University of Texas Health Science Center at San Antonio
Standard Operating Procedures For

Sweptfield Confocal
Optical Imaging Core Facility
STRF 252, Greehey Campus
Laser Controlled Area Laser Controlled Area
ver 4.0 (*October 14, 2021*)

Prepared by: Exing Wang

Laser Custodian:

Exing Wang_____ Digitally signed by Exing Wang Date: 2021.10.18 16:43:19 -05'00' _____

Name Printed Signature Date

Laser Safety Officer:

Jennifer Cerecero _____ _____

Name Printed Signature Date

INTRODUCTION

The Sweptfield confocal contains the following lasers:

Class	Type
3B	Solid state (405 nm)
3B	Solid state (488 nm)
3B	Solid state (561nm)
3B	Solid state (640 nm)

All lasers and their power supplies are integrated into a wheeled unit that is placed on the floor under the anti-vibration table. The output is connected to the Nikon Ti microscope via a fiber optic cable.

Laser Custodian

Name	Badge#	Contact#	Email
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Alternative Contact:

Name	Badge#	Contact#	Email
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James Lechleiter	28297	(210)562-4043	lechleiter@uthscsa.edu

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

In addition to the authorized primary users, incidental personnel may be in the room at the time of the experiment. These personnel are not trained on the system, nor have they gone through the laser safety program. They will be observing only and not involved in the operation of the system. They will not be in the room during any alignment or maintenance of the lasers.

Normal Laser Operation

Nikon Sweptfield confocal contains the following lasers:

Class	Type	Make	S/N	Wavelength (nm)	Power output (mW)
3B	Solid state	Agilent	N1245AL14	405	50
3B	Solid state	Agilent	N1245AL24	488	50
3B	Solid state	Agilent	N1245AL34	561	50
3B	Solid state	Agilent	N1245AL44	640	50

All lasers and their power supplies are integrated into a wheeled unit that is placed on the floor under the anti-vibration table. Laser output is delivered to the Nikon Ti microscope via a fiber optic cable. The S/N for the integrated laser launch unit is N1245B ATO-3598 SER US51360103.

All lasers are used as the excitation sources for confocal microscopy.

Eyewear section

Wavelength specific eyewear will be used by field service engineers during alignment.

Alignment Hazard Control

All lasers are aligned by service engineers and are not adjusted by users or facility staff.

Laser Hazard Control

1. Access to laser control room is restricted to trained personnel. The room is secured by a card-access door reader. All access is approved by the campus police.

2. The entire system is enclosed by laser proof curtain.

3. Operation of all Class 3B lasers is only accessible through the system software. Computer access is restricted to trained users with unique login names and passwords.

4. A “Laser in Use” warning sign is mounted above the entrance of the enclosed system booth.

5. All lasers are enclosed with no open beam throughout the path.

6. All users are trained in the operation of the NSTORM and the proper use and care for the lasers.

Primary users are trained in the operation of the Sweptfield confocal and the proper use care for the lasers.

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.

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