

## Product Datasheet - Technical Specifications



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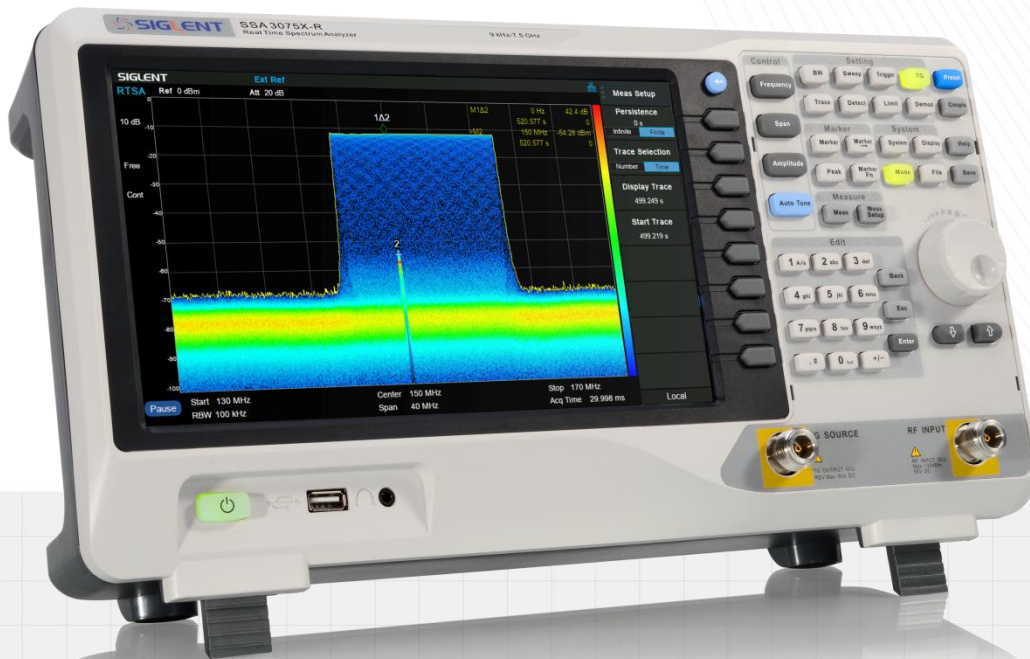
# SSA3000X-R



## Real-Time

## Spectrum Analyzer

DataSheet DS0703R\_E02A



SIGLENT TECHNOLOGIES CO.,LTD



## General Description

The SIGLENT SSA3000X-R real-time spectrum analyzers are powerful and flexible tools for complex RF spectrum, signal analysis and network analysis.

With a capability of 40 MHz analysis bandwidth and 7.2  $\mu$ s 100% POI, the analyzer can provide multi-dimensions data displays, advanced triggering, and RF data capturing, to solve modern RF spectrum challenges, like hopping frequency, conflict channel, spectrum interference, and analog/digital modulation analysis, EMI pre-compliance test. They also provide a 1-path-2-port vector network analyzer and a distance-to-fault locator for S-parameter measurement, cable and antenna testing.

Applications include broadcast monitoring/evaluation, cellular site, IoT, wLan and bluetooth, surveying, research and development, education, production, and maintenance.

## Features and Benefits

- ◆ Spectrum Analyzer Frequency Range from 9 kHz up to 7.5 GHz
- ◆ Vector Network Analyzer Frequency Range from 100 kHz up to 7.5 GHz
- ◆ -165 dBm/Hz Displayed Average Noise Level (Typ.)
- ◆ -98 dBc/Hz.@10 kHz Offset Phase Noise (1 GHz, Typ.)
- ◆ Level Measurement Uncertainty < 0.7 dB (Typ.)
- ◆ 1 Hz Minimum Resolution Bandwidth (RBW)
- ◆ Preamplifier and Tracking Generator Standard
- ◆ Up to 40 MHz Real Time Analysis Bandwidth (Opt.)
- ◆ 100% POI 7.20  $\mu$ s, Dynamic Range 60 dB, Multi-view for Density, Spectrogram, PvT and 3D
- ◆ Distance To Fault
- ◆ Advanced Measurement Kit (Opt.)
- ◆ Reflection Measurement Kit (Opt.)
- ◆ Modulation Analysis Mode (Opt.)
- ◆ EMI Measurement Mode (Opt.)
- ◆ 10.1 inch Multi-Touch Screen , Mouse and Keyboard supported
- ◆ Web Browser Remote Control on PC and Mobile Terminals and File Operation

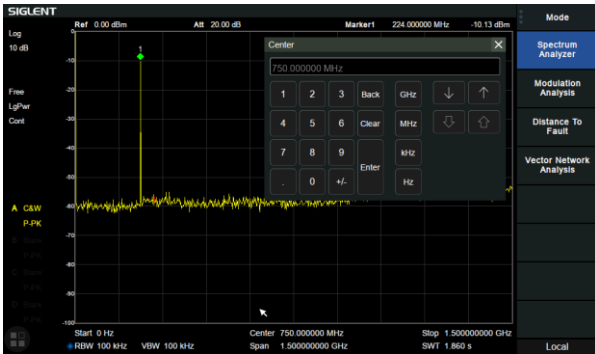
## Models and Main index

Model	SSA3032X-R	SSA3050X-R	SSA3075X-R
Frequency Range	9 kHz~3.2 GHz	9 kHz~5.0 GHz	9 kHz~7.5 GHz
Resolution Bandwidth	1 Hz~3 MHz	1 Hz~3 MHz	1 Hz~3 MHz
Displayed Average Noise Level	-165 dBm/Hz	-165 dBm/Hz	-165 dBm/Hz
SSB Phase Noise	<-98 dBc/Hz	<-98 dBc/Hz	<-98 dBc/Hz
Third-order intercept(TOI)	+14 dbm	+14 dbm	+14 dbm
Total Amplitude Accuracy	< 0.7 dB	< 0.7 dB	< 0.7 dB
Tracking Generator	100 kHz - 3.2 GHz	100 kHz - 5.0 GHz	100 kHz - 7.5 GHz
Real Time Band Width	25 MHz, 40 MHz (Option)		
SFDR	60 dB		
100% POI	7.20 $\mu$ s		
RTSA Measurement	Density, Spectrogram, 3D, PvT		
VNA measurement	Vector S11, Vector S21		
VNA Dynamic Range	90 dB		
Distance to Fault	Timing Domain Analysis Locator		
Touch Screen	Multi Touch, Mouse and Keyboard supported		
Advanced Measurement	CHP, ACPR, OBW, CNR, Harmonic, TOI, Monitor		
Modulation Analysis	AM, FM, ASK, FSK, MSK, PSK, QAM		
Reflection Measurement	VSWR measurement using Reflection Bridge		
EMI Measurement	EMI Filter and Quasi-Peak Detector, Log Scale and Limit Line		
Communication Interface	LAN, USB Device, USB Host (USB-GPIB)		
Remote Control Capability	SCPI/Labview/IVI based on USB-TMC/VXI-11/Socket/Telnet		
Remote Controller	NI-MAX, Web Browser, Easy Spectrum software, File Explorer		

