Abstracts

Investigation of HBT Oscillator Noise through 1/f Noise and Noise Upconversion Studies

M.N. Tutt, D. Pavlidis, A. Khatibzadeh and B. Bayraktaroglu. "Investigation of HBT Oscillator Noise through 1/f Noise and Noise Upconversion Studies." 1992 MTT-S International Microwave Symposium Digest 92.2 (1992 Vol. II [MWSYM]): 727-730.

It is shown that the £(f) characteristics of a HBT DRO can be approximated using the HBT's low frequency noise spectra and the oscillator's upconversion factor, K'/sub FM/. Experimental studies have been used for this purpose and the measured £(f) ranged -89dBc/Hz to -101dBc/Hz at a 10kHz offset frequency (-124dBc/Hz best performance at 100kHz). It was shown that the upconversion of the low frequency noise is the primary cause of £(f) in the oscillator and its frequency dependence is directly impacted by the low frequency noise spectrum rather than K'/sub FM/ itself. d£(f)/df deviates from the -30dB/decade rate, expected for upconversion of ideal 1/f noise, clue to traps in the device.

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