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X.5

(10/96)

SERIES X: DATA NETWORKS AND OPEN SYSTEM COMMUNICATION

Public data networks – Services and facilities

Facsimile Packet Assembly/Disassembly facility (FPAD) in a public data network

ITU-T Recommendation X.5

(Previously «CCITT Recommendation»)

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For further details, please refer to ITU-T List of Recommendations.

FOREWORD

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

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

The approval of Recommendations by the Members of the ITU-T is covered by the procedure laid down in WTSC Resolution No. 1 (Helsinki, March 1-12, 1993).

ITU-T Recommendation X.5 was revised by ITU-T Study Group 7 (1993-1996) and was approved under the WTSC Resolution No. 1 procedure on the 5th of October 1996.

NOTE

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

CONTENTS

Recommendation X.5

FACSIMILE PACKET ASSEMBLY/DISASSEMBLY FACILITY (FPAD) IN A PUBLIC DATA NETWORK

(revised in 1992)

Preface

The establishment in various countries of public data networks providing packet switched data transmission services creates a need to produce standards to facilitate G3 facsimile equipment access from the public telephone network.

The ITU-T,

considering

(a) that Recommendations X.1 and X.2 define the user classes of service and user facilities in public data networks, Recommendation X.96 defines call progress signals, Recommendation X.39 defines the procedures between a Facsimile Packet Assembly/Disassembly facility (FPAD) and a packet mode DTE or another FPAD, Recommendation X.38 defines the G3 facsimile equipment/DCE interface for a facsimile equipment accessing the FPAD;

(b) that the logical control links for packet switched data transmission services are defined in Recommendation X.92, and that in particular Recommendation X.92 allows for incorporation of a PAD;

(c) that G3 facsimile or associated equipments will send and receive network control information and user information in the form of dual-tone multi-frequency codes defined in Recommendation Q.23 or signals defined in Recommendations T.4 and T.30;

(d) that DTEs operating in the packet mode will send and receive network control information and user information in the form of packets in accordance with Recommendation X.25;

(e) 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

(1) that the functions performed by, and operational characteristics of, the FPAD for the G3 facsimile equipment are described below in clause 2;

(2) that the operation of FPAD for the G3 facsimile equipment should depend on the possible values of internal variables known as FPAD parameters which are described in clause 3;

(3) that the FPAD parameters for the G3 facsimile equipment and their possible values are listed below in clause 4.

1 Introduction

An FPAD is a facility which offers a G3 facsimile equipment the opportunity to use a public data network to convey facsimile control and image data to another G3 facsimile equipment or to an application DTE. The FPAD also allows an application DTE to establish a connection and to send control and image data to a G3 facsimile equipment.

It is an underlying principle of the FPAD environment that to the degree possible, the performance and quality of the service of the two G3 facsimile equipments as available today utilizing the general switched telephone network are not negatively affected.

NOTE – The term G3 facsimile equipment used here is slightly different from the T-Series Recommendations. In this Recommendation it is taken to be a G3 facsimile equipment which conforms to Recommendation T.4/T.30, along with the necessary ancillary control device as described in 2.1.1/X.38.

1.1 Scope

Support for the following cases is provided in the FPAD Series of Recommendations:

a) *A G3 facsimile equipment to a G3 facsimile equipment* – A G3 facsimile equipment establishes a call to a G3 facsimile equipment, dialling in one or two stages the number of the called G3 facsimile equipment:

   – the calling G3 facsimile equipment transmits document(s) to the called G3 facsimile equipment;

   – the called G3 facsimile equipment transmits document(s) to the calling G3 facsimile equipment.

b) *A G3 facsimile equipment to an application DTE* – A G3 facsimile equipment establishes a call to an application DTE, dialling in one or two stages the number of the called application DTE:

   – the calling G3 facsimile equipment transmits document(s) to the called application DTE;

   – the called application DTE transmits document(s) to the calling G3 facsimile equipment.

c) *An application DTE calling to a G3 facsimile equipment* – An application DTE establishes a call to a G3 facsimile equipment:

   – the calling application equipment transmits document(s) to the called G3 facsimile;

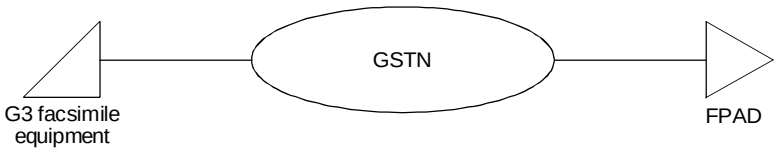
   – the called G3 facsimile equipment transmits document(s) to the calling application DTE.

NOTE – Additional cases are for further study.

