

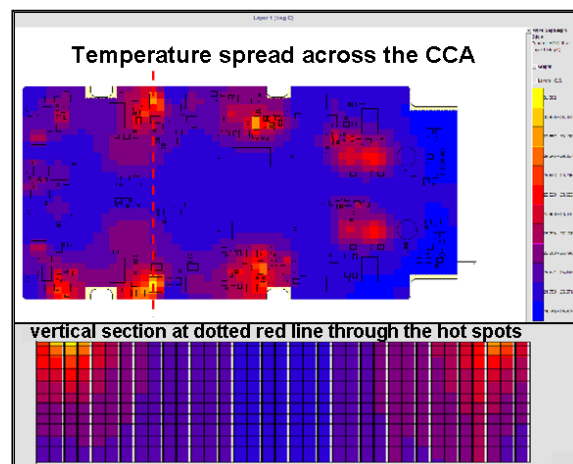
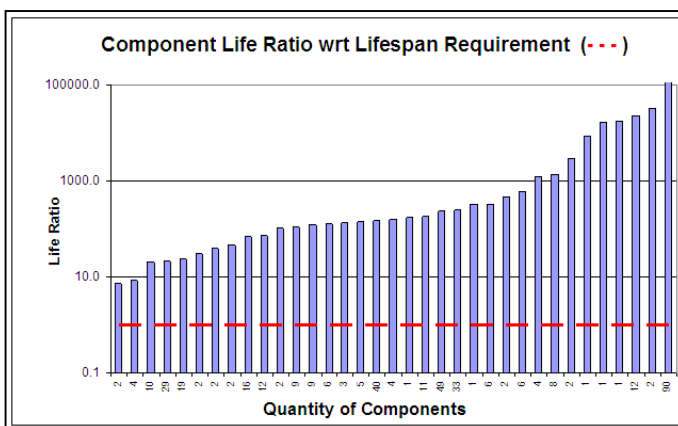
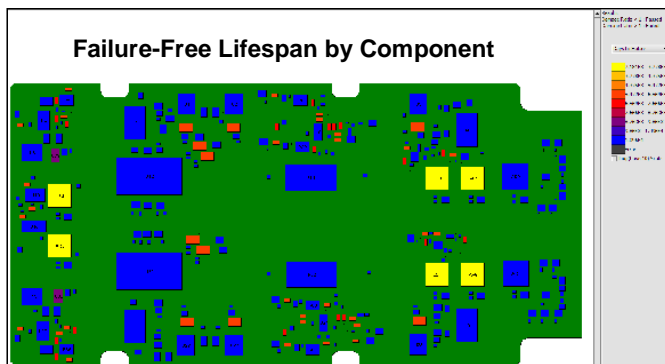
## Why use thermal, shock and vibration simulation?

CDI Government Services has the capability to provide state-of-the-art combined thermal, shock and vibration simulation services for aircraft, ship and vehicle systems. Let us demonstrate how effective our simulation software is to verify Operational Availability (Ao) and avoid unexpected service life costs.

## Avoid unplanned service life cost by environment test simulation

### Results from Environmental Simulation

- ✓ Quantified failure-free lifespan for each component
- ✓ Identified failure type that will occur to the component level
- ✓ Categorized response plots for thermal, shock or vibration simulation
- ✓ Designs are “right the first time”
- ✓ Cost savings of at least 40% of usual service life cost



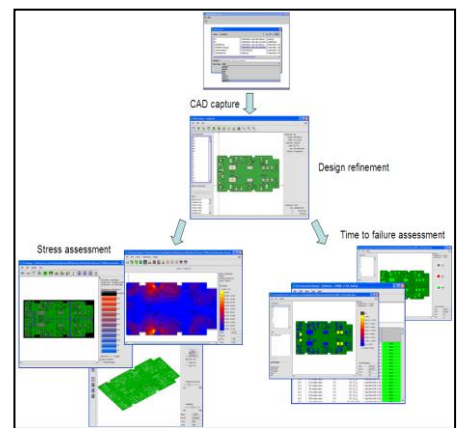
Today's equipment must be greater than 95% available under environmentally-stressed conditions. As equipment is designed, can we predict how it will actually perform over its life cycle?

**What is done now?** Typically we rely on design qualification by sample testing equipment first article units. Sometimes these "qualified" designs fail to meet their intended Mean Time Before Failure (MTBF) requirements, and a corrective action process called Reliability Growth & Testing (RG/T) is performed to retroactively achieve the Ao goal.

The RG/T process typically involves considerable cost with no early return on investment. This cost includes repairing equipment failures, performing engineering failure analysis, and redesigning and re-procuring the equipment. Additionally, there is a cost resulting from poor system availability during the analysis / redesign time frame.

**Is there a better way?** We have the technology to simulate the equipment's design response to thermal, shock and vibration early in the design cycle, which will radically reduce the operational support costs while improving availability.

### How to Use It?



- ✓ Create a physical model of CCA components and PCB from CAD files.
- ✓ Apply thermal, shock and vibration stress simulations to the model.
- ✓ Review the graphic or exportable spreadsheet format outputs to identify design improvement areas.

