Diamond Engineering

Automated Measurement Systems

DAMS Full Spherical Mount Option

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Overview of Full Spherical Mount

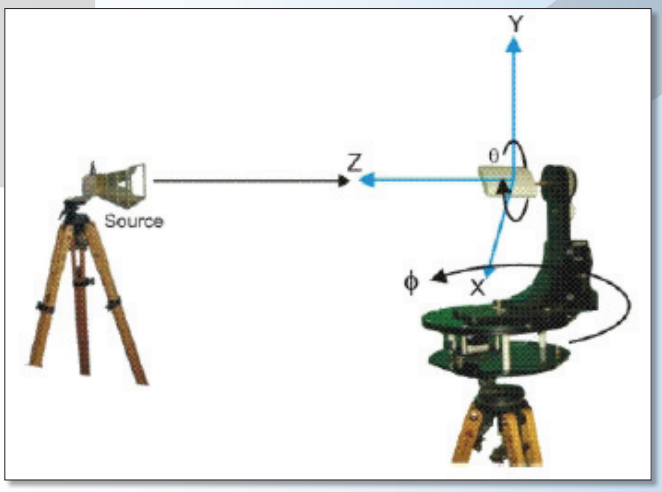
DAMS PLATFORM OPTION

The new Diamond Engineering Full Spherical Mount is now a DAMS platform option that may be added to any DAMS platform. The mount utilizes Delrin ball bearings and structure, as well as enabling full spherical measurements to resolutions of 0.1 degrees. The mount is ideal for unobstructed gain data and efficiency with a low radar cross section less than -20dBSm. The belt driven system is a plug-and-play substitution to the DAMS elevations motor.

FEATURES

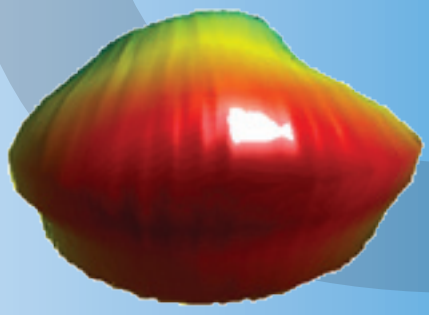
- Low reflection - 90% Delrin construction
- DC-18 GHz
- 6" horizontal adjustment for centering
- 12" vertical height
- 0.1 degree movement resolution
- 5 or 10 lb. load (options 5 or 10)
- CTIA and general efficiency software
- Runs from existing platform azimuth plug

