

## **Authentication groups with privacy-protection of machine in LTE/LTE-A networks**

### **ABSTRACT**

Machine-type Communication (MTC) is a form of data communication which involves one or more entities that do not necessarily need human interaction, which has become the hotspot in industry area. Furthermore, Machine-Type Communication (MTC) has shown the advantages, including better coverage and lower network deployment cost, which makes it become the hotspot in industry area. However, the current cellular network is designed for human-to-human communication (H2H), and less optimal for machine-to-machine, machine-to-human or human-to-machine applications. In addition, current cellular network is less optimal for MTC applications, and now facing some urgent issues, e.g. congestion and overload caused by the access of masses of MTC devices. This paper shows the techniques that used in MTC for LTE/LTE-A networks to enhance the authentication protocols with reduce signaling overhead and computational cost. Furthermore, this work discussed the problems that causing signaling overload in the core network especially, when a group of MTC devices try to get authenticate to the system at the same time.

**Keyword:** Machine-type-communication; Authentication groups; Privacy-preserving; Signaling congestion; LTE/LTE-advanced networks