

ABSTRACT

Cellular communication technology is experiencing rapid growth as evident from the LTE (Long Term Evolution) as a product of the fourth generation. This technology presents an performance increase with high data rate and large capacity. One technique that can be used to increase LTE communication system performance is to use the technique of MIMO antennas (Multiple Input Multiple Output). In addition to improving the quality of communication at user side, use a 4 x 4 MIMO antenna on the handset to meet the specifications of LTE release 8 and LTE Advance.

Antenna is used in this final task is PIFA (Planar Inverted F Antenna) to form meanders. This type of antenna is suitable for application in the mobile phone handset because it has small dimensions. Konvensional PIFA antenna has the longest dimension $\lambda / 4$, while the modification to the shape PIFA antennas can achieve the longest dimensional $\lambda / 8$ by Meander shape. The composition of the PIFA antenna MIMO system governed by the distance between the antenna for $> \lambda / 2$ above groundplane with dimensions of 114 x 64 x 1 mm³. The antenna is designed to work on two TDD-LTE frequencies in 2.3 GHz and 2.6 GHz. In this study conducted experiments to obtain 320 Mhz bandwidth by using a resistor with a value different elements as a shorting pin.

The final results obtained in this final was VSWR < 1.5 with bandwidth of antenna 320 MHz, mutual coupling between antennas at < -19 dB, omnidirectional radiation pattern, elip polarization, correlation coefficient < 0.0247 , and the highest diversity gain in the value of 10 dB and the lowest value of 9.9969 dB.

Key words : LTE, PIFA, Meander, MIMO.