

Authorized Users

While an important part of your SOP, this list of all Authorized Users, including their badge number, should appear as Appendix C of this document and users should sign the document to verify that they have read and understand the Standard Operating Procedure for the LCA. Appendix C can be updated as frequently as needed.

Incidental Personnel

Define what a Incidental Personnel is and under what conditions will they be allowed in your laser control area. An Incidental Personnel is a visitor or employee in the room who does not participate in the experiment. Define circumstances under which they are allowed in and what they will do.

Typically, they will be allowed in only if lasers are off or all beams are enclosed.

Normal Laser Operation

Room 2.518U.1, Dental Building, Main Campus contains the following lasers:

Class	Type	Make/Model	SN	Wavelength (nm)	Output Power mW
3B	Argon	GLG 3135	10096	457-514	40
3A	HeNe	GLG 7000	171	543	<5
3B	405 Diode	Olympus		405	50
3B	Diode	Olympus		635	35
4	Ti:Sapphire	Chameleon	GDP.1121786.7913	680-1080	<4,000

Visible light lasers are connected to Olympus FV1000 Laser Scanning Confocal Microscope via fiber optic cable. The Chameleon laser is directly coupled to the FV1000 Laser Scanning Confocal in an enclosed pathway. The visible light lasers (Diodes, Argon, HeNe) are located on a sled on the floor under the anti-vibration table. The Ti: Sapphire laser is located on the antivibration table, rear-right of the microscope. The main purpose of these lasers is for Laser Scanning Confocal or Multiphoton excitation imaging of fixed and live specimens.

Eyewear section

Wavelength specific eyewear will be used by field service engineers during alignment into the fiber optic cable (visible laser lines) or the hard-couple optics (pulsed NIR lines). No facility staff and users will be within the laser controlled area during laser maintenance, service or alignment.

Alignment Hazard Control

Visible light lasers (Blue Diode, Red Diode, Green *HeNe*, 3-line Argon), Class 3A & 3B, are aligned into the fiber optic cable by field service engineers and are not adjusted by users or facility staff.

Chameleon fs-pulsed tunable Ti-Sapphire laser (Class 4) is mounted and aligned by field service engineers. Staff and users change operating wavelength via computer control and perform secondary alignment with coupling optic with the laser pathway fully enclosed. Laser safe viewing windows are built into the enclosure to protect the user from hazardous irradiation. The NIR beam is visualized using a hand held NIR Viewer.

Laser Hazard Control

1. Access to LCA room is restricted to trained personnel. Main door is accessible by combination lock.
2. Main access door is locked when nobody is using the system.
3. Power supplies to the Class 3A & 3B lasers (Blue Diode, Red Diode, Green *HeNe*, 3-line Argon) are located under the anti-vibration table.
4. Keys to laser power supplies are kept in a: combination lockbox in 2.518U.1 with combination made available to trained users.
5. Operation of the Class 3B lasers is only accessible through the software for the FV1000 system. Computer access is restricted to trained users with unique login names and passwords.
6. Power supply to the Class 4 laser (Chameleon fs-pulsed tunable Ti-Sapphire laser) is located under the anti-vibration table.
7. Keys to the Chameleon laser power supply are kept in a combination lockbox in 2.518U.1 with the combination made available only to trained users. The keys will be removed from the laser and stored in the combination lock box when the laser is not in use.
8. Operation of the Class 4 laser is only accessible through the software for the FV1000 system.
9. A "Laser in Use" warning sign is mounted at the entrance to 2.518U.I. It will be illuminated when the Chameleon fs-pulsed, tunable Ti-Sapphire laser is in operation.
10. All lasers are enclosed with no open beam throughout the path. Primary users are trained in the operation of the FV1000 and the proper use and care for the lasers.

Tuning of the Class 4 laser is usually performed by Primary and Alternate Custodian or by users who have received specific training by Primary and Alternate Custodians. Tuning is performed while beam path is fully enclosed.

Control of Additional LCA hazards

Indicate other possible hazards associated with the lasers in your LCA.

Associated Chemical Hazard Control

List chemicals used in this LCA include a list MSDS numbers, or attach MSDS's to the end of the document (not required to attach MSDS sheets). If you prefer, provide the chemical list section from your Project Review Document as an Appendix. Indicate in this section if there is a registered Satellite Waste Accumulation Area in the LCA and where it is located. Discuss any site-specific chemical hazards for this LCA in this section.

Emergency Procedures

1. Shut down the laser system. Use "emergency stop" button if equipped.
2. Provide for the safety of the personnel, i.e. first aid, CPR, etc.
3. If a fire has been created as a result of the laser, follow appropriate procedures to put out the fire:
 - Within the surgical field, douse with sterile water
 - For fires in other areas, utilize an appropriate class fire extinguisher to extinguish the fire
4. Obtain medical assistance. In the event of a suspected eye injury, have the injured person keep their head upright and still to restrict any bleeding in the eye.
 - For life-threatening injuries (major burns, cardiac arrest following electrocution), dial 911 for immediate medical assistance.
 - For non-life threatening injuries (laser eye injuries, minor skin burns), employees should be evaluated by a physician as soon as possible. **Do not allow anyone with a potential laser eye injury to drive themselves.**

Emergency Dispatch 911 (from campus phone)
UT Medicine (210) 450-9100

5. **Immediately** report all accidents, injuries or potential exposures to laser radiation (involving both employees and patients) to the Laser Safety Officer by calling:

8 AM – 5 PM Mon-Fri: (210) 567-2955
After hours & Weekends: UT Police – (210)567-2800

6. Inform the Principal Investigator/Laser Custodian of the accident.
7. The laser cannot be used again until the Laser Safety Officer has investigated the incident, taken corrective action, and approved continued use of the laser.

Appendix A

Floor Plan Diagram

If diagrams or floor plans are available for this LCA, the descriptions should be noted and included.

Appendix B

Eyewear section

Shall contain the calculation of O.D. for eyewear. A chart or graph indicating the types of eyewear appropriate to the lasers used in this LCA.

Appendix C

Authorized Users

List all Authorized Users, include their badge number. Users should sign the document to verify that they have read and understand the Standard Operating Procedure for the LCA.

Name(printed)	Badge	Signature

This SOP has been adapted with permission from Argonne National Laboratories.

User Name	User Login Email
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