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Datasheet for #sbcw12406 DN

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 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.

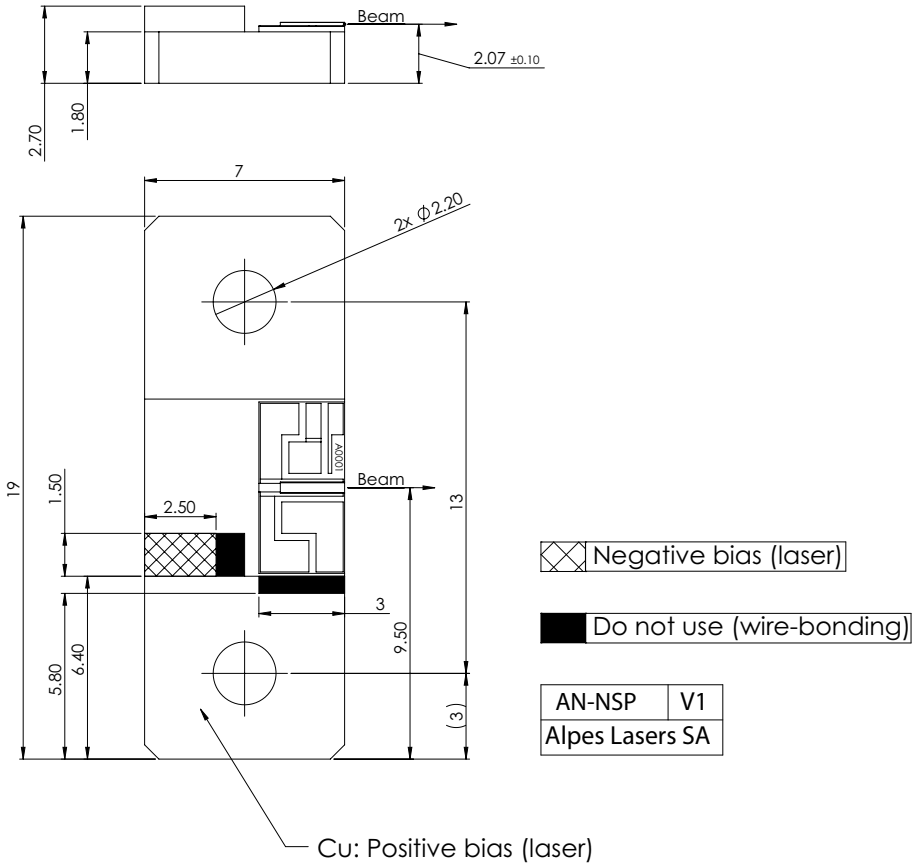

Figure 1: Support mounting for #sbcw12406 DN

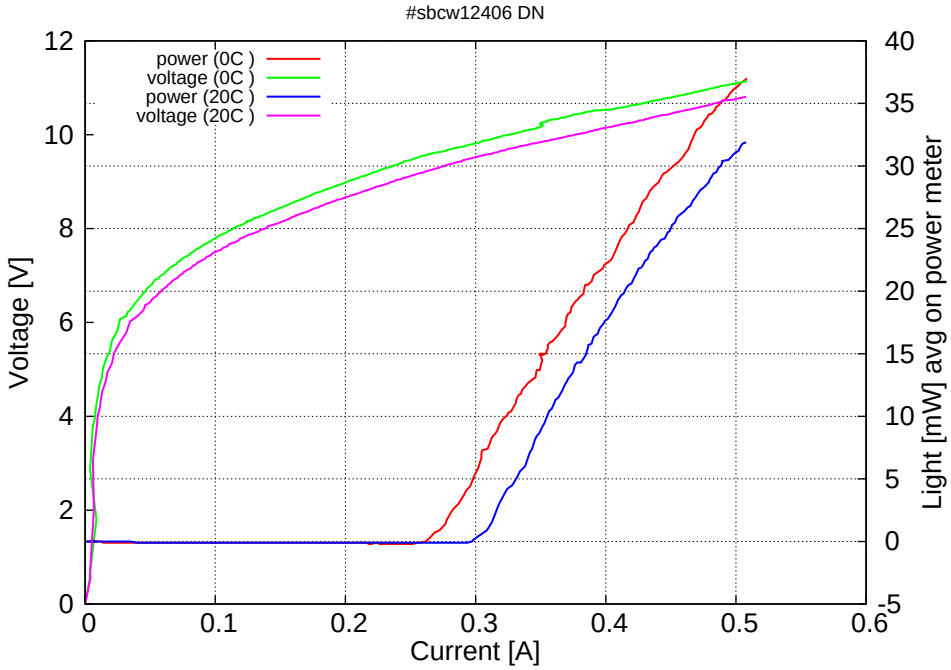

Figure 2: voltage and avg power vs current in continuous-wave operation (the solid squares indicate the maximum singlemode emitted power)

Note: at 0C: Ith=0.27A / Vth=9.6V (2-wires measurements). Maximum operation current: 0.51A for all temperatures.

