Tfhe drawings contained in this Recommendation have been done in Autocad.

Recommendation T.390

TELETEX REQUIREMENTS FOR INTERWORKING WITH THE TELEX SERVICE

(Malaga—Torremolinos, 1984)

1 General

1.1 *Scope*

1.1.1 Recommendation F.200 lays down the provisions for the operation of the automatic international Teletex service. In particular, Recommendation F.200 defines the basic service requirements and principles for interworking between Teletex and telex services via a conversion facility (CF).

1.1.2 Recommendation T.60 defines the requirements for terminal equipment used in the international Teletex service, including the interworking with telex terminals, and the conversion table to the telex repertoire in case of interworking.

1.1.3 Recommendation T.61 defines the character repertoire and the coded character sets for the Teletex service.

1.1.4 Recommendation T.62 defines the end—to—end control procedures to be used within the Teletex service as well as between a Teletex terminal and a Teletex/telex conversion facility (CF).

1.1.5 Recommendation T.70 defines the network—independent basic transport service applicable to Teletex terminals, as well as between a Teletex terminal and a CF.

1.1.6 This Recommendation defines the requirements additional to Recommendation T.62 for use between a Teletex terminal and a CF to provide interworking between Teletex and telex services, using store—and—forward principles, in the following cases:

a) when the CF and Teletex terminal are in the same country, with message transfer in either direction;

b) when the CF and Teletex terminal are in different countries, with message transfer in the CF to Teletex terminal direction. This is subject to bilateral agreement.

Note 1 — Due to practical operational difficulties such as charging, message transfer in the direction from a Teletex terminal to a CF in another country is not considered in this Recommendation.

Note 2 — The requirements of interconnection of CFs for the international interworking between Teletex and telex services are for further study.

Note 3 — The real—time conversion operation is not considered in this Recommendation.

1.1.7 The provisions in this Recommendation are independent of the means and procedures for communication between the CF and the telex network. These are covered in Recommendation F.200.

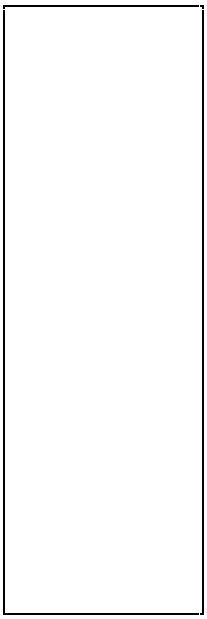
1.2 *Basic Teletex/telex interworking model*

1.2.1 As illustrated in Figure 1/T.390 and in the single—message case, the communications between a CF and a Teletex terminal for the transfer of a message from Teletex to telex may consist of two calls, namely:

a) a submission call initiated by a Teletex terminal to transfer to the CF a message prepared in the telex mode as per Recommendations F.200 and T.60, and related control information;

b) a notification call initiated by the CF in which delivery or non—delivery information may be provided. This call is mandatory if the telex call is unsuccessful but optional if the telex call succeeds.

Fig. 1/T.390/CCITT-59070 = 5 cm

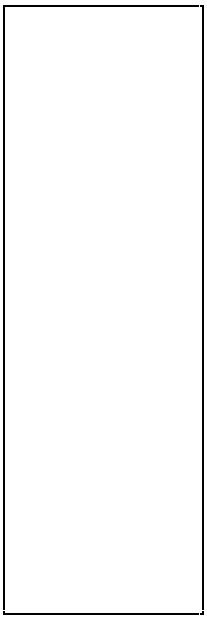


1.2.2 As illustrated in Figure 2/T.390, the communications between a CF and a Teletex terminal for the transfer of a message from telex to Teletex may consist of two calls, namely:

a) an address validation call initiated by the CF to validate the called Teletex number. The requirement for this call is a national matter;

b) a delivery call initiated by the CF to transfer to the Teletex terminal a message received from the telex terminal.

