THE ULTIMATE GUIDE

to

AVOIDING (AND FIGHTING) SPEEDING TICKETS

A GUIDE BY:

Rocky Mountain™ RADAR

“I was driving through Salt Lake City in the center lane at exactly the posted speed limit looking for my exit. This lady comes screaming past me on the right going at least 20 over! Suddenly she hits the brakes and dramatically slows down, letting me pass her and there‟s a cop on the side of the road with his radar gun, To this day I don‟t know if the lady had a radar detector or just saw the officer; I do know that the officer looked up and saw me passing her and assumed I was the guilty party. Yep, I got a ticket. What bites is that I was not speeding, for once!”

Has this ever happened to you? You‘re within the limit and get burned anyway? Well, hopefully this little book can give you some useful tips and tools to avoid those inconvenient stops

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"When cities in the US remove traffic ticket revenue from their budgets and law enforcement actively enforces the rules of the road for safety rather than revenue generation, we will gladly stop manufacturing and selling radar scrambling products."

Michael Churchman, President Rocky Mountain Radar

Introduction:

Speeding tickets are a costly fact of life and one of the financial hazards of driving. There are no guarantees that you will never get a speeding ticket, even if you never speed. The police officers are human as well, and as such, suffer from the same weaknesses as we all do. Some are over-achievers trying to enforce zero tolerance; others are lazy and just want the day to end. Some had an awful day and take it out on those that they have power over and others are wonderful and courteous. Which one you encounter is a crap shoot!

Most people that do get a ticket simply pay and go on with their lives. Some will fight. Those that fight and win have empowered themselves with knowledge and gained the confidence to do battle in our legal system.

To fight a ticket and win you need to know some basics. This book will help keep you out of trouble should you be pulled over and provides guidance on what to do if the ticket is issued.

It also gives you an overview on what to expect in court and offers good advice on how to avoid the ticket in the first place.

This book explains the different types of electronic speed enforcement: Radar, laser/Lidar and VASCAR as well as pacing.

Ways To Avoid Getting A Speeding Ticket:

OK. You know we‘re not going to say what your mama would tell you**: “Just drive the speed limit; don't speed.”** That sounds good, but does not work in real life.

Drive within 5-10 mph of surrounding traffic. Cops are watching for drivers who are going noticeably faster than the other cars on the road. If you're within a pack of cars all going 5 to 10 mph over the limit, you've automatically improved your odds of not being the one that gets pulled over for a speeding ticket. The officer is forced to pick only one car; if you go with the flow of traffic do not stand out for increased attention. This is not a guarantee. I have seen a car selected from the middle of the pack with no reasonable explanation. It does, however, dramatically decrease the likelihood of being pulled over.

Try to stay in the middle of the pack. If you're the lead car, logic says you'll be the first car to run past any cop's radar trap, and possibly get a speeding ticket. If you‘re going less than 7 MPH over the limit, there is a very good chance the officer will not pay attention and let you by. If you're the last car in the pack you'll be the one the police officer rolls up behind.

Find a Solitary driver. If you can't find a pack of cars going the speed you'd like to maintain, the next best thing is to find a solitary driver traveling the speed you'd like to drive. You can follow discretely, several hundred yards back. Try to keep your pace car in sight but well ahead of you. That way, if there is a radar trap ahead, the pace driver will trip the trap. The officer will have time to react to the first driver, while you correct your speed, and your pace driver will be the one that gets the speeding ticket. Or, the pace driver will suddenly hit his brakes when he sees the trap, warning you in time to take defensive action.

Do not change lanes frequently, tailgate or otherwise drive aggressively. These actions attract attention. An officer diligently watching traffic develops a form of ‘traffic blindness;’ he still sees the traffic, but goes into a quiet state that only detects anomalies (unusual activity that disrupts the orderly flow of traffic.). Aggressive drivers, sudden lane changes and excessive speed all disturb flow and can attract his attention. Use your turn signals and be courteous to fellow drivers. It's safer, and it will help you fade into the background.

Avoid the fast lane. Use the far left lane to pass when necessary, but try to stay in the middle lanes when possible. If an officer is concealed in a cutout

along the median strip (or coming at you from the opposite direction on a divided highway), the driver in the far left lane is always assumed to be the speeder. That driver is most likely to become the target.

Watch for cutouts and modulate your speed accordingly. On many highways, there are cutouts in the median strip every couple of miles. Usually, you can see these in plenty of time to slow down if needed in case there's a cop hiding behind the bushes.

Don't speed (excessively) when you are the only car on the road. Even if you're only doing five mph over the posted limit, if there's a cop using radar, he has nothing else to look at but you. Lonesome speeding is even more dangerous in small towns, where radar traps and aggressive enforcement can be commonplace. Never speed late at night. Drunk-driving patrols are heavy and cops are more inclined to pull you over for any offense. I find that driving 3-5 over the limit late at night attracts less attention than exactly the limit or slightly below as someone who has had too much to drink is likely to do to avoid being stopped. Drunks tend to drive recklessly over the limit or just under.

