



South Carolina

Laser Safety Manual

EH&S RESEARCH & LABORATORY SAFETY

FOREWORD

This manual is a living document that is issued as a means of providing university employees, faculty and/or staff guidance on the use of lasers on campus.

All laser devices manufactured in or imported into the United States of America must meet the Federal Laser Products Performance Standards as promulgated by the United States Food and Drug Administration's "Center for Devices and Radiological Health" (CDRH). Manufacturers or importers must stamp the laser class on the device before sale or distribution for use.

All laser devices used on campus must have the laser class stamp on the device. Refer to the below table as published by the CDRH for an explanation of each laser class. Lasers without a classification stamp must not be used on campus. Lasers classed as 3B or 4, or Class 1 and/or 2 lasers where optical aids within the beam are utilized for research or teaching research purposes, must be approved for use on campus by the university's Radiation Safety Committee. For training and approvals of Class 3B or 4 lasers, email radSAFE@mailbox.sc.edu.

Class FDA	Class IEC	Laser Product Hazard	Product Examples
I	1, 1M	Considered non-hazardous. Hazard increases if viewed with optical aids, including magnifiers, binoculars, or telescopes.	<ul style="list-style-type: none"> laser printers CD players DVD players <p>Class 3B and 4 lasers embedded in enclosed and Interlocked equipment stamped as Class 1 (including but not limited to 3D printers and analytical equipment). If interlocks are defeated and enclosures removed to align or maintain the internal Class 3B or 4 laser, the laser is reclassified to a Class 3B or 4 laser until the procedure is completed, enclosures replaced and interlocks reactivated.</p>
Ila, II	2, 2M	Hazard increases when viewed directly for long periods of time. Hazard increases if viewed with optical aids.	<ul style="list-style-type: none"> bar code scanners laser pointers
IIIa	3R	Depending on power and beam area, can be momentarily hazardous when directly viewed or when staring directly at the beam with an unaided eye. Risk of injury increases when viewed with optical aids.	<ul style="list-style-type: none"> laser pointers
IIIb	3B	Immediate skin hazard from direct beam and immediate eye hazard when viewed directly.	<ul style="list-style-type: none"> laser light show projectors industrial lasers research lasers
IV	4	Immediate skin hazard and eye hazard from exposure to either the direct or reflected beam; may also present a fire hazard.	<ul style="list-style-type: none"> Lasers used outdoors or inside for light shows and art industrial lasers research lasers medical device lasers for eye surgery or skin treatments