INTERNATIONAL TELECOMMUNICATION UNION

CCITT X.39

THE INTERNATIONAL
TELEGRAPH AND TELEPHONE
CONSULTATIVE COMMITTEE

DATA COMMUNICATION NETWORKS: SERVICES AND FACILITIES, INTERFACES

PROCEDURES FOR THE EXCHANGE OF CONTROL INFORMATION AND USER DATA BETWEEN A FACSIMILE PACKET ASSEMBLY/ DISASSEMBLY (FPAD) FACILITY AND A PACKET MODE DATA TERMINAL EQUIPMENT (DTE) OR ANOTHER FPAD

Recommendation X.39

Geneva, 1992

FOREWORD

The CCITT (the International Telegraph and Telephone Consultative Committee) is a permanent organ of the International Telecommunication Union (ITU). CCITT is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The Plenary Assembly of CCITT which meets every four years, establishes the topics for study and approves Recommendations prepared by its Study Groups. The approval of Recommendations by the members of CCITT between Plenary Assemblies is covered by the procedure laid down in CCITT Resolution No. 2 (Melbourne, 1988).

Recommendation X.39, was prepared by Study Group VII and was approved under the Resolution No. 2 procedure on the 10th of February 1992.

CCITT NOTES

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

2) A list of abbreviations used in this Recommendation can be found in Annex C.

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Recommendation X.39

PROCEDURES FOR THE EXCHANGE OF CONTROL INFORMATION AND USER DATA BETWEEN A FACSIMILE PACKET ASSEMBLY/ DISASSEMBLY (FPAD) FACILITY AND A PACKET MODE DATA TERMINAL EQUIPMENT (DTE) OR ANOTHER FPAD

(Geneva, 1991)

Preface

The establishment in various countries of public data networks providing packet-switched data transmission services creates a need to produce standards to facilitate international interworking.

The CCITT,

considering

(a) that Recommendations X.1 and X.2 define the user classes of service and facilities in a public data network, and Recommendation X.96 defines call progress signals;

(b) that Recommendation X.5 defines the FPAD in a public data network;

(c) that Recommendation X.38 defines the G3 facsimile equipment/DCE interface for a G3 facsimile equipment accessing the FPAD in a public data network;

(d) that Recommendation X.25 defines the interface between the DTE and the DCE for DTEs operating in a packet mode in public data networks;

(e) the need to allow interworking between a G3 facsimile equipment in a general switched telephone network or a leased line and a packet mode DTE using the virtual call facility of the packet switched transmission service;

(f) the need to allow interworking between FPADs;

(g) that the packet mode DTE shall not be obliged to use the control procedures for FPAD functions, but that some packet mode DTEs may wish to control specific functions of the FPAD,

unanimously declares that

(1) the Recommendation X.39 procedures shall apply to the Recommendation X.25 interface between the DCE and the packet mode DTE;

(2) the Recommendation X.39 procedures shall be applied for interworking between FPADs;

(3) the procedures be as specified in § 1;

(4) the manner in which user data is transferred be as specified below in § 2;

(5) the procedure for the control of the FPAD via FPAD messages be as specified below in § 3;

(6) the formats of data fields which are transferable on a virtual call be as specified below in § 4.

Note – For ease of understanding, this Recommendation refers to specific packet types and procedures of Recommendation X.25. When FPAD to FPAD interworking is considered within a national network these packet types or procedures may have a different form from those used in Recommendation X.25 but will have the same operational meaning.

1 Procedures for the exchange of FPAD control information and user data

1.1 The exchange of control information and user data between an FPAD and a packet mode DTE or between FPADs is performed by using data fields defined in Recommendation X.25.

In case of FPAD-FPAD communication, the address field in call request packet contains the telephone number of a destination G3 facsimile equipment in accordance with Recommendation X.121.

1.2 *Call user data*

The FPAD will send call request packets and receive incoming call packets including a call user data field.

The call user data field is comprised of two fields:

a) the protocol identifier field, and

b) the call data field.

1.2.1 The action by the FPAD upon receiving an incoming call packet with a call user data field is as follows:

a) the protocol identifier field will be validated in accordance with § 4.2.1. Incoming calls with an invalid protocol identifier field will be cleared;

b) if a call data field is present, the FPAD will discard it.

1.2.2 The action by the FPAD upon receiving an incoming call packet without a call user data field is for further study.

1.3 *User sequences*

1.3.1 User sequences are used to exchange facsimile image data (which is defined in Recommendations T.4 and T.30) between an FPAD and a packet mode DTE or a remote FPAD.

1.3.2 User sequences are conveyed in the user data fields of complete packet sequences with $Q = 0$ in both directions on a virtual call (see Recommendation X.25).

