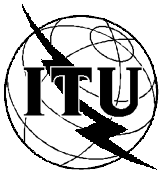

INTERNATIONAL TELECOMMUNICATION UNION

ITU-T F.201

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

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OPERATIONS AND QUALITY OF SERVICE

TELEMATIC SERVICE

INTERWORKING BETWEEN TELETEX SERVICE AND TELEX SERVICE – GENERAL PRINCIPLES

ITU-T Recommendation F.201

(Previously "CCITT Recommendation")

FOREWORD

The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the International Telecommunication Union. The ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Conference (WTSC), which meets every four years, established the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

ITU-T Recommendation F.201 was revised by the ITU-T Study Group I (1988-1993) and was approved by the WTSC (Helsinki, March 1-12, 1993).

NOTES

1 As a consequence of a reform process within the International Telecommunication Union (ITU), the CCITT ceased to exist as of 28 February 1993. In its place, the ITU Telecommunication Standardization Sector (ITU-T) was created as of 1 March 1993. Similarly, in this reform process, the CCIR and the IFRB have been replaced by the Radiocommunication Sector.

In order not to delay publication of this Recommendation, no change has been made in the text to references containing the acronyms "CCITT, CCIR or IFRB" or their associated entities such as Plenary Assembly, Secretariat, etc. Future editions of this Recommendation will contain the proper terminology related to the new ITU structure.

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 F.201

INTERWORKING BETWEEN TELETEX SERVICE AND TELEX SERVICE – GENERAL PRINCIPLES

(Melbourne, 1988; revised Helsinki, 1993)

1 Introduction

This Recommendation defines the general principles and operational aspects of interworking between the Teletex service and the telex service.

The Teletex service is defined in Recommendation F.200 and in the relevant technical Recommendations.

The telex service is defined in Recommendations F.60, F.69 and in the relevant technical Recommendations.

The technical details of Teletex/telex interworking are defined in Recommendations T.90 and U.201.

In order to promote the use of the Teletex service, it is desirable to provide interworking with the telex service. [See 1.2.2.1 i)/F.200].

The implementation of national interworking between the Teletex service and the telex service is a matter for the Administration concerned.

When the international interworking is provided, the following three general principles should be adopted:

a) Interworking should be entirely automatic and no operator intervention should be necessary.

b) Where Administrations do not provide conversion facilities, basic interworking on international connections will be at 50 bauds.

c) Where two Administrations both have a Teletex service, or at least suitable conversion equipment, the possibility of a bilateral agreement to use an international Teletex connection can be considered. It is recommended that, where possible, an international Teletex connection should be used provided that the practical operational difficulties (e.g. tariff, routing and conversion problems) can be overcome.

2 Basic interworking service

2.1 Conversion

The teletex terminal should be capable of selecting a subset of its graphic character repertoire corresponding to International Telegraph Alphabet No. 2 and of restricting the length of a line to 69 characters: the necessary conversion between the services (e.g. of service procedures, transmission rates and codings) should be provided within the networks. To the telex terminals, existing specifications apply.

2.2 Location of the conversion facilities in the case of international traffic

There are two possible situations to be considered in the basic service as shown in Figure 1.

In cases that countries introduce the teletex service at different times, it must be assumed that the conversion facility is in the same country as the teletex terminal, in cases of operational conversion facilities on both ends 1 c) above could apply.

2.3 Methods of interworking

a) Considering that the teletex service can be provided upon various networks (see 2/F.200);

b) Considering that an Administration can provide the teletex service on more than one network (e.g., PSTN and PSPDN, . . .);

c) Considering the technical constraints of the existing networks (e.g. numbering plans, . . .);

