# SSA3000X Plus

# Spectrum Analyzer

**DataSheet** DS0703P_E02A


SIGLENT TECHNOLOGIES CO.,LTD

## General Description

The SIGLENT SSA3000X Plus series spectrum analyzers are powerful and flexible tools for RF signal and network analysis. With a frequency range to 7.5 GHz, the analyzer delivers reliable automatic measurements and multiple modes of operation: spectrum analyzer the base, optional functions include RF power measurement, vector signal modulation analysis, reflection measurement, and EMI test.

Applications include broadcast monitoring/evaluation, site surveying, S-parameter measurement, analog/digital modulation analysis, EMI pre-compliance test, research and development, education, production, and maintenance.

### Features and Benefits

- Spectrum Analyzer Frequency Range from 9 kHz up to 2.1 GHz / 3.2 GHz / 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 Standard
- Tracking Generator (Opt.)
- Analog and Digital Signal Modulation Analysis Mode (Opt.)
- Reflection Measurement Kit (Opt.)
- EMI Filter and Quasi-Peak Detector Kit(Opt.)
- Advanced Measurement Kit (Opt.)
- 10.1 Inch Multi-Touch Screen , Mouse and Keyboard supported
- Web Browser Remote Control on PC and Mobile Terminals and File Operation

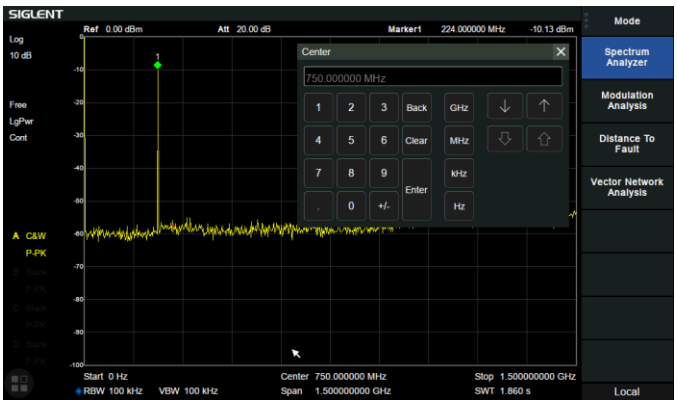
## Models and Main index

| Model | SSA3021X Plus | SSA3032X Plus | SSA3075X Plus |
|---|---|---|---|
| Frequency Range | 9 kHz ~ 2.1 GHz | 9 kHz~3.2 GHz | 9 kHz~7.5 GHz |
| Resolution Bandwidth | 1 Hz~1 MHz | 1 Hz~1 MHz | 1 Hz~3 MHz |
| Displayed Average Noise Level | -161 dBm/Hz | -161 dBm/Hz | -165 dBm/Hz |
| SSB Phase Noise | < -98 dBc/Hz | <-98 dBc/Hz | <-98 dBc/Hz |
| Total Amplitude Accuracy | < 0.7 dB | < 0.7 dB | < 0.7 dB |
| Tracking Generator | 100 kHz ~ 2.1 GHz | 100 kHz~3.2 GHz | 100 kHz~7.5 GHz |
| Touch Screen | Multi Touch, Mouse and Keyboard supported | | |
| Advanced Measurement | CHP, ACPR, OBW, CNR, Harmonic, TOI, Monitor | | |
| Reflection Measurement | VSWR measurement using Reflection Bridge | | |
| EMI Test | EMI Filter and Quasi-Peak Detector, Log Scale and Limit Line | | |
| Modulation Analysis | AM, FM; ASK, FSK, MSK, PSK, QAM | | |
| 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 | | |

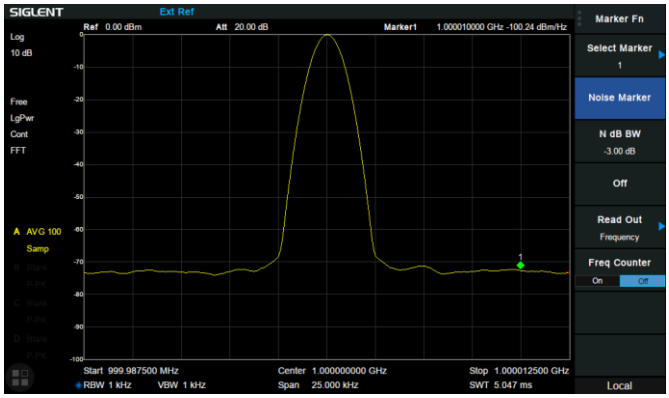
# Design Features

## Spectrum Analyzer Mode

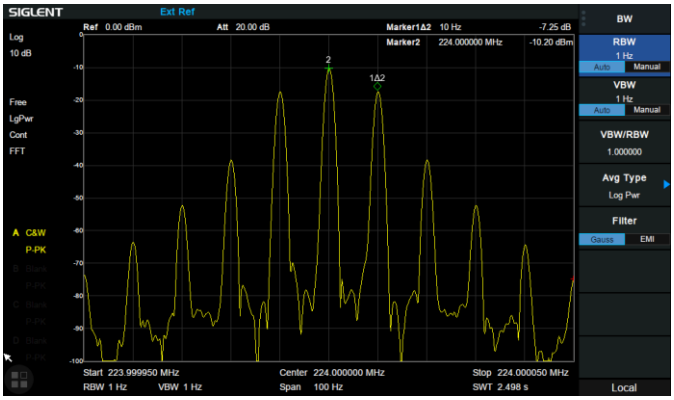
10.1 Inch Display with Multi-Touch Screen



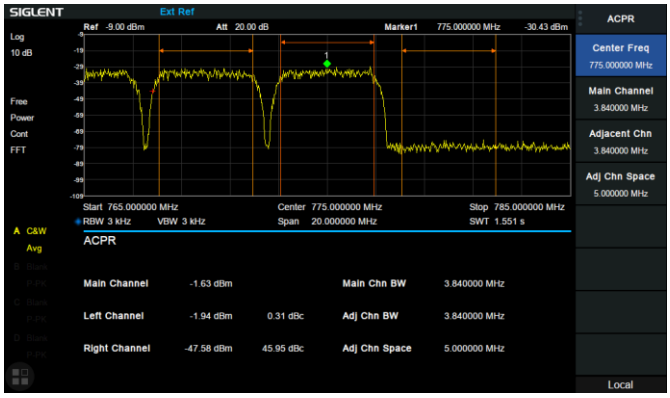

Phase noise <-98 dBc/Hz@1 GHz



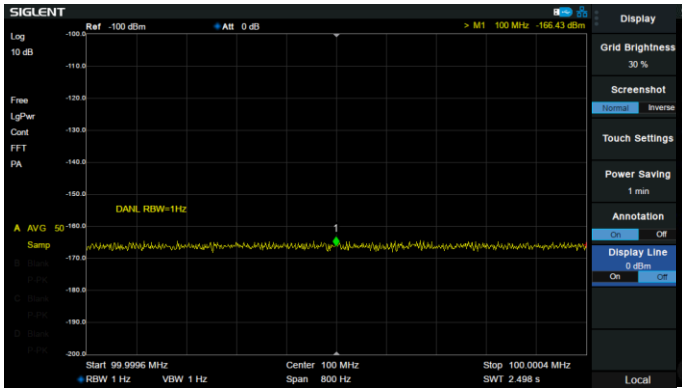

Minimum 1 Hz Resolution Bandwidth (RBW)