Never admit that you were speeding. If you do

get pulled over never acknowledge that you were speeding. You don't want to give the police any ammunition to use against you, should you contest your ticket in traffic court. When the officer tells you that you are speeding, give a brief, noncommittal response like, "I thought I was doing the speed limit" or “I was? I thought the speed was 70 (know the posted speed limit and tell him the speed limit speed). Asking sarcastic questions like, "What's the problem, Officer?" won't help your case; it will only alienate him. If the officer asks if you know why he pulled you over, always play dumb. Answer with “Do I have a burned-out tail light?” or “Is my tire low?” If he honestly believes you have no idea why he stopped you, you may escape with just a warning.

Wave at the hidden police cruiser. You were driving down the road a little faster than you should have been, and you spot a police cruiser lurking behind some shrubbery. One former police officer says that the smartest thing that you can do right then is to wave at the officer. Why? He will think that you know each other and wave back, or that you're acknowledging that you were driving too fast, and are letting him know that you're slowing down. Either way, you drastically reduce your chance of getting a ticket. At that point, you really have nothing to lose.

If possible, drive a nondescript vehicle. It may not be fair, but it's human nature to notice things that stand out from the crowd. Bright-colored cars, those with loud exhaust or other pimped-out enhancements are more likely to draw a cop's initial attention than ordinary-looking, family-type cars. The cop has to single out one car, which car do you suppose is the likely candidate for a speeding ticket. If you do get pulled over while driving a fancy, high-profile car, the odds of you getting a speeding ticket versus a warning have probably gone up. If you're driving a fast-looking hot rod, the cop is going to assume you use it and deserve a ticket more than the guy in a family-looking ride whose plea that he "didn't realize he was speeding officer" comes off as more believable.

Calibrate your speedometer.
Download our FREE speedometer app. This app uses the GPS in your smart phone to display a highly accurate speedometer and digital speed reading. Take a little time to check the accuracy of your speedometer by going three different speeds (30, 50, 70 MPH) and comparing your indicated speed to the true speed shown on the app. This is a totally free service we provide our customers. Knowing the accuracy of your car‘s speedometer is useful in setting your cruise control, travelling at your

intended cruise speed or as a defense if you do get a speeding ticket (especially if you were not speeding!).

Use a good radar detector (not legal in Virginia or DC) There are many brands of radar detectors on the market. Regardless of the detector you choose, be sure you pick one with decent range (1.5-3 miles) and low false alarm rates. These are the most important requirements. You want a detector that only alerts you to radar and in time for you to react. If the detector goes off at everything, you will eventually ignore it, and then you may as well not even have it.

Most officers decide whether you're getting a ticket or a warning before they even approach your vehicle. A good rule of thumb is to keep your car maintained in such a way that you wouldn't be embarrassed to have your boss or family drive with you. Keep it clean, not cluttered, and free of bumper stickers. Forgo aftermarket add-ons like spoilers, tinted windows, and neon undercarriage lights. You

want to say "I'm responsible and law-abiding," not "I hate the police, I speed all the time, and I'm trying to hide something from you."

Types of Traffic Offenses

Generally traffic law is broken up into **infractions** and **violations**. An infraction is an offense that is not considered a crime and its penalty is a fine. A person who is guilty of an infraction can't be jailed, receive large fines and, while they may request a jury trial, they are not entitled to a court-appointed lawyer. Most traffic tickets, such as non-moving violations and non-dangerous moving violations, are infractions. Some speeding tickets can still be relatively large, as many states determine the fine based on how many miles per hour beyond the speed limit the offender was driving.

A violation is more severe than an infraction. Though its definition differs between states, it is usually considered a crime. More serious violations are classified as **misdemeanor** or **felony** traffic violations. These include DUI, reckless driving, driving without auto insurance and failure to stop at the scene of an accident. Suspects who are charged with a misdemeanor or felony traffic violation have all the normal rights afforded to criminal defendants. They undergo the booking and bail processes and have the right to a jury trial and a court-appointed attorney.

Traffic law differs from state to state, so it's

important to familiarize yourself with the laws where you live. Still, in most states, there are two basic types of traffic offenses:

Moving and Non-moving Violations The names of these types of violations offer a good idea of what they encompass. A **moving violation** refers to a traffic violation committed by a moving vehicle while a **non-moving violation** is related to a car that is not in motion. Generally moving violations are considered more severe -- and the fines are higher -- than for non-moving violations because of the potential for an accident or other dangers. Moving violations include running a red light or stop sign, DWI/DUI and speeding. Tickets for non-moving violations are usually for parking violations, such as parking more than 18 inches from a curb, parking in front of a fire hydrant, parking in a no-parking zone or parking beside an expired meter. Illegal vehicle modifications or faulty equipment can also merit a ticket for a non-moving violation. If your window tint is darker than the law allows or if you have illegal lights on your car, a police officer may issue you a ticket. These infractions count as non-moving violations no matter if you received the ticket while parked or after being pulled over by an officer.

