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| **Date:** (1) | **Assessed by:** (2) | **Validated by:** (3) | **Location:** (4) | **Assessment ref no** (5) | **Review date:** (6)Annually, or at change of use |
| **Approval of open beam work by Head of Department/ Director of Institute:** (7)**Name: ………..……………………………….Signature:……** **………………** |
| **Task and Environment :** (8) |
| **Justification for open beam work:** (9) |
| **Details of Laser(s) used, including ELV/MPE calculations:** (10) |
| **Provided PPE, including calculated eyewear requirements:** (11) |

| **Activity** (12) | **Hazard** (13) | **Who might be harmed and how** (14) | **Existing measures to control risk** (15) | **Risk rating** (16) | **Result** (17) |
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| **Action plan** (18) |
| **Ref No** | **Further action required** | **Action by whom** | **Action by when** | **Done** |
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**User Declaration**

*I have read and understood this document and agree to abide by its requirements at all times. I accept that we are all jointly responsible for one another’s safety and undertake not to knowingly permit the infringement of these requirements by others.*

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| **Name** | **Signature** | **Date** |
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**Notes to accompany Laser Risk Assessment Form**

This form is adapted from the one recommended by Safety Services, and used on the University’s risk assessment training courses. It is strongly suggested that you use it for all new assessments, and when existing assessments are being substantially revised. However, its use is not compulsory. Providing the assessor addresses the same issues, alternative layouts may be used.

1. **Date** : Insert date that assessment form is completed. The assessment must be valid on that day, and subsequent days, unless circumstances change and amendments are necessary.
2. **Assessed by** : Insert the name and signature of the assessor. The assessor should have completed the Laser Safety Awareness course THS42e and Advanced Laser Safety Awareness course THS43e. General guidance on completing risk assessments can be found on the safety services website: https://www.healthandsafety.manchester.ac.uk/toolkits/ra/
3. **Checked/Validated by** :

 **Checked by** : Insert the name and signature of someone in a position to check that the assessment has been carried out by a competent person who can identify hazards and assess risk, and that the control measures are reasonable and in place. The checker will normally be a line manager, supervisor, principal investigator, etc.

 **Validated by** : Insert the name and signature of your Local Laser Safety Advisor (or their designated deputy), they will need to check that your safety calculations and control measures are adequate.

1. **Location** : insert details of the exact location, ie building, floor, room or laboratory etc. If off-campus, provide information about expected location(s) or attach itinerary.
2. **Assessment ref no** : use this to insert any local tracking references used by the school or administrative directorate.
3. **Review date** : insert details of when the assessment will be reviewed as a matter of routine. Usually this is for 1 years’ time, but might be less for a short programme of work. Note that any assessment must be reviewed if there are any significant changes – to the work activity etc.
4. **Approval of open beam work :** Where open beam work with class 3B and 4 lasers is essential, it must be signed off by the Head of School/ Department/ Institute.
5. **Task**: insert a brief summary of the task, eg research project [title] involving the use of X equipment.
6. **Justification for open beam work:** where open beam work with class 3B and 4 lasers is essential, it must be robustly justified
7. **Details of Laser(s) used, including ELV/MPE calculations:** include make, model and other details of the laser system(s) in use, including wavelength, power, energy, pulse duration and beam size where known. This is also the place to include details of ELV/MPE calculations. If the calculations are extensive (covering multiple wavelengths etc.) then the results can be summarised here and given in full in a separate referenced document.
8. **Provided PPE, including calculated eyewear requirements:** list what PPE is available, and summarise what eyewear your calculations have specified. If the eyewear available does not match that specified then clearly state what wavelength/energy rages are covered. Also include here plan for how eyewear condition will be checked regularly and monitored/recorded.
9. **Activity** : use the column to describe each separate activity covered by the assessment. The number of rows is unlimited. For example activities might include: in one particular lab or for one particular project might include: Use of Lasers, Open beam work, Experimental process, Lone Working, General lab use, Use of substances hazardous to health, etc
10. **Hazard** : for each activity, list the hazards. Remember to look at hazards that are not immediately obvious. The same activity might well have several hazards associated with it. For example ‘Use of lasers’ would include personnel exposure to beam (from the laser output), fire (from high power beams) , electrical (from power supplies), water leaks (from cooling systems), trip hazards (from cables), irritants (from laser cutting). The ‘Open beam work’ hazard would personnel exposure to beam during alignment.

