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

GB/T 18802.21-2016

Replacing GB/T 18802.21-2004

**Low-voltage surge protective devices -- Part 21: Surge protective
devices connected to telecommunications and signaling networks --
Performance requirements and testing methods**

低压电涌保护器 第21部分电信和信号网络的电涌保护器(SPD)性能要求和试验方
法

(English Translation)

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Foreword

GB/T 18802 "Low-voltage surge protector (SPD)" is divided into the following sections.

--- GB 18802.1 Low-voltage surge protector (SPD) - Part 1. Surge protectors for low-voltage distribution systems Performance requirements and experiment method Low voltage surge protector (SPD) - Part 12. Surge protection for low voltage distribution systems - Selection and Use guidelines GB/T 18802.21 Low-voltage surge protectors - Part 21. Surge protectors (SPD) performance for telecommunication and signal networks Requirements and test methods GB/T 18802.22 Low-voltage surge protector - Part 22. Surge protection (SPD) selection for telecommunications and signaling networks and the use of guidelines GB/T 18802.31 Low-voltage surge protector. Surge protector for special applications (including DC) - Part 31.

System Surge Protector (SPD) performance requirements and test methods GB/T 18802.311 Low-voltage surge protector components - Part 311. Gas discharge tube (GDT)

specification Low Voltage Surge Protective Devices - Part 321. Avalanche Breakdown Diode (ABD) specification GB/T 18802.321 GB/T 18802.331 Low-voltage surge protector components - Part 331. Specification for metal oxide varistor (MOV) GB/T 18802.341 Low-voltage surge protector components - Part 341. Surge suppression thyristors (TSS) specification this part is part 21 of GB/T 18802.

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

This part of the replacement GB/T 18802.21-2004 "Low-voltage surge protector Part 21. Telecommunications and signal network surge protector (SPD) performance requirements and test methods ".

This part replaces GB 18802.12-2004.

This part compared with GB 18802.12-2004, the main technical changes are as follows.

- "IEC 61643-22" is modified to "GB/T 18802.22" when the "protection device" is modified as "protective element"

- unified "full" in the "surge" modified to "surge", the "limit pressure" to "voltage limit", the "current limit" to "current limit system";

- The requirements for SPD in Table 1 are refined to four test series and their corresponding subclauses, and the "yes/no" requirement is modified to "Use/not applicable/optional" and note the precautions of part of the test by note;

- Chapter 2 "Normative references" are modified as follows, where some of the changes in the reference to national standards are due to their corresponding IEC Standard non-equivalent use.

- Change GB/T 5169.11-1997, GB/T 14733.2-1993 and GB/T 14733.7-1993 to GB/T 5169.11-2006, GB/T 14733.2-2008, GB/T 14733.7-2008;

- Deleted GB/T 2423.4-1993, GB 4208-1993, GB 4943-2011, GB/T 16896.1-1997, GB/T 16927.1-1997, GB/T 17626.5-1999, GB/T 17627.1-1998, GB 18802.1-2002;

- Added by GB/T 18802.22-2008, IEC 60060-1. 1989, IEC 60068-2-30. 1980, IEC 60529, IEC 60950-1.:1999, IEC 60999-1, IEC 61000-4-5, IEC 61083-1, IEC 61180-1.:1992, IEC 61643-1, IEC 61643-11.:2011, ITU-TK.44..2011, ITU-TK.55, ITU-TK.82, ITU-T 0.9..1999;

- The terms and definitions listed in Chapter 3 are amended as follows.

- "maximum interrupt voltage" "surge protector" "limit voltage" "current limit" "can not be self-healing current limit" "self-recovery current limit" "Self-healing current limit" "limit pressure type SPD" "voltage switch type SPD" "impact tolerance" definition;

- Increased "total discharge current" "Surge (telecommunications)" "Nominal discharge current" "Rated surge current" "Impulse discharge current" definition;

--- Chapter 4 Modifies the "Temperature and Humidity" range in "4.1 Conditions of Use", adding "4.1.2 Special Conditions of Use", modify "4.2 test temperature and test humidity", modify the "4.3SPD test" part of the content;

- Chapter 5 adds the contents of "5.1.1 Identification and Documentation", improves the requirements of "5.1.2 Mark", and changes the "5.2.1.1" Large operating voltage "requirements, the" 5.3.4 to prevent electric shock "modified to" anti-direct contact ", the" 5.3.5 fire "modified to" resistance Burning ", " 5.4.1 high temperature and high humidity capacity "modified to" high temperature and high humidity tolerance ";

--- Chapter 6 is amended as follows.

- In the "6.1 mark" test, n-hexane with a concentration of not less than 85% is added as a reagent;

- In the "6.2.1 pressure limit test", the test voltage tolerance, ripple, frequency of the index requirements, the provisions of the common mode test Mandatory and differential mode test options. Modified "6.2.1.2 Insulation resistance" "6.2.1.3 Shock limit voltage" "6.2.1.4 Impact reset time "" 6.2.1.5 AC tolerance test "" 6.2.1.7 Overload fault mode "test content. "6.2.1.6.1 Additional test of multi-terminal SPD". Modify the contents of Table 3;

- In "6.2.2 current limiting test", the measurement requirements under DC and AC/DC are increased;

- In the "6.2.3 Transmission Characteristics Test", the contents of the "longitudinal balance test" and "bit error rate (BER)" are modified.

- In the "6.3 Mechanical Characteristics Test", modify "6.3.4 to prevent electric shock" and "6.3.5 fire test" respectively.

Contact "and" 6.3.5 flame retardant test ";

- In the "6.4 Environmental Test", "6.4.1 Test of high temperature and high humidity" is changed to "High temperature and high humidity resistance test" and the tolerance range of the test temperature and humidity is specified;

--- "6.5 acceptance test" modified to Chapter 7;

--- Figure 16 "Example of multi-terminal SPD with common current path" - The contents of Appendix B were deleted and appendices B (vacancies), appendix C (vacancies), appendix D, appendix E, appendix F and appendix G. were added.

This part is equivalent to IEC 61643-21.:2012 "Low-voltage surge protector Part 21. Surge protection for telecommunications and signaling networks (SPD) performance requirements and test methods ".

In this part of the normative reference to the international documents have a consistent correspondence between the following documents.

GB/T 17627.1-1998 High pressure test technology for low voltage electrical appliances - Part 1. Definitions, tests and procedures requirements (IEC 61180-1-1992, MOD).

This part is made by China Electrical Equipment Industry Association.

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This part of the previous version of the standard to replace the release of the situation.

--- GB/T 18802.21-2004.

Introduction

This section is intended to identify surge protectors for the protection of telecommunications and signaling systems such as low-voltage data circuits, audio circuits and alarm circuits (SPD) requirements. The telecommunications and signaling systems may be affected by lightning and power line failures, either directly or through induction, causing the system Withstand overvoltages or overcurrents that are sufficient to cause damage or both. Surge protector (SPD) is to prevent the system from being protected by lightning Electricity and power lines fault generated by the over-voltage and over-current role of a protective device. This section describes the pilot items and requirements these tests and requirements establish a method for testing SPDs and determining their performance.

The SPD in this section includes only the components of the overvoltage protection function and the overvoltage overcurrent protection element. Only overcurrent the SPD of the protective element is not the content of this standard, but Appendix A contains the SPD containing only the current limiting protection element.