

Datasheet for #sbcw1000 UP

Recommendations:

Please read the starter kit user manual (at least installation chapter 5), if available, and have a look at the FAQ at <http://www.alpeslasers.ch/alfaqa.pdf>

WARNING: Operating the laser with higher current or voltage than specified in this document may cause damage and will result in loss of warranty, unless Alpes Lasers has permitted to do so!

WARNING: Beware of the polarity of the laser. This laser has to be powered with negative current on the laser contact (= bonding pad, corresponding to the label "laser" on the LLH) and the positive current on the base contact (= submount, corresponding to the label "base" on the LLH). To use with a power-supply ILX Lightwave LDX-3232 or equivalent.

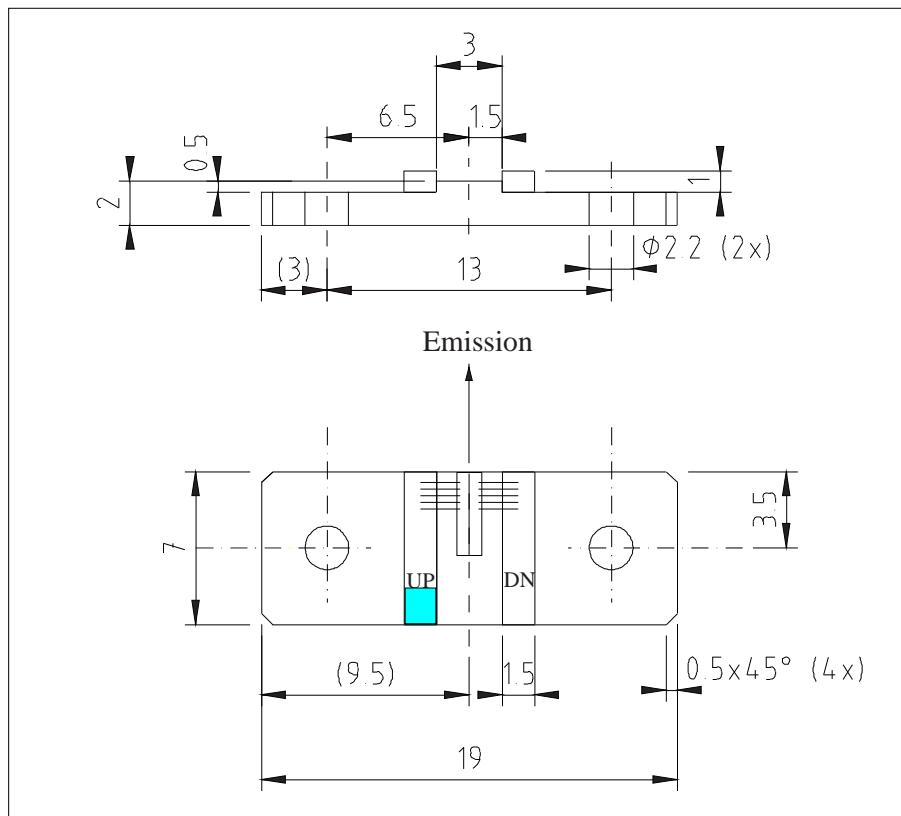


Figure 1: Support mounting for #sbcw1000 UP (please note that the laser is connected to the UP pad drawn in blue)

