Abstracts

Phase noise in coupled oscillator arrays

Heng-Chia Chang, X. Cao, U.K. Mishra and R.A. York. "Phase noise in coupled oscillator arrays." 1997 MTT-S International Microwave Symposium Digest 2. (1997 Vol. II [MWSYM]): 1061-1064.

A simple method to evaluate the phase noise properties of the coupled oscillators for arbitrary coupling and injection-locking topologies is presented. The method is based on the phase dynamics equation and the concept of noise admittance to represent the noise source. The PM noise of the coupled oscillators can be easily analyzed by solving the coupling matrix related to the coupling topologies, after neglecting amplitude noise and AM-to-PM conversion. An 8.5 GHz prototype array was constructed to verify the phase noise reduction of the total PM noise and the array injection locked by the external low phase noise source.

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