SLOVENSKI STANDARD
SIST EN 301 908-18 V5.2.1:2011

01-september-2011

Celična omrežja IMT - Harmonizirani EN, ki zajema bistvene zahteve člena 3.2 direktive R&TTE - 18. del: Multi-Standard Radio (E-UTRA, UTRA in GSM/EDGE) bazne postaje (BS)

IMT cellular networks; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive - Part 18: E-UTRA, UTRA and GSM/EDGE Multi-Standard Radio (MSR) Base Station (BS)

Ta slovenski standard je istoveten z: EN 301 908-18 Version 5.2.1

ICS:

33.060.99	Druga oprema za radijske komunikacije	Other equipment for radiocommunications

SIST EN 301 908-18 V5.2.1:2011 en

ETSI EN 301 908-18 V5.2.1 (2011-07)

Harmonized European Standard

IMT cellular networks; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive; Part 18: E-UTRA, UTRA and GSM/EDGE Multi-Standard Radio (MSR) Base Station (BS)

Reference
DEN/MSG-TFES-009-18

Keywords
3G, 3GPP, cellular, digital, EDGE, GSM, E-UTRA, IMT-2000, LTE, mobile, MSR, radio, regulation, UMTS, UTRA, WCDMA

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

Important notice

Individual copies of the present document can be downloaded from:
http://www.etsi.org

The present document may be made available in more than one electronic version or in print. In any case of existing or perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF). In case of dispute, the reference shall be the printing on ETSI printers of the PDF version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at
http://portal.etsi.org/tb/status/status.asp

If you find errors in the present document, please send your comment to one of the following services:
http://portal.etsi.org/chaircor/ETSI_support.asp

Copyright Notification

Contents

Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (http://ipr.etsi.org).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Foreword

This Harmonized European Standard (EN) has been produced by ETSI Technical Committee Mobile Standards Group (MSG).

The present document has been produced by ETSI in response to mandate M/284 from the European Commission issued under Council Directive 98/34/EC [i.1] (as amended) laying down a procedure for the provision of information in the field of technical standards and regulations.

The title and reference to the present document are intended to included in the publication in the Official Journal of the European Union of titles and references of Harmonized Standard under the Directive 1999/5/EC [i.2].

See article 5.1 of Directive 1999/5/EC [i.2] for information on presumption of conformity and Harmonised Standards or parts thereof the references of which have been published in the Official Journal of the European Union.

The requirements relevant to Directive 1999/5/EC [i.2] are summarised in annex A.

The present document is part 18 of a multi-part deliverable covering the essential requirements under article 3.2 of Directive 1999/5/EC [i.2] (R&TTE Directive) for Base Stations (BS), Repeaters and User Equipment (UE) for IMT cellular networks, as identified below:

Part 1: "Introduction and common requirements";

Part 2: "CDMA Direct Spread (UTRA FDD) User Equipment (UE)";

Part 3: "CDMA Direct Spread (UTRA FDD) Base Stations (BS)";

Part 4: "CDMA Multi-Carrier (cdma2000) User Equipment (UE)";

Part 5: "CDMA Multi-Carrier (cdma2000) Base Stations (BS)";

Part 6: "CDMA TDD (UTRA TDD) User Equipment (UE)";

Part 7: "CDMA TDD (UTRA TDD) Base Stations (BS)";

Part 8: "Harmonized EN for IMT-2000, TDMA Single-Carrier (UWC 136) (UE) covering essential requirements of article 3.2 of the R&TTE Directive";

Part 9: "Harmonized EN for IMT-2000, TDMA Single-Carrier (UWC 136) (BS) covering essential requirements of article 3.2 of the R&TTE Directive";

Part 10: "Harmonized EN for IMT-2000, FDMA/TDMA (DECT) covering essential requirements of article 3.2 of the R&TTE Directive";

Part 11: "CDMA Direct Spread (UTRA FDD) (Repeaters)";

Part 12: "Harmonized EN for IMT-2000, CDMA Multi-Carrier (cdma2000) (Repeaters) covering the essential requirements of article 3.2 of the R&TTE Directive";

Part 13: "Evolved Universal Terrestrial Radio Access (E-UTRA) User Equipment (UE)";

