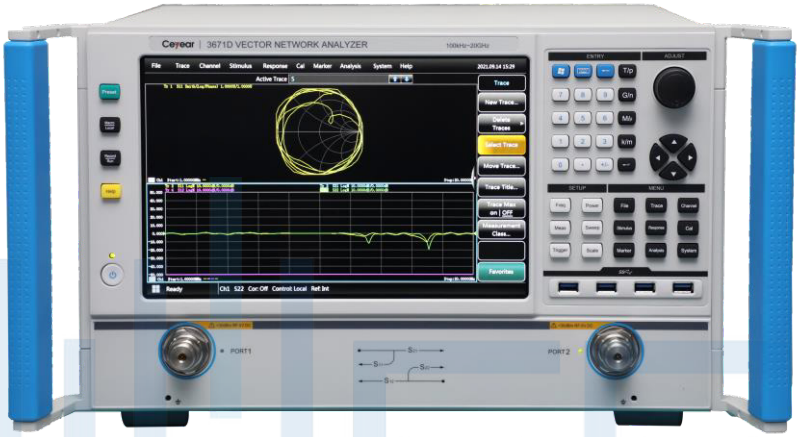
3671C/D/E/G Vector Network Analyzer

(100 kHz to 14GHz/20GHz/26.5GHz/10MHz~43.5GHz)



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Product Overview

3671 series vector network analyzer include 3671C (100 kHz~14GHz), 3671D (100 kHz~20GHz), 3671E (100 kHz~26.5GHz), 3671G (10MHz~43.5GHz). 3671series network analyzer provides frequency response, Single-port, response isolation, enhanced response, full-dual port, electronic calibration etc. Offer various display formats, such as logarithmic amplitude, linear amplitude, phase, group delay, Smith chart and polar coordinates. It designed with several standard interfaces, such as: USB, LAN, GPIB, VGA, and HDMI interface. It can accurately measure the amplitude frequency characteristics and phase frequency characteristics and group delay characteristics of microwave network. 3671 series vector network analyzers retain the features of high-end vector network analyzers, including performance indicators, instrument appearance, display effect, software interface, etc., while controlling the volume, weight, wind noise and other aspects of the instrument to create a good experience for users. The product can be widely used in radar, communication, navigation and other fields, which are indispensable test equipment in national defense military industry and university scientific research.

Main Characteristics

- Wider frequency coverage, starting frequency as low as 100 kHz
- More optional intermediate frequency bandwidth, the maximum intermediate frequency bandwidth is up to 30MHz
- Advanced calibration technology, vivid wizard calibration, flexible calibration type, compatible with multiple calibration kits
- Offer various display formats, such as logarithmic amplitude, linear amplitude, SWR, group delay, Smith chart and polar coordinates
- Chinese/English operation interface, 12.1-inch 1280*800 high-resolution multi-touch screen
- Recording/replay, one-button operation simplifies the measurement
- Easy to operation by advanced time domain options with added TDR impedance measurement, eye diagram analysis functions

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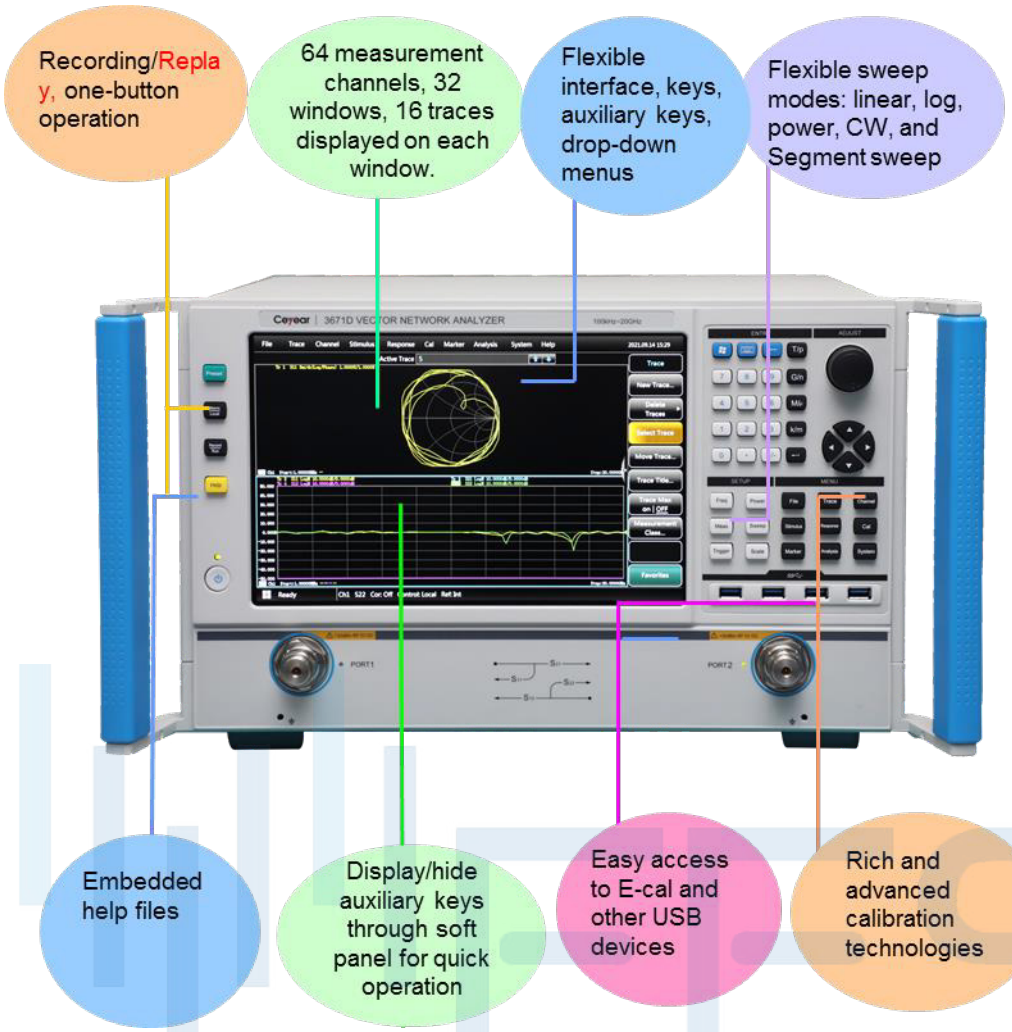
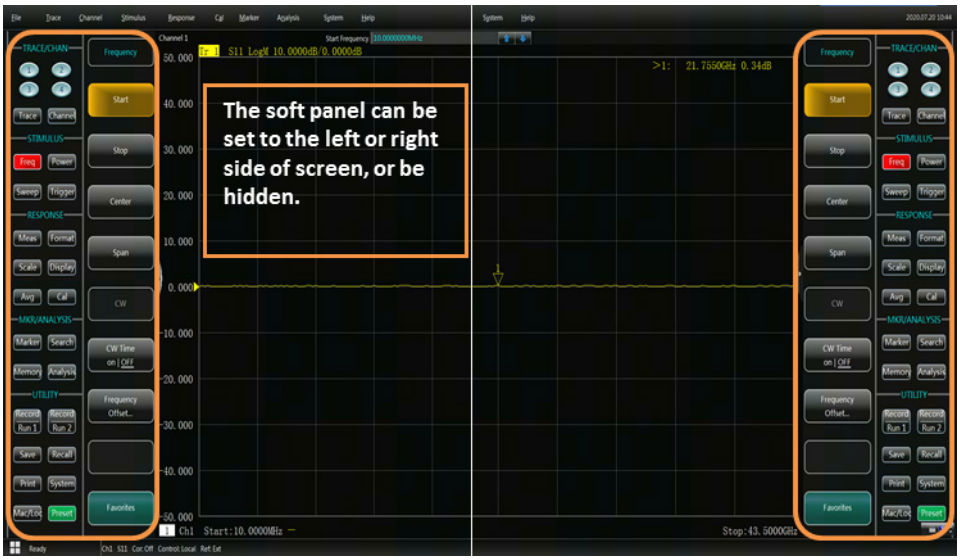
Intuitive user interface for easy operation, which can improve test efficiency



