

i-CTS40

Test System for High Speed Cable
100kHz to 40GHz

Technical Specifications




Itecrest
极致汇仪

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i-CTS40 TEST CAPABILITY

Test Field	High Speed Cable(PCIE、802.3、SAS、OIF、IB and etc.)
Test Parameter	Single and Differential S parameter
	Time Domain Impedance
	Phase/Time delay and skew, and EIPS
	IRL/ILD/ILD rms
	NEXT/FEXT/ICN/cclCN/ICR
	COM/ERL
Number of RF Test Ports	64/96/128/196 ports for Typical Solution
Measure Speed	<2s/Pair (4000 points@10kHz IFBW)
System Hardware	4 ports VNA4435(43.5GHz VNA)
	Single or Two MSW40 Units(40GHz Switch Matrix)

VNA4435 RF PERFORMANCE

SYSTEM MEASUREMENT RANGE		
System Impedance	50Ω	
Test Port Connector Type	NMD 2.4mm, male	
Number of Test Ports	4	
Frequency Range	100kHz to 43.5GHz	
Frequency Setting Resolution	1Hz	
Output Power Range	100kHz to 2MHz	-55dBm to -10dBm
	2MHz to 43.5GHz	-55dBm to +10dBm
Power Setting Resolution	0.05dB	
Number of Measurement Points	2 to 100,001	
System Bandwidth(IFBW)	10Hz to 1.5MHz ^{Table 1}	
System Dynamic Range: (RF Range Fixed Mode=OFF) @IFBW=10Hz	100kHz to 500kHz	95dB
	500kHz to 2MHz	110dB
	2MHz to 5.8GHz	135dB
	5.8GHz to 26.5GHz	130dB
	26.5GHz to 43.5GHz	125dB
MEASUREMENT ACCURACY(UNCERTAINTY) ¹		
Trace Noise: Meas. Power=Max Output Power		
Transmission	100kHz to 10MHz(IFBW=3kHz)	4mdB rms/0.03deg rms
	10MHz to 6GHz(IFBW=70kHz)	4mdB rms/0.03deg rms
	6GHz to 26.5GHz(IFBW=70kHz)	4mdB rms/0.04deg rms
	26.5GHz to 43.5GHz(IFBW=70kHz)	5mdB rms/0.04deg rms
Reflection	100kHz to 10MHz(IFBW=3kHz)	5mdB rms/0.05deg rms

	10MHz to 6GHz(IFBW=70kHz)	5mdB rms/0.03deg rms		
	6GHz to 26.5GHz(IFBW=70kHz)	5mdB rms/0.04deg rms		
	26.5GHz to 43.5GHz(IFBW=70kHz)	6mdB rms/0.04deg rms		
CORRECTED SYSTEM EFFECTIVE DATA¹				
Description	100kHz to 2GHz	2GHz to 10GHz	10GHz to 20GHz	20GHz to 43.5GHz
Directivity	40 dB	47 dB	44 dB	34 dB
Source Match	38 dB	42 dB	37 dB	32 dB
Load Match	36 dB	40 dB	35 dB	30 dB
UNCORRECTED SYSTEM RAW DATA²				
Description	100kHz to 2GHz	2GHz to 10GHz	10GHz to 26.5GHz	26.5GHz to 43.5GHz
Directivity	25 dB	15 dB	12 dB	12 dB
Source Match	25 dB	15 dB	15 dB	13 dB
Load Match	17 dB	15 dB	12 dB	10 dB
TEST PORT OUTPUT PERFORMANCE				
Power Accuracy	100kHz to 2MHz	±0.5 dB @-10dBm		
	2MHz to 26.5GHz	±0.5 dB @0dBm		
	26.5GHz to 43.5GHz	±1 dB @0dBm		
Power Linearity (Relative to -10dBm or 0dBm)	100kHz to 2MHz	±0.5 dB(-20dBm to -10dBm)		
	2MHz to 6GHz	±0.5 dB(-20dBm to +10dBm)		
	6GHz to 26.5GHz	±0.75 dB (-20dBm to +10dBm)		
	26.5GHz to 43.5GHz	±1dB (-20dBm to +10dBm)		
Harmonic(2nd or 3rd)	100kHz to 2MHz	<-20dBc @-10dBm		
	2MHz to 43.5GHz	<-20dBc @0dBm		
Non-Harmonic Spurious	<-30dBc @Max Power			
CW Accuracy	±0.2ppm (23 °C±3 °C)			
Source Stability	±0.01ppm (5 °C±40 °C)			
TEST PORT INPUT PERFORMANCE				
Maximum Input Level	+10dBm			
Damage Level	+26dBm or ±35VDC			
Cross Talk	100kHz to 500kHz	-80dB		
	500kHz to 2MHz	-100dB		
	2MHz to 6GHz	-120dB		
	6GHz to 26.5GHz	-110dB		
	26.5GHz to 43.5GHz	-100dB		
Noise Floor	100kHz to 500kHz	-115dBm/Hz		
	500kHz to 2MHz	-130dBm/Hz		
	2MHz to 5.8GHz	-135dBm/Hz		

