

ABSTRACT

5G (Five Generation) is a data access communication technology that uses a multi-layered, heterogeneous multi-RAT network that includes 2G, 3G, 4G and RLAN. 5G networks must integrate / work with radio access technologies such as FSS (Fixed Satellite Service), BBS (Broadcast Satellite Service), and MMS (Mobile Satellite Service). The maximum speed of 5G technology reaches 100 times compared to 4G speed, or more precisely 10Gbps, and can increase user speeds up to 1000 times and support 100 times more users

In this final exam a Bandpass Filter (BPF) simulation is performed at a working frequency of 5G at 3.5 GHz. BPF filters are made using a Split Ring Resonator (SRR). This method can be used to improve the performance of the resulting bandwidth to be large on devices such as filters or antennas without the need to add dimensions to the device. The frequency response characteristics produced will depend on the type, pattern, arrangement, and distance of the gap from the SRR used.

The design of a BPF filter is carried out using numerical simulation software for electromagnetism by adjusting the filter specifications. BPF filter in the simulation uses Rogers Duroid 5880LZ microstrip material (ϵ_r of 2.0). From the filter design results obtained insertion loss $\leq 3\text{dB}$, return loss $\leq 10\text{dB}$ and bandwidth of 100 MHz at a frequency of 3500 MHz. So that this filter can be implemented at a working frequency of 5G at 3.5 GHz.

Keywords : *BPF, SRR, 5G*