Abstracts

A two-channel optical downconverter for phase detection

P.D. Biernacki, L.T. Nichols, D.G. Enders, K.J. Williams and R.D. Esman. "A two-channel optical downconverter for phase detection." 1998 Transactions on Microwave Theory and Techniques 46.11 (Nov. 1998, Part I [T-MTT]): 1784-1787.

Experimental results for a two-channel optical downconverter link operating from 2 to 18 GHz are presented. Using low-noise preamplifiers results in a noise figure (NF) of 8.5-14 dB over the frequency range of 2-18 GHz. For the first time, relative phase measurements between optically downconverted signals have been performed. An in-phase/quadrature phase-measurement technique indicates a phase precision of /spl plusmn/2/spl deg/ with as little as -60 dBm radio frequency (RF) received power. Comparing the optical microwave downconverter to an electrical microwave downconverter in terms of phase detection reveals similar performance between the two systems.

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