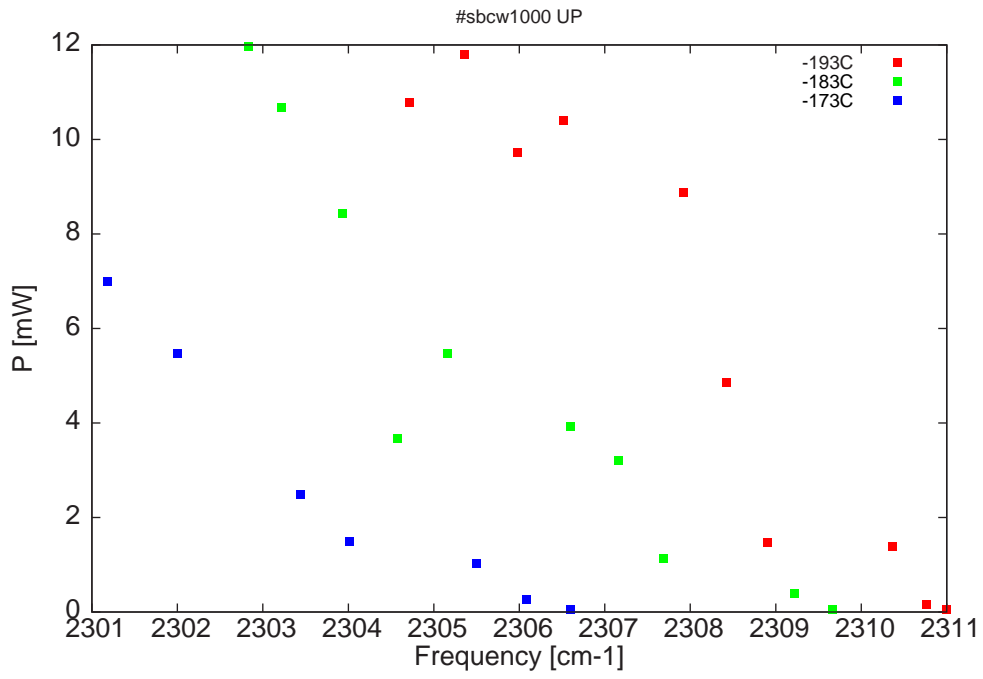


Figure 2: Output power as a function of the singlemode emission frequencies and temperatures

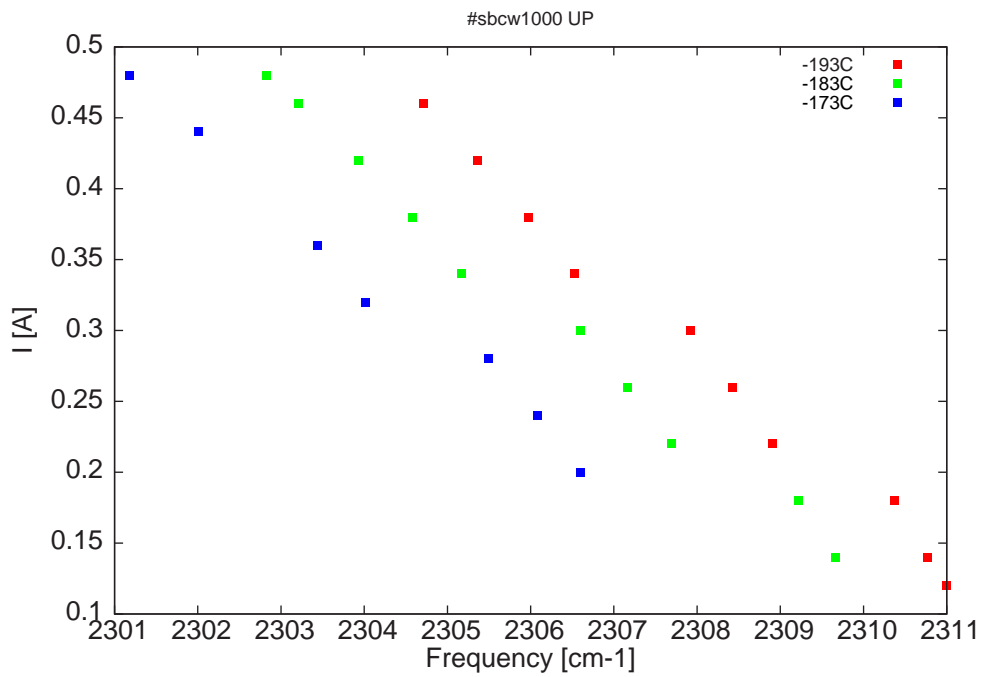


Figure 3: Applied DC current as a function of singlemode emission frequencies and temperatures

