Trimble Thunderbolt GPS-DO

Target

Getting a 10 MHz absolute reference GPS-DO for locking the LO of a microwave ham transverter

Low-cost design, easy to find on eBay by 2 chinese sellers

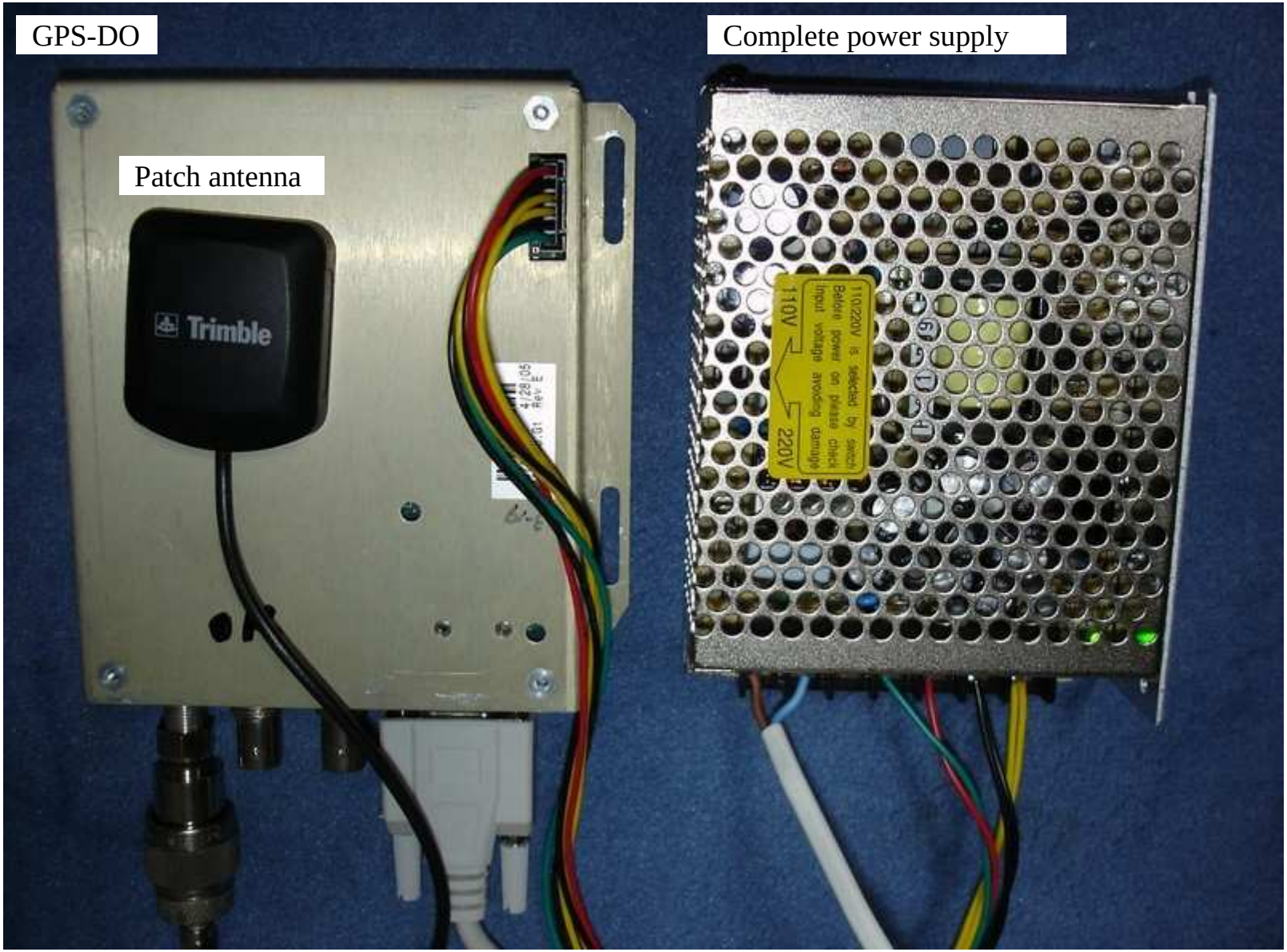
Abstract

Power supply / Thunderbold association

Using the PC soft Tboltmon.exe
- -Self survey
- -Optional : QTH real ASL heigth
- -Accurate coordinates savings