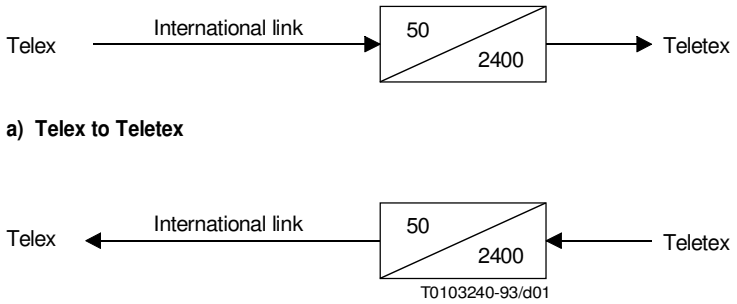

FIGURE 1/F.201

The two following methods of interworking between the telex service and the teletex service can be provided:

i) interworking with one-stage selection for telex to teletex procedure;

ii) interworking with two-stage selection for telex to teletex procedure.

The conversion facility (CF) is performing interworking using store and forward principles.

The interactive mode is not required for interworking.

The two methods are described in 3 (one-stage) and 4 (two-stage) with their conditions of implementation and their service characteristics. It is up to Administrations to decide which method they can provide. Administrations should take into account possible implications of the operational procedures to foreign subscribers.

The Administrations whose telex subscribers make access to foreign CFs should inform their customers of the procedures attached to the two methods.

2.4 General service requirements for telex to teletex direction

In the selection step of the one-stage selection procedure and in the first selection step of the two-stage selection procedure, the procedures should appear to the telex operator to be the same as for any other telex call.

Validation of the called teletex terminal is mandatory. Validation is performed either by a direct validation call or by data base access, in order to minimize the number of possible unsuccessful calls.

Format checking of the teletex address is desirable in both cases, immediately after the address input.

If the validation leads to a negative result, the CF should send at least the telex service signal “NP” or, if available, other appropriate service signals, according to Recommendation U.70, and the CF should then clear the call.

The storage capacity of the store and forward conversion facility may impose a limit on the length of messages (see also Annex B).

If abnormal conditions occur during the text deposit of the telex message, and the call is cleared before its normal completion, the conversion facility shall nevertheless transmit to the teletex terminal the text received so far and indicate that this transmitted text is probably not complete (see also Annex B).

The teletex terminal must be capable of properly reproducing a telex text. However, the conversion facility must provide any necessary rearrangement of the text, such as paging.

In principle, the telex customer should not be charged for unsuccessful calls, that is, when his message fails to reach the teletex user due to congestion or fault of the Administration’s equipment, etc. Refund procedure should be in accordance with Recommendation F.67, Division E.

The CF shall wait at least 15 seconds for activity on the line before clearing. See also Annex A for abnormal conditions during message input.

2.5 General service requirements for teletex to telex direction

The teletex terminal shall provide to the conversion facility a telex mode. In this mode it shall:

a) transmit only the character repertoire of the International Telegraph Alphabet No. 2 with the code frame of teletex characters;

b) restrict the line length to 69 characters or less;

c) insert the control characters carriage-return and line-feed at the appropriate positions. Only the sequence carriage-return and line-feed should be used to introduce a new line.

The message should appear to the receiving telex terminal as a normal telex message.

The CF shall transmit to the telex terminal the stored message in the format in which it was originated. After text transmission is complete, the CF shall send to the telex terminal the teletex answerback. This rearranged teletex terminal identification (or "teletex answerback") contains the teletex user directory information:

– DNIC or TCC and national number according to Recommendation X.121 if there is more than one network for teletex service (in this case, DNIC, or TCC are separated from the national number by a hyphen (–), Combination No. 1 of ITA2);

– National number if only one network. If space is available, the teletex terminal answerback will contain the mnemonic part of the teletex identification.

The provision by the store and forward CF of an acknowledgement following a successful call is a matter for national consideration, but an indication of failure, and the cause of failure, should be given whenever a message is undelivered.

The provision of interworking with the telex service must not reduce the quality of service on the teletex network as a result of excessive holding time caused, for example, by difficulties in setting up the telex connection.

