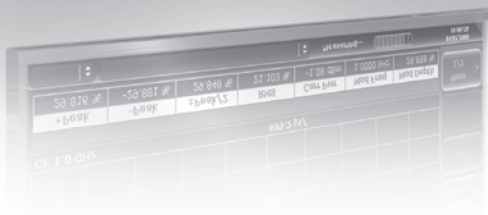
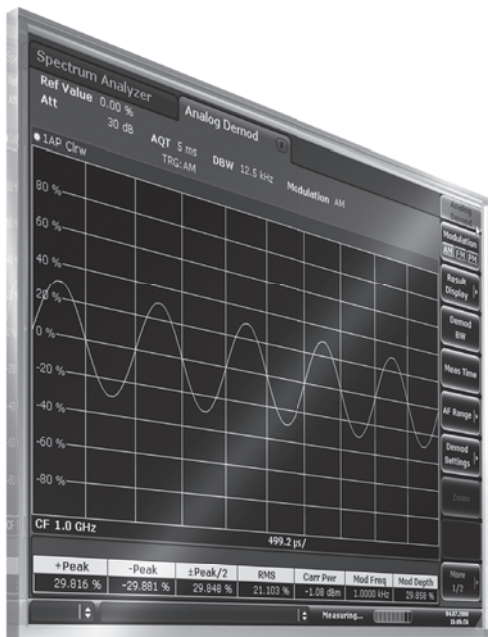


R&S®FSV-K7

Analog Modulation Analysis AM/FM/φM

Specifications



75 Years of Driving Innovation



R&S® FSV-K7 AM/FM/φM measurement demodulator

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.

Measurement of analog modulation signals		
Demodulation bandwidth		100 Hz to 6.4 kHz, binary steps 12.5 kHz to 1.6 MHz, binary steps 3 MHz, 5 MHz, 8 MHz, 10 MHz, 18 MHz, 28 MHz 40 MHz (R&S® FSV-B70 option)
Recording length	maximum	400001 samples
Recording time	demodulation bandwidth	
	100 Hz	3276.8 s
	6.4 kHz	51.2 s
	12.5 kHz	26.6 s
	1.6 MHz	200 ms
	3 MHz	100 ms
	5 MHz	50 ms
	8 MHz	25 ms
	10 MHz	12.5 ms
	18 MHz	12.5 ms
	28 MHz	6.25 ms
	40 MHz	6.25 ms
Display	frequency versus time (FM), amplitude versus time (AM), phase versus time (φM), RF power versus time, RF spectrum (FFT), AF spectrum (FFT), table with numeric values for: modulation deviation (peak, RMS), modulation frequency, carrier offset, carrier power (power of unmodulated carrier), THD, SINAD	

AF (modulation frequency)		
Range		14 MHz 20 MHz (R&S® FSV-B70 option) max. 0.5 × demodulation bandwidth
Resolution		5 digits
Measurement uncertainty		0.1 %
AF filters		
Lowpass	demodulation bandwidth ≤ 3 MHz	3 kHz
	demodulation bandwidth ≤ 8 MHz	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, 300 Hz
Deemphasis		25 μs, 50 μs, 75 μs, 750 μs
Weighting filters	demodulation bandwidth ≤ 3 MHz	CCITT P.53
	demodulation bandwidth ≤ 1.6 MHz	CCIR unweighted

AM demodulation		
Measurement range	modulation depth	0 % to 100 %
Modulation depth uncertainty	AF ≤ 1 MHz	3 % of reading + residual AM
Residual AM	demodulation bandwidth ≤ 200 kHz, RMS, RF ≤ 4 GHz, RF input level ≥ (RF attenuation/dB – 30) dBm	0.1 %
Distortion	10 Hz ≤ AF ≤ 100 kHz	0.3 %
FM rejection	AF ≤ 1 MHz, deviation ≤ 1 MHz and AF + deviation ≤ 0.3 × demodulation bandwidth	1 % + residual AM

FM demodulation		
Measurement range	frequency deviation	14 MHz 20 MHz (R&S® FSV-B70 option) max. 0.5 × demodulation bandwidth
Deviation uncertainty	AF ≤ 1 MHz and AF + deviation ≤ 0.3 × demodulation bandwidth	3 % of reading + residual FM

Residual FM	demodulation bandwidth ≤ 100 kHz, RMS, RF ≤ 7 GHz, RF input level \geq (RF attenuation/dB -30) dBm	130 Hz
Distortion	$10 \text{ Hz} \leq \text{AF} \leq 100 \text{ kHz}$, deviation $< 400 \text{ kHz}$	0.3 %
AM rejection	$100 \text{ Hz} \leq \text{AF} \leq 1 \text{ kHz}$, modulation depth 50 %	30 Hz + residual FM

ϕM demodulation		
Measurement range	phase deviation	5000 rad max. $0.5 \times$ demodulation bandwidth/AF
Phase deviation uncertainty	$\text{AF} \leq 1 \text{ MHz}$ and $\text{AF} \times (\text{phase deviation} + 1) \leq 0.3 \times$ demodulation bandwidth	3 % of reading + residual PM
Residual ϕ M	demodulation bandwidth ≤ 100 kHz, RMS, RF ≤ 1 GHz, highpass 300 Hz, RF input level \geq (RF attenuation/dB $- 30$ dBm)	5 mrad

Carrier power versus time		
Display range		noise floor to $+30$ dBm
Measurement uncertainty	unmodulated carrier, S/N > 16 dB, RF: 50 kHz to 3 GHz	1 dB
Maximum dynamic range	demodulation bandwidth 200 kHz RF input level \geq (RF attenuation/dB $- 10$) dBm	75 dB
Display linearity	S/N > 16 dB	0.2 dB

AF spectrum		
Span		≤ 14 MHz ≤ 20 MHz (R&S [®] FSV-B70 option)
Resolution bandwidth		1 Hz to 10 MHz

RF spectrum		
Span		≤ 28 MHz ≤ 40 MHz (R&S [®] FSV-B70 option)
Resolution bandwidth		1 Hz to 10 MHz
Shape factor	60 dB/3 dB	2.5, nominal

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		RF level, AM, FM, ϕ M demodulation

Ordering information

Designation	Type	Order No.
Analog Modulation Analysis (AM/FM/ ϕ M)	R&S [®] FSV-K7	1310.8103.02

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For product brochure,
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