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TELEMATIC, DATA TRANSMISSION, ISDN BROADBAND, UPT AND TELECONFERENCE SERVICES

OPERATIONS AND QUALITY OF SERVICE

SERVICE AND OPERATIONAL REQUIREMENTS OF STORE-AND-FORWARD FACSIMILE SERVICE

Recommendation F.162

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 F.162 was revised by Study Group I and was approved under the Resolution No. 2 procedure on the 4th of August 1992.

CCITT NOTE

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

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Recommendation F.162

SERVICE AND OPERATIONAL REQUIREMENTS OF STORE-AND-FORWARD FACSIMILE SERVICE

(revised 1992)

1 Introduction

1.1 The development and growth of store and forward equipment and the potential for the international interconnection of such equipment requires a common set of facilities and operational procedures to meet the needs of users. The COMFAX service may be accessed by a variety of terminals which can employ a variety of networks for access purposes. Access to a COMFAX service will be predominantly from facsimile terminals connected to its associated national public networks. However, there are advantages in defining features and procedures for the service to promote and assist the provision of such services in many countries.

2 Scope

2.1 This Recommendation defines the general principles and basic operational requirements of the COMFAX service provided by Administrations using computer-controlled facsimile store-and-forward units (Fax SFU). Although customer access will be, predominantly, from within the same country in which the Fax SFU is situated, this Recommendation sets out the minimum service requirements that should be provided to allow extension of the service, by the interconnection with one or more other Fax SFUS, across national boundaries, for message delivery purposes.

2.2 Technical requirements of the service are covered in the relevant T- and X-Series Recommendations.

2.3 Tariff and accounting aspects are covered in D-series Recommendations. Fax SFUs must record and store sufficient information for charging and settlement of accounts.

2.4 The operational aspects of the interconnection of Fax SFUs are covered in Recommendation F.163.

2.5 The interworking between COMFAX and other services using the message handling system (MHS) is a requirement; details are for further study. The interworking between the COMFAX service and other CCITT defined services is for further study.

3 Definitions

This Recommendation uses the terms listed below.

Note – Use of the terms ‘delivery’, ‘submission’, ‘transfer’, does not imply any specific protocol implementation regarding the X.400 Series Recommendations.

3.1 Fax SFU

A Fax SFU refers to the boundary within which the facsimile store-and-forward service is provided by one or more facsimile store-and-forward units under the control of one Administration. A Fax SFU must provide the functions of message submission, message delivery and in the case of interconnection message transfer.

3.2 message delivery

Message delivery is defined as the transfer of message data and responsibility for the message from a Fax SFU to a recipient address.

3.3 **recipient address**

A recipient address is defined as the ultimate destination of a message. A recipient address may designate a facsimile terminal or a storage device empowered to receive messages for a FAX recipient.

3.4 **message submission**

Message submission is defined as the transfer of message data and responsibility for the message from the originator to the COMFAX service (e.g. typically indicated by the successful completion of the T.30 protocol).

3.5 **message transfer**

Message transfer is defined as the transfer of message data and responsibility for the message from one Fax SFU (or transfer system) to another Fax SFU (or transfer system).

3.6 **transfer system**

A transfer system is defined as a system which accomplishes message transfer as defined above. A transfer system may or may not provide end user facsimile services.

4 Service description

4.1 Customers may submit messages to the COMFAX service for delivery to one or more recipients. The service provides a range of facilities which may be used by the customer for message management purposes. Facilities such as cover page and deferred delivery allow the customer to specify how messages are handled in their transmission from source to destination. Other facilities, such as customer reports, may provide the customer with more complete messages statistics than are generally available in the real-time group 3 facsimile service.

The service shall accept messages submitted in group 3 facsimile format. Acceptance of messages in other formats is optional.

4.2 Customers access the COMFAX service via public networks. Messages are also delivered to destination terminals via public networks.

4.3 Where the service is provided by means of the interconnection by two or more Administrations interworking between Fax SFUs is as defined in Recommendation F.163. Interworking using group 3 facsimile image format is mandatory. Interworking using other formats is optional.

