ALPES LASERS

Quantum Cascade Solutions

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Datasheet for #sb490 DN

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 longer pulses, shorter period, or higher voltage or current than specified in this document may cause damage and 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).
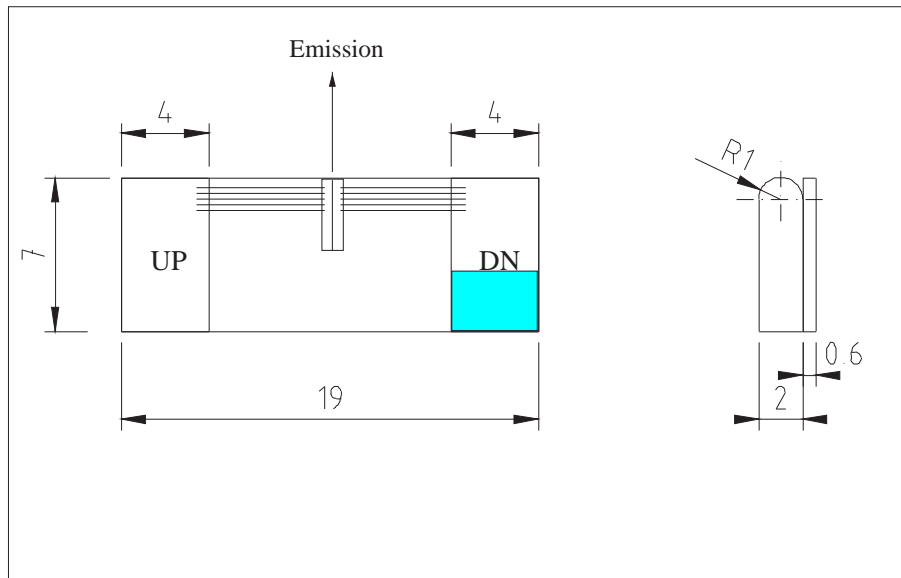

Figure 1: Support mounting for #sb490 DN (please note that the laser is connected to the DN pad drawned in blue)
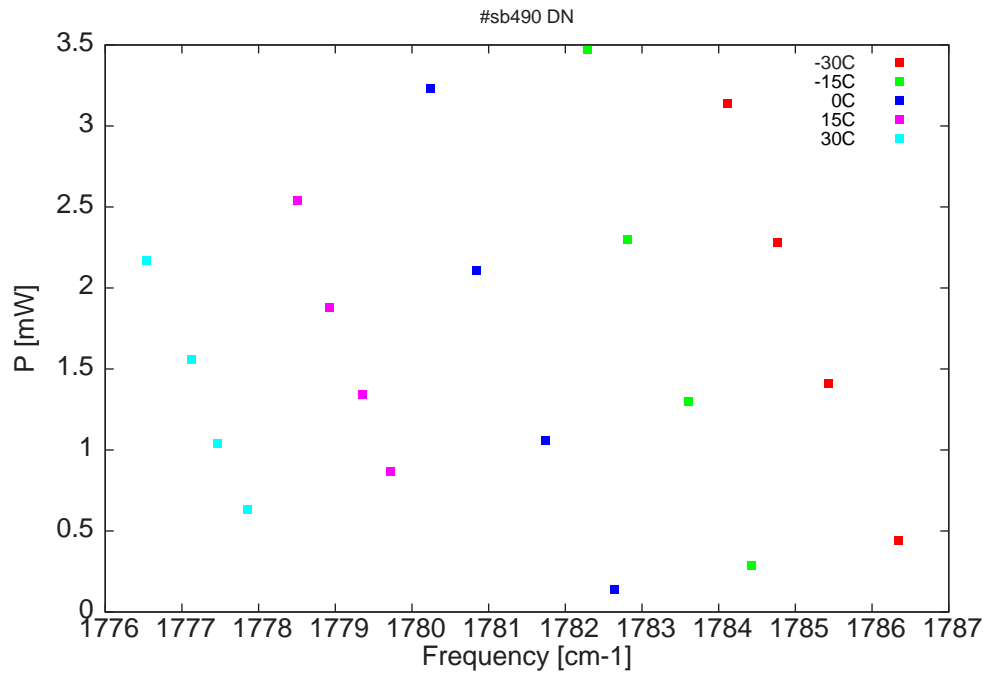
#sb490 DN

