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John D. Chillemi

THE NEED FOR SPEED AND JUDICIAL NOTICE: NEW YORK'S ADMISSIBILITY OF LIDAR TECHNOLOGY IN LAW ENFORCEMENT

JOHN D. CHILLEMI[†]

> As the state of human knowledge advances, the novelties of one generation become the commonplaces of the next.[1]

INTRODUCTION

Consider the following hypothetical. Joe is being escorted into the courtroom. The jury has just announced that it has reached a verdict. As the jury foreman reads aloud the verdict, Joe smiles because he already knows the answer. Joe is acquitted of possession of a controlled substance and possession of a loaded firearm. The verdict did not come as a surprise. The defense was successful due to one small factor, which led to the discrediting of much of the evidence—Joe's traffic stop. Through a motion to suppress, the defense attacked a seemingly inconsequential aspect of Joe's arrest—the reading of a speed detection gun that allegedly malfunctioned.[2] As Joe celebrates his victory, he reminisces on the night that ended with him in handcuffs.

As a drug dealer who targets the deep pockets of Long Island's drug abusers, Joe must travel from his residence in Queens to the prospective buyers via state highways. Unlike most drug dealers who sell their product to individuals, Joe sells larger quantities to satellite dealers. On the particular night at issue, Joe was exceeding the fifty-five mile per hour speed limit

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[†] Senior Articles Editor, *St. John's Law Review*; J.D., 2015, St. John's University School of Law; B.A., 2010, Pace University. I would like to thank Dean Lawrence Cunningham for his many hours of help and guidance with this Note and my editor, Christine Cea, for her support and being an invaluable mentor.

[1] RICHARD T. FARRELL, PRINCE, RICHARDSON ON EVIDENCE § 2-208, at 43 (11th ed. 1995).

[2] N.Y. CRIM. PROC. LAW § 710.20 (McKinney 1999).

and was showing no indications of slowing down. Officers Smith and Johnson were sitting just around the bend. Officer Johnson was standing outside the officers' vehicle with a LTI 20/20 Laser speed detection gun.[3] The device has a screening window resembling a 35-mm camera with a red dot in the middle of the gun's window. As Joe approached the bend, passing cars in the left lane, Officer Johnson aimed the device at Joe's front bumper and pressed the trigger. After hearing two loud beeps, as opposed to the customary one beep, the gun presented a reading of eighty-eight miles per hour. Returning to their cruiser, Officers Smith and Johnson began pursuit of Joe's speeding vehicle. After a short chase, Joe pulled over as demanded by the officers. When the officers approached either side of Joe's vehicle, Officer Smith noticed a white powdery substance on the rear seats. Joe was detained. A search of Joe's person revealed a 45-glock handgun and a complete search of his vehicle revealed nearly three pounds of cocaine. Joe was arrested and charged with possession of a controlled substance in the first degree with intent to sell and possession of a loaded firearm.

At trial, Joe's defense counsel strategically undermined the establishment of probable cause by attacking the admissibility of the Light Detection and Ranging[4] ("LIDAR") speed detection gun's data, framing it as scientifically unreliable. Despite convincing testimony from both arresting officers, the tainting of probable cause led to the demise of the prosecution's case and Joe is back on the streets, free to continue his life of crime.

The reliability of LIDAR,[5] and other traffic enforcement technology, is generally questioned in two situations: (1) the scenario as set forth above, where the speed measuring device established the probable cause necessary for the underlying

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[3] The LTI 20/20 Laser speed detection gun is one of the most popular and reliable speed detection guns used in law enforcement today. *UltraLyte Laser Speed Guns: Still the Most Durable and Reliable Laser Speed Guns on the Market!*, LASER TECH., INC., http://www.lasertech.com/UltraLyte-Laser-Speed-Guns.aspx (last visited Mar. 2, 2015).

[4] Ryan V. Cox & Carl Fors, *Admitting Light Detection and Ranging (LIDAR) Evidence in Texas: A Call for Statewide Judicial Notice*, 42 ST. MARY'S L.J. 837, 838 n.4 (2011).

[5] LIDAR utilizes laser technology, by which the laser measures the speed of moving vehicles. LES LANGFORD, UNDERSTANDING POLICE TRAFFIC RADAR & LIDAR 130 (rev. ed. 1998).

traffic stop, leading to the finding of other criminal activity[6] or (2) the speeding violation is of such pronounced value that a challenge to the technology is necessary.[7]

As shown in the opening hypothetical, the reading of the laser speed gun led to the discovery of the cocaine and a loaded handgun. In these types of cases, a common defense strategy is to attack the reliability of the traffic stop to deem all subsequent evidence discovered tainted.[8] Tainting of the subsequent evidence is derived from the "fruit of the poisonous tree" doctrine.[9] The doctrine refers to the legal theory that if the source of the evidence or the evidence itself is tainted, then anything that derives from it is tainted as well.[10] The third, and more common, situation in which speed detection technology is questioned does not originate from doubt about the accuracy of the device, but occurs when people accused of speeding challenge their violations for more mundane reasons, such as avoiding an increase in their insurance or because past violations would lead to the suspension of their driver's licenses.[11]

Since speeding tickets are common within every state and jurisdiction, it is essential that a sense of legal uniformity is achieved with regard to the technological advancements used in traffic convictions. Uniformity is especially important because individuals traveling interstate should have knowledge of the standards of traffic enforcement being utilized in the particular state in which they are traveling. Focusing at the state level, this Note proposes to establish uniformity within New York State by means of judicial notice or legislative action. Part I provides a history, background, and the development of LIDAR, commencing with its predecessor, radar. It discusses LIDAR's

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[6] *See* People v. Peterson, 245 A.D.2d 815, 815, 666 N.Y.S.2d 785, 786 (3d Dep't 1997) (deciding a case where drugs were found after the defendant was stopped for speeding).

[7] *See* Pay No Fines, *Fighting a Speeding Ticket*, WORLD LAW DIRECT (Nov. 21, 2013), http://www.worldlawdirect.com/article/903/fighting-speeding-ticket.html.

[8] *See, e.g.*, People v. Brendlin, 195 P.3d 1074, 1079 (Cal. 2008); People v. Graham, 192 Misc. 2d 528, 530, 748 N.Y.S.2d 203, 204 (Sup. Ct. Erie Cnty. 2002).

[9] *See* Nardone v. United States, 308 U.S. 338, 341 (1939) (coining the term "fruit of the poisonous tree"); Silverthorne Lumber Co. v. United States, 251 U.S. 385, 390–92 (1920).

[10] *See generally* Wong Sun v. United States, 371 U.S. 471 (1963); *Silverthorne Lumber Co.*, 251 U.S. at 385.

[11] Pay No Fines, *supra* note 7 (listing reasons why individuals may choose to fight the ticket as opposed to paying the fine).

technical workings and the importance of its current usage to law enforcement. Part I also compares LIDAR to radar, which is nationally accepted. Part II explores New York's adherence to the admissibility standard set forth in *Frye v. United States*,[12] and shows how New York's lower courts have been approaching the issue by analyzing several court decisions in which the courts have differed in approach. Part II likewise explores how several other states have approached the issue of LIDAR reliability and explains why New York should follow suit. Part III offers two proposed solutions to the admissibly question. The first is through the normal channels of obtaining judicial notice, a ruling from the New York Court of Appeals, which establishes the reliability and admissibility of LIDAR. The second, more favorable, approach requires that the New York State legislature pass a law proclaiming the reliability of all speed detection devices. Part III proposes a model statute that the New York State legislature could pass to resolve the issue. It also explores the advantages of legislative action over judicial notice and the public policy justifications.

I. BACKGROUND

A. Radar: History, Development, and Uses

Radar, or "Radio Detection and Ranging" experimentation,[13] began as early as the 1860s when British physicist James Clerk Maxwell "predicted the existence of electromagnetic waves that travel at the speed of light."[14] In the mid 1880s, Maxwell was proven correct through Heinrich R. Hertz's production of radio waves and demonstration that "electromagnetic waves could be reflected from solid objects."[15] By 1904, German engineer Hülsmeyer "patented a radio echo device meant to locate ships at

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[12] Unlike most states that have adopted *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993), New York still follows the test for scientific admissibility as was set forth in *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923).

