

# Appendix B

## Tables of Line Fitting Data

**Table B.1** Search list of absorption lines, with vacuum wavelengths and oscillator strengths. Data are taken from Morton *et al.* (1988).

Ion	$\lambda_0/\text{\AA}$	$\log(\lambda f)$
H I	1025.7223	1.909
Fe II	1144.939	2.080
Si II	1190.4160	2.475
Si II	1193.2898	2.776
N I	1199.5496	2.202
N I	1200.2233	2.026
N I	1200.7098	1.725
Si III	1206.500	3.302
D I	1215.3394	2.704
H I	1215.6701	2.704
N V	1238.821	2.275
N V	1242.804	1.973
Si II	1260.4223	3.082
C I	1260.7355	1.682
C I	1277.2454	2.051
C I	1280.1353	1.756
O I	1302.1685	1.801
Si II	1304.3711	2.284
Ni II	1317.217	2.202
C II	1334.5323	2.196
Ni II	1370.132	2.139
Si IV	1393.324	2.866
Si IV	1402.770	2.565
Si II	1526.7071	2.545
C IV	1548.202	2.478
C IV	1550.774	2.177
C I	1560.3095	2.108
Fe II	1608.451	1.999
C I	1656.9282	2.372
Al II	1670.7867	3.498
Ni II	1709.600	1.905
Ni II	1741.549	2.073
Ni II	1751.910	1.845
Si I	1845.5203	2.626
Al III	1854.7164	3.000
Al III	1862.7895	2.699
Fe II	2344.2139	2.403
Fe II	2374.4612	1.972
Fe II	2382.7652	2.893
Fe II	2586.6500	2.171
Fe II	2600.1729	2.722
Mg II	2796.352	3.219
Mg II	2803.531	2.918
Ca II	3934.777	3.432
Ca II	3969.591	3.131

**Table B.2** Metal line systems in the Cloudy Night QSO.

	$\lambda/\text{\AA}$	$W_{obs}/\text{m\AA}$	$b/\text{kms}^{-1}$	$\log N/\text{cm}^{-2}$	$W_{fit}$	Identification	$z_{abs}$	
308	3934.64	$113 \pm 8$	$6 \pm 2$	$12.3 \pm 0.1$	103	Ca II 3934.777	-0.00003	
309	3934.86	$178 \pm 9$	$7 \pm 2$	$12.5 \pm 0.1$	144	Ca II 3934.777	0.00002	
332	3969.45	$238 \pm 10$	$5 \pm 2$	$12.2 \pm 0.1$	50	Ca II 3969.591	-0.00004	
333	3969.69	†	$10 \pm 2$	$12.7 \pm 0.1$	141	Ca II 3969.591	0.00002	
334	3970.07	$59 \pm 7$	$10 \pm 2$	$12.2 \pm 0.1$	55	Ca II 3969.591	0.00012	i
51	3504.59	$167 \pm 13$	$5 \pm 2$	$13.4 \pm 0.3$	50	Mg II 2803.531	0.25006	i
56	3509.13	$141 \pm 12$	$5 \pm 2$	$13.1 \pm 0.2$	136	Mg II 2803.531	0.25168	i
78	3545.84	$117 \pm 24$	$12 \pm 2$	$13.0 \pm 0.1$	124	Fe II 2600.1729	0.36369	i
226	3812.79	$102 \pm 15$	$6 \pm 2$	$12.3 \pm 0.1$	74	Mg II 2796.352	0.36349	
227	3813.35	$359 \pm 16$	$13 \pm 2$	$13.0 \pm 0.1$	279	Mg II 2796.352	0.36369	
228	3814.05	$533 \pm 12$	$10 \pm 2$	$13.0 \pm 0.1$	245	Mg II 2796.352	0.36394	
230	3814.65	$136 \pm 9$	$5 \pm 2$	$12.5 \pm 0.1$	96	Mg II 2796.352	0.36415	
231	3814.92	$224 \pm 10$	$7 \pm 2$	$13.0 \pm 0.1$	199	Mg II 2796.352	0.36425	
232	3815.29	$126 \pm 11$	$8 \pm 2$	$12.5 \pm 0.1$	112	Mg II 2796.352	0.36438	
233	3815.72	$288 \pm 11$	$10 \pm 2$	$13.0 \pm 0.1$	245	Mg II 2796.352	0.36454	
234	3816.00	$75 \pm 8$	$4 \pm 2$	$12.3 \pm 0.1$	66	Mg II 2796.352	0.36464	
235	3816.34	$145 \pm 12$	$7 \pm 2$	$12.6 \pm 0.1$	126	Mg II 2796.352	0.36476	
237	3817.37	$40 \pm 13$	$11 \pm 2$	$11.9 \pm 0.1$	36	Mg II 2796.352	0.36513	u
238	3817.66	$210 \pm 13$	$6 \pm 2$	$12.9 \pm 0.1$	166	Mg II 2796.352	0.36523	
245	3823.15	$132 \pm 12$	$9 \pm 2$	$12.9 \pm 0.1$	137	Mg II 2803.531	0.36369	
246	3823.49	$32 \pm 10$	$5 \pm 2$	$12.2 \pm 0.1$	34	Mg II 2803.531	0.36381	
248	3824.15	†	$8 \pm 2$	$12.8 \pm 0.1$	112	Mg II 2803.531	0.36405	u
249	3824.46	$75 \pm 12$	$8 \pm 2$	$12.5 \pm 0.1$	65	Mg II 2803.531	0.36416	
250	3824.72	$156 \pm 12$	$6 \pm 2$	$13.0 \pm 0.1$	135	Mg II 2803.531	0.36425	
251	3825.10	$92 \pm 13$	$6 \pm 2$	$12.6 \pm 0.1$	74	Mg II 2803.531	0.36439	
252	3825.53	$210 \pm 12$	$8 \pm 2$	$12.8 \pm 0.1$	112	Mg II 2803.531	0.36454	b
254	3827.46	$150 \pm 12$	$5 \pm 2$	$12.9 \pm 0.1$	109	Mg II 2803.531	0.36523	

Note: A detailed list of footnotes for this Table appear at the end of Table B.3.

Table B.2 *Continued.*

	$\lambda/\text{\AA}$	$W_{obs}/\text{m\AA}$	$b/\text{kms}^{-1}$	$\log N/\text{cm}^{-2}$	$W_{fit}$	Identification	$z_{abs}$	
7	3399.83	$291 \pm 11$				C I 1656.9282	1.05189	s
8	3400.19	$401 \pm 15$				C I 1656.9282	1.05211	s
10	3401.29	†	$5 \pm 2$	$13.8 \pm 0.1$	159	C I 1656.9282	1.05277	b
22	3428.45	$744 \pm 14$				Al II 1670.7867	1.05200	s
23	3429.13	$108 \pm 24$	$19 \pm 4$	$12.1 \pm 0.1$	109	Al II 1670.7867	1.05241	u
24	3429.73	$206 \pm 9$	$7 \pm 2$	$12.9 \pm 0.2$	230	Al II 1670.7867	1.05276	
53	3507.92	$89 \pm 17$	$5 \pm 2$	$13.5 \pm 0.1$	60	Ni II 1709.600	1.05189	
54	3508.26	$216 \pm 22$	$8 \pm 2$	$13.9 \pm 0.1$	132	Ni II 1709.600	1.05209	
57	3509.43	$46 \pm 13$	$4 \pm 2$	$13.4 \pm 0.1$	47	Ni II 1709.600	1.05278	
95	3573.49	$96 \pm 14$	$9 \pm 2$	$13.5 \pm 0.1$	97	Ni II 1741.549	1.05190	
96	3573.81	$118 \pm 16$	$6 \pm 2$	$13.6 \pm 0.1$	103	Ni II 1741.549	1.05209	
97	3575.01	$67 \pm 14$	$5 \pm 2$	$13.4 \pm 0.1$	71	Ni II 1741.549	1.05278	
109	3594.75	$154 \pm 15$	$12 \pm 2$	$14.0 \pm 0.1$	148	Ni II 1751.910	1.05190	
110	3595.07	$180 \pm 16$	$11 \pm 2$	$14.1 \pm 0.1$	171	Ni II 1751.910	1.05209	
111	3596.12	$553 \pm 27$	$30 \pm 4$	$14.6 \pm 0.1$	514	Ni II 1751.910	1.05269	b
159	3709.88	$213 \pm 12$	$9 \pm 2$	$15.06 \pm 0.05$	195	Si II 1808.0129	1.05191	
160	3710.19	$207 \pm 13$	$8 \pm 2$	$14.94 \pm 0.05$	160	Si II 1808.0129	1.05208	
162	3711.43	$95 \pm 11$	$5 \pm 2$	$14.8 \pm 0.1$	109	Si II 1808.0129	1.05277	
180	3750.63	$210 \pm 16$	$11 \pm 2$	$14.34 \pm 0.05$	194	Mg I 1827.9351	1.05184	i
181	3751.22	$27 \pm 9$	$4 \pm 2$	$13.5 \pm 0.1$	33	Mg I 1827.9351	1.05216	i
182	3751.52	$153 \pm 14$	$9 \pm 2$	$14.2 \pm 0.1$	137	Mg I 1827.9351	1.05233	i
220	3805.68	$386 \pm 9$				Al III 1854.7164	1.05189	s
221	3806.03	$367 \pm 8$				Al III 1854.7164	1.05208	s
222	3807.29	$248 \pm 11$	$6 \pm 2$	$13.5 \pm 0.2$	216	Al III 1854.7164	1.05276	
243	3822.26	$326 \pm 12$	$9 \pm 2$	$13.7 \pm 0.1$	275	Al III 1862.7895	1.05190	
244	3822.63	$399 \pm 9$				Al III 1862.7895	1.05210	s
247	3823.90	$390 \pm 14$	$8 \pm 2$	$13.8 \pm 0.1$	269	Al III 1862.7895	1.05278	b
<hr/>								
12	3405.02	$222 \pm 12$	$7 \pm 2$	$13.9 \pm 0.2$	230	C IV 1548.202	1.19934	
16	3410.68	$258 \pm 18$	$7 \pm 2$	$14.1 \pm 0.2$	215	C IV 1550.774	1.19934	
<hr/>								
60	3514.69	$86 \pm 16$	$9 \pm 2$	$13.0 \pm 0.1$	80	Si II 1526.7071	1.30214	u
61	3514.95	$78 \pm 21$	$4 \pm 1$	$12.6 \pm 0.1$	33	Si II 1526.7071	1.30231	u
83	3563.39	$291 \pm 13$				C IV 1548.202	1.30163	s
84	3564.19	$890 \pm 15$				C IV 1548.202	1.30215	s
85	3565.04	$234 \pm 15$	$8 \pm 2$	$13.8 \pm 0.2$	235	C IV 1548.202	1.30270	
89	3569.29	$244 \pm 13$	$7 \pm 2$	$14.1 \pm 0.1$	215	C IV 1550.774	1.30162	
90	3569.93	$716 \pm 18$	$17 \pm 3$	$14.3 \pm 0.1$	447	C IV 1550.774	1.30203	u
91	3570.34	†	$6 \pm 2$	$14.4 \pm 0.1$	226	C IV 1550.774	1.30230	u
92	3570.95	$184 \pm 15$	$8 \pm 2$	$13.8 \pm 0.1$	174	C IV 1550.774	1.30269	
<hr/>								
271	3874.19	$370 \pm 14$	$12 \pm 2$	$13.9 \pm 0.1$	331	C IV 1548.202	1.50238	i
<hr/>								
293	3906.65	$194 \pm 12$	$9 \pm 2$	$13.4 \pm 0.1$	160	C IV 1548.202	1.52335	i

Table B.2 *Continued.*

	$\lambda/\text{\AA}$	$W_{obs}/\text{m\AA}$	$b/\text{km s}^{-1}$	$\log N/\text{cm}^{-2}$	$W_{fit}$	Identification	$z_{abs}$	
115	3616.07	$79 \pm 22$	$6 \pm 2$	$12.4 \pm 0.1$	51	Si IV 1393.755	1.59448	
354	4016.77	$234 \pm 8$	$10 \pm 2$	$13.5 \pm 0.1$	191	C IV 1548.202	1.59447	
357	4023.43	$149 \pm 8$	$10 \pm 2$	$13.58 \pm 0.05$	130	C IV 1550.774	1.59447	
3	3396.57	$52 \pm 15$	$7 \pm 2$	$13.1 \pm 0.1$	64	Si III 1304.3711	1.60399	
339	3975.40	$265 \pm 10$	$13 \pm 2$	$13.6 \pm 0.1$	244	Si III 1526.7071	1.60391	b
358	4031.57	$132 \pm 10$	$15 \pm 2$	$13.1 \pm 0.1$	106	C IV 1548.202	1.60403	
360	4038.31	$64 \pm 9$	$13 \pm 3$	$13.1 \pm 0.1$	56	C IV 1550.774	1.60406	
14	3407.15	$126 \pm 21$	$11 \pm 2$	$13.9 \pm 0.1$	121	O I 1302.1685	1.61652	
47	3491.83	$51 \pm 16$	$6 \pm 2$	$13.1 \pm 0.1$	51	C II 1334.5323	1.61652	
133	3646.76	$86 \pm 16$	$11 \pm 2$	$12.6 \pm 0.1$	83	Si IV 1393.755	1.61650	
361	4050.88	$186 \pm 9$	$11 \pm 2$	$13.40 \pm 0.05$	162	C IV 1548.202	1.61651	
362	4051.49	$77 \pm 11$	$10 \pm 3$	$12.9 \pm 0.1$	67	C IV 1548.202	1.61690	
1	3393.64	$870 \pm 18$				H I 1215.6701	1.79158	s
35	3458.15	$133 \pm 20$	$17 \pm 3$	$13.5 \pm 0.1$	159	N V 1238.821	1.79149	u
40	3469.27	$102 \pm 24$	$21 \pm 3$	$13.6 \pm 0.1$	110	N V 1242.804	1.79149	
62	3516.04	$113 \pm 19$	$8 \pm 2$	$12.6 \pm 0.1$	112	Si II 1260.4223	1.78957	
63	3517.01	$138 \pm 18$	$6 \pm 2$	$12.6 \pm 0.1$	103	Si II 1260.4223	1.79034	
64	3517.37	$153 \pm 17$	$9 \pm 2$	$12.6 \pm 0.1$	116	Si II 1260.4223	1.79063	
65	3517.73	$140 \pm 20$	$9 \pm 2$	$12.6 \pm 0.1$	116	Si II 1260.4223	1.79091	
66	3518.45	$182 \pm 18$	$7 \pm 2$	$13.0 \pm 0.1$	182	Si II 1260.4223	1.79148	
67	3518.73	$91 \pm 13$	$5 \pm 2$	$12.5 \pm 0.1$	83	Si II 1260.4223	1.79171	
68	3519.55	$97 \pm 15$	$5 \pm 2$	$12.6 \pm 0.1$	96	Si II 1260.4223	1.79236	
126	3635.02	$100 \pm 20$	$8 \pm 2$	$13.7 \pm 0.1$	79	O I 1302.1685	1.79151	
130	3641.13	$88 \pm 18$	$9 \pm 2$	$13.2 \pm 0.1$	80	Si II 1304.3711	1.79148	
277	3887.99	$151 \pm 12$	$9 \pm 2$	$12.9 \pm 0.1$	137	Si IV 1393.755	1.78958	
279	3889.11	$143 \pm 9$	$7 \pm 2$	$12.7 \pm 0.1$	92	Si IV 1393.755	1.79038	b
280	3889.44	$85 \pm 10$	$8 \pm 2$	$12.7 \pm 0.1$	95	Si IV 1393.755	1.79062	
281	3889.87	$64 \pm 10$	$6 \pm 2$	$12.5 \pm 0.1$	62	Si IV 1393.755	1.79093	
282	3890.32	$43 \pm 10$	$6 \pm 2$	$12.3 \pm 0.1$	42	Si IV 1393.755	1.79125	
283	3890.67	$196 \pm 7$	$7 \pm 2$	$13.2 \pm 0.1$	182	Si IV 1393.755	1.79150	
284	3890.97	$105 \pm 9$	$8 \pm 2$	$12.7 \pm 0.1$	95	Si IV 1393.755	1.79172	
32	3455.69	$78 \pm 22$	$9 \pm 2$	$12.1 \pm 0.1$	66	Si III 1206.500	1.86423	
33	3456.09	$208 \pm 18$	$10 \pm 2$	$12.8 \pm 0.1$	218	Si III 1206.500	1.86456	
34	3456.58	$373 \pm 27$	$17 \pm 4$	$12.9 \pm 0.1$	312	Si III 1206.500	1.86496	b
44	3482.39	$1503 \pm 16$				H I 1215.6701	1.86458	s
72	3527.88	$151 \pm 17$	$11 \pm 2$	$12.4 \pm 0.1$	121	Si III 1206.500	1.92406	
80	3554.66	$607 \pm 18$				H I 1215.6701	1.92403	s
144	3685.50	$54 \pm 16$	$6 \pm 2$	$12.1 \pm 0.1$	42	Si II 1260.4223	1.92402	

Table B.2 *Continued.*

	$\lambda/\text{\AA}$	$W_{obs}/\text{m\AA}$	$b/\text{km s}^{-1}$	$\log N/\text{cm}^{-2}$	$W_{fit}$	Identification	$z_{abs}$	
123	3627.63	$94 \pm 12$	$5 \pm 2$	$12.4 \pm 0.1$	96	Si III 1206.500	2.00674	
136	3655.17	$320 \pm 12$				H I 1215.6701	2.00671	s
353	4012.54	$38 \pm 7$	$7 \pm 2$	$12.9 \pm 0.1$	35	C II 1334.5323	2.00670	
104	3586.18	$102 \pm 24$	$23 \pm 3$	$14.1 \pm 0.1$	111	N I 1134.4149	2.16126	u
105	3587.86	$46 \pm 15$	$6 \pm 2$	$13.5 \pm 0.1$	42	N I 1134.9803	2.16116	
116	3617.28	$221 \pm 28$	$26 \pm 4$	$13.9 \pm 0.1$	250	Fe II 1144.939	2.15936	b
117	3619.40	$78 \pm 17$	$9 \pm 2$	$13.4 \pm 0.1$	80	Fe II 1144.939	2.16122	
192	3763.11	$118 \pm 14$	$7 \pm 2$	$13.1 \pm 0.1$	92	Si II 1190.4160	2.16117	
198	3769.93	$92 \pm 13$	$7 \pm 2$	$12.8 \pm 0.1$	92	Si II 1193.2898	2.15927	
200	3772.19	$138 \pm 13$	$7 \pm 2$	$13.0 \pm 0.1$	126	Si II 1193.2898	2.16117	
209	3794.16	$238 \pm 15$	$9 \pm 2$	$13.8 \pm 0.1$	183	N I 1200.2233	2.16121	b
212	3795.68	$45 \pm 15$	$7 \pm 2$	$13.5 \pm 0.1$	43	N I 1200.7098	2.16120	
225	3811.73	$96 \pm 15$	$8 \pm 2$	$12.3 \pm 0.1$	95	Si III 1206.500	2.15933	
229	3814.34	†	$10 \pm 2$	$12.9 \pm 0.1$	245	Si III 1206.500	2.16149	b
259	3839.63	$281 \pm 9$	$7 \pm 2$	$13.5 \pm 0.4$	199	D I 1215.3394	2.15930	
260	3841.88	$4414 \pm 15$				H I 1215.6701	2.16030	s
345	3982.03	$220 \pm 8$	$8 \pm 2$	$13.0 \pm 0.1$	195	Si II 1260.4223	2.15928	
119	3622.24	$274 \pm 27$	$27 \pm 3$	$13.95 \pm 0.05$	268	Fe II 1144.939	2.16370	b
122	3624.13	$74 \pm 16$	$10 \pm 2$	$13.3 \pm 0.1$	67	Fe II 1144.939	2.16535	
194	3765.95	$597 \pm 12$				Si II 1190.4160	2.16356	s
196	3768.11	$66 \pm 15$	$12 \pm 3$	$12.9 \pm 0.1$	69	Si II 1190.4160	2.16537	
197	3769.46	$88 \pm 14$	$7 \pm 2$	$13.0 \pm 0.1$	77	Si II 1190.4160	2.16651	
201	3774.98	$111 \pm 15$	$8 \pm 2$	$12.8 \pm 0.1$	95	Si II 1193.2898	2.16350	
203	3777.16	$140 \pm 17$	$11 \pm 2$	$12.9 \pm 0.1$	121	Si II 1193.2898	2.16533	
204	3778.57	$113 \pm 18$	$6 \pm 2$	$12.8 \pm 0.1$	88	Si II 1193.2898	2.16651	
211	3794.76	$178 \pm 17$	$14 \pm 3$	$13.8 \pm 0.1$	216	N I 1199.5496	2.16349	b
213	3796.96	$264 \pm 19$	$13 \pm 2$	$13.9 \pm 0.1$	244	N I 1199.5496	2.16532	b
214	3798.41	$77 \pm 13$	$5 \pm 2$	$13.3 \pm 0.2$	71	N I 1199.5496	2.16653	b
215	3799.35	$572 \pm 21$	$24 \pm 4$	$14.48 \pm 0.05$	537	N I 1200.2233	2.16554	b
216	3800.55	$78 \pm 16$	$6 \pm 2$	$13.4 \pm 0.1$	62	N I 1200.2233	2.16654	b
236	3816.83	$92 \pm 14$	$11 \pm 2$	$12.2 \pm 0.1$	83	Si III 1206.500	2.16356	
240	3819.00	$137 \pm 13$	$11 \pm 2$	$12.4 \pm 0.1$	121	Si III 1206.500	2.16535	b
241	3820.10	$522 \pm 19$	$12 \pm 2$	$12.7 \pm 0.1$	205	Si III 1206.500	2.16627	b
261	3844.74	$417 \pm 8$	$7 \pm 2$	$13.5 \pm 0.3$	199	D I 1215.3394	2.16351	u
262	3846.00	*	*	*	*	H I 1215.6701	2.16369	s
266	3863.17	$428 \pm 21$	$22 \pm 4$	$13.0 \pm 0.1$	397	Si III 1206.500	2.20196	b
285	3892.26	$1580 \pm 10$				H I 1215.6701	2.20174	s
359	4035.87	$74 \pm 10$	$17 \pm 3$	$12.3 \pm 0.1$	71	Si II 1260.4223	2.20200	
289	3896.19	$113 \pm 12$	$8 \pm 2$	$12.3 \pm 0.1$	95	Si III 1206.500	2.22933	
303	3925.80	$563 \pm 14$				H I 1215.6701	2.22933	s

**Table B.3** Absorption lines in the Cloudy Night QSO.

	$\lambda/\text{\AA}$	$W_{obs}/\text{m\AA}$	$b/\text{kms}^{-1}$	$\log N/\text{cm}^{-2}$	$W_{fit}$	Identification	$z_{abs}$	
1	3393.64	$870 \pm 18$				H I 1215.6701	1.79158	s
2	3394.59	$522 \pm 16$						s
3	3396.57	$52 \pm 15$	$7 \pm 2$	$12.7 \pm 0.1$	64	Si II 1304.3711	1.60399	
4	3398.00	$317 \pm 28$	$17 \pm 3$	$13.5 \pm 0.1$	312			
5	3398.45	$58 \pm 18$	$12 \pm 3$	$12.7 \pm 0.1$	69			u
6	3398.88	$173 \pm 26$	$12 \pm 3$	$13.1 \pm 0.1$	148			
7	3399.83	$291 \pm 11$				C I 1656.9282	1.05189	s
8	3400.19	$401 \pm 15$				C I 1656.9282	1.05211	s
9	3401.04	$286 \pm 22$	$14 \pm 2$	$12.9 \pm 0.1$	105			u
10	3401.29	†	$5 \pm 2$	$13.5 \pm 0.1$	159	C I 1656.9282	1.05277	b
11	3402.37	$214 \pm 31$	$27 \pm 3$	$13.3 \pm 0.1$	252			
12	3405.02	$222 \pm 12$				C IV 1548.202	1.19934	s
13	3406.81	$228 \pm 15$						s
14	3407.15	$126 \pm 21$	$11 \pm 2$	$13.0 \pm 0.1$	121	O I 1302.1685	1.61652	
15	3410.13	$88 \pm 24$	$25 \pm 4$	$12.8 \pm 0.1$	90			u
16	3410.68	$258 \pm 18$	$7 \pm 2$	$13.6 \pm 0.2$	215	C IV 1550.774	1.19934	
17	3411.66	$82 \pm 15$	$4 \pm 2$	$12.9 \pm 0.1$	76			
18	3412.75	$249 \pm 33$	$48 \pm 8$	$13.3 \pm 0.1$	273			
19	3417.53	$1021 \pm 27$	$35 \pm 4$	$14.3 \pm 0.1$	1075			
20	3426.39	$714 \pm 19$						s
21	3427.37	$227 \pm 14$	$9 \pm 2$	$13.5 \pm 0.1$	231			
22	3428.45	$744 \pm 14$				Al II 1670.7867	1.05200	s
23	3429.13	$108 \pm 24$	$19 \pm 4$	$12.9 \pm 0.1$	109	Al II 1670.7867	1.05241	u
24	3429.73	$206 \pm 9$				Al II 1670.7867	1.05276	s
25	3434.50	$524 \pm 33$	$32 \pm 3$	$13.7 \pm 0.1$	525			
26	3437.21	$148 \pm 35$	$33 \pm 5$	$13.1 \pm 0.1$	174			
27	3442.61	$147 \pm 46$	$43 \pm 8$	$13.0 \pm 0.2$	143			u
28	3445.82	$260 \pm 36$	$25 \pm 6$	$13.3 \pm 0.1$	249			
29	3447.30	$202 \pm 45$	$46 \pm 7$	$13.2 \pm 0.1$	221			u
30	3452.62	$185 \pm 13$	$4 \pm 2$	$14.1 \pm 0.2$	175			
31	3454.32	$219 \pm 14$						s
32	3455.69	$78 \pm 22$	$9 \pm 2$	$12.7 \pm 0.1$	66	Si III 1206.500	1.86423	
33	3456.09	$208 \pm 18$	$10 \pm 2$	$13.4 \pm 0.1$	218	Si III 1206.500	1.86456	
34	3456.58	$373 \pm 27$	$17 \pm 4$	$13.5 \pm 0.1$	312	Si III 1206.500	1.86496	b
35	3458.15	$133 \pm 20$	$17 \pm 3$	$13.1 \pm 0.1$	159	N V 1238.821	1.79149	u
36	3458.50	$209 \pm 12$	$6 \pm 2$	$13.6 \pm 0.2$	193			
37	3459.11	$152 \pm 23$	$18 \pm 4$	$13.1 \pm 0.1$	161			
38	3460.30	$74 \pm 14$	$6 \pm 2$	$12.8 \pm 0.1$	74			
39	3467.97	$74 \pm 24$	$24 \pm 4$	$12.8 \pm 0.1$	90			u
40	3469.27	$102 \pm 24$	$21 \pm 3$	$12.9 \pm 0.1$	110	N V 1242.804	1.79149	
41	3472.57	$85 \pm 24$	$21 \pm 3$	$12.8 \pm 0.1$	89			u
42	3473.66	$91 \pm 26$	$33 \pm 5$	$12.9 \pm 0.1$	114			u
43	3477.88	$631 \pm 29$	$29 \pm 4$	$13.85 \pm 0.05$	623			
44	3482.39	$1503 \pm 16$				H I 1215.6701	1.86458	s
45	3488.62	$112 \pm 23$	$17 \pm 3$	$13.0 \pm 0.1$	131			
46	3490.58	$104 \pm 34$	$40 \pm 5$	$12.9 \pm 0.1$	115			u
47	3491.83	$51 \pm 16$	$6 \pm 2$	$12.6 \pm 0.1$	51	C II 1334.5323	1.61652	
48	3499.10	$72 \pm 20$	$12 \pm 3$	$12.7 \pm 0.1$	69			
49	3499.92	$896 \pm 20$						s
50	3502.72	$1012 \pm 31$	$39 \pm 6$	$14.2 \pm 0.1$	1064			

