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Foreword

This draft Harmonised European Standard (EN) has been produced by ETSI Technical Committee Electromagnetic compatibility and Radio spectrum Matters (ERM), and is now submitted for the combined Public Enquiry and Vote phase of the ETSI standards EN Approval Procedure.

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].

Proposed national transposition dates

Date of latest announcement of this EN (doa):	3 months after ETSI publication
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	6 months after doa
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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.

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| [1] | ETSI EN 301 489-1 (V2.2.0) (03-2017): "Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements". |
| [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
ROGNSS	Receive Only Global Navigation Satellite System
RNSS	Radio-Navigation Satellite Service
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.