



EUROPEAN
TELECOMMUNICATION
STANDARD

ETS 300 015

February 1994

Source: ETSI TC-TE

Reference: T/TE 07-01

ICS: 33.020, 33.040.40

Key words: Teletex

**Terminal Equipment (TE);
Basic and recommended additional
requirements for terminal equipment
supporting Teletex application**

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Contents

Foreword.....	7
1 Scope	9
2 Normative references	9
3 Definitions.....	11
4 Abbreviations	11
5 Scenario description	11
6 Conformity.....	11
7 Layer description.....	11
7.1 Network dependent layers (1-4).....	11
7.1.1 Access from telephone network(s).....	11
7.1.2 Access from packet switched network(s).....	11
7.1.3 Access from circuit switched network(s)	12
7.1.4 Access from integrated services digital network(s).....	12
7.2 Network independent layers (5-7).....	12
7.2.1 Session layer description	12
7.2.2 Presentation layer description	12
7.2.3 Application layer description	12
8 Test specifications.....	12
8.1 Test suites for protocols with end-to-end significance.....	12
8.2 Test suites without end-to-end significance.....	12
8.3 Test suites for system related requirements.....	12
9 Additional session layer requirements (to ITU-T Recommendation T.62).....	13
9.1 ETSI agreed additional requirements to ITU-T Recommendation T.62.....	13
9.1.1 Paragraph 3.4.1.2a/T.62.....	13
9.1.2 Paragraph 3.4.4.3/T.62	13
9.1.3 Paragraph 3.4.5.1/T.62	13
9.1.4 Paragraph 3.4.12/T.62	13
9.1.5 Paragraph 3.2.3.2/T.62	13
9.1.6 Paragraph 3.2.10/T.62	13
9.1.7 Paragraph 3.3.1.1.c/T.62.....	13
9.1.8 Paragraph 3.3.2.6/T.62	13
9.1.9 Paragraph 3.3.2.7.b/T.62.....	13
9.1.10 Paragraph 3.3.2.10/T.62.....	14
9.1.11 Paragraph 3.4.3/T.62	14
9.1.12 Paragraph 3.4.3.2.e/T.62.....	14
9.1.13 Paragraph 3.4.4.4/T.62	14
9.1.14 Paragraph 3.5.3/T.62	14
9.1.15 Paragraph 4.1.4/T.62	14
9.1.16 Annex J, paragraph 2.1.1.c/T.62	14
9.2 Use of the session protocol for interworking with automatic Teletex directory service	14
9.3 Types of document.....	14
10 ETSI agreed additional service and terminal requirements (modifications to ITU-T Recommendation T.60).....	14
10.1 Paragraph 4.1.1.1/T.60	15

10.2	Paragraph 4.1.3/T.60	15
10.3	Paragraph 8.2.1/T.60	15
10.4	Paragraph 4.1.4/T.60	15
10.5	Paragraph 5.1.3/T.60	15
10.6	Paragraph 7.2.3/T.60	16
10.7	Paragraph 4.1.3.3/T.60	16
10.8	Paragraph 4.1.3/T.60	16
10.9	Paragraph 5.2/T.60	16
10.10	Paragraph 6/T.60	16
10.11	Paragraph 7/T.60	17
10.12	Paragraph 7.2.2/T.60	17
10.13	Paragraph 4.1.3/T.60	18
10.14	Paragraph 5.2/T.60	18
10.15	Paragraph 4.1.2.4/T.60	19
11	Additional requirements for Teletex systems participating in the Teletex service	20
11.1	Description of a Teletex system.....	20
11.2	Types of Teletex systems	20
11.2.1	Teletex system with automatic access	20
11.2.1.1	Teletex system with switched access	20
11.2.1.2	Teletex system with memory based access	20
11.2.1.3	Teletex system with switched and memory based access..	20
11.2.2	Teletex system without automatic access	20
11.2.3	Supplementary Teletex system equipment.....	20
11.3	Types of terminals for Teletex system.....	20
11.3.1	Independent Teletex terminal.....	20
11.3.2	Other terminals for the Teletex service	21
11.3.3	Other equipment.....	21
11.4	Specification of a Teletex system	21
11.4.1	Quality of service.....	21
11.4.2	System's Terminal Identifier (TID).....	21
11.4.3	Communication-log	21
11.4.4	Requirements for equipment to connect.....	21
11.4.4.1	Independent Teletex terminals	21
11.4.4.2	Text terminals for the Teletex service	22
11.4.4.3	Other terminals for the Teletex service	22
11.4.4.4	Other equipment.....	22
11.4.5	Teletex communications	22
11.4.5.1	Incoming traffic.....	22
11.4.5.2	Outgoing traffic.....	22
11.4.5.3	Traffic restrictions.....	23
11.4.6	Test specifications.....	23
12	Date and time provisions	23
13	Local despatching at the receiving side	23
Annex A (normative):	Use of the session protocol for interworking with the automatic Teletex directory service	24
Introduction		24
A.1	General	24
A.2	Request for information.....	24
A.3	Example diagram for the sequence of events of a request for information carried out within the scope of the Teletex protocol	25
A.4	Format specification	26

A.4.1	Subscriber request.....	26
A.4.2	General request.....	26
Annex B (normative):	Types of documents.....	27
B.1	Types of documents	27
B.1.1	Annex F.2/T.62, Normal document.....	27
B.1.2	Annex F.3/T.62, Operator document.....	27
B.1.3	Annex F.5/T.62, Monitor document.....	27
B.2	Advisory notes and additional information	27
B.2.1	Paragraph 4.2.10/T.62	27
B.2.2	Paragraph 3.2.1.2/T.62	27
B.2.3	Paragraph 3.2.8 and 3.2.9/T.62	27
B.2.4	Paragraph 3.4.11.2/T.62	28
B.2.5	Paragraph 4.1.4/T.62	28
Annex C (informative):	Advisory notes and additional information concerning the presentation of graphic characters	29
C.1	Introduction.....	29
C.2	Fall-back procedures (ISO 6937/2, Annex E, Clause E.1).....	29
C.3	Fall-back presentation of accented letters (ISO 6937/1, Annex E, Clause E.2).....	30
C.4	Examples of fall-back presentations of non-alphabetic characters (ISO 6937/1, Annex E, Clause E.3).....	30
Annex D (normative):	Date and time provisions	31
Annex E (normative):	Local dispatching at the receiving side (sub-addressing at the application layer)	32
Introduction		32
E.1	Local dispatching needs.....	32
E.2	Mechanism used	32
E.2.1	Description	32
E.2.2	Connection interrupt	32
E.3	Coding and format of the normal or control document.....	33
Annex F (informative):	Bibliography.....	34
History		35

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Foreword

This European Telecommunication Standard (ETS) has been produced by the Terminal Equipment (TE) Technical Committee of the European Telecommunications Standards Institute (ETSI).

This ETS defines the basic and recommended additional minimum requirements for terminal equipment participating in the Teletex service. The terminal described herein offers users the ability to prepare character coded text messages together with a means of conveying the true contents of such messages to a distant terminal equipment complying with the same specifications.

