INTERNATIONAL TELECOMMUNICATION UNION

CCITT F.87

THE INTERNATIONAL
TELEGRAPH AND TELEPHONE
CONSULTATIVE COMMITTEE

TELEGRAPH AND MOBILE SERVICES OPERATIONS AND QUALITY OF SERVICE

OPERATIONAL PRINCIPLES FOR THE TRANSFER OF MESSAGES FROM TERMINALS ON THE TELEX NETWORK TO GROUP 3 FACSIMILE TERMINALS CONNECTED TO THE PUBLIC SWITCHED TELEPHONE NETWORK

Recommendation F.87

Geneva, 1991

FOREWORD

The CCITT (the International Telegraph and Telephone Consultative Committee) is a permanent organ of the International Telecommunication Union (ITU). CCITT 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 Plenary Assembly of CCITT which meets every four years, establishes the topics for study and approves Recommendations prepared by its Study Groups. The approval of Recommendations by the members of CCITT between Plenary Assemblies is covered by the procedure laid down in CCITT Resolution No. 2 (Melbourne, 1988).

Recommendation F.87 was prepared by Study Group I and was approved under the Resolution No. 2 procedure on the 11 of March 1991.

CCITT NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication Administration and a recognized private operating agency.

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Recommendation F.87

OPERATIONAL PRINCIPLES FOR THE TRANSFER OF MESSAGES FROM TERMINALS ON THE TELEX NETWORK TO GROUP 3 FACSIMILE TERMINALS CONNECTED TO THE PUBLIC SWITCHED TELEPHONE NETWORK

The CCITT,

considering

(a) the need to allow the transfer of messages from terminals of the international telex service to Group 3 facsimile terminals on the public switched telephone network;

(b) that Recommendations F.60, F.69 and other relevant Recommendations govern operation of the international telex service;

(c) that Recommendation E.163 defines the numbering plan for the international telephone service;

(d) that Recommendation F.72 defines the general principles and operational aspects of international telex store and forward;

(e) that Recommendations F.160 and F.180 define the general operational provisions for the international public facsimile services;

(f) that Recommendation T.4 defines the standardization of Group 3 facsimile apparatus;

(g) that Recommendation T.30 defines the procedure for document facsimile transmission in the public switched telephone network;

(h) that technical aspects of the international telex service are described in R-, S- and U-Series Recommendations,

unanimously declares the view

(1) that there are benefits in standardizing the operational procedures for a terminal of the international telex service to transfer a message, across international boundaries, to a Group 3 facsimile terminal on the public switched telephone network;

(2) that where this message transfer service is provided, the preferred operational procedures are laid down in this Recommendation.

1. Scope

1.1 The procedures defined in this Recommendation enable telex subscribers to transfer messages to Group 3 facsimile terminals connected to the PSTN, on a store and forward basis.

1.2 The interworking shall be established by provision of a telex/facsimile interworking function (FAXIWF).

1.3 International access to the FAXIWF will normally be provided via the telex network (see Figure 1/F.87). Bilateral agreement may be required in the event that other than normal telex service agreements are required.

1.4 For telex subscribers accessing a FAXIWF in their own country, national or international destinations may be specified, with international interworking being implemented via the PSTN. See Figure 2/F.87.

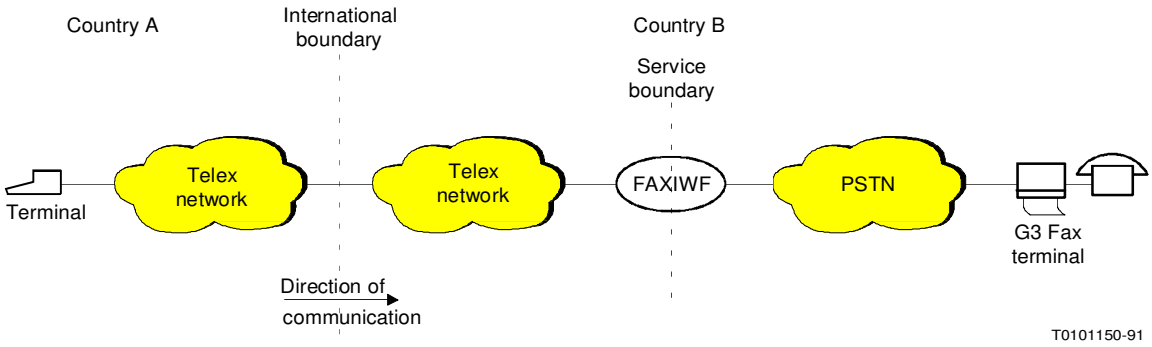

FIGURE 1/F.87

General network configuration for interworking between terminals of the international telex service and Group 3 facsimile terminals on the PSTN

