

Datasheet for #sbcw4012 DN

Recommendations:

Please read the starter kit user manual, 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.

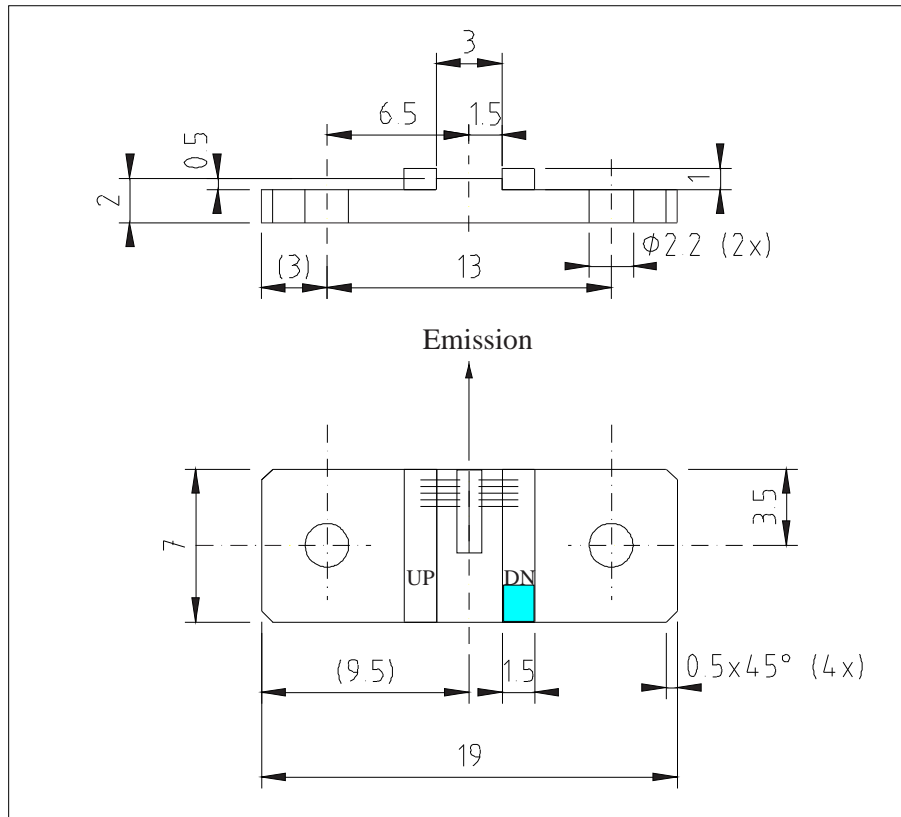


Figure 1: Support mounting for #sbcw4012 DN (please note that the laser is connected to the DN pad drawn in blue)

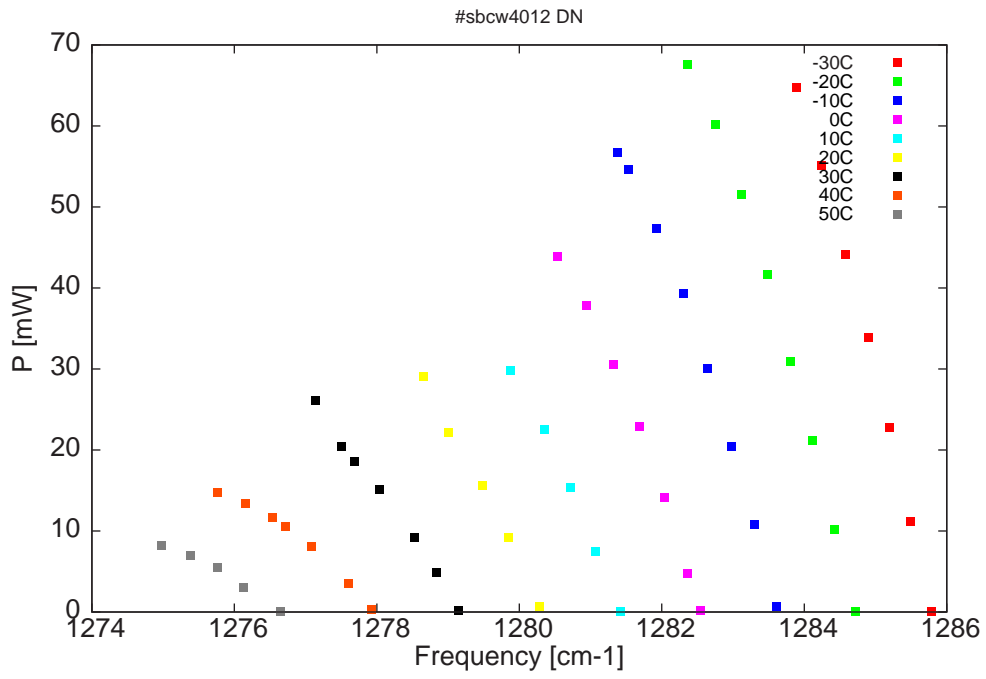


Figure 2: Output power as a function of the singlemode emission frequencies and temperatures