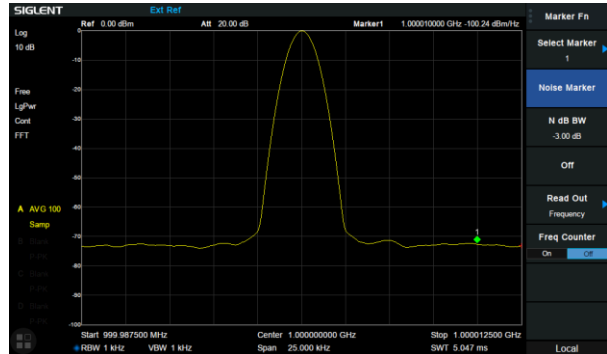
## Design Features

### Spectrum Analyzer Mode

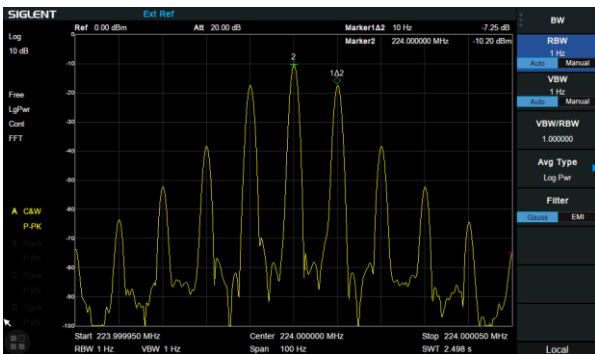
10.1 Inch Display with Multi-Touch Screen



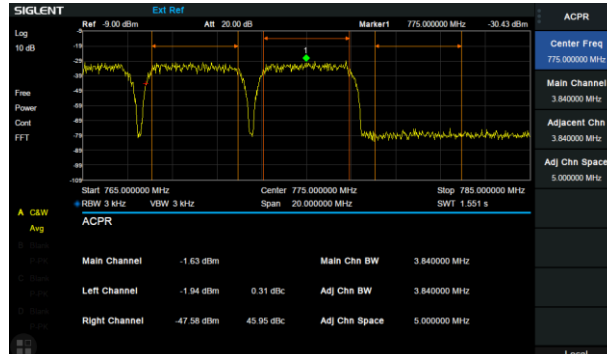
Phase noise  $< -98$  dBc/Hz@1 GHz



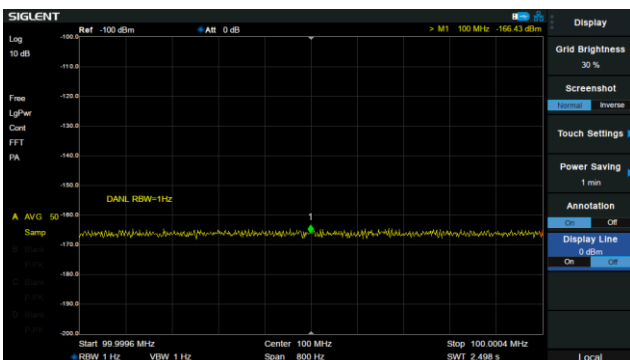
Minimum 1 Hz Resolution Bandwidth (RBW)



