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

GB/T 35698.1-2017

**Calculation of effects of short-circuit currents -- Part 1:
Definitions and calculation methods**

短路电流效应计算 第1部分：定义和计算方法

(English Translation)

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Table of Contents

Foreword	
Introduction	
1 Scope	
2 Normative references	
3 Terms, definitions, symbols and units	
3.1 Terms and definitions	
3.2 Symbols and units	
4 Overview	
5 Hard conductor arrangement	
5.1 Overview	
5.2 Electromagnetic force calculation	
5.2.1 Calculation of peak force between main conductors during three-phase short circuit	
5.2.2 Two-phase short circuit, the calculation of the peak force between the main conductor	
5.2.3 Calculation of peak force between sub-conductors in the same plane	
5.3 The main conductor and the effective distance between the sub-conductor	
5.4 Hard conductor stress calculation	
5.4.1 Stress Calculation	
5.4.2 Sub-conductor composed of the main conductor factor q and cross-section modulus	
5.4.3 Conductor allowable stress	
5.5 Hard-conductor-induced structural loads	
5.6 Auto-reclosure considerations	
5.7 Special Considerations for Conductor Oscillation Calculation	
5.7.1 Overview	
5.7.2 Calculation of the corresponding natural frequency	
5.7.3 The coefficients V_F , $V_{\sigma m}$, $V_{\sigma s}$, V_{rm} and V_{rs}	
6 Soft wire layout	
6.1 Overview	
6.2 The impact on the level of the main line	
6.2.1 Overview	
6.2.2 Features Dimensions and Parameters	

- 6.2.3 There is no lead across the middle, short circuit due to the tension caused by the swing F_t , d (short-circuit tension)
- 6.2.4 Wire sag caused by the sag dynamic changes and lead deformation
- 6.2.5 There are leads in the span, tension generated when the conductor is short-circuited F_t , d (short-circuit tension)
- 6.2.6 Short-circuit conductor tension caused by the fall (falling force)
- 6.2.7 Span horizontal displacement b_h and minimum air clearance a_{min}
- Effect on vertical main conductor (lead)
- 6.4 Effect on the wiring harness
 - 6.4.1 Characteristic dimensions and parameters
 - 6.4.2 Sub-wire contact tension F_{pi} , d
 - 6.4.3 Sub-wire tension when not in contact F_{pi} , d
- 6.5 The structure of the soft wire load
 - 6.5.1 Design loads of column insulators, supports and connectors
 - 6.5.2 Design loads of structures, insulators and connectors with conducting tension of insulator strings
 - 6.5.3 Basic Design Load
- 7 Thermal effects of bare conductors
 - 7.1 Overview
 - 7.2 Short-circuit current RMS calculation
 - 7.3 Conductor temperature rise and rated short-time withstand current density calculation
 - 7.4 Calculation of the thermal short-circuit strength at different short-circuit current times
- Appendix A (normative) graphics formula

Foreword

GB/T 35698 "short circuit current effect calculation" is divided into two parts.

--- Part 1. Definition and calculation method;

--- Part 2. Example.

This section GB/T 35698 Part 1.

This section uses the translation method identical with IEC 60865-1:2011 "short circuit current effect calculation Part 1. Definition and calculation method".

Our documents corresponding to the international documents that are normative references in this part are as follows.

--- GB/T 15544.1-2013 Three phase alternating current system short circuit current calculation - Part 1. Current calculation (IEC 60909-0.

2001, IDT).

This section made the following editorial changes.

--- Modify the standard name.

Please note that some of this document may be patentable. The issuing agencies of this document do not bear the responsibility of identifying these patents.

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 part of the drafting unit.China Power Construction Group Beijing Survey Design and Research Institute Co., Ltd., China Electric Power Research Institute

Introduction

In order to facilitate the use of IEC 60865 standards and future additions, amendments to the standard convenience, the National Standardization Technical Committee short circuit current calculation (SAC/TC424) research decisions, the preparation of GB/T 35698 series of standards prepared GB/T 35698.1 equivalent to IEC 60865-1;

GB/T 35698.2 Equivalent to IEC 60865-2.

Short-circuit current effect calculation Part 1. Definitions and calculation methods

1 Scope

This section GB/T 35698 applies to the mechanical effects of short-circuit current and thermal effects calculations. This section contains the following calculation process.

--- Effect on the electromagnetic effect of hard and soft conductors;

--- Effect on the bare conductor thermal effects.

The calculation of cables and insulated conductors can be found in IEC 60949 and IEC 60986. Acting on the power plant and substation DC auxiliary equipment Electromagnetic and thermal effects calculations can be found in IEC 61660-2.

This section applies only to the exchange system.

The following points need special attention.

a) Calculation of short-circuit current should be based on IEC 60909. To determine the maximum possible short-circuit current, refer to from other IEC Standard supplemental

information, such as details of hidden computing circuits or details of current limiting devices that may cause a reduction in mechanical stress.

b) The short circuit duration in this section is related to the concept of protection and should be considered in this sense.

c) The standardization procedure is adjusted according to the actual needs and includes the simplification of the safety margin reserved. Test methods may be used or more detailed Calculation method or a combination of the two methods.

d) Chapter 5 of this part of the hard-conductor layout, only the calculation of the stress caused by the short-circuit current. Stress due to other reasons is also acceptable can exist, such as static load, wind, ice, operating force or earthquake. The above load and short circuit current load caused by the combination of the problem should be by agreement and/or by other standards (such as installation standards).

In the arrangement of the soft conductor, the tension includes the static load effect. The above treatment method is also applicable to other load combinations.

e) The calculated load, ie design load, is to be used without any additional sub-unit safety according to equipment regulations (eg IEC 61936-1 [1] 1) Full coefficient of special load.

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.

IEC 60909 (all parts) Three-phase AC system short-circuit current calculation
(Short-circuitcurrentcalculationinthree-phasea.c.systems) IEC 60909-0 three-phase AC
system short-circuit current calculation Part 0. Current calculation
(Short-circuitcurrentcalculation inthree-phasea.c.systems-Partzero.CalculationofCurrents)

IEC 60949 Calculation of heat-tolerant short-circuit current under consideration of
uninsulated heating effect (Calculation of thermomagnetic-missibleshort-circuitcurrents,
takingintoaccountnon-adiabaticheatingeffects) IEC 60986 Short-circuit temperature limits
for cables rated 6 kV ($U_m = 7.2$ kV) to 30 kV ($U_m = 36$ kV)

[Short-circuittemperaturelimitsofelectriccableswithratedvoltagesfrom6kV ($U_m = 7.2$ kV)
upto30kV ($U_m = 36$ kV)] IEC 61660-2 Short-circuit current in DC auxiliary facilities of power
plants and substations - Part 2 -

Short-circuitcur-rentsind.c.auxiliaryinstalationsinpowerplantsandsubstations-Part 2:
Calculationofeffects)