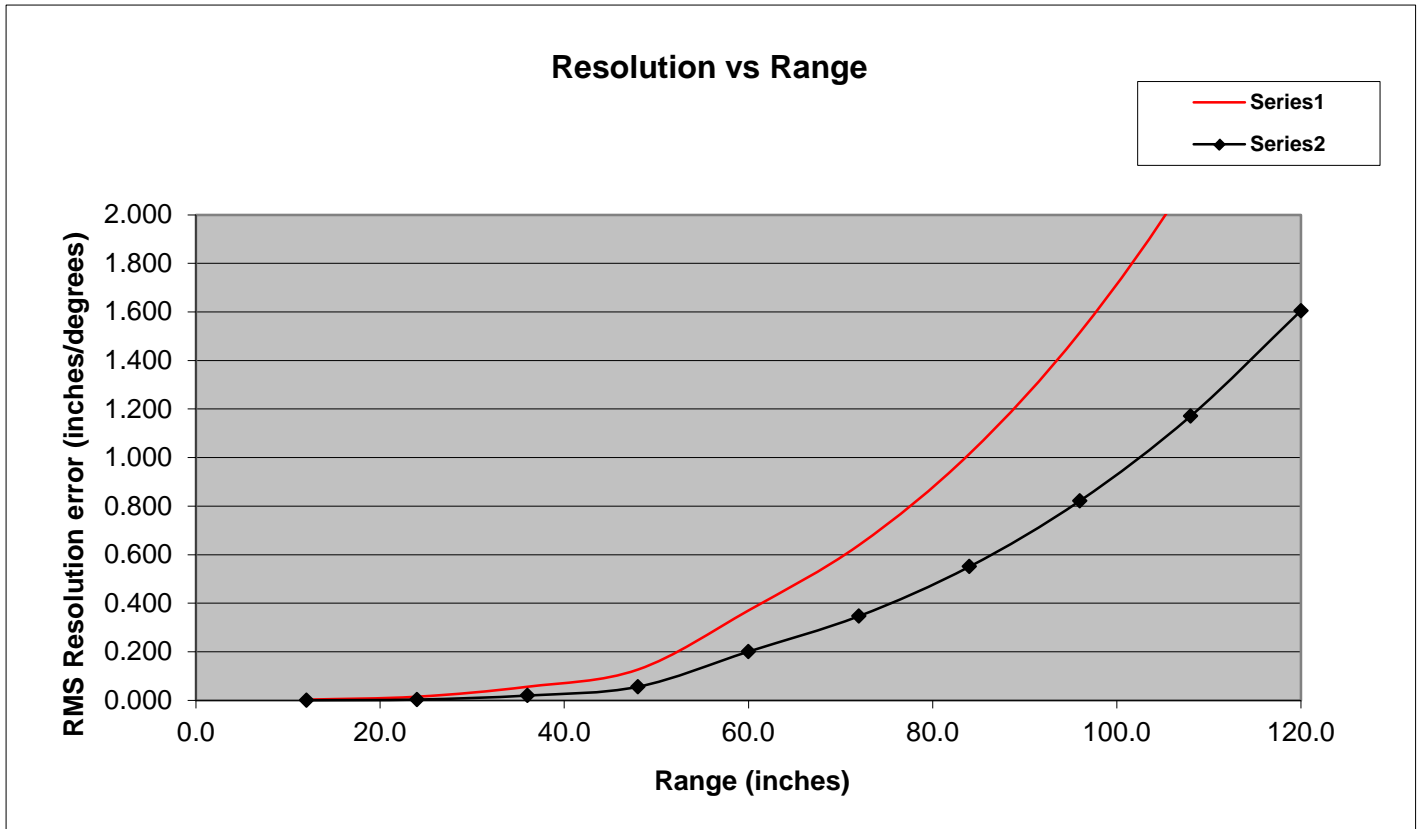


Polhemus Motion Tracking Technical Comparisons - Tracking Performance

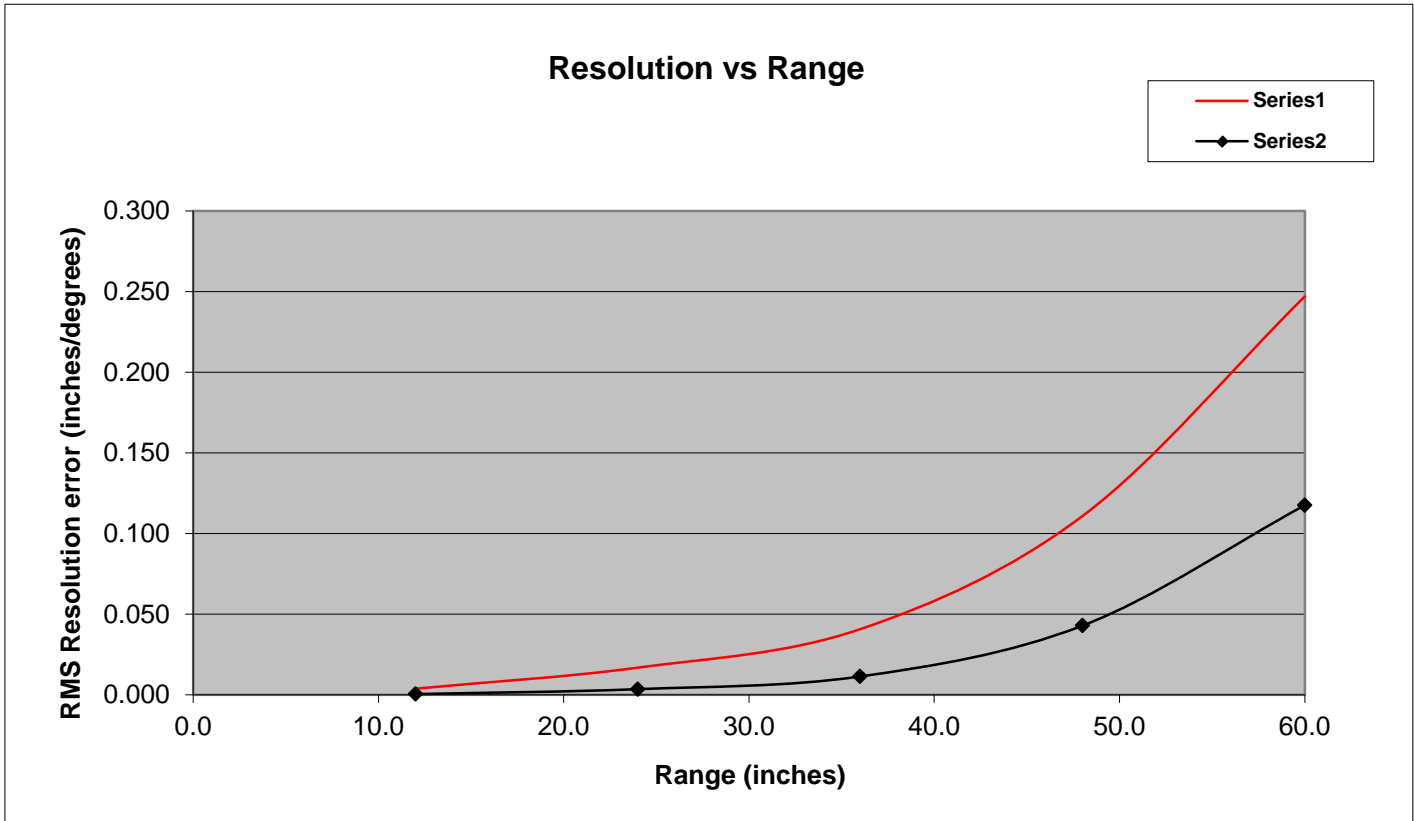
Specifications	VIPER™	FASTRAK®	PATRIOT™	LIBERTY™	LIBERTY™ LATUS™ (wireless)	PATRIOT™ WIRELESS	G4™ (wireless)
Update Rate	240Hz (VIPER 4) 960Hz (VIPER 8 & 16) per sensor	120Hz (divided by number of sensors)	60Hz per sensor	240Hz per sensor	188Hz (1-8 markers) 94Hz (9-12 markers)	50Hz (1-4 markers)	120Hz per sensor
Angular Range	All attitude	All attitude	All attitude	All attitude	All attitude	All attitude	All attitude
Latency	3ms (at 240Hz) 2ms (at 480Hz) 1ms (at 960Hz)	4ms	18.5ms	3.5ms	5ms	20ms	Less than 10ms in optimal RF communication conditions
Operating Temperature (minimum to maximum)	10°C to 40°C	10°C to 40°C	10°C to 40°C	0°C to 50°C	0°C to 50°C	10°C to 40°C	10°C to 40°C
Operating Voltage	100-240 VAC 50-60Hz	100-240 VAC 47-63Hz	100-240 VAC 50-60Hz	100-240 VAC 50-60Hz	100-240 VAC 50-60Hz	100-240 VAC 50-60Hz	Source: 100-240 VAC; 50/60Hz; RF Dongle: USB powered 5 volt, 30 ma; Hub: internal rechargeable battery included
Cable Length (contact us for custom lengths)	10 ft or 20 ft (approx. 3m or 6.1m)	10 ft or 20 ft (approx. 3m or 6.1m)	10 ft or 20 ft (approx. 3m or 6.1m)	10 ft or 20 ft (approx. 3m or 6.1m)	Receptor 60 ft or 120 ft (approx. 18m or 37m)	Receptor 20 ft or 60 ft (approx. 6.1m or 18m)	2 ft, 4 ft or 6 ft (approx. 0.61m, 1.22m or 1.83m)
