

UNIVERSITI TEKNOLOGI MARA

**ACCURACY ASSESSMENT FOR
SATELLITE BASED
AUGMENTATION SYSTEM (SBAS)
AT OPEN AREA AND MULTIPATH
AREA**

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of the requirements for the degree of
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AUTHOR'S DECLARATION

I declare that the work in this disertation 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.

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

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ABSTRACT

Wide Area DGNSS is one of the types of Differential Global Navigation Satellite System (DGNSS). It consists of a network of a GPS receivers across a region that handled centrally by a server. The differential correction then been sent from the server to the consumer via radio, satellite or wireless communication. Satellite Based Augmentation System (SBAS) is one the system that use this technique. This research was conducted with aim to compare is to compare the accuracy of Satellite Base Augmentation System (SBAS) at multipath area and wide area. This research was conduct to determine the data correction consistency given by SBAS, to analyse the accuracy of positioning data using differential correction of SBAS 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 at open area and multipath area on 26th May 2020 and 20th June 2020 respectively for four hours of observation. 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 open area data recorded in 95% confidence level with the lower value of difference is -0.002 meter and the upper value is 0.002 meter while for multipath area, the data recorded based on 95% confidence level with the lower value of difference is -0.005 meter and the upper value is 0.005 meter. As a conclusion, the continuity of positioning data given by SBAS in northern part of Malaysia are good and position given by SBAS at both areas can be classify as Special Order based on classification table by International Hydrographic Organisation.

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