

ETSI EN 301 489-17 V3.1.1 (2017-02)



**~~Electromagnetic compatibility
and Radio spectrum Matters (ERM);
ElectroMagnetic Compatibility (EMC)~~
standard for radio equipment and services;
Part 17: Specific conditions for
Broadband Data Transmission Systems;
Harmonised Standard covering the essential requirements
of article 3.1(b) of Directive 2014/53/EU**

Reference

REN/ERM-EMC-~~344335~~

Keywords

EMC, harmonised standard, radio

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
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Foreword

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

The present document has been ~~produced by ETSI in response to a mandate from the European Commission issued prepared under Directive 98/34/EC~~the Commission's standardisation request C(2015) 5376 final [i.12] as amended by Directive 98/48 [i.12].

~~The title and reference to the-~~ 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 are intended to be included in the publication is cited in the Official Journal of the European Union of titles and references of Harmonized Standard under the Directive 1999/5/EC [i.1].~~

~~See article 5 that Directive, compliance with the normative clauses of the present document given in table A.1 of Directive 1999/5/EC [i.1] for information on confers, within the limits of the scope of the present document, a presumption of conformity and Harmonised Standards or parts thereof the references of which have been published in the Official Journal of the European Union with the corresponding essential requirements of that Directive, and associated EFTA regulations.~~

The present document is part 17 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:	30 January 2017
Date of latest announcement of this EN (doa):	30 April 2017
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 October 2017
Date of withdrawal of any conflicting National Standard (dow):	31 October 2018

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 and telecommunications terminal equipment within the scope of the R&TTE Directive [i.1]. The modular structure is shown in EG-201-399 [i.9].~~

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~~ specifies technical characteristics and methods of measurements for Broadband Data Transmission System equipment, as detailed in annex A, in respect of ElectroMagnetic Compatibility (EMC)-B.

Technical specifications related to the antenna port and emissions from the enclosure port of the radio 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 wideband data communication systems.

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 present document covers the essential requirements of article 3.1(b) of Directive 2014/53/EU [i.1] under the conditions identified in annex A.

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 <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] ETSI EN 301 489-1 (V2.1.1) (02-2017): "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".

2.2 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.

~~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.~~

2.1 Normative references

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

- [1] ~~ETSI EN 301 489 1 (V.1.8.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements".~~

~~2.2~~ Informative references

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 1999/5/EC~~2014/53/EU of the European Parliament and of the ~~Council~~council of 9 ~~March 1999~~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 telecommunications terminal equipment and the mutual recognition of their conformity (R&TTE-repealing Directive).~~ 1999/5/EC.
- [i.2] ~~Directive 98/34/EC of the European Parliament and of the Council of 22 June 1998 laying down a procedure for the provision of information in the field of technical standards and regulations.~~
-] ~~Void.~~
- [i.3] ETSI EN 301 893: "Broadband Radio Access Networks (BRAN); 5 GHz high performance RLAN; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive".
- [i.4] ETSI EN 302 502: "Broadband Radio Access Networks (BRAN); 5,8 GHz fixed broadband data transmitting systems; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive".
- [i.5] ETSI EN 302 544-2: "Broadband Data Transmission Systems operating in the 2 500 MHz to 2 690 MHz frequency band; Part 2: TDD User Equipment Stations; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive".
- [i.6] ETSI EN 302 567: ~~"Broadband Radio Access Networks (BRAN); 60 GHz WAS/RLAN systems; Multiple-Gigabit WAS/RLAN Systems; Harmonized EN equipment operating in the 60 GHz band; Harmonised Standard~~ covering the essential requirements of article 3.2 of the ~~R&TTE-Directive~~ 2014/53/EU".
- [i.7] ETSI EN 302 623: "Broadband Wireless Access Systems (BWA) in the 3 400 MHz to 3 800 MHz frequency band; Mobile Terminal Stations; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive".
- [i.8] ETSI EN 300 328: ~~"Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques; Harmonized EN~~Harmonised Standard covering the essential requirements of article-3.2 of the ~~R&TTE-Directive~~ 2014/53/EU".
- [i.9] ~~ETSI EG 201 399: "Electromagnetic compatibility and Radio spectrum Matters (ERM); A guide to the production of Harmonized Standards for application under the R&TTE Directive".~~
-] ~~Void.~~
- [i.10] ETSI EN 301 908-19: "IMT cellular networks; ~~Harmonized EN~~Harmonised Standard covering the essential requirements of article 3.2 of the ~~R&TTE-Directive~~ 2014/53/EU; Part 19: OFDMA TDD WMAN (Mobile ~~WiMAX~~WiMAX™) TDD User Equipment (UE)".
- [i.11] ETSI EN 301 908-21: "IMT cellular networks; ~~Harmonized EN~~Harmonised Standard covering the essential requirements of article 3.2 of the ~~R&TTE-Directive~~ 2014/53/EU; Part 21: OFDMA TDD WMAN (Mobile ~~WiMAX~~WiMAX™) FDD User Equipment (UE)".
- [i.12] 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 98/48/EC2014/53/EU of the European Parliament and of the Council of 20 July 1998 ~~amending Directive 98/34/EC laying down a procedure for the provision of information in the field of technical standards and regulations.~~

