

ABSTRACT

The development of the mobile network technology has entered the era of 4G, but the use of 3G UMTS network is still much in use today. Therefore, 3G UMTS network conditions must be in optimal condition. Universal Mobile Telecommunication System (UMTS) Technology in Indonesia use 2100 MHz frequency allocation. In the use of these frequencies, the UMTS coverage is too small, so it makes the NodeB work system is not efficient. In addition, the number of users of UMTS is increasing every time and makes the capacity of NodeB decrease.

One way to resolve the problems of coverage and capacity is to do optimization by implementing 3G UMTS network at 900 MHz frequency. However, in the application of UMTS technology at 900 MHz frequency can not be separated from GSM technology that has been applied previously at 900 MHz frequency. Therefore in this observation, frequency reallocation and refarming activity needs to be done and traffic utilization analysis on GSM and UMTS networks is required to do, so that 900 MHz frequency can be used to provide GSM and UMTS services.

After optimization by implementation the UMTS900, there was an increase of capacity and coverage of UMTS network in cluster 4 Jatinangor. Capacity improvement of UMTS network can be seen from the samples increase from 33%-35% during plotting RSCP and E_c/N_o values. The increase of coverage of UMTS network can be seen from the increase of RSCP value from 81,54% to 91,07% and increase of E_c/N_o value from 46,12% to 85,70%.

Keywords: UMTS900, Refarming, Capacity, Coverage