

ABSTRACT

Standard Antenna Measurement is a procedure that must be met so that an antenna is declared good and feasible to use. The basic characteristics of the antenna such as, vswr, return loss, gain, radiation pattern and polarization determine the feasibility of the antenna being tested. In addition to the antenna being tested, an anechoic chamber and reference antenna are also needed. Therefore, the reference antenna must have high performance (unidirectional transmit direction, high gain capacity, and wide bandwidth).

In this Final Project, a type of aperture antenna is designed with a double-ridge type rectangular waveguide waveguide that refers to the EIA (Electronic Industry Association) standard, with a square-shaped beam end for more optimal gain with a more directed beam. To widen the bandwidth ridge is used as the transmission structure between coaxial cables with double-ridged rectangular waveguide. In the process of applying the double-ridge horn antenna, it will be connected to the signal generator to be used as a reference antenna on other antenna measurements. The material used for antenna dimensions is aluminum and the material for connector dimensions is brass.

The simulation results of the double-ridged horn antenna design working at a frequency of 0.7-7 GHz has a return loss value ≤ 10 dB and the lowest return loss value is at 950 MHz frequency of -28.956 dB, bandwidth ≥ 6.3 GHz, unidirectional radiation pattern, gain ≥ 10 dBi and reaches its peak at 7 GHz frequency of 17.16 dBi, and linear polarization. The results of the realization and measurement of the double-ridged horn antenna can work at a frequency of 0.7-7 GHz with a return loss value of ≤ 10 dB and the lowest return loss value is at the 737.5 MHz frequency of -26,847 dB, gain ≥ 10 dBi and reaches its peak in frequency 5 GHz is 13.41 dBi, bandwidth ≥ 6.3 GHz, unidirectional radiation pattern, and elliptical polarization.

Keywords: standar antenna measurement, double-ridged horn, unidirectional.