Specifications

Version 03.00

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Spectrum Analyzer R&S®FSP

Specifications

ROHDE&SCHWARZ

Specifications

Specifications are valid under the following conditions:
15 minutes warm-up time at ambient temperature, specified environmental conditions met, calibration cycle adhered to, and total calibration performed.
Data without tolerances: typical values only.
Data designated "nominal" applies to design parameters and is not tested.
Data designated "σ= xx dB" is shown as standard deviation.

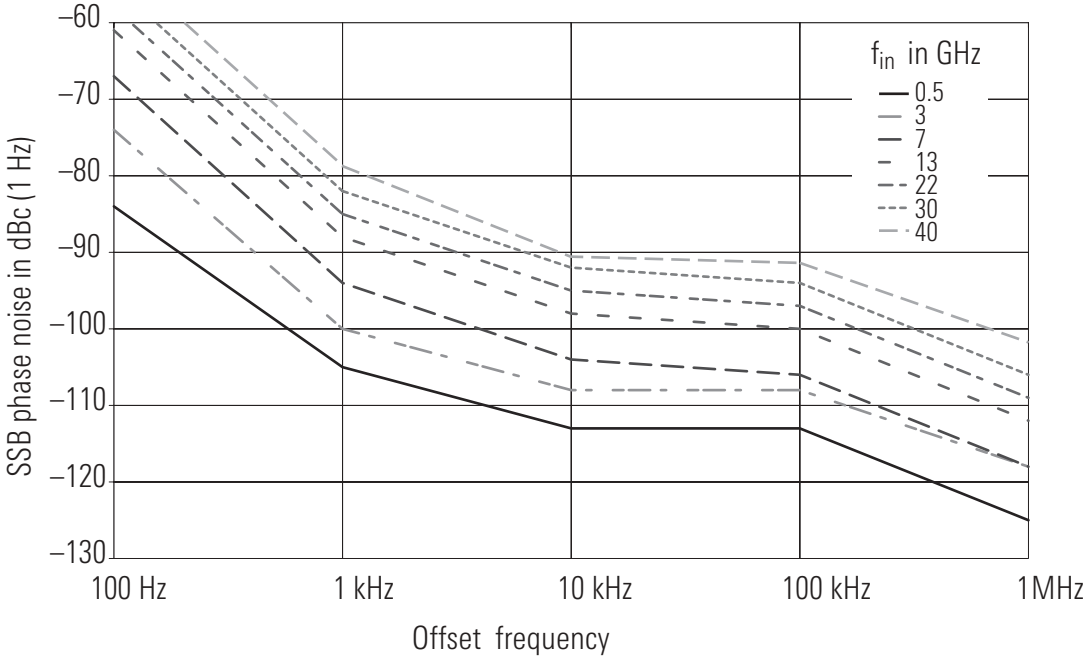
	R&S®FSP3	R&S®FSP7	R&S®FSP13	R&S®FSP30	R&S®FSP40
Frequency					
Frequency range	9 kHz to 3 GHz	9 kHz to 7 GHz	9 kHz to 13.6 GHz	9 kHz to 30 GHz	9 kHz to 40 GHz
Frequency resolution	0.01 Hz				
Internal reference frequency (nominal)					
Aging per year [1]	1×10^{-6}				
Temperature drift	1×10^{-6}				
With option R&S®FSP-B4 (OCXO)					
Aging per year [1]	1×10^{-7}				
Temperature drift	1×10^{-8}				
External reference frequency	10 MHz				
Frequency display	with marker or frequency counter				
Marker resolution	span/500				
Max. deviation (sweep time >3 x auto sweep time)	±(frequency x reference frequency + 0.5% x span + 10% x resolution bandwidth + ½ (last digit))				
Frequency counter resolution	0.1 Hz to 10 kHz (selectable)				
Count accuracy (S/N >25 dB)	±(frequency x reference frequency + ½ (last digit))				
Frequency span	0 Hz, 10 Hz to 3 GHz	0 Hz, 10 Hz to 7 GHz	0 Hz, 10 Hz to 13.6 GHz	0 Hz, 10 Hz to 30 GHz	0 Hz, 10 Hz to 40 GHz
Max. span deviation	0.1%				
Spectral purity (dBc(1 Hz)) SSB phase noise, f = 500 MHz, for f >500 MHz see diagrams below					
Carrier offset					
100 Hz	<–84, typ.–90				
1 kHz	<–100, typ.–108				
10 kHz	<–106, typ. –113				
100 kHz [2]	<–110, typ. –113				
1 MHz [2]	<–120, typ.–125				
10 MHz	typ.–145				
Residual FM					
f = 500 MHz, RBW 1 kHz, sweep time 100 ms	typ. 3 Hz				

[1] After 30 days of operation.
[2] Valid for span >100 kHz.

