

Bandwidth Enhancement of a Circularly Polarized Cylindrical DRA Using Multi-dielectric Layers

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Abstract

Compact and highly efficient antennas exhibiting wide operational circularly polarized (CP) bandwidth capability are becoming increasingly popular for current research activity in the **wireless communication** technology. Dielectric resonator antenna (DRA) remains one of the most attractive candidates for such requirements. In this study, a multilayer DRA configuration using a single point feeding mechanism is proposed for further enhancement of the CP bandwidth. The cylindrical multilayer DRA that is excited using a conformal square spiral conducting metal strip has been studied theoretically and experimentally. Utilizing such antenna configuration has yielded a measured CP and return loss bandwidths of ~5.6 and 15%, respectively. The results represent an additional CP bandwidth increment of ~66% compared to the single layer cylindrical DRA configuration using the same excitation method. Additionally, a good agreement has been attained between the measured and computed results.

Keyword : Bandwidth ; CP; Dielectric resonator antenna

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