



Laser Safety Officer with Hazard Analysis

Agenda

Day 1

I. Welcome & Introductions

II. Introduction to ANSI Z136.1 *Safe Use of Lasers* standard

III. Basic Concepts of Lasers a. Properties of light

- a. Geometrical Optics
- b. How does a laser work
- c. Characteristics of laser light
- d. Characterizing the laser output
- e. Categories of laser systems
- f. Laser applications

IV. Laser Bioeffects a. Laser effects on the eye and skin

Day 2

I. Laser Safety Standards for Manufacturers

- a. Comparison of ANSI and CDRH standards
- b. CDRH Federal Laser Product Performance Standard (FLPPS)
- c. New laser safety hazard classification scheme
- d. IEC standards and CDRH Laser Notice No. 50

II. Laser Hazard Analysis

- a. Review of radiometric terms & units
 - b. MPE: Maximum Permissible Exposure
 - c. Determination of the MPE
 - d. Viewing conditions for determining the MPE
 - e. Procedure for determining the ocular MPE
 - f. Examples

Day 3

I. Laser Hazard Analysis (*con't*) a. Nominal hazard zone

- a. AEL, and laser hazard classification
- b. Optical density
- c. More Calculations

II. Laser Regulations and Consensus Standards for Laser Users a. Other ANSI standards

- a. OSHA
- b. FAA
- c. IEC

III. Non-Beam Hazards a. Non-beam hazards & ANSI Z136.1

- a. Chemical hazards
- b. Physical hazards
- c. Biological hazards
- d. Other non-beam hazards

Day 4

I. Laser Safety Program Administration

- a. The Laser Safety Officer (LSO)
- b. Structure of a laser safety program
- c. Laser safety program administration

II. Laser Safety Control Measures a. Engineering control measures

- a. Administrative and procedural control measures
- b. Eye protection
- c. Barriers & curtains