INTERNATIONAL TELECOMMUNICATION UNION

ITU-T S.19

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

TELEGRAPHY

ALPHABETICAL TELEGRAPH TERMINAL EQUIPMENT

CALLING AND ANSWERING IN THE TELEX NETWORK WITH AUTOMATIC TERMINAL EQUIPMENT

ITU-T Recommendation S.19

(Extract from the *Blue Book*)

NOTES

1 ITU-T Recommendation S.19 was published in Fascicle VII.1 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 S.19

CALLING AND ANSWERING IN THE TELEX NETWORK WITH AUTOMATIC TERMINAL EQUIPMENT

(Geneva, 1980)

1 General

1.1 This Recommendation describes a method of originating and answering calls on the 50-baud telex network by means of an automatic terminal using a simple telegraph-type interface for the exchange of data or messages.

1.2 The equipment that processes these data or messages at the terminal is referred to as the data terminal equipment (DTE). It should be able to carry out automatically all the operations required to set up and clear down calls as well as the sending and receiving of information at 50 bauds on the telex network.

1.3 The data circuit terminating equipment (DCE) constitutes the frontier between the DTE and the telex network and offers the possibility of remote maintenance. The DCE effects all signal conversions between the DTE and the telex subscriber line. The DCE may be either a separate unit or a built-in component of the DTE.

2 DCE/DTE interface

2.1 The interchange circuits used for the interface (if any) between the DCE and the DTE are defined in Recommendation V.24 [1] and comply with the technical specifications in either Recommendation V.28 [2] or Recommendation V.10 [3]. Thus the correspondence between the voltages and the significant states is as shown in Table 1/S.16.

2.2 The DCE/DTE interface consists of three circuits: CT 103 and 104 for the transmission and reception of both data and control signals and CT 102 for the signal ground or common return. Figure 1/S.19 illustrates the interface configuration.

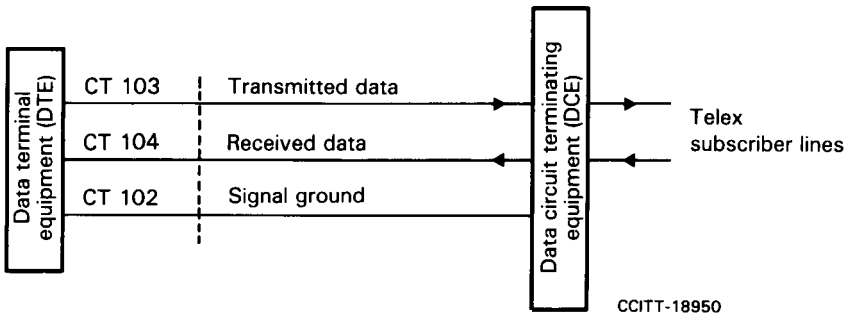

FIGURE 1/S.19
Interface configuration

2.3 In addition to its use for sending data or messages once a call has been established, CT 103 carries all the control signals produced by the DTE and needed by the telex network to set up and clear down connections. Similarly CT 104, in addition to its use for receiving data or messages once a call has been established, carries all the control signals produced by the DCE and needed by the network to set up and clear down connections.

2.4 During a call that has been set up and in the setting-up phase, as well as in all intervals between signals, the DTE maintains CT 103 and the DCE maintains CT 104 on Z polarity.

3 Signalling

3.1 This interface may be used with any of the telex signalling variants in use in national networks.

3.2 The signalling between the DCE and the national telex exchange is not standardized by the CCITT. The signalling protocol shown in the timing diagram (Figure 3/S.19) is only an example. However, since it is based on type A signalling, for Type B signalling the call establishment phase should be read as shown in Figure 2/S.19.

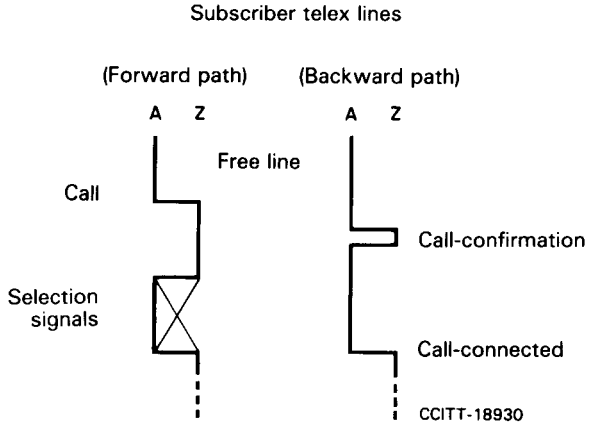

FIGURE 2/S.19
Type B call establishment

3.3 Figure 3/S.19 shows CT 103 (forward path) and CT 104 (backward path) for both the calling and called DTEs. Consequently it covers both calling and answering with an automatic terminal, but the procedures described are applicable to a calling or called DTE in communication with a DTE operated in accordance with one of the procedures described in Recommendation S.16 or manually. The particular case shown is that of a successful call with clearing initiated by the calling DTE.

