

# **EDTM Training Course for the Tint-Chek Meter Product Line**

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**The officer's safety is always the primary concern in any stop. Therefore, it is crucial that the officer's performance of a tint meter check does not take the officer's attention from the vehicle's passengers, any suspects, any traffic, or other potential sources of risk or danger. The tint meter check should only take place if it does not present an unreasonable risk of injury or harm to the officer or others under the circumstances. Also, the Tint-Chek training program is designed to inform officers about the proper use of Tint-Chek products and is not intended to supersede an officer's police officer training or years of experience.**



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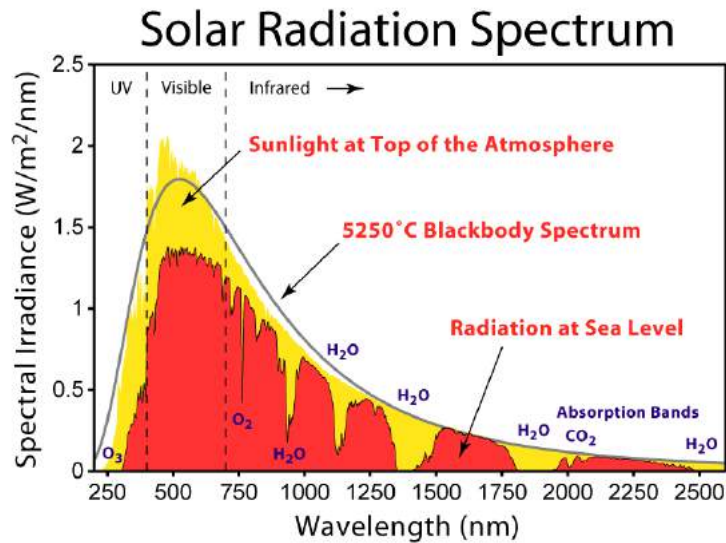
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## **Goal's With the Tint-Chek Certification Process**

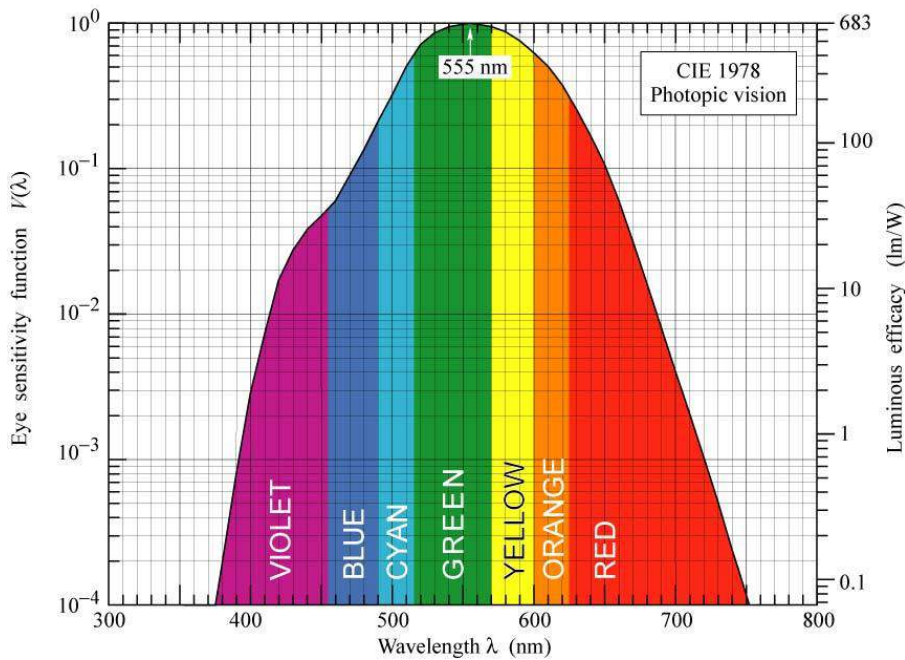
As with any testing equipment used in law enforcement, the police officer needs to be well versed in the basic operations of the unit and be able to testify in court should the need arise. Tint Meter certification is, in all likelihood, the easiest certification you will receive over the course of your career in law enforcement. In the next several pages, we will discuss basic tint meter operations including how to take a reading with your Tint-Chek, calibrate your meter according to your included National Institute of Standard and Technology traceable standards, basic tip for testing suspects' cars so as to stay safe, and probable cause for tint levels on car windows. This certification is in no way supposed to replace the training you have received over the course of your career. The design of this certification process is to provide an understanding of the operations of the Tint-Chek meters. Finally, this certification applies only to knowledge about the Tint-Chek product line. There are other meters on the market that exhibit traits or errors that prohibit our training from covering their product line. Tint-Chek and EDTM is dedicated to providing the finest tint meter on the market and training officers in their use for modern law enforcement applications.

