

ABSTRACT

Nowadays, the demands of higher data rate each year. Radio Over Fiber (ROF) and Fiber to the Home (FTTH) is a strong candidate in the access network. However, the high cost of network infrastructure to create two wireless and wired A network requires an integration of two networks that are distributed into a single infrastructure. Optical Access Network Integrating Hybrid Fiber-to-the-Home and Radio-Over-Fiber System, a solution to these problems because it is distributed on a single infrastructure.

This research will use simultaneous modulation and transmission of signals ON-OFF-keying (OOK) broadband (BB) 1.25 Gb / s and OOK signal of Radio Frequency (RF) 20-GHz, 622 Mb / s using one of the modulator external integrated. The signals will be passed by the transmission medium Standard Single Mode Fiber (SSMF) has a range of sources to the receiver as far 50Km. BB signal and RF signal to be modulated and transmitted on each carrier and subcarrier.

The analysis will be done in this thesis is the value of Power Link Budget, Rise Time Budget, Signal to Noise Ratio (SNR), Bit Error Rate (BER). The analysis is carried out by means of study literatur terleih further advance data collection on actual field conditions.

Outputs obtained which proved that the networks have been implemented have been feasible to meet the standards set by the network of PT. Telkom with BER value that is equal to 5.8672×10^{-34} , Power Link Budget worth - 19.563 dB, Rise Time Budget worth 0.0202965 ns, SNR worth 32.2530 dB. The final project is also expected after research can provide recommendations for improving the quality of the network on a fiber-optic link in Indonesia.

Keywords: PowerLink Budget, Rise Time Budget, SNR, BER