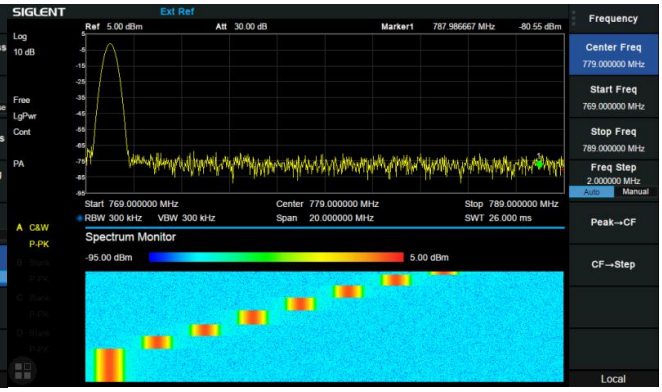

ACPR in Advanced Measurement Kit




-165 dBm/Hz Displayed Average Noise Level

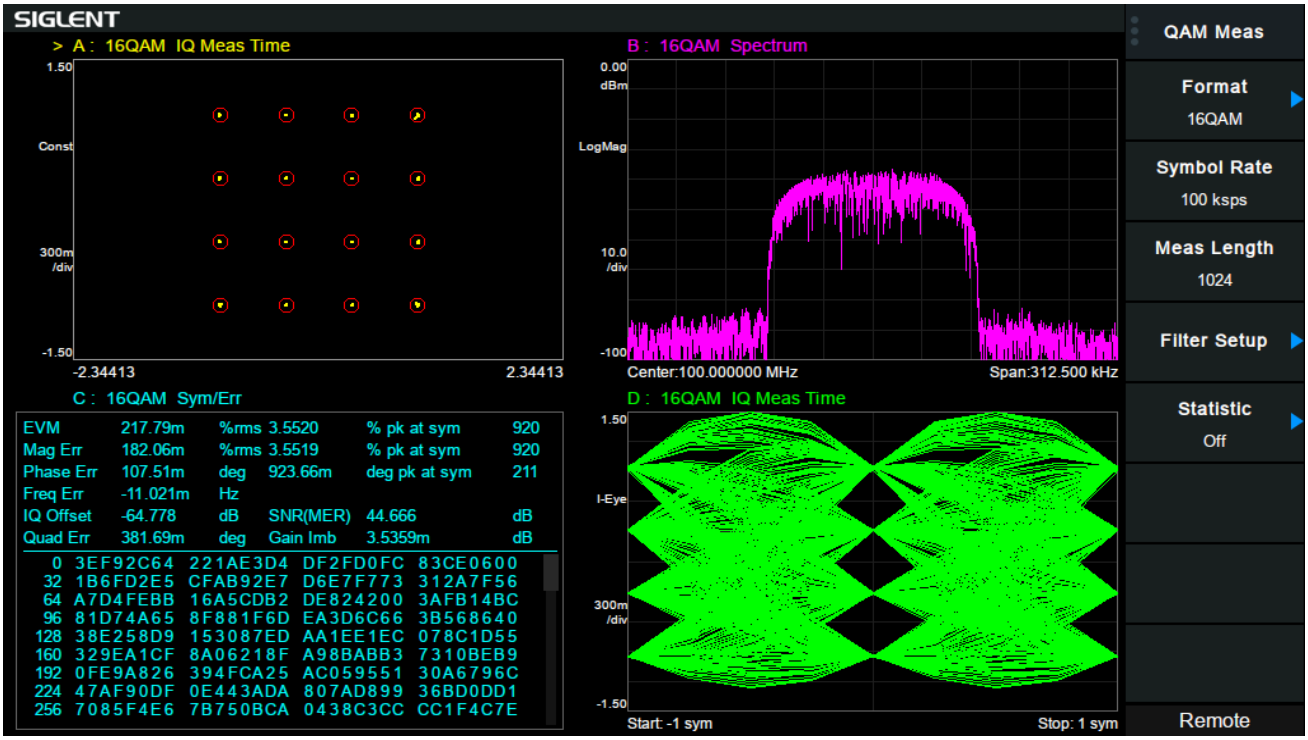



Monitor in Advanced Measurement Kit



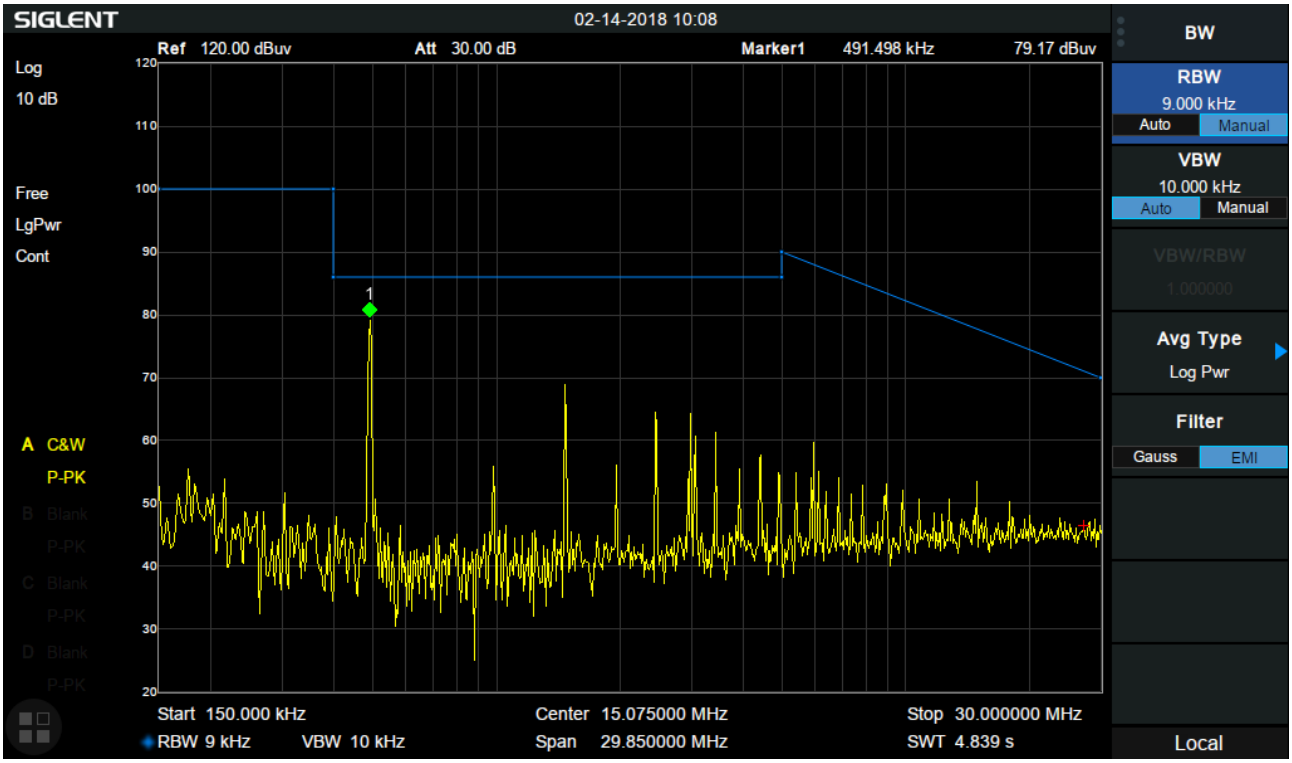
## Modulation Analysis Mode

AM/FM, ASK/FSK/PSK/MSK/QAM Vector Signal Modulation Analysis, EVM evaluation



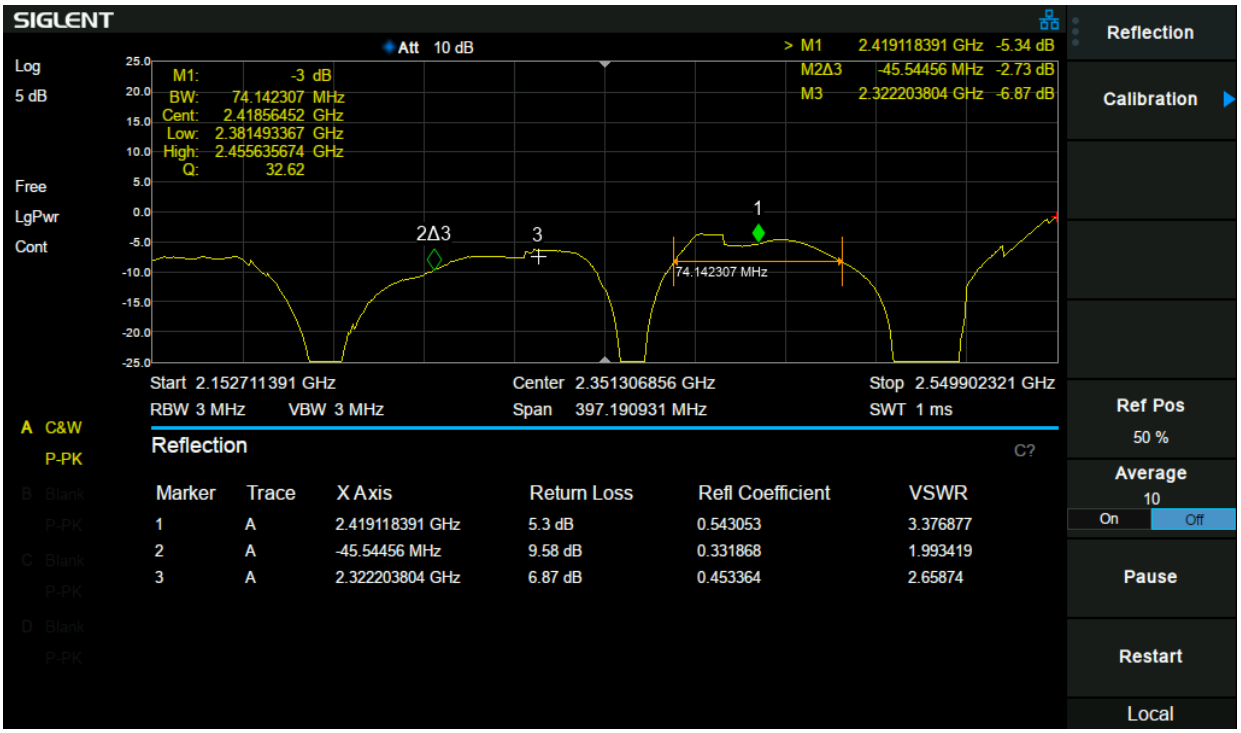

## EMI Pre-Compliance Test

CISPR 16-1-1 EMI filter and Quasi-peak Detector , Log scale and Limit line



## Reflection Measurement

VSWR and Return Loss measurement using External Reflection Bridge or Directional 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** | | | |
|---|---|---|---|
| | SSA3021X Plus | SSA3032X Plus | SSA3075X Plus |
| Frequency range | 9 kHz ~ 2.1 GHz | 9 kHz ~ 3.2 GHz | 9 kHz ~ 7.5 GHz |
| Frequency resolution | 1 Hz | | |
| **Frequency Span** | | | |
| Range | 0 Hz, 100 Hz to Max Frequency | | |
| Accuracy | ± Span / (number of display points - 1) | | |

| **Internal Reference Source** | |
|---|---|
| Reference frequency | 10.000000 MHz |
| Reference frequency accuracy / uncertainty | ± [(time since last adjustment × frequency aging rate) + temperature stability + initial calibration accuracy] |
| Initial calibration accuracy | <1 ppm |
| Temperature stability | <1 ppm/year, 0 °C ~50 °C |
| Frequency aging rate | <0.5 ppm/first year, 3.0 ppm/20 years |
| **Marker** | |
| Marker resolution | Span / (number of display points - 1) |
| Marker uncertainty | ± [frequency indication × reference frequency uncertainty + 1% × span + 10% × resolution bandwidth + marker resolution] |
| Frequency Counter resolution | 0.01 Hz 0.1 Hz |
| **Bandwidths** | |
| Resolution bandwidth (-3dB) | 1 Hz ~ 1 MHz, in 1-3-10 sequence 1 Hz~3 MHz |
| Resolution filter shape factor | < 4.8 : 1 (60 dB:3 dB), Gaussian-like |
| RBW uncertainty | <5% |
| Video bandwidth (-3dB) | 1 Hz ~ 3 MHz, in 1-3-10 sequence 1 Hz~10 MHz |
| VBW uncertainty | <5% |

| **Sweep and Trigger** | | | | |
|---|---|---|---|---|
| Sweep time | | 1 ms to 7500 s | | |
| RBW | Sweep | 30 Hz ~ 1 MHz | 30 Hz ~ 1 MHz | 3 kHz ~ 3 MHz |
| | FFT | 1 Hz ~ 10 kHz | 1 Hz ~ 10 kHz | 1 Hz ~ 10 kHz |
| Sweep rule | | Single, Continuous | | |
| Trigger source | | Free, Video, External | | |
| External trigger | | 5V TTL level, Rising edge/Falling edge | | |

## Amplitude Accuracy and Range Specifications

| **Amplitude and Level** | | | |
|---|---|---|---|
| | SSA3021X Plus | SSA3032X Plus | SSA3075X Plus |
| Measurement range | DANL to +10 dBm, 100 kHz ~ 1 MHz, Preamp off<br>DANL to +20 dBm, 1 MHz ~ 7.5 GHz, Preamp off | | |
| Reference level | -200 dBm to +30 dBm, 1 dB steps | | |
| Pre-Amplifier | 20 dB (nom.) | | |
| Input attenuation | 0 ~ 50 dB, 1 dB steps | | |
| Maximum input DC voltage | +/- 50 VDC | | |
| Maximum average power | 30 dBm, 3 minutes, fc ⩾10 MHz, att > 20 dBm, preamp off | | |
| Maximum damage level | 33 dBm, fc ⩾ 10 MHz, att > 20 dBm, preamp off | | |
| **Level Display** | | | |
| Logarithmic level axis | 1 dB to 200 dB | | |
| Linear level axis | 0 to reference level | | |
| Units of level axis | dBm, dBmV, dBμV, dBμA, Volt, Watt | | |
| Number of display points | 751 | | |
| Number of traces | 4 | | |
| Trace detectors | Positive-peak, Negative-peak, Sample, Normal,<br>Average(Voltage/RMS/Video), Quasi-peak | | |
| Trace functions | Clear write, Max Hold, Min Hold, View, Blank, Average, Math | | |

| **SSB Phase Noise** | | | |
|---|---|---|---|
| | SSA3021X Plus | SSA3032X Plus | SSA3075X Plus |
| Offset | 20 °C to 30 °C, fc = 1 GHz, Normalized to 1 Hz | | |
| 10 kHz | -95 dBc/Hz,<br>-99 dBc/Hz (typ.) | -95 dBc/Hz,<br>-98 dBc/Hz (typ.) | -96 dBc/Hz,<br>-98 dBc/Hz (typ.) |
| 100 kHz | -96 dBc/Hz,<br>-98 dBc/Hz (typ.) | -96 dBc/Hz,<br>-97 dBc/Hz (typ.) | -95 dBc/Hz,<br>-97 dBc/Hz (typ.) |
| 1 MHz | -115 dBc/Hz,<br>-120 dBc/Hz (typ.) | -115 dBc/Hz,<br>-117 dBc/Hz (typ.) | -112 dBc/Hz,<br>-114 dBc/Hz (typ.) |

| Displayed Average Noise Level (DANL) | | | | |
|---|---|---|---|---|
| | | SSA3021X Plus | SSA3032X Plus | SSA3075X Plus |
| | 20 °C to 30 °C, att = 0 dB, RBW = 1 Hz, sample detector, trace average > 50, TG off | | | |
| Preamp off | 100 kHz ~1 MHz | -107 dBm,<br>-111 dBm (typ.) | -107 dBm,<br>-111 dBm (typ.) | -105 dBm,<br>-109 dBm (typ.) |
| | 1 MHz~10 MHz | -132 dBm,<br>-136 dBm (typ.) | -132 dBm,<br>-136 dBm (typ.) | -122 dBm,<br>-126 dBm (typ.) |
| | 10 MHz~200 MHz | -137 dBm,<br>-141 dBm (typ.) | -137 dBm,<br>-141 dBm (typ.) | -142 dBm,<br>-146 dBm (typ.) |
| | 200 MHz~1.5 GHz | -135 dBm,<br>-139 dBm (typ.) | -135 dBm,<br>-139 dBm (typ.) | -142 dBm,<br>-147 dBm (typ.) |
| | 1.5 GHz~3.2 GHz | | -126 dBm,<br>-132 dBm (typ.) | -140 dBm,<br>-145 dBm (typ.) |
| | 3.2 GHz~5.0 GHz | | | -137 dBm,<br>-143 dBm (typ.) |
| | 5.0 GHz~6.5 GHz | | | -136 dBm,<br>-141 dBm (typ.) |
| | 6.5 GHz~7.5 GHz | | | -134 dBm,<br>-139 dBm (typ.) |
| Preamp on | 100 kHz ~1 MHz | -132 dBm,<br>-137 dBm (typ.) | -132 dBm,<br>-137 dBm (typ.) | -133 dBm,<br>-136 dBm (typ.) |
| | 1 MHz~10 MHz | -148 dBm,<br>-154 dBm (typ.) | -148 dBm,<br>-154 dBm (typ.) | -151 dBm,<br>-154 dBm (typ.) |
| | 10 MHz~200 MHz | -156 dBm,<br>-161 dBm (typ.) | -156 dBm,<br>-161 dBm (typ.) | -161 dBm,<br>-165 dBm (typ.) |
| | 200 MHz~1.5 GHz | -155 dBm,<br>-158 dBm (typ.) | -155 dBm,<br>-158 dBm (typ.) | -159 dBm,<br>-163 dBm (typ.) |
| | 1.5 GHz~3.2 GHz | | -145 dBm,<br>-149 dBm (typ.) | -159 dBm,<br>-162 dBm (typ.) |
| | 3.2 GHz~5.0 GHz | | | -157 dBm,<br>-161 dBm (typ.) |
| | 5.0 GHz~6.5 GHz | | | -157 dBm,<br>-160 dBm (typ.) |
| | 6.5 GHz~7.5 GHz | | | -155 dBm,<br>-159 dBm (typ.) |

