

## ABSTRACT

*The more users are increasing, the greater the area that will increase in size, the more difficult it will be to overcome effectively. Both from users who want a better user experience from operators who can provide customers well in terms of capacity and service. One way to increase capacity is the use of maximum frequency, but the source of availability of the frequency spectrum is limited.*

*The use of the spectrum without permission is considered 3GPP as one of the solutions that is expected to obtain ever-increasing traffic growth. Consider high spectrum (500 MHz). LTE 13 releases allow the use of unlicensed frequency variations called License-Assisted Access (LAA). In LTE-LAA, a combination of licensed LTE is used as primary cells to carry information and transport traffic data. Whereas the 5 GHz unlicensed spectrum is used as secondary cells that are proposed to increase capacity and distribute the spectrum fairly. LTE-LAA will not take on the role of Wi-Fi but will coexist so that it becomes a good neighbor and does not violate Wi-Fi or other technologies in that frequency range.*

*The simulation results produce a throughput fairness index of 64 users for FTP over UDP in scenario 1 of 0.998, scenario 2 of 0.857 and scenario 3 of 0.997, while latency is 0.991 for scenario 1, 0.849 for scenario 2 and 0.999 scenario 3. While FTP over TCP throughput fairness index in scenario 1 is 0.779, scenario 2 is 0.639 and scenario 3 is 0.741, while latency is 0.959 for scenario 1, 0.875 scenario 2 and 0.949 for scenario 3.*

*Keyword: LTE-LAA, unlicensed, Wi-Fi, fairness, KPI integrity.*