Who Gets Speeding Tickets?

One of the first automobile speeding tickets was given on February 8, 1910. It was given to the wife of the Canadian Prime Minister for going 10 miles per hour over the speed limit.

More men receive speeding tickets than women.

More women will attempt to contest a speeding ticket than men.

Drivers between the ages of 17 and 24 get the most tickets.

Why Do States Issue Tickets?

An average traffic policeman costs a city $75,000 per year in salary and benefits. That same traffic policeman brings in about $200,000 in ticket fines for the city.

When a city falls on hard times, they turn to traffic violations for revenue. Studies show that a 10% decrease in economic growth leads to an average 6.5% increase in the number of speeding tickets issued.

An estimated 35 million speeding tickets are issued each year in the United States. That works out to about 93,000 tickets each day, or 65 every minute.

Ohio, Florida and Texas write more speeding tickets

than any other states in the nation.

In some states, judges can actually add jail time to a speeding ticket‘s fine.

Even a smalerl state like New York brings in about $76 million every year in traffic tickets.

The average fine for a speeding ticket in the United States is $150.

General Ticket Information:

The average increase in auto insurance premiums after a speeding ticket is over $300 per year. That‘s an additional $10 billion in the pockets of the insurance companies.

The police officer is not legally required to show you the reading on his radar gun. Intuitively, this seems a bit unconstitutional, as there is no valid reason to deny access if the reading is accurate.

Paradise Valley, Arizona, was the first place to use photo-based radar for speeding tickets.

The fastest speeding ticket in the United States was issued in Texas in 2003. The driver was clocked at 242 miles per hour in a 75-mile per hour zone.

In some European countries, fines for speeding tickets are on a sliding scale, based on income. This can become very expensive for wealthy drivers in Europe!

Be more alert and careful when traveling outside your home state. Drivers from out-of-state are 20% more likely to get a speeding ticket than residents of the state.

An estimated 95% of people who receive a speeding ticket simply pay their fine via mail. Only 5% wind up in court.

Less than 10% of people who attempt to fight a speeding ticket on their own win. Those who hire an attorney have a little bit more success, with 15% winning their case.

Lawyers are making a killing trying to fight speeding tickets. Lawyers are hired to fight about 180,000 tickets each year, at an average cost of $150 each. That equals $27 million in legal fees – which most often still result in a ticket or a non-moving violation.

In some states, errors on a ticket can get a ticket dismissed. The errors have to be glaring, however. For example, misspelling your name slightly won't get you out of a ticket – *as long as the officer can identify you in court*. Listing your name as "Eric Johnson" when it's actually "Eric Johanson," however, can lead to the ticket being thrown out.

Officers usually show up when you contest a ticket. There's a myth that the officer in question will miss the court date about 30% of the time. In fact, this almost never happens; at least, not for the first court date. Less than 5% of contested tickets are thrown out because the police officer didn't show up.

Know Your Information On Radar, Laser/Lidar, Pacing and VASCAR:

Did you know that there are four main types of speed detection? Each type of detection helps police officers to determine or estimate your speed based on a given set of measurements. The four types of detection include: Lidar (Light Detection and Ranging); Radar (Radio Detection and Ranging); Pacing (officer follows you in his car to determine your speed) and VASCAR (Visual Average Speed Computer and Recorder). An officer visually selects two landmarks (traffic light, crosswalk, stop sign, etc.), then determines the distance between the two landmarks and measures the time it takes a vehicle to travel between landmarks.

All four techniques have their weaknesses and strengths. However, all of the techniques require an officer to follow certain procedures to verify the accuracy of their speed measuring device. By understanding those requirements, how the police devices work, and what their limitations are, you may begin to understand how to avoid more tickets and how to fight them!

Although they've created controversy, automated cameras are becoming increasingly common at busy intersections. They are used to catch drivers

who run red lights. These usually operate on Ka-Band and take a photo of the offense and the driver. You get your ticket in the mail.

Lidar/Laser Detection

Light Detection and Ranging is the use of infrared pulses sent at even intervals and returns measured to determine distance. Specifically, pulse laser detection transmits toward the target a predetermined series of light pulses with a known time interval between each pulse. Through an averaging process, Lidar is able to measure the time of flight between the transmit and receive sensors, resulting in an accurate speed and range.

