SVENSK STANDARD SS-EN 60812

Fastställd	Utgåva	Sida	Ansvarig kommitté
2006-11-20	1	1 (1+49)	SEK TK 56

Tillförlitlighet – Feleffektanalys (FMEA)

Analysis techniques for system reliability – Procedure for failure mode and effect analysis (FMEA)

Som svensk standard gäller europastandarden EN 60812:2006. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60812:2006.

Nationellt förord

Europastandarden EN 60812:2006[*)]

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 60812, Second edition, 2006 - Analysis techniques for system reliability - Procedure for failure mode and effect analysis (FMEA)**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-IEC 812, utgåva 1, 1989, gäller ej fro m 2009-03-01.

[*)] EN 60812:2006 ikraftsattes 2006-11-20 som SS-EN 60812 genom offentliggörande, d v s utan utgivning av något svenskt dokument.

ICS 03.120.01; 03.120.30; 21.020.00

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

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60812

May 2006

ICS 03.120.01; 03.120.30; 21.020

Supersedes HD 485 S1:1987

English version

Analysis techniques for system reliability – Procedure for failure mode and effects analysis (FMEA)
(IEC 60812:2006)

Techniques d'analyse
de la fiabilité du système –
Procédure d'analyse des modes
de défaillance et de leurs effets (AMDE)
(CEI 60812:2006)

Analysetechniken für
die Funktionsfähigkeit von Systemen –
Verfahren für die Fehlzustandsart-
und -auswirkungsanalyse (FMEA)
(IEC 60812:2006)

This European Standard was approved by CENELEC on 2006-03-01. 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, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the 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

Ref. No. EN 60812:2006 E

SEK Svensk Elstandard

Foreword

The text of document 56/1072/FDIS, future edition 2 of IEC 60812, prepared by IEC TC 56, Dependability, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60812 on 2006-03-01.

This European Standard supersedes HD 485 S1:1987.

The main changes from HD 485 S1:1987 are as follows:

– introduction of the failure modes effects and criticality concepts;
– inclusion of the methods used widely in the automotive industry;
– added references and relationships to other failure modes analysis methods;
– added examples;
– guidance on advantages and disadvantages of different FMEA methods.

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)	2006-12-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2009-03-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60812:2006 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 60300-2	NOTE	Harmonized as EN 60300-2:2004 (not modified).
IEC 61160	NOTE	Harmonized as EN 61160:2005 (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 When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60300-3-1	2003	Dependability management Part 3-1: Application guide - Analysis techniques for dependability - Guide on methodology	EN 60300-3-1	2004
IEC 61025	- [1)]	Fault tree analysis (FTA)	HD 617 S1	1992 [2)]
IEC 61078	- [1)]	Analysis techniques for dependability - Reliability block diagram and Boolean methods	EN 61078	2006 [2)]

[1)] Undated reference.

[2)] Valid edition at date of issue.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ANALYSIS TECHNIQUES FOR SYSTEM RELIABILITY – PROCEDURE FOR FAILURE MODE AND EFFECTS ANALYSIS (FMEA)

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 60812 has been prepared by IEC technical committee 56: Dependability.

This second edition cancels and replaces the first edition published in 1985 and constitutes a technical revision.

The main changes from the previous edition are as follows:

– introduction of the failure modes effects and criticality concepts;
– inclusion of the methods used widely in the automotive industry;
– added references and relationships to other failure modes analysis methods;
– added examples;
– provided guidance of advantages and disadvantages of different FMEA methods.

The text of this standard is based on the following documents:

FDIS	Report on voting
56/1072/FDIS	56/1091/RVD

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

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

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

ANALYSIS TECHNIQUES FOR SYSTEM RELIABILITY – PROCEDURE FOR FAILURE MODE AND EFFECTS ANALYSIS (FMEA)

1 Scope

This International Standard describes Failure Mode and Effects Analysis (FMEA) and Failure Mode, Effects and Criticality Analysis (FMECA), and gives guidance as to how they may be applied to achieve various objectives by

– providing the procedural steps necessary to perform an analysis;

– identifying appropriate terms, assumptions, criticality measures, failure modes;

– defining basic principles;

– providing examples of the necessary worksheets or other tabular forms.

All the general qualitative considerations presented for FMEA will apply to FMECA, since the latter is an extension of the other.

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 60300-3-1:2003, *Dependability management – Part 3-1: Application guide – Analysis techniques for dependability – Guide on methodology*

IEC 61025, *Fault tree analysis (FTA)*

IEC 61078, *Analysis techniques for dependability – Reliability block diagram method*