

## ABSTRACT

Implementation of dual homing and dual route system aims to save the use of frequency at Node B and STO, and can accelerate the process of data transmission.

One solution for telkomsel provider can make cost saving and no longer buy the frequency by changing the network system with optical communication system. In dual homing network design system and dual route, one node b used is node b owned by telkomsel which is in complex kiara asri street. kiara asri raya RT.06.RW.02. After determining the node b used to design dual homing networking system, then to determine the STO used to design dual route network. In design of dual route network system, STO used is located at Ciwastra road no.245, Margasari, Buah Batu, Bandung, West Java. Next determine the coordinate point on Node B and STO to be made dual homing network system and dual route.

Based on the design and testing of network systems made obtained value on dual homing network for power link upstream budget cijawura of -19.77015 dB and power link budget downlink cijawura of -20,0116 dB and upstream power link budget upstream and downlink -19, 34565 dB and -19,5276 dB with a throughput of 27 Mbps, delay of 240 ms. and packet loss of 0 While on the dual route network obtained the value of power link budget downlink cijawura of -20,0116 dB and power link budget upstream cijawura of -19.77015 dB as well as upstream power link budget and downlink turangga of -19.15445 dB and -19.786 dB with throughput of 2 Mbps, delay of 64 ms, and packet loss of 0.

**Keywords:** STO, Node B, Dual Homing, Dual Route, Power Link Budget.