min} are the maximum and minimum values of the current waveform, provided that the current is continuous. (PE/EM) 11-1980r

current-sensing resistor (power supplies) A resistor placed in series with the load to develop a voltage proportional to load current. A current-regulated direct-current power supply regulates the current in the load by regulating the voltage across the sensing resistor. (AES/PE) [41], [78]

current sensitivity (nonlinear, active, and nonreciprocal waveguide components) (diode) The output current developed by a diode detector for a specified load resistance per unit available radio-frequency (rf) input power. It is expressed in mA/mW. (MTT) 457-1982w

current, short-circuit *See:* short-circuit current.

current tap *See:* plug adapter lampholder.

current terminals (direct-current instrument shunts) Those terminals which are connected into the line whose current is to be measured and that will carry the current of the shunt. (PE/PSIM) 316-1971w

current terminals of instrument shunts (electric power system) Those terminals that are connected into the line whose current is to be measured and that will carry the current of the shunt. (PE/PSIM) [55]

current-transformation ratio The ratio of the rms value of the primary current to the rms value of the secondary current under specified conditions. (PEL/ET) 389-1990

current transformer (CT) (1) An instrument transformer that is intended to have its primary winding connected in series with the conductor carrying the current to be measured or controlled. (In window-type cts, the primary winding is provided by the line conductor and is not an integral part of the transformer.). (PE/TR/PSR) C57.13-1993, C57.12.80-1978r, C37.110-1996

(2) (metering) An instrument transformer designed for use in the measurement or control of current. *Note:* Its primary winding, which may be a single turn or bus bar, is connected in series with the load. *See also:* continuous thermal current rating factor; phase angle; instrument transformer. (ELM) C12.1-1982s

current turn-off time (gas tube surge-protective device) The time required for the arrester to restore itself to a nonconducting state following a period of conduction. This definition applies only to a condition where the arrester is exposed to a continuous specified dc potential under a specified circuit condition. (SPD/PE) C62.31-1987r, C62.32-1981s, [8]

current-type telemeter A telemeter that employs the magnitude of a single current as the translating means. (SWG/PE) C37.100-1992

current window The block of 24 r registers to which the current window pointer (CWP) points. (C/MM) 1754-1994

current withstand rating The maximum allowable current, either instantaneous or for a specified period of time, that a device can withstand without damage, or without exceeding

the criteria of an applicable safety or performance standard. (IA/PSE) 446-1995

current working directory *See:* working directory.

curriculum standard A standard that describes the characteristics of a course of study on a body of knowledge that is offered by an educational institution. (C) 610.12-1990

cursor (1) A moveable icon or spot of light on the screen of a display device that indicates the currently selected object or character. (C) 610.2-1987

(2) (computer graphics) A cross, flashing underscore, or other symbol that represents a position on a display surface. (C) 610.6-1991w

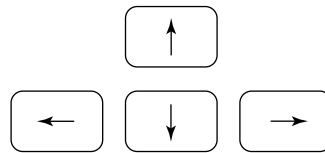
(3) (A) In computer graphics, a cross, flashing underscore, or other symbol that represents a position on a graphics display surface. (B) A moveable icon or spot of light on the screen of a display device that indicates a particular object or character. (C) A moveable mark as in that (A) indicates the position on which the next operation will occur. (C) 610.10-1994

cursor control The ability to modify the position of a cursor by explicit commands. (C) 610.2-1987

cursor control device An input device used to control the position of the cursor on a display device. *Synonym:* pointing device. *See also:* paddle; cursor control keypad; mouse; joystick. (C) 610.10-1994w, 610.6-1991w

cursor control key Any key on the keyboard that may be used to control a cursor function such as moving the cursor up or down a line. *See also:* home key; carriage return key. (C) 610.10-1994w

cursor control keypad A keypad comprising a set of cursor control keys such as in the following diagram of a standard inverted "T" cursor control keypad.



cursor control keypad

(C) 610.10-1994w

cursor position The line and column position on the screen denoted by the cursor of the terminal. (C/PA) 9945-2-1993

curvature (coaxial transmission line) The radial departure from a straight line between any two points on the external surface of a conductor. *See also:* waveguide. (EEC/REWS) [92]

curvature loss *See:* macrobend loss.

curve (A) (computer graphics) The path traced by a point moving continuously in space. *See also:* arc; closed curve.

