

ABSTRACT

This time in region headquarters KOPASSUS Situ Lembang Bandung only there are services voice and SMS but there's problem like drop call and there's no service like packet data internet. Currently the solution that has been done to capture the signal from GSM BTS Cisarua then reaffirmed by using repeaters on tower PERTAMINA. From the results of the drive test was done after the installation of repeaters obtained RxLev 87 dBm become -83,79 dBm and RxQual 0.88 dB become 0,79 dB. The only solution to solve the problems of voice and SMS but for Internet data access solutions do not exist.

In this study, will perform design analysis design data access included microwave link backhaul, coverage and capacity planning for network UMTS using four scenario. will then be simulated with software microwave link dan software UMTS network.

From the calculation of capacity planning to produce three sites and From the calculation of coverage planning to produce one sites. From the results of the scenarios, the two best scenarios are scenario two and four. This occurs because, scenario II generate value RSCP ≥ -92 db approach 35.4 %, Ec/No ≥ -12 dB approach 79.5 %, and Throughput ≥ 5 Mbps approach 51.6 %. So for scenario IV generate value RSCP -110 dB - -102 dB approach 73.6 %, Ec/No -15 dB - -12 dB approach 21.4 % and Throughput 2 Mbps – 3 Mbps approach 7.2 %. From two the best scenario, scenario II is the most recommended because value Ec/No, RSCP and Throughput is greater than scenario IV. Will then for microwave link planning using frequency 15 GHz with capacity 6.14 Mbps, so from that device was ERICSSON ML-15-HP-4E1, with specification of antenna gain in dBi 36.70 dBi, capacity of 8.44 Mbps and receive power of -47.03 dBm to fulfill the desired capacity. Base on the simulation using software PATHLOSS 5.0, available of every link reach 99.99 %. This is caused by the power level received for each link is greater than the minimum power level of the device of -85dBm.

Keywords: Microwave Link, Coverage Planning, Capacity Planning, Drop Call