LTE Base Station MSiP Amplifier

The HXG-122+ is a High Dynamic Range MSiP (Mini-Circuits System in Package) Amplifier designed over a focused frequency range specifically for applications which require high linear performance, advanced digital communications systems such as LTE which require excellent ACLR suppression and low EVM.

The HXG-122+ provides typically +47 dBm OIP3 at 700MHz which translates to high linear performance in multi-carrier and complex signal environments such as LTE supporting ACLR_1 Measurements of better than -60 dBc at +11 dBm output.

The HXG-122+ is characterized using a high peak-to-average ratio OFDM signal used for next generation LTE within the 700MHz Downlink Band.

Figure 1 (HXG-122+ Test Board)

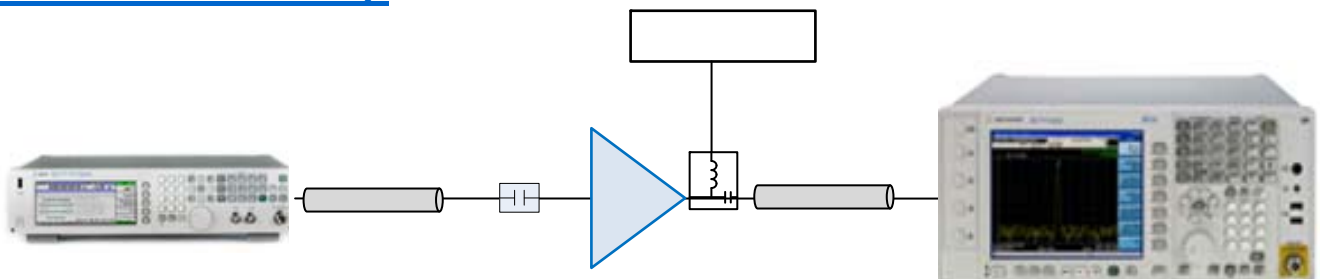
DUT Configuration:
Device: HXG-122+ Test board
Supply Voltage: 5V, 150 mA
Temperature: 25C
Note: All data is referenced to the test board connectors

Test Signal:
LTE FDD Downlink (2009-3),
Full filled 64 QAM,10MHz (50 RB)
Fc = 700 MHz

CCDF	PAR
10%	3.63 dB
1.0%	6.67 dB
0.1%	8.48 dB
0.01%	10.06 dB
0.001%	10.90 dB
0.0001%	11.05 dB

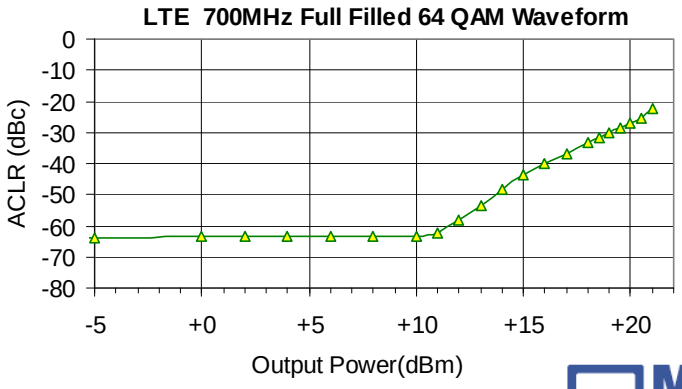
CCDF: Complementary Cumulative Distribution Function
PAR: Peak to Average Ratio

