ABSTRACT

The development of technology is currently growing rapidly, especially in the field of telecommunications. There is an interest in data transfer speed, so now there is 5G technology which has a high data transfer rate and has a wide bandwidth. Therefore, to support 5G technology, it is necessary to improve everything that plays an important role in this technology, one of which is the antenna.

Ultra wideband antenna is a wireless application that has very wide bandwidth for short distance communication. In this final project, a fractal array microstrip antenna has been designed and realized that works Ultra Wideband at a frequency of 28 GHz for 5G applications. The microstrip antenna has several disadvantages, namely a small bandwidth, so a combination of designs is carried out on the patch in the form of Minkowski fractals and in the array so that the antenna has a wider bandwidth and produces an antenna that works in the Ultra Wideband frequency range, which is 20 GHz-36 GHz.

The results of this final project are able to produce antenna characteristics that work at the center frequency of 28 GHz with a wide bandwidth of 8 GHz, return loss value of -25.64 dB, VSWR of 1.11, then gain of 5.061 dBi with unidirectional radiation pattern. So from that specification, when viewed from the measurement results, the antenna has met the 5G specification.

Keywords: *Fractal Antenna, Microstrip Antenna, Ultra Wideband, 5G.*