Recommendation F.72

INTERNATIONAL TELEX STORE AND FORWARD — GENERAL PRINCIPLES AND OPERATIONAL ASPECTS

The CCITT,

considering

(a) that telex store and forward facilities have been and are being introduced by many countries;

(b) that a requirement for telex access from the sender in one country to a store and forward facility in another country has been identified;

(c) that a store and forward unit (SFU) in one country may be interconnected with the store and forward unit in another country;

(d) that where (b) and (c) above are introduced the facilities and procedures should be sufficiently standardized to allow subscribers to send messages using the same procedures for each country called,

unanimously declares

that the general principles and operational aspects described in this Recommendation should be adopted for the future provision of SFUs internationally.

1 Scope

1.1 This Recommendation describes the general principles and operational aspects of the store and forward facility, operated internationally between two terminal Administrations. It does not, at this stage, cover transit store and forward offered internationally. The general aspects of telex store and forward are given in § 2 of this Recommendation, the service requirements in § 3, the facilities in § 4, the quality of service in § 5, the access principles and procedures in §§ 6, 7, 8, 9 and 10, the status enquiry procedures in § 11, the delivery principles and procedures in §§ 12, 13, 14 and 15, whilst the interconnected provisions are in § 16.

1.2 This Recommendation is one of a series which define telex store and forward facilities. The other Recommendations are:

Recommendation U.80 International telex store and forward — access from telex;

Recommendation U.81 International telex store and forward — delivery to telex;

Recommendation U.82 International telex store and forward — international interconnection of telex store and forward units.

1.3 The service requirements and quality of service provisions along with the single address facility and classes of delivery specified in this Recommendation are essential for the store and forward facility. The other facilities are optional and will be provided at the discretion of the SFU Administration.

2 General

2.1 The telex store and forward facility is provided in addition to the basic telex service. Communication between terminals is on a store and forward basis via the SFU, thus conversational mode connection between terminals is not provided.

2.2 The following four types of facility have been identified:

a) *International store and forward* | s where a subscriber in Country A accesses the store and forward unit in Country B for the transmission of messages to that country.

b) *Interconnected store and forward* | s where the store and forward unit in Country A is connected to the store and forward unit in Country B for the transmission of messages between the two countries.

c) *International transit store and forward* | s where a subscriber in Country A accesses a store and forward unit in Country B for the transmission of messages to other countries.

d) *Interconnected transit store and forward* | s where the store and forward unit in Country A accesses the store and forward unit in Country B for further transmission of messages to other countries.

2.3 Further study is required before c) and d) can be recommended.

2.4 Whilst the Recommendation addresses international and interconnected store and forward, the delivery procedures can be used for international traffic from a national SFU.

2.5 *Limitations of access to service*

2.5.1 The international and interconnected store and forward facility will be provided on the basis of bilateral agreements between the Administrations concerned.

2.5.2 The Administrations providing the store and forward unit (SFU) should be responsible for the barring of international access from unauthorized users and for barring unauthorized types of call such as transit calls to specific countries. The method of barring shall be the responsibility of the Administration of the SFU and is beyond the scope of this Recommendation.

2.5.3 It may also be necessary for Administrations to make provision to selectively block access to international telex store and forward facilities in other countries.

3 Service requirements

3.1 *Message identification*

The SFU will provide to the subscriber a unique message identification sequence, readily identifiable for every message, comprising:

a) the date and time of message input as issued to the originating telex subscriber in accordance with Recommendation U.80;

b) the message reference as allocated and advised to the originating subscriber at the time of input of the telex message for onward delivery.

3.2 *Service codes*

3.2.1 *Service codes received by the SFU*

All standardized telex service codes (see Recommendation F.60 for list of codes and appropriate Series U Recommendations for their format) must be recognized by the SFU. The retry procedure will be according to the principles of Recommendation U.40 or an alternative specific SFU

Recommendation. It is desirable that the SFU attempt to interpret non-standard service codes and continue with the appropriate procedure. If the SFU is unable to interpret a non-standard service code, the SFU will have to give a notification of non-delivery to the calling party and repeat the service codes in the format it received.

3.2.2 *Service codes sent by the SFU*

The following new service codes are used:

ADD Please input your international telex number.

LDE Maximum acceptable message length or duration has been exceeded.

BMC No end of message or end of transmission received, therefore message cancelled.

IAB Invalid answerback from destination.

ITD Input transaction accepted for delivery.

TMA Maximum number of addresses exceeded.

IMA Input message acknowledgement.

OCC Store full, SFU unavailable.

ITR Input transaction rejected.

REJ Address REJected.

3.3 *Duration of message storage*

The retry procedure will be in accordance with the principles of Recommendation U.40. However, the time for which a message will be held in store will not exceed 24 hours from time of input. If delivery has not been effected, the procedure as in § 3.9 will apply.

3.4 *Maximum message length and duration*

3.4.1 All SFUs should have sufficient capacity to accept at least 24,000 characters per single message. However, for an interim period, 12,000 characters or even lower may be accepted. Initially, it is envisaged that the capacity will vary from one storage unit to another and customers should therefore be advised by their Administrations as to the maximum message length accepted at those SFUs to which they have access.

3.4.2 Where interconnected store and forward is concerned, the maximum acceptable message length of the SFUs should be agreed to by the Administrations concerned.

3.4.3 The maximum input duration for a single transaction should be 2 hours.

3.4.4 If the maximum acceptable message length or duration is reached, the sender should be advised by sending to him the service code **LDE** . Prior to sending the service code **LDE** , an attempt should be made to stop his transmission by sending the letter T, repeatedly.

3.4.5 After sending the service code **LDE** , the SFU will wait for the EOM or EOT and proceed in accordance with § 3.6.

3.5 *Store full indication*

Messages should cease to be accepted when the level of store capacity is reduced to a predetermined state to ensure that any messages in the process of being transmitted to the unit can be accepted in their entirety. The unit will return the service code **OCC** in response to attempts to access the unit for message input.

3.6 *End of transaction and end of message signal*

3.6.1 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 SFU for an input message acknowledgement (IMA) plus reference information of those messages not previously acknowledged. Once this type of EOM is received and acknowledged, the SFU will attempt to deliver the message even if the subscriber clears.

3.6.2 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 subscriber.

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

3.6.4 The incomplete message should either be cancelled or, optionally, sent to an operator assistance position.

3.6.5 If the message is to be cancelled before clearing the connection, the SFU shall inform the subscriber that no EOM/EOT signal has been received by sending the service code **BMC** .

3.6.6 In the event of clear down by the caller without an EOM or EOT signal, the incomplete message(s) will be processed as in § 3.6.4.

3.7 *Input transaction accepted*

The SFU shall send an input transaction accepted code for delivery (ITD) notifying the subscriber 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.

3.8 *Message security*

3.8.1 *Message acceptance*

3.8.1.1 The SFU should only accept messages for delivery to destination addresses served by that SFU. Any messages for other destinations should be given a non-delivery notification with service code **NA** for the reason of non-delivery.

3.8.1.2 The SFU shall not accept message input unless acceptable identification of the sending subscriber has been received at call set-up.

3.8.1.3 The SFU may validate the called address(es). If this validation 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 positive validation result does not guarantee that the message can be delivered to the given address.

3.8.2 *Expected answerback comparison*

Subscribers may provide all or part of the expected answerback to enable the unit to validate the answerback received in order to provide message security. If the subscriber does not provide the expected answerback, then the SFU may provide validation by comparing the called party's number with the received answerback. If an invalid destination answerback is received by the SFU, the message will not be sent. A non-delivery notification will be given to the sending subscriber including the service code **IAB** and optionally repeating the destination answerback actually received. The method used for checking the answerback is the responsibility of the Administration offering the store and forward service.

3.9 *Advice of non-delivery/delivery*

3.9.1 Automatic advice of non-delivery should be given to the subscriber as soon as the message retry cycle has been terminated. In the case of multi-address messages, advice of non-delivery may be issued on a per message or per address basis, the former being preferred when the retry cycle has been completed for all of the specified addresses. If an advice of non-delivery cannot be delivered, then it should be sent to a manual assistance position associated with the SFU. Normal telex operator calling procedures must be observed when attempting manually-assisted advice of non-delivery.

3.9.2 Automatic advice of delivery is preferred. However, it will be provided at the discretion of the Administrations offering the SFU service.

3.9.3 In the case of interconnected store and forward, the destination SFU should pass all delivery, non-delivery and status information to the originating SFU from which advice will be sent to the subscriber.

3.9.4 The provision of a periodic (e.g. daily) notification or journal may be considered as an adequate form of delivery, non-delivery and status information.

3.10 *Message status enquiry point*

3.10.1 A message status enquiry point should be provided internationally to provide information only in response to a status request from the originator. This message status enquiry point will be accessed by a separate access code to that used for message input.

