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CCITT

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SERIES F: NON-TELEPHONE TELECOMMUNICATION SERVICES

Teletex service

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Reedition of CCITT Recommendation F.200 published in Blue Book, Fascicle II.5 (1989)

NOTES

1   CCITT Recommendation F.200 was published in Fascicle II.5 of the *Blue Book*. This file is an extract from the *Blue Book*. While the presentation and layout of the text might be slightly different from the *Blue Book* version, the contents of the file are identical to the *Blue Book* version and copyright conditions remain unchanged (see below).

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

Recommendation F.200

<p align="center">**TELETEX SERVICE**[1]</p>

1   Introduction

1.1   *Scope*

1.1.1   This Recommendation defines the rules to be followed in the automatic international Teletex service.

1.1.2   Teletex is an international service, offered by Administrations, enabling subscribers to exchange correspondence on an automatic memory-to-memory basis via telecommunication networks.

1.1.3   In the basic Teletex service the element of the correspondence between people using the service is the page-formatted document with the page, as the smallest unit of text treated as an entity. No restrictions shall exist for generation of the text and/or the positioning of text within the printable area on a page.

Note – Exception to this rule is the application of the processable mode of operation for which the page as basic element of correspondence cannot be used.

1.1.4   It is not the intention of the service to compete with or to duplicate public data services, although the use of Teletex for transmission of data (e.g. to question a data bank) may be a possible by-product.

1.1.5   Questions of an essentially technical nature concerning the Teletex service are dealt with by other Recommendations.

1.1.6   Throughout this Recommendation the term Teletex equipment is used addressing user's equipment independently, whether this equipment is a dedicated teletex terminal or a terminal or system with added Teletex capabilities.

1.2   *Service definitions*

1.2.1   *General*

1.2.1.1   The Teletex service provides communication between equipment which is used for the preparation, editing and printing of correspondence.

1.2.1.2   It is an essential characteristic of the Teletex service that it provides a basic level of compatibility between all equipment participating in the service.

1.2.2   *Basic requirements*

1.2.2.1   The basic requirements of the Teletex service are as follows:

a)   A basic level of compatibility is provided between any two Teletex terminals both nationally and internationally so that they may communicate formatted documents composed of character-coded information to each other. This is to be achieved by requiring that terminals comply with Recommendations T.60, T.61, T.62 and T.70. (T.70 does not yet include operation on the ISDN.)

b)   It is for each Administration to decide on the network(s) on which the Teletex service will be carried. There shall be no restriction on the type of network to be used.

c)   Real time connection between Teletex equipment operating at different speeds is required for the duration of the call. The information on the successful transmission should be given by the receiving equipment to the sending equipment within the call.

d)   It should be possible to extend the Teletex service to any number of countries.

e)   The graphic character repertoire of any office machine keyboard that satisfies the provisions of Recommendation T.61 and that is acceptable to the national Administrations for use within the Teletex service should be permitted as a source.

f)   In order to enable private applications and facilities, such as, for example, encryption, there should be no technical limitation on the bit sequence of the users' information that may be transmitted.

g)   Local mode operation should not be disturbed by incoming calls under normal operating conditions.

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[1]   See Resolution No. 13 at the beginning of this fascicle.

h)   A received Teletex message can be printed or displayed otherwise as decided by the recipient and equipment characteristics. If the message is printed, the receiving subscriber will be furnished with a document that is identical with that produced by the sending subscriber as far as its contents, layout and format are concerned.

i)   It is intended that the service should require no changes to the Recommendations for existing services or networks.

j)   The Teletex service will provide the ability to intercommunicate in both directions with the telex service by means of conversion facilities. (Refer to Recommendations F.201, U.201 and T.90.)

k)   The Teletex service allows for intercommunication with the IPM service using a Public Teletex Access Unit (refer to Recommendation F.422).

l)   Facilities for providing a permanent copy (not necessarily on paper) of every message should exist at every Teletex installation.

m)   The man/machine interface in the Teletex service should be as simple as possible in accordance with the normal use of office equipment.

Note – The use of "terminal" is in accordance with the Note in § 5.3.

1.2.3   *Standardized options*

1.2.3.1   It is recognized that some subscribers may need to use their Teletex equipment to communicate nationally and internationally using service features which are not included in the Teletex basic requirements, but which are, nonetheless, frequently used in office equipment. A number of CCITT-standardized options should, therefore, be defined. However, the provision of any option in a service could lead to some degree of incompatibility and the number of standardized options should be restricted, as shown below, to those features for which a clear international need can be foreseen.

The sending Teletex equipment shall ensure the transmission of documents using only those options which have been indicated as being available at the receiving Teletex equipment.

1.2.3.2   The standardized options should provide means for:

a)   different character spacings (initially 12 and 15 pitch);

b)   different metric values for line spacing (initially 3.175 mm and 5 mm);

c)   selection of different graphic rendition of any selected portion of the text;

d)   indication that special stationery should be used;

e)   use of a wide range of character repertoires other than the Teletex basic character repertoires (both national and application-orientated);

f)   specification of increased printable areas for paper sizes normally used for office correspondence; e.g. ISO A4, A4L and North American paper size;

g)   escape into national and private options;

h)   use of Kanji character repertoires (JIS [2]) C6226) and associated character spacing (6-pitch) and page formats (ISO A4, B5, B4);

i)   specification of paper sizes other than ISO A4 or A4L as well as the associated printable areas.

Note 1 – Administrations are encouraged to ensure that standardized and nationally defined options are available and used in such a way as to minimize the need for the introduction of private use options.

Note 2 – There is a need for further study as the service develops. Changes may be required to this list.