| | | | |
|---|---|---|---|
| **Frequency Response** | | | |
| | SSA3021X Plus | SSA3032X Plus | SSA3075X Plus |
| | 20 °C to 30 °C, 30% to 70% relative humidity, att = 20 dB, relative to fc = 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, fc≥1 MHz | | Att = 20 dB, fc≥1 MHz |
| | <1.5 (nom.) | | <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 | | |
| | +10 dBm (typ.) | | +14 dBm (typ.) |
| 1dB gain compression | 20 °C to 30 °C, fc ≥ 50 MHz, att = 0 dB, preamp off | | |
| | > -5 dBm (nom.) | | > 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 (Option SSA3000XP-TG)

| **Frequency Parameter** | | | |
|---|---|---|---|
| | SSA3021X Plus | SSA3032X Plus | SSA3075X Plus |
| Frequency Range | 100 kHz ~ 2.1 GHz | | 100 kHz ~ 7.5 GHz |
| Frequency Resolution | 1 Hz, Zero Span | | |
| RBW, sweep mode | 100 Hz ~ 1 MHz | | 3k Hz ~ 3 MHz |
| **Power Parameter** | | | |
| Output level | -20 dBm ~ 0 dBm | | -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 Impendence | N-type female, 50 Ω | | |
| Average safe reverse power | Total : 30 dBm (1 W) | | |
| Maximum safe reverse level | Voltage: ±50 $V_{DC}$ | | |

## Advanced Measurement Kit (Option SSA3000XP-AMK)

| **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 | |

## EMI Filter and Quasi-Peak Detector Kit (Option SSA3000XP-EMI)

| **Measurement** | |
|---|---|
| EMI filter RBW (-6dB) | 200 Hz, 9 kHz, 120 kHz, 1MHz (following CISPR 16-1-1) |
| RBW uncertainty | < 5% |
| Detector | Peak, Average, RMS, Quasi-peak (following CISPR 16-1-1) |
| QPD Dwell time | 0 us ~ 10 s |
| EMI Receiver Software | EasySpectrum EMI pre-compliance test Software |
| Frequency axis | Linear, Logarithmic |

## Reflection Measurement Kit (Option SSA3000XP-Refl)

| **Stimulus and Measurement** | | | |
|---|---|---|---|
| | SSA3021X Plus | SSA3032X Plus | SSA3075X Plus |
| Frequency Range | 100 kHz ~ 2.1 GHz | 100 kHz ~ 3.2 GHz | 100 kHz ~ 7.5 GHz |
| RBW | 100 Hz ~ 1 MHz | | 3k Hz ~ 3 MHz |
| Stimulus Power | -20 ~ 0 dBm | | |
| Format | VSWR, Return Loss, Reflection Coefficient | | |
| Calibration | Open Cal | | |
| | Open + Short | | |
| | Open + Load | | |

# Modulation Analyzer Mode

| Common Parameter | | | |
|---|---|---|---|
| | SSA3021X Plus | SSA3032X Plus | SSA3075X Plus |
| Frequency Range | 2 MHz ~ 2.1 GHz | 2 MHz ~ 3.2 GHz | 2 MHz ~ 7.5 GHz |
| Carrier Power Accuracy | ±2 dB (nom.) | | |
| Carrier Power Range | -30 dBm to +20 dBm (nom.) | | |

## Digital Modulation Analysis (Option SSA3000XP-DMA)

| Measurement | |
|---|---|
| Modulation Type | ASK: 2ASK;<br>FSK: 2,4,8,16 level;<br>MSK: GMSK;<br>PSK: BPSK,QPSK,OQPSK,8PSK;<br>DPSK: DBPSK, DQPSK, D8PSK, $\pi/4$ -DQPSK, $\pi/8$ -D8PSK;<br>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 2.5 Msps, Symbol Rate* Points/Symbol <=10 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,<br>IQ Ref Time, IQ Ref Spectrum,<br>Time, Spectrum,<br>Symbol Error Chart, Err Vector Time, Err Vector Spectrum,<br>IQ Mag Err, IQ Phase Err, |
| Layout | Single, Stacked 2, Grid 1 2, Grid 2*2 |
| Trace Formats | Log mag, Lin mag, Real, Imag,<br>I-Q, Constellation, I-eye, Q-eye,<br>Wrap Phase, Unwrap Phase, Trellis eye |
| **Symbol Error Chart** | |
| PSK/DPSK/MSK/QAM | EVM (rms EVM, peak EVM), Magnitude error,<br>Phase error, IQ offset, Carrier offset, SNR Quadrature error,<br>Gain imbalance(not support for MSK), |
| ASK | ASK Error, ASK depth, carrier offset |
| FSK | FSK Error, Magnitude error, FSK deviation, carrier offset |

## Analog Modulation Analysis (Option SSA3000XP-AMA)

| | | |
|---|---|---|
| **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.) | |

## Inputs and Outputs

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

## General Specification

| **Structure** | | | |
|---|---|---|---|
| | SSA3021X Plus | SSA3032X Plus | SSA3075X Plus |
| Weight | Net: 4.40 kg (9.7 lb);<br>Shipping: 5.20 kg | Net: 4.40 kg (9.7 lb);<br>Shipping: 5.20 kg | Net: 4.70 kg (10.0 lb);<br>Shipping: 5.50 kg |
| Dimensions | 393 mm × 207 mm × 116.5 mm (W×H×D) | | |
| Display | TFT LCD, 1024 × 600, 10.1 inch multi-touch screen | | |
| Storage | Internal (Flash) 256 MB, external (USB storage device) 32 GByte | | |
| **Working Environment** | | | |
| Source | AC voltage range: 100-240 V, 50/60 Hz or 100-120 V 400 Hz; | | |
| Power consumption | 35 W | | 70 W |
| Temperature | Working temperature: 0 °C to 40 °C,<br>Storage temperature: -20 °C to 70 °C | | |
| Humidity | 0 °C to 30 °C, ≤ 95% Relative humidity<br>30 °C to 50 °C, ≤ 75% Relative humidity | | |
| Altitude | Operating: less than 3 km | | |
| **Electromagnetic Compatibility** | | | |
| EN 61326-1: 2013 /<br>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 %<br>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 +<br>A1: 2007 + A2: 2010 | 80 MHz to 1000 MHz: 10V/m, 1.4 GHz to 2.0 GHz:3 V/m,<br>2.0 GHz to 2.7 GHz:1V/m | | |
| IEC 61000-4-4: 2004 +<br>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;<br>Short Interruptions Test Level % UT: 0%/250P | | |
| **Safety** | | | |
| IEC 61010-1:2010/EN 61010-1:2010 | | | |
| CAN/CSA-C22.2 No.61010-1:2012,<br>CAN/CSA-C22.2 No.61010-2-30:2012,<br>UL 61010-1:2012,<br>UL 61010-2-30:2012 | | | |
| **RoHS** | | | |
| 2011/65/EU | | | |

## Ordering Information

| Product | Description | Order Number |
|---|---|---|
| Product Code | Spectrum Analyzer, 9 kHz ~ 2.1 GHz | SSA3021X Plus |
| | Spectrum Analyzer, 9 kHz ~ 3.2 GHz | SSA3032X Plus |
| | Spectrum Analyzer, 9 kHz ~ 7.5 GHz | SSA3075X Plus |
| Standard Accessories | Quick Start, USB Cable, Power Cord | |
| Common Options and Accessories | Tracking Generator | SSA3000XP-TG |
| | Advanced Measurement Kit | SSA3000XP-AMK |
| | Utility Kit:<br>N(M)-SMA(M) cable (6 GHz), N(M)-N(M) cable (6 GHz),<br>N(M)-BNC(F) adaptor x 2, N(M)-SMA(F) adaptor x 2,<br>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 |
| | USB-GPIB Adaptor | USB-GPIB |
| | Soft carrying bag | BAG-S2 |
| | 6U Rack Mount Kit | SSA-RMK |
| Reflection Measurement Options | Tracking Generator | SSA3000XP-TG |
| | Reflection Measurement | SSA3000XP-Refl |
| | Reflection Bridge Kit:<br>Reflection Bridge (1 MHz ~ 2.5 GHz),<br>N(M)-N(M) adaptors (2 pcs) | RB3X25 |
| | 50 Ω, N type Male, 4.5 GHz Economic Calibration Kit:<br>Open(M), Short(M), Match(M), Through Adapter(F-F) | F503ME |
| EMI test Options | EMI Measurement Kit:<br>EMI Filter and Quasi Peak Detector,<br>EMI Receiver Mode in EasySpectrum Software | SSA3000XP-EMI |
| | 300 kHz~3 GHz Near Field Probe Kit:<br>3 H-probes (20/10/5 mm), 1 E-probe (5 mm) | SRF5030T |
| Modulation Analysis Options | Digital Modulation: ASK, FSK, MSK, PSK, QAM | SSA3000XP-DMA |
| | Analog Modulation: AM, FM | SSA3000XP-AMA |

## About SIGLENT

SIGLENT is an international high-tech company, concentrating on R&D, sales, production and services of electronic test & measurement instruments.

SIGLENT first began developing digital oscilloscopes independently in 2002. After more than a decade of continuous development, SIGLENT has extended its product line to include digital oscilloscopes, function/arbitrary waveform generators, RF generators, digital multimeters, DC power supplies, spectrum analyzers, vector network analyzers, isolated handheld oscilloscopes, electronic load and other general purpose test instrumentation. Since its first oscilloscope, the ADS7000 series, was launched in 2005, SIGLENT has become the fastest growing manufacturer of digital oscilloscopes. We firmly believe that today SIGLENT is the best value in electronic test & measurement.

# SSA3000X Series

## Spectrum Analyzer

SIGLENT®


SIGLENT TECHNOLOGIES CO.,LTD

# SSA3032X

# SSA3021X

## General Description

Siglent's SSA3000X series of spectrum analyzers have a frequency range of 9 kHz to 2.1 GHz / 3.2 GHz. With their light weight, small size, and friendly user interface, the SSA3000X offer a bright easy to read display, powerful and reliable automatic measurements, and plenty of powerful features. Applications include broadcast monitoring/evaluation, site surveying, EMI pre-compliance, research and development, education, production, and maintenance.