Assessment of simple chemical risks (eg use of cleaning chemicals in accordance with the instructions on the bottle) may be recorded here. More complex COSHH assessments eg for laboratory processes, should be recorded on the specific COSHH forms.

Describe how harm might come about, eg an obstruction or wet patch on an exit route is a hazard that might cause a trip and fall; use of electrical equipment might give rise to a risk of electric shock; use of a ultraviolet light source could burn eyes or skin.

1. **Who might be harmed**: insert everyone who might be affected by the activity and specify groups particularly at risk. Remember those who are not immediately involved in the work, including cleaners, young persons on work experience, maintenance contractors, Estates personnel carrying out routine maintenance and other work. Remember also that the risks for different groups will vary. Eg someone who needs to repair a laser may need to expose the beam path more than users of the laser would do. Vulnerable groups could include children on organised visits, someone who is pregnant, or employees and students with known disabilities or health conditions (this is not a definitive list).
2. **Existing measures to control the risk** : list all measures that already mitigate the risk. For example, in normal operation the risk of exposure to beam has been mitigated by fully enclosing the system, and interlocking to the laser output any access panels. For exposure to beam during alignment extra precautions would be needed, access controls, further training, appropriate PPE etc.
3. **Risk Rating** : the simplest form of risk assessment is to rate the remaining risk as high, medium or low, depending on how likely the activity is to cause harm and how serious that harm might be.

 The risk is **LOW** - if it is most unlikely that harm would arise under the controlled conditions listed, and even if exposure occurred, the injury would be relatively slight.

 The risk is **MEDIUM** - if it is more likely that harm might actually occur and the outcome could be more serious (eg some time off work, or a minor physical injury.

 The risk is **HIGH** - if injury is likely to arise (eg there have been previous incidents, the situation “looks like an accident waiting to happen”) and that injury might be serious (broken bones, trip to the hospital, loss of consciousness), or even a fatality.

1. **Result** : this stage of assessment is often overlooked, but is probably the most important. Assigning a number or rating to a risk does not mean that the risk is necessarily adequately controlled. The options for this column are:

 **T = trivial risk**. Use for very low risk activities to show that you have correctly identified a hazard, but that in the particular circumstances, the risk is insignificant.

 **A = adequately controlled, no further action necessary.** If your control measures lead you to conclude that the risk is low, and that all legislative requirements have been met (and University policies complied with), then insert A in this column.

 **N = not adequately controlled, actions required**. Sometimes, particularly when setting up new procedures or adapting existing processes, the risk assessment might identify that the risk is high or medium when it is capable of being reduced by methods that are reasonably practicable. In these cases, an action plan is required. The plan should list the actions necessary, who they are to be carried out by, a date for completing the actions, and a signature box for the assessor to sign off that the action(s) has been satisfactorily completed. Some action plans will be complex documents; others may be one or two actions that can be completed with a short timescale.

 **U = unable to decide. Further information required.** Use this designation if the assessor is unable to complete any of the boxes, for any reason. Sometimes, additional information can be obtained readily (eg from equipment or chemicals suppliers, specialist University advisors) but sometimes detailed and prolonged enquiries might be required. Eg is someone is moving a research programme from a research establishment overseas where health and safety legislation is very different from that in the UK.

 **For T and A results**, the assessment is complete.

 **For N or U results**, more work is required before the assessment can be signed off.

(18) **Action Plan**. Include details of any actions necessary in order to meet the requirements of the information in Section 11 ‘Existing measures to control the risk’. Identify someone who will be responsible for ensuring the action is taken and the date by which this should be completed. Put the date when the action has been completed in the final column.