Police Traffic
RADAR & LIDAR
Instructor Course Agenda
by
Law Enforcement Services, LLC
revised 11-2024

Day 1 **08:00 - 12:00** **4 hours**

Objectives, Handouts, & Testing **.5**

Student Introductions **.5**

The Speed Problem (slide 26) **1.0**
- 1.1 History
- 1.2 National Statistics
- 1.3 NHTSA Statistics
- 1.4 Recognition and Reaction Time
- 1.5 Braking and Total Stopping Distance
- 1.6 Velocity and Speed
- 1.7 Momentum and Kinetic Energy

(chapter review questions)

Speed Laws and Public Safety (slide 71) **1.0**
- 2.1 Basic Speed Law
- 2.2 Speed Limit Misconceptions
- 2.3 Speed Limits and Compliance
- 2.4 85th Percentiles
- 2.5 Public Safety

(chapter review questions)

Speed Enforcement (slide 94) **1.0**
- 3.1 Pacing
- 3.2 Time-Distance
- 3.3 Time-Distance Computers
- 3.4 RADAR
- 3.5 LIDAR
- 3.6 Estimating Distances
- 3.7 Estimating Speeds
- 3.8 Stopwatch Calibration Checks
- 3.9 Distance Calibration Checks
- 3.10 Speedometer Calibration Checks
- 3.11 Checking Radar with GPS

(chapter review questions)

Day 1 **13:00 - 17:00** **5 hours**

Radar Basics (slide 145) **2.0**
- 4.1 Types of Radar
- 4.2 The Doppler Effect
- 4.3 Waves and Frequencies
- 4.4 Characteristics of Radio Waves
- 4.5 The Doppler Shift
- 4.6 Police Traffic Radar
- 4.7 The Radar Beam
- 4.8 Understanding Trigonometric Functions
- 4.9 Determining Beam Widths
- 4.10 Lines of Equal Sensitivity
- 4.11 Inverse Square Law
- 4.12 Contour Lines of Equal Sensitivity
- 4.13 Beam Range - Sensitivity
- 4.14 Automatic Gain Circuitry
- 4.15 Target Reflectivity
- 4.16 Range Control Techniques
- 4.17 Doppler Audio
- 4.18 Cosine Effect

(chapter review questions)

Installation, Testing and Operation (228) **1.0**
- 5.1 Installation
- 5.2 Testing

Practical Exercise **1.0**
- Light Segment Test
- Internal Circuitry Test
- Tuning Fork Tests
- Tuning Fork Mode
  - Stationary Mode
    - Front & Rear Antenna
    - Faster Vehicle Mode
  - Moving Mode
    - Front Opposite & Same
    - Rear Opposite & Same

Home Work **1.0**
- Review Chapters 1-5
- (Read NHTSA pages 172-178)

Police Traffic
RADAR & LIDAR
Instructor Course Agenda
by
Law Enforcement Services, LLC
revised 11-2024

Day 2 **08:00 - 12:00** **4 hours**

Installation, Testing and Operation **1.0**
(continued - slide 257)
- 5.3 Operation
- 5.4 Tracking History
- 5.5 Radar Effects (stationary)
- 5.6 Enforcement Considerations
- 5.7 RADAR/LIDAR Detectors
- 5.8 RADAR Detector/Detectors (RDD)
- 5.9 RADAR/LIDAR Jammers
- (chapter review questions)

Practical Exercise **1.0**
- Light Segment Test
- Internal Circuitry Test
- Tuning Fork Tests
- Tuning Fork Modes
  - Stationary Mode
    - Front & Rear Antenna
    - Faster Vehicle Mode
  - Moving Mode
    - Front Opposite & Same
    - Rear Opposite & Same

Understanding Moving RADAR (325) **2.0**
- 6.1 Principles of Moving Radar
- 6.2 Cosine Effects in Moving Radar
- 6.3 Shadowing Effects in Moving Radar
- 6.4 Eliminating Low Doppler Errors
- 6.5 Calculating Moving Cosine and Shadowing Effects
- 6.6 Moving Radar Operation
- 6.7 Radar Effects (moving)
- 6.8 Enforcement Considerations
- (chapter review questions)

