

ReliaSoft[®]

Presents...

λ **PREDICT**



ReliaSoft



Reliability Office

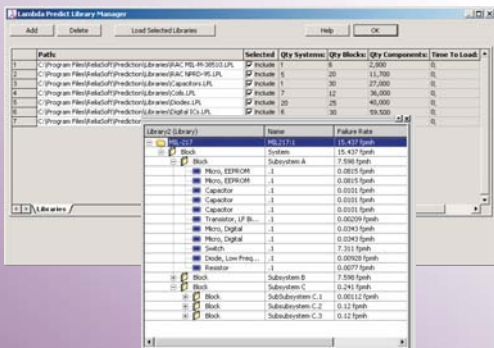
PREDICT

A comprehensive platform for Standards Based Reliability Prediction analysis...

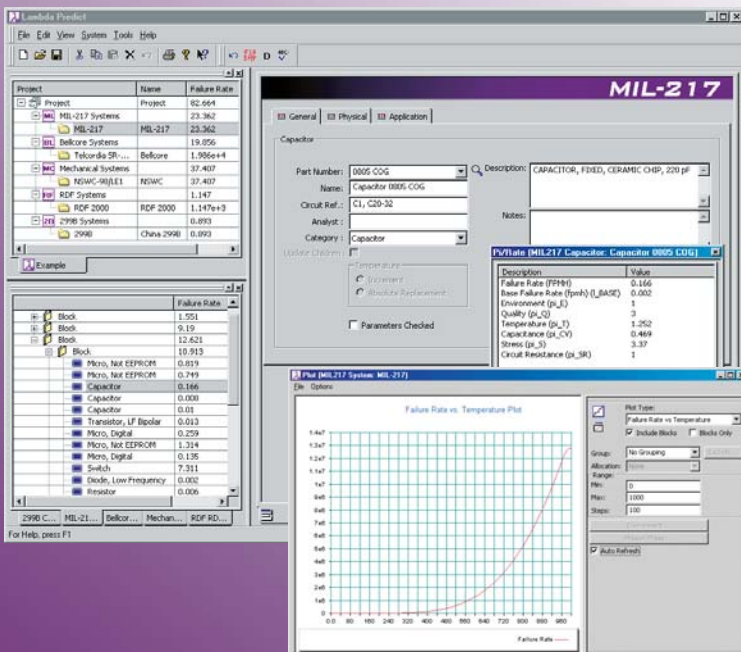
All major reliability prediction standards, extensive set of component libraries, results, plots, reports and more!

When actual product reliability data is not available, Standards Based Reliability Prediction may be used to evaluate design feasibility, compare design alternatives, identify potential failure areas, trade-off system design factors and track reliability improvement.

ReliaSoft's *Lambda Predict* software supports all of the major reliability prediction standards (MIL-217, Bellcore, NSWC, RDF 2000 and China 299B) and comes with an extensive collection of pre-defined component libraries.



Lambda Predict provides a complete array of calculated results along with graphical charts and customizable print-ready reports. The software also offers a full set of supporting tools, including a Reliability Allocation utility, the ability to transfer your data via flexible import/export utilities, and much more!



ReliaSoft®



ReliaSoft's **Lambda Predict** software provides a comprehensive platform for your standards based reliability prediction analyses. The software facilitates every step of the analysis process, with user-friendly utilities designed to make it easy for you to:

- Build the system configuration ("from scratch" or with outside sources, including an extensive collection of valuable parts libraries and the ability to import from a bill of materials, BOM).
- Define component characteristics and operating conditions, with the choice of the Dialog View or Grid View to facilitate data entry.
- Calculate results (Pi Factors, Failure Rates, etc.) at any level within the configuration.
- Use graphical plots/charts to visualize analysis results.
- Generate print-ready reports to support decision-making and disseminate knowledge.
- Export data for use in other analyses.

Supports all major Reliability Prediction standards:

- MIL-217
- Bellcore
- NSWC-98/LE1
- RDF 2000
- China 299B

Support for All Major Reliability Prediction Standards

You can perform your analyses with any of the major reliability prediction standards. This includes MIL-HDBK-217, Bellcore (Telcordia), RDF 2000 and China 299B for the analysis of electronics and related components plus NSWC-98/LE1 for mechanical components. You can purchase only the standards that you need and mix and match components from different analyses as needed.

Use Pre-Defined Component Libraries and/or Build Your Own

Lambda Predict comes with an extensive array of pre-defined component libraries with part data compiled from spec sheets and a variety of other sources -- and you can also purchase additional libraries to meet specific needs. Available libraries provide data for over 240,000 components, including capacitors, diodes, resistors, coils, integrated circuits and the electromechanical components from RAC NPRD. It's also easy to build your own custom libraries to share knowledge and save time for future analyses.

