	TYPE OF DIRECTIVE LINE PROCEDURE	**NUMBER** LP-22-11 REV.
	SUBJECT RADAR AND LIDAR SPEED ENFORCEMENT	**EFFECTIVE DATE** 11/16/11
	REFERENCE CODE OF VIRGINIA, CALEA	**RESCINDS** LP-22-11

PURPOSE

To establish procedures for the use of radar and lidar speed measuring devices.

POLICY

The ***Police Division considers speed enforcement a priority and will actively engage in*** radar and lidar ***speed enforcement throughout the County of Henrico, specifically focusing on*** high, or potentially high, accident locations where speed is a factor, in areas where speed limit violations are prevalent, and in response to citizen complaints involving excessive speed. The below enforcement measures shall ensure that the Division's highway safety goal of providing safe and expeditious movement of vehicular and pedestrian traffic is met. Single officer radar and lidar operations are excluded from location restriction.

DEFINITIONS

Radar – an acronym for Radio Detection and Ranging.

Lidar – an acronym for Light Detection and Ranging (more commonly known as Laser).

PROCEDURES

I. EQUIPMENT SPECIFICATIONS/LICENSING

A. In accordance with §46.2-882 of the Code of Virginia, all equipment and devices used to measure the speed of motor vehicles that is purchased after July 1, 1986, shall meet or exceed the standards for such equipment as established by the Division of Purchases and Supply of the Virginia Department of General Services.

II. OPERATIONAL PROCEDURES

A. General – Radar

1. It shall be the operator's responsibility to select safe locations to conduct radar operations.

2. Officers should refrain from using stationary radar to check vehicle speeds on steep downgrades.

3. All selected speed enforcement locations shall be properly posted with a speed limit sign if the legal limit is lower than the maximum normally permissible under law.

4. A 0.3 miles tolerance shall be allowed from the point where a speed reduction sign is located.

5. Antenna

   a. The radar antenna must be positioned so that the antenna are parallel to the length of the patrol vehicle and parallel to the ground and so that it's beam is unobstructed;

   b. At the discretion of the operator, the radar antenna may be mounted inside or outside the patrol vehicle. It is important that the antenna be mounted securely and that the operator has easy access to it for testing. The antenna must not be pointed at the counting unit.

6. The antenna must be properly aimed in the following manner:

   a. Stationary Mode - as close to the direction of travel of the target vehicles as possible and parallel to the ground;

   b. Moving Mode - straight ahead and parallel to the ground.

7. These rules apply to radar sets with more than one antenna.

8. The radar unit shall be connected directly to the battery by a shielded wire.

9. The radar counting unit should be placed so that it is easy to read and secure.

B. General – Lidar

1. It shall be the operator's responsibility to select safe locations to conduct lidar operations.

2. Officers should refrain from using the lidar to check vehicle speeds on steep downgrades.

3. All selected speed enforcement locations shall be properly posted with a speed limit sign if the legal limit is lower than the maximum normally permissible under law.

4. A 0.3 miles tolerance shall be allowed from the point where a speed reduction sign is located.

5. Lidar units must be pointed toward the target vehicle. Point of aim will include, but not be limited to, headlights, taillights, license plates, or bumpers.

6. The lidar unit shall be connected directly to the battery by a shielded wire or by the handheld battery supplied with each unit.

7. Lidar units will not be mounted to the vehicle during speed detection operations, but is required to be hand-held.

C. Testing the Calibration on Radar and Lidar Units

The radar or lidar unit must be checked for accuracy at a minimum of two times by the operator. This check for accuracy shall be conducted at the beginning of the officer's assigned shift and again at the end of the officer's assigned shift.

1. GOLDEN EAGLE, H.A.W.K., HR-12, and KR10-SP, PRO-1000 DS & Raptor, and ***Talon*** Radar Units.

   a. Internal Circuit Test;
   b. Lamp Test;
   c. Doppler Audio Test;
   d. Tuning Forks Test.

      1) 35 mph tuning fork in stationary mode;
      2) 65 mph tuning fork in stationary mode;
      3) Both tuning forks in the moving mode.

   e. Moving Mode Test

      1) Compare a calibrated speedometer with the radar unit's PATROL reading at the posted speed limit in the area where the radar will be operated.
      2) Verify the radar unit's PATROL reading to your speedometer speed at the time of the violation in the moving mode.
      3) When operating a GOLDEN EAGLE or H.A.W.K. radar unit in the same direction mode, a target speed discrimination test must be conducted to ensure that the target speed is correct.

