

ABSTRACT

Long Term Evolution (LTE) wireless telecommunications technology is a 4th generation as the successor to the 3G network based on Internet Protocol (IP) as well as support the transfer of data packets at a high rate is 100Mbps downlink and uplink up to 50 Mbps . In the planning of LTE is more optimal in terms of coverage and capacity planning using Multi - RAT (Radio Access Technology) which takes into account the different existing networks previously in the area as an example of 3G UMTS networks . So it is more optimal in terms of coverage and capacity because it is served by two different technologies are 3G UMTS and 4G LTE .

Planning LTE network in the 1800 MHz frequency in the downtown area of Central Jakarta, with an area of 46.23 km² is done by the conventional method of coverage and capacity in terms of radio access and taking into account the values of the parameters in the planning of non LTE Multi-RAT and Multi-RAT (LTE-UMTS) using the existing site in Central Jakarta area by one operator in Indonesia. In doing this using the LTE network planning software 3.2.1 of Forsk Atoll. Planning LTE network uses a bandwidth of 20 MHz and 2x2 mimo antenna so it will affect management interference with greater capacity.

The results of the analysis conducted in this thesis is the comparison between the Multi-RAT and non LTE Multi-RAT. With parameters that include RSRP, $C / (I + N)$ and throughput. The results of the first scenario with planning Multi-RAT produce RSRP with the average value of -91.06 dBm, $C / (I + N)$ with an average value of 8.54 dB and throughput generated 32.022 kbps. As for the second scenario planning non LTE Multi-RAT produce RSRP with an average value of 91.16 dBm, $C / (I + N)$ with an average value of 8.48 dB and throughput generated 31.781 kbps.

Keywords: Multi-RAT, LTE, UMTS, throughput, RSRP and $C / (I + N)$.