Fig. 2/T.390/CCITT-59080 = 5 cm



1.2.3 For transferring additional control information between the Teletex terminal and the CF, *control documents* are used. A control document may be associated with one or more normal documents. This set will be called a *message*. All these normal documents should be in telex mode and shall be delivered by the CF as a single *telex message*. The control document need not be prepared in telex mode. An acknowledgement control document will refer to a message and not to individual documents.

2 Session elements of procedure

2.1 The session elements of procedure shall be in accordance with Recommendation T.62. However, the following qualifications shall apply:

2.1.1 The values of mandatory parameters used during session establishment shall be as given in Table 1/T.390.

2.1.2 The value of the "terminal identifier of the calling terminal" parameter in the CSS of the delivery call depends on whether the CF and Teletex terminal are in the same or different countries.

2.1.2.1 When the CF and Teletex terminal are in the same country, it may be either the terminal identification of the CF or, alternatively, the terminal identifier derived from the calling telex answerback (A/B) in one of the following forms in which optional fields are enclosed in parentheses:

8—=<A/B>

8<TDC>—=<A/B>

8<TDC>—<A/B number>(—<A/B machine identity>)=(<A/B subscriber>)

Note 1 — <A/B> is the value of the answerback received from the telex terminal after the deletion of the CR LF characters, if present.

Note 2 — <TDC> is the value of the Recommendation F.69 "telex destination code" of the originating network.

Note 3 — <A/B number> is the subscriber number part of the received <A/B>, as described in Note 1, which conforms to Recommendation F.60.

Note 4 — <A/B machine identity> is the optional machine identity part of the received <A/B>, as described in Note 1, which conforms to Recommendation F.60.

Note 5 — <A/B subscriber name> is the optional subscriber name part of the received <A/B>, as described in Note 1, which conforms to Recommendation F.60. This may also include the telex network identification code.

TABLE 1/T.390

Mandatory parameter values during session establishment

T.62 parameters	Call type			
	Submission	Notification	Address validation	Delivery
Terminal identifier of the calling terminal (in CSS)	TTX's TID	CF's TID	CF's TID	See § 2.1.2
Terminal identifier of the called terminal (in RSSP)	CF's TID	TTX's TID	TTX's TID	TTX's TID
Date and time	Submission call originating date and time by TTX	Notification call originating date and time by CF	Address validation call originating date and time by CF	Delivery call originating date and time by CF
Service identifier	Teletex	Teletex	Teletex	Teletex

TID Terminal Identification

TTX Teletex Terminal

CF Conversion facility

2.1.2.2 When the CF and Teletex terminal are in different countries, it shall be the terminal identification of the CF in accordance to the format specified in Recommendation F.201. The calling telex answerback shall be contained in the text of the normal document in the format and at the point at which it was obtained by the CF.

3 Document elements of procedures

3.1 *General*

3.1.1 The document elements of procedure shall be in accordance with Recommendation T.62. In addition, the Teletex terminal and the CF shall be able to handle control documents defined in this Recommendation as shown in Table 2/T.390.

4 Control documents

4.1 For transferring additional control information between the Teletex terminal and the CF, control documents are used. The additional control information is contained in the user information part of the control document and is called "control text". A summary of the control documents is given in Table 2/T.390.

TABLE 2/T.390

Control documents for Teletex/telex interworking service

Type of call (see Figures 1/T.390 and 2/T.390)	Control document	Status of control document	
		CF	Teletex terminal
Teletex to telex message transfer			
Submission	Telex submission	Mandatory	Mandatory
Notification	Telex delivery notification (Note 2)	Mandatory	Selectable
	Telex non—delivery notification (Note 2)	Mandatory	Mandatory
Telex to teletex message transfer			
Address validation	Telex validation (Note 1)	Optional	Optional
Delivery	Telex message delivery	Optional	Optional

Mandatory: Shall always be implemented.

Optional: Shall be implemented according to national requirements.

Selectable: To be implemented as appropriate.

Note 1 — An address validation call need not contain a telex validation control document.

Note 2 — At present, this only relates to a single telex address.

