

Climatics Lab

The climatics lab is equipped to simulate extreme environmental conditions to test and evaluate complex components, including high/low temperatures, high altitudes, thermal cycling, corrosion, air bake, cure, and humidity. Our lab operates 24 hours a day, seven days a week, with advanced monitoring and control systems ensuring seamless testing and evaluation. Our team of experts is available around the clock to provide real-time support and meet your testing needs.

- 10 Chambers, sizes ranging from 18 in. height x 17 in. wide x 15 in. long to 72 in. height x 60 in. wide x 72 in. long
- Temperature: -165°C to +260°C
- Altitude: Sea level to 100,000 ft.
- Humidity: 20% RH to 95% RH, 5°C to 80°C
- Eurotherm process controllers
- Data collection via National Instruments cDAQ telemetry
- Non-Volatile Residue monitoring (NVR) for contamination monitoring
- Gaseous nitrogen purging

Standards and specs

- MIL-STD-202
- MIL-STD-810

Point of Contact

For questions about our environmental test facilities, please contact us at:

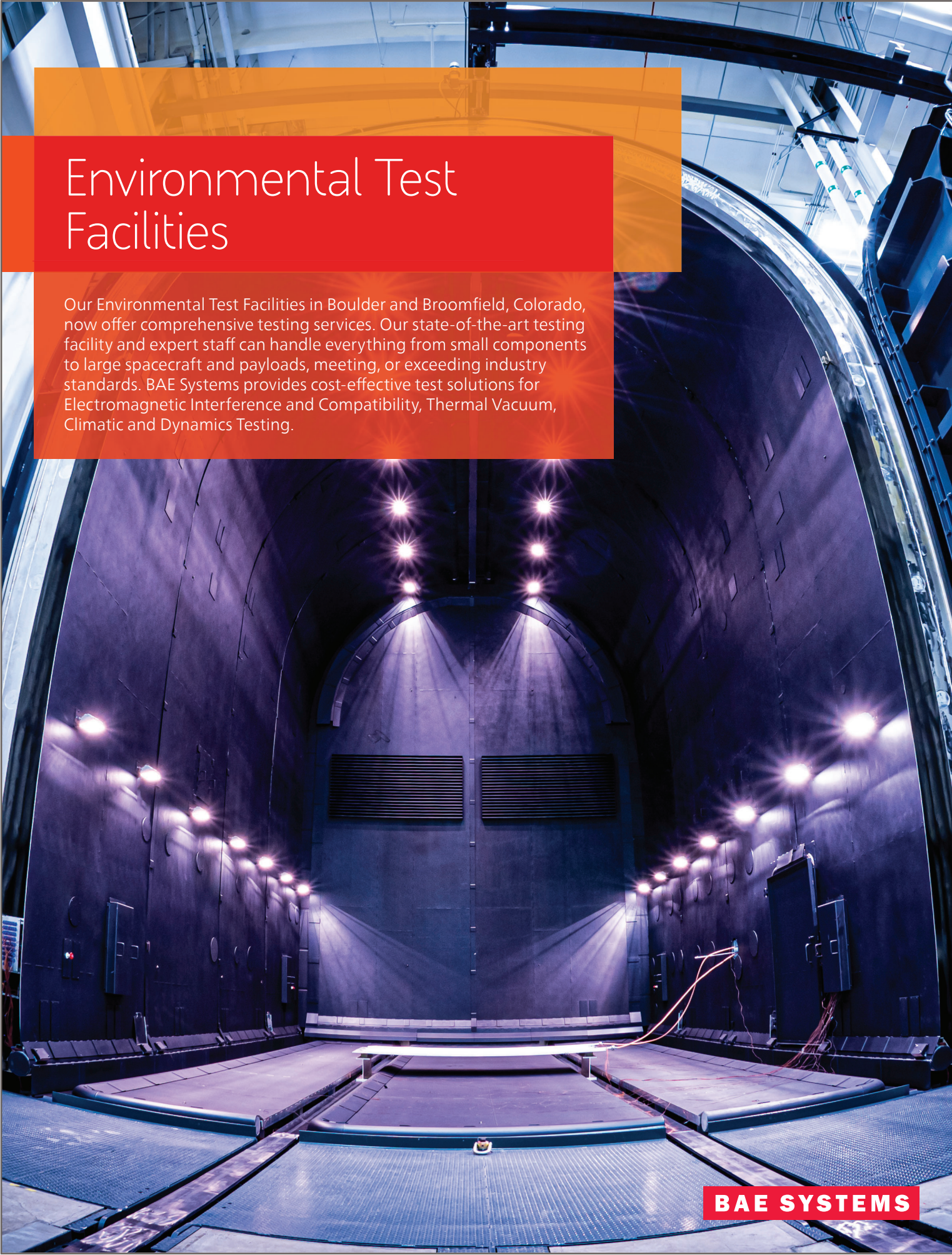
test.services@baesystems.us



Small Vacuum Chamber bakeout/outgassing lab



Climatic Test Chambers for Temperature/Altitude Humidity Lab



Environmental Test Facilities

Our Environmental Test Facilities in Boulder and Broomfield, Colorado, now offer comprehensive testing services. Our state-of-the-art testing facility and expert staff can handle everything from small components to large spacecraft and payloads, meeting, or exceeding industry standards. BAE Systems provides cost-effective test solutions for Electromagnetic Interference and Compatibility, Thermal Vacuum, Climatic and Dynamics Testing.

BAE SYSTEMS

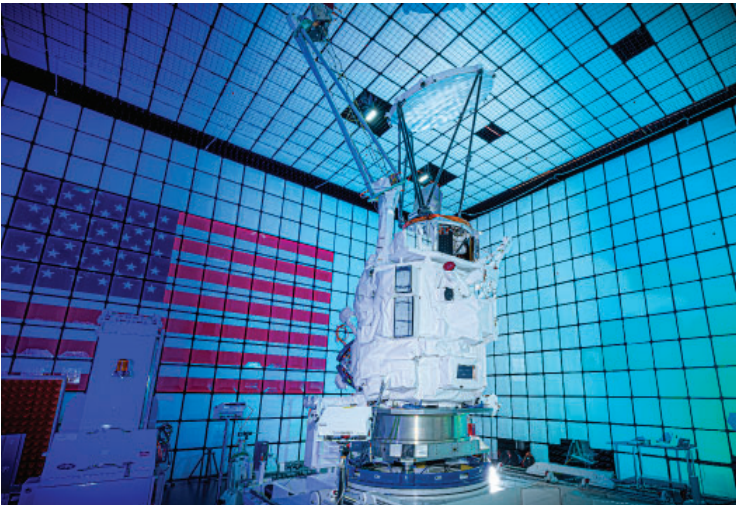