Laser Technology Inc. developed the first police LIDAR unit in 1989 and revolutionized speed enforcement. With a beam divergence of 3 feet at 1,000 feet downrange, law enforcement is able to aim through a scope, select the suspect speeding car, and usually secure an accurate speed regardless of its position in traffic. LIDAR applications go well beyond simple speed and range. NASA utilized a specially designed LIDAR for all space docking missions. Laser tree height and width applications have totally changed the way forestry is done. Blast profiling, GPS-laser off sets, vegetation management, power line sag, construction, industrial sensors, golf, hunting, and many military operations also utilize this important technology.

There is no LASER – RADAR ticket, it's either Radar or Lidar but certainly not both.

Lidar is perhaps the most accurate method of detection when dealing with an incredible range of up to 2000 feet (1/3 mile). However, laser‘s ability to detect an object from this far away is limited by numerous details. Laser detection uses an actual laser. The beam must be a certain size in relationship to the object it is trying to detect, or it will not be able to process the information. The target, or your vehicle, will also have a large play in detection. Such things as vehicle size, reflective qualities (dark or light car, glossy or matted paint), the atmospheric pressure (cloudy, low visibility day), and how steady the operator‘s hand is, all affect the range and accuracy of laser detection. Range is also limited when the officer is shooting the beam through glass (such as the windshield) or when the lens of the Lidar device becomes dirty or scratched.

Another thing to keep in mind when driving is that distance is your friend, regardless of what type of detection police are using to determine your speed. Officers have a great deal of trouble continuously holding a laser beam on a moving vehicle more than 900 feet away. This is important because, for Lidar to work accurately, a certain percentage of the infrared beams emitted from the device must

bounce off of the target, your car, and return to the device. If the beam is not pointed at something that reflects light well, or if the object is not perpendicular to the device (such as a car coming around a turn), then the returning information will be reduced. It also will take longer for the device to acquire sufficient readings, decreasing its effective range. Under ideal conditions, such as perfect weather and a medium size, highly reflective vehicle as the target, it usually takes only .3-1.0 seconds of measurements for the Lidar device to produce a speed reading. The time it takes to acquire a reading gets longer as conditions worsen.

For a police officers to obtain the fastest and most accurate speed detection possible, they must aim the Lidar beam at a car's flat, reflective surfaces, such as the license plate or headlights. Cars with hidden headlights or without a front license plate are harder to measure at distances beyond 700 feet. These small details come into play when considering minor errors that may have taken place while the officer was obtaining a speed from his/her target vehicle. Movement of the operator's hand during the measurement process can cause simple, but significant, erroneous speed measurements. If a police officer's hand moves during the measurement process, and the Lidar beam moves from one object to another, the difference in

distance between the two objects may be read as if they were one object moving. This type of error is referred to as "sweep error” and the greater the distance between the police officer and the target, the more likely the sweep error.

One common form of sweep error is when an officer shoots at the windshield of a vehicle and then moves the beam to the front license plate to get a stronger signal. The change in distance between the windshield and the license plate may result in a 5-9 mph increase in speed. This phenomenon can be demonstrated by sweeping the Lidar beam rapidly from the windshield to the license plate on a parked vehicle. The result being that the stationary vehicle will produce a reading of 5-9 mph. This most often occurs when a police officer attempts to detect the speed of a moving vehicle while it is coming around a bend or turn. To detect the target‘s speed, the officer will often sweep his detection unit along the road, attempting to remain on track with the target vehicle. Sweeping the Lidar beam along the road surfaces at locations such as these have reportedly caused sweep errors of more than 90+ mph without any vehicle even being present. The faster the officers tracked the beam along the road, the faster the reading on the Lidar device.

Without a proper tracking history, an officer cannot rule out the possibility of sweep error. Sweep error is more likely where the officer is only taking a quick "snapshot" speed measurement (i.e. taking a single speed measurement instead of continuously measuring the vehicle's speed over a period of several seconds). Finally, keep in mind that every six months all Lidar devices should be sent to the manufacturer's laboratory to be tested for accuracy. The devices should also be tested by the officer at the beginning and end of each shift. First, the officer runs a "self-diagnosis," where he/she will visually verify that all portions of the LCD screen are functioning and that the results of the self-diagnosis are positive. Next, the officer measures a known distance with the Lidar device and verifies that it is working accurately. Finally, the officer tests the HUD (Heads Up Display), or scope, to verify that the sights are properly aligned. Proper calibration is essential to proper speed enforcement and failure to comply with these calibration requirements is a very common and simple way to defeat a Lidar, or laser, based speeding case.

Radar Speed Detection

The first police Radar gun came from Bryce K. Brown of Decatur Electronics in March, 1954. Utilizing the Doppler Effect, he measured the speed of cars by pointing the antenna in the general direction of either an oncoming or departing vehicle. Given the known radio transmit frequency and that the returning signal frequency are different for a moving target, the difference, or Doppler shift, can be used to calculate the target speed. However, one of the disadvantages of Radar is the unit‘s beam divergence or width. At 1,000 feet down range, the average Radar unit will have a divergence of about 250 feet; this means several vehicles will be hit by the radar beam at the same time. Vehicles equipped with a Radar detector traveling behind the targeted vehicle are also tipped off well in advance.