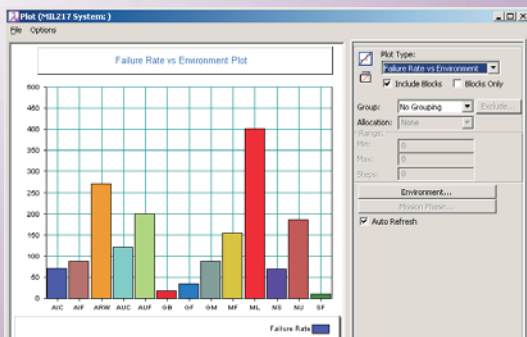
Parts libraries with over 240,000 components available.

Complete Array of Calculated Results, Plots and Reports

Calculated results, including Failure Rates, MTBFs, Pi Factors and other metrics, are readily available for individual components, higher level assemblies, systems and even projects. In addition, the Plot Viewer provides a complete array of plots/charts to demonstrate your analysis graphically and the flexible report generation utility provides a variety of pre-defined print-ready reports along with the ability to manage your own custom report templates.

More Supporting Tools

Lambda Predict provides a number of supporting tools to enhance and expand your analysis capabilities. For example, the Failure Rate Allocation utility provides five allocation models that can be applied to your analysis. The Library Manager makes it easy to search component libraries based on Part Number. The Import Wizard allows you to import data from outside data sources, such as Bill of Materials (BOM) systems, and the Export Wizard allows you to extract your data into a Microsoft Jet database, Excel file or other delimited file format.



BELLCORE Configuration Dialog

Block: []

Quantity: []

Repair Mode: Non-Repairable

MTR (hrs): 0

No On Standby: 0

Environment: Ground,Fixed,Controlled

Temperature (degC): 40

Adjustment Factor: 1

Method: Method 1

Select Category: [DC, Dynamic RAM]



MIL-HDBK-217

Both Parts Count and Part Stress calculation methods for electronic components in commercial and military applications.

Lambda Predict supports all major reliability prediction standards. You can purchase only the standards that you need and then mix and match components from different analyses as needed. You can also transfer blocks/components from one analysis type to another, if desired.

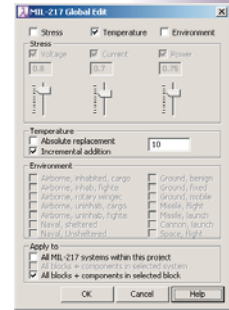
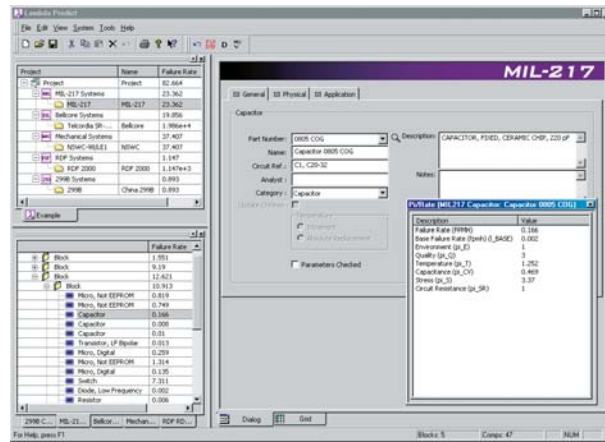
MIL-HDBK-217

Reliability Prediction of Electronic Equipment (MIL-HDBK-217F), issued by the U.S. Department of Defense in December, 1991. **Lambda Predict** supports both the Part Stress and Parts Count calculation methods for electronic components in commercial and military applications.

Block Results				Failure Rate	MTBF	Reliability	Contribution
10				646129.187	0.0000372	0.433	

Name	Category	Part Number	Description	Quantity	Total F. Rate	Contribution %
10.1	Block	PS1	Power Supply 1150VAC 500W 50/60Hz DC Output	1	1.18	0.183
10.2	Capacitor	CQ-10MF	CAPACITOR, FIBER, POLYESTER, 10MF	5	0.0209	0.329
10.3	Capacitor	W005-C05	CAPACITOR, CERAMIC, CHIP, 220PF	35	0.0203	2.296
10.4	Transformer	TRANS, MODEL A7-3	TRANSFORMER	1	0.00942	0.608
10.5	Capacitor	W005	CAPACITOR, FIBER, AL. ELECT., 470UF	1	0.0049	1.060
10.6	Capacitor	1110-91530A	CAPACITOR, FIBER, SOLID TANT., 4.7UF	4	1.314	94.817
10.7	Diode, Low-Frequency	2SD12	DIODE, SILICON, PLASTIC	4	0.0046	0.249
10.8	Resistor	SRW02075-499114R	RESISTOR, FILM, 425 OHM	1	0.0032	0.432
10.9	Resistor	PR2-162540R	RESISTOR, FILM, MET. OXIDE, 162	6	0.0033	2.28
10.10	Capacitor	W005	CAPACITOR, FIBER, AL. ELECT., 470UF	1	0.0044	1.060
10.11	Capacitor	CQ-10MF	CAPACITOR, FIBER, POLYESTER, 10MF	5	0.0209	1.872

