ABSTRACT

The development of a technology that can help humans in detecting an object behind a wall. Because the existence of an object behind the wall is very important for us to know because it can harm us. With the development of this technology we can use UWB antenas as a means of communication because it can detect radar and radio. Ultra-wideband Through-the-wall radar (UWB-TWR) is a radar that has the ability to detect through non-metallic walls. This UWB antena is very good to use because of its small size, low cost, can penetrate walls and is good for health. This makes the author want to design an antena using a radar system that can penetrate walls.

In this Final Task will be designed UWB antena with periodic log design for radar system translucent wall through CST studio software based on the dimensions that have been determined. The antena in this study was designed with a simple design. It is fabricated using fr-4 eproxy substrate material which has a constant of 4.3 and a thickness of 1.6 mm.

Based on the results of periodic Log antena simulations have a returnloss at -15.98 dB for its middle fecurrency which is 2 GHz with a bandwidth of 2.55 GHz from the frequency range of 0.95 GHz to 3.5 GHz and the radiation pattern for the frequency of 2 GHz is directional. While the results of the antena measurement obtained the returnloss value at a frequency of 2 GHz which is -14.60 dB with a bandwidth of 1.2 GHz but has met the specifications and radiation patterns for the frequency of 2 GHz, namely directional.

Keywords: *Ultra-wideband Through-the-wall radar (UWB-TWR), Antena, periodic log.*