

ABSTRACT

Ultra wideband (UWB) is a short-range communication system that has a very wide bandwidth. The UWB operates at a frequency of 3.1 GHz - 10.6 GHz. UWB is suitable for multimedia streaming in wireless environments at home or office. Microstrip antenna is an antenna that has a small size and thin which can work at high frequencies. In this final project, the writer will analyze the effect of the ground plane shape on rectangular microstrip antenna for ultra wideband (UWB) technology with frequency range from 3.1 GHz to 10.6 GHz. The simulation in this research using CST Studio 2016 software and the expected value of parameter VSWR is ≤ 2 , gain > 1 dB, return loss ≤ -10 dB, Bandwidth 7.5 GHz. In this research, writer will be analyzed form Ground plane that can meet the specifications for Ultra wideband technology. In this research, the variation of Ground Plane form used is half pentagon, half rectangular and half circle. The conclusion is the ground plane with a half-pentagonal shape has good parameter values and works at a frequency of 3.1 GHz - 10.6 GHz. Based on the calculation, the antenna performance with the half-pentagon ground plane form is the best antenna with VSWR value at 3.1 GHz frequency is 1.6145. VSWR value at 10.6 GHz frequency is 1.7597; return loss at 3.1 GHz frequency is -12.578 dB. The return loss value at 10.6 GHz frequency is -11.205 dB, the bandwidth is 7.5 GHz and the gain is 1.837 dB.

Keywords: Microstrip antenna, Ultra wideband, Ground plane, Rectangular.