# Dual-Polarized Dielectric-Loaded Monopole Antenna for Wideband Communication Applications

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## Abstract:

A dual-polarized dielectric-loaded monopole antenna for wideband communication applications is presented. The antenna is constructed by using two antenna elements orthogonal to each other. The antenna element consists of a microstripline-fed printed monopole with a finite truncated ground loaded with a dielectric resonator (DR). First, the antenna element is designed, fabricated and experimentally tested. Then the proposed design was extended to develop a dual-polarized antenna. Theantenna impedance match is better than 10 dB over91.3% from 4.4 to 11.8 GHzfor both polarizations and the measured isolation between the two polarization ports is betterthan 20 dB within the frequency band of interest whereas the maximum isolation achieved is _27 dB. The cross-polarization levels in both planes are better than 20 dB. Both theoretical and experimental results in terms of return loss, isolation and radiation pattern are presented and discussed.

## Keywords:

Dual-Polarized antennas, Dielectric-Loaded anttennas, Monopole Antennas, Wideband Communications

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