R&S®FSV
Signal and Spectrum Analyzer
Specifications

ROHDE&SCHWARZ

CONTENTS

Specifications

Specifications apply under the following conditions: 30 minutes warm-up time at ambient temperature, specified environmental conditions met, calibration cycle adhered to, and all internal automatic adjustments performed. Data without tolerances: typical values only. Data designated “nominal” applies to design parameters and is not tested.

Rohde & Schwarz equipment is designed for reliable operation up to an altitude of 3000 m above sea level, and for transport up to an altitude of 4500 m above sea level.

Frequency

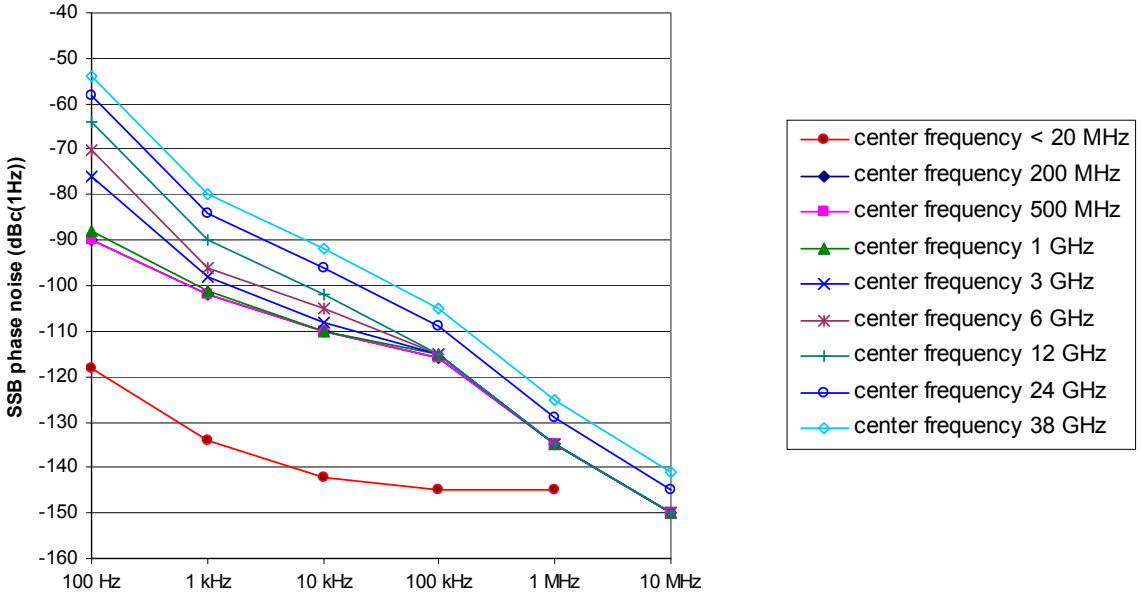
Frequency range	R&S®FSV3	
	DC-coupled	10 Hz to 3.6 GHz [1]
	AC-coupled	1 MHz to 3.6 GHz
	R&S®FSV7	
	DC-coupled	10 Hz to 7 GHz [1]
	AC-coupled	1 MHz to 7 GHz
	R&S®FSV13	
	DC-coupled	10 Hz to 13.6 GHz [1]
	AC-coupled	10 MHz to 13.6 GHz
	R&S®FSV30	
	DC-coupled	10 Hz to 30 GHz [1]
	AC-coupled	10 MHz to 30 GHz
	R&S®FSV40	
	DC-coupled	10 Hz to 40 GHz [1]
	AC-coupled	10 MHz to 40 GHz
Frequency resolution		0.01 Hz

Reference frequency, internal		
Accuracy		(time since last adjustment × aging rate) + temperature drift + calibration accuracy
Aging per year	standard	1×10^{-6}
	with R&S®FSV-B4 OCXO reference frequency option	1×10^{-7}
	with R&S®FSV-B14 ultra-high precision reference frequency option	4×10^{-9}
Temperature drift (0 °C to +50 °C)	standard	1×10^{-6}
	with R&S®FSV-B4, OCXO reference frequency option, model .02	1×10^{-7}
	with R&S®FSV-B4, OCXO extended frequency stability option, model .03	1×10^{-8}
	with R&S®FSV-B14 ultra-high precision reference frequency option	5×10^{-10}
Achievable initial calibration accuracy	standard	5×10^{-7}
	with R&S®FSV-B4 OCXO reference frequency option	5×10^{-8}
	with R&S®FSV-B14 ultra-high precision reference frequency option	1×10^{-10}

Frequency readout		
Marker resolution		1 Hz
Uncertainty		±(marker frequency × reference uncertainty + 10 % × resolution bandwidth + ½ (span / (sweep points –1)) + 1 Hz)
Number of sweep (trace) points	default value	691
	range	101 to 32001
Marker tuning frequency step size	marker step size = sweep points	span / (sweep points – 1)
	marker step size = standard	span / (default sweep points – 1)
Frequency counter resolution		0.001 Hz
Count accuracy		±(frequency × reference uncertainty + ½ (last digit))
Display range for frequency axis		0 Hz, 10 Hz to max. frequency
Resolution		0.1 Hz
Max. span deviation		0.1 %

[1] The frequency range starts at 10 Hz for instruments with R&S®FSV-B29 option (standard ex factory in instruments shipped since December 2010). The frequency range of instruments without R&S®FSV-B29 option starts at 9 kHz.

Spectral purity		
SSB phase noise	frequency = 500 MHz, carrier offset	
	100 Hz	< –84 dBc (1 Hz)
	1 kHz	< –101 dBc (1 Hz)
	10 kHz	< –106 dBc (1 Hz)
	100 kHz	< –115 dBc (1 Hz)
	1 MHz	< –134 dBc (1 Hz)
	10 MHz	typ. –150 dBc (1 Hz)
Residual FM	frequency = 500 MHz, RBW = 1 kHz, sweep time = 100 ms	< 3 Hz, nominal



Typical phase noise at different center frequencies.

Sweep time

Range	span = 0 Hz	1 µs to 16000 s
	span ≥ 10 Hz, swept	1 ms to 16000 s [2]
	span ≥ 10 Hz, FFT	7 µs to 16000 s [3]
Sweep time accuracy	span = 0 Hz	0.1 %, nominal
	span ≥ 10 Hz, swept	3 %, nominal

[2] Net sweep time without additional hardware settling time.

[3] Time for data acquisition for FFT calculation.

