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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 21421.1-2021

Composite string insulator units for overhead lines with a nominal voltage greater than 1 000 V - Part 1: Standard strength classes and end fittings

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foreword

This document is in accordance with the provisions of GB/T 1:1-2020 "Guidelines for Standardization Work Part 1: Structure and Drafting Rules of Standardization Documents"

drafted:

This document is part 1 of GB/T 21421 "Composite insulator string elements for overhead lines with a nominal voltage higher than 1000V":

GB/T 21421 has published the following parts:

--- Part 1: Standard strength classes and end fittings;

--- Part 2: Dimensions and characteristics:

This document replaces GB/T 21421:1-2008 "Composite insulator string elements for overhead lines with nominal voltage higher than 1000V No: 1"

Part: Standard strength grades and end accessories", compared with GB/T 21421:1-2008, except for structural adjustments and editorial changes, the main technical

The changes are as follows:

---According to our country's use experience, in the "Scope" chapter, "This document is also applicable to DC racks with nominal voltage higher than 1500V":

Composite insulator string elements for empty lines" (see Chapter 1);

--- Added "Chapter 3 Terms and Definitions" (see Chapter 3);

---According to the actual use of products in my country, the mechanical strength grades of 400kN and 530kN were standardized and changed to

420kN and 550kN (see Chapter 5, Table 1, Chapter 4, Table 1 and Appendix A of the:2008 edition);

---Because rod-shaped suspension composite insulators with strength grades of 840kN and 1000kN have been used in my country, this document will

Two mechanical strength grades are included, and the corresponding connection marks are added (see Chapter 5, Chapter 8);

---According to the actual use of products in my country, the content of Table 1 has been modified, and the "Appendix A Connection Mark" and "Appendix A" in the table have been deleted:

In the column of "Connection Mark" and "Y-shaped Appendix C Connection Mark" in Record B, the corresponding content of the earring connection mark has been modified (see Table 1);

--- Deleted all the appendices of the:2008 edition, because these appendices provide the connection dimensions commonly used in North America, which are not suitable for our country's

The actual situation of the product (see Appendix A, Appendix B, Appendix C and Appendix D of the:2008 edition);

--- Added Appendix C (normative), which provides the series dimensions of earring connections commonly used in my country according to the actual situation of our products

necessary information (see Appendix C):

This document uses the redrafted method to modify and adopt IEC 61466-1:2016 "Composite insulation for overhead lines with nominal voltage higher than 1000V"

Edge substring elements - Part 1: Standard strength classes and end fittings:

This document is structurally adjusted compared to IEC 61466-1:2016: Appendix A lists this document and IEC 61466-1:2016

The chapter number comparison list:

There are technical differences between this document and IEC 61466-1:2016, and the clauses involved in these differences have been specified in the outer margins

The vertical single line (|) of the position is marked, and a list of the corresponding technical differences and their reasons is given in Appendix B:

Please note that some content of this document may be patented: The issuing agency of this document assumes no responsibility for identifying patents:

Introduction

Composite insulators for overhead lines with nominal voltage higher than 1000V cover insulator elements, insulator strings and insulator string groups:

The composite insulator string element for AC system can be used alone as an insulator string, or multiple elements can be combined into an insulator string, insulation

Substring group usage:

GB/T 19519 "Overhead line insulator nominal voltage higher than 1000V AC system with suspension and tensile composite insulator stator

Definition, Test Methods and Acceptance Criteria" specifies the definition, test methods and acceptance criteria of composite insulators for AC overhead lines:

GB/T 34937 "Overhead line insulator nominal voltage higher than 1500V DC system with suspension and tensile composite insulator stator

Definition, test methods and acceptance criteria" specifies the definition, test methods and acceptance criteria of composite insulators for DC overhead lines:

GB/T 21421 "Composite insulator string elements for overhead lines with nominal voltage higher than 1000V" stipulates that composite insulators for overhead lines are

Characteristics of insulators, such product characteristics generally include two categories: one is the strength level and connection form and size considering interchangeability; the other is

It is the standardized size, mechanical strength, electrical properties and other characteristics: Therefore, GB/T 21421 "Overhead lines with nominal voltage higher than 1000V"

The composite insulator string element is composed of two parts:

--- Part 1: Standard strength classes and end fittings:

--- Part 2: Dimensions and characteristics:

For overhead lines with nominal voltage higher than 1000V

Composite Insulator String Components Part 1:

Standard Strength Classes and End Fittings

1 Scope

This document specifies the specified values for the mechanical properties of composite insulator string elements and the main dimensions used in the connection of composite insulator string elements:

inch, so that insulators and end fittings from different manufacturers can be assembled and interchanged:

This document also specifies the standard connection notation for composite insulator

string elements:

Note 1: See the relevant product standards for general provisions and methods of testing:

Note 2: This document only refers to the necessary dimensions of the connection assembly, and does not specify the material properties and working loads: Table 1 gives the dimensions of the end fittings and strength classes:

inch match:

This document applies to composite insulator string elements for AC overhead lines with a nominal voltage higher than 1000V and a frequency not exceeding 100Hz:

And composite insulator string components for DC overhead lines with nominal voltage higher than 1500V:

This document also applies to insulators of similar design used in substations or electric traction lines:

2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text: Among them, dated citations

documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to

this document:

GB/T 2900:8-2009 Electrical terminology insulators (IEC 60050-471:2007, IDT)

GB/T 4056-2019 Ball and socket connection dimensions of insulator string elements (IEC 60120:1984, MOD)

GB/T 19519-2014 Overhead line insulators with nominal voltage higher than 1000V AC system with overhang and tensile composite insulation

Sub-definitions, test methods and acceptance criteria (IEC 61109:2008, MOD)

GB/T 22079-2019 General definitions, test methods and acceptance criteria for high-voltage polymer insulators for indoor and outdoor use

(IEC 62217:2012, MOD)

GB/T 25317-2010 Groove connection dimensions of insulator string elements (IEC 60471:1977, IDT)

3 Terms and Definitions

Terms and definitions defined in GB/T 2900:8-2009, GB/T 22079-2019 and GB/T