3.10.2 When the SFU provides automatic advice of delivery and non-delivery, or a request for positive delivery can be indicated, then the provision of status enquiry facilities is optional.

3.10.3 Status enquiry information should be maintained preferably for 72 hours.

3.11 *Call records*

Records of effective and ineffective calls along with the number of each in the case of multi-address should be maintained and forwarded to the origin Administration at regular intervals (at least once per month) for general accounting, billing and statistical purposes. The Administrations must agree bilaterally on the format and method of information transfer.

3.12 *Incomplete message*

If there is any doubt as to whether a message has been delivered completely and it is to be re-sent, the header ‘‘Possible duplicate message’’ should be added.

4 Facilities

4.1 *Single address*

This is where a store and forward message is sent to a single telex or teletex addressee and is considered to be a minimum requirement. Delivery to other type of address(es) is for further study.

4.2 *Multi-address*

4.2.1 A multi-address message is where a common text is sent to two or more mixed telex or teletex addresses. This facility should be provided only for addresses in the same country as the destination SFU and requires bilateral agreement.

4.2.2 The acceptable number of individual addresses for any one message will be decided by the Administrations operating the SFU but should be at least 20.

4.2.3 If the maximum acceptable number of addresses is exceeded, the SFU shall clear the communication after sending the service code **TMA** .

4.3 *Follow-on messages*

This facility enables the subscriber to enter more than one message into storage without clearing, each message being preceded by a different header, and is considered to be highly desirable. At the completion of the transaction, the unit should advise the sender of the number of messages received. Each separate message must have a unique reference number.

4.4 *Classes of delivery*

The following three classes of delivery have been identified; one or more of these should be offered by Administrations:

a) Normal delivery — the SFU attempts to deliver the message as soon as operationally feasible after receipt.

b) Deferred delivery — the delay can be either:

i) set by the Administration offering the SFU facility;

ii) set by the calling subscriber, such that the delivery of the message is not attempted until after the expiration of the indicated delay.

c) Time limited delivery — where the SFU attempts to deliver the message as soon as operationally feasible up to a customer — specified time limit not exceeding 24 hours.

These classes of delivery should be offered on a per address basis.

4.5 *Cancellation*

The facility whereby the sending subscriber may cancel a message after it has been accepted by the SFU is not permitted.

4.6 *Address correction*

The facility whereby the subscriber can correct an address during input is desirable and may be provided.

5 Quality of service

5.1 *Loss probability in the store and forward procedure*

5.1.1 The introduction of an SFU into the telex network should not increase, on a per address basis, the probability of message loss or corruption.

5.1.2 In international store and forward, the unique identification of each message should enable the system to provide information as to the status of any message upon interrogation.

5.1.3 In the event of system failure, all accepted messages should be traceable. However, if messages have to be cancelled, the subscriber should be informed.

5.2 *Error protection*

The overall error protection should be in accordance with Recommendation F.10 and the error rate should not therefore be greater than 3 in 100 **|** 00.

5.3 *Duration of service*

The automatic service should be continuous.

5.4 *Number of circuits*

Where international store and forward exists, the amount of traffic generated and received by the SFU should be considered when determining the number of international circuits in conformity with Recommendation F.64. However, the actual number of circuits will depend on the capacity of the SFU. Care must be taken that routes are not congested by the SFU. Such factors as the time difference between the countries concerned need to be taken into account.

5.5 *Minimum storage capacity*

The storage capacity will vary from unit to unit according to the volume of traffic. However, it should be sufficient to provide a grade of service not less than that of the international telex service provided by that Administration.

6 Access principles

6.1 The procedure defined in this part of the Recommendation is a two-stage selection procedure whereby the calling telex subscriber gains access to a foreign SFU in the first stage of selection and *either* inputs the called address(es) and message, *or* requests a status report, in the second stage of selection, after the return of a call-connected signal.

6.2 Message input from both manual and automatic emitting devices should be accommodated.

6.3 The calling address for calling subscribers with non-F.60 answerback codes should be obtained to enable identification of the calling subscriber.

6.4 A different access code should be used depending on the desired mode of operation; either message input or status enquiry.

7 Access procedures

7.1 *General*

7.1.1 Two basic access procedures should be provided:

a) Interactive operation — input from manual calling terminals, where the SFU may return prompt signals ;

b) Non-interactive operation — either input from automatic emitting devices or from subscribers' terminals, where prompt signals from the SFU are not required or are input from another SFU (detection of this type of access will rely on the identification of the calling SFU answerback).

7.2 *Telex access*

7.2.1 The calling telex subscriber should establish a call to the SFU by means of normal telex procedures.

7.2.2 Figure 1/F.72 shows the recommended access procedures.

7.3 *Service request*

7.3.1 *Interactive service request*

The calling telex subscriber shall be recognized as interactive by the omission of the non-interactive service request (see § 7.3.2).

7.3.2 *Non-interactive service request*

The calling telex subscriber should indicate that the transmission is from an automatic terminal by commencing the procedure with the non-interactive service request (characters **CI**).

7.4 *Message input*

7.4.1 Provision should be made for both single and multi-addressed calls.

7.4.2 The SFU should only accept messages for delivery to destination addresses served by that SFU.

7.4.3 An attention information field may be provided by the SFU to convey the name and address of the recipient in a confidential manner.

7.4.4 The desired class of delivery should be selectable on a destination address basis.

7.4.5 A message reference number may be returned to the calling subscriber immediately after the date and time information and before message input. In addition, it must be returned after the **ITD** signal at the end of the transaction. The reference number should comprise up to six numeric characters and cycle through consecutively for follow-on messages within the same

transaction with accommodation being made for at least the last two or three digits for this purpose.

7.4.6 Characters received in the message text (but with exception of letter D, figure case) should be transmitted transparently by SFU.

7.4.7 An input transaction accepted for delivery (**ITD**) service code should be returned to the calling subscriber to indicate that the SFU has accepted the message on receipt of the EOT or EOM(ACK) signal.

8 Information field content for address line

8.1 *Message input address line*

8.1.1 Each address to which it is required to attempt to deliver the message should be provided by the customer in the address line.

8.1.2 The address line information may consist of up to 4 fields:

a) address to be called;

b) expected answerback or part of answerback;

c) attention information;

d) delivery indication;

e) positive delivery notification (PDN) request.

8.1.3 Each field within an address line and also each address line should be delimited.

8.1.4 All fields within an address line except for § 8.1.2 a) are optional and may be omitted at the discretion of the customer.

8.1.5 The address line(s) should be delimited from the message text by an end of address (EOA) signal.

8.1.6 Teletex address input shall be:

a) where a one-stage CF (conversion facility) is implemented: F.69 code, CF prefix, and teletex national number;

b) where a two-stage CF is implemented: **TTX** character sequence, followed by the data network identification code (DNIC) or 9 | | CC (where 9 is the telephone network interworking digit and TCC is the telephone country code, see Recommendation X.121), and the telex national number.

9 SFU access protocol

This section is to be read in combination with Recommendation U.80.

Figure 1/F.72, p.

9.1 *Note 1*

The WRU is transmitted 800 ms after transmission of the SFU answerback if the forward path remains idle.

9.2 *Note 2*

One additional WRU shall be transmitted by the SFU if:

a) there was no response to the first WRU;

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

This second WRU should be transmitted when a 300 ms idle condition has been detected from the calling terminal at least 10 seconds after the transmission of the first WRU.

9.3 *Note 3 — Case A*

Procedure when calling address can be determined from the calling terminal answerback.

9.4 *Note 4 — Case B*

Procedure when calling address cannot be determined from the calling terminal answerback.

9.5 *Note 5*

In Case A, the prompt GA shall be transmitted after the message reference information. In Case B, the prompt GA shall be transmitted after receipt of the calling number.

9.6 *Note 6*

The prompt ADD is used in Case B only and shall be transmitted after the message reference number.

9.7 *Note 7*

The service request CI is transmitted when the terminal is operating in a non—interactive mode (e.g. an automatic terminal or a manual terminal using a tape transmitter).

9.8 *Note 8*

If the calling address is expected and is not received within 15 seconds of the original ADD prompt, a further prompt shall be transmitted. The procedure is shown in Figure 2/F.72.

The calling address should be input in the Recommendation F.69 destination code format followed by national telex number followed by at least two carriage return line feed sequences when received in the non-interactive mode.

9.9 *Note 9*

The prompt GA is inhibited in Case B if the service request CI has been received.

9.10 *Note 10*

Several messages can be contained within the same transaction and are separated by EOM sequences, as shown in Figure 3/F.72.

9.11 *Note 11*

The EOM signal may optionally be followed directly by an ACK request signal. The sequence will then be as shown in Figure 4/F.72.

