Abstract

The need for the internet is getting wider when its use is more widely used by the general public at large. At a time when the need for internet is massively expanding, the development of network infrastructure also follows the number of internet users in the community. In this case, Kominfo (Ministry of Communication and Information Technology) as BAKTI undertook the construction of a 4G telecommunication Base Transceiver Station in the 3T (Lagged, Frontier, Outermost) area. This final project aims to provide a solution in optimizing the quality of the 4G signal so that the use of wireless networks will be more widely used to support people's lives. The design that will be made in this final project analysis uses the Forsk Atoll network design application by placing 3 different points in the Kobakma District, Central Mamberamo Regency. To be used as an indicator of success in the simulation analysis that will be carried out is to cover rural areas where the BAKTI 4G BTS tower will be built. The research method used in this final project is literature study, field data from Central Mamberamo Regency, Papua Province, along with the Forsk Atoll software application. For the parameters that will be used using Coverage by Transmitter, Service Area Analysis UP/DL, Coverage Quality by Indicator UP/DL. From this research, the optimization of coverage area is obtained by changing the omni antenna to a sectoral antenna, namely BLER (Block Error Rate) which increases the coverage area by 89.428 km and 85.76 km with Coverage Quality by Indicator UL/DL indicators. The UL/DL Service Area Analysis indicator with QPSK (Quadrature Phase-Shift Keying) signal modulation increased by and 4%. Coverage by Transmitter uses more sectoral antennas that are more residential.

Keywords – Coverage, Base Transceiver Station, Network