



EMI/EMC, PRODUCT SAFETY, WIRELESS, ENVIRONMENTAL & DYNAMIC TESTING DELIVERING INNOVATIVE PRODUCT TESTING

Element Fremont is a world-class product compliance and regulatory laboratory. With our sister Element Newark lab, we offer the Bay Area a full range of services, including EMI/EMC, product safety, wireless/radio, wired telecom, environmental testing, shock and vibration, thermal stress, international approvals, and more.

UNDISPUTED LEADER IN EMI/EMC TESTING

As the Bay Area's premier product compliance and regulatory laboratory, Element Fremont helps customers save time and money by helping them achieve compliance requirements quickly and efficiently. We enable you to bring products to the global markets without delay. By providing everything from pre-compliance testing to international approvals, we are the ultimate one-stop shop for compliance and regulatory testing. Element serves the aerospace, space and satellite, telecom, medical, automotive, defense, IoT, and consumer electronics sectors.

Key services include:

- EMC testing for Automotive components and sub-assemblies
- Radiated Emissions ~ 30 Hz to 40 GHz
- 3-Meter Semi-Anechoic Chambers
- Electrical Fast Transients
- Antenna Characterization
- 24-hour Testing capabilities for High Throughput
- Radiated Susceptibility ~ 100 V/m (Frequency Range: 10 kHz to 18 GHz)
- 10-meter Semi-Anechoic Chamber
- Extended Ground Plane Test Beds
- Ring-Wave and Burst Testing
- Shielding Effectiveness, Transfer Impedance
- Dedicated Project Managers and Project Engineers
- 5-Meter Semi-Anechoic Chambers
- AC & Telecom Port Surge
- Electrical Power Characteristics Testing
- Electrostatic Discharge Up to 30 kV
- Worldwide homologation/certification processing project management
- Airborne Acoustic Noise and Structure-Borne Noise

With a massive 10-meter chamber - along with access to top EMI/EMC experts - Element Fremont can accommodate almost any type of customer testing need.

WIRELESS CERTIFICATION AND TESTING

From Bluetooth® to Wireless USB to ZigBee to RFID and all the various 802.11 standards, including UltrawideBand (802.15) and WiMax (802.16) products, we've seen it all. We operate an FCC-certified Telecommunications Certification Body to expedite your formal grant of approval and get your product to market on schedule.

In addition, Element Fremont currently provides Dynamic Frequency Selection (DFS) testing services to manufacturers of 802.11(a/n) devices and other wireless technologies that operate in the 5GHz range. Wireless services include radio requirements, DFS testing and certifications for North America via our in-house TCB. For the European Union, we can issue Notified Body Opinions specific to the R&TTE Directive and the Radio Equipment Directive, RED. Once you have the RED reports, let us help you complete the global approvals to market your new product worldwide.

A summary of key wireless testing and certification services available at the Element Fremont:

- Performance Testing: An evaluation of radio performance (such as Spurious Emissions, Power, Bandwidth, Stability, Adaptivity, Receiver Blocking, etc.) versus regulatory authority requirements using industry standards.
- Maximum Permissible Exposure (MPE) Calculation: Used instead of SAR when a product is not used within 20cm of the end user.
- Over-the-Air Antenna Testing: perform sensitivity measurements to illustrate how internal components are affecting RF radio performance, thus allowing product developers to see where the issues are during normal operation and how they are impacting the product's performance.
- Dynamic Frequency Selection (DFS) Testing: An evaluation of a device operating in the 5250-5350 MHz or 5470-5725MHz band to detect local military, emergency service, or radar signals.
- Telecommunication Certified Body: US and Canadian certifications for licensed and unlicensed radio products.
- Global market approvals/International type approvals, including project management of testing in-country when required.
- Notified Body: Formal Type Examination Certificates for CE marking of radio communications devices per RED Directive.

