ETSI EN 303 446-1 V1.2.1 (2019-10)

ElectroMagnetic Compatibility (EMC) standard for combined and/or integrated radio and non-radio equipment; Part 1: Requirements for equipment intended to be used in residential, commercial and light industry locations

Reference
REN/ERM-EMC-398

Keywords
EMC, emission, immunity

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Sous-Préfecture de Grasse (06) N° 7803/88

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Foreword

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

The present document is part 1 of a multi-part deliverable covering ElectroMagnetic Compatibility (EMC) for combined and/or integrated equipment, as identified below:

Part 1: **"Requirements for equipment intended to be used in residential, commercial and light industry locations";**

Part 2: "Requirements for equipment intended to be used in industrial locations".

National transposition dates	
Date of adoption of this EN:	20 September 2019
Date of latest announcement of this EN (doa):	31 December 2019
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 June 2020
Date of withdrawal of any conflicting National Standard (dow):	30 June 2020

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).

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Introduction

The present document is not intended for citation under any new approach Directive.

The present document is based on the principles given in ETSI EG 203 367 [i.3] "Guide to the application of harmonised standards covering articles 3.1(b) and 3.2 of the Directive 2014/53/EU (RED) to multi-radio and combined radio and non-radio equipment".

The present document contains the measurements, emission limits, immunity test levels and performance criteria that are necessary for the assessment of a combination of a non-radio and a radio product in accordance with ETSI EG 203 367 [i.3].

1 Scope

The present document defines requirements in respect of ElectroMagnetic Compatibility (EMC) for combined and/or integrated equipment intended to be used within residential, commercial and light industry locations.

The present document is only applicable to combined and/or integrated equipment where the radio function is within the scope of one or more of the standards listed in clause 2.1.2 (covering references [1] to [7]) and where the non-radio function is within the scope of one or more of the standards listed in clause 2.1.3 (covering references [8] to [39]).

Requirements applicable to the antenna port specifically related to the efficient use of radio spectrum are not included in the present document.

NOTE: These requirements are generally found in the applicable product standard(s) for the effective use of the radio spectrum.

2 References

2.1 Normative references

2.1.1 General

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 1: 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.

In addition, within the present document, some references are non-specific. The applicable version listed in the OJEU under the Directives 2014/53/EU [i.1] or 2014/30/EU [i.2] may be used.

NOTE 2: Before the date of withdrawal, a preceding version may be used (see clause 2.4 of the Technical Working Procedures in the ETSI Directives).

2.1.2 Radio EMC standards

[1] ETSI EN 301 489-1: "ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard for Electromagnetic Compatibility".

[2] ETSI EN 301 489-3: "ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 246 GHz; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU".

[3] ETSI EN 301 489-5: "ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 5: Specific conditions for Private land Mobile Radio (PMR) and ancillary equipment (speech and non-speech) and Terrestrial Trunked Radio (TETRA); Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU".

[4] ETSI EN 301 489-6: "ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 6: Specific conditions for Digital Enhanced Cordless Telecommunications (DECT) equipment; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU".

[5] ETSI EN 301 489-17: "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".

[6] ETSI EN 301 489-19: "ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 19: Specific conditions for Receive Only Mobile Earth Stations (ROMES) operating in the 1,5 GHz band providing data communications and GNSS receivers operating in the RNSS band (ROGNSS) providing positioning, navigation, and timing data; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU".

[7] ETSI EN 301 489-33: "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 Directive 2014/53/EU".

2.1.3 Non-radio EMC standards

[8] CENELEC EN 50065-1: "Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz - Part 1: General requirements, frequency bands and electromagnetic disturbances".

[9] CENELEC EN 50065-2-1: "Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz - Part 2-1: Immunity requirements for mains communications equipment and systems operating in the range of frequencies 95 kHz to 148,5 kHz and intended for use in residential, commercial and light industrial environments".

[10] CENELEC EN 50065-2-3: "Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz - Part 2-3: Immunity requirements for mains communications equipment and systems operating in the range of frequencies 3 kHz to 95 kHz and intended for use by electricity suppliers and distributors".

[11] CENELEC EN 50130-4: "Alarm systems - Part 4: Electromagnetic compatibility - Product family standard: Immunity requirements for components of fire, intruder, hold up, CCTV, access control and social alarm systems".

[12] CENELEC EN 50412-2-1: "Power line communication apparatus and systems used in low-voltage installations in the frequency range 1,6 MHz to 30 MHz - Part 2-1: Residential, commercial and industrial environment - Immunity requirements".

[13] CENELEC EN 50491-5-1: "General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) - Part 5-1: EMC requirements, conditions and test set-up".

[14] CENELEC EN 50491-5-2: "General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) - Part 5-2: EMC requirements for HBES/BACS used in residential, commercial and light industry environment".

