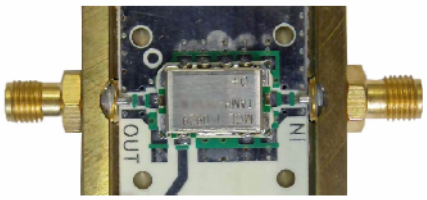
Application Note

UMTS (WCDMA) Performance vs. Output Power (TAMP-242GLN+)
AN-60-043

WCMA Drop-In Low Noise Amplifier Module

Mini-Circuits TAMP-242GLN+ Ultra-low Noise Drop-In Amplifier Module is an ideal low noise amplifier for use in UMTS (WCDMA) Base Station or Tower Mounted Low Noise Applications. The TAMP-242GLN+ provides a optimized combination of critical performance: Low Noise / High Dynamic Range/ Input & Output Match / Unconditional Stability.

The High IP3 enables extremely low intermodulation and EVM distortion, making this an ideal high gain LNA for WCDMA signals. The multi-stage E-PHEMT based module provides typically +42 dBm OIP3 which translates to extremely linear performance in systems that require high dynamic range.
Click here for data sheet and other technical information



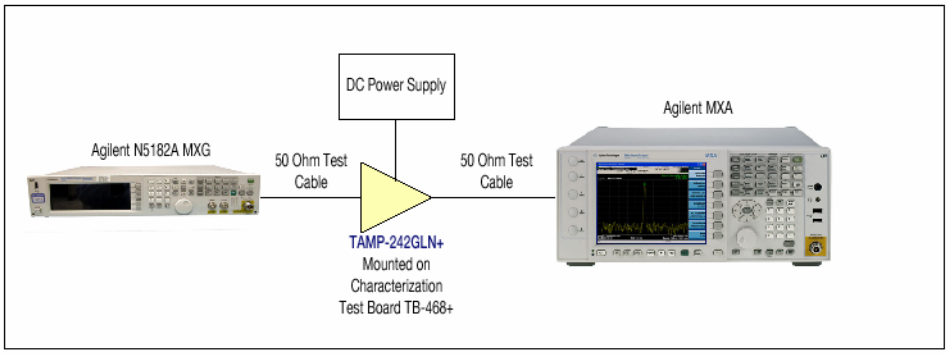
DUT CONFIGURATION
Device: TAMP-242GLN+ Test Board
Supply Voltage: 5.0V, 150mA
Temperature: 25°C

TEST SIGNAL
WCDMA
Fc=2100 MHz
Single Carrier
Chip Rate: 3.84 mcps
64 Channels - ON

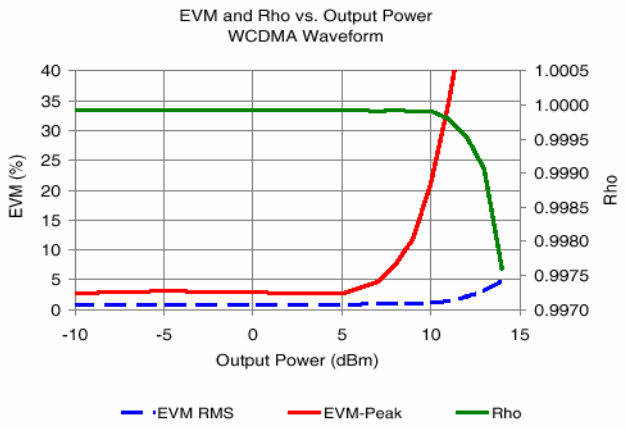
CCDF

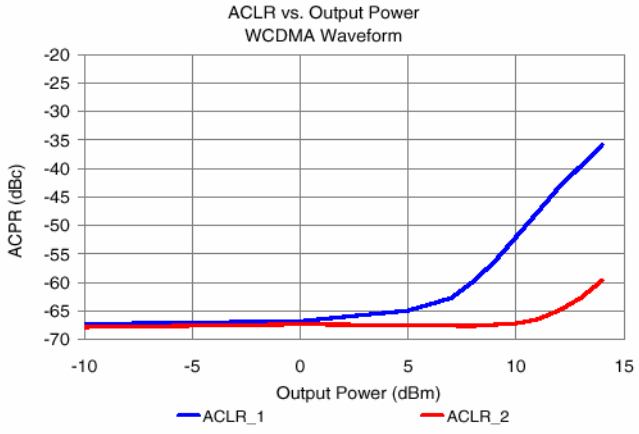
10%	3.66 dB
1.0%	6.76 dB
0.1%	10.12 dB
0.001%	11.09 dB
0.0001%	11.37 dB