Immediately following transmission of an IMA, the SFU shall return reference information containing reference numbers for previous unacknowledged messages and the signal ≡↓ GA ≡ and then be prepared to accept further follow-on messages.

9.12 *Note 12*

Following receipt of the EOT signal, the SFU shall operate as shown in Figure 5/F.72:

a) If the EOT signal originated from a non-interactive telex terminal, the SFU should wait for up to two seconds for a WRU signal. If WRU is received, the SFU should return its answerback followed immediately by the ITD sequence. If WRU is not received in the two-second period, the SFU should return the ITD sequence.

b) If the EOT signal originated from an interactive telex terminal, the SFU should return the ITD sequence as soon as possible.

c) The ITD signal and associated reference information must be returned within five seconds of the EOT signal.

9.13 *Note 13*

If a WRU signal is received at any time during the procedure, the SFU shall return its own answerback.

Figure 2/F.72, p.2

Figure 3/F.72, p.3

Figure 4/F.72, p.4

Figure 5/F.72, p.5

10 Abnormal conditions during message input

10.1 *Telex subscriber clearing during text input without EOT*

The SFU either cancels the call or sends it to an operator assistance position.

10.2 *Telex subscriber stopping transmission for a certain time without transmitting the EOT signal, or transmitting a partial, or invalid EOT signal*

If at any time between the SFU returning the GA prompt (Case A) or calling address prompt (Case B) and the detection of the EOT signal, the SFU detects a 30-second period of idle, the following should apply:

The SFU shall send a GA prompt to the telex subscriber in order to request more information input (text, EOM or EOT). If after a further 30 seconds no more characters are received, the SFU shall either:

a) send the BMC service code and clear the call (if the SFU cancels incomplete messages); or,

b) clear the call (if the SFU sends the message to an operator assistance position).

10.3 *Telex subscriber sending WRU to SFU during text input*

The SFU should return its answerback after receiving a WRU. In addition, if:

— WRU is followed by text, then the message input is continued after the SFU answerback. Also, the WRU is deleted from the message text.

— WRU is followed by a clear from telex, then the SFU proceeds as in § 10.1 above.

— WRU is followed by a lack of transmission (pause), then the SFU proceeds as in § 10.2 above.

10.4 *Telex subscriber sending text after the EOT signal*

Any characters received between EOT and ITD service code (with the exception of WRU) will be ignored. The SFU shall use a sequence of TTT . | | characters to stop telex transmission and then send an ITD code followed by a clearing signal. After clearing, message is forwarded to the telex subscriber(s).

10.5 *Telex subscriber clearing after EOT but before ITD*

The message shall be forwarded normally by the SFU under these circumstances.

10.6 *Telex subscriber sending national variants of ITA No. 2 alphabet — (↑F, ↑G, ↑H)*

Since Recommendation F.60, § A.3.8 recommends that these combinations should not be used for international communications, the SFU should not monitor for their use and these combinations will be passed on to the called subscribers if received.

10.7 *Telex subscriber sending J Bell combination (↑J)*

The SFU should transmit this combination, if received, to the called party.

10.8 *SFU storage capacity overflow during telex message input*

10.8.1 If the number of characters received by the SFU during a message input exceeds the available storage to that input (which may be greater than the agreed minimum storage), the SFU should discard the excess characters. No attempt should be made by the SFU to overwrite previously stored characters.

10.8.2 When this occurs, the SFU should immediately attempt to prevent the calling telex subscriber from sending further characters by transmitting a sequence of TTT... characters for a maximum of 20 seconds.

10.8.3 If the calling terminal stops the transmission within a 20-second period, the SFU should return the service code LDE and then wait for the EOT or EOM(ACK) in accordance with § 3.6. If the EOM signal is received without ACK, the message shall be rejected as incomplete.

10.8.4 If the terminal continues to transmit characters after the 20-second period, the SFU should forcefully clear the connection back to the calling terminal.

10.8.5 The SFU should deal with the incomplete message(s) in accordance with § 3.6.

10.8.6 If the SFU has insufficient storage to receive messages, it should still continue to process status enquiry requests.

10.9 *Repeated characters during message input*

The SFU shall be capable of detecting continuous reception of one character combination and shall recognize this as a ‘‘tape stuck’’ condition SFU shall detect this condition only after receipt of 80 identical combinations received consecutively. The SFU shall attempt to signal the calling terminal by transmitting a sequence of TTT... characters for a maximum of 20 seconds. If the character combinations become different, the SFU shall continue with the message input and deliver all characters received. If the ‘‘tape stuck’’ condition remains at the end of 20 seconds, the SFU shall clear the connection and follow the procedure outlined in § 3.6.

11 Status enquiry

11.1 Status information on messages should only be available for return to the originator of the message. In all cases the answerback should be used for identification and therefore needs to be retained.

11.1.1 In the case of multi-address messages, status information may be requested on:

a) all addresses associated with a message reference number;

b) addresses which have not yet received the message;

c) addresses specified by the customer.

11.2 *Status enquiry information field content*

11.2.1 The status enquiry should contain the following fields:

a) message reference information;

b) a status request;

c) address(es).

11.2.2 The status request indicates the information required (see § 11.2.1).

11.2.3 The address(es) field, see § 8.1.2 a), should only be included when status information has been requested for specific addresses.

11.3 *The status report*

11.3.1 The status report format will be consistent with the notification advice format.

11.3.2 Two types of status report are returned:

a) delivered;

b) not delivered.

11.4 *Status report field content*

11.4.1 The status report should contain the following fields where applicable for each address:

a) message reference number;

b) selection information;

c) expected answerback;

d) notification, i.e. not delivered or delivered;

e) received answerback;

f) reason for non-delivery;

g) date and time of delivery;

h) duration of call.

11.4.2 The information contained in fields e), g) and h) will only be included in a delivery notification whilst the information in field f) will only be included in a non-delivery notification.

11.4.3 The information contained in field f) should indicate to the subscriber the reason why the SFU has been unable to deliver the message to the address detailed in field b). This information should describe the reason for failure on the latest or final attempt.

11.4.3.1 When a service signal is received by the SFU, this information shall be placed in the reason field. The service signals are:

OCC, NC, ABS, NA, NP, NCH, DER, RDI.

11.4.3.2 Other reasons for delivery failure are:

a) wrong answerback received from destination.

The reason field content should be IAB (see § 3.2.2).

b) premature clear of call during message transmission.

The reason field content should be PREM CLR.

c) interruption of message transmission caused by receipt of characters at the SFU.

The reason field content should be INTERRUPTED.

d) address validation failure, the reason field content should be REJ.

12 Delivery procedure

This section shall be read in combination with Recommendation U.81.

12.1 §§ 12, 13 and 14 outline procedures for the delivery of international telex messages by an SFU and comprise the following:

a) message forwarding procedures;

b) notification procedures;

c) delivery retry procedures.

12.2 The procedures should apply to all classes of message delivery.

12.3 The priority and time of message delivery should be the responsibility of the SFU that has accepted the input message for delivery.

12.4 In the case of international interworking between the SFUs, the priority and time of message delivery may be controlled by the originating or destination SFU subject to bilateral agreement between the Administrations concerned.

12.5 The term ‘‘delivery of messages’’ applies to the forwarding of messages, which were input into an SFU by an originating telex subscriber, to a telex subscriber over the telex network.

12.6 The term ‘‘notification’’ applies to the forwarding of an advice of delivery/non-delivery of a message to the originating telex subscriber over an international telex circuit.

12.7 *Telex message forwarding procedures*

12.7.1 The sequence of the message forwarding procedure components are illustrated in Figures 6/F.72 and 7/F.72.

12.8 The components of message forwarding procedures are as follows:

12.8.1 *Call set-up*

a) Establishment of a connection by an SFU over the telex network should use normal telex procedures. If a call-connect signal is not received, the call attempt should be terminated and a retry made in accordance with § 3.2.1.

b) If service codes are received during the call set-up cycle, the SFU should act in accordance with § 3.2.

c) Messages should be considered non-deliverable if the service code NCH or RDI is received during the call set-up cycle.

12.8.2 *Called subscriber answerback validation*

12.8.2.1 To ensure security of delivery, the answerback of the called subscriber should be compared with the anticipated answerback of the called subscriber, if supplied by the originating telex subscriber.

12.8.2.2 One erroneous character displacement shall be tolerated in the validation process of the called subscriber’s answerback.

12.8.3 *Store and forward unit identification*

The SFU identification should consist of:

a) the service code CI;

b) an indication that the message is from an SFU;

c) the date and time of transmission (optional).

12.8.4 *Message identification*

The SFU shall transmit to the called subscriber a message identification sequence issued at the time of input of the message in accordance with § 3.1.

12.8.5 *Answerback of originating telex subscriber*

The answerback of the originating subscriber shall then be sent to the called subscriber.

