ABSTRACT

Improved high-speed data access traffic is increasing every year , especially for mobile access, so Long Term Evolution (LTE) is emerging as a broadband technology that offers high data rates of which can achieve 100 Mbps for downlink, while 50 Mbps for uplink . LTE uses varies bandwidth 1.4, 3, 5, 10, 15, and 20MHz and using modulation techniques QPSK, 16QAM and 64 QAM. The high data access is also increasing with increasing number of customers in an area. So that the optimal network planning is needed to be able to serve the needs of the traffic .

LTE FDD network planning at 700 MHz with case study conducted in 4 types , namely for dense urban areas in Jakarta , Gianyar Bali as urban , sub - urban in Demak, Central Java , and for rural areas in Central Sulawesi . Planning is based on the conventional method in terms of coverage and capacity radio access . Then do the planning based on neighbor relations, and physical cell identity (PCI). PCI has almost the same functionality as the scrambling code for the downlink direction on WCDMA technology. PCI is one parameter with a value between 0 and 503 are used to provide the identity of each transmitter to send information to each user in a particular cell. So users in other cells did not interfere because the information in the cell is given a different PCI code . In co - PCI planned reuse at least 4 times the radius of the cell must be in a state of review for free collision and confusion free .

The parameters in this final task is done according to standard telecom vendor Huawei. Allocation of PCI should be performed in LTE to identify a cell . Simulation using software planning and optimization Atoll from forsk and the average cost for a review of 100 km^2 area in dense urban 0.1356, urban 0.1258, suburban 0.0789, and 0.0331 in the rural areas . It is directly proportional to the number of cells that planned cost / load system. With the PCI, especially in dense urban areas , namely potential by comparing before and after PCI allocation, it can reduce the interference level BLER shown a decrease of 9.876% , and then decreases as the SINR interference increased by 24.70%, so the average user throughput is achieved increased 17.49 % from 440.648 kbps.becoming 517.745 kbps.

Keywords : Planning LTE, coverage, capacity, neighbor relations, Physical Cell Identity, cost PCI, BLER, SINR, throughput.