1.2.3.3   In addition to the basic mode of operation, a number of possible other modes may be offered, which in principle should also be able to exchange the basic mode between them.

a)   *Use of the mixed mode of operation*

This mode provides the user with means for transferring documents containing graphical information encoded using techniques other than those defined for the basic Teletex service, e.g. the Teletex/Telefax mixed mode of operation (see Recommendation F.230).

b)   *Use of the interactive mode of operation*

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[2])   JIS: Japanese Industrial Standard.

The interactive mode allows Teletex equipment (terminals or fully automatic systems) to communicate in real time with each other.

c) *Use of the processable mode of operation*

The processable mode of operation provides the user with means of interchanging documents containing sufficient information to reprocess them efficiently (see Recommendation F.220).

d) *Network based storage*

In addition network based store-and-forward and (at the discretion of the recipient) store-and-retrieve facilities may become available (see Recommendation F.203).

1.3   *Definitions of terms used in the Teletex service*

1.3.1   The terms listed in Annex B contain the definitions given as they are used in these provisions.

1.4   *Availability of service*

1.4.1   In principle the Teletex service offered by Administrations shall normally operate on a fully automatic basis and be open continuously.

1.5   *Classes of call*

1.5.1   There are two accepted classes of call:

a) ordinary private Teletex calls;

b) service calls, including privilege telecommunications using Teletex, which in accordance with Recommendation D.193, may be offered during conferences and meetings of the ITU. (Where Administrations choose to allow service calls via semiautomatic or manual operation these calls shall be permitted.)

1.6   *Restrictions on the use of the Teletex service*

1.6.1   Administrations reserve the right to suspend the Teletex service in the cases mentioned in Articles 19 and 20 of the *Convention* [1].

1.6.2   Administrations shall refuse, in accordance with national regulations, to make the Teletex service available to an agency that is known to be organized for the purpose of sending or receiving messages to/from third parties and for retransmission by any means in order to avoid the full charges normally levied for such correspondence.

1.6.3   Administrations shall refuse to make Teletex service available to a user whose activities may be regarded as an infringement of the functions of an Administration in providing a public telecommunication service.

2   Network requirements

2.1   It is the responsibility of Administrations to decide in which network(s) the Teletex service is to be provided. The term Teletex network, as used in this Recommendation, shall be taken to mean a network on which Teletex service is provided.

2.2   Considering that the Teletex service my be operated on the following networks:

a) Teletex in a circuit switched public data network (CSPDN);

b) Teletex in a packet switched public data network (PSPDN);

c) Teletex in a public switched telephone network (PSTN);

d) Teletex in an integrated services digital network (ISDN).

Interworking between Teletex terminals supported on any network must be possible.

2.3   The procedures for call set-up to Teletex equipment connected to different networks shall be as similar as possible.

2.4   The international connection shall use international data transmission facilities. Exceptionally, bilateral agreements to use other means may be made where necessary.

2.5   Connection between PSTNs may use international telephone circuits.

2.6   In the case of international interworking between Teletex equipment connected to dissimilar networks, Recommendation X.300 shall apply.

2.7   International routes shall be capable of supporting user data rates of at least 2400 bits/s (see applicable Recommendations).

Note – It is recognized that national implementations of the Teletex service on varying types of network may involve national operation at different information throughput rates. It should be noted that in these cases buffering and/or flow control may be required (see Recommendations T.60, T.62 and T.70).

2.8   International routes between ISDNs for the Teletex service shall be capable of supporting user data rates of 64 bit/s.

3   Numbering plan

3.1   Considering that it is the responsibility of each Administration to decide on the network(s) to be used for the Teletex service in accordance with the options noted in § 2, the Teletex numbering plan must accommodate these options.

3.2   The Teletex numbering plan is based on the individual numbering plans of each of these networks, i.e. Recommendation E.163 for PSTNs, Recommendation X.121 for public data networks and Recommendation E.164 for ISDN.

3.3   Each of these numbering plans provides for international calls between similar networks.

3.4   The numbering plan for PDNs (Recommendation X.121) provides for calls to PSTNs and ISDNs.

3.5   As the numbering plan for PSTNs does not provide for calls to PDNs, those Administrations that use the PSTN nationally for the Teletex service must provide for call set-up procedures to give access to the Teletex service on a PDN in other countries.

3.6   The numbering plan for ISDNs (Recommendation E.164) provides for calls to PDNs.

3.7   Numbering and addressing in intercommunication between the Teletex service and the IPM (Interpersonal Messaging) Service are in accordance with rules as laid down in Recommendation F.422.

4   Character repertoire

4.1   The basic Teletex character repertoire of graphic characters and control functions for the international Teletex service and the coding of these characters for transmission between Teletex equipment are found in Recommendation T.61.

4.2   Other recognized national and/or application-oriented character repertoires can be used. These repertoires should only be used after registration by the CCITT and in accordance with the rules given in Recommendation T.61.

4.3   To indicate the use of a subset of the Teletex graphic character repertoire, a control function IGS (Identify Graphic Sub-repertoire) is used.

4.4   Each IGS is registered by the CCITT and each Administration can ask for registration of one or more IGSs following the rules specified in the appropriate Recommendation.

4.5   If a graphic symbol that is not in the basic Teletex character repertoire is generated, the service cannot guarantee that it will be represented in a recognizable form at the receiving Teletex equipment.

5   Operation of the Teletex service

5.1   *General*

5.1.1   The Teletex service in each country and the international interconnection between countries or networks shall use automatic switching allowing any Teletex user to reach any other Teletex user using fully automatic selection.

5.1.2   It is a requirement to allow the through-connection of a call between a Teletex equipment connected to a private automatic branch exchange (or similar systems) and equipment connected to public exchanges used for the Teletex service.

