

ABSTRACT

High speed data services is predict for the next few years will be needed throughout Indonesia, including in the waterway vessels. At this time, mobile subscribers who are on a ship crossing the Sunda Strait are rarely to perform high-speed data connection. In fact, for the next few years can be predict there is an increasing demand of high-speed data services by mobile service users.

This thesis discussed about LTE 900 MHz planning in the Sunda Strait waterway with the reference to a KPI standard from vendor with RSRP value ≥ -110 dBm, downlink throughput ≥ 1 Mbps and uplink throughput ≥ 128 Kbps higher than 90% in the planning area. In addition, it also be analyze backhaul Wi-Fi 802.11n link planning between the existing site with a new site that is located on a small island to conduct LTE planning in the Sunda Strait. Backhaul Wi-Fi 802.11n has been chosen due to operate on unlicensed frequency. The desired performance in backhaul planning is to reach received power of ≥ -76.44 dBm and availability $\geq 99.99\%$.

Based on the calculation and simulation, LTE planning in Sunda Strait waterway requires 6 cell to serve the area. The simulation obtained the value of RSRP ≥ -110 dBm by 100%, downlink throughput ≥ 1 Mbps by 100% and uplink throughput ≥ 1 Mbps amounted to 92.96% in the area of planning so that fulfill KPI from vendor. While backhaul planning, has been obtained that 4 links have receive power > -76.44 dBm, so that all links can use backhaul Wi-Fi 802.11n. However there is one link which is has too small margin on its acceptance, so as the performance only reached 99.965% availability.

Keywords: Backhaul, Wi-Fi 802.11n, LTE