



**ElectroMagnetic Compatibility (EMC) standard
for radio equipment and services;
Part 33: Specific conditions
for Ultra-WideBand (UWB) devices;
Harmonised Standard covering the essential requirements
of article 3.1(b) of the Directive 2014/53/EU**

Reference

REN/ERM-EMC-343

Keywords

EMC, harmonised standard, radio, UWB

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/CommitteeSupportStaff.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
1 Scope	6
2 References	6
2.1 Normative references	6
2.2 Informative references.....	7
3 Definitions and abbreviations.....	8
3.1 Definitions.....	8
3.2 Abbreviations	8
4 Test conditions	8
4.1 General	8
4.2 Arrangements for test signals	8
4.2.1 General.....	8
4.2.2 Arrangements for test signals at the input of transmitters.....	8
4.2.3 Arrangements for test signals at the output of transmitters.....	8
4.2.4 Arrangements for test signals at the input of receivers	8
4.2.5 Arrangements for test signals at the output of receivers	8
4.2.6 Arrangements for testing transmitter and receiver together (as a system)	8
4.3 Exclusion bands.....	9
4.4 Narrow band responses of receivers	9
4.5 Normal test modulation	9
5 Performance assessment.....	9
5.1 General	9
5.2 Equipment which can provide an UWB communications link.....	9
5.3 Equipment which does not provide an UWB communications link.....	9
5.4 Ancillary equipment	9
5.5 Equipment classification	9
6 Performance criteria	10
6.0 Introduction	10
6.1 Performance criteria for continuous phenomena applied to transmitters and receivers	10
6.2 Performance criteria for transient phenomena applied to transmitters and receivers	10
6.3 Performance criteria for equipment which does not provide an UWB communication link.....	10
6.4 Performance criteria for ancillary equipment tested on a stand alone basis	10
7 Applicability overview	10
7.1 Emission	10
7.2 Immunity	10
8 Methods of measurement and limits for EMC emissions	11
8.1 Test configuration.....	11
8.2 Enclosure port of ancillary equipment measured on a stand alone basis.....	11
8.2.1 General.....	11
8.2.2 Test method	11
8.2.3 Limits.....	11
8.3 DC power input/output ports	11
8.3.1 General.....	11
8.3.2 Test method	11
8.3.3 Limits.....	11
8.4 AC mains power input/output ports	11
8.4.1 General.....	11
8.4.2 Test method	12
8.4.3 Limits.....	12
8.4.3.1 General	12

8.4.3.2	AC Power port used for power supply only	12
8.4.3.3	AC power input port also used for PLC Communications	12
8.5	Harmonic current emissions (AC mains input port)	12
8.6	Voltage fluctuations and flicker (AC mains input port)	12
8.7	Wired network ports	12
8.7.1	General	12
8.7.2	Test method	12
8.7.3	Limits	12
9	Test methods and levels for immunity tests	13
9.1	Test configuration	13
9.2	Radio frequency electromagnetic field (80 MHz to 6 000 MHz)	13
9.2.1	General	13
9.2.2	Test method	13
9.2.3	Performance criteria	13
9.3	Electrostatic discharge	13
9.3.1	General	13
9.3.2	Test method	13
9.3.3	Performance criteria	13
9.4	Fast transients, common mode	13
9.4.1	General	13
9.4.2	Test method	14
9.4.3	Performance criteria	14
9.5	Radio frequency, common mode	14
9.5.1	General	14
9.5.2	Test method	14
9.5.3	Performance criteria	14
9.6	Transients and surges in the vehicular environment	14
9.6.1	General	14
9.6.2	Test method	14
9.6.3	Performance criteria	14
9.7	Voltage dips and interruptions	14
9.7.1	General	14
9.7.2	Test method	15
9.7.3	Performance criteria	15
9.8	Surges	15
9.8.1	General	15
9.8.2	Test method	15
9.8.2.0	General	15
9.8.2.1	Test method for wired network ports directly connected to outdoor cables	15
9.8.2.2	Test method for wired network ports connected to indoor cables	15
9.8.2.3	Test method for mains ports	15
9.8.3	Performance criteria	15
Annex A (normative):	Relationship between the present document and the essential requirements of Directive 2014/53/EU	16
History		18

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 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 33 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
Date of withdrawal of any conflicting National Standard (dow):	18 months after doa

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 radio devices based on UWB technology in respect of ElectroMagnetic Compatibility (EMC).