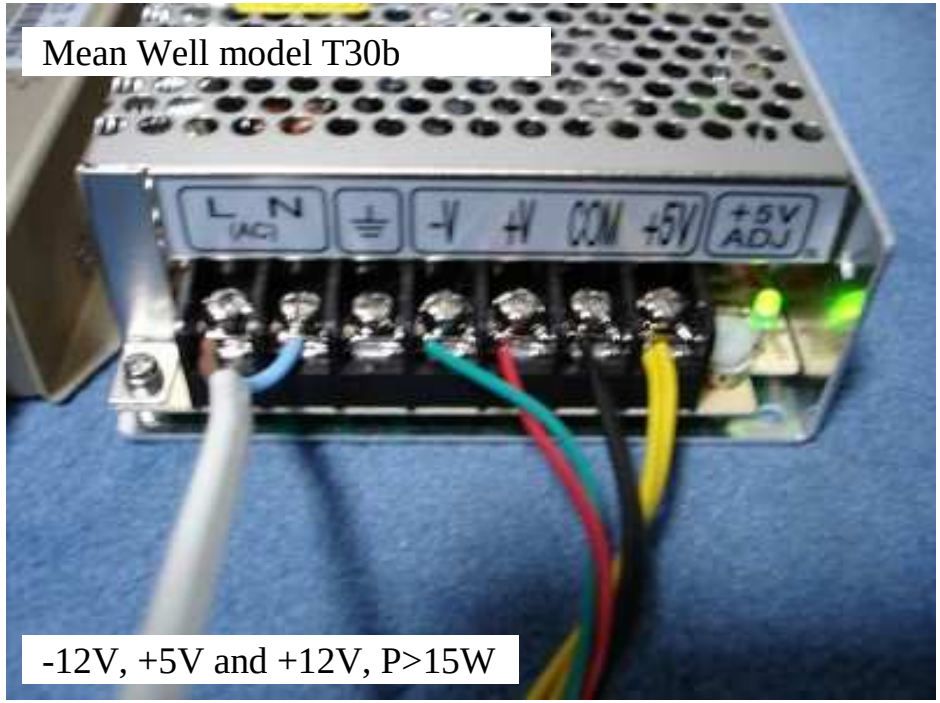
Maximal locking, then disciplining time after savings
Final Lissajoux curve (ref = Tekelec epsilon GPS-DO)

