

ABSTRACT

5G or Fifth Generation is a wireless communication technology to welcome the fifth generation which is currently the next phase of cellular telecommunications standards exceeding 4G standards. In 5G technology, wireless communication needs (voice, data, video, text). The development of 5G technology certainly requires a variety of devices to support and facilitate 5G technology, one of the devices needed is an antenna which is a device for emitting and receiving electromagnetic waves. The technique used is the MIMO technique. MIMO technique uses multi-antenna both on the transmitter side and the receiver side with a correlation coefficient below 0.2. To produce correlation coefficients below 0.2 the distance between antennas is used. This thesis will design and simulate a microstrip antenna with a circular patch for 5G applications that work at frequencies of 27 GHz - 29 GHz. The substrate material used is Rogers RO3210. Antenna simulation shows the planned working frequency between 27 GHz - 29 GHz with a middle frequency of 28 GHz, has a VSWR value of 1.5, return loss - 13 dB, gain of 4 dB, bandwidth 967 MHz and coefficient correlation of 0.022. The radiation pattern of this antenna is unidirectional and linear polarization.

Keywords : 5G, MIMO, Correlation coefficients, Gain, Bandwidth.