Abstracts

Active Stabilization of Crystal Oscillator FM Noise at UHF Using a Dielectric Resonator (Short Papers)

A.G. Mann. "Active Stabilization of Crystal Oscillator FM Noise at UHF Using a Dielectric Resonator (Short Papers)." 1985 Transactions on Microwave Theory and Techniques 33.1 (Jan. 1985 [T-MTT]): 51-53.

A low-noise 600-MHz crystal oscillator circuit is described. It uses a dielectric oscillator as the dispersive element of a discriminator in an active frequency stabilization loop which reduces the near-carrier FM noise. The innovation in the circuit is an essentially noiseless active carrier suppression loop, which allows maximum utilization of a low-noise RF amplifier to reduce the discriminator threshold (Delta f/sub rms/) to 2.5x10-5 Hz in a 1-Hz bandwidth. The FM noise 1 kHz from the carrier was reduced by 44 dB to this threshold, equivalent to a phase-noise spectral density of -152 dBc/Hz.

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