

What is the best repeatability one might expect on an i80?

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Thesis: If a base / rover pair is setup on as stable of platform with a short baseline, what is the best repeatability one might expect?

Answer: It is hard to say what the performance under canopy (urban or forest) might be, but operation in wide-open will set an absolute best-case-scenario.

To test this, I setup my test bar in Browns Park in a wide open area:



The bar allows me to hold the relative position of the receivers completely fixed regardless of temperature and wind. The SECO adapters:





I collected data for 424 minutes (7.1 hours), taking a 10-second average every minute.

Tabulating the results in Excel:

...						
	1417	2285929.580	695204.462	1728.505	bar	0.004357
	1418	2285929.584	695204.464	1728.507	bar	0.002801
Meters	Y	X	H	dXY		
Max	2285929.584	695204.464	1728.511	0.004		
Min	2285929.577	695204.454	1728.491	0.000		
Rng	0.007	0.009	0.020	0.004		
Avg	2285929.585	695204.461	1728.506	0.003		
StdDev	0.002	0.002	0.006	0.001		
Sfeet						
Max	7499753.976	2280849.977	5670.958	0.013		
Min	7499753.955	2280849.946	5670.891	0.000		
Rng	0.021	0.031	0.067	0.013		
Avg	7499753.979	2280849.969	5670.939	0.009		
StdDev	0.008	0.006	0.019	0.005		



The results are impressive. Normally we would evaluate twice the RMS deviation (2DRMS) of the horizontal position (highlighted in cyan above.) 1-hundredths is impressive. But perhaps more impressive is the maximum 2D difference from the average is only 13-hundredths.

Every single shot (which was a 10 point average) was within 0.013 feet.

The elevation varies by 7-hundredths which is also impressive.