

## INTISARI

*Receiver* GNSS dapat diklasifikasikan menjadi *receiver* geodetik satu frekuensi dan dua frekuensi. Perbedaannya adalah sinyal yang diterima oleh *receiver* di permukaan bumi. Hal tersebut berpengaruh pada ketelitian yang dihasilkan dalam penentuan posisi. *Receiver* dua frekuensi lebih sering digunakan karena memiliki ketelitian lebih baik. Akan tetapi *receiver* satu frekuensi tetap diperlukan dalam pengukuran kerangka kontrol horizontal dan GCP. Oleh karena itu perlu diketahui ketelitian *receiver* satu frekuensi serta perbedaannya dengan *receiver* dua frekuensi. Penelitian ini bertujuan untuk mengetahui ketelitian *receiver* satu frekuensi dan perbandingannya *receiver* dua frekuensi.

Data diperoleh dari pengukuran GNSS dengan metode *stop and go* menggunakan *receiver* satu frekuensi pada titik uji dengan variasi jarak dan lama waktu pengamatan. Pengukuran GNSS dengan *receiver* dua frekuensi dilakukan pada titik yang sama dan hasilnya digunakan sebagai perbandingan. Analisis dilakukan pada nilai koordinat dan ketelitian hasil pengukuran dengan *receiver* satu frekuensi lalu diuji signifikansi untuk mengetahui perbandingan ketelitiannya dengan *receiver* dua frekuensi.

Hasilnya menunjukkan ketelitian horizontal koordinat hasil penentuan posisi dengan *receiver* satu frekuensi berada dalam fraksi sentimeter. Hasil tersebut diperoleh dengan variasi jarak dan lama waktu pengamatan berbeda. Semakin panjang jarak dan semakin pendek lama waktu pengamatan diperoleh ketelitian semakin besar. Hasil uji signifikansi menunjukkan ketelitian dari kedua *receiver* tidak berbeda secara signifikan.

Kata kunci : GNSS, penentuan posisi, *receiver* satu frekuensi, ketelitian

## ABSTRACT

GNSS receiver classified into single and dual frequencies. What differs them is the signal type they receive from the earth surface and it will affect the precision that is resulted from point positioning. Dual frequency receivers are more popular because they have better precision level. However, single frequency receivers will still be needed in horizontal geodetic network measurement and Ground Control Point. Therefore, the precision value from single frequency receiver should be determined first to find out the difference between both receivers. This research aims to analyse the precision value of single frequency receiver and comparing it with dual frequency receiver.

The data are gathered from GNSS measurement with stop and go method by using single frequency receiver at multiple test points with variation of the duration of observation and the distance between points of interest and reference station. Afterwards, GNSS measurement with dual frequency receiver are conducted at the same test points as previous measurements and the outcomes will be used as comparison. Next, the coordinate value will be analysed and the precision value from single frequency receiver will be tested to compare its significance level with dual frequency receiver.

The result shows that the horizontal precision value of point positioning by using single frequency receiver is in centrimetric precision. The horizontal precision value is obtained from different variations of the duration of observation and the distance between points of interest and the reference station. The longer the distance and the shorter the duration, the precision value will be less accurate. Ultimately, significance test indicates that the precision value of both receivers is not significantly different.

Keywords : GNSS, point positioning, single frequency receiver, precision.



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**ANALISIS KETELITIAN KOORDINAT HASIL PENENTUAN POSISI GNSS METODE STOP AND GO  
MENGUNAKAN RECEIVER  
SINGLE FREQUENCY**

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