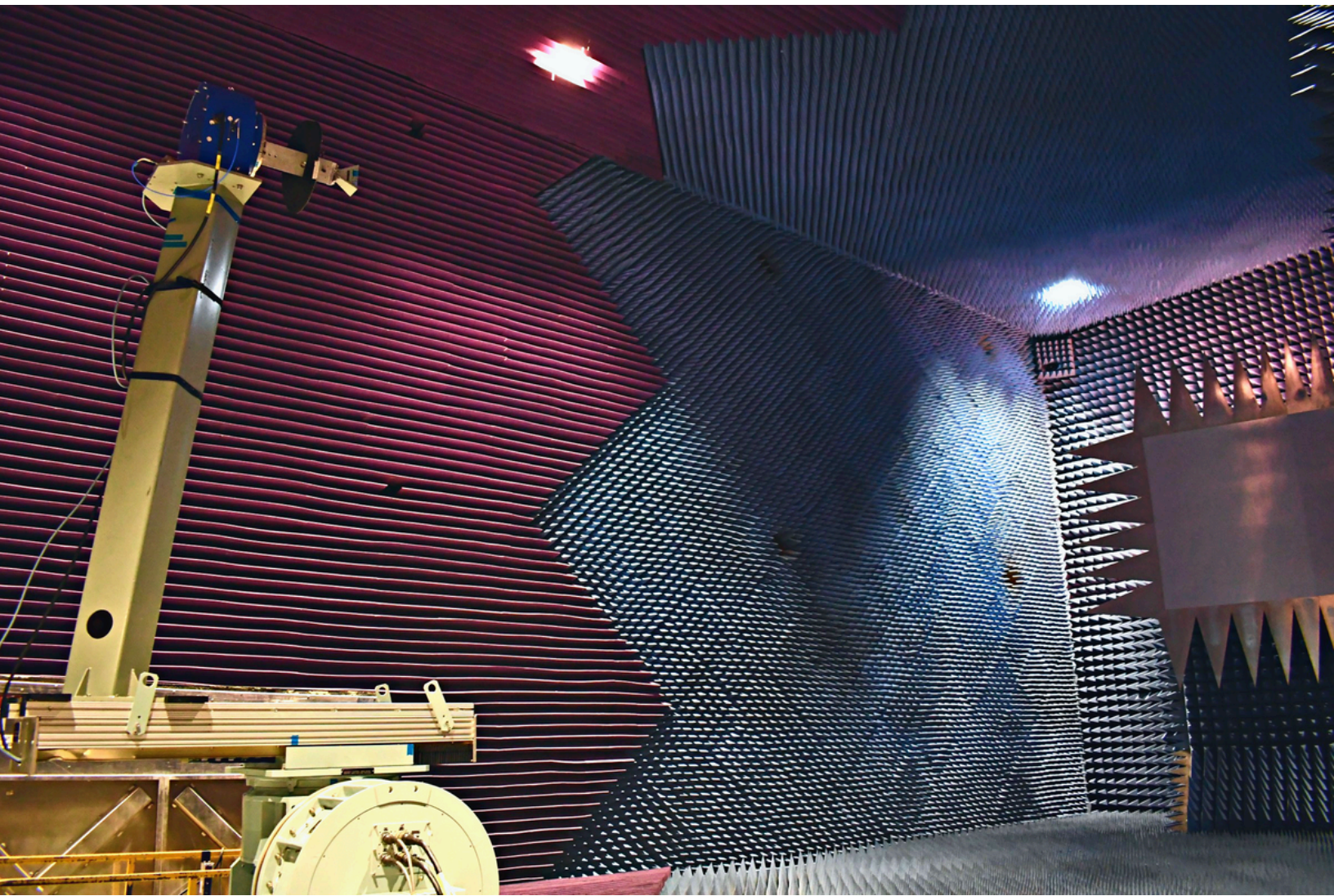


RF Testing Services

Since our founding in 1965, Meggitt Baltimore, Inc. has distinguished itself as a world-leader in the design, development, production, and testing of high performance antennas and radomes for use on sea, land, air, and space applications. Our state of the art facility boast various RF test ranges capable of analyzing antenna performance from 100 MHz - 50 GHz.



