



APPLICATION NOTE 1829

# The MAX2265 Is Ideal for EDGE Base-Station Pre-Driver Applications

*Abstract: This application note presents measured performance data for the MAX2265 power amplifier (PA) when used for EDGE 8PSK modulation. +18.5dBm power was obtained in the 925MHz to 960MHz band. With a 5V power supply, 340mA were used to provide EVM better than 1%.*

Additional Information:

- [Wireless Product Line Page](#)
- [Quick View Data Sheet for the MAX2265](#)
- [Applications Technical Support](#)

## Introduction

Many GSM operators are beginning to install 2G networks to support higher data rates, addressing the expected demands of mobile-phone users. EDGE, which stands for "Enhanced Data Rates for GSM Evolution," essentially triples the existing GSM data rate from 1-bit/symbol GMSK (gaussian minimum shift key) modulation to 3 bits/symbol 8PSK (phase shift key) while operating in the same occupied channel bandwidth.

The newly adopted modulation scheme of 8PSK requires a highly linear amplifier to minimize spectral regrowth and phase distortion. Power amplifiers for base station applications impose even more stringent requirements for its pre-driver to present a pristine signal with minimum non-linearity. As usual, the pre-driver must be electrically and thermally stable with good reliability for this application.

The MAX2265 is an excellent low-cost bipolar solution for GSM/EDGE base station down link pre-driver applications. Performance specifications are presented in this application note. Measured data indicates that the MAX2265 meets or exceeds requirements with margin.

**Table 1. EDGE Pre-Driver Specification and MAX2265 Measured Data**

Parameter	Customer Spec	Measured Data	Units	Reference/Notes
Supply Voltage	5.0	5.0	V	-
Supply Current	-	340	mA	P <sub>OUT</sub> = +18.5dBm
Frequency Range	925 - 960	925 - 960	MHz	-
P <sub>OUT</sub>	+17.5	+18.5	dBm	EDGE Mode
Gain	20	24.5	dB	-
Spurious at 400kHz offset	-70	-71	dBc	Measured in 30kHz BW
Spurious at 600kHz offset	-80	-83	dBc	Measured in 30kHz BW
EVM (average)	1	0.98	%	-

