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Terminalska oprema (TE) – Oprema za faksimilno skupino 3

Terminal Equipment (TE); Group 3 facsimile equipment

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Foreword

This second edition European Telecommunication Standard (ETS) has been produced by the Terminal Equipment (TE) Technical Committee of the European Telecommunications Standards Institute (ETSI).

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1 Scope

This second edition European Telecommunication Standard (ETS) specifies the technical characteristics to be met by Group 3 facsimile equipment to enable reliable document interchange between compliant equipment. This edition contains amendments to align the text with the relevant ITU-T Recommendations current at the end of December 1994 and also to correct some editorial errors and it cannot be fully applied to equipment designed to later versions of the relevant ITU-T Recommendations.

The ETS does not contain the requirements for Public Switched Telephone Network (PSTN) access, safety or Electromagnetic Compatibility (EMC).

All tests necessary to check conformance to this ETS are included in annex B (normative), which is an integral part of this ETS.

2 Normative references

This ETS incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to, or revisions of any of these publications apply to this ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

[1] ETS 300 001: "Attachments to Public Switched Telephone Network (PSTN); General technical requirements for equipment connected to an analogue subscriber interface in the PSTN".

[2] ITU-T Recommendation T.4 (1994): "Standardization of Group 3 facsimile apparatus for document transmission".

[3] ITU-T Recommendation T.30 (1994): "Procedures for document facsimile transmission in the general switched telephone network".

[4] ITU-T Recommendation T.22 (1994): "Standardized test charts for document facsimile transmission".

[5] ITU-T Recommendation V.17 (1991): "A 2-wire modem for facsimile applications with rates up to 14 400 bit/s".

[6] ITU-T Recommendation V.27 ter (1989): "4 800/2 400 bits per second modem standardized for use in the general switched telephone network".

[7] ITU-T Recommendation V.29 (1989): "9 600 bits per second modem standardized for use on point-to-point 4-wire leased telephone-type circuits".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of this ETS, the following definitions apply:

NOTE: In addition to the definitions shown below, the definitions given in ITU-T Recommendations T.4 [2], T.30 [3] and T.22 [4] also apply.

group 3 facsimile terminal equipment: This is referred to throughout this ETS as the "facsimile equipment".

extended configuration: Includes within its own domain at least two independently addressable sinks and/or two independently addressable sources of facsimile traffic to the public network. An implementation which is designed to be completely physically included within a personal computer is considered as an extended configuration.

3.2 Abbreviations

For the purposes of this ETS, the following abbreviations apply:

ac	alternating current
CED	Called Station Identification
CFR	Confirmation to Receive
CIG	Calling Subscriber Identification
CNG	Calling Tone
CRP	Command Repeat
CSI	Called Subscriber Identification
CTC	Continue To Correct
dc	direct current
DCN	Disconnect
DCS	Digital Command Signal
DIS	Digital Identification Signal
DTC	Digital Transmit Command
ECM	Error Correction Mode
EMC	Electromagnetic Compatibility
EOL	End of Line
EOM	End of Message
EOP	End of Procedure
FIF	Facsimile Information Field
FCF	Facsimile Control Field
FCS	Frame Checking Sequence
FTT	Failure to Train
LAN	Local Area Network
MCF	Message ConFirmation
MPS	Multi Page Signal
PABX	Private Automatic Branch Exchange
pel	picture elements
PIN	Procedural Interrupt Negative
PIP	Procedural Interrupt Positive
PPR	Partial Page Request
PPS-EOP	Partial Page Signal - End of Procedure
PPS-MPS	Partial Page Signal - Multi Page Signal
PPS-NULL	Partial Page Boundary Signal
PSTN	Public Switched Telephone Network
RNR	Receive Not Ready
RTC	Return to Control
RTN	ReTrain Negative
RTP	ReTrain Positive
SUT	System Under Test
TCF	Training Check
TSI	Transmitting Subscriber Identification

4 General requirements

General requirements concerning access to the PSTN, safety and EMC requirements are not contained in this ETS.

5 Technical characteristics

5.1 General

The facsimile equipment shall comply with the requirements of ITU-T Recommendation T.4 [2], paragraphs 1, 2, 3, 4, 5, 6, 7, 8 and ITU-T Recommendation T.30 [3], paragraphs 1, 2, 3, 4.3, 5, and additional requirements as described in this ETS. The facsimile equipment may also include the optional error correction mode described in ITU-T Recommendation T.30 [3], annex A.

The testing specification is given in annex B.

Requirements for the scanner of the facsimile equipment based on test chart No. 4 of ITU-T Recommendation T.22 [4], are contained in annex A. This applies only if a physical scanner is implemented.

5.2 Features

Basic feature: A standardized feature which is mandatory for the certificate of conformity.

Optional feature: A standardized feature of facsimile equipment which may be used in a specified way to supplement the basic features and which incorporates compatibility between facsimile equipment. Optional features in this ETS are not mandatory but when implemented shall be implemented as described in this ETS for the certificate of conformity. The applicant shall state which optional features are to be certified.

Special feature: A non-standardized feature of facsimile equipment which can be used to supplement basic or optional features but which does not incorporate compatibility between facsimile equipment. A special feature shall not impair the compatibility of basic or optional features between facsimile equipment.