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:

Equipment Under Test (EUT): equipment ~~under test and~~ subject to the performance requirements of the present document

fixed station: equipment intended for use in a fixed location and fitted with one or more antennas

NOTE: The equipment may be fitted with either antenna socket(s) or integral antenna(s) or both.

hand-portable station: equipment normally used on a stand-alone basis and to be carried by a person

NOTE: The equipment may be fitted with one or more antennas. The equipment may be fitted with either antenna socket(s) or integral antenna(s) or both.

host: any equipment which has complete user functionality when not connected to the radio equipment part and to which the radio equipment part provides additional functionality and to which connection is necessary for the radio equipment part to offer functionality

plug-in radio device: equipment, including slide-in radio cards, intended to be used with or within a variety of host systems, using their control functions and power supply

stand-alone radio equipment: equipment that is intended primarily as communications equipment and that is normally used on a stand-alone basis

3.2 Abbreviations

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

<u>AC</u>	<u>Alternating Current</u>
ACK	ACKnowledgement
ARQ	Automatic Retransmission reQuest
BRAN	Broadband Radio Access Networks
BWA	Broadband Wireless Access
CR	Continuous phenomena applied to Receivers
CT	Continuous phenomena applied to Transmitters
<u>DC</u>	<u>Direct Current</u>
EMC	ElectroMagnetic Compatibility
ERM	Electromagnetic compatibility and Radio Matters
EUT	Equipment Under Test
HIPERLAN	High Performance Radio Local Area Network
ISM	Industrial, Scientific and Medical
MGWS	Multi-Gigabit Wireless Systems
MUS	Maximum Usable Sensitivity
NACK	Not ACKnowledgement
RF	Radio Frequency
RLAN	Radio Local Area Network
TR	Transient phenomena applied to Receivers
TT	Transient phenomena applied to Transmitters

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 wideband data communications systems are specified in clauses 4.2 to 4.5.

The radio equipment may take forms which may require special software and/or test fixtures. Equipment which requires connection to a host equipment to function shall use the test configuration as defined by the manufacturer. In all cases the EUT shall be exercised in a manner representative of normal intended use.

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 transmitters

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

The wanted signals and/or controls required to establish a communications link shall be defined by the manufacturer. The transmitter shall be operated at maximum rated power.

4.2.2 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 modifications.

The manufacturer may provide a suitable companion receiver that can be used to receive messages or to set up a communication link.

4.2.3 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 modifications.

The wanted signals required to establish a communications link shall be defined by the manufacturer.

The level of the wanted signal at the input of the receiver shall be at least 30 dB above the declared Maximum Usable Sensitivity (MUS).

4.2.4 Arrangements for test signals at the output of receivers

The measuring equipment for the output signal from the receiver under test shall be located outside the test environment.

It shall be possible to assess the performance of the equipment by appropriately monitoring the receiver output.

If the receiver has an output connector or port providing the wanted output signal, then this port shall be used via a cable, consistent with the standard cable used in normal operation, connected to the external measuring equipment outside the test environment. The measuring equipment may be supplied by the manufacturer.

Precautions shall be taken to ensure that any effect on the test due to the coupling means is minimized.

The manufacturer may provide a suitable companion transmitter that can be used to transmit messages or to set up a communication link.

4.2.5 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.

