

# TELE TEX

Page

## Annexes

|   |   |    |
|---|---|----|
| A | Explanations of the printable areas   | 24 |
| B | Standardized options for printable areas  | 27 |
| C | Conversion table between the Teletex repertoire and the telex repertoire for Teletex/telex interworking | 30 |
| D | Draft definitions   | 31 |
| 1 | Scope of Recommendations  |    |

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 S.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;

Note - The link level (HDLC) for circuit-switched data networks and public switched telephone networks is under study.

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

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

## 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 X 297 mm (ISO A4) and 216 X 280 mm are taken into account.

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 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 conditions, the production of a permanent copy of the incoming messages must have priority over the local mode.

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.

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 Section 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 Section 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 Section 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 Section 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 Section 8.

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

### 3.2 Basic functions

3.2.1 A terminal shall be capable of handling:

- a) the basic end-to-end control procedures as defined in Recommendation S.62;
- b) the Teletex basic graphic character repertoire;
- c) the Teletex basic control function repertoire;
- d) text in the basis vertical and horizontal page formats;
- e) 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 A4 and 216 X 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 S.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 S.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 Recommendation S.62.

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

- a) utilization of A4 printable area (see Annex B);
- b) character spacing of 2.12 mm (12 characters per 25.4 mm) and 1.69 mm (15 characters per 25.4 mm) - see Annex B;
- c) line feed parameter values of one spacing of 3.175 mm and 0.5, 1, 1.5 and 2 spacings of 5 mm (see Annex B);
- d) reverse line feed.

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 Facsimile mode of operation requires further study. Possible applications are:

- a) communication of facsimile coded text on a per page basis;
- b) communication of mixed character-coded and facsimile-coded information within the same page.

### 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 S.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 S.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 will be included later in Recommendation S.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 This section takes into account that there are countries that use ISO A4 paper size (210 x 297) or North-American paper size (216 x 280 mm) of which the common area is 210 x 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 I/S.60.

TABLE 1/S.60

Basic printable areas

| Paper orientation                     |                        | Vertical | Horizontal |
|---------------------------------------|------------------------|----------|------------|
| Maximum number of lines per page      | Line spacing (mm)      |          |            |
|                                       | 4.23                   | 56       | 39         |
|                                       | 6.35                   | 37       | 26         |
|                                       | 8.47                   | 28       | 19         |
| Maximum number of characters per line | Character spacing (mm) |          |            |
|                                       | 2.54                   | 77       | 105        |

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/S.60 certain assumptions about technical and operational problems have been taken. Further details about these assumptions are given in Annex A to this Recommendation.

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/S.60.

Note - The optional use of pre-printed 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 less than the defined maximum printable area, to allow for presentation of the call identification line.

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

Note - The home positions for different character spacings are shown in Figure 1 of Annex B.

5      **Communications**

5.1      **Terminal identification**

5.1.1    Each Teletex terminal is equipped with a unique identification. Details of the identification are given in 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 non-volatile 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 aspect on the interface - Recommendation X.21;
- b)    with external DCE - mechanical and electrical characteristics of the interface - Recommendation X.21;
- c)    date and time may be provided by the network at the originator side;
- d)    bit rate - 2.4 kbit/s;
- e)    link procedure - HDLC (details for further study, e.g. duplex/half duplex).

6.3 Public switched telephone network - for study (interface, automatic dialling, HDLC, etc.)

6.4 Packet-switched data network:

- a) functional and procedural aspects on the interface - Recommendation X.25, levels 1, 2, 3;
- b) duplex transmission;
- c) bit rates - 2400, 4800, 9600, 48 000 bit/s;
- d) number of logical channels at a time - one, or more than one.

7 Indicators

7.1 Indicators should inform about situations in which negative effects on the grade of service can be expected.

7.2 The following indicators are required:

- a) terminal unable or soon unable to receive (e.g. receiving memory nearly full);
- b) operator assistance required (e.g. for change of printing element);
- c) message received in store.

8 Interworking between Teletex terminals and telex terminals

8.1 The restriction of the graphic character set to that of International Telegraph Alphabet No. 2 (ITA 2) should be performed in the Teletex terminal.

8.2 During the interworking, the Teletex terminal is allowed to send only those characters of ITA 2 that form a subset of the basic Teletex character repertoire, as specified in the table at Annex C (coded in accordance with Recommendation S.61).

8.3 The line length is restricted to 69 characters.

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

8.5 The control procedure between the Teletex terminal and the conversion facility shall be as described in Recommendation S.62.

Note - A conversion facility has to provide the conversion of coding, code frame, procedure, formatting, data signalling rate and other service characteristics.

ANNEX A

(to Recommendation S.60)

Explanations of the printable areas

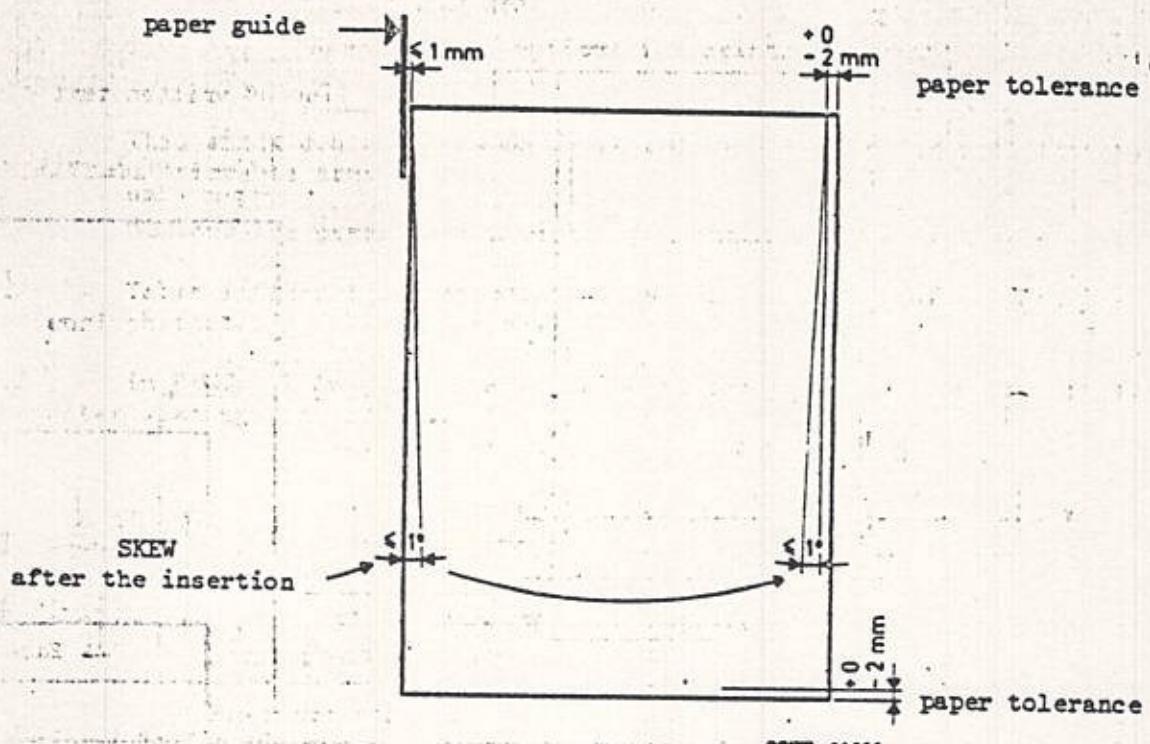
1 The content of this Annex does not form part of the requirements laid down by this Recommendation; instead it gives explanations of how the printable areas in Table 1/S.60 were defined.

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.

3 The following parameters were considered:

- a) the use of a common paper area of 210 X 280 mm;
- b) the worst case conditions for tolerances of paper size and of paper insertion as in Figure 1/Annex A;
- c) the need to have the paper sheet held secure in the paper feed mechanism during the whole print-out;
- 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 2/Annex A;
- 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.

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



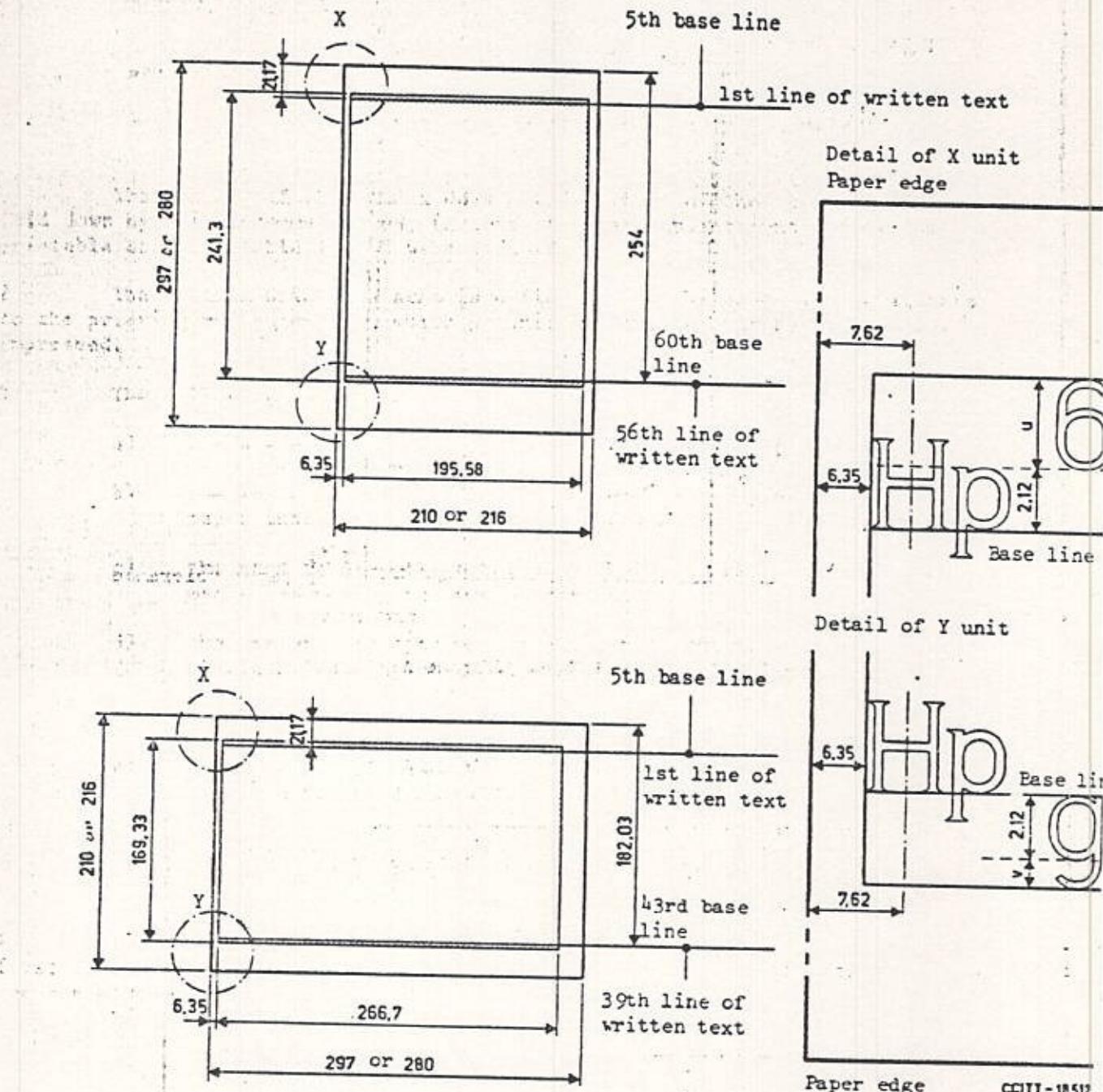
CCITT-28866

Figure 1 / Annex A

TABLE 1 / Annex A

| First Printable Positions | Base Line Position |            | Character Position<br>for 2.54 mm character spacing |  |
|---------------------------|--------------------|------------|---|--|
|                           | Orientation        |            |   |  |
|                           | Vertical           | Horizontal |   |  |
|                           | 5                  | 5          | 3   |  |
| Last Printable Positions  | 60                 | -          | 79  |  |
|                           | -                  | 43         | 107   |  |

(3977)



- Notes : 1. Dotted area indicates the maximum printable area.  
2. All values are nominal, given in mm and rounded to two decimal places.  
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 2/Annex A

(3977)