Mains connection



Mains connection

30W multiple output power supply

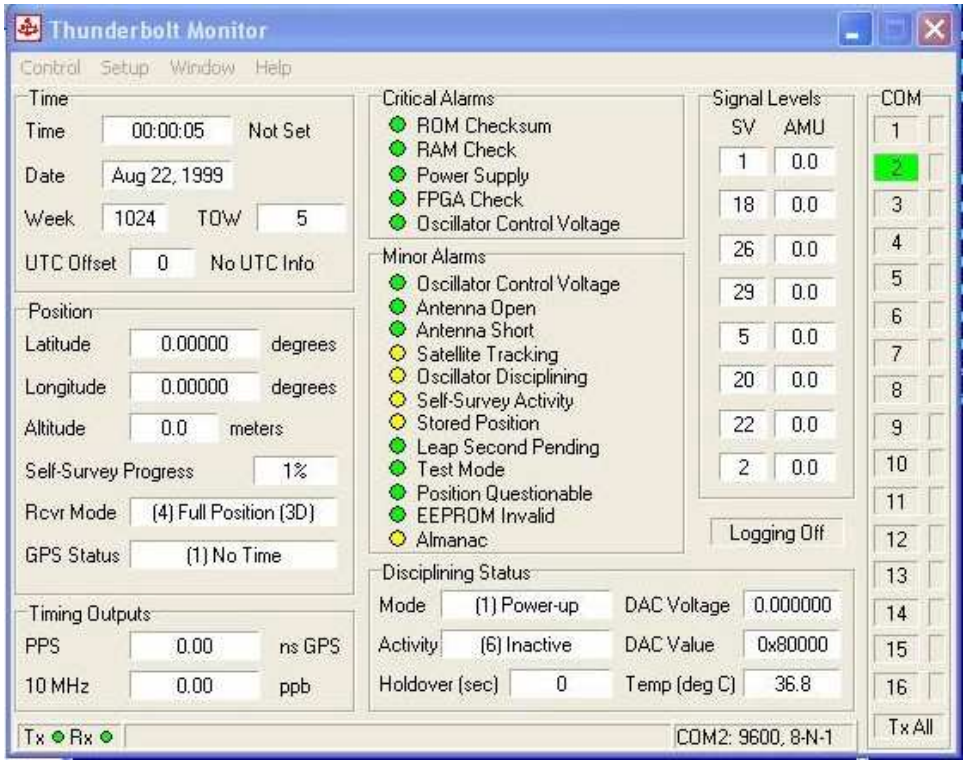


Trimble Thunderbold

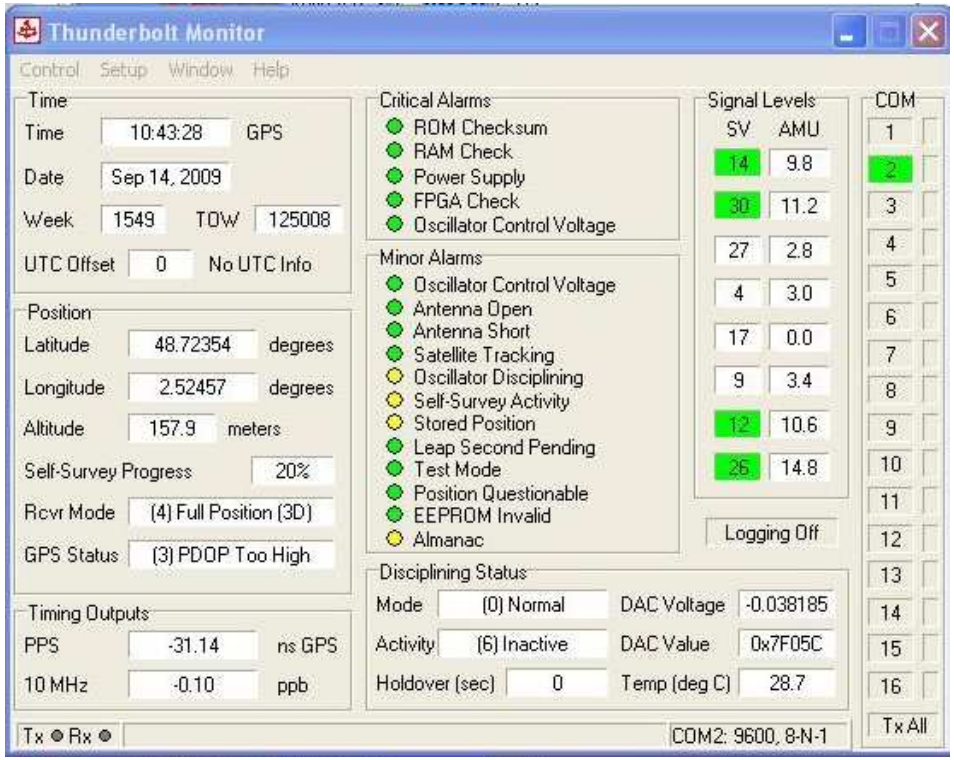
Only 15W needed

Tboltmon.exe soft : self survey

After DC switching on