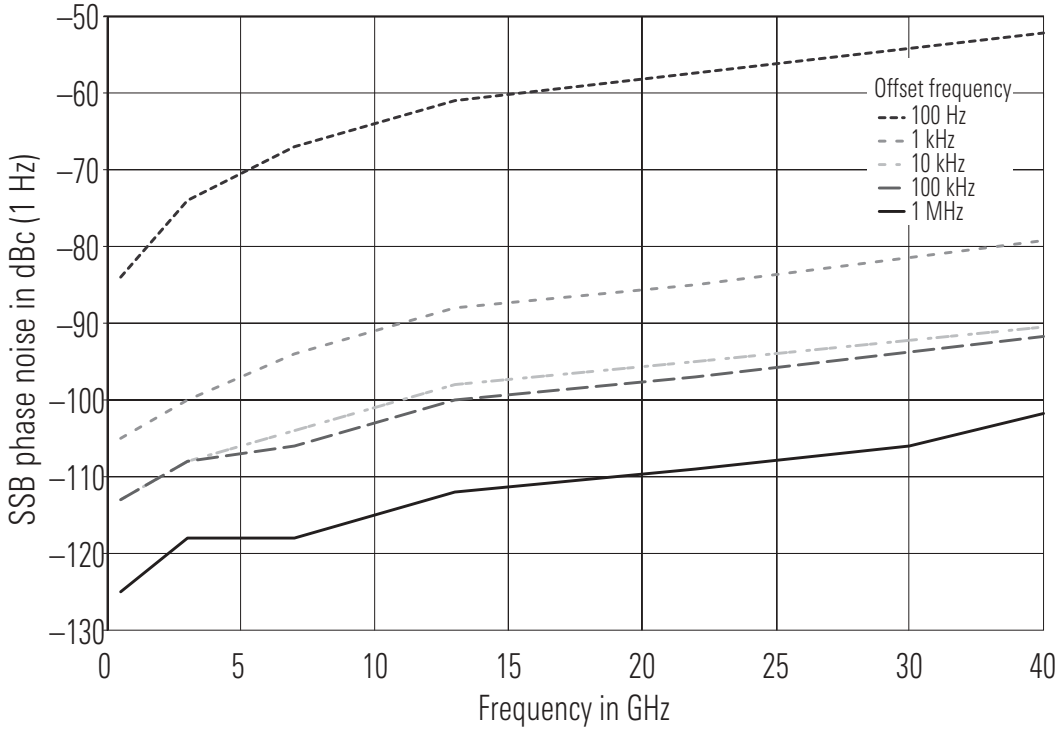
Typical values for SSB phase noise (reference to 1 Hz bandwidth):

Offset	f_{in}= 3 GHz	f_{in}= 7 GHz	f_{in}= 13 GHz	f_{in}= 22 GHz	f_{in}= 26 GHz	f_{in}= 40 GHz
100 Hz	–74 dBc	–67 dBc	–61 dBc	–57 dBc	–55 dBc	–52 dBc
1 kHz	–100 dBc	–94 dBc	–88 dBc	–84 dBc	–82 dBc	–79 dBc
10 kHz	–108 dBc	–104 dBc	–98 dBc	–94 dBc	–92 dBc	–91 dBc
100 kHz	–108 dBc	–106 dBc	–100 dBc	–96 dBc	–94 dBc	–92 dBc
1 MHz	–118 dBc	–118 dBc	–112 dBc	–108 dBc	–106 dBc	–102 dBc

