

ETSI EN 301 489-19 V2.1.1 (2019-04)



**ElectroMagnetic Compatibility (EMC)
standard for radio equipment and services;
Part 19: Specific conditions for Receive Only Mobile
Earth Stations (ROMES) operating in the 1,5 GHz band
providing data communications and GNSS receivers
operating in the RNSS band (ROGNSS)
providing positioning, navigation, and timing data;
Harmonised Standard covering the essential requirements
of article 3.1(b) of Directive 2014/53/EU**

Reference

REN/ERM-EMC-366-19

Keywords

data, earth station, EMC, harmonised standard,
mobile, MSS, radio, receiver, regulation, satellite,
testing

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 prevailing version of an ETSI deliverable is the one made publicly available in PDF format at www.etsi.org/deliver.

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.

© ETSI 2019.

All rights reserved.

DECT™, **PLUGTESTS™**, **UMTS™** and the ETSI logo are trademarks of ETSI registered for the benefit of its Members.

3GPP™ and **LTE™** are trademarks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

oneM2M™ logo is a trademark of ETSI registered for the benefit of its Members and of the oneM2M Partners.

GSM® and the GSM logo are trademarks registered and owned by the GSM Association.

Contents

Intellectual Property Rights	5
Foreword.....	5
Modal verbs terminology.....	5
1 Scope	6
2 References	6
2.1 Normative references	6
2.2 Informative references.....	6
3 Definitions and abbreviations.....	7
3.1 Definitions.....	7
3.2 Abbreviations	7
4 Test conditions	7
4.1 General	7
4.2 Arrangements for test signals	7
4.2.0 General.....	7
4.2.1 Arrangements for test signals at the input of ROMES and ROGNSS receivers	8
4.2.2 Arrangements for test signals at the output of ROMES and ROGNSS receivers	8
4.3 Exclusion bands.....	8
4.3.0 General.....	8
4.3.1 Receiver exclusion band	8
4.4 Narrow band responses of receivers	8
4.5 Normal test modulation	9
5 Performance assessment.....	9
5.1 General	9
5.2 Equipment which can provide a continuous communications link	9
5.3 Equipment which does not provide a continuous communications link.....	9
5.4 Ancillary equipment	9
5.5 Equipment classification	9
6 Performance criteria	9
6.1 General performance criteria	9
6.2 Performance criteria for Continuous phenomena applied to ROMES and ROGNSS receivers (CR).....	10
6.3 Performance criteria for Transient phenomena applied to ROMES and ROGNSS receivers (TR).....	10
6.4 Performance criteria for equipment which does not provide a continuous communication link.....	10
7 Applicability overview	11
7.1 Emission.....	11
7.1.1 General.....	11
7.1.2 Special conditions.....	11
7.2 Immunity	11
7.2.1 General.....	11
7.2.2 Special conditions.....	11
Annex A (informative): Relationship between the present document and the essential requirements of Directive 2014/53/EU	13
Annex B (normative): Definitions of ROMES and GNSS receivers operating in the RNSS band within the scope of the present document	15
B.1 Receive Only Mobile Earth Stations (ROMES) operating in the 1,5 GHz band	15
B.2 GNSS Receivers operating in the RNSS band	15
Annex C (informative): Bibliography.....	16
Annex D (informative): Change history	17

History18

iTeh STANDARD PREVIEW
(standards.iteh.ai)
Full standard:
<https://standards.iteh.ai/catalog/standards/sist/026333a6-cd94-4852-b317-80f7925410ac/etsi-en-301-489-19-v2.1.1-2019-04>

Intellectual Property Rights

Essential patents

IPRs essential or potentially essential to normative deliverables 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.

Trademarks

The present document may include trademarks and/or tradenames which are asserted and/or registered by their owners. ETSI claims no ownership of these except for any which are indicated as being the property of ETSI, and conveys no right to use or reproduce any trademark and/or tradename. Mention of those trademarks in the present document does not constitute an endorsement by ETSI of products, services or organizations associated with those trademarks.

Foreword

This Harmonised European Standard (EN) has been produced by ETSI Technical Committee Electromagnetic compatibility and Radio spectrum Matters (ERM).

The present document has been prepared under the Commission's standardisation request C(2015) 5376 final [i.2] 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 19 of a multi-part deliverable. Full details of the entire series can be found in part 1 [1].

National transposition dates

Date of adoption of this EN:	12 June 2017
Date of latest announcement of this EN (doa):	31 July 2019
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 January 2020
Date of withdrawal of any conflicting National Standard (dow):	31 January 2021

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.

1 Scope

The present document, together with ETSI EN 301 489-1 [1], covers the assessment of Receive Only Mobile Earth Stations (ROMES) and GNSS receivers operating in the RNSS band (ROGNSS), as defined in annex B, and associated ancillary equipment in respect of ElectroMagnetic Compatibility (EMC).

Technical specifications related to the antenna port and emissions from the enclosure port of ROMES are not included in the present document. Such technical specifications are found in the relevant product standards for the effective use of the radio spectrum.

The present document specifies the applicable test conditions, performance assessment and performance criteria for ROMES and associated ancillary equipment.

ROMESs can have several configurations, including:

- portable equipment;
- fixed equipment;
- a number of modules including a display/control interface to the user.

The performance criteria used in the present document require that the satellite communications system of which the ROMES is a part provides reliable delivery of data or messages.

In case of differences (for instance concerning special conditions, definitions, abbreviations) between the present document and ETSI EN 301 489-1 [1], the provisions of the present document take precedence.

