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D.C. Superior Court

EVIDENCE / TRAFFIC LAW
"LIDAR" SPEED DETECTION DEVICES HELD ADMISSIBLE

Précis: Readings from hand-held radar guns (LIDAR) used by the police to detect speeders are based on laser technology that is generally accepted in the relevant scientific community under the District's *Frye* test and may be admitted into evidence at trial if accompanied by a custodial witness/operator who can corroborate the device's upkeep and reliability, all subject to pre-trial discovery and cross-examination.

Abstract: In a case of first impression at any level in the District of Columbia, a Court has finally ruled on the admissibility of readings from hand-held radar guns, settling – at least for now — a dispute that has been ongoing in D.C. Traffic Court for years, by finding that Light Imaging and Ranging (LIDAR) guns are generally acceptable in the relevant scientific community in satisfaction of the District's long-standing *Frye* test, and their readings may be introduced into evidence in traffic trials if accompanied by custodial corroborative operator testimony, all subject to pre-trial discovery and operational cross-examination. The Court conducted an extensive four-day *Frye* hearing which it expanded to include numerous brands of radar-gun devices (not just the ProLaser III used in these cases), in which Counsel for the Government and for all nine defendants in various cases charged in 2006-07 were heard, both orally and in written submissions, together with one expert witness for the Government (the designer and patent holder of the device at issue), two expert witnesses for the Defense, and two fact witnesses for the Government. The Court considered such issues as the basic science of laser technology, the technical methodology of, and theoretical challenges to, the reliability of radar guns of this type, including the possibility of other "pulses" in the vicinity of use, difficulties in target identification, possible errors caused by vehicle license plates, windshield glass, shape, and color, and potential malfunction of the device. The Court also took judicial notice of at least six scientific publications on the subject in various journals of interest, together with two police-related studies in Florida, one New Jersey, and one independent study in Florida on this and similar radar devices, all of which met the standards set forth by National Highway Safety Administration and the International Association of Chiefs of Police, which were set after tests of the devices in "a real world setting." The Court accepted these police-related tests on the pronouncement that it had "no reason to believe that scientists and engineers performing research and testing for the law enforcement community are any less believable than scientists and engineers working exclusively in ... [an independent] research community." Nor did the prospect of "operator error," the Court held, suffice to exclude the technology at issue. Of conspicuous note was the Court's citation of the rulings from at least 13 other jurisdictions that have found the LIDAR technology to be reliable, generally accepted, and admissible into evidence in one form or another, pointing out that every Court that had held a *Frye* hearing on this issue approved the LIDAR technology. The Court therefore found that the device, properly calibrated and used, is able to gauge speeds within +/- one mile per hour. On this record, the Court approved the admissibility of LIDAR evidence in the District of Columbia Superior Court, provided that certain safeguards are met, including the requirement that the device used is on the approved Conforming Products List, has a certification of proper calibration issued by the manufacturer, the operating officer has a minimum of four hours of training and is certified by the Metropolitan Police Department, and has performed daily tests on the device as set forth by the manufacturer. Upon demand, the Government shall be responsible for providing any written documentation regarding these procedures to defense counsel, including records of repairs or failures of the device for the previous year's time, together with any written notes of the officer as *Jencks* materials.

DISTRICT OF COLUMBIA v. CHATILOVICZ

D.C. Super. Ct. No. 2006-CTF-2633. Decided June 12, 2008. MAY ELLEN ABRECHT, Sr. J. *Melissa Shear* and *Avril Luongo*, Asst. D.C. Attnys. Gen., for the District of Columbia. *Bryan Brown*, Esq., for Defendants Camille Edit Chatilovicz, Alejandro Rivera, and Syed Kharrum. *Carrie Ellis*, Esq., for Defendant Faviola Veizaga Rojas. *John Spaulding*, Esq., for Defendants Moulaye Haidara, Steven Kaiser, Garfield Morris, Joshua Swift, and Frank Valasquaz.

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On various dates in 2006 and 2007 the defendants in nine consolidated cases were arrested for operating motor vehicles at speeds greater than 30 miles an hour in excess of the legal speed limit. In each case, after observing the speeding vehicle, an officer of the Metropolitan Police Department targeted the vehicle with a Pro Laser III LIDAR device manufactured by LaserCraft and distributed by their sister company Kustom Signals, to ascertain the speed. The question whether such laser technology is generally accepted in the scientific community for determining speed is a question that neither the District of Columbia Court of Appeals nor the District of Columbia City Council has addressed. Defendants asked the Court to exclude from the prosecution's cases all testimony and other evidence from the use of LIDAR equipment unless the government presented expert opinion testimony of a scientist and the Court found that the technique was sufficiently established to have gained general acceptance in the scientific community. *Jones v. United States*, 548 A.2d 35, 47-48 (D.C. 1988) (finding EMIT tests for drug use generally admissible based on other judicial decisions that were based on expert testimony); *Frye v. United States*, 54 App D.C. 46, 47, 293 F. 1013, 1014 (1923) (rejecting systolic blood pressure deception test as based on a principle not recognized by physiological and psychological authorities and establishing standard that a scientific technique be admitted only if it has become "sufficiently established to have gained general acceptance in the particular field in which it belongs").

In an effort to avoid numerous separate evidentiary hearings before different trial judges, these nine cases were consolidated for the purpose of holding a *Frye* hearing. This matter was specially assigned to a Senior Judge by the Presiding Judge of the Criminal Division. This Court invited the parties to present expert testimony, scientific articles, and judicial opinions in order to create a record that would be useful not only in these nine cases but in all cases involving laser speed detectors.

Since each of these nine cases involved use of the same brand and model of LIDAR device, namely the ProLaser III manufactured first by LaserCraft and distributed by Kustom Signals, Inc., the court also invited expert testimony and other evidence concerning the accuracy of ProLaser III and any consensus about that particular brand. Obviously, challenges to the specific devices used in a particular case or challenges to the manner of use in a particular case will be left to the trials in each case.

For context, the specific facts of the nine cases were reviewed in the Memorandum filed in April but are omitted in this version for publication. Also omitted from this version are the captions and case numbers of eight of the nine cases.

Frye Hearing

On January 31, February 1, and March 12 to 14, 2008, the court received testimony, exhibits and references to relevant materials. Melissa G. Shear and Avril Luongo, Assistants to the Attorney General for the District of Columbia represented the government. Attorneys Bryan Brown, Carrie Ellis and John Spaulding represented the defendants.

The court received numerous exhibits and heard from three expert witnesses concerning the science behind LIDAR. Two of them also opined about the accuracy of speed measurements made by the ProLaser III. Two fact witnesses testified concerning the training of and testing by District of Columbia police officers using the ProLaser III devices.

After describing the experience of each of these witnesses, the court will analyze the evidence it received, topic by topic, so that the different view points and opinions will be readily apparent.

Credentials of the expert witnesses:

Scott Patterson: The government first presented testimony of Scott Patterson who was received as an expert in LIDAR technology for speed detection in general and in the ProLaser III in particular. Patterson, an engineer, graduated *cum laude* with a Bachelor of Science in Physics with a concentration in optics from Georgia Institute of Technology in 1984. After five years as an engineer working on design of various electronic and optical devices for GEC Avionics, Inc., he co-founded LAO (Laser Atlantic Optics), Inc. He developed optical design and system engineering for LIDAR systems and various medical and dental applications of laser technology.