1.3.3 There will be only one user sequence in a complete packet sequence.

1.3.4 The FPAD will transmit all data packets with D-bit set to 0.

On reception of a data packet with the D-bit set to 1, the FPAD will transmit the corresponding acknowledgement as soon as possible.

If the FPAD does not support the D-bit procedure, the FPAD may clear the virtual call.

Note – The possibility of linking the D-bit operation of Recommendation X.25 with the T.30 error correction mode to guarantee end-to-end delivery is for further study.

1.4 *FPAD messages*

1.4.1 FPAD messages are used to exchange the following between the FPAD and the packet mode DTE or a remote FPAD:

a) FPAD control information;

b) signals, commands and responses as defined in Recommendation T.30; and

c) ancillary signals, commands and responses.

1.4.2 FPAD messages are conveyed in the user data fields of complete packet sequences with Q = 1, in both directions on a virtual call (see Recommendation X.25).

1.4.3 There will be only one FPAD message in a complete packet sequence.

1.4.4 The FPAD will transmit all data packets with the D-bit set to 0.

On reception of a data packet with both the Q-bit and D-bit set to 1, the FPAD will transmit the corresponding acknowledgement as soon as possible.

If the FPAD does not support the D-bit procedure, the FPAD may clear the virtual call.

2 User Data Transfer

2.1 Data packets will be forwarded by the FPAD in accordance with data forwarding conditions provided in Recommendation X.38, § 4.8.

2.2 The occurrence of a data forwarding condition will not cause the FPAD to transmit empty data packets.

3 Procedure for the use of FPAD messages

3.1 *Procedures for reading, setting, and setting and reading of FPAD parameters*

Note – The use of the plural in reference to FPAD parameters implies the existence of more than one, however, only one FPAD parameter has so far been defined. The use of plural has been continued throughout this and the other Recommendations of the Series as an indication that other FPAD parameters are for further study.

3.1.1 The current values of FPAD parameters may be changed and read by transmitting to the FPAD a set, read, or set and read FPAD message.

3.1.2 When the FPAD receives a set, read or set and read FPAD message, any data previously received will be delivered to the G3 facsimile equipment before taking action on the FPAD message. The FPAD will also consider the arrival of such an FPAD message as a data forwarding condition.

3.1.3 The FPAD will respond to a valid read or set and read FPAD message by transmitting a parameter indication FPAD message. This FPAD message will have a parameter field containing a list of parameter references and current values (after any necessary modification) of the FPAD parameters to which the received FPAD message referred.

3.1.4 The FPAD will not return a parameter indication FPAD message in response to a valid set FPAD message received.

3.1.5 Table 1/X.39 specifies the FPAD's response of the FPAD to set, set and read, and read FPAD messages.

3.1.6 If the function of a character is duplicated by the selection of parameter values by use of the set or set and read FPAD message, the FPAD will consider these parameter changes as valid, and will respond as described in this Recommendation.

TABLE 1/X.39

FPAD message transmitted by the FPAD in response to set, set and read, and read FPAD message

FPAD message received by the FPAD		Action upon FPAD parameters	Corresponding parameter indication FPAD message transmitted to the packet mode DTE
Type	Parameter field		
Set	None	Reset all implemented Recommendation X.5 parameters to their initial values corresponding to the initial profile	None
	List of selected parameters with the desired values	Set the selected parameters to the given values: a) if no error is encountered b) if the FPAD fails to modify the values of some parameters	a) none b) list of these invalid parameters (see Note)
Set and read	None	Reset all implemented Recommendation X.5 parameters to their initial values corresponding to the initial profile	List all implemented Recommendation X.5 parameters, and their initial values
	List of selected parameters with the desired values	Set the selected parameters to the given values	List of these parameters with their new current values (see Note)
Read	None	None	List all implemented Recommendation X.5 parameters with their current values
	List selected parameters	None	List of these parameters with their current new value

Note – If any of the parameters contain an error, the error bit is set and the value field is coded as described in Table 3/X.39.

3.2 *Procedures for inviting the FPAD to clear*

3.2.1 The invitation to clear FPAD message is used to request that the FPAD clears the virtual call, after transmission of all data previously transmitted to the G3 facsimile equipment.

Note – The clear indication packet, which is transmitted by the FPAD after delivery of the last data to the G3 facsimile equipment, will have a clearing cause field set to DTE clearing.

3.3 *Error handling procedures by the FPAD*

3.3.1 If the FPAD receives a set, read or set and read FPAD message containing an invalid reference to an FPAD parameter, the parameter field within the parameter indication FPAD message transmitted by the FPAD will contain an indication that this has occurred. The remaining valid references to FPAD parameters are processed by the FPAD.

Possible reasons for an invalid access to an FPAD parameter are:

a) the parameter reference has not been implemented in the FPAD;

b) the parameter value has not been implemented in the FPAD or cannot be altered from the current setting;

c) the parameter is a read-only one (set and set and read FPAD messages only).