## Features and Benefits

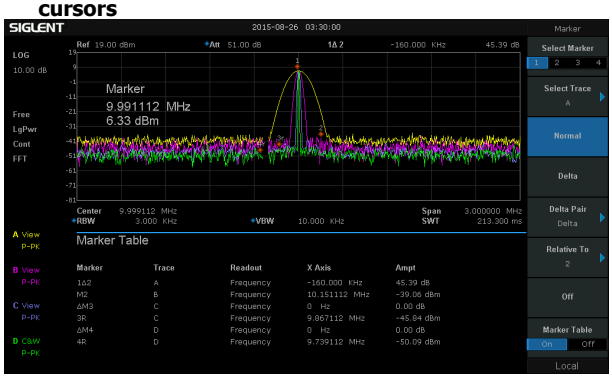
- All-Digital IF Technology
- Frequency Range from 9 kHz up to 3.2 GHz
- -161 dBm/Hz Displayed Average Noise Level (Typ.)
- -98 dBc/Hz @10 kHz Offset Phase Noise (1 GHz, Typ.)
- Total Amplitude Accuracy < 0.7 dB
- 1 Hz Minimum Resolution Bandwidth (RBW)
- Standard Preamplifier
- Up to 3.2 GHz Tracking Generator Kit (Opt.)
- Reflection Measurement Kit (Opt.)
- Advanced Measurement Kit (Opt.)
- EMI Pre-compliance Test Kit (Opt.)
- 10.1 Inch WVGA（1024x600）Display

# Model and Main index

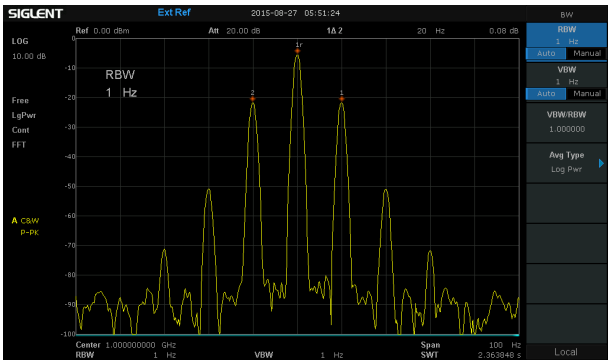
| Model | SSA3032X | SSA3021X |
|---|---|---|
| Frequency Range | 9 kHz~3.2 GHz | 9 kHz~2.1 GHz |
| Resolution Bandwidth | 1 Hz~1 MHz, in 1-3-10 sequence | 1 Hz~1 MHz, in 1-3-10 sequence |
| Displayed Average Noise Level | -161 dBm/Hz, Normalize to 1 Hz (typ.) | -161 dBm/Hz, Normalize to 1 Hz (typ.) |
| Phase Noise | < -98 dBc/Hz@1 GHz, 10 kHz offset | < -98 dBc/Hz@1 GHz, 10 kHz offset |
| Amplitude Precision | < 0.7 dB | < 0.7 dB |

# Design features

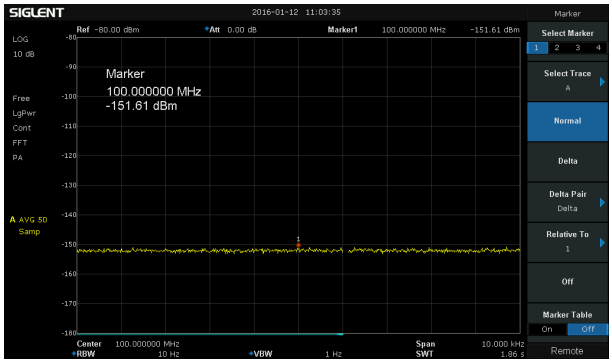
### Easy to operate, Support four independent traces and cursors



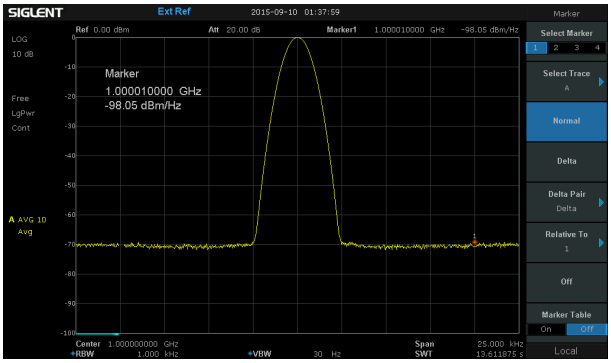

### 1 Hz Minimum Resolution Bandwidth (RBW)



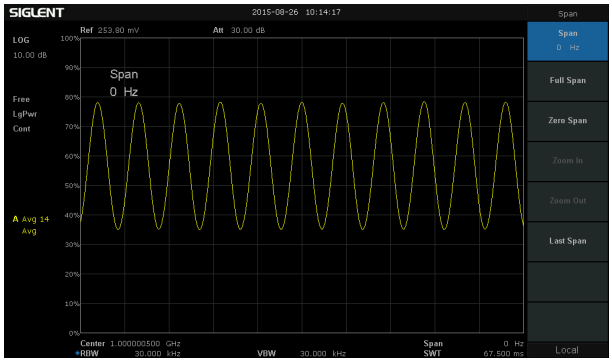

### -151 dBm Displayed Average Noise Level (RBW=10 Hz)



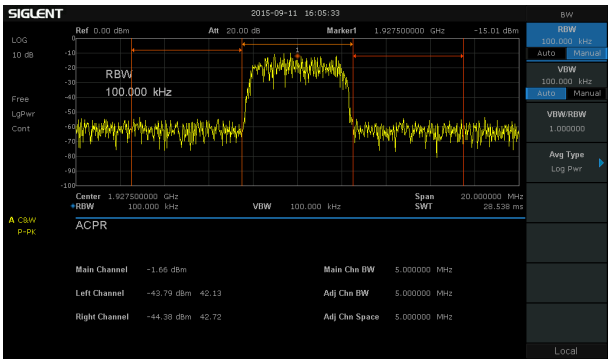

### Phase noise -98 dBc/Hz@ 1 GHz, offset 10 kHz




### Zero span and demodulation capabilities

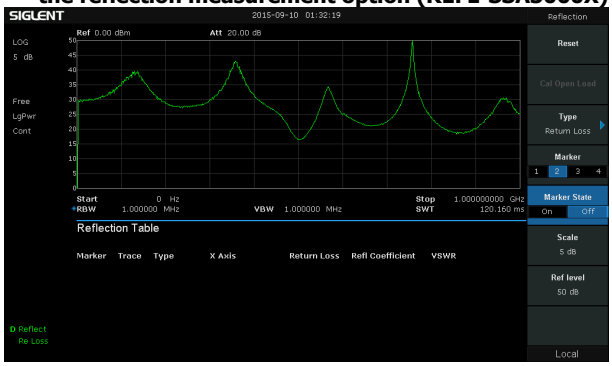



### Advanced measurement kit (AMK-SSA3000X) includes on-screen ACPR measurements

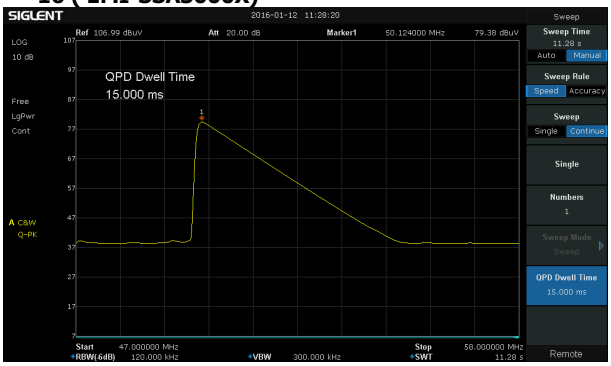


# Design features

### On-screen VSWR/Return Loss measurements with the reflection measurement option (REFL-SSA3000X)




### EMI filter and Quasi-Peak detector following CISPR 16 ( EMI-SSA3000X)




# 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 temperatures from 5 to 45°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

## Frequency Characteristic

| | SSA3032X | SSA3021X |
|---|---|---|
| **Frequency** | | |
| Frequency range | 9 kHz-3.2 GHz | 9 kHz-2.1 GHz |
| Frequency resolution | 1 Hz | 1 Hz |
| **Frequency Span** | | |
| Range | 0 Hz, 100 Hz to 3.2 GHz | 0 Hz, 100 Hz to 2.1 GHz |
| Accuracy | ± Span / (number of sweep points - 1) | |
| **Internal Reference Source** | | |
| Reference frequency | 10.000000 MHz | |
| frequency reference accuracy | ± [(time since last adjustment × frequency aging rate) + temperature stability + calibration accuracy] | |
| Initial calibration accuracy | <1 ppm | |
| Temperature stability | <1 ppm/year, 0 ℃ ~50 ℃ | |
| Frequency aging rate | <0.5 ppm/first year, 3.0 ppm/20 years | |
| **Marker** | | |
| Marker resolution | Span / (number of sweep points - 1) | |
| Marker uncertainty | ± [frequency indication × frequency reference uncertainty + 1% × span + 10% × resolution bandwidth + marker resolution] | |
| Frequency counter resolution | 1 Hz | |
| Frequency counter uncertainty | ± [frequency indication × frequency reference accuracy + counter resolution] | |
| **Bandwidths** | | |
| Resolution bandwidth (-3dB) | 1 Hz~1 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 ~3 MHz, in 1-3-10 sequence | |
| VBW uncertainty | <5% | |

*The DANL with RBW set to 1 or 3 Hz will be similar to 10 Hz.

## Amplitude Characteristic

| | | | |
|---|---|---|---|
| **Amplitude and Level** | | | |
| Measurement range | DANL to +10 dBm, 100 kHz~1 MHz, preamplifier off<br>DANL to +20 dBm, 1 MHz~3.2 GHz, preamplifier off | | |
| Reference level | -100 dBm to +30 dBm, 1 dB steps | | |
| Preamplifier | 20 dB (nom.), 9 kHz~3.2 GHz | | |
| Input attenuation | 0~51 dB, 1 dB steps | | |
| Maximum input DC voltage | +/- 50 $V_{DC}$ | | |
| Maximum average RF power | 30 dBm, 3 minutes, fc≥10 MHz, attenuation >20 dBm, preamp off | | |
| Maximum damage level | 33 dBm, fc≥10 MHz, attenuation >20 dBm, preamp off | | |
| **Displayed Average Noise Level (DANL)** | | | |
| | 20 ℃ ~30 ℃ ,attenuation = 0 dB, sample detector, trace average >50 | | |
| Preamp off | | RBW=10 Hz | Normalization to 1 Hz |
| | 9 kHz~100 kHz | -100 dBm (nom.) | -110 dBm (nom.) |
| | 100 kHz ~1 MHz | -97 dBm, -101 dBm (typ.) | -107 dBm,-111 dBm (typ.) |
| | 1 MHz~10 MHz | -122 dBm, -126 dBm (typ.) | -132 dBm,-136 dBm (typ.) |
| | 10 MHz~200 MHz | -127 dBm,-131 dBm (typ.) | -137 dBm,-141 dBm (typ.) |
| | 200 MHz~2.1 GHz | -125 dBm, -129 dBm (typ.) | -135 dBm,-139 dBm (typ.) |
| | 2.1 GHz~3.2 GHz | -116 dBm, -122 dBm (typ.) | -126 dBm,-132 dBm (typ.) |
| Preamp on | 9 kHz~100 kHz | -107 dBm (nom.) | -117 dBm (nom.) |
| | 100 kHz ~1 MHz | -122 dBm, -127 dBm (typ.) | -132 dBm,-137 dBm (typ.) |
| | 1 MHz~10 MHz | -138 dBm, -144 dBm (typ.) | -148 dBm,-154 dBm (typ.) |
| | 10 MHz~200 MHz | -146 dBm, -151 dBm (typ.) | -156 dBm,-161 dBm (typ.) |
| | 200 MHz~2.1 GHz | -145 dBm, -148 dBm (typ.) | -155 dBm,-158 dBm (typ.) |
| | 2.1 GHz~3.2 GHz | -135 dBm, -139 dBm (typ.) | -145 dBm,-149 dBm (typ.) |
| **Phase Noise** | | | |
| | 20 ℃ ~30 ℃ ,fc=1 GHz | | |
| Phase noise | <-95 dBc/Hz @10 kHz offset, <-98 dBc/Hz (typ.)<br><-96 dBc/Hz @100 kHz offset,<-97 dBc/Hz (typ.)<br><-115 dBc/Hz @1 MHz offset, <-117 dBc/Hz (typ.) | | |
| **Level Display** | | | |
| Logarithmic level axis | 10 dB to 200 dB | | |
| Linear level axis | 0 to reference level | | |
| Units of level axis | dBm, dBmV, dBμV, dBμA, V, W | | |
| Number of display points | 751 | | |
| Number of traces | 4 | | |
| Trace detectors | Positive-peak, Negative-peak, Sample, Normal, Average (Voltage/RMS/Video) , Quasi-peak (with EMI option) | | |
| Trace functions | Clear write, Max Hold, Min Hold, View, Blank, Average | | |
| **Frequency Response** | | | |
| | 20 ℃ to 30 ℃ , 30% to 70% relative humidity, attenuation = 20 dB, reference frequency 50 MHz | | |
| Preamp off | ±0.8 dB,<br>±0.4 dB, (typ.) | | |
| Preamp on | ±0.9 dB,<br>±0.5 dB, (typ.) | | |
| **Error and Accuracy** | | | |
| Resolution bandwidth switching uncertainty | 10 kHz RBW<br>Logarithmic resolution ±0.2 dB, liner resolution ±0.01, nominal | | |
| Input attenuation switching uncertainty | 20 ℃ to 30 ℃ , fc = 50 MHz, preamp off, Relative to 20 dB, 1 to 51 dB attenuation<br>±0.5 dB | | |
| Absolute amplitude accuracy | 20 ℃ to 30 ℃ , fc = 50 MHz, RBW = 1 kHz, VBW = 1 kHz, peak detector, attenuation = 20 dB, 95th percentile reliability | | |
| | preamp off | ±0.4 dB, input signal -20 dBm | |
| | preamp on | ±0.5 dB, input signal -40 dBm | |
| Total amplitude accuracy | 20 ℃ to 30 ℃ , Fc>100 kHz, input signal -50 dBm~0 dBm, RBW = 1 kHz, VBW = 1 kHz, peak detector, attenuation = 20 dB, preamp off, 95th percentile reliability | | |
| | ± 0.7 dB | | |
| RF input VSWR | input attenuation 10 dB, 1 MHz~3.2 GHz<br><1.5, nom | | |

