ABSTRACT

DESIGN ARRAY OF RECTANGULAR MICROSTRIP ANTENNA AT FREQUENCY 9 GHZ FOR MARITIME RADAR APLICATION

Indonesian archipelago consist of big island and many small island that located very strategic. Indonesian geographical position cause must be controlled by TNI/POLRI and from Departement of Ocean and Fisheries and many patrol boats. TNI's patrol boats there are 117 unit and 77 unit had 21 until 60 years. Comparison of patrol boat and Indonesian Archipelago are 1:72.000 km^2. This condition that all Indonesia Archipelgo can't be controlled, as consequences some times there are island conflict with other country, robbery, and smuggling. To solve these problems are needed much operational cost for controll to be continue using patrol boat.

To solve problem above, designed maritime radar antenna made in Indonesia to minimalize operational cost. Making array antenna consist of two type, the first rectangular microstrip antenna using duroid 5880 substrate, second transmisition line system using trafo $\lambda/4$ so that input impedance same with antenna impedance.

Antenna parameters measured in this Final Project such as VSWR, radiation pattern, polarisation, gain, retutn loss, HPBW, FNBW, and total impedance. From measurement and analysis obtained bandwidth 60 MHz at VSWR $\leq$ 1.5, gain is 8,967 dBi, radiation pattern is uni directional, but polarisation is not reached is ellips polarisation. This condition caused field measurement is not compatible, example anacheoic chamber.

Clues : maritime radar antenna, VSWR, bandwidth, gain, radiation pattern, polarisation