Radiation Protection Service

DEPARTMENT OF WELLBEING, SAFETY AND HEALTH

UNIVERSITY OF LEEDS

Management of Class 3B and 4 lasers

Standard

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Introduction

This Standard deals with the management of lasers. It sets out the University's 'due diligence' management approach to the relevant statutory and University requirements.

Definitions

Class 3B and 4 lasers are high power lasers with such potential to cause harm that they need to be carefully controlled. Intrabeam viewing of these lasers will *always* cause serious retinal and skin damage, and even reflections may cause harm. Examples include machining, ablation, Particle Image Velocimetry and open beam Raman spectroscopy.

They do *not* include Class 1, 2, 3A and 3R lasers (low power lasers like confocal microscopes, CD-ROM drives, laser printers, surveying equipment) which, if used under normal operational conditions and without modification (e.g. using lenses to focus beam,) are considered to pose a low or negligible risk.

VIRGIL database – the University's laser database on which all 3B and 4 lasers must be registered and risk assessments recorded.

- More information and definitions are available at www.leeds.ac.uk/rps

Standard

The University expects that:

- All Class 3B and 4 lasers within University control are identified and registered on the VIRGIL system.
- 'Qualified experts' are centrally appointed to advise on compliance with statutory requirements for lasers.
- Laser Safety Officers are appointed by the Head of School wherever Class 3B or 4 lasers are used.
- Laser Safety Officers are allocated time and resources to undertake their role.
- All Laser Standard Operating Procedures and local procedures are followed.
- Audits and annual inspections are undertaken.
- Accidents, near miss and incidents are reported using the University's online accident reporting system, Sentinel.
- Staff are given training in accordance with the training matrix and this is recorded in line with the Health and safety training and competency protocol.
- Before first use of Class 3B or 4 laser facilities (e.g. room / lab), written approval is gained from the Radiation Protection Service.
    - Before planning any refurbishment, new build project, modification or relocation of facilities for handling Class 3B or 4 lasers the Radiation Protection Service gives written permissions. This includes permissions at RIBA (Royal Institute of British Architects) planning stages B, D, and E.
    - No changes to any aspects of design or installation are made once stage E has passed without written approval from the Head of Radiation Protection.
- Formal commissioning checks are carried out by the Radiation Protection Service after any refurbishment, new build project, modification or relocation of facilities for handling Class 3B or 4 lasers and before they are commissioned for use.
- Before any Class 3B or 4 laser is acquired, purchased or otherwise brought within the University's control, written approval is obtained from the Laser Safety Officer.
- Before any work commences, the relevant database process (VIRGIL) is followed which covers the requirements to:
    - apply for and obtain a work authorisation,
    - record user training,
    - risk assess local practices

  - register laser equipment,
  - record and track all Class 3B and 4 lasers from the moment they arrive until the time when they are disposed of,
  - retain records.
- If for any reason the VIRGIL database is not available, written authorisation must be gained from the Radiation Protection Service.
- All areas where Class 3B and 4 lasers are used are secured and provided with access control arrangements.
- Only laser hazard warning signs approved by the Radiation Protection Service are used.
- Where indicated by the risk assessment, local procedures are prepared for each level 3 (high risk) hazard prior to use.

Relevant Legislation

UK Legislation

- The Control of Artificial Optical Radiation at Work Regulations 2010.
- The Health and Safety (Safety Signs and Signals) Regulations 1999.
- Management of Health and Safety at Work Regulations 1999.
- Provision and Use of Work Equipment Regulations 1998.

Approved Codes of Practice and Standards

- Safety of Laser Products - Part 1: equipment classification and requirements. BS EN 60825-1:2007.
- Safety of Laser Products - Part 14: a user's guide. PD IEC TR 60825-14:2004.
- Graphical symbols and signs - safety signs, including fire safety signs. Part 1: specification for geometric shapes, colours and layout. BS 5499-1: 2002.