ABSTRACT

LTE services networks as frontest infrastructure at giving various telecomunications services, has difference network quality for indoor areas and outdoor, where network quality indoor less good because of many loss / attenuation caused by building materials, and also the number of users in urban areas which located at indoor area are more dominant than outdoor. A planning Indoor Building Coverage (IBC) is required, that could be apply on vital public building or visited often by a lot of people, so that the LTE users network have maximum service quality although users are located at indoor area.

On this IBC planning, to knowing the existing condition at that indoor area could be done by walktest using TEMS Investigation software. Then to get the amount of site needed in the indoor area by calculating capacity planning and coverage planning side first. This calculation using COST-231 Multiwall model propagation. This IBC planning using Passive DAS as antena distribution system. The amount site that has been obtained from calculation planning results simulated using RPS 5.4 software, for getting result of parameter value Signal Interference Ratio (SIR) and *Received Signal Strength Indication* (RSSI).

This final project planning of IBC LTE network at Hang Nadim Airport, has result of sites that have been calculated based on capacity planning are 6 sites, 3 sites for the ground floor and 3 sites for the first floor, and coverage planning are 8 sites, 4 sites for the ground floor and 4 sites for the 1st floor. Through the simulation, the RSRP values obtained for ground floor, first floor, and second floor are combined with -82.33dBm, -75.81dBm, and -74.49dBm values. For SIR values obtained for the ground floor, 2nd, and both floors are combined 23.79dB,22.66dB, and 12.07dB. By comparing the LTE Key Performance Indicator (KPI) standard indoor planning of the operator with the simulation results obtained, indicating that the planning has met the operator standard.

Keywords: *Indoor Building Coverage* (IBC) LTE , *capacity planning, coverage planning, Signal Interference Ratio* (SIR), *Received Signal Level* (RSL)