5.3 Transmitter

For equipment which is capable of sending only A5 and/or A6 size documents, the requirements for equipment capable of sending A4 size documents shall not be applied.

5.3.1 Document dimensions

The facsimile equipment shall be capable of accepting and scanning documents with dimensions of at least 212 mm x 299 mm.

5.3.2 Scanning track

The density of picture elements (pel)s along the scanned line shall be between 7,79 pel/mm (200 pels/25,4 mm -1 %) and 8,12 pel/mm (1 728 pels/215 mm +1 %). The basic scanned line contains 1 728 pels. This length is thus between 1 728/7,79 = 221,8 mm and 1 728/8,12 = 212,8 mm.

For implementations which use centre alignment of the document in the scanner, the reference position of the document shall be such that the centre of the document lies between picture elements 851 and 877 over the first 20 mm of the document.

For implementations which use right edge alignment of the document in the scanner, the reference position of the document shall be such that a point 10 mm from the right edge of the document lies between picture elements 1 623 and 1 648 over the first 20 mm of the document.

The applicant shall state which implementation has been used.

In addition to the basic line length, other lengths may be implemented.

The basic scanning density shall be between 3,81 line/mm (3,85 line/mm -1 %) and 3,98 line/mm (100 line/25,4 mm +1 %). In addition, the facsimile equipment may provide other scanning densities. The selection of the one used for message transmission shall be controlled by the transmitting equipment.

The document shall be positioned such that the first line to be coded and transmitted lies between 0 mm and 4 mm down the document from the top edge if the facsimile equipment does not transmit information related to its identity as part of the image signal. If the facsimile equipment does transmit information related to its identity as part of the image signal, then the first line to be coded and transmitted lies between 0 mm and 14 mm down the document from the top edge.

5.4 Receiver

For equipment which is capable of receiving only A5 and/or A6 size documents, the requirements for equipment capable of receiving A4 size documents shall not be applied.

The decoded picture elements shall be recorded as if the scanning direction was from left to right with subsequent recording lines adjacent to and below the previous line. The direction of recording refers to viewing the received copy in the vertical plane.

The density of picture elements along the recorded line shall be between 7,79 pel/mm and 8,12 pel/mm.

The effective minimum recorded line length shall be 200 mm.

For implementations which use centre alignment in the printer, the reference position of the recording medium shall be such that the centre of the recording medium lies between picture elements 851 and 877 over the first 20 mm of the document.

For implementations which use right edge alignment in the printer, the reference position of the recording medium shall be such that a point 10 mm from the right edge of the recording medium lies between picture elements 1 623 and 1 648 over the first 20 mm of the document.

The applicant shall state which implementation has been used.

In the case of facsimile equipment limited to A4 length received copies, the position of the recording medium shall be such that the first line to be recorded lies between 0 mm and 5 mm down the received copy from the top edge.

5.5 Performance

The performance of the facsimile equipment shall be evaluated using the ITU-T Facsimile Test Chart No. 4 detailed in ITU-T Recommendation T.22 [4]. Performance tests of the facsimile equipment are described in annex A of this ETS.

5.6 Control procedures for message transmission and reception

The facsimile equipment shall follow the binary coded control procedures detailed in ITU-T Recommendation T.30 [3].

As a basic feature, the facsimile equipment should transmit the appropriate subscriber identification signal Called Subscriber Identification (CSI)/Calling Subscriber Identification (CIG)/Transmitting Subscriber Identification (TSI) according to ITU-T Recommendation T.30 [3].

5.7 Received image quality

The received image quality criteria, if adjustable, should not be accessible to the operator.

The receiver shall interpret the received image as badly received and send the corresponding ReTrain Negative (RTN) or Procedural Interrupt Negative (PIN) signal during phase D of the facsimile procedure if more than 15 % of the detected lines are faulty.

The receiver shall interpret the received image as received with sufficient quality and send the corresponding Message ConFirmation (MCF), ReTrain Positive (RTP), Procedural Interrupt Positive (PIP) signal during phase D of the facsimile procedure if less than 5 % of the detected lines are faulty.

5.8 Facsimile switching

When power is not applied, the facsimile equipment shall remain disconnected from the telephone line, irrespective of the operation of any controls and of the status (e.g. ringing) of the line interface.

5.8.1 Automatic calling equipment

Automatic calling is not a mandatory feature.

5.8.2 Facsimile to telephone mode switching

The facsimile equipment shall disconnect itself from the telephone line:

- when the facsimile call is complete;
- when a time-out has expired as specified in ITU-T Recommendation T.30 [3];
- upon disconnection of the power.

5.9 Automatic and manual answering

In the automatic answering mode, if provided, the facsimile equipment shall answer incoming calls only if at least one of the following conditions exists:

- the facsimile equipment is not in an alarm state due to the lack of consumables;

- the facsimile equipment is able to transmit a message according to operating modes 2-R or 4-R as per ITU-T Recommendation T.30 [3].

If the facsimile equipment is capable of receiving or transmitting a message it shall, upon detection of the call, answer the call and automatically connect itself to the telephone line.

5.10 Extended configurations

In the case of an extended configuration the following applies:

Activity log

An activity log shall be provided which contains information regarding the results of communications.

The activity log shall be in non-volatile memory or shall be buffered.