Conference Proceedings – 14th European Conference on Antennas and Propagation, EuCAP 2020, Pages 1 - 5

Design and Optimization of a Flexible CPW-Fed Slotted Planar Monopole for WLAN/WBAN and 5G

Abstract

A flexible Kapton-based coplanar waveguide-fed (CPW) patch antenna has been designed in this work to operate in different wireless applications. The wideband operation and compact size of the antenna is enabled using a simple rhombic-shaped integrated onto the monopole which was designed using a rectangular patch. The proposed broadband antenna model operated below -10dB at 2.45 GHz and 3.5 GHz for the WLAN/WBAN and 5G band, respectively. The antenna optimization process is explained when varying the ground structure, patch dimensions, feed width, and substrate thickness using FEKO software. The performance of the antenna is studied in terms of radiation efficiency, gain, bandwidth and current distributions. Results indicate that the proposed antenna operates throughout the 2.45 and 3.5 GHz bands, with a bandwidth of1710 MHz.

Keywords

Coplanar waveguide; Planar monopole antenna; Rhombic-shaped radiator