[13] ROBERT MORRIS PAGE, THE ORIGIN OF RADAR 15 (1962) (capitalization altered) (stating that the term radar was coined by two U.S. Naval officers, F. R. Furth and S. M. Tucker). The basic idea of radar is that "electromagnetic radiation at high radio frequency [can] be employed for the detection and location of [targeted] objects." *Id.* at 37.

[14] LANGFORD, *supra* note 5, at 38.

[15] *Id.*; *see also* PAGE, *supra* note 13, at 183.

sea."[16] Later, in 1925, Gregory Breit, Merle A. Tuve, and Albert H. Taylor, three American scientists, "bounced short radio pulses off the ionosphere" and measured the time it took for the pulse to return.[17] The most important scientific breakthrough relevant to this Note, however, occurred in 1935.[18] In that year, Scottish physicist Robert A. Watson-Watt became the first person to develop a speed-detection device.[19] This device is similar to the ones used by law enforcement today. By 1936, "American army and navy engineers discovered they could detect aircraft at distances of more than a hundred miles when they used long enough radio wavelengths."[20] Radar was not used on a large scale, however, until the Second World War.[21] In fact, the U.S. military used radar to detect the Japanese prior to the attack on Pearl Harbor on December 7, 1941.[22] Unfortunately, the radar report was ignored and the attack resulted in the loss of "three thousand people, dozens of large ships, and eighty percent of the airplanes" located at the Pearl Harbor naval base.[23]

At its origin, radar consisted of a radio device used for detecting remote objects.[24] It used radio waves instead of light waves, and when an object was detected, it indicated its position relative to the radio device.[25] Radar achieves this by transmitting short, but powerful, pulses of radio frequencies in a desired direction and receiving the reflected pulses after they

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[16] John H. Lienhard, *No. 1364: Radar*, ENGINES OF OUR INGENUITY, http://www.uh.edu/engines/epi1364.htm (last visited Mar. 2, 2015).

[17] LANGFORD, *supra* note 5, at 38; PAGE, *supra* note 13, at 183.

[18] *See* LANGFORD, *supra* note 5, at 38.

[19] *Id.*

[20] *See* Lienhard, *supra* note 16.

[21] *See* Cox & Fors, *supra* note 4, at 844. "[Radar] was seen primarily as a military technology." *Id.*

[22] *Id.*

[23] *See* Lienhard, *supra* note 16. Allegedly, two privates were training on a radar unit and were about to go off duty at 7:00 AM. *Id.* The truck that was to take them to breakfast was late, allowing the privates to spend more time on the radar unit. *Id.* At 7:02 AM, they saw a large reflection, 136 miles due north of their position. *Id.* After tracking the signal for another eighteen minutes, the privates called the Information Center and a lieutenant dismissed the report. *Id.* The two privates continued to track the signal until 7:39 AM, where the reflection revealed a presence only twenty miles away. Sixteen minutes later, the attack on Pearl Harbor began. *Id*.

[24] PAGE, *supra* note 13.

[25] *See id.*

have bounced off the surface of the targeted object.[26] When radar is used, it is usually used to accomplish one of three things: (1) to detect the presence of an object at a distance;[27] (2) to map something;[28] or (3) to detect how fast an object is moving.[29] Law enforcement agencies rely upon radar for the third purpose. All three activities are accomplished by the principles of "echoes" and the Doppler effect.[30] People experience echoes frequently when they enter a large empty space and use their voices.[31] When one shouts into an empty room, the sound is heard again a few moments later as an echo. The echo occurs because sound waves in the shout reflect off a surface and travel back to the speaker's ears.[32] The length of time from when the speaker shouts and when the speaker hears the returning echo is determined by the distance between the surface that reflected the sound waves and the speaker.[33]

People also experience the Doppler effect, or Doppler shift, as part of their everyday lives.[34] The Doppler effect is commonly heard when a vehicle sounding its horn approaches, passes, and recedes from an observer.[35] It occurs when sound is generated by, or reflected off of, a moving object.[36] The principle behind the phenomenon is that "frequency of a wave is relative to the motion between the source and the observer."[37] The principles of the Doppler effect are the basis for all modern police radar and apply to sound waves, light waves, and radio waves.[38]

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[26] *Id.* Radio waves are invisible to humans, can travel very far, and are easy to detect even when their signal strength is low. *See* Marshall Brain, *How Radar Works*, HOW STUFF WORKS, http://science.howstuffworks.com/radar.htm (last visited Mar. 4, 2015).

[27] For example, radar is used to detect the presence of airplanes flying within targeted airspace, as well as to detect and identify objects buried deep underground. Brain, *supra* note 26.

[28] An example of this type of radar use is mapping the surface of distant planets by orbiting drones and satellites. *Id.*

[29] *Id.*

[30] *See id.*

[31] *Id.*

[32] *Id.*

[33] PAGE, *supra* note 13.

[34] Brain, *supra* note 26.

[35] *Id.*

[36] *Id.*

[37] LANGFORD, *supra* note 5, at 38. Austrian mathematician and physicist Christian Johann Doppler developed the principle in 1842. *Id.*

[38] *Id.*

The first radar gun used in law enforcement was pioneered by Decatur Electronics, Inc. in the 1950s.[39] When a police officer fires a radar gun, the pulse that is shot out echoes off of many objects, including fences, bridges, and buildings.[40] The easiest way to remove all of this clutter is to filter it out by recognizing which objects are not producing the Doppler effect; therefore, police radar searches only for Doppler effect signals, such as a speeding vehicle.[41] In 1901, the nation's first speed limit was enacted in Connecticut, requiring drivers to drive at a "reasonable and prudent" speed under existing conditions.[42] However, law enforcement agencies found it difficult to enforce such limits without having reliable evidence of the infraction.[43] As automobiles became more popular and the use of speed limits, whether national or statewide, became more prevalent, radar speed detection technology was developed and improved to keep pace with the new laws.[44] It became the standard technology used by police agencies to enforce speeding laws.[45] New York's Vehicle and Traffic law states, "No person shall drive a vehicle at a speed greater than is reasonable and prudent under the conditions and having regard to the actual and potential hazards then existing."[46] Although "reasonable and prudent" is the standard, the law goes on to provide a statewide recognized speed limit of fifty-five miles per hour.[47] "[N]o city, village, town, county, public authority, division, office or department of the state shall maintain or create . . . any speed limit in excess of

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[39] *See About Us*, DECATUR ELECTRONICS, http://www.decaturelectronics.com/content/about-decatur (last visited Mar. 4, 2015) (describing the history of the company); *see also* LANGFORD, *supra* note 5, at 44 (noting that early radar devices nearly occupied the entire backseat of a police car).

[40] Brain, *supra* note 26.

[41] *Id.*

[42] LANGFORD, *supra* note 5, at 18.

[43] *See id.* There are two types of speed laws: basic speed limits and absolute speed limits. *Id.* Basic speed limits require that the violator's speed was "unreasonable and imprudent" under the existing circumstances. *Id.* Absolute speed limits are "based on a law that simply prohibits driving faster than a specified speed" regardless of the existing circumstances. *Id.*

[44] Cox & Fors, *supra* note 4, at 845.

[45] *Id.*

[46] N.Y. VEH. & TRAF. LAW § 1180 (McKinney 2010).

[47] *Id.* This section also establishes exceptions, such as reduced speed limits for school zones and roads specifically marked with reduced speed limit signage due to road construction, maintenance, or dangerous road conditions. *Id.*

fifty-five miles per hour . . . ."[48] To maintain compliance with this statewide speed limit, and the various other local ordinances that supplement the statewide limit,[49] law enforcement agencies have become accustomed to using speed detection devices.

Today, compact and efficient radar devices are found in nearly every police vehicle.[50] Radar is employed either through the use of a radar gun or by a radar unit that is installed directly into the police car.[51] "These in-car radar units, unlike radar guns, do not track individual cars but are usually designed to track the fastest moving object in its range."[52] This means that a police officer must not only monitor the speed detected from the unit, but also track the vehicle visually.[53] An example of this scenario exists when two vehicles are traveling next to one another and both pass through the radar's beam; the officer must visually determine which vehicle was traveling faster to determine which vehicle's speed was detected by the radar unit.[54]

B. LIDAR: History, Development, and Current Uses

LIDAR relies on the principles of laser technology. "LASER" stands for "Light Amplification by Stimulated Emission of Radiation."[55] The term refers to a "variety of different devices which transmit extremely intense beams of light."[56] Albert Einstein was the first to develop the theory "that a single frequency light could be created . . . [and] transmitted over great distances."[57] In 1957, Gordon Gould designed the first laser on paper.[58] Then, American physicist Theodore Maiman finally

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[48] N.Y. VEH. & TRAF. LAW § 1180-a (McKinney 2004).

