

University of Michigan Journal of Law Reform

Volume 7

1974

Proposal for a Uniform Radar Speed Detection Act

Douglas M. Tisdale

University of Michigan Law School

Follow this and additional works at: <https://repository.law.umich.edu/mjlr>



Part of the [Legislation Commons](#), and the [Transportation Law Commons](#)

Recommended Citation

Douglas M. Tisdale, *Proposal for a Uniform Radar Speed Detection Act*, 7 U. MICH. J. L. REFORM 440 (1974).

Available at: <https://repository.law.umich.edu/mjlr/vol7/iss2/9>

This Note is brought to you for free and open access by the University of Michigan Journal of Law Reform at University of Michigan Law School Scholarship Repository. It has been accepted for inclusion in University of Michigan Journal of Law Reform by an authorized editor of University of Michigan Law School Scholarship Repository. For more information, please contact mlaw.repository@umich.edu.

PROPOSAL FOR A UNIFORM RADAR SPEED DETECTION ACT

Continuous-emission microwave radar units¹ are currently used by traffic law enforcement agencies in every state.² Speeding citations based on radar evidence constitute the vast majority of all traffic violations in many communities.³ Radar dominates this field because it is an effective and economical method of enforcing speed restrictions. Although equipment⁴ and method of operation⁵ vary, all radar systems are characterized by general ease of operation,⁶ capacity to detect only those vehicles traveling in excess of the speed limit,⁷ comparatively low acquisition and

¹ The typical radar device used to detect the speed of motor vehicles transmits a continuous beam of microwaves. When such waves are reflected by a moving object, the frequency changes in a ratio to the speed of the intercepted object. By measuring the change of frequency, the speed may be determined. The principle is based upon the Doppler effect. Kopper, *The Scientific Reliability of Radar Speedmeters*, 33 N.C.L. REV. 343 (1955), reprinted in 16 MD. L. REV. 1 (1956) (discussion of the theory, principles, and application of radar speed detection devices); Carosell & Coombs, *Radar Evidence in the Courts*, 32 DICTA 323 (1955) (catalog of the technical limitations of radar speed detection devices).

Radar speed detection devices have been referred to as radar speedmeters, speedalyzers, police radar, traffic radar, and continuous emission microwave radar. In this article the devices are merely called radar, unless some distinction is required by the context. Military radar (pulse radar) has been the object of much experimentation and technological research, but should not be confused with traffic radar. See note 11 *infra*.

² Greenwald, *Scientific Evidence in Traffic Cases*, 59 J. CRIM. L. & P.S. 57 (1968). See note 54 and accompanying text *infra* for specific state statutory provisions.

³ Interviews with Paul H. Bibeau of Brennan and Bibeau, P.C., attorneys for City of Farmington Hills and Township of West Bloomfield, Michigan, in Farmington Hills, and with Cpl. Richard Lamphier, West Bloomfield Township Police Department, in West Bloomfield Township, Aug. 6, 1973.

⁴ Several companies manufacture radar devices for use in traffic law enforcement. The most commonly used device in Michigan is the Stephenson Mark VI Speedalyzer. The Michigan State Police have recently experimented with units supposedly capable of measuring speed from a moving police vehicle. Interview with Carlton B. Spencer of CBS Specialties, in Orchard Lake, Michigan, Aug. 6, 1973.

⁵ Although newer units are mobile enough to allow one officer to monitor the radar and then pursue the speeding vehicle, older units required two officers: one monitoring the radar unit set up on the roadside and a second officer in a chase vehicle further along the road. Forkosch, *Speeding and Due Process*, 28 FORDHAM L. REV. 115, 118 (1959), quoting from *People v. Magri*, 3 N.Y.2d 562, 564, 147 N.E.2d 728, 729, 170 N.Y.S.2d 335, 336 (1958). One police force used two officers in another way. While an officer in the radar car wrote a citation for one driver, he continued to monitor traffic flowing in the *opposite* direction and radioed the second officer if any other driver exceeded the speed limit. A radar unit can measure speed in either direction of travel (Kopper, *supra* note 1, at 352), although there is some question as to its accuracy of function in both directions (Carosell & Coombs, *supra* note 1, at 342).

⁶ Kopper, *supra* note 1, at 353.

⁷ For example, the Model 700C Speedminder functions as follows: The operator turns a dial to the prevailing speed limit. When a vehicle reaches or exceeds this limit, a buzzer sounds, alerting the operator, and the machine automatically clamps the meter at the top speed of the violator. STEPHENSON RADAR SPEEDALYZER OPERATOR'S MANUAL 12 [hereinafter cited as STEPHENSON MANUAL].

maintenance costs,⁸ and the potential to measure the speed of an automobile in its zone⁹ with accuracy.¹⁰ Radar creates an aura of authority and authenticity that tends to reduce the number of contested speeding citations.¹¹ In some communities, public awareness of traffic radar use has been credited with deterring speeding,¹² which is a major factor¹³ in thousands of traffic fatalities annually occurring on American highways.¹⁴ Thus, properly used radar contributes significantly to traffic law enforcement and can substantially decrease traffic deaths¹⁵ by reducing the amount of illegal speeding.

Speed measurements by radar are subject to error because of inherent technical limitations and misuse by police authorities. Technical limitations include the effect exerted on radar readings by objects other than automobiles. Any moving object¹⁶ within the radar beam will register on the radar speedmeter. Various environmental conditions can affect radar

⁸ The cost of the Model 700C Speedminder is approximately \$1200. The average annual maintenance bill is approximately \$80. Interview with Carlton B. Spencer of CBS Specialties, in Orchard Lake, Michigan, Aug. 6, 1973.

⁹ The field of operation of radar is known as its zone of influence or radar beam. While the dimensions of the beam vary from unit to unit, the beam is cone-shaped with an angle of from twenty to forty degrees. At a height of three feet, the beam extends for at least 150 feet on older models. 11 AM. JUR. *Proof of Facts* 19 (Supp. 1972). The Stephenson Model 600 can measure the speed of cars up to 1500 feet away. STEPHENSON MANUAL, *supra* note 7, at 4. See also Carosell & Coombs, *supra* note 1, at 325.

¹⁰ Kopper, *supra* note 1, at 350-51. *Contra*, Carosell & Coombs, *supra* note 1, *passim*.

