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Tillämpning av markovanalyser

Application of Markov techniques

Som svensk standard gäller europastandarden EN 61165:2006. Den svenska standarden innehåller den officiella engelska språkversionen av EN 61165:2006.

Nationellt förord

Europastandarden EN 61165:2006^{*)}

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 61165, Second edition, 2006 - Application of Markov techniques**

utarbetad inom International Electrotechnical Commission, IEC.

^{*)} EN 61165:2006 ikraftsattes 2007-06-25 som SS-EN 61165 genom offentliggörande, d v s utan utgivning av något svenskt dokument.

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 61165

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English version

**Application of Markov techniques
(IEC 61165:2006)**

Application des techniques de Markov
(CEI 61165:2006)

Anwendung des Markoff-Verfahrens
(IEC 61165:2006)

This European Standard was approved by CENELEC on 2006-07-01. 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

Foreword

The text of document 56/1096/FDIS, future edition 2 of IEC 61165, prepared by IEC TC 56, Dependability, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61165 on 2006-07-01.

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) 2007-04-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2009-07-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61165:2006 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 60812 NOTE Harmonized as EN 60812:2006 (not modified).

IEC 61078 NOTE Harmonized as EN 61078:2006 (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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050-191	1990	International Electrotechnical Vocabulary (IEV) Chapter 191: Dependability and quality of service	-	-
IEC 60300-3-1	¹⁾	Dependability management Part 3-1: Application guide - Analysis techniques for dependability - Guide on methodology	EN 60300-3-1	2004 ²⁾
IEC 61508-4 + corr. April	1998 1999	Functional safety of electrical/electronic/programmable electronic safety-related systems Part 4: Definitions and abbreviations	EN 61508-4	2001

¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

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INTRODUCTION

Several distinct analytical methods for reliability, availability, maintainability and safety analysis are available of which the Markov technique is one. IEC 60300-3-1 gives an overview of available methods and their general characteristics.

This standard defines the basic terminology and symbols for the application of Markov techniques. It describes ground rules for the development, representation and application of Markov techniques as well as assumptions and limitations of this approach.

APPLICATION OF MARKOV TECHNIQUES

1 Scope

This International Standard provides guidance on the application of Markov techniques to model and analyze a system and estimate reliability, availability, maintainability and safety measures.

This standard is applicable to all industries where systems, which exhibit state-dependent behaviour, have to be analyzed. The Markov techniques covered by this standard assume constant time-independent state transition rates. Such techniques are often called homogeneous Markov techniques.

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 60050(191):1990, *International Electrotechnical Vocabulary (IEV) – Chapter 191: Dependability and quality of service*

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

IEC 61508-4:1998, *Functional safety of electrical/electronic/programmable electronic safety-related systems – Part 4: Definitions and abbreviations*