Abstracts

Design of cryogenic (4.2 K) X-band HEMT oscillator for Josephson voltage standard

Moon-Que Lee, Sangwook Nam, Kyung-Whan Yeom and Kyu-Tae Kim. "Design of cryogenic (4.2 K) X-band HEMT oscillator for Josephson voltage standard." 1998 MTT-S International Microwave Symposium Digest 98.2 (1998 Vol. II [MWSYM]): 1031-1034.

A new oscillator configuration for a Josephson voltage standard is proposed and designed by a novel method. An analytic design procedure is presented for six general configurations of oscillators with two loads. The power splitting relationship between two loads is derived with respect to the reactive (lossless) embedding element. A HEMT oscillator is designed in X-band for the Josephson voltage standard and tested at room and cryogenic temperatures. There is a significant improvement in C/N ratio if it is operated at cryogenic temperature (4.2 K).

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