

# Leaflet 34

## Laser Safety

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### Scope

1 Information on laser hazards and mandatory instructions on laser safety for UK Armed Services and MOD establishments is contained in JSP 390 Military Laser Safety.

### Statutory Requirements

2 Before 27 April 2010 there was no UK legislation specific to non-ionising radiation protection. In accordance with EU Directive 2006/25/EC on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (artificial optical radiation), the UK drew up “The Control of Artificial Optical Radiation at Work Regulations 2010” (CAOR 10). These regulations came into force on 27th April 2010. The regulations are based on the limit values incorporated in the guidelines issued by the International Commission on Non-Ionizing Radiation Protection (ICNIRP). This legislation applies to both coherent (laser) and non-coherent (broadband) optical radiation that is not of natural origin. These regulations rely on protection under existing regulatory provisions<sup>1</sup>, where appropriate, and introduce new regulatory provisions limited to new, specific requirements set by the directive, where necessary.

3 The guidance to CAOR 10 is included at Leaflet 37 (Artificial Optical Radiation Safety) of JSP 392 Radiation Safety Handbook.

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<sup>1</sup> e.g. The Management of Health and Safety at Work Regulations 1999 and the Health and Safety (Safety Signs and Signals) Regulations 1996.

## Standards

4 Within the UK, the laser radiation standards of the IEC (BSEN 60825) should be applied to the safety of laser products.

## Duties

### Commanding Officer and Head of Establishment (CO/HoE)

5 The CO/HoE has a duty to the Secretary of State, and a personal responsibility, to protect the environment and secure the health, safety and welfare of their staff at work. The CO/HoE is also required to protect persons not in MOD employment (e.g. members of the public) against risks to their health and safety arising from the MOD work activities. This includes radiation safety. The CO/HoE's authority (but not responsibility) for laser safety management arrangements may be delegated to appropriate personnel, such as a Radiation Safety Officer (RSO) or Laser Safety Officer (LSO).

### Laser Safety Officer (LSO)

6 A Laser Safety Officer (LSO) is to be appointed by establishments to co-ordinate laser safety arrangements at the unit or establishment and to ensure that adequate radiation protection arrangements are made to prevent exposure to potentially harmful laser radiation. Duties of the LSO are given in JSP 390.

## Employees

7 It is the responsibility of all employees to ensure that lasers are handled in accordance with the written procedures and not deliberately misused or interfered with. Any incidents are to be reported appropriately.

## Hazards

8 The eyes are the part of the body most susceptible to injury from laser radiation. The amount of energy absorbed by the body depends on factors such as the wavelength of the radiation, power of the laser beam and duration of exposure. Wavelengths in the UV region are primarily absorbed by the cornea, resulting in photo-keratitis (or snow blindness) where exposure is excessive. Exposure to visible laser radiation can cause thermal injuries to the retina and overexposure to infra red (IR) laser radiation can result in corneal burns and cataracts. There is also a risk of skin damage such as skin burns from higher power lasers. In addition to the hazards from laser radiation, laser equipment may also give rise to many other associated hazards such as fire, toxic fumes, electric shock etc. Medical advice should be sought in the event of laser eye or skin damage.

## Laser Safety Advice

9 As part of routine radiation protection advisory visits to units and establishments, Dstl RPA Body can provide advice on laser safety. Alternatively, advice on some aspects of laser safety may be obtained from the Military Laser Safety Committee (MLSC) at DESWpns-DOSG-MLSC1@mod.uk.

## Legal and MoD Mandatory Requirements

Table 1 Legal and MOD Mandatory Requirements

Requirement	Applicable	Comments	Related leaflet*
HSE authorisation	x		
HSE notification	x		
EA notification	x		
Risk assessment	✓	See Annexes in JSP390	JSP 390
Restriction of exposure	✓	Comply with local orders – see JSP 390	16
PPE	✓		JSP 390
Maintenance of radiation engineering controls	✓	For class 3B and class 4 lasers – see JSP390	JSP 390
Contingency plans	✓	See local orders – see JSP 390	JSP 390
Designated areas	✓	Designation may be required – see JSP 390	JSP 390
Monitoring	x		
Training for users	✓	Information and Instruction only – see JSP390	JSP 390
Local orders	✓		JSP 390
Appointed person	✓	Laser Safety Officer	JSP 390
Storage	x		
Accounting	✓	Include in Annual Holdings Return to Dstl	-
Leak testing	x		
Personal dosimetry	x		
Reporting procedures	✓	See JSP 390 for details	JSP 390
Transport	x		
Disposal	✓	Instructions on disposal are to be sought from the sponsoring authorities. The MLSC is to be consulted prior to the disposal of any lasers. Laser equipment at the time of disposal is to be disabled in such a way that there is no possibility of the equipment being returned to functioning condition. See JSP390.	JSP 390
<b>Leaflet specific requirements:</b>			
MLSC approval	✓	Laser Safety Paper to be submitted to MLSC prior to introduction into service. See JSP390	JSP 390

\*JSP 392, unless otherwise stated

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