

ABSTRACT

Indonesia is an archipelago country that partly consist of many islands and oceans. Indonesia also has abundant natural resources especially sea products. It requires extra attention from the government because of the threat of danger could come at any time. One of the applications of technology that can be used is a radar that has the ability to catch waves that can be used remotely to avoid things that are not desirable to enter Indonesian territory. To run the application, it takes an antenna with bandwidth and high gain.

In this last project, is to design vertical disc monopole antenna made of brass with characteristics of ultra wideband (UWB) which operates at a frequency of 2-18 GHz and has a wide bandwidth at $VSWR \leq 2$, polaradiasi omni directional, linear polarization, Gain 2 dB, ≤ -9.54 dB Return Loss, Impedance 50Ω terminal and the bandwidth frequency is 25%. And this antenna is only receive. Which will be installed on a ship to detect another ship's band radar that are owned by others. Band radar is divided into several sections, namely the S-band (2-4 GHz) has a resonant frequency of 3 GHz, C-band (4-8 GHz) has a resonant frequency 6 GHz, X-band (8-12 GHz) has a resonant frequency of 10 GHz and Ku-band (12-18 GHz) has a resonant frequency of 15 GHz. While the device in test, the device is expected to be made to reach the goals and expected specifications.

Meanwhile, the measurement results show that the frequency reaches 2-18 GHz. And from the results of measurements obtained for $VSWR \leq 2$ is the frequency vulnerable 2.2 - 15 GHz with a bandwidth of 12.8 GHz.. This is not a problem because the principle of work of the vertical disc monopole antenna is only as a receiver and this antenna is ultra wideband (UWB).

Key word: antenna *ultra wideband*, band radar, *software CST*, *bandwidth*, *return loss*, VSWR (Voltage Standing Wave Ratio), *gain*, radiation pattern, and matching impedance.