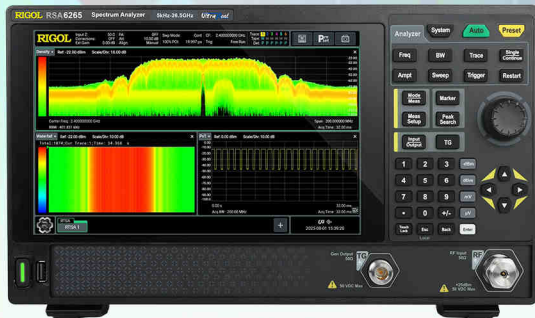


# RSA6000 Series Spectrum Analyzer



### Feature

**5 kHz ~ 26.5 GHz**  
Frequency Range

**200MHz**  
Real-Time / Analysis BW

**4THz/s**  
Sweep Speed

**-163 dBm(typ.)**  
DANL(1GHz)

**-108dBc/Hz(typ.)**  
Phase Noise(1GHz, 10kHz)

**±0.7dB**  
Amplitude Accuracy

## The Power Tool for Engineers Breaking Boundaries in Spectrum Analysis

RIGOL RSA6000 Series Real-Time Spectrum Analyzer, built on the upgraded UltraReal platform, combines high-performance signal capture, advanced analysis, and portable design—breaking free from traditional lab constraints. With one-click mode switching, remote Web Control, and a lightweight form factor, it's a core platform for R&D, validation, and troubleshooting—delivering high-end performance in a truly portable form.

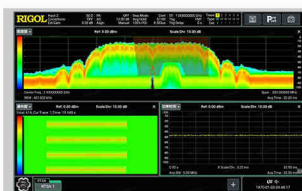
### Benefits

- **5 kHz to 26.5 GHz frequency range** — from low-frequency comms to microwave radar.
- **200 MHz real-time bandwidth, 4 THz/s sweep speed** — capture fast, transient signals with precision.
- **Rich signal analysis & demodulation** within 200 MHz bandwidth.
- **Five modes in one device:** GPSA, RTSA, VSA, EMI, ADM — ideal for R&D, production, and compliance.
- **Built-in preamp and tracking generator** — ready to use, no external modules required.
- **Compact and portable**, easy to deploy in the field.
- **Touch + key operation**, supports **Web Control** for remote access.
- **USB, LAN, HDMI interfaces**, SCPI compatible — ready for integration and automation.

### All-in-One Platform · Five Modes in One



### Next-Level Performance · Real-Time Transient Capture



**Reveal the Full Truth of Every Signal**  
Up to **200MHz** real-time bandwidth, RSA6000 captures every burst, hop, and anomaly—without loss or delay.



**Full Spectrum Visibility in Milliseconds**  
With up to 4THz/s scan speed and FMT trigger, RSA6000 captures dense, wideband signals in seconds—so no transient is missed, even in interference-heavy environments.

### Ultra-Portable Design · Deploy Anywhere, Anytime

121 mm

358 mm

214 mm

5.3 kg

Small in size, light in weight—the A Series fits seamlessly into lab benches, factory setups.

## Application

### Spectrum Monitoring

- Real-time signal detection
- Frequency occupancy & compliance
- Illegal transmission tracking

### Wireless & RF Testing

- Gain, loss, harmonics, spurs, IMD
- Spectrum & interference analysis
- EVM and constellation validation

### R&D & Production

- RF performance validation
- Noise/interference troubleshooting
- Fast production line verification

### Research & Education

- RF teaching & lab experiments
- Academic research & innovation

### EMC / EMI

- Conducted/radiated tests
- PCB emission localization
- Pre-compliance diagnostics

# Product Features

## Product Features

- Five working modes: GPSA, RTSA, VSA, EMI, and ADM
- Frequency range: 5 kHz to 26.5 GHz
- Excellent DANL (Displayed Average Noise Level)
- Good phase noise performance
- High-precision amplitude measurement error
- Multiple analysis bandwidth options
- Excellent SFDR
- Powerful real-time spectrum analysis function
- Display different types of measurement values in multi-pane windowing form
- Support USB, LAN, and HDMI interfaces
- Support standard SCPI instruction sets

RSA6000 series is RIGOL's newly launched spectrum analyzer product. Its excellent performance in SFDR, phase noise, amplitude accuracy and test speed makes it applicable in various test scenarios such as spectrum analysis, real-time spectrum analysis, vector signal analysis, pulse analysis. RSA6000 series real-time spectrum analyzer has a strong expansion capability, allowing you to build the test system or perform user-defined development via various digital and analog output interfaces. With its excellent performance and flexible configuration, it can meet your test demands in various application scenarios such as wireless communication, automobile electronics, Internet of Things (IoT), and etc.

## RSA6000 Series Technical Specifications

Model	RSA6085	RSA6140	RSA6265
Frequency Range	5 kHz to 8.5 GHz	5 kHz to 14 GHz	5 kHz to 26.5 GHz
Max. Analysis Bandwidth	80 MHz (Std.), 200 MHz (Opt.)		
Max. Real-Time Bandwidth	80 MHz (Std.), 200 MHz (Opt.)		
1 GHz Phase Noise	10 kHz offset, <-108 dBc/Hz (typ.)		
Displayed Average Noise Level (DANL), Normalized from 1 GHz to 1 Hz	-143 dBm (typ.), with PA off -163 dBm (typ.), with PA on		
RBW	1 Hz to 10 MHz		
VBW	1 Hz to 10 MHz		
Third-order Intercept (TOI) 1GHz	+15 dBm (typ.)		

Model	RSA6085	RSA6140	RSA6265
Amplitude Range	DANL to +25 dBm (single-tone)		
I/O	LAN, USB, and HDMI		
Screen	10.1" capacitive multi-touch screen		
Programming Control Instruction Sets	Supports SCPI commands control, compatible with Keysight PXA series commands		

# Specifications

Specifications are valid under the following conditions: the instrument is within the calibration period; stored for at least two hours at 0°C to 50°C temperature; 40-minute warm-up. Unless otherwise noted, the specifications in the manual include the measurement uncertainty.