The present document applies to fixed, mobile or portable UWB devices, e.g.:

- stand alone radio equipment with or without its own control provisions;
- plug-in radio devices intended for use with, or within, a variety of host systems, e.g. personal computers, hand-held terminals, etc.;
- plug-in radio devices intended for use within combined equipment, e.g. cable modems, set-top boxes, access points, etc.;
- combined equipment or a combination of a plug-in radio device and a specific type of host equipment;
- equipment for use in road and rail vehicles;
- Ground and wall probing radar equipment;
- (tank) level probing radar equipment;
- Material sensing devices.

Technical specifications related to the antenna port and emissions from the enclosure port of Ultra-WideBand (UWB) equipment 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 Ultra-WideBand (UWB) equipment and associated ancillary equipment.

Examples of Ultra-WideBand equipment are given in the related harmonised standards.

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.

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 <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 (V2.1.0) (04-2016): "ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Harmonised Standard covering the essential requirements of article 3.1(b) of the Directive 2014/53/EU and the essential requirements of article 6 of the Directive 2014/30/EU; Part 1: Common technical requirements".

- [2] ETSI EN 302 065-1 (V2.1.0) (04-2016): "Short Range Devices (SRD) using Ultra Wide Band technology (UWB); Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Part 1: Requirements for Generic UWB applications".
- [3] ETSI EN 302 065-2 (V2.1.0) (04-2016): "Short Range Devices (SRD) using Ultra Wide Band technology (UWB); Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Part 2: Requirements for UWB location tracking".
- [4] ETSI EN 302 065-3 (V2.1.0) (04-2016): "Short Range Devices (SRD) using Ultra Wide Band technology (UWB); Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Part 3: Requirements for UWB devices for ground based vehicular applications".
- [5] ETSI EN 302 065-4 (V1.1.0) (04-2016): "Short Range Devices (SRD) using Ultra Wide Band technology (UWB); Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU; Part 4: Material Sensing devices using UWB technology below 10,6 GHz".
- [6] ETSI EN 302 066 (V2.1.0) (04-2016): "Short Range Devices (SRD); Ground- and Wall- Probing Radar applications (GPR/WPR) imaging systems; Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU".
- [7] ETSI EN 302 372 (V2.1.0) (04-2016): "Short Range Devices (SRD); Equipment for Detection and Movement; Tank Level Probing Radar (TLPR) equipment operating in the frequency ranges 4,5 GHz to 7 GHz, 8,5 GHz to 10,6 GHz, 24,05 GHz to 27 GHz, 57 GHz to 64 GHz, 75 GHz to 85 GHz Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU".
- [8] ETSI EN 302 729 (V2.1.0) (04-2016): "Short Range Devices (SRD); Level Probing Radar (LPR) equipment operating in the frequency ranges 6 GHz to 8,5 GHz, 24,05 GHz to 26,5 GHz, 57 GHz to 64 GHz, 75 GHz to 85 GHz; Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU".
- [9] CENELEC EN 55032:2015: "Electromagnetic compatibility of multimedia equipment - Emission Requirements".
- [10] CENELEC EN 61326-1:2013: "Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements".
- [11] CENELEC EN 61326-2-3:2013: "Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-3: Particular requirements - Test configuration, operational conditions and performance criteria for transducers with integrated or remote signal conditioning".

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 clause 3 of ETSI EN 301 489-1 [1] apply.

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in clause 3 of ETSI EN 301 489-1 [1] and in specific UWB standards [2], [3], [4], [5], [6], [7] and [8] apply.

4 Test conditions

4.1 General

For the purposes of the present document, the test conditions of ETSI EN 301 489-1 [1], clause 4 shall apply as appropriate. Further product related test conditions for UWB equipment are specified in the present document.

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.

