

Laser Alignment Standard Operating Procedures

Laser System Name:

Date:

I. Pre-Alignment Safety Procedures

- a. Remove all unnecessary personnel from the Laser Controlled Area (LCA)
- b. Ensure that all laser curtains/barriers and/or lab doors are closed
- c. Remove all jewelry and potentially reflective objects from personnel
- d. Remove all unnecessary equipment (e.g. tools, unused optics, etc.) from the optics table
- e. All personnel in the LCA must wear the appropriate laser eye protection
- f. Check for and remove any foreign objects in the beam path other than safety controls such as beam blocks.

II. Safety Considerations

- a. Only non-reflective alignment tools should be used. If reflective tools are required, be mindful to keep the tool out of the beam path
- b. Never allow the beam to propagate beyond the point to which you have aligned and always be aware of the full beam path.
- c. Always block the beam upstream when inserting/removing anything into/from the beam path, such as alignment irises
- d. As alignment proceeds down the table, a beam block should always be placed down-stream in a position to catch the beam directly after the pair of mirrors being aligned, preventing the beam from propagating through an unaligned path.
- e. Be aware that all transmissive optics generate back reflections and some reflective optics have substantial leak through. When working with these components be sure to track, block, and record all stray beams. This is a particular concern with filters which generate strong specular reflections that can propagate back up stream a long way before diverging off the beam path due to very slight miss alignments. When such a reflection travels back upstream and encounters a beam splitting optic a new beam path can be formed in an unexpected direction.

III. Optics Alignment Procedures

