

Ultra-Wide Band (UWB) Ice Cream Cone antenna for communication system

ABSTRACT

The objectives of this paper are to design, fabricate and analyze UWB Ice Cream Cone Antenna. This antenna was fabricated on FR4 substrate. The effect of varying parameter for length of rectangular is studied. This antenna occupies the entire 3.1 GHz to 10.6 GHz spectrum band. The designs are simulated using CST Microwave Studio Simulation and the measurement are successfully achieves UWB spectrum band requirement. The proposed antenna suggested that the return loss must be less than -10 dB and a VSWR of less than 2 throughout the entire band with a lightweight planar profile and omnidirectional radiation pattern. The UWB Ice Cream Cone Antenna is designed, fabricated, measured and managed to cover UWB bandwidth from 3.1-10.1 GHz with the VSWR between 1.18 - 1.7 with a small size of 40 x 25 mm². The sizes of UWB communication devices can be reduced by using the Ice Cream Cone antenna. In the future, the low loss substrates can be used in order to increase the Return Loss of the antenna at higher frequencies for wideband applications.

Keyword: Ice Cream Cone antenna; Ultra Wide-Band; Lightweight; Omnidirectional; Radiation pattern