



EMI/EMC & ENVIRONMENTAL TESTING

Element Longmont is a full-service testing laboratory offering EMI / EMC emissions & immunity and environmental testing with capabilities including thermal cycling, acceleration, classical shock and vibration testing.

As an ISO/IEC 17205 accredited organization, our facilities also hold American Association for Laboratory Accreditations — or A2LA — in electrical 0214.43 and mechanical 0214.44 categories. This ensures our tests, equipment calibration, measurement techniques and methods of data collection meet with strict third-party auditor approval. Our environmental and dynamic testing capabilities give you a single source to meet the dynamic and environmental requirements of MIL-STD-810, MIL-STD-461, RTCA DO-160 and others.

FULL-SERVICE EMI/EMC

Find both electromagnetic interference (EMI) and electromagnetic compatibility (EMC) testing at Element Longmont. From telecommunications and medical equipment to military, space and aviation components, we can help you navigate the complex requirements of organizations such as the FCC, FAA, DoD and NASA. Plus, we have the in-house experience and testing chambers to help you obtain certification for your commercial products in North America, the European Union and beyond.

Just a few of the testing services we regularly offer:

- **CBTL Certified Testing** – We are one of the few CB Testing Laboratories (CBTLs) for electromagnetic compatibility in the United States. We can accommodate CB Scheme EMC testing on medical products for worldwide compliance. Our scope includes 2nd, 3rd, and 4th editions of IEC 60601-1-2.
- **Commercial EMC Testing** – We have the ability to test a wide range of commercial products, from battery-powered, handheld meters to electrosurgical generators. Full compliance emissions and immunity testing is performed under one roof.
- **Medical EMC Testing** – Test electronic devices used in a hospital environment or other medical applications including ventilators, life support equipment, generators, and x-ray equipment as well as smaller devices such as pulse oximeters.
- **Military and Aerospace EMC Testing** – EMC testing services on a number of high-profile programs, including the International Space Station and the C-17 Globemaster. MIL-STD testing, trouble-shooting and mitigation and design has been performed on actuators, CCUs, Launch, IR and UV cameras, and more.
- **Prescan & Mitigation** – Engineering-level EMC immunity and emission testing for all tests that will be required for full compliance. Pre-scans are abbreviated tests that aim to identify potential problem areas earlier in the design cycle.
- **Pre-scan Emissions Testing** – Enables clients to determine whether or not a compliance problem exists long before it can impact time to market. Pre-scan services have found that we offer an excellent environment for them to trouble-shooting EMC issues.
- **Two fully accredited 10-meter chambers** – Two fully accredited 10-meter chambers for our emissions testing in Longmont, CO, giving clients the advantage of more reliable data while saving them time and money.

DELIVERING INNOVATIVE PRODUCT TESTING AND CERTIFICATION SOLUTIONS

PRE-SCAN AND MITIGATION HIGHLIGHTS

- Electrostatic Discharge
- Radiated RF immunity
- Electrical Fast Transient/Burst
- Surge
- Conducted RF Immunity
- Power Quality Failure
- AC Power Line Harmonics
- AC Power Line Flicker

EMI/EMC TESTING HIGHLIGHTS

- Servicing the Defense, Aerospace, Space, Consumer Electronics, Medical and Automotive Industries
- CBTL for Medical Devices IEC 60601-1-2
- Radiated Susceptibility ~ 200 V/m, frequency range 10 kHz to 40 GHz,
- HIRF Testing 100 MHz – to 10 18 GHz up to 7200 V/m pk
- Radiated Emissions ~ 30 Hz to 40 GHz
- Two 10 meter Semi-anechoic chambers with 10' x 10' doors
- MIL/AERO semi-anechoic chambers
- Extended ground plane test beds
- Indirect Lightning-Single stroke, multiple stroke, multiple burst, Level 5 DO-160
- AC & Telecom port surge, Electrical Fast Transients, Ring-wave, and bust testing
- Electrical power characteristics testing for Aerospace, Defense, and Automotive
- Airborne acoustic noise and structure-borne noise
- Antenna characterization
- Shielding effectiveness, transfer impedance
- Electrostatic discharge up to 30 kV
- Electromagnetic Pulse (EMP) to 50 kV/m
- HERO
- RADHAZ analysis

