AS/NZS IEC 61649:2020
IEC 61649:2008

AS/NZS IEC 61649:2020

Australian/New Zealand Standard™

Weibull analysis

AS/NZS IEC 61649:2020

This Joint Australian/New Zealand Standard™ was prepared by Joint Technical Committee QR-005, Dependability. It was approved on behalf of the Council of Standards Australia on 22 April 2020 and by the New Zealand Standards Approval Board on 5 February 2020.

This Standard was published on 22 May 2020.

The following are represented on Committee QR-005:

Asset Management Council (Australia)
Australian Industry Group
Department of Defence (Australian Government)
Engineering New Zealand
Engineers Australia
Human Factors and Ergonomics Society of New Zealand
Institution of Occupational Safety and Health
National Rail Safety Regulator (Australia)
National Road Carriers Association (New Zealand)
New Zealand Institute of Safety Management
Professionals Australia
Risk Engineering Society (Australia)
Risk Management Institute of Australasia
Risk NZ
University of New South Wales
University of Western Australia
University of Wollongong

This Standard was issued in draft form for comment as DR AS/NZS IEC 61649:2019.

ISBN 978 1 76072 847 2

AS/NZS IEC 61649:2020
IEC 61649:2008

Australian/New Zealand Standard™

Weibull analysis

First published as AS/NZS IEC 61649:2020.

Preface

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee QR-005, Dependability.

The objective of this Standard is to provide methods for analysing data from a Weibull distribution using continuous parameters such as time to failure, cycles to failure, mechanical stress, etc.

This Standard is applicable whenever data on strength parameters, e.g. times to failure, cycles, stress, etc. are available for a random sample of items operating under test conditions or in-service, for the purpose of estimating measures of reliability performance of the population from which these items were drawn.

This Standard is applicable when the data being analysed are independently, identically distributed. This should either be tested or assumed to be true (refer to IEC 60300-3-5).

In this Standard, numerical methods and graphical methods are described to plot data, to make a goodness-of-fit test, to estimate the parameters of the two- or three-parameter Weibull distribution and to plot confidence limits. Guidance is given on how to interpret the plot in terms of risk as a function of time, failure modes and possible weak population and time to first failure or minimum endurance.

This Standard is identical with, and has been reproduced from IEC 61649:2008, *Weibull analysis*.

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

Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably. Refer to the online catalogue for information on specific Standards.

The terms “normative” and “informative” are used in Standards to define the application of the appendices or annexes to which they apply. A “normative” appendix or annex is an integral part of a Standard, whereas an “informative” appendix or annex is only for information and guidance.

NOTES