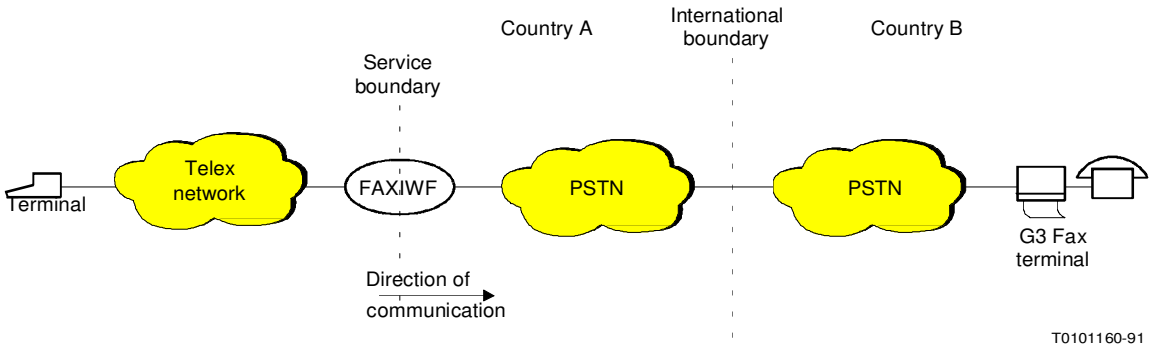

FIGURE 2/F.87

Network configuration for interworking between terminals of the international telex service and Group 3 facsimile terminals via the international telephone network

1.5 The Administration providing the FAXIWF shall be responsible for any necessary barring of international access.

2. Service principles

2.1 The basic service offered is:

– acceptance of messages from the telex network, with accompanying fax (PSTN) addressing information;

– delivery of these messages to the requested facsimile terminal, with retries if necessary;

– notification message sent to the originator when the message delivery attempt fails and, optionally, when it succeeds.

2.2 A single-stage selection procedure may be used employing normal telex procedures where the requested facsimile machine is addressed using a telex number.

2.3 A two-stage selection procedure may be used whereby a call from the telex network gains access to the FAXIWF in the first stage of selection and inputs the called address(es) and message(s) in the second stage of selection, after the return of a call connect signal. To the extent possible, this procedure has been aligned with that for telex store-and-forward facilities defined in Recommendation F.72.

2.4 Message input from both manual and telex automatic emitting devices should be possible.

2.5 Messages deposited into the FAXIWF will be sub-divided by the FAXIWF into "pages" which serve as physical "A4" size pages as received at the fax terminal. Otherwise, the input format shall be preserved.

A page should normally comprise 55 lines of text (of 4.23 mm pitch), or part thereof for pages with fewer than 55 text lines. Upon transmission, it is preferred to have both message reference and pagination information inserted in a header line on each page.

2.6 In addition to delivering the message as pages of text to the specified fax terminal(s), the FAXIWF may optionally prepare and transmit a "header page" consisting of at least:

– message reference information (which may include the legal time and date of acceptance);

– calling party identification (telex answerback and recall information, if necessary);

– indication of number of pages in message;

– specified facsimile terminal (PSTN) address;

– optional customer attention information field (see § 3.2.4).

2.7 Where a header page is not transmitted, the FAXIWF should attach a herald to the beginning of the message indicating the calling party identification (telex answerback and recall information, if necessary).

2.8 The FAXIWF will attempt to deliver the message as soon as operationally feasible. Deferred delivery may also be provided.

3 Service facilities

In the following section, the symbol * indicates that the facility is not normally applicable for one-stage selection.

3.1 *General*

In addition to message deposit, the following facilities may be made available:

– multi-address*;

– follow-on messages*;

– positive delivery notification;

– status enquiry request;

– message cancel request*.

Note – The multi-address facility would not normally be available to incoming international telex calls except by bilateral agreement.

3.2 *Message deposit*

3.2.1 Validation of format and/or length should preferably be performed by the FAXIWF on the address(es) of the called fax terminal(s) as specified by the calling party.