EMI/EMC Lab

The EMI/EMC Lab combines the expertise of skilled engineers and technicians with state-of-the-art facilities to deliver comprehensive EMI/EMC testing services for commercial, military and space programs. Our lab features three Anechoic chambers, providing a versatile testing environment that can accommodate everything from small components to large, fully integrated spacecraft. Specific features and capabilities include:

- Testing performed with the latest ETS-Lindgren TILE!™ and R&S®ELEKTRA test software
- Full range of Conducted Emissions (CE) and Susceptibility (CS) Testing Options
- Full range of Radiated Emissions (RE) testing from 30 Hz to 40 GHz
- FFT capabilities available to save significant time
- Full range of Radiated Susceptibility (RS) testing from 30 Hz to 40 GHz
- Electric fields up to 200 V/m and magnetic fields up to 1600 A/m
- Absorber and Ferrite lined, MIL-STD-461 and DO-160 compliant EMI chamber construction
- Filtered AC and DC power capabilities
- E-Field shield attenuation greater than 90 dB
- HEPA filtered Class 10,000 Clean Environment
- iNARTE certified staff

Standards and specs

- GSFC-STD-7000
- MIL-STD-704
- MIL-STD-461
- RTCA-DO160



Weather System Follow-on Microwave (WSF-M) in the XL EMI Chamber

Dynamics Lab

The Dynamics Lab simulates extreme environmental, shock and load conditions that hardware encounters during launch, vehicle separation, flight, marine operations and transportation over terrain. Our lab features four shaker systems including the industry’s largest commercially available system. We are capable of testing small components and some of the industry’s largest fully integrated space vehicles. Specific features and capabilities include:

- V994 (65,000 lbf 3-Axis Shaker System)
- T5000 (50,000 lbf 3-Axis Shaker System)
- T4000 (40,000 lbf 3-Axis Shaker System)
- T2000 (20,000 lbf 3-Axis Shaker System)
- Vibration: Random, Sine, Mixed Mode, Sine Burst
- Shock: Simulated, Pyrotechnic and Classical Shock
- Dedicated Acoustic Test Space
- Modal Survey: Development of Finite Element and Test Analysis Models
- HEPA Filtered Class 10,000 tents
- 3-Axis Accelerometers
- Brüel & Kjær Data Acquisition
- Large, Medium and Small Force Transducers
- Laser Vibrometers
- Crane capacity up to 30 Ton

Standards and specs

- MIL-STD-202
- MIL-STD-810
- MIL-STD-154



Spectro-Photometer for the History of the Universe, Epoch of Reionization and Ices Explorer (SPHEREx) on the vibration table

Thermal Vacuum Lab

Space simulation testing is crucial for ensuring the success and reliability of space missions. Our cutting-edge Thermal Vacuum Lab simulates the vacuum and extreme temperature conditions encountered in space. The lab can achieve a temperature range of -196°C to 160°C and maintain pressures less than 1×10⁻⁶ Torr.

The lab is equipped to test a wide range of products, from small components to full-scale spacecraft with monitoring 24 hours a day, seven days a week. Specific features and capabilities include:

- 23 Chambers of various sizes:
 - Smallest: 18 in. x 24 in. base, 14 in. height
 - Largest: 23 ft. wide, 34 ft. height, 38 ft. long
- Vacuum Pumping: Atmosphere to <1x10⁻⁶ Torr
- Ramp Rates: 0.1°C to 3°C (varies by chamber)
- Temperature Range: -196°C to +160°C
- HEPA Filtered Class 10,000 tents
- Additional Equipment:
 - Feed-through ports for electrical, optical, RF and thermal connections
 - Chiller and LN2 loops for plates/targets
 - Residual Gas Analyzers (RGA)
 - Thermal Quarts Crystal Microbalance (TQCM) for contamination monitoring
 - Non-Volatile Residue monitoring (NVR) for contamination monitoring
 - Crane capacity up to 30 Ton

Standards and specs

- ASTM-E2900
- ASTM-E512
- MIL-STD-810
- DO160



Image X-ray Polarimetry Explorer (IXPE) in the Titan chamber

Equipment	
EMI/EMC Lab	
X-Large Semi-Anechoic Chamber	Size: 47 ft. x 55 ft. x 26 ft.
Large Semi-Anechoic Chamber	Size: 22 ft. x 35 ft. x 19 ft.
Small Semi-Anechoic Chamber	Size: 12.8 ft. x 16.8 ft. x 9 ft.
Thermal Vacuum Lab	
Titan	23 ft. wide, 34 ft. high, 38 ft. long TVAC chamber
Brutus	20 ft. dia., 20 ft. high TVAC chamber
Quantity: 6	10 ft. dia., 10 ft. to 20 ft. long TVAC chambers
Quantity: 5	4 ft. to 5 ft. dia., 4 ft. to 9 ft. long TVAC chambers
Quantity: 10	Climatics chambers of varying sizes and capabilities
Dynamics Lab	
60,000 lbf Shaker	
Horizontal slip tables	96 in. x 96 in., 44 in. x 44 in.
Vertical tables	98 in., 71 in., 48 in. dia.
Acceleration	Up to 50 g
Velocity	Up to 79 ips
50,000 lbf Shaker	
Horizontal slip tables	60 in. x 72 in., 36 in. x 36 in.
Vertical tables	72 in., 60 in., 48 in., 36 in., 32 in. dia.
Acceleration	Up to 133 g
Velocity	Up to 90 ips
33,000 lbf Shaker	
Horizontal slip tables	60 in. x 60 in., 36 in. x 36 in.
Vertical tables	72 in., 60 in., 48 in., 36 in., 32 in. dia.
Acceleration	Up to 123 g
Velocity	Up to 85 ips