



# SLOVENSKI STANDARD SIST ETS 300 112 E1:2003

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**Digitalno omrežje z integriranimi storitvami (ISDN) – Faksimilna skupina 4, razred 1, za opremo v protokolih izvedbe ISDN konec-konec**

Integrated Services Digital Network (ISDN); Facsimile group 4 class 1 equipment on the ISDN; End-to-end protocols

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Digitalno omrežje z  
integriranimi storitvami  
(ISDN)

Integrated Services Digital  
Network (ISDN)

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**ETSI**

European Telecommunications Standards Institute

**ETSI Secretariat**

**Postal address:** F-06921 Sophia Antipolis CEDEX - FRANCE

**Office address:** 650 Route des Lucioles - Sophia Antipolis - Valbonne - FRANCE

**X.400:** c=fr, a=atlas, p=etsi, s=secretariat - **Internet:** secretariat@etsi.fr

Tel.: +33 92 94 42 00 - Fax: +33 93 65 47 16

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## Foreword

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

It is based upon the CCITT Recommendations stated in Clause 1 (Scope) and is closely related to the other ETSs given in Clause 1.

Annex A to this ETS is normative while Annexes B and C are informative.

The date of latest announcement of this ETS (doa):	9th May 1994
The date of latest publication of the new National Standard or endorsement of this ETS (dop/e):	9th August 1994
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## 1 Scope

This ETS specifies the upper layers of the communications protocol employed in the group 4 class 1 facsimile communication procedures, i.e. the session layer and above.

This ETS is based upon CCITT Recommendations:

- T.503 [1] "A document application profile for the interchange of group 4 facsimile documents" (the document application profile (DAP));
- T.521 [2] "Communication application profile BT0 for document bulk transfer based on the session service (according to the rules in T.62bis)" (the communication application profile (CAP)),

as derived from the T.400 series of CCITT Recommendations (Document Architecture, Transfer and Manipulation) and other recommendations referred to therein.

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

- ETS 300 080 [3] "Integrated Services Digital Network (ISDN); Lower layer protocols for telematic terminals".
- prETS 300 155 [4] "Integrated Services Digital Network (ISDN); Facsimile group 4 class 1 equipment on the ISDN, End-to-end protocols tests (interconnection capability testing)".
- ETS 300 087 [5] "Integrated Services Digital Network (ISDN); Facsimile group 4 class 1 equipment on the ISDN, Functional specification of the equipment".
- ETS 300 280 [6] "Integrated Services Digital Network (ISDN); Facsimile group 4 class 1 equipment on the ISDN, Terminal testing".

## 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.503 (1991): " A document application profile for the interchange of group 4 facsimile documents".
- [2] CCITT Recommendation T.521 (1988): "Communication application profile BT0 for document bulk transfer based on the session service (according to the rules defined in T.62bis)".
- [3] ETS 300 080 (1992): "Integrated Services Digital Network (ISDN); ISDN lower layer protocols for telematic terminals".
- [4] prETS 300 155 (1994): "Integrated Services Digital Network (ISDN); Facsimile group 4 class 1 equipment on the ISDN; End-to-end protocols tests (interconnection capability testing)".
- [5] ETS 300 087 (1994): "Integrated Services Digital Network (ISDN); Facsimile group 4 class 1 equipment on the ISDN; Functional specification of the equipment".
- [6] ETS 300 280 (1994): "Integrated Services Digital Network (ISDN); Facsimile group 4 class 1 equipment on the ISDN; Terminal testing".

- [7] CCITT Recommendation T.400 (1988): "Introduction to document architecture, transfer and manipulation".
- [8] CCITT Recommendation T.563 (1988): "Terminal characteristics for group 4 facsimile apparatus".
- [9] CCITT Recommendation T.62 (1988): "Control procedures for teletex and group 4 facsimile service".
- [10] CCITT Recommendation T.62bis (1988): "Control procedures for teletex and G4 facsimile services based on Recommendations X.215 and X.225".
- [11] CCITT Recommendation T.412 (1988): "Open document architecture (ODA) and interchange format - Document structures".
- [12] CCITT Recommendation T.415 (1988): "Open document architecture (ODA) and interchange format - Open document interchange format (ODIF)".
- [13] CCITT Recommendation T.418 (1988): "Open document architecture (ODA) and interchange format - Geometric graphics content architecture".
- [14] CCITT Recommendation T.432 (1992): "Document transfer and manipulation (DTAM) - Service and protocols - Service definitions".
- [15] CCITT Recommendation T.433 (1992): "Document transfer and manipulation (DTAM) - Service and protocols - Protocol specification".
- [16] CCITT Recommendation T.411 (1988): "Open document architecture (ODA) and interchange format - Introduction and general principles".