5.1.3   A virtual dialogue mode of operation, which appears to the subscriber as ainteractive mode, may become possible, as a new standardized option within the Teletex service, both allowing for communication between persons and data base access.

5.1.4   Mixed modes of operation within the Teletex service using specialized techniques such as they are used in the Telefax service as well as character-coded texts, are important additional facilities for the Teletex service.

5.1.5   Other standardized options (such as processable modes and EDI) may be offered for meeting applications to be undertaken via Teletex.

5.1.6   Two-way alternate (TWA) communication is a capability of the Teletex service, which also includes one-way communication (OWC); the calling subscriber will have full control of the Teletex call.

5.1.7   Intercommunication with other services such as telefax, interpersonal messaging, telex and videotex is envisaged and is (to be) defined in a separate Recommendation.

5.2   *Call phases*

5.2.1   The operations for each call may be divided into the following three phases:

    a)   Preparation

        –   preparation of the information in local mode;

        –   loading of the information into memory.

    b)   Transmission (in principle, automatic)

        –   call establishment;

        –   pre-information phase (see Note);

        –   information transfer from memory to memory (see Note);

        –   post information phase (see Note);

        –   call clearing.

        Note – During these parts of the transmission phase the network must be transparent with respect to control procedures.

    c)   Output

        –   emptying the memory.

    Note – The information may consist of one or more Teletex documents each consisting of one or more Teletex pages.

5.2.2   The control procedures as specified in Recommendation T.62 shall be used as end-to-end communication procedures between any equipment participating in the basic Teletex service.

5.2.3   The network independent basic transport service for Teletex is specified in Recommendation T.70.

5.2.4   The network-dependent control procedures for the Teletex service should be those that are defined for that network on which the Teletex service is provided (see the relevant Recommendations).

5.2.5   Further information should be available through end-to-end control procedures, which may be used by Teletex equipment to identify additional information found in a document. Details of the additional document information are for further study.

5.2.6   Reference to the control procedures to be applied in intercommunication with other services can, in case of differences with the Teletex service, be found in the appropriate Recommendations covering these intercommunication cases.

5.3   *Call identification*

    Note – In this paragraph "terminal" is used to identify the end-point of responsibility of the Teletex service.

5.3.1   *General*

5.3.1.1   The Teletex procedures include the exchange of reference information prior to sending any document. This reference information includes identification of the parties to the call as well as the date and time. Also, supplementary reference information is exchanged during a call to allow reference to an individual document or page for error recovery or other purposes.

5.3.1.2   This reference information, taken together, is defined to be printable on a single line called the call identification line. Use of this information is a local decision except in recovering from an interrupted transmission. In the case of automatic linking, the use of this information is for further study.

5.3.2   *Format of the call* identification line

5.3.2.1   The call identification line is composed of four fields as follows:

   –   Field 1: identification of the called terminal;

   –   Field 2: identification of the calling terminal;

   –   Field 3: date and time;

   –   Field 4: supplementary reference information.

5.3.2.2   Presentation of this information may be made on the first or last line on each page of a document or on only one page of a document, or it may be omitted. The maximum allowable number of printable lines transmitted per page is reduced by one to allow optional printing of the call identification line. The choice of whether and where this presentation is made is a local decision except in certain recovery situations.

5.3.2.3   Where the transmission of a document is interrupted for any reason, the receiving equipment should print, or otherwise display, only the acknowledged pages as defined in Recommendation T.62. Both terminals should also notify the occurrence of interruption to operators (see §§ 7.8 and 7.9).

5.3.2.4   When the call identification line is presented the format shown in Figure 1/F.200 is used.

Field 1		Field 2		Field 3		Field 4
Identification of the called terminal	/	Identification of the calling terminal	/	Date and time	/	Supplementary reference information
24 characters	1	24 characters	1	14 characters	1	7 characters
72 characters						

FIGURE 1/F.200

Format of the call identification line

5.3.2.5   Field 1 (identification of the called terminal) contains the identification of the called terminal in the format defined in § 7.5. It is originated in the control procedures by the called terminal equipment.

5.3.2.6   Field 2 (identification of the calling equipment) contains the identification of the calling terminal in the format defined in § 7.5. It is originated in the control procedures by the calling equipment.

5.3.2.7   Field 3 (date and time) contains the date and time reference information showing the year, month, day, hour and minute in the fixed format of 14 characters thus YY-MM-DD-HH:MM. This field is originated in the control procedures by the calling terminal. (*Note* – The calling terminal may obtain this information from the network, an internal clock or manual input.) This time represents the local time at the calling terminal and is intended to represent the time of call origination.

5.3.2.8   Field 4 (supplementary reference information) contains a document reference number, a hyphen (coding 2/13) as a separator and a page reference number as defined in Recommendation T.62. This field has a fixed length of seven character positions and is originated in the control procedures by the terminal that is sending the associated documents.

         In the processable mode of operation as defined in Recommendation F.220, the page as basic element of correspondence cannot be used. As a consequence part 4 of the CIL presenting the page number will not be printed.

5.3.2.9   Each of the fields of the call identification line is separated by the solidus (/) character (coding 2/15).

5.3.2.10   Only graphic characters of the Teletex graphic character repertoire corresponding to those of International Telegraph Alphabet No. 2 are used in the call identification line.

5.3.3   The long term objective for identification of Teletex equipment is the application of Recommendation F.351. This requires further study.

5.4   *Special services*

5.4.1   Since the effectiveness of the Teletex service will be increased by the availability of special facilities such as those given in the list of examples below, Administrations should give attention to their early introduction:

- network-based storage (see Recommendation F.203);
- abbreviated address calling;
- multi-address calling;
- identification by the network;
- automatic date and time indication;
- indication of charge.