Table B.3 *Continued.*

	$\lambda/\text{\AA}$	$W_{obs}/\text{m\AA}$	$b/\text{kms}^{-1}$	$\log N/\text{cm}^{-2}$	$W_{fit}$	Identification	$z_{abs}$	
51	3504.59	$167 \pm 13$	$5 \pm 2$	$13.6 \pm 0.3$	50	Mg II 2803.531	0.25006	i
52	3506.01	$64 \pm 21$	$13 \pm 3$	$12.6 \pm 0.1$	56			
53	3507.92	$89 \pm 17$	$5 \pm 2$	$12.7 \pm 0.1$	60	Ni II 1709.600	1.05189	
54	3508.26	$216 \pm 22$	$8 \pm 2$	$13.1 \pm 0.1$	132	Ni II 1709.600	1.05209	
55	3508.51	†	$12 \pm 3$	$12.8 \pm 0.1$	84			u
56	3509.13	$141 \pm 12$	$5 \pm 2$	$13.3 \pm 0.2$	136	Mg II 2803.531	0.25168	i
57	3509.43	$46 \pm 13$	$4 \pm 2$	$12.6 \pm 0.1$	47	Ni II 1709.600	1.05278	
58	3512.46	$96 \pm 22$	$14 \pm 3$	$12.9 \pm 0.1$	105			
59	3513.69	$178 \pm 19$	$14 \pm 3$	$13.2 \pm 0.1$	183			
60	3514.69	$86 \pm 16$	$9 \pm 2$	$12.8 \pm 0.1$	80	Si II 1526.7071	1.30214	u
61	3514.95	$78 \pm 21$	$4 \pm 1$	$12.4 \pm 0.1$	33	Si II 1526.7071	1.30231	u
62	3516.04	$113 \pm 19$	$8 \pm 2$	$13.0 \pm 0.1$	112	Si II 1260.4223	1.78957	
63	3517.01	$138 \pm 18$	$6 \pm 2$	$13.0 \pm 0.1$	103	Si II 1260.4223	1.79034	
64	3517.37	$153 \pm 17$	$9 \pm 2$	$13.0 \pm 0.1$	116	Si II 1260.4223	1.79063	
65	3517.73	$140 \pm 20$	$9 \pm 2$	$13.0 \pm 0.1$	116	Si II 1260.4223	1.79091	
66	3518.45	$182 \pm 18$	$7 \pm 2$	$13.4 \pm 0.1$	182	Si II 1260.4223	1.79148	
67	3518.73	$91 \pm 13$	$5 \pm 2$	$12.9 \pm 0.1$	83	Si II 1260.4223	1.79171	
68	3519.55	$97 \pm 15$	$5 \pm 2$	$13.0 \pm 0.1$	96	Si II 1260.4223	1.79236	
69	3522.53	$138 \pm 21$	$11 \pm 2$	$13.0 \pm 0.1$	121			
70	3523.19	$272 \pm 23$	$25 \pm 3$	$13.4 \pm 0.1$	298			
71	3525.79	$326 \pm 27$	$30 \pm 6$	$13.4 \pm 0.1$	310			
72	3527.88	$151 \pm 17$	$11 \pm 2$	$13.0 \pm 0.1$	121	Si III 1206.500	1.92406	
73	3528.59	$309 \pm 24$	$35 \pm 5$	$13.5 \pm 0.1$	384			
74	3530.42	$45 \pm 14$	$8 \pm 2$	$12.5 \pm 0.1$	43			u
75	3530.84	$246 \pm 19$	$13 \pm 3$	$13.4 \pm 0.1$	244			
76	3535.23	$159 \pm 42$	$52 \pm 10$	$13.0 \pm 0.2$	145			u
77	3543.15	$133 \pm 31$	$24 \pm 4$	$13.0 \pm 0.1$	137			
78	3545.84	$117 \pm 24$	$12 \pm 2$	$13.0 \pm 0.1$	124	Fe II 2600.1729	0.36369	i
79	3547.20	$574 \pm 19$						s
80	3554.66	$607 \pm 18$				H I 1215.6701	1.92403	s
81	3555.94	$95 \pm 28$	$18 \pm 4$	$12.8 \pm 0.1$	88			
82	3558.76	$1169 \pm 33$	$40 \pm 6$	$14.19 \pm 0.05$	1072			
83	3563.39	$291 \pm 13$				C IV 1548.202	1.30163	s
84	3564.19	$890 \pm 15$				C IV 1548.202	1.30215	s
85	3565.04	$234 \pm 15$	$8 \pm 2$	$13.6 \pm 0.2$	235	C IV 1548.202	1.30270	
86	3566.31	$765 \pm 26$	$33 \pm 3$	$13.86 \pm 0.05$	674			
87	3566.75	†	$5 \pm 2$	$13.1 \pm 0.1$	109			u
88	3568.87	$91 \pm 22$	$24 \pm 5$	$12.9 \pm 0.1$	111			
89	3569.29	$244 \pm 13$	$7 \pm 2$	$13.6 \pm 0.1$	215	C IV 1550.774	1.30162	
90	3569.93	$716 \pm 18$	$17 \pm 3$	$13.8 \pm 0.1$	447	C IV 1550.774	1.30203	u
91	3570.34	†	$6 \pm 2$	$13.9 \pm 0.1$	226	C IV 1550.774	1.30230	u
92	3570.95	$184 \pm 15$	$8 \pm 2$	$13.3 \pm 0.1$	174	C IV 1550.774	1.30269	
93	3571.53	$56 \pm 17$	$7 \pm 2$	$12.6 \pm 0.1$	52			
94	3572.66	$89 \pm 18$	$7 \pm 2$	$12.8 \pm 0.1$	77			
95	3573.49	$96 \pm 14$	$9 \pm 2$	$12.9 \pm 0.1$	97	Ni II 1741.549	1.05190	
96	3573.81	$118 \pm 16$	$6 \pm 2$	$13.0 \pm 0.1$	103	Ni II 1741.549	1.05209	
97	3575.01	$67 \pm 14$	$5 \pm 2$	$12.8 \pm 0.1$	71	Ni II 1741.549	1.05278	
98	3576.32	$663 \pm 16$						s
99	3577.66	$688 \pm 23$	$34 \pm 6$	$13.89 \pm 0.05$	706			
100	3578.86	$386 \pm 24$	$24 \pm 4$	$13.6 \pm 0.1$	409			



Table B.3 *Continued.*

	$\lambda/\text{\AA}$	$W_{obs}/\text{m\AA}$	$b/\text{km s}^{-1}$	$\log N/\text{cm}^{-2}$	$W_{fit}$	Identification	$z_{abs}$	
101	3579.70	$64 \pm 20$	$18 \pm 3$	$12.7 \pm 0.1$	71			u
102	3581.70	$68 \pm 20$	$17 \pm 4$	$12.7 \pm 0.1$	71			
103	3583.52	$248 \pm 29$	$36 \pm 5$	$13.3 \pm 0.1$	264			
104	3586.18	$102 \pm 24$	$23 \pm 3$	$12.9 \pm 0.1$	111	N I 1134.4149	2.16126	u
105	3587.86	$46 \pm 15$	$6 \pm 2$	$12.5 \pm 0.1$	42	N I 1134.9803	2.16116	
106	3589.68	$86 \pm 23$	$19 \pm 5$	$12.8 \pm 0.1$	88			
107	3590.79	$210 \pm 23$	$23 \pm 3$	$13.2 \pm 0.1$	203			
108	3592.72	$652 \pm 26$	$32 \pm 4$	$13.83 \pm 0.05$	637			
109	3594.75	$154 \pm 15$	$12 \pm 2$	$13.1 \pm 0.1$	148	Ni II 1751.910	1.05190	
110	3595.07	$180 \pm 16$	$11 \pm 2$	$13.2 \pm 0.1$	171	Ni II 1751.910	1.05209	
111	3596.12	$553 \pm 27$	$30 \pm 4$	$13.7 \pm 0.1$	514	Ni II 1751.910	1.05269	b
112	3601.03	$51 \pm 17$	$6 \pm 2$	$12.5 \pm 0.1$	42			
113	3601.68	$58 \pm 17$	$13 \pm 2$	$12.7 \pm 0.1$	69			u
114	3612.94	$367 \pm 23$	$16 \pm 4$	$13.6 \pm 0.1$	347			
115	3616.07	$79 \pm 22$	$6 \pm 2$	$12.6 \pm 0.1$	51	Si IV 1393.755	1.59448	
116	3617.28	$221 \pm 28$	$26 \pm 4$	$13.3 \pm 0.1$	250	Fe II 1144.939	2.15936	b
117	3619.40	$78 \pm 17$	$9 \pm 2$	$12.8 \pm 0.1$	80	Fe II 1144.939	2.16122	
118	3621.51	$58 \pm 19$	$13 \pm 3$	$12.6 \pm 0.1$	56			
119	3622.24	$274 \pm 27$	$27 \pm 3$	$13.33 \pm 0.05$	268	Fe II 1144.939	2.16370	b
120	3622.85	$54 \pm 16$	$6 \pm 2$	$12.6 \pm 0.1$	51			
121	3623.28	$66 \pm 20$	$13 \pm 2$	$12.7 \pm 0.1$	69			
122	3624.13	$74 \pm 16$	$10 \pm 2$	$12.7 \pm 0.1$	67	Fe II 1144.939	2.16535	
123	3627.63	$94 \pm 12$	$5 \pm 2$	$13.0 \pm 0.1$	96	Si III 1206.500	2.00674	
124	3628.35	$450 \pm 24$	$32 \pm 5$	$13.6 \pm 0.1$	448			
125	3629.54	$1327 \pm 22$	$36 \pm 7$	$14.5 \pm 0.2$	1243			
126	3635.02	$100 \pm 20$	$8 \pm 2$	$12.8 \pm 0.1$	79	O I 1302.1685	1.79151	
127	3635.92	$211 \pm 24$	$21 \pm 3$	$13.2 \pm 0.1$	199			
128	3637.67	$323 \pm 22$	$12 \pm 3$	$12.7 \pm 0.1$	69			u
129	3638.03	†	$12 \pm 2$	$13.4 \pm 0.1$	236			
130	3641.13	$88 \pm 18$	$9 \pm 2$	$12.8 \pm 0.1$	80	Si II 1304.3711	1.79148	
131	3642.75	$124 \pm 13$	$6 \pm 2$	$13.1 \pm 0.1$	118			
132	3644.08	$117 \pm 15$	$10 \pm 2$	$13.0 \pm 0.1$	119			
133	3646.76	$86 \pm 16$	$11 \pm 2$	$12.8 \pm 0.1$	83	Si IV 1393.755	1.61650	
134	3649.13	$194 \pm 28$	$40 \pm 5$	$13.2 \pm 0.1$	218			
135	3653.66	$37 \pm 12$	$4 \pm 2$	$12.5 \pm 0.1$	39			
136	3655.17	$320 \pm 12$				H I 1215.6701	2.00671	s
137	3669.03	$115 \pm 16$	$6 \pm 2$	$13.0 \pm 0.1$	103			
138	3669.97	$105 \pm 34$	$32 \pm 8$	$12.8 \pm 0.1$	91			u
139	3672.23	$62 \pm 17$	$8 \pm 2$	$12.6 \pm 0.1$	53			
140	3677.50	$769 \pm 22$	$29 \pm 4$	$13.99 \pm 0.05$	732			
141	3678.96	$128 \pm 32$	$42 \pm 10$	$12.9 \pm 0.2$	115			u
142	3680.11	$466 \pm 22$	$24 \pm 4$	$13.66 \pm 0.05$	451			
143	3681.12	$112 \pm 23$	$16 \pm 2$	$12.8 \pm 0.1$	87			
144	3685.50	$54 \pm 16$	$6 \pm 2$	$12.5 \pm 0.1$	42	Si II 1260.4223	1.92402	
145	3686.24	$330 \pm 26$	$32 \pm 5$	$13.40 \pm 0.05$	314			
146	3688.65	$50 \pm 14$	$9 \pm 2$	$12.6 \pm 0.1$	54			
147	3689.92	$485 \pm 21$	$24 \pm 4$	$13.69 \pm 0.05$	467			
148	3692.39	$89 \pm 23$	$21 \pm 5$	$12.8 \pm 0.1$	89			
149	3694.65	$607 \pm 21$	$12 \pm 2$	$13.7 \pm 0.1$	331			
150	3694.93	†	$7 \pm 2$	$13.3 \pm 0.1$	163			u

Table B.3 *Continued.*

	$\lambda/\text{\AA}$	$W_{obs}/\text{m\AA}$	$b/\text{km s}^{-1}$	$\log N/\text{cm}^{-2}$	$W_{fit}$	Identification	$z_{abs}$	
151	3695.19	†	$10 \pm 2$	$12.8 \pm 0.1$	82			u
152	3700.76	$199 \pm 14$	$8 \pm 2$	$13.2 \pm 0.1$	153			
153	3701.03	$113 \pm 13$	$10 \pm 2$	$13.0 \pm 0.1$	119			
154	3702.01	$93 \pm 15$	$6 \pm 2$	$12.6 \pm 0.1$	51			u
155	3702.73	$212 \pm 26$	$41 \pm 7$	$13.3 \pm 0.1$	268			
156	3703.89	$179 \pm 21$	$22 \pm 5$	$13.1 \pm 0.1$	166			
157	3706.51	$80 \pm 17$	$6 \pm 2$	$12.6 \pm 0.1$	51			
158	3707.80	$65 \pm 15$	$9 \pm 2$	$12.7 \pm 0.1$	66			
159	3709.88	$213 \pm 12$	$9 \pm 2$	$13.35 \pm 0.05$	195	Si II 1808.0129	1.05191	
160	3710.19	$207 \pm 13$	$8 \pm 2$	$13.23 \pm 0.05$	160	Si II 1808.0129	1.05208	
161	3710.78	$107 \pm 17$	$12 \pm 2$	$12.9 \pm 0.1$	102			
162	3711.43	$95 \pm 11$	$5 \pm 2$	$13.1 \pm 0.1$	109	Si II 1808.0129	1.05277	
163	3712.39	$69 \pm 20$	$13 \pm 3$	$12.6 \pm 0.1$	56			
164	3715.31	$84 \pm 12$	$7 \pm 2$	$12.8 \pm 0.1$	77			
165	3716.04	$94 \pm 18$	$13 \pm 2$	$12.8 \pm 0.1$	85			
166	3717.03	$186 \pm 21$	$18 \pm 5$	$13.1 \pm 0.1$	161			u
167	3718.20	$1194 \pm 18$						s
168	3719.67	$64 \pm 21$	$19 \pm 5$	$12.7 \pm 0.1$	71			u
169	3721.32	$114 \pm 15$	$10 \pm 2$	$13.0 \pm 0.1$	119			
170	3721.87	$212 \pm 7$	$8 \pm 2$	$13.6 \pm 0.1$	235			u
171	3729.78	$272 \pm 27$	$18 \pm 2$	$13.3 \pm 0.1$	231			
172	3731.02	$86 \pm 27$	$24 \pm 4$	$12.8 \pm 0.1$	90			u
173	3731.85	$257 \pm 26$	$22 \pm 4$	$13.3 \pm 0.1$	242			
174	3737.65	$126 \pm 23$	$19 \pm 3$	$12.9 \pm 0.1$	109			
175	3738.23	$82 \pm 22$	$16 \pm 3$	$12.7 \pm 0.1$	70			
176	3743.21	$90 \pm 23$	$25 \pm 6$	$12.7 \pm 0.1$	72			
177	3744.27	$653 \pm 24$	$31 \pm 5$	$13.82 \pm 0.05$	614			
178	3747.92	$95 \pm 23$	$28 \pm 4$	$12.8 \pm 0.1$	91			u
179	3748.88	$560 \pm 18$	$20 \pm 3$	$13.8 \pm 0.1$	489			
180	3750.63	$210 \pm 16$	$11 \pm 2$	$13.28 \pm 0.05$	194	Mg I 1827.9351	1.05184	i
181	3751.22	$27 \pm 9$	$4 \pm 2$	$12.4 \pm 0.1$	33	Mg I 1827.9351	1.05216	i
182	3751.52	$153 \pm 14$	$9 \pm 2$	$13.1 \pm 0.1$	137	Mg I 1827.9351	1.05233	i
183	3753.10	$765 \pm 12$						s
184	3753.69	$86 \pm 15$	$15 \pm 4$	$12.8 \pm 0.1$	86			u
185	3754.68	$483 \pm 11$						s
186	3755.21	$274 \pm 16$	$11 \pm 2$	$13.4 \pm 0.1$	228			
187	3756.32	$57 \pm 16$	$10 \pm 3$	$12.5 \pm 0.1$	44			
188	3756.78	$208 \pm 16$	$15 \pm 3$	$13.2 \pm 0.1$	186			
189	3757.77	$97 \pm 18$	$12 \pm 3$	$12.8 \pm 0.1$	84			
190	3759.86	$1627 \pm 15$	$39 \pm 6$	$14.7 \pm 0.5$	1461			
191	3761.44	$1342 \pm 17$	$38 \pm 6$	$14.4 \pm 0.1$	1220			
192	3763.11	$118 \pm 14$	$7 \pm 2$	$12.9 \pm 0.1$	92	Si II 1190.4160	2.16117	
193	3764.24	$1445 \pm 17$						s
194	3765.95	$597 \pm 12$				Si II 1190.4160	2.16356	s
195	3766.60	$759 \pm 13$						s
196	3768.11	$66 \pm 15$	$12 \pm 3$	$12.7 \pm 0.1$	69	Si II 1190.4160	2.16537	
197	3769.46	$88 \pm 14$	$7 \pm 2$	$12.8 \pm 0.1$	77	Si II 1190.4160	2.16651	
198	3769.93	$92 \pm 13$	$7 \pm 2$	$12.9 \pm 0.1$	92	Si II 1193.2898	2.15927	
199	3770.99	$39 \pm 12$	$5 \pm 2$	$12.5 \pm 0.1$	41			
200	3772.19	$138 \pm 13$	$7 \pm 2$	$13.1 \pm 0.1$	126	Si II 1193.2898	2.16117	

Table B.3 *Continued.*

	$\lambda/\text{\AA}$	$W_{obs}/\text{m\AA}$	$b/\text{kms}^{-1}$	$\log N/\text{cm}^{-2}$	$W_{fit}$	Identification	$z_{abs}$	
201	3774.98	111 ± 15	8 ± 2	12.9 ± 0.1	95	Si II 1193.2898	2.16350	
202	3775.61	236 ± 23	29 ± 2	13.3 ± 0.1	255			
203	3777.16	140 ± 17	11 ± 2	13.0 ± 0.1	121	Si II 1193.2898	2.16533	
204	3778.57	113 ± 18	6 ± 2	12.9 ± 0.1	88	Si II 1193.2898	2.16651	
205	3779.51	54 ± 16	28 ± 4	12.8 ± 0.1	91			u
206	3780.27	287 ± 21	15 ± 2	13.4 ± 0.1	257			
207	3783.22	506 ± 27	28 ± 5	13.6 ± 0.2	430			
208	3793.58	79 ± 22	24 ± 5	12.9 ± 0.1	111			
209	3794.16	238 ± 15	9 ± 2	13.3 ± 0.1	183	N I 1200.2233	2.16121	b
210	3794.44	188 ± 15	10 ± 4	13.0 ± 0.1	119			
211	3794.76	178 ± 17	14 ± 3	13.3 ± 0.1	216	N I 1199.5496	2.16349	b
212	3795.68	45 ± 15	7 ± 2	12.5 ± 0.1	43	N I 1200.7098	2.16120	
213	3796.96	264 ± 19	13 ± 2	13.4 ± 0.1	244	N I 1199.5496	2.16532	b
214	3798.41	77 ± 13	5 ± 2	12.8 ± 0.2	71	N I 1199.5496	2.16653	b
215	3799.35	572 ± 21	24 ± 4	13.80 ± 0.05	537	N I 1200.2233	2.16554	b
216	3800.55	78 ± 16	6 ± 2	12.7 ± 0.1	62	N I 1200.2233	2.16654	b
217	3802.84	832 ± 21	36 ± 4	14.0 ± 0.1	828			
218	3803.64	1321 ± 19	26 ± 4	14.1 ± 0.1	757			
219	3804.31	†	30 ± 4	13.7 ± 0.1	514			
220	3805.68	386 ± 9				Al III 1854.7164	1.05189	s
221	3806.03	367 ± 8				Al III 1854.7164	1.05208	s
222	3807.29	248 ± 11	6 ± 2	13.8 ± 0.2	216	Al III 1854.7164	1.05276	
223	3808.09	591 ± 23	39 ± 5	13.7 ± 0.1	558			u
224	3808.87	88 ± 17	7 ± 2	12.3 ± 0.1	28			u
225	3811.73	96 ± 15	8 ± 2	12.9 ± 0.1	95	Si III 1206.500	2.15933	
226	3812.79	102 ± 15	6 ± 2	12.8 ± 0.1	74	Mg II 2796.352	0.36349	
227	3813.35	359 ± 16	13 ± 2	13.5 ± 0.1	279	Mg II 2796.352	0.36369	
228	3814.05	533 ± 12	10 ± 2	13.5 ± 0.1	245	Mg II 2796.352	0.36394	
229	3814.34	†	10 ± 2	13.5 ± 0.1	245	Si III 1206.500	2.16149	b
230	3814.65	136 ± 9	5 ± 2	13.0 ± 0.1	96	Mg II 2796.352	0.36415	
231	3814.92	224 ± 10	7 ± 2	13.5 ± 0.1	199	Mg II 2796.352	0.36425	
232	3815.29	126 ± 11	8 ± 2	13.0 ± 0.1	112	Mg II 2796.352	0.36438	
233	3815.72	288 ± 11	10 ± 2	13.5 ± 0.1	245	Mg II 2796.352	0.36454	
234	3816.00	75 ± 8	4 ± 2	12.8 ± 0.1	66	Mg II 2796.352	0.36464	
235	3816.34	145 ± 12	7 ± 2	13.1 ± 0.1	126	Mg II 2796.352	0.36476	
236	3816.83	92 ± 14	11 ± 2	12.8 ± 0.1	83	Si III 1206.500	2.16356	
237	3817.37	40 ± 13	11 ± 2	12.4 ± 0.1	36	Mg II 2796.352	0.36513	u
238	3817.66	210 ± 13	6 ± 2	13.4 ± 0.1	166	Mg II 2796.352	0.36523	
239	3818.43	319 ± 17	25 ± 3	13.4 ± 0.1	298			
240	3819.00	137 ± 13	11 ± 2	13.0 ± 0.1	121	Si III 1206.500	2.16535	b
241	3820.10	522 ± 19	12 ± 2	13.3 ± 0.1	205	Si III 1206.500	2.16627	b
242	3820.43	†	24 ± 3	13.5 ± 0.1	350			u
243	3822.26	326 ± 12	9 ± 2	13.7 ± 0.1	275	Al III 1862.7895	1.05190	
244	3822.63	399 ± 9				Al III 1862.7895	1.05210	s
245	3823.15	132 ± 12	9 ± 2	13.1 ± 0.1	137	Mg II 2803.531	0.36369	
246	3823.49	32 ± 10	5 ± 2	12.4 ± 0.1	34	Mg II 2803.531	0.36381	
247	3823.90	390 ± 14	8 ± 2	13.8 ± 0.1	269	Al III 1862.7895	1.05278	b
248	3824.15	†	8 ± 2	13.0 ± 0.1	112	Mg II 2803.531	0.36405	u
249	3824.46	75 ± 12	8 ± 2	12.7 ± 0.1	65	Mg II 2803.531	0.36416	
250	3824.72	156 ± 12	6 ± 2	13.2 ± 0.1	135	Mg II 2803.531	0.36425	

Table B.3 *Continued.*

	$\lambda/\text{\AA}$	$W_{obs}/\text{m\AA}$	$b/\text{kms}^{-1}$	$\log N/\text{cm}^{-2}$	$W_{fit}$	Identification	$z_{abs}$	
251	3825.10	$92 \pm 13$	$6 \pm 2$	$12.8 \pm 0.1$	74	Mg II 2803.531	0.36439	
252	3825.53	$210 \pm 12$	$8 \pm 2$	$13.0 \pm 0.1$	112	Mg II 2803.531	0.36454	b
253	3826.38	$1236 \pm 16$	$45 \pm 5$	$14.3 \pm 0.1$	1269			
254	3827.46	$150 \pm 12$	$5 \pm 2$	$13.1 \pm 0.1$	109	Mg II 2803.531	0.36523	
255	3828.81	$1455 \pm 21$	$37 \pm 6$	$14.5 \pm 0.2$	1269			
256	3833.33	$1267 \pm 26$	$33 \pm 5$	$14.1 \pm 0.1$	878			
257	3834.08	†	$27 \pm 5$	$13.5 \pm 0.1$	361			u
258	3838.02	$362 \pm 31$	$38 \pm 10$	$13.0 \pm 0.1$	142			u
259	3839.63	$281 \pm 9$	$7 \pm 2$	$13.5 \pm 0.4$	199	DI 1215.3394	2.15930	
260	3841.88	$4414 \pm 15$				HI 1215.6701	2.16030	s
261	3844.74	$417 \pm 8$	$7 \pm 2$	$13.5 \pm 0.3$	199	DI 1215.3394	2.16351	u
262	3846.00	*	*	*	*	HI 1215.6701	2.16369	s
263	3858.71	$66 \pm 22$	$19 \pm 5$	$12.7 \pm 0.1$	71			u
264	3860.88	$112 \pm 30$	$45 \pm 7$	$12.9 \pm 0.1$	116			u
265	3862.39	$102 \pm 22$	$16 \pm 4$	$12.8 \pm 0.1$	87			
266	3863.17	$428 \pm 21$	$22 \pm 4$	$13.6 \pm 0.1$	397	Si III 1206.500	2.20196	b
267	3864.41	$155 \pm 22$	$24 \pm 3$	$13.0 \pm 0.1$	137			
268	3867.56	$76 \pm 19$	$22 \pm 4$	$12.7 \pm 0.1$	72			
269	3870.45	$61 \pm 16$	$24 \pm 5$	$12.7 \pm 0.2$	72			u
270	3871.93	$513 \pm 26$	$39 \pm 5$	$13.59 \pm 0.05$	464			u
271	3874.19	$370 \pm 14$	$12 \pm 2$	$13.7 \pm 0.1$	331	C IV 1548.202	1.50238	i
272	3880.45	$916 \pm 19$	$32 \pm 4$	$14.02 \pm 0.05$	800			
273	3882.05	$903 \pm 22$	$38 \pm 4$	$13.95 \pm 0.05$	799			
274	3883.69	$79 \pm 14$	$37 \pm 4$	$13.0 \pm 0.1$	142			u
275	3885.52	$31 \pm 9$	$5 \pm 2$	$12.4 \pm 0.1$	34			
276	3886.54	$63 \pm 12$	$11 \pm 2$	$12.7 \pm 0.1$	68			
277	3887.99	$151 \pm 12$	$9 \pm 2$	$13.1 \pm 0.1$	137	Si IV 1393.755	1.78958	
278	3888.68	$249 \pm 15$	$26 \pm 4$	$13.3 \pm 0.1$	250			
279	3889.11	$143 \pm 9$	$7 \pm 2$	$12.9 \pm 0.1$	92	Si IV 1393.755	1.79038	b
280	3889.44	$85 \pm 10$	$8 \pm 2$	$12.9 \pm 0.1$	95	Si IV 1393.755	1.79062	
281	3889.87	$64 \pm 10$	$6 \pm 2$	$12.7 \pm 0.1$	62	Si IV 1393.755	1.79093	
282	3890.32	$43 \pm 10$	$6 \pm 2$	$12.5 \pm 0.1$	42	Si IV 1393.755	1.79125	
283	3890.67	$196 \pm 7$	$7 \pm 2$	$13.4 \pm 0.1$	182	Si IV 1393.755	1.79150	
284	3890.97	$105 \pm 9$	$8 \pm 2$	$12.9 \pm 0.1$	95	Si IV 1393.755	1.79172	
285	3892.26	$1580 \pm 10$				HI 1215.6701	2.20174	s
286	3893.56	$111 \pm 17$	$30 \pm 4$	$12.9 \pm 0.1$	113			
287	3894.58	$108 \pm 13$	$10 \pm 2$	$12.8 \pm 0.1$	82			
288	3895.03	$199 \pm 13$	$18 \pm 2$	$13.2 \pm 0.1$	194			
289	3896.19	$113 \pm 12$	$8 \pm 2$	$12.9 \pm 0.1$	95	Si III 1206.500	2.22933	
290	3899.15	$42 \pm 13$	$10 \pm 2$	$12.4 \pm 0.1$	36			u
291	3900.07	$585 \pm 21$	$31 \pm 3$	$13.67 \pm 0.05$	494			
292	3902.23	$128 \pm 15$	$16 \pm 2$	$12.9 \pm 0.1$	106			
293	3906.65	$194 \pm 12$	$9 \pm 2$	$13.2 \pm 0.1$	160	C IV 1548.202	1.52335	i
294	3907.70	$189 \pm 13$	$33 \pm 4$	$13.3 \pm 0.1$	260			u
295	3908.28	$177 \pm 14$	$9 \pm 2$	$12.4 \pm 0.1$	36			
296	3908.88	$45 \pm 15$	$18 \pm 4$	$12.5 \pm 0.1$	46			u
297	3910.89	$58 \pm 16$	$17 \pm 4$	$12.6 \pm 0.1$	57			u
298	3911.59	$61 \pm 12$	$8 \pm 2$	$12.7 \pm 0.1$	65			
299	3912.87	$463 \pm 12$	$12 \pm 2$	$13.6 \pm 0.1$	301			
300	3913.18	†	$9 \pm 3$	$13.2 \pm 0.1$	160			u