The soft panel can be set to the left or right side of screen, or be hidden.



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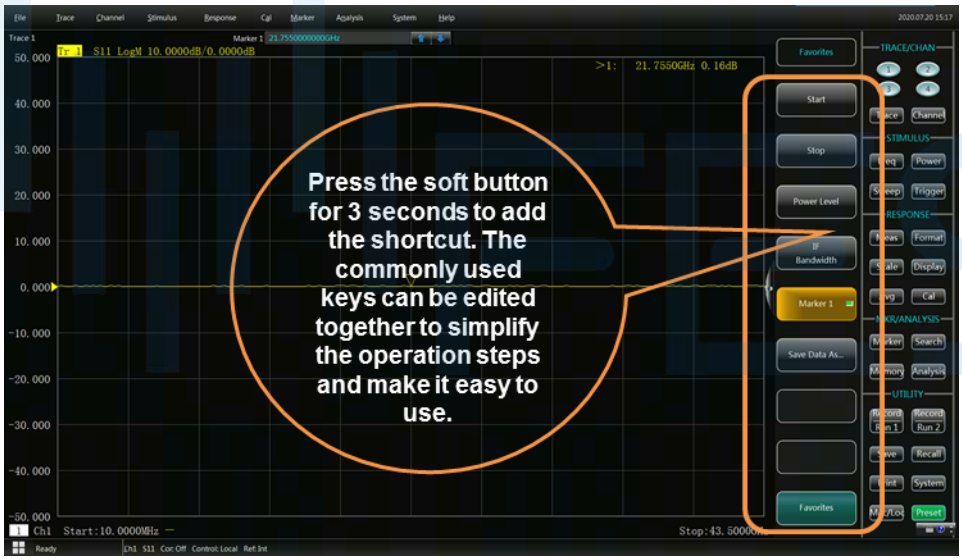
Parameters can be entered quickly by using the activated input toolbar. Set limit line and segment scan value for production line to improve test efficiency.



Flexible calibration type, compatible with multiple calibration kits

3671 series vector network analyzer provides different types of calibration such as automated calibration, guided calibration (through response calibration, through response and isolation, single port calibration, enhanced response calibration, full two-port SOLT calibration, TRL calibration can be achieve by mechanical calibration kits), electrical calibration (ECal) etc. Users can choose calibration types based on the test requirements, which greatly facilitates testing on devices with different interfaces.

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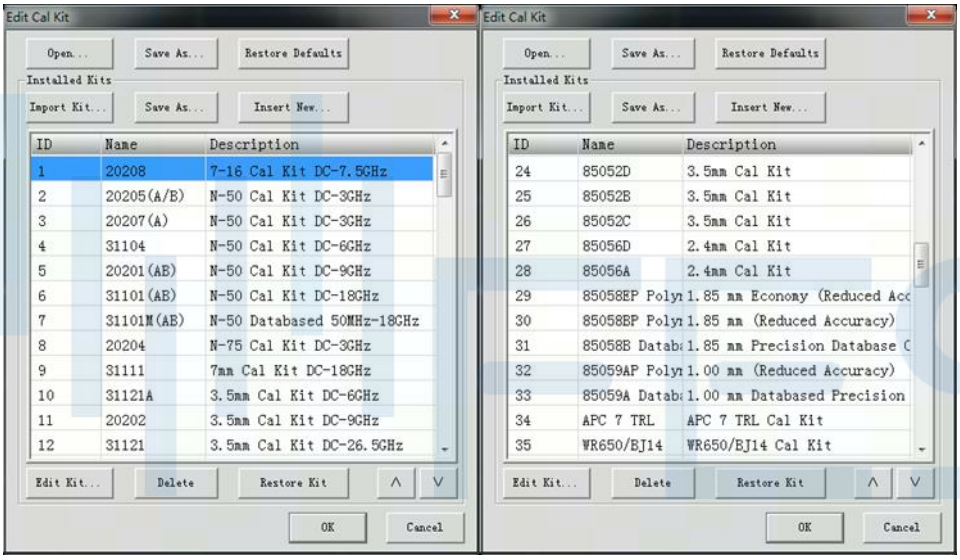

Multiple windows to display all measuring channels

The analyzer possess functions of multi-channel and multi-window display, support up to 64 channels, maximum 32 measuring windows can be simultaneously displayed, and each window can simultaneously display up to 16 test traces, which makes the observation result more visible and the operation more convenient.