Part 14: "Evolved Universal Terrestrial Radio Access (E-UTRA) Base Stations (BS)";

Part 15: "Evolved Universal Terrestrial Radio Access (E-UTRA FDD) (Repeaters)";

Part 16: "Harmonized EN for IMT-2000, Evolved CDMA Multi-Carrier Ultra Mobile Broadband (UMB) (UE) covering the essential requirements of article 3.2 of the R&TTE Directive";

Part 17: "Harmonized EN for IMT-2000, Evolved CDMA Multi-Carrier Ultra Mobile Broadband (UMB) (BS) covering the essential requirements of article 3.2 of the R&TTE Directive";

Part 18: "E-UTRA, UTRA and GSM/EDGE Multi-Standard Radio (MSR) Base Station (BS)";

Part 19: "OFDMA TDD WMAN (Mobile WiMAX) TDD User Equipment (UE)";

Part 20: "OFDMA TDD WMAN (Mobile WiMAX) TDD Base Stations (BS)";

Part 21: "OFDMA TDD WMAN (Mobile WiMAX) FDD User Equipment (UE)";

Part 22: "OFDMA TDD WMAN (Mobile WiMAX) FDD Base Stations (BS)".

National transposition dates	
Date of adoption of this EN:	4 July 2011
Date of latest announcement of this EN (doa):	31 October 2011
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 April 2012
Date of withdrawal of any conflicting National Standard (dow):	30 April 2013

Introduction

The present document is part of a set of standards developed by ETSI and is designed to fit in a modular structure to cover all radio and telecommunications terminal equipment within the scope of the R&TTE Directive [i.2]. The modular structure is shown in EG 201 399 [i.3].

1 Scope

The present document applies to the following radio equipment type:

- Multi-Standard Radio capable Base stations (E-UTRA, UTRA, GSM/EDGE).

These radio equipment types are capable of operating in all or any part of the frequency bands given in table 1-1.

Table 1-1: Base station operating bands

Operating band and Band Category	Direction of transmission	E-UTRA Base Station operating bands
1 (BC1)	Transmit	2 110 MHz to 2 170 MHz
	Receive	1 920 MHz to 1 980 MHz
3 (BC2)	Transmit	1 805 MHz to 1 880 MHz
	Receive	1 710 MHz to 1 785 MHz
7 (BC1)	Transmit	2 620 MHz to 2 690 MHz
	Receive	2 500 MHz to 2 570 MHz
8 (BC2)	Transmit	925 MHz to 960 MHz
	Receive	880 MHz to 915 MHz
20 (BC1)	Transmit	791 MHz to 821 MHz
	Receive	832 MHz to 862 MHz
33 (BC3)	Transmit and Receive	1 900 MHz to 1 920 MHz
34 (BC3)	Transmit and Receive	2 010 MHz to 2 025 MHz
38 (BC3)	Transmit and Receive	2 570 MHz to 2 620 MHz

The present document covers requirements for multi-RAT capable E-UTRA, UTRA and GSM/EDGE MSR Base Stations for Release 9.

The present document is intended to cover the provisions of Directive 1999/5/EC [i.2] (R&TTE Directive), article 3.2, which states that "….. radio equipment shall be so constructed that it effectively uses the spectrum allocated to terrestrial/space radio communications and orbital resources so as to avoid harmful interference".

In addition to the present document, other ENs that specify technical requirements in respect of essential requirements under other parts of article 3 of the R&TTE Directive may apply to equipment within the scope of the present document.

NOTE: A list of such ENs is included on the web site http://www.newapproach.org.

2 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 reference document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at http://docbox.etsi.org/Reference.

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

2.1 Normative references

The following referenced documents are necessary for the application of the present document.

[1] ETSI EN 301 908-1 (V5.2.1): "IMT cellular networks; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive; Part 1: Introduction and common requirements".

[2] ETSI TS 137 141 (V9.3.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; E-UTRA, UTRA and GSM/EDGE; Multi-Standard Radio (MSR) Base Station (BS) conformance testing (3GPP TS 37.141 version 9.3.0 Release 9)".

