34 Laser Safety

Scope

1 Information on laser hazards and mandatory instructions on laser safety for UK Armed Services and MOD establishments is contained in DSA03-OME Part 5 (JSP 390) – Defence Code of Practice (DCOP) and Guidance Notes for Lasers.

Statutory Requirements

2 The Control of Artificial Optical Radiation at Work Regulations 2010 (CAOR 10) 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[1], where appropriate, and will essentially only have an impact in those areas where hazardous sources of artificial optical radiations are being used and the risks are not already being appropriately managed.

3 The general provisions of the Health and Safety at Work etc. Act 1974, and the Management of Health and Safety at Work Regulations 1999, also apply.

4 Chapter 37 provides further guidance on the application of CAOR 10.

Standards

5 Within the UK, the laser radiation standards of the IEC (BS EN 60825-1:2014) should be applied to the safety of laser products.

Duties

6 Duties as detailed in Chapter 39 apply. In addition, the following duties also apply

Laser Safety Officer (LSO)

7 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 DSA03-OME Part 5 (JSP 390) – Defence Code of Practice (DCOP) and Guidance Notes for Lasers.

[1] e.g. The Management of Health and Safety at Work Regulations 1999 and the Health and Safety (Safety Signs and Signals) Regulations 1996.

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 Defence OME Safety Regulator (DOSR)) at DESWpns-DOSG-MLSC1@mod.uk.