## Amplitude Characteristic

| Distortion and Spurious Responses | |
|---|---|
| Second harmonic distortion | fc≥50 MHz, mixer level -30dBm, attenuation = 0 dB, preamp off, 20 ℃ to 30 ℃ , typ.<br>-65 dBc |
| Third-order intercept | fc≥50 MHz, two -20 dBm tones at input mixer spaced by 100 kHz, attenuation = 0 dB, preamp off, 20 ℃ to 30 ℃ , typ.<br>+10 dBm |
| 1dB Gain Compression | fc≥50 MHz, attenuation = 0 dB, preamp off, 20 ℃ to 30 ℃ , nom.<br>>-5 dBm |
| Residual response | input terminated = 50 Ω,attenuation = 0 dB, 20 ℃ to 30 ℃ , typ.<br><-90 dBm |
| Input related spurious | Mixer level = -30 dBm, 20 ℃ to 30 ℃<br><-65 dBc |

## Sweep and Trigger

| | | |
|---|---|---|
| Sweep time | 1 ms to 3000 s | |
| Sweep accuracy | Accuracy, Speed | |
| Sweep mode | Sweep | FFT |
| | RBW=30 Hz~1 MHz | RBW=1 Hz~10 kHz |
| Sweep rule | Single, Continuous | |
| Trigger source | Free, Video, External | |
| External trigger | 5 V TTL level, rising edge/falling edge | |

## Tracking Generator (Option)

| | SSA3032X | SSA3021X |
|---|---|---|
| Frequency range | 100 kHz~3.2 GHz | 100 kHz~2.1 GHz |
| RBW | 30 Hz~1 MHz, only sweep mode | |
| Output level | -20 dBm~0 dBm | |
| Output level resolution | 1 dB | |
| Output flatness | +/-3 dB | |
| Output maximum reverse level | Mean power:30 dBm,DC: ±50 $V_{DC}$ | |

## EMI Receiver Measurement (Option)

| | |
|---|---|
| Resolution bandwidth (6 dB) | 200 Hz,9 kHz,120 kHz |
| Detector | Quasi-peak（following CISPR 16-1-1） |
| Dwell time | 0 us~10 s |
| PC Application Software | EasySpectrum EMI pre-compliance test Software |

## Reflection Measurement (Option)

| | |
|---|---|
| Function | VSWR, Return loss, Reflct coefficiont |

## Advanced Measurement (Option)

| | |
|---|---|
| Function | Channel power,<br>Adjacent channel power ratio,<br>Time domain power,<br>Occupied bandwidth,<br>Third-order intercept,<br>Spectrum monitor |

| External input and external output | |
|---|---|
| Front panel RF input | 50 Ω, N-female |
| Front panel TG output | 50 Ω, N-female |
| 10 MHz reference output | 10 MHz, >0 dBm, 50 Ω, BNC-female |
| 10 MHz reference input | 10 MHz, -5 dBm~+10 dBm, 50 Ω, BNC-female |
| External Trigger input | 1 kΩ, 5 V TTL , BNC-female |
| **Communication Interface** | |
| USB Host | USB-A 2.0 + |
| USB Device | USB-B 2.0 |
| LAN | LAN (VXI11), 10/100 Base, RJ-45 |
| **General Specification** | |
| Display | TFT LCD, 1024×600(waveform area 751×501), 10.1 inch |
| Storage | Internal (Flash) 256 MByte, External (USB storage device) 32 GByte |
| Source | Input voltage range (AC) 100 V~240 V, AC frequency supply 45 Hz~440 Hz, Power consumption 30 W |
| Temperature | Working temperature 0 ℃ to 50 ℃ , Storage temperature -20 ℃ to 70 ℃ |
| Humidity | 0 ℃ to 30 ℃ , ≤95% Relative humidity;<br>30 ℃ to 50 ℃ , ≤75% Relative humidity |
| Dimensions | 393 mm×207 mm×116.5 mm (W×H×D) |
| Weight | Contain tracking generator 4.60 kg (10.1 lb) |
| **Electromagnetic Compatibility and Safety** | |
| EMC | EN 61326-1:2013 |
| Electrical safety | EN 61010-1:2010 |

# Ordering Information

| Product Description | SSA3000X Spectrum Analyzer | Order Number |
|---|---|---|
| Product code | Spectrum Analyzer, 9 kHz~3.2 GHz | SSA3032X |
| | Spectrum Analyzer, 9 kHz~2.1 GHz | SSA3021X |
| Standard configurations | A Quick Start, A USB Cable, A CD (Including Quick Start, Data Sheet and Application Software) , A Calibration Certificate | QG-SSA3000X |
| Utility Options | Tracking Generator Kit | TG-SSA3000X |
| | Advanced Measurement Kit | AMK-SSA3000X |
| | Utility Kit:<br>N(M)-SMA(M) cable<br>N(M)-N(M) cable<br>N(M)-BNC(F) adaptor(2 pcs)<br>N(M)-SMA(F) adaptor(2 pcs)<br>10 dB attenuator | UKitSSA3X |
| | N(M)-SMA(M) cable | N-SMA-6L |
| | N(M)-N(M) cable | N-N-6L |
| | N(M)-BNC(M) cable | N-BNC-2L |
| | Soft carrying bag | BAG-SCC |
| | Rack Mount Kit | SSA-RMK |
| EMI Options | EMI Measurement Kit:<br>EMI Filter and Quasi Peak Detector,<br>EMI test option in EasySpectrum Software | EMI-SSA3000X |
| | Near Field Probe:H field probe sets(25 mm, 10 mm, 5 mm, 2mm), 30 MHz~3.0 GHz | SRF5030 |
| | Near Field Probe:H field probe sets(20 mm, 10 mm, 5 mm) , E field probe (5 mm), 300 kHz~3.0 GHz | SRF5030T |
| Reflect Measurement Options | Tracking Generator Kit | TG-SSA3000X |
| | Reflect Measurement Kit | Refl-SSA3000X |
| | VSWR Bridge Kit: including Refl-SSA3000X<br>VSWR Bridge(1 MHz~2 GHz)<br>N(M)-N(M) adaptor(2 pcs) | RBSSA3X20 |

# SSA3000X Series
## Spectrum Analyzer

**About SIGLENT**

SIGLENT is an international high-tech company, concentrating on R&D, sales,production and services of electronic test & measurement instruments.

SIGLENT first began developing digital oscilloscopes independently in 2002. After more than a decade of continuous development, SIGLENT has extended its product line to include digital oscilloscopes, function/arbitrary waveform generators, digital multimeters, DC power supplies, spectrum analyzers, isolated handheld oscilloscopes and other general purpose test instrumentation. Since its first oscilloscope, the ADS7000 series, was launched in 2005, SIGLENT has become the fastest growing manufacturer of digital oscilloscopes. We firmly believe that today SIGLENT is the best value in electronic test & measurement.

**Headquarter:**
SIGLENT TECHNOLOGIES CO., LTD.
Add: Bldg No.4 & No.5, Antongda Industrial Zone, 3rd Liuxian Road, Bao'an District, Shenzhen, 518101, China.
Tel: + 86 755 3661 5186
Fax: + 86 755 3359 1582
Email: sales@siglent.com;
Website: http://www.siglent.com/ens/

**USA:**
SIGLENT Technologies America, Inc
6557 Cochran Rd Solon, Ohio 44139
Tel: 440-398-5800
Toll Free: 877-515-5551
Fax: 440-399-1211
Email: info@siglent.com
Website: www.siglentamerica.com

**Europe:**
SIGLENT TECHNOLOGIES EUROPE GmbH
ADD: Liebigstrasse 2-20, Gebaeude 14, 22113 Hamburg Germany
Tel: +49(0)-819-95946
Fax: +49(0)-819-95947
Email: info-eu@siglent.com
Website: www.siglenteu.com

**Follow us on**
**Facebook: SiglentTech**

# SVA1000X Spectrum & Vector Network Analyzer

**DataSheet** Preliminary


SIGLENT TECHNOLOGIES CO.,LTD

## General Description

The SIGLENT SVA1000X series spectrum & vector network analyzers are powerful and flexible tools for RF signal and network analysis.

With a frequency range to 7.5 GHz, the analyzer delivers reliable automatic measurements and multiple modes of operation: the base model are a spectrum analyzer and a vector network analyzer, optional functions include a distance-to-fault locator, a vector signal modulation analyzer. Applications include broadcast monitoring/evaluation, site surveying, S-parameter measurement, cable and antenna testing, analog/digital modulation analysis, EMI pre-compliance test, 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 Standard
- Tracking Generator Standard
- Distance To Fault (Opt.)
- Analog and Digital Signal Modulation Analysis Mode (Opt.)
- EMI Filter and Quasi-Peak Detector Kit(Opt.)
- Advanced Measurement Kit (Opt.)
- 10.1 Inch Multi-Touch Screen , Mouse and Keyboard supported
- Web Browser Remote Control on PC and Mobile Terminals and File Operation

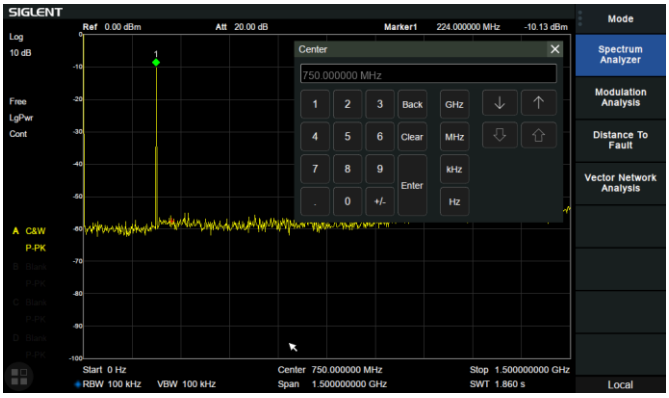
## Models and Main index

| Model | SVA1015X | SVA1032X | SVA1075X |
|---|---|---|---|
| Spectrum Analyzer Frequency Range | 9 kHz~1.5 GHz | 9 kHz~3.2 GHz | 9 kHz~7.5 GHz |
| Vector Network Analyzer Frequency Range | 10 MHz~1.5 GHz | 100 kHz~3.2 GHz | 100 kHz~7.5 GHz |
| Resolution Bandwidth | 1 Hz~1 MHz | 1 Hz~1 MHz | 1 Hz~3 MHz |
| Displayed Average Noise Level | -156 dBm/Hz | -161 dBm/Hz | -165 dBm/Hz |
| SSB Phase Noise | <-99 dBc/Hz | <-98 dBc/Hz | <-98 dBc/Hz |
| Total Amplitude Accuracy | < 1.2 dB | < 0.7 dB | < 0.7 dB |
| Tracking Generator | 5 MHz~1.5 GHz | 100 kHz~3.2 GHz | 100 kHz~7.5 GHz |
| VNA measurement | Vector S11,Vector S21 | | |
| Distance to Fault | VNA Timing Domain Analysis Locator | | |
| Touch Screen | Multi Touch, Mouse and Keyboard supported | | |
| Advanced Measurement | CHP, ACPR, OBW, CNR, Harmonic, TOI, Monitor | | |
| Reflection Measurement | VSWR measurement using Reflection Bridge | | |
| EMI Test | EMI Filter and Quasi-Peak Detector, Log Scale and Limit Line | | |
| Modulation Analysis | AM, FM; ASK, FSK, MSK, PSK, QAM | | |
| 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 | | |

