Draft ETSI EN 302 288 V1.1.0 (2017-01)

Short Range Devices;
Transport and Traffic Telematics (TTT);
Ultra-wideband radar equipment operating
in the 24,25 GHz to 26,65 GHz range;
Harmonised Standard covering the essential requirements
of article 3.2 of Directive 2014/53/EU

Reference
REN/ERM-TGSRR-78

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Contents

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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.8] 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.3].

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.

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 specifies the technical characteristics and test methods for automotive ultra-wideband (UWB) radar equipment fitted with integral antennas operating in the frequency range from 24,25 GHz to 26,65 GHz working as broadband devices with at least 500 MHz bandwidth and references CEPT/ERC Recommendation 70-03 [i.1] and EC Decision 2013/752/EU [i.2].

This equipment is intended for Transport and Traffic Telematics (TTT) applications according to ERC Recommendation 70-03 [i.1], annex 5, such as obstacle detection, stop and go, blind spot detection, parking aid, backup aid, precrash and other automotive applications.

Table 1 shows the frequency bands as designated to ultra-wideband (UWB) radar.

Table 1: Frequency of operation

	Frequency bands / frequencies	Frequency bands / frequencies
Transmit 1	24,25 GHz to 26,65 GHz	UWB mode
Receive 1	24,25 GHz to 26,65 GHz	UWB mode
Transmit 2	24,05 GHz to 24,25 GHz (see note)	Single carrier emissions (see note)
Receive 2	24,05 GHz to 24,25 GHz (see note)	Single carrier emissions (see note)
NOTE: Single carrier emissions in the SRD band from 24,05 GHz to 24,25 GHz according to the present document may not be used on its own, but only in conjunction with UWB emissions in the 24,25 GHz to 26,65 GHz range. For 24,05 GHz to 24,25 GHz devices the present document does not apply and the correct standard is ETSI EN 302 858 [i.11].		

In case of differences (for instance concerning special conditions, definitions, abbreviations) between the present document and ETSI EN 303 396 [1], the provisions of the present document take precedence.

The present document covers transmitters intended to operate in a temporary frequency designation under the ECC decision CEPT/ECC/DEC/(04)10 [i.6], the EU Commission decision 2005/50/EC [i.7] and the amendment as presented in RSCOM11-07 [i.9].

- The operating frequency range for intentional UWB emissions has been determined from 21,65 GHz to 26,65 GHz until 30th June 2013. This is no longer covered by the present document.
- Since 30th June 2013 the operating frequency range for intentional UWB has reduced frequency band from 24,25 GHz to 26,65 GHz until 1st January 2018, with an extension for car models which have received type approval before 1st January 2018 and which can continue to be put on the market until 1st January 2022 [i.6]. This equipment is covered by the present document.

The present document covers the essential requirements of article 3.2 of Directive 2014/53/EU [i.3] 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 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 303 396 (V1.1.1) (12-2016): "Short Range Devices; Measurement Techniques for Automotive and Surveillance Radar Equipment".

[2] ETSI EN 303 883 (V1.1.1) (09-2016): "Short Range Devices (SRD) using Ultra Wide Band (UWB); Measurement Techniques".

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] CEPT/ERC Recommendation 70-03: "Relating to the use of Short Range Devices (SRD)". Tromsø 1997, subsequent amendments 27 May 2016.

[i.2] EC Decision 2013/752/EU: "Commission implementing Decision of 11 December 2013 amending Decision 2006/771/EC on harmonisation of the radio spectrum for use by short-range devices and repealing Decision 2005/928/EC".

[i.3] 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.4] CEPT/ERC/REC 74-01E: "Unwanted emissions in the spurious domain", Recommendation adopted by the Working Group "Spectrum Engineering" (WGSE).

[i.5] ETSI EG 203 336: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Guide for the selection of technical parameters for the production of Harmonised Standards covering article 3.1(b) and article 3.2 of Directive 2014/53/EU".

[i.6] ECC decision CEPT/ECC/DEC/(04)10: "The frequency bands to be designated for the temporary introduction of Automotive Short Range Radars (SRR)", approved 12 November 2004, amended 1 June 2012, corrected 6 March 2015.

