

© Copyright SEK. Reproduction in any form without permission is prohibited.

Ledning av tillförlitlighet – Del 2: Vägledning

*Dependability management -
Part 2: Guidelines for dependability management*

Som svensk standard gäller europastandarden EN 60300-2:2004. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60300-2:2004.

Nationellt förord

Europastandarden EN 60300-2:2004^{*)}

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 60300-2, Second edition, 2004 - Dependability management - Part 2: Guidelines for dependability management**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 60300-2, utgåva 1, 1996, gäller ej fr o m 2007-04-01.

^{*)} EN 60300-2:2004 ikraftsattes 2004-06-28 som SS-EN 60300-2 genom offentliggörande, d v s utan utgivning av något svenskt dokument.

Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a säkerhet, prestanda, dokumentation, utförande och skötsel av elprodukter, elanläggningar och metoder. Genom att utforma sådana standarder blir säkerhetskraven tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

SEK är Sveriges röst i standardiseringsarbetet inom elområdet

SEK Svensk Elstandard svarar för standardiseringen inom elområdet i Sverige och samordnar svensk medverkan i internationell och europeisk standardisering. SEK är en ideell organisation med frivilligt deltagande från svenska myndigheter, företag och organisationer som vill medverka till och påverka utformningen av tekniska regler inom elektrotekniken.

SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

Stora delar av arbetet sker internationellt

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringsarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

Var med och påverka!

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

SEK Svensk Elstandard

Box 1284
164 29 Kista
Tel 08-444 14 00
www.elstandard.se

EUROPEAN STANDARD

EN 60300-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2004

ICS 03.100.40; 03.120.01

Supersedes EN 60300-2:1996

English version

Dependability management
Part 2: Guidelines for dependability management
(IEC 60300-2:2004)

Gestion de la sûreté de fonctionnement
Partie 2: Lignes directrices pour la gestion
de la sûreté de fonctionnement
(CEI 60300-2:2004)

Zuverlässigkeitsmanagement
Teil 2: Leitfaden zum
Zuverlässigkeitsmanagement
(IEC 60300-2:2004)

This European Standard was approved by CENELEC on 2004-04-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 56/913/FDIS, future edition 2 of IEC 60300-2, prepared by IEC TC 56, Dependability, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60300-2 on 2004-04-01.

This European Standard supersedes EN 60300-2:1996.

Significant technical changes with regard to EN 60300-2:1996 are:

- a) structural and terminological alignment with ISO;
- b) focus on system processes;
- c) provision of additional guidelines in annexes to facilitate applications.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2005-01-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2007-04-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60300-2:2004 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60300-1	NOTE	Harmonized as EN 60300-1:2003 (not modified).
IEC 60300-3-12	NOTE	Harmonized as EN 60300-3-12:2004 (not modified).
IEC 60812	NOTE	Harmonized as HD 485 S1:1987 (not modified).
IEC 61025	NOTE	Harmonized as HD 617 S1:1992 (not modified).
IEC 61164	NOTE	Harmonized as EN 61164:2004 (not modified)
ISO 9000	NOTE	Harmonized as EN ISO 9000:2000 (not modified).

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application 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.

NOTE Where an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60300-3-1	2003	Dependability management Part 3-1: Application guide - Analysis techniques for dependability - Guide on methodology	-	-
IEC 61014	1989	Programmes for reliability growth	-	-
ISO/IEC 15026	1998	Information technology - System and software integrity levels	-	-

CONTENTS

INTRODUCTION.....	9
1 Scope.....	11
2 Normative references	11
3 Terms and definitions	11
4 Dependability management system	19
5 Management responsibility	21
5.1 Management function on dependability.....	21
5.2 Meeting customer dependability needs	23
5.3 Dependability policy and regulatory implications.....	23
5.4 Dependability programmes	25
5.5 Management representative	25
5.6 Management review	25
6 Resource management.....	25
6.1 Provision of resources	25
6.2 Resource planning, development and maintenance	27
6.3 Outsourcing.....	29
7 Product realization	29
7.1 Planning for product realization	29
7.2 Tailoring of dependability programmes	31
7.3 Application of dependability plan	31
7.4 Supply-chain management	33
8 Measurement, analysis and improvement	33
8.1 Dependability measurement	33
8.2 Dependability monitoring and assurance	35
8.3 Dependability assessment and analysis	35
8.4 Use of dependability information	35
8.5 Measurement of results	37
8.6 Dependability improvement	39
Annex A (informative) Dependability programme elements and tasks for systems, hardware and software applications	43
Annex B (informative) Product life cycle phases.....	71
Annex C (informative) Association of product life cycle phases with the applicable dependability elements and tasks	75
Annex D (informative) Process steps and standards for managing dependability.....	79
Annex E (informative) Questions for dependability management review	85
Annex F (informative) Guidelines for the tailoring process.....	89
Annex G (informative) Classification of dependability standards with the life cycle phases in which they are applicable.....	93
Bibliography.....	101
Figure 1 – Process steps for managing dependability.....	19

INTRODUCTION

Dependability deals with the availability performance of a product. The factors influencing availability performance are reliability, maintainability and maintenance support performance. Dependability is a technical discipline that needs to be managed in order to achieve its objectives and benefits. Dependability management should provide a clear customer focus. It should be incorporated into an organization's overall management system to coordinate dependability activities for cost-effective results.

This part of IEC 60300 provides guidelines on dependability management. It supports the top-level dependability management system standard IEC 60300-1 by identifying and referencing relevant processes and methods for a broad range of products. This standard links the management process steps with applicable dependability standards to foster continual improvement.

The concept of product life cycle is introduced to deal with the significance of dependability activities and timing for their effective implementation. The association of product life cycle phases with the applicable dependability programme elements and tasks are presented to facilitate tailoring of dependability programmes to meet specific project needs.

This standard outlines the generic process for dependability applications based on successfully applied industry practices. It can be incorporated into the management systems of large corporations as well as being adaptable to small businesses.

Time-dependent reliability, maintainability and maintenance support performance characteristics in products are addressed.

This standard references other published TC 56 standards and also makes reference to several ISO/IEC standards as well as some sector specific reliability standards. These references are listed in the bibliography.

Annex A provides a summary description of the elements and tasks of a dependability programme for application.

Annex B defines the product life cycle phases.

Annex C presents an association of product life cycle phases with the applicable dependability elements and tasks.

Annex D presents process steps and standards for managing dependability.

Annex E provides a list of questions to facilitate dependability management review.

Annex F provides guidelines for the tailoring process.

Annex G presents the classification of dependability standards with the life cycle phases.

DEPENDABILITY MANAGEMENT –

Part 2: Guidelines for dependability management

1 Scope

This part of IEC 60300 provides guidelines for dependability management of product design, development, evaluation and process enhancements. Life cycle models are used to describe product development or project phases. A tailoring process is recommended for the selection of relevant dependability programme tasks for time-phased implementation to meet varied user needs.

This part of IEC 60300 is applicable for detailed planning and implementation of a dependability programme to meet specific product needs. The tailoring process provides a method for selection of dependability programme elements and associated processes from a product or project perspective. This standard is applicable to all organizations, during all life-cycle phases and in any contract situation, regardless of type, size and product provided.

2 Normative references

The following referenced documents are indispensable for the application 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 60300-3-1, *Dependability management – Part 3-1: Application guide – Analysis techniques for dependability – Guide on methodology*

IEC 61014, *Programmes for reliability growth*

ISO/IEC 15026, *Information technology – System and software integrity levels*

[REDACTED]