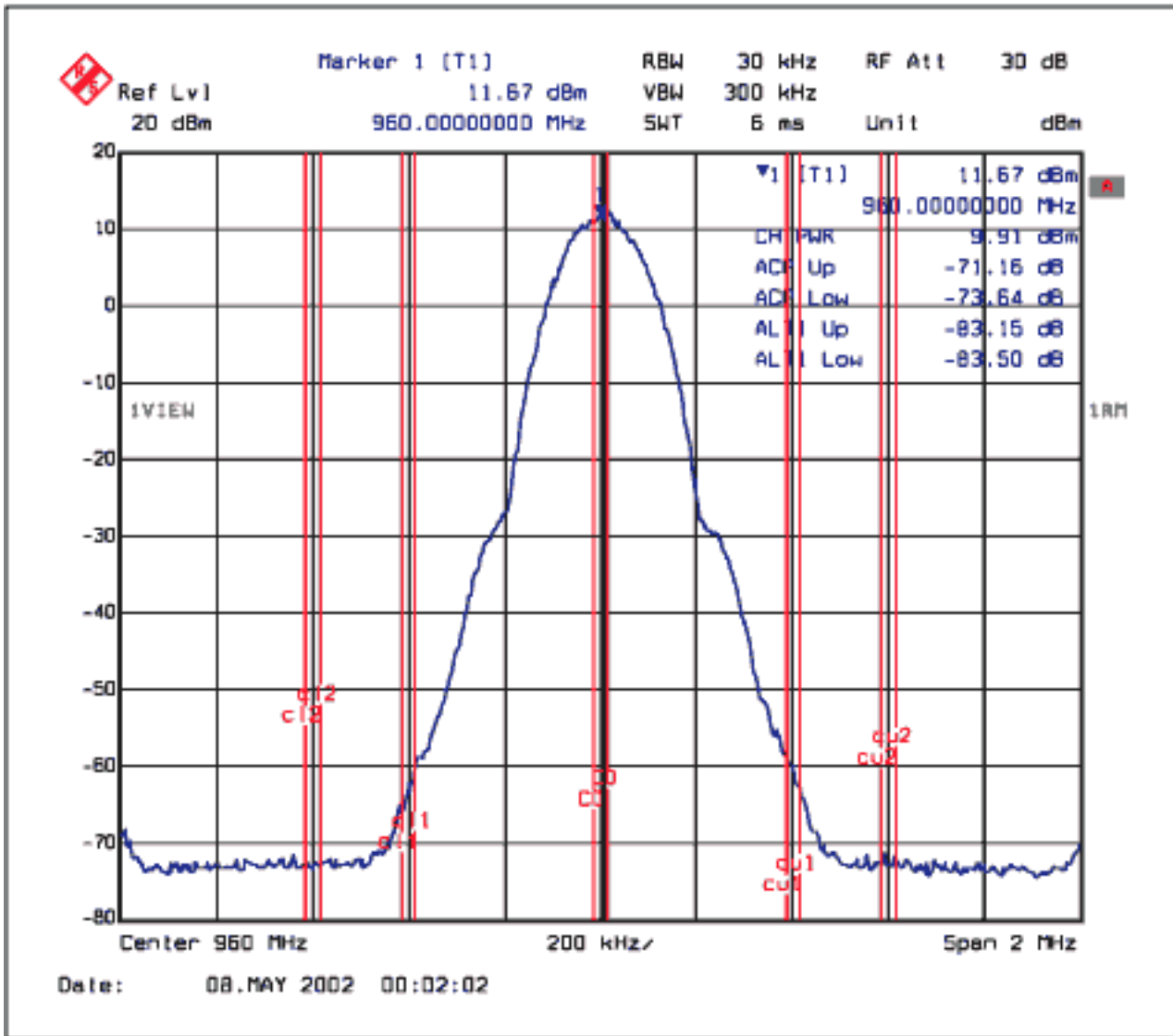


Figure 1. EDGE modulation spectrum plot at 960MHz and +18.5dBm  $P_{OUT}$ .