Table B.3 *Continued.*

	$\lambda/\text{\AA}$	$W_{obs}/\text{m\AA}$	$b/\text{kms}^{-1}$	$\log N/\text{cm}^{-2}$	$W_{fit}$	Identification	$z_{abs}$	
301	3913.50	$383 \pm 12$	$12 \pm 2$	$13.5 \pm 0.1$	269			
302	3914.25	$33 \pm 10$	$4 \pm 2$	$12.4 \pm 0.1$	33			u
303	3925.80	$563 \pm 14$				H I 1215.6701	2.22933	s
304	3928.19	$592 \pm 27$	$43 \pm 5$	$13.64 \pm 0.05$	518			u
305	3931.16	$537 \pm 19$	$20 \pm 2$	$13.72 \pm 0.05$	445			
306	3933.43	$54 \pm 17$	$16 \pm 2$	$12.8 \pm 0.1$	87			u
307	3933.90	$380 \pm 22$	$23 \pm 2$	$13.3 \pm 0.1$	245			
308	3934.64	$113 \pm 8$	$6 \pm 2$	$13.0 \pm 0.1$	103	Ca II 3934.777	-0.00003	
309	3934.86	$178 \pm 9$	$7 \pm 2$	$13.2 \pm 0.1$	144	Ca II 3934.777	0.00002	
310	3935.34	$506 \pm 15$	$12 \pm 2$	$13.1 \pm 0.1$	148			u
311	3935.69	†	$23 \pm 2$	$13.5 \pm 0.1$	345			u
312	3936.54	$209 \pm 18$	$28 \pm 2$	$13.2 \pm 0.1$	209			
313	3938.86	$173 \pm 19$	$32 \pm 3$	$13.1 \pm 0.1$	173			
314	3939.95	$40 \pm 12$	$10 \pm 2$	$12.4 \pm 0.1$	36			
315	3940.65	$66 \pm 15$	$30 \pm 5$	$12.7 \pm 0.1$	73			u
316	3942.03	$53 \pm 14$	$8 \pm 2$	$12.4 \pm 0.1$	35			
317	3943.08	$254 \pm 18$	$33 \pm 4$	$13.25 \pm 0.05$	236			
318	3946.08	$673 \pm 16$	$26 \pm 2$	$13.7 \pm 0.1$	487			
319	3946.71	†	$13 \pm 2$	$12.8 \pm 0.1$	85			u
320	3947.86	$168 \pm 16$	$18 \pm 2$	$12.8 \pm 0.1$	88			u
321	3948.14	†	$8 \pm 2$	$12.6 \pm 0.1$	53			u
322	3951.96	$801 \pm 13$	$26 \pm 2$	$14.00 \pm 0.05$	694			
323	3953.42	$52 \pm 8$	$28 \pm 4$	$12.8 \pm 0.1$	91			u
324	3955.23	$93 \pm 13$	$20 \pm 2$	$12.7 \pm 0.1$	72			
325	3956.27	$247 \pm 15$	$48 \pm 4$	$13.38 \pm 0.05$	323			
326	3957.51	$81 \pm 10$	$8 \pm 2$	$12.5 \pm 0.1$	43			
327	3960.45	$32 \pm 8$	$4 \pm 2$	$12.3 \pm 0.1$	27			
328	3965.18	$373 \pm 17$	$40 \pm 4$	$13.41 \pm 0.05$	335			
329	3966.61	$102 \pm 13$	$21 \pm 4$	$12.80 \pm 0.05$	89			
330	3967.60	$37 \pm 6$	$4 \pm 2$	$12.4 \pm 0.1$	33			
331	3968.29	$267 \pm 14$	$26 \pm 2$	$13.26 \pm 0.05$	235			
332	3969.45	$238 \pm 10$	$5 \pm 2$	$12.6 \pm 0.1$	50	Ca II 3969.591	-0.00004	
333	3969.69	†	$10 \pm 2$	$13.1 \pm 0.1$	141	Ca II 3969.591	0.00002	
334	3970.07	$59 \pm 7$	$10 \pm 2$	$12.6 \pm 0.1$	55	Ca II 3969.591	0.00012	i
335	3970.75	$127 \pm 12$	$26 \pm 2$	$13.0 \pm 0.1$	138			
336	3972.76	$293 \pm 18$	$13 \pm 2$	$12.5 \pm 0.1$	45			u
337	3973.47	†	$50 \pm 5$	$13.2 \pm 0.1$	222			
338	3974.63	$87 \pm 12$	$19 \pm 2$	$12.6 \pm 0.1$	57			
339	3975.40	$265 \pm 10$	$13 \pm 2$	$13.4 \pm 0.1$	244	Si II 1526.7071	1.60391	b
340	3978.95	$226 \pm 15$	$37 \pm 4$	$13.2 \pm 0.1$	216			
341	3980.15	$436 \pm 11$	$21 \pm 2$	$13.57 \pm 0.05$	371			
342	3980.70	$39 \pm 7$	$5 \pm 2$	$12.1 \pm 0.1$	18			u
343	3981.00	$36 \pm 9$	$16 \pm 2$	$12.4 \pm 0.1$	37			u
344	3981.68	$30 \pm 9$	$14 \pm 2$	$12.4 \pm 0.1$	37			u
345	3982.03	$220 \pm 8$	$8 \pm 2$	$13.4 \pm 0.1$	195	Si II 1260.4223	2.15928	
346	3997.97	$521 \pm 13$	$20 \pm 3$	$13.7 \pm 0.1$	436			
347	3999.27	$155 \pm 16$	$34 \pm 3$	$13.0 \pm 0.1$	141			
348	4000.41	$96 \pm 16$	$30 \pm 3$	$12.7 \pm 0.1$	73			
349	4001.68	$40 \pm 13$	$15 \pm 4$	$12.3 \pm 0.1$	29			
350	4003.24	$65 \pm 14$	$25 \pm 3$	$12.6 \pm 0.1$	58			

**Table B.3** *Continued.*

	$\lambda/\text{\AA}$	$W_{obs}/\text{m\AA}$	$b/\text{km s}^{-1}$	$\log N/\text{cm}^{-2}$	$W_{fit}$	Identification	$z_{abs}$	
351	4005.21	$82 \pm 13$	$40 \pm 6$	$12.8 \pm 0.2$	92			u
352	4006.57	$37 \pm 11$	$18 \pm 5$	$12.3 \pm 0.1$	30			u
353	4012.54	$38 \pm 7$	$7 \pm 2$	$12.4 \pm 0.1$	35	C II 1334.5323	2.00670	
354	4016.77	$234 \pm 8$	$10 \pm 2$	$13.3 \pm 0.1$	191	C IV 1548.202	1.59447	
355	4018.29	$46 \pm 8$	$8 \pm 3$	$12.4 \pm 0.1$	35			
356	4018.87	$55 \pm 10$	$16 \pm 3$	$12.6 \pm 0.1$	57			
357	4023.43	$149 \pm 8$	$10 \pm 2$	$13.05 \pm 0.05$	130	C IV 1550.774	1.59447	
358	4031.57	$132 \pm 10$	$15 \pm 2$	$12.9 \pm 0.1$	106	C IV 1548.202	1.60403	
359	4035.87	$74 \pm 10$	$17 \pm 3$	$12.7 \pm 0.1$	71	Si II 1260.4223	2.20200	
360	4038.31	$64 \pm 9$	$13 \pm 3$	$12.6 \pm 0.1$	56	C IV 1550.774	1.60406	
361	4050.88	$186 \pm 9$	$11 \pm 2$	$13.17 \pm 0.05$	162	C IV 1548.202	1.61651	
362	4051.49	$77 \pm 11$	$10 \pm 3$	$12.7 \pm 0.1$	67	C IV 1548.202	1.61690	

### Footnotes to Tables B.2 and B.3

- Only lines detected at  $\geq 6\sigma$  are listed in the line parameter list.
- All lines without a listed identification are assumed to be due to H I 1215.
- All line parameters are measured *as if the line was due to H I 1215*; i.e.  $\log N$  values for other lines are not correct values for metal column density — for this the value of  $(\log(\lambda_H f_H) - \log(\lambda_{metal} f_{metal}))$  must be added.
- A dagger ( $\dagger$ ) in the  $W_{obs}$  column indicates that the observed equivalent width of this line is subsumed in the value for the line given directly above. The number above the dagger is the *total* observed equivalent width for both lines. This is done when lines are blended beyond a point where estimates of their individual equivalent widths cannot be made without fitting Voigt profiles.
- The letters in the last column of the table are defined as follows:
  - b** This metal line is blended, either with another identified metal line, or a stronger Lyman line.
  - i** This metal line identification is uncertain.
  - s** This line is saturated. Values for fitted  $b$  and  $\log N$  are not listed, since fitting saturated lines does not generate a unique solution.
  - u** The fitted  $b$  and  $\log N$  values of this line are uncertain, either because of low signal-to-noise or a strange line shape.

All lines annotated with letters b, i, or u, and some annotated with s, are listed below by line number with a more detailed description of the problem.

- 5** Line ill-defined because of blending.
- 6** Possible extra component in red wing.
- 9** Line ill-defined because of blending.
- 10** Blended with a broad feature centred slightly blueward, and possible extra narrow component redward.
- 15** Noisy; may have multiple components.
- 20** Asymmetrical; possible component in blue wing.
- 22** Saturated blend of two Al II lines.
- 23** Noisy; may have multiple components.
- 27** Noisy and continuum level uncertain because of proximity to order edge.
- 29** Noisy; may have multiple components.
- 34** Blended with a broad feature.
- 35** Line parameters uncertain because of blend with line **36**.
- 39, 41, 42, 46** Weak and noisy; may contain multiple components.

- 51 Only line in this possible system. Mg II 2796 falls in an inter-order gap.
- 55 Blended with a stronger line; fit parameters tentative.
- 56 Only line in this possible system. Mg II 2796 falls in the centre of line 49.
- 60, 61 Two component deconvolution of a feature which may contain more components.
- 74 Asymmetrical and partially blended.
- 76 Weak and noisy; fit tentative; possibly narrow components.
- 78 Hard to be sure without other Fe components due to proximity of order edge and strong adjacent line.
- 79 Only part of the profile available because of proximity of order edge; continuum level uncertain.
- 84 Blend of at least two C IV lines.
- 87 Heavily blended with strong line to blueward, so fit is tentative.
- 90, 91 Minimum component deconvolution of a broad feature, leaving some equivalent width unaccounted for; therefore almost certainly extra components are present.
- 101 Weak and asymmetrical; may contain multiple components.
- 104 Noisy; may contain multiple components.
- 107 Noisy; may contain multiple components.
- 111 Blended with a broad feature.
- 113 Noisy; fit parameters tentative.
- 116, 119 Blended with a broad feature.
- 128 Blended with a stronger feature; fit tentative.
- 138 Weak and noisy; fit tentative.
- 141 Weak and broad; may contain multiple components.
- 150, 151 Blended; line parameters only tentative.
- 154 Noisy and blended with a broad feature.
- 166 Noisy and partially blended; may contain multiple components.
- 168 Very noisy; fit tentative.
- 170 Profile incomplete because of proximity of order edge; fit is tentative.
- 172 Noisy; may contain multiple components.
- 174 Asymmetrical; may contain multiple components.
- 178 Unusual profile; may contain multiple components.
- 180–182 Mg I 1827 is relatively weak. These lines may be too strong for this identification.



- 184** Heavily blended; fit tentative.
- 194** Si II 1190 is blended in a very strong feature, presumably mostly H I 1215.
- 205** Weak and noisy; may contain multiple components.
- 207** Near order edge; fit tentative.
- 209** Blended with a broad feature.
- 211** Blended with the same broad feature as **209**.
- 213** This line also contains N I 1200.2233 at a redshift of 2.16354 (consistent with lines **211** and **214**).
- 214** This line also contains N I 1200.7098 at a redshift of 2.16347 (consistent with lines **211** and **213**).
- 215** Blended with a broad feature.
- 216** This line also contains N I 1200.7098 at a redshift of 2.16527 (consistent with lines **213** and **215**).
- 219** Heavily blended; fit tentative.
- 223–224** A possible two-component deconvolution of a broad feature. Other deconvolutions are possible; these fits are tentative at best.
- 227–229** Excess equivalent width exists between these line fits, so there are probably more lines.
- 229** Blended with Mg II 2796 lines.
- 237** Weak feature blended with a strong line to redward, so fit parameters are tentative.
- 240** Blended with a broad feature.
- 241** Blended with a broad feature.
- 242** Blended; may have multiple components.
- 244, 245** Excess equivalent width exists between these line fits. so there are probably more lines.
- 247** Blended with Mg II 2803 lines.
- 248** Blended; fit tentative.
- 257** Blended; fit tentative.
- 258** Noisy and continuum level uncertain; may contain multiple components.
- 252** Blended in the blue wing of a broad feature.
- 259** Corresponds to a component of the damped line to redward.
- 260** Damped line.
- 261** Corresponds to a component of the damped line to redward.

- 262** Damped line. The wavelength is uncertain because of proximity of order edge and no attempt was made to measure an equivalent width.
- 263, 264** Weak and noisy; may contain multiple components.
- 266** Assymetrical line, probably blended with H I 1215.
- 269** Weak and noisy; may contain narrow components.
- 270** Asymmetrical; may contain another component.
- 271** Only identification in this possible system. C IV 1550 would be blended with the strong line **272**.
- 274** Noisy; may contain multiple components.
- 279** Blended with a broad feature.
- 290** Asymmetrical; may contain multiple components.
- 293** Only identification in this possible system. C IV 1550 would be blended with the strong lines **299–301**.
- 294** Unusual shape; may contain multiple components.
- 296** Noisy; fit tentative.
- 297** Asymmetrical; may contain multiple components.
- 300** Heavily blended with surrounding lines. This forms part of a minimum component deconvolution. This fit is tentative and more components may exist.
- 304** Asymmetrical; may contain another component.
- 307** Blended; fit tentative.
- 310, 311** Heavily blended together, these fits are tentative.
- 315** Weak and noisy; may contain multiple components.
- 319** Blended; fit tentative.
- 320–321** Possible two-component deconvolution of a broad feature; other deconvolutions possible. Fits tentative at best.
- 323** Unusual shape; may contain multiple components.
- 334** Probably correct identification, but Ca II 3934 counterpart is blended with strong line **310**.
- 336** Heavily blended; fit parameters tentative.
- 339** This feature is too strong to be completely Si II 1526, (by comparison to Si II 1304) so it must be a blend, presumably with H I 1215.
- 342–344** All weak lines of unusual shape, partially blended.
- 351, 352** Weak lines; possibly multiple weak components.

**Table B.4** Comparison of fitted and actual Cloudy Night line parameters. The  $\log N$  values are all calculated as if each line was due to Lyman  $\alpha$ , *i.e.*  $\log N_{\text{Ly}\alpha}$  as given in Equation 2.3. The letter “s” in the  $b_{\text{fit}}$  and  $\log N_{\text{fit}}$  columns means the line is saturated and so the fit could not be constrained adequately.

	$\lambda_{\text{fit}}/\text{\AA}$	$b_{\text{fit}}$	$\log N_{\text{fit}}$	$\text{ID}_{\text{fit}}$	$\lambda/\text{\AA}$	$b$	$\log N$	ID
1	3393.64	s	s	H I 1215.670	3393.540	4.9	17.061	H I 1215.670
					3393.568	8.0	17.215	H I 1215.670
					3393.822	6.5	16.903	H I 1215.670
2	3394.59	s	s	H I 1215.670	3394.615	6.2	17.025	H I 1215.670
3	3396.57	$7 \pm 2$	$12.7 \pm 0.1$	Si II 1304.371	3396.576	13.2	12.694	C IV 1550.774
4	3398.00	$17 \pm 3$	$13.5 \pm 0.1$	H I 1215.670	3397.963	15.0	13.503	C I 1656.928
5	3398.45	$12 \pm 3$	$12.7 \pm 0.1$	H I 1215.670	3398.501	8.7	12.688	C I* 1656.267
6	3398.88	$12 \pm 3$	$13.1 \pm 0.1$	H I 1215.670	3398.813	7.7	12.807	C I* 1656.267
					3398.898	15.0	12.202	C I* 1657.379
7	3399.83	s	s	C I 1656.928	3399.833	8.7	13.767	C I 1656.928
8	3400.19	s	s	C I 1656.928	3400.003	8.7	12.943	C I* 1657.008
					3400.144	7.7	13.886	C I 1656.928
					3400.314	7.7	13.062	C I* 1657.008
9	3401.04	$14 \pm 2$	$12.9 \pm 0.1$	H I 1215.670	3401.080	7.7	12.585	C I* 1657.379
10	3401.29	$5 \pm 2$	$13.5 \pm 0.1$	C I 1656.928	3401.136	29.3	12.810	H I 1215.670
					3401.278	3.9	13.681	C I 1656.928
					3401.448	3.9	12.857	C I* 1657.008
11	3402.37	$27 \pm 3$	$13.3 \pm 0.1$	H I 1215.670	3402.157	7.7	12.710	C I* 1657.907
					3402.213	3.9	12.380	C I* 1657.379
					3402.298	8.7	12.165	C I** 1658.121
					3402.440	11.6	12.486	Si IV 1402.770
12	3405.02	s	s	C IV 1548.202	3405.021	4.5	14.428	H <sub>2</sub> (J=0) 2,0R[0]
13	3406.81	s	s	H I 1215.670	3406.810	4.5	14.466	H <sub>2</sub> (J=1) 2,0R[1]
14	3407.15	$11 \pm 2$	$13.0 \pm 0.1$	O I 1302.168	3407.150	16.1	13.020	H I 1215.670
15	3410.13	$25 \pm 4$	$12.8 \pm 0.1$	H I 1215.670	3410.104	19.5	12.123	H I 1215.670
16	3410.68	$7 \pm 2$	$13.6 \pm 0.2$	C IV 1550.774	3410.673	4.5	14.165	H <sub>2</sub> (J=1) 2,0P[1]
					3410.844	17.0	12.905	H I 1215.670
17	3411.66	$4 \pm 2$	$12.9 \pm 0.1$	H I 1215.670	3411.639	4.5	12.689	H <sub>2</sub> (J=2) 2,0R[2]
18	3412.75	$48 \pm 8$	$13.3 \pm 0.1$	H I 1215.670	3412.833	40.0	13.201	H I 1215.670
19	3417.53	$35 \pm 4$	$14.3 \pm 0.1$	H I 1215.670	3417.501	32.3	14.252	H I 1215.670
20	3426.39	s	s	H I 1215.670	3426.055	29.0	12.966	H I 1215.670
					3426.227	31.8	13.107	H I 1215.670
					3426.398	15.0	14.536	Al II 1670.787
21	3427.37	$9 \pm 2$	$13.5 \pm 0.1$	H I 1215.670	3427.369	8.0	13.578	Al II 1670.787
22	3428.45	s	s	Al II 1670.787	3428.283	8.7	14.801	Al II 1670.787
					3428.597	7.7	14.919	Al II 1670.787
23	3429.13	$19 \pm 4$	$12.9 \pm 0.1$	Al II 1670.787	3428.969	22.0	12.830	H I 1215.670
24	3429.73	s	s	Al II 1670.787	3429.740	3.9	14.715	Al II 1670.787
25	3434.50	$32 \pm 3$	$13.7 \pm 0.1$	H I 1215.670	3433.801	11.6	12.586	Si IV 1393.755
					3434.202	17.3	12.742	C IV 1548.202
					3434.231	28.5	12.625	H I 1215.670
					3434.545	27.3	13.557	H I 1215.670
26	3437.21	$33 \pm 5$	$13.1 \pm 0.1$	H I 1215.670	3437.208	18.2	12.532	H I 1215.670
					3437.466	39.7	12.472	H I 1215.670
27	3442.61	$43 \pm 8$	$13.0 \pm 0.2$	H I 1215.670	3442.483	32.1	13.022	H I 1215.670
28	3445.82	$25 \pm 6$	$13.3 \pm 0.1$	H I 1215.670	3445.841	28.9	13.444	H I 1215.670
29	3447.30	$46 \pm 7$	$13.2 \pm 0.1$	H I 1215.670	3447.162	27.3	12.867	H I 1215.670
					3447.420	32.6	12.400	H I 1215.670
					3447.650	20.7	12.640	H I 1215.670
30	3452.62	$4 \pm 2$	$14.1 \pm 0.2$	H I 1215.670	3452.624	4.5	14.134	H <sub>2</sub> (J=0) 1,0R[0]

Table B.4 *Continued.*

	$\lambda_{fit}/\text{\AA}$	$b_{fit}$	$\log N_{fit}$	$ID_{fit}$	$\lambda/\text{\AA}$	$b$	$\log N$	ID
31	3454.32	s	s	H I 1215.670	3454.322	4.5	14.172	H <sub>2</sub> (J=1) 1,0R[1]
32	3455.69	9 ± 2	12.7 ± 0.1	Si III 1206.500	3455.646	10.8	12.502	Si III 1206.510
					3455.762	19.5	12.633	N v 1238.821
33	3456.09	10 ± 2	13.4 ± 0.1	Si III 1206.500	3456.107	9.4	13.187	Si III 1206.510
34	3456.58	17 ± 4	13.5 ± 0.1	Si III 1206.500	3456.539	30.8	13.175	H I 1215.670
					3456.568	12.1	13.165	Si III 1206.510
35	3458.15	17 ± 3	13.1 ± 0.1	N v 1238.821	3458.153	19.0	12.808	N v 1238.821
					3458.182	20.1	12.962	N v 1238.821
36	3458.50	6 ± 2	13.6 ± 0.2	H I 1215.670	3458.499	4.5	13.871	H <sub>2</sub> (J=1) 1,0P[1]
37	3459.11	18 ± 4	13.1 ± 0.1	H I 1215.670	3459.075	20.1	12.824	H I 1215.670
					3459.104	4.5	12.395	H <sub>2</sub> (J=2) 1,0R[2]
					3459.248	19.4	12.772	N v 1238.821
38	3460.30	6 ± 2	12.8 ± 0.1	H I 1215.670	3460.315	6.0	12.688	H I 1215.670
39	3467.97	24 ± 4	12.8 ± 0.1	H I 1215.670	3467.878	18.9	12.308	N v 1242.804
					3468.081	32.0	12.501	H I 1215.670
40	3469.27	21 ± 3	12.9 ± 0.1	N v 1242.804	3469.265	19.0	12.506	N v 1242.804
					3469.294	20.1	12.660	N v 1242.804
41	3472.57	21 ± 3	12.8 ± 0.1	H I 1215.670	3472.505	31.4	12.839	H I 1215.670
42	3473.66	33 ± 5	12.9 ± 0.1	H I 1215.670	3473.720	15.8	12.889	H I 1215.670
43	3477.88	29 ± 4	13.85 ± 0.05	H I 1215.670	3477.892	31.6	13.886	H I 1215.670
44	3482.39	s	s	H I 1215.670	3481.894	10.3	14.904	H I 1215.670
					3481.951	18.9	13.053	H I 1215.670
					3482.358	8.8	15.589	H I 1215.670
					3482.822	11.6	15.567	H I 1215.670
45	3488.62	17 ± 3	13.0 ± 0.1	H I 1215.670	3488.603	16.6	12.812	H I 1215.670
46	3490.58	40 ± 5	12.9 ± 0.1	H I 1215.670	3490.580	22.8	12.650	H I 1215.670
47	3491.83	6 ± 2	12.6 ± 0.1	C II 1334.532	3491.802	10.2	12.256	C II 1334.532
					3491.860	11.9	12.208	H I 1215.670
48	3499.10	12 ± 3	12.7 ± 0.1	H I 1215.670	3499.055	17.9	12.438	H I 1215.670
					3499.055	24.1	12.512	H I 1215.670
					3499.171	22.4	12.463	H I 1215.670
49	3499.92	s	s	H I 1215.670	3499.930	23.7	14.582	H I 1215.670
50	3502.72	39 ± 6	14.2 ± 0.1	H I 1215.670	3502.410	33.9	13.309	H I 1215.670
					3502.760	40.8	13.995	H I 1215.670
					3502.993	4.5	13.605	H <sub>2</sub> (J=0) 0,0R[0]
51	3504.59	5 ± 2	13.6 ± 0.3	Mg II 2803.531	3504.599	4.5	13.643	H <sub>2</sub> (J=1) 0,0R[1]
52	3506.01	13 ± 3	12.6 ± 0.1	H I 1215.670	3506.001	15.0	12.508	Ni II 1709.600
53	3507.92	5 ± 2	12.7 ± 0.1	Ni II 1709.600	3507.930	8.7	12.772	Ni II 1709.600
54	3508.26	8 ± 2	13.1 ± 0.1	Ni II 1709.600	3508.252	7.7	12.891	Ni II 1709.600
55	3508.51	12 ± 3	12.8 ± 0.1	H I 1215.670	3508.398	19.7	12.919	H I 1215.670
					3508.486	24.0	12.526	H I 1215.670
56	3509.13	5 ± 2	13.3 ± 0.2	Mg II 2803.531	3509.129	4.5	13.342	H <sub>2</sub> (J=1) 0,0P[1]
57	3509.43	4 ± 2	12.6 ± 0.1	Ni II 1709.600	3509.422	3.9	12.686	Ni II 1709.600
58	3512.46	14 ± 3	12.9 ± 0.1	H I 1215.670	3512.376	13.8	12.451	H I 1215.670
					3512.552	21.3	12.655	H I 1215.670
59	3513.69	14 ± 3	13.2 ± 0.1	H I 1215.670	3513.665	11.7	13.077	H I 1215.670
60	3514.69	9 ± 2	12.8 ± 0.1	Si II 1526.707	3514.690	8.7	12.711	Si II 1260.421
61	3514.95	4 ± 1	12.4 ± 0.1	Si II 1526.707	3514.953	5.1	12.255	Si II 1526.708
62	3516.04	8 ± 2	13.0 ± 0.1	Si II 1260.422	3516.008	6.4	12.866	Si II 1260.421
					3516.096	6.8	12.654	Si II 1260.421

Table B.4 *Continued.*

	$\lambda_{fit}/\text{\AA}$	$b_{fit}$	$\log N_{fit}$	ID <sub>fit</sub>	$\lambda/\text{\AA}$	$b$	$\log N$	ID
63	3517.01	$6 \pm 2$	$13.0 \pm 0.1$	Si II 1260.422	3516.916	9.3	12.592	Si IV 1393.755
					3517.034	4.3	12.843	Si II 1260.421
64	3517.37	$9 \pm 2$	$13.0 \pm 0.1$	Si II 1260.422	3517.298	7.6	12.680	Si II 1260.421
					3517.385	3.4	12.533	Si II 1260.421
65	3517.73	$9 \pm 2$	$13.0 \pm 0.1$	Si II 1260.422	3517.708	27.6	13.018	H I 1215.670
					3517.737	7.2	12.717	Si II 1260.421
66	3518.45	$7 \pm 2$	$13.4 \pm 0.1$	Si II 1260.422	3518.441	4.9	13.041	Si II 1260.421
					3518.470	8.0	13.195	Si II 1260.421
67	3518.73	$5 \pm 2$	$12.9 \pm 0.1$	Si II 1260.422	3518.734	6.5	12.882	Si II 1260.421
68	3519.55	$5 \pm 2$	$13.0 \pm 0.1$	Si II 1260.422	3519.555	6.2	13.004	Si II 1260.421
69	3522.53	$11 \pm 2$	$13.0 \pm 0.1$	H I 1215.670	3522.489	11.0	12.623	Si IV 1393.755
					3522.548	8.8	12.643	Si IV 1393.755
70	3523.19	$25 \pm 3$	$13.4 \pm 0.1$	H I 1215.670	3523.135	9.4	12.762	Si IV 1393.755
					3523.282	12.9	12.527	H I 1215.670
					3523.311	15.5	12.804	H I 1215.670
71	3525.79	$30 \pm 6$	$13.4 \pm 0.1$	H I 1215.670	3525.720	27.7	13.234	H I 1215.670
					3525.955	38.5	13.119	H I 1215.670
72	3527.88	$11 \pm 2$	$13.0 \pm 0.1$	Si III 1206.500	3527.865	11.2	12.991	Si III 1206.510
73	3528.59	$35 \pm 5$	$13.5 \pm 0.1$	H I 1215.670	3528.571	35.3	13.070	H I 1215.670
					3528.571	29.1	12.981	H I 1215.670
74	3530.42	$8 \pm 2$	$12.5 \pm 0.1$	H I 1215.670	3530.424	3.6	12.181	H I 1215.670
75	3530.84	$13 \pm 3$	$13.4 \pm 0.1$	H I 1215.670	3530.835	15.7	13.423	H I 1215.670
76	3535.23	$52 \pm 10$	$13.0 \pm 0.2$	H I 1215.670	3534.692	28.1	12.626	H I 1215.670
					3535.428	44.3	12.758	H I 1215.670
77	3543.15	$24 \pm 4$	$13.0 \pm 0.1$	H I 1215.670	3543.097	19.2	12.980	H I 1215.670
78	3545.84	$12 \pm 2$	$13.0 \pm 0.1$	Fe II 2600.173	3545.755	31.4	12.691	H I 1215.670
					3545.844	7.2	12.809	Fe II 2600.173
79	3547.20	s	s	H I 1215.670	3547.233	22.0	14.013	H I 1215.670
					3547.292	6.8	13.014	Fe II 2600.173
80	3554.66	s	s	H I 1215.670	3554.661	20.6	12.990	H I 1215.670
					3554.661	10.7	15.393	H I 1215.670
81	3555.94	$18 \pm 4$	$12.8 \pm 0.1$	H I 1215.670	3555.638	14.0	12.087	H I 1215.670
					3555.757	21.8	12.218	H I 1215.670
					3555.905	6.5	12.437	H I 1215.670
					3556.053	32.2	12.249	H I 1215.670
82	3558.76	$40 \pm 6$	$14.19 \pm 0.05$	H I 1215.670	3558.751	41.9	14.229	H I 1215.670
83	3563.39	s	s	C IV 1548.202	3563.380	5.1	13.718	C IV 1548.202
					3563.380	8.1	13.707	C IV 1548.202
84	3564.19	s	s	C IV 1548.202	3563.885	9.0	13.576	C IV 1548.202
					3564.033	8.5	13.772	C IV 1548.202
					3564.241	7.6	13.792	C IV 1548.202
					3564.449	6.0	13.842	C IV 1548.202
					3564.449	6.8	13.400	C IV 1548.202
					3564.479	21.3	13.353	H I 1215.670
85	3565.04	$8 \pm 2$	$13.6 \pm 0.2$	C IV 1548.202	3565.043	7.1	13.618	C IV 1548.202
86	3566.31	$33 \pm 3$	$13.86 \pm 0.05$	H I 1215.670	3566.321	36.5	13.845	H I 1215.670
87	3566.75	$5 \pm 2$	$13.1 \pm 0.1$	H I 1215.670	3566.737	7.9	13.070	C IV 1548.202
88	3568.87	$24 \pm 5$	$12.9 \pm 0.1$	H I 1215.670	3568.937	29.0	13.023	H I 1215.670
89	3569.29	$7 \pm 2$	$13.6 \pm 0.1$	C IV 1550.774	3569.294	8.1	13.406	C IV 1550.774
					3569.294	5.1	13.418	C IV 1550.774

Table B.4 Continued.

