

Feasibility study of LTE signal as a new illuminators of opportunity for passive radar applications

ABSTRACT

Recently, there has been an evolution of mobile networks towards the fourth generation radio wireless communications (4G) as LTE (Long Term Evolution). In this paper, the feasibility of using LTE-based passive radar is investigated to take advantage of using LTE signal as illuminator of opportunity for moving object monitoring. An analysis of ambiguity function is done on a typical LTE waveform to assess the Doppler and range characteristics. The initial results and analysis show that LTE signal range and Doppler resolutions of 7.5m and 0.11m/s can be achieved, respectively.

Keyword: LTE; Range resolution; Doppler resolution; Ambiguity function; Illuminators of opportunity; Passive radar