# Tint Meter Theory

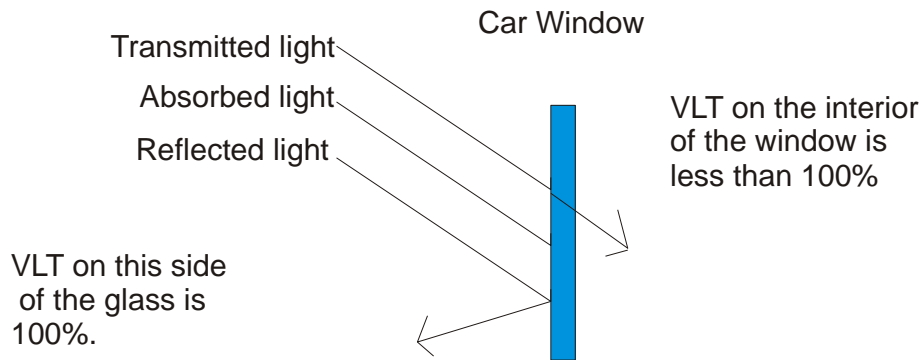
The sun bombards our world with various forms of light and energy on a daily basis. The broad spectrum of energy that solar radiation covers goes from Infrared light to UV light. This spectrum covers a range of



over 2000 nanometers (nm) in wavelength, and human beings are only able to see a small part of that light spectrum. The light that



humans are able to see falls into the visible light spectrum, and our vision specifically follows the photopic curve of the human eye centered on light with a wavelength of 550 nm.



When the light from the sun hits a car window one of three things will happen. The light will either be reflected, absorbed, or transmitted through the glass. Often times a mixture of all three options occurs, and examples of these actions are seen when you drive a car. As you are driving down the road on a sunny day and pass a car in the opposite lane, there is often a strong glare or reflection from the other car's windshield. This is a form of reflected light. If its a sunny day and you place your hand on the windshield of a car, it will often feel hot to the touch. This is the solar radiation from the sun being absorbed and converted into heat in the car window. Now the light you see through the car windshield when you are inside the vehicle is transmitted light.

The Tint-Chek meter line is designed to measure the amount of Visible Light Transmission that passes through a window. Visible



Light Transmission (VLT) is defined in this training course as the light we see with our eyes. 100% Visible Light Transmission (VLT) would be the light we see through the air. On the other hand, 0% VLT would be total darkness to the human eye. The purpose of

window tint is to help with the cooling of a vehicle by lowering the overall heat of the car interior. The result is less effort to cool the automobile and a reduction in glare for those looking through the

window. Although lower VLT percentages mean less glare from the road or outside environment, you also lose visibility as the VLT percentage decreases. For this reason, Federal law requires cars when manufactured to allow for at least 70% VLT. If the consumer wishes for darker windows after purchasing the car, they are able to add aftermarket tint to lower the VLT percentages on their windows even further. Although this action does not break Federal law, aftermarket tint can break state laws. While a national standard for tint would allow for ease in the enforcement of the law, the level of tint allowed is decided on a state by state basis. You will need to be familiar with your own state's laws before you start enforcing tint laws in your jurisdiction. At the Tint-Chek website, we attempt to provide a concise list of each state's laws according to their statutes.

