

A wideband trapezoidal dielectric resonator antenna with circular polarization

Abstract

A new design of a circularly-polarized (CP) trapezoidal dielectric resonator antenna (DRA) for wideband wireless application is presented. A single-layered feed is used to excite the trapezoidal shaped dielectric resonator to increase resonant frequency and axial ratio. Besides its structure simplicity, ease of fabrication and low-cost, the proposed antenna features good measured impedance bandwidth, 87.3% at 4.21 GHz to 10.72 GHz frequency bands. Moreover, the antenna also produces 3-dB axial ratio bandwidth of about 710 MHz from 5.17 GHz to 5.88 GHz. The overall size of DRA is 21 mm \times 35 mm, which is suitable for mobile devices. Parametric study and measurement results are presented and discussed. Very good agreement is demonstrated between simulated and measured results.