Abstracts

A Direct Optical Injection Locked 8 GHz MMIC Oscillator

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For the first time the optical injection locking behavior of a monolithic integrated HFET-oscillator has been investigated. The monolithic integration is an important step towards the implementation of optically controlled oscillators in phased array antenna systems. The oscillator was designed to operate at 8 GHz. The gate and source terminals of the HFET were biased at 0 volt through coplanar lines, which also served as a feedback and resonator circuit. The active region of the device was illuminated by a pigtailed laser diode modulated at about 8 GHz that the oscillator circuit could be optically injection locked. The experimental results show the optical locking behavior of the oscillator. A direct comparison between optical and electrical injection locking is possible.

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