



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

F.68

**OPERATIONS AND QUALITY OF SERVICE
TELEGRAPH SERVICES**

**ESTABLISHMENT OF THE AUTOMATIC
INTERCONTINENTAL TELEX NETWORK**

ITU-T Recommendation F.68

(Extract from the *Blue Book*)

NOTES

1 ITU-T Recommendation F.68 was published in Fascicle II.4 of the *Blue Book*. This file is an extract from the *Blue Book*. While the presentation and layout of the text might be slightly different from the *Blue Book* version, the contents of the file are identical to the *Blue Book* version and copyright conditions remain unchanged (see below).

2 In this Recommendation, the expression “Administration” is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

Recommendation F.68

ESTABLISHMENT OF THE AUTOMATIC INTERCONTINENTAL TELEX NETWORK

1 Preamble – Definitions connected with the numbering of telex subscribers and the routing of telex and gentex calls in intercontinental service

These definitions are proposed to facilitate the reading of recommendations and surveys on the question of intercontinental telex and gentex traffic; they have been derived to large extent from the definitions submitted by telephone experts for studying the analogous problem in intercontinental telephone operation and adapted to the special features of the telex and gentex services.

Preliminary note – The word *continent* is not necessarily used in its geographical sense: traffic characteristics may cause countries of geographically different continents to be included in one continent (within the meaning of these definitions).

1.1 *Circuits*

1.1.1 A **national circuit** is one connecting two exchanges in the same country.

1.1.2 An **international circuit** is one connecting two exchanges in different countries, whether or not they are in different continents.

1.1.3 A **continental circuit** is one established between two exchanges in the same continent.

1.1.4 An **intercontinental circuit** is one connecting two exchanges situated in different countries in different continents.

1.1.5 An **intercontinental transit circuit** is an intercontinental circuit used primarily for routing intercontinental transit traffic.

1.2 *Exchanges*

1.2.1 A **national exchange** is the termination centre for national circuits only.

1.2.2 An **international exchange** is a centre where international circuits, and in general national circuits, terminate.

1.2.3 A **continental exchange** is an international centre where the international circuits terminating there are solely continental circuits.

1.2.4 **intercontinental transit exchange**: An exchange of this type would be directly connected to intercontinental transit circuits and would provide facilities to interconnect intercontinental transit circuits and trunks to terminal exchanges. It would also provide facilities for the interconnection of intercontinental transit circuits.

1.2.5 **terminal international exchange**: An international exchange of this type would not be connected directly to intercontinental transit circuits, but would gain access to the intercontinental transit network through one (or more) intercontinental transit exchanges.

1.3 *Connections*

1.3.1 **international connection**: Any connection between two stations situated in different countries, whether established between different continents or one continent.

1.3.2 **continental connection**: Connection established between stations within the same continent.

1.3.3 **intercontinental connection**: Connection established between two different continents.

1.4 *Numbering*

1.4.1 **subscriber's national telex number:** Set of figures to be selected by a caller in the same country to obtain this subscriber.

1.4.2 **local number:** In national telex networks, when abridged call numbers are used for local or short-distance traffic, the abridged number is called the *local number*.

1.4.3 **prefix giving access to the long-distance automatic telex network:** In national telex networks, when abridged call numbers are used for local or short-distance traffic, an access prefix should be selected to give access to the higher level network (long-distance level).

1.4.4 **prefix giving access to the international automatic telex network:** This expression is taken to mean the digit or digits that a subscriber must select (if necessary after the prefix giving access to the automatic long-distance telex network) to obtain access to the automatic telegraph switching equipment for international telex traffic.

1.4.5 **prefix giving access to the intercontinental automatic transit telex network:** This expression is taken to mean the digit or digits that a subscriber must select (if necessary after the prefix giving access to the international telex network) to obtain access to automatic telegraph switching equipment for intercontinental transit telex traffic.

1.4.6 The origin country is free to use only a common *access prefix to the international network* instead of two different prefixes for access to the international network and the intercontinental network.

1.4.7 **telex network identification code:** Letter or group of two letters serving to identify the subscribers or stations of a country (or a network in a country).

1.4.8 **telex destination code:** A group of digits characterizing, for routing purposes, the subscribers or stations of a country, or of a network in a country.

1.5 *Routing*

1.5.1 **automatic alternative routing:** A facility whereby a call, which cannot find a free circuit on the primary route at an international outgoing exchange, is automatically diverted to a secondary route.

1.5.2 **emergency routes:** The circuit(s) to be used in case of complete interruption or major breakdown of the primary and secondary routes. The emergency routes may pass through any country.

1.5.3 **primary routes:** The circuits normally used in a given relation.

1.5.4 **rerouting:** When congestion occurs at an intermediate transit exchange, rerouting permits a call to be remade via a secondary route from the outgoing international exchange.

