Abstracts

A reconfigurable leaky-wave/patch microstrip aperture for phased-array applications

J. Sor, Chin-Chang Chang, Yongxi Qian and T. Itoh. "A reconfigurable leaky-wave/patch microstrip aperture for phased-array applications." 2002 Transactions on Microwave Theory and Techniques 50.8 (Aug. 2002 [T-MTT]): 1877-1884.

A novel reconfigurable leaky-wave/patch microstrip aperture is introduced and characterized. The structure consists of a long leaky-wave microstrip antenna that has been segmented into several smaller patch antennas. The multimode structure can be reconfigured into a patch antenna anywhere along the aperture of the leaky-wave antenna with two degrees of freedom. p-i-n-diode switches are utilized to switch between the different aperture configurations. The structure's unique field profile is utilized to minimize insertion loss in the leaky-wave mode and also to maximize isolation between the different aperture ports. Radiation patterns demonstrate excellent radiation characteristics consistent with standard leaky-wave and patch-antenna patterns. The reconfigurable leaky-wave/patch concept is applied to realize some unique multimode array configurations offering wide scan coverage and enhanced flexibility over traditional phased-array systems.

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