

**Datasheet for #sbcw544 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/alfaq.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.

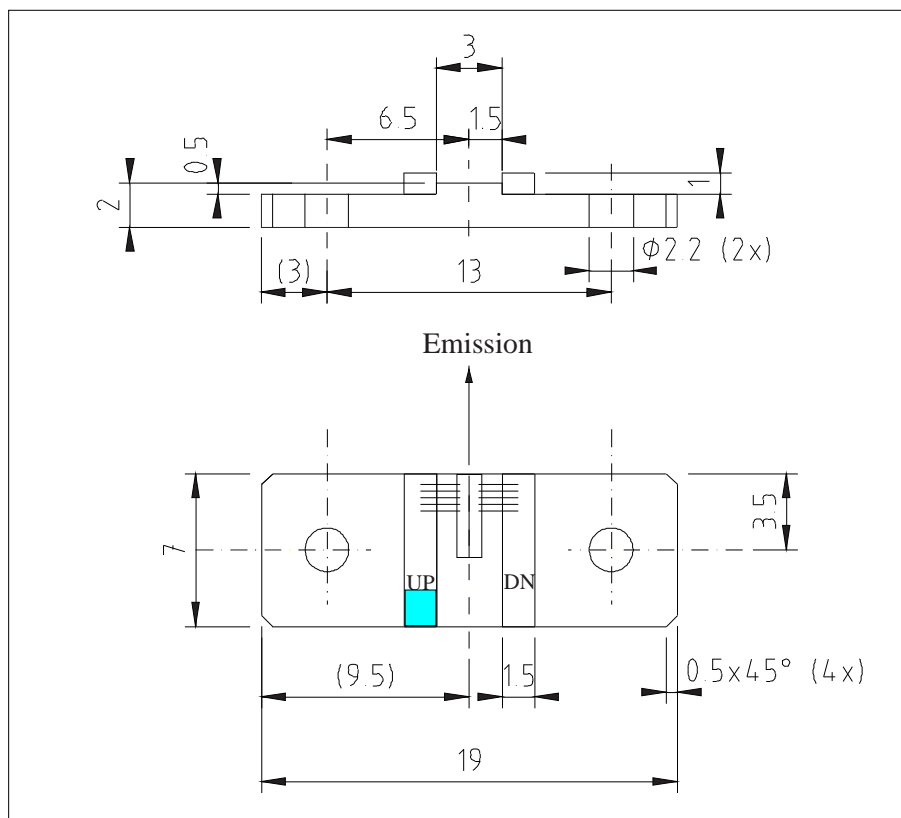


Figure 1: Support mounting for #sbcw544 UP (please note that the laser is connected to the UP pad drawn in blue)