1.5.5 **secondary routes:** The circuits to be used when the primary routes are congested. The secondary route(s) may pass through the same countries as the primary routes or through different countries. In manual and semi-automatic operation, secondary routes may also be used when the transmission on the primary route is not sufficiently good, or if traffic is to be handled outside the normal hours of service on the primary routes.

2 **Recommendation for the establishment of the automatic intercontinental telex network**

The CCITT,

considering

(a) that intercontinental telex traffic is rapidly growing; in particular, the development of automatic subscriber selection in intercontinental relations has been made possible. The time differences between terminal countries in such relations and the consequent differences in the hours of peak traffic loading may take it economical to employ tandem transit routing to a much greater extent than has been necessary in the European network. The development of a comprehensive plan for the economical employment of tandem routing depends among other considerations, on agreement on numbering and routing plans;

(b) that a worldwide service includes countries that are served by several telex networks. A telex subscriber's call number in a worldwide service must contain all the digits to be transmitted by the caller in order to establish the connection, irrespective of the routing channel;

(c) that to facilitate automatic routing and charging for calls, the number of digits to be examined by the charging equipment must be limited;

unanimously declares the following:

2.1 *General characteristics of the network*

2.1.1 It must be possible to establish the intercontinental network by means of:

- a) submarine or underground cable telegraph circuits;
- b) telegraph circuits via telecommunication satellites; and
- c) telegraph circuits on radio channels.

2.1.2 When circuits via various transmission facilities exist between two intercontinental transit exchanges, all such circuits must, for automatic selection purposes, be regarded as included in a single system.

2.1.3 Administrations will agree on whether a given group of circuits should be operated on a one-way, bothway or partially divided basis.

2.1.4 The traffic to be routed over these circuits may be either telex or gentex traffic; it may be either transit or terminal traffic.

2.1.5 Countries (or networks) should be connected by direct circuits where this can be justified taking into account the relative economics of transit switching and bothway working where the time difference between the terminal centres makes this a significant factor.

2.1.6 Where it is not practicable to provide direct circuits, the number of transit exchanges involved in a normally routed call should be reduced in so far as possible.

2.1.7 Where the same group of circuits carries traffic originated by subscribers in the country providing facilities and transit traffic originated by another country, the Administration providing the transit exchange shall ensure that the transit calls receive a grade of service not inferior to that given to their own subscribers.

2.2 *Identification of telex subscribers*

2.2.1 For international purposes, a subscriber's national number should be accompanied by one or two letters, called the *telex network identification code*, characterizing either:

- a) the subscriber's country, if in that country there is only one telex network; or
- b) the telex network to which the subscriber belongs in a country where there are several networks operated by different agencies.

2.2.2 An identification code is especially valuable for countries possessing several telex networks operated by different companies and when national numbers do not clearly distinguish between such networks. In such circumstances, it is recommended that the identification code should be clearly published in national directories. Furthermore, Administrations shall ask subscribers to give every possible publicity to their telex identification letters (by including them in the letterheads of their correspondence for example).

2.2.3 The answerback codes for subscriber equipment used in intercontinental telex services should include the telex network identification code allocated to the country or network concerned (see Recommendation F.60, § 3.4.2).

2.2.4 For Administrations using two-character telex network identification codes these codes should be the same as the identification codes of their country (or network) for the telegram retransmission system (see Recommendations F.31 and F.96).

2.2.5 The one-character telex network identification code **X** is used to identify mobile stations that may be connected to the international telex network, regardless of the transmission medium used (maritime mobile-satellite, VHF, HF). The two-character codes commencing with **X** will not be allocated to national telex networks.

2.2.6 The list of telex network identification codes has been compiled by the CCITT and published in accordance with Recommendation F.96.

Note – If in any country the telex and gentex networks are separate, two identification codes might be necessary, one for telex and the other for gentex.

2.3 Routing

2.3.1 On international circuits digits only will be transmitted for selection control.

2.3.2 For each country, or for each network in countries possessing several telex networks, a group of two or three digits – *the telex destination code* – will uniformly characterize each country or network for the purposes of selection in intercontinental transit circuits. (See Recommendation F.69 for the list of telex destination codes.)

2.3.3 The access prefix to be selected in an outgoing country by a subscriber wanting to put through a call to another country via the intercontinental transit network shall be decided on by the Administration responsible for the calling subscriber. This is a matter for internal regulation.

