ABSTRACT

Argo Parahyangan is one of the train services with travel routes of Jakarta-Bandung which its travel velocity is about 60-100 km/hours. That velocity is often becoming a major problem for internet users on board. The mobility of Users on board affects the LTE reception because it could interfere with the handover process. This problem has occurred before on Padalarang-Kasugihan Train Service at Kecamatan Andir Jalan Ciroyom. Based on the results of Initial Drive Test in Padalarang-Kasugihan train using operator 3, pong-ping handover occurred on that area which caused the parameter of score categorized as Bad. Ping-pong handover that occurs in the bad spot area can be seen from the recurring PCI value of the reporting results, the occurrence of ping-pong handover is related to the success of the cell relation handover parameter and the handover attempt.

In this project, optimizations will be implemented with the scenario physical tuning and macrocell planing im Padalarang-Kasugihan Train Rail at Kecamatan Andir Jalan Ciroyom to increase LTE Network. Physical tuning optimization will be conducted with Software U2020 to observe the parameters of Handover Succes Rate and Timing Advanced. Meanwhile the macrocell planing will use Software Atoll 3.3 to observe the parameters of RSRP, SINR, and throughput.

The results of the optimization simulation and planing based on the scenarios that have been determined in this final project are the increase in the average RSRP value 19%, SINR 90% and throughput 17%. And also to create the HOSR score up to 100% in consequence of enhancing the quality and capacity of LTE service in Train Rail of Padalarang-Kasugihan Route.

Keywords: *Optimation, physical tunning, macrocell,* LTE, RSRP, SINR, *throughput,* HOSR, TA.