(B) (computer graphics) A finite set of pixels representing a path as in (A). *See also:* closed curve; arc.



curve

(C) 610.4-1990

curve follower *See:* curve-follower function generator.

curve-follower function generator (analog computer) A function generator that operates by automatically following a curve $f(x)$ drawn or constructed on a surface, as the input x varies over its range. (C) 165-1977w

curve, integrated energy *See:* integrated energy curve.

curve, load duration *See:* load duration curve.

curve, monthly peak duration *See:* monthly peak duration curve.

curve, reservoir operating rule *See*: reservoir operating rule curve.

cushion clamp (rotating machinery) A device for securing the cushion to the supporting member. (PE/EEC) [119]

cushioning time (speed governing of hydraulic turbines) The elapsed time during which the (closing) rate of servomotor travel is retarded by the slow closure device. *See also*: slow-closure device. (PE/EDPG/EDPG) 125-1977s, [5]

customer (1) The individual or organization that specifies and accepts the project deliverables. The customer may be internal or external to the parent organization of the project, and may or may not be the end user of the software product. A financial transaction between customer and developer is not necessarily implied. (C/SE) 1058.1-1987s

(2) The entity or entities for whom the requirements are to be satisfied in the system being defined and developed. This can be an end user of the completed system, an organization within the same company as the developing organization (e.g., System Management), a company or entity external to the developing company, or some combination of all of these. This is the entity to whom the system developer must provide proof that the system developed satisfies the system requirements specified. (C/SE) 1233-1998

(3) A person or organization ordering, purchasing, receiving, or affected by a product or process provided by the enterprise. Customers include developers, manufacturers, testers, distributors, operators, supporters, trainers, disposers, and the general public. (C/SE) 1220-1998

(4) (A) An individual or organization who specifies the requirements for and formally accepts delivery of a new or modified hardware or software product and its documentation; the customer may or may not be the ultimate user of the system. There are potentially many levels of customers, each with a different level of requirements to satisfy. The customer may be internal or external to the development organization for the project. *See also*: user. **(B)** An individual or organization who acts for the ultimate user of a new or modified hardware or software product to acquire the product and its documentation. *See also*: buyer. (SE/C) 1362-1998

(5) The person, or persons, for whom the product is intended, and usually (but not necessarily) who decides the requirements. (C/SE) 1219-1998

(6) The purchaser and/or user of a product or service supplied by a service provider or utility. (AMR/SCC31) 1377-1997

(7) *See also*: user. (PE/SUB) 1109-1990w

customer alert (1) (watthour meters) A switching output used to indicate a time-of-use period. (ELM) C12.13-1985s

(2) (watthour meters) A switching output used to indicate events or conditions. (ELM) C12.15-1990

customer-bank communication terminal (CBCT) *See*: automated teller machine.

customer charge (power operations) The amount paid periodically by a customer without regard to demand or energy consumption. (PE/PSE) 858-1987s, 346-1973w

customer count The number of customers or number of meters. The number of customers is the preferred item to count if the counting system is not already in place. (PE/T&D) 1366-1998

customer generation reserve (power operations) The operating reserve available through startup of customer generation. (PE/PSE) 858-1987s

customer load (power operations) Total of loads including distribution system load and losses but excluding station service, transmission losses, and pumping load. (PE/PSE) 858-1987s

customer premise equipment (CPE) (1) Equipment located on the customer's premises that is connected to the telephone line [e.g., telemetry interface units (TIUs), telephones, answering machines, and modems]. (AMR/SCC31) 1390-1995, 1390.2-1999, 1390.3-1999