ANNEX B

Standardized options for printable areas

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

1 Options for presentation within the basic maximum printable areas

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

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

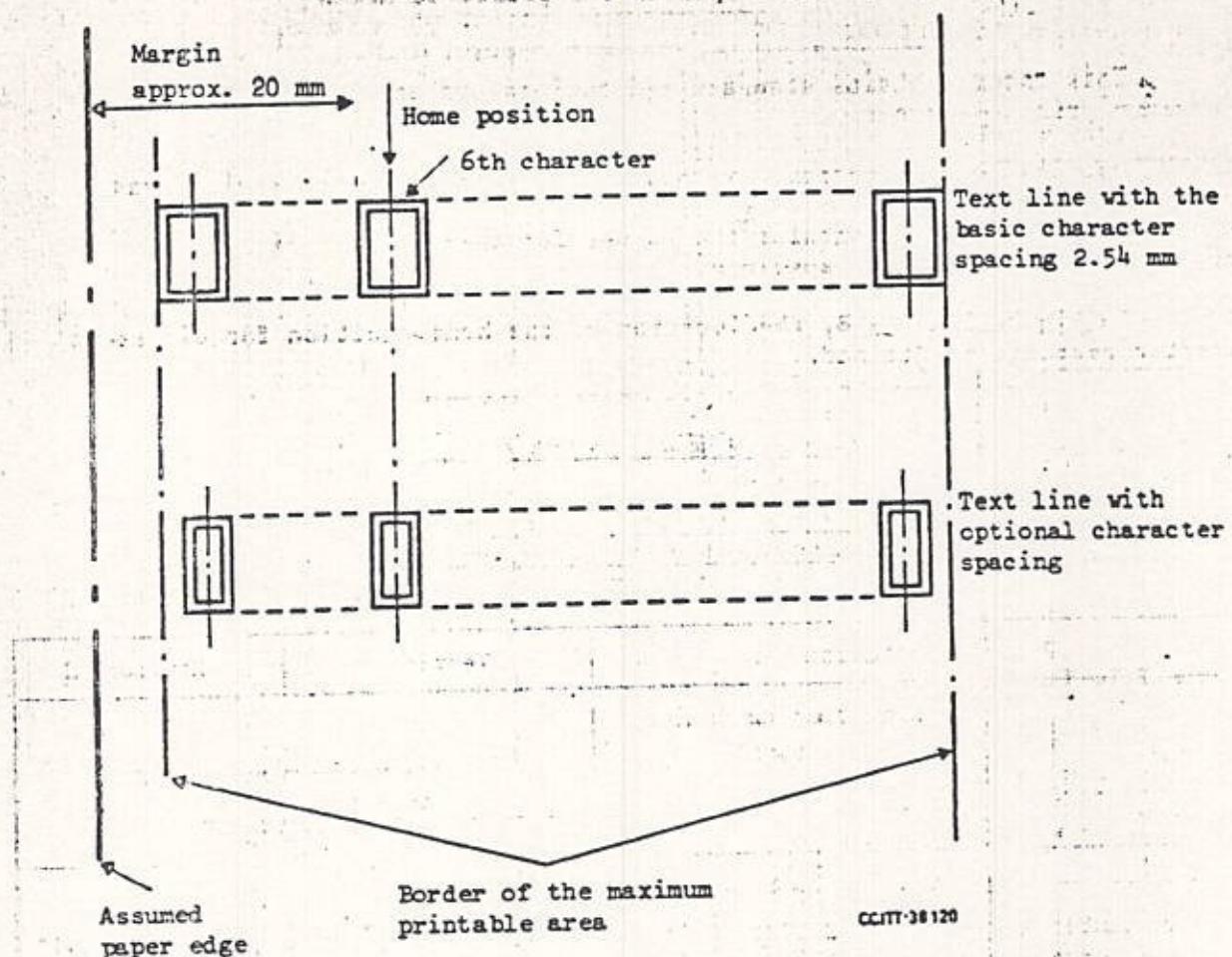
TABLE 1/Annex B

Options for presentation within the basic  
maximum printable area (see Section 4)

| Paper orientation                      | Vertical                               | Horizontal   |
|--|--|--|
| Maximum number of lines per page       | Line spacing (mm)<br>3.175<br>5        | The maximum number of lines per page is under evaluation           |
| Maximum number of characters per line* | Character spacing (mm)<br>2.12<br>1.69 | 92 (6 + 86)*<br>115 (7 + 108)*<br>125 (6 + 119)*<br>156 (7 + 149)* |

\* The figures in parentheses indicate :

- the number of characters to the left of the home position (see Figure 1/Annex E); and
- the number of characters to the right side including the home position character.



Notes : 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.

2. This home position shall be used for all other optional character spacings (see Table 2/Annex B).

Figure 1/Annex B - Definition of the home position

2 Options for presentation within ISO A4 paper size

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

TABLE 2 / Annex B

Optional printable areas and associated values for ISO A4 paper size

| Paper orientation                                 |                   | Vertical      | Horizontal    |
|---|-------------------|---------------|---------------|
| Maximum<br>number of lines<br>per page            | Line spacing (mm) |               |               |
|   | 4.23              | 60            | 39            |
|   | 6.35              | 40            | 26            |
|   | 8.47              | 30            | 19            |
|   | Character spacing |               |               |
| Maximum number<br>of characters<br>per line 1) 2) | 2.54              | 77 (5 + 72)   | 110 (5 + 105) |
|   | 2.12              | 92 (6 + 86)   | 132 (6 + 126) |
|   | 1.69              | 115 (7 + 108) | 165 (7 + 158) |

Notes : 1) See note 2 in Table 1/Annex B

: 2) The home position is defined in Figure 1/Annex B.

ANNEX C

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

| ITA 2<br>Combination No.<br>(letter case) | Telex<br>repertoire | Teletex<br>repertoire | Identifier<br>(Recommendation S.61) |
|---|---------------------|-----------------------|-------------------------------------|
| 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                        |

| ITA 2<br>Combination No.<br>(figure case) | Telex<br>repertoire | Teletex<br>repertoire | Identifier<br>(Recommendation S.61) |
|---|---------------------|-----------------------|-------------------------------------|
| 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  | PELL                | 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                                |

| ITA 2<br>Combination No.<br>(either case) | Telex<br>repertoire | Teletex<br>repertoire | Identifier<br>(Recommendation S.61) |
|---|---------------------|-----------------------|-------------------------------------|
| 27  | CR                  | CR                    | CF15                                |
| 28  | LF                  | LF                    | CF12                                |
| 29  | letter-shift        | Note 3                |                                     |
| 30  | figure-shift        | Note 3                |                                     |
| 31  | SP                  | SP                    | SPO1                                |
| 32  | NU                  | Note 1                |                                     |

- Notes : 1. Not defined in the Teletex repertoire. It will not be transmitted from the conversion facility to the Teletex terminal.
2. The use of these characters is not defined in international Teletex/telex interworking.
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 S.60)

##### Draft definitions

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.

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 A4 (or North American standard) sheet of paper. This information may be stored, displayed or printed.

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.

## 1.7 Draft Recommendation S.61

### CHARACTER REPERTOIRE AND CODED CHARACTER SETS FOR THE INTERNATIONAL TELETEX SERVICE

(Geneva, 1980)

#### CONTENTS

|  |  |    |
|--|--|----|
| 1  | <u>Introduction</u>                            | 32 |
| 2  | <u>Definitions</u>                             | 33 |
| 3  | <u>Teletex character repertoire</u>            |    |
| 3.1  | General  | 36 |
| 3.2  | Teletex basic repertoire of graphic characters | 37 |
| 3.3  | Teletex basic repertoire of control functions  | 50 |
| 4  | <u>Coded representations</u>                   |    |
| 4.1  | Graphic character sets                         | 57 |
| 4.2  | Control function sets                          | 62 |
| <u>Annex A - Code extension procedures</u>   |  | 66 |
| <u>Annex B - Use of diacritical marks</u>    |  | 67 |
| <u>Annex C - Identification system</u>       |  | 69 |
| <u>Annex D - Format of control sequences</u> |  | 71 |
| <u>Annex E - Standardized options</u>        |  | 71 |

#### 1 Introduction

1.1 This Recommendation contains detailed definitions of the repertoires of graphic characters and control functions to be used in the basic international Teletex service, and their coded representations for communication. Additionally, the means are described whereby supplementary character repertoires and their coded representations may optionally be used.

1.2 In the Teletex service, control functions may be communicated as coded characters within the text or by means of the control procedures. This Recommendation defines the repertoire and coding of the former category.

1.3 The character repertoires and coded character sets for Teletex are not intended to replace International Alphabet No. 5 (IA5) or International Telegraph Alphabet No. 2 (ITA2). This Recommendation, based on Recommendation V.3, provides an extended alphabet for use in the international text communication service Teletex. Where characters of IA5 are not required for Teletex, their code table positions have been left unused; thereby, compatibility with IA5 is assured. The resulting sub-set of IA5 has been extended by the definition of additional coded character sets.

(3977)

1.4 The development of the coded character set defined in this Recommendation is based on the use of an 8-bit structure for the basic Teletex service.

1.5 This Recommendation should be read in conjunction with the following Recommendations:

S.60 - Terminal equipment for use in the Teletex service;

S.62 - Control procedures for the Teletex service;

F.200 - Teletex service.

1.6 The following Recommendations and ISO standards are also relevant:

V.3 International alphabet No. 5;

ISO 646 7-bit coded character set for information processing interchange (equivalent to Recommendation V.3);

ISO 2022 Code extension techniques for use with the ISO 7-bit coded character set;

ISO 6429 Additional control functions for character-imaging devices;

ISO 6937 Coded character set for text communication.

1.7 This Recommendation contains ordered lists of graphic characters and control functions forming the Teletex basic repertoire, together with the coded character sets necessary for their communication. For this purpose, the elements of the coded character sets are used either individually or in defined combinations.

1.8 The optional use of additional character repertoires is provided for, but the composition of such repertoires is not defined. Similarly, the code extension techniques for the representation of the additional repertoires are described in general, but no specific allocations of code tables are made.

## 2 Definitions

2.1 Format effectors are control functions that influence the positioning of text, within the text area, on a presentation device. The following concepts are used in defining format effectors:

- a) Active position - the character position where the next character would appear if it were presented;
- b) Text area - the part of a printed page that is actually used for the presentation of text. The active position moves within the text area only. For Teletex, the text area is the maximum printable area (see Recommendation S.60);
- c) Home position - the reference position on any line to which the active position moves after a terminal receives a Carriage return. The starting position for printing is then established from this reference position by the sending terminal, using Space or Backspace characters as required.

2.2 Presentation control functions are control functions that influence in a uniform way, the presentation attributes of the text (e.g. line spacing or page format) on a presentation device.

2.3 Graphic code extension is the method of encoding graphic characters in excess of those that may be represented by the 8-bit code combinations of the basic code table. Alternative sets of 94 graphic characters may be designated by means of escape sequences and invoked by means of shift functions. Depending on the designating escape sequence, the alternative sets of characters are represented by bit combinations of the left-hand half (positions 2/1 to 7/14 inclusive) or the right-hand half (positions 10/1 to 15/14 inclusive) of the 8-bit code table.

In the basic Teletex service, escape sequences and shift functions are not used. The primary set of graphic characters defined in point 4.1.3.3 is implicitly designated and invoked into positions 2/1 to 7/14 of the 8-bit code table. The supplementary set of graphic characters defined in point 4.1.3.4 is implicitly designated and invoked into positions 10/1 to 15/14 of the 8-bit code table.

Note - As an enhancement to the basic Teletex service, national or application-oriented sets of graphic characters may be designated by means of appropriate escape sequences, thereby overlaying the primary and supplementary sets. Return to the primary and supplementary sets is accomplished by similar escape sequences.

The principles of graphic code extension to accommodate enhancements to the basic Teletex service are for further study (Question 17/VIII). The form of these extension techniques should satisfy the needs for compatibility and ease of transcoding between the 7-bit and 8-bit environments (see Annex A).

2.4 Teletex character repertoire - the total range of graphic characters and control functions that may be communicated between Teletex terminals.

2.5 Teletex graphic character repertoire - the total range of graphic characters that may be communicated between and presented by Teletex terminals.

2.6 Teletex basic graphic character repertoire - a comprehensive list of graphic characters whose communication is guaranteed by the Teletex service, and which are capable of being presented on all Teletex terminals.

2.7 Teletex control function repertoire - the total range of control functions communicated between Teletex terminals to enable the action of the receiving terminal to be controlled.

2.8 Teletex basic control function repertoire - a comprehensive list of control functions communicated between Teletex terminals whose effect on the receiving terminal is defined and guaranteed by the service.

2.9 Other Teletex character repertoires - national or application-oriented lists of graphic characters and control functions, in addition to the Teletex basic repertoires of graphic characters and control functions, that may be communicated between Teletex terminals by mutual agreement.

Note - Specific additional character repertoires may be the subject of CCITT Recommendations.

2.10 Character - a member of a set of elements that is used for the organization control or representation of data. A character repertoire contains two types of elements: graphic characters and control functions.

2.11 Control function - an action that affects the recording, processing, transmission or interpretation of data. The coded representation of a control function consists of one or more bit combinations. A control function is not a graphic character, but may have a graphic representation in some circumstances (e.g. for record purposes). It must not, however, be transmitted with the specific intent of producing a graphic representation.

2.12 Control character - a control function, the coded representation of which consists of a single bit combination.

2.13 Graphic character - A character, other than a control function, that has a visual representation normally hand-written, printed or displayed. The term graphic character is used with a dual meaning:

- a) graphic characters that are elements of a set that can be designated. These are called elementary graphic characters in order to distinguish them from the composite graphic characters. Some of the elementary graphic characters are used in combinations to represent composite graphic characters;
- b) graphic characters that are members of a repertoire. Some of these are composite graphic characters represented by combinations of elementary graphic characters.

