

ABSTRACT

Currently, the development of Machine to Machine (M2M) technology is increasing. The existence of satellites in space will require a long-distance communication module so that the process of transmitting information can run. Long Range (LoRa) is considered very suitable for communication modules on satellites. LoRa is a low-power wireless communication system so that it can be applied to nano satellites, namely cubesat.

In this Final Project will propose a rectangular patch microstrip antenna for cubesat. Cubesat is a type of nano satellites that orbits on Low Earth Orbit (Leo). The antenna made is a receiving antenna that can work at a LoRa frequency of 920-923 MHz. Antennas will be miniaturized so that their size matches the size of the cubesat. The method used is a metamaterial superstrate that can increase the gain value.

The method used for this antenna is to add a superstrate metamaterial and use the truncated method on the patch part. The resulting radiation pattern is directional with a gain value obtained of 2,043 dBi. The VSWR value in the realization of the antenna was obtained 1.32 with a bandwidth of 48.53 MHz. The polarization result obtained was an ellipse with an axial ratio value of 18.88 dBi.

Keywords : LoRa, antenna, cubesat, superstrate.