



SLOVENSKI STANDARD SIST ETS 300 632 E1:2003

01-december-2003

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Transmission and Multiplexing (TM); Fixed radio link equipment for the transmission of
analogue video signals operating in the frequency range 24,25 GHz to 29,50 GHz

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Ta slovenski standard je istoveten z: **ETS 300 632 Edition 1**

ICS:

33.040.20	Prenosni sistem	Transmission systems
33.060.30	Radiorelejni in fiksni satelitski komunikacijski sistemi	Radio relay and fixed satellite communications systems

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EUROPEAN
TELECOMMUNICATION
STANDARD

ETS 300 632

March 1997

Source: ETSI TC-TM

Reference: DE/TM-04025

ICS: 33.020

Key words: Analogue, radio, relay, transmission, video

**Transmission and Multiplexing (TM);
Fixed radio link equipment for the transmission of
analogue video signals operating in the
frequency range 24,25 GHz to 29,50 GHz**

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Foreword

This European Telecommunication Standard (ETS) has been prepared by the Transmission and Multiplexing (TM) Technical Committee of the European Telecommunications Standards Institute (ETSI).

This ETS specifies the minimum performance parameters for analogue radio relay equipment operating in the frequency range 24,25 GHz to 29,50 GHz. The minimum performance parameters for digital radio relay equipment operating in the frequency range 24,25 GHz to 29,50 GHz are given in ETS 300 431 [10].

Transposition dates	
Date of adoption:	21 February 1997
Date of latest announcement of this ETS (doa):	30 June 1997
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	31 December 1997
Date of withdrawal of any conflicting National Standard (dow):	31 December 1997

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1 Scope

This ETS covers the minimum technical requirements for terrestrial analogue radio relay systems operating in bands in the frequency range 24,25 GHz to 29,50 GHz.

Such systems are intended to be used for Point-to-Point (P-P) connections and video distribution (Point-to-Multipoint (P-MP)).

Typical applications include:

- a) TV of contribution quality;
- b) TV of distribution quality;
- c) TV of surveillance quality;
- d) Radar remoting.

Safety aspects are outside the mandate of ETSI and they will not be considered in this ETS.

The requirements and limits given in this ETS are relevant to all environmental conditions for the chosen climatic class.

2 Normative references

This ETS incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate place 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.

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- [1] CEPT Recommendation T/R 13-02: "Preferred channel arrangements for fixed services in the range 22,0 to 29,5 GHz".
 - [2] ITU-R Recommendation F 748-1: "Radio-frequency channel arrangements for radio-relay systems operating in the 25, 26 and 28 GHz bands".
<https://standards.iteh.ai/catalog/standards/sist/dadda655-6014-4453-98c4-d958500568c5/sist-ets-300-632-e1-2003>
 - [3] ETS 300 019: "Electrical Equipment (EE); Environmental conditions and environmental tests for telecommunications equipment".
 - [4] prETS 300 339: "Radio Equipment and Systems (RES); General Electro-Magnetic Compatibility (EMC) for radio equipment".
 - [5] IEC 154: "Flanges for Waveguides".
 - [6] ETS 300 132: "Equipment Engineering (EE); Power supply interface at the input to telecommunications equipment".
 - [7] ITU-T Recommendation J.61 (1990): "Transmission performance of television circuits designed for use in international connections".
 - [8] ITU-T Recommendation J.21 (1994): "Performance characteristics of 15 kHz-type sound-programme circuits – Circuits for high quality monophonic and stereophonic transmissions".
 - [9] CCIR Recommendation F.403-3 (1990): "Intermediate frequency characteristics for the interconnection of analogue radio-relay systems".
 - [10] ETS 300 431: "Transmission and Multiplexing (TM); Digital fixed point-to-point radio link equipment operating in the frequency range 24,25 GHz to 29,50 GHz".

3 Abbreviations and symbols

3.1 Abbreviations

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

C/N	Carrier to Noise ratio
CW	Continuous Wave
FM	Frequency Modulation
IF	Intermediate Frequency
PAL	Phase Alternation Line
P-MP	Point-to-Multipoint
P-P	Point-to-Point
RF	Radio Frequency
RSL	Receive Signal Level
S/N	Signal to Noise ratio
XPD	Cross-Polar Discrimination

3.2 Symbols

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

dB	decibel
dBc	decibel relative to mean carrier power
dB _i	decibel relative to an isotropic radiator
dBm	decibel relative to 1 mW
dBW	decibel relative to 1 W
GHz	gigahertz
km	kilometre
Mbit/s	Mega-bits per second
MHz	megahertz
ppm	parts per million
ns	nanosecond
mW	milliwatt
W	Watt

4 General characteristics

4.1 Frequency bands and channel arrangements

4.1.1 Channel plan

The frequency range is 24,25 GHz to 29,50 GHz. The channel arrangements shall align with those given in CEPT Recommendation T/R 13-02 [1] which is in accordance with ITU-R Recommendation F.748-1 [2].

