

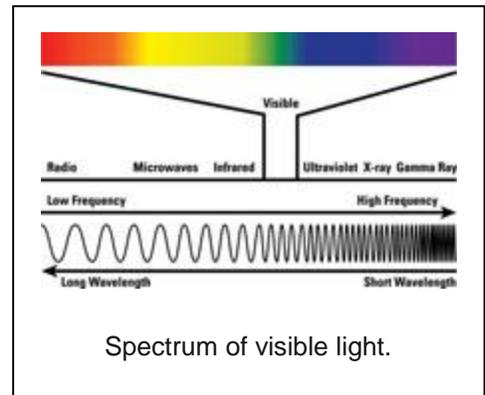
Lasers

Laser light is an intense, focused beam of visible light radiation.

- Lasers are used in many workplaces, including construction, surveying and medicine.
- High-powered laser light can cause severe skin burns and permanent eye damage.
- Hand-held laser pointers are not toys. They should not be used by children.

About Lasers

You may have seen a laser light show at a ball game, concert or planetarium. One example of everyday use is the barcode scanner used in many stores. The word *laser* stands for Light Amplification by Stimulated Emission of Radiation. Laser light is an intense, focused beam of visible or invisible light radiation. Visible light radiation is only a small part of the electromagnetic spectrum. Lasers used in light shows give off visible and invisible radiation, which ranges in color based on the length of the rays. For example, violet colored lasers have shorter waves and red colored lasers have longer waves. Within the range of visible light radiation, each color we see has a different wavelength.



Caution: High-powered laser light can cause severe skin burns and permanent eye damage. Laser light does not cause cancer or genetic damage.



Laser light as seen from an airplane cockpit.

Laser pointers used by speakers to point out areas on a chart or screen should be used appropriately. They can cause serious damage if aimed directly at the eye. The Food and Drug Administration warns that, while they can be useful tools, they are not toys and should not be used by children. It is illegal to point a laser at a plane in flight. Hand-held laser pointers, aimed from the ground, have caused momentary blindness in airline pilots.

Rules and Guidance

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES (HHS), U.S. FOOD AND DRUG ADMINISTRATION (FDA)

FDA protects people by writing rules for the manufacture of products that emit radiation. These products must be safe to use. The rules apply to lasers used in stadium light shows, handheld laser pointers and barcode scanners in stores.

FEDERAL AVIATION ADMINISTRATION (FAA)

The FAA must be notified before any open-air laser light shows. This allows them to ensure that there will be no harm to aircraft passengers or pilots. The FAA reviews the plan for the laser light show within about seven days. FAA can approve or disapprove it. FAA also has made it illegal to point lasers at planes because of serious safety concerns for pilots.

DEPARTMENT OF LABOR (DOL), OCCUPATIONAL SAFETY ADMINISTRATION (OSHA)

OSHA writes standards that companies using lasers must follow to protect their workers. Research has shown that eyes are the part of the body most likely to be harmed by lasers. Therefore, the standards pay particular attention to eye protection.

THE STATES

States can have their own rules in addition to the rules FDA and FAA have put in place. If a state has additional rules in regard to lasers and their use, they are typically managed as part of their radiation protection office.

What you can do

Be smart and safe: Don't try to touch a laser light beam. Don't look into a laser light beam, including beams from laser pointers.

Never point a laser at a plane in flight: Hand-held laser pointers, aimed from the ground, have caused momentary blindness in airline pilots.

Educate yourself and know the rules: Understand the dangers of lasers. Don't use lasers where they are not allowed.

Where to learn more

You can learn more about lasers by visiting the resources available on the following webpage:
<http://www3.epa.gov/radtown/lasers.html#learn-more>.