

R&S®ESPI3/7 Test Receivers



The R&S®ESPI3 and R&S®ESPI7 have been specially designed for precompliance measurements in development for all commercial EMI standards to CISPR, EN, ETS, FCC, ANSI C63.4, VCCI and VDE

Excellent test receiver features

- ▮ Peak, Quasi-Peak, RMS, RMS-Average, CAV and AV (max. 3 detectors simultaneously)
- ▮ EMI bandwidths 200 Hz, 9 kHz, 120 kHz, 1 MHz
- ▮ Correct pulse weighting to CISPR 16-1-1 from PRF of 10 Hz
- ▮ ETS, FCC, ANSI C63.4, VCCI and VDE
- ▮ Preselector and 20 dB preamplifier (option R&S®ESPI-B2)

Spectrum analyzer

- ▮ Resolution bandwidths from 10 Hz to 10 MHz
- ▮ RMS detector for digitally modulated signals
- ▮ Channel filter bandwidths from 100 Hz to 5 MHz
- ▮ Test routines for determining TOI, ACPR, OBW, amplitude statistics

Outstanding performance features

- ▮ Total measurement uncertainty
 - Spectrum analyzer mode: 0.5 dB (without preselection)
 - Receiver mode: < 1.5 dB
- ▮ DANL -155 dBm (1 Hz), $f < 1$ GHz
- ▮ User-programmable scan tables
- ▮ Correction values for cable loss, coupling networks and antennas included as transducer factor
- ▮ Bargraph display for different types of detectors
- ▮ Automatic overload indication
- ▮ Built-in AF demodulation
- ▮ External trigger function for measuring field strength profiles (R&S®ESPI-K50 option) including additional channel filters from 5.6 MHz to 8 MHz (ISDB-T, ATSC, DVB-T, DVB-T2)

More information: www.rohde-schwarz.com, search term: espi

Specifications in brief		
Frequency	R&S®ESPI3	R&S®ESPI7
Frequency range	9 kHz to 3 GHz	9 kHz to 7 GHz
Frequency display (receiver mode)	numerical display	
Spectral purity (dBc (1 Hz))	typ. -145 dBc (1 Hz)	
SSB phase noise, $f = 500$ MHz, carrier offset 10 MHz		
Residual FM, $f = 500$ MHz, RBW 1 kHz, sweep time 100 ms	typ. 3 Hz	
Frequency scan (receiver mode)	scan with max. 10 subranges with different settings	
Measurement time per frequency	100 μ s to 100 s, selectable	
Sweep (analyzer mode)		
Span 0 Hz (zero span)	1 μ s to 16000 s	
Span ≥ 10 Hz	2.5 ms to 16000 s	
IF bandwidths (receiver and analyzer mode)		
Bandwidths (-3 dB)	10 Hz to 10 MHz	
EMI bandwidths (CISPR)	200 Hz, 9 kHz, 120 kHz (-6 dB) 1 MHz (pulse bandwidth)	
Video bandwidths (analyzer mode)	1 Hz to 10 MHz	
FFT filters (-3 dB, analyzer mode)	1 Hz to 10 MHz	
Channel filters	44 bandwidths, 100 Hz to 5 MHz	
Maximum input level		
DC voltage	50 V	
RF attenuation 0 dB		
CW RF power	127 dB μ V (= 0.3 W)	
Pulse spectral density	97 dB (μ V/MHz)	
RF attenuation ≥ 10 dB		
CW RF power	137 dB μ V (= 1 W)	
Max. pulse voltage	150 V	
Max. pulse energy (10 μ s)	1 mWs	
1 dB compression of input mixer		
0 dB RF attenuation, $f > 200$ MHz, without preselector	0 dBm nominal	
3rd-order intermodulation (TOI)		
Intermodulation-free dynamic range, level 2×-30 dBm, $\Delta f > 5 \times$ RBW or 10 kHz, whichever the greater value		
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)
Displayed average noise level		
0 dB RF attenuation, RBW = 10 Hz, VBW = 1 Hz, 20 averages, trace average, zero span, 50 Ω termination		
10 MHz to 1 GHz	< -142 dBm, typ. -145 dBm	< -140 dBm, typ. -145 dBm
Level display (receiver mode)		
Spectrum	level axis 10 dB to 200 dB in 10 dB steps, frequency axis user-selectable, linear or logarithmic	
Detectors (3 detectors can be switched on simultaneously)	AV, RMS, Max/MinPeak, QP, CISPR-AV, RMS-Average	
Measurement time	100 μ s to 100 s, selectable	
Level display (analyzer mode)		
Traces	max. 3 per diagram	
Trace detectors	Max/Min/AutoPeak, Sample, RMS, AV, QP	
Trace functions	Clear/Write, Max/MinHold, AV	
Quasi-peak display (with R&S®ESPI-B2 option)	in line with CISPR 16-1-1, ≥ 10 Hz pulse repetition frequency	
Total measurement uncertainty (0 Hz to 3 GHz)		
Spectrum analyzer mode without preselection	0.5 dB	
Receiver mode with preselection	< 1.5 dB	
Audio demodulation, output	AM, FM, loudspeaker, headphone	