

## ABSTRACT

The implementation of *Powerline Communication* (PLC) is not a new technology. PLC is a communication system using electricity distribution cables so that the electricity network in addition to functioning as a source of electricity is also a medium of communication. One of the ways to communicate data between the devices is using a Powerline Adapter (PLA). In one power outlet, there will be several devices that are connected or can be interpreted with Orthogonal Frequency Division Multiplexing (OFDM) multicarrier modulation technique, where the subcarriers overlap but are orthogonal to each other which can cause noise.

This final project uses a Broadband *Powerline Communication* (BPLC) network using the TP-LINK brand AV600 Powerline Adapter where the room dimension is  $5 \times 5 \times 3 \text{m}^3$  by testing data in the form of downloads, uploads, and streaming videos. The purpose of this research is to find out the performance of the powerline adapter on the PLC channel.

The results can be concluded that the throughput value at 18:00 WIB by 3,18 Mbps and the smallest at 23:00 WIB by 1,47 Mbps. Then we get the biggest total delay 1,004 seconds at 21:00 WIB and the smallest delay is at 12:00 WIB which is 0,18 seconds. However, several factors affect the throughput value, such as the state of electricity where all the lights, computers, AC are on or not in use depending on the peak hours of electricity usage. When the device - the device that uses the power is on will give considerable influence either of the delays. So, sometimes the change in delay results doesn't look that significant.

**Keywords:** *Powerline Communication (PLC), Powerline Adapter, QoS, BER, SNR*