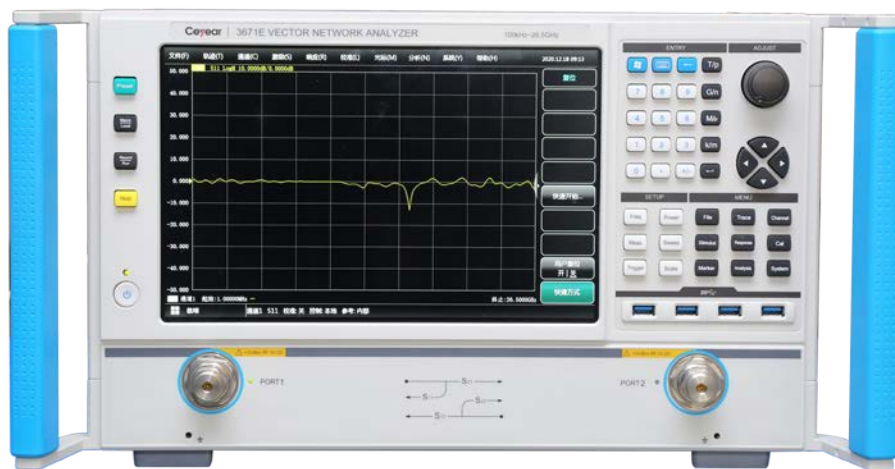




# 3671C/D/E

# Vector Network Analyzer

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



**Ceyear Technologies Co., Ltd**

## Product Overview

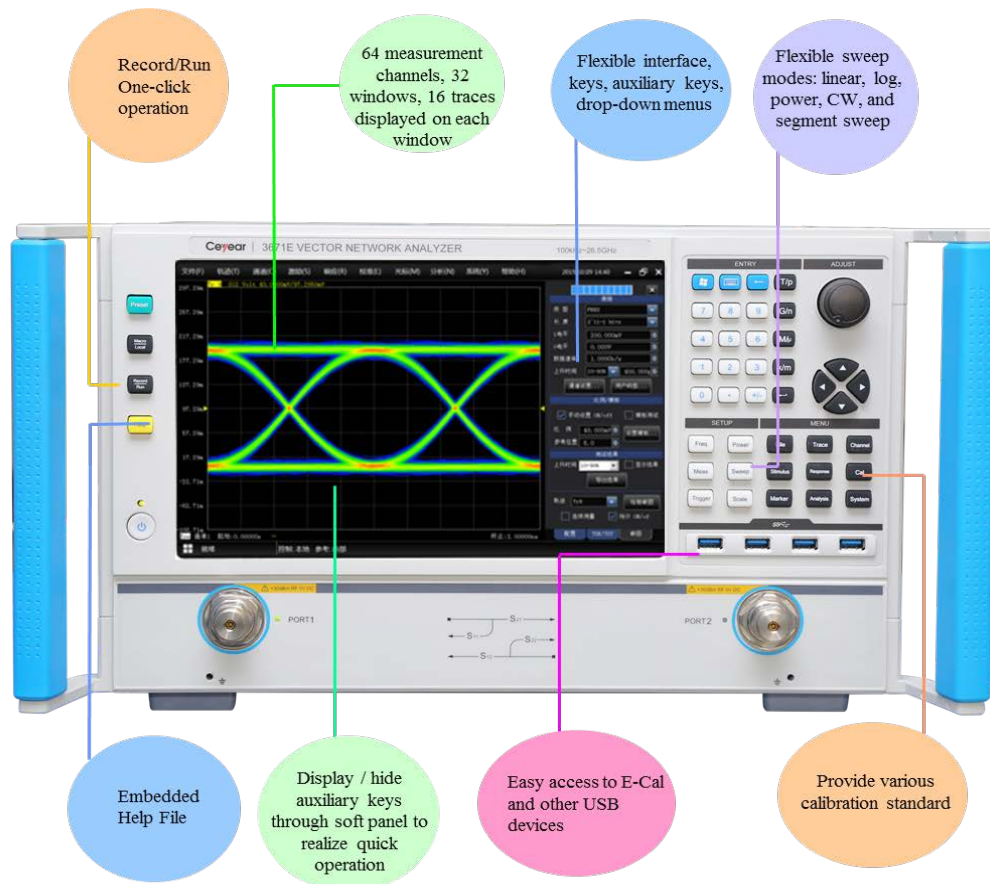
3671 Series Vector Network Analyzers include 3671C (100kHz/10MHz~14GHz), 3671D (100kHz/10MHz~20GHz), 3671E (100kHz/10MHz~26.5GHz). 3671 series vector network analyzers provide multiple calibration types including frequency response, single port, response isolation, enhanced response and full dual-port, electronic calibration etc., They can offer various display formats such as logarithmic amplitude, linear amplitude, standing-wave, phase, group delay, Smith chart and polar coordinates, etc. They are equipped with several standard interfaces: USB, LAN, GPIB, VGA and HDMI etc.

Besides all measurement functions same as traditional vector network analyzer, through configuration of functional options, 3671 analyzers are also capable of multifunctional & comprehensive parameter test of amplitude-frequency characteristics, phase-frequency characteristics and group delay characteristics. The 3671 series vector network analyzer retains the characteristics of high-end vector network analyzers, including performance indicators, instrument appearance, display effects, software interface, etc., while controlling the volume, weight, wind noise, etc. of the instrument to create a good experience for customers. The product can be widely used in radar, communication, navigation and other fields, and is an indispensable test equipment in the scientific research and production process of national defense industry and universities.

