

The recent increase in the demand for mobile communication services has raised the need for efficient channel assignment to maximize the use of limited allocated frequency spectrum. The challenge is that of assigning calls to available channels so that the channel interference is minimized while maximizing the number of calls completed. This problem is known to belong to a class of very difficult combinatorial optimization problem, which is Non-deterministic Polynomial-time (NP)-hard, and the difficulty of finding a good solution increases as the number of cell units increases. In this paper, the particle swarm optimization algorithm is used to solve the channel assignment problem. The performance is verified with Philadelphia benchmark problem which is widely used as a testing set in literature. Even though completely interference-free solutions may not be found for some of these problems, the approach in this paper minimizes interference significantly and assigns as much channel as possible in some instances.