Teletex systems such as cluster, Private Automatic Branch Exchanges (PABX), etc., may need additional requirements. These can be found in Clause 10 of this ETS.

This ETS provides a description of the basic Teletex equipment for use in the international Teletex service.

For optional features the following ETSs apply:

- ETS 300 154: "Terminal Equipment (TE); Terminal characteristics for the telematic file transfer within the teletex service [ITU-T Recommendation T.571 (1993) modified]" [13].
- prETS 300 243-1 (1993): "Terminal Equipment (TE); Programming Communication Interface (PCI) Appli/Com for Facsimile group 3, Facsimile group 4, Teletex and Telex services [ITU-T Recommendation T.611 (1992) modified]" [14].
- prETS 300 243-2 (1993): "Terminal Equipment (TE); Application of ITU-T Recommendation T.611 (1992) and conformance testing on ETS 300 243-1" [22].

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1 Scope

This ETS describes the specification to be used for basic Teletex terminal equipment for use in the international Teletex service.

This ETS is based on the relevant CCITT and ITU-T Recommendations. In order to provide guidance, modifications and/or additions are also contained and identified where necessary.

NOTE: Throughout this ETS the term "Administration" should be taken to read as either "Administration" or "Recognised Private Operating Agency".

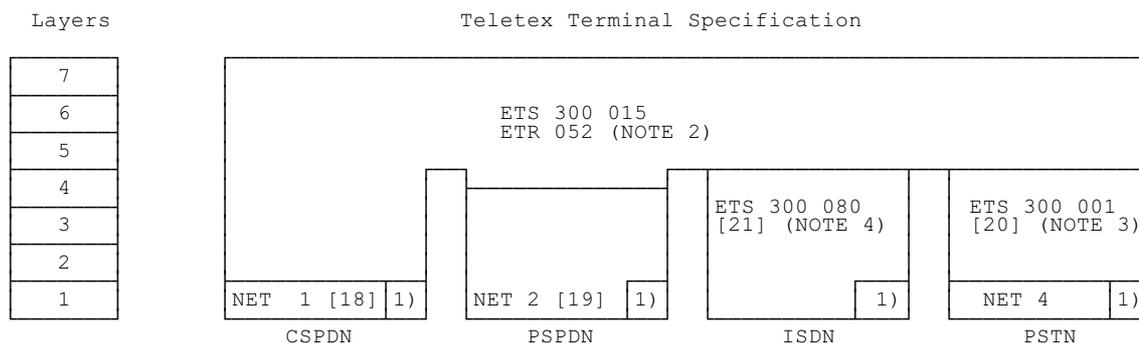
2 Normative references

This ETS incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- [1] ITU-T Recommendation T.60: "Terminal equipment for use in the teletex service".
- [2] ITU-T Recommendation T.61: "Character repertoire and coded character sets for the international teletex service".
- [3] ITU-T Recommendation T.62: "Control procedures for teletex and Group 4 facsimile services".
- [4] ITU-T Recommendation T.63: "Provisions for verification of teletex terminal compliance".
- [5] ITU-T Recommendation T.64: "Conformance Testing Procedures for the Teletex Recommendations".
- [6] ITU-T Recommendation T.70: "Network independent basic transport service for the telematic services".
- [7] CCITT Recommendation T.90 (1992): "Characteristics and protocols for terminals for telematic services in ISDN".
- [8] CCITT Recommendation T.390 (1988): "Teletex requirements for interworking with the telex service".
- [9] CCITT Recommendation F.200 (1992): "Teletex service".
- [10] ITU-T Recommendation F.201: "Interworking between teletex service and telex service - General principles".
- [11] ETS 300 081 (1993): "Integrated Services Digital Network (ISDN); Teletex end-to-end protocol over the ISDN".
- [12] ETS 300 017: "Terminal Equipment (TE); Test procedures for Teletex".
- [13] ETS 300 154: "Terminal Equipment (TE); Terminal characteristics for the telematic file transfer within the teletex service [ITU-T Recommendation T.571 (1993) (modified)]".
- [14] prETS 300 243-1: "Terminal Equipment (TE); Programming Communication Interface (PCI) Appli/Com for Facsimile group 3, Facsimile group 4, Teletex and Telex services [CCITT Recommendation T.611 (1992) modified]".

- [15] ENV 41104: "Packet-switched data network; permanent access (FS T/31)".
- [16] ENV 41106: "Digital data circuit (circuit switched data networks); provision of the OSI connection-mode transport service in the T.70 case for telematic end systems (FS T/41)".
- [17] ENV 41105: "Packet-switched data network; switched access (FS T/32)".
- [18] NET 1: "Approval requirements for data terminal equipment to connect to CSPDN and leased circuits using CCITT Recommendation X.21 interface".
- [19] NET 2 (1988): "Approval requirements for Data Terminal Equipment (DTE) to connect to Packet Switched Public Data Network (PSPDN) using CCITT Recommendation X.25 (1984) interface".
- [20] ETS 300 001 (1992): "Attachments to Public Switched Telephone Network (PSTN); General technical requirements for equipment connected to an analogue subscriber interface in the PSTN (candidate NET 4)".
- [21] ETS 300 080 (1992): "Integrated Services Digital Network (ISDN); ISDN lower layer protocols for telematic terminals".
- [22] prETS 300 243-2: "Terminal Equipment (TE); Application of CCITT Recommendation T.611 (1992) and conformance testing on ETS 300 243-1".

An overview on the relation of standards to each other is given in figures 1 and 2 as follows.



- NOTE 1: National additions (e.g. mandatory use of data and time information in CSPDN).
- NOTE 2: ETR 052 deals with Teletex-telex-intercommunication.
- NOTE 3: ETS 300 001 [20] includes layer 4 as well.
- NOTE 4: See figure 2.

Figure 1: Teletex terminal specification

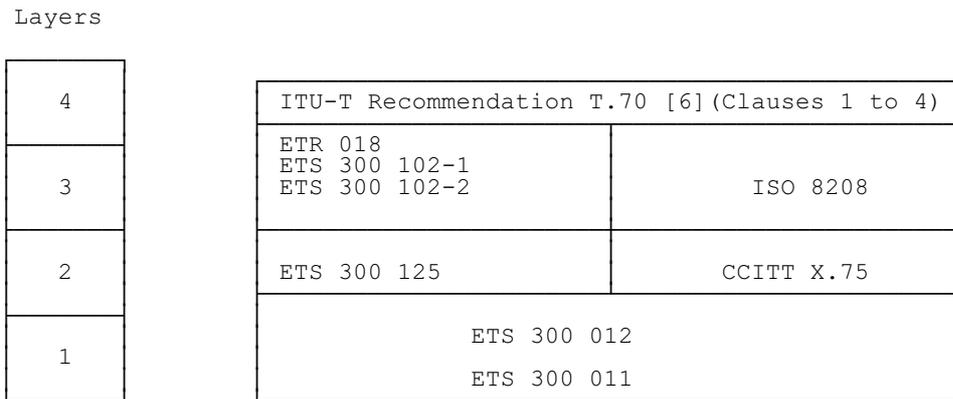


Figure 2: ETS 300 080 [21]

3 Definitions

The terms used in this ETS are as defined in the ITU-T Recommendations T.60 [1], T.61 [2], T.62 [3], T.63 [4], T.64 [5], T.70 [6] and F.201 [10] and CCITT Recommendation T.90 [7], T.390 [8] and F.200 [9].