FSM Efficiency Test Setup Example



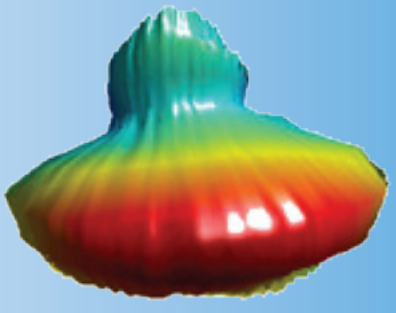
Same patch antenna measured *with* FSM

Freq = 5 GHz Az = -10 EL = 25



Path antenna measured *without* FSM

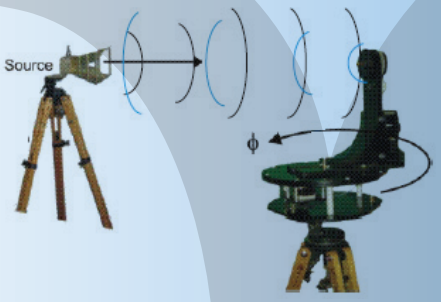
Freq = 5 GHz Az = -10 EL = 25

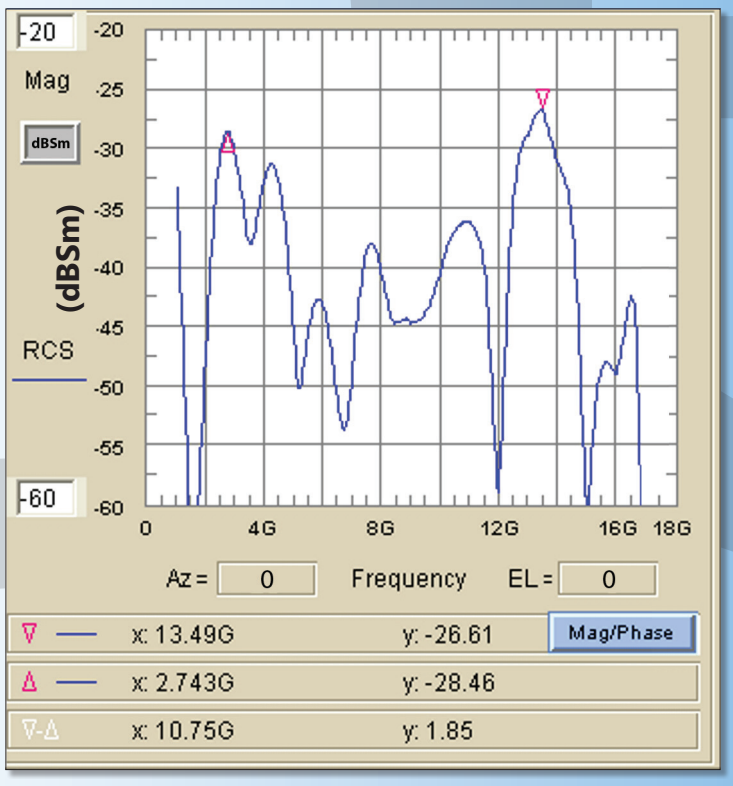


Radar Cross-Section Profile

The Full Spherical Mount (FSM) satisfies the demanding requirements to quickly and efficiently obtain Radar Cross-Section (RCS) profile measurements of your antenna. The FSM allows you to determine the overall reflectivity characteristics of the AUT. An objects RCS profile is a principle concern when designing for low reflection and stealth. The extremely low-reflection design, combined with wide frequency range capabilities (from DC to 40 GHz), make the FSM ideal for this type of application. Below is actual FSM typical measured RCS data in dBSm which DAMS platform compiles when equipped with our FSM package.

Equivalent Radar Cross-section at 1m (typical)