Recording function achieved single key by automated testing

Record all the operation steps in the process of using the instrument. At the same time, the dialog box for editing can be inserted at any time, and the dialog box will pop up on time to wait for confirmation, so as to realize the interactive function and achieve the single key automation function of the intelligent instrument.

Large dynamic range

The 3671 series vector network analyzer are designed with concept of fundamental wave mixing receiver, which effectively expands the test dynamic range of the complete machine and the test demand for large dynamic range.

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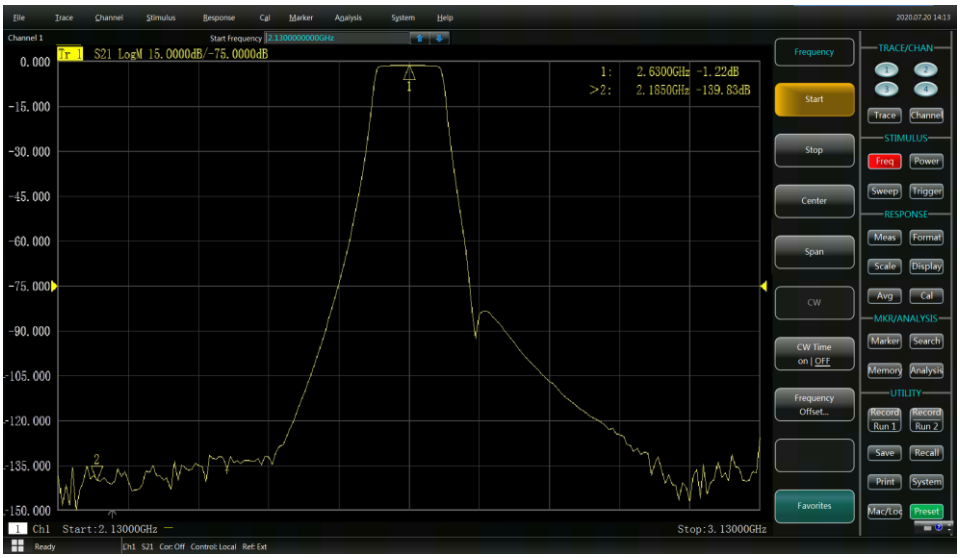
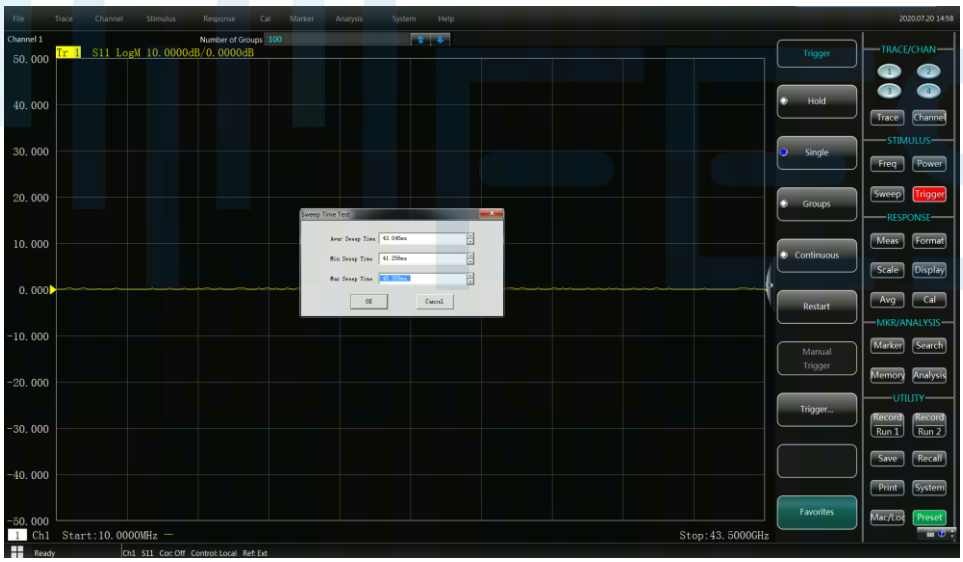


Improve the scanning speed tremendously

The 3671 series vector network analyzer has a scanning speed of up to 43ms under the condition of all-frequency with 201 point scanning and 600 kHz medium frequency bandwidth, and provides single key scanning time test function for easy evaluation.



Time domain analysis Option

The 3671 series vector network analyzer can realize the switching of the measurement results between the frequency-domain and the time-domain which can be used to identify the discontinuous points of devices, fixtures or cables to realize accurate fault location.

