

Datasheet for #sb3003 UP

Recommendations:

Please read the User Manual and have a look at the FAQ at <http://www.alpeslasers.ch/?a=142>

WARNING: Operating the laser with longer pulses, higher repetition rate, higher voltage or higher current than specified in this document may cause damage. It will result in loss of warranty, unless agreed upon with Alpes Lasers!

WARNING: Beware of the polarity of the laser. This laser has to be powered with negative bias on the laser contact (= bonding pad, corresponding to the label "laser" on the LLH) and the positive bias on the base contact (= submount, corresponding to the label "base" on the LLH).

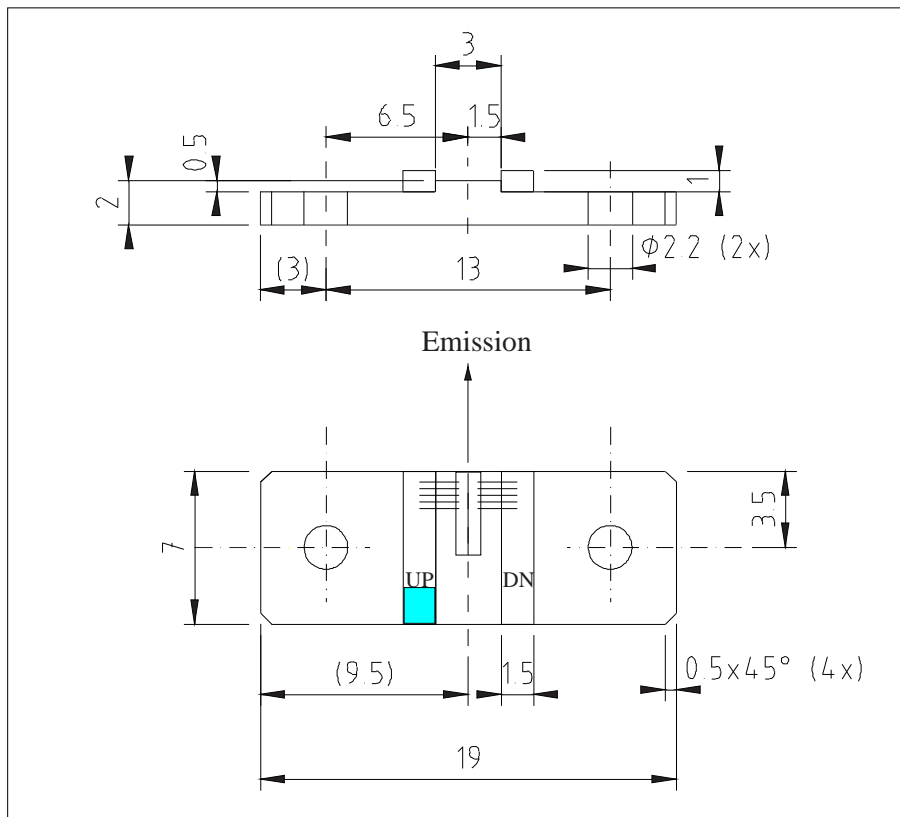


Figure 1: Support mounting for #sb3003 UP (please note that the laser is connected to the UP pad drawn in blue)