5.4.2   Most of these facilities will be provided by the network on a national basis and it should be borne in mind that the Teletex service will be carried by different networks.

5.4.3   They may also be provided from Teletex equipment and systems instead of, or as well as, from the network.

5.4.4   The network should not impose any limitations on optional and private use applications.

5.4.5   Intercommunication with other services is covered in separate Recommendations.

5.4.6   For the ISDN, the international supplementary services which may be used for Teletex in the circuit mode on the B channel are, as a minimum as follows: in accordance with Recommendation X.30:

i)   closed user group;

ii)   multiple numbers for a subscriber;

iii)   direct dialling in (DDI);

iv)   user-to-user signalling;

v)   calling line identification presentation;

vi)   calling line identification restriction;

vii)   connected line identification presentation.

Use of other supplementary services is for further study.

5.4.7   The use of national supplementary services is beyond the scope of this Recommendation. Indication-wise, the following is a list of national supplementary services available in the ISDN;

i)   number selection barred;

ii)   direct call;

iii)   selective direct call;

iv)   abbreviated address calling;

v)   redirection of calls to a mailbox in the network;

vi)   outgoing calls barred;

vii)   incoming calls barred;

viii)   line hunting with only one TID;

ix)   connect when free;

x)   call waiting;

xi)   centralized distribution in original country of record private;

xii)   information;

xiii)   centralized PBS facilities;

xiv)   credit card calling from public booth;

xv)   date and time call duration record for billing;

xvi)   directory enquiries;

xvii)   fault reporting service;

xviii)   freephone service (name and definition of this service need to be changed for Teletex);

xix)   general deactivation;

xx)   general telecommunication information;

xxi)   operator access to, and control of, supplementary services;

xxii)   out of area lines;

xxiii)   priority selection;

xxiv)   store and forward;

xxv)   deferred delivery;

xxvi)   itemized bill;

xxvii)   traffic statistics;

xxviii) bilateral closed user group;

xxix)   bilateral closed user group with outgoing access;

xxx)   on-line facilities parameter registration/cancellation;

xxxi)   DTE inactive registration/cancellation;

xxxii)   RPOA selection.

5.4.8   *Supplementary services for Teletex in the packet mode on the ISDN*

5.4.8.1   The provision of packet mode services within the ISDN in accordance with Recommendation X.31 is for further study.

5.4.8.2   Equally the use of international supplementary services for packet mode on international ISDNs is for further study.

6   Quality of service

6.1   *General*

6.1.1   The Teletex service provides any user with the facility to communicate text, or other suitable data, to any other user nationally and internationally.

The characteristics of the user equipment, as described in § 7 are of relevance to this matter.

Note 1 – As practical experience of the implementation of the Teletex service has increased, the need to revise the quality of service figures quoted in this section has been foreseen.

Note 2 – The quality notions for the Teletex service do not necessarily apply to all extensions and types of intercommunication. Each case may need its own arrangements to be defined in the appropriate Recommendations.

Note 3 – Additional quality of service parameters may be added.

6.1.2   In order to ensure to the user of the Teletex service (i.e. to the sender) an adequate Quality of Service, which includes information about the minimum presentation capabilities on the receiving side, the capability of printing a paper copy shall be available at least once at each Teletex installation. This capability need not necessarily reside at each terminal, but rather could be provided by a central facility.

6.2   *Teletex equipment*

6.2.1   The quality of the service depends, among other things, on the ability of the called equipment to receive calls.

6.2.2   *Circuit switched public data networks*

6.2.2.1   In order to ensure an adequate grade of service, it should be an objective that the total loss probability of calls to a Teletex number should not exceed 0.05.

6.2.2.2   It is understood that the total loss probability (P_E) is composed of the loss probability due to incoming traffic (P_i), outgoing traffic (P_o) and due to temporary memory overload (P_m). P_m should not exceed 0.005 at a traffic intensity of 2 received messages per busy hour.

6.2.2.3   The values specified above for total loss probability shall apply to basic teletex, not covering the use of processable, interactive and mixed modes of operation. For the purpose of calculation it is assumed that 20% of the 24-hour total traffic occurs during peak hours. The foregoing values assume a skewed distribution for the character content

of normal business correspondence, the distribution having a mean value of 1600 characters (including approximately 400 characters "header" information), a standard deviation of 800 characters and a mode of 1214 characters.

6.2.3   *Packet switched public data networks*

The quality of service criteria for these networks is the subject of separate Recommendations.

6.2.4   *Public switched telephone networks*

The quality of service criteria for these networks is the subject of separate Recommendations.

6.2.5   *Integrated Services Digital Networks*

The quality of service criteria for these networks is the subject of separate Recommendations.

6.2.6   The quality of service criteria for the above networks is for further study. The network used should in principle not degrade the quality of service for Teletex.

6.3   *Error protection*

6.3.1   To ensure call integrity, error protection will be provided by Teletex control procedures (see Recommendations T.62 and T.70). The error rate on the pre-information, information and post-information phases should not exceed 1 in 10^6 characters.

6.3.2   The control procedures to be applied to this end in intercommunication with other services may be different and are then a matter for the appropriate Recommendations (e.g.Recommendation F.422 for intercommunication between the Teletex service and the IPM service.)

6.4   *International routes*

6.4.1   The capacity of the routes between countries also has an important impact on the quality of the service. For that reason, the number of circuits provided between any two networks should be such that during peak hours not more than one call in 50 is lost due to a lack of international circuits (see Recommendation T.62).

