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Fixed Radio Systems; Point-to-Multipoint Antennas; Antennas for multipoint fixed radio systems in the 11 GHz to 60 GHz band; Part 4: 30 GHz to 40,5 GHz

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European Standard (Telecommunications series)

**Fixed Radio Systems;
Point-to-Multipoint Antennas;
Antennas for multipoint fixed radio systems
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Contents

Intellectual Property Rights	4
Foreword.....	4
1 Scope	5
2 References	5
3 Definitions, symbols and abbreviations	5
3.1 Definitions	5
3.2 Symbols.....	5
3.3 Abbreviations	6
4 Electrical characteristics.....	6
4.1 Terminal Station antennas	6
4.1.1 TS Radiation Pattern Envelope (RPE).....	6
4.1.2 TS minimum antenna boresight gain	8
4.2 Central Station (CS) sectored antennas	8
4.2.1 CS azimuth Radiation Pattern Envelopes, sectored	8
4.2.2 Minimum boresight gain, sectored	11
4.3 Central station sectored elevation RPEs	11
4.4 Central Station omni-directional antennas	12
4.4.1 CS Omni Elevation RPEs	12
4.4.1.1 Symmetric elevation RPEs	13
4.4.1.2 Asymmetric elevation patterns	13
4.5 Polarization, terminal station and central station antennas	14
4.6 Radomes	14
5 Conformance tests	14
History	15

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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 4 of a multi-part deliverable covering requirements for antennas in conjunction with MultiPoint (MP) systems necessary to facilitate frequency co-ordination between services in the frequency bands 11 GHz to 60 GHz, as identified below:

- Part 1: "General aspects";
- Part 2: "24 GHz to 30 GHz";
- Part 3: "Multipoint Multimedia Wireless System in 40,5 GHz to 43,5 GHz";
- Part 4: "30 GHz to 40,5 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.

National transposition dates

Date of adoption of this EN:	28 November 2003
Date of latest announcement of this EN (doa):	29 February 2004
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 August 2004
Date of withdrawal of any conflicting National Standard (dow):	31 August 2004

1 Scope

The present document specifies the essential electrical requirements for linear polarization, fixed beam antennas to be utilized with new MultiPoint (P-MP and MP-MP) systems EN 301 997-1 [1], including Central Station, Repeater and Terminal Station applications, operating in frequency bands from 11 GHz to 60 GHz. These systems use various multiple access schemes. Antennas may be aligned manually, by electromechanical or by switching between a set of antennas. Electronically steered antenna arrays, and circularly polarized antennas are not considered in the present document.

The present document, taken together with EN 301 215-1 [4], specifies the requirements for multipoint systems operating in the frequency range 30 GHz to 40,5 GHz.

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

For some high gain 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 EN 300 833 [2].

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 301 997-1: "Transmission and Multiplexing (TM); Multipoint equipment; Radio Equipment for use in Multimedia Wireless Systems (MWS) in the frequency band 40,5 GHz to 43,5 GHz; Part 1: General requirements".
- [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 301 126-3-2: "Fixed Radio Systems; Conformance testing; Part 3-2: Point-to-Multipoint antennas - Definitions, general requirements and test procedures".
- [4] 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".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in EN 301 215-1 [4] apply.

3.2 Symbols

For the purposes of the present document, the symbols given in EN 301 215-1 [4] apply.

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in EN 301 215-1 [4] apply.

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 (RPE)

The co-polar and cross-polar radiation patterns for both azimuth and elevation, shall not exceed the RPE(s) defined in the following list.