Software Tools	Microsoft Windows®/10 GUI Unity: Sample open source code included Linux: Sample open source code included	Microsoft Windows® GUI/ Linux® GUI	Microsoft Windows® GUI/ Linux® GUI	Microsoft Windows® GUI/ Linux® GUI	Microsoft Windows® GUI/Linux® GUI	Microsoft Windows® GUI	Microsoft Windows® GUI/Linux® GUI/Full Linux Support
Interface	USB; RS-422, both standard; dual output available	RS-232 or USB 2.0 (both included)	RS-232 or USB 2.0 (both included)	RS-232 or USB 2.0 (both included)	RS-232 or USB 2.0 (both included)	RS-232 or USB 2.0 (both included)	Proprietary RF link via USB
Degrees-of- Freedom	6DOF	6DOF	6DOF	6DOF	6DOF	6DOF	6DOF
Number of Sensors	1-16 sensors	1-4 sensors	1-2 sensors	1-16 sensors	1-12 wireless markers	1- 4 wireless markers	3 sensors per hub
Static Accuracy Position	0.015 inches RMS (0.38mm)	0.03 inches RMS (0.76mm)	0.06 inches RMS (1.52mm)	0.03 inches RMS (0.76mm)	0.1 inches (2.54mm) (1 marker at 30 inches)	0.3 inches (7.62mm) (1 marker at 30 inches)	0.08 inches RMS (2.0mm)
Static Accuracy Orientation	0.10° RMS	0.15° RMS	0.40° RMS	0.15° RMS	0.5° (1 marker at 30 inches)	1.0° (1 marker at 30 inches)	0.50° RMS

