

**Fixed Radio Systems;
Generic wordings for standards on DRRS
(Digital Radio Relay Systems) characteristics;
Part 2: Point-to-multipoint equipment parameters**



Reference

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Foreword

This Technical Report (TR) has been produced by ETSI Technical Committee Transmission and Multiplexing (TM).

The present document is part 2 of a multi-part deliverable covering Fixed Radio Systems; Generic wordings for standards on DRRS (Digital Radio Relay Systems) characteristics, as identified below:

Part 1: "General aspects and point-to-point equipment parameters";

Part 2: "Point-to-multipoint equipment parameters".

1 Scope

The present document defines the major standardizable issues for Point-to-Multipoint digital radio-relay systems (P-MP) in the Fixed Service in order to maintain a generic format for the editorial and technical contents. It also give guidelines for the understanding of the definition of the parameters and elements. The present document aims to cover every issue that may be required. Specific standards may differ from the guidelines contained within the present document only if the specific argument is not covered or there is good technical reason for not following them.

It is essential to maintain a common understanding of the reasons behind the way certain parameters are defined among the various P-MP standards, which deal with the same general topics and may differ from each other by the application of different access methods or merely from the point of view of numerical requirements.

Because some of the parameters and elements are also common to Point-to-Point (P-P) digital radio-relay systems part 1 [1] of the present document should be taken into account when referenced below.

The present document is applicable to the wording (generic) of Point-to-Multipoint equipment parameters.

The known access methods applied to P-MP systems in the Fixed Service and the access methods to come in the future and combinations thereof implies that subparts of the present document are edited in order to maintain the commonality among the P-MP standards but to leave the way open for future P-MP technologies. Thus for every access method a subpart should be edited defining the specific parameters and when there is a new access method it should be added to the existing TR.

2 References

For the purposes of this Technical Report (TR) the following references apply:

- [1] ETSI TR 101 036-1: "Fixed Radio Systems; Point-to-point equipment; Generic wordings for standards on digital radio systems characteristics; Part 1: General aspects and point-to-point equipment parameters".
- [2] ETSI EN 301 126-2-1: "Fixed Radio Systems; Conformance testing; Part 2-1: Point-to-Multipoint equipment; Definition and general requirements".

3 Definitions

For the purposes of the present document, the terms and definitions given in EN 301 126-2-1 [2] apply.

4 Basis for reference

Annex A contains the issues to be applied when producing a P-MP Fixed Radio Systems standard.

These include:

- 1) Generic text to be used in every new standard or new part of an existing standard describing P-MP systems characteristics with respect to the DEFINITION, the NORMATIVE requirements, for the specific item in question, where different access methods are applied or where only a numerical value in the item (where it is required) has to be changed or included.

The meaning or phrasing of these standard texts shall not be altered unless a specific, different requirement is considered necessary. In this case a brief description of the background motivation for each change shall be documented in an informative annex of the relevant standard.

In some cases, a selection of different statements on the same issue exists. The relevant phrase shall be applied depending of the type of system referred to.

- 2) If necessary clarification of the test methods not defined in the Conformance Test Methods for P-MP [2], in order to have a common understanding of the requirements among the various certification laboratories.

The content of annex A shall be used to edit EN, TS or TR on P-MP equipment characteristics, unless the argument to be dealt with is not covered thereby.

Clause A.1 a general clause (Basic Parameters) describing parameters that are common to all Fixed Services Point-to-Multipoint Systems. Further clauses (A2, A3, ...) describe the parameters which are specific to the different access methods applied by the Point-to-Multipoint Systems. Each clause includes an informative annex (if applicable).

Annex B contains a brief description of the general technical background of the issues contained in annex A itself to support the standard text and/or illustrations and to give guidance on the numerical requirements of each issue (where applicable). This information has been supplied for the guidance of the editorial groups and would not form part of any standard produced.

Annex A: Generic Text for P-MP Systems

For the creation of further Point-to-Multipoint system standards, for each system type a template is contained in archive tr_10103602V010101p0.ZIP which accompanies the present document.

A.1 Basic parameters

For the creation of the basic parameters standard, a template named basic_parameters.doc is contained in archive tr_10103602V010101p0.zip which accompanies the present document.

A.2 Generic wording for systems using Frequency Division Multiple Access methods (FDMA)

For the creation of the generic wording for systems using Frequency Division Multiple Access methods (FDMA) standard, a template named FDMA.doc is contained in archive tr_10103602V010101p0.zip which accompanies the present document.

A.3 Generic wording for system using Direct Sequence-Code Division Multiple Access methods (DS-CDMA)

For further study.

A.4 Generic wording for systems using Time Division Multiple Access methods (TDMA)

For the creation of the generic wording for systems using Time Division Multiple Access methods (TDMA) standard, a template named TDMA.doc is contained in archive tr_10103602V010101p0.zip which accompanies the present document.

A.5 Generic wording for systems using Frequency Hopping Code division Multiple Access methods (FH-CDMA) Content

For the creation of the generic wording for systems using Frequency Hopping Code division Multiple Access methods (FH-CDMA) content standard, a template named FH-CDMA.doc is contained in archive tr_10103602V010101p0.zip which accompanies the present document.