4.2 *Telex submission control document*

4.2.1 The Telex submission control document shall be used by the Teletex terminal to indicate to the CF that the associated subsequent normal document(s) is to be transferred to a telex terminal.

4.2.2 Elements of the control text are:

a) control document identifier — mandatory;

b) submission control information — optional.

This element consists of the following parameters:

i) telex address — optional.

This is the address of the recipient. It need not be present if provided in lower layer procedures;

ii) answerback — optional.

This is the expected telex answerback. It is to be provided if automatic check by the CF is required;

iii) acknowledgement request — optional.

This is the request for telex delivery notification. This parameter is only present if the user requires advice of a successful telex call. It need not be present in cases where the CF always provides delivery notification.

4.2.3 This control document may be utilized in multi—addressing by providing several sets of the submission control information element in § 4.2.2 above. The provision of this capability in a CF is a national matter.

Note — The inclusion of Teletex addresses within the multi—addressing list is for further study.

4.2.4 Multiple telex submission control documents (each with associated normal documents) may be used within the same session. The provision of this capability in a CF is a national matter.

4.3 *Telex delivery notification control document*

4.3.1 If the Teletex user requires notification after the successful message transfer to the telex terminal [see § 4.2.2 b)], then the telex delivery notification control document shall be sent by the CF to the originator of the telex message. As a national matter, some CFs may always provide this delivery notification.

4.3.2 *Elements of the control text are:*

a) control document identifier — mandatory;

b) correlation information — mandatory.

This provides a unique reference to the corresponding telex submission control document. The element parameters which are provided by the CF are a national matter. These parameters are:

— CF TID

This is the terminal identification of the CF to which the corresponding telex submission control document was sent.

— TTX TID

This is the terminal identification of the Teletex terminal which sent the telex submission control document.

— Date and time

This is the date and time of the submission call.

— CD No.

This is the document reference number of the telex submission control document.

— Add'l session Ref No.

This is the additional session reference number if used in both the CSS and RSSP in the submission call;

c) submitted control information — mandatory.

This reflects the relevant parameters of the telex submission control document pertaining to a single address. These parameters are:

— telex address

Note — This parameter can be derived from lower layer procedures if not present in the telex submission control document.

— answerback

— acknowledgement request;

d) delivery information — mandatory.

This provides information concerning call establishment from CF to the called telex terminal. The element parameters which are provided by the CF are a national matter. These parameters are:

— telex address

This is the address derived from the telex submission control document and used by the CF to establish the call.

Note — This parameter can be derived from lower layer procedures if not present in the telex submission control document.

— received answerback

This is the complete telex answerback as received by the CF;

e) time of delivery — optional.

This is the time at which the CF delivered the telex message to the telex terminal;

f) telex transmission duration — optional;

g) note — optional.

This is used to convey additional information;

h) received recorded message — optional.

This is used to convey to the Teletex terminal any recorded message from the telex destination.

4.4 *Telex non—delivery notification control document*

4.4.1 The telex non—delivery notification control document shall be used in the following cases:

a) if a telex message cannot be delivered;

b) if a telex message was only partially delivered;

c) if a message is incompletely received in the CF and this partial message successfully delivered (see § 6.1.2).

4.4.2 *Elements of the control text are:*

a) control document identifier — mandatory;

b) correlation information — mandatory [see § 4.3.2 b)];

c) submitted control information — mandatory [see § 4.3.2 c)];

d) delivery information — mandatory.

This provides information concerning call attempt or call establishment. [For details of the parameters, see § 4.3.2 d)];

e) time of delivery — optional.

This is the time at which the CF delivered the partial telex message to the telex terminal if a partial delivery was achieved;

f) telex transmission duration — optional.

This may be provided if a partial delivery was achieved;

g) last page delivered — optional.

This shall identify the last page number, and its document reference number, successfully transmitted to telex;

h) failure cause — mandatory.

