THE DRAWINGS CONTAINED IN THIS RECOMMENDATION HAVE BEEN DONE IN AUTOCAD.

Recommendation U.204

INTERWORKING BETWEEN THE TELEX SERVICE AND THE PUBLIC INTERPERSONAL MESSAGING SERVICE

(Melbourne, 1988)

The CCITT,

considering

(a) that Administrations are introducing public message handling services;

(b) that there are benefits in the provision of an interworking capability between message handling services and the telex service;

(c) that there are already existing arrangements in place for interworking between telex and the interpersonal messaging system;

(d) that Recommendation F.60 defines the service requirements of the telex service;

(e) that the F.400—series of Recommendations define the service requirements of the message handling services;

(f) that Recommendation F.420 defines the service requirements of the public interpersonal messaging service;

(g) that Recommendation F.421 defines the operational procedures for interworking between the public interpersonal messaging service and the telex service;

(h) that the U—series of Recommendations define the technical requirements of the telex service;

(i) that the X.400—series Recommendations define the technical requirements of the message handling services,

unanimously declares

that, for new implementations, the technical aspects of interworking between the telex service and the public interpersonal messaging service shall be in accordance with this Recommendation.

definitions

The following terms used in this Recommendation have the undermentioned definitions:

PTLXAU

The public telex access unit (PTLXAU) is a functional unit which implements the requirements to allow the delivery of messages from telex subscribers to users of the interpersonal messaging service (and vice versa) as specified in the relevant U—series and X—series of Recommendations. The method of implementation of these functions in any physical unit is a national matter.

registered IPMS user

A user of the interpersonal messaging service who has registered with the PTLXAU for the receipt of telex messages and who is assigned a telex number that is part of the telex national numbering plan for this purpose.

IPMS user answerback

In the case of one—stage selection, the answerback that is returned to the telex network on receipt of a WRU signal and which uniquely identifies the registered IPM user to the telex network.

PTLXAU answerback

In the case of two—stage selection, the answerback of the destination PTLXAU and which is always returned by the PTLXAU in response to a received WRU signal.

PTLXAU identification

When delivering an IP message to a telex subscriber, the sequence transmitted by the PTLXAU which indicates the country of origin of the PTLXAU and IPM service.

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1 Introduction

1.1 *Scope*

1.1.1 This Recommendation defines the procedures to be followed for interworking between the telex service and the public interpersonal messaging service (IPMS).

1.1.2 The operational procedures of this interworking capability and the full range of facilities are described in Recommendation F.421 [1].

1.1.3 For calls originated in either service, communication will be affected using the international telex network.

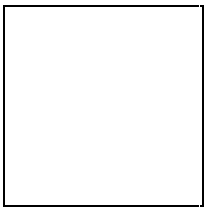
1.2 *Service outline*

1.2.1 Communication between subscribers of the telex service and the IPM service is on a store—and—forward basis; conversational—mode interworking is thus not applicable.

1.2.2 Delivery of messages from telex subscribers to users of the IPM service as well as delivery of messages to the international telex network from IPMS users shall be provided by means of a public telex access unit (PTLXAU) which shall be considered as part of the IPM service.

1.2.3 For calls originated by either telex subscribers or IPMS users, the international connection shall be via the international telex network, as shown in Figure 1/U.204.

Figure 1/U.204 - T0900200-89



1.2.4 The procedures to be followed by an originating telex subscriber allow for either one—stage or two—stage selection.

1.2.5 The IPMS user will follow normal MHS addressing principles when sending to telex. The rules for naming and addressing in the message handling services are found in Recommendation F.401 [2].

2 Methods of interworking

considering

(a) that different addressing formats may be used within the IPM service;

(b) that these formats may consist of either numeric or mnemonic information,

then the following methods of interworking between the telex service and the IPMS may be provided:

(1) interworking with one—stage selection,

(2) interworking with two—stage selection.

Messages from an IPM service user are sent as normal IP messages using the appropriate elements of service in accordance with Recommendation F.420 [8].

3 Telex access to the IPM service

3.1 *One—stage selection*

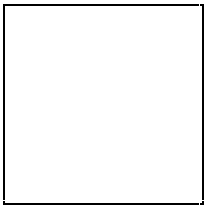
In the one—stage selection procedures, the IPM service user is assigned a telex number that is derived from the national telex numbering plan. Figure 2/U.204 shows the recommended access procedures.

3.1.1 *Call establishment*

3.1.1.1 The originating telex subscriber will select the IPM service user using normal telex procedures.

3.1.1.2 The procedures for call establishment between the terminating telex network and the PTLXAU are a national matter.

Figure 2/U.204 - T0900210-89



3.1.1.3 The telex number received by the PTLXAU from the telex network will be verified by the IPM service as being proper to a registered IPMS user. The method of effecting this verification is a national matter. If the verification fails, the procedures to be adopted shall be in accordance with Recommendation F.421 [1].

3.1.1.4 If the submitted telex number is positively verified, then the PTLXAU shall return the call connected signal to the originating telex subscriber using normal telex signalling procedures.

3.1.1.5 The IPM service user answerback returned by the PTLXAU in response to the WRU signal from the telex network shall conform to Recommendation F.74 [3].

3.1.1.6 If the call originates from a telex automatic emitting device, the calling telex subscriber should indicate this by commencing the procedure with the non—interactive service request (CI).

3.1.2 *Determination of the calling telex address*

3.1.2.1 Following the transmission of the IPMS user answerback, the PTLXAU shall monitor for the receipt of characters from the telex network and shall transmit a WRU signal only after an idle condition has existed for at least 800 ms.

3.1.2.2 The PTLXAU shall determine the calling telex address from the received telex answerback in accordance with the rules laid down in Recommendation U.74 [4].

3.1.2.3 The PTLXAU shall wait 3 seconds from the end of the calling telex answerback to enable the telex subscriber to input the calling telex address. At the end of this period and if the calling telex address cannot be determined from the received telex answerback, then the PTLXAU shall return the prompt signal.