In August 1994, he co-founded LaserCraft, Inc. and was its President until 2006. In 1999 he helped develop an improved laser speed gun, which he called ProLaser III, for LaserCraft, Inc. Patterson designed the bore sight verification and alignment fixture for the ProLaser II and III LIDAR systems. He was responsible for the optical design of the ProLaser III transmitter, receiver and Heads-up Display (HUD). In 2006, he stepped down as President and Chief Executive Officer but remained in a consulting role. LaserCraft has been bought by and incorporated into Kustom Signals, Inc. The ProLaser series of police laser speed guns is sold exclusively by Kustom Signals, Inc. of Kansas. Patterson holds six patents, including one for LIDAR devices, and in 1992 co-authored a paper on police LIDAR, "*Low Cost Hand-Held LIDAR System for Automotive Speed Detection and Law Enforcement*" published by the Society for Photographic and Instrumentation Engineers (SPIE),[1] of which he is a member. The paper was delivered at a conference before publication. He is also a member of the Optical Society of America. In the past eighteen years he has testified as an expert in more than a dozen cases involving hand-held LIDAR devices in courts in Texas, Colorado, Wisconsin, Georgia, and Illinois. Patterson's curriculum

vitae was introduced into evidence as Govt. Ex. 1.

Defendants argued that this Court should not rely on the testimony of Scott Patterson because he helped develop the very device under review and has an obvious bias. While aware of Patterson's interest in defending his own product, the government points out that he is among the most knowledgeable experts available and has a unique perspective to share with the court based on his sixteen years of experience with laser speed reading devices. Courts often have to rely on the expertise of witnesses with some bias because they are often the most knowledgeable. *United States v. Roy,* 113 DWLR 2317 (Nov. 15, 1985) (court relied on expert testimony of person closely associated with technique being evaluated); *Jones v. United States,* 548 A.2d at 45 (approving the cogent opinion in *Roy*); *People v. Evans,* 859 N.E. 2d 642 (Ill. App. Ct. 4th Dist. 2007) (testimony of police crime-scene investigator supervisor that bloodstain-pattern analysis was generally accepted within scientific and law-enforcement communities was sufficient under *Frye* to allow same witness to give expert opinion regarding blood spatters in specific case). In evaluating laser speed reading devices, other courts have rested their decisions in large part on the testimony of such experts associated with the brand under review. *State v. Jarwan,* 2000 Del. Super. LEXIS 422 (Del. Super. Ct. 2000) (Robert Gammenthaler, Chief Engineer for Applied Concepts, Inc. accepted as expert in *Frye* hearing on the Stalker Lidar device manufactured by Applied Concepts). *State v. Sparks,* PD381435-1 (Municipal Ct., Tarrant County, Texas, May 21, 2004) (Steve Hocker, Engineer for Kustom Signals, Inc. accepted as expert in hearing on the ProLaser III sold by Kustom Signals). *City of Stoughton v. Storey,* Case # 021933 (Mun. Ct., Dane Co., WI, May 27, 2003) (Steve Hocker, Engineer for Kustom Signals, Inc. accepted as expert in hearing on the ProLaser III sold by Kustom Signals)[2]. Scott Patterson, himself, has been the key expert witness relied on by several other courts (Texas, Illinois, Georgia and Colorado) evaluating ProLaser devices.

Thus, Scott Patterson was accepted as an expert in this case. Moreover, because his testimony withstood rigorous cross-examination and because he was able to rebut points raised by experts called by the defense, this Court gave his testimony great weight.

Roger L. Boyell: The defense's first expert was Roger L. Boyell an engineer with a Bachelor of Science in Electrical Engineering from the University of Florida, a Master of Science in Applied Science from Adelphi University in New York, and a Master of Business Administration from Monmouth University in New Jersey. He is a Senior Member of the Institute of Electrical and Electronics Engineers (IEEE) and a Fellow of both the American College of Forensic Examiners (ACFE) and the National Academy of Forensic Engineers (NAFE). Boyell was received as a scientific expert who could offer opinions about LIDAR technology for speed detection.

Since 1999 Boyell has been self-employed as a consultant and forensic analyst. He has testified numerous times as an expert witness on a wide range of technical matters in both civil and criminal cases. Previously he has worked for Computer Sciences Corporation (12 years), RCA Corporation (13 years) and Pennsylvania Research Associates, Inc. (11 years). He has a long history of involvement with radar technology in both military and traffic applications and has had recent experience with LIDAR technology. In connection with litigation, he has participated in experiments using a ProLaser device with a police officer on a road in Delaware and with testing of the LTI Marksman 20-20 Laser Speed Detection System on roads in New Jersey. He has written more than two dozen published papers, including four on giving expert testimony and one on *"Operator-Induced Errors in Speed Measurement of Motor Vehicles,"* presented in February 2005 at the American Academy of Forensic Sciences Annual Meeting.

Dr. Phillip Claudio Filippione: Dr. Phillip Claudio Filippione received his education as an electrical engineer in Italy before settling in the United States where he earned a Master of Science in nuclear science in 1994 and a PhD. in 1996 from the University of Maryland. He remains at the University of Maryland as an Adjunct Professor of Nuclear Science. He has never previously testified as an expert witness.

With experience in high frequency electronics and lasers, he became interested in LIDAR technology for speed detection after being charged with speeding on his motorcycle through the K Street tunnel in northwest Washington, DC, in February 2007 as a result of what he considered an erroneous speed reading on a ProLaser III device used by the traffic enforcement officer. He devoted four months to research, experiments and discussion with scientific colleagues in order to show the inaccuracies of hand-held LIDAR devises, especially when used on a motorcycle in a reflective tunnel. Prosecution of his case was abandoned without any decision on the merits. Although defense counsel proffered Dr. Filipione as an expert in LIDAR technology or at least in the electronic components of LIDAR, the court accepted him as an expert only in the basic science of lasers.

Fact witnesses.

The government also presented two fact witnesses to testify about training and testing. **Walter David Willhoite**, the Senior District Manager of Kustom Signals and former traffic police office and radar and laser instructor of law enforcement officers in Jacksonville, Florida, testified about training given to officers of the Metropolitan Police Department in the District of Columbia in the operation of ProLaser III instruments.

Sgt. Mark Robinson, a supervisor in the Traffic Safety Enforcement Unit of the Metropolitan Police Department, testified about twice-a-year field testing of LIDAR units and radar speed cameras at five locations around the city.

The Basic Science.

The basic science and terms behind the technology were explained without dispute. LIDAR is an acronym for Laser Imaging Detection and Ranging or Light Detection and Ranging. The word "laser" itself is an acronym for light amplification by stimulated emission of radiation. Scott Patterson explained that lasers have been used since the 1960's. Because the speed of light is a known constant, the distance between the device and a target can be calculated by measuring the time it takes for the laser pulse to travel back to the receiver. Since a laser can produce a narrow beam that can be focused on a distant object, lasers were first employed by the military by using knowledge of the speed of light to determine how far away a target was. Laser technology is also used in compact disc players. Imaging systems with laser range finders are used to map a room. The laser beams can be visible or invisible (infrared) to the naked eye.

