

ABSTRACTION

Telecommunication technology now is developing from 2G (GSM) to 3G UMTS. PT. Telkomsel is one of GSM operators in Indonesia was applied 3G UMTS technology in Jawa Barat region. The aim is giving the new services with high speed data access to user.

Measurement of air interface performance is used to know the network performances of 3G UMTS between Node B and UE. This is based on technical data from PT. Telkomsel Regional Jawa Barat. In this final project, the methode to analyze the air interface performance is making the simulation of receive signal level and SIR by software RPS 5.3. Node B position in simulation is based on Google Earth`s Map.

This simulation is used to simulate of receive signal level and SIR from user in coverage area of Node B. The result simulation must be agree with KPI`s standard of 3G UMTS network`s PT. Telkomsel Regional Jawa Barat, that is ≥ -92 dBm and ≥ -12 dB. If the value of receive signal level < -92 dBm and SIR < -12 dB, then they need a network optimization. There are two method of optimization, increasing the transmit power of Node B and down tilting antenna Node B.

As a sample of optimization is case study in Node B Gatsu Laswi and Tsel Office with bit rate 64 kbps CS. Before optimization, 2,03 % of receive signal level with poor quality, there are about -99,69 dBm s/d -92,60 dBm. Nevertheless, after optimization with increasing the transmit power both of two Node B and down tilting antenna Node B with increasing the transmit power, there are 0,78 % and 0,31 % of receive signal level with poor quality, there are about -95,69 dBm s/d -93,59 dBm and -94,77 dBm s/d -92,45 dBm.

Key Words : 3G UMTS, Air Performance Interface, RPS 5.3, Google Earth, Downtilting Antenna.