ABSTRACK

Needing for internet access is the main reason of increasing of internet traffic. The way to fulfill the needed of internet traffic is by increasing the capacity of the network. Maximizing the use of spectrum frequency may increase the capacity of the network. Unfortunately spectrum frequency is unrenewable source which means it has to use wisely. For increasing the capacity of the network to meet the demand of internet traffic a new technology will use unlicensed spectrum frequency. Actually there has already a technology which uses the unlicensed spectrum frequency with that reason a new technology has to adapt and coexistence with the technology which already exist.

In this research, It will talk about the coexsistence between LTE-Unlicensed and Wi-Fi which use unlicensed spectrum 5GHz. LTE-U and Wi-Fi can coexist with each other in the same geographical area or the LTE-U eNodeB can be collocated with Wi-Fi AP. The Coexistence with in these technologies analize in adjacent channel interference with the value of ACIR between LTE-U eNodeB and Wi-Fi Access Point. The Scenario which use in this final project is LTE-U eNodeB as aggressessor and Wi-Fi Access Point as victim and vice versa. It also use indoor and outdoor deployment with LOS and NLOS condition.

Based on calculating and simulating the coexistence system between LTE-U eNodeB and Wi-Fi Access Point the result is Interference Level and minimum distance between these two technologies. The minimum distance is required to preserve adjacent channel interference is in range 78m-194m for the outdoor deployment and in range 24m-76m for indoor deployment. With software simulation, in 51m distance the mean CINR value is 15dB, in the other hand with software simulation, in 16m distancethe SIR mean value is 0.62dB.

Keyword: Unlicensed Spectrum Frequency, Coexistence, LTE-U, Wi-Fi, ACIR