¹¹ Carosell & Coombs, *supra* note 1, at 323. Most individuals are familiar with the general phenomenon of radar through television, motion pictures, or military experience and make the mistaken assumption that traffic radar and sophisticated military radar are identical. Thus the average motorist is not likely to challenge a citation based on a system which he believes is used to direct missiles to distant targets. Even in its early stages of development, radar evidence was not contested. *Id.* at 357.

¹² See note 3 *supra*. The evidence to date is only anecdotal. A carefully designed and controlled empirical study is desirable to validate this observation.

¹³ R. GOEN, DRASTIC MEASURES FOR REDUCING TRAFFIC CASUALTIES (1965); Greenwald, *supra* note 2, at 57.

¹⁴ For example, traffic fatalities on all highways in the fifty states and the District of Columbia totaled 53,907 in 1971. FEDERAL HIGHWAY ADMINISTRATION, U.S. DEP'T OF TRANSPORTATION, FATAL AND INJURY ACCIDENT RATES ON FEDERAL-AID AND OTHER HIGHWAY SYSTEMS (1972).

¹⁵ Any attempt to lower speed limits nationally, in response to the current energy shortage, must concern itself with the concomitant enforcement problem and the utility of radar in this regard cannot be ignored. The effect of the new nationwide fifty-five miles per hour speed limit is yet to be determined.

¹⁶ Carosell & Coombs, *supra* note 1, at 336-37. Called "The Achilles Heel of Radar" by the Joint Board on Scientific Information Policy in its report, ELECTRONICS WARFARE, REPORT ON RADAR COUNTERMEASURES, cited *id.* at 336, outside forces impinging directly on the radar unit have a great effect on the reliability of the measurements obtained. Movements of trees, birds, and pedestrians register on the radar. Even shaking a key ring near the antenna head of the radar unit may produce a "speed" of forty miles per hour. *Id.* at 338. One police officer was baffled by a rhythmic reading fluctuating between zero and twenty miles per hour until he looked through the "peep-scope" aiming device and saw a lawn sprinkler spraying water in and out of the radar beam.

readings.¹⁷ The operation of diathermy equipment¹⁸ or the transmission of radio signals¹⁹ in the vicinity also negates the reliability of the radar unit. Misuse by radar operators, the other major source of error, occurs since many officers lack formal training in the principles of radar and their application to traffic law enforcement. This lack of training may lead to careless identification of the offending vehicle²⁰ and inaccurate testing or improper calibration²¹ of the radar unit. Therefore, the social utility of radar speed detection devices may be offset by the possibility that erroneous speed measurements could be used as evidence against motorists.

A uniform radar speed detection act could provide for nationwide regulation to maximize the benefits of radar speed detection, while preventing abuses. A uniform approach is preferable both to ensure fair and consistent treatment of drivers charged with similar offenses and to promote interstate cooperation.²² The current, if overdue, reevaluation of traffic laws by state and local governments²³ provides an unparalleled opportunity to consider the desirability of a uniform radar act. The Secretary of Transportation has already indicated that uniform vehicle codes and laws relating to highway safety²⁴ are fundamentally important and, as required by the Federal Highway Safety Act of 1966,²⁵ has promulgated standards concerning state traffic codes and laws.

The Highway Safety Program is designed to "eliminate all major variations in traffic codes, laws, and ordinances on given aspects of highway safety"²⁶ The background related by the Secretary is pertinent to a policy of uniformity.

[B]asic motor vehicle codes and traffic laws should be made uniform throughout the Nation. The laws in the field are literally a jungle of confusion. There is a vast array of changing and conflicting traffic laws and control systems as we drive from State to State.²⁷

A Highway Safety Program Standard recommends plans that will "further

¹⁷ Radar is used in weather forecasting to detect rain. The effect of water on radar is to "muddle" a reading or create a "bogey." A "bogey" is a blip, caused by rain or small objects, which appears on a radar screen and is often misinterpreted as some other object, e.g., ducks misinterpreted as a large airplane. See Note, *Radar and the Law*, 10 S. TEX. L.J. 269 (1968).

¹⁸ Kopper, *supra* note 1, at 351. Greenwald, *supra* note 13, at 59.

¹⁹ STEPHENSON MANUAL, *supra* note 7, at 4.

²⁰ Carosell & Coombs, *supra* note 1, at 341-42.

²¹ *Id.* at 344-45.

²² NATIONAL CONFERENCE OF COMMISSIONERS ON UNIFORM STATE LAWS, CONSTITUTION, in *TRAFFIC LAWS ANNOTATED* 816 (1972). Increased resources for technological developments will also result from the adoption of a uniform act. The Act may lead to a pooling of information from various states regarding common problems.

²³ NATIONAL COMMITTEE ON UNIFORM TRAFFIC LAWS AND ORDINANCES, *TRAFFIC LAWS ANNOTATED* 815 (1972).

²⁴ 23 C.F.R. pt. 204 (1968).

²⁵ 23 U.S.C. § 402(a) (1970).

²⁶ HIGHWAY SAFETY PROGRAM STANDARD 6, CODES AND LAWS, 23 C.F.R. pt. 204 (1968).

²⁷ *Id.*

the adoption of appropriate aspects . . . of the Uniform Vehicle Code" and an examination of all state traffic laws based upon a comparison to the Uniform Vehicle Code.²⁸ Inclusion of a uniform radar speed detection act in the Uniform Vehicle Code would further the policies of the Department of Transportation and the National Conference of Commissioners on Uniform State Laws.

This article traces the judicial treatment of radar, reviews statutory attempts to regulate radar usage, and proposes a uniform act as an effective and consistent approach to ensure the proper use of radar.

I. THE COMMON LAW OF RADAR

Although military radar was invented early in World War II, radar principles were not used in automobile speed detection until the late 1940's. Prosecutions based on radar evidence began soon thereafter, but since traffic cases rarely reach a state's highest court, judicial treatment tends to be inconsistent. Many potentially dispositive questions are never raised, because the defendant either did not go to trial or chose not to appeal. Thus, courts in states that have no statutes regulating radar have failed to deal with many problems arising from radar speed detection. There has also been inconsistent treatment of the evidentiary effect to be given radar readings. However, some consistent patterns of analysis can be discerned in states without radar regulation statutes.

A. Proof of Reliability

Prior to 1955 and in the absence of a statutory presumption, state courts required expert testimony²⁹ to establish the general reliability of radar in measuring speed, before a conviction could be based on radar evidence. Since then, courts have been increasingly willing to take judicial notice of radar's reliability.³⁰ The treatment accorded radar has been analogized to that given photography, radiology, blood tests, and other scientific discoveries.³¹ Judicial notice of the general reliability of radar is not, however, judicial notice of the accuracy of the particular unit relied upon in the specific case.³²

The courts that have taken judicial notice of radar reliability despite

²⁸ *Id.* See also note 23 *supra*.

²⁹ See, e.g., *State v. Moffitt*, 48 Del. 210, 100 A.2d 778 (1953); *People v. Offermann*, 204 Misc. 769, 125 N.Y.S.2d 179 (1953).

³⁰ See, e.g., *Everight v. City of Little Rock*, 230 Ark. 695, 326 S.W.2d 796 (1959); *State v. Tomanelli*, 153 Conn. 365, 216 A.2d 625 (1966); *People v. Abdallah*, 82 Ill. App. 2d 312, 226 N.E. 2d 408 (1967); *State v. Gerdes*, 291 Minn. 353, 191 N.W.2d 428 (1971); *State v. Dantonio*, 18 N.J. 570, 115 A.2d 35 (1955); *People v. Magri*, 3 N.Y.2d 562, 147 N.E.2d 728, 170 N.Y.S.2d 335 (1958); *Wilson v. State*, 328 S.W.2d 311 (Tex. Crim. App. 1959) (*semble*).

³¹ *Baer, Radar Goes to Court*, 33 N.C.L. REV. 355, 365 (1955); Note, *Evidence — Judicial Notice — Radar*, 14 Sw. L.J. 394 (1960).

³² *State v. Tomanelli*, 153 Conn. 365, 216 A.2d 625 (1966).

continuing comment concerning its inherent technical limitations,³³ have been moved³⁴ by the arguments offered by radar's leading proponent, Dr. John Kopper.³⁵ Unfortunately, the practices recommended³⁶ to ensure radar's reliability have not always been adopted by the courts.³⁷ Some states judicially notice radar's reliability without requiring the procedures necessary to assure reliability.

B. Proof of Accuracy

Proof of general reliability may be accomplished through judicial notice and once established need not be reestablished,³⁸ but the accuracy of the particular unit relied upon must be proven beyond a reasonable doubt in each trial.³⁹ Generally the prosecution introduces evidence of several tests designed to show that the unit accurately measured the speed of vehicles both before and after the arrest of the defendant. This evidence tends to support the inference⁴⁰ that the unit was also accurate at the time defendant's vehicle passed through its beam.⁴¹

There are at least four different methods⁴² of testing accuracy, ranging from an internalized tuning fork calibration⁴³ to cheks against a master speedometer both in laboratories and in the field.⁴⁴ Although the nature and quality of some of these tests have been challenged successfully,⁴⁵

³³ Carosell & Coombs, *supra* note 1; Evans, *supra* note 17; Greenwald, *supra* note 2; McCarter, *Legal Aspects of Police Radar*, 16 CLEV.-MAR. L. REV. 455 (1967); O'Brien, *Radar Speed Detection in Illinois*, 56 ILL. B.J. 296 (1967). *See also* notes 16-19 and accompanying text *supra*.

³⁴ *See* State v. Gerdes, 291 Minn. 353, 355, 191 N.W.2d 428, 430 (1971) (collecting citations).

³⁵ Kopper, *supra* note 1.

³⁶ *Id.* at 353.

³⁷ Thomas v. City of Norfolk, 207 Va. 12, 15, 147 S.E.2d 727, 729 (1966).

³⁸ McCormick, *Scientific Evidence in Traffic Cases—Some Legal Problems*, 4 S. TEX. L.J. 193 (1959); Note, *supra* note 31.

³⁹ Citations collected in Russell, *Radar Speedmeters in Court*, 6 LAW NOTES 69 (1970) and Annot., 47 A.L.R.3d 822, 837-57 (1973).

⁴⁰ Woodbridge, *Radar in the Courts*, 40 VA. L. REV. 809, 815 (1954).

⁴¹ *See* note 9 *supra*.

⁴² Forkosch, *supra* note 5, at 134; Kopper, *supra* note 1, at 353; McCarter, *supra* note 33, at 457; McCormick, *supra* note 34, at 200; O'Brien, *supra* note 33, at 301; Russell, *supra* note 39, at 70; Annot., 47 A.L.R.3d 822, 842 (1973). The types of testing include internal tests of the unit by electronic experts to check the crystal detector, calibrations, and cavity output, tuning fork tests (holding a sounding tuning fork in front of the radar antenna to see if the speed registered matches the frequency output of the tuning fork), run-through tests by other police vehicles with accurate speedometers, and tests based on internalized transmission of a signal corresponding to a given speed reading. Variations of these types of tests produce several additional methods for ascertaining the accuracy of the unit.

⁴³ State v. Gerdes, 291 Minn. 353, 191 N.W.2d 428 (1971) (holding the internalized tuning fork calibration to be "bootstrapping" and insufficient proof of accuracy).

⁴⁴ *E.g.*, People v. Sachs, 1 Misc. 2d 148, 147 N.Y.S.2d 801 (1955).

⁴⁵ State v. Gerdes, 291 Minn. 353, 191 N.W.2d 428 (1971); City of St. Louis v. Boecker, 370 S.W.2d 371 (Mo. App. 1963); People v. Magri, 3 N.Y.2d 562, 147 N.E.2d 728, 170 N.Y.S.2d 335 (1958).

some courts nevertheless refuse to consider challenges concerning the accuracy of the testing devices themselves, arguing that there must be a "point of faith" somewhere.⁴⁶

C. Proof of Operator Expertise

Proof that the operator of the radar unit was sufficiently trained so as to have acquired the necessary expertise must be introduced in each case.⁴⁷ The amount of expertise required varies. One court held that a ninety-minute session with an "experienced" traffic officer was sufficient,⁴⁸ while another held that attendance for several days at a radar institute run by an electronics engineer was clearly adequate.⁴⁹ Most courts⁵⁰ appear to require the officer to spend at least a day familiarizing himself with the actual operation of the unit. There is no requirement, however, that the officer understand the theory of radar speed detection.⁵¹ Proponents argue that the one-and-a-half-hour training session approved by some courts is adequate,⁵² but this is subject to doubt.⁵³

II. THE STATUTORY LAW OF RADAR

Statutes⁵⁴ regulating radar deal with several questions never confronted by courts, including special arrest and evidentiary provisions. These statutes allow a legislature to respond to problems that might never receive a judicial hearing. The importance of legislative regulation is especially clear in states having statutes dealing with problems of warrantless arrests, warning signs, and speed traps.

