

ABSTRACT

Long term evolution is a 4th generation wireless technology as a successor of its predecessor the third generation that supports ip based that allows the transfer of packet data with higher rate. LTE RELEASE 8 came as a broadband technology which offers high data rate in the downlink up to 100mbps. While the uplink is up to 50mbps with 20mhz for bandwidth. LTE use various bandwidth which are 1,,4,3,5,10,15 and 20 mhz and using QPS,16QAM and 64 QAM as the modulation technique. This technology can will satisfied users for packet data communication that increased in demand this past years.

This LTE network planning on 1800mhz in bandung city in 3270.89 km² area is done by konvensional method which is based on coverage criteria and capacity criteria fro radio access perspective that calculates the interference of inter-RAT UMTS release 5 existing site that happen based on one of the operators in Indonesia. This lte network planning is using a bandwidth as wide as 20mhz and a mimo 2x2 antenna mimo. It is expected with this scenario that the user data rate and capacity will increase.

Paramaters that will be analyzed in this final project is the number of sites,RSRP,CINR,BLER and connected user percentage based on simulation using mimo 2x2 and 20mhz bandwidth with a software. This research aiming to design a LTE multi-RAT in sukajadi sub, buah batu sub, and bojongloa kaler sub. From the calculation result of link budget, an uplink and downlink shown in sub urban of sukajadi sub, uplink result is 0.464km and downlink is 0.661 km, while the buah batu sub uplink is 0.380km and downlink got a 0.540km results. And then in the dense urban bojongloa kaler sub resulting an uplink of 0.380km with downlink of 0.540km. from sub urban designing scheme, urban and dense urban resulting a number of sites and cells differently. In sub urban sukajadi sub have 2 sies and 6 cells, and then in urban sub of buah batu have 4 sites and 12 cells, and then in the dense urban bojongloa kaler sub have 3 sites with 9 cells and sites. As for sukajadi sub needs atleast 2, resulting an average of rsrp level of -94.42 dbm, resulting an average of CINR of 4.81 db, BLER of 0.03 and 98,4 user connected percentage. While the buah batu site takes 4, with rsrp level of -76.7dbm resulting CINR average of 3.46 db, resulting an average of BLER of 0.03 and user connected percentage of 98,7 % and in bojongloa keler it takes 3 sites with RSRP level of -75.72 dbm, and CINR 3.46 db. BLER of 0.04 and average percentage of 99%. Above parameters shows that the mimo 2x2 plan is worth doing for provides in indonesia

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