



SLOVENSKI STANDARD
SIST EN 301 908-19 V5.2.1:2011
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**Celična omrežja IMT - Harmonizirani EN, ki zajema bistvene zahteve člena 3.2
direktive R&TTE - 19. del: Uporabniška oprema TDD OFDMA TDD WMAN (mobilni
WiMAX)**

IMT cellular networks - Harmonized EN covering the essential requirements of article 3.2
of the R&TTE Directive - Part 19: OFDMA TDD WMAN (Mobile WiMAX) TDD User
Equipment (UE)

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**IMT cellular networks;
Harmonized EN covering the essential requirements
of article 3.2 of the R&TTE Directive;
Part 19: OFDMA TDD WMAN (Mobile WiMAX)**

TDD User Equipment (UE)

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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.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 19 of a multi-part deliverable covering the essential requirements under article 3.2 of Directive 1999/5/EC [i.2] 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 Stations (BS)";
- Part 19: "OFDMA TDD WMAN (Mobile WiMAX) TDD User Equipment (UE)";**
- Part 20: "OFDMA TDD WMAN (Mobile WiMAX) TDD Base Station (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

| | |
|--|-------------------|
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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. The modular structure is shown in EG 201 399 [i.3].

1 Scope

The present document applies to the following radio equipment type:

- User Equipment for IMT-2000 OFDMA TDD WMAN (Mobile WiMAX) operating in TDD mode.

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: OFDMA TDD WMAN User Equipment frequency bands

| Mobile WiMAX Band Class Index | IMT-2000 OFDMA TDD WMAN service operating bands | Channel Bandwidth |
|-------------------------------|---|-------------------|
| 1B | 2 300 MHz to 2 400 MHz | 5 MHz and 10 MHz |

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 1999/5/EC [i.2] 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] CEPT/ERC/Recommendation 74-01E (Siófok 98, Nice 99, Sesimbra 02, Hradec Kralove 05): "Unwanted emissions in the spurious domain".

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 EN 300 019-1-0: "Environmental Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment; Part 1-0: Classification of environmental conditions; Introduction".
- [i.6] 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.7] ITU-R Recommendation SM.329-10 (2003): "Unwanted emissions in the spurious domain".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in the R&TTE Directive 1999/5/EC [i.2] and the following apply:

burst: period during which radio waves are intentionally transmitted, preceded and succeeded by periods during which no intentional transmission is made

environmental profile: declared range of environmental conditions under which equipment within the scope of the present document is required to be compliant

integral antenna: antenna which is declared to be part of the radio equipment by the manufacturer

NOTE: Even when equipment with an integral antenna is concerned, it might still be possible to separate the antenna from the equipment using a special tool. In such cases the assessment of the radio equipment and of the antenna against requirements of the present document may be done separately.

maximum output power: mean power level per carrier of the base station measured at the antenna connector in a specified reference condition

mean power: when applied to a modulated signal, this is the power (transmitted or received) in a bandwidth

nominal maximum output power: maximum nominal mean power level per carrier of the user equipment available at the antenna connector declared by the manufacturer; for equipment implementing dynamic change of modulation format, it is intended as the maximum nominal mean power associated to the modulation format delivering the highest power

receiver thermal noise power: equal to $k \times T \times BW \times F$

WiMAX: trademarked name for the OFDMA TDD WMAN IMT technology

3.2 Symbols

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

| | |
|-----------|---------------------------------|
| A_{BS} | Base Station Interface A |
| A_{MS} | Mobile Station Interface A |
| A_{UUT} | Unit Under Test Interface A |
| BW | Assigned channel bandwidth |
| dB | Decibel |
| dBc | Decibel relative to carrier |
| dBm | Decibel relative to 1 milliwatt |

| | |
|--------------|---|
| f | Frequency of measurement |
| f_c | Centre frequency of the assigned channel |
| F | Receiver noise figure |
| GHz | GigaHertz |
| k | Boltzmann's constant |
| M_{BS} | Base Station Interface M |
| MHz | MegaHertz |
| M_{MS} | Mobile Station Interface M |
| N | Maximum number of antennas in a multiple antenna configuration |
| N_{th} | Receiver thermal noise power expressed in dBm |
| P_{SENS} | Receiver sensitivity level at BER $\leq 10^{-6}$ (or equivalent PER) performance, corresponding to the most robust modulation and coding rate supported by the technology |
| P_{SENS5} | Receiver sensitivity level at BER 10^{-6} for a 5 MHz channelized system, corresponding to the most robust modulation and coding rate supported by the technology |
| P_{SENS10} | Receiver sensitivity level at BER 10^{-6} for a 10 MHz channelized system, corresponding to the most robust modulation and coding rate supported by the technology |
| P_{nom} | Declared nominal maximum output Power |
| T | Ambient temperature in Kelvin |

3.3 Abbreviations

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

| | |
|-------|---|
| ACLR | Adjacent Channel Leakage power Ratio |
| ACS | Adjacent Channel Selectivity |
| BER | Bit Error Ratio |
| BS | Base Station |
| CW | Continuous Wave |
| ERM | Electromagnetic compatibility and Radio spectrum Matters |
| IMT | International Mobile Telecommunications |
| MSG | Mobile Standards Group |
| OFDMA | Orthogonal Frequency Division Multiple Access |
| PER | Packet Error Ratio |
| R&TTE | Radio equipment and Telecommunications Terminal Equipment |
| RF | Radio Frequency |
| RMS | Root Mean Square |
| TDD | Time Division Duplexing |
| TFES | Task Force for European Standards for IMT |
| UE | User Equipment |
| UUT | Unit Under Test |
| WMAN | Wireless Metropolitan Area Network |

4 Essential requirements specification

With reference to article 3.2 of 1999/5/EC Directive [i.2] the phenomena in this clause have been identified as relevant to the essential requirements.

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 manufacturer. The equipment shall comply with all the technical requirements of the present document at all times when operating within the boundary limits of the required operational environmental profile.