⁴⁶ *State v. Snyder*, 184 Neb. 465, 168 N.W.2d 530 (1969); *Peterson v. State*, 163 Neb. 669, 80 N.W.2d 688 (1957); *State v. Dantonio*, 18 N.J. 570, 115 A.2d 35 (1955); *People v. Stephens*, 52 Misc. 2d 1070, 227 N.Y.S.2d 567 (1967).

⁴⁷ *State v. Tomanelli*, 153 Conn. 365, 216 A.2d 625 (1966); *People v. Abdallah*, 82 Ill. App. 2d 312, 226 N.E.2d 408 (1967); *Honeycutt v. Commonwealth*, 408 S.W.2d 421 (Ky. 1966); *State v. Graham*, 322 S.W.2d 188 (Mo. App. 1959); *People v. Magri*, 3 N.Y.2d 562, 147 N.E.2d 728, 170 N.Y.S.2d 335 (1958).

⁴⁸ *See State v. Graham*, 322 S.W.2d 188 (Mo. App. 1959); *Hardaway v. State*, 202 Tenn. 94, 302 S.W.2d 351 (1957).

⁴⁹ *People v. Magri*, 3 N.Y.2d 562, 147 N.E.2d 728, 170 N.Y.S.2d 335 (1958).

⁵⁰ *See, e.g., People v. Stankovich*, 119 Ill. App. 2d 187, 255 N.E.2d 461 (1970).

⁵¹ *See, e.g., People v. Abdallah*, 82 Ill. App. 2d 312, 226 N.E.2d 408 (1967).

⁵² *Kopper, supra* note 1, at 353.

⁵³ The author spent one morning observing traffic in a Detroit suburb with an experienced traffic law enforcement officer in a radar-equipped car. Although the mechanics of switching the unit on and watching the needle register a single vehicle's speed were easily mastered, the ability to distinguish the car registering on the unit when both lanes had strings of five cars in them was never gained. The officer admitted that he observed the radar reading only on two-lane roads, as he was unable "to make out which car it is" on a three- or four-lane road. *See* note 3 *supra*.

⁵⁴ FLA. STAT. ANN. § 316.058 (Supp. 1973); GA. CODE ANN. §§ 68-2101 to -2113 (Supp. 1972); ILL. REV. STAT. ch. 95½, § 11-602 (1971); ME. REV. STAT. ANN. tit. 29, § 1254 (Supp. 1973); MD. ANN. CODE art. 35, § 91 (1957); MISS. CODE ANN. § 8176.5 (Supp. 1970); NEB. REV. STAT. § 39-7, 108.02 (Supp. 1968); N.D. CENT. CODE § 39-03-15 (Supp. 1971); OHIO REV. CODE ANN. § 4511.091 (Baldwin 1971); ORE. REV. STAT. § 483.112 (4), (5) (1971-72); PA. STAT. ANN. tit. 75, § 1002 (d.1) (1971); VA. CODE ANN. § 46.1-198, -198.1, -198.2 (1972); W. VA. CODE ANN. § 176C-6-7 (1966).

A. Arrest Provisions

1. *Conditions of Arrest*—Speeding violations are typically misdemeanors⁵⁵ and an officer may not arrest a misdemeanant unless the offense was committed in his presence.⁵⁶ States without statutory radar regulation have not confronted the question of the validity of an arrest by an officer who did not see the defendant speeding. Six states⁵⁷ provide that a warrantless arrest may be made based solely upon evidence from a radar unit. Generally the arresting officer is required to be in uniform and must display his badge of authority.⁵⁸ The officer must have either observed the motorist's speed, as detected by radar, or received a radio message from the officer who observed the radar-measured speed.⁵⁹ In the latter case, specific identification of the offending vehicle is required.⁶⁰ These special warrantless arrest provisions have been prompted by a concern⁶¹ that such arrests might otherwise be illegal under the statutes governing misdemeanor arrests.⁶²

2. *Warning Signs*—Six states⁶³ currently require the posting of warning or informational signs regarding the use of radar speed detection devices. The wording of these signs is sometimes unspecified by the statute, and it is unclear whether the statutory purpose is to inform⁶⁴ the public

⁵⁵ *E.g.*, MISS. CODE ANN. § 8176.5 (Supp. 1970).

⁵⁶ *E.g.*, MICH. COMP. LAWS ANN. § 764.15 (1967). Without a special statutory exception, an arrest by a "chase" officer in a two-man radar situation would be contrary to law. *See* note 5 *supra*.

⁵⁷ FLA. STAT. ANN. § 316.058 (Supp. 1973); NEB. REV. STAT. § 39-7,108.02 (Supp. 1968); N.D. CENT. CODE § 39-03-15 (Supp. 1971); OHIO REV. CODE ANN. § 4511.091 (Baldwin 1971); ORE. REV. STAT. § 483.112 (4) (1971-72); VA. CODE ANN. § 46.1-198 (b) (1972).

⁵⁸ Both elements are required in Nebraska, North Dakota, and Virginia. Oregon does not require the officer to display his badge. *See* note 57 *supra*.

⁵⁹ *See* note 57 *supra*.

⁶⁰ Of the six states with such provisions, only North Dakota does not prescribe specific identification in radio dispatches regarding speeding violations.

⁶¹ *See, e.g.*, 1966 FLA. OP. ATT'Y GEN. 066-98.

⁶² *See generally* Forkosch, *supra* note 5, at 137.

⁶³ GA. CODE ANN. § 68-2105 (Supp. 1972); MD. ANN. CODE. art. 35, § 91 (1957); ORE. REV. STAT. § 483.112 (5) (1971-72); PA. STAT. ANN. tit. 75 § 1002 (d.1) (1) (iii), (3) (1971); VA. CODE ANN. § 46.1-198.2 (1972); W. VA. CODE ANN. § 176C-6-7 (1966). Ohio and Maine eliminated similar sections in 1968.

