

Moving target detection by using new LTE-based passive radar

ABSTRACT

This paper examines the feasibility of LTE-based passive radar for detecting ground moving targets. Specifically, the focus of this paper is to describe the proposed LTE-based passive radar system and to conduct an experiment using a real LTE eNB transmitter as an illumination source. Seven scenarios were carried out to investigate the detection performance of the proposed system on ground moving targets with different speeds, trajectories and range. In addition, multi-target detection was also tested. The experimental results showed that the LTE-based passive radar system has the capability to detect typical ground targets/objects like cars, motorbikes and humans moving at different trajectories. The positive results opened up a new frontier for passive radar systems to be used in many potential applications, including security, border protection, microwave fences, monitor of buildings and others.

Keyword: LTE-based passive radar system; Moving target detection; Ground moving targets