	5.8GHz to 26.5GHz	-130dBm/Hz
	26.5GHz to 43.5GHz	-125dBm/Hz

NON-TEST INPUT/OUTPUT PORT REQUIREMENTS

External Reference Signal Input	Connector Type	BNC Female
	Input Frequency	10MHz±10ppm
	Input Level	Low Threshold Voltage:0.5V High Threshold Voltage:2.1V Input Level Range:0 to +5V
	Duty Cycle	40% to 60%
External Reference Signal Output	Connector Type	BNC Female
	Output Frequency	10MHz±2ppm
	Output Level	Low Level Voltage:0V High Level Voltage:5V
	Duty Cycle	40% to 60%
	Signal Type	TTL
External Trigger Input	Connector Type	BNC Female
	Input Level	Low Threshold Voltage:0.5V High Threshold Voltage:2.1V Input Level Range:0 to +5V
	Pulse Width	2µs
	Polarity	Positive or Negative
External Trigger Output	Connector Type	BNC Female
	Max Output Current	30mA
	Output Level	Low Level Voltage:0V High Level Voltage:5V
	Pulse Width	1µs
	Polarity	Positive or Negative

GENERAL AND ENVIRONMENT

Display	12.1 inch touch screen LCD(1280 X 800)
Operating Temperature	+5 °C to +40 °C
Error-Corrected Temperature Range	23 °C(±5 °C) with <1 °C deviation from calibration temperature
Operating Humidity	20% to 80% at wet bulb temperature <+29 °C (non-condensation)
Storage Temperature	-10 °C to +60 °C
Storage Humidity	20% to 90% at wet bulb temperature <+40 °C (non-condensation)
Dimensions	Unit with Handle:482.6mm W x 404mm D x 265.9mm H Unit without Handle: 482.6mm W x 380mm D x 265.9mm H
Weight	<26Kg
Power Requirements	90 to 264VAC, 47 to 63Hz
Power Consumption	<220W(maximum)

EMC	EN 61326-1:2005 EN 55011:2007 Group 1, Class A EN 61000-4-2:1995 +A2:2001 4kV CD/8kV AD EN 61000-4-3:2006 EN 61000-4-4:2004 EN 61000-4-5:2006 EN 61000-4-6:2007 3V, 0.15-80 MHz, 80% AM EN 61000-4-11:2004 0.5-300 cycle, 0%/70%
Safety	EN 61010-1:2001 Measurement Category I Pollution Degree 2 Indoor Use
Recommended Calibration Cycle	12 months
Warranty	36 months hardware 36 months software update

1. Using Cal Kit: MCK43A(2.4mm 50Ω) for full 2-port calibration. And IF bandwidth = 10 Hz, no averaging applied to data, environmental temperature= 23°C(±5°C) with < 1°C deviation from calibration temperature, isolation calibration performed.

2. User correction: OFF, system correction: ON

3. All specifications apply at 23 °C (±5 °C), unless otherwise stated, and 90 minutes after the instrument has been turned on.

Table 1.

