Other rulings on the reliability of laser to accurately measure the speed of a vehicle are:

State of Louisiana v. Mark A. Marcelle, Sr.
September 1991
Nineteenth Judicial District Court
Parish of East Baton Rouge
State of Louisiana, Section 1
Judge Freddie Pitcher, Jr.

State of California vs. Guy Estcourt Lewis
September 1993
County of Los Angeles, Division 1
No. J3799122350 v.e.
Hon. Roy L. Paul, Commissioner

Layton City v. Brandon Shane Barber
January 1992
Second Circuit Court
State of Utah
Davis County
Layton Department
Judge K. Roger Bean

David Ellis Goldstein vs. State of Maryland
Citation issued July 17, 1992
Argued April 10, 1995
Ruling issued September 7, 1995
No. 94, September Term, 1994
Maryland Court of Appeals

Admissibility of Motor Vehicle Speed Readings
Produced by the LTI Marksman 20-20
Laser Speed Detection System
714 A.2d 381, 391-92 (New Jersey Superior Court 1998)

The most significant court case regarding the use of police traffic lidar came from the Superior Court of New Jersey. This case included an evidentiary hearing which was a consolidation of approximately 30 cases. On June 13, 1996, following five days of testimony, Judge Reginald Stanton ordered: "speed reading produced by the LTI Marksman 20-20 Laser Speed Detection System shall not be used in the prosecution of any case, ... no municipal court .... shall receive in evidence a speed reading generated by the LTI Marksman 20-20 Laser Speed Detection System in connection with any prosecution arising under the motor vehicle laws."

This case received national attention when an article was published in May 1997, CAR and DRIVER magazine under the heading "Laser Loses A Legal Test." The article further stated, "Finally, in one courtroom, the defense asked tough questions, and the laser-gun folks had the wrong answers."

Judge Reginald ruled that the prosecution failed to demonstrate "adequate performance testing of the laser speed detector under conditions which exist on our highways."

LTI engineers testified they had tested the lidar in question on a closed circuit track with specially modified vehicles equipped with a large concave dish mounted to the front of the vehicle - to insure a good return signal. During cross-examination they admitted they had never tested the lidar on public streets with ordinary vehicles of all shapes, sizes and colors.

During the following 18 months the New Jersey State Police tested and documented 1,908 cases where the LTI Marksman 20-20 was utilized in conjunction with other speed measuring devices including; K-55 radar, a PEEK 241 recorder, a Compulink System III, and by a fifth wheel attached to the test vehicle. During these tests only 16 cases produced a speed reading by the laser which exceeded the reading produced by the comparison device by more than one mile per hour. (In 15 cases the reading was 2 m.p.h. variance, while one case produced a variance of 3 m.p.h.) That amounts to a total variance of .08%. The majority of these variant readings were taken during inclement weather. Judge Stanton later wrote, "It is possible that the rainfall may have been affecting the comparison device more than the laser speed detector ...." It should be noted that none of the lidar readings varied by greater than one m.p.h. when compared to radar.

Following this testing Judge Stanton noted, "I am satisfied from the totality of the evidence presented to me that the laser speed detector produces reasonably uniform and reasonably reliable measurement of the speed of motor vehicles under conditions likely to be present on New Jersey when the detector is used for law enforcement purposes."

On March 20, 1998, Judge Reginald Stanton ordered, "speed reading produced by the LTI Marksman 20-20 Laser Speed Detection System manufactured by Laser Technology, Inc. shall be admitted into evidence in all municipal courts .... in the prosecution of any case arising under the motor vehicle laws."

The Superior Court of New Jersey further ordered that admissibility to lidar is subject to the following rules:

1. Expert testimony is not required.
2. Officers must be properly trained in the use of lidar and that training must be documented.
3. The lidar must be tested according to procedures recommended by the manufacturer.
4. The court further ordered that the lidar be tested against a known speed.
5. Speed reading obtained by lidar are not affected by temperature, the degree of ambient light, or light to moderate rain. Readings shall not be accepted during heavy rainfall or while snow is falling.
6. Speed reading made at distances up to 1,000 feet are admissible. Readings obtained in excess of 1,000 feet shall be admitted only with supporting evidence and expert testimony.

The court also discussed computer programs designed to effectively eliminate lidar effects such as sweeping along a vehicle or panning from one vehicle to another. The court acknowledged that the LTI 20-20 contains computer programs which are effective in displaying an error message due to operator error. It should be noted that these lidar effects can also be overcome with a complete tracking history which includes multiple readings over a 3 to 5 second period of time.

