Abstracts

Steered coupled-cavity-backed Hertzian dipole array

Suidong Yang and V.F. Fusco. "Steered coupled-cavity-backed Hertzian dipole array." 1999 Transactions on Microwave Theory and Techniques 47.10 (Oct. 1999 [T-MTT]): 2049-2051.

This paper presents the operating characteristics of a coupled-cavity-backed Hertzian dipole resonator array excited with mutually injection-locked voltage-controlled oscillators (VCOs). It is demonstrated that microwave spatial power-combined inter-injection locking through mutual coupling of individual antenna oscillators can be obtained with an auxiliary coupling network formed by a cavity iris configuration introduced within a reduced-height waveguide arrangement. As a result, strong mutual-coupling control can be realized and exploited in conjunction with self-injection-locked oscillators in order to achieve direct phase modulation of the locked oscillators. Beam scanning up to 10/spl deg/ off the broadside through locked VCO phase modification has been demonstrated in a three-element array occupying a space of only 0.6 /spl lambda//sub 0//spl times/0.027 /spl lambda//sub o/ at 998 MHz.

❑ Return to main document.