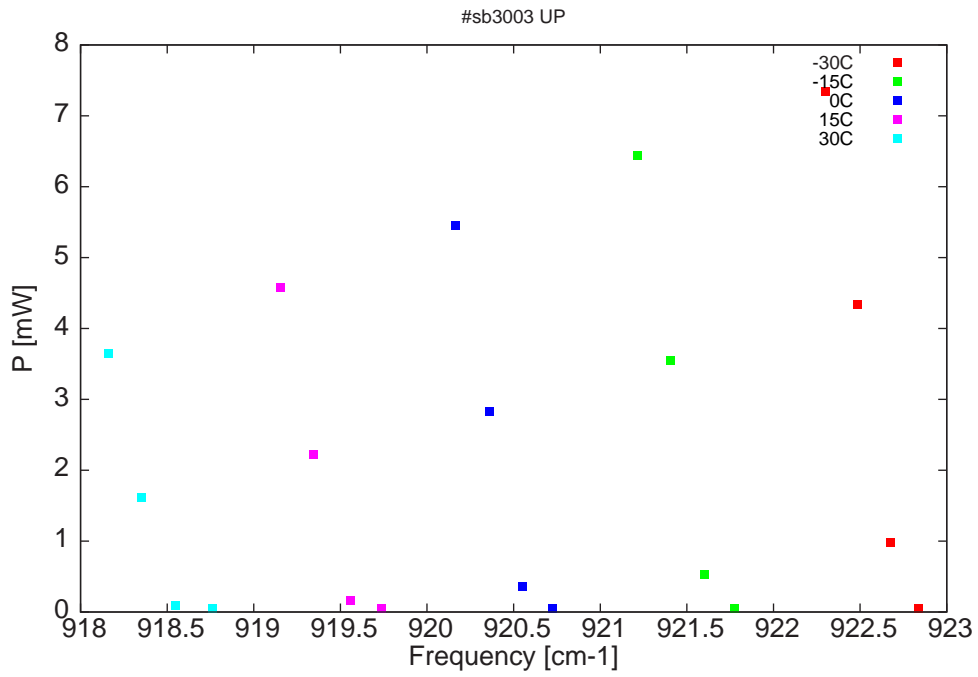


Figure 2: Output power as a function of the singlemode emission frequencies and temperatures

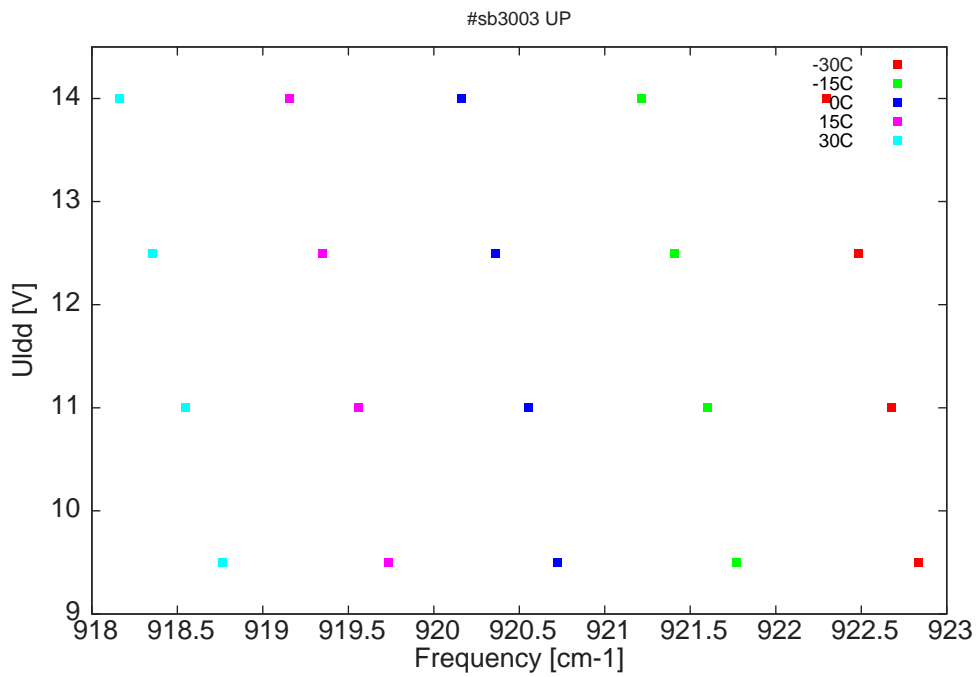


Figure 3: DC voltage fed to LDD (U_{ldd}) as a function of the singlemode emission frequencies and temperatures

