

Laser Pointer Safety

Classification of Laser Pointers

Laser pointers are classified based on their potential for causing injuries such as eye damage. There are four main classes of laser pointers: Class 2, 3R/IIIa, 3B and 4. Not all laser pointers are permitted for use.

- **Permitted:** Class 2 and 3R/IIIa
- **Prohibited:** Class 3B and 4

Class 2 and 3R/IIIa lasers have an output power of between 1 and 4.99 milliwatts (mW) and are not a skin or materials burn hazard.

The following are examples of labels found on laser pointers:



Potential Hazards

A momentary exposure of ¼ second or less is within the aversion response where a person turns away and/or blinks to avoid bright light and would not normally harm the eyes. The most likely and immediate effects from exposure to viewing the beam from a laser pointer are:

- **After-Image** – the perception of spots in the field of vision which commonly lasts several minutes although there have been reports of after-images lasting several days.
- **Flash Blindness** – a temporary vision impairment after viewing a bright light which may last several minutes.
- **Glare** – reduction or complete loss of visibility in the central field of vision similar to viewing oncoming headlights on a dark night.

Although most laser pointers are not likely to cause retinal damage, it is recommended that exposure to the eye be minimized.

Safe Working Practices for Laser Pointers

1. Laser pointers used on production must have a classification label.
2. Only use laser pointers that are classified as Class 2 or 3R/IIIa.
3. The maximum permissible output of a laser pointer is 4.99 mW.
4. Never look directly into the laser beam.
5. Do not direct a laser beam towards your eyes or the eyes of others.
6. Do not point a laser pointer at a shiny/mirror-like surface such as metal or glass.
7. Do not direct a laser beam at a moving vehicle.
8. Never view a laser pointer using an optical instrument such as binoculars.