Abstracts

A Tunnel-Diode Harmonic-Mode Mixer (Correspondence)

B.A. Miller. "A Tunnel-Diode Harmonic-Mode Mixer (Correspondence)." 1969 Transactions on Microwave Theory and Techniques 17.2 (Feb. 1969 [T-MTT]): 121-124.

The theoretical and experimental investigation of a tunnel-diode harmonic-mode mixer which has an IF frequency given by the difference between the RF signal and the second harmonic of thle local oscillator frequency is described. This harmonic mode of operation would allow use of a local oscillator at a subharmonic rather than at the fundamental frequency in conventional superheterodyne receivers. The experimental S-band mixer built employs two directional filters which inherently lend themselves to terminating a tunnel diode. The mixer, which utilizes a germanium tunnel diode and 50-ohm terminations, exhibits low local oscillator power requirements and has a fairly low conversion loss. The theoretical investigation indicated possible means for improving the mixer performance.

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