## Main Characteristics

- Wider frequency coverage, the starting frequency as low as 100kHz
- Optional IF bandwidth, the maximum IF bandwidth up to 30MHz
- Advanced calibration methods, available calibration guidance, flexible calibration types, compatible with various calibration kits
- Available in multiple display formats such as logarithmic amplitude, linear amplitude, standing-wave, phase, Smith chart
- Chinese/English operation interface, 12.1-inch 1280\*800 high resolution touch screen
- Record/run, one-click operation greatly simplifies the measurement setting steps and improves the efficiency
- Advanced time-domain analysis included TDR impedance measurement, eye diagram analysis function

## Humanized user interface for easy operation to improve the efficiency

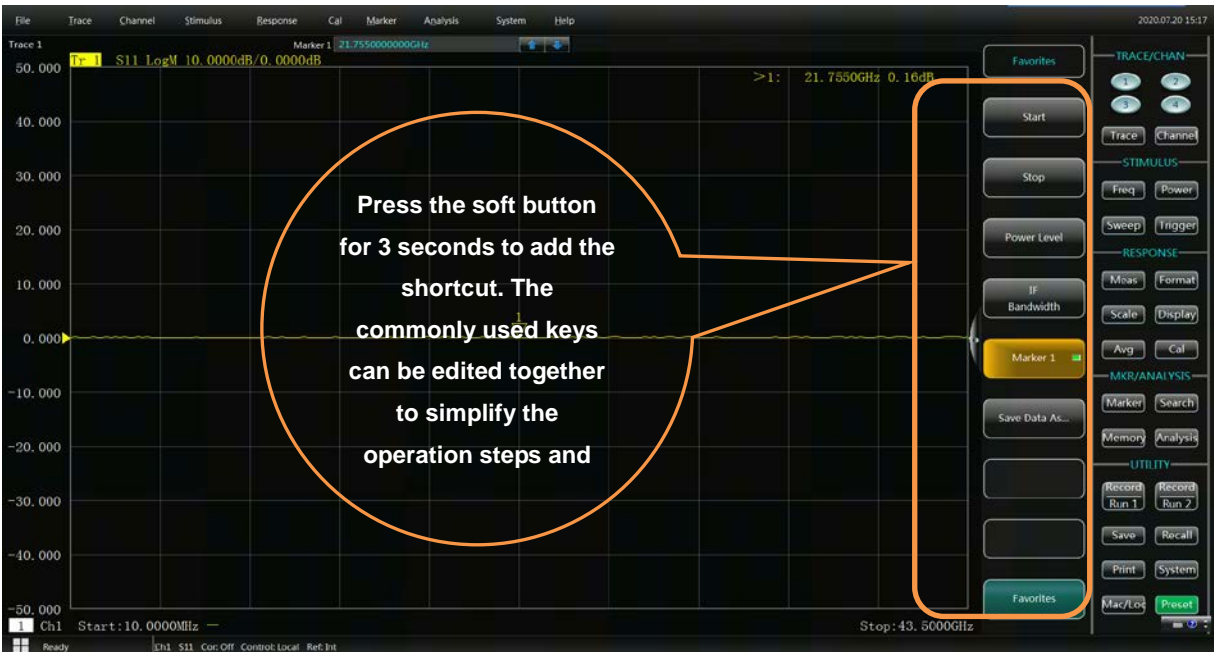


The soft panel can be set to the left or right side of screen, or be hidden.