5 Service facilities

The provision of service facilities to the facsimile customer is a local matter and may vary between Administrations. However, Administrations extending their service across international boundaries by interconnection with one or more Fax SFUs should regard the basic service facilities as mandatory or optional in accordance with Table 1/F. 162.

5.1 *Access management*

Access management is the identification and validation of the originating customer. This may be achieved by passwords where pre-registration is involved. In cases where pre-registration is not employed, the identification of the originating customer may be achieved through the transfer of automatic number identification data from the access network to the Fax SFU. Where passwords are used, it should be possible for the customer to change the password periodically. The exact procedures for security of access should be a local matter.

TABLE 1/F.162

Classification of COMFAX service facilities

Service facility	Classification	Section reference
Access management	M	5.1
Single address message	M	5.2.1
Multiple address message	O	5.2.2
Address list codes	O	5.3
Message identification	M	5.4
Class of message delivery	O	5.5
Message deferral	O	5.6
Cover page	O	5.7
Message failure report	M	5.8.1
Message delivery report	O	5.8.2
Facsimile format conversion	O	5.9

M Mandatory

O Optional

5.2 *Message addressing*

The method of specifying the recipient address is a local matter.

5.2.1 *Single address message*

A single address message is a message with one recipient address.

5.2.2 *Multiple address message*

A multiple address message is a message with more than one recipient address. Fax SFUs should be able to accommodate messages addressed to 512 recipient addresses.

5.3 *Address list codes*

An address list code is a code which is used to reference a pre-registered list of recipient addresses. A customer may use an address list code at the time of message submission.

5.4 *Message identification*

The message reference is an identification which can be used to unambiguously identify a message relative to the message originator. When interconnection between Fax SFUs is required, the message reference must be linked to the message identifier (see Recommendation F.163 § 6.3).

5.5 *Classes of message delivery*

There may be three classes of message delivery:

a) urgent,

b) nominal,

c) non-urgent.

The process by which the class of message delivery is selected should be a local matter. Quality of Service objectives for the above classes of delivery are shown in § 8.

5.6 *Message deferral*

The process by which the message deferral is selected is a local matter. There may be two types of message deferrals:

a) to a time specified by the originator;

b) to a time determined by the service provider.

Note 1 – In a) the customer may chose any of the classes of delivery supported to take effect at the specified time.

Note 2 – Deferral b) is only provided when a customer has selected the non-urgent class of delivery.

5.7 *Cover page*

A cover page is a service provided facsimile page which is automatically added to the front of a customer provided message. the size of the cover page is the same as the first page of the message. All of the data presented on the cover page should be displayable within this size. The cover page may contain information concerning the originator, recipient, and the message. A customer may select the cover page facility on a per message basis.

5.7.1 *Multiple address cover page*

Cover page generation for multiple address messages is supported. A cover page request applies to all recipients of the multiple address message. The service should have the capability to provide a different cover page per recipient of a multiple address message.

5.7.2 *Cover page selection*

A customer of the COMFAX service should have three options in selecting a cover page:

a) no cover page;

b) COMFAX Service cover page;

c) customer defined cover page.

5.7.3 *COMFAX service cover page*

In this case, the COMFAX service is responsible for providing a cover page. The contents of the cover page and selection are described in the following section.

5.7.3.1 *Cover page contents*

The contents of the cover page are found in Table 2/F.162

5.7.3.2 *Selection and display of contents in the COMFAX service cover page*

All of the information fields listed in Table 2/F.162 which are provided in a message, shall be displayed on the cover page. Fields which are required by the protocol will, therefore, always be displayed. Fields which are optional will be displayed if the field is present. Control and suppression of the display of fields is for further study.

A suggested layout can be found in Annex A.

5.7.4 *Customer defined cover page*

The method of providing customer defined cover pages is a local matter.

