TRACE Laboratories SM

Highly Accelerated Life Test (HALT)
Highly Accelerated Stress Screening (HASS)

Highly Accelerated Life Test (HALT)

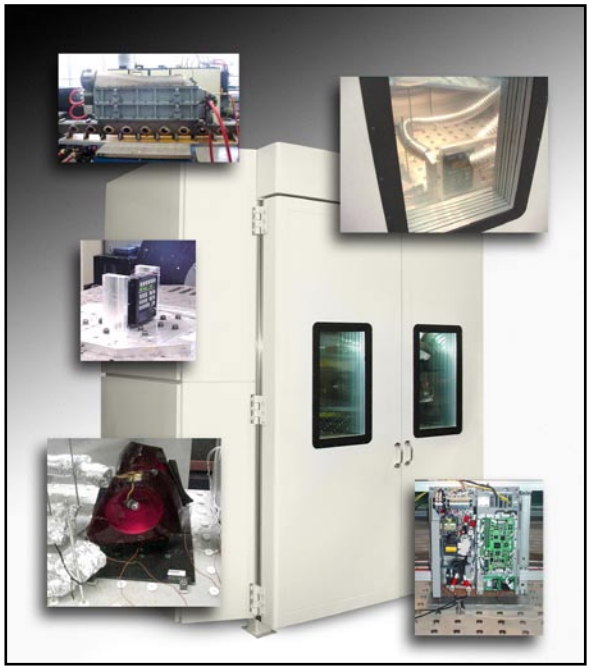
HALT (Highly Accelerated Life Test) is a testing approach used to identify potential design problems not typically encountered. HALT uses the step stress method to define the operating/destruction limitations of a product. Subjecting products to the complete HALT program, one can determine design flaws much faster and less expensively than can be achieved with conventional test methods.

HALT is comprised of five individual step stress tests. Each test is incrementally performed as to not pass over a single point which could ultimately become a failure out in the field:

1-3. The first three tests define the temperature and vibration parameters.

4. *Rapid Thermal Cycling Test* - cycles between the high and low operating limits.

5. *Combined Environmental Test* - uses rapid thermal cycling as well as vibration step stress. This test is the most practical test used to validate a product that can withstand such environmental exposures.



AST Chamber Capabilities

Temperature Capabilities:

- Temperature Extremes (-100ºC to 200ºC)
- Temperature Transition Rate (60°C/min)

Vibration Capabilities:

- Tri- Axis Random Vibration
- Maximum Vibration Level (50 Grms)
- Frequency Range (20 Hz – 10,000 Hz)

Mounting Services:

- Chamber Table Size (48” x 48”)
- Table Hole Pattern (3/8” Inserts on 4” Centers)
- Table Maximum Support (1000 lbs)

Major Components of HALT

- High Temperature Step Stress
  Explores High Temp Thermal Limits
- Low Temperature Step Stress
  Explores Low Temp Thermal Limits
- Vibration Step Stress
  Resistance to Vibration in Application
- Rapid Thermal Cycling
  Explores Freeze/Thaw Effects
- Combined Environment
  Temperature Cycling and Vibration

HALT Program Package

- Formal Test Report Including Digital Pictures, Test Profiles, and Pertinent Graphs
- Use of Our Power Supplies, Data Loggers, and Monitoring Equipment

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Highly Accelerated Stress Screening (HASS)

Highly Accelerated Stress Screening (HASS)

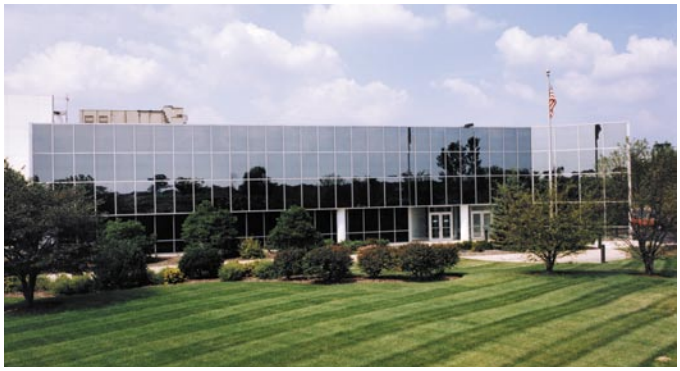
When HALT has been used in the development of a product, there should be fewer problems found when beginning production. Highly Accelerated Stress Screening (HASS) verifies that products have been manufactured correctly. Based on the destruction and performance limits established by HALT, HASS attempts to precipitate latent faults without actually damaging the product.

HALT/HASS Testing

- Components
- Sub-Assemblies
- Complete Systems
- Small and Large Projects
- Temperature and Vibration Analysis
- Massive Products and/or Many Samples in a Single Run

Services

- Explosion Proofing
- Acceleration
- DSCC, DGSC, and DISC
- Failure Analysis
- Solder Joint Reliability



Testing is performed in strict accordance with the standards and customer-specific requests. The lab is also available on a per-day basis for preliminary testing and troubleshooting.

Trace is an A2LA Accredited Laboratory.

Independent, Internationally Accredited Testing Services

- ✓ *Chemical Testing*
- ✓ *Electrical Testing*
- ✓ *EMC (Electromagnetic Compatibility)*
- ✓ *Environmental Testing*
- ✓ *Failure Analysis/Contamination*
- ✓ *HALT (Highly Accelerated Life Test)*
- ✓ *Material Properties*
- ✓ *Mechanical Testing*
- ✓ *Printed Circuit Board Testing*
- ✓ *Reliability/Durability/Qualification*
- ✓ *Thermal Analysis*
- ✓ *UL Testing*
- ✓ *Vibration Testing*
- ✓ *Water Testing*

For more information, or for a quote on specific test requirements, contact:

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