

**Table 1. List of the Observed Methane Absorption Lines<sup>a</sup>**

Wavelength (Å)	Wave Number (cm <sup>-1</sup> )	Intensity <sup>b</sup>
7837.67	12755.39	1
8565.98	11670.91	0
8578.64	11653.64	2
8583.27	11647.55	0
8585.56	11644.27	0
8588.19	11640.70	0
8591.49	11636.23	0
8592.98	11634.22	1
8594.18	11632.59	0
8595.31	11631.06	0
8597.48	11627.64	1
8599.13	11625.89	1
8607.26	11614.91	1
8608.93 <sup>c</sup>	11612.66	
8609.23 <sup>c</sup>	11612.25	
8609.41 <sup>c</sup>	11612.01	
8609.64	11611.70	4
8612.84	11607.39	1
8616.41	11602.58	1
8619.41	11598.90	3
8620.37	11597.25	2
8624.97	11591.07	1
8626.53	11588.97	0
8629.59	11584.86	0
8631.90	11581.76	3
8634.94	11577.68	1
8637.33	11574.48	4
8641.88	11568.38	3
8647.96	11560.26	2
8652.10	11554.72	2
8652.92	11553.63	2
8663.61	11539.37	4

<sup>a</sup>The first line belongs to combination overtone  $3\nu_1 + \nu_3 + (\nu_2 \text{ or } \nu_4)$  band, and the other lines belong to the  $2\nu_1 + 2\nu_3$  band.<sup>3</sup>

<sup>b</sup>These values are eye estimates of the intensities.<sup>2</sup>

<sup>c</sup>Lines observed and measured by us, with intensities comparable to that at 8609.64 Å (see Fig. 3 below).