Typ. SSB phase noise vs offset



Typ. SSB phase noise vs frequency



	R&S®FSP3	R&S®FSP7	R&S®FSP13	R&S®FSP30	R&S®FSP40
Sweep time					
Span ≥10 Hz	2.5 ms to 16000 s				
Max. deviation	1%				
Span 0 Hz	1 µs to 16000 s				
Resolution	125 ns				
Resolution bandwidths					
Bandwidths	10 Hz to 10 MHz (–3 dB) in 1, 3 sequence				
EMI bandwidths	200 Hz, 9 kHz, 120 kHz (–6 dB)				
Bandwidth accuracy					
≤100 kHz	<3%				
300 kHz to 3 MHz	<10%				
10 MHz	+10%, –30%				
Shape factor –60 dB: –3 dB					
≤100 kHz	<5:1 (Gaussian filters)				
300 kHz to 3 MHz	<15:1 (4-pole synchronously tuned filters)				
10 MHz	<7:1				
Shape factor –60 dB: –6 dB					
EMI bandwidths	<5:1				
Video bandwidths	1 Hz to 10 MHz in 1, 3 sequence				
FFT filter					
Bandwidths	1 Hz to 30 kHz (–3 dB) in 1, 3 sequence				
Bandwidth accuracy	5%, nominal				
Shape factor –60 dB:–3 dB	2.5:1 nominal				
Channel filter					
Bandwidths	100; 200; 300; 500 Hz; 1; 1.5; 2; 2.4; 2.7; 3; 3.4; 4; 4.5; 5; 6; 8.5; 9; 10; 12.5; 14; 15; 16; 18 (RRC); 20; 21; 24.3 (RRC); 25; 30; 50; 100; 150; 192; 200; 300; 500 kHz; 1; 1.228; 1.5; 2; 3; 5 MHz 1.28 (RRC), 3.84 (RRC), 4.096 (RRC)				
Level					
Display range	displayed average noise level to 30 dBm				
Maximum input level					
DC voltage	50 V		0 V		
RF attenuation 0 dB					
CW RF power	20 dBm				
Pulse spectral density	97 dBµV (1 MHz)				
RF attenuation ≥10 dB					
CW RF power	30 dBm				
Max. pulse voltage	150 V		50 V		
Max. pulse energy (10 µs)	1 mWs		0.5 mWs		
1 dB compression of input mixer					
0 dB RF attenuation, f > 200 MHz	0 dBm nominal				
Intermodulation					
3rd-order intermodulation					
Intermodulation-free dynamic range, level 2 x –30 dBm, Δf > 5 x RBW or 10 kHz, whichever is larger					
20 MHz to 200 MHz	>70 dBc, TOI >5 dBm				
200 MHz to 3 GHz	>74 dBc, TOI >7 dBm (typ. 10 dBm)				
3 GHz to 7 GHz	–	>80 dBc, TOI >10 dBm (typ. 15 dBm)			
7 GHz to 13.6 GHz	–	–	>80 dBc, TOI >10 dBm		
13.6 GHz to 30 GHz	–	–	–	>76 dBc, TOI >8 dBm	>80 dBc, TOI >10 dBm
30 GHz to 40 GHz	–	–	–	–	>80 dBc, TOI >10 dBm
With optional Electronic Attenuator R&S®FSP-B25 switched on					
20 MHz to 200 MHz	>74 dBc, TOI > 7 dBm		–		
200 MHz to 3 GHz	>80 dBc, TOI > 10 dBm		–		
3 GHz to 7 GHz	>84 dBc, TOI > 12 dBm		–		

[1] RF attenuation 10 dB, sweep time >1 s/1 GHz.

	R&S®FSP3	R&S®FSP7	R&S®FSP13	R&S®FSP30	R&S®FSP40
Second harmonic intercept point (SHI)					
<100 MHz	typ. 25 dBm				
100 MHz to 1.5 GHz	typ. 35 dBm				
1.5 GHz to 7 GHz	–	typ. 80 dBm			
7 GHz to 13.6 GHz	–	–	typ. 80 dBm		
13.6 GHz to 30 GHz	–	–	–	typ. 80 dBm	
30 GHz to 40 GHz	–	–	–	–	typ. 80 dBm
Displayed average noise level					
(0 dB RF attenuation, RBW 10 Hz, VBW 1 Hz, 20 averages, trace average, span 0 Hz, termination 50 Ω)					
Frequency					
9 kHz	<–95 dBm				
100 kHz	<–100 dBm				
1 MHz	<–120 dBm, typ. –125 dBm				
10 MHz to 1 GHz	<–142 dBm, typ. –145 dBm	<–140 dBm, typ. –145 dBm			
1 GHz to 3 GHz	<–140 dBm, typ. –145 dBm	<–138 dBm, typ. –143 dBm			
3 GHz to 7 GHz	–	<–138 dBm, typ. –143 dBm	<–135 dBm, typ. –140 dBm		
7 GHz to 13.6 GHz	–	–	<–132 dBm, typ. –138 dBm		
13.6 GHz to 22 GHz	–	–	–	<–120 dBm, typ. –128 dBm	–
22 GHz to 30 GHz	–	–	–	<–115 dBm, typ. –123 dBm	–
13.6 GHz to 20 GHz	–	–	–	–	<–120 dBm, typ. –128 dBm
20 GHz to 30 GHz	–	–	–	–	<–120 dBm, typ. –128 dBm
30 GHz to 40 GHz	–	–	–	–	<–112 dBm, typ. –120 dBm
Displayed average noise level with preamplifier on (option R&S®FSP-B25)					
10 MHz to 2 GHz	<–152 dBm		–		
2 GHz to 7 GHz	<–150 dBm		–		
Immunity to interference					
Image frequency	>70 dB				
Intermediate frequency (f <3 GHz)	>70 dB				
Spurious responses (f >1 MHz, without input signal, 0 dB attenuation)	<–103 dBm				
Other spurious (with input signal, mixer level <–10 dBm, Δf >100 kHz)	f <7 GHz: <–70 dBc f <13.6 GHz: <–64 dBc f <30 GHz: <–56 dBc				
Level display					
Screen	501 × 400 pixels (one diagram), max. two diagrams with independent settings				
Logarithmic level scale	10 dB to 200 dB, in steps of 10 dB				
Linear level scale	10% of reference level per level division (10 divisions)				
Traces	max. 3, with two diagrams on screen max. 3 per diagram				
Trace detector	max peak, min peak, auto peak, sample, quasi-peak, average, RMS				
Trace functions	clear/write, max. hold, min hold, average				
Number of test points	501, selectable in steps of approx. factor 2, 125 to 8001				
Setting range of reference level					
Logarithmic level display	–130 dBm to 30 dBm, in steps of 0.1 dB				
Linear level display	70.71 nV to 7.07 V in steps of 1%				
Units of level scale	dBm, dBmV, dBµV, dBµA, dBpW (log level display), mV, µV, mA, µA, pW, nW (linear level display)				
Max. uncertainty of level measurement					
At 128 MHz, –30 dBm (RF attenuation 10 dB, RBW 10 kHz, ref. level –20 dBm)	<0.2 dB (σ = 0.07 dB)				

