



**SLOVENSKI STANDARD**  
**SIST EN 301 215-2 V1.1.1:2003**  
**01-december-2003**

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Fixed Radio Systems; Point to Multipoint Antennas; Antennas for point-to-multipoint fixed radio systems in the 11 GHz to 60 GHz band; Part 2: 24 GHz to 30 GHz

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Ta slovenski standard je istoveten z: [EN 301 215-2 Version 1.1.1](https://standards.iteh.ai/catalog/standards/sist/1cb4e57c-d34a-4d05-8069-c9007c9d2626/sist-en-301-215-2-v1.1.1-2003)

**ICS:**

33.060.30	Radiorelejni in fiksni satelitski komunikacijski sistemi	Radio relay and fixed satellite communications systems
33.120.40	Antene	Aerials

**SIST EN 301 215-2 V1.1.1:2003**                      **en**

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# ETSI EN 301 215-2 V1.1.1 (2000-06)

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*European Standard (Telecommunications series)*

**Fixed Radio Systems;  
Point to Multipoint Antennas;  
Antennas for point-to-multipoint fixed radio systems  
in the 11 GHz to 60 GHz band;  
Part 2: 24 GHz to 30 GHz**

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**Reference**

DEN/TM-04057-2

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**Keywords**antenna, DRRS, FWA, multipoint, radio, RLL,  
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## Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Transmission and Multiplexing (TM).

The present document is part 2 of a multi-part EN covering the Fixed Radio Systems; Point to Multipoint Antennas; Antennas for point-to-multipoint fixed radio systems in the 11 GHz to 60 GHz band, as identified below:

Part 1: "General aspects".

**Part 2: "24 GHz to 30 GHz";**

Part 3: "40,5 GHz to 43,5 GHz".

The present document is organized in the following way. Part 1 gives general information about the scope, normative references, definitions, classification, normative and informative electrical and mechanical characteristics. Part 1 is the framework for further parts, where distinct values of normative characteristics for a given frequency sub-band are defined. Consequently, Part 1 in combination with another part forms the EN for a given sub-band.

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### National transposition dates

Date of adoption of this EN:	14 January 2000
Date of latest announcement of this EN (doa):	30 April 2000
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 October 2000
Date of withdrawal of any conflicting National Standard (dow):	31 October 2000

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## 1 Scope

The present document specifies the essential electrical requirements for linear polarization, fixed beam antennas to be utilized with new Point-to-Multipoint (P-MP) systems [1], including central station and terminal station applications, operating in frequency bands from 11 GHz to 60 GHz. These systems use various multiple access schemes. Electronically steerable antennas, and circularly polarized antennas are not considered in the present document.

The present document, taken together with EN 301 215-1 [3], specifies the requirements for systems operating in the frequency range 24 GHz to 30 GHz.

A regulatory authority may impose tighter requirements than the minimum values given in the present document, in order to maximize the use of the scarce spectrum resources.

For some high gain, point-to-multipoint requirements, antennas may be used having performance as per the appropriate point-to-point antenna standard. For these antennas, minimum requirements are given in [2].

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## 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, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, subsequent revisions do apply.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

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- [1] ETSI EN 301 213-1: "Fixed Radio Systems; Point-to-multipoint equipment; Point-to-multipoint digital radio systems in frequency bands in the range 24,25 GHz to 29,5 GHz using different access methods; Part 1: Basic parameters".
- [2] ETSI EN 300 833: "Fixed Radio Systems; Point to Point Antennas; Antennas for point-to-point fixed radio systems operating in the frequency band 3 GHz to 60 GHz".
- [3] ETSI EN 301 215-1: "Fixed Radio Systems; Point to Multipoint Antennas; Antennas for point-to-multipoint fixed radio systems in the 11 GHz to 60 GHz band; Part 1: General aspects".

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## 3 Definitions, symbols and abbreviations

For the purposes of the present document, the definitions, symbols and abbreviations in part 1 [3] apply.

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## 4 Electrical characteristics

### 4.1 Terminal station antennas

The RPEs and gain parameters apply for both horizontal and vertical linearly polarized antennas.

### 4.1.1 TS radiation pattern envelope

The copolar and crosspolar radiation patterns for both azimuth and elevation, shall not exceed the RPE(s) defined in the following list:

- class TS1: table 1, figure 1.

The gain values defined are all relative to maximum, actual gain at the measurement frequency.