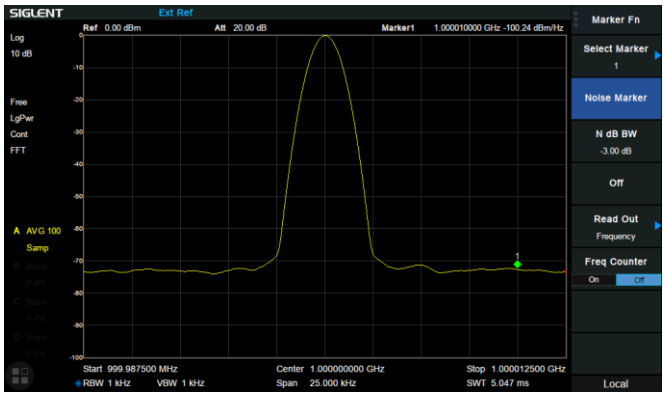
# Design Features

## Spectrum Analyzer Mode

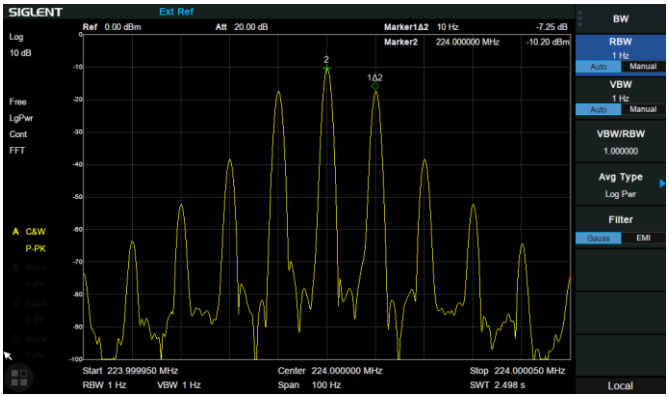
10.1 Inch Display with Multi-Touch Screen



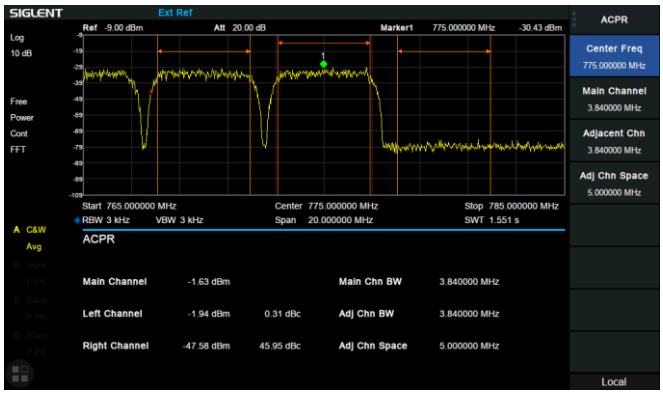

Phase noise <-98 dBc/Hz@1 GHz



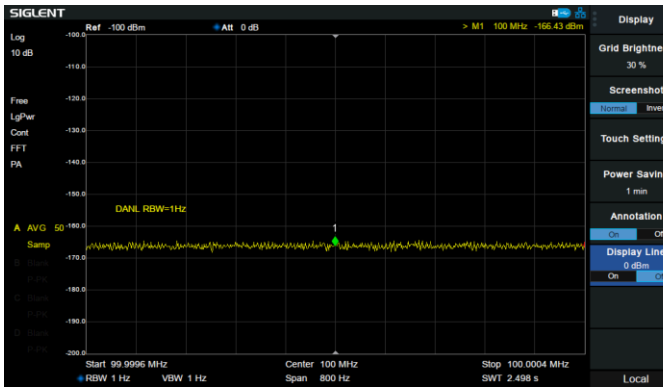

Minimum 1 Hz Resolution Bandwidth (RBW)



