

FOR PUBLICATION IN WEST'S HAWAI'I REPORTS AND PACIFIC REPORTER

IN THE INTERMEDIATE COURT OF APPEALS
OF THE STATE OF HAWAI'I

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STATE OF HAWAI'I, Plaintiff-Appellee, v.
CHERYL L. STOA, Defendant-Appellant

NO. 26272

K. HAMAKADO
CLERK, APPELLATE COURTS
STATE OF HAWAI'I

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FILED

APPEAL FROM THE DISTRICT COURT OF THE FIRST CIRCUIT
(HPD Traffic No. 5587958MO)

AUGUST 7, 2006

WATANABE, PRESIDING J., FOLEY, AND NAKAMURA, JJ.

OPINION OF THE COURT BY WATANABE, PRESIDING J.

This appeal concerns the admissibility of the readings from a laser device used to measure the speed of a motor vehicle.

Defendant-Appellant Cheryl L. Stoa (Stoa) contends that the District Court of the First Circuit (the district court)¹ erred in finding her "guilty" of Noncompliance with Speed Limit Prohibited, in violation of Hawaii Revised Statutes (HRS) § 291C-102 (Supp. 2003),² because the district court's judgment

¹ The Honorable Peter Van Name Esser presided.

² Hawaii Revised Statutes § 291C-102 (1993 and Supp. 2003) provides:

Noncompliance with speed limit prohibited. (a) No person shall drive a vehicle at a speed greater than a maximum speed limit and no person shall drive a motor vehicle at a speed less than a minimum speed limit established by county ordinance.

(b) The director of transportation with respect to highways under the director's jurisdiction may place signs

(continued...)

was based solely on evidence obtained from a laser speed-measuring device and no foundational evidence of the universal acceptance of the scientific accuracy and reliability of the device was ever adduced by Plaintiff-Appellee State of Hawai'i (the State).

We conclude that the scientific accuracy and reliability of the laser device used to clock the speed of Stoa's vehicle can be judicially noticed. Accordingly, we affirm the district court's determination that Stoa was traveling in excess of the speed limit on the day in question. However, because the offense that Stoa was "found guilty" of committing is a civil traffic infraction and not a crime, we vacate the judgment and remand this case to the district court for entry of a replacement judgment in favor of the State that complies with the applicable statutes governing traffic infractions. See State v. Rees, 107 Hawai'i 508, 115 P.3d 687 (App.), reconsideration denied, 108 Hawai'i 76, 116 P.3d 718, cert. denied, 108 Hawai'i 59, 116 P.3d 701 (2005).

²(...continued)

establishing maximum speed limits or minimum speed limits. Such signs shall be official signs and no person shall drive a vehicle at a speed greater than a maximum speed limit and no person shall drive a motor vehicle at a speed less than a minimum speed limit stated on such signs.

(c) If the maximum speed limit is exceeded by more than ten miles per hour, a surcharge of \$10 shall be imposed, in addition to any other penalties, and shall be deposited into the neurotrauma special fund.

FACTUAL BACKGROUND

At the November 25, 2003 trial below, Honolulu Police Department (HPD) Sergeant Milton Yamada (Sergeant Yamada), the State's only witness, testified that on August 15, 2003, he was assigned to perform traffic enforcement patrol duties in the Kailua area. Equipped with an LTI³ 20-20 laser gun (laser gun), he set up operations at 1225 Keolu Drive and faced traffic going in the makai⁴ direction towards the shopping center.

At approximately 9:30 a.m., he observed a vehicle going faster than the posted speed limit of twenty-five miles per hour. Aiming his laser gun at the license plate of the vehicle from a distance of 757 feet, he locked in a reading for the vehicle's speed of forty-two miles per hour. He thereafter stopped the vehicle and cited Stoa, the vehicle's driver, for speeding.