3.2.2 Where the multi-address facility is provided, the FAXIWF should be capable of accepting at least 20 facsimile terminal (PSTN) addresses in a multi-address call.

3.2.3 An attention information field facility should be provided by the FAXIWF to enable each addressee of a multi-address message to have a relevant attention prefix preceding the message in the header page where such is provided.

3.2.4 A message reference number shall be available to the calling party for every message accepted by the FAXIWF. For multi-address messages, a separate message reference number may be provided for each address.

3.2.5 The application of short-code address* and pre-recorded address lists is a national matter.

3.3 *Follow-on messages*

Provision may be made to accept follow-on message(s) with their associated address(es) which may be sent immediately after the deposit of a previous message while still retaining the connection to the FAXIWF from the originator. The procedures should be aligned with Recommendation U.43.

3.4 *Status enquiry request*

3.4.1 Status information on previously-deposited message shall only be returned to the message originator. The procedure used should be generally aligned with Recommendations F.72 and U.80.

3.4.2 This status information should be available for at least 24 hours after the time of message receipt by the FAXIWF.

3.5 *Message cancel request**

If message cancellation is provided, previously deposited messages may only be cancelled by the message originator.

3.6 *Delivery/non-delivery notification message and journals*

3.6.1 In the case of failure to deliver a message to the requested fax terminal, the FAXIWF shall if possible return a non-delivery notification message to the originator (see § 7.1).

3.6.2 An Administration may optionally provide a positive delivery notification message to the originator upon successful delivery of the message to the requested fax terminal (see § 7.2).

3.6.3 The above notifications may also be provided in a summarized form (journals).

4 Access procedures

4.1 *General*

Two basic procedures for access from a telex terminal should be provided by the FAXIWF:

a) *Interactive operation:*

- input from manual calling terminals where the TPIWF may return prompt signals;

b) *Non-interactive operation:*

- input from telex automatic emitting devices where prompt signals may not be required;
- interworking with other types of interworking and conversion facilities.

4.2 *One-stage selection*

In the one-stage selection procedure, the facsimile terminal is assigned a telex number that is part of the national telex numbering plan.

4.2.1 *Call establishment*

4.2.1.1 The originator (or intermediary interworking or conversion facility) shall use normal telex procedures.

4.2.1.2 The telex number received by the FAXIWF shall be verified as being proper to a registered facsimile terminal. The method of effecting this verification is a national matter. If the verification fails, the following procedures should be applied:

a) where the FAXIWF is provided by the Administration which also provides all or part of the telex network, the service signal NP may be returned;

b) where the FAXIWF is not provided by the Administration which also provides all or part of the telex network, the procedures to be applied shall be in accordance with Recommendation F.74.

4.2.1.3 Having verified the received telex number, the FAXIWF shall return the answerback allocated to the requested facsimile terminal to the originator.

4.2.1.4 This answerback of the facsimile terminal shall be formatted in accordance with Recommendation F.74.

4.2.1.5 In accordance with Recommendation S.23, the FAXIWF may transmit a WRU signal to the originating telex subscriber if the backward path remains idle for at least 800 milliseconds.

4.2.1.6 Having received the answerback allocated to the called facsimile terminal, the originator may input the text of his message. The FAXIWF shall respond to any received WRU signal during this phase of the call by returning the answerback allocated to the facsimile terminal.

4.2.1.7 The reaction to abnormal conditions during call set-up shall be in accordance with normal telex procedures (see Recommendation U.207[1)]).

4.3 *Two-stage selection*

4.3.1 *General*

4.3.1.1 Calls to the FAXIWF will be established by means of normal telex procedures.

4.3.1.2 The received telex answerback shall be processed in accordance with Recommendation U.74 to determine the calling telex address. If the answerback is deemed to be non-processable, the FAXIWF shall request input of the calling address by the telex subscriber by returning the ADD prompt.

4.3.1.3 Transmission from an automatic terminal is indicated by commencing the procedure with the non-interactive service request (characters CI). The calling terminal is recognized as interactive by the omission of the non-interactive service request (CI).

4.3.1.4 If the calling telex address is capable of being extracted from the received answerback, the FAXIWF shall return GA, unless a non-interactive service request has been made.

4.3.2 *Input of address(es)*

4.3.2.1 For each address required, the originator should transmit the sequence

FAX <address> + (<optional attention information field>)

where:

FAX is the service identifier.

