

ABSTRACT

Improving service for containing customers needs through effective performance, Telkomsel Corporate making change the transmission media from microwave link to FO access network over with project modernization fiber (FIMO) that works with Telkom Corp.

In this final assignment, the author conducted a research to relate about upgrading packet loss of Telkomsel Corporate's BTS in Perum Manglayang. This research begins by determining the location with heavy traffic and the use of devices that are not possible to meet the needs then carried out fiber modernization (FIMO). The author also make a simulation for knowing advisability of the transmission media applied. The advisability of system is analyzed by parameter of Link Power Budget and Rise Time Budget, meanwhile for performance of system is analyzed by using parameter of Signal to Noise Ratio (SNR) and Bit Error Rate.

The result of analysis for payload downlink data after FIMO increased to 101.79 Gbps in 3G and 197.46 Gbps in 4G. In the other side of uplink increased to 14.41 Gbps in 3G and 14.78 Gbps in 4G. The result of throughput downlink data after FIMO increased to 1848.56 Kbps in 3G and 13.76 Mbps in 4G. In the other side of uplink increased to 63.25 Kbps in 3G and 1.72 Mbps in 4G. decrease the average value of delay in the data packet delivery size is 1.75 ms. Whereas, value of packet loss decreased to 0% or in the other hand no packet loss will be dropped. The device analysis of the delivery capability measurement result of the number of packet in a device size is 8000 packet in 3G and 4G. For the result of simulation, the downlink value is produced by $P_r = -19.1476$ dBm, rise time 0.2514 ns, value of SRN 32,008 dB with BER $1,30663542 \times 10^{-88}$ for uplink $p_r = -5,352$ dBm, rise time 0.25002 ns, for value of SNR 58.51407 dB with value of BER is 0. This result shows that link meet the suitable of standard recommended by ITU-T that is on the limited of P_r size is $[-28;-8]$ dBm, the limited of SNR by Telkomsel Corporate is 21.5 dB and the standard value of BER for link optic maximum is 10^{-6} [1].

Key words : *Fiber To The Tower (FTTT)*, *Fiber modernization (FIMO)*, *packet loss*