Sergeant Yamada testified that at the time of Stoa's offense, the weather was clear, traffic was moderate, the road conditions were good, and no other vehicles were near Stoa's vehicle. There was also a clearly visible twenty-five-mile-per-hour speed limit sign posted by the City and County of Honolulu at the 1300 block, which Stoa passed as she approached Sergeant Yamada's position. At the deputy prosecutor's request and with

³ Although the transcript of the November 25, 2003 proceedings indicate that Honolulu Police Department Sergeant Milton Yamada stated that he was equipped with an "LT1 20-20" laser gun, the reference should have been to an "LTI 20-20" laser gun.

⁴ The Hawaiian word "makai" means "on the seaside, toward the sea, in the direction of the sea." M.K. Pukui & S.H. Elbert, Hawaiian Dictionary 225, 114 (1986).

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no objection from Stoa, the district court took judicial notice that the speed limit sign was posted in accordance with the speed schedule on file in the City and County of Honolulu.

Sergeant Yamada further stated that on the day he issued the citation to Stoa, he was certified to use the laser gun, having completed four hours of classroom work and four hours of road instruction on its use. He had been performing traffic enforcement duties for the entire twenty years of his HPD service. Prior to beginning his patrol that day, Sergeant Yamada performed the required series of functionality tests on the laser gun, which included the "self-test," the "display test," the "scope alignment test," and the "calibration test." The results of these tests indicated that the laser gun was working properly.

Objecting to Sergeant Yamada's testimony about the readout of the laser gun, Stoa argued that "the laser speed measurement has not been universally accepted as accurate and reliable." She also requested that the district court review some materials critical of the reliability of the LTI 20-20 laser gun that she had downloaded from the internet. However, because Stoa could not identify the specific website or publication from which the materials were gathered and thereby produce foundational evidence sufficient to assure the district court that the materials came from a reputable source, the district court would not accept the materials into evidence.

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At the close of Sergeant Yamada's direct examination, the district court instructed Stoa to begin her cross-examination of Sergeant Yamada. The entire cross-examination was as follows:

Q Did you measure my speed by any other means other than laser?

A Just the laser gun.

MS. STOA: Okay. That's all I have to ask, Your Honor.

Stoa declined to testify. In open court, however, she filed a Hawai'i Rules of Penal Procedure (HRPP) Rule 29 Motion for Judgment of Acquittal and a memorandum in support of the motion. She argued therein that acquittal was warranted because the only evidence of the speed of her vehicle was obtained through the use of a laser speed-measuring device and the State "did not offer any expert testimony as to the accuracy of laser speed measurement in general or the device used by the officer in this case in particular[.]" Stoa also argued that

[t]he use of laser technology to measure the speed of an automobile constitutes "new" or "novel" evidence and has not been universally accepted as accurate and reliable. Only a handful of jurisdictions have upheld judicial notice of laser speed-measuring technology at the appellate level.

In denying Stoa's Motion for Judgment of Acquittal, the district court expressed its belief that laser devices are fair to defendants because they are more accurate than pacing or police guesswork, and more scientific. The district court also stated that it was taking judicial notice of the laser gun:

So this machine helps people. It keeps officers from making mistakes. I believe--I've been handling laser trials for eight years. I'm gonna take judicial notice of that fact. I'm gonna take judicial notice of the fact that there have been literally thousands of convictions under this machine.

I'm gonna take judicial notice of the fact that a lot of officers have been trained to use the machine; and that if we have many trials on--with expert witness[es] every time we have a speeding trial in the Kaneohe Court or the other courts, we're gonna spend all our time in speeding trials.

.

So I'm gonna take judicial notice of--this is somewhat strange--but of the number of speeding trials I've heard, the observations of the officers I've heard; and I also believe there is [Intermediate Court of Appeals] authority addressing these cases. I wish I had it in front of me to quote to you, but I don't.

The court then found that the prosecution had proved, beyond a reasonable doubt, that Stoa had driven forty-two miles per hour in a twenty-five-mile-per-hour zone, or seventeen miles per hour over the speed limit, and ordered Stoa to pay an \$85 fine, plus \$37 in court costs, which the court stayed for thirty days pending notice of appeal. The district court's Notice of Entry of Judgment and/or Order and Plea/Judgment, finding Stoa "guilty" of violating HRS § 291C-102, was filed on December 15, 2003 and this appeal followed.