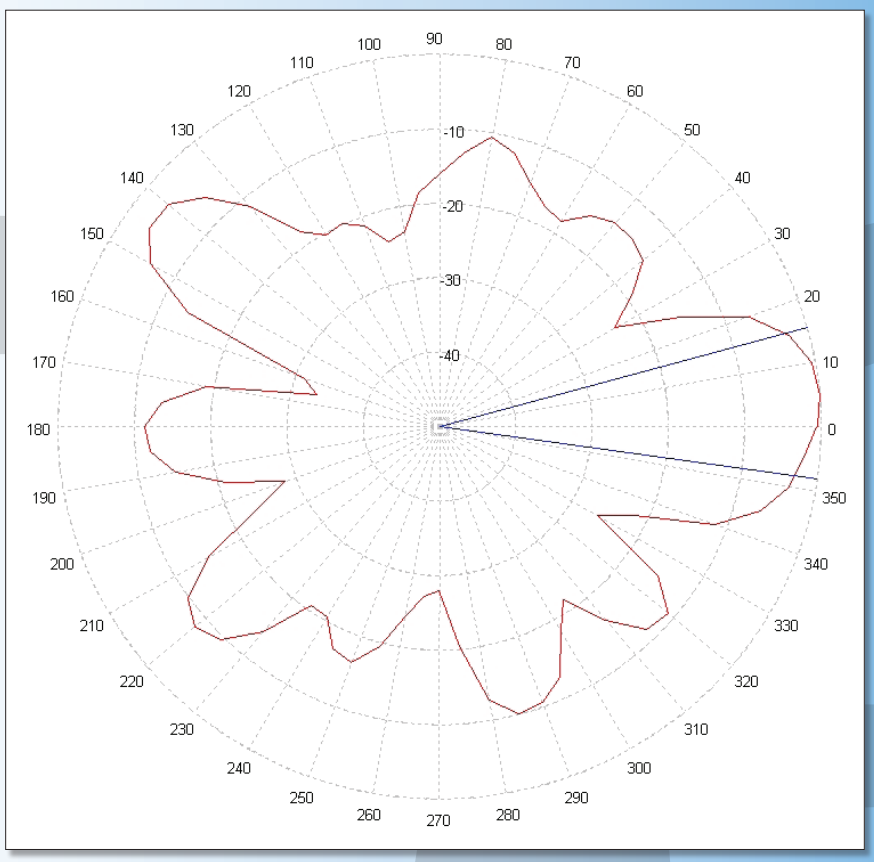




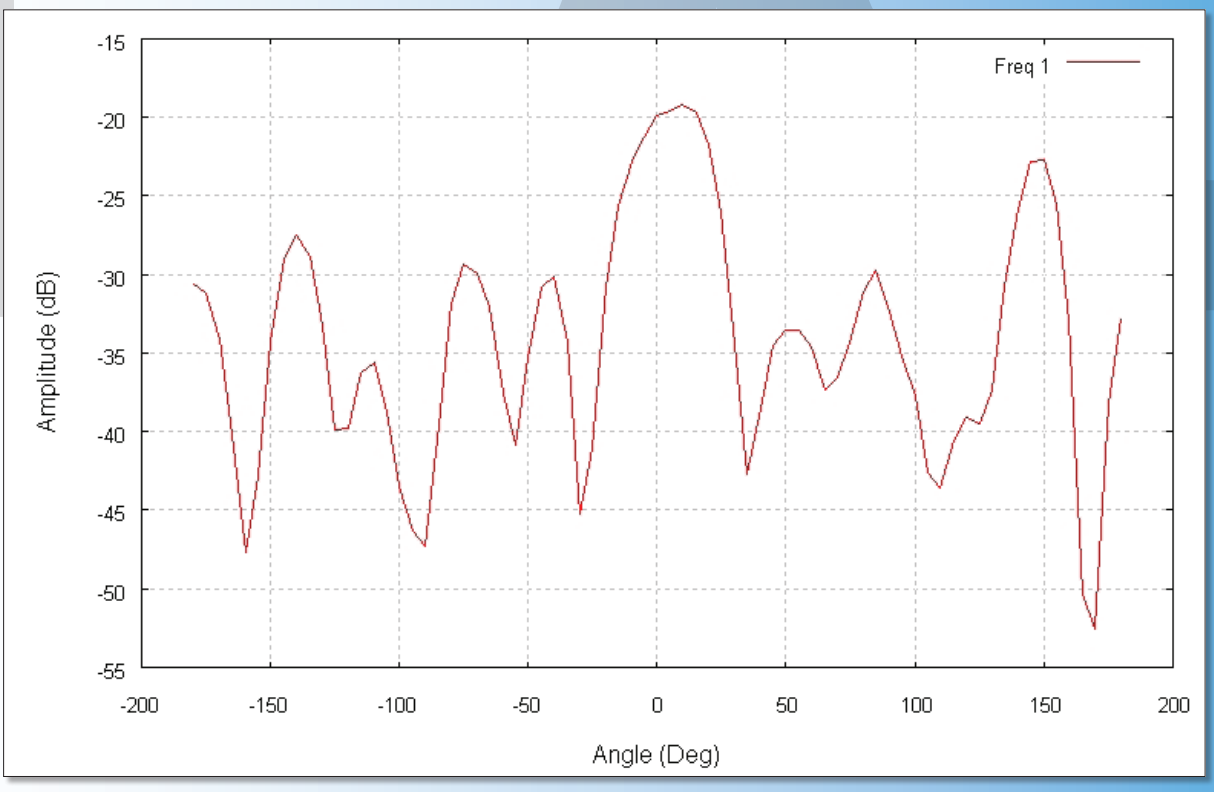
Our amplitude frequency feature illustrates which frequencies the amplitude of your RCS profile are highest and lowest from measurement data.