1.2 Physical configurations

1.2.1 G3 facsimile equipment/FPAD

Two models are defined for the connection of a G3 facsimile equipment and an FPAD. These two models are illustrated in Figure 1.



a) G3 facsimile equipment/FPAD connected via the general switched telephone network

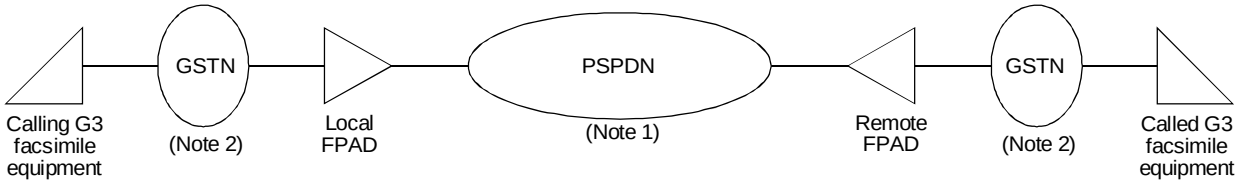
b) G3 facsimile equipment/FPAD connected directly

T0708100-90/d01

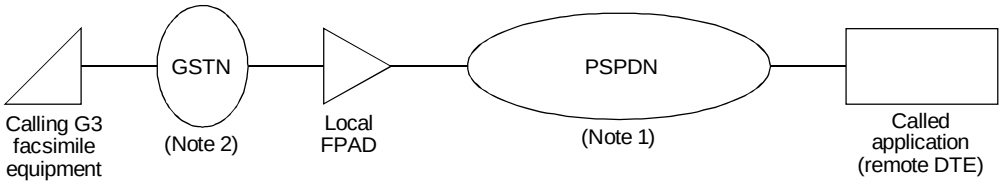
FIGURE 1/X.5

1.2.2 Operating environments

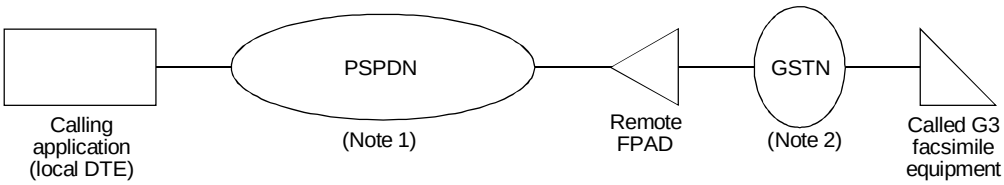
Three scenarios are defined in which two G3 facsimile equipments or a G3 facsimile equipment and an application DTE may operate. These scenarios are illustrated in Figure 2.



a) G3 facsimile equipment to G3 facsimile equipment



b) G3 facsimile equipment to application DTE



c) Application DTE to G3 facsimile equipment

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NOTES

1 The FPAD and the PSPDN are shown as separate elements. This is for clarity only and should not imply that the FPAD is not, or could not be, an integral part of the PSPDN.

2 The G3 facsimile equipment and the FPAD are shown connected by the general switched telephone network. In each case, the G3 facsimile equipment and FPAD may be directly connected.

3 In this figure and throughout the FPAD Series of Recommendations, "local FPAD" or "local DTE" is the FPAD or DTE associated with the "calling" G3 facsimile equipment or application DTE. Similarly, "remote FPAD" or "remote DTE" is associated with the "called" G3 facsimile equipment or application DTE.

4 The scenarios in this figure do not preclude the use of a single FPAD as a local or remote FPAD on a call-by-call basis.

FIGURE 2/X.5

1.3 Requirements

1.3.1 G3 facsimile equipment requirements

For a G3 facsimile equipment to operate in the context of an FPAD, the facsimile equipment must:

– support all mandatory standard capabilities defined in Recommendation T.4; and

– operate according to the procedures defined in Recommendation T.30.

For the facsimile equipment to operate in the two-stage dialling mode, the facsimile equipment must provide a signalling method as defined in 2.1/X.38.

The facsimile equipment may:

– request any optional standard capability defined in Recommendations T.4 and T.30 (see Note 1);

– request any non-standard capability; and

– operate manually or automatically (see Note 2).

NOTES

1 Subclause 2.4 defines the optional standard capabilities that must be supported by an FPAD. If a G3 facsimile equipment requests one of these optional standard capabilities, the FPAD will relay the request for the optional standard capability unchanged. Similarly, if the G3 facsimile equipment requests an optional standard capability which is supported by the FPAD as an option (e.g. error correction mode), the FPAD will relay the request unchanged. If the G3 facsimile equipment requests an optional standard capability (or value of such capability) which is not supported by the FPAD, the FPAD will alter the coding of the request by:

– replacing the capability value with the highest values available in the FPAD; or

– "turning off" the request when no alternative value is available (e.g. error correction mode).

