INTERNATIONAL TELECOMMUNICATION UNION

CCITT

THE INTERNATIONAL
TELEGRAPH AND TELEPHONE
CONSULTATIVE COMMITTEE

T.60

(11/1988)

SERIES T: TERMINAL EQUIPMENT AND PROTOCOLS FOR TELEMATIC SERVICES

TERMINAL EQUIPMENT FOR USE IN THE TELETEX SERVICE

Reedition of CCITT Recommendation T.60 published in the Blue Book, Fascicle VII.3 (1988)

NOTES

1 CCITT Recommendation T.60 was published in Fascicle VII.3 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 T.60

TERMINAL EQUIPMENT FOR USE IN THE TELETEX SERVICE

(Geneva, 1980; amended at Malaga-Torremolinos, 1984 and Melbourne, 1988)

1 Scope of Recommendations concerning the Teletex service

1.1 This Recommendation defines the requirements for terminal equipment used in the international Teletex service.

1.2 The rules to be followed in the Teletex service are defined in Recommendation F.200.

1.3 The character repertoire and the coded character sets for the Teletex service are defined in Recommendation T.61.

1.4 All Teletex terminals have to communicate with unique procedures that are described as follows:

a) the interface to the transport network is defined in this Recommendation, see § 6;

b) the transport end-to-end control procedure is defined in Recommendation T.70;

c) the Teletex control procedures are defined in Recommendation T.62.

1.5 Requirements for terminals providing mixed-mode capability are specified in Recommendation T.72.

2 Introduction

2.1 With the aid of a Teletex terminal it is possible to produce character-coded texts and to transmit their true contents and form to a receiving terminal.

2.2 A Teletex terminal, operating in the local mode, can also be used like a typewriter to prepare ordinary office documents. By means of the Teletex communication facilities, the text thus prepared can be transmitted to other Teletex terminals or received from them.

2.3 In this Recommendation *text* refers to character-coded text only.

2.4 Terminals can have various degrees of complexity. Within this Recommendation the emphasis is on requirements for correct interworking of different terminals.

2.5 Details are given on dimensions and positioning of text. Various dimensions refer to the presentation of text on paper. In this respect, paper formats of both 210 × 297 mm (ISO A4) and 216 × 280 mm are taken into account. Other paper sizes are included as options.

2.6 Terminals fulfilling the requirements denoted as *basic requirements* can participate in the Teletex service on a defined level of compatibility.

3 General characteristics of the terminal equipment

3.1 *Basic characteristics*

3.1.1 The Teletex terminal allows text to be communicated from any subscriber to any other subscriber.

3.1.2 All terminals participating in the international Teletex service have to be compatible with one another at the basic level defined in this Recommendation. Additional optional functions may be invoked.

3.1.3 In order to support a high grade of service, a user data rate of 2.4 kbit/s on the subscriber line is recommended wherever possible. Detailed arrangements on a national level are left to the Administrations concerned, as it is recognized that national implementation of the Teletex service on various types of network may involve national operation at different data throughput rates.

3.1.4 When operated in the local mode, e.g. when the Teletex terminal is used in the same way as an office typewriter, the operation in the local mode should not be interrupted by incoming traffic. However, under receive store full conditions, the production of a permanent copy of the incoming messages must have priority over the local mode. In this context, a permanent copy is understood to be, e.g., paper, tape, magnetic media, etc., except volatile memory devices (such as semi-conductor memory without battery back-up).

A compulsory printout due to full memory (interruption of the local mode of operation) is not required.

3.1.5 In the sending mode, the Teletex terminal must be capable of sending a selection of characters that belong to the basic repertoire of graphic characters.

3.1.6 In the receiving mode, the Teletex terminal must be capable of receiving into store all characters from the basic repertoire of graphic characters.

3.1.7 The presentation device of the terminal must have the ability to represent as legibly as possible all graphic characters of the basic international Teletex character repertoire. Unambiguous presentation of the basic international Teletex character repertoire is a minimum requirement.

3.1.8 The terminal must have the ability to respond to the control functions of the basic international Teletex repertoire.

3.1.9 The use of graphic character repertoires other than the Teletex basic repertoire of graphic characters is subject to ascertaining the mutual capability of the terminals and has to be initiated by the appropriate procedural steps.

3.1.10 The page is the basis for text formatting and text transmission.

3.1.11 The terminal must be able to handle paper formats in both the vertical and horizontal orientation (see § 4.2 below).

3.1.12 A printable area of the page is defined within which free positioning of the text is possible during local text preparation (see § 4.2 below).

3.1.13 After transmission, the content, layout and format of a Teletex message must be identical at the transmitting and the receiving terminals, when using the defined basic mode of Teletex operation.

3.1.14 The Teletex terminal must be provided with storage for transmitting and receiving functions. See § 5.2 for further details.

3.1.15 The Teletex terminal must provide means for *fully automatic operation* (see definitions in Recommendation F.200).

3.1.16 For the purpose of automatic operation, an internationally agreed unique terminal identification must be provided (see § 5.1 for further details).

3.1.17 The basic Teletex terminal should provide the capability of interworking with telex. Necessary constraints on the Teletex terminal are defined in § 8.

3.1.18 Teletex terminals shall incorporate all functions defined as basic for the Teletex service in § 3.2 below. In addition, optional functions can be incorporated. In this Recommendation, the optional functions are divided into CCITT-standardized options (§ 3.3) and nationally and/or privately specified options (§ 3.4).

3.1.19 This Recommendation does not specify requirements for receive-only terminals. However, it is not intended to exclude such terminals.