[3] ETSI TS 125 104 (V9.6.0): "Universal Mobile Telecommunications System (UMTS); Base Station (BS) radio transmission and reception (FDD) (3GPP TS 25.104 version 9.6.0 Release 9)".

[4] ETSI TS 125 105 (V9.2.0): "Universal Mobile Telecommunications System (UMTS); Base Station (BS) radio transmission and reception (TDD) (3GPP TS 25.105 version 9.2.0 Release 9)".

[5] ETSI TS 136 104 (V9.7.0): "LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); Base Station (BS) radio transmission and reception (3GPP TS 36.104 version 9.7.0 Release 9)".

[6] ETSI TS 145 005 (V9.5.0): Technical Specification, "Digital cellular telecommunications system (Phase 2+); Radio transmission and reception (3GPP TS 45.005 version 9.5.0 Release 9)".

[7] ITU-R Recommendation SM.329-11 (2011): "Unwanted emissions in the spurious domain".

[8] ETSI EN 301 908-3 (V5.2.1): "IMT cellular networks; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive; Part 3: CDMA Direct Spread (UTRA FDD) Base Stations (BS)".

[9] ETSI EN 301 908-7 (V5.2.1): "IMT cellular networks; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive; Part 7: CDMA TDD (UTRA TDD) Base Stations (BS)".

[10] ETSI EN 301 908-14 (V5.2.1): "IMT cellular networks; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive; Part 14: Evolved Universal Terrestrial Radio Access (E-UTRA) Base Stations (BS)".

[11] ETSI EN 301 502 (V9.2.1): "Global System for Mobile communications (GSM); Harmonized EN for Base Station Equipment covering the essential requirements of article 3.2 of the R&TTE Directive".

[12] ETSI TS 137 104 (V9.4.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; E-UTRA, UTRA and GSM/EDGE; Multi-Standard Radio (MSR) Base Station (BS) radio transmission and reception (3GPP TS 37.104 version 9.4.0 Release 9)".

[13] ETSI TS 136 141 (V9.7.0): "LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); Base Station (BS) conformance testing (3GPP TS 36.141 version 9.7.0 Release 9)".

[14] ETSI TS 125 141 (V9.7.0): "Universal Mobile Telecommunications System (UMTS); Base Station (BS) conformance testing (FDD) (3GPP TS 25.141 version 9.7.0 Release 9)".

[15] ETSI TS 125 142 (V9.4.0): "Universal Mobile Telecommunications System (UMTS); Base Station (BS) conformance testing (TDD) (3GPP TS 25.142 version 9.4.0 Release 9)".

[16] ETSI TS 151 021 (V9.4.0): "Digital cellular telecommunications system (Phase 2+); Base Station System (BSS) equipment specification; Radio aspects (3GPP TS 51.021 version 9.4.0 Release 9)".

2.2 Informative references

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.

[i.1] Directive 98/34/EC of the European Parliament and of the Council of 22 June 1998 laying down a procedure for the provision of information in the field of technical standards and regulations.

[i.2] 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).

[i.3] ETSI EG 201 399: "Electromagnetic compatibility and Radio spectrum Matters (ERM); A guide to the production of Harmonized Standards for application under the R&TTE Directive".

[i.4] ETSI TR 102 215 (V1.3.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Recommended approach, and possible limits for measurement uncertainty for the measurement of radiated electromagnetic fields above 1 GHz".

[i.5] ETSI TR 100 028 (all parts) (V1.4.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics".

3 Definitions, symbols and abbreviations

3.1 Definitions

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

band category: group of operating bands for which the same MSR scenarios apply

NOTE: The band categories for MSR BS are defined in clause 4.4 of TS 137 141 [2].

