

VECTOR NETWORK ANALYZER

VNA08563

Vector Network Analyzer (VNA08563) is a new generation of products and also an update product based on many years of scientific research and production experience in vector network analyzer. Compared with the former generation, it improves much in measuring speed, dynamic range and measurement stability. In terms of hardware, brand-new technology has upgraded key performance indexes (KPI) of complete machine much better than before; in terms of software, embedded computer system (ECS) with Pentium chip and Windows operating system have greatly improved interconnectivity and easy use of complete machine.

The Vector Network Analyzer with a powerful measuring function: can complete the vector network analysis in such fields as wireless communication, cable television, education and automotive electronics, and can be used for the performance measurement of radio frequency (RF) elements such as filter, amplifier, aerial, cable and cable television tap. It has Windows operating system and error correction and time domain functions; provides many display formats such as logarithmic amplitude, linear amplitude, standing-wave ratio (SWR), phase, group delay, Smith chart and poplar coordinates, etc.; provides many calibrations including frequency response, single port, response isolation, enhanced response and full two-port calibrations; has Windows operating platform and LAN functions and is available in multi-channel display; is provided with several kinds of interfaces including USB interface, LAN net mouth, GPIB interface, standard parallel interface, VGA interface and color LCD. It can quickly and precisely test DUT on the amplitude of S-parameter, phase and group delay with efficient and strong error correction capacity.

Main Characteristics

- As high as 90ms measuring speed (at sweep points: 201, IF bandwidth: 30 kHz, display update status: ON) will greatly improve the efficiency of production and scientific research.
- 75Ω test port impedance option is available for measuring cable television elements.
- Trace noise of 0.005dB renders the network analyzer a higher measuring accuracy.
- One-button operation can greatly simplify the setup procedures to improve work efficiency.
- Provides as many as 64 independent measurement channels and quickly executes complex test plan.
- With as many as 32 display windows and each window displays 8 traced curves simultaneously.
- With time domain analysis function.
- With LAN, USB, GPIB, standard parallel interface and VGA display interface.

- Various display formats, such as amplitude, phase, group delay, Smith chart, polar coordinates and standing-wave ratio (SWR), etc. o Windows XP operating system.
- 8.4-inch true color high resolution LCD, simultaneous multi-window and multi-channel display.
- With 115dB dynamic range that enables it to make an accurate measurement of high suppression filter.
- Multi-window and multi-channel measurement display. It provides as many as 32 windows and 64 channels (four traces per channel), and can speed up the test procedure without calling the state of instrument for several times and allow observation of all four S-parameters of two-port component simultaneously.
- Automated testing Automated testing can save considerable time in the process of testing and can also low testing cost by taking advantages of flexible automated environment:
- Finish automated testing by using SCPI command to control vector network analyzer.
- Execute code directly from vector network analyzer or external PC through LAN or GPIB interface.
- Data store, communications and print AV36580A Vector Network Analyzer contains hard disk of large capacity and is with several communicating functions such as standard parallel interface and USB, etc., so that all kinds of stored testing curves in the analyzer can be stored in various forms or transmitted with computers and can be also directly printed out.
- GPIB interface Vector Network Analyzer (VNA08563), providing a D-type female GP-IB connector with 24 pins, meets IEEE-488 standard and is used to send and receive GP-IB/SCPI command.
- USB transmission VNA08563, providing 6 fast USB interfaces, is convenient to connect with keyboard, mouse, printer, electronic calibrator and other peripheral equipment which has USB interface.
- Parallel interface communications VNA08563, with standard 25-chip parallel communications interface, can conveniently communicate with computers and connect with parallel interface printer through parallel interface communication cable.
- Print function VNA08563 provides powerful print function and can print the measuring display out or to the designated document through the printer. Without limitations of local or network printers and parallel interface, LAN or USB interface printers, it can realize measurement print just by adding a printer in Windows XP operating system.

Technical Specifications

Test condition of indexes: the vector network analyzer has been warm up for over 90 minutes after starting at ambient temperature: $23^{\circ}\text{C}\pm 3^{\circ}\text{C}$ with temperature variation after calibration less than 1°C .

