Abstracts

Photonic Mixers for Wide Bandwidth RF Receiver Applications

A.C. Lindsay, G.A. Knight and S.T. Winnall. "Photonic Mixers for Wide Bandwidth RF Receiver Applications." 1995 Transactions on Microwave Theory and Techniques 43.9 (Sep. 1995, Part II [T-MTT] (Special Issue on Microwave and Millimeter Wave Photonics)): 2311-2317.

Optoelectronic mixers can exhibit a very wide band-width of operation with significantly reduced third-order intermodulation products. A 20-GHz bandwidth optoelectronic mixer has been constructed and characterized. The third order intermodulation terms were demonstrated to be more than 70 dB below the I.F. output. The mixer was then incorporated into a simple superheterodyne receiver architecture, which was shown to have a tangential sensitivity of -66 dBm and a compressive dynamic range of 44 dB. System limitations and possible improvements are discussed.

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