TR CISPR 18-3

Edition 2.0 2010-06

TECHNICAL REPORT

INTERNATIONAL SPECIAL COMMITTEE ON RADIO INTERFERENCE

Radio interference characteristics of overhead power lines and high-voltage equipment – Part 3: Code of practice for minimizing the generation of radio noise

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RADIO INTERFERENCE CHARACTERISTICS OF OVERHEAD POWER LINES AND HIGH-VOLTAGE EQUIPMENT –

Part 3: Code of practice for minimizing the generation of radio noise

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CISPR 18-3, which is a technical report, has been prepared by CISPR subcommittee B: Interference relating to industrial, scientific and medical radio-frequency apparatus, to other (heavy) industrial equipment, to overhead power lines, to high voltage equipment and to electric traction.

This second edition cancels and replaces the first edition published in 1986. It is a technical revision.

This edition includes the following significant technical changes with respect to the previous edition: while the first edition of CISPR 18-3 only covered recommendations for minimizing the generation of radio noise emanating from high-voltage (HV) power systems, this second edition now also covers a new clause providing formulae for predetermination of the radio noise field strength levels from HV overhead power lines with large conductor bundles. Furthermore, Annex A was accomplished with a collation of predetermination formulae developed and used by several institutions around the world. The tables also contain typical examples of radio noise field strength levels obtained during some measurements campaigns at several HV overhead power line constructions.

The text of this technical report is based on the following documents:

DTR	Report on voting
CISPR/B/495/DTR	CISPR/B/503/RVC

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

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

A list of all parts of the CISPR 18 series can be found, under the general title *Radio interference characteristics of overhead power lines and high-voltage equipment*, on the IEC website.

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.

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

INTRODUCTION

This technical report forms the third of a three-part publication dealing with radio noise generated by electrical power transmission and distribution facilities (overhead lines and substations). It contains recommendations for minimizing the generation of radio noise emanating from high-voltage (HV) power systems which include, but are not restricted to, HVAC or HVDC overhead power lines, HVAC substations and HVDC converter stations, hardware, etc., in order to promoting protection of radio reception.

The recommendations given in this part 3 of the CISPR 18 series are intended to be a useful aid to engineers involved in design, erection and maintenance of overhead lines and HV stations and also to anyone concerned with checking the radio noise performance of a line to ensure satisfactory protection of radio reception. Information on the physical phenomena involved in the generation of electromagnetic noise fields is found in CISPR/TR 18-1. It also includes the main properties of such fields and their numerical values. CISPR/TR 18-2 contains recommendations for methods of measurement for use on-site or in a laboratory. It furthermore recommends procedures for determination of limits for the radio noise from HV power systems.

This second edition of CISPR 18-3 was adapted to the modern structure and content of technical reports issued by IEC. The first edition of CISPR 18-3 underwent thorough edition and adaptation to modern terminology. Furthermore its content was adjusted such as to allow for use of the lateral distance *y* for the conduction of measurements in the field.

The CISPR 18 series does not deal with biological effects on living matter or any issues related to exposure in electromagnetic fields.

The main content of this technical report is based on CISPR Rec. No. 57 given below:

CISPR RECOMMENDATION No. 57

CODE OF PRACTICE FOR MINIMIZING THE GENERATION OF RADIO NOISE

The CISPR

CONSIDERING

a) that the radiation of electromagnetic energy from overhead power lines causes interference to sound and television broadcasting,

b) that the level of this noise may be reduced by the design and lay-out of a line,

c) that when defects cause unusually high levels of interference there is need to detect and locate these faults,

RECOMMENDS

That the latest edition of CISPR Publication 18-3, including amendments, be used as guide for minimizing the generation of radio noise caused by overhead power lines.

CISPR/TR 18-1 describes the main properties of the physical phenomena involved in the production of disturbing electromagnetic fields by overhead lines and provides numerical values of such fields.

In CISPR/TR 18-2 methods of measurement and procedures for determining limits of such radio interference are recommended.

This CISPR/TR 18-3 forms a "Code of Practice" to reduce to a minimum the production of radio noise by power lines and equipment.

It provides information which is advisable to follow both when designing various fittings and components and when stringing the conductors and installing the hardware of the line.

It also describes methods of detecting and locating defects resulting in unusually high interference levels, and provides prevention and correction procedures that are generally simple to implement.

Lastly, this Part 3 provides formulae for predicting the most probable radio noise field of a line for various weather conditions, insofar as radio noise is caused by conductor corona.