INTERNATIONAL TELECOMMUNICATION UNION

CCITT

THE INTERNATIONAL
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Q.601
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SERIES Q: SWITCHING AND SIGNALLING

Interworking of signalling systems

GENERAL CONSIDERATIONS

Reedition of CCITT Recommendation Q.601 published in the Blue Book, Fascicle VI.6 (1988)

NOTES

1   CCITT Recommendation Q.601 was published in Fascicle VI.6 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 Q.601

1 GENERAL

1.1   *Change from narrative to SDL presentation*

These Recommendations provide a set of interworking specifications for CCITT signalling systems. The specifications are based on the CCITT ςSpecification and Description Language (SDL) described in Recommendations Z.101 to Z.104. In these Recommendations on interworking, the SDL is used as a specification language.

Existing specifications in narrative form have not completely and unambiguously specified interworking of CCITT Signalling Systems. In addition, the introduction of digital switching, transmission and signalling systems creates new interworking demands.

Previous interworking specifications have been analysed and reconsidered in preparation of the present Recommendations. Where discrepancies exist between the previously printed interworking specifications and the interworking specifications of the present Recommendations, the latter shall be binding.

The new SDL interworking specifications will not replace the existing (narrative) specifications of the signalling systems concerned. They will only cover that part of the signalling system procedures which is of importance to interworking. The detailed procedures of the signalling systems are to be found in the existing Recommendations (Red Book, Fascicles VI.2, VI.3, VI.4, VI.7 and VI.8). Furthermore, only those switching procedures are shown that are relevant to interworking.

SDL provides an implementation independent and comprehensive method of presentation. It encompasses the previous interworking Recommendations and ensures that the interworking conditions are included in a regular and formalized manner. The chosen method facilitates the specification of interworking with future signalling systems. The use of well defined events with a graphical presentation reduces readers' language problems.

1.2   *Compatibility between signalling systems*

During the development of CCITT Signalling Systems, the signalling capacity has constantly been increased. In this way it has been possible to incorporate new features. However, it is not always possible to transfer these features when interworking with older systems.

In the case of signalling systems with large signalling capacity, it is possible to transmit distinct statements on certain conditions, e.g. "busy", "type of connection", etc. On the other hand, however, signalling systems with small signalling capacity require more general meanings to be assigned to the signals. Figure 1/Q.601 illustrates this by an example.

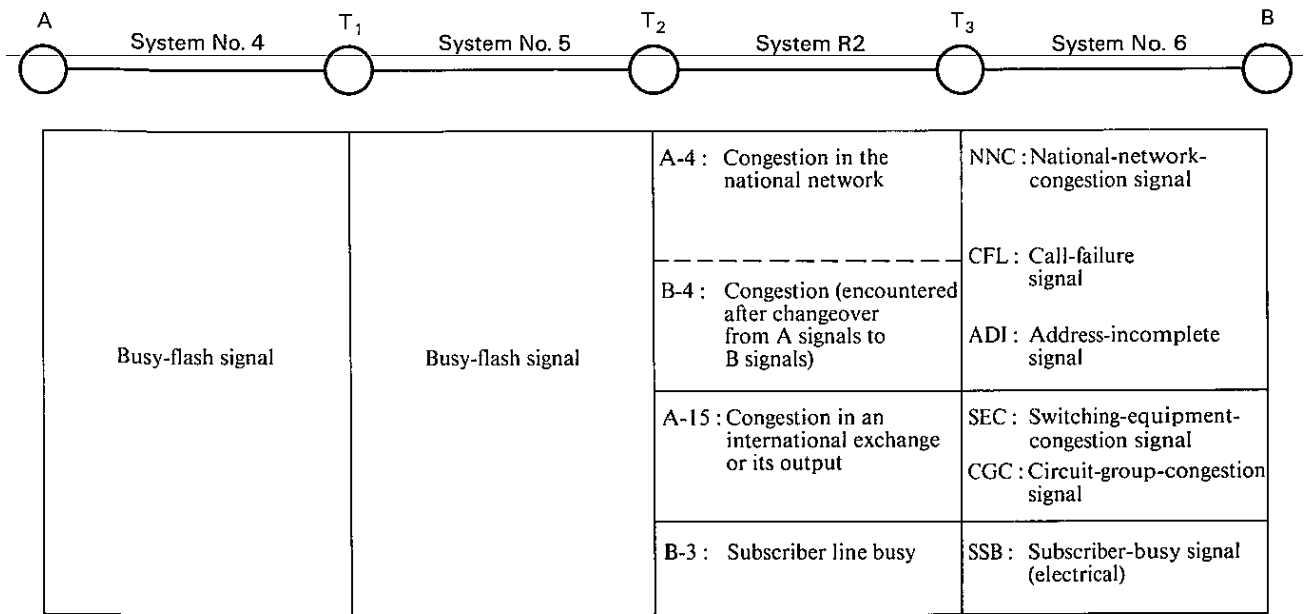
1.3   *Interworking combinations*

Since the CCITT Signalling Systems are to be used for international telephone communication, interworking between the different signalling systems must be ensured. Interworking takes place in a transit exchange which must possess suitable equipment for processing the signals of both signalling systems involved. Interworking of the signalling systems can take place on all levels of the telephone network:

  –   national,

  –   regional,

  –   international.

With a number of s different signalling systems the maximum number of interworking combinations will be:

$$i = s \cdot (s - 1)$$

If the present standardized Signalling Systems No. 4, No. 5, No. 6, No. 7, R1 and R2 only are taken into account, a total of 30 different interworking combinations is obtained with $s = 6$.

FIGURE 1/Q.601

Hypothetical transit connection; interworking of some backward signals

The number of possible combinations becomes even greater if the national signalling systems are taken into account.

The method for interworking of standardized CCITT Signalling Systems described in these Recommendations may also be advantageous for interworking with other signalling systems.

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