Diamond Engineering
Automated Measurement Systems

Antenna Measurement Software
Features and Specifications

Antenna Measurement Studio 5.999D- HTTP://www.diamondeng.net

Antenna Measurement Studio   Version 5.999D - 3-2-2011   Driver info.
Precision Antenna Measurement System and Data Processing Software

Diamond Engineering
Automated Measurement Systems

Pro License

SYSTEM OPTIONS ▼

! **MOTION DISABLED** ! ENABLE

QUIT!

Select VNA or Source
VNA.EMULATOR   Settings
Select Receiver
Select.Receiver   Settings

CAL SYSTEM   Scalar Cal OFF
CalPAD(dB)= 0   PM Cal OFF

MEASURE AZIMUTH CUT   SCAN Az/El   Proceed to Data Processing
MEASURE ELEVATION CUT   Reset ALL Init Pos   Position Platform to peak
PAUSE MEASUREMENT   STOP MEASUREMENT

Configured Positioner

Positioner Settings

STATUS   0h:0m:0s Remaining
Measurement Complete - Proceed to Data Processing

Continuous

This page is collection only - after making measurements, proceed to data processing to work with your measured data.
Press any ? for help.

Start Freq   Stop Freq   No. Points   Az Pos.   El Pos.
1.5G   1.9G   51   360   0

Az Extents
Az Start   0
Az Stop   360
Az Resolution   10

Configure Extents

EL Extents
El Start   90
El Stop   -90
El Resolution   10

Center Frequency Amplitude / Polar Preview   Axial Helix   1.7G   Hz   Monitor Plot Options

Monitor = Link Data use 'monitor' to change

40
20
0
-20
-40
-60
-80
-100
-120
-140
-160
0   100   200   300   400

135   90   45
180   0
225   315
27

AZ Progress

EL Progress

S21 Averaging
‹ ‹S21(f)› OFF
‹ ‹S21(f)› ON
Avg's 1
‹ Use ALL
‹ ALL-Min/Max
Meas. Delay
0

Display Settings

Azimuth Jog delta   Elevation Jog delta
Jog Left   Jog Right   Jog -   Jog +
5   5   2   2
Az Jog to   0   El Jog to   0
MOVE TO DIRECT POSITION   ZERO POSITIONER

DAMS Antenna Measurement Studio
Antenna emission measurement and characterization

ООО «4ТЕСТ»
Телефон: +7 (499) 685-4444
info@4test.ru
www.4test.ru

Software Features

Test Equipment Support

Works with any Agilent or Anritsu VNA, SA, SG or PM, as well as most R&S and voltmeters and more.

Platform Control

Manually or automatically control dual-axis movement, AZ over EL, with stepping or continuous sweeps, at up to 0.0625 degree resolution. Control platform type, speed, acceleration and more.

Data Storage Registers

Load, save or export data sets with measurement descriptions, number of measurements and more. Store up to four data sets or export to Excel or TXT.

Basic Measurement Cuts

Perform AZ, EL, AZ over EL cuts and more.
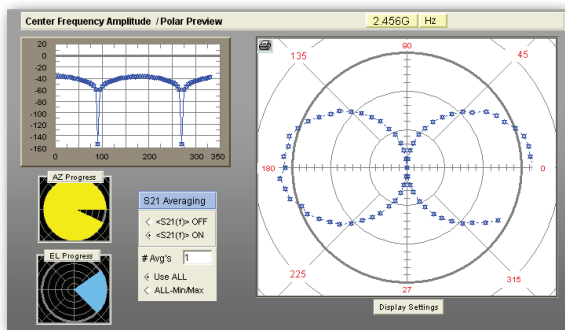
Dual Trace Plots

Exportable dual trace polar or amplitude plots feature dual marker function and selectable linear or 20Log formats for delta dB/angle marker readouts with selectable scaling.
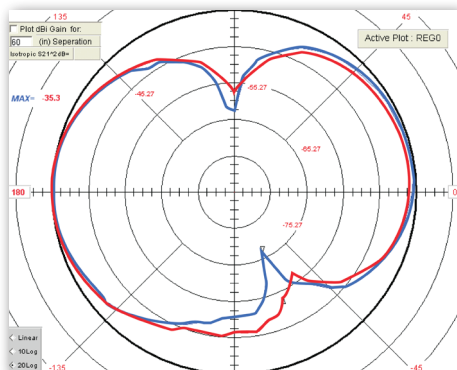

