

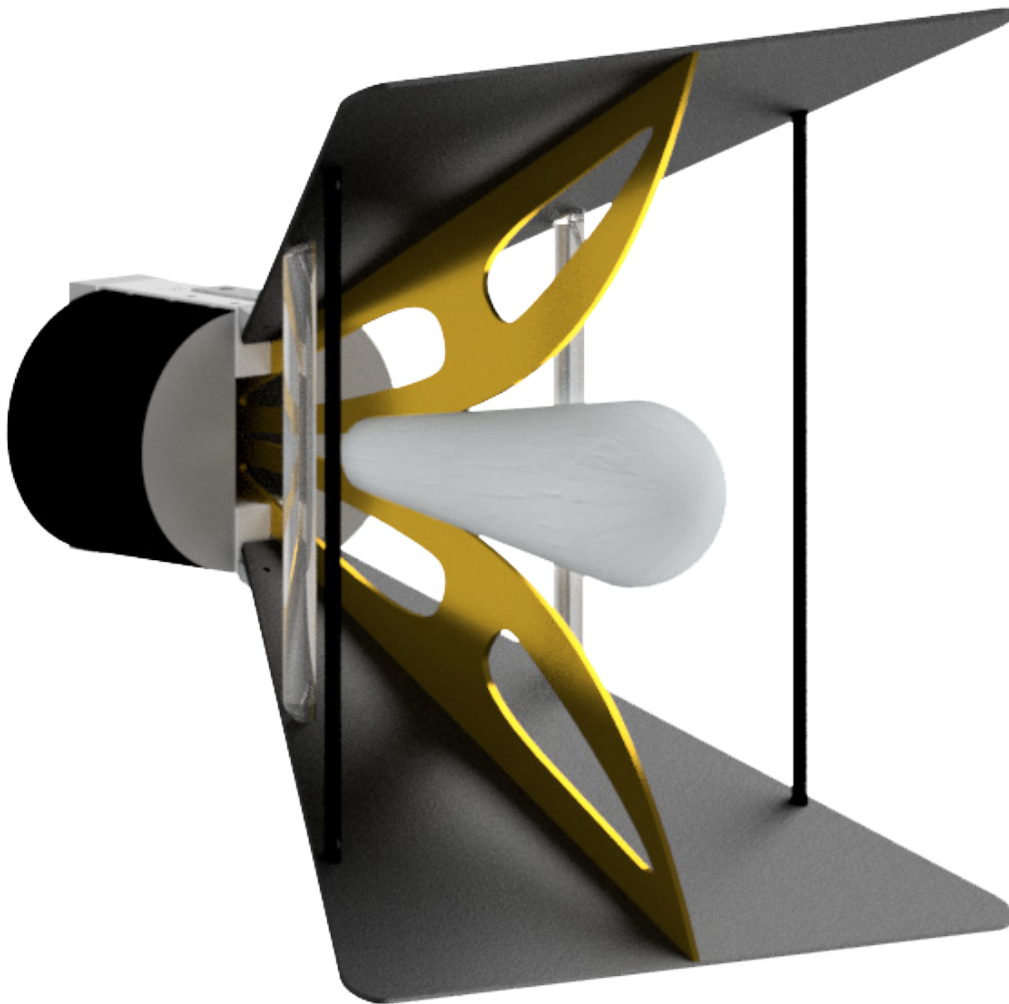


Diamond Engineering

Automated Measurement Systems

Broadband Reference Horn

Features and Specifications



Model DE05xx

500MHz up to 60GHz

Introduction & Physical Specifications

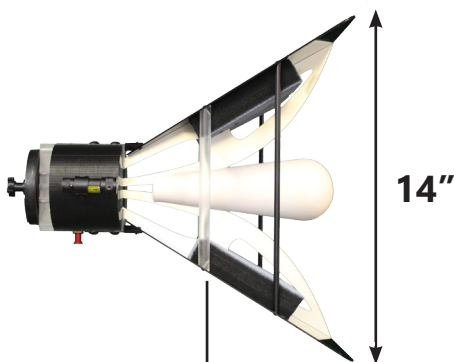
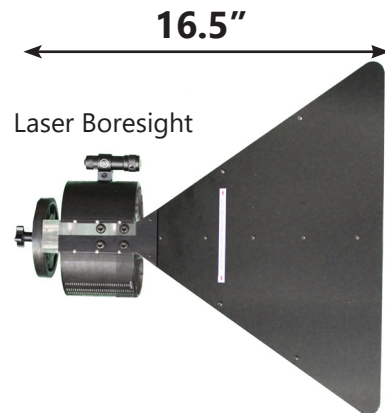
Introduction