	R&S®FSP3	R&S®FSP7	R&S®FSP13	R&S®FSP30	R&S®FSP40
Frequency response					
<50 kHz	<+0.5/–1.0 dB				
50 kHz to 3 GHz	<0.5 dB (σ= 0.17 dB)				
3 GHz to 7 GHz	–	<2 dB (σ= 0.7 dB)	–	–	–
7 GHz to 13.6 GHz	–	–	<2.5 dB[1)]		
13.6 GHz to 30 GHz	–	–	–	<3 dB[1)]	
30 GHz to 40 GHz	–	–	–	–	<4 dB[1)]
Frequency response with option R&S®FSP-B25 switched on (preamplifier, electronic attenuator)					
10 MHz to 3 GHz	<1 dB (σ= 0.33 dB)		–		
3 GHz to 7 GHz	–	<2 dB (σ= 0.7 dB)	–		
Attenuator	<0.2 dB (σ= 0.07 dB)				
Reference level switching	<0.2 dB (σ= 0.07 dB)				
Display nonlinearity LOG/LIN (S/N >16 dB)					
RBW ≤300 kHz					
0 dB to –70 dB	<0.2 dB (σ= 0.07 dB)				
–70 dB to –90 dB	<0.5 dB (σ= 0.17 dB)				
RBW ≥300 kHz					
0 dB to –50 dB	<0.2 dB (σ= 0.07 dB)				
–50 dB to –70 dB	<0.5 dB (σ= 0.17 dB)				
Bandwidth switching uncertainty (ref. to RBW = 10 kHz)					
10 Hz to 100 kHz	<0.1 dB (σ= 0.03 dB)				
300 kHz to 10 MHz	<0.2 dB (σ= 0.07 dB)				
1 Hz to 3 kHz, FFT	<0.2 dB (σ= 0.03 dB)				
Total measurement uncertainty					
0 GHz to 3 GHz	0.5 dB				
Trigger functions					
Trigger					
Span ≥10 Hz					
Trigger source	free run, video, external, IF level				
Trigger offset	125 ns to 100 s, resolution 125 ns min. (or 1% of offset)				
Span = 0 Hz					
Trigger source	free run, video, external, IF level				
Trigger offset	±125 ns to 100 s, min. resolution 125 ns, dependent on sweep time				
Max. deviation of trigger offset	±(125 ns + (0.1% x delay time))				
Gated sweep					
Trigger source	external, IF level, video				
Gate delay	1 µs to 100 s				
Gate length	125 ns to 100 s, min. resolution 125 ns or 1% of gate length				
Max. deviation of gate length	±(125 ns + (0.05% x gate length))				
Inputs and outputs (front panel)					
RF input	N female, 50 Ω			test port system 50 Ω, N female, 3.5 mm female[2)]	test port system 50 Ω, N female, K female[2)]
VSWR (RF attenuation >0 dB)					
f <3 GHz	1.5:1				
f <7 GHz	–	2.0:1			
f <13 GHz	–	–	2.5:1		
f <30 GHz	–	–	–	3.0:1	
f <40 GHz	–	–	–	–	3.0:1
Input attenuator	0 dB to 70 dB in 10 dB steps				
With option R&S®FSP-B25	0 dB to 75 dB in 5 dB steps		not available		
Probe power supply	+15 V DC, –12.6 V DC and ground, max. 150 mA				
Keyboard connector	PS/2 female for MF2 keyboard				
AF output (only with option R&S®FSP-B3)	3.5 mm mini-jack				
Output impedance	10 Ω				
Open-circuit voltage	up to 1.5 V, adjustable				