	$\lambda_{fit}/\text{\AA}$	$b_{fit}$	$\log N_{fit}$	ID <sub>fit</sub>	$\lambda/\text{\AA}$	$b$	$\log N$	ID
90	3569.93	$17 \pm 3$	$13.8 \pm 0.1$	C IV 1550.774	3569.800	9.0	13.275	C IV 1550.774
					3569.949	8.5	13.471	C IV 1550.774
					3570.157	7.6	13.491	C IV 1550.774
91	3570.34	$6 \pm 2$	$13.9 \pm 0.1$	C IV 1550.774	3570.365	6.0	13.541	C IV 1550.774
					3570.365	6.8	13.100	C IV 1550.774
92	3570.95	$8 \pm 2$	$13.3 \pm 0.1$	C IV 1550.774	3570.960	7.1	13.317	C IV 1550.774
93	3571.53	$7 \pm 2$	$12.6 \pm 0.1$	H I 1215.670	3571.526	15.0	12.693	Ni II 1741.549
94	3572.66	$7 \pm 2$	$12.8 \pm 0.1$	H I 1215.670	3572.657	7.9	12.769	C IV 1550.774
95	3573.49	$9 \pm 2$	$12.9 \pm 0.1$	Ni II 1741.549	3573.490	8.7	12.957	Ni II 1741.549
96	3573.81	$6 \pm 2$	$13.0 \pm 0.1$	Ni II 1741.549	3573.818	7.7	13.076	Ni II 1741.549
97	3575.01	$5 \pm 2$	$12.8 \pm 0.1$	Ni II 1741.549	3575.010	3.9	12.871	Ni II 1741.549
98	3576.32	s	s	H I 1215.670	3576.052	29.8	12.760	H I 1215.670
					3576.261	21.3	12.281	H I 1215.670
					3576.291	17.2	12.578	H I 1215.670
					3576.321	13.8	14.697	H I 1215.670
					3576.321	13.8	14.697	H I 1215.670
99	3577.66	$34 \pm 6$	$13.89 \pm 0.05$	H I 1215.670	3577.662	37.7	13.849	H I 1215.670
					3577.752	21.4	12.974	H I 1215.670
100	3578.86	$24 \pm 4$	$13.6 \pm 0.1$	H I 1215.670	3578.825	25.4	13.265	H I 1215.670
					3578.825	24.8	12.374	H I 1215.670
					3578.885	11.2	12.352	Si IV 1393.755
101	3579.70	$18 \pm 3$	$12.7 \pm 0.1$	H I 1215.670	3578.974	29.8	13.033	H I 1215.670
					3579.660	8.3	12.248	H I 1215.670
					3579.810	14.7	12.094	H I 1215.670
					3579.810	14.7	12.094	H I 1215.670
102	3581.70	$17 \pm 4$	$12.7 \pm 0.1$	H I 1215.670	3581.719	25.7	12.734	H I 1215.670
103	3583.52	$36 \pm 5$	$13.3 \pm 0.1$	H I 1215.670	3583.331	9.2	12.295	H I 1215.670
					3583.540	37.2	13.162	H I 1215.670
104	3586.18	$23 \pm 3$	$12.9 \pm 0.1$	N I 1134.415	3586.109	5.8	12.241	N I 1134.415
					3586.199	20.4	12.566	H I 1215.670
105	3587.86	$6 \pm 2$	$12.5 \pm 0.1$	N I 1134.980	3587.873	5.8	12.418	N I 1134.980
106	3589.68	$19 \pm 5$	$12.8 \pm 0.1$	H I 1215.670	3589.757	21.3	12.804	H I 1215.670
107	3590.79	$23 \pm 3$	$13.2 \pm 0.1$	H I 1215.670	3590.834	20.0	13.067	H I 1215.670
108	3592.72	$32 \pm 4$	$13.83 \pm 0.05$	H I 1215.670	3592.630	30.8	13.542	H I 1215.670
					3592.840	33.1	13.473	H I 1215.670
109	3594.75	$12 \pm 2$	$13.1 \pm 0.1$	Ni II 1751.910	3594.726	8.7	12.749	Ni II 1751.910
					3594.906	25.4	13.167	H I 1215.670
110	3595.07	$11 \pm 2$	$13.2 \pm 0.1$	Ni II 1751.910	3594.906	25.4	13.167	H I 1215.670
					3595.056	7.7	12.868	Ni II 1751.910
111	3596.12	$30 \pm 4$	$13.7 \pm 0.1$	Ni II 1751.910	3596.015	25.0	13.029	H I 1215.670
					3596.075	28.4	13.132	H I 1215.670
					3596.165	37.5	13.400	H I 1215.670
112	3601.03	$6 \pm 2$	$12.5 \pm 0.1$	H I 1215.670	3601.023	7.7	12.541	Ni II 1754.809
113	3601.68	$13 \pm 2$	$12.7 \pm 0.1$	H I 1215.670	3601.743	16.5	12.450	H I 1215.670
114	3612.94	$16 \pm 4$	$13.6 \pm 0.1$	H I 1215.670	3612.926	15.9	13.637	H I 1215.670
115	3616.07	$6 \pm 2$	$12.6 \pm 0.1$	Si IV 1393.755	3616.058	9.8	12.713	Si IV 1393.755
116	3617.28	$26 \pm 4$	$13.3 \pm 0.1$	Fe II 1144.939	3617.264	30.7	13.267	H I 1215.670
117	3619.40	$9 \pm 2$	$12.8 \pm 0.1$	Fe II 1144.939	3619.254	39.4	12.771	H I 1215.670
					3619.375	5.8	12.595	Fe II 1144.946
118	3621.51	$13 \pm 3$	$12.6 \pm 0.1$	H I 1215.670	3621.486	5.5	12.312	H I 1215.670
					3621.637	7.4	12.057	H I 1215.670
119	3622.24	$27 \pm 3$	$13.33 \pm 0.05$	Fe II 1144.939	3622.030	5.9	12.321	Fe II 1144.946
					3622.181	19.3	12.586	H I 1215.670
					3622.392	32.2	13.136	H I 1215.670

Table B.4 *Continued.*

	$\lambda_{fit}/\text{\AA}$	$b_{fit}$	$\log N_{fit}$	ID <sub>fit</sub>	$\lambda/\text{\AA}$	$b$	$\log N$	ID
120	3622.85	6 ± 2	12.6 ± 0.1	H I 1215.670	3622.905	8.7	12.311	Al I 1765.632
121	3623.28	13 ± 2	12.7 ± 0.1	H I 1215.670	3623.237	7.7	12.430	Al I 1765.632
122	3624.13	10 ± 2	12.7 ± 0.1	Fe II 1144.939	3624.022	27.3	12.362	H I 1215.670
					3624.174	9.1	12.388	Fe II 1144.946
123	3627.63	5 ± 2	13.0 ± 0.1	Si III 1206.500	3627.618	5.7	13.012	Si III 1206.510
124	3628.35	32 ± 5	13.6 ± 0.1	H I 1215.670	3628.404	30.8	13.607	H I 1215.670
125	3629.54	36 ± 7	14.5 ± 0.2	H I 1215.670	3629.553	35.7	14.517	H I 1215.670
126	3635.02	8 ± 2	12.8 ± 0.1	O I 1302.168	3634.971	4.9	12.158	O I 1302.169
					3635.002	8.0	12.312	O I 1302.169
127	3635.92	21 ± 3	13.2 ± 0.1	H I 1215.670	3635.880	22.5	13.160	H I 1215.670
128	3637.67	12 ± 3	12.7 ± 0.1	H I 1215.670	3637.699	21.7	12.780	H I 1215.670
129	3638.03	12 ± 2	13.4 ± 0.1	H I 1215.670	3638.032	13.2	13.167	C IV 1548.202
					3638.062	12.3	12.998	C IV 1548.202
130	3641.13	9 ± 2	12.8 ± 0.1	Si II 1304.371	3641.126	4.9	12.243	Si II 1304.372
					3641.126	29.0	12.521	H I 1215.670
					3641.156	8.0	12.397	Si II 1304.372
131	3642.75	6 ± 2	13.1 ± 0.1	H I 1215.670	3642.734	6.8	13.086	H I 1215.670
132	3644.08	10 ± 2	13.0 ± 0.1	H I 1215.670	3644.070	13.2	12.866	C IV 1550.774
					3644.101	12.3	12.697	C IV 1550.774
133	3646.76	11 ± 2	12.8 ± 0.1	Si IV 1393.755	3646.774	10.7	12.528	Si IV 1393.755
134	3649.13	40 ± 5	13.2 ± 0.1	H I 1215.670	3649.054	38.3	13.253	H I 1215.670
135	3653.66	4 ± 2	12.5 ± 0.1	H I 1215.670	3653.618	4.7	12.437	C II 1334.532
136	3655.17	s	s	H I 1215.670	3655.171	4.7	15.415	H I 1215.670
137	3669.03	6 ± 2	13.0 ± 0.1	H I 1215.670	3669.026	5.6	12.942	H I 1215.670
138	3669.97	32 ± 8	12.8 ± 0.1	H I 1215.670	3669.943	36.8	12.690	H I 1215.670
139	3672.23	8 ± 2	12.6 ± 0.1	H I 1215.670	3672.207	19.5	12.206	H I 1215.670
					3672.238	8.4	12.491	H I 1215.670
140	3677.50	29 ± 4	13.99 ± 0.05	H I 1215.670	3677.505	30.8	13.981	H I 1215.670
141	3678.96	42 ± 10	12.9 ± 0.2	H I 1215.670	3678.700	36.7	12.870	H I 1215.670
142	3680.11	24 ± 4	13.66 ± 0.05	H I 1215.670	3680.111	24.5	13.637	H I 1215.670
143	3681.12	16 ± 2	12.8 ± 0.1	H I 1215.670	3681.123	19.9	12.860	H I 1215.670
144	3685.50	6 ± 2	12.5 ± 0.1	Si II 1260.422	3685.389	20.6	12.641	H I 1215.670
					3685.513	10.7	12.072	Si II 1260.421
145	3686.24	32 ± 5	13.40 ± 0.05	H I 1215.670	3686.188	30.1	13.385	H I 1215.670
146	3688.65	9 ± 2	12.6 ± 0.1	H I 1215.670	3688.646	19.7	12.604	H I 1215.670
147	3689.92	24 ± 4	13.69 ± 0.05	H I 1215.670	3689.938	24.5	13.687	H I 1215.670
148	3692.39	21 ± 5	12.8 ± 0.1	H I 1215.670	3692.337	30.2	12.990	H I 1215.670
149	3694.65	12 ± 2	13.7 ± 0.1	H I 1215.670	3694.615	9.9	13.008	C IV 1548.202
					3694.645	8.4	13.366	C IV 1548.202
					3694.892	37.7	13.477	H I 1215.670
150	3694.93	7 ± 2	13.3 ± 0.1	H I 1215.670	3694.892	37.7	13.477	H I 1215.670
					3694.922	10.6	13.160	C IV 1548.202
151	3695.19	10 ± 2	12.8 ± 0.1	H I 1215.670	3694.892	37.7	13.477	H I 1215.670
152	3700.76	8 ± 2	13.2 ± 0.1	H I 1215.670	3700.747	9.9	12.707	C IV 1550.774
					3700.777	8.4	13.065	C IV 1550.774
153	3701.03	10 ± 2	13.0 ± 0.1	H I 1215.670	3701.055	10.6	12.859	C IV 1550.774
154	3702.01	6 ± 2	12.6 ± 0.1	H I 1215.670	3702.042	7.4	12.052	Fe II 1608.451
					3702.042	4.0	12.063	Fe II 1608.451
					3702.412	37.8	12.981	H I 1215.670
155	3702.73	41 ± 7	13.3 ± 0.1	H I 1215.670	3702.721	25.4	12.148	H I 1215.670
					3702.721	7.8	12.116	Fe II 1608.451
					3702.937	6.9	12.137	Fe II 1608.451
					3703.153	5.1	12.187	Fe II 1608.451

Table B.4 *Continued.*

	$\lambda_{fit}/\text{\AA}$	$b_{fit}$	$\log N_{fit}$	ID <sub>fit</sub>	$\lambda/\text{\AA}$	$b$	$\log N$	ID
156	3703.89	$22 \pm 5$	$13.1 \pm 0.1$	H I 1215.670	3703.770	18.1	12.762	H I 1215.670
					3703.955	17.4	12.484	H I 1215.670
					3703.986	25.3	12.664	H I 1215.670
157	3706.51	$6 \pm 2$	$12.6 \pm 0.1$	H I 1215.670	3706.487	13.6	12.644	H I 1215.670
158	3707.80	$9 \pm 2$	$12.7 \pm 0.1$	H I 1215.670	3707.815	15.0	12.865	Si II 1808.012
159	3709.88	$9 \pm 2$	$13.35 \pm 0.05$	Si II 1808.013	3709.855	8.7	13.130	Si II 1808.012
					3709.886	13.7	13.120	C IV 1548.202
160	3710.19	$8 \pm 2$	$13.23 \pm 0.05$	Si II 1808.013	3710.196	7.7	13.248	Si II 1808.012
161	3710.78	$12 \pm 2$	$12.9 \pm 0.1$	H I 1215.670	3710.783	14.5	12.974	C IV 1548.202
162	3711.43	$5 \pm 2$	$13.1 \pm 0.1$	Si II 1808.013	3711.433	3.9	13.043	Si II 1808.012
163	3712.39	$13 \pm 3$	$12.6 \pm 0.1$	H I 1215.670	3712.391	21.6	12.907	H I 1215.670
164	3715.31	$7 \pm 2$	$12.8 \pm 0.1$	H I 1215.670	3715.301	9.6	12.876	H I 1215.670
165	3716.04	$13 \pm 2$	$12.8 \pm 0.1$	H I 1215.670	3716.043	13.7	12.819	C IV 1550.774
166	3717.03	$18 \pm 5$	$13.1 \pm 0.1$	H I 1215.670	3716.942	14.5	12.673	C IV 1550.774
					3717.221	29.0	13.162	H I 1215.670
167	3718.20	s	s	H I 1215.670	3718.212	29.4	14.534	H I 1215.670
168	3719.67	$19 \pm 5$	$12.7 \pm 0.1$	H I 1215.670	3719.700	22.7	12.765	H I 1215.670
169	3721.32	$10 \pm 2$	$13.0 \pm 0.1$	H I 1215.670	3721.343	8.7	12.922	C II 1334.532
170	3721.87	$8 \pm 2$	$13.6 \pm 0.1$	H I 1215.670	3721.870	8.2	13.598	H I 1215.670
171	3729.78	$18 \pm 2$	$13.3 \pm 0.1$	H I 1215.670	3729.819	20.0	13.333	H I 1215.670
172	3731.02	$24 \pm 4$	$12.8 \pm 0.1$	H I 1215.670	3730.720	23.6	12.467	H I 1215.670
					3730.969	34.7	12.330	H I 1215.670
					3731.280	5.2	12.422	Si IV 1393.755
173	3731.85	$22 \pm 4$	$13.3 \pm 0.1$	H I 1215.670	3731.902	23.5	13.241	H I 1215.670
174	3737.65	$19 \pm 3$	$12.9 \pm 0.1$	H I 1215.670	3737.566	9.5	12.533	Si III 1206.510
					3737.846	19.7	12.584	H I 1215.670
175	3738.23	$16 \pm 3$	$12.7 \pm 0.1$	H I 1215.670	3738.344	14.2	12.296	H I 1215.670
					3738.438	3.1	12.011	H I 1215.670
176	3743.21	$25 \pm 6$	$12.7 \pm 0.1$	H I 1215.670	3743.021	19.9	12.030	H I 1215.670
					3743.457	30.7	12.126	H I 1215.670
					3743.520	37.1	12.538	H I 1215.670
177	3744.27	$31 \pm 5$	$13.82 \pm 0.05$	H I 1215.670	3744.268	29.3	13.795	H I 1215.670
178	3747.92	$28 \pm 4$	$12.8 \pm 0.1$	H I 1215.670	3747.702	10.2	12.141	H I 1215.670
					3747.889	16.9	12.055	H I 1215.670
					3747.889	34.1	12.093	H I 1215.670
					3748.202	22.2	12.187	H I 1215.670
179	3748.88	$20 \pm 3$	$13.8 \pm 0.1$	H I 1215.670	3748.889	20.9	13.827	H I 1215.670
180	3750.63	$11 \pm 2$	$13.28 \pm 0.05$	Mg I 1827.935	3750.576	9.1	13.048	C IV 1548.202
					3750.701	10.0	12.870	C IV 1548.202
181	3751.22	$4 \pm 2$	$12.4 \pm 0.1$	Mg I 1827.935	3751.233	6.0	12.245	H I 1215.670
182	3751.52	$9 \pm 2$	$13.1 \pm 0.1$	Mg I 1827.935	3751.514	8.1	13.064	C IV 1548.202
183	3753.10	s	s	H I 1215.670	3753.078	14.1	14.994	H I 1215.670
184	3753.69	$15 \pm 4$	$12.8 \pm 0.1$	H I 1215.670	3753.609	18.9	13.056	H I 1215.670
185	3754.68	s	s	H I 1215.670	3754.673	7.9	15.289	H I 1215.670
186	3755.21	$11 \pm 2$	$13.4 \pm 0.1$	H I 1215.670	3755.205	11.6	13.399	C IV 1548.202
187	3756.32	$10 \pm 3$	$12.5 \pm 0.1$	H I 1215.670	3756.394	24.7	12.882	H I 1215.670
188	3756.78	$15 \pm 3$	$13.2 \pm 0.1$	H I 1215.670	3756.676	9.9	12.768	C IV 1548.202
					3756.801	9.1	12.747	C IV 1550.774
					3756.927	10.0	12.569	C IV 1550.774
189	3757.77	$12 \pm 3$	$12.8 \pm 0.1$	H I 1215.670	3757.741	8.1	12.763	C IV 1550.774



Table B.4 *Continued.*

	$\lambda_{fit}/\text{\AA}$	$b_{fit}$	$\log N_{fit}$	$ID_{fit}$	$\lambda/\text{\AA}$	$b$	$\log N$	ID
190	3759.86	$39 \pm 6$	$14.7 \pm 0.5$	H I 1215.670	3759.307	12.0	12.978	H I 1215.670
					3759.871	44.0	14.553	H I 1215.670
191	3761.44	$38 \pm 6$	$14.4 \pm 0.1$	H I 1215.670	3761.438	11.6	13.098	C IV 1550.774
					3761.469	37.6	14.343	H I 1215.670
192	3763.11	$7 \pm 2$	$12.9 \pm 0.1$	Si II 1190.416	3763.130	5.8	12.835	Si II 1190.416
193	3764.24	s	s	H I 1215.670	3764.228	38.1	14.529	H I 1215.670
					3764.323	29.6	12.954	H I 1215.670
194	3765.95	s	s	Si II 1190.416	3765.797	26.9	13.268	H I 1215.670
					3765.891	5.9	12.561	Si II 1190.416
					3765.954	9.0	14.935	H I 1215.670
					3766.080	25.4	12.622	H I 1215.670
195	3766.60	s	s	H I 1215.670	3766.582	18.9	14.325	H I 1215.670
196	3768.11	$12 \pm 3$	$12.7 \pm 0.1$	Si II 1190.416	3768.120	9.1	12.628	Si II 1190.416
197	3769.46	$7 \pm 2$	$12.8 \pm 0.1$	Si II 1190.416	3769.471	6.2	12.598	Si II 1190.416
					3769.565	35.9	12.889	H I 1215.670
198	3769.93	$7 \pm 2$	$12.9 \pm 0.1$	Si II 1193.290	3769.942	4.9	12.822	Si II 1193.289
199	3770.99	$5 \pm 2$	$12.5 \pm 0.1$	H I 1215.670	3771.010	6.1	12.545	Si II 1193.289
200	3772.19	$7 \pm 2$	$13.1 \pm 0.1$	Si II 1193.290	3772.204	5.8	13.136	Si II 1193.289
201	3774.98	$8 \pm 2$	$12.9 \pm 0.1$	Si II 1193.290	3774.972	5.9	12.862	Si II 1193.289
202	3775.61	$29 \pm 2$	$13.3 \pm 0.1$	H I 1215.670	3775.318	33.2	12.786	H I 1215.670
					3775.664	22.3	13.055	H I 1215.670
203	3777.16	$11 \pm 2$	$13.0 \pm 0.1$	Si II 1193.290	3777.206	9.1	12.929	Si II 1193.289
204	3778.57	$6 \pm 2$	$12.9 \pm 0.1$	Si II 1193.290	3778.560	6.2	12.899	Si II 1193.289
205	3779.51	$28 \pm 4$	$12.8 \pm 0.1$	H I 1215.670	3779.347	36.7	12.937	H I 1215.670
206	3780.27	$15 \pm 2$	$13.4 \pm 0.1$	H I 1215.670	3780.292	15.6	13.355	H I 1215.670
207	3783.22	$28 \pm 5$	$13.6 \pm 0.2$	H I 1215.670	3782.876	9.7	12.705	H I 1215.670
					3783.191	33.5	13.542	H I 1215.670
					3783.696	37.0	12.789	H I 1215.670
208	3793.58	$24 \pm 5$	$12.9 \pm 0.1$	H I 1215.670	3793.388	4.9	12.169	N I 1200.711
					3793.862	41.0	13.276	H I 1215.670
209	3794.16	$9 \pm 2$	$13.3 \pm 0.1$	N I 1200.223	3794.147	5.8	12.964	N I 1200.224
210	3794.44	$10 \pm 4$	$13.0 \pm 0.1$	H I 1215.670	3794.242	23.4	13.025	H I 1215.670
211	3794.76	$14 \pm 3$	$13.3 \pm 0.1$	N I 1199.550	3794.748	33.4	13.420	H I 1215.670
					3794.779	5.9	12.686	N I 1199.549
212	3795.68	$7 \pm 2$	$12.5 \pm 0.1$	N I 1200.710	3795.665	5.8	12.483	N I 1200.711
213	3796.96	$13 \pm 2$	$13.4 \pm 0.1$	N I 1199.550	3796.930	17.1	13.151	H I 1215.670
					3796.930	5.9	12.690	N I 1200.224
					3797.025	9.1	12.753	N I 1199.549
214	3798.41	$5 \pm 2$	$12.8 \pm 0.2$	N I 1199.550	3798.386	6.2	12.723	N I 1199.549
215	3799.35	$24 \pm 4$	$13.80 \pm 0.05$	N I 1200.223	3799.177	9.1	12.757	N I 1200.224
					3799.335	23.2	13.726	H I 1215.670
216	3800.55	$6 \pm 2$	$12.7 \pm 0.1$	N I 1200.223	3800.539	6.2	12.727	N I 1200.224
217	3802.84	$36 \pm 4$	$14.0 \pm 0.1$	H I 1215.670	3802.947	42.4	14.097	H I 1215.670
218	3803.64	$26 \pm 4$	$14.1 \pm 0.1$	H I 1215.670	3803.581	15.4	13.737	Al III 1854.716
					3803.771	25.9	12.999	H I 1215.670
219	3804.31	$30 \pm 4$	$13.7 \pm 0.1$	H I 1215.670	3804.056	32.5	13.858	H I 1215.670
					3804.658	8.6	12.779	Al III 1854.716
220	3805.68	s	s	Al III 1854.716	3805.673	9.2	14.002	Al III 1854.716
221	3806.03	s	s	Al III 1854.716	3806.022	8.3	14.120	Al III 1854.716
222	3807.29	$6 \pm 2$	$13.8 \pm 0.2$	Al III 1854.716	3807.291	5.0	13.915	Al III 1854.716

Table B.4 *Continued.*

	$\lambda_{fit}/\text{\AA}$	$b_{fit}$	$\log N_{fit}$	ID <sub>fit</sub>	$\lambda/\text{\AA}$	$b$	$\log N$	ID
223	3808.09	39 ± 5	13.7 ± 0.1	H I 1215.670	3808.116	42.8	13.719	H I 1215.670
224	3808.87	7 ± 2	12.3 ± 0.1	H I 1215.670	3809.068	21.5	12.450	H I 1215.670
225	3811.73	8 ± 2	12.9 ± 0.1	Si III 1206.500	3811.704	5.9	12.746	Si III 1206.510
226	3812.79	6 ± 2	12.8 ± 0.1	Mg II 2796.352	3812.784	6.9	12.469	Si III 1206.510
227	3813.35	13 ± 2	13.5 ± 0.1	Mg II 2796.352	3813.324	34.8	13.454	H I 1215.670
					3813.356	7.2	13.263	Mg II 2796.352
228	3814.05	10 ± 2	13.5 ± 0.1	Mg II 2796.352	3813.991	6.6	13.060	Si III 1206.510
					3814.055	8.5	13.231	Mg II 2796.352
					3814.182	6.4	12.901	Mg II 2796.352
229	3814.34	10 ± 2	13.5 ± 0.1	Si III 1206.500	3814.309	11.6	13.198	C IV 1548.202
					3814.373	7.2	13.106	Mg II 2796.352
230	3814.65	5 ± 2	13.0 ± 0.1	Mg II 2796.352	3814.659	5.9	12.992	Mg II 2796.352
231	3814.92	7 ± 2	13.5 ± 0.1	Mg II 2796.352	3814.913	6.8	13.468	Mg II 2796.352
232	3815.29	8 ± 2	13.0 ± 0.1	Mg II 2796.352	3815.295	6.0	12.974	Mg II 2796.352
233	3815.72	10 ± 2	13.5 ± 0.1	Mg II 2796.352	3815.644	5.5	12.955	Mg II 2796.352
					3815.771	5.7	12.710	Si IV 1393.755
					3815.771	9.3	13.165	Mg II 2796.352
234	3816.00	4 ± 2	12.8 ± 0.1	Mg II 2796.352	3815.994	3.7	12.712	Mg II 2796.352
235	3816.34	7 ± 2	13.1 ± 0.1	Mg II 2796.352	3816.344	7.5	13.147	Mg II 2796.352
236	3816.83	11 ± 2	12.8 ± 0.1	Si III 1206.500	3816.789	6.7	12.786	Si III 1206.510
237	3817.37	11 ± 2	12.4 ± 0.1	Mg II 2796.352	3817.457	35.5	12.638	H I 1215.670
238	3817.66	6 ± 2	13.4 ± 0.1	Mg II 2796.352	3817.648	5.3	13.382	Mg II 2796.352
239	3818.43	25 ± 3	13.4 ± 0.1	H I 1215.670	3818.475	26.3	13.410	H I 1215.670
240	3819.00	11 ± 2	13.0 ± 0.1	Si III 1206.500	3818.921	6.9	12.402	Si III 1206.510
					3819.048	9.6	12.853	Si III 1206.510
241	3820.10	12 ± 2	13.3 ± 0.1	Si III 1206.500	3820.162	15.4	13.436	Al III 1862.790
242	3820.43	24 ± 3	13.5 ± 0.1	H I 1215.670	3820.417	6.9	12.822	Si III 1206.510
					3820.480	33.5	12.317	H I 1215.670
					3820.608	21.3	12.236	H I 1215.670
					3820.640	11.6	12.897	C IV 1550.774
243	3822.26	9 ± 2	13.7 ± 0.1	Al III 1862.790	3822.264	9.2	13.701	Al III 1862.790
244	3822.63	s	s	Al III 1862.790	3822.614	8.3	13.819	Al III 1862.790
245	3823.15	9 ± 2	13.1 ± 0.1	Mg II 2803.531	3823.156	7.2	12.962	Mg II 2803.531
246	3823.49	5 ± 2	12.4 ± 0.1	Mg II 2803.531	3823.347	11.6	12.457	C II 1334.532
					3823.506	11.7	12.316	H I 1215.670
					3823.825	8.3	12.404	Mg II 2796.352
247	3823.90	8 ± 2	13.8 ± 0.1	Al III 1862.790	3823.857	8.5	12.929	Mg II 2803.531
					3823.889	5.0	13.615	Al III 1862.790
					3823.984	6.4	12.600	Mg II 2803.531
248	3824.15	8 ± 2	13.0 ± 0.1	Mg II 2803.531	3824.016	12.8	12.663	H I 1215.670
					3824.112	17.8	12.526	H I 1215.670
					3824.176	7.2	12.805	Mg II 2803.531
249	3824.46	8 ± 2	12.7 ± 0.1	Mg II 2803.531	3824.462	5.9	12.691	Mg II 2803.531
250	3824.72	6 ± 2	13.2 ± 0.1	Mg II 2803.531	3824.717	6.8	13.167	Mg II 2803.531
251	3825.10	6 ± 2	12.8 ± 0.1	Mg II 2803.531	3825.100	6.0	12.673	Mg II 2803.531
252	3825.53	8 ± 2	13.0 ± 0.1	Mg II 2803.531	3825.451	5.5	12.654	Mg II 2803.531
					3825.578	9.3	12.864	Mg II 2803.531
253	3826.38	45 ± 5	14.3 ± 0.1	H I 1215.670	3826.407	47.4	14.211	H I 1215.670
					3826.662	18.9	12.884	H I 1215.670
254	3827.46	5 ± 2	13.1 ± 0.1	Mg II 2803.531	3827.459	5.3	13.081	Mg II 2803.531

