

UNIVERSITI TEKNOLOGI MARA

**IMPACT OF ELEVATION MASK
ANGLE (EMA) ON ACCURACY OF
GLOBAL NAVIGATION SATELLITE
SYSTEM (GNSS) POSITIONING**

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Thesis submitted in fulfillment
of the requirements for the degree of
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AUTHOR'S DECLARATION

I declare that the work in this thesis 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

The selection of the elevation mask angle (EMA) is needed to determine better accuracy in term of horizontal and vertical components. This research is conducted to study the impact of EMA on accuracy of Global Navigation Satellite System (GNSS) positioning by using various elevation mask angle setting for different GNSS positioning method based on established known points. This study is conducted by performing GNSS observations on two established reference points using multiple EMA setting for static and network RTK positioning method with GPS and GLONASS satellite constellations. Then, static positioning data have been processed using Trimble Business Centre (TBC) software for 0°, 10°, 20° and 30° EMA setting of processed baseline. While, network RTK data have been processed according to KPUP Circular 1/2008 as a guideline. In relation with this data processing, the main outcomes from data processing are adjusted coordinates, Position Dilution of Precision (PDOP), Root Mean Square (RMS), horizontal and vertical precision values. These results are analysed using graphical and comparison analysis. In conclusion, the analysis from this research has been used to identify the ideal EMA setting could be used in order to achieve the best positioning accuracy for horizontal and vertical components.

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