Unlike Lidar, which is essentially "point and shoot," Radar requires significant training and experience to produce reliable results. It is important to understand the difference between Lidar and Radar. Radar emits a continuous wave (instead of pulses) which consists of microwaves that spread out at an angle of approximately 12 degrees, for a distance of over 4,000 feet (or until it strikes an object). The microwaves continuously bounce off of all objects within the beam's path and return to the Radar unit

to be detected. Moving objects cause shifts in the returning microwaves' frequency (Doppler shifts) which allows the officer to begin detecting your speed. Objects moving toward the Radar unit cause the frequency of the Radar beam to, rise while objects moving away cause the Radar frequency to fall. This phenomenon is the same phenomenon that makes an approaching car sound higher and a receding car to sound lower. Thus, by measuring the rise or fall of the Doppler frequency, the Radar unit is able to determine the target‘s speed.

If the officer is attempting to use radar while operating a police cruiser, his/her method of detection is more limited and different than using a hand-held Radar detection unit. When a police cruiser is moving, the Radar unit is put into moving-mode. This allows it to measure the cruiser's speed by measuring the relative speed of the ground in front of the cruiser. Then, to determine the speed of another vehicle near the cruiser, the unit's computer takes the cruiser's speed and adds it to or subtract it from the relative speed of the target, depending on whether the object is moving away from or towards the cruiser. For the police cruiser to be most accurate, moving-mode Radar units require the cruiser to be moving above a given minimum speed (usually around 20 mph) or the target object to be moving above a certain minimum relative (usually

more than 3 mph). The cruiser and the target car cannot be going within 3 mph of each other.

Pacing

Pacing is the most basic and sure way of measuring speed. The police officer simply keeps pace with the target car, then testifies that he was keeping a steady distance from target car and what on his own speedometer read at the time. An officer can pace a target car that is in front, to the side, or behind a police cruiser. Some officers will even pace a car that is on a highway from a parallel access road, though that is rarely done. Typically, the officer tailgates the target car either directly behind or one lane to the right of the back bumper.

While pacing is generally very accurate, there are errors that can be made. To use pacing in court, a police officer must have had the cruiser's speedometer calibrated recently (usually no more than six months before the date of the offense). Speedometer calibrations are done by testing the cruiser's speedometer against a dashboard mounted Radar unit's ground speed measurements or by using a dynamometer. Pacing errors occur when the officer does not pace for a sufficient amount of time, or speeds up to catch up with a target vehicle but not decelerate completely prior to beginning the pace. Errors also occur when the officer attempts to pace a car that is accelerating or decelerating, changing lanes, is separated by other

traffic, or is too far away. Once again, a proper tracking history is essential for an officer to avoid pacing errors.

It is also important to have the speedometer recalibrated after any service that pertains to the running gear of the police car. For example, a new set of tires are slightly larger in diameter than the old, worn ones. This small difference on a 15-inch tire can make a difference of 1-5 MPH in the indicated speed. Any service to the transmission, differential or speedometer can have a similar effect and is cause for recalibration.

VASCAR.

VASCAR (Visual Average Speed Computer And Recorder) is a lesser known way to catch speeders. This tactic does not require the officer to be on the side of the road with a speed gun. Officers may set up farther away from the road, or even in aircraft, making it very difficult to be aware of an officer using VASCAR to measure your speed. An officer visually selects two landmarks (traffic light, crosswalk, stop sign, lines painted across the road for this specific purpose, etc.), then determines the distance between the two landmarks. Ehen a target approaches, the officer measures the time it takes the vehicle to travel between the landmarks. In areas of frequent VASCAR use, there are often lines painted across the road, set at predetermined spacing. This method is much more accurate than random objects, as the officer can watch for the tire touching the stripe, rather than estimating when it passes a marker.

After that, it all boils down to a pretty simple equation:

$$speed = \frac{distance}{time}$$

Of course the officer is not going to scribble down this equation when calculating your speed. The

“Computer” and “Recorder” are used to calculate and store your average speed.

In-dash police VASCAR unit

The police officer operating the machine flips a switch when a vehicle passes a given point and then flips it again when the vehicle passes a second point; the machine then shows the calculated speed on a display. Some VASCAR computers are equipped with printers for hard copy output of the speed.

Speed Calculation Errors

Many errors may occur while an officer is attempting to read your speed. Here are some possible errors to help you become more.

