

CHAPTER 3

LEGAL CONSIDERATIONS

Ever since the automobile appeared on the American scene, we have had problems with speed and speed regulations. In order to deal with these problems, law enforcement officers have continually sought to develop newer, more efficient methods to measure vehicle speed accurately.

Perhaps the earliest mechanical device for measuring speed was the stopwatch. Police officers would time a motorist over a measured distance and establish vehicle speed by calculating distance over elapsed time. If they found that the motorist was driving over the speed limit, they took action. However, in 1903 the major pursuit vehicle used by law enforcement was the bicycle; police officers found it rather difficult to pursue motor vehicles that were traveling at up to 40 mph.

To solve this problem, police in Westchester County, New York, introduced another application of the stopwatch. New York City Police Commissioner William McAdoo set up series of three dummy tree trunks at 1-mile intervals along the Hudson drive. A police officer equipped with a stopwatch and a telephone was concealed inside each fake tree. When a car sped past the first station, the police officer inside telephoned the exact time to the officer in the next tree. The second officer set his watch accordingly. When the car passed his post he computed its speed for the mile. If the speed was above the posted limit, he telephoned the officer in the third tree, who lowered a pole across the road and stopped the car.

The year 1910 saw the introduction of another new scientific advance in speed detection, the "Photo-Speed Recorded." It consisted of a camera synchronized with a stopwatch and operated by taking pictures of a speeding car at set times (for example, 3 seconds apart). The photographic image of a vehicle, of course, becomes smaller the farther away from the camera the vehicle goes. By taking pictures of a receding vehicle at specified intervals and then comparing the images in each photograph, a mathematical formula could be applied to determine the vehicle's speed. William S. Buxton was the first driver found guilty of violating the speed limit on the basis of evidence obtained through the use of a Photo-Speed Recorder.

Foundational Elements and Requirements for Introduction of Scientific Evidence

As just stated, evidence derived from complex mechanical devices is typically challenged by the defense as to its accuracy and reliability (*Commonwealth v. Buxton*). The burden then rests on the prosecution to demonstrate to the court that these devices are capable of performing their function accurately. To do this, the prosecution must introduce testimony by recognized experts in that particular field. Such expert testimony is required every time a case involving a new principle comes to court. The process of expert testimony is long and tedious, and often bogs down the judicial process.

The court can dispense with the need for expert testimony only if the scientific principle underlying the new device has been given judicial notice. Judicial notice indicates that a particular fact or principle is so generally known as to be familiar to all reasonably well-informed persons. When the courts feel that a particular principle is commonly understood and accepted, they will take judicial notice of it; thereafter, expert testimony is no longer required. This approach by the courts has in the past been applied to such (at the time) new principles as clocks, chronometers, motion pictures, x-rays, fingerprinting, and television.

Bear in mind that judicial notice extends only to the scientific accuracy of the principle upon which a particular device operates. It does not extend to the accuracy or efficiency of any given device designed to employ that principle. Judicial notice has also been taken of certain methods or techniques for determining the accuracy and reliability of a particular device.

Once the courts accept a certain scientific principle and take judicial notice of certain tests for the accuracy of devices that employ the principle, it must still be established that the individuals who used the device were qualified to do so and that the specific device used was operating properly at the time in question.

Fundamental Case Law Affecting Doppler RADAR

Below we will see how the courts have dealt with:

- Judicial notice of the scientific principle underlying Doppler RADAR.
- Judicial notice of the tests for the accuracy and reliability of devices employing the Doppler Principle.
- The qualification required of Doppler RADAR operators.

You should be aware that case laws, i.e., fundamental court rulings, apply directly only in the jurisdictions where they were handed down. However, a fundamental ruling in one State will often be offered as precedent in another State's court.

Judicial Notice of the RADAR Principle

Before June 1955, the soundness of the Doppler Principle was the central issue in virtually all court cases involving the admissibility of speed measurement evidence obtained by RADAR. The issues of the reliability and accuracy of RADAR devices were subsidiary questions. In case after case, the prosecution had to prove the Doppler Principle through the long, involved testimony of expert witnesses.

In 1955, the Supreme Court of New Jersey finally took judicial notice of the principle behind Doppler RADAR. The case in question, *State v. Dantonio*, proved a landmark. In deciding this case, the court drew a parallel between RADAR meter readings and those registered on more well-known instrumentation, such as fingerprints, x-rays, cardiographs, etc., saying:

"The law does not hesitate to adopt scientific aids to the discovery of truth which have achieved such recognition...Since World War II members of the public have become generally aware of the widespread use of RADAR methods in detecting the presence of objects and their distance and speed..."

With this, the court affirmed that the RADAR concept was generally known and understood by all reasonably well-informed individuals: The court extended judicial notice.

Other States quickly followed suit. The Supreme Court of Arkansas, in *Everight v. City of Little Rock*, reaffirmed the New Jersey court's decision, saying:

"We are of the opinion that the usefulness of RADAR equipment for testing (the) speed of vehicles has now become so well established that the testimony of an expert to prove the reliability of RADAR in this respect is not necessary. The courts will take judicial notice of such fact. Of course, it will always be necessary to prove the accuracy of the particular equipment used in testing the speed involved in the case being tried."

To repeat the important point emphasized by the Arkansas court: While judicial notice had been extended to the RADAR principle, it was still necessary to prove the accuracy of the particular device employing that principle.

Judicial Notice of Tests for Accuracy

The accuracy of a particular RADAR unit, as distinguished from the accuracy of the RADAR principle, is not a proper subject for judicial notice. No court can accept every RADAR device as always completely accurate. The prosecution must prove that a particular device functioned properly at the time in question.

What the court may do is take judicial notice of certain methods or techniques for determining accuracy. It can reasonably be assumed that if a particular device was checked for accuracy at various established intervals and through accepted methods, that devices' readings would be accepted as accurate. In a Virginia case, *Royals v. Commonwealth*, the court quoted with approval Dr. John M. Kopper, a recognized authority on electronics:

"It is important to check the meter for accuracy each time it is set up for use; if the meter is to be