3.3.2 The FPAD will transmit an error FPAD message containing the message code of an invalid FPAD message received under the following conditions:

a) if the FPAD receives an unrecognizable message code;

b) if the parameter field following a recognizable message code is incorrect or incompatible with the message code;

c) if the parameter field following a recognizable message code has an invalid format;

d) if the FPAD receives an unsolicited parameter indication FPAD message;

e) if the FPAD receives an FPAD message that is too long.

3.3.3 The FPAD will transmit an error FPAD message if an FPAD message containing less than 8 bits is received.

3.3.4 If the FPAD receives an error FPAD message, it will not respond with an FPAD message of any type. Subsequent action is for further study.

3.4 *Procedure for inviting the FPAD to reselect the called DTE*

The exact procedure for the reselection by the FPAD is for further study. It is anticipated that the procedure will be similar to the procedure outlined in § 3.6 of Recommendation X.29.

3.5 *Facsimile procedure*

On receipt of an FPAD message with the message code indicating a control forwarding of a Recommendation T.30 defined procedure, an FPAD transmits the corresponding signal, command or response defined in Recommendation T.30 to the G3 facsimile equipment in accordance with the procedure given in § 4 of Recommendation X.38.

3.6 *Ancillary signals, commands and responses procedures*

On receipt of an FPAD message with the message code indicating an Ancillary control message, the FPAD passes the applicable parameter data to the applicable ancillary device indicated in the message for forwarding across the G3 facsimile equipment/DCE interface.

Codings of the ancillary control messages are defined in Table 6/X.39.

4 Formats

4.1 *Introduction*

Bits of an octet are numbered 8 to 1 where bit 1 is the low order bit and is transmitted first. Octets of user sequences and FPAD messages are consecutively numbered starting from 1 and are transmitted in this order.

4.2 *Call user data format*

See Figure 1/X.39.

4.2.1 Protocol identifier format

The coding of the protocol identifier field standardized by CCITT consists of four octets.

The first octet is coded as follows:

bits 8 and 7 = 00 for CCITT use
= 01 for national use
= 10 reserved for international user bodies (including CCITT)
= 11 for DTE-DTE use.

When bits 8 to 1 of octet 1 are set to 10100001, it indicates that a CCITT non-start-stop mode PAD is in use.

When the packet assembly/disassembly facility is a G3 facsimile PAD facility (FPAD), bits 8 to 1 of octet 2 are set equal to 00000001. All bits of octets 3 and 4 are reserved as a future mechanism for providing a called PAD facility or packet mode DTE with additional information pertinent to the calling party, initially set to 0.

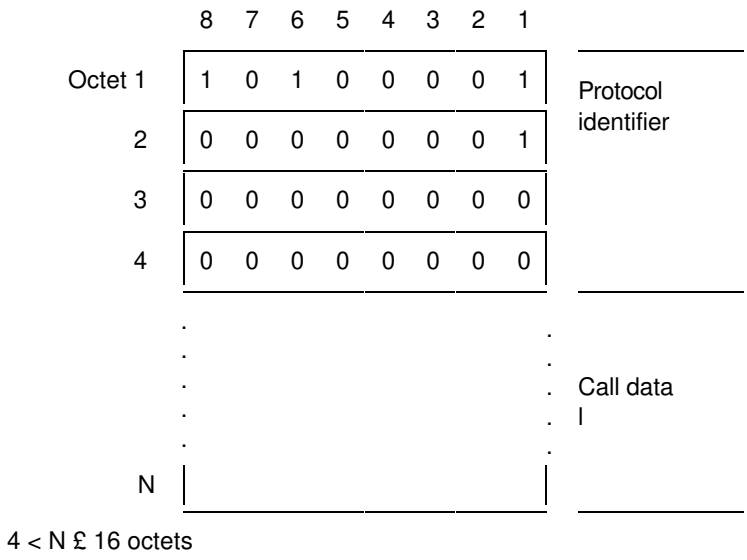


FIGURE 1/X.39

Call user data field format

4.3 *User sequence format*

4.3.1 The order of bit transmission from an FPAD is reversed octet by octet from the order that bits are received from the G3 facsimile equipment. The order of bit transmission to the G3 facsimile equipment is reversed octet by octet from the order that bits are received.

4.3.2 No maximum is specified for the length of a user sequence.

4.4 *Control message format*

Bits 8, 7, 6, 5 of octet 1 of a user data field of a complete packet sequence with Q = 1 are defined as the control identifier field. This field is used to identify the facility to be controlled.

4.4.1 The control identifier field coding for FPAD messages is 0001.

Note – Other codings of the control identifier field are reserved for future standardization by the CCITT (see Recommendation X.29, § 4.4). In addition, the possibility of extending the control identifier field is for further study.

