INTERNATIONAL TELECOMMUNICATION UNION

ITU-T Q.252

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

SPECIFICATIONS OF SIGNALLING SYSTEM No. 6

FUNCTIONAL DESCRIPTION OF THE SIGNALLING SYSTEM

SIGNAL TRANSFER TIME DEFINITIONS

ITU-T Recommendation Q.252

(Extract from the *Blue Book*)

NOTES

1 ITU-T Recommendation Q.252 was published in Fascicle VI.3 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.

1.2 SIGNAL TRANSFER TIME DEFINITIONS

1.2.1 *Functional reference points*

The major functional reference points are as indicated in Figure 3/Q.252, i.e. points A, B, C and D, which are defined below:

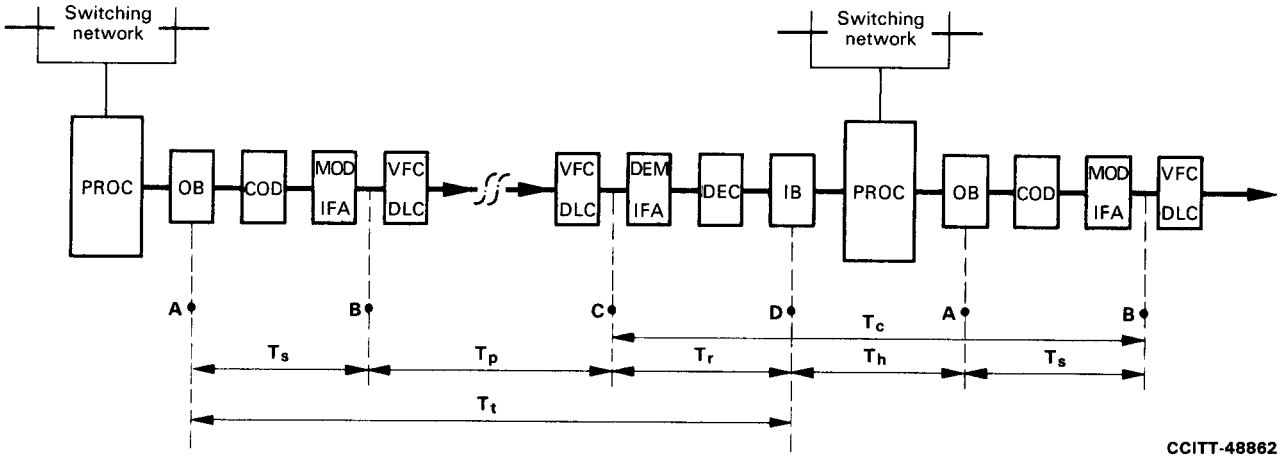
Point A. - That point in a switching centre where the signal as a signal unit, before being coded (check bits added), is delivered from the processor to an output buffer store.

Point B. - That point where the signal unit (check bits included) in serial form will be delivered to the transmission path.

Point C. - That point where the signal unit (check bits included) in serial form will be delivered to the demodulator or interface adaptor.

Point D. - That point in a switching centre where the signal unit, after being decoded (check bits deleted), will be presented from an input buffer store to the processor.

The functional reference points B and C are typically those points which define the transmission path used for common channel signalling. In the analogue version this transmission path is provided by a voice frequency channel and in the digital version by a digital channel.



PROC	processor
OB	output buffer
IB	input buffer
COD	coder
DEC	decoder
MOD	modulator
DEM	demodulator
VFC	voice-frequency channel
IFA	interface adaptor
DLC	digital channel

T_c	cross-office transfer time
T_h	processing (handling) time
T_p	voice-frequency or digital channel propagation time
T_r	receiver transfer time
T_s	sender transfer time
T_t	total signal transfer time

FIGURE 3/Q.252

Functional signal transfer time diagram

1.2.2 *Signal transfer time components*

The various components of signal transfer time between two switching centres are defined as follows:

T_c = cross-office transfer time,

T_e = emission time of a signal unit (included in T_s),

T_h = processing (handling) time,

T_p = transfer channel propagation time,

T_q = queueing delay in the output buffer store (included in T_s),

T_r = receiver transfer time,

T_s = sender transfer time,

T_t = total signal transfer time.

T_h is that period from the moment the signal is available for acceptance by the processor to the moment the signal is placed in the output buffer and is available for transmission.

T_r is that period of time from the moment when the last bit of the signal unit leaves the transfer channel to that time when the signal is completely in the input buffer and is available for acceptance by the processor. T_r, thus includes the following actions: demodulation, decoding (error detection) and, where present, serial to parallel conversion.

T_s is that period of time from the moment when the signal enters the output buffer store to that time when the last bit of the signal unit passes into the transfer channel. T_s thus includes the following times and actions: emission time of signal unit(s) (one-unit or multi-unit message), queueing delay in the output buffer store, encoding (adding check bits), parallel to serial conversion where present, modulation in the analogue version and clock and data rate conversion where applicable in the digital version.

The definitions of signal transfer times give rise to the following time relationships:

$$T_c = T_r + T_h + T_s$$

$$T_t = T_s + T_p + T_r$$

In the case when an error is detected, retransmission will occur and the above time relationships are not valid. Rather, the time involved in retransmission and the extra queueing delays, which may occur on a retransmitted signal, must be taken into consideration.