

ABSTRACT

According to UNESCO, tropical forests in Indonesia have entered the In Danger category. The tropical forest, which has an area of around 2.5 million hectares, is home to thousands of species of plants, and hundreds of species of mammals and birds. Seeing this fact requires a system that can do mapping. One of the mapping devices commonly used in remote sensing is Synthetic Aperture Radar (SAR). The filter designed is a filter on the side of the receiver from SAR. The plan to do this design was done on Microstrip Chebyshev's Bandpass Filter (BPF), by comparing its performance to the Frequency L Band.

The Hairpin method was chosen because its advantages in the resonator design are concise and solid, while the Defected Ground Structure (DGS) has been applied to this system, but the existence of the DGS makes a decrease in the performance of the filter. Comparison variables that be compared include the type of substrate. The substrate used in this study was FR-4 epoxy and Taconic substrate.

The insertion loss and return loss filter values after being simulated are -0.4908 dB and -21.801 dB for Taconic RF-35 substrate while those for Epoxy FR-4 substrate are -2.405 dB and -31,116 dB. This result makes the Filter with Taconic RF-35 substrate a better performing filter. After the filter with FR-4 Epoxy substrate was realized the results became quite different with the insertion loss and return loss results being -3.8784 dB and -20.95 dB.

Keywords: BPF Chebyshev, Hairpin, DGS, Microstrip, SAR, L Band.