4.4.2 Bits 4, 3, 2, 1 of octet 1 are defined as the message code field. The message code field is used to identify specific types of FPAD messages as given in Table 2/X.39.

TABLE 2/X.39

Type and coding of octet 1 of FPAD message

FPAD message type	Message code
	Bits 4 3 2 1
Set	0 0 1 0
Read	0 1 0 0
Set and read	0 1 1 0
Parameter indication	0 0 0 0
Invitation to clear	0 0 0 1
Reselection	0 1 1 1
Error	0 1 0 1
Reselection with TOA/NPI	1 0 0 0
T.30 signal	1 1 0 1
Ancillary control	1 1 1 0

Note – The possibilitys of extending the message code field is for further study.

4.4.3 All FPAD messages consist of a control identifier field (bits 8, 7, 6, 5 of octet 1 equal to 0001) and a message code field (bits 4, 3, 2, 1 of octet 1). When present, a parameter field is comprised of a variable length (1 or more octets) length indicator and optionally, parameter value(s).

Set, read, set and read and parameter indication FPAD messages consist of octet 1 which may be followed by one or more parameter fields. Each parameter field consists of a parameter reference octet and a parameter value octet.

The parameter value octets of the read FPAD message contain the value 0.

The error FPAD message consists of octet and one or two octets giving the reason for the error.

The invitation to clear FPAD message consists of octet 1 only.

The T.30 signal FPAD messages consist of octet 1, and one or more octets containing T.30 and non-T.30 information.

The ancillary control FPAD messages consist of octet 1 and one or more octets containing ancillary control data.

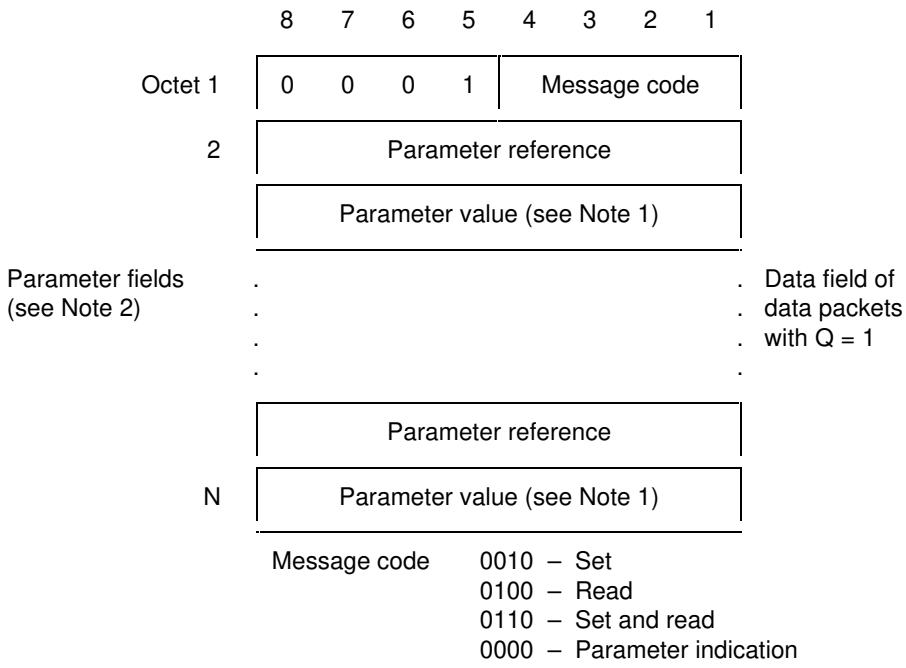
The formats of the FPAD messages are described in Figures 2/X.39 through 5/X.39.

Parameter indication FPAD messages consist of octet 1 which may be followed by one or more parameter fields.

4.4.4 The maximum length of FPAD message is network dependent.

4.4.5 *Parameter field for set, read, set and read, and parameter indication FPAD message*

See Figure 2/X.39.



Note 1 – These octets contain all 0s in read FPAD messages.

Note 2 – Parameter field need not be present (see Table 1/X.39).

FIGURE 2/X.39

Set, read, set and read, and parameter indication FPAD message format

A parameter field contained in one of these FPAD messages consists of a reference field and a value field. A parameter field is two octets in length, except when the extension mechanism is used (see § 4.4.5.1 below).

4.4.5.1 A reference field consists of a parameter reference, identified as a decimal number in Recommendation X.5, and is binary coded in bits 7 to 1, where bit 1 is the low order bit. Reference fields need not be ordered by increasing parameter reference numbers.

The code 1111111 (decimal 127) in bits 7 to 1 of the reference field will be used for the extension of this field. Such coding will indicate that there is another octet following. The following octet is coded with the parameter reference of Recommendation X.5 minus 127.