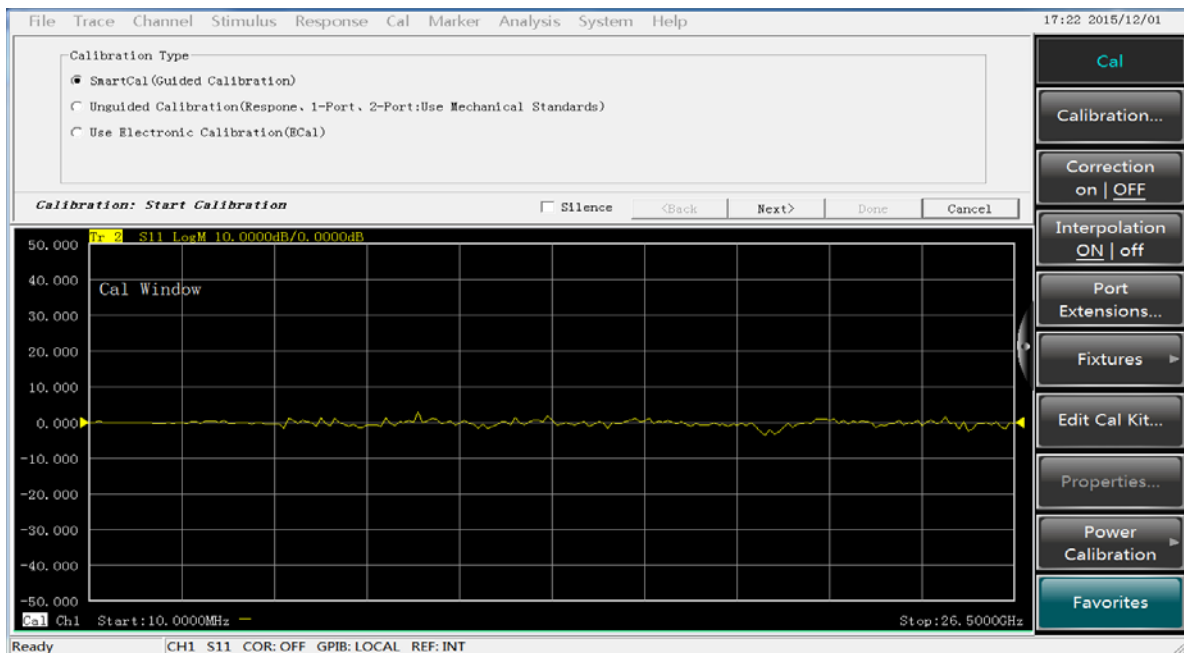


Parameters can be entered quickly by using the activated input toolbar. Set limit line and segment scan value for production line to improve test efficiency.



## Flexible and optional calibration types, compatible with multiple calibration kits

3671 Series Vector Network Analyzers provide multiple calibration types, including guided calibration (automatic calibration), unguided calibration (using mechanical calibration kit to conduct through response calibration, through response & isolation calibration, single port calibration, enhanced response calibration, full two-port SOLT calibration, TRL calibration) and electronic calibration (E-Cal) etc. Users can select calibration kits, such as coaxial calibration kit and electronic calibration kit based on test requirements, which greatly facilitates testing on devices with different interfaces.



The 'Edit Cal Kit' dialog box contains a table of installed calibration kits. Below are the data from the two screenshots.

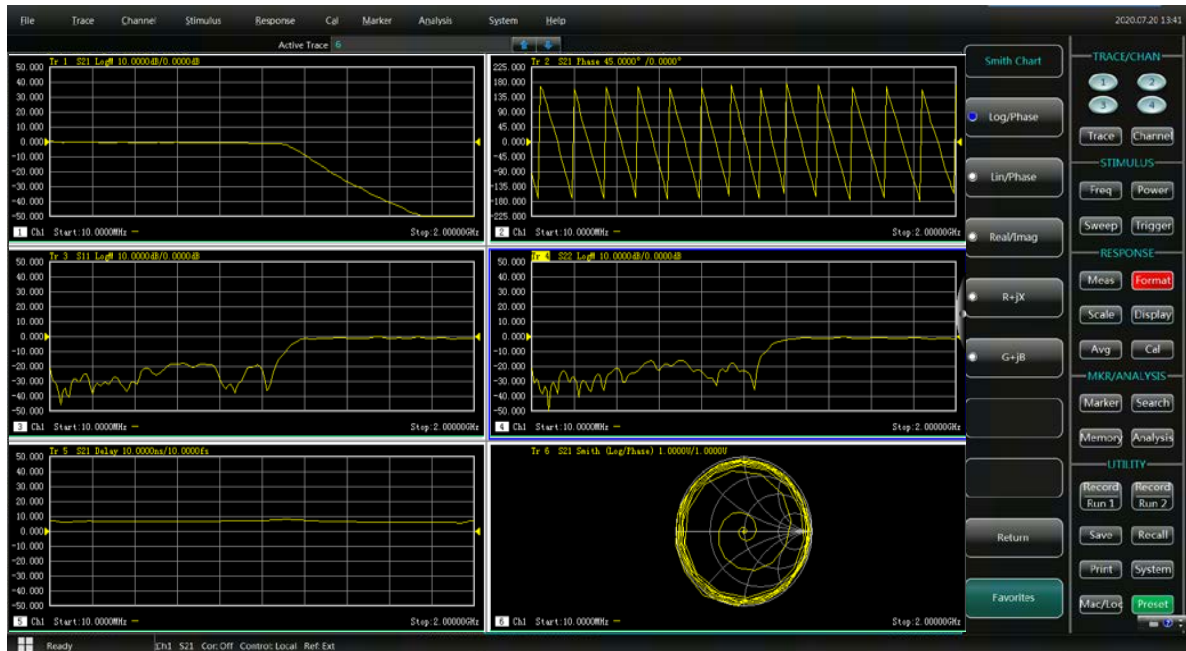
ID	Name	Description
1	20208	7-16 Cal Kit DC-7.5GHz
2	20205(A/B)	N-50 Cal Kit DC-3GHz
3	20207(A)	N-50 Cal Kit DC-3GHz
4	31104	N-50 Cal Kit DC-6GHz
5	20201(AB)	N-50 Cal Kit DC-9GHz
6	31101(AB)	N-50 Cal Kit DC-18GHz
7	31101M(AB)	N-50 Databased 50MHz-18GHz
8	20204	N-75 Cal Kit DC-3GHz
9	31111	7mm Cal Kit DC-18GHz
10	31121A	3.5mm Cal Kit DC-6GHz
11	20202	3.5mm Cal Kit DC-9GHz
12	31121	3.5mm Cal Kit DC-26.5GHz

ID	Name	Description
24	85052D	3.5mm Cal Kit
25	85052B	3.5mm Cal Kit
26	85052C	3.5mm Cal Kit
27	85056D	2.4mm Cal Kit
28	85056A	2.4mm Cal Kit
29	85058EP Poly	1.85 mm Economy (Reduced Acc
30	85058B Datab	1.85 mm (Reduced Accuracy)
31	85058B Datab	1.85 mm Precision Database C
32	85059AP Poly	1.00 mm (Reduced Accuracy)
33	85059A Datab	1.00 mm Databased Precision
34	APC 7 TRL	APC 7 TRL Cal Kit
35	WR650/EJ14	WR650/EJ14 Cal Kit

## Multiple windows to display all measuring channels

The analyzers 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 results more visible and the operation more convenient.