4 Abbreviations

The abbreviations used in this ETS are as defined in the same ITU-T and CCITT Recommendations referenced in Clause 3 above. The following abbreviations also apply.

ETS	European Telecommunication Standard
ETSI	European Telecommunications Standards Institute
TE	Terminal Equipment

5 Scenario description

Exchange of Teletex documents between two end systems, which are Teletex terminal equipments participating in the international Teletex service.

The overall operation of the Teletex service is as defined in CCITT Recommendation F.200 [9].

6 Conformity

A Teletex equipment shall be in conformity with this ETS if it follows the requirements which are contained in Clause 7 below.

NOTE: The tests to be passed in order to check the conformance technically are laid down in ITU-T Recommendation T.64 [5] and ETS 300 017 [12].

7 Layer description

7.1 Network dependent layers (1-4)

7.1.1 Access from telephone network(s)

The implementation of the telephone network access shall be fully in line with the provisions laid down and described in ITU-T Recommendation T.70 [6] together with ENV 41105 [17].

7.1.2 Access from packet switched network(s)

The implementation of the Packet Switched Public Data Network (PSPDN) access shall be fully in line with the provisions laid down and described in ITU-T Recommendation T.70 [6] together with ENV 41104 [15].

7.1.3 Access from circuit switched network(s)

The implementation of the Circuit Switched Public Data Network (CSPDN) access shall be fully in line with the provisions laid down and described in ITU-T Recommendation T.70 [6] together with ENV 41106 [16].

7.1.4 Access from integrated services digital network(s)

The implementation of the Integrated Services Digital Network (ISDN) access shall be fully in line with the provisions laid down and described in ITU-T Recommendation T.70 [6] together with ETS 300 080 [21].

7.2 Network independent layers (5-7)

7.2.1 Session layer description

The implementation of the session layer shall be fully in line with the provisions laid down and described in ITU-T Recommendation T.62 [3] together with Clause 9 of this ETS.

7.2.2 Presentation layer description

The implementation of the presentation layer shall be fully in line with the provisions laid down and described in ITU-T Recommendation T.61 [2].

7.2.3 Application layer description

The implementation of the application/service layer shall be fully in line with the provisions laid down and described in ITU-T Recommendation T.60 [1]. This provides compatible intercommunication (according to CCITT Recommendation F.200 [9]) between terminal equipment. However, to allow a more sophisticated quality of service, recommended additional service and terminal requirements are given in Clause 10 of this ETS.

8 Test specifications

8.1 Test suites for protocols with end-to-end significance

The test suites for protocols with end-to-end significance in the CSPDN, PSPDN, Public Switched Telephone Network (PSTN) and ISDN shall be laid down as described in ETS 300 017 [12].

8.2 Test suites without end-to-end significance

- a) The test suites for the CSPDN access layers, laid down and described in NET 1 [18], shall apply.
- b) The test suites for the PSPDN access layers, laid down and described in NET 2 [19], shall apply.
- c) The test suites for the ISDN access layers, D-channel only, laid down and described in ETS 300 080 [21], shall apply.
- d) The test suites for the PSTN access layers, laid down and described in ETS 300 001 [20], shall apply.
- e) The test procedures with end-to-end significance in the ISDN shall be laid down as described in ETS 300 081 [11].

8.3 Test suites for system related requirements

To be considered.

9 Additional session layer requirements (to ITU-T Recommendation T.62)

9.1 ETSI agreed additional requirements to ITU-T Recommendation T.62

9.1.1 Paragraph 3.4.1.2a/T.62

If a normal document is transmitted from a Teletex terminal to the Teletex-Telex conversion facility this parameter shall be indicated.

9.1.2 Paragraph 3.4.4.3/T.62

All terminals shall examine the non-basic terminal capabilities indicated in Command Session Start (CSS) or Response Session Start Positive (RSSP) and not rely on a subsequent Command Document Capability List/Response Document Capability List Positive (CDCL/RDCLP) exchange to negotiate the use of any capabilities from table 3/T.62 [3].

9.1.3 Paragraph 3.4.5.1/T.62

If the CDCL also contains the indication of receiving capabilities given in table 3/T.62 [3], the receiving terminal shall indicate these in the RDCLP as far as it supports these capabilities.

9.1.4 Paragraph 3.4.12/T.62

Sending terminals shall limit the content size of Command Document User Information (CDUI) to 5 000 octets or less.

Although ITU-T Recommendation T.62 [3] requires the possibilities to receive blocks of arbitrary size, the implementation of receiving buffers is allowed, if the following requirement is met:

- test-blocks of at least 10 000 octets in a single CDUI shall be accepted.

9.1.5 Paragraph 3.2.3.2/T.62

A negative response to CSS with reason parameter 000 0001 shall be mandatory for Teletex terminals if the receive storage capacity is below 2 k-octets.

9.1.6 Paragraph 3.2.10/T.62

It shall not be mandatory for terminals to respond to a request (via a "Request Session Function" in RSSP or RSUI) for change of control.

However, a calling terminal shall be able to allow the called equipment to send document(s) by giving change of control (CSCC). The choice of whether or not CSCC is sent shall be left to the operator.

9.1.7 Paragraph 3.3.1.1.c/T.62

The CSCC command shall only be invoked outside document boundaries.

9.1.8 Paragraph 3.3.2.6/T.62

The timer value T shall be $T = 4 \text{ s} \pm 1 \text{ s}$.

9.1.9 Paragraph 3.3.2.7.b/T.62

A Teletex terminal shall support the window size of three.

9.1.10 Paragraph 3.3.2.10/T.62

In general, the session protocol does allow the use of more than one session connection per transport connection. In order to avoid ambiguities in case of linking parts of a document which might be necessary, the calling terminal may only use this possibility if the unambiguity of the document linking information is guaranteed at both communication parties.

9.1.11 Paragraph 3.4.3/T.62

The sink shall not reject the reception of a document continuation because of the evaluation of document linking information.

The possibility to reject a Command Document Continue (CDC) because of syntax errors is not touched upon by this rule.

9.1.12 Paragraph 3.4.3.2.e/T.62

Third sentence shall read:

A terminal receiving a CDC that does not contain all of the terminal capabilities shall not reject the continuation of the document.

9.1.13 Paragraph 3.4.4.4/T.62

The CDCL command shall only be invoked outside document boundaries.

9.1.14 Paragraph 3.5.3/T.62

When a called terminal has answered any checkpoint positively within a document it subsequently may not send a negative retrospective response, Response Document General Reject (RDGR), to the commands Command Document Start (CDS) or CDC which initiated the start of this document.

