PD CISPR/TR 16-4-4:2007+A1:2017

BSI Standards Publication

Specification for radio disturbance and immunity measuring apparatus and methods

Part 4-4: Uncertainties, statistics and limit modelling — Statistics of complaints and a model for the calculation of limits for the protection of radio services

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National foreword

This Published Document is the UK implementation of CISPR/TR 16-4-4:2007+A1:2017. It supersedes PD CISPR/TR 16-4-4:2007, which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to CISPR text carry the number of the CISPR amendment. For example, text altered by CISPR amendment A1 is indicated by A1 A1.

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

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FOREWORD

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The main task of IEC technical committees is to prepare International Standards. However, a technical committee may propose the publication of a technical report when it has collected data of a different kind from that which is normally published as an International Standard, for example "state of the art".

This second edition of CISPR 16-4-4, which is a technical report, has been prepared by CISPR Subcommittee H: Limits for the protection of radio services.

This second edition of CISPR 16-4-4 contains two thoroughly updated Clauses 4 and 5, compared with its first edition. It also contains, in its new Annex A, values of the classical CISPR mains decoupling factor which were determined by measurements in real LV AC mains grids in the 1960s. It is deemed that these mains decoupling factors are still valid and representative also for modern and well maintained LV AC mains grids around the world.

The information in Clause 4 – Statistics of complaints and sources of interference – was accomplished by the history and evolution of the CISPR statistics on complaints about radio frequency interference

(RFI) and by background information on evolution in radio-based communication technologies. Furthermore, the forms for collation of actual RFI cases were detailed and structured in a way allowing for more qualified assessment and evaluation of compiled annual data in regard to the interference situation, as e.g. fixed or mobile radio reception, or analogue or digital modulation of the interfered with radio service or application concerned.

The information in Clause 5 – A model for the calculation of limits – was accomplished in several ways. The model itself was accomplished in respect of the remote coupling situation as well as the close coupling one. Further supplements of this model were incorporated regarding certain aspects of the coupling path via induction and wave propagation (radiation) of classical telecommunication networks. Furthermore, the calculation model on statistics and probability underwent revision and was brought in line with a more modern mathematical approach. Eventually the present model was extended for a possible determination of CISPR limits in the frequency range above 1 GHz.

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

The committee has decided that the contents of the base publication and its amendment 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.

A bilingual version of this publication may be issued at a later date.

1 Scope

This part of CISPR 16 contains a recommendation on how to deal with statistics of radio interference complaints. Furthermore it describes the calculation of limits for disturbance field strength and voltage for the measurement on a test site based on models for the distribution of disturbances by radiated and conducted coupling, respectively.

2 Normative references

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

IEC 60050(161), *International Electrotechnical Vocabulary — Chapter 161: Electromagnetic compatibility*

CISPR 11, *Industrial, scientific and medical (ISM) radio-frequency equipment — Electromagnetic disturbance characteristics — Limits and methods of measurement*

CISPR 16-4-3, *Specification for radio disturbance and immunity measuring apparatus and methods — Part 4-3: Uncertainties, statistics and limit modelling — Statistical considerations in the determination of EMC compliance of mass-produced products*

3 Terms and definitions

For the purposes of this document, the terms and definitions in IEC 60050(161) as well as the following apply.

3.1
complaint
a request for assistance made to the RFI investigation service by the user of a radio receiving equipment who complains that reception is degraded by radio frequency interference (RFI)

3.2
RFI investigation service
institution having the task of investigating reported cases of radio frequency interference and which operates at the national basis

Note 1 to entry: Examples include a radio service provider, a CATV network provider, an administration, or a regulatory authority.

3.3
source
any type of electric or electronic equipment, system, or (part of) installation emanating disturbances in the radio frequency (RF) range which can cause radio frequency interference to a certain kind of radio receiving equipment

4 Statistics of complaints and sources of interference

4.1 Introduction and history

The previous edition of CISPR 16-4-4 contained, in its Clause 4, a complete reprint of CISPR Recommendation 2/3 on statistics of complaints and sources of interference. However, due to modern technological evolution in radio systems directed towards introduction of digital radio services, and due to increasing use of mobile and portable radio appliances by the public, the traditional CISPR statistics of complaints on radio frequency interference are experiencing a decreasing significance as an indicator of the quality of standardisation work for the protection of radio services and applications. That is why related information in this edition of CISPR 16-4-4 is reduced to the necessary minimum allowing interested parties to continue their complaint-based collation of data on an annual basis.