(2) (telephone loop performance) Any equipment connected by customer premises wiring to the customer side of the network interface. (COM/TA) 820-1984r

(3) Any equipment connected by customer premises wiring to the customer side of the demarcation point (network interface). (IA/PSE) 1100-1999

customer premise equipment (CPE) active state Occurs when the CPE has been alerted and is performing a communication function. (SCC31) 1390.3-1999, 1390.2-1999

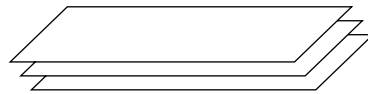
customer premise equipment (CPE) inactive state Occurs when the CPE has completed its communication function. (SCC31) 1390.3-1999, 1390.2-1999

customizing Modifying, or adding to, the structure of data in the PIN to tailor the general data requirements to an needs of an organization. Customizing can result in an organization-specific data model that should be cross-referenced to the PIN. (PE/EDPG) 1150-1991w

cut To duplicate text or graphic objects from the screen to the clipboard and then delete them from the screen. (C) 1295-1993w

cutback technique (fiber optics) A technique for measuring fiber attenuation or distortion by performing two transmission measurements. One is at the output end of the full length of the fiber. The other is within 1 to 3 meters of the input end, access being had by "cutting back" the test fiber. *See also*: attenuation. (Std100) 812-1984w

cut form A series of individual paper forms that feed into a printing device. *Contrast*: continuous form.



cut form

(C) 610.10-1994w

cut-in loop A circuit on the roadway energized to automatically cut in the train control or cab signal apparatus on a passing vehicle. (EEC/PE) [119]

cutoff *See*: cutoff frequency.

cutoff angle (illuminating engineering) (of a luminaire) The angle, measured up from nadir, between the vertical axis and the first line of sight at which the bare source is not visible. (EEC/IE) [126]

cutoff attenuator An adjustable length of waveguide used below its cutoff frequency to introduce variable nondissipative attenuation. *See also*: waveguide.

cutoff calls Occurs when an established connection is terminated for some reason other than an on-hook by one of the parties. In a switching system, cutoffs can be caused by hardware or software failures, procedural errors, or (in the case of time-division switching systems) digital-signal impairments such as slips, misframes, and errors. The performance measure for cutoff calls is the proportion of cutoff calls to total calls based on a holding time of 3 min. (COM) 973-1990w

cutoff characteristic *See*: current-limiting characteristic curve.

cutoff characteristic curve *See*: current-limiting characteristic curve.

cutoff frequency (1) (general) The frequency that is identified with the transition between a pass band and an adjacent attenuation band of a system or transducer. *Note*: It may be either a theoretical cutoff frequency or an effective cutoff frequency. (SP/PE/MTT/EDPG) 151-1965w, 1050-1996, 146-1980w

(2) (seismic qualification of Class 1E equipment for nuclear power generating stations) The frequency in the response spectrum where the zero period acceleration asymptote begins. This is the frequency beyond which the single-degree-of-freedom oscillators exhibit no amplification of motion, and indicate the upper limit of the frequency content of the waveform being analyzed. (PE/NP) 344-1987r

(3) (planar transmission lines) For a given mode in a planar transmission line, the frequency below which the mode is not guided by the line. For a shielded transmission line (with a finite cross section), the mode phase constant is very small

compared to the attenuation constant below cutoff, and is zero if the line is nondissipative. For an open transmission line (infinite cross section), the mode is guided above cutoff and radiating below cutoff. (MTT) 1004-1987w

(4) (nonlinear, active, and nonreciprocal waveguide components) A figure of merit for a varactor diode. It is the frequency at which Q equals 1. Its relationship to diode series resistance and junction capacitance is given by

$$f_c = \frac{1}{2\pi R_s C_j}$$

where

f_c = cutoff frequency at bias voltage V_R
 R_s = series resistance at bias voltage V_R
 C_j = junction capacitance at bias voltage V_R

(MTT) 457-1982w

(5) The frequency below which a waveguide fails to transmit a signal in the differential mode. (PE/IC) 1143-1994r

(6) The frequency in the response spectrum where the zero period acceleration asymptote begins. This is the frequency beyond which the single-degree-of-freedom oscillators exhibit no amplification of input motion and which indicates the upper limit of the frequency content of the waveform being analyzed. (PE/SUB) 693-1997

(7) (of a waveguide) For a given transmission mode in a nondissipative waveguide, the frequency at which the propagation constant is 0.