2 Certain restrictions may apply in the case of a facsimile equipment operating automatically as the calling station. Refer to Recommendation X.38.

1.3.2 Requirements of an application DTE

For an application DTE (either calling or called) to participate in the FPAD environment, it must emulate the public data interface of an FPAD as defined in Recommendation X.39.

An application DTE may:

– set and/or read the FPAD parameters of an FPAD;

– enter into an interactive dialogue as defined in Recommendation X.38.

2 Description of the basic functions and user selectable functions of the FPAD

2.1 Configuration of the FPAD by the G3 facsimile equipment

The FPAD performs a number of functions and exhibits operational characteristics. Some of the functions allow either or both the G3 facsimile equipment and the application DTE (or remote FPAD) to configure the FPAD so that its operation is adapted to the application.

2.2 FPAD parameters

The operation of FPAD depends on the values of the set of internal variables called FPAD parameters. This set of parameters exists for each G3 facsimile equipment independently. The current value of each FPAD parameter defines the operational characteristics of its related functions.

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

2.3 Functions of the FPAD

2.3.1 Basic functions

Basic functions include:

- assembly of facsimile image data into packets;
- disassembly of the user data fields of packets;
- handling of virtual call set-up and call clearing;
- generation of service signals;
- a mechanism for forwarding packets when the proper conditions exist, e.g. when a packet is full;
- a mechanism for transmitting facsimile image data to G3 facsimile equipments; and
- a mechanism for setting the current value of FPAD parameters.

2.3.2 Optional functions

Optional functions (e.g. for profile selection), are for further study.

2.4 Facsimile characteristics of the FPAD

The FPAD will support all mandatory standard capabilities of a G3 facsimile equipment as defined in Recommendation T.4.

The FPAD will also support the following optional standard capabilities as defined in Recommendations T.4 and T.30:

a) *data signalling rate*
   - 7200 bit/s as per Recommendation V.29;
   - 9600 bit/s as per Recommendation V.29;

b) *vertical resolution*
   - 7.7 line/mm;

c) *recording width capabilities*
   - all valid values are supported;

d) *maximum recording length capability*
   - all valid values are supported;

e) *minimum scan line time*
   - all valid values are supported.

NOTE – The explicit exclusion of additional optional standard capabilities (as defined in Recommendation T.4, e.g. 12.0, 14.4 kbit/s as per Recommendation V.17) within this Recommendation should not be construed as an indication that implementations may not offer these capabilities. Rather, that the above list represents the minimum set of capabilities required for FPAD operation. Further expansion may be undertaken.

2.5 User selectable functions which may be provided by the FPAD

A number of packet-switched data network facilities may be available either on a subscription basis or on a per call basis to G3 facsimile equipments, as described in Recommendation X.2 for user class of service 29. In addition, the following features may be available on a subscription basis:

- selection of an initial profile;
- other operational characteristics of the G3 facsimile equipments.

As defined in this Recommendation, parameters provide for functions which concern the management of the procedure between the G3 facsimile equipment and the FPAD.

The method for the control of these functions is specified in Recommendation X.38 for the G3 facsimile equipment and in Recommendation X.39 for the application DTE or for another FPAD.

Table 1 shows details of the valid values and combination of values of FPAD parameters. Other values and combinations are for further study.

TABLE 1/X.5

Possible values of FPAD parameters

Parameter reference number	Parameter description	Selectable possible values		FPAD parameter meaning	Remarks
		Mandatory	Optional (Note)		
1	Control of FPAD service signals (E)	0		No service signals are transmitted to the G3 facsimile equipment	Additional values for working with ancillary devices are for further study
		1		Tonal service signals are transmitted in the standard format	
			2	Oral service signals are transmitted in the standard format	
			3	DTMF service signals are transmitted in the standard format	
			8	Service signals are transmitted in a network dependent format	
E An essential parameter to be made available internationally NOTE – These parameter values provide additional user facilities which are not necessarily provided in all FPADs.					

2.5.1 Control of FPAD service signals

This function provides the G3 facsimile equipment with the ability to decide whether or not and in what format FPAD service signals are transmitted.

3 Characteristics of FPAD parameters

3.1 Characteristics of parameters

In this Recommendation FPAD parameters are identified by decimal numbers.

3.2 Possible values of parameters

In this Recommendation the possible values of parameters are represented by decimal numbers.

3.3 Relationship with Recommendations X.38 and X.39

Specific procedures, described in Recommendations X.38 and X.39 are available for initializing, reading and changing the values of FPAD parameters.

3.4 Determination of the values of FPAD parameters

3.4.1 Initial values of FPAD parameters

On initialization, the initial value of each FPAD parameter is set according to a predetermined set of values called an initial standard profile. Table 1/X.38 gives details of the initial values of parameters for the standard profile which have been agreed by the CCITT.