The manufacturer may provide a suitable companion transceiver or transmitter and receiver that can be used to send and receive messages or to set up a communication link.

Both the EUT and the companion equipment shall transmit the normal test modulation. Further, the output of the radio equipment under test shall be monitored by the test system.

4.2.6 Equipment with an external antenna connector

If access to the antenna connector involves modification or dismantling of the EUT then this clause does not apply.

The EUT may be tested with its antenna removed.

In the case of testing with the antenna removed, the wanted RF input and output signals shall be delivered between the EUT antenna connector and the measuring and/or test equipment by a shielded transmission line, such as a coaxial cable. Adequate measures shall be taken to minimize the effect of common mode currents on the transmission line at the point of entry to the EUT and at the measuring/test equipment.

4.2.7 Equipment without an external antenna connector (integral antenna)

This clause applies to EUT to which clause 4.2.6 does not apply. Such EUT are generally known as integral antenna or dedicated antenna equipment.

The EUT shall be tested with its antenna fitted in a manner typical of normal intended use.

4.2.8 Equipment with more than one antenna

If the EUT has more than one antenna port, e.g. separate antennas for Tx and Rx or separate antennas for different operating frequencies or diversity antennas, then:

- If clause 4.2.6 applies to all the antenna ports, then the EUT may be tested according to clause 4.2.6, with all antenna ports treated the same.
- Otherwise it shall be tested according to clause 4.2.7.

NOTE: The reason is that replacing one antenna by a transmission line may affect the operation of any other antennas.

4.3 Exclusion bands

The frequencies on which the transmitter part of the EUT is intended to operate shall be excluded from radiated emission measurements when performed in transmit mode of operation.

There shall be no frequency exclusion band applied to emission measurements of the receiver part of transceivers or the stand alone receiver under test, and/or associated ancillary equipment.

The exclusion band for immunity testing of equipment operating in the 2,4 GHz band shall be calculated as follows:

- lower limit of exclusion band = lowest allocated band edge frequency -5% ; 120 MHz, i.e. 2 280 MHz;
- upper limit of exclusion band = highest allocated band edge frequency $+5\%$; +120 MHz, i.e. 2 603,5 MHz.

Using The exclusion band for immunity testing of equipment operating in the 2,450 MHz 5 GHz Wi-Fi band as an example shall be:

- lower limit of exclusion band = $2\ 400 - 120 = 2\ 280$ lowest allocated band edge frequency -270 MHz, i.e. 4 880 MHz;

- upper limit of exclusion band = ~~2 483, highest allocated band edge frequency +270 MHz, i.e. 5 +124,175 = 2 607,675 995 MHz;~~

~~thus the~~ The exclusion band for ~~2,45 GHz immunity testing of equipment falling within~~ operating in the 5,8 GHz band shall be:

- lower limit of exclusion band = lowest allocated band edge frequency -270 MHz, i.e. 5 455 MHz;
- ~~as the scope of immunity requirements have an upper frequency range of 6 GHz and any upper edge exclusion band would be greater than this for the present document extends from 2 280 MHz to 2 607,675 MHz~~ 5,8 GHz band. The above frequency shall also be regarded as the upper end of the test range.

NOTE: These receiver exclusion band ranges align with the relevant blocking test ranges.

4.4 Narrow band responses on receivers or receivers which are part of transceivers

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

4.5 Normal test modulation

The modulated test signal shall represent normal intended use, and may contain data formatting, error detection and correction information.

5 Performance assessment

5.1 General

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

The manufacturer shall supply at the time of submission of the equipment for test, the information required in ETSI EN 301 489-1 [1], clause 5.1 and the following which shall be recorded in the test report:

- the operating frequency range(s) of the equipment and, where applicable, band(s) of operation;
- the type of the equipment, for example: stand-alone or plug-in radio device;
- the host equipment to be combined with the radio equipment for testing;
- the minimum performance level under the application of EMC stress (see clause 6.2);
- the normal test modulation, the format, the type of error correction and any control signals e.g. ACKnowledgement (ACK)/Not ACKnowledgement (NACK) or Automatic Retransmission reQuest (ARQ).

5.2 Arrangements for the assessment of host dependant equipment and plug-in cards

5.2.0 Introduction

For equipment parts for which integration with a host equipment is necessary in order to offer functionality, two alternative approaches defined in clauses 5.2.1 and 5.2.2 may be used. The manufacturer shall declare which alternative shall be used.

