

Power Sensor R&S NRP-Z23

Frequency range		10 MHz to 18 GHz
Matching (SWR)	10 MHz to 2.4 GHz >2.4 GHz to 8.0 GHz >8.0 GHz to 12.4 GHz >12.4 GHz to 18 GHz	< 1.14 < 1.25 < 1.30 < 1.41
Power measurement range	Continuous Average Burst Average Timeslot Scope	20 nW to 15 W (-47 dBm to +42 dBm) 20 μ W to 15 W (-17 dBm to +42 dBm) ₃ 70 nW to 15 W (-42 dBm to +42 dBm) ³ 1 μ W to 15 W (-30 dBm to +42 dBm) ⁴
Max. power	Average Peak envelope power	18 W (+42.5 dBm) continuous (see diagram) 100 W (+50 dBm) for max. 10 μ s
Measurement subranges	Path 1 Path 2 Path 3	-47 dBm to + 6 dBm -27 dBm to + 26 dBm - 7 dBm to + 42 dBm
Transition ranges	With automatic path selection, user def'd crossover ⁵ set to 0 dB	(+ 1 \pm 1.75) dBm to (+ 7 \pm 1.75) dBm (+21 \pm 1.75) dBm to (+27 \pm 1.75) dBm
Display noise ¹⁴⁾	Path 1 Path 2 Path 3	< 8 nW (4 nW typ.) < 0.8 μ W (0.4 μ W typ.) < 80 μ W (40 μ W typ.)
Display noise, relative ¹⁵⁾	Measurement window 2 \times 100 μ s, without averaging Measurement window 2 \times 20 ms, averaging factor 32 (measure- ment time approx. 1 s)	< 0.160 dB (0.1 dB typ.) < 0.002 dB (0.001 dB typ.)
Zero offset ¹⁷⁾	Path 1 Path 2 Path 3	< 13 nW (7 nW typ.) < 1.3 μ W (0.6 μ W typ.) < 0.13 mW (60 μ W typ.)
Zero drift ¹⁸⁾	Path 1 Path 2 Path 3	< 5 nW < 0.4 μ W < 40 μ W
Triggering	Source Slope (external, internal) Level Internal External Delay Holdoff Hysteresis	Bus, External, Hold, Immediate, Internal pos./neg. -19 dBm to +42 dBm See specs for R&S NRP and USB Adapter R&S NRP-Z3 -5 ms to +100 s 0 s to 10 s 0 dB to 10 dB

Power Sensor R&S NRP-Z23 (continued)

Uncertainty for absolute power measurements³¹⁾ in dB

10 MHz to < 100 MHz					100 MHz to < 4 GHz				
0.194	0.203	0.227	0.257		0.187	0.197	0.222	0.253	(0 to 50) °C
0.096	0.106	0.137	0.175		0.105	0.115	0.144	0.181	(15 to 35) °C
0.078	0.081	0.111	0.149		0.087	0.094	0.120	0.156	(20 to 25) °C
-20 ³⁷⁾	+30	+36	+40	+42	-20 ³⁷⁾	+30	+36	+40	+42
					dBm				

4 GHz to < 12.4 GHz					12.4 GHz to 18 GHz				
0.209	0.217	0.240	0.269		0.238	0.245	0.266	0.292	(0 to 50) °C
0.133	0.140	0.165	0.198		0.166	0.172	0.193	0.221	(15 to 35) °C
0.117	0.122	0.144	0.175		0.151	0.155	0.172	0.199	(20 to 25) °C
-20 ³⁷⁾	+30	+36	+40	+42	-20 ³⁷⁾	+30	+36	+40	+42
					dBm				

Uncertainty for relative power measurements^{32), 33), 36)} in dB

10 MHz to < 100 MHz					100 MHz to 4 GHz				
+42	0.226	0.229	0.027		+42	0.209	0.218	0.038	(0 to 50) °C
	0.084	0.080	0.022			0.088	0.085	0.032	(15 to 35) °C
+28	0.046	0.044	0.022		+28	0.055	0.047	0.031	(20 to 25) °C
+20	0.226	0.027	0.229		+20	0.206	0.028	0.218	(0 to 50) °C
	0.083	0.022	0.080			0.083	0.022	0.085	(15 to 35) °C
+8	0.045	0.022	0.044		+8	0.048	0.022	0.047	(20 to 25) °C
±0	0.023	0.226	0.226		±0	0.023	0.206	0.209	(0 to 50) °C
	0.022	0.083	0.084			0.022	0.083	0.088	(15 to 35) °C
-20 ³⁷⁾	0.022	0.045	0.046		-20 ³⁷⁾	0.022	0.048	0.055	(20 to 25) °C
dBm	-20 ³⁷⁾	±0 / +8	+20 / +28	+42	dBm	-20 ³⁷⁾	±0 / +8	+20 / +28	+42
> 4 GHz to 12.4 GHz					>12.4 GHz to 18 GHz				
+42	0.224	0.231	0.064		+42	0.244	0.245	0.086	(0 to 50) °C
	0.111	0.106	0.061			0.135	0.128	0.084	(15 to 35) °C
+28	0.084	0.077	0.060		+28	0.110	0.102	0.083	(20 to 25) °C
+20	0.216	0.034	0.231		+20	0.230	0.040	0.245	(0 to 50) °C
	0.096	0.027	0.106			0.112	0.034	0.128	(15 to 35) °C
+8	0.063	0.025	0.077		+8	0.079	0.033	0.102	(20 to 25) °C
±0	0.024	0.216	0.224		±0	0.024	0.230	0.244	(0 to 50) °C
	0.022	0.096	0.111			0.022	0.112	0.135	(15 to 35) °C
-20 ³⁷⁾	0.022	0.063	0.084		-20 ³⁷⁾	0.022	0.079	0.110	(20 to 25) °C
dBm	-20 ³⁷⁾	±0 / +8	+20 / +28	+42	dBm	-20 ³⁷⁾	±0 / +8	+20 / +28	+42