Abstract

Ehab Farouk Badran

Study of LTE-R X2 Handover based on A3 event Algorithm using MATLAB

Railway wireless communication has become an indispensable part to provide the reliability and safety of the railway operation as well as the improved railway services. GSM for Railway (GSM-R) system is a widely used means of railway communication, its commercial success are fully explained that GSM-R system has maturity and reliability. Along with the developments of the high-speed railway, higher and higher technical requirements for the high-speed railway mobile communication system are raised. GSM-R has shown many limitations in high speed, high-quality transmission. Therefore, long term evolution (LTE), is basically confirmed as the next generation railway wireless communication technology, namely LTE - R. As the fourth generation, LTE - R provides a high transmission speed and high mobility to the user. As trains move with relatively high speed, they suffer from many handovers. In this paper we study and simulate, using MATLAB, handover in LTE - R system. We choose A3 event handover algorithm based on measuring Reference signal Received Power (RSRP). The impact of changing both velocity and transmitted power is also simulated.