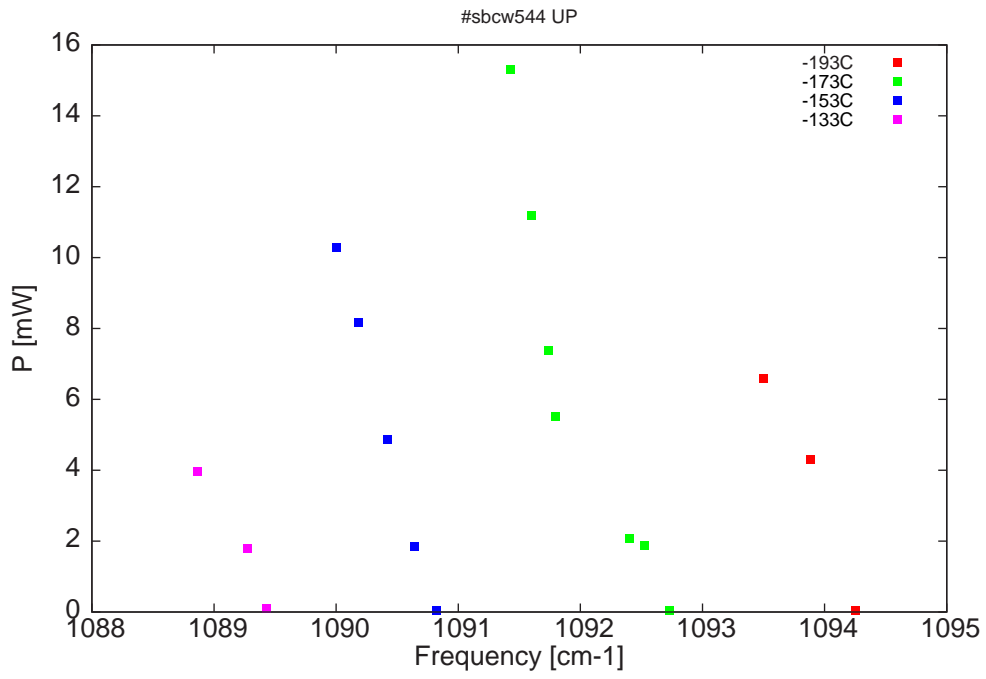


Figure 2: Output power as a function of the singlemode emission frequencies and temperatures

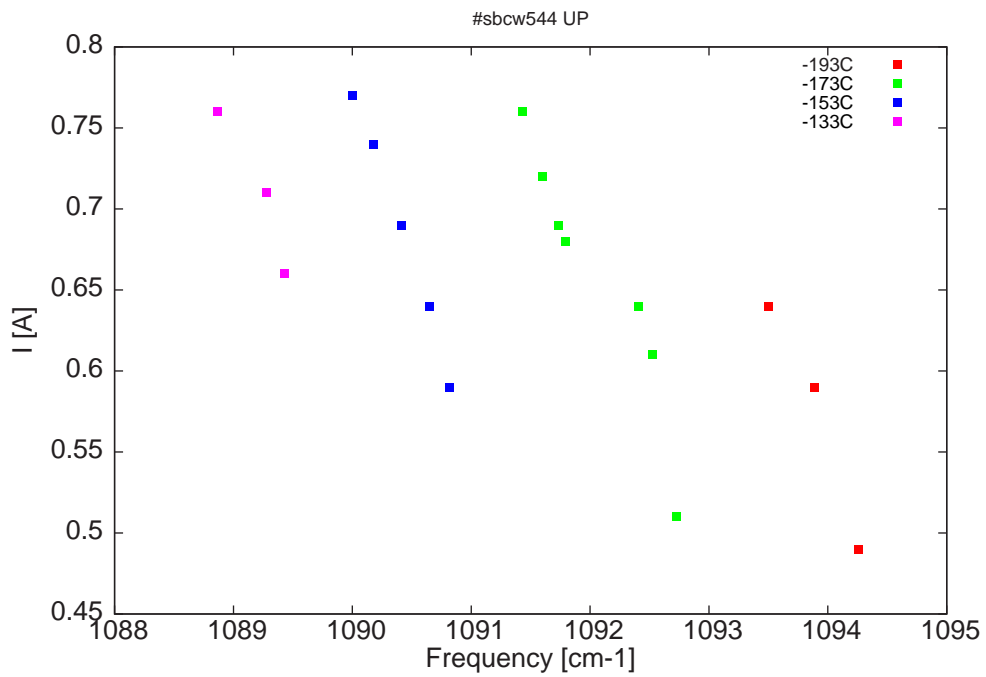


Figure 3: Applied DC current as a function of singlemode emission frequencies and temperatures