In *United States v. Dreos*, 156 F. Supp. 200 (D. Md. 1957), the court referred to the requirement that radar signs be posted pursuant to the Maryland statute and Section 3.28(d) of the National Capital Parks Regulation, 36 C.F.R. § 3.28(d) (1955). This section allowed the use of radar in park areas in the states of Maryland and Virginia provided signs stating "Speed checked by radar" were posted within four miles of the device. The section is not in the current code.

⁶⁴ Pennsylvania requires signs to be erected "indicating that radar is in operation." PA. STAT. ANN. tit. 75, § 1002 (d.1) (1) (iii) (1971). This wording does not require the signs to be posted only when radar is in actual operation on the road, or that they specify "Radar Enforced Now." *Commonwealth v. Fornwalt*, 203 Pa. Super. 411, 202 A.2d 115 (1964); *Commonwealth v. Lewis*, 82 Dauph. Co. 153 (Pa. 1964); *Commonwealth v. Giller*, 54 Luzerne Leg. Reg. R. 215 (Pa. 1964); *Commonwealth v. Wrye*, 32 Pa. D. & C.2d 385 (1963); *Commonwealth v. Schoenfeld*, 54 Luzerne Leg. Reg. R. 213 (Pa. 1963) (Legislative intent was not to warn individuals of radar monitoring.).

Safety cannot be promoted by a system which permits a motorist alert to warning signs and police cars to speed with assured immunity. The

that radar is used in the state to enforce the speed laws or to warn⁶⁵ drivers in a particular location that speed is being monitored by radar. The requirement, in some states, that the signs be posted at "conspicuous" or "strategic" places at or near the state border⁶⁶ suggests a legislative purpose to inform the public of the general use of radar, whereas providing for "movable"⁶⁷ signs suggests an intent to warn drivers of the immediate possibility of arrest.

3. *Proscribed Areas of Use*—Three states ban the use of radar in certain areas. Illinois⁶⁸ prohibits radar usage within 500 feet of a speed change sign unless the unit is being operated within a school speed zone. Mississippi⁶⁹ forbids use of radar devices by towns with populations of less than 2,000, while towns of less than 15,000 people may not use radar on federal highways. The Mississippi Highway Patrol, however, may utilize radar anywhere in the state. The Georgia statute prohibits the use of

radar warning signs erected by the Secretary of Highways discourage speeding even when there is no radar in use in the immediate vicinity of the sign.

Commonwealth v. Fornwalt, *supra* at 415 (footnote omitted). The court pointed out that an amendment which would have provided for signs only when radar was in operation failed in the legislature.

Oregon and West Virginia specifically state that such signs shall be posted for the information of the general public. (*E.g.*, West Virginia: "In order to inform and educate the public generally . . .")

⁶⁵ *See, e.g.*, GA. CODE ANN. § 68-2105 (Supp. 1972), which states, "Such signs shall warn approaching motorists that the use of such devices *is being employed*" (emphasis added). Confusion about the purpose of the signs even existed among officials. A Pennsylvania court noted:

There was a time when even officials became obsessed with the idea that catching speeders was a *game* in which the violator had the right to a "sporting chance." Police cars were painted white so no speeder who watched through his rear view mirror could be caught. Apprehending speeders was looked upon as a continuation of the childhood game of "cops and robbers." Unfortunately, highway safety is not a game, but a *deadly* serious problem. The attitude of a segment of the public on highway safety is probably the result of a psychological phenomenon in which every operator thinks of himself as an occasional traffic violator but never thinks of himself as being killed or the killer.

Commonwealth v. Fornwalt, 203 Pa. Super. 411, 415 n.2, 202 A.2d 115, 117 n.2 (1964).

⁶⁶ ORE. REV. STAT. § 483.112(5) (1971-72); VA. CODE ANN. § 46.1-198.2 (1972); W. VA. CODE ANN. § 17C-6-7 (1966).

⁶⁷ Since West Virginia provides for "movable" signs, it would appear that the purpose is to warn motorists of the current use of radar in that area. Nevertheless, the statute provides that the purpose is to "inform and educate the public generally", and such signs shall be "suitable and informative stationary and movable." W. VA. CODE ANN. § 17C-6-7 (1966).

⁶⁸ ILL. REV. STAT. ch. 95½, § 11-602 (1971). It has been held that the purpose of this 500 foot "safety range" is to let the driver slow down after a speed change. Therefore, the prohibition only applies to the use of radar after the first sign. *People v. Johansson*, 126 Ill. App. 2d 31, 261 N.E.2d 551 (1970). Even though the prohibition is designed as an affirmative defense, the state still has the burden of proving that the radar was properly placed in relation to the signs. *People v. Russell*, 120 Ill. App. 2d 197, 256 N.E.2d 468 (1970); *People v. Powers*, 89 Ill. App. 2d 120, 233 N.E.2d 93 (1967).

⁶⁹ MISS. CODE ANN. § 8176.5 (Supp. 1970).

radar in a large number of areas.⁷⁰ These provisions, perhaps more specific than necessary, are unique in that they take into account many of the technical limitations of radar and should prevent many possible abuses.⁷¹

4. *Amount in Excess of Posted Limit*—Two states,⁷² Georgia and Pennsylvania, appear to acknowledge the possibility that a radar reading may be generally accurate and yet subject to some variance. Both states require that the speed detected by the radar unit be in excess of the legal speed limit by a certain stated amount. The advantage of such a provision is that a driver will not be ticketed for speeding when the radar unit, whose readings are subject to an error of one to four miles per hour,⁷³ indicates that his speed was in excess of the posted limit by less than that amount.

5. *Speed Traps*—California⁷⁴ and Oregon⁷⁵ prohibit speed traps.⁷⁶ Both states recognize that the mere use of radar is not a speed trap,⁷⁷ but neither state appears to have considered the possibility that radar, like any other legitimate method of speed detection, could be used in such a way as to constitute a speed trap. Georgia has considered the possibility of misuse and statutorily prohibited it.⁷⁸

⁷⁰ GA. CODE ANN. § 68-2101 *et seq.* (Supp. 1972). These areas include the 300 feet following a speed reduction sign and any place where the legal speed limit has been reduced in the previous thirty days. Other prescribed locations are where the unit is not visible to approaching motorists for at least 500 feet, where there is a grade in excess of 7 percent, or where police and court revenues are subsidized by traffic fines.