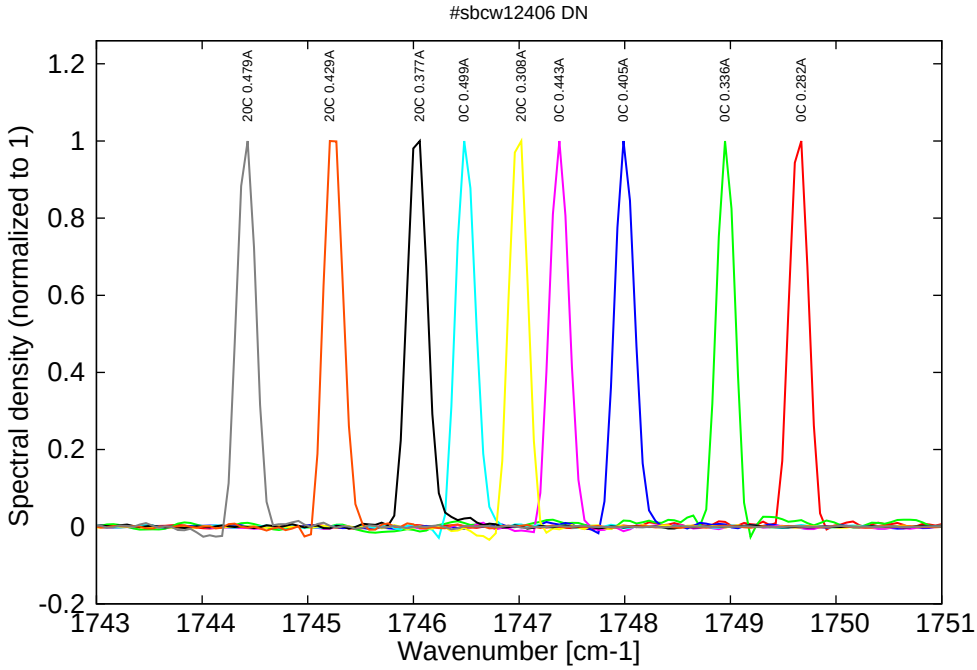

Figure 3: spectra at 0C and 20C in continuous-wave operation (front resistor current I_F = 0A and back resistor current I_B = 0A)

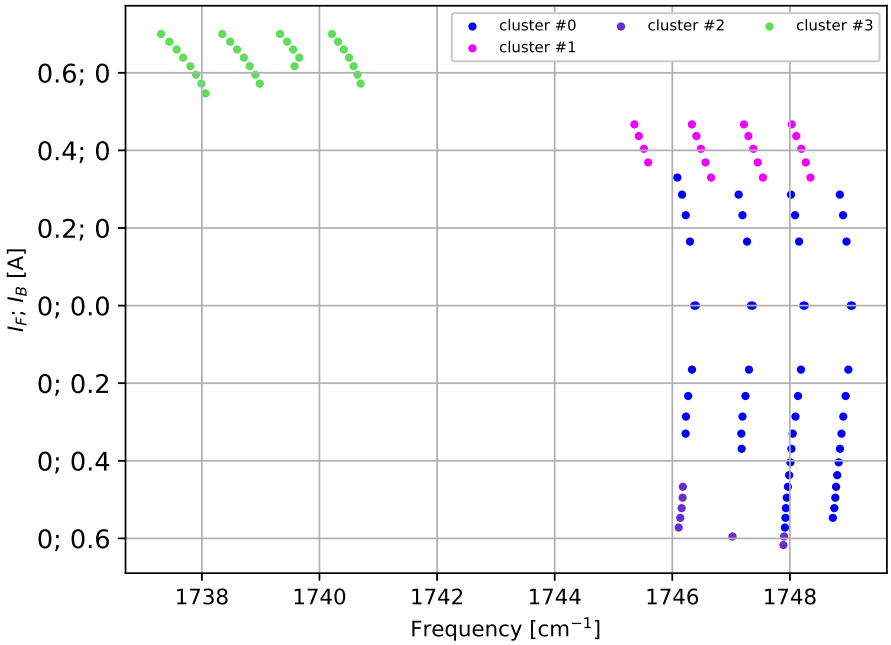

Figure 4: Emission frequency as a function of electrical current on the front resistor I_F or back resistor I_B. Either the back or the front resistors are heated, while no electrical current is flowing through the other resistor.

