

YNA-3202 Vector Network Analyzer Module

10 MHz to 20 GHz single-slot PXIe VNA module

At a Glance

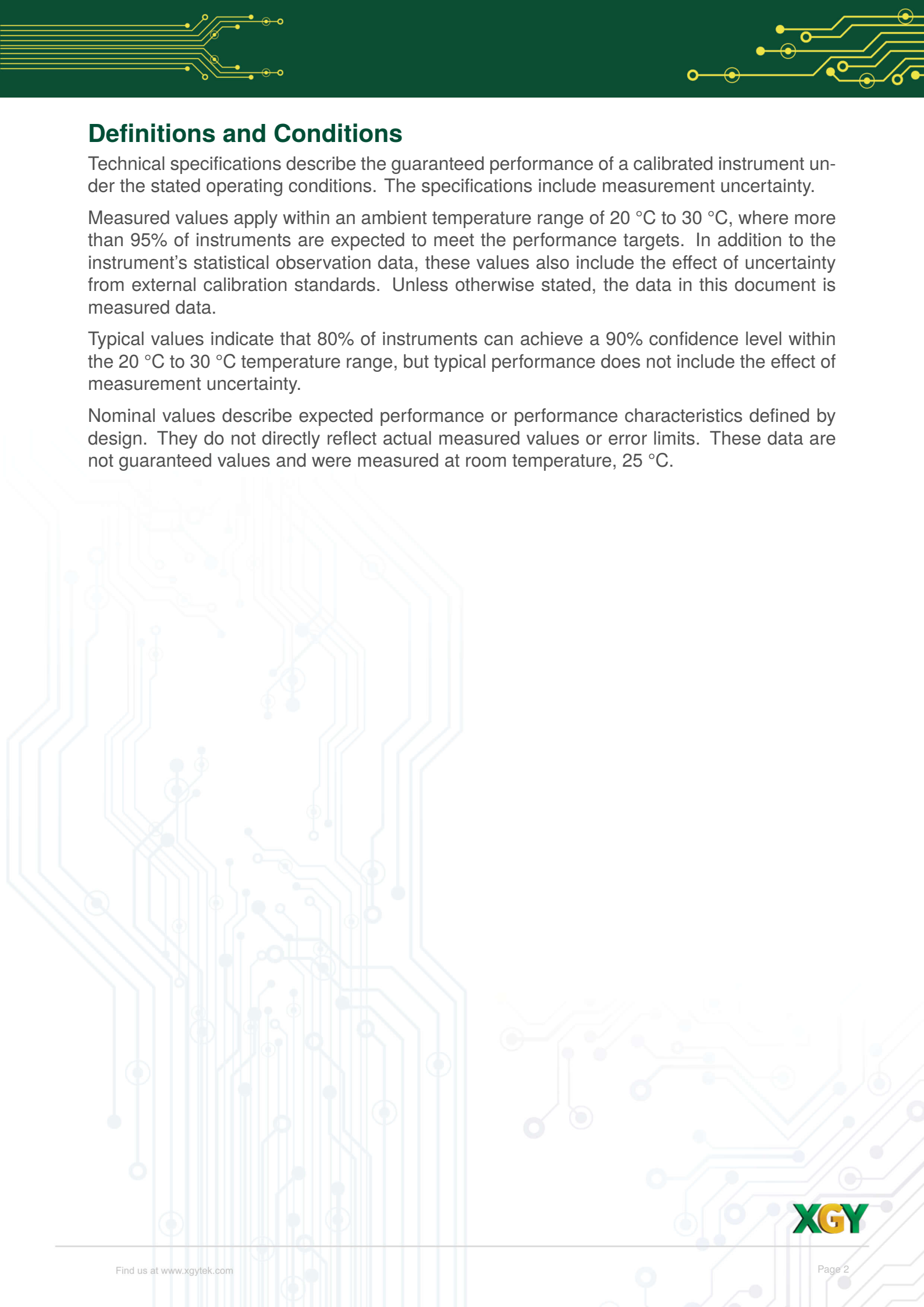
YNA-3202 is a two-port, single-slot PXIe vector network analyzer module, covering 10 MHz to 20 GHz with configurable extension to 22 GHz.

