ABSTRACT

This thesis provides analyisis on coverage planning service of indoor repeater 4G in Harris Hotel Ciumbuleuit, Bandung. There are no indoor cellular building coverage in Harris Hotel. Indoor repeater can be the solution for this problem.

Propagation method that will be used is COST 231 Multiwall and Indoor Path Loss 5 GHz because it is suitable with the condition and system specification to be investigated. This research considers many parameters,i.e.,wall thick, transmit power, receive power, frequency and wall height. With the parameters, planning is performed base on coverage and capacity. 2 scenarios are considered with 2 types of repeater. Wireline repeater is for scenario 1, while wireless repeater for scenario 2. Scenario 2 consists of mathematic calculation and simulation Radiowave Propagation Simulator (RPS). Simulation based on RPS for knowing power spread and signal quality from indoor repeater considering Receive Signal Level (RSL) and Signal-to-Interference Ratio (SIR) parameters. Base on simulation result, comparison of two types repeater is provided.

The results of capacity planning shows 380.862 Mbps for downlink capacity and 44.890 Mbps for uplink capacity.The result of coverage planning shows 4 access point for planning area. Performance of wireline repeater is 93.96% service coverage with RSL >-90 dBm. 94.86% service coverage with SIR > 5 dB. Performance of wireless repeater by mathematic calculation is 91.49% service coverage with RSL >-90 dBm. 94.87% service coverage with SIR > 5 dB. Performance of wireless repeater by simulation RPS 5.4 is 92.68% service coverage with RSL >-90 dBm. 94.81% service coverage with SIR > 5 dB. Based on results, best performance service coverage with RSL > -90 dBm is obtained with wireline repeater. Best performance service coverage with SIR > 5 dB is obtained with wireless repeater by mathematic calculation.

Key words: *Walk Test*, COST 231 *Multiwall, Power Link Budget, Repeater*