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## Assessment of Dynamic Spectrum Allocation Technique in Heterogeneous Network

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### Abstract

Mobile devices are becoming the priority of access to a growing trend of online services. As services use higher quality images & video, an increase of wireless network capacity is required. In this case, spectrum is a way to go. Even though capacity is important, there are other factors as well, for example, coverage, flexibility and resilience. Dynamic spectrum access technology allows higher transmission power according to location & safe sharing with licensed users (LU). Dynamic spectrum allocation (DSA) technique enhances the spectrum efficiency for the users in Heterogeneous Network. This paper explains about the findings that are observed by two different researches that are related to our research title. The first paper is about the basic OFDM structure using GNU Radio software and implemented using USRP hardware. The second research is about the implementation of Dynamic Resource Allocation for LTE using GNU Radio. The first research explained about the advantages and disadvantages of OFDM configuration. The second research explained more about the implementation of Dynamic Resource Allocation in the uplink and downlink configuration, and are tested using three algorithms; Max-sum, max-min and max-product. All the results are obtained from GNU Radio. However, the results are not implemented using USRP because of the short amount of time. Based on these two researches, we identified the advantages and disadvantages of the proposed designs and develop our own design to mitigate the cross-tier interference in multi-tiers HetNets.

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