	R&S®FSP3	R&S®FSP7	R&S®FSP13	R&S®FSP30	R&S®FSP40
Inputs and outputs (rear panel)					
IF 20.4 MHz	Z_{out} = 50 Ω BNC female				
Level					
RBW ≤30 kHz, FFT	–10 dBm at reference level, mixer level >–60 dBm				
RBW ≥100 kHz	0 dBm at reference level, mixer level >–60 dBm				
Reference frequency					
Output	BNC female				
Output frequency	10 MHz				
Level	0 dBm, nominal				
Input	10 MHz				
Required level	0 dBm into 50 Ω				
Others					
Power supply for noise source	BNC female, 0 V and 28 V, switchable, max. 100 mA				
External trigger/gate input	BNC female, >10 kΩ				
Trigger voltage	1.4 V (TTL)				
IEC/IEEE bus remote control interface to IEC 625-2 (IEEE 488.2)					
Command set	SCPI 1997.0				
Connector	24-pin Amphenol female				
Interface functions	SH1, AH1, T6, L4, SR1, RL1, PP1, DC1, DT1, C0				
Serial interface	RS-232-C (COM), 9-pin sub-D connector				
Printer interface	parallel (Centronics-compatible)				
Mouse connector	PS/2 female				
Connector for ext. monitor (VGA)	15-pin sub-D connector				
General data					
Display	21 cm TFT colour display (8.4")				
Resolution	640 x 480 pixels (VGA resolution)				
Pixel failure rate	$<2 \times 10^{-5}$				
Mass memory	1.44 MByte 3½" disk drive (built-in), hard disk				
Data storage	>500 instrument settings and traces				
Temperatures					
Operating temperature range	+5 °C to +40 °C				
Permissible temperature range	+5 °C to +45 °C				
Storage temperature range	–40 °C to +70 °C				
Damp heat	+40 °C at 95% relative humidity (EN 60068-2-30)				
Mechanical resistance					
Vibration, sinusoidal	5 Hz to 150 Hz, max. 2 g at 55 Hz; 0.5 g from 55 Hz to 150 Hz; meets EN 60068-2-6, EN 60068-2-30, EN 61010-1, MIL-T-28800D, class 5				
Vibration, random	10 Hz to 100 Hz, acceleration 1 g (rms)				
Shock test	40 g shock spectrum, meets MIL-STD-810C and MIL-T-28800D, classes 3 and 5				
Recommended calibration interval	2 years for operation with external reference,1 year with internal reference				
Power supply					
AC supply	100 V AC to 240 V AC, 50 Hz to 400 Hz, 3.1 A to 1.3 A, class of protection I to VDE 411				
Typical power consumption	70 VA	120 VA	150 VA		
Safety	meets EN 61010-1, UL 3111-1, CSA C22.2 No. 1010-1,				
RFI suppression	meets EMC Directive of EU (89/336/EEC) and German EMC law				
Test mark	VDE, GS, CSA, CSA-NRTL/C				
Dimensions in mm (W x H x D)	412 x 197 x 417				
Weight	10.5 kg	11.3 kg	12 kg		

1) RF attenuation 10 dB, sweep time >1s/1 GHz.

2) See recommended extras for alternate connectors.

Specifications of options

Tracking Generator R&S®FSP-B9

Unless specified otherwise, specifications not valid for frequency range from –3 x RBW to +3 x RBW; however, at least not valid from –9 kHz to +9 kHz.
The specified level accuracy of the tracking generator is valid under the following conditions: RF attenuation ≥ 20 dB and sweep time ≥ 2000 ms.