The digitally optimized DE05xx features a dielectric lens system which dramatically improves beam profile and gain. The horn can be used for antenna measurement, material measurement and super broad band communications. The DE05xx can replace three standard gain horns which can make it ideal for antenna characterization. The wide band operation is well suited for time domain and RCS measurements, along with material measurement and even 6G. Depending on the model selected, it can be usable from 500 MHz all the way to 60 GHz. The excellent match and monotonic gain provide a unique combination of application and performance. Higher low band gain is optional using a 60 cm back plane.

Physical Specifications

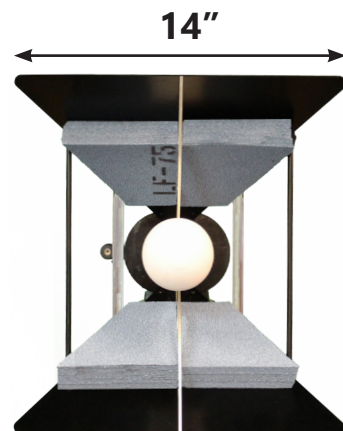
Weight: 3.3 pounds

Dimensions: 16.5 x 14 x 14 inches



Phase Center

The gain reference phase center for the DE0530 is very constant with frequency due to the dielectric lens. This provides excellent measurement consistency.



Technical Specifications

Polarization:	Linear
Gain(dBi):	$20\text{Log}(14*\sin(F*2.1)+1)$ F in GHz
Receive / Transmission:	50 watts
Connector type:	SMA, K & 2.4mm connector
Beam Location:	8.6 cm below laser location
Recommended Tripod:	DE Carbon Fiber Tripod
VSWR:	1.5:1 (typical)

Electrical Specifications

	Model: DE0518	DE0530	DE0540	DE0560
Type of antenna	Dual-ridge	Dual-ridge	Dual-ridge	Dual-ridge
Frequency range	0.5 - 18 GHz	0.5 - 30 GHz	0.5 - 40 GHz	0.5 - 60 GHz
Gain	5 to 20 dBi	5 to 22 dBi	5 to 23 dBi	5 to 23 dBi
VSWR (max)	< 2.0 (1-18 GHz)	< 2.0 (1 to 30 GHz)	< 2.0 (1 to 40 GHz)	< 2.0 (1 to 40 GHz)
Polarization	Single, linear	Single, linear	Single, linear	Single, linear
Beam width (typ) (V)	27°	12°	10°	10°
Beam width (typ) (H)	26°	11°	11°	8°
Rx/Tx power (typical)	100 watts	50 watts	30 watts	30 watts
Rx/Tx power (max)	120 watts	50 watts	20 watts	15 watts
Impedance	50 ohms	50 ohms	50 ohms	50 ohms