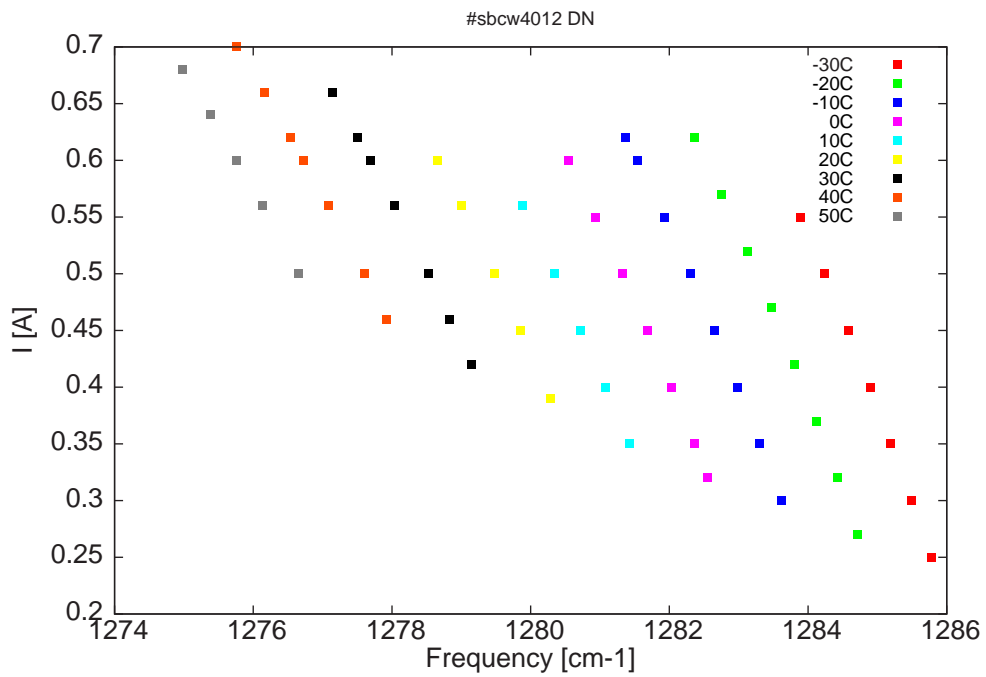


Figure 3: Applied DC current as a function of singlemode emission frequencies and temperatures

λ [nm]	ν [cm ⁻¹]	P[mW]	Temp[°C]	U_{LASER} [V]	I[A]
7777.4	1285.8	0.1	-30	7.7	0.25
7779.1	1285.5	11.2	-30	8	0.3
7780.9	1285.2	22.8	-30	8.2	0.35
7782.7	1284.9	33.9	-30	8.4	0.4
7784.7	1284.6	44.2	-30	8.6	0.45
7786.7	1284.2	55.2	-30	8.8	0.5
7788.8	1283.9	64.8	-30	9	0.55
7783.8	1284.7	0.1	-20	7.8	0.27
7785.6	1284.4	10.1	-20	8	0.32
7787.4	1284.1	21.2	-20	8.2	0.37
7789.3	1283.8	31	-20	8.4	0.42
7791.3	1283.5	41.7	-20	8.6	0.47
7793.5	1283.1	51.6	-20	8.8	0.52
7795.7	1282.8	60.2	-20	9.1	0.57
7798.1	1282.4	67.5	-20	9.3	0.62
7790.5	1283.6	0.7	-10	7.8	0.3
7792.4	1283.3	10.9	-10	8.1	0.35
7794.4	1283	20.4	-10	8.3	0.4
7796.4	1282.6	30	-10	8.5	0.45
7798.5	1282.3	39.3	-10	8.7	0.5
7800.8	1281.9	47.3	-10	8.9	0.55
7803.2	1281.5	54.6	-10	9.1	0.6
7804.1	1281.4	56.7	-10	9.2	0.62
7797	1282.5	0.2	0	7.9	0.32
7798.1	1282.4	4.8	0	8	0.35
7800.1	1282	14.2	0	8.2	0.4
7802.2	1281.7	22.9	0	8.4	0.45
7804.4	1281.3	30.5	0	8.7	0.5
7806.8	1280.9	37.8	0	8.9	0.55
7809.2	1280.5	43.9	0	9.1	0.6
7803.8	1281.4	0.1	10	7.9	0.35
7805.9	1281.1	7.5	10	8.2	0.4
7808.1	1280.7	15.4	10	8.4	0.45
7810.4	1280.3	22.5	10	8.6	0.5
7813.3	1279.9	29.8	10	8.9	0.56
7810.7	1280.3	0.7	20	8.1	0.39
7813.4	1279.9	9.2	20	8.3	0.45
7815.7	1279.5	15.6	20	8.6	0.5
7818.6	1279	22.2	20	8.8	0.56
7820.7	1278.7	29.1	20	9	0.6
7817.7	1279.1	0.2	30	8.1	0.42
7819.6	1278.8	4.8	30	8.3	0.46
7821.5	1278.5	9.2	30	8.5	0.5
7824.5	1278	15.1	30	8.8	0.56
7826.7	1277.7	18.6	30	8.9	0.6
7827.7	1277.5	20.4	30	9	0.62
7830	1277.1	26.1	30	9.2	0.66
7825.2	1277.9	0.2	40	8.3	0.46
7827.2	1277.6	3.6	40	8.4	0.5

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

λ [nm]	ν [cm ⁻¹]	P[mW]	Temp[°C]	U_{LASER} [V]	I[A]
7830.3	1277.1	8.1	40	8.7	0.56
7832.5	1276.7	10.6	40	8.9	0.6
7833.7	1276.5	11.7	40	9	0.62
7836	1276.2	13.4	40	9.2	0.66
7838.5	1275.8	14.7	40	9.3	0.7
7833	1276.7	0.1	50	8.4	0.5
7836.2	1276.1	3.1	50	8.7	0.56
7838.5	1275.8	5.5	50	8.8	0.6
7840.8	1275.4	7	50	9	0.64
7843.3	1275	8.2	50	9.2	0.68

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

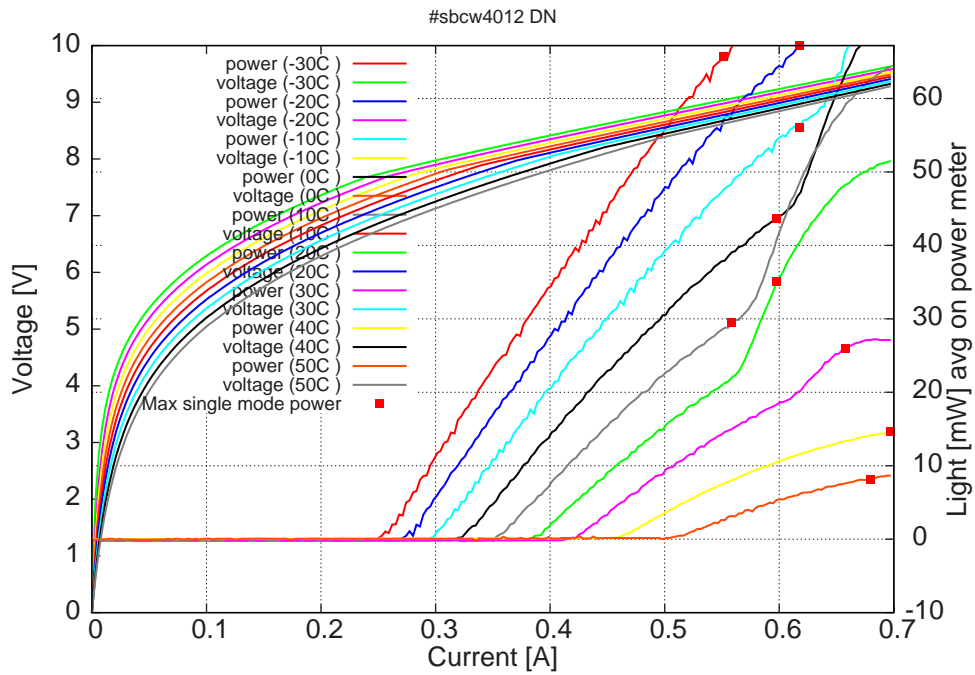


Figure 4: voltage and avg power vs current in continuous-wave operation (the solid squares indicate the maximum singlemode emitted power)

