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Integrated Services Digital Network (ISDN)
Facsimile group 4 class 1 on the ISDN;
Functional specification of the equipment

ETSI

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Foreword

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

Although based on CCITT Recommendations T.563 [1] and T.6 [2], this ETS is also related to other ETSI standards covering group 4 class 1 facsimile. These are ETSs 300 080 [3], 300 112 [4], 300 155 and 300 280.

Details of the full titles and dates of the above-mentioned Recommendations and ETSs are given in Clauses 1 and 2 of this ETS.

Annex A to this ETS is informative.

Transposition dates	
Date of latest announcement of this ETS (doa):	9th May 1994
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	9th August 1994
Date of withdrawal of any conflicting National Standard (dow):	9th February 1995

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1 Scope

This ETS specifies the technical characteristics of equipment offering group 4 class 1 facsimile functions for attachment to the Integrated Services Digital Network (ISDN). It is based upon CCITT Recommendation T.563 [1], and CCITT Recommendation T.6 [2].

A basic level of compatibility is provided between any two terminals, both nationally and internationally, so that they may communicate image-coded information to each other. This is to be achieved by requiring that terminals comply with ETSs 300 080 [3], 300 112 [4] and this ETS.

When there is a facsimile group 4 service, only facsimile equipment conforming to this specification may participate in the service. Facsimile equipment complying only to NET 3 can be connected to the ISDN, but may not participate in the service.

It is also permitted to connect group 4 class 1 facsimile equipment to the Telefax 4 Service via primary rate access (according to ETS 300 156). In this case, compliance with the B-channel requirements of ETS 300 080 [3] only (B-channel) is needed for group 4 class 1 facsimile equipment.

This ETS is related to 4 other ETSs on group 4 class 1 facsimile:

ETS 300 080 [3]	"Integrated Services Digital Network (ISDN); ISDN lower layer protocols for telematic terminals".
ETS 300 112 [4]	"Integrated Services Digital Network (ISDN); Facsimile group 4 class 1 equipment on the ISDN; End-to-end protocols".
prETS 300 155	"Facsimile group 4 class 1 equipment on the ISDN; End-to-end protocols tests (interconnection capability testing)".
ETS 300 280	"Integrated Services Digital Network (ISDN); Facsimile group 4 class 1 equipment on the ISDN, Terminal testing".

1.1 Field of application

This ETS covers group 4 class 1 facsimile equipment functionality only, as defined in CCITT Recommendations T.563 [1] and T.6 [2] with the following restrictions:

a) only black and white image types are considered, i.e. foreground and background or set and unset pels according to CCITT Recommendation T.417 [5];

b) only equipment connected to an ISDN in a circuit switched mode, at both basic and primary rate, are considered (ISDN packet switched mode, Public Switched Telephone Network (PSTN), Circuit Switched Public Data Networks (CSPDNs), and Packet Switched Public Data Networks (PSPDNs) are not considered);

c) only the Transport layer procedure defined in CCITT Recommendation T.70 [6], Section 5, is considered;

d) only the Session control procedures defined in CCITT Recommendation T.62 [7] or CCITT Recommendation T.62bis [8] are considered;

e) only documents defined as Class B of the Formatted Document Architecture (FDA) of CCITT Recommendation T.412 [9] are considered, i.e. facsimile documents;

f) Class A of Formatted Document Architecture (FDA) and basic Teletex documents are not considered;

g) only centre line page referencing is considered, i.e. number of pels per line divided by 2 (any further studies on this point may be reflected in a later edition 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] CCITT Recommendation T.563 (1988): "Terminal characteristics for group 4 facsimile equipment".

[2] CCITT Recommendation T.6 (1988): "Facsimile coding schemes and coding control functions for group 4 facsimile apparatus".

[3] ETS 300 080 (1992): "Integrated Services Digital Network (ISDN); ISDN lower layer protocols for telematic terminals".

[4] ETS 300 112 (1994): "Integrated Services Digital Network (ISDN); "Facsimile group 4 class 1 equipment on the ISDN; End-to-end protocols".

[5] CCITT Recommendation T.417 (1988): "Open document architecture (ODA) and interchange format - Raster graphics content architectures".

[6] CCITT Recommendation T.70 (1988): "Network-independent basic transport service for the telematic services".

[7] CCITT Recommendation T.62 (1988): "Control procedures for teletex and group 4 facsimile service".

[8] CCITT Recommendation T.62bis (1988): "Control procedures for teletex and G4 facsimile services based on Recommendations X.215 and X.225".

[9] CCITT Recommendation T.412 (1988): "Open document architecture (ODA) and interchange format - Document structures".

[10] CCITT Recommendation T.503 (1988): "A document application profile for the interchange of group 4 facsimile documents".

[11] CCITT Recommendation T.521 (1988): "Communication application profile BTO for document bulk transfer based on the session service (according to the rules defined in T.62bis)".

[12] CCITT Recommendation T.90 (1988): "Characteristics and protocols for terminals for telematic services in ISDN".

3 Abbreviations

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

CIL	Call Identification Line
CSPDN	Circuit Switched Public Data Network
ETS	European Telecommunication Standard
ETSI	European Telecommunications Standards Institute
FDA	Formatted Document Architecture
ISDN	Integrated Services Digital Network
ODA	Open Document Architecture
PSPDN	Packet Switched Public Data Network
PSTN	Public Switched Telephone Network

4 General requirements

The group 4 class 1 facsimile equipment shall comply with the requirements of CCITT Recommendations T.563 [1], T.6 [2], T.70 [6], T.503 [10], T.521 [11], T.90 [12] and ETSs 300 080 [3] and 300 112 [4].