$\lambda$ [nm]	$\nu$ [cm <sup>-1</sup> ]	P[mW]	Temp[°C]	$U_{LASER}$ [V]	I[A]
9138.6	1094.3	0.1	-193	9.4	0.49
9141.7	1093.9	4.3	-193	9.6	0.59
9144.9	1093.5	6.6	-193	9.7	0.64
9151.4	1092.7	0.1	-173	8.9	0.51
9153.1	1092.5	1.9	-173	9.2	0.61
9154.1	1092.4	2.1	-173	9.2	0.64
9159.2	1091.8	5.5	-173	9.3	0.68
9159.7	1091.7	7.4	-173	9.3	0.69
9160.9	1091.6	11.2	-173	9.4	0.72
9162.3	1091.4	15.3	-173	9.4	0.76
9167.4	1090.8	0.1	-153	8.7	0.59
9168.9	1090.6	1.8	-153	8.8	0.64
9170.8	1090.4	4.9	-153	8.9	0.69
9172.8	1090.2	8.2	-153	9	0.74
9174.3	1090	10.3	-153	9.1	0.77
9179.1	1089.4	0.1	-133	8.5	0.66
9180.4	1089.3	1.8	-133	8.6	0.71
9183.9	1088.9	4	-133	8.7	0.76

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

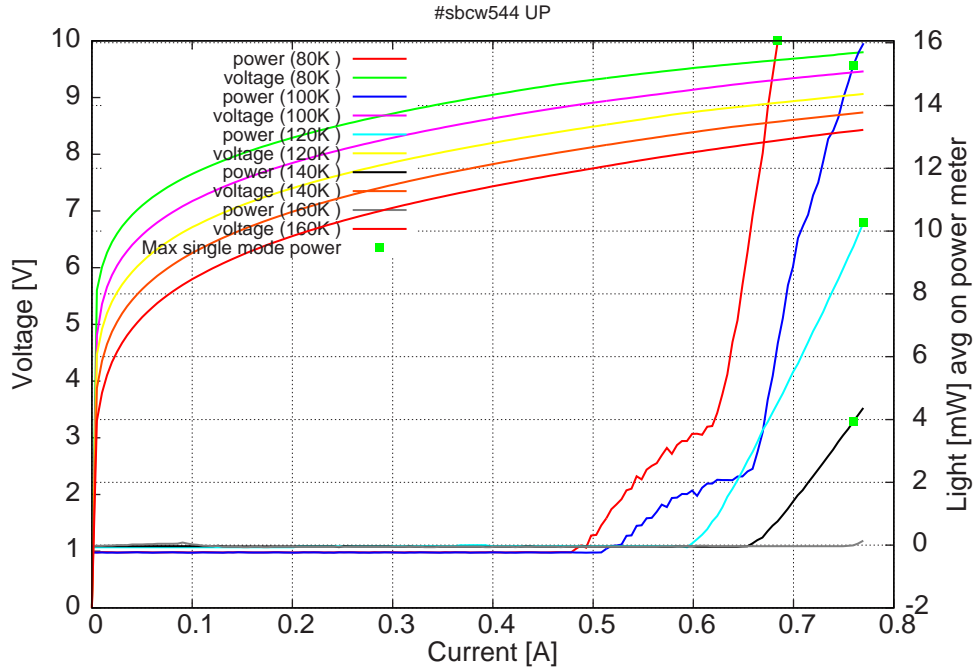


Figure 4: peak voltage and average power vs peak current in continuous-wave operation (the solid squares indicate the maximum singlemode emitted power)

