

# LASER CLASSIFICATIONS

All manufacturers of lasers used in the United States, must conform to regulations administered by the Center for Devices and Radiological Health (CDRH), a branch of the U.S. Department of Health and Human Services. CDRH categorizes lasers as follows:

| Class       | Description  |
|-------------|--|
| <b>I</b>    | A laser or laser system which does not present a hazard to skin or eyes for any wavelength or exposure time. Exposure varies with wavelength. For ultraviolet, .2 to .4 $\mu\text{m}$ exposure is less than .8 nW to .8 $\mu\text{W}$ . Visible light exposure varies from .4 $\mu\text{W}$ to 200 $\mu\text{W}$ , and for near IR, the exposure is < 200 $\mu\text{W}$ . Consult CDRH regulations for specific information. |
| <b>II</b>   | Any visible laser with an output less than 1 mW of power. Warning label requirements — yellow caution label stating maximum output of 1 mW. Generally used as classroom lab lasers, supermarket scanners and laser pointers  |
| <b>IIIa</b> | Any visible laser with an output over 1 mW of power with a maximum output of 5 mW of power. Warning label requirements — red danger label stating maximum output of 5 mW. Also used as classroom lab lasers, in holography, laser pointers, leveling instruments, measuring devices and alignment equipment.   |
| <b>IIIb</b> | Any laser with an output over 5 mW of power with a maximum output of 500 mW of power and all invisible lasers with an output up to 400 mW. Warning label requirements — red danger label stating maximum output. These lasers also require a key switch for operation and a 3.5-second delay when the laser is turned on. Used in many of the same applications as the Class IIIa when more power is required.               |
| <b>IV</b>   | Any laser with an output over 500 mW of power. Warning label requirements — red danger label stating maximum output. These lasers are primarily used in industrial applications such as tooling, machining, cutting and welding. Most medical laser applications also require these high-powered lasers.   |