HS433 - Laser Pointer Guideline

UNSW Guideline	
Policy Hierarchy link	**Radiation Control Act 1990** **Radiation Control Regulations 2003** **WHS Policy** **Non Ionising Radiation procedure**
Responsible Officer	HR Director.
Contact Officer	Radiation Health & Safety Coordinator
Superseded Documents	Version 1.0 Laser Pointer Guideline
File Number	Contact the Records & Archives Office.
Associated Documents	• Australian Standard, AS/NZS 2211.1: 2004 Safety of Laser Products, Part 1:Equipment Classification, Requirements and User's Guide (IEC 60825.1:2001, MOD). • Australian/New Zealand Standard AS/NZS 2211.3:2002 : *Safety of laser products - Guidance for laser displays and shows* • American Conference of Governmental Industrial Hygienists, Today, Volume 6, No 2, April 1998. • Firearms Registry Laser Pointers

Version	Authorised by	Approval Date	Effective Date
2.1	HR Director	22nd April 2013	22nd April 2013

1. Introduction and Scope

This guideline applies to all staff and students who purchase or use laser pointers as a tool in lectures, presentations or research at UNSW or as a representative of UNSW at global facilities.

2. Definitions

- **Laser**
  The term Laser is an acronym for "Light Amplification by Stimulated Emission of Radiation".
  A laser is defined as any device which can be made to produce or amplify electromagnetic radiation in the wavelength range from 100 nm to 1mm primarily by the process of controlled stimulated emission. *[from AS/NZS 2211.1:2004].*
- **Hazard Rating of lasers**
  Class 1 laser product. No optical or skin hazard; due to their inherent engineered design or to the low power output
  Class 1M laser product: Wavelength range 302.5 to 4000 nm**.**
  Output is potentially optically hazardous when viewed using an optical instrument
  Class 2 laser product: Emit visible radiation. Can cause eye damage if viewed continuously. Natural aversion responses are generally adequate to prevent adverse effects.
  Class 2M laser product Wavelength range 400 nm to 700 nm
  Output is potentially optically hazardous when viewed using optical instruments.

  Lasers emit in the Ultraviolet, Infrared & Visible parts of the electromagnetic spectrum.
  Class 3A laser product: Have the potential to cause eye damage from intra-beam viewing with optical instruments.

Class 3B (restricted) laser product: Operate at the same power levels as lasers of Class 3A but have higher irradiance. This higher power density requires additional restrictions on use in less than daylight conditions of brightness.
Class 3B laser product: More hazardous because of either a higher output or production of radiation outside the visible spectrum. Direct viewing is hazardous to the eye. Also have the potential to cause skin burns.
Class 4 laser product: High power devices. Capable of producing eye damage from diffuse reflection and skin damage from even brief exposure. May also constitute a fire hazard. All use of Class 4 lasers requires extreme caution.

3. Guideline of Use

Laser pointers labelled Class 1 or Class 2 only shall be used in UNSW

Laser pointers are becoming more and more common in lectures and presentations to indicate an area on a projection screen, black board or similar. It is difficult for many people to believe that a device that looks like an ordinary pen light and runs on a couple of AAA batteries can be dangerous. However, within the device is a small yet powerful laser diode.

Laser pointers are commercially available as Class 1, Class 2 (1 milliwatt or less), or Class 3 lasers. Laser 'class' classification gives an indication to their degree of hazard. At one end of the scale, Class 1 lasers are safe for normal viewing; eye damage is usually avoided with a Class 2 laser by the blink reaction or aversion response; and Class 3 lasers can damage an eye before it has time to blink.
A Class 3 laser pointer has the potential to cause eye injury, especially in the hands of an unaware untrained, or careless operator. The resultant injury can range from temporary flash blinding (similar to a visual after image) to a slight retinal lesion. That is why, in Australia, laser pointers shall not exceed class 2. Laser pointers should only be purchased for use at UNSW if they are labelled in accordance with AS/NZS 2211.1:2004.

Laser pointers should be handled with respect, to minimise the potential risk. The beam should always be aimed away from people.
Laser pointers of Class 3 must not be used within the University of New South Wales.
Note: If you wish to possess and use a laser pointer over one milliwatt, you must obtain a prohibited weapon permit from the NSW Firearms Registry.

Additional information is available in the Australian Standards listed, or from the OHS -Ext: 52912.

Appendix A: History

Version	Authorised by	Approval Date	Effective Date	Sections modified
[1.0]	HR Director	[1 November 2006]	[1 November 2006]	New guideline
[2.0]	HR Director	1 November 2010	1 November 2010	3 Reformatted
2.1	HR Director	22/04/2013	22/04/2013	Updated Branding Logo in accordance with UNSW Branding Guidelines. Modified the document identifier from OHS to HS in accordance with WHS legislation review