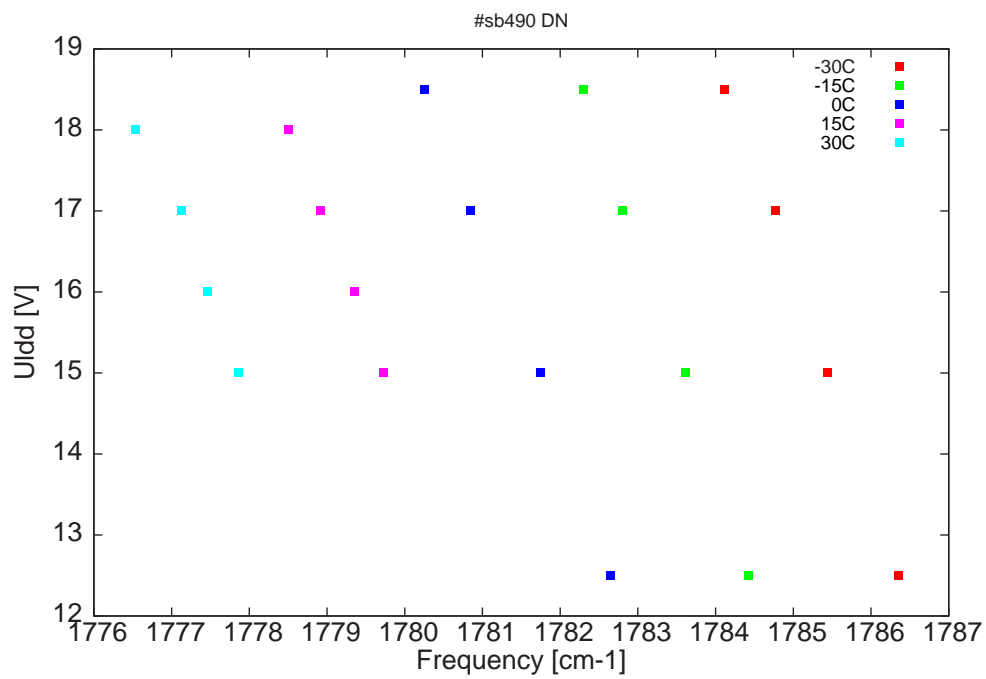Figure 2: Output power as a function of the singlemode emission frequencies and temperatures

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

#sb490 DN

λ[nm]	ν[cm^{-1}]	P[mW]	Temp[°C]	U$_{LDD}$[V]	I$_{pulse}$[A]
5598	1786.3	0.4	-30	12.5	3.07
5600.9	1785.4	1.4	-30	15	4.2
5603	1784.8	2.3	-30	17	5.12
5605	1784.1	3.1	-30	18.5	5.8
5604	1784.4	0.3	-15	12.5	3.11
5606.6	1783.6	1.3	-15	15	4.23
5609.1	1782.8	2.3	-15	17	5.13
5610.7	1782.3	3.5	-15	18.5	5.81
5609.6	1782.6	0.1	0	12.5	3.14
5612.5	1781.7	1.1	0	15	4.24
5615.3	1780.8	2.1	0	17	5.14
5617.2	1780.2	3.2	0	18.5	5.81
5618.8	1779.7	0.9	15	15	4.26
5620	1779.4	1.3	15	16	4.71
5621.4	1778.9	1.9	15	17	5.15
5622.7	1778.5	2.5	15	18	5.6
5624.7	1777.9	0.6	30	15	4.28
5626	1777.5	1	30	16	4.72
5627.1	1777.1	1.6	30	17	5.16
5628.9	1776.5	2.2	30	18	5.61

