

ABSTRACT

5G technology is the next phase of 4G technology. The candidate frequency that will be used in 5G will be in millimeter spectrum. One of the technologies that support 5G is massive MIMO. Because of using mmWave spectrum, generation fifth or 5G has capabilities that exceed the 4G's. The capabilities are increase in capacity, power life, massive device connected, and data rate user, and decrease in latency. One of the technologies that support 5G is massive MIMO. Massive MIMO is a multi user MIMO where the antenna BTS and the user is massive. Hundreds or thousands BTS antennas serve tens or hundreds user in the same frequency. Massive MIMO's purpose is to serve massive user simultaneously with high throughput.

In this last project, antenna massive MIMO microstrip work at frequency 6 GHz and 28 GHz with proximity coupled feed. Rectangular patch will be used in each frequency with the dimension of each frequency will be different. Frequency 6 GHz use 16 patch and frequency 28 GHz use 48 patch. The parameters that will be analyzed are gain, radiation pattern, mutual coupling, and return loss. From the designed antenna, return loss value is -15.82 dB, smallest gain is 4.38 dB, bandwidth frequency 28 GHz is > 667 MHz, bandwidth frequency 6 GHz is > 40 MHz, and the highest mutual coupling is < -26.7 dB.

Keyword : antenna, *Massive* MIMO, mikrostrip, rectangular patch, mmWave.