

ABSTRACT

Based on *CubeSat* standardization nano satellite is a type of satellite with a mass of 1 kg to 10 kg. The development of research and technology uses nano satellites as part of the mission of receiving automatic identification system (AIS) information signals in order to expand the range of the receiving signal. It takes a simple and inexpensive antenna in the use of AIS signals at VHF frequencies with *circular* polarization to meet space applications.

The *turnstile* type antenna has a suitable design to be applied to *CubeSat* as an antenna that can work at VHF frequencies, produce *circular* polarization and have a wide bandwidth. The use of the *deployment* system mechanism is also paired because the dimensions of the antenna are quite long beyond the small satellite structure, using N-Channel MOSFET transistor components, nichrome wire, nylon rope and other supporting components. The mechanism is carried out to stretch the antenna at a specified time after doing Remove Before Flight (RBF) by giving commands to the microcontroller to burn the strap using a wire for 2 seconds.

The results obtained in this final project a *turnstile* antenna AIS receiver signals at frequency of 159,4 MHz with a frequency range of 139,49 MHz – 166,23 MHz, omnidirectional radiation patterns, circular polarization, and gain of 3,52 dBi with a *deploy* mechanism.

Keywords: Nano Satellite, Automatic Identification System, *deployable* antenna, *Turnstile* antenna.