Table B.4 *Continued.*

	$\lambda_{fit}/\text{\AA}$	$b_{fit}$	$\log N_{fit}$	ID <sub>fit</sub>	$\lambda/\text{\AA}$	$b$	$\log N$	ID
255	3828.81	$37 \pm 6$	$14.5 \pm 0.2$	H I 1215.670	3828.767	35.0	14.487	H I 1215.670
					3828.767	31.1	12.729	H I 1215.670
					3829.182	44.2	13.113	H I 1215.670
					3829.437	22.5	12.810	H I 1215.670
256	3833.33	$33 \pm 5$	$14.1 \pm 0.1$	H I 1215.670	3833.333	34.8	14.094	H I 1215.670
257	3834.08	$27 \pm 5$	$13.5 \pm 0.1$	H I 1215.670	3834.099	29.3	13.516	H I 1215.670
258	3838.02	$38 \pm 10$	$13.0 \pm 0.1$	H I 1215.670	3837.839	33.8	12.496	H I 1215.670
					3838.031	29.8	12.547	H I 1215.670
					3838.191	24.5	12.659	H I 1215.670
259	3839.63	$7 \pm 2$	$13.5 \pm 0.4$	D I 1215.339	3839.631	4.9	13.449	D I 1215.339
260	3841.88	s	s	H I 1215.670	3840.655	4.9	18.148	H I 1215.670
					3841.743	6.1	17.871	H I 1215.670
					3842.960	5.8	18.462	H I 1215.670
261	3844.74	$7 \pm 2$	$13.5 \pm 0.3$	D I 1215.339	3844.754	5.9	13.489	D I 1215.339
					3844.754	28.0	12.987	H I 1215.670
262	3846.00	s	s	H I 1215.670	3845.779	5.9	18.188	H I 1215.670
					3846.805	8.1	17.570	H I 1215.670
					3847.927	6.1	17.804	H I 1215.670
					3848.055	9.1	18.255	H I 1215.670
					3849.434	6.2	18.225	H I 1215.670
263	3858.71	$19 \pm 5$	$12.7 \pm 0.1$	H I 1215.670	3858.909	28.9	12.844	H I 1215.670
264	3860.88	$45 \pm 7$	$12.9 \pm 0.1$	H I 1215.670	3860.743	34.8	12.707	H I 1215.670
					3861.129	12.6	12.330	H I 1215.670
265	3862.39	$16 \pm 4$	$12.8 \pm 0.1$	H I 1215.670	3862.320	23.1	12.540	H I 1215.670
					3862.352	25.7	12.346	H I 1215.670
					3862.416	29.7	12.158	H I 1215.670
					3862.448	11.7	12.442	Si III 1206.510
266	3863.17	$22 \pm 4$	$13.6 \pm 0.1$	Si III 1206.500	3862.996	14.3	13.222	Si III 1206.510
					3863.285	11.8	13.382	Si III 1206.510
267	3864.41	$24 \pm 3$	$13.0 \pm 0.1$	H I 1215.670	3864.445	21.8	12.948	H I 1215.670
268	3867.56	$22 \pm 4$	$12.7 \pm 0.1$	H I 1215.670	3867.473	22.5	12.509	H I 1215.670
269	3870.45	$24 \pm 5$	$12.7 \pm 0.2$	H I 1215.670	3870.342	32.2	12.394	H I 1215.670
270	3871.93	$39 \pm 5$	$13.59 \pm 0.05$	H I 1215.670	3871.955	31.7	13.530	H I 1215.670
271	3874.19	$12 \pm 2$	$13.7 \pm 0.1$	C IV 1548.202	3874.182	11.2	13.622	H I 1215.670
272	3880.45	$32 \pm 4$	$14.02 \pm 0.05$	H I 1215.670	3880.450	33.0	14.029	H I 1215.670
273	3882.05	$38 \pm 4$	$13.95 \pm 0.05$	H I 1215.670	3882.035	36.2	13.943	H I 1215.670
274	3883.69	$37 \pm 4$	$13.0 \pm 0.1$	H I 1215.670	3883.621	38.7	12.931	H I 1215.670
275	3885.52	$5 \pm 2$	$12.4 \pm 0.1$	H I 1215.670	3885.531	3.2	12.264	H I 1215.670
276	3886.54	$11 \pm 2$	$12.7 \pm 0.1$	H I 1215.670	3886.502	9.3	12.672	Si IV 1393.755
277	3887.99	$9 \pm 2$	$13.1 \pm 0.1$	Si IV 1393.755	3887.960	7.2	12.827	Si IV 1393.755
					3888.057	7.5	12.615	Si IV 1393.755
278	3888.68	$26 \pm 4$	$13.3 \pm 0.1$	H I 1215.670	3888.738	27.6	13.264	H I 1215.670
279	3889.11	$7 \pm 2$	$12.9 \pm 0.1$	Si IV 1393.755	3889.094	5.3	12.803	Si IV 1393.755
280	3889.44	$8 \pm 2$	$12.9 \pm 0.1$	Si IV 1393.755	3889.386	8.3	12.640	Si IV 1393.755
					3889.483	4.7	12.494	Si IV 1393.755
281	3889.87	$6 \pm 2$	$12.7 \pm 0.1$	Si IV 1393.755	3889.872	7.9	12.677	Si IV 1393.755
282	3890.32	$6 \pm 2$	$12.5 \pm 0.1$	Si IV 1393.755	3890.326	5.5	12.423	H I 1215.670
283	3890.67	$7 \pm 2$	$13.4 \pm 0.1$	Si IV 1393.755	3890.650	5.9	13.001	Si IV 1393.755
					3890.682	8.6	13.155	Si IV 1393.755
284	3890.97	$8 \pm 2$	$12.9 \pm 0.1$	Si IV 1393.755	3890.974	7.3	12.843	Si IV 1393.755

Table B.4 *Continued.*

	$\lambda_{fit}/\text{\AA}$	$b_{fit}$	$\log N_{fit}$	ID <sub>fit</sub>	$\lambda/\text{\AA}$	$b$	$\log N$	ID
285	3892.26	s	s	H I 1215.670	3891.785	11.2	14.844	H I 1215.670
					3892.336	14.0	15.624	H I 1215.670
					3892.628	11.4	15.785	H I 1215.670
286	3893.56	$30 \pm 4$	$12.9 \pm 0.1$	H I 1215.670	3893.472	40.9	12.985	H I 1215.670
287	3894.58	$10 \pm 2$	$12.8 \pm 0.1$	H I 1215.670	3894.607	12.6	12.777	Si III 1206.510
288	3895.03	$18 \pm 2$	$13.2 \pm 0.1$	H I 1215.670	3894.997	13.6	12.904	Si III 1206.510
					3895.127	31.7	12.965	H I 1215.670
289	3896.19	$8 \pm 2$	$12.9 \pm 0.1$	Si III 1206.500	3896.198	9.1	12.957	Si III 1206.510
290	3899.15	$10 \pm 2$	$12.4 \pm 0.1$	H I 1215.670	3899.186	24.8	12.458	H I 1215.670
291	3900.07	$31 \pm 3$	$13.67 \pm 0.05$	H I 1215.670	3900.064	27.6	13.653	H I 1215.670
292	3902.23	$16 \pm 2$	$12.9 \pm 0.1$	H I 1215.670	3902.242	24.2	12.918	H I 1215.670
293	3906.65	$9 \pm 2$	$13.2 \pm 0.1$	C IV 1548.202	3906.635	9.3	13.204	C IV 1548.202
294	3907.70	$33 \pm 4$	$13.3 \pm 0.1$	H I 1215.670	3907.839	35.2	13.207	H I 1215.670
295	3908.28	$9 \pm 2$	$12.4 \pm 0.1$	H I 1215.670	3908.262	9.8	12.692	C IV 1548.202
296	3908.88	$18 \pm 4$	$12.5 \pm 0.1$	H I 1215.670	3908.914	15.4	12.529	H I 1215.670
297	3910.89	$17 \pm 4$	$12.6 \pm 0.1$	H I 1215.670	3910.869	20.7	12.778	H I 1215.670
298	3911.59	$8 \pm 2$	$12.7 \pm 0.1$	H I 1215.670	3911.619	9.3	12.370	Si IV 1402.770
299	3912.87	$12 \pm 2$	$13.6 \pm 0.1$	H I 1215.670	3912.825	11.0	13.235	C IV 1548.202
					3912.890	8.8	13.255	C IV 1548.202
300	3913.18	$9 \pm 3$	$13.2 \pm 0.1$	H I 1215.670	3913.086	7.2	12.525	Si IV 1402.770
					3913.118	9.3	12.903	C IV 1550.774
					3913.184	7.5	12.313	Si IV 1402.770
					3913.281	15.1	12.313	C IV 1548.202
					3913.346	11.2	13.077	C IV 1548.202
301	3913.50	$12 \pm 2$	$13.5 \pm 0.1$	H I 1215.670	3913.379	12.7	12.860	C IV 1548.202
					3913.542	9.4	13.374	C IV 1548.202
302	3914.25	$4 \pm 2$	$12.4 \pm 0.1$	H I 1215.670	3914.227	5.3	12.502	Si IV 1402.770
303	3925.80	s	s	H I 1215.670	3925.791	8.5	15.359	H I 1215.670
304	3928.19	$43 \pm 5$	$13.64 \pm 0.05$	H I 1215.670	3927.918	26.6	13.345	H I 1215.670
					3928.409	26.0	13.260	H I 1215.670
305	3931.16	$20 \pm 2$	$13.72 \pm 0.05$	H I 1215.670	3931.127	20.2	13.034	H I 1215.670
					3931.160	20.4	13.645	H I 1215.670
306	3933.43	$16 \pm 2$	$12.8 \pm 0.1$	H I 1215.670	3933.290	13.7	12.055	H I 1215.670
					3933.355	20.7	12.177	H I 1215.670
					3933.519	24.9	12.404	H I 1215.670
307	3933.90	$23 \pm 2$	$13.3 \pm 0.1$	H I 1215.670	3933.913	29.8	13.320	H I 1215.670
308	3934.64	$6 \pm 2$	$13.0 \pm 0.1$	Ca II 3934.777	3934.634	2.8	12.546	Ca II 3934.777
					3934.634	4.0	12.545	Ca II 3934.777
309	3934.86	$7 \pm 2$	$13.2 \pm 0.1$	Ca II 3934.777	3934.831	2.3	12.448	Ca II 3934.777
					3934.896	3.0	12.580	Ca II 3934.777
					3934.896	6.2	12.456	Ca II 3934.777
310	3935.34	$12 \pm 2$	$13.1 \pm 0.1$	H I 1215.670	3935.323	3.3	12.080	Ca II 3934.777
					3935.323	4.9	12.370	Ca II 3934.777
					3935.355	19.4	12.192	N V 1242.804
311	3935.69	$23 \pm 2$	$13.5 \pm 0.1$	H I 1215.670	3935.585	20.9	13.301	H I 1215.670
					3935.782	43.1	13.387	H I 1215.670
312	3936.54	$28 \pm 2$	$13.2 \pm 0.1$	H I 1215.670	3936.602	24.4	13.028	H I 1215.670
313	3938.86	$32 \pm 3$	$13.1 \pm 0.1$	H I 1215.670	3938.833	17.4	12.478	H I 1215.670
					3938.866	31.7	12.238	H I 1215.670
					3938.899	31.9	12.736	H I 1215.670

Table B.4 *Continued.*

	$\lambda_{fit}/\text{\AA}$	$b_{fit}$	$\log N_{fit}$	ID <sub>fit</sub>	$\lambda/\text{\AA}$	$b$	$\log N$	ID
314	3939.95	$10 \pm 2$	$12.4 \pm 0.1$	H I 1215.670	3939.917	11.1	12.352	H I 1215.670
315	3940.65	$30 \pm 5$	$12.7 \pm 0.1$	H I 1215.670	3940.376	22.2	12.074	H I 1215.670
					3940.738	20.6	12.311	H I 1215.670
					3940.968	39.0	12.431	H I 1215.670
316	3942.03	$8 \pm 2$	$12.4 \pm 0.1$	H I 1215.670	3942.051	5.8	12.206	H I 1215.670
317	3943.08	$33 \pm 4$	$13.25 \pm 0.05$	H I 1215.670	3943.103	29.0	13.200	H I 1215.670
318	3946.08	$26 \pm 2$	$13.7 \pm 0.1$	H I 1215.670	3946.061	23.7	13.630	H I 1215.670
					3946.193	39.6	13.098	H I 1215.670
319	3946.71	$13 \pm 2$	$12.8 \pm 0.1$	H I 1215.670	3946.686	11.5	12.096	Mg II 2796.352
					3946.752	9.7	12.368	Mg II 2796.352
320	3947.86	$18 \pm 2$	$12.8 \pm 0.1$	H I 1215.670	3947.771	26.4	12.619	H I 1215.670
					3948.034	18.2	12.539	H I 1215.670
321	3948.14	$8 \pm 2$	$12.6 \pm 0.1$	H I 1215.670	3948.133	5.4	12.387	H I 1215.670
322	3951.96	$26 \pm 2$	$14.00 \pm 0.05$	H I 1215.670	3951.952	26.4	13.977	H I 1215.670
323	3953.42	$28 \pm 4$	$12.8 \pm 0.1$	H I 1215.670	3953.072	26.9	12.244	H I 1215.670
					3953.434	44.1	12.670	H I 1215.670
					3953.698	31.4	12.598	H I 1215.670
324	3955.23	$20 \pm 2$	$12.7 \pm 0.1$	H I 1215.670	3955.214	15.8	12.530	H I 1215.670
325	3956.27	$48 \pm 4$	$13.38 \pm 0.05$	H I 1215.670	3956.136	33.4	13.050	H I 1215.670
					3956.466	35.4	12.837	H I 1215.670
326	3957.51	$8 \pm 2$	$12.5 \pm 0.1$	H I 1215.670	3957.455	23.7	12.176	H I 1215.670
					3957.521	6.6	12.007	H I 1215.670
					3957.554	18.1	12.231	H I 1215.670
327	3960.45	$4 \pm 2$	$12.3 \pm 0.1$	H I 1215.670	3960.458	3.0	12.347	H I 1215.670
328	3965.18	$40 \pm 4$	$13.41 \pm 0.05$	H I 1215.670	3965.213	39.5	13.457	H I 1215.670
329	3966.61	$21 \pm 4$	$12.80 \pm 0.05$	H I 1215.670	3966.469	23.1	12.593	N V 1238.821
					3966.767	21.6	12.753	N V 1238.821
330	3967.60	$4 \pm 2$	$12.4 \pm 0.1$	H I 1215.670	3967.593	4.8	12.525	H I 1215.670
331	3968.29	$26 \pm 2$	$13.26 \pm 0.05$	H I 1215.670	3968.287	31.9	13.387	H I 1215.670
332	3969.45	$5 \pm 2$	$12.6 \pm 0.1$	Ca II 3969.591	3969.445	2.8	12.245	Ca II 3969.591
					3969.445	4.0	12.244	Ca II 3969.591
333	3969.69	$10 \pm 2$	$13.1 \pm 0.1$	Ca II 3969.591	3969.610	4.5	12.276	Ca II 3969.591
					3969.643	2.3	12.147	Ca II 3969.591
					3969.709	3.0	12.279	Ca II 3969.591
					3969.709	6.2	12.155	Ca II 3969.591
					3969.776	21.8	12.715	H I 1215.670
334	3970.07	$10 \pm 2$	$12.6 \pm 0.1$	Ca II 3969.591	3969.941	15.7	12.600	H I 1215.670
					3970.140	3.3	11.779	Ca II 3969.591
					3970.140	4.9	12.069	Ca II 3969.591
335	3970.75	$26 \pm 2$	$13.0 \pm 0.1$	H I 1215.670	3970.702	26.4	12.812	H I 1215.670
					3970.900	37.8	12.840	H I 1215.670
336	3972.76	$13 \pm 2$	$12.5 \pm 0.1$	H I 1215.670	3972.688	17.4	12.414	H I 1215.670
					3972.787	16.7	12.403	H I 1215.670
337	3973.47	$50 \pm 5$	$13.2 \pm 0.1$	H I 1215.670	3973.250	32.8	13.014	H I 1215.670
					3973.416	22.3	12.316	H I 1215.670
					3973.748	30.1	12.346	H I 1215.670
					3973.880	21.9	12.531	H I 1215.670
338	3974.63	$19 \pm 2$	$12.6 \pm 0.1$	H I 1215.670	3974.575	26.9	12.885	H I 1215.670
339	3975.40	$13 \pm 2$	$13.4 \pm 0.1$	Si II 1526.707	3975.304	12.1	12.928	C IV 1548.202
					3975.437	8.4	12.644	C IV 1548.202
					3975.470	11.2	12.963	C IV 1548.202

Table B.4 *Continued.*

	$\lambda_{fit}/\text{\AA}$	$b_{fit}$	$\log N_{fit}$	ID <sub>fit</sub>	$\lambda/\text{\AA}$	$b$	$\log N$	ID
340	3978.95	$37 \pm 4$	$13.2 \pm 0.1$	H I 1215.670	3978.850	29.2	13.065	H I 1215.670
341	3980.15	$21 \pm 2$	$13.57 \pm 0.05$	H I 1215.670	3980.177	20.6	13.527	H I 1215.670
342	3980.70	$5 \pm 2$	$12.1 \pm 0.1$	H I 1215.670	3980.675	4.8	12.240	H I 1215.670
343	3981.00	$16 \pm 2$	$12.4 \pm 0.1$	H I 1215.670	3981.006	19.7	12.524	H I 1215.670
344	3981.68	$14 \pm 2$	$12.4 \pm 0.1$	H I 1215.670	3981.902	12.1	12.627	C IV 1550.774
345	3982.03	$8 \pm 2$	$13.4 \pm 0.1$	Si II 1260.422	3982.035	4.9	13.128	Si II 1260.421
346	3997.97	$20 \pm 3$	$13.7 \pm 0.1$	H I 1215.670	3997.961	20.2	13.734	H I 1215.670
347	3999.27	$34 \pm 3$	$13.0 \pm 0.1$	H I 1215.670	3998.994	27.2	12.503	H I 1215.670
					3999.327	22.7	12.275	N V 1238.821
					3999.528	32.5	12.917	H I 1215.670
348	4000.41	$30 \pm 3$	$12.7 \pm 0.1$	H I 1215.670	4000.194	19.2	12.472	H I 1215.670
					4000.561	20.3	12.328	N V 1238.821
					4000.761	26.2	12.504	H I 1215.670
349	4001.68	$15 \pm 4$	$12.3 \pm 0.1$	H I 1215.670	4001.661	18.1	12.483	H I 1215.670
350	4003.24	$25 \pm 3$	$12.6 \pm 0.1$	H I 1215.670	4003.129	39.8	12.606	H I 1215.670
351	4005.21	$40 \pm 6$	$12.8 \pm 0.2$	H I 1215.670	4005.131	16.6	12.447	H I 1215.670
					4005.398	20.6	12.327	H I 1215.670
352	4006.57	$18 \pm 5$	$12.3 \pm 0.1$	H I 1215.670	4006.566	20.1	12.297	H I 1215.670
353	4012.54	$7 \pm 2$	$12.4 \pm 0.1$	C II 1334.532	4012.547	4.7	12.304	C II 1334.532
354	4016.77	$10 \pm 2$	$13.3 \pm 0.1$	C IV 1548.202	4016.762	9.8	13.325	C IV 1548.202
355	4018.29	$8 \pm 3$	$12.4 \pm 0.1$	H I 1215.670	4018.302	9.4	12.450	Si IV 1402.770
356	4018.87	$16 \pm 3$	$12.6 \pm 0.1$	H I 1215.670	4018.838	12.1	12.428	Si IV 1402.770
357	4023.43	$10 \pm 2$	$13.05 \pm 0.05$	C IV 1550.774	4023.429	9.8	13.024	C IV 1550.774
358	4031.57	$15 \pm 2$	$12.9 \pm 0.1$	C IV 1548.202	4031.585	13.3	12.909	C IV 1548.202
359	4035.87	$17 \pm 3$	$12.7 \pm 0.1$	Si II 1260.422	4035.618	14.0	12.303	Si II 1260.421
					4035.921	11.4	12.463	Si II 1260.421
360	4038.31	$13 \pm 3$	$12.6 \pm 0.1$	C IV 1550.774	4038.276	13.3	12.608	C IV 1550.774
361	4050.88	$11 \pm 2$	$13.17 \pm 0.05$	C IV 1548.202	4050.882	10.7	13.140	C IV 1548.202
362	4051.49	$10 \pm 3$	$12.7 \pm 0.1$	C IV 1548.202	4051.490	11.2	12.584	C IV 1548.202

**Table B.5** Rest wavelengths of the molecular hydrogen lines listed in Table B.4. All of these lines are in the same redshift system in the CNQ spectrum at  $z_{\text{abs}} = 2.161371$ .

Line No. <sup>1</sup>	H <sub>2</sub> Line	$\lambda/\text{\AA}$
12	H <sub>2</sub> (J=0) 2,0R[0]	1077.071
13	H <sub>2</sub> (J=1) 2,0R[1]	1077.637
16	H <sub>2</sub> (J=1) 2,0P[1]	1078.859
17	H <sub>2</sub> (J=2) 2,0R[2]	1079.164
30	H <sub>2</sub> (J=0) 1,0R[0]	1092.129
31	H <sub>2</sub> (J=1) 1,0R[1]	1092.666
36	H <sub>2</sub> (J=1) 1,0P[1]	1093.987
37	H <sub>2</sub> (J=2) 1,0R[2]	1094.178
50	H <sub>2</sub> (J=0) 0,0R[0]	1108.061
51	H <sub>2</sub> (J=1) 0,0R[1]	1108.569
56	H <sub>2</sub> (J=1) 0,0P[1]	1110.002

Notes:

<sup>1</sup> Line number from Table B.4.

Table B.6 Absorption lines in Q1101–264.

	$\lambda/\text{\AA}$	$W_{obs}/\text{m\AA}$	$b/\text{kms}^{-1}$	$\log N/\text{cm}^{-2}$	$W_{fit}$	Identification	$z_{abs}$	
1	3390.13	$252 \pm 16$	$12 \pm 3$	$13.4 \pm 0.2$	245	C IV 1550.774	1.18609	i
2	3391.30	$849 \pm 35$	$73 \pm 25$	$14.0 \pm 0.2$	1095	C IV 1550.774	1.18684	u
3	3392.43	$395 \pm 30$	$21 \pm 3$	$13.4 \pm 0.1$	272	C IV 1550.774	1.18757	
4	3401.80	$132 \pm 17$	$13 \pm 5$	$13.03 \pm 0.05$	132			
5	3405.10	$71 \pm 11$	$5 \pm 2$	$12.78 \pm 0.05$	69	NI 1199.5496	1.83865	i
6	3409.32	$283 \pm 17$	$7 \pm 2$	$12.6 \pm 0.1$	53	C IV 1548.202	1.20212	
7	3409.57	†	$9 \pm 2$	$13.3 \pm 0.1$	208	C IV 1548.202	1.20228	
8	3409.77	†	$4 \pm 2$	$12.5 \pm 0.1$	40	C IV 1548.202	1.20240	
9	3410.06	$698 \pm 13$	$14 \pm 2$	$13.7 \pm 0.1$	364	C IV 1548.202	1.20259	
10	3410.35	†	$10 \pm 2$	$13.6 \pm 0.1$	272	C IV 1548.202	1.20278	
11	3410.56	†	$6 \pm 2$	$12.9 \pm 0.1$	88	C IV 1548.202	1.20292	
12	3410.83	$405 \pm 15$	$9 \pm 2$	$13.1 \pm 0.1$	137	C IV 1548.202	1.20309	
13	3411.07	†	$7 \pm 2$	$13.4 \pm 0.1$	182	C IV 1548.202	1.20324	
14	3411.25	†	$4 \pm 2$	$12.7 \pm 0.1$	56	C IV 1548.202	1.20336	
15	3411.47	$165 \pm 13$	$8 \pm 2$	$13.2 \pm 0.1$	153	C IV 1548.202	1.20350	
16	3414.99	$120 \pm 12$	$7 \pm 2$	$12.3 \pm 0.1$	28	C IV 1550.774	1.20212	
17	3415.24	†	$9 \pm 2$	$13.0 \pm 0.1$	116	C IV 1550.774	1.20228	
18	3415.44	†	$4 \pm 2$	$12.2 \pm 0.1$	22	C IV 1550.774	1.20241	
19	3415.73	$509 \pm 18$	$14 \pm 2$	$13.4 \pm 0.1$	252	C IV 1550.774	1.20260	
20	3416.01	†	$10 \pm 2$	$13.3 \pm 0.1$	192	C IV 1550.774	1.20278	
21	3416.23	†	$6 \pm 2$	$12.6 \pm 0.1$	51	C IV 1550.774	1.20292	
22	3416.49	$268 \pm 16$	$9 \pm 2$	$12.8 \pm 0.1$	81	C IV 1550.774	1.20309	
23	3416.73	†	$7 \pm 2$	$13.1 \pm 0.1$	126	C IV 1550.774	1.20324	
24	3416.90	†	$4 \pm 2$	$12.4 \pm 0.1$	33	C IV 1550.774	1.20335	
25	3417.13	$101 \pm 14$	$8 \pm 2$	$12.9 \pm 0.1$	95	C IV 1550.774	1.20350	
26	3421.93	$141 \pm 17$	$17 \pm 5$	$13.04 \pm 0.05$	141			
27	3423.61	$525 \pm 9$				Si III 1206.500	1.83764	sb
28	3424.17	$1512 \pm 9$				Si III 1206.500	1.83810	sb
29	3424.46	†				Si III 1206.500	1.83834	sb
30	3424.73	†				Si III 1206.500	1.83856	sb
31	3425.14	†				Si III 1206.500	1.83890	sb
32	3425.67	$298 \pm 12$	$9 \pm 2$	$13.8 \pm 0.1$	297	Si III 1206.500	1.83935	
33	3426.53	$56 \pm 14$	$7 \pm 2$	$12.63 \pm 0.05$	56	Si III 1206.500	1.84006	i
34	3429.31	$386 \pm 16$	$12 \pm 4$	$13.7 \pm 0.1$	358			
35	3429.93	$398 \pm 17$	$24 \pm 4$	$13.6 \pm 0.1$	426			
36	3450.75	*	*	*	*	HI 1215.6701	1.83856	s
37	3461.71	$399 \pm 22$	$9 \pm 3$	$13.1 \pm 0.1$	130	Mg II 2796.352	0.23794	ib
38	3461.96	†	$11 \pm 3$	$13.3 \pm 0.1$	212	Mg II 2796.352	0.23803	ib
39	3469.32	$630 \pm 24$	$36 \pm 6$	$13.7 \pm 0.1$	631			u
40	3470.71	$111 \pm 14$	$5 \pm 2$	$12.74 \pm 0.05$	65	Mg II 2803.531	0.23798	i
41	3470.89	†	$6 \pm 2$	$12.57 \pm 0.05$	49	Mg II 2803.531	0.23804	i
42	3473.29	$373 \pm 17$	$23 \pm 5$	$13.5 \pm 0.1$	373			
43	3474.25	$106 \pm 21$	$14 \pm 3$	$12.7 \pm 0.1$	70	Si IV 1402.770	1.47671	
44	3474.62	†	$7 \pm 2$	$12.4 \pm 0.1$	28	Si IV 1402.770	1.47697	
45	3484.89	$748 \pm 18$	$31 \pm 5$	$14.0 \pm 0.1$	780			
46	3485.98	$329 \pm 19$	$24 \pm 4$	$13.5 \pm 0.1$	356			
47	3487.24	$366 \pm 27$	$40 \pm 10$	$13.4 \pm 0.1$	366			
48	3490.21	$445 \pm 23$	$16 \pm 4$	$13.4 \pm 0.1$	284			
49	3490.58	†	$17 \pm 5$	$13.2 \pm 0.1$	185			
50	3509.11	$170 \pm 20$	$30 \pm 10$	$13.08 \pm 0.05$	170			

Note: A detailed list of footnotes for this Table appear at the end of Table B.6.