The environmental classification and the emission and immunity requirements used in the present document are as stated in ETSI EN 301 489-1 [1], except for any special conditions included in the present document. The applicable environments referred to in ETSI EN 301 489-1 [1] where ROMES and or ROGNSS may be used should be declared by the manufacturer.

2 References

2.1 Normative references

References are specific, identified by date of publication and/or edition number or version number. Only the cited version applies.

Referenced documents which are not found to be publicly available in the expected location might be found at <https://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] ETSI EN 301 489-1 (V2.2.0) (03-2017): "ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU and the essential requirements of article 6 of Directive 2014/30/EU".
- [2] ITU-R Radio Regulations (2016).

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] 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.
- [i.2] 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.

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ETSI EN 301 489-1 [1] and the following apply:

stand-by mode of operation: mode of operation in which the receiver is capable of receiving calls

3.2 Abbreviations

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

CR	Continuous phenomena applied to ROMES and ROGNSS
EMC	ElectroMagnetic Compatibility
EUT	Equipment Under Test
GNSS	Global Navigation Satellite System
LMSS	Land Mobile Satellite Service
RF	Radio Frequency
RNSS	Radio-Navigation Satellite Service
ROGNSS	Receive Only Global Navigation Satellite System
ROMES	Receive Only Mobile Earth Station
TR	Transient phenomena applied to ROMES and ROGNSS

4 Test conditions

4.1 General

For emission and immunity tests the test modulation, test arrangements, etc., as specified in the present document, clauses 4.1 to 4.5, shall apply.

In the following clauses, the Equipment Under Test (EUT) is the ROMES and (ROGNSS) with the selected configuration of ancillary equipment.

4.2 Arrangements for test signals

4.2.0 General

The provisions of ETSI EN 301 489-1 [1], clause 4.2 shall apply.

4.2.1 Arrangements for test signals at the input of ROMES and ROGNSS receivers

The provisions of ETSI EN 301 489-1 [1], clause 4.2.3 shall apply with the following modifications.

The manufacturer may, at the time of submitting the ROMES and ROGNSS for testing, supply, if necessary, a test fixture and a message generator to generate the wanted input signal.

The wanted RF input signal level for ROMES and ROGNSS, modulated with the normal test modulation, shall be set to a value significantly above the threshold sensitivity but below the overload characteristics of the ROMES and ROGNSS (the threshold sensitivity and overload characteristic shall be specified by the manufacturer).

The source of the wanted input signal, modulated with normal test modulation (see clause 4.5), shall be located outside the test environment and the signal level used shall be chosen to be a value significantly above the threshold sensitivity but below the overload characteristics of the ROMES and ROGNSS (the threshold sensitivity and overload characteristic shall be specified by the manufacturer). Adequate measures shall be taken to protect the measuring equipment from the effect of the test environment.

4.2.2 Arrangements for test signals at the output of ROMES and ROGNSS receivers

The provisions of ETSI EN 301 489-1 [1], clause 4.2.4 shall apply with the following modifications.

For the performance check before and after the test it shall be possible to assess the performance of the ROMES and ROGNSS from the presented messages and/or the call received alert signal(s) of the ROMES and ROGNSS.

During the spot frequency test of the immunity test with radiated RF electromagnetic fields (ETSI EN 301 489-1 [1], clause 9.2) the call received alert signal output of the ROMES and ROGNSS shall be coupled to the outside of the test environment and it shall be possible to assess the performance of the equipment from the call received alert signal(s) of the ROMES and ROGNSS.

4.3 Exclusion bands

4.3.0 General

The provision of ETSI EN 301 489-1 [1], clause 4.3 shall apply with the following modifications:

- the receiver exclusion band as defined below shall apply;
- there shall be no exclusion bands for the ancillary equipment.

4.3.1 Receiver exclusion band

The receiver exclusion band is the band of frequencies over which no tests of radiated immunity of a receiver are made.

The lower frequency of the receiver exclusion band is the lower frequency of the complete receive band of the EUT minus 5 % of that lower frequency.

The upper frequency of the receiver exclusion band is the upper frequency of the complete receive band of the EUT plus 5 % of that upper frequency.

4.4 Narrow band responses of receivers

The provision of ETSI EN 301 489-1 [1], clause 4.4 shall apply.

4.5 Normal test modulation

The test modulation signal to be used for the calling function shall be a signal representing selective messages generated by a signal generator. The signal generator may be supplied by the manufacturer.

5 Performance assessment

5.1 General

The provision of ETSI EN 301 489-1 [1], clause 5.1 shall apply with the following modification.

If the EUT has several optional features or configurations, tests shall be performed on the minimum representative configuration of the EUT.

In all cases, the minimum configuration of the EUT as marketed, shall comply with the EMC requirements of the present document.

The manufacturer shall keep on record information about the ancillary equipment intended for use with the EUT and make this information available to the user.

In addition to the information requested from the manufacturer in ETSI EN 301 489-1 [1], clause 5.1, the manufacturer shall keep on record the following information:

- the optional features of the equipment and the actual features of the equipment which are assessed for the performance or degradation of performance.

5.2 Equipment which can provide a continuous communications link

The provision of ETSI EN 301 489-1 [1], clause 5.2 shall apply.

5.3 Equipment which does not provide a continuous communications link

The provision of ETSI EN 301 489-1 [1], clause 5.3 shall apply.

5.4 Ancillary equipment

The provision of ETSI EN 301 489-1 [1], clause 5.4 shall apply.

5.5 Equipment classification

The provision of ETSI EN 301 489-1 [1], clause 5.5 shall apply.

6 Performance criteria

6.1 General performance criteria

If the EUT is of a non specialized nature or the EUT is combined with an ancillary equipment, the test modulation, test arrangements, etc. as required in clause 4 shall apply.