

ABSTRACT

In the middle of the communications technology long distance by satellite, Telkom University along with Nanosatellite Laboratory are trying to develop a communication system satellite in low orbit called Tel-U SAT 1 with size satellite class nano (nanosatellite). For communication between space segment and ground segmentnya use TTC (Telemetry , Tracking , and Command) . TTC uses frequency UHF 437 MHz[1]. To be able to communicate so antenna absolute needed.

Besides TTC, as communication Tel-U SAT 1 bring a mission that is remote sensing (sensing a distance). To help this mission we need to a link bandwidth to send data who has been preceded by the sensors satellite. To reach goal of the mission of satellite required S-band transmitter. S-band transmitter uses frequency amateur radio in 2,35 GHz[1].

In this Final Project, deployable antenna designed for communication TTC and S-band transmitter in the satellite (space segment). An antenna used TTC is monopole, an antenna used S-band transmitter PIFA array, with the system deployable antenna at TTC.

After designed and realized, then obtained two monopole antennas have frequency at 437 MHz, VSWR 1,18 , Gain 3,82 dB , omnidirectional radiation pattern, elips polarization. While having PIFA array antenna has frequency at 2,35 GHz, VSWR 1,07, Gain 7,02 dB, unidirectional radiation pattern, LHCP polarization. Groundplane made of aluminum material with size 10x10x10 cm with thick 1 mm.

Keyword : nanosatellite, TTC, deployable antenna, monopole, PIFA array