DISCUSSION

A. The Admissibility of Readings from a Laser Speed-Measuring Device

Generally, "'where the admission of testimony on a scientific technique presents an issue of first impression, the technique's reliability is not a proper subject of judicial notice.'" State v. Ito, 90 Hawai'i 225, 242, 978 P.2d 191, 208 (App. 1999) (quoting 29 Am. Jur. 2d Evidence § 94, at 137 (1994)). To be admissible, expert testimony as to the scientific validity and reliability of the new or novel technique is

required or the technique must be recognized as scientifically valid at least once by an appellate court within the trial court's jurisdiction. *Ito*, 90 Hawai'i at 242, 978 P.2d at 208.

However,

[o]nce a scientific principle is sufficiently established, a court may take judicial notice of the validity of that principle. Similarly, a court may take judicial notice of the validity of the technique applying that principle. In either case the effect is the same: judicial notice relieves the offering party of the burden of producing evidence on these issues.

1 P. Giannelli & E. Imwinkelried, *Scientific Evidence* § 1-2, at 2 (2d ed.1993) (footnotes omitted). An eminent treatise on evidence further points out that

the [scientific] principle involved need not be commonly known in order to be judicially noticed; it suffices if the principle is accepted as a valid one in the appropriate scientific community. In determining the intellectual viability of the proposition, of course, the judge is free to consult any sources that he [or she] thinks are reliable, but the extent to which judges are willing to take the initiative in looking up the authoritative sources will usually be limited. By and large, therefore, it is the task of counsel to find and to present in argument and briefs such references, excerpts and explanations as will convince the judge that the fact is certain and demonstrable. Puzzling enough in this regard, it has been noted that "nowhere can there be found a definition of what constitutes competent or authoritative sources for purposes of verifying judicially noticed facts." *And it should be noted, after a number of courts take judicial notice of a principle, subsequent courts begin to dispense with the production of these materials and to take judicial notice of the principle as a matter of law established by precedent.*

2 *McCormick on Evidence* § 330, at 395 (footnotes omitted, emphasis added).

Id. (brackets and emphasis in original).

Stoa argues that "[n]o Appellate Court in Hawai'i has recognized widespread acceptance of the reliability or accuracy of laser technology as a means of measuring speed." She also notes that courts in several other jurisdictions have held that

the technique of using laser-based devices to measure vehicle speed has not reached the scientific stage of verifiable certainty so as to allow evidence from such devices to be admissible without expert testimony. She cites, for example, Izer v. State, 511 S.E.2d 625, 627 (Ga. Ct. App. 1999) (holding that although some courts have accepted laser evidence, "it cannot be said that a *substantial* number of courts have recognized the technique" and "[c]onsidering the dearth of authority showing the scientific certainty of the technique, as well as the absence of expert testimony on the subject, the trial court erred in admitting the evidence"); People v. Canulli, 792 N.E.2d 438, 445 (Ill. App. Ct. 2003) (holding that "the use of Lidar laser technology to measure the speed of an automobile constitutes 'new' or 'novel' evidence" and therefore, an evidentiary hearing conducted pursuant to Frye v. United States, 293 F. 1013 (D.C. Cir. 1923) "was necessary to determine whether these instruments were admissible as a matter of law"); and State v. Sapphire, 2000 WL 1803852, *4 (Ohio Ct. App. 2000) (an unpublished opinion,⁵ holding that the trial court committed prejudicial error by admitting the evidence of the reading of an Ultralite 20/20 laser unit because there was "nothing in the record to show that the trial court has ever received expert

⁵ We note that pursuant to Hawai'i Rules of Appellate Procedure Rule 35(c), "[a] memorandum opinion or unpublished dispositional order shall not be cited in any other action or proceeding except when the opinion or unpublished dispositional order establishes the law of the pending case, res judicata or collateral estoppel, or in a criminal action or proceeding involving the same respondent."

evidence on and determined that the laser device used in this case is dependable and accurate, and because it appears that no court of binding authority upon the Xenia Municipal Court has ever taken judicial notice of this laser device").