3.1.2.4 If the calling telex address is not received within 15 seconds of the ADD prompt, then another prompt signal shall be returned. If another 15 seconds elapse without the receipt of the calling telex address, the connection shall be cleared by the PTLXAU.

3.1.2.5 The calling telex address shall be input by the telex subscriber in the following format:

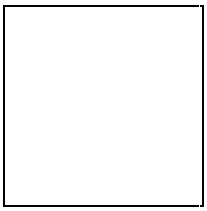
↑	F.69 code	national telex number	←	≡	←	≡

e.g. [ADD] 50032266

The calling telex address may optionally be preceded by ADD.

3.1.2.6 The calling telex address, when received, may be preceded by the non—interactive service request CI, which may or may not be associated with carriage—return, line—feed and letter—shift characters. In this case, the call procedure originating from a telex automatic emitting device will be as shown in Figure 3/U.204.

Figure 3/U.204 - t0900220-89



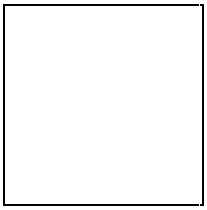
3.2 *Two—stage selection*

The two—stage selection, the address(es) of the IPMS user(s) is/are given prior to the transmission of the message and after a telex connection has been established between the originating telex subscriber and the gateway to the IPM service, i.e., the PTLXAU. The use of either upper— or lower—case letters by the originating telex subscriber in the input of service identifiers, address attributes, etc., has no significance.

3.2.1 The originating telex subscriber will use normal telex procedures to access the PTLXAU which will be allocated a telex number that is derived from the national telex numbering plan of the country in which the PTLXAU is located.

3.2.2 The procedures to be followed shall be in accordance with Recommendation U.80 [5], except where specified in this Recommendation and are shown in Figure 4/U.204.

Figure 4/U.204 - t0900230-89



Notes to Figure 4/U.204:

Note 1 — This WRU signal is transmitted 800 ms after transmission of the PTLXAU answerback if the backward path remains idle.

Note 2 — One additional WRU signal shall be transmitted by the PTLXAU if:

a) there was no response to the first WRU, or

b) signals were received after the first WRU which could not be identified as an answerback.

This second WRU should be transmitted at least 10 seconds after the transmission of the first WRU and only after a period of 300 ms of idle condition has been detected.

Note 3 — Case A: Procedure to be followed when the calling telex address can be determined from the received telex answerback.

Note 4 — Case B: Procedure to be followed when the calling telex address cannot be determined from the received telex answerback.

Note 5 — In Case A, the prompt GA shall be transmitted 5 seconds after detection of the processable answerback.

— In Case B, the prompt GA shall normally be transmitted 5 seconds after receipt of the calling telex address.

Note 6 — The prompt ADD is used only in Case B and is sent immediately a nonprocessable answerback has been detected and if the calling telex subscriber has not voluntarily input the proper calling telex address. The procedures to be followed shall be in accordance with §§ 3.1.2.4 and 3.1.2.5.

Note 7 — The service request CI is usually sent when the calling telex terminal is operating in a non—interactive mode.

Note 8 — The procedures to be followed shall be in accordance with §§ 3.1.2.4 and 3.1.2.5.

Note 9 — The prompt GA is not sent in Case B if CI has been received.

Note 10 — The provision of a follow—on call facility is for further study.

Note 11 — Following receipt of the EOT signal, the PTLXAU shall proceed as follows:

a) If the calling telex terminal is operating in non—interactive mode, then the PTLXAU may wait up to 2 seconds for a WRU signal. If this is received, the PTLXAU shall return its answerback followed by the ITD sequence. If the WRU signal is not received within the 2 seconds, then the PTLXAU shall return the ITD sequence.

b) If the calling telex terminal is operating in a manual mode, the PTLXAU shall return the ITD sequence as soon as possible.

c) In all cases, the ITD sequence and any associated reference information must be returned within a maximum of 5 seconds from the receipt of the EOT signal.

3.2.3 *O/R address input by the telex subscriber*

3.2.3.1 In the second stage of selection, it will be necessary for the calling telex subscriber to input the O/R address of the desired IPM service user.

Provisions for multi—address calls shall be on a bilateral basis.

3.2.3.2 The second stage of addressing will be prefaced by the service identifier "IPM" to indicate to the PTLXAU that the message is to be delivered to an IPM service user. The use of other service identifiers is for further study. In a multi—address message, the service identifier may optionally be given before each address.

3.2.3.3 The PTLXAU must be able to receive and process the appropriate domain—defined O/R address forms:

Numeric O/R address

Mnemonic O/R address

Terminal O/R address

The rules governing O/R address formats are found in Recommendation F.401 [2].

It is, at all times, the responsibility of the originating telex subscriber to input all the necessary address attributes required by the national IPM service to which the user belongs.

3.2.3.4 The structure of the O/R address input is detailed in Recommendation F.421 [1], § 4.2.2.4 and Table 1/F.421.

3.2.3.5 *Numeric O/R address*

The format of this address type is shown in Figure 5/U.204 where "CTN", etc., are address attribute identifiers with their "values" in accordance with Recommendation F.421 [1].

CTN	— <value>
ADM	— <value>
PRI	— <value>
NUS	— <value>
DDT	— <value> (Note)
DDV	— <value> (Note)

Note — A maximum of four separate pairs of these attributes may be given sequentially.

FIGURE 5/U.204

Numeric O/R address input by telex subscriber

An example of such an address is given in Annex A to this Recommendation.

3.2.3.6 *Mnemonic O/R address*

The general format of the Mnemonic O/R address to be input by the calling telex subscriber is shown in Figure 6/U.204 where "CTN", etc., are address attribute identifiers with their "values" in accordance with Recommendation F.421 [1].