3.4 The **SSSS** sequence (four times combination No. 19 in International Telegraph Alphabet No. 2) normally precedes and announces the exchange of data, which may commence after a delay of 500 ms, as specified in Recommendation S.15. This sequence may be omitted where an exchange of message in ITA2 is to take place, providing disabling of the answer-back function is not considered necessary.

3.5 The DTE must comply with Recommendation U.40 [4] concerning reactions to ineffective call attempts. It must be able to interpret at least the following service signals: OCC, ABS, NA, NP, NC, NCH, DER.

3.6 If a call collision is detected, the DTE must abandon its call attempt to permit acceptance of the incoming call.

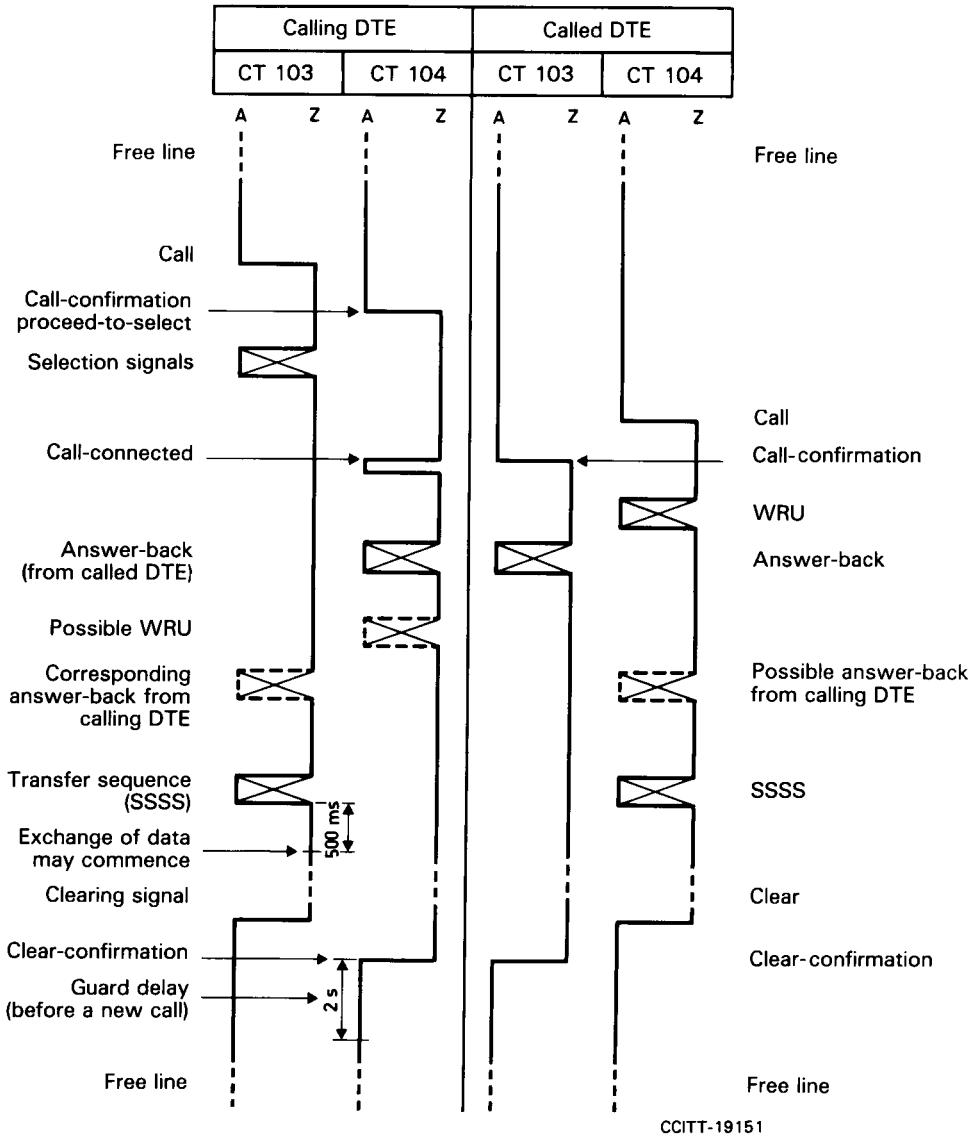

FIGURE 3/S.19
Timing diagram

References

[1] CCITT Recommendation *List of definitions for interchange circuits between data terminal equipment and data circuit terminating equipment*, Rec. V.24.

[2] CCITT Recommendation *Electrical characteristics for unbalanced double-current interchange circuits*, Rec. V.28.

[3] CCITT Recommendation *Electrical characteristics for unbalanced double-current interchange circuits for general use with integrated circuit equipment in the field of data communications*, Rec. V.10.

[4] CCITT Recommendation *Reactions by automatic terminals connected to the telex network in the event of ineffective call attempts or signalling incidents*, Rec. U.40.