ABSTRACT

Technology Machine to Machine in the application Internet of Things (IoT) is growing rapidly. With the existence of IoT, it can facilitate and make human activities efficient. To receive the IoT information, the satellite requires a wireless communication module. The Long Range (LoRa) module is considered capable of dealing with these needs, because LoRa is capable of transferring small to large data, as well as low power consumption, besides that LoRa can be placed on nano satellite, namely cubesat.

In this study, a microstrip antenna was designed which was placed on cubesat. The resulting microstrip antenna is capable of receiving LoRa and works in the 920 – 923 MHz frequency range with a center frequency of 921.5 MHz. This antenna is designed using rectangular *patch* with multiple layer substrate method to increase gain.

This antenna is realized by adding the Split Ring Resonator (SRR) metamaterial method to increase gain and truncated so that the antenna has circular polarization. The results obtained on this realization antenna have a VSWR value of 1.355 at a frequency of 921.5 MHz, a gain of 1.995 dBi with a unidirectional radiation pattern, the obtained polarization is circular with an axial ratio value of 1.992 dB.

Keywords: LoRa, cubesat, microstrip antenna, Multiple Layer Substrate