4.3.2.2 The address field <address> is the only mandatory field of the address line and is the called PSTN fax address formatted in accordance with Recommendation E.163. The address field consists of the international PSTN number of the required fax terminal. The end of the address field should be delimited by the end of address field signal (+), for example,

P43150145207+

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1) Recommendation U.207 has not been officially approved as of the publication date of this Recommendation F.87.

The attention information field is a 30-character field, delimited by parentheses, for example:

(ATTN: MR.J.SMITH)

The inclusion of the field is optional. If specified, the field will be inserted in the header page (see § 3.2.3), otherwise that part of the header page will be left blank.

An example of a complete address line would be as follows:

FAX 43150145207+(ATTN: MR.J.SMITH)

4.3.2.3 The last address line shall be delimited from the message by the end of address sequence/begin text input sequence BT.

4.3.2.4 It should be possible to mix telex, teletex and facsimile addresses in a multi-address call in accordance with Recommendation F.72.

4.3.2.5 Once the maximum number of permissible addresses have been input, the FAXIWF shall return the message input prompt (GA) unless a non-interactive service request has been received.

4.3.2.6 If an end-of-address signal (BT) is received without any valid addresses being received, the call will be cleared by the FAXIWF.

4.3.2.7 The action to be taken when invalid addresses are received shall be in accordance with § 5.2.3.

4.4 *Answerbacks and WRU processing*

4.4.1 In the case of single-stage selection, the FAXIWF shall at all times respond to the reception of a WRU signal from the originator with the "answerback" allocated to the registered terminal, formatted in accordance with Recommendation F.74.

4.4.2 In the case of two-stage selection, the FAXIWF shall at all times respond to a received WRU signal with its own answerback, consisting of 20 characters formatted in accordance with Figure 3/F.87 and Recommendation F.60 where Φ is the TNIC of the network to which the FAXIWF is connected. Neither the WRU signal nor the resultant answerback should be stored as part of the message.

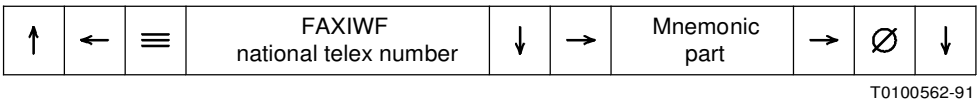

FIGURE 3/F.87

Format of FAXIWF answerback

5 Message deposit by the telex subscriber

5.1 *General*

5.1.1 All ITA2 spacing characters received during text input shall be stored by the FAXIWF for subsequent transmission to the addressed facsimile terminal. However, neither the WRU signal nor the bell signal, if received as part of the text, will be stored within the message.

5.1.2 The FAXIWF shall be able to accept messages of at least 24 000 characters.

5.1.3 If the calling subscriber wishes to cancel a message during the text input phase, the cancel operation signal to be used, where the FAXIWF offers this facility, is FFFF.

If the FAXIWF detects a cancel operation signal, it should cease message acceptance, issue the message cancel confirmation signal ANUL ANUL and clear the call.

5.1.4 In case of two-stage selection, if the FAXIWF detects a valid EOM or EOT signal, but no characters have been received as message text, the message will be abandoned and, if not already cleared by the originator, the call shall be cleared by the FAXIWF as in § 5.1.3.

5.1.5 The reaction to abnormal conditions during message deposit shall be in accordance with Recommendation U.207[1)].

5.2 *Message security*

5.2.1 The FAXIWF should only accept messages for delivery to destination addresses accessible from that FAXIWF.

5.2.2 In case of two-stage selection, the FAXIWF should not accept message input unless acceptable identification of the originator has been received at call set-up.

5.2.3 The FAXIWF may verify the format of the called address(es). If this verification is unsuccessful for all addresses, the message shall be rejected and the service code ITR should be returned (see Recommendation U.80, § 4.6). However, a positive verification result does not guarantee that the message can be delivered to the given address.

5.3 *End of transaction and end of message signal*

5.3.1 At the end of each transaction, an end of transmission (EOT) signal is required. This signal is + + + +. However, for follow-on messages, an end of message (EOM) signal is required at the end of each individual message. This can be one of two types, as follows:

a) NNNN, which is simply used to separate messages;

b) NNNNACK, which is used to separate messages and to request the FAXIWF for an input message acknowledgment (IMA) plus reference information of those messages not previously acknowledged.

