



European Standard

**Fixed Radio Systems;  
Point-to-point and Multipoint Systems;  
Unwanted emissions in the spurious domain and receiver  
immunity limits at  
equipment/antenna port of Digital Fixed Radio Systems**

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Reference

REN/ATTM-04023

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## Foreword

This European Standard (EN) has been produced by ETSI Technical Committee Access, Terminals, Transmission and Multiplexing (ATTM).

<b>National transposition dates</b>	
Date of adoption of this EN:	9 August 2013
Date of latest announcement of this EN (doa):	30 November 2013
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### Major changes with respect to previous version

This revision is consequent to recent revision of CEPT/ERC Recommendation 74-01 [4] and inclusion in other ETSI point-to-point standards of systems with bandwidth wider than 500 MHz, which have some different regulation in ECC/REC(02)05 [5] and Recommendation ITU-R SM.1539 [2].

Therefore alignment is needed on the following arguments:

- Spurious emission domain limits for BWA systems in bands between 1 GHz and 6 GHz
- Boundary between out of band and spurious domains for systems with bandwidths > 500 MHz
- Updated of examples in clause B.2

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# 1 Scope

The term Spurious emissions is used for simplicity elsewhere in the present document but with the more broader meaning of "*unwanted emissions in the spurious domain*" introduced by Recommendation ITU-R SM.329 [1] for clarifying the Radio Regulation definitions and the application of recommended limits for all unwanted emissions; it also recommends that spurious emissions limits apply to all unwanted emissions falling in the spurious domain.

Therefore the present document deals with limits for unwanted emissions in the spurious domain at antenna port of Digital Fixed Radio Systems (DFRS) as defined by Recommendation ITU-R SM.329 [1] and CEPT/ERC Recommendation 74-01 [4] and ECC Recommendation (02)05 [5].

Moreover it covers immunity characteristics at receiver's antenna port.

Scope of the present document is to define specific limits at antenna port for spurious emissions domain and receiver immunity for suitable inter-working of Digital Fixed Radio Systems (i.e. Point-to-point and Multipoint systems) in the same or in different frequency band whenever allocated to Fixed Service in the range 9 kHz to 300 GHz.

However systems with fundamental emission below 30 MHz are not considered relevant for Digital Fixed Radio Systems and are outside the scope of the present document.

Spurious emissions domain levels and immunity performance at antenna port are also relevant to essential requirements under article 3.2 of Directive 1999/5/EC [i.12] on Radio equipment and Telecommunication Terminals equipment (R&TTE).

The present document complements CEPT/ERC Recommendation 74-01 [4] which gives limits for Unwanted emissions in the Spurious domain with particular regards to "inter Services" operations, while WG TM4 assumed that in some case more protection is required for compatibility among fixed radio systems deployed in the same geographical area.

Additional considerations and background for producing the present document are:

- Recommendation ITU-R SM.329 [1] considers emissions from any system, including digital modulation and allows options for the definition of the frequency boundary between out-of-band domain and spurious emissions domain. It recommends different category of level limits applicable to the Fixed Service;
- Recommendation ITU-R SM.1539 [2] describes the application of the boundary concept between out-of-band and spurious emission domains;
- Recommendation ITU-R F.1191 [3] define the application of Radio Regulations [i.13] and SM set of Recommendation ITU-Rs concepts of out-of-band, unwanted and spurious emissions to DFRS, clarify the applicability for the boundary between out-of-band and Spurious emissions domains but maintain the same possible limit options provided by ITU-R Recommendation SM.329-10 [1];
- CEPT/ERC Recommendation 74-01 [4], endorses only the more stringent Category B limits of Recommendation ITU-R SM.329-10 [1];
- after the coming into force of RTTE Directive [i.12] the emissions and immunity at antenna port fall under its article 3.2 requirements for "*effective use of spectrum*" and "*avoidance of harmful interference*" and they are no longer an EMC requirement;
- it is convenient to maintain a single EN covering these parameters instead of replicating them on each single product standard, avoiding possible deviation from what required by other CEPT and ITU-R normative;
- limits for unwanted emissions in the spurious domain are supposed to be fixed in view of inter-working compatibility among various Fixed Radio Systems in same or different band exploited in the same area;
- the measurement of the required limits should also be feasible in a suitable and cost effective conformance test (annex B gives also information in this field);
- it is necessary that DFRS receivers provide a minimum level of immunity at antenna port towards possible interference at any frequency band of practical interest;