

ABSTRACT

Indonesia is an archipelago with the development of air transport, which is highly prospective. Therefore, safety needs to be improved. There are at least three phases crucial to be aware of safety concerns, such as take-off phase, while in the air and landing. After World War II, has been emerging technologies that help pilots to make the landing of the aircraft, namely: Instrument Landing System (ILS). Now comes a new technology called the Microwave Landing System (MLS) as an extension of ILS.

Compared with ILS, MLS use our very own several advantages, such as higher levels of accuracy, and the use of high frequency, so that antenna size is much smaller. This has attracted the attention of writers to do the planning and realization of planar microstrip array antenna to antenna azimuth. Perancangan MLS final project was undertaken to obtain an external antenna with parameter VSWR <1.6, the frequency range of 5.03 to 5.091 GHz, beam elevation beam 200 azimuth 400 according to the specifications of the MLS.

The antenna is realized by using a substrate material FR-4 epoxy value ($\epsilon_r = 4.6$ F/m and $h = 1.6$ mm). Antenna works at the frequency of S-Band (5,03- 5,09GHz) that produce 1.032 VSWR, linear polarization, gain of 15.825 dBi and unidirectional radiation pattern to determine the direction or location of the received signal. And has dimensions of $(732.316 \times 144.434 \times 7.76$ mm) with effective bandwidth ≈ 60 MHz. With these specifications, the phased array antenna capable of working with both the performance of the Microwave Landing System (MLS).

Keywords: microwave frequency, microstrip antenna, MLS azimuth, planar array.