Resolution bandwidths

Sweep filters and FFT filters		
Resolution bandwidths (–3 dB)	span ≥ 10 Hz, sweep filters	1 Hz to 10 MHz in 1/2/3/5 sequence
	span ≥ 10 Hz, FFT filters	1 Hz to 300 kHz in 1/2/3/5 sequence
	span = 0 Hz, all models except R&S®FSV40, model .39	20 MHz, 28 MHz additionally
	with R&S®FSV-B70 option, span = 0 Hz, f ≤ 7 GHz	40 MHz additionally
Bandwidth uncertainty		< 3 %, nominal
Shape factor 60 dB:3 dB		< 5, nominal

Channel filters		
Bandwidths (–3 dB)	standard (RRC = root raised cosine)	100 Hz, 200 Hz, 300 Hz, 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, 1.28 (RRC), 1.5, 2, 3, 3.84 (RRC), 4.096 (RRC), 5, 10 MHz
	all models except R&S®FSV40, model .39	20 MHz, 28 MHz additionally
	with R&S®FSV-B70 option, f ≤ 7 GHz	40 MHz additionally
Bandwidth uncertainty		< 2 %, nominal
Shape factor 60 dB:3 dB		< 2, nominal

EMI filters		
Bandwidths (–6 dB)		200 Hz, 9 kHz, 120 kHz, 1 MHz
Bandwidth uncertainty		< 3 %, nominal
Shape factor 60 dB:3 dB		< 6, nominal

Video bandwidths	standard	1 Hz to 10 MHz in 1/2/3/5 sequence
	all models except R&S®FSV40, model .39	20 MHz, 28 MHz additionally
	with R&S®FSV-B70 option, f ≤ 7 GHz	40 MHz additionally

Signal analysis bandwidth	f ≤ 7 GHz	
	all models except R&S®FSV40, model .39	28 MHz, nominal
	with R&S®FSV-B70 option	40 MHz, nominal
	R&S®FSV40, model .39	10 MHz, nominal

Level

Display range		displayed noise floor up to +30 dBm

Max. input level		
DC voltage	AC-coupled	50 V
	DC-coupled	0 V
CW RF power	RF attenuation 0 dB	
	RF preamplifier = OFF	20 dBm (= 0.1 W)
	with R&S®FSV-B22 or R&S®FSV-B24 option, RF preamplifier = ON	13 dBm (= 0.02 W)
	RF attenuation ≥ 10 dB	
	RF preamplifier = OFF	30 dBm (= 1 W)
	with R&S®FSV-B22 or R&S®FSV-B24 option, RF preamplifier = ON	23 dBm (= 0.2 W)
Pulse spectral density	RF attenuation 0 dB, RF preamplifier = OFF	97 dB µV/MHz
Max. pulse voltage	RF attenuation ≥ 10 dB	150 V
Max. pulse energy	RF attenuation ≥ 10 dB, 10 µs	1 mWs

Intermodulation		
1 dB compression of input mixer	RF attenuation 0 dB, RF preamplifier = OFF	
	f ≤ 7 GHz	+3 dBm, nominal
	f > 7 GHz	+5 dBm, nominal
	with R&S®FSV-B22 or R&S®FSV-B24 option, RF preamplifier = ON, RF attenuation 0 dB	
	f ≤ 7 GHz	–12 dBm, nominal
	f > 7 GHz	–25 dBm, nominal
Third-order intercept point (TOI)	RF attenuation 0 dB, level 2 × –15 dBm, $\Delta f > 5 \times$ RBW or 10 kHz, whichever is larger, RF preamplifier = OFF	
	10 MHz ≤ f_{in} < 100 MHz	> 12 dBm, typ. 15 dBm
	100 MHz ≤ f_{in} < 3.6 GHz	> 13 dBm, typ. 16 dBm
	3.6 GHz ≤ f_{in} ≤ 40 GHz	> 15 dBm, typ. 18 dBm
	with R&S®FSV-B22 or R&S®FSV-B24 option, RF preamplifier = ON, RF attenuation 0 dB, level 2 × –45 dBm, $\Delta f > 5 \times$ RBW or 10 kHz, whichever is larger	
	10 MHz ≤ f_{in} < 100 MHz	–3 dBm, nominal
	100 MHz ≤ f_{in} < 3.6 GHz	–2 dBm, nominal
	3.6 GHz ≤ f_{in} < 7 GHz	0 dBm, nominal
	7 GHz ≤ f_{in} ≤ 40 GHz	–10 dBm, nominal
Second harmonic intercept (SHI)	RF attenuation 0 dB, level –10 dBm, RF preamplifier = OFF	
	100 MHz < f_{in} ≤ 3.5 GHz	typ. 45 dBm
	3.5 GHz < f_{in} ≤ 20 GHz	
	standard	typ. 80 dBm
	with R&S®FSV-B24 option	typ. 75 dBm
	with R&S®FSV-B22 or R&S®FSV-B24 option, RF preamplifier = ON, RF attenuation 0 dB, level –40 dBm	
	100 MHz < f_{in} ≤ 3.5 GHz	25 dBm, nominal
	3.5 GHz < f_{in} ≤ 20 GHz	25 dBm, nominal

Displayed average noise level without preamplifier options		
	0 dB RF attenuation, termination 50 Ω, log. scaling, normalized to 1 Hz RBW, RBW = 1 kHz, VBW = 3 kHz, zero span, sweep time 50 ms, sample detector, trace average, sweep count = 20, mean marker	
	R&S®FSV3, R&S®FSV7	
	9 kHz ≤ f < 100 kHz	< –130 dBm, typ. –140 dBm
	100 kHz ≤ f < 1 MHz	< –145 dBm, typ. –150 dBm
	1 MHz ≤ f < 1 GHz	< –152 dBm, typ. –155 dBm
	1 GHz ≤ f < 3.6 GHz	< –150 dBm, typ. –153 dBm
	3.6 GHz ≤ f < 6 GHz	< –148 dBm, typ. –151 dBm
	6 GHz ≤ f ≤ 7 GHz	< –146 dBm, typ. –149 dBm
	R&S®FSV13, R&S®FSV30	
	9 kHz ≤ f < 100 kHz	< –130 dBm, typ. –140 dBm
	100 kHz ≤ f < 1 MHz	< –145 dBm, typ. –150 dBm
	1 MHz ≤ f < 1 GHz	< –151 dBm, typ. –154 dBm
	1 GHz ≤ f < 3.6 GHz	< –149 dBm, typ. –152 dBm
	3.6 GHz ≤ f < 6 GHz	< –146 dBm, typ. –149 dBm
	6 GHz ≤ f < 7.4 GHz	< –144 dBm, typ. –147 dBm
	7.4 GHz ≤ f < 15 GHz	< –148 dBm, typ. –151 dBm
	15 GHz ≤ f ≤ 30 GHz	< –144 dBm, typ. –147 dBm
	R&S®FSV40	
	9 kHz ≤ f < 100 kHz	< –130 dBm, typ. –140 dBm
	100 kHz ≤ f < 1 MHz	< –145 dBm, typ. –150 dBm
	1 MHz ≤ f < 1 GHz	< –151 dBm, typ. –154 dBm
	1 GHz ≤ f < 3.6 GHz	< –149 dBm, typ. –152 dBm
	3.6 GHz ≤ f < 6 GHz	< –146 dBm, typ. –149 dBm
	6 GHz ≤ f < 7.4 GHz	< –144 dBm, typ. –147 dBm
	7.4 GHz ≤ f < 15 GHz	< –145 dBm, typ. –148 dBm
	15 GHz ≤ f < 34 GHz	< –142 dBm, typ. –145 dBm
	34 GHz ≤ f ≤ 40 GHz	< –136 dBm, typ. –139 dBm
	with R&S®FSV-B29 option [4], 0 dB RF attenuation, termination 50 Ω, log. scaling, normalized to 1 Hz RBW, RBW = 5 Hz, VBW = 5 Hz, zero span, sweep time 500 ms, sample detector, trace average, sweep count = 20, mean marker	
	10 Hz	< –90 dBm, nominal
	20 Hz	< –100 dBm, typ. –110 dBm
	100 Hz	< –110 dBm, typ. –120 dBm
	1 kHz	< –120 dBm, typ. –130 dBm

[4] Standard ex factory in instruments shipped since December 2010.

