ABSTRACT

In the current technological advances, many countries have sought to improve their skills in electronic warfare as part of a modern defense system. Electronics War is a military action involving the use of electromagnetic energy that is directed to control, reduce the electromagnetic spectrum or to attack the opponent, in order to ensure effective use of the electromagnetic spectrum itself. This project is a following project about Design and Realization Horn Conical Antenna.

ESM in general is an electronic device that functions to receive electromagnetic wave signal then the signal is processed and analyzed in order to obtain the location, signal strength, and other parameters. In designing this ESM takes six conical horn antenna having a directional radiation pattern and linear polarization which will be used as a receiving antenna and the results are sent to the ESM station and processed, so that later acquired location, signal strength and other parameters.

In this thesis, we will design a conical horn antenna that works on the frequency is 4-18 GHz with diameter of a cone 220 mm and length of a cone 270 mm. Having designed and realized, conical horn antenna has a wide bandwidth characteristics (wide band) with a directional radiation pattern which aims to support the ESM function in determining the location and position of the origin of the radar signals or other enemy electronic signals. Because of utility ESM as radar detector with nature as a receiver takes VSWR below 2. conical horn antenna was designed using 0.4 mm brass plate shaped cone, In the monopole antenna was installed using impedance matching ¼ λ so that the impedance matching between the antenna connector is worth 50 Ω. Result of Realization antenna just as needed, with VSWR 5-18 Ghz below 2 execpt frequency 4 but still in tolerated, Gain more than 15 dB, and Radiation Pattern is unidirectional.

Keywords: *Conical Horn Antenna, Circular Waveguide, ESM*