4.1.2 Co-polar channel spacing

Table 1

Video baseband	up to 10 MHz (standard frequency deviation)	up to 10 MHz (wide frequency deviation)
Channel spacing	35 MHz	42 MHz

4.2 Compatibility requirements between systems

Equipment conforming with this ETS is not guaranteed to operate together across the radio interface (mid-air compatibility) with similar equipment provided by another manufacturer.

4.3 Environmental conditions

The equipment shall meet the environmental conditions set out in ETS 300 019 [3] which defines weather protected and non-weather protected locations, classes and test severities.

4.3.1 Equipment within weather protected locations

Equipment intended for operation within temperature controlled locations or partially temperature controlled locations shall meet the requirements of ETS 300 019 [3] classes 3.1 and 3.2 respectively.

Optionally, the more stringent requirements of ETS 300 019 [3] classes 3.3 (non-temperature controlled locations), 3.4 (sites with heat trap) and 3.5 (sheltered locations) may be applied.

4.3.2 Equipment for non-weather protected locations

Equipment intended for operation within non-weather protected locations shall meet the requirements of ETS 300 019 [3], class 4.1 or 4.1E.

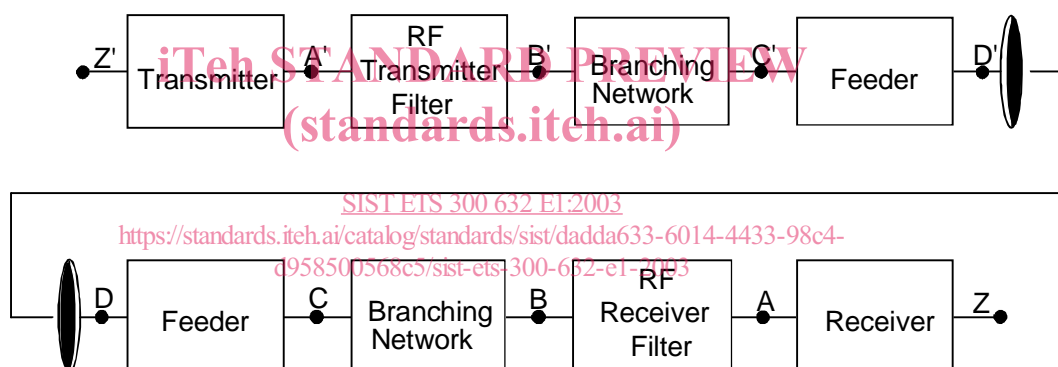
Class 4.1 applies to many European countries and class 4.1E applies to all European countries.

Weather protected equipment conforming to classes 3.3, 3.4 and 3.5, together with an enclosure or cabinet may fulfil the requirements for operating in a non-weather protected environment, but this is outside the scope of this ETS.

4.4 Electromagnetic compatibility

Equipment shall operate under the conditions specified in ETS 300 339 [4] for fixed radio links and ancillary equipment.

4.5 System block diagram



NOTE 1: The points listed above are reference points only.

NOTE 2: Points B and C, B' and C' may coincide.

Figure 1: System block diagram

4.6 Branching/feeder/antenna requirements

4.6.1 Antenna radiation patterns

The antenna radiation pattern shall be within one of the envelopes given in figures 2a, 2b, 2c and 2d. Type B antennas are intended for applications where high nodal capacity is required, and type C antennas are intended for distribution (P-MP) applications.

4.6.2 Waveguide flanges

Where integral antennas are not used, one of the following flange types, define in IEC 154 [5] shall be used:

- UBR/PBR/CBR 260, for the complete frequency range 24,25 GHz to 29,5 GHz;
- UBR/PBR/CBR 220, may be used for the lower part of the band, from 24,25 GHz to 26,5 GHz;
- UBR/PBR/CBR 320, may be used for the higher part of the band, from 26,5 GHz to 29,5 GHz.