

UNIVERSITI TEKNOLOGI MARA

**POSITIONING PERFORMANCE ASSESSMENT
USING DGNSS ATLAS L-BAND WITH DIFFERENT
SATELLITE COMBINATION**

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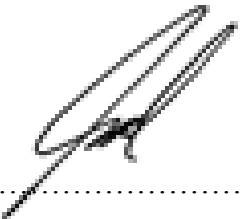
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ABSTRACT

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 using Atlas-L with different satellites combinations. This research was conducted to determine the continuity of data given by Atlas-L band, to analyse the accuracy of positioning data using differential satellites combinations of Atlas-L band. Data acquisition was conducted by using Hemisphere receiver VS330 and antenna A43 on 20th until 21nd July 2020. After that, data were filtered to classify 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 GPS only data recorded in 95% confidence level with the lower value of difference is 0.022 meter and the upper value is 0.863 meter while for combination of GPS and Beidou, the data recorded based on 95% confidence level with the lower value of difference is 0.004 meter and the upper value is 0.992 meter and combinations of GPS, Beidou, and Glonass is 0.160 meter and 0.632 meter. The final output of this research shows the comparison between positioning given different combinations 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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