

## ABSTRACT

GPRS (General Packet Radio Service) is a data transmission system based on packet switched at GSM system. One of the advantage of the packet switched is the very efficient using of radio resource at the air link with using a multiplexing some user at the burst traffic pattern (especially when done some access to WWW page), where can't done at the GSM circuit switched. The maximum throughput in this GPRS system can be 171,2Kbit/s, more bigger than GSM throughput with it's circuit switched that just 9,6Kbit/s.

In this final assignment has done some research to the parameter of GPRS network performance especially delay and throughput at RLC/MAC layer. The measurement has done in Tongging North Sumatera at Indosat GPRS network, with two measurement scenario, are: in the area around BTS (assumed LOS) and in the area that there many people around (assumed there will be many interference cause by another user around). This measurement has done using TEMS Investigation GSM 4.1, that will be done at three point in the each of area sector of measurement scenario. Then, with the same parameters that used in the measurement, some theoretical calculations will done to each GPRS coding scheme. At this final assignment, using data from direct measurement result 50%, on Test Bed Setup, and the other 50% using secondary data, on Live Network Test.

Average mean throughput that found during measurement, Test Bed Setup 35,3Kbit/s and Live Network Test 26,3Kbit/s, compare to the calculation result Test Bed Setup is 42,88Kbit/s and Live Network Test is 49Kbit/s. The average transmission delay of measurement for Test Bed Setup is 21,09s and Live Network Test is 42,9s. And the calculation result for Test Bed Setup is 4,05s and Live Network Test is 5,97s. The different between the measurement result and the calculation result can be cause by the coding scheme usage during the transmission, the worst radio link or another unpredictable condition.

Key Words : GPRS, Throughput, Delay, RLC/MAC layer