

## Laserglow Product Datasheet

### LRD-0447 Collimated Diode Laser System



#### Series Specifications:

|                    |        |
|--------------------|--------|
| Nominal Wavelength | 447 nm |
| Output Type        | CW     |
| Laser Source Type  | Diode  |

#### Overview:

The LRD-0447 Series of Collimated Diode (Semiconductor) Lasers are ideal for applications requiring a short wavelength of 447 nm and output power levels of 5 mW to 20 W with a high level of long-term output power stability and long operating lifetime at a very competitive cost.

These lasers are commonly used for various scientific applications involving fluorescence excitation, as well as PIV, spectral analysis, and a broad spectrum of other applications. The driver is available as a complete FDA-compliant system or as an O.E.M. component with significantly reduced dimensions.

Available with both on-board and remote on/off control as well as a wide array of output power and stability levels, Laserglow products are currently being used by some of the World's top universities and other prominent research facilities.

#### Key Features:

- The most cost-effective blue laser source
- Air cooled - no need for water cooling or external chiller
- Lightweight, compact design
- Efficient Diode Laser technology runs on standard AC power (85 - 264 V, 47 - 63 Hz)
- >10,000 hours continuous maintenance-free operating life
- FDA CDRH Compliant Class IIIb / Class IV enclosure
- 48-hour replacement coverage available for an additional fee on specific models

#### Package Includes:

- Laser Head
- Driver/Power Supply
- Power Cable
- BNC Connector (LabSpec models only)
- Keys, Safety Interlock
- Hard-shell Carrying Case

## Specifications:

This spec sheet has been generated specifically for part number D44-I, per your request, and data for the entire series is also displayed for your reference. The specs which are specific to D44-I have been highlighted below in **red + bold**.


|  |                             |                               |                               |                           |                                   |                                    |                             |
|--|-----------------------------|-------------------------------|-------------------------------|---------------------------|-----------------------------------|------------------------------------|-----------------------------|
| Output Power (mW)                        | <5, >10, >20, >30           | >30, >50, >80                 | >30, >100, >200, >500         | >1000                     | >1500, >2000, >3000, >3500, >4000 | <b>&gt;2000, &gt;3000</b>          | >8000, >12000, >20000       |
| Output Power Stability (%RMS/4h)         | <1, <3                      | <1, <3                        | <1, <3, <10                   | <1, <3, <10               | <1, <3, <10                       | <b>&lt;1, &lt;3, &lt;5</b>         | <1, <3                      |
| Central Wavelength (nm)                  | 447                         | 447                           | 447                           |                           | 447                               | <b>447</b>                         | 447                         |
| Wavelength Tolerance (+/- nm)            | 5                           | 5                             | 5                             |                           | 5                                 | <b>5</b>                           | 5                           |
| Divergence (mrad, full angle)            | <1                          | <1                            | <2x1.6                        | <1.5                      | <1.4x0.2                          | <b>&lt;120x240</b>                 | <2x0.5                      |
| Beam Dimensions (mm, 1/e <sup>2</sup> )  | 3.5                         | 2.5                           | 2.5x5                         | 5                         | 2.7x2.7, 3.5x3.5                  |                                    | 6x5, 11x10                  |
| Warm-up Time (minutes)                   | 15                          | 5                             | 5                             |                           | 5                                 | <b>5</b>                           | 5                           |
| Approximate Peak Power (W)               |                             | 499                           |                               |                           |                                   |                                    |                             |
| Spectral Linewidth (nm)                  | <0.06                       |                               |                               |                           |                                   |                                    |                             |
| M <sup>2</sup>                           | <1.5                        | <1.5                          |                               |                           |                                   |                                    |                             |
| Polarization Ratio                       | >50                         |                               |                               |                           |                                   |                                    |                             |
| Beam Pointing Stability (mrad)           |                             | <0.05                         | <0.05                         |                           | <0.05                             | <b>&lt;0.05</b>                    |                             |
| Operating Temperature Range (°C)         | 20 to 30                    | 10 to 35                      | 10 to 35                      |                           | 10 to 35                          | <b>10 to 35</b>                    | 10 to 35                    |
| Max. Analog Modulation Freq. (Hz)        | 30000                       | 30000                         | 30000                         | 30000                     | 30000                             | <b>30000</b>                       | 30000                       |
| Max. TTL Modulation Freq. (Hz)           | 30000                       | 30000                         | 10000, 30000                  | 10000, 30000              | 10000, 30000                      | <b>30000</b>                       | 30000                       |
| Modulation Input Signal                  | 0-5 VDC                     | 0-5 VDC                       | 0-5 VDC                       | 0-5 VDC                   | 0-5 VDC                           | <b>0-5 VDC</b>                     | 0-5 VDC                     |
| Total Power Consumption (W)              | 9                           | 9                             | 12, 25, 30                    | 40                        | 40, 100                           | <b>40</b>                          |                             |
| Max. Power Input Duty Cycle              | 100%                        | 100%                          | 100%                          | 100%                      | 100%                              | <b>100%</b>                        | 100%                        |
| Standard Warranty (months)               | 12                          | 12                            | 12                            | 12                        | 12                                | <b>12</b>                          | 12                          |
| MTTF (operational hours)                 | 10000                       | 10000                         | 10000                         | 10000                     | 10000                             | <b>10000</b>                       | 10000                       |
| Weight of Product or Laser Head (kg)     | 0.8                         | 0.6                           | 0.6                           | 0.9                       | 1.6                               | <b>5.4</b>                         | 6.1                         |
| Beam Height from Base Plate (mm)         | 30                          | 24.8                          | 24.8                          | 29                        | 45                                |                                    | 93.5                        |
| Dimensions of Product or Laser Head (mm) | 122.5 (l) x 65 (w) x 50 (h) | 140.7 (l) x 73 (w) x 46.2 (h) | 140.7 (l) x 73 (w) x 46.2 (h) | 155 (l) x 77 (w) x 60 (h) | 211.5 (l) x 88 (w) x 74 (h)       | <b>314 (l) x 290 (w) x 134 (h)</b> | 346 (l) x 140 (w) x 125 (h) |


