

Energy Levels and Classified Lines in the Second Spectrum of Thorium (Th II)

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The analysis of Th II has been extended with improved observations of the spectrum between 2000 and 25 000 Å. About 6500 lines are classified as transitions between 199 odd levels and 271 even levels. Of the 192 levels expected from the six odd configurations $5f(6d+7s)^2$ and $(6d+7s)^2 7p$, 188 are now known. In the even level system, all but one of the 37 levels of the three $(6d+7s)^3$ configurations are known. Of the 268 levels predicted for the configurations $5f^2 7s + 5f 7s 7p + 5f 6d 7p + 5f^2 6d$, 235 are now known. The identifications are based on the theoretical calculations by N. Minsky.¹ New Zeeman effect observations have increased the number of levels with known g -values to 406 out of 470 known levels. The classifications will be useful in establishing secondary standards of wavelength.

Key words: Energy levels of Th II; g -values of Th II; spectrum of Th II; Th II spectrum; thorium; wavelengths of Th II.

1. Introduction

The first work published on the analysis of the second spectrum of thorium (Th II) was done by McNally, Harrison, and Park [1942]² at the M.I.T. Spectroscopy Laboratory. Their analysis was based on the new thorium wavelengths reported in the M.I.T. Wavelength Tables of Harrison [1939] and new Zeeman effect observations made with the Bitter magnet at fields of about 9 teslas. With resolved Zeeman patterns for more than 700 lines, they classified 1100 Th II lines as arising from 219 levels. Measured g -values were provided for each level. Many levels were identified from the Zeeman effect. The levels belonged to two unconnected groups of terms. In one group, the low even configurations were identified as $(6d+7s)^3$ and the higher odd configurations as $6d^2 7p$, $6d 7s 7p$, and $5f 6d 7s$. In the other group the low odd levels were attributed to $5f 7s^2$ and $5f 6d 7s$ and the higher evens to $5f 7s 7p$ and $5f 6d 7p$.

In a second paper, McNally [1945] investigated the infrared spectrum of Th II and established that the lowest odd level, $5f 7s^2 \ ^2F_{2,2}^o$, lay 4490 cm^{-1} above the ground state. His paper gives 301 levels on a unified scale relative to the ground state. Of these levels, 21 are credited to the first paper of de Bruin, Schuurmans, and Klinkenberg [1943] (v.i.) and 17 others have been rejected since.

In an investigation which, because of the war, was entirely independent, de Bruin, Schuurmans, and

Klinkenberg [1943], [1944] at the Zeeman Laboratory in Amsterdam, classified about 1900 lines as arising from 232 levels. Measured g -values were published for every level but no list of classified lines could be printed. They found essentially the same two systems as those found at M.I.T. and in a note at the end of their second paper announced their discovery of the wavenumber difference between the two systems which later, and independently, was confirmed by McNally.

Their work was extended by Schuurmans [1946] with a discussion based on the theory of the configurations with $5f$ -electrons. He suggested tentative locations for the then undiscovered configuration $5f^2 7p$ and for $5f^3$. He found 31 new levels, all but one of which are here confirmed.

In 1958 G. W. Charles prepared a compilation of available data on the first four spectra of thorium. For Th II Charles listed 165 odd and 191 even levels (including some not previously published) and 2850 classified lines, together with all known Zeeman patterns and isotope shifts. We have rejected 5 even and 14 odd levels in his list.

Recently Minsky [1969] has calculated all 13 of the important configurations of Th II as three groups in intermediate coupling with configuration interaction. They are the low even group $(6d+7s)^3$, the high even group $5f^2 7s + 5f 7s 7p + 5f 6d 7p + 5f^2 6d$, and the six odd configurations $5f 7s^2 + 5f 6d 7s + 5f 6d^2 + 6d 7s 7p + 7s^2 7p + 6d^2 7p$. Thus Minsky's work provides a modern theoretical analysis for all the important configurations of Th II.

In addition to his extensive theoretical analysis,

¹ N. Minsky, Dissertation, Hebrew University, Jerusalem (1969).

² Literature references are at the end of this paper.

Minsky discovered 29 new levels, all of which are confirmed in this paper. Furthermore, his predictions of the locations of the undiscovered levels of the thirteen configurations have been most helpful in guiding our searches and, of course, in identifying newly found levels.

Recently Brewer [1971] has predicted the position of the lowest terms of $5f^27p$ at $48\,000 \pm 2000\text{ cm}^{-1}$, $5f7p^2$ at $54\,000 \pm 4000\text{ cm}^{-1}$, and $5f^3$ at $55\,000 \pm 5000\text{ cm}^{-1}$. In this paper we have confirmed his predictions for f^2p and fp^2 .

2. Observations

A summary of the observations of thorium spectra at NBS and elsewhere prior to 1960 has been given by Zalubas [1960]. His monograph presented new observations of wavelengths and intensities in electrodeless lamps and spark sources for 15 000 lines of Th I and Th II in the spectral range 2000 to 11 550 Å. It superseded all previous published descriptions of Th I and Th II in both accuracy and extent. The monograph was used by Minsky [1969] for his extension of the classification of Th II.

With the completion of the new description, work on the analysis of Th I was begun by Zalubas [1959]. As the work proceeded it became clear that the analysis could be carried on to a considerably more advanced state if the precision of the wavelengths could be improved still further. New observations were made at NBS over the period 1965–1970 with instruments of higher resolution and with improved standards. These observations will be described in detail in a forthcoming publication on thorium spectra by Zalubas.

In the region 9200 to 30 000 Å lines observed with the C.N.R.S. (Orsay) Fourier transform spectrometer of Connes et al. [1970] were generously furnished to us by Giacchetti. That list is discussed and published by Giacchetti, Blaise, Corliss, and Zalubas [1974]. Earlier work in the infrared region of the thorium spectra was done by Steers [1967] and by Bernage, Houdart, and Niay [1971].

The list of thorium lines now at hand has nearly 40 000 lines, of which about 14 000 are regarded as belonging to Th II. This list will be published to replace the earlier list of Zalubas [1960].

In addition to the wavelength observations described above, we have Zeeman effect plates taken at the Argonne National Laboratory in 1964 in the range 2690 to 9100 Å at a magnetic field of 2.4 teslas. These spectra, made with electrodeless thorium iodide lamps, provided Zeeman patterns mostly for Th I, but there were also many good resolved patterns for lines of Th II. These data were used to calculate g -values for Th II levels for which published values were not already available.

3. Searches for Energy Levels

Before we undertook searches for new energy levels in Th II, we had to improve the accuracy of the pub-

lished level values, most of which were in error by more than 0.03 cm^{-1} and a few by more than 0.2 cm^{-1} . With the aid of the proposed secondary-standard wavelengths of Giacchetti, Stanley, and Zalubas [1970] and Giacchetti's Fourier transform infrared list, we determined three decimal wavenumber values (cm^{-1}) for 82 even and 110 odd levels. With these values and our new line list we then determined two decimal values for the remaining known levels.

The searches for new energy levels were carried out on the NBS Univac 1108 using the programs called "Combo," written by Jack Tech. They were guided by the predictions of Minsky [1969]. At the conclusion of the searches we had found 71 new even and 37 new odd levels.

This paper incorporates the results of seven investigations, each of which increased the number of known energy levels in Th II. The contribution of each to the total number of levels now regarded as real is listed below.

Symbol		Even	Odd	Total
H	McNally et al. [1942]	112	102	214
B	de Bruin et al. [1943], [1944].....	37	28	65
R	McNally [1945].....	8	5	13
S	Schuurmans [1946].....	21	10	31
C	Charles [1958].....	7	3	10
M	Minsky [1969].....	15	14	29
Z	Present paper.....	71	37	108
Total.....		271	199	470

Although, as mentioned earlier, the results of McNally, Harrison and Park and of de Bruin, Schuurmans and Klinkenberg were for the most part the same, we have credited the levels in common to McNally et al. because of prior publication.

4. Results

4.1. Energy Levels

The known energy levels are listed in numerical order in two tables: (1) the even parity levels and (2) the odd levels. The relative positions of the configurations are illustrated by the energy diagram in figure 1.

The three low even configurations $(6d+7s)^3$ have 37 levels of which 31 were already known. We have found five of the remaining six levels, leaving only the highest level with $J=1/2$ undiscovered.

The four higher even configurations $4f^26s$, $5f7s7p$, $5f6d7p$ and $5f^26d$ start between 24 000 and 33 000 cm^{-1} and consist of 268 levels, of which 235 are now known. Most of the unknown levels are above 50 000 cm^{-1} . In these configurations Minsky's correlation of observed energy levels with the calculated ones appears to be in error above 42 000 cm^{-1} for $J=2^{1/2}$, above 41 000 cm^{-1} for $J=3^{1/2}$, and above 43 000 cm^{-1} for $J=4^{1/2}$. No designations are given here for these levels, only the configurations. New calculations will

Th II electron configurations
5f, 6d, 7s and 7p electrons

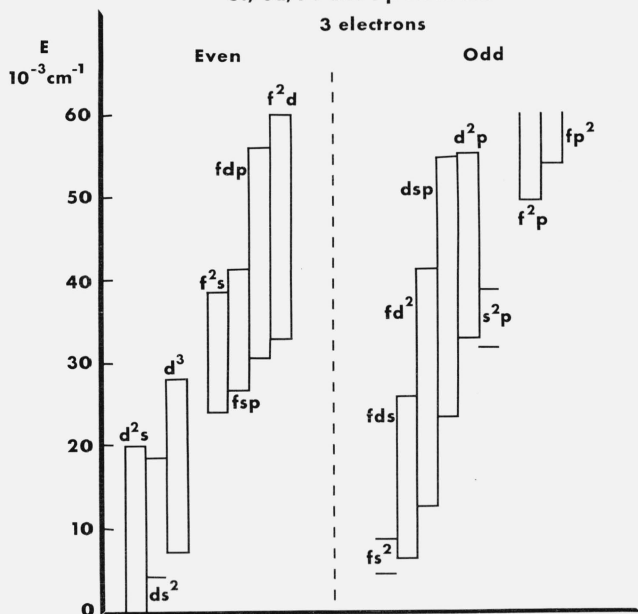


FIGURE 1. Relative positions of the 15 known electron configurations of Th II.

be needed before proper correlation of energy levels with eigenvectors can be made in these cases.

The three low odd configurations $5f(6d+7s)^2$, with 122 levels, are now all known. The lowest term, $5f7s^2\ ^2F^o$, was identified by McNally, Harrison, and Park [1942]. The three high odd configurations $(6d+7s)^27p$ give 70 levels, of which only the two highest $J=1/2$ and $J=3/2$ levels have not been found.

The three higher odd configurations $5f^27p$, $5f7p^2$, and $5f^3$ are predicted by Brewer [1971] to start near

$50\ 000\ \text{cm}^{-1}$. We have found eight likely $5f^27p$ levels. The lowest, at $49\ 495.57\ \text{cm}^{-1}$, may be $4I^o_{41/2}$, which lies lowest, according to Hund's rule.

In tables 1 and 2 the configuration of the largest component in the eigenvector of the level is listed in the first column. The compositions are from Minsky [1969]. If this component is at least 50 percent, the term symbol is listed in the second column and serves as a designation for the level. If the largest component in the eigenvector is less than 50 percent, no name is given and the term symbol for the major component appears in column seven.

For example, the leading component of the ground state is 43 percent $6d^27s\ ^4F_{11/2}$ with a second component of 27 percent $6d7s^2\ ^2D_{11/2}$. However, the level at $1859\ \text{cm}^{-1}$ is 52 percent $6d^27s\ ^4F_{11/2}$ and 36 percent $6d7s^2\ ^2D_{11/2}$. Therefore, it is impossible to assign a meaningful *LS* designation to the ground level. In a spectrum with such strong intermediate coupling and configuration interactions, many levels have no meaningful names.

The *J*-value, observed level value, and observed *g*-value appear in the next three columns. The *g*-values are taken from Charles's [1958] compilation or from our own observations. The percentage contributed by the first component in the eigenvector of the level is given in the sixth column. In columns 8 and 9 appears the percentage and term for the second largest component. A very few of the levels of Th II have purity greater than 99 percent. In such cases the second component is omitted from the table.

The last columns show the approximate number of combinations observed for each level and a symbol (from the list in section 3) for the discoverer of the level.

The $6d^3$ configuration has two 2D terms, which are theoretically differentiated by the seniority number of Racah [1943]. We use the notations of Nielson and Koster [1963] for these terms; the 2D1 term has seniority 1 and the 2D2 term has seniority 3.

TABLE 1. Even energy levels of Th II

Configuration	Term	<i>J</i>	Level (cm ⁻¹)	<i>g</i>	Leading percentages		<i>n</i> , ref.
					First	Second	
$6d^2(^3F)7s$		$1^{1/2}$	0.000	0.639	43 4F	27 $6d(^2D)7s^2\ ^2D$	74 H
$6d^2(^3F)7s$	4F	$2^{1/2}$	1521.893	1.076	65	17 $(^1D)\ ^2D$	82 H
$6d^2(^3F)7s$	4F	$1^{1/2}$	1859.936	0.586	52	36 $6d(^2D)7s^2\ ^2D$	64 H
$6d(^2D)7s^2$		$2^{1/2}$	4113.356	1.163	36 2D	30 $6d^2(^3F)7s\ ^4F$	78 H
$6d^2(^3F)7s$	4F	$3^{1/2}$	4146.575	1.232	96	2 $(^1F)\ ^2F$	68 H
$6d^2(^3F)7s$	4F	$4^{1/2}$	6213.488	1.312	89	9 $(^1G)\ ^2G$	43 H
$6d^2(^3P)7s$	4P	$1/2$	6244.294	2.112	70	13 $(^1P)\ ^2P$	31 H
$6d^3$		$1^{1/2}$	7001.425	0.800	41 4F	16 $6d(^2D)7s^2\ ^2D$	62 H
$6d^2(^1P)7s$		$1/2$	7828.562	1.254	36 2P	36 $6d^3\ ^2P$	33 H
$6d^2(^3P)7s$	4P	$1^{1/2}$	8018.191	1.608	89	3 $6d^3\ ^4F$	51 H

TABLE 1. Even energy levels of Th II – Continued

Configuration	Term	J	Level (cm^{-1})	g	Leading percentages			n , ref.
					First	Second		
$6d^3$		$1\frac{1}{2}$	8460.354	0.968	43 ^4F	21	$6d(^2\text{P})7s^2\ ^2\text{P}$	60 H
$6d^2(^1\text{F})7s$	^2F	$2\frac{1}{2}$	8605.841	0.986	62	11	$6d(^2\text{D})7s^2\ ^2\text{D}$	72 H
$6d^2(^3\text{P})7s$	^4P	$2\frac{1}{2}$	9061.101	1.419	71	12	$(^1\text{F})\ ^2\text{F}$	69 H
$6d^3$	^4F	$2\frac{1}{2}$	9400.967	1.034	84	6	$6d(^2\text{D})7s^2\ ^2\text{D}$	69 H
$6d^2(^1\text{G})7s$	^2G	$3\frac{1}{2}$	9711.961	0.953	54	27	$6d^3\ ^2\text{G}$	64 H
$6d^2(^1\text{G})7s$		$4\frac{1}{2}$	10379.124	1.153	41 ^2G	30	$6d^3\ ^2\text{G}$	45 B
$6d^3$		$3\frac{1}{2}$	10855.324	1.166	46 ^4F	33	$6d^2(^1\text{F})7s\ ^2\text{F}$	57 B
$6d^2(^1\text{D})7s$	^2D	$1\frac{1}{2}$	12219.974	0.977	56	11	$6d(^2\text{D})7s^2\ ^2\text{D}$	55 H
$6d^3$		$3\frac{1}{2}$	12570.492	1.131	40 ^4F	34	$6d^2(^1\text{F})7s\ ^2\text{F}$	56 B
$6d^3$	^4F	$4\frac{1}{2}$	13248.709	1.242	60	33	$6d^2(^1\text{G})7s\ ^2\text{G}$	36 H
$6d^2(^1\text{D})7s$		$2\frac{1}{2}$	13250.505	1.245	44 ^2D	20	$6d(^2\text{D})7s^2\ ^2\text{D}$	48 H
$6d^3$	^4P	$\frac{1}{2}$	14349.390	2.555	93	5	$6d^2(^1\text{P})7s\ ^2\text{P}$	22 H
$6d^3$	^4P	$1\frac{1}{2}$	15236.639	1.592	71	19	$6d^2(^1\text{P})7s\ ^2\text{P}$	36 H
$6d^3$	^2H	$4\frac{1}{2}$	15305.265	1.006	69	16	^4F	35 H
$6d^3$	^4P	$2\frac{1}{2}$	15786.986	1.571	91	4	$^2\text{D}1$	36 B
$6d^3$	^2G	$3\frac{1}{2}$	16818.067	0.916	58	32	$6d^2(^1\text{G})7s\ ^2\text{G}$	45 B
$6d^3$	^2H	$5\frac{1}{2}$	17727.251	1.09	99			20 Z
$6d^3$		$1\frac{1}{2}$	18118.705	0.93	44 $^2\text{D}2$	20	$^2\text{D}1$	35 M
$6d^2(^1\text{S})7s$	^2S	$\frac{1}{2}$	19594.350		80	10	$6d^3\ ^2\text{P}$	12 Z
$6d^3$	^2G	$4\frac{1}{2}$	19880.083	1.08	59	22	^2H	23 Z
$6d^3$	$^2\text{D}2$	$2\frac{1}{2}$	20158.744	1.19	67	12	$6d^2(^1\text{D})7s\ ^2\text{D}$	38 M
$6d^3$	^2F	$2\frac{1}{2}$	22106.437	0.92	71	8	$6d^2(^1\text{F})7s\ ^2\text{F}$	36 Z
$6d^3$	^2F	$3\frac{1}{2}$	22834.138	1.12	82	15	$6d^2(^1\text{F})7s\ ^2\text{F}$	31 M
$5f^2(^3\text{H})7s$	^4H	$3\frac{1}{2}$	24381.802	0.70	74	12	$5f6d(^3\text{G}^\circ)7p\ ^4\text{H}$	21 M
$5f^2(^3\text{H})7s$		$4\frac{1}{2}$	25246.298	0.96	45 ^4H	33	$(^3\text{H})\ ^2\text{H}$	20 R
$6d^3$		$1\frac{1}{2}$	25381.927	1.25	46 ^2P	34	$6d^2(^1\text{P})7s\ ^2\text{P}$	9 Z
$5f7s(^3\text{F}^\circ)7p$		$2\frac{1}{2}$	26488.644	0.776	43 ^4G	16	$(^3\text{F}^\circ)\ ^4\text{F}$	18 H
$5f^2(^3\text{F})7s$		$1\frac{1}{2}$	26762.272	0.47	42 ^4F	17	$5f6d(^3\text{F}^\circ)7p\ ^4\text{F}$	18 B
$5f7s(^3\text{F}^\circ)7p$		$3\frac{1}{2}$	27257.144	1.032	32 ^4G	15	$(^1\text{F}^\circ)\ ^2\text{G}$	23 H
$5f^2(^3\text{H})7s$		$4\frac{1}{2}$	27526.948	0.93	42 ^2H	37	$(^3\text{H})\ ^4\text{H}$	20 S
$5f^2(^3\text{F})7s$		$2\frac{1}{2}$	27593.965	0.963	37 ^4F	17	$5f7s(^3\text{F}^\circ)7p\ ^4\text{G}$	23 B
$5f7s(^3\text{F}^\circ)7p$		$1\frac{1}{2}$	27631.225	0.625	45 ^4F	25	$5f^2(^3\text{F})7s\ ^4\text{F}$	14 H
$5f^2(^3\text{H})7s$	^4H	$5\frac{1}{2}$	27937.074	1.12	73	14	$(^3\text{H})\ ^2\text{H}$	13 Z
$6d^3$	$^2\text{D}1$	$1\frac{1}{2}$	28011.159	0.717	52	36	$^2\text{D}3$	11 H
$6d^3$	$^2\text{D}1$	$2\frac{1}{2}$	28026.347	1.13	70	14	^2F	15 S

