

ABSTRACT

In this final project has been designed and realized a circular microstrip antenna array which works at a frequency of 2.4 GHz - 2.5 GHz which can be used to support the technology WIMAX (Worldwide Interoperability for Microwave Access). The development of mobile wireless communication technologies more quickly and have a variety of types. In addition, in the future, communication not only use voice services only, but began to enter the data services that require a wide bandwidth. WiMAX operates at a frequency of 2.3 GHz, 2.5 GHz and 3.5 GHz.

WIMAX is a wireless broadband technology that has broad coverage and is suitable for transmission in rural areas. This technology was first developed in the frequency 2.5 GHz (2.50 to 2.69 GHz and 2.7 to 2.9 GHz) and 3.5 GHz (3.4 to 3.6 GHz). The initial steps will be done is to calculate the dimensions of the antenna and then use the software Ansoft HFSS 10 as a simulator. The simulation results obtained will be implemented with Epoxy FR4 substrate. Gain to be achieved in this thesis is ≥ 5 dBi. Rationing techniques used in making this microstrip antenna is by rationing technique EMC (Electromagnetically Coupled). By using the EMC, the unwanted radiation become less.

Prototype made in accordance with simulation modeling and the results obtained in the measurement frequency for $VSWR \leq 2$, ie the frequency range (2.4 to 2.5) GHz. Then for the antenna radiation pattern is uni-directional and linear polarization in form.

Key words: Microstrip Antenna, WIMAX, EMC, FR4 Epoxy