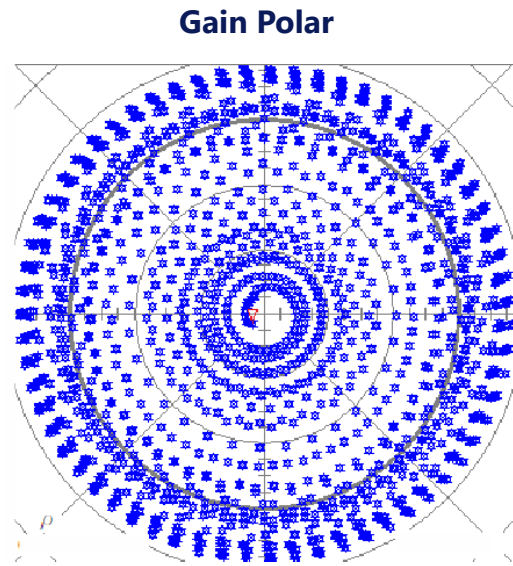
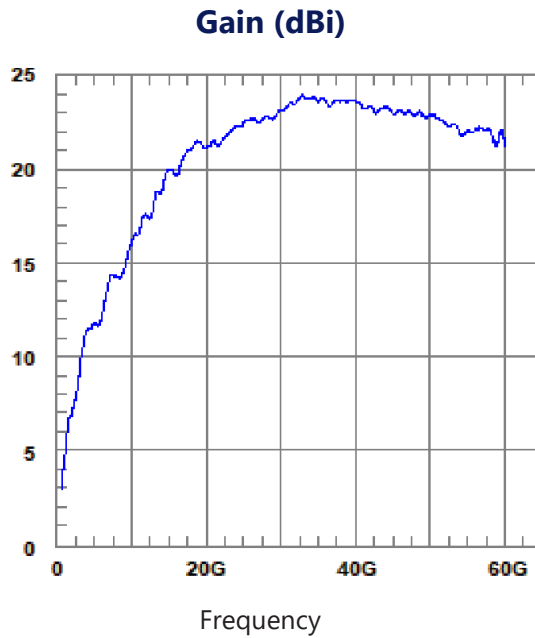
Physical Characteristics

(Applies to all models)

Dimensions	14" W x 14" H x 15.5" L
Weight	4 pounds (1.8 kg)
Connector	SMA-F / K /2.4mm
Radiation pattern	Directional
Beam location	8.6cm below laser
Mounting	1/4"-20, tripod mount provided
Material	Aluminum, C-Foam, Rexolite®, Acrylic
Absorber	C-RAM SFC with 1" cones