Plot Examples

Polar Plot Example
DAMS FSM typical RCS profile measured

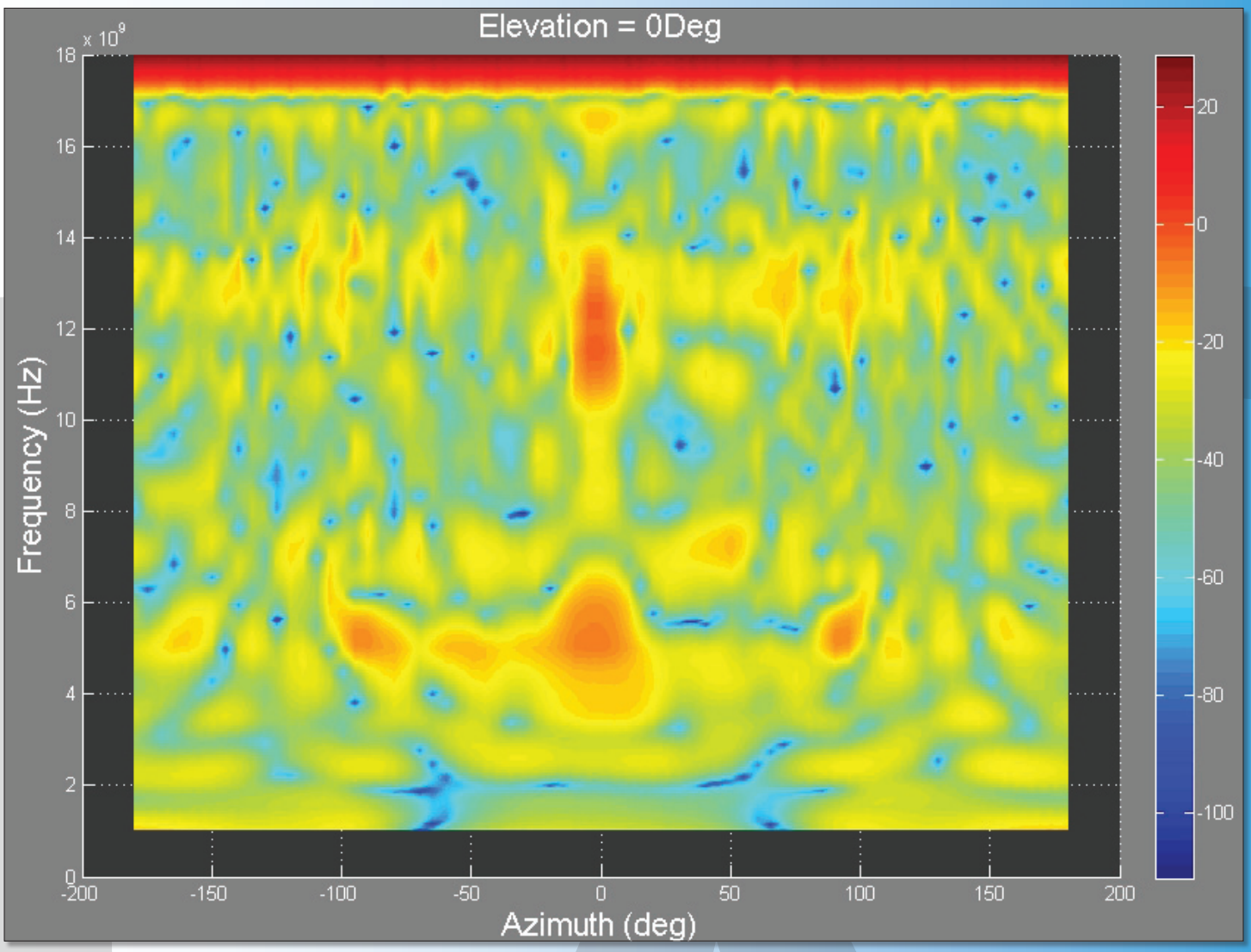


Amplitude vs. Angle
DAMS FSM typical RCS profile measured

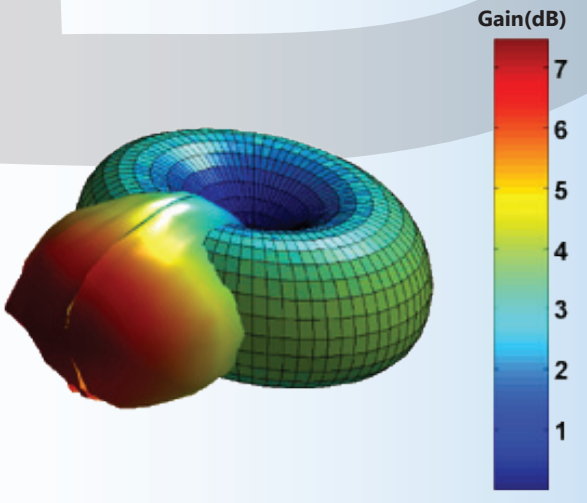


