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Application guide - Engineering of system dependability

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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 redrafting method to modify the use of IEC 60300-3-15:2009 "Trust Management Part 3-15. Application Guide

System of Trustworthiness Engineering.

This standard has structural changes compared with IEC 60300-3-15:2009. Appendix A has been added to explain the technical differences and their causes.

The original Appendix A~Appendix D correspond to Appendix B~Appendix E of this standard.

There are technical differences between this standard and IEC 60300-3-15:2009, and the terms involved in these differences have been passed on the outer side of the page.

The vertical single line (|) of the blank position is marked, and a list of the corresponding technical differences and their causes is given in Appendix A.

This standard has made the following editorial changes.

--- Change the standard name to "Application Guide System Trustworthiness Project".

--- Added a guide to the column items in Appendix E.

Introduction

In the current application environment, the system becomes more and more complex, and system credibility has become an important attribute, which affects the system purchaser.

Industry strategy and cost-effectiveness of system maintenance and operations. In general, system credibility is system components, application environment, human-machine interface, and security.

The result of a complex combination of service deployment and other influencing factors.

This standard provides an engineering guide to the credibility goals of the entire system. For the system of interest, the engineering method description provided by this standard

How to apply relevant scientific knowledge and technical disciplines to achieve the required system credibility.

System credibility is mainly reflected in four aspects of engineering.

---process;

---achieve;

---Evaluation;

---Measurement.

The technical processes in these engineering disciplines are distributed at various stages of the system's life cycle. The technical process described in this standard consists of a series of related

Support for process activities that ensure the achievement of goals for each phase of the system's life cycle.

This standard applies to general interactive systems with interactive functions consisting of hardware, software, and human factors to achieve systemic

Can target. In most cases, a feature can be implemented by existing commercial products. A system can be connected to other systems to form a common shape

Into a network. By defining applications in an entity, you can clearly distinguish between product and system, system and network boundaries. For example, a digital timer

As a product, you can synchronize the operation of the computer. As a system, the computer can be connected to other computers in the office to form a bureau.

Domain network. The application environment is suitable for all types of systems. Examples of systems used are power generation control systems, fault tolerant computer systems, and providing dimensions.

A system for repairing security services.

The Trustworthiness Engineering Guide is for general purpose systems. It is not specific to systems with specific applications. For economic reasons and practical application needs,

Most systems are serviceable throughout their life cycle. Non-repairable systems such as communications satellites, remote sensing/monitoring equipment and disposable equipment

It is considered a special system. They need to further determine the specific application environment, operating conditions and unique performance characteristics to achieve

The goal of success. Unrepairable subsystems and components are not considered here. Through the project tailoring and credibility management procedures for the designated department

Choose an applicable process to achieve project credibility.

This standard is part of the standard architecture for system credibility to support the IEC 60300-1 standard for credibility management. reference materials

Can be used for project management activities of the system. They include system-related credibility elements and task identification and credibility management reviews and

Guidelines for tailoring of credit projects.

Application Guide System Trustworthiness Engineering

1 Scope

This standard provides an engineering guide to system credibility and describes the process of system credibility implementation throughout the life cycle of the system.

This standard applies to new system development and existing system improvements, involving the interaction of system functions consisting of hardware, software, and human factors;

Applicable to suppliers of subsystems and products for seeking system information and system integration guidelines. This standard provides results for the achievement of credibility goals.

Methods and tools for system credibility assessment and verification.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 8566 information technology software life cycle process (GB/T 8566-2007, ISO /IEC 12207.1995, MOD)

GB/T 20438 (all parts) Functional safety of electrical/electronic/programmable electronic safety related systems [IEC 61508 (all parts)

Minute)]

GB/T 20438.1 Functional safety of electrical/electronic/programmable electronic safety systems - Part 1. General requirements

(GB/T 20438.1-2017, IEC 61508-1.2010, IDT)

GB/T 20917 software engineering software measurement process (GB/T 20917-2007, ISO /IEC 15939.2002, IDT)

GB/T 22032 system engineering system life cycle process (GB/T 22032-2008, ISO /IEC 15288.2002, IDT)

IEC 60300-1 Credibility Management Part 1. Management and Application Guide (Dependabilitymanagement-Part 1. Guidance

Formanagementandapplication)

IEC 60300-3-1 Credibility Management Part 3-1. Application Guides Credibility Analysis Technical Methodology Guide (Dependability

management-Part 3-1.

Applicationguide-Analysisstechniquesfordependability-Guideonmethod-

Ology

IEC 60300-3-9 Credibility Management Part 3-9. Application Guide Risk Analysis of Technical Systems (Dependabilityman-

agement-Part 3. Applicationguide-Section9. Riskanalysisoftechnologicalsystems)

IEC 62347 System Trustworthiness Specification Guide (Guidanceonsystemdependabilityspecifications)

3 Terms and definitions

The following terms and definitions apply to this document.

3.1

System system

A collection of interrelated products that collectively meet specific requirements.

Note 1. The system is usually defined from the perspective of implementing an exact function.

Note 2. Assume that the system consists of an imaginary boundary, which is where the system intersects the environment and other external systems.

Note 3. The system may require external (ie, outside the system boundary) resources to operate.

Note 4. The system structure may be hierarchical, such as. systems, subsystems and components.