The first error involves moving Radar. Most Radar devices can be used while the officer's cruiser is stationary or moving. When the Radar is in moving mode, the device must measure the cruiser's ground speed as well as the relative speed of the target vehicle. The small portion of the Radar beam dedicated to measuring ground speed in front of a cruiser is called the "hot spot." Most of the moving mode Radar errors are caused by any type of interference with the hot spot. The hot spot is also a cause of multiple other errors.

A second error that commonly occurs due to the hot spot is a moving cosine error. All Radar and Lidar devices are designed to measure the speed of an object that is traveling directly towards the speed measuring device or directly away from the speed measuring device. When the target vehicle is moving at an angle to the speed-measuring device, the measured speed will be lower than the actual speed. In stationary mode, this error benefits you, the driver, by displaying a lower speed to the officer than your actual speed. However, in moving mode,

if cosine error affects the ground speed measurements (the hot spot) instead of the target vehicle, then the target vehicle's measured speed may be higher than the target vehicle's actual speed. If the police cruiser is near large reflective objects (such as road signs), or if the road is reflective (such as when it is wet or icy), the hot spot may lock onto a stationary object that is not directly in front of the cruiser. The greater the angle between the cruiser and the object, the greater increase in error, which subsequently results in a greater error of measurement of the ground speed, leading to a major error in the officer‘s speed reading on your vehicle.

Shadowing is a third type of error involving the hot spot. When the hot spot locks onto a moving object, it creates an error called shadowing. If the hot spot locks onto a moving object, the relative speed of the moving object and the cruiser is always lower than the ground speed of the cruiser. This means that the difference in the cruiser speed and the target vehicle speed will be greater, resulting in an erroneously high target speed reading when the target vehicle is moving in the opposite direction from the cruiser. This can also cause a higher speed reading when they are moving in the same direction.

The biggest problem with any Radar unit is that it detects and measures any and all objects in the beam's path but only displays one speed result. The Radar unit will display only the speed of the strongest signal and/or the fastest speed it receives. This means a larger truck would be detected before a small compact car driving next to it; in fact, the truck could be some distance behind the compact car and still be the strongest target to the radar. The strength of the signal is related to the target vehicle's size, distance, material make-up, shape and location within the Radar beam. After a Radar unit displays the speed of an object, it is up to the police officer to decide which of the objects around the cruiser is responsible for the speed on the Radar's display. For a police officer to properly determine which vehicle is being targeted, he/she should implement a complete tracking history. This means that the officer should:

1) Visually estimate the target vehicle's speed prior to the vehicle entering the Radar beam;

2) Note the change in the Radar's readings when the vehicle enters the beams;

3) Verify that his visual estimation and the Radar reading are reasonably similar;

4) Observe the vehicle's readings throughout its

time within the beam;

5) Listen for a continuous audio signal from the Radar (a sign that the signal is not due to radio frequency interference or harmonic signal interference); and

6) Observe the target‘s speed relative to other targets within the beam.

Another error involves rapid changes in the speed of either the target car of the police cruiser, which creates a problem in Radar tracking. Accelerating or decelerating more than one mph every .1 – 2.0 second can cause most Radar units (depending on the model and age of the unit) to be unable to track an object. This same weakness can affect the Radar's ability to track the cruiser's ground speed. If the cruiser decelerates rapidly while measuring a vehicle traveling in the same direction, or if the cruiser accelerates rapidly while measuring a vehicle going the opposite direction, the radar gun will be unable to process an accurate speed reading. To help expose this error, check for a proper tracking history, in which the officer compares the Radar ground speed against a calibrated speedometer.

Another error found in Radar and sometimes Lidar, detection is auto locking. This is not very common

and involves older Radar units. When a unit detects an object going above a set speed, an alarm sounds and the device will not display anything but the exceeded, tracked speed until it is reset. This feature is problematic because a fluke signal that causes a high reading for a split second will trigger the auto lock, and any driver appearing to speed nearby will be blamed, leading to target identification error. Auto lock makes a proper tracking history impossible.

A simple, but common error is a lack of calibration. Officers are trained to calibrate their Radar device at the beginning and end of each shift, using tuning forks. The tuning forks are calibrated every six months to produce a frequency that is equal to the Doppler frequency of a vehicle moving at a specific speed (usually 35 or 65 mph). To tune the Radar unit, the officer must place the Radar unit in operating mode and strike the tuning fork, placing it inches away from the Radar antenna. Then thee officer must verify that the Radar device is producing a speed measurement that is within one mph of the tuning fork's calibrated speed. If the officer chooses to use the Radar in moving mode, then the officer must use both tuning forks simultaneously, and then again separately, to perform the calibrations. Each device should be assigned its own specific set of tuning forks.