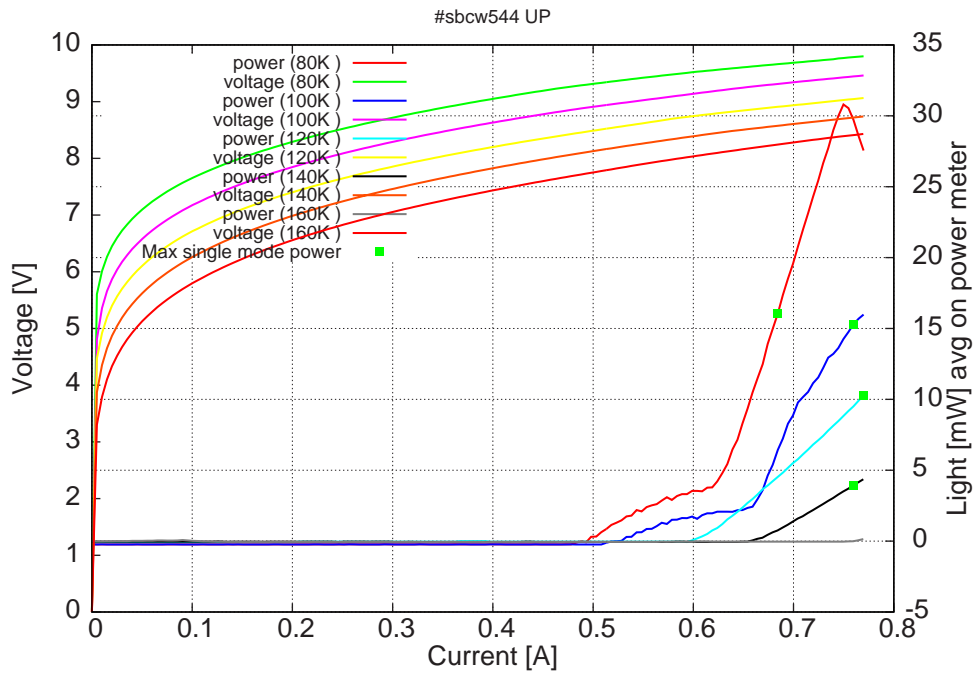


Figure 5: peak voltage and average power vs peak current in continuous-wave operation (including the multimode region)

Note: The collection efficiency of our setup for nitrogen temperatures measurements is 67% using a 2-inches parabolic mirror with a focal length of 2-inches.

Note: at 80K:  $I_{th}=490\text{mA}$  /  $V_{th}= 9.29\text{V}$  (2-wires measurements)

Maximum operation current: 0.77A for all temperatures.