State of Hawaii v Abiye Assaye

On September 30, 2009, the Supreme Court of Hawaii reversed a lidar court case stating the prosecution has not adduced "sufficient evidence to prove every element of the offense beyond a reasonable doubt." This case resulted from a citation issued September 5, 2007, by a Honolulu Police Officer, certified to operate the LTI 2020 Ultralight lidar. The motorcycle officer testified he had clocked Assaye's vehicle at 90 mph in a 55 mph zone at a distance of 492 feet. The officer had tested the lidar exactly as he had been trained and in accordance to the manufacturer's specifications. Tests included: 1. Self-Test, 2. Light Segment Test, 3. Scope Alignment Test, and 4. Known Distance Test (including a delta-distance test). The Honolulu Police Officer had used the same lidar for the past 15 months and had never experienced any problems with this equipment. So why did the court dismiss this case?

To begin with, the officer stated that he was working night enforcement and observed the defendant's vehicle traveling toward his stationary location on a freeway at a rate of speed that he observed to be "faster than the speed of traffic." No further testimony was given by the officer as to any visual estimate of speed of the defendant's vehicle prior to clocking with the lidar. Plus no evidence was presented as to the officer's ability to accurately visual estimate speeds.

The officer testified that he was operating a "laser LTI 2020 Ultralight." During cross-examination the officer testified that he had no working knowledge as to the operation of the lidar. He testified that he performs the 4 tests taught by the "certified" instructor "prior to my shifts" and "after every citation issued, I test the scope alignment and that's about it that I was instructed to do by the instructors. That's all I have to know that it's operating."

The court referenced Admissibility of Motor Vehicle Speed Readings Produced by the LTI Marksman 20-20- Laser Speed Detection System, 714 A.2d 381, 391-92 (New Jersey Superior Court 1998), City of Shaker Heights v. Coustillac, 750 N.E.2d 1229, 1231-32 (Ohio Court of Appeal 2001), and State v. Ali, 679 N.W.2d 359, 366-67 (Minnesota Court of Appeal 2004) that ordered the admissibility of speed readings produced by lidar shall include "procedures recommended by the manufacturer of the laser speed detector."

No evidence was presented regarding the manufacturer-recommended testing procedures. The officer based his testimony solely on his "4 hours" of training and how he was "instructed in the testing and operating of the device." (*The officer should have also obtained and read the operators manual for the lidar in question*.) The court noted that the officer failed to testify to recommended "procedures by the manufacturer for the purpose of showing that the laser gun was in fact operating properly."

The officer also testified that he had never tested the lidar on a vehicle traveling at a known speed. The officer stated, "That's not what I was trained to do."

Furthermore, the officer did not have any knowledge of maintenance logs for the lidar in question. Nor did he know if the department required the lidars to be periodically recertified by the manufacturer or by a NHTSA Technician.

The court cited cases that held "admissible testimony based on personal knowledge" rather than an "assumption regarding the correct calibration of his measuring device, which this court held constitutes inadmissible hearsay."

The Supreme Court of Hawaii ruled that the officer's "testimony is insufficient to prove that he was qualified by training and experience to operate the laser gun." The court further stated, "... testimony showing merely that a user is "certified" to operate a laser gun through instruction given by a "certified" instructor is insufficient to prove that the user is qualified by training and experience to operate the laser gun."

11.18 LIDAR Case Law Conclusions

Once an officer has completed a course on instruction and is certified to operate lidar – training is not done. Officers must understand (memorize) **11.2 Principles of Operation**. For example, during the known-distance test officers must testify that the lidar uses proven time-distance formulas (pulse principle) and the speed of light (universal constant) to determine the known distance. Since the lidar utilizes one microprocessor to calculate time-of-flight and thus confirm the correct pulse repetition frequency, the lidar can accurately determine speed.

Then officers must obtain, read and understand the manufacturer's operator's manual (**10.7 Certification**) for the particular lidar used and follow the manufacturer-recommended procedures for testing. Officer's must further test the lidar as outlined in **11.16 Testing the LIDAR** of this training manual and in accordance to previous court rulings: Known Speed Test. All lidars must include a Technician Certification (**10.7** & **11.16**) every 3 years in accordance with manufacture's specifications and NHTSA standards. (Note: New lidars come with a Technician Certification from the factory.)

Officers must successfully complete **Visual Speed Estimations**, **Enclosure 13.2** and be prepared to present this information in a court of law. During operation officers must understand and follow a proper tracking history (**11.4 Lidar Tracking History)** and be prepared to testify as to visual observations and speed estimates prior to clocking with lidar. Officers must understand all lidar effects (**11.5 Lidar Effects**), including proper operation to avoid any of these effects. Officer must be currently certified (**10.7 Certification**) to operate radar/lidar. Finally, officer must prepare all court cases as outlines in this manual. (**10.8 Court Testimony, 10.9 Traffic Evidence Kit**)