

Newport Beach Police Department
Laser/Lidar Operator
Course Number: 6830-23320
8 Hour Course
Revised: November 6, 2020

Purpose: The purpose of this course is to provide training on the legal and technical use of electronic speed measuring devices using Light Amplification of Stimulated Emission of Radiation (LASER) for speed and distance measuring, also referred to as Light Detection and Ranging (LIDAR). The course gives an overview of the characteristics and functions of LASER components as well as the effects of LASER use. It also includes techniques for the verification of the calibration of the LASER device.

Course Objectives: The student will:

1. be introduced to the history of LASER (Light Amplification of Stimulated Emission of Radiation);
2. examine and study the theory of LASER;
3. learn to recognize and classify the components of laser systems;
4. learn how to check the calibration of the LASER device;
5. acquire knowledge to maximize the efficiency of LASER applications;
6. study case law dealing with LASER applications;
7. demonstrate the ability to visually estimate a target vehicle's speed with an average of ± 5 mph; and
8. learn the skills necessary for successful testimony in legal proceedings related to LASER applications.
9. set-up, test and successfully operate the LASER device.

A. Introduction

1. Instructor's background and expertise
2. Course overview

B. Course Objectives

1. Review history and theory of radar
2. Discuss why radar is used
3. Provide tools and information for using radar confidentially and efficiently
4. Introduction to history and theory of laser
5. Discuss why laser is used
6. Compare and contrast the usage of radar vs. laser for traffic safety
7. Provide tools and information for using laser confidently and efficiently

C. Pre-test /Evaluation

1. Determine student's knowledge of radar and its uses
2. Determine level of knowledge of laser applications

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D. Case Law

1. Landmark case decisions
2. Impact of cases on local law enforcement
3. Impact of 40802 (b) VC and why it is not case law or mandates specified training.

E. Laser Devices

1. Scientific Principals
 - a. Use of light and laser
 - b. Formula of least squares
 - c. Scientific Principals of Light Amplification by Stimulated Emission of Radiation
 - d. Judicial notice and Kelly-Frye acceptance of the scientific principles of LASER.
2. Components
 - a. Counting unit
 - b. Gunn diode
 - c. Power Source
 - d. Lenses
3. Power supply
 - a. Types of plugs
 - 1) Direct hook-up
 - 2) Types of cables
 - 3) Batteries
4. Low-voltage warnings
 - a. Flashing decimal
 - b. Dimming read-out
 - c. Low-volt read-out
5. Audio set
 - a. Doppler as an assistance to tracking
 - b. Volume control
6. Range Gates
 - a. Not to be used

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- 7. Vascar functions
 - a. Not to be used

- 8. Operation - Stationary
 - a. Beam configuration
 - b. Beam width
 - c. Manufacturers specifications statements

- 9. Cosine effect

- 10. Target identification
 - a. Target size
 - b. Laser sensitivity
 - c. Target speed
 - d. Error trapping software
 - e. Tracking history (VAR)
 - f. Doppler (audio tape)
 - g. Site selection for operation

- 11. Stationary Effects
 - a. Cosine error

- 12. Radar Effects
 - a. Review of Radar effects and why they are not applicable to Laser

F. Review

- 1. Core points of Course
- 2. Formula review
- 3. Question/answer period

G. Course closure

- 1. Final exam
- 2. Class critique