CW: All specifications are based on performance at full output power and after the specified warmup period. Output characteristics may change if the laser is run at a different power level.


Q-Switched: Specifications are based on the laser pulsing at the specified design frequency. Output characteristics may change if the laser is run at a different frequency.

## Power Supply Options:

These lasers are available with several different power supply options. The model that you have selected is highlighted below, and any other options are shown for easy reference.

|  | Power Supply Type:       | <b>FE</b>                   | <b>FR</b>                  | <b>FT</b>                   | <b>FW</b>                   | <b>FF</b>                   |
|--|--------------------------|-----------------------------|----------------------------|-----------------------------|-----------------------------|-----------------------------|
| FDA-Compliant LabSpec<br> | Input Power              | 85v to 264v                 | 85v to 264v                | 85v to 264v                 | 85v to 264v                 | 85v to 264v                 |
|  | Power Supply Weight (kg) | 6.2                         | 1.5                        | 2.6                         | 5.2                         | 2.6                         |
|  | Dimensions (mm)          | 320 (l) x 300 (w) x 123 (h) | 154 (l) x 155 (w) x 95 (h) | 268 (l) x 145 (w) x 106 (h) | 307 (l) x 168 (w) x 123 (h) | 268 (l) x 145 (w) x 106 (h) |

|   | Power Supply Type:       | <b>SR</b>                  | <b>ST</b>                   | <b>SF</b>                   |
|---|--------------------------|----------------------------|-----------------------------|-----------------------------|
| FDA-Compliant Standard<br> | Input Power              | 85v to 264v                | 85v to 264v                 | 85v to 264v                 |
|   | Power Supply Weight (kg) | 1.2                        | 2.3                         | 2.3                         |
|   | Dimensions (mm)          | 133 (l) x 130 (w) x 65 (h) | 238 (l) x 146 (w) x 102 (h) | 238 (l) x 146 (w) x 102 (h) |

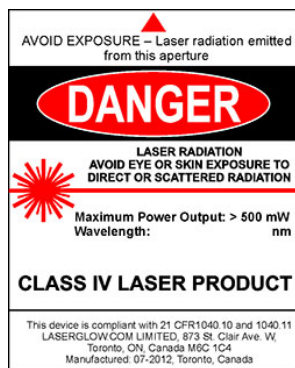
|   | Power Supply Type:       | <b>II</b>                    |
|---|--------------------------|------------------------------|
| Fiber-Integrated LabSpec<br> | Input Power              | <b>85v to 264v</b>           |
|   | Power Supply Weight (kg) | <b>0</b>                     |
|   | Dimensions (mm)          | <b>0 (l) x 0 (w) x 0 (h)</b> |

\*Power supply may not be exactly as shown, see dimensional drawings on next 2 pages.