(PE/MTT/EDPG) 1050-1996, 146-1980w

cutoff frequency, effective *See*: effective cutoff frequency.

cutoff mode (waveguide) A nonpropagating waveguide mode such that the variation of phase along the direction of the guide is negligible. (MTT) 146-1980w

cutoff relay (telephony) A relay associated with a subscriber line, that disconnects the line relay from the line when the line is called or answered. (PE/EEC) [119]

cutoff voltage (1) (batteries) The prescribed voltage at which the discharge is considered complete. *Note*: The cutoff or final voltage is usually chosen so that the useful capacity of the battery is realized. The cutoff voltage varies with the type of battery, the rate of discharge, the temperature, and the kind of service. The term cutoff voltage is applied more particularly to primary batteries, and final voltage to storage batteries. (PE/EEC) [119]

(2) (electron tube) The electrode voltage that reduces the value of the dependent variable of an electron-tube characteristic to a specified low value. *Note*: A specific cutoff characteristic should be identified as follows: current versus grid cutoff voltage, spot brightness versus grid cutoff voltage, etc. *See also*: electrode voltage. (ED/ED) 161-1971w, [45]

(3) (magnetrons) *See also*: critical voltage.

cutoff waveguide A waveguide used as a frequency below its cutoff frequency. *See also*: waveguide.

(AP/ANT) [35], [84]

cutoff wavelength (1) That wavelength, in free space or in the unbounded guide medium, as specified, above which a traveling wave in that mode cannot be maintained in the guide. *Note*: For $TE_{m,n}$ or $TM_{m,n}$ waves in hollow rectangular cylinders

$$\lambda_c = 2/[(m/a)^2 + (n/b)^2]^{1/2}$$

where a is the width of the waveguide along the x coordinate and b is the height of the waveguide along the y coordinate. *See also*: guided wave; waveguide. (AP/ANT) [35], [84]

(2) (uniconductor waveguide) The ratio of the velocity of electromagnetic waves in free space to the cutoff frequency. *See also*: waveguide. (MTT) 146-1980w

(3) (fiber optics) That wavelength greater than which a particular waveguide mode ceases to be a bound mode. *Note*: In a single mode waveguide, concern is with the cutoff wavelength of the second order mode. *See also*: mode.

(Std100) 812-1984w

(4) (of a waveguide) The free-space wavelength corresponding to the cutoff frequency of the waveguide.

(MTT) 146-1980w

cut out The state of being disabled by the conscious use of a cutout device or function. (VT) 1475-1999

cutout (1) (general) An electric device used manually or automatically to interrupt the flow of current through any particular apparatus or instrument. (PE/EEC) [119]

(2) An assembly of a fuse support with either a fuseholder, fuse carrier, or disconnecting blade. The fuseholder or fuse carrier may include a conducting element (fuse link), or may act as a disconnecting blade by the inclusion of a nonfusible member. *Note*: The term *cutout*, as defined here, is restricted in practice to equipment used on distribution systems. *See also*: distribution; power; distribution cutout; power fuse.

(SWG/PE) C37.100-1992, [56]

(3) A device or function whose purpose is deliberately to disable a specified device or function, e.g., "dynamic brake cutout." (VT) 1475-1999

cutout base *See*: fuseholder.

cutout box (interior wiring) An enclosure designed for surface mounting and having swinging doors or covers secured directly to and telescoping with the walls of the box proper. *See also*: cabinet. (NESC/NEC/EEC/PE) [86], [119]

cutout loop (railway practice) A circuit in the roadway that cooperates with vehicle-carried apparatus to cut out the vehicle train control or cab signal apparatus.