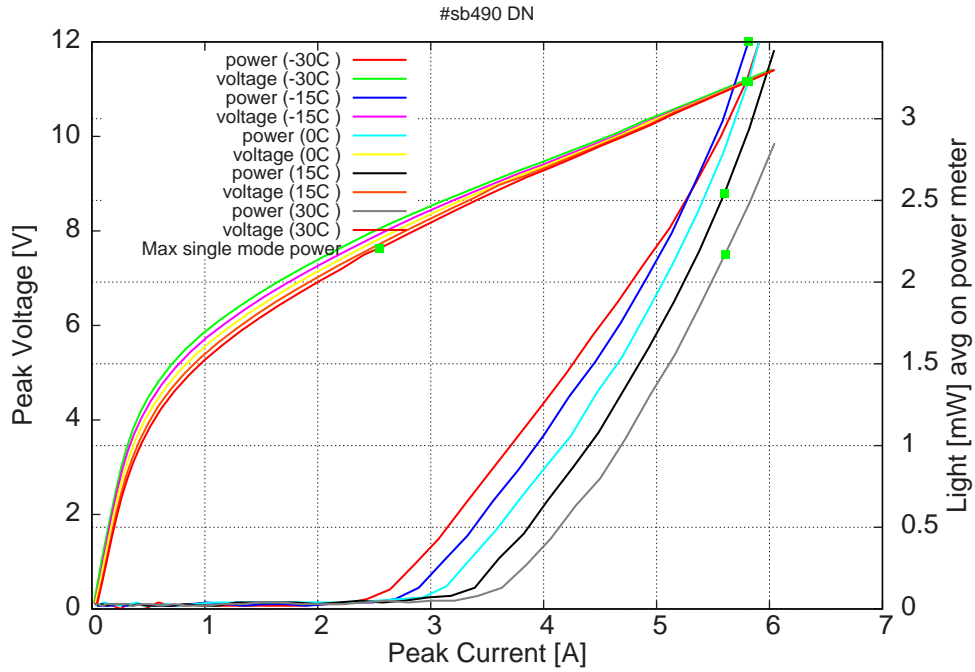Table 1 : singlemode optical output power as function of operating parameters

Figure 4: peak voltage and average power vs peak current at 2% dc (the solid squares indicate the maximum singlemode emitted power)

Note: data taken with 50ns pulses, 2.5μs period.
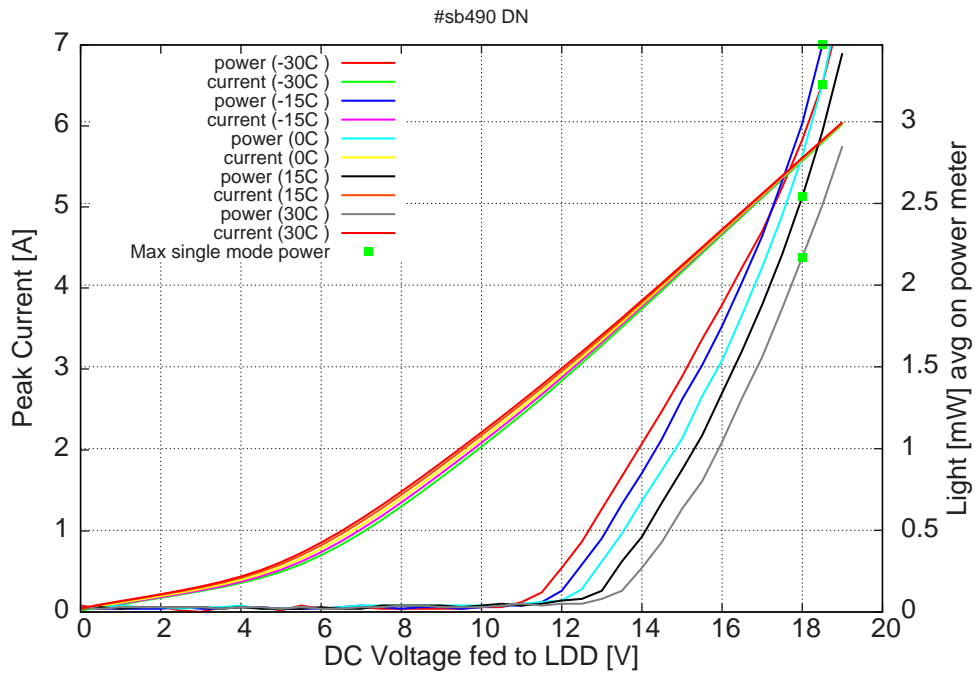
#sb490 DN