Day 2 **13:00 - 17:00** **5 hours**

Modern Police Radar (slide 367) **2.0**
- 7.1 Digital Signal Processing
- 7.2 Patrol 5/20 or 10/20
- 7.3 Continuous Tracking
- 7.4 Same Lane Tracking
- 7.5 Track Thru Locking (TTL)
- 7.6 Patrol Speed Blank
- 7.7 Fastest Vehicle Mode
- 7.8 Complete Tracking History
- 7.9 Counting Unit Displays
- 7.10 Counting Unit Controls
- 7.11 Rechargeable Battery Handles
- 7.12 Directional Sensing Radar
- 7.13 Vehicle Speed Sensor
- 7.14 STALKER DSR 2X
- 7.15 POP Technology
- 7.16 Target Acquisition
- 7.17 Speed Detection Video Interface
- 7.18 STALKER II MDR
- 7.19 Decatur Radar Mirror Display
- 7.20 MPH Ranger EZ
- 7.21 OBD-II output and VSS
- 7.22 VSS access via GPS
- 7.23 LCD Displays
- 7.24 Stalker DSR 2X vs Golden Eagle 3
- 7.25 Stalker Virtual Radar Display
- (chapter review questions)

Radar and Occupational Safety (427) **0.5**
- 8.1 Energy Levels of Microwave
- 8.2 Microwave and Cancer
- 8.3 Safety Rules
- (chapter review questions)

Photo Radar (slide 435) **1.0**
- 9.1 General Operation
- 9.2 Photo Radar and Private Enterprise
- 9.3 Photo Radar Court Cases
- 9.4 State Laws Regulating Photo Radar
- 9.5 Photo Lidar
- 9.6 ASE and Public Safety
- (chapter review questions)

Homework **1.5**
- Review Chapters 5-9 (Begin reading your issued radar & lidar manual)

Police Traffic
RADAR & LIDAR
Instructor Course Agenda
by
Law Enforcement Services, LLC
revised 11-2024

Day 3 **08:00 - 12:00** **4 hours**

LIDAR (slide 516) **2.0**
- 11.1 History of Laser
- 11.2 Principles of Operation
- 11.3 Lidar Sighting Systems
- 11.4 Lidar Tracking History
- 11.5 Lidar Effects
- 11.6 Time-Distance
- 11.7 Survey Measurements
- 11.8 Distance Between Cars (DBC)
- 11.9 Inclement Weather Program
- 11.10 Auto Obstruction Mode
- 11.11 HUD Speed & Distance Display
- 11.12 Automatic Locks
- 11.13 Rechargeable Battery Handles
- 11.14 LTI TruCAM
- 11.15 Safety Considerations
- 11.16 Military Warning
- 11.17 Testing Lidar
- 11.18 Lidar Case Law
- 11.19 LIDAR Case Law Conclusions
- 11.20 Autovelox 105 SE

(chapter review questions)

Standards, Certification, and Law (471) **1.5**
- 10.1 Federal Standards
- 10.2 IACP Standards and Testing
- 10.3 Radar Case Law - United States
- 10.4 Radar Case Law - Canada
- 10.5 Radar Case Law Conclusions
- 10.6 Tuning Fork Tests and Case Law
- 10.7 Stalker Radar Self Tests
- 10.8 Certification
- 10.9 Court Testimony
- 10.10 Traffic Evidence Kit

(chapter review questions)

Summary (slide 591) **0.5**
- 12.1 The Future of Radar and Lidar
- 12.2 Public Opinion
- 12.3 The Five Es of Public Safety
- 12.4 Supreme Court Case Law & traffic stops

Day 3 **13:00 - 17:00** **5 hours**

Course Review & Questions **1.0**

Final Exam **1.0**

Moot Court (preparation) **1.5**

Selection of:
Officer, Defendant, Prosecutor,
Defense Attorneys & Jury.
The traffic stop role play:
(officer & defendant)

Homework **1.5**

(Classroom Presentation Preparation & finish reading your radar & lidar manual, download the RADAR & LIDAR Instructor flashdrive if you brought a laptop computer, review the contents of the Document file and the 1.Read Me file.)

Day 4 **08:00 - 12:00** **4 hours**

Instructor Presentations **4.0**

(Please wear department issued uniform) 15 to 20 minute presentation before the entire class on a chapter of **Understanding Police Traffic RADAR & LIDAR**.

Day 4 **13:00 - 17:00** **5 hours**

Instructor Presentations **1.5**

Practical Exercise **2.5**

RADAR, LIDAR, Stopwatch Operation
85th Percentile Speed Survey
Speed Estimates - Daylight Stationary
Class Photo

Homework **1.0**

(Moot Court Preparation, review Instructor Re-Certification Guidelines.pdf)

Day 5 **08:00 - 12:00** **4 hours**

Moot Court **3.5**

Course Evaluation **.25**

Presentation of Certificates **.25**