TERMINAL CHARACTERISTICS FOR MIXED MODE OF OPERATION MM

CONTENTS

The CCITT,

considering

(a) that telematic services have been defined or are going to be defined for a number of applications;

(b) that these applications, in some cases, can be conveniently combined into one single terminal to give improved performance to the users of these terminals;

(c) that standardization work has been aiming at common protocols and compatible parameters for various equipments and procedures;

(d) that teletex and Group 4 facsimile seem particularly suited to form a common service where required;

(e) that other services already defined or under study could be incorporated,

unanimously declares

that mixed mode characteristics should be designed and operated in accordance with the following standards.

1 Scope

1.1 The international teletex service requirements to the mixed mode of operation MM.1 are defined in Recommendation F.230.

1.2 the service requirements for Group 4 facsimile service related to the mixed mode of operation MM.1 are defined in Recommendation F.161.

1.3 This Recommendation defines terminal characteristics unique to the mixed mode of operation MM.1.

2 Field of application

This Recommendation applies to terminal equipment of the teletex service or the Group 4 facsimile service supporting the mixed mode of operation MM.1.

3 References

The following CCITT Recommendations also apply to equipments for mixed mode of operations:

- Rec. T.6: "Facsimile coding schemes and coding control functions for Group 4 facsimile apparatus";
- Rec. T.60: "Terminal equipment for use in teletex service";
- Rec. T.61: "Character repertoire and coded character sets for the international teletex service";
- Rec. T.62: "Control procedures for the teletex and Group 4 facsimile services";
- Rec. T.70: "Network-independent basic transport service for telematic services";
- Rec. T.400 Series: "Document architecture transfer and manipulation";
- Rec. T.501: "A document application profile MM for the interchange of formatted mixed mode documents";
- Rec. T.522: "Communication application profile BT1 for document bulk transfer";
- Rec. T.563: "Terminal characteristics for Group 4 facsimile apparatus".

4 Definitions

Terms and their definitions are defined by Recommendation listed above.

5 General characteristics of the equipment

5.1 General

5.1.1 Equipments supporting mixed mode of operation MM.1 shall provide a set of basic features. The ability to provide this minimum set of basic features is indicated and negotiated before the document interchange.

5.1.2 These equipments may in addition to the set of basic features provide other facilities. These facilities are negotiated separately from the set of basic features defined below.

5.2 Basic features required for equipments supporting mixed mode MM.1

The basic features required for equipments supporting mixed mode of operation are:

5.2.1 The ability to create, transmit and receive documents conforming to the document application profile MM.1 defined in Recommendation T.501;

5.2.2 The ability to interchange documents by using the application context defined in § 7.1 of this Recommendation;

5.2.3 The ability to handle the ISO A4 nominal page defined in § 6.1.1.3 and to provide, at least, the assured reproduction area which is defined for ISO A4 paper size in § 6.1.1.4.

5.2.4 The ability to receive and present documents, composed of:

a) one (or more) page(s) containing only content belonging to the teletex basic repertoire of Recommendation T.61;

b) one (or more) page(s) containing only content encoded by the raster graphics coding scheme defined in Recommendation T.6;

c) one (or more) page(s) containing content encoded as per a) and b);

d) any combination of pages defined in a), b) and c).

5.2.5 For characters and raster graphics content, the ability to handle the basic features defined by Recommendation T.501.

5.2.6 The ability to create blocks of different sizes which can overlap within the page.

5.2.7 The ability to process up to 31 received blocks for presentation as a single page, without using negotiation.

5.2.8 The ability to handle the call identification line information (see § 6.1.2).

5.3 Non═basic features for mixed mode

One or more additional features listed in this section may be provided by a terminal supporting mixed mode. These features have to be negotiated before the interchange of the mixed mode document.

5.3.1 The ability to handle the nominal page and to provide, at least, the assured reproduction area which are defined for North American letter paper size, ISO A3 paper size, Japanese legal and Japanese letter paper sizes (see §§ 6.1.1.3 and 6.1.1.4).