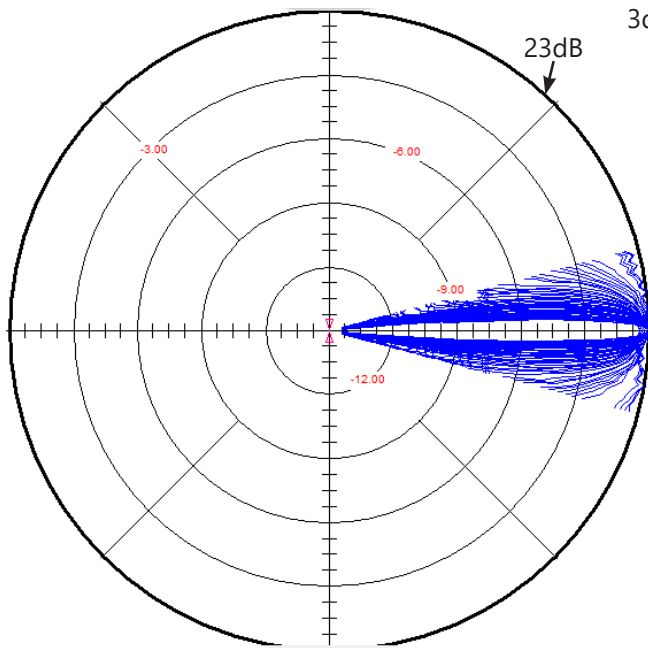
Typical Profiles

Typical Gain, VSWR for AZ-EL (0,0) plus normalized beamwidth profiles



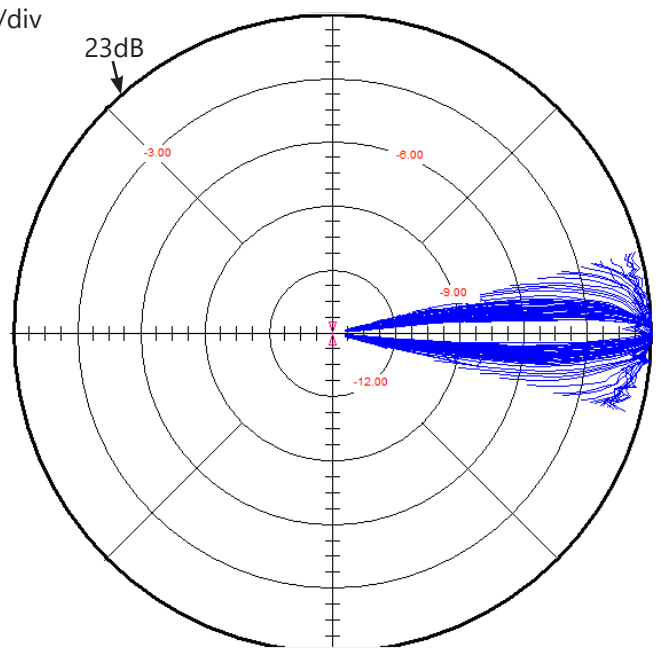
Gain Phase referenced from connection

E-plane Contours



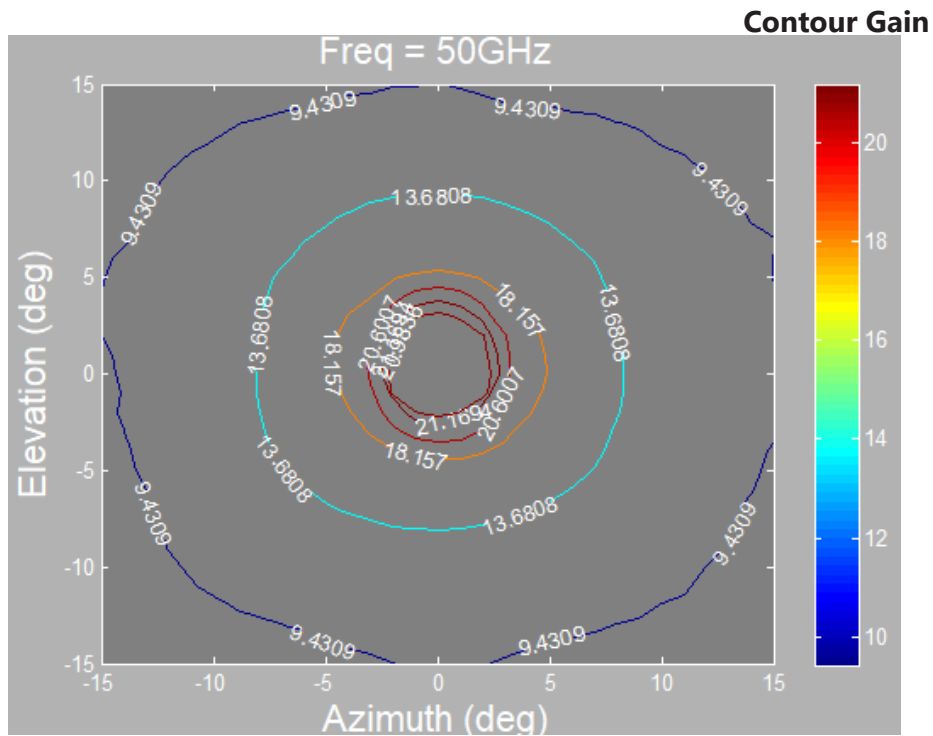