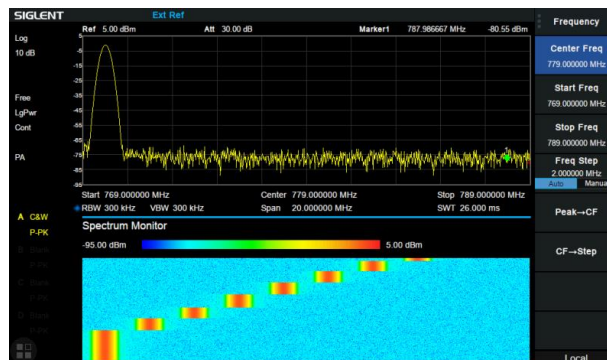
ACPR in Advanced Measurement Kit



-165 dBm/Hz Displayed Average Noise Level

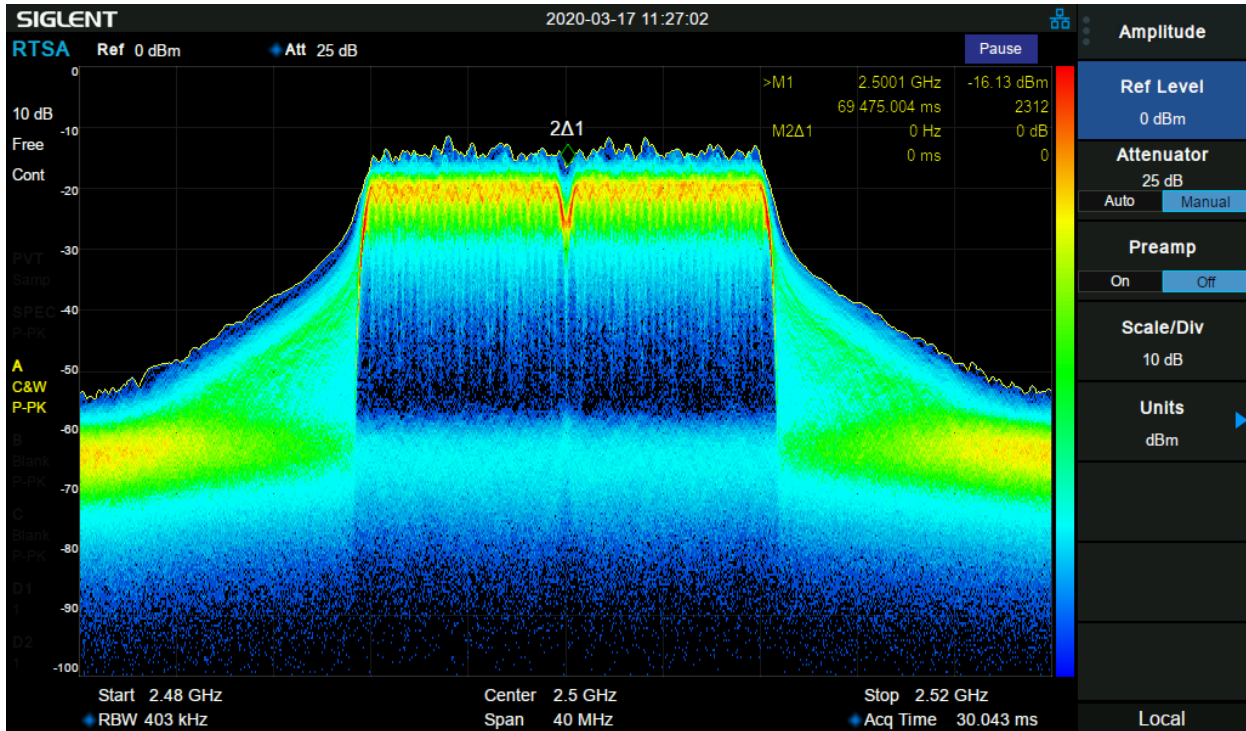


Monitor in Advanced Measurement Kit



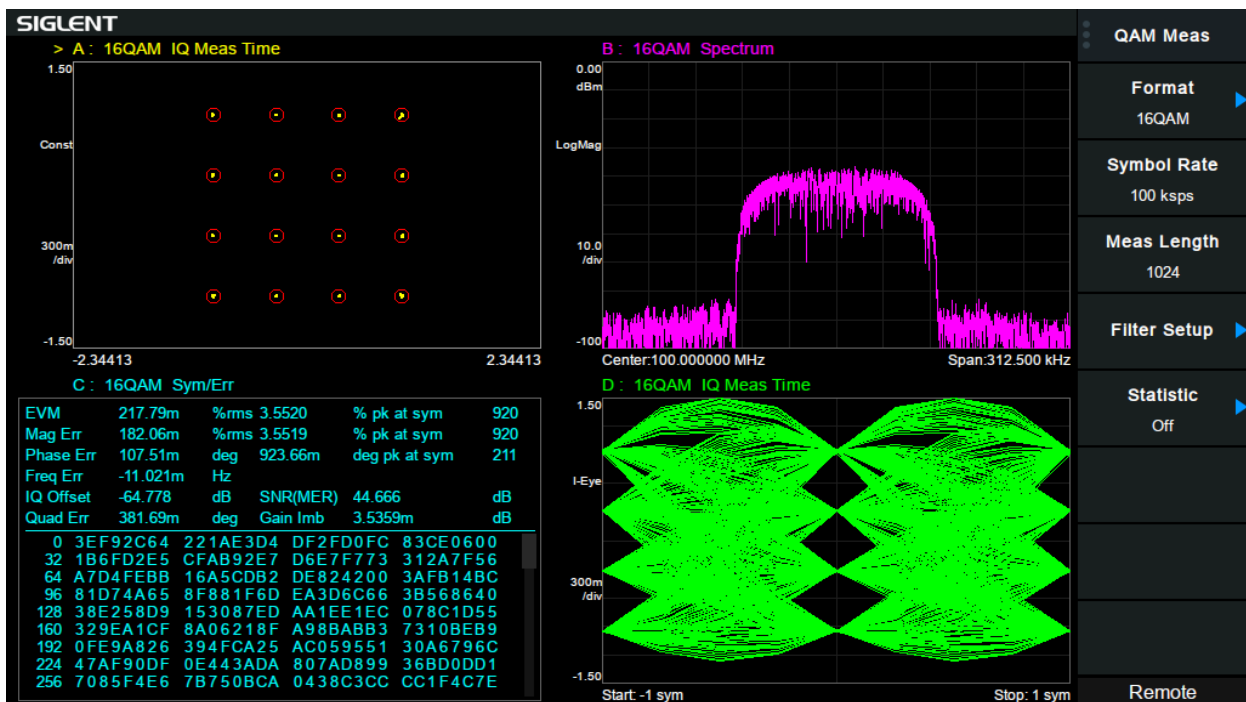
## Real Time Analysis Mode

Density,3D,Spectrogram,PvT,Multi-view and dimensions to monitor complex signals



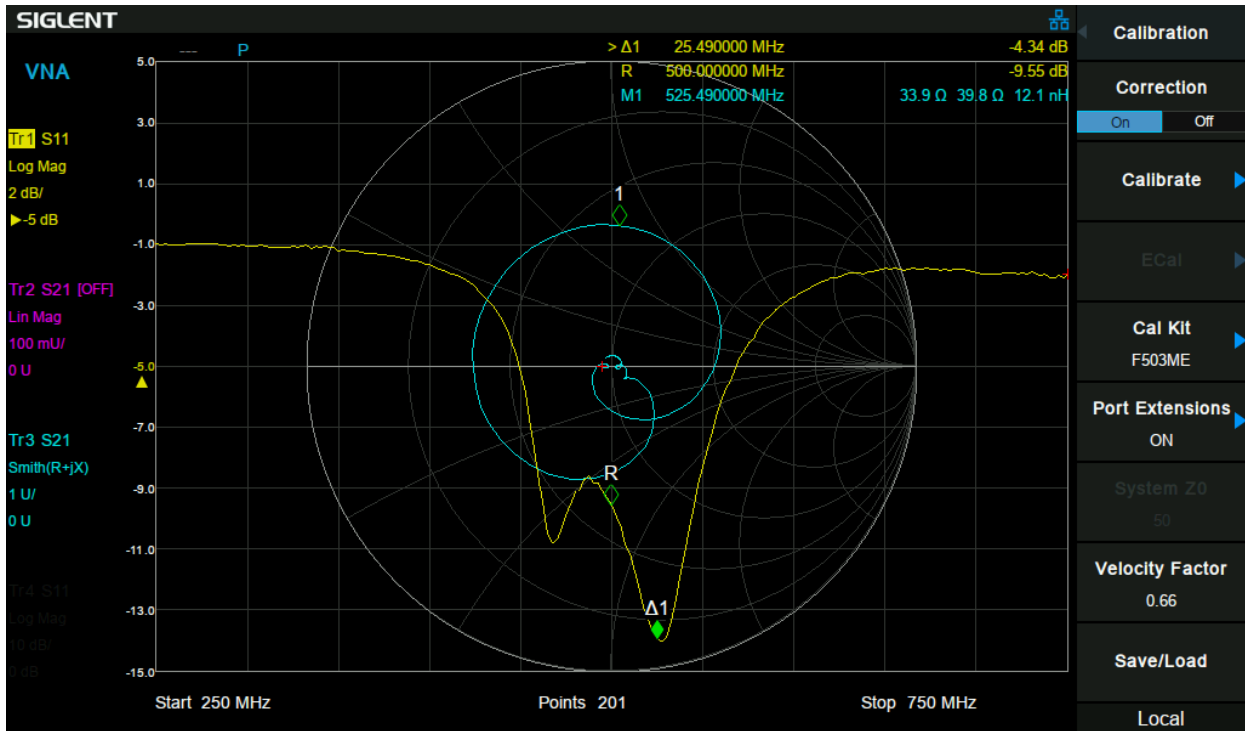
## Modulation Analysis Mode

AM/FM, ASK/FSK/PSK/MSK/QAM Vector Signal Modulation Analysis and EVM evaluation, and Data recording to PC. The analysis BW is same with real-time BW in RTSA mode