12.8.6 *Message text*

12.8.6.1 The SFU should transmit to the called subscriber any message header information together with the stored message in the format in which it was originated by the calling subscriber. The EOM/EOT separators and the ITA No. 2 sequence WRU shall not be transmitted.

12.8.6.2 If any signal is received on the backward path during the message text delivery, transmission of the message text shall be stopped for two seconds. If during that time further signals or a clearing condition is received, the call shall be cleared and the message delivery deemed unsuccessful and action taken in accordance with § 3.9 of this Recommendation. If no further signals are seen on the backward path during that time, transmission of the message text shall be resumed.

Figure 6/F.72, p.6

Figure 7/F.72, p.7

12.8.7 *Called subscriber answerback comparison*

Following message text transmission, the answerback of the called subscriber shall be taken and compared with that received at the start of message delivery. If there is a match, the delivery of the message shall be deemed successful. In the event of a mismatch of answerbacks, the answerback of the called subscriber shall be taken once again for comparison. If there is a

second mismatch, the delivery of the message shall be considered as unsuccessful and further delivery attempts shall be made in accordance with § 14.

12.8.8 *Answerback of originating telex subscriber*

The answerback of the originating subscriber shall then be sent to the called subscriber.

12.8.9 *Call clearing sequence*

The SFU should clear the call using normal telex clearing procedures. However in the case of delivery to a teletex destination, different clearing procedures may apply (details are for further study).

13 Notification procedures

13.1 *Types of notification*

The types of notification are shown in § 3.9.

13.2 *Notification delivery procedures*

13.2.1 Status reports should be returned in response to a status request.

13.2.2 All other types of notification should be delivered using the procedure described for telex message forwarding in §§ 12.7 and 12.8.

13.2.3 To ensure security of delivery of the notification, the answerback of the called subscriber should be compared with the answerback taken from the subscriber at the time of message input.

13.2.4 Notification of message delivery/non-delivery may be on a per message or per address basis. This Recommendation assumes that notification will be returned on a per message basis.

14 Delivery retry procedures

14.1 The principles of Recommendation U.40 shall be applied for all delivery/notification retry requirements.

14.2 The action to be taken when a notification cannot be delivered should be the responsibility of the Administration offering the SFU as described in § 3.9.

14.3 If the service code RDI is received during call set-up more than once in any one message delivery/notification attempt cycle, the message shall be considered undeliverable.

14.4 *Recorded message from the called subscriber*

14.4.1 If the recorded message is followed by clear, the message shall be considered undeliverable.

14.4.2 The action to be taken by the SFU if the recorded message is not followed by a clear is for further study.

15 Field content delivery/non-delivery notification

15.1 The delivery/non-delivery notification should contain the same fields as shown for the status report in § 11.4.1.

16 Special provisions for interconnected telex store and forward

16.1 *Service outline*

16.1.1 The telex store and forward facility allows a telex subscriber to deposit single or multi-address messages with an SFU for subsequent delivery to the specified address or addresses.

16.1.2 In the event of a failure to deliver to any address or addresses, a non-delivery notification is issued to the originating telex subscriber. The requirement to send a non-delivery notification is mandatory. Transmission of non-delivery notifications may occur on a per address or per multi-address basis.

16.1.3 A delivery notification for successful delivery and/or subscriber initiated status enquiry information may also be issued.

16.1.4 The term ‘‘network management boundary’’ refers to the boundary within which the telex store and forward service is provided by one or more telex SFUs under the control of one Administration.

16.2 *International interconnection*

16.2.1 The extension of telex store and forward facilities beyond the management network boundary of an Administration requires cooperation between SFUs across international connections.

16.2.2 In the international interconnection of telex SFUs, the responsibility to deliver single and multi-address messages is transferred from the originating Administration to one or a number of destination Administrations.

16.2.3 In the basic service, messages addressed to more than one destination store and forward management network should be separated at the originating management network.

16.2.4 The possibility of forwarding messages via transit management networks is for further study.

16.2.5 In the international interconnection of telex SFUs it is necessary to return delivery/non-delivery status information to the originating SFU. This information is compiled on a per address basis at the destination SFU when either the message has been delivered or no further attempts to deliver will be made to that address.

16.2.6 The return of delivery and non-delivery advice information to the originating SFU may be on a per message address or per message basis.

16.2.7 When information is issued on a per message basis, the originating SFU may request interim message delivery status reports by transmitting message status requests.

16.2.8 Delivery and non-delivery information provided on a per message address basis requires explicit notification to the originating SFU.

16.2.9 Delivery and non-delivery information provided on a per message basis may only require explicit notification of non-deliveries and implicit notification of deliveries.

16.2.10 The method employed on an international connection between SFUs to transfer delivery/non-delivery status information should be the subject of bilateral agreement. Account must be taken of the means by which the interconnection is established and the possible effects in service.

16.2.11 The storage of messages during the specified period for messages (or addresses) requiring delayed delivery should generally be carried out by the originating SFU. In this case the delay indicator is omitted in the corresponding message to the destination SFU. When the delay action is not carried out in the originating SFU, the appropriate delay indicator should be retained.

16.3 *Elements of inter-SFU message transfer procedure*

16.3.1 The basic element of the inter-SFU message transfer procedure is the message transfer unit transfer unit or service message transfer unit allowing easy identification of the function(s) for which cooperation is required.

16.3.2 User message transfer units carry messages submitted by a telex customer for delivery to a specified address or addresses.

16.3.3 Service message transfer units do not contain telex customer messages but are used to convey service information about messages. There may be two types of such units:

a) notification (delivery and/or non-delivery);

b) status (enquiry/report).

Use of other service message transfer units is for further study.

16.3.4 Notification service message transfer units are issued automatically by the SFU. Status service message transfer units are generated as a result of a customer request or in response to a received status service message transfer unit.

16.3.5 There are six types of message transfer units used to provide a telex SFU interworking capability:

1) Text transfer — used to transfer address information and the customer message.

2) Status request — used to request from a destination telex SFU the present status of message delivery to:

i) all addresses;

ii) those addresses to which the message has not been delivered;

iii) specified addresses.

3) Status report — only used in response to a status request.

4) Delivery notification — used to provide information on an address or addresses to which the message has been delivered.

5) Non-delivery notification — used to provide information on an address or addresses to which the message has not been delivered.

6) Combined delivery/non-delivery notification — used to provide information on whether a message has or has not been delivered to a number of addresses.

Blanc

Recommendation F.73

OPERATIONAL PRINCIPLES FOR COMMUNICATION BETWEEN TERMINALS ON TELEX NETWORKS AND DATA TERMINAL EQUIPMENT ON PACKET

SWITCHED PUBLIC DATA NETWORKS

The CCITT,

considering

(a) the need to allow communication between terminals on telex networks with terminals on packet switched public data networks;

(b) that Recommendations F.60, F.69 and other relevant Recommendations define the telex service;

(c) that Recommendation X.121 defines the international numbering plan for public data networks;

(unanimously) declares the view

(1) that there are benefits in standardizing the operational procedures for a terminal on the telex network to communicate, across international boundaries, with a data terminal equipment (DTE) on a packet switched public data network (PSPDN);

(2) that where provided, the operational procedures to achieve communication should be in accordance with this Recommendation.

1 Introduction

1.1 The procedures defined in this Recommendation enable telex subscribers to communicate with both packet mode and character mode data terminal equipment (DTE) directly connected to the PSPDN. In the other direction users of packet mode and character mode DTEs, as well as character mode terminals accessing the PSPDN via the public switched telephone network (PSTN), may communicate with telex subscribers.

1.2 Call establishment from a telex terminal via a PSPDN to a DTE connected to the PSTN may be provided on a national basis.

1.3 This Recommendation does not supply to other telematic services that may be supported by packet switched public data networks and interworking with the telex service.

For example, interworking between the telex service and the teletex service or the interpersonal messaging service is not within the scope of this Recommendation. Such interworking scenarios are defined in other Recommendations.

1.4 This Recommendation applies to user classes 8-13 and 20-23 as defined in Recommendation X.1. Categories of access for DTEs accessing the PSPDN are shown in Recommendation X.10.

Two Administrations expressed reservations on the adoption of the following sections of this Recommendation: §§ 3.1.2.6, 3.2.3, 3.2.6 and 4.2.3. These will require further study within Question 7/I during the Study Period 1989-1992.

2 Operational outline

2.1 Communication shall be in quasi real-time and support interactive operation. Delays may be encountered as defined in § 4.1.2.

2.2 The interworking shall be established by the provision of a telex/packet interworking function (TPIWF).

Interworking on the international connections should be via the telex network as shown in Figure 1/F.73.

Figure 1/F.73, p.

2.3 The point of interworking between the two networks shall be in the same country as the PSPDN.

2.4 In the telex to PSPDN direction, an Administration may implement either or both one-stage and two-stage call set-up procedures.

