

ABSTRACT

Up to now, Technology of Universal Mobile Telecommunication System (UMTS) operators in Indonesia applies the frequency allocation of 2100 MHz with the bandwidth offered is 60 MHz. In Indonesia, It is predicted that there is the reduction of customers or voice traffic at GSM 900 MHz in 2014. It is caused by the increase of the equipment or headset supporting 3G services and the decrease of the equipment or headset supporting 2G GSM services; furthermore in applying 2100 MHz frequency, technology of UMTS has the lack of coverage from Node B that is not suitable to be applied in suburb and rural areas. Whereas, in urban area, because of the increase of user numbers and areas, it is needed to make a new site plan in order to be able to accommodate them. To overcome this problem, the application of UMTS technology with 900 MHz frequency allocation is needed.

The study discusses about planning to use UMTS network at 900 MHz frequency in Bandung which includes refarming process of 3G UMTS network at the frequency of 2100 MHz to 900 MHz, calculation of the link budget, calculation of the traffic needs, calculation of the radius of Nodes B, and simulation of signal quality based on coverage. In the process of drafting the final assignment, there are the data collected namely, geographical Conditions, population of society, and one of the existing data's operators.

Hopefully, this study gives the analysis of the use of 3G UMTS at 900 MHz frequency in Bandung and the strategy of refarming, so it can be the reference in applying 3G UMTS with 900 MHz frequency in Indonesia.

Keywords : UMTS, *coverage*, *refarming*, existing, *link budget*.