CTN	— <value>
ADM	— <value>
PRI	— <value>
SUR	— <value>
GIV	— <value>
INI	— <value>
GEN	— <value>
ORG	— <value>
OUN	— <value> (Note 1)
DDT	— <value> (Note 2)
DDV	— <value> (Note 2)
COM	— <value>

Note 1 — A maximun of four separate attributes may be given. Each attribute may be given sequentially on a separate line.

Note 2 — Similar to Note, Figure 5/U.204.

FIGURE 6/U.204

Mnemonic O/R address input by telex subscriber

An example of such an address is given in Annex A to this Recommendation.

3.2.3.7 *Terminal O/R address*

The general format of the terminal O/R address to be input by the calling telex subscriber is shown in Figure 7/U.204 where the terminal address forms will be qualified by the preceding strings TLX, TTX, FAX. The use of other terminal address forms and values, e.g. for Videotex, is for further study.

CTN	— <value>
ADM	— <value>
PRI	— <value>
TLX	— <value> (Note 1)
TTX	— <value> (Note 1)
FAX	— <value> (Note 1)
TID	— <value>
DDT	— <value> (Note 2)
DDV	— <value> (Note 2)

Note 1 — The letter codes indicate the terminal type of the receiving equipment; the <value> is the network address as specified in Recommendation F.401 [2].

Note 2 — Similar to Note, Figure 5/U.204.

FIGURE 7/U.204

Terminal O/R address input by the telex subscriber

3.2.3.8 The sequence of input of address attributes is not significant except when an attribute occurs several times in the same O/R address. The attributes shall then be given in the order as specified in the relevant X.400—series of Recommendations.

3.2.3.9 Each address will be delimited by the sequence carriage—return and line—feed.

3.2.3.10 During the input of the O/R address, the PTLXAU shall validate the submitted address for the existence of domain—specific attributes, as follows:

— the existence of mandatory attributes

— the existence of not—allowed attributes

— the minimum and maximum allowed number of characters in each attribute

— the existence of not—allowed characters in an attribute.

Non—significant characters, either preceding or following an attribute value, shall not prevent validation.

An example of such an address is given in Annex A to this Recommendation.

3.2.3.11 When a positive delivery notification facility is provided by the PTLXAU, it shall be requested by the originating telex subscriber on a per—message basis by extending the end—of—address signal, as follow:

$$\leftarrow \equiv \downarrow \text{BT} \uparrow , \downarrow \text{ACK}$$

where "BT" is the EOA signal and "ACK" the request for positive delivery notification. See §§ 3.3.3 and 5.1.

3.2.3.12 Address line editing facilities, where provided, shall operate as follows:

Any part of the address (either address attribute or element of service) may be cancelled by the receipt of four consecutive = characters (combination 22 in Figure case).

3.2.3.13 The provision of address format validation and the corresponding actions to be taken if a particular address is rejected is left for further study.

3.2.3.14 The action to be taken when abnormal conditions are encountered during O/R address input shall be in accordance with § 7.

3.2.4 The methodology of providing the originating telex subscriber with a prompt—driven procedure and a simpler method for the input of the O/R address is left for further study.

3.3 *IPM elements of service in the telex to IPM direction*

3.3.1 The elements of service activated by the PTLXAU when delivering a message to the IPM service are listed in Recommendation F.421 [1], § 4.3.

3.3.2 In the two—stage selection case, the originating telex subscriber can, when supported by the PTLXAU, select the following elements of service:

— Disclosure of other recipients

— Deferred delivery

The PTLXAU, if it receives either or both of these from the originating telex subscriber, shall convert them into the form required by the IPM service. These elements of service are fully described in Annex B to Recommendation F.400 [6].

3.3.2.1 *Disclosure of other recipients*

If this element of service is present, then disclosure of other recipients of the telex message will be enabled within the IPM service. The calling telex subscriber will request it in the following format:

$$\text{DUR} \leftarrow \equiv$$

3.3.2.2 *Deferred delivery*

This element of service will be used if deferred delivery of the submitted message to the required IPM user is requested. Omission of this element of service indicates that standard delivery for telex is required.

Note — The PTLXAU shall set the Grade of Delivery element of service to the value "URGENT" in accordance with Recommendation F.421 [1].

The element of service will be selected by the calling telex subscriber in the following format:

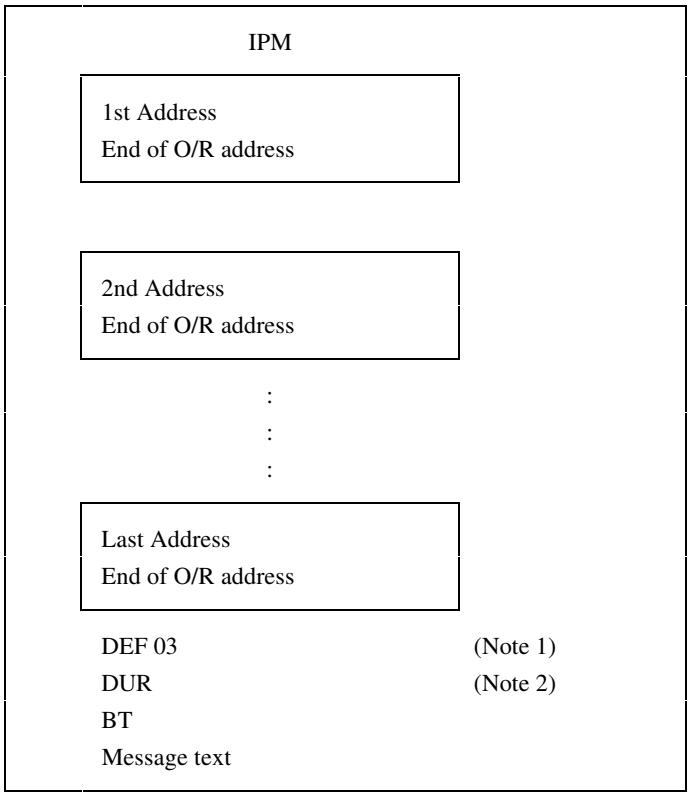
DEF _ XY ← ≡

where "XY" are numeric characters which specify the minimum delivery delay in hours from 01 — 23.