4.4.5.2 In FPAD messages received by the FPAD, bit 8 of each octet will be ignored. In parameter indication FPAD messages, bit 8 of each reference field set to 1 will indicate an invalid access to the referred parameter as described in § 3.3 above.

4.4.5.3 A parameter value field consists of a value of the parameter reference, identified as a decimal number in Recommendation X.5, and is binary coded in bits 8 to 1, where bit 1 is the low order bit. Value fields in read FPAD messages are coded as all binary 0s. In set and set and read FPAD messages, they will indicate the requested value of parameters. In parameter indication FPAD messages, they will indicate the current values of FPAD parameters, after modification, if any. If bit 8 (error bit) is set to 1 in the preceding octet (i.e. the parameter reference field), the parameter value field will indicate the reason for the error, as given in Table 3/X.39

TABLE 3/X.39

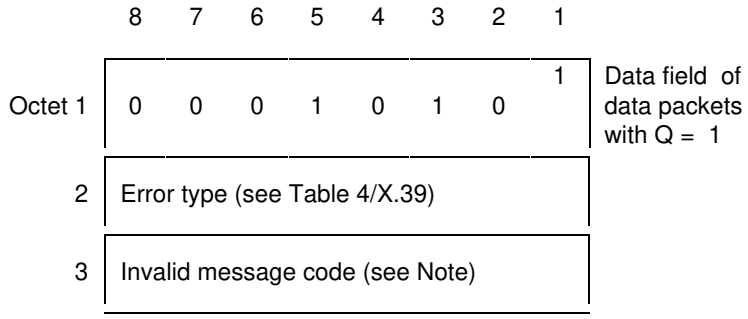
Coding parameter value field in case of error

Parameter value field code	Parameter value field	
	Bits 8 7 6 5 4 3 2 1	Decimal
No additional information	0 0 0 0 0 0 0 0	0
The parameter reference does not exist or has not been implemented in the FPAD	0 0 0 0 0 0 0 1	1
The parameter value is invalid or has not been implemented	0 0 0 0 0 0 1 0	2
The parameter value cannot be altered from the current setting	0 0 0 0 0 0 1 1	3
The parameter is read-only	0 0 0 0 0 1 0 0	4
The parameter follows an invalid parameter separator	0 0 0 0 0 1 0 1	5

Note – The value 0 is mandatory. Other values are optional.

4.4.6 *Format of error FPAD messages*

See Figure 3/X.39



Note – Does not occur for error type 00000000.

FIGURE 3/X.39

Error FPAD message format

4.4.6.1 Octet 2 of the error FPAD message will be coded as shown in Table 4/X.39.

4.4.6.2 In cases b, c, d, e and f in Table 4/X.39, octet 3 of an error FPAD message will contain the message code of the received FPAD message.

TABLE 4/X.39

Coding and meaning of octet 2 of error FPAD message

Case	Meaning	Coding Bits 8 7 6 5 4 3 2 1
a	Received FPAD message contained less than eight bits	0 0 0 0 0 0 0 0
b	Unrecognized message code in received FPAD message	0 0 0 0 0 0 0 1
c	Parameter field format received FPAD message was incorrect or incompatible with message code	0 0 0 0 0 0 1 0
d	Received FPAD message did not contain an integral number of octets	0 0 0 0 0 0 1 1
e	Received parameter indication FPAD message was unsolicited	0 0 0 0 0 1 0 0
f	Received FPAD message was too long	0 0 0 0 0 1 0 1
g	Unauthorized reselection FPAD message	0 0 0 0 0 1 1 0