Name	Category	Part Number	Description	Failure Rate	PI Factor	PI Factor
10.1	Capacitor	CQ-10MF	CAPACITOR, FIBER, POLYESTER, 10MF	0.00495	0.00495	1
10.2	Capacitor	CQ-10MF	CAPACITOR, FIBER, POLYESTER, 10MF	0.0009	1	1
10.3	Capacitor	CQ-10MF	CAPACITOR, FIBER, POLYESTER, 10MF	1.252	1	1
10.4	Capacitor	CQ-10MF	CAPACITOR, FIBER, POLYESTER, 10MF	3.37	1	1
10.5	Capacitor	CQ-10MF	CAPACITOR, FIBER, POLYESTER, 10MF	0.0009	1	1
10.6	Capacitor	CQ-10MF	CAPACITOR, FIBER, POLYESTER, 10MF	0.0029	1	1
10.7	Capacitor	CQ-10MF	CAPACITOR, FIBER, POLYESTER, 10MF	1.316	1	1
10.8	Capacitor	CQ-10MF	CAPACITOR, FIBER, POLYESTER, 10MF	0.44	1	1
10.9	Capacitor	CQ-10MF	CAPACITOR, FIBER, POLYESTER, 10MF	5.213	1	1



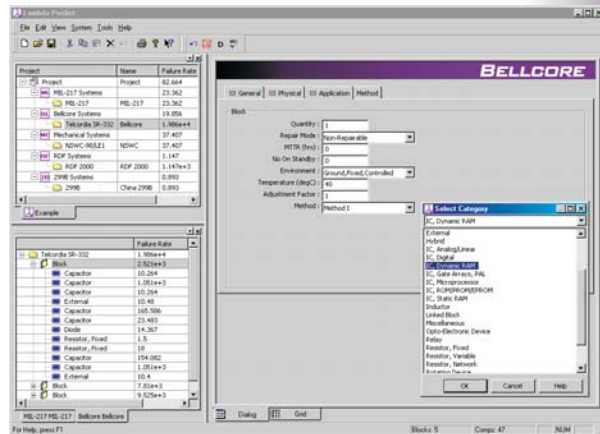
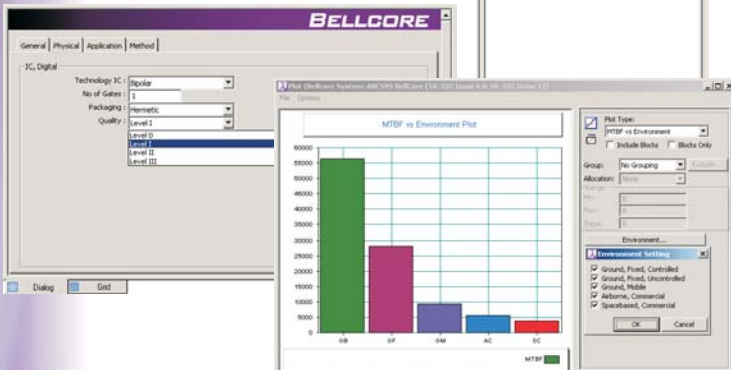
Bellcore (Telcordia)

Reliability prediction models for electronic components in commercial applications.

Bellcore (Telcordia)

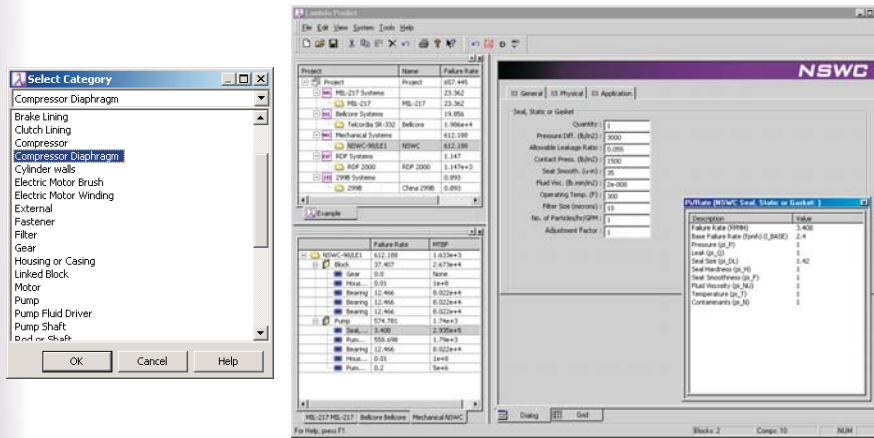
Reliability Prediction Procedure for Electronic Equipment (TR-332 Issue 6), issued by Bell Communications Research in 1995. This standard provides reliability prediction models for electronic components in commercial applications. **Lambda Predict** also supports the previous version of the standard (SR-332 Issue 1).

