ABSTRACT

Link scheduling algorithm and resource allocation mechanisms currently being looked as an interesting research area for researchers to improve the performance of wireless communication systems. For mesh communications, which is an alternative topology of wireless communication in addition to point-to-point topology, spatial reuse is seen as a method for improving mesh communication performance. This final task presents the performance evalution of Arborical Link Schedule (ALS) algorithm, which is one centralized link scheduling algorithm that uses a protocol interference model. The performance parameters measured in metric parameters of throughput, spatial reuse, and the length of scheduling as a function of the number of nodes involved in the wireless mesh network, and made comparisons between the medium access control basic TDMA versus STDMA (Spatial Time Division Multiple Access) for all three performance metrics.

The results generally show that STDMA with ALS have a better performance than TDMA. Improvement by STDMA-ALS than TDMA for throughput about 3,98% - 399%, for spatial reuse about 7,96% - 562,1%, and for length of scheduling about 10,51% - 85,02%.

Modification of ALS algorithm by changing the weights of links with a particular method, and concluded that the modifications made to have a better performance than basic ALS algorithm. Improvements by ALS modified algorithm than basic ALS algorithm for throughput about 10,86% - 75,17%, for spatial reuse about 13,9% - 89,87%, and for length of scheduling about 11,81% - 47,54%.

Keywords : Wireless Mesh Network, STDMA, scheduling, WiMAX, Arborical Link Schedule, throughput, spatial reuse, length of scheduling