

ABSTRACT

In recent years, technological developments in Indonesia, in the field of aerial photography, have developed rapidly. One of the benefits that can be used is for large-scale mapping. In Indonesia, the provision of geospatial information is still small, therefore the Unmanned Aerial Vehicle (UAV) can be an option. However, the camera on the UAV cannot see what is behind the cloud so that the image is inaccurate, therefore radar is used to show the camera so that the results can be more accurate and can help researchers.

Radar system Waves or signals that are transmitted through the transmitting antenna and captured at the receiving antenna in the form of reflected waves. In the case of a system that utilizes electromagnetic waves to perform and display an image of an object by transmitting a signal. In a radar system, there are many constituent components, one of which is the filter. To support this, it is necessary to make a Bandpass Filter radar which is small in size and light in weight.

In this study, a microstrip-based Bandpass Filter was used with the Meander Loop Resonator model which can provide a small size so that it can be easily applied to Unmanned Aerial Vehicles. The filter will be designed at a center frequency of 2.4 GHz with a bandwidth of ≥ 180 MHz and insertion loss and return loss of ≤ -3 dB and ≥ -10 dB. The results of filter realization get insertion loss value -9.6026 dB, return loss -24.681 dB, and a bandwidth of 189 MHz.

Keywords : Radar, Meander Loop Resonator, Unmanned Aerial Vehicle