Description	Value
Failure Rate (FITs)	201.961
Basic Failure Rate (FITs) (0. BASE)	20.659
Quality (p1)	3
Temperature (p1_T)	0.651
Stress (p1_S)	1



NSWC (Mechanical)

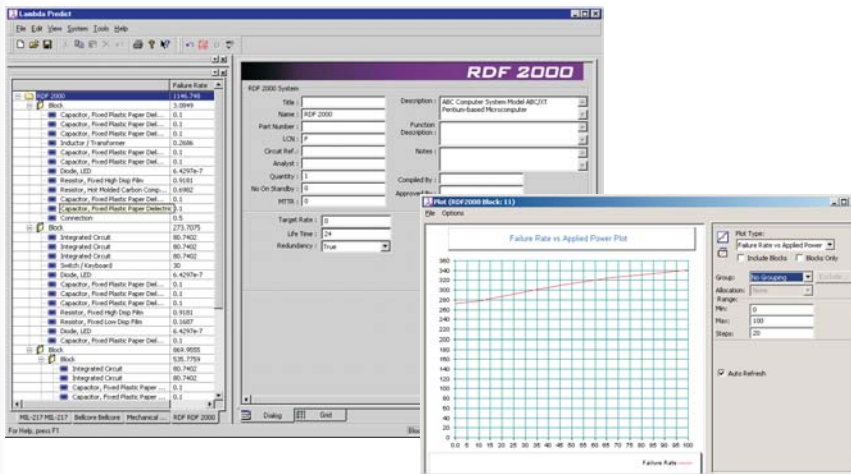
The Handbook of Reliability Prediction Procedures for Mechanical Equipment (NSWC-98/LE1), originally released in the 1980s by the Naval Surface Warfare Center. This standard provides reliability prediction models for mechanical components, such as seals, springs, pumps, valves, brakes and more.



NSWC-98/LE1 (Mechanical)
Reliability prediction models for mechanical components.

RDF 2000

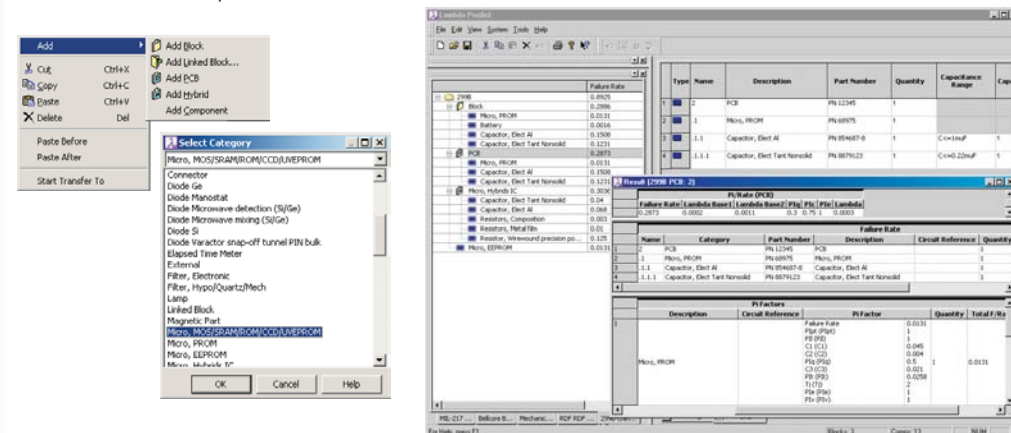
Based on methods developed by the French Telecommunication industry, this standard provides reliability prediction models for a range of components using cycling profiles and applicable phases as a basis for failure rate calculations.



RDF 2000
Reliability prediction models for a range of components using cycling profiles and phases.

China 299B

The Chinese military standard GJB/z 299B provides calculation methods for electronic components.



China 299B
Reliability prediction models for electronic components, compiled by the Chinese military.