Networks may offer other standard profiles that provide different, predetermined sets of FPAD parameter values.

3.4.2 Current values of FPAD parameters

The current values of FPAD parameters are the values resulting from possible modifications by the FPAD, the G3 facsimile equipment and/or the application DTE (or remote FPAD).

NOTES

1 The need for a G3 facsimile equipment to read the value of a parameter on a local FPAD is for further study.

2 The ability for a G3 facsimile equipment to set or read the value of a parameter on a remote FPAD is not currently provided. The need for this is for further study.

4 List of FPAD parameters and possible values

Restrictions on the permissible relationships between the values of the various parameters is a subject for further study.

4.1 Control of FPAD service signals

Reference 1

The parameter will have the following selectable values:

no service signals are transmitted to the G3 facsimile equipment	represented by decimal 0
tonal service signals are transmitted in the standard format	represented by decimal 1
oral service signals are transmitted in the standard format	represented by decimal 2
DTMF service signals are transmitted in the standard format	represented by decimal 3
service signals are transmitted in a network dependent format	represented by decimal 8

NOTES

1 Tonal, oral, DTMF service signals are defined in 3.4.2/X.38.

2 Additional values for other types of service signals (e.g. for working with ancillary devices), are for further study.

3 The values of 9 are reserved for future extension.

Annex A

Alphabetical list of abbreviations used in this Recommendation

(This annex forms an integral part of this Recommendation)

DTE Data Terminal Equipment

DTMF Dual-tone Multi-Frequency

FPAD Facsimile Packet Assembly/Disassembly facility

Annex B

Access to MHS

(This annex forms an integral part of this Recommendation)

B.1 Introduction

This annex, Annex E/X.38 and Annex D/X.39 define together a new application of an FPAD, which may be used by a G3FE to access MHS (Message Handling System). MHS is defined in the X.400-Series Recommendations (see B.2, "References").

Access to MHS is an optional feature of FPAD. These annexes cover only IPMS access (Recommendations F.420 and F.423) of MHS. Access to "COMFAX" service (Recommendation F.162) through FPAD would be also possible in following the same principles described for IPMS access but is left for further study.

This annex describes the principles and services for the access of a facsimile Group 3 equipment (G3FE) to Message Handling System (MHS) through FPAD devices.

Annex E/X.38 specifies:

- the definition and the format of the requests from the G3FE to MHS;
- the various DTMF sequences to code these requests [at present, only the access by DTMF tones (dual-tone multi-frequency codes defined in Recommendation Q.23) is considered];
- the particular service signals sent back by the FPAD to the G3FE upon MHS services requests.

Annex D/X.39 specifies the format of the particular X.39 signals sent by the FPAD to the MHS and their mapping to MHS features.

B.2 References

The following Recommendations and other references contain provisions which, through references in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; all users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published.

- ITU-T Recommendation X.400/F.400 (1993), *Message handling services: Message handling system and service overview*.
- CCITT Recommendation X.402 (1992), *Message handling systems: Overall architecture*.
- CCITT Recommendation X.411 (1992), *Message handling systems: Message transfer system: Abstract service definition and procedures*.
- CCITT Recommendation X.420 (1992), *Message handling systems: Interpersonal messaging system*.
- CCITT Recommendation F.420 (1992), *Message handling services: The public interpersonal messaging service*.

– CCITT Recommendation F.423 (1992), *Message handling services: Intercommunication between the interpersonal messaging service and the telefax service*.

– CCITT Recommendation E.164 (1991), *Numbering plan for the ISDN era*.

B.3 Terms and definitions

For the purpose of this annex, the following definition applies:

B.3.1 FPADAU: An "FPAD Access Unit" is the part of a PFAXAU which has an interface with an FPAD to send facsimile messages to a G3FE.

B.4 Abbreviations

For the purposes of this annex, the following abbreviations are used:

IPM-UA	InterPersonal Messaging User Agent
MHS	Message Handling System
MTA	Message Transfer Agent
MTS	Message Transfer System
PFAXAU	Public Telefax Access Unit

These abbreviations can also be found in Remmendations X.402 and F.400.

B.5 Conventions

The terms in italicized characters used in this annex designate operations or arguments at the interfaces between a G3FE and an FPAD or between an FPAD and an IPM-UA (or FPADAU). They do not designate abstract operations or arguments as described in the X.400-Series Recommendations.

B.6 Functional model

B.6.1 Functional model for access of a G3FE to MHS via FPAD

Figure B.1 provides a functional model for the access of a G3FE to MHS via FPAD. An FPAD cooperates with an IPM-UA to allow a G3FE to participate in the MHS as an MHS user.