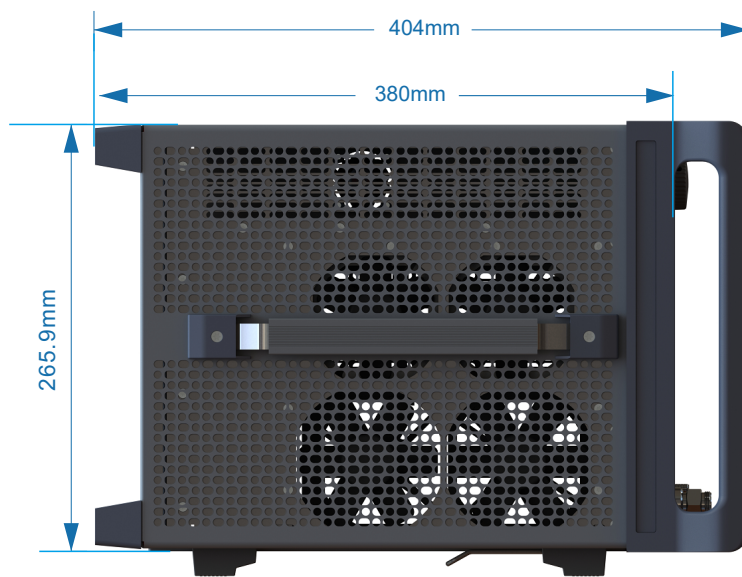
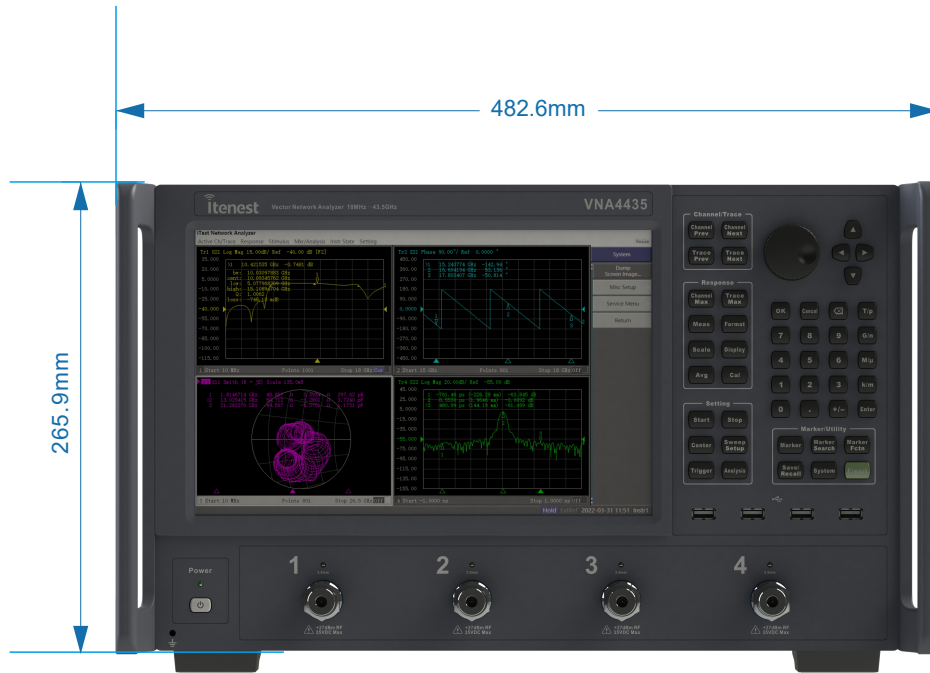
IFBW Nominal settings	10,15,20,30,40,50,70,100,150,200,300,400,500,700,1k,1.5k,2k,3k,4k,5k, 7k,10k,15k,20k,30k,40k,50k,70k,100k,150k,200k,300k,400k,500kHz,700 kHz,1MHz,1.5MHz
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MSW40 RF PERFORMANCE