[i.7] EC Decision 2005/50/EC of 17 January 2005 on the harmonization of the 24 GHz range radio spectrum band for the time-limited use by automotive short-range radar equipment in the Community.

[i.8] 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.

[i.9] RSCOM11-07, Amending Decision 2005/50/EC on the harmonisation of the 24 GHz range radio spectrum band for the time-limited use by automotive short-range radar equipment in the Community (Update with published EC Decision).

[i.10] ECC Report 158: "The impact of 26 GHz SRR applications using Ultra-WideBand (UWB) technology on radio services", Cardiff, January 2011.

[i.11] ETSI EN 302 858: "Short Range Devices; Transport and Traffic Telematics (TTT); Radar equipment operating in the 24,05 GHz to 24,25 GHz or 24,05 GHz to 24,50 GHz range; Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ETSI EN 303 396 [1], clause 3.1 apply.

3.2 Symbols

For the purposes of the present document, the symbols given in ETSI EN 303 396 [1], clause 3.2 apply.

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in ETSI EN 303 396 [1] and the following apply:

e.r.p	equivalent radiated power
PDCF	Pulse Duration Correction Factor

4 Technical requirements specification

4.1 Environmental conditions

The technical requirements of the present document apply under the environmental profile for operation of the equipment, which shall be declared by the manufacturer. The equipment shall comply with all the technical requirements of the present document which are identified as applicable in annex A at all times when operating within the boundary limits of the declared operational environmental profile.

The normal and extreme test conditions are defined in clauses 4.4.3 and 4.4.4 of ETSI EN 303 396 [1].

4.2 General

4.2.0 Multiple operating bandwidths

All operating bandwidths of the equipment (see clause 4.3.1) shall be declared by the equipment manufacturer (see clauses 4.2 and 4.3 of ETSI EN 303 396 [1]).

Where equipment has more than one operating bandwidth, a sufficient number of operating bandwidths shall be chosen for testing so as to encompass the lower and higher limits of the operating frequency and the minimum and maximum bandwidth.

The EUT modulation during testing should be representative of normal use of the equipment. The manufacturer shall employ the mode of operation of the equipment which results in the highest transmitter activity consistent with the requirement to measure the highest power transmission which would be available in operation, and should ensure that:

- transmissions occur regularly in time;
- sequences of transmissions can be repeated accurately.

For transmitters that have multi-modulation schemes incorporated, it may be necessary to test each scheme.

4.2.1 Wanted performance criteria

The wanted performance criterion is that the EUT shall indicate the properties of a given target at a given distance.

Since EUTs considered here typically are tailored to very specific applications, no single wanted performance criterion can be defined here.

Therefore:

- the relevant properties (e.g. presence, range, relative speed, azimuth angle) shall be declared by the manufacturer;
- the type and RCS of the target and the distance shall be declared by the manufacturer.

4.2.2 Fixed and scanning antennas

The provisions of ETSI EN 303 396 [1], clause 4.3.5 apply.

4.3 Transmitter Conformance Requirements

4.3.1 Operating Frequency Range

4.3.1.1 Applicability

This requirement applies to all EUT.

4.3.1.2 Description

The description in ETSI EN 303 396 [1], clause 6.2.2 applies (99 % OBW).

Alternatively to the 99 % OBW definition, the procedure from clause 4.3.2.2 may be used:

- The frequency, f_C, at which the amplitude of the radiated spectrum is maximum is determined from the spectrum analyser curve. The lower frequency, f_L, and the higher frequency, f_H, where the radiated spectrum density is 20 dB below maximum are recorded.

The method used to determine "operating frequency range" should be indicated in the test report.

4.3.1.3 Limits

For ultra-wideband radar equipment, the upper and lower limits of the operating frequency range shall meet the following conditions:

- $f_H \leq 26{,}65$ GHz.
- $f_L \geq 24{,}25$ GHz.