2.14 Presentation - the printing or display of a stored character or characters to allow for human comprehension of the stored information.

2.15 Bit combination - an ordered set of bits that represents a character.

2.16 Code, coded character set - a set of unambiguous rules that establish a character set and the one-to-one relationship between the characters of the set and their bit combinations.

2.17 Code table - a table showing the character corresponding to each bit combination in a code. A code table is normally represented as a rectangular matrix of columns and rows.

2.18 Position - an item in a code table identified by its column and row coordinates.

2.19 Code extension - techniques for encoding characters that are not included in the character set of a given code.

2.20 Escape sequence - a bit string that is used for control purposes in code extension procedures and that consists of two or more bit combinations. The first of these combinations corresponds to the character Escape.

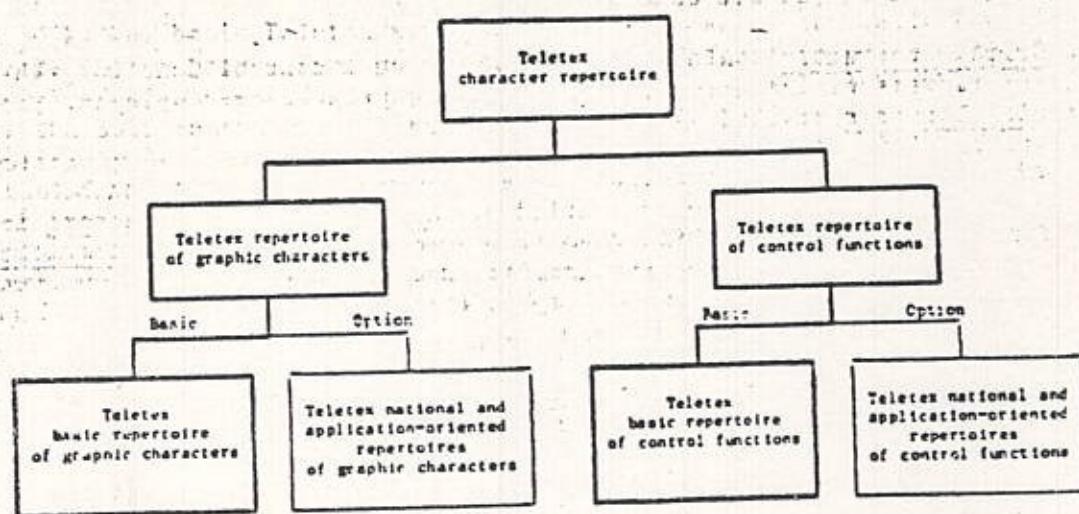
2.21 To designate - to identify a set of characters that are to be represented, in some cases immediately and in others on the occurrence of a further control function, in a prescribed manner.

2.22 To invoke - to cause a designated set of characters to be represented by the prescribed bit combinations whenever those bit combinations occur, until an appropriate code extension function occurs.

### 3 Teletex character repertoire

#### 3.1 General

3.1.1 The Teletex character repertoire is composed as defined below and as illustrated in Figure 1/S.61.



CCITT-43820

Figure 1/S.61 - Teletex character repertoire

3.1.2 The Teletex character repertoire consists of the Teletex repertoire of graphic characters and the Teletex repertoire of control functions.

3.1.3 The Teletex repertoire of graphic characters consists of the Teletex basic repertoire of graphic characters and the Teletex national and application-oriented repertoires of graphic characters. The basic repertoire of graphic characters is defined in Section 3.2.

3.1.4 The Teletex repertoire of control functions consists of the Teletex basic repertoire of control functions and the Teletex national and application-oriented repertoires of control functions. The basic repertoire of control functions is defined in Section 3.3.

3.1.5 The Teletex basic repertoire of graphic characters, together with the Teletex basic repertoire of control functions, constitute the Teletex basic character repertoire.

3.1.6 Bit combinations or sequences of bit combinations that do not represent graphic characters or control functions of the Teletex basic character repertoire, are not defined in this Recommendation.

Note - With the Teletex sets of coded graphic characters and control functions it is, in principle, possible to produce combinations of diacritical marks and graphic characters other than those defined in the Teletex basic graphic character repertoire. However, the presentation of such composite symbols at the receiving terminal cannot be predicted and is therefore not defined in this Recommendation.

3.1.7 Sequences of graphic characters and control functions that would result in the presentation of two or more graphic characters in a single character position are not defined in this Recommendation.

Note - It is possible, in text preparation, to overlay graphic symbols by the use of the control functions BS, SP, CR and RLF. However, no character of the Teletex basic graphic character repertoire shall be transmitted over the communication medium by this means. As it is normal office practice to create graphic symbols by overlaying graphic characters, the user cannot be prevented from using the keyboard to image locally composite symbols and the Teletex service shall not exclude the possibility of the transmission of these overlaid graphic symbols. The presentation of such overlaid graphic symbols at the receiving terminal cannot be predicted and is, therefore, not defined in this Recommendation. An indication of the terminal capability to present overlaid graphic characters will be exchanged prior to message transmission.

3.1.8 The control functions of the Teletex basic repertoire enable a receiving terminal to produce a document that is identical in contents, layout and format, to that produced by the sending terminal.

3.1.9 The use of character repertoires other than the basic repertoire of graphic characters is subject to mutual agreement between terminals and shall be initiated by the appropriate procedural steps.

### 3.2 Teletex basic repertoire of graphic characters

#### 3.2.1 General

3.2.1.1 The repertoire of graphic characters defined in this Recommendation consists of:

- a) Latin alphabetic characters, listed in point 3.2.2, which comprise:
  - i) the 52 small and capital letters of the basic Latin alphabet;
  - ii) accented letters and umlauts, the graphical representations of which consist of combinations of basic Latin letters and diacritical marks;
  - iii) alphabetic characters that are neither basic Latin letters nor combinations of basic Latin letters and diacritical marks,

b) non-alphabetic characters, listed in point 3.2.3, which comprise decimal digits, currency signs, punctuation marks (including Space), diacritical marks, arithmetic signs, miscellaneous symbols that have individual special meanings and non-spacing characters.

3.2.1.2 The lists in points 3.2.2 and 3.2.3 are composed as described below:

- a) the first column contains the identifier of each character, assigned in accordance with the identification system explained in Annex C;
- b) the second column presents the graphical representation of the character;
- c) the third column specifies the name or the description of the character.

Note - The repertoire of graphic characters defined in this Recommendation contains a limited set of accented letters and umlauts. This set is summarized in Annex B.

3.2.2 Latin alphabetic characters

| ID   | GRAPHIC | NAME or DESCRIPTION                     | CONTINUATION TO PNAME                   | CHARACTER | DI   |
|------|---------|---|---|-----------|------|
| LA01 | a       | small a                                 | small a with diaeresis                  | ä         | 000A |
| LA02 | A       | capital A                               | capital A with diaeresis                | Ä         | 000A |
| LA11 | á       | small a with acute accent               | small a with grave accent               | à         | 000A |
| LA12 | Á       | capital A with acute accent             | capital A with grave accent             | À         | 000A |
| LA13 | ã       | small a with grave accent               | small a with circumflex accent          | ã         | 000A |
| LA14 | Ã       | capital A with grave accent             | capital A with circumflex accent        | Ã         | 000A |
| LA15 | ä       | small a with circumflex accent          | small a with diaeresis or umlaut mark   | ä         | 000A |
| LA16 | Ã       | capital A with circumflex accent        | capital A with diaeresis or umlaut mark | Ã         | 000A |
| LA17 | ä       | small a with diaeresis or umlaut mark   | small a with tilde                      | ä         | 000A |
| LA18 | Ã       | capital A with diaeresis or umlaut mark | capital A with tilde                    | Ã         | 000A |
| LA19 | á       | small a with tilde                      | small a with breve                      | á         | 000A |
| LA20 | Ã       | capital A with tilde                    | capital A with breve                    | Ã         | 000A |
| LA23 | á       | small a with breve                      | small a with ring                       | á         | 000A |
| LA24 | Ã       | capital A with breve                    | capital A with ring                     | Ã         | 000A |
| LA27 | á       | small a with ring                       | small a with macron                     | á         | 000A |
| LA28 | Ã       | capital A with ring                     | capital A with macron                   | Ã         | 000A |
| LA31 | á       | small a with macron                     | small a with ogonek                     | á         | 000A |
| LA32 | Ã       | capital A with macron                   | capital A with ogonek                   | Ã         | 000A |
| LA43 | ę       | small a with ogonek                     | small æ diphthong                       | ę         | 000A |
| LA44 | Ę       | capital A with ogonek                   | capital æ diphthong                     | Ę         | 000A |
| LA51 | æ       | small æ diphthong                       | small b                                 | æ         | 000A |
| LA52 | Ę       | capital æ diphthong                     | capital B                               | Ę         | 000A |
| LB01 | b       | small b                                 | small c                                 | b         | 000B |
| LB02 | B       | capital B                               | capital C                               | B         | 000B |
| LC01 | c       | small c                                 | small c with acute accent               | c         | 000C |
| LC02 | C       | capital C                               | capital C with acute accent             | C         | 000C |
| LC11 | ć       | small c with acute accent               | small c with circumflex accent          | ć         | 000C |
| LC12 | Ć       | capital C with acute accent             | capital C with circumflex accent        | Ć         | 000C |
| LC15 | č       | small c with circumflex accent          | small c with caron                      | č         | 000C |
| LC16 | Č       | capital C with circumflex accent        | capital C with caron                    | Č         | 000C |
| LC21 | č       | small c with caron                      | small c with dot                        | č         | 000C |
| LC22 | Č       | capital C with caron                    | capital C with dot                      | Č         | 000C |
| LC29 | č       | small c with dot                        | small c with diaeresis                  | č         | 000C |

3.2.2 (continued)

| ID   | GRAPHIC | NAME or DESCRIPTION                     |
|------|---------|---|
| LC30 | Ć       | capital C with dot                      |
| LC41 | ć       | small c with cedilla                    |
| LC42 | Ĉ       | capital C with cedilla                  |
| LD01 | đ       | small d                                 |
| LD02 | Đ       | capital D                               |
| LD21 | đ or đ' | small d with caron                      |
| LD22 | Đ       | capital D with caron                    |
| LD61 | đ       | small d with stroke                     |
| LD62 | Đ       | capital D with stroke, Icelandic eth    |
| LD63 | ȝ       | small eth, Icelandic                    |
| LE01 | é       | small e                                 |
| LE02 | È       | capital E                               |
| LE11 | é       | small e with acute accent               |
| LE12 | É       | capital E with acute accent             |
| LE13 | ë       | small e with grave accent               |
| LE14 | È       | capital E with grave accent             |
| LE15 | ë       | small e with circumflex accent          |
| LE16 | È       | capital E with circumflex accent        |
| LE17 | ë       | small e with diaeresis or umlaut mark   |
| LE18 | È       | capital E with diaeresis or umlaut mark |
| LE21 | ě       | small e with caron                      |
| LE22 | Ě       | capital E with caron                    |
| LE29 | é       | small e with dot                        |
| LE30 | È       | capital E with dot                      |
| LE31 | ë       | small e with macron                     |
| LE32 | È       | capital E with macron                   |
| LE43 | ę       | small e with ogonek                     |
| LE44 | Ę       | capital E with ogonek                   |
| LF01 | f       | small f                                 |
| LF02 | F       | capital F                               |
| LG01 | g       | small g                                 |
| LG02 | G       | capital G                               |
| LG11 | ǵ       | small g with acute accent               |
| LG15 | ǵ       | small g with circumflex accent          |
| LG16 | Ǵ       | capital G with circumflex accent        |

3.2.2 (continued)