<https://tint-chek.com/index.php/tint-laws>

While it is possible to use human vision to establish probable cause and be able to pull a car over for window tint, the only way to determine the actual level of tint



on an automotive window is with a tint meter. The Tint-Chek product line measures light



wavelengths in the visible range. The center of this range is about 550nm. Your meter does this by firing a high energy LED (light-emitting diode) and comparing the initial calibration value from the LED to the value

when the light passes through a piece of glass. When you turn your

meter on, the unit calibrates. This means that the meter, through the measurement of a known light source, takes a VLT reading at that moment and establishes this initial reading as 100% VLT. After you place the meter on the window, the unit does a second reading and takes this as your second VLT measurement. The unit divides the second reading by the first reading and creates a percentage of the Visible Light Transmitted through the window or glass. The equation for the tint meter readings is:

$$\text{Testing measurement/Calibration measurement} = \text{VLT \%}$$

The result is the amount of light actually passing through the suspect's window. The value that the tint meter provides is a relational measurement and depends on the relation of the first measurement to the second.

Whereas old tint meters could be thrown off by excessive ambient light from the surrounding environment, the Tint-Chek meters are not affected by ambient light and can be used in any lighting condition. Tint-Chek meters are subject to a range of +/-2% in their measurements. At the moment, the best that light can be measured by is +/- 2%, and the National Institute of Standard and Technology sets this standard.



# Contents of Your Tint-Chek

All three meters in the Tint-Chek family come with different features and include various materials in their carrying cases. It is important for police officers to be familiar with the contents of their Tint-Cheks and cases before using the meter.

## Tint-Chek #TC1800

The Tint-Chek is a basic model of tint meter designed for regular tint stops. The unit is able to measure tint on side windows that roll down and includes a 35% larger display screen so it is easy to read the VLT % on the car window. As with all

Tint-Chek meters, the unit will automatically calibrate on startup and can be placed on the window in any direction.

The Tint-Chek comes in a hard sided carrying case designed to protect the unit in hostile storage conditions. Along with the meter, the Tint-Chek case includes a User

Manual and Certificate of Calibration, guaranteeing that the meter and the included calibration standards were calibrated to a N.I.S.T. traceable source.

The calibration of the unit is guaranteed if the device is kept in proper working order as specified in the User Manual, and the user operates the instrument in a proper manner that does not violate the operating instructions or warranty conditions. Along with the User Manual and the Certificate of Calibration, your Tint-Chek will





include two N.I.S.T. traceable standards for calibration in protective sleeves to keep the standards in optimal condition. Use the URL below to view the Tint-Chek User Manual.

[https://www.tint-chek.com/images/pdf/TC1800\\_manual.pdf](https://www.tint-chek.com/images/pdf/TC1800_manual.pdf)

## Tint-Chek + #TC2800

The Tint-Chek + is a step up from the Tint-Chek. The unit is able to measure tint on side windows that roll down and comes with an increased accuracy and is able to measure to the nearest 0.1% as compared to the Tint-Chek which can only measure to the nearest 1%. The Tint-Chek + will automatically calibrate when you power

the unit up and similarly to the Tint-Chek is not affected by ambient light. The meter comes in a hard-sided carrying case designed to protect the unit in hostile environments. Along with the meter, the Tint-Chek + case includes a User Manual and Certificate of Calibration, guaranteeing that the



meter and the included calibration standards were calibrated to a N.I.S.T. traceable source. The calibration of the unit is guaranteed if the device is kept in proper working order as specified in the User Manual, and the user operates the instrument in a proper manner that does not violate the operating instructions or warranty conditions. Along with the User Manual and the Certificate of Calibration your Tint-Chek + will include two N.I.S.T. traceable

standards for calibration in their protective sleeves to keep the standards in optimal condition. Use the URL below to view the User Manual for your Tint-Chek +.

