

ABSTRACT

Telecommunication technology is one of technology that uses frequency. Frequency is very important part in telecommunication, but it has limited number and very expensive in cost and operational. Government is manager to manage frequency regulation must have good teamwork with telecommunication operator service to arrange and allocate frequency, so it can be usefull and efficient.

In Asia-Pasific area is predicted that user in GSM 900 Mhz in 2014 will decrease, and it will happened in Indonesia. This condition is because there are many dominant devices or handset ecosystem that supported 3G service and improvement bandwidth utilization user in band 900 MHz. in the same time, it predicates that there will be high user in 3G service UMTS or HSPA. To increase efficiency by using bandwidth in band 900 MHz and fullfil bandwidth needs in 3G service, telecommunication operator start to re-farming band 900 Mhz for 3G UMTS service

Implementation 3G UMTS in band 900 effect telecommunication operator will get some benefit. First, increase in cell radius at urban, sub urban, and rural area by increasing 51,85%, 51,72% and 50,25% for each area in uplink CS UDI service . It will be press the cost investement for 3G in band 900 MHz development. Second, get the 3G indoor signal penetration stronger by 14.02 dB when compared than band 2100 MHz. All of the advantages here shows that UMTS in band 900 MHz development is more effective to be implementation

Key words : *Decreasing voice traffic*, *Increasing data traffic*, *Re-farming band 900 MHz*, *Cell radius*, *Indoor penetration*