9.1.15 Paragraph 4.1.4/T.62

During one transport connection a Teletex page may be repeated only once. All Teletex terminals need to be equipped with a control facility in order to avoid endless loops in case of page repetition or the transfer of the right to transmit. Such loops shall lead to a disconnection. There is no obligation to implement a specific control mechanism.

9.1.16 Annex J, paragraph 2.1.1.c/T.62

The timer value T shall be $T = \pm 1$ s.

9.2 Use of the session protocol for interworking with automatic Teletex directory service

See Annex A (normative).

9.3 Types of document

See Annex B (normative).

10 ETSI agreed additional service and terminal requirements (modifications to ITU-T Recommendation T.60)

The following are ETSI agreed additional service and terminal requirements which are also modifications to ITU-T Recommendation T.60 [1].

10.1 Paragraph 4.1.1.1/T.60

Transmission periods

To ensure an adequate level of service to users, terminals shall, under ideal conditions (i.e. without frame repetitions, no options, no satellite or multiplexers links), be capable of receiving a document of one page (1 500 octets) and four pages (1 500 characters each) within the following range of time.

a) CSPDN, PSPDN, PSTN case:

one page: 12 seconds;
four pages: 30 seconds.

b) PSTN (half duplex) case:

one page: 24 seconds;
four pages: 60 seconds.

c) ISDN case:

one page: 7,2 seconds;
four pages: 7,8 seconds.

NOTE: Every single page requires 0,2 seconds for pure transmission and about 7 seconds in total are required for call initiation, etc...

10.2 Paragraph 4.1.3/T.60

The terminal shall be designed and constructed for 24 hours a day operation.

Even after a mains failure the terminal shall be able to receive messages automatically. Local operation shall not influence the ability to receive calls.

10.3 Paragraph 8.2.1/T.60

Terminals shall be able to utilise the printable area of ISO-A4 (horizontally and vertically).

10.4 Paragraph 4.1.4/T.60

The terminal identification shall not be lost even if the terminal is without power. The identification shall in such cases remain intact for at least 4 weeks.

The terminal identification shall only be entered and amended by an authorised body, which is specified by the administration.

The method of entering the terminal identification shall, as far as possible, exclude the possibility of the terminal identification being altered by the terminal user.

10.5 Paragraph 5.1.3/T.60

The terminal shall provide the capability of automatic checking of part 4 (= mnemonic abbreviation) of the terminal identification. The identification check shall not be extended to parts other than part 4 (mnemonic abbreviation).

The choice of whether the check is performed is left to the operator.

If the result of the checking is negative, automatic text transmission shall not take place.

10.6 Paragraph 7.2.3/T.60

As soon as the available storage capacity is less than the memory threshold, the sender of the document is informed that the ability of the receiving terminal to continue to accept traffic is jeopardized (see ITU-T Recommendation T.62 [3], paragraph 3.4.14.2). A value of 2 k-octets is recommended for the memory threshold.

A called terminal in the receive mode shall not enter a session if its spare storage capacity is below 2 k-octets, i.e. it shall send a negative response to CSS with a reason parameter identifier and value indicating that it is temporarily unable to enter a session.

10.7 Paragraph 4.1.3.3/T.60

A minimum receiving-store-size of 32 k-octets shall be provided.

10.8 Paragraph 4.1.3/T.60

Received information shall be in a non-volatile memory before acknowledgements Response Document Page Boundary Positive (RDPBP) or Response Document End Positive (RDEP) are given.

Messages in the receiving memory shall not be lost for at least 72 hours even in the event of mains failure.

A non-volatile memory is understood to be not only a magnetic tape, disc memory etc., but also a semiconductor memory whose power supply is ensured by appropriate accumulators in case of a mains failure.

10.9 Paragraph 5.2/T.60

Since the date and time may not be provided by the network but by the terminal, the calling terminal provides one or both possibilities, according to the list appended in Annex D.

For a locally provided clock, the inaccuracy should not be more than one minute per month.

Temporary mains failure shall not result in an incorrect date and time.

In the event of a mains failure, the clock continues to function correctly for at least 24 hours (72 hours is recommended).

10.10 Paragraph 6/T.60

If the use of a plug-in modem is allowed, additional national requirements may have to be met, which are, however, presently outside the scope of this ETS.

10.11 Paragraph 7/T.60

Communication log(s)

If a Teletex terminal provides a communication log, it shall contain the following information:

Transmitted documents:

- for each document sent either the Call Identification Line (CIL) or at least:
 - the called terminal's Terminal IDentifier (TID) (if received);
 - session date and time;
 - number of last acknowledged page;
 - document reference number;
 - reason for non-delivery (if any);
 - indication, whether CDC was used;
 - indication on type of document (e.g. control, operator) if different from normal document.

A sent control document, that is related to a "normal" document **AND** does not carry additional user information (e.g. a control document used to precede a normal document in the Teletex-telex-intercommunication case) does not necessarily need an entry in the log nor need the document be maintained.

Received document:

- for each document received either the CIL or at least:
 - the calling terminal's TID;
 - session date and time;
 - document reference number;
 - number of last acknowledged page;
 - reason for interruption (if any (e.g. own memory overflow));
 - linking information (if any);
 - indication on type of document (e.g. control, operator), if different from normal control.

A received control document, the content of which may be checked automatically **AND** leads to an appropriate indication in the associated entry of the "normal" document (e.g. a positive acknowledgement control document in the case of Teletex-telex-intercommunication) does not necessarily need a separate entry in the log nor need the document be maintained.

Entries in the communication log shall be cleared on request of the operator. When the receive log is full, the terminal shall refuse all incoming calls, until the log is emptied, e.g. by sending Response Session Start Negative (RSSN) at the session establishment indicating a memory overflow.

Concerning safety against loss of entries subclause 10.8 of this ETS applies.

The representation of the communication log shall be independent from the representation of associated sent/received documents.

Additional information (such as calling/called line ID or locally provided additional indications) may be given.

The above mentioned requirements are mandatory in the following countries:

Austria, Belgium, Germany, Netherlands, Switzerland.

10.12 Paragraph 7.2.2/T.60

A "Receive Store Nearly full" indicator shall be provided for the terminal operator. A minimum threshold value of 4 k-octets is recommended for this indicator.

10.13 Paragraph 4.1.3/T.60

The loss of a received message should be excluded as far as possible.

10.14 Paragraph 5.2/T.60

The CIL, if printed out, is represented in the 5th line (= first line of the printable area), preferably superscripted.

The sequence of functions which lead to a visualisation (e.g. printing) of the CIL is a local property of the terminal.

Arrangement of field 4 of the call identification line

It is not laid down internationally that the numbers of digits of the document reference number and page reference number is equal to 6. It may be smaller (one digit each as a minimum).

The following agreement was reached in order to ensure a clear and uniform representation.