TABLE 2/F.162

COMFAX service cover page contents

Field	Length	PM/PA
Image field	Maximum 8 cm	PM (Note 1)
Recipient information		
NAME: choice of		
Personal name	Note 3	PA
Common name	Note 3	PA
Free form name	Note 3	PA
ORGANIZATION	Note 3	PA
ORGANIZATIONAL UNIT(S)	Note 3	PA
PHYSICAL ADDRESS LINES	Note 3	PA
FAX NETWORK ADDRESS	Note 3	PA
TELEPHONE NUMBER	Note 3	PA
Message information		
Pages	3 bytes	PM
Priority	1 byte	PM
Submission date and time	Note 5	PM
Message reference	Note 4	PM/PA (Note 2)
Subject	Note 3	PM
Originator information		
NAME: choice of		
Personal name	Note 3	PM
Common name	Note 3	PM
Free form name	Note 3	PM
ORGANIZATION	Note 3	PM
ORGANIZATIONAL UNIT(S)	Note 3	PM
PHYSICAL ADDRESS LINES	Note 3	PM
FAX NETWORK ADDRESS	Note 3	PM
TELEPHONE NUMBER	Note 3	PM
Additional recipients	Note 6	PM/PA

PA Per address

PM Per message

Note 1 – The image field is either customer provided or service provided with a maximum length of 8 cm and fall within the guaranteed reproducible area of the group 3 facsimile page, in accordance with Recommendation T.4, appendix I.

Note 2 – The message reference shall be unique for each message, an additional three digit part may be optionally used to signify each recipient.

Note 3 – Same value as in Recommendation F.401/X.402.

Note 4 – The message reference is described in § 5.4.

Note 5 – The date and time of submission of the message is to be displayed in the local time; a time zone indication should be provided. Translation of submission time to time zones other than the Fax SFU time zone is a local matter.

Note 6 – Display of additional recipients is an item for further study. A method of requesting additional recipient fields is to be defined. If necessary, additional cover pages may he used to provide additional recipient information.

5.8 *Customer report*

Message status information provided in level 1 and level 2 notifications described in Recommendation F.163 may be used to provide originators with customer reports, as described in the following sections. The presentation of the content of reports and the handling of multiple address reports is a local matter. The method of delivery of the reports is a local matter, e.g., forced -- facsimile or queried -- delivery.

5.8.1 *Message failure report*

The service should report to the originator the failure to deliver a message to the destination address.

The report to the customer may provide at least the following information:

– message reference;

– recipient address;

– last attempt time.

Note – Provision of time zone indication is a local matter.

5.8.2 *Message delivery report*

The service may report to the originator the successful delivery of a message to the recipient address.

The report to the customer may provide at least the following information:

– message reference;

– recipient address;

– time of delivery to recipient address;

– number of pages delivered.

Note – Provision of time zone indication is a local matter.

5.9 *Facsimile format conversion*

The conversation service facility enables a message to be converted from one facsimile group to another, e.g. group 3 to group 4 conversion or vice versa. If a Fax SFU supports facsimile terminals other than group 3, then it shall support conversion between group 3 and that format of. The conversion should be an automatic facility and should not require additional procedures for users.

6 Access procedures

Access procedures are a local matter but should make provision for security of access, destination address selection, delivery instructions and message submission. An example of access procedures is given in Annex B.

7 Delivery procedures

7.1 *Automatic call retry*

Procedures for automatic call retry on terminal busy, ringing no reply or incomplete calls, subject to national regulatory requirements should be provided. Where the service is extended across national boundaries for the delivery of messages, then the target delivery times specified in § 8 should be taken into account when setting the call retry periods.

7.2 *Call records*

A call record confirmation successful or unsuccessful delivery to the recipient address should be maintained, which will include the relevant information provided by notifications. The storage of call records is a local matter.

7.3 *Recovery from interrupted message delivery*

If a message is interrupted during the delivery from the destination Fax SFU to the destination terminal, subsequent attempt to deliver the message should commence with the first page not successfully delivered. Delivery should be attempted as soon as possible to avoid significant time periods occurring between receipt of the parts of the message. the recipient must be given sufficient information to correlate the parts of the message.

