BSI Standards Publication

Electromagnetic compatibility — Requirements for household appliances, electric tools and similar apparatus

Part 1: Emission

bsi.

National foreword

This British Standard is the UK implementation of EN 55014-1:2017. It is identical to CISPR 14-1:2016, including Intepretation Sheet 1 (May 2017) and Interpretation Sheet 2 (May 2017). It supersedes BS EN 55014-1:2006+A2:2011, which will be withdrawn on 28 April 2020.

The UK participation in its preparation was entrusted to Technical Committee GEL/210/11, EMC - Standards Committee.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Published by BSI Standards Limited 2019

ISBN 978 0 539 07005 7

ICS 97.030; 25.140.20; 33.100.10

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 June 2017.

Amendments/corrigenda issued since publication

Date	Text affected
31 October 2019	Date of withdrawal corrected in national foreword

EUROPEAN STANDARD **EN 55014-1**

EUROPÄISCHE NORM

April 2017

ICS 33.100.10

Supersedes EN 55014-1:2006

English Version

Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission (CISPR 14-1:2016 + COR1:2016)

Compatibilité électromagnétique - Exigences pour les appareils électrodomestiques, outillages électriques et appareils analogues - Partie 1: Emission (CISPR 14-1:2016 + COR1:2016)

Elektromagnetische Verträglichkeit - Anforderungen an Haushaltgeräte, Elektrowerkzeuge und ähnliche Elektrogeräte - Teil 1: Störaussendung (CISPR 14-1:2016 + COR1:2016)

This European Standard was approved by CENELEC on 2016-09-14. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 55014-1:2017 E

The text of document CISPR/F/681/FDIS, future edition 6 of CISPR 14-1, prepared by SC CISPR/F "Interference related to household appliances, tools, lighting equipment and similar appliances" of IEC/TC CISPR was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 55014-1:2017.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2017-10-28
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2020-04-28

This document supersedes EN 55014-1:2006.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association.

Endorsement notice

The text of the International Standard CISPR 14-1:2016 + COR1:2016 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

CISPR 11	NOTE	Harmonized as EN 55011.
CISPR 12	NOTE	Harmonized as EN 55012.
CISPR 15:2013	NOTE	Harmonized as EN 55015:2013 (not modified).
IEC 61140	NOTE	Harmonized as EN 61140.
IEC 61558-2-7	NOTE	Harmonized as EN 61558-2-7.

(normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu

Publication	Year	Title	EN/HD	Year
CISPR 16-1-1	2015	Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-1: Radio disturbance and immunity measuring apparatus - Measuring apparatus	EN 55016-1-1	201X [1)]
CISPR 16-1-2	2014	Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-2: Radio disturbance and immunity measuring apparatus - Coupling devices for conducted disturbance measurements	EN 55016-1-2	2014
CISPR 16-1-3	2004	Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-3: Radio disturbance and immunity measuring apparatus - Ancillary equipment - Disturbance power	EN 55016-1-3	2006
+A1	2016		+A1	2016
CISPR 16-1-4	2010	Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-4: Radio disturbance and immunity measuring apparatus - Antennas and test sites for radiated disturbance measurements	EN 55016-1-4	2010
+A1	2012		+A1	2012
CISPR 16-2-1	2014	Specification for radio disturbance and immunity measuring apparatus and methods - Part 2-1: Methods of measurement of disturbances and immunity - Conducted disturbance measurements	EN 55016-2-1	2014

[1)] To be published.

CISPR 16-2-2	2010	Specification for radio disturbance and immunity measuring apparatus and methods - Part 2-2: Methods of measurement of disturbances and immunity - Measurement of disturbance power	EN 55016-2-2	2011
CISPR 16-2-3	2010	Specification for radio disturbance and immunity measuring apparatus and methods - Part 2-3: Methods of measurement of disturbances and immunity - Radiated disturbance measurements	EN 55016-2-3 +AC	2010 2013
+A1	2010		+A1	2010
+A2	2014		+A2	2014
CISPR 16-4-2	2011	Specification for radio disturbance and immunity measuring apparatus and methods - Part 4-2: Uncertainties, statistics and limit modelling - Measurement instrumentation uncertainty	EN 55016-4-2	2011
+A1	2014		+A1	2014
CISPR 32	2015	Electromagnetic compatibility of multimedia equipment - Emission Requirements	EN 55032	2015
IEC 60050-161	1990	International Electrotechnical Vocabulary (IEV) - Chapter 161: Electromagnetic compatibility	-	-
+A1	1997		-	-
+A2	1998		-	-
+A3	2014		-	-
+A4	2014		-	-
+A5	2015		-	-
IEC 60335-2-76 (mod)	2002	Household and similar electrical appliances - Safety - Part 2-76: Particular requirements for electric fence energizers	EN 60335-2-76	2005
			+A12	2010
			+A11	2008
+A1	2006		+A1	2006
+A2 (mod)	2013		+A2	2015
IEC 61000-4-20	2010	Electromagnetic compatibility (EMC) - Part 4-20: Testing and measurement techniques - Emission and immunity testing in transverse electromagnetic (TEM) waveguides	EN 61000-4-20	2010
IEC 61000-4-22	2010	Electromagnetic compatibility (EMC) - Part 4-22: Testing and measurement techniques - Radiated emission and immunity measurements in fully anechoic rooms (FARs)	EN 61000-4-22	2011

