INTERNATIONAL TELECOMMUNICATION UNION

CCITT

THE INTERNATIONAL
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CONSULTATIVE COMMITTEE

U.202

(11/1988)

SERIES U: TELEGRAPH SWITCHING

Definitions

REQUIREMENTS TO BE MET IN PROVIDING THE TELEX SERVICE WITHIN THE ISDN

Reedition of CCITT Recommendation U.202 published in the Blue Book, Fascicle VII.2 (1988)

NOTES

1 CCITT Recommendation U.202 was published in Fascicle VII.2 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 U.202

REQUIREMENTS TO BE MET IN PROVIDING THE TELEX SERVICE WITHIN THE ISDN

(Melbourne, 1988)

The CCITT,

considering

(a) that there may be economic and operational advantages in using the ISDN switching and transmission technology to support the telex service;

(b) that some Administrations have implemented, or are about to implement, ISDNs;

(c) that the I-series Recommendations define the ISDN concept;

(d) that the telex service is a mature and expanding service and is expected to remain established for many years;

(e) that the maximum number of selection digits on the international telex network, in accordance with the existing U-series signalling Recommendations, is limited to 12 digits,

unanimously declares the view

(1) that the service principles defined in CCITT Recommendation F.60 should be maintained;

(2) that the establishment of a call from a telex terminal on the ISDN, to a terminal on a dedicated telex network shall be by means of a single-stage addressing. The same applies to calls in the opposite direction;

(3) that there should be no difference between the telex service provided on ISDN with the one provided on a dedicated telex network;

(4) that telex terminals in the ISDN should be assigned a number that is part of the telex national numbering plan;

(5) that the provision of a telex service in the ISDN should place no burden on the telex services of other Administrations.

1 Scope

1.1 This Recommendation outlines configuration models for the integration of the telex service into the ISDN.

1.2 The configuration models assume no change in the design of telex terminals and proposals are made for the necessary terminal adapter and network performance parameters.

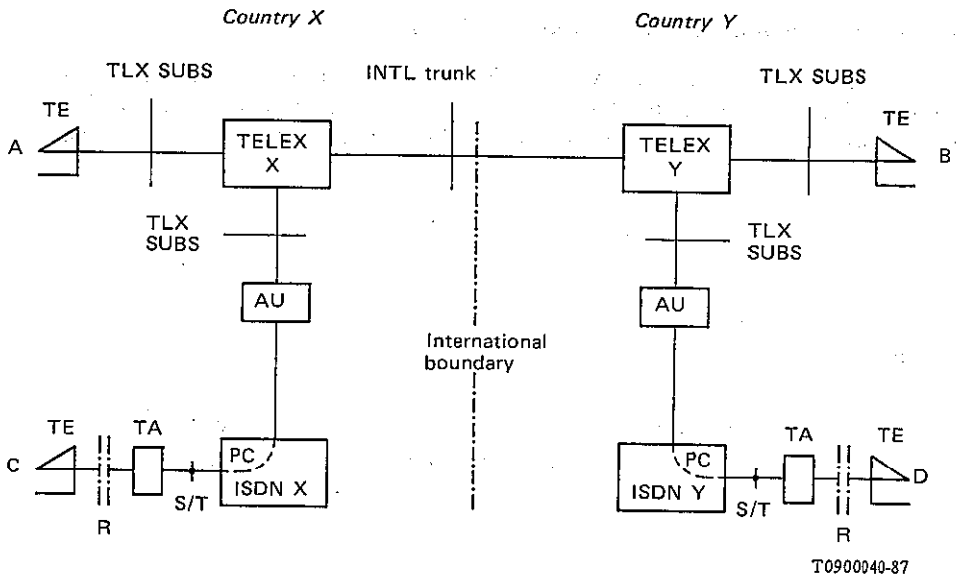
1.3 The overall subscriber-to-subscriber performance should be related to the hypothetical reference circuit, for telex networks, specified in CCITT Recommendation U.8.