TABLE 1. Even energy levels of Th II – Continued

Configuration	Term	J	Level (cm^{-1})	g	Leading percentages			n , ref.
					First	Second		
$5f7s(^3F^\circ)7p$	4F	$2^{1/2}$	28823.649	0.987	26 4F	15	$(^3F^\circ) ^4D$	18 H
$5f^2(^3F)7s$		$2^{1/2}$	29345.894	0.935	39 2F	29	$(^3F) ^4F$	24 B
$5f^2(^3F)7s$		$3^{1/2}$	29431.847	1.1	63	11	$5f6d(^3F^\circ)7p ^4F$	23 M
$5f^2(^3F)7s$		$4^{1/2}$	29515.132	1.030	32 4F	13	$(^1G) ^2G$	25 H
$5f^2(^3F)7s$		$3^{1/2}$	29873.948	1.10	44 2F	18	$(^3F) ^2G$	19 B
$5f6d(^3H^\circ)7p$	2H	$4^{1/2}$	30452.723	1.035	41 4I	14	$(^3H^\circ) ^2H$	22 H
$5f^2(^3H)7s$		$5^{1/2}$	30484.713	1.08	72	12	$(^3H) ^4H$	17 M
$5f^2(^3H)7s$	4H	$6^{1/2}$	30548.67	1.23	87	6	$5f6d(^3G^\circ)7p ^4H$	4 Z
$5f7s(^3F^\circ)7p$	4K	$3^{1/2}$	30879.418	1.213	35 4F	25	$(^3F^\circ) ^4D$	22 B
$5f6d(^3F^\circ)7p$		$2^{1/2}$	31259.295	0.781	27 4G	15	$5f^2(^3F)7s ^2F$	22 H
$5f7s(^1F^\circ)7p$		$2^{1/2}$	31754.210	0.948	36 2F	23	$(^1F^\circ) ^2D$	21 H
$5f7s(^3F^\circ)7p$	4K	$4^{1/2}$	31773.077	1.222	35 4G	30	$(^3F^\circ) ^4F$	21 H
$5f7s(^1F^\circ)7p$		$3^{1/2}$	32576.745	1.024	22 2G	18	$5f^2(^3F)7s ^2F$	27 H
$5f^2(^3H)6d$		$5^{1/2}$	32620.859	0.826	72	11	$(^3H) ^2I$	9 H
$5f6d(^3H^\circ)7p$		$3^{1/2}$	32736.186	0.904	24 4H	13	$(^3H^\circ) ^2G$	24 H
$5f6d(^1D^\circ)7p$		$1^{1/2}$	32959.48	0.874	23 2D	15	$(^1D^\circ) ^2P$	16 H
$5f7s(^3F^\circ)7p$	4K	$3^{1/2}$	33209.40	1.051	15 4G	13	$(^1F^\circ) ^2F$	29 H
$5f^2(^3F)7s$		$4^{1/2}$	33384.444	1.14	26 4F	16	$(^1G) ^2G$	24 B
$5f^2(^3F)6d$		$3^{1/2}$	33637.228	0.830	17 4H	11	$(^3H) ^4H$	22 H
$5f^2(^1D)7s$		$2^{1/2}$	33730.94	1.031	13 2D	8	$5f6d(^1D^\circ)7p ^2D$	23 H
$5f^2(^1D)7s$		$1^{1/2}$	34019.240	0.823	25 2D	21	$5f6d(^3F^\circ)7p ^2D$	18 B
$5f^2(^1D)7s$		$2^{1/2}$	34174.540	0.986	22 2D	12	$5f6d(^3F^\circ)7p ^4G$	27 H
$5f^2(^3H)6d$	4K	$4^{1/2}$	34270.25	0.938	42 2H	11	$(^3F) ^2H$	22 H
$5f^2(^1G)7s$		$3^{1/2}$	34279.321	1.047	26 2G	14	$5f7s(^1F^\circ)7p ^2G$	34 H
$5f7s(^3F^\circ)7p$		$2^{1/2}$	34543.551	1.003	28 4D	13	$(^3F^\circ) ^4F$	29 H
$5f7s(^3F^\circ)7p$		$4^{1/2}$	34553.950	1.069	19 4G	15	$(^3F^\circ) ^4F$	28 H
$5f6d(^3H^\circ)7p$		4I	$5^{1/2}$	34661.718	0.998	50	12	$(^3H^\circ) ^2H$
$5f6d(^3F^\circ)7p$	4P	$3^{1/2}$	34726.58	0.950	29 4G	18	$5f^2(^3F)6d ^4G$	22 H
$5f^2(^3P)7s$		$^1/2$	34782.74	1.67	57	14	$5f6d(^3P^\circ)7p ^4P$	6 S
$5f7s(^3F^\circ)7p$		4D	$1^{1/2}$	35021.37	1.042	57	15	$(^3F^\circ) ^4F$
$5f^2(^3H)6d$	4K	$6^{1/2}$	35400.78	0.98	91	3	$(^1G) ^2I$	6 Z
$5f7s(^3F^\circ)7p$		4D	$^1/2$	35425.627	0.265	88	2	$5f^2(^3F)6d ^4D$
$5f6d(^1G^\circ)7p$	4I	$4^{1/2}$	35456.181	1.054	23 2H	13	$5f^2(^1G)7s ^2G$	25 H
$5f^2(^3H)6d$		$5^{1/2}$	35525.169	1.024	18 2H	17	$(^3H) ^4K$	16 B
$5f^2(^3H)6d$		$4^{1/2}$	35545.60	0.826	71	8	$(^1G) ^2H$	19 H

TABLE I. Even energy levels of Th II – Continued

Configuration	Term	J	Level (cm^{-1})	g	Leading percentages			n , ref.
					First	Second		
$5f6d(^3F^\circ)7p$		$2^{1/2}$	35741.295	0.954	19 4G	9	$(^3F^\circ) ^2D$	29 H
$5f6d(^1G^\circ)7p$		$3^{1/2}$	35878.862	0.983	17 2F	11	$(^3H^\circ) ^4H$	31 H
$5f^2(^3F)6d$		$1/2$	36040.85	1.210	29 2P	28	$5f^2(^3P)7s ^2P$	11 H
$5f^2(^3F)6d$		$2^{1/2}$	36065.729	0.887	42 4G	10	$(^3H) ^4G$	26 H
$5f^2(^3F)6d$		$4^{1/2}$	36125.335	1.035	22 4H	19	$(^3H) ^4H$	24 H
$5f^2(^3P)7s$	4P	$1^{1/2}$	36328.61	1.615	64	10	$5f6d(^3P^\circ)7p ^4P$	17 H
$5f6d(^1G^\circ)7p$		$3^{1/2}$	36809.279	1.022	13 2F	13	$5f^2(^3F)6d ^4H$	33 H
$5f^2(^3P)7s$		$1/2$	36812.44	0.737	36 2P	17	$5f6d(^3D^\circ)7p ^2P$	13 H
$5f7s(^3F^\circ)7p$		$5^{1/2}$	37053.44		19 4G	14	$5f^2(^3H)6d ^2I$	13 Z
$5f6d(^3H^\circ)7p$		$4^{1/2}$	37063.308	0.999	29 4H	13	$5f^2(^3F)6d ^4H$	27 H
$5f6d(^3F^\circ)7p$		$3^{1/2}$	37277.368	0.881	16 4G	13	$5f^2(^3H)6d ^4G$	26 H
$5f6d(^3F^\circ)7p$		$2^{1/2}$	37465.46	1.048	18 4D	15	$(^3F^\circ) ^2D$	28 H
$5f^2(^3P)7s$		$1^{1/2}$	37542.17	1.003	21 2P	13	$5f6d(^1D^\circ)7p ^2D$	22 H
$5f^2(^3H)6d$	4I	$5^{1/2}$	37562.27	1.008	61	14	$5f7s(^3F^\circ)7p ^4G$	13 R
$5f^2(^1I)7s$	2I	$6^{1/2}$	37575.24	1.088	77	6	$5f6d(^1H^\circ)7p ^2I$	10 R
$5f7s(^3F^\circ)7p$		$5^{1/2}$	37679.71	1.13	31 4G	11	$5f6d(^3H^\circ)7p ^4G$	18 R
$5f6d(^3G^\circ)7p$		$3^{1/2}$	37787.89	1.062	26 4H	11	$(^3G^\circ) ^4G$	27 B
$5f7s(^3F^\circ)7p$		$1^{1/2}$	37821.97	1.15	13 2D	7	$5f6d(^3F^\circ)7p ^4F$	17 B
$5f^2(^3F)6d$		$4^{1/2}$	37840.845	1.07	35 4G	15	$(^3H) ^4G$	21 S
$5f7s(^3F^\circ)7p$		$2^{1/2}$	37945.104	0.893	32 2F	16	$5f6d(^1G^\circ)7p ^2F$	28 H
$5f^2(^3P)7s$		$2^{1/2}$	38105.065	1.172	33 4P	9	$5f6d(^3D^\circ)7p ^4P$	25 H
$5f^2(^3H)6d$	4K	$7^{1/2}$	38107.11	1.08	99			2 Z
$5f7s(^1F^\circ)7p$		$3^{1/2}$	38165.355	0.981	11 2G	7	$5f6d(^3G^\circ)7p ^2F$	30 H
$5f6d(^3H^\circ)7p$		$4^{1/2}$	38179.941	0.979	29 2H	14	$(^3H^\circ) ^4I$	25 H
$5f7s(^3F^\circ)7p$		$3^{1/2}$	38291.801	0.949	19 2G	12	$5f^2(^3F)6d ^4G$	31 H
$5f^2(^3F)6d$		$1^{1/2}$	38372.02	1.200	15 4P	15	$5f6d(^1D^\circ)7p ^2P$	13 B
$5f7s(^3F^\circ)7p$		$3^{1/2}$	38389.368	1.088	16 4D	7	$5f6d(^3F^\circ)7p ^2G$	27 H
$5f^2(^3H)6d$	4I	$6^{1/2}$	38517.98	1.111	55	33	$5f6d(^3H^\circ)7p ^4I$	8 B
$5f7s(^1F^\circ)7p$		$4^{1/2}$	38617.68	1.16	39 2G	19	$(^3F^\circ) ^4F$	20 M
$5f6d(^1D^\circ)7p$		$2^{1/2}$	38728.681	1.255	13 2F	12	$5f^2(^3F)6d ^4P$	31 H
$5f^2(^3F)6d$		$5^{1/2}$	38740.45	1.188	27 4H	20	$(^3H) ^4H$	12 R
$5f^2(^1D)7s$		$1^{1/2}$	38757.190	0.935	14 2D	10	$(^1P) ^2P$	21 H
$5f6d(^3D^\circ)7p$		$1^{1/2}$	38836.20	1.013	21 4F	9	$5f^2(^3P)7s ^2P$	20 H
$5f^2(^1I)7s$		$5^{1/2}$	38862.817	1.083	47 2I	13	$5f6d(^3H^\circ)7p ^2I$	22 R
$5f6d(^3H^\circ)7p$		$2^{1/2}$	38863.85	0.967	15 4G	10	$(^3G^\circ) ^4G$	25 H

TABLE 1. *Even energy levels of Th II – Continued*

Configuration	Term	J	Level (cm^{-1})	g	Leading percentages				n , ref.	
					First		Second			
$5f6d(^3F^\circ)7p$		$1/2$	38867.170	0.947	34	4D	25	$5f^2(^3F)6d\ ^4P$	12	H
$5f^2(^3F)6d$		$3^1/2$	39068.691	1.114	23	2F	7	$5f6d(^3F^\circ)7p\ ^4D$	30	H
$5f^2(^3H)6d$		$6^1/2$	39085.55	1.10	33	2I	25	$(^1I)\ ^2I$	8	S
$5f6d(^3F^\circ)7p$		$1^1/2$	39150.679	0.739	18	4D	12	$(^3D^\circ)\ ^4D$	21	H
$5f6d(^1G^\circ)7p$		$5^1/2$	39352.294	1.05	20	2H	10	$5f^2(^3F)6d\ ^4H$	15	S
$5f7s(^1F^\circ)7p$		$2^1/2$	39366.90	1.140	22	2D	13	$(^3F^\circ)\ ^4D$	24	H
$5f^2(^3F)6d$		$3^1/2$	39458.272	0.979	15	4G	9	$5f6d(^3G^\circ)7p\ ^4G$	24	H
$5f6d(^3F^\circ)7p$		$4^1/2$	39552.244	1.100	13	2G	10	$(^1G^\circ)\ ^2H$	29	H
$5f6d(^3H^\circ)7p$		$2^1/2$	39700.583	1.090	16	4G	10	$(^3F^\circ)\ ^4F$	29	H
$5f6d(^3G^\circ)7p$		$4^1/2$	39895.42	1.024	13	2G	12	$(^3F^\circ)\ ^4G$	29	H
$5f^2(^3F)6d$		$5^1/2$	39939.115	1.12	25	4G	14	$5f^2(^1I)7s\ ^2I$	17	B
$5f^2(^3F)6d$		$1/2$	39948.40	1.542	29	4P	23	$5f6d(^3F^\circ)7p\ ^4D$	9	H
$5f6d(^3H^\circ)7p$		$2^1/2$	40216.12	1.024	23	4G	10	$5f^2(^1D)7s\ ^2D$	23	S
$5f7s(^1F^\circ)7p$		$1^1/2$	40222.903	0.738	25	2D	17	$(^3F^\circ)\ ^2D$	18	H
$5f7s(^1F^\circ)7p$		$1^1/2$	40278.13	0.705	14	2D	13	$5f^2(^3H)6d\ ^4F$	22	H
$5f6d(^3G^\circ)7p$		$4^1/2$	40367.44	1.176	26	4G	8	$(^3G^\circ)\ ^4F$	27	B
$5f6d(^1D^\circ)7p$		$3^1/2$	40411.48	1.106	18	2F	11	$(^3F^\circ)\ ^2G$	25	H
$5f6d(^3P^\circ)7p$		$1/2$	40523.74	0.50	41	4D	12	$(^3D^\circ)\ ^4D$	11	S
$5f6d(^3F^\circ)7p$		$3^1/2$	40570.63	1.1	19	4D	12	$(^3G^\circ)\ ^4G$	28	M
$5f6d(^3H^\circ)7p$		$5^1/2$	40574.76	1.140	14	2H	11	$(^3H^\circ)\ ^4G$	19	B
$5f^2(^3F)6d$		$2^1/2$	40644.331	0.856	11	2F	10	$(^3F)\ ^4P$	35	H
$5f^2(^3H)6d$		$6^1/2$	40724.74	1.129	32	4I	26	$5f6d(^3H^\circ)7p\ ^4I$	11	B
$5f6d(^3D^\circ)7p$		$2^1/2$	40923.62	0.988	24	4F	9	$5f^2(^3H)6d\ ^4F$	30	H
$5f6d(^3F^\circ)7p$		$1^1/2$	40991.58	1.036	10	4D	9	$5f^2(^3H)6d\ ^4F$	23	S
$5f6d(^1G^\circ)7p$		$4^1/2$	41047.209	1.112	30	2G	20	$(^3F^\circ)\ ^4G$	29	B
$5f^2(^3H)6d$	4I	$7^1/2$	41099.07	1.17	83		6	$(^3H)\ ^2K$	5	B
$5f6d(^3H^\circ)7p$		$5^1/2$	41223.56	1.11	35	4H	26	$(^1G^\circ)\ ^2H$	19	B
$5f7s(^3F^\circ)7p$		$2^1/2$	41328.341	1.101	22	2D	7	$5f6d(^3F^\circ)7p\ ^4F$	32	H
$5f^2(^1G)6d$		$4^1/2$	41398.51	0.983	25	2H	10	$5f6d(^3G^\circ)7p\ ^4H$	28	S
$5f^26d + 5f6d7p$		$3^1/2$	41488.15	1.010					31	H
$5f^2(^3F)6d$		$1^1/2$	41676.85	1.220	21	4P	11	$5f6d(^3D^\circ)7p\ ^4D$	21	H
$5f^26d + 5f6d7p$		$3^1/2$	41688.44	0.940					29	H
$5f^2(^3F)6d$		$6^1/2$	41882.39		37	4H	23	$(^3H)\ ^4H$	8	Z
$5f6d(^3F^\circ)7p$		$4^1/2$	41909.33	1.097	12	2G	10	$(^3G^\circ)\ ^4F$	26	B
$5f^2(^3F)6d$		$1^1/2$	41936.53	1.095	22	4P	16	$(^3F)\ ^2D$	18	C