λ [nm]	ν [cm^{-1}]	P[mW]	Temp[$^{\circ}\text{C}$]	U_{LDD} [V]	I_{pulse} [A]
10836.1	922.8	0.1	-30	9.5	0.98
10838	922.7	1	-30	11	1.34
10840.3	922.5	4.3	-30	12.5	1.76
10842.5	922.3	7.3	-30	14	2.16
10848.7	921.8	0.1	-15	9.5	1.01
10850.7	921.6	0.5	-15	11	1.34
10853	921.4	3.6	-15	12.5	1.78
10855.2	921.2	6.4	-15	14	2.18
10861	920.7	0.1	0	9.5	1.05
10863	920.6	0.4	0	11	1.39
10865.3	920.4	2.8	0	12.5	1.77
10867.6	920.2	5.5	0	14	2.19
10872.7	919.7	0.1	15	9.5	1.07
10874.8	919.6	0.2	15	11	1.4
10877.3	919.3	2.2	15	12.5	1.78
10879.6	919.2	4.6	15	14	2.15
10884.2	918.8	0.1	30	9.5	1.09
10886.7	918.5	0.1	30	11	1.44
10889	918.4	1.6	30	12.5	1.8
10891.3	918.2	3.6	30	14	2.16

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

Maximum pulse length for #sb3021 = ~ 400 ns

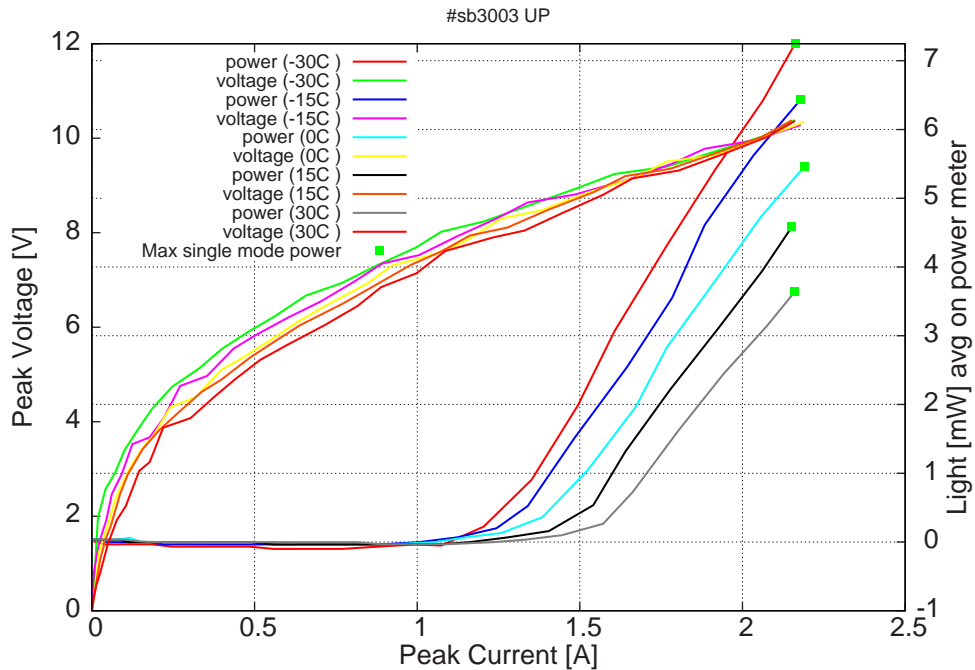


Figure 4: peak voltage and average power vs peak current at 2% duty-cycle (50ns pulses on the laser, $2.5\mu\text{s}$ period); collection efficiency of the setup is 80% (the solid squares indicate the maximum singlemode emitted power)

