



Independent Failure Analysis and Identification of Life Limited Items

Accelerate Your Product Design and Save Costs

At DfR Solutions, we provide quality, reliability, and durability software and solutions to the electronics industry. Using our innovative Sherlock Automated Design Analysis™ reliability software, and our industry expertise we empower customers in electronic technology markets like avionics to maximize and accelerate product design and development while saving time, managing resources, and improving customer satisfaction.

Solutions From Beginning to End

Applying an integrated use of the science of **Physics of Failure**, best practices, and an in depth understanding of industry standards, we provide crucial insights and solutions early in product design and throughout the product life cycle.

The Right Combination

The extensive expertise of our multi-disciplined experts in fields like material science, metallurgy, physics, chemistry, and electronics engineering, combined with experience in the specific needs and practices of various industry segments such as; avionics, telecom, automotive, and defense electronics uniquely qualify us to investigate any issue with electronic assemblies, components and materials. Our team has considerable experience with all types of electronics and electro-mechanical devices such as chip resistors, ceramic capacitor cracking, electrolytic capacitor failures, and printed wiring board defects. With more than 400 reliability investigations per year the DfR team puts the “Analysis” back in FA.

Unbiased, Objective Process

- Assign technical expertise and investigate your problem
- Identify the root cause
- Recommend corrective actions

**Let DfR Solutions
Solve Your Reliability
Challenges.**

- ✓Independent
- ✓Unbiased
- ✓Objective
- ✓Cost effective
- ✓Experienced

**Call for more information
(301) 474-0607**

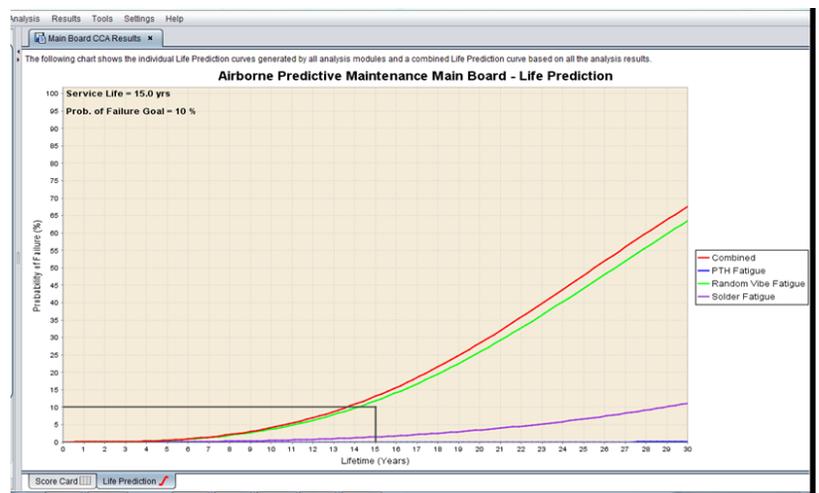


The Systematic Solution

DfR Solutions takes a systematic approach to failure analysis beginning with non-destructive and proceeding to destructive methods until all root causes are conclusively identified. We select the techniques appropriate to your specific product, based upon the failure information (failure history, failure mode, failure site, failure mechanism). Our physics of failure expertise often allows us to identify the point of failure. For example, our specialized knowledge of solder joint fatigue enables us to determine if the failure was due to poor manufacturing, overstress, or early wear out.

Did the failure occur because the board or component was at or near the end of its useful life?

Given the known operating environments, the materials used in the design, the amount of time in service, DfR's Sherlock Automated Design Analysis™ tool can estimate the remaining useful life.



With our understanding of expected lifetime and actual operating environment, our analysis will help you determine whether or not these items may have experienced wear out failures.

- Ceramic Capacitors (oxygen vacancy migration)
- Integrated Circuits
- Memory Devices (limited write cycles, read times)
- Electrolytic Capacitors (electrolyte evaporation)
- Resistors (if improperly derated)
- Silver-Based Platings (if exposed to corrosive environments)
- Relays and other Electromechanical Components
- Light Emitting Diodes (LEDs) and Laser Diodes
- Connectors (stress relaxation)
 - Interconnects (Creep, Fatigue)

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