TABLE 1. *Even energy levels of Th II – Continued*

Configuration	Term	<i>J</i>	Level (cm ⁻¹)	<i>g</i>	Leading percentages		<i>n</i> , ref.	
					First	Second		
$5f^2(3F)6d$		1/2	42008.16	0.8	24 ² P	17	$5f6d(3D^\circ)7p$ ⁴ D	7 Z
$5f6d(3G^\circ)7p$		5 ¹ / ₂	42146.54	1.158	31 ⁴ G	12	(³ G [°]) ² H	22 B
$5f6d(3F^\circ)7p$		4 ¹ / ₂	42200.205	1.08	12 ⁴ G	11	(³ H [°]) ² G	32 B
$5f^26d + 5f6d7p$		3 ¹ / ₂	42222.31	0.935				30 S
$5f6d(3P^\circ)7p$		1/2	42246.02	0.8	20 ⁴ P	13	$5f^2(3F)6d$ ⁴ D	7 Z
$5f^26d + 5f6d7p$		2 ¹ / ₂	42336.83	1.15				21 Z
$5f^26d + 5f6d7p$		2 ¹ / ₂	42352.13	1.126				27 H
$5f^26d + 5f6d7p$		3 ¹ / ₂	42518.907	1.080				31 H
$5f6d(3H^\circ)7p$		6 ¹ / ₂	42644.878	1.10	32 ⁴ I	28	(³ H [°]) ⁴ H	10 B
$5f^26d + 5f6d7p$		3 ¹ / ₂	42751.324	1.09				31 S
$5f6d(3H^\circ)7p$		4 ¹ / ₂	42955.85	1.141	21 ⁴ G	15	(² G [°]) ⁴ F	29 B
$5f^2(3H)6d$	² K	6 ¹ / ₂	43014.143	0.976	57	25	(¹ I) ² K	12 H
$5f^26d + 5f6d7p$		2 ¹ / ₂	43096.54	0.982				21 H
$5f6d(3H^\circ)7p$	² I	5 ¹ / ₂	43127.21	1.037	53	9	(³ H [°]) ⁴ H	22 B
$5f^26d + 5f6d7p$		2 ¹ / ₂	43227.86	1.153				22 H
$5f^2(3F)6d$		1 ¹ / ₂	43244.86	1.08	28 ⁴ F	13	(³ F) ² P	16 Z
$5f^26d + 5f6d7p$		3 ¹ / ₂	43246.83	1.033				30 R
$5f^26d + 5f6d7p$		2 ¹ / ₂	43772.47	1.04				28 Z
$5f^26d + 5f6d7p$		3 ¹ / ₂	43803.975	1.026				32 H
$5f6d(3F^\circ)7p$		1 ¹ / ₂	43807.55	1.211	23 ⁴ D	18	(³ D [°]) ⁴ D	21 H
$5f^26d + 5f6d7p$		4 ¹ / ₂	43809.26	1.102				27 B
$5f6d(3P^\circ)7p$		1/2	43965.62	1.555	20 ⁴ D	15	$5f^2(3F)6d$ ⁴ D	12 S
$5f^26d + 5f6d7p$		4 ¹ / ₂	44096.26	1.14				27 Z
$5f6d(3G^\circ)7p$		5 ¹ / ₂	44177.26	1.12	18 ⁴ H	17	$5f^2(1G)6d$ ² H	20 B
$5f^2(3F)6d$		1 ¹ / ₂	44300.548	1.342	19 ⁴ F	9	$5f6d(3F^\circ)7p$ ² D	18 H
$5f^26d + 5f6d7p$		2 ¹ / ₂	44388.77	1.158				29 H
$5f^26d + 5f6d7p$		4 ¹ / ₂	44450.28	1.04				26 M
$5f^26d + 5f6d7p$		3 ¹ / ₂	44503.80	1.058				26 H
$5f^26d + 5f6d7p$		2 ¹ / ₂	44552.68	1.182				21 H
$5f6d(3F^\circ)7p$		5 ¹ / ₂	44727.24	1.2	43 ⁴ G	10	(³ H [°]) ⁴ G	17 M
$5f6d(1D^\circ)7p$		1/2	44789.30	0.84	24 ² P	18	(³ F [°]) ⁴ D	13 Z
$5f^26d + 5f6d7p$		3 ¹ / ₂	44807.95	1.078				29 B
$5f^2(3F)6d$		1 ¹ / ₂	44889.81	1.346	36 ⁴ D	21	$5f6d(3P^\circ)7p$ ⁴ D	19 C
$5f^26d + 5f6d7p$		3 ¹ / ₂	44898.77	1.181				29 H
$5f6d(3H^\circ)7p$	⁴ I	7 ¹ / ₂	45095.24		58	25	$5f^2(3H)6d$ ² K	5 Z

TABLE 1. *Even energy levels of Th II – Continued*

Configuration	Term	J	Level (cm^{-1})	g	Leading percentages		n , ref.
					First	Second	
$5f^26d + 5f6d7p$		$4^{1/2}$	45126.24	1.21			24 B
$5f^26d + 5f6d7p$		$2^{1/2}$	45189.645	0.674			24 H
$5f6d(^3P^{\circ})7p$		$1^{1/2}$	45306.16	0.6	27 4P	17 $(^3D^{\circ}) ^4P$	13 Z
$5f^26d + 5f6d7p$		$3^{1/2}$	45395.04	1.216			21 S
$5f^26d + 5f6d7p$		$2^{1/2}$	45610.63	1.075			23 H
$5f6d(^3H^{\circ})7p$		$7^{1/2}$	45646.25	1.13	35 4I	29 $5f^2(^3H)6d ^2K$	3 Z
$5f^2(^3H)6d$		$5^{1/2}$	45735.10	1.141	34 4H	16 $(^3F) ^4H$	20 B
$5f^26d + 5f6d7p$		$2^{1/2}$	45800.27	1.3			26 Z
$5f^26d + 5f6d7p$		$4^{1/2}$	45904.40	1.02			17 S
$5f6d(^3F^{\circ})7p$		$5^{1/2}$	46216.583	1.16	14 4G	14 $5f^2(^3F)6d ^4G$	21 S
$5f^26d + 5f6d7p$		$4^{1/2}$	46253.33	1.01			23 M
$5f6d(^1D^{\circ})7p$		$1^{1/2}$	46264.24	0.891	13 2P	10 $(^3D^{\circ}) ^4D$	17 H
$5f^26d + 5f6d7p$		$3^{1/2}$	46352.23	1.1			34 C
$5f6d(^3H^{\circ})7p$		$6^{1/2}$	46378.86	1.13	29 2I	25 $5f^2(^3H)6d ^4H$	11 B
$5f^26d + 5f6d7p$		$3^{1/2}$	46385.42	1.07			31 Z
$5f6d(^3G^{\circ})7p$		$1^{1/2}$	46395.98		23 4F	17 $5f^2(^3H)6d ^4F$	15 Z
$5f6d(^3G^{\circ})7p$		$5^{1/2}$	46555.61		32 4H	20 $(^3H^{\circ}) ^4G$	15 Z
$5f^26d + 5f6d7p$		$2^{1/2}$	46581.30	1.018			28 C
$5f^26d + 5f6d7p$		$2^{1/2}$	46603.20	1.112			28 H
$5f^26d + 5f6d7p$		$3^{1/2}$	46706.25	1.081			19 H
$5f6d(^3G^{\circ})7p$		$5^{1/2}$	46861.59	1.15	12 4H	12 $5f^2(^1I)6d ^2I$	20 Z
$5f^26d + 5f6d7p$		$2^{1/2}$	46902.54	1.143			22 H
$5f6d(^3H^{\circ})7p$		$6^{1/2}$	46910.78	1.18	26 4H	22 $(^3H^{\circ}) ^2I$	14 S
$5f^2(^1D)6d$		$1^{1/2}$	46935.66	0.956	22 2P	19 $(^3P) ^2P$	23 H
$5f6d(^3D^{\circ})7p$		$^{1/2}$	47145.77		19 4D	18 $(^3D^{\circ}) ^4P$	8 C
$5f6d(^3P^{\circ})7p$		$1^{1/2}$	47148.60	1.09	11 4S	9 $5f^2(^3F)6d ^4D$	19 H
$5f^26d + 5f6d7p$		$4^{1/2}$	47171.38	1.15			23 Z
$5f^26d + 5f6d7p$		$2^{1/2}$	47324.39	1.189			35 H
$5f6d(^3G^{\circ})7p$		$5^{1/2}$	47675.06	1.15	17 2H	14 $5f^2(^3H)6d ^4G$	6 Z
$5f^26d + 5f6d7p$		$4^{1/2}$	47731.50	1.1			24 M
$5f^2(^3P)6d$		$1^{1/2}$	47869.61		18 4F	14 $(^3F) ^2D$	25 Z
$5f^26d + 5f6d7p$		$3^{1/2}$	47871.39	1.194			23 S
$5f^26d + 5f6d7p$		$4^{1/2}$	48006.87	1.13			25 Z
$5f^26d + 5f6d7p$		$3^{1/2}$	48298.50	1.07			22 S
$5f^26d + 5f6d7p$		$2^{1/2}$	48320.81				20 Z

TABLE 1. *Even energy levels of Th II – Continued*

Configuration	Term	<i>J</i>	Level (cm ⁻¹)	<i>g</i>	Leading percentages				<i>n</i> , ref.
					First		Second		
<i>5f</i> ² <i>6d</i> + <i>5f</i> <i>6d</i> <i>7p</i>		3 ¹ / ₂	48453.12						22 Z
<i>5f</i> ² <i>6d</i> + <i>5f</i> <i>6d</i> <i>7p</i>		2 ¹ / ₂	48492.03						20 Z
<i>5f</i> <i>6d</i> (³ G°) <i>7p</i>		6 ¹ / ₂	48612.23	1.08	49 ⁴ H	17	<i>5f</i> ² (¹ G) <i>6d</i> ² I		9 Z
<i>5f</i> <i>6d</i> (³ D°) <i>7p</i>		1 ¹ / ₂	48689.95	0.922	19 ² D	12	<i>5f</i> ² (³ P) <i>6d</i> ⁴ F		24 H
<i>5f</i> ² (³ P) <i>6d</i>		1 ¹ / ₂	48817.97	0.956	22 ⁴ F	19	<i>5f</i> <i>6d</i> (³ D°) <i>7p</i> ² D		17 H
<i>5f</i> ² <i>6d</i> + <i>5f</i> <i>6d</i> <i>7p</i>		4 ¹ / ₂	48844.96	1.1					25 S
<i>5f</i> ² <i>6d</i> + <i>5f</i> <i>6d</i> <i>7p</i>		2 ¹ / ₂	49068.82						22 Z
<i>5f</i> ² (¹ I) <i>6d</i>		5 ¹ / ₂	49124.56		18 ² H	18	<i>5f</i> <i>6d</i> (³ G°) <i>7p</i> ⁴ G		18 Z
<i>5f</i> <i>6d</i> (³ G°) <i>7p</i>		5 ¹ / ₂	49357.99	1.15	30 ² H	28	(¹ H°) ² H		15 Z
<i>5f</i> ² <i>6d</i> + <i>5f</i> <i>6d</i> <i>7p</i>		3 ¹ / ₂	49377.17	1.2					23 M
<i>5f</i> <i>6d</i> (³ P°) <i>7p</i>		1 ¹ / ₂	49414.65	1.003	18 ⁴ S	14	<i>5f</i> ² (³ P) <i>6d</i> ⁴ D		14 H
<i>5f</i> <i>6d</i> (³ D°) <i>7p</i>		1 ¹ / ₂	49485.52		17 ⁴ P	16	<i>5f</i> ² (³ P) <i>6d</i> ⁴ D		10 Z
<i>5f</i> ² (¹ I) <i>6d</i>		6 ¹ / ₂	49527.320	1.1	26 ² I	25	<i>5f</i> <i>6d</i> (³ G°) <i>7p</i> ⁴ H		7 Z
<i>5f</i> ² <i>6d</i> + <i>5f</i> <i>6d</i> <i>7p</i>		4 ¹ / ₂	49837.66						19 Z
<i>5f</i> ² <i>6d</i> + <i>5f</i> <i>6d</i> <i>7p</i>		2 ¹ / ₂	49873.098						23 Z
<i>5f</i> ² <i>6d</i> + <i>5f</i> <i>6d</i> <i>7p</i>		3 ¹ / ₂	49960.57	1.248					27 R
<i>5f</i> ² <i>6d</i> + <i>5f</i> <i>6d</i> <i>7p</i>		3 ¹ / ₂	50407.27						16 M
<i>5f</i> ² <i>6d</i> + <i>5f</i> <i>6d</i> <i>7p</i>		4 ¹ / ₂	50470.04	1.18					30 S
<i>5f</i> <i>6d</i> (¹ H°) <i>7p</i>		5 ¹ / ₂	50631.12		19 ² I	18	<i>5f</i> ² (³ F) <i>6d</i> ² H		14 Z
<i>5f</i> ² <i>6d</i> + <i>5f</i> <i>6d</i> <i>7p</i>		2 ¹ / ₂	50663.62						20 Z
<i>5f</i> <i>6d</i> (³ D°) <i>7p</i>		1 ¹ / ₂	50735.47	1.36	16 ² P	9	(³ P°) ⁴ S		23 C
<i>5f</i> <i>6d</i> (³ D°) <i>7p</i>		1 ¹ / ₂	50907.79	1.3	26 ⁴ P	10	<i>5f</i> ² (³ F) <i>6d</i> ⁴ P		10 Z
<i>5f</i> ² (³ P) <i>6d</i>		1 ¹ / ₂	51024.846	1.270	24 ⁴ D	15	<i>5f</i> <i>6d</i> (³ P°) <i>7p</i> ⁴ P		16 C
<i>5f</i> ² <i>6d</i> + <i>5f</i> <i>6d</i> <i>7p</i>		4 ¹ / ₂	51224.27						19 Z
<i>5f</i> ² <i>6d</i> + <i>5f</i> <i>6d</i> <i>7p</i>		3 ¹ / ₂	51268.12						21 Z
<i>5f</i> ² <i>6d</i> + <i>5f</i> <i>6d</i> <i>7p</i>		2 ¹ / ₂	51362.89						21 Z
<i>5f</i> ² (³ P) <i>6d</i>		1 ¹ / ₂	51653.96		24 ² P	17	(³ P) ⁴ D		10 Z
<i>5f</i> <i>6d</i> (¹ P°) <i>7p</i>		1 ¹ / ₂	51676.08		25 ² D	11	<i>5f</i> ² (³ P) <i>6d</i> ⁴ P		15 Z
<i>5f</i> ² <i>6d</i> + <i>5f</i> <i>6d</i> <i>7p</i>		4 ¹ / ₂	51681.99						17 Z
<i>5f</i> ² <i>6d</i> + <i>5f</i> <i>6d</i> <i>7p</i>		3 ¹ / ₂	51830.53						25 Z
<i>5f</i> ² <i>6d</i> + <i>5f</i> <i>6d</i> <i>7p</i>		2 ¹ / ₂	51865.14						25 Z
<i>5f</i> ² <i>6d</i> + <i>5f</i> <i>6d</i> <i>7p</i>		2 ¹ / ₂	51935.68						22 Z
<i>5f</i> ² (¹ I) <i>6d</i>	² I	5 ¹ / ₂	52170.20	1.12	55	16	<i>5f</i> <i>6d</i> (¹ H°) <i>7p</i> ² H		16 Z
<i>5f</i> ² <i>6d</i> + <i>5f</i> <i>6d</i> <i>7p</i>		3 ¹ / ₂	52272.33						19 Z
<i>5f</i> <i>6d</i> (¹ P°) <i>7p</i>		1 ¹ / ₂	52307.48		22 ² D	12	<i>5f</i> ² (¹ G) <i>6d</i> ² D		15 Z