Base Station RF bandwidth: bandwidth in which a Base Station transmits and receives multiple carriers and/or RATs simultaneously

Base Station RF bandwidth edge: frequency of one of the edges of the Base Station RF bandwidth

carrier: modulated waveform conveying the E-UTRA, UTRA or GSM/EDGE physical channels

channel bandwidth: RF bandwidth supporting a single E-UTRA, UTRA or GSM/EDGE RF carrier

NOTE: The channel bandwidth is measured in MHz and is used as a reference for transmitter and receiver RF requirements.

carrier power: power at the antenna connector in the channel bandwidth of the carrier averaged over at least one subframe for E-UTRA, at least one slot for UTRA and the useful part of the burst for GSM/EDGE

configured carrier power: target maximum power for a specific carrier for the operating mode set in the BS

downlink operating band: part of the operating band designated for downlink

lower RF bandwidth edge: frequency of the lower edge of the Base Station RF bandwidth, used as a frequency reference point for transmitter and receiver requirements

maximum carrier output power: carrier power available at the antenna connector for a specified reference condition

maximum throughput: maximum achievable throughput for a reference measurement channel

maximum total output power: sum of the power of all carriers available at the antenna connector for a specified reference condition

measurement bandwidth: bandwidth in which an emission level is specified

MSR Base Station: Base Station characterized by the ability of its receiver and transmitter to process two or more carriers in common active RF components simultaneously in a declared RF bandwidth, where at least one carrier is of a different RAT than the other carrier(s)

operating band: frequency range in which E-UTRA, UTRA or GSM/EDGE operates (paired or unpaired), that is defined with a specific set of technical requirements

NOTE: The operating band(s) for a BS is declared by the manufacturer.

throughput: number of payload bits successfully received per second for a reference measurement channel in a specified reference condition

transmission bandwidth: bandwidth of an instantaneous E-UTRA transmission from a UE or BS, measured in Resource Block units

transmitter OFF period: time period during which the BS transmitter is not allowed to transmit

transmitter ON period: time period during which the BS transmitter is transmitting data and/or reference symbols, e.g. data subframes or DwPTS

transmitter transient period: time period during which the transmitter is changing from the OFF period to the ON period or vice versa

uplink operating band: part of the operating band designated for uplink

upper RF bandwidth edge: frequency of the upper edge of the Base Station RF bandwidth, used as a frequency reference point for transmitter and receiver requirements

3.2 Symbols

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

BW_{RF}	Base Station RF bandwidth, where $BW_{RF} = F_{BW\ RF,high} - F_{BW\ RF,low}$
B_{RFBW}	Maximum RF bandwidth located at the bottom of the supported frequency range in the operating band
f	Frequency
Δf	Separation between the Base Station RF bandwidth edge frequency and the nominal -3dB point of the measuring filter closest to the carrier frequency
Δf_{max}	The largest value of Δf used for defining the requirement
F_C	Carrier centre frequency
F_{filter}	Filter centre frequency
f_offset	Separation between the Base Station RF bandwidth edge frequency and the centre of the measuring filter
f_offset_{max}	The maximum value of f_offset used for defining the requirement
$F_{BW\ RF,high}$	Upper RF bandwidth edge, where $F_{BW\ RF,high} = F_{C,high} + F_{offset,\ RAT}$
$F_{BW\ RF,low}$	Lower RF bandwidth edge, where $F_{BW\ RF,low} = F_{C,low} - F_{offset,\ RAT}$
$F_{C,high}$	Center frequency of the highest transmitted/received carrier
$F_{C,low}$	Center frequency of the lowest transmitted/received carrier
$F_{offset,\ RAT}$	Frequency offset from $F_{C,high}$ to the *upper RF bandwidth edge* or $F_{C,low}$ to the *lower RF bandwidth edge* for a specific *RAT*
F_{UL_low}	The lowest frequency of the uplink operating band
F_{UL_high}	The highest frequency of the uplink operating band
M_{RFBW}	Maximum RF bandwidth located in the middle of the supported frequency range in the operating band
$P_{EM,N}$	Declared emission level for channel N
P_{max}	Maximum total output power
$P_{max,c}$	Maximum carrier output power
$P_{REFSENS}$	Reference Sensitivity power level
T_{RFBW}	Maximum RF bandwidth located at the top of the supported frequency range in the operating band

3.3 Abbreviations

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

ACLR	Adjacent Channel Leakage Ratio
ARFCN	Absolute Radio Frequency Channel Number
BC	Band Category
BER	Bit Error Ratio
BS	Base Station
BTS	Base Transceiver Station
CW	Continuous Wave
DB-DC-HSDPA	Dual Band Dual Cell HSDPA
DC-HSDPA	Dual Cell HSDPA