INTERNATIONAL TELECOMMUNICATION UNION

ITU-T T.351

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

TERMINAL EQUIPMENT AND PROTOCOLS FOR TELEMATIC SERVICES

IMAGING PROCESS OF CHARACTER INFORMATION ON FACSIMILE APPARATUS

ITU-T Recommendation T.351

(Extract from the *Blue Book*)

NOTES

1 ITU-T Recommendation T.351 was published in Fascicle VII.5 of the *Blue Book*. This file is an extract from the *Blue Book*. While the presentation and layout of the text might be slightly different from the *Blue Book* version, the contents of the file are identical to the *Blue Book* version and copyright conditions remain unchanged (see below).

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

Recommendation T.351

IMAGING PROCESS OF CHARACTER INFORMATION ON FACSIMILE APPARATUS

(Melbourne, 1988)

0 Introduction

This Recommendation defines the page formatting characteristics of the information conversion process, for imaging character-information on a facsimile apparatus.

1 Scope and field of application

This Recommendation intends to specify the method for positioning in a correct manner character structured messages, in facsimile pages, conforming to the format defined in Recommendation T.4 Group 3 facsimile apparatus, and Recommendation T.563 for facsimile Group 4 apparatus. The intention is to insure the printing of the information inside the guaranteed printable area of the facsimile pages.

This Recommendation specify in terms of facsimile picture elements (pels), the initial position and spacing of the characters along the lines and the spacing between the lines, for creating a facsimile page from the character structured information. It does not define neither the shape, nor the repertoire of the characters to be imaged, which is of the responsibility of the application.

Different types of character encoded information, to be printed on both Group 3 and Group 4 facsimile apparatus, are considered, namely teletex, telex, videotex and IA 5 text.

Consideration of mixed mode information requires further study.

This Recommendation applies when interworking implying image conversion between different type of information, including facsimile, is required within a regulated service, such as MHS service.

2 References

- Recommendation F.1: Operational provisions for the international public telegram service.
- Recommendation S.5: Standardization of page-printing start-stop equipment and cooperation between page-printing and tape-printing start-stop equipment (ITA No. 2).
- Recommendation T.4: Standardization of Group 3 facsimile apparatus for document transmission.
- Recommendation T.50: International Alphabet No.5.
- Recommendation T.60: Terminal equipment for use in the Teletex service.
- Recommendation T.61: Character repertoire and coded character sets for the international Teletex service.
- Recommendation T.563: General aspects of Group 4 facsimile apparatus.
- Recommendation X.408: Message handling systems: Encoded information type conversion rules.

3 Definitions

See the Recommendations quoted in reference.

4 Basic principles

The figures given in this Recommendation, in terms of number of picture elements and facsimile lines, refer to the standard values defined for the resolution in Recommendation T.4 for Group 3 facsimile apparatus (1728 pels/215 mm and 3.85 lines/mm), and in Recommendation T.563 for Group 4 facsimile apparatus (1728 pels/219.46 mm and 200 lines/25.4 mm).

These figures are defined relatively to the transmitted facsimile lines.

The reference position of the first character line is defined using the base line and home position concepts, as defined in Recommendation T.60, Annexes A and B.

5 Imaging of Teletex messages

The figures of this Recommendation are derived from the figures given in Recommendation T.60 for the basic printable area of Teletex, with the same capability of printing a defined number of characters in the left margin, relatively to the home position.

The Teletex pages, to be imaged on facsimile equipments, conform to the character repertoire and character sets defined in Recommendation T.61 and to the pages formats defined for the basic printable area in Recommendation T.60.

5.1 *Reference position*

Table 1/T.351 defines the position of the 5th base line and of the home position, relatively to which is referred the first line of written text, according to Recommendation T.60.

Both horizontal and vertical orientations of the paper are considered. For the horizontal orientation, it is assumed that the printing on the facsimile equipment is performed, starting from the left side of the written text.

TABLE 1/T.351

Reference position for printing Teletex pages

	Home position		5th base line	
	Horizontal orientation (fax line)	Vertical orientation (pel)	Horizontal orientation (pel)	Vertical orientation (fax line)
Fax G3	79th	205th	1474th	82th
Fax G4	148th	205th	1474th	164th

5.2 *Character spacing*

From the figures of Table 1/T.351, the first character position on each line is defined; the following characters along the line are positioned according to a character spacing value. Table 2/T.351 defines the values to be used for imaging the characters along the lines, depending on the possible value of the spacing defined for the Teletex page format.

TABLE 2/T.351

Values of character spacings

	Character spacing value		
	Defined for Teletex (mm)	Horizontal orientation (fax line)	Vertical orientation (pels)
Fax G3	2.54	10	20
	2.12	8	16
	1.69	7	14
Fax G4	2.54	20	20
	2.12	16	16
	1.69	14	14

5.3 *Line spacing*

The position of the first character line in the facsimile page is defined from the figures of Table 1/T.351; the

following character line are positioned according to a line spacing value. Table 3/T.351 defines the values to be used for imaging the characters lines on the facsimile page, depending on the line spacing value defined for the Teletex page format.

TABLE 3/T.351

Values of line spacing

Line spacing value			
	Defined for Teletex (mm)	Horizontal orientation (pels)	Vertical orientation (pels)
Fax G3	4.23	32	16
	6.35	48	24
	8.47	64	32
	3.175	24	12
	5	38	19
Fax G4	4.23	32	32
	6.35	48	48
	8.47	64	64
	3.175	24	24
	5	38	38

5.4 *Superscript/subscript*

In the Teletex message, the superscript and subscript functionalities, result in an offset in the printing position of the concerned characters. The allowed offset value for imaging the Teletex pages on the facsimile page is defined in Table 4/T.351.

TABLE 4/T.351

Offset values for supercript/subscript

Offset value			
	Defined for Teletex (mm)	Horizontal orientation (pels)	Vertical orientation (fax lines)
Fax G3	2.12	16	8
Fax G4	2.12	16	16

6 Imaging of Telex messages

The telex messages conform to the character set defined in Recommendation F.1, and to the format defined in Recommendation S.5.

When imaged on a facsimile equipment, the telex messages are divided in pages of 55 text lines, as a maximum.

Only the vertical orientation of the paper is to be considered.

The first character of each text line in a page is positioned according to the home position defined in Table 1/T.351.

The first line is referred to the 5th base line, as defined in Table 1/T.351.

The character spacing values to be used are those defined in Table 2/T.351 for the 2.54 mm spacing.

The line spacing values to be used are those defined in Table 3/T.351 for the 4.23 mm spacing.

7 Imaging of videotex messages

For further study.

8 Imaging of IA 5 text messages

IA 5 messages conform to the character set defined in Recommendation T.50.

When imaged on a facsimile equipments, IA 5 messages are formatted in pages of 55 lines of 80 characters.

Only the vertical orientation of the paper is to be considered.

The first character of each text line in a page is positioned according to the home position defined in Table 1/T.351.

The first line is referred to the 5th base line, as defined in Table 1/T.351.

The character spacing values to be used are those defined in Table 2/T.351 for the 2.12 mm spacing.

The line spacing values to be used are those defined in Table 3/T.351 for the 4.23 mm spacing.