[https://www.tint-chek.com/images/pdf/TC2800\\_manual.pdf](https://www.tint-chek.com/images/pdf/TC2800_manual.pdf)

### Tint-Chek PRO #TC3800

The Tint-Chek PRO is possibly the most robust 2-piece tint meter on the market. The meter is a two-piece unit designed to measure tint on all windows of an automobile. The meter makes use of cutting edge technology to measure to the nearest 0.1% of VLT. When it comes to having to testify in court about a tint citation, the extra accuracy in your reading can increase the credibility of your testimony should you be questioned on the accuracy of your unit. The Tint-Chek PRO additionally has a back-lit display (exclusive to only the Tint-Chek PRO and Tint-Chek + meters) making easier to take readings at night.

The Tint-Chek PRO comes in a soft sided carrying case with a generous amount of foam to protect the circuitry and the integrity of the unit. Along with the meter, the Tint-Chek PRO case includes a User Manual and Certificate of



Calibration, guaranteeing that the meter and the included calibration standards were calibrated to a N.I.S.T. traceable source. The calibration of the unit is guaranteed if the device is kept in proper working order as specified in the User Manual, and the user operates the instrument in a proper manner that does not violate the operating instructions or warranty conditions. Along with the User

Manual and the Certificate of Calibration your Tint-Chek PRO will include two large N.I.S.T. traceable standards in a protective sleeve so as to keep the standards in optimal condition. The Tint-Chek PRO standards are specifically created to be larger than the normal test sample and designed to calibrate the Tint-Chek PRO in particular. Use the URL below to view the User Manual for the Tint-Chek PRO.

[https://www.tint-chek.com/images/pdf/TC3800\\_manual\\_zoom.pdf](https://www.tint-chek.com/images/pdf/TC3800_manual_zoom.pdf)

# How to Take a Reading With the Tint-Chek

The Tint-Chek product line is divided into two categories: single and two-piece tint meters. The Tint-Chek and Tint-Chek + are single units designed to measure the side roll down windows of an automobile. To take a reading with the Tint-Chek and Tint-Chek + follow the five-steps below.

## Step 1

Roll Down the Window at Least 3 Inches.

## Step 2

Clean Glass

## Step 3

Turn the meter on. The display will read 100% when the meter is ready to begin testing.

## Step 4

Slid the meter over the edge of the glass (as shown) and read the measurement results on the display.

## Step 5

Re-test the window to confirm the accuracy of your first test.



The Tint-Chek Pro is a two-piece meter and is very easy to use in measuring the level of tint on all car windows. Follow the seven steps below to operate the meter and take accurate readings.

### Step 1

Clean the window area being tested. Dirty glass can affect the accuracy of your results.

### Step 2

Place both units of the instrument together, back-to-back, with no glass between them. Allow the magnets to help align the two units, and then turn the power on.

### Step 3

Wait for the instrument to register a value of 100% on the display, and then pull the two instrument halves apart.

### Step 4

Place the reflector unit on the inside of the window being tested, Push the reflector enclosure **FIRMLY** against the window so the suction cups secure the enclosure in place.

### Step 5

Place the instrument unit on the exterior of the window being tested, Again allow the magnets to help align the two instrument halves.

