

## ABSTRACT

Starting in early 2012, Indonesia through Minister of Communication and Information Regulation No. 05 of 2012 adopted a terrestrial digital television broadcasting standards called Digital Video Broadcasting - Terrestrial second-generation (DVB – T2) that works on the UHF IV and V frequency bands 470 – 862 MHz. Therefore Telkom University in particular Diploma of Telecommunication Engineering program plans a DVB – T2 based Community TV development project. In order to make Community TV can work well, a device is needed to select the desired signal from the unwanted signal based on its frequency. The device that has this function is a Bandpass Filter.

In this final project designed a Square Open-Loop Resonator Bandpass Filter with a middle frequency of 666 MHz, fractional bandwidth  $<10\%$ , insertion loss  $\leq 3$  dB, and return loss  $\leq -10$  dB. The filter design uses FR4 Epoxy substrate, and simulated with the Advanced Design System 2019.

Based on the simulation on ADS, at a middle frequency of 666 MHz the return loss value of -27.3 dB, insertion loss value of -4.71 dB, VSWR value of 1.090, bandwidth value of 40 MHz and fractional bandwidth value of 5.9%. While in the measurement process the results are obtained the return loss value of -25.9 dB, insertion loss value of -5.9 dB, VSWR value of 1.1067, the bandwidth value of 32 MHz, and fractional bandwidth value of 4.7%.

Keywords: DVB-T2, Community TV, Bandpass filter, Square open loop resonator