Calibration kit: NCK10202. Calibrating cable: GORE OSZKUZKU0240

Frequency Range	300kHz~ 3GHz		
Frequency Resolution	1Hz		
Frequency Accuracy	5×10^{-6}		
Port Output Power	-25~ +10dBm Options: -85~ +10dBm		
IF Bandwidth	1Hz ~ 100kHz		
System Dynamic Range	IF Bandwidth 10Hz	95dB (0.3~ 10MHz)	
		115dB (10MHz~ 3GHz)	
	IF Bandwidth 3kHz	60dB (0.3~10MHz)	
		90dB (10MHz~3GHz)	
Test Port Indexes	Frequency Range	300k~10MHz	10M~3GHz
	Effective Directivity (dB)	49	46
	Effective Source Match (dB)	44	40
	Effective Load Match (dB)	49	46
Reflection Track	± 0.020 dB		
Transmission Track	± 0.020 dB		
Sweep Speed	90ms (at sweep points: 201, IF bandwidth: 30kHz, display update status: ON)		
Display	800x600, 8.4 inches' true color LCD		
Interface	GPIB, parallel interface, USB interface, LAN interface, VGA display interface		
Power	AC 220V $\pm 10\%$, 50Hz $\pm 5\%$; AC 110V $\pm 10\%$, 60Hz $\pm 5\%$		
Dimension	(480mmx426mmx222mm) $\pm 5\%$		
Weight	22kg		
Environmental Suitability	<p>Meet the requirements of Article 4.7.5.1 in GJB3947-2000.</p> <p>Operating temperature range: $0^{\circ}\text{C} \sim +40^{\circ}\text{C}$</p> <p>Storage temperature range: $-20^{\circ}\text{C} \sim +70^{\circ}\text{C}$</p>		

Ordering Information

- Main unit: VNA08563 Vector Network Analyzer
- Standard configuration:

No.	Description	Qty.
1	Power cord	1
2	USB mouse	1
3	USB keyboard	1
4	User's manual	2

- Options

No.	Description	Model	Qty.
1	N-type calibration kit	NCK10202	1
2	3.5mm calibration kit	3CK20202	1
3	N-type testing cable	GORE OSZKUZKU0240	1
4	N-type testing cable	GORE OSZKUZKV0240	1
5	N-type 75Ω calibration kit	NCK40202	1
6	N-type 75Ω testing cable	NTC42	1

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Vector Network Analyzer (VNA6563) is a new generation product based on many years of scientific research and production experience in vector network analyzer and has powerful measurement functions, which can complete vector network analysis in the field of wireless communications, cable TV, and automotive electronics, etc., and can be used for performance measurement of filter, amplifier, antenna, cable, and cable television sub connectors, etc. radio frequency components. It adopts Windows operating system; has error calibration and time domain functions; offers multiple display formats such as logarithmic amplitude, linear amplitude, standing-wave ratio (SWR), phase, group delay, Smith chart and polar coordinates, etc.; provides multiple calibration types: including frequency response, single port, response isolation, enhanced response and full two-port calibrations, rapid SOLT and electrical calibration; has Windows operating platform and LAN function and can display multiple channels; is designed with USB interface, LAN interface, GPIB interface, VGA interface and color LCD display, all of which allow it to quickly and accurately measure the S-parameter amplitude, phase and group delay characteristics of DUT, with efficient and powerful error correction capability.

Main Features

- With a dynamic range of 120dB, for accurate measurement of strong suppression filter
- 10.4-inch true color high-resolution LCD with touch screen function
- Optional 75Ω test port impedance option for cable TV components measurement
- 0.005dB trace noise renders network analyzer higher measuring accuracy
- One-button operation greatly simplified the measurement setting steps with improved efficiency
- With up to 64 independent measuring channels that can implement complex testing schemes quickly
- With up to 32 display windows and each window displays up to 8 traced curves simultaneously
- Capable of completing time domain analysis
- With LAN, USB, GPIB and VGA display interface
- Available in multiple display formats such as amplitude, phase, group delay, Smith chart and polar coordinates and standing-wave ratio (SWR), etc.
- Windows XP operating system
- Data storage, communication and printing function
- Wide dynamic range VNA6563 has a dynamic range of 120dB (IFBW=10Hz) for accurate measurement of device with high suppression ratio.
- Extremely low trace noise Trace noise is less than 0.005dBrms (IFBW=1kHz), with typical value of 0.0005 dBrms, which minimizes measurement error.

- Time-domain analysis function The analyzer can measure the time-domain of DUT by means of time-domain software so as to test the performance indicators of DUT comprehensively.
- Abundant test functions VNA6563 has powerful testing capabilities: The frequency offset mode is for mixer measurement. Filter automatic statistics collection function renders clear display of filter loss, ripple and suppression, facilitating hopping filter commissioning. Limit test function is developed with a large number of test options for different users, so that each user can test in accordance with the needs.
- Unique transcribe operation. Transcribe operation can simplify the cumbersome measurement setting work to the extent of one-button test. Text prompts are available during transcribe, to connect the calibration kit and DUT step-by-step, which greatly reduces requirements for the operator.
- User-defined function Keys that the user commonly used can be edited together for ease of use and improving testing efficiency.

Technical Specifications

Indicator test conditions: warm-up for more than 90 minutes, at ambient temperature: 23 ± 3°C. After calibration, the temperature change is less than 1°C.