⁷¹ *Id.* Local governmental units may use radar only upon approval of their applications to the state. The application must name the streets upon which the radar will be operated and the current speed limits on those streets.

⁷² GA. CODE ANN. § 68-2101 (Supp. 1972) ("unless speed of the vehicle exceeds the posted limit in excess of 10 miles per hour"); PA. STAT. ANN. tit. 75, § 1002 (d.1) (1) (iv) (1971) ("the speed recorded is six or more miles per hour in excess of the legal speed limit.")

⁷³ Carosell & Coombs, *supra* note 1, at 333-39. The effect of the "standard error" of radar is that a driver accused of traveling at sixty-six miles per hour in a sixty-mile-per-hour zone may in fact be traveling at only sixty-two miles per hour. This possibility would urge leniency in administering the penalty for driving six miles per hour over the legal limit. An additional factor is that most American automobile speedometers register four and one-half to six miles per hour faster than the actual speed when traveling at sixty miles per hour. Evans, *supra* note 17, at 281 n.57. While *mens rea* plays no part in the strict liability crime of speeding, it does not seem unfair to punish a motorist, who thinks he is traveling at between sixty-six and one-half and sixty-eight miles per hour, for exceeding the sixty-mile-per-hour speed limit by six miles per hour, when in fact he may only be exceeding it by two miles per hour.

⁷⁴ CAL. VEH. CODE § 751 (1971).

⁷⁵ ORE. REV. STAT. § 483.112(4) (1971-72).

⁷⁶ One author has suggested a reason for the enactment of the California law. Small towns would mark out distances on the highways and nonuniformed, hidden officers would compute the elapsed time of motorists. The unwary were often arrested, convicted, and fined large sums which often subsidized police salaries. Note, *Criminal Law: Admissibility of Evidence Obtained by Radar Speed Meter*, 43 CALIF. L. REV. 710, 711 (1955).

⁷⁷ ORE. REV. STAT. § 483.112(4) (1971-72); *People v. Beamer*, 130 Cal. App. 2d 874, 279 P.2d 205 (1955).

⁷⁸ GA. CODE ANN. § 68-2101 (Supp. 1972) (Radar devices may not be used in municipalities where traffic fines subsidize police and judicial salaries.)

B. Evidentiary Provisions

1. *Approval of Radar*—Every state with a radar regulation statute has impliedly acknowledged the general reliability of radar. Most states, however, have specific language approving the use of radar to identify speeders. Seven states employ almost identical language in generally approving the use of radar,⁷⁹ while others require that the type of radar used must be prescribed⁸⁰ or approved⁸¹ by an appropriate administrative official. Only three states having radar regulation statutes⁸² fail to approve, in specific statutory language, the use of radar speed detection devices. Specific approval has been achieved in two of these, however, through judicial interpretation of their statutes or by judicial notice of radar's general reliability.⁸³

2. *Presumption of Accuracy*—Five states with radar statutes⁸⁴ provide that a radar reading of a driver's speed is prima facie evidence of that speed in a criminal prosecution. Other states provide that speed may be "proved" by radar evidence,⁸⁵ that evidence obtained in contravention of the statute is inadmissible to prove guilt,⁸⁶ or that "certificates of accuracy" of the radar unit may be introduced to establish the accuracy of the radar readings.⁸⁷ Three other states⁸⁸ with radar statutes make no provision for the evidentiary effect of speed determination by radar.

Although these statutes make radar readings only prima facie evidence of speed, the practical effect for the typical defendant, who is unable to produce evidence indicating the unit's inaccuracy, is to establish accuracy conclusively.⁸⁹ This statutory pattern expedites prosecution of traffic violations in congested state courts by discouraging defendants from per-

⁷⁹ ME. REV. STAT. ANN. tit. 29, § 1254 (Supp. 1973); MD. ANN. CODE art. 35, § 91 (1957); NEB. REV. STAT. § 39-7, 108.02 (Supp. 1968); N.D. CENT. CODE § 39-03-15 (Supp. 1971); MISS. CODE ANN. § 8176.5 (Supp. 1970); VA. CODE ANN. § 46.1-198 (1972); W. VA. CODE ANN. § 17C-6-7 (1966).

⁸⁰ PA. STAT. ANN. tit. 75, § 1002 (d.1) (1) (i) (1971).

⁸¹ GA. CODE ANN. § 68-2101 (Supp. 1972).

⁸² ILL. REV. STAT. ch. 95½, § 11-602 (1971); MISS. CODE ANN. § 8176.5 (Supp. 1970); OHIO REV. CODE ANN. § 4511.091 (Baldwin 1971).

⁸³ *People v. Abdallah*, 82 Ill. App. 2d 312, 226 N.E.2d 408 (1967); *City of East Cleveland v. Ferrell*, 168 Ohio St. 298, 154 N.E.2d 630 (1958).

⁸⁴ ME. REV. STAT. ANN. tit. 29, § 1254 (Supp. 1973); NEB. REV. STAT. § 39-7, 108.02 (Supp. 1968); N.D. CENT. CODE § 39-03-15 (Supp. 1971); VA. CODE ANN. § 46.1-198.1 (1972); W. VA. CODE ANN. § 17C-6-7 (1966).

⁸⁵ See, e.g., MD. ANN. CODE art. 35, § 91 (1957).

⁸⁶ See, e.g., ILL. REV. STAT. ch. 95½, § 11-602 (1971); GA. CODE ANN. § 68-2106 (Supp. 1972).

⁸⁷ FLA. STAT. ANN. § 316.058 (Supp. 1973); PA. STAT. ANN. tit. 75, § 1002 (d.1) (2) (1971).

⁸⁸ Mississippi, Ohio, and Oregon. There are no reported cases citing the statute in Mississippi or Oregon, however *City of East Cleveland v. Ferrell*, 168 Ohio St. 298, 154 N.E.2d 630 (1958), makes it clear that radar evidence is sufficient for conviction without more if there is no rebuttal evidence.

