

## **ABSTRACT**

Antenna is an element of a wireless communication system that serves to transfer electrical energy to an electromagnetic radiation through the air and also for receiving electromagnetic radiation in the air to form an electrical signal. Antenna is an intermediary device between transmission line and the air, then the antenna must have the appropriate properties (match) with feedline. Therefore, the antenna plays an important role in long-distance wireless communication system, in a satellite communication system and terrestrial communications systems.

Wireless technologies currently being developed is the technology of WiMAX (Worldwide Interoperability for Microwave Access). WiMAX is a 4G technology that has high speed access to a wide range. One technique that can improve the performance of WiMAX communication system is Multiple Input Multiple Output (MIMO) system. MIMO system is a communication system using multi-antennas both at the transmitter and receiver side.

From the results of the design and realization, the resulting two microstrip antennas for MIMO with rectangular patches. This is a microstrip antenna for 2.5 GHz WiMAX applications in the frequency of 2500 MHz - 2520 MHz with a VSWR  $\leq 1.5$ . The distance between patches is  $\frac{1}{2} \lambda$ . Before the realization phase, carried out simulations using CST Microwave Studio software.

Keywords: Antenna, MIMO, WiMAX, Microstrip, Rectangular