

Reliability and Failure Analysis Lab

Reliability Modeling & Simulations

Overview

UAH has the capability and expertise to perform reliability and availability modeling and simulations for complex systems. Our focus has been developing Reliability Block Diagrams (RBD's) from schematic diagrams and determining the reliability and or availability for the given system. Our team of experts can account for complex configuration in our models including: series, parallel, load-sharing, redundant, standby and r-out-of-n designs. We are also able to determine the optimal number of spares and maintenance intervals through various simulations.

Early in the design process we are able to assess the product reliability, identify the major factors that drive system failure, and the impact of environment and stress on the system. UAH uses different globally accepted standard to model reliability: MIL-HDBK-217, 217Plus, Telcordia SR-332, and IEC TR 62380.

Reliability modeling and simulation is performed to ensure that the system meets the required reliability specifications. Some of the different calculations and analysis that can be performed are:

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|---------------------|--------------------------|------------------------------|
| MTBF | Failure Rate | Reliability |
| Availability | Phase Modeling | RBD |
| What-if Analysis | Reliability Optimization | Failure Frequency |
| # of Failures | Risk Analysis | Costs Analysis |
| Fault Tree Analysis | Downtime | Identify Critical Components |

Applications

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|-----------------|--------------------|-----------------|
| Aerospace | Defense | Power Plants |
| Airlines | Automotive | Electronics |
| Medical Devices | Industrial Systems | Chemical Plants |

Windchill Quality Solutions Modules (formerly Relx)

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|---------------------|-----------------|-----------------|
| FMEA | Life Cycle Cost | Maintainability |
| Opsim | Prediction | Weibull |
| Fault Tree Analysis | | |

Contact

UAHuntsville Reliability and Failure Analysis Lab
301 Sparkman Dr.
Von Braun Research Hall D-11
Huntsville, AL 35899-0001

E-mail: rfal@uah.edu

Phone: (256) 824-2685

Fax: (256) 824-6848

