

ABSTRACT

As cellular network grow higher, previous technology can no longer meet the current needs. Then, Device-to-device (D2D) communication was proposed. It allows direct communication between devices without any Base Stations (BS) for data transfer. The mechanism is not only saving the resources, but also reduces the load on BS.

In this research, a design of heuristic-based algorithm is made for resource block allocation to increase spectral and energy efficiency. This study uses greedy and mean greedy heuristic-based algorithm. Greedy algorithm allocates RB based on the highest value in Channel State Information (CSI) and mean greedy is on the mean value. Heuristic-based algorithm is proposed to decrease the complexity of calculation.

The results of a research simulation on greedy heuristic-based algorithm increases 98,47% of total data rate, 119% of spectral efficiency, 105% of energy efficiency, and decreases 5,4% of fairness. Meanwhile, mean greedy algorithm increases 82,75% of total data rate, 103% of spectral efficiency, 90,07% of energy efficiency, and decreases 8,67% of fairness.

Keywords : D2D, *resource allocation, greedy, mean greedy, heuristik.*