

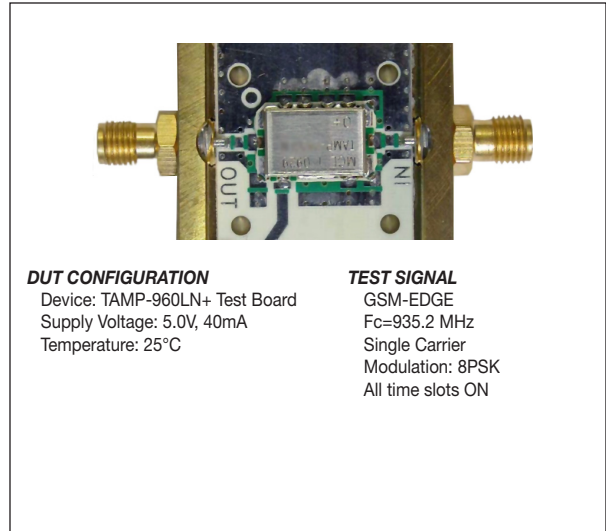
GSM-EDGE PERFORMANCE VS. OUTPUT POWER (TAMP-960LN+) AN-60-044

GSM-EDGE Drop-In Low Noise Amplifier Module

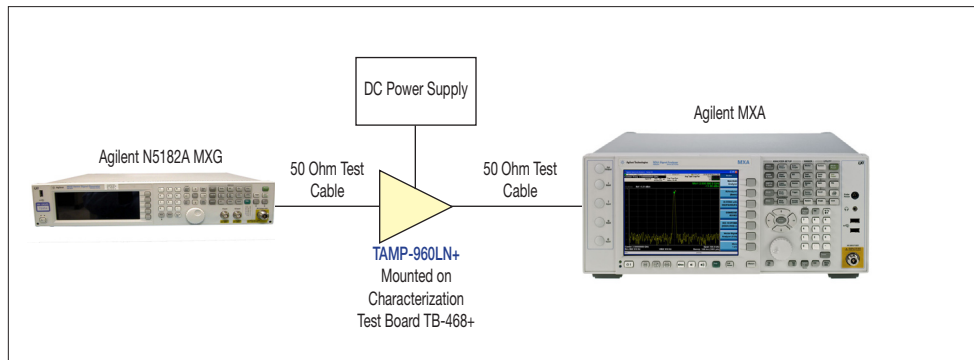
Mini-Circuits TAMP-960LN+ Ultra-low Noise Drop-In Amplifier Module is an ideal low noise amplifier for use in GSM-EDGE Base Station or Tower Mounted Low Noise Applications. The TAMP-960LN+ provides a optimized combination of critical performance: Ultra Low Noise / High Dynamic Range/ Input & Output Match / Unconditional Stability.

The High IP3 enables extremely low intermodulation and EVM distortion, making this an ideal high gain LNA for EDGE signals. The single stage E-PHEMT based module provides typically 0.55 dB noise figure and +30 dBm OIP3 which translates to extremely linear performance in systems that require high dynamic range.

[Click here for data sheet and other technical information](#)