5.2.1 Alternative A: composite equipment

A combination of the radio equipment part and a specific type of host equipment may be used for assessment according to the present document.

Where a specific combination of host equipment and a radio equipment part is tested as a composite system for compliance, repeat testing shall not be required for:

- those other combinations of hosts and radio equipment parts which are based on substantially similar host models in the circumstance that the variations in mechanical and electrical properties between such host models are unlikely to significantly influence the intrinsic immunity and unwanted emissions of the radio equipment part;
- the radio equipment part which cannot be used without mechanical, electrical, or software modification in variations of host equipment different from those represented by the units for which compliance to the present document has been demonstrated.

For all other combinations, each combination shall be tested separately.

5.2.2 Alternative B: use of a test jig or host

Where the radio equipment part is intended for use with a variety of host systems, the manufacturer shall supply a suitable test configuration consisting of either a host system intended for normal use or a test jig that is representative of the range of host systems in which the device may be used. The test jig shall allow the radio equipment part to be powered and stimulated in a way similar to the way it would be powered and stimulated when connected to or inserted into host equipment.

5.3 Assessment procedures

The performance assessment shall be based upon:

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

The test system shall set up a communications link in the same manner as the Equipment Under Test's (EUT) normal intended use.

Any user defined data fields in the memory or storage of the EUT shall be filled in a way representative of normal intended use.

The assessment procedure shall verify that the communications link is maintained and that there is no loss of user control functions as declared by the manufacturer or loss of the stored user defined data.

5.4 Ancillary equipment

The provision of ETSI EN 301 489-1 [1], clause 5.4 shall not apply as ancillary equipment is outside the scope of the present document.

5.5 Equipment classification

Hand portable equipment, or combinations of equipment, declared as capable of being powered for intended use by the main battery of a vehicle shall additionally be considered as vehicular mobile equipment.

Hand portable or mobile equipment, or combinations of equipment, declared as capable of being powered for intended use by ac mains shall additionally be considered as fixed station equipment.

6 Performance criteria

6.1 General performance criteria

The performance criteria are:

- performance criteria A for immunity tests with phenomena of a continuous nature;
- performance criteria B for immunity tests with phenomena of a transient nature;
- performance criteria C for immunity tests with power interruptions exceeding a certain time.

The equipment shall meet the minimum performance criteria as specified in the following clauses.

6.2 Performance table

Table 1: Performance criteria

Criteria	During test	After test
A	Shall operate as intended. May show degradation of performance (see note 1). Shall be no loss of function. Shall be no unintentional transmissions.	Shall operate as intended. Shall be no degradation of performance (see note 2 3). Shall be no loss of function. Shall be no loss of stored data or user programmable functions.
B	May show loss of function (one or more). May show degradation of performance (see note 4 2). No Shall be no unintentional transmissions.	Functions shall be self-recoverable. Shall operate as intended after recovering. Shall be no degradation of performance (see note 2 3). Shall be no loss of stored data or user programmable functions.
C	May be loss of function (one or more).	Functions shall be recoverable by the operator. Shall operate as intended after recovering. Shall be no degradation of performance (see note 2 3).
<p>NOTE 1: Degradation of performance during the test is understood as a level of degradation to a level not below a minimum performance level specified by the manufacturer for the use of the apparatus as intended. In some cases the specified minimum performance level may be replaced by a permissible degradation of performance. If the minimum performance level or the permissible performance degradation is not specified by the manufacturer then either of these may be derived from the product description and documentation (including leaflets and advertising) and what the user may reasonably expect from the apparatus if used as intended.</p> <p>NOTE 2: Degradation of performance during the test is understood as a degradation to a level not below a minimum performance level specified by the manufacturer for the use of the apparatus as intended. In some cases the specified minimum performance level may be replaced by a permissible degradation of performance. If the minimum performance level or the permissible performance degradation is not specified by the manufacturer then either of these may be derived from the product description and documentation (including leaflets and advertising) and what the user may reasonably expect from the apparatus if used as intended.</p> <p>NOTE 3: No degradation of performance after the test is understood as no degradation below a minimum performance level specified by the manufacturer for the use of the apparatus as intended. In some cases the specified minimum performance level may be replaced by a permissible degradation of performance. After the test no change of actual operating data or user retrievable data is allowed. If the minimum performance level or the permissible performance degradation is not specified by the manufacturer then either of these may be derived from the product description and documentation (including leaflets and advertising) and what the user may reasonably expect from the apparatus if used as intended.</p>		

6.3 Performance criteria for Continuous phenomena applied to Transmitters (CT)

The performance criteria A shall apply.