TABLE 1. *Even energy levels of Th II – Continued*

Configuration	Term	J	Level (cm^{-1})	g	Leading percentages		$n, \text{ref.}$
					First	Second	
$5f^2 6d + 5f 6d 7p$		$3^1/2$	52562.52				19 Z
$5f 6d(^3P^\circ) 7p$		$1^1/2$	52735.74		22 2D	16 $(^3P^\circ) ^2P$	17 Z
$5f^2(^1I) 6d$		$6^1/2$	52918.92		36 2I	18 $(^3H) ^2I$	10 Z
$5f^2 6d + 5f 6d 7p$		$4^1/2$	53520.890				17 Z
$5f^2 6d + 5f 6d 7p$		$2^1/2$	53845.40				20 Z
$5f^2 6d + 5f 6d 7p$		$3^1/2$	54010.17				18 Z
$5f^2 6d + 5f 6d 7p$		$3^1/2$	54169.67				14 Z
$5f^2 6d + 5f 6d 7p$		$2^1/2$	54493.99				20 M
$5f^2 6d + 5f 6d 7p$		$4^1/2$	54845.32				15 Z
$5f 6d(^1F^\circ) 7p$		$1^1/2$	54922.10		18 2D	17 $5f^2(^3P) 6d ^4P$	15 Z
$5f^2 6d + 5f 6d 7p$		$4^1/2$	55496.83				18 Z
$5f 6d(^1F^\circ) 7p$		$1^1/2$	56235.23		16 2D	15 $5f^2(^3P) 6d ^4P$	14 Z
$5f^2 6d + 5f 6d 7p$		$2^1/2$	56391.01				16 Z
$5f^2(^1I) 6d$		$5^1/2$	56945.14	1.1	40 2H	26 $5f 6d(^1H^\circ) 7p ^2H$	11 Z
$5f^2 6d + 5f 6d 7p$		$4^1/2$	57078.52				13 Z
$5f^2 6d + 5f 6d 7p$		$3^1/2$	59387.31				14 Z

TABLE 2. *Odd energy levels of Th II*

Configuration	Term	J	Level (cm^{-1})	g	Leading percentages		$n, \text{ref.}$
					First	Second	
$5f(^2F^\circ) 7s^2$	$^2F^\circ$	$2^1/2$	4490.256	0.856	89	3 $5f(^1S^\circ) 6d^2 ^2F^\circ$	74 H
$5f 6d(^3H^\circ) 7s$	$^4H^\circ$	$3^1/2$	6168.351	0.718	78	17 $(^1G^\circ) ^2G^\circ$	76 H
$5f 6d(^3F^\circ) 7s$	$^4F^\circ$	$1^1/2$	6691.386	0.492	74	20 $(^1D^\circ) ^2D^\circ$	60 H
$5f 6d(^3H^\circ) 7s$		$4^1/2$	6700.183	1.018	37 $^4H^\circ$	27 $(^1G^\circ) ^2G^\circ$	70 H
$5f 6d(^3F^\circ) 7s$	$^4F^\circ$	$2^1/2$	7331.485	1.061	54	25 $(^1D^\circ) ^2D^\circ$	77 H
$5f(^2F^\circ) 7s^2$	$^2F^\circ$	$3^1/2$	8378.853	1.132	85	3 $5f(^1S^\circ) 6d^2 ^2F^\circ$	91 H
$5f 6d(^1G^\circ) 7s$	$^2G^\circ$	$3^1/2$	9202.264	0.911	50	17 $(^3F^\circ) ^4F^\circ$	86 H
$5f 6d(^1G^\circ) 7s$		$4^1/2$	9238.018	1.086	44 $^2G^\circ$	31 $(^3H^\circ) ^4H^\circ$	76 H
$5f 6d(^3G^\circ) 7s$	$^4G^\circ$	$2^1/2$	9585.404	0.601	83	6 $6d(^3F) 7p ^4G^\circ$	87 H
$5f 6d(^3F^\circ) 7s$	$^4F^\circ$	$3^1/2$	9720.296	1.173	60	11 $(^3G^\circ) ^4G^\circ$	84 H

TABLE 2. *Odd energy levels of Th II—Continued*

Configuration	Term	<i>J</i>	Level (cm ⁻¹)	<i>g</i>	Leading percentages			<i>n</i> , ref.
					First	Second		
<i>5f6d</i> (³ H°) <i>7s</i>	⁴ H°	5 ¹ / ₂	10189.063	1.128	81	13	(³ H°) ² H°	62 H
<i>5f6d</i> (³ H°) <i>7s</i>		4 ¹ / ₂	10572.042	0.931	45	² H°	27 (³ H°) ⁴ H°	79 H
<i>5f6d</i> (³ F°) <i>7s</i>		2 ¹ / ₂	10673.137	1.088	40	⁴ F°	31 (¹ D°) ² D°	82 H
<i>5f6d</i> (³ G°) <i>7s</i>	⁴ G°	3 ¹ / ₂	11116.584	0.983	54	8	(¹ G°) ² G°	99 H
<i>5f6d</i> (¹ D°) <i>7s</i>	² D°	1 ¹ / ₂	11576.402	0.832	51	19	(³ F°) ⁴ F°	67 H
<i>5f6d</i> (³ D°) <i>7s</i>	⁴ D°	1/2	11725.431	0.255	53	12	<i>5f</i> (¹ D°) <i>6d</i> ² ² P°	33 H
<i>5f6d</i> (³ F°) <i>7s</i>	² F°	2 ¹ / ₂	12472.178	0.982	55	17	(¹ D°) ² D°	89 H
<i>5f</i> (³ F°) <i>6d</i> ²		3 ¹ / ₂	12485.688	0.855	37	⁴ H°	20 (³ F°) ² G°	90 B
<i>5f6d</i> (³ F°) <i>7s</i>	⁴ F°	4 ¹ / ₂	12488.288	1.245	53	30	(³ G°) ⁴ G°	82 B
<i>5f6d</i> (³ D°) <i>7s</i>		1 ¹ / ₂	12902.378	1.167	48	⁴ D°	9 (¹ D°) ² D°	71 H
<i>5f6d</i> (³ H°) <i>7s</i>	⁴ H°	6 ¹ / ₂	13406.439	1.231	96	2	<i>5f</i> (³ F°) <i>6d</i> ² ⁴ H°	28 B
<i>5f6d</i> (³ G°) <i>7s</i>	⁴ G°	4 ¹ / ₂	13468.969	1.185	57	20	(³ F°) ⁴ F°	68 B
<i>5f6d</i> (³ F°) <i>7s</i>		3 ¹ / ₂	13818.339	1.153	26	² F°	17 (¹ F°) ² F°	94 B
<i>5f6d</i> (³ D°) <i>7s</i>		1/2	14101.800	0.523	33	⁴ D°	29 <i>5f</i> (¹ D°) <i>6d</i> ² ² P°	38 S
<i>5f</i> (³ F°) <i>6d</i> ²	⁴ F°	4 ¹ / ₂	14275.583	0.791	77	10	<i>5f6d</i> (³ H°) <i>7s</i> ² H°	75 H
<i>5f6d</i> (³ H°) <i>7s</i>	² H°	5 ¹ / ₂	14484.327	1.09	60	15	<i>5f</i> (¹ D°) <i>6d</i> ² ² H°	59 B
<i>5f6d</i> (³ D°) <i>7s</i>	⁴ D°	2 ¹ / ₂	14545.557	1.339	67	6	(¹ D°) ² D°	80 B
<i>5f6d</i> (³ G°) <i>7s</i>		3 ¹ / ₂	14790.996	0.862	40	² G°	29 <i>5f</i> (³ F°) <i>6d</i> ² ⁴ H°	91 H
<i>5f6d</i> (³ P°) <i>7s</i>		1 ¹ / ₂	15144.738	1.366	41	⁴ P°	14 (³ D°) ⁴ D°	65 H
<i>5f</i> (³ F°) <i>6d</i> ²	⁴ H°	4 ¹ / ₂	15242.905	1.00	59	20	(³ F°) ² G°	56 B
<i>5f6d</i> (³ P°) <i>7s</i>	⁴ P°	1/2	15324.239	2.565	87	5	<i>6d7s</i> (³ D) <i>7p</i> ⁴ P°	28 S
<i>5f6d</i> (³ G°) <i>7s</i>	⁴ G°	5 ¹ / ₂	15349.879	1.267	91	4	<i>6d</i> ² (³ F) <i>7p</i> ⁴ G°	50 B
<i>5f6d</i> (³ D°) <i>7s</i>	⁴ D°	3 ¹ / ₂	15453.036	1.296	55	17	(³ F°) ² F°	92 B
<i>5f6d</i> (³ D°) <i>7s</i>	² D°	1 ¹ / ₂	15710.843	0.643	52	21	(³ P°) ⁴ P°	67 R
<i>5f6d</i> (³ D°) <i>7s</i>		2 ¹ / ₂	16033.149	1.07	33	² D°	32 (¹ F°) ² F°	77 B
<i>5f</i> (³ F°) <i>6d</i> ²	⁴ F°	5 ¹ / ₂	16564.633	0.98	86	4	(¹ G°) ² F°	47 B
<i>5f</i> (³ F°) <i>6d</i> ²		3 ¹ / ₂	16906.604	0.950	24	² G°	17 (³ F°) ⁴ H°	82 S
<i>5f</i> (¹ D°) <i>6d</i> ²		1 ¹ / ₂	17121.623	1.277	28	² P°	28 <i>5f6d</i> (³ P°) <i>7s</i> ² P°	60 H
<i>5f6d</i> (³ G°) <i>7s</i>	² G°	4 ¹ / ₂	17272.252	1.083	58	12	<i>5f</i> (¹ D°) <i>6d</i> ² ² G°	79 B
<i>5f6d</i> (³ P°) <i>7s</i>	⁴ P°	2 ¹ / ₂	17460.625	1.51	73	8	(¹ D°) ² D°	83 B
<i>5f</i> (³ F°) <i>6d</i> ²		4 ¹ / ₂	17722.990	1.08	45	² G°	30 (³ F°) ⁴ H°	59 M
<i>5f</i> (³ F°) <i>6d</i> ²	⁴ H°	5 ¹ / ₂	17771.06	1.10	69	13	(¹ G°) ² F°	45 B
<i>5f6d</i> (³ P°) <i>7s</i>		1/2	17837.804	1.080	30	² P°	25 <i>5f</i> (³ F°) <i>6d</i> ² ⁴ D°	29 M
<i>5f</i> (³ F°) <i>6d</i> ²		2 ¹ / ₂	17983.388	0.995	25	² F°	14 (³ F°) ⁴ D°	72 S
<i>5f</i> (³ F°) <i>6d</i> ²		1 ¹ / ₂	18214.423	0.876	31	⁴ F°	14 (³ F°) ⁴ D°	48 H

TABLE 2. *Odd energy levels of Th II—Continued*

Configuration	Term	<i>J</i>	Level (cm ⁻¹)	<i>g</i>	Leading percentages				<i>n.</i> ref.		
					First		Second				
<i>5f</i> (³ F°) <i>6d</i> ²	⁴ I°	1/2	18568.27	1.007	44	² S°	25	(³ F°) ⁴ D°	31	Z	
<i>5f</i> (³ F°) <i>6d</i> ²		6 ¹ /2	18816.87	1.10	72		8	(¹ G°) ² I°	34	B	
<i>5f6d</i> (¹ F°) <i>7s</i>		3 ¹ /2	18973.782	1.12	37	² F°	14	<i>5f</i> (³ F°) <i>6d</i> ² ² G°	57	S	
<i>5f</i> (³ F°) <i>6d</i> ²		1 ¹ /2	19050.832	0.888	33	⁴ F°	23	(³ F°) ⁴ D°	45	H	
<i>5f6d</i> (³ D°) <i>7s</i>		2 ¹ /2	19248.267	0.931	20	² D°	16	(¹ F°) ² F°	63	H	
<i>5f</i> (³ F°) <i>6d</i> ²	⁴ H°	6 ¹ /2	19912.34	1.16	56		22	(³ F°) ⁴ I°	30	B	
<i>5f6d</i> (¹ F°) <i>7s</i>		3 ¹ /2	20080.667	1.142	14	² F°	12	<i>5f</i> (³ F°) <i>6d</i> ² ² F°	60	H	
<i>5f</i> (³ P°) <i>6d</i> ²		2 ¹ /2	20120.157	0.743	44	⁴ G°	15	(³ F°) ⁴ F°	64	R	
<i>5f</i> (¹ G°) <i>6d</i> ²		5 ¹ /2	20288.57	0.97	42	² I°	26	(³ F°) ⁴ H°	37	M	
<i>5f</i> (³ F°) <i>6d</i> ²		2 ¹ /2	20310.944	1.161	17	⁴ D°	15	(³ F°) ⁴ G°	62	M	
<i>5f</i> (³ F°) <i>6d</i> ²		2 ¹ /2	20686.148	0.945	39	⁴ F°	8	(³ P°) ⁴ G°	59	B	
<i>5f</i> (³ P°) <i>6d</i> ²		3 ¹ /2	20969.01	0.99	39	⁴ G°	14	(³ F°) ⁴ G°	50	M	
<i>5f</i> (¹ D°) <i>6d</i> ²		4 ¹ /2	20989.81	0.953	27	² H°	16	<i>5f6d</i> (³ G°) <i>7s</i> ² G°	63	S	
<i>5f6d</i> (¹ P°) <i>7s</i>		1 ¹ /2	21131.81	1.24	24	² P°	18	<i>5f</i> (³ F°) <i>6d</i> ² ² P°	47	M	
<i>5f</i> (³ F°) <i>6d</i> ²		2 ¹ /2	21297.417	0.767	38	⁴ G°	21	(³ P°) ⁴ G°	62	H	
<i>5f</i> (³ F°) <i>6d</i> ²	² H°	3 ¹ /2	21682.747	1.248	41	⁴ F°	17	(³ F°) ⁴ D°	51	B	
<i>5f6d</i> (¹ H°) <i>7s</i>		5 ¹ /2	22014.881	1.10	61		18	<i>5f</i> (¹ D°) <i>6d</i> ² ² H°	47	S	
<i>5f</i> (³ F°) <i>6d</i> ²		⁴ I°	7 ¹ /2	22028.00	1.18	97		2	(¹ G°) ² K°	11	S
<i>5f</i> (¹ G°) <i>6d</i> ²		4 ¹ /2	22139.66	1.090	23	² G°	19	(¹ G°) ² H°	55	H	
<i>5f6d</i> (¹ P°) <i>7s</i>		1/2	22355.208	0.77	35	² P°	16	<i>5f</i> (³ F°) <i>6d</i> ² ² P°	23	M	
<i>5f</i> (³ P°) <i>6d</i> ²	⁴ G°	2 ¹ /2	22513.290	1.17	43	² D°	21	(³ F°) ⁴ D°	40	C	
<i>5f6d</i> (¹ H°) <i>7s</i>		4 ¹ /2	22642.107	1.043	42	² H°	9	<i>5f</i> (¹ D°) <i>6d</i> ² ² G°	50	H	
<i>5f</i> (³ F°) <i>6d</i> ²		3 ¹ /2	22685.447	0.981	65		12	(³ P°) ⁴ G°	45	B	
<i>5f</i> (³ P°) <i>6d</i> ²		1 ¹ /2	23012.060	1.017	25	⁴ F°	13	(³ P°) ² D°	30	H	
<i>5f</i> (¹ G°) <i>6d</i> ²		6 ¹ /2	23187.02		31	² I°	31	(³ F°) ⁴ H°	23	Z	
<i>6d7s</i> (³ D) <i>7p</i>	⁴ P°	1 ¹ /2	23372.582	1.067	29	⁴ F°	9	<i>5f</i> (³ P°) <i>6d</i> ² ⁴ F°	27	H	
<i>5f</i> (³ F°) <i>6d</i> ²		3 ¹ /2	23518.425	1.2	21	⁴ F°	18	(³ F°) ⁴ D°	45	M	
<i>5f</i> (³ P°) <i>6d</i> ²		3 ¹ /2	23697.66	1.0	26	⁴ G°	26	(¹ G°) ² G°	43	Z	
<i>5f</i> (³ F°) <i>6d</i> ²		4 ¹ /2	23730.656	1.186	45	⁴ F°	13	(¹ G°) ² H°	35	H	
<i>5f</i> (³ F°) <i>6d</i> ²		1 ¹ /2	24132.037	1.429	60		5	<i>6d7s</i> (³ D) <i>7p</i> ⁴ F°	30	H	
<i>5f</i> (¹ G°) <i>6d</i> ²	⁴ P°	5 ¹ /2	24309.226	1.11	25	² H°	25	(³ F°) ² H°	31	M	
<i>5f</i> (³ F°) <i>6d</i> ²		1 ¹ /2	24414.643	1.105	24	⁴ S°	17	<i>6d7s</i> (³ D) <i>7p</i> ⁴ F°	29	H	
<i>5f</i> (³ F°) <i>6d</i> ²		2 ¹ /2	24463.792	1.396	64		7	(³ F°) ² D°	43	H	
<i>5f</i> (³ F°) <i>6d</i> ²		4 ¹ /2	24757.507	1.13	45	⁴ G°	40	(³ P°) ⁴ G°	37	S	
<i>6d7s</i> (³ D) <i>7p</i>		2 ¹ /2	24873.981	1.081	26	⁴ F°	20	<i>5f</i> (³ P°) <i>6d</i> ² ⁴ F°	25	H	

