Abstracts

A compact single layer injection-locked linear scanning array

K.H.Y. Ip and G.V. Eleftheriades. "A compact single layer injection-locked linear scanning array." 2002 Microwave and Wireless Components Letters 12.1 (Jan. 2002 [MWCL]): 15-17.

A compact, single layer, CPW-fed, patch scanning array architecture using injection locking at 9.83 GHz is presented. The patch antennas are printed on the front side of the substrate while the electronics are situated at the back side leading to a simple and compact design. The unit element for the array is a self oscillating active patch antenna with a GaAs FET centered behind the patch for tight packing. The feedback for the oscillator is provided through electromagnetic coupling using a twin-slot arrangement behind the patch. A low power control signal is injected through parasitic coupling at the CPW side of the circuit. Phase shifting of the elements is achieved by electronically adjusting the gate voltage of the GaAs FETs. A scan range of -12/spl deg/- +9.5/spl deg/ is obtained for a four element prototype array.

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