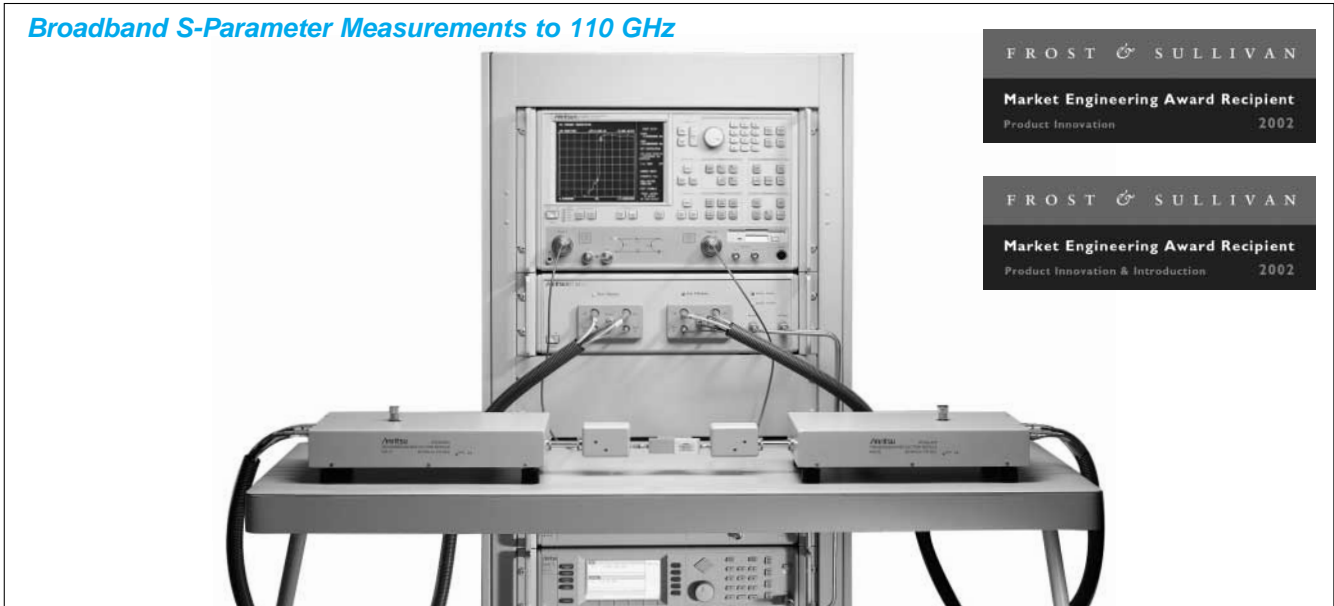


BROADBAND VECTOR NETWORK ANALYZER ME7808A 40 MHz to 110 GHz



Broadband S-Parameter Measurements to 110 GHz



The ME7808A Broadband Vector Network Analyzer (VNA) is a high performance measurement solution that covers 40 MHz to 110 GHz in a single fast sweep. In contrast to the millimeter wave Vector Network Analyzer, the ME7808A is built on the advanced technology of the Lightning 65 GHz VNA, and extends its advanced features and intuitive user interface to 110 GHz.

The configuration for the Broadband VNA consists of:

- Lightning 65 GHz VNA
- Millimeter-Wave Modules (Extended W Band, 65 GHz to 110 GHz)
- Broadband Test Set
- Frequency Sources (20 GHz)
- Multiplexing Couplers
- Equipment Console with table