2 Configuration models

2.1 *Two configuration models may be developed:*

a) a minimum integration model, where the switching between telex terminals connected to the ISDN is carried out within the telex network. This model is illustrated by Figure 1/U.202;

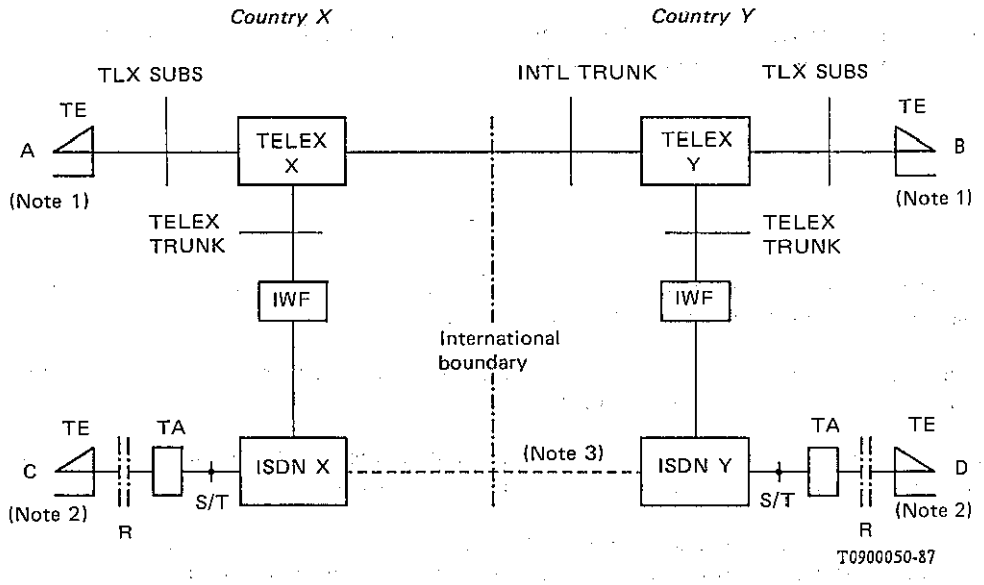
b) a maximum integration model, where switching between telex terminals connected to the ISDN may also take place in the ISDN. This model is illustrated by Figure 2/U.202.



TE	Telex terminal
R	Telex interface
TA	Terminal adapter
S/T	S/T reference point
AU	Adaptor unit
TLX SUBS	Telex subscriber line
INTL TRUNK	International telex trunk
PC	Permanent/semi-permanent connection on ISDN

FIGURE 1/U.202

Minimum integration model



A, B	Telex terminals on a telex network
C, D	Telex terminals within an ISDN network
IWF	Interworking facility
TA	Terminal adaptator
TLX SUBS	Telex subscriber line
TELEX TRUNK	Telex national trunk
INTL TRUNK	Telex international trunk

Note 1 – For calls originated from the telex network (e.g. A to C or B to C) the destination telex network should be able to route calls intended for telex subscribers within the ISDN to the IWF. The IWF will perform the address validation and translation if necessary. The actual number assignment is a national matter.

Note 2 – For calls originated by telex terminals within the ISDN (e.g. C to A or C to B) the ISDN should route these calls to the national IWF. This may imply the use of escape code sequences before time "T", or other means as appropriate. (Concept of time "T" is defined in Study Group II's Recommendation E.165.)

Note 3 – Interconnection of ISDNs to support the telex service should be agreed bilaterally.

FIGURE 2/U.202

Maximum integration model

3 General principles

3.1 *Minimum integration model*

3.1.1 Where Administrations implement the minimum integration model, as in Figure 1/U.202 connection to the telex network should be treated as a telex subscriber line.

3.1.2 The telex subscriber connected to the ISDN should be assigned a number that is part of the national telex numbering plan.

3.1.3 This method of integration is normally intended for situations where both a telex network and an ISDN are provided by the Administration.

3.1.4 The connection across the ISDN may be provided on a permanent, or semi-permanent basis, however, access to the telex network must be provided on a dedicated basis per subscriber.

3.1.5 The B-Channel in circuit mode of the ISDN should be used for the text transmission and the service conditions of CCITT Recommendation F.60 must be maintained. The use of packet mode for text transmission is for further study. The use of B- and D-Channels for packet mode text transmission is for further study.

3.1.6 Administrations should ensure that the distortion limits, as specified in CCITT Recommendation R.20 are not exceeded.