For the representation of field 4 of the CIL on the receiving side the following shall apply:

- 1) the document reference number shall be represented flush left;
- 2) the page reference number shall be represented flush right;
- 3) document (and page) reference numbers are to be separated by at least one hyphen;
- 4) leading zeros may be represented. Preferably, the format used by the sender should apply.

EXAMPLE 1:

received : document ref. No. 001; page ref. No. 002,
represented : /80-11-24-12:17/001-002.

EXAMPLE 2:

received : document ref. No. 1; page ref. No. 2,
represented : /80-11-24-12:17/1-----2,
or : /80-11-24-12:17/1-00002.

If the number of digits of the document reference number and page reference number is larger than 6, a case of fault has occurred according to ITU-T Recommendation T.61 [2], supplement to paragraph 3.3.3.4 (if possible, the faulty message shall be represented).

Therefore, the attempt should be made to print out, if required, all transmitted information beyond field 4.

In this case, the following applies:

- a) the hyphen shall be kept;
- b) leading zeros shall be deleted;
- c) the value of the document reference number shall be kept;
- d) digits of the page reference number with highest value shall be deleted.

Linking

Linking is rendered possible by the use of command CDC in the procedural level.

In order to make automatic linking at all possible, all terminals shall be capable of receiving command CDC. If wrong parameters have been used within the CDC command, the latter should not be rejected so that manual linking can at least be applied where parameters to now allow automatic linking.

The linking information contains:

- identification of the calling terminal;
- identification of the called terminal;
- date and time of the actual transmission;
- document reference number of the actual transmission;
- linking information;
- date and time of the first transmission;
- document reference number of the first transmission;
- page reference number of the page with which the transmission is continued;

and is evaluated as follows:

a) automatic linking

Automatic linking shall only apply on the following conditions:

- 1) the document to be linked shall be available in the receiving store and no local access has yet been taken place;
- 2) no pages shall be missing;
- 3) pages with identical page reference number shall be identical in contents and layout.

If automatic linking applies, the presentation of the linking information is not required. The CIL of the linked document shall contain the data of the last linking.

b) manual linking

The call identification line of the continuation of a document shall contain the actual data.

The linking information should be presented to the operator either on a screen or printed on a separate sheet or on the first sheet of the continuation of the document outside the maximum printable area.

10.15 Paragraph 4.1.2.4/T.60

Presentation of graphic characters (see Annex C (informative)).

11 Additional requirements for Teletex systems participating in the Teletex service

11.1 Description of a Teletex system

A Teletex system shall act and react to communication and end-to-end procedures as a stand-alone terminal.

As a minimum requirement, a Teletex system shall consist of a keyboard, a printer that is suitable for Teletex purposes, a memory and a communication port.

11.2 Types of Teletex systems

11.2.1 Teletex system with automatic access

11.2.1.1 Teletex system with switched access

In cases where a terminal equipment is not ready to receive (except for a busy condition) or the suffix dialling information is wrong or missing, incoming messages shall be accepted by another terminal or by a temporary storage device.

The terminal, to which the message was diverted, shall answer with its own TID.

If the message has been stored for an interim period of time, it shall be ensured that it is forwarded to the requested destination as soon as possible. If this is not possible, the message shall be sent to a pre-defined terminal (e.g. master-terminal).

11.2.1.2 Teletex system with memory based access

Incoming messages are transferred into the central memory. This central memory answers with the TID of that equipment, to which the message shall be forwarded.

The forwarding of a message after having been taken into the central memory shall be reproducible (e.g. by providing a note in the central log, or in a pre-programmed diversion).

11.2.1.3 Teletex system with switched and memory based access

A combined system with switched and memory-based access shall, for each part of the system, follow the rules for switched or memory based access.

11.2.2 Teletex system without automatic access

Teletex systems without automatic access terminals connected to these systems shall use the central TID of the Teletex system (see subclause 11.4.2).

11.2.3 Supplementary Teletex system equipment

A supplementary Teletex system equipment is an equipment that is permanently, or temporarily, connected to other equipment which extends operational practicability (e.g. external memory, cryptographic equipment, call sender, etc.).

11.3 Types of terminals for Teletex system

11.3.1 Independent Teletex terminal

An independent Teletex terminal is a terminal that shall independently (i.e. on its own) fulfil all conditions for participation in the Teletex service and shall be approved accordingly.

11.3.2 Other terminals for the Teletex service

These are terminals that, in conjunction with a Teletex system, shall not meet all requirements of the Teletex service.

11.3.3 Other equipment

These are systems (e.g. data or text processing systems) used instead of terminals in a Teletex service system which shall meet the requirements given in subclauses 11.3.1, 11.3.2 or 11.3.3.

11.4 Specification of a Teletex system

With regard to the handling of the Teletex service, and within the framework of the following regulations, a system used in the Teletex service shall behave as an independent Teletex terminal connected to switched customer access of the public telecommunication network.

By connecting a system to various user accesses of the public telecommunication network or by participating in various telecommunication services, the requirements imposed on the individual services shall not be affected.

A system on multiple premises shall be approved for participation in the Teletex service.

11.4.1 Quality of service

Entire or partial failures of the system shall not have harmful repercussions to the public telecommunication network. As far as the Teletex traffic is concerned, systems shall be kept ready to receive 24 hours a day.

In the case of an incoming message, the operator of a selectively addressable terminal equipment shall receive an indication. The signalling device may be used in parallel for the indication of incoming messages outside the Teletex service.

Systems shall insure that incoming Teletex traffic does not exceed a loss of more than 5 %.

In cases where a terminal equipment is not ready to receive (except for a busy condition) or the suffix dialling information is incorrect or missing, incoming messages shall be accepted by another Teletex terminal or a temporary storage.

11.4.2 System's Terminal Identifier (TID)

The central TID of a Teletex system does not contain any suffix dialling information. The TID shall not be changeable by the user.

11.4.3 Communication-log

Any Teletex communication via Teletex systems shall be recorded in a transmitting/receiving log (either in the terminal equipment and/or within the system). This communication-log may also contain data from message transfer outside the Teletex service.

11.4.4 Requirements for equipment to connect

In accordance with subclause 11.3, equipment operating in a Teletex system, shall apply to the following requirements given in subclauses 11.4.4.1 to 11.4.4.4 inclusive.

11.4.4.1 Independent Teletex terminals

An independent Teletex terminal may indicate its suffix dialling information in the TID and shall then be capable of being addressed selectively.

11.4.4.2 Text terminals for the Teletex service

A text terminal used in the Teletex service may indicate its suffix dialling information in the TID and shall then be capable of being addressed directly.

Independent from the status (active, stand-by, inactive, etc.) of the terminal, an indication "messages received" should be given to the operator of the addressed terminal.

If this is not guaranteed, the indication shall be forwarded to another specified terminal.

For an addressable text terminal, incoming messages shall be indicated automatically if the terminal enters the Teletex mode or if an addressable user logs into the system.

In addition, an authorised user should have the possibility to inform himself about all non-visualised messages of all addressable text terminals. This information should contain at least information on the recipient and the receive-time.

