

ABSTRACT

The development of electronics and material technology in the last decades gives many breakthroughs on Information and Communication Technology development, one of them is Satellite Technology. The development of satellite nowadays can be miniaturized until 1 kg total mass. Nanosatellite is a class of satellite which has mass under 10 kgs and is being developed right now in Indonesia named IiNUSAT-1 that functions as educational and experimental facility.

IiNUSAT-1 has 2 missions, one of them is Emergency Communication which works at amateur radio frequency band (VHF and UHF). A UHF/VHF Transceiver is needed as a communication payload to receive and send message and TTC information to and from the earth station. UHF/VHF Transceiver will be designed with two channels, where one channel will be used to process the TTC signal and the other channel for emergency communication message. In this Bachelor Thesis, a Channelizer circuit will be designed to channelize the UHF/VHF Transceiver communication channel.

Channelizer circuit consists of components - components of the filter, mixer, oscillator, and a series R, L and C. This circuit serves to divide into 2 transceiver channels, each of which will be connected to the regenerative transceiver and transceiver transparent. For the purposes of implementation and integration of the UHF / VHF Transceiver designed the concept of impedance matching at each interface. Where the results of measurements of TTC filter (f1) are arranged with components Surface Mounted Device (SMD) is achieved by changing the frequency response shape of the design of 430.53 KHz, where the maximum amplitude at the level of -35.8 dB and to filter messages (f2) the maximum response obtained in 460.99 KHz frequency at the level of -11.44 dB. Return loss is -18.113 dB filter f1 f2 while the filter at the level of -28.791 dB. Results shows that different filter response occurred rather than the specification of the design.

Keywords : Channelizer, IiNUSAT-1, Filter, SMD