ABSTRACT

In recent years, most communication services use wireless technology as their transmission media. This has led to an increase in the need for antennas with Super Wideband (SWB) technology as a transmitter and receiver to be able to cover a variety of services with a very wide frequency spectrum. Therefore, we need an antenna with SWB technology that can cover the entire wireless communication platform on a device with low production costs, small size, and super wide bandwidth.

In this final project a SWB antenna simulation and analysis with a circular patch are added with a circular slot to get super wide bandwidth. Circular slot is changed in dimensions and its position on the patch to get optimal performance characteristics, namely with maximum bandwidth at a certain VSWR or return loss and gain as needed. The optimal conditions are the basis for the realization of antenna design results that are expected to provide the best performance. After getting the simulation results, the antenna will be simulated with several slots of different sizes and positions. Parameters that compare between other bandwidth, gain, and return loss.

From the simulation results, had been obtained various characteristics of the circular patch SWB antenna are affected by changes the size and position of circular slot. The best performance is obtained when adding one slot with diameter 6 mm which positioned at the bottom of antenna patch, with the gain is 2.50 dBi and the lowest S11 is -23.94 dB at frequency 50 GHz. Overall, the target operating frequency 3-50 GHz can be achieved the value of S_{11} *<-10 dB.*

Keyword : *SWB antenna, circular patch sirkular, circular slot*