Although the Hawai'i appellate courts have not had occasion to consider the admissibility of readings from a laser speed-measuring device, the Hawai'i Supreme Court has upheld a speeding conviction based on the "testimony of a single police officer who relied upon a reading from a K-15 radar speed detection device (K-15 gun) which clocked the speed of [the appellant's] vehicle at seventy miles per hour in a fifty-five mile per hour zone." State v. Tailo, 70 Haw. 580, 580, 779 P.2d 11, 12 (1989).⁶ The issue on appeal in Tailo was "whether the State must prove the accuracy of a tuning fork used in verifying the accuracy of the K-15 gun before results of that device are admissible as evidence of a speeding violation." Id. at 580-81, 779 P.2d at 12. However, the supreme court took the opportunity to address the question of the admissibility of radar gun evidence as proof of a speeding violation and held:

The scientific principles upon which the radar gun is based are well established. The radar gun is a system which transmits a continuous flow of microwaves on a constant frequency which are reflected back whenever they strike a target. When the target is an approaching vehicle, the speed of the vehicle causes the deflected waves to return on a different and higher frequency than those sent out. A

⁶ Although the Hawai'i Supreme Court did not explicitly say that it was "taking judicial notice" of the accuracy of the radar technology, it noted that other courts had taken judicial notice of its accuracy when it held that a properly tested radar unit creates a presumption that the particular unit's reading is accurate. State v. Tailo, 70 Haw. 580, 582-83, 779 P.2d 11, 13-14 (1989).

phenomena known as the Doppler effect posits that the faster the vehicle is moving into the radar transmissions, the higher the frequency of the reflected waves received by the radar gun. The radar gun measures the difference in the frequencies of the transmitted wave and the received wave, which enables it to use the Doppler effect to calculate the speed of the approaching vehicle. *See* Kopper, *The Scientific Reliability of Radar Speedmeters*, 16 Md. L. Rev. 1 (1956).

Because of the strength of the scientific principles on which the radar gun is based, every recent court which has dealt with the question has taken judicial notice of the scientific reliability of radar speedmeters as recorders of speed. *See State v. Gerdes*, 291 Minn. 353, 191 N.W.2d 428 (1971); *People v. MacLaird*, 264 Cal. App. 2d 972, 71 Cal. Rptr. 191 (1968); *State v. Tomanelli*, 153 Conn. 365, 216 A.2d 625 (1966); and Annotation, *Proof, by Radar or Other Mechanical or Electronic Devices, of Violation of Speed Regulations*, 47 A.L.R.3d 822, 831-35 (1973). These courts have also consistently held that evidence of the accuracy of the particular radar unit is necessary to sustain a conviction for speeding obtained solely by radar. *State v. Primm*, 4 Kan. App. 2d 314, 606 P.2d 112 (1980); Annotation, *Proof, by Radar or Other Mechanical or Electronic Devices, of Violation of Speed Regulations*, 47 A.L.R.2d 822, 837-39 (1973). "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." *State v. Spence*, 418 So. 2d 583, 588 (La. 1982); *Gerdes, supra; Primm, supra*.

Id. at 582, 779 P.2d at 13.

In concluding that the reading from a radar gun was admissible as prima facie evidence of speed, the supreme court thus relied on three factors: (1) the well-established scientific principles upon which the radar gun was premised; (2) the fact that other courts had taken judicial notice of the scientific reliability of radar guns as recorders of speed; and (3) the proven accuracy of the particular radar gun used, established by evidence that (a) the device was tested according to accepted procedures and was determined to be functioning

properly, and (b) the operator of the device was qualified by training and experience to operate the device. Id.

Applying the criteria used by the supreme court in Tailo to justify admission of the reading of a radar gun into evidence, we conclude that the district court properly admitted into evidence the reading of the laser gun used by Officer Yamada to measure the speed of Stoa's vehicle.

First, the laser gun is technologically premised on well-understood scientific principles.

In Goldstein v. State, 664 A.2d 375 (Md. 1995), the Court of Appeals of Maryland was called upon to determine whether measurements taken with an LTI 20-20 laser gun were properly admitted into evidence. At trial, each side had called a scientific expert to testify about the reliability and acceptance of the LTI 20-20 in the particular scientific community. The State's expert testified that the particular laser gun was generally accepted as reliable and capable of accurately measuring speed of a vehicle within one mile per hour. The defense expert testified that the LTI 20-20 was not generally accepted, due primarily to flaws in the particular device. However, both experts had agreed that "in theory laser technology could be used to measure the speed of a motor vehicle." Id. at 376.

In concluding that the results were admissible, the court provided the following explanation of the scientific reliability of laser speed-detection technology generally:

Our analysis begins by examining the operation of the LTI 20-20. The theory underlying the LTI 20-20 would be familiar to any student of high school physics. In fact, laser speed devices operate on the same principles as military radar (police radar works somewhat differently). See 1 *McCormick on Evidence* § 204, at 880 (J. Strong 4th ed. 1992). McCormick explains military radar as follows:

The radar antenna transmits microwave radiation in pulses. The equipment measures the time it takes for a pulse to reach the target and for its echo to return. Since the radiation travels at a known speed (the speed of light), this fixes the distance to the target. The changes in the distances as determined from the travel times of later pulses permit the target's velocity to be computed.

Id. § 204, at 880 n.17.

Laser speed measurements work exactly the same way, except that the device relies on lasers rather than microwave radiation. Laser is an acronym for "light amplification by stimulated emission of radiation." 15 *Funk & Wagnalls New Encyclopedia* 410 (R. Phillips ed., 1983).

Lasers are devices that amplify light and produce coherent light beams, ranging from infrared to ultraviolet. A light beam is coherent when its waves, or photons, propagate in step with one another. Laser light, therefore, can be made extremely intense, highly directional, and very pure in color (frequency).

Id.

Light and microwaves, the building blocks of lasers and radar, respectively, occupy different points on the electromagnetic spectrum but are otherwise similar. P. Tipler, *Physics* 852-54 (2d ed. 1982). According to the State's expert, the main advantage that lasers offer over radio-micro waves is that the beam is narrower and therefore easier to keep focused on the target vehicle.

A hypothetical might clarify this discussion. Our example involves a runner in a 200-meter dash. For purposes of our example, we assume that light travels at 200 meters per second. The actual speed of light is approximately 300 million meters per second, or 186,000 miles per second; our use of a different figure, however, is consistent with the relevant scientific principles and makes the calculations in our example easier.

An instant before the race begins, an observer standing at the finish line sends a laser beam toward the

runner in the starting blocks. The beam reaches the runner and returns in two seconds. Thus, the distance for the round trip was 400 meters, so the runner must have been 200 meters away when the laser reached her. Five seconds later, the observer's laser device emits another light pulse, which returns in 1.5 seconds; thus, when the beam reached the runner, she was 150 meters away. We can then calculate that the runner traveled fifty meters in the five-second interval between the two measurements; accordingly, she is running at an average speed of ten meters per second.²

² If the observer is not standing directly in front of the runner (or directly behind, if our hypothetical had placed the observer at the beginning of the track), then his measurements will understate the runner's speed. This phenomenon, known as the cosine effect, creates a potential source of error in the LTI 20-20's measurements. Because this error always favors the motorist, however, it is not at issue in this case.

Goldstein, 664 A.2d at 379. The Maryland court also concluded that it was not necessary for a trial court to conduct an evidentiary hearing on the scientific acceptance and reliability of a particular brand of a laser speed-detection device:

There are important considerations of judicial economy underlying the practice of limiting *Frye-Reed* to general processes, rather than brand-name products. If every brand of every instrument were subject to a discrete *Frye-Reed* evaluation, trial courts would be mired in hearings concerning devices incorporating scientific principles, possibly including calculators and magnifying glasses. See *People v. Mendibles*, 199 Cal. App. 3d 1277, 245 Cal. Rptr. 553, 563 (1988) (stating that a *Frye* hearing is not required with respect to a colposcope, which the court characterized as "a weak microscope").