5.3.2 The ability to process more than 31 received blocks for presentation as a single page;

5.3.3 The ability to negotiate additional presentation characteristics for particular blocks of the document for character and raster graphics content. These non-basic characteristics are specified in Recommendation T.501.

6 Document handling

6.1 Requirements for the imaging process

6.1.1 Dimensions for text presentation

6.1.1.1 Basic measurement unit (BMU)

The size of the basic measurement unit (BMU) is 1/1200 ≙ 25.4 mm if the output medium is paper and the locally defined scaling factor is one. To avoid introducing positioning errors between the mandatory image resolutions, it is preferred that the positioning of layout objects to specified in multiples of 20 BMU.

6.1.1.2 Paper size

Different physical paper sizes can be used for presentation of mixed mode information. Such paper sizes are ISO A4 paper size (210 ≟ 297 mm), North American letter paper size (215.9 ≟ 279.4 mm), ISO A3 paper size (297 ≟ 420 mm), Japanese legal paper size (257 ≟ 364 mm) and Japanese letter paper size (182 ≟ 257 mm).

6.1.1.3 Pages and nominal pages

As defined in Recommendation T.412, a page is a rectangular area used as the reference area for positioning and imaging the content of the document. The page is intended to be positioned and imaged on a unit of the presentation surface. The ideal size of the presentation surface, as assumed by the sender of a document is the nominal page. This nominal page is equal to the ideal paper sized used (see below). In this Recommendation, the page may be equal to or smaller than the nominal page of the corresponding physical paper format.

The following nominal page are defined, showing the maximum allowed dimensions of "page" layout objects:

a) nominal page for the ISO A4 paper size:

- width 9 920 BMU (210 mm);
- height 14 030 BMU (297 mm);

b) optional nominal page for the North American letter paper size:

- width 10 200 BMU (215.9 mm);
- height 13 200 BMU (279.4 mm);

c) optional nominal page for the ISO A3 paper size:

- width 14 030 BMU (297 mm);
- height 19 840 BMU (420 mm);

d) optional nominal page for Japanese legal paper size:

- width 12 141 BMU (257 mm);
- height 17 196 BMU (364 mm);

e) optional nominal page for Japanese letter paper size:

- width 8 598 BMU (182 mm);
- height 12 141 BMU (257 mm).

The pages defined above describe the presentation of text information on the specified paper sizes in both the vertical and horizontal image orientations.

6.1.1.4 Assured reproduction area

Hard-copy devices must allow for the possibility of edge losses cause, for example by the optional printing of a call identification line at the receiver, by tolerances on the physical paper size, and by equipment tolerances (see Annex A of Recommendation T.60). In order to cater for these edge losses, an assured reproduction area is defined which is the rectangular area that remains one the nominal page after deducting an agreed allowance for edge losses.

For the option of printing a call identification line, an area at the top of the page is reserved. The same area is used for both vertical and horizontal image orientations, If used, the call identification line is to be printed on the second character baseline which is 400 BMU (8.466 mm) from the X-axis. The reserved area consists of 72 characters boxes, each 120 BMU in width and 200 BMU in height, starting at 945 BMU (20 mm) from the Y-axis and extending for 8640 BMU. The maximum

permitted character baseline offset of these character boxes is 72 BMU, so that the area of assured reproduction starts at 472 BMU (10 mm) from the X-axis. Any interchanged text in the area of these character boxes may be suppressed, to avoid obscuring the image of the call identification line.

The assured reproduction areas are defined as follows:

a) ISO A4 assured reproduction area:

- width = 9 240 BMU;
- height = 13 200 BMU;
- top margin = 472 BMU;
- left margin = 345 BMU;

b) North American letter assured reproduction area:

- width = 9 240 BMU;
- height = 12 400 BMU;
- top margin = 472 BMU;
- left margin = 345 BMU;

c) ISO A3 assured reproduction area:

- width = 13 200 BMU;
- height = 18 480 BMU;
- top margin = 472 BMU;
- left margin = 345 BMU;

d) Japanese legal assured reproduction area:

- width = 11 200 BMU;
- height = 15 300 BMU;
- top margin = 900 BMU;
- left margin = 400 BMU;

e) Japanese letter assured reproduction area:

- width = 7 600 BMU;
- height = 10 200 BMU;
- top margin = 900 BMU;
- left margin = 400 BMU.

The assured reproduction areas for ISO A4, North American letter, ISO A3, Japanese legal and Japanese letter paper sizes are illustrated in Figure 1/T.561, Figure 2/T.561, Figure 3/T.561, Figure 4/T.561 and Figure 5/T.561 respectively, showing the maximum edge losses on each paper edge. The indicated edge losses are based on the idealized or nominal paper sizes as defined in § 6.1.1.2 and do not take account of paper size tolerances.

Raster graphics image parameters, for the image dimensions mentioned in Figures 1/T.561 and 2/T.561 are shown for reference in Table 1/T.561.

Note - These edge margin values are shown for reference only and do not take account of tolerances on either paper sizes or insertion angles.

FIGURE 1/T.561

Nominal page and assured reproduction area for ISO A4 paper size

Note - The indicated size and location of the assured reproduction area accommodates ISO 3535 forms UN/ECE trade documents, and the printed line lengths of the basic teletex service (i.e. 77 characters at 10 characters per 25.4 mm) for the ISO A4 paper size. For the North American letter paper size, it also accommodates ISO 3535 forms and UN/ECE trade documents, as used for that paper size.

FIGURE 2/T.561

Nominal page and assured reproduction area for the North American letter paper size