(EEC/PE) [119]

cutout type sectionalizers A single-phase automatic line sectionalizer that is very similar in outward appearance to a distribution open dropout type fuse cutout and is used in a distribution cutout mounting. (SWG/PE) C37.63-1997

cut paraboloidal reflector A reflector that is not symmetrical with respect to its axis. *See also*: antenna.

(AP/ANT) 145-1983s

cut-section A location within a block other than a signal location where two adjacent track circuits end.

(EEC/PE) [119]

cut-set (networks) A set of branches of a network such that the cutting of all the branches of the set increases the number of separate parts of the network, but the cutting of all the branches except one does not. *See also*: network analysis.

(Std100) 270-1966w

cut-sheet feed A mechanism enabling a printer to print on multiple sheets of paper. *See also*: single-sheet feed.

(C) 610.10-1994w

cutter (audio and electroacoustics) An electromechanical transducer that transforms an electric input into a mechanical output, that is typified by mechanical motions that may be inscribed into a recording medium by a cutting stylus. *See also*: phonograph pickup. (SP) [32]

cutter compensation (numerically controlled machines) Displacement, normal to the cutter path, to adjust for the difference between actual and programmed cutter radii or diameters. (EEC/IA) [74], [61]

cut-through A transmission path through the switched telephone network to an end user.

(AMR/SCC31) 1390-1995, 1390.3-1999, 1390.2-1999

cutting down (electroplating) Polishing for the purpose of removing roughness or irregularities. *See also*: electroplating.

(PE/EEC) [119]

cutting stylus (electroacoustics) A recording stylus with a sharpened tip that, by removing material, cuts a groove into the recording medium. *See also*: phonograph pickup.

(SP) [32]

CVH *See*: clocked violation HI.

CVD *See*: chemical vapor deposition technique.

CVL *See*: clocked violation LO.

CW *See*: continuous wave.

C-weighted sound level Loudness that is measured with a sound level meter using the C-weighted filter that is built into the sound level meter. The C-weighting has only little depen-

dence on frequency over the greater part of the audible frequency range. (PE/TR) C57.12.90-1999

cybernetics (1) A branch of technology concerned with the comparative study of communication and control in living organisms and in machines. (C) 610.2-1987

(2) *See also:* system science.

cycle (1) (A) An interval of space or time in which one set of events or phenomena is completed. **(B)** Any set of operations that is repeated regularly in the same sequence. The operations may be subject to variations on each repetition.

(C) [20], [85]

(2) **(pulse terminology)** The complete range of states or magnitudes through which a periodic waveform or a periodic feature passes before repeating itself identically.

(IM/WM&A) 194-1977w

(3) **(A) (data transmission)** An interval of space or time in which one set of events or phenomena is completed; any set of operations that is related regularly in the same sequence. The operations may be subject to variations on each repetition. **(B) (data transmission)** The complete set of values of a periodic quantity that occurs during a period. *Note:* It is one complete set of positive and negative values of an alternating current. (PE) 599-1985

(4) **(test pattern language)** A complete operation, such as writing or reading, performed by a memory. *Synonym:* period. (TT/C) 660-1986w

(5) **(A) (software)** A period of time during which a set of events is completed. *See also:* software life cycle; software development cycle. **(B) (software)** A set of operations that is repeated regularly in the same sequence, possibly with variations in each repetition; for example, a computer's read cycle. *See also:* pass. (C) 610.12-1990

(6) **(NuBus)** One period of the bus clock, from rising edge to the next rising edge. (C/MM) 1196-1987w

(7) A battery discharge followed by a complete recharge. A deep (or full) cycle is described as the removal and replacement of 80% or more of the cell's design capacity.

(PE/EDPG) 1184-1994

(8) **(A)** In an ac voltage or current, exactly one complete set of positive and negative values. **(B)** Any set of operations that is repeated regularly in the same sequence. *See also:* machine cycle; instruction cycle; cycle time; read cycle; write cycle. (C) To perform, or cause to perform, one set of operations as in definition (B). **(D)** An interval of space or time in which one set of operations as in definition (B) is completed.