Scale:
3dB/div

H-plane Contours

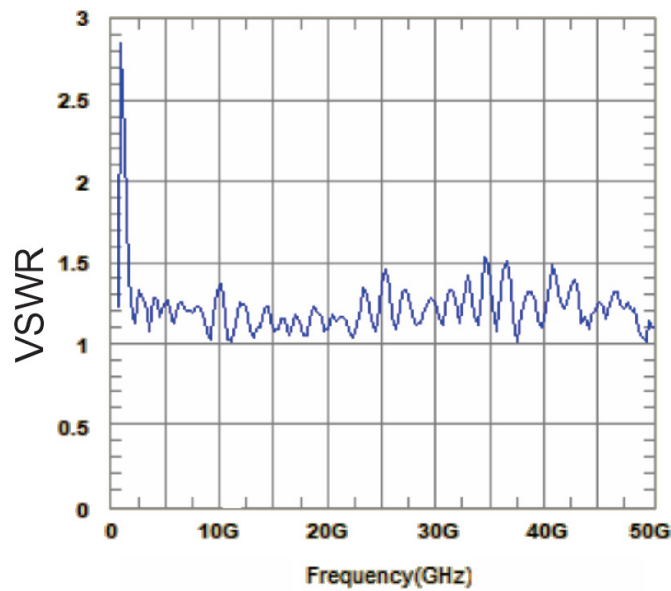


500MHz - 50GHz

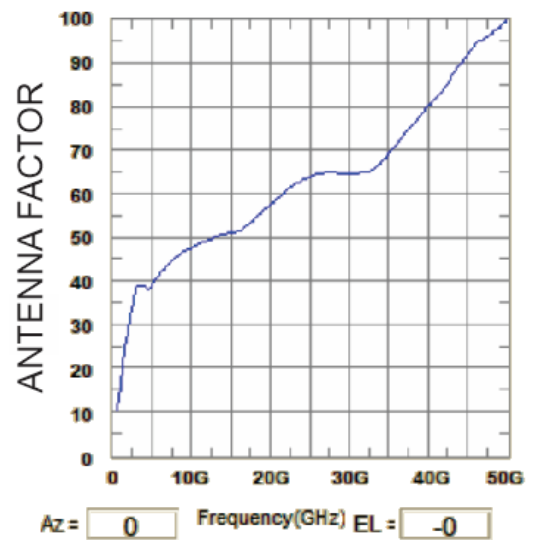
Typical 3dB Beam Profiles 1GHz to 60GHz



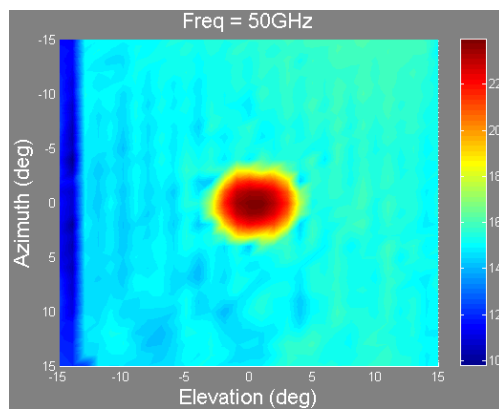
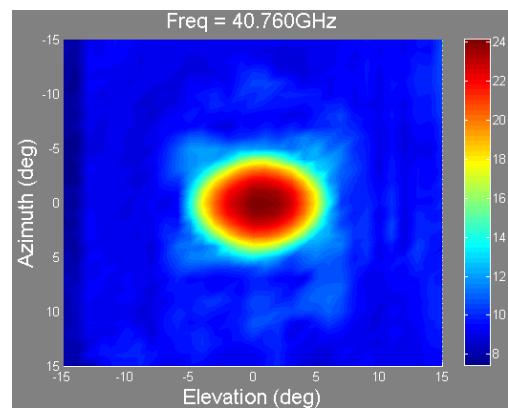
