

ABSTRACT

Radar technology that has a very wide benefit in identifying certain objects among others is weather surveillance radar or weather surveillance radar technologies. Weather radar is a type of radar used to obtain rainfall information, predict movement, and type of cargo. On a weather radar system requires a bandpass filter device capable of passing the required frequency (passband) and inhibiting unneeded frequencies (stopband) to other unneeded frequencies and interference at the time of modulation in the device removed so that the results of sensing is good.

Bandpass filter in weather radar system will work very well if the desired parameters are suitable, so there is no loss so significant in its application. The filter parameters include return loss and insertion loss. The filter to be designed on a weather radar system is a bandpass filter in the 9.2 - 9.8 GHz frequency range. In this research used microstrip hairpin method with defected ground structure u-slot.

The filter dimension realized is 31.85 mm x 10.1 mm using Duroid 5880 substrate The dielectric permittivity is 2.2 and has a bandwidth of 1000 MHz at the middle frequency of 9.48 GHz resulting in an insertion loss value of -3.97 dB and return loss of -17.59 dB.

Keyword: *Bandpass filter, Microstrip hairpin, Defected Ground Structure U-Slot, Weather radar.*