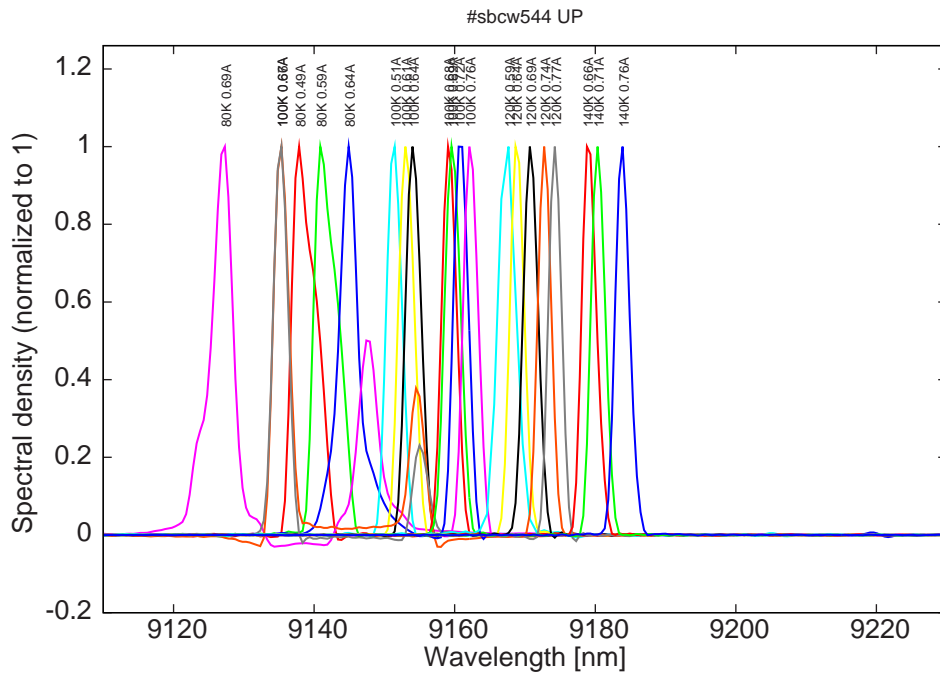


Figure 6: spectra at 80K, 100K, 120K and 140K

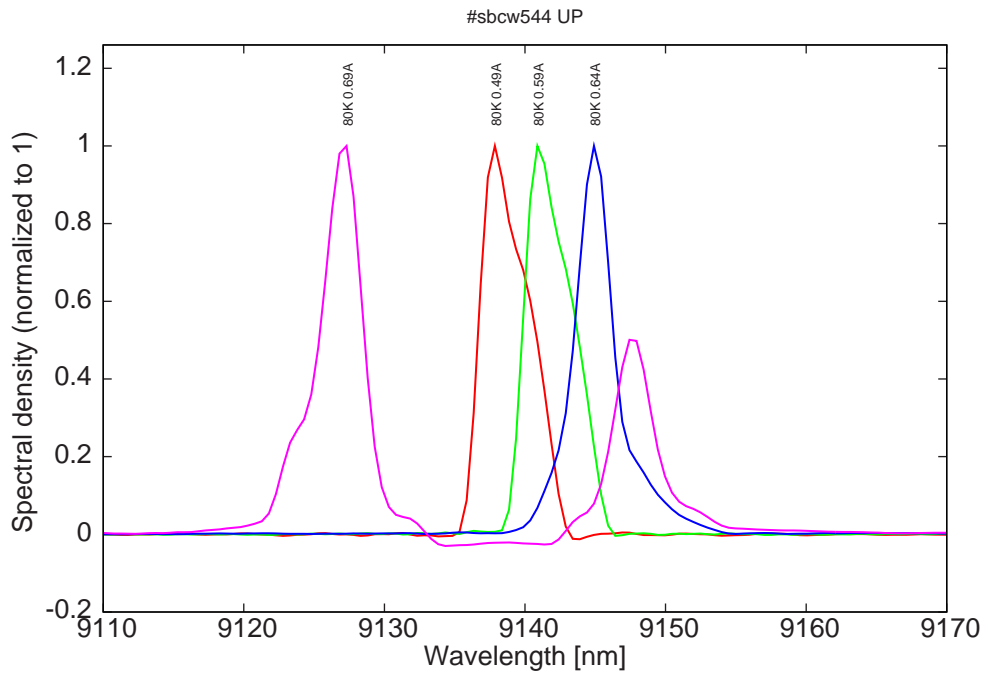


Figure 7: spectra at 80K (monomode up to 0.64A)

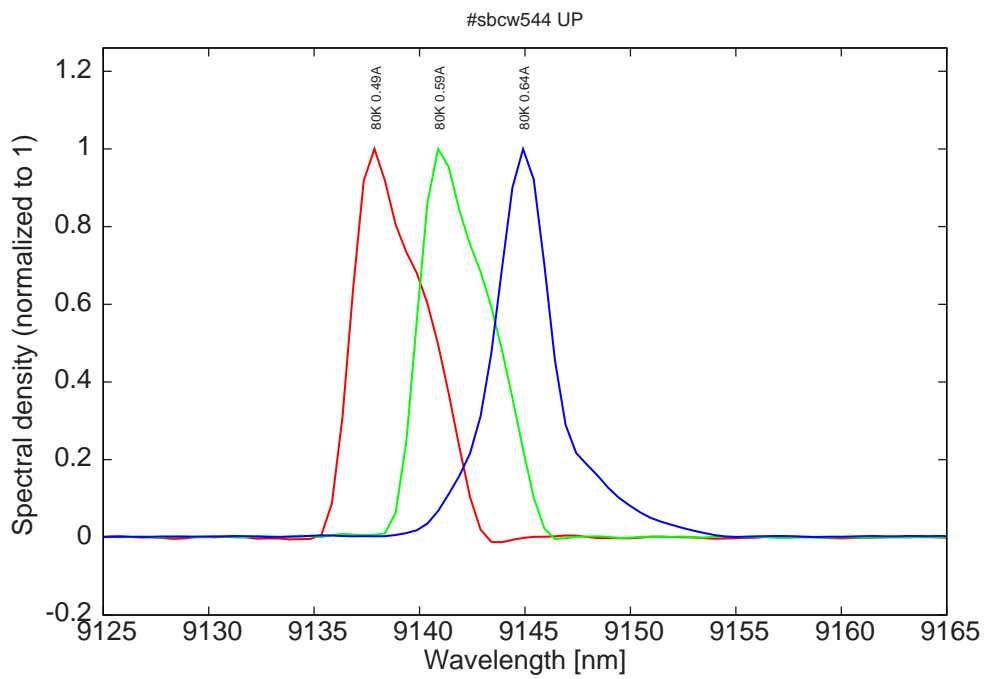


Figure 8: spectra at 80K (monomode range, same mode than for the low current spectra at 100K)

