

## ABSTRACT

Automatic Dependent Surveillance-Broadcast (ADS-B) is an air traffic surveillance technology, the data consist of position information, altitude, speed and identity of the aircraft periodically transmitted from the aircraft to the ground station. Nanosatellite Laboratory of Telkom University developed Tel-USat 2, a 3U cubesat with the mission as ADS-B signal receiver, in purpose to expand the scope of its signal reception. An antenna is needed as an ADS-B signal receiver that works at center frequency of 1.090 MHz with circular polarization to maximize signal reception without having to adjust the orientation of the receiving antenna on the satellite, and has dimensional requirements that must be met in accordance with cubesat standards.

Microstrip antenna has small and thin dimensions and light mass, so, it is widely applied on satellites, especially nano satellites. One of the considerations in the design of microstrip antennas is the shape of the patch, because it has an effect on the parameters of the antenna, therefore it is necessary to choose the right patch type, so that, the results obtained are in accordance with the required specifications. In this study, a microstrip antenna was designed for ADS-B signal receiver on nano satellites using a rectangular truncated corner patch. Based on previous research, microstrip antennas with rectangular patches produce higher gain than circular patches. While the truncated corner technique is used to obtain circular polarization.

In this research, obtained a rectangular truncated corner microstrip antenna for ADS-B receiver on a nano satellite with center frequency of 1.090 MHz, Voltage Standing Wave Ratio (VSWR) = 1,15 with bandwidth of 11,5 MHz in the frequency range of 1.086 – 1.097,5 MHz, unidirectional radiation pattern, circular polarization with axial ratio = 2,89 dB, antenna gain = 4,22 dBi and able to receive ADS-B signals from aircrafts with furthest detected distances of 320,17 Km.

**Keywords :** *microstrip, truncated corner, ADS-B, nanosatellite.*