

Commercial Radome Test Systems and Products

MI Technologies offers a complete line of products for testing commercial radomes. Our solutions can be configured to provide an RTCA/DO-213 compliant electromagnetic test facility to test for the requirements contained in Section 2.2 of the standard. A turn-key test system or individual product solution can be provided to help the user develop a test plan.

Features

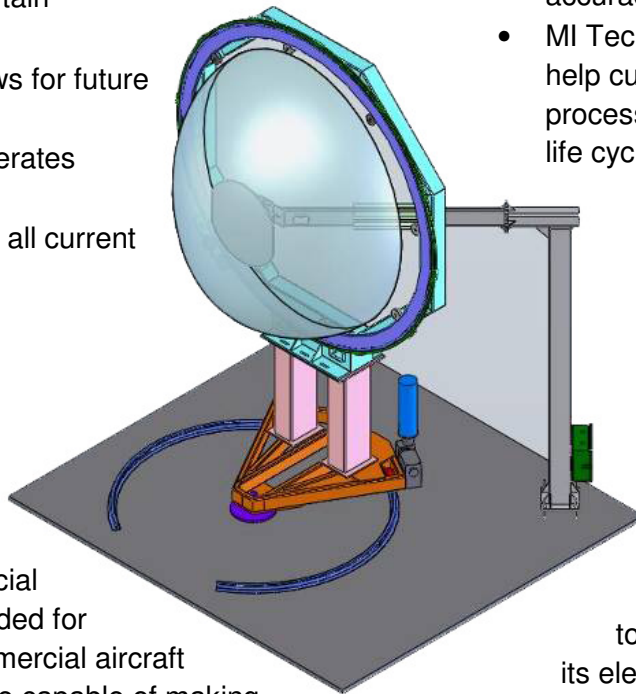
- Highly accurate and repeatable results
- Easy to use and maintain
- Low cost
- Scalable system allows for future expansion
- System software generates automatic test results
- Test system supports all current radome sizes

Benefits

- Complete assurance of fidelity and accuracy of requirements
- MI Technologies is a partner who can help customers through the entire process over the radome test system life cycle.
 - Most affordable system on the market today
 - Guaranteed test results that meet or exceed RTC/DO-

Description of System

MI Technologies' commercial radome systems are intended for after-repair testing of commercial aircraft radomes. The systems are capable of making measurements described in the widely referenced document DO-213. After-repair, radome testing is usually, but not always, limited to transmission efficiency. Sidelobe Level (SLL) measurements are also available if the radomes are being tested in a Quality Assurance/Production test environment. Test systems are available in both C band (5.3 GHz to 5.74 GHz) and X band (9.3 GHz to 9.5 GHz) frequency ranges.



Application

A radome's performance is dependent on its ability to provide physical protection to the weather radar antenna and its electrical ability to provide two-way transmission of radar signals with minimum distortion and absorption. Radar efficiency, resolution, and accuracy of display depend upon a clear, non-distorted reflection-free antenna view through the radome. A radome's construction and electrical performance are such that even the slightest change in physical characteristics, such as excessive layers of paint, can adversely affect

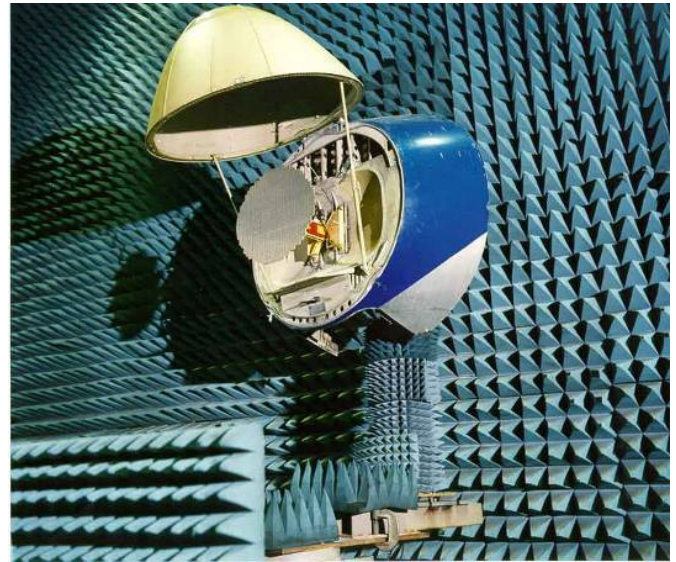
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the weather radar and windshear detection system performance. An improperly manufactured or repaired radome can result in:

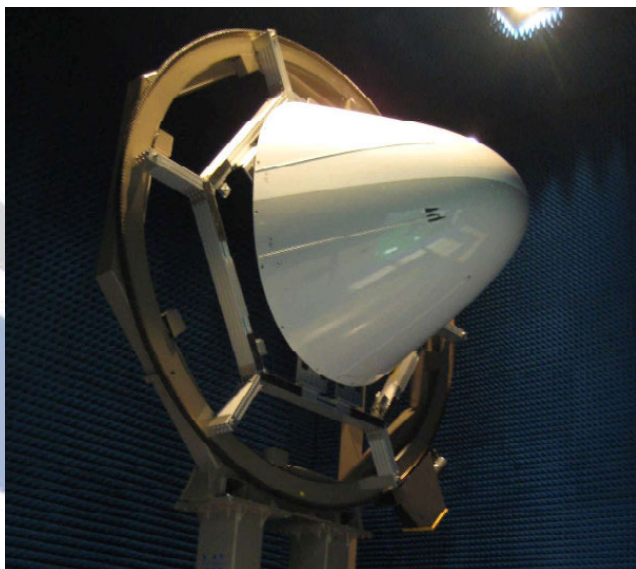
- Reduced radar range or signal loss
- Distortion and displacement of target weather phenomena (i.e. a line of thunderstorms directly ahead may appear to be off to the left or right)
- Clutter on the display obscuring the target
- Improper wind shear avoidance performance

Thus it is critical that electrical properties are carefully controlled and measured during the design, manufacturing and repair process.



Challenges of Commercial Radome Measurement Systems

RF Stability - DO-213 requires system level repeatability of +/-2% power or less than +/- 0.08dB throughout the span of the radome test.



Key Features of our system that enhance RF fidelity and ensure that DO-213 requirements are met:

- No moving cables in our system
- Highly repeatable rotary joints in the two antenna axes (no other moving RF parts)
- Antenna alignment does not depend on radome-positioner accuracy or dynamics
 - System antenna and range are precisely and permanently aligned
- Built-in compensation for drift in source, cables, and amplifier

Product Options

Anechoic Enclosure Options

- Full Turn-key Anechoic Shielded Chamber
- Full Turn-key Anechoic Enclosure
- Anechoic Enclosure Kit Instructions

* All anechoic chambers and enclosures include the installation of 8" pyramidal RF absorber, lighting, and air vents.

Positioning System

- Radome Positioner
- Test Antenna Positioner
- Source Antenna Positioner
- Position Control Electronics and Software

RF Measurement System

- RF Measurement Instrumentation
- Cables, Adaptors, Amplifiers to form a complete system
- Data Acquisition and Analysis Workstation

Support Options

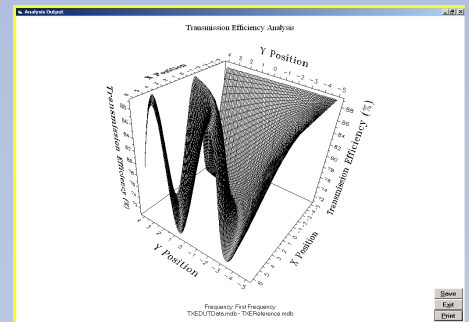
- Site Survey, Installation
- Training
- Annual Maintenance and Calibration

System Accessories

- Sidelobe Measurement Extension Kit
- Radome Specific Mounting Adaptors
- System Antennas
- Radome Specific Test Scripts

Example Test Results

Transmission Efficiency



| A-230 Radome Test Report | | | | |
|---|--|--------------------|-----------|---|
| RE Test Report | | No: | | |
| Customer: | ANA | Date: | 8/15/2009 | A/C: A-320 |
| Equipment: | Radome | PNR: | B73-0938 | S/N: 9038927BA3 |
| Method Used: | Specific Tent Room | Frequency: | 9.375 GHz | |
| TRANSMISSION EFFICIENCY: | Average in % (<84%) | Minimum in % (>78) | Class | |
| Checked: <input checked="" type="checkbox"/> | 94 | 93 | A | |
| SIDE LOBE LEVEL INCREASE: | Checked: <input checked="" type="checkbox"/> | | | Category 1: <input checked="" type="checkbox"/> |
| Radome Accepted for Weather Radar: | | | | <input type="checkbox"/> |
| Radome Accepted for Predictive Wind Shear: | | | | <input type="checkbox"/> |
| *:Radome paint scheme equipped with lightning strips: | | | | |
| Not Specified | | | | |



Common Aircraft Radome Sizes and Test Parameters

| Aircraft | Radome | | | | Test Scan (deg) | |
|------------------|-----------------|-----------------|----------------|--------------|-----------------|---------------|
| | Length (Inches) | Height (Inches) | Width (Inches) | Weight (LBS) | for T/E El/Az | for S/L El/Az |
| B-717 | 30 | 58 | 64 | 47.3 | ±25/85 | |
| B-747-400 | 44.12 | 91 | 89 | 80-96 | ±25/90 | |
| B-747-200 | 44.12 | 91 | 89 | 80-96 | ±25/90 | |
| A300-600 | 41.73 | 73.9 | 74.41 | 77-88 | ±25/90 | ±40/90 |
| A330 | 41.73 | 73.9 | 74.41 | 77-88 | ±25/90 | ±40/90 |



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All products and their specifications subject to change without notice.

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