As experts in wireless testing, Element Fremont is accredited by the following organizations:

- American Association for Laboratory Accreditation (A2LA)
- Federal Communications Commission (FCC)
- Innovation Science and Economic Development Canada (ISED)
- Australian Communications Media Authority (ACMA)
- Japan Ministry of Internal Affairs and Communications (MIC)
- Taiwan's BSMI, Bureau of Standards, Metrology, and Inspection
- Taiwan's National Communications Commission (NCC)

The primary technologies for which the Silicon Valley performs wireless testing includes:

- Radio-frequency identification (RFID)
- Frequency Hopping Spread Spectrum (FHSS)
- FM Transmitters
- MedRadio
- Z-Wave
- ZigBee
- Bluetooth (5.2)
- Private Mobile Radio (PMR)
- Ultra-Wideband
- LoRaWAN
- Wireless Local Area Network (WLAN - 802.11)

ONE-STOP FOR NEBS TESTING

Element Fremont customers are able to get expert program management and engineering services to help them comply with the most demanding NEBS standards. As a result, customers can reduce instances of non-compliance during the development of a product, which helps minimize any delays in getting it to market. **Key NEBS testing services include:**

- Full Range of NEBS Testing Capabilities in One Location
- Alignment of All NEBS Test reports with RBOC Requirements
- Telecordia Telecom Related GR-XX-CORE Testing

Element Fremont provides large-scale engineering services and program management to help you understand and comply with the most stringent NEBS standards.



DELIVERING INNOVATIVE PRODUCT TESTING AND CERTIFICATION SOLUTIONS

Element Newark offers a range of services, including shock and vibration testing, thermal stress, and extreme environment simulation. Together with our sister lab, Element Fremont, we support virtually every industry in the Bay Area, including aerospace, defense, telecom, medical, automotive, industrial, and more.

We can simulate any environmental condition imaginable at Element Newark. Key environmental services and capabilities include:

- Numerous Temperature and Humidity Chambers (2'x2'x2' to 12'x12'x12')
- HALT Testing-100°C to +200°C, Ramp Rate 70°C/Min Up to 60gRMS (5Hz to 5kHz)
- IP (Ingress Protection) testing per IEC 60529 and ISO 20653
- Temperature, Humidity, Altitude Chamber up to 65,000
- Up to 50kW heat dissipation capability for Temp and Humidity Testing
- Fire Resistance
- Thermal Shock
- Acoustic Noise
- Corrosion
- Salt Fog
- Hygroscopic Dust
- Mixed Flow Gas (MFG)

We test to a wide range of standards, including:

- AC156
- AREMA Communications & Signals Manual 2022, Section 11
- ASTM EN 50125 EN 50155 ETSI 300-019-xx ETSI EN 300 753 GR 487-CORE
- GR 63-CORE GR-3108-CORE GR-3160-CORE GR-950-CORE IEC 60068-2-xx IEC 60571
- IEC 61850-3 IEC 62498 IEEE 1613 ISO 9227 ISTA JEDC22-A104E
- MIL-STD-202 MIL-STD-810 NEMA OSHPD RTCA DO 160
- ST/SG/AC.10/11/Rev. 7 Section 38.3 UL 50 UL 94

ROBUST DYNAMICS CAPABILITIES AT ELEMENT NEWARK

Ensure that your product is ready for mass production with our full line of dynamics testing services. Whether it's testing materials for fatigue and corrosion or putting components through HALT/HASS accelerated stress tests, after dynamics testing, your products are far more prepared to go to market successfully once you've had the chance to make any needed modifications to their design and/or manufacture. That is why we have one of the most comprehensive arrays of dynamics testing services anywhere. Common services at the lab include the following:

- Acceleration Testing
- Impact Testing
- Vibration Testing
- Drop Testing
- HASS Testing
- Acoustic Noise Testing
- Corrosion Testing
- Shock Testing
- HALT Testing

Key Highlights include:

- Electrodynamic Shaker Systems with 2" Stroke, 20,000 Force Pounds, 5Hz-2,000Hz, Mechanical Shock
- Seismic System with 10.5" Stroke, 15,000 Force Pounds, 0.6Hz-500Hz
- Seismic Testing to GR 63 - CORE Zones 1-4
- Up to 32 Channels Response, Data Acquisition, and Analysis
- Fixture design and fabrication services
- Temperature over Vibration testing
- AC156 (including OSHPD) to Seismic Testing
- ISTA Certified Laboratory

EXTREME ENVIRONMENTAL SIMULATIONS

At Element Newark customers get access to a variety of equipment and capabilities, including:

- Temperature, Humidity, and Altitude
- Salt Fog and Salt Spray Corrosion
- Highly Accelerated Thermal Shock
- Salt Fog
- Ice, Rain, and Dust
- Highly Accelerated Life Testing
- Fire Resistance
- Hygroscopic Dust
- Mixed Flow Gas

Key testing capabilities:

- Temperature/Humidity Chambers from 2'x2'x2' to 18'x12'x12' Walk-in Chambers
- Temperature/Altitude to 65,000 Feet
- Temperature/Humidity/Altitude to 65,000 Feet