Figure 5: peak current and average power vs LDD voltage at 2% dc (the solid squares indicate the maximum singlemode emitted power)
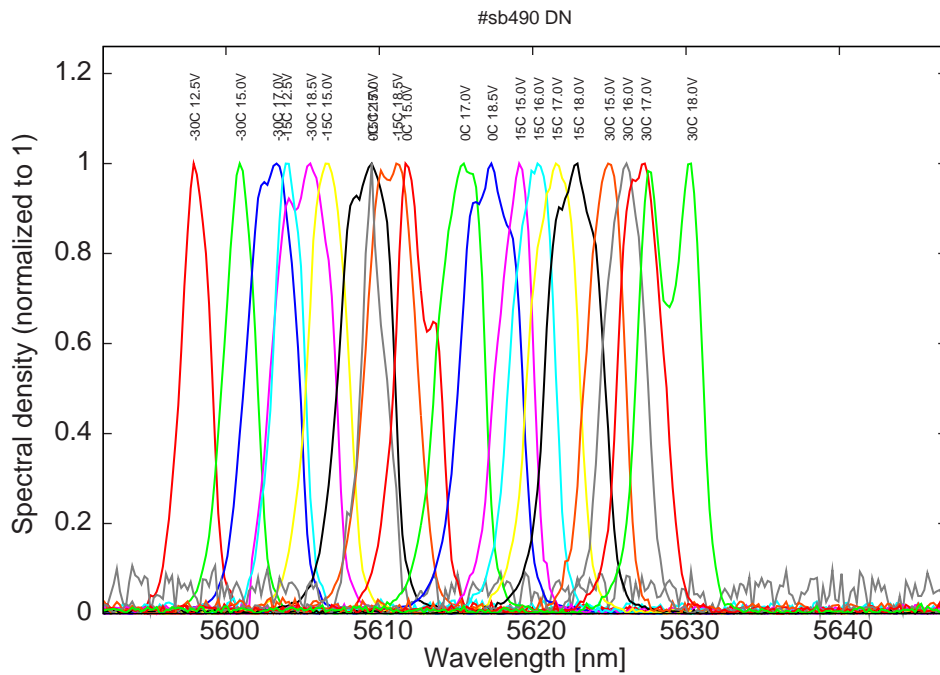

Figure 6: spectra at -30C, -15C, 0C, 15C and 30C at 2% dc for various LDD voltages
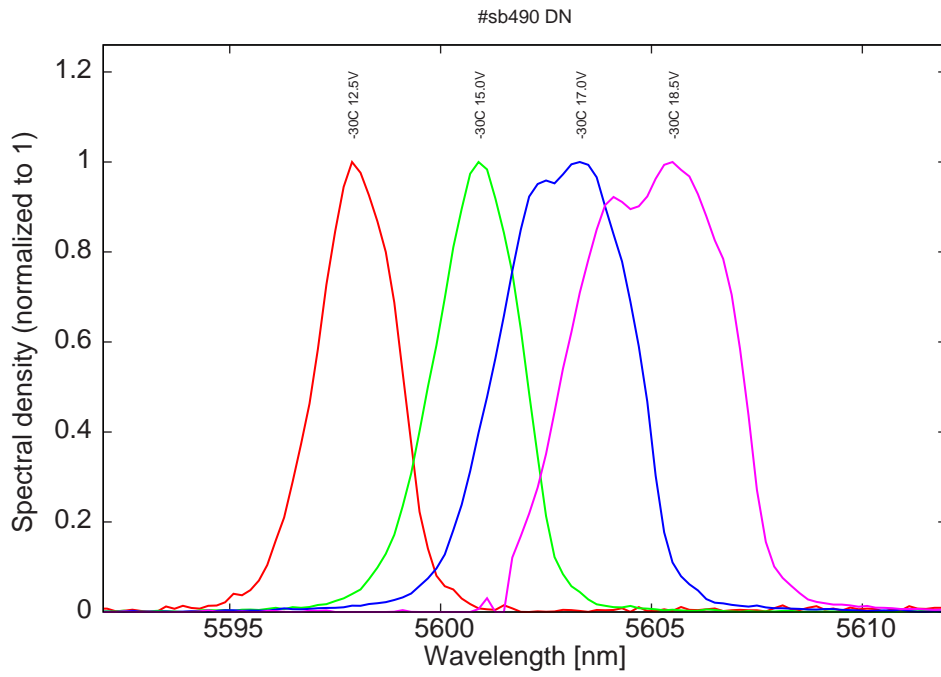
4

