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INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Open systems dependability

Sûreté de fonctionnement des systèmes ouverts

IEC 62853:2018-06(en-fr)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FOREWORD

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The text of this International Standard is based on the following documents:

FDIS	Report on voting
56/1772/FDIS	56/1776/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under “http://webstore.iec.ch” in the data related to the specific document. At this date, the document will be

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- amended.

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INTRODUCTION

Open systems are systems whose boundaries, functions and structure change over time and which are recognized and described differently from various points of view. The dependability of open systems is a key attribute for the life cycle of a system that operates for an extended period of time in a real-world environment. Open systems dependability is the ability of open systems to accommodate changes in purpose, objectives, environment and actual performance and to continuously maintain accountability from stakeholders, in order to provide expected services as and when required. The attributes of dependability, including availability, reliability, maintainability and supportability, are the same for open systems as conventional systems but they have to be considered in the context that no single stakeholder has a full understanding of the system or its risks.

For open systems, security is especially important since the systems are much exposed to attack by malware. Since an open system changes continuously through its life, the design process, e.g. modelled by the spiral product development model, will to some extent continue during the whole lifetime of the system.

This document elaborates on IEC 60300-1 by providing additional guidance for dependability management of open systems.

This document provides guidance on open systems dependability by using the four process views, each of which selects and combines system life cycle processes, activities and tasks of ISO/IEC/IEEE 15288: 2015.

- Change Accommodation process view;
- Accountability Achievement process view;
- Failure Response process view;
- Consensus Building process view.

A dependability case that assures these process views is crucial for stakeholders to understand and agree on the boundaries of their responsibilities, to assign accountability for implementation and to duly manage changes in achieving open systems dependability.

The intended audience for this document ranges from users, owners and customers to organizations involved in and responsible for ensuring that open systems dependability requirements are being met. Organizations include all types and sizes of corporations, public and private institutions such as government agencies, business enterprises and non-profit associations.

OPEN SYSTEMS DEPENDABILITY

1 Scope

This document provides guidance in relation to a set of requirements placed upon system life cycles in order for an open system to achieve open systems dependability.

This document elaborates on IEC 60300-1 by providing details of the changes needed to accommodate the characteristics of open systems. It defines process views based on ISO/IEC/IEEE 15288:2015, which identifies the set of system life cycle processes.

This document is applicable to life cycles of products, systems, processes or services involving hardware, software and human aspects or any integrated combinations of these elements.

For open systems, security is especially important since the systems are particularly exposed to attack.

This document can be used to improve the dependability of open systems and to provide assurance that the process views specific to open systems achieve their expected outcomes. It helps an organization define the activities and tasks that need to be undertaken to achieve dependability objectives in an open system, including dependability related communication, dependability assessment and evaluation of dependability throughout system life cycles.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60050-192, *International Electrotechnical Vocabulary – Part 192: Dependability* (available at http://www.electropedia.org/)

IEC 60300-1, *Dependability management – Part 1: Guidance for management and application*

ISO/IEC/IEEE 15288:2015, *Systems and software engineering – System life cycle processes*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-192 and the following apply.

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3.1
accountability
state of being answerable for decisions and activities to the organization's governing bodies, legal authorities and, more broadly, its stakeholders