Tests shall be repeated with the EUT in standby mode (if applicable) to ensure that unintentional transmission does not occur. In systems using acknowledgement signals, it is recognized that an ACKnowledgement (ACK) or Not ACKnowledgement (NACK) transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

6.4 Performance criteria for Transient phenomena applied to Transmitters (TT)

The performance criteria B shall apply, except for voltage dips of 100 ms and voltage interruptions of 5 000 ms duration, for which performance criteria C shall apply.

Tests shall be repeated with the EUT in standby mode (if applicable) to ensure that unintentional transmission does not occur. In systems using acknowledgement signals, it is recognized that an acknowledgement (ACK) or not-acknowledgement (NACK) transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

6.5 Performance criteria for Continuous phenomena applied to Receivers (CR)

The performance criteria A shall apply.

Where the EUT is a transceiver, under no circumstances, shall the transmitter operate unintentionally during the test. In systems using acknowledgement signals, it is recognized that an ACK or NACK transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

6.6 Performance criteria for Transient phenomena applied to Receivers (TR)

The performance criteria B shall apply, except for voltage dips of 100 ms and voltage interruptions of 5 000 ms duration for which performance criteria C shall apply.

Where the EUT is a transceiver, under no circumstances, shall the transmitter operate unintentionally during the test. In systems using acknowledgement signals, it is recognized that an ACK or NACK transmission may occur, and steps should be taken to ensure that any transmission resulting from the application of the test is correctly interpreted.

7 Applicability overview

7.1 Emission

7.1.1 General

ETSI EN 301 489-1 [1], table 21 contains the applicability of EMC emission measurements to the relevant ports of radio equipment.

7.1.2 Special conditions

No special Arrangements for test conditions shall apply to radio equipment as specified in the scope of the present document clause 4.

7.2 Immunity

7.2.1 General

ETSI EN 301 489-1 [1], table 2, contains the applicability of EMC immunity measurements to the relevant ports of radio equipment.

7.2.2 Special conditions

~~No special~~ Arrangements for test conditions are relevant for products covered shall be as specified in the present document clause 4.

Arrangements for performance criteria shall be as specified in clause 6.

Annex A (informative): 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.12] 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 301 489-17				
Requirement			Requirement Conditionality	
No	Description	Reference: Clause No	U/C	Condition
1	Enclosure of ancillary equipment measured on a stand alone basis	ETSI EN 301 489-1 [1] clause 8.2	U	
2	DC power input/output ports	Clause 7.1 and ETSI EN 301 489-1 [1] clause 8.3	C	Only where equipment has DC power input and/or output ports with a cable length greater than 3 m or from a vehicle power supply
3	AC mains power input/output ports	Clause 7.1 and ETSI EN 301 489-1 [1] clause 8.4	C	Only where equipment has AC mains power input and/or output ports
4	Harmonic current emission (AC mains input port)	Clause 7.1 and ETSI EN 301 489-1 [1] clause 8.5	C	Only where equipment has AC mains power input ports
5	Voltage fluctuations and flicker (AC mains input ports)	Clause 7.1 and ETSI EN 301 489-1 [1] clause 8.6	C	Only where equipment has AC mains power input ports
6	Wired network ports	Clause 7.1 and ETSI EN 301 489-1 [1] clause 8.7	C	Only where equipment has wired network ports
7	Radio frequency electromagnetic field (80 MHz to 6 000 MHz)	Clause 7.2 and ETSI EN 301 489-1 [1] clause 9.2	U	
8	Electrostatic discharge	Clause 7.2 and ETSI EN 301 489-1 [1] clause 9.3	U	
9	Fast transients common mode	Clause 7.2 and ETSI EN 301 489-1 [1] clause 9.4	C	Only where equipment has AC mains power input ports or DC power ports or wired network ports with cables longer than 3 m
10	Radio frequency common mode	Clause 7.2 and ETSI EN 301 489-1 [1] clause 9.5	C	Only where equipment has AC mains power input ports or DC power ports or wired network ports with cables longer than 3 m
11	Transients and surges in the vehicular environment	Clause 7.2 and ETSI EN 301 489-1 [1] clause 9.6	C	Only where equipment is fitted to a vehicle power supply

