## ABSTRACT

The Omnidirectional Vertical Binomial Catursilang Antenna is an antenna that based on polygonal antenna, the polygonal antenna refers to an antenna that has a lot of branch. Here, it consist of four branchs, that is designed to radial structure, that's mean each top of branch is connected to a crossing pattern . Each of branch based on the two strand of metal channel with wood as the dielectric, that had been transformated into copper plate (PCB) to make the realization easier and nattier. The dimension of two copper plate channel is determined by using binomial  $\lambda/4$  tranformer commensurable technique. Where, that commensurable level just amounting to one level .This antenna is designed using the ferrit ring balun, to make the transition between antenna and coaxial impedance smoothly.

In this final project had been realized catursilang antenna which have first spesification; bandwidth reach up to 600 MHz at range  $2000 \pm 300$  MHz with limited VSWR  $\leq 1.5$ , which could be used for GSM 1800 and UMTS 2100 communication system. The expected gain is  $\geq 6.2$  dBi, it has omnidirectional radiation pattern and vertical-linear polarization.

From measurement test, found each antenna parameters specification that are close to the first spesification. In realizing this antenna, had found bandwidth equal to 1005,9 MHz at 1437,15 - 2443,05 MHz frequency with limited VSWR  $\leq$  1.5. While, gain equal to 7,73 dBi at 1700 MHz frequency, equal to 6,94 dBi at 2000 MHz frequency, equal to 7,93 dBi at 2300 MHz frequency. Radiation pattern from measurement test is close to omnidirectional characteristic and it's polarization in form of elippse.