Features

• Measurement Speed and Accuracy

The Broadband VNA, based on our popular Lightning 37397C platform, offers the fastest measurement speed available. Measurement speeds of approximately 1.5 seconds for a 101 point sweep mean faster characterization of your millimeter wave and broad frequency devices. The ME7808A also offers full auto-reversing, 12-term, error-corrected S-parameter measurements with advanced calibration techniques – such as Short-Open-Load-Thru (SOLT), Line-Reflect-Line (LRL), and Line-Reflect-Match (LRM) – ensuring maximum accuracy in your on-wafer measurements. For waveguide measurements, the ME7808A system supports all of the above methods as well as the offset short calibration technique. For broadband measurements in W1 (1.0 mm) coax, the ME7808A system supports concatenated SOLT and offset short calibrations using the 3656 W1 calibration/verification kit. The 8.5 inch, color liquid crystal display (LCD) allows users to easily view the data traces for all four S-parameters while simultaneously displaying limit lines and trace memory functions. The built-in 3.5 inch MS-DOS® compatible floppy disk drive and internal hard disk drive simplify the procedure of storing and recalling calibrations, front panel setups, and measurement data. The versatility of the Lightning platform allows data to be gathered using the *.s2p, *.txt, *.dat, *.bmp, and *.hgl file formats so data can be easily loaded into both circuit simulation and graphics programs.

• Single Pair of Coaxial Test Ports

The ME7808A Broadband VNA combines the 40 MHz to 65 GHz output from the VNA and the 65 GHz to 110 GHz output from the mmW modules using a unique multiplexing coupler design. The effective system test ports for broadband frequency coverage are two W1 (1.0 mm) coax connectors. The Anritsu W1 connector is compatible with the IEEE standard 1.0 mm connector. This design provides a DC path that permits bias injection from the VNA front panel bias inputs directly to the W1 coax test ports.

• Three Systems in One

The Broadband VNA system provides maximum versatility and can be used in any of the following configurations:

- 1) as a broadband VNA (40 MHz to 110 GHz) with W1 (1.0 mm) connector coaxial interface
- 2) as a stand-alone 65 GHz VNA with V-connector coaxial interface
- 3) as a millimeter-wave VNA (65 GHz to 110 GHz) with a WR-10 waveguide connector interface. Additional discrete mmW bands (to 325 GHz) are easily supported by substituting other available mmW modules into the system.

This flexibility in measurement interface allows you to tailor the Broadband VNA to your exact measurement needs. When operating either the 65 GHz or mmW systems independently, higher output power and increased dynamic range are achievable. Wafer probe tips can be connected to any of the three interfaces to make on-wafer measurements.

• Complete Measurement Solutions

The Anritsu Broadband VNA is compatible with leading probe stations and probe tips for making on-wafer measurements. On-wafer calibration software such as SussCal from Suss MicroTec and WinCal from Cascade Microtech have built in drivers for the Anritsu VNA's and therefore can be used with the ME7808A. In addition, Anritsu also offers a complete list of accessories including coaxial calibration kits, waveguide calibration kits, W1 (1mm) coaxial and waveguide to coaxial adapters.

Specifications

Dynamic range (typical)

W1 Coaxial Port	Frequency (GHz)	0.04	2	20	40	50	<65	>65	75	85	100	110	
	Max Signal into Port 2 (dBm)	30	30	30	30	30	30	30	16	14	13	12	12
	Port 1 Power, Typical (dBm)	-1	3	-7	-14	-10	-12	-14	-14	-10	-11	-9	-11
	Noise Floor (dBm)	-76	-103	-92	-88	-79	-67	-65	-65	-78	-81	-78	-73
	System Dynamic Range (dB)	75	106	85	74	69	55	51	68	70	69	62	62
	Receiver Dynamic Range (dB)	106	133	122	118	109	97	81	92	94	90	85	85

On Wafer	Frequency (GHz)	0.04	2	20	40	50	<65	>65	75	85	100	110
	Max Signal into Port 2 (dBm)	30	30	30	30	30	30	18	17	16	16	16
	Port 1 Power, Typical (dBm)	-1	3	-8	-16	-12	-12	-16	-13	-14	-13	-15
	Noise Floor (dBm)	-76	-103	-91	-86	-77	-65	-63	-75	-78	-74	-69
	System Dynamic Range (dB)	75	106	83	70	65	51	47	62	64	61	54
	Receiver Dynamic Range (dB)	106	133	121	116	107	95	81	92	94	90	85

V Coaxial Port	Frequency (GHz)	0.04	2	20	40	50	65
	Max Signal into Port 2 (dBm)	30	30	30	30	30	30
	Port 1 Power, Typical (dBm)	0	5	-2	-7	-2	-2
	Noise Floor (dBm)	-77	-105	-97	-95	-87	-77
	System Dynamic Range (dB)	77	110	95	88	85	75
	Receiver Dynamic Range (dB)	107	135	127	125	117	107

WR-10 Waveguide	Frequency (GHz)	65	75	85	100	110
	Max Signal into Port 2 (dBm)	8	8	8	8	8
	Port 1 Power, Typical (dBm)	-6	-4	-6	-5	-7
	Noise Floor (dBm)	-73	-84	-86	-82	-77
	System Dynamic Range (dB)	67	80	80	77	70
	Receiver Dynamic Range (dB)	81	92	94	90	85

System dynamic range is defined as the ratio of the typical power at Port 1 and the system noise floor. The noise floor measurement is made using 512 averages in a 100 Hz IF bandwidth, including isolation calibration.

Measurement time for 101 data points (typical)

Frequency Span	40 MHz to 110 GHz
Time (s)	1.5

Measurement time is based on a single 40 MHz to 110 GHz sweep with 10 kHz IF bandwidth (no averages) after full 12-term calibration. Sweep time includes retrace and band switch times.

Ordering information

Please specify model/order number, name, and quantity when ordering.

Model/Order No.	Name
ME7808A	Main frame Broadband Vector Network Analyzer (includes 37397C VNA, 3742A-EW*1 millimeter wave modules, broadband test set, frequency sources, multiplexing couplers, and an equipment console)
Option 14	Options Custom System Configuration: Configurable (Broadband or Split Band) VNA System. Includes: 37xxx VNA (with Options), a 3738A Test Set, and two Synthesized Sources (MG369xA / 68xxx C / 69xxx B with Options). Additional configurable items may include 374x-x Millimeter-wave modules, and Multiplexing Couplers.
Option 20	Integrated into a 3700C3 Console. Broadband VNA Upgrade Package for 37397C (65 GHz) with Option 12. Includes: 3738A Test Set, two MG3692A Synthesized Sources, two 3742A-EW millimeter-wave modules, two multiplexing couplers, and 3700C3 Console.
3740A-V 3740A-E 3740A-EE 3740A-EW 3740A-W	Optional Millimeter-wave modules*2 Transmission/Reflection Module, 50 to 75 GHz Transmission/Reflection Module, 60 to 90 GHz Transmission/Reflection Module, 56 to 94 GHz Transmission/Reflection Module, 65 to 110 GHz Transmission/Reflection Module, 75 to 110 GHz

Model/Order No.	Name
3670V50-2 3671V50-3 57625	Test Port Cables Semi-rigid, V female to V male, 2 ft. Flexible, phase stable, V female to V male, 25 in. (1 pair) Semi-rigid, W1 male to W1 male, 13 cm
3654B 3655W 3655W-1 3656	Calibration Kits V-connector calibration kit with sliding terminations WR-10 waveguide calibration kit WR-10 waveguide calibration kit with sliding terminations W1 calibration/verification kit
*3 *3 *3 *3 *3 *3 *3	Adapters (coaxial) W1 male to V male W1 male to V female W1 female to V male W1 female to V female W1 male to W1 male W1 male to W1 female W1 female to W1 female
*3 *3	Adapters (waveguide to coaxial) WR-10 to W1 male WR-10 to W1 female

*1: 3742A-EW modules are equipped with an adjustable attenuator that is not available in the 3740A.

*2: Contact Factory for Millimeter-Wave bands above 110 GHz.

*3: Contact factory for model numbers.