

ABSTRACT

The development of technology increases every year, so the need for information is much greater. The effectiveness and efficiency of communication technology is needed along with technological growth. 5G is the latest technological development. 5G is a wireless network ecosystem that works synergistically to provide unlimited communication media for users. In this case, the antenna is one of the supporting components for 5G technology. The frequency spectrum categories that can be used are below 1 GHz, 1-6 GHz and above 6 GHz. At frequencies of 1-6 GHz there are candidate frequencies that can be used to develop 5G communication technology, namely frequencies of 3.3-4.2 GHz. Currently, Indonesia will use the 2.3 GHz frequency band for 5G communication. The development of 5G communication technology requires the right antenna that is able to support the 5G communication system. The use of Multiple In Multiple Out (MIMO) system on the antenna is the right choice for the development of 5G technology [2]. MIMO was chosen because it supports 5G specifications that require large capacity in the communication system. This Final Project proposes a 4×2 Array 2-element MIMO Antenna using a Rectangular patch. To get Beamwidth in all directions will use the four sector method with a beamwidth value = 90. With this Array method it is expected to get the maximum gain value. It is also expected that the designed antenna can produce $VSWR \leq 2$ with unidirectional polarization at frequencies of 1.8 GHz and 2.3 GHz. After obtaining simulation results, fabrication will be carried out to measure the results of this antenna implementation.

Keywords : *Square Patch Microstrip Antenna, Multiple Input Multiple Output (MIMO) 4×2, Array, Sectoral Antenna, BTS, 5G.*