

SDL photo: EMI-EMC Room •

• THERMAL VACUUM TESTING

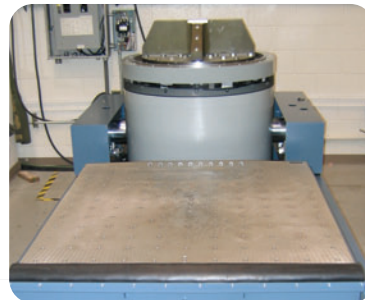
- [1] Up to 8' diameter chambers
- [2] Automated control with safety interlocks
- [3] Data acquisition systems
- [4] -269°C to 150°C temperature range
- [5] Outgassing diagnostic (RGA, QCM, scavenger plates)
- [6] Special Test Chambers
 - Ultra high vacuum
 - Ion & neutral beam sources
 - Ion optics test facility



SDL photo: THOR Chamber •

• VIBRATION TESTING

- [1] Classical Shock, Sine-burst, & Signal Analysis
- [2] Sine: 13,000 lbf (58 kN) pk
- [3] Random: 12,500 lbf (56 kN) rms
- [4] 5000 lbs rating
- [5] Slip table for three-axis testing of large-volume payloads



SDL photo: Slip Table •

SPACE QUALIFICATION



NASA photo: Space Walk •

OVERVIEW

Space Dynamics Laboratory offers a full complement of space qualification services. Drawing on a 50-year heritage of instrumentation designed, built, and tested for space and upper atmospheric environments, SDL has the trained personnel and facilities for space simulation testing, contamination control services, and materials analysis.

FACILITIES INCLUDE :

- [1] Space simulation laboratory
- [2] Environmental test facilities
- [3] Cold-wall (LN2) thermal vacuum chambers
- [4] Lifetime testing
- [5] Thermal cycling
- [6] Precision cleaning laboratory
- [7] 100-ft-long optical cleanroom
- [8] ISO-5 -capable cleanrooms
- [9] ISO-7 integration high bay with ISO-5 tents
- [10] Analytical chemistry and microscopy laboratories (cleanliness certifications)



Space Dynamics Laboratory
 1695 North Research Park Way
 North Logan, Utah 84341
 Phone 435.713.3500
www.spacedynamics.org



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• EMI-EMC

SDL's radio frequency-shielded semi- anechoic chamber is available for emissions & susceptibility (EMI/EMC) testing of various electronic hardware & instruments per the MIL-STD-461E standard.

CHARACTERISTICS :

- [1] Anechoic chamber
- [2] 15'x11' working space

TEST CAPABILITIES (MIL-STD SPECIFICATIONS) :

- [1] Conducted emissions
- [2] Conducted susceptibility
- [3] Radiated emissions
- [4] Radiated susceptibility



SDL photo: WISE instrument during calibration •

CONTAMINATION CONTROL

SDL leads the industry in the application of contamination control theory and practice to the development of high performance electro-optical sensors. Pre-launch and on-orbit cleanliness requirements are derived from sensor performance goals and are implemented using state-of-the-art laboratory facilities.

A preventive approach to controlling contamination entails planning and implementation throughout all project phases. Effective contamination control begins at the study phase and continues through manufacture, integration, test, launch, and on-orbit operations to meet end-of-life performance requirements.

CONTAMINATION CONTROL MODELING

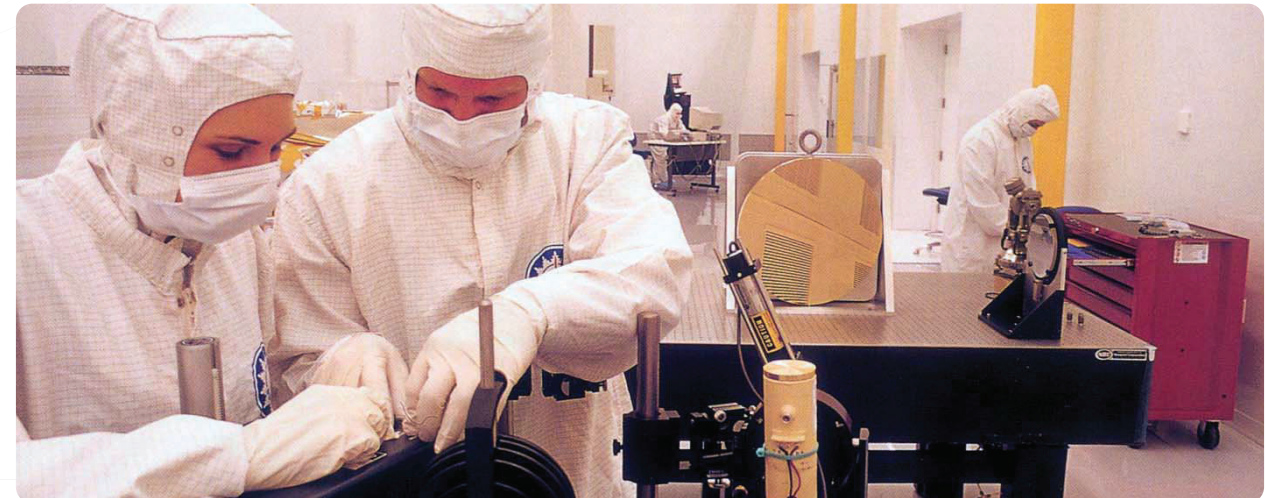
- [1] Spectral response
- [2] Particulate fallout
- [3] On-orbit degradation
- [4] Spacecraft charging

MATERIALS CHARACTERIZATION

- [1] ASTM E595 (%TML & %CVCM)
- [2] ASTM E1559 (outgassing kinetics)
- [3] Thermal gravimetric analysis
- [4] X-ray fluorescence screening
- [5] Microscopy lab

CLEANLINESS CERTIFICATIONS

- [1] ISO 14644-1 (cleanrooms)
- [2] IEST-STD-CC1246D (sample analyses)
- [3] Outgassing and offgassing analyses •••
- Quartz crystal microbalances
- Infrared spectroscopy
- Mass spectrometry



SDL photo: 100' Optical Cleanroom •

ELECTRO-OPTICAL SENSORS

CHARACTERIZATION & CALIBRATION

In the past 30 years, SDL has calibrated instruments for the WISE, SPIRIT III, MKV, GIFTS, NFIRE, FIRST, SBIRS, and many other programs. SDL's multifunction calibration chambers can operate in multiple configurations (e.g., collimator, extended source, Jones source) and interface to a variety of external sources (e.g., spectral, radiance sources).

CAPABILITIES INCLUDE :

- [1] IR and visible calibration
- [2] Wavefront testing
- [3] Stray light analysis & verification
- [4] -196°C to 3000°C blackbodies
- [5] BRDF & spectral reflectance of materials
- [6] Hardware traceable to NIST standards

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