3 Interworking with one-stage selection procedure for telex to teletex

3.1 Service principles: telex to teletex direction

3.1.1 Numbering plan and teletex network environment

The procedure for making the call should appear to the telex operator to be the same as for any telex call.

The numbering plan and teletex network environment should support the above principle.

The total selection information of the teletex user should not be longer than 12 digits.

3.1.2 Text delivery to the teletex terminal

Normally, text delivery to the teletex terminal would occur while the telex call is held, immediately after the end of input (EOI) signal.

It is the responsibility of Administrations operating the store and forward conversion facilities to arrange alternative means of delivering for the messages that could not be delivered directly to the teletex terminal.

3.1.3 Protocol and technical aspects

Teletex protocol and other technical aspects of interworking using the one-stage procedure are described in Recommendation U.201.

3.2 Service principles: teletex to telex direction

3.2.1 General requirements

The general requirements developed in 2.5 are relevant for this method of interworking.

3.2.2 Text deposit to the conversion facility by the teletex terminal

Text deposit takes place during a call which follows normal teletex procedures with the conversion facility emulating a teletex terminal. The teletex terminal should clear the call after text deposit without waiting for the delivery to the telex terminal.

3.2.3 Text delivery to the telex terminal by the conversion facility

The principles of Recommendation U.40 shall be applied for all delivery reattempt requirements.

Before forwarding the text, to ensure security of delivery, the telex answerback is taken and compared with the telex answerback given by the teletex user.

The method of validation of the recipient's answerback shall be in accordance with Recommendation U.75.

In case of unsuccessful evaluation (see Figure 1/U.75), the message shall not be forwarded, the NDN control document returned to the teletex subscriber shall include the answerback received.

In case the teletex user has so requested, by inputting a single character in the mnemonic field, no check of the answerback shall be performed. The message is then to be forwarded.

If no information is present in the mnemonic field, the conversion facility (CF) should try to extract the Telex number of the called telex party from its answerback:

- If extraction is not possible, the message is forwarded.
- If extraction result matches with the selection, the message is forwarded.
- If extraction result mismatches with the selection, the message is not forwarded.

If any signal is received from the telex network during the delivery to the telex terminal, the call shall be cleared and one further attempt to deliver the message may be made after an interval of at least three minutes. In this case the text shall be preceded by “POSSIBLE DUPLICATE MESSAGE”.

After text transmission is completed, the telex answerback should be taken and compared with that received at the start of delivery. In the event of a mismatch, the telex answerback shall be taken again, and if there is a match with that received at the start of delivery, the delivery shall be deemed successful. If there is a second mismatch, the call shall be cleared and one further attempt to deliver the message may be made after an interval of at least three minutes. In this case the text shall be preceded by “POSSIBLE DUPLICATE MESSAGE”.

The action to be taken when a notification cannot be delivered should be the responsibility of the Administration operating the conversion facility and is a national matter.

Administrations should advise their customers of the meaning and possible consequences of using special telex characters sequences (see Recommendation S.4) in the submitted text.

An acknowledgement call to the teletex terminal is mandatory if the telex delivery was unsuccessful [Non-Delivery Notification: (NDN)] but optional if the telex delivery succeeds [Positive Delivery Notification (PDN)].

3.2.4 Protocol and technical aspects

Teletex protocol and other technical aspects of interworking are described in Recommendation T.90.

4 Interworking with two-stage selection procedure for telex to teletex

4.1 Service principles: telex to teletex direction

4.1.1 General requirements

The general requirements developed in 2.4 are relevant for this method of interworking.

4.1.2 Numbering plan and teletex network environment

Two-stage selection must be used if total selection information requires the input of more than 12 digits.

4.1.3 Multiple address input facility

It is up to the Administrations operating the CF to offer this facility or not, on a bilateral agreement basis.

This facility allows the telex originator to send a single message to several teletex recipients.

Format of multiple address input is described in detail in Recommendation U.201.

4.1.4 Validation

Validation of the national address of the called teletex terminal is mandatory. Validation of the teletex mnemonic, whenever input by the telex user, is also mandatory.