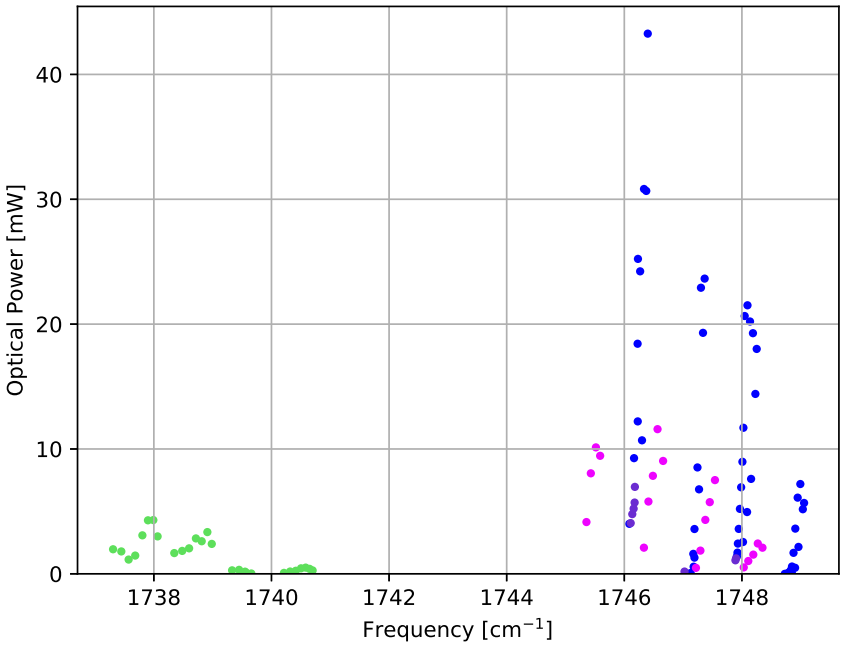

Figure 5: Optical power as a function of emission frequency.

Cluster	I_B [A]	V_B [V]	I_F [A]	V_F [V]	I_L [A]	V_L [V]	Freq [cm^{-1}]	T [C]	P_{opt} [mW]
#0-Back	0.00 - 0.57	0.0 - 2.4	0	0	0.32 - 0.51	9.6 - 11.2	1746.2 - 1749.1	0	43
#0-Front	0	0	0.00 - 0.33	0.0 - 1.4	0.32 - 0.51	9.8 - 11.2	1746.1 - 1749.1	0	43
#1-Front	0	0	0.33 - 0.47	1.4 - 1.9	0.32 - 0.51	9.6 - 11.0	1745.4 - 1748.3	0	12
#2-Back	0.47 - 0.62	2.0 - 2.6	0	0	0.38 - 0.51	10.0 - 10.9	1746.1 - 1747.9	0	7
#3-Front	0	0	0.55 - 0.70	2.2 - 2.8	0.32 - 0.51	9.4 - 10.8	1737.3 - 1740.7	0	4

Table 1: Overview of the clusters.