2.3.4 There are two possibilities in relations between the international exchange of the outgoing country and an intercontinental exchange:

2.3.4.1 There are direct trunk circuits between the international exchange in the outgoing country and the intercontinental exchange (see Figure 1/F.68). On these circuits, it should suffice to transmit the destination code of the country required, followed by the national number of the subscriber required;

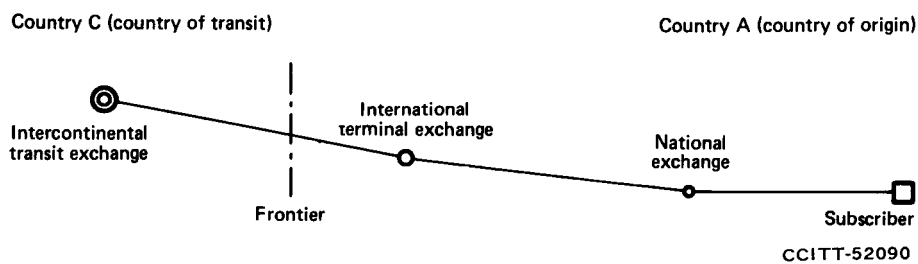


FIGURE 1/F.68

2.3.4.2 There are no such direct trunk circuits (see Figure 2/F.68). There are then direct circuits between the international exchange in the outgoing country and the international continental exchange in the transit country, adjacent to the intercontinental exchange. Hence this adjacent exchange will have to be traversed to reach the intercontinental network.

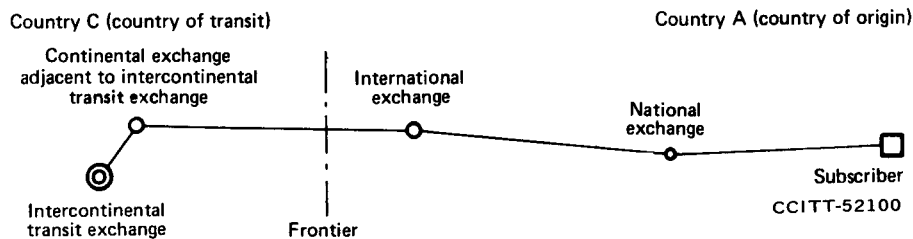


FIGURE 2/F.68

2.3.5 Code 00 should be used as the standard access prefix for traversing a continental exchange. A country that might experience difficulty in accepting this 00 code may choose another code for traversing its continental exchange, subject to a bilateral agreement with the other Administration concerned.

2.4 *Automatic alternative routing*

2.4.1 Provision must be made for the possibility of using automatic alternative routing (see Figure 3/F.68). The putting into operation of automatic alternative routing is a question of the network situation, as it will often be preferable to create new telegraph circuits on a congested route rather than to bring automatic alternative routing into service. Be it noted that the automatic alternative routing method should be considered only if the peak hours on CD are different from those on CF and FD; otherwise, it is to be feared that transit switching equipment F will become saturated.

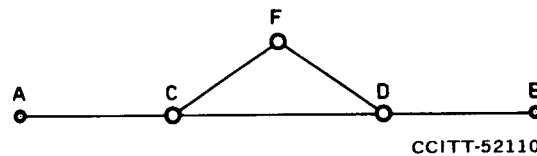


FIGURE 3/F.68

2.5 *Automatic re-routing*

2.5.1 The complications resulting from automatic re-routing would be out of all proportion to the benefits to be expected therefrom.

2.6 *Call recording*

2.6.1 In principle the originating exchange is responsible for timing calls, booking calls, repeated attempts, etc. The responsibility of an intercontinental transit exchange should be limited to providing a connection between the calling exchange or subscriber and the required exchange or subscriber.

2.6.2 In accordance with Recommendation U.23, the elapsed time is normally taken as the basis for fixing the chargeable duration even where calls are routed over HF radio circuits fitted with ARQ equipment on the first or subsequent links in the connection.

2.7 *Grade of service*

2.7.1 Refer to Recommendation F.64.

2.8 *Use of radiotelegraph circuits with ARQ equipment*

2.8.1 Fully automatic operation on a radiotelegraph circuit incorporating ARQ equipment can be considered only if this circuit possesses adequate stability.

2.8.2 Before incorporating a circuit with ARQ equipment in the fully automatic switched network, the Administrations must carry out extended trials.

2.8.3 These trials should be made under normal traffic conditions, over a minimum period of three consecutive hours chosen from the busy period (or periods), when heavy traffic is foreseen to occur on the route under consideration (allowing for the traffic, whether terminal or transit, that prevails on the route according to the season).

2.8.4 The condition that must be fulfilled before a circuit can be accepted for use in a fully automatic network is that its mean efficiency factor measured over periods of 20 consecutive seconds each, shall not fall below 80% for more than 10% of the total time involved in the measurements. The measurements must be repeated as often as will be necessary for the Administration to have an assessment of the suitability of the circuit.

2.8.5 The attention of the Administrations is drawn to the fact that, before offering fully automatic transit working on a radio route incorporating ARQ equipment, the grade of service on the route under consideration must be only one call lost in 50.

2.8.6 If these conditions are not complied with, it would be better to retain semi-automatic operation.