3.3.3 While the position of the above specified elements of service in the submitted O/R address(es) is not significant, it is recommended that they, when selected, be input at the end of the O/R address(es) and immediately before the end—of—address(es) signal (EOA) which shall be

← ≡ ↓ BT

3.3.4 It shall be possible to set the elements of service on either a per—message basis, i.e. applying to all requested O/R addresses, or on an individual address basis, an example of which is shown in Figure 8/U.204.



Note 1 — Delivery of the message shall incur a minimum 3 hour delay.

Note 2 — Disclosure of other recipients of this message is requested

FIGURE 8/U.204

Example of use of IPMS elements of service by the telex subscriber

3.3.5 In the case of the deferred delivery IPM element of service, the possibility for an originating telex subscriber to set this value to any specific time in the future, other than as provided for in § 3.3.2.2 is left for further study.

3.4 *Message desposit and format*

3.4.1 The PTLXAU shall store all received telex characters (with the exception of the WRU signal) and shall convert these from ITA2 coding to IA5 coding in accordance with Recommendation S.18 [7] for inclusion as an IA5 body type in the IP message.

3.4.2 Any conversion which might be applied as part of the IPM service will be handled in accordance with the F.400—series Recommendations and is outside the scope of this Recommendation. Specifically, the application of the element of service "conversion prohibition in case of loss of information", when considering interworking between the telex service and the IPM service is left for further study.

3.4.3 A valid message shall be deemed to exist if at least one printable character is received from the telex network, excluding any WRU signals or spaces.

3.4.4 Under normal conditions, message input will be terminated with an end—of—message (EOM) or end—of—transaction (EOT) signal. These signals are defined in Recommendation U.80, §§ 4.9 and 4.10.

3.4.5 The actions to be taken when abnormal conditions are encountered during message input are described in § 7.

3.5 *Telex message delivery inside the IPM service*

3.5.1 The received telex message will be delivered by the PTLXAU to the IMPS user(s) in accordance with the submitted elements of service and the rules laid down in Recommendation F.421 [1], § 4.3.

3.5.2 Despite the acceptance by the PTLXAU of the submitted address (either telex number or O/R address), and the subsequent storage of the submitted message, there is no guarantee that the message will be delivered to the addressed IPMS user. In this case, the originating telex subscriber may be charged for a message which was not delivered.

3.5.3 When the message cannot be delivered to the requested IPM user, the PTLXAU shall return a non—delivery notification message to the orginating telex subscriber. These procedures are described in § 5.

3.6 *Follow—on call facility*

The provision of a follow—on call facility by the PTLXAU is for further study.

4 Access from the IPM service to telex

4.1 *General principles*

4.1.1 Messages from an IPM service use are sent as normal IP messages using the appropriate elements of service in accordance with Recommendation F.420 [8].

4.1.2 IP messages received by the PTLXAU will be converted into the format and character repertoire specific to the telex service and forwarded to the addressed telex subscriber.

4.1.3 The PTLXAU shall be responsible for the action to be taken for all received IPM/MT elements of service in accordance with Recommendation F.420. The expected elements of service, when interworking with telex, are listed in Annex B to Recommendation F.421 [1] along with the desired response of the PTLXAU.

4.2 *Conversion*

If the originating IPMS user does not conform to the conversion rules of the IPM service, then loss of information may result. In particular, the element of service "implicit conversion" should be handled by the PTLXAU in accordance with Recommendation X.408 [9].

4.3 *Message delivery to telex*

4.3.1 Call establishment by the PTLXAU and delivery of the message to the telex subscriber shall be in accordance with Recommendation U.81 [12], except where specified in this Recommendation, and are shown in Figure 9/U.204.

4.3.2 During call establishment, the answerback sequence sent by the PTLXAU to the called telex subscriber should be either

— The F.74 [3] answerback of the originating IPMS user for a one—stage selection PTLXAU, or

— The PTLXAU answerback for a two—stage selection PTLXAU.

4.3.3 The IP message sent to the called telex subscriber should be preceded by the PTLXAU identification. The format of the identification is a national matter but it is recommended that, as a minimum, it should contain the sequence CI, the sequence IPM and the telex network identification code, as follows:

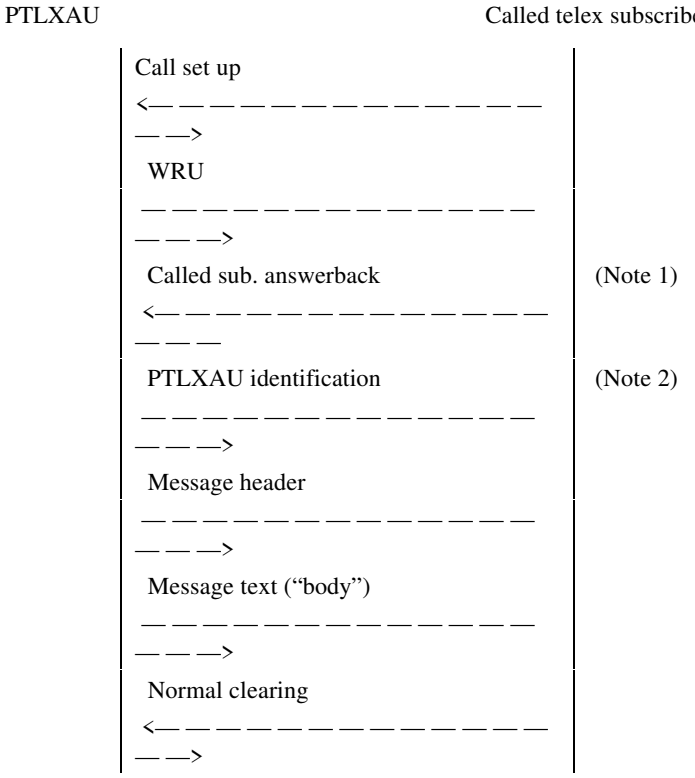
$$\leftarrow \equiv \downarrow \text{CI IPM } Ø$$

where Ø is the TNIC of the country in which the PTLXAU is located in accordance with Recommendation F.69 [10].

