

## ABSTRACT

*WiMAX is one technology WMAN. WiMAX can operate at frequencies 2.5, 3.5, or 5.8 GHz. A WiMAX system consists of two parts, namely a transmitter and receiver. In part this was realized a transmitter power amplifier that works at a frequency of 2.5 GHz mobile WiMAX, which is the standard of IEEE.802.16e, with a frequency range from 2.5 to 2.69 GHz.*

*In the Final Project was designed and realized a power amplifier based on microstrip. Power amplifier is a type of active device consisting of two ports, namely port 1 as input and port 2 as output. The working frequency range of this device is 2.5 to 2.69 GHz. Impedance matching circuit used a double stubs parallel open circuit. So that the transistor works in the active region, it takes a biasing circuit with a power supply DC 12 Volt. Parameters measured at this power amplifiers include gain, VSWR, characteristic impedance, return loss and insertion loss. In designing the power amplifier is used as a simulator ADS software. Measurements were made using a multimeter, Spectrum Analyzer and Network Analyzer.*

*On the measurement of the biasing circuit, it was found that the transistor has been working in the active region with  $I_C = 30.2$  mA and  $V_{CE} = 7.68$  Volt. The best VSWR value was 1.69 at the center frequency on 2.595 GHz. The best impedance value was  $62.03 + j46, 983 \Omega$  at the center frequency. The gain maximum was achieved at 5.3 dB. Return loss values was achieved spesification at the center frequency is -11.745 dB. Insertion loss values was achieved spesification at the all operating frequency. Overall results of the measurements show that the power amplifier was not achieved design spesification. This is because the value of the components used depend on commercially available and less comply with the specified component.*

*Key words: power amplifier, microstrip, ADS*