Table B.6 *Continued.*

	$\lambda/\text{\AA}$	$W_{obs}/\text{m\AA}$	$b/\text{kms}^{-1}$	$\log N/\text{cm}^{-2}$	$W_{fit}$	Identification	$z_{abs}$	
51	3510.31	$956 \pm 19$	$12 \pm 3$	$13.2 \pm 0.1$	198	C IV 1548.202	1.26735	i
52	3510.90	†	$23 \pm 4$	$14.0 \pm 0.1$	652	C IV 1548.202	1.26773	
53	3514.67	$56 \pm 8$	$8 \pm 3$	$12.5 \pm 0.1$	48			u
54	3515.92	$1976 \pm 10$						sb
55	3517.30	$413 \pm 12$	$19 \pm 4$	$13.4 \pm 0.2$	272			u
56	3517.88	†	$20 \pm 4$	$13.6 \pm 0.1$	402			b
57	3519.38	$1350 \pm 15$	$45 \pm 5$	$14.3 \pm 0.1$	1338			
58	3520.72	$940 \pm 18$	$39 \pm 5$	$14.0 \pm 0.1$	909			
59	3522.86	$177 \pm 18$	$18 \pm 4$	$13.03 \pm 0.05$	177			
60	3526.00	$100 \pm 18$	$30 \pm 5$	$12.9 \pm 0.1$	109			
61	3527.05	$128 \pm 14$	$20 \pm 3$	$12.96 \pm 0.05$	128			
62	3531.60	$63 \pm 13$	$16 \pm 4$	$12.63 \pm 0.05$	63			
63	3533.54	$188 \pm 9$	$5 \pm 2$	$13.5 \pm 0.1$	159	Fe II 2600.1729	0.35896	
64	3534.01	$70 \pm 9$	$4 \pm 2$	$12.7 \pm 0.1$	56	Fe II 2600.1729	0.35914	
65	3534.19	$27 \pm 7$	$4 \pm 2$	$12.3 \pm 0.1$	27	Fe II 2600.1729	0.35921	
66	3535.39	$102 \pm 16$	$22 \pm 5$	$12.86 \pm 0.05$	105			u
67	3541.26	$86 \pm 15$	$14 \pm 5$	$12.78 \pm 0.05$	86			
68	3543.13	$1438 \pm 27$	$21 \pm 4$	$13.4 \pm 0.1$	297			u
69	3543.87	†						s
70	3545.23	†	$13 \pm 3$	$13.0 \pm 0.1$	131			u
71	3554.70	$163 \pm 22$	$28 \pm 7$	$13.06 \pm 0.05$	163			u
72	3560.50	$204 \pm 19$	$29 \pm 4$	$13.16 \pm 0.05$	204			u
73	3576.71	$75 \pm 10$	$6 \pm 2$	$12.78 \pm 0.05$	75	Si II 1260.4223	1.83771	
74	3577.41	$280 \pm 12$	$16 \pm 2$	$13.5 \pm 0.1$	320	Si II 1260.4223	1.83826	
75	3577.71	$728 \pm 7$	$6 \pm 2$	$13.1 \pm 0.1$	125	Si II 1260.4223	1.83850	
76	3577.91	†	$12 \pm 2$	$13.8 \pm 0.1$	378	Si II 1260.4223	1.83866	
77	3578.22	†	$7 \pm 2$	$13.8 \pm 0.1$	256	Si II 1260.4223	1.83891	
78	3578.59	$298 \pm 9$	$14 \pm 2$	$13.5 \pm 0.1$	304	Si II 1260.4223	1.83920	
79	3579.72	$211 \pm 17$	$24 \pm 5$	$13.20 \pm 0.05$	211			u
80	3581.75	$432 \pm 15$	$23 \pm 4$	$13.6 \pm 0.1$	432			
81	3599.60	$239 \pm 16$	$18 \pm 3$	$13.29 \pm 0.05$	239			
82	3602.53	$601 \pm 18$	$24 \pm 4$	$13.8 \pm 0.1$	601			u
83	3614.80	$1581 \pm 21$						s
84	3617.29	$481 \pm 25$	$60 \pm 10$	$13.56 \pm 0.05$	511			u
85	3618.55	$248 \pm 19$	$20 \pm 3$	$13.23 \pm 0.05$	224			
86	3637.90	$188 \pm 14$	$15 \pm 3$	$13.16 \pm 0.05$	187			
87	3652.42	$289 \pm 18$	$25 \pm 3$	$13.34 \pm 0.05$	289			
88	3653.76	$175 \pm 14$	$8 \pm 2$	$13.00 \pm 0.05$	120	Al II 1670.7867	1.18685	
89	3654.01	†	$7 \pm 2$	$12.48 \pm 0.05$	44	Al II 1670.7867	1.18700	
90	3654.62	$61 \pm 10$	$4 \pm 2$	$12.50 \pm 0.05$	51	Al II 1670.7867	1.18736	
91	3654.85	$61 \pm 10$	$5 \pm 2$	$12.56 \pm 0.05$	56	Al II 1670.7867	1.18750	
92	3660.63	$338 \pm 13$	$19 \pm 3$	$13.48 \pm 0.05$	338			u
93	3661.19	$285 \pm 14$	$19 \pm 3$	$13.34 \pm 0.05$	272			
94	3680.36	$174 \pm 11$	$5 \pm 2$	$12.7 \pm 0.1$	65	Al II 1670.7867	1.20277	
95	3680.54	†	$5 \pm 2$	$12.99 \pm 0.05$	104	Al II 1670.7867	1.20288	
96	3681.10	$59 \pm 9$	$7 \pm 2$	$12.61 \pm 0.05$	59	Al II 1670.7867	1.20321	
97	3689.13	$40 \pm 7$	$6 \pm 2$	$12.49 \pm 0.05$	44	Mg II 2796.352	0.31926	i
98	3689.48	$36 \pm 7$	$7 \pm 2$	$12.40 \pm 0.05$	37	Mg II 2796.352	0.31939	i
99	3696.26	$612 \pm 18$	$6 \pm 2$	$12.30 \pm 0.05$	30	O I 1302.1685	1.83854	
100	3696.51	†	$7 \pm 2$	$12.94 \pm 0.05$	105	O I 1302.1685	1.83874	

Table B.6 *Continued.*

	$\lambda/\text{\AA}$	$W_{obs}/\text{m\AA}$	$b/\text{kms}^{-1}$	$\log N/\text{cm}^{-2}$	$W_{fit}$	Identification	$z_{abs}$
101	3696.75	†	$6 \pm 2$	$13.24 \pm 0.05$	153	O I 1302.1685	1.83892
102	3697.10	†	$16 \pm 2$	$13.1 \pm 0.1$	171	O I 1302.1685	1.83918
103	3697.55	†	$14 \pm 2$	$12.5 \pm 0.1$	49	O I 1302.1685	1.83953
104	3699.84	$846 \pm 16$	$39 \pm 3$	$13.93 \pm 0.05$	846		
105	3702.16	$936 \pm 11$	$33 \pm 3$	$14.11 \pm 0.05$	942		b
106	3702.98	$146 \pm 7$	$7 \pm 2$	$13.04 \pm 0.05$	123	Si II 1304.3711	1.83890
107	3703.50	$273 \pm 11$	$20 \pm 3$	$13.36 \pm 0.05$	282		b
108	3706.90	$554 \pm 13$	$23 \pm 2$	$13.77 \pm 0.05$	554		
109	3717.02	$196 \pm 14$	$17 \pm 2$	$13.13 \pm 0.05$	184		
110	3732.49	$268 \pm 18$	$20 \pm 3$	$13.10 \pm 0.05$	171		
111	3732.95	†	$25 \pm 3$	$12.77 \pm 0.05$	91		u
112	3737.38	$659 \pm 14$	$24 \pm 3$	$13.34 \pm 0.05$	292		
113	3737.96	†	$33 \pm 3$	$13.53 \pm 0.05$	440		
114	3738.86	$607 \pm 10$	$23 \pm 4$	$13.80 \pm 0.05$	577		
115	3740.88	$1522 \pm 18$	$24 \pm 3$	$14.04 \pm 0.05$	753		
116	3741.66	†	$25 \pm 3$	$13.30 \pm 0.05$	274		
117	3742.39	†	$50 \pm 3$	$13.63 \pm 0.05$	580		
118	3746.59	$1495 \pm 13$	$28 \pm 3$	$13.5 \pm 0.1$	406		u
119	3747.34	†	$28 \pm 3$	$14.42 \pm 0.05$	1085		
120	3748.09	†	$15 \pm 3$	$12.9 \pm 0.1$	124		u
121	3751.04	$197 \pm 12$	$9 \pm 3$	$12.36 \pm 0.05$	37		
122	3751.29	†	$9 \pm 3$	$12.63 \pm 0.05$	64		
123	3751.59	†	$26 \pm 3$	$12.85 \pm 0.05$	111		
124	3752.34	$109 \pm 10$	$23 \pm 3$	$12.8 \pm 0.1$	106		
125	3753.47	$765 \pm 12$	$29 \pm 3$	$13.86 \pm 0.05$	704		
126	3753.99	†	$11 \pm 3$	$12.7 \pm 0.1$	75		
127	3759.49	$193 \pm 14$	$37 \pm 4$	$13.10 \pm 0.05$	193		u
128	3763.76	$113 \pm 13$	$47 \pm 8$	$12.93 \pm 0.05$	113		
129	3767.22	$44 \pm 8$	$11 \pm 5$	$12.43 \pm 0.05$	44		
130	3772.06	$96 \pm 10$	$25 \pm 5$	$12.7 \pm 0.1$	86		
131	3773.10	$1039 \pm 9$					s
132	3774.79	$114 \pm 10$	$21 \pm 4$	$12.88 \pm 0.05$	117		
133	3775.39	$56 \pm 9$	$21 \pm 6$	$12.53 \pm 0.05$	55		
134	3780.01	$127 \pm 17$	$56 \pm 10$	$12.89 \pm 0.05$	127		u
135	3792.66	$303 \pm 12$	$23 \pm 3$	$13.37 \pm 0.05$	309		
136	3796.26	$188 \pm 13$	$20 \pm 7$	$12.6 \pm 0.1$	64		u
137	3796.83	†	$35 \pm 7$	$12.9 \pm 0.1$	129		u
138	3799.75	$31 \pm 4$	$7 \pm 2$	$12.4 \pm 0.1$	39	Mg II 2796.352	0.35882
139	3800.15	$352 \pm 4$	$8 \pm 2$	$14.0 \pm 0.1$	330	Mg II 2796.352	0.35897
140	3800.42	$329 \pm 5$	$4 \pm 2$	$12.6 \pm 0.1$	52	Mg II 2796.352	0.35906
141	3800.63	†	$6 \pm 2$	$13.5 \pm 0.1$	199	Mg II 2796.352	0.35914
142	3800.83	†	$4 \pm 2$	$13.0 \pm 0.1$	96	Mg II 2796.352	0.35921
143	3801.17	$30 \pm 5$	$5 \pm 2$	$12.3 \pm 0.1$	30	Mg II 2796.352	0.35933
144	3802.47	$248 \pm 7$	$21 \pm 2$	$13.26 \pm 0.05$	248		
145	3804.22	$802 \pm 12$	$36 \pm 2$	$13.62 \pm 0.05$	532		
146	3805.08	†	$33 \pm 2$	$13.28 \pm 0.05$	279		
147	3809.51	$293 \pm 3$	$7 \pm 2$	$12.1 \pm 0.1$	20	Mg II 2803.531	0.35882
148	3809.90	†	$8 \pm 2$	$13.7 \pm 0.1$	280	Mg II 2803.531	0.35896
149	3810.17	$235 \pm 5$	$4 \pm 2$	$12.3 \pm 0.1$	30	Mg II 2803.531	0.35906
150	3810.38	†	$6 \pm 2$	$13.2 \pm 0.1$	149	Mg II 2803.531	0.35914

Table B.6 *Continued.*

	$\lambda/\text{\AA}$	$W_{obs}/\text{m\AA}$	$b/\text{kms}^{-1}$	$\log N/\text{cm}^{-2}$	$W_{fit}$	Identification	$z_{abs}$	
151	3810.60	†	$4 \pm 2$	$12.7 \pm 0.1$	62	Mg II 2803.531	0.35921	
152	3824.33	$65 \pm 7$	$10 \pm 2$	$12.30 \pm 0.05$	32			u
153	3824.59	†	$12 \pm 2$	$12.30 \pm 0.05$	32			u
154	3834.23	$522 \pm 9$	$10 \pm 2$	$12.6 \pm 0.1$	60	C IV 1548.202	1.47657	u
155	3834.47	†	$10 \pm 2$	$13.52 \pm 0.05$	278	C IV 1548.202	1.47673	
156	3834.79	†	$9 \pm 2$	$12.95 \pm 0.05$	117	C IV 1548.202	1.47693	
157	3835.28	†	$16 \pm 4$	$12.5 \pm 0.1$	52	C IV 1548.202	1.47725	i
158	3840.60	$302 \pm 8$	$10 \pm 2$	$12.3 \pm 0.1$	34	C IV 1550.774	1.47657	u
159	3840.84	†	$10 \pm 2$	$13.22 \pm 0.05$	190	C IV 1550.774	1.47672	
160	3841.16	†	$9 \pm 2$	$12.65 \pm 0.05$	66	C IV 1550.774	1.47693	

**Table B.7** Metal lines in Q1101–264.

	$\lambda/\text{\AA}$	$W_{obs}/\text{m\AA}$	$b/\text{kms}^{-1}$	$\log N/\text{cm}^{-2}$	$W_{fit}$	Identification	$z_{abs}$	
37	3461.71	$399 \pm 22$	$9 \pm 3$	$12.6 \pm 0.1$	130	Mg II 2796.352	0.23794	ib
38	3461.96	†	$11 \pm 3$	$12.8 \pm 0.1$	212	Mg II 2796.352	0.23803	ib
40	3470.71	$111 \pm 14$	$5 \pm 2$	$12.53 \pm 0.05$	65	Mg II 2803.531	0.23798	i
41	3470.89	†	$6 \pm 2$	$12.36 \pm 0.05$	49	Mg II 2803.531	0.23804	i
97	3689.13	$40 \pm 7$	$6 \pm 2$	$11.97 \pm 0.05$	44	Mg II 2796.352	0.31926	i
98	3689.48	$36 \pm 7$	$7 \pm 2$	$11.88 \pm 0.05$	37	Mg II 2796.352	0.31939	i
63	3533.54	$188 \pm 9$	$5 \pm 2$	$13.5 \pm 0.1$	159	Fe II 2600.1729	0.35896	
64	3534.01	$70 \pm 9$	$4 \pm 2$	$12.7 \pm 0.1$	56	Fe II 2600.1729	0.35914	
65	3534.19	$27 \pm 7$	$4 \pm 2$	$12.3 \pm 0.1$	27	Fe II 2600.1729	0.35921	
138	3799.75	$31 \pm 4$	$7 \pm 2$	$11.9 \pm 0.1$	39	Mg II 2796.352	0.35882	
139	3800.15	$352 \pm 4$	$8 \pm 2$	$13.5 \pm 0.1$	330	Mg II 2796.352	0.35897	
140	3800.42	$329 \pm 5$	$4 \pm 2$	$12.1 \pm 0.1$	52	Mg II 2796.352	0.35906	
141	3800.63	†	$6 \pm 2$	$13.0 \pm 0.1$	199	Mg II 2796.352	0.35914	
142	3800.83	†	$4 \pm 2$	$12.5 \pm 0.1$	96	Mg II 2796.352	0.35921	
143	3801.17	$30 \pm 5$	$5 \pm 2$	$11.8 \pm 0.1$	30	Mg II 2796.352	0.35933	i
147	3809.51	$293 \pm 3$	$7 \pm 2$	$11.9 \pm 0.1$	20	Mg II 2803.531	0.35882	
148	3809.90	†	$8 \pm 2$	$13.5 \pm 0.1$	280	Mg II 2803.531	0.35896	
149	3810.17	$235 \pm 5$	$4 \pm 2$	$12.1 \pm 0.1$	30	Mg II 2803.531	0.35906	
150	3810.38	†	$6 \pm 2$	$13.0 \pm 0.1$	149	Mg II 2803.531	0.35914	
151	3810.60	†	$4 \pm 2$	$12.5 \pm 0.1$	62	Mg II 2803.531	0.35921	
1	3390.13	$252 \pm 16$	$12 \pm 3$	$13.9 \pm 0.2$	245	C IV 1550.774	1.18609	i
2	3391.30	$849 \pm 35$	$73 \pm 25$	$14.5 \pm 0.2$	1095	C IV 1550.774	1.18684	
3	3392.43	$395 \pm 30$	$21 \pm 3$	$13.9 \pm 0.1$	272	C IV 1550.774	1.18757	
88	3653.76	$175 \pm 14$	$8 \pm 2$	$12.21 \pm 0.05$	120	Al II 1670.7867	1.18685	
89	3654.01	†	$7 \pm 2$	$11.69 \pm 0.05$	44	Al II 1670.7867	1.18700	
90	3654.62	$61 \pm 10$	$4 \pm 2$	$11.71 \pm 0.05$	51	Al II 1670.7867	1.18736	
91	3654.85	$61 \pm 10$	$5 \pm 2$	$11.77 \pm 0.05$	56	Al II 1670.7867	1.18750	

Table B.7 *Continued.*

	$\lambda/\text{\AA}$	$W_{obs}/\text{m\AA}$	$b/\text{km s}^{-1}$	$\log N/\text{cm}^{-2}$	$W_{fit}$	Identification	$z_{abs}$	
6	3409.32	$283 \pm 17$	$7 \pm 2$	$12.8 \pm 0.1$	53	C IV 1548.202	1.20212	
7	3409.57	†	$9 \pm 2$	$13.5 \pm 0.1$	208	C IV 1548.202	1.20228	
8	3409.77	†	$4 \pm 2$	$12.7 \pm 0.1$	40	C IV 1548.202	1.20240	
9	3410.06	$698 \pm 13$	$14 \pm 2$	$13.9 \pm 0.1$	364	C IV 1548.202	1.20259	
10	3410.35	†	$10 \pm 2$	$13.8 \pm 0.1$	272	C IV 1548.202	1.20278	
11	3410.56	†	$6 \pm 2$	$13.1 \pm 0.1$	88	C IV 1548.202	1.20292	
12	3410.83	$405 \pm 15$	$9 \pm 2$	$13.3 \pm 0.1$	137	C IV 1548.202	1.20309	
13	3411.07	†	$7 \pm 2$	$13.6 \pm 0.1$	182	C IV 1548.202	1.20324	
14	3411.25	†	$4 \pm 2$	$12.9 \pm 0.1$	56	C IV 1548.202	1.20336	
15	3411.47	$165 \pm 13$	$8 \pm 2$	$13.4 \pm 0.1$	153	C IV 1548.202	1.20350	
16	3414.99	$120 \pm 12$	$7 \pm 2$	$12.8 \pm 0.1$	28	C IV 1550.774	1.20212	
17	3415.24	†	$9 \pm 2$	$13.5 \pm 0.1$	116	C IV 1550.774	1.20228	
18	3415.44	†	$4 \pm 2$	$12.7 \pm 0.1$	22	C IV 1550.774	1.20241	
19	3415.73	$509 \pm 18$	$14 \pm 2$	$13.9 \pm 0.1$	252	C IV 1550.774	1.20260	
20	3416.01	†	$10 \pm 2$	$13.8 \pm 0.1$	192	C IV 1550.774	1.20278	
21	3416.23	†	$6 \pm 2$	$13.1 \pm 0.1$	51	C IV 1550.774	1.20292	
22	3416.49	$268 \pm 16$	$9 \pm 2$	$13.3 \pm 0.1$	81	C IV 1550.774	1.20309	
23	3416.73	†	$7 \pm 2$	$13.6 \pm 0.1$	126	C IV 1550.774	1.20324	
24	3416.90	†	$4 \pm 2$	$12.9 \pm 0.1$	33	C IV 1550.774	1.20335	
25	3417.13	$101 \pm 14$	$8 \pm 2$	$13.4 \pm 0.1$	95	C IV 1550.774	1.20350	
94	3680.36	$174 \pm 11$	$5 \pm 2$	$11.9 \pm 0.1$	65	Al II 1670.7867	1.20277	
95	3680.54	†	$5 \pm 2$	$12.20 \pm 0.05$	104	Al II 1670.7867	1.20288	
96	3681.10	$59 \pm 9$	$7 \pm 2$	$11.82 \pm 0.05$	59	Al II 1670.7867	1.20321	
<hr/>								
51	3510.31	$956 \pm 19$	$12 \pm 3$	$13.4 \pm 0.1$	198	C IV 1548.202	1.26735	i
52	3510.90	†	$23 \pm 4$	$14.2 \pm 0.1$	652	C IV 1548.202	1.26773	
<hr/>								
43	3474.25	$106 \pm 21$	$14 \pm 3$	$12.8 \pm 0.1$	70	Si IV 1402.770	1.47681	u
44	3474.62	†	$7 \pm 2$	$12.5 \pm 0.1$	28	Si IV 1402.770	1.47681	u
154	3834.23	$522 \pm 9$	$10 \pm 2$	$12.8 \pm 0.1$	60	C IV 1548.202	1.47657	u
155	3834.47	†	$10 \pm 2$	$13.75 \pm 0.05$	278	C IV 1548.202	1.47673	
156	3834.79	†	$9 \pm 2$	$13.18 \pm 0.05$	117	C IV 1548.202	1.47693	
157	3835.28	†	$16 \pm 4$	$12.7 \pm 0.1$	52	C IV 1548.202	1.47725	i
158	3840.60	$302 \pm 8$	$10 \pm 2$	$12.8 \pm 0.1$	34	C IV 1550.774	1.47657	u
159	3840.84	†	$10 \pm 2$	$13.75 \pm 0.05$	190	C IV 1550.774	1.47672	
160	3841.16	†	$9 \pm 2$	$13.18 \pm 0.05$	66	C IV 1550.774	1.47693	

Table B.7 *Continued.*

	$\lambda/\text{\AA}$	$W_{obs}/\text{m\AA}$	$b/\text{kms}^{-1}$	$\log N/\text{cm}^{-2}$	$W_{fit}$	Identification	$z_{abs}$	
5	3405.10	$71 \pm 11$	$5 \pm 2$	$13.28 \pm 0.05$	69	N I 1199.5496	1.83865	i
27	3423.61	$525 \pm 9$				Si III 1206.500	1.83764	sb
28	3424.17	$1512 \pm 9$				Si III 1206.500	1.83810	sb
29	3424.46	†				Si III 1206.500	1.83834	sb
30	3424.73	†				Si III 1206.500	1.83856	sb
31	3425.14	†				Si III 1206.500	1.83890	sb
32	3425.67	$298 \pm 12$	$9 \pm 2$	$13.2 \pm 0.1$	297	Si III 1206.500	1.83935	
33	3426.53	$56 \pm 14$	$7 \pm 2$	$12.03 \pm 0.05$	56	Si III 1206.500	1.84006	i
36	3450.75	*	*	*	*	H I 1215.6701	1.83856	s
73	3576.71	$75 \pm 10$	$6 \pm 2$	$12.40 \pm 0.05$	75	Si II 1260.4223	1.83771	
74	3577.41	$280 \pm 12$	$16 \pm 2$	$13.1 \pm 0.1$	320	Si II 1260.4223	1.83826	
75	3577.71	$728 \pm 7$	$6 \pm 2$	$12.7 \pm 0.1$	125	Si II 1260.4223	1.83850	
76	3577.91	†	$12 \pm 2$	$13.4 \pm 0.1$	378	Si II 1260.4223	1.83866	
77	3578.22	†	$7 \pm 2$	$13.4 \pm 0.1$	256	Si II 1260.4223	1.83891	
78	3578.59	$298 \pm 9$	$14 \pm 2$	$13.2 \pm 0.1$	304	Si II 1260.4223	1.83920	
99	3696.26	$612 \pm 18$	$6 \pm 2$	$13.20 \pm 0.05$	30	O I 1302.1685	1.83854	
100	3696.51	†	$7 \pm 2$	$13.84 \pm 0.05$	105	O I 1302.1685	1.83874	
101	3696.75	†	$6 \pm 2$	$14.14 \pm 0.05$	153	O I 1302.1685	1.83892	
102	3697.10	†	$16 \pm 2$	$14.0 \pm 0.1$	171	O I 1302.1685	1.83918	
103	3697.55	†	$14 \pm 2$	$13.4 \pm 0.1$	49	O I 1302.1685	1.83953	i
106	3702.98	$146 \pm 7$	$7 \pm 2$	$13.46 \pm 0.05$	123	Si II 1304.3711	1.83890	

### Footnotes to Tables B.6 and B.7

- Only lines detected at  $\geq 6\sigma$  are listed in the line parameter list.
- All lines without a listed identification are assumed to be due to H I 1215.
- All line parameters are measured *as if the line was due to H I 1215*; i.e.  $\log N$  values for other lines are not correct values for metal column density — for this the value of  $(\log(\lambda_H f_H) - \log(\lambda_{metal} f_{metal}))$  must be added.
- A dagger ( $\dagger$ ) in the  $W_{obs}$  column indicates that the observed equivalent width of this line is subsumed in the value for the line given directly above. The number above the dagger is the *total* observed equivalent width for both lines. This is done when lines are blended beyond a point where estimates of their individual equivalent widths cannot be made without fitting Voigt profiles.
- The letters in the last column of the table are defined as follows:
  - b** This metal line is blended, either with another identified metal line, or a stronger Lyman line.
  - i** This metal line identification is uncertain.
  - s** This line is saturated. Values for fitted  $b$  and  $\log N$  are not listed, since fitting saturated lines does not generate a unique solution.
  - u** The fitted  $b$  and  $\log N$  values of this line are uncertain, either because of low signal-to-noise or a strange line shape.

All lines annotated with letters b, i, or u, and some annotated with s, are listed below by line number with a more detailed description of the problem.

- 1** A narrow line, not seen in Al II  $\lambda 1670$ , which may be an extra component in the  $z_{abs} = 1.187$  system.
- 2** Noisy; may contain multiple components.
- 5** Possible identification in the  $z_{abs} = 1.838$  system. An accompanying line of N I  $\lambda 1200.2$  is not seen, but may be obscured by noise.
- 27–31** All these lines are heavily blended together.
- 33** A weak, narrow line which may be an extra component in the  $z_{abs} = 1.838$  system. No confirming lines are available for this possible component.
- 36** Damped Lyman  $\alpha$  line.
- 37, 38** Possible Mg II  $\lambda 2796$  lines blended with Si II  $\lambda 1526$  in the  $z_{abs} = 1.267$  system.
- 39** Asymmetrical profile; possibly multiple components.
- 40, 41** Possible Mg II  $\lambda 2803$  lines corresponding to the identification of lines 37 and 38 as Mg II  $\lambda 2796$ . See Section 5.3.2 for a full discussion.
- 51** Possible extra component in the  $z_{abs} = 1.267$  system.

- 53** Weak line blended in the wing of a strong line; fit uncertain.
- 54** Saturated line, blended with C IV  $\lambda 1550$  in the  $z_{\text{abs}} = 1.267$  system.
- 55** Heavily blended; fit uncertain.
- 56** Blended with Fe II  $\lambda 2586$  in the  $z_{\text{abs}} = 0.359$  system.
- 66** Unusual shape; may contain multiple components.
- 68** Heavily blended; fit uncertain.
- 70** Weak line, partially blended; fit tentative.
- 71, 72** Weak, noisy features; fits uncertain.
- 79** Noisy, unusual shape; may contain multiple components.
- 82** Near order edge; fit uncertain.
- 84** Broad, noisy feature; may contain multiple components.
- 92** Unusually shaped line near order edge; fit uncertain.
- 97, 98** Possible identification of a new redshift system. See Section 5.3.2 for a discussion.
- 103** Possible extra component in the  $z_{\text{abs}} = 1.838$  system.
- 105, 107** Lyman  $\alpha$  lines blended with Si II  $\lambda 1304$  in the  $z_{\text{abs}} = 1.838$  system.
- 111** Weak, broad feature blended in another line wing; fit uncertain.
- 118, 120** Heavily blended with a strong line; fit uncertain.
- 127** Asymmetric profile; may contain multiple components.
- 134** Broad, shallow, noisy feature; may contain multiple components.
- 136, 137** Possible two component deconvolution of asymmetrical profile.
- 143** Possible extra component in the  $z_{\text{abs}} = 0.359$  system.
- 152, 153** Possible two component deconvolution of asymmetrical profile.
- 154** Heavily blended; fit uncertain.
- 157** Possible extra component in the  $z_{\text{abs}} = 1.477$  system.
- 158** Heavily blended; fit uncertain.