VIBRATION TESTING CAPABILITIES AT ELEMENT LONGMONT

- Seismic Test
 - Horizontal Seismic: 60" x 48" mounting table
 - horizontal displacement 12"
 - 21,000 lbs. force
 - 40 IPS
 - .1 Hz – 500 Hz
 - Meets NEBS GR63, Zone 4 Earthquake, Transportation Vibration, and Reliability Testing needs
 - Vertical Seismic: 48" x 48" to 96" x 96" mounting table
 - vertical displacement 12"
 - 21,000 lbs. force
 - 40 IPS velocity
 - .1 Hz – 500 Hz frequency range
 - Meets NEBS GR63, Zone 4 Earthquake, Transportation Vibration and Reliability testing needs.
- Servo Hydraulic Shaker: horizontal load capacity 2,5000 lbs. Meets MIL-STD-810 and RTCA DO-160
- Loose Load Vibration: repetitive shock, MIL-STD, ASTM, and ISTA, loose cargo testing
- Electrodynamic Vibration
- Ling 335 Horizontal vibration table, 18,000 force lbs, 5Hz – 3,000Hz, 1 inch diameter stroke. Sine, Random and Shock capable
- Ling 335 Horizontal vibration table, 30,000 force lbs, 5Hz – 5,000Hz, 2 inch diameter stroke. Sine, Random and Shock capable

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MECHANICAL IMPACT AND SHOCK TESTING SYSTEMS AT ELEMENT LONGMONT

- TITL Tester: Center of gravity and tipping point testing for palletized items and rack equipment
- Horizontal Impact Test System (HITS): 90" x 72" platform produces half sine and square waveforms. Simulates truck docking railcar coupling, pallet marshaling, transportation testing.
- Acceleration – 3 foot radius centrifuge, 100 G's, slip rings, 15 single channels with ground, 2 coaxial and 7 low noise single channels, Crash Safety
- Pyro Shock: MIL-STD-810, Method 517, NASA-STD-7003
- Drop Shock, Package Drop: 4' x 4' platform, programmable shock system for half sine, square wave, trapezoidal shock. Damage boundary assessment, free fall drop of large items.
- High Velocity (G) Shock: 6" mounting surface, small test articles, acceleration to 10,000 G's (bungee assisted), 0.5 min/sec to 1 min/sec. Evaluates disc drives, rocket velocity, etc.
- Compression Testing, Box container crush testing: 4' x 4' package area, 15,000 pounds capacity, simulates stacking and warehousing.
- Precision Package Drop Test: ISTA and ASTM free fall drop of packages

TEMPERATURE, HUMIDITY, ALTITUDE TESTING CAPABILITIES AT ELEMENT LONGMONT

- Temperature and Humidity Chamber:
 - 20' x 17' x 12' man-rated drive-in chamber
 - 8 foot wide door
 - Temperature Ranges: -76°F to 320°F, -60°C to 160°C
 - Temperature Transition Rate: 1°C/min
- Temperature and Humidity Chamber:
 - 7' x 7' x 27'
 - Temperature Ramp Rate: 20°C/min
 - Temperature Range: -70°C/min to +170°C/min, 5 – 95% Relative Humidity
- Temperature Altitude Chamber:
 - 36" x 36" x 36"
 - Altitude Range from -2,000 ft to 200,000 ft
 - Temperature Ramp Rate: 10°C/min
 - Temperature Range: -70°C/min to +170°C/min
 - Meets MIL-STD-810, RTCA DO-160 and IEC.
- Thermal Shock Chamber:
 - Three 27 cubic foot zones
 - Temperature Range: -70°C to -170°C
 - 3 second transfer time.

TEMPERATURE WITH VIBRATION (AGREE) TESTING AT ELEMENT LONGMONT

- Servo Hydraulic Temperature and Vibration:
 - 71" x 53" x 65"
 - 48" x 48" mounting table
 - Temperature Range -70°C to +177°C
 - Shaker displacement 3 inch diameter
 - 41 IPS Velocity
 - Meets MIL-STD-810, ISTA, and ASTM.

DELIVERING INNOVATIVE PRODUCT TESTING AND CERTIFICATION SOLUTIONS

- Electrodynamic Temperature and Vibration:
 - 71" x 53" x 48" mounting table
 - Temperature Range -70°C to +177°C
 - Shaker displacement 1 inch diameter
 - 36" Head Expander
 - 8,000 lbs force.

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