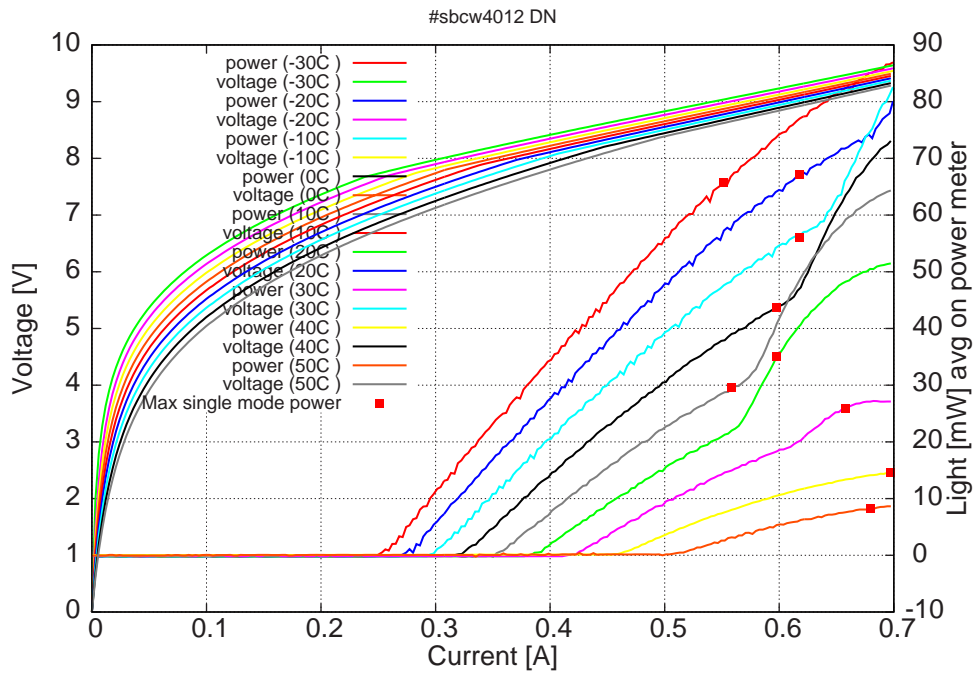
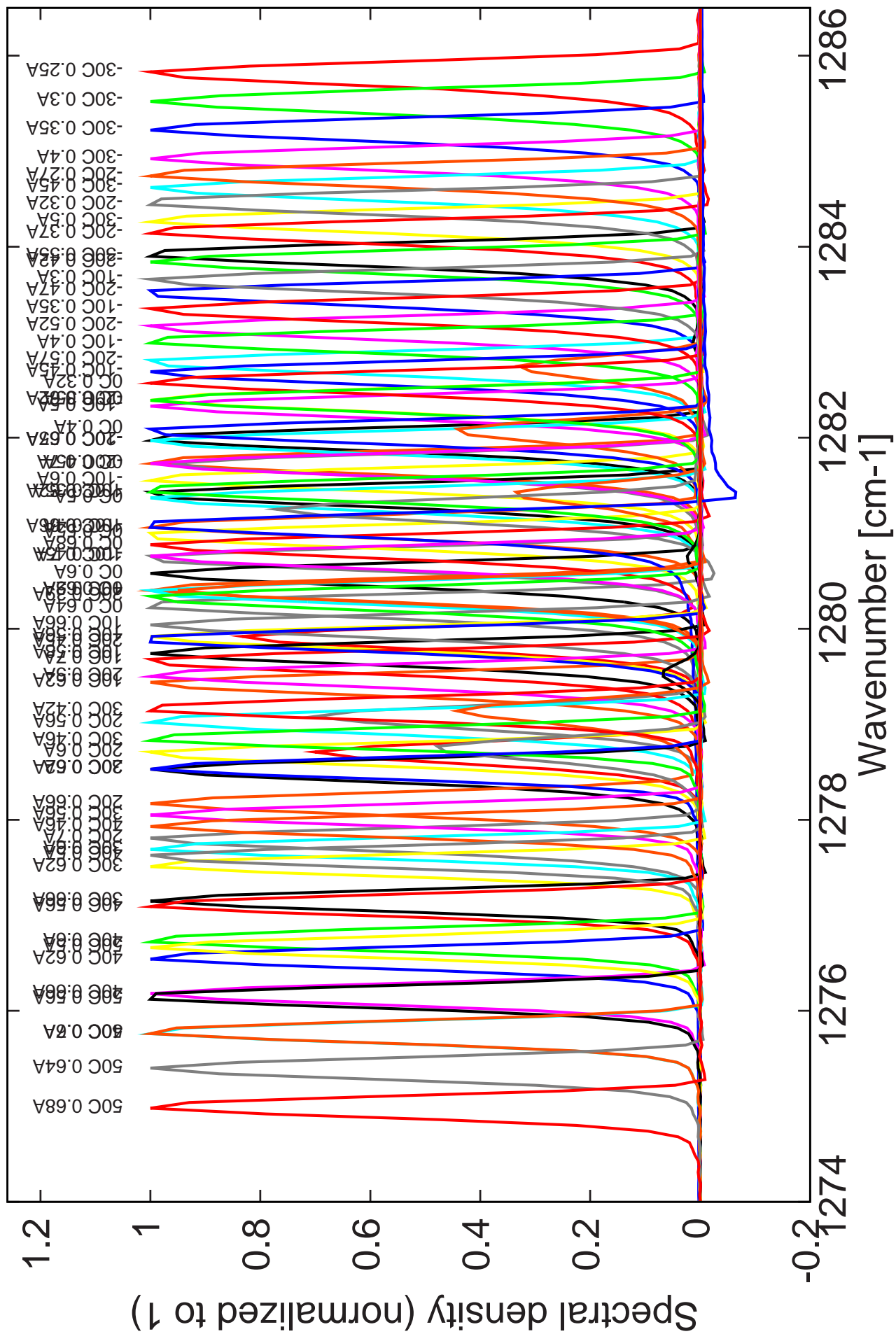


Figure 5: voltage and avg power vs current in continuous-wave operation (including the multimode region)

Note: at -30C: $I_{th}=250\text{mA}$ / $V_{th}= 7.7\text{V}$ (2-wires measurements). Maximum operation current: 0.7A for all temperature.