[49] *See, e.g.*, VILLAGE OF FLORAL PARK, N.Y., TRAFFIC REGULATIONS ch. 96, art. II, §§ 96-5, 96-74 (1989) (setting out specific speed limits for designated streets); VILLAGE OF ROCKVILLE CENTRE, N.Y., SPEED LIMITS ch. 309, art. II § 309-4 (1985) (setting out a maximum speed limit of thirty miles per hour, except on specified highways); VILLAGE OF ROSLYN HARBOR, N.Y., SCHEDULE OF TRAFFIC REGULATION ORDERS ch. 263, art. VII § 263-33 (2006) (establishing a thirty mile an hour speed limit, except for specified roads).

[50] LANGFORD, *supra* note 5, at 44.

[51] Cox & Fors, *supra* note 4, at 846 (noting that in-car radar devices offer a display screen appearing on the vehicle's dashboard).

[52] *Id.*

[53] *Id.*

[54] *See id.*

[55] LANGFORD, *supra* note 5, at 128.

[56] *Id.*

[57] *Id.*

[58] *See id.*; Cox & Fors, *supra* note 4, at 848.

developed the first laser in 1960.[59] NASA and other government agencies have utilized the principles behind laser technology since then.[60] The same laser technology used in traffic devices is also used in many common devices, such as compact disk players and supermarket scanners.[61]

For more than twenty years, LIDAR technology has been utilized by law enforcement agencies.[62] The lasers used in traffic enforcement utilize two laws of physics: the speed of light and the time-distance formula.[63] LIDAR devices are actually laser range finders, which are designed to calculate speed by measuring the change in range over a set period of time.[64] "Police traffic laser calculates distance by measuring the time of flight of very short pulses of infrared light."[65] Since the speed of light is a known constant, the distance between the laser device and a speeding vehicle "can be calculated by measuring the time it takes for the laser pulse to travel back to the receiver."[66] There are two main types of lasers: continuous wave and pulse wave—traffic laser devices use pulse waves.[67] To detect the speed of a moving vehicle, the laser device fires hundreds of pulse waves towards the moving vehicle.[68] When the laser pulse hits the surface of the moving vehicle, a portion of the pulse is reflected back to the device.[69] "The change in distance of the [vehicle] over time produces the speed-reading."[70] At least sixty percent of the pulses shot from the device need to be received to obtain a valid

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[59] JAMES P. HARBISON & ROBERT E. NAHORY, LASERS: HARNESSING THE ATOM'S LIGHT 54 (Scientific American Library 1998). Maiman was the first to achieve the production of stable red beam from the end of a ruby crystal. *Id.*

[60] Cox & Fors, *supra* note 4, at 848.

[61] *Id.* Other uses of laser technology include medical purposes, entertainment, computers, and metal shaping. *Uses of Lasers*, http://ffden-2.phys.uaf.edu/212_fall2003.web.dir/James_Becwar/uses/ (last visited Mar. 4, 2015).

[62] Cox & Fors, *supra* note 4, at 847; *see* LANGFORD, *supra* note 5, at 31 (noting that Laser Technology, Inc. patented the first police traffic laser unit in 1989).

[63] LANGFORD, *supra* note 5, at 129.

[64] DONALD S. SAWICKI, POLICE TRAFFIC SPEED RADAR HANDBOOK: A COMPREHENSIVE GUIDE TO SPEED MEASURING SYSTEMS 137 (2011).

[65] LANGFORD, *supra* note 5, at 129.

[66] District of Columbia v. Chatilovicz, 136 Daily Wash. L. Rptr. 1365, 1367 (D.C. Super. Ct. June 26, 2008), *available at* http://www.pdsdc.org/Resources/JUVENILEPANEL/traffic.pdf.

[67] Cox & Fors, *supra* note 4, at 848–49.

[68] *See Chatilovicz*, 136 Daily Wash. L. Rptr. at 1367.

[69] *Id.*

[70] *Id.*

speed calculation.[71] The device supplies officers with the targeted vehicle's speed along with a plus sign to indicate that the vehicle is approaching or a minus sign to indicate that the vehicle is receding.[72]

C. Radar versus LIDAR

The technology used by LIDAR is not drastically different from radar technology, but it offers "improved range accuracy and resolution" as compared to its predecessor.[73] The main difference between the two devices is that "radar measures frequency, whereas LIDAR measures time."[74] Unlike some radar devices, LIDAR "allows an officer to target specific vehicles without the need to visually track the vehicle."[75] Since the size of the laser beam remains small over increased distances, an officer is able to aim the laser at specific surfaces of a speeding vehicle.[76] This precise aiming is usually performed through one of two sighting systems: a scope system or a heads-up display, which is attached to the device.[77] The scope system utilizes double magnification, which allows for more precise aiming at increased distances.[78] The use of the scope system results in the operator having to close one eye, resulting in decreased peripheral vision.[79] The heads-up display, on the other hand, utilizes a plexiglass screen, which displays the speed and range of the targeted vehicle without the user having to close one eye.[80] Additionally, the heads-up display does not magnify the operator's field view, thus allowing the operator to better visually track the approaching vehicle.[81] These precise aiming systems are advancements on the radar gun that will only detect the fastest moving object passing through the radar beam.[82]

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[71] Cox & Fors, *supra* note 4, at 849.
[72] LANGFORD, *supra* note 5.
[73] Cox & Fors, *supra* note 4, at 847 (internal quotation marks omitted).
[74] *See Chatilovicz*, 136 Daily Wash. L. Rptr. at 1368.
[75] Cox & Fors, *supra* note 4, at 847.
[76] *Id.* at 850.
[77] LANGFORD, *supra* note 5, at 131.
[78] *Id.*
[79] *Id.* (noting that the loss of peripheral vision may compromise officer safety).
[80] *Id.*
[81] *Id.*
[82] *See supra* notes 50–52 and accompanying text.

Other differences include the fact that radar may be used from a police car that is either moving or stationary, whereas the LIDAR device must be operated from a stationary position since its beam is so narrow.[83] A minor downside to LIDAR devices is that they should not be operated from behind glass or windshields,[84] which requires that the operating officer either stand outside his vehicle or operate it through an open window. Although LIDAR devices must be discharged while stationary, the narrowness of the beam allows officers to target specific vehicles in a congested area, where locking onto a vehicle with radar is more difficult.[85]

Even with all the technological advances proffered by LIDAR, there are still a number of concerns raised by opponents to the admissibility of the technology. A challenge to LIDAR technology concerns target identification.[86] This concern arises in situations when the police officer leaves an unattended LIDAR device aimed at a roadway and only checks the oncoming traffic after the device obtains a reading above the legal limit.[87] Another concern is the risk of malfunction within the device itself.[88] For this reason, proper maintenance and routine calibrations are required for accurate speed readings.[89] Such maintenance checks include: ensuring that the digital readout display is working properly, alignment tests to the eye scope, and preset distance testing.[90] These checks ensure that the device is working properly for day-to-day operation; however, the device must also be "certified annually by a technician in accordance

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[83] LANGFORD, *supra* note 5 ("Operating LIDAR from a moving patrol car and directing the laser light at a moving target is nearly impossible and highly impractical."); *see also* THE TRUTH ABOUT SPEED ENFORCEMENT, ESCORT RADAR (2005), *available at* http://www.escortradar.com/pdf/radar_report.pdf.

[84] SAWICKI, *supra* note 64, at 9.

[85] Lisa Solomon, *LIDAR: The Speed Enforcement Weapon of Choice*, OFFICER.COM (Nov. 12, 2006), http://www.officer.com/article/10250592/lidar-the-speed-enforcement-weapon-of-choice.

[86] District of Columbia v. Chatilovicz, 136 Daily Wash. L. Rptr. 1365, 1369 (D.C. Super. Ct. June 26, 2008), *available at* http://www.pdsdc.org/Resources/JUVENILEPANEL/traffic.pdf.