Steps 2 & 3



Step 4



Steps 5 & 6



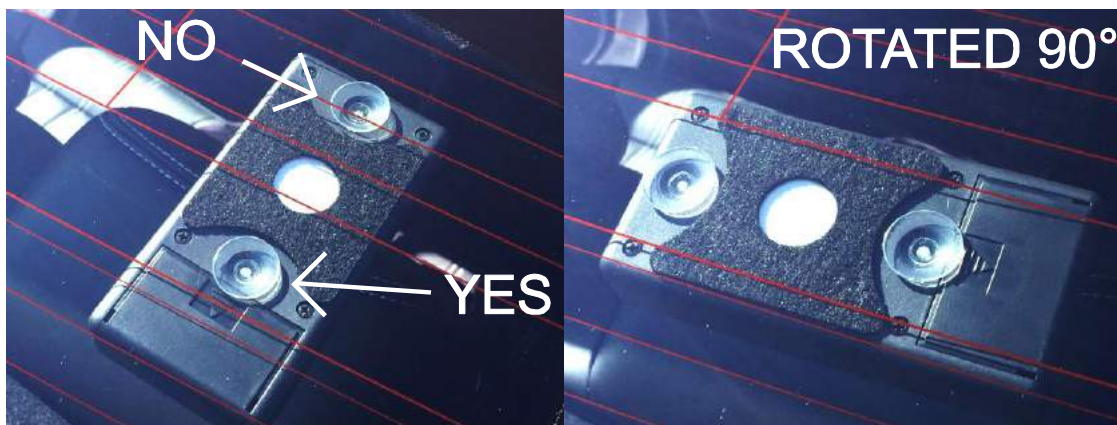
### Step 6

Once the instrument unit is in position, momentarily press and release the power switch to view the Visible Light Transmission results (VLT value).

### Step 7

After registering the VLT value, remove the instrument from the window and it will automatically power off, clearing your VLT value from the display after a short delay. Repeat the process from Step 1 if you would like to confirm the accuracy of your previous measurement.

For the Tint-Chek Pro, there are a few operational warnings to observe. The first is that when placing the two pieces of the meter on the opposing sides of the glass, it is important to align the two units so as to have an accurate reading. Additionally, when testing the rear window of an automobile make sure to place the suction cups on the glass and not on the defrost lines of the window. The suction cups will not stick to defrost lines. Should this prove to be an issue simply rotate the meter to a location where both suction cups are attached to the glass.



When testing a window always test two locations of the glass. It is possible for there to be changes in the tint over the entirety of the

window, and to ensure the most accurate reading, at least two readings are necessary to measure the tint of a car window.

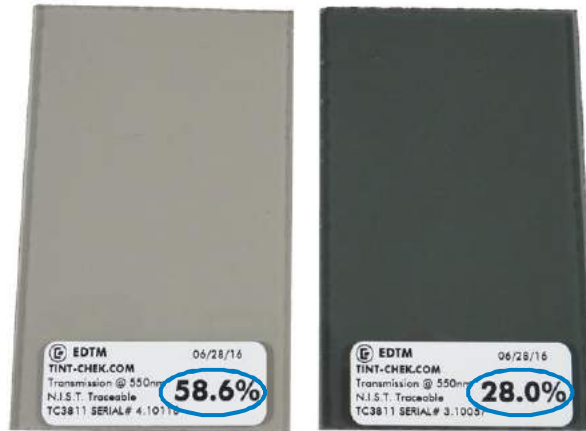
Should at any point during your career you forget how to take a reading with your Tint-Chek, all meters include an instruction manual in their carrying case and the Tint-Chek Pro has the instructions printed on the back of the reflector unit.



# Calibration

All Tint-Chek meters come calibrated from the factory. However, it is wise while in the field to often verify your unit to make sure that the meter is operating at factory standards. Every Tint-Chek meter comes with two

N.I.S.T. traceable standards designed to be used in the calibration process. Generally one of the standards you receive will be approximately 27% VLT, and the other will be approximately 59% VLT.



The percentage of Visible Light Transmitted through the standard is recorded on the testing standard and is written on the bottom of the glass sample. To test the accuracy of your meter simply clean the test sample with a micro-fiber cloth and follow the steps that were demonstrated above by inserting the testing sample in place of the window. Your readings should be within +/-2% of the number listed on the test sample if your Tint-Chek is operating at factory performance level.



Should the numbers be outside the +/- 2% range double check your testing standards and make sure that they are in optimal condition. If the

standards are fine and free of significant scratching on the surface, immediately discontinue the use of the meter and contact EDTM to

have your meter re-calibrated. To maintain the optimal calibration potential, you need to keep the calibration standards in the plastic sleeves provided from the factory. If your calibration units become damaged or lost, N.I.S.T. traceable standards are available for purchase through the Tint-Chek website.