4.3.4 The delivered IP message shall have two components, a “message header” and a “body”.

4.3.5 The “message header” shall contain the relevant elements of service associated with the IP message converted by the PTLXAU into printable text. The language of the text is a national matter.

4.3.6 The “body” part shall comprise the text of the message and may include multiple “body” parts.



Note 1 — Optional answerback capture if not available from previous call set—up procedures.

Note 2 — See § 4.3.3 for recommended format.

FIGURE 9/U.204

Call set—up and message delivery to telex subscriber

4.3.7 In some implementations, the PTLXAU may transmit additional information in a user—friendly form to assist telex recipients in recalling the originator. This field will be the first element of the message heading and, when used, will be titled “FOR RECALL”. The contents of this field is a national matter.

4.3.8 In particular, the PTLXAU shall transmit the O/R address of the originating IPMS user to the called telex subscriber in the form necessary for recall by the telex subscriber. This shall be done in accordance with Figure 10/U.204.

FROM: <F.74 answerback>

a) For one—stage selection PTLXAU

FROM:	GIV	— <value>
	SUR	— <value>
	ORG	— <value>
	ADM	— <value>
	CTN	— <value>

b) For two—stage selection PTLXAU

FIGURE 10/U.204

Originator indication in the IP message delivered by the PTLXAU to a telex subscriber

4.3.9 If requested by the originating IPMS user, the PTLXAU shall return a delivery notification message upon successful delivery of the message to the requested telex subscriber.

4.3.10 For delivery attempts which fail within the telex network, the PTLXAU shall initiate a retry procedure in accordance with Recommendation U.40 [11].

If delivery is still unsuccessful, then a mandatory non—delivery notification shall be returned to the IPMS user by the PTLXAU.

4.3.11 If the service signals RDI or NCH are received during call set up more than once in any one delivery or notification attempt cycle, then the message shall be considered undeliverable and the appropriate non—delivery notification returned as described in § 5.

5 Notification messages

Automatic advice of delivery/non—delivery, where appropriate, shall be given by the PTLXAU as soon as the message retry cycle applicable within the IPM service has been terminated. In the particular case of multi—address messages, the notification may be either on a per—message or per—address basis, the former being preferred in order to minimise the number of call attempts.

Notification messages on a per—address basis shall be in accordance with §§ 5.1 and 5.2. Notification messages on a per—message basis shall be in accordance with § 5.3.

5.1 *Delivery notification*

5.1.1 In the telex to IPMS direction, the provision of a positive delivery notification to the originating telex subscriber is a national matter. Where such a feature is provided, it is recommended that the provisions of Recommendation U.81 [12], § 4.3.6.2 should apply.

5.1.2 For a two—stage selection PTLXAU, the format of the delivery notification returned to the originating telex subscriber (where provided) shall be as shown in Figure 11/U.204. The delivery advice shall be sent as a normal IP message, the notification forming the “body” part of the message.

Exchange of answerbacks
PTLXAU identifier
Message heading
RECEIVED : Time stamp of deposit in PTLXAU
Message No. [or Recipient address](Note 1)
DELIVERED
Delivery time stamp indication
Exchange of answerbacks

Note — The PTLXAU shall here indicate either a message reference number (given at time of deposit) or the recipient address. The choice is a national matter.

FIGURE 11/U.204

Delivery notification sent to telex subscriber (case of two—stage selection PTLXAU)

5.2 *Non—delivery notification*

The provision of a non—delivery notification shall be mandatory for calls originated within the telex service.

5.2.1 *Telex to IPMS direction*

5.2.1.1 *Case of one—stage selection PTLXAU*

Where the originating telex subscriber uses a conventional telex address to attempt to forward a message to an IPMS user, and which subsequently cannot be delivered, the PTLXAU shall return to the telex subscriber a non—delivery notification in accordance with Figure 12/U.204. This notification shall be delivered as a normal message to the telex subscriber.

Exchange of answerbacks
PTLXAU identifier
Message heading
RECEIVED: Time stamp of deposit (in PTLXAU)
D_1 D_2 D_3 N_1 — — — N_n (Note 1)
NOT DELIVERED
Reason for non—delivery (Note 2)
Exchange of answerbacks

Note 1 — Telex address of the requested IPM Service user where

D_1 D_2 D_3 = F.69 code (2 or 3 digits)

N_1 — — — N_n = National telex number of the requested IPM Service user

Note 2 — The PTLXAU shall translate into printable text form the non—delivery—reason—code or non—delivery—diagnostic—code contained in the non—delivery—advice transferred by the MTS to the PTLXAU. See Table 1/U.204.

FIGURE 12/U.204

Non—delivery notification sent to the telex subscriber (case of one—stage selection PTLXAU)

5.2.1.2 *Case of two—stage selection PTLXAU*

Where an originating telex subscriber uses an O/R address to attempt to forward a message to an IPMS user, and which subsequently cannot be delivered, the non—delivery notification message returned by the PTLXAU, sent as a normal IP message to telex, shall be in accordance with Figure 13/U.204.

5.2.1.3 *Translation between MTS non—delivery—reason—codes and telex service signals*

5.2.1.3.1 Messages which fail to be delivered to the destination IPMS user will have a non—delivery—reason—code and a non—delivery diagnostic code associated with the non—delivery advice sent by the MTS to the PTLXAU. The precise details of such failures and codes are contained in Recommendation X.411 [13].

5.2.1.3.2 It is desirable to include the reason code or diagnostic code in the non—delivery notification returned by the PLTXAU to the originating telex subscriber. The method is indicated in Figure 11/U.204 and Figure 12/U.204.