FIGURE 3/T.561

Nominal page and assured reproduction area for ISO A3 paper size

FIGURE 4/T.561

Nominal page and assured reproduction area for Japanese legal paper size

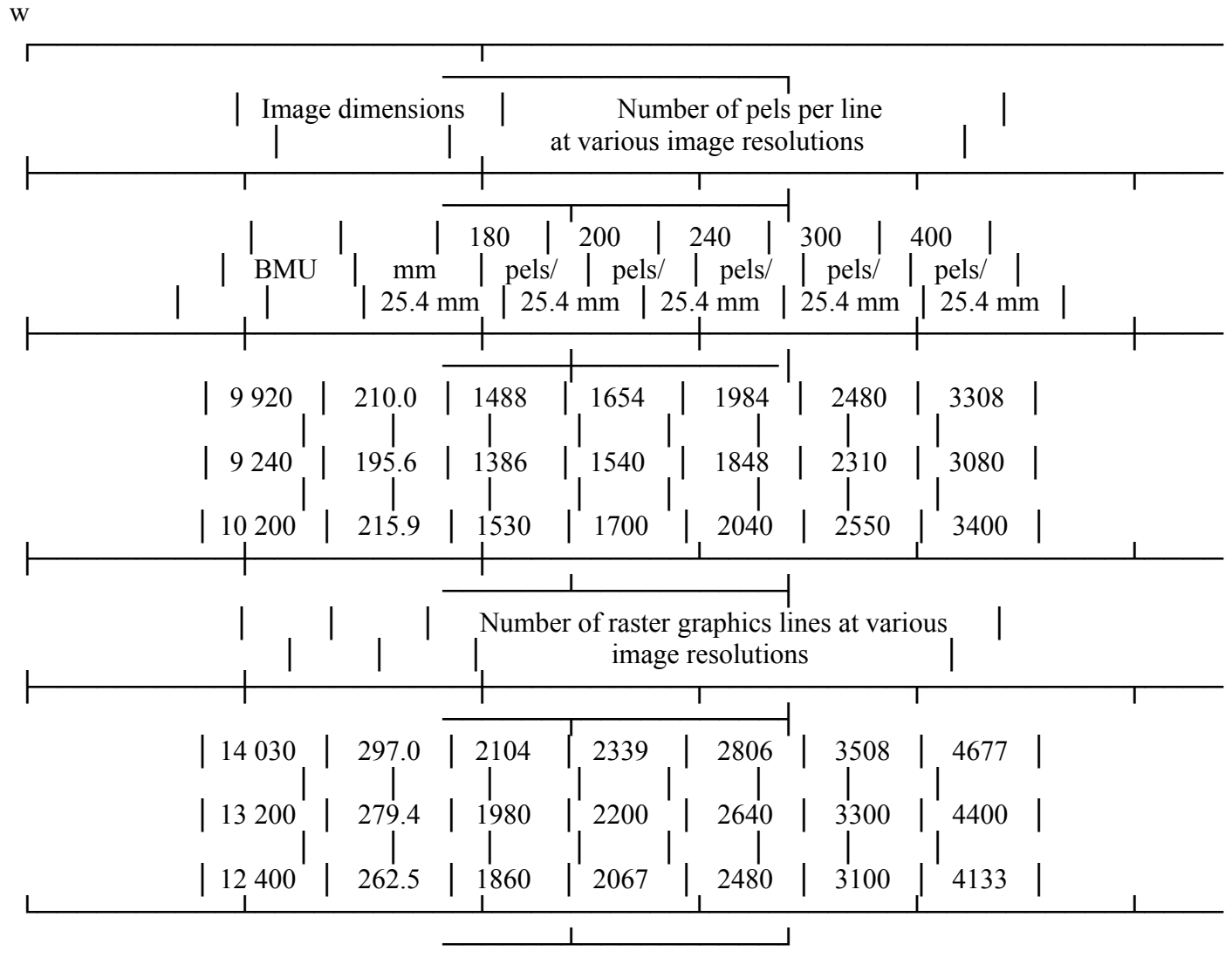
FIGURE 5/T.561

Nominal page and assured reproduction area for Japanese letter paper size

TABLE 1/T.561

Parameters for raster graphics images with dimensions equal to the dimensions shown in Figures 1/T.561 and 2/T.561

(For reference only)



6.1.1.5 Positioning of the page relative to the nominal page

The rules defined in Recommendation T.412, § 7.3.2 apply.

6.1.2 Call identification line (CIL)

6.1.2.1 The basic CIL presentation rules as defined in Recommendation F.200 should apply.

6.1.2.2 For printing CIL, an area, as defined in § 6.1.1.4 is provided.

6.1.3 Fall=back techniques

Some basic and non-basic features described in Recommendation T.501 are allowed to be approximated using fall-back techniques.

This paragraph determines the fall-back procedure which may be used by the recipient if features present in the

interchanged document are not locally available.

The table below identifies the features for which fall-back procedure may be used. All other features, not listed in this table, must not be approximated.
w

Features	Fall-back
Bold	Italicized or underlined
Italicized	Bold or underlined

6.2 Requirements for the formatting process

Not applicable.

7 Communication aspects

7.1 Application context for interchange of MM documents

7.1.1 Application context name

The value of the "application context name" parameter is the following object identifier value: {0 0 20 561 0}.

7.1.2 Use of application service elements

7.1.2.1 Use of DTAM services

The DTAM service element (DTAMSE) is described in Recommendation T.432. For this application context, the use of DTAMSE is defined in Recommendation T.522.

Specific parameter values to be used in the D-INITIATE service parameter are:

- the parameter value to represent the document application profile for mixed mode MM, defined in Recommendation T.501, is the object identifier value: {0 0 20 501 0}.

- the parameter value to represent the document application profile for processable mode PM.1, defined in Recommendation T.502, is the object identifier value: {0 0 20 502 0}.

7.1.2.2 Use of association control service element (ACSE)

The ACSE is described in Recommendation X.217. For this application context, DTAMSE is the sole user of the ACSE services.

Note - The use of reliable transfer service element (RTSE) is for further study.

