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**Electromagnetic compatibility and Radio spectrum Matters (ERM); Definition of radio parameters**

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# Foreword

This Technical Report (TR) has been produced by ETSI Technical Committee Electromagnetic compatibility and Radio spectrum Matters (ERM).

# Modal verbs terminology

In the present document "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

# Introduction

Many ETSI deliverables address radio parameters. In order to make these documents easy to read and practical for the user, the authors usually include the definitions of those parameters in the text corresponding to the appropriate clauses following the structure provided in the published ETSI guides and skeletons. Sometimes these definitions are not exact copies from the ETSI Terms and Definitions database "TEDDI" or from other ETSI deliverables, but are (slightly) adapted versions.

As a result many radio parameters have several different variants of their definitions used within ETSI.

The aim of the present document is to trace all those definitions (which are usually not included in "clause 3" of the ETSI deliverables).

It may be possible, then, to try and harmonize them (work to be done in a later "phase").

Because there are many ETSI deliverables it is a large amount of work to find all the definitions by hand. Therefore, a computer program that searches for definitions in ETSI deliverables has been written. The goal of this program is to assist tracing the definitions found outside of "clause 3". The program can be found in annex C.

In the present document the results of searches by hand (see clause 5 and annex A) and automatic searches (see annex B) co-exist to make comparisons and verifications more easy.

Practical experience has shown that some of the outputs provided by a computer program, when versions 1.1.1 and 1.1.2 of the present document had been prepared needed some further editing by hand. Therefore, in order to prepare version 1.2.1 of the present document another set of programmes (Matlab scripts) was written. For version 1.3.1 the scripts were enhanced. For version 1.4.1 the set of TS documents that were analysed was reduced to 3GPP TSs addressing radio i.e. series 105, 125, 145, 136, 137 and 138 (see comment in clause B.3.1).

During a first stage of the work, ETSI deliverables of early Autumn 2016 had been used. The version 1.2.1 of the present document used files provided by ETSI early October 2017. In version 1.3.1 a further set of deliverables of 2018 was used. In version 1.3.1 a further set of deliverables of 2018 was used. In version 1.4.1 the same set of deliverables (2018 versions) was processed.

# 1 Scope

The present document is intended to provide an overview of the various definitions of radio parameters that can be found in ETSI deliverables.

The present document includes definitions found in ETSI TRs, TSs, ESs and ENs.

As some consolidation work in the area of Radio Definitions had already been done in the early days of ETSI, definitions in ETSI ETR 027 [i.78] and ETSI TR 100 027 [i.79] had also been searched "by program".

Older types of deliverables, such as TBRs, have not been analysed, in fine, for various reasons:

- if they had contained interesting definitions, it is likely that such definitions would also have been found in more recent deliverables;
- their structure and layout is different from more recent ETSI deliverables and the programs (Scripts) used for recent ETSI deliverables have difficulty to "synchronize" and find possible definitions.

# 2 References

## 2.1 Normative references

Normative references are not applicable in the present document.

## 2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

To be noted that, for practical reasons, the list below does not include the references to the ETSI TRs, TSs, ESs or ENs that were searched by program. However, as some of the ETSI ENs have been analysed both by hand and by program, some of the references to ENs, below, are also relevant to the searches done by program.

[i.1] ITU Radio Regulations.

[i.2] ETSI EN 301 893 (V1.4.1): "Broadband Radio Access Networks (BRAN); 5 GHz high performance RLAN; Harmonized EN covering essential requirements of article 3.2 of the R&TTE Directive".

[i.3] ETSI EN 302 502 (V1.2.1): "Broadband Radio Access Networks (BRAN); 5,8 GHz fixed broadband data transmitting systems; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive".

[i.4] ETSI EN 301 406 (V1.5.1): "Digital Enhanced Cordless Telecommunications (DECT); Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU".

[i.5] ETSI EN 301 908-11 (V3.2.1): "IMT cellular networks; Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Part 11: CDMA Direct Spread (UTRA FDD) Repeaters".

[i.6] ETSI EN 302 426 (V1.1.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Harmonised EN for CDMA spread spectrum Repeaters operating in the 450 MHz cellular band (CDMA450) and the 410 MHz, 450 MHz and 870 MHz PAMR bands (CDMA-PAMR) covering essential requirements of article 3.2 of the R&TTE Directive".

[i.7] ETSI EN 300 607-1 (V8.1.1): "Digital cellular telecommunications system (Phase 2+) (GSM); Mobile Station (MS) conformance specification; Part 1: Conformance specification (GSM 11.10-1 version 8.1.1 Release 1999)".

[i.8] ETSI EN 300 162-1 (V1.4.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Radiotelephone transmitters and receivers for the maritime mobile service operating in VHF bands; Part 1: Technical characteristics and methods of measurement".

[i.9] ETSI EN 301 025-1 (V1.3.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); VHF radiotelephone equipment for general communications and associated equipment for Class "D" Digital Selective Calling (DSC); Part 1: Technical characteristics and methods of measurement".

[i.10] ETSI EN 301 178-1 (V1.3.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Portable Very High Frequency (VHF) radiotelephone equipment for the maritime mobile service operating in the VHF bands (for non-GMDSS applications only); Part 1: Technical characteristics and methods of measurement".

[i.11] ETSI EN 300 698-1 (V1.2.1): "ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM); Radio telephone transmitters and receivers for the maritime mobile service operating in the VHF bands used on inland waterways; Part 1: Technical characteristics and methods of measurement".

[i.12] ETSI EN 300 720-1 (V1.2.1): "ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM); Ultra-High Frequency (UHF) on-board communications systems and equipment; Part 1: Technical characteristics and methods of measurement".

[i.13] ETSI EN 301 929-1 (V1.2.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); VHF transmitters and receivers as Coast Stations for GMDSS and other applications in the maritime mobile service; Part 1: Technical characteristics and methods of measurement".

[i.14] ETSI EN 300 086-1 (V1.3.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Land Mobile Service; Radio equipment with an internal or external RF connector intended primarily for analogue speech; Part 1: Technical characteristics and methods of measurement".

[i.15] ETSI EN 300 296-1 (V1.3.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Land Mobile Service; Radio equipment using integral antennas intended primarily for analogue speech; Part 1: Technical characteristics and methods of measurement".

[i.16] ETSI EN 300 341-1 (V1.3.1): "ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM); Land Mobile Service (RP 02); Radio equipment using an integral antenna transmitting signals to initiate a specific response in the receiver; Part 1: Technical characteristics and methods of measurement".

[i.17] ETSI EN 300 390-1 (V1.2.1): "ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM); Land Mobile Service; Radio equipment intended for the transmission of data (and speech) and using an integral antenna; Part 1: Technical characteristics and test conditions".

[i.18] ETSI EN 301 166-1 (V1.3.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Land Mobile Service; Radio equipment for analogue and/or digital communication (speech and/or data) and operating on narrow band channels and having an antenna connector; Part 1: Technical characteristics and methods of measurement".

[i.19] ETSI EN 302 561 (V2.1.1): "Land Mobile Service; Radio equipment using constant or non-constant envelope modulation operating in a channel bandwidth of 25 kHz, 50 kHz, 100 kHz or 150 kHz; Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU".

[i.20] ETSI EN 300 113-1 (V1.6.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Land mobile service; Radio equipment intended for the transmission of data (and/or speech) using constant or non-constant envelope modulation and having an antenna connector; Part 1: Technical characteristics and methods of measurement".

[i.21] ETSI EN 300 761-1 (V1.2.1): "ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM); Short Range Devices (SRD); Automatic Vehicle Identification (AVI) for railways operating in the 2,45 GHz frequency range; Part 1: Technical characteristics and methods of measurement".

[i.22] ETSI EN 300 220-1 (V2.1.1): "Short Range Devices (SRD) operating in the frequency range 25 MHz to 1 000 MHz; Part 1: Technical characteristics and methods of measurement".

[i.23] ETSI EN 300 330-1 (V1.5.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Radio equipment in the frequency range 9 kHz to 25 MHz and inductive loop systems in the frequency range 9 kHz to 30 MHz; Part 1: Technical characteristics and test methods".

[i.24] ETSI EN 300 440-1 (V1.4.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Short range devices; Radio equipment to be used in the 1 GHz to 40 GHz frequency range; Part 1: Technical characteristics and test methods".

[i.25] ETSI EN 301 908-2 (V3.2.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Base Stations (BS), Repeaters and User Equipment (UE) for IMT-2000 Third-Generation cellular networks; Part 2: Harmonised EN for IMT-2000, CDMA Direct Spread (UTRA FDD) (UE) covering essential requirements of article 3.2 of the R&TTE Directive".

[i.26] ETSI TS 125 141 (V8.4.0): "Universal Mobile Telecommunications System (UMTS); Base Station (BS) conformance testing (FDD) (3GPP TS 25.141 version 8.4.0 Release 8)".

[i.27] ETSI EN 301 908-3 (V3.2.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Base Stations (BS), Repeaters and User Equipment (UE) for IMT-2000 Third-Generation cellular networks; Part 3: Harmonised EN for IMT-2000, CDMA Direct Spread (UTRA FDD) (BS) covering essential requirements of article 3.2 of the R&TTE Directive".

[i.28] ETSI EN 301 908-4 (V3.2.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Base Stations (BS), Repeaters and User Equipment (UE) for IMT-2000 Third-Generation cellular networks; Part 4: Harmonised EN for IMT-2000, CDMA Multi-Carrier (cdma2000) (UE) covering essential requirements of article 3.2 of the R&TTE Directive".

[i.29] ETSI EN 301 908-5 (V3.2.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Base Stations (BS), Repeaters and User Equipment (UE) for IMT-2000 Third-Generation cellular networks; Part 5: Harmonised EN for IMT-2000, CDMA Multi-Carrier (cdma2000) (BS) covering essential requirements of article 3.2 of the R&TTE Directive".

[i.30] ETSI EN 301 908-6 (V3.2.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Base Stations (BS), Repeaters and User Equipment (UE) for IMT-2000 Third-Generation cellular networks; Part 6: Harmonised EN for IMT-2000, CDMA TDD (UTRA TDD) (UE) covering essential requirements of article 3.2 of the R&TTE Directive".

[i.31] ETSI EN 301 908-7 (V3.2.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Base Stations (BS), Repeaters and User Equipment (UE) for IMT-2000 Third-Generation cellular networks; Part 7: Harmonised EN for IMT-2000, CDMA TDD (UTRA TDD) (BS) covering essential requirements of article 3.2 of the R&TTE Directive".

[i.32] ETSI EN 301 908-8 (V1.1.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Base Stations (BS) and User Equipment (UE) for IMT-2000 Third-Generation cellular networks; Part 8: Harmonised EN for IMT-2000, TDMA Single-Carrier (UWC 136) (UE) covering essential requirements of article 3.2 of the R&TTE Directive".

[i.33] ETSI EN 300 219-1 (V1.2.1): "ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM); Land Mobile Service; Radio equipment transmitting signals to initiate a specific response in the receiver; Part 1: Technical characteristics and methods of measurement".

[i.34] ETSI EN 300 433-1 (V1.1.3): "ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM); Land Mobile Service; Double Side Band (DSB) and/or Single Side Band (SSB) amplitude modulated citizen's band radio equipment; Part 1: Technical characteristics and methods of measurement".

[i.35] ETSI EN 301 908-9 (V1.1.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Base Stations (BS) and User Equipment (UE) for IMT-2000 Third-Generation cellular networks; Part 9: Harmonised EN for IMT-2000, TDMA Single-Carrier (UWC 136) (BS) covering essential requirements of article 3.2 of the R&TTE Directive".

[i.36] ETSI EN 300 373-2 (V1.2.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Maritime mobile transmitters and receivers for use in the MF and HF bands; Part 2: Harmonised EN covering essential requirements under article 3.2 of the R&TTE Directive".

[i.37] ETSI TS 101 087 (V8.9.0): "Digital cellular telecommunications system (Phase 2 and Phase 2+); Base Station System (BSS) equipment specification; Radio aspects (3GPP TS 11.21 version 8.9.0 Release 1999)".

[i.38] ETSI EN 300 392-2 (V3.2.1): "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 2: Air Interface (AI)".

[i.39] ETSI EN 300 396-2 (V1.3.1): "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 2: Radio aspects".

[i.40] ETSI EN 300 396-4 (V1.3.1): "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 4: Type 1 repeater air interface".

[i.41] ETSI EN 300 396-7 (V1.2.1): "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 7: Type 2 repeater air interface".

[i.42] ETSI EN 300 396-5 (V1.2.1): "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 5: Gateway air interface".

[i.43] ETSI EN 301 908-10 (V2.1.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Base Stations (BS), Repeaters and User Equipment (UE) for IMT-2000 Third-Generation cellular networks; Part 10: Harmonised EN for IMT-2000, FDMA/TDMA (DECT) covering essential requirements of article 3.2 of the R&TTE Directive".

[i.44] ETSI EN 302 195-1 (V1.1.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Radio equipment in the frequency range 9 kHz to 315 kHz for Ultra Low Power Active Medical Implants (ULP-AMI) and accessories; Part 1: Technical characteristics and test methods".

[i.45] ETSI EN 302 510-1 (V1.1.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Radio equipment in the frequency range 30 MHz to 37,5 MHz for Ultra Low Power Active Medical Membrane Implants and Accessories; Part 1: Technical characteristics and test methods".

[i.46] ETSI EN 302 571 (V2.1.1): "Intelligent Transport Systems (ITS); Radiocommunications equipment operating in the 5 855 MHz to 5 925 MHz frequency band; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU".

[i.47] ETSI TS 151 010-1 (V4.9.0): "Digital cellular telecommunications system (Phase 2+); Mobile Station (MS) conformance specification; Part 1: Conformance specification (3GPP TS 51.010-1 version 4.9.0 Release 4)".

[i.48] ETSI EN 300 065-1 (V1.1.3): "ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM); Narrow-band direct-printing telegraph equipment for receiving meteorological or navigational information (NAVTEX); Part 1: Technical characteristics and methods of measurement".

[i.49] ETSI EN 300 609-4 (V8.0.2): "Digital cellular telecommunications system (Phase 2 and Phase 2+) (GSM); Base Station System (BSS) equipment specification; Part 4: Repeaters (GSM 11.26 version 8.0.2 Release 1999)".

[i.50] ETSI EN 301 908-12 (V3.1.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Base Stations (BS), Repeaters and User Equipment (UE) for IMT-2000 Third-Generation cellular networks; Part 12: Harmonised EN for IMT-2000, CDMA Multi-Carrier (cdma2000) (Repeaters) covering essential requirements of article 3.2 of the R&TTE Directive".

[i.51] ETSI EN 301 783-1 (V1.2.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Land Mobile Service; Commercially available amateur radio equipment; Part 1: Technical characteristics and methods of measurement".

[i.52] ETSI EN 301 526 (V1.1.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Harmonised EN for CDMA spread spectrum mobile stations operating in the 450 MHz cellular band (CDMA 450) and 410, 450 and 870 MHz PAMR bands (CDMA-PAMR) covering essential requirements of article 3.2 of the R&TTE Directive".

[i.53] ETSI EN 300 471-1 (V1.2.1): "ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM); Land Mobile Service; Rules for Access and the Sharing of common used channels by equipment complying with EN 300 113; Part 1: Technical characteristics and methods of measurement".

[i.54] Recommendation ITU-T O.41: "Psophometer for use on telephone-type circuits".

[i.55] Recommendation ITU-T P.53: "Psophometer for use on telephone-type circuits".

[i.56] ETSI EN 302 480 (V1.1.2): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Harmonised EN for the GSM onboard aircraft system covering the essential requirements of Article 3.2 of the R&TTE Directive".

[i.57] ETSI EN 301 449 (V1.1.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Harmonised EN for CDMA spread spectrum base stations operating in the 450 MHz cellular band (CDMA 450) and 410, 450 and 870 MHz PAMR bands (CDMA-PAMR) covering essential requirements of article 3.2 of the R&TTE Directive".

[i.58] ETSI EN 300 328 (V1.7.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques; Harmonised EN covering essential requirements under article 3.2 of the R&TTE Directive".

[i.59] ETSI EN 302 288-1 (V1.3.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices; Road Transport and Traffic Telematics (RTTT); Short range radar equipment operating in the 24 GHz range; Part 1: Technical requirements and methods of measurement".

[i.60] ETSI EN 300 422-1 (V1.3.2): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Wireless microphones in the 25 MHz to 3 GHz frequency range; Part 1: Technical characteristics and methods of measurement".

[i.61] ETSI EN 301 357-1 (V1.4.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Cordless audio devices in the range 25 MHz to 2 000 MHz; Part 1: Technical characteristics and test methods".

[i.62] ETSI EN 301 797 (V1.1.1): "Electromagnetic compatibility and Radio Spectrum Matters (ERM); Harmonised EN for CT2 cordless telephone equipment covering essential requirements under article 3.2 of the R&TTE directive".

[i.63] ETSI EN 302 064-1 (V1.1.2): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Wireless Video Links (WVL) operating in the 1,3 GHz to 50 GHz frequency band; Part 1: Technical characteristics and methods of measurement".

[i.64] ETSI EN 302 291-2 (V1.1.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Close Range Inductive Data Communication equipment operating at 13,56 MHz; Part 2: Harmonised EN under article 3.2 of the R&TTE Directive".

[i.65] ETSI EN 302 500-1 (V1.2.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD) using Ultra WideBand (UWB) technology; Location Tracking equipment operating in the frequency range from 6 GHz to 9 GHz; Part 1: Technical characteristics and methods of measurement".

[i.66] ETSI EN 302 208-1 (V1.2.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Radio Frequency Identification Equipment operating in the band 865 MHz to 868 MHz with power levels up to 2 W; Part 1: Technical requirements and methods of measurement".