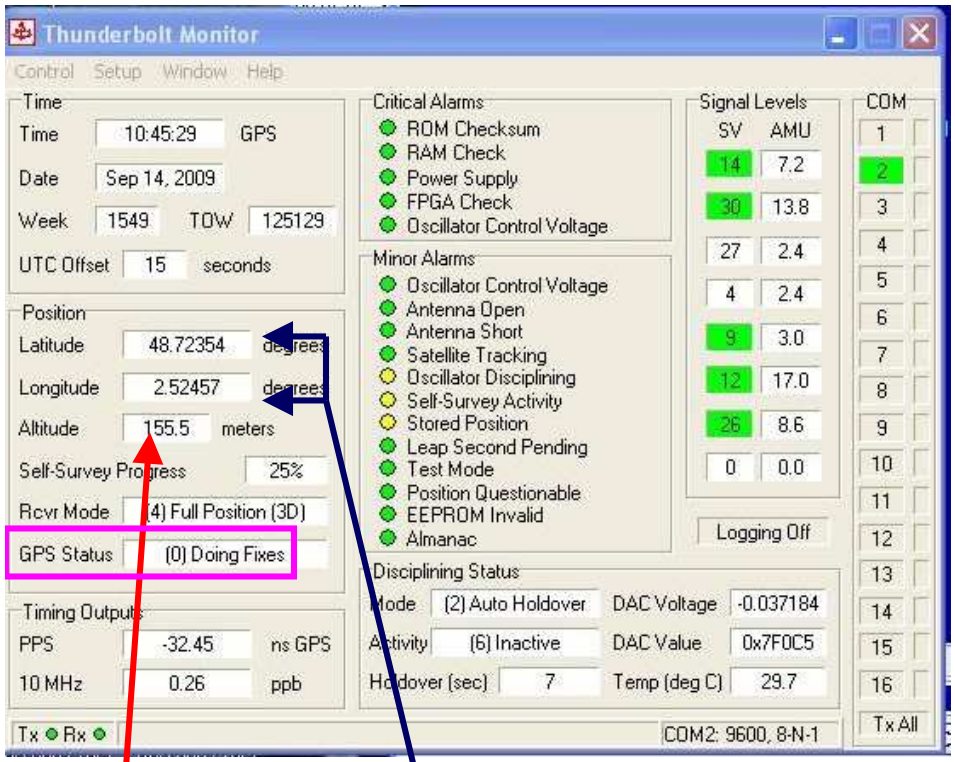
After 5 minutes

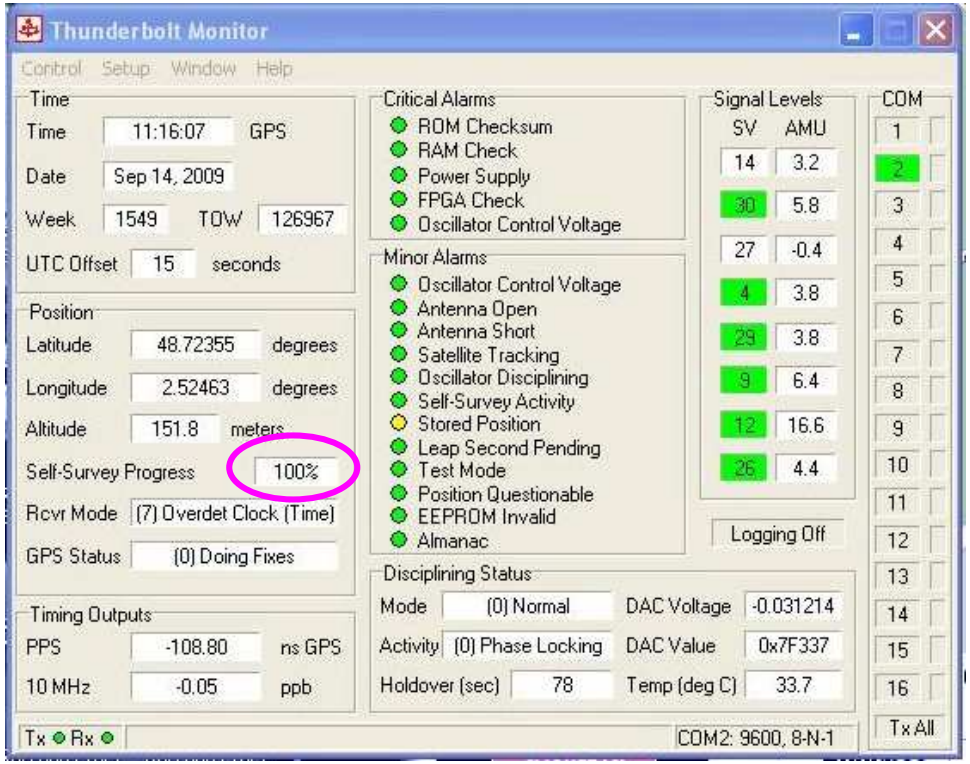


Tboltmon.exe soft : self survey

After 7 minutes

After 34 minutes



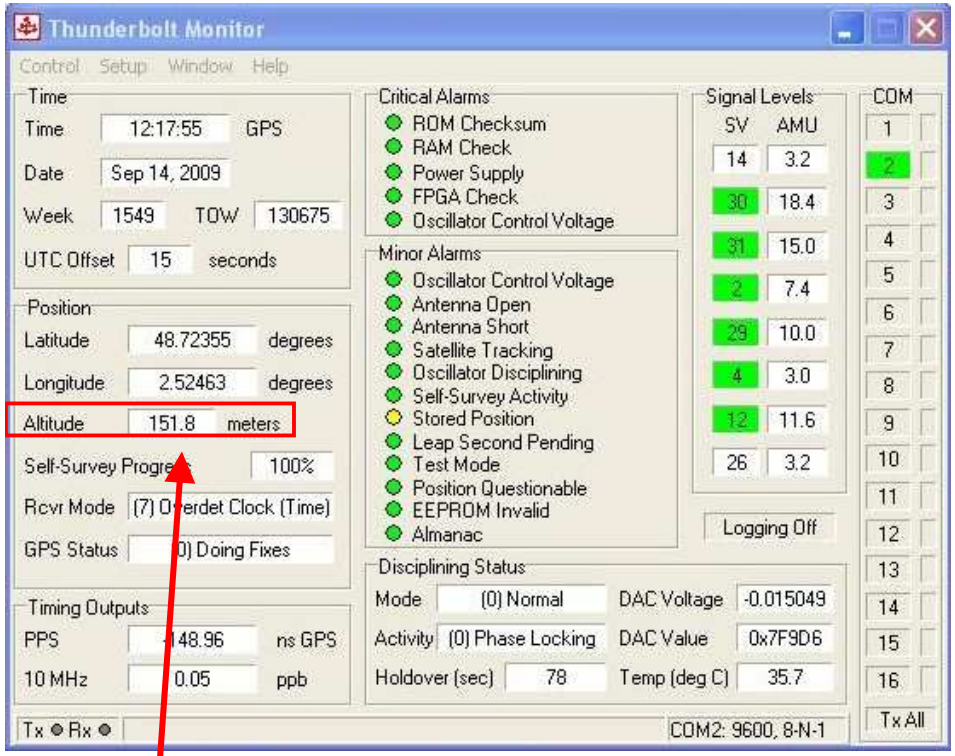


Self adjusting lat + long

Self adjusting QTH heigth !

