

## **Abstract**

*ESM is an electronic defense equipment that serves to receive the electromagnetic wave signal emitted by the object, then the signal is processed and analyzed to obtain location, signal strength and other parameters. ESM requires antenna support with Ultra Wide Band frequency which in this final project is planned at frequency 2-18 GHz.*

*In this final project has made periodic microstrip log antenna for Electronic Support Measure application with frequency of Ultra Wide Band 2-18 GHz. To accomplish this final project required an inversion optimization method printed on PCB with substrate FR4 Epoxy ( $\epsilon_r = 4,4$ ) which has a substrate thickness of 1.6 mm and has a thickness of 0.035 mm.*

*In this final project used log periodic method of microstrip dipole array with 15 inversion element get result, at the middle frequency that is 10 GHz yield value of VSWR that is 1,1 for measurement, for Return loss is -26,04 for measurement and, for polarization is 8, 96 dB which means elliptical polarization and for Gain value is 7.41 dB on measurement. At the 2 GHz frequency the VSWR value is 1.77 for the measurement, for the Return loss is -11.06 on the measurement and, at the Gain value of 2.37 dB on the measurement. At the frequency of 18 GHz produces a VSWR value of 2.97 for the measurement, for the Return loss of -6.08 on the measurement and, at the Gain value of 2.46 dB on the measurement.*

**Keywords:** *Anntena Microstrip, Electronic Support Measure, Log periodic, Ultra Wide Band.*