For speed detection, shots of a laser beam are repeated hundreds of times. When each laser pulse hits the moving target, a portion is reflected back and detected by the device. Each shot finds a range or distance measurement. The change in distance of the target over time produces the speed-reading.

The technology is not radically different from radar technology, which has been accepted by our courts without expert testimony for many years. Radar speed detection devices send out microwaves, which are reflected back from the target. The device measures

the difference in frequency between the transmitted and reflected beams. The chief differences between radar and LIDAR are that radar measures frequency, whereas LIDAR measures time; and that the waves sent out by radar cover a wide area, whereas the laser beam targets a very small area.

There is no dispute between the scientific experts called in this case that the theoretical concepts underlying the use of lasers to measure speed are generally accepted in the engineering and scientific communities. The dispute was regarding the application of those concepts and principles to speed guns used by law enforcement in a real world setting. All courts that have addressed the matter have found that the theoretical principles underlying speed detection with the use of lasers are accepted. *McCormack on Evidence* § 204 at 340 (Kenneth S. Broun 6th ed. 2006). Indeed, none of the defendants in this case challenge the basic scientific principles behind LIDAR technology.

Devices Used by Police to Measure Speed of Automobile.

Although it could be argued that the inquiry of the *Frye* hearing should end with that agreement[3], this Court has chosen not to do so for several reasons. Defendants challenged the application of the LIDAR technology in the hand held devices used by law enforcement and argue that readings from such devices are inadmissible absent general acceptance in the scientific community. The easiest way to address those concerns was through the examination of particular devices. Moreover, while not suggesting the trial court needs to hold a new *Frye* hearing every time the local police buy a different model or different brand, this Court notes that only the ProLaser III is involved in all the pending cases awaiting the results of this *Frye* hearing. Thus, the broad record created may be one suitable for judicial notice by other judicial officers if a challenge made by a defendant is specific to alleged design flaws of the ProLaser III.

Other courts have also used the approach this Court has taken and have conducted *Frye*-type hearings with regard to specific brands.

In 1996, a New Jersey court found no dispute about the fundamental validity of the basic theory behind use of lasers to calculate speed but, because of conceptual and practical problems in designing and constructing a reliable laser speed detector, ruled that no municipal court in Sussex County could receive evidence of a speed reading from a LTI marksman 20-20 Laser Speed Detection System until performance tests in normal traffic conditions demonstrated reliability. *In Re Admissibility of Motor Vehicle Speed Readings Produced by the LTI Marksman 20-20 Laser Speed Detection System*, 714 A.2d 370 (N.J. Super Ct. Law Div. 1996). The New Jersey court conducted an extensive evidentiary hearing after performance tests were performed and entered a ruling that the specific brand was reliable and that the results would be admissible in Morris County and Sussex County in any case arising under the motor vehicle laws. *In Re Admissibility of Motor Vehicle Speed Readings Produced by the LTI Marksman 20-20 Laser Speed Detection System*, 714 A.2d 381 (N.J. Super Ct. Law Div. 1998). That ruling was approved on appeal in *State v. Abeskaron*, 740 A.2d 690 (N.J. Super. Ct. 1999).

Courts in New York similarly heard expert testimony (from Dr. Daniel Gezari, an astrophysicist) about the reliability of the LTI brand laser speed detection system and its acceptance in the scientific community before ruling on admissibility. *People v. Clemens*, 642 N.Y.S.2d 760 (Justice Ct.1995), *People v. Depass*, 629 N.Y.S.2d 367 (Village Ct. 1995).

After a 2003 appellate ruling that a *Frye* evidentiary hearing was necessary to determine the admissibility of new LIDAR technology used to measure speed of an automobile, *People v. Canulli*, 792 N.E.2d 438 (Ill. App. Ct. 2003), Illinois Judge Kelsey conducted such a hearing. Relying on expert testimony from Scott Patterson (the same expert the government called before this Court) concerning ProLasers and the judicial decisions of other courts, Judge Kelsey ruled that the results of the use of LIDAR technology were admissible. (Although his May 2007 Order in *People v. Harris*, 05DT3009 (County of Dupage, 18th Judicial Circuit) was not published, the government obtained a certified copy that it submitted to this Court on March 21, 2008.)

The Municipal Court of Boulder, Colorado, has conducted *Frye* hearings with regard to both the scientific principles and the reliability of the specific laser devices [ProLaser I, II, and III] used by the Boulder Police Department and found the results admissible. Certified copies of the unpublished opinions and orders were submitted to this Court on March 21, 2008. *People v. Guyton*, No. 832331 (November 27, 2000) (relying in part on testimony of Scott Patterson); *People v. Gamm, et. al.*, No. 799061 (February 19, 1998, amended February 23, 1998).

Therefore, this Court, like courts in New Jersey, New York, Illinois and Colorado, extended its *Frye* hearing to consider the laser speed-reading devices used by law enforcement, including the ProLaser III used by the Metropolitan Police Department in the District of Columbia. Regarding devices used by police, both experts called by the defense raised numerous theoretical challenges.

Theoretical challenges to reliability of LIDAR device speed readings.

The defense argues that this Court should not admit LIDAR evidence from any particular brand or model because defense experts raised numerous issues that had potential for creating inaccurate readings. Scott Patterson explained how each of those concerns was addressed by the design of the ProLaser, by the certification process and by training of operators.

The Government's expert witness Scott Patterson testified about how the ProLaser III unit works. The ProLaser III emits 200 infrared laser pulses per second, directed to the target through the operator's use of a Heads-Up Display (HUD) sighting device. The HUD shows a projected visible, square reticule pattern indicating the size and aiming direction of the laser pulses. Users of the ProLaser III are instructed to aim the reticule at a flat, vertical surface of a car, such as the front or rear bumper. The ProLaser III electronics measure the time it takes for each individual infrared pulse to travel to the target and back to the ProLaser unit. A threshold detection circuit only registers pulses of a pre-determined strength or higher. The time of flight of each pulse is converted to a distance by dividing the time of flight by the speed of light ($c = 3x10^8$ meters per second). The unit emits sixty pulses (distance measurement attempts) before a speed calculations is performed. The result of each pulse will be either a distance value or a "no return".

Each distance reading received must pass a "prefilter" ensuring it is within 2.4 feet of the previous distance measurement. The prefilter is intended to discard spurious readings that may come from objects such as birds, leaves or paper momentarily passing between the operator and the target as well as readings that may momentarily come from other parts of the target vehicle such as the windshield or roof. Distance measurements that do not pass the prefilter test are discarded. After the prefilter routine has discarded any spurious readings, a minimum point check is performed to ensure at least 43 valid distance measurements (out of the 60 attempts) remain. If there are fewer than 43 valid distance measurements, no speed is calculated and more distance

measurements are collected through the next 60 pulses.

If the ProLaser III has 43 or more valid distance measurements, a linear regression is performed with the distance readings as the dependent variable and the time between the pulses (.005 seconds) as the independent variable.[4] In this case the linear regression determines the slope of the line through the distance and time data. The slope of this line represents the change in distance divided by the change in time, or speed. Thus linear regression gives a corresponding measurement of the speed of the vehicle across the 60-pulse measurement period (0.30 seconds total).