(C) 610.10-1994

(9) The complete series of values of a periodic quantity that occurs during a period. (It is one complete set of positive and negative values of an alternating current.).

(IA/MT) 45-1998

®NuBus is a registered trademark of Texas Instruments, Inc.

cycle counter *See:* index register.

cycle life The number of cycles (discharges and recharges), under specified conditions, that a battery can undergo before failing to meet its specified end-of-life capacity.

(PV) 1013-1990, 1144-1996

cycle master (1) The node that generates the periodic cycle start. (C/MM) 1394-1995

(2) The node that generates the periodic cycle start packet 8000 times a second. (C/MM) 1394a-2000

cycle of operation (1) The discharge and subsequent recharge of the cell or battery to restore the initial conditions. *See also:* charge. (EEC/PE) [119]

(2) The movement of the LTC from one end of its range to the other and back to its original position.

(PE/TR) C57.131-1995

cycle start A primary packet sent by the cycle master that indicates the start of an isochronous cycle.

(C/MM) 1394-1995

cycle start packet A primary packet sent by the cycle master that indicates the start of an isochronous period.

(C/MM) 1394a-2000

cycle stealing The process of suspending the operation of a central processing unit for one or more cycles to permit the occurrence of other operations, such as transferring data from main storage in response to an output request from an input-output controller. (C) 610.10-1994w, 610.12-1990

cycle termination The phase of a cycle during which the master terminates the cycle, and slaves acknowledge this termination by establishing the intercycle state of bus signals.

(C/MM) 1096-1988w

cycle time The minimum amount of time between the start of successive read or write cycles of a storage device. *See also:* write cycle time; read cycle time. (C) 610.10-1994w

cyclically magnetized condition A condition of a magnetic material when, under the influence of a magnetizing force that is a cyclic (but not necessarily periodic) function of time having one maximum and one minimum per cycle, it follows identical hysteresis loops on successive cycles.

(Std100) 270-1966w

cyclic binary code *See:* Gray code.

cyclic code *See:* Gray code.

cyclic code error detection (power-system communication)

The process of cyclically computing bits to be added at the end of a word such that an identical computation will reveal a large portion of errors that may have been introduced in transmission. *See also:* digital. (PE) 599-1985w

cyclic decimal code A binary code in which sequential decimal digits are represented by four-bit BCD expressions, each of which differs from the preceding expression in one place only. *Note:* This is an example of unit-distance code.

(C) 1084-1986w

cyclic duration factor (rotating machinery) The ratio between the period of loading including starting and electric braking, and the duration of the duty cycle, expressed as a percentage. *See also:* asynchronous machine; direct-current commutating machine. (PE) [9]

cyclic function A function that repetitively assumes a given sequence of values at an arbitrarily varying rate. *Note:* That is, if y is a periodic function of x and x in turn is a monotonic nondecreasing function of t , then y is said to be a cyclic function of t .

(Std100) 270-1966w

cyclic irregularity (rotating machinery) The periodic fluctuation of speed caused by irregularity of the prime-mover torque. *See also:* direct-current commutating machine; asynchronous machine. (PE) [9]

cyclic permuted code *See:* unit-distance code.

cyclic redundancy (check) code Defined for some digital transmission formats (usually stated with the number of bits in the code; e.g., CRC6, CRC9, etc.). The CRC is the result of a calculation carried out on the set of transmitted bits by the transmitter. The CRC is encoded into the transmitted signal with the data. At the receiver, the calculation creating the CRC may be repeated, and the result compared to that encoded in the signal. The calculations are chosen to optimize the error detection capability. (COM/TA) 1007-1991r

cyclic redundancy check (CRC) (1) A form of error check used to ensure the accuracy of transmitting a message. *Note:* The CRC is the result of a calculation carried out on the set of transmitted bits by the transmitter. The CRC is encoded into the transmitted signal with the data. At the receiver, the calculation creating the CRC may be repeated, and the result compared to that encoded in the signal. The calculations are chosen to optimize the error detection capability. *Contrast:* parity check; parity. *See also:* frame check sequence; frame check sequence error. (C) 610.7-1995

(2) An error-detection scheme that checks the integrity of a transmitted message for errors introduced during transmission.

