

Project Summary:

Design Review of Power Supply

By performing a complete design review of a new ultrasonic power supply to be used in water treatment facilities, DfR Solutions was able to help a major industrial cleaning equipment manufacturer to identify areas of quality and reliability concern while the company was bringing this product to market. DfR helped to create a reliability framework to meet customer, environmental, desired lifetime, and warranty performance standards. Recommended actions included component stress analysis, step stress testing, virtual qualification, accelerated life testing, and root-cause analysis of line and field failures. During this early stage of product design, DfR was able to ensure that the power supply's quality and reliability issues would be addressed during design and would therefore be solved before becoming major problems.

Keywords: design review, new product, ultrasonic power supply, water treatment facility, reliability goal, customer requirements, use environment, component stress analysis, design for manufacture, step stress testing, virtual qualification, accelerated life testing, ALT, temperature-humidity bias, THB, supplier control plan, failure analysis on line and field returns, lifetime, warranty, duty cycling, continuous power on, mixed flowing gas, MFG, root-cause analysis, conformal coating, physical contaminants, gaseous contaminants