4.2 Arrangements for test signals

4.2.1 General

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

4.2.2 Arrangements for test signals at the input of transmitters

The provisions of ETSI EN 301 489-1 [1], clause 4.2.1 shall apply.

4.2.3 Arrangements for test signals at the output of transmitters

The provisions of ETSI EN 301 489-1 [1], clause 4.2.2 shall apply with the following modification.

The transmitter shall be operated at its maximum rated RF output power, modulated with normal test modulation (see clause 4.5).

4.2.4 Arrangements for test signals at the input of receivers

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

A communication link shall be established at the start of the test and maintained during the test.

4.2.5 Arrangements for test signals at the output of receivers

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

4.2.6 Arrangements for testing transmitter and receiver together (as a system)

The provisions of ETSI EN 301 489-1 [1], clause 4.2.5 shall apply with the following modification.

For the immunity tests of duplex transceivers, the EUT may be configured in the repeater mode, consistent with the conditions given above.

4.3 Exclusion bands

The provisions of ETSI EN 301 489-1 [1], clause 4.3 shall apply.

The exclusion band for UWB equipment is the operating bandwidth(s), see related harmonised standards [2], [3], [4], [5], [6], [7], [8], clause 4.3.1.

- The lower frequency of the exclusion band is the lower frequency of the operating bandwidth(s).
- The upper frequency of the exclusion band is the upper frequency of the operating bandwidth(s).

4.4 Narrow band responses of receivers

This clause does not apply for TLPR [7] and LPR [8].

The provision of ETSI EN 301 489-1 [1], clause 4.4 shall apply with the exception of those GPR/WPR equipment [6] that do not permit a narrow band response of the receivers.

4.5 Normal test modulation

The manufacturer may have to supply the test modulation/demodulation equipment.

The test signal generator (modulation) shall be able to produce a continuous stream of data or a repetitive message.

The test signal receiver (de-modulator) shall be, where appropriate, able to produce a readout of Bit Error Ratio (BER) of a continuous data stream or a repetitive readout of message acceptance.

This requirement does not apply for GPR/WPR [6], (T)LPR [7], [8] and Material Sensing Devices [5].

5 Performance assessment

5.1 General

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

For GPR/WPR [6] the manufacturer shall declare weather the DUT performance assessment is based on:

- the maintenance of function(s) or;
- the way the eventual loss of function(s) can be recovered or;
- unintentional behaviour of the DUT.

5.2 Equipment which can provide an UWB communications link

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

5.3 Equipment which does not provide an UWB communications link

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

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] 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

6.0 Introduction

The performance criteria are used to take a decision on whether a radio equipment passes or fails immunity tests.

For the purpose of the present document four categories of performance criteria apply:

- performance criteria for continuous phenomena applied to transmitters and receivers;
- performance criteria for transient phenomena applied to transmitters;
- performance criteria for transient phenomena applied to receivers.

6.1 Performance criteria for continuous phenomena applied to transmitters and receivers

The provision of ETSI EN 301 489-1 [1], clause 6.1 shall apply.

6.2 Performance criteria for transient phenomena applied to transmitters and receivers

The provision of ETSI EN 301 489-1 [1], clause 6.2 shall apply.

6.3 Performance criteria for equipment which does not provide an UWB communication link

For radio equipment which does not provide an UWB communication link, the performance criteria described in clauses 6.1 and 6.2 are not appropriate, in these cases the manufacturer shall declare, for inclusion in the test report, his own specification for an acceptable level of performance or degradation of performance during and/or after the immunity tests. The performance specification shall be included in the product description and documentation. The related specifications set out in clause 5.3 have also to be taken into account.

6.4 Performance criteria for ancillary equipment tested on a stand alone basis

If ancillary equipment is intended to be tested on a stand alone basis, the performance criteria described in clauses 6.1 and 6.2 are not appropriate, in these cases the manufacturer shall declare, for inclusion in the test report, his own specification for an acceptable level of performance or degradation of performance during and/or after the immunity tests. The performance specification shall be included in the product description and documentation. The related specifications set out in clause 5.3 have also to be taken into account.