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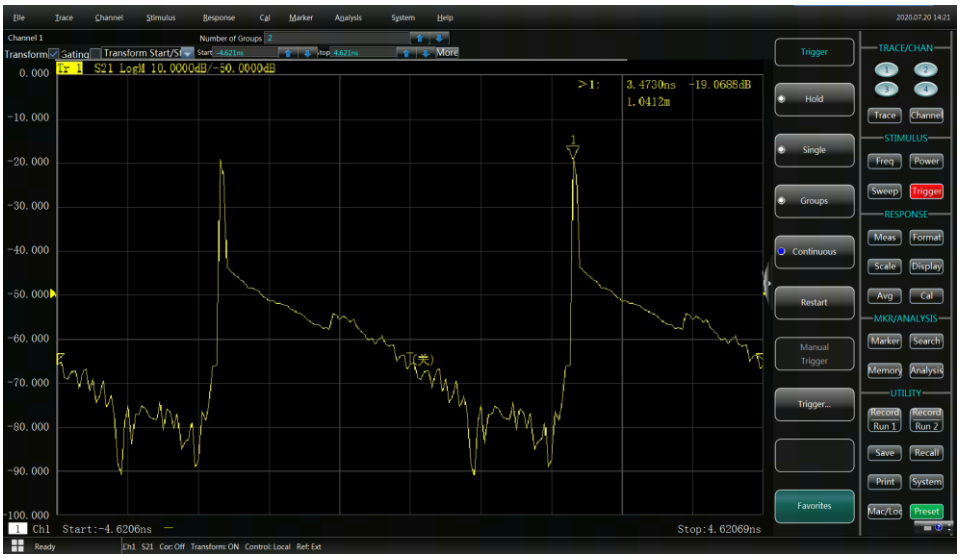
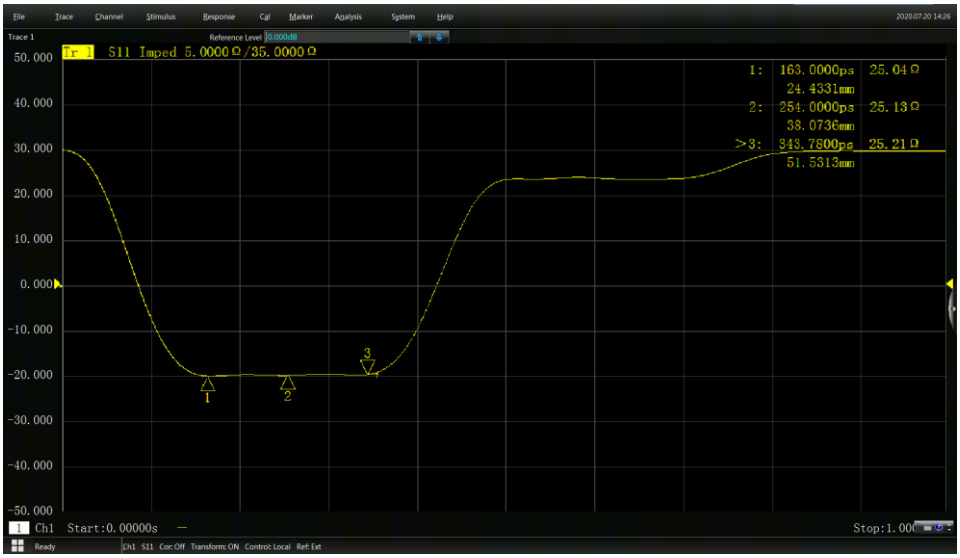


TDR Option

With the rapid development of the information industry, the requirement for network bandwidth is also higher, which requires information equipment (such as large servers, computers and switches, etc.) to be able to carry faster data rates. Information equipment manufacturers pay more attention on the problem of signal integrity in high-speed interconnection channels. The characteristic changes of transmission links will significantly affect the signal transmission quality. Advanced time domain analysis is an important means to evaluate the signal transmission quality of high-speed links.

TDR time domain impedance test can test the impedance characteristic changes on the transmission line accurately and locate discontinuity.



Convenient near-end and far-end crosstalk testing allows simultaneous analysis of time-domain and frequency-domain data to test the degree of interaction between multiple transmission lines.

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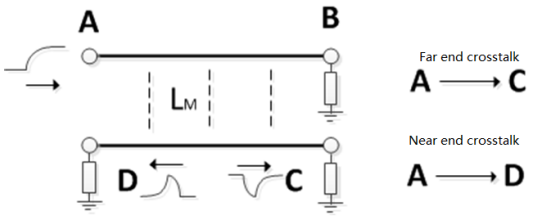
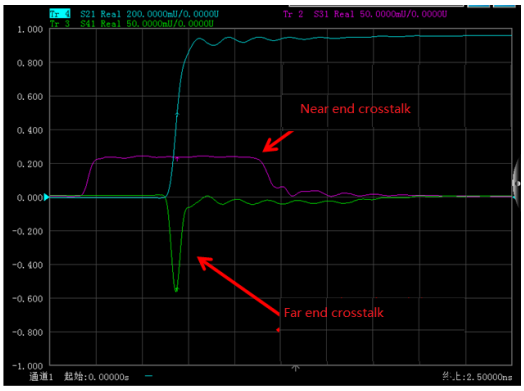
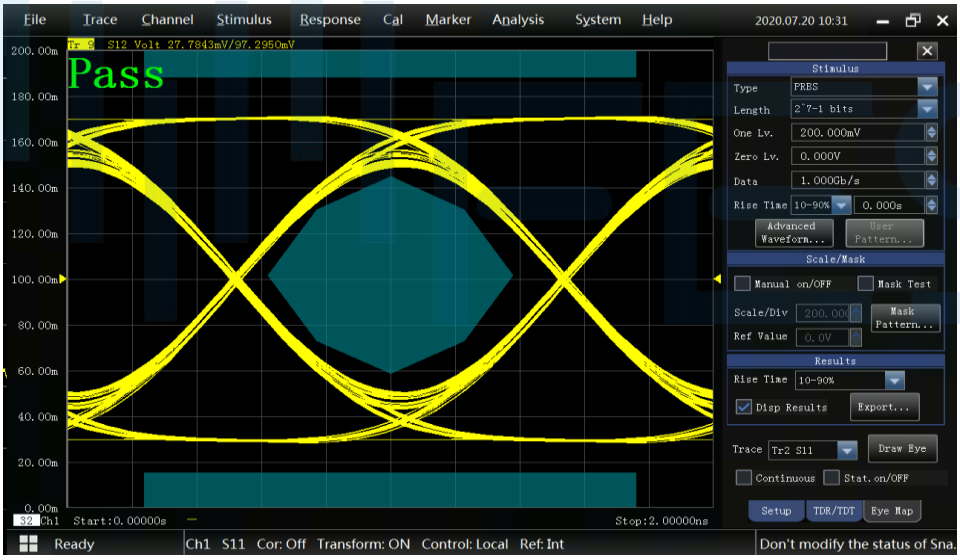




The advanced time domain analysis option of 3671 series vector network provides virtual eye pattern and analysis function based on S parameter. The output unit of the simulation code type is used to generate the data bits of 0 and 1 change, convolve the simulation code type with the time-domain impulse response of the tested part, and obtain the virtual eye map after superposition.