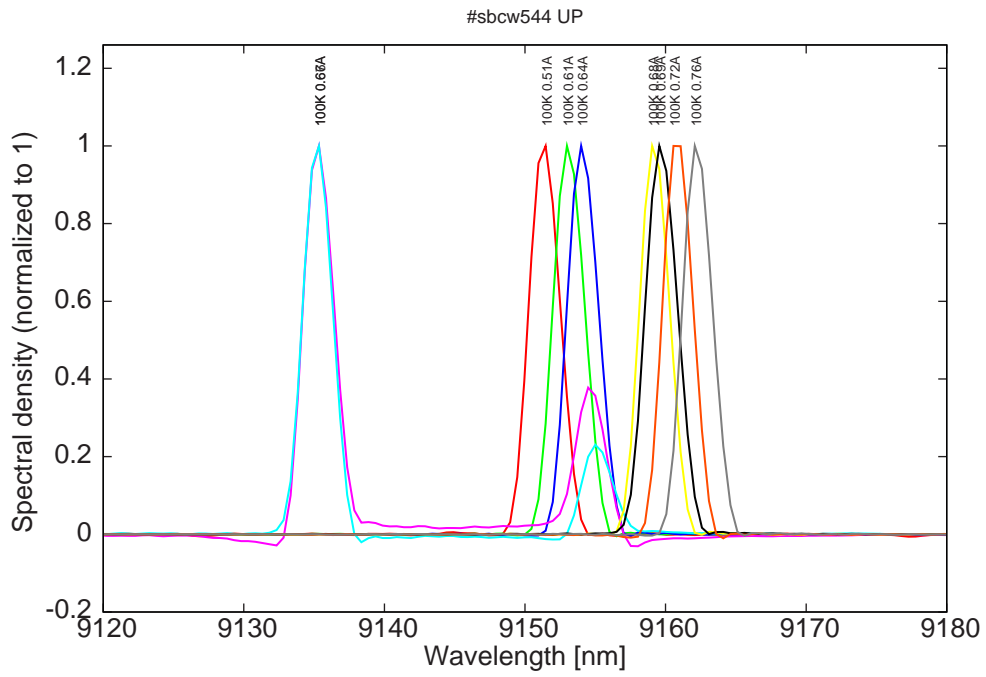


Figure 9: spectra at 100K (mode jumping around 0.66A, where the spectrum is bimode)