3.2 *Basic functions*

3.2.1 A terminal shall be capable of handling:

a) the end-to-end control procedures as defined in Recommendations T.62 and T.70;

b) the appropriate network-dependent procedure, see § 6;

c) the Teletex basic graphic character repertoire;

d) the Teletex basic control function repertoire;

e) text in the basic vertical and horizontal page formats;

f) subscripts and superscripts.

3.2.2 Basic text formatting functions for printers (or other presentation devices as applicable) are as follows:

a) vertical and horizontal page orientation;

b) printable area common to ISO A4 and 216 × 280 mm paper formats;

c) character spacing of 2.54 mm (10 characters per 25.4 mm);

d) line feed parameter values of 0.5, 1, 1.5 and 2 spacings of 4.233 mm (six spacings of 4.233 mm equals 25.4 mm);

e) free positioning of text within the printable area using the Teletex basic repertoire of graphic characters and control functions;

f) partial line up and partial line down functions (for presenting superscript and subscript).

3.2.3 The following Teletex service requirements must be met:

a) terminal identification;

b) storage for receiving and transmitting functions;

c) provisions for a permanent copy (not necessarily on paper) of all text received;

d) provisions for interworking with the telex service.

Note – The use of the terminal identification (transmission, reception) is a matter for the communication procedure (see Recommendation T.62).

3.3 *CCITT-standardized optional functions*

3.3.1 The possibility of using optional functions can be negotiated between terminals during a handshaking procedure in the end-to-end control procedure (see Recommendation T.62).

3.3.2 As the service develops, additions and changes to the CCITT-standardized optional functions listed below may be needed.

3.3.3 For the optional functions of the communication control procedures, see Recommendations T.62 and T.70.

3.3.4 Optional text formatting functions for printers (or other presentation devices as applicable) are to be found in:

a) Annex B to this Recommendation;

b) Annex E to Recommendation T.61.

3.3.5 Alternative character repertoires may be invoked by designation of CCITT-registered national and/or application-oriented character repertoires.

Note – The definition and designation of CCITT-registered national and/or application-oriented character repertoires is a matter for study in the future.

3.3.6 For Teletex terminals supporting the mixed mode of operation (MM), additional terminal characteristics are specified in Recommendation T.561.

3.3.7 For Teletex terminals supporting the processable mode (PM.1), additional terminal characteristics are specified in Recommendation T.562.

3.4 *Optional functions for national standardization or private use*

3.4.1 The CCITT standardization includes the necessary rules and means for indication of or escape into functions specified nationally or for private use (see standardized options in Recommendation F.200).

3.5 *Default conditions*

3.5.1 In the absence of specific indication, the receiving terminal shall assume the following conditions:

a) communication (as specified in Recommendation T.62):

– one way (calling terminal is transmitting text),

– normal document;

b) character repertoire – basic international Teletex character repertoire;

c) text presentation:

- vertical basic page format,
- character spacing of 2.54 mm,
- line-feed spacing of 4.23 mm (single spacing),
- default rendition.

4 Text handling

4.1 *Character repertoire*

4.1.1 The terminal, participating in the international Teletex service, can exchange text with all other Teletex terminals. To enable this communication, the international Teletex basic graphic character and control function repertoires, as defined in Recommendation T.61, shall be used.

4.1.2 On an optional basis a terminal can use other national and/or application-oriented character repertoires registered by CCITT. The rules for the code extension technique are described in Recommendation T.61.

4.2 *Paper sizes and printable areas*

4.2.1 If the Teletex terminal is capable of printing text on paper, it has to act like a normal office typewriter. Therefore the following applies.

4.2.2 There are countries that use ISO A4 paper size (210 × 297 mm) or North-American paper size (216 × 280 mm) of which the common area is 210 × 280 mm.

4.2.3 Printable areas are defined for both the vertical and horizontal orientation of the paper, and are expressed by the number of line positions and character positions shown in Table 1/T.60.

4.2.4 The printable areas include an allowance for printing with an offset of 2.12 mm above the first base line and 2.12 mm below the last base line for superscripts and subscripts respectively.

4.2.5 For the definitions of the printable areas in Table 1/T.60 certain assumptions about technical and operational problems have been taken. Further details about these assumptions are given in Annex A.

TABLE 1/T.60

Basic printable areas and basic page formats

		Paper orientation	
		Vertical	Horizontal
Maximum number of lines per page [a)]	Line spacing (mm)	X = 110 HLS	X = 76 HLS
	4.23	55	38
	6.35	37	25
	8.47	28	19
Maximum number of characters per line [b)]	Character spacing (mm) 2.54	77 (5 + 72)	105 (5 + 100)

a) The maximum number of lines per page is calculated according to the formula given.

b) The maximum number of characters per line are given in the form *C* (*D* + *E*), where *C* is the total number of characters per line defined for the printable area, *D* the number of characters to the left side of the home position as defined for the page format and *E* the number of characters to the right side including the home position character.

The home position is defined in Figure B-1/T.60.

4.2.6 It is not the intention of this Recommendation to define precisely the location and the size of the printable areas on paper sheets. However, the design of printing equipment shall always provide for the maximum number of lines and the maximum number of characters per line as shown in Table 1/T.60.

Note – The optional use of preprinted forms needs further study

4.2.7 Optional printable areas are found in Annex B.

4.3 *Page format*

4.3.1 The size of the communicated text area, vertically or horizontally oriented, is one line spacing (4.23 mm) less than the defined maximum printable area, to allow for presentation of the call identification line.

4.3.2 The call identification line, if presented, will appear preferably at the superscripted level of the first printable line or the subscripted level of the last printable line, to ensure that it cannot partially overlap superscript text in the first communicable text line, or subscript text in the last communicable text line.

