Abstracts

Nonlinear analysis of a microwave synthesizer based on a sampling-phase detector

S. Sancho, S. ver Hoeye, A. Suarez, J. Chuan and A. Tazon. "Nonlinear analysis of a microwave synthesizer based on a sampling-phase detector." 2001 MTT-S International Microwave Symposium Digest 01.1 (2001 Vol. I [MWSYM]): 443-446 vol.1.

A microwave synthesizer operating at 6.52 GHz and based on a sampling-phase detector has been designed and simulated. The employment of nonlinear analysis tools has enabled an in-depth study of the system dynamics. Hold-in and lock-in bands are determined in a direct and accurate way through the use of the Poincare-map technique. The nonlinear analysis has also made possible the a-priori determination of the loop-filter and VCO characteristics for a good performance in terms of phase noise and loop dynamics.

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