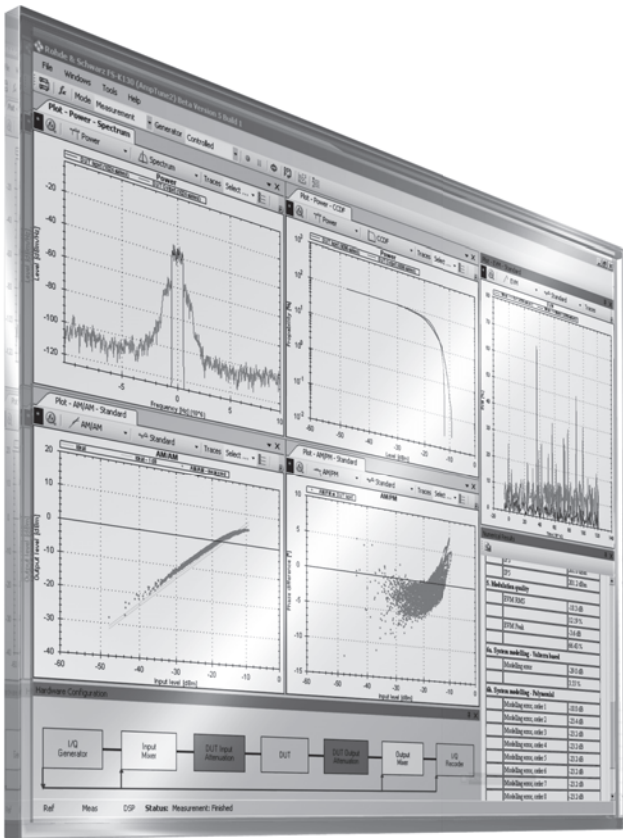


R&S®FS-K130PC Distortion Analysis Software Specifications



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The specifications of the R&S®FS-K130PC Distortion Analysis software are based on the data sheet specifications of the R&S®FSQ/R&S®FSG/R&S®FSV signal and spectrum analyzer, have not been checked separately 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).

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.

"Typical values" are designated with the abbreviation "typ.". These values are verified during the final test but are not assured by Rohde & Schwarz.

"Nominal values" are design parameters that are not assured by Rohde & Schwarz. These values are verified during product development but are not specifically tested during production.

Data without tolerance limits is not binding.

Specifications

Recommended system configuration

Operating system	Windows XP Professional + Service Pack 2
Free hard disk space	1 Gbyte
Free RAM	≥ 1 Gbyte
Graphics resolution	≥ XGA (1024 × 768 pixel)
USB	1 free USB port for connecting the smartcard reader (if no PC-built-in smartcard reader is used)
Measuring instrument connection	Hardware: IEC/IEEE bus or LAN connection Software: VISA driver National Instruments VISA Version ≥ 4.2 or Agilent IO Libraries Suite 15.1 or later

Distortion Analysis software

The R&S®FS-K130PC Distortion Analysis software is compatible with the spectrum/signal analyzers R&S®FSQ, R&S®FSG, R&S®FSV, the vector signal generators R&S®SMU200A, R&S®SMJ100A, R&S®SMATE200A, R&S®SMBV100A and the baseband signal generator R&S®AMU200A.

Frequency

Frequency range	measurement – RF input	
	R&S®FSQ3	DC coupled 20 Hz to 3.6 GHz
		AC coupled 1 MHz to 3.6 GHz
	R&S®FSQ8	DC coupled 20 Hz to 8 GHz
		AC coupled 1 MHz to 8 GHz
	R&S®FSQ26	DC coupled 20 Hz to 26.5 GHz
		AC coupled 10 MHz to 26.5 GHz
	R&S®FSQ40	DC coupled 20 Hz to 40 GHz
	R&S®FSG8	DC coupled 9 kHz to 8 GHz
		AC coupled 1 MHz to 8 GHz
	R&S®FSG13	DC coupled 9 kHz to 13.6 GHz
		AC coupled 10 MHz to 13.6 GHz
	R&S®FSV3	DC coupled 9 kHz to 3.6 GHz
		AC coupled 1 MHz to 3.6 GHz
	R&S®FSV7	DC coupled 9 kHz to 7 GHz
		AC coupled 1 MHz to 7 GHz
	R&S®FSV13	DC coupled 9 kHz to 13.6 GHz
		AC coupled 10 MHz to 13.6 GHz
	R&S®FSV30	DC coupled 9 kHz to 30 GHz
		AC coupled 10 MHz to 30 GHz
	R&S®FSV40	DC coupled 9 kHz to 40 GHz
		AC coupled 10 MHz to 40 GHz
		measurement – I/Q baseband inputs (R&S®FSQ-B71)

Level

Level range	measurement – RF input	–50 dBm to +30 dBm ¹
	measurement – I/Q baseband inputs (R&S®FSQ-B71)	31.6 mV to 5.62 V
Level setting		auto ¹

¹ Restricted IF overload and auto level functionality depending on carrier frequency and bandwidth at carrier frequencies < 50 MHz.