Calibration kit: NCK50202. Calibration cable: GORE OSZKUZKU0240

Frequency range	100kHz~ 3GHz		
Frequency resolution	1Hz		
Frequency accuracy	5×10 ⁻⁶		
Port output power	-40~+10dBm		
IF bandwidth	1Hz~100kHz		
System dynamic range	IF bandwidth 10Hz	95dB (0.1~10MHz)	
		120dB (10MHz~3GHz)	
	IF bandwidth 3kHz	70dB (0.1~10MHz)	
		90dB (10MHz~3GHz)	
Test port specifications	Frequency range	100k~10MHz	10M~3GHz
	Effective directivity (dB)	49	46
	Effective source matching (dB)	44	40
	Active load matching (dB)	49	46
Reflection track	±0.020 dB		
Transmission track	±0.020 dB		
Display	800×600, 10.4-inch true color LCD		
Interface	GPIB, USB interface, LAN interface, VGA display interface		
Power supply	AC 220V±10%, 50Hz±5%;		
Dimensions	427mm×223mm×300mm		
Weight	18kg		
Environmental adaptability	<p>Comply with the requirements of clause 4.6.5.1 in GJB3947-2009</p> <p>Operating temperature range: 0°C~ +40°C</p> <p>Storage temperature range: -20°C~ +70°C</p>		

Ordering Information

- Main unit: **AV3656A** Vector Network Analyzer
- Standard configuration

No.	Description	Qty
1	Power Cord	1
2	USB Mouse	1
3	USB Keyboard	1
4	User's Guide	2

- Option

No.	Description	Model	Qty
1	N-type calibration kit	NCK50202	1
2	3.5mm calibration kit	3CK20202	1
3	N-type testing cable	GORE OSZKUZKU0240	1
4	N-type testing cable	GORE OSZKUZKV0240	1
5	N-type 75Ω calibration kit	NCK40202	1
6	N-type 75Ω testing cable	NTC42	1
7	75Ω port impedance	PI6563	1
8	(NMSM)testing cable	TC-NMSM	1
9	(NMNF)testing cable	TC-NMNF	1
10	(NMNM)testing cable	TC-NMNM	1
11	phase-compensated testing cable	PCTC-NMSM	1
12	phase-compensated testing cable	PCTC-NMNF	1
13	phase-compensated testing cable	PCTC-NMNM	1

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As the perfect combination of modern microwave technology, modern circuit technology and modern computer technology, VNA9263 is a microwave vector network analyzer of high performance product with years of experience in development of vector network analyzer and technical accumulation. This model adopts software & hardware platform made up by embedded computer module and Windows operating system, highly-integrated excitation signal module, four-channel amplitude-phase mixing receiving module and powerful error correction and calibration software, which allow wider system dynamic range, more stable performance of the complete unit and quick and accurate measurement of network S-parameter within the frequency range of 45MHz~20GHz. This instrument is widely used in the fields of components, radar, aerospace, communications, etc.

Main Features

- Available in multiple calibration types such as frequency response, single port, response isolation and full two-port calibration, etc.
- Available in multiple display formats such as logarithmic amplitude, linear amplitude, standing-wave ratio (SWR), phase, group delay, Smith chart and poplar coordinates, etc.
- With up to 32 display windows and each window displays up to 8 traced curves simultaneously.
- With USB, GPIB, LAN, standard parallel interface and VGA display interface.
- Windows XP operating system with Chinese menu and English menu options.
- Wide system dynamic range
- Wide power sweep range
- 8.4-inch true color high resolution LCD
- With multiple options: time domain measuring option, source channel built-in programmable attenuator option and test unit configurable option.
- Visual user interface is convenient to operate and increase testing efficiency. The use of panel buttons, mouse or the combination of both can effectively guide the user in operating the analyzer and the fast and visual operation in Windows improves the working efficiency to a large extent.
- Wide dynamic ranges. The dynamic range is widened by fundamental wave mixing to meet the increasing testing requirements of user.
- Power sweep. With power sweep range up to 25dB, this instrument can facilitate the measurement and characterization of gain compression characteristics of amplifier in company with the source channel attenuator option.