⁸⁹ If the police have abided by the testing procedure established by statute or administrative order, then courts are reluctant to reject the radar results. However, a defendant is not precluded from challenging the sufficiency of the tests prescribed by statute or the manner in which they were conducted. Such challenges may encourage police compliance with testing procedures and prevent abuses due to radar inaccuracy.

senting their arguments when the evidence against them is based upon generally reliable radar speed measurements. However, a conclusive presumption of accuracy also tends to preclude the possibility of raising legitimate objections to the potential misuse of radar by law enforcement agencies.

3. *Operator Expertise*—No statute regulating radar usage makes provision for training or certification of radar operators.⁹⁰ Cases decided in states with radar statutes do not speak to the question of operator expertise beyond mentioning that the operator was a member of a police force empowered by statute to utilize radar speed detection devices.⁹¹

III. PROPOSED UNIFORM RADAR SPEED DETECTION ACT

A. Policy Considerations

Courts have failed to respond in a consistent and thorough fashion to the phenomenon of radar speed detection. Legislative responses, while more complete, also lack consistency and tend to remedy only local abuses. Neither courts nor legislatures have attempted to regulate radar in light of its limitations so as to maximize benefits and prevent abuses. A uniform act providing complete regulation of radar speed detection could increase the effectiveness of traffic law enforcement, improve highway safety, and promise equal treatment of traffic violators.

The pervasiveness of radar speed detection⁹² and the mobility of the American population require a uniform radar act. It is unfair for a motorist to be convicted on the basis of radar evidence when the radar unit may be inaccurate or operated by an inexperienced officer.⁹³ Nor is it fair for a driver to be the victim of a revenue-raising speed trap.⁹⁴ Given the effect of outside influences on radar readings,⁹⁵ a driver should be acquitted if care has not been taken to avoid these effects. Conversely, local law enforcement agencies should not be precluded from making a valid arrest based upon an accurate determination of speed made by radar under proper conditions. Furthermore, while the basic standard of proof of guilt beyond a reasonable doubt is the same in every state, the inconsistent weight accorded radar evidence indicates not only the underlying differences in regulation from state to state, but also the inherent illogic and inequity of treating the same scientific tool as more trustworthy or accurate in one state than in another. In light of these considerations and

⁹⁰ Florida requires any operator of a visual average speed computer recorder (VASCAR) to be certified as competent before he is able to give testimony regarding evidence obtained by the use of VASCAR. FLA. STAT. ANN. § 316.058 (3) (a) (Supp. 1973). For further discussion of VASCAR see *People v. Persons*, 60 Misc. 2d 803, 303 N.Y.S.2d 728 (1969).

⁹¹ See, e.g., *Commonwealth v. Bartley*, 411 Pa. 286, 191 A.2d 673 (1963). *But cf.* *People v. Abdallah*, 82 Ill. App. 2d 312, 226 N.E.2d 408 (1967); *City of East Cleveland v. Ferrell*, 168 Ohio St. 298, 154 N.E.2d 630 (1958).

⁹² See note 2 *supra*.

⁹³ See notes 47-53 and accompanying text *supra*.

⁹⁴ See notes 74-78 and accompanying text *supra*.

⁹⁵ See notes 76-79 and accompanying text *supra*.

the efforts, undertaken by the Secretary of Transportation, toward revision of motor vehicle laws, the following Uniform Radar Speed Detection Act is proposed.

B. Proposed Act: Operational Elements

The first part of the act concerns the actual operation of radar by law enforcement agencies in the field.

Section 1. The speed of any motor vehicle may be measured by the use of radar or other similar electronic speed detection device of a type which has been tested and found to be reliable by the State Department of _____ and approved by the Department after a public hearing.⁹⁶

Section 1 authorizes the use of radar speed detection devices, but, as a safeguard, prevents police from using untested and therefore possibly unreliable speed detection devices. The section eliminates the need for judicial notice of radar's reliability and, to the extent that the state sets a high standard for accuracy, prohibits the continued use of any particularly error-prone equipment.

Section 2. No radar or electronic speed detection device may be utilized unless tested, calibrated, and found accurate according to procedures prescribed by the State Department of _____. Such testing and calibration shall be performed within a period of one week immediately prior to and one week immediately subsequent to the alleged violation. At least two additional tests, of a type to be specially prescribed by the Department, shall be conducted at or near the time and place of the alleged violation. A log book shall be maintained for each device indicating the location, date, times, and results of all such tests. Further, each log book shall include the location, date, time, weather conditions, and speed measured by the device for each alleged violation.⁹⁷

This section, by avoiding specification of the kinds of accuracy tests to be performed, allows an expert agency to prescribe the precise procedures that will adequately safeguard the public interest and to change the tests as conditions warrant. The inclusion of time constraints within which the unit must be calibrated is based upon expert recommendations, as is the requirement for tests when and where any arrest is made. Onsite testing is necessary to determine whether any effects have been caused by otherwise undiscernible environmental conditions.⁹⁸

Section 3. Only traffic law enforcement officers who have been trained in a program of instruction, established by the State Department of _____, in the use

⁹⁶ This language is modeled after the Pennsylvania and Virginia statutes. See PA. STAT. ANN. tit. 75, § 1002 (d.1) (1971); VA. CODE ANN. § 46.1-198 (1972). The name of the approving department is left blank here.

⁹⁷ See Kopper, *supra* note 1, at 353.

⁹⁸ See notes 38-46 and accompanying text *supra*.

of radar or other electronic speed detection devices shall be competent to operate such devices.⁹⁹

This provision would eliminate many of the abuses now affecting the overall usefulness of radar. Programs of instruction in proper radar usage could be established by the states. The program should require sufficient training to prepare an officer to operate his equipment under all conditions normally encountered. Reading a short instructional manual and spending a day in a training session with an experienced operator should be adequate instruction.¹⁰⁰

Section 4. Radar or other electronic speed detection devices may not be operated by any law enforcement agency in any location designated by the State Department of _____, including, but not limited to, any area within 500 feet of the first posted sign indicating a reduction in the legal speed limit. In designating areas in which radar may not be operated, the department shall consider the effect exerted on such devices by the operation of radio, television, diathermy and other radar or electronic devices, and any other environmental factor which might affect the accuracy of such devices in that area.¹⁰¹

The exclusion of some areas from radar patrols will limit outside influences which would otherwise lead to inaccurate readings.¹⁰²

Section 5. Signs to inform the traveling public that the speed of motor vehicles may be measured by radar or other electronic speed detection devices shall be erected and maintained in a conspicuous place at or near the corporate limits of the local governmental unit utilizing such devices upon each state highway and arterial thoroughfare entering the governmental unit, and in a conspicuous place at or near the boundary line of this state upon those interstate and primary highways which connect the state to other jurisdictions.¹⁰³

⁹⁹ There is no parallel section in any of the thirteen radar statutes.