(PE/SUB) 1379-1997

(3) The result of a calculation carried out on the octets within an IrLAP frame; also called a frame check sequence. The CRC is appended to the transmitted frame. At the receiver, the calculation creating the CRC may be repeated, and the

- result compared to that encoded in the signal. *Synonym:* frame check sequence. (EMB/MIB) 1073.3.2-2000
- cyclic search** A storage allocation technique in which each search for a suitable block of storage begins with the block following the one last allocated. (C) 610.12-1990
- cyclic shift (1)** An operation that produces a word whose characters are obtained by a cyclic permutation of the characters of a given word. (C) 162-1963w, 270-1966w
- (2)** A shift in which the data moved out of one end of the storing register are reentered into the other end, as in a closed loop. *See also:* circulating register. (C) [20], [85]
- (3)** *See also:* circular shift. (C) 1084-1986w
- cyclic storage** *See:* circulating storage.
- cycling** The repeated charge/discharge cycle of a storage battery. Some batteries are rated by their ability to withstand repeated, deep discharge cycles. (PE/EDPG) 1184-1994
- cyclize** To drive a tester, data must be provided in uniform, consistent, repeatable collections. These collections are termed "cycles" or "tester cycles." The process of constructing these collections, generally from simulation environments, is called "cyclizing." (C/TT) 1450-1999
- cycloconverter/synchroconverter** A converter using controlled rectifier or transistor devices that has the capability of adjusting the frequency and proportional voltage of the output waveform to provide speed control of motors. (IA/MT) 45-1998
- cyclometer register** A set of four or five wheels numbered from zero to nine inclusive on their edges, and so enclosed and connected by gearing that the register reading appears as a series of adjacent digits. *See also:* watt-hour meter. (EEC/PE) [119]
- cyclotron** A device for accelerating positively charged particles (for example, protons, deuterons, etc.) to high energies. The particles in an evacuated tank are guided in spiral paths by a static magnetic field while they are accelerated many times by an electric field of mixed frequency. (ED) [45]
- cyclotron frequency** *See:* gyro-frequency.
- cyclotron-frequency magnetron oscillations** Those oscillations whose frequency is substantially the cyclotron frequency. (ED) 161-1971w
- cyclotron, frequency-modulated** *See:* frequency-modulated cyclotron.
- cylinder** In an assembly of magnetic disks, the set of all tracks that can be accessed by all the magnetic heads at a given fixed position. (C) 610.10-1994w
- cylindrical antenna*** *See:* cylindrical dipole; cylindrical array.
* Deprecated.
- cylindrical array** A two-dimensional array of elements whose corresponding points lie on a cylindrical surface. (AP/ANT) 145-1993
- cylindrical dipole (antenna)** A dipole, all of whose transverse cross sections are the same, the shape of a cross section of a cylinder being circular. (AP/ANT) 145-1993
- cylindrical reflector** A reflector that is a portion of a cylindrical surface. *Note:* The cylindrical surface is usually parabolic, although other shapes may be employed. (AP/ANT) 145-1993
- cylindrical-rotor generator** An alternating-current generator driven by a high-speed turbine (usually steam) and having an exciting winding embedded in a cylindrical steel rotor. (PE) [9]
- cylindrical wave** A wave whose equiphase surfaces form a family of coaxial cylinders. (AP/PROP) 211-1997
- CYPHERTEXT** A text-formatting language commonly used for typesetting. (C) 610.13-1993w
- cytac (navigation aid terms)** The designation of loran C in an earlier stage of development. (AES/GCS) 172-1983w