Abstracts

A New Method of Third-Order Intermodulation Reduction in Nonlinear Microwave Systems

Y. Hu, J.C. Mollier and J. Obregon. "A New Method of Third-Order Intermodulation Reduction in Nonlinear Microwave Systems." 1986 Transactions on Microwave Theory and Techniques 34.2 (Feb. 1986 [T-MTT]): 245-250.

Third-order intermodulation distortion (IMD (3)) of some microwave systems has been analyzed using Vollterra series. In this paper, theoretical results which have been calculated with a nonlinear FET model show that third-order intermodulation prodgcts of two input signals at f/sub 1/ and f/sub 2/ can be reduced by several orders of magnitude (in fact, theoretically, IMD (3) should be reduced to zero), with a low-frequency feedback at f/sub 1/- f/sub 2/, when the amplitude and the phase of this feedback are correctly chosen. To verify this prediction, a circuit has been realized and measurements have been made on a one-stage FET amplifier. First results confirm our analysis. Experimental measurements show a 12-dB decrease of intermodulation products with our method.

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