

ABSTRACT

To support the development of this technology at this time, we need an antenna that has characteristics that are in accordance with the development of increasingly small mobile devices. One that fits these criteria is a microstrip antenna. Microstrip antennas have several advantages including their small and simple form, and easy to fabricate. Among the advantages, microstrip antennas also have disadvantages, namely: narrow bandwidth and low gain. To get the best return loss, VSWR, and bandwidth values, additional slots and array techniques are given to the microstrip antenna. The addition of slots aims to get better antenna parameters, namely: increasing the return loss value and widening the bandwidth of the designed antenna. This final project proposes a microstrip antenna with a circular patch shape optimized by adding an I-shaped slot and using the array method for 5G technology, at a working frequency of 3.5 GHz. 5G, also known as IMT-2020, is a wireless communication technology that is predicted to have data speeds of up to 10Gbits/s. Here one of the spectrums that will be used on the 5G network is the C-band frequency (3.3-3.6 Ghz). The type of substrate used in this final project design is FR4-Epoxy with a dielectric constant value = 4.3, substrate thickness = 1.6mm and loss tangent = 0.024. The results of this antenna simulation with a return loss of -43.76 and a VSWR result of 1.013, and has a gain value of 5.062 dB with a bandwidth of 195.3 MHz.

Keywords: Microstrip Antenna, Circular Patch, Array, Slot