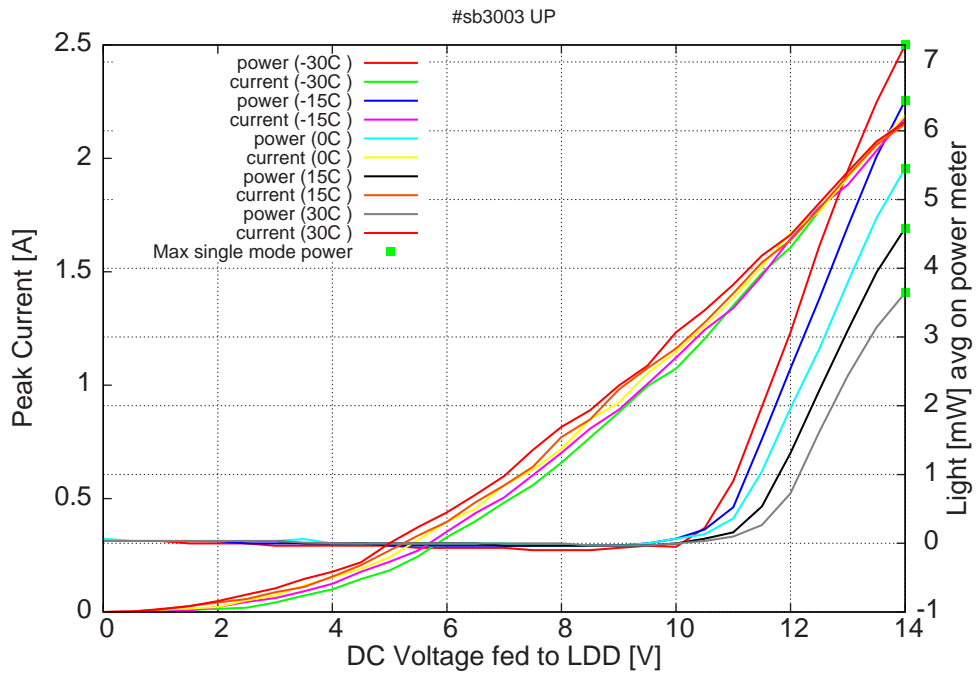


Figure 5: peak current and average power vs LDD voltage at 2% duty-cycle (50ns pulses on the laser, $2.5\mu\text{s}$ period); collection efficiency of the setup is 80% (the solid squares indicate the maximum singlemode emitted power)

Figure 4: spectra at different temperatures for various LDD voltages (22ns pulses, 1.1us period), (SMSR > 25 dB over the gain

