

SYSTEM RELIABILITY

ASSESSMENT SOFTWARE

The word "PRISM" is rendered in a large, bold, white sans-serif font. The letter "P" is partially obscured by a bright, glowing light source that creates a lens flare effect. The letter "R" is filled with a red and white horizontal striped pattern. The background is dark with a subtle grid pattern and some blue and red light effects.

PRISM

Focusing the Technology Spectrum on System *RELIABILITY*

Reliability Analysis Center



PRISM

PRISM[®]

is the new Reliability Analysis Center (RAC) software tool that ties together several tools into a comprehensive system reliability prediction methodology. The **PRISM[®]** concept accounts for the myriad of factors that can influence system reliability, combining all of these factors into an integrated system reliability assessment resource.

PRISM[®] was developed to overcome inherent limitations in MIL-HDBK-217 (Reliability Prediction of Electronic Equipment) and other models. Currently, MIL-HDBK-217 is no longer being actively maintained or updated by the Department of Defense (DoD).

PRISM[®] fills this void by providing a superior approach for reliability modeling under a broad range of applications.

HISTORICAL DATA ON SIMILAR SYSTEMS:

PRISM[®] translates the failure rate from an old system to a new system using the equation:

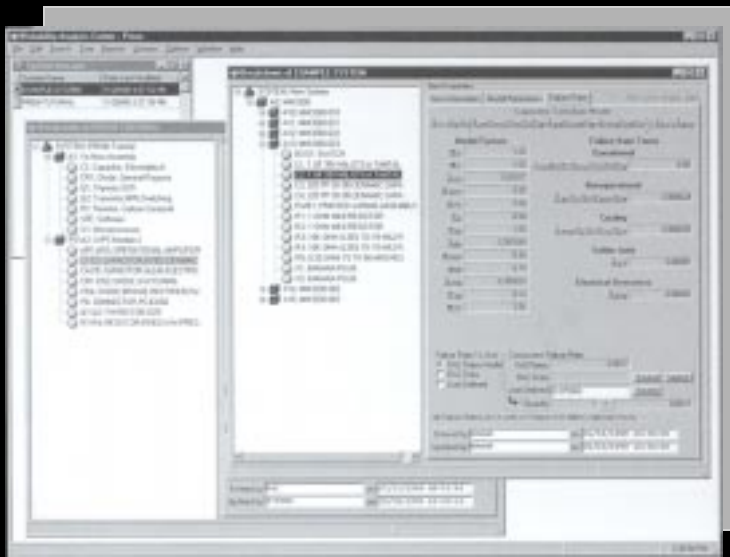
$$\lambda_{predicted} = \lambda_{predecessor} \cdot \frac{\lambda_{predicted, new}}{\lambda_{predicted, predecessor}}$$

The (predicted, new)/(predicted, predecessor) failure rate ratio accounts for differences in application environment, complexity, stresses, date, etc. The predicted failure rates for the predecessor and the new system are determined using the **PRISM[®]** methodology. The observed predecessor failure rate is used as a baseline against which the new system failure rate is estimated.

RACRates[®] COMPONENT MODELS:

RAC has developed a new series of component reliability prediction models. **PRISM[®]** contains models for integrated circuits (plastic and hermetic), transistors, diodes, resistors, capacitors, thyristors and software. Features of the new models are that they:

- Utilize existing RAC data collection infrastructure (to provide a systematic update of models).
- Address operating, non-operating and cycling-related failure rates.
- Are based on observed failure mode distributions (component failure causes are empirically modeled).
- Model component reliability growth, based on industry trends.
- Are based on quantitative stresses (default to average stress conditions).
- Are industry independent.
- Can be tailored with test or field data (if available).



Why is PRISM[®] Better?

PRISM[®] INCORPORATES:

- RAC Commitment to Software & Model Support
- PRISM[®] Training Courses Available
- Next Generation Component Reliability Models (RACRates[®])
- Comprehensive Searchable Database of Observed Field Failure Rates
- A Fully Scalable Modeling Approach from “Parts Count” to Comprehensive Analysis
- Ability to Model Both Operating & Nonoperating Part Failure Rates
- System Development Process Grading Methodology
- Ability to Use Predecessor System Data
- Ability to Use System Test & Field Data
- Customizable Part Library
- USE MANUAL in PDF format on CD-Rom

BAYESIAN DATA COMBINATION:

The user of PRISM[®] is encouraged to collect as much test and field data as possible to use in the reliability assessment. This is done by mathematically combining the initial assessment results with empirical data. PRISM[®] will combine the best “pre-build” failure rate estimate obtained from the initial assessment with the metrics obtained from the empirical data using Bayesian techniques. If test or field data is available, PRISM[®] can combine it with the best pre-build failure rate estimate using the equation:

$$\lambda = \frac{a_0 + a_1 + \dots + a_n}{b_0 + b_1 + \dots + b_n}$$

PRISM[®] Software Features

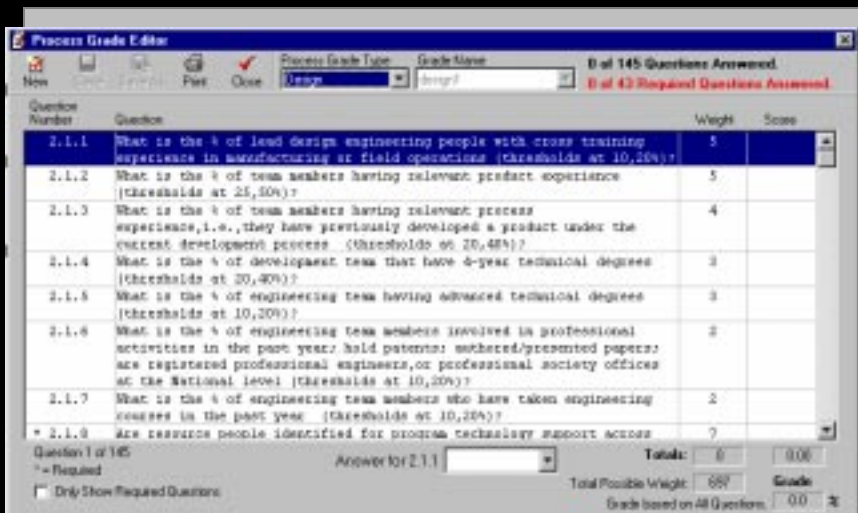
- Interactive User Interface
- Standard Windows Editing Capabilities
- Graphical & Tabular Reports
- Extensive On-Line Help Documentation
- Database File Import/Export Capability

The Minimum System Requirements for Running PRISM[®] are:

- IBM PC, or compatible, with 200MHz Pentium processor
- Windows 95, 98 or Windows NT 4.0 Service Pack 3
- 32MB available RAM
- 1024x768 SVGA monitor, 256 colors (64K colors recommended)
- 50MB available disk space
- Mouse, or equivalent pointing device
- Small fonts loaded

(For more information & to obtain a demonstration version, see our website at: rac.iitri.org/prism)

Fax: (315) 337-9932



ORDERING INFORMATION

TO PLACE AN ORDER

Fax to: (315) 337-9932

Mail to: Reliability Analysis Center, 201 Mill Street, Rome, NY 13440-6916.

Prepayment is preferred. Credit cards (VISA, AMEX, Mastercard) are accepted.

All Non-U.S. orders must be accompanied by a check drawn on a U.S. bank.

Make checks payable to: IITRI/RAC.

Write to: Reliability Analysis Center, 201 Mill Street, Rome, NY 13440-6916

Call: (888)RAC-USER or (315) 339-7047

Fax: (315) 337-9932

Web: rac.iitri.org/products

E-mail: rac@iitri.org

PRICES: \$1995 U.S. orders, \$2195 Non-U.S. Shipping included.

SITE LICENSES AVAILABLE

GOVERNMENT AGENCIES

Blanket Purchase Agreement, DD Form 1155, may be used for ordering RAC products and services. Indicate the maximum amount authorized and cutoff date and specify products and services to be provided.

Identify vendor as IIT Research Institute/Reliability Analysis Center.

Shipping Information

Name _____

Company _____

Division _____

Address _____

City _____ State _____ Zip _____ Country _____

Phone _____ Ext. _____ E-mail: _____

Method of Payment

Personal check enclosed
(Make checks payable to IITRI/RAC)
Federal ID #36-216-9122

Company check enclosed

Quantity: _____

Amount: \$ _____

Credit Card No.: _____ Expiration Date: _____

Type: AMERICAN EXPRESS VISA Mastercard

Name on Card: _____ Signature: _____

Billing Address: _____

DD1155 (Government Personnel)

Company Purchase Order