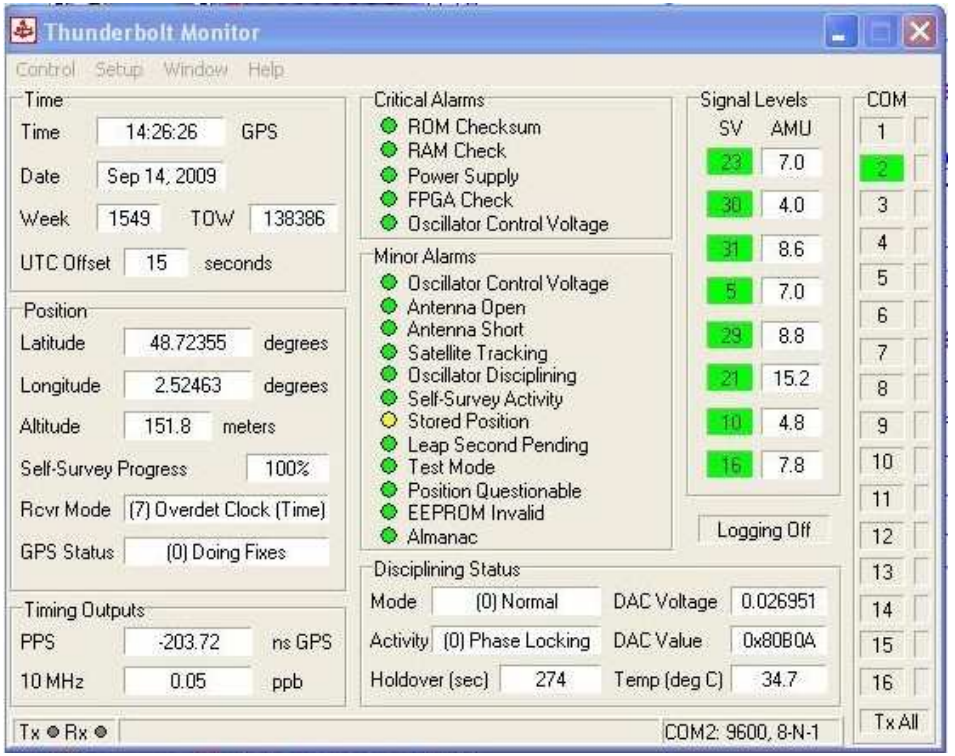
Tboltmon.exe soft : self survey

After 1 hour & 34 minutes



ASL false !