The cause may be one of the following examples:

— service signal from telex network;

— clearing before call connect;

— wrong answerback;

— clear or break during message transmission;

— submitted normal document not in the telex mode;

i) note — optional [see § 4.3.2 g)];

j) received recorded message — optional [see § 4.3.2 h)].

4.5 *Telex validation control document*

4.5.1 The telex validation control document is used by the CF to indicate to the called Teletex terminal that a message from telex will subsequently be sent from the CF. The use of this control document is a national matter (e.g. for unique message identification) and shall not be allowed over international connections.

4.5.2 Elements of the control text are:

a) control document identifier — mandatory;

b) reference — mandatory. This reference is assigned by the CF.

4.6 *Telex message delivery control document*

4.6.1 The telex message delivery control document is used by the CF to indicate to the Teletex terminal that the associated subsequent normal document was received from a telex terminal. The use of this control document is a national matter.

Note — The use of this control document over international connections requires further study.

4.6.2 *Elements of the control text are:*

a) control document identifier — mandatory;

b) reference — optional.

This reference is assigned by the CF. If the telex validation control document is used, then this reference must be quoted;

c) received time — mandatory.

This contains the time at which the telex was received by the CF;

d) received telex answerback — optional.

This is the complete telex answerback as received by the CF;

e) Note — optional [see § 4.3.2 g)].

5 General rules for control documents

5.1 *Control document utilization*

Teletex terminals shall be capable of constructing messages, each consisting of a control document linked with a sequence of normal documents. The message ends at either the start of the next control document, or at the normal end of the session.

5.1.1 The Teletex terminal will allow the following types of communication to a CF within a single session:

— one or more normal documents covered by the same control document (“normal” documents shall be in the “telex” mode);

— one or more addresses covered by the same control document. The provision of this capability in a CF is a national matter;

— more than one control document and related normal documents in the same session. The provision of this capability in a CF is a national matter.

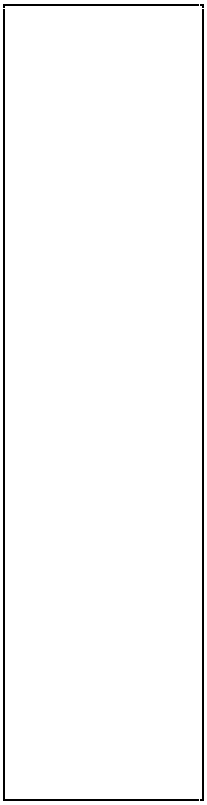
5.1.2 When interworking with telex, the following rules shall apply (see Figure 3/T.390):

— a control document relates to the normal documents which follow it, up to the next control document (if any) within the session, or up to the normal end of the session;

— the presence of more than one address in a control document indicates multi—addressing of all related normal documents;

— within a session, document reference numbers will be assigned, as specified in Recommendation T.62, without distinction between control documents and normal documents.

Fig. 3/T.390/CCITT-59090 = 12 cm



6 Error recovery in Teletex/telex interworking

6.1 *Message transfer from Teletex to telex*

6.1.1 During a session, the CF shall perform automatic linking using the procedures specified in T.62.

6.1.2 In the case where a session interruption or CF memory overflow occurs, the following shall apply:

a) All complete messages received and positively acknowledged in that session shall be handled by the CF as in error—free operation.

b) The CF shall handle the interrupted message in one of the following ways:

— The CF shall forward to the telex terminal all positively acknowledged documents and pages of the interrupted document, with an appropriate explanatory text.

At the end of the text part which is transferred to telex an explanatory text is added, for example:

"This is an incomplete telex message which may be continued later with the following reference information:

<rearranged TTX terminal ID> <date and time>"

At the end of the telex call, the CF may optionally transfer a telex non—delivery notification control document indicating the last page number, and its document reference number, which was successfully transferred to the telex network.

— The CF shall not forward the interrupted message, but shall return a telex non—delivery notification control document to the Teletex terminal to indicate that the complete message has to be retransmitted to the CF.

c) Additionally, in the case of the interrupted message:

— the reaction of the CF is independent of the acknowledgement request of the telex submission control document;

— if a CF in case of interrupted message always sends a telex non—delivery notification, a Teletex terminal or operator should not retransmit any part of that message before receiving that notification.