3.1.7 Any signal delay introduced should be in accordance with the limits specified in CCITT Recommendation R.58 *bis*, for the total national section of the calls.

3.2 *Maximum integration model*

3.2.1 Where Administrations implement the maximum integration model, as shown in Figure 2/U.202, then connection to the telex network should be made at trunk level.

3.2.2 This method of integration may be used where both a telex network and an ISDN are provided by an Administration or where only an ISDN is provided.

3.2.3 The number assigned to the telex terminal connected to the ISDN should be identifiable, from a telex network of other Administrations, as part of a telex national numbering plan.

3.2.4 Where the Administration provides both a telex network and an ISDN, then the signalling system to be used between the interworking function and the telex network is a national matter. However, it is recommended that signalling systems in accordance with CCITT Recommendation U.11 or U.12 be used.

3.2.5 It is recommended that where an ISDN only is provided, then connection to telex networks of other Administrations should be in accordance with CCITT U-series Recommendations, preferably U.11 or U.12.

3.2.6 Interconnection of ISDNs to support the telex service should be agreed bilaterally.

3.2.7 The B-Channel circuit mode of the ISDN should be used for the text transmission and the service conditions of CCITT Recommendation F.60 must be maintained.

The use of packet mode for text transmission is for further study.

3.2.8 Any signal delay introduced, within the total national section of the call, should not exceed the limits specified in CCITT Recommendation R.58 *bis*.

3.2.9 Any distortion introduced in the national section of the call should not exceed the limits specified in CCITT Recommendation R.58.

3.2.10 The routing of the call through the ISDN is a national matter.

4 Call establishment sequences

4.1 *Minimum integration model*

4.1.1 Where connection across the ISDN is provided on a permanent basis, the telex call establish sequences will take place on the B-Channel.

4.1.2 Typical telex subscriber outgoing and incoming signal sequences will be in accordance with Figure 3/U.202 and Figure 4/U.202 respectively.

4.1.3 The method of establishing the permanent connection across the ISDN is a national matter.

4.1.4 Where connection across the ISDN is on a semi-permanent basis, typical telex subscriber outgoing and incoming signal sequences will also be in accordance with Figure 3/U.202, and Figure 4/U.202 respectively.

4.1.5 The method of establishing the semi-permanent connection is a national matter, but the outgoing and incoming call establishment sequences may be in accordance with Figure 5/U.202 and Figure 6/U.202 respectively.

