

**UNIVERSITI TEKNOLOGI MARA**

**THE ANALYSIS OF LTE SIGNAL AS THE  
ILLUMINATOR OF OPPORTUNITY FOR  
PASSIVE RADAR**

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## ABSTRACT

Passive radar is a subtypes of bistatic radar system takes advantage over the already existing RF signal in the atmosphere which in radar term it is called the illuminators of opportunity. By exploiting the already exist signal, passive radar does not have a dedicated transmitter. Thus, it can offer numerous advantages over the typical conventional radar. Most significantly, passive radar is basically undetectable to surveillance receivers and there is no constraint in power spectrum allocation. In most cases, passive radar is smaller, more portable and is of lower cost compared to conventional active radar. This factor makes passive radar a much preferred alternative than the conventional radar.

This thesis presents the research results on the analysis of passive radar with LTE signal as the illuminator of opportunity by evaluating the power spectral density of the LTE signal. This analysis is essential in order to find the signature of the targets and use it as the inputs for target classification. It is performed by taking the recorded LTE signals to be processed under signal processing which was simulated using MATLAB with a sampling frequency of 25 MHz. The experimental results which include determining the best screenshot and evaluating the consistency of the recorded LTE signal are presented and discussed.

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