

## ABSTRACT

*Electronic Support Measures (ESM) is an electronic equipment that serves to receive electromagnetic wave signals, then the signal is processed and analyzed in order to detect and make measurements of electromagnetic wave emission from surrounding radar systems. The working frequency is at 2-4 GHz (S-Band), 4-8 GHz (C Band) and 8-18 GHz (X Ku-Band)*

*In this final project, has been designed and realized a passive component which is found in Electronic Support Measures (ESM) application. With the number of antenna arrangement then needed a passive component that is power combiner. The working frequency of the device is 2-18 GHz which has three inputs and one output. The tool is designed using CST Microwave Studio software.*

*The result of measurement from 3-way power combiner at 2-18 GHz is got value for parameter S11 at 2 GHz that is -9.184 dB, 10 GHz equal to -17.374 dB and 18 GHz equal to -12.638 dB, value for parameter S22 at 2 GHz that is -6.864 dB, 10 GHz -20.635 dB, 18 GHz -10.524 dB, value for S33 parameter 2 GHz -8.827 dB, 10 GHz -16.125 dB, 18 GHz -12.480 dB, value for S44 parameter at 2 GHz ie -6.864 dB, 10 GHz -20.635 dB, 18 GHz -10.524 dB. The values for S12 parameters at 2 GHz are -5.003 dB, 10 GHz -5.115 dB, 18 GHz -6.184 dB, Value for S13 parameters at 2 GHz ie -5.259 dB, 10 GHz -5.497 dB, 18 GHz -6.269 dB, S14 parameter at 2 GHz is -4.901 dB, 10 GHz -4.976 dB, 18 GHz -5.923 dB, Value for S21 parameter at 2 GHz is -4.153 dB, 10 GHz -5.274 dB, 18 GHz -5.759 dB, Value for S31 parameter at 2 GHz ie -5.341 dB, 10 GHz -6.171 dB, 18 GHz -6.613 dB, Value for S41 parameters at 2 GHz is -4.178 dB, 10 GHz -5.547 dB, 18 GHz -5.880 dB. The values for S23 parameter at 2 GHz are -9.739 dB, 10 GHz -20.033 dB, 18 GHz -24.165 dB, Value for S34 parameter at 2 GHz ie -10.821 dB, 10 GHz -20.932 dB, 18 GHz -46.673 dB, S24 parameter at 2 GHz is -6.643 dB, 10 GHz -12.589 dB, 18 GHz -25.086 dB, Value for S32 parameter at 2 GHz is -10.383 dB, 10 GHz -11.659 dB, 18 GHz -10.995 dB, Value for S43 parameter at 2 GHz at -13.636 dB, 10 GHz -11.931 dB, 18 GHz -14.807 dB, and values for S42 parameters at 2 GHz ie -10.305 dB, 10 GHz -11.367 dB, 18 GHz -11.511 dB.*

**Keyword :** ESM, power combiner, UWB