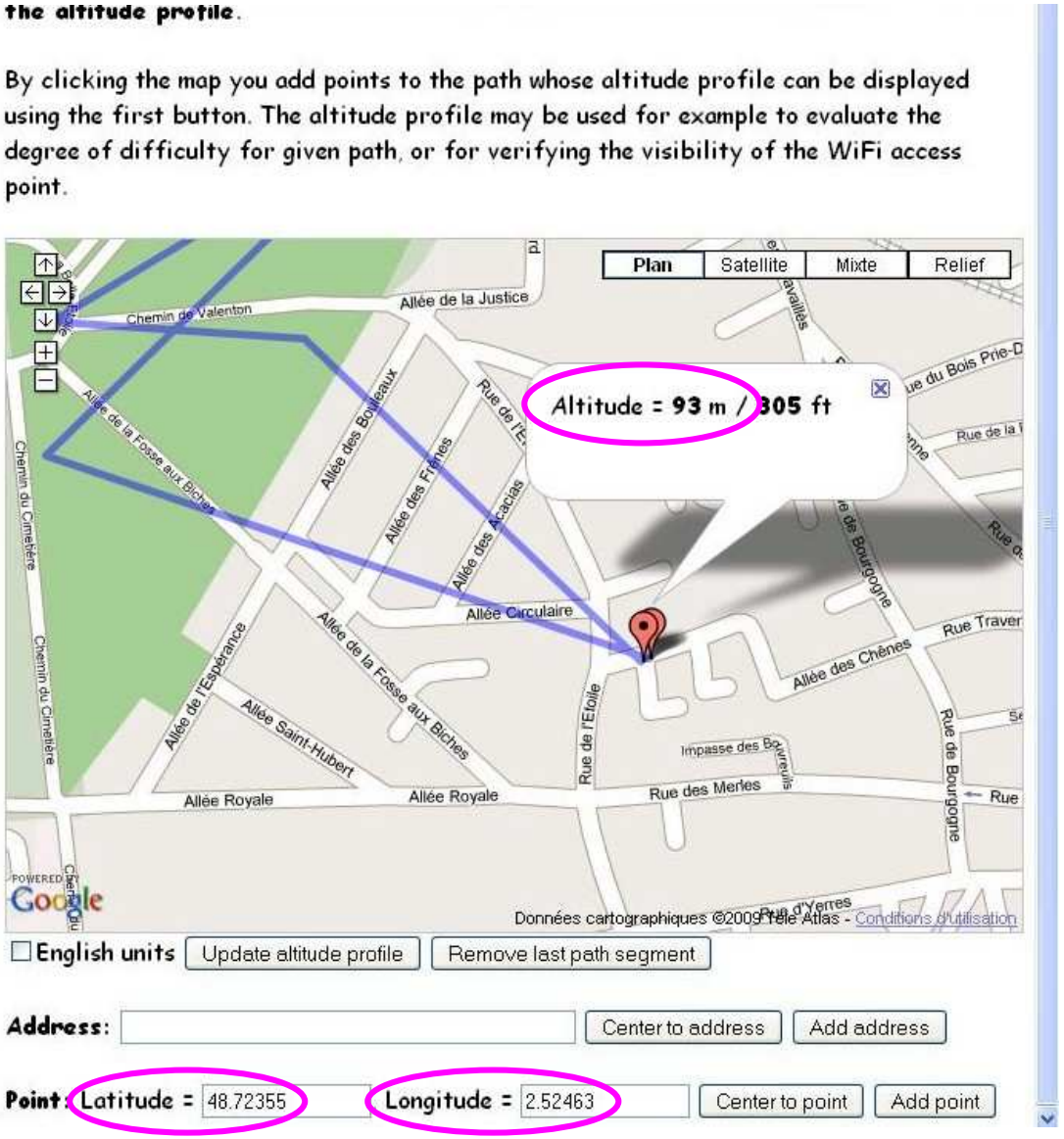
After 2 hours



Optional : QTH real ASL heigth

According to www.topocoding.com

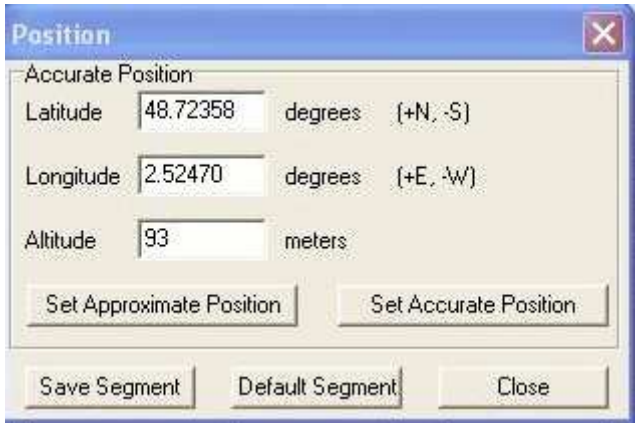
With exactly same longitude / latitude coordinates

