ABSTRACT

Ground station can be defined as components that are built to complete of needed uplink and downlink in satellite communications. Ground station also can be divide into several function, one of them is ground station TTC (*Telemetry, Tracking, and Command*). To build a ground station required a quite expensive cost. One of the solution is to use SDR technology. SDR stand for *Software Defined Radio*, which has the definition of any physical device in the radio such as filters, mixer, modem can be implemented in software. In this final project, designed a prototype ground station in particular for nano satellite based on SDR.

GNU Radio is used for designing prototype ground station. GNU Radio is one of software that support implementation of SDR. For testing the design is divided into several skenarios as well as used text files and image for testing. The testing skenarios starts from loopback system, then testing SDR first skenario, and testing SDR second skenario. Also adding the mean opinion score by comparing original images and image received for several skenarios that have been mentioned to 15 people.

The test result show a decrease in the size of data whether text files or images in all skenarios that have been mentioned. The original text files size is 2.7kB while the received is 2230B. And the original image size is 11.5kB while the received is 1115B. The mean value of mean opinion score is 4, which means the image received in good quality. Measuring power also do in SDR Hardware. Spectrum analyser is using for measuring, and get -29.45dBm

Keywords : Ground station, SDR, GNU Radio