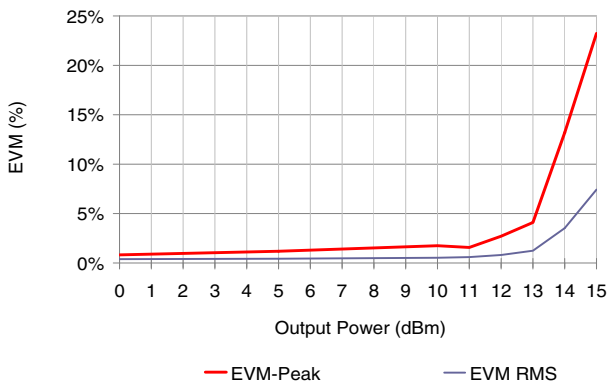


Measurement Set-up

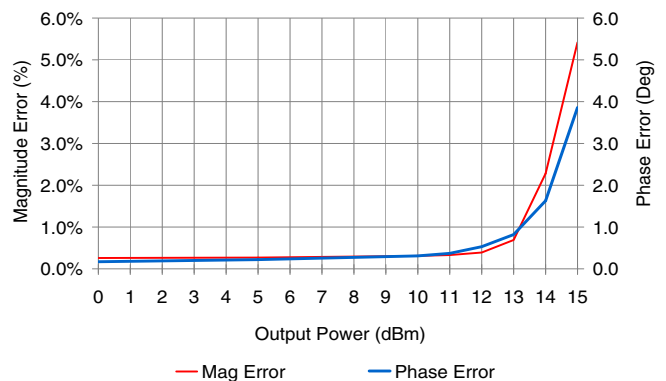


Summary Data

**EVM vs. Output Power
GSM-EDGE Waveform**



**Mag. and Phase Error vs. Output Power
GSM-EDGE Waveform**



For detailed performance specs & shopping online see web site

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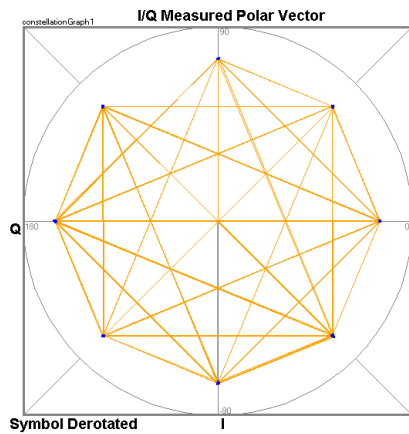
Notes: 1. Performance and quality attributes and conditions not expressly stated in this specification sheet are intended to be excluded and do not form a part of this specification sheet. 2. Electrical specifications and performance data contained herein are based on Mini-Circuit's applicable established test performance criteria and measurement instructions. 3. The parts covered by this specification sheet are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp.

IQ Polar Plots vs. Output Power

System Reference

EVM:

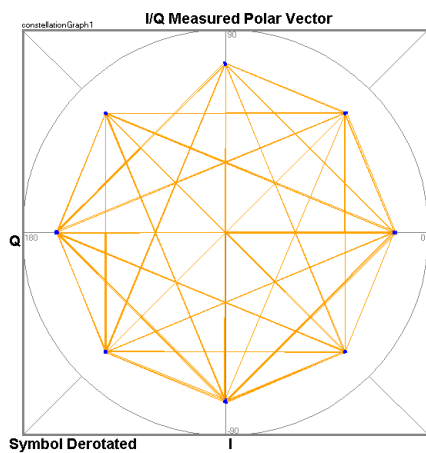
Max	Avg
0.31 % rms	0.31 % rms
0.86 % pk	0.86 % pk
at symbol 93.00	
95%ile EVM:	0.61 %
Mag Error:	0.22 %
Phase Error:	0.12 °
Freq Error:	-1.68 Hz
I/Q Offset:	-54.55 dB
Amplitude Droop:	-0.03 dB
TSC:	0
TO Offset:	283.385 μs
AM PM Offset:	---
Mod Scheme:	NB 8PSK



+5 dBm

EVM:

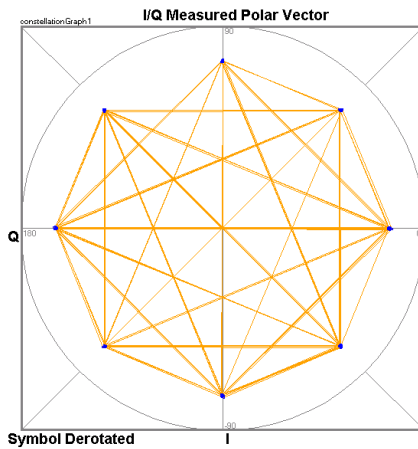
Max	Avg
0.43 % rms	0.43 % rms
1.19 % pk	1.19 % pk
at symbol 105.00	
95%ile EVM:	0.75 %
Mag Error:	0.27 %
Phase Error:	0.22 °
Freq Error:	-0.85 Hz
I/Q Offset:	-49.48 dB
Amplitude Droop:	-0.04 dB
TSC:	0
TO Offset:	283.381 μs
AM PM Offset:	---
Mod Scheme:	NB 8PSK