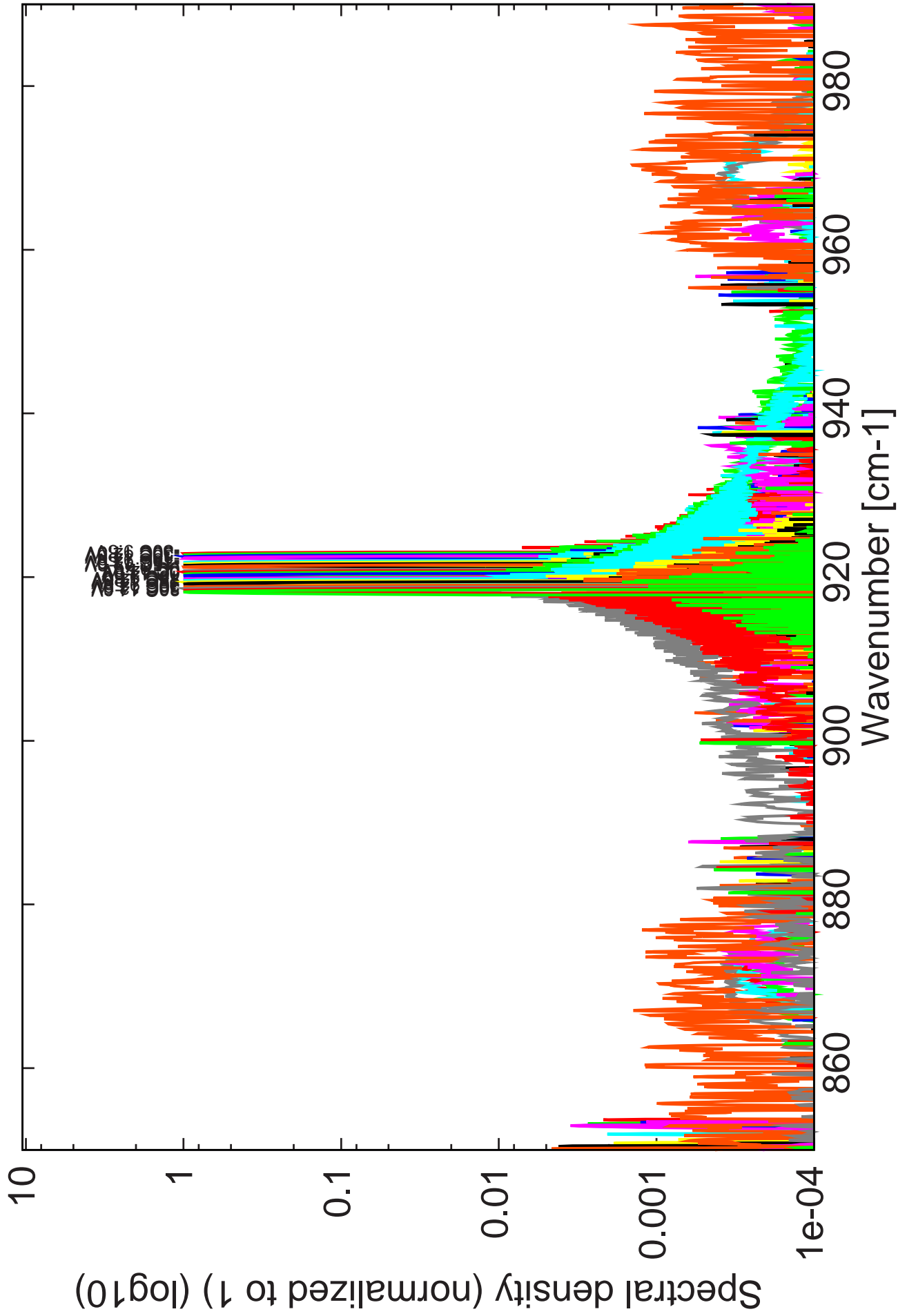