FASTRAK (graph A)



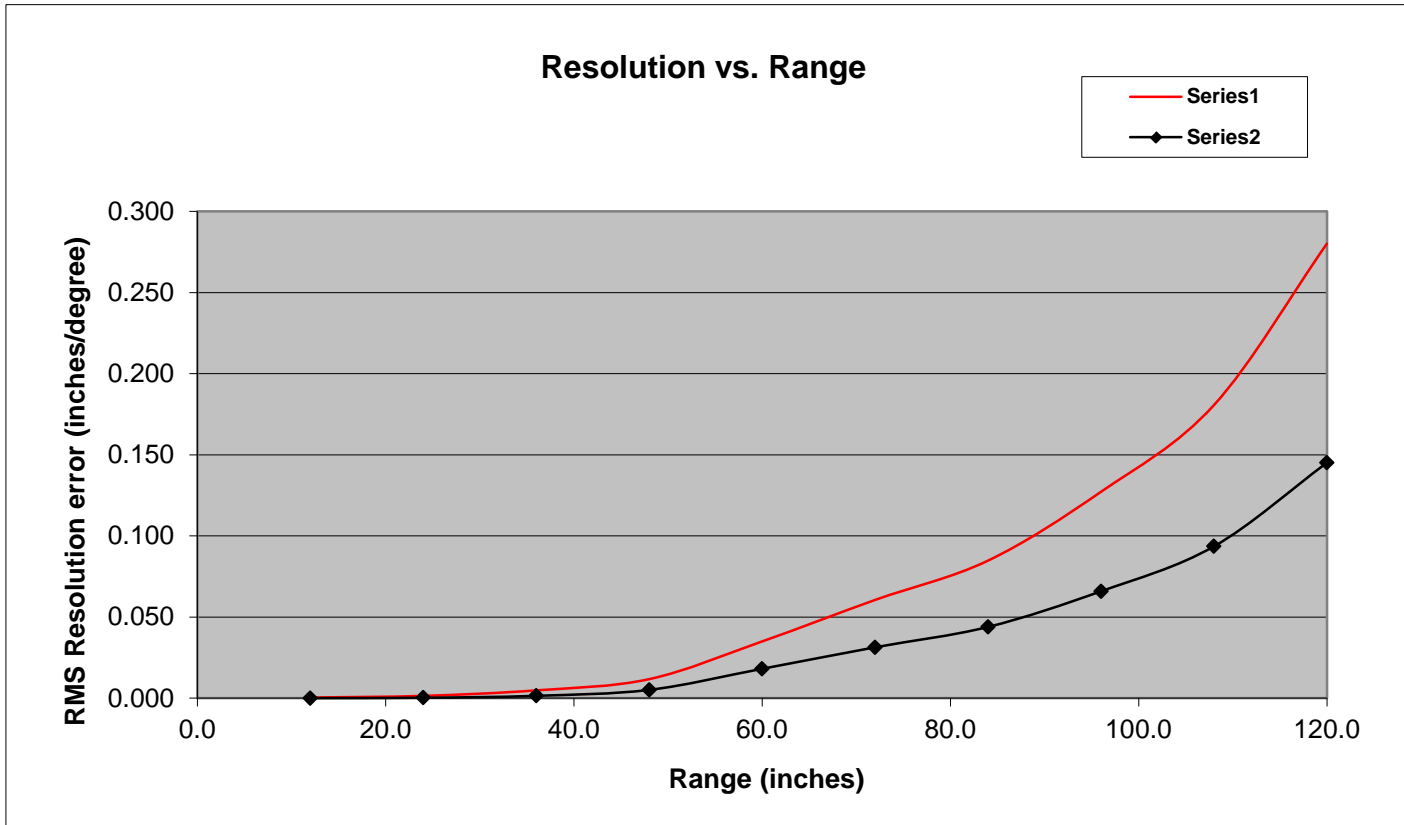
Range (inches)	Orientation Resolution (degrees)	Position Resolution (inches)
12.0	0.00266	0.00023
24.0	0.01475	0.00306
36.0	0.05581	0.01957
48.0	0.12666	0.05581
60.0	0.37009	0.20065
72.0	0.63951	0.34673
84.0	1.01552	0.55059
96.0	1.51588	0.82187
108.0	2.15835	1.17020
120.0	2.96070	1.60521