Edition 6.0 2016-08

INTERNATIONAL STANDARD

NORME INTERNATIONALE

INTERNATIONAL SPECIAL COMMITTEE ON RADIO INTERFERENCE
COMITÉ INTERNATIONAL SPÉCIAL DES PERTURBATIONS RADIOÉLECTRIQUES

Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus – Part 1: Emission

Compatibilité électromagnétique – Exigences pour les appareils électrodomestiques, outillages électriques et appareils analogues – Partie 1: Emission

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

ICS 33.100.10

ISBN 978-2-8322-3563-8

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

CISPR 14-1
Edition 6.0 2016-08

ELECTROMAGNETIC COMPATIBILITY – REQUIREMENTS FOR HOUSEHOLD APPLIANCES, ELECTRIC TOOLS AND SIMILAR APPARATUS –

Part 1: Emission

INTERPRETATION SHEET 1

This interpretation sheet has been prepared by subcommittee CISPR F: Interference relating to household appliances tools, lighting equipment and similar apparatus, of IEC technical committee CISPR: International special committee on radio interference.

The text of this interpretation sheet is based on the following documents:

FDIS	Report on voting
CIS/F/703/FDIS	CIS/F/707/RVD

Full information on the voting for the approval of this interpretation sheet can be found in the report on voting indicated in the above table.

_____

Interpretation Sheet 1 to CISPR 14-1: Interpretation of subclause 5.4.2.4 of CISPR 14-1:2016 on the upper quartile method for the evaluation of clicks

Introduction

The evaluation of clicks has to be performed at four frequencies while the determination of the click rate N is made only at two frequencies. The application of the upper quartile method at the frequencies 150 kHz and 500 kHz is clear, while the situation is unclear for the frequencies 1,4 MHz and 30 MHz. This interpretation sheet is intended to clarify this matter.

The click measurement procedure is under revision in CISPR/F WG1 and will be updated in the next amendment to CISPR 14-1:2016.

Question

How should the upper quartile method be applied at the frequencies 1,4 MHz and 30 MHz?

Interpretation

Each of the following two interpretations is valid.

ICS 33.100.10

Interpretation 1:

The number of clicks at 1,4 MHz and the number of clicks at 30 MHz which exceed the limit, L, for continuous disturbances during the observation time, T, are measured. The number of clicks at 1,4 MHz and the number of clicks at 30 MHz exceeding L_q are allowed to be one quarter of the number of clicks counted at each respective frequency.

Interpretation 2:

The number of clicks at 1,4 MHz and the number of clicks at 30 MHz which exceed the limit, L, for continuous disturbances during the observation time, T, are not measured but are assumed to be equal to the number of clicks counted at 500 kHz during the observation time T. The number of clicks at 1,4 MHz and the number of clicks at 30 MHz exceeding L_q are allowed to be one quarter of the number of clicks counted at 500 kHz.

In any situation where it is necessary to verify the original measurement, the assessment method (interpretation 1 or 2) originally chosen shall be used in order to ensure consistency of the results.

_____

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

CISPR 14-1
Edition 6.0 2016-08

ELECTROMAGNETIC COMPATIBILITY – REQUIREMENTS FOR HOUSEHOLD APPLIANCES, ELECTRIC TOOLS AND SIMILAR APPARATUS –

Part 1: Emission

INTERPRETATION SHEET 2

This interpretation sheet has been prepared by subcommittee CISPR F: Interference relating to household appliances tools, lighting equipment and similar apparatus, of IEC technical committee CISPR: International special committee on radio interference.

The text of this interpretation sheet is based on the following documents:

FDIS	Report on voting
CIS/F/702/FDIS	CIS/F/706/RVD

Full information on the voting for the approval of this interpretation sheet can be found in the report on voting indicated in the above table.