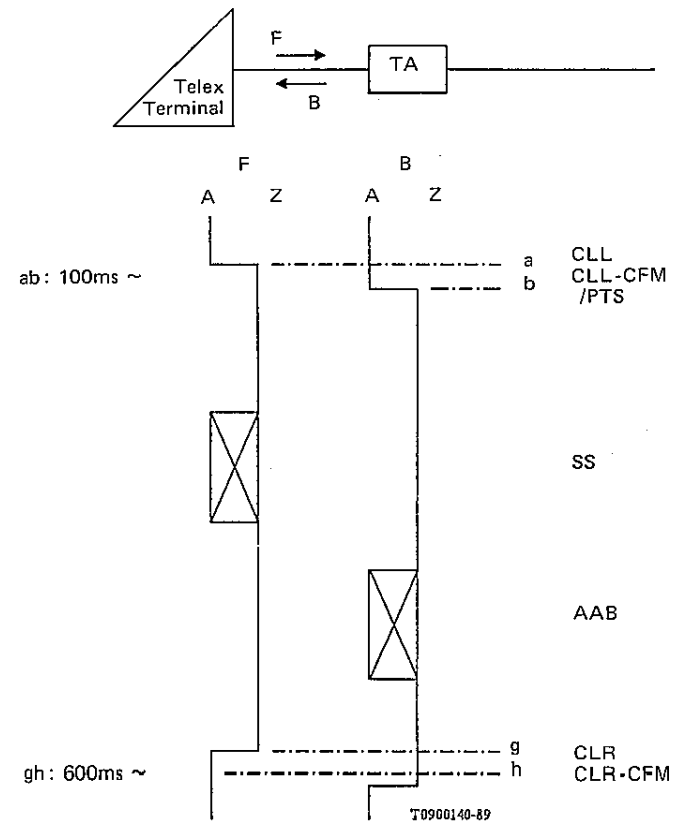


FIGURE 3/U.202

Typical telex subscriber's outgoing signal sequence

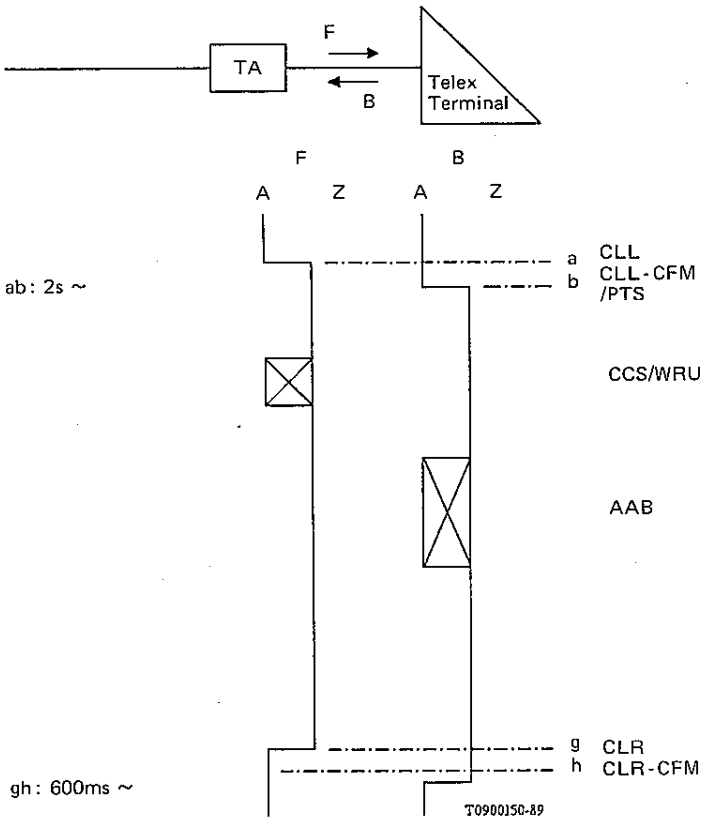


FIGURE 4/U.202

Typical telex subscriber's incoming signal sequence

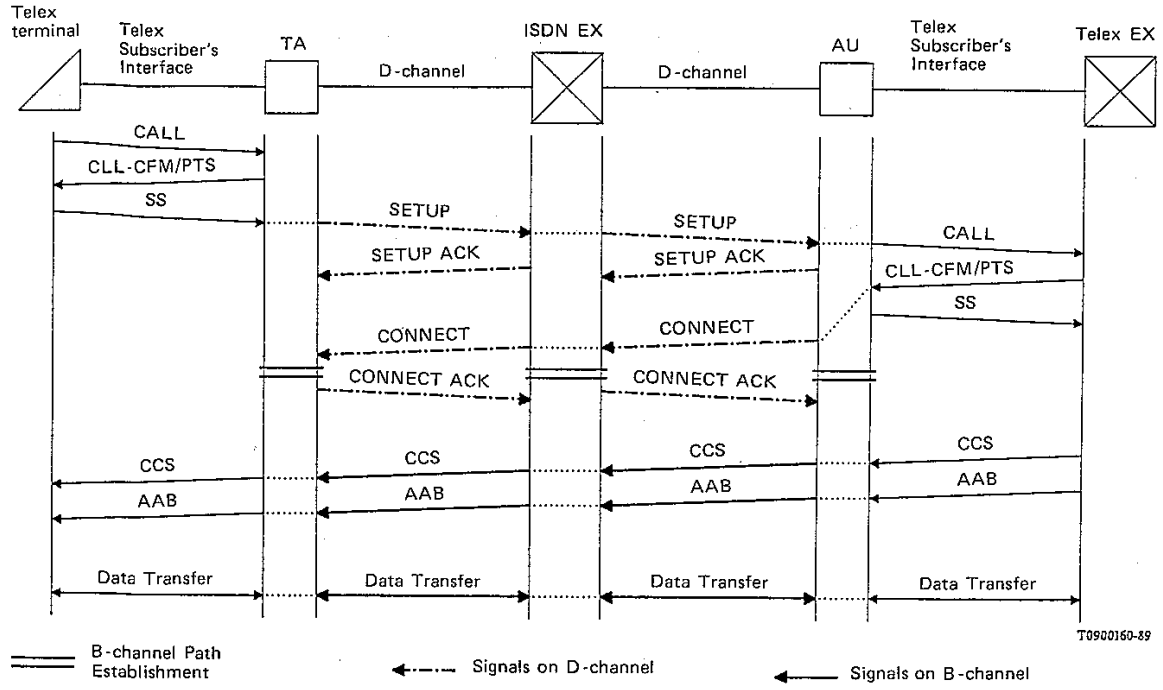


FIGURE 5/U.202

Call establishment sequence in the direction of an ISDN to a telex network (minimum integration model)

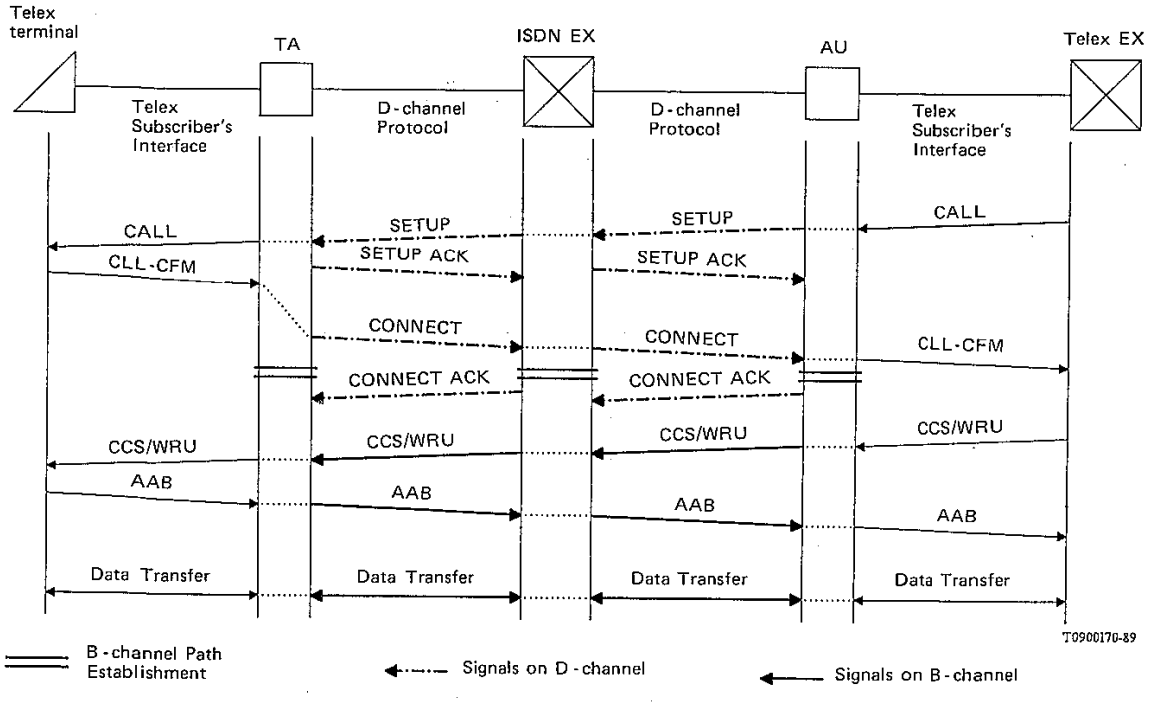


FIGURE 6/U.202

Call establishment sequence in the direction of a telex network to an ISDN (minimum integration model)

4.2 *Maximum integration model*

4.2.1 Where Administrations implement the maximum integration model, telex subscribers connected to the ISDN may communicate with other telex subscribers connected to the same ISDN and to telex subscribers connected to existing telex networks.

4.2.2 Typical telex subscriber outgoing and incoming signal sequences will be in accordance with Figure 3/U.202 and Figure 4/U.202 respectively.

4.2.3 The outgoing and incoming call establishment sequences should be in accordance with Figure 7/U.202 and Figure 8/U.202 respectively.

