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RELIABILITY OF TERRESTRIAL LASER SCANNER
MEASUREMENT FOR STRATA TITLE REQUIREMENTS

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**Thesis submitted to the Universiti Teknologi MARA Malaysia
in partial fulfilment for the award of the degree of the
Bachelor of Surveying Science and Geomatics (Honours)**

JULY 2024

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

The fundamental concept of strata title revolves around the horizontal division of high-rise structures or airspace, departing from the conventional vertical land partitioning. It's noteworthy that strata titles extend their applicability beyond residential properties, encompassing townhouses, commercial enterprises, and industrial developments. Currently, some agencies rely on traditional methods and pre-existing floor plans for strata modeling. However, the present techniques, specifically the utilization of a distometer and total station are labor-intensive and time-consuming. To overcome the limitations of traditional approaches, a terrestrial laser scanner that manages to acquire rapid and dense three-dimensional (3D) data has been introduced into strata title surveys. Regrettably, certain challenges arise in terrain laser scanning with regard to accuracy. Specifically, the incidence angle between the object and the instrument becomes significant. The aim of this research is to investigate the reliability of terrain laser scanning in enhancing the quality of strata records by using independence method and dependence method. In this study, the methodology involves configuration and performing terrain laser scanner measurements for multi-story buildings and subsequently evaluating the accuracy of strata information obtained from the terrestrial laser scanner. The outcome of this study is expected to validate the reliability of terrain laser scanning in improving the quality of strata records. Additionally, these findings can instill greater confidence among agencies considering the adoption of TLS for strata measurements.

KEY WORDS: Terrestrial Laser Scanner, Strata Measurement, Configuration Network, Multi Building Story, Incident Angle

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