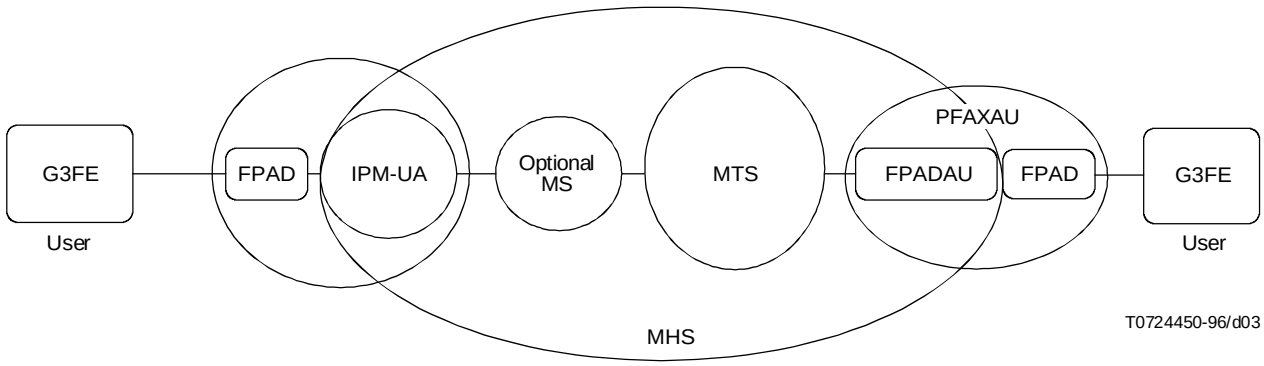

FIGURE B.1/X.5

Functional model for MHS access

Since an FPAD has the capability to exchange information for user identification between a G3FE and an IPM-UA and the capability to handle multiple G3FEs and IPM-UAs simultaneously, physical implementation of FPAD, IPM-UA and MTA may vary. However, a typical implementation may consist of one FPAD providing access for multiple G3FEs in an environment where IPM-UAs co-reside with an MTA.

B.6.2 Networks and protocols involved

Figure B.2 describes the networks and the protocols involved in the communication defined in this annex.

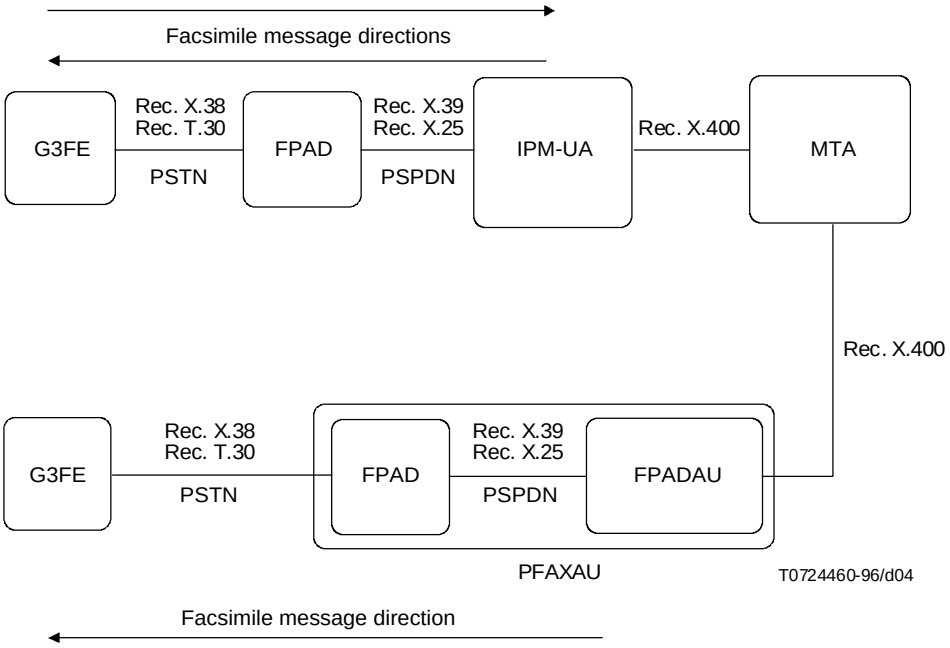

FIGURE B.2/X.5

Networks and protocols involved

B.6.3 MHS elements of service for G3FE access to MHS via FPAD

B.6.3.1 Elements of service belonging to the basic IPM service

All the elements of service belonging to the basic IPM service (see 19.8/X.400) are offered in the scope of G3FE access to MHS via FPAD.

The definition of the interfaces is limited to a minimum set so that it does not completely cover the whole protocol between a G3FE, an FPAD and an IPM-UA. The way to provide the service elements which are not defined in this annex is a local matter.