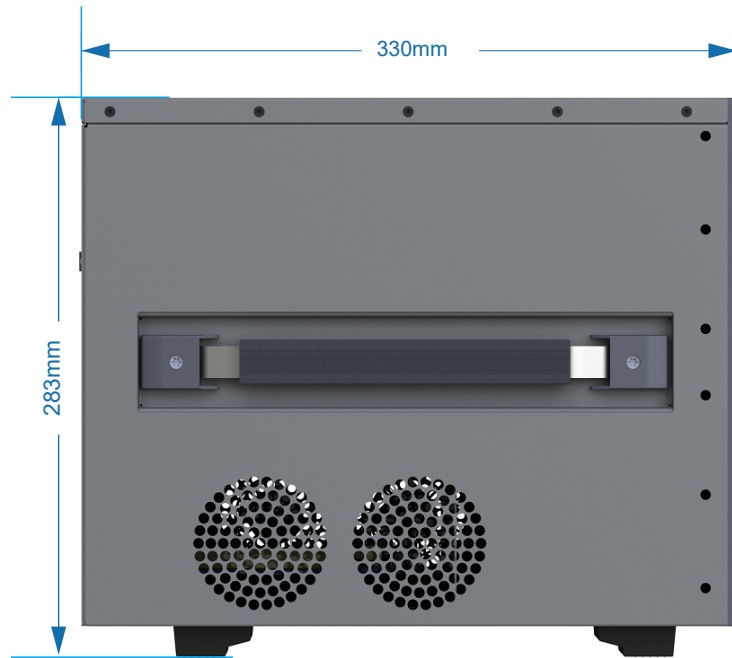
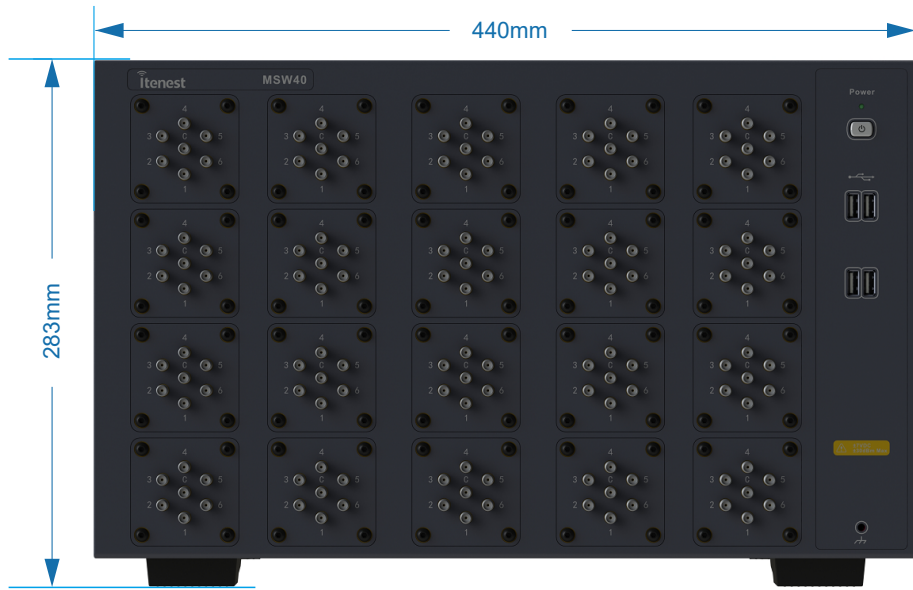
MEASUREMENT CAPABILITY	
Frequency Range	DC to 40GHz
Number of Test Ports	MSW40-64: Support 64 Ports Test(single Unit) MSW40-96: Support 96 Ports Test(single Unit) MSW40-128: Support 128 Ports Test(two stacked) MSW40-192: Support 192 Ports Test(two stacked)
Port Connector Type	2.92mm, Female
Port Impedance	50Ω
Damage RF Level	30dBm(termination mode)
Max DC Level	7V(termination mode)
SWITCH SPECIFICATION(Per Switch)	
Number Of Ways	6
VSWR	<1.95

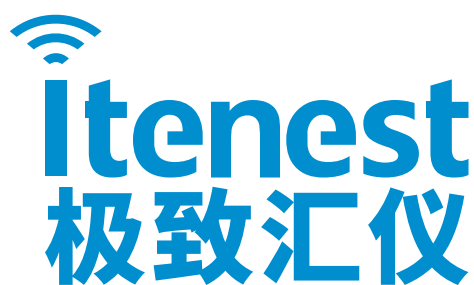
Insertion Loss	<1.1dB
Isolation	>65dB
Switching Time	<15ms
Life Time	5 million cycles
COMPUTER CONFIGURATION	
Operating System	Windows 10
CPU	Intel I3(standard)
Storage	256GB SSD(standard)
Memory	16GB(standard)
Support External I/O	HMDI/DP/USB/Ethernet
GENERAL AND ENVIRONMENT	
Operating Temperature	+15°C to +35°C (Recommend)
Operating Humidity	20% to 80% at wet bulb temperature <+29°C (non-condensation)
Storage Temperature	-10°C to +50°C
Storage Humidity	20% to 90% at wet bulb temperature <+40°C (non-condensation)
Dimensions	440mm W x 330mm D x 283mm H
Weight	<19Kg(Single Unit)
Power Requirements	90 to 264VAC, 47 to 63Hz
Power Consumption	<135W
Warranty	12 months

VNA4435



MSW40





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