| λ [nm] | ν [cm ⁻¹] | P[mW] | Temp[°C] | U_{LASER} [V] | I[A] |
|----------------|---------------------------|-------|----------|-----------------|------|
| 4327.1 | 2311 | 0.1 | -193 | 8.3 | 0.12 |
| 4327.6 | 2310.8 | 0.2 | -193 | 8.4 | 0.14 |
| 4328.3 | 2310.4 | 1.4 | -193 | 8.6 | 0.18 |
| 4331.1 | 2308.9 | 1.5 | -193 | 8.8 | 0.22 |
| 4332 | 2308.4 | 4.8 | -193 | 8.9 | 0.26 |
| 4332.9 | 2307.9 | 8.9 | -193 | 9.1 | 0.3 |
| 4335.5 | 2306.5 | 10.4 | -193 | 9.2 | 0.34 |
| 4336.6 | 2306 | 9.7 | -193 | 9.3 | 0.38 |
| 4337.7 | 2305.4 | 11.8 | -193 | 9.5 | 0.42 |
| 4338.9 | 2304.7 | 10.8 | -193 | 9.6 | 0.46 |
| 4329.6 | 2309.7 | 0.1 | -183 | 8.4 | 0.14 |
| 4330.5 | 2309.2 | 0.4 | -183 | 8.6 | 0.18 |
| 4333.3 | 2307.7 | 1.1 | -183 | 8.8 | 0.22 |
| 4334.3 | 2307.2 | 3.2 | -183 | 9 | 0.26 |
| 4335.4 | 2306.6 | 3.9 | -183 | 9.2 | 0.3 |
| 4338.1 | 2305.2 | 5.5 | -183 | 9.3 | 0.34 |
| 4339.2 | 2304.6 | 3.7 | -183 | 9.4 | 0.38 |
| 4340.4 | 2303.9 | 8.4 | -183 | 9.5 | 0.42 |
| 4341.8 | 2303.2 | 10.7 | -183 | 9.6 | 0.46 |
| 4342.5 | 2302.8 | 12 | -183 | 9.7 | 0.48 |
| 4335.4 | 2306.6 | 0.1 | -173 | 8.7 | 0.2 |
| 4336.4 | 2306.1 | 0.3 | -173 | 8.9 | 0.24 |
| 4337.5 | 2305.5 | 1 | -173 | 9.1 | 0.28 |
| 4340.2 | 2304 | 1.5 | -173 | 9.2 | 0.32 |
| 4341.3 | 2303.4 | 2.5 | -173 | 9.4 | 0.36 |
| 4344 | 2302 | 5.5 | -173 | 9.7 | 0.44 |
| 4345.6 | 2301.2 | 7 | -173 | 9.8 | 0.48 |

Table 1 : singlemode optical output power as function of operating parameters

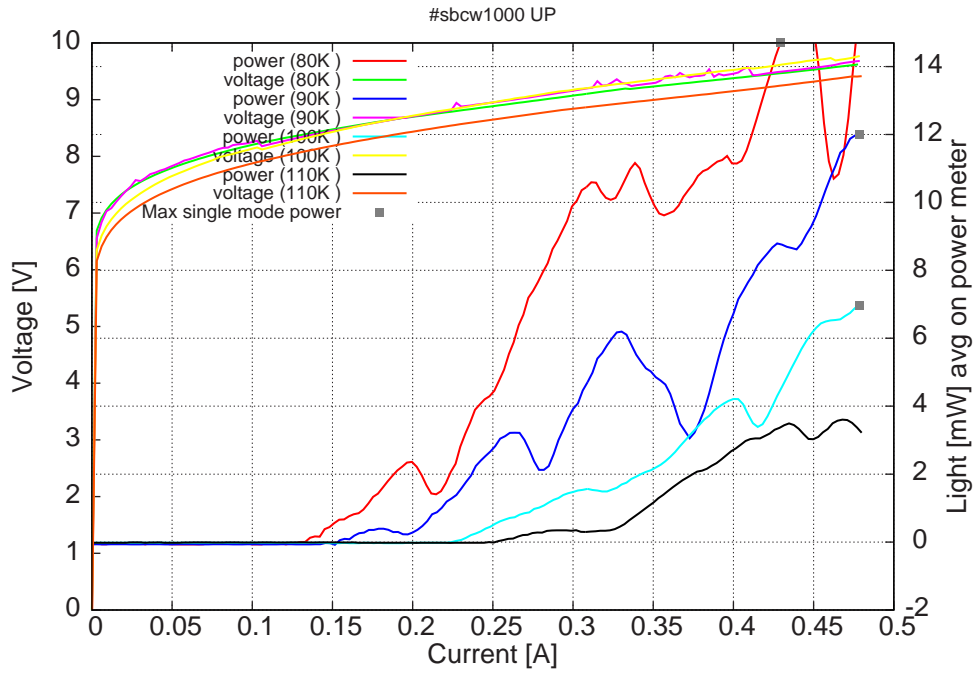


Figure 4: peak voltage and average power vs peak current in continuous-wave operation (the solid squares indicate the maximum singlemode emitted power)

Note: the bumps in the li-curves are due to absorptions in the beam-path. The laser exhibits a single-mode emission over the temperature and current ranges shown in the following spectra.

Note: at 80K: $I_{th}=120\text{mA}$ / $V_{th}= 8.33\text{V}$ (2-wires measurements)

Maximum operation current: 0.48A for all temperatures between 80K and 110K.