Note – Some existing equipment may be unable to comply with the requirement. If overlapped printing occurs on such terminals, it will be the recipient's responsibility to obtain clarification of text from the sender.

4.3.3 For each text area a home position is defined. See Recommendations T.61 and F.200.

Note – The home positions for different character spacings are shown in Figure B-1/T.60.

5 Communications

5.1 *Terminal identification*

5.1.1 Each Teletex terminal shall be equipped with a unique terminal identifier stored in the terminal.

5.1.2 The terminal identifier consists of 24 characters (octets) to which it shall be possible to assign any permissible bit combination of the primary set of Recommendation T.61.

The content and restrictions of the terminal identifier are defined in Recommendation F.200.

5.1.3 The content of the terminal identifier must be protected against loss or modification due to technical faults or non-authorized intervention.

5.1.4 The Teletex communication procedures include the exchange of the terminal identifiers prior to sending any document. The sender should use the receivers identifier to check the correct establishment of the call. If an automatic check is performed, this is preferably done on the mnemonic part of the terminal identifier, i.e. the part following the equals sign (=), see Recommendation F.200.

5.2 *Storage*

5.2.1 The terminals have to be equipped with a memory for reception, transmission and undisturbed local operation.

5.2.2 The storage ability of a terminal to receive incoming traffic may be established by control procedures prior to message transmission.

5.2.3 If the transmission has to be terminated as a result of insufficient storage at the receiving end, indication of this condition will be given to both the transmitting and receiving parties.

5.2.4 The storage capacity shall be sufficient to meet the quality of service criteria laid down in Recommendation F.200.

5.2.5 Terminal design and/or operating procedures shall be such as to minimize the possibility of loss of messages due to power failure or memory failure (for example by the use of nonvolatile memory or by forced print-out as appropriate).

5.3 *Call identification*

5.3.1 The Teletex procedures include the exchange of reference information prior to sending any document. Details of the call identification line are covered in Recommendation F.200.

6 Network-dependent requirements

6.1 Teletex transport can be provided by a circuit-switched data network (CSDN), a packet-switched data network (PSDN) or a public switched telephone network (PSTN). In all three types of network the Teletex terminal will provide automatic answering, transmission, reception and clearing.

6.2 *Circuit-switched data network*

a) functional and procedural rules for the call control phase: Recommendation X.21;

b) bit rate: 2400 bit/s;

c) link and network layer procedures during the data transfer phase: duplex as defined in Recommendation T.70.

6.3 *Packet-switched data network*

a) functional and procedural rules for the call control phase: Recommendation X.25;

b) bit rates: 2400, 4800, 9600 and 48 000 bit/s.

6.4 *Public switched telephone network*

a) functional and procedural rules for the call control phase in the case of automatic calling and answering: Recommendation V.25 line requirements for automatic calling and answering;

b) bit rates: half-duplex 2400 bit/s; duplex 1200 or 2400 bit/s; Recommendation V.22, V.22 *bis* or V.26 *ter* modem line requirements;

Note – V.22 *bis* line requirements are preferable to V.22.

c) link and network layer procedures during data transfer phase: Recommendation T.70 and in the case of half-duplex operation also Recommendation T.71.

7 Indicators

7.1 Indicators should inform about situations in which operator attention is required in order to maintain the grade of service.

7.2 An indication of the following situations shall be provided:

a) message received in store;

b) terminal unable or soon unable to receive, e.g. when receiving memory is nearly full;

c) operator assistance required, e.g. when printing element or paper orientation requires changing.

The terminal operator's attention shall be drawn to the above situations immediately regardless of the actual condition of the terminal, e.g. when terminal is in stand-by mode.

8 Interworking between Teletex terminals and telex terminals

8.1 In text which is to be sent to a telex terminal, the graphic character set should be restricted to that of International Telegraph Alphabet No. 2 (ITA2). This restriction only applies to that part of the text which is for onward transmission to telex. This restriction should be performed in the Teletex terminal.

8.2 The text for onward transmission to telex shall only contain those characters of ITA2 that form a subset of the basic Teletex character repertoire, as specified in Table C-1/T.60. Coding of these characters shall be in accordance with Recommendation T.61.

8.3 For the new line function, it is strongly recommended to use CR and LF in the order CR followed by LF. The order LF followed by CR is deprecated because this may cause improper printing in certain telex terminals.

8.4 The line length is restricted to 69 characters.

8.5 The Teletex terminal, when interworking with telex, operates at the Teletex terminal's normal data signalling rate.

8.6 The control procedures to be used between a Teletex terminal and a conversion facility (see Recommendation F.200) are defined in Recommendation T.90.

Note – A conversion facility provides for necessary conversion between Teletex and telex of communication procedures, signalling rates, character coding, etc.

9 Interworking between basic Teletex equipments and equipments supporting PM.1 and/or MM option

9.1 *General*

Basic Teletex documents are to be interchanged according to the rules defined in Recommendation T.62 *bis*.

PM.1 and MM Teletex documents are to be interchanged according to the application context defined in Recommendations T.561 and T.562.

Figure 1/T.60 below illustrates the two different sets of rules to be used by Teletex equipments depending on the interchanged document format.