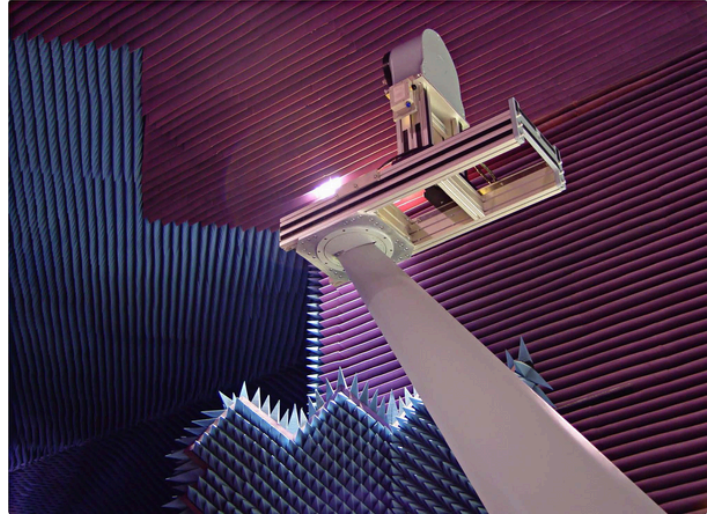
Meggitt Baltimore, Inc.
3310 Carlins Park Drive Baltimore, MD 21215
P: (410)-340-8998
www.Meggitt-Baltimore.com



RF Ranges

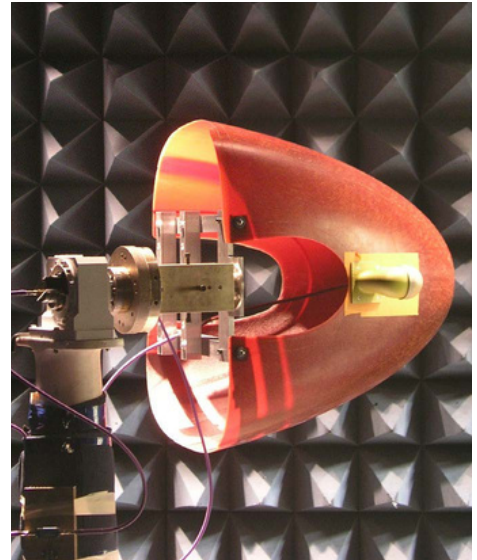
Compact Range

- Chamber Size: 60 x 36 x 26 ft. and Quiet Zone: 8 x 8 x 5.3 ft.
- Model Tower with translation adjustment
- Orbit/FR 959 Software for automated antenna gain and phase patterns
- Keysight Vector Network Analyzer
- Internal overhead crane
- Floor hidden manlift for antenna test unit access
- RCS measurements: 2 to 18 GHz
- Antenna measurements: 1 to 50 GHz
- Background Levels: -55 dBsm
- 24-hour operation



Indoor Far Field Ranges

- Five total Anechoic Chambers, Four chambers 14 x 14 x 20 ft. and One chamber 8 x 8 x 20 ft.
- Frequency range 500 MHz to 40 GHz
- Roll over Az over El positioners for complete radiation sphere
- Model tower with translation adjustment
- Orbit/FR 959 Software for automated antenna gain and phase patterns
- Keysight Vector Network Analyzer
- 24-hour operation



Roof-Top Elevated Range

- Ideal for low frequency antennas such as VHF, UHF, SATCOM, IFF, GPS
- Frequency range 100 MHz to 2 GHz
- Model tower with translation adjustment
- Orbit/FR 959 Software for antenna gain and phase patterns
- Keysight Vector Network Analyzer



Material Testing

Mechanical Testing

Instron Model 3384

A Universal Test Machine capable of tension and compression up to 35,000 lbs, with limited fatigue cycling for up to 4 cycles per minute at maximum load. Additionally, the machine uses a temperature chamber with a range of -240°F to +660°F. This allows for tension/compression testing at whatever temperature is required.

- 35 kip max load capacity (150 kN) Tension and compression motion
- Capable of supporting most applicable ASTM testing
- Capability of testing from (-)150°F to 400°F
- Capable of testing limited fatigue cycling (3 to 4 cycles per minute)
- High/Low temperature mechanical testing
- Temperature capability of down to -240°F and up to 660°F
- Capable of supporting tension, compression, and most flexure testing
- Liquid nitrogen cooled
- Temperature controlled to +/- 6°F or better

- ASTM C-297 (Flatwise Tension)
- ASTM C-393 & D-7249 (Sandwich Flexure 3 & 4 point bend)
- ASTM D-6641 (Compression)
- ASTM D-2344 (Interlaminar Shear)
- ASTM D-3039 (Untabbed Tension Strength)
- ASTM D-5766 (Open-Hole Tension)
- ASTM D-5961 (Bearing Strength Method A and C)
- ASTM D-6484 (Open-Hole Compression with Gauge)
- ASTM D-7078 (In-Plane Shear Strength)
- ASTM C-364 (Edgewise Compressive Strength)
- ASTM D-7332 (Fastener Pull-Through Resistance Compressive and Tensile)
- ASTM D-7264 (Flexural Properties of Polymer Matrix Composite Materials)
- ASTM D-695 (Compressive Properties)
- ASTM D-1781 (Climbing Drum Peel)
- ASTM D-790 (Flexure)

