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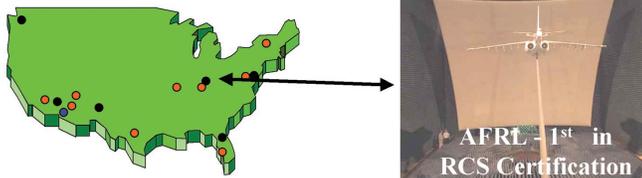
Science and Technology for Tomorrow's Air and Space Force

Success Story

REVOLUTION IN NATIONAL RADAR CROSS SECTION MEASUREMENT STANDARDIZATION BY SIGNATURE TECHNOLOGY OFFICE

National RCS Certification
Many Ranges – One DoD Common Standard

NATIONAL RCS RANGE CERTIFICATION



- **Ranges In Preparation**
 - Lockheed (Rye Canyon, CA)
 - Raytheon (Tucson, AZ, McKinney, TX)
 - GE (Cincinnati, OH)
 - BaE (Nashua, NH)
 - Boeing (Mesa, AZ, Philadelphia, PA & St. Louis, MO)
 - Pratt & Whitney (West Palm, FL)
- **Ranges in Review**
 - Northrop (Tejon, CA)
- **Ranges Already Certified**
 - AFRL Advanced Compact Range – Dayton
 - 46TG/TGR (HAFB, NM)
 - Boeing 977 Range (Seattle, WA)
 - Lockheed-Helendale, CA
 - Lockheed – EST Orlando, FL
 - US Navy Patuxent River ATR MD

**Air Force Research Laboratory
Advanced Indoor
Compact RCS Range (WPAFB, OH)**

Working in collaboration with the Department of Defense (DoD) Range Commanders Council, the United States (US) Navy and Army, the National Institute of Standards and Technology, the National Aeronautics and Space Administration, and academia, the Sensors Directorate's Signature Technology Office developed and implemented the first national calibration and measurement standardization process for DoD and industrial radar cross section (RCS) measurement facilities.

Based on the commercial American National Standards Institute (ANSI)-Z540 standard and demonstrated initially on the directorate's Advanced Compact Range, 6 of the approximately 20 major RCS test and evaluation sites in the US adopted this standard. The remaining sites are working for compliance by 2004.



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Accomplishment

The directorate established baseline parameters for concrete and quantifiable calibration and measurement procedures for RCS facilities in the US, Canada, and the United Kingdom. This rigorous and methodical approach for establishing standard measurement processes helps commercial and DoD facilities deliver quantifiable and repeatable RCS data for a number of developmental weapon system programs, thereby reducing the risk and cost of inserting low-observable technology into common weapon systems.

Background

Prior to the implementation of the ANSI-Z-540 standard, minimal communication existed between national RCS facilities regarding quality of measurement. Since RCS measurements are a product of extremely complex electromechanical systems containing complex hardware and software subsystems, solving system-level problems was difficult without a standard for which to measure them and a forum to exchange ideas.

The directorate conceived a national certification program because it not only developed a standard in cooperation with its industry peers, but it also implemented a peer review system that assured the standard would be fairly and uniformly enforced. The certification process has three phases and normally takes 6 months to a year to complete depending on the quality of documentation maintained by the facility.

The directorate-developed standard, adopted as RCC Standard 804-01, calls for a 5-year migration plan. It will require US Government and industrial RCS ranges to comply with the standard for DoD contractors performing RCS measurements for the directorate.

Sensors
Technology Transfer

Additional information

To receive more information about this or other activities in the Air Force Research Laboratory, contact TECH CONNECT, AFRL/XPTC, (800) 203-6451 and you will be directed to the appropriate laboratory expert. (03-SN-01)