

ETSI EN 301 908-12 V7.1.1 (2016-05)



HARMONISED EUROPEAN STANDARD

**IMT cellular networks;
Harmonised Standard covering the essential requirements
of article 3.2 of the Directive 2014/53/EU;
Part 12: CDMA Multi-Carrier (cdma2000) Repeaters**

Reference

REN/MSG-TFES-11-12-RED

Keywords

3G, 3GPP2, cdma2000, digital, IMT-2000,
regulation, repeater, testing, UMTS

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

The present document can be downloaded from:
<http://www.etsi.org/standards-search>

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the only prevailing document is the print of the Portable Document Format (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
<https://portal.etsi.org/TB/ETSIDeliverableStatus.aspx>

If you find errors in the present document, please send your comment to one of the following services:
<https://portal.etsi.org/People/CommiteeSupportStaff.aspx>

Copyright Notification

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.
The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 2016.
All rights reserved.

DECT™, **PLUGTESTS™**, **UMTS™** and the ETSI logo are Trade Marks of ETSI registered for the benefit of its Members.
3GPP™ and **LTE™** are Trade Marks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.
GSM® and the GSM logo are Trade Marks registered and owned by the GSM Association.

Contents

Intellectual Property Rights	5
Foreword.....	5
Modal verbs terminology.....	5
Introduction	5
1 Scope	6
2 References	6
2.1 Normative references	6
2.2 Informative references.....	7
3 Definitions, symbols and abbreviations	7
3.1 Definitions	7
3.2 Symbols.....	9
3.3 Abbreviations	9
4 Technical requirements specifications	10
4.1 Environmental profile.....	10
4.2 Conformance requirements	10
4.2.1 Introduction.....	10
4.2.2 Spectrum emissions mask	11
4.2.2.1 Definition	11
4.2.2.2 Limits	11
4.2.2.3 Conformance.....	11
4.2.3 Spurious emissions	12
4.2.3.1 Definition	12
4.2.3.2 Limits	12
4.2.3.2.1 Spurious emissions	12
4.2.3.3 Conformance.....	14
4.2.4 Maximum output power.....	14
4.2.4.1 Definition	14
4.2.4.2 Limits	14
4.2.4.3 Conformance.....	14
4.2.5 Input intermodulation	14
4.2.5.1 Definition	14
4.2.5.2 Limits	15
4.2.5.3 Conformance.....	15
4.2.6 Out-of-band gain.....	15
4.2.6.1 Definition	15
4.2.6.2 Limits	15
4.2.6.3 Conformance.....	16
4.2.7 Output intermodulation.....	16
4.2.7.1 Definition	16
4.2.7.2 Limits	16
4.2.7.3 Conformance.....	16
5 Testing for compliance with technical requirements.....	17
5.1 Conditions for testing	17
5.1.1 Introduction.....	17
5.1.2 Standard equipment under test.....	17
5.2 Interpretation of the measurement results	17
5.3 Essential radio test suites.....	17
5.3.1 Spectrum emission mask	17
5.3.1.1 Initial conditions	17
5.3.1.2 Procedures.....	18
5.3.1.3 Test requirement	18
5.3.2 Spurious emissions	18
5.3.2.1 Initial conditions	18
5.3.2.2 Procedure	18

5.3.2.3	Test requirement	18
5.3.3	Maximum output power.....	18
5.3.3.1	Initial conditions	18
5.3.3.2	Procedure	18
5.3.3.3	Test requirement	19
5.3.4	Input intermodulation	19
5.3.4.1	Initial conditions	19
5.3.4.2	Procedures.....	19
5.3.4.3	Test requirement	20
5.3.5	Out-of-band gain.....	20
5.3.5.1	Initial conditions	20
5.3.5.2	Procedure	20
5.3.5.3	Test requirement	21
5.3.6	Output intermodulation.....	21
5.3.6.1	Initial conditions	21
5.3.6.2	Procedure	21
5.3.6.3	Test requirement	21
Annex A (normative):	Relationship between the present document and the essential requirements of Directive 2014/53/EU	22
Annex B (normative):	Repeater configurations	23
B.1	Power supply	23
B.2	Power supply options	23
B.3	Ancillary equipment.....	23
Annex C (informative):	Environmental profile specification	24
Annex D (informative):	Bibliography.....	25
History		26

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 (<https://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 Harmonised European Standard (EN) has been produced by ETSI Technical Committee Mobile Standards Group (MSG).

For non EU countries the present document may be used for regulatory (Type Approval) purposes.

The present document has been prepared under the Commission's standardisation request C(2015) 5376 final [i.4] to provide one voluntary means of conforming to the essential requirements of Directive 2014/53/EU 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 [i.1].

Once the present document is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of the present document given in table A-1 confers, within the limits of the scope of the present document, a presumption of conformity with the corresponding essential requirements of that Directive, and associated EFTA regulations.

The present document is part 12 of a multi-part deliverable. Full details of the entire series can be found in part 1 [i.3].

National transposition dates	
Date of adoption of this EN:	20 April 2016
Date of latest announcement of this EN (doa):	31 July 2016
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 January 2017
Date of withdrawal of any conflicting National Standard (dow):	31 January 2018

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**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

The present document is part of a set of standards developed by ETSI that are designed to fit in a modular structure to cover radio equipment within the scope of the Radio Equipment Directive [i.1]. The present document is produced following the guidance in ETSI EG 203 336 [i.2] as applicable.

1 Scope

The present document applies to the following equipment types:

- 1) Repeaters for IMT-2000 CDMA multi-carrier (cdma2000)

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: CDMA multi-carrier Repeater operating bands

Band Class (BC)	Direction of transmission	CDMA multi-carrier Repeater operating bands
6	Forward link (DL)	2 110 MHz to 2 170 MHz
	Reverse link (UL)	1 920 MHz to 1 980 MHz
8	Forward link (DL)	1 805 MHz to 1 880 MHz
	Reverse link (UL)	1 710 MHz to 1 785 MHz
9	Forward link (DL)	925 MHz to 960 MHz
	Reverse link (UL)	880 MHz to 915 MHz
13	Forward link (DL)	2 620 MHz to 2 690 MHz
	Reverse link (UL)	2 500 MHz to 2 570 MHz

Repeaters for IMT-2000 CDMA multi-carrier (cdma2000) may support:

- 1) operation in cdma2000 spread spectrum systems as defined in 3GPP2 C.S0002-F [i.5], referred to herein as operation in Type 1 cdma2000 systems; or
- 2) operation in cdma2000 High Rate Packet Data Systems as defined in TIA-856 [i.6], referred to herein in Type 2 cdma2000 systems.

The present document contains requirements to demonstrate that Radio equipment both effectively uses and supports the efficient use of radio spectrum in order to avoid harmful interference.

2 References

2.1 Normative 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.

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.

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

- [1] TIA-1037-A (May 2012): "Recommended Minimum Performance Standards for cdma2000 Spread Spectrum Repeaters".
- [2] TIA-1030-F (September 2015): "Band Class Specification for cdma2000 Spread Spectrum Systems".
- [3] 3GPP2 C.S0032-D (March 2014): "Recommended Minimum Performance Standards for cdma2000 High Rate Packet Data Access Network".

NOTE: Available at http://www.3gpp2.org/Public_html/specs/C.S0032-D_v2.0_20140321.pdf.