ABSTRACT

In this time, wireless telecommunication device has been developed with fast growth for each part system. Which one of telecommunication device has fast growth is costumer premises equipment (CPE), especially for wimax technology. CPE is device where located at user terminal and be a liaison between user and provider. For balancing development of CPE technology and satisfy necessary for wimax technology then we need antenna with high bit rate data and wide bandwidth. Therefore, system that satisfy neccessary wimax technology is MIMO (Multiple Input Mutiple Output).

In this final project, i am design MIMO antenna with two element where each element is array antenna. Array antenna have purpose to improve gain antenna. Determination of position antenna and power devider will influence the result form pattern radiation and polarization antenna. Furthermore in this final project, antenna using transmission line technique for feed line and array patch rectangular that will be circular polarization with using power devider quadrature hybrid. Optimalization return loss and VSWR in antenna realization do with add metal plate with compensator characteristic (decrease reactance value) on stripline input.

Result obtained from this final project is design and realization from two microstrip MIMO antenna with rectangular patch that work in frequency 2,3 GHz, wide bandwidth 20 MHz for VSWR $\leq$ 1,5, and return loss $\leq$ -9,54 dB. Pattern radiation is omnidirectional to purpose user flexibility movement in use CPE device. Furthermore, antenna polarization that our design is circular polarization.

Key Words : MIMO, Quadrature Hybrid, VSWR, Pattern radiation, Polarization, Return Loss, CPE, Wimax.