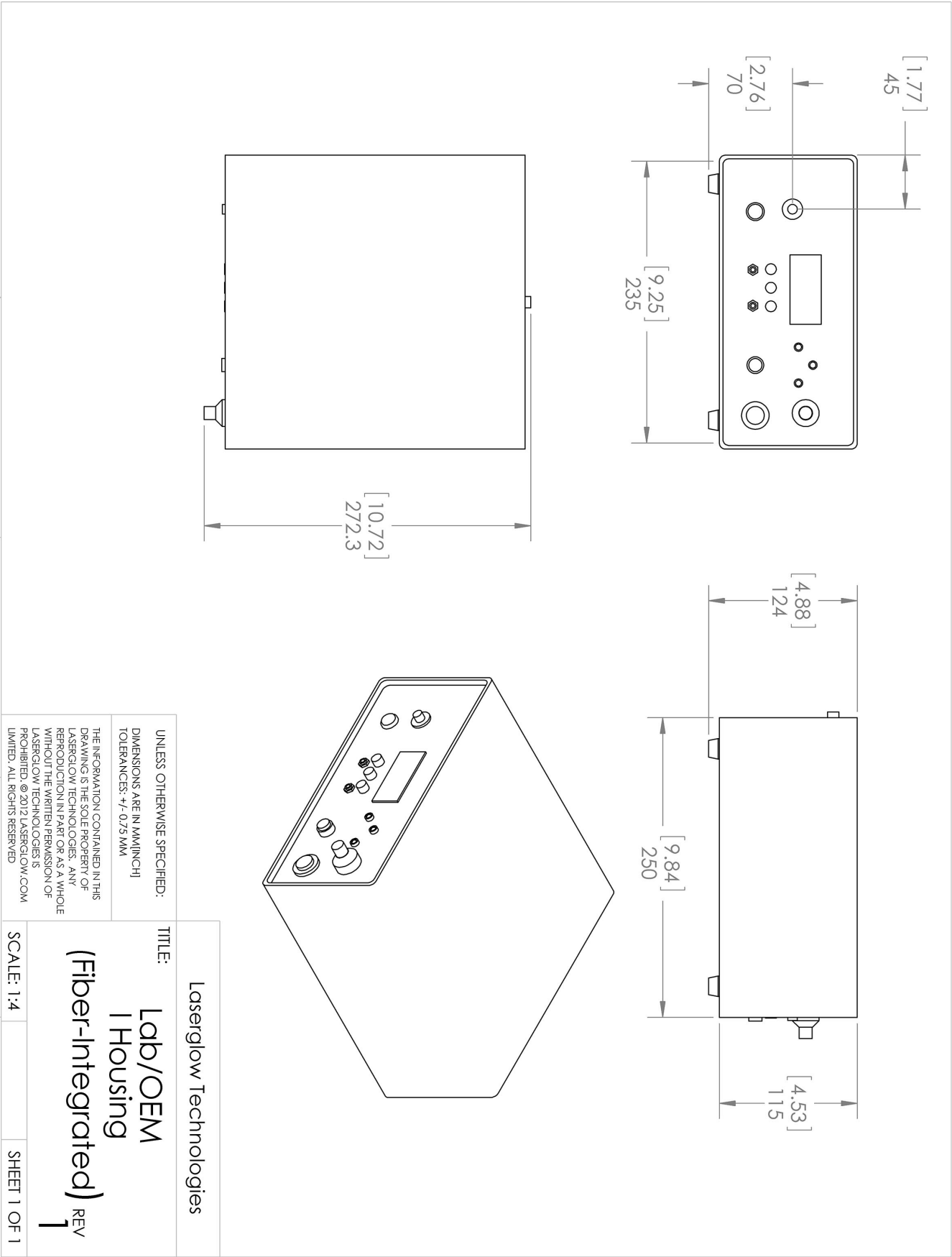
\*Dimensions for fiber-integrated (I\_) include laser head packaged inside.

## Regulatory Classification:

The model you have selected (D44-I) requires the following safety label(s):









Dimensional Drawing - Laser Form Factor: I:



## Accessories:

The most popular accessories for model D44-I are shown below. For additional details regarding these or other accessories please see our website or contact us directly.

| Part Number  | Description  |                     |
|--|--|---------------------|
| <br>AGF5327XX    | LSG-532-NF-7 Fit-Over Safety Goggles 532nm<br>Output: OD 7+ at 190-532 nm<br>CE Certified<br>Full Details: <a href="http://www.laserglow.com/AGF">www.laserglow.com/AGF</a>  |                     |
| <br>ACFVISHXA   | FC/PC Fiber Coupler/Collimator for visible spectrum wavelengths (400 to 700 nm)<br>(installed and aligned)<br>11mm diameter input lens<br>Full Details: <a href="http://www.laserglow.com/ACF">www.laserglow.com/ACF</a>   |                     |
| <br>ACSVISHXA   | SMA-905 Fiber Coupler/Collimator for visible spectrum wavelengths (400 to 700 nm)<br>(installed and aligned)<br>11mm diameter input lens<br>Full Details: <a href="http://www.laserglow.com/ACS">www.laserglow.com/ACS</a> |                     |
| <br>ACALBMXXX   | Carrying Case-102<br>Holds Lab/OEM M, R and S size, standard or LabSpec laser<br>Full Details: <a href="http://www.laserglow.com/ACA">www.laserglow.com/ACA</a>  | Included With Laser |
| <br>AFS2002XX | Armored Fiber With SMA 905 Connectors 200um Core Multimode 2 m length<br>Full Details: <a href="http://www.laserglow.com/AFS">www.laserglow.com/AFS</a>  |                     |
| <br>AFF2002XX | Armored Fiber With FC/PC Connectors 200um Core Multimode 2m length<br>Full Details: <a href="http://www.laserglow.com/AFF">www.laserglow.com/AFF</a>   |                     |

## FOR MORE INFORMATION PLEASE CONTACT:

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E&OE: Data included in this sheet may be subject to change without notice.

Please confirm critical specifications with our staff prior to ordering.