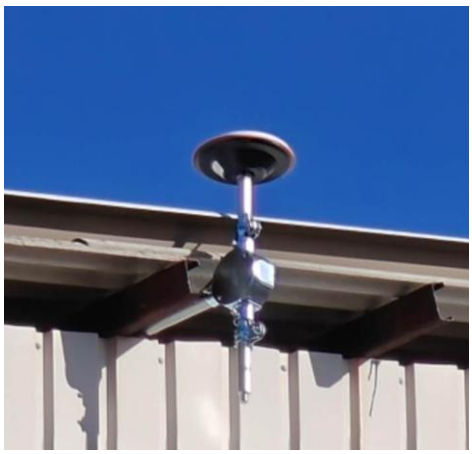
MA-10P MADOCA/PPP Performance Test Report

The purpose of this test is to verify the PPP positioning performance of the MA-10P[1]. The verification method involves comparing the results with known points, as well as comparing them with the results of the MALIB[2] tests.

Test scenario:

OSAKA, JAPAN

Open sky environment



Test:

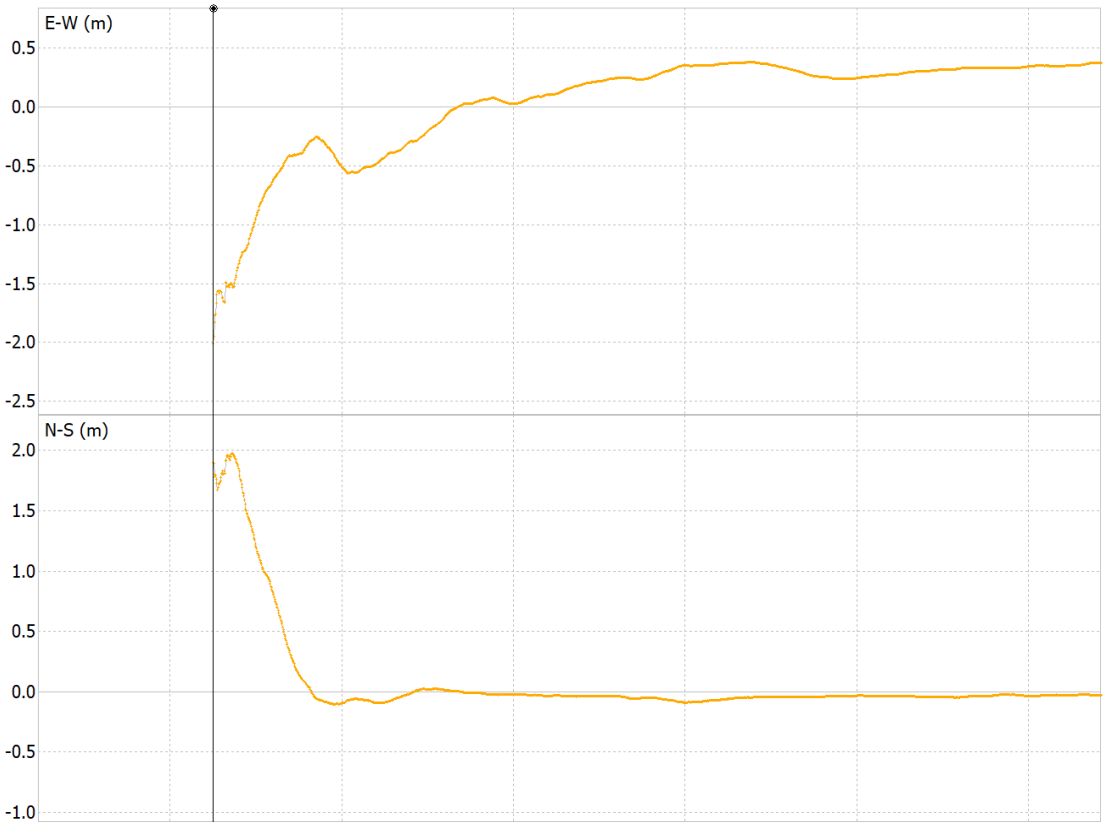
Use a RF splitter to split the signal into two parts. One MA-10P device outputs NMEA data, while the other outputs RTCM3 data for processing by MALIB。

MALIB is running on X86_64 under WSL Ubuntu, and the system has sufficient computational power。