Displayed average noise level with R&S®FSV-B22 preamplifier option		
	0 dB RF attenuation, termination 50 Ω, log. scaling, normalized to 1 Hz RBW, RBW = 1 kHz, VBW = 3 kHz, zero span, sweep time 50 ms, sample detector, trace average, sweep count = 20, mean marker, RF preamplifier = OFF	
	R&S®FSV3, R&S®FSV7	
	9 kHz ≤ f < 100 kHz	< –130 dBm, typ. –140 dBm
	100 kHz ≤ f < 1 MHz	< –145 dBm, typ. –150 dBm
	1 MHz ≤ f < 1 GHz	< –152 dBm, typ. –155 dBm
	1 GHz ≤ f < 3.6 GHz	< –150 dBm, typ. –153 dBm
	3.6 GHz ≤ f < 6 GHz	< –148 dBm, typ. –151 dBm
	6 GHz ≤ f ≤ 7 GHz	< –146 dBm, typ. –149 dBm
	R&S®FSV13, R&S®FSV30	
	9 kHz ≤ f < 100 kHz	< –130 dBm, typ. –140 dBm
	100 kHz ≤ f < 1 MHz	< –145 dBm, typ. –150 dBm
	1 MHz ≤ f < 1 GHz	< –151 dBm, typ. –154 dBm
	1 GHz ≤ f < 3.6 GHz	< –149 dBm, typ. –152 dBm
	3.6 GHz ≤ f < 6 GHz	< –146 dBm, typ. –149 dBm
	6 GHz ≤ f < 7.4 GHz	< –144 dBm, typ. –147 dBm
	7.4 GHz ≤ f < 15 GHz	< –148 dBm, typ. –151 dBm
	15 GHz ≤ f ≤ 30 GHz	< –144 dBm, typ. –147 dBm
	R&S®FSV40	
	9 kHz ≤ f < 100 kHz	< –130 dBm, typ. –140 dBm
	100 kHz ≤ f < 1 MHz	< –145 dBm, typ. –150 dBm
	1 MHz ≤ f < 1 GHz	< –151 dBm, typ. –154 dBm
	1 GHz ≤ f < 3.6 GHz	< –149 dBm, typ. –152 dBm
	3.6 GHz ≤ f < 6 GHz	< –146 dBm, typ. –149 dBm
	6 GHz ≤ f < 7.4 GHz	< –144 dBm, typ. –147 dBm
	7.4 GHz ≤ f < 15 GHz	< –145 dBm, typ. –148 dBm
	15 GHz ≤ f < 34 GHz	< –142 dBm, typ. –145 dBm
	34 GHz ≤ f ≤ 40 GHz	< –136 dBm, typ. –139 dBm
	0 dB RF attenuation, termination 50 Ω, log. scaling, normalized to 1 Hz RBW, RBW = 1 kHz, VBW = 3 kHz, zero span, sweep time 50 ms, sample detector, trace average, sweep count = 20, mean marker, RF preamplifier = ON	
	R&S®FSV3, R&S®FSV7	
	100 kHz ≤ f < 1 MHz	< –150 dBm, typ. –155 dBm
	1 MHz ≤ f < 1 GHz	< –162 dBm, typ. –165 dBm
	1 GHz ≤ f < 3.6 GHz	< –160 dBm, typ. –163 dBm
	3.6 GHz ≤ f < 6 GHz	< –158 dBm, typ. –161 dBm
	6 GHz ≤ f ≤ 7 GHz	< –156 dBm, typ. –159 dBm
	R&S®FSV13, R&S®FSV30, R&S®FSV40	
	100 kHz ≤ f < 1 MHz	< –145 dBm, typ. –148 dBm
	1 MHz ≤ f < 20 MHz	< –155 dBm, typ. –158 dBm
	20 MHz ≤ f < 1 GHz	< –161 dBm, typ. –164 dBm
	1 GHz ≤ f < 3.6 GHz	< –159 dBm, typ. –162 dBm
	3.6 GHz ≤ f < 6 GHz	< –156 dBm, typ. –159 dBm
	6 GHz ≤ f ≤ 7 GHz	< –154 dBm, typ. –157 dBm
	with R&S®FSV-B29 option [5], RF preamplifier = OFF, 0 dB RF attenuation, termination 50 Ω, log. scaling, normalized to 1 Hz RBW, RBW = 5 Hz, VBW = 5 Hz, zero span, sweep time 500 ms, sample detector, trace average, sweep count = 20, mean marker	
	10 Hz	< –90 dBm, nominal
	20 Hz	< –100 dBm, typ. –110 dBm
	100 Hz	< –110 dBm, typ. –120 dBm
	1 kHz	< –120 dBm, typ. –130 dBm

[5] Standard ex factory in instruments shipped since December 2010.

