



## **Instructions for the safe operation of laser systems with risk factor 3B/4**

**Definition: "Works with laser risks"** – A person who works in an environment where they may be in an area of laser risk. This includes a student, researcher, volunteer and anyone regularly in this physical space for their professional work or training.

- 1. Be familiar with the risks and safety procedures** of the laser systems in the lab, and follow the manufacturer's instructions and safety procedures.
- 2. Entry to the laboratory is possible only using an entrance code.**
- 3. Laser Risks**
  - a. A Class 4 laser beam, whether direct, reflected from a polished surface, or diffused by a rough surface, can ignite flammable materials, burn skin, damage eyes, and seriously impair vision.
  - b. The direct beam of a Class 3B laser can damage the eyes and seriously impair vision.

### **4. Operating the laser system**

- 4.1 The laser system should be operated only by employees, who were trained less than a year ago by a Laser Safety Officer, and who were instructed by the laboratory manager on how to operate all the laser system's components.
- 4.2 Prior to operating the system, the following must be verified:
  - 4.2.1 The warning light situated above the laboratory entrance is on.
  - 4.2.2 The laboratory's windows are covered.
  - 4.2.3 Every person in the laboratory is wearing protective glasses suitable for laser beams.
  - 4.2.4 When working with a Class 4 risk laser in the ultraviolet spectrum only, it is recommended to wear a long-sleeved lab coat and gloves.
- 4.3 Beam adjustment operations should be performed at the lowest possible laser power, using designated goggles suitable for the laser beam.
- 4.4 While performing adjustments, a beam blocker should be used, and should be placed behind the optical segment in the adjustment process each time.



- 4.5 During a long experiment that requires that the system be left running without the operator present, the door must be closed and the warning light at the entrance to the laboratory must remain on. This is to ensure that a person without the necessary training cannot enter the room (including cleaning workers). Also, video cameras must be installed to monitor the experiment remotely.
- 4.6 Following the laser's operation, the warning lamp above the front door must be turned off.

## 5. Emergency scenarios and responses

- 5.1 In the event of a suspected eye injury from a laser beam, report the Weizmann Service Center 2999-934-08. An eye injury requires immediate evacuation to the "Kaplan" Medical Center emergency room for a medical examination.
- 5.2 In the event of a skin burn caused by the laser beam, cover the burn area with burn treatment ointment from the first aid kit in the room, and immediately report the Weizmann Service Center 2999-934-08.
- 5.3 In the event of igniting flammable material, use a fire extinguisher and immediately report Weizmann service center at 08-934-2999.
- 5.4 In the event of a malfunction/suspected failure in operating the laser system, the power must be turned off immediately by pressing the emergency breaker or disconnecting the main power supply on the electrical panel. The Laser Safety Officer must be notified immediately.

## 6. Safety warnings

- 6.1 Disabling or bypassing existing safety devices in the laser system is absolutely prohibited!!!
- 6.2 Any procedure or modifications made to the laser system, or plans to use a system that has not been operated for a long period of time must be reported to the Laser Safety Officer. Resuming the use of the laser system requires a certified laser test before operation, in coordination with the Laser Safety Officer.
- 6.3 The Laser Safety Officer must approve in advance any unusual operation of the laser system. The annual approval relates only to routine operation of the laser system, and any other action requires special written approval.