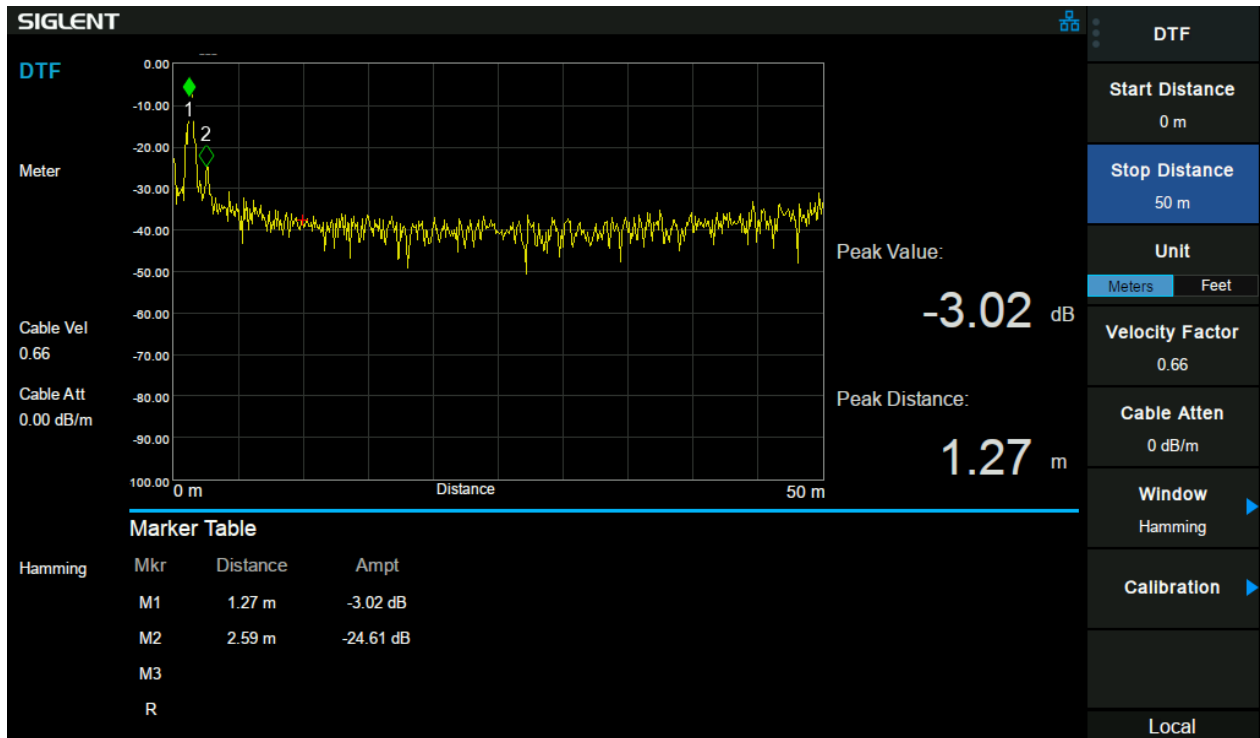
## Vector Network Analyzer Mode

100k-7.5GHz Vector S11 and S21 measurement, Multi Formats Overlay Display



## Distance To Falut Mode

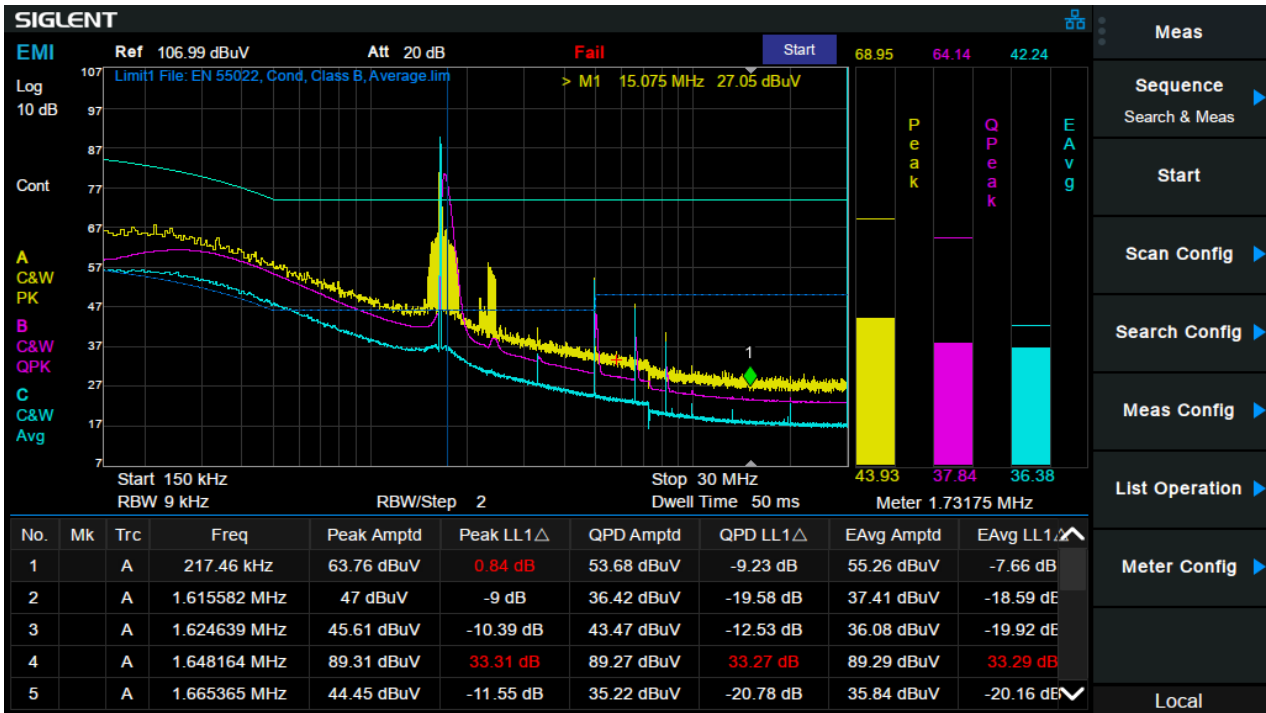
Cable and Antenna Test based on Timing Domain Analysis





