

ABSTRACT

Globality digital TV is increasing, in Indonesia still using analog modulation as a television broadcasting system. In addition a UHF frequency is very limited, the problem in the analog television channels can only be occupied by only one TV station. When LPK (Community Broadcasting Station) the systems still use analog modulation, Tel-U TV (Television Community at Telkom University) will be difficult to get the ISR (Radio Frequency Spectrum Licenses). Because UHF frequency will be used for LTE technology future, therefore the government build a new regulation to switch to digital TV.

Digital TV is the solution to make efficient use of the UHF frequency band that is able to occupy 9 television channels in the bandwidth of 8 MHz. In this thesis will discuss the design and implementation of the manufacture HPA (High Power Amplifier) DVB-T2 standard. HPA is a block diagram of transmission on the RF (Radio Frequency) which serves as a signal amplifier. Regional cangkupan standard LPK is built around a radius of 2 km for analogue models and a radius of 20 km to a digital model. So with 5-50 watt power amplifier can reach koverage LPK area listed in Permen Kominfo 28.

The results of the design and implementation of the DVB-T2 standard HPA, can work at the frequency of 470-695Mhz. Input voltage that can be used on the HPA about (V_d : 40-70 Volts) depending on the power needs to be transmitted energy. Impedance of the device is around 45-50 Ohm measurement results, depending on the operating frequency. SWR / S11 with an average frequency of 470-695Mhz generate the measured 17 dB return loss, equivalent to 1.329 SWR. Average gain is dependent on the power amplifier input voltage tuning HPA (V_d), so that the gain resulting from the HPA can be up to 10-18 dB.

Keywords: T-U TV, High Power amplifiers, DVB-T2.