In case that emissions in an ultra-wideband mode between 24,25 GHz and 26,65 GHz are present, optional single carrier emissions are allowed with the following upper and lower limits of the operating frequency range:

- $f_H \leq 24{,}25$ GHz.
- $f_L \geq 24{,}05$ GHz.

4.3.1.4 Conformance

The conformance test suite for operating frequency range shall be as defined in clause 6.3.2 of ETSI EN 303 396 [1].

Conformance shall be established under normal and extreme test conditions defined in clause 4.1.

The interpretation of the results for the measurement uncertainty shall be as given in clause 4.6 of ETSI EN 303 396 [1].

4.3.2 Mean Power Spectral Density

4.3.2.1 Applicability

This requirement applies to all EUT.

4.3.2.2 Description

The description in ETSI EN 303 396 [1], clause 6.3.5 applies, except for the following item:

- Measurements of power densities below -75 dBm/MHz (e.i.r.p.) are not required.

4.3.2.3 Limits

The average power shall not be greater than the limits in table 2, in accordance to ECC Decision (04)10, Annex 2 [i.7].

Table 2: Ultra-wideband and single carrier limits for maximum radiated average power spectral density

Signal category	Frequency range	Maximum radiated average power spectral density (e.i.r.p.) in 1 MHz RBW
Single carrier emissions (note)	24,05 GHz < f < 24,25 GHz	10 dBm (20 dB peak emissions with 10 % duty cycle)
Ultra-wideband emissions	24,25 GHz < f < 25,65 GHz	-41,3 dBm / MHz
Ultra-wideband emissions	25,65 GHz < f < 26,65 GHz	-41,3 dBm - 20 × (f - 25,65 GHz) / 1 GHz dBm/MHz
NOTE: Single carrier emissions may only be present in case of intentional UWB emissions within the band 24,25 GHz to 26,65 GHz.		

4.3.2.4 Conformance

The conformance test suite for mean power spectral density shall be as defined in clause 6.3.5 of ETSI EN 303 396 [1].

Conformance shall be established under normal and extreme test conditions defined in clause 4.1.

The interpretation of the results for the measurements uncertainty shall be as given in clause 4.6 of ETSI EN 303 396 [1].

4.3.3 Peak Power

4.3.3.1 Applicability

This requirement applies to all EUT.

4.3.3.2 Description

For ultra-wideband devices, the maximum radiated peak power density including antenna gain (e.i.r.p.) is defined as the peak power measured in a 50 MHz resolution bandwidth (RBW), in accordance to ECC Decision (04)10, Annex 2 [i.6]. No further correction factor (PDCF) is applied to the readings measured in the 50 MHz RBW. Furthermore the video bandwidth (VBW) shall be at least as large as the RBW for correct peak measurements. If the available spectrum analyser does not allow for a measurement in a 50 MHz resolution bandwidth (RBW) and video bandwidth (VBW), RBWs of 20 MHz, 10 MHz or 3 MHz can be used in conjunction with a lower peak power limit, as noted in table 3. Other than resolution bandwidth and video bandwith, the description in ETSI EN 303 396 [1], clause 6.2.4 applies.

Alternatively, peak power may be measured according to ETSI EN 303 883 [2], clause 7.4.4.

The method used shall be indicated in the test report.

4.3.3.3 Limits

The peak power shall not be greater than the limits in table 3.

Table 3: Ultra-wide band and single carrier limits for maximum radiated peak power [i.2]

Signal category	Frequency range	Maximum radiated peak power (e.i.r.p.)	Resolution bandwidth RBW (note 1)
Ultra-wideband emissions	24,25 GHz < f < 25,65 GHz	**0 dBm** -7,96 dBm -13,98 dBm -24,44 dBm	**50 MHz (default)** 20 MHz (option 1) 10 MHz (option 2) 3 MHz (option 3)
Ultra-wideband emissions	25,65 GHz < f < 26,65 GHz	**0 dBm - 20 × (f - 25,65 GHz) / 1 GHz** -7,96 dBm - 20 × (f - 25,65 GHz) / 1 GHz -13,98 dBm - 20 × (f - 25,65 GHz) / 1 GHz -24,44 dBm - 20 × (f - 25,65 GHz) / 1 GHz	**50 MHz (default)** 20 MHz (option 1) 10 MHz (option 2) 3 MHz (option 3)
Single carrier emissions (note 2)	24,05 GHz to 24,25 GHz	20 dBm	RBW = 1 MHz
NOTE 1: VBW shall be at least as large as the RBW. NOTE 2: Single carrier emissions are only allowed, if ultra-wideband emissions are present.			

