

ABSTRACT

Radar is a part of an electronic element that consists of electromagnetic waves to detect and determine the location of an object. ESM (Electronic Support Measure) that used to collect information from other radar as a way of surveillance by monitoring the electromagnetic spectrum, is one of the categories of electronic devices in radar systems. ESM should be able to senses the working frequency of surrounding other radar, including at the L-Band frequency which has 1-2 GHz bandwidth. In designing of ESM, horn antenna can be used as receiver antenna, which is the result can be processed at the ESM station then.

The horn antenna has a relatively large gain so that the electromagnetic wave reception is more sensitive and accurate. However, it is important to adjust the dimensions of waveguide, horn and the monopole to obtain an appropriate antenna specification.

Based on these conditions, this study design and realization a pyramid horn antenna with L-Band frequency that can be applied to Electronic Support Measure (ESM) then. The antenna consists of a rectangular waveguide, a pyramid-shaped horn and uses a monopole as its coupling. Waveguide and pyramid horn are made of a 0.7 mm thickness brass plate. While monopole made of 6 mm copper cylinder, with 5 cm length , placed at 7 cm from the waveguide backside. The measurement results obtained about 1.4 GHz bandwidth at L-Band frequency, 10,14 dB gain, $VSWR \leq 2$, $Return Loss \leq -10$ and unidirectional radiation pattern, the specifications comply the Electronic Support Measure antenna specification.

Keywords : *Pyramidal Horn Antenna, ESM (Electronic Support Measure), L-Band*