Depending on the different high speed digital communication standards, TDR options can be used for high efficiency Pass/Fail tests using predefined eye pattern templates.



The advanced time domain analysis option can apply Jitter, noise and other interference on the simulation eye pattern, and simulate the simulation eye pattern at different positions of high-speed link in real environment by adding correction algorithms such as pre-weighting and equalization.

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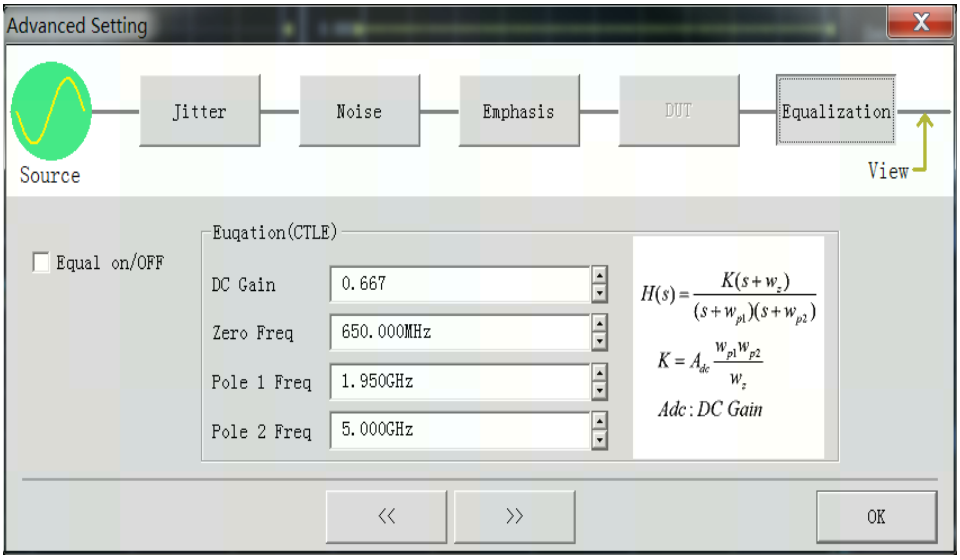
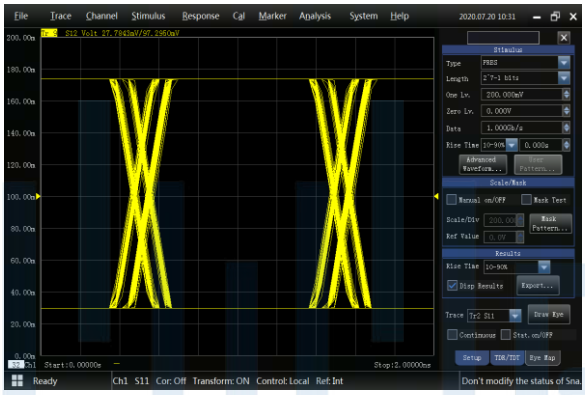
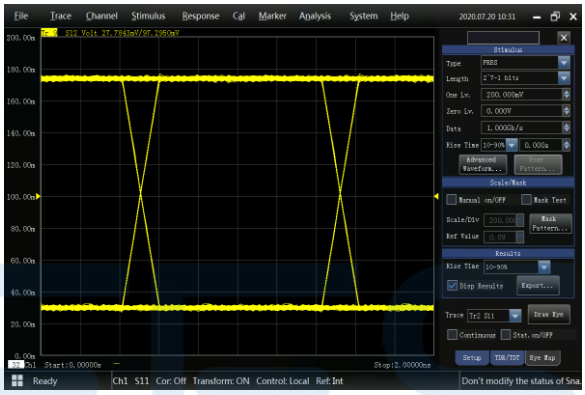
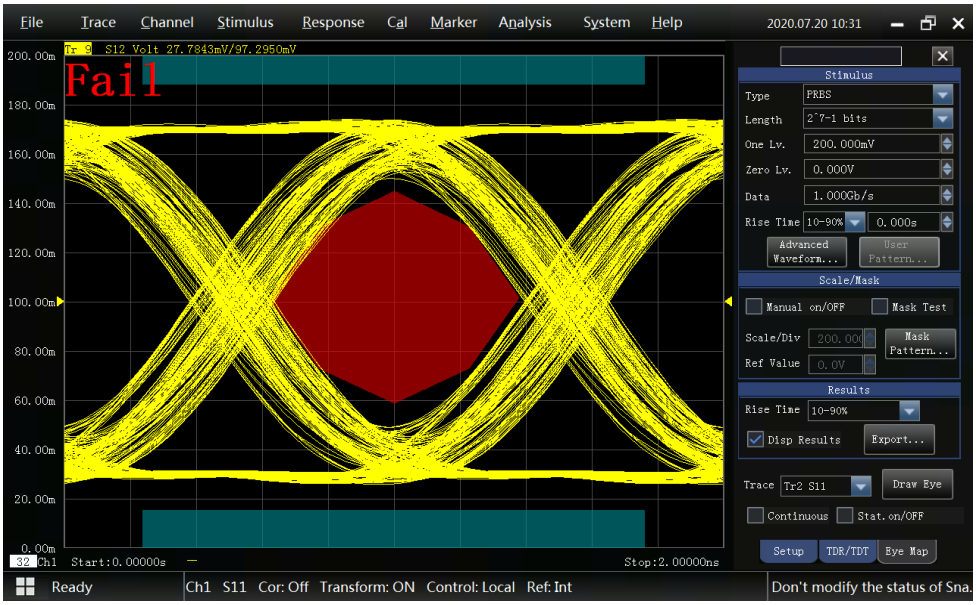