Displayed average noise level with R&S®FSV-B24 preamplifier option		
	0 dB RF attenuation, termination 50 Ω, log. scaling, normalized to 1 Hz RBW, RBW = 1 kHz, VBW = 3 kHz, zero span, sweep time 50 ms, sample detector, trace average, sweep count = 20, mean marker, RF preamplifier = OFF	
	R&S®FSV13, R&S®FSV30	
	9 kHz ≤ f < 100 kHz	< –130 dBm, typ. –140 dBm
	100 kHz ≤ f < 1 MHz	< –145 dBm, typ. –150 dBm
	1 MHz ≤ f < 1 GHz	< –150 dBm, typ. –153 dBm
	1 GHz ≤ f < 3.6 GHz	< –147 dBm, typ. –150 dBm
	3.6 GHz ≤ f < 6 GHz	< –144 dBm, typ. –147 dBm
	6 GHz ≤ f < 7.4 GHz	< –141 dBm, typ. –144 dBm
	7.4 GHz ≤ f < 13.6 GHz	< –145 dBm, typ. –148 dBm
	13.6 GHz ≤ f < 15 GHz	< –143 dBm, typ. –146 dBm
	15 GHz ≤ f ≤ 30 GHz	< –141 dBm, typ. –144 dBm
	R&S®FSV40	
	9 kHz ≤ f < 100 kHz	< –130 dBm, typ. –140 dBm
	100 kHz ≤ f < 1 MHz	< –145 dBm, typ. –150 dBm
	1 MHz ≤ f < 1 GHz	< –150 dBm, typ. –153 dBm
	1 GHz ≤ f < 3.6 GHz	< –147 dBm, typ. –150 dBm
	3.6 GHz ≤ f < 6 GHz	< –144 dBm, typ. –147 dBm
	6 GHz ≤ f < 7.4 GHz	< –141 dBm, typ. –144 dBm
	7.4 GHz ≤ f < 13.6 GHz	< –143 dBm, typ. –146 dBm
	13.6 GHz ≤ f < 15 GHz	< –141 dBm, typ. –144 dBm
	15 GHz ≤ f < 34 GHz	< –139 dBm, typ. –142 dBm
	34 GHz ≤ f ≤ 40 GHz	< –132 dBm, typ. –135 dBm
	0 dB RF attenuation, termination 50 Ω, log. scaling, normalized to 1 Hz RBW, RBW = 1 kHz, VBW = 3 kHz, zero span, sweep time 50 ms, sample detector, trace average, sweep count = 20, mean marker, RF preamplifier = ON	
	R&S®FSV13, R&S®FSV30, R&S®FSV40	
	100 kHz ≤ f < 1 MHz	< –145 dBm, typ. –148 dBm
	1 MHz ≤ f < 20 MHz	< –155 dBm, typ. –158 dBm
	20 MHz ≤ f < 1 GHz	< –160 dBm, typ. –163 dBm
	1 GHz ≤ f < 3.6 GHz	< –157 dBm, typ. –160 dBm
	3.6 GHz ≤ f < 6 GHz	< –153 dBm, typ. –156 dBm
	6 GHz ≤ f < 7.4 GHz	< –150 dBm, typ. –153 dBm
	7.4 GHz ≤ f < 15 GHz	< –164 dBm, typ. –167 dBm
	15 GHz ≤ f < 34 GHz	< –159 dBm, typ. –162 dBm
	34 GHz ≤ f ≤ 40 GHz	< –154 dBm, typ. –156 dBm
	with R&S®FSV-B29 option [6], RF preamplifier = OFF, 0 dB RF attenuation, termination 50 Ω, log. scaling, normalized to 1 Hz RBW, RBW = 5 Hz, VBW = 5 Hz, zero span, sweep time 500 ms, sample detector, trace average, sweep count = 20, mean marker	
	10 Hz	< –90 dBm, nominal
	20 Hz	< –100 dBm, typ. –110 dBm
	100 Hz	< –110 dBm, typ. –120 dBm
	1 kHz	< –120 dBm, typ. –130 dBm

[6] Standard ex factory in instruments shipped since December 2010.

Spurious responses		
Image response	20 MHz ≤ f ≤ 7 GHz	
	f_{in} – 2 × 8409.9 MHz (1st IF)	typ. < –80 dBc
	f_{in} – 2 × 729.9 MHz (2nd IF)	< –80 dBc
	f_{in} – 2 × 89.9 MHz (3rd IF)	< –80 dBc
	7 GHz < f ≤ 30 GHz	
	f_{in} ± 2 × 729.9 MHz (1st IF)	< –80 dBc
	f_{in} – 2 × 89.9 MHz (2nd IF)	< –80 dBc
	30 GHz < f ≤ 40 GHz	
	f_{in} ± 2 × 729.9 MHz (1st IF)	< –70 dBc
	f_{in} – 2 × 89.9 MHz (2nd IF)	< –80 dBc
Intermediate frequency response	20 MHz ≤ f ≤ 7 GHz	
	1st IF (8409.9 MHz)	typ. < –70 dBc
	2nd IF (729.9 MHz)	< –80 dBc
	3rd IF (89.9 MHz)	< –80 dBc
	7 GHz < f ≤ 40 GHz	
	1st IF (729.9 MHz)	< –80 dBc
	2nd IF (89.9 MHz)	< –80 dBc
Residual spurious response	0 dB RF attenuation	
	f ≤ 1 MHz	< –90 dBm
	f > 1 MHz	< –103 dBm
Local oscillator related spurious	f < 15 GHz	
	1 kHz ≤ offset from carrier ≤ 10 MHz	< –70 dBc
	offset from carrier > 10 MHz	< –80 dBc
	15 GHz ≤ f < 30 GHz	
	1 kHz ≤ offset from carrier ≤ 10 MHz	< –64 dBc
	offset from carrier > 10 MHz	< –74 dBc
	30 GHz ≤ f ≤ 40 GHz	
	1 kHz ≤ offset from carrier ≤ 10 MHz	< –58 dBc
	offset from carrier > 10 MHz	< –68 dBc
Other interfering signals		
Subharmonic of 1st LO	20 MHz ≤ f < 7 GHz, spurious at 8410 MHz – 2 × f_{in}	< –70 dBc
Harmonic of 1st LO	mixer level < –25 dBm, spurious at f_{in} –4205 MHz	< –70 dBc

Level display		
Logarithmic level axis		1 dB to 200 dB, in steps of 1/2/5
Linear level axis		10 % of reference level per level division, 10 divisions or logarithmic scaling
Number of traces		6
Trace detector		Max Peak, Min Peak, Auto Peak (Normal), Sample, RMS, Average
	EMI detectors	Quasi Peak
Trace functions		Clear/Write, Max Hold, Min Hold, Average, View
Setting range of reference level		–130 dBm to (–10 dBm + RF attenuation – RF preamplifier gain), in steps of 0.01 dB
Units of level axis	logarithmic level display	dBm, dBµV, dBmV, dBµA, dBpW
	linear level display	µV, mV, µA, mA, pW, nW

Level measurement uncertainty		
Absolute level uncertainty at 64 MHz	RBW = 10 kHz, level –10 dBm, reference level –10 dBm, RF attenuation 10 dB	
	+20 °C to +30 °C	< 0.2 dB (σ = 0.07 dB)
	0 °C to +50 °C	< 0.35 dB (σ = 0.12 dB)
Frequency response referenced to 64 MHz	DC coupling, RF attenuation 10 dB, 20 dB, 30 dB, 40 dB, RF preamplifier = OFF, +20 °C to +30 °C	
	9 kHz ≤ f < 10 MHz	< 0.5 dB (σ = 0.17 dB)
	10 MHz ≤ f < 3.6 GHz	< 0.3 dB (σ = 0.1 dB)
	3.6 GHz ≤ f < 7 GHz	< 0.5 dB (σ = 0.17 dB)
	7 GHz ≤ f < 13.6 GHz, span < 1 GHz	< 1.5 dB (σ = 0.5 dB)
	13.6 GHz ≤ f < 30 GHz, span < 1 GHz	< 2 dB (σ = 0.66 dB)
	30 GHz ≤ f ≤ 40 GHz, span < 1 GHz	< 2.5 dB (σ = 0.83 dB)
	any setting of RF attenuation, RF preamplifier = OFF, 0 °C to +50 °C	
	9 kHz ≤ f < 3.6 GHz	< 1 dB (σ = 0.33 dB)
	3.6 GHz ≤ f < 7 GHz	< 1.5 dB (σ = 0.5 dB)
	7 GHz ≤ f < 13.6 GHz	< 2.5 dB (σ = 0.83 dB)
	13.6 GHz ≤ f < 30 GHz	< 3 dB (σ = 1 dB)
	30 GHz ≤ f ≤ 40 GHz	< 3.5 dB (σ = 1.33 dB)
	any setting of RF attenuation, RF preamplifier = ON, 0 °C to +50 °C	
	9 kHz ≤ f < 3.6 GHz	< 1 dB (σ = 0.33 dB)
	3.6 GHz ≤ f < 7 GHz	< 1.5 dB (σ = 0.5 dB)
	7 GHz ≤ f < 13.6 GHz	< 3 dB (σ = 1 dB)
	13.6 GHz ≤ f < 30 GHz	< 3.5 dB (σ = 1.17 dB)
	30 GHz ≤ f ≤ 40 GHz	< 4 dB (σ = 1.33 dB)
	with R&S®FSV-B29 option [7], DC coupling, RF preamplifier = OFF, 0 °C to +50 °C	
	10 Hz ≤ f < 20 Hz	< 1.5 dB, nominal
	20 Hz ≤ f < 9 kHz	< 1 dB (σ = 0.33 dB)
Attenuator switching uncertainty	f = 64 MHz, 0 dB to 70 dB, referenced to 10 dB attenuation	< 0.2 dB (σ = 0.07 dB)
Uncertainty of reference level setting		0 dB [8]
Bandwidth switching uncertainty	referenced to RBW = 10 kHz	
	sweep filters	< 0.1 dB (σ = 0.04 dB)
	FFT filters	< 0.2 dB (σ = 0.07 dB)