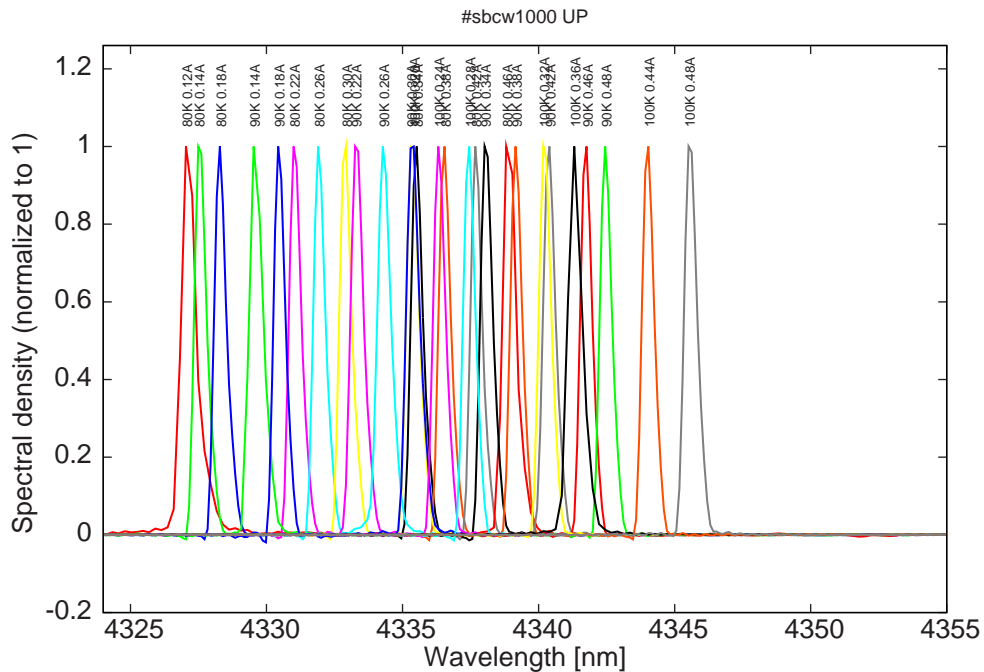


Figure 5: spectra at 80K, 90K and 100K

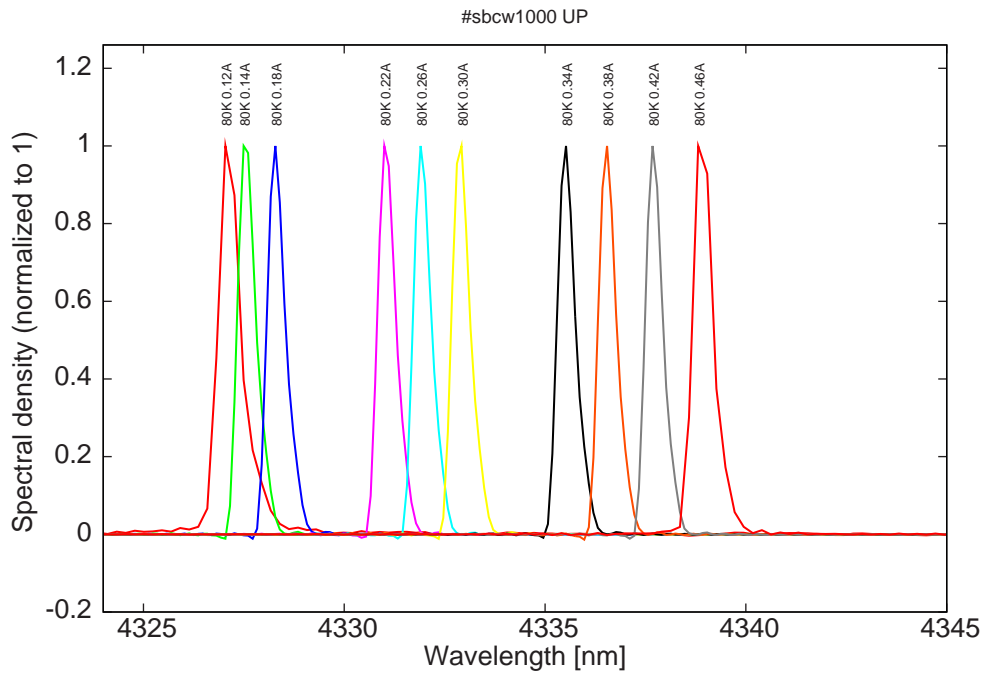


Figure 6: spectra at 80K (mode jumping for $I > 0.18A$ and for $I > 0.30A$)