[i.67] ETSI EN 302 065 (V1.2.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD) using Ultra Wide Band technology (UWB) for communications purposes; Harmonised EN covering the essential requirements of article 3.2 of the R&TTE Directive".

[i.68] CEPT Recommendation 74-01: "Spurious Emissions".

[i.69] ETSI EN 300 674-1 (V1.2.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Road Transport and Traffic Telematics (RTTT); Dedicated Short Range Communication (DSRC) transmission equipment (500 kbit/s / 250 kbit/s) operating in the 5,8 GHz Industrial, Scientific and Medical (ISM) band; Part 1: General characteristics and test methods for Road Side Units (RSU) and On-Board Units (OBU)".

[i.70] ETSI EN 300 224-1 (V1.3.1): "ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM); On-site paging service; Part 1: Technical and functional characteristics, including test methods".

[i.71] ETSI EN 301 091-1 (V1.3.3): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices; Road Transport and Traffic Telematics (RTTT); Radar equipment operating in the 76 GHz to 77 GHz range; Part 1: Technical characteristics and test methods for radar equipment operating in the 76 GHz to 77 GHz range".

[i.72] ETSI EN 301 839-1 (V1.2.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Ultra Low Power Active Medical Implants (ULP-AMI) and Peripherals (ULP-AMI-P) operating in the frequency range 402 MHz to 405 MHz; Part 1: Technical characteristics and test methods".

[i.73] ETSI EN 302 537-1 (V1.1.2): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Ultra Low Power Medical Data Service Systems operating in the frequency range 401 MHz to 402 MHz and 405 MHz to 406 MHz; Part 1: Technical characteristics and test methods".

[i.74] ETSI EN 302 536-1 (V1.1.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Radio equipment in the frequency range 315 kHz to 600 kHz; Part 1: Technical characteristics and test methods".

[i.75] ETSI EN 300 135-1 (V1.2.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Land Mobile Service; Citizens' Band (CB) radio equipment; Angle-modulated Citizens' Band radio equipment (PR 27 Radio Equipment); Part 1: Technical characteristics and methods of measurement".

[i.76] ETSI EN 300 910: "Digital cellular telecommunications system (Phase 2+) (GSM); Radio transmission and reception (GSM 05.05)".

[i.77] ETSI EG 201 015: "Methods for Testing and Specification (MTS); Standards engineering process; A Handbook of validation methods".

[i.78] ETSI ETR 027 (edition 1): "Radio Equipment and Systems (RES); Methods of measurement for private mobile radio equipment".

[i.79] ETSI TR 100 027 (V1.2.1): "ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM); Methods of measurement for private mobile radio equipment".

[i.80] ETSI EG 201 399 (V3.1.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); A guide to the production of Harmonised Standards for application under the Radio & Telecommunication Terminal Equipment Directive 1999/5/EC (R&TTE) and a first guide on the impact of the Radio Equipment Directive 2014/53/EU (RED) on Harmonised Standards".

[i.81] ETSI EN 300 113 (V2.2.1): " Land Mobile Service; Radio equipment intended for the transmission of data (and/or speech) using constant or non-constant envelope modulation and having an antenna connector; Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU".

[i.82] ETSI EN 300 220 (all parts): "Short Range Devices (SRD) operating in the frequency range 25 MHz to 1 000 MHz".

# 3 Definition of terms, symbols and abbreviations

## 3.1 Terms

For the purposes of the present document, the following terms apply:

**adjacent channel power:** part of the total power output of a transmitter under defined conditions of modulation, which falls within a specified pass-band centred on the nominal frequency of either of the adjacent channels

NOTE: This power is the sum of the mean power produced by the modulation, hum and noise of the transmitter.

**alternate channel power:** part of the total power output of a transmitter under defined conditions of modulation, which falls within a specified pass-band centred on the nominal frequency of either of the alternate channels. This power is the sum of the mean power produced by the modulation, hum and noise of the transmitter

NOTE: This power is the sum of the mean power produced by the modulation, hum and noise of the transmitter.

**adjacent channel selectivity:** measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted signal which differs in frequency from the wanted signal by an amount equal to the adjacent channel separation for which the equipment is intended

NOTE 1: Used in ETSI EN 300 086-1 [i.14], clause 8.4.1; ETSI EN 300 296-1 [i.15], clause 9.4.1; ETSI EN 300 341-1 [i.16], clause 9.3.1; ETSI EN 300 390-1 [i.17], clause 9.4.1.

NOTE 2: The definition for "adjacent channel selectivity" had been copied from clause 5 into clause 3.1 in order to validate the Methodology proposed in the present document.

**average usable sensitivity expressed as field strength:** average field strength, expressed in dB µv/m, produced by a carrier at the nominal frequency of the receiver, modulated with the normal test signal which will, without interference, produce after demodulation a specified level of performance; the average is calculated from 8 measurements of field strength where the receiver is rotated by 45°

NOTE: Variants of this definition for speech, data, responses and messages can be found in annex A (clause A.22).

**blocking:** measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted input signal at any frequency other than those of the spurious responses or of the adjacent channels

NOTE 1: Adapted from that used in ETSI EN 300 086-1 [i.14], clause 8.7.1; ETSI EN 300 390-1 [i.17], clause 9.7.1; ETSI EN 301 166-1 [i.18], clause 8.8.1; ETSI EN 302 561 [i.19], clause 8.3.1.

NOTE 2: The definition for "blocking" had been copied from clause 5 into clause 3.1 in order to validate the Methodology proposed in the present document.

**co-channel interference rejection:** measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted modulated signal, both signals being at the nominal frequency of the receiver

**effective radiated power:** power radiated in the direction of the maximum field strength under specified conditions of measurement

**effective radiated power of the transmitter:** value of the output PEP for any condition of modulation radiated in the direction of the maximum field strength

**frequency error of the transmitter:** difference between the measured carrier frequency in the absence of modulation (or with modulation, provided that the presence of modulation allows sufficiently accurate measurement of the carrier frequency) and the nominal frequency of the transmitter

**maximum usable sensitivity of the receiver:** the minimum level of the signal at the receiver input, at the nominal frequency of the receiver and modulated with the normal test signal which will, without interference, produce after demodulation a specified level of performance

NOTE: Variants of this definition for speech, data, responses and messages can be found in annex A (clause A.22).

**rated output power of equipment measured as constant envelope angle modulation equipment:** carrier power (conducted) of the equipment as declared by the manufacturer

**rated output power of equipment measured as non-constant envelope modulation equipment:** transmitter power (conducted) of the equipment as declared by the manufacturer

**receiver intermodulation immunity:** measure of the capability of the receiver to receive a wanted modulated signal, without exceeding a given degradation due to the presence of two or more unwanted signals with a specific frequency relationship to the wanted signal frequency

**receiver intermodulation response rejection:** measure of the capability of the receiver to receive a wanted modulated signal, without exceeding a given degradation due to the presence of two or more unwanted signals with a specific frequency relationship to the wanted signal frequency

**spurious response rejection:** measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted modulated signal at any other frequency, at which a response is obtained

**transmitter attack time (ta):** time which elapses between the initiation of the "transmitter on" function ($Tx_{on}$) and the moment when the transmitter output power has reached a level 1 dB below or 1,5 dB above the steady state power ($P_c$) and maintains a level within +1,5 dB/-1 dB from $P_c$ thereafter as seen on the measuring equipment or in the plot of power as a function of time; or the moment after which the frequency of the carrier always remains within ±1 kHz of its steady state frequency, $F_c$, as seen on the measuring equipment or the plot of frequency as a function of time; whichever occurs later

**transient behaviour of the transmitter:** time-dependency of transmitter frequency, power and spectrum when the RF output power is switched on and off

**transmitter intermodulation attenuation:** measure of the capability of a transmitter to inhibit the generation of signals in its non-linear elements caused by the presence of the transmitter power and an interfering signal entering the transmitter via its antenna

**transient power:** power falling into adjacent (or other) spectrum due to the switching on or off of a transmitter

**transmitter power (conducted) in the case of constant envelope angle modulation equipment:** mean power delivered to the artificial antenna during a radio frequency cycle

**transmitter power (conducted) in the case of non-constant envelope modulation equipment - the Peak Envelope Power (PEP):** mean power delivered to the artificial antenna during a radio frequency cycle at the highest crest of the modulation envelope

**transmitter release time (tr):** time which elapses between the initiation of the "transmitter off" function ($Tx_{off}$) and the moment when the transmitter output power has reduced to a level 50 dB below the steady state power ($P_c$) and remains below this level thereafter as seen on the measuring equipment or in the plot of power as a function of time

**transmitter spurious emissions:** emissions at frequencies other than those of the carrier and sidebands associated with normal modulation

## 3.2 Symbols

Void.

## 3.3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

NOTE: It has to be noted that other abbreviations may be found in the various definitions extracted from the various deliverables, in which case clause 3 of the corresponding deliverables will be used, if needed.

| | |
|---|---|
| ATTM | Access, Terminals, Transmission and Multiplexing (ETSI Technical Committee) |
| CEPT | European Conference of Postal and Telecommunications administrations |
| ECC | Electronic Communications Committee |
| IEC | International Electrotechnical Commission |
| ITU | International Telecommunication Union |
| TC-MTS or MTS | Technical Committee (TC) Methods for Testing and Specification |
| SEAMCAT | Spectrum Engineering Advanced Monte Carlo Analysis Tool (developed by CEPT) |
| WG SE or SE | Working Group 'Spectrum Engineering' (of ECC) |
| WG TM4 or TM4 | Fixed Radio Systems (WG of TC-ATTM) |

# 4 Presentation of the methodology used in the present document

## 4.1 Introduction

The purpose of the work that has led to the present document, is to encourage those writing standards to use, as much as possible, either the existing definitions - when possible - or definitions as close as possible to already existing definitions.

Such effort had already been carried out in the very first days of ETSI, but it is clear that with the evolution of technology new definitions and variants of existing ones are needed. This effort is, in particular, encouraged by the ETSI EG 201 015 [i.77] drafted by MTS (see its clauses 5.1 and 5.1.1).

It has also to be noted that, at a global level, there are a number of other potential sources of definitions (such as ITU, in particular in its "Radio Regulations" [i.1] or IEC), so that definitions used in ETSI deliverables may have a variety of origins.

The search for definitions by the programme (scripts) was based on some expected structure of the deliverables. The expected structure was in line with that of a large number of ETSI deliverables and also in line with ETSI EG 201 399 [i.80].

As a side outcome of the work done, there is the strong recommendation to follow usual structures when drafting ETSI deliverables, as deviating from them may make it very difficult for automated processes to analyse such ETSI deliverables.

As a result, the ongoing work is to be carried out in 4 phases although some of those phases are partly running in parallel:

- **Phase 0** where an evaluation of the situation has been done by hand, addressing receiver parameters found in ENs.
- **Phase 1** that has led to the compilation of the present document, where automatic means have also been used.
- **Phase 2** that will have to be performed "by hand", based on the warnings given by the automatic programs during **Phase 1**.
- **Phase 3** with attempts to select the "best" definitions and to offer "consolidated" material to TEDDI.

**Phase 0** has led to the compilations found in annex A and to an attempt to analyse the corresponding material (the output of the corresponding work can be found in clause 5).

**Phase 1** has led to the compilation of the material found in annex B (using an "automatic search").

It has to be noted that the "normal syntax" of definition found as "complete clauses" has the following shape:

- "The <name of the radio parameter> is the <text of the definitions>";

while in the clause 3.1 definitions should be presented as follows:

- "<name of the radio parameter>: <text of the definitions>".

This difference implies that some editorial work has to be done once the definitions have been found in the various deliverables, should it be "by program" (as in annex B) or "by hand" (as in annex A).

It can be anticipated that **Phase 3** will lead to long and passionate debates, hence the need - as a first step - to publish the output of **Phase 1**.

In order to test the methodology, definitions for "adjacent channel selectivity" and "blocking" that seem very generic and that should not be very controversial were included in clause 3.1 of versions 1.1.1 and 1.1.2 of the present document, so that TEDDI could find them. A few other usual receiver parameter definitions were added into clause 3.1 of version 1.2.1 of the present document, for the same purpose. More definitions were included in version 1.3.1.

More details on the methods used to extract the definitions can be found in annex C.

In the long term future further interactions can be thought of, for instance a working of the system on the drafts so that definitions that are not completely coherent can be immediately flagged.

## 4.2 TEDDI operation and its implications

The ETSI data base "Terms and Definitions Interactive Data Base" known as "TEDDI" (http://webapp.etsi.org/Teddi/) can be accessed from the ETSI Portal (see "SEARCH" in the tool bar (this was verified in January 2019)).

TEDDI is fed automatically with the definitions found in clause 3.1 of the various deliverables published by ETSI.

For very good reasons, many ETSI Technical Bodies writing methods of measurement use the following approach:

- the definitions of the various parameters are found in the main body of the document, beyond "Clause 3";
- often the sequence of paragraphs is "definitions", "method of measurements", "limits" and is repeated for each of the parameters addressed.

Therefore, the definitions supporting many of the measurements addressed in ETSI Standards are not found in TEDDI.

This is the reason for the ongoing work.

It was noted, while drafting the present document, that in a number of deliverables, the clause "definition" contains, not only definitions - as prescribed by ETSI - but also sentences concerning the applicability of the measurement (and sometimes more text).

It is, therefore, proposed to consider adding a new clause, so that clauses relating to measurements are organized as follows:

- "definition";
- "applicability";
- "method of measurements";
- "limits".

This would result in ETSI deliverables being closer to the ETSI Drafting Rules.

Obviously, a program searching for "definitions" cannot detect definitions when they are announced by other words such as "description".

## 4.3 The program(s) - Matlab scripts

Matlab scripts were written to analyse ETSI deliverables such as "EN" (European Norm) type documents and others like "ES" (ETSI Standard) or "TS" (Technical Specification) type documents.

Initially, Matlab was chosen as it can "swallow" a complete Microsoft Word™ document in a way that it can be subsequently analysed by a program (i.e. by the Matlab scripts).

These scripts provide the output expected when the structure of the document corresponds to some predicted structure.

Experience shows that many deliverables are structured in a similar way, but some are not. Such deliverables may have been skipped and, therefore, will have to be analysed by hand.

In the course of the work, several versions of the scripts had been re-written in order to cope with the structures of a number of "non-compliant" deliverables.

This method of analysing Word™ documents had a clear drawback: "non-text" found in definitions (e.g. tables, equations, figures, etc.) would be converted in a sequence of characters that looked strange. Such strange strings of characters had been removed by hand in versions up to 1.1.2 of the present document.

In order to avoid this difficulty, the scripts in version 1.2.1 of the present document process files that have already been converted into text files (.txt files) by a Microsoft Word™ macro.

Typically, these scripts can be used in the following way:

1) As a preliminary step, put all the "to be searched deliverables" in a dedicated folder.

2) Go to Matlab, and call, for example: AnalyseFolderContents(Path), where Path is a string indicating the location of the appropriate folder.
   For example:

   >> AnalyseFolderContents('C:\ETSI_Docs\').

3) As a result, a new file is created "definitions.txt" which lists all the definitions detected in the various clauses - beyond clause 3 - in all the deliverables found in the indicated folder. A control list is also provided.

The file "definitions.txt" generated by the fourth version of the scripts contained the following information:

- file name of the deliverable
- deliverable name
- deliverable Title
- deliverable reference
- deliverable Keywords
- deliverable definitions

Later versions provide only all the definitions found in all the deliverables but add a "NOTE" providing the SOURCE of the definition (including type and number of the deliverable version and clause, as it can be seen in the file named "Detailed information relevant to annexes B and C of ETSI TR 103 265" contained in archive tr_103265v010301p0.zip which accompanies the present document.

The output of this script applied on all "EN" type deliverables can be found in the same file named "Detailed information relevant to annexes B and C of ETSI TR 103 265", clause B.5.5 (possibly after some reorganization and some manual processing).

The last version of the code of the script(s) can be found in the file named "Detailed information relevant to annexes B and C of ETSI TR 103 265" contained in archive tr_103265v010301p0.zip which accompanies the present document.

The corresponding results can be found in the same file named "Detailed information relevant to annexes B and C of ETSI TR 103 265", Annex B.

## 4.4 Expected structure of definitions

Definitions are expected to comply with the ETSI Drafting Rules and the appropriate EGs (ETSI Guides) such as ETSI EG 201 399 [i.80].

The corresponding clause is not expected to contain text other than that of a definition (text corresponding to the applicability of the measurement, for example, should be stored in another clause).

In order to further analyse definitions and order them in a suitable manner, a more detailed model of the structure of the ETSI radio definitions may be useful.

A large number of ETSI radio definitions, in particular for receiver parameters can be described thanks to a grammar described - in a very simplistic way - as follows:

"Definition := [article] <parameter identification block> [of [a]] <equipment> <verb> <body of the definition> [additional text]

<parameter identification block> := [<Attribute of the parameter>] <name of the parameter>

<body of the definition> := <what> <why> <conditions>

<why> := " due to the presence of " <interferer(s)>

Attachments to the present document illustrate how such a grammar could be used and provide corresponding examples: they can be found in archive tr_103265v010301p0.zip which accompanies the present document.

The file "Extension of the VBA module (-xls) in order to allow the Selection of the Syntax (TEDDI or Sentence) and choice for Blocking .xls" contains a macro that guides the user when choosing the definition to be written and its format.

In order to run that macro "CTRL+SHIFT+S" have to be typed (and the macros have to be enabled in the computer being used).

## 4.5 Performance of the Scripts and orders of magnitude

The total amount of files processed in order to generate the present document correspond to close to 30 GB of data, out of which, TSs correspond to more than 20 GB.

With the hardware that was used - de facto - to copy such an amount of data required hours.