### 3 Definitions and abbreviations

#### 3.1 Definitions

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For the purposes of this ETS, the definitions given in the CCITT Recommendations stated in Clause 2 apply with the following:

**Facsimile equipment:** Group 4 facsimile terminal equipment.

#### 3.2 Abbreviations

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

APDU	Application Protocol Data Unit
ASN.1	Abstract Syntax Notation No. 1
CAP	Communication Application Profile
CDCL	Command Document Capability List
CDS	Session Activity Start
CDUI	Command Document User Information
CSS	Session Communication Structure
DAP	Document Application Profile
DTAM	Document Transfer and Manipulation
DTAM-PM	DTAM Protocol Machine
ETS	European Telecommunication Standard
ETSI	European Telecommunications Standards Institute
FDA	Formatted Document Architecture
IDE	Interchange Data Element
ISDN	Integrated Services Digital Network
ODA	Open Document Architecture
ODIF	Office Document Interchange Format
OSI	Open Systems Interconnection
RDCLP	Response Document Capability List Positive

SUD	Session User Data
TE	Terminal Equipment

All other abbreviations are defined in the normatively referenced CCITT Recommendations (see Clause 2).

## 4 Compatibility aspects

Annex B of CCITT Recommendation T.411 [16] makes it clear that the data streams produced by the CCITT Recommendation T.73 description of group 4 class 1 facsimile and the CCITT Recommendations T.563 [8], T.521 [2] and T.503 [1] description of Formatted Document Architecture (FDA) class B documents is identical.

## 5 Specifications

### 5.1 Document Transfer and Manipulation (DTAM)

CCITT Recommendation T.521 [2] defines the Communications Application Profile (CAP) for group 4 class 1 facsimile.

This specifies the Document Bulk Transfer mode BT0 of DTAM operating in the Transparent Mode of operation to interface directly to CCITT Recommendation T.62 [9] or CCITT Recommendation T.62bis [10].

### 5.2 Document architecture

CCITT Recommendation T.503 [1] defines the Document Application Profile (DAP) for the interchange of group 4 facsimile documents. This recommendation restricts the DAP to Formatted Document Architecture (FDA) as defined in CCITT Recommendation T.412 [11] and class B documents as defined in CCITT Recommendation T.415 [12] which makes the profile compatible with TIF.0 as defined in CCITT Recommendation T.73 (1984).

This ETS imposes the following restrictions using CCITT Recommendation T.412 [11] terminology:

- the page is the minimum structure of a group 4 class 1 document and it is therefore not allowed to change the Specific Layout Descriptor within a page, i.e. page dimensions or pel transmission density.

Also the coding attribute should not be changed within a page;

NOTE 1: This is not applicable in private mode.

- the exchange of private information is allowed inside the Presentation Capability Description protocol element which is carried inside the Session User Data field of the document commands response.

NOTE 2: It is recommended that implementations which do not support the "private implementation" parameter should ignore this parameter rather than to refuse the communication.

## 6 Testing philosophy

See ISO IS 9646 for a definition of the terminology of testing.

## 7 Office Document Architecture (ODA)/DTAM implementation rules

Annex A contains the ODA/DTAM implementation rules. Annex B contains the comparison between CCITT Recommendation T.73 (1984) and T.400/T.500 series coding.

## Annex A (normative): ODA/DTAM implementation rules

### Introduction

Group 4 facsimile has been considered in the CCITT as a subset of a more complex mechanism of the Office Document Architecture (ODA).

ODA requires DTAM (Document Transfer and Manipulation) protocols for communication which uses session service defined in CCITT Recommendation X.215 according the rules described in CCITT Recommendation T.62bis [10].

The CCITT Recommendations specifically relevant to group 4 facsimile are:

- |           |  |
|-----------|--|
| T.563 [8] | for the terminal characteristics (terminal characteristics for group 4 facsimile apparatus);   |
| T.503 [1] | for the DAP (a Document Application Profile for the interchange of group 4 facsimile documents);   |
| T.521 [2] | for the CAP (Communication Application Profile BT0 for document bulk transfer based on the session service (according to the rules in CCITT Recommendation T.62bis [10])). |

The purpose of this annex is to give some implementation rules, based on these Recommendations, leading to the development of a group 4 equipment.

