

**UNIVERSITI TEKNOLOGI MARA**

**Accuracy Assessment of Measurement by GPS  
Handheld in Cadastral Surveying**

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Thesis submitted in fulfilment of  
requirements for the degree of  
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## AUTHOR'S DECLARATION

I declare that the work in this thesis/dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

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## **ABSTRACT**

Global Positioning System (GPS) has become as an important tool in surveying measurement work. Using GPS, it is possible to conduct survey with less manpower and less time. The use of handheld GPS has become widespread over recent years. Lack of use of GPS handheld in cadastral survey work particularly in site reconnaissance survey is due of the question or reliability of the field surveyors against accuracy of the handhelds because there are much type of GPS handheld and their capabilities totally different. The aim of this study is to implement the uses of GPS receiver handheld with their submeter level accuracy in cadastral survey especially in reconnaissance survey. In the study, there are two objectives that have been chosen which is to investigate the accuracy of both handheld with GNSS device as reference on NDCDB marks and to analyses the continuity of error by both handheld on different NDCDB blocks. The two GPS handheld include Trimble Geoexplorer 5series and Garmin GPSmap 76CSx was used to assess their accuracy measurement on National Digital Cadastral Database (NDCDB) marks and one survey grade GPS which is Topcon GR-5 with myRTKnet observation and static observation as a reference device when assessing their accuracy. This research study consists of four stages which are planning, data acquisition, data processing, data analysis and outcome. The contribution of this study is to encourage the uses of GPS handheld to land surveyors for reconnaissance survey especially when finding the NDCDB marks in sites for starting the survey work. It is because based on current technology improvements in GPS handheld make the handheld more accurate. Additionally, to optimize the surveyor's knowledge in the use of GPS handhelds as it is now GPS handheld is rugged, easy-to-use, designed for submeter level data collection and user friendly for data entry and so on.

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