The more time consuming operation in order to generate the present document was the conversion of files from the .doc (or .docx) format into the .txt format and can take a fraction of a day or more. To be noted that the conversion of .docx files takes, by far, longer than the conversion of .doc files (.docx files are compressed). There were also problems when converting some of the .docx files, therefore, those were not further analysed.

"Surprisingly", running the Scripts to extract the definitions and sort them by alphabetical order is "only" a matter of hours.

# 5 Manual search and comparison of definitions

## 5.0 General

This clause presents work done during **Phases 0 and 1** (as defined in clause 4.1). A number of observations made during those phases can be found as "comments". The meaning of the colours used is also explained in "comments" when not self-explanatory.

This clause illustrates one possible way (and the criteria) that could lead to the selection of the definitions to be moved into clause 3.1 of the present document (in (a) future version(s)).

Clauses up to 5.1.10 were included in earlier versions of the present document and clause 5.1.11 includes material added into version 1.2.1 of the present document.

## 5.1 Example of sets of definitions discussed during phase 0 and phase 1 of the work on the present document

### 5.1.1 Adjacent Channel Rejection Ratio (ACRR)

**Adjacent Channel Rejection Ratio (ACRR):** ratio of the RRC weighted gain per carrier of the Repeater in the pass band to the RRC weighted gain of the Repeater on an adjacent channel

NOTE 1: Used in ETSI EN 301 908-11 [i.5], clause 4.2.7.1. (The second sentence therein could not be added since it is a requirement: "The requirement shall apply to the Uplink and Downlink of Repeater where the donor link is maintained via antennas (over the air Repeater)").

NOTE 2: Blue is used to show the differences between the two definitions.

**Adjacent Channel Rejection Ratio (ACRR):** ratio of the RRC weighted gain per carrier in the passband to the RRC weighted gain per carrier immediately outside the passband

NOTE: Used in ETSI EN 302 426 [i.6], clause 4.2.7.1. (The second sentence therein could not be added since it is a requirement: "The measurements shall apply to both paths up-link and down-link of the repeater").

### 5.1.2 Adjacent channel selectivity

**adjacent channel selectivity - speech channels:** measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted signal in the adjacent channel

NOTE 1: The adjacent channel can be adjacent in the RF spectrum or in time. There are therefore two types of adjacent channel selectivity:

1) Adjacent RF channel selectivity, which is specifically tested in this clause.

2) Adjacent time slot selectivity, which is implicitly tested in test 2.1.

The requirements and this test apply to MS supporting speech.

NOTE 2: Red text in note 1 means that the text may need to be deleted here.

NOTE 3: Used in ETSI EN 300 607-1 [i.7], clause 14.5.1.1.

**adjacent channel selectivity:** measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted modulated signal which differs in frequency from the wanted signal by the nominal channel spacing

NOTE: Used in ETSI EN 300 162-1 [i.8], clause 9.5.1; ETSI EN 301 025-1 [i.9], clause 9.5.1; ETSI EN 301 178-1 [i.10], clause 9.5.1.

**adjacent channel selectivity:** measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted modulated signal which differs in frequency from the wanted signal by 25 kHz

NOTE: Used in ETSI EN 300 698-1 [i.11], clause 9.5.1; ETSI EN 300 720-1 [i.12], clause 9.5.1; ETSI EN 301 025-1 [i.9], clause 10.3.1; ETSI EN 301 929-1 [i.13], clause 9.15.1.

**adjacent channel selectivity:** measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted signal which differs in frequency from the wanted signal by an amount equal to the adjacent channel separation for which the equipment is intended

NOTE 1: Used in ETSI EN 300 086-1 [i.14], clause 8.4.1; ETSI EN 300 296-1 [i.15], clause 9.4.1; ETSI EN 300 341-1 [i.16], clause 9.3.1; ETSI EN 300 390-1 [i.17], clause 9.4.1.

NOTE 2: The definition above was copied into clause 3.1 in order to validate the Methodology proposed in the present document.

**adjacent channel selectivity:** measure of the capability of the receiver to receive a wanted modulated signal at the nominal frequency without exceeding a given degradation due to the presence of an unwanted signal which differs in frequency from the wanted signal by an amount equal to the adjacent CSP for which the equipment is intended

NOTE: Used in ETSI EN 301 166-1 [i.18], clause 8.5.1.

**adjacent channel selectivity:** measure of the capability of the receiver to receive a wanted modulated signal at the nominal frequency without exceeding a given degradation due to the presence of an unwanted signal which differs in frequency from the wanted signal in the 25 kHz channels adjacent to the channel for which the equipment is intended

NOTE: Used in ETSI EN 302 561 [i.19], clause 8.4.1. (The second sentence therein could not be added since it is a requirement: "The CSP of the equipment shall be declared by the manufacturer.")

**adjacent channel selectivity:** measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted signal which differs in frequency from the wanted signal by an amount equal to the adjacent channel separation for which the equipment is intended

NOTE: Used in ETSI EN 300 113-1 [i.20], clause 8.6.1. (The second sentence therein could not be added since it is a requirement: "The equipment (transmission and/or reception) under test shall be operated in its normal transmission mode (which may be continuous or discontinuous).")

**adjacent channel selectivity:** measure of the capability of the receiver to receive a wanted modulated signal without exceeding degradation due to the presence of an unwanted signal differing in frequency by an amount equal to the adjacent channel separation for which the equipment is intended

NOTE: Used in ETSI EN 300 761-1 [i.21], clause 8.3.4.1.

**adjacent channel selectivity:** measure of the capability of the receiver to receive a wanted modulated signal at the nominal frequency without exceeding a given degradation due to the presence of an unwanted modulated signal in the adjacent channel

NOTE: Used in ETSI EN 301 929-1 [i.13], clause 9.6.1.

**adjacent channel selectivity:** measure of the capability of the receiver to operate satisfactorily in the presence of an unwanted signal that differs in frequency from the wanted signal by an amount equal to the adjacent channel separation for which the equipment is intended

NOTE: Used in ETSI EN 300 220-1 [i.22], clause 9.3.1; ETSI EN 300 330-1 [i.23], clause 8.1.1; ETSI EN 300 440-1 [i.24], clause 8.1.1.

**Adjacent Channel Selectivity (ACS):** Measure of a receiver's ability to receive a WCDMA signal at its assigned channel frequency in the presence of an adjacent channel signal at a given frequency offset from the centre frequency of the assigned channel. ACS is the ratio of the receive filter attenuation on the assigned channel frequency to the receive filter attenuation on the adjacent channel(s).

NOTE: Used in ETSI EN 301 908-2 [i.25], clause 4.2.6.1.

**Adjacent Channel Selectivity (ACS):** measure of the receiver's ability to receive a wanted signal at its assigned channel frequency in the presence of an adjacent channel signal at a given frequency offset from the centre frequency of the assigned channel. ACS is the ratio of the receiver filter attenuation on the assigned channel frequency to the receive filter attenuation on the adjacent channel(s)

NOTE 1: The interference signal is offset from the wanted signal by the frequency offset $F_{uw}$.

NOTE 2: Used in ETSI EN 301 908-3 [i.27], clause 4.2.10.1. (The third sentence therein could not be added since it is a requirement: "The interference signal shall be a WCDMA signal as specified in ETSI TS 125 141 [i.26], annex I.")

**adjacent channel selectivity:** measure of the ability to receive a CDMA signal on the assigned channel frequency in the presence of another CDMA signal that is offset from the centre frequency of the assigned channel by ±2,5 MHz for spreading rate 1 or ±5 MHz for spreading rate 3

NOTE: Used in ETSI EN 301 908-4 [i.28], clause 4.2.8.1.

**adjacent channel selectivity:** measure of the ability to receive a CDMA signal or an HRPD signal on the assigned channel frequency in the presence of another interfering CDMA signal that is offset from the centre frequency of the assigned channel by ±2,5 MHz for spreading rate 1 or ±5 MHz for spreading rate 3

NOTE: Used in ETSI EN 301 908-5 [i.29], clause 4.2.8.1.

**Adjacent Channel Selectivity (ACS):** measure of the receiver ability to receive a wanted signal at its assigned channel frequency in the presence of an adjacent channel signal at a given frequency offset from the centre frequency of the assigned channel. ACS is the ratio of the receive filter attenuation on the assigned channel frequency to the receiver filter attenuation on the adjacent channel(s)

NOTE: Used in ETSI EN 301 908-6 [i.30], clause 4.2.10.1.

**Adjacent channel selectivity (ACS):** measure of the receiver ability to receive a wanted signal at its assigned channel frequency in the presence of a single code CDMA modulated adjacent channel signal at a given frequency offset from the centre frequency of the assigned channel. ACS is the ratio of the receiver filter attenuation on the assigned channel frequency to the receive filter attenuation on the adjacent channel(s)

NOTE: Used in ETSI EN 301 908-7 [i.31], clause 4.2.10.1.

**receiver adjacent channel selectivity:** measure of the capability of the receiver to receive wanted data packets without exceeding a given degradation due to the presence of an interfering signal (I1) in the adjacent channel

NOTE 1: "Wanted signal" in this test is the signal generated by the transmitted RLC data blocks.

NOTE 2: Used in ETSI EN 301 908-8 [i.32], clause 4.2.3.6.1.

**adjacent channel selectivity:** measure of the capability of the receiver to achieve a specific successful response ratio when receiving a wanted modulated signal in the presence of an unwanted modulated signal which differs in its frequency from the wanted signal by an amount equal to the adjacent channel separation for which the equipment is intended

NOTE: Used in ETSI EN 300 219-1 [i.33], clause 9.5.1.

**adjacent channel selectivity:** capability of the receiver to receive a wanted modulated signal at the nominal frequency without exceeding a given degradation due to the presence of an unwanted modulated signal in the adjacent channel

NOTE: Used in ETSI EN 300 433-1 [i.34], clause 9.2.1.

**adjacent channel selectivity of a receiver:** measure of the ability of the receiver to receive, without degradation of performance, a wanted input signal on its assigned channel frequency, in the presence of a second modulated signal at other frequencies

NOTE: Used in ETSI EN 301 908-9 [i.35], clause 4.4.7.1.

**adjacent channel selectivity:** [measure of the] capability of the receiver to {receive a wanted modulated signal [at the nominal frequency] [without exceeding [a given] degradation] {due to | in the} | operate satisfactorily in} the presence of an unwanted [modulated] signal {in the adjacent channel| {which differs| that differs | differing} in [its] frequency from the wanted signal {by the nominal channel spacing| by 25 kHz | by an amount equal to the adjacent {channel separation | CSP} | in the 25 kHz channels adjacent to the channel } [for which the equipment is intended]

**receiver adjacent channel selectivity:** measure of the capability of the receiver to receive wanted data packets without exceeding a given degradation due to the presence of an interfering signal (I1) in the adjacent channel

**adjacent channel selectivity of a receiver:** measure of the ability of the receiver to receive, without degradation of performance, a wanted input signal on its assigned channel frequency, in the presence of a second modulated signal at other frequencies

**adjacent channel selectivity:** measure of {a receiver's | the [receiver]} ability to receive a {wanted | CDMA | WCDMA} signal [or an HRPD signal] {at its | on the} assigned channel frequency in the presence of {an adjacent channel | another [interfering] CDMA | a single code CDMA modulated adjacent channel} signal {at a given frequency | that is} offset from the centre frequency of the assigned channel [by ±2,5 MHz for spreading rate 1 or ±5 MHz for spreading rate 3]. [ACS is the ratio of the {receive | receiver} filter attenuation on the assigned channel frequency to the receive filter attenuation on the adjacent channel(s).]

### 5.1.3 Adjacent channel selectivity and desensitization

**adjacent channel selectivity and desensitization of a receiver:** measure of its ability to receive a modulated input signal on its assigned channel frequency in the presence of a second modulated input frequency spaced either one channel (30 kHz) above or one channel (30 kHz) below the assigned channel frequency

NOTE: Used in ETSI EN 301 908-8 [i.32], clause 4.2.2.6.1; ETSI EN 301 908-9 [i.35], clause 4.3.7.1.

### 5.1.4 Alternate channel selectivity and desensitization

**alternate channel selectivity and desensitization of a receiver:** measure of its ability to receive a modulated input signal on its assigned channel frequency in the presence of a second modulated input frequency spaced either two channels (60 kHz) above or two channels (60 kHz) below the assigned channel frequency

NOTE: Used in ETSI EN 301 908-8 [i.32], clause 4.2.2.6.1; ETSI EN 301 908-9 [i.35], clause 4.3.7.1.

### 5.1.5 Adjacent signal selectivity

**adjacent signal selectivity:** ability of the receiver to discriminate between a wanted signal (to which the receiver is tuned) and unwanted signals existing simultaneously in channels adjacent to that of the wanted signal or an increase of the bit error ratio to $10^{-2}$

NOTE: Used in ETSI EN 300 373-2 [i.36], clause 4.2.7.1.

### 5.1.6 AM suppression

**Amplitude Modulation (AM) suppression:** measure of the receiver's rejection of the amplitude variations caused by interfering signals

NOTE: Used in ETSI EN 301 908-9 [i.35], clause 4.4.6.1.1.

**AM suppression:** measure of the ability of a BSS receiver to receive a wanted GSM modulated signal without exceeding a given degradation due to the presence of an unwanted modulated signal

NOTE: Used in ETSI TS 101 087 [i.37], clause 7.8.1.

### 5.1.7 Blocking

**blocking:** measure of the receiver's ability to receive a wanted signal at its assigned channel frequency in the presence of an unwanted interferer on frequencies other than those of the spurious response or the adjacent channels, without this unwanted input signal causing a degradation of the performance of the receiver beyond a specified limit

NOTE: Used in ETSI EN 301 908-2 [i.25], clause 4.2.7.1. (The second sentence therein could not be added since it is a requirement: "The blocking performance shall apply at all frequencies except those at which a spurious response occur.")

**blocking:** measure of the receiver ability to receive a wanted signal at its assigned channel frequency in the presence of an unwanted interferer on frequencies other than those of the adjacent channels

NOTE 1: The blocking performance requirement applies as specified in tables 14, 14a and 14b.

NOTE 2: Used in ETSI EN 301 908-3 [i.27], clause 4.2.8.1.

**blocking:** measure of the capability of the receiver to receive a modulated wanted input signal in the presence of an unwanted un-modulated input signal on frequencies other than those of the spurious responses or the adjacent channels, without this unwanted input signal causing a degradation of the performance of the receiver beyond a specified limit

NOTE: Used in ETSI EN 300 392-2 [i.38], clause 6.5.1.1; ETSI EN 300 396-2 [i.39], clause 6.5.1.1; ETSI EN 300 396-4 [i.40], clause 12.3.5; ETSI EN 300 396-7 [i.41], clause 12.3.5; ETSI EN 300 396-5 [i.42], clause 16.3.5.

**blocking:** measure of the receiver's ability to receive a CDMA signal at its assigned channel frequency in the presence of a single tone on frequencies other than those of the adjacent channels, without this unwanted input signal causing a degradation of the performance of the receiver beyond a specified limit

NOTE: Used in ETSI EN 301 908-4 [i.28], clause 4.2.6.1.

**blocking:** measure of the ability to receive a CDMA signal or an HRPD signal on the assigned channel frequency in the presence of a single tone that is offset from the centre frequency of the assigned channel on frequencies other than those of the adjacent channels

NOTE: Used in ETSI EN 301 908-5 [i.29], clause 4.2.6.1.

**blocking:** measure of the receiver ability to receive a wanted signal at its assigned channel frequency in the presence of an unwanted interferer on frequencies other than those of the spurious response or the adjacent channels without this unwanted input signal causing a degradation of the performance of the receiver beyond a specified limit

NOTE: Used in ETSI EN 301 908-6 [i.30], clause 4.2.7.1. (The second sentence therein could not be added since it is a requirement: "The blocking performance shall apply at all frequencies except those at which a spurious response occurs.")

**blocking:** measure of the receiver ability to receive a wanted signal at its assigned channel frequency in the presence of an unwanted interferer on frequencies other than those of the adjacent channels

NOTE: Used in ETSI EN 301 908-7 [i.31], clause 4.2.8.1.

**blocking:** measure of the receiver's ability to correctly detect and decode the wanted signal at sensitivity levels, when other signals, much stronger but of different frequency channels, are also present at the receiver input

NOTE 1: The blocking characteristics of the receiver are specified separately for in-band and out-of-band performance as identified in table 20.

NOTE 2: Used in ETSI EN 301 908-9 [i.35], clause 4.4.6.3.1.

**blocking:** measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted input signal at any frequencies other than those of the receiver spurious responses and adjacent channel selectivity, see clause 8.1

NOTE: Used in ETSI EN 300 330-1 [i.23], clause 8.2.1.

**blocking:** measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted input signal at any frequencies other than those of the spurious responses

NOTE 1: Receivers implanted in a human body that use error detection coding and recognize a limited command set such as pacemakers, defibrillators, etc., are not required to perform this test.

NOTE 2: Used in ETSI EN 302 195-1 [i.44], clause 8.1.1.

**blocking:** measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted input signal at any frequencies other than those of the spurious responses or the adjacent channels or bands

NOTE: Used in ETSI EN 300 220-1 [i.22], clause 9.4.1; ETSI EN 300 440-1 [i.24], clause 8.2.1.

**blocking:** measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted input signal at any frequencies other than those of the spurious responses or the adjacent channels

NOTE 1: Used in ETSI EN 300 086-1 [i.14], clause 8.7.1; ETSI EN 300 390-1 [i.17], clause 9.7.1; ETSI EN 301 166-1 [i.18], clause 8.8.1; ETSI EN 302 561 [i.19], clause 8.3.1.

NOTE 2: The definition above was copied into clause 3.1 and slightly adapted in order to validate the Methodology proposed in the present document.

**blocking or desensitization:** measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted signal at any frequency other than those of the spurious responses or of the adjacent channels

NOTE: Used in ETSI EN 300 296-1 [i.15], clause 9.7.1; ETSI EN 300 341-1 [i.16], clause 9.6.1.