11.4.4.3 Other terminals for the Teletex service

Other terminals for the Teletex service may also participate directly in the Teletex service in the outgoing direction if they, together with their associated system or the telecommunication system, fulfil the Teletex requirements for this direction and the system has been approved accordingly; however, the central systems' TID shall be used. Other terminals for the Teletex service shall not be capable of being addressed directly (in the incoming direction), i.e. direct dialling-in or suffix dialling shall not be permitted.

The automatic forwarding of received Teletex messages to other terminals can be allowed only if, prior to forwarding, the system checks whether the received documents can be represented completely in format and layout by this terminal. Teletex documents that cannot be represented correctly in format and layout by the terminal, shall be transmitted to a Teletex terminal or a text terminal fulfilling the requirements imposed on the Teletex service. This shall be ensured by the system.

11.4.4.4 Other equipment

An approved Teletex system may be connected to another approved Teletex system without additional approval, if the first system is approved together with a related interface, e.g. the first system shall offer for the connection of the second Teletex system (see subclause 11.2.2) the same interfaces as the telecommunication network in the Teletex service. If the different interfaces between the Teletex systems are used, an additional approval shall be necessary.

11.4.5 Teletex communications

11.4.5.1 Incoming traffic

The procedures for suffix dialling-in on the network layer for the connection of the system to the network are laid down in the national specifications of the network.

NOTE 1: Subaddressing on the transport layer should be avoided.

NOTE 2: For "subaddressing" on the application layer see ETS 300 154 [13].

11.4.5.2 Outgoing traffic

If messages are sent via accesses of the public telecommunication network, it shall be ensured that format and layout of the messages to be sent are correct (or correctly converted). The system shall allow its correct representation prior to transmission, independent from a send-command.

If the visualisation of the message is only possible together with a send-command, it shall be possible to stop transmission after visualisation.

11.4.5.3 Traffic restrictions

If different services and/or permanent circuits are to be connected to a system, specific traffic relations may be disallowed.

The system shall be able to block the disallowed traffic relations (by hardware or software). The prevention of certain traffic relations may only be done or changed by the service providers of the system, or his representatives.

11.4.6 Test specifications

(See subclause 8.1).

12 Date and time provisions

See Annex D (normative).

13 Local despatching at the receiving side

(See Annex E (normative)).

Annex A (normative): Use of the session protocol for interworking with the automatic Teletex directory service

Introduction

Whenever a Teletex terminal intends to access the Teletex directory service of the Deutsche Bundespost Telekom, the rules laid down in this Annex shall be mandatory.

A.1 General

An automatic directory service to which every Teletex subscriber has access has been established by the Deutsche Bundespost Telekom for providing information concerning telex and Teletex subscribers (i.e. call numbers, identification addresses) and miscellaneous (e.g. call charges, country identification codes).

The procedure of such a dialogue is described in Clause A.3.

A.2 Request for information

The request for information shall be provided by the subscriber in a format specified in Clause A.4 and be transmitted as a "normal document" to the directory service.

After transmission, the direction of transmission shall be changed by procedure elements Command Session Change Control (CSCC) and RSCCP. When the right of sending text has been handed over (by CSCC) to the directory system, the session connection may be terminated, for charge reasons, by the requesting terminal (by CSA) only upon reception of a minimum of four Teletex pages. This does not affect the possibility of terminating the session connection in case of errors or inactivities lasting more than 60 seconds.

Whenever possible, the directory system replies to the request for information in the form of an "operator document". If the request for information is answered from a manually operated station, this shall be indicated to the subscriber in the form of an "operator document". Then the permission to send shall be returned to the Teletex terminal which shall terminate the call.

If a call-back from a manually operated station of the directory service is necessary, this shall be handled within the scope of a normal Teletex call. The message shall be identified as "operator document".

A.3 Example diagram for the sequence of events of a request for information carried out within the scope of the Teletex protocol

Teletex terminal
 Directory system

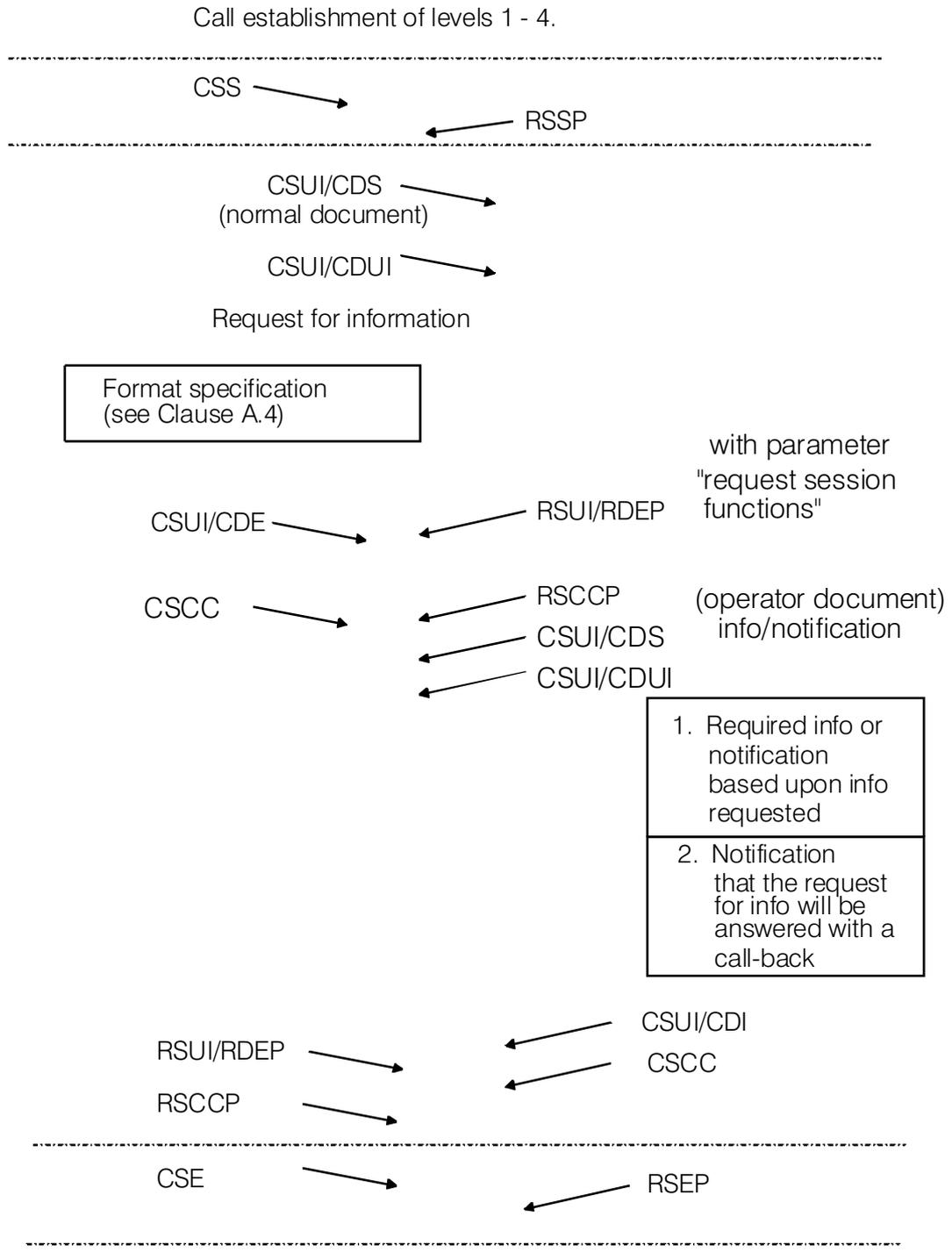


Figure A.1

A.4 Format specification

In order to request information from the automatic directory service, a document shall be compiled as described below.