Flexible hierarchical trees for building system configuration model:

- Unlimited levels
- Unlimited items per level

Flexible and Intuitive Hierarchical System Configurations

The first step in performing a standards based reliability prediction analysis in **Lambda Predict** is to build a system configuration that represents your product. This may be a simple assembly with just a few components or a large system with thousands of components organized into multiple subsystems, subsystems, etc.

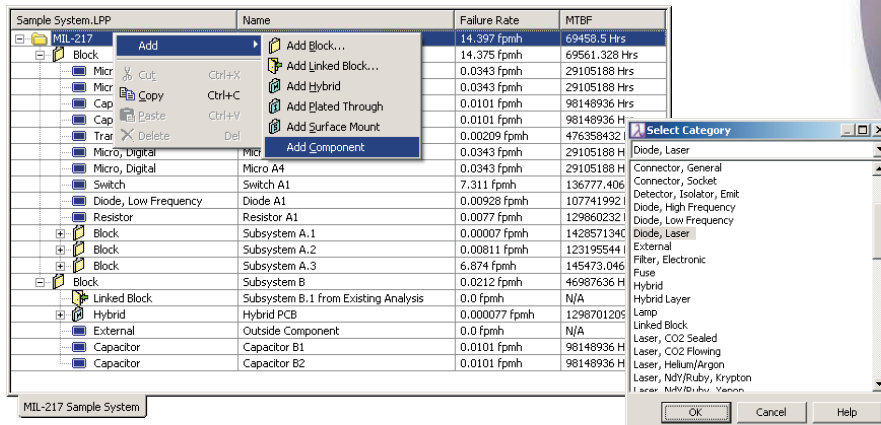
Lambda Predict makes it easy to build system configurations by adding blocks and components into a flexible hierarchical tree. The building blocks for your system configurations include:

- **Components** represent individual items (such as fuses, capacitors, valves, springs, etc.) with properties that are used to calculate Failure Rate, MTBF and other results. **External** components allow you to include parts that are not addressed in the reliability prediction standard.
- **Blocks** represent groups of blocks and/or components in the next lower level of the system configuration, which allows you to represent multiple subsystems, subsystems, etc. in a complex configuration.
- **Linked Blocks** represent the characteristics of other blocks or components, allowing you to update identical items with a single action.

In addition, **Lambda Predict** provides specialized blocks to meet the specific analysis requirements for each particular standard. For example, pre-defined pump, motor and other assemblies are available in an NSWC analysis, Plated Through or Surface Mount PCBs in MIL-217, etc.

Re-use information and save time on data entry with:

- Copy/Paste
- Linked Blocks
- Global Edit
- Default Properties



Re-Use Existing Data for Convenience and Consistency

Lambda Predict provides a number of time-saving features that allow you to quickly leverage existing information for use in new analyses.

- You can easily copy/paste or drag/drop blocks and components from one analysis to another.
- Linked blocks allow you to automatically update identical parts with a single action.
- The Global Edit feature allows you to automatically change stress, temperature and/or environmental parameters for blocks and components in a MIL-217 analysis.
- You can set default properties for each type of component to fit your particular application, which saves time on data entry for future analyses.

Extensive Collection of Component Libraries

Lambda Predict comes with an extensive collection of component libraries with information obtained from manufacturer's product spec sheets and a variety of other sources for over 240,000 components. Available libraries include:

- **RAC MIL-M-38510** - over 2,800 integrated circuits for use in MIL-217 and Bellcore analyses.
- **RAC NPRD-95** - over 11,700 non-electric (electromechanical) components for use in MIL-217, Bellcore, NSWC, RDF and 299B analyses.
- **Capacitors** - over 27,000 capacitors (organized by manufacturer) for use in MIL-217 and Bellcore analyses.
- **Diodes** - over 36,000 diodes (organized by manufacturer) for use in MIL-217 and Bellcore analyses.
- **Resistors** - over 40,000 resistors (organized by manufacturer) for use in MIL-217 and Bellcore analyses.
- **Coils** - over 59,500 coils (organized by manufacturer) for use in MIL-217 and Bellcore analyses.
- **Digital Integrated Circuits** - over 63,000 digital integrated circuits (organized by manufacturer) for use in MIL-217 and Bellcore analyses.

Parts Libraries with over 240,000 components available.

- RAC MIL-M-38510
- RAC NPRD-95
- Capacitors
- Diodes
- Resistors
- Coils
- Digital ICs

Some libraries are distributed free with the software and others are available for purchase from ReliaSoft. In addition, you can build and distribute your own custom libraries to share knowledge and save data entry time.

Library Manager Facilitates Part Lookup

Lambda Predict's Library Manager allows you to activate one or many libraries that contain component data that you will need for your analyses, without taking up space on your desktop. When libraries are loaded, they are available for part number searches to quickly define component properties as you build a system configuration. If you are importing data from an outside data source, these part number lookups can even be performed automatically upon import!