Display nonlinearity		
Logarithmic level display	+5 °C to +40 °C, S/N > 16 dB	
	0 dB to –70 dB	< 0.1 dB (σ = 0.04 dB)
	0 °C to +50 °C, S/N > 16 dB	
	0 dB to –50 dB	< 0.1 dB (σ = 0.04 dB)
	–50 dB to –60 dB	< 0.15 dB (σ = 0.05 dB)
	–60 dB to –70 dB	< 0.2 dB (σ = 0.07 dB)
Linear level display	S/N > 16 dB, 0 dB to –70 dB	5 % of reference level

Total measurement uncertainty		
	signal level 0 dB to –70 dB below reference level, S/N > 20 dB, sweep time auto, sweep type = sweep, RF attenuation 10 dB, 20 dB, 30 dB, 40 dB, RF preamplifier = OFF, span/RBW < 100, 95 % confidence level, +20 °C to +30 °C	
	9 kHz ≤ f < 10 MHz	0.39 dB
	10 MHz ≤ f < 3.6 GHz	0.28 dB
	3.6 GHz ≤ f < 7 GHz	0.39 dB
	7 GHz ≤ f < 13.6 GHz	1 dB
	13.6 GHz ≤ f < 30 GHz	1.32 dB
	30 GHz ≤ f ≤ 40 GHz	1.65 dB

[7] Standard ex factory in instruments shipped since December 2010.

[8] The setting of the reference level affects only the graphical representation of the measurement result on the display, not the measurement itself. Therefore, the reference level setting causes no additional uncertainty in measurement results.

Measurement speed [9]

Max. sweep rate, manual operation		1 ms (1000/s), nominal
Max. sweep rate, remote operation [10, 11]	trace average = ON	0.9 ms (1100/s), nominal
Remote measurement and LAN transfer [10]		2.8 ms (357/s), nominal
Marker peak search [10]		1.3 ms, nominal
Center frequency tune + sweep	f ≤ 7 GHz	15 ms, nominal
+ sweep data transfer via remote control [10]	f > 7 GHz	28 ms, nominal

Trigger functions

Trigger		
Trigger source		free run, video, external, IF power
Trigger offset	span ≥ 10 Hz	31.25 ns to 30 s, min. resolution 31.25 ns (or 1 % of offset)
	span = 0 Hz	(–sweep time) to 30 s, min. resolution 31.25 ns (or 1 % of offset)
Max. deviation of trigger offset		±(7.8125 ns + (0.1 % × trigger offset))
IF power trigger		
Sensitivity	min. signal power	–60 dBm + RF attenuation – RF preamplifier gain
	max. signal power	–10 dBm + RF attenuation – RF preamplifier gain
IF power trigger bandwidth	RBW > 500 kHz, swept	40 MHz, nominal
	RBW > 20 kHz, FFT	
	RBW ≤ 500 kHz, swept	6 MHz, nominal
	RBW ≤ 20 kHz, FFT	
Gated sweep		
Gate source		video, external, IF power
Gate delay		31.25 ns to 30 s, min. resolution 31.25 ns (or 1 % of delay)
Gate length		31.25 ns to 30 s, min. resolution 31.25 ns (or 1 % of gate length)
Max. deviation of gate length		±(7.8125 ns + (0.1 % × gate length))

I/Q data

Interface		GPIB or LAN interface
Memory length		max. 200 Msample I and Q
Word length of I/Q samples	sampling rate > 64 MHz or number of samples > 100 Msample	18 bit
	otherwise	24 bit
Sampling rate	all models except R&S®FSV40, model .39	100 Hz to 45 MHz
	with R&S®FSV-B70 option	100 Hz to 128 MHz
	R&S®FSV40, model .39	100 Hz to 12.5 MHz
Max. signal bandwidth (equalized)	f ≤ 7 GHz	
	all models except R&S®FSV40, model .39	28 MHz
	with R&S®FSV-B70 option	40 MHz
	R&S®FSV40, model .39	10 MHz
Amplitude flatness	f ≤ 7 GHz	0.3 dB, nominal
Deviation from linear phase	f ≤ 7 GHz	1°, nominal

[9] Valid for instruments with CPU board 1091.1599.00.

[10] Measured with personal computer equipped with Intel® Core™2 Duo 2.13 GHz and Gbit LAN interface.

[11] Measurement is performed with a sweep count of 1000. The indicated speed is the average speed of 1 sweep.

Inputs and outputs

RF input		
Impedance		50 Ω
Connector	R&S®FSV3, R&S®FSV7, R&S®FSV13	N female
	R&S®FSV30	test port adapter APC 3.5 mm/N female
	R&S®FSV40	test port adapter 2.92 mm (K)/N female
VSWR	RF attenuation ≥ 10 dB	
	10 MHz ≤ f < 3.6 GHz	< 1.5, typ.1.3
	3.6 GHz ≤ f < 20 GHz	< 2, typ. 1.8
	20 GHz ≤ f < 27 GHz	< 2.2, typ. 2
	27 GHz ≤ f < 30 GHz	
	DC-coupled	< 2.2, typ. 2
	AC-coupled	typ. 2.5
	30 GHz ≤ f ≤ 40 GHz	
	DC-coupled	< 2.5, typ. 2.2
	AC-coupled	typ. 3
	RF attenuation < 10 dB, DC-coupled	
	10 MHz ≤ f < 7 GHz	typ. 2
	7 GHz ≤ f < 30 GHz	typ. 2.5
	30 GHz ≤ f ≤ 40 GHz	typ. 3
Setting range of attenuator	standard	0 dB to 75 dB, in 5 dB steps
	with R&S®FSV-B25 option	0 dB to 75 dB, in 1 dB steps
Setting range of electronic attenuator	with R&S®FSV-B25 option, f ≤ 7 GHz	0 dB to 25 dB, in 1 dB steps
	with R&S®FSV-B25 option, f > 7 GHz	0 dB to 9 dB, in 1 dB steps
RF preamplifier gain	with R&S®FSV-B22 option	20 dB, nominal
	with R&S®FSV-B24 option	
	f ≤ 7 GHz	20 dB, nominal
	f > 7 GHz	30 dB, nominal