2.5 Where the DTE is assigned a telex number, or its address is represented as part of the national telex numbering plan of the destination country, one-stage selection may be used.

In all other cases two-stage selection should be used.

2.6 Transparent data transfer is not covered by this Recommendation.

3 Call set-up procedures

3.1 *Telex to PSPDN direction*

3.1.1 *One-stage selection*

3.1.1.1 The length of the number assigned to the DTE shall be in accordance with the relevant U-Series signalling Recommendations.

3.1.1.2 The procedures for selection within the PSPDN, e.g. mapping of the assigned number to a network user address are a national matter and not covered by this Recommendation.

3.1.1.3 The call to the TPIWF shall be established using normal telex procedures. The procedures for call establishment within the PSPDN are defined in the relevant X-Series Recommendations.

3.1.1.4 The number assigned to a user in the TPIWF must appear to be part of the national telex numbering plan. The method of verification is a national matter.

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

3.1.1.5 The answerback returned by the TPIWF to the calling telex subscriber at call establishment and during the text transfer phase shall be in accordance with § 4.3.1.1. The answerback shall be returned in accordance with Recommendation S.6.

3.1.2 *Two-stage selection*

3.1.2.1 In the case of two-stage selection a national telex number should be assigned to the telex/packet interworking function (TPIWF) , and the DTE X.121 address should be input in a second stage of selection.

3.1.2.2 Connection to the TPIWF shall be established using normal telex procedures.

3.1.2.3 During the first stage of telex call establishment and until the call connect packet is received, the answerback returned in response to the WRU signal shall be the answerback of the TPIWF.

3.1.2.4 The format of the TPIWF answerback shall be in accordance with Figure 2/F.73.

3.1.2.5 After the answerback exchange, the telex subscriber shall input the DTE address followed by the character +.

3.1.2.6 When the call is established through the PSPDN by the TPIWF it shall transmit the identification of the DTE re-arranged as shown in Figure 3/F.73.

3.1.2.7 The provision for automatic terminals [telex automatic emitting devices (TAEDs)] is for further study.

3.1.2.8 The procedures for call establishment in the PSPDN are a national matter and not covered by this Recommenda-tion.

3.1.2.9 If during the PSPDN call establishment phase, one of the following occurs:

— no logical channel available;

— no call connect packet received within 3 minutes; or

— call collision,

the telex call shall be cleared with the appropriate service signal.

3.2 *PSPDN to telex direction*

3.2.1 Selection procedures form the PSPDN DTE to the TPIWF are a national matter. The TPIWF should establish the telex call using normal telex procedures with telex selection information provided by the calling DTE.

3.2.2 Where an Administration provides one-stage selection in accordance with § 3.1.1 of this Recommendation, only DTEs assigned a telex number are permitted to establish a telex call. The method of verification is a national matter.

3.2.3 The TPIWF shall store the identification of the calling DTE for the duration of the call in order to generate an answerback if requested by the called telex terminal. The format of the answerback is as defined in § 4.3.1.1 or Figure 3/F.73 as appropriate.

3.2.4 After a successful call establishment to the telex terminal the TPIWF should indicate call connect to the PSPDN.

3.2.5 If a call is unsuccessful the TPIWF shall clear the call to the DTE with an appropriate cause code reflecting the received telex service signal. The appropriate cause code is a national matter but may be selected from

Recommendation X.96.

3.2.6 The TPIWF shall transmit the answerback of the called telex terminal to the calling DTE following the indication of call connect.

3.2.7 Upon receipt of the answerback of the called telex terminal the TPIWF should transmit the answerback of the calling DTE to the called telex terminal as defined in § 4.3.1.1 or Figure 3/F.73 as appropriate.

4 Text transfer phase

4.1 *Telex to packet*

4.1.1 Telex characters shall be converted from ITA2 to IA5 in accordance with Recommendation S.18, and transmitted sequentially in data packets. The conversion from ITA2 to other character sets is a national matter.

4.1.2 Characters received from the telex network may be packetized by the TPIWF and forwarded to the PSPDN subject to the following criteria:

a) when a packet reaches its national maximum size;

b) no reception of a character from the telex network for a maximum of 10 seconds;

c) on receipt of a CR character. Where the character combination CR, LF is received they should be included in the same packet if possible;

d) on receipt of the WRU signal;

e) + sign received.

The WRU signal should be processed as in § 4.3 and not converted or forwarded.

4.1.3 When flow control prevents the forwarding of further data packets, the TPIWF should store the incoming data from the calling telex terminal. When the limit of storage is reached the procedure to be adopted should be in accordance with Recommendation U.45.

4.2 *Packet to telex*

4.2.1 The user data received from the DTE by the TPIWF shall be transmitted to the telex subscriber.

4.2.2 The TPIWF shall convert the IA5 characters to ITA2 characters, in accordance with Recommendation S.18, and transmit them to the telex network. The conversion from other character sets to ITA2 is a national matter. The CR, LF sequence of characters shall be inserted after any sequence of 69 spacing characters without a CR character. A LF character shall be inserted where only a CR character is received.

4.2.3 If signals are received on the backward path during transmission to the telex terminal, the TPIWF shall disconnect the call in both directions with an appropriate cause code to the DTE.

4.2.4 The procedures for flow control and acknowledgement of the receipt of each data packet is a national matter, e.g a Receiver Ready packet may be sent when all the contents of a data packet have been transmitted successfully to the telex network.

4.2.5 The action to be taken by the TPIWF upon receipt of a ‘‘break’’ from the telex network or the PSPDN is a national matter. The preferred action is for the TPIWF to clear the call.

4.2.6 When the TPIWF issues or receives a Reset packet all current data associated with that call should be discarded. The TPIWF shall disconnect the call in both directions.

4.3 *Answerback formats and WRU processing*

4.3.1 *Answerback formats*

4.3.1.1 The DTE answerback format in case of one-stage selection shall be in accordance with Figure 1/F.74.

4.3.1.2 In the case of two-stage selection the format of the answerback of the TPIWF should be in accordance with Figure 2/F.73 and the DTE identification in accordance with Figure 3/F.73.

Figure 2/F.73, p.

Figure 3/F.73, p.

4.3.2 *WRU processing*

4.3.2.1 If a WRU signal is received from the telex terminal during the text transfer phase, the TPIWF shall transmit the answerback/DTE identification as defined in § 4.3.1.1 or Figure 3/F.73 as appropriate, to the telex terminal. This answerback DTE identification shall be returned only when all outstanding data has been transmitted to the PSPDN.

4.3.2.2 The DTE may verify connection to the correct telex terminal by use of the IA5 character ENQ as part of a data packet. This should be converted to the ITA2 WRU signal, and transmitted to the telex terminal to trigger the answerback.

The TPIWF shall forward all outstanding data to the telex terminal before transmission of the WRU signal. The first 20 characters received from the telex subscriber after transmission of the WRU signal should be considered to be the answerback which should then be returned to the DTE.

4.3.2.3 The TPIWF should transmit the answerback to the DTE immediately after its reception.

If no character is received within 2 seconds following transmission of the WRU signal, the TPIWF should continue with text transmission.

4.3.2.4 The responsibility for the action to be taken where an answerback is not returned in response to the IA5 ENQ character from the DTE rests with the DTE.

4.3.2.5 The DTE on the PSPDN may also cause the TPIWF to send its answerback to the telex network by sending an IA5 ACK character. The answerback should not be forwarded until all outstanding data packets have been transmitted to the telex terminal.

4.4 *Call clearing*

4.4.1 *Initiated by the PSPDN*

4.4.1.1 The preferred method for clearing by the DTE and the TPIWF is the use of the ‘‘invitation to clear’’ procedure according to Recommendation X.29. Any other method of clearing may result in the loss of some data. If, however, the TPIWF receives a Clear Request packet, it should continue transmission to the telex terminal until all outstanding acknowledged data packets have been sent. It should then clear the call in both directions.

4.4.1.2 Whenever the TPIWF receives a Clear Request packet during telex input or the ‘‘invitation to clear’’ procedure in accordance with Recommendation X.29, it should clear the connection in both directions.

4.4.1.3 Where a clear Request packet is received during call set-up in the direction telex-to-packet an appropriate service signal should be sent to the telex terminal. The service signal shall be followed by call clearing.

4.4.2 *Initiated by the telex network*

4.4.2.1 When the TPIWF receives a call clearing signal initiated by the telex terminal during the connected phase of the call, the TPIWF shall initiate the clearing procedure on the PSPDN side, in accordance with the national requirements of the PSPDN.

4.4.2.2 When the TPIWF receives a call signal clearing signal from the telex network during text transmission to the telex terminal, the TPIWF shall clear the call to the DTE with an appropriate cause code (see § 3.2.5) and discard all data not transmitted.