_____

Interpretation Sheet 2 to CISPR 14-1: Interpretation of subclause A.4.11 of CISPR 14-1:2016 on the assessment of irons with steam generator

Introduction

Subclause A.4.11 of CISPR 14-1:2016 defines the testing conditions for irons (dry or steam), but there are no instructions regarding the steam production.

Question

How to set the steam function of irons during CISPR 14-1 emission tests?

CISPR 14-1:2016-08/ISH2:2017-05(en)

ICS 33.100.10

Interpretation

When measuring disturbances from irons, if the iron has a continuous steam function, it shall be operated in this mode only and use a sufficient amount of water to facilitate continuous steaming for the duration of the test.

_____

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

INTERNATIONAL SPECIAL COMMITTEE ON RADIO INTERFERENCE

_____

ELECTROMAGNETIC COMPATIBILITY – REQUIREMENTS FOR HOUSEHOLD APPLIANCES, ELECTRIC TOOLS AND SIMILAR APPARATUS –

Part 1: Emission

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

The International Standard CISPR 14-1 has been prepared by subcommittee CISPR/F: Interference related to household appliances, tools, lighting equipment and similar appliances, of IEC technical committee CISPR.

This sixth edition cancels and replaces the fifth edition published in 2005, Amendment 1:2008 and Amendment 2:2011. This edition constitutes a technical revision.

This edition includes the following significant changes with respect to the previous edition:

– full editorial review of the standard, rearranging the structure of several clauses;
– improvements to the operating conditions for testing induction cooking appliances and incorporation of the limits for these appliances in the body of the standard;

– moving all specific operating conditions to Annex A;
– improvement of definitions;
– addition of general and specific test setups (e.g. vacuum cleaners and robotic cleaners) for radiated emission;
– provision for the current probe test method for conducted disturbance measurements on ports other than the AC mains port in alternative to the voltage probe method;
– clarifications about click analysis (e.g. measurements under the presence of continuous disturbances). Further clarification is being developed for future inclusion;
– clarification about the use of the artificial hand;
– introduction of testing on wired network ports of household equipment (equivalent to CISPR 32 requirements);
– clarification in the scope regarding emissions from radio transmitters (copied verbatim from CISPR 32);
– clarification about the measurement of equipment with built-in luminaries.

The text of this standard is based on the following documents:

FDIS	Report on voting
CISPR/F/681/FDIS	CISPR/F/684/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the CISPR 14 series can be found on the IEC website under the general title *Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus*.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended

The contents of the corrigendum of October 2016 and the interpretation sheet 1 of May 2017 and 2 of May 2017 have been included in this copy.

ELECTROMAGNETIC COMPATIBILITY – REQUIREMENTS FOR HOUSEHOLD APPLIANCES, ELECTRIC TOOLS AND SIMILAR APPARATUS –

Part 1: Emission

1 Scope

This part of CISPR 14 specifies the requirements that apply to the emission of radio-frequency disturbances in the frequency range 9 kHz to 400 GHz from appliances, electric tools and similar apparatus as defined below, whether powered by AC or DC (including a battery).

Within this standard wherever the term “equipment” is used it includes the more specific terms “appliance”, “household or similar appliances”, “electric tool”, “toys” and “apparatus”.

This International Standard is applicable to the following equipment:

- household appliances or similar equipment;

NOTE 1 Examples are equipment used:

– for typical housekeeping functions in the household environment, which includes the dwelling and its associated buildings, the garden, etc.;

– for typical housekeeping functions in shops, offices, commercial and other similar working environments;

– in farms;

– by clients in hotels and other residential type environments;

– for induction cooking, either in residential or commercial environments.

- electric tools;

NOTE 2 Examples of electric tools include electric motor-operated or electromagnetically driven hand-held tools, transportable tools, lawn and garden machinery.

- similar apparatus.

NOTE 3 Examples are external power controllers using semiconductor devices, motor-driven electro-medical apparatus, electric/electronic toys, automatic goods-dispensing machines, entertainment machines, cine or slide projectors, as well as battery chargers and external power supplies for use with products under the scope of this standard.

Also included in the scope of this standard are separate parts of the above mentioned equipment such as motors and switching devices (e.g. power or protective relays); however, no emission requirements apply to such separate parts, unless otherwise stated in this standard.

Excluded from the scope of this standard are:

– equipment for which all emission requirements in the radio-frequency range are explicitly formulated in other CISPR standards;

NOTE 4 Examples are:

- luminaires, including portable luminaires for children, discharge lamps and other lighting devices under the scope of CISPR 15;
- information technology equipment, e.g. home computers, personal computers, electronic copying machines under the scope of CISPR 32;
- audio/video equipment and electronic music instruments other than toys under the scope of CISPR 32;