Color Chart

Measured DAMS RCS profile processed with simulator and advance plotting



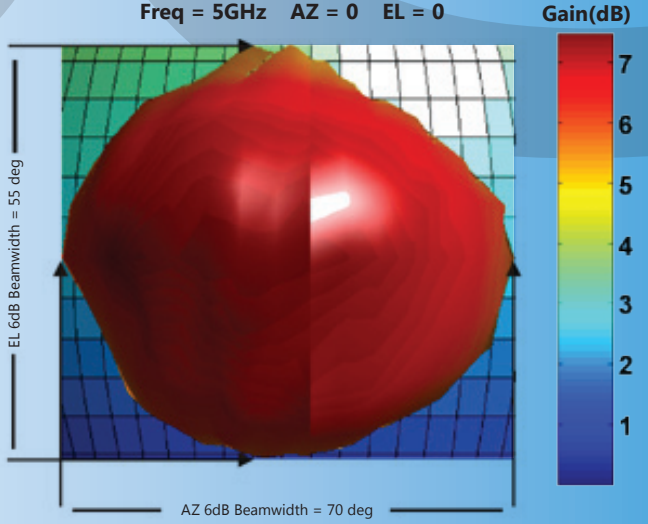
Spherical plot of AUT (Patch) gain with ideal 3dBd dipole



Spherical plot of AUT (Patch)