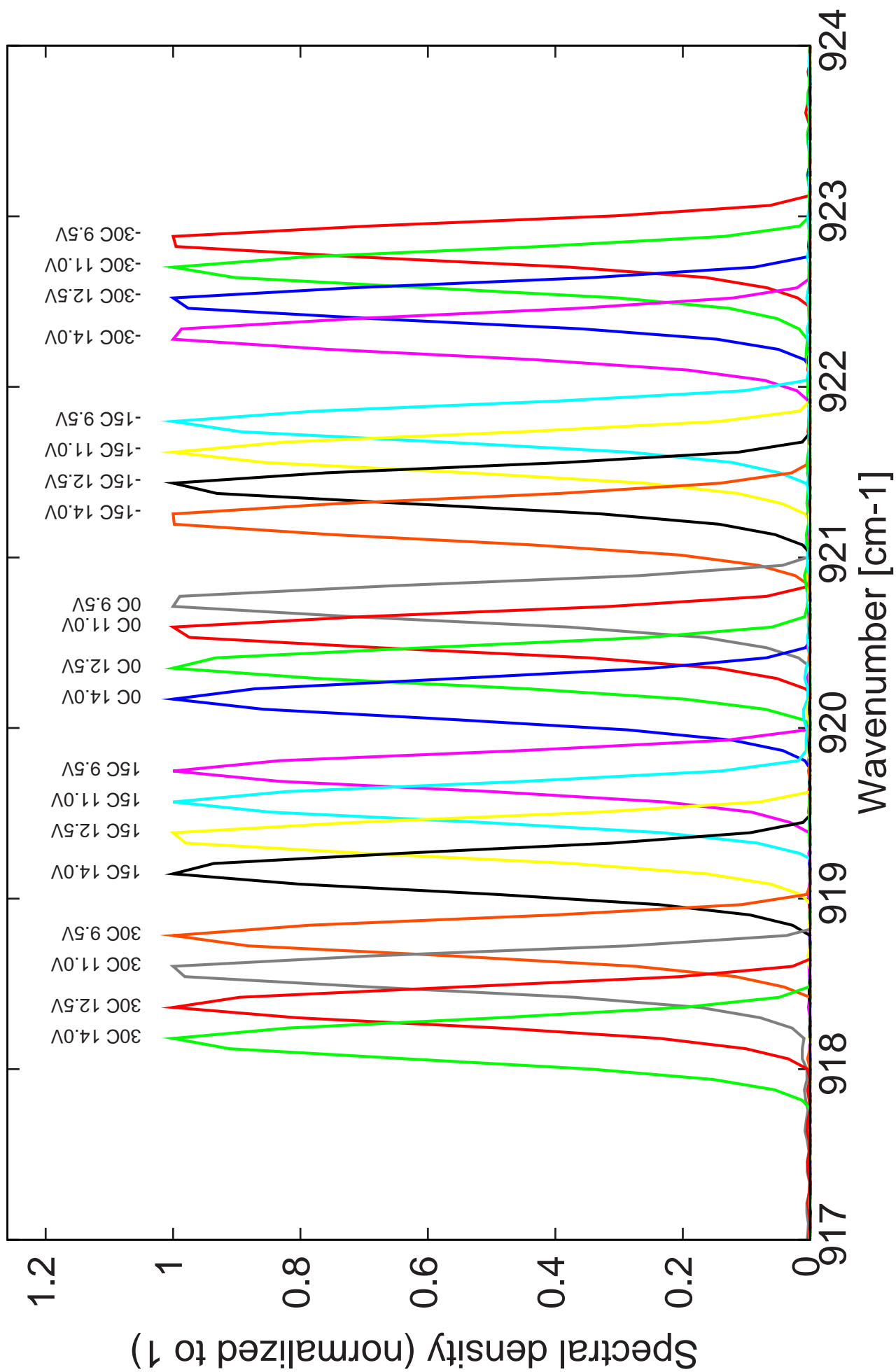