Figure 7: spectra at -30C for various LDD voltages (spectra shape due to pulses length)
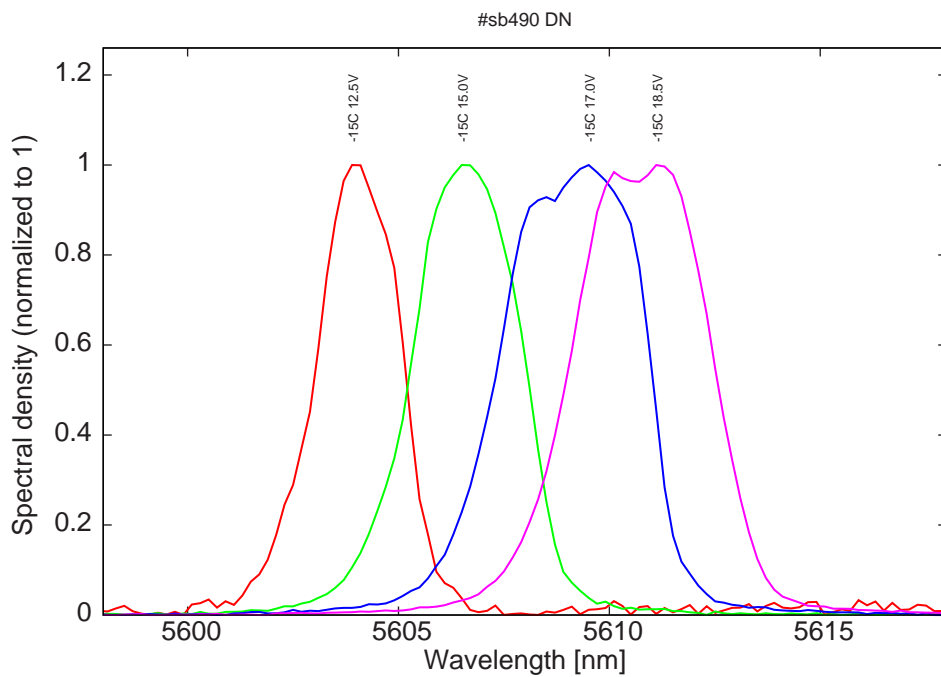
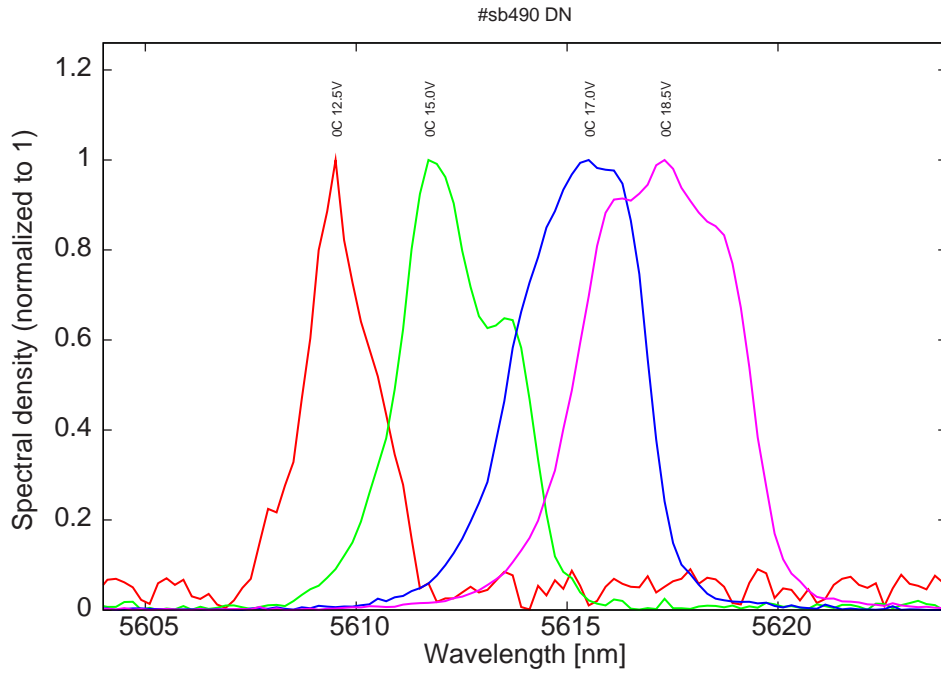Figure 8: spectra at -15C for various LDD voltages (spectra shape due to pulses length)