Probe power supply		
Supply voltages		+15 V DC, –12.6 V DC and ground, max. 150 mA, nominal

Noise source drive		
Connector		BNC female
Output voltage		0 V/28 V, max. 100 mA, switchable, nominal

Power sensor		
Connector		6-pin LEMOSA female for supported R&S®NRP-Zxx power sensors

USB interface		2 ports, type A plug, version 2.0

Reference output		
Connector		BNC female
Impedance		50 Ω
Output frequency	internal reference	10 MHz
	external reference	same as reference input signal
Level		> 0 dBm, nominal

Reference input		
Connector		BNC female
Impedance		50 Ω
Input frequency range		1 MHz ≤ f_{in} ≤ 20 MHz, in 100 kHz steps
Required level		> 0 dBm into 50 Ω

External trigger/gate input		
Connector		BNC female
Trigger voltage		0.5 V to 3.5 V
Input impedance		10 kΩ

IEC/IEEE bus control		interface in line with 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

LAN interface		10/100/1000BaseT
Connector		RJ-45

External monitor		
Connector		VGA-compatible, 15-pin, mini D-Sub

General data

Display		21 cm LC TFT color display (8.4")
Resolution		800 × 600 pixel (SVGA resolution)
Pixel failure rate		< 1 × 10^{-5}

Data storage		
Internal	standard	hard disk ≥ 40 Gbyte, nominal
	with R&S®FSV-B18 option	solid-state drive ≥ 8 Gbyte, nominal
External		supports USB-2.0-compatible memory devices

Environmental conditions		
Temperature	operating temperature range	+5 °C to +40 °C
	operating temperature range with R&S®FSV-B18 option	0 °C to +50 °C
	permissible temperature range	0 °C to +50 °C
	storage temperature range	–40 °C to +70 °C
Climatic loading		+40 °C at 90 % rel. humidity, in line with 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; in line with EN 60068-2-6
	random	10 Hz to 300 Hz, acceleration 1.2 g (RMS), in line with EN 60068-2-64
Shock		40 g shock spectrum, in line with MIL-PRF-28800F

EMC		in line with EMC Directive 2004/108/EC including: IEC/EN 61326-1 [12, 13] IEC/EN 61326-2-1 CISPR 11/EN 55011 [12] IEC/EN 61000-3-2 IEC/EN 61000-3-3

Recommended calibration interval		1 year

Power supply		
AC supply		100 V to 240 V, 3 A to 1.25 A; 50 Hz to 400 Hz, class of protection I in line with VDE 411
Power consumption	R&S®FSV3, R&S®FSV7	typ. 90 W, max. 180 W with all options
	R&S®FSV13, R&S®FSV30, R&S®FSV40	typ. 115 W, max. 180 W with all options
Safety		in line with EN 61010-1, IEC 61010-1, UL 61010-1, CAN/CSA-C22.2 No. 61010-1-4
Test mark		VDE, GS, CSA, CSA-NRTL

Weight and dimensions		
Dimensions	W × H × D	412 mm × 197 mm × 417 mm 16.22 in × 7.76 in × 16.42 in
Net weight without options, nominal	R&S®FSV3, R&S®FSV7	9.5 kg 20.94 lb
	R&S®FSV13	10.3 kg 22.7 lb
	R&S®FSV30	10.7 kg 23.58 lb
	R&S®FSV40	11.1 kg 24.46 lb

[12] Emission limits for class A equipment.

[13] Immunity test requirement for industrial environment (EN 61326 table 2).

Options

R&S®FSV-B3 audio demodulator

Demodulation		
AF demodulation types		AM and FM
Audio output		loudspeaker and phone jack
Marker stop time in spectrum mode		100 ms to 60 s

AF output		
Connector		3.5 mm mini jack
Output impedance		10 Ω
Open-circuit voltage		up to 1.5 V, adjustable

R&S®FSV-B5 additional interfaces

User port		
Connector		9-pin D-Sub male
Output		TTL-compatible, 0 V/5 V, max. 15 mA
Input		TTL-compatible, max. 5 V

IF/video/demod out		
Connector		BNC female, 50 Ω
IF out		
Bandwidth		equal to RBW setting
IF frequency		32 MHz
Output level (gain versus RF input)	RF attenuation 0 dB, RF preamplifier OFF, span 0 Hz	0 dB, nominal
Video out		
Bandwidth		equal to VBW setting
Output scaling	log. display scale	logarithmic
	lin. display scale	linear
Output level	center frequency > 10 MHz, span 0 Hz, signal at reference level and center frequency	1 V, open circuit, nominal

Trigger out		
Connector		BNC female
Output		TTL-compatible, 0 V/5 V

USB interface		2 ports, type A plug, version 2.0

R&S®FSV-B9 tracking generator

Frequency		
Frequency range	R&S®FSV3	100 kHz to 3.6 GHz
	R&S®FSV7, R&S®FSV13, R&S®FSV30, R&S®FSV40	100 kHz to 7 GHz

Frequency offset		
Setting range		±1 GHz
Setting resolution		1 Hz

Spectral purity		
SSB phase noise	frequency = 1000 MHz, carrier offset = 100 kHz	typ. –90 dBc (1 Hz)

Level		
Setting range	normal mode	–60 dBm to 0 dBm, in 0.1 dB steps
	with AM, I/Q	–60 dBm to –10 dBm, in 0.1 dB steps
Max. deviation of output level	frequency = 64 MHz, +20 °C to +30 °C, output level = –10 dBm, frequency offset = 0 Hz, modulation OFF	< 1 dB
Frequency response	output level = –10 dBm, referenced to level at 64 MHz, 100 kHz ≤ f ≤ 7 GHz, frequency offset = 0 Hz, modulation OFF	< 3 dB

Dynamic range	RBW = 1 kHz, f > 10 MHz	110 dB

Harmonics, non-harmonic spurious	output level = –10 dBm	–30 dBc

Modulation		
Modulation format	external	I/Q, AM, FM
AM	f > 10 MHz	
Modulation depth		0 % to 100 %
Modulation frequency range		0 Hz to 1 MHz
FM	f > 10 MHz	
Frequency deviation		0 Hz to 10 MHz
Modulation frequency range		0 Hz to 10 kHz

RF output		
Connector		N female, 50 Ω
VSWR		1.3, nominal

TG I/AM IN		
Connector		BNC female, 50 Ω
Input voltage		1 V (pp)

TG Q/FM IN		
Connector		BNC female, 50 Ω
Input voltage		1 V (pp)

R&S®FSV-B10 external generator control

Interface		
IEC/IEEE bus control		24-pin Amphenol female
Aux control		9-pin D-Sub female

