

# Were you wrongly ticketed for speeding? Critics slam accuracy of Pa. police device

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[Meet ENRADD: The police speed trap device used only in Pennsylvania](#)

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By [Dan Simmons-Ritchie](#)  
[simmons-ritchie@pennlive.com](mailto:simmons-ritchie@pennlive.com)

Hayler Osborn was cruising along a leafy stretch of Delaware County this spring when a pair of police officers, standing beside a patrol car, waved him over.

Osborn, 75, a retired radiologist from the Philadelphia suburbs, was perplexed. He didn't think he had done anything wrong.

After pulling his SUV into a side street, the officers delivered news that only perplexed Osborn further: They told him he had been driving 43 mph in a 25 mph zone.

While Osborn concedes he tends to edge above the speed limit on highways, he says he doesn't speed in residential areas. On this occasion, he insists, he had long since eased up on the gas.

Osborn told the officers that he believed, at most, he had been driving at 34 mph. Under Pennsylvania law, in areas where the speed limit is less than 55 mph, police generally can't ticket a motorist unless they're [more than 10 mph](#) over the limit.

But the officers were unconvinced by Osborn's pleas. One of them told him his speed had been recorded by an ENRADD, a device that he had previously never heard of.

The other officer told Osborn that the device - a portable pair of sensors that police set up along roadways - was never wrong.

Osborn begrudgingly accepted a \$190 ticket and drove away. But after a mile, his anger rising, he turned back up the road.

Osborn drove past the officers, turned around, and then drove back toward them. This time, however, he set his cruise control to 29 mph.

When he reached the officers, Osborn pulled up and asked them for his speed.

They told him he had been driving at 39 mph.

Pennsylvania State Police troopers, who enforce speed limits on Pennsylvania's interstates, use radar devices themselves.

But Pennsylvania is the only state in the nation that bars municipal police - encompassing 1,100 police departments - from using those devices.

That exclusion was imposed in 1961 when radar devices were first adopted for police use in Pennsylvania. According to police officials interviewed by PennLive, the ban was rooted in a fear among lawmakers that small towns would establish speed traps to generate revenue.

Police groups have repeatedly pushed to lift that ban over the years but have been consistently thwarted by lawmakers who still fear the rise of small town speed traps. As a result, municipal police are forced to use devices to catch speeders that appear strangely antiquated to their out-of-state peers.

Among the most unique, perhaps, is ENRADD. The device, produced by a small company in Williamsport, was first approved by the state for police use in 1996.



A police officer, monitoring an ENRADD device remotely from his or her patrol car, can pull over a driver if the device determines they're speeding (James Robinson for PennLive.com) Because Pennsylvania's courts don't keep statistics on what devices are used to catch speeders, it's impossible to say how many tickets have been issued from ENRADD readings. Its



Because the beams of an ENRADD are spaced only 3 feet apart, critics argue that small deviations in where they hit a vehicle can make a big difference. (James Robinson for PennLive.com)

In essence, an ENRADD consists of two pairs of sensors, attached to a steel bar, that are placed on either side of a road by a police officer.

The sensors shine two infrared beams between them and the device calculates the speed of a vehicle based on the time it takes to break the first beam and then the second.

The officer, monitoring the device remotely from his or her patrol car, then pulls over a driver if they're speeding.

But while that sounds good in theory, Drack said, it has a fatal flaw: The device assumes its beams are being broken by the same part of a moving vehicle.

Because the beams of an ENRADD are spaced only 3 feet apart, Drack argues that small deviations in where they hit a vehicle can make a big difference.

For instance, Drack said, if an ENRADD's first beam is broken by a car's front tire and then its second beam is broken by its bumper, that difference - just a few inches - will mean that the device will record the car traveling faster or slower than it actually is.

Those unexpected beam breaks, Drack said, could happen for any number of reasons:

"This has been on the market for over 20 years, 25 years - there's no relevance," Cowden said. "And it's always us that are the bad guys".

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Ervin Sejdic, an associate professor of electrical engineering at the University of Pittsburgh, believes that Cowden makes a number of fair points.

It's true, Sejdic said, that radar and laser-radar devices aren't perfect and require careful monitoring by their operators.

And while ENRADD wouldn't be as accurate as those devices, he believes it should still be accurate in most circumstances.

However, Sejdic added, that was in theory.