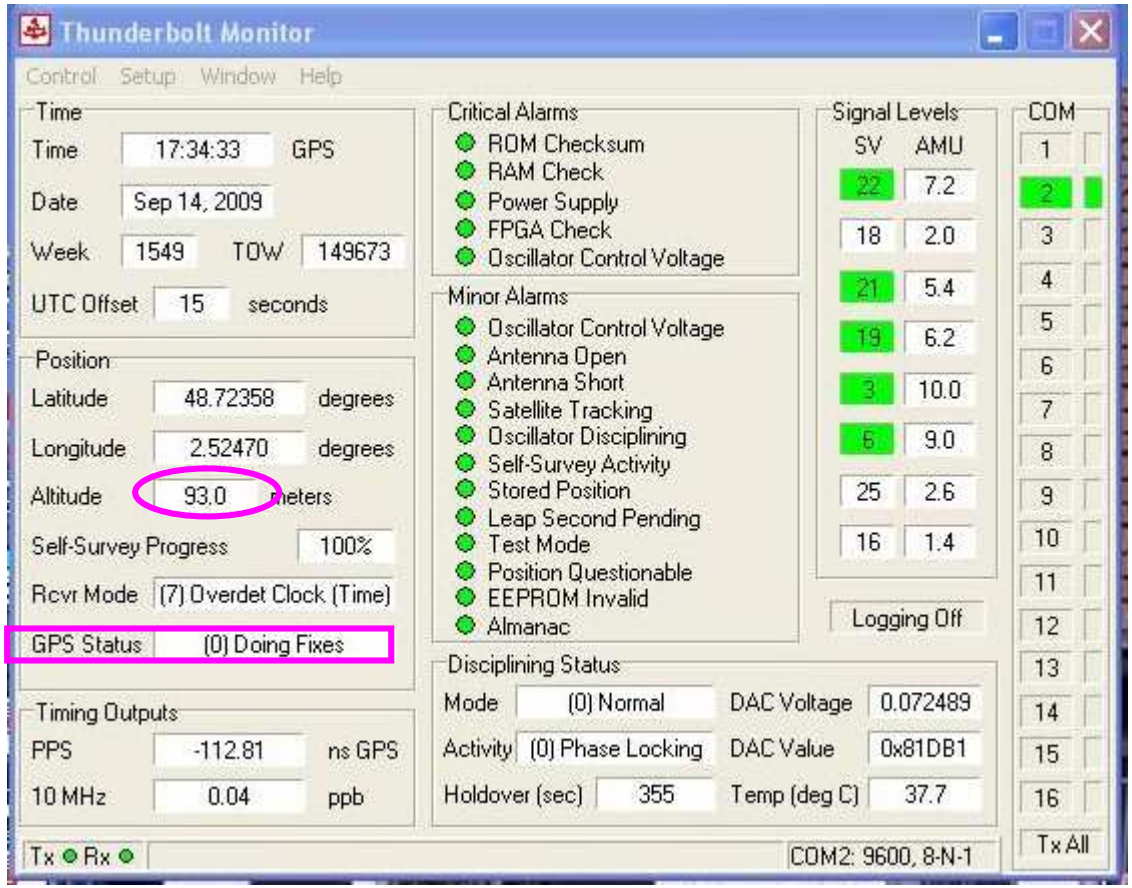


Tboltmon.exe soft : accurate coordonates savings

Accurate position entering

Lat + long + Alt saved

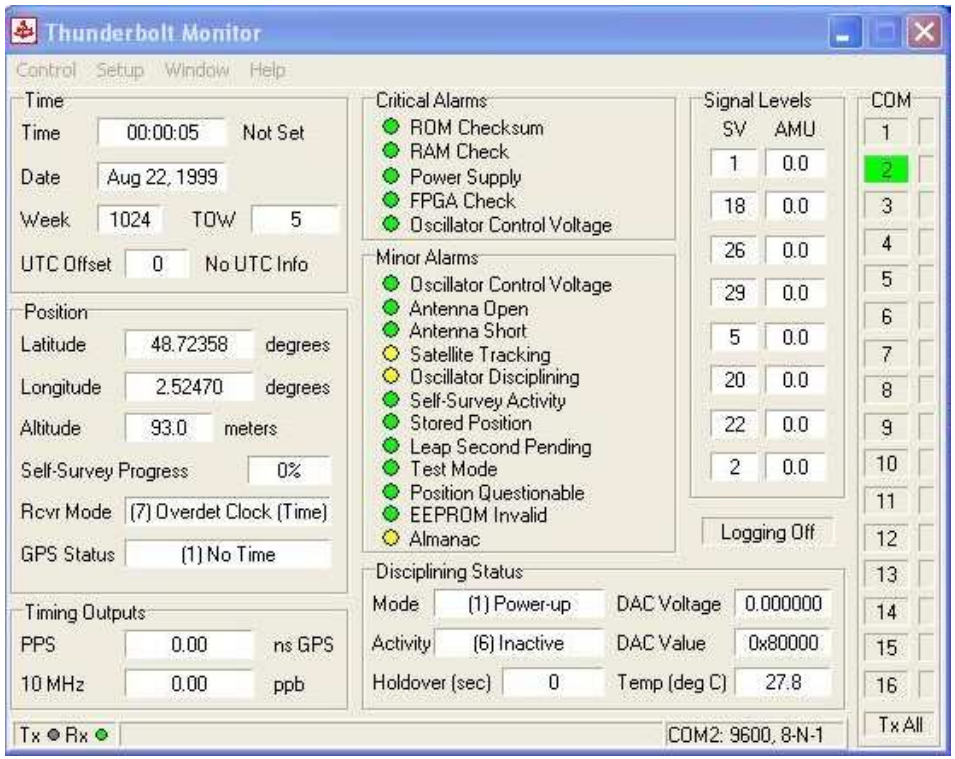


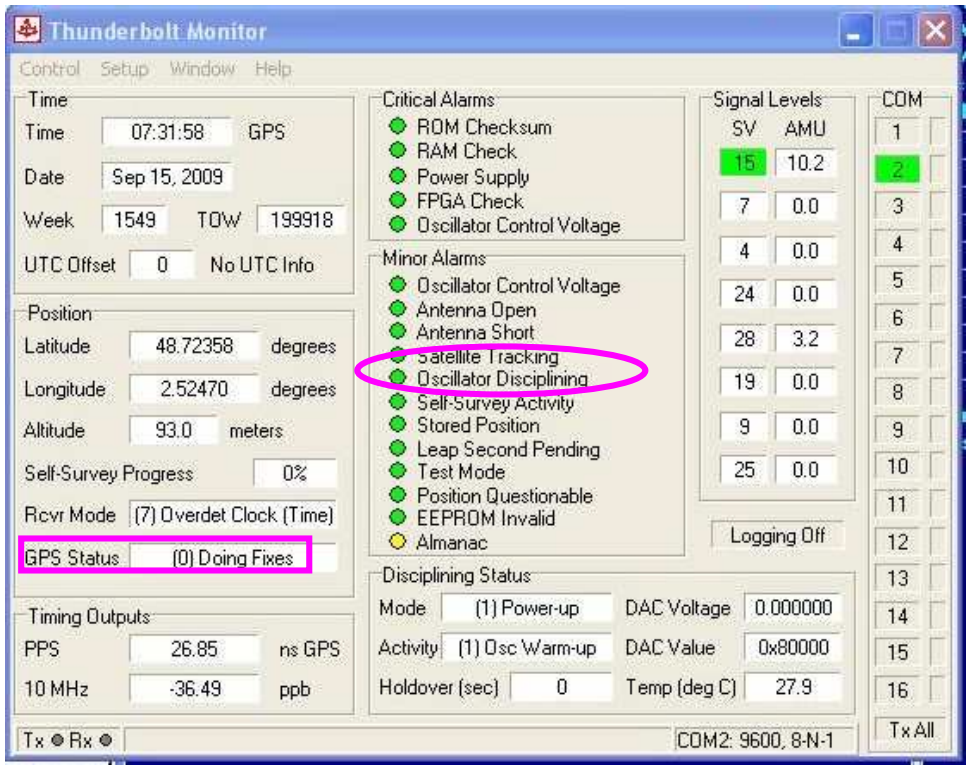


Tboltmon.exe soft : max locking time after savings

After new DC switching on

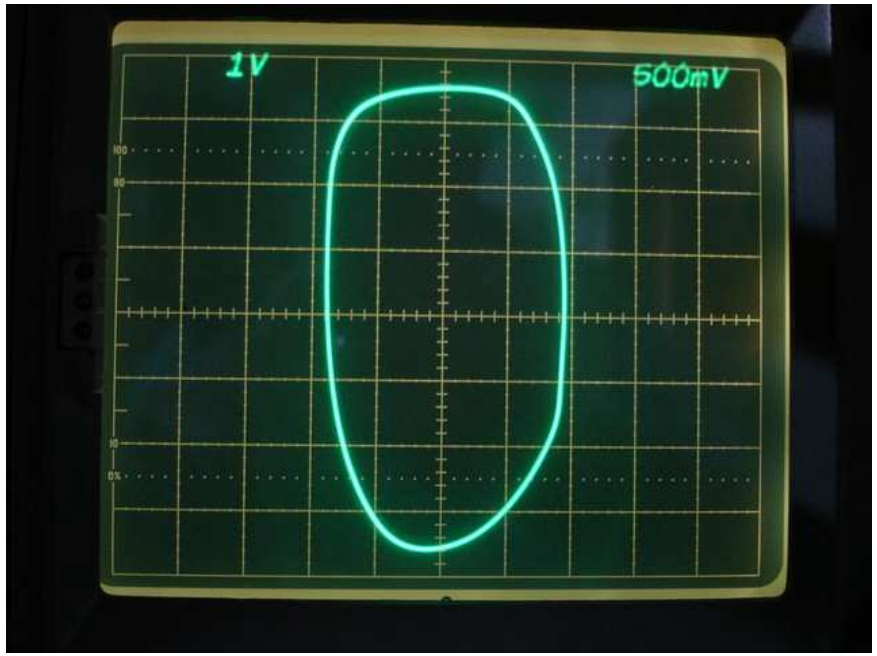
After 3 minutes : GPS locked !