Supported signal generators		R&S®SMA100A, R&S®SMB100A, R&S®SMBV100A, R&S®SMC100A, R&S®SME, R&S®SMF100A, R&S®SMG, R&S®SMGL, R&S®SMGU, R&S®SMH, R&S®SMHU, R&S®SMIQ, R&S®SMJ100A, R&S®SML, R&S®SMP, R&S®SMR, R&S®SMT, R&S®SMU200A, R&S®SMV03, R&S®SMX, R&S®SMY

R&S®FSV-B17 digital baseband interface

I/Q data IN		
Connector		26-pin female Mini D Ribbon connector
Data lines	number of data lines (differential lines)	8
	bit rate (on each data line)	396 MHz to 600 MHz
	level	LVDS
Clock	clock rate	66 MHz to 100 MHz
	level	LVDS
Communications lines		bidirectional 2-wire interface
	level	3.3 V
I/Q data OUT		
Connector		26-pin female Mini D Ribbon connector
Data lines	number of data lines (differential lines)	8
	bit rate (on each data line)	600 MHz
	level	LVDS
Clock	clock rate	100 MHz
	level	LVDS
Communications lines		bidirectional 2-wire interface
	level	3.3 V

R&S®FSV-B21 LO/IF ports for external mixers (for R&S®FSV30 and R&S®FSV40 only)

LO signal		
Frequency range		7.73 GHz to 15.23 GHz
Level	+20 °C to +30 °C	+15.5 dBm ± 1 dB
	+5 °C to +40 °C	+15.5 dBm ± 3 dB

IF input		
IF frequency		729.9 MHz
Full-scale level	2-port mixer (LO output/IF input, front panel)	–20 dBm
	3-port mixer (IF input, front panel)	–20 dBm
Level uncertainty	IF input level –30 dBm, RBW 30 kHz, 2-port mixer, LO output/IF input (front panel)	
	+20 °C to +30 °C	< 1 dB
	+5 °C to +40 °C	< 3 dB
	IF input level –30 dBm, RBW 30 kHz, 3-port mixer, IF input (front panel)	
	+20 °C to +30 °C	< 1 dB
	+5 °C to +40 °C	< 3 dB

Inputs and outputs		
LO output/IF input		SMA female, 50 Ω
IF input		SMA female, 50 Ω

Ordering information

Designation	Type	Order No.
Signal and Spectrum Analyzer	R&S®FSV3	1307.9002.03
Signal and Spectrum Analyzer	R&S®FSV7	1307.9002.07
Signal and Spectrum Analyzer	R&S®FSV13	1307.9002.13
Signal and Spectrum Analyzer	R&S®FSV30	1307.9002.30
Signal and Spectrum Analyzer	R&S®FSV40 [14]	1307.9002.39
Signal and Spectrum Analyzer	R&S®FSV40	1307.9002.40
Accessories supplied		
Power cable, quick start guide and CD-ROM (with operating manual and service manual) R&S®FSV30: test port adapter with 3.5 mm female (1021.0512.00) and N female (1021.0535.00) connectors R&S®FSV40: test port adapter with 2.92 mm (K) female (1036.4790.00) and N female (1036.4777.00) connectors		

Options

Designation	Type	Order No.	Retrofittable	Remarks
Ruggedized Housing	R&S®FSV-B1	1310.9500.02	no	
Audio Demodulator	R&S®FSV-B3	1310.9516.02	yes	retrofit in service center
OCXO Reference Frequency	R&S®FSV-B4	1310.9522.02	yes	user-retrofittable
OCXO Extended Frequency Stability	R&S®FSV-B4	1310.9522.03	yes	user-retrofittable
Additional Interfaces	R&S®FSV-B5	1310.9539.02	yes	IF out, video out, AUX port, trigger out, 2 × USB
Tracking Generator (100 kHz to 7 GHz)	R&S®FSV-B9	1310.9545.02	yes	retrofit in service center
External Generator Control	R&S®FSV-B10	1310.9551.02	yes	retrofit in service center
Ultra-High Precision Frequency Reference	R&S®FSV-B14	1310.9980.02	yes	retrofit in service center
Digital Baseband Interface	R&S®FSV-B17	1310.9568.02	yes	user-retrofittable, for details ask service center, not available for R&S®FSV40, model .39
Solid-State Drive (removable hard drive)	R&S®FSV-B18	1310.9697.03	yes	user-retrofittable
Spare Hard Drive (removable hard drive)	R&S®FSV-B19	1310.9574.03	yes	user-retrofittable
LO/IF Ports for External Mixers	R&S®FSV-B21	1310.9597.02	no	
RF Preamplifier (9 kHz to 7 GHz)	R&S®FSV-B22	1310.9600.02	yes	user-retrofittable
RF Preamplifier (9 kHz to 13.6 GHz)	R&S®FSV-B24	1310.9616.13	no	
RF Preamplifier (9 kHz to 30 GHz)	R&S®FSV-B24	1310.9616.30	no	
RF Preamplifier (9 kHz to 40 GHz)	R&S®FSV-B24	1310.9616.40	no	
Electronic Attenuator, 1 dB steps	R&S®FSV-B25	1310.9622.02	yes	user-retrofittable
Frequency Range Extension 10 Hz [15]	R&S®FSV-B29	1310.9639.02	yes	user-retrofittable
40 MHz Analysis Bandwidth	R&S®FSV-B70	1310.9645.02	yes	user-retrofittable, for frequencies ≤ 7 GHz, not available for R&S®FSV40, model .39
Firmware/software				
Analog Modulation Analysis for AM, FM, φM	R&S®FSV-K7	1310.8103.02		
FM Stereo Measurements	R&S®FSV-K7S	1310.8126.02		requires R&S®FSV-K7
Bluetooth®/EDR Measurements	R&S®FSV-K8	1310.8155.02		
Power Sensor Measurement with R&S®NRP Power Sensors	R&S®FSV-K9	1310.8203.02		supports R&S®NRP-Zxx power sensors
Analysis of GSM, EDGE and EDGE Evolution Signals	R&S®FSV-K10	1310.8055.02		
Spectrogram Measurements	R&S®FSV-K14	1310.8255.02		
Noise Figure and Gain Measurements	R&S®FSV-K30	1310.8355.02		
Phase Noise Measurement Application	R&S®FSV-K40	1310.8403.02		
Vector Signal Analysis	R&S®FSV-K70	1310.8455.02		
Analysis of 3GPP FDD Base Station Signals incl. HSPA+	R&S®FSV-K72	1310.8503.02		
3GPP FDD UE Analysis incl. HSPA+	R&S®FSV-K73	1310.8555.02		
3GGP TD-SCDMA BTS Measurements	R&S®FSV-K76	1310.8603.02		

[14] Max. bandwidth 10 MHz.

[15] Standard ex factory in instruments shipped since December 2010.

