



SLOVENSKI STANDARD
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**Celična omrežja IMT - Harmonizirani EN, ki zajema bistvene zahteve člena 3.2
direktive R&TTE - 11. del: CDMA z neposrednim razprševanjem ("Direct Spread")
(UTRA FDD) (ponavljalniki (repetitorji))**

IMT cellular networks - Harmonized EN covering the essential requirements of article 3.2
of the R&TTE Directive - Part 11: CDMA Direct Spread (UTRA FDD) (Repeaters)

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Harmonized European Standard

**IMT cellular networks;
Harmonized EN covering the essential requirements
of article 3.2 of the R&TTE Directive;
Part 11: CDMA Direct Spread (UTRA FDD) (Repeaters)**

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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
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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 be 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.6].

See article 5.1 of Directive 1999/5/EC [i.6] 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.6] are summarised in annex A.

The present document is part 11 of a multi-part deliverable covering the essential requirements under article 3.2 of Directive 1999/5/EC [i.6] (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)".

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Introduction

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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.6]. The modular structure is shown in EG 201 399 [i.2].

1 Scope

The present document applies to the following radio equipment type:

- Repeaters for IMT-2000 CDMA Direct Spread (UTRA FDD).

This radio equipment type is capable of operating in all or any part of the frequency bands given in table 1-1.

Table 1-1: UTRA Repeater operating bands

UTRA FDD Band	Direction of transmission	UTRA Repeater operating bands
I	Downlink	2 110 MHz to 2 170 MHz
	Uplink	1 920 MHz to 1 980 MHz
III	Downlink	1 805 MHz to 1 880 MHz
	Uplink	1 710 MHz to 1 785 MHz
VII	Downlink	2 620 MHz to 2 690 MHz
	Uplink	2 500 MHz to 2 570 MHz
VIII	Downlink	925 MHz to 960 MHz
	Uplink	880 MHz to 915 MHz
XV	Downlink	2 600 MHz to 2 620 MHz
	Uplink	1 900 MHz to 1 920 MHz
XVI	Downlink	2 585 MHz to 2 600 MHz
	Uplink	2 010 MHz to 2 025 MHz
XX	Downlink	791 MHz to 821 MHz
	Uplink	832 MHz to 862 MHz

The present document covers requirements for UTRA FDD Repeater for Releases 4, 5, 6, 7, 8 and 9. In addition, the present document covers requirements for UTRA Repeater in the operating bands specified in TS 102 735 [i.5].

The present document is intended to cover the provisions of Directive 1999/5/EC [i.6] (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 [i.6] 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] Void.
[2] Void.

- [3] ETSI TS 125 143 (V9.2.0): "Universal Mobile Telecommunications System (UMTS); UTRA repeater conformance testing (3GPP TS 25.143 version 9.2.0 Release 9)".
- [4] ITU-R Recommendation SM.329-11 (2011): "Unwanted emissions in the spurious domain".
- [5] 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)".
- [6] IEC 60068-2-1 (2007): "Environmental testing - Part 2-1: Tests - Test A: Cold".
- [7] IEC 60068-2-2 (2007): "Environmental testing - Part 2-2: Tests - Test B: Dry heat".
- [8] 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".
- [9] ETSI EN 301 908-15 (V5.2.1): "IMT cellular networks; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive; Part 15: Evolved Universal Terrestrial Radio Access (E-UTRA FDD) (Repeaters)".
- [10] 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)".

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] ETSI EG 201 399 (V2.2.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); A guide to the production of Harmonized Standards for application under the R&TTE Directive".
<https://standards.iteh.ai/catalog/standards/sist/74001d20-9a67-4f64-b3ac-6081912d004d/sist-en-301-908-11-v5-2-1-2011>
- [i.3] 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.4] 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".
- [i.5] ETSI TS 102 735 (V7.1.0): "Universal Mobile Telecommunications System (UMTS); Band-specific requirements for UMTS Frequency Division Duplex (FDD) operation in the bands 1 900 MHz to 1 920 MHz paired with 2 600 MHz to 2 620 MHz and 2 010 MHz to 2 025 MHz paired with 2 585 MHz to 2 600 MHz".
- [i.6] 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).

