

ABSTRACT

The Very High Frequency (VHF) band has a frequency range of 30 Mhz - 300 Mhz in Indonesia used for radio communication systems such as shipping radio communication systems, military, and all radio communication systems without face to face. The use of wire antennas with frequencies in this range has a long physical antenna.

In this final project, the dipole wire antenna dimensions were shortened using the short dipole method by adding an inductor component on both dipole antenna arms because when the antenna dimensions are shorter than their normal size it will cause inductive reactance and feedpoint impedance so that it takes the inductor to replace the missing magnetic field when the antenna dimensions are reduced. This antenna works at a frequency of 100 MHz which has a total length of 1.43 m to be shorter by paying attention to antenna characteristics such as VSWR, gain, and polar radiation, and keep working at a frequency of 100 MHz.

Normal dipole simulation results using NEC4WIN95VM software obtained results VSWR 1.424, gain 2.12 dBi, omnidirectional polar radiation when observed vertically and a total length of 1.43 m. the simulation results of short dipole adding 2.5 uH inductor on both the antenna arms obtained VSWR 1.332 results, 1.94 dBi gain, omnidirectional polar radiation when observed vertically.

Dipole antenna fabrication results using the short dipole, VSWR 1.8850 , gain 1.9 dBi, antenna dimension length becomes 82 cm using an inductor component with a value of 2.5 uH on both dipole antenna arms and bidirectional polar radiation because at the time of measurement using rotator only rotates horizontally. To obtain vswr results the antenna direction position must be changed.

Keywords: *Short Dipole, Inductor, Gain, VSWR, Polaradiation*