Designation	Type	Order No.	Retrofittable	Remarks
TD-SCDMA UE Measurements	R&S®FSV-K77	1310.8655.02		
Analysis of CDMA2000® Base Station Signals	R&S®FSV-K82	1310.8703.02		
CDMA2000® MS Measurements	R&S®FSV-K83	1310.8755.02		
Analysis of 1xEV-DO Base Station Signals	R&S®FSV-K84	1310.8803.02		
1xEV-DO MS Measurements	R&S®FSV-K85	1310.8778.02		
Analysis of WLAN 802.11a, b, g, j Signals	R&S®FSV-K91	1310.8903.02		not available for R&S®FSV40, model .39
Extension of R&S®FSV-K91 to 802.11n	R&S®FSV-K91n	1310.9468.02		requires R&S®FSV-B70, not available for R&S®FSV40, model .39
Analysis of WiMAX™ 802.16 SISO Signals	R&S®FSV-K93	1310.8955.02		not available for R&S®FSV40, model .39
Analysis of EUTRA/LTE FDD Downlink Signals	R&S®FSV-K100	1310.9051.02		not available for R&S®FSV40, model .39
Analysis of EUTRA/LTE FDD Uplink Signals	R&S®FSV-K101	1310.9100.02		not available for R&S®FSV40, model .39
EUTRA/LTE Downlink MIMO Measurements	R&S®FSV-K102	1310.9151.02		requires R&S®FSV-K100 or R&S®FSV-K104, not available for R&S®FSV40, model .39
Analysis of EUTRA/LTE TDD Downlink Signals	R&S®FSV-K104	1309.9774.02		not available for R&S®FSV40, model .39
Analysis of EUTRA/LTE TDD Uplink Signals	R&S®FSV-K105	1309.9780.02		not available for R&S®FSV40, model .39

Recommended extras

Designation	Type	Order No.
Headphones		0708.9010.00
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®FSV-B1)	R&S®ZZA-478	1096.3248.00
19" Rack Adapter, pre-installed ex factory (not for R&S®FSV-B1)	R&S®FSV-B478	1310.9951.02
Soft Carrying Case (gray)	R&S®ZZT-473	1109.5048.00
Matching pads, 50/75 Ω		
L Section, matching at both ends	R&S®RAM	0358.5414.02
Series Resistor, 25 Ω, matching at one end (taken into account in instrument function RF INPUT 75 Ω)	R&S®RAZ	0358.5714.02
SWR bridges, 50 Ω		
SWR Bridge, 5 MHz to 3 GHz	R&S®ZRB2	0373.9017.5X
SWR Bridge, 40 kHz to 4 GHz	R&S®ZRC	1039.9492.5X
High-power attenuators		
Attenuator 100 W, 3/6/10/20/30 dB, 1 GHz	R&S®RBU100	1073.8495.XX (XX = 03/06/10/20/30)
Attenuator 50 W, 3/6/10/20/30 dB, 2 GHz	R&S®RBU50	1073.8695.XX (XX = 03/06/10/20/30)
Attenuator 50 W, 20 dB, 6 GHz	R&S®RDL50	1035.1700.52
Connectors and cables		
N-type Adapter for R&S®RT-Zx probes	R&S®RT-ZA9	1417.0909.02
Probe Power Connector, 3-pin		1065.9480.00
LVDS Cable for connecting digital baseband interfaces	R&S®SMU-Z6	1415.0201.02
DC blocks		
DC Block, 10 kHz to 18 GHz (type N)	R&S®FSE-Z4	1084.7443.02
External harmonic mixers (for R&S®FSV30/FSV40 with R&S®FSV-B21 option)		
Harmonic Mixer 40 GHz to 60 GHz	R&S®FS-Z60	1089.0799.02
Harmonic Mixer 50 GHz to 75 GHz	R&S®FS-Z75	1089.0847.02
Harmonic Mixer 60 GHz to 90 GHz	R&S®FS-Z90	1089.0899.02
Harmonic Mixer 75 GHz to 110 GHz	R&S®FS-Z110	1089.0947.04
For R&S®FSV30 only		
Test Port Adapter, N male		1021.0541.00
Test Port Adapter, 3.5 mm male		1021.0529.00
Microwave Measurement Cable with test port adapter set (N male and 3.5 mm male)	R&S®FSE-Z15	1046.2002.02
For R&S®FSV40 only		
Test Port Adapter, N male		1036.4783.00
Test Port Adapter, K male		1036.4802.00
Test Port Adapter, 2.4 mm female	R&S®FSE-Z5	1088.1627.02

Power sensors supported by the R&S®FSV-K9 option [16]

Designation	Type	Order No.
Universal Power Sensor 10 MHz to 8 GHz, 200 mW	R&S®NRP-Z11	1138.3004.02
Universal Power Sensor 10 MHz to 18 GHz, 200 mW	R&S®NRP-Z21	1137.6000.02
Universal Power Sensor 10 MHz to 18 GHz, 2 W	R&S®NRP-Z22	1137.7506.02
Universal Power Sensor 10 MHz to 18 GHz, 15 W	R&S®NRP-Z23	1137.8002.02
Universal Power Sensor 10 MHz to 18 GHz, 30 W	R&S®NRP-Z24	1137.8502.02
Power Sensor Module with Power Splitter DC to 18 GHz, 500 mW	R&S®NRP-Z27	1169.4102.02
Power Sensor Module with Power Splitter DC to 26.5 GHz, 500 mW	R&S®NRP-Z37	1169.3206.02
Thermal Power Sensor 0 Hz to 18 GHz, 100 mW	R&S®NRP-Z51	1138.0005.02
Thermal Power Sensor 0 Hz to 40 GHz, 100 mW	R&S®NRP-Z55	1138.2008.02
Thermal Power Sensor 0 Hz to 50 GHz, 100 mW	R&S®NRP-Z56	1171.8201.02
Thermal Power Sensor 0 Hz to 67 GHz, 100 mW	R&S®NRP-Z57	1171.8401.02
Wideband Power Sensor 50 MHz to 18 GHz, 100 mW	R&S®NRP-Z81	1137.9009.02
Average Power Sensor 9 kHz to 6 GHz, 200 mW	R&S®NRP-Z91	1168.8004.02
Average Power Sensor 9 kHz to 6 GHz, 2 W	R&S®NRP-Z92	1171.7005.02

Service options		
Two-Year Calibration Service	R&S®CO2FSV	Please contact your local Rohde & Schwarz sales office.
Three-Year Calibration Service	R&S®CO3FSV	
Five-Year Calibration Service	R&S®CO5FSV	
One-Year Repair Service following the warranty period	R&S®RO2FSV	
Two-Year Repair Service following the warranty period	R&S®RO3FSV	
Four-Year Repair Service following the warranty period	R&S®RO5FSV	

For product brochure, see PD 5214.0499.12 and www.rohde-schwarz.com

[16] For average power measurement only.

Service you can rely on

- Worldwide
- Local and personalized
- Customized and flexible
- Uncompromising quality
- Long-term dependability

About Rohde&Schwarz

Rohde&Schwarz is an independent group of companies specializing in electronics. It is a leading supplier of solutions in the fields of test and measurement, broadcasting, radiomonitoring and radiolocation, as well as secure communications. Established more than 75 years ago, Rohde&Schwarz has a global presence and a dedicated service network in over 70 countries. Company headquarters are in Munich, Germany.

Environmental commitment

- Energy-efficient products
- Continuous improvement in environmental sustainability
- ISO 14001-certified environmental management system

Certified Quality System
ISO 9001

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