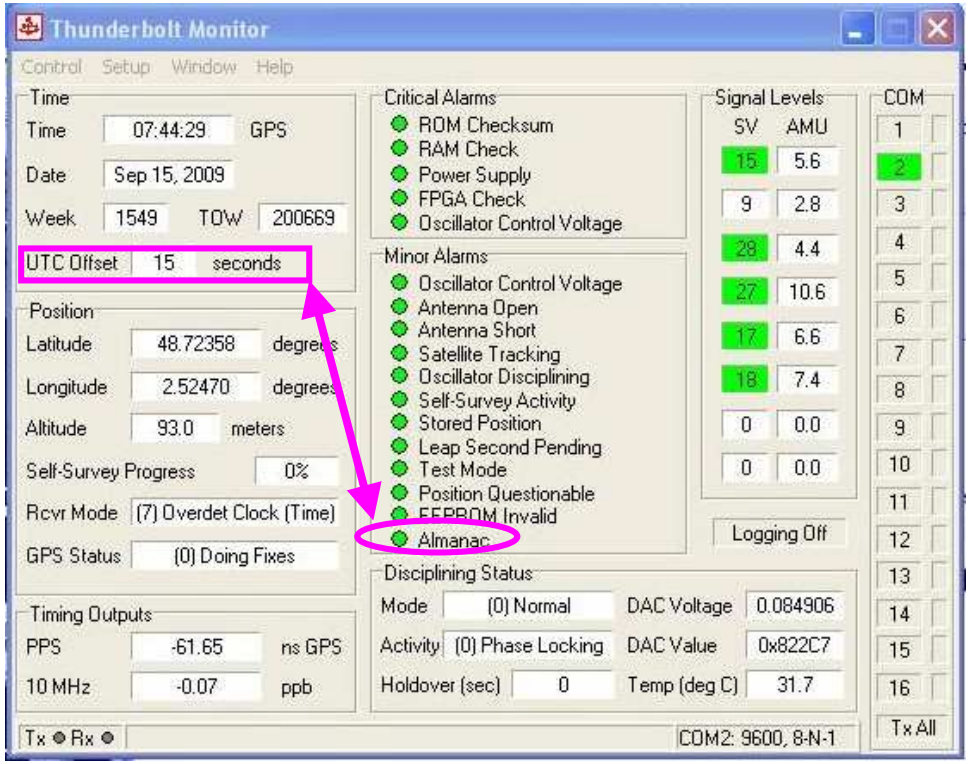


Tboltmon.exe soft : max locking time after savings

T< 5 minutes : GPS totally disciplined



After 15 minutes



Almanac = all visible satellites totally « explored »

Conclusion

Final Lissajous curve after savings

10 MHz outputs from respectively Thunderbold and Tekelec Epsilon GPS-DOs

Marconi 2440 locked on Tekelec Epsilon GPS-DO

Max total disciplining time 5 minutes