Laser Alignment Procedure

Lab Information	
PI Name	
Location of laser	
Serial number and Laser Class	

Instructions

Complete this form if your lab is responsible for laser beam alignment. If the alignment is done by vendor or manufacturer, please mention that in Laser Standard Operating Procedure (LSOP).

Special alignment procedures:

- Use low power alignment laser, when possible.
- Use lowest possible energy setting.
- Survey area (with UV/IR viewer, if necessary) for reflections and confine such reflections to the optics table.
- Only after completing these procedures should the laser be increased to desired power and repetition rate. If more than one person is present, announce increase in power so that all present are aware of the change.

More useful tips:

- Allow only trained personnel to be present during alignment. Minimize the number of personnel present during the alignment. All present must wear appropriate eyewear.
- If possible, avoid using beam paths that are at sitting or standing eye level.
- Where feasible, use low power (class 2 or 3A) visible lasers to simulate the path of high power or invisible lasers. Where feasible, terminate laser beams and specular reflections on diffuse reflecting beam blocks.
- Use phosphor cards, IR viewers, video cameras or other display devices to locate invisible beams.
- Locate any specular reflections of the beam and block them as close to the source as possible.
  Whenever possible, reduce all high power laser beams to the minimum possible power.
- Use beam shutters to block high power beams any time they are not actually needed.

Note: It is sometimes necessary to align, clean or otherwise maintain the internal components of a laser. If this is so for this laser, please attach a procedure for this process as an addendum. Describe how you will perform this work in a safe manner. If this is performed by a vendor, please indicate so.

Definition:

Nominal Hazard Zone (NHZ) – The area where the laser radiation can cause damage to the eye or body, i.e. where laser radiation exceeds the maximum permissible exposure.

Maximum Permissible Exposure (MPE) – The level of laser light to which a worker may be exposed with no risk of injury.

Laser Controlled Area (LCA) – Designated as the controlled access area for the laser system. Laser radiation in this area must not exceed the MPE. The LCA must be only accessible and operated by authorized and trained personnel. It must also be labelled with appropriate warning signs.

Online Calculator: http://lasersafetyu.kentek.com/easy-haz-laser-hazard-software-basic-web-version/

Optical Density (OD) Calculator: https://www.lia.org/evaluator/od.php

Beam Alignment procedures

Please attach additional documents if applicable

Hazard Zones	Comments
What is the nominal hazard zone (NHZ) of the laser system during alignment?	
What is the laser controlled area (LCA) for this laser system during alignment?	
Please list the personnel authorized to be present in the LCA during the laser system alignment.	
How will access to the laser controlled area be restricted during alignment?	
PPE	
Please list the PPE used during alignment. Please include the optical density profile (O.D. specification) of laser safety glasses used.	
Beam Controls	
For invisible (and sometimes visible) lasers, beam display devices, such as image converter viewers or phosphor cards, should be used to see the location of the beams. What will be used to view the beam during alignment?	
What curtains or beam blocks will be used to block unaligned (stray) beams during alignment?	

Laser User acknowledgement:

I have read and understood this procedure, its content, the EHS review below and attached addendum. I agree to follow this procedure each time I use the laser/laser system. Please be certain to read any addendums to the laser alignment procedure prior to signing!

NOTE: All laser users should read the specific SOP and any other additional documents for lasers and sign below.

Name	Signature	Date

EHS review:

Name:

Title:

Date: