Abstracts

An efficient Fourier transform algorithm for multitone harmonic balance

V. Borich, J. East and G. Haddad. "An efficient Fourier transform algorithm for multitone harmonic balance." 1999 Transactions on Microwave Theory and Techniques 47.2 (Feb. 1999 [T-MTT]): 182-188.

A novel Fourier transform technique is proposed for use in multitone harmonic-balance (HB) simulations. It is shown that computations of multitone distorted spectra reduce to efficient one-dimensional fast Fourier transform operations when certain relationships exist between the sampling rate and frequency components of the signal. The algorithm requires minimal initialization time and is readily incorporated into existing HE tools. It is especially useful when the number of input tones is very large, such as spectral regrowth and noise-power ratio simulations. The method is demonstrated on the example of a 5-GHz MESFET amplifier driven by a quadrature phase shift-keying modulated carrier.

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