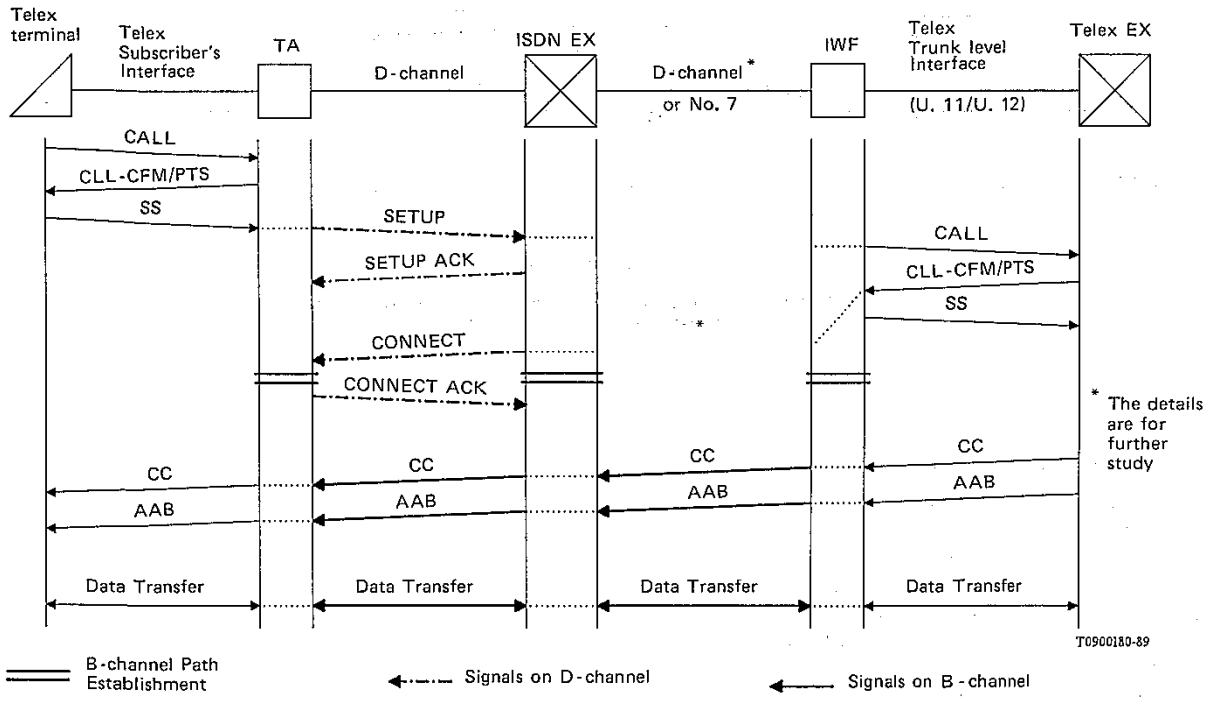


FIGURE 7/U.202

Call establishment sequence in the direction of ISDN to telex network (maximum integration model)

