

## **ABSTRACT**

*The increasement number of user subscribers and high data communication requirement will affect existing cellular network performance. That matter causes a degradation of network quality in user subscribers side. Expansion of the existing cellular networks and addition new sites on the network are solution that can be used improved cellular network performance that can be lead to improvemen of network quality in the user subscribers side.*

*This design begins by analyzing and calculating the amount of existing site traffic and expanding the LTE network of the existing sites (LTE 900MHz, LTE 1800MHz, and LTE 2100MHz). The type of expansion given depends on requirement traffic and the offered traffic of the LTE expansion. Once the expansion cannot satisfied the requirement traffic of the existing sites then additional new site required therefore excess traffic can be absord by new sites.*

*The results of this design, there are 3,122 sites will expand best on the traffic requirement. There are 353 sites out of 3,122 expansion cannot satisfied the requirement of traffic therefor additional 362 new sites required. The are 2,091 sites expand with LTE 900MHz, 948 sites expand with LTE 1800MHz and 1,763 sites expand with LTE 2100MHz.*

**Keywords:** *Expansion, LTE 900MHz, LTE 1800MHz, LTE 2100MHz, user subscriber*