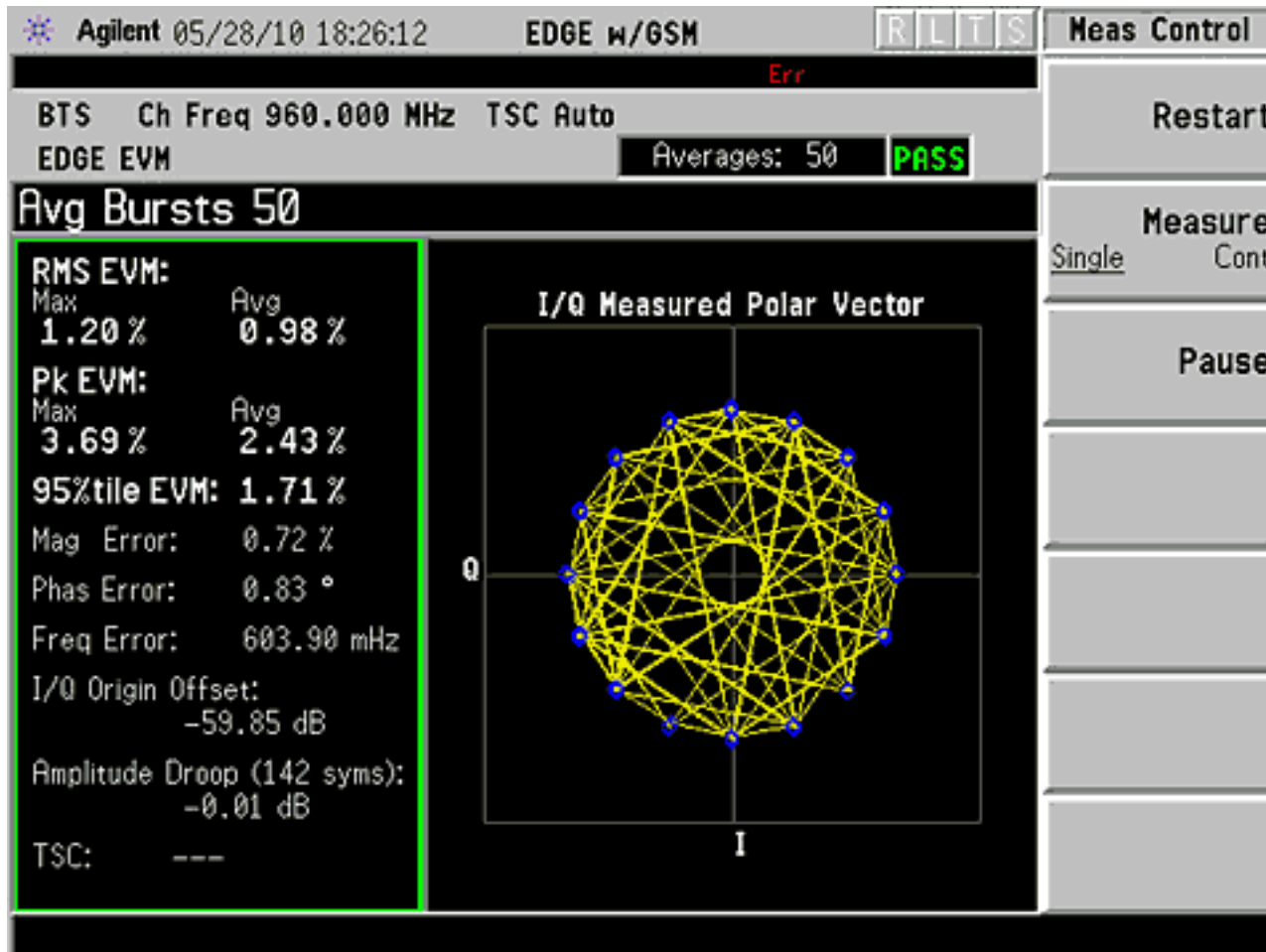


Figure 2. EDGE EVM at 960MHz and +18.5dBm output power.

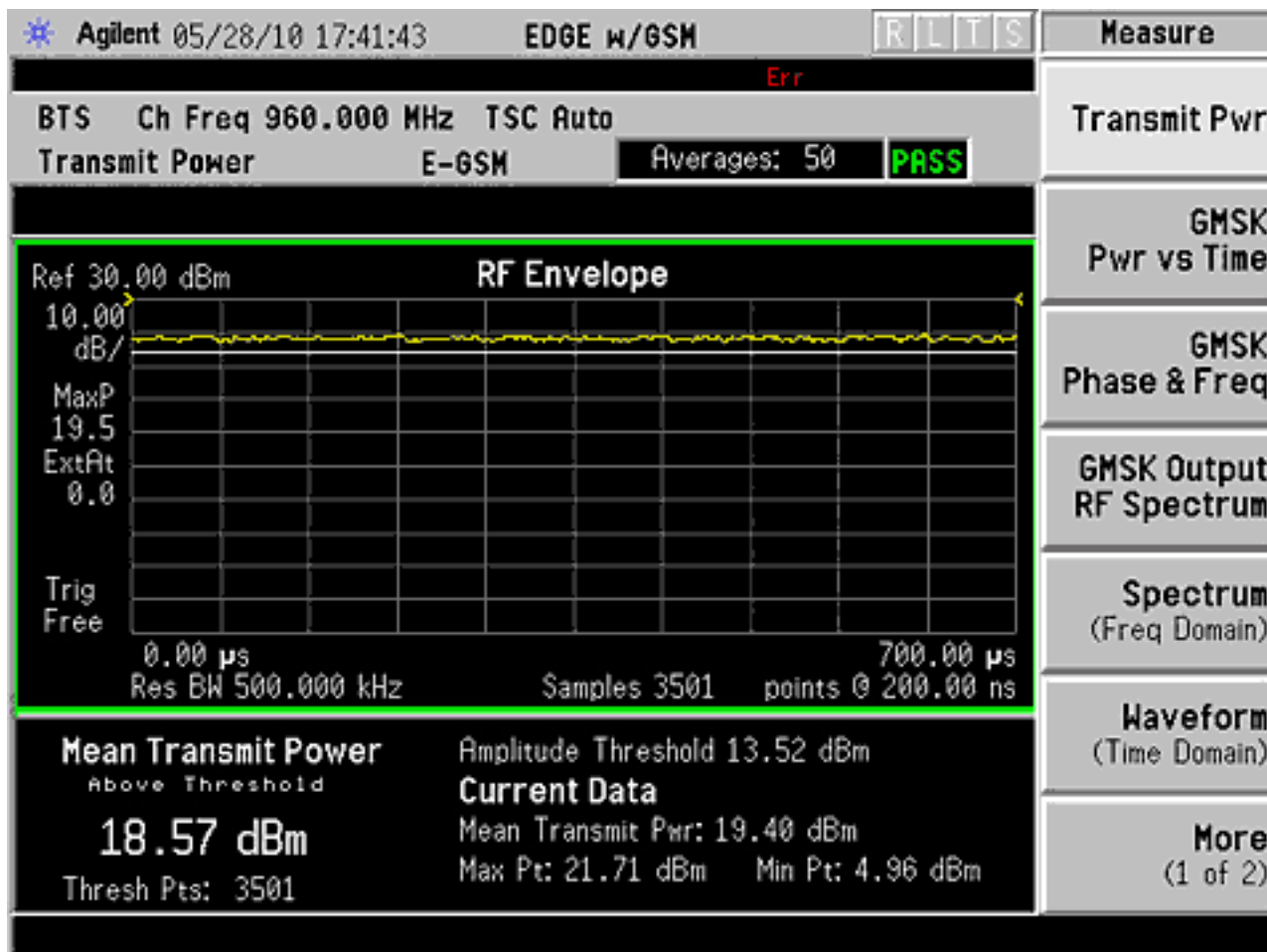


Figure 3. EDGE mode transmit output power plot.

