Abstracts

Optical crosstalk in fiber-radio WDM networks

D. Castleford, A. Nirmalathas, D. Novak and R.S. Tucker. "Optical crosstalk in fiber-radio WDM networks." 2001 Transactions on Microwave Theory and Techniques 49.10 (Oct. 2001, Part II [T-MTT] (Special Issue on Microwave and Millimeter-Wave Photonics)): 2030-2035.

This paper investigates the impact of optical crosstalk in fiber-radio systems incorporating wavelength division multiplexing, (WDM). We present a simple analytical model that allows the impact of optical crosstalk in such networks to be assessed and validate the results via experiment for both in-band and out-of-band optical crosstalk. We show that crosstalk-induced power penalties in fiber-radio WDM networks are reduced compared to baseband modulation for the case of in-band crosstalk. In addition, in contrast to baseband modulated optical links, the crosstalk channel in fiber-radio systems can be filtered electrically if the crosstalk signal carries a different wireless frequency. However, a power penalty is still observed for the case of in-band crosstalk, even for perfect electrical filtering of the crosstalk channel.

❑ Return to main document.