4.3.3.4 Conformance

The conformance test suite for peak power shall be as defined in clause 6.3.3 of ETSI EN 303 396 [1] or ETSI EN 303 883 [2], clause 7.4.4. Conformance shall be established under normal and extreme test conditions defined in clause 4.1.

The interpretation of the results for the measurement uncertainty shall be as given in clause 4.6 of ETSI EN 303 396 [1].

4.3.4 Unwanted emissions in the out-of-band domain

4.3.4.1 Applicability

This requirement applies to all EUT.

4.3.4.2 Description

The description in ETSI EN 303 396 [1], clause 6.2.11 does not apply.

The out-of-band domain is specified from 10 GHz to 40 GHz, excluding the frequency range from 24,05 GHz to 26,65 GHz. The spectrum analyser settings are identical to the mean power spectral density definition in clause 4.3.2.2.

4.3.4.3 Limits

According to ECC Decision (04)10, Annex 2 [i.6], the maximum emitted power for the out-of-band emission in the band 23,6 GHz to 24 GHz shall not exceed -74 dBm/MHz e.i.r.p. The limit between 24,0 GHz and 24,05 GHz is derived from CEPT/ERC/REC 74-01E [i.4].

Table 4: Limits of radiated out-of-band emissions

Frequency range (GHz)	Limit values for radiated out of band emissions (e.i.r.p.)	Comment
10,0 to 23,6	-61,3 dBm / MHz	RMS detector, RBW = 1 MHz
23,6 to 24,0	-74,0 dBm / MHz	RMS detector, RBW = 1 MHz
24,00 to 24,05	-30 dBm / MHz	RMS detector, RBW = 1 MHz
26,65 to 40,0	-61,3 dBm / MHz	RMS detector, RBW = 1 MHz

4.3.4.4 Conformance

The conformance test suite for out of band emissions shall be as defined in clause 6.3.10 of ETSI EN 303 396 [1].

Conformance shall be established under normal test conditions defined in clause 4.1.

The interpretation of the results for the measurement uncertainty shall be as given in clause 4.6 of ETSI EN 303 396 [1].

4.3.5 Unwanted emissions in the spurious domain

4.3.5.1 Applicability

This requirement applies to all EUT.

4.3.5.2 Description

The description in ETSI EN 303 396 [1], clause 6.2.11 does not apply. Spurious limits are defined below 10 GHz and above 40 GHz.

4.3.5.3 Limits

For ultra-wideband radar-and single carrier emissions, the effective radiated power of any spurious emission shall not be greater than the values given in table 5.

Table 5: Limits for radiated spurious emissions [i.4]

Frequency range (MHz)	Limit values for spurious radiation	Detector type
47 to 74	-54 dBm e.r.p.	Quasi-Peak
87,5 to 118	-54 dBm e.r.p.	Quasi-Peak
174 to 230	-54 dBm e.r.p.	Quasi-Peak
470 to 790	-54 dBm e.r.p.	Quasi-Peak
otherwise in band 30 to 1 000	-36 dBm e.r.p.	Quasi-Peak
1 000 to 10 000 40 000 to 50 000 (see note)	-30 dBm e.i.r.p.	RMS
NOTE: According to CEPT/ERC/REC 74-01E [i.4], spurious emission is measured up to the 2nd harmonic of the fundamental frequency. For practical reasons, the upper frequency limit up to which measurements are performed shall be 50 GHz.		

4.3.5.4 Conformance

The conformance test suite for unwanted emissions in the spurious domain shall be as defined in clause 6.3.10 of ETSI EN 303 396 [1].

Conformance shall be established under normal test conditions defined in clause 4.1.

