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**Earth-moving machinery -- Machine-control systems (MCS)
using electronic components -- Performance criteria and tests
for functional safety**

土方机械 应用电子器件的机器控制系统(MCS) 功能性安全的性能准则和试验
(English Translation)

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard uses the translation method identical with ISO 15998:2008 "earth machine mechanical control system for electronic applications (MCS) Functional safety performance guidelines and tests. " the documents of our country that are consistent with the corresponding international documents that are normative references in this standard are as follows.

--- GB/T 4208-2008 enclosure protection (IP code) (IEC 60529:2001, IDT);

Earth - moving machinery - Electromagnetic compatibility (ISO 13766:2006, IDT).

This standard is proposed by the China Machinery Industry Federation.

This standard by the National Earth Machinery Standardization Technical Committee (SAC/TC334) centralized.

This standard was drafted. Xugong Group Construction Machinery Co., Ltd. Xuzhou Institute of Engineering Machinery, Xuzhou City, product quality supervision and inspection Center, Tianjin Construction Machinery Research Institute.

Introduction

In most applications, safety systems have been operating for many years using systems of electronic components. Currently, to calculate Machine-based systems and programmable electronic systems (PES) have been used in all areas for non-safety performance operations and more and more the more safety features operate. If computer system technology is effectively and safely developed for those decision-makers in making decisions it is crucial that there is sufficient guidance on the security aspects.

This standard is for electrical or electronic or programmable electronic components (E/E/PES) system in the operation of earth-moving machinery safety performance Made in.

In most cases, safety is accomplished by a large number of protective systems that rely on many technologies (eg mechanical, hydraulic, pneumatic, electric Electronic, programmable electronic). Therefore, any security strategy should consider more than just everything in a single system, such as sensors, Control equipment and drives, but also all safety-related systems. Therefore, when the standard and safety-related E/E /PES, it can also provide guidance on security systems that rely on other technologies.

This standard.

--- Has a rapidly evolving technology, and sufficient comprehensive regulations to meet the requirements of the technology required;

--- Provide a method for the development of the required safety performance specifications to define the required safety performance for E/E/PES;

- To demonstrate a methodology that clearly sets out the overall level of safety and uses a risk-based approach to implementing E/E /PES safety performance.

Machine control of earthwork machinery application electronic device System (MCS)
Functional safety performance Guidelines and experiments

1 Scope

This standard specifies the GB/T 8498 defined earth-moving machinery and equipment used in electronic components and safety-related mechanical control System performance criteria (MCS) performance and testing. Manufacturers can be verified and tested in accordance with the provisions of Chapter 7 can also be used ECER79 Appendix 6, ISO 13849-1 or IEC 62061 procedures prescribed instead.

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 8498-2008 earthmoving machinery basic type identification, terms and definitions (ISO 6165:2006, IDT) GB/T 20438.4-2006 Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 4. Definitions and abbreviations Language (IEC 61508-4:1998, IDT) ISO 13766 earth-moving machinery electromagnetic compatibility (Earth-moving machinery-Electromagnetic compatibility) IEC 60529 Enclosure Rating (IP Code) [Degrees of protection provided by enclosures (IP Code)]

3.1 Terms and definitions

GB/T 20438.4 defined and the following terms and definitions apply to this document.

3.1.1

Earth-moving machinery Self-propelled or trailing machinery using tires, crawlers or walking gear, with working equipment or attachments (work appliances), or both Used for excavation, loading, transportation, drilling, paving, compaction or trenching of soil, rocks or other materials.

[GB/T 8498-2008, Definition 3.1] 3.1.2 Mechanical control system machine-control system MCS the system contains components that need to fulfill the system's functions, including sensors, signal processing units, monitors, controls, and drives, or where Several parts.

Note: The scope of this system is not limited to electronic controls but rather is defined by the complete system equipment-related functions. Therefore, it generally includes electronic, non-electronic and Connect the device. This may include mechanical, hydraulic, fiber optic, or inflatable components/systems.

3.1.3

System unit

A portion of a machine control system that contains any given number of elements and/or components integrated in one or more units.

Example. Power shift transmission control unit.

NOTE In general, components and/or components are housed in the same enclosure, but the system unit may also be a mechanical complex of several functional elements.