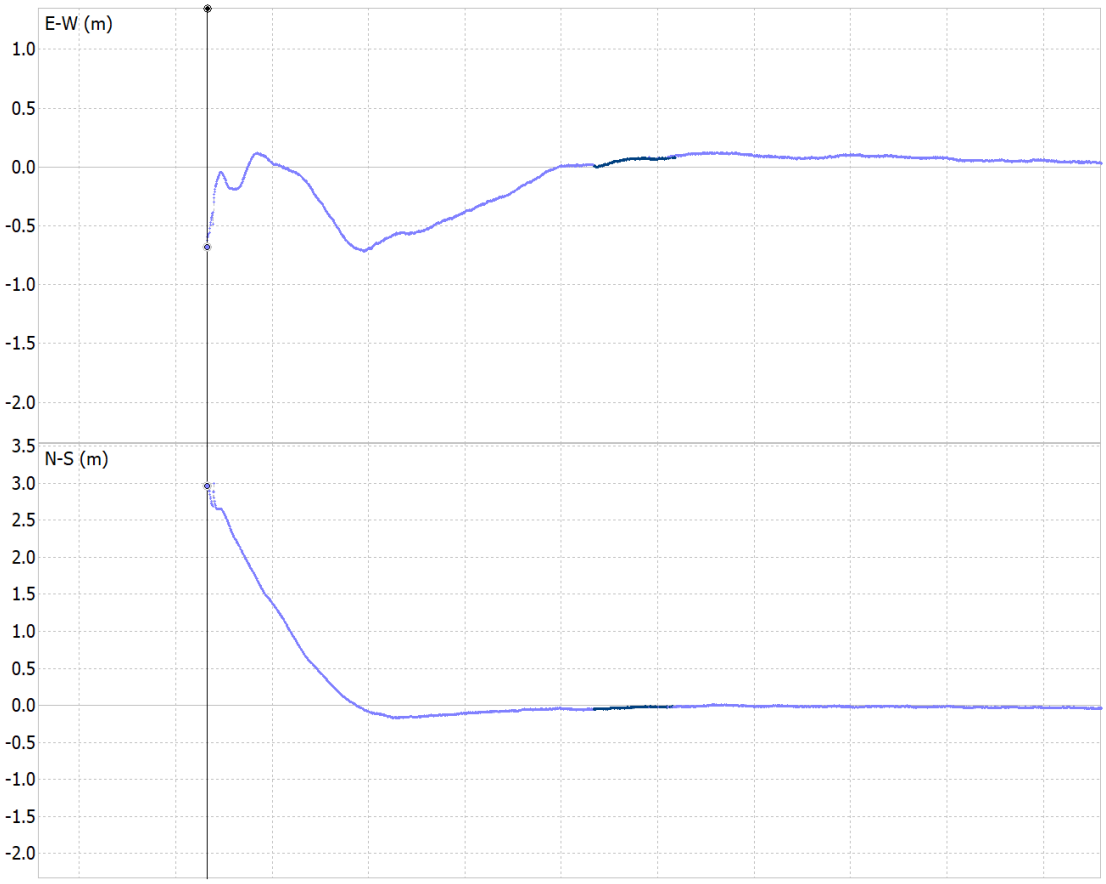
The correction data for MADOCA/PPP comes from QZS-6C。