- Abundant peripheral interfaces, flexible and practicable. The software and hardware platform made up by embedded computer module compatible with PC and Windows operating system realizes the perfect combination of testing instrument and personal computer (PC). Abundant I/O interfaces, including GPIB, USB, LAN and parallel interface are available to realizing the optimal selection for data communication.
- Small trace noise improves the measuring accuracy. Small trace nose highly improves the testing accuracy so as to meet user's requirements for accurate measurement, especially helpful for the accurate measurement of device with low insertion loss.
- Flexible and optional calibration types, compatible with multiple calibration kits Available in multiple calibration types, such as response calibration, response and isolation calibration, single port calibration, full two-port (SOLT) calibration and TRL calibration, compatible with multiple calibration kits such as coaxial 3.5mm calibration kit, N-type calibration kit and waveguide calibration kit, greatly facilitating testing on device of different interfaces.
- Multiple windows display all the measuring channels. Available in simultaneous display of multiple channels and windows, realizing the simultaneous display of multiple sweep curves, allowing more visual observation more and more convenient operation. The analyzer supports up to 64 channels and displays up to 32 measuring windows simultaneously, with up to 8 traced curves displayed in each window.
- Automated test can save a lot of time during test and effectively reduce the testing cost by means of flexible automated environment: Automated test is enabled through controlling the vector network analyzer with SCPI command. The network analyzer can act as the main controller of testing system by means of executing code directly from vector network analyzer or external PC through interface LAN or GPIB. The application program can run directly on the network analyzer without external PC.
- Time domain allows overall characterization of design Time domain options can facilitate the switching between frequency domain and time domain of measuring results, which can be used to identify the discontinuous points of device, jig or cable to realize the accurate positioning of fault.
- Typical Applications VNA9263 Microwave Vector Network Analyzer is the organic combination of modern microwave and millimeter wave technology, modern circuit technology and modern computer technology. A single measurement can simultaneously offer the amplitude, phase and group delay characteristics of the measured microwave network, of which the excellent performance and strong measuring function can meet a lot of measuring requirements for microwave network characteristics. It is widely used in the fields of S-parameter testing of microwave device, assembly and parts, etc.

Technical Specifications

Frequency range	45MHz~20GHz	
Number of port	2	
Measuring receiver	4	
Frequency resolution	1Hz	
Frequency accuracy	±1ppm (23°C±3°C)	
Output power	-25dBm~0dBm (standard configuration)	
Set range	-75dBm~0dBm (source channel built-in programmable attenuator options)	
System dynamic range1(dB) (Standard configuration)	45MHz~500MHz	90
	500MHz~ 2GHz	115
	2GHz ~10GHz	116
	10GHz ~20GHz	117
System dynamic range1 (dB) (source channel built-in programmable attenuator options)	45MHz~500MHz	88
	500MHz~2GHz	113
	2GHz~10GHz	114
	10GHz ~20GHz	115
Reflection track2 (dB)	45MHz ~ 2GHz	±0.10
	2GHz ~10GHz	±0.05
	10GHz ~20GHz	±0.05
Transmission track2 (dB)	45MHz ~ 2GHz	±0.105
	2GHz ~10GHz	±0.05
	10GHz ~20GHz	±0.10
Effective directivity2 (dB)	45MHz ~ 2GHz	44
	2GHz ~10GHz	44
	10GHz ~20GHz	40
Effective source matching2 (dB)	45MHz ~ 2GHz	38
	2GHz ~10GHz	30
	10GHz ~20GHz	30
Effective load matching2 (dB)	45MHz ~ 2GHz	44
	2GHz ~10GHz	44
	10GHz ~20GHz	40
Sweep time	IF bandwidth 35kHz: ≤250ms; 10kHz: ≤260ms; 1kHz: ≤2.5s; 300Hz: ≤3.0s; 100Hz: ≤4.5s; 30Hz: ≤8s; 10Hz: ≤24s.	
IF bandwidth	Minimum 1Hz, maximum 40kHz, there're totally 29 kinds by taking 1.2.3.5.7 as stepping.	
Operating system	Windows XP	
Display mode	8.4 inches LCD of high-luminance	
Measuring domain	Frequency domain and time domain (options)	

Interface type	USB interface, RS232 serial port, GPIB interface, standard parallel interface, VGA interface and LAN interface
Dimensions	478mm× 284mm× 545mm
Power consumption	≤ 350W
Weights	≤ 33kg

Ordering Information

- Standard Configuration

Item	Name	Quantity
Accessories of standard configuration	Three-core Power Cord	1
	USB Mouse	1
	Users' Guide	2
	Accompanied programming CD	1

- Options

No.	Name	Model	Quantity	Remarks
1	3.5mm calibration kit	3CK12113	1 set	For complete unit calibration
2	Testing cable	FBOHAOHB025.0	1 piece	For complete unit measurement
3	Testing cable	FBOHAOHC025.0	1 piece	For complete unit measurement
4	N-type calibration kit	NCK10113	1 set	For complete unit calibration
5	3.5mm/7mm Testing cable	FBOHAOHD025.0	2 pieces	For complete machine measuring
6	Time domain measuring options			Used for time domain measurement, for identifying and analyzing the discontinuous point of device, jig or cable.
7	Built-in programmable attenuator options			It can extend the port set power range to -75dBm for the extension of port power.
8	Local oscillator options			It can transmit signal of 53M-20GHz and provide local oscillator signal in antenna and other testing system.
9	Configurable options of testing device			It can set flexible wire jumper on the front panel, connect amplifier, attenuator and other testing devices to the network analyzer and provide direct input port of internal receiver.