Add Jitter



Add Noise



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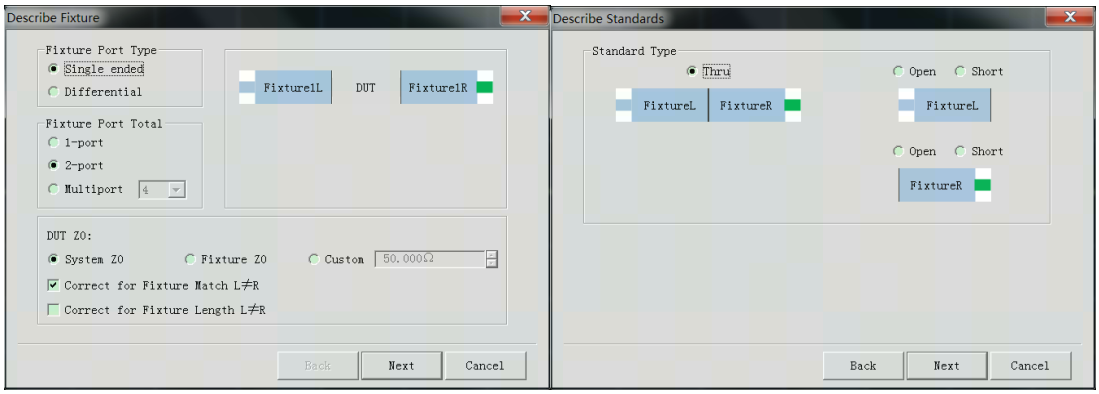
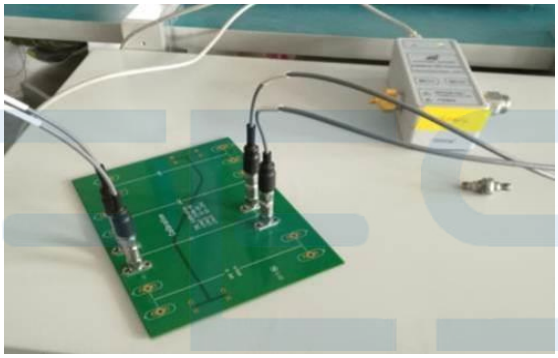
Automatic fixture removal option

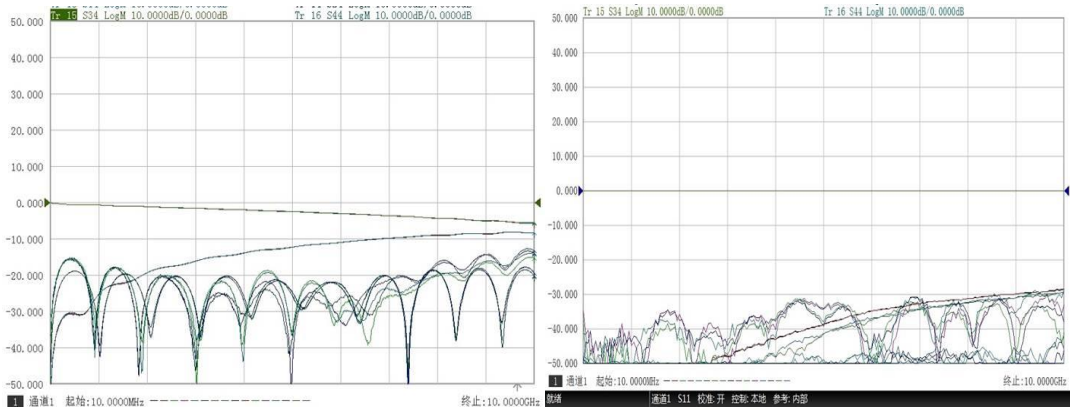
The measurement objects of vector network analyzer involve non-standard connector devices, such as encapsulated microwave devices, on-chip devices, etc. The most remarkable feature of such devices is that they cannot be directly connected to the vector network analyzer. The fixture can be connected to the vector network analyzer, but the fixture error is also introduced. The automatic fixture removal function can extract, store and embed the fixture parameters to obtain the real parameters of the tested part. It is easy to operate and has high precision.



The single-end fixture and differential fixture can be set, and the port number of the fixture can also be selected during the process of describing fixture. To extract fixture parameters, the fixture standards need to be measured. In the standard description interface, fixture standard includes three types: straight through standard, open standard and short circuit standard.



The automatic fixture removal function is used to extract the balance parameters of the tested parts and embed the four ports. The test results show that the transfer parameters can be removed; the near-end and far-end crosstalk also can be removed well.



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Technical Specifications

3671C/D/E Technical Specifications

Frequency Characteristic		
Frequency Range	100kHz~14/20/26.5GHz	
Frequency Resolution	0.1Hz	
Frequency Accuracy	$\pm 1\times 10^{-7}$(23℃±3℃)	
Port Output Characteristic		
Max Output Power	**2-port**	**4-port**
	+5dBm (100kHz~10MHz) +15dBm (10MHz~4GHz) +15dBm (4GHz~10GHz) +10dBm (10GHz~14GHz) +9dBm (14GHz~20GHz) +6dBm (20GHz~24GHz) 0dBm (24GHz~26.5GHz)	+3dBm (100kHz~10MHz) +13dBm (10MHz~4GHz) +10dBm (4GHz~10GHz) +4dBm (10GHz~14GHz) +3dBm (14GHz~20GHz) -2dBm (20GHz~24GHz) -6dBm (24GHz~26.5GHz)
Power Sweep Range	40dB(100kHz~10MHz) 45dB(10MHz~20GHz) 40dB(20GHz~26.5GHz)	40dB(100kHz~10MHz) 38dB(10MHz~20GHz) 34dB(20GHz~26.5GHz)
Network parameter characteristic		
System Dynamic Range (10Hz intermediate frequency bandwidth)	**2-port**	**4-port**
	102dB (100kHz~10MHz) 132dB (10MHz~4GHz) 133dB (4GHz~10GHz) 125dB (10GHz~14GHz) 124dB (14GHz~20GHz) 120dB (20GHz~24GHz) 115dB (24GHz~26.5GHz)	102dB (100kHz~10MHz) 132dB (10MHz~4GHz) 130dB (4GHz~10GHz) 120dB (10GHz~14GHz) 119dB (14GHz~20GHz) 115dB (20GHz~24GHz) 110dB (24GHz~26.5GHz)