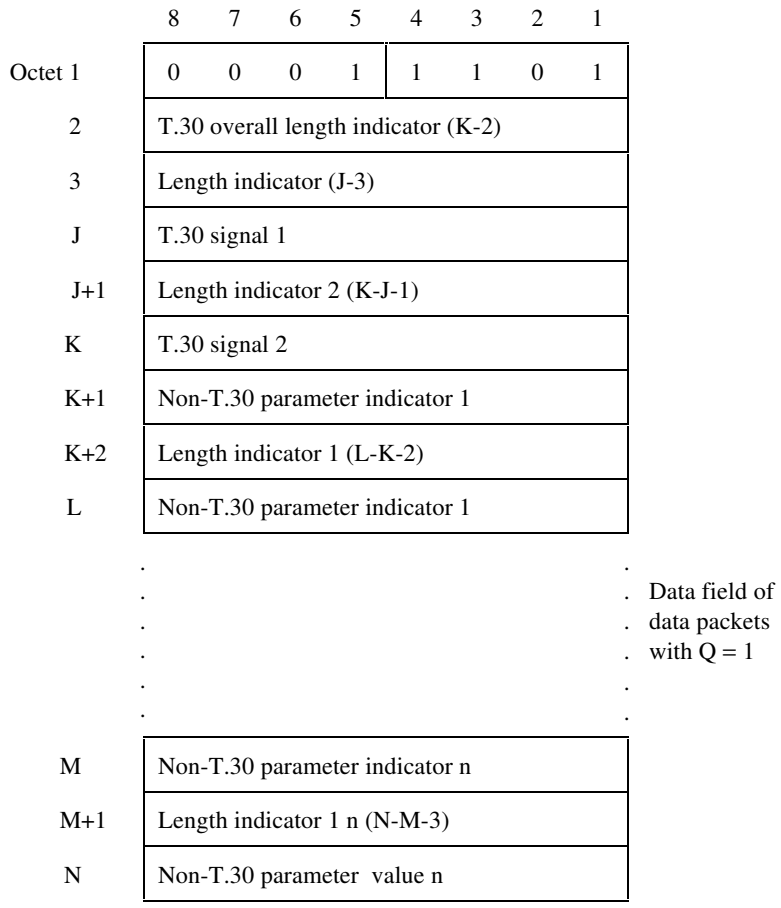


FIGURE 4/X.39

T.30 signal FPAD message format

4.4.7 *T.30 signal FPAD messages*

The format of the T.30 Signal FPAD message is described in Figure 4/X.39.

Octet 2 of this message starts the T.30 overall length indicator. The value of this indicates the overall length of the T.30 signals processed. The encoding of this length indicator is in accordance with § 4.4.12.

The subsequent octets, up to the maximum number indicated in the T.30 overall length indicator, contain one or more T.30 signals, each individually represented by a length indicator (also coded as per § 4.4.12) followed by one or more octets with the T.30 encoded information.

Multiple T.30 signals are present in the T.30 signal FPAD message if the T.30 command or response to be represented contains multiple frames (e.g. CSI-DIS, CIG-DTC, TSI-DCS); T.30 signal 1 and T.30 signal 2 contain the two frames in the order of reception (e.g. T.30 signal 1 contains CSI, CIG or TSI and T.30 signal 2 contains respectively DIS, DTC or DCS).

The address field, control field and FCS in T.30 command or response shall be omitted in T.30 signal FPAD message.

Octets beyond the T.30 signalization are used for non-T.30 parameters. Encodings are in accordance with Table 5/X.39. Each non-T.30 parameter is individually represented by a length indicator (also coded as per § 4.4.12) followed by one or more octets with the non-T.30 encoded information.

TABLE 5/X.39

Non-T.30 parameters

Parameter	Description	Values
00	Reserved	
01	Ring back control	0 = Off 1 = On
02	Image conversion	0 = Off 1 = MH/MR to/from MMR
03	CED	1 = On
04	Reserved	(See Note)
....	....	
....	....	
99	Reserved	

Note – This parameter is reserved for conversion from characters to facsimile coding scheme.

4.4.8 *Parameter field for invitation to clear FPAD message*

See Figure 5/X.39.

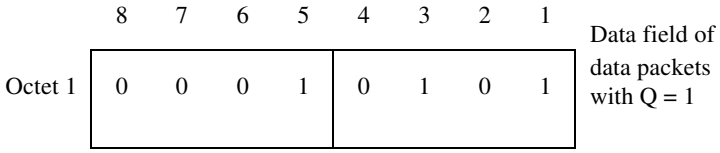


FIGURE 5/X.39

Invitation to clear FPAD message format

This FPAD message will not contain a parameter field.

4.4.9 *Reselection FPAD message format*

The format is for further study.

4.4.10 *Reselection with TOA/NPI FPAD message format*

The format is for further study.

4.4.11 *Ancillary control FPAD message format*

The format for this message is given in Figure 6/X.39. Codings for the messages are given in Table 6/X.39.