Typical (typ.): typical performance, which 80 percent of the measurement results will meet at room temperature (approximately 25°C). The data are not warranted and do not include the measurement uncertainty.

Nominal (nom.): the expected mean or average performance or a designed attribute (such as the 50Ω connector). The data are not warranted and are measured at room temperature (approximately 25°C).

Measured (meas.): an attribute measured during the design phase and can be compared with the expected performance, e.g. the amplitude drift varies with time. The data are not warranted and are measured at room temperature (approximately 25°C).

### NOTE:

All charts in this manual are the measurement results of multiple instruments at room temperature unless otherwise noted. All the specifications (except tracking generator specifications) listed in this manual are obtained with tracking generator off.

## Measurement Mode and Product Model Adaptation Table

	RSA6085	RSA6140	RSA6265
GPSA	√	√	√
RTSA	√	√	√
VSA	○	○	○
EMI	○	○	○
ADM	○	○	○

### NOTE:

√ indicates standard configuration; ○ indicates optional configuration.

## All Measurement Modes

Model	RSA6085	RSA6140	RSA6265
Frequency Range	5 kHz to 8.5 GHz	5 kHz to 14 GHz	5 kHz to 26.5 GHz
<b>Internal Reference Frequency</b>			
Reference Frequency	10 MHz		

### Internal Reference Frequency

Accuracy	$\pm[(\text{time since last calibration} \times \text{aging rate}) + \text{temperature stability} + \text{calibration accuracy}]$
Initial Calibration Accuracy	1 ppm
Temperature Stability	0°C to 50°C, with the reference 25°C
	<0.5 ppm
Aging Rate	<1 ppm/year

## GPSA Mode

### Frequency

#### Frequency Readout Accuracy

Marker Frequency Resolution	$\text{span}/(\text{number of sweep points} - 1)$
Marker Frequency Uncertainty	$\pm(\text{marker frequency readout} \times \text{reference frequency accuracy} + 1\% \times \text{span} + 10\% \times \text{resolution bandwidth} + \text{marker frequency resolution})$

#### Frequency counter (RBW = 1 kHz, Freq = 1 GHz)

Resolution	1 Hz (Max.)
Uncertainty	$\pm(\text{marker frequency readout} \times \text{reference frequency accuracy} + \text{counter resolution})$

#### Frequency Span

Range	0 Hz, 10 Hz to maximum frequency
Resolution	2 Hz
Uncertainty	$\pm[0.1\% \times \text{span RBW} + \text{span}/(\text{number of sweep points} - 1)]$

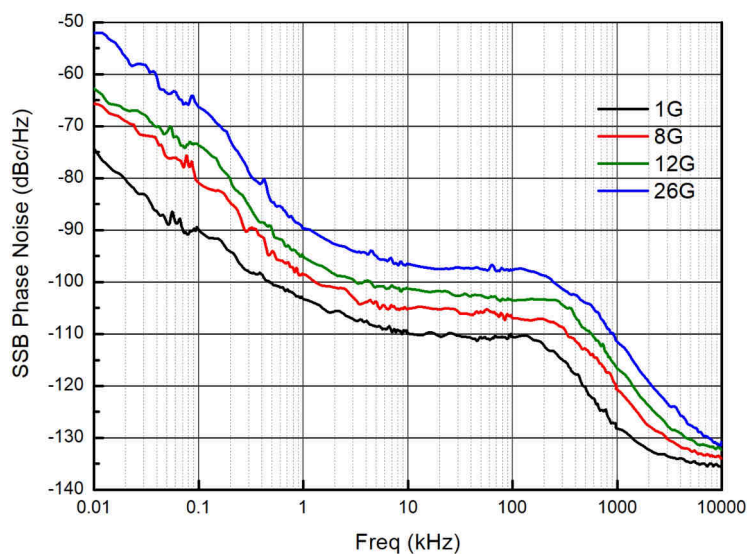
#### SSB Phase Noise

20°C to 30°C,  $f_c = 1000$  MHz, sample detector



### SSB Phase Noise

Carrier Offset	1 kHz	< -95 dBc/Hz (typ.)
	10 kHz	< -105 dBc/Hz, < -108 dBc/Hz (typ.)
	100 kHz	< -105 dBc/Hz, < -108 dBc/Hz (typ.)
	1 MHz	< -120 dBc/Hz, < -125 dBc/Hz (typ.)
	10 MHz	< -130 dBc/Hz (typ.)



SSB Phase Noise

### Residual FM

20°C to 30°C, RBW = VBW = 1 kHz

Residual FM	< 10 Hz (nom.)
-------------	----------------

### Bandwidth

Set "Sweep Type" to "Accurate"

Resolution Bandwidth (-3 dB)	1 Hz to 10 MHz, in 1-3-10 sequence
RBW Accuracy	10 MHz, <10%
	1 Hz to 3 MHz, <3%
Resolution Filter Shape Factor (60 dB: 3 dB) [1]	≤5 (nom.)
Video Bandwidth (-3 dB)	1 Hz to 10 MHz, in 1-3-10 sequence
Resolution Bandwidth (-6 dB)	200 Hz, 9 kHz, 120 kHz, 1 MHz

### Amplitude

### Measurement Range

Range	$f_c \geq 10$ MHz
	DANL to +25 dBm

### Maximum Safe Input Level<sup>[2]</sup>

DC Voltage	50 V
CW RF Power	+25 dBm, attenuation > 35 dB, preamp off
	0 dBm, attenuation > 35 dB, preamp on