## One-click automated test for recording function

Record all the operation steps in the process of using the instrument. At the same time, you can insert the edit prompt dialog box at any time, and pop up the prompt dialog box on time, waiting for confirmation, and realize the interactive function, which truly realizes the one-button automation function of the intelligent instrument.



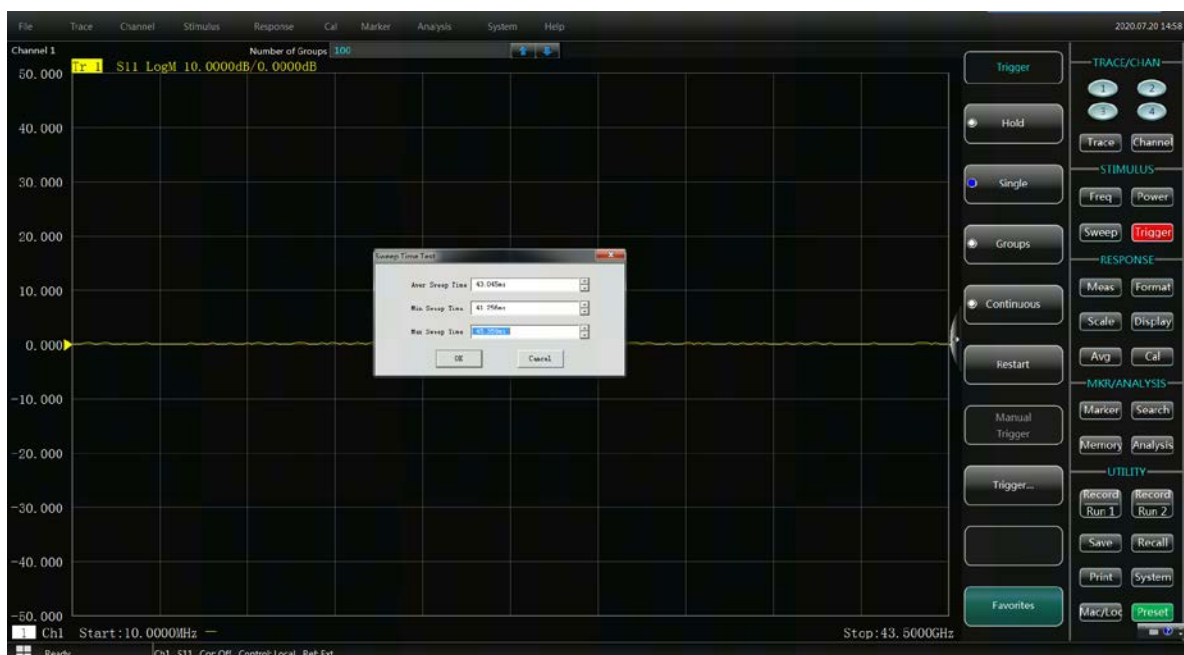
## Large dynamic range

3671 Series Vector Network Analyzers are designed with the concept of mixer receiving, which effectively extends the dynamic range of the complete machine and meets the test demand for large dynamic range.



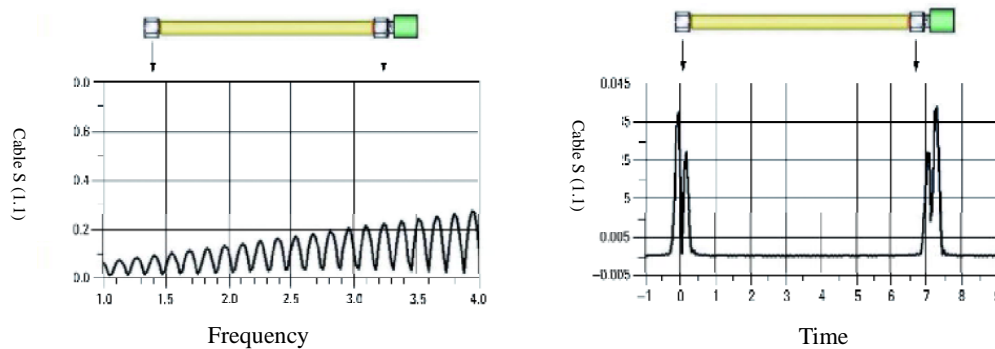
## Greater improved the sweep speed

3671 Series Vector Network Analyzers can realize one-button sweep time test which can help you to estimate the performance of device. In the settings of 201 points scanning in the whole frequency band and 600kHz IF bandwidth, the scanning speed can up to 43ms.



## Time-domain analysis can comprehensively characterize the design

With time-domain options, 3671 Series Vector Network Analyzers can realize the switching of measurement results between frequency-domain and time-domain, which can be used to identify the discontinuous points of devices, fixtures or cables to realize accurate fault location.