7 Applicability overview

7.1 Emission

Table 1 in ETSI EN 301 489-1 [1] contains the applicability of EMC emission measurements to the relevant ports of radio and/or associated ancillary equipment, with the following exclusions.

This clause does not apply for TLPR [7] and LPR [8].

7.2 Immunity

Table 2 of ETSI EN 301 489-1 [1] contains the applicability of EMC immunity measurements to the relevant ports of radio and/or associated ancillary equipment, with the following exclusions.

This clause does not apply for TLPR [7] and LPR [8].

8 Methods of measurement and limits for EMC emissions

8.1 Test configuration

The provision of ETSI EN 301 489-1 [1], clause 8.1 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

8.2 Enclosure port of ancillary equipment measured on a stand alone basis

8.2.1 General

The provision of ETSI EN 301 489-1 [1], clause 8.2.1 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

8.2.2 Test method

The test method shall be in accordance with CENELEC EN 55032 [9] with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

8.2.3 Limits

The ancillary equipment shall meet the class B limits given in CENELEC EN 55032 [9] or for ancillary equipment intended to be used in and industrial environment or telecommunication centers, the class A limits given in CENELEC EN 55032 [9] may be used, with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

8.3 DC power input/output ports

8.3.1 General

The provision of ETSI EN 301 489-1 [1], clause 8.3.1 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

8.3.2 Test method

The provision of ETSI EN 301 489-1 [1], clause 8.3.2 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

8.3.3 Limits

The provision of ETSI EN 301 489-1 [1], clause 8.3.3 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

8.4 AC mains power input/output ports

8.4.1 General

The provision of ETSI EN 301 489-1 [1], clause 8.4.1 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

8.4.2 Test method

The provision of ETSI EN 301 489-1 [1], clause 8.4.2 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

8.4.3 Limits

8.4.3.1 General

The provision of ETSI EN 301 489-1 [1], clause 8.4.3 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

8.4.3.2 AC Power port used for power supply only

The provision of ETSI EN 301 489-1 [1], clause 8.4.3.2 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

8.4.3.3 AC power input port also used for PLC Communications

The provision of ETSI EN 301 489-1 [1], clause 8.4.3.3 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

8.5 Harmonic current emissions (AC mains input port)

The provision of ETSI EN 301 489-1 [1], clause 8.5 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

8.6 Voltage fluctuations and flicker (AC mains input port)

The provision of ETSI EN 301 489-1 [1], clause 8.6 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

8.7 Wired network ports

8.7.1 General

The provision of ETSI EN 301 489-1 [1], clause 8.7.1 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

8.7.2 Test method

The provision of ETSI EN 301 489-1 [1], clause 8.7.2 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

8.7.3 Limits

The provision of ETSI EN 301 489-1 [1], clause 8.7.3 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

9 Test methods and levels for immunity tests

9.1 Test configuration

The provision of ETSI EN 301 489-1 [1], clause 9.1 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

9.2 Radio frequency electromagnetic field (80 MHz to 6 000 MHz)

9.2.1 General

The provision of ETSI EN 301 489-1 [1], clause 9.2.1 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

9.2.2 Test method

The provision of ETSI EN 301 489-1 [1], clause 9.2.2 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

9.2.3 Performance criteria

The provision of ETSI EN 301 489-1 [1], clause 9.2.3 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

9.3 Electrostatic discharge

9.3.1 General

The provision of ETSI EN 301 489-1 [1], clause 9.3 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

9.3.2 Test method

The provision of ETSI EN 301 489-1 [1], clause 9.3.2 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

9.3.3 Performance criteria

The provision of ETSI EN 301 489-1 [1], clause 9.3.3 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

9.4 Fast transients, common mode

9.4.1 General

The provision of ETSI EN 301 489-1 [1], clause 9.4.1 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

9.4.2 Test method

The provision of ETSI EN 301 489-1 [1], clause 9.4.2 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

9.4.3 Performance criteria

The provision of ETSI EN 301 489-1 [1], clause 9.4.3 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

9.5 Radio frequency, common mode

9.5.1 General

The provision of ETSI EN 301 489-1 [1], clause 9.5.1 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

