Specifications

The specified technical data applies under the following conditions[1]:

- Compliance with specified ambient conditions and one-year calibration cycle

Frequency

Frequency range	9 kHz to 3 GHz	
Reference frequency		
Aging	2×10^{-6} / year	
Temperature drift	1×10^{-6}	5° C to 30° C
Frequency counter		
Resolution	1 Hz, 10 Hz, 100 Hz, 1 kHz	
Frequency span	1 kHz to 3 GHz, 0 Hz	
Spectral purity		
SSB phase noise	<–90 dBc (1 Hz)	10 kHz carrier offset, 9 kHz ≤ f ≤ 3 GHz
Residual FM	<100 Hz, typ. 60 Hz	1 kHz resolution bandwidth, 1 kHz video bandwidth, 9 kHz ≤ f ≤ 3 GHz
Sweep time		
Span ≥ 1 kHz	100 ms to 1000 s	
Span = 0 Hz	100 µs to 20 s	
Bandwidths		
Resolution bandwidths (–3 dB)	200 Hz to 1 MHz	in 1, 2, 3, 5 sequences
Tolerance	5%	digital filter
Video bandwidths	10 Hz to 1 MHz	in 1, 2, 3, 5 sequences

[1] *15 minutes warm-up within permissible temperature range*

Amplitude

Level measurement range	>137 dB	
Max. input level		
50 MHz to 3 GHz	+33 dBm	
10 MHz to 50 MHz	+26 dBm	
9 kHz to 10 MHz	+20 dBm	
Intermodulation-free range		
1 MHz to 100 MHz	≤ –60 dBc	two-tone signal with 2 x –30 dBm,
100 MHz to 3 GHz	≤ –70 dBc	0 dB input attenuation
Harmonics	≤ –60 dBc	–40 dBm, 0 dB input attenuation
Inherent spurious responses	≤ –85 dBm	terminated input,
		0 dB input attenuation
Other spurious	≤ –60 dBc	10 MHz to 3 GHz,
		–30 dBm level at first mixer
Displayed average noise level	≤ –110 dBm, typ. –120 dBm	f > 9 kHz, 300 Hz resolution
		bandwidth, 10 Hz video bandwidth,
		0 dB input attenuation
1 dB compression point of first mixer	–10 dBm	100 kHz to 3 GHz,
		0 dB input attenuation
Setting range of reference level	–110 dBm to +36 dBm	
RF input attenuation range	0 dB to 70 dB	in 2 dB steps, manual selection
		or automatic coupling to
		reference level
Display range	80 dB, 40 dB, 16 dB, 8 dB, linear	
Display units		
Logarithmic	dBm, dBµV, dBmV	
Linear	V, W	
Traces	1 active trace and 1 stored trace	
Level measurement uncertainty	≤1.5 dB	

Markers

Marker	1 marker and 1 delta marker
Marker functions	peak, next peak, marker to center, marker to reference
Marker display	normal, delta, noise marker, frequency counter

Trigger free run, video, external, line

Inputs

RF input		
Connector	N female	
Input impedance	50 Ω	
VSWR	<1.5	10 MHz to 3 GHz, input attenuation ≥ 20 dB
Max. input level	+33 dBm	with 30 dB input attenuation
Max. DC voltage	30 V	
External trigger input		
Connector	BNC female	
Trigger voltage	TTL voltages	
Reference frequency input		
Connector	BNC female	
Reference frequency	10 MHz ± 50 Hz	
Input voltage	0.5 to 2 V at 50 Ω	

Output

Reference frequency output		
Connector	BNC female	
Reference frequency	10 MHz	
Output voltage	>0.5 V at 50 Ω	

Interfaces

USB-Host		
Connector	A plug	
Protocol	Version 1.1	
Command set	device-specific, remote control via supplied Windows driver (Windows XP, 2000)	
USB device		
Connector	B plug	
Protocol	Version 1.1	

Power supply

Input voltage range	100 V to 240 V (AC), 50 Hz to 60 Hz, autoranging	
Power consumption	<35 VA	

General data

Display		
Type	5.4" active TFT colour display	
Resolution	320 x 240 pixels	
Memory locations		
Traces	5	
Device setups	10	
Ambient conditions		
Permissible temperature range	+5° C to +45° C	meets DIN EN 60068-2-1/2
Storage temperature range	–20° C to +70° C	
Rel. humidity	95% at +40° C	meets DIN EN 60068-2-3 (non-condensing)
Mechanical resistance		
Sinusoidal vibration	5 Hz to 150 Hz, max. 2 g at 55 Hz, 55 Hz to 150 Hz: 0.5 g constant	meets DIN EN 60068-2-6, DIN EN 61010-1 and MIL-T-28800D class 5
Random vibration	10 Hz to 500 Hz: 1.9 g	meets DIN EN 60068-2-64
Shock	shock spectrum	meets DIN EN 60068-2-27 and MIL-STD-810
Electromagnetic compatibility	meets EN 555011 class B and EN 61326 (EMC Directive 89/336/EEC)	
EMI field strength	10 V/m	
Safety class	DIN EN 61010-1 / IEC61010-1 UL3111-1; CSA22.2 No:1010.1	
Dimensions (W x H x D)	219 mm x 147 mm x 350 mm	
Weight	7.4 kg	

Ordering information

Spectrum Analyzer R&S FS300

Designation	Type	Order No.
Spectrum Analyzer	R&S FS300	1147.0991.03
PC Software	R&S FS300-K1	1147.1017.02
Rack Adapter	R&S ZZA-300	1147.1281.00

PD 0757.7917.21 · Spectrum Analyzer R&S FS300

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