

ABSTRACT

As data exchange technology, WiMAX are evolution from Wi-Fi technology. In theory, WiMAX capable to reach area with R equal to 8 km with maximum transfer rate about 75 Mbps. It is will happen with frequency management.

In fact, this technology are capable to reach area with R about ± 2 km. It is happened because frequency chosen and environment condition di around area (Urban, Suburban and Rural). In Urban Area there is many high buildings that become an obstacle for BS WiMAX which transmit signal to service area around BS WiMAX. Propagation wave that transmitted by BS WiMAX struck the obstacle like Buildings, Trees and other that cause interference wave. Finally, signal strength in one coverage area is not same. There is placed with good signal-strength, poor signal-strength, normal-signal strength moreover there is no signal-strength or blank spot.

In this final project, writer made simulation with environment condition like above (Urban, Suburban and Rural) and analyze simulation result which related to coverage area. For easily to look area condition according to Visual, writer use Geographic Information System or GIS.

In Simulation that had been done, Writer got that coverage area WiMAX are 3,44 km², 5,507 km², and 7,686 km², for Urban, Suburban and Rural at Uplink Side, Coverage Area WiMAX about 5,837 km², 9,777 km², 14,225 km², for Urban, Suburban and Rural at Downlink side and Pathloss 149,8 dB for Urban, 144,8 dB for Sub-urban and 138,8 dB for Rural. Software that used are Microseft Visual Basic 6.0 as GUI and mathematic Process and MapInfo Professional 7.5 as GIS.

Keywords : WiMAX, Coverage Area, Geographic Information System