

CONDUCTED OUTPUT POWER FOR HANDSET

The conducted output power was re-measured with a E4446A which has much less measurement uncertainty. The accuracy of the E4446A is +/- 0.6dB ; while 8565EC is +/- 1.9dB. For the transmission slot timing, it was also re-measured in expanded mode to get most accurate readings.

Following is specification comparison tables between E4446A and 8565EC:

	ESA-L Series Basic spectrum analysis	8591C Cable TV analyzer	ESA-E Series Mid-performance platform	856x EC Series High performance portable	PSA Series Advanced high performance platform
Overview					
Performance	★	★★	★★★	★★★★	★★★★★
Price	\$	\$\$	\$\$\$	\$\$\$\$	\$\$\$\$\$
Application specific solutions		★	★★★★	★	★★★★
Expandable platform		Standard	Standard		Standard
Performance options		Available	Available	Standard	Standard
Frequency range	9 kHz to 26.5 GHz	9 kHz to 1.8 GHz	30 Hz to 26.5 GHz ¹	30 Hz to 50 GHz	3 Hz to 50 GHz
with external mixing			30 Hz to 325 GHz ^{1,2}	30 Hz to 325 GHz ^{1,2}	Future
Specification summary					
Speed					
Minimum RF sweep time	4 ms	20 ms	1 ms	50 ms	1 ms
Minimum zero span sweep time	4 ms	20 μ s	25 ns ¹	50 ms	1 μ s
Local measurement rate ¹¹	≥ 28 /second	9/second	≥ 40 /second	10/second	≥ 50 /second
Remote measurement rate over GPIB ¹¹	≥ 30 /second	7/second	≥ 40 /second	7/second	≥ 45 /second
RF center frequency tuning time ¹¹	≤ 90 ms		≤ 75 ms		
Warm-up time	5 minutes	30 minutes	5 minutes	5 minutes	30 minutes
Phase noise/ stability					
Phase noise at 1 GHz (10 kHz offset)	-90 dBc/Hz	-90 dBc/Hz	-90 dBc/Hz	-113 dBc/Hz	-114 dBc/Hz
Phase noise at 1 GHz (1 MHz offset)			-133 dBc/Hz ¹	-132 dBc/Hz ¹⁰	-144 dBc/Hz
Phase noise at 1 GHz (10 MHz offset)			-137 dBc/Hz ¹		-151 (-157 ¹¹) dBc/Hz
Dynamic range					
Maximum third-order dynamic range at 1 GHz	83 dB	88 dB	108 dB ^{1, 10}	108 dB	113 dB
Maximum second-order dynamic range at 1 GHz	78.5 dB	78.5 dB	97.5 dB ^{1, 10}	95 dB	103 dB
1 dB gain compression ⁵	0 dBm	-5 dBm	0 dBm	-5 dBm	+3 dBm
Maximum safe input	+30 dBm	+30 dBm	+30 dBm	+30 dBm	+30 dBm
Attenuator range and step size	0 to 65 dB ³ in 5 dB steps	0 to 70 dB in 10 dB steps	0 to 65 dB ³ in 5 dB steps	0 to 70 dB ⁴ in 10 dB steps	0 to 70 dB in 2 dB steps
Displayed average noise level (DANL) at 1 GHz	-117 dBm	-98 dBm ¹	-150 dBm ^{1,10} / -166 dBm ^{6,10}	151 dBm ¹	-154 dBm / -168 dBm ⁶
Calibrated display range (log amplifier)	85 dB	70 dB	85 dB to 120 dB ¹	100 dB ⁷	> 110 dB
Accuracy					
Overall amplitude accuracy (9 kHz to 3 GHz)	± 1.1 dB	± 2.1 dB	± 1.0 dB	± 1.9 dB	± 0.62 dB (± 0.24 dB ¹²)
Span accuracy	± 1.0 %	$\pm 2\%$ to $\pm 3\%$	± 0.5 %	$\pm 1\%$ to $\pm 5\%$	$\pm 0.2\%$
Frequency accuracy at 1 GHz ⁹	± 2001 Hz	± 210 Hz	± 101 Hz	± 103 Hz	± 100 Hz
Resolution					
RBW range	1 kHz to 5 MHz	30 Hz ¹ to 3 MHz	1 Hz ¹ to 5 MHz	1 Hz to 2 MHz	1 Hz to 8 MHz
Best selectivity	15:1	10:1	5:1	5:1	4.1:1
RBW step size	1, 3, 10	1, 3, 10	1, 3, 10	1, 3, 10	10% steps ⁸
Residual FM	≤ 150 Hz	≤ 30 Hz ¹	≤ 2 Hz ¹	< 1 Hz	< 1 Hz
EMI resolution bandwidths	9 kHz & 120 kHz	200 Hz ¹ , 9 & 120 kHz	200 Hz ¹ , 9 & 120 kHz		
Information bandwidth					10 MHz ¹¹
Maximum IF bandwidth			> 30 MHz ^{11,14}		> 30 MHz ^{11,13}