Path-Loss Calculators

Create a path-loss array for gain macros which include the fixed distance and path-loss over frequencies with loss illustrated in dB/unit. Also capable of determining delay/distance from phase data and more.
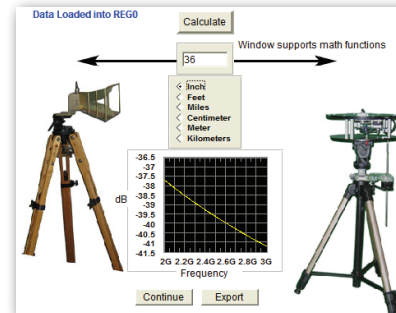
Full 3D and Spherical Plotting

Generate exportable three-dimensional spherical views of your data at any frequency, with multiple overlay and display features. Perform continuous rotation or swept measurements with up to 1600 frequency points and variable speed capabilities for vertical or horizontal scans. *(Pro version only)*
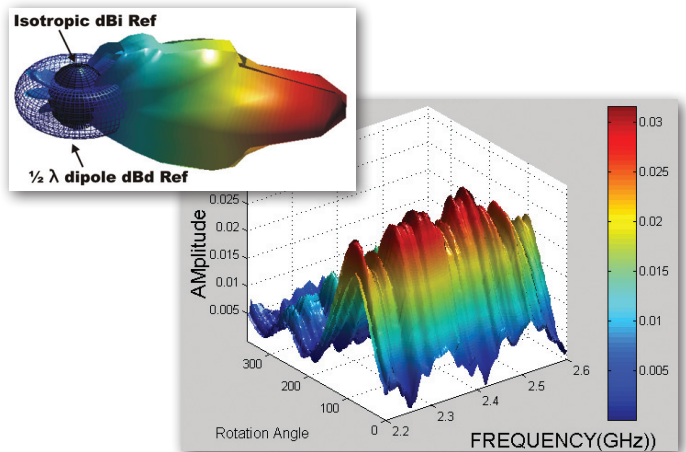
Measurement Monitor Plots

Log magnitude, polar azimuth or real-time gain. Includes monitor options such as frequency for tuning. Also produces configurable polar and magnitude (dB) graphs.

Software Features *(continued)*

Data Manipulation

Includes an array calculator, measurement correction functions, Gain macros, path generation, reference antenna files, Efficiency & AUT losses, and more.

Nyquist Sampling

Synchronize random data, reduce errors and enable wireless measurements via continuous movement Nyquist sampling.

Import Reference Antennas

Quickly import your reference antenna data stored in text files. Interpolation used for array generation.

Source Measurement Features

Enables unique primary and a secondary measurement such as S22. Also includes an emulator which enables the simulation of standard, well-defined reference antennas.

Antenna Network Simulator

A full feature two-port simulator with wave analysis. Fully customizable drag-and-drop elements enable users to create diversified simulations to analyze antenna network performance, including path-loss or phase. Create phased arrays or sector arrays, or create matching circuits for measured antennas. Includes an antenna emulation library of ideal networks.
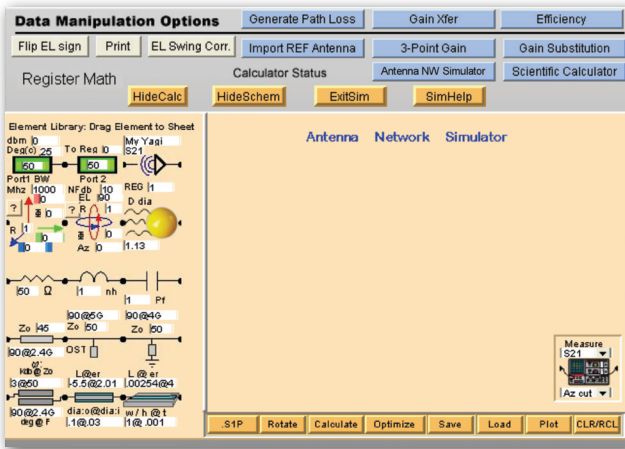
Gain Calculation