The interpretation of the results for the measurement uncertainty shall be as given in clause 4.6 of ETSI EN 303 396 [1].

4.4 Receiver Conformance Requirements

4.4.1 Introduction

ETSI EG 203 336 [i.5] lists candidate technical parameters to be included in a Harmonised Standard aimed at providing a presumption of conformity of radio equipment with the essential requirements in articles 3.1(b) and 3.2 of the Directive 2014/53/EU [i.3].

Essential requirements are high level objectives described in European Directives. The purpose of the Harmonised Standard is to translate those high level objectives into detailed technical specifications.

The present document applies to ultra-wideband radar systems for which the "classical" receiver parameters are not necessarily relevant. Where applicable, suitable alternative technical requirements are included, see clause 4.4.3.

4.4.2 Receiver spurious emissions

4.4.2.1 Applicability

Receiver spurious emission testing shall apply for any mode other than transmit mode.

NOTE: Otherwise receiver spurious emissions are measured as part of the transmitter spurious emissions, see clause 4.3.4.

4.4.2.2 Description

The description in ETSI EN 303 396 [1], clause 6.2.12 applies.

4.4.2.3 Limits

The effective radiated power of any narrowband spurious emissions of the receiver shall not be greater than the values given in table 6.

Table 6: Narrowband spurious emission limits for receivers

Frequency range	Limit	Detector type
30 MHz to 1 GHz	-57 dBm (e.r.p.)	Quasi-Peak
above 1 GHz to 50 GHz (see note)	-47 dBm (e.i.r.p.)	Mean
NOTE: According to CEPT/ERC/REC 74-01E [i.4], spurious emission is measured up to the 2nd harmonic of the fundamental frequency. For practical reasons, the upper frequency limit up to which measurements are performed shall be 50 GHz.		

The effective radiated power of any wideband receiver spurious emissions shall not be greater than the values given in table 7.

Table 7: Wideband spurious emission limits for receivers

Frequency range	Limit	Detector type
30 MHz to 1 GHz	-47 dBm/MHz (e.r.p.)	Quasi-Peak
above 1 GHz to 50 GHz (see note)	-37 dBm/MHz (e.i.r.p.)	Mean
NOTE: According to CEPT/ERC/REC 74-01E [i.4], spurious emission is measured up to the 2nd harmonic of the fundamental frequency. For practical reasons, the upper frequency limit up to which measurements are performed shall be 50 GHz.		

4.4.2.4 Conformance

The conformance test suite for receiver spurious emissions shall be as defined in clause 6.3.11 of ETSI EN 303 396 [1].

Conformance shall be established under normal test conditions defined in clause 4.1.

The interpretation of the results for the measurement uncertainty shall be as given in clause 4.6 of ETSI EN 303 396 [1].

4.4.3 Receiver in-band, out-of-band and remote-band signals handling

4.4.3.1 Applicability

This requirement applies to all EUT.

4.4.3.2 Description

The description in ETSI EN 303 396 [1], clause 6.2.13 applies.

4.4.3.3 Limits

The EUT shall achieve the wanted performance criterion, see clause 4.2.2, in the presence of unwanted signals.

Table 8: Unwanted signal for ultra-wideband and single carrier radar emissions

	ISM band	UWB (centre frequency)	Remote-band signal
Frequency	24,15 GHz	25,45 GHz	f = 25,45 GHz ± 2,4 GHz
Signal level field strength at the EUT	17 mV/m	5,5 mV/m	17 mV/m
Equivalent e.i.r.p. at 10 m	0 dBm	-10 dBm	0 dBm
NOTE: ETSI EN 303 396 [1], clause 6.3.12.4. does not apply.			

4.4.3.4 Conformance

The conformance test suite for receiver in-band, out-of-band and remote-band signals handling shall be as defined in clause 6.3.12 of ETSI EN 303 396 [1].

Conformance shall be established under normal test conditions defined in clause 4.1.

The interpretation of the results for the measurement uncertainty shall be as given in clause 4.6 of ETSI EN 303 396 [1].