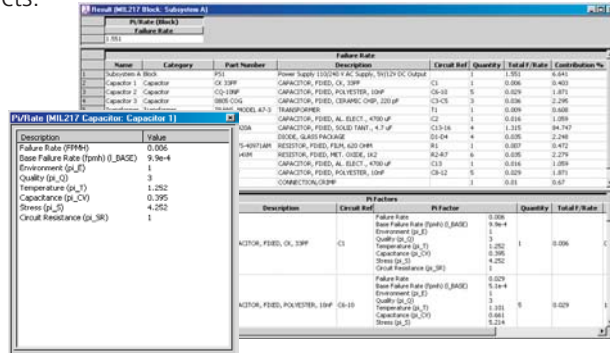
The screenshot displays the Lambda Predict software interface. The main window shows a project configuration for 'Sample Bellcore Analysis.LPP'. The 'Library Manager' window is open, showing a list of loaded libraries with columns for Path, Selected, Qty Systems, Qty Blocks, Qty Components, and Time To Load. A context menu is visible over the library list, showing options like Add, Copy, Paste, and Delete. Another window shows a detailed list of components for the 'Bellcore SR-332' library, including items like Micro A1, Micro A2, Micro A3, Diode A1, Resistor A1, and Subsystem A.1 through A.3. A third window shows a hierarchical view of the 'MIL-217' library structure, listing various sub-libraries like 'Block', 'Micro_Digital', 'Capacitor', 'Transistor', 'Switch', 'Diode_Low Frequency', 'Resistor', and 'Hybrid PCB'.

Analysis results include:

- Pi Factors
- Failure Rate
- MTBF
- Unavailability
- Contribution

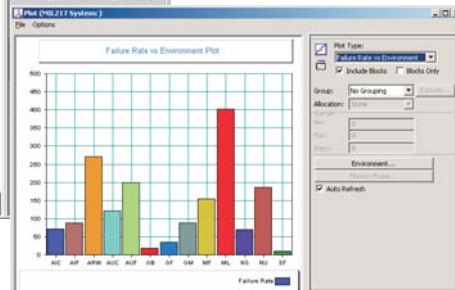
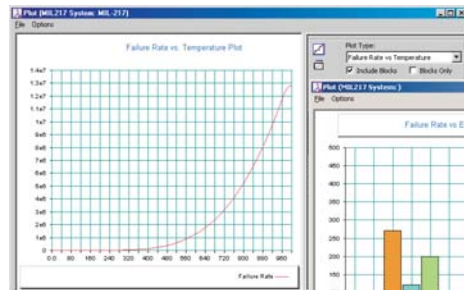
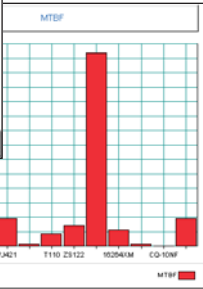
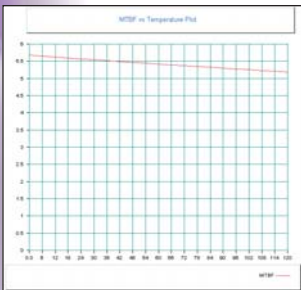
Failure Rates, MTBFs, Pi Factors and Other Metrics

Lambda Predict provides several ways to obtain calculated results for your analyses, including Failure Rates, MTBFs, Pi Factors, etc. Results are available for individual components, higher level assemblies, systems and even projects.



Graphical Plots/Charts

The Plot Viewer provides a complete array of plots/charts to demonstrate your analysis graphically. This includes plots for Failure Rate, MTBF, Contribution and Unavailability (independently and versus Temperature, Environment, Stress, Voltage, etc.).