B.6.3.2 IPM optional user facilities

The elements of service belonging to the IPM optional user facilities (see 19.9/X.400) are offered according to the X.400-Series Recommendations in the scope of G3FE access to MHS via FPAD. However, this annex defines the way to provide only a part of IPM optional user facilities, as described in the following tables. The way to provide the facilities not defined in this annex is a local matter.

B.6.4 MHS operations

B.6.4.1 List of the operations

Table B.1 lists the operations supported by the G3FE access to MHS via FPAD and the corresponding X.400 abstract operations defined in Recommendations X.411 and X.420.

TABLE B.1/X.5

MHS Operations

Operation	Description	Status	Corresponding MHS operation
Message-submission	Operation by which a G3FE originates a message to an IPM-UA to be submitted by the IPM-UA to the MTS for transfer and delivery to one or more MHS recipients	M	Originate IPM
Message-delivery	Operation by which a G3FE receives a message from an IPM-UA or a PFAXAU	M	Receive IPM, etc.
Command	Operation by which a G3FE instructs either an IPM-UA or the MTS to perform an action	O	Cancel-deferred-delivery, etc.
Report	Operation by which either an IPM-UA or the MTS provides information to a G3FE related to one of the above operations	M	Receive report Receive RN, Receive NRN etc.
NOTE – The "status" column in this table indicates whether support of the operation using the standardized protocols is mandatory (M) or optional (O).			

B.6.4.2 List of arguments

Table B.2 shows the arguments used in the operations summarised in B.6.4.1.

B.6.4.3 Message submission operation

Figure B.3 describes the *Message-submission* operation. Procedures on the interfaces involved in this operation are summarised in Table B.3. Details of the procedures are defined in Annex E/X.38 and Annex D/X.39.

The arguments used in Table B.3 are defined in Table B.2. They are used in Annex E/X.38 and Annex D/X.39. Conversion of information from these arguments to X.400 arguments to accomplish G3FE access to MHS via FPAD is defined in Annex D/X.39.

The authentication of an IPM-UA by MTS is mandatory in the scope of MHS. The authentication of the IPM-UA by MTS is based on the authentication of a G3FE by the IPM-UA. Then, authentication of the G3FE by the IPM-UA via an FPAD is mandatory. Therefore, if *Fax-originator-name* and *Password* arguments are absent at interface 1 and 2, it is required to authenticate the G3FE by the IPM-UA by alternative means (e.g. authentication based on the networks).

TABLE B.2/X.5

Arguments for G3FE access to MHS via FPAD

Arguments for communication	Description	Supporting Operations
Fax-originator-name	A name of the originator of a message which uniquely identifies the originator in MHS	*Message-submission* *Message-delivery* *Command* *Report*
Fax-recipient-name	A name for recipient(s) of a message which either uniquely identifies the recipient(s) in MHS or identifies address(es) in another network, such as public telephone network, connected to MHS	*Message-submission* *Message-delivery* *Command* *Report*
Originator-report-request	A value which indicates the type of the report request made by the originator of a message	*Message-submission* *Message-delivery*
Delivery-time-request	A value which indicates the time which the originator of a message requests for delivery of the message	*Message-submission* *Message-delivery* *Command* *Report*
Priority	A value which indicates the priority which is requested by the originator for a message	*Message-submission* *Message-delivery*
Fax-content	The facsimile image of a message	*Message-submission* *Message-delivery* *Report*
Recipient-fax-number	The GSTN number of the G3FE to which information is to be transmitted by the MTS via an FPAD (in the form of a facsimile message). This number is dialled by an FPAD	*Message-delivery* *Report*
Fax-message-submission-identifier	A parameter used among a G3FE, an FPAD, an IPM-UA and MTS to uniquely identify a message	*Message-submission* *Command* *Report*
Arguments for access	Description	Supporting Operations
Password	A parameter which is used to identify a G3FE as a user of MHS either locally to an FPAD or remotely between an FPAD and MHS	*Message-submission* *Command*

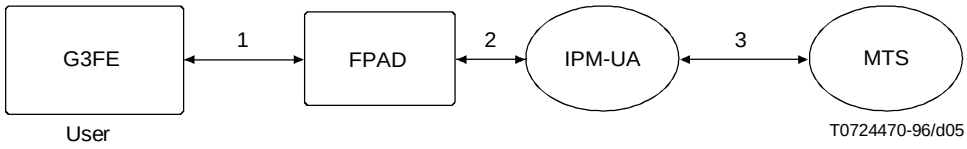

FIGURE B.3/X.5

Communication involved in Message-submission operation

TABLE B.3/X.5

Description of Message-submission operation

Interface	Procedure	Protocols involved (Rec.)	Arguments	Status
1	The G3FE transmits the arguments of the *Message-submission* operation to the FPAD and receives FPAD service signal in response	X.38	*Fax-originator-name*	O
			Fax-recipient-name	M
			Originator-report-request	M
			Delivery-time-request	O
			Priority	O
			Password	O
			Fax-content	M
2	The FPAD transmits the arguments of the *Message-submission* operation to the IPM-UA	X.39	Same arguments as in interface 1	Same status as in interface 1
3	The IPM-UA performs the Originate IPM abstract operation to the MTS	X.411 X.419 X.420	The IPM-UA builds the Message Submission Envelope and the Heading of the IPM message. Mapping of arguments received from the FPAD to IPM arguments is specified in D.4/X.39	As specified in X.400-Series Recs.
M Mandatory O Optional				

