

ABSTRACT

The development of technology at this time has been very rapid, especially in the field of telecommunications. As the need for data transfer speeds increases, 5G technology is currently prepared which has a high data transfer rate with a wide bandwidth.. To support this 5G technology, everything that plays an important role in this technology needs to be improved, one of which is an antenna.

In this final project a koch fractal antenna has been designed and realized in the 1st order iteration with a groundplane size $\frac{1}{4}$ of the length of the substrate that can work in the 28 GHz spectrum. The Ministry of Communication and Information of the Republic of Indonesia (Kemkominfo RI) has determined the frequency range of 26.5 GHz - 29.5 GHz which can be used on that spectrum. The material used as a substrate is FR-4 Epoxy then for patch and groundplane the material used is copper.

The results of this final project are that in the final simulation process the return loss value is -46.92 dB, vswr is 1.009, and the bandwidth obtained is 8.838 GHz in the range of 24.646 GHz – 33.484 GHz. Then the gain is 2.622 dBi.

Keywords: *Fractal Antenna, Microstrip Antenna, 5G, First Order of Iteration*