Figure 4: spectra at different temperatures for various DC currents



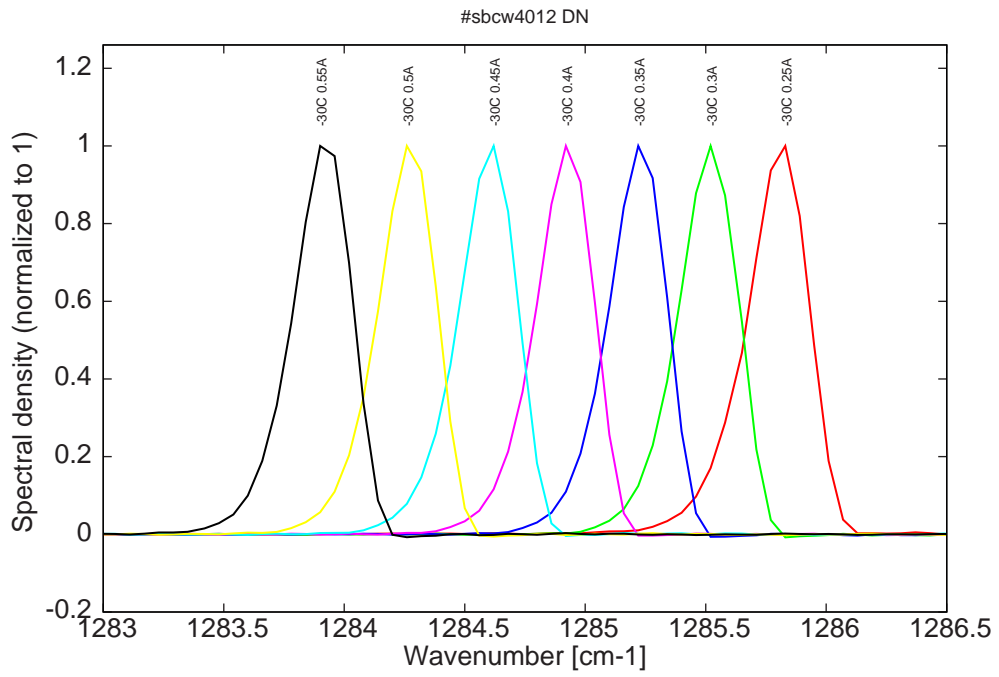


Figure 6: spectra at -30C for various DC currents (monomode up to 0.55A)

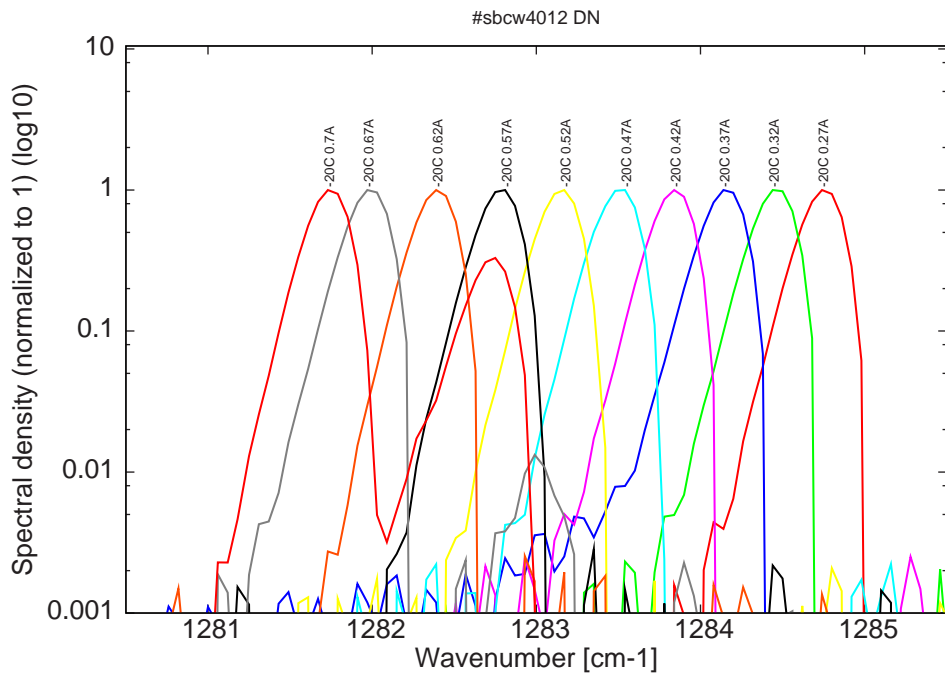


Figure 7: spectra at -20C for various DC currents (monomode up to 0.62A)

