

Australian Standard[®]

Application of Markov techniques



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OF
AS IEC 61165–2008
Application of Markov techniques

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PREFACE

This Standard was prepared by the Standards Australia Committee QR-005, Dependability.

The objective of this Standard is to provide guidance on the application of Markov techniques to modelling and analysing a system which exhibits state-dependent behaviour and to estimating reliability, availability, maintainability and safety measures. It is suitable for use in conjunction with the AS IEC 60300 series of dependability management Standards.

This Standard is identical with, and has been reproduced from IEC 61165 Ed.2.0 (2006), *Application of Markov techniques*.

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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.

STANDARDS AUSTRALIA

Australian Standard**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.

References to international standards that are struck through in this clause are replaced by references to Australian or Australian/New Zealand Standards that are listed immediately thereafter and identified by shading. Any Australian or Australian/New Zealand Standard that is identical to the International Standard it replaces is identified as such.

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~~

AS IEC 60300.3.1, *Dependability management—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*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050(191):1990 and the following apply.

NOTE To facilitate the application of this standard for safety evaluations, the terminology from IEC 61508 is used where appropriate.