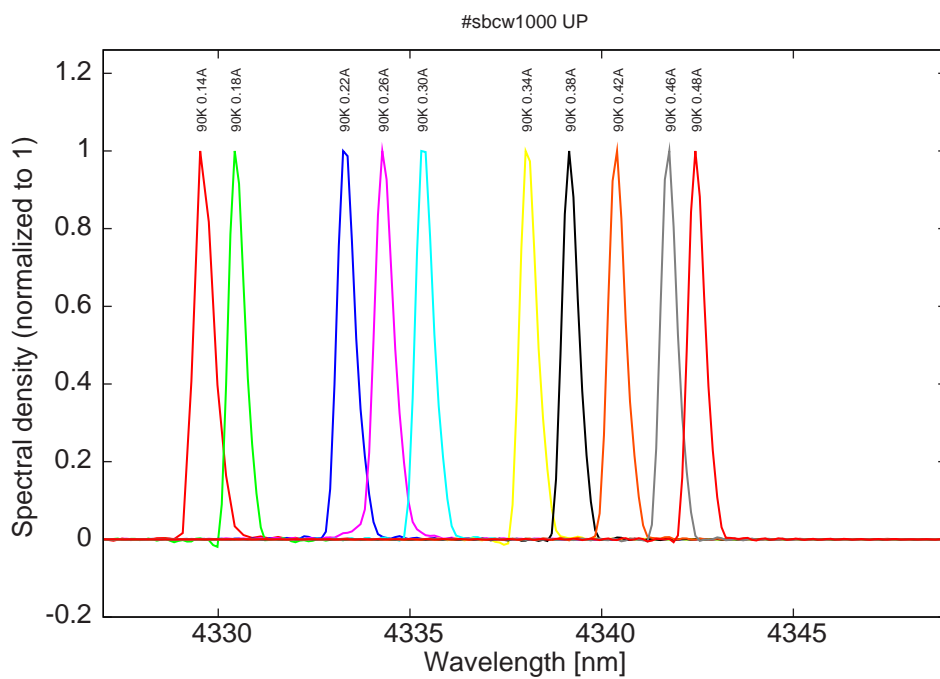


Figure 7: spectra at 90K (mode jumping for $I > 0.18A$ and for $I > 0.30A$)

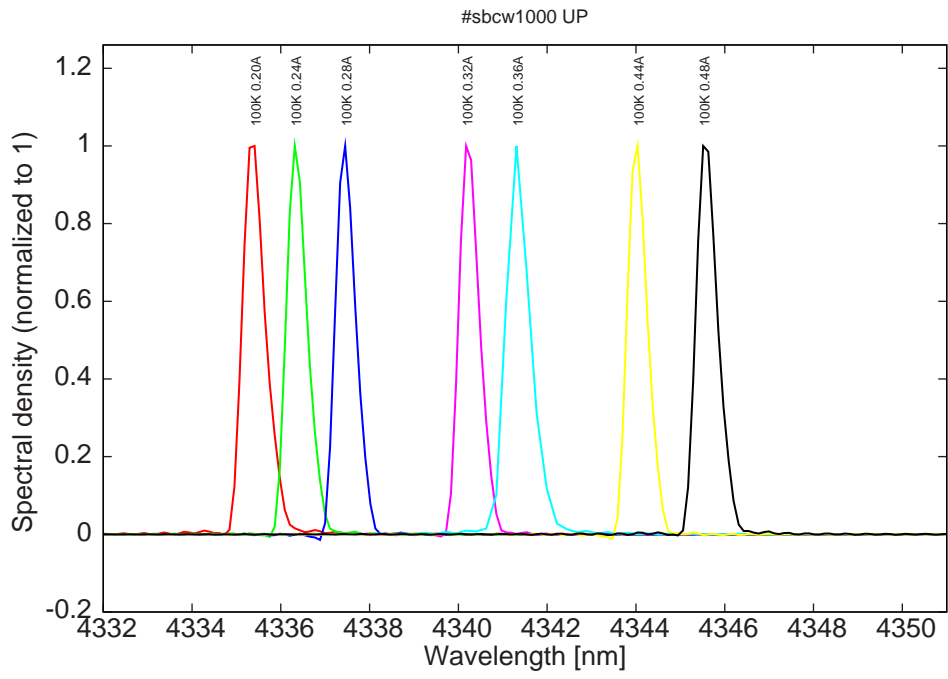


Figure 8: spectra at 100K (mode jumping for $I > 0.28A$)