Figure 5: spectra at different temperatures for various LDD voltages (22ns pulses, 1.1us period)



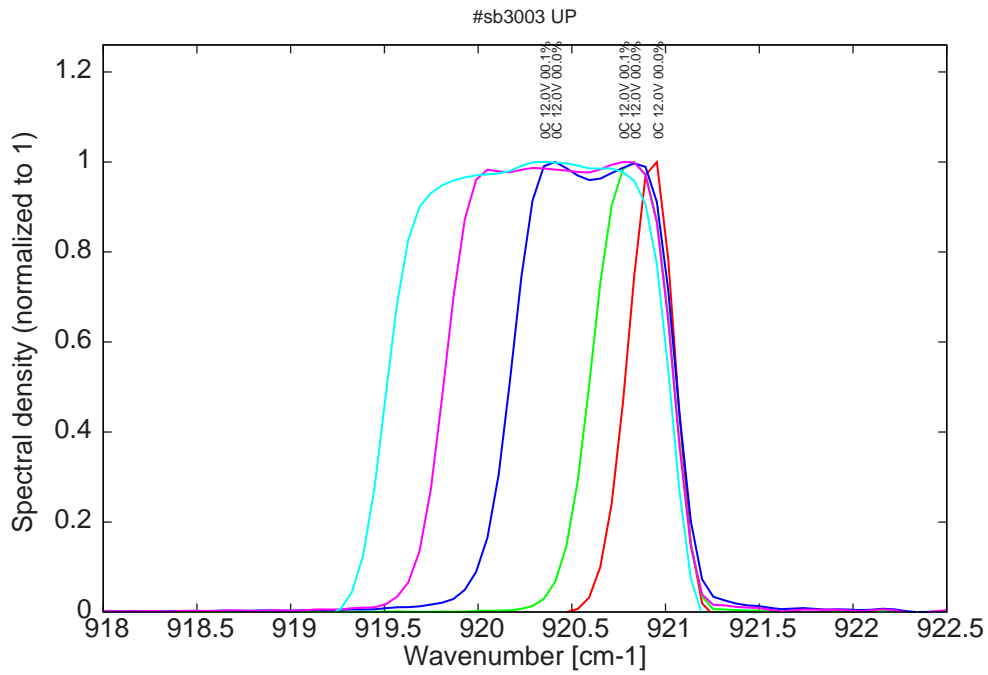


Figure 6: spectra at 0C for various pulses lengths (50ns, 100ns, 200ns, 300ns and 400ns) at $300\mu\text{s}$ period (at 12V on LDD)

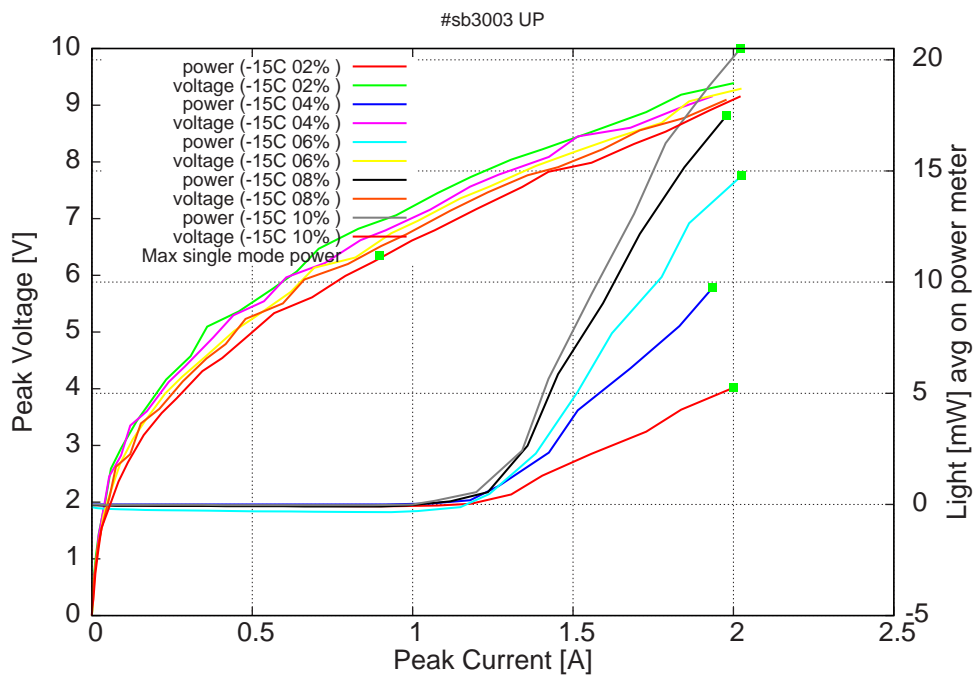


Figure 7: peak voltage and average power vs peak current for various duty-cycles (100ns pulses on the laser) (the solid squares indicate the maximum singlemode emitted power)