## Advanced time-domain analysis (TDR option)

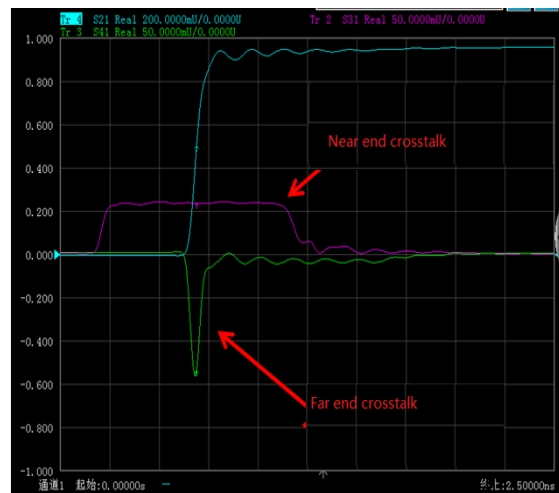
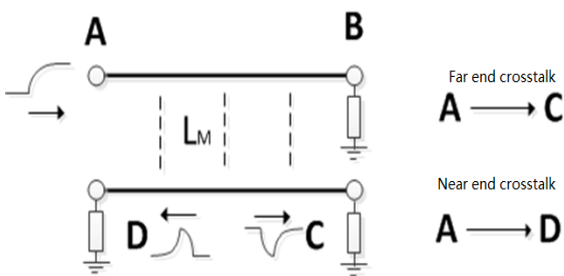
With the rapid development of the information industry, the demand for network bandwidth is also getting higher and higher, requiring information equipment (such as large servers, computers and switches, etc.) to carry faster and faster data rates. Information equipment manufacturers are paying more and more attention to the signal integrity problem in high-speed interconnect channels. The characteristic change of transmission link will significantly affect the signal transmission quality. Advanced time domain analysis option is an important method to evaluate the signal transmission quality of high-speed link.

TDR time domain impedance test can accurately test the change of impedance characteristics on the transmission line and locate the discontinuity.



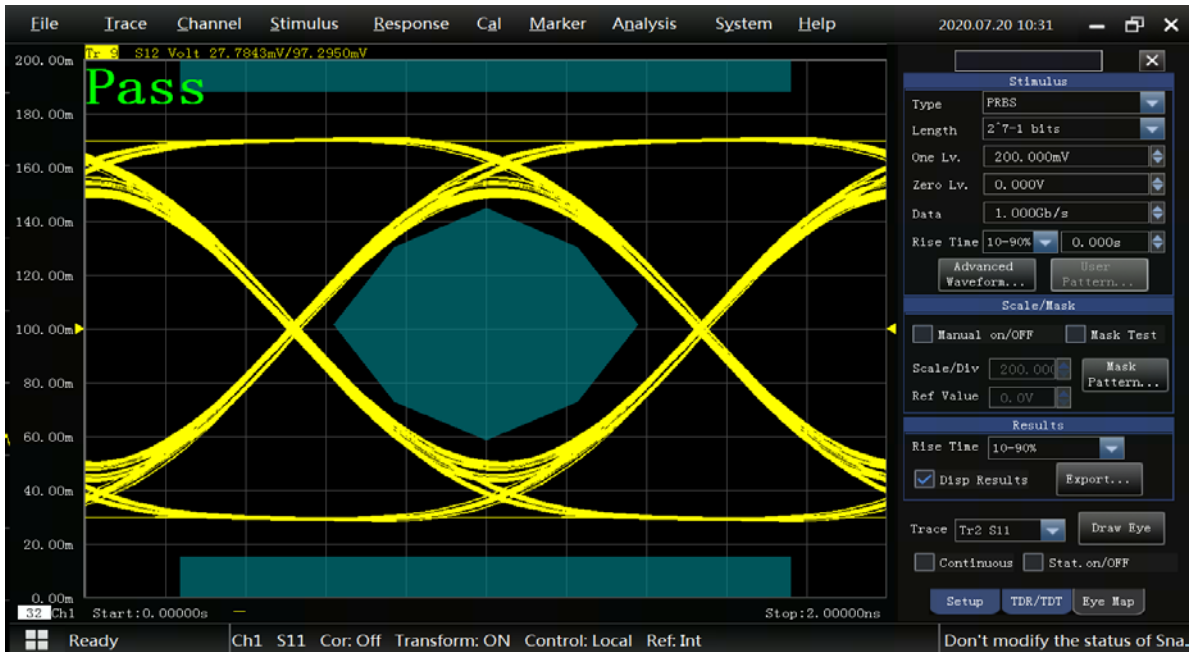


Convenient near and far end crosstalk test, can simultaneously analyze time domain and frequency domain data, used to test the degree of mutual influence between multiple transmission lines.