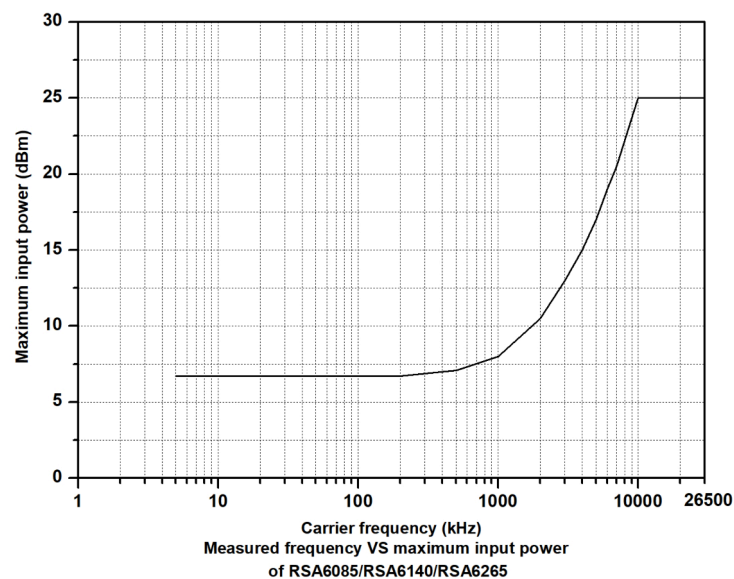
### Maximum Damage Level

CW RF Power	+27 dBm (0.5 W)
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### NOTE:

[1]: When RBW is greater than 100 kHz, the filter characteristics near -60 dB cannot be directly obtained with measurement.

[2]: When  $f_c$  is smaller than 10 MHz, the maximum safe input level is decreased.



Maximum Damage Level

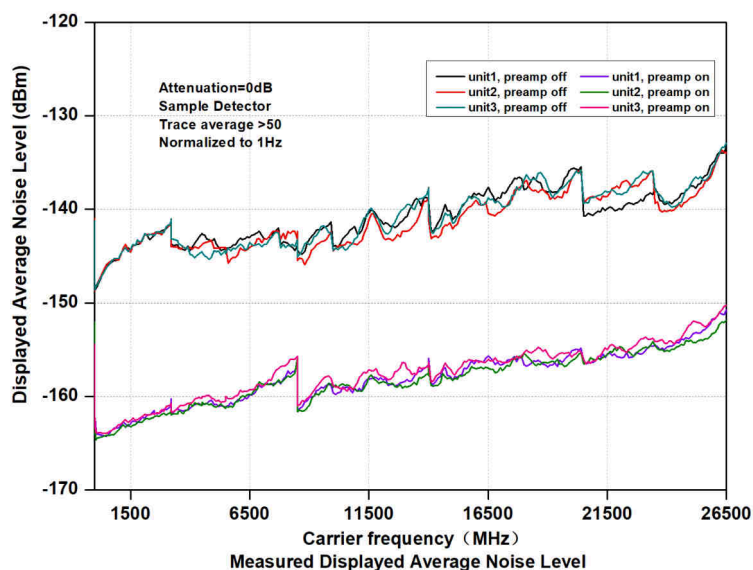
### Displayed Average Noise Level (DANL)

Attenuation = 0 dB, sample detector, trace averages  $\geq 50$ , tracking generator off, normalized to 1 Hz, 20°C to 30°C, input impedance = 50  $\Omega$ .

**Displayed Average Noise Level (DANL)**

PA Off	5 kHz < f ≤ 100 kHz	<-120 dBm (typ.)
	100 kHz < f ≤ 20 MHz	<-135 dBm, <-138 dBm (typ.)
	20 MHz < f ≤ 1.5 GHz	<-140 dBm, <-143 dBm (typ.)
	1.5 GHz < f ≤ 3.2 GHz	<-138 dBm, <-141 dBm (typ.)
	3.2 GHz < f ≤ 8.5 GHz	<-136 dBm, <-140 dBm (typ.)
	8.5 GHz < f ≤ 14 GHz	<-133 dBm, <-136 dBm (typ.)
	14 GHz < f ≤ 18 GHz	<-130 dBm, <-133 dBm (typ.)
	18 GHz < f ≤ 23 GHz	<-127 dBm, <-131 dBm (typ.)
	23 GHz < f ≤ 26.5 GHz	<-122 dBm, <-125 dBm (typ.)
PA On	100 kHz < f ≤ 500 kHz	<-149 dBm, <-152 dBm (typ.)
	500 kHz < f ≤ 20 MHz	<-152 dBm, <-155 dBm (typ.)
	20 MHz < f ≤ 1.5 GHz	<-160 dBm, <-163 dBm (typ.)
	1.5 GHz < f ≤ 3.2 GHz	<-157 dBm, <-160 dBm (typ.)
	3.2 GHz < f ≤ 8.5 GHz	<-154 dBm, <-157 dBm (typ.)
	8.5 GHz < f ≤ 14 GHz	<-151 dBm, <-154 dBm (typ.)
	14 GHz < f ≤ 18 GHz	<-148 dBm, <-151 dBm (typ.)
	18 GHz < f ≤ 23 GHz	<-145 dBm, <-148 dBm (typ.)
	23 GHz < f ≤ 26.5 GHz	<-140 dBm, <-143 dBm (typ.)





DANL

### Level Display

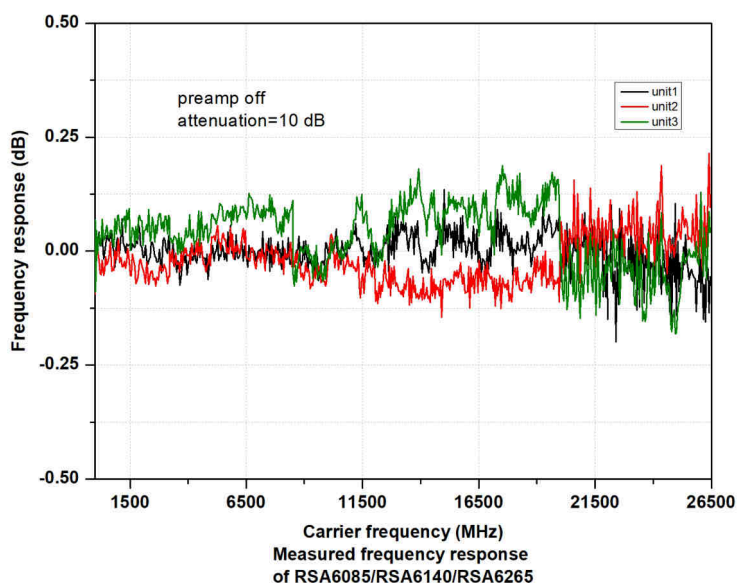
Logarithmic Scale	1 dB to 200 dB
Linear Scale	0 to reference level
Number of display points	801
Number of traces	6
Detector Type	Normal, pos-peak, neg-peak, sample, RMS average, voltage average, Quasi-peak, EMI CISPR RMS average
Trace Type	Clear write, max hold, min hold, average, view, blank
Scale Unit	dBm, dBmV, dBuV, nV, uV, mV, V, pW, nW, uW, mW, W, mA, uA, and A