The two recommended validation methods are:

a) validation call to the teletex subscriber;

b) automatic checking in a data base.

It is the responsibility of the Administration providing the CF to determine which of the two methods is to be implemented.

In both methods it is desirable to check the format of the teletex selection information before the start of the validation process. The validation process should begin immediately after the complete teletex address has been received.

The subscriber is expected to wait after the end of address (EOA) signal for his answerback to be tripped and for the receipt of a progress signal. This signal may be either a GA, a positive validation answer followed by a GA, or a negative validation answer.

The progress signal should appear within five seconds counted after the address input (i.e. after the EOA) even if the validation process is not completed (see Table 1).

TABLE 1/F.201

Action of CF following validation result

Telex emitter state following the Teletex address input	Action of CF when validation result becomes available	
	Positive result	Negative result
Inputting own telex address	Wait for end of address input and send positive validation answer. (See Note 1)	Interrupt input with “TTT. . .” characters. If input stops, send telex service signal and clear. If not, clear the call.
Waiting to start input (see Note 2)	Send positive validation answer. (See Note 1)	Send telex service signal and clear.
Message input in progress	Wait for end of input and send positive validation answer, with GA replaced by the IMA message. (See Note 1)	Interrupt input with “TTT. . .” characters. If input stops, send telex service signal and clear. If not, clear the call.
Input finished and waiting	Send positive validation answer, with GA replaced by the IMA message. (See Note 1)	Send telex service signal and clear.
Subscriber has cleared the call	No action.	Recall subscriber and send an appropriate NDN.

NOTES

1 Format of positive validation answer is described in Recommendation U.201.

2 If the validation result is not available within 5 seconds, the CF shall return GA, continue the validation process, and wait for text input.

If the subscriber does not wait for the progress signal, then the input of the message and its subsequent delivery is at his own risk. There is also a risk that a collision can occur between the message input and the validation answer.

When receiving multiple address, the procedure is similar to the single-address one. The CF should try to validate one of the proposed Teletex addresses, and return the result of the first positive one followed by GA.

If no address is valid the call shall be rejected.

4.1.5 Capture of the calling telex address

Capture of the calling telex address by the conversion facility is necessary for later use in order to recall the telex user if needed (e.g. non-delivery notification, . . .).

Where the answerback is not processable according to U.74, the calling telex address should be input directly.

Format of the telex address is the Recommendation F.69 country code followed by the national telex number.

4.1.6 Input message acknowledgement

The input message acknowledgement (IMA) is to be returned by the CF to the calling telex user after the EOI.

This information is used as the message reference in case of a non-delivery notification (NDN).

The input message acknowledgement will consist of the "IMA" service signal, a date and time and an optional message reference number.

4.1.7 Text delivery and clearing

After the EOI, the telex user should hold the line until receiving IMA.

Whenever technically possible, the CF should attempt to deliver the message to the teletex user immediately after the EOI in order to provide an on-line delivery acknowledgement (ODA) facility.

If the CF provides the on-line delivery acknowledgement facility (ODA), it sends a MOM signal immediately after the IMA. If the ODA facility cannot be provided, the CF sends a service signal (ITL) immediately after the IMA, followed by clearing.

If the on-line delivery acknowledgement facility is provided, the CF attempts *to establish* the delivery call within a maximum period of 30 seconds, with several attempts (at least one in the case of PSTN). Attempts should be made at 5-second intervals measured from the end of one attempt to the beginning of the next.

A MOM signal is returned after each attempt followed eventually by network service signals. If the message delivery succeeds, the teletex answerback as described in Note 6 of Figure 7/U.201 is the on-line delivery acknowledgement for the telex user.

If the teletex *call establishment* fails within 30 seconds, the CF sends a service signal (ITL) and clears the call.

After sending an ITL signal, in all cases, the CF should attempt to deliver the message within four hours. The CF should make at least 16 series of four calls, with 15 minutes between each series. (These figures may be revised in some cases, e.g. in the case of a PSTN.)

