Abstracts

A Phase-Locking Method for Beam Steering in Active Array Antennas

A.H. Al-Ani, A.L. Cullen and J.R. Forrest. "A Phase-Locking Method for Beam Steering in Active Array Antennas." 1974 Transactions on Microwave Theory and Techniques 22.6 (Jun. 1974 [T-MTT] (Special Issue on Microwave Control Devices for Array Antenna Systems)): 698-703.

A new principle for phase shifting, and hence beam steering, on an active array antenna is described. Each individual RF source is phase locked by a stable locking signal which is close in frequency to the nth harmonic of its free-running frequency. Pulses of appropriate amplitude and duration applied to the dc circuitry cause the fundamental output frequency of the RF source to shift in phase by increments of 2pi/n. The construction and testing of a four-element L-band (1-GHz) array using transistor oscillators locked at S-band (4 GHz) to give 90° phase increments is described.

❑ Return to main document.