

AM/FM/PM MODULATION ANALYSIS

Specifications

R&S®FSW-K7 AM/FM/PM Modulation Analysis
R&S®ESW-K7 AM/FM/PM Modulation Analysis
R&S®FSWP-K7 AM/FM/PM Modulation Analysis
R&S®FSMR3-K7 AM/FM/PM Modulation Analysis
R&S®FSV3-K7 AM/FM/PM Modulation Analysis
R&S®FPS-K7 AM/FM/PM Modulation Analysis
R&S®FPL1-K7 AM/FM/PM Modulation Analysis
R&S®VSE-K7 AM/FM/PM Modulation Analysis

Data Sheet
Version 10.00

ROHDE & SCHWARZ

Make ideas real



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Definitions

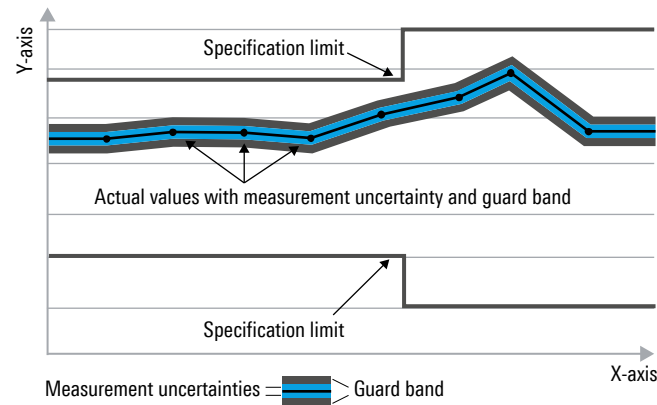
General

Product data applies under the following conditions:

- Three hours storage at ambient temperature followed by 30 minutes warm-up operation
- Specified environmental conditions met
- Recommended calibration interval adhered to
- All internal automatic adjustments performed, if applicable

Specifications with limits

Represent warranted product performance by means of a range of values for the specified parameter. These specifications are marked with limiting symbols such as $<$, \leq , $>$, \geq , \pm , or descriptions such as maximum, limit of, minimum. Compliance is ensured by testing or is derived from the design. Test limits are narrowed by guard bands to take into account measurement uncertainties, drift and aging, if applicable.



Non-traceable specifications with limits (n. trc.)

Represent product performance that is specified and tested as described under “Specifications with limits” above. However, product performance in this case cannot be warranted due to the lack of measuring equipment traceable to national metrology standards. In this case, measurements are referenced to standards used in the Rohde & Schwarz laboratories.

Specifications without limits

Represent warranted product performance for the specified parameter. These specifications are not specially marked and represent values with no or negligible deviations from the given value (e.g. dimensions or resolution of a setting parameter). Compliance is ensured by design.

Typical data (typ.)

Characterizes product performance by means of representative information for the given parameter. When marked with $<$, $>$ or as a range, it represents the performance met by approximately 80 % of the instruments at production time. Otherwise, it represents the mean value.

Nominal values (nom.)

Characterize product performance by means of a representative value for the given parameter (e.g. nominal impedance). In contrast to typical data, a statistical evaluation does not take place and the parameter is not tested during production.

Measured values (meas.)

Characterize expected product performance by means of measurement results gained from individual samples.

Uncertainties

Represent limits of measurement uncertainty for a given measurand. Uncertainty is defined with a coverage factor of 2 and has been calculated in line with the rules of the Guide to the Expression of Uncertainty in Measurement (GUM), taking into account environmental conditions, aging, wear and tear.

Device settings and GUI parameters are indicated as follows: "parameter: value".

Non-traceable specifications with limits, typical data as well as nominal and measured values are not warranted by Rohde & Schwarz.

In line with the 3GPP standard, chip rates are specified in million chips per second (Mcps), whereas bit rates and symbol rates are specified in billion bit per second (Gbps), million bit per second (Mbps), thousand bit per second (kbps), million symbols per second (Msp) or thousand symbols per second (ksps), and sample rates are specified in million samples per second (Msample/s). Gbps, Mcps, Mbps, Msp, kbps, ksps and Msample/s are not SI units.

Specifications

The specifications of the R&S®Fxx-K7 and R&S®VSE-K7 analog demodulation application are based on the data sheet specifications of the corresponding instruments and are not verified during instrument calibration. Measurement uncertainties are given as 95 % confidence intervals. The specified level measurement errors do not take into account systematic errors due to reduced signal to noise ratio (S/N).

