

ABSTRACT

Internet connection on executive trains hard to do. This is because there is no network that can support internet services on high-speed transport such as trains. Speed train moving at a speed of 350 km/h and the influence of Doppler effect on the speed of the trains makes the network performance on the trains become unstable. In previous studies have been conducted Coverage And Capacity planning Network Long Term Evolution (LTE) along the railway line Jakarta – Bandung. With the LTE technology that supports high-speed data access, macro cells along the railway line can support Internet connections on passenger trains with good performance.

Planning WiFi coverage area of passenger carriage is made to create an internet connection on passenger carriage during the train trip. Planning is done by planning LTE network coverage and capacity along the railway line along the Jakarta - Bandung which has been done in previous studies. On passenger Carriage device installed the Outdoor Antenna WiFi, USB modem 3G/4G and Wireless Router on each carriage which is connected to the core network through the eNodeB. Calculation of capacity planning and coverage planning is done by calculating the bandwidth per user, offered bit quantity and link budget. Propagation model used is COST 231 Multiwall with simulations using software RPS (Radiowave Propagation Simulator).

From the results of the calculation, the number of access points 2 results. In simulations using one access point obtained the best results with 95% of the area covered by the received signal level above -72 dBm and the simulation results using a second access point indicates the area covered by the 98 % received signal above -72 dBm. In simulations using two access points necessary to channel allocation to reduce interference on the train carriage.

Keywords : Coverage area WiFi, COST 231 Multiwall, Radiowave Propagation Simulator, Received Signal Level.