6.1.3 When the CF is not able to forward the telex message (e.g. because of line interruption) to the telex network, it shall transfer to the Teletex terminal a telex non—delivery notification control document.

6.1.4 If the Teletex terminal retransmits an interrupted message in a new session, it shall send as the first document the control document relating to the interrupted message. When the Teletex operator wants to indicate to the telex terminal that this transmission is a continuation of an interrupted one, the Teletex terminal shall always start the interrupted normal document with CDC. When delivering this message to the telex network, the CF shall precede the continuation of the transmitted message with an appropriate explanatory text, for example "This is a continuation of an incomplete message with the following reference information:

<rearranged TTX terminal ID> <date and time>"

Note — Both parameters of the reference information are taken from the linking information of the CDC command and are identical to the parameters described in § 6.1.2 b).

6.2 *Message transfer from telex to Teletex*

6.2.1 For error conditions arising during the Teletex call, normal error recovery procedures in Recommendation T.62 shall apply.

6.2.2 If an error was detected during telex input, the CF shall add to the end of the interrupted telex message an appropriate explanatory text. An example is "This may be an incomplete message".

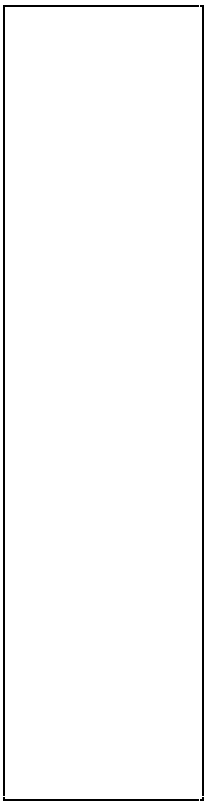
This explanatory text may also be used if the telex call was cleared before the CF received the end of input signal (EOI).

7 Coding and formatting of control documents

7.1 *Control document structure*

7.1.1 Figure 4/T.390 illustrates the structure of control documents. The user information part of the control document user information (CDUI) in control documents is called *control text*.

Fig. 4/T.390/CCITT-59100 = 12 cm



7.2 *Control document coding principles*

7.2.1 For the basic Teletex/telex interworking service, the control text shall be coded using explicit, human—readable graphic characters of Recommendation T.61 coding scheme.

7.3 *General formatting of control text*

7.3.1 The control text is subdivided in *elements* each consisting of a number of *fields*.

7.3.2 An element is uniquely identifiable by an *element number* field, which is language—independent, and an *element name* field, which is language dependent. These two fields are always closed by the character "colon" (:). In control documents sent by the CF to the Teletex terminal, at least one of the above fields must be present. For international communications, the element number field shall be mandatory.

7.3.2.1 The element number assigned to the control document identifier shall consist of two parts separated by a period. Each part is a sequentially assigned number. The first part identifies the application which uses the control document. The second part identifies the control document.

7.3.2.2 Each distinct element name, other than control document identifiers, shall be sequentially assigned a different number.

7.3.2.3 There shall be no restriction on the number of digits for element numbers. Any leading zeros in an element number are ignored.

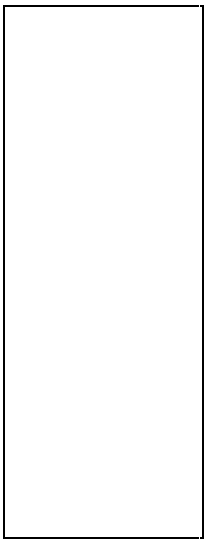
7.3.2.4 Where national requirements dictate the use of non—standardized element numbers, Administrations may choose any value in the range 1000—1999 for the first part of non—standardized control document identifiers and for non—standardized elements.

7.3.3 Parameters to the elements shall be coded in separate *element value* fields.

The parameters will be illustrated in this Recommendation by enclosing them between angular brackets (< >).