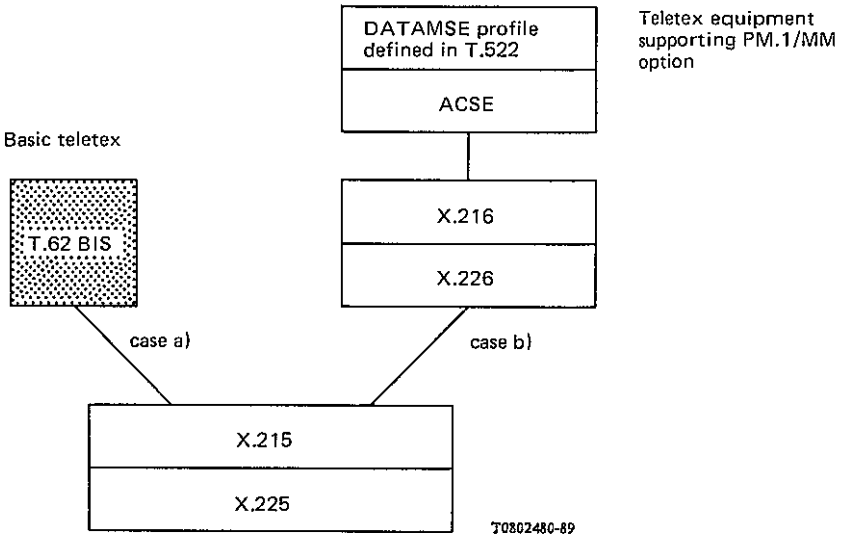


FIGURE 1/T.60

Model for interworking between T.62*bis* based teletex equipments and teletex equipments supporting PM.1 and/or MM

9.2 *Interworking rules*

9.2.1 The basic Teletex equipment is the sender.

The only type of document that can be sent by the basic Teletex equipment is the basic Teletex document. The sender should therefore try to send this type of document by using the appropriate rules, i.e. T.62 *bis* rules.

In order to accept the reception of the basic Teletex document, the receiver has to recognize the "nature" of the originator and to select the adequate rules. For this purpose, when receiving the CONNECT SPDU (which corresponds to the CSS command of Recommendation T.62), the recipient must detect the absence of Session User Data (SUD) and select the T.62 *bis* module to accept the interchanged document [case a)].

9.2.2 The PM.1/MM Teletex equipment is the sender.

9.2.2.1 The recipient is a basic Teletex equipment.

If the document type to be transmitted is a basic Teletex document, the sender will initiate the communication by selecting the T.62 *bis* module [case a)] and the basic Teletex equipment can accept the document.

If the document type to be transmitted is a PM.1/MM document, the sender will initiate the communication by selecting the T.522 module [case b)].

The receiver will then send an ACCEPT SPDU without Session User Data. This allows the sender to recognize that the receiver is a basic Teletext equipment and therefore that the documents are to be interchanged in a basic Teletex format by using T.62 *bis* communication rules [case a)], the sender could then inform the user that the interchange of the PM.1/MM document is not possible as the addressee is a basic Teletex equipment.

9.2.2.2 The recipient is a PM.1 and/or MM Teletex equipment.

If the document type to be transmitted is a basic Teletex document, the sender will initiate the communication by selecting the T.62 *bis* module [case a)] and the rules specified in § 2.1 apply.

If the document type to be transmitted is a PM.1 or MM.1 Teletex document the sender will initiate the communication by selecting the T.522 module [case b)].

The recipient will detect the presence of Session User Data and therefore will select the T.522 module to give an adequate response to the sender.

ANNEX A

(to Recommendation T.60)

Explanations of the printable areas

A.1 The content of this annex does not form part of the requirements laid down by this Recommendation; instead it gives explanations of how the printable areas in Table 1/T.60 were defined.

A.2 The maximum printable area is defined to be the paper area available to the printing mechanism onto which graphic information can be technically impressed.

A.3 The following parameters were considered:

a) the use of a common paper area of 210×280 mm;

b) the worst case conditions for tolerances of paper size and of paper insertion as in Figure A-1/T.60;

c) the need to have the paper sheet held secure in the paper feed mechanism during the whole printout;

d) the use of line spacings of 4.23, 6.35 and 8.47 mm and a character spacing of 2.54 mm. The values for line spacings are rounded off to two decimal places (six spacings of 4.23 mm equal 25.4 mm);

e) the location of characters and base lines on a paper sheet as shown in Figure A-2/T.60;

f) the allowance to print exponents and indices with an offset of not more than 2.12 mm above and below the first and last base lines respectively.

A.4 The parameters in § A.3 lead to the values for the position of the first and last printable characters as in Table A-1/T.60 and Figure A-2/T.60, and are given as examples only.