PATRIOT (graph B)



Range (inches)	Orientation Resolution (degrees)	Position Resolution (inches)
12.0	0.00381	0.00046
24.0	0.01686	0.00352
36.0	0.04070	0.01139
48.0	0.11084	0.04289
60.0	0.24700	0.11754

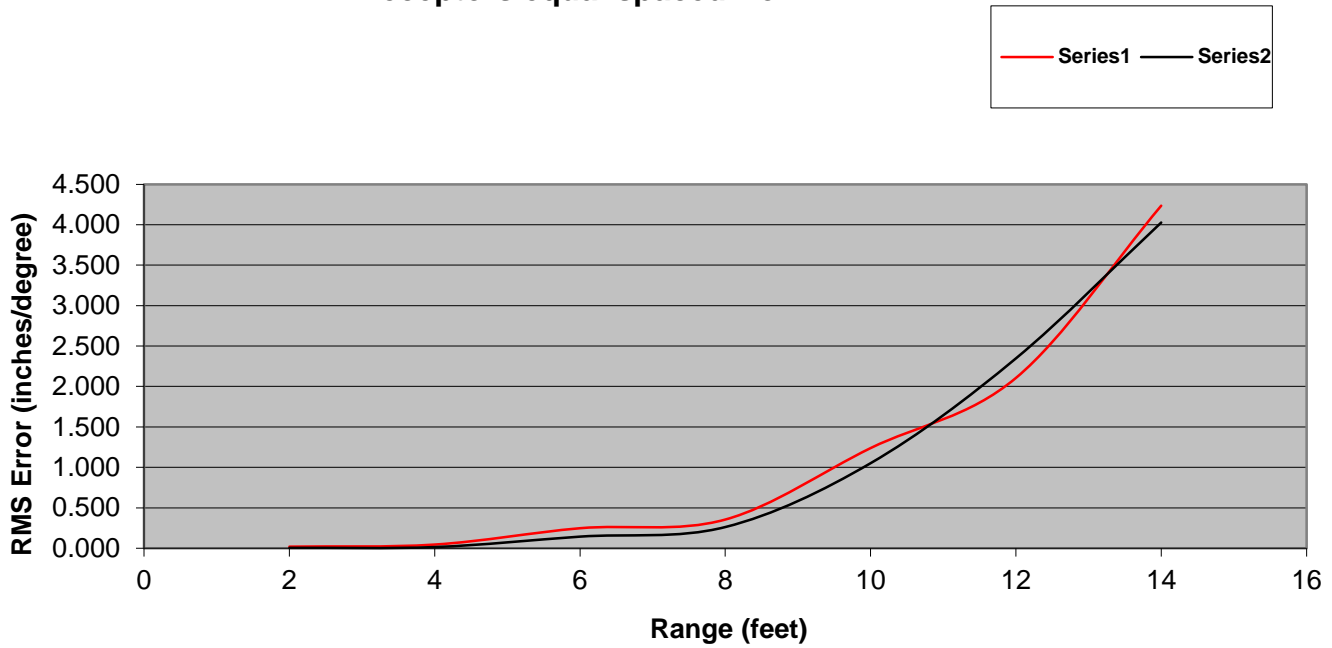
LIBERTY (graph C)