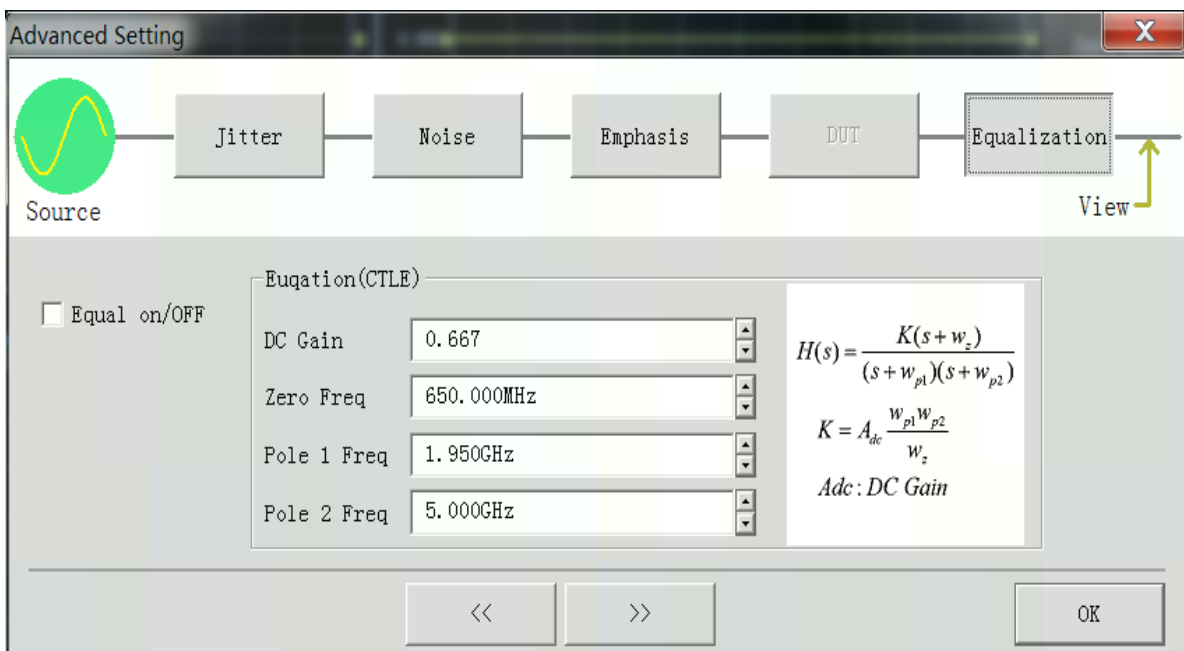


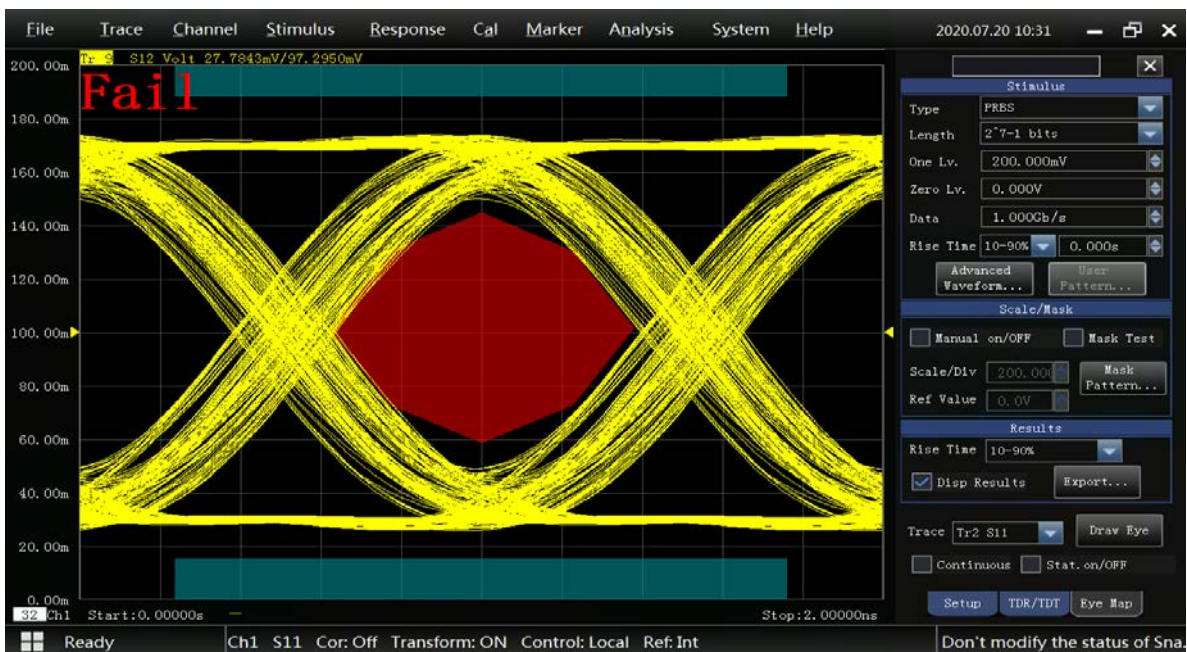
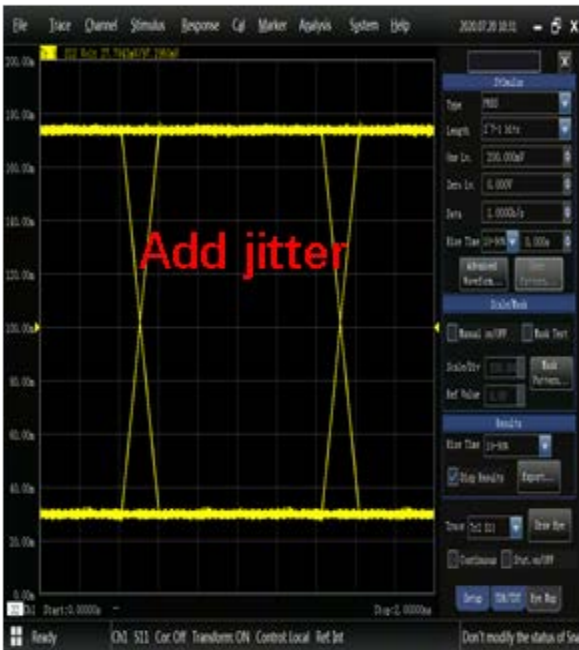
The advanced time domain analysis option of 3671 series vector network analyzer provides the function of generating and analyzing virtual eye map based on S parameter. The simulation code type output unit is used to generate data bits with 0 and 1 changes. The simulation code type and the time-domain impulse response of the measured part are convolved, and the virtual eye map is obtained after superposition.