¹⁰⁰ Carosell and Coombs suggest that only radar technicians should be permitted to operate radar speed detection devices. Carosell & Coombs, *supra* note 1, at 349. Kopper would allow anyone with one hour of experience to operate such units. Kopper, *supra* note 1, at 353. This section provides for a middle ground as envisioned by most courts.

¹⁰¹ The first part of this section is modeled after the Illinois statute. ILL. REV. STAT. ch. 95½, § 11-602 (1971). The additional provisions are suggested by writings of Kopper. Kopper, *supra* note 1, at 351.

¹⁰² Many of the horror stories associated with radar are the result of outside influences whose effect could have been foreseen and eliminated. The portion of the Georgia statute requiring any application for a permit to use radar to include the names of the streets to be patrolled is one possible method to alert the licensing agency to the presence of these outside energy sources. In addition, the expert agency should establish that radar units must be set up within three feet of the edge of the road to minimize the effect of any "cosine factor." Carosell & Coombs, *supra* note 1, at 323; 11 AM. JUR. *Proof of Facts* 35 (Supp. 1972).

¹⁰³ Oregon and West Virginia provide the general model for this language. ORE. REV. STAT. § 483.112(4) (1971-72); W. VA. CODE ANN. § 17C-6-7 (1966).

If the threat of detection by radar is to deter speeding, then drivers should be informed of the use of radar within the state. This end is served by erecting signs at well-traveled places. A permanent sign encourages the motorist not only to slow down where the sign is posted, but also to respect the lawful speed limit throughout the state.

Section 6. The driver of any motor vehicle may be arrested without a warrant under this act, provided that the arresting officer is in uniform, displays his badge of authority, and

(a) has observed the measurement of the speed of such motor vehicle by radar or other electronic speed detection device, or

(b) has received a radio message from the officer who has observed the speed of the motor vehicle measured by such device, which message

(i) must be dispatched immediately after the speed of the motor vehicle was measured,

(ii) must include the license number or other positive identification of the vehicle, and

(iii) must specify the measured speed.¹⁰⁴

This provision for warrantless arrest eases the burden otherwise placed on law enforcement agencies in radar cases. The provision for specific identification protects drivers from unfair arrests.

C. Proposed Act: Evidentiary Elements

The second part of the act concerns judicial treatment of various evidentiary elements of a speeding prosecution based on radar detection.

Section 7. In any court or legal proceeding in which the speed of a motor vehicle is at issue, the results of measurements by radar or other electronic speed detection devices made pursuant to this act shall be accepted as prima facie evidence of the speed of the motor vehicle.¹⁰⁵

This section ensures the usefulness of radar results. Similar language has been upheld as not in violation of the due process clause,¹⁰⁶ because of the natural and evidentiary relation existing between the results of a radar determination of speed and the true speed of the motor vehicle. The section obviates the need for judicial notice of or expert testimony on the reliability of radar.

Section 8. In any court or legal proceeding in which any question arises as to the calibration or accuracy of radar or other electronic speed detection device, a certified copy of the log

¹⁰⁴ Ohio and other states with similar arrest provisions provide the model for this language. See OHIO REV. CODE ANN. § 4511.091 (Baldwin 1971).

¹⁰⁵ The Virginia statute is a model for this language. VA. CODE ANN. § 46.1-198 (1972).

¹⁰⁶ *Dooley v. Commonwealth*, 198 Va. 32, 92 S.E.2d 348 (1956), *appeal dismissed*, 354 U.S. 915 (1957); *Royals v. Commonwealth*, 198 Va. 876, 96 S.E.2d 812 (1957).

book maintained on such device shall be prima facie evidence of the device's accuracy, provided that

(a) the log book has been executed and signed by the officers calibrating, testing, or operating such device,

(b) the log book contains information indicating the accuracy of the testing apparatus used in each test,

(c) the log book is maintained in accordance with the requirements of this act, and

(d) the certified copy of the log book is attested to by any officer who executed and signed it.¹⁰⁷

This section will help expedite the trial of radar cases and protect the defendant by requiring repeated scientific checks of the radar device. The maintenance and admission into evidence of a log book provide greater information concerning the accuracy of the individual radar unit, while not materially increasing the administrative burdens of the traffic law enforcement agency.

Section 9. No conviction shall be based upon evidence obtained through the use of radar or other electronic speed detection device unless the speed measured is at least six miles per hour in excess of the legal speed limit.¹⁰⁸

Since the average radar device has a "standard error" of approximately one to four miles per hour,¹⁰⁹ this section ensures that a defendant convicted of exceeding the speed limit by six miles per hour is at least guilty of the lesser-included offense of exceeding the limit by two miles per hour.

IV. CONCLUSION

The promulgation and adoption of a uniform act regulating the use of radar speed detection devices and specifying their evidentiary value will accomplish a number of socially desirable goals. It will maximize the benefits of radar usage, increasing the efficiency of traffic law enforcement and deterring speeding violations. Adoption of the act will minimize the technical limitations inherent in any scientific device used in a variety of situations and will reduce the abuses of radar detection systems by requiring the training of expert operators. The proposed act will provide uniform law and consistent treatment of evidence of similar misconduct. If highways are to be made safer, there must be systematic and effective enforcement of speed restrictions according to procedures regulated by a statutory scheme that protects the rights of the motorist.

—Douglas M. Tisdale

¹⁰⁷ The Virginia statute provides the basis for this language. VA. CODE ANN. § 46.1-198 (a1) (1972).

¹⁰⁸ This section is modeled after the Pennsylvania statute. PA. STAT. ANN. tit. 75, § 1002 (d.1) (1971).

¹⁰⁹ See notes 72-73 and accompanying text *supra*.