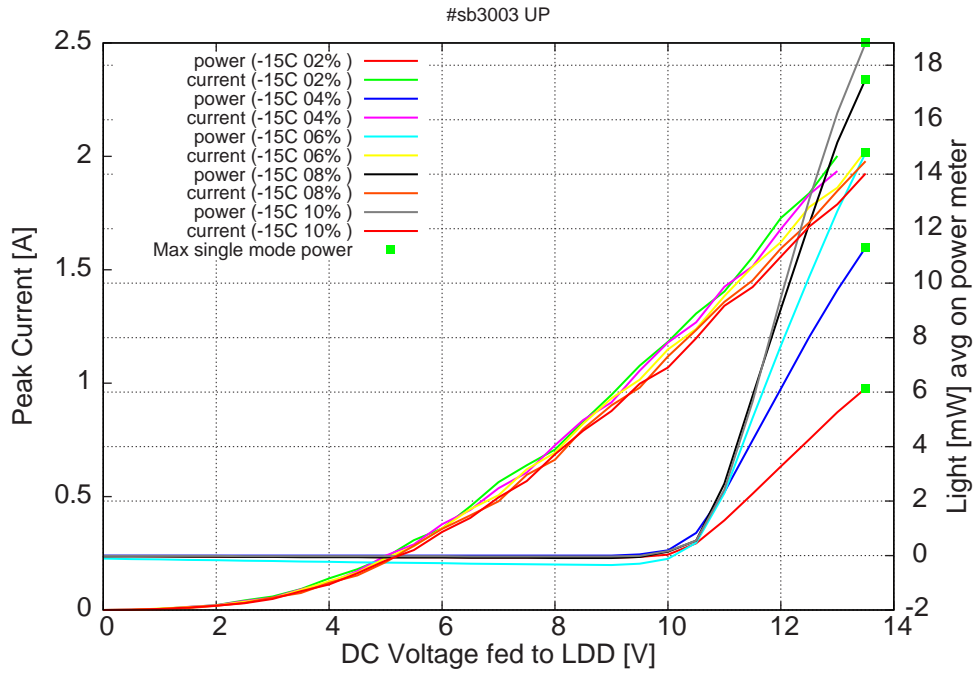


Figure 8: peak current and average power vs LDD voltage for various duty-cycles (100ns pulses on the laser) (the solid squares indicate the maximum singlemode emitted power)

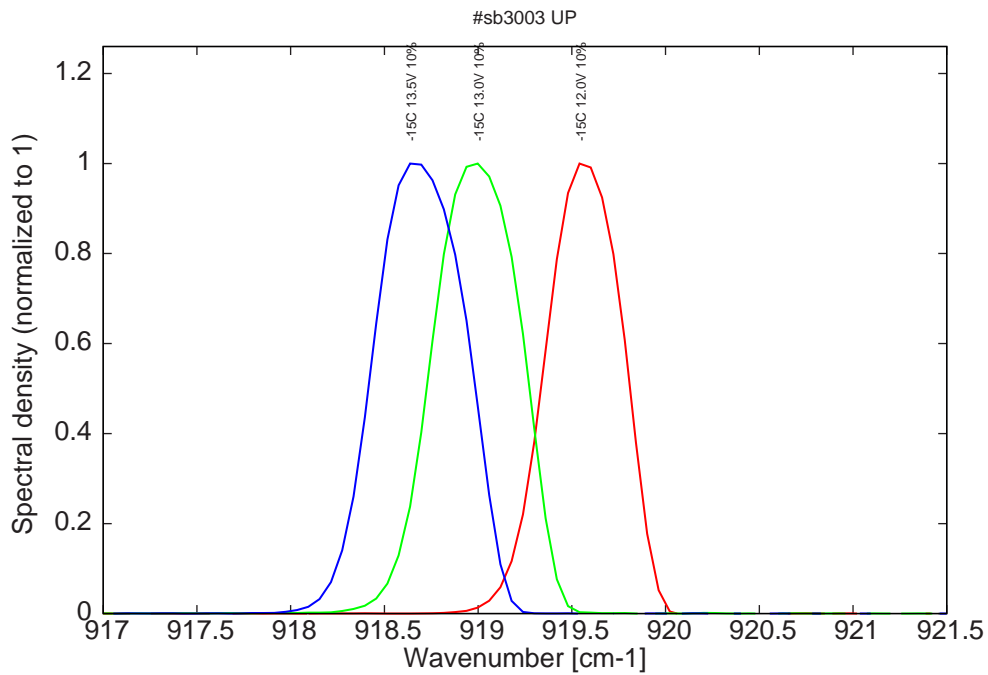


Figure 9: spectra at -15C for various LDD voltages at 10% duty-cycle