3 Definitions, symbols and abbreviations

3.1 Definitions

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

donor coupling loss: coupling loss between the Repeater and the donor Base Station

downlink: signal path where Base Station transmits and mobile receives

downlink operating band: part of the operating band designated for downlink (BS transmit)

maximum output power (P_{max}): mean power level per carrier measured at the antenna connector of the Repeater in specified reference condition

maximum rated output power: maximum rated output power of the repeater is the mean power level per carrier that the manufacturer has declared to be available at the antenna connector

operating band: frequency range that is defined with a specific set of technical requirements, in which UTRA FDD operates

NOTE: The operating band(s) for an UTRA FDD repeater is declared by the manufacturer according to the designations in table 1-1. Operating bands for UTRA are designated with Roman numerals, while the corresponding operating bands for E-UTRA are designated with Arabic numerals.

pass band: frequency range that the Repeater operates in with operational configuration

NOTE 1: This frequency range can correspond to one or several consecutive nominal 5 MHz channels. If they are not consecutive each subset of channels has to be considered as an individual pass band.

NOTE 2: The Repeater can have one or several pass bands.

repeater: device that receives, amplifies and transmits the radiated or conducted RF carrier both in the downlink direction (from the Base Station to the mobile area) and in the uplink direction (from the mobile to the Base Station)

uplink: signal path where mobile transmits and Base Station receives

uplink operating band: part of the operating band designated for downlink (BS transmit)

3.2 Symbols STANDARD PREVIEW

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

Δf	The separation between the centre frequency of first or last 5 MHz channel used in the pass band and the nominal -3 dB point of the measuring filter closest to the carrier frequency
Δf_{\max}	The largest value of Δf used for defining the requirement
F_{filter}	Filter centre frequency
$P_{\text{EM},N}$	Declared emission level for channel N
P_{max}	Maximum output power
P_{out}	Output power

3.3 Abbreviations

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

ACLR	Adjacent Channel Leakage power Ratio
ACRR	Adjacent Channel Rejection Ratio
BS	Base Station
BTS	Base Transceiver Station
CW	Continuous Wave

NOTE: Unmodulated signal.

DCS	Digital Cellular System
DTT	Digital Terrestrial Television
DUT	Device Under Test
E-UTRA	Evolved Universal Terrestrial Radio Access
ERM	Electromagnetic compatibility and Radio spectrum Matters
EUT	Equipment Under Test
FDD	Frequency Division Duplexing
ITU-R	International Telecommunication Union - Radiocommunication
GSM	Global System for Mobile Communications
IMT	International Mobile Telecommunications

MS Mobile Station

NOTE: For GSM.

MSG Mobile Standards Group
 PCCPCH Primary Common Control Physical CHannel
 R&TTE Radio and Telecommunications Terminal Equipment
 RF Radio Frequency
 RMS Root Mean Square
 RRC Root Raised Cosine
 RSS Root Sum Square
 SCCPCH Secondary Common Control Physical CHannel
 TDD Time Division Duplexing
 TFES Task Force for European Standards for IMT
 UARFCN UTRA Absolute Radio Frequency Channel Number
 UE User Equipment
 UMTS Universal Mobile Telecommunications System
 UTRA Universal Terrestrial Radio Access
 UMB Ultra Mobile Broadband
 WCDMA Wideband Code Division Multiple Access

4 Technical requirements specifications

4.1 Environmental profile

The technical requirements of the present document apply under the environmental profile for operation of the equipment, which shall be declared by the supplier. The equipment shall comply with all the technical requirements of the present document at all times when operating within the boundary limits of the declared operational environmental profile.

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For guidance on how a supplier can declare the environmental profile see annex C.

4.2 Conformance requirements

The requirements in the present document are based on the assumption that the operating band (e.g. band I, III, VII and VIII) is shared between systems of the IMT family (for band III and VIII also GSM) or systems having compatible characteristics.

4.2.1 Introduction

To meet the essential requirement under article 3.2 of Directive 1999/5/EC [i.6] (R&TTE Directive) for IMT Repeater five essential parameters in addition to those in EN 301 908-1 [8] have been identified. Table 4.2.1-1 provides a cross reference between these five essential parameters and the corresponding seven technical requirements for equipment within the scope of the present document.

Table 4.2.1-1: Cross references

Essential parameter	Corresponding technical requirements
Spectrum emissions mask	4.2.2 Operating band unwanted emissions
Conducted spurious emissions from the antenna connector	4.2.3 Spurious emissions
Accuracy of maximum output power	4.2.4 Maximum output power
Receiver immunity	4.2.5 Input intermodulation
	4.2.6 Out of band gain
	4.2.7 Adjacent Channel Rejection Ratio
Intermodulation attenuation of the output	4.2.8 Output intermodulation