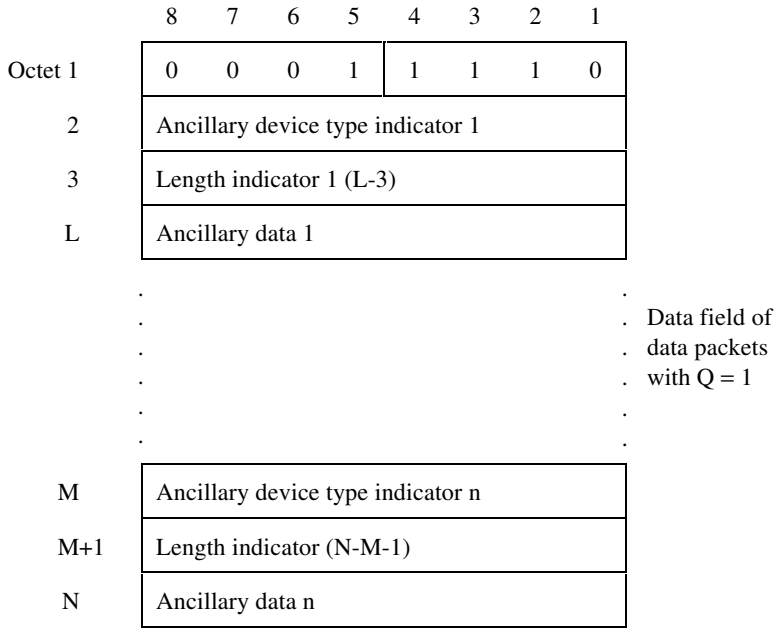


FIGURE 6/X.39

Ancillary control FPAD message format

4.4.11.1 *Ancillary device type indicator*

Octet 2 of the ancillary control FPAD message consists of the device type (or device number) of the ancillary control device associated with the specific G3 facsimile/DCE interface (see Table 6/X.39).

TABLE 6/X.39

Ancillary device values

Device type	Description	Data encoding
00	Service signal	X.38 FPAD service signal numbers 2, 3, 4 or 5 (see Table A-2/X.38)
01	DTMF generator	IA5 string
02	Reserved	
....	....	
....	....	
99	Reserved	

Note – It is a network dependent matter as to the support of device type 00 requests, as well as under which signal formats the request will be permitted.

4.4.11.2 *Data length indicator*

The data length indicator shall consist of one or more octets encoded as outlined below in § 4.4.12.

4.4.11.3 *Ancillary data*

The one or more octets of data to be passed to the ancillary device in accordance with § 3.6.

4.4.12 *Length encoding*

Length indicators used in FPAD messages shall be encoded as follows:

a) If the overall data length is less than or equal to 127 octets, a single octet in which bit 8 is zero and bit 7 to 1 encode the number of octets of data that follow, as an unsigned binary integer with bit 7 as the most significant bit.

b) If the overall data length is greater than 127 octets, the data length indicator shall consist of an initial octet and one or more subsequent octets. The initial octet shall be encoded as follows:

   i) bit 8 shall be set to one;

   ii) bits 7 to 1 shall encode the number of subsequent octets in the length octets, as an unsigned binary integer with bit 7 as the most significant bit;

   iii) the value 11111111 is reserved for future extensions.

Bits 8 to 1 of the first subsequent octet followed by bits 8 to 1 of the second subsequent octet, followed in turn by bits 8 to 1 of each further octet up to and including the last subsequent octet, shall be the encoding of an unsigned binary integer equal to the number of octets of data, with bit 8 of the first subsequent octet as the most significant bit.

ANNEX A

(to Recommendation X.39)

TABLE A-1/X.39

T.30 signal FPAD messages

Facsimile control field	Command/ Response	Remarks
DIS (Digital identification signal) (Note 1) CSI-DIS (Called subscriber identification-DIS) (Note 1) NSF-CSI-DIS (Non-standard facility-CSI.DIS)-(Note 1) DCS (Digital command signal (Note 2) TSI-DCS (Transmitting subscriber identification-DCS) (Note 2) NSS (Non-standard setup) TSI-NSS DTC (Digital transmit command) (Note 1) CIG-DTC (Calling subscriber identification-DTC) (Note 1) NSC-CIG-DTC (Non-standard facility command-CIG-DTC) (Note 1)	Command and Response	
CTC (Continue to correct) MPS (Multi-page signal) EOM (End of message) EOP (End of procedure) PRI-MPS (Procedure interrupt MPS) PRI-EOM (Procedure interrupt EOM) PRI-EOP (Procedure interrupt EOP) EOR-NULL (End of retransmission NULL) EOR-MPS (End of retransmission MPS) EOR-EOP (End of retransmission EOP) EOR-EOM (End of retransmission EOM) EOR-PRI-MPS (End of retransmission PRI-MPS) EOR-PRI-EOP (End of retransmission PRI-EOP) EOR-PRI-EOM (End of retransmission PRI-EOM) PPS-NULL (Partial page signal NULL) PPS-MPS (Partial page signal MPS) PPS-EOP (Partial page signal EOP) PPS-EOM (Partial page signal EOM) PPS-PRI-MPS (Partial page signal PRI-MPS)	Command	

TABLE A-1/X.39 *(cont.)*

Facsimile control field	Command/ Response	Remarks
PPS-PRI-EOP (Partial page signal PRI-EOP) PPS-PRI-EOM (Partial page signal PRI-EOM) RR (Receive ready) DCN (Disconnect)		
CFR (Confirmation to receive) FTT (Failure to train) MCF (Message confirmation) RTP (Retrain positive) RTN (Retrain negative) CRP (Command repeat) CTR (Response to continue to correct) ERR (Response for end of retransmission) PIN (Procedure interrupt negative) PIP (Procedure interrupt positive) PPR (Partial page request) RNR (Receive not ready)	Response	

Note 1 – When transferring the T.30 signal FPAD message [(CSI)-DIS or (CIG)-DTC], the receiving FPAD shall include the non-T.30 parameter image conversion with the value set to 1 if the receiving FPAD supports image conversion.