**blocking:** measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted input signal at any frequencies other than those of the spurious responses or the adjacent channels

NOTE: Used in ETSI EN 300 113-1 [i.20], clause 8.9.1. (The second sentence therein could not be added since it is a requirement: "The equipment (transmission and/or reception) under test shall be operated in its normal transmission mode (which may be continuous or discontinuous).")

**blocking:** measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted input signal at any frequencies other than those of the spurious responses in adjacent channels or bands (see clause 3.1)

NOTE 1: Class 3 receivers are exempt from this requirement.

NOTE 2: Used in ETSI EN 302 510-1 [i.45], clause 8.1.1.

**blocking:** measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted input signal at any frequencies other than those of the spurious responses or the adjacent channels or bands

NOTE 1: This requirement applies only to equipment operating in the frequency range from 5 855 MHz to 5 875 MHz.

NOTE 2: Used in ETSI EN 302 571 [i.46], clause 6.7.1.

**blocking:** measure of the capability of the receiver to achieve a specific successful response ratio when receiving the wanted signal in the presence of an unwanted unmodulated high level signal on frequencies other than those of spurious responses or adjacent channels

NOTE: Used in ETSI EN 300 219-1 [i.33], clause 9.8.1.

**blocking:** change (generally a reduction) in the wanted output power of the receiver or a reduction of the SINAD ratio due to an unwanted signal on another frequency

NOTE: Used in ETSI EN 300 162-1 [i.8], clause 9.8.1; ETSI EN 300 698-1 [i.11], clause 9.8.1; ETSI EN 301 025-1 [i.9], clause 9.8.1; ETSI EN 301 178-1 [i.10], clause 9.8.1; ETSI EN 301 929-1 [i.13], clause 9.9.1.

**blocking:** change (generally a reduction) in the wanted audio frequency output power of the receiver or a reduction of the SINAD ratio due to an unwanted signal on another frequency

NOTE: Used in ETSI EN 300 720-1 [i.12], clause 9.8.1.

**blocking:** change (generally a reduction) in the wanted output power of a receiver, or a reduction in the SINAD ratio, or an increase in the bit error rate due to an unwanted signal on another frequency

NOTE: Used in ETSI EN 300 373-2 [i.36], clause 4.2.8.1.

**blocking:** measure of the ability of the receiver to receive a modulated wanted input signal in the presence of an unwanted input signal, on frequencies other than those of the spurious responses or the adjacent channels, without exceeding a given degradation

NOTE 1: The requirements and this test apply to MS supporting speech.

NOTE 2: Used in ETSI EN 300 607-1 [i.7], clause 14.7.1.1; ETSI TS 151 010-1 [i.47], clause 14.7.1.1.

**blocking:** measure of the ability of the receiver to receive a modulated wanted input signal in the presence of an unwanted input signal, on frequencies other than those of the spurious responses or the adjacent channels, without exceeding a given degradation

NOTE 1: "Wanted signal" in this test is the signal generated by the transmitted RLC data blocks.

NOTE 2: The requirements and this test apply to all types of MS which are capable of EGPRS operation.

NOTE 3: Used in ETSI TS 151 010-1 [i.47], clause 14.18.5.1.

**blocking:** measure of the ability of the receiver to receive a modulated wanted input signal in the presence of an unwanted input signal, on frequencies other than those of the spurious responses or the adjacent channels, without exceeding a given degradation

NOTE 1: The requirements and this test apply to R-GSM MS supporting speech.

NOTE 2: Used in ETSI EN 300 607-1 [i.7], clause 14.7.3.1; ETSI TS 151 010-1 [i.47], clause 14.7.3.1.

**blocking:** measure of the ability of the receiver to receive a modulated wanted input signal in the presence of an unwanted input signal, on frequencies other than those of the spurious responses or the adjacent channels, without exceeding a given degradation

NOTE 1: The requirements and this test apply to R-GSM MS not supporting speech.

NOTE 2: Used in ETSI EN 300 607-1 [i.7], clause 14.7.4.1.

**blocking:** measure of the {[receiver['s]] ability | {ability | capability} of the receiver} to receive a {[modulated] wanted [input] | CDMA} signal [or [an] HRPD signal] [{at its | on the | on its} assigned channel frequency] in the presence of {an unwanted {[un-modulated] input signal | interferer} | a single tone [that is offset from the centre frequency of the assigned channel]} on frequencies other than those of [the spurious response[s] or] the adjacent channels[{, without this unwanted input signal causing a degradation of the performance of the receiver beyond a specified limit | without exceeding a given degradation}]

**blocking:** measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted input signal at any {frequency | frequencies} other than those of the [receiver] spurious responses {and adjacent channel selectivity | or the adjacent channels [or bands]}

**blocking:** measure of the capability of the receiver to achieve a specific successful response ratio when receiving the wanted signal in the presence of an unwanted unmodulated high level signal on frequencies other than those of spurious responses or adjacent channels

**blocking:** measure of the receiver's ability to correctly detect and decode the wanted signal at sensitivity levels, when other signals, much stronger but of different frequency channels, are also present at the receiver input

**blocking:** change (generally a reduction) in the wanted [audio] output power of {the | a} receiver or a reduction of the SINAD ratio[, or an increase in the bit error rate] due to an unwanted signal on another frequency

### 5.1.8 Radio receiver blocking case 1: owing to signals occurring at the same time but on other frequencies

**radio receiver blocking owing to signals occurring at the same time but on other frequencies:** the receiver should work in the presence of strong signals on other frequencies. These interferers may be modulated carriers or single continuous - wave carriers

NOTE: Used in ETSI EN 301 406 [i.4], clause 4.5.7.4; ETSI EN 301 908-10 [i.43], clause 4.5.8.4.1.

### 5.1.9 Radio receiver blocking case 2: owing to signals occurring at a different time

**radio receiver blocking owing to signals occurring at a different time:** ability of the receiver to continue receiving the desired signal when a high level interferer is present in a physical channel other than the one the receiver is on

NOTE: Used in ETSI EN 301 406 [i.4], clause 4.5.7.5; ETSI EN 301 908-10 [i.43], clause 4.5.8.5.1.

### 5.1.10 Blocking and spurious response rejection

**blocking and spurious response rejection:** measure of the ability of a BSS receiver to receive a wanted GSM modulated signal in the presence of an interfering signal

NOTE 1: The level of the interfering signal is higher for the test of blocking than for spurious response.

NOTE 2: Used in ETSI TS 101 087 [i.37], clause 7.6.1.

### 5.1.11 Other receiver parameters, which are now in clause 3.1

The following definitions were introduced in version 1.2.1 of the present document.

They are based upon annexes A and B. They are as generic as practical while many of the definitions found in the corresponding deliverables have been "customized" for a particular standard or for a particular line of products.

These definitions are written as complete sentences; corresponding text can be found in clause 3.1, in the format of ETSI definitions.

The average usable sensitivity expressed as field strength is the average field strength, expressed in dB µv/m, produced by a carrier at the nominal frequency of the receiver, modulated with the normal test signal which will, without interference, produce after demodulation a specified level of performance. The average is calculated from 8 measurements of field strength where the receiver is rotated by 45°.

The co-channel rejection is a measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted modulated signal, both signals being at the nominal frequency of the receiver.

The intermodulation response rejection is a measure of the capability of the receiver to receive a wanted modulated signal, without exceeding a given degradation due to the presence of two or more unwanted signals with a specific frequency relationship to the wanted signal frequency.

The receiver intermodulation immunity is a measure of the capability of the receiver to receive a wanted modulated signal, without exceeding a given degradation due to the presence of two or more unwanted signals with a specific frequency relationship to the wanted signal frequency.

The maximum usable sensitivity of the receiver is the minimum level of the signal at the receiver input, at the nominal frequency of the receiver and modulated with the normal test signal which will, without interference, produce after demodulation a specified level of performance.

The spurious response rejection is a measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted modulated signal at any other frequency, at which a response is obtained.

These definitions-adapted as appropriate-can be found in clause 3.1 of version 1.3.1 of the present document.

## 5.2 Definitions copied by hand (rejected by the Scripts)

### 5.2.0 General

As explained in annexes B (and C), some definitions were not found by the appropriate Scripts, in particular, because the structure of the deliverable did not correspond to the structure expected by the Script.

Structures for ETSI Standards are addressed, in particular, in ETSI EG 201 399 [i.80].

### 5.2.1 Definitions found in ETSI EN 300 113

#### 5.2.1.0 Introduction

As recent versions of ETSI EN 300 113 [i.81] cover both constant envelope systems and non-constant envelope systems, it may occur that in some clauses there are two definitions instead of just one (as expected by the Scripts).

As result, the following definitions have been copied into these clauses by hand.

#### 5.2.1.1 Frequency error

The frequency error of the transmitter is the difference between the measured carrier frequency in the absence of modulation (or with modulation, provided that the presence of modulation allows sufficiently accurate measurement of the carrier frequency) and the nominal frequency of the transmitter.

#### 5.2.1.2 Transmitter power (conducted)

##### 5.2.1.2.1 Equipment measured as constant envelope angle modulation equipment

The transmitter power (conducted) is the mean power delivered to the artificial antenna during a radio frequency cycle.

##### 5.2.1.2.2 Equipment measured as non-constant envelope modulation equipment

The transmitter power (conducted) is the Peak Envelope Power (PEP); the mean power delivered to the artificial antenna during a radio frequency cycle at the highest crest of the modulation envelope.

#### 5.2.1.3 Rated output power

##### 5.2.1.3.1 Equipment measured as constant envelope angle modulation equipment

The rated output power is the carrier power (conducted) of the equipment declared by the manufacturer.

##### 5.2.1.3.2 Equipment measured as non-constant envelope modulation equipment

The rated output power is the transmitter power (conducted) of the equipment declared by the manufacturer.

#### 5.2.1.4 Effective radiated power

The effective radiated power is the power radiated in the direction of the maximum field strength under specified conditions of measurements.

#### 5.2.1.5 Effective radiated power of the transmitter

The effective radiated power of the transmitter is the value of the output PEP for any condition of modulation radiated in the direction of the maximum field strength.

#### 5.2.1.6 Adjacent channel power

The adjacent channel power is that part of the total power output of a transmitter under defined conditions of modulation, which falls within a specified pass-band centred on the nominal frequency of either of the adjacent channels. This power is the sum of the mean power produced by the modulation, hum and noise of the transmitter.

#### 5.2.1.7 Alternate channel power

The alternate channel power is that part of the total power output of a transmitter under defined conditions of modulation, which falls within a specified pass-band centred on the nominal frequency of either of the alternate channels. This power is the sum of the mean power produced by the modulation, hum and noise of the transmitter.

#### 5.2.1.8 Spurious emissions

Spurious emissions are emissions at frequencies other than those of the carrier and sidebands associated with normal modulation.

#### 5.2.1.9 Intermodulation attenuation

For the purpose of the present document the intermodulation attenuation is a measure of the capability of a transmitter to inhibit the generation of signals in its non-linear elements caused by the presence of the transmitter power and an interfering signal entering the transmitter via its antenna.

#### 5.2.1.10 Transmitter attack time

The transmitter attack time ($t_a$) is the time which elapses between the initiation of the "transmitter on" function ($Tx_{on}$, see definitions in clause 7.9.1) and:

a) the moment when the transmitter output power has reached a level 1 dB below or 1,5 dB above the steady state power ($P_c$) and maintains a level within +1,5 dB/-1 dB from $P_c$ thereafter as seen on the measuring equipment or in the plot of power as a function of time; or

b) the moment after which the frequency of the carrier always remains within ±1 kHz of its steady state frequency, $F_c$, as seen on the measuring equipment or the plot of frequency as a function of time;

whichever occurs later (see clause 7.9, figures 12 and 13).

The measured value of $t_a$ is $t_{am}$; its limit is $t_{al}$.

#### 5.2.1.11 Transmitter release time

The transmitter release time ($t_r$) is the time which elapses between the initiation of the "transmitter off" function ($Tx_{off}$, see definitions in clause 7.9.1) and the moment when the transmitter output power has reduced to a level 50 dB below the steady state power ($P_c$) and remains below this level thereafter as seen on the measuring equipment or in the plot of power as a function of time (see clause 7.9, figure 14).

The measured value of $t_r$ is $t_{rm}$; its limit is $t_{rl}$.

#### 5.2.1.12 Transient behaviour of the transmitter

The transient behaviour of the transmitter is defined as the time-dependency of transmitter frequency, power and spectrum when the RF output power is switched on and off.

#### 5.2.1.13 Transient power

Transient power is the power falling into adjacent (or other) spectrum due to the switching on or off of a transmitter.

#### 5.2.1.14 Maximum usable sensitivity (conducted)

The maximum usable sensitivity (conducted) is the minimum level of signal at the receiver input, produced by a signal at the nominal frequency of the receiver, modulated with the normal test signal (see clause 6.3), which will, without interference, produce after demodulation a data signal with a specified bit error ratio or a specified successful message ratio. The specified bit error ratio is $10^{-2}$. The specified successful message ratio is 80 %.

#### 5.2.1.15 Error behaviour (performance)

The error behaviour (performance) at high input levels (noise free operation) is defined by the bit error ratio (continuous bit stream) or by the number of messages lost or corrupted when the level of the wanted signal is significantly above the maximum usable sensitivity.

#### 5.2.1.16 Co-channel rejection

The co-channel rejection is a measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due the presence of an unwanted modulated signal, both signals being at the nominal frequency of the receiver.

#### 5.2.1.17 Adjacent channel selectivity

The adjacent channel selectivity is a measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted signal which differs in frequency from the wanted signal by an amount equal to the adjacent channel separation for which the equipment is intended.

#### 5.2.1.18 Spurious response rejection

The spurious response rejection is a measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted modulated signal at any other frequency, at which a response is obtained.

#### 5.2.1.19 Intermodulation response rejection

The intermodulation response rejection is a measure of the capability of the receiver to receive a wanted modulated signal, without exceeding a given degradation due to the presence of two or more unwanted signals with a specific frequency relationship to the wanted signal frequency.

#### 5.2.1.20 Blocking

Blocking is a measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted input signal at any frequencies other than those of the spurious responses or the adjacent channels.

#### 5.2.1.21 Spurious radiations

Spurious radiations from the receiver are emissions at any frequency, radiated by the equipment and its antenna.

#### 5.2.1.22 Desensitization

The desensitization is the degradation of the sensitivity of the receiver resulting from the transfer of power from the transmitter to the receiver due to coupling effects. It is expressed as the difference in dB between the maximum usable sensitivity levels (data or messages, conducted), with and without simultaneous transmissions.

#### 5.2.1.23 Spurious response rejection

The spurious response rejection, under duplex operation, is a measure of the capability of the receiver to achieve a specific spurious response rejection ratio when receiving a wanted modulated signal in the presence of:

a) an unwanted signal at any other frequency, at which a response may be obtained; and

b) the unmodulated signal of the transmitter operating at duplex frequency distance, at the rated output power and attenuated by the duplex filter or by the distance between the antennas.

### 5.2.2 Definitions found in ETSI EN 300 220

Recent version(s) of ETSI EN 300 220 [i.82] is/are structured as a multipart-standard and has not the structure expected by the Scripts. It is also to be noted that the word "Description" has sometimes been used in ETSI EN 300 220 [i.82] where the Scripts expect to find the word "Definition".

As a result, the definitions for ETSI EN 300 220 [i.82] would have needed to be copied by hand into this clause. To be noted, however, that in recent ETSI EN 300 220 [i.82] many "radio definitions" can already be found in clause 3.1 - so they should already be available also in TEDDI.

## 5.3 Conclusions

The first conclusion is that, as it could have been expected, a large number of definitions have very large similarities.

Another observation is that some of the definitions have been revised, in order to match as closely as possible, the products covered in the corresponding standards (and the corresponding needs). The practical result is that there are many variants with small differences from each other.

As already mentioned above, it has been noted that other material is sometimes added to the definitions - per se - in clauses called "Definitions". It is, hereby recommended that clauses "definition" contain only text corresponding to definitions, in line with the ETSI Drafting Rules.

# Annex A:
# Definitions of parameters found by hand

## A.0 General

Annex A contains definitions of radio parameters found in a search, by hand, in 2010.

Annex A has not been substantially revised between versions 1.1.2 and 1.3.1 of the present document.

The various definitions were gathered together on the basis of one definition per clause of the annex.

In a first attempt to analyse the first 6 definitions gathered, these were moved to clause 5. Therefore, clauses A.1 to A.6 are "empty". These 6 "empty" clauses were left in place for traceability purposes in versions 1.1. as well as in versions up to 1.3.1 of the present document.

## A.1 Parameter 1

The definitions relating to this parameter have been moved to clause 5, in view of further analysis.

## A.2 Parameter 2

The definitions relating to this parameter have been moved to clause 5, in view of further analysis.

## A.3 Parameter 3

The definitions relating to this parameter have been moved to clause 5, in view of further analysis.

## A.4 Parameter 4

The definitions relating to this parameter have been moved to clause 5, in view of further analysis.

## A.5 Parameter 5

The definitions relating to this parameter have been moved to clause 5, in view of further analysis.

## A.6 Parameter 6

The definitions relating to this parameter have been moved to clause 5, in view of further analysis.