Additional requirements are described in the following clauses.

5 Group 4 class 1 facsimile equipment general characteristics

5.1 Basic characteristics

The group 4 class 1 facsimile equipment shall provide means for automatic reception.

5.2 Basic functions

Synthesizing the documents to be transmitted is permitted as an alternative to physical scanning.

5.2.1 Resolution

See CCITT Recommendation T.563 [1], § 3.2.7 and § 3.2.8.

5.3 Scanning

Equipment which does not include a physical scanner shall have the ability to accept input from a physical scanner.

5.4 Printer or display

The printer is optional and its provision depends on user needs; however, a group 4 class 1 facsimile equipment shall be able to output a received document to a printer.

If the received document is displayed in "soft" form (e.g. on a visual display unit), it shall not be necessary for the whole document to be displayed at once. However, the user shall be able to display the other parts of the document (e.g. by scrolling).

5.5 Terminal identification

Each group 4 class 1 facsimile equipment shall be equipped with the means of inserting an identification.

The group 4 class 1 facsimile equipment shall provide the means for entering the called terminal address and/or the called terminal number. The ability to enter the mnemonic part is optional.

Document transmitting shall take place only if the values of all mnemonic characters entered in the calling station match sequentially from the beginning the values of the mnemonic characters received from the called station. The group 4 class 1 facsimile equipment shall not distinguish between capital and small letters (e.g. "ABCDEF" shall be considered to match "abCDef").

It shall be necessary to introduce the identification in the equipment. The two methods for the installation of the terminal identification (TID) are:

- downloading by authorized persons;

- introduction by authorized persons.

5.6 Call Identification Line (CIL)

The group 4 class 1 facsimile equipment shall be able to provide the date and time information required in the Call Identification Line (CIL) from the network or internal clock. This information shall be obtained on a per call basis when this facility is provided by the network. If the network does not provide this facility, the terminal shall obtain the information from the internal clock and calendar.

The capability of presenting the CIL shall be implemented and its use is optional.

5.7 Default conditions

As well as the basic characteristics and functions listed in this ETS, the group 4 class 1 facsimile equipment, may provide additional features, e.g. reduction and enlargement can be provided at the transmitter. The optional features can be some or all of those standardized by the CCITT and/or ones for private use.

6 Reproducible area

6.1 Scanning track

The reference position of the document shall be such that the centre of the document lies between picture elements 851 and 877 in the case of a pel transmission density of 200 pels per 25,4 mm ± 1 % over the first 20 mm of the document.

In addition to the basic scanning line length of 219,4 mm, other optional scanned lines may be implemented.

6.2 Presentation

In the case where a CIL is reproduced at the top of the page then at least lines 66 to 2 309 in the case of a pel transmission density of 200 pels per 25,4 mm ± 1 %, inclusive of the transmitted document, shall be reproduced.

In the case where a CIL is reproduced at the bottom of the page then at least lines 33 to 2 276 in the case of a pel transmission density of 200 pels per 25,4 mm ± 1 %, inclusive of the transmitted document, shall be reproduced.

Decoded pels 78 to 1 651 in the case of a pel transmission density of 200 pels per 25,4 mm ± 1 % inclusive shall be reproduced along each line.

7 Maximum receiving time

The transfer time from a tester to group 4 class 1 facsimile equipment for an electronically synthesized "slerexe letter", as measured from having received CONNECT-message to having received DISCONNECT-message at the receiving side, shall not be greater than 30 seconds at 200 pels resolution.

8 Optional group 3 aspects

Optional group 3 aspects will be specified in a separate ETS.

9 Use and management of the group 4 class 1 facsimile equipment

The group 4 class 1 facsimile equipment shall be able automatically to restore operability after a power failure.

The activity log is optional. If an activity log is provided, the information of the activity log shall be in chronological order without any gaps. The activity log shall, at least, contain the CIL for each document sent or received.

When an ABORT or a DISCARD is received at the session layer, an indication shall be given to the user (sending and receiving sides).

10 Extended features

An extended features configuration is defined as one which includes within its own domain, at least two independently addressable sinks and/or two independently addressable sources of group 4 facsimile traffic to the ISDN. For the purposes of this ETS, an implementation which is designed to be completely physically included within a personal computer is considered as an extended configuration.

In the case of an extended features configuration, the following applies:

Activity log

An activity log shall be provided which contains information regarding the results of communications. This information shall be in chronological order without any gaps.

The activity log shall be in non-volatile memory or shall be buffered for at least 72 hours.

Message waiting indication

The group 4 class 1 facsimile equipment shall provide a facility to indicate received messages in memory.

Message memory

When facsimile messages are stored in a volatile memory, an indication shall be required after a power failure.

Annex A (informative): Bibliography

The following informative references are given in this ETS.

NET 3 ETS 300 153 (1992): "Integrated Services Digital Network (ISDN); Attachment requirements for terminal equipment to connect to an ISDN using ISDN basic access (NET 3, Part 1)".

ETS 300 104 (1991): "Integrated Services Digital Network (ISDN); Attachment requirements for terminal equipment to connect to an ISDN using ISDN basic access, layer 3 aspects (NET 3, Part 2)".

ETS 300 156 (1992) "Integrated Services Digital Network (ISDN); Attachment requirements for terminal equipment to connect to an ISDN using ISDN primary rate access candidate (NET 5)".

prETS 300 155 "Integrated Services Digital Network (ISDN); Facsimile group 4 class 1 equipment on the ISDN, End-to-end protocols tests (Interconnection capability testing)".

ETS 300 280 "Integrated Services Digital Network (ISDN); Facsimile group 4 class 1 equipment on the ISDN, Terminal testing".

History

Document history	
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