

## ***HALT & HASS Two-Day Seminar + Workshop***

**December 5-6, 2022 Huntington Beach, CA Instructor: Aldo Fucinari**  
**Cost \$1,195 per person USD, Group rates available!**

**Seminar Objective:** This two-day seminar gives valuable insight into saving your company millions of dollars in lost opportunity by prevention of latent product defects. You will get to market faster and delight your customers by producing consistent high quality products. Participants will obtain a deeper understanding of what the HALT and HASS methods do for process and product maturity in an organization and will enable better integration of these methods into the design and manufacturing processes respectively. The instructor invites high level management as well as engineers to attend.

Aldo Fucinari has over 40 years' experience in design validation testing, electrical engineering and environmental testing and holds a BSCE degree in Computer Engineering. He has worked in various fields of engineering including reliability, verification and validation, process control, quality assurance, systems engineering, hardware, software and product development. He is currently senior consultant for RapidDiscoverySystems.com environmental testing consultants and is partnered with Hobbs Engineering and Quality Testing Services to provide end to end HALT, HASS and specialized environmental testing solutions. Now as an independent environmental reliability-testing consultant, he is involved with world-class companies in bio-medical, computer, consumer and automotive products. Currently he is doing reliability-engineering related work with ophthalmic measurement and surgical devices.

### **COURSE OUTLINE:**

#### **Introduction**

- Summary & Management Overview, Origin of the methods and how they developed through the years.

#### **Stress Strength**

- Load-Strength relationships and how they relate to latent epidemic field failures.
- How HALT & HASS relate to Weibull analysis and the bathtub curve of reliability. Prevention of Early Life, Useful Life and Wear out failures.
- Cycle fatigue testing. S/N curves, cycle testing fixtures, acceleration of failure and time compression.
- Understanding operational environmental specifications and design margin. How much is enough?

#### **Highly Accelerated Life Testing (HALT)**

- HALT testing – Finding ALL failures
- The Classic HALT method **Step by Step**
- Component parts variation, Temperature, Voltage, Vibration effects. Simple parts changes that save millions.
- What the operational and destruct limits look like on a chart. How to use these for stress screening profiles.
- Where to stop improving the product in a logical, cost effective way.
- Electronic dynamic reactions during HALT and what to measure. Rapid detection of firmware issues.
- Leveraging HALT for **cost reduction**. The myth that stronger is **more Expensive**.

#### **6 Degree of Freedom Vibration**

- Single sine, single axis, six degree of freedom
- Combined rapid thermal and vibration effects and analysis.

#### **Highly Accelerated Stress Screening (HASS)**

- Variables in supply chain and manufacturing processes. Why your suppliers should be using HALT and HASS.
- Establishing test profiles. Depth of Screen and Safety of screen.
- Proof of HASS, statistical approach by product type.
- How to test multiple part fixtures. How to apply and measure uniform forces during HASS.
- Real world HASS examples. HASS applied to large and small volume production.
- Equipment, LN2 delivery. HASS optimization methods. Saving consumables.
- Why are customers demanding HASS as a requirement? Convincing customers to move away from obsolete ESS and burn in screening.

To register or for more information about this course, please contact Sharon Cary [learn@hobbsengr.com](mailto:learn@hobbsengr.com) at Hobbs Engineering, A Division of ESPEC North America, Inc. 303-655-3051