# A.7 Co-channel rejection

## A.7.1 Co-channel rejection

**Table A.7.1: Definition of co-channel rejection**

| Definition | Found in |
|---|---|
| The co-channel rejection is the receiver's ability to receive a wanted signal in the presence of an unwanted signal, with both signals being at the nominal frequency of the wanted channel. | ETSI EN 300 065-1 [i.48], clause 5.3.1 |
| The co-channel rejection is a measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted modulated signal, both signals being at the nominal frequency of the receiver. | ETSI EN 300 162-1 [i.8], clause 9.4.1<br>ETSI EN 300 698-1 [i.11], clause 9.4.1<br>ETSI EN 300 720-1 [i.12], clause 9.4.1<br>ETSI EN 301 025-1 [i.9], clause 9.4.1<br>ETSI EN 301 025-1 [i.9], clause 10.2.1<br>ETSI EN 301 178-1 [i.10], clause 9.4.1<br>ETSI EN 301 929-1 [i.13], clause 9.5.1<br>ETSI EN 301 929-1 [i.13], clause 9.14.1<br>ETSI EN 300 086-1 [i.14], clause 8.3.1<br>ETSI EN 300 296-1 [i.15], clause 9.3.1<br>ETSI EN 300 341-1 [i.16], clause 9.2.1<br>ETSI EN 300 390-1 [i.17], clause 9.3.1<br>ETSI EN 302 561 [i.19], clause 8.6.1 |
| The co-channel rejection is a measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted modulated signal, both signals being at the nominal frequency of the receiver. The equipment (transmission and/or reception) under test shall be operated in its normal transmission mode (which may be continuous or discontinuous). | ETSI EN 300 113-1 [i.20], clause 8.5.1 |
| The co-channel rejection is a measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted signal, both being at the nominal frequency of the receiver. | ETSI EN 300 761-1 [i.21], clause 8.3.3.1 |
| The co-channel rejection is a measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted modulated signal, both signals being at the nominal frequency of the receiver. "Wanted signal" in this test is the signal generated by the transmitted RLC data blocks. | ETSI EN 301 908-8 [i.32], clause 4.2.3.5.1 |
| The co-channel rejection is a measure of the capability of the receiver to achieve a specific successful response ratio when receiving the wanted signal in the presence of an unwanted modulated signal, both signals being at the nominal frequency of the receiver. | ETSI EN 300 219-1 [i.33], clause 9.4.1 |

## A.7.2 Co-channel rejection - TCH/FS

**Table A.7.2: Definition of co-channel rejection - TCH/FS**

| Definition | Found in |
|---|---|
| The co-channel rejection is a measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted modulated signal, both signals being at the nominal frequency of the receiver. The requirements and this test apply to MS supporting speech. | ETSI EN 300 607-1 [i.7], clause 14.4.1.1 |

# A.8 DAA threshold

**Table A.8.1: Definition of DAA threshold**

| Definition | Found in |
|---|---|
| The DAA threshold is defined as the received signal power level at GBSAR antenna connector above which the equipment shall determine the presence of a radar system.<br>Different DAA thresholds are defined according to the actual radar system signal characteristics, see clause E.4.2, table E.1. | ETSI EN 300 440-1 [i.24], clause E.4.3.1 |

# A.9 Receiver desensitization with simultaneous transmission and reception

**Table A.9.1: Definitions of receiver desensitization with simultaneous transmission and reception**

| Definition | Found in |
|---|---|
| The desensitization is the degradation of the sensitivity of the receiver resulting from the transfer of power from the transmitter to the receiver due to coupling effects.<br>It is expressed as the difference in dB of the maximum usable sensitivity levels with simultaneous transmission and without. | ETSI EN 300 162-1 [i.8], clause 10.1.1<br>ETSI EN 301 929-1 [i.13], clause 9.17.2.1 |
| The desensitization is the degradation of the sensitivity of the receiver resulting from the transfer of power from the transmitter to the receiver due to coupling effects.<br>It is expressed as the difference in dB of the maximum usable sensitivity levels (data or messages, conducted), with and without simultaneous transmission. | ETSI EN 300 113-1 [i.20], clause 9.1.1 |
| The desensitization is the degradation of the sensitivity of the receiver resulting from the transfer of power from the transmitter to the receiver due to coupling effects. It is expressed as the difference in dB between the maximum usable sensitivity levels, with and without simultaneous transmissions. | ETSI EN 300 219-1 [i.33], clause 10.1.1 |

# A.10 Receiver/Bad frame indication - TCH/FS - frequency hopping and downlink DTX

**Table A.10.1: Definition of receiver/bad frame indication - TCH/FS - frequency hopping and downlink DTX**

| Definition | Found in |
|---|---|
| The performance of the Bad Frame Indication (BFI) is a measure of the effectiveness of the MS under DTX conditions. It includes the effect of the 3 bit Cyclic Redundancy Check (CRC) and all other processing associated with the DTX function. The BFI is measured on a full rate speech TCH (TCH/FS) by counting the number of undetected bad frames whilst the input signal is a randomly modulated carrier.<br>The requirements and this test only apply to MS supporting speech. | ETSI EN 300 607-1 [i.7], clause 14.1.1.2.1 |

# A.11 Receiver/Bad frame indication - TCH/HS - frequency hopping and downlink DTX

**Table A.11.1: Definition of receiver/bad frame indication - TCH/HS - frequency hopping and downlink DTX**

| Definition | Found in |
|---|---|
| The performance of the Bad Frame Indication (BFI) is a measure of the effectiveness of the MS under DTX conditions. It includes the effect of the 3 bit Cyclic Redundancy Check (CRC) and all other processing associated with the DTX function. The BFI is measured on a half rate speech TCH (TCH/HS) by counting the number of undetected bad frames whilst the input signal is a randomly modulated carrier.<br>The requirements and this test only apply to MS supporting half rate speech. | ETSI EN 300 607-1 [i.7], clause 14.1.2.2.1 |

# A.12 Out of band gain

**Table A.12.1: Definition of out of band gain**

| Definition | Found in |
|---|---|
| To test the net gain of the repeater outside the relevant MS or BTS transmit band. This test shall also check the net gain at harmonic frequencies. | ETSI EN 300 609-4 [i.49], clause 7 |
| Out of band gain refers to the gain of the Repeater immediately outside the pass band. The measurements shall apply to both paths Uplink and Downlink of the Repeater. | ETSI EN 301 908-11 [i.5], clause 4.2.6.1 |
| Out of band gain refers to the gain of the repeater immediately outside the pass band. The measurements shall apply to both paths up-link and down-link of the repeater. | ETSI EN 302 426 [i.6], clause 4.2.6.1 |
| In the intended application of a Repeater, the out-of-band gain of the Repeater must be less than the coupling loss to the donor Base Station in order to ensure that emissions from the Base Station are not amplified to levels that exceed emissions limits. | ETSI EN 301 908-12 [i.50], clause 4.2.6.1 |

# A.13 Conducted RF immunity

**Table A.13.1: Conducted RF immunity**

| Definition | Found in |
|---|---|
| This test assesses the ability of receivers, transmitters, transceivers, transverters, RF amplifiers to operate as intended in the presence of a radio frequency conducted disturbance at the receiver antenna port.<br>This test is applicable to base station, mobile, portable and ancillary equipment.<br>This test shall not apply to RF low-noise preamplifiers intended for location directly at the antenna.<br>In normal use, amateur radio transmitting equipment is not collocated with other radio transmitters operating within 10 % of its own carrier frequency, so that inter-transmitter intermodulation will not occur. Therefore immunity testing of the transmitter antenna port is not justified and is not included in the present document. | ETSI EN 301 783-1 [i.51], clause 4.2.3.1 |

# A.14 Reference interference level

**Table A.14.1: Definition of reference interference level**

| Definition | Found in |
|---|---|
| The reference interference level is a measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted modulated signal at the same carrier frequency<br>(co-channel interference) or at any adjacent carrier frequencies (adjacent channel interference). | ETSI TS 101 087 [i.37], clause 7.5.1 |

# A.15 Radio receiver interference performance

**Table A.15.1: Definition of radio receiver interference performance**

| Definition | Found in |
|---|---|
| The ability of DECT equipment to continue receiving in the presence of an interfering signal on the same or different DECT RF channel. | ETSI EN 301 406 [i.4], clause 4.5.7.3.1<br>ETSI EN 301 908-10 [i.43], clause 4.5.8.3.1 |

# A.16 Interference rejection and blocking immunity

**Table A.16.1: Definitions of interference rejection and blocking immunity**

| Definition | Found in |
|---|---|
| Interference rejection and blocking immunity is the receiver's ability to discriminate between the wanted signal and unwanted signals on frequencies outside the receiver's passband. | ETSI EN 300 065-1 [i.48], clause 5.2.1 |

# A.17 Intermodulation

## A.17.1 Input intermodulation

**Table A.17.1: Definitions of input intermodulation**

| Definition | Found in |
|---|---|
| The input intermodulation is a measure of the capability of the Repeater to inhibit the generation of interference in the pass band, in the presence of interfering signals on frequencies other than the pass band.<br>Third and higher order mixing of the two interfering RF signals can produce an interfering signal in the band of the desired channel.<br>Intermodulation response rejection is a measure of the capability of the Repeater to maintain the wanted frequency free of internally created interference.<br>This test applies to Uplink and Downlink path of the Repeater. | ETSI EN 301 908-11 [i.5], clause 4.2.5.1 |
| Input intermodulation spurious response attenuation is a measure of a Repeater's ability to rebroadcast an in-band signal in the presence of two interfering out-of-band CW signals at the input of the Repeater. For Repeaters specified by the manufacturer as not suitable for use as an Over the Air Repeater, this test only applies to the reverse link. | ETSI EN 301 908-12 [i.50], clause 4.2.5.1 |

| Definition | Found in |
|---|---|
| The input intermodulation is a measure of the capability of the Repeater to inhibit the generation of interference in the pass band, in the presence of interfering signals on frequencies other than the pass band.<br>Third and higher order mixing of the two interfering RF signals can produce an interfering signal in the band of the desired channel.<br>Intermodulation response rejection is a measure of the capability of the repeater to maintain the wanted frequency free of internally created interference.<br>This test applies to up-link path of the repeater. | ETSI EN 302 426 [i.6], clause 4.2.5.1 |

## A.17.2 Intermodulation

**Table A.17.2: Definition of intermodulation**

| Definition | Found in |
|---|---|
| Intermodulation is a process whereby signals are produced from two or more signals simultaneously present in a nonlinear circuit. | ETSI EN 300 065-1 [i.48], clause 5.4.1 |

## A.17.3 Intermodulation response rejection

**Table A.17.3: Definitions of intermodulation response rejection**

| Definition | Found in |
|---|---|
| The intermodulation response is a measure of the capability of a receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of two or more unwanted signals with a specific frequency relationship to the wanted signal frequency. | ETSI EN 300 162-1 [i.8], clause 9.7.1<br>ETSI EN 300 698-1 [i.11], clause 9.7.1<br>ETSI EN 300 720-1 [i.12], clause 9.7.1<br>ETSI EN 301 025-1 [i.9], clause 9.7.1<br>ETSI EN 301 025-1 [i.9], clause 10.5.1<br>ETSI EN 301 178-1 [i.10], clause 9.7.1<br>ETSI EN 301 929-1 [i.13], clause 9.8.1<br>ETSI EN 301 929-1 [i.13], clause 9.20.1 |
| The intermodulation response rejection is a measure of the capability of the receiver to receive a wanted modulated signal, without exceeding a given degradation due to the presence of two or more unwanted signals with a specific frequency relationship to the wanted signal frequency. | ETSI EN 300 220-1 [i.22], clause 9.5.1<br>ETSI EN 300 761-1 [i.21], clause 8.3.6.1<br>ETSI EN 300 086-1 [i.14], clause 8.6.1<br>ETSI EN 300 296-1 [i.15], clause 9.6.1<br>ETSI EN 300 341-1 [i.16], clause 9.5.1<br>ETSI EN 300 390-1 [i.17], clause 9.6.1<br>ETSI EN 301 166-1 [i.18], clause 8.7.1<br>ETSI EN 302 561 [i.19], clause 8.7.1 |
| Intermodulation response rejection is a measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of two or more unwanted signals with a specific frequency relationship to the wanted signal frequency as defined in ETSI EN 300 113-1 [i.20]. | ETSI EN 300 392-2 [i.38], clause 6.5.3.1<br>ETSI EN 300 396-2 [i.39], clause 6.5.3.1<br>ETSI EN 300 396-4 [i.40], clause 12.3.5<br>ETSI EN 300 396-7 [i.41], clause 12.3.5<br>ETSI EN 300 396-5 [i.42], clause 16.3.5 |
| The intermodulation response rejection is a measure of the capability of the receiver to receive a wanted modulated signal, without exceeding a given degradation due to the presence of two or more unwanted signals with a specific frequency relationship to the wanted signal frequency.<br>The equipment (transmission and/or reception) under test shall be operated in its normal transmission mode (which may be continuous or discontinuous). | ETSI EN 300 113-1 [i.20], clause 8.8.1 |
| Intermodulation is a process by which signals are produced from two or more (generally unwanted) signals simultaneously present in a non-linear circuit. | ETSI EN 300 373-2 [i.36], clause 4.2.9.1 |

| Definition | Found in |
|---|---|
| Third and higher order mixing of the two interfering RF signals can produce an interfering signal in the band of the desired channel. Intermodulation response rejection is a measure of the capability of the receiver to receiver a wanted signal on its assigned channel frequency in the presence of two or more interfering signals which have a specific frequency relationship to the wanted signal. | ETSI EN 301 908-2 [i.25], clause 4.2.9.1 |
| Third and higher order mixing of the two interfering RF signals can produce an interfering signal in the band of the desired channel. Intermodulation response rejection is a measure of the capability of the receiver to receiver a wanted signal on its assigned channel frequency in the presence of two or more interfering signals which have a specific frequency relationship to the wanted signal. | ETSI EN 301 908-3 [i.27], clause 4.2.9.1<br>ETSI EN 301 908-6 [i.30], clause 4.2.8.1<br>ETSI EN 301 908-7 [i.31], clause 4.2.9.1 |
| The intermodulation rejection characteristic of a receiver is a measure of its ability to receive a wanted modulated signal without exceeding a given performance degradation due to the presence of two or more unwanted signals with a specific frequency relationship to the wanted signal frequency. "Wanted signal" in this test is the signal generated by the transmitted RLC data blocks. | ETSI EN 301 908-8 [i.32], clause 4.2.3.4.3.1 |
| The mixing of wanted and unwanted signals in the receiver may cause intermodulation products produced by non-linear characteristics of RF front-end elements of the receiver. The effect of these unwanted products is reduced receiver sensitivity. | ETSI EN 301 908-9 [i.35], clause 4.4.6.2.1 |
| The intermodulation response is a measure of the capability of the receiver to achieve a specific response ratio when receiving a wanted modulated signal in the presence of two or more unwanted signals with a specific frequency relationship to the wanted signal frequency. | ETSI EN 300 219-1 [i.33], clause 9.7.1 |
| The spurious response rejection is the capability of the receiver to discriminate between the wanted modulated signal at the nominal frequency and an unwanted signal at any other frequency at which a response is obtained. | ETSI EN 300 433-1 [i.34], clause 9.5.1 |

## A.17.4 Receiver intermodulation performance

**Table A.17.4: Definitions of receiver intermodulation performance**

| Definition | Found in |
|---|---|
| With a call set-up on a particular physical channel, two interferers are introduced so that they can produce an intermodulation product on the physical channel already in use. | ETSI EN 301 406 [i.4], clause 4.5.7.6.1<br>ETSI EN 301 908-10 [i.43], clause 4.5.8.6.1 |
| This test measures the linearity of the receiver RF parts. It expresses the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of two or more unwanted signals with a specific frequency relationship to the wanted signal frequency. | ETSI TS 101 087 [i.37], clause 7.7.1 |

## A.17.5 Intermodulation attenuation

**Table A.17.5: Definition of intermodulation attenuation**

| Definition | Found in |
|---|---|
| To verify that the level of intermodulation products, generated in non-linear elements of the repeater, in the presence of two RF input signals, do not exceed the specified limits. | ETSI EN 300 609-4 [i.49], clause 6.1 |

## A.17.6 Intermodulation rejection - speech channels

**Table A.17.6: Definition of intermodulation rejection - speech channels**

| Definition | Found in |
|---|---|
| The intermodulation rejection is a measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of two or more unwanted signals with a specific frequency relationship to the wanted signal frequency.<br>The requirements and this test apply to MS supporting speech.<br>For E-GSM 900 and R-GSM 900 MS this test is only performed in the P-GSM band. | ETSI EN 300 607-1 [i.7], clause 14.6.1.1 |

## A.17.7 Intermodulation spurious response attenuation

**Table A.17.7: Definitions of intermodulation spurious response attenuation**

| Definition | Found in |
|---|---|
| The intermodulation spurious response attenuation is a measure of a receiver's ability to receive a CDMA signal on its assigned channel frequency in the presence of two interfering CW tones. These tones are separated from the assigned channel frequency and are separated from each other such that the third order mixing of the two interfering CW tones can occur in the non-linear elements of the receiver, producing an interfering signal in the band of the desired CDMA signal.<br>For mobile stations operating in 1x systems, the receiver performance is measured by the Frame Error Rate (FER).<br>For mobile stations operating in HRPD systems, the receiver performance is measured by the Packet Error Rate (PER). | ETSI EN 301 526 [i.52], clause 4.2.12.1 |
| The intermodulation spurious response attenuation is a measure of a receiver's ability to receive a CDMA signal or an HRPD signal on its assigned channel frequency in the presence of two interfering CW tones. These tones are separated from the assigned channel frequency and are separated from each other such that the third order mixing of the two interfering CW tones can occur in the non-linear elements of the receiver, producing an interfering signal in the band of the desired CDMA signal.<br>For the case of multiple adjacent carrier receivers, the test places the CW tones outside the bandwidth of the receiver, which is approximately n × 1,25 MHz, where n is the number of adjacent carriers. | ETSI EN 301 908-5 [i.29], clause 4.2.7.1 |
| The intermodulation spurious response attenuation of the receiver is the measure of its ability to receive a modulated input RF signal frequency in the presence of one modulated signal and one unmodulated signal, so separated from the assigned input signal frequency and from each other that the nth order mixing of the two undesired signals can occur in the non-linear elements of the receiver, producing a third signal whose frequency is equal to that of the assigned input RF signal frequency. | ETSI EN 301 908-9 [i.35], clause 4.3.6.1 |