Tint-Chek and Tint-Chek + Reference Samples

<https://tint-chek.com/index.php/full-product-list/reference-samples-list/tc1800-tc2800-reference-samples>

Tint-Chek Pro Reference Samples

<https://www.tint-chek.com/index.php/full-product-list/reference-samples-list/reference-samples>

Although such services are available should your state law require it, Tint-Chek meters do not need to be recalibrated at the factory floor on a yearly basis. You will need to research your state's requirements about whether your tint meter will need to be recalibrated or your traceable standards will need to be replaced on a yearly basis. Whatever your needs are in the end, Tint-Chek is here to serve your tint meter needs.

# Tint-Chek Maintenance

The Tint-Cheks are incredibly rugged products that require very little in the area of maintenance. As with any piece of electronic equipment, it is not recommended that you leave your meter exposed to drastic temperature changes. The storage temperature recommended for the unit is between  $-4^{\circ}\text{F}$  to  $158^{\circ}\text{F}$  ( $-20^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$ ). All Tint-Chek meters come with a durable case to protect your unit and keep it in working condition. When your unit is not in use return the meter to its durable protective case so as to maintain the integrity of the unit.

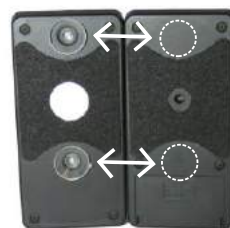
There are a series of error codes that will appear on the screen of your meter should the unit be unable to measure a glass sample.

## Tint-Chek and Tint-Chek +

-E: This symbol appears on the screen of the unit in two circumstances: when the meter is powered up with a glass sample between the sensors and when the LED light is being obstructed inside the unit. If you mistakenly turn the instrument on with a piece of glass already in position, the display will calibrate to read 100% with the glass in place. Simply remove meter from the glass sample. Once removed, the instrument will display "-E" and power off. Turn the meter back on with no glass in the opening and the display will then show "100%". If the display should read "-E" in other circumstances verify there is nothing between the LED light source and the sensor. If there is, remove it from blocking the sensor and LED source.

## Tint-Chek Pro

E1: The measured VLT value is LESS THAN the allowed percentage. The E1 error may occur if the instrument is not properly aligned with the reflector at start-up or during the actual



measurement. It can also occur if you take a measurement without placing it on the glass, or you are holding the instrument away from the glass surface or in free air. To fix this problem, turn the instrument off and make sure it is properly aligned with the reflector, with no glass in between the two enclosures. Now turn the instrument on and conduct a new test.

E2: The measured VLT value is GREATER THAN the allowed percentage. The E2 error may occur if the instrument is not properly aligned with the reflector at start-up, or placed against a different surface other than the reflector at start-up. To fix this problem, turn the instrument off and make sure it is properly aligned with the reflector, with no glass in between the two enclosures. Turn the instrument on and conduct a new test.

E3: The starting value that was obtained on the reflector unit to calibrate the device at 100% was different than expected. Make sure you properly align the two enclosures at start-up. Also, make sure the lens of the reflector is clean. Use compressed air to blow off dust, or micro-fiber cloth to remove smudges.

## **Battery**

All Tint-Chek meters are powered by a single 9-volt battery. On the TC1800 and the TC2800, -battery- will scroll across the screen indicating the need to replace the battery. The TC3800 has a low battery indicator to the right of the digital screen which will light up should the meter require new batteries. The replacement of the battery is done through a sliding panel on the back of the meters. For the two-piece meter, the battery compartment is on the back of the instrument unit (not to be confused with the reflector unit). Simply slide the panel off the back, snap out the old 9-volt battery, and replace it. There is no need to remove any screws while replacing the battery, and the interior circuitry is protected by a separate battery compartment helping to maintain meter accuracy. It is recommended to use alkaline batteries with all Tint-Chek meters.

Additionally, to extend the life of your battery, all Tint-Chek meters are programmed to automatically turn off after 2 minutes on non-use.