(continued from page 41)

| ID   | GRAPHIC | NAME or DESCRIPTION                     | CHARACTER | ENCODING | NAME                                    | ENCODING | NAME                                    |
|------|---------|---|-----------|----------|---|----------|---|
| LG23 | g       | small g with breve                      | g         | 00000000 | small g with breve                      | 00000000 | small g with breve                      |
| LG24 | G       | capital G with breve                    | G         | 00000001 | capital G with breve                    | 00000001 | capital G with breve                    |
| LG29 | g       | small g with dot                        | g         | 00000010 | small g with dot                        | 00000010 | small g with dot                        |
| LG30 | G       | capital G with dot                      | G         | 00000011 | capital G with dot                      | 00000011 | capital G with dot                      |
| LG42 | G       | capital G with cedilla                  | G         | 00000100 | capital G with cedilla                  | 00000100 | capital G with cedilla                  |
| LH01 | h       | small h                                 | h         | 00000101 | small h                                 | 00000101 | small h                                 |
| LH02 | H       | capital H                               | H         | 00000110 | capital H                               | 00000110 | capital H                               |
| LH15 | h       | small h with circumflex accent          | h         | 00000111 | small h with circumflex accent          | 00000111 | small h with circumflex accent          |
| LH16 | H       | capital H with circumflex accent        | H         | 00001000 | capital H with circumflex accent        | 00001000 | capital H with circumflex accent        |
| LH61 | h       | small h with stroke                     | h         | 00001001 | small h with stroke                     | 00001001 | small h with stroke                     |
| LH62 | H       | capital H with stroke                   | H         | 00001010 | capital H with stroke                   | 00001010 | capital H with stroke                   |
| LI01 | i       | small i                                 | i         | 00001011 | small i                                 | 00001011 | small i                                 |
| LI02 | I       | capital I                               | I         | 00001100 | capital I                               | 00001100 | capital I                               |
| LI11 | i       | small i with acute accent               | i         | 00001101 | small i with acute accent               | 00001101 | small i with acute accent               |
| LI12 | I       | capital I with acute accent             | I         | 00001110 | capital I with acute accent             | 00001110 | capital I with acute accent             |
| LI13 | i       | small i with grave accent               | i         | 00001111 | small i with grave accent               | 00001111 | small i with grave accent               |
| LI14 | I       | capital I with grave accent             | I         | 00010000 | capital I with grave accent             | 00010000 | capital I with grave accent             |
| LI15 | i       | small i with circumflex accent          | i         | 00010001 | small i with circumflex accent          | 00010001 | small i with circumflex accent          |
| LI16 | I       | capital I with circumflex accent        | I         | 00010010 | capital I with circumflex accent        | 00010010 | capital I with circumflex accent        |
| LI17 | i       | small i with diaeresis or umlaut mark   | i         | 00010011 | small i with diaeresis or umlaut mark   | 00010011 | small i with diaeresis or umlaut mark   |
| LI18 | I       | capital I with diaeresis or umlaut mark | I         | 00010100 | capital I with diaeresis or umlaut mark | 00010100 | capital I with diaeresis or umlaut mark |
| LI19 | ~       | small i with tilde                      | ~         | 00010101 | small i with tilde                      | 00010101 | small i with tilde                      |
| LI20 | ~       | capital I with tilde                    | ~         | 00010110 | capital I with tilde                    | 00010110 | capital I with tilde                    |
| LI30 | i       | capital I with dot                      | i         | 00010111 | capital I with dot                      | 00010111 | capital I with dot                      |
| LI31 | ~       | small i with macron                     | ~         | 00011000 | small i with macron                     | 00011000 | small i with macron                     |
| LI32 | ~       | capital I with macron                   | ~         | 00011001 | capital I with macron                   | 00011001 | capital I with macron                   |
| LI43 | ł       | small i with ogonek                     | ł         | 00011010 | small i with ogonek                     | 00011010 | small i with ogonek                     |
| LI44 | Ł       | capital I with ogonek                   | Ł         | 00011011 | capital I with ogonek                   | 00011011 | capital I with ogonek                   |
| LI51 | ij      | small ij ligature                       | ij        | 00011100 | small ij ligature                       | 00011100 | small ij ligature                       |
| LI52 | IJ      | capital II ligature                     | IJ        | 00011101 | capital II ligature                     | 00011101 | capital II ligature                     |
| LI61 | i       | small i without dot                     | i         | 00011110 | small i without dot                     | 00011110 | small i without dot                     |
| LJ01 | j       | small j                                 | j         | 00011111 | small j                                 | 00011111 | small j                                 |
| LJ02 | J       | capital J                               | J         | 00100000 | capital J                               | 00100000 | capital J                               |

3.2.2 (continued)

| ID   | GRAPHIC | NAME OR DESCRIPTION              |
|------|---------|----------------------------------|
| LJ15 | ſ       | small j with circumflex accent   |
| LJ16 | ſ       | capital ſ with circumflex accent |
| LK01 | k       | small k                          |
| LK02 | K       | capital K                        |
| LK41 | ꝑ       | small k with cedilla             |
| LK42 | ꝑ       | capital K with cedilla           |
| LK61 | ꝑ       | small k, Greenlandic             |
| LL01 | l       | small l                          |
| LL02 | L       | capital L                        |
| LL11 | ſ       | small l with acute accent        |
| LL12 | ſ       | capital L with acute accent      |
| LL21 | ł or Ł  | small l with caron               |
| LL22 | Ł or ł  | capital L with caron             |
| LL41 | ł       | small l with cedilla             |
| LL42 | Ł       | capital L with cedilla           |
| LL61 | ł       | small l with stroke              |
| LL62 | Ł       | capital L with stroke            |
| LL63 | ł       | small l with middle dot          |
| LL64 | Ł       | capital L with middle dot        |
| LM01 | m       | small m                          |
| LM02 | M       | capital M                        |
| LN01 | n       | small n                          |
| LN02 | N       | capital N                        |
| LN11 | ń       | small n with acute accent        |
| LN12 | Ń       | capital N with acute accent      |
| LN19 | ń       | small n with tilde               |
| LN20 | Ń       | capital N with tilde             |
| LN21 | ń       | small n with caron               |
| LN22 | Ń       | capital N with caron             |
| LN41 | ŋ       | small n with cedilla             |
| LN42 | Ń       | capital N with cedilla           |
| LN61 | ŋ       | small eng, Lapp                  |
| LN62 | Ŋ       | capital eng, Lapp                |
| LN63 | 'n      | small n with apostrophe          |
| LO01 | o       | small o                          |

3.2.2 (continued)

| ID   | GRAPHIC | NAME or DESCRIPTION                     | ENCODING IN EBCDIC                  | DECIMAL | HEX  |
|------|---------|---|-------------------------------------|---------|------|
| LO02 | o       | capital o                               | 00110000 01000000 01000000 01000000 | 0       | 4800 |
| LO11 | ó       | small o with acute accent               | 00110000 01000000 01000000 01000000 | 1       | 4816 |
| LO12 | ö       | capital O with acute accent             | 00110000 01000000 01000000 01000000 | 2       | 4832 |
| LO13 | ò       | small o with grave accent               | 00110000 01000000 01000000 01000000 | 3       | 4848 |
| LO14 | õ       | capital O with grave accent             | 00110000 01000000 01000000 01000000 | 4       | 4864 |
| LO15 | ø       | small o with circumflex accent          | 00110000 01000000 01000000 01000000 | 5       | 4880 |
| LO16 | ö       | capital O with circumflex accent        | 00110000 01000000 01000000 01000000 | 6       | 4896 |
| LO17 | ö       | small o with diaeresis or umlaut mark   | 00110000 01000000 01000000 01000000 | 7       | 4912 |
| LO18 | ö       | capital O with diaeresis or umlaut mark | 00110000 01000000 01000000 01000000 | 8       | 4928 |
| LO19 | œ       | small o with tilde                      | 00110000 01000000 01000000 01000000 | 9       | 4944 |
| LO20 | œ       | capital O with tilde                    | 00110000 01000000 01000000 01000000 | 10      | 4960 |
| LO25 | ó       | small o with double acute accent        | 00110000 01000000 01000000 01000000 | 11      | 4976 |
| LO26 | õ       | capital O with double acute accent      | 00110000 01000000 01000000 01000000 | 12      | 4992 |
| LO31 | ö       | small o with macron                     | 00110000 01000000 01000000 01000000 | 13      | 5008 |
| LO32 | ö       | capital O with macron                   | 00110000 01000000 01000000 01000000 | 14      | 5024 |
| LO51 | oe      | small oe ligature                       | 00110000 01000000 01000000 01000000 | 15      | 5040 |
| LO52 | OE      | capital OE ligature                     | 00110000 01000000 01000000 01000000 | 16      | 5056 |
| LO61 | ø       | small o with slash                      | 00110000 01000000 01000000 01000000 | 17      | 5072 |
| LO62 | Ø       | capital O with slash                    | 00110000 01000000 01000000 01000000 | 18      | 5088 |
| LP01 | p       | small p                                 | 00110000 01000000 01000000 01000000 | 0       | 4800 |
| LP02 | P       | capital P                               | 00110000 01000000 01000000 01000000 | 1       | 4816 |
| LQ01 | q       | small q                                 | 00110000 01000000 01000000 01000000 | 2       | 4832 |
| LQ02 | Q       | capital Q                               | 00110000 01000000 01000000 01000000 | 3       | 4848 |
| LR01 | r       | small r                                 | 00110000 01000000 01000000 01000000 | 0       | 4800 |
| LR02 | R       | capital R                               | 00110000 01000000 01000000 01000000 | 1       | 4816 |
| LR11 | ř       | small r with acute accent               | 00110000 01000000 01000000 01000000 | 2       | 4832 |
| LR12 | Ř       | capital R with acute accent             | 00110000 01000000 01000000 01000000 | 3       | 4848 |
| LR21 | ȑ       | small r with caron                      | 00110000 01000000 01000000 01000000 | 4       | 4864 |
| LR22 | Ȓ       | capital R with caron                    | 00110000 01000000 01000000 01000000 | 5       | 4880 |
| LR41 | ȑ       | small r with cedilla                    | 00110000 01000000 01000000 01000000 | 6       | 4896 |
| LR42 | Ȓ       | capital R with cedilla                  | 00110000 01000000 01000000 01000000 | 7       | 4912 |
| LS01 | s       | small s                                 | 00110000 01000000 01000000 01000000 | 0       | 4800 |
| LS02 | S       | capital S                               | 00110000 01000000 01000000 01000000 | 1       | 4816 |
| LS11 | ſ       | small s with acute accent               | 00110000 01000000 01000000 01000000 | 2       | 4832 |
| LS12 | ſ       | capital S with acute accent             | 00110000 01000000 01000000 01000000 | 3       | 4848 |

3.2.2 (continued)

| ID   | GRAPHIC | NAME or DESCRIPTION                     |
|------|---------|---|
| LS15 | ſ       | small s with circumflex accent          |
| LS16 | ſ       | capital S with circumflex accent        |
| LS21 | ſ       | small s with caron                      |
| LS22 | ſ       | capital S with caron                    |
| LS41 | ſ       | small s with cedilla                    |
| LS42 | ſ       | capital S with cedilla                  |
| LS61 | ß       | small sharp s, German                   |
| LT01 | t       | small t                                 |
| LT02 | T       | capital T                               |
| LT21 | č or č' | small t with caron                      |
| LT22 | Č       | capital T with caron                    |
| LT41 | č       | small t with cedilla                    |
| LT42 | Č       | capital T with cedilla                  |
| LT61 | č       | small t with stroke                     |
| LT62 | Č       | capital T with stroke                   |
| LT63 | þ       | small thorn, Icelandic                  |
| LT64 | Þ       | capital thorn, Icelandic                |
| LU01 | ú       | small u                                 |
| LU02 | Ú       | capital U                               |
| LU11 | ú       | small u with acute accent               |
| LU12 | Ú       | capital U with acute accent             |
| LU13 | ú       | small u with grave accent               |
| LU14 | Ú       | capital U with grave accent             |
| LU15 | ú       | small u with circumflex accent          |
| LU16 | Ú       | capital U with circumflex accent        |
| LU17 | ü       | small u with diaeresis or umlaut mark   |
| LU18 | Ü       | capital U with diaeresis or umlaut mark |
| LU19 | ú       | small u with tilde                      |
| LU20 | Ü       | capital U with tilde                    |
| LU23 | ú       | small u with breve                      |
| LU24 | Ü       | capital U with breve                    |
| LU25 | ú       | small u with double acute accent        |
| LU26 | Ü       | capital U with double acute accent      |
| LU27 | ú       | small u with ring                       |
| LU28 | Ü       | capital U with ring                     |

3.2.2 (continued)

| ID   | GRAPHIC | NAME OR DESCRIPTION                     |
|------|---------|---|
| LU31 | ū       | small u with macron                     |
| LU32 | Ū       | capital U with macron                   |
| LU43 | ゅ       | small u with ogonek                     |
| LU44 | Ү       | capital U with ogonek                   |
| LV01 | v       | small v                                 |
| LV02 | V       | capital V                               |
| LW01 | w       | small w                                 |
| LW02 | W       | capital W                               |
| LW15 | ẅ       | small w with circumflex accent          |
| LW16 | Ẅ       | capital W with circumflex accent        |
| LX01 | x       | small x                                 |
| LX02 | X       | capital X                               |
| LY01 | y       | small y                                 |
| LY02 | Y       | capital Y                               |
| LY11 | ý       | small y with acute accent               |
| LY12 | Ý       | capital Y with acute accent             |
| LY15 | ÿ       | small y with circumflex accent          |
| LY16 | Ŷ       | capital Y with circumflex accent        |
| LY17 | ÿ       | small y with diaeresis or umlaut mark   |
| LY18 | Ŷ       | capital Y with diaeresis or umlaut mark |
| LZ01 | z       | small z                                 |
| LZ02 | Z       | capital Z                               |
| LZ11 | ž       | small z with acute accent               |
| LZ12 | Ž       | capital Z with acute accent             |
| LZ21 | ż       | small z with caron                      |
| LZ22 | Ž       | capital Z with caron                    |
| LZ29 | ż       | small z with dot                        |
| LZ30 | Ž       | capital Z with dot                      |

3.2.3 Non-alphabetic characters

3.2.3.1 Decimal digits

| ID   | GRAPHIC | NAME or DESCRIPTION |
|------|---------|---------------------|
| ND01 | 1       | digit 1             |
| ND02 | 2       | digit 2             |
| ND03 | 3       | digit 3             |
| ND04 | 4       | digit 4             |
| ND05 | 5       | digit 5             |
| ND06 | 6       | digit 6             |
| ND07 | 7       | digit 7             |
| ND08 | 8       | digit 8             |
| ND09 | 9       | digit 9             |
| ND10 | 0       | digit 0             |

3.2.3.2 Currency signs

| ID   | GRAPHIC | NAME or DESCRIPTION   |
|------|---------|-----------------------|
| SC01 | ¤       | general currency sign |
| SC02 | £       | pound sign            |
| SC03 | \$      | dollar sign           |
| SC04 | ¢       | cent sign             |
| SC05 | ¥       | yen sign              |

2.3.3 Punctuation marks

| ID | GRAPHIC | NAME or DESCRIPTION |
|----|---------|---------------------|
|----|---------|---------------------|

|      |   |                              |
|------|---|------------------------------|
| SP01 |   | space (see also point 3.3.2) |
| SP02 | ! | exclamation mark             |
| SP03 | ¡ | inverted exclamation mark    |
| SP04 | " | quotation mark               |
| SP05 | ' | apostrophe                   |
| SP06 | ( | left parenthesis             |
| SP07 | ) | right parenthesis            |
| SP08 | , | comma                        |
| SP09 | - | low line                     |
| SP10 | - | hyphen or minus sign         |
| P11  | . | full stop, period            |
| SP12 | / | solidus                      |
| SP13 | : | colon                        |
| SP14 | ; | semicolon                    |
| SP15 | ? | question mark                |
| SP16 | ¿ | inverted question mark       |
| SP17 | « | angle quotation mark left    |
| SP18 | » | angle quotation mark right   |

Note : In Teletex (and Videotex), quotation mark, apostrophe and comma are independent characters that cannot have the meaning of diacritical marks.

### 3.2.3.4 Arithmetic signs

| ID | GRAPHIC | NAME or DESCRIPTION |
|----|---------|---------------------|
|----|---------|---------------------|

|      |   |                   |
|------|---|-------------------|
| SA01 | + | plus sign         |
| SA02 | ± | plus-minus sign   |
| SA03 | < | less-than sign    |
| SA04 | = | equals sign       |
| SA05 | > | greater-than sign |
| SA06 | ÷ | divide sign       |
| SA07 | × | multiply sign     |

Note : For minus sign see SP10.

### 3.2.3.5 Subscripts and superscripts

|      |   |               |
|------|---|---------------|
| NS02 | 2 | superscript 2 |
| NS03 | 3 | superscript 3 |

### 3.2.3.6 Fractions

|      |               |                         |
|------|---------------|-------------------------|
| NF01 | $\frac{1}{2}$ | fraction one half       |
| NF04 | $\frac{1}{4}$ | fraction one quarter    |
| NF05 | $\frac{3}{4}$ | fraction three quarters |

### 3.2.3.7 Miscellaneous symbols

| ID   | GRAPHIC | NAME or DESCRIPTION          |
|------|---------|------------------------------|
| SM01 | #       | number sign                  |
| SM02 | %       | percent sign                 |
| SM03 | &       | ampersand                    |
| SM04 | *       | asterisk                     |
| SM05 | @       | commercial at                |
| SM06 | [       | left square bracket          |
| SM08 | ]       | right square bracket         |
| SM13 |         | vertical line                |
| SM17 | µ       | micro sign                   |
| SM18 | Ω       | Ohm sign                     |
| SM19 | °       | degree sign                  |
| SM20 | ©       | ordinal indicator, masculine |
| SM21 | ®       | ordinal indicator, feminine  |
| SM24 | §       | section sign                 |
| SM25 | ¶       | paragraph sign, pilcrow      |
| SM26 | ·       | middle dot                   |

### 3.2.3.8 Diacritical marks as separate graphic characters

| ID   | GRAPHIC | NAME or DESCRIPTION                 |
|------|---------|-------------------------------------|
| SD11 | ́       | Acute accent with space             |
| SD13 | ̀       | Grave accent with space             |
| SD15 | ׁ       | Circumflex accent with space        |
| SD17 | ׂ       | Diaeresis or umlaut mark with space |
| SD19 | ׊       | Tilde with space                    |
| SD21 | ׌       | Caron with space                    |
| SD23 | ׋       | Breve with space                    |
| SD25 | ׌׊      | Double acute accent with space      |
| SD27 | ׊׊      | Ring with space                     |
| SD29 | ׊׊׊     | Dot with space                      |
| SD31 | ׊׊׊׊    | Macron with space                   |
| SD41 | ׊׊׊׊׊   | Cedilla with space                  |
| SD43 | ׊׊׊׊׊׊  | Ogonek with space                   |

Note : The diacritical marks are illustrated together with a rectangle representing the relative position of the graphic character with which they are normally associated.

3.2.3.9 Non-spacing characters

| ID   | GRAPHIC | NAME or DESCRIPTION   |
|------|---------|-----------------------|
| SM27 | □       | Non-spacing underline |

Note - Non-spacing underline can be combined with any character of the Teletex graphic character repertoire.

3.3 Teletex basic repertoire of control functions

3.3.1 General

3.3.1.1 The repertoire of control functions defined in this Recommendation consists of:

- a) Format effectors;
- b) Presentation control functions;
- c) Code extension control functions;
- d) Miscellaneous control functions.

3.3.1.2 In addition to the categories mentioned above, other control functions may be used in the Teletex service, in particular transmission control functions required by lower-level control procedures. These control functions, however, are not specified in this Recommendation since they are not used during the transmission of text in the basic Teletex service.

3.3.1.3 Format effectors, presentation control functions, code extension control functions and miscellaneous control functions are listed in points 3.3.2, 3.3.3, 3.3.4 and 3.3.5 respectively. These lists are composed as described below:

- a) the first column contains the identifier of each control function, assigned in accordance with the identification system explained in Annex C;
- b) the second column presents the abbreviated name of the control function;
- c) the third column specifies the name and the definition of the control function.

.3.2 Format effectors

ID ABBREV. NAME and DEFINITION

SP01 SP Space

A format effector that advances the active position one character position on the same line.

This character is also regarded as a non-printing graphic.

CF10 BS Backspace

A format effector that moves the active position one character position backwards on the same line.

CF12 LF Line feed

A format effector that advances the active position to the corresponding character position of the next line.

LF never causes a horizontal movement of the active position. To obtain the equivalent of New line, Line feed shall be used in combination with Carriage return (CR).

CF14 FF Form feed

A format effector that advances the active position to the corresponding character position on a predetermined line of the text area of the next form or page.

FF never causes a horizontal movement of the active position. To obtain the equivalent of New form, Form feed shall be used in combination with Carriage return (CR).

For the basic Teletex service, the predetermined line is the first line of the text area.

CF15 CR Carriage return

A format effector that moves the active position to the home position on the same line.

Note - In some circumstances, CR may involve a forward movement of the active position, viz. when the active position has been moved in front of the home position.

CF16 PLD Partial line down

(Start of subscript/End of superscript)

A format effector that moves the active position to the corresponding character position on an imaginary line with a partial vertical offset. This offset should be sufficient either to image following characters as subscripts until the

first following occurrence of Partial line up (PLU) in the data stream or, if the immediately preceding character is imaged as a superscript to restore subsequent imaging of characters to the active line. Any interactions between PLD and vertical format effectors other than PLU are not defined by this Recommendation.

Therefore, any occurrence of PLD to start subscript presentation shall be followed by PLU in the same line without another PLD's intervening. Any other use may produce a different printing format at the receiver than was intended by the sender.

Note - It is intended that the imaging may be achieved by either:

- special fonts with or without movement of the active position, or
- movement of the active position not exceeding a half line space.

The sender is responsible for avoiding overlapped printing. The interpretation and rendition is the responsibility of the receiving terminal.

ID ABBREV. NAME and DEFINITION

CF17 PLU Partial line up

(Start of superscript/End of subscript)

A format effector that moves the active position to the corresponding character position on an imaginary line with a partial vertical offset. This offset should be sufficient either to image following characters as superscripts until the first following occurrence of Partial line down (PLD) in the data stream or, if the immediately preceding character is imaged as a subscript, to restore subsequent imaging of characters to the active line. Any interactions between PLU and vertical format effectors other than PLD are not defined by this Recommendation.

Therefore, any occurrence of PLU to start superscript presentation shall be followed by PLD in the same line without another PLU's intervening. Any other use may produce a different printing format at the receiver than was intended by the sender.

Note - It is intended that the imaging may be achieved by either:

- special fonts with or without movement of the active position, or
- movement of the active position not exceeding a half line space.

The sender is responsible for avoiding overlapped printing. The interpretation and rendition is the responsibility of the receiving terminal.

### 3.3 Presentation control functions

3.3.3.1 The presentation control functions defined in this Recommendation influence the following presentation attributes:

- page format (vertical or horizontal orientation);
- vertical spacing (line spacing);
- graphic rendition (underlining).

3.3.3.2 Presentation control functions are functions with parameters. Parameter values not defined in this Recommendation are reserved for future standardization by CCITT and/or ISO. In the basic Teletex service the horizontal spacing (character pitch) is fixed; however, in order to facilitate extensions to the basic service, a presentation control function involving this attribute has been included.

3.3.3.3 All presentation attributes shall be specified at the beginning of each page. Vertical spacing and graphic rendition may be changed within a page. Parameter default values are assumed at the beginning of each page.

#### 3.3.3.4 ID ABBREV. NAME and DEFINITION

CP01 PFS Page format selection

A presentation control function with a selective parameter that specifies the format of the pages to be introduced by a subsequent Form feed (FF) control function.

The meaning of the parameter value is:

0: vertical basic page format;

1: horizontal basic page format.

The default value of the parameter is 0.

The text areas corresponding to these page formats are defined in Recommendation S.60.

CP03 SGR Select graphic rendition

A presentation control function with a selective parameter which specifies a presentation attribute for subsequent text.

The meaning of the parameter value is:

0: default rendition;

4: underlined.

The default value of the parameter is 0.

CP04 SHS

Select horizontal spacing

A presentation control function with a selective parameter, which specifies the character spacing for subsequent text. The value of this attribute may be changed at any point within a page to become effective after the next occurrence of both Carriage return and Line feed.

The meaning of the parameter value is:

0: 10 characters per 25,4 mm.

The default value of the parameter is 0.

CP05 SVS

Select vertical spacing

A presentation control function with a selective parameter that specifies the line spacing for subsequent text. The value of this attribute may be changed at any point within a page to become effective upon the next occurrence of Line feed or Reverse line feed (see Annex E).

The meaning of the parameter value is:

0: 6 lines per 25,4 mm;

1: 4 lines per 25,4 mm;

2: 3 lines per 25,4 mm;

3: 12 lines per 25,4 mm.

The default value of the parameter is 0.

The parameter value 3 is used to represent the Half line down and Half line up functions.

### 3.3.4 Code extension control function

ID ABBREV. NAME and DEFINITION

CE03 ESC Escape

A code extension control function, which is used to provide coded representations for additional control functions.

CE06 CSI Control sequence introducer

A code extension control function, which is used to provide coded representations for additional control functions, in particular for control functions with parameters, such as presentation control functions.

Note - Control functions for graphic code extension are for further study.

### 3.3.5 Miscellaneous control functions

#### CM02 SUB      Substitute character

A control function used as defined in Recommendation V.3 to indicate an erroneous character. It is intended to permit printing an error indication or otherwise identify the location of a character received in error.

#### CM04 IGS      Identify graphic subrepertoire

A control function with one numeric parameter, which is used to indicate to the receiving terminal that a particular subrepertoire of the total repertoire of graphic characters is to be used in the subsequent text. The identification of the graphic subrepertoire may be changed at any point in the text.

The parameter value identifies the subrepertoire according to the register of subrepertoires.

The subrepertoire that is assumed to be identified when this control function is omitted is the entire Teletex basic repertoire of graphic characters.

If any subrepertoire has been explicitly identified, it shall be re-stated prior to the first character of text on each subsequent page (i.e. prior to Form feed).

All subrepertoires shall contain the following graphic characters:

- a) The 26 unaccented small letters (LA01, ... LZ01) and the 26 unaccented capital letters (LA02, ... LZ02);
- b) The 10 decimal digits (ND01 ... ND10);

c) The non-alphabetic graphic characters:

| ID   | GRAPHIC | NAME or DESCRIPTION  |
|------|---------|----------------------|
| SP01 | '       | space                |
| SP05 | '       | apostrophe           |
| SP06 | (       | left parenthesis     |
| SP07 | )       | right parenthesis    |
| SP08 | ,       | comma                |
| SP10 | -       | hyphen or minus sign |
| SP11 | .       | full stop, period    |
| SP12 | /       | solidus              |
| SP13 | :       | colon                |
| SP15 | ?       | question mark        |
| SA01 | +       | plus sign            |
| SA04 | =       | equals sign          |

In addition, a subrepertoire may contain any other graphic characters selected from those listed in this Recommendation.

Notes

- 1 Each character in a subrepertoire retains its standard coded representation defined in this Recommendation.
- 2 The number of graphic characters in a subrepertoire is limited only by the size of the comprehensive repertoire. However, the composition of a subrepertoire may be related to the number of symbols in a changeable printing element. Note that several different symbols may be used in combination to present a single composite graphic character on an output device.