### Frequency Response

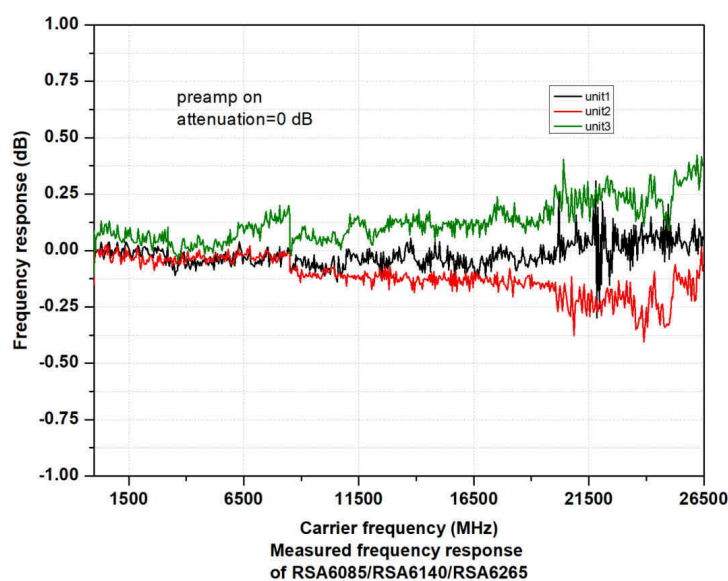
PA Off	attenuation = 10 dB, relative to 50 MHz, 20°C to 30°C	
	5 kHz < f ≤ 100 kHz	<0.3 dB (typ.)
	100 kHz < f ≤ 3.2 GHz	<0.5 dB, <0.3 dB (typ.)
	3.2 GHz < f ≤ 8.5 GHz	<0.7 dB, <0.5 dB (typical)
	8.5 GHz < f ≤ 14 GHz	<1.5 dB, <1.3 dB (typ.)
	14 GHz < f ≤ 20 GHz	<1.7 dB, <1.5 dB (typ.)
	20 GHz < f ≤ 26.5 GHz	<2 dB, <1.8 dB (typ.)

### Frequency Response

PA On	attenuation = 0 dB, relative to 50 MHz, 20°C to 30°C	
	100 kHz < f ≤ 3.2 GHz	<0.8 dB, <0.6 dB (typ.)
	3.2 GHz < f ≤ 8.5 GHz	<1 dB, <0.8 dB (typ.)
	8.5 GHz < f ≤ 14 GHz	<2.5 dB, <2.3 dB (typ.)
	14 GHz < f ≤ 20 GHz	<2.7 dB, <2.5 dB (typ.)
	20 GHz < f ≤ 26.5 GHz	<3 dB, <2.8 dB (typ.)



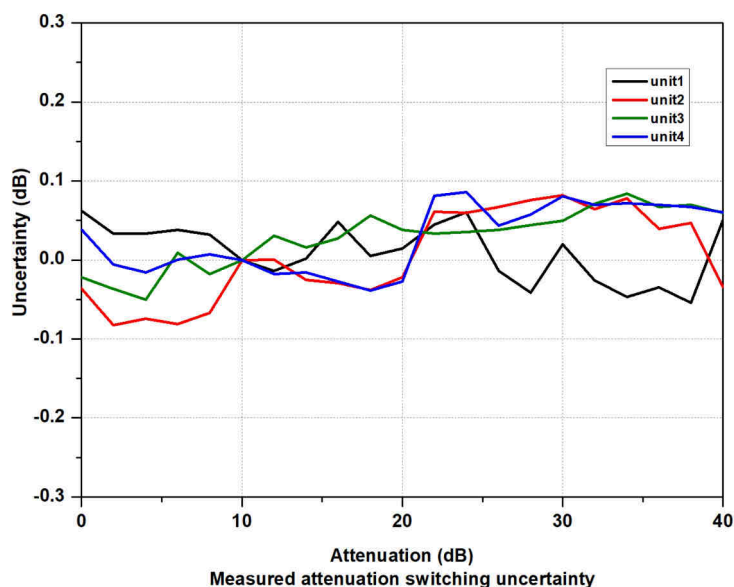
Frequency Response (attenuation = 10 dB, PA off)



Frequency Response (attenuation = 0 dB, PA on)

### Input Attenuation Switching Uncertainty

Setting Range	0 dB to 40 dB, in 2 dB step
Switching Uncertainty	$f_c = 50$ MHz, relative to 10 dB, preamp off, 20°C to 30°C
	<0.3 dB



Switching Uncertainty

### Absolute Amplitude Accuracy

Uncertainty	$f_c = 50$ MHz, peak detector, preamp off, attenuation = 10 dB, input signal level = -10 dBm, 20°C to 30°C	
	<0.3 dB	

### Reference Level

Range	Logarithmic Scale	-170 dBm +25 dBm, in 0.01 dB step
	Linear Scale	707 pV to 3.98 V, 0.11% (0.01 dB) resolution

### RBW Switching

Uncertainty	Set "Sweep Type" to "Accurate", relative to 30 kHz RBW	
	1 Hz to 1 MHz	<0.1 dB
	3 MHz, 10 MHz	<0.3 dB

