

ICS 33.100.01

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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/Z 37627.1-2019

**Radio interference characteristics of overhead power lines and
high-voltage equipment -- Part 1: Description of phenomena**

Issued on: June 4, 2019

Implemented on: January 1, 2020

**Issued by: State Administration for Market Regulation, China National
Standardization Administration**

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Foreword

GB /Z 37627 "Radio interference characteristics of overhead power lines and high-voltage equipment" currently includes the following parts.

- Part 1. Phenomenon description;
- Part 3. Code of practice to reduce radio noise to a minimum.

This part is Part 1 of GB /Z 37627.

This section was drafted in accordance with the rules given in GB/T 1.1-2009.

This part uses the redrafting method to modify the radio interference of CISPR/T R18-1..2010 "Overhead Power Lines and High Voltage Equipment

Features Part 1. Phenomenon description.

The technical differences between this part and CISPR/T R18-1..2010 and the reasons are as follows.

--- With regard to normative quotation documents, this part has been adjusted with technical differences to adapt to my country's technical conditions and adjustments

The situation is reflected in Chapter 2 "Regulatory Reference Documents", with specific adjustments as follows.

* Replaced IEC 60050-161 with GB/T 4365 equivalent to international standards;

* Replaced CISPR16-1-1 with GB/T 6113.101 which is equivalent to adopting international standards.

--- Increased calculation and actual measurement data of radio interference in my country's 1000kV transmission lines.

--- Updated the description of the number of operating and voltage levels of HVDC

transmission lines in 8.1.

The following editorial changes have been made in this section.

- Removed the introduction of CISPR/T R18-1..2010 (Ed.2.0);
- In accordance with the requirements of GB/T 1.1-2009, revised and standardized the preparation of the scope of Chapter 1;
- The captions in Figures 3 to 6 change the "various" in the original English text to the corresponding countries and line voltage levels in each figure;
- Modified the layout diagrams corresponding to B.8 and B.9 in the Appendix C table, each adding a dot, the original English text is wrong.

This part is proposed and managed by the National Radio Interference Standardization Technical Committee (SAC/TC79).

This section was drafted by: China Electric Power Research Institute Co., Ltd., Shanghai Electric Apparatus Research Institute, Xi'an High Voltage Apparatus Research Institute Co., Ltd.

Responsible company, State Grid Co., Ltd.

1 Scope

This part of GB /Z 37627 describes the generation mechanism, measurement and effects of radio interference, and gives the design and determination of this interference

Limit methods and examples, and prediction of interference caused by high-voltage overhead power lines and auxiliary equipment relative to radio broadcast service reception

The level of language allowed.

This section applies to radio noise from overhead power lines and high-voltage equipment that may interfere with radio reception.

The frequency range involved in this section is 0.15MHz ~ 300MHz.

This section does not consider radio frequency interference caused by pantographs in overhead railway traction systems.

2 Normative references

The following documents are essential for the application of this document. For dated references, only the dated version applies to this article

Pieces. For the cited documents without date, the latest version (including all amendments) applies to this document.

GB/T 4365 Electrotechnical term Electromagnetic Compatibility [GB/T 4365-2003, IEC 60050 (161)..1990, IDT]

GB/T 6113.101 Radio disturbance and immunity measurement equipment and measurement method specification Part 1-1.Radio disturbance and immunity

Measurement equipment (GB/T 6113.101-2016, CISPR16-1-1..2010, IDT)

CISPR/T R18-2..2010 Radio interference characteristics of overhead power lines and high-voltage equipment. Part 2.Measurement methods and limits

Determination procedures

(Radiointerferencecharacteristicsofoverheadpowerlinesandhigh-voltageequipment-

Part 2.Methodsofmeasurementandprocedurefordetermininglimits)

ISO /IEC Guide99 International Metrology Vocabulary Foundation and Common Concepts and Related Terms (VIM) [Internationalvocabu-

laryofmetrology-Basicandgeneralconceptsandassociatedterms (VIM)]

Note. Informational reference documents are listed in the references.

3 Terms and definitions

The terms and definitions defined in GB/T 4365 and ISO /IEC Guide99 apply to this document.

4.1 Overview

High-voltage overhead power lines (voltages above 1 kV) may generate broadband radio noise due to the following phenomena.

- a) Corona discharge in the air on the surface of wires, insulator components and fittings;
- b) Discharge and spark discharge in the high field strength region of the insulator;
- c) Spark discharge from loose or loose contact of fittings.

The noise sources of a) and b) are usually distributed along the line, while the noise sources of c) are usually local. For operating voltage about 100kV