It provides two physical RF test ports, while its application software supports up to 64 software test channels, 32 traces per software channel, 10001 points, multiple sweep modes, standard display formats, and FIFO queue acceleration for automated workflows.

YNA-3202 delivers up to 132 dB dynamic range, output power up to +10 dBm, and selectable IF bandwidths from 10 Hz to 1 MHz. It also supports OSL, TR, ER, SOLT, TRL, and UT calibration, along with port extension, embedding, and de-embedding for flexible RF measurement applications.



XGY



Definitions and Conditions

Technical specifications describe the guaranteed performance of a calibrated instrument under the stated operating conditions. The specifications include measurement uncertainty.

Measured values apply within an ambient temperature range of 20 °C to 30 °C, where more than 95% of instruments are expected to meet the performance targets. In addition to the instrument's statistical observation data, these values also include the effect of uncertainty from external calibration standards. Unless otherwise stated, the data in this document is measured data.

Typical values indicate that 80% of instruments can achieve a 90% confidence level within the 20 °C to 30 °C temperature range, but typical performance does not include the effect of measurement uncertainty.

Nominal values describe expected performance or performance characteristics defined by design. They do not directly reflect actual measured values or error limits. These data are not guaranteed values and were measured at room temperature, 25 °C.

Application Software

Test Capability	
Test Parameters	S11, S21, S22, S12
Software Test Channels	64
Measurement Traces per Software Channel	32
Test Points	10001 points per trace supported
Test Queue	FIFO test queue acceleration supported
Display Formats	Log magnitude, linear magnitude, phase, voltage standing wave ratio, Smith chart, polar chart
Sweep Characteristics	
Linear Frequency Sweep	Supported, minimum resolution 10 Hz
Segmented Frequency Sweep	Supported, more than 256 segments per channel
Trigger Modes	
Continuous Trigger	Supported
Single Trigger	Supported, including manual trigger and external trigger
Trace Functions	
Data Averaging	Supported, up to 1000 averages
IF Bandwidth	1 MHz / 300 kHz / 100 kHz / 30 kHz / 10 kHz / 3 kHz / 1 kHz / 300 Hz / 100 Hz / 30 Hz / 10 Hz
Marker Function	
Marker Count	9 per trace
Calibration Functions	
Mechanical Calibration	Supported, requires characteristic parameters for third-party mechanical calibration kits
Electronic Calibration	Supported with matching products; third-party electronic calibration kits are not supported
Calibration Algorithms	Single-port: OSL; dual-port: TR, ER, SOLT, TRL, UT
Impedance Conversion	Supported
Port Extension	Supported
Fixture Embedding	Supported
De-embedding	Supported
System Settings	
State Storage	Supported
State Recall	Supported
Data Storage	Supported, sNp format
Restore Preset	Supported

System Technical Specifications

Frequency Range	
Product Model	YNA-3202
Frequency Range	10 MHz to 20 GHz (configurable to 22 GHz)
Resolution	10 Hz
Frequency Accuracy	±3 ppm
Frequency Switching Speed	
Lock Time	15 us
Dynamic Range	
10 MHz to 0.5 GHz	132 dB
0.5 GHz to 6 GHz	132 dB
6 GHz to 9 GHz	132 dB
9 GHz to 20 GHz	132 dB

Calibrated Performance

Directivity	
10 MHz to 0.5 GHz	40 dB
0.5 GHz to 6 GHz	38 dB
6 GHz to 20 GHz	36 dB
Source Match	
10 MHz to 0.5 GHz	39 dB
0.5 GHz to 6 GHz	34 dB
6 GHz to 20 GHz	33 dB
Load Match	
10 MHz to 0.5 GHz	40 dB
0.5 GHz to 6 GHz	38 dB
6 GHz to 20 GHz	36 dB
Transmission Tracking	
10 MHz to 0.5 GHz	±0.04 dB
0.5 GHz to 6 GHz	±0.06 dB
6 GHz to 20 GHz	±0.09 dB
Reflection Tracking	
10 MHz to 0.5 GHz	±0.04 dB
0.5 GHz to 6 GHz	±0.07 dB
6 GHz to 20 GHz	±0.09 dB