B.6.4.4 Message-delivery operation

Figure B.4 describes the *Message-delivery* operation. Procedures on the interfaces involved in this operation are summarised in Table B.4. Details of the procedures are defined in Annex E/X.38 and Annex D/X.39.

The arguments used in Table B.4 are defined in Table B.2. They are used in Annex E/X.38 and Annex D/X.39.

There are two cases depending whether the recipient participates in MHS (direct MHS user with MHS address) or not (indirect MHS user).

In the first case (direct user), the IPM-UA converts the MHS delivery operation into a fax transmission to a receiving G3FE. The address of the recipient is converted into the fax number of the G3FE. The actual transmission of the facsimile message to the G3FE may be performed by the IPM-UA either automatically or upon a specific request of the user. The format of such a request is a local matter (e.g. DTMF sequences with voice prompters).

In the second case (indirect user), a PFAXAU converts the MHS delivery operation into a fax transmission to a receiving G3FE. The fax number of the G3FE is the same as the Recipient-name defined in the X.400-Series Recommendations. The actual transmission of the facsimile message to the G3FE is performed automatically by the PFAXAU.

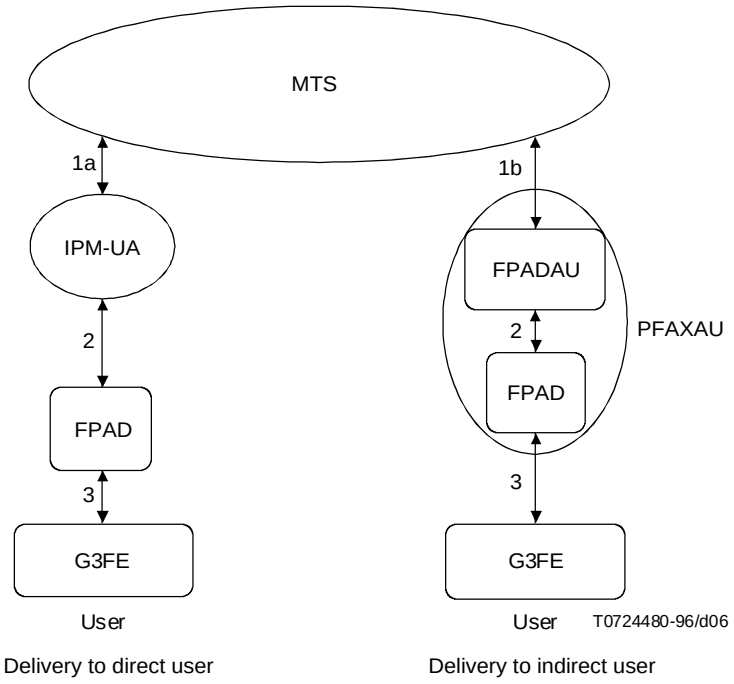

FIGURE B.4/X.5

Communication involved in Message delivery operation

TABLE B.4/X.5

Description of Message delivery operation

Interface	Procedure	Protocols involved (Rec.)	Argument	Status
1	The MTS transmits the IPM facsimile message to the IPM-UA or the FPADAU for delivery	X.411 X.420 X.421	As specified in X.400-Series Recs. for the following X.400 operations 1a delivery 1b export	
2	The IPM-UA or FPADAU converts the IPM message into a facsimile message and transmits it to the FPAD	X.39	*Recipient-fax-number*	M
			Fax-content	M
3	The FPAD transmits the facsimile message to the G3FE	X.38	Same as in interface 2	Same as in interface 2

B.6.4.5 Command operation

Command operation is an optional generic operation requested from a G3FE to MHS via FPAD. IPM-UA performs MHS operation to the MTS by converting the arguments of the *Command* operation received from an FPAD into MHS operation as defined in the X.400-Series Recommendations.

Only one operation is standardized so far which makes use of the *Command* operation : "*Cancel-deferred-delivery*". Other operations are for further study. *Cancel-deferred-delivery* is an optional operation which permits to cancel a *Message-submission* operation previously requested with the argument *Delivery-time-request* with *Deferred-delivery-time* designated.

