

Abstracts

Electronic Beamsteering of Active Arrays with Phase-Locked Loops

*R.D. Martinez and R.C. Compton. "Electronic Beamsteering of Active Arrays with Phase-Locked Loops." 1994 *Microwave and Guided Wave Letters* 4.6 (Jun. 1994 [MGWL]): 166-168.*

A new electronic beamsteering technique for active arrays is presented along with experimental results at 10 GHz. The technique uses a single balanced diode mixer to phase-lock neighboring oscillators in an active array. Each oscillator has its own antenna that radiates energy into free space, so the phase difference between oscillators determines the direction of the main radiating beam. An offset voltage added to the phase-locked loop controls the phase difference and beam direction. Experimental results demonstrate over 100° of adjustable phase difference between neighboring oscillators. Because of its simplicity, this technique has significant advantages over traditional beamsteering arrays.

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