National Aeronautics and
Space Administration

D-Site Facility

High Voltage Battery Test Capabilities

D-Site is a sub-megawatt testbed enabling advanced electrical powertrain ground testing for aerospace applications across industry, government, and academia. Located at NASA's Neil Armstrong Test Facility in Sandusky, Ohio, D-Site is equipped with a battery test chamber enabling pack-level performance testing to meet research, development, and certification requirements in the industry.

Overview

Chamber Layout

- 13'x13'x18', 169 sq ft
- 26" thick reinforced concrete walls
- Dedicated inlet/outlet ventilation system with 14' exhaust stack
- Energy limit: 16,000 Ah

Safety Features

- Fire detection & suppression systems
- Gas/flame detection system (methane, ethylene, CO, CO2, hydrogen, hydrogen sulfide, oxygen, combustibles)
- FLIR thermal camera and network video system
- E-Stop (power supply / battery disconnect)
- Redundant battery temperature monitoring system for automatic abort

Additional Features

- Custom battery profiler tool: battery emulation based on performance characteristics of unit under test

Electrical

Hardware

Keysight RP7982A, bi-directional power supply

- Voltage: 0-1000 VDC
- Current: 0 – 90 A
- Power: 30kW
- Accuracy: 0.03% +/- 75 mV / 0.03% +/- 9 mA

Keysight SL1740A

- DC Bus Voltage: 50 - 1200V
- Maximum current with power units in parallel:
  - 500A at 1,200V
  - 600A at 1,000V
- Maximum current from single power unit:
  - 250A at 1,200V
  - 300A at 1,000V
- Accuracy: 0.03% +/- 150 mV / 0.03% +/- 150 mA

Cooling

- PAO chiller/cooling loop
  - Up to 14 GPM at 60 PSI, 4.4kW of cooling
- Water/glycol cooling loop

Data Aquisition

NI cDAQ 9179

- 14-slot chassis
- Software: LabVIEW
- Analog/digital input/output
- RTD & thermocouple input