Measurement Set-up



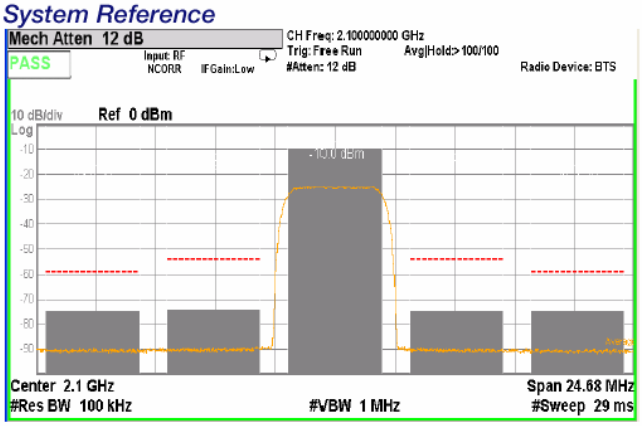
Summary Data





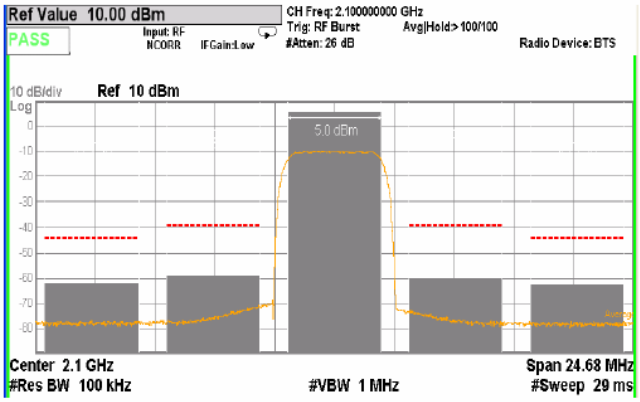
ACLR_1 Plots vs. Output Power

System Reference



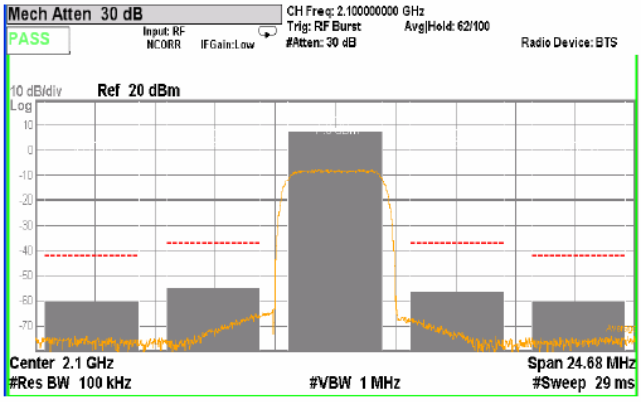
Offset Freq. (MHz)	Integ BW (MHz)	Lower dBc	Lower dBm	Upper dBc	Upper dBc
5.000	1.28	-67.32	-77.37	-67.72	-77.76
10.00	1.28	-68.10	-78.14	-68.38	-78.42