### PA (Option RSA6000-PA)

	RSA6085	RSA6140	RSA6265
Frequency Range	100 kHz to 8.5 GHz	100 kHz to 14 GHz	100 kHz to 26.5 GHz

### PA (Option RSA6000-PA)

Gain	20 dB (nom.)
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### Level Measurement Uncertainty

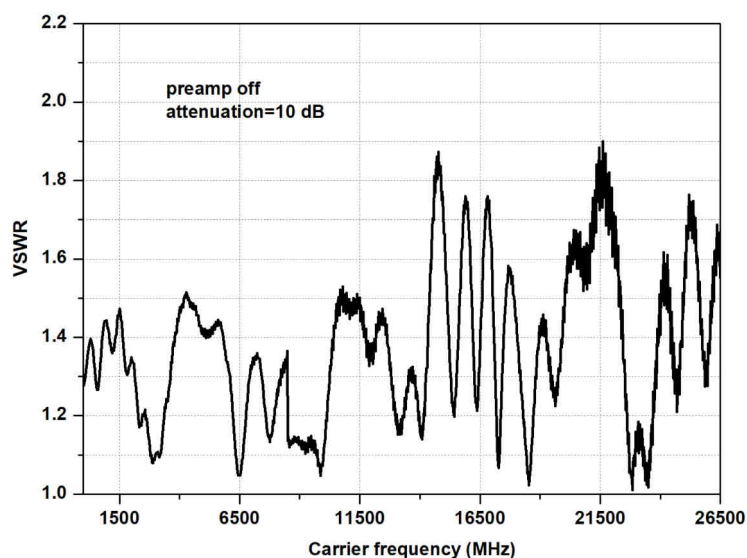
95% confidence level, S/N > 20 dB, RBW = VBW = 1 kHz, PA off, attenuation = 10 dB, -50 dBm < input level ≤ 0 dBm,  $f_c$  > 10 MHz, 20°C to 30°C

Level Measurement Uncertainty	10 MHz < f ≤ 3.2 GHz	<0.8 dB (nom.)
	3.2 GHz < f ≤ 8.5 GHz	<1 dB (nom.)
	8.5 GHz < f ≤ 14 GHz	<1.8 dB (nom.)
	14 GHz < f ≤ 20 GHz	<2 dB (nom.)
	20 GHz < f ≤ 26.5 GHz	<2.4 dB (nom.)

### RF Input VSWR

Attenuation ≥ 10 dB, preamp off

VSWR	10 MHz ≤ f ≤ 3.2 GHz	<1.6 (nom.)
	3.2 GHz ≤ f ≤ 8.5 GHz	<1.6 (nom.)
	8.5 GHz ≤ f ≤ 14 GHz	<1.8 (nom.)
	14 GHz ≤ f ≤ 26.5 GHz	<2 (nom.)



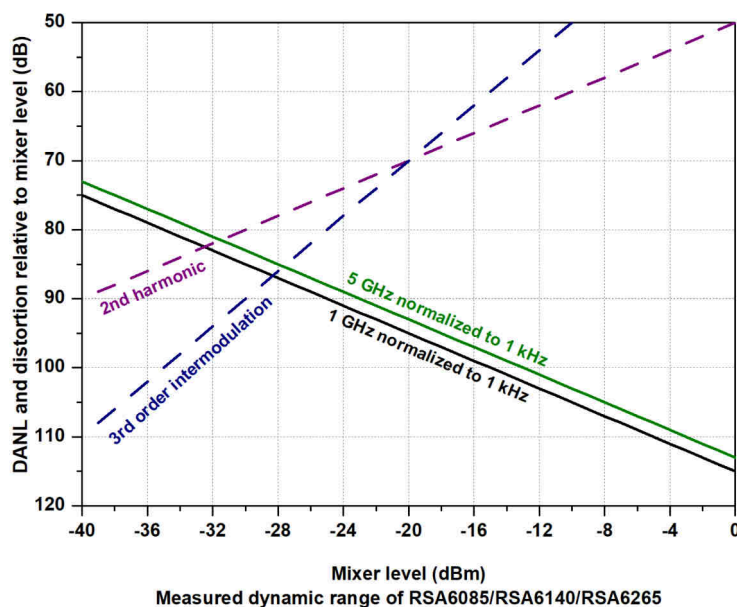
VSWR

### Distortion

Second Harmonic Intercept (SHI)	$f_c \geq 50$ MHz, input signal level = -20 dBm, attenuation = 0, preamp off	
	+45 dBm	
Third-order Intercept (TOI)	$f_c \geq 50$ MHz, two -20 dBm tones at input mixer spaced by $> 5 \times$ IF filter BW (RBW), attenuation = 0 dB, preamp off	
	10 MHz to 8.5 GHz	+11 dBm, +15 dBm (typ.)
	8.5 GHz to 26.5 GHz	+10 dBm, +14 dBm (typ.)
1dB Gain Compression ( $P_1$ dB) <sup>[1]</sup>	$f_c \geq 50$ MHz, attenuation = 0 dB, preamp off	
Dual-tone Test	0 dBm (nom.)	

### NOTE:

[1]: The frequency interval of the two-tone signals should be greater than 20 MHz.



Distortion

### Spurious Response

Residual Response	Input terminated with a 50 $\Omega$ load, attenuation = 0 dB, 20°C to 30°C	
	<-90 dBm (typ.)	
LO Disturbing Signal	Input terminated with a 50 $\Omega$ load, attenuation = 0 dB, 600 MHz $\times N^{[1]}$ or 600 MHz $\times N^{[1]} \pm 4178.6$ MHz $\times 2$ , 20°C to 30°C	
	<-80 dBm (typ.)	

