Weibull++

ReliaSoft Weibull++ is a complete life data analysis tool that ensure reliability, forecast warranty, and accelerate tests and reliability growth planning.

Features

- Utilises multiple lifetime distributions, warranty and degradation data analysis, design of experiment and more with a clear and intuitive interface geared toward reliability engineering.

- Offers optionally licensed features of Accelerated Life Testing for accelerated test planning and data analysis.

- Offers Reliability Growth to analyse data from both developmental testing and fielded repairable systems in order to monitor reliability improvements over time and predict failures before they occur.

Benefits

- Compare suppliers or designs based on reliability

- Ensure reliability within a specific time frame and confidence

- Make predictions and detect outliers during the useful life (or warranty) period

- Gain deeper insights with design of experiments

- Extrapolate failure times based on performance

- Use plots and other reports to effectively communicate expected performance to management
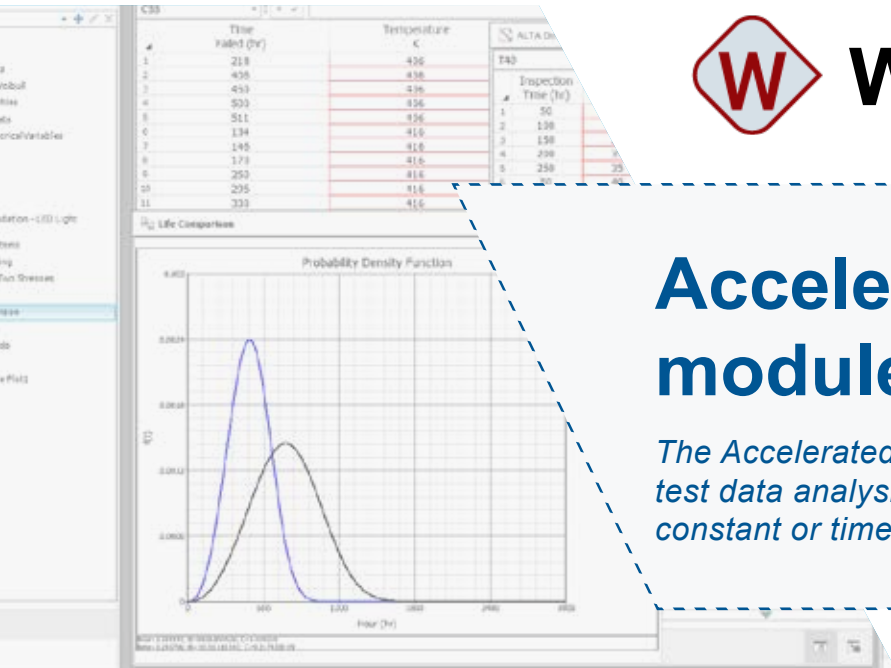
ReliaSoft

Holistic Asset MANAGEMENT

W Weibull++

Accelerated Life Testing module

The Accelerated Life Testing module provides accelerated test data analysis and test plans for multiple stresses and constant or time varying stress profiles.

Features

- Provide complete solution for accelerated test planning and quantitative accelerated life testing data analysis.

- Design accelerated life tests and calculate necessary reliability metrics to significantly reduce test times and lower development costs.

- With the most complex accelerated test data analyses and test plans available for multiple stress types, where stress is constant or varies by time, you will be able to produce more robust designs.

Benefits

- Understand and quantify the effects of stress (or other factors) on product life

- Design accelerated tests to achieve desired objectives

- Lower development costs with improved designs

- Significantly reduce test time and produce more robust designs

- Provide clarity and support decisions with enhanced reports and plots

Accelerated Life Testing module

Two versions to support how you analyse data obtained from quantitative accelerated life tests

Accelerated Life Testing - Standard

This version is intended to be an entry-level tool for the reliability professional interested in basic quantitative accelerated life testing data analysis applications.

- Life-Stress Relationships supported: Arrhenius, Eyring, Inverse power law, Temp-humidity, Temp-nonthermal.

- Varying Stresses: data analysis of 1 or 2 stresses that do not vary with time.

- Cannot analyse data with indicator variables.

- Monte Carlo Data Generation is only available for supported models.
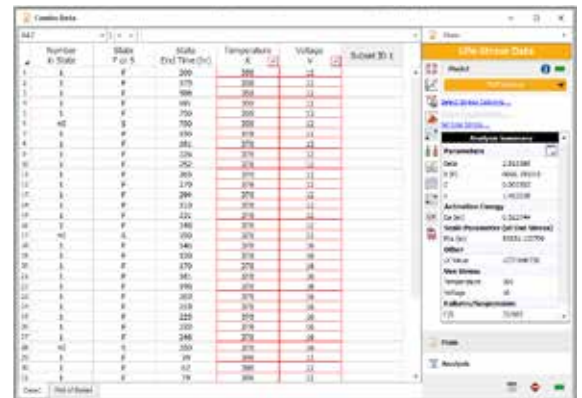
Accelerated Life Testing - PRO

This version provides advanced capabilities made possible by extensive research and development in complex quantitative accelerated life testing data analysis techniques.