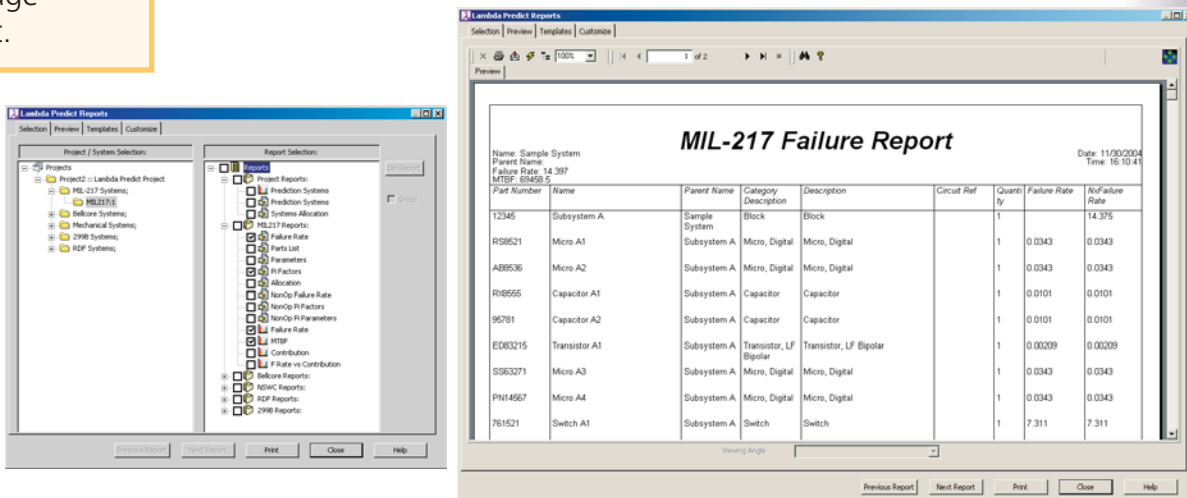


Plot results independently or against:

- Temperature
- Environment
- Voltage
- Etc.

Print-Ready Reports

Lambda Predict provides a variety of print-ready reports for your analysis, including Failure Rate, Parts List, Pi Factors, etc. You can customize the appearance of all pre-defined reports and also build and manage your own custom report templates.



Failure Rate Allocation Utility

The Failure Rate Allocation utility provides five allocation models that can be used to logically apportion the product design reliability into lower level design criteria such that the cumulative reliability still meets the requirements. Available models include:

- Equal Allocation
- AGREE Allocation
- Feasibility of Objective Allocation
- ARINC Apportionment Technique
- Repairable Systems Allocation

Five models for Reliability Allocation:

- Equal
- AGREE
- Feasibility of Objective
- ARINC
- Repairable Systems

	Name	Part Number	Include	Operating Time	Importance Factor	Number of Subelements	Reliability Allocated	Allocated Failure Rate (FPM)	Allocated MTBF (hrs)
1	Subsystem A	R512345A	<input checked="" type="checkbox"/> Include	100	.8	10	0.953	572.611	1746.384
2	Subsystem B	R512345B	<input checked="" type="checkbox"/> Include	100	.7	2	0.969	136.962	7640.451
3	Subsystem C	R512345C	<input checked="" type="checkbox"/> Include	100	.2	5	0.908	1146.223	873.192
4	Subsystem D	R512345D	<input checked="" type="checkbox"/> Include	100	.4	4	0.962	458.093	2182.98
5	Subsystem E	R512345E	<input checked="" type="checkbox"/> Include	100	.1	2	0.926	916.178	1091.49

Import and Export Utilities

The Import Wizard allows you to import data from outside data sources, such as Bill of Materials (BOM) systems. When combined with **Lambda Predict's** parts libraries, you can automatically match the part numbers of imported items against previously defined components to save time on data entry. The Export Wizard allows you to extract your data into a Microsoft Jet database, Excel file or other delimited file format.

Easy export and import to/from:

- Jet Database
- Excel File
- Delimited File

Both utilities use a step-by-step format to lead you through the process of defining your import/export preferences. If you perform similar imports or exports on a regular basis, you can save and re-use the preferences to save time and ensure consistency.

Customize the Work Environment and Plots

Lambda Predict's User Setup, Plot Setup and other customization tools allow you to configure the work environment and analysis settings to meet your particular needs.



Comprehensive Documentation

ReliaSoft's **Lambda Predict** comes with complete and detailed printed product documentation and on-line help files, as well as a multitude of example files and guides designed to get you up and running the minute the application is installed.

Total Customer Support

ReliaSoft is totally committed to providing you immediate support to answer any questions you might have and/or to assist you with any problems that may arise. Support options include free telephone, fax and e-mail support as well as free minor version product updates.

System Requirements

Lambda Predict is compiled and designed for Windows 98, Me, 2000, NT and XP and takes advantage of the features available in these platforms. Minimum system requirements: Pentium class processor with 32MB RAM (64MB or more is recommended), SVGA display and at least 100MB of hard disk space.

How much does ReliaSoft's Lambda Predict cost and how do I order it?

This information is available at <http://Predict.Reliasoft.com>. To order, use our on-line Web store, print-ready order form or contact ReliaSoft (1.888.886.0410 or +1.520.886.0410).

How quickly can I get Lambda Predict?

ReliaSoft will process your order on the same business day that we receive it, with shipment via Federal Express (2nd Day or International). If requested, domestic orders can be shipped via FedEx Overnight so that you can have the package on your desk by the next business day. For faster access, we also offer the option of immediate software downloads via ReliaSoft's Web site.