**Table B.8** Absorption lines in Q2348–147.

	$\lambda/\text{\AA}$	$W_{obs}/\text{m\AA}$	$b/\text{kms}^{-1}$	$\log N/\text{cm}^{-2}$	$W_{fit}$	Identification	$z_{abs}$	
1	3736.28	$334 \pm 82$	$47 \pm 7$	$13.6 \pm 0.1$	495			u
2	3738.36	$1090 \pm 125$	$42 \pm 10$	$13.7 \pm 0.1$	729			
3	3739.52	†	$28 \pm 3$	$14.2 \pm 0.1$	375	H I 1025.7223	2.64574	
4	3741.27	$656 \pm 32$						s
5	3741.85	$185 \pm 38$	$8 \pm 2$	$13.3 \pm 0.1$	167			
6	3748.22	$286 \pm 56$	$10 \pm 2$	$13.8 \pm 0.1$	159	H I 1025.7223	2.65423	
7	3748.54	†	$10 \pm 2$	$14.0 \pm 0.1$	235	H I 1025.7223	2.65454	
8	3749.03	$526 \pm 45$	$19 \pm 3$	$14.8 \pm 0.1$	806	H I 1025.7223	2.65501	
9	3751.59	$305 \pm 75$	$22 \pm 3$	$13.3 \pm 0.1$	296			u
10	3753.89	$78 \pm 24$	$4 \pm 2$	$13.0 \pm 0.1$	101			u
11	3754.63	$127 \pm 31$	$10 \pm 2$	$13.1 \pm 0.1$	142	Fe II 1144.939	2.27933	
12	3758.95	$540 \pm 62$	$27 \pm 4$	$13.7 \pm 0.1$	566			
13	3761.93	$363 \pm 53$	$22 \pm 5$	$13.5 \pm 0.1$	413			
14	3763.61	$789 \pm 52$	$21 \pm 4$	$14.2 \pm 0.3$	788			
15	3764.64	$273 \pm 67$	$29 \pm 3$	$13.8 \pm 0.1$	185	H I 1025.7223	2.67024	
16	3764.84	†	$24 \pm 5$	$13.2 \pm 0.1$	279			u
17	3765.43	$381 \pm 59$	$22 \pm 2$	$14.3 \pm 0.1$	511	H I 1025.7223	2.67101	
18	3768.60	$597 \pm 67$	$28 \pm 4$	$13.8 \pm 0.1$	601			
19	3771.03	$92 \pm 23$	$6 \pm 2$	$12.9 \pm 0.1$	129			u
20	3772.00	$857 \pm 72$	$43 \pm 6$	$13.9 \pm 0.1$	1148			
21	3775.23	$230 \pm 76$	$45 \pm 6$	$13.2 \pm 0.1$	258			u
22	3777.98	$158 \pm 45$	$15 \pm 3$	$13.1 \pm 0.1$	168			
23	3778.73	$210 \pm 28$	$11 \pm 2$	$13.4 \pm 0.1$	244			
24	3780.80	$3406 \pm 44$				H I 1025.7223	2.68599	s
25	3784.33	$628 \pm 92$	$39 \pm 10$	$13.7 \pm 0.1$	613			
26	3794.06	$1272 \pm 64$	$46 \pm 10$	$14.3 \pm 0.3$	1389			
27	3795.90	$209 \pm 44$	$6 \pm 2$	$13.5 \pm 0.1$	260			
28	3796.26	$152 \pm 43$	$9 \pm 2$	$13.1 \pm 0.1$	204			
29	3799.05	$389 \pm 80$	$28 \pm 4$	$13.5 \pm 0.1$	405			
30	3800.25	$367 \pm 68$	$31 \pm 4$	$13.5 \pm 0.1$	440			
31	3802.85	$90 \pm 25$	$5 \pm 2$	$13.1 \pm 0.1$	117			u
32	3806.01	$192 \pm 68$	$25 \pm 4$	$13.8 \pm 0.1$	167	H I 1025.7223	2.71057	
33	3807.67	$570 \pm 75$	$25 \pm 2$	$14.45 \pm 0.05$	488	H I 1025.7223	2.71218	
34	3811.85	$103 \pm 25$	$4 \pm 2$	$13.2 \pm 0.1$	133			u
35	3820.46	$519 \pm 69$	$39 \pm 5$	$13.6 \pm 0.1$	559			
36	3822.70	$1492 \pm 58$				H I 1025.7223	2.72684	s
37	3823.89	$239 \pm 60$	$29 \pm 6$	$13.2 \pm 0.1$	193			
38	3825.06	$193 \pm 57$	$26 \pm 4$	$13.2 \pm 0.1$	217			
39	3829.87	$205 \pm 64$	$10 \pm 2$	$12.8 \pm 0.1$	105			
40	3830.46	†	$10 \pm 2$	$12.8 \pm 0.1$	116			
41	3831.76	$163 \pm 51$	$21 \pm 2$	$13.8 \pm 0.1$	189	H I 1025.7223	2.73567	
42	3832.75	$606 \pm 49$	$30 \pm 4$	$13.8 \pm 0.1$	634			
43	3841.47	$291 \pm 56$	$23 \pm 4$	$13.1 \pm 0.1$	312			
44	3843.83	$510 \pm 42$	$23 \pm 3$	$13.8 \pm 0.1$	698			u
45	3844.92	$536 \pm 68$	$38 \pm 7$	$13.6 \pm 0.1$	680			
46	3846.60	$1045 \pm 64$	$53 \pm 6$	$14.0 \pm 0.1$	1450			
47	3850.02	$869 \pm 79$	$57 \pm 8$	$13.9 \pm 0.1$	977			u
48	3859.14	$264 \pm 82$	$38 \pm 5$	$13.2 \pm 0.1$	264			u
49	3861.27	$464 \pm 67$	$19 \pm 3$	$13.6 \pm 0.1$	384			
50	3862.16	$125 \pm 41$	$9 \pm 2$	$13.0 \pm 0.1$	126			

Note: A detailed list of footnotes for this Table appear at the end of Table B.8.

Table B.8 *Continued.*

	$\lambda/\text{\AA}$	$W_{obs}/\text{m\AA}$	$b/\text{kms}^{-1}$	$\log N/\text{cm}^{-2}$	$W_{fit}$	Identification	$z_{abs}$	
51	3863.06	$325 \pm 84$	$46 \pm 7$	$13.4 \pm 0.1$	355			u
52	3865.97	$309 \pm 58$	$31 \pm 5$	$13.4 \pm 0.1$	440			u
53	3867.63	$1093 \pm 103$	$92 \pm 12$	$14.0 \pm 0.1$	1551			u
54	3870.72	$688 \pm 50$	$40 \pm 5$	$14.7 \pm 0.1$	1011	H I 1025.7223	2.77365	
55	3872.26	$1925 \pm 45$	$51 \pm 5$	$15.3 \pm 0.1$	2351	H I 1025.7223	2.77516	
56	3873.54	$183 \pm 33$	$8 \pm 2$	$13.2 \pm 0.1$	150			
57	3874.85	$344 \pm 65$	$39 \pm 5$	$14.4 \pm 0.1$	651	H I 1025.7223	2.77768	
58	3876.62	$335 \pm 59$	$32 \pm 4$	$14.1 \pm 0.1$	388	H I 1025.7223	2.77940	
59	3878.15	$689 \pm 70$	$35 \pm 3$	$14.5 \pm 0.1$	769	H I 1025.7223	2.78090	
60	3884.19	$536 \pm 85$	$57 \pm 8$	$13.5 \pm 0.1$	515			u
61	3887.89	$447 \pm 55$	$30 \pm 2$	$14.2 \pm 0.1$	432	H I 1025.7223	2.79039	
62	3888.77	$268 \pm 51$	$23 \pm 3$	$12.4 \pm 0.1$	318			
63	3891.35	$276 \pm 50$	$14 \pm 3$	$13.0 \pm 0.1$	147			u
64	3893.59	$136 \pm 44$	$19 \pm 3$	$13.0 \pm 0.1$	164			
65	3894.35	$276 \pm 50$	$31 \pm 5$	$13.4 \pm 0.1$	362			
66	3895.67	$178 \pm 45$	$16 \pm 3$	$13.1 \pm 0.1$	171			
67	3896.39	$276 \pm 50$	$31 \pm 4$	$14.2 \pm 0.1$	446	H I 1025.7223	2.79868	
68	3900.31	$599 \pm 53$	$27 \pm 4$	$13.7 \pm 0.1$	596			
69	3901.14	$149 \pm 45$	$23 \pm 3$	$13.8 \pm 0.1$	151	H I 1025.7223	2.80331	
70	3902.52	$427 \pm 49$	$18 \pm 4$	$13.4 \pm 0.1$	340	Si II 1190.4160	2.27828	
71	3903.78	$459 \pm 41$				Si II 1190.4160	2.27934	s
72	3906.84	$144 \pm 44$	$15 \pm 3$	$13.0 \pm 0.1$	149			u
73	3910.37	$166 \pm 69$	$38 \pm 4$	$13.70 \pm 0.05$	133	H I 1025.7223	2.81231	
74	3911.98	$370 \pm 33$				Si II 1193.2898	2.27831	s
75	3913.23	$429 \pm 32$				Si II 1193.2898	2.27936	s
76	3917.38	$3848 \pm 33$	$74 \pm 4$	$16.0 \pm 0.2$	4287	H I 1025.7223	2.81914	
77	3919.16	†	$11 \pm 3$	$13.9 \pm 0.3$	511			u
78	3924.11	$1455 \pm 71$	$39 \pm 4$	$14.4 \pm 0.2$	1434			
79	3927.23	$239 \pm 53$	$16 \pm 3$	$13.3 \pm 0.1$	136			u
80	3929.55	$169 \pm 37$	$6 \pm 2$	$13.4 \pm 0.1$	184	Si IV 1393.755	1.81940	
81	3930.29	$464 \pm 51$	$19 \pm 3$	$13.7 \pm 0.1$	482	Si IV 1393.755	1.81993	u
82	3932.71	$260 \pm 52$	$15 \pm 3$	$13.3 \pm 0.1$	254			
83	3933.17	$159 \pm 36$	$9 \pm 2$	$13.2 \pm 0.1$	171			
84	3933.69	$168 \pm 44$	$10 \pm 2$	$13.1 \pm 0.1$	168			
85	3934.69	$156 \pm 39$	$14 \pm 2$	$13.1 \pm 0.1$	161			
86	3939.77	$896 \pm 104$	$93 \pm 10$	$13.9 \pm 0.1$	1062			u
87	3941.64	$203 \pm 61$	$28 \pm 9$	$12.8 \pm 0.1$	94			u
88	3942.15	$239 \pm 43$	$10 \pm 2$	$13.2 \pm 0.1$	196			
89	3942.75	$376 \pm 47$	$32 \pm 4$	$14.30 \pm 0.05$	482	H I 1025.7223	2.84388	
90	3945.52	$310 \pm 50$	$28 \pm 5$	$13.4 \pm 0.1$	353			
91	3947.49	$586 \pm 85$	$21 \pm 3$	$13.8 \pm 0.1$	142	H I 1025.7223	2.84850	
92	3948.28	†	$33 \pm 4$	$14.12 \pm 0.05$	319	H I 1025.7223	2.84927	
93	3951.23	$871 \pm 61$	$28 \pm 3$	$14.0 \pm 0.1$	833			
94	3953.91	$705 \pm 52$	$26 \pm 3$	$13.9 \pm 0.1$	728			
95	3955.38	$820 \pm 39$	$26 \pm 4$	$14.1 \pm 0.2$	876	Si III 1206.500	2.27839	b
96	3956.70	$1007 \pm 46$	$22 \pm 2$	$14.9 \pm 0.1$	771	H I 1025.7223	2.85748	
97	3957.16	†	$9 \pm 2$	$13.5 \pm 0.1$	165			u
98	3960.12	$189 \pm 58$	$26 \pm 4$	$13.1 \pm 0.1$	203			u
99	3961.05	$150 \pm 45$	$14 \pm 3$	$13.0 \pm 0.1$	160			
100	3961.82	$193 \pm 51$	$19 \pm 3$	$13.2 \pm 0.1$	207			

Table B.8 *Continued.*

	$\lambda/\text{\AA}$	$W_{obs}/\text{m\AA}$	$b/\text{km s}^{-1}$	$\log N/\text{cm}^{-2}$	$W_{fit}$	Identification	$z_{abs}$	
101	3962.65	$307 \pm 51$	$29 \pm 5$	$13.5 \pm 0.1$	439			u
102	3963.48	$126 \pm 30$	$15 \pm 3$	$13.3 \pm 0.1$	256			u
103	3965.05	$314 \pm 60$	$25 \pm 4$	$13.5 \pm 0.1$	398			
104	3967.08	$212 \pm 47$	$16 \pm 3$	$13.3 \pm 0.1$	297			
105	3985.00	*	*	*	*	HI 1215.6701	2.27803	s
106	4000.09	$205 \pm 61$	$15 \pm 3$	$13.3 \pm 0.1$	223			
107	4005.15	$134 \pm 44$	$25 \pm 4$	$12.9 \pm 0.1$	136			u
108	4008.97	$480 \pm 44$	$34 \pm 4$	$13.6 \pm 0.1$	487			
109	4012.03	$677 \pm 34$	$26 \pm 3$	$13.83 \pm 0.05$	668			
110	4014.07	$188 \pm 34$	$27 \pm 4$	$13.1 \pm 0.1$	208			
111	4018.83	$100 \pm 33$	$31 \pm 4$	$13.8 \pm 0.1$	104			u
112	4022.99	$230 \pm 25$	$15 \pm 2$	$13.2 \pm 0.1$	238			
113	4025.40	$408 \pm 24$	$19 \pm 2$	$13.57 \pm 0.05$	413			
114	4025.98	$102 \pm 18$	$8 \pm 2$	$12.9 \pm 0.1$	103			
115	4026.58	$180 \pm 25$	$21 \pm 3$	$13.1 \pm 0.1$	187			u
116	4027.25	$315 \pm 27$	$22 \pm 2$	$13.4 \pm 0.1$	315			
117	4029.51	$82 \pm 21$	$11 \pm 2$	$12.7 \pm 0.1$	83			
118	4035.05	$704 \pm 28$	$13 \pm 2$	$13.4 \pm 0.1$	289			u
119	4035.49	†	$21 \pm 2$	$13.6 \pm 0.1$	450			
120	4036.69	$94 \pm 26$	$10 \pm 2$	$12.7 \pm 0.1$	90			u
121	4038.48	$130 \pm 36$	$29 \pm 4$	$12.8 \pm 0.1$	121			
122	4039.88	$1661 \pm 34$	$16 \pm 4$	$13.1 \pm 0.1$	182			u
123	4040.90	†	$35 \pm 5$	$14.6 \pm 0.2$	1535			
124	4045.21	$132 \pm 20$	$11 \pm 2$	$13.0 \pm 0.1$	129			
125	4047.58	$334 \pm 21$	$15 \pm 2$	$13.4 \pm 0.1$	312			
126	4048.20	$118 \pm 24$	$24 \pm 4$	$12.9 \pm 0.1$	133			u
127	4049.59	$1515 \pm 25$	$35 \pm 5$	$14.6 \pm 0.3$	1479			
128	4057.28	$535 \pm 28$	$17 \pm 2$	$13.2 \pm 0.1$	242			
129	4057.77	†	$21 \pm 3$	$13.4 \pm 0.1$	335			
130	4058.57	$94 \pm 25$	$15 \pm 2$	$12.8 \pm 0.1$	93			
131	4059.78	$306 \pm 31$	$19 \pm 2$	$13.4 \pm 0.1$	304			
132	4061.28	$1226 \pm 39$	$41 \pm 4$	$14.1 \pm 0.1$	1186	N v 1238.8210	2.27834	b
133	4062.64	$438 \pm 29$	$22 \pm 2$	$13.6 \pm 0.1$	426			
134	4063.27	$103 \pm 23$	$9 \pm 2$	$12.8 \pm 0.1$	90	N v 1238.8210	2.27995	i
135	4064.47	$426 \pm 25$	$16 \pm 2$	$13.6 \pm 0.1$	393			
136	4065.05	$133 \pm 31$	$25 \pm 4$	$13.1 \pm 0.1$	208			
137	4074.29	$311 \pm 17$	$17 \pm 3$	$13.5 \pm 0.1$	360	N v 1242.804	2.27831	b
138	4074.82	$113 \pm 19$	$9 \pm 2$	$12.8 \pm 0.1$	102	N v 1242.804	2.27873	
139	4076.35	$208 \pm 27$	$20 \pm 3$	$13.2 \pm 0.1$	208	N v 1242.804	2.27996	i
140	4077.47	$432 \pm 32$	$30 \pm 3$	$13.5 \pm 0.1$	417			
141	4078.96	$653 \pm 39$	$44 \pm 4$	$13.7 \pm 0.1$	648			u
142	4083.12	$151 \pm 25$	$22 \pm 3$	$13.0 \pm 0.1$	160			
143	4085.01	$35 \pm 11$	$6 \pm 2$	$12.4 \pm 0.1$	40			u
144	4085.85	$331 \pm 31$	$33 \pm 3$	$13.3 \pm 0.1$	332			
145	4086.85	$181 \pm 25$	$22 \pm 3$	$13.1 \pm 0.1$	185			
146	4091.28	$77 \pm 24$	$27 \pm 3$	$12.7 \pm 0.1$	84			u
147	4092.35	$102 \pm 32$	$36 \pm 5$	$12.8 \pm 0.1$	106			u
148	4095.08	$151 \pm 26$	$22 \pm 3$	$13.0 \pm 0.1$	162			
149	4096.04	$414 \pm 30$	$25 \pm 3$	$13.47 \pm 0.05$	387			
150	4097.69	$481 \pm 23$	$28 \pm 3$	$13.6 \pm 0.1$	531			

Table B.8 *Continued.*

	$\lambda/\text{\AA}$	$W_{obs}/\text{m\AA}$	$b/\text{kms}^{-1}$	$\log N/\text{cm}^{-2}$	$W_{fit}$	Identification	$z_{abs}$
151	4098.69	$1058 \pm 17$	$24 \pm 4$	$14.4 \pm 0.2$	997		
152	4104.17	$920 \pm 20$					s
153	4106.02	$1452 \pm 30$					s
154	4110.77	$682 \pm 27$	$23 \pm 3$	$13.9 \pm 0.1$	669		
155	4112.36	$703 \pm 31$	$26 \pm 3$	$13.78 \pm 0.05$	655		
156	4117.77	$1575 \pm 25$					s
157	4119.46	$265 \pm 30$	$28 \pm 3$	$13.2 \pm 0.1$	266		u
158	4120.52	$273 \pm 32$	$25 \pm 3$	$13.2 \pm 0.1$	257		
159	4122.60	$64 \pm 21$	$14 \pm 2$	$12.6 \pm 0.1$	72		u
160	4123.53	$72 \pm 21$	$13 \pm 2$	$12.6 \pm 0.1$	58		u
161	4124.47	$789 \pm 27$	$33 \pm 3$	$13.9 \pm 0.1$	779		
162	4125.87	$1087 \pm 30$	$41 \pm 4$	$14.0 \pm 0.1$	1060		
163	4127.31	$78 \pm 25$	$23 \pm 3$	$12.7 \pm 0.1$	88		u
164	4130.38	$54 \pm 18$	$10 \pm 2$	$12.6 \pm 0.1$	61	Si II 1259.519	2.27933
165	4132.05	$355 \pm 17$	$11 \pm 2$	$13.7 \pm 0.1$	380	Si II 1260.4223	2.27831
166	4133.40	$550 \pm 19$	$10 \pm 3$	$14.7 \pm 0.8$	556	Si II 1260.4223	2.27938
167	4134.47	$964 \pm 44$	$15 \pm 5$	$13.2 \pm 0.1$	234		u
168	4135.04	†	$21 \pm 3$	$13.8 \pm 0.1$	612		
169	4136.38	$425 \pm 41$	$26 \pm 3$	$13.5 \pm 0.1$	409		
170	4141.19	$400 \pm 59$	$25 \pm 3$	$13.5 \pm 0.1$	431		
171	4142.83	$183 \pm 40$	$11 \pm 3$	$13.2 \pm 0.1$	193		
172	4149.67	$91 \pm 28$	$12 \pm 2$	$12.7 \pm 0.1$	96		
173	4150.85	$237 \pm 31$	$27 \pm 4$	$13.2 \pm 0.1$	253		u
174	4155.87	$881 \pm 37$	$25 \pm 3$	$13.9 \pm 0.1$	774		
175	4157.04	$146 \pm 27$	$20 \pm 3$	$13.0 \pm 0.1$	152		
176	4165.37	$78 \pm 22$	$8 \pm 2$	$12.6 \pm 0.1$	65		u
177	4166.17	$302 \pm 30$	$29 \pm 4$	$13.3 \pm 0.1$	314		
178	4171.60	$1964 \pm 21$					s
179	4175.28	$2389 \pm 21$					s
180	4185.95	$1076 \pm 23$					s
181	4187.85	$1022 \pm 35$	$45 \pm 5$	$13.9 \pm 0.1$	934		
182	4190.17	$1248 \pm 29$	$44 \pm 6$	$14.1 \pm 0.1$	1232		
183	4194.71	$67 \pm 20$	$13 \pm 3$	$12.6 \pm 0.1$	75		u
184	4195.38	$84 \pm 24$	$19 \pm 3$	$12.7 \pm 0.1$	89		u
185	4199.00	$530 \pm 37$	$42 \pm 6$	$13.57 \pm 0.05$	558		
186	4200.52	$78 \pm 17$	$7 \pm 2$	$12.5 \pm 0.1$	50		
187	4201.32	$795 \pm 17$	$28 \pm 3$	$14.0 \pm 0.1$	809		
188	4202.16	$640 \pm 20$	$26 \pm 3$	$13.8 \pm 0.1$	677		
189	4205.19	$80 \pm 25$	$10 \pm 2$	$12.7 \pm 0.1$	71		
190	4207.45	$1121 \pm 27$	$32 \pm 3$	$13.7 \pm 0.2$	1184		
191	4211.35	$712 \pm 35$	$24 \pm 2$	$13.9 \pm 0.1$	722		
192	4213.03	$226 \pm 49$	$37 \pm 6$	$13.2 \pm 0.1$	225		u
193	4214.31	$138 \pm 42$	$43 \pm 6$	$13.1 \pm 0.1$	220		u
194	4219.59	$1258 \pm 33$					s
195	4221.26	$622 \pm 41$					s
196	4223.04	$644 \pm 64$	$25 \pm 5$	$13.8 \pm 0.1$	656		
197	4228.57	$193 \pm 31$	$20 \pm 3$	$13.1 \pm 0.1$	193		
198	4230.06	$86 \pm 28$	$22 \pm 4$	$12.7 \pm 0.1$	98		u
199	4234.54	$97 \pm 31$	$24 \pm 4$	$12.8 \pm 0.1$	106		u
200	4236.15	$103 \pm 25$	$16 \pm 3$	$12.8 \pm 0.1$	102		

Table B.8 *Continued.*

	$\lambda/\text{\AA}$	$W_{obs}/\text{m\AA}$	$b/\text{km s}^{-1}$	$\log N/\text{cm}^{-2}$	$W_{fit}$	Identification	$z_{abs}$
201	4239.99	$203 \pm 30$	$22 \pm 3$	$13.1 \pm 0.1$	210		
202	4240.84	$111 \pm 29$	$27 \pm 4$	$12.9 \pm 0.1$	153		
203	4243.73	$1050 \pm 40$	$56 \pm 8$	$13.9 \pm 0.1$	1091		u
204	4248.05	$306 \pm 30$	$24 \pm 3$	$13.3 \pm 0.1$	314		
205	4252.09	$636 \pm 21$	$22 \pm 3$	$13.8 \pm 0.1$	560		
206	4252.95	$813 \pm 14$	$22 \pm 3$	$14.1 \pm 0.1$	754		u
207	4253.90	$692 \pm 19$	$32 \pm 4$	$13.9 \pm 0.1$	794		
208	4254.94	$236 \pm 28$	$23 \pm 4$	$13.1 \pm 0.1$	206		
209	4255.51	$82 \pm 20$	$9 \pm 2$	$12.6 \pm 0.1$	67		u
210	4256.51	$100 \pm 23$	$15 \pm 2$	$12.8 \pm 0.1$	110		
211	4257.76	$415 \pm 33$	$19 \pm 3$	$13.3 \pm 0.1$	295		
212	4259.78	$1947 \pm 35$	$58 \pm 3$	$14.38 \pm 0.05$	1791		
213	4262.50	$168 \pm 34$	$28 \pm 3$	$12.9 \pm 0.1$	155		u
214	4264.22	$587 \pm 22$	$26 \pm 3$	$13.8 \pm 0.1$	617		
215	4265.12	$1029 \pm 12$					s
216	4266.09	$389 \pm 25$	$27 \pm 3$	$13.5 \pm 0.1$	418		
217	4268.55	$68 \pm 21$	$20 \pm 3$	$12.7 \pm 0.1$	86		u
218	4270.25	$488 \pm 17$				O I 1302.1685	2.27934
219	4272.10	$139 \pm 34$	$33 \pm 4$	$13.0 \pm 0.1$	169		u
220	4275.99	$55 \pm 15$	$7 \pm 2$	$12.5 \pm 0.1$	50	Si II 1304.3711	2.27820
221	4276.25	$74 \pm 14$	$6 \pm 2$	$12.7 \pm 0.1$	78	Si II 1304.3711	2.27840
222	4277.50	$367 \pm 23$	$10 \pm 2$	$13.6 \pm 0.1$	355	Si II 1304.3711	2.27936
223	4282.21	$1664 \pm 28$	$38 \pm 4$	$14.6 \pm 0.1$	1736		
224	4285.31	$397 \pm 30$	$24 \pm 4$	$13.4 \pm 0.1$	341		u
225	4286.03	$475 \pm 27$	$24 \pm 4$	$13.5 \pm 0.1$	404		u
226	4290.00	$6067 \pm 28$				H I 1215.6701	2.52892
227	4293.56	$607 \pm 19$	$16 \pm 3$	$13.8 \pm 0.1$	514		u
228	4294.41	$1340 \pm 35$					s
229	4295.19	†	$16 \pm 3$	$13.2 \pm 0.1$	205		u
230	4296.83	$125 \pm 40$	$10 \pm 2$	$12.9 \pm 0.1$	125		u
231	4299.53	$468 \pm 69$	$6 \pm 2$	$13.1 \pm 0.1$	137		u
232	4300.06	†	$7 \pm 2$	$13.3 \pm 0.1$	189		u
233	4303.58	$281 \pm 62$	$25 \pm 4$	$13.3 \pm 0.1$	323		
234	4310.83	$870 \pm 20$	$23 \pm 2$	$13.74 \pm 0.05$	566		
235	4311.47	†	$11 \pm 2$	$12.7 \pm 0.1$	85		u
236	4313.33	$315 \pm 28$	$21 \pm 3$	$13.4 \pm 0.1$	330		
237	4315.44	$141 \pm 32$	$33 \pm 6$	$13.0 \pm 0.1$	173		
238	4317.74	$88 \pm 29$	$21 \pm 5$	$12.7 \pm 0.1$	95		u
239	4321.51	$188 \pm 34$	$27 \pm 3$	$13.1 \pm 0.1$	195		
240	4323.86	$383 \pm 27$	$26 \pm 3$	$13.4 \pm 0.1$	377		
241	4327.37	$456 \pm 25$	$22 \pm 3$	$13.5 \pm 0.1$	306		
242	4328.11	$386 \pm 26$	$23 \pm 3$	$13.4 \pm 0.1$	358		
243	4338.28	$109 \pm 16$	$8 \pm 2$	$12.9 \pm 0.1$	103		
244	4338.52	$92 \pm 15$	$5 \pm 2$	$12.7 \pm 0.1$	69		
245	4338.80	$72 \pm 20$	$11 \pm 2$	$12.6 \pm 0.1$	62		u
246	4345.53	$422 \pm 26$	$21 \pm 3$	$13.5 \pm 0.1$	408		
247	4346.69	$412 \pm 35$	$41 \pm 4$	$13.4 \pm 0.1$	391		u
248	4347.92	$910 \pm 27$	$32 \pm 3$	$13.9 \pm 0.1$	819		
249	4348.85	$110 \pm 24$	$18 \pm 5$	$12.6 \pm 0.1$	71		u
250	4351.61	$654 \pm 22$	$23 \pm 2$	$13.8 \pm 0.1$	698		