4.4.3 *Abnormal conditions*

The action to be taken when abnormal conditions occur shall be in accordance with the relevant U-Series Recommendations.

Recommendation F.74

OPERATIONAL PROVISIONS RELATING TO MAILBOX DEVICES

CONNECTED TO THE TELEX NETWORK

The CCITT,

considering

(a) that there is an increasing trend for mailbox devices to be connected directly to the Telex network, with the ability to send and receive telex messages;

(b) that in some instances, such individual mailboxes are allocated telex numbers;

(c) that the main difference between a dedicated telex terminal and a mailbox device for the purpose of this Recommendation, is that the individual mailbox owner has the responsibility of checking that a message has been received in the mailbox;

(d) that the message could remain in the mailbox unnoticed for some time;

(e) that the sender of the message may be unaware that the addressee is a mailbox, and therefore could reasonably assume that, providing the answerback is present and correct at both start and end of the local record, the recipient will receive the message without any positive action on the part of the recipient;

(f) that such mailbox devices should be required to answer all calls delivered correctly by the telex network, and do so promptly to ensure that ineffective usage of the international telex network is minimised.

unanimously declares

that the general principles, answerback format and time to answer for mailboxes connected to the network should be as described in this Recommendation.

1 Scope

The provisions of this Recommendation apply to mailbox devices connected to the telex network which are identified by a national telex number. This Recommendation recognizes that currently implemented mailbox devices are not required to conform to these provisions. However, where possible there may be advantages if existing equipment comply with the requirements of this Recommendation.

2 Call establishment to a mailbox device

2.1 Incoming telex calls should be answered, provided that the telex number has been correctly selected, and the call passed to the equipment of the customer (the mailbox device).

2.2 The mailbox device shall respond to an incoming call from the telex network by returning the call connected signal in accordance with the relevant U-Series Recommendations, the mailbox answerback being returned in response to the WRU signal in accordance with Recommendation S.6.

2.3 Where the selection information identifies a valid mailbox, an answerback shown in Figure 1/F.74 should be returned together with the code expression CI (Conversation Impossible)

2.4 In order to comply with the requirement of § 2.1, where the call has been passed to the mailbox device but a valid individual mailbox cannot be identified, then an overflow answerback of the form shown in Figure 2/F.74 should be returned. In such circumstances, the call may then be cleared backwards with a message provided by the mailbox device or, if required, routed to an assistance position.

2.5 It should be noted that some Administrations participating in the international telex service use combination 22 in the figure case (=) as the initial printing character of the answerback to indicate a bilingual terminal in its default latin mode.

Figure 1/F.74 [T1.74] (a traiter comme tableau), p.11

Figure 2/F.74 [T2.74] (a traiter comme tableau), p.12

Recommendation F.75

MESSAGE HOLDING SERVICES; INTERCOMMUNICATION BETWEEN THE IPM SERVICE

AND THE TELEX SERVICE

This Recommendation is the same as Recommendation F.421. The text appears in Fascicle II.6.

Blanc

SECTION 7

PHOTOTELEGRAPH SERVICES

Recommendation F.80

OPERATIONAL PROVISIONS FOR PHOTOTELEGRAMS

1 Field of application

1.1 These rules apply to phototelegrams in both continental and intercontinental relations (exchanged between public stations or between public stations and private stations). The provisions concerning the exchange of phototelegraph calls between private stations or from private to public stations are embodied in Recommendations F.80 | fIbis and D.81.

1.2 The rules governing the method of communication between phototelegraph stations are embodied in Recommendation F.82.

2 General

2.1 Private stations may be authorized by the Administrations concerned to exchange phototelegrams with public stations.

2.2 In both continental and intercontinental relations, private stations communicate directly with public stations providing that the characteristics of their equipment conform with CCITT Recommendations.

2.3 Administrations shall agree upon the working hours of their phototelegraph offices. The hours during which private offices are open shall be fixed by the private organization concerned.

3 Conditions of acceptance

3.1 In order to ensure satisfactory transmission of a phototelegram it is recommended that senders should be advised to avoid the use of the colours blue, lilac, green or yellow, or gilt print, or prints on yellow, red or grey paper, which lack the qualities necessary for good transmission, and to avoid handing in phototelegrams with very weak contrast or inadequate definition.

3.2 If, after the sender has been informed that the general quality of the original phototelegram is not suitable for satisfactory transmission, he insists on handing it in, the phototelegram shall only be accepted at the risk of the sender. In this case the service instruction **RISQUES EXPEDITEUR** shall be included in the preamble.

See also Recommendation D.80.

3.3 Phototelegrams must be rectangular in shape. Each Administration shall decide what is the maximum format capable of being sent in a single transmission by all the machines used by that Administration. However, in relations where equipment is used permitting the single transmission of greater areas, Administrations may authorize larger sizes.

3.4 Phototelegrams of larger dimensions than those admitted in the relation concerned must be divided into parts by the sender. The order of transmission of the parts must be indicated.

3.5 In phototelegraph transmission a strip of the edges of the phototelegram may be lost on two opposite sides of the document to be transmitted. For this reason care should be taken when dividing a phototelegram to see that there is no loss at the separation line. If there is any doubt, the sender may be advised to authorize the division of the phototelegram by the phototelegraph station.

3.6 It may happen that the format of phototelegrams is enlarged or diminished during a phototelegraph transmission, owing to the different characteristics of the sending and receiving equipment. If this is so, however, the phototelegram will be reproduced with the same proportions as the original.

4 Arrangement of the parts of a phototelegram

4.1 Every phototelegram must bear an address. A signature shall be optional. The address and the signature shall form part of the phototelegram to be transmitted.

4.2 Every phototelegram shall include a preamble. The relevant instructions shall be the same as those for the preamble line of a telegram. But the number of words shall be replaced by a statement of the charging step.

5 Handing in a phototelegram

5.1 A phototelegram may be handed in:

— at the counter of an authorized telegraph office;

— directly at a public station (handing in by messenger).

5.2 A phototelegram from a private station which is received by a public station for delivery to the addressee or for retransmission shall be considered as having been handed in at the public station (handing in by phototelegraphy).

5.3 Depending on the method used, the time of handing in shall be:

— the time of acceptance at the counter of a telegraph office;

— the time of acceptance by the public station (in the case of direct handing in);

— the time of arrival at the public station (service from a private station to a public station).

6 Transmission of a phototelegram

6.1 Phototelegrams of the same rank shall be transmitted by the outgoing station in the order in which they are handed in, and by the intermediate stations in the order of reception.

6.2 A phototelegram to a private station shall, after closure of its office or if its equipment is out of order, be routed to another station of the incoming country only by agreement with the sender.

6.3 A transmission that is unsuccessful because of adverse transmission conditions should be repeated as soon as circumstances permit.

6.4 But if the sender could be informed of unsatisfactory transmission conditions and if he insists upon an attempt at transmission being made, the phototelegram shall be accepted only at the risk of the sender. In this case the service instruction **RISQUES EXPEDITEUR** shall be included in the preamble. If the copy received at the receiving phototelegraph station is not satisfactory after a maximum of three attempted transmissions, no further re-runs should, in principle, be attempted. The sender should be notified of the circumstances.

7 Delivery of a phototelegram

7.1 Phototelegrams received by a public station shall be delivered unless they are to be retransmitted. A phototelegram may be delivered to an addressee in the locality where the public receiving station is located:

— by messenger;

— through personal collection by the addressee.

7.2 A phototelegram transmitted from a public station to a private station shall be considered as delivered to the addressee (delivery by phototelegraphy).

7.3 Phototelegrams addressed to localities that are not connected to the phototelegraph network shall be delivered by post. They shall be considered as postal correspondence from the time they are handed over to the postal service.

7.4 For special reasons, a phototelegram may be kept on hand at a public station — at the sender's request — until a private station re-calls it (collection by phototelegraphy). A public station having phototelegrams on hand intended for a private station shall not act on a request for transmission made by the private station until it has satisfied itself of the identity of the latter.

7.5 Depending on the method applied, the time of delivery of a phototelegram shall be:

— the time of delivery to the addressee;

— the time when the addressee, having been informed of the received phototelegram, expresses the intention of sending a private messenger;

— the time when the transmission is terminated, in service from a public station to a private station;

— the time of handing over to the postal service in the case of delivery of post.

8 Charging

8.1 The rates for phototelegrams in continental and in intercontinental relations exchanged between public stations or from a public station to a private station are governed in Recommendation D.83.

