# Abstracts

## PSK and QPSK Modulators for Gigabit Data Rates

*C.L. Cuccia and E.W. Matthews. "PSK and QPSK Modulators for Gigabit Data Rates." 1977 MTT-S International Microwave Symposium Digest 77.1 (1977 [MWSYM]): 208-211.*

The basic QPSK modulator of the 1970-75 era in worldwide telecomnunications has yielded new modulation techniques of BPSK, SQPSK, 8-QPSK, and FFSK which use the basic PSK device technologies. The PSK modulators must today, meet many new requirements which were not of importance only a few years ago; i.e., the ability to switch phase at subnanosecond rates, the ability to produce PSK and QPSK carriers at data rates from 50 Mbps to in excess of one gigabit, the ability to produce modulated carriers at power levels in excess of one watt, and the ability to produce QPSK carriers at millimeter wave frequencies up to 100 GHz. This paper will review the original technologies employed during the 1960's and 1970's for low data rate carriers at lower microwave frequencies and will address new advances in switching speeds using dual gate FET's, higher power modulators using special driver circuits, and the use of multipliers to develop PSK carriers well into the millimeter frequencies above 50 GHz.

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