[87] *Id.* Officers are trained to visually observe a vehicle that they believe to be speeding before targeting with the laser device. *Id.*

[88] *Id.* at 1370.

[89] *Id.*

[90] People v. Depass, 165 Misc. 2d 217, 220, 629 N.Y.S.2d 367, 369 (Roslyn Harbor J. Ct. 1995); *see also* LANGFORD, *supra* note 5, at 134–35.

with manufactures [sic] specifications."[91] Improper maintenance and lack of certification are grounds on which to oppose the reading produced by either radar or LIDAR devices.[92]

Although human error is a common cause for erroneous speed readings, other factors may also lead to a faulty reading.[93] The pulse emitted from the laser device interacts with and reflects off of various surfaces that enter its path.[94] For example, inclement weather, such as fog or falling snow, could cause the pulse to reflect erratically and produce a false speed reading.[95] Likewise, executing officers must aim the pulses to reflect off of a reflective surface of the vehicle.[96] Common targets normally are the license plate or headlights.[97] It is important to remain aware of the reflective surface of the target because the slope of the windshield or hood of a car could obstruct the pulse's reflection back to the laser device.[98] Despite these generic concerns, LIDAR is "recognized by working police officers and traffic courts as a superior tool in targeting speeders."[99] In fact, in jurisdictions where LIDAR use is prevalent, judges may ask few questions about the method of detection.[100] This provides police officers with the confidence to confront the "It wasn't me!" argument from motorists.[101]

II. NEW YORK'S CURRENT APPROACH

When confronted with emerging scientific evidence, the courts have put guidelines into place to determine whether such evidence should be admitted. The federal courts have done this through case law and Congress has codified evidentiary guidelines through the enactment of the Federal Rules of

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[91] LANGFORD, *supra* note 5, at 136.

[92] *See, e.g.*, People v. Silverman, No. 07120043, 25 Misc. 3d 1236(A), 2009 WL 4432505 at *2 (Muttontown J. Ct. Dec. 3, 2009) (holding that the testifying officer was unable to acknowledge when the laser device was last certified).

[93] *See generally* SAWICKI, *supra* note 64, at 151–55 (indicating several scenarios in which LIDAR devices could produce faulty readings).

[94] LANGFORD, *supra* note 5 (stating that a laser pulse generally reflects very easily off of almost any surface).

[95] *Id.* at 133.

[96] *Id.* at 130.

[97] *Id.*

[98] *See id.*

[99] Solomon, *supra* note 85.

[100] *Id.*

[101] *Id.*

Evidence.[102] The Federal Rules of Evidence, however, are not binding on the states, allowing the states to adopt the guidelines they want and reject the rest.[103] New York has chosen to reject the federal guidelines regarding expert witness testimony.[104] New York's guidelines pertaining to expert testimony are discussed in the next Section.

A. New York's Frye *Standard*

Currently, New York requires that an expert witness advocating the reliability of new scientific devices rely on tests or procedures "generally accepted as reliable by the relevant scientific community"[105] as articulated in *Frye v. United States*.[106] In *Frye*, the defendant sought to have the results of a lie-detector test admitted at his trial.[107] The defendant called the test's administrator as an expert witness to testify as to the validity of the test.[108] The circuit court, however, refused to allow the expert to testify.[109] The circuit court then went on to offer what would become known as the "*Frye* Standard":

> Somewhere in this twilight zone the evidential force of the principle must be recognized, and while courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs.[110]

In summation, "the theory upon which an expert is called to testify is not admissible unless it is generally accepted in the scientific community."[111] The ultimate holding of the court

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[102] DAVID P. LEONARD ET AL., EVIDENCE: A STRUCTURED APPROACH 5 (Wolters Kluwer Law & Bus., 3d ed. 2012). The Rules were enacted in 1975, with amendments added annually. *Id.*

[103] *Id.* at 6.

[104] *See infra* Part II.A.

[105] FARRELL, *supra* note 1, § 7-311, at 475.

[106] 293 F. 1013 (D.C. Cir. 1923). The *Frye* court explained the first true test for the admissibility of scientific evidence. *Id.*

[107] *Id.* at 1013.

[108] *Id.* at 1014.

[109] *Id.* ("The offer was objected to by counsel for the government.").

[110] *Id.*

[111] Cox & Fors, *supra* note 4, at 856.

concluded that the lie-detector test failed to meet this standard because it had "not yet gained such standing and scientific recognition among . . . authorities."[112]

Although the *Frye* test was superseded by a new federal test established in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*,[113] many states, including New York, remain loyal to the stricter test set forth in *Frye*.[114] In *Daubert*, the Court replaced *Frye*'s general acceptance test with a new standard that is in accordance with Rule 702 of the Federal Rules of Evidence.[115] Rule 702 states:

> A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if: (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue.[116]

The text of Rule 702 does not make admissibility of expert testimony depend on general acceptance, and there is no evidence that Congress intended to incorporate general acceptance factors, including the *Frye* standard, for determining whether a scientific theory is reliable.[117] These factors are: (1) whether the questioned theory or technique can be tested; (2) whether it has been subjected to peer review and publication; (3) its known or potential rate of errors; (4) the existence and maintenance of standards controlling its operation; and (5) whether it is generally accepted in the scientific community.[118]

The New York Court of Appeals refused to adopt the standard set out in *Daubert* and the Federal Rules of Evidence through its holding in *People v. Wesley*.[119] In *Wesley*, the Court of Appeals stated that *Daubert* is not applicable because "the test pursuant to [*Frye*] . . . poses the more elemental question of

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[112] *Frye*, 293 F. at 1014.

[113] 509 U.S. 579, 597 (1993) (holding that the enactment of the Federal Rules of Evidence implicitly overturned the *Frye* standard).

[114] J. Peter Coll, Jr., *Selection of Experts, Expert Disclosure and the Pretrial Exclusion of Expert Testimony*, *in* COMMERCIAL LITIGATION IN NEW YORK STATE COURTS § 28:14 (Robert L. Haig ed., 3d ed. 2014).

[115] *See Daubert*, 509 U.S. at 589–92.

[116] FED. R. EVID. 702.

[117] *See Daubert*, 509 U.S. at 593–95.

[118] *Id.*; *see also* Cox & Fors, *supra* note 4, at 858 (stating that these factors are only tools to aid in the determination of the reliability of a particular method and not the reliability of the application of that particular method).

[119] 83 N.Y.2d 417, 422, 633 N.E.2d 451, 454, 611 N.Y.S.2d 97, 100 (1994).

whether the accepted techniques, when properly performed, generate results accepted as reliable within the scientific community generally."[120] In other words, New York courts have announced that the test of reliability "is not whether a particular procedure is unanimously indorsed by the scientific community, but whether it is generally acceptable as reliable."[121] Furthermore, the *Wesley* court made certain to establish the following:

> Once *Frye* has been satisfied, the question is "whether the accepted techniques were employed by the experts in this case" . . . . The focus moves from the general reliability concerns of *Frye* to the specific reliability of the procedures followed to generate the evidence proffered and whether they establish a foundation for the reception of the evidence at trial. The trial court determines, as a preliminary matter of law, whether an adequate foundation for the admissibility of this particular evidence has been established.
>
> . . . .
>
> . . . Once the *Frye* reliability and the trial foundation have been established, the evidence is admissible.[122]

Reliability may be established in three ways.[123] The first way is through the court's recognition of judicial notice on the issue.[124] Judicial notice will be recognized when the general acceptance of the evidence in question becomes so notorious that the community at large is assumed to accept it.[125] Second, legal writings and judicial opinions may be referenced to establish general acceptance.[126] Third, if acceptance cannot be achieved by either judicial notice or legal writings, then a trial judge may call

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[120] *Id.* at 422, 633 N.E.2d at 454, 611 N.Y.S.2d at 100. "It is not for a court to take pioneering risks on promising new scientific techniques, because premature admission both prejudices litigants and short-circuits debate necessary to determination of the accuracy of a technique." *Id.* at 437 n.4, 633 N.E.2d at 462 n.4, 611 N.Y.S.2d at 108 n.4 (Kaye, C.J., concurring).

[121] People v. Middleton, 54 N.Y.2d 42, 49, 429 N.E.2d 100, 103, 444 N.Y.S.2d 581, 584 (1981); *see also* People v. Hughes, 59 N.Y.2d 523, 537, 453 N.E.2d 484, 490, 466 N.Y.S.2d 255, 261 (1983).

