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PUBLIC DATA NETWORKS

TRANSMISSION, SIGNALLING AND SWITCHING

**INTERWORKING OF INTEREXCHANGE
SIGNALLING SYSTEMS FOR CIRCUIT
SWITCHED DATA SERVICES**

ITU-T Recommendation X.80

(Extract from the *Blue Book*)

NOTES

- 1 ITU-T Recommendation X.80 was published in Fascicle VIII.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.

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Recommendation X.80

INTERWORKING OF INTEREXCHANGE SIGNALLING SYSTEMS FOR CIRCUIT SWITCHED DATA SERVICES

(Geneva, 1980; amended at Malaga-Torremolinos, 1984)

The CCITT,

considering

- (a) that Recommendations X.60 and X.71 define two different signalling systems which are intended for use on international circuits between synchronous data networks;
- (b) that Recommendation X.70 defines a signalling system which is intended for use on international circuits between anisochronous data networks;
- (c) that Administrations and RPOAs have expressed interest in implementing Recommendations X.60, X.70 or X.71 as national signalling systems between national data switching exchanges;
- (d) that Recommendations X.60, X.70 and X.71 have been defined to include the necessary signals to allow interworking between any combination of these signalling systems;
- (e) that there is a need to define the specific interworking requirements between these signalling systems;

unanimously declares

that interworking between any combination of signalling systems conforming to Recommendations X.60, X.70 and X.71 should be as defined in this Recommendation.

1 General

1.1 Principles

This Recommendation provides a set of interworking specifications for CCITT circuit-switched data signalling systems. Interworking is defined as the controlled transfer of signalling information across an interface between different signalling systems where the significance of the transferred information is identical, or where significance is translated in a defined manner, and includes the performance of the appropriate interworking procedures in association with the transfer. These interworking procedures will be performed by an interworking function at a boundary between the two interworking signalling systems.

Interworking commences at call set-up when a link is established between two circuits using different signalling systems and continues throughout the call until release of the connection occurs. Interworking ceases with the release of the connection, whether the release is initiated by the reception of a clear condition from either of the signalling systems involved or by the interworking function itself in response to some abnormal condition.

1.2 Presentation

The specifications are basically represented by flow charts consistent with the CCITT Specifications and Descriptions Language (SDL), described in Recommendations Z.101 to Z.103; and are used to describe the logical requirements of the interworking function. In addition, two tables are included to show the signalling sequences required for a typical interworking situation. Narrative description has been reduced to a minimum.

SDL provides a method of presentation which is both comprehensive and independent of implementation, ensuring that all interworking conditions can be covered in a systematic manner. The logic of each signalling system is covered in the relevant signalling Recommendations X.60, X.70 or X.71.

2 Interworking procedures between Recommendations X.60 and X.71

The present § 2 details the specific requirements for interworking between an X.60 and an X.71 signalling system.

Table 1/X.80 illustrates the relationship between the signals on the X.60 side of the interworking function and the corresponding signals on the X.71 side. It illustrates the simple case of a basic call which originates in an "X.60 network" and terminates in an "X.71 network", and which does not invoke any additional facilities, and it assumes that the call is successful. The call clear-down is initiated by the customer in the X.60 network.

There are, however, several combinations of facilities which could be required on a particular call which complicate the interworking procedures, in particular the instant of connect through. In Table 1/X.80 the reception of the *Call Connected (CC)* signal from the Recommendation X.71 signalling system defines the conclusion of the call set-up sequence at the interworking point and hence the instant of connect through. If the call involves additional facilities the reception of the *Transit Through Connect (TTC)* signal from the Recommendation X.71 signalling system initiates the additional protocols necessary to setting up the call successfully. Table 2/X.80 illustrates an example involving these additional protocols for a call requiring both calling and called line identities and including a positive call progress indication.

Appendix I to this Recommendation illustrates further examples of interworking situations which can occur for the X.60 to X.71 case. The appendix illustrates examples of interworking situations where two "X.71 networks" transit an "X.60 network" or two "X.60 networks" transit an "X.71 network".

2.1 Interworking from Recommendation X.60 to X.71

Figure 1/X.80 shows the transit exchange interworking functions required to enable an X.60 to X.71 call to be connected.

In response to the selection information sent to the X.71 network, one of two signals may be received: *CC* or *TTC* as described above.

Figure 1/X.80