



TJ GREEN ASSOCIATES, LLC

739 Redfern Lane  
Bethlehem, PA 18017 USA  
www.tjgreenllc.com

Direct: 610-625-2158  
Mobile: 610-730-3224  
Email: tgreen@tjgreenllc.com

## **Environmental Stress Screening (ESS)**

1/2 DAY

Environmental Stress Screening (ESS) is a program which subjects products, such as, hybrids and microwave modules to environmental stress in order to precipitate latent defects and screen out failures that may otherwise show up early in the product life cycle. ESS is a dynamic program which changes based on production yield and early life failures.

This course is intended for process engineers, quality engineers, and managers responsible for screening and qualification testing of hybrids and microwave modules.

### **Course Outline**

Review of MIL-PRF-38534 Requirements for Screening and Qualification

- Theory and technical rationale for screening vs. qualification
- Class H vs. Class K screening and qualification requirements
- Clarification of destruct vs. non-destruct test methods

Basic Review of MIL-STD-883 Test Methods (e.g., temp cycle, constant acceleration, burn in etc.)

Element Evaluation Screening

- Microcircuit and semiconductor die level
- Passive elements (e.g. discrete chip resistors, capacitors etc.)
- Substrate evaluation
- Package evaluation
- Polymeric materials (e.g., epoxy, particle getters)

Hybrid Device Screening for Class K and Class H Hybrids

- Pre Cap environmental stress screening
- Required Post Cap environmental stress screening

Review of Typical ESS at the PWB and Black Box Level

Course Summary

- Student Examination Test and Review
- Student Feedback and Course Critique