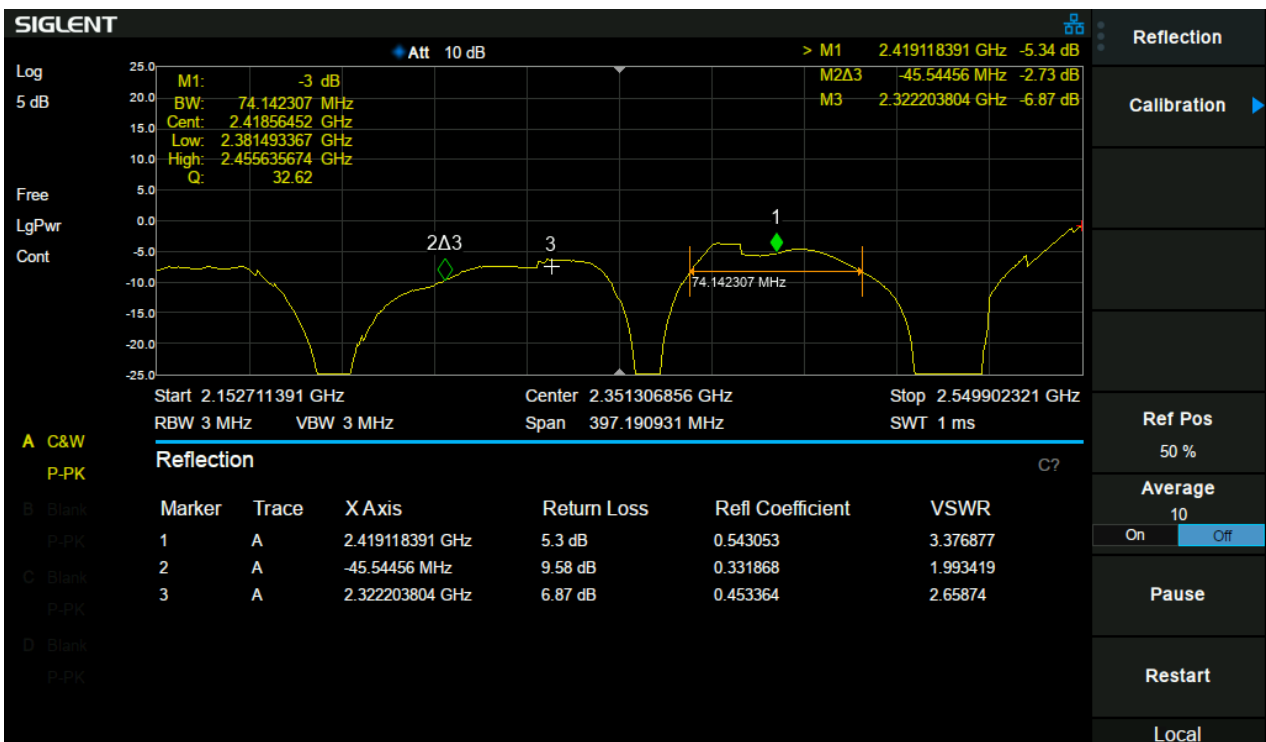
## EMI Measurement Mode

EMI Measurement with CISPR 16-1-1 EMI filter, Quasi-peak Detector, and pre-stored standards.



## Reflection Measurement

VSWR and Return Loss measurement with Q value calculation, using an external reflection bridge or coupler.



## Accessories

Utility Kit



Near Field Probe Set



USB-GPIB Adaptor



6U Rack Mount



Soft Carrying Bag



Reflection Bridge



Calibration Kit



## Specifications

Specifications are valid under the following conditions: The instrument is within the calibration period, has been stored between 0 and 50°C for at least 2 hours prior to use, and has been powered on and warmed up for at least 40 minutes. The specifications include the measurement uncertainty, unless otherwise noted.

**Specifications:** All products are guaranteed to meet published specifications when operating at room temperature (approximately 25°C), unless otherwise noted.

**Typical:** Performance deemed typical implies that 80 percent of the measurement results will meet the typical published performance with a 95th percentile confidence level at room temperature (approximately 25°C). Typical performance is not warranted and does not include measurement uncertainty.

**Nominal:** The expected performance or design attribute

## Spectrum Analyzer Mode

### Frequency and Time Characteristic

Frequency			
	SSA3032R	SSA3050X-R	SSA3075X-R
Frequency range	9 kHz~3.2 GHz	9 kHz~5.0 GHz	9 kHz~7.5 GHz
Frequency resolution	1 Hz		
Frequency Span			
Range	0 Hz, 100 Hz to Max Frequency		
Accuracy	$\pm \text{Span} / (\text{number of display points} - 1)$		

Internal Reference Source	
Reference frequency	10.000000 MHz
Reference frequency accuracy / uncertainty	$\pm [(\text{time since last adjustment} \times \text{frequency aging rate}) + \text{temperature stability} + \text{initial calibration accuracy}]$
Initial calibration accuracy	<1 ppm
Temperature stability	<1 ppm, 0 °C ~50 °C
Frequency aging rate	<0.5 ppm/first year, 3.0 ppm/20 years

Marker	
Marker resolution	$\text{Span} / (\text{number of display points} - 1)$
Marker uncertainty	$\pm [\text{frequency indication} \times \text{reference frequency uncertainty} + 1\% \times \text{span} + 10\% \times \text{resolution bandwidth} + \text{marker resolution}]$
Frequency Counter resolution	0.1 Hz

Bandwidths	
Resolution bandwidth (-3dB)	1 Hz ~ 3 MHz, in 1-3-10 sequence
Resolution filter shape factor	< 4.8 : 1 (60 dB:3 dB), Gaussian-like
RBW uncertainty	< 5%
Video bandwidth (-3dB)	1 Hz ~ 10 MHz, in 1-3-10 sequence
VBW uncertainty	< 5%

Sweep and Trigger	
Sweep time	1 ms to 7500 s
Sweep mode	RBW = 3k Hz ~ 3 MHz, Sweep RBW = 1 Hz ~ 10 kHz, FFT
Sweep rule	Single, Continuous
Trigger source	Free, Video, External
External trigger	5V TTL level, Rising edge/Falling edge

## Amplitude Accuracy and Range Specifications

<b>Amplitude and Level</b>	
Measurement range	DANL to +10 dBm, 100 kHz ~ 1 MHz, Preamp off DANL to +20 dBm, 1 MHz ~ 7.5 GHz, Preamp off
Reference level	-200 dBm to +30 dBm, 1 dB steps
Preamplifier	20 dB (nom.)
Input attenuation	0 ~ 50 dB, 1 dB steps
Maximum input DC voltage	+/- 50 Vdc
Maximum average power	30 dBm, 3 minutes, $f_c \geq 10$ MHz, att > 20 dBm, preamp off
Maximum damage level	33 dBm, $f_c \geq 10$ MHz, att > 20 dBm, preamp off

<b>Level Display</b>	
Logarithmic level axis	1 dB to 200 dB
Linear level axis	0 to reference level, 0% to 100%
Units of level axis	dBm, dBmV, dB $\mu$ V, dB $\mu$ A, Volt, Watt
Number of display points	751
Number of traces	4
Trace detectors	Positive-peak, Negative-peak, Sample, Normal, Average(Voltage/RMS/Video)
Trace functions	Clear write, Max Hold, Min Hold, View, Blank, Average, Math

<b>SSB Phase Noise</b>	
Offset	20 °C to 30 °C, $f_c = 1$ GHz, Normalized to 1 Hz
10 kHz	-96 dBc/Hz, -98 dBc/Hz (typ.)
100 kHz	-95 dBc/Hz, -97 dBc/Hz (typ.)
1 MHz	-112 dBc/Hz, -114 dBc/Hz (typ.)