Details of cluster #0-Back

I_F [A]	V_F [V]	I_B [A]	V_B [V]	Pel_R [W]	I_L [A]	V_L [V]	P_L [W]	P_{tot} [W]	P_{opt} [mW]	T [C]	freq [cm^{-1}]
0.0	0.0	0.33	1.42	0.47	0.506	10.96	5.55	6.02	18	0	1746.23
0.0	0.0	0.286	1.238	0.35	0.506	10.99	5.56	5.92	25	0	1746.23
0.0	0.0	0.233	1.008	0.23	0.506	11.02	5.58	5.81	24	0	1746.27
0.0	0.0	0.165	0.713	0.12	0.506	11.06	5.60	5.72	31	0	1746.34
0.0	0.0	0.0	0.0	0.00	0.506	11.24	5.69	5.69	31	0	1746.37
0.0	0.0	0.0	0.0	0.00	0.506	11.15	5.64	5.64	43	0	1746.40
0.0	0.0	0.33	1.42	0.47	0.444	10.56	4.69	5.16	2	0	1747.17
0.0	0.0	0.369	1.585	0.58	0.444	10.53	4.68	5.26	1	0	1747.18
0.0	0.0	0.286	1.238	0.35	0.444	10.59	4.70	5.06	4	0	1747.19
0.0	0.0	0.233	1.008	0.23	0.444	10.62	4.72	4.95	9	0	1747.24
0.0	0.0	0.165	0.713	0.12	0.444	10.66	4.74	4.85	23	0	1747.30
0.0	0.0	0.0	0.0	0.00	0.444	10.85	4.82	4.82	19	0	1747.34
0.0	0.0	0.0	0.0	0.00	0.444	10.75	4.77	4.77	24	0	1747.37
0.0	0.0	0.572	2.385	1.36	0.382	9.99	3.82	5.18	1	0	1747.91
0.0	0.0	0.547	2.287	1.25	0.382	10.02	3.83	5.08	2	0	1747.92
0.0	0.0	0.522	2.177	1.14	0.382	10.03	3.83	4.97	2	0	1747.93
0.0	0.0	0.495	2.07	1.02	0.382	10.04	3.84	4.86	4	0	1747.95
0.0	0.0	0.467	1.963	0.92	0.382	10.06	3.84	4.76	5	0	1747.97
0.0	0.0	0.437	1.841	0.80	0.382	10.08	3.85	4.66	7	0	1747.99
0.0	0.0	0.404	1.713	0.69	0.382	10.10	3.86	4.55	9	0	1748.01
0.0	0.0	0.369	1.585	0.58	0.382	10.12	3.87	4.45	12	0	1748.03
0.0	0.0	0.33	1.42	0.47	0.382	10.15	3.88	4.35	21	0	1748.05
0.0	0.0	0.286	1.238	0.35	0.382	10.18	3.89	4.24	22	0	1748.09
0.0	0.0	0.233	1.008	0.23	0.382	10.21	3.90	4.14	20	0	1748.14
0.0	0.0	0.165	0.713	0.12	0.382	10.25	3.92	4.03	19	0	1748.19
0.0	0.0	0.0	0.0	0.00	0.382	10.44	3.99	3.99	14	0	1748.23
0.0	0.0	0.0	0.0	0.00	0.382	10.34	3.95	3.95	18	0	1748.25
0.0	0.0	0.547	2.287	1.25	0.32	9.57	3.06	4.31	0	0	1748.73
0.0	0.0	0.522	2.177	1.14	0.32	9.59	3.07	4.20	0	0	1748.75
0.0	0.0	0.495	2.07	1.02	0.32	9.61	3.07	4.10	0	0	1748.77
0.0	0.0	0.467	1.963	0.92	0.32	9.62	3.08	4.00	0	0	1748.79
0.0	0.0	0.437	1.841	0.80	0.32	9.64	3.09	3.89	0	0	1748.80
0.0	0.0	0.404	1.713	0.69	0.32	9.66	3.09	3.78	0	0	1748.83
0.0	0.0	0.369	1.585	0.58	0.32	9.69	3.10	3.68	1	0	1748.85
0.0	0.0	0.33	1.42	0.47	0.32	9.71	3.11	3.58	2	0	1748.88
0.0	0.0	0.286	1.238	0.35	0.32	9.74	3.12	3.47	4	0	1748.91
0.0	0.0	0.233	1.008	0.23	0.32	9.78	3.13	3.36	6	0	1748.95
0.0	0.0	0.165	0.713	0.12	0.32	9.83	3.14	3.26	7	0	1748.99
0.0	0.0	0.0	0.0	0.00	0.32	10.01	3.20	3.20	5	0	1749.04
0.0	0.0	0.0	0.0	0.00	0.32	9.92	3.17	3.17	6	0	1749.06

Table 2:

Details of cluster #0-Front

I_F [A]	V_F [V]	I_B [A]	V_B [V]	Pel_R [W]	I_L [A]	V_L [V]	P_L [W]	P_{tot} [W]	P_{opt} [mW]	T [C]	freq [cm^{-1}]
0.33	1.369	0.0	0.0	0.45	0.506	10.99	5.56	6.01	4	0	1746.09
0.286	1.193	0.0	0.0	0.34	0.506	11.01	5.57	5.91	9	0	1746.17
0.233	0.957	0.0	0.0	0.22	0.506	11.04	5.58	5.81	12	0	1746.23
0.165	0.647	0.0	0.0	0.11	0.506	11.09	5.61	5.72	11	0	1746.30
0.0	0.0	0.0	0.0	0.00	0.506	11.24	5.69	5.69	31	0	1746.37
0.0	0.0	0.0	0.0	0.00	0.506	11.15	5.64	5.64	43	0	1746.40
0.286	1.193	0.0	0.0	0.34	0.444	10.62	4.71	5.06	0	0	1747.13
0.233	0.957	0.0	0.0	0.22	0.444	10.64	4.72	4.95	1	0	1747.19
0.165	0.647	0.0	0.0	0.11	0.444	10.69	4.75	4.85	7	0	1747.27
0.0	0.0	0.0	0.0	0.00	0.444	10.85	4.82	4.82	19	0	1747.34
0.0	0.0	0.0	0.0	0.00	0.444	10.75	4.77	4.77	24	0	1747.37
0.286	1.193	0.0	0.0	0.34	0.382	10.21	3.90	4.24	3	0	1748.02
0.233	0.957	0.0	0.0	0.22	0.382	10.24	3.91	4.14	5	0	1748.09
0.165	0.647	0.0	0.0	0.11	0.382	10.28	3.93	4.03	8	0	1748.16
0.0	0.0	0.0	0.0	0.00	0.382	10.44	3.99	3.99	14	0	1748.23
0.0	0.0	0.0	0.0	0.00	0.382	10.34	3.95	3.95	18	0	1748.25
0.286	1.193	0.0	0.0	0.34	0.32	9.79	3.13	3.47	0	0	1748.85
0.233	0.957	0.0	0.0	0.22	0.32	9.81	3.14	3.36	0	0	1748.90
0.165	0.647	0.0	0.0	0.11	0.32	9.86	3.15	3.26	2	0	1748.96
0.0	0.0	0.0	0.0	0.00	0.32	10.01	3.20	3.20	5	0	1749.04
0.0	0.0	0.0	0.0	0.00	0.32	9.92	3.17	3.17	6	0	1749.06

Table 3:

Details of cluster #1-Front

I_F [A]	V_F [V]	I_B [A]	V_B [V]	Pel_R [W]	I_L [A]	V_L [V]	P_L [W]	P_{tot} [W]	P_{opt} [mW]	T [C]	freq [cm^{-1}]
0.467	1.94	0.0	0.0	0.91	0.506	10.88	5.51	6.41	4	0	1745.36
0.437	1.809	0.0	0.0	0.79	0.506	10.90	5.52	6.31	8	0	1745.43
0.404	1.682	0.0	0.0	0.68	0.506	10.93	5.53	6.21	10	0	1745.52
0.369	1.532	0.0	0.0	0.57	0.506	10.96	5.55	6.11	9	0	1745.59
0.467	1.94	0.0	0.0	0.91	0.444	10.48	4.65	5.56	2	0	1746.33
0.437	1.809	0.0	0.0	0.79	0.444	10.51	4.66	5.45	6	0	1746.41
0.404	1.682	0.0	0.0	0.68	0.444	10.53	4.67	5.35	8	0	1746.49
0.369	1.532	0.0	0.0	0.57	0.444	10.56	4.69	5.25	12	0	1746.57
0.33	1.369	0.0	0.0	0.45	0.444	10.59	4.70	5.15	9	0	1746.66
0.467	1.94	0.0	0.0	0.91	0.382	10.07	3.85	4.75	0	0	1747.22
0.437	1.809	0.0	0.0	0.79	0.382	10.09	3.86	4.65	2	0	1747.29
0.404	1.682	0.0	0.0	0.68	0.382	10.12	3.86	4.54	4	0	1747.38
0.369	1.532	0.0	0.0	0.57	0.382	10.15	3.88	4.44	6	0	1747.45
0.33	1.369	0.0	0.0	0.45	0.382	10.18	3.89	4.34	8	0	1747.54
0.467	1.94	0.0	0.0	0.91	0.32	9.65	3.09	3.99	1	0	1748.03
0.437	1.809	0.0	0.0	0.79	0.32	9.66	3.09	3.88	1	0	1748.11
0.404	1.682	0.0	0.0	0.68	0.32	9.69	3.10	3.78	2	0	1748.19
0.369	1.532	0.0	0.0	0.57	0.32	9.72	3.11	3.68	2	0	1748.27
0.33	1.369	0.0	0.0	0.45	0.32	9.75	3.12	3.57	2	0	1748.35

Table 4:

Details of cluster #2-Back

I_F [A]	V_F [V]	I_B [A]	V_B [V]	Pel_R [W]	I_L [A]	V_L [V]	P_L [W]	P_{tot} [W]	P_{opt} [mW]	T [C]	freq [cm^{-1}]
0.0	0.0	0.572	2.385	1.36	0.506	10.79	5.46	6.83	4	0	1746.11
0.0	0.0	0.547	2.287	1.25	0.506	10.81	5.47	6.72	5	0	1746.14
0.0	0.0	0.522	2.177	1.14	0.506	10.83	5.48	6.62	5	0	1746.16
0.0	0.0	0.495	2.07	1.02	0.506	10.85	5.49	6.52	6	0	1746.18
0.0	0.0	0.467	1.963	0.92	0.506	10.87	5.50	6.41	7	0	1746.18
0.0	0.0	0.595	2.477	1.47	0.444	10.39	4.61	6.09	0	0	1747.02
0.0	0.0	0.617	2.592	1.60	0.382	9.96	3.80	5.40	1	0	1747.89
0.0	0.0	0.595	2.477	1.47	0.382	9.98	3.81	5.28	1	0	1747.90

Table 5:

Details of cluster #3-Front

I_F [A]	V_F [V]	I_B [A]	V_B [V]	Pel_R [W]	I_L [A]	V_L [V]	P_L [W]	P_{tot} [W]	P_{opt} [mW]	T [C]	freq [cm^{-1}]
0.7	2.844	0.0	0.0	1.99	0.506	10.70	5.41	7.41	2	0	1737.31
0.68	2.785	0.0	0.0	1.89	0.506	10.71	5.42	7.31	2	0	1737.45
0.66	2.693	0.0	0.0	1.78	0.506	10.71	5.42	7.20	1	0	1737.57
0.639	2.611	0.0	0.0	1.67	0.506	10.72	5.43	7.09	1	0	1737.68
0.617	2.518	0.0	0.0	1.55	0.506	10.73	5.43	6.98	3	0	1737.81
0.595	2.426	0.0	0.0	1.44	0.506	10.74	5.43	6.88	4	0	1737.90
0.572	2.337	0.0	0.0	1.34	0.506	10.75	5.44	6.78	4	0	1737.99
0.547	2.242	0.0	0.0	1.23	0.506	10.79	5.46	6.69	3	0	1738.06
0.7	2.844	0.0	0.0	1.99	0.444	10.29	4.57	6.56	2	0	1738.35
0.68	2.785	0.0	0.0	1.89	0.444	10.30	4.57	6.47	2	0	1738.48
0.66	2.693	0.0	0.0	1.78	0.444	10.30	4.57	6.35	2	0	1738.60
0.639	2.611	0.0	0.0	1.67	0.444	10.31	4.58	6.25	3	0	1738.72
0.617	2.518	0.0	0.0	1.55	0.444	10.32	4.58	6.14	3	0	1738.81
0.595	2.426	0.0	0.0	1.44	0.444	10.34	4.59	6.03	3	0	1738.91
0.572	2.337	0.0	0.0	1.34	0.444	10.36	4.60	5.94	2	0	1738.98
0.7	2.844	0.0	0.0	1.99	0.382	9.87	3.77	5.76	0	0	1739.33
0.68	2.785	0.0	0.0	1.89	0.382	9.87	3.77	5.67	0	0	1739.45
0.66	2.693	0.0	0.0	1.78	0.382	9.88	3.77	5.55	0	0	1739.55
0.617	2.518	0.0	0.0	1.55	0.382	9.91	3.79	5.34	0	0	1739.58
0.639	2.611	0.0	0.0	1.67	0.382	9.90	3.78	5.45	0	0	1739.66
0.7	2.844	0.0	0.0	1.99	0.32	9.43	3.02	5.01	0	0	1740.21
0.68	2.785	0.0	0.0	1.89	0.32	9.44	3.02	4.91	0	0	1740.32
0.66	2.693	0.0	0.0	1.78	0.32	9.45	3.02	4.80	0	0	1740.41
0.639	2.611	0.0	0.0	1.67	0.32	9.47	3.03	4.70	0	0	1740.50
0.617	2.518	0.0	0.0	1.55	0.32	9.49	3.04	4.59	0	0	1740.58
0.595	2.426	0.0	0.0	1.44	0.32	9.52	3.04	4.49	0	0	1740.65
0.572	2.337	0.0	0.0	1.34	0.32	9.55	3.06	4.39	0	0	1740.70

Table 6: