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## VIBRATION AND THERMAL SCREENING CHAMBER: ESSAD (BRIEF PRODUCT SHEET)

### PRODUCT DESCRIPTION

ESSAD is a vibration and thermal screening system based on an acoustical technology designed to precipitate and allow detection of latent defects on electronic devices, mainly printed circuit boards. It is characterised by its capacity to precisely control a specific level of energy over tailored vibration spectrums that generally include the resonance frequencies of the UUT (Unit Under Test). It is appropriate for accelerated stress screening processes such as HALT, HASS and ESS.



### USES

- Printed circuit boards (PCB)
- Compact electronic devices
- Card cage assemblies

## DEFECTS DETECTED

The ESSAD system can precipitate, amongst other, common defects such as :

- SMT (Surface Mount Technology) solder joint on discrete components and IC leads
- Plated through-hole solder joints on components and connectors
- BGA (Ball Grid Array) solder joints
- Defective or broken components
- Connector defects
- Mechanical attachment issues
- Etc..

## SPECIFICATIONS

### PERFORMANCE

- Easy and quick installation of UUT (Unit Under Test): 5 minutes or less per load
- Stimulation time duration: programmable, usually less than 15 minutes per load for vibration and less than 30 minutes per cycle in thermal or combined environments.
- Fast verification procedure of the system: Can be run in 5 to 10 minutes
- Capacity: up to 8 small PCB, or 4 medium PCB or 1 electronic device (card cage)
- Allow for pre programmed tests in vibration, temperature and combined environment.
- Possibility of different type of vibration control: Random, Sine, Sine on Random (SoR) vibration, Random on Random (RoR), and Kurtosion™..
- Nominal random vibration range : 30 to 2000 Hz up to 30  $g_{rms}$  nominal on a (15mm\*25mm\*1mm) 1 layer board  
Other performance levels possible depending on the device physical attributes (weight, size, response to vibration) and vibration spectrum
- Sinusoidal mode: Up to 100 g peak at some resonances between 30 and 2000 Hz and up to 10g peak at other frequencies  
Other performance levels possible depending on the device physical attributes (weight, size, response to vibration) and excitation frequency
- Vibration spectrum frequency range: 30 to 2000 Hz
- Energy consumption for vibration excitation is substantially reduced compared to Electrostatics or pneumatic shakers.

- Two types of sensors available for vibration control: Accelerometers and Microphones.
- Easy determination of the resonance frequencies of the UUT and possibility of performing modal tests .
- Easy tailoring of the vibration spectrum of the UUT. A special transfer routine allows automatic tailoring the spectrum using the resonant frequencies of the UUT.
- Possibility of tailoring the vibration spectrum over temperature.
- Combined temperature and vibration control using the same software.
- Reduced thermal inertia allows for fast temperature change rate together with electricity and LN2 reduction in comparison to standard equipment.
- Temperature range: -125° C to +125° C
- Rate of change:

	air
cooling	-100°C/minute
heating	+100°C/minute

#### **OTHER SPECIFICATIONS**

- Level of noise: Maximum 70 dB (A) at the operator's station
- LN2 safety : evacuation system for nitrogen
- Overall dimension for the combined vibration thermal model:

height	96 in.
width	64 in.
depth	88 in.

- Also available in vibration model only
- Weight: less than 3,000 Lbs.
- Electrical power : 120/208V, 3 phases, 100 A
- Operating system: Windows with Web access options
- Temperature data acquisition module up to 16 channels.

- Safety interlock characteristics include in the equipment configuration.
- Visual indication of the equipment status.
- Physical access to UUT for continuous functional monitoring
- Comply with US and Canadian regulations: UL, ULC, FCC (EMI/EMC),
- Patent protected in several countries

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