4 Coded representations

4.1 Graphic character sets

4.1.1 Introduction

4.1.1.1 The coded representations of the graphic characters defined in this Recommendation consist of the bit combination 2/0 for Space, and bit combinations of a primary set and a supplementary set of graphic characters.

4.1.1.2 The primary set and the supplementary set are defined in Section 4.1.2. The use of the elements of the primary and supplementary sets to represent the graphic characters of the repertoire defined in Section 3.2 is specified in Section 4.1.3.

4.1.2 Code table

4.1.2.1 The primary set, specified in Figure 2/S.61 is a subset of the set of graphic characters of the International Reference Version of the 7-bit coded character set of Recommendation V.3.

4.1.2.2 The supplementary set, also specified in Figure 2/S.61 contains three types of elements:

- a) Diacritical marks, which are used in combination with the letters of the basic Latin alphabet in the primary set to constitute the coded representations of accented letters and umlauts. Each of these characters acts as a modifier indicating that the immediately following letter is to be transformed into an accented letter or an umlaut.
- b) Alphabetic characters, which are used in addition to the basic Latin alphabet in the primary set and which are not composed of diacritical marks and basic letters.
- c) Non-alphabetic characters, which are used in addition to those in the primary set.

4.1.2.3 Empty positions in the code table denote bit combinations that are reserved for future standardization. Shaded positions denote bit combinations which are not part of the sets specified by the table.

Note - In Recommendations V.3 and S.100, and in ISO 6937, bit combinations equivalent to empty positions in Figure 2 are used to represent graphic characters that are, however, not relevant to the basic Teletex service.

|          |   |   |   |    |   |   |   |   |   |    |   |    |    |    |    |    |    |
|----------|---|---|---|----|---|---|---|---|---|----|---|----|----|----|----|----|----|
| b.0      | 0 | 0 | 0 | 0  | 0 | 0 | 0 | 0 | 1 | 1  | 1 | 1  | 1  | 1  | 1  | 1  | 1  |
| b.0      | 0 | 0 | 0 | 0  | 1 | 1 | 1 | 1 | 0 | 0  | 0 | 0  | 1  | 1  | 1  | 1  | 1  |
| b.0      | 0 | 0 | 1 | 1  | 0 | 0 | 1 | 1 | 0 | 0  | 1 | 1  | 0  | 0  | 1  | 1  | 1  |
| b.0      | 0 | 1 | 0 | 1  | 0 | 1 | 0 | 1 | 0 | 1  | 0 | 1  | 0  | 1  | 0  | 1  | 1  |
|          |   | 0 | 1 | 2  | 3 | 4 | 5 | 6 | 7 | 8  | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| b.b.b.b. |   |   |   |    |   |   |   |   |   |    |   |    |    |    |    |    |    |
| 00000    | 0 |   |   | SP | 0 | ø | P | P |   |    | o |    |    | Ω  | k  |    |    |
| 00011    | 1 |   |   | !  | 1 | A | Q | a | q |    | i | ±  | ‘  | Æ  | œ  |    |    |
| 00102    | 2 |   |   | "  | 2 | B | R | b | r |    | € | 2  | ’  | ð  | d  |    |    |
| 00113    | 3 |   |   | 3  | C | S | c | s |   | £  | 3 | ^  | a  | ø  |    |    |    |
| 01004    | 4 |   |   | 4  | D | T | d | t |   | \$ | x | ~  | H  | h  |    |    |    |
| 01015    | 5 |   |   | %  | 5 | E | U | e | u |    | ¥ | μ  | -  |    | „  |    |    |
| 01106    | 6 |   |   | &  | 6 | F | V | f | v |    | # | ¶  | ˘  | IJ | ij |    |    |
| 01117    | 7 | , | , | '  | 7 | G | W | g | w |    | § | •  | •  | Ł  | t  |    |    |
| 10008    | 8 |   |   | (  | 8 | H | X | h | x |    | ¤ | ÷  | .. | Ł  | t  |    |    |
| 10019    | 9 |   |   | )  | 9 | I | Y | i | y |    |   | ø  |    | Ø  | s  |    |    |
| 101010   | * | : | : | J  | Z | j | z |   |   |    |   | °  |    | Œ  | œ  |    |    |
| 101111   | + | ; | ; | K  | Ł | k |   |   |   | <> |   | „  |    | ø  | β  |    |    |
| 110012   | , | < | L | L  | I |   |   |   |   | ¼  | ø |    | þ  | p  | p  |    |    |
| 110113   | - | = | M | ]  | m |   |   |   |   | ½  | " |    | †  | t  |    |    |    |
| 111014   | . | > | N | n  |   |   |   |   |   | ¾  | „ |    | ø  | η  | η  |    |    |
| 111115   | / | ? | O | ø  | o |   |   |   |   | ¿  | ˇ |    | ‘  | ñ  |    |    |    |

COTTI-43400

Notes :

- ① When interworking with Videotex, this code shall have the meaning delimiter.
- ② When a distinction needs to be made between diaeresis and umlaut mark, this code shall be used to represent umlaut mark.
- ③ Non-spacing underline is not a diacritical mark and may be combined with any graphic character of the Teletex repertoire.

Figure 2/S.61 - Code table for graphic characters showing Space in position 2/0, the primary set of graphic characters in positions 2/1 to 7/14, and the supplementary set of graphic characters in positions 10/1 to 15/14

#### 4.1.3 Formats of coded representations

4.1.3.1 The formats of the coded representations of the graphic characters of the repertoire defined in this Recommendation are as follows:

- a) Alphabetic and non-alphabetic characters of the primary set.  
Each of these characters is represented by a single bit combination in the range 2/1 to 7/14. The primary set contains the letters of the basic Latin alphabet;
- b) Accented letters and umlauts.  
Each of these characters is represented by a sequence of two bit combinations. The first part of this sequence consists of a bit combination in the range 12/0 to 12/15 (excluding 12/12) representing a diacritical mark. The second part consists of a bit combination in the range 4/1 to 5/10 or 6/1 to 7/10 representing a basic Latin letter;
- c) Alphabetic and non-alphabetic characters of the supplementary set.  
Each of these characters is represented by a single bit combination in the range 10/1 to 11/15 or 13/0 to 15/14;
- d) Diacritical marks as separate graphic characters are represented by sequences of bit combinations, in the same way as accented letters and umlauts, with bit combination 2/0 (Space) instead of a basic Latin letter;
- e) Non-spacing underline shall precede the character to which it applies. In particular, when it is used to underline an accented letter or umlaut, the non-spacing underline shall precede the diacritical mark.

4.1.3.2 Space is coded as 2/0.

4.1.3.3 The coded representation of the Teletex primary set of graphic characters is given in Table 1/S.61.

4.1.3.4 The coded representaiton of the Teletex supplementary set of graphic characters is given in Table 2/S.61.

(3977)

TABLE 1/S.61

The Teletex primary set of graphic characters

| Position | Graphic | Name or description          | Position | Graphic | Name or description  | Position | Graphic       | Name or description |
|----------|---------|------------------------------|----------|---------|----------------------|----------|---------------|---------------------|
| 2/1      | !       | exclamation mark             | 4/0      | €       | commercial at        | 6/0      |               | (not used)          |
| 2/2      | "       | quotation mark<br>(not used) | 4/1      | A       | capital A            | 6/1      | a             | small a             |
| 2/3      |         | (not used)                   | 4/2      | B       | capital B            | 6/2      | b             | small b             |
| 2/4      |         | (not used)                   | 4/3      | C       | capital C            | 6/3      | c             | small c             |
| 2/5      | *       | percent sign                 | 4/4      | D       | capital D            | 6/4      | d             | small d             |
| 2/6      | #       | ampersand                    | 4/5      | E       | capital E            | 6/5      | e             | small e             |
| 2/7      | '       | apostrophe                   | 4/6      | F       | capital F            | 6/6      | f             | small f             |
| 2/8      | {       | left parenthesis             | 4/7      | G       | capital G            | 6/7      | g             | small g             |
| 2/9      | }       | right parenthesis            | 4/8      | H       | capital H            | 6/8      | h             | small h             |
| 2/10     | *       | asterisk                     | 4/9      | I       | capital I            | 6/9      | i             | small i             |
| 2/11     | +       | plus sign                    | 4/10     | J       | capital J            | 6/10     | j             | small j             |
| 2/12     | ,       | comma                        | 4/11     | K       | capital K            | 6/11     | k             | small k             |
| 2/13     | -       | hyphen or minus sign         | 4/12     | L       | capital L            | 6/12     | l             | small l             |
| 2/14     | .       | full stop, period            | 4/13     | M       | capital M            | 6/13     | m             | small m             |
| 2/15     | /       | solidus                      | 4/14     | N       | capital N            | 6/14     | n             | small n             |
|          |         |                              | 4/15     | O       | capital O            | 6/15     | o             | small o             |
| 3/0      | 0       | digit 0                      | 5/0      | P       | capital P            | 7/0      | p             | small p             |
| 3/1      | 1       | digit 1                      | 5/1      | Q       | capital Q            | 7/1      | q             | small q             |
| 3/2      | 2       | digit 2                      | 5/2      | R       | capital R            | 7/2      | r             | small r             |
| 3/3      | 3       | digit 3                      | 5/3      | S       | capital S            | 7/3      | s             | small s             |
| 3/4      | 4       | digit 4                      | 5/4      | T       | capital T            | 7/4      | t             | small t             |
| 3/5      | 5       | digit 5                      | 5/5      | U       | capital U            | 7/5      | u             | small u             |
| 3/6      | 6       | digit 6                      | 5/6      | V       | capital V            | 7/6      | v             | small v             |
| 3/7      | 7       | digit 7                      | 5/7      | W       | capital W            | 7/7      | w             | small w             |
| 3/8      | 8       | digit 8                      | 5/8      | X       | capital X            | 7/8      | x             | small x             |
| 3/9      | 9       | digit 9                      | 5/9      | Y       | capital Y            | 7/9      | y             | small y             |
| 3/10     | :       | colon                        | 5/10     | Z       | capital Z            | 7/10     | z             | small z             |
| 3/11     | :       | semicolon                    | 5/11     | -       | left square bracket  | 7/11     | (not used)    | (not used)          |
| 3/12     | <       | less-than sign               | 5/12     | -       | (not used)           | 7/12     | vertical line | vertical line       |
| 3/13     | =       | equals sign                  | 5/13     | -       | right square bracket | 7/13     | (not used)    | (not used)          |
| 3/14     | >       | greater-than sign            | 5/14     | -       | low line             | 7/14     | (not used)    | (not used)          |
| 3/15     | ?       | question mark                |          |         |                      |          |               |                     |

- ① When interworking with Videotex, this code shall have the meaning delimiter.