5.2.1.3.3 The reason code or diagnostic code will be by the PTLXAU in printable text to the originating telex subscriber. The language to be used is a national matter.

5.2.1.3.4 The list of possible reason codes and diagnostic codes which may be returned to the telex subscriber is given in Table 1/U.204.

Exchange of answerbacks	
PTLXAU identifier	
Message heading	
RECEIVED: Time stamp of deposit	
Message No. [or recipient address]	(Note 1)
NOT DELIVERED	
Reason for non—delivery (Note 2)	
Exchange of answerbacks	

Note 1 — Same as Note 1 to Figure 11/U.204.

Note 2 — Same as Note 2 to Figure 12/U.204.

FIGURE 13/U.204

Non—delivery notification sent to telex subscriber (case of two—stage selection PTLXAU)

TABLE 1/U.204

List of MTS non—delivery—reason—codes and non—delivery—diagnostic— codes returned to the originating telex subscriber as part of the non—delivery notification message

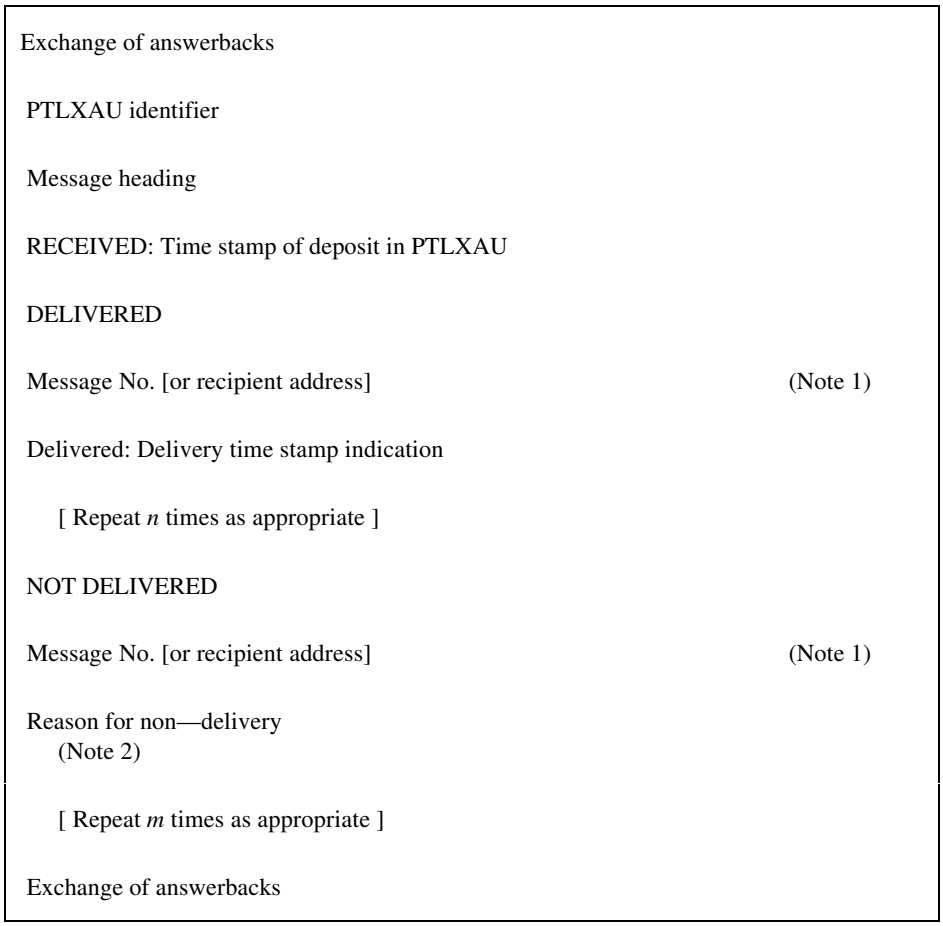
MTS non—delivery—reason—code
Transfer failure
Unable—to—transfer
Conversion not performed
MTS non—delivery—diagnostic—codes
Unrecognised—O/R—name
Ambiguous—O/R—name
MTS—congestion
Loop—detected
Recipient—unavailable
Maximum—time—expired
Encoded—information—types—unsupported
Content—too—long
Conversion—impractical
Implicit—conversion prohibited
Invalid—arguments
Implicit—conversion—not—subscribed
Content—type—not—supported
Too—many—recipients
No—bilateral—agreement
No—DL—submit—permission

5.3 *Comined delivery and non—delivery notifications*

5.3.1 *Telex—to—IPM service direction*

5.3.1.1 In order to minimize the number of call attempts by the PTLXAU into the telex network for the purpose of returning notification reports on a multi—address message, it is recommended that the PTLXAU shall only forward one notification report to the originating telex subscriber which shall comprise the results of the various delivery attempts within the IPM service, both successful and unsucessful.

5.3.1.2 This combined notification report shall be formatted in accordance with Figure 14/U.204.



Note 1 — Same as Note 1 to Figure 11/U.204.

Note 2 — Same as Note 2 to Figure 12/U.204.

FIGURE 14/U.204

Combined delivery/non—delivery notification report sent to the telex subscriber (case of two—stage selection PTLXAU)

6 Clearing procedures

6.1 In the telex to IPMS direction, the call shall be cleared using normal telex call clearing procedures or after the procedures for ITD have been concluded, where relevant.

The PTLXAU should only clear the connection in the event of an abnormal condition being encountered, as described in § 7.

6.2 In the IPMS to telex direction, the PTLXAU shall clear the connection in accordance with the procedures described in Recommendation S.20 [15].

7 Abnormal conditions

7.1 *Telex—to—IPMS direction*

7.1.1 *Inter—character timeout during input of address information*

If there is a delay in excess of 15 seconds at the start of address input or during address input in the case of two—stage selection, the PTLXAU shall transmit the code expression NP to the calling telex subscriber and clear the connection.