Recommendation F.80 | fR *bis*

OPERATIONAL PROVISIONS FOR PRIVATE PHOTOTELEGRAPH CALLS

The CCITT,

considering

(a) that it seems advisable to provide for rules to which the Administrations may refer in the case where they decide to allow calls enabling several phototelegraph stations in different countries to receive a transmission simultaneously;

(b) that for multiple calls of this kind *international dissemination* (i.e., a distribution of the transmission to different countries) is necessary and possibly *national dissemination* in the incoming countries (i.e., to the various receiving stations belonging to the same national network);

(c) that the participants in a multiple call may be both public stations and private stations (primarily press agencies);

See also Recommendation D.81. .FE

(d) that press agencies are anxious to transmit pictures to their customers (newspaper offices) directly — without retransmission;

(e) that in the case of transmission by series, the agencies also wish to add or disconnect certain customers between two successive transmissions;

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1 Field of application

1.1 These provisions apply to calls between private stations or between (outgoing) private stations and (incoming) public stations.

1.2 The rules governing phototelegrams exchanged between private stations and public stations are embodied in Recommendations F.80 and D.80.

2 General

2.1 Private phototelegraph stations may be authorized by the Administration concerned to communicate with one another and to exchange phototelegrams with public stations.

2.2 Administrations undertake to set up connections for such transmissions or to make suitable leased circuits available to private stations at their request.

3 Conditions of acceptance

3.1 Private stations may communicate with all (public and private) phototelegraph stations connected to the international phototelegraph network.

3.2 Calls between private stations set up on the international phototelegraph network are allowed without any time limit. However, when telephone traffic is subjected to restrictions, the exchange of phototelegraph calls between private stations may be delayed or limited by agreement between the terminal centres concerned.

3.3 Connections with a public station may be made available to a private station only during the business hours of the public phototelegraph office. However, the public station may not close until it has accepted all the phototelegrams that the private station has announced it wishes to hand in.

3.4 The conditions under which booked phototelegraph calls are made available are specified in Recommendation F.82.

4 Charging

4.1 Charges for phototelegraph calls in continental and in intercontinental relations exchanged between private stations or from a private station to a public station are governed by Recommendation D.83.

5 Special services

5.1 The special urgent service shall be allowed in relations where it exists for telephone traffic.

Recommendation F.82

(f) that operation over the international part of the collective connection should not be held up by modifications in an incoming country;

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RULES FOR PHOTOTELEGRAPH CALLS ESTABLISHED OVER CIRCUITS

NORMALLY USED FOR TELEPHONE TRAFFIC

The CCITT,

considering

(a) that, in international phototelegraph communications, the occupation time of international telephone circuits often greatly exceeds the duration of the actual phototelegraph call;

(b) that this drawback results *in part* from the inadequacy of existing rules on the setting up, supervision and clearing of phototelegraph calls over circuits normally used for telephone traffic, even if these circuits have been designated in advance as capable of carrying phototelegraph calls;

(c) that phototelegraph communications between public stations on the one hand and public and private stations on the other, require close collaboration between the telegraph and telephone services of the various Administrations;

(d) that, on the other hand, phototelegraph communications between private stations do not concern the telegraph services, although it is desirable for all phototelegraph calls between public stations, between public and private stations, and between private stations to be established in the same way,

unanimously declares

that the following rules should be applied to the provision of international phototelegraph connections.

1 Field of application

1.1 The rules below define the operating procedure to be followed in the international phototelegraph service when phototelegraph calls are set up on circuits normally used for telephone traffic. They do not apply to phototelegraph transmissions on circuits in permanent use for that purpose or on leased circuits.

1.2 These rules define the procedure applicable to the setting up, supervision and clearing of international phototelegraph calls:

— between public stations;

— between a public and a private station;

— between private stations.

2 General provisions

2.1 In relations where telephone circuits are used for both the phototelegraph service and the telephone service, the Administrations concerned shall assign by mutual agreement a certain number of circuits for phototelegraph transmissions, taking into account the usual requirements of both phototelegraphy and the telephone service.

2.2 These circuits shall be specially marked at terminal exchanges and repeater stations with a view to the protection of the phototelegraph transmissions.

2.3 The telephone circuits used for international phototelegraph transmissions shall, as far as practicable, be four-wire circuits. For phototele-

considering further

(g) that dissemination equipment can be set up either in the offices of Administrations or on the premises of private enterprises;

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graph transmission, they shall normally be disconnected from the switching equipment used for telephone calls. Interconnection of circuits for setting up phototelegraph calls should be four-wire-four-wire, as far as possible, both on the international and the national side.

2.4 Administrations shall designate in each international phototelegraph terminal centre an authority responsible for the international phototelegraph calls. This authority is in a position to carry out, or cause to be carried out, all the operations necessary for the establishment of international phototelegraph calls. This authority shall henceforth be called the *international phototelegraph position* (IPP).

2.5 Administrations are recommended to centralize, as far as possible, in one place all the technical, operational and charging procedures necessary in an international centre when telephone circuits are used for phototelegraph calls.

2.6 A booking for a phototelegraph call emanating from a public or private phototelegraph station is routed to (or arrives directly at) the IPP of the origin country responsible for setting up the international phototelegraph call that has been booked. This IPP then becomes the control IPP for establishing the call.

3 Setting up, supervision and clearing of international phototelegraph calls

3.1 If the telephone service on the international circuit needed for setting up a phototelegraph call is operated with advance preparation, requests for phototelegraph calls rank in the order in which they are accepted among requests for telephone calls of the same category.

3.2 In this case the control IPP advises the telephone office responsible for these circuits that a phototelegraph transmission is to take place. The control IPP agrees with the telephone service on the probable time at which the phototelegraph transmission will be taking place.

3.3 The IPPs shall proceed as follows when setting up an international call.

3.3.1 The control IPP transmits the following information as quickly as possible to the destination IPP:

— designation of the transmitting station;

— designation of the destination station;

— probable time at which the phototelegraph call will take place;

— where necessary, indication of the subscriber responsible for the charges; and, in addition:

a) for calls requested by public stations:

— category of phototelegram to be transmitted;

— date and time of handing-in of the phototelegram.

b) for calls requested by private stations:

— category of call requested;

— date and time of the request.

3.3.2 The destination IPP shall take the necessary steps to advise immediately the destination phototelegraph station by telephone that a phototelegraph transmission is about to take place.

3.3.3 If the called phototelegraph station is in a position to receive the phototelegraph call at the time fixed, the destination IPP informs the control IPP. At the said time, the two IPPs take the necessary steps, in agreement with the telephone service, to establish the call. Care must be taken to avoid interrupting telephone calls in progress.

3.3.4 If the called phototelegraph station is not in a position to receive the call at the time fixed, the destination IPP fixes the time when the transmission is to take place, taking into account the information received from the receiving phototelegraph station. It then communicates the time fixed to the control IPP, which informs the calling station.

3.3.5 The control IPP then takes the necessary measures, in agreement with the telephone service, to establish the phototelegraph call between the stations concerned at the agreed time.

(h) that press agencies operate private phototelegraph networks for their own requirements;

(i) that private enterprises should be allowed under certain conditions to use their own equipment and networks to effect an additional dissemination service to their customers;

3.4 If the telephone service involved is demand service, the outgoing IPP shall take an available circuit for the phototelegraph call, after ensuring that telephone calls in progress are not interrupted; it shall use this circuit to call the incoming IPP.

3.4.1 To establish a phototelegraph call, it shall transmit the data mentioned under § 3.3.1 above to the incoming IPP, except for the probable time of the phototelegraph call.

3.4.2 The incoming IPP shall take the necessary steps to advise immediately the called phototelegraph station by telephone that a phototelegraph transmission is about to take place.

3.4.3 If the called phototelegraph station is in a position to receive the phototelegraph call immediately, the two IPPs shall straight away establish the necessary connection.

3.4.4 If the called phototelegraph station is not in a position to receive the call immediately, the destination IPP fixes the time when the transmission is to take place, taking into account the information received from the receiving phototelegraph station. It then communicates the time fixed to the control IPP, which informs the calling station. The two immediately clear the international telephone circuit.

3.4.5 At the time agreed upon, the outgoing IPP shall take the necessary steps to establish the phototelegraph call.

3.5 The control IPP shall note the time when the phototelegraph call starts. The beginning of the call is the moment when the connection with the called station is offered to the caller. When the international circuit is extended towards a national PP at the caller's end, the latter shall determine the beginning of the call and indicate it to the IPP in its country when the call is cleared (see § 3.7 below).

3.6 The control IPP supervises the transmission in progress:

a) on the transmitting (go) path by means of a device enabling it to check, without risk of interference, that transmission is taking place;

b) on the return path by means of a device enabling it to listen to service conversation from the phototelegraph receiving station.

Intervention in the circuits should be avoided after the call has been established, unless such intervention has been requested by one of the IPPs or one of the phototelegraph stations connected.

3.7 After consulting the receiving phototelegraph station, the calling phototelegraph station announces the end of the call either direct to its IPP, or, in the case of extension of an international circuit, to the national PP on which it depends.