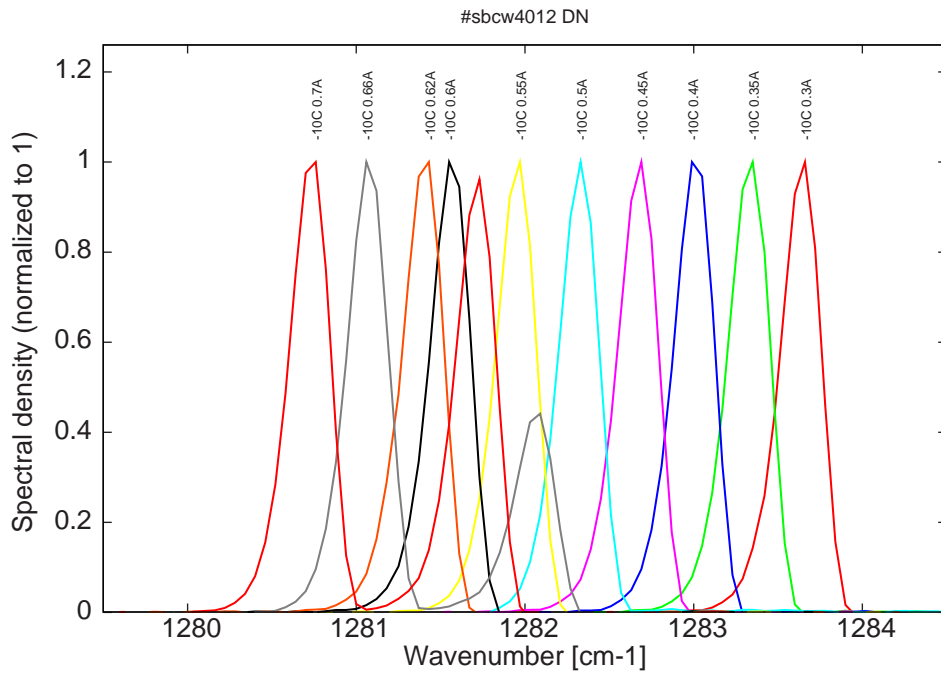


Figure 8: spectra at -10C for various DC currents (monomode up to 0.62A)

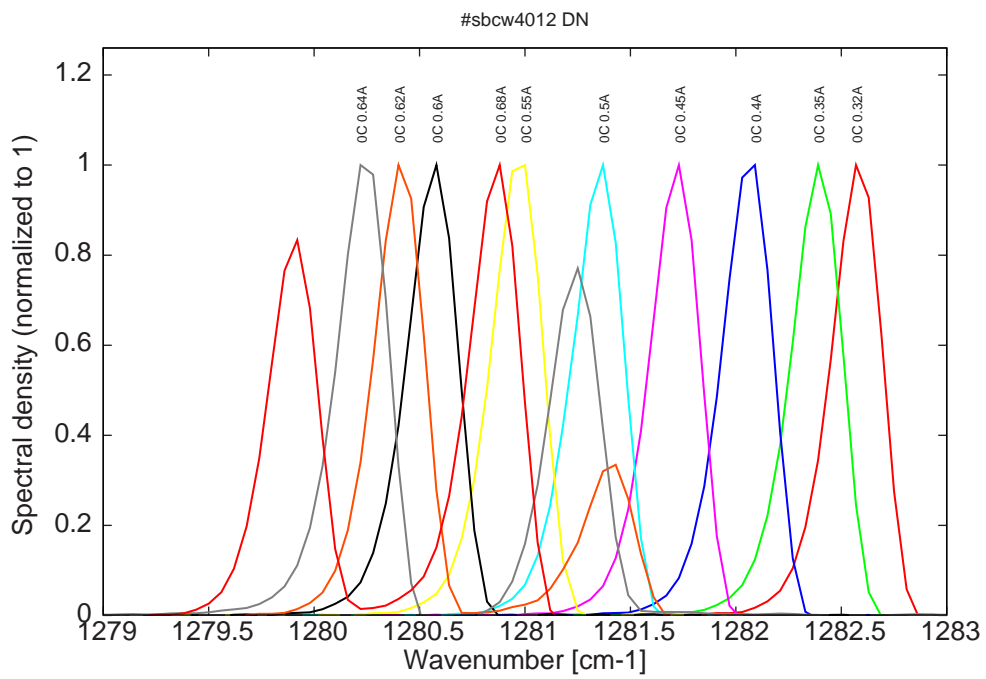


Figure 9: spectra at 0C for various DC currents (monomode up to 0.6A)

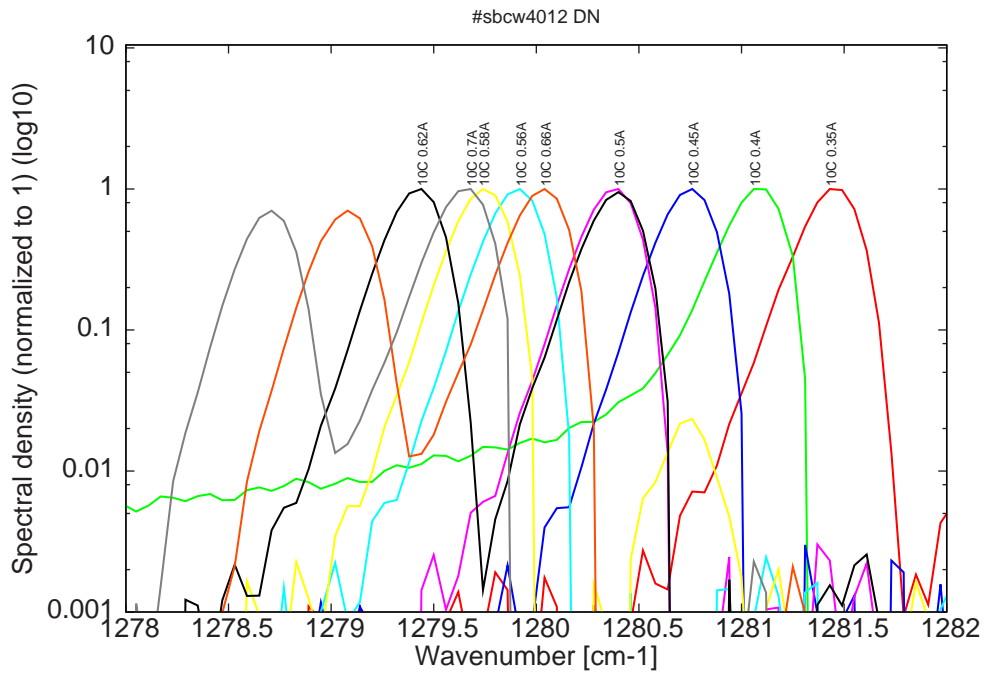


Figure 10: spectra at 10C for various DC currents (monomode up to 0.56A)