Mr. Patterson explained that his company's testing revealed that erroneous speed readings tend to fit a Gaussian or "normal" pattern, that is, errors are not consistently wrong in one direction. Therefore, a Gaussian algorithm is used in the design of the ProLaser. The ProLaser III requires that each speed measurement reading have a standard deviation error of 0.25 m.p.h. or less in order to be displayed to the operator. Such a tight standard deviation error tolerance was chosen through empirical testing to account for the fact that the distribution of errors in measured data are not perfectly Gaussian.

If the linear regression results in a measurement with a standard deviation error of greater than 0.25 m.p.h., the speed reading is not displayed until more data is collected. If the standard deviation error is greater than 0.75 m.p.h., the data is discarded altogether. Operators are instructed to track vehicles with an uninterrupted speed reading for at least one second in order to further enhance the confidence in the speed reading. The ProLaser III compares successive readings and will interrupt the display if the internal successive readings differ by more than 1.6 m.p.h. Thus, if the display continues for a full second, the operator is assured that the reading is accurate within 1 m.p.h. above or below the center point. The Court will review in turn each conceptual and practical problem raised by defense experts.

a. Other pulses in the environment. Since a laser speed detector measures the time it takes for a laser pulse sent to a target to come back, it must be designed to distinguish between those pulses and other pulses in the environment. Dr. Filippione cautioned that there are many, often hidden, sources of electronic noise in an urban environment. Patterson explained that the IACP certification process tests devices against police radios, which produce the loudest and closest competing noises. Any device that maintains accuracy when used near a police radio would maintain accuracy against noise sources hidden in a building at the side of the roadway.

b. Target identification. Boyell raised several concerns about target identification. He opined that police would leave an unattended LIDAR device focused on a roadway. Only after the device measured a speed above the legal limit would the officer look at the oncoming traffic and then might stop the wrong car. Both Patterson and Walter Willhoite explained that officers are trained to target a vehicle with the ProLaser device only after their visual observations lead them to believe that the vehicle is speeding. In each of the cases before this Court, the police reports indicate that the police officer did observe a speeding car before turning on the LIDAR device.

Boyell also noted the possibility that an officer at night might focus on the space between two headlights expecting that he was targeting the bumper of a speeding vehicle when in fact he was target the space between two motorcycles. Patterson explained that such a scenario was unlikely to result in a false speed reading because the space between the motorcycles would not reflect back a pulse to be measured. Moreover, officers are trained to target

Journalists Forecast Upcoming Supreme Court Term

The D.C. Bar Courts, Lawyers and the Administration of Justice Section will host the luncheon program "The Supreme Court: The View From the Press Gallery" on July 8, offering a behind-the-headlines look at major cases the Court will decide during this term.

A distinguished panel of journalists will give an insider's view of the significant legal issues pending before the Court, as well as the interaction among Supreme Court justices and their respective personalities.

The program seeks to answer several questions on matters awaiting the Court's decision, including: Can Congress stop prisoners at Guantanamo from challenging their detention in federal court? Does the District of Columbia's ban on handguns violate the Second Amendment? Can registered voters be barred from voting unless they show photo identification at the polls? Can broadcasters be fined for "fleeting and isolated utterances" of four-letter words on the air?

Other questions that do not involve legal issues include: Is today's Supreme Court the "Roberts Court" or the "Kennedy Court?" Regarding McCain and Obama, who will make their short lists for 2009 vacancies?

Robert Barnes of The Washington Post; Joan Biskupic, a reporter with the USA Today; Jan Crawford Greenburg of ABC News; Tony Mauro, a correspondent with the Legal Times and American Lawyer Media; David Savage of the Los Angeles Times; and Stuart Taylor Jr., a contributing editor with Newsweek and a columnist with the National Journal, will give their annual predictions on the Supreme Court for the next term. Arthur B. Spitzer, legal director of the American Civil Liberties Union of the National Capital Area, will moderate.

The program, cosponsored by the D.C. Bar Arts, Entertainment, Media and Sports Law Section, takes place from 12 to 2 p.m. at Arnold & Porter LLP, 555 12th Street NW.

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only what they can see. The heads up feature on top of the ProLaser III has a screen with a reticle through which officers are trained to target the bumper or license plate of the speeding car. Even if the unit moves from the bumper of one car to another car or to another object in the environment, the error trapping technology built into the unit will cancel any "speed" reading in progress.

c. Sweep error. Even if the laser beam hits only the motor vehicle the operator has targeted, one distance reading might come from the license plate on the front bumper and another might come from the hood or the windshield. Accurate speed-readings can only be made by comparing a change in distance over time of the same target. Since the distances of the bumper and the windshield are already different by several feet, a controlled sweep of the beam from the windshield to the bumper could result in a conclusion that the car traveled faster than it actually did.

While conceding the theoretical possibility, Scott Patterson explained that in thousands of tests such a sweep error did not occur. A slanted windshield provides a very weak, often unreadable signal compared to the strong pulse from a bumper. The reflected pulses must rise to a certain threshold before being read by the device. If any of the pulse has hit the bumper, it will control the reading. The usual unsteadiness of the handheld unit is taken into consideration in the design. Prefilters prevent signals from objects more than 2.4 feet away from the previous signal that was being averaged.

d. Shape and color of vehicle. Boyell also cautioned that signals are different depending on whether the targeted car is white or black, whether the bumper is reflective or dark and whether the shape is boxy or aero-dynamic. Patterson explained that such differences do make a difference in whether a speed reading can be obtained at a particular distance but do not result in erroneous speed-readings.

e. Malfunctioning devices. All experts agree that the accuracy of any device depends on it being in good working order with an accurate clock. Patterson and Willhoite explained the certification process and the recommended daily operational checks. There was no dispute that the admissibility of readings from any particular device would depend on the testimony about the periodic and daily checks on the particular device.

Moreover, Patterson explained that when a device is malfunctioning, the most likely result would be that no speed reading would be given, not that an erroneous one would display. The ProLaser III Operator's Manual (at p. 12) points out, for example, that rain, smoke, fog, and airborne dust may prevent its operation.

While the government's witnesses were persuasive in answering all of the theoretical concerns raise by the defense about potential problems with laser speed-reading devices used by law enforcement and the ProLaser III in particular, the defense argues that without further independent study by the engineering and scientific communities this Court should not accept the evidence. Specifically, the defense argues that the court should not accept conclusory statements about the thresholds, prefilters, algorithms, or other error trapping devices designed into the ProLaser III because Kustoms Signal has not released its proprietary information for review by the scientific community. Defense experts in this case were limited to theoretical challenges because they did not have access to specific design elements.

General acceptance within the relevant field.

a. The debate over relevant field.

The parties differ sharply on whether LIDAR devices used in law enforcement and the ProLaser III in particular have received general acceptance in the relevant field so as to allow speed readings to be admissible in court under the standard of *Frye v. United States*, 54 App D.C. 46, 293 F. 1013 (1923). Initially, they disagree about what the relevant community is.

The government argues that those who manufacture, evaluate and use the equipment are the relevant community. In this case, that community includes traffic enforcement police officers, the IACP (International Association of Chiefs of Police), and NHTSA (National Highway Traffic Safety Administration, an agency of the United States Department of Transportation). The government notes that these organizations employed scientists (electrical engineers, software engineers, computer scientists and scientists with specialized knowledge of lasers and optics) to develop standards and test the equipment. For the defense, the particular fields into which this technology fits are engineering (electrical, software, computer) and physics (lasers and optics). The defense specifically excludes police officers, who use the devices, from the fields in which LIDAR technology fits.

The government presents ample evidence that LIDAR technology in general and the ProLaser III in particular are generally accepted within the law enforcement community and by every court that has held a *Frye* hearing. Defense counsels do not dispute that evidence but complain that this relatively new technology has not been subject to evaluation by truly independent scientists and thus has not been shown to be accepted by relevant scientific communities. The defense argues that this Court should not admit speed measurements from LIDAR devices used by law enforcement because only those scientists associated with law enforcement have taken any interest in the subject[5], only three scholarly articles have been published, the testing of devices for accuracy done by law enforcement has never been duplicated by independent scientists and the inner workings of the devices are not in the public domain for critique. The defense argues that the government, the court or the manufacturers must commission a study by scientists and engineers who are independent of law enforcement and the manufacturers and who apply rigorous scientific method to testing and experiments with LIDAR devices before this Court considers whether to admit LIDAR evidence. The defense argues that the detailed and well-meaning expert testimony of Scott Patterson is an insufficient basis for a court ruling because of his bias as a designer of the very device under challenge.

While carefully controlled scientific studies about the inner workings of devices, published and subject to peer review, would provide better evidence of whether the ProLaser III is generally reliable than the IACP's certification that ProLaser III devices meet all the requirements of the *Speed-measuring Device Performance Specifications* published by NHSTA, this Court does not think that *Frye* requires exclusion of evidence from all devices that happen to be of interest to only one group of users who happen not to be scientists. Indeed, courts have evaluated LIDAR technology and other devices used by law enforcement officers under the *Frye* standard without the benefit of studies of brand-name products by pure scientists. Moreover, general acceptance has usually been based on reliability of results rather than critique of the proprietary design or underlying algorithms.

In the *Frye* decision itself, the court refers to general acceptance in the "particular field" to which the "scientific principle or discovery" to be evaluated belongs, 54 App D.C. at 47, 293 F. at 1014. The court rejected the systolic blood pressure deception test in that case because the basic principle (that conscious deception and fear of

detection causes a distinctive rise in systolic blood pressure) was not recognized by physiological and psychological authorities. The *Frye* decision did not reach the issue of general acceptance of any particular device.

All the experts called in this case agree that engineers and scientists generally accept the scientific principle or discovery behind use of laser pulses to measure distance and speed. The dispute and confusion comes from this Court's announced desire to extend the hearing to cover application of the generally accepted principle to devices used by police for speed enforcement and the ProLaser III in particular. The defense insists that the same scientific community that vetted and accepted the basic principle must assess the devices. The government argues that the user community is sufficient to evaluate the devices.

Maryland, in choosing not to extend the requirement of acceptance by the scientific community to brand-name devices, recognized that academic scientists may have no occasion to use a particular device in their work and thus it may be difficult to find a scientific consensus about particular devices on the market. *Goldstein v. State,* 664 A.2d at 381.

Unquestionably, LIDAR device use fits in the particular field of law enforcement, a field not recognized as a scientific community. However, engineers and scientists working with law enforcement have brought the rigor of their disciplines to bear on the development and the testing of LIDAR devices for more than fifteen years. Moreover, this Court has no reason to believe that the scientists and engineers performing research and testing for the law enforcement community are any less believable than scientists and engineers working exclusively in a university or other research community. Indeed, the scientists and engineers participating in the development of NHTSA standards and the IACP testing are not full-time employees of law enforcement organizations but also hold academic positions with reputations to maintain within the scientific community.

b. Scientific studies/tests.

A review of the literature and of the reports of testing of LIDAR equipment since 1992 gives this court confidence in 2008 that readings from LIDAR speed guns are reliable. The defense claim that there is a dearth of scientific study and independent testing is unfounded.

Engineer Scott Patterson's paper on low-cost, hand held LIDAR systems for traffic law enforcement has been in the public domain since 1992 and remains unchallenged. Moreover, Patterson reported that the ProLaser II was tested in two studies in Florida in 1994 and found to be reliable. Patterson produced a copy of the reports (Court Ex. 1A and 1B). In June 1994 the Institute of Police Technology and Management compared two brands of laser speed measurement devices against a trusted radar device at Avon Park Air Force Base. The ProLaser II measured vehicle speeds from 25 to 120 miles per hour with an accuracy of +/- one mile per hour (Ct. Ex. 1B at 20) and provided reliability for highway vehicles of varying sizes, shapes and colors (Ct. Ex. 1A at 5)[6]. Dr. Dennis Killinger of the University of South Florida and Dr. Jay Huebner of the University of North Florida, both Professors of Physics with backgrounds in optics and lasers, were advisors for the field tests conducted at Avon Park (Ct. Ex. 1A at 2, 7). The report (submitted by Sergeant Kevin M. Morrison of the Largo Police Department representing the Florida Police Chief's Association for the Florida Technical Review Committee on Radar) was intended for use at a public hearing to support a recommendation that laser speed measurement devices be accepted for use by law enforcement in Florida. Florida thereafter accepted laser speed measurement devices, provided that the devices were certified by an independent laboratory to meet minimum design and performance standards set forth in the Florida Administrative Code.

In December 1994, the ProLaser II device was tested by such an independent laboratory both in the laboratory and on a roadway by the University of Florida and found to meet the standards set by Florida statutes. The Technical Report was prepared by Professor Dennis K. Killinger, Ph.D. and Mr. Tom Taczak, M.S. both in the Department of Physics of the University of South Florida. (Ct. Ex. 1B.)

The NHTSA standards first established in the mid-1990s have evolved over time. Product testing against the standards has been conducted by the University of California at Davis under the direction of Professor Bill Weigt. *People v. Guyton,* No. 832331 at p. 6 (Municipal Ct., Boulder, CO, 2000). Only after NIST receives the independent test results and determines that the instrument meets the standards, does the IACP place the device on its Consumer Products List.

Of particular note are the contributions to the field by an expert recognized by the defense as authoritative. In the January 2000, P.David Fisher of the Department of Electrical and Computing Engineering at Michigan State published an article entitled, "*Timing quantization error in lidar speed-measurement devices*" in Vehicular Technology, IEEE Transactions on, Volume 49. Dr. Fisher wrote about how to minimize speed-measurement errors in manufactured equipment so that the equipment could meet performance standards set by NHTSA. Scott Patterson testified that David Fisher tested Patterson's ProLaser I in a laboratory at Michigan State and that Fisher contributed to the development of NHTSA's performance standards for LIDAR equipment as the lead scientist on the Enforcement Technologies Advisory Technical Subcommittee (ETATS) of the Highway Safety committee for the International Association of Chiefs of Police (IACP). Dr. Fisher clearly accepts LIDAR technology for speed detection and considers those devices that meet the NHTSA standards to be reliable.

Both Scott Patterson and Roger Boyell recognize Fisher as an authority in the relevant scientific community.

First established in the mid-1990s, the most recent NHTSA standards were published in June 2004 (Def. Ex. 1). The highly technical manual of LIDAR speed-measuring device performance specifications was developed by NHTSA through a cooperative agreement with the IACP and in consultation with the National Institute of Standards and Technology (NIST), Office of Law Enforcement Standards (OLES). The specifications are available to the public and are meant not only to guide purchasers but also to assure citizens and courts of the reliable service provided by models complying with the specifications. Standards are included for range accuracy and speed accuracy (of within 1 m.p.h. above or 2 m.p.h. below) even under environmental extremes both of temperature and electromagnetic interference.

The IACP certified both in October and February of 2007 that the ProLaser II and III conform to the NHTSA standards and placed the brand and model on the IACP Police Traffic LIDAR Speed Measuring Devices and Systems Conforming Product List (see Govt. Ex. 4 & 5).

In 1998, in preparation for a hearing in Colorado in *People v. Gamm*, Dr. Rodney Frehlich, a research physicist at the University of Colorado, obtained proprietary information about the ProLaser I and II devices (after signing a disclosure form with Kustom) and studied the design, algorithms and performance of the devices. Based on his expertise and eight to ten hours of study he concluded that the design was

up to standard and that the devices were accurate within one mile per hour. Although in 1999 another physicist without information about the instrument's specifications challenged the unit's reliability, his concerns were discounted after the court heard testimony in *People v. Guyton* from Scott Patterson and also learned that ProLaser II and III had passed NHSTA testing.

Forensic engineer Roger L. Boyell published his article about operator-induced errors in motor vehicle speed measurement in 2005. Although many agree that operators can make errors and must be subject to cross-examination, no subsequent article or court decision has opined that LIDAR evidence should be inadmissible as a result.

Thus, numerous scientists and engineers have been involved in evaluation of LIDAR devices over the last fifteen years and have contributed to the acceptance of the devices by the law enforcement community.

c. Testing of devices on roadways.

Boyell testified, also, that the IACP testing of equipment against performance standards is insufficient. He opined that every machine should be tested at the very locations where it would be used and that the inner workings of the devices should be revealed and subjected to critique and testing by the scientific community. This Court finds that the exhaustive testing done first by the manufacturers and over the years by many others has provided a sufficient basis for general acceptance of these devices and that the exacting standards set by Boyell are not the norm in the scientific community or in the courts.

The Court turns to reports of independent testing of LIDAR equipment on roadways.

In a University of South Florida test in December 1994 under the direction of a physicist, the ProLaser II was tested on a limited access straight road and found to give exactly the same speed measurement as a certified police radar unit (Ct. Ex. 1B at 6-7). Dr. Dennis Killinger, the physicist, also reviewed documentation and took note of tests the previous June by the Institute of Police Technology and Management at Avon Park Air Force Base where the ProLaser II measured vehicle speeds from 25 to 120 miles per hour with an accuracy of +/- one mile per hour (Ct. Ex. 1B at 20).

Boyell (working for attorney Mohammed, one of several defense attorneys serving as amici curiae) participated as an observer in tests done in New Jersey. In 1996 a judge in New Jersey opined in *Matter of the Admissibility of Motor Vehicle Speed Readings Produced by the LTI Marksman 20-20 Laser Speed Detection System,* 714 A.2d 370 (N.J. Super Ct. Law Div. 1996), that before he would accept laser speed detectors as reliable he wanted the results of operational testing under actual highway conditions under the watchful eyes of independent observers. He further opined that once any agency or manufacturer performed operational tests and published the results, other states would not need to conduct repetitious and expensive tests. *Id.* at 380-381. The New Jersey court and Boyell were apparently not aware of the Florida study.

The court's 1998 opinion ruling that the laser speed-readings were admissible, described the operational tests in detail based on evidence received in a hearing that extended over four days. *Matter of the Admissibility of Motor Vehicle Speed Readings Produced by the LTI Marksman 20-20 Laser Speed Detection System,* 714 A.2d 381 (N.J. Super Ct. Law Div. 1998).

The New Jersey Department of Transportation conducted tests of the LTI Marksman 20-20 in cooperation with the State Police in varying climatic conditions (September, October and November of 1996 and June and July of 1997) at distances up to 1000 feet. The September testing was at a closed track where the laser speed detector could be compared with a track timer (Compulink System III) and the PEEK 241 recorder in addition to the K-55 radar in tracking the speed of four standard passenger cars. On all but one of hundreds of tests the laser speed detector did not exceed the measurements of the other devices by more than one mile per hour. (In one instance the laser speed detector produced a reading two miles per hour greater than the track timer.) On the other dates, the LTI 20-20 was tested on a mix of passenger motor vehicles and trucks on busy interstate highways against either the K-55 radar or the WIM system that employs sensors embedded in the highway pavement. Tests were done in daylight and at night, in fair weather and in moderately heavy rain. More than 96 % of the time (that is, in all but 16 cases out of 1,908) the speed measurement produced by the laser detector did not exceed the measurement produce by the other system by more than one mile per hour and only one by as much as five miles per hour.

Additionally, the testers conducted numerous experiments to test the laser detector's error trapping ability by intentionally using the device is ways (such as panning from one vehicle to another or targeting different points on a vehicle) that could potentially produce erroneous speed readings. In most instances, the expected error messages were received and no speed-reading was given. In all but one of the few cases in which a speed measurement was obtained off a windshield, the reading was the same as the speed measurement from the license plate. In one case, the windshield speed was one mile per hour higher than the license plate speed. Testers also confirmed the device's ability to distinguish between nearby vehicles and obtain accurate speed readings from each without splash over effect.

The New Jersey judge found the testing adequate; though not perfect, to convince him that laser speed detectors produce reasonably reliable measurements of speed on New Jersey highways and that error trapping mechanisms were adequate to prevent unreliable readings from being displayed. The court of appeals affirmed his decision that laser speed measurements should be admissible, subject to appropriate foundation. *State v. Abeskaron,* 740 A. 2d 690 (N.J. Super. Ct. App. Div. 1999).

Defendants argue that tests of one brand should not be used to establish reliability of another brand. While not necessary sufficient, such tests are certainly a persuasive indication that theoretical problems can be overcome in particular devices. Since all products face some of the same certification tests, the performance of any one brand in another test lends credence to the assertions of manufacturers that their own brand is reliable as well. Presence of numerous LIDAR devices on the market for police departments to consider adds to the Court's confidence in the technology. Competition in the marketplace compensates for lack of peer reviewed academic papers. Competing manufacturers have a voice in the testing and certification process. If a brand or model were unreliable, competitors would surely ensure that the faults were exposed. For example, Mr. Hocker (who was involved with Scott Patterson in the development of the ProLaser III) has testified that all the laser devices on the IACP's Consumer Products list are reliable in measuring speed of a vehicle to plus or minus one mile per hour. *State v. Sparks,* PD381435-1 (Municipal Ct., Tarrant county, Texas, May 21, 2004) (Steve Hocker, Engineer for Kustom Signals, Inc. accepted as an expert in hearing on the ProLaser III sold by Kustom Signals).

Boyell himself was a participant in an experiment in use of the ProLaser I on a four-lane roadway in Delaware three or four years ago in connection with litigation. Delaware courts have admitted LIDAR evidence as scientifically reliable since 1993. *State v. Butcher*, Del. Super., Cr. A. No. IN92-11-1267, Cooch, J. (May 20, 1993), Order at 7, cited by *State v. Jarwan*, 2000 Del. Super. LEXIS 422 (Del. Super. 2000) (Stalker Lidar device). Boyell thought that vehicles blurred into one another in the operator's eye at distances beyond 700 feet and thus made target identification difficult beyond that distance.

