

ABSTRACT

Mobile development technology is developing rapidly until now the technology has arrived in the 5G Network era. Over time, antennas will also be developed which can be used as telecommunication tools in the form of devices that can later communicate long distances in places where signals are weak to (3G), (4G) and (5G) signals. The author raised this title with the aim that it can be used in areas that do not reach signals (3G), (4G) and Signals (5G).

The frequency used in this study is 800 MHz to 3.5 GHz. The technique used in designing the antenna in this final project is adding a slot where this technique is expected to increase the return loss and VSWR values and use the Defected Ground Structure (DGS) method, to be able to increase the gain and good bandwidth values so that all cellular frequencies can be used. covered. The material used is FR-4 substrate with a thickness of 1.6mm with Microstrip feedline on the Ultra Wide-Band antenna where the Ultra Wide-Band antenna can be used to replace the narrow multi-band antenna, which can effectively reduce the number of antennas.

The results of the design carried out in this Final Project is to make a planar monopole antenna with circular patch with the results of the antenna performance on the software simulation obtained a value At 3.5 GHz the return loss value is -19.23 dB, bandwidth 1.2 GHz, VSWR 1.23, gain 5.349 dBi with the resulting radiation pattern is bidirectional. Measurement Results At frequency 3.5, the return loss value is -13.00 dB with a wide bandwidth of 1.6 GHz, VSWR 1.63 and obtains a gain value of 5.021 dBi with a bidirectional radiation pattern.

Keywords: *Ultra Wide-Band (UWB), Cellular, sloted patch, DGS*