# Abstracts

## Vector signal characterization of 38 GHz power amplifier with 100 Mbps QPSK modulation

*S.G. Dow, J.M. Yang, K.H. Yen, R. Matreci, E. Spotted-Elk, S. Pettis and L. Trinh. "Vector signal characterization of 38 GHz power amplifier with 100 Mbps QPSK modulation." 2000 MTT-S International Microwave Symposium Digest 00.3 (2000 Vol. III [MWSYM]): 1847-1850.*

Vector signal measurement technique was used to investigate the dynamic behavior of a 38 GHz power amplifier module in terms of EVM (Error Vector Magnitude) and ACPR (Adjacent Channel Power Ratio) performance. The modulation format used was QPSK with a 100 Mbps data rate. The baseband was directly modulated onto a 38 GHz carrier through a MMIC direct IQ modulator. Adaptive equalization was used to correct the linear distortion of the direct IQ modulator and the measurement system. The resulting system EVM was about 3 % r.m.s. The EVM of the power amplifier, measured at output power of 1.1 watts (P1 dB) and 1.7 watts (P2 dB), were 5.6% r.m.s. and 8% r.m.s. respectively. The maximum ACPR degradation observed was 6.6 dB at P2 dB output level. To our knowledge this is the first time both EVM and ACPR were determined for a millimeter-wave power amplifier.

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