TABLE 2. *Odd energy levels of Th II—Continued*

Configuration	Term	<i>J</i>	Level (cm ⁻¹)	<i>g</i>	Leading percentages				<i>n</i> , ref.
					First		Second		
$5f(1G^\circ)6d^2$		3 ¹ / ₂	24982.451	0.990	30	² G°	24	(¹ D°) ² G°	37 H
$5f(3P^\circ)6d^2$		1 ¹ / ₂	25027.04	0.6	28	⁴ D°	22	(³ F°) ⁴ P°	6 Z
$5f(3P^\circ)6d^2$		1 ¹ / ₂	25188.124	0.937	19	⁴ D°	16	(³ P°) ⁴ F°	23 H
$5f(3F^\circ)6d^2$		1 ¹ / ₂	25266.498	0.725	32	⁴ P°	29	(³ P°) ⁴ D°	12 H
$5f(3F^\circ)6d^2$		5 ¹ / ₂	25414.92	1.236	44	⁴ G°	28	(¹ G°) ² H°	33 M
$5f(3P^\circ)6d^2$		2 ¹ / ₂	25440.234	1.138	20	⁴ F°	13	(³ F°) ⁴ P°	33 H
$5f6d(1P^\circ)7s$		1 ¹ / ₂	25594.88	1.27	17	² P°	14	$5f(3F^\circ)6d^2$ ² S°	7 Z
$5f(3F^\circ)6d^2$		4 ¹ / ₂	25607.12	1.09	23	⁴ C°	17	(³ P°) ⁴ G°	32 M
$5f(3P^\circ)6d^2$		2 ¹ / ₂	26424.48	1.169	29	⁴ F°	20	(³ P°) ⁴ D°	29 H
$5f(3P^\circ)6d^2$		1 ¹ / ₂	26586.27	0.76	28	⁴ F°	28	(³ P°) ² D°	19 Z
$6d7s(3D)7p$		1 ¹ / ₂	26626.478	0.645	38	⁴ D°	19	(³ D) ² P°	8 H
$5f(1G^\circ)6d^2$	² K°	6 ¹ / ₂	26647.80		86		7	(¹ G°) ² I°	11 M
$5f(3P^\circ)6d^2$	⁴ G°	5 ¹ / ₂	26770.495	1.250	53		33	(³ F°) ⁴ G°	22 S
$5f(3P^\circ)6d^2$	⁴ F°	3 ¹ / ₂	26963.92	1.20	73		7	(³ F°) ⁴ F°	22 Z
$5f(3F^\circ)6d^2$		1 ¹ / ₂	26965.202	1.384	35	⁴ S°	17	(³ F°) ² P°	24 B
$5f(3P^\circ)6d^2$	⁴ D°	3 ¹ / ₂	27249.543	1.382	50		18	(³ F°) ⁴ D°	24 R
$5f(1G^\circ)6d^2$		4 ¹ / ₂	27357.36	1.02	25	² H°	14	(³ P°) ⁴ F°	35 M
$5f(1D^\circ)6d^2$		1 ¹ / ₂	27403.18	1.002	20	² D°	20	(³ P°) ⁴ D°	11 H
$5f(1G^\circ)6d^2$		4 ¹ / ₂	27787.84	1.16	31	² G°	18	(¹ D°) ² G°	23 M
$6d7s(3D)7p$		2 ¹ / ₂	28243.812	0.922	25	⁴ F°	17	$6d^2(3F)7p$ ⁴ G°	22 H
$5f(1G^\circ)6d^2$		2 ¹ / ₂	28587.36	1.0	42	² F°	17	(³ F°) ² F°	26 Z
$6d7s(3D)7p$		1 ¹ / ₂	28720.835	1.162	46	⁴ D°	9	(³ D) ² P°	16 H
$5f(3F^\circ)6d^2$		2 ¹ / ₂	28923.20	1.07	22	² D°	15	(¹ D°) ² D°	19 Z
$5f(1D^\circ)6d^2$		2 ¹ / ₂	29095.467	0.998	24	² F°	11	$6d^2(3F)7p$ ⁴ G°	26 H
$5f(3F^\circ)6d^2$		1 ¹ / ₂	29720.32	0.990	21	² D°	15	(¹ D°) ² D°	21 H
$5f(3P^\circ)6d^2$	⁴ F°	4 ¹ / ₂	29788.45		67		13	(¹ D°) ² G°	18 Z
$5f(1G^\circ)6d^2$	² F°	3 ¹ / ₂	30101.42	1.13	68		13	(³ F°) ² F°	21 Z
$5f(1G^\circ)6d^2$	² K°	7 ¹ / ₂	30223.14		97		2	(³ F°) ⁴ I°	4 Z
$5f(1G^\circ)6d^2$		5 ¹ / ₂	30310.210	1.1	34	² H°	23	(¹ D°) ² H°	19 Z
$5f(3F^\circ)6d^2$		1 ¹ / ₂	30564.58	0.553	25	² P°	20	(¹ D°) ² P°	7 H
$5f(3F^\circ)6d^2$	² H°	4 ¹ / ₂	30956.568	0.94	50		23	(¹ D°) ² H°	16 Z
$6d^2(3F)7p$		2 ¹ / ₂	30972.166	1.217	16	⁴ G°	15	$6d7s(3D)7p$ ² D°	16 H
$6d7s(3D)7p$	⁴ F°	3 ¹ / ₂	30994.263	1.199	53		8	$6d^2(3F)7p$ ⁴ G°	19 H
$6d7s(3D)7p$		1 ¹ / ₂	31353.127	0.863	17	⁴ F°	9	$6d^2(3F)7p$ ² D°	15 H
$7s^2(1S^\circ)7p$		1 ¹ / ₂	31625.680	0.344	31	² P°	26	$6d7s(3D)7p$ ⁴ D°	10 H

TABLE 2. *Odd energy levels of Th II—Continued*

Configuration	Term	J	Level (cm^{-1})	g	Leading percentages			n , ref.
					First	Second		
$5f(1D^\circ)6d^2$		$3^1/2$	31800.192	1.168	37 $^2F^\circ$	11	$(^3P^\circ) ^2F^\circ$	24 H
$6d7s(^3D)7p$		$2^1/2$	31810.548	1.118	36 $^4D^\circ$	12	$6d^2(^3F)7p ^2D^\circ$	19 H
$5f(^3F^\circ)6d^2$		$5^1/2$	31924.599	0.99	26 $^2H^\circ$	22	$(^3F^\circ) ^2I^\circ$	16 Z
$5f(^3F^\circ)6d^2$		$1^1/2$	31928.714	0.891	25 $^2D^\circ$	16	$(^1G^\circ) ^2D^\circ$	18 H
$5f(1D^\circ)6d^2$		$2^1/2$	32850.07	1.093	18 $^2D^\circ$	16	$(^3F^\circ) ^2D^\circ$	16 H
$6d^2(^3F)7p$	$^4G^\circ$	$3^1/2$	32957.432	1.072	58	11	$6d7s(^3D)7p ^4F^\circ$	17 H
$5f(1G^\circ)6d^2$		$1^1/2$	33215.466	1.036	20 $^2D^\circ$	17	$6d^2(^3F)7p ^4F^\circ$	16 H
$5f(1S^\circ)6d^2$		$2^1/2$	33354.78	0.952	37 $^2F^\circ$	14	$(^3P^\circ) ^2F^\circ$	18 H
$5f(1D^\circ)6d^2$		$1^1/2$	33843.042	1.19	32 $^2P^\circ$	13	$5f6d(^3P^\circ)7s ^2P^\circ$	9 Z
$6d^2(^1G)7p$		$3^1/2$	33902.085	1.0	19 $^2G^\circ$	15	$(^1G) ^2F^\circ$	17 Z
$6d7s(^3D)7p$		$2^1/2$	34212.024	1.148	30 $^4D^\circ$	10	$(^1D) ^2F^\circ$	16 H
$6d^2(^3P)7p$		$1/2$	34330.500	1.503	29 $^2S^\circ$	24	$(^3P) ^4P^\circ$	9 H
$6d7s(^3D)7p$		$1^1/2$	34986.606	1.298	27 $^4D^\circ$	22	$(^3D) ^4P^\circ$	13 R
$5f(1G^\circ)6d^2$		$2^1/2$	35156.916	1.079	29 $^2D^\circ$	13	$(^1G^\circ) ^2F^\circ$	16 H
$5f(^3F^\circ)6d^2$	$^2I^\circ$	$6^1/2$	35165.36	1.08	58	41	$(^1G^\circ) ^2I^\circ$	5 Z
$6d^2(^3P)7p$	$^4D^\circ$	$1/2$	35198.99	0.972	54	16	$6d7s(^3D)7p ^4P^\circ$	9 H
$6d^2(^3F)7p$		$4^1/2$	35593.436		38 $^4G^\circ$	18	$(^3F) ^4F^\circ$	8 Z
$6d7s(^3D)7p$		$3^1/2$	35593.527	1.253	39 $^4D^\circ$	10	$5f(^3P^\circ)6d^2 ^2G^\circ$	17 B
$5f(^3F^\circ)6d^2$		$5^1/2$	35602.42	1.02	38 $^2I^\circ$	22	$(^1G^\circ) ^2I^\circ$	10 Z
$5f(^3P^\circ)6d^2$		$4^1/2$	36193.437	1.149	34 $^2G^\circ$	18	$6d^2(^1G)7p ^2G^\circ$	14 H
$6d^2(^3F)7p$		$1^1/2$	36390.527	0.829	21 $^4F^\circ$	21	$5f(1G^\circ)6d^2 ^2P^\circ$	14 H
$6d^2(^3P)7p$		$1^1/2$	36444.815	1.182	47 $^4D^\circ$	9	$5f(1G^\circ)6d^2 ^2P^\circ$	13 H
$6d^2(^3F)7p$		$1^1/2$	36581.568	1.107	21 $^4F^\circ$	14	$5f(1G^\circ)6d^2 ^2D^\circ$	14 H
$6d^2(^1D)7p$		$3^1/2$	36583.82	1.140	21 $^2F^\circ$	19	$6d7s(^1D)7p ^2F^\circ$	16 H
$6d^2(^3F)7p$		$2^1/2$	36687.992	1.049	41 $^4F^\circ$	8	$6d7s(^3D)7p ^4P^\circ$	14 H
$5f(1G^\circ)6d^2$	$^2P^\circ$	$1/2$	37130.340	0.521	70	8	$6d^2(^3P)7p ^4D^\circ$	10 H
$6d7s(^3D)7p$	$^4F^\circ$	$4^1/2$	37569.762	1.29	70	21	$6d^2(^3F)7p ^4G^\circ$	9 B
$6d7s(^3D)7p$		$1^1/2$	37601.699	1.267	24 $^2D^\circ$	11	$6d^2(^1D)7p ^2P^\circ$	15 H
$6d7s(^3D)7p$		$1/2$	37607.989	2.239	43 $^4P^\circ$	33	$6d^2(^3P)7p ^2S^\circ$	7 H
$6d^2(^1D)7p$		$1/2$	37716.322	0.690	28 $^2P^\circ$	18	$(^3F) ^4D^\circ$	5 H
$5f(1S^\circ)6d^2$		$3^1/2$	37756.790	1.118	27 $^2F^\circ$	20	$(^3P^\circ) ^2F^\circ$	18 H
$6d^2(^3P)7p$		$2^1/2$	37846.174	1.165	17 $^2D^\circ$	15	$(^3P) ^4D^\circ$	22 H
$6d7s(^3D)7p$		$1^1/2$	38436.169	1.419	33 $^4P^\circ$	27	$7s^2(^1S)7p ^2P^\circ$	12 H
$6d^2(^3P)7p$		$2^1/2$	38493.769	1.217	18 $^4D^\circ$	11	$6d7s(^1D)7p ^2D^\circ$	21 H
$6d^2(^3F)7p$		$2^1/2$	38581.627	1.105	20 $^2F^\circ$	16	$6d7s(^3D)7p ^2F^\circ$	21 H

TABLE 2. *Odd energy levels of Th II—Continued*

Configuration	Term	J	Level (cm^{-1})	g	Leading percentages			$n, \text{ref.}$		
					First	Second				
$6d^2(^3F)7p$		$3^1/2$	38764.652	1.098	19	$^2G^\circ$	18	$(^3F) ^2F^\circ$	14	B
$6d^2(^1G)7p$		$3^1/2$	39396.55	1.131	24	$^2F^\circ$	17	$5f(^1S^\circ)6d^2 ^2F^\circ$	19	H
$6d^2(^3F)7p$		$4^1/2$	39442.996	1.145	30	$^4G^\circ$	16	$(^3F) ^2G^\circ$	11	H
$6d7s(^3D)7p$		$2^1/2$	39861.642	1.172	26	$^4P^\circ$	11	$6d^2(^1G)7p ^2F^\circ$	19	H
$6d^2(^3F)7p$		$3^1/2$	40184.111	1.230	20	$^4F^\circ$	16	$(^3F) ^4D^\circ$	13	B
$6d^2(^3F)7p$		$1^1/2$	40472.459	1.249	39	$^4D^\circ$	14	$6d7s(^1D)7p ^2D^\circ$	17	H
$5f(^3P^\circ)6d^2$		$2^1/2$	40654.460	0.943	21	$^2F^\circ$	14	$(^1S^\circ) ^2F^\circ$	17	H
$6d^2(^1G)7p$		$3^1/2$	40706.82	1.073	24	$^2G^\circ$	15	$5f(^1S^\circ)6d^2 ^2F^\circ$	15	H
$6d^2(^3F)7p$	$^4D^\circ$	$1^1/2$	40825.607	0.261	51		8	$6d7s(^3D)7p ^2P^\circ$	9	H
$6d^2(^3F)7p$	$^4G^\circ$	$5^1/2$	41447.968	1.267	88		4	$5f6d(^3G^\circ)7s ^4G^\circ$	6	R
$6d^2(^1D)7p$		$1^1/2$	42112.94	1.467	21	$^2P^\circ$	16	$(^3P) ^4S^\circ$	16	H
$6d^2(^3F)7p$		$2^1/2$	42219.764	1.168	31	$^4D^\circ$	15	$(^1D) ^2F^\circ$	21	H
$6d^2(^3F)7p$		$4^1/2$	42319.024	1.165	38	$^4F^\circ$	32	$(^1G) ^2H^\circ$	10	H
$6d^2(^3F)7p$		$1^1/2$	42418.228	1.304	24	$^4D^\circ$	14	$(^3P) ^2D^\circ$	16	H
$6d^2(^3F)7p$		$3^1/2$	42944.467	1.246	25	$^4D^\circ$	23	$6d7s(^3D)7p ^2F^\circ$	16	H
$6d^2(^3P)7p$		$1^1/2$	43287.642	1.564	40	$^4S^\circ$	32	$(^3P) ^4P^\circ$	14	H
$6d^2(^3P)7p$		$2^1/2$	43382.780	1.203	39	$^4D^\circ$	18	$(^3F) ^4D^\circ$	16	H
$6d^2(^3P)7p$	$^4P^\circ$	$1^1/2$	43744.11	2.219	54		19	$(^3P) ^2S^\circ$	9	H
$6d^2(^1G)7p$		$3^1/2$	43773.64	1.052	18	$^2G^\circ$	16	$(^3P) ^4D^\circ$	16	B
$6d^2(^3P)7p$		$3^1/2$	44650.491	1.234	42	$^4D^\circ$	11	$(^3F) ^2G^\circ$	17	H
$6d7s(^3D)7p$		$2^1/2$	44821.897	0.999	30	$^2F^\circ$	10	$5f(^3P^\circ)6d^2 ^2F^\circ$	14	H
$6d^2(^3P)7p$		$2^1/2$	45221.54	1.347	47	$^4P^\circ$	10	$6d7s(^3D)7p ^2F^\circ$	15	H
$6d^2(^3F)7p$	$^2G^\circ$	$4^1/2$	45489.129	1.089	61		18	$(^3F) ^4F^\circ$	12	H
$6d^2(^3F)7p$		$3^1/2$	45689.325	1.261	18	$^2F^\circ$	13	$6d7s(^1D)7p ^2F^\circ$	11	H
$6d7s(^1D)7p$		$1^1/2$	45697.78	1.18	30	$^2P^\circ$	10	$6d^2(^3P)7p ^2D^\circ$	10	B
$6d^2(^3P)7p$		$1^1/2$	45838.437		31	$^2P^\circ$	20	$(^1D) ^2D^\circ$	5	Z
$6d^2(^3P)7p$		$2^1/2$	46155.54	1.152	33	$^2D^\circ$	12	$6d7s(^3D)7p ^2D^\circ$	16	H
$6d^2(^1G)7p$	$^2G^\circ$	$4^1/2$	46368.21	1.088	51		29	$(^1G) ^2H^\circ$	8	H
$6d7s(^3D)7p$		$1^1/2$	46423.76	1.118	20	$^2P^\circ$	14	$6s^2(^1S)7p ^2P^\circ$	14	H
$6d^2(^1S)7p$		$1^1/2$	46426.05	0.9	16	$^2P^\circ$	14	$6d7s(^3D)7p ^2P^\circ$	6	Z
$6d^2(^1G)7p$	$^2H^\circ$	$5^1/2$	47466.262	1.13	83		6	$5f6d(^1H^\circ)7s ^2H^\circ$	4	Z
$6d7s(^1D)7p$		$1^1/2$	48532.05		30	$^2P^\circ$	24	$(^3D) ^2P^\circ$	8	Z
$6d^2(^1D)7p$		$3^1/2$	49121.92	1.11	36	$^2F^\circ$	24	$6d7s(^1D)7p ^2F^\circ$	9	Z
$6d^2(^1D)7p$		$2^1/2$	49289.524	1.208	47	$^2D^\circ$	10	$(^3P) ^4P^\circ$	9	H
$5f^27p?$		$4^1/2$	49495.57						14	Z
$6d^2(^3P)7p$		$1^1/2$	51528.46	0.925	25	$^2D^\circ$	16	$6d7s(^1D)7p ^2D^\circ$	11	C
$6d^2(^1G)7p$		$2^1/2$	51946.84	0.937	37	$^2F^\circ$	11	$6d7s(^3D)7p ^2F^\circ$	12	B
$5f^27p?$		$2^1/2$	52678.41						11	Z

TABLE 2. Odd energy levels of Th II—Continued

Configuration	Term	<i>J</i>	Level (cm ⁻¹)	<i>g</i>	Leading percentages		<i>n</i> , ref.
					First	Second	
5 <i>f</i> 7 <i>p</i> ² ?		4 ¹ / ₂	54360.46				12 Z
6 <i>d</i> 7 <i>s</i> (³ D) 7 <i>p</i>		3 ¹ / ₂	54497.69	1.126	28 ² F°	27 6 <i>d</i> ² (¹ G) 7 <i>p</i> ² F°	10 C
6 <i>d</i> ² (³ F) 7 <i>p</i>		2 ¹ / ₂	54648.28		21 ² D°	15 (¹ G) ² F°	12 Z
5 <i>f</i> ² 7 <i>p</i> ?		4 ¹ / ₂	55038.943				11 Z
5 <i>f</i> ² 7 <i>p</i> ?		4 ¹ / ₂	56086.24				17 Z
5 <i>f</i> ² 7 <i>p</i> ?		3 ¹ / ₂	56683.43				17 Z
5 <i>f</i> ² 7 <i>p</i> ?		2 ¹ / ₂	56892.09				15 Z
5 <i>f</i> ² 7 <i>p</i> ?		2 ¹ / ₂	59299.15				15 Z
		1 ¹ / ₂	59616.61	1.1			13 Z
5 <i>f</i> 7 <i>p</i> ² ?		1 ¹ / ₂	59987.43				11 Z
5 <i>f</i> ² 7 <i>p</i> ?		4 ¹ / ₂	59993.66				11 Z

4.2. Classified Lines

The classified lines of Th II (table 3) consist of 6500 lines in the wavelength range 2000 to 25 000 Å. Following the measured wavelength in table 3, the visually estimated intensities in electrodeless lamp and sliding spark spectra are given. Lines not observed as single sharp lines are described with the following symbols:

- b* = blend (two wavelengths measured)
- d* = double (one wavelength measured)
- h* = hazy
- l* = shaded to long wavelength
- r* = reversed
- s* = shaded to short wavelengths
- w* = wide

In column 4 is the wavenumber in vacuum in units of cm⁻¹. The classification is given by the values of the energy levels responsible for the transition, with their *J*-values as subscripts, and a superscript degree symbol to indicate odd parity.

