# Abstracts

## Overcoming chromatic-dispersion effects in fiber-wireless systems incorporating external modulators

*G.H. Smith, D. Novak and Z. Ahmed. "Overcoming chromatic-dispersion effects in fiber-wireless systems incorporating external modulators." 1997 Transactions on Microwave Theory and Techniques 45.8 (Aug. 1997, Part II [T-MTT]): 1410-1415.*

We demonstrate two techniques to reduce the effects of fiber chromatic dispersion in fiber-wireless systems incorporating external modulators. We theoretically and experimentally show that the achievable link distance can be increased by varying the chirp parameter of the modulator to give large negative chirp using a dual-electrode Mach-Zehnder modulator (MZM) biased at quadrature. In addition, we show that dispersion can be almost totally overcome by implementing a simple method using the dual-electrode MZM to generate an optical carrier with single sideband (SSB) modulation. We demonstrate the transmission of a 51.8-Mb/s pseudorandom bit sequence (PRBS) at 12 GHz over 80 km of standard single-mode fiber using the SSB generator and measure a bit-error-rate (BER) power penalty due to fiber dispersion of less than 0.5 dB for a BER equal to 10/sup -9/.

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