Configuration: Elev mask 15°。

1. Initial time for PPP

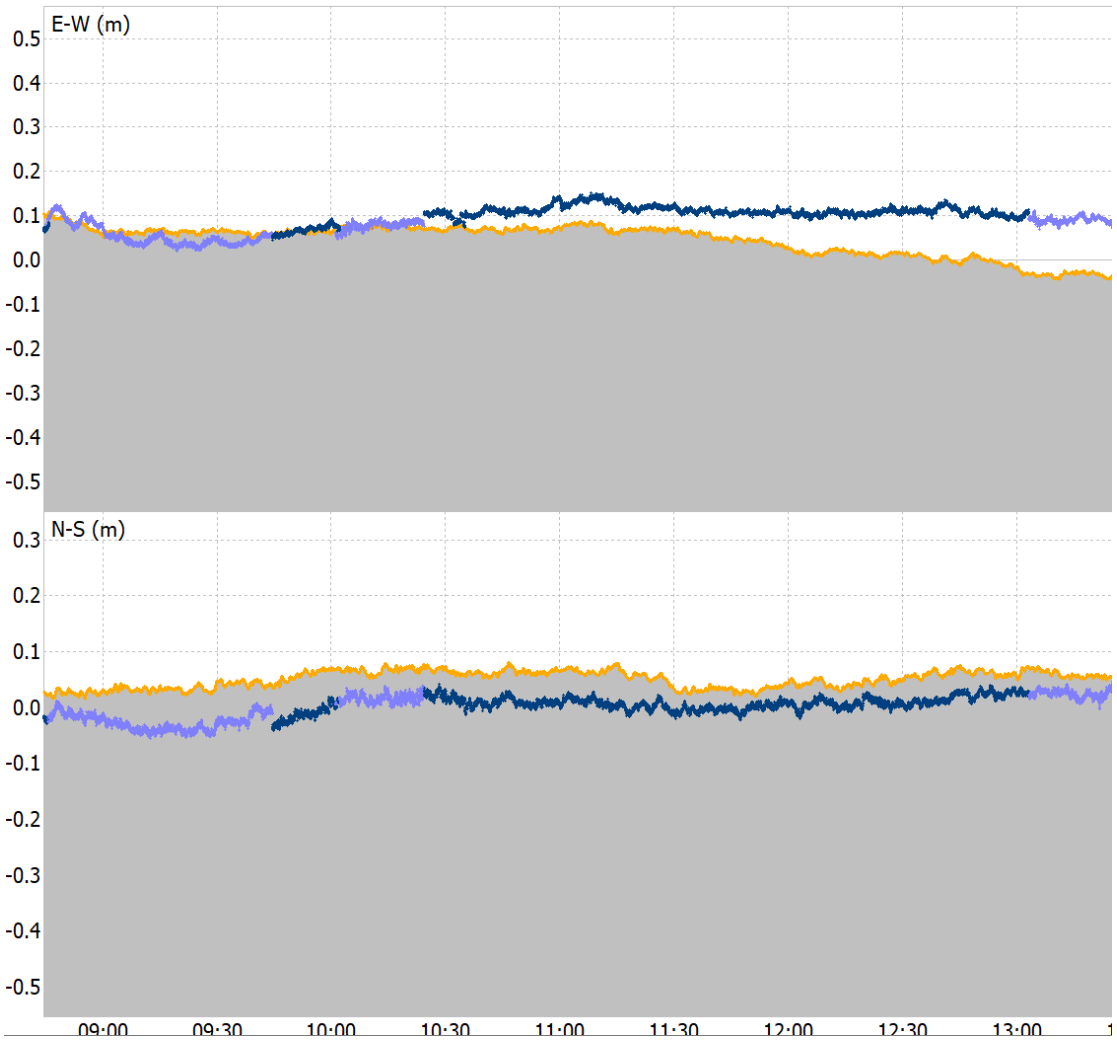


MA-10P coverage time (5minutes/grid)



MALIB coverage time (5minutes/grid)

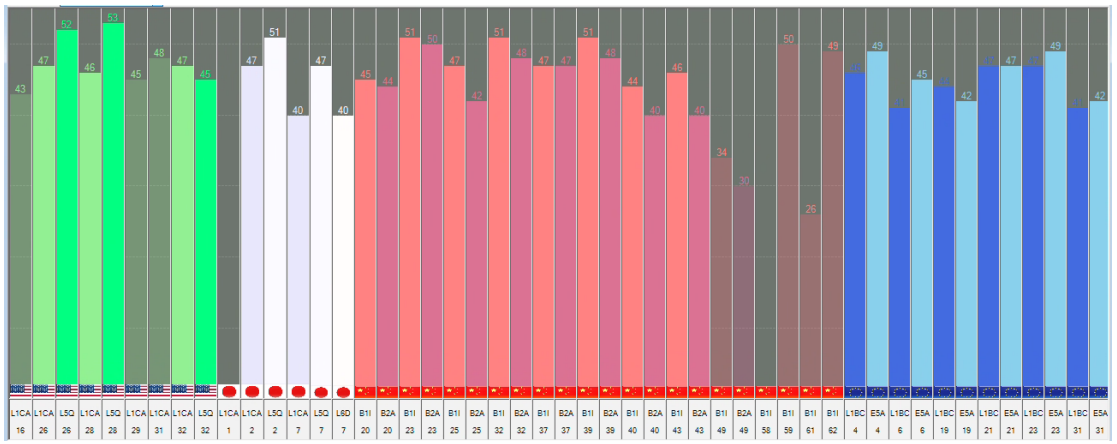
2. Accuracy



MA-10P vs MALIB Position data (30minutes/grid)

(MA-10P data MALIB PPP-AR MALIB PPP)

3. Satellites view



The highlighted bar chart represents the satellites that participated in the PPP.

4. Conclusion

Horizontal accuracy (m)	
0.10	CEP 50%
0.14	RMS 68%
0.33	95%

The MA-10P can complete PPP initialization within 15 minutes in opensky environment.

The MA-10P can achieve MADOCA/PPP positioning results with an accuracy of 0.1 meters in opensky environment.

The MA-10P currently does not support PPP-AR.

Reference:

[1] https://docs.datagnss.com/gnss/rtk_receiver/MA-10P/

[2] https://github.com/JAXA-SNU/MALIB