ABSTRACT

As a marine country with many island, the position of antenna on coastal surveillance radar system is very crusial. In the previous system coast surveillance radar using microstrip antenna with Rogerds 9880 as substrate which has a dielectric constants 2,2 and worked in frequency 9.4Ghz. This antenna has a large dimension thus will add heaviness mechanics system which has been a constraint on the coastal surveillance radar system.

In this final task will be designed and be made microstrip antenna with a smaller dimension. Substrate used is Alumina (Al2O3) with dielectric constants 9,6. Because dimension of antenna inversely with the root of dielectric constants, then dimension antenna which will be made reduced until half of dimension before.

For simulation process this antenna, the author using CST Studio Suite™ 2010 and for the realization of antenna performed by using *thick film* technology in *screen printing*. Simulation result showing that antenna working in frequency 9.4 Ghz, *gain* 12.78 dB HPBW 86.3° for elevation and 18.2° for *azimuth*. However after antenna fabricated, occur frequency shift from 9.4 Ghz become 8.4 Ghz which caused by *patch size* antenna who not precision with size when simulation. This case will be an object analysize furthermore.

Keyword : Alumina, *Thick film*, Dielectric Constant