+10 dBm

EVM:

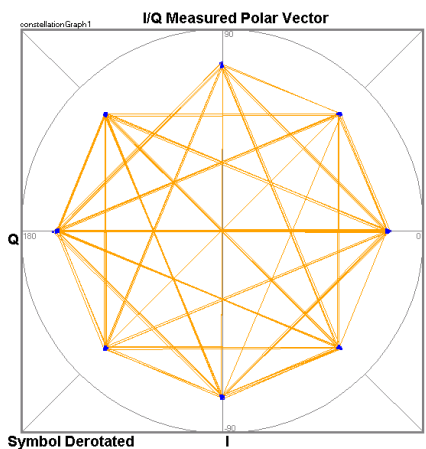
Max	Avg
0.53 % rms	0.53 % rms
1.75 % pk	1.75 % pk
at symbol 105.00	
95%ile EVM:	0.93 %
Mag Error:	0.31 %
Phase Error:	0.31 °
Freq Error:	2.42 Hz
I/Q Offset:	-48.52 dB
Amplitude Droop:	-0.04 dB
TSC:	0
TO Offset:	283.381 μs
AM PM Offset:	---
Mod Scheme:	NB 8PSK



+12 dBm

EVM:

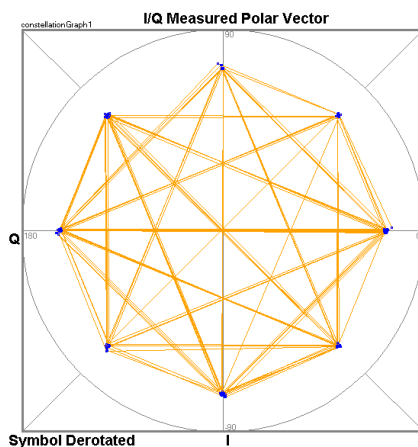
Max	Avg
0.81 % rms	0.81 % rms
2.71 % pk	2.71 % pk
at symbol 93.00	
95%ile EVM:	1.35 %
Mag Error:	0.39 %
Phase Error:	0.53 °
Freq Error:	1.31 Hz
I/Q Offset:	-47.90 dB
Amplitude Droop:	-0.04 dB
TSC:	0
TO Offset:	283.390 μs
AM PM Offset:	---
Mod Scheme:	NB 8PSK



+13 dBm

EVM:

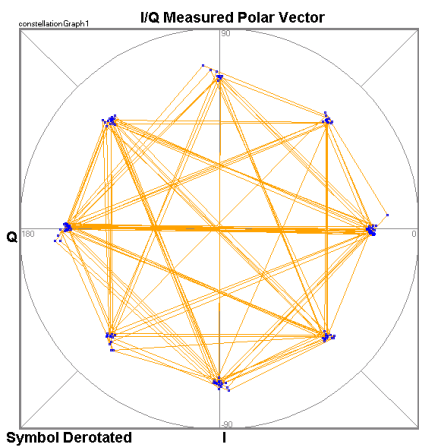
Max	Avg
1.24 % rms	1.24 % rms
4.10 % pk	4.10 % pk
at symbol 105.00	
95%ile EVM:	2.24 %
Mag Error:	0.69 %
Phase Error:	0.82 °
Freq Error:	1.80 Hz
I/Q Offset:	-48.72 dB
Amplitude Droop:	-0.02 dB
TSC:	0
TO Offset:	283.378 μs
AM PM Offset:	---
Mod Scheme:	NB 8PSK



+14 dBm

EVM:

Max	Avg
3.53 % rms	3.53 % rms
13.19 % pk	13.19 % pk
at symbol 105.00	
95%ile EVM:	6.95 %
Mag Error:	2.28 %
Phase Error:	1.63 °
Freq Error:	4.80 Hz
I/Q Offset:	-44.78 dB
Amplitude Droop:	0.05 dB
TSC:	0
TO Offset:	283.378 μs
AM PM Offset:	---
Mod Scheme:	NB 8PSK



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