The testing so far reviewed, though not perfect, has been conducted by or at least with advisory input from independent scientists.

This Court finds no basis to disregard the testing also done by others in the law enforcement community merely because many of the experienced users and testers lack training or education in the underlying science and engineering. The evidentiary concepts established by *Frye* apply not only to scientific experts but also to skilled witnesses with special experience in an art or trade not readily understood by inexperienced persons. The record provides a solid basis for concluding that there is a consensus in the law enforcement community about the reliability of LIDAR devises in general and the ProLaser III in particular. In addition to certification by manufacturers and the IACP, many departments purchase the devises and officers have performed their own tests.

Sgt. Robinson testified in this case that the Metropolitan Police Department of the District of Columbia periodically tests the ProLaser III against radar cameras and calibrated speedometers on a variety of roadways in the city. Usually, the readings are within two miles an hour of each other. The largest difference he recalls was five miles an hour.

The courts in Boulder Colorado accepted the report of field-testing done by Officer Randy Jones between 1992 and 2000. He tested the ProLaser II and III against radar and calibrated speedometers as well as under normal traffic conditions. He found the lidar instruments to be at least as effective as radar, but more selective of targets. *People v. Guyton, supra.* at p. 5 & 6 and *People v. Gamm.* Although cross-examination brought out the fact that Officer Jones did not know whether his testing program complied with the scientific method, the court found his testimony helpful in both cases.

A court in Wisconsin based its decision on the presumptive admissibility of ProLaser III speed-readings in part on field tests performed by a state trooper comparing results obtained with the laser device favorably with a radar device that had had the presumption of accuracy since 1978. *City of Stoughton v. Storey,* Case # 021933 (Mun. Ct., Dane Co., WI, May 27, 2003).[7]

Moreover, everyday use by police officers experienced in observing traffic provides a reality check on the reliability of the devices. For example, in each of the cases before this Court, the police reports indicate that the officer estimated the speed of the approaching car before using the LIDAR unit. The ProLaser III speed detector readings were fairly close to what the officers estimated the speed to be. They did not get bizarre results.

Judicial Decisions

This Court also takes judicial notice of the rulings of the many courts cited within this Memorandum. In every jurisdiction where expert testimony of the sort heard by this Court has been received, courts have concluded that laser speed reading devices are generally accepted in the relevant field. Every court that has evaluated ProLaser devices whether under the *Frye* or some other standard (including courts in Wisconsin[8], Washington[9], Texas[10], Nebraska[11], Minnesota[12], Illinois[13], Georgia[14] and Colorado[15]) has admitted into evidence readings from such devices. Readings from the LTI 20/20 have been admitted in other jurisdictions, including New Jersey, New York, and Ohio[16]. Readings from the Stalker device have been admitted in Delaware[17] and other states have admitted readings from laser devices without specifying in the opinion what brand was used[18].

Courts that have issued decisions to be followed by other courts in their jurisdiction have usually included some instruction about the foundation that must be laid before the readings of a particular device should be admitted in evidence in a new case. *See, McCormick on Evidence* § 204 at 340 (Kenneth S. Broun 6th ed. 2006).[19]

New Jersey (Morris County and Sussex County) by court order conditions admission of speed-readings from the LTI Marksman 20-20, without expert testimony, on a showing of appropriate training of the operator and pre-operational checking procedures recommended by the manufacturer. Because of the limitations of the testing in New Jersey in 1996 and 1997, expert testimony is necessary to support admission of speed measurements made in heavy rain or snow or from distances beyond 1000 feet. *Matter of the Admissibility of Motor Vehicle Speed Readings Produced by the LTI Marksman 20-20 Laser Speed Detection System,* 714 A.2d at 391-2.

Boulder, Colorado, requires as foundation proof that the oscillator has been certified within the year, that the operator was properly trained, that the instrument was operated in accordance with manufacturer's specifications, that the instrument was checked at the beginning and end of shift and found to be working properly, that the speed reading was maintained for at least two seconds, and that the officer corroborated the speed reading with a visual estimate of speed (Order 2003-1 issued May 30, 2003, by Presiding Judge Linda P. Cooke, Municipal Court, Boulder, CO). In Stoughton Municipal Court in Wisconsin, a judge (after hearing expert and non-expert testimony about the ProLaser III) ruled that in future cases speed measured with a LIDAR device would be not merely admissible but would be granted a prima facie presumption of accuracy sufficient to support a speeding conviction if supported by evidence that the operator had adequate training and experience in its operation, that the device was shown to be functioning properly according to suggested testing, that the operator properly targeted the vehicle in the allowable range, and that the unit was tested prior to and after the arrest. His ruling was vague about what was "adequate" and "proper" but appeared in context to mean compliance with manufacturer's suggestions. *City of Stoughton v. Storey,* Case # 021933 (Mun. Ct., Dane Co., WI, May 27, 2003).

Jurisdictions differ as to how specific are the guidelines for admissibility and how much discretion is left for the trial judge in each case. However, in one way or another all jurisdictions seem to require evidence that the operator of the device was qualified to operate it, the device was properly maintained and that the device was used correctly.

CONCLUSION

Based on the extensive investigation described herein into the reliability of laser speed measurements in general and of the ProLaser III in particular, this Court finds that the use of lasers to measure speed is generally accepted in the scientific community and the reliability of hand held devices, including but not limited to the ProLaser III, is generally accepted in courts and the law enforcement community. ProLaser III meets the NHSTA standards as indicated by being on the IACP Police Traffic

LIDAR Speed Measuring Devices and Systems Conforming Product List (see Govt. Ex. 4 & 5). Readings from the ProLaser have been admitted in evidence in Wisconsin, Texas, Illinois, Georgia and Colorado. This Court, therefore, finds that laser speed measurements by the ProLaser III are admissible in each of these cases (consolidated for *Frye* hearing) through the testimony of the operator without need for the government to present further testimony of experts.

In these consolidated cases, as well as in others where other judicial officers may take judicial notice of this Court's findings and not require expert testimony, it would be prudent for the trial judge to require the government to lay a foundation indicating that the device has been properly calibrated, that the device was in proper working order, that the operator was trained in its use and that the operator used it properly. The parties were invited to propose what that foundation should be.

Although the defendants urge this Court to require as foundation very elaborate proof of frequent and extensive testing of the LIDAR device and to spell out circumstances under which expert testimony will still be required, this Court will not do so for several reasons. The evidence before it does not support the need for great restrictions on admissibility of speed measurements by laser devices on the IACP's Consumer Products List (indicating reliability in measuring speed of a vehicle to plus or minus one mile per hour) when the operator is available to describe the process he or she used and is subject to cross-examination. This Court will not preside over the trials, and has no supervisory power over the judicial officers who will. This Court is concerned merely with establishing sufficient reliability of the LIDAR readings to allow them to be admissible. The judges of the facts at the trials will determine whether the evidence as a whole, including the LIDAR readings, is sufficient to convict of the speeding charges. Defendants may challenge the accuracy of the reading by showing flaws in the individual device used, extreme weather conditions, operator error or other factors. Therefore, this Court will require only threshold foundational elements with which the government has agreed to comply as essential to admissibility. In these consolidated cases, the government has already established that the devices used—ProLaser III instruments manufactured by Kustom Signals, Inc.—are on the IACP Conforming Product List.