Bandwidth

Sample rate	RF or analog baseband input	R&S®FSQ: 400 Hz to 81.6 MHz R&S®FSV: 100 Hz to 45 MHz
	- with I/Q bandwidth extension	R&S®FSQ: 400 Hz to 326.4 MHz (R&S®FSQ-B72) R&S®FSV: 100 Hz to 128 MHz (R&S®FSV-B70)
Maximum acquisition bandwidth (equalized)	RF input	28 MHz
	- with I/Q bandwidth extension	R&S®FSQ: 120 MHz (R&S®FSQ-B72) R&S®FSV: 40 MHz (R&S®FSV-B70)
	analog baseband inputs	R&S®FSQ: 72 MHz (R&S®FSQ-B71)

Reference signal (Input/Ref signal)

Supported numerical signal sources	built-in signal types	band-limited noise, dual tone
	band-limited noise	selectable bandwidth selectable notch bandwidth crest factor optimization selectable
	dual tone	selectable tone spacing
	file based	file format binary, ASCII or Matlab
Reference signal clock rate		selectable
Reference signal length		1.024 to 1.048.576 samples ²
Reference signal level	RF	depending on signal generator
	baseband	depending on signal generator
Marker control	restart marker	marker 1/marker 2/marker 3/marker 4
	marker timing offset	selectable within signal length
Signal settling delay		100 ms to 5 s

Measurement signal (Output/Meas signal)

Supported measurement signal sources	measurement hardware	all supported analyzer types
	file based	file format binary, ASCII or Matlab
	simulation (built-in)	various simulation modes and parameters
Result length		1.024 to 1.048.576 samples
Averaging	I/Q based averaging	1 to 1000 ³
Trigger modes	RF input	free run, external
	I/Q baseband inputs (R&S®FSQ-B71)	free run, external

Measurement configuration

DUT port type	input port	RF
	output port	RF
DUT measurement parameters	frequency	RF frequency multiplier, divider, frequency offset
	level	output RMS level maximum input peak and RMS level
	post-measurement level	can be attenuated or set to RF OFF
DUT input and output attenuation pads	fixed attenuation	-30 dB to 80 dB
Reference frequency coupling	10 MHz reference frequency source	any controlled instrument external reference frequency generator no coupling

² Tested with 1 Msample reference signal length on a PC with 2 Gbyte memory.

³ Tested with 1 Msample measurement signal; depending on the reference signal length, the averaging factor may be reduced.

Signal processing parameters

Signal synchronization	sync mode	none timing, phase and gain full synchronization
	measurement periods to analyze	all/limited to n periods
	Error compensation (individual switchable ON or OFF)	I/Q imbalance, I/Q offset, frequency error, timing offset, amplitude droop
Generic parameter calculation	nonlinear estimation order	selectable
Channel estimation	active	yes or no
	impulse response taps	64 to 4096
	impulse response overlap	0 to 1
System identification – Polynomial	full-fit maximum order	OFF/1 to 15
	odd-fit maximum order	OFF/1 to 15
	calculate AM/φM	yes/no
System identification – Volterra	Volterra structure	configurable up to 9 th order
DPD (Digital Predistortion)		yes/no

Graphical result display

Results ⁴	capture buffer	ref, meas (standard, spectrum, histogram, CCDF)
	power (synchronized capture buffer)	ref, meas, modeled, ref - meas, modeling error, DPD, optimized (standard, spectrum, histogram, CCDF)
	gain	gain vs. ref, gain vs. meas, EVM vs. ref, gain vs. ref – modeled (standard, spectrum, histogram, CCDF)
	constellation	ref, meas, modeled, ref – meas, DPD, optimized
	AM/AM (amplitude compression)	meas, modeled, DPD, optimized reference lines
	AM/φM (phase compression)	meas, modeled, DPD, optimized reference line
	I and Q	ref – I, ref – Q, meas – I, meas – Q (standard, spectrum, histogram, CCDF)
	EVM	meas ↔ ref, meas ↔ model, ref ↔ optimized (standard, spectrum, histogram, CCDF)
	Channel	amplitude, phase (STANDARD, SPECTRUM, HISTOGRAM, CCDF)

Numerical results

Results ⁴	power measurement	DUT input – RMS, peak, crest
		DUT output – RMS, peak, crest
		DUT output – leveling error
	signal synchronization	averages executed, confidence
		frequency offset, phase offset, trigger offset
intercepts	I/Q offset, gain imbalance, quadrature error, I/Q imbalance	
	gain, compression, 1dB compression point fundamentals, 3 rd and 5 th order product, IP3, IP5	
modulation quality	EMV RMS, EVM peak	
system modeling	modeling error	

⁴ Depending on the signal processing configuration, some results may not be available.

Ordering information

Designation	Type	Order No.
Distortion Analysis Software	R&S®FS-K130PC	1310.0090.06
Signal Analyzer, 20 Hz to 3.6 GHz	R&S®FSQ3	1155.5001.03
Signal Analyzer, 20 Hz to 8 GHz	R&S®FSQ8	1155.5001.08
Signal Analyzer, 20 Hz to 26.5 GHz	R&S®FSQ26	1155.5001.26
Signal Analyzer, 20 Hz to 40 GHz	R&S®FSQ40	1155.5001.40
Signal Analyzer, 9 kHz to 8 GHz	R&S®FSG8	1309.0002.08
Signal Analyzer, 9 kHz to 13.6 GHz	R&S®FSG13	1309.0002.13
Signal Analyzer, 9 kHz to 3.6 GHz	R&S®FSV3	1307.9002.03
Signal Analyzer, 9 kHz to 7 GHz	R&S®FSV7	1307.9002.07
Signal Analyzer, 9 kHz to 13.6 GHz	R&S®FSV13	1307.9002.13
Signal Analyzer, 9 kHz to 30 GHz	R&S®FSV30	1307.9002.30
Signal Analyzer, 9 kHz to 40 GHz	R&S®FSV40	1307.9002.40
Recommended options and extras		
I/Q Baseband Inputs	R&S®FSQ-B71	1157.0113.03
Digital Baseband Interface	R&S®FSQ-B17	1163.0063.02
See also specifications for the R&S®FSQ signal analyzer (PD 0758.0945.22), the R&S®FSG spectrum analyzer (PD 5213.8721.22) and the R&S®FSV spectrum analyzer (PD 5214.0499.22).		

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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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