### Displayed Average Noise Level (DANL)

	SSA3032X-R	SSA3050X-R	SSA3075X-R	
20 °C to 30 °C, att = 0 dB, RBW = 1 Hz, sample detector, trace average > 50, TG off				
Preamp off	100 kHz ~1 MHz	-105 dBm, -109 dBm (typ.)	-105 dBm, -109 dBm (typ.)	
	1 MHz~10 MHz	-122 dBm, -126 dBm (typ.)	-122 dBm, -126 dBm (typ.)	
	10 MHz~200 MHz	-142 dBm, -146 dBm (typ.)	-142 dBm, -146 dBm (typ.)	
	200 MHz~1.5 GHz	-142 dBm, -147 dBm (typ.)	-142 dBm, -147 dBm (typ.)	
	1.5 GHz~3.2 GHz	-140 dBm, -145 dBm (typ.)	-140 dBm, -145 dBm (typ.)	
	3.2 GHz~5.0 GHz		-137 dBm, -143 dBm (typ.)	
	5.0 GHz~6.5 GHz		-136 dBm, -141 dBm (typ.)	
	6.5 GHz~7.5 GHz		-134 dBm, -139 dBm (typ.)	
	100 kHz ~1 MHz	-133 dBm, -136 dBm (typ.)	-133 dBm, -136 dBm (typ.)	-133 dBm, -136 dBm (typ.)
	1 MHz~10 MHz	-151 dBm, -154 dBm (typ.)	-151 dBm, -154 dBm (typ.)	-151 dBm, -154 dBm (typ.)
Preamp on	10 MHz~200 MHz	-161 dBm, -165 dBm (typ.)	-161 dBm, -165 dBm (typ.)	
	200 MHz~1.5 GHz	-159 dBm, -163 dBm (typ.)	-159 dBm, -163 dBm (typ.)	
	1.5 GHz~3.2 GHz	-159 dBm, -162 dBm (typ.)	-159 dBm, -162 dBm (typ.)	-159 dBm, -162 dBm (typ.)
	3.2 GHz~5.0 GHz		-157 dBm, -161 dBm (typ.)	-157 dBm, -161 dBm (typ.)
	5.0 GHz~6.5 GHz		-157 dBm, -160 dBm (typ.)	-157 dBm, -160 dBm (typ.)
	6.5 GHz~7.5 GHz		-155 dBm, -159 dBm (typ.)	-155 dBm, -159 dBm (typ.)

### Frequency Response

	20 °C to 30 °C, 30% to 70% relative humidity, att = 20 dB, relative to 50 MHz
Preamp off	±0.8 dB, ±0.4 dB (typ.)
Preamp on	±1.2 dB, ±0.6 dB (typ.)

### Error and Accuracy

Resolution bandwidth switching uncertainty	Logarithmic resolution, relative to RBW = 10 kHz ± 0.2 dB (nom.)
Input attenuation switching uncertainty	20 °C to 30 °C, fc = 50 MHz, preamp off, relative to att = 20 dB ± 0.5 dB
Absolute amplitude accuracy	20 °C to 30 °C, fc = 50 MHz, RBW = VBW = 1 kHz, att = 20 dB, peak detector, 95% reliability ±0.4 dB, input signal -20 dBm, Preamp off ±0.6 dB, input signal -40 dBm, Preamp on
Total amplitude accuracy	20 °C to 30 °C, fc>100 kHz, input signal -50 dBm ~ 0 dBm, att = 20 dB, RBW=VBW=1 kHz, peak detector, preamp off, 95% reliability ±0.7 dB
RF input VSWR	Att = 10 dB, 1 MHz~7.5 GHz <1.5 (nom.)

### Distortion and Spurious Responses

Second harmonic distortion (SHI)	20 °C to 30 °C, fc ≥ 50 MHz, mixer level -20 dBm, att = 0 dB, preamp off -65 dBc / +45 dBm (nom.)
Third-order intercept (TOI)	20 °C to 30 °C, fc ≥ 50 MHz, two -20 dBm tones spaced by 100 kHz, att = 0 dB, preamp off +14 dBm (typ.)
1dB gain compression	20 °C to 30 °C, fc ≥ 50 MHz, att = 0 dB, preamp off > 0 dBm (nom.)
Residual response	20 °C to 30 °C, input terminated = 50 Ω, att = 0 dB < -90 dBm
Input related spurious	20 °C to 30 °C, mixer level = -30 dBm <-65 dBc

## Tracking Generator

### Frequency Parameter

	SSA3032X-R	SSA3050X-R	SSA3075X-R
Frequency Range	100 kHz ~ 3.2 GHz	100 kHz ~ 5.0 GHz	100 kHz ~ 7.5 GHz
Frequency Resolution	1 Hz, Zero Span		
RBW, sweep mode	3 kHz ~ 3 MHz		

### Power Parameter

Output level	-40 dBm ~ 0 dBm		
Output level resolution	1 dB		
Output flatness	+/-3 dB (nom.)		
Normalization Trace	Ref A/B/C/D->Ref trace		
VSWR	< 2 (nom.)		
Connector and Impedence	N-type female, 50 Ω		
Average safe reverse power	Total : 30 dBm (1 W)		
Maximum safe reverse level	Voltage: ±50 V <sub>DC</sub>		

## Advanced Measurement Kit

### Power Measurement

CHP, Channel Power	Channel Power, Power Spectral Density
ACPR, Adjacent Channel Power Ratio	Main CH Power, Left channel power, Right channel power
OBW, Occupied Bandwidth	Occupied Bandwidth, Transmit Frequency Error
T-Power, Time Domain Power	Zero Span Integrated Power
CNR, Carrier Noise Ratio	C/N, Noise Power

### Non-Linear Measurement

Harmonic measurement	Max Harmonic number 10
TOI, Third-Order Intercept	Measure the third-order products from two tones

### Spectrum Monitor Measurement

Spectrogram
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## Reflection Measurement

### Stimulus and Measurement

	SSA3032X-R	SSA3050X-R	SSA3075X-R
Frequency Range	100 kHz ~ 3.2 GHz	100 kHz ~ 5.0 GHz	100 kHz~7.5 GHz
RBW	3k Hz ~ 1 MHz		
Stimulus Power	-40 ~ 0 dBm		
Format	VSWR, Return Loss, Reflection Coefficient		
Calibration	Open, Open + Short, Open + Load		
Marker Function	N dB BW, Q measurement		



## Real-Time Spectrum Analyzer Mode

Frequency and Time			
Real-Time Bandwidth	25 MHz (Default)		
	40 MHz (Option SSA3000XR-RT40)		
100% POI Minimum	Full Span, Kaiser Window, Frequency Mask Triggering at full amplitude accuracy		
Signal Duration	7.20 $\mu$ s		
Measurement view	Density	30 ms ~ 50 s	
	3D+Spectrogram	30 ms ~ 50 s	
	Spectrogram	100 us ~ 50 s	
	PvT+Spectrum	100 us ~ 50 s	
Points	800		
MAX Sample rate	51.2 MHz		
FFT	150 000(40 MHz analysis BW)		
Marker	8		
Span min	5 kHz		
Window	Kaiser(Default), Hanning, Flattop, Gaussian, Blackman-Harris, Rectangular		
RBW	Any SPAN, six RBW for every window (only one for Rectangular), default min RBW. Typical RBW for Kaiser :		
	Span	RBW min	RBW MAX
	40 MHz	100.43 kHz	3.3142 MHz
	20 MHz	50.21 kHz	1.657 MHz
	10 MHz	25.11 kHz	828.55 kHz
	1 MHz	2.51 kHz	82.85 kHz
	100 kHz	251 Hz	8.285 kHz
Spectrogram / PvT Maximum stored	50 000 (Loop store)		

Different RBW and span, 100% POI ( $\mu$ s)						
Analysis BW	RBW1	RBW2	RBW3	RBW4	RBW5	RBW6
40 MHz	26.56	16.56	11.56	9.06	7.81	7.20
20 MHz	46.56	26.56	16.56	11.56	9.06	7.81
10 MHz	86.56	46.56	26.56	16.56	11.56	9.06
1 MHz	806.56	406.56	206.56	106.56	56.56	31.56

