

Comparison Study of New Low Cost Doppler Radar Technology to LIDAR in Measuring Traffic Speeds

Introduction:

Up to this point in time, it has required a large expensive Radar or LIDAR “gun” to measure speed at a distance. Today, new technology has been developed that provides convenient and affordable speed measurement. The new Pocket Radar_{TM} is about the size of a modern cell phone and claims to be just as accurate as the more expensive technology.

Data Collection:

A Transportation Department recently conducted a spot speed study to compare the new Pocket Radar_{TM} to an expensive LIDAR unit for accuracy.

Two separate field tallies were made during the study, one using the LIDAR and the other using the Pocket Radar_{TM} that was under evaluation.

Results:

The field data and calculated results are as follows:

MOTOR VEHICLE SPEED STUDY SUMMARY
16-May-12

	Location 1		Location 2	
Device	POCKET RADAR	LIDAR	POCKET RADAR	LIDAR
50 th Percentile	51.7	51.6	51.4	51.3
85 th Percentile	58.0	57.8	55.5	55.7

Conclusions and Observations:

In summary, the comparison field data results indicate that the accuracy and performance of the new Doppler radar device, Pocket Radar_{TM} were well within the manufacturer’s specification of +/- 1 MPH and very comparable to the expensive LIDAR unit.

In addition to matching the LIDAR in accuracy, the Pocket Radar_{TM} also surpassed the traditional LIDAR in five major areas: portability, battery life, update rate, covert observation, and cost.

The LIDAR consists of a 15-pound carrying case along with 2 batteries and a car adapter, while the Pocket Radar_{TM} fits easily inside a shirt pocket.

Furthermore, the Pocket Radar runs on 2 AAA batteries and makes 10,000 readings on a single set, while the LIDAR runs on large proprietary rechargeable batteries.

The Pocket Radar_{TM} also has an edge on the LIDAR in how quickly it reads speeds, making almost instantaneous measurements while the LIDAR has to track for at least several seconds.

In many traffic studies, motorists are prone to alter their behavior when they detect the use of large devices such as LIDAR, which can skew the data. In contrast, the small size of the Pocket Radar_{TM} allows for very discreet measurements so motorists do not know they are being tracked, allowing for a more accurate assessment of true behavior.

Lastly, the Pocket Radar_{TM} can be purchased for under \$300, while the LIDAR is priced closer to \$3000.

One area where the LIDAR has an advantage is in pinpointing an individual vehicle in very dense traffic situations.

Overall this study showed that the Pocket Radar_{TM} is a very effective and accurate tool for traffic surveys.