Range (inches)	Orientation Resolution (degrees)	Position Resolution (inches)
12.0	0.000415	0.000056
24.0	0.001450	0.000285
36.0	0.004843	0.001484
48.0	0.011768	0.005141
60.0	0.035014	0.018139
72.0	0.060574	0.031380
84.0	0.084804	0.043932
96.0	0.127206	0.065898
108.0	0.180633	0.093575
120.0	0.280113	0.145109

LIBERTY LATUS (graph D)

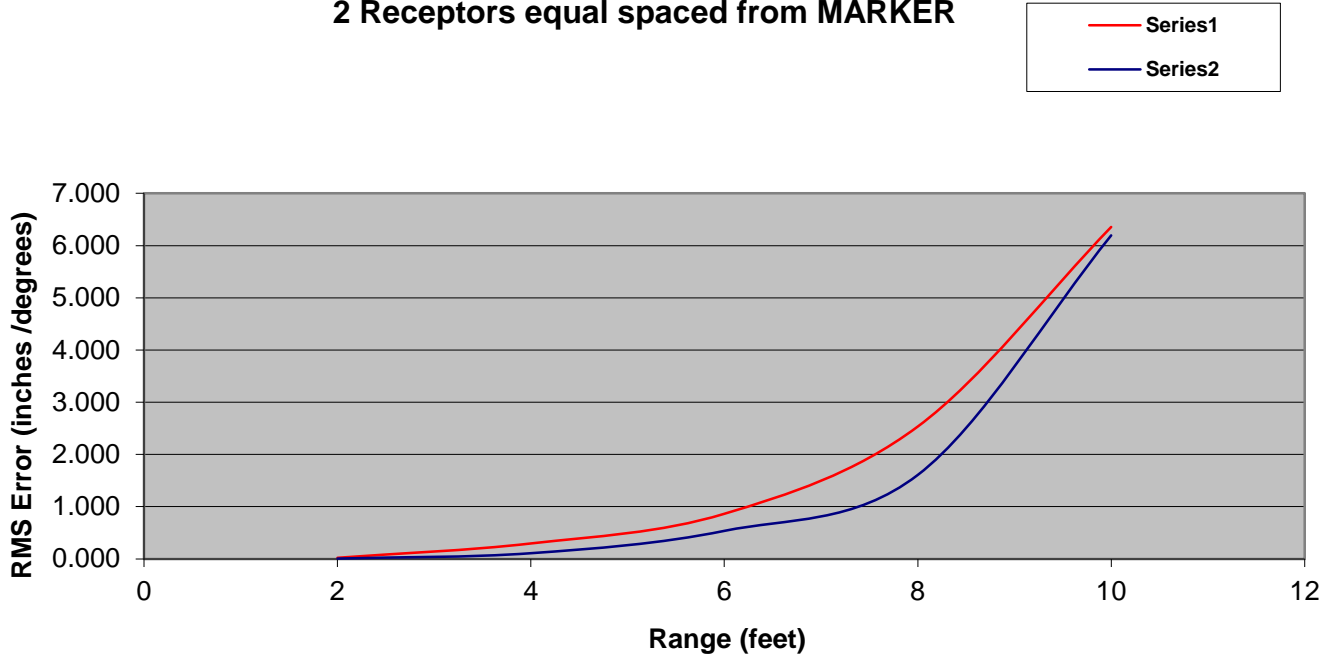
Resolution vs. Range 2 Receptors equal spaced from MARKER



Marker-Receptor Range (feet)	Orientation Resolution (degrees)	Position Resolution (inches)
2	0.020	0.005
4	0.046	0.015
6	0.248	0.144
8	0.355	0.262
10	1.239	1.052
12	2.106	2.347
14	4.235	4.027

PATRIOT Wireless (graph E)

Resolution vs. Range 2 Receptors equal spaced from MARKER



Marker-Receptor Range (feet)	Orientation Resolution (degrees)	Position Resolution (inches)
2	0.021	0.006
4	0.296	0.109
6	0.864	0.537
8	2.534	1.608
10	6.356	6.195

Orientation Degree RMS

1

1.25

4.25

10