

Antenna Development Corporation – AntDevCo

Antenna Radiation Pattern Testing

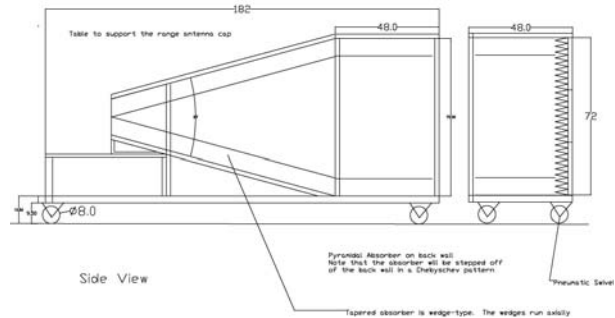


Introduction:

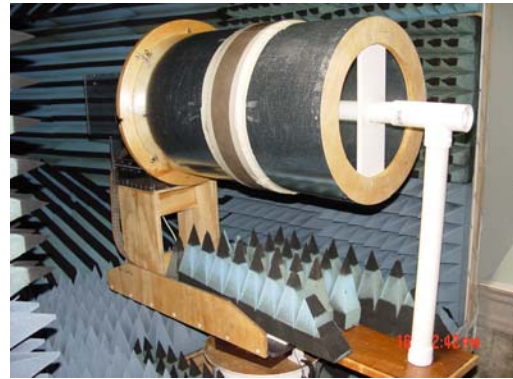
Antenna Development Corporation, Inc. (AntDevCo) offers antenna radiation patterns measurement services. The “Gargoyle” facility at AntDevCo is a tapered anechoic chamber. The primary use of the system is for the measurement of low-gain, narrow bandwidth antennas like those produced by AntDevCo.

Summary characteristics:

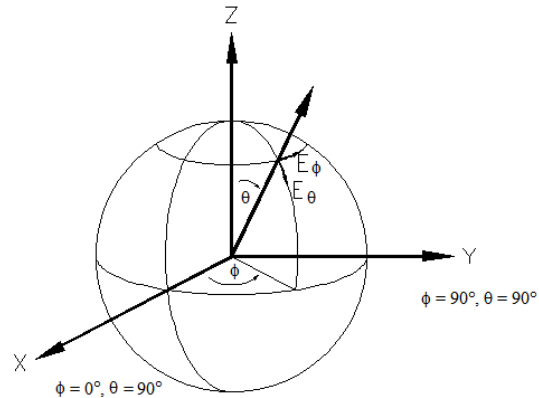
- Frequency Range – 1.2 – 12+ GHz.
- Dual linear vector polarimetry – measure RHCP, LHCP, and Linear polarizations.
- Positioning System – Roll-over-Azimuth: “End” and “Spit” mounts.
- 2D Polar Patterns –
 - Conical: Changing ϕ constant θ
 - Great Circle: Changing θ constant ϕ .
- 3D Spherical Radiation Distribution Patterns – typical $2^\circ \times 2^\circ$.
- Antenna efficiency measurements.
- Antenna pattern coverage statistics.
- Quiet Zone – about 24 X 24 inches.
- Antenna Under Test Maximum Dimensions: ~ 24 X 24 X 26 inches.
- Antenna Under Test + ground plane/mockup Maximum Mass ~ 25 lbs.
- Calibration Antennas
 - MI Technologies (MI T) 12-1.7 SGH
 - ADC version of MI T 12-1.1 SGH
 - WR-510 SGH 1.45 – 2.2 GHz
 - DICO 549 SGH 3.95 – 5.85 GHz
 - WR-112 horns 7.0 – 11.0 GHz
 - WR-90 horns 8.4 – 12.4 GHz
- Receiver/Transmitter Systems
 - Scientific Atlanta 1783 3-channel RX.
 - Gigatronics 2408AL synthesizer (to 8 GHz).
 - Stabilized HP 8350 + 5344A source (to 26.5 GHz).
 - Scientific Atlanta 2180 synthesizer (to 20 GHz).



