# Abstracts

## A compact CPW-based single-layer injection-locked active antenna for array applications

*K.H.Y. Ip and G.V. Eleftheriades. "A compact CPW-based single-layer injection-locked active antenna for array applications." 2002 Transactions on Microwave Theory and Techniques 50.2 (Feb. 2002 [T-MTT]): 481-486.*

A compact single-layer coplanar waveguide (CPW)-fed active patch antenna oscillator at 9.81 GHz is presented based on a commercially available GaAs FET, which is centered behind the patch for tight packing. The positive feedback for the oscillation is accomplished through twin-slot aperture coupling to the patch. This results in a design having its longest dimension equal to 26.6 mm at 9.81 GHz. A low-power injection signal is applied to stabilize the oscillation through parasitic coupling at the CPW side of the circuit. This parasitic coupling is achieved by electromagnetic coupling of the locking signal to the gate of the FET. The measured effective isotropic radiated power is 19.6 dBm, whereas the worse-case front-to-back ratio is about 15 dB with the cross-polarized fields better than -20 dB at broadside. The measured phase noise of the unlocked and locked signals are -63.28 and -107.5 dBc/Hz, respectively, at a 100-kHz offset away from the carrier. This compact design is ideally suited as a unit cell in injection-locked phased-array architectures.

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