+5 dBm



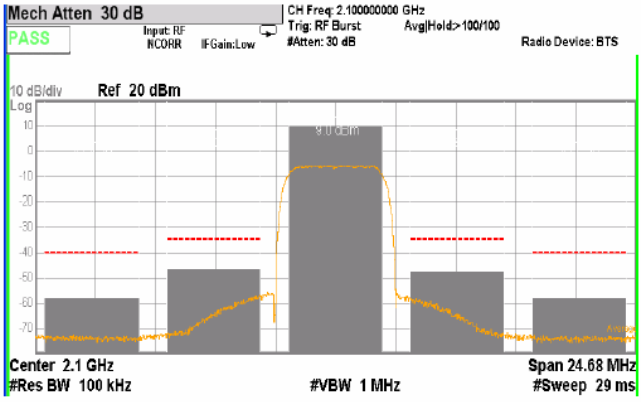
Offset Freq. (MHz)	Integ BW (MHz)	Lower dBc	Lower dBm	Upper dBc	Upper dBc
5.000	3.84	-64.24	-59.20	-65.68	-60.64
10.00	3.84	-67.36	-62.32	-67.66	-62.62

+7 dBm



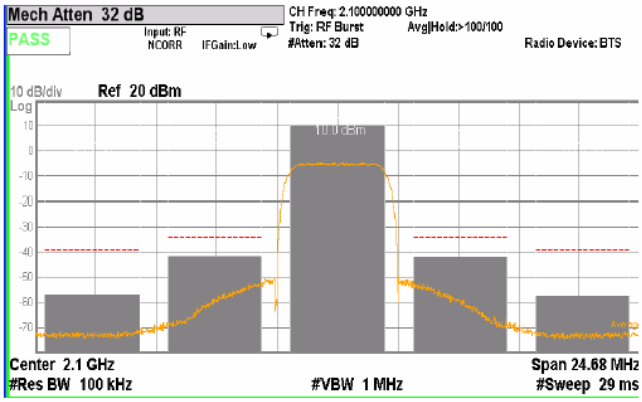
Offset Freq. (MHz)	Integ BW (MHz)	Lower dBc	Lower dBm	Upper dBc	Upper dBc
5.000	3.840	-61.86	-54.83	-63.64	-56.61
10.00	3.840	-67.60	-60.58	-67.61	-60.58

+9 dBm



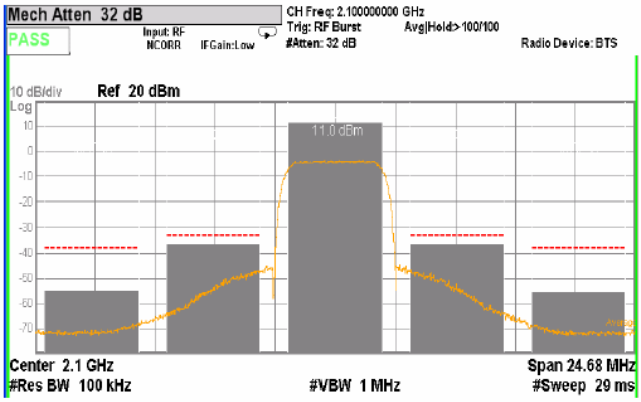
Offset Freq. (MHz)	Integ BW (MHz)	Lower dBc	Lower dBm	Upper dBc	Upper dBc
5.000	3.840	-55.99	-46.95	-56.77	-47.73
10.00	3.840	-67.34	-58.30	-67.51	-58.46

+10 dBm



Offset Freq. (MHz)	Integ BW (MHz)	Lower dBc	Lower dBm	Upper dBc	Upper dBc
5.000	3.840	-51.93	-41.90	-52.20	-42.17
10.00	3.840	-67.13	-57.11	-67.29	-57.27

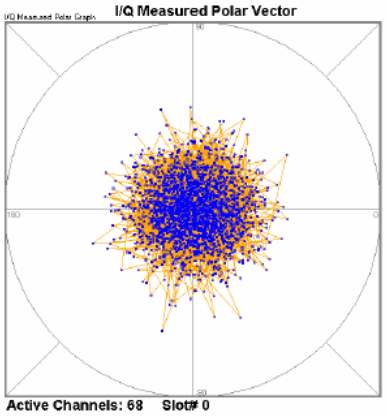
+11 dBm



Offset Freq. (MHz)	Integ BW (MHz)	Lower dBc	Lower dBm	Upper dBc	Upper dBc
5.000	3.840	-47.68	-36.64	-47.72	-36.68
10.00	3.840	-66.34	-55.30	-66.65	-55.61

