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Health and Safety Office

Guidance

Safe Use of Laser Pointers

SAF-GUI-LAS-POI

Document Control

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The Health and Safety Office will maintain the official version of this document. Before referring to any printed copies, please ensure that they are up-to-date.

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Guidance on Procurement and Use of Laser Pointers

1. Introduction

Laser pointers (pens) are generally portable, low-powered, battery-operated, hand-held devices and are commonly used as aids by lecturers, trainers and other presenters. Pointers come in a variety of shapes and sizes, some similar to a think pen, others much larger.
Commonly-available laser pointers generally emit red or green light depending on the wavelength of the laser beam. Less common is a blue coloured light.

2. Potential Hazard

Laser light is of a narrow wavelength and produced as a very narrow beam – this means the light energy is very concentrated. Technology advances have meant that small and powerful lasers are easily put into products such as laser pointers, toys and novelty products (e.g. key rings) and, with the relative cost also much reduced, overly powerful, cheap pointers are available, particularly from on-line suppliers.

Higher powered laser beams have the potential to damage the retina of the eye and cause permanent loss of vision. The eye is most at risk but powerful lasers may also burn the skin.

Although there is only a small risk of a permanent eye injury from a laser pointer, someone receiving even a brief eye exposure will experience a bright flash, a dazzling effect which is likely to cause distraction and temporary loss of vision. The time taken to recover will vary between people, with the laser energy and with the ambient light level at the time of exposure (the darker the more noticeable the effect). Medical attention should be sought if after-images persist for hours or reading vision has been effected.

3. Selecting a suitable Laser Pointer

In the UK, lasers are classified into 7 classes (1, 1M, 1C, 2, 2M, 3R, 3B and 4). The higher the Class number, the greater the power of the laser and therefore the greater the hazard posed by the laser.

The Radiation Protection division of Public Health England (PHE) considers the professional use of Class 1 or Class 2 laser pointers as a training aid in the workplace to be justified and regards these Classes of laser product to be adequate for this type of use.

Although Trading Standards aim to remove higher class laser pointers from the general market, it is still fairly easy to purchase them on line. Also, it is not unknown for some laser pointers to be incorrectly labelled. They state they are Class 2 but have higher Class lasers within them, sometimes 40-80 times more powerful than the label implies. On the whole, these lasers are bought from the internet rather than on the high street or sometimes from overseas suppliers who have circumvented UK standards.

The University of Nottingham therefore requires all presenters to ensure that any laser pointer they use is no higher than Class 2. This should be apparent from the labelling on the specific device (labelling is required by the British Standard).

As other countries use different classifications for their laser products, ensure it states Class 1 or 2. Reputable UK suppliers will have ensured the UK laser classification is stated on labels for pointers sold to the UK market.

If you find your pointer is above Class 2, the label is illegible or has come off, you must cease using it as a laser pointer within the University.

When purchasing a new laser pointer, only purchase from reputable supplier in the UK who will sell laser pointers only of Class 1 or Class 2. (For example RS Components have four suitable options such as the HAMA LP18.)

Green laser pointers are visually brighter than red ones for the same optical power. This is because the green wavelength is close to the peak sensitivity of the eye. You may find that the cheaper red pointers are comparatively dim and less easily seen by the audience if the room is reasonably well lit.

If you are concerned about the safety of the laser pointer you use, contact the Health and Safety Department to arrange to have it checked and cease using it in the meantime. Consider laser pointers that you have received as a gift, e.g. given out at conferences.

4. Misuse of Laser Pointers

"Recreational" use of laser pointers is strictly prohibited on in the vicinity of UoN premises. Misuse of a laser pointer in such a manner that it could cause harm to anyone on or in the vicinity of UoN premises shall be considered as gross misconduct.

In the UK, the Laser Misuse (Vehicles) Act 2018 came into force on 10 May 2018. This law makes it an offence to shine or direct a laser beam towards a vehicle which dazzles or distracts, or is likely to dazzle or distract, the person with control of the vehicle. The penalties include up to five years imprisonment and an unlimited fine. The law applies to laser beams aimed at motor vehicles, trains, aircraft and other vehicles; the vehicle does not have to be moving at the time but must have its engine or motor running.

5. Top tips on preventing Laser Pointer injuries (inside and outside the workplace)

- Don't buy hand-held laser devices abroad or from websites outside of the UK – they may not comply with safety standards. Please also be aware that laser pointers may be stronger than advertised on websites;
- Hand-held laser devices are potentially dangerous products – always consider whether you really need one;
- Don't shine a laser pointer into the eyes of people or animals and never point laser devices at vehicles;
- Only use hand-held laser devices for their intended purpose;
- Educate your children about the dangers of lasers and the consequences of misusing them.