

ABSTRACT

Antenna is one of important component in telecommunication. Lately development of compact antenna growing so fast, it's happening because increase of needing telecommunication device that getting smaller. Antenna is one of component in telecommunication used to transmit and receive signal, one of that component is microstrip that compact and light. One of implementation is microstrip antenna for 5G communication. 5G has developed for the last couple years and becoming important need for human for sending high speed information

Because of that in this project, writer will design microstrip antenna metamaterial works at 3.4 - 3.8 GHz and focusing on bigger gain with Software CST Microwave Studio 2019. To make ends meet, using metamaterial as reflector to increase gain antenna quite significant rather than microstrip - patch who didn't use metamaterial.

This thesis about microstrip antenna using metamaterial as reflector, this antenna works in 3.5 GHz frequency, with return loss -20,732 dB, VSWR 1,208, bandwidth 138,69 MHz, radiation pattern is omnidirectional, and gain is 5,1 dB. Hopefully this thesis can give contribution about metamaterial structure can make gain bigger and give benefit to another parameter antenna.

Keywords : Compact, 5G, Metamaterial, Microstrip antenna, Gain