

ABSTRACT

Ultra wideband (UWB) is a technology published by the US Federal Communication Commission (FCC) which is approved including unlicensed frequency. This technology has a low EIRP level of (-41.3dBm / MHz), low power consumption of only 100 mW, supports high resolution of an object, and has accuracy in the order of millimeters. UWB is a system that needs wide bandwidth. One method of widening bandwidth is that it is very suitable for the application of Defected Ground Structure (DGS).

Radar (Radio Detection and Ranging) is an electromagnetic wave system used to detect, measure distances and map objects such as airplanes, motor vehicles and weather information. Radio waves emitted from an object can be captured by radar and then analyzed to determine the location and even the type of the object. Although the received signal is relatively weak, the radar can easily detect and amplify the signal.

Defected Ground Structure is where the ground aims to widen the bandwidth, which is a device used to detect objects below the ground using radio waves.

This research is planned to design a compact uwb band passfilter that can work in the 2.3 GHz working frequency range using the Defected Ground Structure method and the filter simulation is carried out in ansys software. The actual filter uses FR-4 Epoxy as the substrate and copper as the ground, strip and patch material

The filter results in this study work at a working frequency of 1.85-4.98 GHz and a center frequency of 3.2 GHz. With a bandwidth value of 2.3 GHz, Insertloss 3.05 and the filter have dimensions of 32 mm X 11 mm.

Keywords : *Ultra Wideband, Filter, DGS, Radar*