

ABSTRACT

Packet radio is a technological development of radio wave communication system. With the growing data communications, and more services that require network better and faster in delivery information. The majority of traffic generated on the mobile broadband is data. On the other hand current TDM-based backhaul networks and rely on E1/T1 connectivity and as such is not suitable for efficient transmission of data traffic. So came a hybrid architecture, which is a process of migration toward an entirely packet network architecture. Radio packet is a form of hybrid architecture.

This final project plan for the transmission link design on northern Sumatra by using the MPR 9500 ALCATEL LUCENT. Proper planning is needed in a cellular network to overcome the problems of natural conditions, climate and weather which is different in every area, so planning must be done by meeting the quality requirements (Error Performance Objective) and reliability (performance availability) in accordance with the standard ITU-G 826. The result of this design is found that antenna is Line of Sight and communication systems with the performance obtained in accordance with the standards.

From the result of design that has been done, the analysis found that antenna in all hop are Line of Sight, and on hop link Negeri Baru - Sei Berombang, Negeri Baru - Rantau Prapat, Negeri Baru - Panipahan availability value obtained under the standard of 99.999%. So that should be done with Space Diversity to get the value of availability compliant ITU-G 826. While in Negeri Baru – Tanjung Sarang Elang got value of 99.999% Availability, so no need to do Space diversity.

In estimating the good value of the power link budget, value of link budget must be greater than the threshold power level. Value of power link budget at each hop of a Negeri Baru - Sei Berombang -36.7 dBm, Negeri Baru - Rantau Prapat -37.6 dBm, Negeri Baru - Panipahan -35.51 dBm, Negeri Baru – Tanjung Sarang Elang -34.96 dBm. With the value of threshold power level -70 dBm, so the value of link budget is good enough because it is greater than the value of threshold power level

Keywords: Packet Radio, Line of Sight, Performance Analysis, Power Link Budget, Space Diversity, Availability