If the delivery fails despite the performance of the cycle of delivery attempts, the CF should send a non-delivery notification (NDN). This information is sent to the telex user with the complete reference of the related message in order to allow the telex user to take further action. No further delivery action shall be taken by the CF.

The NDN is described in the relevant sections of Recommendation U.201 and should contain the following items:

- CF's telex answerback;
- indication of content (NDN);
- CF's current date and time;
- received teletex identifier (as transmitted by the user during message deposit);
- IMA (as transmitted by the CF after message deposit);
- cause of non-delivery (telex service signal of the last delivery attempt as specified).

In case multiple address delivery is offered, every non-delivered address should be notified to the telex originator of the message.

4.1.8 "Follow-on" message facility

4.1.8.1 General service aspects

It is up to the Administration operating the CF to offer this facility or not.

If offered, this facility allows the telex originator to enter a new message after the deposit of the previous one, without clearing the call.

If available, this facility should be offered to both manual terminals and Telex Automatic Emitting Devices (TAEDs).

When the CF offers the ODA facility, the new message is entered after the on-line-delivery acknowledgement of the previous one has been returned.

When the ODA facility is not offered by the CF, the next message is entered after the "ITL" prompt related to the previous message.

4.1.8.2 Protocol aspects

Detailed protocol aspects are described in the relevant sections of Recommendation U.201.

4.1.8.2.1 Manual terminals

- When offered, the use of the follow-on message facility is prompted by the CF to the subscribers by means of a prompt sent after the ODA or the ITL (see Recommendation U.201) "CRLF TTX NBR";
- If no data has been received within 15 seconds after this prompt, the CF should clear the call.

4.1.8.2.2 Telex automatic emitting devices

- The operator of TAEDs may request the follow-on facility when offered, after checking in an international directory its existence.
- Request for follow-on messages is done by concatenation of several sequences: "teletex Address, Message, EOI".
- The CF should wait 15 seconds after the end of message (EOI) sequence before clearing the call, for a possible following message.
- When the facility is not offered, the CF should stop the transmission of the following message by means of "TTT . . . " sequences and clear the call (see abnormal conditions in Recommendation F.201).

4.1.9 Positive delivery notification to a telex originator (PDN)

4.1.9.1 General service aspects

In case on-line delivery acknowledge facility (ODA) is not offered by the CF, implementation of the PDN facility is considered as useful.

It is up to the Administration operating the CF to offer this facility or not.

Access to the facility is available to users of Administrations having an agreement with the one operating the CF.

This facility allows the originator telex user to ask for the sending of a positive delivery notification (PDN).

The PDN is returned to the telex originator as soon as possible, within an eight-hour delay, after the delivery of the message to the teletex recipient.

If delivery of the PDN to the originator is not possible, the PDN should be printed out on a suitable service position and sent by mail.

4.1.9.2 Protocol aspects

Detailed protocol aspects are described in the relevant sections of Recommendation U.201.

4.1.9.2.1 PDN facility request by the calling telex user

If the PDN facility is offered, the telex originator requires a PDN by means of a specific sequence of characters following the input of the recipient teletex address.

When the facility is requested by the user whilst not offered by the CF, the CF should stop the transmission by means of sequences of “Ts” and clear the call.

4.1.9.2.2 PDN facility content

If the PDN facility is offered, the PDN should contain the following items, with the format described in the relevant subclauses of Recommendation U.201:

- CF's telex answerback;
- indication of content (PDN);
- CF's current date and time;
- selection information (Teletex address as received from the user during deposit);
- received Teletex identifier;
- IMA (as transmitted by the CF after message deposit);
- date and time of delivery (CF's time).

4.1.10 Protocol and technical aspects of interworking with two-stage selection

Telex protocol and other technical aspects are described in 3.2/U.201.

