

## ABSTRACT

The development of wireless communication technology is growing very fast due to the human necessary for communication services is increasing. The current communication technology is not voice service only, but are required on data services, video and instant access, that require greater bandwidth, which requires greater bandwidth. This makes it easier human do his job better. With the increasing service demands, it would required some device that has specification that compatible the demands of the service. One of device that is required is an antenna. Wireless communication technology today is closely associated with a variety of communication devices such as antennas. Antenna can be defined as a transformer that is passed on guided wave transmission line into free space waves and vice versa. The main function of antenna is as a release of electromagnetic energy to the air / free space or as a receiver of electromagnetic energy from free space.

In this final project have been designed an elliptical microstrip antenna array at frequency of 2.3 - 2.4 GHz epoxy fr4 substrate (4.6) with the technique of Printed Circuit Board (PCB). This antenna design process begins with a calculation of the parameters - parameters of the antenna, determining specifications, design and simulate in CST Microwave software and realize the antenna.

After design , realization and measurement of this antenna, antenna gain = 6.31 dBi, VSWR < 1.5 , Impedance =  $45.003+j6.098$  and Bandwidth = 100MHz . From that parameters , antenna capable operating at frequency 2.3 GHz – 2.4 GHz for WiMAX application .

Keywords: Microstrip, Array Antenna , Wimax, FR4, PCB,elliptical