

ABSTRACT

Required of speed data access in urban areas increased and increasingly sophisticated gadgets that make the gadget is not comparable to the speed for now. 4th generation technology offers efficiency and high-speed data access that technology is Long Term Evolution (LTE). At the time of planning LTE network operators must also be analyzed in terms of MIMO antennas, especially in the area of Jakarta.

In this final project planning LTE network using MIMO antenna 2x2 at frequency of 900 MHz, using MIMO antenna 4x4 at frequency 1800 MHz and 8x8 at a frequency of 2600 MHz with PCI planning. Furthermore, looking for data on population and traffic at area of Jakarta, then with the conventional method of capacity and coverage in terms of radio access are supported by standard manufacturing telecommunications equipment. Once the planning is based on neighbor relations and physical identity. Physical Cell Identity on LTE technology is a way to identify the physical cell.

The simulation in this thesis use planning and optimization software uses Atoll version 3.2.1. With the PCI, especially in the area of the city it can be determined MIMO antennas with frequencies before and after the allocation of the PCI which proved the most good frequency is at a frequency of 2600 MHz with MIMO antenna 8x8 on the side of CINR by 6.12 dB with PCI, while without PCI for 5,95 dB, and then on the throughput of the PCI 30 734 kbps and 29 623 kbps without PCI. The use of PCI does not significantly affect the signal level at which the frequency of the most excellent of frequency is at 900 MHz using MIMO antenna 2x2 an area of 644 km² by 70 dB.

Keywords: Long Term Evolution, fading, capacity, coverage, Physical Cell Identity