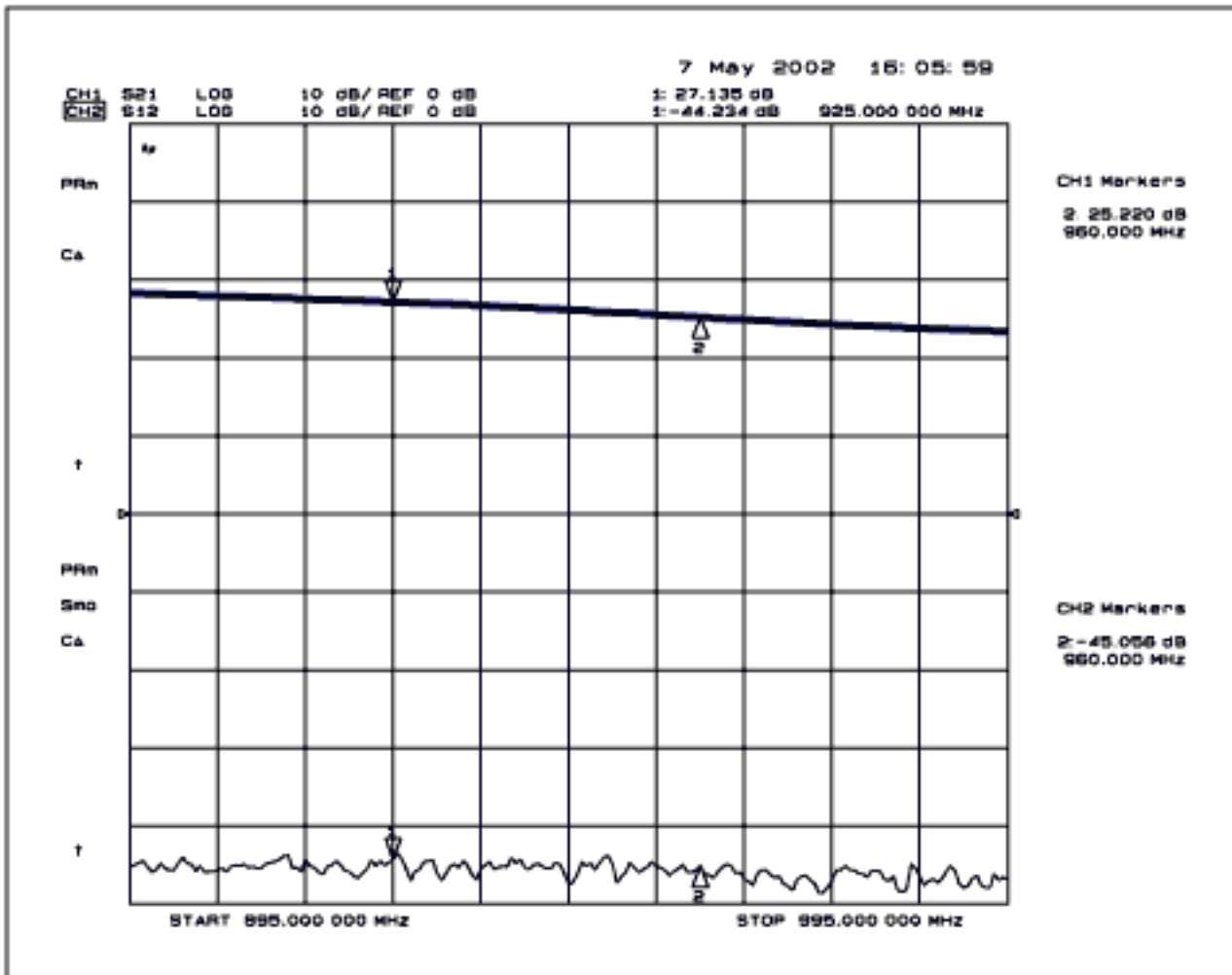


Figure 4. S21 and S12 small signal plots.