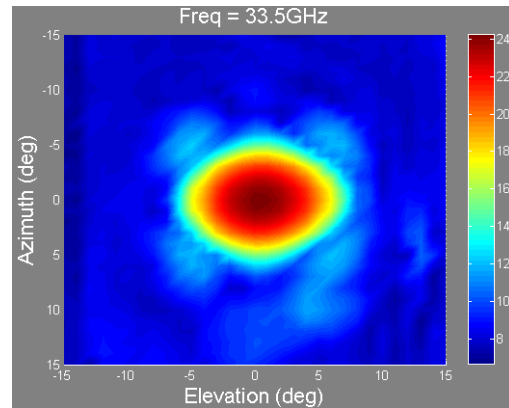
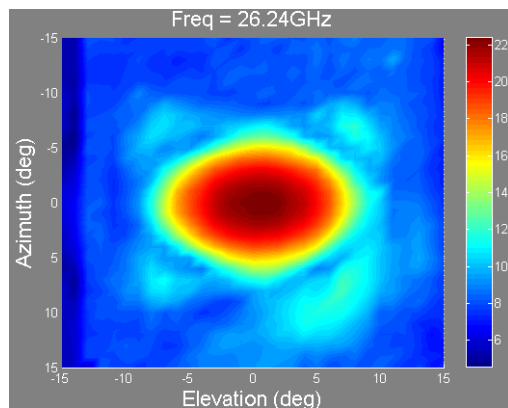
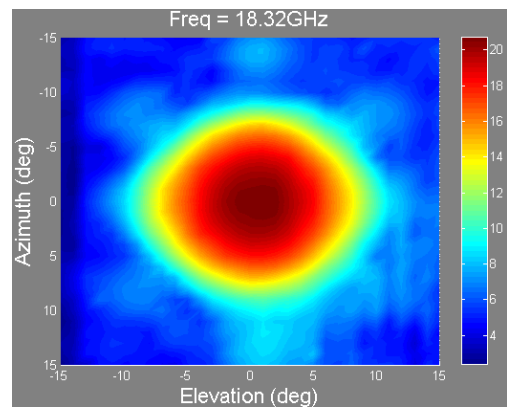
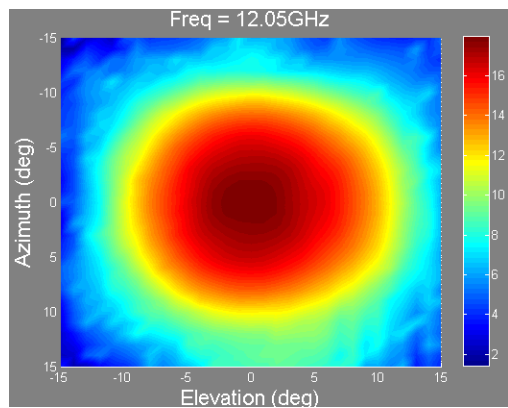
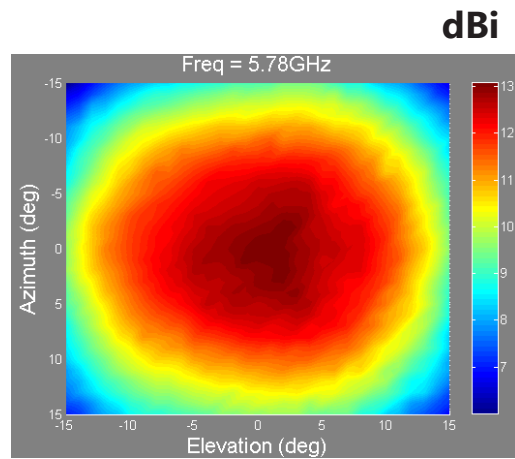
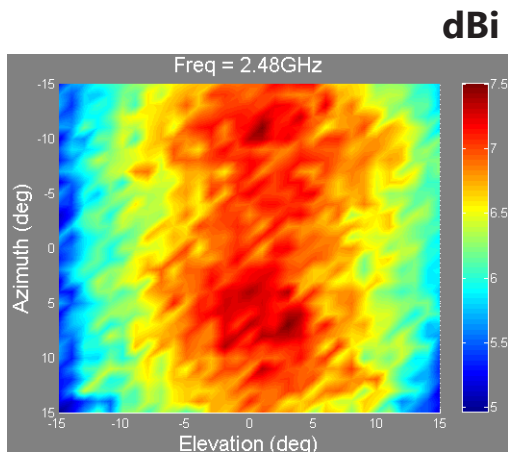
VSWR