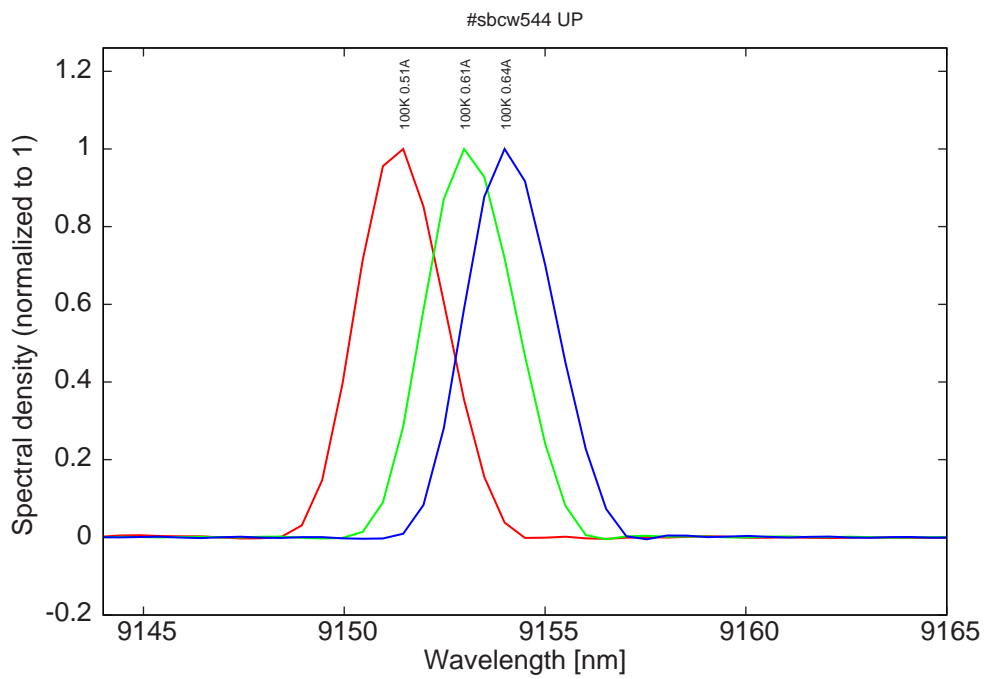


Figure 10: spectra at 100K (monomode range at low currents, same mode than monomode spectra at 80K)

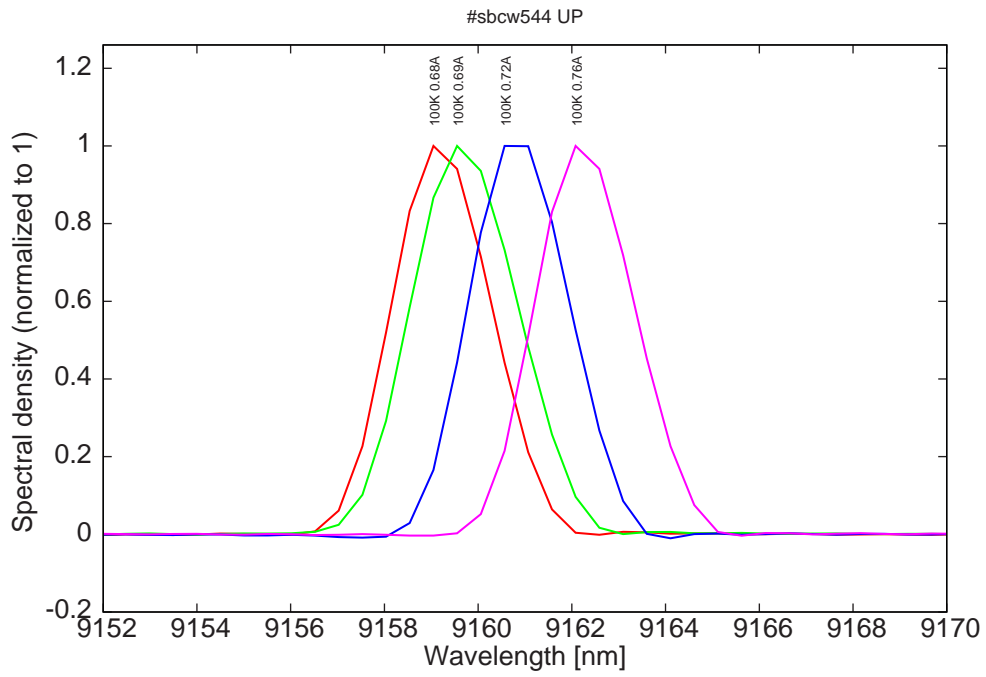


Figure 11: spectra at 100K (monomode range after mode jumping, same mode than for higher temperatures)