7.3.4 In the text each element is contained in one or more lines. When more than one line is used, only the element number field and the element name field shall be present in the first line. See Figure 5/T.390.

Fig. 5/T.390/CCITT-59110 = 8 cm



7.3.5 The first element present in the control text shall be the control document identifier. This element is mandatory and used to identify the function of the control document, e.g. submission of a telex message, acknowledgement of a previous message.

7.3.6 The element denoted by the name “Note” will be allowed for extending the format to accommodate national requirements.

7.3.7 An element name shall be represented by a *text string*, that is, a sequence of graphic characters. Some parameters may also consist of such text strings. All text strings are language—dependent.

7.3.8 When encoding the control text the following rules shall apply:

a) The control text shall always begin with the character sequence FF CR or CR FF preceded by applicable presentation control functions (see Recommendation T.61, § 3.3.1.4).

b) Each element following the control document identifier may be preceded by one or more empty lines.

c) Each field in an element shall be separated by the character “space” if no other special separator is defined for the element.

Note — It is allowed to have leading spaces or backspaces in a line.

7.3.9 When decoding the control text the following rules shall apply:

a) The first element in the text shall be recognized as the control document identifier. Leading New Line functions (CR LF or LF CR), LF and leading spaces shall be ignored.

b) Contiguous New Line functions (CR LF or LF CR) or LF shall be considered as *one* New Line function.

c) Contiguous embedded spaces are considered as one space. Leading spaces in a line shall be ignored.

Note — Leading backspaces in a line shall be ignored.

7.4 *Format of Teletex/telex interworking control documents*

In this section the formats of the different control documents are shown. Their control texts are illustrated by the use of four different syntax elements:

— The element number field is represented by a sequence of numeric graphic characters.

— The element name field is represented by a text string giving the CCITT language reference name of the field. The actual value shall be a language—dependent representation of that reference name.

— Separators [i.e.: (SP13), / (SP12), = (SA04)] are shown as they shall be represented in the actual control text.

— Element value fields are shown in angular brackets (< >). The actual parameter values are described in § 7.5.

The formats are illustrated in terms of layout and contents, but do not explicitly show the presentation control functions. These shall be inserted as appropriate (see § 7.3.8).

7.4.1 *Telex submission control document format*

7.4.1.1 Figure 6/T.390 illustrates the format of the control text in the telex submission control document.

1.1: TELEX SUBMISSION:
<TELEX ADDRESS> <=ANSWERBACK> <+ACKNOWLEDGEMENT REQUEST>

FIGURE 6/T.390

Telex submission control document

7.4.1.2 The submission control information element does not have an explicit identification.

7.4.2 *Telex delivery notification control document format*

7.4.2.1 Figure 7/T.390 illustrates the format of the control text in the telex delivery notification control document.

1.2: TELEX DELIVERY NOTIFICATION:
1: CORRELATION INFORMATION:
<CF TID> <TTX TID> <DATE AND TIME> <CD No.> <ADD'L SESSION REF No.>
2: SUBMITTED CONTROL INFORMATION:
<TELEX ADDRESS> <=ANSWERBACK> <+ACKNOWLEDGEMENT REQUEST>
3: DELIVERY INFORMATION:
<TELEX ADDRESS> = <RECEIVED ANSWERBACK>
4: TIME OF DELIVERY: <DATE AND TIME>
5: TELEX TRANSMISSION DURATION: <DURATION>
6: NOTE: <TEXT>
7: RECEIVED RECORDED MESSAGE:
<TEXT>

Note — If <CD No.> is 5 digits long, and <ADD'L SESSION REF No.> is used, the correlation information line will be 73 characters long. A backspace into the left margin is then necessary, in order not to exceed the printable area of a basic Teletex terminal.

FIGURE 7/T.390

Telex delivery notification control document

7.4.3 *Telex non—delivery nofitication control document format*

7.4.3.1 Figure 8/T.390 illustrates the format of the control text in the telex non—delivery notification control document.

