

ABSTRACT

From the beginning of 2012, through regulation of the Minister of Law No. 05 of 2012, Indonesia adopted Digital Video Broadcasting – Terrestrial second generation (DVB-T2) for digital television broadcasting Standard, which works on the UHF IV and V frequency bands, that is 470-862MHz. Therefore, Telkom University, in particular Diploma of Telecommunications engineering plan to project a community TV based on DVB-T2. In order to a community TV can work properly, it takes a device that serves to select the desired signal from the unwanted signal based on frequency. The device that has the function is a Bandpass filter.

In this Final Project, a Hairpin-line Bandpass filter was designed with specifications having a center frequency 666MHz, fractional bandwidth <10%, insertion loss ≥ -3 dB, and return loss ≤ -10 dB. The filter design uses Epoxy FR4, and simulated with Advanced Design System (ADS) 2019.

Based the simulation on ADS 2019, at the center frequency 666MHz the value of return loss is about 33.8 dB, insertion loss is about 2.9 dB, VSWR is about 1.04, and fractional bandwidth is about 9.6%. While the measurement obtained the value of return loss is about 27.3 dB, insertion loss is about 6.9 dB, VSWR is about 1.09 and fractional bandwidth is about 6.7%.

Keywords: DVB-T2, Community TV, Bandpass filter, Hairpin-Line