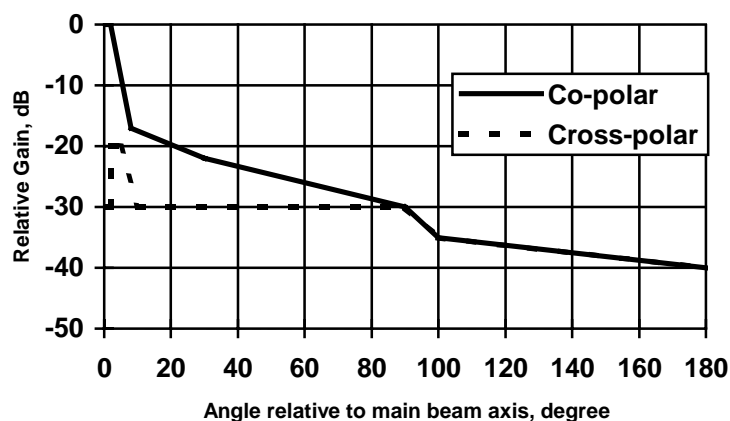


Figure 1: Class TS1 terminal station antenna

Table 1: Class TS1

Angle (degree)	Copolar (dB)	Angle (degree)	Cross-polar (dB)
0	0	0	-30
2	0	2	-30
8	-17	2	-20
30	-22	5	-20
90	-30	10	-30
100	-35	90	-30
180	-40	100	-35
		180	-40

### 4.1.2 TS minimum antenna boresight gain

The minimum gain of the TS antenna, expressed relative to an isotropic radiator, shall be:

- class TS1 26 dBi.

## 4.2 Central station sectored antennas

### 4.2.1 CS azimuth radiation pattern envelopes, sectored

The Central Station azimuth templates for sectored (i.e. not omni) antennas are defined in the following list:

- class CS1 table 2, figure 2 for sector angles in the range 15° to 130°;
- class CS2 table 3, figure 3 for sector angles in the range 15° to 180°.

The templates shall apply for all frequencies in the 24 GHz to 30 GHz band. Both copolar and cross-polar patterns are defined. The sector angle defined as  $2\alpha$  [3], shall be declared by the supplier. The gain values defined are all relative to the maximum gain in the declared sector angle.



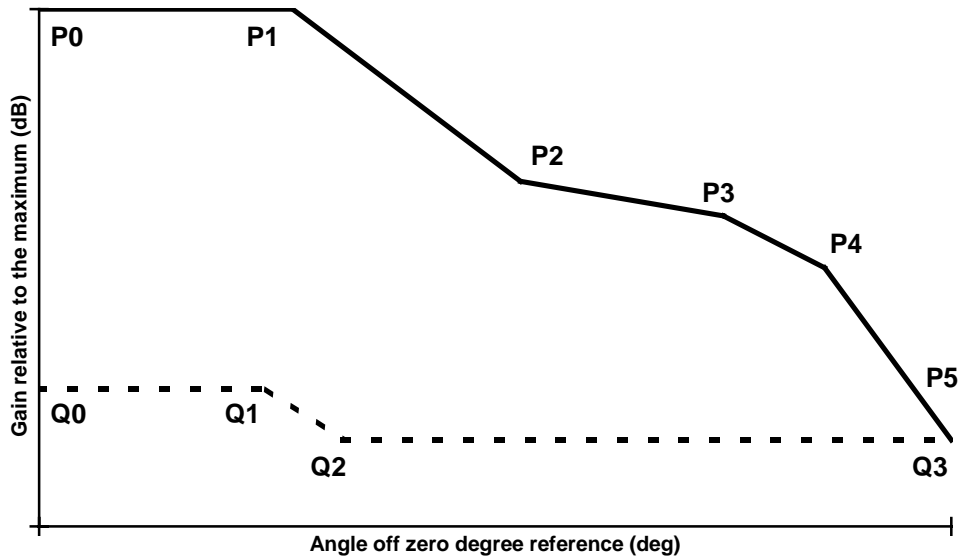


Figure 2: Normalized CS1 sector antenna template for azimuth

Table 2: Class CS 1

a)	Copolar	Angle (degree)	Relative Gain (dB)
	P0	0	0
	P1	$\alpha + 5$	0
	P2	$2\alpha + 5$	-10
	P3	135	-12
	P4	155	-15
	P5	180	-25

b)	Cross-polar	Angle (degree)	Relative Gain (dB)
	Q0	0	-22
	Q1	$\alpha$	-22
	Q2	$\alpha + 15$	-25
	Q3	180	-25