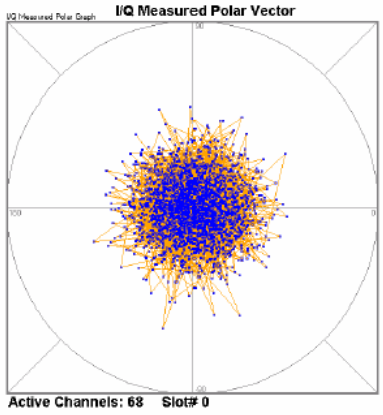
IQ Polar Plots vs. Output Power (EVM, Rho and PCDE)

System Reference



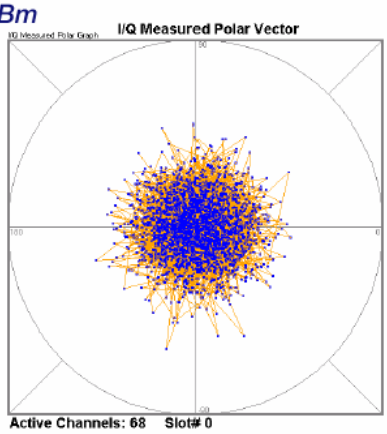
Slot# 0
Rho: 0.99993
EVM: 0.84% Rms
2.92% pk
Pk CDE: -59.45 dB
At C8 (45)

+5 dBm



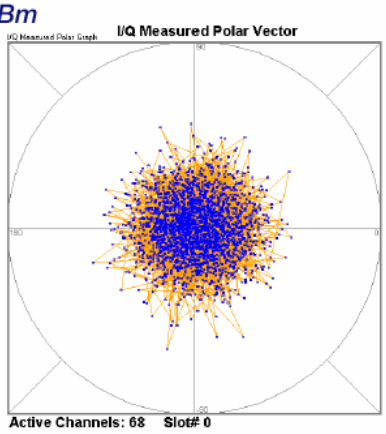
Slot# 0
Rho: 0.99993
EVM: 0.82% Rms
2.62% pk
Pk CDE: -59.87 dB
At C8 (44)

+7 dBm



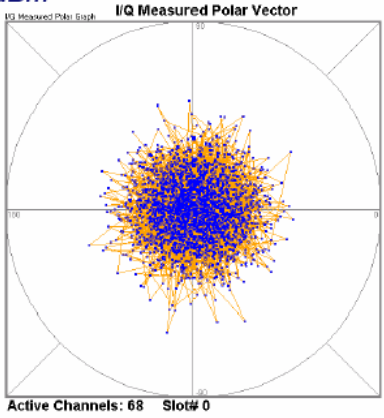
Slot# 0
Rho: 0.99991
EVM: 0.94% Rms
4.61% pk
Pk CDE: -57.39 dB
At C8 (0)

+9 dBm



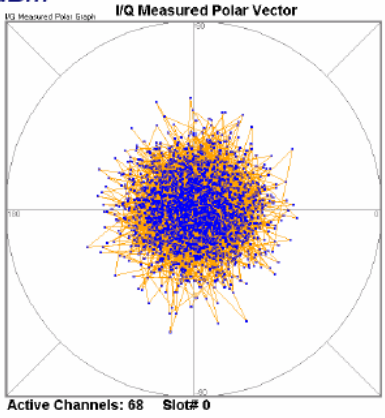
Slot# 0
Rho: 0.99991
EVM: 0.97% Rms
11.83% pk
Pk CDE: -59.00 dB
At C8 (0)

+10 dBm



Slot# 0
Rho: .99988
EVM: 1.11% Rms
21.18% pk
Pk CDE: -57.56 dB
At C8 (0)

+11 dBm



Slot# 0
Rho: 0.99980
EVM: 1.42% Rms
34.59% pk
Pk CDE: -56.37 dB
At C8 (53)

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