[122] *Wesley*, 83 N.Y.2d at 429, 633 N.E.2d at 457–58, 611 N.Y.S.2d at 103–04.

[123] *See* FARRELL, *supra* note 1, § 7-311, at 476.

[124] *Id.*

[125] *See id.*

[126] *Id.*

for a hearing in which the proponent of the evidence may attempt to prove its admissibility through the offering of expert testimony.[127]

B. Past and Current New York Jurisprudence with Regard to Speed Detection Devices

A New York court first recognized the propriety of taking judicial notice of the general effectiveness of a radar speed device in *People ex rel. Igoe v. Nasella*.[128] That court based its ruling upon expert testimony regarding the reliability of radar in measuring speed and upon evidence offered to prove the proper testing and operation of the particular device used in this case.[129] That court found that it was time to take judicial notice of the character and operation of radar devices, thereby relieving the prosecution from its burden of providing expert testimony.[130] That court went on to note that "[t]he higher appellate courts of New York have not as yet had squarely before them, the question of taking judicial notice of the effectiveness of tested speedmeters," but that was not a good enough reason "for not accepting now what must be accepted later."[131]

In 1958, the New York Court of Appeals fulfilled the predictions set forth in *Nasella*.[132] The New York Court of Appeals in *People v. Magri* accepted the reliably of radar devices, holding that:

> [T]he time has come when we may recognize the general reliability of the radar speedmeter as a device for measuring the speed of a moving vehicle, and that it will no longer be necessary to require expert testimony in each case as to the nature, function or scientific principles underlying it.[133]

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[127] *Id.* Such hearings are often referred to as *Frye* hearings.

[128] 3 Misc. 2d 418, 420, 155 N.Y.S.2d 463, 467 (N.Y.C. Magis. Ct. Richmond Cnty. 1956).

[129] *Id.* at 424, 155 N.Y.S.2d at 470.

[130] *Id.* at 425, 155 N.Y.S.2d at 471.

[131] *Id.* at 426, 155 N.Y.S.2d at 472.

[132] *See generally* People v. Magri, 3 N.Y.2d 562, 147 N.E.2d 728, 170 N.Y.S.2d 335 (1958).

[133] *Id.* at 566, 147 N.E.2d at 730, 170 N.Y.S.2d at 337–38. The court compared the use of radar speed detection to the variety of scientific methods unquestionably accepted in the courts for their general reliability, including the reproduction of photographs, ballistic evidence, fingerprint identification, and speedometer readings. *Id.* at 566, 147 N.E.2d at 730, 170 N.Y.S.2d at 338.

Before the *Magri* holding, New York required expert testimony in all speeding prosecutions based upon a radar speed device.[134]

C. New York's Approach to LIDAR Admissibility

Due to the lack of guidance from New York high courts and the New York legislature, the lower New York courts are inconsistent on the issues regarding the admission of LIDAR. Some lower courts deemed laser devices fully compliant with *Frye*, whereas other courts have openly refused to recognize the reliability of laser devices. The cases explained below are examples of lower courts of New York that have taken it upon themselves to determine the fate of LIDAR devices. This has led to a divide among lower courts and uncertainty in New York law.

1. New York Lower Courts Have Found LIDAR Devices Reliable

At least one New York lower court has appropriately recognized the reliability of LIDAR devices and, without the guidance of a higher court ruling, has attempted to establish judicial notice through its own ruling. In *People v. Depass*,[135] a justice court recognized that there has not been an appellate court ruling accepting laser speed readings as sufficient proof to support a speeding conviction.[136] Nonetheless, that court performed the same analysis that a higher court would have performed in its determinations.[137] Noting that the New York Court of Appeals had reiterated the *Frye* standard as being this state's applicable standard for the acceptance of scientific evidence, the *Depass* court put the questioned device and methodology through a *Frye* analysis.[138] The prosecution presented an expert witness who testified as to the principles behind LIDAR devices.[139] The expert's testimony "made clear that the device makes use of principles that have been well

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[134] Thomas J. Goger, *Proof, By Radar or Other Mechanical or Electronic Devices, of Violation of Speed Regulations*, 47 A.L.R.3d 822 (1973).

[135] 165 Misc. 2d 217, 629 N.Y.S.2d 367 (Roslyn Harbor J. Ct. 1995).

[136] *Id.* at 218, 629 N.Y.S.2d at 367.

[137] *Id.* at 218, 629 N.Y.S.2d at 367–68.

[138] *See id.* at 218–20, 629 N.Y.S.2d at 367–69.

[139] *Id.* at 218, 629 N.Y.S.2d at 368.

accepted in the scientific community for many years."[140] The expert went on to testify how the device calculates the speed of a moving vehicle.[141] He explained that "[b]ased upon the time between laser beam emission and return, and the known speed of light, the distance between the object and the laser device is determined by simple arithmetic calculation."[142] According to the expert, these same principles are used in many other applications.[143] Additionally, the expert testified that a database survey on the issue revealed over 1,500 publications regarding the principles of lasers in determining distance or velocity.[144]

The *DePass* court also examined the necessary maintenance required to ensure accurate measurements and concluded that the operating police officer properly maintained the device in question.[145] Utilizing all the evidence and testimony, the court was satisfied that the prosecution proved its case beyond a reasonable doubt and found the defendant guilty of speeding.[146]

Comparing the results of the analysis and testimony against requirements presented by the New York Court of Appeals in *People v. Magri* and *People v. Wesley*, the court was satisfied that LIDAR devices contain "well accepted scientific principles and can be accepted in this Court as an accurate method of measuring the speed of a moving vehicle."[147] In other words, the *DePass* court correctly found that LIDAR devices meet the *Frye* standard. Had the *DePass* court been a court of higher jurisdiction, judicial notice would have been established throughout most parts of New York State.

Other courts have utilized expert witnesses in conjunction with testimony from the operating officer to aid in their determination of admissibility.[148] For example, in *People v. Clemens*, the prosecution presented an expert witness to testify as to the reliability of the principles of lasers in detecting

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[140] *Id.* at 219, 629 N.Y.S.2d at 368.

[141] *Id.*

[142] *Id.*

[143] *Id*. (noting that laser principles are used in land surveying, space shuttle flights, and to locate aircraft positions).

[144] *Id.* at 220, 629 N.Y.S.2d at 368.

[145] *Id*. at 220, 629 N.Y.S.2d at 369.

[146] *Id.* at 221, 629 N.Y.S.2d at 369.

[147] *Id.*

[148] *See, e.g.*, People v. Silverman, No. 07120043, 25 Misc. 3d 1236(A), 2009 WL 4432505 at *2 (Muttontown J. Ct. Dec. 3, 2009); People v. Clemens, 168 Misc. 2d 56, 57, 642 N.Y.S.2d 760, 761 (Chatham J. Ct. 1995).

speed.[149] In addition to going through the *Frye* analysis, the *Clemens* court also relied on corroborating evidence from the operating police officer.[150] The executing police officer testified that based on training and experience, he visually estimated the speed of the defendant's vehicle to be above the legal limit.[151] The justice court upheld the defendant's speeding conviction due to the corroborating testimony of the executing police officer and the expert testimony regarding the extreme reliability of the laser device and its acceptance in the scientific community.[152]

2. New York Lower Courts Have Failed To Find LIDAR Devices Reliable

Just as there are New York lower court decisions finding reliability in LIDAR devices, there are also lower courts that have rejected reliability or refused to address the issue until guidance from an appellate court is provided. For example, in *People v. Thaqi*,[153] a village court stated that "[i]n the absence of an Appellate Court ruling as to the scientific validity of a laser device, . . . the [c]ourt is not inclined to find the defendant guilty of speeding based solely on use of the laser device."[154] In that case, the defendant's speeding charge was based upon a laser speed gun and visual observation by the police officer.[155] Unclear as to the law regarding convictions based on LIDAR devices, the trial judge requested that the parties prepare memoranda of law on the issue of whether a laser speed measurement device is scientifically reliable and recognized within the scientific community.[156] The prosecution's memorandum relied on the two cases explained above, *DePass* and *Clemens*, to support its contention that LIDAR is reliable.[157] That village court, however, found that "[t]he decisions of the Chatham and Roslyn Harbor Justice Courts are courts of lower level coordinate jurisdiction

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[149] *Clemens*, 168 Misc. 2d at 56–57, 642 N.Y.S.2d at 761. Coincidently, the expert witness, Dr. Daniel Gezari, was the same expert witness that testified in *People v. DePass*, 165 Misc. 2d 217, 629 N.Y.S.2d 367.

