ETSI EN 302 574-1 V2.1.2 (2016-09)

Satellite Earth Stations and Systems (SES); Harmonised Standard for Mobile Earth Stations (MES) operating in the 1 980 MHz to 2 010 MHz (earth-to-space) and 2 170 MHz to 2 200 MHz (space-to-earth) frequency bands covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Part 1: Complementary Ground Component (CGC) for wideband systems

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Contents

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Foreword

This Harmonised European Standard (EN) has been produced by ETSI Technical Committee Satellite Earth Stations and Systems (SES).

The present document has been prepared under the Commission's standardisation request C(2015) 5376 final [i.9] 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 [13].

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 1 of a multi-part deliverable covering the Harmonised Standard for Mobile Earth Stations (MES) operating in the 1 980 MHz to 2 010 MHz (earth-to-space) and 2 170 MHz to 2 200 MHz (space-to-earth) frequency bands covering the essential requirements of article 3.2 of the Directive 2014/53/EU, as identified below:

Part 1: "Complementary Ground Component (CGC) for wideband systems";

Part 2: "User Equipment (UE) for wideband systems";

Part 3: "User Equipment (UE) for narrowband systems".

National transposition dates	
Date of latest announcement of this EN (doa):	31 December 2016
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 June 2017
Date of withdrawal of any conflicting National Standard (dow):	30 June 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 and is designed to fit in a modular structure to cover all radio equipment within the scope of the RE Directive [13]. The modular structure is shown in ETSI EG 201 399 [i.3].

The technical requirements in the present document are adapted from the requirements in ETSI EN 301 908-1 [3], ETSI EN 301 908-3 [4] and ETSI EN 301 908-14 [10]. The adaptations include a variable channel bandwidth and frequency band changes to the MSS band.

1 Scope

The present document applies to Complementary Ground Components (CGC) operating as part of a satellite network.

The present document covers two types of CGC:

- Conventional CGC:
  - Clauses 4 and 5 according to ETSI EN 301 908-18 [16] for W_CDMA
  - Clauses 8 and 9 according to ETSI EN 301 908-14 [10] for E-UTRA
- Aeronautical CGC

These Complementary Ground Components (CGC) transmit only to the User Equipment/ Aeronautical Terminal or transmit and receive to/from the User Equipment/ Aeronautical Terminal in the frequency bands allocated to the Mobile Satellite Service (MSS) on a primary basis as defined in table 1.

NOTE 1: The CGC may include various types of interfaces, to terrestrial and/or satellite networks, but their specifications are out of the scope of the present document.

The present document applies to Complementary Ground Component (CGC) radio equipment type deployed in Mobile Satellite Services systems which have the following characteristics:

- These CGCs may have both transmit and receive capabilities and are part of a hybrid Satellite/terrestrial network.
- These CGCs operate with an assigned channel signal bandwidth (CBw) of 1 MHz or greater.
- The conventional CGCs may be local coverage, medium coverage or wide coverage ground components.
- The aeronautical CGCs may transmit/receive toward/from terminal mounted on aircraft (Aeronautical Terminal).
- These CGCs may be an element in a multi-mode base station. It may consist of a number of modules with associated connections, or may be a self-contained single unit.

If the CGC is an element in a multi-mode base station, unless otherwise stated in the present document, its requirements apply only to the CGC element of the terminal operating in the Mobile Satellite Service (MSS) frequency bands given in table 1.

The present document applies to the following terminal equipment types:

1) Complementary Ground Components for Wideband Satellite Systems.

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

Table 1: Mobile Satellite Service Complementary Ground Component frequency bands

Operating band	Direction of transmission	CGC frequency bands
I	Transmit	2 170 MHz to 2 200 MHz
	Receive	1 980 MHz to 2 010 MHz

The present document only applies to the radio interface between the conventional CGC and the User Equipment or between aeronautical CGC and Aeronautical Terminal.

The present document is intended to cover the provisions of Directive 2014/53/EU [13] (RE Directive) article 3.2 which states that "*Radio equipment shall be so constructed that it both effectively uses and supports the efficient use of radio spectrum in order to avoid harmful interference*".

NOTE 2: In addition to the unwanted emission limits defined in clauses 4.2.2 and 5.2.2 of the present document, additional operational constraints may be required to prevent harmful interference into services operating in the neighbouring bands outside the operational band defined in table 1.

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 Directive 2014/53/EU [13] may apply to equipment within the scope of the present document.

NOTE 3: A list of such ENs is included on the web site http://www.newapproach.org.

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.

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

[1] Void.

[2] ETSI TS 125 141 (V11.8.0) (04-2014): "Universal Mobile Telecommunications System (UMTS); Base Station (BS) conformance testing (FDD) (3GPP TS 25.141 version 11.8.0 Release 11)".

[3] ETSI EN 301 908-1 (V11.1.1) (07-2016): "IMT cellular networks; Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Part 1: Introduction and common requirements".

[4] ETSI EN 301 908-3 (V11.1.2) (07-2016): "IMT cellular networks; Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Part 3: CDMA Direct Spread (UTRA FDD) Base Stations (BS)".

[5] Recommendation ITU-R SM.329-12 (09-2012): "Unwanted emissions in the spurious domain".

[6] Recommendation ITU-T O.153 (10-1992): "Basic parameters for the measurement of error performance at bit rates below the primary rate".

[7] IEC 60068-2-1 (2007): "Environmental testing - Part 2-1: Tests - Test A: Cold".

[8] IEC 60068-2-2 (2007): "Environmental testing - Part 2-2: Tests - Test B: Dry heat".

[9] IEC 60068-2-6 (2007): "Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)".

[10] ETSI EN 301 908-14 (V11.1.1) (05-2016): "IMT cellular networks; Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Part 14: Evolved Universal Terrestrial Radio Access (E-UTRA) Base Stations (BS)".

[11] ETSI TS 136 141 (V11.9.0) (07-2014): "LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); Base Station (BS) conformance testing (3GPP TS 36.141 version 11.9.0 Release 11)".

[12] ETSI TS 125 104 (V11.9.0) (07-2014): "Universal Mobile Telecommunications System (UMTS); Base Station (BS) radio transmission and reception (FDD) (3GPP TS 25.104 version 11.9.0 Release 11)".

[13] 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 (RE Directive).

[14] Void.

[15] ETSI TS 136 104 (V10.10.0) (04-2013): "LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); Base Station (BS) radio transmission and reception (3GPP TS 36.104 version 10.10.0 Release 10)".

[16] ETSI EN 301 908-18 (V11.1.1) (07-2016): "IMT cellular networks; Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Part 18: E-UTRA, UTRA and GSM/EDGE Multi-Standard Radio (MSR) Base Station (BS)".

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.

[i.1] ETSI TR 100 028 (all parts): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics".

[i.2] Void.

[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 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 Harmonized Standards".

[i.4] ETSI TR 102 215: "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] Void.

[i.6] Void.

[i.7] IEC 60721-3-3 (2002): "Classification of environmental conditions - Part 3-3: Classification of groups of environmental parameters and their severities - Stationary use at weatherprotected locations".

[i.8] IEC 60721-3-4 (1995): "Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities - Section 4: Stationary use at non-weather protected locations".

[i.9] Commission Implementing Decision C(2015) 5376 final of 4.8.2015 on a standardisation request to the European Committee for Electrotechnical Standardisation and to the European Telecommunications Standards Institute as regards radio equipment in support of Directive 2014/53/EU of the European Parliament and of the Council.