Abstracts

Application of Volterra Series to the Problem of Self-Oscillating Mixer

S.T. Chew and T. Itoh. "Application of Volterra Series to the Problem of Self-Oscillating Mixer." 1996 Transactions on Microwave Theory and Techniques 44.2 (Feb. 1996 [T-MTT]): 269-274.

A new approach to the nonlinear problem of self-oscillating mixer has been investigated using Volterra series. The circuit under consideration is first converted into a one-port network. The input and coupling impedances of various ports are represented by Volterra kernels generated by nonlinear current method. Advantage of this approach is that the phase relationships among signals are not required for the analysis. Also, no stability criterion testing is needed to ensure convergence to the correct solution numerically. It is computationally efficient and mathematically simple, yet reasonably accurate. Measured results with respect to RF frequency and power show good agreement with that calculated.

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