Abstracts

Distortion Performance of the Abrupt-Junction Current-Pumped Varactor Frequency Converter

J.G. Gardiner and S.I. Ghobrial. "Distortion Performance of the Abrupt-Junction Current-Pumped Varactor Frequency Converter." 1971 Transactions on Microwave Theory and Techniques 19.9 (Sep. 1971 [T-MTT]): 741-749.

Intermodulation distortion in abrupt-junction current-pumped varactor frequency converters is usually attributed to gain compression effects. In the present work an analytical procedure is formulated in which distortion generation and gain saturation effects are seen to arise as a consequence of the interaction of signals, pump, and generated products with the nonlinear capacitance of the varactor. Good agreement is demonstrated between predicted distortion levels and those measured in an experimental upper-sideband up-converter operating at VHF with low gain and high level drive to minimize gain compression effects.

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