2. FALCON, ***Stalker, and Decatur*** Radar Units

   a. Internal Circuit Test;
   b. Lamp Test;
   c. Doppler Audio Test;
   d. Tuning Fork Test (50 mph tuning fork);
   e. ***Moving Mode Test – compare a calibrated speedometer with the radar unit's PATROL reading at the posted speed limit in the area where the radar will be operated.***

3. PRO LASER III (LIDAR) Unit

   a. Turn unit on for internal testing (self-verifying).

   b. Distance Test – at a location where two known distances have been pre-measured, the officer will activate the lidar and compare the distance in the Range Mode display to the actual pre-determined distance.

      1) If the accuracy of the lidar is within one foot of the predetermined distance, the distance test will be considered accurate.
      2) If the accuracy of the lidar is outside the foot of the

predetermined distance, the distance test will be considered inaccurate and the lidar unit should be turned in for repair.

c. Site Alignment Test – The operator will check the proper alignment of the sighting device by utilizing a fixed object with no other obstacles in the background. When the lidar beam is swept across this fixed object, the lidar will register a distance reading. This sweeping of the lidar should be performed both horizontally and vertically.

d. Differential Distance Test

1) Placing the unit in the Differential Test Mode;
2) Shoot a known distance and press "enter";
3) Shoot a second known distance and press "enter";
4) The lidar will display the difference on the right side of the screen, and the distance will be multiplied by two on the left side of the screen;
5) If the unit measurement is within one foot, the test will be considered to be accurate;
6) If the unit measurement is more than one foot, the unit should be taken out of service and turned in for repair.

D. Group Radar/Lidar Assignments

1. For group radar and lidar operations, the units will be checked in the same manner as stated above in section II.C by one of the participating members before and after each operation at a specific location.

a. Speed checks shall be made with a currently (within preceding six months) calibrated, accurate Division vehicle. The same vehicle shall be used for both pre-operation and post-operation tests.

b. At any time that the radar operator changes, the set must be rechecked for accuracy.

c. When conducting a group speed enforcement operation, all summonses shall be grouped together and collectively sent to the clerk of the appropriate court.

E. Moving Mode Operation for Radar and Lidar Units

1. When placed in the moving mode, radar may be used to monitor vehicles:

a. Approaching on a two-lane highway;

b. Approaching in either lane of a three-lane highway;

c. Approaching in either lane of a four-lane undivided highway; or

d. Approaching in either lane of divided highways, if conditions permit.

III. PROPER CARE AND UPKEEP

A. Care must be exercised in handling and transporting radar and lidar devices.

B. It is the responsibility of each radar and lidar operator to ensure that the unit is kept clean and dry.

1. If problems are experienced with a radar unit, it should be removed from service immediately and returned to the County Radio Maintenance Shop.

2. If problems are experienced with a lidar unit, it should be removed from service immediately and returned to the Special Enforcement Unit so arrangements can be made with Kustom Signals, Inc., for any necessary repairs.

IV. PROGRAMMED MAINTENANCE

A. The frequency of the radar shall be recalibrated at least once every six months.

B. The scheduling of tests shall be the responsibility of the County Radio Maintenance Shop.

C. Lidar devices shall be recalibrated at least once every six months by Kustom Signals, Inc. or a Kustom approved dealer certified to calibrate the lidar units.

V. MAINTENANCE AND CALIBRATION RECORDS

A. Maintenance and repair records for radar and lidar units shall be maintained by the County Radio Maintenance Shop.

B. Notarized records pertaining to the findings of calibration tests of radar and lidar units shall be maintained by the Criminal Records Unit.

VI. OPERATOR TRAINING AND CERTIFICATION

A. Only those members who have received the training prescribed for the specific radar or lidar unit being utilized may operate that equipment.

B. All radar operators shall be certified by the Division's Training Unit and follow Virginia Department of Criminal Justice Services rules and regulations.

1. Initial certification for radar operators shall consist of successfully completing a minimum sixteen hour course meeting Virginia Department of Criminal Justice Services (DCJS) standards.

2. Certified radar operators shall be re-certified every three years after their initial certification by successfully completing a minimum four hour course that meets DCJS standards.

3. Certified lidar operators shall receive at a minimum of twelve hours of training and instruction that meets Virginia DCJS standards.

4. If an operator's certification has expired, he may recertify at the existing level within twelve months of said expiration by attending a recertification course of a minimum of four hours that meets DCJS standards.

5. If an operator's certification has expired, he shall not operate radar and/or lidar for purposes of speed enforcement.

6. If an operator's certification has been expired for longer than twelve months, that operator shall be required to attend a full certification course.

VII. TECHNICAL OR EXPERT TESTIMONY

A. Should the need for technical or expert testimony in court arise, a written request shall be forwarded to the Commander, Special Enforcement Unit.

B. Requests should indicate:

1. Date of the offense;

2. Court date;

3. Serial number of the counting unit, antenna, and tuning forks; and

4. All details surrounding the case.

By Order of:

Douglas A. Middleton
Chief of Police