General remarks

This data sheet covers the R&S®FSW-K7, the R&S®ESW-K7, the R&S®FSWP-K7 ¹, the R&S®FSMR3-K7 ², the R&S®FSV3-K7, the R&S®FPS-K7, the R&S®FPL1-K7 options and the R&S®VSE-K7 software.

The R&S®FSW-K7, R&S®ESW-K7, R&S®FSWP-K7, R&S®FSMR3-K7, R&S®FSV3-K7, R&S®FPS-K7 and the R&S®FPL1-K7 options are summarized with the term R&S®Fxx-K7. The R&S®Fxx-K7 runs on the analyzer.

The R&S®VSE-K7 runs on a PC that can be connected to the analyzers and oscilloscopes.

If not stated otherwise, the data sheet values are device-specific, e.g. the same value applies to the R&S®FSW-K7 and the R&S®VSE-K7 with a connected R&S®FSW.

Overview

R&S®	FSW	ESW/ FSMR3000	FSWP	FSVA3000/ FSV3000	FPS	FPL1000 ³	EPL1000	RTO
R&S®Fxx-K7 software that runs on device	• FSW-K7	• ESW-K7/ FSMR3-K7 ²	• FSWP-K7 ¹	• FSV3-K7	• FPS-K7	• FPL1-K7	• FPL1-K7	–
R&S®VSE-K7 PC software that can be connected to device	•	–	•	•	•	•	–	•

¹ Requires R&S®FSWP-B1 option.

² Requires R&S®FSMR3-B1 option.

³ For the R&S®FPL1000, all limits are only valid for RF frequencies of at least 12 MHz.

AM/FM/PM modulation analysis ⁴

	R&S [®]	FSW	ESW/ FSMR3000	FSWP	FSVA3000/ FSV3000	FPS	FPL1000 ⁵	EPL1000	RTO
Demodulation bandwidth	100 Hz to 6.4 kHz	•	•	•	•	•	•	•	•
	12.5 kHz to 1.6 MHz (binary steps)	•	•	•	•	•	•	•	•
	3 MHz	•	•	•	•	•	•	•	•
	5 MHz	•	•	•	•	•	•	•	•
	8 MHz	•	•	•	•	•	•	•	•
	10 MHz	•	•	•	•	•	•	•	•
	18 MHz	•	•	•	•	•	•	–	•
	28 MHz	•	•	•	•	•	•	–	•
	40 MHz	•	•	•	•	•	•	–	•
	80 MHz	•	•	•	•	•	–	–	•
	160 MHz	•	–	•	•	•	–	–	•
	320 MHz	•	–	•	–	–	–	–	•
	500 MHz	•	–	–	–	–	–	–	•
1 GHz	•	–	–	–	–	–	–	•	
2 GHz	•	–	–	–	–	–	–	•	
Recording length	maximum	24000001 sample	24000001 sample	24000001 sample	24000001 sample	24000001 sample	1600001 sample ⁶	1600001 sample	9999900 sample
Recording time	100 Hz	196608 s	196608 s	196608 s	196608 s	196608 s	83184 s ⁶	83184 s	9999 s
	6.4 kHz	3072 s	3072 s	3072 s	3072 s	3072 s	1299 s ⁶	1299 s	639 s
	12.5 kHz	1536 s	1536 s	1536 s	1536 s	1536 s	649 s ⁶	649 s	639 s
	1.6 MHz	12 s	12 s	12 s	12 s	12 s	5 s ⁶	5 s	4.9 s
	3 MHz	6 s	6 s	6 s	6 s	6 s	2.5 s ⁶	2.5 s	2.6 s
	5 MHz	3 s	3 s	3 s	3 s	3 s	1.2 s ⁶	1.2 s	1.5 s
	8 MHz	1.5 s	1.5 s	1.5 s	1.5 s	1.5 s	634 ms ⁶	634 ms	990 ms
	10 MHz	750 ms	750 ms	750 ms	750 ms	750 ms	317 ms ⁶	317 ms	750 ms
	18 MHz	750 ms	750 ms	750 ms	750 ms	750 ms	317 ms ^{5, 6}	–	440 ms
	28 MHz	375 ms	375 ms	375 ms	375 ms	375 ms	158 ms ^{5, 6}	–	280 ms
	40 MHz	375 ms	375 ms	375 ms	375 ms	375 ms	158 ms ^{5, 6}	–	190 ms
	80 MHz	187.5 ms	187.5 ms	187.5 ms	187.5 ms	187.5 ms	–	–	90 ms
	160 MHz	120 ms	–	120 ms	120 ms	120 ms	–	–	45 ms
	320 MHz	60 ms	–	60 ms	–	–	–	–	24 ms
500 MHz	40 ms	–	–	–	–	–	–	8.3 ms	
1 GHz	19.2 ms	–	–	–	–	–	–	7.9 ms	
2 GHz	9.6 ms	–	–	–	–	–	–	3.9 ms	

⁴ Depends on the hardware configuration. For details, see R&S[®]FSW/ESW/FSWP/FSMR3000/FSVA3000/FSV3000/FPS/FPL1000/EPL1000 and R&S[®]RTO data sheets.