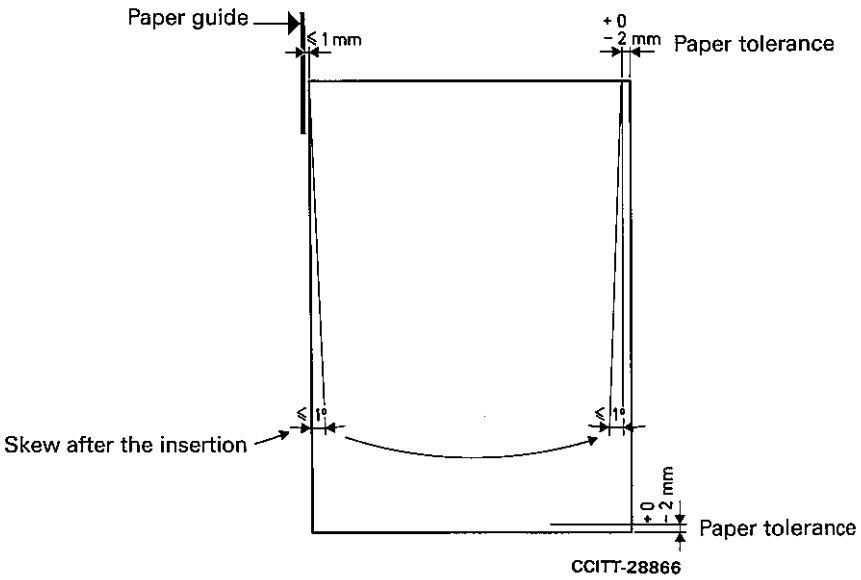
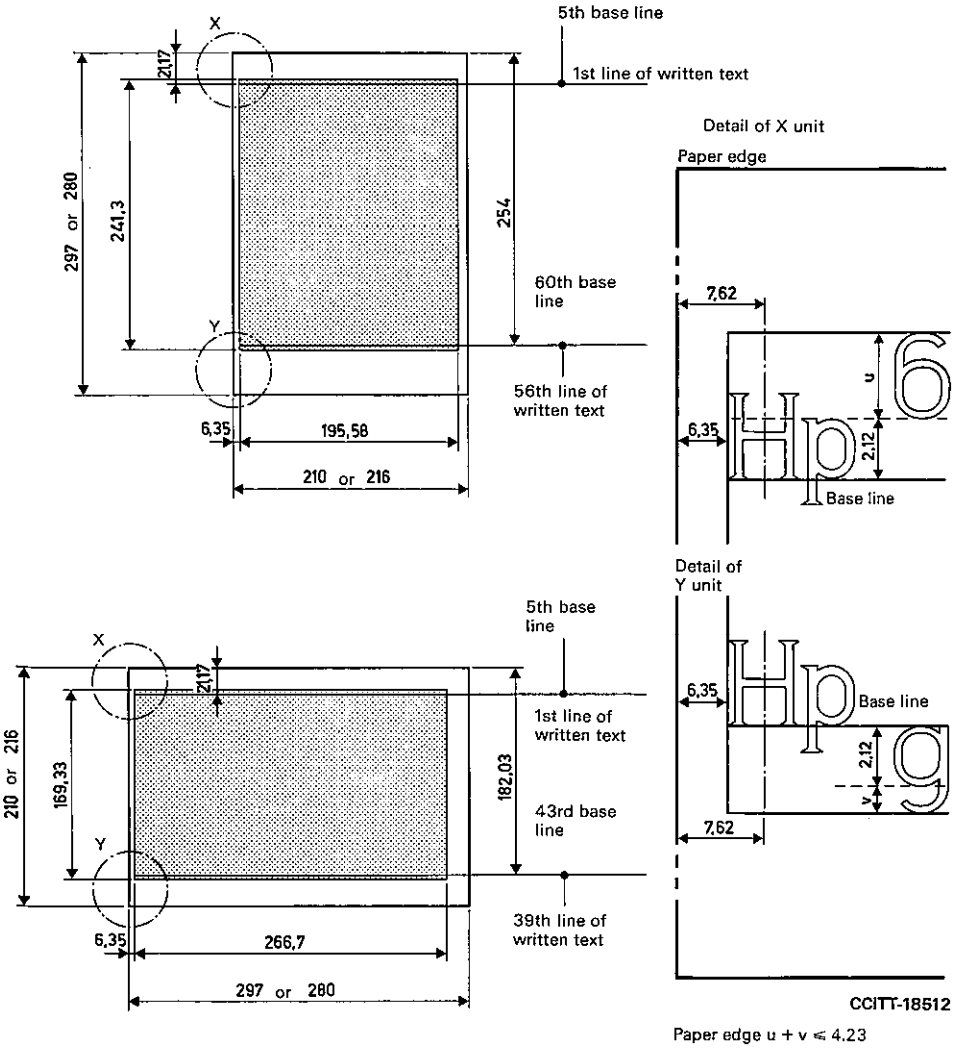


FIGURE A-1/T.60

TABLE A-1/T.60

	Best line position		Character position
	Orientation		For 2.54 mm character spacing
	Vertical	Horizontal	
First printable positions	5	5	3
Last printable positions	60	–	79
	–	43	107



Note 1 – Dotted area indicates the maximum printable area.
Note 2 – All values are nominal, given in mm and rounded to two decimal places.
Note 3 – The line spacing is defined as 6 lines per 25.4 mm and the character spacing as 10 characters per 25.4 mm.

FIGURE A-2/T.60

ANNEX B

(to Recommendation T.60)

Standardized options for printable areas

This annex contains standardized optional values for different sizes of maximum printable areas.

B.1 *Options for presentation within the basic maximum printable areas*

B.1.1 Table B-1/T.60 contains the values for the usage of different optional character and line spacings.

B.1.2 In Figure B-1/T.60, the location of the home position for different character spacings is defined.

B.2 *Options for presentation within ISO A4 paper size*

B.2.1 With the same assumptions as used for the basic printable areas and described in this Recommendation (§ 4 and Annex A), the appropriate maximum printable areas for the ISO A4 paper sheet (210 × 297 mm) and the values for different optional presentation attributes are found in Table B-2/T.60.

B.2.2 The optional printable areas for ISO A4 paper sheets defined by the ISO International Standard 3535 and the United Nations layout key – and the associated page formats – are those shown in Table B-3/T.60.

The part of the printable area intended for presentation of the communicated text are assumed to be located on the ISO A4 paper sheet as follows (compare Figure A-2/T.60):

– For vertical paper orientation:

  First line of communicated text: 3rd base line
  Last possible line for communicated text: 68th base line.

– For horizontal paper orientation:

  First line of communicated text: 5th base line
  Last possible line for communicated text: 48th base line.

The 2nd (resp. 4th) base line is assumed for the locally defined presentation of the call identification line.

Presentation of superscript and subscript on the first and last base line respectively is not assumed for these printable areas.

B.3 *Options for presentation within ISO paper sizes used with Japanese Kanji terminals*

B.3.1 Optional printable areas for ISO A4 paper size for use with Japanese Kanji terminals are shown in Table B-4/T.60.

