Abstracts

Chaos prediction in an MMIC frequency divider in millimetric band

A. Suarez, J. Morales and R. Quere. "Chaos prediction in an MMIC frequency divider in millimetric band." 1998 Microwave and Guided Wave Letters 8.1 (Jan. 1998 [MGWL]): 21-23.

A technique is proposed for the analysis of possible quasi-periodic routes to chaos in microwave circuits. This is based on the systematic application of a Nyquist stability analysis along the solution paths in self-oscillating mixer operation, as a function of a relevant parameter. The steady quasi-periodic solutions, with two fundamental frequencies, are determined from the harmonic balance method. The stability analysis allows the detection of possible asynchronous instabilities, leading to a three-fundamental quasi-periodic solution, from which the transition to chaotic behavior will occur. This technique has allowed the theoretical prediction of the onset of chaos that was experimentally observed in a monolithic microwave integrated circuit (MMIC) frequency divider by two in the millimetric band.

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