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Effective Directivity	48dB(100kHz~2GHz) 44dB(2GHz~20GHz) 44dB(20GHz~26.5GHz)
Effective Source Match	40dB(100kHz~2GHz) 30dB(2GHz~20GHz) 30dB(20GHz~26.5GHz)
Effective Load Match	48dB(100kHz~2GHz) 44dB(2GHz~20GHz) 44dB(20GHz~26.5GHz)
Reflection Tracking (1kHz intermediate frequency bandwidth)	±0.04dB(100kHz~100MHz) ±0.05dB(100MHz~20GHz) ±0.05dB(20GHz~26.5GHz)
Transmission Tracking (1kHz intermediate frequency bandwidth)	±0.10dB(100kHz~100MHz) ±0.08dB(100MHz~20GHz) ±0.10dB(20GHz~26.5GHz)
Others	
Amplitude Trace (-5dBm,1kHz intermediate frequency bandwidth)	0.010 dB rms (100kHz~50MHz) 0.005 dB rms (50MHz~500MHz) 0.001 dB rms (500MHz~14GHz) 0.001 dB rms (14GHz~20GHz) 0.002 dB rms (20GHz~26.5GHz)
Phase trace noise (-5dBm,1kHz intermediate frequency bandwidth)	0.100 deg rms (100kHz~50MHz) 0.040 deg rms (50MHz~500MHz) 0.030 deg rms (500MHz~14GHz) 0.040 deg rms (14GHz~20GHz) 0.040 deg rms (20GHz~26.5GHz)
Intermediate Frequency Bandwidth	1Hz~30MHz
Amplitude Display Resolution	0.001dB/div
Phase Display Resolution	0.01°/div
Setting Requirement of Reference Level Amplitude	-500~+500dB
Setting Requirement of Reference Level Phase	-500~+500°
Sweep Time (Full frequency sweep, 201 points, 600kHz if bandwidth, calibration off)	43ms
Max. Sweep Point	200001points
General Characteristics	
Port connection	3.5mm(male)
System Impedance	50Ω

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Number Of Measuring Ports	2/4 ports
Peripheral Interface	USB,GPIB,VGA,LAN,HDMI interface
Operating System	Windows 7
Display	12.1inch 16:10 screen (Equipped with capacitive touch function)
Size	W×H×D≈426mm×266mm×400mm(No soles, no handles) W×H×D≈516mm×280mm×490mm(include soles and handles)
Max. Power Consumption	300W
Power Supply	50Hz 220V or 50Hz/60Hz 110V AC
Max. Weight	25kg

3671G Technical Specifications

Frequency Characteristic	
Frequency Range	10MHz~43.5GHz
Frequency Resolution	0.1Hz
Frequency Accuracy	±1×10-7(23℃±3℃)
Port Output Characteristic	
Max Output Power	+12dBm (10MHz~50MHz) +13dBm (50MHz~250MHz) +13dBm (250MHz~1GHz) +13dBm (1GHz~10GHz) +10dBm (10GHz~20GHz) +8dBm (20GHz~35GHz) +3dBm (35GHz~43.5GHz)
Power Sweep Range	30dB(10MHz~50MHz) 33dB(50MHz~10GHz) 30dB(10GHz~20GHz) 28dB(20GHz~35GHz) 28dB(35GHz~43.5GHz)

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Network parameter characteristic	
System Dynamic Range (10Hz intermediate frequency bandwidth)	90dB(10MHz~50MHz) 98dB(50MHz~250MHz) 115dB(250MHz~1GHz) 128dB(1GHz~10GHz) 122dB(10GHz~20GHz) 118dB(20GHz~35GHz) 110dB(35GHz~43.5GHz)
Effective Directivity	42dB(10MHz~2GHz) 45dB(2GHz~20GHz) 38dB(20GHz~43.5GHz)
Effective Source Match	40dB(10MHz~2GHz) 30dB(2GHz~20GHz) 30dB(20GHz~43.5GHz)
Effective Load Match	42dB(10MHz~2GHz) 45dB(2GHz~20GHz) 36dB(20GHz~43.5GHz)
Reflection Tracking (1kHz intermediate frequency bandwidth)	±0.040dB(10MHz~50MHz) ±0.025dB(50MHz~2GHz) ±0.008dB(2GHz~20GHz) ±0.027dB(20GHz~43.5GHz)
Transmission Tracking (1kHz intermediate frequency bandwidth)	±0.045dB(10MHz~50MHz) ±0.025dB(50MHz~2GHz) ±0.036dB(2GHz~20GHz) ±0.162dB(20GHz~43.5GHz)
Others	
Amplitude Trace (-5dBm,1kHz intermediate frequency bandwidth)	0.2000 dB rms(10MHz~50MHz) 0.0200 dB rms(50MHz~100MHz) 0.0200 dB rms(100MHz~500MHz) 0.0030 dB rms(500MHz~26.5GHz) 0.0030 dB rms(26.5GHz~43.5GHz)
Phase trace noise (-5dBm,1kHz intermediate frequency bandwidth)	1.000 deg rms(10MHz~50MHz) 1.000 deg rms(50MHz~100MHz) 0.500 deg rms(100MHz~500MHz) 0.020 deg rms(500MHz~26.5GHz) 0.030 deg rms(26.5GHz~43.5GHz)
Intermediate Frequency Bandwidth	1Hz~30MHz
Amplitude Display Resolution	0.001dB/div
Phase Display Resolution	0.01°/div
Setting Requirement of Reference Level Amplitude	-500~+500dB
Setting Requirement of Reference Level Phase	-500~+500°