The document may comprise a maximum of one page.

Two types of requests to the automatic directory service are possible:

- a) the subscriber request;
- b) the general request.

A.4.1 Subscriber request

The structure of the document (type: "normal document") is as follows (maximum 1 page):

- 1st line: Type of request (t = subscriber request);
- 2nd line: Country/network;
- 3rd line: Space line;
- 4th line: a) Teletex or telex number;
or
b) name/domicile.

A.4.2 General request

The structure of the document (type: "normal document") is as follows (maximum 1 page):

- 1st line: Type of request (a = general request);
- 2nd line: General text (e.g. please inform us about...).

Annex B (normative): Types of documents

B.1 Types of documents

B.1.1 Annex F.2/T.62, Normal document

The use of this type of document is in accordance with section F.2 of ITU-T Recommendation T.62 [3].

B.1.2 Annex F.3/T.62, Operator document

The general use of this type of document is described in Annex F.4 of ITU-T Recommendation T.62 [3].

- a) a terminal shall be able to generate control documents (e.g. for accessing CF or MHS) and represent their contents;
- b) the use of control documents for "central equipment" (e.g. Teletex-telex conversion facility) is described in detail in ETR 052.

B.1.3 Annex F.5/T.62, Monitor document

The general use of this type of document is described in Annex F.5 of ITU-T Recommendation T.62 [3].

National requirements:

- (D/A): There is no obligation to accept the reception of monitor documents nor to handle them in a specific manner.

B.2 Advisory notes and additional information

B.2.1 Paragraph 4.2.10/T.62

Replace the last sentence of paragraph 4.2.10 by the following note:

The sum of the Checkpoint Reference Number (CRN) and the corresponding Document Reference Number (DRN) shall not exceed 6 octets. In addition, it is recommended that the CRN length in the RDPBP and RDEP shall be less than or equal to the corresponding CRN length in Command Document Page Boundary (CDPB) (or respectively Command Document End (CDE)).

B.2.2 Paragraph 3.2.1.2/T.62

Advisory note:

3.2.1.2.d) Additional session reference number

This number may be used to uniquely identify a document when operating serial sessions within the same minute in order that identical entries in the communication log may be avoided.

- NOTE: Receiving terminals may not support ASR numbers.

B.2.3 Paragraph 3.2.8 and 3.2.9/T.62

For basic Teletex terminals the receipt of Command Session User Information (CSUI) and Response Session User Information (RSUI) with no information field should preferably not cause a procedural error.

B.2.4 Paragraph 3.4.11.2/T.62

Last sentence shall read:

It does not indicate that the sender of Response Document Resynchronise Positive (RDRP) will be able to perform automatic linking of the following parts of the interrupted document.

B.2.5 Paragraph 4.1.4/T.62

During one transport connection a Teletex page may be repeated only once.

All Teletex terminals need to be equipped with a control facility in order to avoid endless loops in case of page repetition or other procedural sequences (i.e. the transfer of the right to transmit). Such loops have to lead to a disconnection.

There is no obligation to implement a specific control mechanism.

Annex C (informative): Advisory notes and additional information concerning the presentation of graphic characters

C.1 Introduction

In the following annex an extract from ISO 6937/2, Annex E is given, describing the so-called "Fall-back presentations".

This information is intended as a help for general presentation devices.

C.2 Fall-back procedures (ISO 6937/2, Annex E, Clause E.1)

This International Standard does not require that every character of the repertoire be uniquely presented (i.e. printed or displayed) by a receiving text communication terminal, and when a graphic character cannot be uniquely presented, this International Standard requires that a fall-back presentation be shown in its stead (see ISO 6937/1).

In the worst case, diacritical marks are omitted and other characters which cannot be adequately presented are replaced by an ultimate fall-back graphic, for example "low line" or "solid rectangle".

In many instances, however, approximate presentations of a particular graphic character are possible, and should be preferred to simple substitution by the ultimate fall-back graphic.

Fall-back presentations of graphic characters can be achieved in several ways. The possibility of using particular fall-back presentations varies between types of presentation device, and the acceptability of particular fall-back presentations varies according to the circumstances in which those presentation devices are used.

The simplest fall-back presentations are provided by a single graphic character substituting for another single graphic character (for example, the letter "c" substituting for the cent sign). These simple one-for-one substitutions are possible on all presentation devices and in almost all cases, are preferable to the worst-case use of the ultimate fall-back graphic.

Another means of achieving a fall-back presentation is the substitution of a pair of graphic characters for one which cannot otherwise be presented: for example, AE substituting for Æ or SS for ß. This two-for-one substitution is also possible on all presentation devices, but the increase in printed line length and the consequent change of page format may not be acceptable in some circumstances: in those cases the ultimate fall-back graphic should be used. On some presentation devices it may be possible to use smaller than normal spacing before, between and after a pair of graphic characters which are used as fall-back presentation, so that any increase in printed line length may be reduced or eliminated. On printers which allows fractional character spacing, fall-back presentations of the graphics Æ, CE, IJ, L, ae, ce, ij and I can be achieved which do not cause lengthening of the printed line, and which very closely approximate the correct presentation of those characters.

More sophisticated fall-back presentations are possible with presentation devices which allow fractional spacing of graphics both horizontally and vertically. In the simplest case, the letter "c" would be a better substitute for the cent sign if it were superscripted. Given a presentation device capable of fractional vertical spacing, some otherwise impossible substitutions can be achieved: the superscript small digits "2" and "3" can be substituted by the corresponding superscript large digits: the Iberian ordinal indicators = and ¨ can have as fall-back presentations the superscripted letters "a" and "o".

NOTE 1: A successful approximation of an intended graphic character is not considered fall-back if it is unique. For example, the presentation of "\$" (dollar sign) by an "S" overstruck by "|" is not regarded as fall-back.

NOTE 2: The ultimate fall-back graphic is an implementation choice. One of the examples given above, i.e. "solid rectangle" shows that it can be a character, that is not part of the repertoire.

C.3 Fall-back presentation of accented letters (ISO 6937/1, Annex E, Clause E.2)

Some of the diacritical marks not presentable per se may have fall-back presentations which are approximations: the quotation mark may substitute for the diaeresis, the degree sign for the ring, and if the apostrophe is presented as sloping it may substitute for the acute accent.