⁵ R&S[®]FPL1-B40 option required for 18/28/40 MHz.

⁶ For R&S[®]FPL1000 with R&S[®]VSE-K7 option the values as for R&S[®]FSV3-K7 option apply.

R&S®		FSW	ESW/ FSMR3000	FSWP	FSVA3000/ FSV3000	FPS	FPL1000	EPL1000	RTO
Display	frequency versus time (FM)	•	•	•	•	•	•	•	•
	amplitude versus time (AM)	•	•	•	•	•	•	•	•
	phase versus time (PM)	•	•	•	•	•	•	•	•
	RF power versus time	•	•	•	•	•	•	•	•
	RF spectrum (FFT)	•	•	•	•	•	•	•	•
	AF spectrum (FFT)	•	•	•	•	•	•	•	•
	modulation deviation (peak, RMS)	•	•	•	•	•	•	•	•
	modulation frequency	•	•	•	•	•	•	•	•
	carrier offset	•	•	•	•	•	•	•	•
	carrier power (power of unmodulated carrier)	•	•	•	•	•	•	•	•
	THD	•	•	•	•	•	•	•	•
SINAD	•	•	•	•	•	•	•	•	

AF (modulation frequency)	
Range	max. $0.5 \times$ demodulation bandwidth
Resolution	5 digits
Measurement uncertainty	0.1 %

	R&S®	FSW	ESW/ FSMR3000	FSWP	FSVA3000/ FSV3000	FPS	FPL1000	EPL1000	RTO
Lowpass	demodulation bandwidth ≤ 3 MHz								
	3 kHz	•	•	•	•	•	•	•	•
	15 kHz	•	•	•	•	•	•	•	•
	23 kHz	•	•	•	•	•	•	•	•
	150 kHz	•	•	•	•	•	•	•	•
	5/10/25 % of demodulation bandwidth	•	•	•	•	•	•	•	•
Highpass	demodulation bandwidth ≤ 1.6 MHz								
	20 Hz	•	•	•	•	•	•	•	•
	demodulation bandwidth ≤ 3 MHz								
	50 Hz	•	•	•	•	•	•	•	•
	demodulation bandwidth ≤ 8 MHz								
	300 Hz	•	•	•	•	•	•	•	•
Deemphasis	demodulation bandwidth ≤ 40 MHz								
	25 μ s	•	•	•	•	•	•	•	•
	demodulation bandwidth ≤ 18 MHz								
	50/75 μ s	•	•	•	•	•	•	•	•
	demodulation bandwidth ≤ 3 MHz								
	750 μ s	•	•	•	•	•	•	•	•
Weighting filters	demodulation bandwidth ≤ 3 MHz								
	ITU-T P.53	•	•	•	•	•	•	•	•
	demodulation bandwidth ≤ 1.6 MHz								
	ITU-R unweighted	•	•	•	•	•	•	•	•
	demodulation bandwidth ≤ 3 MHz								
	ITU-R weighted	•	•	•	•	•	•	•	•
demodulation bandwidth ≤ 800 kHz									
	A weighted	•	•	•	•	•	•	•	•

AM demodulation		R&S®	FSW	ESW/ FSMR3000	FSWP	FSVA3000/ FSV3000	FPS	FPL1000	EPL1000	RTO
Measurement range	modulation depth	0 % to 100 %								
Modulation depth uncertainty	AF ≤ 1 MHz	±(0.2 % + 0.001 × measured value) ^{7,8}						±(0.2 % + 1 % of reading)		1 % of reading + residual AM
Residual AM	demodulation bandwidth ≤ 200 kHz, RMS, RF input level ≥ (RF attenuation/dB – 30) dBm R&S®RTO: RF input level ≥ –30 dBm	RF ≤ 8 GHz	RF ≤ 8 GHz	RF ≤ 8 GHz	RF ≤ 4 GHz	RF ≤ 4 GHz	RF ≤ 7.5 GHz	RF ≤ 30 MHz	RF ≤ 4 GHz	
		0.03 % ⁷	0.03 % ⁷	0.03 % ⁷	0.1 %	0.1 %	0.1 %	0.1 %	0.2 %	
Harmonic distortion		10 Hz ≤ AF ≤ 1 MHz			10 Hz ≤ AF ≤ 100 kHz				10 Hz ≤ AF ≤ 1 MHz	
		0.05 % ⁷			0.3 %				0.4 %	
FM rejection	AF ≤ 1 MHz, deviation ≤ 1 MHz	AF + deviation ≤ 0.3 × demodulation bandwidth							AF + deviation ≤ 0.3 × demodulation bandwidth	
		1 % + residual AM								

⁷ Please refer to R&S®RTO column in case the R&S®FSW-B2000 is activated.

⁸ With R&S®VSE and I/Q files the value increases to ±(0.2 % + 0.003 × measured value).

FM demodulation										
	R&S®	FSW	ESW/ FSMR3000	FSWP	FSVA3000/ FSV3000	FPS	FPL1000	EPL1000	RTO	
Measurement range	frequency deviation max. $0.5 \times$ demodulation bandwidth									
Deviation uncertainty	$AF \leq 1$ MHz	demodulation bandwidth $\geq 3.3 \times (AF + \text{deviation})$, demodulation bandwidth $\leq 10 \times (AF + \text{deviation})$					demodulation bandwidth $\geq 3.3 \times (AF + \text{deviation})$, demodulation bandwidth $\leq 10 \times (AF + \text{deviation})$		demodulation bandwidth $\geq 3.3 \times (AF + \text{deviation})$	
		$\pm(0.003 \times (AF + \text{deviation}) + 2 \text{ Hz})^{7,9}$			$\pm(0.01 \times (AF + \text{deviation}) + 20 \text{ Hz})$		$\pm(0.01 \times (AF + \text{deviation}) + 20 \text{ Hz})$		0.2 % of reading + residual FM	
Residual FM	demodulation bandwidth ≤ 100 kHz, RMS									
	RF input level \geq (RF attenuation/dB – 30) dBm								RF input level \geq –30 dBm	
	RF ≤ 30 MHz	–	–	–	–	–	–	130 Hz	–	
	RF ≤ 1 GHz	–	–	–	–	–	–	–	30 Hz	
	RF ≤ 3 GHz	–	–	–	–	–	–	–	100 Hz	
	RF ≤ 7 GHz	–	–	–	65 Hz	130 Hz	130 Hz	–	–	
	RF ≤ 8 GHz	10 Hz	10 Hz	10 Hz	–	–	–	–	–	
Harmonic distortion	10 Hz \leq AF ≤ 100 kHz, deviation < 400 kHz	–	–	–	0.3 %	0.3 %	0.3 % ¹⁰	0.3 % ¹⁴	–	
	10 Hz \leq AF ≤ 1 MHz, deviation < 500 kHz	0.1 %	0.1 %	0.1 %	–	–	–	–	0.1 %	
AM rejection	100 Hz \leq AF ≤ 1 kHz, modulation depth 50 %	30 Hz + residual FM								

⁹ With R&S®VSE and I/Q files the value increases to $\pm(0.005 \times (AF + \text{deviation}) + 2 \text{ Hz})$.

¹⁰ With demodulation bandwidth > 5 MHz.

PM demodulation										
	R&S®	FSW	ESW/ FSMR3000	FSWP	FSVA3000/ FSV3000	FPS	FPL1000	EPL1000	RTO	
Measurement range	phase deviation	5000 rad, max. $0.5 \times$ demodulation bandwidth/AF					5000 rad, max. $0.5 \times$ demodulation bandwidth/AF		max. $0.5 \times$ demodulation bandwidth/AF	
Phase deviation uncertainty	AF \leq 1 MHz	AF \times (phase deviation + 1) \leq $0.3 \times$ demodulation bandwidth					AF \times (phase deviation + 1) \leq $0.3 \times$ demodulation bandwidth		AF \times (phase deviation + 1) \leq $0.3 \times$ demodulation bandwidth	
		$\pm(0.002 \text{ rad} + 0.002 \times \text{measured value})^{7, 11}$			$\pm(0.02 \text{ rad} + 0.002 \times \text{measured value})^{12}$		$\pm(0.02 \text{ rad} + 0.002 \times \text{measured value})$		0.2 % of reading + residual PM	
Residual PM	demodulation bandwidth \leq 100 kHz, RMS, RF \leq 1 GHz, highpass 300 Hz									
	0.2 % of reading + residual PM									
		0.3 mrad ⁷			1 mrad	5 mrad			2 mrad	