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Sweep Time (Full frequency sweep, 201 points, 600kHz if bandwidth, calibration off)	43ms	
Max. Sweep Point	200001points	
General Characteristics		
Port connection	2.4mm(male)	
System Impedance	50Ω	
Number Of Measuring Ports	2/4 ports	
Peripheral Interface	USB,GPIB,VGA,LAN,HDMI interface	
Operating System	Windows 7	
Display	12.1inch 16:10 screen (Equipped with capacitive touch function)	
Size	**2-Port Instrument** W×H×D≈426mm×266mm ×400mm(No soles, no handles) W×H×D≈516mm×280mm ×490mm(include soles and handles)	**4-Port Instrument** W×H×D≈426mm×266mm×4 50mm(No soles, no handles) W×H×D≈516mm×280mm×5 40mm(include soles and handles)
Max. Power Consumption	300W	
Power Supply	50Hz 220V or 50Hz/60Hz 110V AC	
Max. Weight	28kg	

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Ordering Information

Main Units	Description
3671C	Vector Network Analyzer(100kHz~14GHz)
3671D	Vector Network Analyzer(100kHz~20GHz)
3671E	Vector Network Analyzer(100kHz~26.5GHz)
3671G	Vector Network Analyzer(10MHz~43.5GHz)

Standard

No	Model	unit	Note
1	Power Cord Assembly	1	
2	USB Keyboard/mouse	1	
3	User Manual	1	
4	Certificate of Conformity	1	
5	Aluminum packing case	1	

3671series General Options

No	Model	Description
3671-006	English Option	Configure the English front and rear panels and The English operating system
3671-011	31101 N-type 50ΩCalibration Kit	For Calibration of the Analyzer(DC~18GHz)
3671-013	31121 3.5mm Calibration Kit	For Calibration of the Analyzer(DC~26.5GHz)
3671-014	20202 3.5mm Calibration Kit	For Calibration of the Analyzer(DC~9GHz)
3671-016	31123A 2.4mm Calibration Kit	For Calibration of the Analyzer(DC~50GHz)
3671-021	20402 Ecal Calibration Kit	For Calibration of the Analyzer(300kHz~18GHz N-type two port)
3671-022	20403 Ecal Calibration Kit	For Calibration of the Analyzer(10MHz~26.5GHz 3.5mm two port)
3671-023	20404 Ecal Calibration Kit	For Calibration of the Analyzer(10MHz~50GHz 2.4mm two port)
3671-024	20405 Ecal Calibration Kit	For Calibration of the Analyzer(10MHz~20GHz 3.5mm four port)
3671-031	FB0HA0HB025.0 3.5mm Test Cable	For Measurement of the Analyzer(3.5mm Male) Used for 3671C/D/E
3671-032	FB0HA0HC025.0 3.5mm Test Cable	For Measurement of the Analyzer(3.5mm Female) Used for 3671C/D/E
3671-033	FB0HA0AH025.0 3.5mm-N Test Cable	For Measurement of the Analyzer(N -male) Used for 3671C/D/E
3671-034	FB0HA0AL025.0 3.5mm-N Test Cable	For Measurement of the Analyzer(N-Female) Used for 3671C/D/E
3671-035	3671N35M 3.5mm Test Cable	For Measurement of the Analyzer(3.5mm-Male) Length=63cm, Used for 3671C/D/E
3671-036	3671N35F 3.5mm Test Cable	For Measurement of the Analyzer(3.5mm-Female) Length=63cm, Used for 3671C/D/E
3671-037	3671N24M 3.5mm Test Cable	For Measurement of the Analyzer(2.4mm-Male) Length=63cm, Used for 3671G
3671-038	3671N24F 3.5mm Test Cable	For Measurement of the Analyzer(2.4mm-Female) Length=63cm, Used for 3671G
3671-041	3671NNF 3.5mm-N Test Cable	For Measurement of the Analyzer(N-Male) Length=63cm, Used for 3671C/D/E

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3671-042	3671NNM 3.5mm-N Test Cable	For Measurement of the Analyzer(N-Female) Length=63cm, Used for 3671C/D/E
3671-047	FE0BN0BM025.0 2.4mm Gore Test Cable	For Measurement of the Analyzer(2.4mm-Male) Used for 3671G
3671-048	FE0BN0BL025.0 2.4mm Gore Test Cable	For Measurement of the Analyzer(2.4mm-Female) Used for 3671G
3671-052	87231 USB Power-sensor	(10MHz~18GHz)
3671-053	87232 USBPower-sensor	(50MHz~26.5GHz)
3671-054	87233 USBPower-sensor	(50MHz~40GHz)
3671-062	Cabinet Option	
3671-S07	AFR automatic fixture remove option	Used for automatic test and removal of single end and balance device measuring fixture
3671-S10	Time-domain measurements	Used for time domain measurements to determine and analyze discontinuous locations in devices, fixtures or cables
3671-S11	Advanced Time-domain measurements	Used for TDR time domain impedance test, eye chart analysis, etc.

3671C/D/E/G Options

No	Model	Description
3671C-400	Four-port Measurement	Four port VNA(100kHz to 14GHz)
3671D-400	Four-port Measurement	Four port VNA(100kHz to 20GHz)
3671E-400	Four-port Measurement	Four port VNA(100kHz to 26.5GHz)
3671G-400	Four-port Measurement	Four port VNA(10MHz to 43.5GHz)

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