Measurement Setup



Summary Data

ACLR_1 vs. Output Power



EVM vs. Output Power

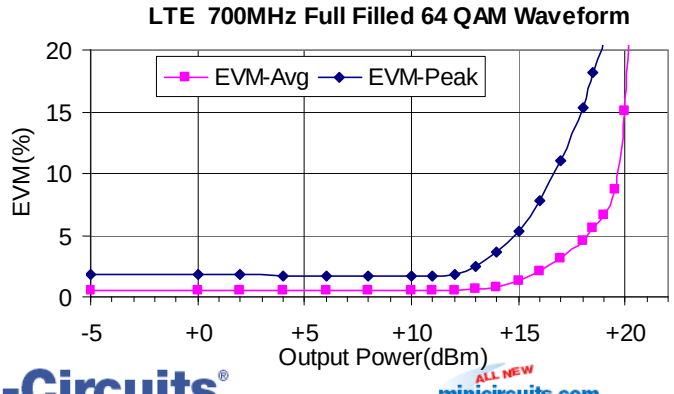


Table 1 Data of ACLR and EVM vs. Output Power

Output Power (carrier) dBm	ACLR (dBc)				EVM (%)	
	ACLR2 LOW 20MHz	ACLR1 LOW 10MHz	ACLR1 HIGH 10MHz	ACLR2 HIGH 20MHz	RMS	Peak
+21	-43.1	-22.3	-22.2	-43.2	46.200	110.11
+20.5	-46.2	-25.2	-25.2	-46.3	34.474	98.57
+20	-47.8	-27.0	-26.9	-48.7	15.022	90.53
+19.5	-49.1	-28.7	-28.6	-49.4	8.747	91.40
+19	-50.3	-30.2	-30.2	-50.6	6.646	21.30
+18.5	-51.4	-31.7	-31.6	-51.8	5.524	18.17
+18	-52.7	-33.3	-33.3	-53.0	4.566	15.37
+17	-55.1	-36.7	-36.7	-55.4	3.070	11.03
+16	-57.4	-40.1	-40.1	-57.8	2.013	7.80
+15	-59.8	-43.8	-43.9	-59.9	1.293	5.36
+14.95	-60.1	-44.6	-44.3	-60.2	1.246	5.33
+14	-62.0	-48.4	-48.4	-61.8	0.838	3.69
+13	-63.2	-53.4	-53.5	-63.2	0.612	2.47
+12	-63.7	-58.4	-58.5	-63.7	0.525	1.88
+11	-64.0	-62.1	-61.9	-63.7	0.497	1.68
+10	-63.9	-63.3	-63.2	-63.9	0.496	1.64
+8	-64.0	-63.6	-63.5	-63.8	0.493	1.65
+6	-63.9	-63.6	-63.5	-63.8	0.485	1.72
+4	-63.8	-63.5	-63.6	-63.7	0.484	1.67
+2	-63.7	-63.5	-63.6	-63.8	0.467	1.76
+0	-63.8	-63.6	-63.6	-63.9	0.479	1.82
-5	-64.1	-63.8	-63.5	-63.9	0.482	1.85

Note:
For output powers less than -5dBm, ACLR measurement accuracy is limited by the dynamic range of the test equipment.

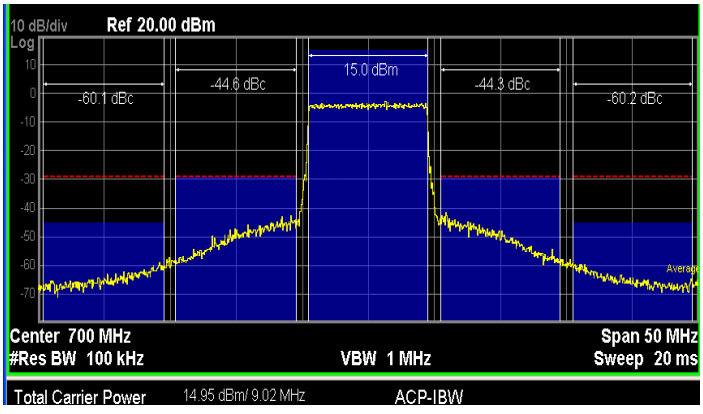


Figure 2 ACLR Plot at Output Power of +14.95 dBm

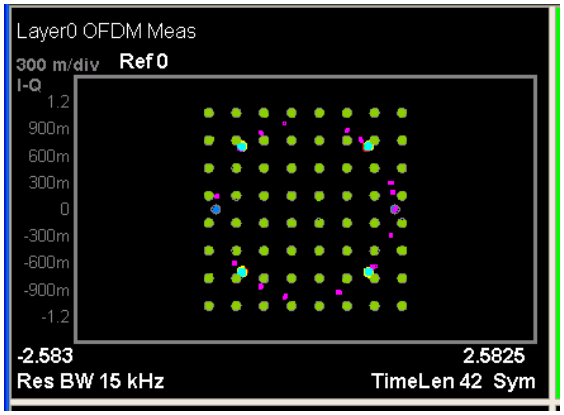


Figure 3 EVM Plot at Output Power of +14.95 dBm

IMPORTANT NOTICE