**ABSTRACT** 

This study aims to implement the ADS-B (Automatic Surveillance Based on

Broadcasting) receiver system and S-band transmitter on nanosatellites. ADS-B is an

automated aircraft surveillance technology that transmits flight information such as aircraft

position, speed, and identity. The ADS-B receiver system is designed to receive ADS-B signals

from aircraft as an air traffic monitoring system.

This research also covers the use of S-band transmitters in nanosatellites. The S-band

transmitter is used to transmit the ADS-B data received from the aircraft to the ground control

station. The implementation process includes selecting the appropriate components and

hardware, and proper system design and integration. The design method used in this study

includes modeling and testing. The tests that will be carried out in the operation of the ADS-B

receiver system and S-Band transmitter are expected to be successfully implemented on

nanosatellites.

This research should contribute to the development of nano-satellite technology that

can be used for efficient and effective air surveillance. The aim of the ADS-B receiver and S-

band transmitter system on nanosatellites is to improve flight safety and provide more accurate

information for air traffic control. Based on the tests that have been carried out, Comparison of

the ADS-B & S-Band testing that are integrated with amplifiers have farther receive & send

distances compared to ADS-B & S-Band boards that are not integrated with amplifiers. Based

on testing, the receiving distance of the ADS-B board which is integrated with the amplifier is

123.20 km. While the ADS - B board which is not integrated with the amplifier is obtained as

far as 71.59 km. And for an integrated S-Band board with an amplifier, the module can

communicate as far as 273.70 m. Meanwhile, the S-Band board which is not integrated with

the amplifier can only communicate as far as 120.21 m.

Keywords: ADS-B, S-Band, Nanosatellite

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