# A.18 Receiver/Usable receiver input level range

**Table A.18.1: Definition of receiver/usable receiver input level range**

| Definition | Found in |
|---|---|
| The usable receiver input level range is the range of the radio frequency input level of a specified modulated signal over which bit error ratio or frame erasure ratios stay between specified limits.<br>The requirements and this test apply to MS supporting speech. | ETSI EN 300 607-1 [i.7], clause 14.3.1 |

# A.19 Receiver LBT threshold

**Table A.19.1: Definitions of receiver LBT threshold**

| Definition | Found in |
|---|---|
| The LBT threshold is defined as the received signal level above which the equipment can determine that the channel is not available for use. If the received signal is below the LBT threshold then the equipment can determine that the channel is available for use.<br>This requirement applies only to equipment operating in the frequency range from 5 855 MHz to 5 875 MHz. | ETSI EN 302 571 [i.46], clause 6.6.1 |
| The intermodulation spurious response attenuation is a measure of a receiver's ability to receive a CDMA signal on its assigned channel frequency in the presence of two interfering CW tones. These tones are separated from the assigned channel frequency and are separated from each other such that the third order mixing of the two interfering CW tones can occur in the non-linear elements of the receiver, producing an interfering signal in the band of the desired CDMA signal.<br>For mobile stations operating in type 1 cdma2000 systems, the receiver performance shall be measured by the Frame Error Rate (FER).<br>For mobile stations operating in type 2 cdma2000 systems, the receiver performance shall be measured by the Packet Error Rate (PER). | ETSI EN 301 908-4 [i.28], clause 4.2.7.1 |

# A.20 Receiver LBT threshold and transmitter max on-time

**Table A.20.1: Definition of receiver LBT threshold and transmitter max on-time**

| Definition | Found in |
|---|---|
| The LBT threshold is defined as the received signal level above which the equipment can determine that the channel is not available for use. If the received signal is below the LBT threshold then the equipment can determine that the channel is available for use.<br>The definition of the maximum transmitter on-time for an equipment with LBT facility is defined in clause 8.11.1.4.1. | ETSI EN 300 220-1 [i.22], clause 9.2.1 |

# A.21 Receiver opening delay

**Table A.21.1: Definition of receiver opening delay**

| Definition | Found in |
|---|---|
| The receiver opening delay is the time which elapses between the application of a test signal ("test carrier") to the receiver and the moment when the receiver is able to receive information without exceeding a given degradation. | ETSI EN 300 471-1 [i.53], clause 8.2.1 |

# A.22 Sensitivity

## A.22.1 Average usable sensitivity (digital, field strength)

**Table A.22.1: Definition of average usable sensitivity (digital, field strength)**

| Definition | Found in |
|---|---|
| For the definition see ETSI EN 300 390-1 [i.17], clause 9.1.<br>This measurement applies only to equipment without an external antenna connector. | ETSI EN 300 113-1 [i.20], clause 8.2.1 |

## A.22.2 Average usable sensitivity (field strength, data or messages)

**Table A.22.2: Definition of average usable sensitivity (field strength, data or messages)**

| Definition | Found in |
|---|---|
| The average usable sensitivity (data) expressed as field strength is the average field strength, expressed in dBµV/m, produced by a carrier at the nominal frequency of the receiver, modulated with the normal test signal (clause 7.1) which will, without interference, produce after demodulation a data signal with a specified bit error ratio or a specified successful message ratio. The specified bit error ratio is $10^{-2}$. The specified successful message ratio is 80 %. The average is calculated from 8 measurements of field strength where the receiver is rotated in 45 increments starting at an arbitrary orientation. | ETSI EN 300 390-1 [i.17], clause 9.1.1 |
| NOTE: The average usable sensitivity mostly differs only by a small amount from the maximum usable sensitivity to be found in a particular direction. This is due to the properties of the averaging process as used in the formula in clauses 8.1.2 step g) and 9.1.4 step j). For instance, an error not exceeding 1,2 dB can be found if the sensitivity is equal in seven directions and is extremely poor in the eighth direction. For the same reason the starting direction (or angle) can be selected randomly. | |

## A.22.3 Average usable sensitivity (field strength, responses)

**Table A.22.3: Definition of average usable sensitivity (field strength, responses)**

| Definition | Found in |
|---|---|
| The average usable sensitivity (responses) expressed as field strength is the average field strength, expressed in dBµV/m, produced by a carrier at the nominal frequency of the receiver, modulated with the normal test signal D-M3 (see clause 7.1) which will, without interference, produce after demodulation a specified successful response ratio. The average is calculated from 8 measurements of field strength when the receiver is rotated in 45 increments starting at a particular orientation. | ETSI EN 300 341-1 [i.16], clause 9.1.1 |
| NOTE: The average usable sensitivity mostly differs only by a small amount from the maximum usable sensitivity to be found in a particular direction. This is due to the properties of the averaging process as used in the formula in clause 8.1.2 g). For instance, an error not exceeding 1,2 dB can be found if the sensitivity is equal in seven directions and is extremely bad in the eighth direction. For the same reason the starting direction (or angle) can be selected randomly. | |

## A.22.4 Average usable sensitivity (field strength, speech)

**Table A.22.4: Definition of average usable sensitivity (field strength, speech)**

| Definition | Found in |
|---|---|
| The average usable sensitivity (speech) expressed as field strength is the average field strength, expressed in dBµV/m, produced by a carrier at the nominal frequency of the receiver, modulated with the normal test signal (see clause 7.1) which will, without interference, produce after demodulation a SINAD ratio of 20 dB measured through a psophometric weighting network. The average is calculated from 8 measurements of field strength when the receiver is rotated in 45 increments starting at a particular orientation. | ETSI EN 300 296-1 [i.15], clause 9.1.1 |
| NOTE: The average usable sensitivity mostly differs only by a small amount from the maximum usable sensitivity to be found in a particular direction. This is due to the properties of the averaging process as used in the formula in clause 8.1.2 g). For instance, an error not exceeding 1,2 dB can be found if the sensitivity is equal in seven directions and is extremely bad in the eighth direction. For the same reason the starting direction (or angle) can be selected randomly. | |

## A.22.5 Maximum usable sensitivity

**Table A.22.5: Definitions of maximum usable sensitivity**

| Definition | Found in |
|---|---|
| The maximum usable sensitivity of the receiver is the minimum level of the signal (emf) at the nominal frequency of the receiver which, when applied to the receiver input with normal test modulation will produce:<br>- in all cases, an audio frequency output power equal to 50 % of the rated output power (see clause 9.1); and<br>- a SINAD ratio of 20 dB, measured at the receiver output through a psophometric telephone filtering network such as described in Recommendation ITU-T O.41 [i.54]. | ETSI EN 300 162-1 [i.8], clause 9.3.1<br>ETSI EN 301 178-1 [i.10], clause 9.3.1 |
| The maximum usable sensitivity (conducted) of the receiver is the minimum level of signal (emf) at the receiver input, at the nominal frequency of the receiver and with normal test modulation which will produce:<br>- an audio frequency output power of at least 50 % of the rated power output; and<br>- a SND/ND ratio of 20 dB, measured at the receiver output through a telephone psophometric weighting network as described in Recommendation ITU-T O.41 [i.54]<br>Red Book 1984. | ETSI EN 300 086-1 [i.14], clause 8.1.1 |

| Definition | Found in |
|---|---|
| The maximum usable sensitivity of the receiver is the minimum level of signal (emf) at the receiver input, at the nominal frequency of the receiver and with normal test modulation, (see clause 7.5), which will produce:<br>- an audio frequency output power of at least 25 % of the rated power output, (see clause 7.3); and<br>- a SND/ND ratio of 20 dB, measured at the receiver output through a telephone psophometric weighting network as described in Recommendation ITU-T O.41 [i.54]. | ETSI EN 300 433-1 [i.34], clause 9.1.1 |
| The maximum usable sensitivity of the receiver is the minimum level of the signal (emf) at the receiver input, at the nominal frequency of the receiver which, and with normal test modulation, clause 6.3, which will produce:<br>- a SINAD ratio of 20 dB, measured at the receiver output through a psophometric telephone weighting network as described in Recommendation ITU-T O.41 [i.54]. With the receivers set to an audio frequency output power of 50 % of the rated output power. | ETSI EN 301 929-1 [i.13], clause 9.4.1 |
| The maximum usable sensitivity is the minimum level of a radio frequency input signal with specified modulation which will produce at the receiver analogue outputs a chosen value of Signal plus Noise plus Distortion to Noise plus Distortion (SINAD) ratio and, at the same time an output power not less than the standard output power.<br>In the case of digital outputs it is the minimum level of a radio frequency input signal with specified modulation which will produce a chosen value of bit error ratio. | ETSI EN 300 373-2 [i.36], clause 4.2.6.1 |
| The maximum usable sensitivity of the receiver is the minimum level of the signal at the nominal frequency of the receiver which, when applied to the receiver antenna port with normal test modulation will produce:<br>- in all cases, an audio frequency output power equal to 50 % of the rated output power (see clause 9.1); and<br>- a SINAD ratio of 20 dB, measured at the receiver output port through a psophometric telephone filtering network such as described in Recommendation ITU-T P.53 [i.55]. | ETSI EN 300 698-1 [i.11], clause 9.3.1<br>ETSI EN 300 720-1 [i.12], clause 9.3.1 |
| The maximum usable sensitivity of the receiver is the minimum level of the signal (e.m.f.) at the nominal frequency of the receiver which, when applied to the receiver input with normal test modulation (see clause 6.4), will produce:<br>- in all cases, an audio frequency output power equal to 50 % of the rated output power (see clause 9.1); and<br>- a Signal + Noise + Distortion to Noise + Distortion (SINAD) ratio of 20 dB, measured at the receiver output through a psophometric telephone filtering network such as described in Recommendation ITU-T O.41 [i.54]. | ETSI EN 301 025-1 [i.9], clause 9.3.1 |
| The maximum usable sensitivity of the receiver is the minimum level of the signal (e.m.f.) at the nominal frequency of the receiver which when applied to the receiver input with a test modulation will produce a bit error ratio of $10^{-2}$. | ETSI EN 301 025-1 [i.9], clause 10.1.1 |
| The usable sensitivity is the minimum level of signal (electromotive force (emf) at the receiver input, produced by a carrier at the nominal frequency of the receiver, modulated with the normal test signal modulation (see clause 6.1), which produces:<br>- a SND/ND ratio of 20 dB, measured at the receiver output through a telephone psophometric weighting network as described in Recommendation ITU-T O.41 [i.54]; or<br>- after demodulation, a data signal with a bit error ratio of $10^{-2}$, provided that forward error correction, where provided, is disabled; or<br>- after demodulation, a message acceptance ratio of 80 %.<br>Where the indicated performance cannot be achieved, the provider shall declare and publish the performance criteria used to determine the performance of the receiver. | ETSI EN 300 220-1 [i.22], clause 9.1.1 |

## A.22.6 Maximum usable sensitivity (analogue, conducted)

**Table A.22.6: Definition of maximum usable sensitivity (analogue, conducted)**

| Definition | Found in |
|---|---|
| The maximum usable sensitivity (analogue) of the receiver is the minimum level of signal (emf) at the receiver input, produced by a carrier at the nominal frequency of the receiver, modulated with the receiver analogue test signal (see clause 6.1.2), which will, without interference, produce after demodulation:<br>- an audio frequency output power of at least 50 % of the rated power output (see clause 6.11); and<br>- a SINAD ratio of 20 dB, measured at the receiver output through a telephone psophometric weighting network as described in Recommendation ITU-T O.41 [i.54]. | ETSI EN 301 166-1 [i.18], clause 8.1.1 |

## A.22.7 Maximum usable sensitivity (analogue, field strength)

**Table A.22.7: Definition of maximum usable sensitivity (analogue, field strength)**

| Definition | Found in |
|---|---|
| The maximum usable sensitivity (analogue) expressed as field strength is the field strength, expressed in dBµV/m, produced by a carrier at the nominal frequency of the receiver, modulated with the receiver analogue test signal (see clause 6.1.2) which will, without interference, produce after demodulation a SINAD ratio of 20 dB measured through a psophometric weighting network. | ETSI EN 301 166-1 [i.18], clause 8.2.1 |

## A.22.8 Maximum usable sensitivity (digital, conducted)

**Table A.22.8: Definition of maximum usable sensitivity (digital, conducted)**

| Definition | Found in |
|---|---|
| The maximum usable sensitivity (data or messages, conducted) is the minimum level of signal (emf) at the receiver input, produced by a carrier at the nominal frequency of the receiver, modulated with the normal test signal (see clause 6.3), which will, without interference, produce after demodulation a data signal with a specified bit error ratio or a specified successful message ratio. The specified bit error ratio is $10^{-2}$. The specified successful message ratio is 80 %. | ETSI EN 300 113-1 [i.20] |
| The maximum usable sensitivity (conducted) is the minimum average signal power at the receiver input, produced by a signal at the nominal frequency of the receiver, modulated with the normal test signal (see clause 6.3.2), which will, without interference, produce after demodulation a data signal with a specified bit error ratio or a specified successful message ratio. The specified bit error ratio is $10^{-2}$. The specified successful message ratio is 80 %. | ETSI EN 302 561 [i.19], clause 8.1.1 |
| The maximum usable sensitivity (data) of the receiver is the minimum level of signal (emf) at the receiver input, at the nominal frequency of the receiver, with test signal M2 or M7 as appropriate (see clause 6.1.3), which without interference will produce after demodulation a data signal with a specified bit error ratio or a specified successful message ratio.<br>The specified bit error ratio is $10^{-2}$. The specified successful message ratio is 0,8. | ETSI EN 301 166-1 [i.18], clause 8.3.1 |

## A.22.9 Maximum usable sensitivity (digital, field strength)

**Table A.22.9: Definitions of maximum usable sensitivity (digital, field strength)**

| Definition | Found in |
|---|---|
| The maximum usable sensitivity (data) expressed as field strength is the field strength, expressed in dBµV/m, produced by a carrier at the nominal frequency of the receiver, modulated with the test signal M2 or M6 (see clause 6.1.3) which will, without interference, produce after demodulation a data signal with a specified bit error ratio or a specified successful message ratio.<br>The specified bit error ratio is $10^{-2}$. The specified successful message ratio is 0,8. | ETSI EN 301 166-1 [i.18], clause 8.4.1 |
| The maximum usable sensitivity (data) expressed as field strength is the average field strength, expressed in dBµV/m, produced by a signal at the nominal frequency of the receiver, modulated with the test signal M3 or M4 (see clause 6.3.2) which will, without interference, produce after demodulation a data signal with a specified bit error ratio or a specified successful message ratio.<br>The specified bit error ratio is $10^{-2}$. The specified successful message ratio is 80 %. | ETSI EN 302 561 [i.19], clause 8.2.1 |

## A.22.10 Maximum usable sensitivity (responses, conducted)

**Table A.22.10: Definition of maximum usable sensitivity (responses, conducted)**

| Definition | Found in |
|---|---|
| The maximum usable sensitivity (responses, conducted) of the receiver is the minimum level of signal (emf) at the receiver input, produced by a carrier at the nominal frequency of the receiver, modulated with the normal test signal D-M3 (see clause 7.3), which will, without interference, produce after demodulation a specified successful response ratio.<br>The specified response ratio is 80 %. | ETSI EN 300 219-1 [i.33], clause 9.2.1 |

## A.22.11 DSC receiver maximum usable sensitivity

**Table A.22.11: Definition of DSC receiver maximum usable sensitivity**

| Definition | Found in |
|---|---|
| The maximum usable sensitivity of the receiver is the minimum level of the signal (emf) at the nominal frequency of the receiver which when applied to the receiver input with a test modulation will produce a symbol error rate of $10^{-2}$. | ETSI EN 301 929-1 [i.13], clause 9.13.1 |

## A.22.12 Receiver call sensitivity

**Table A.22.12: Definition of receiver call sensitivity**

| Definition | Found in |
|---|---|
| The call sensitivity of the receiver is a defined level of the radio-frequency signal at which the receiver gives a character error ratio better than a defined value. | ETSI EN 300 065-1 [i.48], clause 5.1.1 |

## A.22.13 Receiver sensitivity

**Table A.22.13: Definition of receiver sensitivity**

| Definition | Found in |
|---|---|
| The radio receiver sensitivity is defined as the power level at the receiver input at which the Bit Error Ratio (BER) is 0,001. The radio receiver sensitivity shall be 60 dBμV/m (-83 dBm) or better. | ETSI EN 301 406 [i.4], clause 4.5.7.1.1<br>ETSI EN 301 908-10 [i.43], clause 4.5.8.1.1 |

## A.22.14 Reference sensitivity

**Table A.22.14: Definition of reference sensitivity**

| Definition | Found in |
|---|---|
| The static reference sensitivity level of the receiver is the level of signal at the receiver input with a standard test signal at which the receiver will produce after demodulation and channel decoding data with a Frame Erasure Ratio (FER), Residual Bit Error Ratio (RBER) Bit Error Ratio (BER) or Block Error Ratio (BLER) better than or equal to that specified for a specific logical channel type under static propagation conditions. | ETSI EN 302 480 [i.56], clause 4.2.2.1.1 |

