Module Overview – MADe Reliability, Availability & Maintainability

Assess the reliability, availability & maintainability of a system

Overview

MADe Reliability, Availability & Maintainability (RAM) module is used to assess when failures in a system are expected to occur, how best to mitigate their risk and how this will impact system cost, safety and availability. To achieve this, the RAM module enables users to apply different reliability analyses to calculate the likelihood of failure at any stage of the product lifecycle. A range of standards compliant with maintenance analysis ensures that the maintenance approach is technically valid and economically justified.

How does MADe RAM work?

RAM analyses the system and proposes an optimized maintenance schedule based on operating parameters. Users input the operational parameters and metrics associated with each component to perform analysis to determine its sustainment cost and maintenance effectiveness.

Reliability-Centered Maintenance (RCM) utilizes the model to assess each components’ optimal maintenance strategy. When an existing maintenance action is conducted, Back-Fit RCM (BF-RCM) is utilized to assess the effectiveness of the maintenance action to propose change where necessary.

Key benefits

- Model-based approach
- Consistent process to determine maintenance parameters
- Configuration manage the reliability assessment process
- Identification of poor performing items
- Maintenance decision support

Key features

- Top down reliability approach
- Total lifecycle economic sustainment
- Consistent RCM and BF-RCM process
- Trade study analysis to optimize reliability and maintenance

Reliability Editor

The reliability editor allows Weibull or exponential distribution types to determine the probability of failure. The reliability editor allows Weibull or Exponential distribution types to determine the probability of failure. Exponential distribution requires the mean time to failure of the component or the part failure rate and the standard deviation of failure. The Weibull distribution requires the slope, character life and standard deviation (characteristic life) parameters.

Reliability Centered Maintenance / Back-fit RCM

The RCM process follows a series of logic questions to guide the analysis towards the optimal maintenance strategy. The series of decision logic ensures a consistent process is followed for each functional failure. The B-RCM process follows an assessment process to classify and recommend change if necessary based on how each question was answered.

Maintenance Cost Estimates

Maintenance cost estimate allows sustainment costs and maintenance types to be assigned to compute economic impact over the life of the system. The analysis allows ‘what-if’ scenarios to be applied to compare economic differences when alternative maintenance is selected.

To arrange for a demonstration, please contact us at info@phmtechnology.com
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MADe Module: Reliability, Availability & Maintainability

Functionality

- Assign reliability
- Allocate weighting
- Apply to Model
- Cost parameters
- Item Maintenance overview
- Criticality Charting
- Overview
- Cost Parameters
- Maintenance Details
- RBD
- Reliability Editor
- Monte Carlo Simulation

Outputs

- Fault Tree Analysis (Hardware)
- Reliability Allocation
- Reliability-Centered Maintenance (RCM II / MIL / MSG)
- Back-Fit RCM (NAVSEA workflow)
- Reliability Block Diagram
- Maintenance Cost Estimates

Features

- Reliability Editor
- Maintenance Task Analysis
- Monte Carlo Simulation
- Weibull Distributions
- Exponential Distributions

Other Modules

- MADe Modelling
- MADe SRA – Safety and Risk Assessment
- MADe PHM – Prognostics and Health Monitoring

Licensed Plugin

- Teamcenter Import

Minimum System Requirements

- Processor: 32-bit, AMD Athlon II X2 or Intel Core i3 2.8 GHz
- RAM: 4GB
- Hard disk: 1GB for installation, 2GB additional free space for saving projects and related files
- OS: Windows XP Service Pack 2
- Resolution: 1366x768 High Definition screen resolution
- Java: Java 8 Standard Edition (bundled)

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