Humidity Conditioning

- Cincinnati Temperature/ Humidity Chamber 85°C (185°F) and 98% RH capable
- 200°C (392°F) with no humidity 20 cubic feet of interior space
- ETW coupons are removed from chamber once saturation is achieved & tested within 1 hour timeframe

Electrical Property Testing

Compass technology, Inc. epsilometer for measuring dielectric and loss tangent up to 6 GHz

Damaskos Model 600T Open Resonator

- Dielectric Constant & Loss Tangent testing of low loss composite materials
- Testing from 8 to 50 GHz
- Ambient temperature testing
 - Room Temperature Dry (RTD)
 - Room Temperature Wet (RTW)
- Sample size 6 inches square

Radome Panel Test Stand

- Capable of testing panels from 1-50 GHz
- Amplitude and Insertion Phase characterized and compared to model data
- Capable of providing linear or circular polarization measurements
- Capable of testing radome or FSS panels
- Incidence angles may be varied from 0° (perpendicular to panel surface) to ±75°
- Used during the design process to validate predictions prior to full scale builds



Engineering Expertise

Parker Meggitt Team

The Baltimore technical team is fully staffed with electrical, mechanical, material and process engineers skilled in all aspects of antenna and radome design and development. Our engineers are equipped with the latest and most powerful equipment and computer-aided engineering and design software packages, including HFSS, PMM, VBOP, and a number of proprietary computer programs. In addition, Baltimore engineers follow products through the entire design and production process, working with our manufacturing team to ensure excellent product quality and realization of maximum performance.

Modeling/Analysis

Our facility uses many state-of-the-art computer based analysis tools for design and optimization modeling:

- PATRAN/NASTRAN
- SolidWorks
- CATIA V5
- HFSS
- PMM

Structural Analysis

Working in close coordination with each of the electrical and composite engineers, the mechanical engineering group addresses the various issues of structural integrity, tolerance stack-up, dissimilar material interfaces and machining abilities using 3D and 2D design packages.

Quality Assurance

Our site is AS9100, Rev D / ISO 9001 certified. In addition, Parker Meggitt is an approved supplier to most major defense contractors. Quality engineers play an integral role on our integrated product teams (IPT's) for all programs. Parker Meggitt has extensive focus on continual improvement of our Quality Management System and in all areas of the company.

Manufacturing

Our site produces various legacy products, build-to-print and unique, customer specific products. Manufacturing engineers develop assembly processes and techniques to ensure products are fully compliant with specification requirements. We have established workstations, consistent with Lean Manufacturing techniques and principles to stream-line the production orders.

Electrical Testing

Our state-of-the-art test facility enables complete antenna and radome electrical and specialized environmental testing. Our test facilities include capabilities to measure VSWR, radiation patterns and gain, radar cross section (RCS), high power RF, temperature and altitude. Many types of antenna and radome RF performance requirements are measured and analyzed.

Mechanical Testing

Our mechanical testing equipment allows coupon testing of various material stack-ups to generate allowable data for composite structural analysis.

Overview



For over 50 years, Meggitt Baltimore, Inc. has distinguished itself as a world-leader in the design, development, production, and testing of antennas and radomes for use in Electronic Warfare (EW), Signals Intelligence (SIGINT), Satellite Communications (SATCOM), and Communication, Navigation and Identification (CNI).

We have the facilities, personnel, and years of experience to produce antennas and radomes that satisfy the rapidly evolving defense and aerospace markets.

We specialize in the following:

- Composite RF Structures (Radomes)
- Frequency Selective Surfaces (FSS)
- Antenna / Radome Subsystems
- Advanced Composite Structures
- Reflectors and Sub Reflectors
- Broadband Horns & Notches
- Spiral Antennas
- Blade Antennas
- Low Profile and Conformal Antennas
- Radar Cross Section (RCS) Testing:
 - 2 GHz to 18 GHz
 - Chamber Size: 60 x 36 x 26 ft.
 - Quiet-zone Size: 8 x 8 x 5.3 ft. (L x W x H)
 - Background Levels ~ -55 dBsm
- Antenna Testing: 100 MHz to 50 GHz
- Roof-top Elevated Range: 100 MHz to 2 GHz
- Antenna and Radome Evaluation and Repair