

Australian/New Zealand Standard™

Weibull analysis



AS/NZS IEC 61649:2020

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- Australian Industry Group
- Department of Defence (Australian Government)
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- Human Factors and Ergonomics Society of New Zealand
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AS/NZS IEC 61649:2020
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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.

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