B.3.2 Optional printable areas for ISO B5 paper size for use with Japanese Kanji terminals are shown in Table B-5/T.60.

B.3.3 Optional printable areas for ISO B4 paper size for use with Japanese Kanji terminals are shown in Table B-6/T.60.

B.4 *Options for presentation with North American legal paper size*

B.4.1 The optional printable areas for North American legal paper size (216 × 356 mm) are shown in Table B-7/T.60.

B.5 *Calculation of the maximum number of lines per page*

In calculating the maximum number of lines per page one must be aware of the following calculation problem:

– when using a line spacing of 1 1/2 there is always the combination of 2 half-line spacing text (the text-line itself) plus 1 half-line spacing of free space;

– when using a line spacing of 2 there is always the combination of 2 half-line spacing text (the text-line itself) plus 2 half-line spacings of free space.

There is always one “free space line” less than text lines.

Example (using line spacing 2 [SVS(2)])

xxxx1.lignexxxxxx	2 half-line spacing for text 2 half-line spacings for “free space”
xxxx2.lignexxxxxx	2 half-line spacings for text 2 half-line spacings for “free-space”
xxxx3.lignexxxxxx	2 half-line spacings for text

Although at the first sight when using double-line spacing [SVS(2)] 3 lines need 3 times 4 half-line spacings (equal to 12 half-line spacings), the example shows that 2 half-line spacings less (namely 10 half-line spacings) are sufficient. The reason is simple, as mentioned above, that one always need one “free-space” less than real text lines.

Taking this into account a calculation is only correct, when one of the text lines is taken out at the beginning of the calculation and added at the end, thus allowing the devision by “complete lines” (text-line plus “space-line”).

Based on these principles, the calculations are made using the formula

$$n = \frac{X - d}{s} + 1$$

wherein

n maximum number of lines per page, measured in [lines],

X size of available area, excluding CIL and offsets, measured in [HLS],

d size of one text-line, which value is exactly 2 HLS,

s value of line-spacing, measured in [HLS/line].

Note – In the following tables the term [HLS] stands for 1/12 of 25.4 mm.

When using a line spacing of 3.175, the term [HLS*] is used, being based on 1/16 of 25.4 mm.

When using a line spacing of 5 mm, the term [HLS**] is used, being based on 2.5 mm.

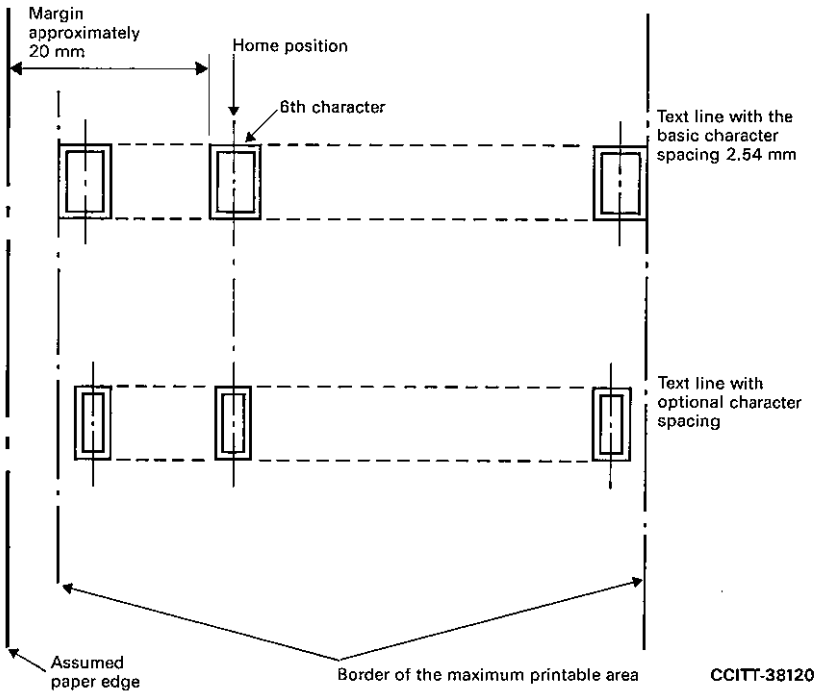
TABLE B-1/T.60

Options for presentation within the basic maximum printable areas
(see § 4)

		Paper orientation	
		Vertical	Horizontal
Maximum number of lines per page	Line spacing (mm)	X = 146 HLS [a]	X = 101 HLS [a]
	3.175	73	50
	5	46	32
Maximum number of characters per line [b]	Character spacing (mm)		
	2.12	92 (6 + 86)	125 (6 + 119)
	1.69	115 (7 + 108)	156 (7 + 149)

[a] X is the total available size for text to be communicated, measured in half-line spacings, excluding the CIL and excluding the offset for sub- and superscripted presentations.

[b] The maximum number of characters per line are given in the form C (D + E), where C is the total number of characters per line defined for the printable area, D the number of characters on the left side of the home position as defined for the page format (see Figure B-1/T.60) and E the number of characters to the right side including the home position character.



Note 1 – The home position is defined as the 6th character position within the maximum printable area using the character spacing 2.54 mm.

The Figure shows the home position aligned with the centre of the character field. It is permissible to use the left side of the character or character field as the home position.

Note 2 — This home position shall be used for all other optional character spacings, except in the case of Japanese Kanji terminals (see Note 3).

Note 3 — In the case of Japanese Kanji terminals the home position is such that a margin of approximately 25 mm results.

