

ICS 29.080.10

CCS K 48



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

GB/T 22708-2008

**Thermal-mechanical performance test and mechanical
performance test on string insulator units**

绝缘子串元件的热机和机械性能试验

(English Translation)

Issued on: December 30, 2008

Implemented on: October 1, 2009

Issued by: Standardization Administration of China

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A. 1 Background

Foreword

This revised standard adopts IEC/T R60575. 1977 "heat engine and mechanical properties of the test string insulator" (first edition).

This standard is based on IEC/T R60575. 1977 redrafted. For ease of comparison, the data are listed in Appendix B of the Standard Terms and Conditions and IEC/T R60575. 1977 clauses control list.

Taking into account China's national conditions, in using IEC/T R60575. 1977, the standard of this made some changes. These technical differences vertical in terms of single-line identification page margin which they relate. We give a list of those technical differences and their causes in Appendix C for reference.

For ease of use, this standard also made the following editorial changes.

- a) "The report" be replaced by "this standard";
- b) Remove IEC/T R60575. 1977 Foreword and purpose, the purpose of the note incorporated in scope;
- c) increase the "Normative references" and "Terms and definitions" chapters.

The Standard Appendix A, Appendix B, Appendix C are informative appendices.

The standard proposed by China Electrical Equipment Industrial Association.

This standard by the National Standardization Technical Committee Insulators (SAC/TC80) centralized.

This standard was drafted. National Insulator arrester Quality Supervision and Inspection Center, the Xi'an Institute of Electric Porcelain, Shaanxi Provincial Power Company, Liaoning Province electricity company.

1 Scope

This standard specifies the porcelain or glass insulator strings having insulating member nominal voltage greater than 1000V AC and DC overhead lines of Heat engine and mechanical performance test method components.

This standard also applies to the substation insulator having a similar structure.

Note 1: This standard applies to the disc-shaped suspension insulator string element and a long rod insulators string element.

Note 2: The heat engine performance test is recommended as a primary test. The mechanical properties of the test as a secondary additional tests and checks only for testing, the need for and the number of samples negotiated by both parties.

2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB/T 1001.1-2003 nominal voltage above 1000V Insulators for overhead lines - Part 1. Ceramic or glass AC system Glass insulator element definitions, test methods and acceptance criteria (IEC 60383-1:1993, MOD) GB/T 2900.8 Electrotechnical terminology insulator (GB/T 2900.8-1995, eqv IEC 60050-471. 1984)

3 Terms and Definitions

Terms and definitions GB/T 2900.8 established apply to this standard.

4.1 Test installation

The sample shall be drawn in by the by-products after passing the test.

During the test, the test shall be subjected to tensile load, the sample can be in series or parallel to the testing machine, when connected in parallel, each sample shall bear phase and other tensile load.

4.2.1 Cycle test

24h insulator element shall withstand four cooling and heating cycles, and while applying a tensile load, the magnitude of the load is maintained at specified Electromechanical or mechanical failing load between (60-65)%. Each 24h cycle should first be cooled to $-30\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$ (or $-40\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$), which was then heated to $+40\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$. Temperature deviation should be controlled cooling and heating cycle to ensure that the records and cooling the minimum temperature difference between the heating temperature of 70K (or 80K). During temperature cycling at least the maximum and minimum temperatures should be continuously maintained 4h.

Before the start of thermal cycling, a tensile load shall be applied at room temperature in the first insulator. At each end of the heating period, completely removable the tensile load, and then re-imposed, except the last one thermal cycle. 24h after the fourth cycle, it was cooled to room temperature, removed Tensile load. Figure 1 represents the test program that uses graphics.

Note: if using low temperature $-40\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$ agreement by both parties, when using low temperature $-40\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$, the minimum temperature difference of 80K.

4.2.2 Destruction test

After the cycle test, should be removed from the insulator element tensile load on the same day, on the insulator element electromechanical or mechanical damage Load test to determine the performance of the insulator element. Electromechanical or mechanical failing load test shall GB/T 1001.1-2003 prescribed manner Method.