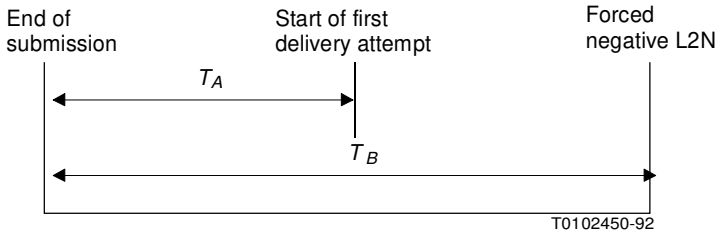
8 Quality of Service

8.1 The introduction of a Fax SFU should not increase, on a per address basis, the probability of message loss or corruption.

In the event of system failure, all accepted messages should be traceable. If messages have to be cancelled, because of system failure, the originating customers should be informed.

8.2 *Quality of Service targets*

8.2.1 When the service is extended across international boundaries for delivery purposes, it is recommended that the Fax SFU design be such that Quality of Service targets shown in Figure 1/F.162 and Table 3/F.162 are maintained.



T_A Time from the end of submission of the message or the time specified for deferred delivery to the start of the first call attempt.

T_B Time from the end of submission of the message or the time specified for deferred delivery to the forced generation of a negative 2nd level notification and termination of message delivery attempt (unless transmission has already commenced).

FIGURE 1/F.162

Illustration of Quality of Service times

TABLE 3/F.162

Quality of service targets

Class of message delivery	T_A	T_B
Urgent	0.5 hours	2 hours
Normal	2 hours	12 hours
Non-urgent	18 hours	24 hours

8.2.2 The Fax SFU should be capable of meeting the Quality of Service targets at least 95% of traffic received during any one hour period.

8.2.3 While delivery is being attempted the Fax SFU may send interim reports to the customer showing that delivery of the message is still outstanding.

8.3 *Storage capacity*

Storage capacity will vary from one Fax SFU to another according to the volume of traffic. However, sufficient storage capacity should be provided to cater for an average message size of 2 pages, and up to maximum message size of 128 pages. With associated notifications and possible cover page requirements, this could represent a total data content of 6 megabytes.

8.4 *Public network circuits*

8.4.1 The provision of network circuits for the reception and delivery of traffic by the Fax SFU will vary between Administrations. However, sufficient outgoing public network circuits should be provided to meet the Quality of Service targets of § 8.2.

8.4.2 Administrations should make observations to evaluate the performance of the Fax SFU to ensure, in particular, that public network provisions are such that Quality of Service targets of § 8.2 are being achieved.

8.5 *Duration of the service*

The COMFAX service should be continuously available.