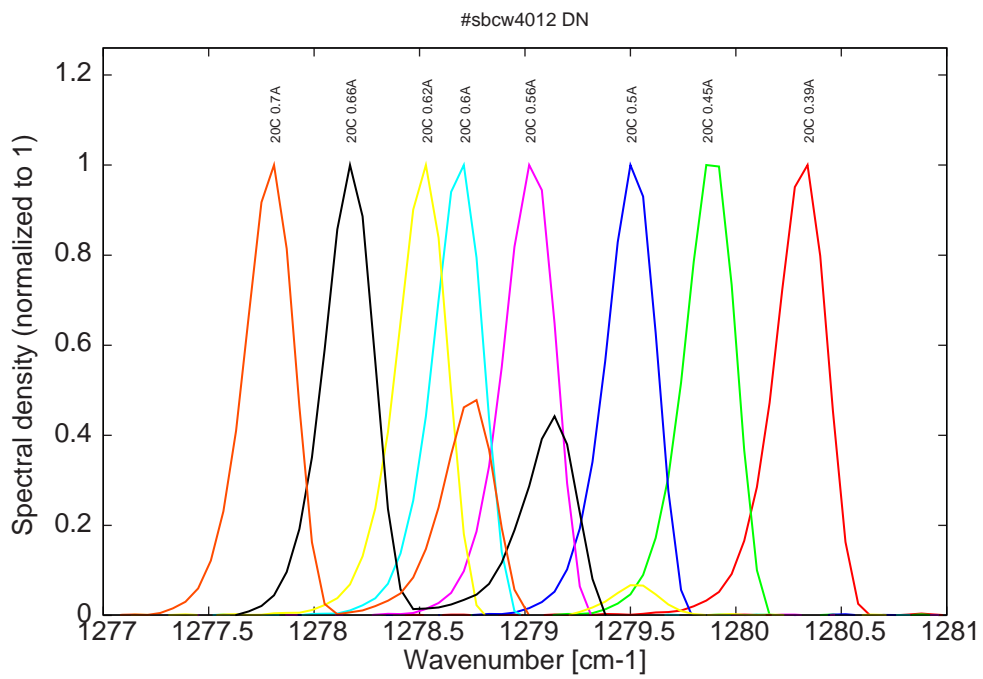


Figure 11: spectra at 20C for various DC currents (monomode up to 0.6A)

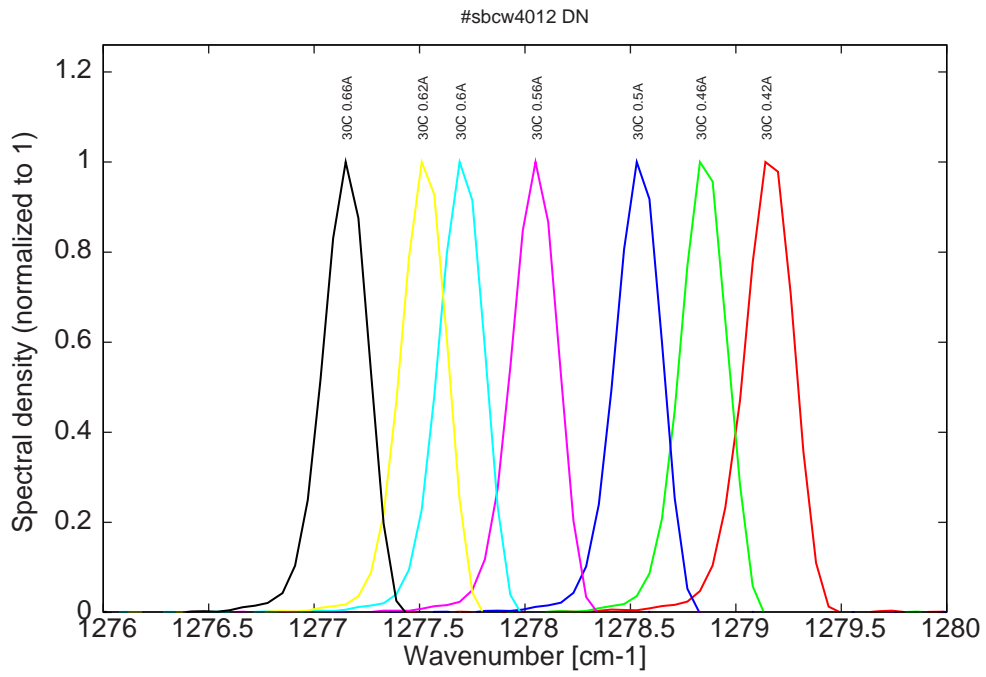


Figure 12: spectra at 30C for various DC currents (monomode with mode jumping for $I > 0.6A$, see Fig. 3 and Fig. 4)