4.2 Service principles: teletex to telex direction

4.2.1 Service principles teletex to telex direction are identical for one-stage and two-stage telex/teletex interworking.

The principles described in 3.2 apply in total to two-stage selection.

4.2.2 Differences between protocols occurring on the telex side are described in relevant parts of Recommendation U.201.

Annex A

Reactions to abnormal conditions during the telex input

(This annex forms an integral part of this Recommendation)

A.1 Telex connection clearing without the end of input signal

After a clear without the end of input (EOI) signal, the conversion facility should forward the message to the teletex user.

A.2 Telex user pausing during input of address information

If there is a delay greater than 15 seconds at the start of the address input or between characters within the address input, the CF shall clear the connection.

A.3 Telex users stopping transmission without sending the end of input signal

After at least a 30 seconds time-out, the conversion facility should send a prompt "GA" to the telex user in order to request more information input (e.g. a text or the end of input signal). If after a further 30 seconds time-out there is no more information, then the conversion facility should send the input message acknowledgement signal, followed by a service message BK. After this the conversion facility should clear the call and forward the message to the teletex user.

A.4 Telex users sending a WRU to the conversion facility during text input

i) In case of one-stage selection procedure, the CF should return the rearranged teletex answerback (see Note 3 of Figure 1).

ii) In case of two-stage selection procedure, in any step of the procedure, the conversion facility should return its answerback after receiving a WRU. In addition:

- if WRU is followed by text, message input is continued after the conversion facility answerback. Also the WRU is deleted from the message text;
- if WRU is followed by a clear from the telex network, the conversion facility proceeds as in A.1 above;
- if WRU is followed by an idle condition, the conversion facility proceeds as in A.3 above.

A.5 Telex users sending a text after the end of input signal

Any characters received after the end of input signal will be ignored. The conversion facility should use the "TTT . . . " characters to attempt to stop the telex transmission and if successful, then send an input message acknowledgement signal followed by clearing. After clearing, the message should be normally forwarded to the teletex terminal.

A.6 Telex users clearing after the end of input signal and before the input message acknowledgement signal

The message shall be normally forwarded to the teletex terminal.

A.7 Telex users sending national variants of ITA2 characters (figure shift characters of F, G and H)

These combinations could either be converted into a teletex code which is a non-telex character (e.g.: "*"), or into the national use of these combinations. The choice is a national matter.

A.8 The conversion facility detecting signal distortion during text input

Reactions to the detection of distortion are a national matter.

A.9 Telex users sending a bell signal

The conversion facility has to ignore the bell signal in text input.

A.10 CF's storage capacity overflow during telex message input

- In order to avoid memory overflow occurring during message input, a guaranteed message length of 12 000 characters is defined.
- The CF should return an "NC" service signal if guaranteed storage space is not available.
- Messages exceeding the guaranteed length will continue to be accepted if storage is available.

– If the number of characters received by the conversion facility during a message input exceeds the available storage to that input, the conversion facility should discard the excess characters and no attempt should be made by the conversion facility to overwrite previously stored characters. When this occurs, the conversion facility should immediately attempt to prevent the telex user from sending further characters by transmitting a sequence of "TTT . . . " characters for a maximum of 20 seconds.

  If the calling terminal stops transmission within this period, the conversion facility should return the message length exceeded indication, "LDE", return IMA in case of the two-stage selection procedure and then behave as normal, as if the text input phase had finished.

  If the terminal continues to transmit characters after this period, the conversion facility should forcefully clear the connection.

  The conversion facility should attempt to deliver the message text, accepted and stored, preceded by a special text prefix to indicate to the called teletex user that the message may be incomplete.

Annex B

Glossary of terms

(This annex forms an integral part of this Recommendation)

B.1 General glossary

For the purpose of this Recommendation, the following definitions apply.

B.1.1 interworking

F: interfonctionnement
S: interfuncionamiento

Same as definition in B.7/F.200.