The average absolute value of O-C in cm⁻¹ for 100 lines at each of seven wavelengths is shown below.

Wavelength	O-C
3 000	0.007
3 500	.009
4 000	.010
4 500	.012
6 000	.012
9 000	.018
15 000	.002

The general precision of the wave numbers of the lines was determined by measuring the precision of repeating differences between three pairs of odd levels. The average deviation of 180 differences from the

means was 0.015 cm⁻¹. Therefore the average deviation for a single wavenumber is about 0.011 cm⁻¹.

The Th II lines that have not been classified will be published in an improved complete description of thorium spectra.

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5. References

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TABLE 3. *Classified lines of Th II*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
29068.481	1		3439.214	10379 _{9/2} - 13818 _{7/2}	21121.474	1	4733.226	10572 _{9/2} - 15305 _{9/2}	
25401.710	1		3935.669	10855 _{7/2} - 14790 _{7/2}	21046.638	0	4750.056	23187 _{3/2} - 27937 _{11/2}	
25181.424	1		3970.098	4490 _{5/2} - 8460 _{3/2}	21014.864	2	4757.238	9061 _{5/2} - 13818 _{7/2}	
24926.551	3		4010.692	9238 _{9/2} - 13248 _{9/2}	20934.926	0	4775.403	15305 _{9/2} - 20080 _{7/2}	
24887.997	2		4016.905	14101 _{1/2} - 18118 _{3/2}	20692.063	6	4831.452	1859 _{3/2} - 6691 _{3/2}	
24352.698	0		4105.201	10379 _{9/2} - 14484 _{11/2}	20682.889	4	4833.595	9711 _{7/2} - 14545 _{5/2}	
24345.717	0		4106.378	9711 _{7/2} - 13818 _{7/2}	20649.114	1	4841.501	22685 _{7/2} - 27526 _{9/2}	
24291.248	3		4115.586	4490 _{5/2} - 8605 _{5/2}	20609.747	1	4850.749	17983 _{3/2} - 22834 _{7/2}	
24060.000	1		4155.142	6700 _{9/2} - 10855 _{7/2}	20575.702	0	4858.775	22106 _{5/2} - 26965 _{3/2}	
23964.262	3		4171.742	16818 _{7/2} - 20989 _{9/2}	20554.521	3	4863.782	10379 _{9/2} - 15242 _{9/2}	
23850.490	2		4191.642	8378 _{9/2} - 12570 _{7/2}	20528.880	4	4869.857	8378 _{9/2} - 13248 _{9/2}	
23745.817	1		4210.119	13250 _{5/2} - 17460 _{5/2}	20521.311	2	4871.653	8378 _{7/2} - 13250 _{5/2}	
23742.146	4		4210.770	6168 _{7/2} - 10379 _{9/2}	20468.653	4	4884.186	8018 _{3/2} - 12902 _{3/2}	
23696.506	1		4218.880	14349 _{1/2} - 18568 _{7/2}	20450.627	1	4888.491	7331 _{9/2} - 12219 _{3/2}	
23621.480	2		4232.280	4146 _{7/2} - 8378 _{7/2}	20443.773	2	4890.130	12570 _{7/2} - 17460 _{5/2}	
23597.934	1		4236.503	18118 _{3/2} - 22355 _{1/2}	20430.283	0	4893.359	18118 _{3/2} - 23012 _{3/2}	
23477.236	1		4258.283	13468 _{9/2} - 17727 _{11/2}	20395.738	3	4901.647	12219 _{3/2} - 17121 _{9/2}	
23458.743	0		4261.640	20120 _{5/2} - 24381 _{7/2}	20389.710	4	4903.096	6213 _{9/2} - 11116 _{7/2}	
23437.525	5		4265.498	4113 _{5/2} - 8378 _{7/2}	20358.092	0	4910.711	4490 _{5/2} - 9400 _{5/2}	
23372.954	0		4277.282	20969 _{7/2} - 25246 _{9/2}	20165.057	3	4957.720	20288 _{11/2} - 25246 _{9/2}	
23316.550	1		4287.629	17727 _{11/2} - 22014 _{11/2}	20139.866	1	4963.921	13250 _{5/2} - 18214 _{3/2}	
23222.202	1		4305.049	20158 _{5/2} - 24463 _{5/2}	20061.498	0	4983.312	15305 _{9/2} - 20288 _{11/2}	
23075.703	2		4332.380	12485 _{5/2} - 16818 _{7/2}	19998.121	1	4999.105	23012 _{3/2} - 28011 _{3/2}	
23003.968	2		4345.890	12472 _{5/2} - 16818 _{7/2}	19984.221	0	5002.582	26770 _{11/2} - 31773 _{9/2}	
22937.124	2		4358.555	6213 _{9/2} - 10572 _{9/2}	19844.520	0	5037.799	25414 _{11/2} - 30452 _{9/2}	
22911.403	0		4363.448	24982 _{9/2} - 29345 _{5/2}	19774.295	6	5055.690	4146 _{7/2} - 9202 _{9/2}	
22785.383	1		4387.581	10855 _{7/2} - 15242 _{9/2}	19719.303	1	5069.789	25414 _{11/2} - 30484 _{11/2}	
22733.218	0		4397.649	27526 _{9/2} - 31924 _{11/2}	19703.648	1	5073.817	7828 _{1/2} - 12902 _{3/2}	
22631.728	0		4417.370	9400 _{5/2} - 13818 _{7/2}	19703.283	1	5073.911	10379 _{9/2} - 15453 _{7/2}	
22582.257	1		4427.047	15453 _{7/2} - 19880 _{9/2}	19701.761	0	5074.303	15236 _{3/2} - 20310 _{5/2}	
22571.571	1		4429.143	19880 _{9/2} - 24309 _{11/2}	19683.409	5	5079.034	9711 _{7/2} - 14790 _{7/2}	
22506.128	4		4442.022	8460 _{3/2} - 12902 _{3/2}	19644.523	4	5089.088	14790 _{7/2} - 19880 _{9/2}	
22467.732	1		4449.613	15144 _{3/2} - 19594 _{1/2}	19593.390	0	5102.369	19880 _{9/2} - 24982 _{7/2}	
22445.678	2		4453.985	8018 _{3/2} - 12472 _{5/2}	19540.414	1	5116.202	10189 _{11/2} - 15305 _{9/2}	
22343.861	3		4474.281	13248 _{9/2} - 17722 _{5/2}	19535.499	0	5117.489	22139 _{9/2} - 27257 _{7/2}	
22264.353	6		4490.259	0 _{3/2} - 4490 _{5/2}	19503.105	1	5125.989	23697 _{7/2} - 28823 _{7/2}	
22098.511	0		4523.957	15786 _{5/2} - 20310 _{5/2}	19474.463	2	5133.528	19248 _{5/2} - 24381 _{7/2}	
21907.002	1		4563.505	10673 _{5/2} - 15236 _{3/2}	19473.652	1	5133.742	25414 _{11/2} - 30548 _{3/2}	
21906.445	1		4563.621	9711 _{7/2} - 14275 _{9/2}	19432.597	3	5144.588	9400 _{5/2} - 14545 _{5/2}	
21871.813	1		4570.847	4490 _{5/2} - 9061 _{5/2}	19402.768	2	5152.497	12570 _{7/2} - 17722 _{9/2}	
21852.069	2		4574.977	7001 _{3/2} - 11576 _{3/2}	19353.457	0	5165.625	20080 _{7/2} - 25246 _{9/2}	
21743.999	5		4597.715	10855 _{7/2} - 15453 _{7/2}	19338.976	7	5169.493	1521 _{5/2} - 6691 _{3/2}	
21662.376	0		4615.039	22642 _{9/2} - 27257 _{7/2}	19307.868	2	5177.822	10855 _{7/2} - 16033 _{5/2}	
21558.955	2		4637.178	15242 _{9/2} - 19880 _{9/2}	19179.419	3	5212.499	8605 _{5/2} - 13818 _{7/2}	
21387.561	1		4674.339	24757 _{9/2} - 29431 _{7/2}	19165.340	1	5216.328	12902 _{3/2} - 18118 _{3/2}	
21329.914	1		4686.972	6168 _{7/2} - 10855 _{7/2}	19145.601	7	5221.706	4490 _{5/2} - 9711 _{7/2}	
21264.265	0		4701.442	14349 _{1/2} - 19050 _{3/2}	19082.536	3	5238.963	12488 _{9/2} - 17727 _{11/2}	
21262.841	1		4701.757	12570 _{7/2} - 17272 _{9/2}	19076.390	0	5240.651	12219 _{3/2} - 17460 _{5/2}	
21162.697	5		4724.006	7001 _{3/2} - 11725 _{7/2}	18961.873	1	5272.301	25607 _{9/2} - 30879 _{7/2}	
21123.018	0		4732.880	13250 _{5/2} - 17983 _{5/2}	18880.700	0	5294.968	22642 _{9/2} - 27937 _{11/2}	