- Life-Stress Relationships supported: all of the models available in Standard version as well Generalised Eyring, Proportional hazards, Generalised log-linear and Cumulative damage.

- Varying Stresses: can analyse data with up to 8 stresses that may vary with time and provides a utility to define and manage stress profiles. Use level stress can also be specified to vary with time.

- Can analyse data with indicator variables.

- Monte Carlo Data Generation is available for all models, including those with multiple and/or time-dependent stresses.

Weibull++
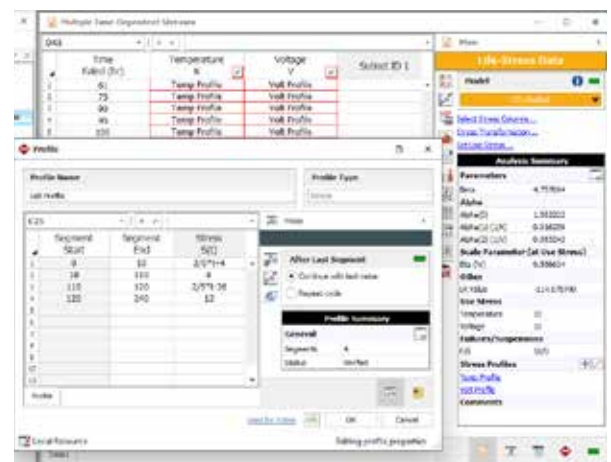
Reliability Growth module

Reliability Growth module allows you to apply reliability growth models to analyse data from both developmental testing and fielded repairable systems.

Features

- Monitor reliability improvements over time and predict failures before they occur to evaluate the reliability growth management strategy.

- Quantify reliability growth across multiple test phases, design test plans for repairable systems and determine the test time required per system in order to demonstrate a specified reliability goal.

- Provide advanced methods for reliability growth projections, planning and management.

- For systems operating in the field, you can calculate optimum overhaul times and other results without the detailed data sets.

Benefits

- Predict failures before they occur and monitor reliability improvements over time

- Quantify reliability growth achieved with each successive design prototype

- Determine the feasibility of achieving reliability goals with a given test/fix strategy

- Use grouped (interval) data analysis to evaluate fleet warranty data in order to estimate future returns

- Experiment with sample sizes using simulation tools

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Reliability Growth module

Integrate repairable systems analysis with other processes

The Reliability Growth module facilitates the analysis of repairable systems data using the Crow (AMSAA) model. It allows you to get an overview of the system without having the large data requirements that would normally be required for system reliability analysis.

With the Reliability Growth module, you can track the progress of the system during development phase and then use ReliaSoft BlockSim in accordance with the already known results to gain more detailed information.
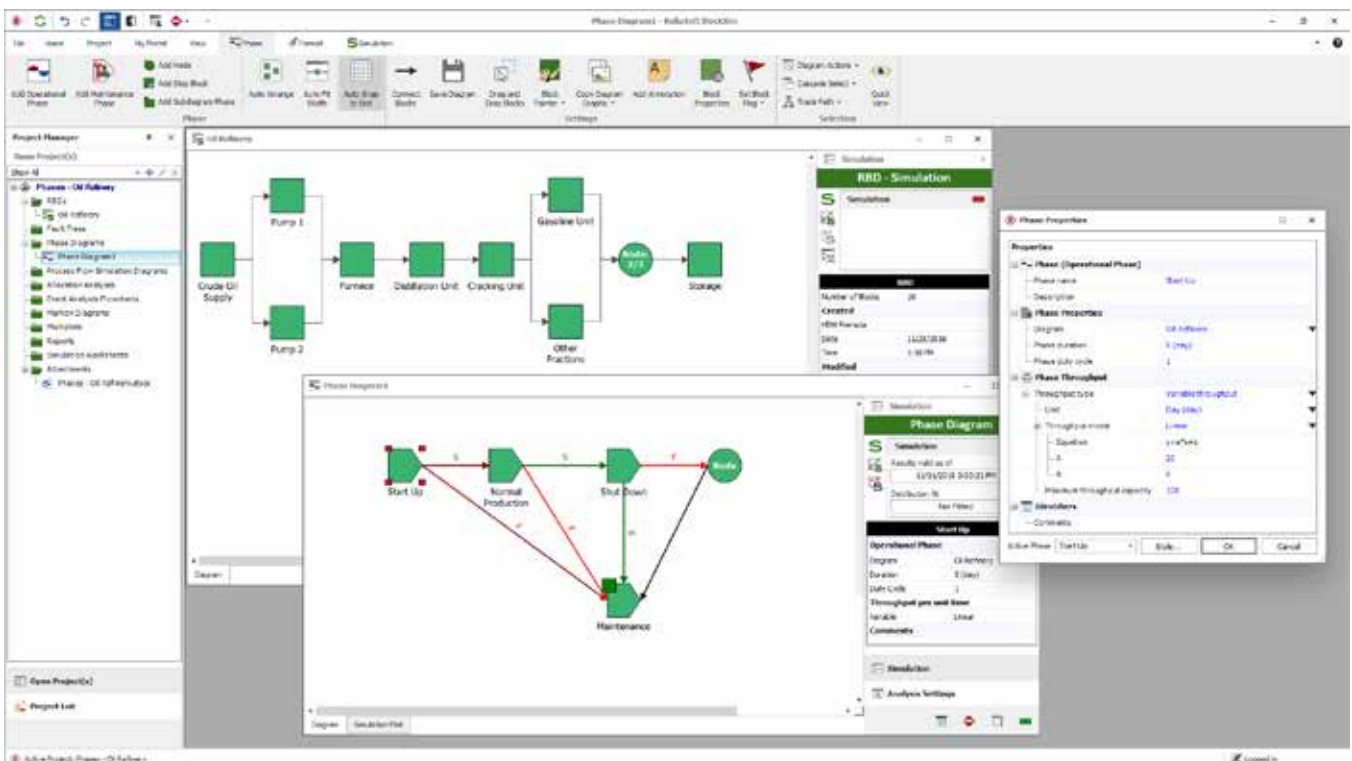
Weibull++ Software Highlights

