ABSTRACT

In this modern age, electricity needs are increasing with the growth of the population. To supply demand electricity for people, PLN establish an electrical substation in the strategic area. But the location of the electrical substation of PLN is too far away from the house, office, and factory. Because of this, to know the condition of the electrical substation and know if there is a problem is too difficult and it will be known after there is an error or blackout.

So to know of this things, need a system that can monitoring of voltage, current, power, phase, and temperature to solve that troubles. Monitoring System that be built, must be can to monitoring the source of that trouble so well. The next trouble is how to communicate from one electrical substation with the other and with the server. One of the solution is to make a device that can transmit data from the Power Line, it called Power Line Communication.

In this final task, monitoring system using TDD (Time Division Duplexing). With this method, every electrical substation that monitored will transmit data in the same frequency that appropriate with the CENELEC-B standar and be distinguished with time. In the testing, the data that transmitted from transmitter 1 to receiver have success rate 78% and from transmitter 2 to receiver have success rate 66%.

Keyword: PLC, TDD, monitoring system, current, voltage, power, temperature.