

ABSTRACT

Increasing user needs for better service quality wireless communication is needing a larger network capacity and large bandwidth that compared to the past technology. 5G or called IMT-2020 is wireless communication technology that predicted to have a data rates of up to 10 Gbit/s which can be a solution to increasing data rates and service capacity. One of spectrum consideration that will be used for 5G application is in the mid-band (below 6 GHz). Microstrip antenna with the advantages of having a low profile is one type of antenna that can be used for 5G networks, but microstrip antenna had a disadvantage is small *gain* and shortage of *bandwidth*. Therefore, it requires a technique to increase the bandwidth and gain of the antenna. In this final project has been designed a rectangular patch microstrip antenna that works at a frequency 3,5 GHz using an array method and addition T-Slot. The antenna has been designed and simulated using software of AWR Microwave Office 2009 with the type of substrat used in this project was FR4-Epoxy with a dielectric constant value (ϵ_r) = 4.3, substrate thickness (h) = 1.6 and loss tangent of 0.024. The result of the antenna with return loss of -70,6 and VSWR of 1,001, and had a gain value is 8,2 with bandwidth 910 MHz.

Keywords : 5G, mikrostrip, *array*, *slot*.