Is Lambda Predict better than the package I am using now?

ABSOLUTELY. We invite you to try **Lambda Predict** and compare it with any other package on the market. If you do not agree that the software is better than any competitor, just return the package within 30 days for a full refund.

What other reliability software is available from ReliaSoft?

ReliaSoft's reliability analysis software products have become the industry standard for complete reliability analysis and are used worldwide by most manufacturers with an active quality/reliability engineering program. Complete product details are available on the Web at <http://www.Reliasoft.com>.

- **Weibull++** for life data analysis
- **ALTA** for quantitative accelerated life testing (QALT) data analysis
- **BlockSim** for system reliability, maintainability, availability and related analyses using Reliability Block Diagrams (RBDs) or Fault Tree Analysis
- **MPC 3** for MSG-3 aircraft systems and powerplant analysis and reporting
- **RGA** for reliability growth analysis
- **Xfmea** for failure modes, effects and criticality analysis (FMEA/FMECA)
- **QTMS** for Failure Reporting, Analysis and Corrective Action (FRACAS)

Detailed user documentation in printed manual and on-line help files.

Free comprehensive technical support via phone, fax or e-mail.

Try a free demonstration copy of Lambda Predict and decide for yourself!

ReliaSoft®

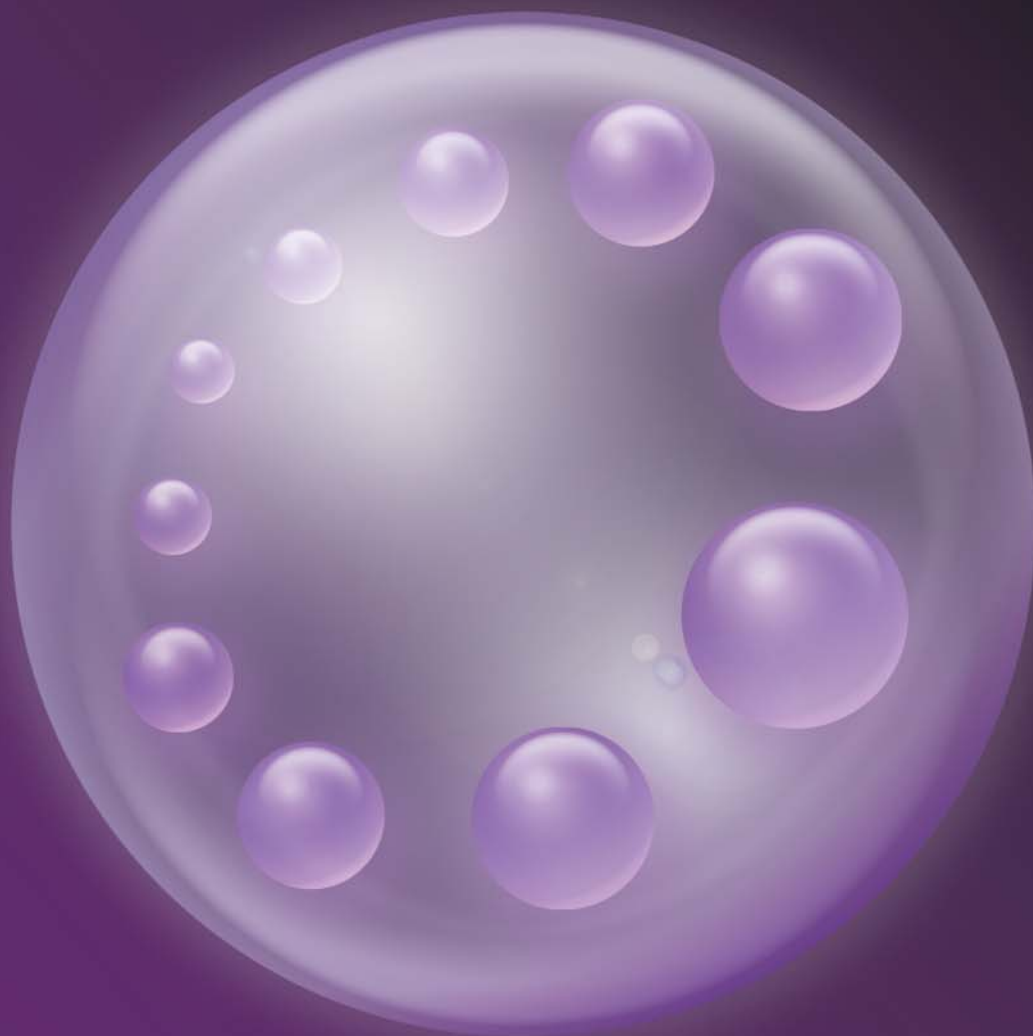


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