



## Case Study

**Sherlock, by DfR Solutions, provides rapid feedback on product design enabling auto manufacturer to get back on track.**

### Background

A leading U.S. automotive manufacturer initiated an update to their product qualification process to help accelerate development and deliver new products to market sooner. To accomplish this goal, the duration of the accelerated life test was reduced by increasing the severity and decreasing the duration of the temperature cycle.

During an initial trial of this updated qualification test on an electronic module, several components experienced failure. A failure analysis identified the failure mode as solder joint fatigue. Contrary to the original intent, these unexpected failures introduced significant delay as the two parties, customer and supplier, worked to determine the root-cause of these failures and their relevance to actual field environments.

### Solution

To help accelerate this process, and provide quantitative findings, both parties requested that DfR Solutions perform an analysis of the module design using Sherlock, DfR's revolutionary new Automated Design Analysis software.

Sherlock Automated Design Analysis software uses a Physics of Failure analysis to allow design and reliability engineers to predict product failure earlier in the design process saving time, money, and improving product performance.

## Results

Sherlock's initial evaluation of the module design correctly predicted which parts would fail, confirming the field results of the accelerated life test conducted by the manufacturer. Results from Sherlock also helped both parties understand how the test environment related to ten (10) years of a realistic worst-case use environment. This information, provided by DfR's Sherlock analysis in less than one day, allowed critical, time-sensitive product development to continue as originally planned.

The automotive manufacturer is now using DfR Solutions' Sherlock Automated Design Analysis to evaluate additional electronic module redesigns. The use of Sherlock will provide the manufacturer with rapid feedback on product design and enable them to deliver more reliable products to market in less time.