## Testing a Suspects Windows

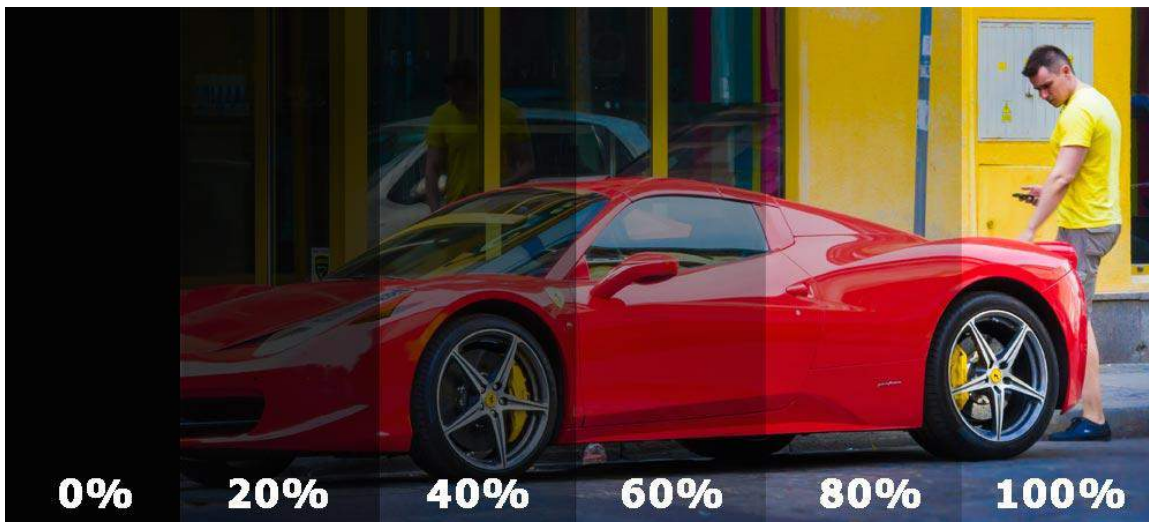
To be able to stop a car for a tint violation, it is important that the officer be able to argue that there was probable cause for the stopping of the car. Due to errors that can occur in an officers judgment because of the weather, environment, and light conditions, the following are possible ways of telling whether you have probable cause for stopping a car for a tint violation.

Remember knowledge of your state's tint laws is necessary to be able to articulate why the following reasons might justify probable cause.

1)The physical features of the occupants in the car are indiscernible. The tint, in this case, might be darker than the legal limit in your state.

2)The tint on the window appears to be as dark or darker than the calibration samples included with tint meter.

3)The tint on the suspect's windows appears to be darker than the sample images we have included in your guide for your convenience.



Remember the only true way to measure window tint is with a tint meter. Here you are simply looking for probable cause for stopping the suspect. Although the previous examples can serve as a guide, you must rely on your training to determine whether you can justify probable cause if your ticket is challenged in court. Depend on your training and your experience.

When preparing to testify in court, it is important to have all the information from the tint stop before going in. That means recording the information when you stopped the car.

- 1) Type of Tint-Chek you were using at the traffic stop
- 2) The Tint-Chek Certificate of Calibration
- 3) Readings from the Tint-Chek during the stop
- 4) Copy of the state's tint laws
- 5) Weather conditions
- 6) Condition of the window
- 7) Copy of your Certification from the Tint-Chek tint meter course
- 8) Be able to explain the probable cause for pulling the car over

Unfortunately due to the nature of the times, it is important for our officers to be prepared for the worse at every stop. There have been incidents in the past where officers were attacked at a routine traffic and tint stop. Additionally, the danger of tint stops is increased over an ordinary stop since the officer is approaching a car with darkened windows.

<https://www.newsday.com/news/new-york/mayor-bill-de-blasio-window-tinting-law-would-protect-cops-1.12654888>

The danger of tint stops can prove deadly for officers as the article above shows that it did for a member of the New York City police. Rely on your training when you make tint stops. Some encourage treating tint stops as a high-risk stop and taking all readings with a



fully opened door; we leave that decision entirely up to you and the training you have received. Officer safety is our first concern and it should be yours as well. Tint-Cheks save police and civilians lives everyday through the removal of dangerous tint and individuals from the road, but only your training can protect your life.

Tint-Chek: Window Meters Powered by EDTM  
[www.tint-chek.com](http://www.tint-chek.com)

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