[150] *Clemens*, at 57, 642 N.Y.S.2d at 761.

[151] *Id.*

[152] *Id.*

[153] N.Y. L.J., July 22, 1997, at 22, col. 3 (Nassau Cnty. Vill. Ct.).

[154] *Id.*

[155] *Id.*

[156] *Id.*

[157] *Id.*

and therefore this court is not obliged to follow these decisions."[158] The prosecution also relied on the Maryland Court of Appeals's decision in *Goldstein v. State*[159] to bolster the finding that the use of laser devices to measure speed is generally accepted in the scientific community.[160] The village court, likewise, noted that the court was not obliged to accept the Maryland decision as controlling.[161] The village court concluded that since "no Appellate Court *in this state* has yet determined that expert testimony is not necessary to sustain a speed conviction based on a laser device," it could not find the defendant guilty of speeding based on the laser device, but rather relied on the police officer's visual observation to justify the conviction.[162]

3. New York Lower Courts' Recent Handling of LIDAR Devices

In 2009, the justice court of Muttontown in *People v. Silverman*[163] pointed out that there are courts concluding that a laser device is reliable, while other courts are concluding that such devices are not reliable.[164] The *Silverman* court also relied on the *DePass*, *Clemens*, and *Thaqi* cases and held that laser devices alone could not support a conviction, but where the laser device was reliably tested, it may be considered together with reliable evidence of an officer's independent evaluation of speed.[165] The justice court concluded that the executing officer's testimony was "insufficient to prove guilt beyond a reasonable doubt" and found the defendant not guilty.[166]

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[158] *Id.*

[159] 664 A.2d 375 (Md. 1995).

[160] *Thaqi*, N.Y. L.J., July 22, 1997, at 22, col. 3 (Nassau Cnty. Vill. Ct.); *see also infra* notes 179–184 and accompanying text.

[161] *See Thaqi*, N.Y. L.J., July 22, 1997, at 22, col. 3 (Nassau Cnty. Vill. Ct.).

[162] *Id.* (emphasis added).

[163] No. 07120043, 25 Misc. 3d 1236(A), 2009 WL 4432505 at *2 (Muttontown J. Ct. Dec. 3, 2009).

[164] *Id.* at *1.

[165] *Id.* at *1–2. ("Without some corroborative evidence of the reliability of the device (e.g. certification; details of the test results; dates, place and time of testing; or other documentation of its proper functioning), it is not possible to know, much less beyond a reasonable doubt, that the laser reading was reliable.").

[166] *Id.* at *2.

More recently in *People v. Solomon*,[167] the same justice court refused to accept the reliability of laser speed devices. That court noted that "[r]adar is considered a reliable device for measuring the speed of a moving vehicle[,] [b]ut the Court of Appeals has not yet determined if use of a laser device is scientifically acceptable to prove a conviction; and the lower courts are divided as to that."[168] There, the defendant was charged with traveling eighty-two miles per hour in a fifty-five miles per hour zone in the Village of Muttontown.[169] Through the testimony of the accusing officer, the prosecution was able to show that the officer visually estimated the defendant's speed to be above the legal limit, that the officer was trained and certified to use speed detection devices, and that the officer properly tested the LIDAR device prior to its use.[170] That court found that even though judicial notice did not exist with regard to the laser device reading, the officer's visual estimate was enough to prove the violation.[171]

III. NEW YORK'S OPTIONS

As noted above, New York only has lower court decisions determining the reliability of LIDAR.[172] Conversely, as many as seventeen states, and the District of Columbia, have in some way addressed the relevance and reliability of LIDAR device use in law enforcement.[173] Some of these states have utilized the legislative process, while others have utilized their highest courts to determine the reliability of LIDAR. In the jurisdictions that have not resorted to legislative action, however, "only the lower

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[167] 39 Misc. 3d 987, 958 N.Y.S.2d 287 (Muttontown J. Ct. 2013).

[168] *Id.* at 989, 958 N.Y.S.2d at 288–89 (citation omitted). *Compare* People v. Clemens, 168 Misc. 2d 56, 57, 642 N.Y.S.2d 760, 761 (Chatham J. Ct. 1995) (finding that, based off of expert testimony, laser technology is an extremely reliable way to measure velocity), *and* People v. DePass, 165 Misc. 2d 217, 221, 629 N.Y.S.2d 367, 369 (Roslyn Harbor J. Ct. 1995) (accepting the use of laser technology as an accurate way of measuring the speed of a moving vehicle), *with* People v. Thaqi, N.Y. L.J., July 22, 1997, p. 22, col. 3 (Nassau Cnty. Vill. Ct.) ("In the absence of an Appellate Court ruling as to the scientific validity of a laser device, the Court is not inclined to find the defendant guilty solely on the basis of the read-out test performed by the police officer before he issued the ticket.").

[169] *Solomon*, 39 Misc. 3d at 988, 958 N.Y.S.2d at 288.

[170] *Id.*

[171] *See id.* at 988, 958 N.Y.S.2d at 289 ("The Police Officer's independent estimate is sufficient in itself, if found to be credible, to prove the violation.").

[172] *See supra* Part II.C.

[173] *See* Cox & Fors, *supra* note 4, at 861.

courts have determined the reliability of LIDAR, offering little guidance to courts statewide."[174] Since such is the case with New York, this Section proposes ways in which LIDAR devices may achieve statewide acceptance.

A. Establishing Judicial Notice by State Courts

Judicial notice has two distinct purposes.[175] First, judicial notice "describes the decision that certain *facts* need not be proven."[176] Second, it refers to a court's ability to recognize some principle of law, even if the parties have not presented the principle.[177] Establishing the reliability of LIDAR is concerned with the first purpose. Judicial notice does away with evidence that is not necessary.[178] Utilizing judicial notice, "[a] court may notice a fact which is 'a matter of common and general knowledge, well-established and authoritatively settled."[179] New York does not have a defined procedure for taking judicial notice of facts; it may be taken at the request of the parties or sua sponte by the judge.[180] However, some states have done with LIDAR devices what the New York Court of Appeals did for radar devices in *People v. Magri*; they established judicial notice on the reliability of LIDAR.[181] New York should follow the path these states have taken and establish judicial notice on LIDAR devices, as well.

Since 1995, the Maryland Court of Appeals has deemed LIDAR evidence to be reliable.[182] Acknowledging that LIDAR is based on scientific principles accepted in the scientific community, the court wrote that "the trial court made an extensive investigation into the reliability of the laser speed

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[174] *Id.* The lower courts of Illinois, Minnesota, and Idaho have upheld the admissibility of LIDAR devices, but their Supreme Courts have not yet addressed the issue. *See, e.g.*, State v. Williamson, 166 P.3d 387, 391 (Idaho Ct. App. 2007); People v. Mann, 922 N.E.2d 533, 538 (Ill. App. Ct. 2010); State v. Ali, 679 N.W.2d 359, 364 (Minn. Ct. App. 2004).

[175] FARRELL, *supra* note 1, § 2-101, at 29.

[176] *Id.*

[177] *Id.*

[178] *See id.* § 2-201, at 29.

[179] *Id.* (quoting Wertling v. Mfrs. Hanover Trust, 118 Misc. 2d 722, 726, 461 N.Y.S.2d 157, 160 (N.Y. Civ. Ct. Kings Cnty. 1983)).

[180] *Id.* § 2-202, at 30.

[181] *See supra* notes 179–80 and accompanying text; *see infra* notes 180–98 and accompanying text.