Note 2 – If the received T.30 signal FPAD message [(CSI)-DIS or (CIG)-DTC] contains the non-T.30 parameter Image Conversion with the value set to 1, when transferring the T.30 signal FPAD message [(TSI)-DCS], the emitting FPAD shall include the non-T.30 parameter image conversion with the value set to either 0 or 1 depending upon the selection by the user at call setup.See § 4.1 of Recommendation X.38.

Annex B

(to Recommendation X.39)

Characteristics of virtual calls and Recommendation X.25 as related to the FPAD representation of a G3 facsimile equipment and a packet mode DTE (or remote FPAD)

B.1 *General interface characteristics*

B.1.1 The mechanical, electrical, functional and procedural characteristics to activate, maintain and deactivate the physical access path between the DTE and the DCE will be in accordance with the physical level procedures of Recommendation X.25.

B.1.2 The link access procedures for data interchange across the link between the DTE and DCE will be in accordance with the link level procedures of Recommendation X.25.

B.1.3 The packet format and control procedures for the exchange of packets containing control information and user data between the DTE and the DCE will be in accordance with the packet level procedures of Recommendation X.25.

B.2 *Interface procedures for virtual call control*

B.2.1 The sending of call request packets by the FPAD on the DTE interface is effected by a state transition on the G3 interface from state 3 to state 4 (as defined in Recommendation X.38).

B.2.2 Incoming calls are indicated on the DTE interface as specified in Recommendation X.25. Any use of optional user facilities are indicated in accordance with §§ 6 and 7 of Recommendation X.25.

B.2.3 The default throughput classes used are determined by the maximum data rate offered by the FPAD (where exact correspondence is not obtained, the next higher throughput class is used).

B.2.4 The FPAD and the packet mode DTE will use the clearing procedures specified in §§ 4.1.7, 4.1.8 and 4.1.9 of Recommendation X.25.

B.3 *Interface procedures for data transfer*

B.3.1 Data transfer on a virtual call only takes place in the data transfer state and when flow control permits (see § 4.4 of Recommendation X.25). The same is true for the transfer of interrupt packets (see § 4.3 of Recommendation X.25).

B.3.2 Interrupt packets transmitted by the packet mode DTE will be confirmed by the FPAD following the procedures in Recommendation X.25.

B.3.3 The reset procedure may be used by the packet mode DTE to reinitialize the virtual call and received by the FPAD. Procedures will conform to those described in § 4.4.3 of Recommendation X.25.

B.4 *Virtual call characteristics*

B.4.1 *Call clearing*

Data packets transmitted immediately before a clear request packet is sent, may be overtaken within the network by the clear request packet and subsequently be destroyed, as described in § 4.5 of Recommendation X.25.

ANNEX C

(to Recommendation X.39)

Alphabetical list of abbreviations used in this Recommendation

CFR	Confirmation to receive
CIG-DTC	Calling subscriber identification-DTC
CRP	Command repeat
CSI-DIS	Called subscriber identification-DIS
CTC	Continue to correct
CTR	Response to continue to correct
DCN	Disconnect
DCS	Digital command signal
DIS	Digital identification signal

DTC	Digital transmit command
EOM	End of message
EOP	End of procedure
EOR-EOM	End of retransmission EOM
EOR-EOP	End of retransmission EOP
EOR-MPS	End of retransmission MPS
EOR-NULL	End of retransmission NULL
EOR-PRI-EOM	End of retransmission PRI-EOM
EOR-PRI-EOP	End of retransmission PRI-EOP
EOR-PRI-MPS	End of retransmission PRI-MPS
ERR	Response for end of retransmission
FTT	Failure to train
MCF	Message confirmation
MPS	Multi-page signal
NSC-CIG-DTC	Non-standard facility command-CIG-DTC
NSF-CSI-DIS	Non-standard facility-CSI-DIS
NSS	Non-standard set-up
PIN	Procedure interrupt negative
PIP	Procedure interrupt positive
PPR	Partial page request
PPS-EOM	Partial page signal EOM
PPS-EOP	Partial page signal EOP
PPS-MPS	Partial page signal MPS
PPS-NULL	Partial page signal NULL
PPS-PRI-EOM	Partial page signal PRI-EOM
PPS-PRI-EOP	Partial page signal PRI-EOP
PPS-PRI-MPS	Partial page signal PRI-MPS
PRI-EOM	Procedure interrupt EOM
PRI-EOP	Procedure interrupt EOP
PRI-MPS	Procedure interrupt MPS
RNR	Receive not ready
RR	Receive ready
RTN	Retrain negative
RTP	Retrain positive
TSI-DCS	Transmitting subscriber identification-DCS