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

Class TS1: Table 1a, figure 1a

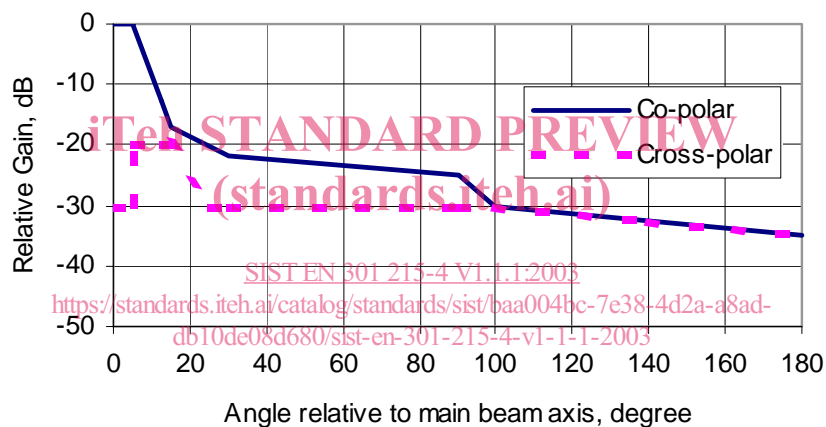


Figure 1a: Class TS1 terminal station antenna

Table 1a: Class TS1

Angle (degree)	Co-polar (dB)	Angle (degree)	Cross-polar (dB)
0	0	0	-30
5	0	5	-30
15	-17	5	-20
30	-22	12.5	-20
90	-25	25	-30
100	-30	100	-30
180	-35	180	-35

Class TS2: Table 1b, figure 1b

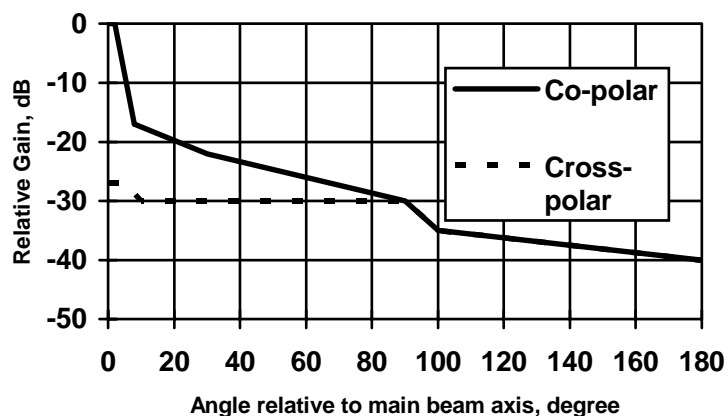


Figure 1b: Class TS2 terminal station antenna

Table 1b: Class TS2

Angle (degree)	Co-polar (dB)	Angle (degree)	Cross-polar (dB)
0	0	0	-27
2	0	5	-27
8	-17	10	-30
30	-22	90	-30
90	-30	100	-35
100	-35	180	-40
180	-40		

SIST EN 301 215-4 V1.1.1:2003

Class TS3: Table 1c, figure 1c

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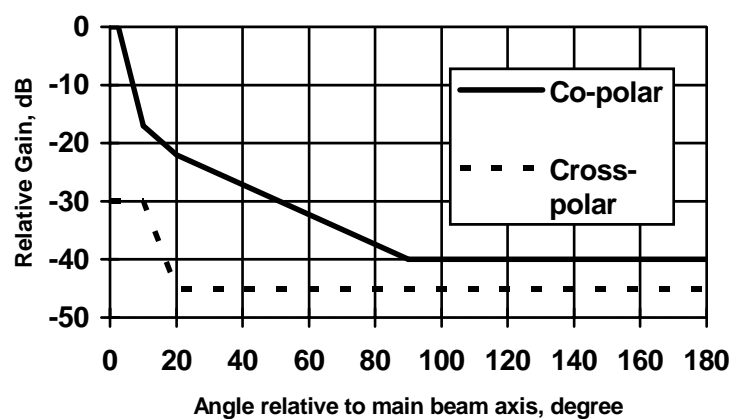


Figure 1c: Class TS3 terminal station antenna

Table 1c: Class TS3

Angle (degree)	Co-polar (dB)	Angle (degree)	Cross-polar (dB)
0	0	0	-30
2,5	0	10	-30
10	-17	20	-45
20	-22	180	-45
90	-40		
180	-40		