Where one of these approximate presentations of diacritical marks is not possible or not acceptable, the preferred fall-back for any diacritical mark above a letter is a horizontal line above the character and the preferred fall-back for any diacritical mark shown below a letter is a comma.

Where superimposition of a horizontal line or comma is not possible, diacritical marks may be omitted; on some presentation devices, diacritical marks may need to be omitted only from capital letters.

C.4 Examples of fall-back presentations of non-alphabetic characters (ISO 6937/1, Annex E, Clause E.3)

{ and } may be presented as "("

{ and } may be presented as ")"

@ may be presented as "à" or "at", depending on local usage

& may be presented as "et" or "u", depending on local usage

¥ may be presented as "Y"

ç may be presented as "c"

| may be presented as "!"

¿ may be presented as "?"

µ may be presented as "u"

± may be presented as "±" (an underlined -)

- (horizontal bar) may be presented as (hyphen)

. (middle dot) may be presented as (full stop, period)

' and ' may be presented as ' '

" and " may be presented as " "

« and » may be presented as " "

^a and ^o may be presented as "a" and "o", preferably superscripted

° (degree sign) may be presented as a superscripted "o"

¹, ² and ³ may be presented as superscripted 1, 2, 3.

Annex D (normative): Date and time provisions

The following list describes the date and time provisions of the various networks and countries and their respective requirements:

Country	Network	Date/Time provided by	Shall be used
CH	PSPDN	terminal	yes
E	PSPDN	terminal	yes
DK	CSPDN	terminal	yes
N	CSPDN	terminal	yes
GR	PSPDN	terminal	yes
D	CSPDN	network	yes
A	CSPDN	network	yes
I*)	CSPDN	network	yes
NL	PSPDN	terminal	yes
S	CSPDN	terminal	yes

NOTE: The network supplies the date and time signals sequence, Teletex DTEs interpret it (Italy only).

- "date and time" signals sequence (state 7A).

The "date and time" sequence is sent by the calling DTE on the R circuit with i = OFF, before the "DCE provided information".

The "date and time" sequence is preceded by two or more contiguous 1/6 ("SYN") characters sent during state 6A.

The format of the "date and time" sequence is -AA-MM-GG-HH: mm +.

Annex E (normative): Local dispatching at the receiving side (sub-addressing at the application layer)

Introduction

In companies, complex systems assume the dispatching of incoming calls to work-stations as a function of sub-addressing possibilities. The sub-addressing for Teletex can be improved when a complex system uses only one terminal equipment identification with the use of a control document providing information for dispatching. This dispatching mode is analogous to a sub-addressing at the application layer.

The dispatching information may be included in a normal document when the calling terminal equipment is unable to send a control document. The Teletex document can also be included in a normal document when using this normal document for dispatching information. At the receiving side, a terminal equipment which provides the local dispatching needs not to open every normal document to find some dispatching information. A manual dispatching is always possible.

E.1 Local dispatching needs

The optional elements useful for a local dispatching are:

- receiver's name(s);
- sender's name;
- user's comments.

At least one receiver's name shall be mandatory.

E.2 Mechanism used

E.2.1 Description

At the establishment of the connection this mode shall not be negotiated. The useful dispatching information is included in a control document sent at the beginning of the connection.

The dispatching information is used at the receiving side in a manual or an automatic manner.

The called terminal equipment, if it can handle such dispatching, shall transmit documents to the concerned work-stations. Dispatching information shall apply to all documents of the session.

When the dispatching information and the Teletex document are in the same normal document, the dispatching information shall apply to that Teletex document.

Figure E.1 summarises the chaining sequences.

E.2.2 Connection interrupt

When a connection is interrupted and a control document for dispatching is used, the calling terminal equipment shall again send at least the control document with dispatching information and all documents which were not completely transferred during the interrupted connection.

E.3 Coding and format of the normal or control document

ITU-T Recommendation T.61 [2] coding shall be used.

Action element "Local dispatching".

CR FF 6.2.: LOCAL DISPATCHING:

CR LF 1 : RECEIVER:

CR LF [(receiver's name)] (72 characters maximum per name)

CR LF 2 : SENDER:

CR LF [sender's name] (72 characters maximum)

CR LF 3 : REFERENCE:

CR LF [reference] (72 characters maximum)

CR LF 5 : USER' COMMENTS:

CR LF [user's comments] (8 lines maximum, 72 characters maximum per line)

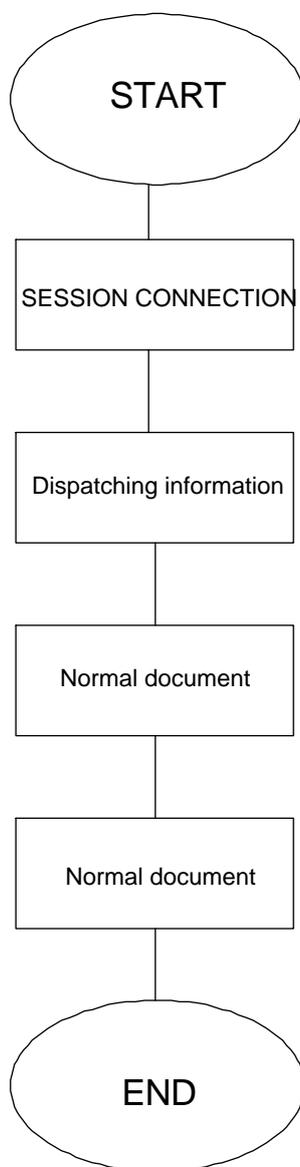


Figure E.1: Local dispatching chaining sequences

Annex F (informative): Bibliography

For the purposes of this ETS the following informative references are given.

ETR 052: "Terminal Equipment (TE); Service intercommunication requirements for Teletex terminal equipment".

ISO 6937-1 (1993): "Information processing- Coded character sets for text communication- Part 1: General introduction".

ISO 6937-2 (1993): "Information processing- Coded character sets for text communication- Part 2: Latin alphabetic and non-alphabetic graphic characters".

ETS 300 102-1: "Integrated Services Digital Network (ISDN); User-network interface layer 3, Specifications for basic call control".

ETS 300 102-2: "Integrated Services Digital Network (ISDN); User network interface layer 3, Specifications for basic call control, Specification Description Language (SDL) diagrams".

ETS 300 125: "Integrated Services Digital Network (ISDN); User-network interface data link layer specification, Application of CCITT Recommendation G.920/I.440 and Q.921/I.441".

ETS 300 011: "Integrated Services Digital Network (ISDN); Primary rate user-network interface, Layer 1 specification and test principles".

ETS 300 012: "Integrated Services Digital Network (ISDN); Basic user-network interface, Layer 1 specification and test principles".

ETR 18: "Integrated Services Digital Network (ISDN); Application of the BC-, HLC-, LLC- information elements by terminals supporting ISDN services".

History

Document history	
February 1994	First Edition
February 1996	Converted into Adobe Acrobat Portable Document Format (PDF)