7.1.3 Use of presentation service

The presentation service is defined in Recommendation X.216. The ACSE is the sole user of the P-CONNECT, P-RELEASE, P-U-ABORT and P-P-ABORT services of the presentation service. For this application context, DTAMSE is the sole user of the other presentation services required for using the session functional units specified in § 7.1.4.

7.1.4 Use of session service

The following session functional units are mandatory:

- kernel;
- half duplex;
- capability data exchange;
- minor synchronization;
- exceptions;
- activity management.

Note - When the sender cannot know before the communication the nature of the receiver (Recommendation T.62 based or Recommendation X.200 based equipment), it is requested, for an interim period, that the "service identifier"

parameter be present in the CONNECT SPDU.

7.1.5 Use of transport service

The transport service is described in Recommendation X.214. The protocol shall be in accordance with Recommendation X.224, Class 0.

Note - When the sender cannot know before the communication the nature of the receiver (Recommendation T.62 or Recommendation X.200 based equipment), it is requested, for an interim period, that additional rules in accordance with Recommendation T.70, § 5, including Annexes A and B [1], be applied in addition to Recommendations X.214/X.224.

7.2 Coding schemes available

7.2.1 Recommendation T.61 defines the coding scheme to be used for character coded text.

7.2.2 Recommendation T.6 defines the coding techniques to be used for raster graphics.

7.3 Pel spacing for raster graphics content

7.3.1 Equipments must provide the capability to receive raster graphics content using pel spacings of 4 and 5 BMU which correspond respectively to pel transmission densities of 300 and 240 pels per 25.4 mm in both horizontal and vertical directions.

7.3.2 Optional pel spacing may be negotiated (see § 5.3).

7.4 Orientation of mixed-mode page for transmission

The intended viewing orientation of mixed-mode pages may be either vertical or horizontal. For the transmission of the page the orientation shall be vertical.

7.5 Receiving capabilities

7.5.1 The negotiation of the storage capacity is mandatory for equipments providing mixed mode of operation.

8 Interworking between basic teletex equipments and teletex equipments support MM and/or PM.1

8.1 General

For teletex equipments supporting MM and/or PM.1:

- basic teletex documents are to be interchanged according to the rules defined in Recommendation T.62 bis;

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

Figure 6/T.561 below illustrates the two different sets of rules to be used by teletex equipments depending on the interchanged document format.

Note - Recommendation T.70 bis has to be specified in the future.

FIGURE 6/T.561

Illustration of the communication rules to be used by teletex equipment supporting PM.1 and/or MM

8.2 Interworking rules

8.2.1 The basic teletex equipment is the sender

The only type of document that can be sent by the basic teletex equipment is the basic teletex document. The sender will therefore send this type of document by using Recommendations T.62 and T.70.

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

8.2.2 The PM.1 and/or MM teletex equipment is the sender

8.2.2.1 The recipient is a basic teletex equipment

If the document type to be transmitted is a basic teletex document, the sender will initiate the communication by selecting case a) and the basic teletex equipment can accept the document.

If the document type to be transmitted is a PM.1 and/or MM document, the sender will initiate the communication by selecting case b).

The sender will then receive an ACCEPT SPDU without session user data. This allows the sender to recognize that the receiver is a basic teletex equipment and therefore that the documents are to be interchanged in a basic teletex format by using case a).

The sender could then inform the user that the interchange of the PM.1/MM documents is not possible as the addressee is a basic teletex equipment.

8.2.2.2 The recipient is a PM.1 and/or MM teletex equipment

If the document type to be transmitted is a basic teletex document, the sender will initiate the communication by selecting case a) and the rules specified in § 8.2.1 apply.

If the document type to be transmitted is a PM.1 or MM teletex document, the sender will initiate the communication by selecting the case b).

The recipient will detect the presence of session user data and therefore will select the T.522 module to give an adequate response to the sender.

[)] These rules are to be specified in future Recommendation T.70 bis.