

Artificial Optical Safety (AOR) Standard Operating Procedures

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versions or by contacting the author to confirm the current version

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- x Out of date documents must not be relied upon.

University of Sussex

Artificial Optical Radiation (AOR) Safety Standard Operating Procedures

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1. Introduction and Scope

The operation of some Artificial Optical Radiation (AOR) sources, including medium and high power lasers, may give rise to both beam and non-beam hazards that could pose risks to the eyes and skin of staff and students. The University of Sussex is subject to the provisions of health and safety legislation in relation to its operation of hazardous Artificial Optical Radiation sources and has a responsibility to protect its employees and others from the hazards associated with them.

This document is to provide guidance to users with regards to how Artificial Optical Radiation should be controlled.

This SOP applies to all activities carried out on University premises or by University

3. Definitions

Staff

x LSO

5.2. Hierarchy of Control

Where possible, work with artificial optical radiation should be planned so that the radiated power or energy does not present a reasonably foreseeable risk of adverse effects to the eyes or skin, taking account of the wavelength(s) and duration(s) of emission. Consideration should be given to temporary reductions in beam power when operation with open beams is essential.

Where it is essential to use radiated powers or energies that are potentially hazardous, engineered solutions must be used to control risks associated with the operation of artificial optical radiation equipment. In particular the University requires that wherever reasonably practicable potentially hazardous artificial optical radiation must be enclosed using the following hierarchy of enclosures:

1. total enclosure of all individual beam paths and optical components using localised enclosures such as flight tubes and turrets for laser beams or opaque panels for non-laser sources;
2. where it is not reasonably practicable to enclose individual beam paths then consideration should be given to localised enclosure of spatially adjacent beam paths and associated optical components;
3. where there is no other practical alternative, enclosure of optical tables using side shields is acceptable, but in these cases the enclosures should also be provided with top covers that should be used whenever possible; and
4. where localised enclosures are unlikely to change on a regular basis, consideration should be given to interlocking the enclosure to a shutter or power supply.

However, given the nature of the work undertaken, it is recognised that it may not always be possible to fully enclose hazardous artificial optical radiation or may not be possible to

5.3. Local Rules

Local rules for areas used with open beam work should contain:

- x The name of the Group Leader
- x The name of the individual responsible for managing the area
- x The name of the LSO
- x The extent of the area
- x A summary of the access arrangements
- x List of users who have unsupervised access
- x List of relevant equipment
- x What safety checks are carried out
- x A summary of the general working instructions with regards to how open beam work is managed
- x A completed “Emergency Ophthalmic Examination after Laser Exposure form” (F-LE 007).

5.4. Personal Protective Equipment

The use of personal protective equipment (particularly laser protective eyewear) should be a last resort rather than standard working practice. Where there is an assessed requirement for laser protective eyewear, it must be ‘CE’ marked, conform to an appropriate British or European Standard and be appropriately specified according to the procedure in that standard. The University Laser Safety Co-ordinator must be consulted on all new purchases or acquisitions. All eyewear must be inspected to ensure that remains fit for purpose.

5.5. Maintaining Effectiveness of Controls

Where controls have been implemented, appropriate actions must be taken to ensure their continued effectiveness. Depending on the nature of the control measure adopted, this may include:

- x Preventative maintenance
- x Routine inspection and/or testing
- x Routine review of administrative procedures
- x Formal review of training

All of these actions must be recorded in writing to provide a permanent record that is amenable to audit.

contains a training matrix of the training required of all relevant members of staff. All new, temporary or transferred personnel are expected to have a personal interview with the relevant School LSO prior to commencing work. This interview should assess the knowledge and competence of the individual and should be used as a basis to decide on the training needs of the individual concerned.

9. Health Surveillance

Health Surveillance is not required as a standard for users of relevant equipment. If deemed necessary by an LSO Occupational Health should be advised as to the requirements. In the event of an accidental exposure to the eye health surveillance may be required. This should be assessed by an eye doctor as part of the after incident actions.

10. Incidents

Supervisors are required to put in place contingency arrangements to deal with all reasonably foreseeable accident scenarios identified through a risk assessment. This must include completing the relevant sections of the "Emergency Ophthalmic Examination after Laser Exposure form" (F-LE 007). In the event of an accident or near miss contact the local LSO and the relevant School accident/incident reporter. Details of these individuals can be found on the University of Sussex's webpage under accident & incident reporting.

11. Inspections/Monitoring

Annual formal audit and inspection is