ABSTRACT

Wireless communications technologies in the world is developed so rapidly in various fields. Wireless communication technology becomes an important part in communication system fourth generation. One of the technology that developed at this point is Body Centric Wireless Communications (BCWCs). BCWCs divide into three part, that is WPANs (Wireless Personal Area Networks) , WBANs (Wireless Body Area Networks), and BSNs (Body Sensors Networks). BCWCs applied in a variety of fields, such as health, the military, and monitoring. BCWCs is a technology need supporting component in a communication system that want to build. Antenna is one of the supporting component in BCWCs. Antenna which used in BCWCs commonly called body centric antenna.

In this final project, it has been designed and simulation body centric antenna on range frequency UWB (Ultra Wide Band) that works on the operating frequency of (3.1-10.6) GHz. In designing this antenna, study parametric is need to done to get dimensions of antenna which can work on range frequency UWB and can be employed for application BCWCs. In designing body centric antenna, it was very important using human body to see the performance of antenna. In this final project, the human body replaced with a model phantom consisting of several layers of the human body. Research in this final project discuss influence of various distance placement antenna form the body.The influence of human body discuss and analysed. Parameters to be discerned is vswr, impedance, the radiation pattern, and gain. Simulation antenna done in software cst microwave studio.

Design and simulation results of antenna body centric is a antenna that can be applied to WBANs and have a range frequency of UWB. The results that got from this final project include VSWR< 2, impedance 50 Ω, unidirectional radiation pattern and positive gain in frequency above 3.1 GHz.

Key word : body centric antenna, phantom