Abstracts

Ultra-Low-Noise Microwave Oscillator with Advanced Phase Noise Suppression System

E.N. Ivanov, M.E. Tobar and R.A. Woode. "Ultra-Low-Noise Microwave Oscillator with Advanced Phase Noise Suppression System." 1996 Microwave and Guided Wave Letters 6.9 (Sep. 1996 [MGWL]): 312-314.

An advanced phase noise reduction technique has been developed to improve the short-term frequency stability of microwave oscillators. The technique is based upon an ultra-sensitive microwave frequency discriminator with effective noise temperature close to its physical temperature. The phase noise spectral density of a 9 GHz microwave loop oscillator incorporating such a discriminator has been measured as -120 dBc/Hz and -150 dBc/Hz at offset frequencies of 100 Hz and 1 kHz, respectively. This performance is at least 25 dB better than current state of the art. The developed phase noise reduction technique is quite general and can have valuable implications for the design of various low phase noise microwave oscillators.

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