Depending on different high-speed digital communication standards, advanced time domain analysis options can be used for efficient Pass/Fail testing using predefined eye map templates.



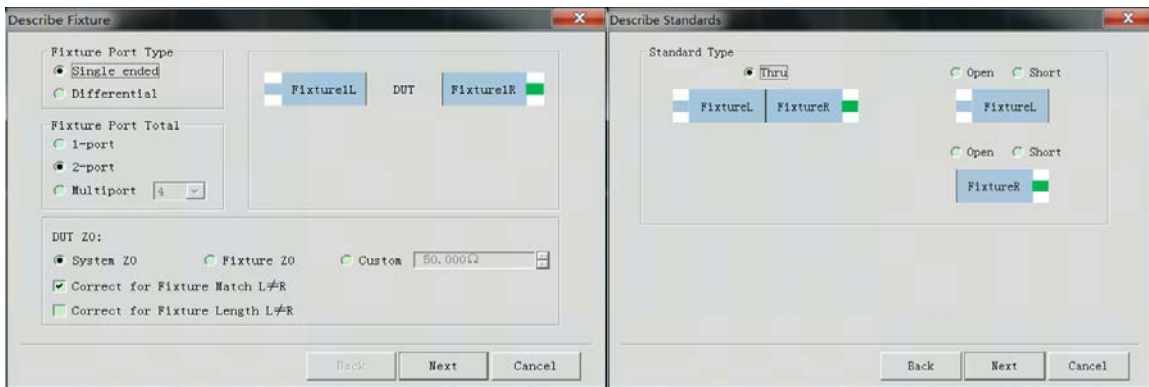
The advanced time-domain analysis option can impose jitter, noise and other interference on the simulation eye map, and simulate the simulation eye map of different positions of high-speed link in the real environment through the addition of correction algorithms such as pre-weighting and equalization.



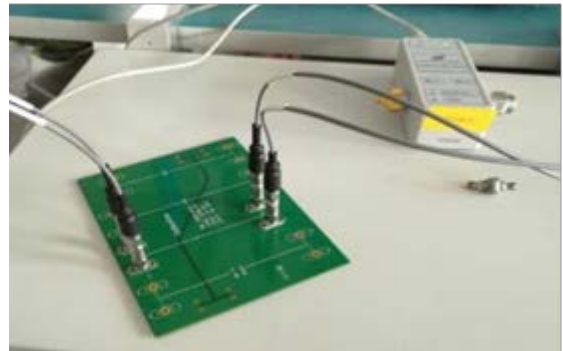


### Automatic fixture removal function

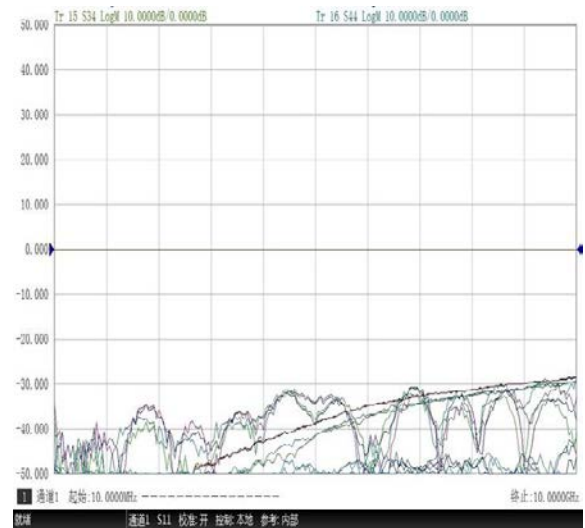
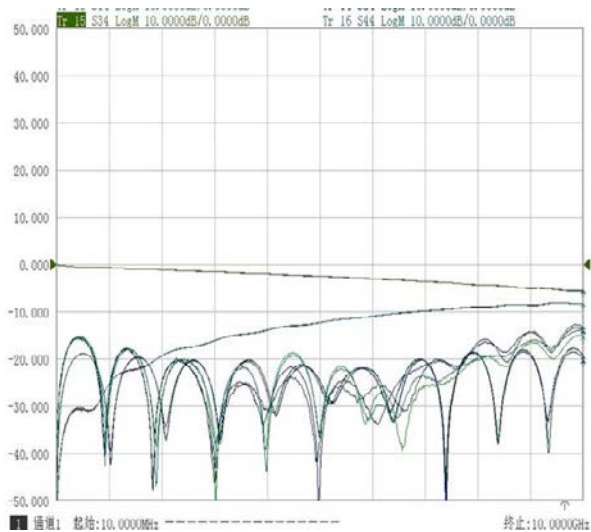
The measurement objects of the vector network analyzer are related to non-standard connector devices, such as packaged microwave devices, on-chip devices, etc. The most significant feature of such devices is that they cannot be directly connected to vector network analyzers. So we need to add the fixture to connect with the vector network analyzer. However, 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 parts under test. It is easy to operate and has high precision.



When describing the fixture, single end fixture and differential fixture can be set, and the port number of the fixture can also be selected. In order to extract the fixture parameters, it is necessary to select the fixture standard. In the standard description interface, the fixture standard includes three types: Through standard, Open circuit standard and Short circuit standard.