Antenna Factor

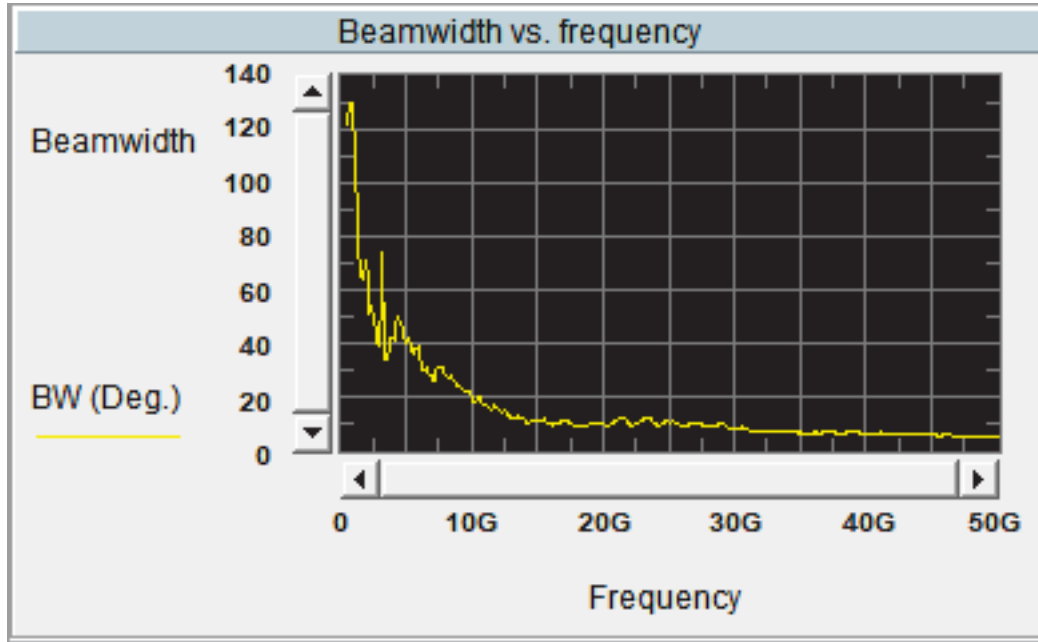


Typical Beam Color Profiles 700MHz to 50GHz

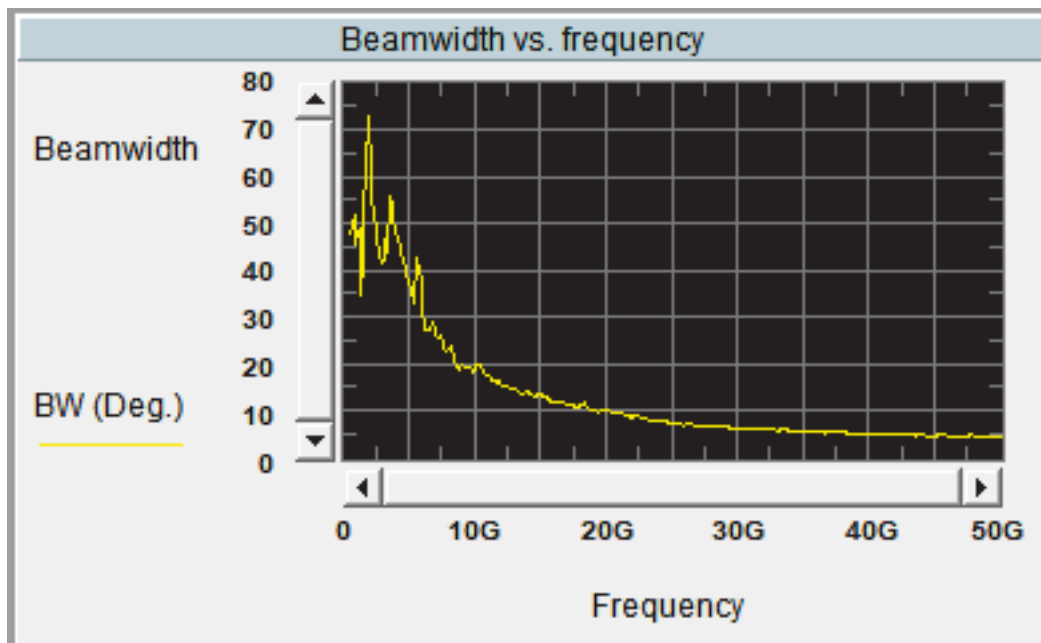


Typical Beamwidth vs Frequency DC to 50 GHz

E-Plane



H-Plane



More Information

Antenna Measurement Positioners

For more information about our line of antenna measurement positioners, please visit:

<http://www.DiamondEng.net/antenna-measurement>

Antenna Measurement Software

For more information about our software, including screen shots, full specifications of capabilities and the ability to download a demo version, please visit:

http://www.DiamondEng.net/PDF/software_specs.pdf

Power Amplifiers

For more information about our broadband power amplifiers, please visit:

<http://www.DiamondEng.net/power-amplifiers>



Diamond Engineering

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