ABSTRACT

LTE networks can provide mobile broadband with larger capacity and low latency. However, the LTE network only provides specialized services for data transfer and is designed only as a packet-switched network all-IP system. Because there is no circuit-switched domain in LTE, then the solution for IP-based voice services is established, known as VoLTE. With VoLTE, users can enjoy the High Definition voice (HD Voice). VoLTE uses a different system than the voice service on its previous technologies such as 2G and 3G so that the quality of VoLTE performance required to be better than its previous technologies.

In this research simulated VoLTE service in LTE (Long Term Evolution) architecture using G.711 and G.729 as codecs. End-to-end QoS parameters such as delay, jitter, packet loss, and throughput as well as MOS that is used to view the performance of the simulation VoLTE service.

Simulation in terms of the capacity number of users that are divided into three categories namely; 5 pairs of the UE, 30 pairs of the UE, and 100 pairs of the UE. From the results on the VoLTE network, for the codec G.729, obtained the highest delay reached 91.5152 ms, the lowest jitter 0.000084 ms, packet loss 0%, and the highest throughput is 12.82 Kbps. Then for the G.711 codec, obtained the highest delay is 79.3810 ms, the lowest jitter 0.000037, packet loss 0% and the highest throughput is 69.59 Kbps. The obtained results are still meets the requirement of ITU-T.

Keywords : end-to-end QoS, VoLTE, G.711, G.729.