DATA SHEET

VIBRATION, SHOCK and BATTERY TESTING

Vibration and Shock Testing

The UNICOR/Federal Prison Industries Electronics and Environmental Test Laboratory can precisely simulate virtually any vibration and shock environment that your products and components experience during transit and operation.

Our vibration and shock testing services are performed on the latest equipment with digital operating controls and results reporting. Test procedures are developed with the utmost care and attention to detail, ensuring that your products and components will receive a realistic simulation of the vibration and shock they will experience in their lifetimes. We have broad experience in testing products and components to the most rigorous military and commercial standards.

Our sophisticated equipment can simulate the rocking motion that products experience on shipboard or the moderate to severe vibration that components would sustain in vehicles or on aircraft and missiles. Our equipment also can subject your products to the type of shock they might experience in a missile launch, airplane landing or drop from a specified height.

Our highly experienced staff can design tests to meet the specific needs of your product and suggest engineering modifications that would enhance product and packaging performance under dynamic transit and operational stresses.

Vibration, Shock and Transportation Simulation Testing Systems

VIBRATION AND SHOCK CONTROLLERS: VWIN

- Among the world's most advanced vibration control systems designed to meet the challenges and requirements of the 21st Century
- Based on Pentium 4 Workstations with Windows XP Operating Systems
- Configured to both 4-, 8- and 16-channel operations
- Latest technology in digital signal-processing and shaker-controls
- Our systems provide real-time testing for random, sine, shock, Shock Response Spectrum (SRS), random on random, multi-tone sine on random, and TRAC (time replication acceleration control) vibration testing and transducer calibration
- Extensive data acquisition and analysis capabilities

SHAKER TABLE: UNHOLTZ DICKIE SHAKER MODEL T1000-58E.

- Capable of simulating the three basic environments with a continuous rating generated force of 15,000 lb pk sine, 12,000 lb rms random and 30,000 lb pk shock
- Produces a maximum peak velocity of 80 inches per second and a maximum peak-to-peak excursion of two inches
- Shaker has a random rating with flat spectrum of 20 Hz to 2 kHz and load greater than 1000 lbs
- Free table maximum acceleration of 150 g
- Controlled by a VWIN computer-based vibration control system

DYNAMIC SYSTEM VIBRATOR: LING

- Dynamic system vibrator with a wide-frequency-band electro-dynamic transducer
- Produces a sine vector force
- Normally operates in frequency range of 5 Hz to 2,000 Hz from either a sine wave or random wave form output
- Can be placed under an environmental chamber to produce low- and high-temperature vibration testing

VIBRATION TRANSPORTATION SIMULATOR: L.A.B. MODEL 1000 SC

- Heavy-duty model specifically designed for performing bounce and bounce pre-conditioning tests on military and commercial products
- Capable of testing shipping containers, products and packages to determine their ability to withstand normal shipping hazards
- Produces circular-synchronous in-phase and out-of-phase motions (simulation for both wheeled and tracked vehicles)

PNEUMATIC SHOCK MACHINE: M/RAD

- Produces vertical shock pulses using compressed air to force the carriage to impact the shock machine's base
- Capable of producing half-sine pulses by placing rubber pads between the carriage and the impact area of the base; saw-tooth pulses are produced through the use of lead pellets and square pulses through special generators

Our Vibration and Shock testing equipment is all NIST calibrated and traceable.

Battery Testing

We have a custom-designed, multi-channel battery testing system used for research and development of energy storage or electrochemical devices, such as batteries, super-capacitors, and fuel cells.

This particular testing system can be applied to battery testing, material research, electrode study, fuel cell testing, supercapacitor R&D or electrochemical investigation.

MULTI-CHANNEL BATTERY TESTING SYSTEM: ARBIN BT2000

- Performs energy storage device testing, including charge-discharge, constant current, constant voltage, constant load and constant power; special functions for unique testing requirements of various devices or cells
- Independent performance and control of each channel
- Can provide ***fast*** (sub-millisecond) or ***slow*** (sub-second) pulse operation, such as GSM, CDMA, and testing procedures in PNGV

MAJOR FEATURES:

- Programmable control of current, voltage, load and power; providing constant, linear ramp, staircase and other control profiles generated by a specified formula
- Potintiostat/galvanostat functionality on each channel enables broad electrochemistry studies including material study that employs reference electrodes
- Multiple current ranges on every channel guarantees high accuracy over a wide, dynamic range
- Bipolar current/voltage output guarantees linearity and cross zero accuracy. Also enables instant cross zero transition with the speed defined by the rise time
- Discharge power supply
- Channel paralleling to increase current output

More detailed information on the UNICOR/Federal Prison Industries Electronics and Environmental Test Laboratory is available at: http://www.unicor.gov/electronics/elecenvirtesting.cfm

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