Test Port Output

Maximum Port Output Power	
10 MHz to 0.5 GHz	+10 dBm
0.5 GHz to 18 GHz	+10 dBm
18 GHz to 20 GHz	+8 dBm
Nominal Power	
10 MHz to 20 GHz	0 dBm
Power Range	
10 MHz to 0.5 GHz	+10 dBm to -30 dBm
0.5 GHz to 18 GHz	+10 dBm to -30 dBm
18 GHz to 20 GHz	+8 dBm to -30 dBm
Power Level Accuracy	
10 MHz to 5.5 GHz	±1.0 dB
5.5 GHz to 9 GHz	±1.2 dB
9 GHz to 20 GHz	±1.45 dB
Source Harmonics	
10 MHz to 0.5 GHz	-20 dBc
0.5 GHz to 6.5 GHz	-25 dBc
6.5 GHz to 20 GHz	-26 dBc

Test Port Input

Test Port Input Damage Level	
10 MHz to 20 GHz	>+27 dBm, >±35 VDC, >1000 V ESD
Receiver Level Accuracy	
10 MHz to 20 GHz	±1.5 dB
Noise Floor	
10 MHz to 0.5 GHz	-112 dBm
0.5 GHz to 6 GHz	-122 dBm
6 GHz to 9 GHz	-126 dBm
9 GHz to 20 GHz	-123 dBm
Amplitude Trace Noise	
10 MHz to 0.5 GHz	0.005 dB rms
0.5 GHz to 6 GHz	0.005 dB rms
6 GHz to 20 GHz	0.005 dB rms
Phase Trace Noise	
10 MHz to 0.5 GHz	0.04 ° rms
0.5 GHz to 6 GHz	0.04 ° rms
6 GHz to 20 GHz	0.04 ° rms

Measurement Speed

Typical cycle time for a full frequency sweep at 100 kHz IF bandwidth, including data transfer.

Condition	201 Points	401 Points	801 Points
Uncorrected	7 ms	13 ms	25 ms
2-Port Calibration	10 ms	20 ms	40 ms

General Technical Specifications

Remote Programming	
Interface	PXIe, compatible with PXI hybrid slots
Control Language	Factory-defined SCPI
Power Requirements	
Input Power	12 VDC, 25 W maximum
Environmental	
Operating Temperature Range	0 to 50 °C
Storage Temperature Range	-20 to 70 °C
Operating and Storage Altitude	Up to 15,000 ft
Humidity	Relative humidity type test: 95%, +40 °C (non-condensing)
Storage	
Storage Medium	Depends on PC
Physical	
Weight, Including Enclosure	≤0.5 kg
Dimensions	Single-slot PXI: 128.4 mm H × 19.9 mm W × 212.6 mm L
Maintenance and Quality	
Recommended Calibration Cycle	24 months
ISO Compliance	Manufactured in an ISO-9001-certified factory and compliant with XGY internal quality standards

Connector Characteristics

Front Panel Connectors	
Test Ports (Ports 1/2)	3.5 mm female connector for RF signal input/output; nominal impedance 50 Ω ; input damage level +27 dBm
Reference Input	Connector: MMPX; accepts a 10 MHz reference signal for internal frequency locking; nominal input level 0 dBm to 10 dBm; nominal impedance 50 Ω ; sine wave
10 MHz Output	Connector: MMPX; outputs a 10 MHz reference signal for internal timebase use; nominal level +12 dBm; nominal output impedance 50 Ω ; input damage level +18 dBm
LO Input/Output	Connector: SMA female; nominal impedance 50 Ω ; nominal output level -2 dBm; input damage level +20 dBm
Trigger Input	Connector: MMPX; trigger type: edge; nominal impedance 1 k Ω ; level range 3.3 V CMOS, TTL compatible, 5 V tolerant
Trigger Output	Connector: MMPX; level range 3.3 V CMOS, TTL compatible, 5 V tolerant
Trigger Ready Output	Connector: MMPX; nominal impedance 50 Ω ; level range 3.3 V CMOS, TTL compatible, 5 V tolerant

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Specifications subject to change without notice. Per AS/NZS standards.