**Optimization of TAC Configuration in Mobile Communication Systems: A Tabu Search Approach**

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**Abstract**—Recently, the mobile communication has been rapidly changing the LTE-based mobile communication. In LTE-based mobile communication system, paging performance is a critical factor to be considered, a paging area is defined as TAC, which is a group of cells. In this paper, we propose a new scheme for configuration of TAC to maximize the paging success rate. This scheme constructs a TAC using traffic load, TAC size and handover patterns. Then we propose the improvement algorithm using tabu search. From the performance analysis with real traffic data of Seoul in Korea, we can see that the proposed TAC configuration provides larger paging success rates than the existing TAC configuration.

**Keyword**—Mobile Network System, Optimization, Paging, Tabu Search, Tracking Area Code

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