Table B.8 *Continued.*

	$\lambda/\text{\AA}$	$W_{obs}/\text{m\AA}$	$b/\text{kms}^{-1}$	$\log N/\text{cm}^{-2}$	$W_{fit}$	Identification	$z_{abs}$
251	4357.95	$181 \pm 30$	$22 \pm 3$	$13.0 \pm 0.1$	168		
252	4358.60	$76 \pm 20$	$9 \pm 2$	$12.6 \pm 0.1$	67		
253	4359.96	$97 \pm 26$	$26 \pm 4$	$12.9 \pm 0.1$	140		
254	4364.45	$120 \pm 18$	$12 \pm 2$	$13.0 \pm 0.1$	152	C IV 1548.202	1.81904
255	4364.98	$313 \pm 18$	$11 \pm 2$	$13.5 \pm 0.1$	286	C IV 1548.202	1.81939
256	4365.88	$930 \pm 20$				C IV 1548.202	1.81997
257	4371.55	$428 \pm 37$	$23 \pm 4$	$13.4 \pm 0.1$	368	C IV 1550.774	1.81895
258	4372.29	$466 \pm 27$	$11 \pm 2$	$13.5 \pm 0.1$	286	C IV 1550.774	1.81942
259	4373.12	$804 \pm 26$	$21 \pm 3$	$14.0 \pm 0.1$	722	C IV 1550.774	1.81996
260	4373.90	$102 \pm 23$	$10 \pm 2$	$12.8 \pm 0.1$	96		u
261	4374.47	$893 \pm 40$	$19 \pm 3$	$13.4 \pm 0.1$	325	C II 1334.5323	2.27790
262	4374.99	†	$11 \pm 2$	$14.2 \pm 0.3$	487	C II 1334.5323	2.27830
263	4375.86	$70 \pm 21$	$5 \pm 2$	$12.7 \pm 0.1$	67		u
264	4376.44	$566 \pm 27$				C II 1334.5323	2.27938
265	4392.62	$90 \pm 28$	$8 \pm 2$	$12.7 \pm 0.1$	88		
266	4395.61	$284 \pm 46$	$38 \pm 4$	$13.2 \pm 0.1$	315		
267	4398.46	$192 \pm 33$	$18 \pm 3$	$13.1 \pm 0.1$	203		
268	4403.56	$685 \pm 55$	$50 \pm 5$	$13.65 \pm 0.05$	716		
269	4405.95	$420 \pm 42$	$32 \pm 4$	$13.43 \pm 0.05$	440		
270	4409.75	$353 \pm 48$	$29 \pm 4$	$13.2 \pm 0.1$	306		
271	4411.81	$1030 \pm 32$	$28 \pm 2$	$14.1 \pm 0.1$	1050		
272	4413.86	$691 \pm 28$	$23 \pm 2$	$13.8 \pm 0.1$	679		
273	4415.61	$1154 \pm 39$	$39 \pm 4$	$14.03 \pm 0.05$	1158		
274	4430.82	$277 \pm 37$	$29 \pm 3$	$13.3 \pm 0.1$	286		
275	4432.02	$1208 \pm 33$	$28 \pm 3$	$14.2 \pm 0.1$	1016	H I 1215.6701	2.64574
276	4433.41	$119 \pm 31$	$18 \pm 3$	$12.8 \pm 0.1$	119		u
277	4441.36	$683 \pm 34$	$30 \pm 3$	$13.8 \pm 0.1$	707		
278	4442.33	$1785 \pm 25$	$10 \pm 2$	$13.8 \pm 0.1$	358	H I 1215.6701	2.65423
279	4442.71	†	$10 \pm 2$	$14.0 \pm 0.1$	412	H I 1215.6701	2.65453
280	4443.29	†	$19 \pm 3$	$14.8 \pm 0.1$	961	H I 1215.6701	2.65501
281	4445.93	$207 \pm 40$	$27 \pm 4$	$13.1 \pm 0.1$	215		
282	4446.79	$138 \pm 20$	$7 \pm 2$	$13.0 \pm 0.1$	146		
283	4453.36	$414 \pm 38$	$20 \pm 3$	$13.4 \pm 0.1$	388		
284	4454.50	$247 \pm 36$	$6 \pm 2$	$12.8 \pm 0.1$	83		u
285	4454.83	†	$8 \pm 2$	$12.9 \pm 0.1$	103		u
286	4461.80	$604 \pm 35$	$29 \pm 3$	$13.8 \pm 0.1$	645	H I 1215.6701	2.67024
287	4462.73	$1054 \pm 30$	$22 \pm 2$	$14.3 \pm 0.1$	901	H I 1215.6701	2.67101
288	4463.95	$385 \pm 36$	$24 \pm 5$	$13.5 \pm 0.1$	436		
289	4466.57	$151 \pm 49$	$14 \pm 2$	$13.0 \pm 0.1$	130		u
290	4480.95	$3228 \pm 0$				H I 1215.6701	2.68599
291	4488.26	$64 \pm 20$	$8 \pm 2$	$12.6 \pm 0.1$	69		u
292	4488.88	$141 \pm 37$	$20 \pm 4$	$12.8 \pm 0.1$	144		u
293	4490.98	$182 \pm 40$	$32 \pm 4$	$13.0 \pm 0.1$	199		u
294	4493.45	$313 \pm 41$	$23 \pm 5$	$13.3 \pm 0.1$	305		
295	4495.00	$93 \pm 27$	$15 \pm 3$	$12.8 \pm 0.1$	105		u
296	4495.92	$245 \pm 40$	$27 \pm 4$	$13.2 \pm 0.1$	241		
297	4499.13	$359 \pm 44$	$32 \pm 4$	$13.3 \pm 0.1$	392		
298	4510.82	$741 \pm 36$	$25 \pm 4$	$13.8 \pm 0.1$	750	H I 1215.6701	2.71056
299	4512.79	$1254 \pm 32$	$25 \pm 2$	$14.45 \pm 0.05$	1055	H I 1215.6701	2.71218
300	4514.91	$945 \pm 51$	$73 \pm 8$	$13.8 \pm 0.1$	950		u

Table B.8 *Continued.*

	$\lambda/\text{\AA}$	$W_{obs}/\text{m\AA}$	$b/\text{kms}^{-1}$	$\log N/\text{cm}^{-2}$	$W_{fit}$	Identification	$z_{abs}$	
301	4516.93	$159 \pm 39$	$26 \pm 5$	$12.8 \pm 0.1$	97			
302	4523.85	$119 \pm 31$	$18 \pm 4$	$12.8 \pm 0.1$	138			u
303	4525.46	$328 \pm 21$	$8 \pm 2$	$13.7 \pm 0.1$	341	C IV 1548.202	1.92304	
304	4528.73	$113 \pm 29$	$8 \pm 2$	$12.7 \pm 0.1$	75			u
305	4530.61	$2442 \pm 37$				H I 1215.6701	2.72684	s
306	4532.43	$170 \pm 15$	$34 \pm 5$	$13.6 \pm 0.1$	526			u
307	4532.97	$322 \pm 20$	$8 \pm 2$	$13.4 \pm 0.1$	218	C IV 1550.774	1.92304	
308	4541.34	$781 \pm 37$	$21 \pm 2$	$13.8 \pm 0.1$	744	H I 1215.6701	2.73567	
309	4542.93	$91 \pm 30$	$13 \pm 3$	$12.7 \pm 0.1$	87			u
310	4545.19	$86 \pm 28$	$14 \pm 2$	$12.7 \pm 0.1$	87			
311	4547.70	$268 \pm 42$	$29 \pm 5$	$13.2 \pm 0.1$	266			
312	4552.58	$394 \pm 47$	$31 \pm 9$	$13.4 \pm 0.1$	423			u
313	4554.68	$492 \pm 47$	$19 \pm 3$	$13.6 \pm 0.1$	493			u
314	4572.99	$186 \pm 49$	$31 \pm 8$	$13.1 \pm 0.1$	223			u
315	4583.79	$289 \pm 37$	$25 \pm 5$	$13.2 \pm 0.1$	322			
316	4585.52	$85 \pm 28$	$16 \pm 4$	$12.7 \pm 0.1$	84			u
317	4587.51	$4622 \pm 40$	$40 \pm 5$	$14.7 \pm 0.1$	1684	H I 1215.6701	2.77365	
318	4589.35	†				H I 1215.6701	2.77516	s
319	4592.41	$1625 \pm 30$	$39 \pm 5$	$14.4 \pm 0.1$	1421	H I 1215.6701	2.77768	
320	4594.50	$1218 \pm 32$	$32 \pm 4$	$14.1 \pm 0.1$	1012	H I 1215.6701	2.77940	
321	4596.33	$1633 \pm 31$	$35 \pm 3$	$14.5 \pm 0.1$	1406	H I 1215.6701	2.78090	
322	4598.05	$248 \pm 20$	$11 \pm 2$	$13.3 \pm 0.1$	224	Si IV 1402.770	2.27784	i
323	4598.69	$568 \pm 22$	$15 \pm 2$	$13.8 \pm 0.1$	487	Si IV 1402.770	2.27829	
324	4599.31	$65 \pm 15$	$6 \pm 2$	$12.6 \pm 0.1$	77	Si IV 1402.770	2.27873	
325	4600.10	$131 \pm 14$	$6 \pm 2$	$13.0 \pm 0.1$	125	Si IV 1402.770	2.27930	
326	4600.41	$147 \pm 15$	$9 \pm 2$	$13.1 \pm 0.1$	162	Si IV 1402.770	2.27952	
327	4601.44	$287 \pm 38$	$30 \pm 5$	$13.2 \pm 0.1$	291			u
328	4605.63	$310 \pm 36$	$37 \pm 5$	$13.3 \pm 0.1$	368			
329	4606.80	$214 \pm 23$	$16 \pm 3$	$13.1 \pm 0.1$	188			
330	4607.87	$1224 \pm 26$	$30 \pm 2$	$14.2 \pm 0.1$	1066	H I 1215.6701	2.79040	
331	4608.95	$101 \pm 29$	$14 \pm 3$	$12.5 \pm 0.1$	52			u
332	4609.76	$191 \pm 29$	$15 \pm 2$	$13.1 \pm 0.1$	187			
333	4612.39	$913 \pm 44$	$51 \pm 4$	$13.80 \pm 0.05$	925			u
334	4614.44	$662 \pm 52$	$10 \pm 3$	$12.7 \pm 0.1$	80			u
335	4614.96	†	$16 \pm 3$	$12.9 \pm 0.1$	119			u
336	4615.90	†	$38 \pm 4$	$13.4 \pm 0.1$	350			u
337	4617.94	$1319 \pm 36$	$31 \pm 4$	$14.2 \pm 0.1$	1234	H I 1215.6701	2.79868	
338	4620.64	$199 \pm 38$	$10 \pm 2$	$12.8 \pm 0.1$	118			
339	4622.01	$109 \pm 35$	$25 \pm 5$	$12.8 \pm 0.1$	117			u
340	4622.85	$113 \pm 22$	$9 \pm 2$	$12.7 \pm 0.1$	79			
341	4623.57	$684 \pm 27$	$23 \pm 3$	$13.8 \pm 0.1$	596	H I 1215.6701	2.80331	
342	4625.43	$970 \pm 34$	$31 \pm 3$	$13.93 \pm 0.05$	986			
343	4630.58	$138 \pm 28$	$19 \pm 3$	$12.9 \pm 0.1$	151			
344	4634.51	$711 \pm 40$	$38 \pm 4$	$13.70 \pm 0.05$	753	H I 1215.6701	2.81231	
345	4636.22	$113 \pm 37$	$28 \pm 5$	$12.8 \pm 0.1$	110			u
346	4642.82	$5224 \pm 49$	$74 \pm 4$	$16.0 \pm 0.2$	5180	H I 1215.6701	2.81914	
347	4646.36	$462 \pm 45$	$26 \pm 5$	$13.5 \pm 0.1$	458			
348	4669.64	$415 \pm 45$	$25 \pm 4$	$13.4 \pm 0.1$	420			
349	4672.89	$1387 \pm 33$	$32 \pm 4$	$14.30 \pm 0.05$	1168	H I 1215.6701	2.84388	
350	4674.12	$198 \pm 29$	$14 \pm 2$	$13.0 \pm 0.1$	147			

Table B.8 *Continued.*

	$\lambda/\text{\AA}$	$W_{obs}/\text{m\AA}$	$b/\text{kms}^{-1}$	$\log N/\text{cm}^{-2}$	$W_{fit}$	Identification	$z_{abs}$	
351	4676.38	$77 \pm 23$	$10 \pm 2$	$12.6 \pm 0.1$	63			u
352	4676.78	$67 \pm 21$	$8 \pm 2$	$12.6 \pm 0.1$	58			u
353	4677.85	$120 \pm 21$	$9 \pm 2$	$12.6 \pm 0.1$	63			u
354	4678.50	$546 \pm 14$	$21 \pm 3$	$13.8 \pm 0.1$	548	H I 1215.6701	2.84850	
355	4679.44	$1168 \pm 27$	$33 \pm 4$	$14.12 \pm 0.05$	1030	H I 1215.6701	2.84927	
356	4686.36	$64 \pm 18$	$8 \pm 2$	$12.6 \pm 0.1$	67			
357	4687.30	$78 \pm 23$	$16 \pm 3$	$12.6 \pm 0.1$	76			u
358	4689.42	$1437 \pm 30$	$22 \pm 2$	$14.9 \pm 0.1$	1341	H I 1215.6701	2.85747	
359	4693.62	$368 \pm 31$	$26 \pm 7$	$13.3 \pm 0.1$	378			
360	4697.65	$555 \pm 26$	$24 \pm 3$	$13.62 \pm 0.05$	578			
361	4701.53	$695 \pm 33$	$27 \pm 5$	$13.70 \pm 0.05$	673	Fe II 1608.451	1.92302	b
362	4703.61	$105 \pm 24$	$19 \pm 4$	$12.8 \pm 0.1$	119			
363	4707.24	$188 \pm 31$	$28 \pm 5$	$13.0 \pm 0.1$	155			u
364	4708.30	$62 \pm 19$	$28 \pm 5$	$12.8 \pm 0.1$	105			u
365	4714.33	$70 \pm 21$	$22 \pm 4$	$12.7 \pm 0.1$	97			u
366	4721.72	$243 \pm 33$	$34 \pm 5$	$13.12 \pm 0.05$	256			
367	4723.39	$1198 \pm 22$						s
368	4724.11	†	$7 \pm 2$	$12.7 \pm 0.1$	76			u
369	4724.46	$78 \pm 21$	$11 \pm 3$	$12.6 \pm 0.1$	62			
370	4726.33	$475 \pm 25$	$21 \pm 3$	$13.53 \pm 0.05$	493			
371	4729.12	$368 \pm 25$	$22 \pm 3$	$13.35 \pm 0.05$	306			
372	4730.20	$1048 \pm 20$	$25 \pm 3$	$14.2 \pm 0.1$	886			
373	4733.24	$300 \pm 26$	$26 \pm 3$	$13.2 \pm 0.1$	263			
374	4734.50	$948 \pm 24$	$29 \pm 3$	$13.91 \pm 0.05$	773			
375	4735.99	$1148 \pm 26$	$37 \pm 4$	$14.03 \pm 0.05$	1008			
376	4770.21	$98 \pm 30$	$27 \pm 5$	$12.8 \pm 0.1$	117			u
377	4771.69	$206 \pm 32$	$27 \pm 5$	$13.1 \pm 0.1$	219			
378	4782.78	$53 \pm 17$	$8 \pm 2$	$12.4 \pm 0.1$	48			
379	4784.50	$149 \pm 28$	$33 \pm 7$	$12.9 \pm 0.1$	147			
380	4823.83	$180 \pm 18$	$6 \pm 2$	$13.1 \pm 0.1$	180			
381	4825.69	$345 \pm 24$	$22 \pm 4$	$13.3 \pm 0.1$	297			
382	4826.27	$72 \pm 14$	$7 \pm 2$	$12.5 \pm 0.1$	46			u
383	4826.82	$238 \pm 24$	$19 \pm 3$	$13.1 \pm 0.1$	200			
384	4832.34	$120 \pm 22$	$14 \pm 3$	$12.8 \pm 0.1$	127			



Table B.9 Metal lines in Q2348–147.

	$\lambda/\text{\AA}$	$W_{obs}/\text{m\AA}$	$b/\text{km s}^{-1}$	$\log N/\text{cm}^{-2}$	$W_{fit}$	Identification	$z_{abs}$
80	3929.55	$169 \pm 37$	$6 \pm 2$	$13.2 \pm 0.1$	184	Si IV 1393.755	1.81940
81	3930.29	$464 \pm 51$	$19 \pm 3$	$13.5 \pm 0.1$	482	Si IV 1393.755	1.81993
254	4364.45	$120 \pm 18$	$12 \pm 2$	$13.3 \pm 0.1$	152	C IV 1548.202	1.81904
255	4364.98	$313 \pm 18$	$11 \pm 2$	$13.7 \pm 0.1$	286	C IV 1548.202	1.81939
256	4365.88	$930 \pm 20$	$16 \pm 4$	$14.8 \pm 0.5$	776	C IV 1548.202	1.81997
257	4371.55	$428 \pm 37$	$23 \pm 4$	$14.0 \pm 0.1$	368	C IV 1550.774	1.81895
258	4372.29	$466 \pm 27$	$11 \pm 2$	$14.0 \pm 0.1$	286	C IV 1550.774	1.81942
259	4373.12	$804 \pm 26$	$21 \pm 3$	$14.6 \pm 0.1$	722	C IV 1550.774	1.81996
<hr/>							
303	4525.46	$328 \pm 21$	$8 \pm 2$	$13.9 \pm 0.1$	341	C IV 1548.202	1.92304
307	4532.97	$322 \pm 20$	$8 \pm 2$	$13.9 \pm 0.1$	218	C IV 1550.774	1.92304
361	4701.53	$695 \pm 33$	$27 \pm 5$	$14.41 \pm 0.05$	673	Fe II 1608.451	1.92302 b
<hr/>							
11	3754.63	$127 \pm 31$	$10 \pm 2$	$13.7 \pm 0.1$	142	Fe II 1144.939	2.27933
70	3902.52	$427 \pm 49$	$18 \pm 4$	$13.6 \pm 0.1$	340	Si II 1190.4160	2.27828
71	3903.78	$459 \pm 41$	$7 \pm 3$	$14.9 \pm 1.0$	428	Si II 1190.4160	2.27934
74	3911.98	$370 \pm 33$	$7 \pm 3$	$14.9 \pm 1.0$	374	Si II 1193.2898	2.27831
75	3913.23	$429 \pm 32$	$7 \pm 2$	$15.2 \pm 1.0$	437	Si II 1193.2898	2.27936
95	3955.38	$820 \pm 39$	$26 \pm 4$	$13.5 \pm 0.2$	876	Si III 1206.500	2.27839 b
105	3985	*	*	*	*	H I 1215.6701	2.27803 s
132	4061.28	$1226 \pm 39$	$41 \pm 4$	$14.6 \pm 0.1$	1186	N V 1238.8210	2.27834 b
134	4063.27	$103 \pm 23$	$9 \pm 2$	$13.2 \pm 0.1$	90	N V 1238.8210	2.27995 i
137	4074.29	$311 \pm 17$	$17 \pm 3$	$14.2 \pm 0.1$	360	N V 1242.804	2.27831 b
138	4074.82	$113 \pm 19$	$9 \pm 2$	$13.6 \pm 0.1$	102	N V 1242.804	2.27873
139	4076.35	$208 \pm 27$	$20 \pm 3$	$13.9 \pm 0.1$	208	N V 1242.804	2.27996 i
164	4130.38	$54 \pm 18$	$10 \pm 2$	$14.0 \pm 0.1$	61	Si II 1259.519	2.27933
165	4132.05	$355 \pm 17$	$11 \pm 2$	$13.3 \pm 0.1$	380	Si II 1260.4223	2.27831
166	4133.40	$550 \pm 19$	$10 \pm 3$	$14.3 \pm 0.8$	556	Si II 1260.4223	2.27938
218	4270.25	$488 \pm 17$	$9 \pm 2$	$15.4 \pm 0.5$	501	O I 1302.1685	2.27934
220	4275.99	$55 \pm 15$	$7 \pm 2$	$12.9 \pm 0.1$	50	Si II 1304.3711	2.27820
221	4276.25	$74 \pm 14$	$6 \pm 2$	$13.2 \pm 0.1$	78	Si II 1304.3711	2.27840
222	4277.50	$367 \pm 23$	$10 \pm 2$	$14.0 \pm 0.1$	355	Si II 1304.3711	2.27936
261	4374.47	$893 \pm 40$	$19 \pm 3$	$13.9 \pm 0.1$	325	C II 1334.5323	2.27790 i
262	4374.99	†	$11 \pm 2$	$14.7 \pm 0.3$	487	C II 1334.5323	2.27830
264	4376.44	$566 \pm 27$	$11 \pm 3$	$14.8 \pm 0.5$	508	C II 1334.5323	2.27938
322	4598.05	$248 \pm 20$	$11 \pm 2$	$13.4 \pm 0.1$	224	Si IV 1402.770	2.27784 i
323	4598.69	$568 \pm 22$	$15 \pm 2$	$14.0 \pm 0.1$	487	Si IV 1402.770	2.27829
324	4599.31	$65 \pm 15$	$6 \pm 2$	$12.7 \pm 0.1$	77	Si IV 1402.770	2.27873
325	4600.10	$131 \pm 14$	$6 \pm 2$	$13.2 \pm 0.1$	125	Si IV 1402.770	2.27930
326	4600.41	$147 \pm 15$	$9 \pm 2$	$13.3 \pm 0.1$	162	Si IV 1402.770	2.27952

## Footnotes to Q2348–147 Line List

- Only lines detected at  $\geq 6\sigma$  are listed in the line parameter list.
- All lines without a listed identification are assumed to be due to H I 1215.
- All line parameters are measured *as if the line was due to H I 1215*; i.e.  $\log N$  values for other lines are not correct values for metal column density — for this the value of  $(\log(\lambda_H f_H) - \log(\lambda_{metal} f_{metal}))$  must be added.
- A dagger (†) in the  $W_{obs}$  column indicates that the observed equivalent width of this line is subsumed in the value for the line given directly above. The number above the dagger is the *total* observed equivalent width for both lines. This is done when lines are blended beyond a point where estimates of their individual equivalent widths cannot be made without fitting Voigt profiles.
- The letters in the last column of the table are defined as follows:
  - b This metal line is blended, either with another identified metal line, or a stronger Lyman line.
  - i This metal line identification is uncertain.
  - s This line is saturated. Values for fitted  $b$  and  $\log N$  are not listed, since fitting saturated lines does not generate a unique solution.
  - u The fitted  $b$  and  $\log N$  values of this line are uncertain, either because of low signal-to-noise or a strange line shape.

All lines annotated with letters b, i, or u, and some annotated with s, are listed below by line number with a more detailed description of the problem.

- 1** Extremely noisy; fit tentative; may contain multiple components.
- 9** Noisy; may contain multiple components.
- 10** Narrow feature; may not be real.
- 16** Blended with Lyman  $\beta$  feature; fit tentative.
- 19** Narrow feature; may not be real.
- 21** Broad, noisy feature; may contain multiple components.
- 24** Line saturated in Lyman  $\beta$ ; fit unconstrained.
- 31, 34** Narrow feature in noisy area; may not be real.
- 36** Line saturated in Lyman  $\beta$ ; fit unconstrained.
- 44** Asymmetrical line shape; may contain multiple components.
- 47** Broad, noisy feature; may contain multiple components.
- 48** Extremely noisy; fit tentative.
- 51–53** Broad, noisy features; may contain multiple components.
- 60** Broad, noisy feature; fit tentative.

- 63 Shallow, noisy feature; may not be real.
- 72 Noisy; fit tentative.
- 77 Blended with a strong Lyman  $\beta$  line.
- 79 Noisy; extent of line uncertain.
- 81 Unusual line profile; may be blended with Lyman  $\alpha$ .
- 86 Broad, noisy feature; extent of line uncertain.
- 87 Noisy; may be blended with line 86.
- 95 Blended with a Lyman  $\alpha$  feature.
- 97 Heavily blended; fit tentative.
- 98 Noisy; extent of line uncertain.
- 101, 102 Noisy; fits tentative.
- 107 Unusual line profile; may contain multiple components.
- 111 Shallow, noisy feature; extent of line uncertain.
- 115 Blended; fit tentative.
- 118 Heavily blended; part of a two-component deconvolution of an asymmetric feature.
- 120 Noisy; extent of line uncertain.
- 122 Blended with a stronger feature; fit tentative.
- 126 Asymmetric and blended; may contain multiple components.
- 132, 137 Blended with a Lyman  $\alpha$  feature.
- 134, 139 Possible extra redshift component in the  $z_{\text{abs}} = 2.279$  damped Lyman  $\alpha$  system.
- 136 Noisy and partially blended; fit tentative.
- 141 Asymmetric profile; may contain multiple components.
- 143 Noisy, narrow feature; may not be real.
- 146, 147 Shallow, noisy features; extent of lines uncertain.
- 157 Unusual line profile; may contain multiple components.
- 159 Weak, noisy line; fit tentative.
- 160 Partially blended, weak line; fit tentative.
- 163 Weak, noisy line; fit tentative.
- 167 Blended with a stronger feature; fit tentative.
- 173 Asymmetric profile; may contain multiple components.
- 176 Noisy, narrow feature; fit tentative.
- 183, 184 Shallow, noisy features; extent of lines uncertain.

- 186 Heavily blended; fit tentative.
- 192, 193 Noisy, broad features; may contain multiple components.
- 198 Unusual line profile; may contain multiple components.
- 199 Shallow, noisy feature; extent of line uncertain.
- 203 Asymmetric profile; may contain multiple components.
- 206 Heavily blended; fit tentative.
- 209 Noisy and blended; fit tentative.
- 213, 217, 219 Shallow, noisy features; extent of lines uncertain.
- 224, 225 Possible two-component deconvolution; may be further components.
- 227, 229 Heavily blended; fit tentative.
- 230 Noisy; extent of line uncertain.
- 231, 232 Narrow, noisy features; may be a single component.
- 235 Heavily blended; fit tentative.
- 238 Shallow, noisy feature; extent of line uncertain.
- 245 Blended; fit tentative.
- 247 Blended and noisy; fit tentative.
- 249, 260 Heavily blended; fit tentative.
- 261 Possible extra component in the  $z_{\text{abs}} = 2.279$  damped Lyman  $\alpha$  system; corresponds to Si IV  $\lambda 1402$  at line 322.
- 263 Narrow feature in noisy area; may not be real.
- 276 Noisy; fit tentative.
- 284, 285 Possible two-component deconvolution of unusually shaped feature; fits tentative.
- 289 Noisy; fit tentative.
- 291–293 Shallow, noisy features; extent of lines uncertain.
- 295 Asymmetric and noisy; fit tentative.
- 300 Asymmetric profile; may contain multiple components.
- 302, 304 Noisy; fit tentative.
- 306 Heavily blended; fit tentative.
- 309 Noisy; extent of line uncertain.
- 312 Asymmetric and noisy; fit tentative.
- 313 Extremely noisy; fit tentative.
- 314 Noisy, broad feature; extent of line uncertain.
- 316 Shallow line; extent of line uncertain.

- 322** Possible extra component in the  $z_{\text{abs}} = 2.279$  damped Lyman  $\alpha$  system; corresponds to C II  $\lambda 1334$  at line 261.
- 327** Asymmetric profile; may contain multiple components.
- 331** Heavily blended; fit tentative.
- 333** Asymmetric profile; may contain multiple components.
- 334–336** Three-component deconvolution of a broad, asymmetric feature; probably contains further components.
- 339** Shallow, noisy feature; fit tentative.
- 345** Shallow, noisy feature; extent of line uncertain.
- 351, 352** Noisy lines; may contain different components.
- 353** Heavily blended; fit tentative.
- 357** Shallow, noisy feature; fit tentative.
- 361** Blended with a Lyman  $\alpha$  feature.
- 363, 364** Noisy features; fits tentative.
- 365** Shallow, noisy feature; extent of line uncertain.
- 368** Heavily blended; fit tentative.
- 376** Shallow, noisy feature; extent of line uncertain.
- 383** Heavily blended; fit tentative.

**Table B.10** Identified metal lines in the CCD spectra of Q2348–147. These lines are marked on the spectra shown in Figure A.6 and are discussed in Section 5.4.

$\lambda/\text{\AA}$	Identification	$z_{abs}$
5006.1	Si II 1526.7071	2.2790
5077.0	C IV 1548.202	2.2793
5085.5	C IV 1550.774	2.2793
5479.0	Al II 1670.7867	2.2793
7687.4	Fe II 2344.2139	2.2794
7786.6	Fe II 2374.4612	2.2793
7813.6	Fe II 2382.7652	2.2792
<hr/>		
5465.9	C IV 1548.202	2.5305
5475.0	C IV 1550.774	2.5305
<hr/>		
5705.8	C IV 1548.202	2.6854
5716.0	C IV 1550.774	2.6860
<hr/>		
5771.6	C IV 1548.202	2.7279
5778.6	C IV 1550.774	2.7263
<hr/>		
5912.6	C IV 1548.202	2.8190
5922.4	C IV 1550.774	2.8190
7330.2	Fe II 2600.1729	2.8191