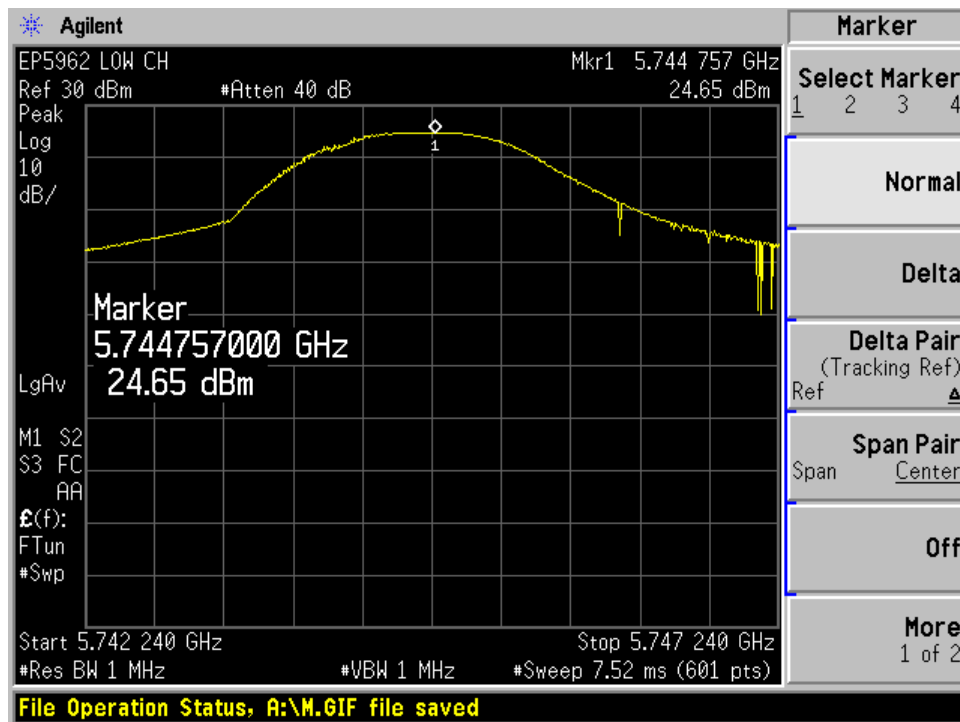
Test Equipment

Manufacturer	Description	Model No.	Serial No.	Calibration Date
Agilent	Spectrum Analyzer	E4446A	US44300386	2004-11-10

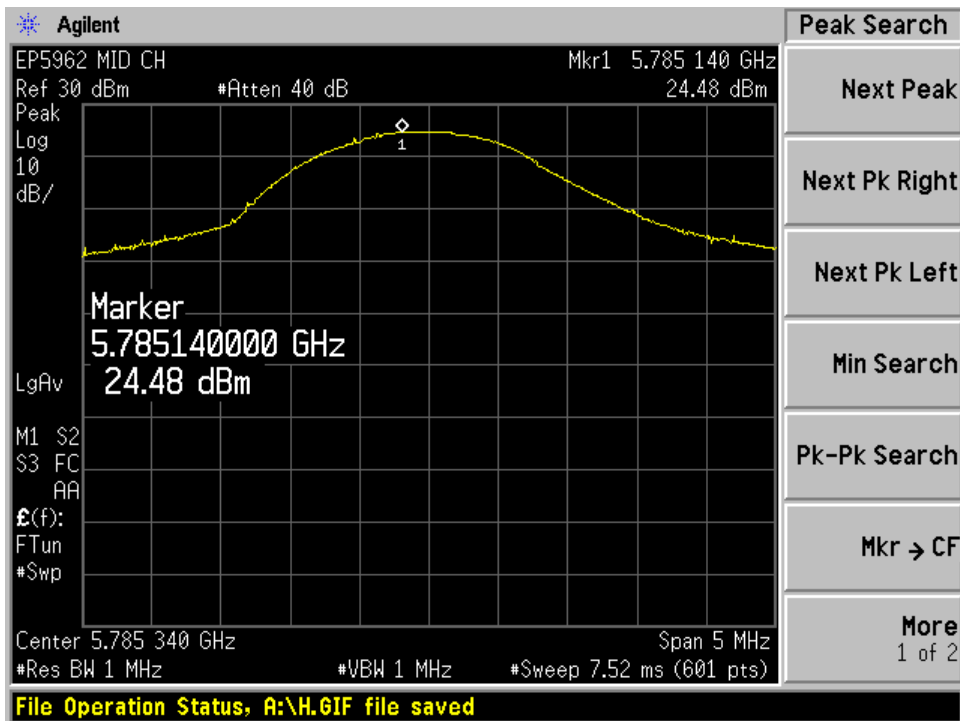
Measurement Result for Handset:

Channel	Frequency MHz	Max Peak Output Power		Limit (mW)	Result
		(dBm)	(mW)		
Low	5744.75	24.65	291.74	1000	Pass
Mid	5785.14	24.48	280.54	1000	Pass
High	5825.83	24.71	295.80	1000	Pass

Low Channel



Mid. Channel



High Channel