By using the automatic fixture removal function, the measured parts are taken as a whole to extract the balance parameters and to implement 4-port embedded. The test results show that the transmission parameters can be removed well including the near-end and far-end crosstalk.



## Technical Specifications

### 3671C/D/E Technical Specifications

Frequency Characteristic			
Frequency Range	100kHz/10MHz~14/20/26.5GHz		
Frequency Resolution	0.1Hz		
Frequency Accuracy	$\pm 1 \times 10^{-7}$ (23°C $\pm 3$ °C)		
Port Power Characteristic			
Max. Output Power	2-Port	2-Port (with low frequency option)	4-Port
	+15dBm (10MHz ~ 100MHz) +16dBm (100MHz~4GHz) +16dBm (4GHz~10GHz) +12dBm (10GHz~14GHz) +10dBm (14GHz~20GHz) +10dBm (20GHz~24GHz) +5dBm (24GHz ~ 26.5GHz)	+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) 50dB (10MHz~20GHz) 40dB (20~26.5GHz)		
Network Parameter Characteristic			
System Dynamic Range	2-Port	2-Port (with low frequency option)	4-Port
	94dB (10MHz~1GHz) 132dB (1GHz~4GHz) 135dB (4GHz~10GHz) 130dB (10GHz~14GHz) 128dB (14GHz~20GHz) 125dB (20GHz~24GHz) 120dB (24GHz ~ 26.5GHz)	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)
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	±0.04dB (100kHz~100MHz) ±0.05dB (100MHz~20GHz) ±0.05dB (20GHz~26.5GHz)
Transmission Tracking	±0.10dB (100kHz~100MHz) ±0.08dB (100MHz~20GHz) ±0.10dB (20GHz~26.5GHz)
<b>Others</b>	
Amplitude Trace Noise dB rms (-5dBm, 1kHz IF 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 deg rms (-5dBm, 1kHz IF 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)
IF 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(whole frequency band,201 points, 600kHz IF bandwidth, calibration OFF)	43ms
Maximum sweep points	200001
<b>General Characteristic</b>	
Port Connectors	3.5mm (Male)
System Impedance	50-ohm
Number of Measuring Ports	2 or 4
Peripheral Interface	USB, GPIB, VGA, LAN, HDMI
Operating System	Windows 7
Display	12.1-Inch 16:10 High Resolution Touch Screen
Size	W×H×D=426mm×266mm×400mm (excluding support and handle) W×H×D=516mm×280mm×490mm (including handle, support and back foot)
Max. Power Consumption	300w
Power Supply	50Hz 220V or 50Hz/60Hz 110V AC
Max. Weight	25kg

## Ordering Information

Main Unit	Description
3671C	Vector Network Analyzer (100kHz/10MHz ~ 14GHZ)
3671D	Vector Network Analyzer (100kHz/10MHz ~ 20GHZ)
3671E	Vector Network Analyzer (100kHz/10MHz ~ 26.5GHZ)

### Standard Package

No.	Description	Quantity	Remarks
1	Power Cord Assembly	1	Standard three-prong power cord
2	USB Keyboard/Mouse	1	
3	User Manual	2	
4	Certificate of Conformity	1	

### 3671 series general Options

Model	Description	Remarks
3671-011	31101 Type-N 50-ohm calibration 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)
3671-021	20402 Electronic Calibration Kit	For calibration of the analyzer (300kHz~18GHZ, type-N, 2 port)
3671-022	20403 Electronic Calibration Kit	For calibration of the analyzer (10MHz~26.5GHZ,3.5mm, 2 port)
3671-024	20405 Electronic Calibration Kit	For calibration of the analyzer (10MHz~20GHZ,3.5mm, 4 port)
3671-031	FB0HA0HB025.0 3.5mm Gore Test cable	For the measurement (Test port: 3.5mm-Male) Optional for 3671C/D/E
3671-032	FB0HA0HC025.0 3.5mm Gore Test cable	For the measurement (Test port:3.5mm-Female) Optional for 3671C/D/E
3671-033	FB0HA0AH025.0 3.5mm-N Gore Test cable	For the measurement (Test port: N Male) Optional for 3671C/D/E
3671-034	FB0HA0AL025.0 3.5mm-N Test cable	For the measurement (Test port: N Female) Optional for 3671C/D/E
3671-052	87231 USB Power Sensor	For the power calibration(10MHz~18GHZ)
3671-053	87232 USB Power Sensor	For the power calibration(50MHz~26.5GHZ)
3671-062	Rack mount kit	Rack mount kit for the installation

### 3671 C/D/E Options

Model	Description	Remarks
3671C/D/E-001	Low frequency extension	Low frequency can be extended from 10MHz to 100kHz
3671C/D/E-400	4-Port Measurement	4-port VNA configuration
3671C/D/E-006	English Option	Front and Rear Panel, Label, English Operation System
3671C/D/E-S07	Automatic Fixture Removal Option (AFR)	For single end and balance device measuring fixture automatic test and removal

3671C/D/E-S10	Time-domain measurement	For time domain measurement, discontinuous position in device, fixture or cable can be determined and analyzed
3671C/D/E-S11	Advanced time-domain analysis option	Used for TDR time domain impedance test, eye chart analysis, etc.



**Focus on Measurement**  
**Explore the Future**

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