

ABSTRACT

Ultra-wideband (UWB) antennas that are more widely developed and needed in modern times such as this have many advantages. In February 2002, The Federal Communications Commission (FCC) UWB technology in the frequency band of 3.1 - 10.6 GHz makes this antenna has added value at an unnecessary large average cause the efficiency of this antenna is not efficient enough. In addition, directivity also affects the increase in gain, namely the greater the gain, the radiation pattern produced, the energy emitted focus on the direction of the main beam and the energy can select a larger place.

This final project discuss about gain enhancement of planar monopole antenna with circular shape and Artificial Magnetic Conductor(AMC) ground. Designing the AMC dimension to improve the gain is the main part of this final project. By sampling a number of UWB working antenna frequencies it can be seen the average increase in gain of the antenna. VSWR and radiation pattern also monitoring in this final project. For the purposes of validation an antenna is needed to be designed for the prototype to be launched. The prototype be calculated and compared with the simulation results.

This result of this final project is the planar monopole antenna with with circular shape using artificial magnetic conductor (AMC) structure with the FR-4 substrate for ultra-wideband applications based for the antenna designed and implemented. UWB antenna improves the gain for entire UWB range, a peak gain of 14.51 dBi at 3.6 GHz are obtained. Miniaturized structure with high gain makes this design better candidate,especially for outdoor UWB application.

Keywords: Ultra-wideband(UWB), Gain, VSWR, Radiation Pattern, Planar Monopole Antenna, Artificial Magnetic Conductor(AMC)