

ABSTRACT

Ships have mandatory safety equipment in the form of Automatic Identification System (AIS). AIS will send data in the form of the identity and location of the ship to the mainland so that the ship can be detected and not collide with each other. With Indonesia's ocean area reaching 64.97 %, many areas of the ship's path are difficult to monitor from land. From this problem, we need receiver AIS which can move flexible to reach areas that are not monitored from the mainland.

In this final project, an AIS receiver is designed which can be attached to CubeSat to expand the AIS reception range. The size and the weight of the AIS receiver is adjusted to the size limit of CubeSat whose smallest size is $10 \times 10 \times 10 \text{ cm}^3$ with the lightest weight of less than 1.33 Kg. The RFM26W module used as a signal processor that has been received by the antenna. In the management of the AIS receiving system and decoder AIS data using the arduino nano microcontroller. After designing the AIS receiver in this final project, it is hoped that it can improve the safety and security of ship by expanding the ship's AIS monitoring area.

The results of the design of the AIS receiver produce an AIS receiver that can work at frequencies of 161,975 MHz and 162,025 MHz with the ability to receive AIS signals Class A and Class B. The average power consumption value obtained is 192.57 mW. The results of the measurement of the area and mass of the AIS receiver were found to be 25 cm^2 and 29 g.

Keywords: AIS, CubeSat, *receiver*, ships, safety