This annex is not a specification, its target is to clarify the use of ODA and DTAM for facsimile applications.

### A.1 ODA implementation rules for group 4 class 1 facsimile equipment

ODA consists of a large and embracing set of protocols (CCITT Recommendations T.400 to T.418 [13] and ISO IEC 8613), describing a standard form for documents, in order to exchange them between different systems.

Group 4 class 1 facsimile is considered as a subset of ODA, as defined in CCITT Recommendation T.503 [1].

This model considers that a group 4 class 1 facsimile document is constituted of two parts:

- the document profile;
- the document body.

The document profile gives information about the whole document (page dimension, pel density, compression ...) and identifies the type of document to be emitted.

The document body only contains the specific structure of the document, in terms of layout characteristics.

A facsimile document is represented in a predefined structure, consisting of three Interchange Data Elements (IDEs):

- Document Profile Descriptor;
- Layout Object Descriptor;
- Text Unit,

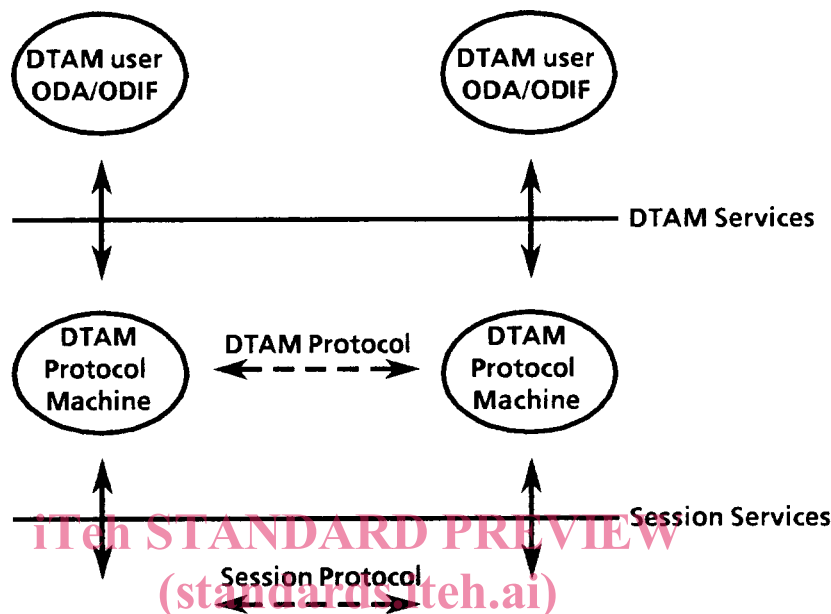
always transmitted in this order, although some of them may be omitted.

These IDEs are defined by the Office Document Interchange Format (ODIF).

In terms of protocol stack, ODA is the higher "sub-layer" of the Open Systems Interconnection (OSI) Application layer. The structure defined therein is supported by ODIF, which can be considered as the "middle sub-layer" of layer 7.

ODA/ODIF structures use services offered by DTAM at the bottom of layer 7. DTAM defines the full protocol to establish application connections, to transfer documents, and to terminate the connections between two group 4 machines.

DTAM, in its Transparent Mode used for group 4 class 1, uses services offered by the Session layer, as shown in figure A.1.



SIST ETS 300 112 E1:2003 Figure A.1

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## A.2 DTAM protocols and services

The CAP (see CCITT Recommendation T.521 [2]) selects some service primitives from the DTAM services defined in CCITT Recommendation T.432 [14].

The services are required by ODA/ODIF - as DTAM users - and provided by the two DTAM Protocol Machine (DTAM-PM) using the DTAM protocol in Transparent Mode.

The logical "link" between the two DTAM-PM is called an **ASSOCIATION**.

The following **DTAM Services** are selected for document Bulk Transfer (BT0):

- D-INITIATE requests the establishment of an Association;
- D-TERMINATE terminates the Association normally e.g. without loss of information. This service can only be issued by the sender of the D-INITIATE or if he has data token;
- D-P-ABORT enables a DTAM service provider to abort the Association;
- D-U-ABORT enables a DTAM service user to abort the Association;
- D-CAPABILITY negotiates the application and communication characteristics of an Association;
- D-TRANSFER transmits the document content in bulk;
- D-TOKEN-PLEASE requests the data token to obtain the right to transfer documents;
- D-CONTROL-GIVE is used by a DTAM user to give the control (all available tokens) to the other DTAM user;