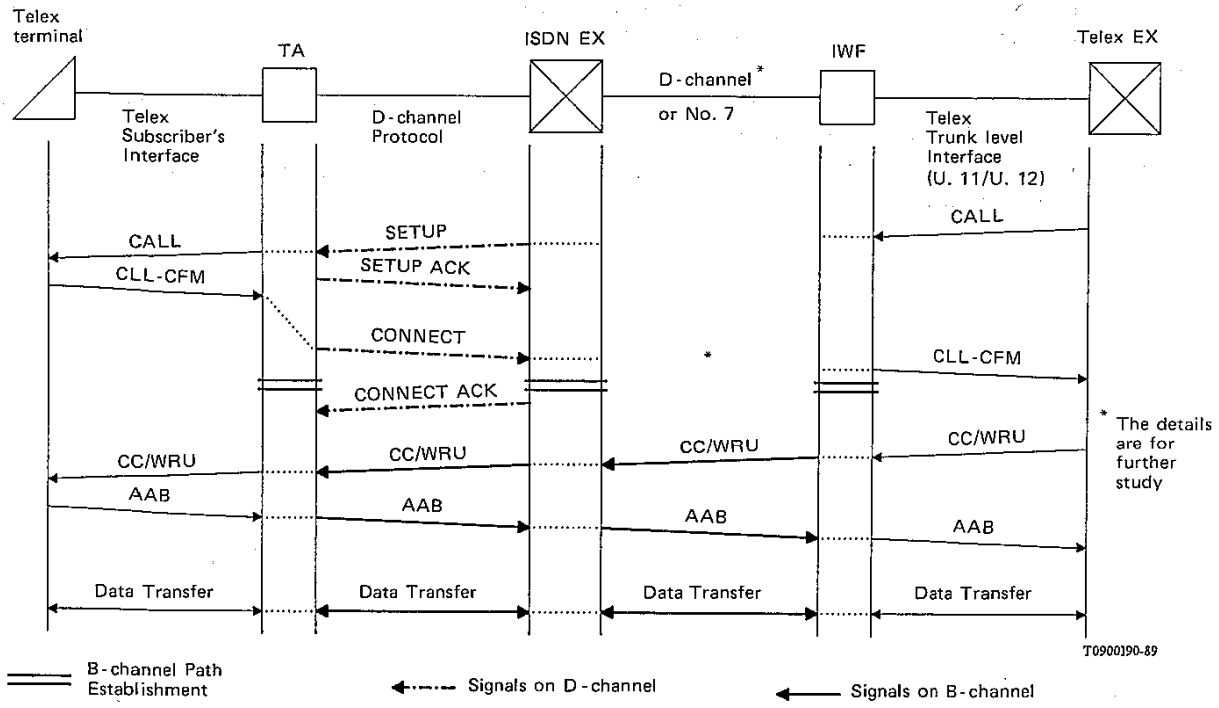


FIGURE 8/U.202

Call establishment sequence in the direction of telex network to ISDN (maximum integration model)

Legend to Figures 3, 4, 5, 6, 7 and 8/U.202

CALL	Calling signal
CLL-CFM	Call confirmation signal
SS	Selection signal
CC	Call connected signal
AAB	Automatic answerback signal
WRU	✠ (Who are you?) signal
CLR-CFM	Clear confirmation signal
CLR	Clearing signal
SETUP	Setup message
SETUP ACK	Setup acknowledgement message
CONNECT	Connect message
CONNECT ACK	Connect acknowledgement message
TA	Terminal adapter
AU	Adapter unit
EX	Exchange
IWF	Interworking facility

4.2.4 The use of the D-Channel or CCITT Signalling System No. 7 is for further study.

4.2.5 Where translation from the international telex number to the ISDN number (E.164) for routing purposes is required, this should be done in the IWF.

4.2.6 The Administration providing the telex service within the ISDN is responsible for providing this translation.

4.2.7 The method for forwarding the service signals issued by the dedicated telex network to the telex subscriber on the ISDN, is for further study.

5 Terminal adapter functions

5.1 The following terminal adapter functions will be required.

5.1.1 *Rate adaption*

The telex speed of 50 bauds will be converted to the ISDN B-Channel speed of 64 kbit/s, and vice versa.

The method of achieving this conversion is for further study.

5.1.2 *Signal sequence mapping*

The telex subscriber signal sequences will be converted to the ISDN D-Channel signalling protocol, and vice versa.

5.2 The interface between the telex terminal and the terminal adpater is considered to be a matter not for international standardization.

6 Adapter unit

6.1 The provision of an adapter unit, for the minimum integration model is a national matter and is not a subject for international standardization. However, similar functions to those identified for the terminal adapter will be required.

7 Interworking facility functions

7.1 The following interworking facility functions will be required.

7.1.1 *Rate adaption*

The IWF will convert the telex speed of 50 bauds to the ISDN B-Channel speed of 64 kbit/s, and vice versa. The method of achieving this conversion is for further study.

7.1.2 *Selection signal mapping*

The telex selection signals will be converted to ISDN selection signal requirements, and vice versa. The method of achieving this conversion is for further study.

7.1.3 *Address translation*

The method for translating the international telex number to the ISDN E.164 number, if required, is a national matter.

8 Other telex service features

8.1 The provision of other telex service features in the ISDN is for further study.

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