## A.22.15 Reference sensitivity - full rate data channels in multislot configuration

**Table A.22.15: Definition of reference sensitivity - full rate data channels in multislot configuration**

| Definition | Found in |
|---|---|
| The reference sensitivity for data channels is the signal level at the MS receiver input at which a certain BER must be achieved.<br>The requirements and this test apply to all types of GSM 400, GSM 900 and DCS 1 800 MS and any multiband MS which are capable of HSCSD multislot operation.14.2.8.2 Conformance Requirement:<br>1) At reference sensitivity level, the TCH/F9,6, TCH/F4,8 and TCH/F2,4 BER shall meet the reference sensitivity performance of table 1 in ETSI EN 300 910 [i.76], clause 6.2). | ETSI EN 300 607-1 [i.7], clause 14.2.8.1 |

## A.22.16 Reference sensitivity - TCH/FS for MS supporting the R-GSM band

**Table A.22.16: Definition of reference sensitivity - TCH/FS for MS supporting the R-GSM band**

| Definition | Found in |
|---|---|
| The reference sensitivity is the signal level at the MS receiver input at which a certain BER and FER must be achieved.<br>The requirements and this test apply to R-GSM MS supporting speech. | ETSI EN 300 607-1 [i.7], clause 14.2.9.1 |

## A.22.17 Multipath reference sensitivity level

**Table A.22.17: Definition of multipath reference sensitivity level**

| Definition | Found in |
|---|---|
| The multipath reference sensitivity level of the receiver is the level of signal at the receiver input with a standard test signal at which the receiver will produce after demodulation and channel decoding data with a Frame Erasure Ratio (FER), Residual Bit Error Ratio (RBER), Bit Error Ratio (BER) or Block Error Ratio (BLER) better than or equal to that specified for a specific logical channel type, under multipath propagation conditions. | ETSI TS 101 087 [i.37], clause 7.4.1 |

## A.22.18 Static reference sensitivity level

**Table A.22.18: Definition of static reference sensitivity level**

| Definition | Found in |
|---|---|
| The static reference sensitivity level of the receiver is the level of signal at the receiver input with a standard test signal at which the receiver will produce after demodulation and channel decoding data with a Frame Erasure Ratio (FER), Residual Bit Error Ratio (RBER) Bit Error Ratio (BER) or Block Error Ratio (BLER) better than or equal to that specified for a specific logical channel type under static propagation conditions. | ETSI TS 101 087 [i.37], clause 7.3.1 |

# A.23 Radio receiver reference BER and FER

**Table A.23.1: Definition of radio receiver reference BER and FER**

| Definition | Found in |
|---|---|
| The radio receiver reference BER and FER is the maximum allowed BER and FER for a power level at the receiver input of -73 dBm or greater (i.e. 70 dBµV/m). | ETSI EN 301 406 [i.4], clause 4.5.7.2.1<br>ETSI EN 301 908-10 [i.43], clause 4.5.8.2.1 |

# A.24 Single tone desensitization

**Table A.24.1: Definitions of single tone desensitization**

| Definition | Found in |
|---|---|
| The single tone desensitization is a measure of the base station receiver's ability to receive a wanted signal on the assigned channel frequency in the presence of a continuous wave signal (single tone) that is offset from the centre frequency of the assigned channel. | ETSI EN 301 449 [i.57], clause 4.2.7 |
| The receiver single tone desensitization characteristic is a measure of the receiver's ability to receive a CDMA signal at its assigned channel frequency in the presence of a single tone spaced at a given frequency offset from the centre frequency of the assigned channel, without this unwanted input signal causing a degradation of the performance of the receiver beyond a specified limit. | ETSI EN 301 526 [i.52], clause 4.2.11.1 |

# A.25 Spurious emissions and radiations

## A.25.1 Receiver conducted spurious emissions

**Table A.25.1: Definitions of receiver conducted spurious emissions**

| Definition | Found in |
|---|---|
| Conducted spurious emissions from the receiver are components at any frequency, present at the receiver input port. | ETSI EN 300 162-1 [i.8], clause 9.9.1<br>ETSI EN 301 178-1 [i.10], clause 9.9.1 |
| Receiver conducted spurious emissions are spurious emissions generated in the base station equipment and appearing at the receiver RF input ports.<br>This requirement only applies if the base station is equipped with a separate RF input port. | ETSI EN 301 449 [i.57], clause 4.2.6 |
| Conducted spurious emissions are spurious emissions generated or amplified in the base station equipment and appearing at the receiver RF input ports.<br>This requirement only applies if the base station is equipped with a separate RF input port. | ETSI EN 301 908-5 [i.29], clause 4.2.5.1 |
| Conducted spurious-output signals are those generated or amplified in a receiver and appearing at the receiver antenna terminals. | ETSI EN 301 908-9 [i.35], clause 4.3.5.1 |
| Spurious emissions are emissions at frequencies other than those of the BTS transmitter operating and adjacent frequencies. This test measures spurious emissions at the BTS receiver antenna connector. | ETSI EN 301 908-9 [i.35], clause 4.4.5.1 |

## A.25.2 Conducted spurious emissions when not transmitting

**Table A.25.2: Definition of conducted spurious emissions when not transmitting**

| Definition | Found in |
|---|---|
| Conducted spurious emissions when not transmitting are spurious emissions generated or amplified in a receiver that appear at the mobile station antenna connector. | ETSI EN 301 526 [i.52], clause 4.2.13.1 |

## A.25.3 Receiver conducted spurious emissions conveyed to the antenna

**Table A.25.3: Definition of receiver conducted spurious emissions conveyed to the antenna**

| Definition | Found in |
|---|---|
| Conducted spurious emissions are components at any frequency generated in the receiver and radiated by its antenna.<br>The level of spurious emissions shall be measured by their power level in a transmission line or antenna. | ETSI EN 300 698-1 [i.11], clause 9.9.1<br>ETSI EN 300 720-1 [i.12], clause 9.9.1 |

## A.25.4 Receiver radiated spurious emissions

**Table A.25.4: Definitions of receiver radiated spurious emissions**

| Definition | Found in |
|---|---|
| Radiated spurious emissions from the receiver are components at any frequency radiated by the equipment cabinet and the structure. | ETSI EN 300 162-1 [i.8], clause 9.10.1 |
| Radiated spurious emissions from the receiver are components at any frequency radiated by the equipment cabinet and the structure. Integral antenna equipment shall be tested with the normal antenna fitted. | ETSI EN 300 698-1 [i.11], clause 9.14.1<br>ETSI EN 300 720-1 [i.12], clause 9.10.1<br>ETSI EN 301 178-1 [i.10], clause 9.10.1 |

## A.25.5 Receiver spurious emissions

**Table A.25.5: Definitions of receiver spurious emissions**

| Definition | Found in |
|---|---|
| Spurious emissions are any radio-frequency emissions generated in the receiver and radiated by conduction from the antenna or from other conductors connected to the receiver or radiated by the receiver. | ETSI EN 300 065-1 [i.48], clause 5.5.1 |
| Receiver spurious emissions are emissions at any frequency when the equipment is in received mode. | ETSI EN 300 328 [i.58], clause 4.3.7.1 |
| Receiver spurious emissions are emissions at any frequency when the equipment is in receive mode. | ETSI EN 301 893 [i.2], clause 4.6.1<br>ETSI EN 302 502 [i.3], clause 4.5.1 |
| Separate radiated spurious measurements need not be made on receivers co-located with transmitters. The definitions from clause 7.2.1 on transmitter spurious and out-of-band emissions apply. | ETSI EN 302 288-1 [i.59], clause 8.1.1 |
| Spurious emissions from the receiver or receiver combiner are radio frequency emissions at any frequency, generated by the equipment, antenna, aerial amplifier, down converters or filter.<br>Manufacturers shall provide a representative sample of the receiver system. The level of spurious emissions shall be measured by either:<br>a) the power level from an external RF port; and their effective radiated power when radiated by the cabinet and structure of the equipment (cabinet radiation); or<br>b) their effective radiated power when radiated by the cabinet and the integral antenna, in the case of hand-portable equipment fitted with such an antenna and no external RF port. | ETSI EN 300 422-1 [i.60], clause 9.1.1 |
| Spurious emissions from the receiver are radio frequency emissions at any frequency, generated by the equipment, antenna, aerial amplifier, down converters or filter.<br>Manufacturers shall provide a representative sample of the receiver system. The level of spurious emissions shall be measured by either:<br>a) the power level from an external RF port; and<br>b) their effective radiated power when radiated by the cabinet and structure of the equipment (cabinet radiation); or<br>c) their effective radiated power when radiated by the cabinet and the integral antenna, in the case of equipment fitted with such an antenna and no external RF port. | ETSI EN 301 357-1 [i.61], clause 9.1.1 |
| Spurious emissions are emissions at frequencies other than those of the carrier and sidebands associated with normal modulation.<br>The level of spurious emissions shall be measured as:<br>1) their power level in a transmission line or antenna; and<br>2) their effective radiated power when radiated by the cabinet and structure of the equipment. This is also known as "cabinet radiation".<br>For equipment which can only be used with an integral antenna, only the measurement mentioned under (2) applies. | ETSI EN 301 797 [i.62], clause 5.4.1.1 (definition of spurious emissions of the combined transmitter/receiver) |

| Definition | Found in |
|---|---|
| The transponder spurious emissions are emissions at frequencies, other than those of the transponder and sidebands associated with normal modulation, radiated by the transponder.<br>The spurious radiations are specified as the radiated power of any discrete signal. | ETSI EN 300 761-1 [i.21], clause 9.4.1 |
| Spurious radiations from the receiver are components at any frequency, radiated by the equipment and antenna.<br>The level of spurious radiations shall be measured by either:<br>a)<br>i) their power level in a specified load (conducted spurious emission); and<br>ii their effective radiated power when radiated by the cabinet and structure of the equipment (cabinet radiation); or<br>b) their effective radiated power when radiated by the cabinet and the integral or dedicated antenna, in the case of portable equipment fitted with such an antenna and no permanent RF connector. | ETSI EN 302 064-1 [i.63], clause 8.1.1 |
| Spurious emissions from the receiver are components at any frequency, radiated by the equipment and antenna.<br>The level of spurious emissions shall be measured as either:<br>a)<br>– their power level in a specified load (conducted spurious emission); and<br>– their effective radiated power when radiated by the cabinet and structure of the equipment (cabinet radiation); or<br>b) their effective radiated power when radiated by the cabinet and the integral antenna.<br>Separate receiver radiated spurious measurements need not be made for co-located receiver and transmitters if the transmitter is operating at continuous duty. | ETSI EN 300 761-1 [i.21], clause 8.4.1 |
| Spurious emissions by the receiver are either:<br>1)<br>a) their conducted power in an artificial antenna (conducted spurious emission); and<br>b) their effective radiated power or field strength when radiated by the cabinet and structure of the equipment (cabinet radiation); or<br>2) their effective radiated power or field strength when radiated by the cabinet and the integral antenna. | ETSI EN 302 291-2 [i.64], clause 4.3.1.1 |
| Spurious emissions are any radio frequency emissions generated in the receiver and radiated either by way of conduction to the antenna or other conductors connected to the receiver, or radiated directly by the receiver. For the purposes of the present document only spurious emissions conducted by way of the antenna shall be considered. | ETSI EN 300 373-2 [i.36], clause 4.2.11.1 |
| Receiver spurious emissions are emissions at any frequency from the equipment which are not attributed to the transmitter. These may be emissions from a receiver circuit on the device, or other emissions from the device which are treated in the same manner (see clause 7.2). | ETSI EN 302 500-1 [i.65], clause 9.1.1 |
| Spurious emissions from the receiver of an interrogator are on a frequency or frequencies which are outside the necessary bandwidth and the level of which may be reduced without affecting the corresponding transmission of information. Spurious emissions include harmonic emissions, parasitic emissions, intermodulation products and frequency conversion products, but exclude out-of-band emissions. | ETSI EN 302 208-1 [i.66], clause 9.4.1 |
| Receiver spurious emissions are emissions at any frequency when the equipment is in receive mode. | ETSI EN 302 065 [i.67], clause 4.1.5.1 |

| Definition | Found in |
|---|---|
| Spurious emissions: Emission on a frequency, or frequencies, which are outside an exclusion band of ±2,5 times the channel spacing around the selected centre frequency *f*Tx, and the level of which may be reduced without affecting the corresponding transmission of information. Spurious emissions include harmonic emissions, parasitic emissions, intermodulation products and frequency conversion products but exclude out-of-band emissions (see also CEPT Recommendation 74-01 [i.68]). | ETSI EN 300 674-1 [i.69], clause 3.1 |
| Receiver spurious emissions are emissions at any frequency when the equipment is in receive mode. | ETSI EN 302 571 [i.46], clause 6.5.1 |
| The spurious emissions power is the power of emissions, generated or amplified in a receiver, which appear at the UE antenna connector. The requirements in UE transmit bands are valid in URA_PCH, Cell_PCH and idle state. | ETSI EN 301 908-2 [i.25], clause 4.2.10.1 |
| The spurious emission power is the power of the emissions, generated or amplified in a receiver, which appear at the BS antenna connector. The requirements apply to all BS with separate Rx and Tx antenna port. The test shall be performed when both Tx and Rx are on with the Tx port terminated.<br>For all BS with common Rx and Tx antenna port the transmitter spurious emission as specified in clause 4.2.4 is valid. | ETSI EN 301 908-3 [i.27], clause 4.2.7.1 |
| The spurious emissions power is the power of emissions generated or amplified in a receiver that appears at the UE antenna connector. | ETSI EN 301 908-6 [i.30], clause 4.2.6.1 |
| The spurious emissions power is the power of emissions, generated or amplified in a receiver, which appear at the BS antenna connector. The requirements apply to all BS with separate Rx and Tx antenna port. The test shall be performed when both Tx and Rx are on with the Tx port terminated.<br>For BS equipped with only a single antenna connector for both transmitter and receiver, the requirements of clause 4.2.4 Transmitter spurious emissions shall apply to this port, and this test need not be performed. | ETSI EN 301 908-7 [i.31], clause 4.2.7.1 |
| Spurious emissions from receivers are any emissions radiated from the unit. They are specified as the radiated power of any discrete signal. | ETSI EN 300 224-1 [i.70], clause 8.1.1.1 |
| Spurious emissions are discrete radio frequency signals conveyed from the antenna socket by conduction or radiated by the receiver.<br>They are specified as the power level of any discrete signal measured by the measuring device within the specified frequency range. | ETSI EN 300 224-1 [i.70], clause 8.2.13.1 |
| Spurious emissions from receivers are emissions at frequencies outside the loop frequency band (see clause 9.1), radiated from the chassis and case of the receiver. It is specified as the radiated power of a discrete signal. | ETSI EN 300 224-1 [i.70], clause 9.3.1.1 |

## A.25.6 Receiver spurious emissions from the receiver antenna connector

**Table A.25.6: Definition of receiver spurious emissions from the receiver antenna connector**

| Definition | Found in |
|---|---|
| Spurious emissions are emissions at frequencies other than those of the BTS transmitter ARFCNs and adjacent frequencies. This test measures spurious emissions from the BTS receiver antenna connector. | ETSI TS 101 087 [i.37], clause 7.9.1 |

## A.25.7 Receiver spurious emissions (idle mode)

**Table A.25.7: Definition of receiver spurious emissions (idle mode)**

| Definition | Found in |
|---|---|
| The receiver conducted emissions are those out of band RF average power emissions measured at the UE antenna connector when the UE is in Idle Mode. | ETSI EN 301 908-8 [i.32], clause 4.2.2.7.1<br>ETSI EN 301 908-8 [i.32], clause 4.2.3.7.1 |

## A.25.8 Spurious emissions when the PP has no allocated transmit channel

**Table A.25.8: Definition of spurious emissions when the PP has no allocated transmit channel**

| Definition | Found in |
|---|---|
| The power level of any spurious emission when the PP has not been allocated a transmit channel. | ETSI EN 301 406 [i.4], clause 4.5.7.7.1<br>ETSI EN 301 908-10 [i.43], clause 4.5.8.7.1 |

## A.25.9 Receiver spurious emissions at the antenna

**Table A.25.9: Definition of receiver spurious emissions at the antenna**

| Definition | Found in |
|---|---|
| Spurious emissions from the receiver are components at any frequency, present at the receiver input port.<br>The level of spurious emissions shall be measured as the power level at the antenna. | ETSI EN 301 025-1 [i.9], clause 9.9.1<br>ETSI EN 301 025-1 [i.9], clause 10.7.1 |
| Spurious emissions from the receiver are components at any frequency radiated by the equipment.<br>Spurious emissions from the antenna are measured by their power level in a specified load, connected to the antenna port of the receiver (conducted spurious emissions).<br>Spurious emissions from the cabinet and structure of the equipment are measured by their effective radiated power,<br>ERP (radiated spurious emissions). | ETSI EN 301 929-1 [i.13], clause 9.11.1 |

## A.25.10 Receiver cabinet radiated spurious emissions

**Table A.25.10: Definition of receiver cabinet radiated spurious emissions**

| Definition | Found in |
|---|---|
| Radiated spurious emissions from the receiver are components at any frequency radiated by the equipment cabinet and the structure. This test is performed for both the telephony receiver and the DSC receiver. | ETSI EN 301 025-1 [i.9], clause 9.10.1 |

## A.25.11 Unwanted emissions in the spurious domain

**Table A.25.11: Definitions of unwanted emissions in the spurious domain**

| Definition | Found in |
|---|---|
| Unwanted emissions in the spurious domain are emissions at frequencies, other than those of the transmitter carrier and sidebands associated with normal modulation at the adjacent frequencies. | ETSI EN 302 480 [i.56], clause 4.2.2.2.1 |

## A.25.12 Unwanted emissions, conducted

**Table A.25.12: Definitions of unwanted emissions, conducted**

| Definition | Found in |
|---|---|
| These are any emissions from the antenna port of the equipment in receive (or transmit standby) mode, or any emission outside of exclusion band defined from the necessary bandwidth in transmit mode. | ETSI EN 301 783-1 [i.51], clause 4.2.1.1 |