8.6 *Enquiries and complaints*

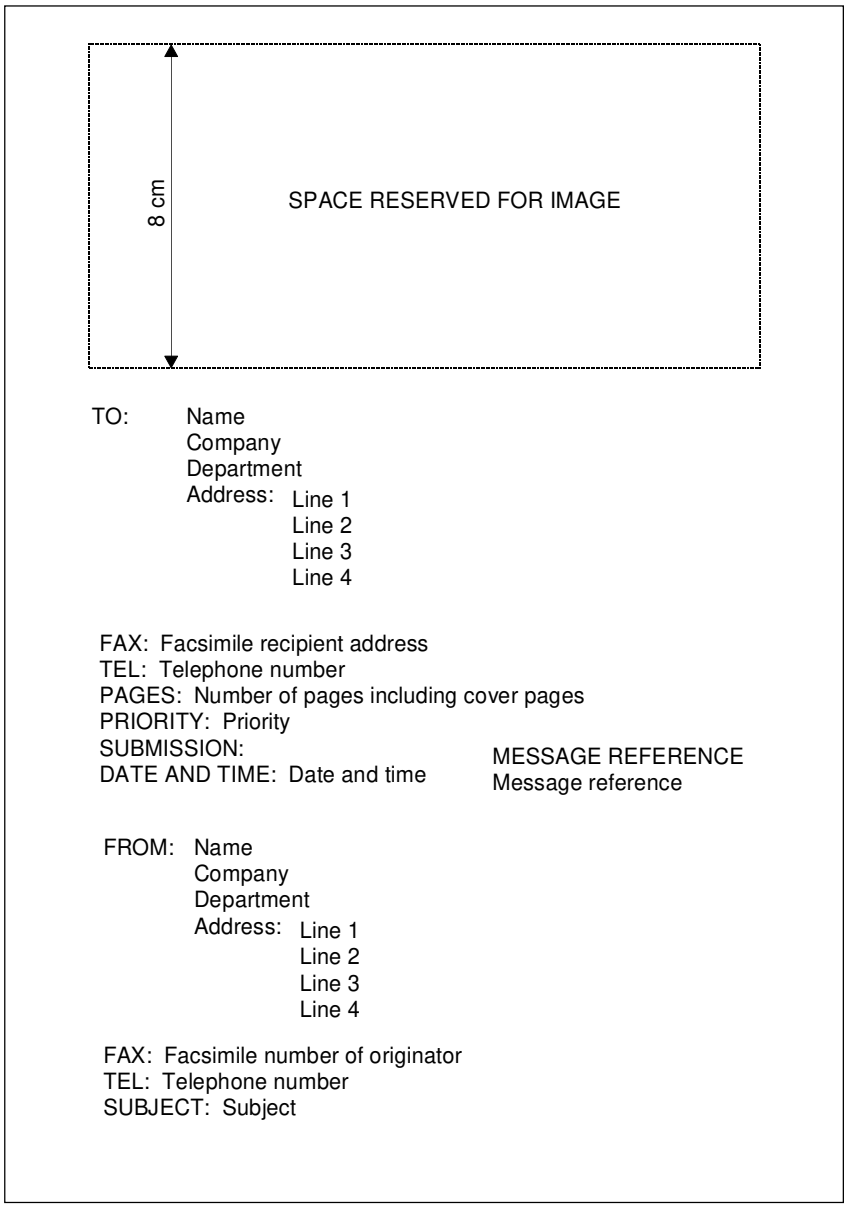
Support facilities should be provided to their customers by Administrations. Customers should address any complaints to the Administration providing them with the COMFAX service.

ANNEX A

(to Recommendation F.162)

(This annex is not an integral part of this Recommendation)

Example of COMFAX service cover page



ANNEX B

(to Recommendation F.162)

(This annex is not an integral part of this Recommendation)

Example of access procedures

B.1 Access to the COMFAX system will normally be via the public switched telephone network (PSTN).

B.2 After normal voice call establishment procedures, the COMFAX system should answer with a tone or voice prompt requesting the user to input their respective user identity (ID) code by means of either the facsimile terminal mediation function (MF) keypad or an associated system compatible device.

B.3 The COMFAX system should then request the input of a personal identity number (PIN) to ensure security of use. The request for the PIN may be prompted by either a tone or voice message.

B.4 When the ID and PIN codes have been successfully validated, the COMFAX system should request the input of the required destination address or addresses. These may be input in the form of the full national and intonational telephone number, including national access code requirements or code representing a pre-stored address list. The request for address input should be prompted by a tone or voice message. The destination address information should be entered by using either the facsimile terminal MF keypad, or an associated system compatible device.

B.5 Delivery instructions, i.e. deferred delivery, may be entered by selection of the appropriate code. The request for delivery instructions may be prompted by a tone or voice message. The required code should be entered by using either the facsimile terminal MF keypad or an associated system compatible device.

B.6 When destination address input and delivery instructions are completed, the COMFAX system should request the submission of the facsimile message. The request for message input may be prompted by a tone or voice message.

B.7 At the end of message input the PSTN call should be cleared using normal group 3 facsimile procedures.

B.8 The choice of tone or voice message prompts is a local matter. Where voice prompts are used, they should be in the language of the originator. The support of more than one language on a COMFAX system is a local matter.