

ABSTRACT

The Septagonal Omni directional Horizontal Antenna is an antenna that based on polygonal antenna, which is an antenna that has a lot of branch. Septagonal antenna consists of four branches, which is designed radially in order to get omni directional of radiation pattern. Each of the branches is based on the two wire cable with air dielectric. It uses $\lambda/4$ binomial transformator of matching impedance technique, with one level of matching. To make impedance transition between antenna and coaxial better, it is designed using the ferrite ring balun.

In this final project had been realized septagonal antenna which is appropriate with bandwidth specification reach up to 600 MHz at range 1900 - 2200 MHz frequency with limited by $VSWR \leq 1.5$ which can be used for mobile communication system such as : GSM 1800 and UMTS 2100. Expected gain is ≥ 6 dBi, omni directional of radiation pattern, and linear horizontal polarization.

From measurement test, have found that each of antenna parameter specifications is almost closes to the first specifications. In realizing this antenna, have reached bandwidth equal to 501,95 MHz at 2068,09 - 2570,04 MHz frequency with limited $SWR \leq 1.5$. While, gain equal to 14.93 dBi at 1900 MHz frequency, omni directional of radiation pattern, and ellipse polarization.