### Spurious Response

Intermediate Frequency	<-60 dBc/Hz (typical)		
System-related Sideband	Carrier offset = 1 kHz		
	<-60 dBc/Hz (typical)		
Input-related Spurious	mixer level -30 dBm		
	<-60 dBc/Hz (typical)		
Image spurious mixer level -10 dBm	Tuned Freq	Excitation Freq	
	$10 \text{ MHz} \leq f \leq 3.2 \text{ GHz}$	$f + 2 \times 4178.6 \text{ MHz(1st IF)}$	<-80 dBc/Hz (typical)
	$3.2 \text{ GHz} \leq f \leq 8.5 \text{ GHz}$	$f + 2 \times 2378.6 \text{ MHz(1st IF)}$	<-60 dBc/Hz (typical)
	$8.5 \text{ GHz} \leq f \leq 14 \text{ GHz}$	$f + 2 \times 4178.6 \text{ MHz(1st IF)}$	<-80 dBc/Hz (typical)
	$14 \text{ GHz} \leq f \leq 18 \text{ GHz}$	$f + 2 \times 4178.6 \text{ MHz(1st IF)}$	<-50 dBc/Hz (typical)
	$18 \text{ GHz} \leq f \leq 26.5 \text{ GHz}$	$f - 2 \times 4178.6 \text{ MHz(1st IF)}$	
	$10 \text{ MHz} \leq f \leq 18 \text{ GHz}$	$f - 2 \times 21.4 \text{ MHz(3rd IF)}$	<-70 dBc/Hz (typical)
	$18 \text{ GHz} \leq f \leq 26.5 \text{ GHz}$	$f + 2 \times 21.4 \text{ MHz(3rd IF)}$	
	$10 \text{ MHz} \leq f \leq 18 \text{ GHz}$	$f + 2 \times 578.6 \text{ MHz(2nd IF)}$	<-60 dBc/Hz (typical)
	$18 \text{ GHz} \leq f \leq 26.5 \text{ GHz}$	$f - 2 \times 578.6 \text{ MHz(3rd IF)}$	

### NOTE:

N is an integer.

### Sweep

#### Sweep

Sweep Time	Span $\geq 10 \text{ Hz}$	1 ms to 4,000 s
	zero span	1 us to 6,000 s
Sweep Time Uncertainty	Span $\geq 10 \text{ Hz}$ , RBW $\geq 1 \text{ kHz}$	5% (nom.)
	zero span (sweep time > 1ms)	5% (nom.)



### Sweep

Sweep Mode	Continuous, single
Sweep Points	EMI mode: 101 to 100,001, default 801 Other modes: 101 to 100,001, default 801

### Trigger

#### Trigger

Trigger Source	Free run, external trigger, video	
Trig Delay	Span $\geq$ 10 Hz	0 ms to 500 ms
	zero span	-150 ms to 500 ms
Trigger Delay Resolution	0.1 $\mu$ s	

### Tracking Generator (RSA6000-T08)

#### TG Output<sup>[1]</sup>

	RSA6085	RSA6140	RSA6265
Frequency Range	100 kHz to 8.5 GHz		
Output Level Range	-40 dBm to 0 dBm		
Output Level Resolution	1 dB		
Output Flatness	Relative to 50 MHz		
	$\pm 3$ dB (nominal)		

### NOTE:

[1]: The TG and FFT sweep mode are mutually exclusive. When the TG is enabled, the sweep mode will be affected.

## RTSA Mode

#### RTSA Mode

Real-Time Bandwidth	80 MHz (std.)
	200 MHz (Option RSA6000-RB200)

### RTSA Mode

Min. Signal Duration for 100% POI at the Full-Scale Accuracy	maximum span; default Kaiser Window		
	3.83 $\mu$ s		
Detector Type	Pos-peak, neg-peak, sample, voltage average		
Number of Traces	6		
Window Type	Hanning, Blackman-Harris, Rectangular, Flatop, Kaiser, and Gaussian		
RBW	Provides 6 RBWs for each window, except the Rectangular; for Kaiser window,		
	Span	Min. bandwidth	Max. bandwidth
	200 MHz	502.29 kHz	16.07 MHz
	80 MHz	200.91 kHz	6.43 MHz
	40 MHz	100.46 kHz	3.21 MHz
	10 MHz	25.11 kHz	803.66 kHz
Max. Sample Rate	255.75 MSa/s		
Sweep Speed	4 THz/s (Option RSA6000-RB200)		
FFT Rate	300000/s		
Number of Markers	8		
Amplitude Resolution	0.01 dB		
Frequency Point	801		
Acquisition Time	Max. sample rate		
	>133.3 $\mu$ s		

### Min. signal duration for 100% POI at different RBWs, with the unit $\mu$ s

Span	RBW1	RBW2	RBW3	RBW4	RBW5	RBW6
200 MHz	7.710	5.708	4.708	4.207	3.957	3.832
80 MHz	15.004	10.000	7.498	6.246	5.621	5.308
40 MHz	25.005	14.995	9.990	7.488	6.237	5.611
20 MHz	45.005	24.985	14.976	9.971	7.468	6.217

### Amplitude

	Only applicable to the Normal measurement.
Amplitude Flatness	80 MHz, BW $\pm 0.7$ dB (nom.) 200 MHz, BW $\pm 1.2$ dB (nom.)
SFDR	< -60 dBc (typ.)

### Density

Probability Range	0 to 100% (with a step of 0.1%)
Min. Span	5 kHz
Duration	32 ms to 10 s

### Spectrogram

Maximum Acquisition Volume	10,000
Dynamic Range Covered with Color	200 dB

### PvT

Min. Capture Time	100 $\mu$ s
Max. Capture Time	40 s

### Trigger

Trigger Source	Free run, external, IF power (time), FMT
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### FMT

Trigger Diagram	density, spectrogram, normal
Trigger Resolution	0.5 dB
Trigger Condition	Enter, Leave, Inside, Outside, Enter-Leave, Leave-Enter

## VSA Mode

### Analysis Bandwidth

Analysis Bandwidth	80 MHz
	200 MHz (Option RSA6000-B200)

