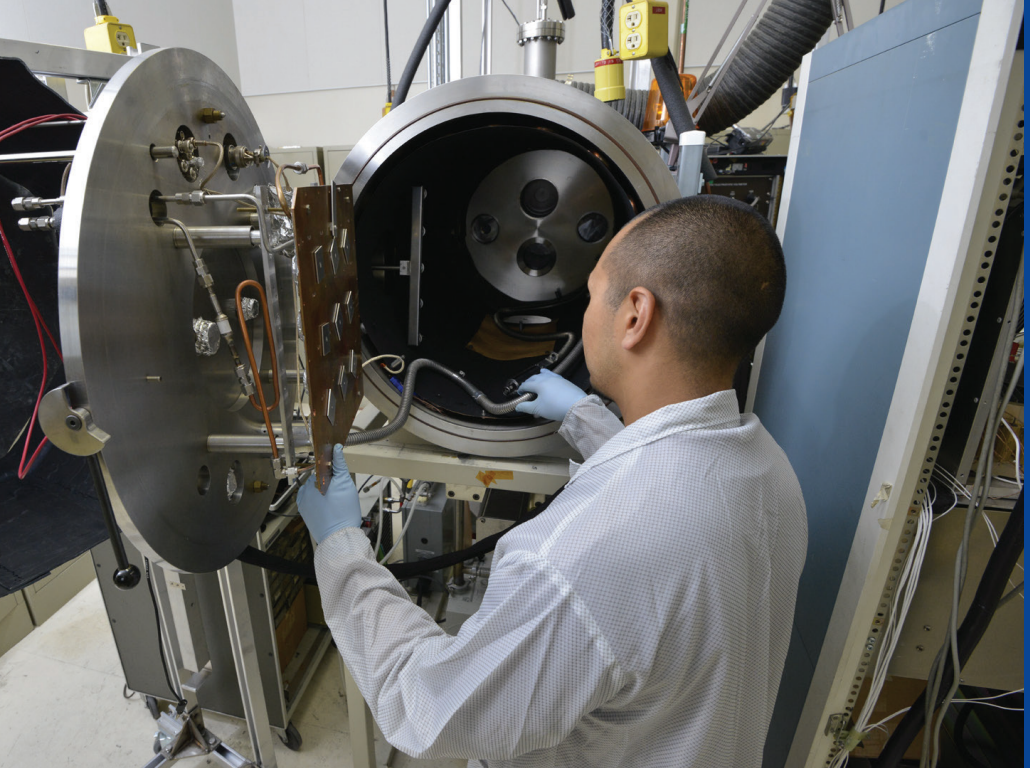

Electromagnetic Environmental Effects

ENGINEERING & TESTING

Northrop Grumman is a global leader in the development, engineering, and production of advanced electronics for aerospace and defense applications. Electromagnetic Environmental Effects (E3) engineering and testing services are conducted at the company's facility in Redondo Beach, California. The expert E3 team supports this work at the site's electromagnetic interference (EMI) and electromagnetic compatibility (EMC) laboratories. Engineering and testing services provided to our customers include systems design, control plan development, test planning, test execution and reporting. These services are used for a broad range of military and commercial applications, including antenna systems, communications systems, power systems, laser modules, navigation and guidance systems.

E3 ENGINEERING CAPABILITIES

- Specialty support to systems engineering for spacecraft and aircraft programs
  - – Requirements development
  - – Platform and cabling shielding and filtering design
  - – System design evaluation
  - – System EMC verification
- Unit-level support to box developers
  - – Unit shielding, interface filtering design support
  - – Detailed EMC performance analyses
  - – Development of engineering tests
  - – Unit test oversight and design assessment

14,000-SQUARE-FOOT FACILITY

CUSTOM-SHIELDED TENTS

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E3 EMI/EMC TEST CAPABILITIES

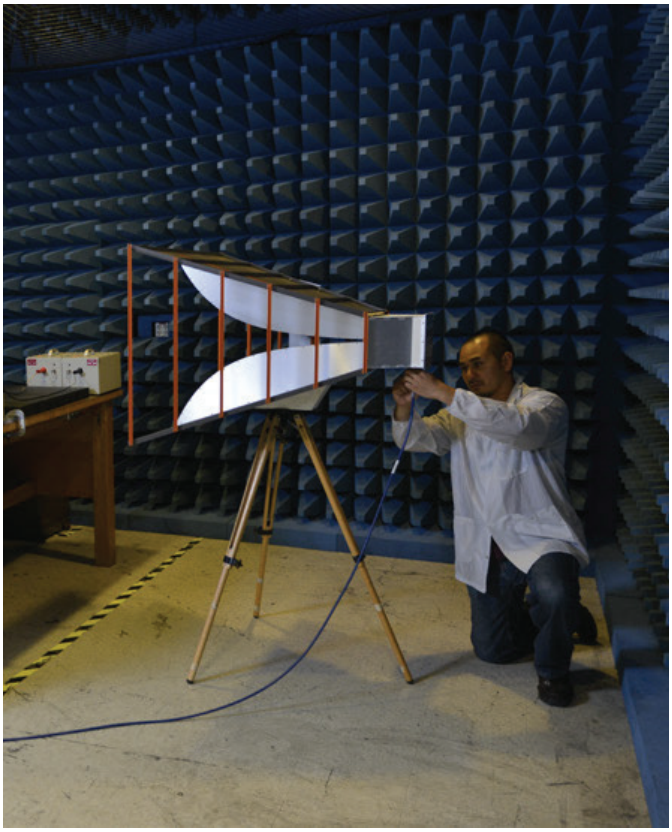
- Military and commercial standards
  - MIL-STD-461/462
  - MIL-STD-1541/1541A
  - RTCA DO-160
- Space environments
- PIM (Passive Inter-Modulation)

TEMPEST CAPABILITIES

- NSA certified test facility and certified engineers
- Design and implementation support including:
  - NSTISSAM and AMSG specification testing
  - CNSSAM TEMPEST/1-13 RED/Black Installation Guidance

Northrop Grumman's E3 engineering and testing team is available to provide customer support from design to certification or any part of the process when assistance is needed.

SEMI-ANECHOIC CHAMBER



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