

ABSTRACT

The Optical Fiber Communication System uses an optical cable as a signal transmission medium from the transmitter to the receiver in the form of light. SKSO is used primarily to improve the ease in obtaining information operational system power grid. Substation (GI) as one component of power grid is monitored and controlled through Supervisory Control And Data Acquisition (SCADA) system centered in Distribution Control Center (DCC) through fiber optic transmission media. Presence of intermittent between graphical screens in SCADA under real-time device conditions in GI causes delayed alarm status. Based on calculating and simulations show the performance of SKSO in PT. PLN (Persero) DCC Purwokerto generally quite good, with 99,97% availability, power receive real condition 6,92dB or Better 4,4dB compared to simulation and 0,2dB difference from theoretical calculations. However, the reliability is bad, worth of MTBF 104hours/732uptime or 0,011872 / year. The intermittent that occur along the GI-DCC link are not causes by the poor optical fiber transmission system but are indicated by reliability parameter. This is reinforced by simulation measurement result that have the ITU-T G957 standard with BER gain reaching $8,25 \times 10^{-44}$ and 13,81 for Q-factor. There is a decrease in received bandwidth obtained by 25% of the total bandwidth that should be received due to the amount of rise time budget.

Keywords: Fiber Optic, SCADA