3.7.1 The latter must inform its IPP as quickly as possible, giving the time at which it received notice of the end of the call. The control IPP notes the end-of-transmission time and immediately communicates the notice announcing the end to the incoming IPP and, if necessary, to the transit IPP.

3.7.2 The outgoing and incoming IPPs and any transit IPPs then take the necessary measures to restore the international circuit to the telephone service without delay.

3.7.3 It is recommended that the called station should likewise announce the end of transmission so that the called station may be cleared more quickly.

3.8 Unless the Administrations concerned decide to the contrary, the terminal IPPs do not come to an agreement on the chargeable duration, since this is determined by the control IPP.

4 Special procedures for phototelegraph stations

4.1 For each phototelegram to be transmitted, the outgoing public station shall prepare a narrow tape comprising the preamble and address (and, if necessary, the signature and special service indications), unless these indications have been written on the phototelegram by the sender. This tape is transmitted with the phototelegram.

4.2 As soon as the call is established, the interconnected phototelegraph stations proceed to adjust the equipment and to transmit, in accordance with the instructions of the receiving station, adopting the following order of operations:

and recognizing

(j) that satisfactory transmission of phototelegrams to multiple destinations can be obtained only if all the countries concerned employ a uniform mode of operation;

unanimously declares the view

that multiple calls may be allowed in the international service to enable several phototelegraph stations in different countries to receive a transmission from a transmitting station simultaneously.

The rules below define the procedure to be followed for multiple destination calls. The conditions for ordinary connections that are part of the collective link are governed by Recommendations F.82 and D.83.

1 Conditions of acceptance

1.1 A multiple call may be requested for *primary dissemination* to various destination countries (international dissemination) and for *secondary dissemination* in the incoming countries (national dissemination). Simultaneously a national

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a) if necessary, agreement on the index of cooperation and speed of transmission, then synchronization adjustment by means of the synchronization frequency;

b) adjustment of the white level;

c) adjustment of the black level;

d) phasing;

e) start;

f) transmission.

4.3 If the phototelegram is passed to a public station by a private station, the public station shall ask the private station, if necessary, for information regarding establishment of the preamble and conditions of delivery to the addressee.

5 Faulty transmissions

5.1 In the case of fault conditions, the control IPP shall immediately make arrangements to clear the fault or make another circuit available.

5.2 When, after completion of the call, it is seen that the transmission was faulty, the receiving phototelegraph station shall inform its IPP. If it so desires, the receiving phototelegraph station can make a new booking with its IPP for a phototelegraph call, in the manner defined in § 2.6, with the sending station.

5.3 If the phototelegraph station that receives the faulty picture and books a new call is a private station, its attention should be drawn to the fact that both calls will be chargeable if the faults in the picture are not due to the telephone or telegraph services.

Recommendation F.85

OPERATING RULES FOR INTERNATIONAL PHOTOTELEGRAPH CALLS

TO MULTIPLE DESTINATIONS

See also Recommendation D.85.

dissemination in the origin country can be combined with the international dissemination.

1.2 Private stations of a receiving country participating in a multiple call (generally press agencies) are allowed to effect simultaneously with reception *further dissemination* to other private stations (generally newspaper offices).

1.3 *Further dissemination* may be made either over a private network or over circuits of the public network made available by the Administration. In the latter case the further dissemination is allowed only within the country where the main receiving station is situated.

1.4 The primary dissemination (including, where necessary, dissemination in the origin country) and the secondary dissemination must be effected by the Administration concerned.

1.5 Any further dissemination over a private network shall in any case be effected by the agency to which the network belongs. When circuits on the public network are used for dissemination to subordinate stations, the Administration concerned shall decide who should effect this further dissemination. For technical and operational reasons (see § 3.4 below), it is preferable that every further dissemination should be carried out by the agency using its own distribution equipment, provided that the equipment has been inspected and approved by the Administration.

1.6 In any case, the installation at the main station shall be such that the operator using it can so control operations as to ensure that the subordinate stations cannot enter into communication with the transmitting station.

2 Setting up and constitution of a multiple call connection

2.1 To obtain a multiple call, the transmitting station shall contact the international phototelegraph position (IPP) of its country and indicate, separately for each country, which phototelegraph stations are to receive the simultaneous transmission. Requests should be made as soon as possible, and in any case not later than two hours before the transmission is to take place, to enable the Administrations concerned to make arrangements to set up the call.

2.2 The IPP of the origin country (see Figure 1/F.85, country A) shall inform the IPPs of the destination countries (countries B, C and D) giving the names of the called participants and the time at which the transmission is to take place (see § 5.2 below). So as not to surcharge the outgoing IPP, the incoming IPPs shall, at the same time, be asked to set up an international connection from their own end at the scheduled time.

2.3 The incoming IPPs shall arrange, where necessary, to make facilities available for national dissemination to participants in the multiple call (see § 5.3 below). If only one participant is designated in an incoming country (C), the international circuit shall be switched directly to the receiving station in question.

2.4 An intermediate connection with the international dissemination shall be requested in a transit country for destination countries to which it is not possible to connect directly for the dissemination from the origin country.

2.5 The outgoing IPP is the control IPP for the multiple call (i.e., as far as the main receiving stations). If an intermediate connection with the international dissemination service has been set up, the transit IPP acts as the sub-control IPP for the part of the multiple call farther down the circuit.

2.6 The control IPP notes the time when the multiple call begins and ends and the time and duration of any interruption or irregularity that may occur during transmission (for the purpose of calculating a refund). The start of the call is the moment at which the multiple connection has been placed at the disposal of the caller. The end of the call is the moment at which it is released by the transmitting station.

2.7 On clearing the multiple call, the control IPP must notify the incoming IPPs concerned of the time at which the call began and ended (to ensure conformity with the national dissemination charges).

Figure 1/F.85, p.

3 Extension of a multiple call

3.1 When a private dissemination is added to the multiple call, the Administration shall merely make the required circuits available to the user. The individual calls shall then be set up successively to the calling station and shall be charged from the moment they are made available.

3.2 The routing to public network circuits of a phototelegraph transmission received on a leased circuit (see Ag 1 of country D) is not allowed.

3.3 Each press agency is the control station for the connections with its customers. In secondary private dissemination (see Ag 1 in country D) the second connecting station becomes the sub-control station for the part farther down the circuit.

3.4 Should an Administration ensure itself (see § 1.5 above) the further dissemination on the public network (country D), two separate distribution panels (I and II, country D) will be necessary to connect the incoming circuit separately to the main station (Ag 4) and to its group of customers. To prevent subordinate stations from coming in on the international part of the collective call, the interconnection between I and II must be made by a one-way channel. The private enterprise (Ag 4) must direct the operations for which it is responsible in the two sections of the further dissemination facilities. Since the Administration is responsible for making its dissemination facilities available at the right time, and in view of the operational difficulties, in particular resulting from any change required in this part of the further dissemination, this mode of operation is not recommended.

4 Speech circuit

4.1 The speech circuit is a leased telephone circuit that provides a direct connection between the site of the transmitting equipment and the control IPP. This type of connection expedites the procedures preparatory to the call and enables rapid action to be taken to overcome any difficulties experienced during transmission. It also allows timely notice to be given of the end of the multiple call and, further, it is a suitable means for determining exactly the chargeable duration of the call.

4.2 The speech circuit may, however, be replaced by a telephone connection set up from the transmitting station over the general telephone network.

5 General provisions

5.1 The setting up of a multiple call may involve unforeseen delays in practice, particularly when intermediate connection centres are used in the international dissemination sector. For these reasons, it is impossible for Administrations to give any guarantee that a multiple call will be made available at a specific time.

5.2 It is for the control IPP to estimate the time required to make the requested call available. It must inform all IPPs (incoming and transit, if need be) of the time at which transmission is to take place.

5.3 The incoming IPPs must do their utmost to respect the scheduled time for setting up the international connection to the control (or sub-control) IPP. To avoid any delay in commencing the simultaneous transmission because of arrangements to be made in an incoming country, the national extension (dissemination or simple prolongation) should in all cases be ready before the international circuit is made available.

5.4 If a called station is unable to accept the call at the scheduled time, the incoming IPP shall so inform the control IPP. It will be for the station requesting the multiple call to decide whether transmission should be held up until the station is ready to receive, or whether the station should be brought in later or whether it should be excluded from the

call.
In any case, the call charge begins from the time the caller is informed of the position.

5.5 When it is not possible to set up an international or national connection required for the multiple call within six minutes after the appointed time, the control IPP shall draw the caller’s attention to the difficulties that have arisen. Whatever course the caller decides to take, the part of the call that has taken place will be charged for.

5.6 When a request is made to extend to other relations a call (single or multiple) that has already begun, it must be regarded as a new call request. This call will be made available to the caller as soon as it is set up, and will be charged for separately from that time. The caller must indicate the time at which it should be combined with the original call.