

Analysis techniques for system reliability — Procedure for failure mode and effects analysis (FMEA)

The European Standard EN 60812:2006 has the status of a
British Standard

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National foreword

This British Standard is the official English language version of EN 60812:2006. It was derived by CENELEC from IEC 60812:2006. It supersedes BS 5760-5:1991 which is withdrawn.

The UK participation in its preparation was entrusted by Technical Committee DS/1, Reliability and terotechnology, to Subcommittee DS/1/1, Dependability, which has the responsibility to:

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- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

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Summary of pages

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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

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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.

CONTENTS

1	Scope	5
2	Normative references	5
3	Terms and definitions	5
4	Overview	7
4.1	Introduction	7
4.2	Purpose and objectives of the analysis.....	8
5	Failure modes and effects analysis	9
5.1	General considerations	9
5.2	Preliminary tasks	10
5.3	Failure mode, effects, and criticality analysis (FMECA).....	20
5.4	Report of analysis.....	27
6	Other considerations	29
6.1	Common-cause failures	29
6.2	Human factors	29
6.3	Software errors.....	30
6.4	FMEA regarding consequences of system failure.....	30
7	Applications.....	30
7.1	Use of FMEA/FMECA	30
7.2	Benefits of FMEA.....	32
7.3	Limitations and deficiencies of FMEA	32
7.4	Relationships with other methods.....	33
	Annex A (informative) Summary of procedures for FMEA and FMECA.....	35
	Annex B (informative) Examples of analyses	39
	Annex ZA (normative) Normative references to international publications with their corresponding European publications.....	47
	Bibliography	46
	Figure 1 – Relationship between failure modes and failure effects in a system hierarchy	12
	Figure 2 – Analysis flowchart	19
	Figure 3 – Criticality matrix	23
	Figure A.1 – Example of the format of an FMEA worksheet.....	38
	Figure B.1 – FMEA for a part of automotive electronics with RPN calculation	40
	Figure B.2 – Diagram of subsystems of a motor generator set.....	41
	Figure B.3 – Diagram of enclosure heating, ventilation and cooling systems.....	42
	Figure B.4 – FMEA for sub-system 20	43
	Figure B.5 – Part of a process FMECA for machined aluminium casting	45

Table 1 – Example of a set of general failure modes.....	14
Table 2 – Illustrative example of a severity classification for end effects.....	17
Table 3 – Risk/criticality matrix.....	24
Table 4 – Failure mode severity	25
Table 5 – Failure mode occurrence related to frequency and probability of occurrence	25
Table 6 – Failure mode detection evaluation criteria	26
Table 7 – Example of a set of failure effects (for a motor vehicle starter).....	28
Table 8 – Example of a failure effects probability.....	28
Table B.1 – Definition and classification of the severity of the effects of failures on the complete M-G system	41

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*

3 Terms and definitions

For the purposes of this document, the following definitions apply.

3.1 item

any part, component, device, subsystem, functional unit, equipment or system that can be individually considered

NOTE 1 An item may consist of hardware, software or both, and may also in particular cases include people.

NOTE 2 A number of items, e.g. a population of items or a sample, may itself be considered as an item.

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