Abstracts

Two-Tone Intermodulation in Diode Mixers

S.A. Maas. "Two-Tone Intermodulation in Diode Mixers." 1987 Transactions on Microwave Theory and Techniques 35.3 (Mar. 1987 [T-MTT]): 307-314.

This paper explores, experimentally and theoretically, the problem of minimizing second- and third-order intermodulation distortion in diode mixers. A numerical technique is presented which can be used to calulate intermodulation levels with unprecedented accuracy, and it is used to identify circuit and diode parameters which maximize dynamic range. It is shown that intermodulation distortion is minimized by using low diode junction capacitance and series resistance, short-circuit embedding impedances, and high local-oscillator level. It is also shown that certain conditions which may optimize conversion loss, such as image enhancement, may severely exacerbate intermodulation.

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