<b>Different window length for RBW</b>						
Length\Type	1024	512	256	128	64	32
Kaiser(Beta=12)	398.2849	198.9478	99.2793	49.4450	24.5279	12.0693
Hanning	533.4785	266.4785	132.9785	66.2285	32.8535	16.1660
Flattop	212.2447	106.0182	52.9050	26.3483	13.0700	6.4309
Gaussian(alpha=3.5)	404.8707	202.2399	100.9244	50.2666	24.9376	12.2729
Blackman-Harris	399.2401	199.4250	99.5174	49.5636	24.5868	12.0983
Rectangular	801	400.5000	200.2500	100.1250	50.0625	25.0313

<b>Amplitude Accuracy and Range</b>		
Detector	+Peak, -Peak, Sample, Average	
Trace	3	
Spectrum Density Display	0~100% (resolution 0.1%)	
Dynamic range for Spectrogram	200 dB	
Amplitude	Flatness	< 0.4 dB
	Resolution	0.01 dB
	Dynamic range	< 60 dB
Trigger	Free Run, PvT, External	
Frequency Mask Trigger (FMT)	Source	Traces
	Type	Greater Than, Less Than, Outside Mask, Inside Mask
	Actions	Stop, Beep
Colour Mode	Warm(Default), Cool, Gray	

## Modulation Analyzer Mode

Common Parameter			
	SSA3032X-R	SSA3050X-R	SSA3075X-R
Frequency Range	2 MHz ~ 3.2 GHz	2 MHz ~ 5.0 GHz	2 MHz ~ 7.5 GHz
Carrier Power Accuracy	±2 dB (nom.)		
Carrier Power Range	-30 dBm to +20 dBm (nom.)		

Recording	
Data Packing	I = Q = 4 Byte
Memory	60 MByte
Length (IQ pairs)	7.5 MSample (60MB/8B)
Length (Time units)	Samples / (Span x 1.25)
PC Software	Analysis and Playback in Easy VSA Software
Playback	Easy VSA, Easy IQ or SSG5000X signal generator

## Analog Modulation Analysis

AM		
Modulation rate range	20 Hz to 100 kHz	
Accuracy	1 Hz (nom.)	Modulation rate < 1 kHz
	< 0.1% modulation rate (nom.)	Modulation rate ≥ 1 kHz
Modulation depth range	5% to 95%	
Accuracy	±4% (nom.)	
FM		
Modulation rate range	20 Hz to 200 kHz	
Accuracy	1 Hz (nom.)	Modulation rate < 1 kHz
	< 0.1% modulation rate (nom.)	Modulation rate ≥ 1 kHz
Frequency deviation	1 kHz to 400 kHz	
Accuracy	±4% (nom.)	

## Digital Modulation Analysis

Measurement	
Modulation Type (The analysis BW is same with real-time BW in RTSA mode)	ASK: 2ASK; FSK: 2,4,8,16 level; MSK: GMSK; PSK: BPSK,QPSK,OQPSK,8PSK; DPSK: DBPSK, DQPSK, D8PSK, $\pi/4$ -DQPSK, $\pi/8$ -D8PSK; QAM: 16,32,64,128,256
Meas Length	16 to 4096
Points/Symbol	4,6,8,10,12,14,16
Symbol Rate	1 ksps to 25 Msps, Symbol Rate* Points/Symbol <=150 Msps
Filter	
Meas/Ref Filter	Nyquist, Squrt Nyquist, Gauss, Half Sine, Rectangular
Length	2 to 128
Alpha/BT	Alpha 0.01~1, BT 0.01~10
Trace	
Trace Data	IQ Meas Time, IQ Meas Spectrum, IQ Ref Time, IQ Ref Spectrum, Time, Spectrum, Symbol Error Chart, Err Vector Time, Err Vector Spectrum, IQ Mag Err, IQ Phase Err
Layout	Single, Stacked 2, Grid 1 2, Grid 2*2
Trace Formats	Log mag, Lin mag, Real, Imag, I-Q, Constellation, I-eye, Q-eye, Wrap Phase, Unwrap Phase, Trellis eye
Symbol Error Chart	
PSK/DPSK/MSK/QAM	EVM (rms EVM, peak EVM), Magnitude error, Phase error, IQ offset, Carrier offset, SNR Quadrature error, Gain imbalance(not support for MSK)
ASK	ASK Error, ASK depth, carrier offset
FSK	FSK Error, Magnitude error, FSK deviation, carrier offset

## Vector Network Analyzer Mode

Stimulus and Measurement				
		SSA3032X-R	SSA3050X-R	SSA3075X-R
Frequency Range		100 kHz ~ 3.2 GHz	100 kHz ~ 5.0 GHz	100 kHz ~ 7.5 GHz
Measurement		S11, S21		
IFBW		10 kHz		
Port1 Stimulus Power		0 dBm (nom.)		
Format		Lin Mag, Log Mag, Phase, Group Delay, SWR, Smith Chart (Lin/Phase, Log/Phase, Real/Imag, R+j*X, G+j*B), Polar Chart (Lin/Phase, Log/Phase, Real/Imag)		
Sweep Points		101~751, default 201		
Trace		4 traces, Mem, Math, Hold, Overlay		
Marker		(6+Ref)* 4 traces		
Calibration				
Directivity of Calibration		S11, Log mag, Average=50, >50MHz > 40 dB		
Dynamic Range		S21, IFBW=10 kHz, Port1 level=-5 dBm, Log Mag, Average=50		
	100 kHz ~ 10 MHz	60 dB (typ.)	60 dB (typ.)	60 dB (typ.)
	10 MHz ~ 1.5 GHz	90 dB (typ.)	90 dB (typ.)	90 dB (typ.)
	1.5 GHz ~ 3.2 GHz	90 dB (typ.)	90 dB (typ.)	90 dB (typ.)
	3.2 GHz ~ 7.5 GHz		80 dB (typ.)	80 dB (typ.)
Trace Noise		10 kHz RBW, Log mag, Average = 50, >10MHz 0.1 dB		
Calibration Type		Short Response		
		Open Response		
		Full 1-Port(OSL)		
		Response Through Enhanced Response		
Mechanical Calibration Kit		F503ME, F503FE, F603ME, F603FE, F504MS, F504FS, F604MS, F604FS, 85032B\E, 85033E, 85032F, User Cal Kit		
Port Extensions		Port 1, Port 2, Auto Open Port 1		
System Z0		50 Ω		
Velocity Factor		0.1~1		

## Distance to Fault Mode

Measurement	SSA3032X-R	SSA3050X-R	SSA3075X-R
Frequency Range	100 kHz ~ 3.2 GHz	100 kHz ~ 5.0 GHz	100 kHz ~ 7.5 GHz
Maximum Distance (meters)	$(76800 \times \text{Velocity Factor}) / (\text{Stop Freq} - \text{Start Freq (MHz)})$		
Resolution (meters)	$(150 \times \text{Velocity Factor}) / (\text{Stop Freq} - \text{Start Freq (MHz)})$		
Windows	Rectangular, Hamming		
Calibration	Full 1-Port (OSL)		
Velocity Factor	0.1~1		