5

Figure 9: spectra at 0C for various LDD voltages (spectra shape due to pulses length)
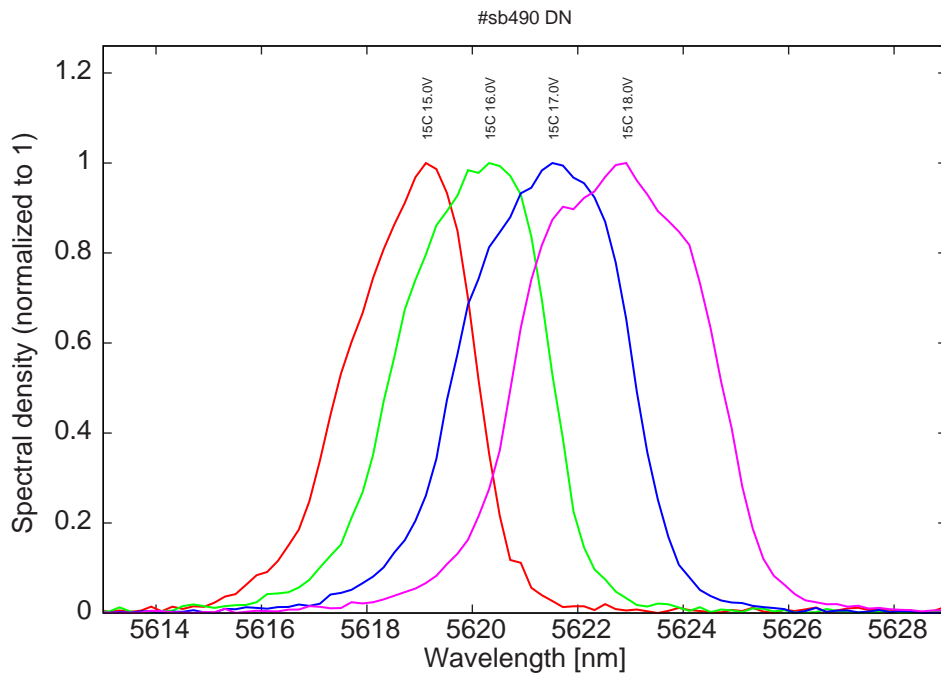

Figure 10: spectra at 15C for various LDD voltages (spectra shape due to pulses length)
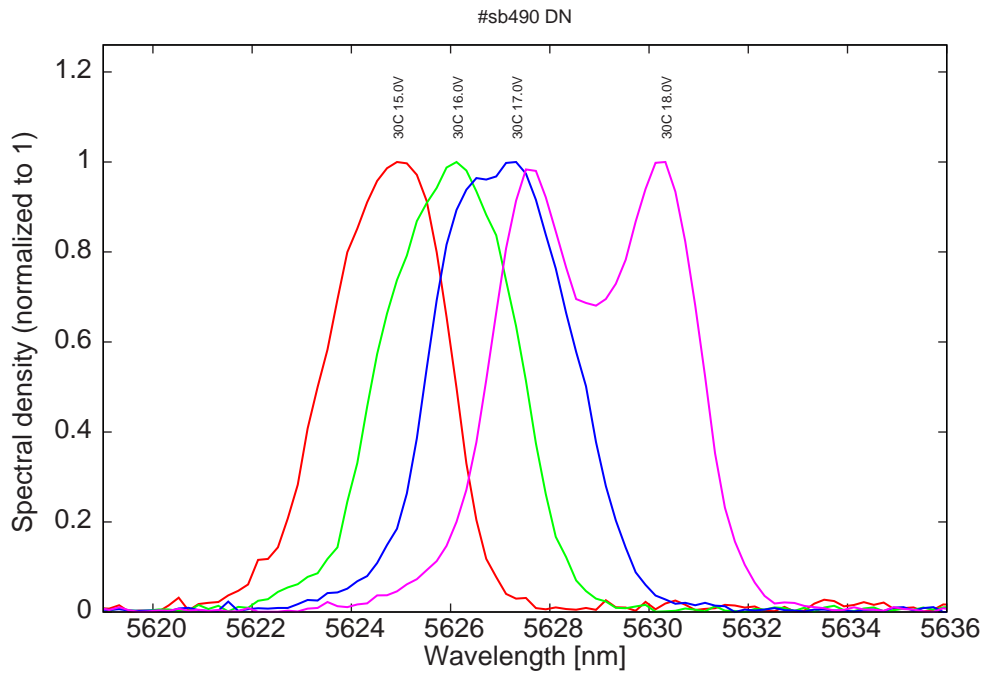
#sb490 DN

Figure 11: spectra at 30C for various LDD voltages (spectra shape due to pulses length)