ABSTRACT

Nanosatellite is a small satellite with the weight no more than 10 kg and has a specific function. Iinusat-1 (Indonesia Inter University Satellite) that is being developed by Telkom and six other institutions in orbit LEO orbit with an altitude of 700km. Each university working on a particular subsystem and IT TELKOM inherit the RSPL (Remote Sensing Payload). Transfer data to ground station is using frequency of 2.425 GHz.The ability to tracking, telemetry signal capture, send command signals and data reception from the satellite signal is something that should be done in the control of the operation of the earth station.It required the antenna as an electromagnetic wave receiver that will support the tracking system and receiving signals from satellites.

Antennas that has been made in this thesis is the parabolic reflector antenna with helical feed point which serves to receive the electromagnetic waves from satellite receptiondata.Parabolic antenna chosen because the distance between the satellite and the earth station is quite far (approximately 700km) so it takes a high gain antenna and helix used in order circularly polarized antenna. In the design of this antenna performed calculations with specific parameters and simulation using CST software.

The final results obtained in this final is the antenna VSWR <1.5 at 2.4-2.45 GHz frequency and bandwidth of the antenna becomes wider which is 700 MHz. Antena has circular polarization and antenna gain is 29.8 dBi.

Keywords: Parabolic Reflectors, Helical Antenna, Earth Station, Iinusat-1