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

GB/T 15544.5-2017

**Short-circuit current calculation in three-phase a.c. systems --
Part 5: Examples**

三相交流系统短路电流计算 第5部分：算例

(English Translation)

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Foreword

GB/T 15544 "three-phase AC system short-circuit current calculation" is divided into five parts.

- Part 1. Current calculation;
- Part 2. Short-circuit current calculation of the application of the coefficient;
- Part 3. Electrical equipment data;
- Part 4. Simultaneous two separate single-phase ground fault current and the current flow

through the earth;

--- Part 5. Example.

This section GB/T 15544 Part 5.

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

This section uses the translation method is equivalent to using IEC/T R60909-4..2000 "Three-phase AC system short-circuit current Part 4. Short-circuit current Calculation case".

This section made the following editorial changes.

--- In line with the existing standard series, the name of this section read "three-phase AC system short-circuit current calculation Part 5. Example." Our national document, which has a consistent correspondence with the normative references in this section, is as follows.

--- GB/T 156-2007 standard voltage (IEC 60038.:2002, MOD)

--- GB/T 15544.2-2017 Three-phase AC system short-circuit current calculation Part 2. Short-circuit current calculation and application of the coefficient (IEC TR60909-1.:2002, IDT)

--- GB/T 15544.3-2017 Three-phase AC system short-circuit current calculation Part 3. Electrical Equipment Data (IEC TR60909-2.:2008, IDT)

--- GB/T 15544.4-2017 three-phase AC system short-circuit current calculation - Part 4. Simultaneous two independent single-phase ground Short-circuit current at short circuit fault and current through the earth (IEC 60909-3.:2009, IDT)

--- GB/T 35698.1-2017 short-circuit current effects calculation - Part 1. Definition and calculation method (IEC 60865-1.:2011, IDT) this part is proposed by China Electricity Council.

This part of the national standardization of short-circuit current calculation Technical Committee (SAC/TC424) centralized.

This section drafted by. China Electric Power Research Institute, State Grid Corporation of China State Power Dispatching Control Center, Xi'an Jiaotong University.

1.1 Scope and purpose

This section GB/T 15544 is given in accordance with GB/T 15544.1 50Hz or 60Hz three-phase AC system short-circuit current meter Counting examples.

This part includes the modeling of electrical equipment in positive sequence, negative sequence and zero sequence systems (Chapter 2), and low voltage systems (Chapter 3) with Induction motor medium voltage systems (Chapter 4) and power plant systems

(auxiliary systems connected to a large number of MV and LV induction motors) (Chapter 5) Examples.

The three examples given in Chapter 3, Chapter 4 and Chapter 5 are similar to the ones given in IEC 60909 (1988), but according to GB/T 15544.1-2013 was modified. The third chapter added 3.6, the equivalent voltage source method and the superposition of the calculation results Compared.

Chapter 6 provides the wiring diagram and calculation of the test system, as well as short-circuit current calculations based on GB/T 15544.1.

The example includes four different voltage levels of 380kV, 110kV, 30kV and 10kV, including power plant equipment, generator, asynchronous motor the calculation results include I''_k , i_p , I_b , I_k , I''_{k1} and i_{p1} . This example can be used to test short circuit current computer programs.

1.2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version applies to this article Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 15544.1-2013 Three-phase AC system short-circuit current calculation - Part 1. Current calculation (IEC 60909-0.:2001, IDT) IEC 60038. 1983 IEC standard voltage (IEC Standardvoltages) IEC 60909-1.:1991 Short-circuit currents in three-phase AC systems - Part 1. Calculation of three-phase AC systems according to IEC 60909 Short-circuit current calculusinthree-phasea.c.systems-Part 1. Factorsfor thecalculationofshort-circuitcurrentsinthree-phasea.c.systemsaccordingtoIEC 60909) IEC 60909-2.:1992 Electric equipment required to perform short-circuit current calculations in accordance with IEC 60909

(Electrical equip-ment-Dataforshort-circuitcurrentcalculationsinaccordancewithIEC 60909)

IEC 60909-3.:1995 Three-phase AC system short-circuit current calculation - Part 3. Simultaneous two independent single-phase ground fault of the current and the current through the earth (Short-circuitcurrentscalculationinthree-phasea.c.system-Part 3.

Currentsduringtwoseparatesimultaneoussinglephaseline-to-earthshortcircuitsandpartialshort-circuitcurrentsflowingthroughearth) IEC 60865-1.:1993 Short-circuit current effects calculation - Part 1. Definition and calculation method (Short-circuitcurrents-Calculation of effects - Part 1. Definitions andcalculation methods)

1.3 Definitions, symbols, coefficients and formulas

Definitions, symbols, coefficients and formulas are the same as in GB/T 15544.1.