

Project Summary:

Initial Reliability Assessment of a RF Electricity Meter

In an extensive reliability assessment of a RF electricity meter, DfR Solutions was able to help a major solid-state meter manufacturer to identify best practices in reliability to enable the company to reach an elite level of quality control and reliability assessment for this product. DfR was able to pinpoint areas of improvement by emphasizing component stress analysis, design for manufacturability, step stress tests, accelerated life testing, control plans, and failure analysis on field returns. With this toolbox of reliability assessment tools, the meter manufacturer was able to put in place more processes for ensuring that the RF electricity meter would satisfy its reliability goals of a 20-year desired lifetime and 1-year warranty period.

Keywords: RF, radio frequency electricity meter, initial reliability assessment, reliability goal, use environment, component stress analysis, ripple current, derating, contract manufacturer component control, design for manufacturability, critical to quality parameters, CTQs, step stress testing, virtual qualification, accelerated life testing, temperature-humidity bias, failure analysis