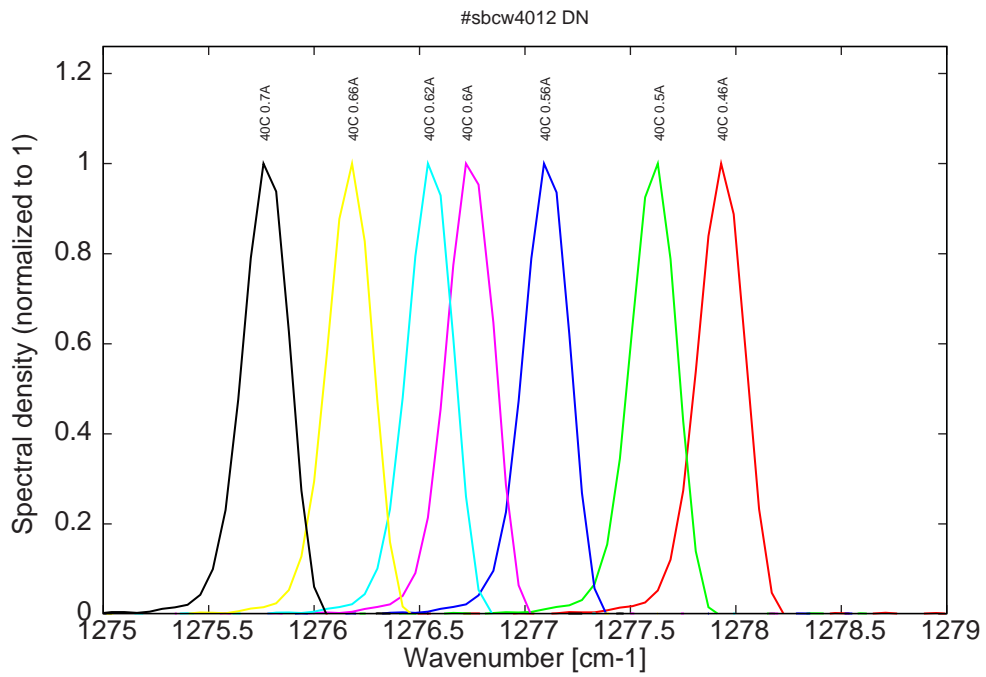


Figure 13: spectra at 40C for various DC currents (all monomode on the same mode, see Fig. 3 and Fig. 4)

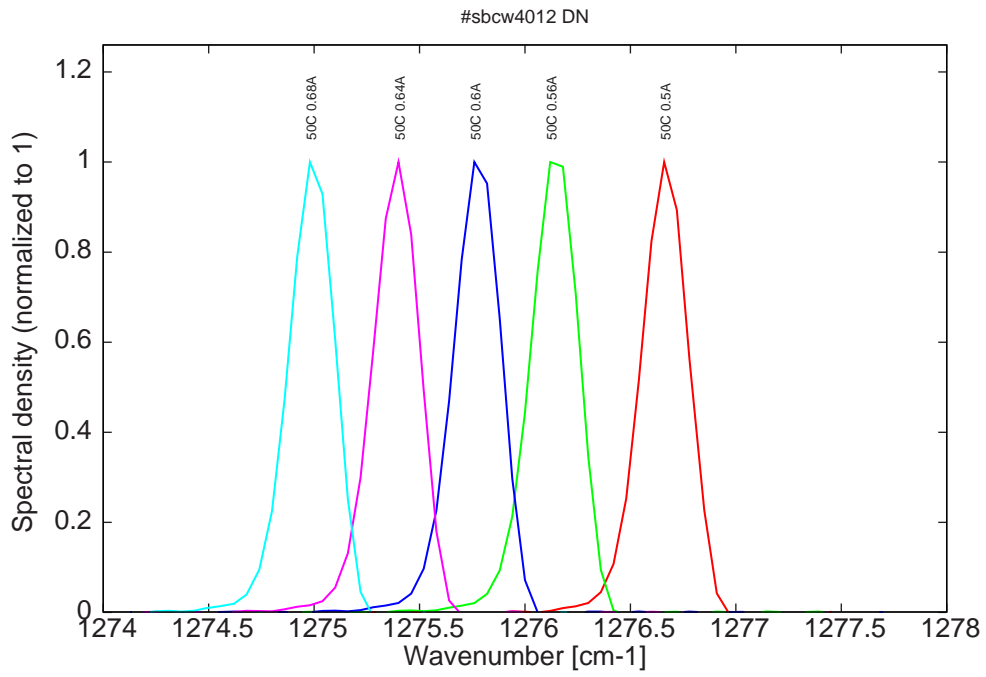


Figure 14: spectra at 50C for various DC currents (all monomode on the same mode, see Fig. 3 and Fig. 4)