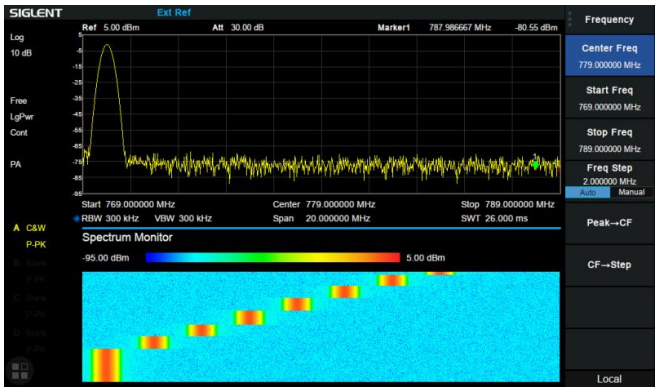

ACPR in Advanced Measurement Kit




-165 dBm/Hz Displayed Average Noise Level

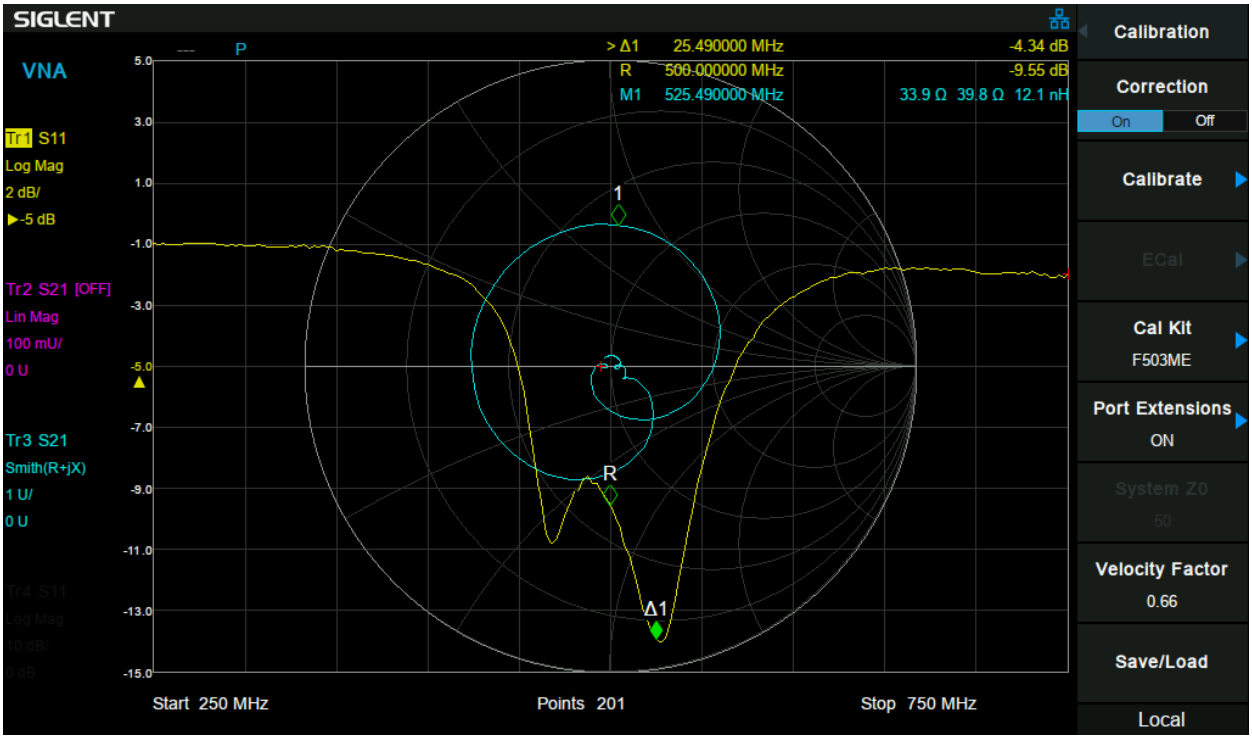



Monitor in Advanced Measurement Kit



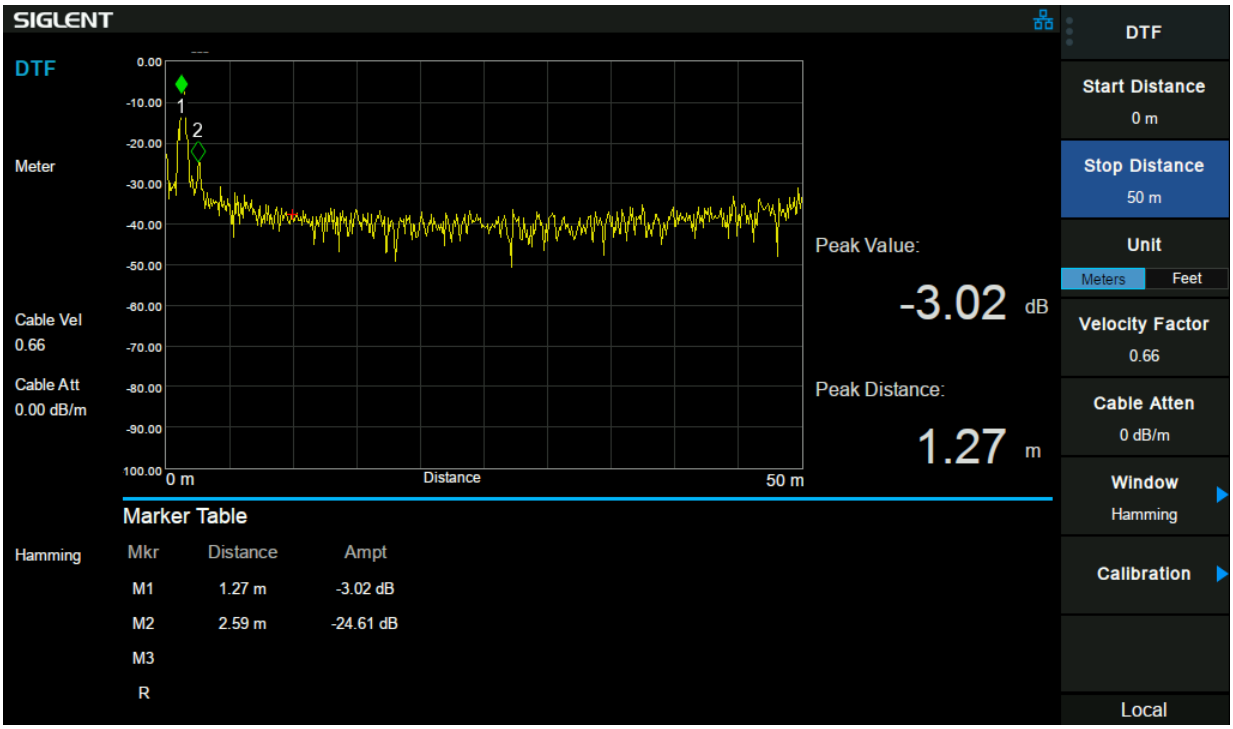
## Vector Network Analyzer Mode

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



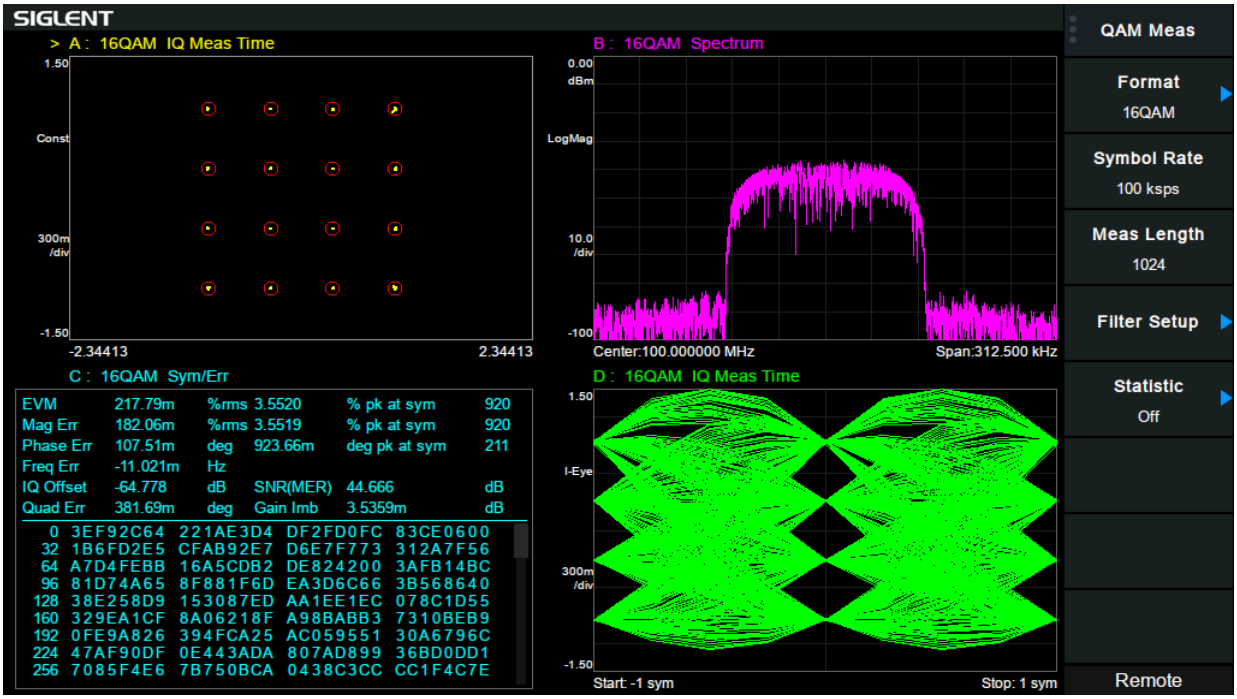

## Distance To Falut Mode

Cable and Antenna Test based on Timing Domain Analysis



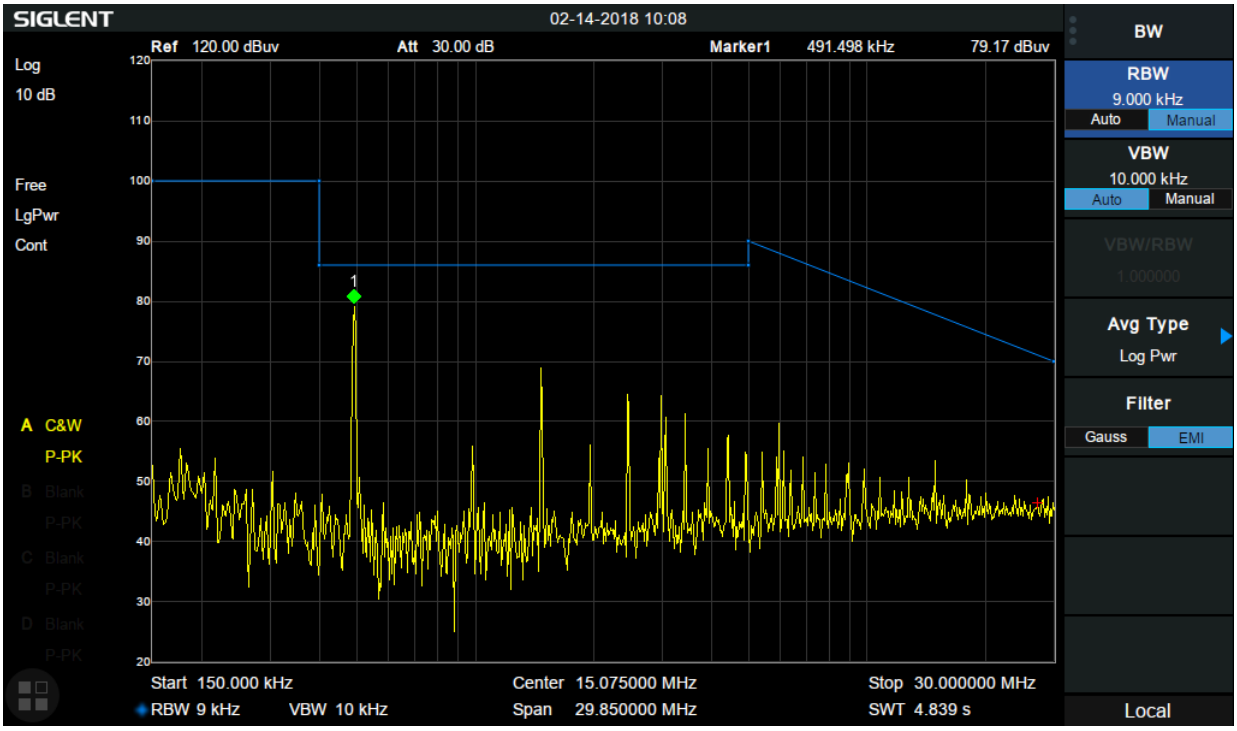
## Modulation Analysis Mode

AM/FM, ASK/FSK/PSK/MSK/QAM Vector Signal Modulation Analysis, EVM evaluation




## EMI Pre-Compliance Test

CISPR 16-1-1 EMI filter and Quasi-peak Detector , Log scale and Limit line



## Accessories

Utility Kit

Near Field Probe Set

USB-GPIB Adaptor

6U Rack Mount

Soft Carrying Bag


50 Ω Mechanical 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** | | | |
|---|---|---|---|
| | SVA1015X | SVA1032X | SVA1075X |
| Frequency range | 9 kHz ~ 1.5 GHz | 9 kHz ~ 3.2 GHz | 9 kHz~7.5 GHz |
| Frequency resolution | 1 Hz | | |
| **Frequency Span** | | | |
| Range | 0 Hz, 100 Hz to Max Frequency | | |
| Accuracy | ± Span / (number of display points - 1) | | |

| **Internal Reference Source** | | |
|---|---|---|
| Reference frequency | 10.000000 MHz | |
| Reference frequency accuracy / uncertainty | ± [(time since last adjustment × frequency aging rate) + temperature stability + initial calibration accuracy] | |
| Initial calibration accuracy | <1 ppm | |
| Temperature stability | <1 ppm/year, 0 °C ~50 °C | |
| Frequency aging rate | <0.5 ppm/first year, 3.0 ppm/20 years | |
| **Marker** | | |
| Marker resolution | Span / (number of display points - 1) | |
| Marker uncertainty | ± [frequency indication × reference frequency uncertainty + 1% × span + 10% × resolution bandwidth + marker resolution] | |
| Frequency Counter resolution | 0.01 Hz | 0.1 Hz |
| **Bandwidths** | | |
| Resolution bandwidth (-3dB) | 1 Hz ~ 1 MHz, in 1-3-10 sequence | 1 Hz~3 MHz |
| Resolution filter shape factor | < 4.8 : 1 (60 dB:3 dB), Gaussian-like | |
| RBW uncertainty | <5% | |
| Video bandwidth (-3dB) | 1 Hz ~ 3 MHz, in 1-3-10 sequence | 1 Hz~10 MHz |
| VBW uncertainty | <5% | |

| **Sweep and Trigger** | | | | |
|---|---|---|---|---|
| Sweep time | | 1 ms to 7500 s | | |
| RBW | Sweep | 30 Hz ~ 1 MHz | 30 Hz ~ 1 MHz | 3 kHz ~ 3 MHz |
| | FFT | 1 Hz ~ 10 kHz | 1 Hz ~ 10 kHz | 1 Hz ~ 10 kHz |
| Sweep rule | | Single, Continuous | | |
| Trigger source | | Free, Video, External | | |
| External trigger | | 5V TTL level, Rising edge/Falling edge | | |

## Amplitude Accuracy and Range Specifications

| **Amplitude and Level** | | | |
|---|---|---|---|
| | SVA1015X | SVA1032X | SVA1075X |
| Measurement range | DANL to +10 dBm, 100 kHz ~ 1 MHz, Preamp off<br>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 $V_{DC}$ | | |
| Maximum average power | 30 dBm, 3 minutes, fc ≥10 MHz, att > 20 dBm, preamp off | | |
| Maximum damage level | 33 dBm, fc ≥ 10 MHz, att > 20 dBm, preamp off | | |
| **Level Display** | | | |
| Logarithmic level axis | 1 dB to 200 dB | | |
| Linear level axis | 0 to reference level | | |
| Units of level axis | dBm, dBmV, dBμV, dBμA, Volt, Watt | | |
| Number of display points | 751 | | |
| Number of traces | 4 | | |
| Trace detectors | Positive-peak, Negative-peak, Sample, Normal,<br>Average(Voltage/RMS/Video), Quasi-peak | | |
| Trace functions | Clear write, Max Hold, Min Hold, View, Blank, Average, Math | | |

| **SSB Phase Noise** | | | |
|---|---|---|---|
| | SVA1015X | SVA1032X | SVA1075X |
| Offset | 20 °C to 30 °C, fc = 1 GHz, Normalized to 1 Hz | | |
| 10 kHz | -95 dBc/Hz,<br>-99 dBc/Hz (typ.) | -95 dBc/Hz,<br>-98 dBc/Hz (typ.) | -96 dBc/Hz,<br>-98 dBc/Hz (typ.) |
| 100 kHz | -96 dBc/Hz,<br>-98 dBc/Hz (typ.) | -96 dBc/Hz,<br>-97 dBc/Hz (typ.) | -95 dBc/Hz,<br>-97 dBc/Hz (typ.) |
| 1 MHz | -115 dBc/Hz,<br>-120 dBc/Hz (typ.) | -115 dBc/Hz,<br>-117 dBc/Hz (typ.) | -112 dBc/Hz,<br>-114 dBc/Hz (typ.) |

| Displayed Average Noise Level (DANL) | | | | |
|---|---|---|---|---|
| | | SVA1015X | SVA1032X | SVA1075X |
| | 20 °C to 30 °C, att = 0 dB, RBW = 1 Hz, sample detector, trace average > 50, TG off | | | |
| Preamp off | 100 kHz ~1 MHz | -101 dBm,<br>-107 dBm (typ.) | -107 dBm,<br>-111 dBm (typ.) | -105 dBm,<br>-109 dBm (typ.) |
| | 1 MHz~10 MHz | -124 dBm,<br>-130 dBm (typ.) | -132 dBm,<br>-136 dBm (typ.) | -122 dBm,<br>-126 dBm (typ.) |
| | 10 MHz~200 MHz | -128 dBm,<br>-134 dBm (typ.) | -137 dBm,<br>-141 dBm (typ.) | -142 dBm,<br>-146 dBm (typ.) |
| | 200 MHz~1.5 GHz | -121 dBm,<br>-127 dBm (typ.) | -135 dBm,<br>-139 dBm (typ.) | -142 dBm,<br>-147 dBm (typ.) |
| | 1.5 GHz~3.2 GHz | | -126 dBm,<br>-132 dBm (typ.) | -140 dBm,<br>-145 dBm (typ.) |
| | 3.2 GHz~5.0 GHz | | | -137 dBm,<br>-143 dBm (typ.) |
| | 5.0 GHz~6.5 GHz | | | -136 dBm,<br>-141 dBm (typ.) |
| | 6.5 GHz~7.5 GHz | | | -134 dBm,<br>-139 dBm (typ.) |
| Preamp on | 100 kHz ~1 MHz | -120 dBm,<br>-128 dBm (typ.) | -132 dBm,<br>-137 dBm (typ.) | -133 dBm,<br>-136 dBm (typ.) |
| | 1 MHz~10 MHz | -147 dBm,<br>-152 dBm (typ.) | -148 dBm,<br>-154 dBm (typ.) | -151 dBm,<br>-154 dBm (typ.) |
| | 10 MHz~200 MHz | -150 dBm,<br>-156 dBm (typ.) | -156 dBm,<br>-161 dBm (typ.) | -161 dBm,<br>-165 dBm (typ.) |
| | 200 MHz~1.5 GHz | -142 dBm,<br>-148 dBm (typ.) | -155 dBm,<br>-158 dBm (typ.) | -159 dBm,<br>-163 dBm (typ.) |
| | 1.5 GHz~3.2 GHz | | -145 dBm,<br>-149 dBm (typ.) | -159 dBm,<br>-162 dBm (typ.) |
| | 3.2 GHz~5.0 GHz | | | -157 dBm,<br>-161 dBm (typ.) |
| | 5.0 GHz~6.5 GHz | | | -157 dBm,<br>-160 dBm (typ.) |
| | 6.5 GHz~7.5 GHz | | | -155 dBm,<br>-159 dBm (typ.) |