Frequency	
Frequency range	9 kHz to 3 GHz
Frequency offset	
Setting range	±150 MHz
Resolution	1 Hz
Spectral purity (dBc (1 Hz)) SSB phase noise, f = 500 MHz, carrier offset 100 kHz	
Normal mode	typ. –90
With FM modulation on	typ. –70
Level	
Level setting range	–30 dBm to 0 dBm in steps of 0.1 dB
Level setting range with AM	–30 dBm to –6 dBm in steps of 0.1 dB
Max. deviation of output level, 128 MHz, 0 dBm	<1 dB
Frequency response	
Output level 0 dBm, 100 kHz to 2 GHz	<1 dB
Output level 0 dBm to -25 dBm, 9 kHz to 3 GHz	<3 dB
Dynamic range	
Attenuation measurement range, RBW = 1 kHz, f > 10 MHz	120 dB
Spurious	
Harmonics, output level –10 dBm	typ. –30 dBc
Nonharmonics, output level 0 dBm	typ. –30 dBc
Modulation	
Modulation format (external)	I/Q, AM, FM, FM-DC, PM, ASK, FSK
AM, f > 10 MHz	
Modulation depth	0% to 99%
Modulation frequency range	0 Hz to 1 MHz
FM, f > 10 MHz	
Frequency deviation	0 Hz to 20 MHz
Modulation frequency range	0 Hz to 100 kHz
I/Q modulation, f > 10 MHz	
0 Hz to 30 MHz	typ. 1 dB
Inputs and outputs (front panel)	
RF output	N female, 50 Ω
VSWR	typ. 2:1
Inputs and outputs (rear panel)	
TG/AM IN	$V_{max(pp)}$= 1 V; Z_{in} = 50 Ω, BNC female
TG Q/FM IN	$V_{max(pp)}$= 1 V; Z_{in} = 50 Ω, BNC female

External Generator Control R&S®FSP-B10	
Supported signal generators	R&S®SME02/03/06, R&S®SMG, R&S®SMGL, R&S®SMGU, R&S®SMH, R&S®SMHU, R&S®SMIQ02B/02E/03B/03E/04B/06B R&S®SML , R&S®SMR20/27/30/40/60 R&S®SMP02/22/03/04,R&S®SMX, R&S®SMY R&S®SMT02/03/06
LAN Interface R&S®FSP-B16	
Connector (rear panel)	RJ-45
Supported protocols	10Base-T (IEEE standard 10 Mbit/s 802.3) 100Base-TX (IEEE standard 100 Mbit/s 802.3u)
Extended Environmental Specification R&S®FSP-B20	
Temperature range (noncondensing)	
Operating temperature range	0°C to +50°C
Permissible temperature range	0°C to +55°C
Mechanical resistance	
Vibration, random	10 Hz to 300 Hz, acceleration 1.9 g (rms)

Electronic Attenuator R&S®FSP-B25 (only for R&S®FSP3 and R&S®FSP7)

Frequency	
Frequency range	10 MHz to 7 GHz
Input attenuator range (mechanical)	0 dB to 75 dB in 5 dB steps
Electronic attenuation range	0 dB to 30 dB in 5 dB steps
Preamplifier	20 dB, switchable
Displayed average noise level with preamplifier on (0 dB RF attenuation, RBW 10 Hz, VBW 1 Hz, 20 averages, trace average, span 0 Hz, termination 50 Ω)	
10 MHz to 2 GHz	<–152 dBm
2 GHz to 7 GHz	<–150 dBm
Intermodulation with electronic attenuator on	
3rd-order intermodulation, intermodulation-free dynamic range, level 2 x –30 dBm, Δf >5 x RBW or 10 kHz, whichever is larger	
20 MHz to 200 MHz	>74 dBc, TOI >7 dBm
200 MHz to 3 GHz	>80 dBc, TOI >10 dBm
3 GHz to 7 GHz	>84 dBc, TOI >12 dBm
Max. deviation of level measurement	
128 MHz, –30 dBm (RF attenuation 10 dB, RBW 10 kHz, ref. level –20 dBm), preamplifier on	<0.2 dB (σ= 0.07 dB)
Electronic attenuator	<0.2 dB (σ= 0.07 dB)
Frequency response with preamplifier, electronic attenuator	
10 MHz to 3 GHz	<1.0 dB (σ= 0.33 dB)
3 GHz to 7 GHz	<2 dB (σ= 0.7 dB)
Trigger Port R&S®FSP-B28	
Output voltage	high ≤4 V low ≥0.7 V
Trigger port connector	25-pin sub-D female
DC Power Supply R&S®FSP-B30	
Input voltage range	10 V to 28 V DC
	25 A to 12.5 A
Output voltage	120 V to 360 V DC/300 W
Current consumption (V DC = 12 V, FSP without options, default settings)	
R&S®FSP3	6 A typ.
R&S®FSP30	8 A typ.
Operating temperature range	0°C to +50°C
Storage temperature range	–40°C to +70°C
Dimensions in mm (W × H × D)	145 × 154 × 65
Weight	0.6 kg
Battery Pack R&S®FSP-B31/-B32	
NiMH battery pack with built-in load control for all R&S®FSP and R&S®ESPI models with options R&S®FSP-B1 and R&S®FSP-B30	
Input voltage of battery pack	10 V to 28 V DC
Input voltage power supply (battery charge)	24 V DC/max. 3 A
Output voltage	
Battery operation	13.2 V DC/200 Wh
Bypass operation	10 V to 28 V DC/10 A
Typical operating times (R&S®FSP without options)	
R&S®FSP3	2 h
R&S®FSP30	1.5 h
Charging time	5 h at 25°C
Operating temperature range (discharging)	0°C to +50°C
Operating temperature range (charging)	+10°C to +40 °C
Storage temperature range (<1 year)	–20°C to +35°C
Storage temperature range (<1 month)	–20°C to +55°C
Dimensions in mm (W × H × D)	400 × 134 × 42
Weight	3.7 kg
AC adapter (R&S®FSP-B31 only)	
Input voltage range	100 V to 240 V AC ±10%
Input frequency range	50 Hz to 60 Hz ±5%
Input power	140 VA
Output voltage	24 V
Output current	3 A
Operating temperature range	0°C to +50°C
Storage temperature range	–20°C to +70°C
Dimensions in mm (W × H × D)	132 × 58 × 30
Weight	0.3 kg