7.1.2 *Clear by the telex subscriber without the EOM or EOT signal*

If a clearing signal is received by the PTLXAU without having first received the EOM or EOT signal, the PTLXAU shall forward the text received to the addressed IPM user with the following text appended in the appropriate language:

"This message may be incomplete"

7.1.3 *Pause during input of message text*

After a period of 30 seconds of idle condition, the PTLXAU shall return the prompt GA to request more text (or the EOI signal). If after an additional 30 seconds without receipt of either additional text (or the EOI signal), the PTLXAU shall clear the connection and forward the text received so far to the addressed IPM service user, with the following text appended in the appropriate language:

"This message may be incomplete"

7.1.4 *Receipt of WRU during text input*

a) In the case of one—stage selection, the PTLXAU shall return the IPM user answerback (see § 3.1).

b) In the case of two—stage selection, the answerback returned shall be that of the PTLXAU.

In all cases, the WRU signal is not stored as part of the received message.

If the WRU is followed by text, message input is suspended and continued after the return of the appropriate answerback.

If the WRU is followed by a clearing signal, the PTLXAU shall proceed as in § 7.1.2.

If the WRU is followed by an idle condition, the PTLXAU shall proceed as in § 7.1.3.

7.1.5 *Receipt of characters after the EOT signal*

Any character received after the EOT signal will be discarded i.e., not stored as part of the message. The PTLXAU shall attempt to stop the transmission by the user of the TTT . . . procedure and shall expect to receive a clearing signal from the calling telex subscriber in the normal way.

If the transmission is not stopped within 20 seconds of the TTT . . . sequence, the PTLXAU shall immediately clear the connection.

If the transmission is stopped and no clear signal is received within 30 seconds, the PTLXAU shall clear the connection.

These above procedures do not apply in the case of a PTLXAU which offers a follow—on call facility.

7.1.6 *Receipt of national variants of telex characters (F, G, H in figure—case)*

If ITA2 combinations 6, 7 or 8 are received in figure—case, the provisions of Recommendation S.18 shall apply. This is regarded as a national matter.

7.1.7 *Receipt of combination 10 in figure case (Bell)*

Receipt of a "bell" signal shall be handled in accordance with Recommendation S.22 [16].

7.1.8 *Lack of storage capacity during text input*

The PTLXAU shall be so dimensioned as to guarantee a message length of 24 000 characters, taking into account the expected calling rate, the offered grade of service and the rate of message delivery. The method of achieving this is a national matter.

If, during call establishment, the minimum storage cannot be guaranteed, the procedures to be followed shall be in accordance with Recommendation U.45 [17].

Any message which exceeds the guaranteed length will continue to be accepted if storage is available and in accoradance with Recommendation F.60 [14], § 3.2.5.

If, during message input, storage capacity becomes exhausted, the PTLXAU shall clear the connection in accordance with Recommendation U.45 [17]. Any received text will be forwarded to the addressed IPM user with the following text appended in the appropriate language:

"This message may be incomplete"

7.1.9 *MT service unavailable*

The PTLXAU shall monitor for the availability of the MT service and shall not accept any call when the MT service is not available to deliver the message to the addressed IPM user. The procedures to be followed shall be in accordance with Recommendation U.45 [17].

7.2 *IPMS—to—telex direction*

The procedures to be followed in the event of abnormal conditions being encountered in the IPMS—to—telex direction shall be in accordance with the F.400—series and X.400—series Recommendations.

7.2.1 *Receipt of telex characters while delivering message*

If telex characters are received on the backward path by the PTLXAU while it is delivering a message to a telex subscriber, it should behave in accordance with Recommendation S.20 [15]. If the backward path signals are sustained, the PTLXAU shall clear the connection and make one additional re—attempt to deliver the message. If backward path signals are again received, the message should be deemed undeliverable.

If, however, the second attempt is successful and the message is fully delivered, the PTLXAU should precede the message with the text

POSSIBLE DUPLICATE MESSAGE

7.2.2 *Receipt of recorded message from telex subscriber*

a) If the recorded message is followed by a clear, the IP message should be deemed undeliverable and no re—attempt made.

b) The action to be taken by the PTLXAU when the recorded message is not followed by a clear requires further study.

7.2.3 *Failure to deliver notification message*

The action to be taken when a notification message cannot be delivered shall be the responsibility of the Operating Agency of the PTLXAU and is a national matter.

ANNEX A

(to Recommendation U.204)

Example No. 1

045999+	— Calling PTLXAU of Switzerland (e.g. 999)
999 PTLXAU CH	— Answerback of PTLXAU
32266 TDS EI	— Caller sends “Here is”, processable as per U.74
GA	— PTLXAU returns the GA prompt
IPM	— IPM service identifier
CTN CH	— Country name of the 1st. recipient
ADM ARCOM400	— Administration domain of 1st. recipient
INI F	— Initials of the 1st. recipient
SUR MAURER	— Surname of the 1st. recipient
+	— End of O/R address of 1st. recipient
GIV MUSTAFA	— Given name of the 2nd. recipient
SUR MEUNEUR	— Surname of the 2nd. recipient
OUN 78B1	— Organisational unit of the 2nd. recipient
ORG ODE	— Organisation of the 2nd. recipient
PRI HASLER	— Private domain name of 2nd. recipient
ADM ARCOM400	— Administration domain name of 2nd. recipient
CTN CH	— Country name of the 2nd. recipient
+	— End of O/R address of 2nd. recipient
CTN 228	— Country name of the 3rd. recipient
ADM ARCOM400	— Administration domain name of 3rd. recipient
NUS 1233456	— Numeric user identifier of 3rd. recipient
+	— End of O/R address of 3rd. recipient
CTN CH	— Country name of the 4th. recipient
ADM ARCOM400	— Administration domain of 4th. recipient
TLX 45911128	— Network address of the 4th. recipient
+	— End of O/R address of 4th. recipient
DUR	— Disclose all recipients to each other
DEF 05	— Defer deliver to all by a minimum of 5 hrs.
BT	— End of all addresses, beginning of text

THIS IS AN EXAMPLE OF A POSSIBLE SCENARIO FOR A TELEX SUBSCRIBER IN IRELAND ACCESSING A PTLXAU IN SWITZERLAND TO SUBMIT A MESSAGE FOR DELIVERY TO 4 IPMS USERS IN SWITZERLAND.