## A.25.13 Unwanted conducted emissions in reception

**Table A.25.13: Definition of unwanted conducted emissions in reception**

| Definition | Found in |
|---|---|
| Unwanted emissions from the equipment when in reception are defined as conducted emissions at any frequency, when the equipment is in the non-transmit state. | ETSI EN 300 392-2 [i.38], clause 6.5.4.1<br>ETSI EN 300 396-2 [i.39], clause 6.5.4.1<br>ETSI EN 300 396-4 [i.40], clause 12.3.5<br>ETSI EN 300 396-7 [i.41], clause 12.3.5<br>ETSI EN 300 396-5 [i.42], clause 16.3.5 |

## A.25.14 Unwanted radiated emission

**Table A.25.14: Definition of unwanted conducted emissions in reception**

| Definition | Found in |
|---|---|
| Unwanted radiated emissions are emissions radiated by the cabinet and structure of the equipment (MS or BS) in the non-transmit state. This is also known as cabinet radiation.<br>The limits given in clause 6.5.4.2 shall apply for frequencies between 30 MHz and 4 GHz only. | ETSI EN 300 392-2 [i.38], clause 6.5.5 |
| Unwanted radiated emissions are emissions radiated by the cabinet and structure of the equipment in the non-Tx state. This is also known as cabinet radiation.<br>The limits given in clause 6.5.4.2 shall apply. | ETSI EN 300 396-2 [i.39], clause 6.5.5<br>ETSI EN 300 396-4 [i.40], clause 12.3.5<br>ETSI EN 300 396-7 [i.41], clause 12.3.5<br>ETSI EN 300 396-5 [i.42], clause 16.3.5 |
| These are any emissions from the enclosure of the equipment in active, receive (or transmit standby) mode, or any emission outside of exclusion band defined from the necessary bandwidth in transmit mode. | ETSI EN 301 783-1 [i.51], clause 4.2.2.1 |

## A.25.15 Receiver spurious radiations

**Table A.25.15: Definitions of receiver spurious radiations**

| Definition | Found in |
|---|---|
| Spurious radiation from receivers are emissions radiated from the antenna, the chassis and case of the receiver. It is specified as the radiated power of a discrete signal. | ETSI EN 300 330-1 [i.23], clause 8.3.1 |
| Spurious radiations from the receiver are components at any frequency radiated by the equipment and its antenna. They are specified as the radiated power of any discrete signal. | ETSI EN 301 091-1 [i.71], clause 8.1.1<br>ETSI EN 300 296-1 [i.15], clause 9.8.1<br>ETSI EN 300 341-1 [i.16], clause 9.7.1<br>ETSI EN 300 390-1 [i.17], clause 9.8.1 |

| Definition | Found in |
|---|---|
| Spurious radiations from the receiver are components at any frequency, radiated by the equipment and antenna.<br>The level of spurious radiations shall be measured by:<br>a) either:<br>i) their power level in a specified load (conducted spurious emission); and<br>ii) their effective radiated power when radiated by the cabinet and structure of the equipment (cabinet radiation); or<br>b) their effective radiated power when radiated by the cabinet and the integral antenna, in the case of portable equipment fitted with such an antenna and no external RF connector. | ETSI EN 300 220-1 [i.22], clause 9.7.1 |
| Spurious radiations from the receiver are components at any frequency, radiated by the equipment and antenna.<br>The level of spurious radiations shall be measured by either:<br>a)<br>i) their power level in a specified load (conducted spurious emission); and<br>ii) their effective radiated power when radiated by the cabinet and structure of the equipment (cabinet radiation); or<br>b) their effective radiated power when radiated by the cabinet and the integral or dedicated antenna, in the case of portable equipment fitted with such an antenna and no permanent RF connector. | ETSI EN 300 440-1 [i.24], clause 8.3.1 |
| Spurious radiations from the receiver are components at any frequency, radiated by the equipment and antenna.<br>The level of spurious radiations shall be measured by: either<br>a) their power level in a specified load (conducted spurious emission); and<br>b) their effective radiated power when radiated by the cabinet and structure of the equipment (cabinet radiation); or<br>c) their effective radiated power when radiated by the cabinet and the integral antenna, in the case of handportable equipment fitted with such an antenna and no external RF connector. | ETSI EN 300 219-1 [i.33], clause 9.9.1 |
| Spurious radiations from the receiver are emissions at any frequency, radiated by the equipment and its antenna.<br>The level of spurious radiations shall be measured by:<br>either:<br>a) their power level in a specified load (conducted spurious emission); and<br>b) their effective radiated power when radiated by the cabinet and structure of the equipment (cabinet radiation); or<br>c) their effective radiated power when radiated by the cabinet and by the integral antenna, in the case of hand portable equipment fitted with such an antenna and no external RF connector. | ETSI EN 300 086-1 [i.14], clause 8.8.1<br>ETSI EN 300 113-1 [i.20], clause 8.10.1<br>(does not include note 1) |
| Spurious radiations from the receiver are components at any frequency, generated and radiated by active receiver circuitry and the antenna. | ETSI EN 301 839-1 [i.72], clause 9.1.1 |
| Spurious radiations from the receiver are components at any frequency, generated and radiated by receiver circuitry and/or the antenna.<br>The level of spurious radiation shall be measured by:<br>- their effective radiated power when radiated by the cabinet and the integral antenna; or<br>- their effective radiated power when radiated by the cabinet and any dedicated antenna provided by the provider. | ETSI EN 302 537-1 [i.73], clause 9.1.1 |
| Spurious radiation from receivers consists of emissions radiated from the antenna, the chassis and case of the receiver. It is specified as the radiated power of a discrete signal. Included in this definition are modulation products that are outside the 20 dB down point on either side of the fundamental emission. | ETSI EN 302 195-1 [i.44], clause 8.2.1<br>ETSI EN 302 510-1 [i.45], clause 8.2.1<br>ETSI EN 302 536-1 [i.74], clause 9.1.1 |

| Definition | Found in |
|---|---|
| Spurious radiations from the receiver are components at any frequency, radiated by the equipment and antenna.<br>The level of spurious radiations shall be measured by:<br>a) their power level in a specified load (conducted spurious emission); and<br>b) their effective radiated power when radiated by the cabinet and structure of the equipment (cabinet radiation); or<br>c) their effective radiated power when radiated by the cabinet and the integral antenna, in the case of handportable equipment fitted with such an antenna and no external RF connector. | ETSI EN 300 135-1 [i.75], clause 8.1.1 |
| Spurious radiation from the receiver are components at any frequency, radiated by the equipment and antenna.<br>The level of spurious radiation shall be measured by:<br>a) their power level in a specified load (conducted spurious emission), and<br>b) their effective radiated power when radiated by the cabinet and structure of the equipment (cabinet radiation), or<br>c) their effective radiated power when radiated by the cabinet and the integral antenna, in the case of hand-portable equipment fitted with such an antenna and no external RF connector. | ETSI EN 300 433-1 [i.34], clause 9.4.1 |
| Spurious radiations from the receiver are components at any frequency, radiated by the equipment and antenna.<br>For equipment with an external 50 Ω antenna connector, the level of spurious radiations are considered to be either:<br>a) their power level in a specified load (conducted spurious emission); and<br>b) their effective radiated power when radiated by the cabinet and structure of the equipment (cabinet radiation).<br>For equipment without an external antenna connector, spurious radiations are considered to be:<br>c) their effective radiated power when radiated by the cabinet and the integral antenna, in the case of handportable equipment fitted with such an antenna and no external RF connector. | ETSI EN 301 166-1 [i.18], clause 8.9.1 |
| Spurious radiations from the receiver are components at any frequency, radiated by the equipment and antenna.<br>For equipment with an external 50 Ω □antenna connector, the level of spurious radiations are considered to be:<br>a) their power level in a specified load (conducted spurious emission); and<br>b) their effective radiated power when radiated by the cabinet and structure of the equipment (cabinet radiation);<br>or for equipment without an external antenna connector:<br>c) their effective radiated power when radiated by the cabinet and the integral antenna.<br>(See note 2) | ETSI EN 302 561 [i.19], clause 8.5.1 |
| NOTE 1: I.e. a) and b) or c).<br>NOTE 2: There only two options allowed either both a) and b) or only c). | |

# A.26 Spurious response

## A.26.1 Spurious response and blocking immunity

**Table A.26.1: Definitions of spurious response and blocking immunity**

| Definition | Found in |
|---|---|
| The spurious response and blocking immunity is a measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted modulated signal with frequencies outside the pass band of the receiver. | ETSI EN 301 025-1 [i.9], clause 10.4.1 |
| Blocking is defined as the desensitization of the receiver by a signal separated in frequency from the wanted signal by at least three channels. The signal frequencies that may block the receiver range from the lowest intermediate frequency of the receiver to at least three times the wanted signal frequency (fc, see clause 4.2.2.5.2) of the receiver.<br>A spurious response is defined as the desensitization of the receiver by signals in a specific small band of frequencies which has a bandwidth (bs, see clause 4.2.2.5.2) of the same order as the channel bandwidth. The frequencies of signals that may produce spurious responses are in the same range as those that may cause blocking. The bandwidth (bs, see clause 4.2.2.5.2) of the spurious response is the continuous range of frequencies in which a signal at the level of the blocking level limit causes the error rate limit to be exceeded. | ETSI EN 301 908-8 [i.32], clause 4.2.2.5.1 |

## A.26.2 Spurious response rejection

**Table A.26.2: Definitions of spurious response rejection**

| Definition | Found in |
|---|---|
| The spurious response rejection is a measure of the capability of the receiver to discriminate between the wanted modulated signal at the nominal frequency and an unwanted signal at any other frequency at which a response is obtained. | ETSI EN 300 162-1 [i.8], clause 9.6.1<br>ETSI EN 300 698-1 [i.11], clause 9.6.1<br>ETSI EN 300 720-1 [i.12], clause 9.6.1<br>ETSI EN 301 025-1 [i.9], clause 9.6.1<br>ETSI EN 301 178-1 [i.10], clause 9.6.1<br>ETSI EN 301 929-1 [i.13], clause 9.7.1 |
| The spurious response rejection is a measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted modulated signal at any other frequency outside ±2 MHz from the transmit frequency at which a response is obtained. This definition also includes blocking/desensitization. | ETSI EN 300 761-1 [i.21], clause 8.3.5.1 |
| The spurious response rejection is a measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted modulated signal at any other frequency, at which a response is obtained. | ETSI EN 300 220-1 [i.22], clause 9.6.1<br>ETSI EN 300 086-1 [i.14], clause 8.5.1<br>ETSI EN 300 219-1 [i.33], clause 9.6.1<br>ETSI EN 300 296-1 [i.15], clause 9.5.1<br>ETSI EN 300 341-1 [i.16], clause 9.4.1<br>ETSI EN 300 390-1 [i.17], clause 9.5.1<br>ETSI EN 301 166-1 [i.18], clause 8.6.1 |
| The spurious response rejection is a measure of the capability of the receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted modulated signal at any other frequency, at which a response is obtained.<br>The equipment (transmission and/or reception) under test shall be operated in its normal transmission mode (which may be continuous or discontinuous). | ETSI EN 300 113-1 [i.20], clause 8.7.1 |

| Definition | Found in |
|---|---|
| Spurious response is a measure of the receiver's ability to receive a wanted signal on its assigned channel frequency without exceeding a given degradation due to the presence of an unwanted CW interfering signal at any other frequency at which a response is obtained i.e. for which the out-of-band blocking limit as specified in table 9 is not met. | ETSI EN 301 908-2 [i.25], clause 4.2.8.1 |
| Spurious response is a measure of the receiver's ability to receive a wanted signal on its assigned channel frequency without exceeding a given degradation due to the presence of an unwanted CW interfering signal at any other frequency at which a response is obtained, i.e. for which the blocking limit is not met. | ETSI EN 301 908-6 [i.30], clause 4.2.9.1 |
| The spurious response rejection is the capability of the receiver to discriminate between the wanted modulated signal at the nominal frequency and an unwanted signal at any other frequency at which a response is obtained. | ETSI EN 300 433-1 [i.34], clause 9.5.1 |
| Spurious response rejection is a measure of the capability of a receiver to receive a wanted modulated signal without exceeding a given degradation due to the presence of an unwanted un-modulated signal at any other frequency at which a response is obtained, i.e. for which the blocking limit is not met. | ETSI EN 300 392-2 [i.38], clause 6.5.2.2<br>ETSI EN 300 396-2 [i.39], clause 6.5.2.1<br>ETSI EN 300 396-4 [i.40], clause 12.3.5<br>ETSI EN 300 396-7 [i.41], clause 12.3.5<br>ETSI EN 300 396-5 [i.42], clause 16.3.5 |

## A.26.3 Spurious response rejection ratio

**Table A.26.3: Definition of spurious response rejection ratio**

| Definition | Found in |
|---|---|
| The spurious response rejection ratio is the ratio of the input level of an unwanted signal, at the frequency of the spurious response to the input level of a wanted signal, when the wanted and unwanted signals individually produce the same SINAD ratio at the receiver output. | ETSI EN 300 373-2 [i.36], clause 4.2.10.1 |

## A.26.4 Spurious response rejection (with simultaneous transmission and reception)

**Table A.26.4: Definitions of spurious response rejection (with simultaneous transmission and reception)**

| Definition | Found in |
|---|---|
| The spurious response rejection, under duplex operation, is a measure of the capability of the receiver to achieve a specific spurious response rejection ratio when receiving a wanted modulated signal in the presence of:<br>a) an unwanted signal at any other frequency, at which a response may be obtained; and<br>b) the unmodulated signal of the transmitter operating at duplex frequency distance, at the rated output power and attenuated by the duplex filter or by the distance between the antennas. | ETSI EN 300 086-1 [i.14], clause 9.2.1 |

| Definition | Found in |
|---|---|
| The spurious response rejection, under duplex operation, is a measure of the capability of the receiver to achieve a specific successful response ratio when receiving a wanted modulated signal in the presence of:<br>a) an unwanted unmodulated signal, which is added at any other frequency at which a response may be obtained; and<br>b) the unmodulated signal of the transmitter operating at duplex frequency distance at the rated output power and attenuated by the duplex filter or the distance between the antennas. | ETSI EN 300 219-1 [i.33], clause 10.2.1 |
| The spurious response rejection, under duplex operation, is a measure of the capability of the receiver to achieve a specific spurious response rejection ratio when receiving a wanted modulated signal in the presence of:<br>a) an unwanted signal at any other frequency, at which a response may be obtained; and<br>b) the signal of the transmitter operating at duplex frequency distance, at the maximum output power and attenuated by the duplex filter and/or by the decoupling between the antennas. | ETSI EN 301 166-1 [i.18], clause 9.2.1 |

# Annex B:
# Results obtained by an automatic search (i.e. before analysis of the various definitions)

The results obtained by an automatic search are contained in archive tr_103265v010401p0.zip which accompanies the present document.

# Annex C:
# Code used in the Scripts

The code used in the Scripts is contained in archive tr_103265v010401p0.zip which accompanies the present document.

# Annex D: Bibliography

Directive 1999/5/EC of the European Parliament and of the council of 9 March 1999 on Radio Equipment and Telecommunications Terminal Equipment and the Mutual Recognition of their Conformity. (R&TTE Directive).

Directive 2014/53/EU of the European Parliament and of the council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC.

RSPG document 07-191: "Draft Request by the European Commission to the Radio Spectrum Policy Group for an Opinion on Streamlining the regulatory environment for the use of spectrum".

ETSI TR 102 137: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Use of radio frequency spectrum by equipment meeting ETSI standards".

ETSI EN 302 544-1: "Broadband Data Transmission Systems operating in the 2 500 MHz to 2 690 MHz frequency band; Part 1: TDD Base Stations; Harmonised EN covering the essential requirements of article 3.2 of the R&TTE Directive".

ETSI EN 302 567: "Broadband Radio Access Networks (BRAN); 60 GHz Multiple-Gigabit WAS/RLAN Systems; Harmonised EN covering the essential requirements of article 3.2 of the R&TTE Directive".

ETSI EN 302 623: "Broadband Wireless Access Systems (BWA) in the 3 400 MHz to 3 800 MHz frequency band; Mobile Terminal Stations; Harmonised EN covering the essential requirements of article 3.2 of the R&TTE Directive".

ETSI EN 301 489-3: "Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 246 GHz".

ETSI TR 101 506: "Fixed Radio Systems; Generic definitions, terminology and applicability of essential requirements under the article 3.2 of 1999/05/EC Directive to Fixed Radio Systems".

ETSI EN 301 751: "Fixed Radio Systems; Point-to-Point equipments and antennas; Generic harmonised standard for Point-to-Point digital fixed radio systems and antennas covering the essential requirements under article 3.2 of the 1999/5/EC Directive".

ETSI EN 302 217 (all parts): "Fixed Radio Systems; Characteristics and requirements for point-to-point equipment and antennas".

ECC Recommendation (02)01: "Specification of Reference Receiver Performance Parameters".

ETSI EN 302 774: "Broadband Wireless Access Systems (BWA) in the 3 400 MHz to 3 800 MHz frequency band; Base Stations; Harmonised EN covering the essential requirements of article 3.2 of the R&TTE Directive".

ETSI EN 300 330-2: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Radio equipment in the frequency range 9 kHz to 25 MHz and inductive loop systems in the frequency range 9 kHz to 30 MHz; Part 2: Harmonised EN covering the essential requirements of article 3.2 of the R&TTE Directive".

ETSI EN 300 440-2: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Short range devices; Radio equipment to be used in the 1 GHz to 40 GHz frequency range; Part 2: Harmonised EN covering the essential requirements of article 3.2 of the R&TTE Directive".

ETSI EN 302 326: "Fixed Radio Systems; Multipoint Equipment and Antennas".

# History

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|---|---|---|
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