6.5   *Availability of service*

6.5.1   The national and international facilities of the Teletex service, including the Teletex/telex conversion facilities, shall be open continuously.

6.5.2   Teletex user equipment for which call numbers are published in the directories shall, in principle, be available to accept calls continuously.

6.5.3   In order to meet the requirement of § 6.5.2, it is permissible to use a Storage Facility which can be network or customer premises based. This facility must appear in every respect to the originator as Teletex equipment. (Refer to Recommendation F.203.)

6.5.4   Two methods of delivery are available from the Document Storage Facility to the called Teletex equipment: automatic delivery, where the Storage Facility delivers messages when the called equipment is available to receive them, and retrieval initiated by the recipient. (Refer to Recommendation F.203.)

6.6   *Observations on the quality of the service*

6.6.1   Administrations should, as a minimum, monitor and evaluate the quality of the Teletex service internationally as described above.

6.6.2   Administrations should arrange to exchange statistics on the quality of the service at least once a year.

6.6.3   It is desirable that the statistics provide the information contained in Annex A.

6.6.4   Observations should be made at such points and in such quantity as to provide by preference a representative sample of at least 200 calls for each period on each route and to take into account the effects of store-and-forward services.

6.6.5   When exchanging statistics, Administrations should forward not only statistics of the route concerned but also comparable statistics for either all international Teletex traffic or Teletex traffic over similar routes.

7 Users' Teletex equipment

7.1 *General*

7.1.1   In order to support a high quality of service, a signalling rate of at least 2.4 kbit/s on the local loop is recommended except for the ISDN where a signalling rate of 64 kbit/s applies. This signalling rate refers to the information transmission speed as seen by the users' equipment.

7.1.2   The facilities required on equipment connected to the international Teletex service are listed in the following.

7.1.3   It is recognized that in certain applications, there may be a need for equipment only having the ability to receive messages. For this type of Teletex equipment, the requirements of § 7.2.1 are waived.

7.2 *Character repertoire*

7.2.1   Teletex equipment shall have the ability to generate characters of the basic international Teletex character repertoire (see Recommendation T.61).

7.2.2   Teletex equipment must be able to receive and store all the characters of the basic Teletex character repertoire.

7.2.3   Teletex equipment shall have the ability to represent as legibly as possible all graphic characters of the basic international Teletex repertoire and to respond to control characters.

7.2.4   No constraints should be made on the type of presentation technology employed.

7.3 *Storage*

7.3.1 *General*

7.3.1.1   The Teletex equipment will have memory for storage to be used for both local and communication functions.

7.3.1.2   Memory is required in the receiving equipment so that an operator may be assured undisturbed operation when working in local mode. Memory is also necessary to bridge the difference in speeds between reception from line and transfer to secondary storage media.

7.3.2 *Receiving capability*

7.3.2.1   The ability of Teletex equipment to receive incoming traffic is a prerequisite to answer the call. This ability must be sufficient to meet the quality of service as specified in § 6 of this Recommendation.

The entire receive memory of Teletex equipment should be available to incoming documents. If requested by the originating equipment, the available receive memory in the called equipment should not be partitioned into pages. Consequently, in principle, there should be no limitation to the number of characters per page.

7.3.2.2   If during a call the ability of the receiving equipment to continue to accept traffic is jeopardized (e.g. memory threshold reached) an indication of this condition will be passed to the sending equipment by the control procedures to permit the orderly termination and resumption of the transmission.

7.3.3 *Memory negotiation*

7.3.3.1   Memory negotiation is an optional capability.

7.3.3.2   Teletex equipment supporting memory negotiation must be able to interwork with equipment not supporting memory negotiation.

7.3.3.3   Requests for memory should be related to the size of the document(s) to be sent (i.e., must not be a value less than that required to send the document(s), should not be a predetermined value, and should not be significantly larger than the document(s) to be sent).

7.3.3.4   Reservations of memory should be related to the size of the memory requested.

7.3.3.5   It is to be determined by the sending Teletex equipment whether or not to initiate sending. A document may have to be sent during more than one session, if the receiving equipment responds with not sufficient memory to receive that document.

7.3.4 *Interruption of local mode*

7.3.4.1   Appropriate indicators signifying the presence of a message, as well as receive storage full will be provided to allow for interruption of local mode operation to permit presentation of Teletex message(s).

7.4   *Alarm indicators*

7.4.1   Alarm indicators (visual and/or audible) are required in Teletex equipment to signify each of the following conditions:

    a)   receiving storage contains one or more messages;

    b)   receiving storage threshold reached;

    c)   output medium (e.g. paper) low.

7.5   *Teletex terminal identification*

        Note – In this paragraph "terminal" is used to identify the end-point of responsibility of the Teletex service.

7.5.1   For each connection to the network, the terminals in the Teletex service shall have a unique identification. The different parts of this identification are contiguous as shown in Figure 2/F.200 and no characters other than those specified there are used.

Part 1		Part 2	Part 3		Part 4
Network and country [a] code	–	National subscriber number	(−) Additional information	=	Mnemonic abbreviation
Up to 4	1	Up to 12	Up to 4	1	Minimum 3
Maximum 15					
Maximum 24 characters					

[a] Country or geographical area code.

FIGURE 2/F.200

Format of the terminal identification

7.5.2   It is the responsibility of the calling terminal to verify the identification of the called terminal prior to the information transfer phase of the call.

7.5.3   Part 1 (network and country [3] code) contains the relevant information about the network and country concerned in accordance with the principles of Recommendation X.121 [4]. For Teletex terminals connected to the ISDN Part 1 contains 0, followed by the 1 to 3 digit country code of E.164 (see also Recommendation F.351).

