

## ABSTRACT

Antenna is defined as a transition structure between guided wave (transmission line) and unguided wave (free space) or between unguided wave (free space) and guided wave (transmission line). Also, antenna is defined as a matching impedance between characteristic impedance of propagation space and characteristic impedance of radio line, which have function to release the electromagnetic energy to free space and to receive the electromagnetic energy from free space.

At the end of this Final Task, it has been designed and realized an antenna array “Septagonal Binomial” which is formed of seven twin strips with the same size. The antenna is designed for UHF band frequency that is 300 MHz – 3000 MHz, in between maximally 1.5 of VSWR. In realization, antenna is designed for bidirectional radiation pattern using Binomial Array as the method.

From the result of measurement, it is concluded that frequency range is approached at 729.22 MHz – 2769.32 MHz in maximally 1.5 VSWR and it is a kind of wideband UHF antenna. The bidirectional radiation pattern is approached as the specification. Antenna impedance is nearly to  $50 \Omega$  that is  $48.97 < 17.96^0 \Omega$ , and the gain of antenna is 8.586 dBi. To widen the range frequency can be reached by matching the triangle feed on the first dielectric and between dielectrics there is no air particle. The creation of anechoic chamber should be considered and supported by IT Telkom for developing antenna

*Key words : Septagonal Binomial, twin strip, wideband UHF, SWR, bidirectional, Binomial Array.*