Abstracts

Low Noise 9-GHz Sapphire Resonator-Oscillator with Thermoelectric Temperature Stabilization at 300 Kelvin

M.E. Tobar, E.N. Ivanov, R.A. Woode, J.H. Searls and A.G. Mann. "Low Noise 9-GHz Sapphire Resonator-Oscillator with Thermoelectric Temperature Stabilization at 300 Kelvin." 1995 Microwave and Guided Wave Letters 5.4 (Apr. 1995 [MGWL]): 108-110.

This letter reports on an X-band microwave oscillator incorporating a room temperature thermoelectric stabilized sapphire resonator operating at 9.00000 GHz. With a Galani type stabilization scheme we have measured a reduced single sideband phase noise of about -124 dBc/Hz at 1 kHz with a f/sup -3/ dependence. The measurement was limited by the flicker noise of the phase detector in the feedback electronics. The frequency stability was also measured; at an integration time of 0.1 seconds a delta f/ f of about 10/sup -11/ with a tau/sup 0.7/ dependence was measured. The frequency drift strongly correlated with ambient temperature fluctuations.

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