Abstracts

Signal-to-Noise Performance of the Optical Receiver Using a Distributed Amplifier and P-I-N Photodiode Combination

J.Y. Liang and C.S. Aitchison. "Signal-to-Noise Performance of the Optical Receiver Using a Distributed Amplifier and P-I-N Photodiode Combination." 1995 Transactions on Microwave Theory and Techniques 43.9 (Sep. 1995, Part II [T-MTT] (Special Issue on Microwave and Millimeter Wave Photonics)): 2342-2350.

The signal to noise performance of grounded source amplifier and distributed amplifier optical receiver configurations has been theoretically investigated. This predicts that an improvement of signal to noise ratio up to 12.7 dB is achievable for the distributed amplifier configuration compared with the grounded source in a bandwidth of 40 GHz. Our preliminary experimental results support the theoretical analysis. An optical receiver with 3 dB bandwidth of 20 GHz was fabricated by embedding the p-i-n photodiode into a T-network at the gate line in the distributed amplifier and an average equivalent input noise of 20 pA/Hz/sup ½/ was achieved over a bandwidth of 2-18 GHz.

❑ Return to main document.