

ABSTRACT

Universal Mobile Telecommunications System (UMTS) Technology is a third generation mobile communications technology. UMTS technology that has been developed in Indonesia using the 2100 MHz frequency allocation. In the use of these frequencies, the range is so small that UMTS coverage is less efficient in the use of Node B, and less suitable to be applied in suburban areas and small towns are sparsely populated. Thus, in planning the UMTS technology should be applied with a lower frequency, in order to reach a wider coverage and more efficient in the number of Node B is used, especially in suburban areas. In the implementation of UMTS technology, can not be separated from the GSM technology that has been applied previously. Therefore it needs to do a study on the existing network of GSM and UMTS 2100 MHz and planning of UMTS access network.

In the final discussion about the planning process of UMTS networks include the frequencies 2100 MHz, UMTS access network planning at a frequency of 900 MHz area of Yogyakarta, scrambling code planning and planning of the transmission link. Access network planning including link budget calculation, the calculation of traffic demand, the calculation of radius of Node B, Node B and placement on existing networks and simulation based on the signal quality of coverage. In preparing this final project collected field data such as population, geographic conditions and existing network is useful in the dimensioning phase.

This final project is to produce a detailed plan regarding the implementation of 900 MHz UMTS networks in PT.Telkomsel Yogyakarta. It is expected that this Final may be a reference for implementing UMTS network at frequency of 900 MHz in Indonesia.