ABSTRACT

Gelora Bung Karno Main Stadium (SUGBK) is an international standard multipurpose stadium and is often used as a place for national and international sporting events, one of which is football. The capacity from the number of seats, SUGBK can accommodate as many as 78.000 people. Beside used for soccer games, SUGBK has also been used for major day animation events, political party campaigns, and music concerts. Due to the number of events that can be performed in SUGBK with a large audience capacity and the structure of the building which reduces the signal power from the outdoor site, it is necessary to do network planning in the building to provide a good service from current technological capabilities.

In this final project, it will be discussed about network planning of LTE (Long Term Evolution) picocell at Bung Karno Main Stadium (SUGBK). Before doing the network planning, walktest will be done with several parameters such as RSRP and SIR. After that, calculation from capacity and coverage dimensioning will be done and the result is the number of picocells. For good accuracy in signal propagation calculation COST-231 Multiwall propagation model is used. The number of picocells will be simulated in RPS 5.4 and analyze the performance of RSRP and SIR.

In result of planning, the average of RSRP for entire area in scenario 1 -74,10 dBm and scenario 2 that is equal to -74,08 dBm. About the SIR parameter for entire area in scenario 1 is 19,04 dB and scenario 2 that is equal to 21,49 dB. By using the reference operator KPI that is for RSRP parameters should be> -90 dBm (90% area) and SIR parameter must be> 0 dB (90% area) then the simulation result for RSRP & SIR parameters in scenario 1 and 2 reached the KPI target.

Keywords: LTE, *Coverage Planning, Capacity Planning*