

## **ABSTRACT**

*Three elements-collinear-butterfly magnetic dipole antennas is wide band antenna. This is consisting of three elements butterfly magnetic dipole that made from copper. By using Babbinet-Booker principle, the dimensions of each element are established. Each element is connected to coaxial then that arrange collinear vertical by using pralon pipe. This antenna is designed using the ferrite ring balun to make the transition between antenna impedance and coaxial impedance smoothly.*

*In this final project had been realized three elements-collinear-butterfly magnetic dipole which have first specification; bandwidth reach up to 600MHz (27,3%) with range 1900MHz up to 2500MHz with limited VSWR  $\leq 1,5$ . It has omni directional radiation pattern, linear-horizontal polarization, terminal impedance 50  $\Omega$ , and gain  $\geq 6,2$ dBi. All the specifications will be tested and analyzed.*

*On the last phase of design and realization magnetic dipole, measurement test phase had found that are close to the first specifications. In realizing this antenna had found bandwidth equal to 1005,02 MHz (45, 32%) with range frequency 1715 MHz up to 2720, 02MHz with limited VSWR  $\leq 1,5$ . This antenna have omni directional radiation pattern, ellipse polarization, and gain 10,26 dBi at 1900 MHz, 11,12 dBi at 2200 MHz, 12,443 dBi at 2500 MHz.*