AS/NZS IEC 60812:2020

Australian/New Zealand Standard™

Failure modes and effects analysis (FMEA and FMECA)

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AS/NZS IEC 60812:2020

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The following are represented on Committee QR-005:

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Preface

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee QR-005, Dependability, to supersede AS IEC 60812—2008, *Analysis techniques for system reliability — Procedure for failure mode and effects analysis (FMEA)*.

The objective of this Standard is to explain how failure modes and effects analysis (FMEA), including the failure modes, effects and criticality analysis (FMECA) variant, is planned, performed, documented and maintained.

The purpose of failure modes and effects analysis (FMEA) is to establish how items or processes might fail to perform their function so that any required treatments could be identified. An FMEA provides a systematic method for identifying modes of failure together with their effects on the item or process, both locally and globally. It may also include identifying the causes of failure modes. Failure modes can be prioritized to support decisions about treatment. Where the ranking of criticality involves at least the severity of consequences, and often other measures of importance, the analysis is known as failure modes, effects and criticality analysis (FMECA).

This document is applicable to hardware, software, processes including human action, and their interfaces, in any combination.

An FMEA can be used in a safety analysis, for regulatory and other purposes, but this being a generic Standard, does not give specific guidance for safety application.

This Standard is identical with, and has been reproduced from, IEC 60812:2018, *Failure modes and effects analysis (FMEA and FMECA)*.

As this document has been reproduced from an International Standard, a full point substitutes for a comma when referring to a decimal marker.

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FAILURE MODES AND EFFECTS ANALYSIS (FMEA and FMECA)

FOREWORD

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International Standard IEC 60812 has been prepared by IEC technical committee 56: Dependability.

This third edition cancels and replaces the second edition published in 2006. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) the normative text is generic and covers all applications;
b) examples of applications for safety, automotive, software and (service) processes have been added as informative annexes;
c) tailoring the FMEA for different applications is described;
d) different reporting formats are described, including a database information system;
e) alternative means of calculating risk priority numbers (RPN) have been added;
f) a criticality matrix based method has been added;
g) the relationship to other dependability analysis methods have been described.

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