

ABSTRACT

Microstrip antenna have some strong point such as small, light, simple, and conformal. Besides having strong point, microstrip antenna also have lack point such as narrow bandwidth and low gain. One of the technique to overcome the problem of narrow bandwidth that is by enhancing technique of U-Shaped Tuning Stub at microstrip line under element of radiating slot.

This final project to design and implementation of rectangular microstrip slot antenna and U-shaped tuning stub at operation frequency 2300-2400 MHz can support WiMAX communication. The antenna bandwidth 100 MHz about $VSWR \leq 1.5$. While type of substrate used Epoxy FR4 with relative permittivity 4.4. The simulations are done in making this antenna using Ansoft HFSS 9.2.

The simulation using Ansoft HFSS 9.2 have result accordance with the spesification of the antenna, with a limit $VSWR \leq 1.5$ at frequency range 2220 – 2470 MHz with center frequency 2.35 GHz. After doing the design in Ansoft HFSS 9.2, made the realization of the antenna according of the simulation result. Measurement result of the antenna prototype such as $VSWR$, impedance, radiation pattern, and antenna gain have a different, such as at $VSWR \leq 1.5$ the bandwidth measurement result is 2153-2460 MHz, the input impedance $42.24 + j8.267 \Omega$ and antenna gain is 6.103 dBi. But a result to complete with the spesification of the antenna. The difference is due to the environment during the measurement which is not ideal.

Key Word : Slot, U-Shaped Tuning Stub, WiMAX