Moreover, the scientific consensus that forms a prerequisite for the admission of evidence would ordinarily be elusive, because, while scientists may be familiar with the general principles underlying a particular device, they may have no occasion to use the device itself. In the instant case, for example, the LTI 20-20 has little use other than for law enforcement purposes. Consequently, neither of the experts who testified at trial actually used the device in his work. . . .

We believe that the ordinary truth-seeking methods of the adversarial process will suffice to expose design flaws in the devices used to gather evidence, without requiring the courts to place a "*Frye-Reed Seal of Approval*" on individual brands. . . .

Id. at 381.

In 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),⁷ the New Jersey Superior Court, Law Division, similarly concluded that performance tests conducted by the New Jersey Department of Transportation of the LTI Marksman 20-20 Laser Speed Detection System manufactured by Laser Technology, Inc. demonstrated sufficient reliability of the laser speed detector to allow speed readings produced by such detectors to be received into evidence without the need for expert testimony in individual prosecutions. Id. at 391. In its opinion, the court described the way a laser speed detector is supposed to work, as follows:

A laser is an artificially generated and amplified light which is in the infrared light section of the electromagnetic wave spectrum. It is not visible to the naked eye. It is very concentrated. The laser speed detector fires a series of laser pulses at a selected remote target. When the laser light strikes the target, a portion of the light is reflected back to the detector. Since the speed of light is a known constant, by measuring the time it takes for the laser pulse to travel to the target and back, the detector is able to calculate the distance between the detector and the target. Each laser pulse which is fired and reflected back establishes one distance reading. The laser speed detector fires 43 laser pulses every time the trigger on the detector is squeezed. These 43 pulses are fired in a total period of approximately one-third of a second. If the target at which the laser pulses are fired is a stationary target, each of the 43 pulses will give the same distance reading to

⁷ In re Admissibility of Motor Vehicle Speed Readings Produced by the LTI Marksman 20-20 Laser Speed Detection System is a case that provides a detailed positive evaluation of the performance of LTI 20-20 laser guns in comparison to other speed measuring devices. The court describes the results of tests, conducted by the New Jersey Department of Transportation, of the laser gun in comparison to various alternative speed measuring devices. The tests were conducted under a variety of normal driving conditions. Several local defense attorneys served as amici curiae adversaries during the proceedings.

the target, and distance will be the only thing that the detector can tell us about the target. However, if the target is moving, each of the 43 pulses will give a slightly different distance reading and the detector can then compute the velocity or speed of the target from the changes in distance divided by the known elapsed time between the firing of each of the laser pulses. In simplest terms, this is the basic theory underlying the use of lasers to calculate speed, and there can be no dispute about its fundamental validity.

714 A.2d at 383-84 (block quotation format altered).

Daniel Y. Gezari, Ph.D, who works for NASA/Goddard Space Flight Center, Infrared Astrophysics Branch, has noted that while laser and radar speed-measuring devices have several common features, they are different in several respects:

- (1) The laser gun has a very narrow beam (about three feet wide at a distance of 1000 feet), so that it can pick out a single car for measurement, while the radar beam is roughly 100 times wider (about 300 feet wide at 1000 feet) and can easily have a dozen cars in its beam simultaneously.
- (2) Laser speed guns make a direct measurement of how the position of the target changes in time . . . , while radar infers the speed from the Doppler-shifted frequency of the reflected waves.
- (3) The laser results are calculated and error-checked by a microprocessor, which verifies the individual measurements and the final speed result
- (4) Radar has the advantage of being better in poor visibility weather conditions (fog, rain, snow, etc.). However, the value of radar's bad-weather capability is questionable, since traffic stops are less likely to be made under bad weather conditions for other reasons, primarily safety concerns.
- (5) Radar speed guns can be set up to continuously monitor oncoming traffic without active operator attention, while the laser gun must be carefully aimed and triggered by the operator for each individual measurement.
- (6) Laser speed guns are more immune to interference from natural and artificial environmental sources than radar guns

1 Campbell, Fisher & Mansfield, Defense of Speeding, Reckless Driving and Vehicular Homicide § 9a.02[6], at 9a-9 (2005).

The foregoing explanations convince us that the laser speed detection device is technologically premised on well-accepted and reliable scientific principles.