4.5 Void

4.6 Antenna Requirements

4.6.1 Unwanted vertical plane transmitter emissions in the 23,6 GHz to 24,0 GHz band

4.6.1.1 Applicability

This requirement applies to all EUTs.

4.6.1.2 Description

The vertical plane transmitter emissions are defined as emissions of the antenna as a function of the elevation angle, normalized to the maximum emission at boresight.

4.6.1.3 Limits

According to ECC Decision (04)10, Annex 2 [i.6] any emissions within the 23,6 GHz to 24 GHz band that appear 30° or greater above the horizontal plane relative to the main beam direction shall be attenuated on average to -20 dB, as depicted in figure 15 of ECC Report 158 [i.10].

4.6.1.4 Conformance

The following steps shall be performed:

- The EUT is fixed on a mechanism that allows pivoting of the device either in a vertical or horizontal plane in both directions up to minimum of 90°. The EUT is fixed in a way that its elevation plane coincides with the pivoting plane. The maximum bore sight direction is adjusted and referred to as the 0° origin.

- A spectrum analyser with peak detector in max-hold with largest RBW and VBW possible is used as measuring receiver.
- A horizontal scan is performed in steps of $\leq 2°$ to find the azimuth angle with the highest emissions (antenna boresight). This may be done at the frequency of the highest gain.
- At this antenna boresight angle, a vertical scan at 23,6 GHz and 24 GHz is performed to ensure that the emissions drop below -20 dB at angles of ±30° and beyond.

Conformance shall be established under normal test conditions defined in clause 4.1.

The interpretation of the results for the measurement uncertainty shall be as given in clause 4.6 of ETSI EN 303 396 [1].

5 Testing for compliance with technical requirements

5.1 General

The provisions of ETSI EN 303 396 [1], clause 4 shall apply except as varied or added herein.

5.2 Product information

The provisions of ETSI EN 303 396 [1], clause 4.2 shall apply except as varied or added herein.

6 Test setup and procedures

The provisions of ETSI EN 303 396 [1], clause 5 shall apply except as varied herein.

7 Conformance methods of measurement

7.1 General

The provisions of ETSI EN 303 396 [1], clause 6 shall apply except as varied or added herein.

All measurement results shall be recorded in a test report, see clause 4.7 in ETSI EN 303 396 [1].

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.8] 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.3].

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 302 288				
Requirement			Requirement Conditionality	
No	**Description**	**Reference: Clause No**	**U/C**	**Condition**
1	Operating Frequency Range	4.3.1	U	
2	Mean power spectral density	4.3.2		
3	Peak Power	4.3.3	U	
4	Unwanted emissions in the out-of-band domain	4.3.4	U	
5	Unwanted emissions in the spurious domain	4.3.5	U	
6	Receiver spurious emissions	4.4.2	C	It applies for any mode other than transmit mode
7	Receiver in-band, out-of-band and remote-band signals handling	4.4.3	U	
8	Unwanted vertical plane transmitter emissions in the 23,6 GHz to 24,0 GHz band	4.6.1	U	ECC decision 04(10) [i.6]
9	Installation requirements	none		No requirements

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): Change History

Version	Information about changes
1.6.1	Last publication as two-part HS EN 302 288-1 and -2.
1.1.1	• Revision for compliance with Directive 2014/53/EU • Single part HS • Out-sourcing of standard measurement procedures into a separate ETSI EN 303 396 • More detailed description of receiver spurious emission requirements • New requirement on receiver in-band, out-of-band and remote-band handling and method of measurement

History

Document history		
V1.1.1	January 2005	Publication as ETSI EN 302 288 part 1 and part 2
V1.2.1	May 2006	Publication as ETSI EN 302 288 part 1 and part 2
V1.3.1/1.2.2	February 2008	Publication as ETSI EN 302 288 part 1 and part 2
V1.4.1/1.3.2	January 2009	Publication as ETSI EN 302 288 part 1 and part 2
V1.6.1	March 2012	Publication as ETSI EN 302 288 part 1 and part 2
V1.1.0	January 2017	EN Approval Procedure AP 20170423: 2017-01-23 to 2017-04-24