ABSTRACT

This final project the 1B4T rectangular microstrip antenna (RMSA is designed, implemented, and measuremented using staked multuresonator at frequency 2,4 GHz that operates at the range of 2300 MHz – 2390 MHz of frequency spectrum. So that bandwidth required at RF level is about 220 MHz. Staked multiresonator method have been proven able to add bandwidth of antenna mikrostrip. One of way to add bandwidth of antenna mikrostrip is with using substrat which thick progressively and small dielectric constant. This microstrip antena design using a feeding method which called electromagnetically coupled (EMC). By using EMC, the undesirable radiation become smaller and also offers wideband characteristic without some network matching. Ansoft HFSS 9.2 was used as the simulator software at this final project.

The antenna which support W-LAN (Wireless-Local Area Network) that defined the range of 2300 MHz – 2520 MHz frequency spectrum is designed. This antena also good operates for WiMAX *(Worldwide Interoperability for Microwave Access)* aplication at the range of 2300 MHz – 2390 MHz of frequency spectrum. Meanwhile the BWA *(Broadband Wireless Access)* operates at the range of 2500 MHz – 2520 MHz of frequency spectrum.

Prototype are made according to the model of simulation and the result which is obtained from the frequency measurement at VSWR ≤ 1,5, that is at the range of 2300 MHz – 2520 MHz frequency spectrum. Meanwhile at VSWR ≤ 2, obtained very wide of *bandwidth* that is 481.875 MHz at the range 2218.128 MHz – 2700 MHz frequency spectrum. The radiation pattern of the antenna is unidirectional and also its polarization is eliptical polarized. The available Gain of this antenna are able reach untill 8,079 dBi.

Kata kunci : Antena Mikrostrip, W-LAN, WIMAX, BWA, *stacked multiresonator, electromagnetically coupled (EMC).*