7.5.4   Part 2 (national subscriber number) is the number of the main station or of the private branch exchange. It will be the complete call number including any national area code applicable within the country concerned, by means of which a user can be reached by other subscribers of the same country and on the same network. This part is separated from Part 1 by a hyphen (coding 2/13).

7.5.5   Part 3 (additional information), when used, begins with a hyphen (coding 2/13) and may contain alphanumeric characters for:

    a)   the extension number of Teletex equipment connected to local networks, e.g. PBXs (see Recommandation T.70, extending addressing);

    b)   the code abbreviation of an extension number when the numeric number cannot be contained in Part 3;

    c)   the code identifier of specific equipment. This possibility can be used for indication of, for example, Teletex equipment in a "group number" or when a call is terminated in a document storage facility outside the terminal. In the latter case the value «+++» in Part 3 will be returned to the calling terminal;

---

[3] Country or geographical area code.

[4] These are not necessarily the numbers used in call establishment.

The indication of special service signals within Part 3 is for further study.

Where alphabetic characters are used, the use of capital or small letters does not effect the meaning. The maximum number of characters in Part 3 is normally four. However, observing the other rules in § 7.5, Part 3 may be enlarged. (This item requires further study.)

7.5.6   Part 4 (mnemonic abbreviation) will consist of a minimum of three letters as information for the automatic identification of the connected subscriber. Both capital and small letters can be used and mixed. Only non-accented letters **A**-**Z** and **a**-**z** must be used (coding 4/1 to 5/10 and 6/1 to 7/10).

The use of capital or small letters does not change the meaning of the mnemonic especially in the telex/Teletex intercommunication case (e.g. "ABC" mnemonic has the same meaning as "AbC" mnemonic). The mnemonic abbreviation must always be preceded by the character = (equals sign, coding 3/13).

7.5.7   The parts of the terminal identification are justified to the left and the format is fixed at a length of 24 characters. If the total number of characters in parts 1 to 4 is less than 24, the format must be filled to 24 characters by the addition of space characters (coding 2/0) immediately following Part 4.

7.5.8   The directories issued by Administrations must include at least Parts 1, 2 and 4 of the Teletex user's terminal identifications.

7.5.9   In intercommunication with other services as much as possible the identification systems of the separate services should be maintained, with required conversion to be provided by network devices. This point will be covered by each intercommunication case separately via the appropriate Recommendations.

7.6   *Format of Teletex pages*

7.6.1   *Objectives*

7.6.1.1   It is a basic objective of the Teletex service to achieve as much similarity as possible to existing operating procedures of office machines. Another objective is to establish a basic, defined mode of operation common to all Teletex equipment machines used in the service. Therefore, a minimum basic requirement is defined, and all terminals used in the Teletex service shall comply with this minimum basic requirement. This, however, does not preclude the possibility that equipment may by prior agreement between the parties concerned operate in modes different from these basic minimum requirements.

7.6.2   *General*

7.6.2.1   The maximum printable areas for various standard paper sizes are defined in Recommendation T.60 and shall not be exceeded. The range of equipment capabilities is exchanged during session establishment, prior to document transmission. These procedures are defined in Recommendation T.62 along with the default values for these capabilities if this exchange is not explicitly stated.

7.6.2.2   A particular selection from this established range of capabilities is made preceding transmission of each document. Some of these selections may be changed at page boundaries and some may also be changed within a page.

7.6.3   *Basic requirements*

7.6.3.1   As minimum requirement for the specification of the format used, four parameters are required. These parameters are:

a)   paper orientation;

b)   line spacing per line-feed character;

c)   left margin;

d)   character pitch.

Additional parameters may be used to identify optional capabilities used for a document.

7.6.3.2   These parameters remain effective until changed. In the absence of an explicit selection these parameters must be automatically restated in every control signal that causes feeding of the next page.

7.6.4   *Paper size and paper orientation*

7.6.4.1   It is a requirement that the Teletex service should accommodate both the ISO A4 (210 × 297 mm) as well as the North American (216 × 280 mm) size of paper format in both the vertical and the horizontal paper orientation.

7.6.4.2   The standard paper orientation, in the absence of an appropriate control signal, is with the long dimension being vertical as viewed for reading. This orientation is hereafter called the A4 orientation.

7.6.5 *Number of characters per page*

It is a requirement to have a page of undefined size. Theoretically it must be of sufficient size to contain all characters, including control characters when the originating equipment negotiated impartitioned storage of a specific transmission.

7.6.6 *Line spacing per line-feed character*

7.6.6.1 This parameter may be changed at any point within a document. In the absence of an operator selection the default value shall be one line-feed (= 4.23 mm). Provision shall be made for selecting 0.5, 1, 1.5 and 2 line-feeds per line-feed character.

7.6.7 *Left margin*

7.6.7.1 This parameter selection may be changed at any point within a document. In the absence of an operator selection the default value shall be approximately 20 mm and may be expressed as an integral number of character pitches. Printing left of the defined margin on a per line basis must be possible by means of operator commands.

7.6.8 *Character pitch*

7.6.8.1 The basic character pitch shall be ten (= 2.54 mm character spacing).

7.6.9 *Positioning of text*

7.6.9.1 One line in the maximum printable area is reserved for the call identification line, see § 5.3 for details.

7.6.9.2 The printable areas include an allowance for printing with an offset of 2.12 mm above the first baseline and 2.12 mm below the last baseline for exponents and indices respectively. Equally, such offsets may be used within the page. Text should not be positioned by such offsets in such a way that characters overlay characters previously printed or displayed.

7.6.10 *Use of the* page format

7.6.10.1 Table 1/F.200 gives the maxima of lines per page and characters per line that may be used in the basic service with the basic values given below. For intercommunication with telex, see Recommendation F.201.