TABLE 2/S.61

The Teletex supplementary set of graphic characters

| Position | Graphic | Name or description         | Position | Graphic                   | Name or description                 | Position | Graphic | Name or description          |
|----------|---------|-----------------------------|----------|---------------------------|-------------------------------------|----------|---------|------------------------------|
| 10/1     | !       | inverted exclamation mark   | 12/0     | ·                         | (not used)                          | 14/0     | ø       | ohm sign                     |
| 10/2     | ¢       | cent sign                   | 12/1     | grave accent              | acute accent                        | 14/1     | ƒ       | capital D with stroke        |
| 10/3     | £       | pound sign                  | 12/2     | circumflex accent         | ordinal indicator, feminine         | 14/2     | ð       | capital D with stroke        |
| 10/4     | \$      | dollar sign                 | 12/3     | tilde                     | capital H with stroke               | 14/3     | é       | ordinal indicator, feminine  |
| 10/5     | ¥       | yen sign                    | 12/4     | macron                    | capital H with stroke<br>(not used) | 14/4     | ñ       | capital IJ ligature          |
| 10/6     | ₧       | number sign                 | 12/5     | breve                     | capital L with middle dot           | 14/5     | ꝑ       | capital L with middle dot    |
| 10/7     | ₮       | section sign                | 12/6     | dot                       | capital L with stroke               | 14/6     | ꝑ       | capital O with slash         |
| 10/8     | ₹       | currency symbol             | 12/7     | diacritics or umlaut mark | capital O with slash                | 14/7     | ꝑ       | capital O with ligature      |
| 10/9     | ₺       | (not used)                  | 12/8     | ring                      | capital O, Lorn, masculine          | 14/8     | ꝑ       | ordinal indicator, masculine |
| 10/10    | ₻       | (not used)                  | 12/9     | cedilla                   | capital Thorn, Icelandic            | 14/9     | ꝑ       | capital T with stroke        |
| 10/11    | ₽       | angle quotation mark left   | 12/10    | non-spacing underline     | capital eng, Lapp                   | 14/10    | ꝑ       | small n with apostrophe      |
| 10/12    | ₾       | (not used)                  | 12/11    | double acute accent       | small n, Greenlandic                | 14/11    | ꝑ       | small k, Greenlandic         |
| 10/13    | ₷       | (not used)                  | 12/12    | ogonek                    | small d with stroke                 | 14/12    | ꝑ       | small d with stroke          |
| 10/14    | ₸       | (not used)                  | 12/13    | caton                     | small eth, Icelandic                | 14/13    | ꝑ       | small eth, Icelandic         |
| 10/15    | ₹       | (not used)                  | 12/14    |                           | small h with stroke                 | 14/14    | ꝑ       | small h with stroke          |
| 11/0     | *       | degree sign                 | 12/15    |                           | small i without dot                 | 14/15    | ꝑ       | small i without dot          |
| 11/1     | ±       | plus/minus sign             | 13/0     | (not used)                | small ij ligature                   | 15/0     | ꝑ       | small ij ligature            |
| 11/2     | ²       | superscript 2               | 13/1     | (not used)                | small l with middle dot             | 15/1     | ꝑ       | small l with middle dot      |
| 11/3     | ³       | superscript 3               | 13/2     | (not used)                | small l with stroke                 | 15/2     | ꝑ       | small l with stroke          |
| 11/4     | ×       | multiply sign               | 13/3     | (not used)                | small o with slash                  | 15/3     | ꝑ       | small o with slash           |
| 11/5     | µ       | micro sign                  | 13/4     | (not used)                | small oo ligature                   | 15/4     | ꝑ       | small oo ligature            |
| 11/6     | ¶       | paragraph sign, pilcrow     | 13/5     | (not used)                | small sharp s, German               | 15/5     | ꝑ       | small sharp s, German        |
| 11/7     | ·       | middle dot                  | 13/6     | (not used)                | small thorn, Icelandic              | 15/6     | ꝑ       | small thorn, Icelandic       |
| 11/8     | ÷       | divide sign                 | 13/7     | (not used)                | small t with stroke                 | 15/7     | ꝑ       | small t with stroke          |
| 11/9     | +       | (not used)                  | 13/8     | (not used)                | small t with stroke                 | 15/8     | ꝑ       | small t with stroke          |
| 11/10    | ⟨       | (not used)                  | 13/9     | (not used)                | small oo ligature                   | 15/9     | ꝑ       | small oo ligature            |
| 11/11    | ⟩       | angle quotation mark right  | 13/10    | (not used)                | small sharp s, German               | 15/10    | ꝑ       | small sharp s, German        |
| 11/12    | —       | fraction one quarter        | 13/11    | (not used)                | small thorn, Icelandic              | 15/11    | ꝑ       | small thorn, Icelandic       |
| 11/13    | —       | fraction one half           | 13/12    | (not used)                | small t with stroke                 | 15/12    | ꝑ       | small t with stroke          |
| 11/14    | —       | fraction three quarters     | 13/13    | (not used)                | small t with stroke                 | 15/13    | ꝑ       | small t with stroke          |
| 11/15    | —       | inverted question mark left | 13/14    | (not used)                | small eng, Lapp                     | 15/14    | ꝑ       | small eng, Lapp              |
|          |         |                             | 13/15    | (not used)                |                                     |          |         |                              |

① Diacritical marks are illustrated together with a rectangle representing the relative position of the graphic character with which they are normally associated.

② When a distinction needs to be made between diaeresis and umlaut mark, this code shall be used to represent umlaut mark.

## 4.2 Control function sets

### 4.2.1 Introduction

4.2.1.1 The coded representations of the control functions defined in this Recommendation consist of bit combinations of a primary set and a supplementary set of control functions.

4.2.1.2 The primary set and the supplementary set are defined in Section 4.2.2. The use of the elements of the primary and supplementary sets to represent the control functions of the repertoire defined in Section 3.3 is specified in Section 4.2.3.

### 4.2.2 Code table

4.2.2.1 The primary set, specified in Figure 3/S.61, has been derived from the set of control functions of the 7-bit coded character set of Recommendation V.3.

4.2.2.2 The supplementary set is also specified in Figure 3/S.61.

4.2.2.3 Empty positions in the code table denote bit combinations that are reserved for future standardization. Shaded positions denote bit combinations that are not part of the sets specified by the table.

Note - In Recommendation V.3 and in ISO 6429, bit combinations equivalent to empty positions in Figure 3/S.61 are used to represent control functions, which are, however, not relevant to the transmission of text in the basic Teletex service.

| b | b | b | b | 0  | 0      | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1  | 1  | 1   | 1   | 1  | 1  | 1 | 1 | 1 | 1 | 1 |  |
|---|---|---|---|----|--------|---|---|---|---|---|---|---|---|----|----|-----|-----|----|----|---|---|---|---|---|--|
| b | b | b | b | 0  | 0      | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0  | 0  | 1   | 1   | 1  | 1  | 1 | 1 | 1 | 1 | 1 |  |
| b | b | b | b | 0  | 0      | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0  | 0  | 1   | 1   | 1  | 1  | 1 | 1 | 1 | 1 | 1 |  |
| b | b | b | b | 0  | 1      | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 1  | 0  | 1   | 1   | 0  | 0  | 1 | 0 | 1 | 0 | 1 |  |
| b | b | b | b | 0  | 1      | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12  | 13  | 14 | 15 |   |   |   |   |   |  |
| b | b | b | b | 0  |        |   |   |   |   |   |   |   |   |    |    |     |     |    |    |   |   |   |   |   |  |
| 0 | 0 | 0 | 0 | 0  |        |   |   |   |   |   |   |   |   |    |    |     |     |    |    |   |   |   |   |   |  |
| 0 | 0 | 0 | 1 | 1  |        |   |   |   |   |   |   |   |   |    |    |     |     |    |    |   |   |   |   |   |  |
| 0 | 0 | 1 | 0 | 2  |        |   |   |   |   |   |   |   |   |    |    |     |     |    |    |   |   |   |   |   |  |
| 0 | 0 | 1 | 1 | 3  |        |   |   |   |   |   |   |   |   |    |    |     |     |    |    |   |   |   |   |   |  |
| 0 | 1 | 0 | 0 | 4  |        |   |   |   |   |   |   |   |   |    |    |     |     |    |    |   |   |   |   |   |  |
| 0 | 1 | 0 | 1 | 5  |        |   |   |   |   |   |   |   |   |    |    |     |     |    |    |   |   |   |   |   |  |
| 0 | 1 | 1 | 0 | 6  |        |   |   |   |   |   |   |   |   |    |    |     |     |    |    |   |   |   |   |   |  |
| 0 | 1 | 1 | 1 | 7  |        |   |   |   |   |   |   |   |   |    |    |     |     |    |    |   |   |   |   |   |  |
| 1 | 0 | 0 | 0 | 8  | BS     |   |   |   |   |   |   |   |   |    |    |     |     |    |    |   |   |   |   |   |  |
| 1 | 0 | 0 | 1 | 9  |        |   |   |   |   |   |   |   |   |    |    |     |     |    |    |   |   |   |   |   |  |
| 1 | 0 | 1 | 0 | 10 | LF SUB |   |   |   |   |   |   |   |   |    |    |     |     |    |    |   |   |   |   |   |  |
| 1 | 0 | 1 | 1 | 11 | ESC    |   |   |   |   |   |   |   |   |    |    | PLD | CSI |    |    |   |   |   |   |   |  |
| 1 | 1 | 0 | 0 | 12 | FF     |   |   |   |   |   |   |   |   |    |    | PLU |     |    |    |   |   |   |   |   |  |
| 1 | 1 | 0 | 1 | 13 | CR     |   |   |   |   |   |   |   |   |    |    |     |     |    |    |   |   |   |   |   |  |
| 1 | 1 | 1 | 0 | 14 |        |   |   |   |   |   |   |   |   |    |    |     |     |    |    |   |   |   |   |   |  |
| 1 | 1 | 1 | 1 | 15 |        |   |   |   |   |   |   |   |   |    |    |     |     |    |    |   |   |   |   |   |  |

COTI-40410

Figure 3/S.61 - Code table for control functions showing the primary set of control functions in positions 0/0 to 1/15, and the supplementary set of control functions in positions 8/0 to 9/15

#### 4.2.3 Formats of coded representations

4.2.3.1 The formats of the coded representations of the control functions of the repertoire defined in this Recomendation are as follows:

- a) Control functions that are elements of the primary set.  
Each of these control functions is represented by a single bit combination in the range 0/0 to 1/15;
- b) Control functions that are elements of the supplementary set.  
Each of these control functions is represented by a single bit combination in the range 8/0 to 9/15;
- c) Control functions with parameters.  
Each of these control functions is represented by a control sequence of the form

CSI P<sub>1</sub> ... P<sub>n</sub> I<sub>1</sub> ... I<sub>m</sub> F

as explained in Annex D. The first part of this sequence consists of the coded representation of the code extension control function Control sequence introducer (CSI) of the supplementary set; the second part (which may be omitted) consists of one or more bit combinations in the range 3/0 to 3/15 representing one or more parameters of the control function; the last part of the control sequence is composed of one or more bit combinations that identify the intended control function; this part consists of either a single final (F) bit combination in the range 4/0 to 7/14, or one or more intermediate (I) bit combinations in the range 2/0 to 2/15 followed by a final bit combination in the range 4/0 to 7/14.

4.2.3.2 The coded representations of the control functions of the repertoire defined in this Recommendation are specified by the lists in points 4.2.4.1 (format effectors), 4.2.4.2 (presentation control functions), 4.2.4.3 (code extension control functions) and 4.2.4.4 (miscellaneous control functions). These lists are composed as described below:

- a) the first column contains the identifier of each control function;
- b) the second column presents the abbreviated name of the control function;
- c) the third column specifies the coded representation of the control function.

4.2.4 Coded representations

4.2.4.1 Format effectors

| ID   | ABBREV. | CODED REPRESENTATION |
|------|---------|----------------------|
| CF10 | BS      | 0/8                  |
| CF12 | LF      | 0/10                 |
| CF14 | FF      | 0/12                 |
| CF15 | CR      | 0/13                 |
| CF16 | PLD     | 8/11                 |
| CF17 | PLU     | 8/12                 |

4.2.4.2 Presentation control functions

| ID   | ABBREV. | CODED REPRESENTATION                             |
|------|---------|--|
| CP01 | PFS     | CSI P1 <sup>↑</sup> ... <sup>↓</sup> Pn 2/0 4/10 |
| CP03 | SGR     | CSI P1 <sup>↑</sup> ... <sup>↓</sup> Pn 6/13     |
| CP04 | SHS     | CSI P1 <sup>↑</sup> ... <sup>↓</sup> Pn 2/0 4/11 |
| CP05 | SVS     | CSI P1 <sup>↑</sup> ... <sup>↓</sup> Pn 2/0 4/12 |

4.2.4.3 Code extension control functions

| ID   | ABBREV. | CODED REPRESENTATION |
|------|---------|----------------------|
| CE03 | ESC     | 1/11                 |
| CE06 | CSI     | 9/11                 |

4.2.4.4 Miscellaneous control functions

| ID   | ABBREV. | CODED REPRESENTATION                             |
|------|---------|--|
| CM02 | SUB     | 1/10   |
| CM04 | IGS     | CSI P1 <sup>↑</sup> ... <sup>↓</sup> Pn 2/0 4/13 |

ANNEX A

(to Recommendation S.61)

Code extension procedures

1 The basic Teletex service makes use of an 8-bit coded character set, which is implicitly designated and invoked.

2 This 8-bit code contains the primary set of graphic characters in positions 2/1 to 7/14 and the supplementary set of graphic characters in positions 10/1 to 15/14. The characters constituting these basic sets are described in this Recommendation.

3 For enhancement of the basic Teletex service the following code extension facilities will be provided:

- a) designation of up to four graphic character sets;
- b) invocation of the designated sets, by means of locking and/or non locking shift functions, into positions 2/1 to 7/14 and 10/1 to 15/14 of the 8-bit code table.

Their implementation is for further study, bearing in mind the need for compatibility with the 7- and 8-bit code extension facilities defined in relevant international standards.

ANNEX B

(to Recommendation S.61)

Use of diacritical marks

1 The supplementary set contains 13 diacritical marks that are used in combination with the letters of the basic Latin alphabet in the primary set to constitute the coded representations of accented letters and umlauts. These diacritical marks, and their coded representations, are:

|                          |       |
|--------------------------|-------|
| Acute accent             | 12/2  |
| Grave accent             | 12/1  |
| Circumflex accent        | 12/3  |
| Diaeresis or umlaut mark | 12/8  |
| Tilde                    | 12/4  |
| Caron                    | 12/15 |
| Breve                    | 12/6  |
| Double acute accent      | 12/13 |
| Ring                     | 12/10 |
| Dot                      | 12/7  |
| Macron                   | 12/5  |
| Cedilla                  | 12/11 |
| Ogonek                   | 12/14 |

Note - When a distinction needs to be made between diaeresis and umlaut mark, the code 12/9 shall be used to represent the umlaut mark.