[15] CENELEC EN 50561-1: "Power line communication apparatus used in low-voltage installations - Radio disturbance characteristics - Limits and methods of measurement - Part 1: Apparatus for in-home use".

[16] CENELEC EN 50561-3: "Power line communication apparatus used in low-voltage installations - Radio disturbance characteristics - Limits and methods of measurement - Part 3: Apparatus operating above 30 MHz".

[17] CENELEC EN 55011: "Industrial, scientific and medical equipment - Radio-frequency disturbance characteristics - Limits and methods of measurement".

[18] CENELEC EN 55014-1: "Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission".

[19] CENELEC EN 55014-2: "Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 2: Immunity - Product family standard".

[20] CENELEC EN 55015: "Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment".

[21] CENELEC EN 55020: "Sound and television broadcast receivers and associated equipment - Immunity characteristics - Limits and methods of measurement".

[22] CENELEC EN 55024: "Information technology equipment - Immunity characteristics - Limits and methods of measurement".

[23] CENELEC EN 55032: "Electromagnetic compatibility of multimedia equipment - Emission Requirements".

NOTE: CENELEC EN 55032 also covers broadcast receivers.

[24] CENELEC EN 55035: "Electromagnetic compatibility of multimedia equipment - Immunity requirements".

NOTE: CENELEC EN 55035 also covers broadcast receivers.

[25] CENELEC EN 55103-2: "Electromagnetic compatibility - Product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use - Part 2: Immunity".

[26] CENELEC EN 50270: "Electromagnetic compatibility - Electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen".

[27] CENELEC EN 60730-1: "Automatic electrical controls - Part 1: General requirements".

[28] CENELEC EN 60974-10: "Arc welding equipment - Part 10: Electromagnetic compatibility (EMC) requirements".

[29] CENELEC EN 61000-6-1: "Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments".

[30] CENELEC EN 61000-6-3: "Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments".

[31] CENELEC EN 61326-1: "Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements".

[32] CENELEC EN 61326-2-2: "Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-2: Particular requirements - Test configurations, operational conditions and performance criteria for portable test, measuring and monitoring equipment used in low-voltage distribution systems".

[33] CENELEC EN 61326-2-3: "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".

[34] CENELEC EN 61326-2-4 (2013): "Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-4: Particular requirements - Test configurations, operational conditions and performance criteria for insulation monitoring devices according to IEC 61557-8 and for equipment for insulation fault location according to IEC 61557-9".

[35] CENELEC EN 61326-2-5: "Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-5: Particular requirements - Test configurations, operational conditions and performance criteria for devices with field bus interfaces according to IEC 61784-1".

[36] CENELEC EN 61547: "Equipment for general lighting purposes - EMC immunity requirements".

[37] CENELEC EN 61800-3: "Adjustable speed electrical power drive systems - Part 3: EMC requirements and specific test methods".

[38] CENELEC EN 62135-2: "Resistance welding equipment - Part 2: Electromagnetic compatibility (EMC) requirements".

[39] ETSI EN 300 386: "Telecommunication network equipment; ElectroMagnetic Compatibility (EMC) requirements; Harmonised Standard covering the essential requirements of the Directive 2014/30/EU".

2.1.4 Other EMC standards

[40] CENELEC EN 61000-3-2 (2014): "Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)".

[41] CENELEC EN 61000-3-3 (2013): "Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current <= 16 A per phase and not subject to conditional connection".

[42] CENELEC EN 61000-3-11 (2000): "Electromagnetic compatibility (EMC) - Part 3-11: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems - Equipment with rated current <= 75 A and subject to conditional connection".

[43] CENELEC EN 61000-3-12 (2011): "Electromagnetic compatibility (EMC) - Part 3-12: Limits - Limits for harmonic currents produced by equipment connected to public low-voltage systems with input current > 16 A and <= 75 A per phase".

[44] CENELEC EN 61000-6-3 (2007) and A1 (2011): "Electromagnetic compatibility (EMC) - Part 6-3: Generic standards - Emission standard for residential, commercial and light-industrial environments".

[45] CENELEC EN 55032 (2015) and AC (2016): "Electromagnetic compatibility of multimedia equipment - Emission Requirements".

NOTE: The standards referenced in clause 2.1.4 do not define the scope of the present document. They are only referenced in the sense of a basic standard for a specific measurement.

2.2 Informative references

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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] Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility (recast).

[i.3] ETSI EG 203 367: "Guide to the application of harmonised standards covering articles 3.1b and 3.2 of the Directive 2014/53/EU (RED) to multi-radio and combined radio and non-radio equipment".

[i.4] Recommendation ITU-R SM.329: "Unwanted emissions in the spurious domain".