

## ABSTRACT

Migration of television broadcasting from analog to digital television is one of the topics that be the focus of the government to be encouraged now. So with this condition, the need of devices that are reliable support of them is the antenna into components which contribute to the promotion of these governments. So, active antennas with small dimensions and a large gain is expected to support it.

In principle, with a single patch microstrip antenna having characteristics with narrow bandwidth. One technique to widen the bandwidth is by using an array technique. However, it is influential in a dimension that is becoming more beser many-fold. In this final, the techniques used to overcome these problems is to create a dual port, with one port used for termination and the other for the channel waves. While for a small gain, the problem solved by by plugging directly right the power amplifier after the element antenna. With these techniques, the antenna become more wide-bandwidth antenna and the antenna gain is also becoming better.

In this final, active microstrip antenna designed to operate at a frequency of 700 MHz and performance analysis of the implementation of the active antenna. The antenna is designed is expected to be implemented for the application of digital television services (Digital Video Broadcasting Terrestrial) in the channel 43-55 band UHF antenna with a VSWR specification of  $\leq 1.7$  at the desired operating frequency and gain at least 6dBi.

Parameters measured in this thesis include VSWR, Bandwidth, Gain, Polaradiasi, and Polarization of antenna. By comparing the results of design and measurements in the field, it still happens difference between simulation and measurement results directly. However, for the required specifications, antenna design results still meet the desired standards and specifications.

**Key words: Active Antenna, Amplifier, Microstrip**