9.5.2 Test method

The provision of ETSI EN 301 489-1 [1], clause 9.5.2 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

9.5.3 Performance criteria

The provision of ETSI EN 301 489-1 [1], clause 9.5.3 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

9.6 Transients and surges in the vehicular environment

9.6.1 General

The provision of ETSI EN 301 489-1 [1], clause 9.6.1 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

9.6.2 Test method

The provision of ETSI EN 301 489-1 [1], clause 9.6.2 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

9.6.3 Performance criteria

The provision of ETSI EN 301 489-1 [1], clause 9.6.3 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

9.7 Voltage dips and interruptions

9.7.1 General

The provision of ETSI EN 301 489-1 [1], clause 9.7.1 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

9.7.2 Test method

The provision of ETSI EN 301 489-1 [1], clause 9.7.2 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

9.7.3 Performance criteria

The provision of ETSI EN 301 489-1 [1], clause 9.7.3 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

9.8 Surges

9.8.1 General

The provision of ETSI EN 301 489-1 [1], clause 9.8.1 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

9.8.2 Test method

9.8.2.0 General

The provision of ETSI EN 301 489-1 [1], clause 9.8.2.0 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

9.8.2.1 Test method for wired network ports directly connected to outdoor cables

The provision of ETSI EN 301 489-1 [1], clause 9.8.2.1 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

9.8.2.2 Test method for wired network ports connected to indoor cables

The provision of ETSI EN 301 489-1 [1], clause 9.8.2.2 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

9.8.2.3 Test method for mains ports

The provision of ETSI EN 301 489-1 [1], clause 9.8.2.3 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

9.8.3 Performance criteria

The provision of ETSI EN 301 489-1 [1], clause 9.8.3 shall apply with the following exclusions.

For (T)LPR [7] and [8] the requirements of CENELEC EN 61326-1 [10] or CENELEC EN 61326-2-3 [11] shall apply.

Annex A (normative): Relationship between the present document and the essential requirements of Directive 2014/53/EU

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.

Table A.1: Relationship between the present document and the essential requirements of Directive 2014/53/EU

Harmonised Standard ETSI EN 301 489-33				
The following requirements are relevant to the presumption of conformity under the article 3.1(b) of Directive 2014/53/EU [i.1]				
Requirement			Requirement Conditionality	
No	Description	Reference: Clause No	U/C	Condition
1	Enclosure of ancillary equipment measured on a stand alone basis	8.2	U	
2	DC power input/output ports	8.3	U	
3	DC power input ports	8.3	U	
4	AC mains power input/output ports	8.4	U	
5	Harmonic current emission (AC mains input port)	8.5	U	
6	Voltage fluctuations and flicker (AC mains input ports)	8.6	U	
7	Wired network ports	8.7	U	
8	Radio frequency electromagnetic field (80 MHz to 6 000 MHz)	9.2	U	
9	Electrostatic discharge	9.3	U	
10	Fast transients common mode	9.4	U	
11	Radio frequency common mode	9.5	U	
12	Transients and surges in the vehicular environment	9.6	U	
13	Voltage dips and interruptions	9.7	U	
14	Surges, line to line and line to ground	9.8	U	

Key to columns:

Requirement:

No A unique identifier for one row of the table which may be used to identify a requirement.

Description A textual reference to the requirement.

Clause Number Identification of clause(s) defining the requirement in the present document unless another document is referenced explicitly.

Requirement Conditionality:

U/C Indicates whether the requirement shall be unconditionally applicable (U) or is conditional upon the manufacturers claimed functionality of the equipment (C).

Condition Explains the conditions when the requirement shall or shall not be applicable for a requirement which is classified "conditional".

Presumption of conformity stays valid only as long as a reference to the present document is maintained in the list published in the Official Journal of the European Union. Users of the present document should consult frequently the latest list published in the Official Journal of the European Union.

Other Union legislation may be applicable to the product(s) falling within the scope of the present document.

History

Document history		
V1.1.1	February 2009	Publication
V2.1.0	April 2016	EN Approval Procedure AP 20160717: 2016-04-18 to 2016-07-18