Design of Slot Cut Circularly Polarized Rectangular Microstrip Antenna

Abstract
Circularly polarized slot cut rectangular microstrip antenna on thinner substrate is proposed. The dimensions of the slots are modified such that the resonance frequencies of the two orthogonal modes are close to each other to realize circular polarization. To improve upon the gain, three layer suspended configuration is proposed which yields VSWR and axial ratio BW of 40 and 9 MHz, respectively. The antenna yields gain of more than 3 dBi over the axial ratio bandwidth. Further the formulation in resonant length at two orthogonal modes for slot cut patch on non-suspended and suspended configurations is proposed. The frequencies calculated using them closely agrees with the simulated results. Using proposed formulations, the design procedure for notch cut circularly polarized antennas in 1000 to 4000 MHz frequency band, is presented. It gives circularly polarized response with formation of small loop (kink) inside VSWR = 2 circle in the smith chart. Thus the proposed formulation can be used to design circular polarized antenna at any given frequency.

References


Index Terms

Computer Science

Wireless
Keywords
Rectangular Microstrip Antenna  Circular Polarization  Rectangular Slot  Suspended Microstrip Antenna