"The best thing to do, if you have access to one of these systems, is to actually try it out on different streets," Sejdic said. "And if you drive it under a few different conditions, do you get different readings?"

The key problem, say critics, is that it's unclear if ENRADD was ever tested on roads before it was approved by the state for police use.

The Pennsylvania Department of Transportation, which regulates speed-timing devices used by municipal police, approved the current version of ENRADD in 2003 after reviewing an independent lab report.

But a PennLive review of that [15-page report](#) shows that its testing didn't involve any evaluation of how it works on roads. Rather, the testing only checked that its circuitry functioned properly.

Richard Kirkpatrick, a department spokesman, said that a Pennsylvania State Police officer may have conducted [a road test in 1996](#) using an earlier ENRADD model. However, he said, he had no further information about that test.

Approached by PennLive, the Pennsylvania State Police and the Independent Regulatory Review Commission also said they had no records of that test.

Asked whether PennDOT had any concerns about the accuracy of ENRADD, Kirkpatrick said the agency's approval of the device complied with state regulations.

"The regulations call for an error rate of + or - 1 mph and it is the responsibility of law enforcement to ensure the devices are operating properly," Kirkpatrick said.

"It still had some problems, especially when there are multiple vehicles, but they had a lot of good algorithms to work that out," Sawicki said.

In theory, Sawicki added, ENRADD would likely measure speeds accurately if all vehicles on the road had the same dimensions and the same tire pressure.

But because vehicles come in so many different shapes and sizes, he said, it was impossible that the device could accurately record speeds with any consistency because of the possibility of unexpected beam breaks.

In short, Sawicki said, he believed Drack's concerns were valid.

"All systems have their pluses and minuses," Sawicki said. "This system has a whole lot of minuses and, honestly, I don't see many pluses."

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Pennsylvania police have mixed feelings about ENRADD themselves.

Kevin Roland, an officer with the Lower Paxton Township police, said he and his colleagues would much prefer to use radar or laser-radar devices than their existing equipment.

Most of the time, Roland said, he and his colleagues use stopwatch-like devices to catch speeders.

Those devices, also approved by PennDOT for police use, require officers to watch traffic from a distance and time how quickly vehicles pass between two points. Because of the potential for human error, those devices, like ENRADD, have attracted their own criticisms over accuracy.

But about once a week Roland takes out the department's ENRADD.

He concedes the device has a lot of drawbacks: it's bulky, takes 10 to 15 minutes to set up, and he can't travel far away from it because it might get stolen.

But at the same time, Roland said, he believes its accurate.

"It's up to the operator to be properly trained and proficient with what they're using," Roland said. "It's the same with the stopwatches: if you're not paying attention you're not going to get an accurate speed."

"You can't just sit there and when it beeps say, 'look, OK, it says 65, you're going 65.'" he said. "You have to be able to see that they actually are going 65."

Described the incident over the phone, Cowden, the vice president of YIS/Cowden Group, declined to answer questions about why the device may have produced a mistaken reading.

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It's that level of discretion in determining false readings that critics ultimately fear is why ENRADD is such an unreliable piece of equipment.

They argue that large errors, like those involving a slow-moving school bus, might be easily caught by an officer. But smaller errors, like the difference between an SUV driving at 34 mph rather than 45 mph, may not be.

Justin McShane, a Harrisburg attorney who defends people accused of drunk driving, said that difference can easily determine whether a driver gets ticketed or not.

And, McShane said, there was a simple way to significantly reduce mistaken readings: state lawmakers should finally allow Pennsylvania municipal police to use radar or laser-radar devices.

"I don't understand why Pennsylvania is struck with bad technology from the 1950s," McShane said. "I don't understand it."

A bill that would end that prohibition, [SB251](#), is currently before the House transportation committee. As with similar bills in previous years, it's unclear whether it has the votes to pass the General Assembly.

But McShane said that beyond concerns about innocent drivers getting tickets, there's another reason lawmakers should favor those devices: it makes it harder for drivers who were genuinely speeding to overturn tickets.

Around 2001, while still in law school, McShane himself was caught by an ENRADD.

While he now concedes he was speeding, McShane successfully got his ticket dismissed in court at the time.

"I knew the vulnerability of ENRADD and I knew if you didn't set things up exactly right then you could invalidate a result," he said.

Osborn, the retired radiologist who was ticketed this spring from an ENRADD reading, had his own success in court: a judge dismissed his ticket.