### Capture Oversampling

Capture Oversampling	4, 8, 16
----------------------	----------

Capture Length	
Capture Length	Max. 4,096
Sample Rate	
Max. Sample Rate	256 MSa/s
Symbol Rate	
Symbol Rate	Related to Capture Oversampling
	= Sample Rate/Capture Oversampling, $\geq 1$ kHz
Available I/Q Bandwidth	
Available I/Q Bandwidth	Symbol Rate x Capture Oversampling/1.28
Trig Mode	
Trigger Mode	Free run, external, IF power (time)
Modulation Format	
FSK	2FSK, 4FSK, 8FSK
MSK	Enables or disables the differential encoding for MSK
PSK	BPSK, QPSK, OQPSK, DQPSK, $\pi/4$ -DQPSK, 8PSK, D8PSK, and $\pi/8$ -D8PSK
QAM	16QAM, 32QAM, 64QAM, 128QAM, 256QAM, 512QAM, 1024QAM
ASK	2ASK, 4ASK
Filter Type	
Measurement Filter Type	No Filter, RRC, Gaussian, Rectangular, user-defined
Reference Filter Type	Raised Cosine, RRC, Gaussian, Rectangular, Half Sine, user-defined
Preset Standard	
Cellular	GSM, NADC, WCDMA, PDC, PHP (PHS)
Wireless Networking	Bluetooth, WLAN (802.11b), ZIGBEE 868M, ZIGBEE 915M, ZIGBEE 2450M
Others	TETRA, DECT, APCO-25

### Measurement Uncertainty

Applicable Conditions	Temperature at +20°C to +30°C
	Signal level $\geq -25$ dBm
	Select the proper amplitude range
	Deviation between the instrument's center frequency and the signal's center frequency less than 5% of symbol rate
	Random data sequence
	Capture oversampling 4

### Residual Error for QPSK

Test Signal	The reference filter is RC, measurement filter RRC, with rolloff factor 0.35. The result lengths are 150 symbols. The center frequency is 1 GHz, and the capture oversampling is 4.
-------------	---

#### Residual EVM (EVM) RMS

Symbol Rate	100 ksps	<0.7% (nom.)
	1 Msps	<0.7% (nom.)
	10 Msps	<1.0% (nom.)
	20 Msps	<2.0% (nom.)

### Residual Error for FSK

Test Signal	The reference filter is RC, measurement filter RRC, with rolloff factor 0.35. The FSK frequency deviation is a quarter of the symbol rate. The result lengths are 150 symbols. The center frequency is 1 GHz, and the capture oversampling is 4.
-------------	--

#### FSK Error

Symbol Rate	10 Msps	<1.5% (nom.)
	64 Msps	<4% (nom.)

## EMI Mode

### EMI Resolution Bandwidth

Resolution Bandwidth (-3 dB)	100 Hz to 10 MHz, in 1-3-10 sequence
Resolution Bandwidth (-6 dB)	200 Hz, 9 kHz, 120 kHz, 1 MHz

### EMI Detector

Detector	Pos-peak, neg-peak, average, quasi-peak, EMI average, and RMS average
----------	---

### EMI Key Features

Key Features	CISPR 16-1-1 detectors
	CISPR 16-1-1 bandwidths
	log and linear display
	signal list
	scan table
	simultaneous detectors
	automatic limit testing
	measure at marker
	delta to limit
	report generation

## ADM Mode

### General Specifications

	RSA6085	RSA6140	RSA6265
Carrier Power	-30 dBm to 20 dBm		
Carrier Power Accuracy	±1.8 dB (nom.)		

### Amplitude Modulation (AM)

Modulation Rate		20 Hz to 100 KHz
Modulation Rate Accuracy	Modulation Rate < 1 kHz	1 Hz (nom.)
	Modulation Rate ≥ 1 kHz	<0.1% of the Modulation Rate (nom.)
Modulation Depth		5% to 95%
Modulation Depth Accuracy		±4% (nom.)

### Frequency Modulation (FM)

Modulation Rate <sup>[1]</sup>	20 Hz to 200 KHz
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### Frequency Modulation (FM)

Modulation Rate Accuracy	Modulation Rate < 1 kHz	1 Hz (nom.)
	Modulation Rate $\geq$ 1 kHz	<0.1% of the Modulation Rate (nom.)
Freq Deviation		20 Hz to 400 kHz
FM Deviation Accuracy <sup>[1]</sup>		$\pm$ 4% (nom.)

### Phase Modulation (PM)

Modulation Rate		50 Hz to 50 kHz
Modulation Rate Accuracy	Modulation Rate < 1 kHz	1 Hz (nom.)
	Modulation Rate $\geq$ 1 kHz	<0.1% of the Modulation Rate (nom.)
PM Deviation		0.2 rad to 100 rad
PM Deviation Accuracy		$\pm$ 4% (nom.)

### NOTE:

[1]: Modulation Index = Modulation Frequency Deviation/Modulation Rate. The range of the modulation index is from 0.2 to 1,000.

## General Specifications

### Display

Type	capacitive multi-touch screen
Resolution	1280X800
Dimensions	10.1-inch
Color	24-bit color

### Mass Memory

Mass Memory	Internal Storage	128 GB
	External Storage	USB storage device (not supplied)

### Power

Input Voltage Range, AC	100 V to 240 V
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Power		
AC Frequency	50 Hz/60 Hz	
AC Current	4A	
Power Consumption	90W (typ.)	
Environment		
Temperature	Operating Temperature Range	0°C to 50°C
	Storage Temperature Range	-20°C to +70°C
Humidity	Operating	0°C to 30°C: ≤95%RH 30°C to 40°C: ≤75% RH 40°C to 50°C: ≤45%RH
	Non-operating	<+40°C: 5% to 90%RH, without condensation ≥+40°C to <+60°C: 5% to 80%RH, without condensation >+60°C to <+70°C: 5% to 45%RH, without condensation
Altitude	Operating Height	Below 3,000 m (9,842 feet)