## EMI Measurement Mode

Measurement	
Measurement View	Frequency scan, Meter, Signal list
Pre-compliance Sequence	Scan, Search, Meas
EMI filter RBW (-6dB)	200 Hz, 9 kHz, 120 kHz, 1MHz(following CISPR 16-1-1)
RBW uncertainty	< 5%
Detector	Peak, Voltage Average, Quasi-Peak(following CISPR 16-1-1)
Dwell time	0 us ~ 10 s
RBW/Steps	0.1, 0.3, 0.5, 1, 2, 3
Corrections	4
Limit and Trace	3
Limit Standards	EN550xx, GB9254, FCC Part15, User defined
Attenuator	0-50 dB
Report	Signal List
Frequency scale	Linear, Logarithmic

## Inputs and Outputs

<b>Front Panel</b>	
RF input, Port 2	N-type female, 50 $\Omega$ (nom.)
TG Source, Port 1	N-type female, 50 $\Omega$ (nom.)
USB host	USB-A plug, version 2.0
Ear Phone Jack	3.5 mm
<b>Rear Panel</b>	
USB device	USB-B plug, version 2.0
LAN	10/100 Base, RJ-45
10 MHz reference output	10 MHz, >0 dBm, BNC-type female, 50 $\Omega$ (nom.)
10 MHz reference input	10 MHz, -5 to +10 dBm, BNC-type female, 50 $\Omega$ (nom.)
External trigger input	5V TTL level, BNC-type female, 10 k $\Omega$
<b>Remote Control</b>	
Communication Interface	LAN, USB Device, USB Host (USB-GPIB adaptor)
	SCPI / Labview / IVI based on USB-TMC / VXI-11 / Socket / Telnet; NI-MAX;
Remote Control Capability	Web Browser (HTML 5 Supported); Easy Spectrum software; File Explorer (FTP)



## General Specification

<b>Structure</b>	
Dimensions	393 mm × 207 mm × 116.5 mm (W×H×D)
Weight	Net: 4.70 kg (10 lb); Shipping: 5.50 kg
Display	TFT LCD, 1024 × 600, 10.1 inch capacitive multi-touch screen
Storage	Internal (Flash) 256 MB, external (USB storage device) 32 GB
<b>Working Environment</b>	
Source	AC voltage range: 100-240 V, 50/60 Hz or 100-120 V 400 Hz; Power consumption: 70 W (MAX)
Temperature	Working temperature: 0 °C to 40 °C, Storage temperature: -20 °C to 70 °C
Humidity	0 °C to 30 °C, ≤ 95% Relative humidity 30 °C to 50 °C, ≤ 75% Relative humidity
Altitude	Operating: less than 3 km
<b>Electromagnetic Compatibility</b>	
EN 61326-1: 2013 / EN 61000-3-2: 2014	Class A(The active input power of the EUT is less than 75 W. According to EN 61000-3-2, no limits are necessary.)
EN 61000-3-3: 2013	Plt: 0.65 Pst: 1.00, dmax: 4.00 %, dc: 3.00 %; dt Lim: 3.30 % dt>Lim: 500ms
IEC 61000-4-2: 2008	AD ±8.0 kV, CD ±4.0 kV
IEC 61000-4-3: 2006 + A1: 2007 + A2: 2010	80 MHz to 1000 MHz: 10V/m, 1.4 GHz to 2.0 GHz:3 V/m, 2.0 GHz to 2.7 GHz:1V/m
IEC 61000-4-4: 2004 + A1: 2010	AC Line: ±2.00 kV
IEC 61000-4-5: 2005	Line to Line: 1.0 kV, Line to Earth: 2.0 kV
IEC 61000-4-6: 2008	0.15-80 MHz:3 V 1 KHz 80% AM
IEC 61000-4-8: 2009	30 A/m, 50/60 Hz
IEC 61000-4-11: 2004	Voltage Dips:0%/0.5P; 40%/10P; 70%/25P; Short Interruptions Test Level % UT: 0%/250P
<b>Safety</b>	
IEC 61010-1:2010/EN 61010-1:2010	
CAN/CSA-C22.2 No.61010-1:2012, CAN/CSA-C22.2 No.61010-2-30:2012, UL 61010-1:2012, UL 61010-2-30:2012	
<b>RoHS</b>	
2011/65/EU	

## Ordering Information

Product	Description	Order Number
Product Code	Real Time Spectrum Analyzer, 9 kHz ~ 3.2 GHz, Preamp and TG standard, VNA standard	SSA3032X-R
	Real Time Spectrum Analyzer, 9 kHz ~ 5.0 GHz, Preamp and TG standard, VNA standard	SSA3050X-R
	Real Time Spectrum Analyzer, 9 kHz ~ 7.5 GHz, Preamp and TG standard, VNA standard	SSA3075X-R
Standard Accessories	Quick Start, USB Cable, Power Cord	
	Advanced Measurement Kit	SSA3000XR-AMK
Common Options and Accessories	Utility Kit: N(M)-SMA(M) cable(6 GHz), N(M)-N(M) cable(6 GHz), N(M)-BNC(F) adaptor x2, N(M)-SMA(F) adaptor x2, 10 dB 1W attenuator	UKitSSA3X
	N(M)-SMA(M) cable, 70cm, 6 GHz	N-SMA-6L
	N(M)-N(M) cable, 70cm, 6 GHz	N-N-6L
	N(M)-BNC(M) cable, 70cm, 2 GHz	N-BNC-2L
	N(M)-SMA(M) cable, 100cm, 18 GHz	N-SMA-18L
	N(M)-N(M) cable, 100cm, 18 GHz	N-N-18L
	USB-GPIB Adaptor	USB-GPIB
	Soft carrying bag	BAG-S2
	6U Rack Mount Kit	SSA-RMK
	Real-Time Options	40 MHz Real-Time BandWidth
VNA Options	N type Economic Calibration Kit, DC~4.5GHz, 50 Ω	F503ME
	N type Economic Calibration Kit, DC~4.5GHz, 50 Ω	F503FE
	3.5mm type Economic Calibration Kit, DC~4.5GHz, 50 Ω	F603ME
	3.5mm type Economic Calibration Kit, DC~4.5GHz, 50 Ω	F603FE
	N type Standard Calibration Kit, DC~9GHz, 50 Ω	F504MS
	N type Standard Calibration Kit, DC~9GHz, 50 Ω	F504FS
	3.5mm type Standard Calibration Kit, DC~9GHz, 50 Ω	F604MS
	3.5mm type Standard Calibration Kit, DC~9GHz, 50 Ω	F604FS
Reflection Measurement Options	Reflection Measurement	SSA3000-RefI
	Reflection Bridge(1 MHz ~ 2.5 GHz)	RB3X25
EMI Measurement Options	EMI Measurement Mode	SSA3000XR-EMI
	300 kHz~3 GHz Near Field Probe Kit: 3 H-probes (20/10/5 mm), 1 E-probe (5 mm)	SRF5030T
Modulation Analysis Options	Analog Modulation Analysis: AM, FM	SSA3000XR-AMA
	Digital Modulation Analysis: ASK, FSK, MSK, PSK, QAM	SSA3000XR-WDMA
	Easy VSA Software	EasyVSA