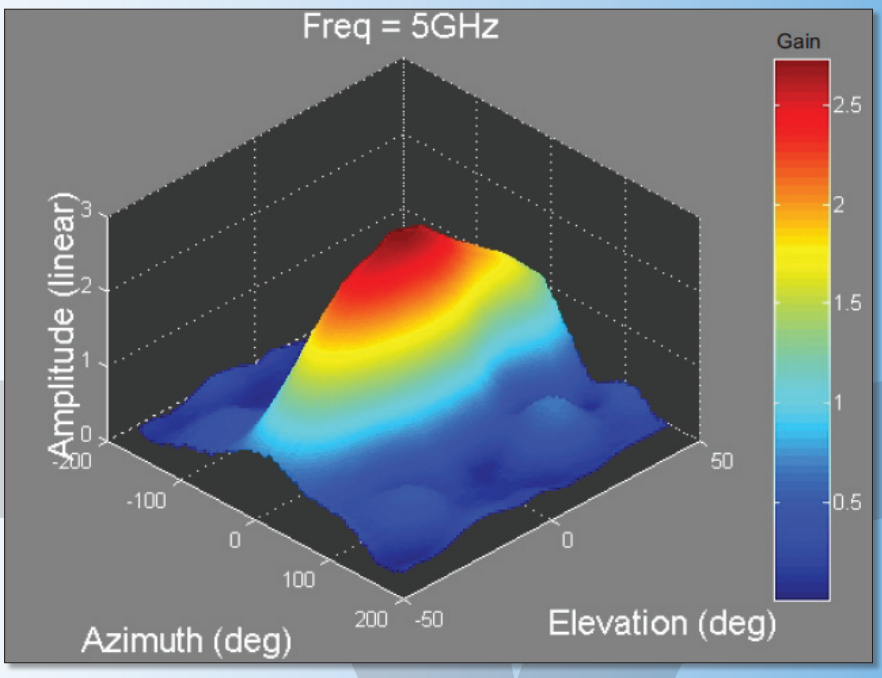
6dB beamwidth using 6dB gain Iso-sphere

Freq = 5GHz AZ = 0 EL = 0



Iso-Sphere grid set to 5 deg/div AZ and EL

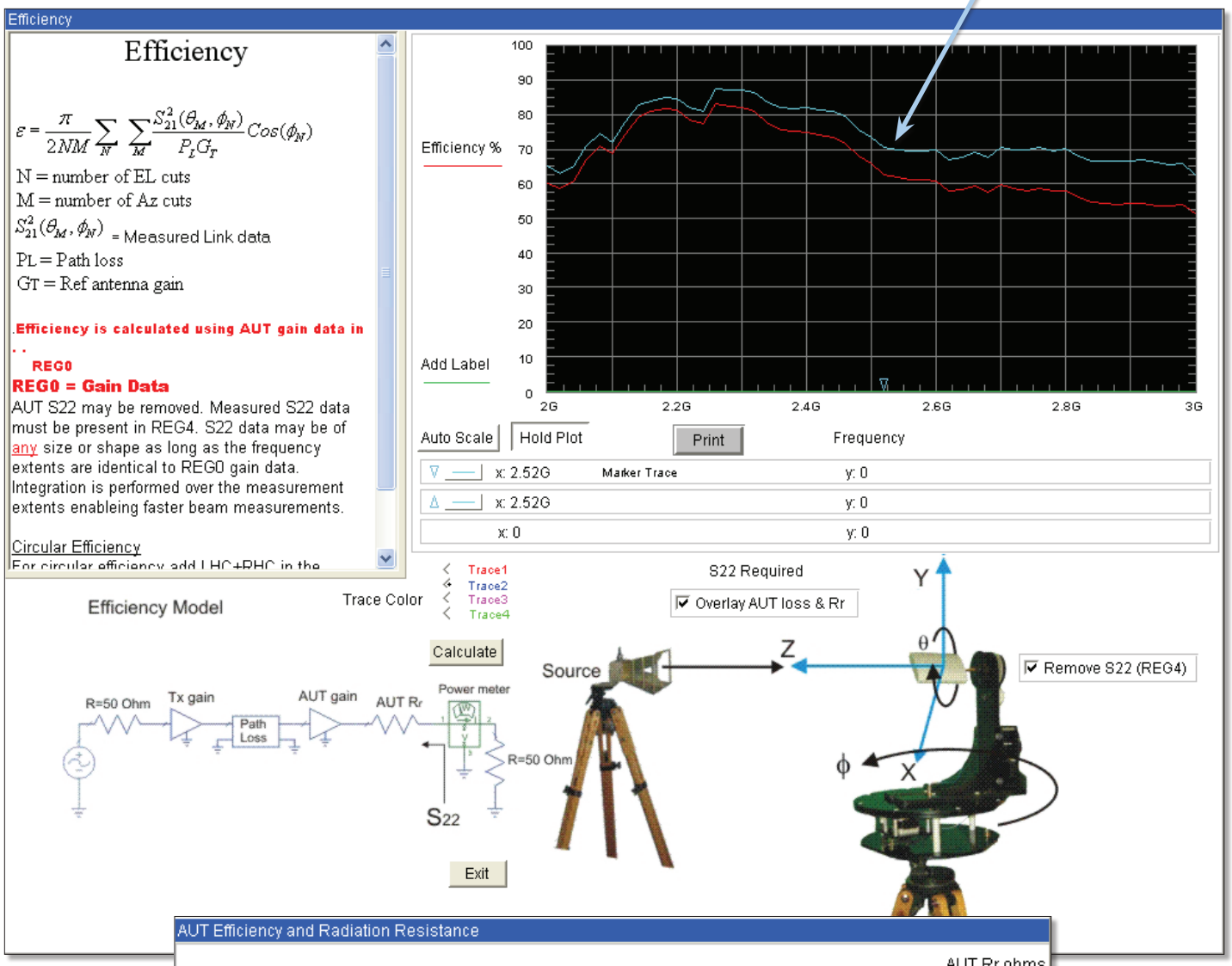
Linear AZ-EL Plot of AUT

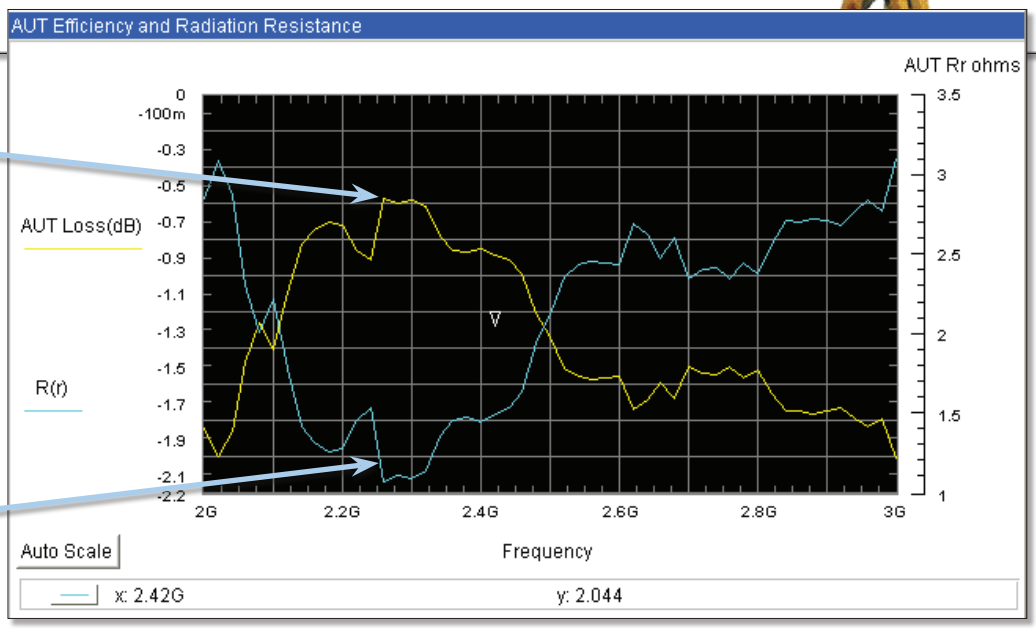


Polar Plot of Patch AUT showing all AZ EL contours relative to Max Gain

Efficiency Measurement Functions

Efficiency with AUT S22 removed





Product List

Standard x000 Series - *Up to 20 lb. capacity (9 kg.)*

Product Code	Frequency
D5000	DC-6 GHz
D6000	DC-18 GHz
D7000	DC-40 GHz

Heavy Duty x100 Series - *Up to 150 lb. capacity (90 kg.)*

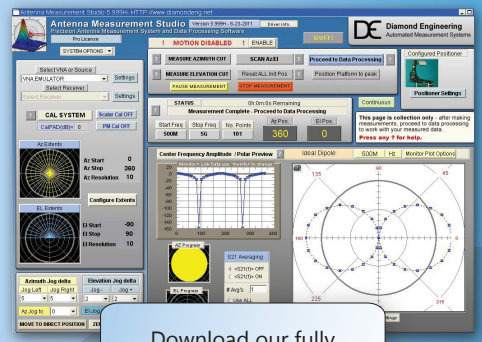
Product Code	Frequency
D5100	DC-6 GHz
D6100	DC-18 GHz
D7100	DC-40 GHz

Heavy Duty x250 Series - *Up to 250 lb. capacity (113 kg.)*

Product Code	Frequency
D5250	DC-6 GHz
D6250	DC-18 GHz
D7250	DC-40 GHz

Full Spherical Mount - *Up to 10 lb. capacity (4.5 kg.)*

Product Code	Frequency
DFSM-5-18	DC-18 GHz
DFSM-5-40	DC-40 GHz
DFSM-10-18	DC-18 GHz
DFSM-10-40	DC-40 GHz



Download our fully functional demo software at **www.DiamondEng.net**

Visit us on your Smart Phone!

Optional Accessories

	Product Code
Advanced Processing Module (incl. with 6x00/7x00)	DPA-APM
Pre-Configured Desktop or Laptop PC w/ GPIB	DPA-PC-DSK *or* DPA-PC-LAP
NEW! Antenna Network and Measurement Simulator	DANMS

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