Ordering information

Order designation	Type	Order No.
Spectrum Analyzer, 9 kHz to 3 GHz	R&S®FSP3	1164.4391.03
Spectrum Analyzer, 9 kHz to 7 GHz	R&S®FSP7	1164.4391.07
Spectrum Analyzer, 9 kHz to 13.6 GHz	R&S®FSP13	1164.4391.13
Spectrum Analyzer, 9 kHz to 30 GHz	R&S®FSP30	1164.4391.30
Spectrum Analyzer, 9 kHz to 40 GHz	R&S®FSP40	1164.4391.40
Accessories supplied		
Power cable, operating manual, service manual. R&S®FSP30: test port adapter with 3.5 mm female (1021.0512.00) and N female (1021.0535.00) connector. R&S®FSP40: test port adapter with K female (1036.4770.00) and N female (1036.4777.00) connector.		

Options

Order designation	Type	Order No.	Retrofittable	Remarks
Options				
Delete Manuals	R&S®FSP-B0	1129.8394.02		
Rugged Case, carrying handle (factory-fitted)	R&S®FSP-B1	1129.7998.02	no	
AM/FM Audio Demodulator	R&S®FSP-B3	1129.6491.02	yes	not with R&S®FSP-B15.
OCXO Reference Frequency	R&S®FSP-B4	1129.6740.02	yes	
TV Trigger/RF Power Trigger	R&S®FSP-B6	1129.859.4.02	yes	not with R&S®FSP-B21.
Internal Tracking Generator 9 kHz to 3 GHz, I/Q modulator, for all R&S®FSP models	R&S®FSP-B9	1129.6991.02	yes	
External Generator Control for all R&S®FSP models	R&S®FSP-B10	1129.7246.02	yes	
Pulse Calibrator for R&S®FSP	R&S®FSP-B15	1155.1006.02	yes	not with R&S®FSP-B3; required for R&S®FS-K72/-K73
LAN Interface 100BT for all R&S®FSP models with Windows XP (1164.4391.xx)	R&S®FSP-B16	1129.8042.03	yes	
LAN Interface 100BT for all R&S®FSP models with Windows NT (1043.4495.xx)	R&S®FSP-B16	1129.8042.02	yes	
Extended Environmental Specification	R&S®FSP-B20	1155.1606.06	no	
LO/IF Ports for External Mixers	R&S®FSU-B21	1157.1090.02	yes	not with R&S®FSP-B6; only for R&S®FSP40; retrofittable in R&S®FSP40 only, 1164.4391.40
Electronic Attenuator, 0 dB to 30 dB, 5 dB steps, integrated preamplifier for R&S®FSP3 and R&S®FSP7	R&S®FSP-B25	1129.7746.02	yes	
Trigger Port for R&S®FSP for indication of trigger conditions	R&S®FSP-B28	1162.9915.02	yes	
DC Power Supply for Spectrum Analyzers R&S®FSP	R&S®FSP-B30	1155.1158.02	yes	
Battery Pack for Spectrum Analyzers R&S®FSP	R&S®FSP-B31	1155.1258.02	yes	R&S®FSP-B1 and R&S®FSP-B30 required
Spare Battery Pack for Spectrum Analyzers R&S®FSP	R&S®FSP-B32	1155.1506.02	yes	R&S®FSP-B31 required
Demodulation Hardware and Memory Extension	R&S®FSP-B70	1157.0559.02	yes	required for R&S®FS-K72/-K73; R&S®FSP-B15 required
Software				
Phase Noise Measurement Software	R&S®FS-K4	1108.0088.02		
GSM/EDGE Application Firmware, Mobile	R&S®FS-K5	1141.1496.02		
AM/FM Measurement Demodulator	R&S®FS-K7	1141.1796.02		
Application Firmware for Bluetooth® Measurements	R&S®FS-K8	1157.2568.02		
Power Sensor Measurements	R&S®FS-K9	1157.3006.02		supports R&S®NRP-Z11/-Z21 with R&S®NRP-Z4 USB connector
Application Firmware for Noise Figure and Gain Measurements	R&S®FS-K30	1300.6508.02		
3GPP BTS/Node B FDD Application Firmware	R&S®FS-K72	1154.7000.02		R&S®FSP-B15 and -B70 required
3GPP UE FDD Application Firmware	R&S®FS-K73	1154.7252.02		R&S®FSP-B15 required, R&S®FSP-B70 recommended

