

ABSTRACT

Long Range (LoRa) is a communication technology that has a long-distance range and consumes low power. The existence of technological developments requires devices to support LoRa technology. LoRa technology includes wireless technology that uses radio frequencies over long distances. This technology is a form of development of wireless technology. Wireless technology is also influenced by devices that can receive and transmit electromagnetic waves called antennas. One antenna that can be applied to Long Range (LoRa) communication systems is a microstrip antenna. In Indonesia, LoRa technology is included in communication technology based on Low Power Wide Area Network (LPWAN) with a frequency of 920-923 MHz. In this study, a microstrip antenna design was carried out using a bowtie patch at a working frequency of 921.5 Mhz. The software used to simulate and analyze a bowtie microstrip antenna is CST Studio Suite 2023. The simulation results in the software have the expected antenna parameters, namely VSWR values, Return loss, Bandwidth and Gain. The technique used is in the form of groundplane cutting which is included in the DGS (Defected Ground Structure) technique. In the overall results of the microstrip antenna simulation, Bowtie obtained a working frequency value of 921.5 MHz with a Return loss value of -12.940 dB, Bandwidth of 83,7679 MHz, VSWR 1.582 and a Gain value of 2.196 dBi.

Keywords: Antena Bowtie, LoRa, Microstrip, Return Loss, VSWR