

ABSTRACT

Radio Detection and Ranging (Radar) is an electromagnetic wave system that is useful for detecting, measuring distances and making maps of weather information. The wavelengths emitted by radar vary from millimeters to meters. In the radar there is one component named filter. Filter is a frequency selector circuit that can pass the desired frequency and hold (couple) / discharge (by pass) other frequencies.

In this study designed a filter with a meander loop resonator that can provide a small filter size and simplicity in performing the optimization process. In addition to using a meander loop resonator in this design is also in use Defected Ground Structure on the ground plane to provide damping effect and also selective filter response. This filter is designed at a frequency of 5,800 GHz with a bandwidth width of 100 MHz.

Obtained realization of MLR filter and DGS by using 4003C duroid and permittivity of dielectric 3,55 obtained middle frequency of filter is at frequency 5,76 GHz with bandwidth equal to 94 MHz is in frequency range 5,71 GHz - 5,80 GHz. The insertion loss and return loss values of the results are -4,26 dB and -21,35 dB. Filter size generated 22 mm x 22 mm.

Keywords: RADAR, Meander Loop Resonator, Defected Ground Structure.