



**SLOVENSKI STANDARD**  
**SIST EN 300 706 V1.2.1:2003**  
**01-december-2003**

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**Specifikacija izboljšanega sistema Teletext**

Enhanced Teletext specification

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**Ta slovenski standard je istoveten z: EN 300 706 Version 1.2.1**

[SIST EN 300 706 V1.2.1:2003](https://standards.iteh.ai/catalog/standards/sist/7b6cc022-6f15-4706-a02d-a456419a1728/sist-en-300-706-v1-2-1-2003)

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**ICS:**

33.050.30	Oprema za teleks, teletext, telefaks	Equipment for telex, teletext, telefax
33.170	Televizijska in radijska difuzija	Television and radio broadcasting

**SIST EN 300 706 V1.2.1:2003**

**en**

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# ETSI EN 300 706 V1.2.1 (2003-04)

European Standard (Telecommunications series)

## Enhanced Teletext specification

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## Reference

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REN/JTC-TTEXT-EACEM-R1

## Keywords

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broadcasting, data, teletext, transmission, TV

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## Foreword

This European Standard (Telecommunications series) has been produced by Joint Technical Committee (JTC) Broadcast of the European Broadcasting Union (EBU), Comité Européen de Normalisation ELEctrotechnique (CENELEC) and the European Telecommunications Standards Institute (ETSI).

NOTE: The EBU/ETSI JTC Broadcast was established in 1990 to co-ordinate the drafting of standards in the specific field of broadcasting and related fields. Since 1995 the JTC Broadcast became a tripartite body by including in the Memorandum of Understanding also CENELEC, which is responsible for the standardization of radio and television receivers. The EBU is a professional association of broadcasting organizations whose work includes the co-ordination of its members' activities in the technical, legal, programme-making and programme-exchange domains. The EBU has active members in about 60 countries in the European broadcasting area; its headquarters is in Geneva.

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**National transposition dates**

Date of adoption of this EN:	11 April 2003
Date of latest announcement of this EN (doa):	31 July 2003
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 January 2004
Date of withdrawal of any conflicting National Standard (dow):	31 January 2004

# 1 Scope

The present document defines the application of CCIR Teletext System B to CCIR 625 Line 50 field Television Systems B, D, G, H, I, K and L. The System is optimized for broadcast media using cable, terrestrial and satellite transmission and the associated service and product environment. Reliable reception of data is ensured, since there is a good match between the service area defined for vision and sound reception and that provided for Teletext data broadcasting.

The data is organized in a manner optimum for broadcast media by using the rigid timing framework of the television signal. When multiplexed with a video waveform, this permits a fixed relationship to be provided between the data bytes on a television signal data line and locations in the decoder memory. Using this relationship, error identification and correction are available, matched to the statistical occurrence of bit errors. Critical control data and addressing information are protected by Hamming coding. Basic data is protected by using parity checks.

Teletext data packets are normally grouped together to form "pages" of information, although some have a "stand-alone" function. The range of presentation and application features are arranged to be downward compatible. This permits initial services to be defined and existing services to be upgraded, without rendering obsolete equipment already in the field.

Four presentation Levels are defined:

- Level 1:**
  - alphamosaic characters;
  - spacing attributes;
  - fixed colour palette;
  - 24 rows of 40 columns;
- Level 1.5:**
  - extends the character repertoire;
- Level 2.5:**
  - extends the language repertoire;
  - increases the colour palette with re-definable colours;
  - introduces non-spacing attributes;
  - allows a number of simple re-definable characters;
  - provides side panels for additional text or graphics;
- Level 3.5:**
  - extends the number of re-definable characters and their complexity;
  - introduces different font styles and proportional spacing.

Levels 2.5 and 3.5 are intended to replace Levels 2 and 3 respectively as defined in earlier specifications. The new Levels offer more display features and can be transmitted more efficiently. Level 1.5 has evolved in the field due to the language requirements in certain countries and is documented here for the first time.

The facility to invoke the presentation of characters of any writing system or language, or a mixture of such systems is included. The present document includes the coding for Arabic, Cyrillic, Greek, Hebrew and Latin alphabets. Where appropriate the character repertoires and coding structures of the ISO are used.

In addition to the basic text and graphics display presentation, a wide range of other applications can be supported. Protocols for user-friendly navigation techniques also exist. These topics are covered in the reference documents and the other documents listed in annex R.

## 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

Referenced documents which are not found to be publicly available in the expected location might be found at <http://docbox.etsi.org/Reference>.

- [1] ETSI EN 300 231: "Television Systems; Specification of the domestic video Programme Delivery Control system (PDC)".
- [2] ETSI EN 300 708: "Television Systems; Data transmission within Teletext".
- [3] ETSI EN 300 707: "Electronic Programme Guide (EPG); Protocol for a TV Guide using electronic data transmission".
- [4] ISO 6937: "Information technology - Coded graphic character set for text communication; Latin alphabet".
- [5] Void.
- [6] ETSI TS 101 231: "Television systems; Register of Country and Network Identification (CNI), Video Programming System (VPS) codes and Application codes for Teletext based systems".
- [7] ETSI TR 101 233: "Television systems; Code of practice for allocation of services in the Vertical Blanking Interval (VBI)".
- [8] IEC/PAS 62297 Edition 1.0 (2002-01): "Proposal for introducing a trigger mechanism into TV transmissions".

