GENERAL SPEED LAW

NO PERSON SHALL DRIVE AT A GREATER SPEED THAN IS REASONABLE AND PRUDENT UNDER THE CONDITIONS AND HAVING REGARD FOR THE ACTUAL AND POTENTIAL HAZARDS THEN EXISTING.

SPEED MUST BE SO CONTROLLED TO AVOID COLLIDING WITH PERSON OR VEHICLE.

- **MAXIMUM SPEED LIMITS:**
  - **70 MPH – INTERSTATES WHERE POSTED**
  - **60 MPH – MULTILANE DIVIDED, PRIMARY HIGHWAYS WHERE POSTED**
  - **55 MPH – IN OTHER LOCATIONS**
  - **40 MPH – ON UNPAVED ROADS**
  - **55 MPH – MAXIMUM FOR MANUFACTURED HOMES (TEN BELOW MAX POSTED SPEED)**
  - **30 MPH – IN URBAN DISTRICTS**
- **A DRIVER MUST REDUCE SPEED WHEN:**
  - **APPROACHING AND CROSSING INTERSECTION**
  - **GOING AROUND A CURVE**
  - **APPROACHING A HILLCREST**
  - **TRAVELING ON A NARROW ROAD OR BRIDGE**
  - **OR BY REASON OF WEATHER OR HIGHWAY CONDITIONS**

South Carolina Speeding Law, excerpt

SECTION 56-5-1520. General rules as to maximum speed limits; lower speeds may be required.

(A) A person shall not drive a vehicle on a highway at a speed greater than is reasonable and prudent under the conditions and having regard to the actual and potential hazards then existing. Speed must be so controlled to avoid colliding with a person, vehicle, or other conveyance on or entering the highway in compliance with legal requirements and the duty of a person to use care.

(B) Except when a special hazard exists that requires lower speed for compliance with subsection (A), the limits specified in this section or established as hereinafter authorized are maximum lawful speeds, and a person shall not drive a vehicle on a highway at a speed in excess of these maximum limits:

(1) seventy miles an hour on the interstate highway system and other freeways where official signs giving notice of this speed are posted;

(2) sixty miles an hour on multilane divided primary highways where official signs giving notice of this speed limit are posted;

(3) fifty-five miles an hour in other locations or on other sections of highways and unpaved roads are limited to the speed of forty miles an hour; and

(4) manufactured, modular, or mobile homes must not be transported at a speed in excess of ten miles below the maximum posted speed limit when the maximum posted speed limit is in excess of forty-five miles an hour, and never in excess of fifty-five miles an hour.

(C) Thirty miles an hour is the maximum speed in an urban district. "Urban district" means the territory contiguous to and including any street which is built up with structures devoted to business, industry, or dwelling houses situated at intervals of less than one hundred feet for a distance of a quarter of a mile or more.

(D) A local authority on the basis of an engineering and traffic investigation may determine that the maximum speed limit permitted under this article is less than thirty miles an hour in an urban district. If this determination is made, the maximum speed limit for the urban district is enforceable by all law enforcement officers authorized to enforce the traffic laws in the urban district. However, this subsection does not apply to highways within the state highway system contained in Section 56-5-1530.

(F) The driver of a vehicle shall drive, consistent with the requirements of subsection (A), at an appropriate reduced speed when approaching and crossing an intersection or railway grade crossing, when approaching and going around a curve, approaching a hillcrest, when traveling upon any narrow bridge, narrow or winding roadway, and when special hazard exists with respect to pedestrians or other traffic or by reason of weather or highway conditions

Accessed 07-11-2019 from https://www.scstatehouse.gov/code/title56.ph

SPEED LAWS

ELEMENTS	BASIC SPEED LAW	ABSOLUTE SPEED LAW	PRIMA FACIE SPEED LAW
Driver	Accused must be shown to have been the driver at the time of the infraction.	(Same)	(Same)
Location	Any place to which the public has right of access for vehicle use.	(Same)	(Same)
Speed	Unreasonable or imprudent	In excess of specified limit and thus are in violation of the law.	In excess of specified limit and thus presumed to be driving unlawfully.
Conditions	Having regard to actual and potential hazards.	Not applicable	Having regard to actual and potential hazards.

