Abstracts

Very low phase noise optical links: experiments and theory

M.-B. Bibey, F. Deborgies, M. Krakowski and D. Mongardien. "Very low phase noise optical links: experiments and theory." 1999 MTT-S International Microwave Symposium Digest 99.4 (1999 Vol. IV [MWSYM]): 1809-1812 vol.4.

Additive phase noise is studied in directly modulated optical links (1.55 /spl mu/m DFB laser and PIN photodiode). Upconversion close to the microwave carrier, of the very low frequency noise of the laser, is calculated and verified experimentally. Noise sources are identified and included in the model to evaluate the microwave phase noise and then the noise to signal ratio in terms of phase fluctuations. Good agreement is obtained between calculations and measurements. Very good additive phase noise values have been obtained at 10 kHz offset: -148 dBc/Hz and -139 dBc/Hz at 3 GHz and 9 GHz respectively.

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