Schematic of Anechoic Chamber. (Dimensions in inches).
(ADC-1304301300)



“Spit” Roll over Azimuth Antenna Positioner
(DSC04547)

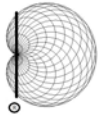


Measurement Coordinate System

The antenna under test is normally mounted with its main beam pointing in the +Z direction. The ground plane is usually located on the X-Y plane and the phase center of the antenna is at the origin of the coordinate system.

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Precision Antennas for Spacecraft, Rockets, and Missiles**

ADC-1307191443 R1 – Approved for release – No ITAR restrictions – updated 23 Jan 2015



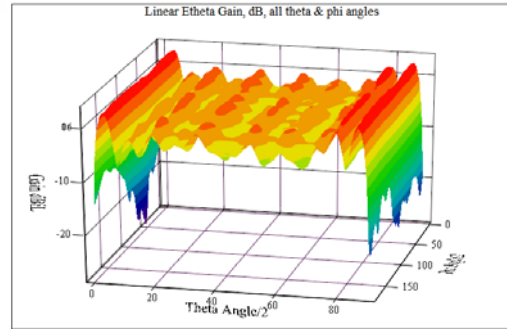
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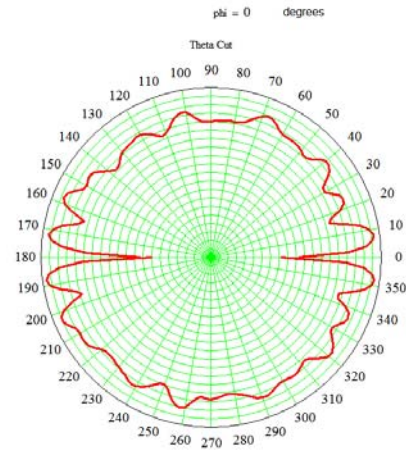


Antenna Performance Analysis:

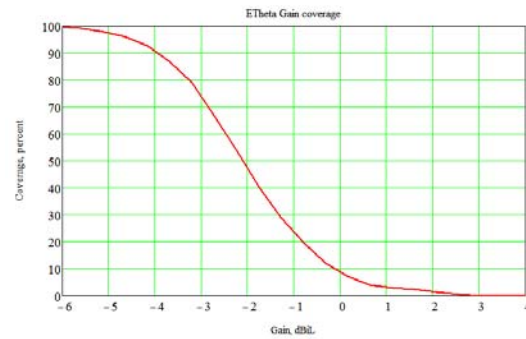
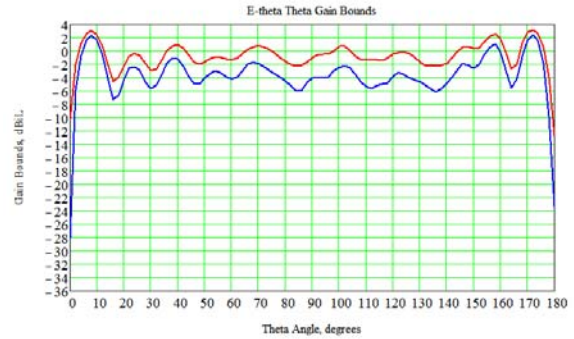
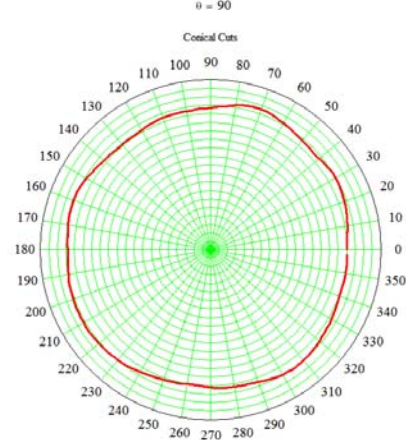
AntDevCo has extensive experience analyzing dual-linear polarimetric antenna radiation pattern measurements. The IEEE Standard 149 is used as a basis for the test procedures. Examples of the performance visualization plots from the AntDevCo software:



AUT Etheta Polarization Gain



Etheta Polarization Gain



Gain bounds plots show the range of gain as a function of θ for all ϕ angles.

Contact AntDevCo for budgetary estimates and firm fixed price proposals for your antenna testing needs. Prices are very competitive.

AntDevCo is ISO 9001-2008 registered.



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