

## **ABSTRACT**

*The development of science communication technology is rapidly increasing, demanding the convenience, effectiveness and sophistication in communicating both voice, video, and data, one example is the development of wireless technology replaces the wired technology. The antenna is an important element that exist in any wireless communication system which is a component that is designed to transmit and or receive electromagnetic waves. Technology in this era requires minimum communication tool for measuring the maximum performance, and wireless communication devices within the antenna is the largest component .*

*In this final task, designed size reduction rectangular microstrip patch antenna with forming Complementary Split -Ring Resonator ( CSRR ) on the groundplane antennas are applied at 3.3-3.4 GHz which is the frequency mobile WiMAX. Stage of the process begins with the mathematical calculations for antenna working at a frequency of 3.35 GHz, and then simulated using CST Microwave Studio software, then fabricated a prototype microstrip antennas CSRR on the same frequency that will be able to reduce the dimensions of a conventional microstrip antenna.*

*CSRR antenna prototype is able to produce a working antenna characteristics at 3:35 GHz center frequency, the bandwidth of the 92.5MHz VSWR is  $\leq 1.5$ , the impedance at the center frequency 3.35GHz is  $46\ 608 - j13.821\ \Omega$ , Gain obtained is 1.789 dBi and can reduce the size of the 43.42 % of conventional microstrip antenna .*

**Key Words : Microstrip Antenna, CSRR, WiMAX**