Our 3-point Gain Macro enables gain using three AUT's generating three unknowns which are used to create a measurement standard. Our Gain Transfer Macro calculates gain, linear, circular and total (theta and phi). Our Gain Substitution Macro enables a reference antenna with known gain to be used.
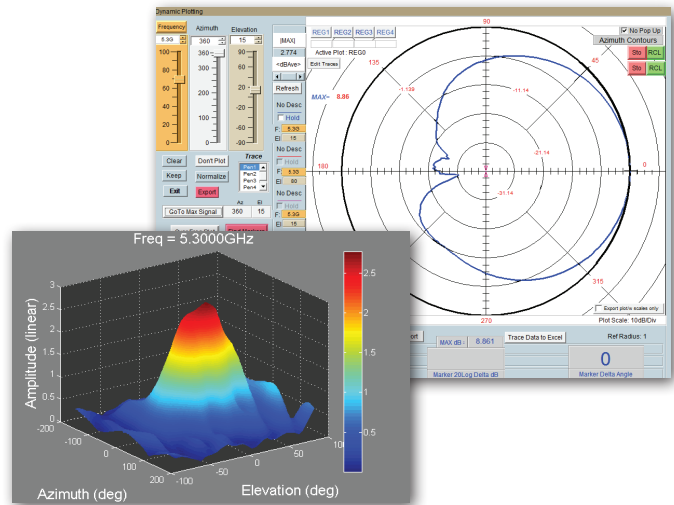
Link Commander

Enables link analysis with or without measured data, with range and bit error rate determination (per Shannon's limit). Simulates Tx, Rx and path loss calculation with the ability to control the power level while seeing the real-time effects on the virtual spectrum analyzer.

*Virtual Signal Generator*   *Virtual Spectrum Analyzer*
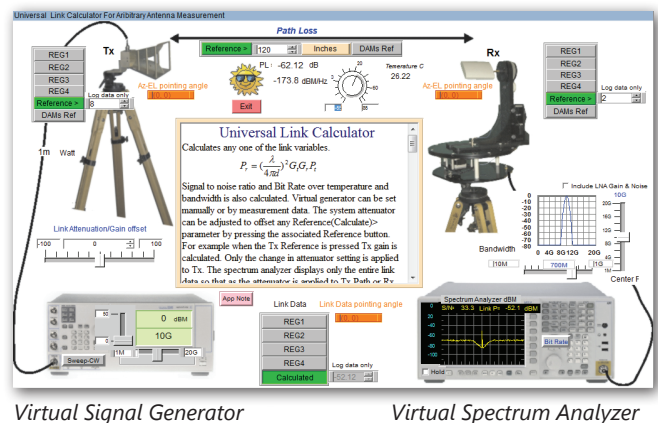
Antenna Efficiency

Measures the losses that occur throughout the antenna and/or the transmission at given frequencies, or can be averaged over its operation across various frequency bands. Can also be calculated with or without AUT-loss.
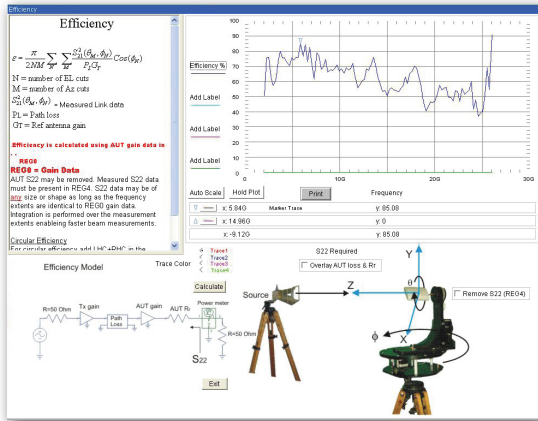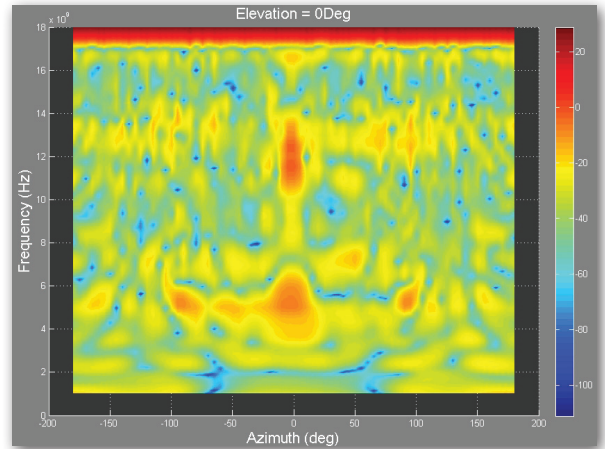