Carrier power versus time										
	R&S®	FSW	ESW/ FSMR3000	FSWP	FSVA3000/ FSV3000	FPS	FPL1000	EPL1000	RTO	
Display range		noise floor to +30 dBm							noise floor to +24 dBm	
Measurement uncertainty		unmodulated carrier, S/N > 16 dB								
	RF: 9 kHz to 30 MHz	–	–	–	–	–	–	1 dB	–	
	RF: 50 kHz to 3 GHz	–	–	–	1 dB	1 dB	1 dB	–	–	
	RF: 9 kHz to 8 GHz	1 dB	1 dB	1 dB	–	–	–	–	–	
	< $0.75 \times$ bandwidth of R&S®RTO	–	–	–	–	–	–	–	1 dB	
Maximum dynamic range	demodulation bandwidth 200 kHz						RF input level \geq (RF att./dB – 13) dBm		RF input level \geq (RF att./dB – 10) dBm	
		90 dB ⁷			75 dB		75 dB		80 dB	
Nonlinearity of displayed level	S/N > 16 dB	0.1 dB ⁷			0.2 dB		0.2 dB		1 dB	

¹¹ With R&S®VSE and I/Q files the value increases to $\pm(0.002 \text{ rad} + 0.004 \times \text{measured value})$.

¹² With R&S®VSE and I/Q files the value increases to $\pm(0.02 \text{ rad} + 0.004 \times \text{measured value})$.

AF spectrum		
Span		max. 0.5 × demodulation bandwidth
Resolution bandwidth		1 Hz to 10 MHz

RF spectrum		
Span		max. demodulation bandwidth
Resolution bandwidth		1 Hz to 10 MHz
Shape factor	60 dB:3 dB	nom. 2.5

Modulation distortion		
Measurement functions		THD, SINAD
Measurement range		-100 dB to 0 dB
Resolution		0.01 dB
Measurement uncertainty		0.5 dB
AF frequency range		10 Hz to 5 MHz

Trigger		
Trigger functions ¹³		RF level ¹⁴ , AM, FM, PM demodulation

¹³ Not available with R&S®VSE.

¹⁴ Not available with R&S®FPL1000.

Ordering information

Designation	Type	Order No.
Analog demodulator options		
AM/FM/PM modulation analysis	R&S®FSW-K7	1313.1339.02
AM/FM/PM modulation analysis ¹	R&S®FSWP-K7	1325.4238.02
AM/FM/PM modulation analysis ²	R&S®FSMR3-K7	1345.3389.02
AM/FM/PM modulation analysis	R&S®FSV3-K7	1330.5022.02
AM/FM/PM modulation analysis	R&S®FPS-K7	1321.4079.02
AM/FM/PM modulation analysis	R&S®FPL1-K7	1323.1731.02
AM/FM/PM modulation analysis	R&S®ESW-K7	1331.6216.02
AM/FM/PM modulation analysis	R&S®VSE-K7	1320.7539.06
Analyzers		
R&S®FSW		
Signal and spectrum analyzer, 2 Hz to 8 GHz	R&S®FSW8	1331.5003.08
Signal and spectrum analyzer, 2 Hz to 13.6 GHz	R&S®FSW13	1331.5003.13
Signal and spectrum analyzer, 2 Hz to 26.5 GHz	R&S®FSW26	1331.5003.26
Signal and spectrum analyzer, 2 Hz to 43.5 GHz	R&S®FSW43	1331.5003.43
Signal and spectrum analyzer, 2 Hz to 50 GHz	R&S®FSW50	1331.5003.50
Signal and spectrum analyzer, 2 Hz to 67 GHz	R&S®FSW67	1331.5003.67
Signal and spectrum analyzer, 2 Hz to 85 GHz	R&S®FSW85	1331.5003.85
R&S®FSWP		
Phase noise analyzer and VCO tester, 1 MHz to 8 GHz	R&S®FSWP8	1322.8003.08
Phase noise analyzer and VCO tester, 1 MHz to 26.5 GHz	R&S®FSWP26	1322.8003.26
Phase noise analyzer and VCO tester, 1 MHz to 50 GHz	R&S®FSWP50	1322.8003.50
R&S®FSMR3000		
Measuring receiver, 100 kHz to 8 GHz	R&S®FSMR3008	1345.4004.08
Measuring receiver, 100 kHz to 26.5 GHz	R&S®FSMR3026	1345.4004.26
Measuring receiver, 100 kHz to 50 GHz	R&S®FSMR3050	1345.4004.50
R&S®FSVA3000		
Signal and spectrum analyzer, 10 Hz to 4 GHz	R&S®FSVA3004	1330.5000.05
Signal and spectrum analyzer, 10 Hz to 7.5 GHz	R&S®FSVA3007	1330.5000.08
Signal and spectrum analyzer, 10 Hz to 13.6 GHz	R&S®FSVA3013	1330.5000.14
Signal and spectrum analyzer, 10 Hz to 30 GHz	R&S®FSVA3030	1330.5000.31
Signal and spectrum analyzer, 10 Hz to 44 GHz	R&S®FSVA3044	1330.5000.44
R&S®FSV3000		
Signal and spectrum analyzer, 10 Hz to 4 GHz	R&S®FSV3004	1330.5000.04
Signal and spectrum analyzer, 10 Hz to 7.5 GHz	R&S®FSV3007	1330.5000.07
Signal and spectrum analyzer, 10 Hz to 13.6 GHz	R&S®FSV3013	1330.5000.13
Signal and spectrum analyzer, 10 Hz to 30 GHz	R&S®FSV3030	1330.5000.30
Signal and spectrum analyzer, 10 Hz to 44 GHz	R&S®FSV3044	1330.5000.43
R&S®FPS		
Signal analyzer, 9 kHz to 4 GHz	R&S®FPS4	1319.2008.04
Signal analyzer, 9 kHz to 7 GHz	R&S®FPS7	1319.2008.07
Signal analyzer, 9 kHz to 13.6 GHz	R&S®FPS13	1319.2008.13
Signal analyzer, 9 kHz to 30 GHz	R&S®FPS30	1319.2008.30
Signal analyzer, 9 kHz to 40 GHz	R&S®FPS40	1319.2008.40