[182] Goldstein v. State, 664 A.2d 375, 381 (Md. 1995).

measurements . . . [in which it] found that the use of lasers to measure speed is generally accepted in the relevant scientific community."[183] Additionally, the court analyzed a Maryland statute providing that readings from devices made to measure velocity using radio-micro waves are admissible in legal proceedings to prove the speed of a motor vehicle.[184] The statute states, "The speed of a motor vehicle may be proved by evidence of a test made upon it with a device designed to measure and indicate the speed of a moving object by means of radio-micro waves."[185] The Maryland Court of Appeals noted that the statute's use of the word "may" with regard to radio-micro waves indicates that the use of such technology "is neither mandatory nor exclusive, and that other methods of proving speed are therefore not precluded."[186] Agreeing with the trial court, the Maryland Court of Appeals held that "laser speed measurements may be admitted into evidence in judicial proceedings in the State of Maryland."[187] In one high court case, judicial notice as to LIDAR was established throughout Maryland.

Likewise, in 1998, New Jersey conducted an exhaustive report demonstrating the reliability of LIDAR technology in law enforcement.[188] Utilizing the report, the superior court found that LIDAR was able to effectively differentiate between various cars traveling close to each other.[189] The superior court also noted "that the speed measurement produced by the laser speed detector only once exceeded by more than one mile per hour the measurement produced by the track timer and never exceeded by more than one mile per hour the measurement produced by" other speed-detection devices.[190] Ultimately, the judge was impressed by the report's finding and stated:

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[183] *Id.*

[184] *Id.* at 377.

[185] MD. CODE ANN., CTS. & JUD. PROC. § 10-301 (West 1983). The Maryland General Assembly enacted the referenced legislation in 1953. *Goldstein*, 664 A.2d at 377.

[186] *Goldstein,* 664 A.2d at 377.

[187] *Id.* at 381.

[188] *In re* Admissibility of Motor Vehicle Speed Readings Produced by the LTI Marksman 20-20 Laser Speed Detection Sys., 714 A.2d 381, 391 (N.J. Super. Ct. Law Div. 1998).

[189] *Id.* at 389–91.

[190] *Id.* at 391.

> I am satisfied from the totality of the evidence presented to me that the laser speed detector produces reasonably uniform and reasonably reliable measurements of the speed of motor vehicles under conditions likely to be present on New Jersey highways when the detector is used for law enforcement purposes. The error trapping programs and mechanisms built into the detector are fully adequate to prevent unreliable speed measurements.[191]

The New Jersey Court of Appeals later affirmed the superior court's decision and agreed with the reports prepared by the State.[192] After New Jersey's comprehensive evaluation, a number of courts in other states have taken judicial notice or held their own reliability hearings regarding LIDAR, including Hawaii,[193] Minnesota,[194] Idaho,[195] Alaska,[196] and Illinois.[197]

More recently, in 2008, the Superior Court of the District of Columbia conducted an extensive four-day *Frye* hearing where it considered issues presented by the basic science of laser technology and the reliability of LIDAR devices.[198] The superior court also took judicial notice of many scientific publications and

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[191] *Id.*

[192] *See* State v. Abeskaron, 740 A.2d 690, 694 (N.J. Super. Ct. App. Div. 1999) ("[O]ur thorough review of the record in light of the arguments presented satisfies us that Judge Stanton appropriately found in *Laser II* that, subject to the listed restrictions, the subject laser detector was an appropriate tool in measuring speed.").

[193] *See* State v. Assaye, 216 P.3d 1227, 1233 (Haw. 2009) ("The accuracy of a particular radar unit can be established by showing that the operator tested the device in accordance with *accepted procedures* to determine that the unit was functioning properly and that the operator was qualified by training and experience to operate the unit." (quoting State v. Tailo, 779 P.2d 11, 13 (Haw. 1989)) (internal quotation marks omitted)).

[194] *See* State v. Ali, 679 N.W.2d 359, 364 (Minn. Ct. App. 2004) ("[S]o long as there is adequate evidence that a laser-based speed-measuring device used to support a conviction has been tested for accuracy and that officers using the device have been trained in its use, a district court does not abuse its discretion by taking judicial notice of the device's general reliability . . . .").

[195] *See* State v. Williamson, 166 P.3d 387, 391 (Idaho Ct. App. 2007) ("We hold that laser speed detection devices are generally reliable and their results may be admitted into evidence in Idaho courts.").

[196] *See* Samples v. Municipality of Anchorage, 163 P.3d 967, 972 (Alaska Ct. App. 2007) (finding that "[m]any courts have recognized the general reliability of laser speed-detection devices and have deemed their results admissible in court," and affirming the trial court's utilization of judicial notice).

[197] *See* People v. Mann, 922 N.E.2d 533, 538 (Ill. App. Ct. 2010) ("[T]he use of LIDAR to measure the speed of moving vehicles is based on generally accepted scientific principles."). *But see* People v. Canulli, 792 N.E.2d 438, 445 (Ill. App. Ct. 2003) (holding it was erroneous to allow LIDAR results without a *Frye* hearing).

[198] Cox & Fors, *supra* note 4, at 866.

police-related studies on the subject.[199] Based on all this evidence, the court upheld the use of LIDAR evidence.[200] The superior court approved the admissibility of LIDAR devices on condition that certain safeguards are satisfied.[201] Such safeguards include proper calibration of the device issued by the manufacturer, training and certification of operating officers, and daily performance tests.[202]

Even if New York courts continue to produce inconsistent decisions with regard to the use of LIDAR, there still remains the chance that the New York Court of Appeals will eventually make a ruling on the reliability and admissibility of LIDAR devices, much like it did for radar over fifty years ago.[203] The problem with this approach is time. Appeals take time to reach the heights of state appellate courts. And along with time comes costs. Litigation costs to argue a speeding violation simply outweigh the costs of the violation.[204] It is highly unlikely that a person who has been given a violation for speeding would challenge the violation all the way up to the highest court of the state, unless there was more at stake than a monetary fine. For example, a situation in which the admissibly of LIDAR would have the potential to reach the court of appeals could mirror the hypothetical proposed at the beginning of this Note. Even if the facts and circumstances of a given case warrant appearing before the court of appeals, there is still no guarantee that the court's outcome will be in favor of judicial notice. The New York Court of Appeals could very well establish judicial notice against the admissibility of LIDAR devices if the circumstances call for such a decision. The fact remains, however, that LIDAR satisfies the *Frye* standard.

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[199] *See* District of Columbia v. Chatilovicz, 136 Daily Wash. L. Rptr. 1365, 1365 (D.C. Super. Ct. June 26, 2008), *available at* http://www.pdsdc.org/Resources/JUVENILEPANEL/traffic.pdf (discussing the unreported trial order of District of Columbia v. Chatilovicz, No. 2006-CTF-2633, 2008 WL 2914324 (D.C. Super. Ct. April 28, 2008)).

[200] *Id.*

[201] *Id.* at 1374.

[202] *Id.*

[203] *See generally* People v. Magri, 3 N.Y.2d 562, 147 N.E.2d 728, 170 N.Y.S.2d 335 (1958).

[204] Cox & Fors, *supra* note 4, at 840.

B. Establishing Reliability by State Legislative Action

An alternative approach to addressing the issue is through legislative action. "Whereas judge-made law is bound by the principle of stare decisis, statutes do not have to pay homage to precedent and, indeed, can have the precise intent of breaking away from preexisting rules . . . ."[205] In actuality, the legislature has the authority to change laws at will.[206] A New York statute addressing the reliability of speed detection devices would put an end to the troubles faced by New York lower courts in attempting to consistently address the issue.

Several states have sought to settle the admissibility question of LIDAR devices through statutory means. For example, a Georgia statute explicitly establishes the reliability of laser speed detection devices.[207] The Georgia State Department of Public Safety gathered a list of various laser devices that the Department approved, and the state legislature enacted a statute stating:

> Evidence of speed based on a speed detection device using the speed timing principle of laser which is of a model that has been approved by the Department of Public Safety shall be considered scientifically acceptable and reliable as a speed detection device and shall be admissible for all purposes in any court, judicial, or administrative proceedings in this state. A certified copy of the Department of Public Safety list of approved models of such laser devices shall be self-authenticating and shall be admissible for all purposes in any court, judicial, or administrative proceedings in this state.[208]

The LIDAR models approved by the State Department of Public Safety include all of the popular models currently used in law enforcement.[209]

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[205] Giacomo A. M. Ponzetto & Patricio A. Fernandez, *Case Law Versus Statute Law: An Evolutionary Comparison*, 37 J. LEGAL STUD. 379, 394 (2008).

[206] *Id.*

[207] *See* GA. CODE ANN. § 40-14-17 (West 1999).

