Abstracts

Leakage and resonance characteristics of radiating cylindrical dielectric structure suitable for use as a feeder for high-efficient omnidirectional/sectorial antenna

S. Qi and K. Wu. "Leakage and resonance characteristics of radiating cylindrical dielectric structure suitable for use as a feeder for high-efficient omnidirectional/sectorial antenna." 1998 Transactions on Microwave Theory and Techniques 46.11 (Nov. 1998, Part I [T-MTT]): 1767-1773.

A class of new radiating cylindrical dielectric structures are proposed for use as a feeder for high-efficient omnidirectional/sectorial slotted arrays that are suitable for high-frequency wireless systems. A simple and efficient model on a scheme of the method of lines is developed and used for analysis of these composite cylindrical dielectric elements that have various rectangular and trapezoidal cross sections. Good agreement between calculated and measured results is observed, which validates the proposed modeling technique. Leakage and resonance characteristics are presented, and they reveal some interesting features for design of new beamforming networks or circuits using the new structure. Results and discussion are focused on the properties of low-order leaky resonant modes. Influences of various parameters of the structure on leakage loss and resonant frequency are shown in detail for design purposes.

❑ Return to main document.