TABLE 1/F.200

	Vertical format	Horizontal format
Maximum number of text lines	55 [a]	38 [a]
Maximum number of characters per line	5 + 72 [b]	5 + 100 [b]

[a] The call identification line is not included in this figure.

[b] The 5 characters can be positioned in the left margin by using appropriate control commands (see § 7.6.6).

7.7 *Information to the Teletex user*

The operator must be given sufficient information to identify difficulties with sending and receiving documents.

7.7.1 Sufficient information should be provided to enable an operator to perform a status check to be made of documents in store.

7.7.2 If equipment cannot automatically transmit a document, sufficient information should be given to the operator to be able to:

    i)   identify the document;

    ii)   identify the reason for failure.

This information will enable the operator to take appropriate action to resolve this difficulty.

Multi-address calls will be reported on a per address basis.

7.7.3 If the CIL is presented on every page of a document, information will need to be provided to enable an operator to identify interrupted and continued documents received.

7.7.4   In view of the importance of using the same indicators/reason codes for a clear understanding and efficient way for the exchange of information between international operators to overcome service difficulties, it is recommended to adopt the same indicators/reason codes to report service abnormalities detected by the Teletex equipment to the international operators.

With this approach, difficulties for the international operator should be minimized to change his working equipment.

7.7.5   In the case of document interruption during transmission, the receiving equipment should automatically notify the interruption to the operator. After the interruption the terminal should generate and/or add a note to the text of the unfinished message specifying the event of the interruption. This note should be in such a way as to easily separate the original text to allow message reconstruction. The message bearing the note should be printed or otherwise displayed showing the event of the interruption.

7.7.6   After an interruption of a document transmission, two resumption procedures should be considered: manual (§ 7.8) and automatic (§ 7.9).

7.8   *Manual procedure for interrupted document resumption*

7.8.1   The transmitting operator informed by his terminal of the unfinished transmission of a document, should generate an "Operator Message" as a separate cover sheet to the remaining part of an interrupted document whose CIL was specified.

The Operator Message should contain the indication "Operator Message".

All other pages containing the text of the untransmitted part of the interrupted document.

7.8.2   The operator who receives an unfinished document should keep the received part waiting for document completion and, if required, manual linkage.

7.9   *Automatic procedure for interrupted document resumption*

7.9.1   This procedure is optional and should be activated after the receiving Teletex equipment has detected that the message concerns the completion of a previously received unfinished document.

7.9.2   After interruption, the sending Teletex equipment should keep in its permanent memory the remaining pages of the interrupted document with the receiving equipment to keep the received pages of the unfinished document.

At the resumption of communication, the sending equipment transmits the remaining pages, sending and presenting all the information the receiving terminal needs to link the parts of the interrupted document.

7.9.3   If the receiving Teletex equipment is not able to link the interrupted document, it should submit to the operator within the time limit of 12 hours the part of the document received. In this case the operator will follow the manual procedure.

8   Customer information

8.1   *Directories*

8.1.1   As far as possible a directory of Teletex users shall be provided by each Administration that operates a Teletex service.

8.1.2   As far as possible each Administration shall publish a directory of its users at least once a year.

8.1.3   Directories should be A4 size (210 × 297 mm). The printed area should be compatible with the printable area in the basic Teletex service.

8.1.4   The directories sent to Administrations shall be set up in Roman letters. The entry for each installation should show the full terminal identification as defined in § 7.5 of this Recommendation.

8.1.5   When directories are written in a language other than the language used in that country, they shall be accompanied by an explanatory note to facilitate the use of such directories. This note shall be drawn up in whatever official language of the Union has been agreed by the Administrations concerned.

8.1.6   Each directory shall include the following:

a)   how to use the directory, including lists of any symbols or abbreviations used;

b)   an alphabetic list of subscribers with the full terminal identification and business descriptions;

c)   a list of the network codes for those networks to which the subscribers have access together with the full access prefixes to those networks;

d)   how to use the service;

e)   how to establish international calls;

f)   how to establish calls to the telex service;

g)   how to establish calls to other services with which intercommunication is offered;

h)   how to use standardized options;

i)   where to go for help, responsible contact addresses for further information and/or maintenance.

8.1.7   Each Administration shall supply free of charge to Administrations with which a Teletex service exists a sufficient number of copies of its subscriber directories for official use. The number of such copies shall be fixed in advance by bilateral agreement and shall be regarded as applying until a request to change is received; such requests must be made at least three months in advance.

8.1.8   Each Administration shall supply against payment to Administrations with which a Teletex service exists a number of its directories to be put on sale. The number of copies intended for sale shall be regarded as applying until a request to change it is received; such requests must be made at least three months in advance.

8.1.9   Since the updating of directories in new services is a complicated matter Administrations should develop adequate procedures to keep each other informed on a regular basis of the changes to their directories. To that end electronic directory access may be adequate, e.g., using the mechanisms of the interactive mode of operation, whereas a further or alternative mechanism may also be provided by offering national operator services or help desks in such a way that efficient procedures come into existence for obtaining information on foreign Teletex services and their users.

8.1.10   A user wishing to obtain a copy of the directory of another Administration must apply to his own Administration. If an application for its directory is received directly by an Administration from a user of another Administration the request shall be forwarded to the user's own Administration.

8.2   *Operating instructions*

These instructions are being provided nationally taking into account the typical national environment of the Teletex service. Possible international aspects are for further study. Administrations are suggested to release user manuals.