FIGURE B-1/T.60

Definition of the home position

TABLE B-2/T.60

Optional printable areas/page formats and associated values for ISO A4 paper size

		Paper orientation	
		Vertical	Horizontal
Maximum number of lines per page	Line spacing (mm)	X = 118 HLS [a]	X = 76 HLS [a]
	4.23	59	38
	6.35	39	25
	8.47	30	19
		X = 157 HLS* [a]	X = 101 HLS* [a]
	3.175	78	50
		X = 99 HLS** [a]	X = 64 HLS** [a]
	5	49	32
Maximum number of characters per line [b]	Character spacing (mm)		
	2.54	77 (5 + 72)	110 (5 + 105)
	2.12	92 (6 + 86)	132 (6 + 126)
	1.69	115 (7 + 108)	165 (7 + 158)

a) See footnote [a] to Table B-1/T.60.

b) See footnote [b] to Table B-1/T.60.

TABLE B-3/T.60

Optional printable areas/page formats and associated values corresponding to ISO 3535/A4

		Paper orientation	
		Vertical	Horizontal
Maximum number of lines per page	Line spacing (mm)	X = 118 HLS [a]	X = 76 HLS [a]
	4.23	59	38
	6.35	39	25
	8.47	30	19
		X = 157 HLS* [a]	X = 101 HLS* [a]
	3.175	78	50
		X = 99 HLS** [a]	X = 64 HLS** [a]
	5	49	32
Maximum number of characters per line [b]	Character spacing (mm)		
	2.54	77 (5 + 72)	110 (5 + 105)
	2.12	92 (6 + 86)	132 (6 + 126)
	1.69	115 (7 + 108)	165 (7 + 158)

a) See footnote [a] to Table B-1/T.60.

b) See footnote [b] to Table B-1/T.60.

TABLE B-4/T.60

Optional printable areas/page formats and associated values for ISO A4 paper size (Standardized option for Japanese Kanji terminals)

		Paper orientation	
		Vertical	Horizontal
Maximum number of lines per page	Line spacing (mm) 4.23 6.35 8.47	X = 118 HLS [a] 59 39 30	X = 76 HLS [a] 38 25 19
Maximum number of characters per line [b]	Character spacing (mm) 4.23	45 (4 + 41)	66 (4 + 62)

a) See footnote [a] to Table B-1/T.60.

b) See footnote [b] to Table B-1/T.60.

TABLE B-5/T.60

Optional printable areas/page formats and associated values for ISO B5 paper size (Standardized option for Japanese Kanji terminals)

		Paper orientation	
		Vertical	Horizontal
Maximum number of lines per page	Line spacing (mm) 4.23 6.35 8.47	X = 98 HLS [a] 49 33 24	X = 64 HLS [a] 32 21 16
Maximum number of characters per line [b]	Character spacing (mm) 4.23	38 (4 + 34)	56 (4 + 52)

a) See footnote [a] to Table B-1/T.60.

b) See footnote [b] to Table B-1/T.60.

TABLE B-6/T.60

Optional printable areas/page formats and associated values for ISO B4 paper size (Standardized option for Japanese Kanji terminals)

		Paper orientation	
		Vertical	Horizontal
Maximum number of lines per page	Line spacing (mm) 4.23 6.35 8.47	X = 150 HLS [a] 75 50 38	X = 98 HLS [a] 49 33 25
Maximum number of characters per line [b]	Character spacing (mm) 4.23	56 (4 + 52)	79 (4 + 75)

a) See footnote [a] to Table B-1/T.60.

b) See footnote [b] to Table B-1/T.60.

TABLE B-7/T.60

Optional printable areas/page formats and associated values for North American Legal paper size (216 mm × 356 mm)

		Paper orientation	
		Vertical	Horizontal
Maximum number of lines per page	Line spacing (mm) 4.23 6.35 8.47	X = 146 HLS [a] 73 49 37	X = 78 HLS [a] 39 26 20
	3.175	X = 194 HLS* [a] 97	X = 104 HLS* [a] 52
Maximum number of characters per line [b]	Character spacing (mm) 2.54 2.12 1.69	80 (5 + 75) 96 (6 + 90) 120 (7 + 113)	135 (5 + 130) 161 (6 + 155) 201 (7 + 194)

a) See footnote [a] to Table B-1/T.60.

b) See footnote [b] to Table B-1/T.60.

B.6 *Options for presentation within ISO paper sizes used with Chinese ideogram terminal*

B.6.1 Optional printable areas for ISO A4 paper size used with Chinese ideogram terminal are shown in Table B-8/T.60.

B.6.2 Optional printable areas for ISO B5 paper size used with Chinese ideogram terminal are shown in Table B-9/T.60.

B.6.3 Optional printable areas for ISO B4 paper size used with Chinese ideogram terminal are shown in Table B-10/T.60.

TABLE B-8/T.60

Optional printable areas/page formats and associated values for ISO A4 paper size (Standardized options for Chinese ideogram terminal)

		Paper orientation	
		Vertical	Horizontal
Maximum number of lines per page	Line spacing (mm)	X = 118 HLS [a)]	X = 76 HLS [a)]
	4.23 [c)]	59	38
	6.35	39	25
	8.47	30	19
Maximum number of characters per line [b)]	Character spacing (mm)		
	4.23	45 (4 + 41)	66 (4 + 62)
	5.64	33 (3 + 30)	49 (3 + 46)
	6.35	30 (3 + 27)	44 (3 + 41)

a) See footnote [a)] to Table B-1/T.60.

b) See footnote [b)] to Table B-1/T.60.

c) Line spacing of 4.23 mm will not be used when character spacing is 5.64 or 6.35 mm.

