## ABSTRACT

Microstrip antenna is an antenna that is widely used and developed to be applied to high-frequency telecommunications systems including 5G (Fifth Generation) and WiFi networks, namely in the 2.3 GHz and 2.4 GHz frequency ranges. The advantages possessed by microstrip antennas are that they have small dimensions, are compact, and can work at high frequencies. However, microstrip antennas also have a disadvantage, namely a narrow bandwidth. To overcome these shortcomings, certain methods are used to increase the bandwidth of the microstrip antenna.

In this final project, the design and realization of a microstrip antenna with a slot for 5G and WiFi communication is carried out in the 2.3 GHz and 2.4 GHz frequency ranges. The designed microstrip antenna has a rectangular patch shape with the addition of a small N-shaped slot which aims to make this microstrip antenna have a wide bandwidth but the dimensions of the microstrip antenna remain small and compact.

The design and realization of the microstrip antenna with this slot has dimensions of 51,712 mm × 64.66 mm with slot dimensions of 7 mm × 8 mm. From the design, the return loss results are -24,644 dB and -28.5964 dB for the 2.3 GHz and 2.4 GHz frequencies, the bandwidth is 1.541 GHz, with a gain of 2.261 dBi and 2.322 dBi for the 2.3 GHz and 2.4 GHz frequencies. The measurement results show that the return loss is -28.421 dB and -32.709 dB, the bandwidth is 1.351 GHz, the gain is 1.123 dBi and 1.436 dBi. The radiation pattern of this antenna is omnidirectional which works in the frequency range of 2.3 GHz and 2.4 GHz for 5G and WiFi communication.

Keyword: WiFi, 5G (fifth Generation), MIcrostrip Antenna, Slot, Bandwidth