Abstracts

Generation and Transmission of FM and pi/4 DQPSK Signals at Microwave Frequencies Using Harmonic Generation and Optoelectronic Mixing in Mach-Zehnder Modulators

T. Young, J. Conradi and W.R. Tinga. "Generation and Transmission of FM and pi/4 DQPSK Signals at Microwave Frequencies Using Harmonic Generation and Optoelectronic Mixing in Mach-Zehnder Modulators." 1996 Transactions on Microwave Theory and Techniques 44.3 (Mar. 1996 [T-MTT]): 446-453.

A novel method of using the harmonic generation and optoelectronic mixing properties of Mach-Zehnder modulators to generate modulated subcarrier signals at high-order harmonics of the input signals is presented. The method permits the simultaneous transmission over optical fiber of a modulated and an unmodulated signal both at high-order harmonic frequencies of the input signals, for the purpose of transmitting both a local oscillator tone and the modulated signal required at a base station for microcellular applications. We present the theory of operation and demonstrate the validity of the concept with a narrow band single-tone FM experiment as well as a 20-Mb/s pi/4 DQPSK experiment.

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