SIGNIFICANCE STUDY OF RANGE EFFECT IN HARMONIZING CADASTRAL CONTROL NETWORK (CCN) AS ADJUSTMENT CONSTRAINTS

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COLLEGE OF BUILT ENVIRONMENT

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**Thesis submitted to the University Technology MARA Malaysia
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DECLARATION

I declare that the work on this project/dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA (UiTM). This project/dissertation is original and it is the result of my work, unless otherwise indicated or acknowledged as referenced work.

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ABSTRACT

Global Navigation Satellite Systems (GNSS) play a crucial role in modern surveying and geospatial applications. Ensuring accurate positioning is vital for various fields, including construction, land management, and environmental monitoring. This study focuses on evaluating GNSS accuracy in relation to different range intervals, the problem faced is the Control Point is not arranged well in each one block will give high error for observation. The Aim to investigate the effect of range in connecting CCN with NDCDB via rapid static GNSS measurement configuration in preserving the accuracy of Cadastral Network adjusted. To produce this research, establish a Cadastre Control Network that arrange by grid and tied to Continuously Operating Reference Stations and desired criteria as Cadastre Reference Mark using GNSS Observations methods. After the Controlled being create, the survey begins using Real Time Kinematic Conventional and Fast Static Occupation to test which method is better to preserving the accuracy. Apart from that, A Traverse point established that already apply correction called Adjusted Coordinate compare the final values gathers from GNSS observation to examine the accuracy of those methods. To quantify the reliability of CCN and RTK GNSS measurement in preserving the accuracy of CRM with regard to the variation of ranges. By systematically dividing the testing into distinct range intervals, this study seeks to discern patterns and trends in GNSS accuracy and identify optimal strategies for specific surveying applications. The outcomes of this research are expected to be insignificant in the daily work of cadastral and topographic survey work, would offering guidance for surveyors and geospatial professionals on optimizing their positioning methods based on the specific requirements of their projects. Ultimately, this investigation contributes to advancing the precision and reliability of GNSS-based surveying techniques, facilitating more accurate and efficient data collection.

Keyword: Cadastral Reference Mark (CRM), Bench Mark (BM), Cadastral Control Mark (CCN), Global Navigation Satellite System (GNSS), Real-Time Kinematic (RTK).

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