2 Figure 1/Annex B specifies the combinations of diacritical marks and basic letters that are defined in this Recommendation.

| basic letter | acute accent | grave accent | circumflex accent | diaeresis or umlaut mark | tilde | caron | breve | double acute accent | ring | dot | macron | cedilla | ogonek |
|--------------|--------------|--------------|-------------------|--------------------------|-------|-------|-------|---------------------|------|-----|--------|---------|--------|
| a A          | á Á          | à Á          | â Â               | ä Ä                      | ñ Ñ   | á Á   | á Á   | á Á                 | á Á  | á Á | á Á    | á Á     | á Á    |
| b B          |              |              |                   |                          |       |       |       |                     |      |     |        |         |        |
| c C          | ć Ć          |              | č Č               |                          |       | ć Ć   |       |                     | ć Ć  |     | ć Ć    | ć Ć     | ć Ć    |
| d D          |              |              |                   |                          |       | đ Đ   | đ Đ   |                     |      |     |        |         |        |
| e E          | é É          | è È          | ê È               | ë È                      |       | é É   |       |                     | é É  | é É | é É    | é É     | é É    |
| f F          |              |              |                   |                          |       |       |       |                     |      |     |        |         |        |
| g G          | ğ Ğ          |              | ğ Ğ               |                          |       |       | ğ Ğ   |                     | ğ Ğ  |     | ğ Ğ    | ğ Ğ     | ğ Ğ    |
| h H          |              |              | ħ Ħ               |                          |       |       |       |                     |      |     |        |         |        |
| i I          | í Í          | í Í          | í Í               | í Í                      | í Í   |       |       |                     | í Í  | í Í | í Í    | í Í     | í Í    |
| j J          |              |              | j Ĵ               |                          |       |       |       |                     |      |     |        |         |        |
| k K          |              |              |                   |                          |       |       |       |                     |      |     |        | ķ Ķ     | ķ Ķ    |
| l L          | í Ł          |              |                   |                          |       | ł Ł   |       |                     |      |     |        | ł Ł     | ł Ł    |
| m M          |              |              |                   |                          |       |       |       |                     |      |     |        |         |        |
| n N          | ń Ñ          |              |                   |                          |       | ń Ñ   | ń Ñ   |                     |      |     |        | ń Ñ     | ń Ñ    |
| o O          | ó Ó          | ó Ó          | ó Ó               | ö Ö                      | ó Ó   |       | ó Ó   |                     |      | ó Ó | ó Ó    | ó Ó     | ó Ó    |
| p P          |              |              |                   |                          |       |       |       |                     |      |     |        |         |        |
| q Q          |              |              |                   |                          |       |       |       |                     |      |     |        |         |        |
| r R          | í R          |              |                   |                          |       |       | í R   |                     |      |     |        | í R     | í R    |
| s S          | ś Ś          |              | ś Ś               |                          |       |       | ś Ś   |                     |      |     |        | ś Ś     | ś Ś    |
| t T          |              |              |                   |                          |       |       | č Č   |                     |      |     |        | č Č     | č Č    |
| u U          | ú Ú          | ú Ú          | ú Ú               | ü Ü                      | ú Ú   |       | ú Ú   | ú Ú                 | ú Ú  | ú Ú | ú Ú    | ú Ú     | ú Ú    |
| v V          |              |              |                   |                          |       |       |       |                     |      |     |        |         |        |
| w W          |              |              | ẅ Ḩ               |                          |       |       |       |                     |      |     |        |         |        |
| x X          |              |              |                   |                          |       |       |       |                     |      |     |        |         |        |
| y Y          | ý Ÿ          |              | ý Ÿ               | ý Ÿ                      |       |       |       |                     |      |     |        |         |        |
| z Z          | ź Ź          |              |                   |                          |       | ż Ź   |       |                     | ż Ź  |     |        |         |        |

Figure 1/Annex B - Use of diacritical marks

ANNEX C

(to Recommendation S.61)

Identification system

1 For the purpose of this Recommendation, a system was developed that allows for the identification and description of each graphic character or control function. The system is shown in Figure 1/Annex C.

2 Each identifier consists of two letters and two digits.

3 The first letter indicates the alphabet, the language, etc.

4 The second letter indicates the letter of an alphabet or, in the case of a non-alphabetic graphic character or a control function, the group of characters or control functions.

5 The first digit indicates whether the letter in the second position is an accented one, whether the diacritical mark is above or below the letter, etc. It has no special meaning in the case of the first letter being a C, N or S.

6 The second digit indicates whether the letter is a capital or a small one (even or odd). If the first letter is a C, N or S, this digit being even or odd has no significance.

7 The numbering is used in a consistent manner so that each diacritical mark is always given the same number.

8 The numbering principle is shown in Table 1/Annex C.

TABLE 1/ANNEX C

Numbering principle for alphabetic characters

| Item                     | Small        | Capital      |
|--------------------------|--------------|--------------|
| No diacritical mark      | 01           | 02           |
| Acute accent             | 11           | 12           |
| Grave accent             | 13           | 14           |
| Circumflex accent        | 15           | 16           |
| Diaeresis or umlaut mark | 17           | 18           |
| Tilde                    | 19           | 20           |
| Caron                    | 21           | 22           |
| Breve                    | 23           | 24           |
| Double acute accent      | 25           | 26           |
| Ring                     | 27           | 28           |
| Dot                      | 29           | 30           |
| Macron                   | 31           | 32           |
| Cedilla                  | 41           | 42           |
| Ogonek                   | 43           | 44           |
| Diphthong or ligature    | 51           | 52           |
| Special form             | 61, 63, etc. | 62, 64, etc. |

L A O I

- For alphabetic characters:  
odd digit = small letter;  
even digit = capital letter.
- If C, N or S in first position:  
no special meaning.
- For alphabetic characters:  
zero = letter without diacritical mark;  
one, two or three = letter with diacritical mark above it;  
four = letter with diacritical mark below it;  
five = diphthong or ligature;  
six = special form.
- If C, N or S in first position:  
no special meaning
- For alphabetic characters:  
A to Z = the respective letter of the Latin alphabet, or the  
Latin equivalent in the case of a non-latin letter;
- If C in first position:  
E = code extension control function;  
F = format effector;  
P = presentation control function;  
M = other control function.
- If N in first position:  
D = decimal digit;  
F = fraction;  
S = subscript or superscript.
- If S in first position:  
A = arithmetic sign;  
C = currency sign;  
D = diacritical mark;  
P = punctuation mark;  
M = other symbol.
- L = Latin alphabetic character;  
— C = control function;  
— N = non-alphabetic graphic character;  
— S = special graphic character.

Figure 1/Annex C - Identification system

ANNEX D

(to Recommendation S.61)

Format of control sequences

The following explanation of the format of control sequences consists of non-contiguous extracts from ISO/TC97/SC2 N 915, the text of DIS 6429. For ease of cross-reference to that document, the original numbering scheme has been retained in preference to allocating a new set of consistent paragraph numbers. To ensure accurate interpretation of detailed meanings, reference should be made to 97/2 N 915.

4.1.2 Control functions represented by control sequences

A control sequence consists of the coded representation of Control sequence introducer (CSI) followed by one or more bit combinations, which identify the control function and, if applicable, represent the parameters of the control function. The control function CSI itself is an element of the C1 set.

The format of a control sequence is:

CSI P<sub>1</sub> ... P<sub>n</sub> I<sub>1</sub> ... I<sub>m</sub> F

where:

- CSI is represented by ESC 5/11 in a 7-bit code and by 9/11 in an 8-bit code (see 4.2).
- P<sub>1</sub> ... P<sub>n</sub> are bit combinations of column 3 representing the parameter values; these bit combinations shall be omitted if the control function has no parameter, and may be omitted if the default parameter value is to apply.
- I<sub>1</sub> ... I<sub>m</sub> are bit combinations of column 2 which, together with the final bit combination F, identify the control function; these bit combinations shall be omitted if the control function is identified by the final bit combination F alone.

Note - The number of intermediate bit combinations is not limited by this standard; in practice, at most one intermediate will be sufficient since over one thousand control functions may be identified using not more than one intermediate.

- F is a bit combination of column 4, 5 or 7 (except 7/15) which terminates the control sequence and, together with the intermediate bit combinations I<sub>1</sub> ... I<sub>m</sub>, if present, identifies the control function (see 9).

The occurrence of any bit combinations which do not conform to the above format is an error condition for which recovery is not specified by this standard.

The final bit combinations (either used alone or together with intermediates) are classified in two categories:

- The control functions identified by final bit combinations of columns 4, 5 and 6 are either standardized or reserved for future standardization.
- The control functions identified by final bit combinations of column 7 (except 7/15) are not standardized and are available for private or experimental use.

There are two types of parameters: numeric and selective (see 4.4). A numeric parameter represents a number; a selective parameter merely represents a character string, the meaning of which depends on the control function.

The final bit combinations of columns 4, 5 and 6 and the intermediate bit combinations are defined in 4.3.

#### 4.4 Parameter representations

A control sequence may contain a string of bit combinations  $P_1 \dots P_n$  representing one or more parameters to complete the specification of the control function.

The string of bit combinations  $P_1 \dots P_n$  contained in a control sequence is called the parameter string. It consists of bit combinations of column 3 and is interpreted as follows:

- If the first bit combination of the parameter string is in the range 3/0 to 3/11, the parameter string is interpreted according to the format described below.
- If the first bit combination of the parameter string is in the range 3/12 to 3/15, the parameter string is available for private or experimental use. Its format and meaning are not specified in this standard.

##### 4.4.1 Parameter string format

- A parameter string consists of one or more parameter substrings, each of which represents a parameter value.
- Each parameter substring consists of one or more bit combinations from 3/0 to 3/9, representing the decimal digital ZERO to NINE.
- Parameter substrings are separated by one bit combination 3/11.
- Bit combination 3/10 is reserved for future standardization as an additional parameter separator.
- Bit combinations 3/12 to 3/15 shall not be used.

- In each parameter substring, leading bit combinations 3/0 are not significant and may be omitted.
- If the parameter string starts with the bit combination 3/11, an empty parameter substring is assumed preceding the separator; if the parameter string terminates with the bit combination 3/11, an empty parameter substring is assumed following the separator; if the parameter string contains successive bit combinations 3/11, empty parameter substrings are assumed between the separators.
- An empty parameter substring or a parameter substring which consists of bit combinations 3/0 only represents a default value which depends on the control function.

#### 4.4.2 Types of parameters

There are two types of parameters: numeric parameters and selective parameters.

##### 4.4.2.1 Numeric parameters

In a control sequence representing a control function with numeric parameters, each parameter substring corresponds to one parameter.

The number of parameters is fixed and depends on the control function. If the control function has more than one numeric parameter, and some (but not all) parameter substrings are omitted, the separators (bit combination 3/11) must still be present. Only if all parameter substrings are omitted, are the separators not required.

Each numeric parameter substring which contains at least one bit combination from 3/1 to 3/9 represents a number in decimal notation.

##### 4.4.2.2 Selective parameters

In a control sequence representing a control function with a selective parameter, each parameter substring represents one value of the selective parameter. These values, whilst expressed by digits, are not quantitative. Each corresponds to one of the actions the control function can perform. Neither the maximum number of values nor the order in which the corresponding actions are performed are prescribed by this standard. The effect of a sequence of values corresponding to conflicting actions depends on implementation.

A particular parameter value may have the same meaning as a combination of two or more separate values.

ANNEX E

(to Recommendation S.61)

**Standardized options**

1      General

1.1    This Annex contains detailed definitions that shall be used to implement Teletex standardized options included in the Teletex repertoire of graphic characters and control functions.

2      Definitions

2.1    The definition contained in Section 2 of the Recommendation shall apply unless explicitly amended.

2.2    Additional definitions are for further study.

3      Teletex character repertoire

3.1    Teletex optional repertoire of graphic characters

For further study.

3.2    Teletex optional repertoire of control functions

Note - For the definition of optional control functions and the associated optional parameter values, the appropriate ISO standards should be considered.

3.2.1    Format effectors

ID    ABBREV.    NAME and DEFINITION

CF20 RLF    Reverse line feed - A format effector that moves the active position to the corresponding character position on a preceding line, defined by the current value of the vertical spacing (see SVS).

3.2.2    Presentation control functions

ID    ABBREV.    NAME and DEFINITION

CP01 PFS    Page format selection

(Definition: see Section 3.3.3 of the Recommendation)

The meaning of the parameter value is:

- 0: vertical basic page format \*;
- 1: horizontal basic page format \*;
- 2: vertical A4 page format;
- 3: horizontal A4 page format.

CP04 SHS      Select horizontal spacing

(Definition: see Section 3.3.3 of the Recommendation)

The meaning of the parameter value is:

- 0: 10 characters per 25,4 mm \*;
- 1: 12 characters per 25,4 mm \*;
- 2: 15 characters per 25,4 mm \*.

CP05 SVS      Select vertical spacing

(Definition: see Section 3.3.3 of the Recommendation)

The meaning of the parameter value is:

- 0: 6 lines per 25,4 mm \*;
- 1: 4 lines per 25,4 mm \*;
- 2: 3 lines per 25,4 mm \*;
- 3: 12 lines per 25,4 mm \*;
- 4: 8 lines per 25,4 mm;
- 5: 6 lines per 30,0 mm;
- 6: 4 lines per 30,0 mm;
- 7: 3 lines per 30,0 mm;
- 8: 12 lines per 30,0 mm.

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\* As defined for the basic Teletex service.

4      Coded representations

4.1    Optional graphic character sets

For further study.

4.2    Optional control functions

4.2.1    Format effectors

ID    ABBREV.    CODED REPRESENTATION

CF20 RLF                  8/13