ABSTRACT

The times and growing needs for telecommunications technology in Indonesia, pushes Government and Operators to cooperate in realizing LTE network that has been realized starting in 2014. In Indonesia, which generally uses GSM technology, LTE network is also implemented at the frequency of 1.8 GHz. To Increase the quality and capacity of LTE communication system, MIMO technology is used.

MIMO (Multiple Input Multiple Output) is a communication system using multiple antennas both on the transmitter and receiver. With MIMO technology, four micro-strip antenna is realized so that a higher data rate is achieved.

This final project designed and realized Bowtie micro-strip antenna MIMO 4x4 for applications on LTE technology at a frequency of 1.8 GHz with ≥ 3 dBi gain and bandwidth ≥ 50 MHz.

From the measurement results, achieved bandwidth with VSWR < 1.6. Bandwidth ≥ 70 MHz on all antennas. Measured gain on the first antenna: 3.62 dBi, on the second antenna 3.67 dBi, on the third antenna 3.60 dBi, and on the fourth antenna 3.50 dBi. The radiation pattern generated during simulation and after fabrication is bidirectional. Polarization generated during simulation and after fabrication is elips. Based on the frequency, bandwidth, gain, and dimensions of the realized antenna, then this antenna can be used on a mini BTS in the LTE technology.

Keywords: Bowtie Micro-strip Antenna, MIMO, LTE.