## 3 Definitions, symbols and abbreviations

### 3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

**active position:** position defined by row and column co-ordinates and is a reference to a screen location within the normal page area

NOTE: It is used to position enhancement data when overwriting a basic Level 1 Teletext page.

**bit numbering within bytes:** bits of Teletext data bytes numbered 1 to 8 (LSB to MSB)

**designation code:** data byte used as a packet address extender

NOTE: It is used to differentiate between instances of the packet X/Y/n. The designation code is the byte after the magazine and packet address and is 8/4 Hamming coded.

**magazine number 8:** a packet with a magazine value of 0 is referred to as belonging to magazine 8

**packet:** sequence of data bits transmitted as a single entity on one TV line

NOTE: The packet includes elements to establish synchronization within a decoder plus address and information data bits.

**page address:** page number plus sub-code - **M Pt Pu: S4 S3 S2 S1**

**page format - CA:** method of data broadcasting where the data is transmitted within Teletext pages

NOTE 1: Conditional access and scrambling techniques may be used at the transport layer

NOTE 2: See EN 300 708 [2], clause 5.

**page format - Clear:** method of data broadcasting where the data is transmitted within Teletext pages but without the possibility of applying conditional access and scrambling techniques at the transport layer

NOTE: See EN 300 708 [2], clause 4.

**page number: M Pt Pu**, where

M = magazine	(range 1 - 8)
Pt = page number tens	(range 0 - F)
Pu = page number units	(range 0 - F)

**prefix:** sequence of clock run-in, framing code and packet address bytes at the start of every Teletext packet

**sub-code: S4 S3 S2 S1**, where

S1 = LSB digit	(range 0 - F)
S2 = LSB+1 digit	(range 0 - 7)
S3 = LSB+2 digit	(range 0 - F)
S4 = MSB digit	(range 0 - 3)

**time filling headers:** page header packets with the page number FF which are inserted into the transmission for the sole reason of maintaining a real-time clock display

**transmission bit order:** bits of a Teletext data byte transmitted least significant bit first

## 3.2 Symbols

SIST EN 300 706 V1.2.1:2003

<https://standards.iteh.ai/catalog/standards/sist/7b6cc022-6f15-4706-a02d->

[a456419a1728/sist-en-300-706-v1-2-1-2003](https://standards.iteh.ai/catalog/standards/sist/7b6cc022-6f15-4706-a02d-a456419a1728/sist-en-300-706-v1-2-1-2003)

For the purposes of the present document, the following symbols apply:

Character code r/c	The character in row r, column c of a given character set.
C <sub>n</sub>	Control bit n.
D <sub>n</sub>	Data bit n.
f <sub>H</sub>	Nominal TV line frequency.
Packet M/yy	Magazine related packet, packet number = yy, from any magazine M and with any designation code value.
Packet M/yy/nn	Magazine related packet, packet number = yy, from any magazine M and with a designation code value of nn.
Packet X/yy	Page related packet, packet number = yy, forming part of a Teletext page and thus having the same magazine address value, X, as the page header packet of that page. If applicable, the precise designation code value is not relevant.
Packet X/yy/nn	Page related packet, packet number = yy and designation code value = nn, forming part of a Teletext page and thus having the same magazine address value, X, as the page header packet of that page.
P <sub>n</sub>	Protection bit n.
Y = nn	Packet number = nn.
⊕	Logical exclusive-OR function.
○	Feature not available.
⊙	Feature available.

### 3.3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

ACI	Automatic Channel Installation
AIT	Additional Information Table
BCD	Binary Coded Decimal
BTT	Basic TOP Table
CA	Conditional Access
CCIR	International Radio Consultative Committee
CLUT	Colour Look-Up Table
CRC	Cyclic Redundancy Check
CVBS	Composite Video and Blanking Signal
DCLUT	Colour Look-Up Table for Dynamically Re-definable Character Sets
DRCS	Dynamically Re-definable Character Set
EACEM	European Association of Consumer Electronic Manufacturers
EBU	European Broadcasting Union
EPG	Electronic Programme Guide
FLOF	Full Level One Facilities
GDRCS	Global Dynamically Re-definable Character Set
GPOP	Global Public Object Page
IDL	Independent Data Line
ISO	International Standards Organization
LOP	Level One Page
LSB	Least Significant Bit
MIP	Magazine Inventory Page
MJD	Modified Julian Date
MOT	Magazine Organization Table
MPT	Multi-Page Table
MPT-EX	Multi-Page Table EXTension
MSB	Most Significant Bit
NI	Network Identification
PDC	Programme Delivery Control
POP	Public Object Page
PTU	Pattern Transfer Unit
TOP	Table Of Pages
TV	TeleVision (set)
UTC	Universal Time Co-ordinated
VBI	Vertical Blanking Interval
VCR	Video Cassette Recorder
VPS	Video Programming System
VPT	Video Programming by Teletext

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## 4 TV lines usable as data lines

### 4.1 When multiplexed with a composite video signal

Subject to availability, lines 6 to 22 and 318 to 335 may be used to carry Teletext data packets. Refer to clause F.4 for practical considerations.