

ABSTRACT

Long Term Evolution (LTE) is a technology based on Internet Protocol (IP) which support higher transfer of data packets than previous technologies in HSDPA release 5, although the user work at high speed. This technology will be able to meet the needs of user data communications continues to increase in recent years. Increased user needs high data rate will have an impact on the growing needs of the network in order to deliver the entire data traffic of eNodeB source to user (access) or eNodeB to the core network (backhaul).

Microwave Minilink device is one of solution that can be used to deliver data from eNodeB to core network (backhaul) with a high capacity up to 1 Gbps. On the results of this research, backhaul is designed with Minilink TN that generates total value of network throughput as 7.38 Gbps, at access network the result obtain at Mandalajati : 5 sites, Cidadap : 5 sites, and Sukasari : 8 sites. On the backhaul network planning 1st scenario obtained free space loss average is 121.47 dB in output frequency is 6 Ghz and in 1,2 kilometers distance, the average signal level is -64 dBm, average fading margin 30.79 dB, requires 4 hops and 64 backhaul minilink. While in 2nd scenario obtained average free space loss 119.08 dB in output frequency is 6 Ghz and in 1 kilometers distance, the average signal level is -64 dBm, average fading margin 27.24 dB, requires 4 hops and 34 minilink backhauls.

The results from 1st scenario has more track, so the possibility which package failed to send is fewer, as it have many alternative paths or backup. And handover is more effective because the traffic lane past through X2 interface which don't past to MME. As for the second scenario has a lower average free space loss, so that the power supplied is not much missing. And fading margin has a small value so it have smaller fading. Therefore the backhaul network design in this thesis selected the first scenario. This is because technically eNodeB should be interconnected so that handover happen more effectively.

Keyword : LTE, minilink TN, C/(I+N), hop, throughput, star, mesh