Because different devices may use different Radar frequencies, the tuning forks from different devices may not be interchangeable. A very important detail involves having the tuning forks calibrated for accuracy every six months. The testing is done at private and government laboratories within the state and each tuning fork must be accurate to within 1 mph. The Radar unit must match the tuning fork to within 1 mph. Consequently, the tolerance for a Radar unit is 2 mph when in stationary mode, and 3 mph in moving mode. (In moving mode, the target speed is the sum of the Radar's ground speed and relative target speed, which further degrades the tolerance by 1 mph.)

What to do When Pulled Over

Make the encounter as simple and quick as possible, Less is more. Here are a few tips to use if you are pulled over. Be polite and respectful. Answer with ‘yes sir’ or ‘no sir’. Do not antagonize the officer; it only harms your chances to get off with a warning. If the officer says you were speeding, act surprised and ask him if he was using Radar. Tell him you did not think you were speeding. Was it moving or stationary? What frequency does it operate at? Get as much information as possible, as that may come in handy if you choose to fight the ticket. **The officer is not required by law to show you the reading on the Radar/Lidar gun!** It does not hurt to ask, but don’t be surprised if he refuses.

Almost every officer will insist that you remain in your vehicle. Getting out removes the opportunity for him to search the vehicle in most states, and he/she will often see this as an act of aggression, so you are even more likely to get a ticket.

How To Prepare For Court:

If you receive a traffic ticket, you might assume that there‘s nothing you can do, so you just pay it. What you don‘t know can hurt your pocket book. It is possible to get some tickets dismissed. Still, going to court isn‘t always an easy or stress-free experience.

Here are a few tips to help you get your traffic ticket dismissed once you have a court date:

1. Delay, Delay, Delay

When the first court date is set, call the clerk a few days before the date and ask for a postponement. This will normally be granted automatically the first time for any reason. If possible, get the court date postponed again. The idea is to put as much time between the time the ticket was issued and the actual court date. The officer has been monitoring traffic for many days or weeks, and has seen hundreds of other drivers, making it more difficult for him to recognize or remember you.

2. Organize All the Facts

Get organized, and stay that way. Gather all of the facts in an easy to reference format. The more information you‘re armed with, the better you can present your case. Have everything at your fingertips. Helpful facts include, but aren‘t limited to:

- Radar readings
- Time of the day/ date
- Weather conditions when ticket was issued
- Current insurance and registration information
- Note other traffic that was in the area at the time
- Look for road signs visible from the site of the ticket

In addition to the above, try to remember even seemingly inconsequential facts from that day, such as the clothes that were worn. While these facts may not seem important at first, it is impossible to tell what details the prosecution will request. Being armed with all possible information can make the entire process go much smoother and keep you from getting flustered when defending your case.

3. Remain Calm and Respectful

During the entire trial, remain calm, rational and respectful at all times. This includes what you say,

but also how you dress and your body language. Judges and prosecutors pay attention to every detail.

The situation can be very stressful, and some of the questions asked by the prosecutor may well be inflammatory or aggravating. It is important to keep a calm exterior and answer all questions with a respectful tone. Defendants should go into the situation expecting the prosecution to put pressure on them and to try to find flaws in their case. An angry, sarcastic or disrespectful response or attitude will not help get a ruling in your favor.

Dressing properly is just as important—look as nice as you can. Bring a visible accessory or item of clothing that is bright and/or eye catching.

4. Check in With the Clerk

Before the trial, remember to check in with the court clerk. *Wear the special clothing item or accessory mentioned above.* While you're there, also consider asking if the officer who issued the ticket has checked in. Ask if the prosecutor intends to have the officer identify you (required in most states to prosecute a case). If he/she plans to identify you, then ask to be chosen from an informal lineup. Agree that you will sit in the first three rows to make it easier for the officer to find you. This is also a good time to share any evidence you intend to admit with the prosecutor; while not technically necessary this gesture shows professional courtesy and may be recognized by the court.

Often, police officers are unable to show up for court dates for a variety of reasons. If the officer is not present during the trial, he or she cannot offer his or her side of the case and this will often lead to a dismissal of the ticket. Even if the officer arrives and gives his or her testimony, you'll still have a chance to present your case. Before presenting your case the prosecutor will ask the officer to identify the plaintiff (you). Remember, the officer generally has only his/her notes to go by and has encountered hundreds of other speeders. When you return to your seat (in the first three rows) try to find

someone who looks similar to you and sit near (not next to) him. When the judge comes in, and before your case is called, ask that person to hold the article of clothing or accessory you brought with you. When the officer is called upon to identify you, he will almost always select the person with that object! The prosecutor does not want to lose a case and will most likely tell the officer about your 'identifying item' to make it easier for him. As simple as this is, it has never failed me! When the officer identifies the wrong person simply stand up, identify yourself and move for dismissal; the judge or magistrate is require by law to grant your Motion. If your case is not dismissed, you still have tools to fight with!