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
18624.701	0		5367.748	14790 ^o _{7/2} - 20158 ^o _{5/2}	16433.049	2		6083.636	9061 ^o _{5/2} - 15144 ^o _{3/2}
18557.117	1		5387.297	22139 ^o _{5/2} - 27526 ^o _{9/2}	16428.820	2		6085.202	8460 ^o _{3/2} - 14545 ^o _{5/2}
18547.718	3		5390.027	9400 ^o _{5/2} - 14790 ^o _{7/2}	16380.898	6		6103.004	9202 ^o _{7/2} - 15305 ^o _{9/2}
18469.362	1		5412.894	12570 ^o _{7/2} - 17983 ^o _{5/2}	16269.133	3		6144.930	10673 ^o _{5/2} - 16818 ^o _{7/2}
18402.093	0		5432.681	19594 ^o _{1/2} - 25027 ^o _{1/2}	16182.835	0		6177.699	20310 ^o _{5/2} - 26488 ^o _{5/2}
18381.291	3		5438.829	4146 ^o _{7/2} - 9585 ^o _{5/2}	16163.327	3		6185.155	8605 ^o _{5/2} - 14790 ^o _{7/2}
18293.755	1		5464.854	21297 ^o _{5/2} - 26762 ^o _{3/2}	15951.379	0		6267.338	20989 ^o _{9/2} - 27257 ^o _{7/2}
18271.367	5		5471.550	1859 ^o _{3/2} - 7331 ^o _{5/2}	15939.011	1		6272.201	6213 ^o _{9/2} - 12485 ^o _{7/2}
18269.704	3		5472.048	4113 ^o _{5/2} - 9585 ^o _{5/2}	15936.374	4		6273.239	7828 ^o _{1/2} - 14101 ^o _{1/2}
18239.409	5		5481.137	6244 ^o _{1/2} - 11725 ^o _{1/2}	15932.409	6		6274.800	6213 ^o _{9/2} - 12488 ^o _{9/2}
18228.371	4		5484.456	9061 ^o _{5/2} - 14545 ^o _{5/2}	15927.216	0		6276.846	24982 ^o _{7/2} - 31259 ^o _{5/2}
18112.220	1		5519.627	20969 ^o _{7/2} - 26488 ^o _{5/2}	15898.637	1		6288.129	20969 ^o _{7/2} - 27257 ^o _{7/2}
18082.856	4		5528.590	6691 ^o _{3/2} - 12219 ^o _{3/2}	15877.380	0		6296.548	21297 ^o _{5/2} - 27593 ^o _{5/2}
18075.163	1		5530.943	9711 ^o _{7/2} - 15242 ^o _{9/2}	15843.848	0		6309.874	9400 ^o _{5/2} - 15710 ^o _{3/2}
17936.434	7		5573.722	4146 ^o _{7/2} - 9720 ^o _{7/2}	15815.492	6		6321.187	9711 ^o _{7/2} - 16033 ^o _{5/2}
17900.307	4		5584.971	9720 ^o _{7/2} - 15305 ^o _{9/2}	15767.555	3		6340.405	13818 ^o _{7/2} - 20158 ^o _{5/2}
17837.933	1		5604.500	14275 ^o _{9/2} - 19880 ^o _{9/2}	15747.955	1		6348.296	12219 ^o _{3/2} - 18568 ^o _{1/2}
17830.167	5		5606.941	4113 ^o _{5/2} - 9720 ^o _{7/2}	15706.454	2		6365.070	4490 ^o _{5/2} - 10855 ^o _{7/2}
17795.604	3		5617.831	12219 ^o _{3/2} - 17837 ^o _{1/2}	15698.032	0		6368.485	20120 ^o _{5/2} - 26488 ^o _{5/2}
17721.115	4		5641.445	8460 ^o _{3/2} - 14101 ^o _{1/2}	15640.438	5		6391.936	9061 ^o _{5/2} - 15453 ^o _{7/2}
17705.162	3		5646.528	12472 ^o _{5/2} - 18118 ^o _{3/2}	15637.160	3		6393.276	11725 ^o _{1/2} - 18118 ^o _{3/2}
17699.808	0		5648.236	23697 ^o _{7/2} - 29345 ^o _{5/2}	15631.483	1		6395.598	15710 ^o _{3/2} - 22106 ^o _{5/2}
17535.396	0		5701.194	23730 ^o _{9/2} - 29431 ^o _{7/2}	15624.606	1		6398.413	17983 ^o _{3/2} - 24381 ^o _{7/2}
17534.504	5		5701.484	11116 ^o _{7/2} - 16818 ^o _{7/2}	15615.505	1		6402.142	6168 ^o _{7/2} - 12570 ^o _{7/2}
17507.525	0		5710.270	25246 ^o _{9/2} - 30956 ^o _{9/2}	15612.710	0		6403.288	12570 ^o _{7/2} - 18973 ^o _{7/2}
17462.260	3		5725.072	13248 ^o _{9/2} - 18973 ^o _{7/2}	15593.649	1		6411.115	13468 ^o _{9/2} - 19880 ^o _{9/2}
17456.286	0		5727.031	19880 ^o _{9/2} - 25607 ^o _{9/2}	15558.814	2		6425.469	4146 ^o _{7/2} - 10572 ^o _{9/2}
17455.753	0		5727.206	24757 ^o _{9/2} - 30484 ^o _{11/2}	15425.673	2		6480.928	22106 ^o _{5/2} - 28587 ^o _{5/2}
17447.564	3		5729.894	9061 ^o _{5/2} - 14790 ^o _{7/2}	15317.814	3		6526.563	4146 ^o _{7/2} - 10673 ^o _{5/2}
17413.587	2		5741.074	9711 ^o _{7/2} - 15453 ^o _{7/2}	15315.929	5		6527.366	8018 ^o _{3/2} - 14545 ^o _{5/2}
17405.417	3		5743.769	9400 ^o _{5/2} - 15144 ^o _{3/2}	15315.660	2		6527.481	10379 ^o _{9/2} - 16906 ^o _{7/2}
17346.089	1		5763.414	12219 ^o _{3/2} - 17983 ^o _{5/2}	15293.025	0		6537.142	20989 ^o _{9/2} - 27526 ^o _{9/2}
17244.366	1		5797.412	22139 ^o _{5/2} - 27937 ^o _{11/2}	15288.921	4		6538.897	8605 ^o _{5/2} - 15144 ^o _{9/2}
17235.699	1		5800.327	13250 ^o _{5/2} - 19050 ^o _{3/2}	15280.959	2		6542.304	11576 ^o _{3/2} - 18118 ^o _{3/2}
17229.251	0		5802.498	20686 ^o _{5/2} - 26488 ^o _{5/2}	15266.440	4		6548.526	6700 ^o _{9/2} - 13248 ^o _{9/2}
17208.215	8		5809.591	1521 ^o _{5/2} - 7331 ^o _{5/2}	15241.775	1		6559.123	6691 ^o _{3/2} - 13250 ^o _{5/2}
17155.413	1		5827.472	23518 ^o _{7/2} - 29345 ^o _{5/2}	15240.242	7		6559.783	4113 ^o _{5/2} - 10673 ^o _{5/2}
17030.220	3		5870.311	6700 ^o _{9/2} - 12570 ^o _{7/2}	15214.240	1		6570.994	20686 ^o _{5/2} - 27257 ^o _{7/2}
16958.427	1		5895.163	15236 ^o _{3/2} - 21131 ^o _{3/2}	15188.855	5		6581.976	17727 ^o _{11/2} - 24309 ^o _{11/2}
16956.701	2		5895.763	15786 ^o _{5/2} - 21682 ^o _{7/2}	15135.223	0		6605.299	10855 ^o _{7/2} - 17460 ^o _{5/2}
16941.790	0		5900.952	7001 ^o _{3/2} - 12902 ^o _{3/2}	15034.068	3		6649.742	9061 ^o _{5/2} - 15710 ^o _{3/2}
16912.370	1		5911.217	21682 ^o _{7/2} - 27593 ^o _{5/2}	15015.230	2		6658.085	6244 ^o _{1/2} - 12902 ^o _{3/2}
16906.064	0		5913.422	23518 ^o _{7/2} - 29431 ^o _{7/2}	15013.595	0		6658.810	17722 ^o _{9/2} - 24381 ^o _{7/2}
16890.066	5		5919.023	7331 ^o _{5/2} - 13250 ^o _{5/2}	15009.909	2		6660.445	22685 ^o _{7/2} - 29345 ^o _{5/2}
16520.919	3		6051.279	10855 ^o _{7/2} - 16906 ^o _{7/2}	14970.942	1		6677.781	12570 ^o _{7/2} - 19248 ^o _{9/2}
16518.765	3		6052.068	9400 ^o _{5/2} - 15453 ^o _{7/2}	14969.772	1		6678.303	25246 ^o _{9/2} - 31924 ^o _{11/2}
16495.017	0		6060.781	15236 ^o _{3/2} - 21297 ^o _{5/2}	14940.492	7		6691.391	0 ^o _{3/2} - 6691 ^o _{3/2}
16492.394	2		6061.745	13818 ^o _{7/2} - 19880 ^o _{9/2}	14939.197	1		6691.971	12902 ^o _{3/2} - 19594 ^o _{1/2}
16477.433	2		6067.249	9238 ^o _{9/2} - 15305 ^o _{9/2}	14920.495	3		6700.359	16818 ^o _{7/2} - 23518 ^o _{7/2}
16453.368	0		6076.123	20686 ^o _{5/2} - 26762 ^o _{3/2}	14899.905	2		6709.618	15305 ^o _{9/2} - 22014 ^o _{11/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
14739.988	0		6782.412	14349 _{1/2} - 21131 _{3/2} ^o	13395.691	4		7463.046	4113 _{5/2} - 11576 _{5/2} ^o
14699.723	2		6800.990	16033 _{5/2} ^o - 22834 _{7/2}	13376.396	0		7473.811	20120 _{5/2} ^o - 27593 _{5/2}
14690.666	0		6805.183	20158 _{5/2} ^o - 26963 _{7/2} ^o	13373.859	3		7475.229	17771 _{11/2} ^o - 25246 _{9/2} ^o
14672.400	0		6813.655	18568 _{1/2} ^o - 25381 _{3/2} ^o	13370.190	2		7477.280	19880 _{9/2} ^o - 27357 _{9/2} ^o
14633.086	3		6831.961	13248 _{9/2} ^o - 20080 _{7/2} ^o	13319.676	1		7505.637	9400 _{5/2} ^o - 16906 _{7/2} ^o
14627.874	4		6834.395	15305 _{9/2} ^o - 22139 _{9/2} ^o	13311.623	2		7510.178	12570 _{7/2} ^o - 20080 _{7/2} ^o
14579.735	6		6856.961	1521 _{5/2} ^o - 8378 _{7/2} ^o	13310.052	1		7511.064	20120 _{5/2} ^o - 27631 _{3/2} ^o
14565.023	0		6863.887	8460 _{3/2} ^o - 15324 _{1/2} ^o	13306.095	2		7513.298	20080 _{7/2} ^o - 27593 _{5/2}
14557.004	4		6867.668	10855 _{7/2} ^o - 17722 _{9/2} ^o	13304.846	2		7514.003	19248 _{5/2} ^o - 26762 _{3/2} ^o
14508.948	1		6890.415	19880 _{9/2} ^o - 26770 _{11/2} ^o	13288.387	1		7523.310	17722 _{9/2} ^o - 25246 _{9/2} ^o
14503.235	6		6893.129	10379 _{9/2} ^o - 17272 _{9/2} ^o	13283.226	1		7526.233	21297 _{5/2} ^o - 28823 _{5/2}
14472.395	1		6907.818	20686 _{5/2} ^o - 27593 _{5/2}	13262.164	2		7538.186	10189 _{11/2} ^o - 17727 _{11/2}
14462.402	0		6912.591	16818 _{7/2} ^o - 23730 _{9/2} ^o	13251.713	2		7544.131	7001 _{3/2} ^o - 14545 _{5/2} ^o
14433.541	1		6926.413	8378 _{7/2} ^o - 15305 _{9/2} ^o	13251.713	2		7544.131	17837 _{1/2} ^o - 25381 _{3/2} ^o
14360.388	0		6961.697	15144 _{3/2} ^o - 22106 _{5/2} ^o	13241.997	0		7549.666	12570 _{7/2} ^o - 20120 _{5/2} ^o
14343.260	6		6970.010	4146 _{7/2} ^o - 11116 _{7/2} ^o	13223.385	3		7560.292	9711 _{7/2} ^o - 17272 _{9/2} ^o
14339.066	2		6972.049	9061 _{5/2} ^o - 16033 _{5/2} ^o	13222.361	0		7560.878	14545 _{5/2} ^o - 22106 _{5/2} ^o
14275.223	0		7003.230	4113 _{5/2} ^o - 11116 _{7/2} ^o	13188.919	2		7580.049	9238 _{9/2} ^o - 16818 _{7/2}
14224.305	0		7028.299	12219 _{3/2} ^o - 19248 _{5/2} ^o	13179.277	0		7585.595	15786 _{5/2} ^o - 23372 _{9/2} ^o
14159.556	0		7060.438	13250 _{5/2} ^o - 20310 _{5/2} ^o	13145.904	7		7604.852	6213 _{9/2} ^o - 13818 _{7/2} ^o
14070.742	5		7105.003	8605 _{5/2} ^o - 15710 _{3/2} ^o	13130.308	1		7613.885	22106 _{5/2} ^o - 29720 _{3/2} ^o
14043.929	1		7118.568	15236 _{3/2} ^o - 22355 _{9/2} ^o	13126.998	1		7615.805	9202 _{7/2} ^o - 16818 _{7/2}
14028.205	3		7126.547	8018 _{3/2} ^o - 15144 _{3/2} ^o	13029.053	0		7673.056	12485 _{7/2} ^o - 20158 _{5/2}
14025.216	2		7128.066	10855 _{7/2} ^o - 17983 _{5/2} ^o	13016.640	5		7680.373	1521 _{5/2} ^o - 9202 _{7/2} ^o
14007.683	1		7136.988	20120 _{5/2} ^o - 27257 _{7/2} ^o	13006.151	2		7686.567	12472 _{5/2} ^o - 20158 _{5/2}
13972.014	1		7155.208	10572 _{9/2} ^o - 17727 _{11/2} ^o	13004.273	4		7687.677	17727 _{11/2} ^o - 25414 _{11/2} ^o
13895.433	3		7194.642	9711 _{7/2} ^o - 16906 _{7/2} ^o	12983.105	0		7700.211	20310 _{5/2} ^o - 28011 _{3/2} ^o
13836.909	0		7225.072	15786 _{5/2} ^o - 23012 _{9/2} ^o	12964.195	2		7711.443	19050 _{3/2} ^o - 26762 _{3/2} ^o
13822.377	0		7232.668	9585 _{5/2} ^o - 16818 _{7/2} ^o	12940.654	7		7725.471	1859 _{3/2} ^o - 9585 _{5/2} ^o
13811.481	4		7238.374	20288 _{11/2} ^o - 27526 _{9/2} ^o	12933.539	5		7729.721	4490 _{5/2} ^o - 12219 _{3/2} ^o
13788.405	1		7250.488	8460 _{3/2} ^o - 15710 _{3/2} ^o	12930.664	1		7731.440	15786 _{5/2} ^o - 23518 _{7/2} ^o
13778.916	6		7255.481	6213 _{9/2} ^o - 13468 _{9/2} ^o	12925.892	3		7734.294	22139 _{9/2} ^o - 29873 _{7/2}
13777.235	1		7256.366	12902 _{3/2} ^o - 20158 _{5/2} ^o	12901.919	2		7748.665	9711 _{7/2} ^o - 17460 _{5/2} ^o
13756.558	2		7267.273	22834 _{7/2} ^o - 30101 _{7/2} ^o	12742.669	1		7845.503	9061 _{5/2} ^o - 16906 _{7/2} ^o
13709.552	1		7292.190	22139 _{9/2} ^o - 29431 _{7/2} ^o	12684.798	3		7881.296	13250 _{5/2} ^o - 21131 _{3/2} ^o
13699.211	3		7297.695	23187 _{13/2} ^o - 30484 _{11/2} ^o	12683.213	4		7882.281	7828 _{1/2} ^o - 15710 _{3/2} ^o
13665.979	0		7315.441	14790 _{7/2} ^o - 22106 _{5/2} ^o	12642.339	3		7907.765	19880 _{9/2} ^o - 27787 _{9/2} ^o
13664.604	3		7316.177	7828 _{1/2} ^o - 15144 _{3/2} ^o	12591.895	1		7939.444	16818 _{7/2} ^o - 24757 _{9/2} ^o
13654.606	0		7321.534	18118 _{3/2} ^o - 25440 _{5/2} ^o	12479.376	1		8011.029	9711 _{7/2} ^o - 17722 _{9/2} ^o
13636.063	5		7331.490	0 _{3/2} ^o - 7331 _{5/2} ^o	12468.606	1		8017.949	11576 _{3/2} ^o - 19594 _{1/2}
13626.116	4		7336.842	15305 _{9/2} ^o - 22642 _{9/2} ^o	12458.068	1		8024.731	19912 _{13/2} ^o - 27937 _{11/2}
13582.026	0		7360.659	22513 _{5/2} ^o - 29873 _{7/2} ^o	12421.310	1		8048.478	21297 _{5/2} ^o - 29345 _{5/2}
13544.406	1		7381.103	15453 _{7/2} ^o - 22834 _{7/2} ^o	12402.749	1		8060.523	9061 _{5/2} ^o - 17121 _{9/2} ^o
13524.811	1		7391.797	12488 _{9/2} ^o - 19880 _{9/2} ^o	12400.331	3		8062.095	6213 _{9/2} ^o - 14275 _{9/2} ^o
13520.057	1		7394.396	12485 _{7/2} ^o - 19880 _{9/2} ^o	12398.153	2		8063.511	1521 _{5/2} ^o - 9585 _{5/2} ^o
13494.985	0		7408.134	8378 _{7/2} ^o - 15786 _{5/2} ^o	12372.484	4		8080.240	4490 _{5/2} ^o - 12570 _{7/2} ^o
13460.143	3		7427.310	8605 _{5/2} ^o - 16033 _{5/2} ^o	12356.076	2		8090.970	12219 _{3/2} ^o - 20310 _{5/2} ^o
13445.057	0		7435.644	13250 _{5/2} ^o - 20686 _{5/2} ^o	12318.487	1		8115.659	12570 _{7/2} ^o - 20686 _{5/2} ^o
13427.136	3		7445.568	10673 _{5/2} ^o - 18118 _{3/2} ^o	12285.424	1		8137.500	20686 _{5/2} ^o - 28823 _{5/2} ^o
13425.849	0		7446.282	20080 _{7/2} ^o - 27526 _{9/2} ^o	12276.652	1		8143.315	7001 _{3/2} ^o - 15144 _{3/2} ^o

