

ABSTRACT

Nano satellites are one of several satellite classes that have a *mass* of about 1 - 10 kg. The size of nano satellites generally refers to the standarization of *Cubesat* which is $(10 \times 10 \times 10) \text{cm}^3$. Nano satellites are widely developed for various purposes such as education, communication, space observation and military [1] [3]. Telkom University and the nano satellite laboratory are researching a nano satellite called Tel-U SAT. The nano satellite uses a frequency of 1090 MHz which functions as an *automatic dependent surveillance broadcast* (ADSB), and air traffic control as primary mission. So it requires an antenna that can work well at that frequency.

To get data from ADS-B, a number of devices are needed, consisting of computers, radio signal receivers, and antennas. The desired output is a prototype of the ADS-B signal receiving antenna on a nano natellite with a satellite size of $(10 \times 10 \times 10) \text{cm}^3$ which is used to obtain aircraft flight data, aircraft altitude, aircraft speed and aircraft identity.

The realization of this Final Project will get a microstrip antenna for nano satellites as a receiver of ADS-B signals. And the antenna has a *voltage standing wave ratio* (VSWR) ≤ 2 and the resutl of the measurement is 1,9 in frequency 1090 MHZ. Then get *unidirectional* as the radiation pattern and *right hand circular polarization* (RHCP) as the *polarization*, *gain* 1,02 dB from antenna test, 52 MHz *bandwidth* in work frequency 1068 – 1120 MHz.

Keywords : ADS-B, Gain, VSWR, Microstrip, RHCP