So, I'm in Garland, Texas and taking my girlfriend home from a date. We're sitting at a red light when I look in the rear view mirror and see a cop pull up behind me. Suddenly, he blips his siren and turns on the blinking lights. I waited for the light to change and pulled over to the side. It was a few minutes before midnight so there was no other traffic around. The officer then proceeds to write me a ticket for running the red light I was stopped at! I decided to fight it.

I proceeded to call traffic control in Dallas twice per week to complain about the light

„short-cycling." Human beings what they are, the technicians they sent out to check the operation of the light eventually adjusted it on the third and fifth visit. The day before my hearing I went to city hall and pulled a report on the maintenance of that light. When I presented it to the clerk, I understood the old saw about „if looks could kill." He knew exactly what I did but was powerless to fight it. You cannot penalize someone for a control device that is malfunctioning!

5. Make Notes

While listening to the officer or prosecutor, a small notebook can be your best friend. If there is anything you don't understand about the prosecution's case, make a note so that you can ask about it when you get to cross-examine the officer and prosecution's witnesses. This will help you be less flustered and more professional during the trial and will help to ensure that you ask all of the right questions.

- Were there other vehicles on the road when you stopped me? If you have chutzpa, this is a nice way to introduce a **'red herring.'** This expression came from the use of this very smelly fish to confuse trackers (usually dogs) when one was trying to escape. Naming a specific car of a bright color will often confuse the officer. He would not have made a note of surrounding traffic in his ticket book. Merely asking the question: "Did you clock how fast the red Camaro beside me was going?" If he does not answer that there was no such car, then any other answer must be incorrect. If the car was beside you, it must have been going the same speed or faster; If he says he did clock it, then that cannot be accurate because a radar gun cannot give two readings

on side-by-side cars. …Of course, the correct answer is: “There was no other car beside you.”

- How wide is the beam on your radar gun? Many prosecutors will object to this and claim the officer does not need to know that technical level, simply ask the prosecutor, ‘if the officer does not even know how wide an area his radar covers down the road, how can he know which vehicle he is measuring?’ The judge will frequently allow the question, and it is rare that the officer can answer.
- Did you calibrate your radar gun at the beginning and end of your shift on that day? Do you have written proof to confirm? (Officers are required to calibrate at each end of their shift and most are required to note that in their ticket book, just in case you ask this question. Most forget after a few weeks!)
- When was the last time your tuning fork was calibrated? (required every six months)
- For LIDAR: when was it last calibrated? If you can get the officer to bring the LIDAR with him into the courtroom, simply have him turn it on and point at the fluorescent lights. Then ask, why they are ‘moving’

There are many techniques that can be used in court, but these are common ones that are effective

6. Present Evidence

If you have downloaded our speedometer app and are using it when targeted, it has a special feature that allows you to instantly capture the last 60 minutes or so of your route speed, location and time/date. If you subscribe to the premium service you will be able to download an accurate report showing your actual speed at the time the officer stopped you. You can submit this report as evidence in your case.

* * * *

In the end, it‘s worth remembering that even if you‘ve been issued a traffic ticket, it is not going to be the end of the world. Just by being courteous, respectful and organized, you may be able to get that ticket dismissed.

Also, in larger cities, there are many lawyers that specialize in fighting speeding tickets. The lawyer will just continue the case until the ticket eventually goes away.

The United States is a country that loves to drive. Even though most drivers are licensed, having

passed a written test and a driving exam, many make occasional mistakes, while some openly flout the law. The result is that millions of traffic tickets are issued in the United States every year. With the fines for many tickets costing more than $150, that makes traffic tickets a billion dollar industry. Some critics of the traffic ticket system say that it doesn't ensure safety and only encourages police officers to satisfy ticket "quotas." Even so, tickets are intended as a deterrent and knowing how traffic tickets work is important, whether you're fighting a ticket in court or trying to better understand the traffic laws.

The Last Word

If you don't live in Virginia or DC, get a radar detector. Yes, some are expensive (good ones, anyhow). Radar detectors are legal in most states and well worth the investment to avoid a speeding ticket. The detector should be able to reliably catch POP and Instant-On radar. **Rocky Mountain Radar** offers detectors with industry leading POP and Instant ON detection with NO false readings and they are 100% undetectable. If it saves you one ticket, it is paid for.

Use an APP

Download our FREE speedometer app. This app uses the GPS in your smart phone to display a highly accurate speedometer and digital speed reading. You can subscribe to the low cost premium service and have full access to real-time tracking data and reports. All data is encrypted by the user (you) so no one, including us, has access to it. You can use the reports/tracking to log trips for time, average speed, high speed and distance for personal use or business logs. If you get pulled over

for speeding, touch the ‘Panic” button to save the last 60 minutes of driving history. If you are not already a member, you can still recover that information by subscribing when you need it most.

We hope you found this little booklet useful and will use some of the tips contained within.