A Novel Planar Leaky Wave Antenna for Wireless Application

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Abstract

In this paper, new shapes of planar periodic structures as leaky wave antennas for using in wireless applications has been examined. In order to excite forward leaky wave (improper mode) in wireless frequency band, without changing the unit cell dimensions, various types of microstrip structure have been studied. The dispersion characteristics of fractal, circular, circular ring, stacked circular and stacked circular ring have been considered. Decreasing the leaky wave frequency band has been observed. Finally, a 5 × 7 element array of stacked ring elements has been analyzed. The elements are aperture coupled feed and the array operates in 5-5.7 GHz.
frequency band. All the analysis has been carried out using the finite element method.

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