



HERVEY BAY ASTRONOMICAL SOCIETY Inc

Guidelines for the Safe Use of Hand Held Laser Pointers

Notice – A large amount of the information for this Guideline has been taken from the Astronomical Society of Australia Fact Sheet number 22 and the South Australian Astronomical Society. This information is used with their kind permission.

Background

Under most State legislations, hand held laser pointers with an output greater than 1 milliwatt are prohibited weapons. This Guideline has been prepared to assist members using laser pointers to understand the changes to legislation for the use of laser pointers and is provided for information only and should not be regarded as legal advice.

Note: It is the responsibility of any person using a laser pointer to confirm that their use or possession is permitted by the relevant Act. The Hervey Bay Astronomical Society makes no warrant as to the legality of any use of a laser pointer in Queensland. If using a laser pointer in other States, astronomers are recommended to seek local advice before operating lasers.

The Use of Laser Pointers in Astronomy

Introduction

Green laser pointers are useful astronomical tools. On public astronomy nights, the narrow beam from the laser pointer can be used to unambiguously point to celestial objects. The beam is bright and clearly visible for several reasons:

- ? typical green laser pointers deliver at least 5 milliwatts (mW) of power,
- ? green light is scattered away from the beam direction by air molecules and dust particles (so you can see the beam from the side),
- ? the eye is particularly sensitive to the green colour of the laser pointer.

What kinds of laser pointer are now restricted?

On 1 July 2008, the Australian Federal government banned the **importation** of any handheld battery operated, laser pointer with a power greater than 1 mW unless prior written permission has been granted. This applies to companies and also individuals ordering on the web. Information on obtaining an import permit is available at

<http://www.customs.gov.au/webdata/resources/files/LaserPointers.pdf>.

Laws making any hand held laser pointer with an output greater than 1 milliwatt a prohibited weapon have been enacted in all States.

It applies to any hand-held laser pointer >1mW regardless of the wavelength of the beam.

The legislation provides exemptions for persons:

- * in the course of conducting his or her business or for the purpose of or in the course of his or her employment,
- * **for members of astronomical societies engaged in astronomy .**

The legislation specifically recognises members of astronomical societies as a class of people exempt from the prohibition but only when using a laser pointer for astronomy. The legislation deals harshly with people, including astronomers, who misuse a laser pointer to endanger life or cause injury.

What are the dangers of Laser Pointers? Laser light from laser pointers can potentially burn the retina of the human eye. The danger is obviously greatest if the beam is aimed directly into the eye, rather than merely scattered from the beam and seen from the side. The danger is dependent on the wavelength of the laser light, the power of the laser pointer,

the divergence of the laser beam, the distance of the person from the pointer, whether the beam is seen directly or via a reflection, how long the beam is viewed and whether the human eye's natural 'blink response' to bright light occurs. The risk from a laser pointer is often also expressed by the 'class' of the laser pointer, although the definition is a little complicated and class definitions have changed in recent years. At one end of the scale, Class 1 laser pointers are safe for normal viewing. Eye damage from directly viewing the beam of a Class 2 laser pointer is usually avoided by the blink response. Class 3 laser pointers can damage an eye before it has time to blink and have the potential to cause eye injury, especially in the hands of a careless or untrained operator. Class 4 lasers are even more dangerous, higher power devices.

The blink response should protect the human eye at any distance from any visible-light laser pointer beam with a power under 1 mW, typical of a Class 2 laser pointer. For laser pointers that are more powerful a greater distance is required to allow for blink response protection. Damage to the eyesight of a pilot or driver is unlikely from medium power (5 mW to 20 mW) laser pointers.

However, the dazzle caused by the beam scattering off dust or scratches on a windscreen, or the blink response itself could still lead to loss of control of a vehicle. A laser pointer beam could also potentially cause harm in other situations, for example by startling someone using a power tool.

Some amateur astronomers and small observatories have similar laser pointers permanently fixed to telescopes, although not always in use. While technically not hand held laser pointers, they should be used with similar safety guidelines in mind.

Safety Guidelines

It is the view of astronomical societies that the safe use of hand-held battery-operated laser pointers is possible in astronomy by following the guidelines presented below:

1. A laser pointer must only be used in accordance with the laws of the state or territory in which it is used.
2. A laser pointer should be carried between observing sites deactivated [batteries removed].
3. Laser pointer used for astronomy must require a button to be held continuously to activate the beam. If the laser pointer is dropped, the beam will automatically switch off.
4. Before activating any laser pointer, astronomers must always check where people are located and ensure the beam is never pointed in those directions. Verbal advice should be given that a laser will in use and to avoid looking directly at the light source.
5. Always hold laser pointers overhead in an outstretched arm before activating the switch and release the switch before lowering the pointer.
6. Never use a laser pointer to point out terrestrial objects. Aim the beam only at celestial objects.

Do not aim the beam at any object on the ground, nor at aircraft, motor vehicles, any person or any animal.

7. When the laser pointer is not being used to point at celestial objects return it to its case, place it in a pocket or cover the aperture from which the beam is emitted.
8. Always cease using a laser pointer if an aircraft is heard and do not switch back on until the aircraft is clearly located and its flight path is confirmed to be well away from the patch of sky being identified with the laser pointer.
9. Store the pointer deactivated in a secure place away from the reach of children and anyone with a potential to misuse the device.

To assist the police or other enforcement Agencies, astronomers must carry evidence of their current membership of an astronomical society at all times when the laser pointer is in their possession.

HBAS will provide members a suitable identification confirming their current membership of HBAS . Members requiring the identification should advise the Secretary HBAS of their laser pointer ownership, agree to have their names listed on a register of HBAS members who own laser pointers, provide a signed copy of the notice below confirming they have this guideline and agree to abide by it.



LASER SAFETY GUIDELINES

Please complete and return to the Secretary. Upon receipt, you will be issued with a tag identifying you as a member of the society and laser compliant. Your agreement will be kept on file in Society records and will serve as a record of your compliance in case any incident arises in the future relating to your legal use of a laser.

To the Secretary of the Hervey Bay Astronomical Society Inc

I, [Name]

of [Street address]

..... [Suburb and Post code]

confirm that I have read the HBAS Guidelines for the Safe Use of Hand Held Laser Pointers in Astronomy and agree without exception to abide by the Safety Guidelines.

SignedDate: / / 20.

Office Use only

ID tag issued Date / / 20 Signed.....