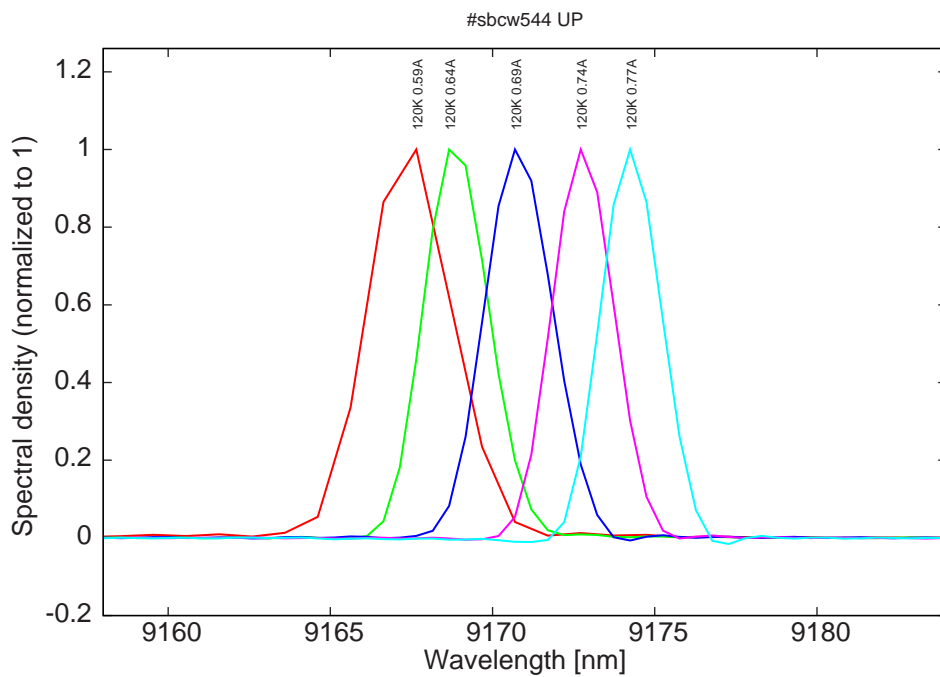


Figure 12: spectra at 120K

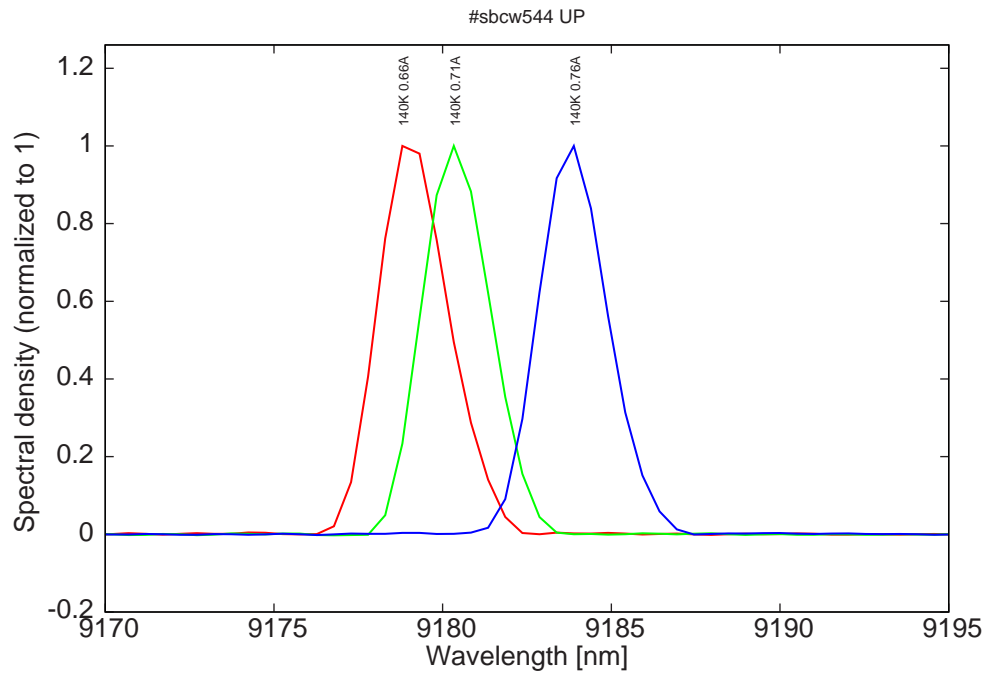


Figure 13: spectra at 140K