TABLE B-9/T.60

Optional printable areas/page formats and associated values for ISO B5 paper size (Standardized options for Chinese ideogram terminal)

		Paper orientation	
		Vertical	Horizontal
Maximum number of lines per page	Line spacing (mm)	X = 98 HLS [a]	X = 64 HLS [a]
	4.23 [c]	49	32
	6.35	33	21
	8.47	24	16
Maximum number of characters per line [b]	Character spacing (mm)		
	4.23	38 (4 + 34)	56 (4 + 52)
	5.64	28 (3 + 25)	42 (3 + 39)
	6.35	25 (3 + 22)	37 (3 + 34)

a) See footnote [a] to Table B-1/T.60.

b) See footnote [b] to Table B-1/T.60.

c) See footnote [c] to Table B-8/T.60.

TABLE B-10/T.60

Optional printable areas/page formats and associated values for ISO B4 paper size (Standardized options for Chinese ideogram terminal)

		Paper orientation	
		Vertical	Horizontal
Maximum number of lines per page	Line spacing (mm)	X = 150 HLS [a]	X = 98 HLS [a]
	4.23 [c]	75	49
	6.35	50	33
	8.47	38	25
Maximum number of characters per line [b]	Character spacing (mm)		
	4.23	56 (4 + 52)	79 (4 + 75)
	5.64	42 (3 + 39)	59 (3 + 56)
	6.35	37 (3 + 34)	53 (3 + 50)

a) See footnote [a] to Table B-1/T.60.

b) See footnote [b] to Table B-1/T.60.

c) See footnote [c] to Table B-8/T.60.

ANNEX C

(to Recommendation T.60)

Conversion table between the Teletex repertoire and the telex repertoire for Teletex/telex interworking

TABLE C-1/T.60

ITA No. 2 Combination No.	Telex repertoire	Teletex repertoire	Identifier (Rec. T.61)
Letter case			
1	**A**	**a** or **A**	LA01 or LA02
2	**B**	**b** or **B**	LB01 or LB02
3	**C**	**c** or **C**	LC01 or LC02
.	.	.	.
.	.	.	.
.	.	.	.
24	**X**	**x** or **X**	LX01 or LX02
25	**Y**	**y** or **Y**	LY01 or LY02
26	**Z**	**z** or **Z**	LZ01 or LZ02
Figure case			
1	–	–	SP10
2	**?**	**?**	SP15
3	**:**	**:**	SP13
4	**WRU**	Note 1	
5	**3**	**3**	ND03
6	Nat. use	Note 2	
7	Nat. use	Note 2	
8	Nat. use	Note 2	
9	**8**	**8**	ND08
10	BELL	Note 1	
11	**(**	**(**	SP06
12	**)**	**)**	SP07
13	**.**	**.**	SP11
14	**,**	**,**	SP08
15	**9**	**9**	ND09
16	**0**	**0**	ND10
17	**1**	**1**	ND01
18	**4**	**4**	ND04
19	**'**	**'**	SP05
20	**5**	**5**	ND05
21	**7**	**7**	ND07
22	**=**	**=**	SA04
23	**2**	**2**	ND02
24	**/**	**/**	SP12
25	**6**	**6**	ND06
26	+	+	SA01
Either case			
27	CR	CR	CF15
28	LF	LF	CF12
29	letter-shift	Note 3	
30	figure-shift	Note 3	
31	SP	SP	SP01
32	NU	Note 1	

Note 1 – Not defined in the teletex repertoire. It will not be transmitted from the conversion facility to the teletex terminal.

Note 2 – The use of these characters is not defined in international teletex/telex interworking.

Note 3 – This character is only used for communication between conversion and telex terminal and is not transmitted to the teletex terminal.

ANNEX D

(to Recommendation T.60)

Definitions

D.1 **printable area**

A printable area is defined to be the paper area available to the printing mechanism onto which graphic information can be technically impressed.

D.2 **page**

A page is the basic element of office correspondence in the Teletex service. This term defines the information that can be presented on one sheet of paper. This information may be stored, displayed or printed.

Note – Relevant paper sizes are indicated in this Recommendation.

D.3 **text**

Text is information for human comprehension that is intended for presentation in a two-dimensional form, e.g. printed on paper or displayed on a screen. Text consists of symbols, phrases or sentences in natural or artificial languages, pictures, diagrams and tables.

D.4 **communicated text area**

Area with a size of one line spacing (4.23 mm) less than the defined maximum printable area.

ITU-T RECOMMENDATIONS SERIES

Series A	Organization of the work of the ITU-T
Series B	Means of expression: definitions, symbols, classification
Series C	General telecommunication statistics
Series D	General tariff principles
Series E	Overall network operation, telephone service, service operation and human factors
Series F	Non-telephone telecommunication services
Series G	Transmission systems and media, digital systems and networks
Series H	Audiovisual and multimedia systems
Series I	Integrated services digital network
Series J	Transmission of television, sound programme and other multimedia signals
Series K	Protection against interference
Series L	Construction, installation and protection of cables and other elements of outside plant
Series M	TMN and network maintenance: international transmission systems, telephone circuits, telegraphy, facsimile and leased circuits
Series N	Maintenance: international sound programme and television transmission circuits
Series O	Specifications of measuring equipment
Series P	Telephone transmission quality, telephone installations, local line networks
Series Q	Switching and signalling
Series R	Telegraph transmission
Series S	Telegraph services terminal equipment
Series T	**Terminals for telematic services**
Series U	Telegraph switching
Series V	Data communication over the telephone network
Series X	Data networks and open system communications
Series Y	Global information infrastructure and Internet protocol aspects
Series Z	Languages and general software aspects for telecommunication systems

Printed in Switzerland

Geneva, 2008