Figure B.5 describes the *Command* operation used for *Cancel-deferred-delivery*. Procedures on the interfaces involved in this operation are summarised in Table B.5. Details of the procedures are defined in Annex E/X.38 and Annex D/X.39.

The arguments listed in Table B.5 are defined in Table B.2. They are used in Annex E/X.38 and Annex D/X.39. Conversion of information from these arguments to X.400 arguments to accomplish G3FE access to MHS via FPAD is defined in Annex D/X.39.

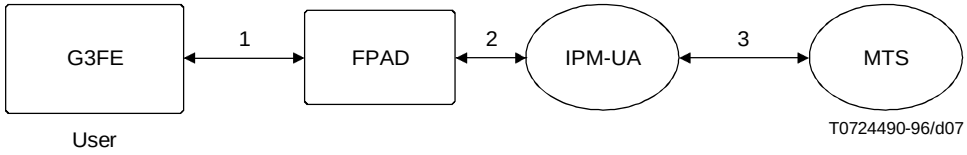

FIGURE B.5/X.5

Communication involved in Command operation for Cancel-deferred-delivery

TABLE B.5/X.5

Description of Command operation for Cancel-deferred-delivery

Interface	Procedure	Protocols involved (Rec.)	Arguments	Status
1	The G3FE transmits the arguments of the *Command* operation for *Cancel-deferred-delivery* and receives FPAD service signal in response	X.38	*Fax-originator-name*	O
			Fax-message-submission-identifier	M
			Password	O
2	The FPAD transmits the arguments of the *Command* operation for *Cancel-deferred-delivery* to the IPM-UA	X.39	Same arguments as in interface 1	Same status as in interface 1
3	The IPM-UA performs the Cancel-deferred-delivery-abstract-operation to the MTS	X.411	Mapping of arguments received from the FPAD to MTS arguments is specified in D.4/X.39	As specified in X.400-Series Recs.
M Mandatory O Optional				

The authentication of an IPM-UA by MTS is mandatory in the scope of MHS. The authentication of the IPM-UA by MTS is based on the authentication of a G3FE by the IPM-UA. Then, authentication of the G3FE by the IPM-UA via an FPAD is mandatory. Therefore, if *Fax-originator-name* and *Password* arguments are absent at interface 1 and 2, it is required to authenticate the G3FE by the IPM-UA by alternative means (e.g. authentication based on the networks).

B.6.4.6 Report operation

Report operation is a generic operation by which the MTS provides information to the G3FE. This operation is particularly used by the IPM-UA to send information to the FPAD related to a previous operation requested by a G3FE to MHS. When deferred delivery is requested during *Message-submission* or for the *Cancel-deferred-delivery* operation, return of result or error by using *Report* operation is mandatory.

Reporting to a G3FE the content of Receive report, Receive RN and Receive NRN (as defined in Recommendation X.420) is an example where the IPM-UA makes use of the *Report* operation to send information to the G3FE through the FPAD. The IPM-UA converts the MHS parameters of the information into a facsimile message which is sent to the FPAD through User sequence signals as defined in Recommendation X.39.

In case where the information refers to a previous operation requested by a G3FE to MHS (example report subsequent to a *Message-submission* operation), it shall include (in the *Fax-content*) the information required to uniquely identify the formal operation.

Figure B.6 describes the *Report* operation.

Procedures on the interfaces involved in this operation are summarised in Table B.6. Details of the procedures and the information transmitted are defined in Annex E/X.38 and Annex D/X.39.

The two mandatory arguments for *Report* operation are: *Fax-content* and *Recipient-fax-number*. These arguments are defined in Table B.2. They are used in Annex E/X.38 and Annex D/X.39.

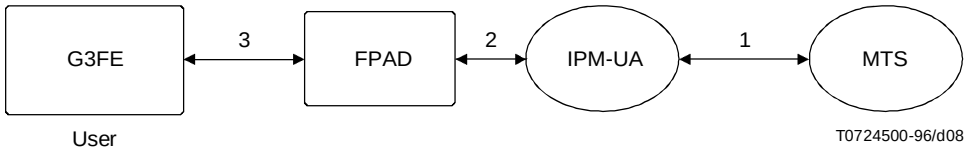

FIGURE B.6/X.5

Communication involved in Report operation

TABLE B.6/X.5

Description of Report operation

Interface	Procedure	Protocols involved (Rec.)	Arguments	Status
1	The MTS transmits to the IPM-UA some information refering to a previous operation	X.420	As specified in Rec. X.420	As specified in Rec. X.420
2	The IPM-UA converts the information into a facsimile message and transmits it to the FPAD	X.39	*Recipient-fax-number*	M
			Fax-content	M
3	The FPAD sends the facsimile message to the G3FE	X.38	Same as in interface 2	Same as in interface 2

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