UNIVERSITY OF WINDSOR
Laser Safety Program

University of Windsor's Radiation Safety Policy Statement on Laser Pointers

The University of Windsor utilizes laser pointers as a teaching aid to provide instructional emphasis during presentations within our classrooms since their inception. Furthermore, when used in a responsible manner they can be a very effective tool for our faculty. As laser technology evolves laser pointers have been widespread outside the classroom as a novelty item and numerous complaints have been reported relate to their inappropriate use by some individuals participating in lectures. The University of Windsor is committed to providing a caring, engaging, welcoming, and supportive campus community which is free of distractions, including from the inappropriate use of laser pointers, within our learning-centred environment.

Laser Hazards:

A laser is a device which produces radiant energy (radiation) predominantly by stimulated emission. It is an acronym for Light Amplified by Stimulated Emission of Radiation (LASER). Laser radiation may be highly coherent temporally, or spatially, or both. Basically, it is an extremely powerful and bright source of light which can cause damage to the eye. For example, a 1mW visible laser is about 1,000,000 times brighter than a typical household 100-watt light bulb.

Lasers are classified into four main classes: Class 1, 2, 3, and 4. Class 1 laser systems are the least hazardous where exposure to the eye is expected not to produce any damage. Class 2 laser systems have an output up to 1 mW and do not cause any damage to the eye when the exposure is less than 250 ms. This time period is referred to as your "aversion response time" which involves the closure of the eyelid, eye movement, papillary constriction, or movement of the head to avoid an exposure to a noxious or bright light stimulant. Class 3 laser systems are sub-classified into two different groups (Class 3R & 3B) based on the possibility of injury and/or fire hazard. Finally, Class 4 laser systems pose a direct risk of injury, fire, and possibly may produce laser generated air contamination. The University of Windsor has strict controls for the utilization of Class 3B and 4 lasers as they pose a substantial risk to people, property, and the environment.

A laser pointer is defined as a laser product that is usually handheld which emits a low-divergence visible beam and is intended for designated specific object or images during discussions, lectures, or presentation. These products are typically Class 1, 2*, or 3R (* - Majority of laser pointers are Class 2). In Canada, it is still legal to purchase laser pointers which can cause damage to the eye faster than in one "blink of an eye". However, the United Kingdom and some State & Local governments have enacted regulations to reduce their usage. The exposure of a person's eye to a momentary exposure of a Class 2 or Class 3R laser can results in temporary flash blindness, after-image, and glare which can be dangerous. In addition, there are documented cases of retinal damage following multi-second exposure to some laser pointers. However, in these cases the individuals purposely prevented the "aversion response" to occur by holding their eyelid open.

Safety Precautions:

The following tips will help reduce the possibility of ocular damage due to the improper usage of a laser pointer, including:

- Identify the classification of the laser point which you utilize in your classroom;
- Recognize that laser pointers with a classification above Class I (i.e. Class II and 3R) can cause irreparable damage to the eye;
- Only purchase pointers which have laser safety and classification information identified on the unit or listed within the instruction manual, including: output power, laser hazard classification, and associated warnings;
- Avoid purchasing Class 3R units (unless absolutely necessary);
- Never look directly into a laser beam;
- Never aim the pointer directly at people or a reflective surface;
- Only purchase pointers which have a "dead man switch" (only stay on when you apply pressure to the switch).

Misuse:

A laser pointer can cause eye damage and therefore the improper use is not acceptable. Please ensure that you follow the safety precautions outlined in the unit's instruction manual. Improper use may cause a situation which endangers the health and well-being of others, including the disruption of classes and campus events caused by the scanning of laser beams. Individuals who misuse laser pointers may be subject to disciplinary procedures (University of Windsor Senate Bylaw 31: Student Affairs), appropriate staff disciplinary policies and/or subject to possible legal action if injury occurs.

Contact Information:
For more information regarding lasers and laser safety please visit http://www.uwindsor.ca/laser
In addition, please feel free to contact:

Radiation Safety Officer
University of Windsor
Chemical Control Centre
519.253.3000 ext. 3523 (p)

References:

American National Standard for Safe Use of Lasers (ANSI Z136.1-2007) Laser Safety Institute of America, Orlando, FL.

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