South Carolina Criminal Justice Academy

Radar Log

Officer: ______________________
Radar Make: ______________________
Serial Number: ______________________
F Antennae SN#: ______________________
R Antennae SN#: ______________________
Tuning Fork SN#: ______________________
Tuning Fork SN#: ______________________

DATE	TIME	SUMMONS	Internal Circuitry	Internal Light Test	Tuning Fork Tests		Drive Thru Test	
					Front	Rear	Known Speed	Indicated Speed
					F=	R=	Ks=	IS=
					F=	R=	Ks=	IS=
					F=	R=	Ks=	IS=
					F=	R=	Ks=	IS=
					F=	R=	Ks=	IS=
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South Carolina Criminal Justice Academy

Lidar Log

Officer: ______________________________

Lidar Make: __________________________

Serial Number: ________________________

DATE	TIME	SUMMONS	Internal Circuitry	Internal Light Test	Known Distance Test ________FT	Drive Thru Test	
						Known Speed	Indicated Speed
						Ks=	IS=
						Ks=	IS=
						Ks=	IS=
						Ks=	IS=
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						Ks=	IS=

TRACKING HISTORY

Visual

1.____________________________________

2.____________________________________

3.____________________________________

4.____________________________________

Audio

1.____________________________________

2.____________________________________

Unit Confirmation

1.____________________________________

2.____________________________________

MOVING RADAR

Target Speed = Closing Speed – Patrol Speed
Target Speed = Separation Speed – Patrol Speed

TIME DISTANCE EQUATIONS

Reaction Time Distance = Speed X (Perception + Reaction) Time X 1.5 X 1.47
Speed = (Reaction Time) Distance ÷ 1.47 ÷ (Perception + Reaction) Time
(Perception + Reaction) Time = (Reaction Time) Distance ÷ 1.47 ÷ Speed
Velocity = Speed X 1.47

TOTAL STOPPING DISTANCE

$S^2 \div 30$ X Drag Factor + Reaction Time Distance

$(S^2 \div 22.5) + (S \times 1.47 \times 1.5)$

Drag Factor: Use .75

Reaction Time Distance: Speed X 1.47 X 1.5

RADAR: RAdio Detection And Ranging

TRACKING HISTORY

Visual	ID Target Est. Speed Est. Range Check Environment
Audio	Pitch Clarity
Speed Verification	Constant Readout Consistent with Visual Estimate Verify Patrol Speed with Speedometer

Scanning: Pointing antenna at counting unit Panning:
Swinging stationary unit toward target Simulation Test:
(Moving)

Patrol	35
Target	30

FREQUENCY FORMULA

Frequency x Wave Length = The Speed of Light

The speed of light as measured by National Institute of Standards and Technology, (NIST), is 186,282.396 miles per second.

There are 63,360 inches in a mile.

Most wavelengths can more easily be visualized in fractions of an inch than in fractions of a mile. Therefore, you must convert miles per second to inches per second. This is done by multiplying by 63,360 or dividing by 63,360 depending on which conversion you are attempting to make.

Examples:

K-band:

$$frequency * \frac{wavelength}{\#\ of\ inches\ in\ a\ mile} = speed\ of\ light$$

$$\mathbf{24,150,000,000 * \frac{.488729918\ in}{63,360\ in} = 186,281.999\ miles\ per\ sec}$$

$$\frac{speed\ of\ light * 63{,}360}{frequency} = wavelength$$

$$\frac{186{,}282 * 63{,}360}{24{,}150{,}000{,}000} = .488729918\ in$$

DOPPLER SHIFT COMPUTATIONS

Compute the correct speeds in miles per hour given the following Doppler shift.

K- Band Transmitted Signal: 24,150,000,000 CPS
$Difference = Transmitted - Returned$
To calculate Doppler shift to speed: $72CPS = 1mph$
Example: $3000 \div 72 = 41mph$

	Returned Signal	Difference	Miles Per Hour	Toward or Away
1.	24,150,002,880	2880 CPS		
2.	24,149,998,488	1512 CPS		
3.	24,150,005,616	5616 CPS		
4.	24,150,003,960	3960 CPS		
5.	24,149,994,816	5184 CPS		
6.	24,149,992,362			
7.	24,150,008,280			
8.	24,149,996,760			
9.	24,149,990,280			
10.	24,150,010,800			

Look at the returned signal for each problem and determine whether the target is moving toward the source or away from the source.

STOPPING DISTANCE WORKSHEET

Stopping Distance

S = Speed
DF = Drag Factor

$\frac{S^2}{30 \times DF}$ = Distance to Stop Once Brakes are Applied

Perception/Reaction Distance

S = Speed
1.47 = Converts mph - feet per second
1.5 = Average perception/reaction

S X 1.47 X 1.5 = Distance Covered During Perception/Reaction Time

Violator's Speed ____________

1. Reaction Distance____________
2. Stopping Distance____________
3. Total Stopping Distance________

Violator's Speed ____________

1. Reaction Distance____________
2. Stopping Distance____________
3. Total Stopping Distance________

Violator's Speed ____________

1. Reaction Distance____________
2. Stopping Distance____________
3. Total Stopping Distance________

Violator's Speed ____________

1. Reaction Distance____________
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2. Stopping Distance____________
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1. Reaction Distance____________
2. Stopping Distance____________
3. Total Stopping Distance________