Second, the accuracy and reliability of laser speed-detection devices for purposes of traffic speed monitoring have been explicitly affirmed by appellate courts in Maryland, Minnesota, and New Jersey, by a municipal court in Ohio, and by a superior court in New Jersey. See Goldstein, 664 A.2d at 381; State v. Ali, 679 N.W.2d 359, 364 (Minn. Ct. App. 2004) (holding that "so 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 in taking judicial notice of the device's general reliability of laser technology"); State v. Abeskaron, 740 A.2d 690, 694 (N.J. Super. Ct. App. Div. 1999) (affirming the lower court's determination in In re Admissibility of Motor Vehicle Speed Readings Produced by the LTI Marksman 20-20 Laser Speed Detection System that "subject to the listed restrictions, the subject laser detector was an appropriate tool in measuring speed"); City of Columbus v. Barton, 733 N.E.2d 326, 327 (Ohio Mun. Ct. 1994) (holding that 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"); In re Admissibility of Motor Vehicle Speed Readings Produced by the LTI Marksman 20-20 Laser Speed Detection System, 714 A.2d at 391-92 (N.J. Super. 1998).

Finally, we conclude that the laser device used by Sergeant Yamada to clock Stoa's speed satisfied all of the Hawai'i Supreme Court's requirements for accuracy. In Tailo, the supreme court required the accuracy of a particular radar unit to be established by proof "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." Tailo, 70 Haw. at 582, 779 P.2d at 13 (citations and quotation marks omitted).

Sergeant Yamada testified that he performed the required functionality tests on the laser gun prior to beginning his patrol, and that the readings indicated that the device was functioning properly. He also testified that he possessed a valid certification for operating the laser gun and that he had twenty years' experience in performing traffic enforcement duties.

In light of the foregoing discussion, we join the other states that have taken judicial notice of the scientific acceptance of the accuracy and reliability of laser speed-measuring devices.

We further hold that the prosecution presented evidence sufficient to establish that the particular laser device used by Sergeant Yamada was functioning properly and that Sergeant Yamada was qualified by training and experience to operate the device. We therefore reject Stoa's challenge to the admissibility of Sergeant Yamada's testimony on grounds of insufficient foundational evidence.

B. The Sufficiency of the Evidence Adduced Below

Stoa claims that the district court improperly denied her HRPP Rule 29 Motion for Judgment of Acquittal because, without the evidence of the laser reading, there was insufficient evidence to prove that she traveled in excess of the speed limit. Under Hawai'i case law,

"[s]ubstantial evidence" as to every material element of the offense charged is credible evidence which is of sufficient quality and probative value to enable a [person] of reasonable caution to support a conclusion. And as trier of fact, the trial judge is free to make all reasonable and rational inferences under the facts in evidence, including circumstantial evidence.

State v. Pone, 78 Hawai'i 262, 265, 892 P.2d 455, 458 (1995)

(some brackets in original, block quotation format altered)

(quoting State v. Batson, 73 Haw. 236, 248-49, 831 P.2d 924, 931, reconsideration denied, 73 Haw. 625, 834 P.2d 1315 (1992)).

Based on our conclusion that the laser reading was admissible and in light of Sergeant Yamada's testimony regarding his testing of the functionality of his laser gun unit, his qualifications and experience, the posted speed limit in the area where he was performing traffic enforcement duties, the

circumstances within which he used the laser gun in measuring Stoa's speed, and the forty-two-mile-per-hour reading on the laser gun, we hold that "credible evidence" of "sufficient quality and probative value" was provided to sustain the court's denial of Stoa's motion.

CONCLUSION

We therefore affirm the district court's determination that Stoa committed the offense of Noncompliance with Speed Limit Prohibited, in violation of HRS § 291C-102. However, because the district court erroneously found Stoa "guilty" of the offense, which is a civil traffic infraction rather than a crime, we vacate the judgment and remand for entry of a replacement judgment in favor of the State that complies with the applicable statutes governing traffic infractions.

On the briefs:

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