THE CALLING TELEX TERMINAL HAS BEEN ASSUMED TO BE MANUALLY OPERATED USING TWO—STAGE SELECTION PROCEDURES AND ITS ANSWERBACK TO BE PROCESSABLE.

THIS EXAMPLE DEMONSTRATES THE ORIGINATING TELEX SUBSCRIBERS VIEW OF MESSAGE SUBMISSION TO THE PTLXAU.

++++	— End of transaction signal
	— WRU from calling telex terminal
999 PTLXAU CH	— *Answerback of PTLXAU*
ITD 87—12—16/09:45	— *ITD signal, date and time*
MSG.NO. V100123	— Message reference number
	— Call clears

FIGURE A—1/U.204

Example of a telex subscriber sending a message to four IMPS users

Example No. 2

	— WRU from telex network
32266 TDS EI	— Answerback of called telex subscriber
CI IPM CH	— PTLXAU identification
GIV MUSTAFA	— Given name of the originator
FROM :	
SUR MUENEUR	— Surname of the originator
GEN JNR	— Generation qualifier of the originator
OUN 78B1	— Organisational unit of the originator
ORG ODE	— Organisation of the originator
PRI HASLER	— Private domain name of the originator
ADM ARCOM400	— Administration domain name of originator
CTN CH	— Country name of the originator
TO: *TLX 50032266*	— Telex address of 1st recipient
CC: *TLX 50033620*	— Telex address of 2nd recipient
TLX 5121601	— Telex address of 3rd recipient
TTX 753000	— Teletex address of 4th recipient

AUTHORITY: *H.MARBET, OD4, HASLER A.G., BERN, SWITZERLAND*

REFERENCE: *CCITT RECOMMENDATION U.204*

REPLY TO MESSAGE: *MSG.NO.V100123*

MESSAGE REFERENCE: *8712171240+0100 12345*

MESSAGE INVALID AFTER: *8712310000Z UTC*

MESSAGE IMPORTANCE: *NORMAL*

REPLY REQUESTED BY SENDER

SUBMITTED: *8712171240+0100 UTC*

SUBJECT: EXAMPLE OF A TELEX MESSAGE RECEIVED FROM AN IPMS USER VIA THE PTLXAU

THIS EXAMPLE IS INTENDED TO DEMONSTRATE A FICTITIOUS IPMS USER IN SWITZERLAND ACCESSING A POSSIBLE PTLXAU IMPLEMENTATION IN SWITZERLAND TO SUBMIT A MESSAGE FOR DELIVERY TO 2 TELEX SUBSCRIBERS IN IRELAND, ONE IN THE UNITED KINGDOM AND ONE TELETEX SUBSCRIBER IN SWITZERLAND.

IT HAS BEEN ASSUMED THAT THE PTLXAU REQUIRES TWO—STAGE SELECTION FROM THE TELEX SIDE AND SO THE ADDRESS OF THE ORIGINATING IPMS USER HAS BEEN GIVEN IN FULL MESSAGE HANDLING FORMAT TO FACILITATE RECALL. IT HAS ALSO BEEN ASSUMED THAT NO ANSWERBACK(S) HAS BEEN PROVIDED BY THE ORIGINATOR FOR RECIPIENT ANSWERBACK VERIFICATION.

THIS EXAMPLE IS INTENDED TO DEMONSTRATE WHAT APPEARS ON THE TERMINAL OF ONE OF THE RECIPIENT TELEX SUBSCRIBERS.

END OF MESSAGE

	— WRU from the PTLXAU
32266 TDS EI	— Answerback of the called telex subscriber
999 PTLXAU CH	— PTLXAU answerback
	— Call clears

FIGURE A—2/U.204

Example of a telex message received from an IPMS User

References

[1] CCITT Recommendation *Intercommunication between the IPM Service and the Telex Service*, Rec. F.421.

[2] CCITT Recommendation *Message Handling Services: Naming and addressing for public message handling services*, Rec. F.401.

[3] CCITT Recommendation *Operational provisions relating to mailbox devices connected to the telex network*, Rec. F.74.

[4] CCITT Recommendation *Extraction of telex selection information from a calling telex answerback*, Rec. U.74.

[5] CCITT Recommendation *International telex store and forward access from telex*, Rec. U.80.

[6] CCITT Recommendation *Message handling: system and service overview*, Rec. F.400.

[7] CCITT Recomendation *Conversion between International Telegraph Alphabet No. 2 and International Alphabet No. 5*, Rec. S.18.

[8] CCITT Recommendation *Message handling services: Public Interpersonal messaging service (IPM service)*, Rec. F.420.

[9] CCITT Recommendation *Message handling systems: encoded information type conversion rules*, Rec. X.408.

[10] CCITT Recommendation *Plan for telex destination codes*, Rec. F.69.

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

[12] CCITT Recommendation *International telex store and forward delivery to telex*, Rec. U.81.

[13] CCITT Recommendation *Message handling systems: message transfer layer*, Rec. X.411.

[14] CCITT Recommendation *Operational provisions for the international telex service*, Rec. F.60.

[15] CCITT Recommendation *Automatic clearing procedure for a telex terminal*, Rec. S.20.

[16] CCITT Recommendation *Use of "Conversation impossible" response to J/bell signals from a telex terminal*, Rec. S.22.

[17] CCITT Recommendation *The not—ready condition of the telex terminal*, Rec. U.45.

[18] CCITT Recommendation *Teletex Service*, Recommendation F.200.