

LTI TruPulse 200 Height Measurement Performance

The Height measurement performance of the LTI TruPulse 200 needed to be quantified so a potential customer could determine whether it would meet their criteria for field use. Since their typical targets would be from 50 - 150' in height and the distances away from them 25 - 150', a test site was established adjacent to a high-rise office building. Good geometry dictates that your "top" angle be < 45 deg., but we wanted to test the unit above that in case conditions in the field forced a user into this situation.

The table below shows the data collected. Control was shot in with a survey grade total station ("Height" column on left). The distance away from the face of the building was measured at 76.93'. The "Mounted" column represents data taken with the TruPulse mounted on a standard photo tripod. The "Handheld" data was taken free holding the unit while standing over the mark. Most data points represent the edges of window panels visible on the outside of the building.

Height (ft)	Mounted	err	Handheld	err
3.99	3.7	0.3	3.8	0.2
7.38	7.3	0.1	7.7	-0.3
10.51	10.1	0.4	10.3	0.2
18.16	18.2	-0.0	17.6	0.6
23.85	23.7	0.2	24.2	-0.3
29.32	29.0	0.3	28.9	0.4
35.10	34.8	0.3	35.4	-0.3
40.57	40.9	-0.3	40.9	-0.3
46.27	46.5	-0.2	45.7	0.6
51.65	51.6	0.0	51.9	-0.3
57.48	57.6	-0.1	58.1	-0.6
62.95	63.6	-0.6	64.1	-1.1
68.63	68.7	-0.1	68.7	-0.1
74.09	74.7	-0.6	74.7	-0.6
79.96	79.9	0.1	79.5	0.5
85.41	86.0	-0.6	85.1	0.3
91.16	91.2	-0.0	91.5	-0.3
96.30	96.4	-0.1	95.2	1.1
102.42	102.7	-0.3	101.5	0.9
Standard Deviation		0.3		0.6

Analysis of the data shows the TruPulse performing well within specification and meeting the "1 foot" accuracy requirement of the customer. It even proved reliable on height measurements made with top angles > 45 deg. - important for the customer as a time saving feature. If the Height values they want to measure happen to double on another project, one could extrapolate these data and predict a doubling of the errors found here.