5.3.2 Where there is a stop in transmission for 30 seconds, and no EOM or EOT signal is detected, the service code GA will be sent to the originator.

5.3.3 If the EOM/EOT signal is not received, or transmission does not resume within a further 30 seconds, the FAXIWF shall initiate the clear down procedure.

5.3.4 In case of two-stage selection, a message received without any EOM or EOT shall nevertheless be delivered with the following text appended: **POSSIBLE INCOMPLETE MESSAGE**.

5.4 *Input transaction accepted*

The FAXIWF shall send an input transaction accepted code for delivery (ITD) notifying the originator that the message(s) has(have) been accepted and that delivery would be attempted. Delivery should be attempted even if the call is cleared before the ITD is sent. The ITD should be followed by the message reference(s) and, if applicable, number of messages.

6 Message delivery

6.1 Messages deposited in the FAXIWF with appropriate PSTN address(es) shall be delivered as soon as operationally feasible after receipt, unless deferred delivery option is requested. Delivery to the requested fax terminal(s) shall be in accordance with the normal procedures applicable to fax-fax communication (see Recommendation T.30).

6.2 If the delivery attempt is unsuccessful, i.e. the complete message was not delivered, the FAXIWF may initiate re-attemps in accordance with national rules laid down for re-calling into the PSTN.

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1) Recommendation U.207 has not been officially approved as of the publication date of this Recommendation F.87.

6.3 Should all delivery attempts fail, the FAXIWF shall return a non-delivery notification message to the originator in accordance with § 7.1.

6.4 Should delivery be successfully completed, the FAXIWF may return a positive delivery notification message to the originator where this facility is offered by the Administration operating the FAXIWF.

6.5 Where a message is only partially delivered, i.e., the connection across the PSTN was cleared for any reason before the EOM or EOT was reached, the FAXIWF shall re-establish the connection and re-send the message commencing after the last successfully delivered page.

6.6 The reaction to abnormal conditions during message delivery shall be in accordance with the relevant E- and T-Series Recommendations.

7. Delivery/non-delivery notification messages

7.1 *Non-delivery notification message*

7.1.1 The FAXIWF shall return a non-delivery notification message to the originator in respect of failure to deliver an accepted message in its entirety to any requested destination.

7.1.2 The non-delivery notification message should be returned to the originating telex subscriber as soon as possible after expiry of the retry cycle (see § 6.2 above).

7.1.3 It is recommended that the message contain at least the following information:

- message reference;
- time/date of message acceptance by the FAXIWF;
- time/date of final delivery attempt;
- originating telex answerback;
- requested facsimile terminal number;
- called station identity (CSI), if available;
- number of delivery attempts made;
- number of pages transmitted.

7.1.4 If the FAXIWF is unable to deliver the non-delivery notification message to the originating subscriber after a maximum of 8 attempts to do so, the message should be spilled out to an assistance position for manual processing.

7.2 *Positive delivery notification message*

7.2.1 An Administration may optionally offer this facility to its subscribers either on a global basis or by request by the calling subscriber at the addressing stage.

7.2.2 The facility may be requested on a per-address basis by use of the ACK signal in the address line, as follows:

FAX <Address>+(optional information field),ACK

for example:

FAX 43150145207+(ATTN: MR.J.SMITH),ACK

7.2.3 It is recommended that the positive delivery notification message, where provided, contain at least the following information:

- message reference;
- time/date of message acceptance by the FAXIWF;
- time/date of final delivery attempt;
- originating telex answerback;
- requested facsimile terminal number;

– called station identity (CSI), if available;

– number of pages in message;

– number of delivery attempts made;

– number of pages transmitted.

7.2.4 If the FAXIWF is unable to deliver the positive delivery notification message to the originating subscriber after a maximum of 8 attempts to do so, the message should be spilled out to an assistance position for manual processing.

ANNEX 1

(to Recommendation F.87)

List of abbreviations

ACK	Request for positive delivery notification
ADD	Address prompt
BT	End-of-address/begin text signal
CI	Conversation impossible
CSI	Called station identity
EOM	End-of-message
EOT	End-of-transaction
FAXIWF	Facsimile interworking function
GA	Go ahead
IMA	Input message acknowledgment
ITD	Input transaction accepted for delivery
ITR	Input transaction rejected
PSTN	Public switched telephone network
TNIC	Telex network identification code
WRU	Who-are-you