

**UNIVERSITI TEKNOLOGI MARA**

**POSITIONING COMPARISON BETWEEN ATLAS  
L-BAND AND AUTONOMOUS SOLUTION GNSS  
USING STATIC METHOD**

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of the requirements for the degree of  
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## **AUTHOR'S DECLARATION**

I declare that the work on this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and 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.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Undergraduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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## ABSTRACT

Differential Global Navigation Satellites System (DGNSS) is GNSS augmentation system based on enhancement to the primary GNSS constellations information. DGNSS uses fixed terrestrial reference station coordinates to accurately correct the user position by providing differential correction. This research was conducted with aim to compare positioning between autonomous solution GNSS and Atlas-L band using static method. This research was conducted to determine the continuity of data given by Atlas-L band, to analyse the accuracy of positioning data using differential correction of Atlas-L band and autonomous solution GNSS using static positioning and to determine the classification of differential correction data referring to IHO minimum standards table. Data acquisition was conducted by using Hemisphere receiver VS330 and antenna A43 on 20<sup>th</sup> until 22<sup>nd</sup> January 2019. After that, data were filtered to remove unreliable data recorded. Statistical analysis was done to support the comparison of positioning data which is descriptive analysis, T Test analysis, horizontal error analysis, vector distance analysis and normal distribution graph. As the result of T Test analysis show that Atlas L-band data recorded in 95% confidence level with the lower value of difference is 0.464 meter and the upper value is 0.465 meter while for autonomous data, the data recorded based on 95% confidence level with the lower value of difference is 2.270 meter and the upper value is 2.273 meter. The final output of this research shows the comparison between positioning given by Atlas L-band and autonomous solution GNSS compared to the known coordinates used. As a conclusion, the continuity of positioning data given by Atlas L-band in northern part of Malaysia are good and position given by Atlas L-band can be classify as Special Order based on classification table by International Hydrographic Organisation.

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