ORDER

WHEREFORE, it is this 29th day of April 2008, hereby ORDERED that speed-readings from LIDAR devices on the IACP's Conforming Product List, including the ProLaser III, shall be admissible in evidence through the testimony of the operator provided that the government establishes in the form of the operating officer's testimony, written documentation, and other competent evidence, that:

1. the LIDAR unit in question has a Certification of Calibration issued by the manufacturer or an independent laboratory; 2. the officer operating the LIDAR unit received at least four hours of training and was certified to operate the LIDAR unit by the Metropolitan Police Department; 3. the officer operating the LIDAR unit performed the daily tests recommended by the manufacturer within twenty-four hours before and after the use in question, including:

   a. measurement of two known distances accurate to within one foot,

   b. sight alignment testing, and

   c. internal circuit testing;

4. the officer operating the LIDAR unit

   a. visually identified the target vehicle,

   b. made a visual estimate of the speed of the targeted vehicle,

   c. aimed the device at the target vehicle,

   d. heard a steady audible target acquisition tone for no less than one second (indicating multiple steady readouts made by the LIDAR equipment) prior to noting the target vehicle's speed, and

   e. noted the speed, distance and direction of the targeted vehicle.

Regarding points 1 and 2, the government shall provide any written documentation that exists to defense counsel upon request during the discovery process and must disclose any records of repairs made to the device in question or failure of the device in question to pass the calibration certification process within a year following the use in question.

Regarding 3 and 4, the government shall provide any written notes of the operator as *Jencks* material.

FOOTNOTES:

1. Proc. SPIE Vol. 1633, pp. 147-159, Laser Radar VII: Advanced Technology for Applications, Richard J. Becherer: ED.

2. Certified copies of these unpublished opinions were submitted by the government on March 21, 2008.

3. Maryland declined to extend its ruling on admissibility under *Frye* to specific devices after ruling that the scientific technique was generally acceptable and admissible, *Goldstein v. State*, 664 A.2d 375, 381 (Md. 1995) (holding that laser speed measurements may be admitted in Maryland courts without ruling on the LTI 20-20 in particular).

4. The time between pulses is determined by the pulse repetition rate also known as the pulse repetition frequency. The pulse repetition rate for a properly functioning Prolaser III is 200 pulses per second, and the pulse repetition rate for a properly functioning Prolaser II is 238. The Speed measuring Device Performance Specifications published by NHSTA require that the Pulse Repetition Rate "shall not vary by more than 0.1% from its value at the standard supply voltage."
Speed-measuring Device Performance Specifications: Lidar Module at paragraph 2.9.1.

5. The Court received no evidence indicating any use of ProLaser III other than by police officers trying to enforce speed limits for motor vehicles although Dr. Gerzari testified in a New York case that the LTI 20-20 was used on at least six space shuttle flights to measure distances between the shuttle and other objects. *People v. Depass*, 629 N.Y.S.2d 367 (Village Ct. 1995). In contrast, for example, Judge Burgess noted that the EMIT drug testing system was used not just for law enforcement but also by doctors for making treatment decisions. *United States v. Roy*, 113 DWLR 2317, 2320 (November 15, 1985).

6. Shape, size and color affected whether a reading could be obtained at certain distances but did not create false readings. For example, since the testing was being done at an air force base, an attempt was made to get a speed reading on a passing F-16 fighter plane. No speed reading was possible because the laser device attempted to track a wing which did not provide a sufficient cross-section (Ct. Ex. 1A at 5).

7. A certified copy of this unpublished opinion was submitted by the government in its filing on March 24, 2008.

8. *City of Stoughton v. Storey*, Case # 021933 (Mun. Ct., Dane Co., WI, May 27, 2003).

9. *Jury v. Dept. of Licensing*, 60 P.3d 615 (Wash. Ct. App. 2002).

10. *State v. Sparks*, PD381435-1

(Municipal Ct., Tarrant County, TX, May 21, 2004).

11. *State v. Hall*, 691 N.W.2d 518 (Neb. 2005).

12. *State v. Ali*, 679 N.W.2d 359 (Minn. Ct. App. 2004).

13. *People v. Harris*, 05 DT 3009, Order of J. Kelsey dated May 9, 2007, Circuit Ct. of 18th Jud. Cir., Co. of Dupage, IL. A certified copy of this unpublished order was submitted by the government on March 21, 2008.

14. *Nort v. State*, 550 S.E.2d 111 (Ga. Ct. App. 2001) (recognizing legislation covering admissibility).

15. See *Boulder* cases discussed above.

16. *City of Columbus*, 106 Ohio Misc.2d 17, 733 N.E.2d 326 (1994). The New York and New Jersey cases are discussed and cited above.

17. *State v. Jarwan*, 2000 Del. Super. LEXIS 422 (Del. Super. 2000).

18. *State v. Williamson*,166 P.3d 387 (Idaho Ct. App. 2007).

19. Some of the jurisdictions that require independent verification of the accuracy of the LIDAR device do so by court decision and some by statute.

Cite as *D.C. v. Chatilovicz* 136 DWLR 1365 (June 12, 2008) (Abrecht, Sr. J.)(D.C. Super. Ct.)

DISTRICT OF COLUMBIA
JUDICIAL NOMINATION COMMISSION

NOTICE OF JUDICIAL VACANCY

Members of the bar, bench and public are hereby notified by the District of Columbia Judicial Nomination Commission ("the Commission") that a vacancy on the District of Columbia Court of Appeals will occur as a result of the retirement of **The Honorable Michael W. Farrell** as an Associate Judge effective July 1, 2008.

Within 60 days of a vacancy, the Commission is to submit to the President of the United States the names of three persons for possible nomination and appointment to the Court. D.C. Code § 1-204.34. Accordingly, the Commission invites individuals to notify the Commission of their interest in being considered for this vacancy. Qualified applicants must be citizens of the United States, active members of the District of Columbia Bar, bona fide residents of the District of Columbia, and, for the five-year period immediately preceding the nomination, must be engaged in the active practice of law in the District of Columbia, on the faculty of a law school in the District of Columbia, or employed as an attorney by the United States or the District of Columbia government. For the precise eligibility requirements, please refer to D.C. Code § 1-204.33(b).

All persons interested in applying for a judicial vacancy should review the instructions and application materials on the Commission's website, http://jnc.dc.gov. For additional information, the Commission can be contacted via telephone or email, or by visiting the Commission's office. Interested persons who have not filed an application with the Commission within the previous twelve months must submit a completed application to the Commission. Interested persons who have submitted a completed application within the previous twelve months must notify the Commission in writing of their interest in being considered for this vacancy. All application materials must be received by July 1, 2008. All applications and correspondence should be addressed to the Honorable Emmet G. Sullivan, Chairperson, Judicial Nomination Commission, 515 5th Street, NW, Suite 235, Washington, D.C., 20001. In addition to the required paper copies of the application and/or letter of interest submitted to the Commission, a copy in PDF format must be sent via electronic mail to Judge Sullivan, Chairperson, at JNC@dcd.uscourts.gov. Incomplete applications will not be considered.

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