Annex B: Annex background information to annex A

B.1 Background for clause A.1 on basic parameters

B.1.1 Scope

This clause contains a brief description of the equipment type, its use within the network, specific requirements and any other information useful to identify the commercial and technical environment in which it will be used. This clause will be used by ETSI as a database and document sales reference, so it should be short, concise, and aimed at those who may be unfamiliar with P-MP DRRS or radio systems in general.

Moreover, being Safety aspects not included in the ETSI term of reference, safety requirement for equipment shall be explicitly excluded by any EN/ETS/I-ETS.

B.1.2 Normative reference

See TR 101 036-1 [1], clause B.2.

B.1.3 Definitions, symbols and abbreviations

See TR 101 036-1 [1], clause B.2.

B.1.4 General characteristics

B.1.4.1 System Architecture

For further study.

B.1.4.2 Frequency bands and channel arrangements

For further consideration.

B.1.4.3 Compatibility requirements

See TR 101 036-1 [1], clause B.4.2.

B.1.4.4 Environmental conditions

See TR 101 036-1 [1], clause B.4.4.

B.1.4.5 Power supply

See TR 101 036-1 [1], clause B.4.5.

B.1.4.6 ElectroMagnetic Compatibility (EMC) conditions

See TR 101 036-1 [1], clause B.4.6.

B.1.4.7 TMN

This argument is currently under responsibility, study and definition by ETSI TMN and TM1. TM4 contribution shall, in general, be addressed to the above WG, giving proper resourcing and contributions. Nevertheless, other specific TM4 requirements might be applicable.

Since radio systems may support different interfaces with relevant transmission techniques, such as SDH, ATM, IP, etc., the appropriate management requirements should be individuated among relevant standards and recommendations.

B.1.4.8 Branching/feeder/antenna requirements

See TR 101 036-1 [1], clause B.4.9.

B.1.4.8.1 Coaxial connector or Wave guide flanges

See TR 101 036-1 [1], clause B.4.9.4.

B.1.4.8.2 Return loss

See TR 101 036-1 [1], clause B.4.9.5.

B.1.4.8.3 Intermodulation products

See TR 101 036-1 [1], clause B.4.9.5.

B.1.5 System parameters

B.1.5.1 System capacity

For further consideration.

B.1.5.2 Round trip delay

For further consideration.

B.1.5.3 Transparency

For further consideration.

B.1.5.4 Transmitter characteristics

See TR 101 036-1 [1], clause B.5.3.1.

B.1.5.4.1 Transmitter power and frequency control

For further consideration.

B.1.5.4.2 RF Spectrum mask

See TR 101 036-1 [1], clause B.5.3.5.

B.1.5.4.3 Tx Local oscillator frequency arrangements

See TR 101 036-1 [1], clause B.5.3.4.

B.1.5.4.4 Spurious emission-external

See TR 101 036-1 [1], clause B.5.3.7.

B.1.5.4.5 Radio frequency tolerance

See TR 101 036-1 [1], clause B.5.3.8.

B.1.5.5 Receiver characteristics

B.1.5.5.1 Rx Local oscillator frequency arrangements

See TR 101 036-1 [1], clause B.5.4.2.

B.1.5.5.2 Spurious emission

See TR 101 036-1 [1], clause B.5.4.3.

B.1.5.5.3 Receiver IF

See TR 101 036-1 [1], clause B.5.4.4.

B.1.5.6 System performance

B.1.5.6.1 BER as function of receiver input signal level RSL

See TR 101 036-1 [1], clause B.5.5.1.

B.1.5.6.2 Equipment residual BER

See TR 101 036-1 [1], clause B.5.5.2.

B.1.5.6.3 Interference sensitivity

See TR 101 036-1 [1], clause B.5.5.3.

B.1.5.6.4 Discrete CW components exceeding the spectrum density mask limit (all stations)

The limit for CW lines exceeding the spectrum mask requires the evaluation of the CS_{min} parameter for each band to be used in the general formula $\{10 \log (CS_{\min}/IF_{bw}) - 10\}$ dB.

During the approval of the revisions of work items REN/TM-4111-xx, the CS_{min} reported in table B.1 where agreed by TM4.

Table B.1: Minimum CS applicable for the CW lines exceeding the spectrum mask

Frequency band	Minimum foreseen channel spacing
Below 1 GHz	No figure of CS is currently available, specific input is required
1,5 GHz	25 kHz
2,2 GHz and 2,6 GHz	500 kHz
3,5 GHz (and 3,7 GHz if used for access P-P/P-MP systems)	500 kHz
4 GHz (down to 3,4 GHz if used for high capacity links)	10 MHz
5 GHz	10 MHz
6 GHz	14,825 MHz
7 GHz and 8 GHz	7 MHz
10,5 GHz	1,5 MHz (this is considered appropriate even if the minimum slot provided by ERC recommendation is 0,5 MHz)
13 GHz, 15 GHz, 18 GHz, 23 GHz, 26 GHz, 29 GHz and 38 GHz	1,75 MHz
50 GHz	3,5 MHz

Annex C (informative): Bibliography

- ETSI SR 001 262: "ETSI drafting rules".

History

Document history		
V1.1.1	August 2001	Publication