B.1.2 conversion facility (CF)

F: unité de conversion (CF)
S: unidad de conversión (CF)

Fully automatic system performing the necessary conversion between the teletex service and the telex service (see 2.1).

B.1.3 one-stage/two-stage selection procedure for telex to teletex direction of interworking

F: procédure de numérotation en une étape ou en deux étapes pour l'interfonctionnement dans le sens télex vers télétex
S: procedimientos con marcación monoetapa o bietapa para el interfuncionamiento de télex a teletex

Addressing of the teletex terminal by the telex terminal can be done, either by sending the total selection information in one phase to the CF or by calling first the CF (first stage of the selection), and by sending the teletex address after the connection to the CF has been established (second stage of the selection).

B.1.4 validation of the called teletex terminal [validation result (positive or negative)]

F: validation du terminal télétex demandé [résultat de la validation (positif ou négatif)]
S: validación del terminal teletex llamado [resultado de validación (positiva o negativa)]

This validation is performed by the CF to verify that the teletex terminal is available, i.e. either the teletex terminal has been called with this address (validation call) or this address has been controlled in a data base (see 4.1.4).

B.1.5 message deposit/message delivery (text deposit/delivery)

F: dépôt du message/remise du message (dépot/remise du texte)
S: depósito de mensaje/entrega de mensaje (depósito/entrega de texto)

The message "deposit" is the sending by the calling terminal of the whole message to the store and forward CF before its further "delivery" to the called terminal.

B.1.6 on-line delivery acknowledgement (ODA)

F: notification de remise en ligne (ODA)
S: acuse de recibo de entrega en línea (ODA)

The on-line delivery acknowledgement facility gives to the waiting telex (i.e. having maintained the connection with the CF after its message deposit) the opportunity to receive "on-line" a proof of the CF's message delivery to the teletex terminal, provided the call establishment to the teletex terminal has been performed within 30 seconds counted after the end of the message input (see 4.1.7).

B.1.7 non-delivery notification (NDN) / positive delivery notification (PDN)

F: notification de non remise (NDN)/notification de remise positive (PDN)
S: notificación de no entrega (NDN)/notificación de entrega positiva (PDN)

If the CF has not been able to deliver the message to the called terminal despite the performance of a defined cycle of delivery attempts on the called terminal network (each network has a specific cycle) and within a maximum of four hours duration, the CF should send a NDN to the calling user to indicate to him that his message has not been delivered to the called terminal and that no further delivery action will be taken by the CF.

NOTE – The NDN facility is not provided in the one-stage selection method of interworking from telex to teletex.

B.2 Specific glossary to one-stage selection procedure

B.2.1 CF prefix

F: préfixe de la CF
S: prefijo de CF

In the one-stage selection method of interworking, the "CF prefix" is the special number (up to 7 digits) to be put before the called teletex number, to indicate that the total telex selection is for reaching a teletex terminal.

B.3 Specific glossary to two-stage selection procedure

B.3.1 CF national number

F: numéro national de CF
S: número nacional de CF

In the two stage selection method of interworking, the "CF national number" is the national telex number of the CF, given to the called telex users at the beginning of the telex delivery phase of the teletex to telex exchange for further use of interworking with the teletex of the CF's country.

B.3.2 input message acknowledgement (IMA)

F: accusé de depôt (IMA)
S: acuse de recibo de mensaje introducido (IMA)

The IMA message sent by the CF to the telex user is used to indicate that the message has been well received by the CF and to give to the telex user a unique reference for this message. This reference should be used again when sending an NDN (see 4.1.6).

B.4 Abbreviations

A/B	Answerback
CF	Conversion facility
DNIC	Data network identification code (Recommendation X.121)
EOA	End of address
EOI	End of input

IMA	Input message acknowledgement
NBR	Number
NDN	Non-delivery notification
ODA	On-line delivery acknowledgement
PDN	Positive delivery notification
SOA	Start of address
TAED	Telex automatic emitting devices
TCC	Telephone country code (Recommendation E.163)
TTX	Teletex