Designation	Type	Order No.
R&S®FPL1000		
Signal and spectrum analyzer, 5 kHz to 3 GHz	R&S®FPL1003	1304.0004.03
Signal and spectrum analyzer, 5 kHz to 7.5 GHz	R&S®FPL1007	1304.0004.07
Signal and spectrum analyzer, 5 kHz to 14 GHz	R&S®FPL1014	1304.0004.14
Signal and spectrum analyzer, 5 kHz to 26.5 GHz	R&S®FPL1026	1304.0004.26
EMI test receivers		
R&S®EPL1000		
EMI test receiver, 5 kHz to 30 MHz	R&S®EPL1000	1350.4444.10
R&S®ESW		
EMI test receiver, 2 Hz to 8 GHz	R&S®ESW8	1328.4100.08
EMI test receiver, 2 Hz to 26.5 GHz	R&S®ESW26	1328.4100.26
EMI test receiver, 2 Hz to 44 GHz	R&S®ESW44	1328.4100.44
Oscilloscopes		
Oscilloscope, 600 MHz, 10 Gsample/s, 20/40 Msample, 2 channels	R&S®RTO1002	1316.1000.02
Oscilloscope, 600 MHz, 10 Gsample/s, 20/80 Msample, 4 channels	R&S®RTO1004	1316.1000.04
Oscilloscope, 1 GHz, 10 Gsample/s, 20/40 Msample, 2 channels	R&S®RTO1012	1316.1000.12
Oscilloscope, 1 GHz, 10 Gsample/s, 20/80 Msample, 4 channels	R&S®RTO1014	1316.1000.14
Oscilloscope, 2 GHz, 10 Gsample/s, 20/40 Msample, 2 channels	R&S®RTO1022	1316.1000.22
Oscilloscope, 2 GHz, 10 Gsample/s, 20/80 Msample, 4 channels	R&S®RTO1024	1316.1000.24
Oscilloscope, 4 GHz, 20 Gsample/s, 20/80 Msample, 4 channels	R&S®RTO1044	1316.1000.44
Vector signal explorer		
R&S®VSE basic edition	R&S®VSE	1345.1011.06
R&S®VSE enterprise edition	R&S®VSE Enterprise Edition	1345.1105.06
Software maintenance	R&S®VSE-SWM	1320.7622.81

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

Rohde & Schwarz

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Sustainable product design

- ▶ Environmental compatibility and eco-footprint
- ▶ Energy efficiency and low emissions
- ▶ Longevity and optimized total cost of ownership



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