2D and 3D AZ-EL-F Plotting

Utilizes the 3D Cartesian coordinate system to produce two-dimensional color maps or three-dimensional plot graphs from measured data. *(Pro version only)*
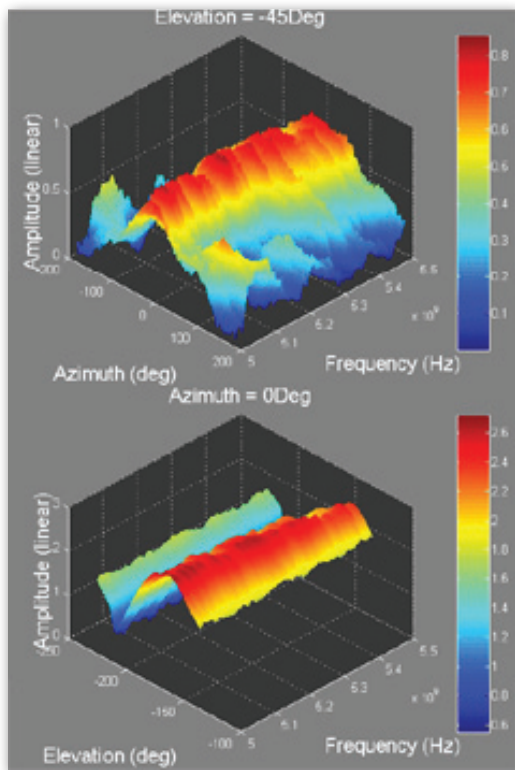
Radar Cross-Section Profiling

Determine the overall reflectivity characteristics of the AUT, a principle concern when designing for low reflection and/or stealth.

Polar Plotting Capabilities

Compile data from azimuth, elevation or full elevation cuts into polar plots. Features include polar amplitude plots, GNU plots, RCS plots, conversion to Smith charts, and more.

Beam Width vs. Frequency

Evaluate all or part of measurements to examine compliance of AUT against ideal isotropic, dipole or user-defined antennas. Data exportable to Excel.

Software Specifications

Platform Movement

Control Interface:	USB/serial via DAMS controller
Available Adjustments:	Platform type
	Speed
	Acceleration rate
	Communication settings

Data Collection

Methods:	Network analyzer
	Spectrum analyzer
	Power meter
	Voltmeter
Measurement Monitors:	Log Magnitude
	Polar Azimuth
	Real-time Gain

Data Calculation Modules

Gain Calculation:	Linear Gain
	Circular Gain
	Gain Transfer
	Gain Substitution
	3-Point Gain
Efficiency Calculation:	Antenna Efficiency
	Antenna Efficiency w/ AUT Losses
Path-Loss Calculation:	General Path-Loss Calculation
	Gradient Path Distance Calculator
	S21group Delay / Distance
	Constant Gain or Loss
Reference Antenna Import:	Tab delimited ASCII (TXT) file

Data Visualization

Polar Plots:

    Azimuth

    Elevation

    Full Elevation Cuts

    Beamwidth

    GNUplot Polar

    Smith Chart Overlay

    Contour Export Support

    Dynamic Polar Plot

2D (XY) Plots:

    Amplitude Over Frequency(s)

    Az/El over Amplitude

    Group Delay

    Beamwidth vs. Frequency

    GNUplot Amplitude

3D Plots:

    Azimuth

    Elevation

    Azimuth/Elevation

    Spherical

    Azimuth vs. Frequency vs. Amplitude

    Azimuth vs. Elevation vs. Amplitude

Data Manipulation Features

- Standard Register Calculator
- Array Calculator
- Link Commander
- Measurement Corrections

Import/Export Data

Supported Data Formats: Excel, TXT (ASCII), DAMS formats

4ТЕСТ

ООО «4ТЕСТ»
Телефон: +7 (499) 685-4444
info@4test.ru
www.4test.ru