Data types (individually or in groups)

- Complete (failure time)
- Right censored (suspension time)
- Left censored
- Interval censored
- Free-form

Distributions

(wizard to find best fit for your data)

- Weibull
- Normal and Lognormal
- Exponential
- Gamma and Generalised Gamma
- Logistic and Loglogistic
- Gumbel
- Bayesian-Weibull
- Mixed Weibull
- Competing Failure Modes (CFM)

Analysis types

- Rank Regression on X (RRX)
- Rank Regression on Y (RRY)
- Maximum Likelihood (MLE)
- Non-Linear Rank Regression

Ranking methods

- Kaplan-Meier
- Median Ranks

Confidence bounds methods

- Likelihood ratio
- Fisher Matrix
- Beta Binomial
- Bayesian (BSN)

Calculation and plot types

- Probability
- Reliability vs. Time
- Unreliability vs. Time
- Failure rate vs. Time
- pdf plot
- Contour plot
- Failures/Suspensions histogram
- Failures/Suspensions pie
- Failures/Suspensions timeline

Related analyses

- Warranty analysis
  - Nevada
  - Times-to-failure
  - Dates of failure
  - Usage
  - Times-to-failure and Usage
- Degradation analysis
  - Nondestructive (Linear, Exponential, Power, Logarithmic, Gompertz, Lloyd-Lipow)
  - Destructive (Linear, Logarithmic, Lloyd-Lipow)
- Event log conversion
- Recurrent event data analysis
  - Mean cumulative function
  - General renewal process
- Non-Parametric Life Data Analysis
  - Kaplan-Meier
  - Simple actuarial
  - Standard actuarial
- Design of Experiments (DOE)
  - One Factor designs
  - Factorial designs
  - Response surface method designs
  - Taguchi Robust designs
  - Mixture designs
  - Reliability DOE

Weibull++ Software Highlights (continued)

Tests of comparison

- Data set life comparison
- Stress-Strength analysis

Data set simulation

- Monte Carlo data
- SimuMatic®

Other utilities

- Reliability test design
- Block diagrams
- Maintenance planning tool
- Non-linear equation root finder & Fit solver
- Quick Parameter Estimator
- Quick Statistical Reference

Advanced plotting tools

- Overlay plots (aka multi-plots)
- Side-by-side plots
- RS Draw® Metafile Graphics Editor
- 3D plots

Customisable reports

- Workbooks (spreadsheet and word processing modules combined)
- Function wizard

Reliability program integration

- Publish models based on data analyses and create metrics to track and display KPIs
- Extract data from XFRACAS or from an external database
- Export from the event log and maintenance planning tools with BlockSim

Available services

- Detailed user documentation
- Practical example files
- Quick tour guide
- Training for theory + software
- Professional engineering services

For more information visit:

ReliaSoft

Holistic Asset Management is the Australia and New Zealand reseller of ReliaSoft Software from HBM Prenscia Inc. These expert analysis tools are benchmarks in the reliability industry and are widely used in various industry sectors to facilitate the practical application of reliability in maintenance, asset management, product development and after sales.