### Electromagnetic Compatibility and Safety

EMC	Complies with EMC Directive 2014/30/EU, complies with or above the standard specified in IEC61326-1:2013/EN61326-1:2013 Group 1 Class A	
	CISPR11/EN 55011	
	IEC61000-4-2:2008/EN61000-4-2	± 4.0 kV (contact discharge) ±8.0 kV (air discharge)
	IEC61000-4-3:2002/EN61000-4-3	3 V/m (80 MHz to 1 GHz); 3 V/m (1.4 GHz to 2 GHz); 1 V/m (2.0 GHz to 2.7 GHz)
	IEC61000-4-4:2004/EN61000-4-4	1 kV power line
	IEC61000-4-5:2001/EN61000-4-5	0.5 kV (phase-to-neutral voltage) 1 kV (phase-to-earth voltage) 1 kV (neutral-to-earth voltage)
	IEC61000-4-6:2003/EN61000-4-6	3 V, 0.15 MHz to 80 MHz
	IEC61000-4-11:2004/EN61000-4-11	Voltage dip: 0% UT during half cycle 0% UT during 1 cycle 70% UT during 25 cycles Short interruption: 0% UT during 250 cycles
Safety	Complies with IEC 61010-1:2010 (Third Edition)/EN 61010-1:2010, UL 61010-1:2012 R4.16 and CAN/CSA-C22.2 No. 61010-1-12+ GI1+ GI2	
Environment	Samples of this product have been type tested in accordance with RIGOL's reliability test regulations and verified to be robust against the environmental stresses of storage, transportation, and end-use; those stresses include, but are not limited to, temperature, humidity, shock, and vibration.  The test methods are compliant with standards specified in GB/T65872 Class 2 and MIL-PRF-28800F Class 3.	
Appearance and Dimensions		
W x H x D	358.1 mm x 214.8 mm x 121.4 mm	
Weight		
Weight	5 kg	

### Calibration Interval

Recommended Calibration Interval	18 months
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## Input/Output

### Front Panel Connector

RF Input	Impedance	50 $\Omega$ (nom.)
	Connector	N-type female (only available for RSA6085/RSA6140) 3.5mm male (only available for RSA6265)
Tracking Generator Output	Impedance	50 $\Omega$ (nom.)
	Connector	N-type female

### Internal/External Reference

Internal Reference	Frequency	10 MHz
	Output Level	+3 dBm to +10 dBm, +7 dBm (typ.)
	Impedance	50 $\Omega$ (nom.)
	Connector	BNC female
External Reference	Frequency	10 MHz $\pm$ 10 ppm
	Input Level	0 dBm to +10 dBm
	Impedance	50 $\Omega$ (nom.)
	Connector	BNC female

### External Trigger Input/Output

Trig Input	Impedance	$\geq 1$ k $\Omega$ (nom.)
	Connector	BNC female
	Level	3.3 V TTL Level
Trig Output	Impedance	50 $\Omega$ (nom.)
	Connector	BNC female
	Level	3.3 V TTL Level

**Communication Interface**

USB Host	Connector	USB Type-A (Standard)
	Protocol	Version 2.0
USB Device	Connector	USB Type- B (Standard)
	Protocol	Version 2.0
LAN	Connector	100/1000 Base-T, RJ-45
	Protocol	LXI Core 2011 Device
HDMI	Connector	A plug
	Protocol	HDMI 1.4b

# Order Information and Warranty Period

## Order Information

	Description	Order No.
Model	Real-time Spectrum Analyzer, 5 kHz to 8.5 GHz	RSA6085
	Real-time Spectrum Analyzer, 5 kHz to 14 GHz	RSA6140
	Real-time Spectrum Analyzer, 5 kHz to 26.5 GHz	RSA6265
Standard Accessory	Power Cord	-
Options	Vector Signal Analysis Application Software	RSA6000-VSA
	EMI Measurement Application Software	RSA6000-EMI
	Analog Demodulation Application Software	RSA6000-ADM
	Preamplifier (PA), 8.5 GHz	RSA6000-P08
	Preamplifier (PA), 14 GHz	RSA6000-P14
	Preamplifier (PA), 26.5 GHz	RSA6000-P26
	200 MHz Analysis Bandwidth	RSA6000-B200
	200 MHz Real-time Bandwidth	RSA6000-RB200
	Advanced Measurement Kit	RSA6000-AMK
	8.5 GHz Tracking Generator Output	RSA6000-T08
Optional Accessories	DSA utility kit. Refer to <a href="#">Note[1]</a> for details.	DSA Utility Kit
	RF adaptor kit. Refer to <a href="#">Note[2]</a> for details.	RF Adaptor Kit
	Includes: 50 $\Omega$ to 75 $\Omega$ adaptor (2pcs)	RF CATV Kit
	Includes: 6 dB attenuator (1pcs), 10 dB attenuator (2pcs)	RF Attenuator Kit
	30 dB high-power attenuator, with the max. power of 100 W	ATT03301H
	N(M)-N(M) RF Cable	CB-NM-NM-75-L-12G
	N(M)-SMA(M) RF Cable	CB-NM-SMAM-75-L-12G
	Near-field Probe	NFP-3
	USB Cable x1	CB-USBA-USBB-FF-150



**NOTE:**

- For all the mainframes, accessories, and options, please contact the local office of RIGOL.
- [1]: Includes N-SMA cable, BNC-BNC cable, N-BNC adaptor, N-SMA adaptor, 75  $\Omega$ -50  $\Omega$  adaptor, 900 MHz/1.8 GHz antenna (2pcs), 2.4 GHz antenna (2pcs)
- [2]: Includes: N(F)-N(F) adaptor (1pcs), N(M)-N(M) adaptor (1pcs), N(M)-SMA(F) adaptor (2pcs), N(M)-BNC(F) adaptor (2pcs), SMA(F)-SMA(F) adaptor (1pcs), SMA(M)-SMA(M) adaptor (1pcs), BNC T type adaptor (1pcs), 50  $\Omega$  SMA load (1pcs), 50  $\Omega$  BNC impedance adaptor (1pcs)

## Warranty Period

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Three years for the mainframe, excluding the accessories.