| | | | |
|---|---|---|---|
| **Frequency Response** | | | |
| | SVA1015X | SVA1032X | SVA1075X |
| | 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 | | |
| | ±1.2 dB | ±0.7 dB | ±0.7 dB |
| RF input VSWR | Att = 10 dB, fc≥1 MHz | | Att = 20 dB, fc≥1 MHz |
| | <1.5 (nom.) | | <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 | | |
| | +10 dBm (typ.) | +10 dBm (typ.) | +14 dBm (typ.) |
| 1dB gain compression | 20 °C to 30 °C, fc ≥ 50 MHz, att = 0 dB, preamp off | | |
| | > -5 dBm (nom.) | > -5 dBm (nom.) | > 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 | | | |
|---|---|---|---|
| | SVA1015X | SVA1032X | SVA1075X |
| Frequency Range | 5 MHz ~ 1.5 GHz | 100 kHz ~ 3.2 GHz | 100 kHz~7.5 GHz |
| Frequency resolution | 1 Hz, Zero Span | | |
| RBW, sweep mode | 100 Hz ~ 1 MHz | 100 Hz ~ 1 MHz | 3k Hz ~ 3 MHz |
| **Power Parameter** | | | |
| Output level | -20 dBm ~ 0 dBm | -20 dBm ~ 0 dBm | -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 Impendence | N-type female, 50 Ω | | |
| Average safe reverse power | Total : 30 dBm (1 W) | | |
| Maximum safe reverse level | Voltage: ±50 $V_{DC}$ | | |

## Advanced Measurement Kit (Option SVA1000X-AMK)

| 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 | |

## EMI Filter and Quasi-Peak Detector Kit (Option SVA1000X-EMI)

| Measurement | |
|---|---|
| EMI filter RBW (-6dB) | 200 Hz, 9 kHz, 120 kHz, 1MHz (following CISPR 16-1-1) |
| Detector | Peak, Average, RMS, Quasi-peak (following CISPR 16-1-1) |
| QPD Dwell time | 0 us ~ 10 s |
| EMI Receiver Software | EasySpectrum EMI pre-compliance test Software |
| Frequency axis | Linear, Logarithmic |

# Vector Network Analyzer Mode

## Vector Network Analyzer

| **Stimulus and Measurement** | | | | |
|---|---|---|---|---|
| Frequency Range | | SVA1015X | SVA1032X | SVA1075X |
| | | 10 MHz ~ 1.5 GHz | 100 kHz ~ 3.2 GHz | 100 kHz ~ 7.5 GHz |
| Measurement | | S11, S21 | | |
| IFBW | | 10 kHz | | |
| Port1 Stimulus Power | | 0 dBm (nom.) | -5 dBm (nom.) | 0 dBm (nom.) |
| Format | | Lin Mag, Log Mag, Phase, Group Delay, SWR,<br>Smith Chart (Lin/Phase, Log/Phase, Real/Imag, R+j*X, G+j*B),<br>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 (tpy.) | 60 dB (tpy.) |
| | 10 MHz ~ 1.5 GHz | 90 dB (tpy.) | 90 dB (tpy.) | 90 dB (tpy.) |
| | 1.5 GHz ~ 3.2 GHz | | 90 dB (tpy.) | 90 dB (tpy.) |
| | 3.2 GHz ~ 7.5 GHz | | | 80 dB (tpy.) |
| 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, F603FE, 85032B\E, 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

## Distance to Fault (Option SVA1000X-DTF)

| Measurement | | | |
|---|---|---|---|
| | SVA1015X | SVA1032X | SVA1075X |
| Frequency Range | 10 MHz~1.5 GHz | 100 kHz~3.2 GHz | 100 kHz ~ 7.5 GHz |
| Maximum Distance (meters) | （76800 x Velocity Factor）/（Stop Freq - Start Freq (MHz)) | | |
| Resolution (meters) | （150 x Velocity Factor）/（Stop Freq - Start Freq (MHz)) | | |
| Windows | Rectangular, Hamming | | |
| Calibration | Full 1-Port(OSL) | | |
| Velocity Factor | 0.1~1 | | |

## Modulation Analyzer Mode

| Common Parameter | | | |
|---|---|---|---|
| | SVA1015X | SVA1032X | SVA1075X |
| Frequency range | 2 MHz~2.1 GHz | 2 MHz~3.2 GHz | 2 MHz ~7.5 GHz |
| Carrier Power Accuracy | ±2 dB (nom.) | | |
| Carrier Power Range | -30 dBm to +20 dBm (nom.) | | |

### Digital Modulation Analysis (Option SVA1000X-DMA)

| Measurement | |
|---|---|
| Modulation Type | ASK: 2ASK;<br>FSK: 2,4,8,16 level;<br>MSK: GMSK;<br>PSK: BPSK,QPSK,OQPSK,8PSK;<br>DPSK: DBPSK, DQPSK, D8PSK, $\pi/4$ -DQPSK, $\pi/8$ -D8PSK;<br>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 2.5 Msps, Symbol Rate* Points/Symbol <=10 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,<br>IQ Ref Time, IQ Ref Spectrum,<br>Time, Spectrum,<br>Symbol Error Chart, Err Vector Time, Err Vector Spectrum,<br>IQ Mag Err, IQ Phase Err, |
| Layout | Single, Stacked 2, Grid 1 2, Grid 2*2 |
| Trace Formats | Log mag, Lin mag, Real, Imag,<br>I-Q, Constellation, I-eye, Q-eye,<br>Wrap Phase, Unwrap Phase, Trellis eye |
| **Symbol Error Chart** | |
| PSK/DPSK/MSK/QAM | EVM (rms EVM, peak EVM), Magnitude error,<br>Phase error, IQ offset, Carrier offset, SNR Quadrature error,<br>Gain imbalance(not support for MSK), |
| ASK | ASK Error, ASK depth, carrier offset |
| FSK | FSK Error, Magnitude error, FSK deviation, carrier offset |

## Analog Modulation Analysis (Option SVA1000X-AMA)

| | | |
|---|---|---|
| **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.) | |

## Inputs and Outputs

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

## General Specification

| **Structure** | | | |
|---|---|---|---|
| | SVA1015X | SVA1032X | SVA1075X |
| Weight | Net: 4.30 kg (9.5 lb);<br>Shipping: 5.10 kg | Net: 4.40 kg (9.7 lb);<br>Shipping: 5.20 kg | Net: 4.70 kg (10.4 lb);<br>Shipping: 5.50 kg |
| Dimensions | 393 mm × 207 mm × 116.5 mm (W×H×D) | | |
| Display | TFT LCD, 1024 × 600, 10.1 inch multi-touch screen | | |
| Storage | Internal (Flash) 256 MB, external (USB storage device) 32 GByte | | |
| **Working Environment** | | | |
| Source | AC voltage range: 100-240 V, 50/60 Hz or 100-120 V 400 Hz; | | |
| Power consumption | 35 W | 35 W | 70 W |
| Temperature | Working temperature: 0 °C to 40 °C,<br>Storage temperature: -20 °C to 70 °C | | |
| Humidity | 0 °C to 30 °C, ≤ 95% Relative humidity<br>30 °C to 50 °C, ≤ 75% Relative humidity | | |
| Altitude | Operating: less than 3 km | | |
| **Electromagnetic Compatibility** | | | |
| EN 61326-1: 2013 /<br>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 %<br>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 +<br>A1: 2007 + A2: 2010 | 80 MHz to 1000 MHz: 10V/m, 1.4 GHz to 2.0 GHz:3 V/m,<br>2.0 GHz to 2.7 GHz:1V/m | | |
| IEC 61000-4-4: 2004 +<br>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;<br>Short Interruptions Test Level % UT: 0%/250P | | |
| **Safety** | | | |
| IEC 61010-1:2010/EN 61010-1:2010 | | | |
| CAN/CSA-C22.2 No.61010-1:2012,<br>CAN/CSA-C22.2 No.61010-2-30:2012,<br>UL 61010-1:2012,<br>UL 61010-2-30:2012 | | | |
| **RoHS** | | | |
| 2011/65/EU | | | |

## Ordering Information

| Product | Description | Order Number |
|---|---|---|
| Product Code | Spectrum & Vector Network Analyzer, 1.5 GHz | SVA1015X |
| | Spectrum & Vector Network Analyzer, 3.2 GHz | SVA1032X |
| | Spectrum & Vector Network Analyzer, 7.5 GHz | SVA1075X |
| Standard Accessories | Quick Start, USB Cable, Power Cord | |
| Common Options and Accessories | Advanced Measurement Kit | SVA1000X-AMK |
| | Utility Kit:<br>N(M)-SMA(M) cable (6 GHz), N(M)-N(M) cable (6 GHz),<br>N(M)-BNC(F) adaptor x 2, N(M)-SMA(F) adaptor x 2,<br>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 |
| | USB-GPIB Adaptor | USB-GPIB |
| | Soft carrying bag | BAG-S2 |
| | 6U Rack Mount Kit | SSA-RMK |
| VNA Options | Distance To Fault | SVA1000X-DTF |
| | 50 Ω N type Mechanical Calibration Kit:<br>Open(M),Short(M),Match(M),Through Adapter(F-F) | F503ME |
| | 50 Ω 3.5mm/SMA type Mechanical Calibration Kit:<br>Open(F),Short(F),Match(F),Through Adapter (F-F) | F603FE |
| EMI test Options | EMI Measurement Kit:<br>EMI Filter and Quasi Peak Detector,<br>EMI Receiver Mode in EasySpectrum Software | SVA1000X-EMI |
| | 300 kHz~3 GHz Near Field Probe Kit:<br>3 H-probes (20/10/5 mm), 1 E-probe (5 mm) | SRF5030T |
| Modulation Analysis Options | Digital Modulation: ASK, FSK, MSK, PSK, QAM | SVA1000X-DMA |
| | Analog Modulation: AM, FM | SVA1000X-AMA |

## About SIGLENT

SIGLENT is an international high-tech company, concentrating on R&D, sales, production and services of electronic test & measurement instruments.

SIGLENT first began developing digital oscilloscopes independently in 2002. After more than a decade of continuous development, SIGLENT has extended its product line to include digital oscilloscopes, function/arbitrary waveform generators, RF generators, digital multimeters, DC power supplies, spectrum analyzers, vector network analyzers, isolated handheld oscilloscopes, electronic load and other general purpose test instrumentation. Since its first oscilloscope, the ADS7000 series, was launched in 2005, SIGLENT has become the fastest growing manufacturer of digital oscilloscopes. We firmly believe that today SIGLENT is the best value in electronic test & measurement.

Headquarters:
SIGLENT Technologies Co., Ltd
Add: Bldg No.4 & No.5, Antongda Industrial Zone, 3rd Liuxian Road, Bao'an District, Shenzhen, 518101, China
Tel: + 86 755 3688 7876
Fax: + 86 755 3359 1582
Email: sales@siglent.com
Website: int.siglent.com

SIGLENT.EU

SIGLENT Authorized Distributor