Order designation	Type	Order No.	Retrofittable	Remarks
3GPP HSDPA BTS Application Firmware	R&S®FS-K74	1300.7156.02		R&S®FS-K72 required
3GPP TD-SCDMA BTS Application Firmware	R&S®FS-K76	1300.7291.02		
3GPP TD-SCDMA UE Application Firmware	R&S®FS-K77	1300.8100.02		
cdma2000 BTS FDD Application Firmware	R&S®FS-K82	1157.2316.02		
cmda2000 1xEV-DV MS Application Firmware	R&S®FS-K83	1157.2416.02		
cdma2000 1xEV-DO BTS Application Firmware	R&S®FS-K84	1157.2851.02		
cdma2000-1xEV-DO MS Application Firmware	R&S®FS-K85	1300.6689.02		
WLAN 802.11a TX Measurements Application Firmware	R&S®FSP-K90	1300.6650.02		

Recommended extras

Order designation	Type	Order No.
Headphones		0708.9010.00
US Keyboard with Trackball	R&S®PSP-Z2	1091.4100.02
PS/2 Mouse	R&S®FSE-Z2	1084.7043.02
DC Block,10 kHz to 18 GHz (type N)	R&S®FSE-Z4	1084.7443.02
Colour Monitor, 15", 230 V	R&S®PMC3	1082.6004.02
IEC/IEEE Bus Cable, 1 m	R&S®PCK	0292.2013.10
IEC/IEEE Bus Cable, 2 m	R&S®PCK	0292.2013.20
19" Rack Adapter (not for R&S®FSP-B1)	R&S®ZZA478	1096.3248.00
Soft Carrying Case, grey	R&S®ZZT473	1109.5048.00
Matching Pads, 75 Ω		
L Section	R&S®RAM	0358.5414.02
Series Resistor, 25 Ω[1)]	R&S®RAZ	0358.5714.02
SWR Bridge, 5 MHz to 3 GHz	R&S®ZRB2	0373.9017.52
SWR Bridge, 40 kHz to 4 GHz	R&S®ZRC	1039.9492.52
High-Power Attenuators, 100 W		
3/6/10/20/30 dB	R&S®RBU100	1073.8495.XX (XX=03/06/10/20/30)
High-Power Attenuators, 50 W		
3/6/10/20/30 dB	R&S®RBU50	1073.8695.XX (XX=03/06/10/20/30)
For R&S®FSP30		
TeSt Port Adapter, 3.5 mm male	–	1021.0529.00
TesT Port Adapter, N male	–	1021.0541.00
Microwave Measurement Cable and Adapter Set	R&S®FS-Z15	1046.2002.02
For R&S®FSP40		
Test Port Adapter K male	–	1036.4802.00
Test Port Adapter N male	–	1036.4783.00
Test Port Adapter 2.4 mm female	R&S®FSE-Z5	1088.1627.02

[1)] Taken into account in device function RF INPUT 75 Ω

Related data sheets

Title	Order No.
TV Trigger/RF Power Trigger R&S®FSP-B6	PD 0757.6433
Noise Measurement Software R&S®FS-K3 for Spectrum Analyzers R&S®FSE, R&S®FSIQ and R&S®FSP	PD 0757.2380
Phase Noise Measurement Software R&S®FSE-K4	PD 0757.4201
GSM/EDGE Application Firmware R&S®FS-K5 for R&S®FSP	PD 0757.6185
FM Measurement Demodulator R&S®FS-K7	PD 0757.6685
Bluetooth Application Firmware R&S®FS-K8	PD 0757.7730
WCDMA 3GPP Application Firmware R&S®FS-K72/-K73	PD 0757.7246
cdma2000 Base Station Test Application Firmware 1xEV-DO Base Station Test Application Firmware R&S®FS-K82/-K84	PD 0757.7675

Product brochure see PD 0758.1206.12
and at www.rohde-schwarz.com
(search term: FSP)

Certified Quality System
ISO 9001
DQS REG. NO 1954 QM

Certified Environmental System
ISO 14001
DQS REG. NO 1954 UM

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