

# **NETWORK ANALYZER**

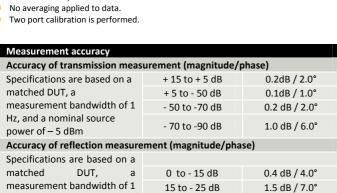
# **Protek A 333 NETWORK ANALYZER 3.2 GHZ**

#### Specifications apply under the following conditions:

- 40 minutes warm-up time at the ambient temperature.
- Environmental temperature of 23°C± 5°C, with less than 1°C deviation from the calibration temperature

Hz, and a nominal source

power of - 5 dBm



Trace stability	
Temperature dependence per one degree of the temperature variation	0.02 dB
Trace noise magnitude IF bandwidth 3 kHz	0.001 dB rms

- 25 to -35 dB

Measurement Range		
Frequency range	300kHz to 3.2 GHz	
Impedance	50 Ω (75 Ω)	
Test port Connectors	N-type, female	
Number of test ports	2	
Frequency accuracy	± 5 ppm	
Frequency resolution	1mHz	
Number of test points	2 to 10001	
User-selectable		
IF bandwidth settings 1/1.5/2/3/5/7/10 step	1.0 Hz to 30 kHz	
Dynamic range IF bandwidth 10 Hz	2 to 3200 MHz > 125 dB typ. 130dB	
Measurement time per point 30 kHz measurement bandwidth	125 μs	

Test port output	
Power range	- 45 to + 10 dBm
Power accuracy	< 1.0 dB
Power resolution	0.05 dB
Harmonic distortion	-30 dBc

Test port input	
Match without system error correction	> 25 dB
Damage level	+ 26 dBm
Damage DC voltage	35 V



#### **Measurement Capabilities**

#### **Number of measurement channels**

Up to 16 independent measurement channels. A measurement channel is coupled to stimulus response settings including frequency range and number of points.

#### Number of Windows

each measurement channel has a display window

# **Number of traces**

Up to 16 display windows (channels) can be displayed. 16 data traces and 16 memory traces per channel.

### Measurement parameters

S 11, S21 S12 S22

4 dB / 22.0°

### Measurement parameter conversion

Available to convent S-parameters into reflection impedance transmission

# **Data formats**

Impedance, reflection admittance, transmission admittance, and 1/S. Log magnitude, linear magnitude, phase, expanded phase, group delay,

real, imaginary, Smith chart, polar.

### **Data markers**

10 independent markers per trace. Reference marker available for delta marker operation. Smith chart format includes 5 maker formats: linear magnitude / phase, log magnitude / phase, real / imaginary, R + jX, and G + jB. Polar chart format includes 3 marker formats: linear magnitude /phase, log magnitude / phase, and real / imaginary.

# External/Internal reference signal I/O

Frequency:10 Mhz

### MARKER FUNCTIONS

Max value, Min value, peak, peak left, peak right, target, target left, target right, multi-peak, multi-target, bandwidth parameters with user-defined bandwidth values

# Marker to functions

Set start, stop, center to active marker stimulus value; set reference to active marker response value; set electrical delay to group delay at active marker.

# Search range

User definable

# **Tracking**

Performs marker search continuously or on demand





# COMMUNICAITON EQUIPMENTS

# **NETWORK ANALYZER**

#### Time domain functions

#### Transformation

Selectable transformation type from bandpass, lowpass impulse, lowpass step.

Selectable window from maximum, normal and minimum.

#### **Gated functions**

Selectable gated filter type from bandpass, notch,

Selectable gate shape from maximum, normal and wide.

# Source control

#### Sweep type

Linear sweep segment sweep, log sweep and power sweep.

#### Segment sween

Define independent sweep segments. Set number of points, test port power levels. if bandwidth, delay time independently for each segment.

#### Sween trigger

Set to continuous, hold, or single, sweep

#### Power

Set source power from -45 dBm to 10 dBm. The power slope function compensates source power level error with internal, external, manual trigger.

# Operating environment

Temperature  $+ 5 \text{ to} + 40 \,^{\circ}\text{C}$ Dimensions (WxHxD)  $426 \times 222 \times 270 \text{ mm}$ 

Weight 10.6 kg

Power supply 100 to 240 VAC/ 47 to 63 Hz

#### **Trace Functions**

#### **Display Data**

Display current measurement data, memory data, or current measurement and memory data simultaneously

### Trace math

Vector addition, subtraction, Multiplication or division of measured complex values and memory data.

### Title

Add custom title to each channel window. Titles are printed on hardcopies of displayed measurements.

### Autoscale

Automatically selects scale resolution and reference value to vertically center the trace.

### Electrical delay

Offset measured phase or group delay by a defined amount of electrical delay, in seconds.

### **Phase Offset**

Offset measured phase or group delay by a defined amount in degrees.

### Statistics

Calculates and display mean, standard deviation and peak-to-peak deviation of the data trace.

# **Programming Function**

COM/DCOM Automation

#### Data accuracy enhancemen

#### **Measurement Calibration**

Measurement calibration significantly reduces measurement uncertainty due to errors caused by system directivity, source and load match, tracking and crosstalk. Full 2 – port calibration removes all the systematic errors for the related test ports to obtain the most accurate measurements

#### Response Calibration

Simultaneous magnitude and phase correction of frequency response errors for either reflection or transmission measurements.

#### Response calibration and Isolation

Compensates for frequency response and crosstalk errors of transmission measurements, and frequency response and directivity errors of reflection measurements.

#### **Enhanced response Calibration**

Compensated for frequency response and source match errors.

#### One port calibration

Compensates for directivity, frequency response and source match errors.

#### Full 2 port calibration

Compensates for directivity, source match, reflection tracking, load match, transmission tracking and crosstalk, crosstalk calibration can be omitted.

#### Interpolated error correction

With any type of accuracy enhancement applied, interpolated mode recalculates the error coefficients when the test frequencies are changed. The number of points can be increased or decreased and the start/stop frequencies can be changed.

#### Reference port extension

Redefine the measurement plane from the plane where the calibration was done.

# Other Capabilities

#### Internal hard disk drive

Store and recall instrument states, calibration data, and trace data on internal hard drive. Trace data can be saved in CSV (comma separated value) format. Instrument states include all control settings, limit lines, segment sweep tables, and memory trace data.

### USI

Instrument states, calibration data, and trace data can be stored on an external USB drive.

# Screen hardcopy

Printouts of instrument data are directly produced on a printer. The analyzer provides USB and parallel interfaces.

# Familiar graphical user Interface

A333 analyzer employs a graphical user interface based on Windows. There are three ways to operate the instrument Manually; you can use a hardkey interface, a touch screen interface (optional) or a mouse interface.

# Limit lines

Define the test limit lines that appear on the display for pass/fail testing. Defined limits may be any combination of horizontal/sloping lines and discrete data points.

### **Remote Contro**

LAN, GPIB (optional)

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