8.3   *Printing of Teletex numbers*

Standardized printing of Teletex numbers (terminal identification) on letterheads is especially valuable for international purposes. It is recommended that this printing contain the word Teletex, followed by the complete number in accordance with the terminal identification format of Figure 2/F.200, § 7.5 above. For example:

Teletex: 933-99384965=DAIISEDE

9   **Tariff principles**

These are laid down in separate Recommendations, called the D. Series. For intercommunication with other services different tariff principles may apply.

ANNEX A

(to Recommendation F.200)

Standard format for reporting the results of service observations

Administration (or RPOA) . . . .   Traffic from . . . . to . . . .

Period of observation: . . . . 19 . . . . to . . . . 19 . . . . . .   Period of day:

Route busy hour (outgoing):   . . . . UTC to . . . . UTC

. . . . UTC to . . . . UTC   Total calls observed: . . . .

Subject	Observations traffic to	Average of all outgoing Teletex traffic
Effective calls (% of total call attempts)...		
Average chargeable time(s)		
Analysis of ineffective attempts (% stated in each of ineffective attempts) to be:		
– cut-offs during call selection		
– cut-offs during call progress..		
– lack of outgoing international circuits...		
– lack of circuits in distant national network...		
– invalid selection		
– wrong number obtained...		
– distant terminal engaged...		
– distant terminal not ready		
– mutilations..		
– other (specify)		

ANNEX B

(to Recommendation F.200)
Refers also to F.200-Series

Glossary of terms used in the Teletex service

B.1   **call phases**

      F: phases d'une communication

      S: fases de la comunicación

    The five phases of a Teletex call that cover the activities between the calling terminal's call request signal and the disconnection of the terminals are:

    a)   call set-up;

    b)   pre-information sequence;

    c)   information transmission;

    d)   post-information sequence;

    e)   call clearing.

B.2   **calling terminal**

      F: équipement terminal demandeur

      S: terminal llamante

    That terminal that initiates the procedures to establish a call.

B.3   **called terminal**

>   *F: équipement terminal demandé*

>   *S: terminal llamado*

That equipment to which a call is made.

B.4   **interactive mode**

>   *F: mode interactif*

>   *S: modo interactivo (modo dialogado)*

The exchange in real time of user information during a call or series of calls between calling and called equipment.

B.5   **fully automatic operation**

>   *F: fonctionnement entièrement automatique*

>   *S: explotación automática (operación automática)*

Operation such that Teletex equipment is able to send documents (prepared in local mode, e.g., by an operator) into receiving storage without the intervention of an operator beyond the initial command and similarly are capable of receiving messages while they are unattended. Operator selection and operator assisted printing are not excluded.

>   *Note* – Examples are the intercommunication between the Teletex service and the telex service, the intercommunication between the Teletex service and the IPM service.

B.6   **interworking in the Teletex service between different networks**

>   *F: interfonctionnement, dans le service télétex, entre des réseaux différents*

>   *S: interfuncionamiento de redes diferentes en el servicio teletex*

The facility of making calls from a Teletex equipment served by one network to a Teletex equipment served by a different (and possibly a different type of) network.

B.7   **interworking between Teletex and other services**

>   *F: interfonctionnement entre le service télétex et d'autres services*

>   *S: interfuncionamiento del servicio teletex con otros servicios*

The facility of sending and receiving information between a Teletex equipment and an equipment/user of another service, such as telex, interpersonal messaging, videotex, etc.

B.8   **intercommunication**

>   *F: intercommunication*

>   *S: intercomunicación*

In the context of Teletex, a relationship between services, where one of the services is Teletex, enabling the user of the Teletex service to communicate with users of other services.

B.9   **local mode**

>   *F: mode local*

>   *S: modo local*

That state of an equipment that permits operation of some of its functions independently of any network functions.

B.10   **mixed mode of operation**

>   *F: mode d'exploitation mixte*

>   *S: modo mixto de explotación*

In the Teletex service, the mixed mode of operation provides the user, in addition to the basic features of the Teletex service, with means for transferring documents containing encoded graphical information using techniques other than those defined for the basic Teletex service.

B.11   **multi-station Teletex installation**

> *F: installation télétex à postes multiples*
>
> *S: instalación teletex multiestación*

A Teletex installation that includes more than one work station.

B.12   **standardized option**

> *F: option normalisée*
>
> *S: opción normalizada*

A service feature, defined by CCITT as an addition to the basic requirements, that may optionally be used by subscribers in the international Teletex service.

B.13   **storage within the network**

> *F: stockage dans le réseau*
>
> *S: almacenamiento dentro de la red*

A network-provided facility that will accept and store messages and relay them to the addressee(s), or (in case of store-and-retrieve) will be retrieved by the addressee.

B.14   **Teletex call**

> *F: communication télétex*
>
> *S: comunicación teletex*

The temporary connection (or apparent connection as perceived by the caller) of Teletex equipment to other Teletex devices for the purpose of exchanging information.

B.15   **Teletex page**

> *F: page télétex*
>
> *S: página teletex*

The smallest unit of text treated as an entity in office correspondence in the Teletext service. One A4 (or A4L or North American Standard) page or the information that may be presented on it. Paper sizes other than ISO A4 or A4L may be included as standardized options.

B.16   **Teletex document**

> *F: document télétex*
>
> *S: documento teletex*

A sequence of one or more pages intended by the originator to be delivered as a single entity in the original page sequence.

B.17   **Teletex equipment**

> *F: équipement télétex*
>
> *S: equipo teletex*

A device that is capable of transmitting and receiving Teletex documents in accordance with the basic requirements of Recommendation T.60.

ITU-T F-SERIES RECOMMENDATIONS

NON-TELEPHONE TELECOMMUNICATION SERVICES

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

ITU-T RECOMMENDATIONS SERIES

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