[208] *Id.*

[209] Cox & Fors, *supra* note 4, at 862; *see* INT'L ASS'N OF CHIEFS OF POLICE, CONFORMING PRODUCT LIST (CPL): ENFORCEMENT TECHNOLOGY PROGRAM 1 (2013), *available at* http://www.theiacp.org/portals/0/pdfs/Combined-CPL.pdf (listing all approved LIDAR models currently or previously in production); *see also* SAWICKI, *supra* note 64, at 180 (stating that the National Highway Traffic Safety Administration works in conjunction with the International Association of Chiefs of Police).

Likewise, the state of Ohio has experienced an interesting evolution of LIDAR admissibility. The lower courts of Ohio have recognized judicial notice of LIDAR reliability for nearly two decades.[210] To bolster the establishment of judicial notice, the Ohio legislature passed a statute stating:

> The driver of any motor vehicle that has been checked by radar, or by any electrical or mechanical timing device to determine the speed of the motor vehicle . . . may be arrested until a warrant can be obtained, provided the arresting officer has observed the recording of the speed of the motor vehicle by the radio microwaves, electrical or mechanical timing device.[211]

However, in 2010, the Ohio Supreme Court, in *City of Barberton v. Jenney*,[212] weakened the significance of speed-measuring devices through its holding that "[a] police officer's unaided visual estimation of a vehicle's speed is sufficient evidence to support a conviction for speeding."[213] The Ohio legislature quickly addressed this contradiction and amended the statute to prohibit a person from being "arrested, charged, or convicted [for speeding] . . . based on a peace officer's unaided visual estimation of the speed of a motor vehicle."[214] The statute makes clear, however, that this prohibition does not "[p]reclude the use by a peace officer of a stopwatch, radar, laser, or other electrical, mechanical, or digital device to determine the speed of a motor vehicle."[215]

Furthermore, for several years Virginia has had a statute declaring LIDAR to be generally reliable and valid for law enforcement use in speed detection.[216] Virginia's statute reads, in relevant part:

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[210] *See, e.g.*, City of Columbus v. Barton, 106 Ohio Misc. 2d 17, 18, 733 N.E.2d 326, 327 (1994) ("The laser speed detector is reliable and accurate as a scientific measure of the speed of a moving object, which can be used by law enforcement personnel to measure vehicle speed, provided that the device is used in accordance with certain procedures delineated by the manufacturer.").

[211] OHIO REV. CODE ANN. § 4511.091 (West 2011).

[212] 126 Ohio St. 3d 4, 2010-Ohio-2420, 929 N.E.2d 1047.

[213] *Id.* ¶ 23.

[214] OHIO REV. CODE ANN. § 4511.091(C)(1) (West 2011).

[215] *Id.* § 4511.09(C)(1)(a).

[216] *See* VA. CODE ANN. § 46.2-882 (West 2007).

> The speed of any motor vehicle may be determined by the use of . . . a laser speed determination device . . . . The results of such determinations shall be accepted as prima facie evidence of the speed of such motor vehicle in any court or legal proceeding where the speed of the motor vehicle is at issue.[217]

The statute continues to state that all localities within the state may use radar and laser speed devices to measure speed for law enforcement purposes.[218] More recently, the legislatures of other states, such as Connecticut,[219] Maine,[220] and Florida,[221] have also enacted similar statutes.

C. Legislative Action Is the Better Approach for New York

The evolution of LIDAR admissibility in New York seems to be following the same road as Ohio and the above mentioned states. As previously described, several lower courts of New York have recognized the reliability of LIDAR technology and in doing so have established judicial notice within that court's jurisdiction.[222] While these are steps in the desired direction, it could take an extremely long time to reach statewide judicial notice. Therefore, following the lead of the several other states, New York should take legislative action and solidify the findings of these lower courts.

Legislative action is favorable for several reasons. First, although legislative action is not instantaneous, it is still quicker than waiting for a case to reach the New York Court of Appeals for a determination. Second, there exists a presumption that citizens of a state know and adhere to the laws of the state.[223] A

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[217] *Id.*

[218] *See id.*

[219] *See* CONN. GEN. STAT. ANN. § 14-219c (West 2011) (stating that "a radar, speed monitoring laser . . . or any other speed monitoring device approved by the Commissioner of Emergency Services and Public Protection" shall constitute prime facie evidence).

[220] *See* ME. REV. STAT. ANN. tit. 29-A, § 2075(4) (2004) (stating that readings from "[a]n electronic device that measures speed by . . . laser or otherwise" constitutes prima facie evidence a criminal or traffic proceeding).

[221] *See* FLA. STAT. ANN. § 316.1906(1)(e) (West 1992) (stating that use of "any laser-based or microwave-based speed-measurement system" is inadmissible, unless training and other specified evidence is proven at trial).

[222] *See supra* Part II.C.1–2.

[223] The Latin term *ignorantia juris non excusat*, which means "ignorance of the law is no excuse," is a legal principle stating that a person may not escape liability for failing to abide by a law merely because he or she was unaware of its content or existence. *See* MODEL PENAL CODE § 2.02(9). *But see* Lambert v. California, 355 U.S.

statute would eliminate the split among lower New York courts where only the jurisdictions in which reliability has been examined have established judicial notice. It is important to note that since there are a select few of New York courts that have allegedly established judicial notice of LIDAR devices, it does not mean the State of New York has established judicial notice on the issue. Judicial notice established by these lower courts would act as precedent over similar subsequent proceedings in that same court and within that particular jurisdiction. This does not mean that a different, more remote jurisdiction must adhere to such findings.[224]

This Note proposes the adoption of a statute that reads: The results of (1) a laser speed determination device, (2) a radar device, or (3) any electrical or mechanical timing device, used to measure the speed of any motor shall be accepted as prima facie evidence of the speed of such motor vehicle in any court or legal proceeding where the speed of the motor vehicle is at issue.

A statute like the one proposed would eliminate the need for expensive expert witnesses and extended litigation. The cost of an expert to testify regarding the reliability of LIDAR, on average, could range from $187.00 per hour to $414.00 per hour.[225] The number of hours that an expert devotes to a case could reach as high as 119 hours for technology experts.[226] Since district attorneys, or agents thereof, usually do not prosecute traffic violations, supplying an expert to testify against LIDAR reliability would rest solely on the accused defendant. This transforms what would be a modest monetary fine into an unnecessary and expensive waste of judicial resources. Likewise,

225, 228–29 (1957) (finding an exception to the legal principle when the mens rea of a defendant is at issue).

[224] For example, just because the Justice Court of Muttontown has accepted the reliability of LIDAR technology does not necessarily mean that a court in Albany needs to adhere to such ruling. Of course, the courts of Albany may be persuaded by the remote jurisdictions ruling and may chose to establish judicial notice as well.

[225] EXPERT PAGES, SUMMARY REPORT OF THE 2012 EXPERT PAGES EXPERT FEES AND PRACTICES SURVEY 3 (2012), *available at* http://commercialappraiser.typepad.com/files/2012_expertpages_summary_report.pdf. This Report is based upon confidential responses from 540 experts of various fields from forty-four U.S. States and two Canadian provinces. *Id.* at 2.

[226] *Id.* at 4.

having such a statute on the books in New York would also give police officers additional confidence to perform their jobs without the fear of their duties being challenged on technicalities.[227]

CONCLUSION

Though judicial notice would eliminate costly delays within the judicial process and the necessity of continuous court appearances and expert witnesses, because of differing lower court decisions, it seems likely that New York will only be able to expeditiously resolve the issue through legislative action. Challenges to LIDAR technology use by law enforcement will continue for as long as people believe they have a chance at "beating the system." However, until such legislation is proposed and passed, prosecutors should try to preserve resources in their attempts to have LIDAR evidence admitted by ensuring that officers are trained in using the technology.[228] In the event legislative action does not occur, prosecutors should also make sure to properly build the record so that if an appeal occurs, a higher court may properly address the scientific reliability of LIDAR devices.

[227] This is not to say that police officers who utilize LIDAR technology should not diligently adhere to the appropriate policies for proper operation and maintenance, but it will eliminate forcing police officers to appear in court to testify as opposed to performing their duties as enforcers of the law.

[228] Cox & Fors, *supra* note 4, at 871 ("[W]ithout [proper] training, judicial notice will not save the admissibility of the evidence.").