1.3: TELEX NON—DELIVERY NOTIFICATION:
1: CORRELATION INFORMATION:

<CF TID> / <TTX TID> / <DATE AND TIME> / <CD No.> / <ADD'L SESSION REF No.>

2: SUBMITTED CONTROL INFORMATION:
<TELEX ADDRESS> <=ANSWERBACK> <+ACKNOWLEDGEMENT REQUEST>

3: DELIVERY INFORMATION:
<TELEX ADDRESS> = <RECEIVED ANSWERBACK>

4: TIME OF DELIVERY: <DATE AND TIME>

5: TELEX TRANSMISSION DURATION: <DURATION>

8: LAST PAGE DELIVERED: DOCUMENT = <DOC No.> PAGE = <PAGE No.>

9: FAILURE CAUSE: <CAUSE>

6: NOTE: <TEXT>

7: RECEIVED RECORDED MESSAGE:
<TEXT>

Note — See Note of Figure 7/T.390.

FIGURE 8/T.390

Telex non—delivery notification control document

7.4.4 *Telex validation control document format*

7.4.4.1 Figure 9/T.390 illustrates the format of the control text in the telex validation control document.

1.4: TELEX VALIDATION:

10: REFERENCE: <REFERENCE>

FIGURE 9/T.390

Telex validation control document

7.4.5 *Telex message delivery control document format*

7.4.5.1 Figure 10/T.390 illustrates the format of the control text in the telex message delivery control document.

1.5: TELEX MESSAGE DELIVERY:

10: REFERENCE: <REFERENCE>

11: RECEIVED TIME: <DATE AND TIME>

12: RECEIVED TELEX ANSWERBACK: <RECEIVED ANSWERBACK>

6: NOTE: <TEXT>

FIGURE 10/T.390

Telex message delivery control document

7.5 *Description of parameter values in Teletex/telex interworking control documents*

7.5.1 <TELEX ADDRESS>

A sequence of numeric graphic characters. As a national option, a limited set of graphic characters may be allowed to be embedded in this field as punctuation marks.

7.5.2 <= ANSWERBACK>

An equals sign graphic character followed by a sequence of alphanumeric graphic characters which comprise part or all of the expected answerback code. The carriage return and line feed characters shall not occur in this parameter.

7.5.3 <+ ACKNOWLEDGEMENT REQUEST>

A plus sign graphic character followed by the text string "ACK".

7.5.4 <CF TID>

A sequence of graphic characters as defined in Figure 2/F.200.

7.5.5 <TTX TID>

A sequence of graphic characters as defined in Figure 2/F.200.

7.5.6 <DATE AND TIME>

A sequence of graphic characters as defined in Figure 1/F.200.

7.5.7 <CD No.>

A document reference number as specified in Recommendation T.62.

7.5.8 <ADD'L SESSION REF No.>

An additional session reference number as specified in Recommendation T.62.

7.5.9 <RECEIVED ANSWERBACK>

A sequence of graphic characters representing a telex answerback code from which CR LF characters have been deleted, if present.

7.5.10 <DURATION>

A sequence of graphic characters in the form "HH : MM : SS" representing the numeric values in hours, minutes and seconds.

7.5.11 <TEXT>

Any text string coded as in Recommendation T.61.

7.5.12 <DOC No.>

A document reference number as specified in Recommendation T.62 with a length not exceeding five digits.

7.5.13 <PAGE No.>

A page reference number as specified in Recommendation T.62 with a length not exceeding five digits.

7.5.14 <CAUSE>

This is a text string with the following possible values — the list is not exhaustive:

— network service signal as received from the telex network (see Recommendation U.12) or/and a corresponding text string in the appropriate language;

— error in submitted control document;

— invalid telex address;

— not delivered — interruption in the transmission;

— submitted text not prepared for telex;

— not permitted telex answerback;

— procedural error during the submission call.

7.5.15 <REFERENCE>

An alphanumeric text string.