Harmonised Standard ETSI EN 301 489-17				
Requirement			Requirement Conditionality	
No	Description	Reference: Clause No	U/C	Condition
12	Voltage dips and interruptions	Clause 7.2 and ETSI EN 301 489-1 [1] clause 9.7	C	Only where equipment has AC mains power input ports
13	Surges, line to line and line to ground	Clause 7.2 and ETSI EN 301 489-1 [1] clause 9.8	C	Only where equipment has AC mains power input ports and/or wired network ports

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 is unconditionally applicable (U) or is conditional upon the manufacturer's claimed functionality of the equipment (C).

Condition Explains the conditions when the requirement is or is not 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.

Annex B (informative):

Examples of radio equipment in the scope of the present document

B.1 Introduction

The present document covers radio wideband transmission systems as set out below.

A.1B.2 Data transmission systems operating in the 2,4 GHz ISM band and using wide band modulation techniques

Wideband transmission systems are defined in ETSI EN 300 328 [i.8].

A.2B.3 5 GHz high performance RLAN systems

5 GHz high performance RLAN systems are those within the scope and compliant with ETSI EN 301 893 [i.3].

A.3B.4 Broadband data transmitting systems operating in the band 5 725 MHz to 5 875 MHz

Broadband Data Transmitting systems are those within the scope and compliant with ETSI EN 302 502 [i.4].

A.4B.5 Broadband data transmitting/BWA Terminal Stations

Examples of such systems are those within the scope of ETSI EN 302 544-2 [i.5] or ETSI EN 302 623 [i.7], ETSI EN 301 908-19 [i.10] or ETSI EN 301 908-21 [i.11].

A.5B.6 Multi-Gigabit Wireless Systems (MGWS)

Examples of such systems are those within the scope of ETSI EN 302 567 [i.6] when operating in the frequency band 57-GHz to 66 GHz.

Annex BC (informative): BibliographyChange History

- ~~Council Directive 89/336/EEC of 3 May 1989 on the approximation of the laws of the Member States relating to electromagnetic compatibility (EMC Directive).~~
- ~~Council Directive 73/23/EEC of 19 February 1973 on the harmonization of the laws of Member States relating to electrical equipment designed for use within certain voltage limits (LV Directive).~~
- ~~ETSI ETS 300 836 1: "Broadband Radio Access Networks (BRAN); High Performance Radio Local Area Network (HIPERLAN) Type 1; Conformance testing specification; Part 1: Radio type approval and Radio Frequency (RF) conformance test specification".~~
- ~~ETSI EN 300 328 1: "Electromagnetic compatibility and Radio Spectrum Matters (ERM); Wideband Transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using spread spectrum modulation techniques; Part 1: Technical characteristics and test conditions".~~

Version	Information about changes
3.1.1	<p>Radiated immunity testing to a continuous sweep between 80 MHz and 6 000 MHz at 3 V/m, as opposed to the previous frequency range of 80 MHz to 1 000 MHz and 1 400 MHz to 2 700 MHz in earlier editions.</p> <p>New derivations of exclusion bands more closely linked to the operational characteristics of the radio link(s) in the EUT.</p> <p>New test arrangement for systems with multiple antennas.</p>

History

Document history		
V1.1.1	September 2000	Publication
V1.2.1	August 2002	Publication
V1.3.2	April 2008	Publication
V2.1.1	May 2009	Publication
V2.2.1	April 2012	One step Approval Procedure OAP 20120814: 2012-04-16 to 2012-08-14
V2.2.1	September 2012	Publication
<u>V3.1.0</u>	<u>April 2016</u>	<u>EN Approval Procedure</u> AP 20160721: 2016-04-22 to 2016-07-21
<u>V3.1.1</u>	<u>November 2016</u>	<u>Vote</u> V 20170128: 2016-11-29 to 2017-01-30
<u>V3.1.1</u>	<u>February 2017</u>	<u>Publication</u>