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
12251.360	0		8160.126	22834 _{7/2} - 30994 _{0/2}	11071.877	1		9029.419	6213 _{3/2} - 15242 _{0/2}
12244.970	3		8164.384	16818 _{1/2} - 24982 _{7/2}	11069.049	3		9031.726	7001 _{3/2} - 16033 _{5/2}
12200.702	1		8194.007	18568 _{0/2} - 26762 _{3/2}	11013.293	1		9077.450	12219 _{3/2} - 21297 _{5/2}
12194.157	8		8198.405	1521 _{5/2} - 9720 _{0/2}	11010.266	1		9079.946	6244 _{1/2} - 15324 _{0/2}
12170.869	0		8214.092	21131 _{3/2} - 29345 _{5/2}	10981.861	1		9103.431	8018 _{3/2} - 17121 _{3/2}
12136.565	1		8237.309	22642 _{9/2} - 30879 _{7/2}	10942.244	8		9136.391	6213 _{3/2} - 15349 _{11/2}
12102.779	1		8260.304	17121 _{3/2} - 25381 _{3/2}	10941.617	4		9136.914	6168 _{0/2} - 15305 _{9/2}
12087.362	2		8270.840	6213 _{3/2} - 14484 _{0/2}	10924.483	4		9151.245	1521 _{5/2} - 10673 _{5/2}
12086.503	3		8271.428	9711 _{7/2} - 17983 _{5/2}	10892.630	0		9178.005	15236 _{3/2} - 24414 _{3/2}
12043.786	1		8300.765	8605 _{5/2} - 16906 _{0/2}	10861.797	1		9204.059	12902 _{3/2} - 22106 _{5/2}
12011.883	0		8322.811	7001 _{3/2} - 15324 _{0/2}	10835.309	2w		9226.559	20288 _{11/2} - 29515 _{9/2}
12007.854	5		8325.604	4146 _{7/2} - 12472 _{0/2}	10834.611	2		9227.153	15236 _{3/2} - 24463 _{5/2}
11984.664	8		8341.714	4146 _{7/2} - 12488 _{9/2}	10820.075	5		9239.549	6213 _{3/2} - 15453 _{7/2}
11979.873	2		8345.050	22139 _{9/2} - 30484 _{11/2}	10794.056	3		9261.821	9711 _{7/2} - 18973 _{7/2}
11979.873	2		8345.050	15786 _{5/2} - 24132 _{3/2}	10790.541	0		9264.838	10855 _{7/2} - 20120 _{5/2}
11974.695	1		8348.658	16033 _{5/2} - 24381 _{7/2}	10757.771	0		9293.060	7828 _{1/2} - 17121 _{3/2}
11960.136	3		8358.821	4113 _{5/2} - 12472 _{0/2}	10740.457	1		9308.041	10572 _{9/2} - 19880 _{9/2}
11940.834	2		8372.333	4113 _{5/2} - 12485 _{7/2}	10723.921	7		9322.394	4146 _{7/2} - 13468 _{9/2}
11934.349	1		8376.882	20969 _{7/2} - 29345 _{5/2}	10660.847	3		9377.549	8605 _{5/2} - 17983 _{5/2}
11911.501	4		8392.950	10855 _{7/2} - 19248 _{5/2}	10658.585	1		9379.539	18214 _{3/2} - 27593 _{5/2}
11903.594	0		8398.525	12570 _{7/2} - 20969 _{0/2}	10642.859	1		9393.398	13248 _{9/2} - 22642 _{9/2}
11874.199	3		8419.316	12570 _{7/2} - 20989 _{9/2}	10605.455	4		9426.527	25594 _{1/2} - 35021 _{3/2}
11865.636	4		8425.392	15305 _{9/2} - 23730 _{0/2}	10595.992	0		9434.946	13250 _{5/2} - 22685 _{0/2}
11846.202	2		8439.214	8378 _{0/2} - 16818 _{7/2}	10587.588	1		9442.435	8018 _{3/2} - 17460 _{5/2}
11842.232	0		8442.043	20989 _{9/2} - 29431 _{7/2}	10576.600	1		9452.244	15305 _{9/2} - 24757 _{9/2}
11808.476	0		8466.176	12219 _{3/2} - 20686 _{5/2}	10572.824	1		9455.620	10855 _{7/2} - 20310 _{0/2}
11776.403	5		8489.233	9238 _{9/2} - 17727 _{11/2}	10560.617	1		9466.550	6244 _{1/2} - 15710 _{3/2}
11739.687	2		8515.783	8605 _{5/2} - 17121 _{3/2}	10539.400	1		9485.607	10673 _{5/2} - 20158 _{5/2}
11715.587	1		8533.301	9585 _{5/2} - 18118 _{3/2}	10538.316	2		9486.583	7331 _{5/2} - 16818 _{7/2}
11695.652	0		8547.846	18214 _{3/2} - 26762 _{3/2}	10483.360	4		9536.313	9711 _{7/2} - 19248 _{5/2}
11655.207	1		8577.508	6213 _{9/2} - 14790 _{0/2}	10429.665	6		9585.409	0 _{3/2} - 9585 _{5/2}
11648.639	1		8582.344	11576 _{3/2} - 20158 _{5/2}	10423.795	2		9590.807	14790 _{0/2} - 24381 _{7/2}
11631.948	3		8594.659	10379 _{9/2} - 18973 _{7/2}	10419.574	7		9594.692	1521 _{5/2} - 11116 _{7/2}
11594.834	0		8622.170	16818 _{7/2} - 25440 _{5/2}	10404.502	3		9608.591	8605 _{5/2} - 18214 _{3/2}
11542.494	3		8661.268	8460 _{3/2} - 17121 _{3/2}	10402.349	1		9610.580	17983 _{5/2} - 27593 _{5/2}
11521.827	2		8676.804	15786 _{5/2} - 24463 _{5/2}	10391.352	0		9620.750	12485 _{0/2} - 22106 _{5/2}
11515.375	0		8681.665	16564 _{11/2} - 25246 _{9/2}	10373.462	0		9637.342	15236 _{3/2} - 24873 _{5/2}
11478.678	2		8709.420	7001 _{3/2} - 15710 _{3/2}	10359.998	3		9649.867	9400 _{5/2} - 19050 _{3/2}
11455.648	1u		8726.929	12570 _{7/2} - 21297 _{5/2}	10356.372	2		9653.246	15786 _{5/2} - 25440 _{5/2}
11412.071	2		8760.253	4490 _{5/2} - 13250 _{5/2}	10316.006	1		9691.018	10189 _{11/2} - 19880 _{9/2}
11387.846	1		8778.888	17983 _{5/2} - 26762 _{3/2}	10304.810	2		9701.547	10379 _{9/2} - 20080 _{0/2}
11374.713	6		8789.024	4113 _{5/2} - 12902 _{3/2}	10301.161	6		9704.984	4113 _{5/2} - 13818 _{0/2}
11290.238	0		8854.785	8605 _{5/2} - 17460 _{5/2}	10288.987	4		9716.467	1859 _{3/2} - 11576 _{3/2}
11252.925	1		8884.146	20989 _{9/2} - 29873 _{7/2}	10249.314	1		9754.077	8460 _{3/2} - 18214 _{3/2}
11244.310	2d		8890.952	13248 _{9/2} - 22139 _{0/2}	10247.419	1		9755.881	17771 _{11/2} - 27526 _{9/2}
11232.320	2		8900.443	6244 _{1/2} - 15144 _{3/2}	10244.986	1		9758.198	22014 _{11/2} - 31773 _{9/2}
11204.818	2		8922.289	9061 _{5/2} - 17983 _{5/2}	10241.463	2		9761.555	13250 _{5/2} - 23012 _{3/2}
11202.078	1		8924.471	17837 _{1/2} - 26762 _{3/2}	10219.382	2		9782.646	14349 _{1/2} - 24132 _{3/2}
11186.716	0		8936.727	20158 _{5/2} - 29095 _{5/2}	10208.285	0		9793.281	20080 _{0/2} - 29873 _{7/2}
11107.735	0		9000.271	8460 _{3/2} - 17460 _{5/2}	10197.163	0		9803.962	17722 _{9/2} - 27526 _{9/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
10180.909	0		9819.614	8018 _{3/2} ° - 17837 _{5/2} °	9362.640	1		10677.819	9202 _{7/2} ° - 19880 _{9/2} °
10169.296	2		9830.828	10855 _{7/2} ° - 20686 _{5/2} °	9360.989	2		10679.702	9400 _{5/2} ° - 20080 _{7/2} °
10133.559	7		9865.497	1859 _{3/2} ° - 11725 _{1/2} °	9349.246	1		10693.116	6213 _{9/2} ° - 16906 _{7/2} °
10085.323	1		9912.681	9061 _{5/2} ° - 18973 _{7/2} °	9346.644	1	2	10696.092	22513 _{5/2} ° - 33209 _{7/2} °
10045.996	0		9951.486	15236 _{3/2} ° - 25188 _{5/2} °	9311.053	2	4	10736.978	30310 _{11/2} ° - 41047 _{9/2} °
10032.174	1		9965.197	8018 _{3/2} ° - 17983 _{5/2} °	9292.242	2	2	10758.713	35593 _{7/2} ° - 46352 _{7/2} °
9993.866	2		10003.395	15242 _{5/2} ° - 25246 _{9/2} °	9267.686	2		10787.220	7331 _{5/2} ° - 18118 _{3/2} °
9988.024	2		10009.246	7828 _{1/2} ° - 17837 _{1/2} °	9267.082	3		10787.923	8460 _{3/2} ° - 19248 _{5/2} °
9943.061	6		10054.508	1521 _{5/2} ° - 11576 _{3/2} °	9253.268	1	3	10804.028	20969 _{7/2} ° - 31773 _{9/2} °
9926.172	0		10071.616	12570 _{7/2} ° - 22642 _{3/2} °	9252.860	0		10804.504	18118 _{3/2} ° - 28923 _{5/2} °
9892.187	0		10106.217	14275 _{9/2} ° - 24381 _{7/2} °	9249.887	5	4	10807.977	27357 _{9/2} ° - 38165 _{7/2} °
9890.522	1		10107.918	8460 _{3/2} ° - 18568 _{1/2} °	9245.253	10	5	10813.394	20158 _{5/2} ° - 30972 _{5/2} °
9888.819	0		10109.659	15305 _{9/2} ° - 25414 _{11/2} °	9233.267	3	75	10827.431	10855 _{7/2} ° - 21682 _{7/2} °
9880.782	2		10117.882	6700 _{9/2} ° - 16818 _{7/2} °	9226.409	0	5	10835.479	20158 _{5/2} ° - 30994 _{7/2} °
9878.520	2		10120.199	7001 _{3/2} ° - 17121 _{3/2} °	9225.657	1	2	10836.363	14545 _{5/2} ° - 25381 _{3/2} °
9876.688	0		10122.076	13250 _{5/2} ° - 23372 _{3/2} °				7001 _{3/2} ° - 17837 _{1/2} °	
9869.929	0		10129.008	4146 _{7/2} ° - 14275 _{3/2} °	9164.081	0	8	10909.175	26770 _{11/2} ° - 37679 _{11/2} °
9864.597	2	8	10134.483	10855 _{7/2} ° - 20989 _{9/2} °	9157.414	2	20	10917.117	14349 _{1/2} ° - 25266 _{1/2} °
9863.866	1		10135.234	12219 _{3/2} ° - 22355 _{1/2} °	9133.422	0	5	10945.794	33354 _{5/2} ° - 44300 _{3/2} °
9834.008	3		10166.006	17771 _{11/2} ° - 27937 _{11/2} °				30101 _{7/2} ° - 41047 _{9/2} °	
9817.034	3h	3	10183.583	19248 _{5/2} ° - 29431 _{7/2} °	9129.691	3	5	10950.268	1521 _{5/2} ° - 12472 _{5/2} °
9780.808	1	1	10221.301	19880 _{9/2} ° - 30101 _{7/2} °	9124.513	2	4	10956.482	9202 _{7/2} ° - 20158 _{5/2} °
9734.696	1		10269.718	13248 _{9/2} ° - 23518 _{7/2} °	9119.627	200	100	10962.352	16564 _{11/2} ° - 27526 _{9/2} °
9663.062	0		10345.849	12488 _{9/2} ° - 22834 _{7/2} °	9118.418	4	5	10963.805	1521 _{5/2} ° - 12485 _{7/2} °
9651.502	4	2	10358.241	15236 _{3/2} ° - 25594 _{1/2} °	9113.459	2	10	10969.771	16818 _{7/2} ° - 27787 _{9/2} °
9642.471	4		10367.942	8605 _{5/2} ° - 18973 _{7/2} °	9112.672	2	15	10970.718	14275 _{9/2} ° - 25246 _{9/2} °
9613.689	5		10398.982	4146 _{7/2} ° - 14545 _{5/2} °	9109.777	2	10	10974.205	9711 _{7/2} ° - 20686 _{5/2} °
9583.076	3		10432.201	4113 _{5/2} ° - 14545 _{5/2} °	9107.667	2	15	10976.747	18118 _{3/2} ° - 29095 _{5/2} °
9578.636	0	5	10437.037	22139 _{9/2} ° - 32576 _{7/2} °	9103.998	1	4	10981.171	26963 _{7/2} ° - 37945 _{5/2} °
9577.344	3		10438.445	9720 _{7/2} ° - 20158 _{5/2} °	9103.341	3	5	10981.964	7001 _{3/2} ° - 17983 _{5/2} °
9560.574	1	2	10456.755	21297 _{5/2} ° - 31754 _{5/2} °	9096.811	1	3	10989.847	11116 _{7/2} ° - 22106 _{5/2} °
9558.370	1	2	10459.166	7001 _{3/2} ° - 17460 _{5/2} °	9072.260	5	40	11019.587	9061 _{5/2} ° - 20080 _{7/2} °
9519.819	0	5	10501.521	26963 _{7/2} ° - 37465 _{5/2} °	9066.096	20	40	11027.079	6700 _{9/2} ° - 17727 _{11/2} °
9494.041	1		10530.034	11576 _{3/2} ° - 22106 _{5/2} °	9062.545	100	150	11031.400	4113 _{5/2} ° - 15144 _{3/2} °
9483.850	0		10541.349	18973 _{3/2} ° - 29515 _{9/2} °	9053.468	150	75	11042.460	1859 _{3/2} ° - 12902 _{3/2} °
9477.269	1	10	10548.669	23730 _{9/2} ° - 34279 _{7/2} °	9046.321	0	5	11051.184	35165 _{13/2} ° - 46216 _{11/2} °
9456.023	0		10572.370	19912 _{13/2} ° - 30484 _{11/2} °	9040.106	50	75	11058.781	6213 _{9/2} ° - 17272 _{9/2} °
9455.297	0	15w	10573.182	20686 _{5/2} ° - 31259 _{5/2} °	9038.675	4	15	11060.532	13248 _{9/2} ° - 24309 _{11/2} °
9439.854	0		10590.479	8460 _{3/2} ° - 19050 _{3/2} °	9032.634	0	8	11067.929	22834 _{7/2} ° - 33902 _{7/2} °
9432.280	3		10598.983	9711 _{7/2} ° - 20310 _{5/2} °	8974.923	1		11139.099	20120 _{5/2} ° - 31259 _{5/2} °
9420.493	2d		10612.244	1859 _{3/2} ° - 12472 _{5/2} °	8974.326	0	5	11139.840	27249 _{7/2} ° - 38389 _{7/2} °
9398.155	2	4	10637.468	15786 _{5/2} ° - 26424 _{5/2} °	8964.041	2	20	11152.621	12219 _{3/2} ° - 23372 _{3/2} °
9394.096	0		10642.064	9238 _{9/2} ° - 19880 _{9/2} °	8957.972	10	100	11160.177	12570 _{7/2} ° - 23730 _{9/2} °
9393.770	1		10642.433	8605 _{5/2} ° - 19248 _{5/2} °	8954.817	1	2	11164.109	13250 _{5/2} ° - 24414 _{3/2} °
9392.016	1		10644.421	4146 _{7/2} ° - 14790 _{7/2} °	8935.812	1	10	11187.853	15236 _{3/2} ° - 26424 _{5/2} °
9374.051	0		10664.821	17272 _{9/2} ° - 27937 _{11/2} °	8929.834	0	5	11195.343	35156 _{5/2} ° - 46352 _{7/2} °
9366.743	0d		10673.141	0 _{3/2} ° - 10673 _{5/2} °	8928.630	3	2	11196.852	32576 _{7/2} ° - 43773 _{7/2} °
9362.794	0		10677.643	4113 _{5/2} ° - 14790 _{7/2} °	8902.210	1	3	11230.082	8018 _{3/2} ° - 19248 _{5/2} °
9362.794	0		10677.643	14349 _{1/2} ° - 25027 _{1/2} °	8887.781	1	3	11248.314	22106 _{5/2} ° - 33354 _{3/2} °
9362.685	2	20	10677.767	34212 _{5/2} ° - 44889 _{3/2} °	8880.875	1	2	11257.061	9711 _{7/2} ° - 20969 _{7/2} °

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
8864.494	2	3	11277.863	9711 _{7/2} - 20989 _{9/2} ^o	8403.787	100	300	11896.128	12485 _{7/2} - 24381 _{7/2}
8842.067	15	2	11306.468	4146 _{7/2} - 15453 _{7/2} ^o	8403.556	15	15	11896.455	9400 _{5/2} - 21297 _{5/2}
8826.334	0	5	11326.622	24414 _{3/2} - 35741 _{5/2}	8399.688	5s	2	11901.933	26965 _{3/2} - 38867 _{1/2}
8816.161	8	40	11339.692	4113 _{5/2} - 15453 _{7/2} ^o	8397.074	2	5	11905.638	18973 _{7/2} - 30879 _{7/2}
8798.457	1	5	11362.509	17983 _{5/2} - 29345 _{5/2}	8394.722	0	8	11908.974	44177 _{11/2} - 56086 _{9/2}
8784.553	40	50	11380.493	1521 _{5/2} - 12902 _{3/2} ^o	8392.547	2	50	11912.060	12219 _{3/2} - 24132 _{3/2}
8777.333	1	3	11389.854	15236 _{3/2} - 26626 _{1/2} ^o	8391.218	0	8	11913.947	24414 _{3/2} - 36328 _{3/2}
8759.977	0	5	11415.027	24463 _{5/2} - 35878 _{7/2}	8387.089	150	200	11919.812	4113 _{5/2} - 16033 _{5/2}
8749.761	1	1	11425.746	16818 _{7/2} - 28243 _{3/2} ^o	8351.367	3	8	11970.798	9711 _{7/2} - 21682 _{7/2}
8745.509	2	2	11431.301	32957 _{7/2} - 44388 _{5/2}	8351.052	2	8	11971.249	17460 _{5/2} - 29431 _{7/2}
8736.376	1	3	11443.251	20310 _{5/2} - 31754 _{5/2}	8342.686	2	5	11983.254	28587 _{5/2} - 40570 _{7/2}
8721.653	8	100	11462.568	15786 _{5/2} - 27249 _{7/2} ^o	8321.156	0	10	12014.259	15242 _{9/2} - 27257 _{7/2}
8719.623	5	50	11465.237	15305 _{9/2} - 26770 _{11/2}	8313.535	4	2	12025.272	25440 _{5/2} - 37465 _{5/2}
8698.591	10	4	11492.958	33902 _{7/2} - 45395 _{7/2}	8310.076	1	10	12030.278	22513 _{5/2} - 34543 _{5/2}
8695.106	2	1	11497.564	22139 _{9/2} - 33637 _{7/2}	8302.576	2	15	12041.145	22685 _{7/2} - 34726 _{7/2}
8688.761	2w	1	11505.960	22513 _{5/2} - 34019 _{3/2}	8295.021	4	15	12052.112	15305 _{9/2} - 27357 _{9/2}
8686.605	3	10	11508.816	13248 _{9/2} - 24757 _{9/2}	8282.232	5	15	12070.722	9061 _{5/2} - 21131 _{3/2}
8686.074	10	25	11509.520	6213 _{9/2} - 17722 _{9/2} ^o	8280.974	1	8	12072.556	25607 _{5/2} - 37679 _{11/2}
8682.441	3	8	11514.336	8605 _{5/2} - 20120 _{5/2} ^o	8263.029	0	8	12098.774	30101 _{7/2} - 42200 _{9/2}
8629.132	8	40w	11585.469	9711 _{7/2} - 21297 _{5/2} ^o	8258.994	4	3	12104.685	33384 _{9/2} - 45489 _{9/2}
8628.062	1	4	11586.905	20989 _{9/2} - 32576 _{7/2}	8242.406	0	8	12129.045	35602 _{11/2} - 47731 _{9/2}
8621.818	2	1	11595.297	32957 _{7/2} - 44552 _{5/2}	8241.355	2	15	12130.592	22139 _{9/2} - 34270 _{9/2}
8620.179	10	15	11597.501	4113 _{5/2} - 15710 _{3/2}	8236.320	5	2	12138.008	35593 _{7/2} - 47731 _{9/2}
8617.110	2	8	11601.632	18118 _{3/2} - 29720 _{3/2}	8235.216	0	5	12139.635	22139 _{9/2} - 34279 _{7/2}
8600.910	3	10	11623.484	13250 _{5/2} - 24873 _{5/2}	8221.233	0	5	12160.282	25414 _{11/2} - 37575 _{13/2}
8599.731	10	25	11625.077	9061 _{5/2} - 20686 _{5/2}	8220.764	3	10	12160.976	10673 _{5/2} - 22834 _{7/2}
8597.434	5	10	11628.183	22642 _{9/2} - 34270 _{9/2}	8217.219	75	150	12166.223	13248 _{9/2} - 25414 _{11/2}
8591.828	200	300	11635.770	10379 _{9/2} - 22014 _{11/2}	8216.352	0	15	12167.506	35156 _{5/2} - 47324 _{5/2}
8590.751	2	40	11637.229	22642 _{9/2} - 34279 _{7/2}	8203.190	200	100	12187.029	12570 _{7/2} - 24757 _{9/2}
8587.629	5	50	11641.459	20158 _{5/2} - 31800 _{7/2}	8198.067	1	1	12194.645	12219 _{3/2} - 24414 _{3/2}
8582.539	2		11648.364	25414 _{11/2} - 37063 _{9/2}	8184.393	1	10	12215.019	26647 _{9/2} - 38862 _{11/2}
8580.560	2	1	11651.050	24414 _{3/2} - 36065 _{5/2}	8182.265	5	8	12218.196	37277 _{7/2} - 49495 _{9/2}
8568.203	10	150	11667.853	18816 _{13/2} - 30484 _{11/2}	8181.307	2	10	12219.626	20989 _{9/2} - 33209 _{7/2}
8531.872	3	5	11717.538	11116 _{7/2} - 22834 _{7/2}	8178.203	4	20	12224.264	17121 _{3/2} - 29345 _{5/2}
8523.848	2	4	11728.568	15236 _{3/2} - 26965 _{3/2}	8177.169	5	15	12225.810	8460 _{3/2} - 20686 _{5/2}
8522.191	2	5	11730.849	9400 _{5/2} - 21131 _{3/2}	8170.181	3	5	12236.267	9061 _{5/2} - 21297 _{5/2}
8521.409	2	25	11731.925	13250 _{5/2} - 24982 _{7/2}	8166.441	150	100	12241.871	1859 _{3/2} - 14101 _{1/2}
8512.591	5h	50	11744.078	17771 _{11/2} - 29515 _{9/2}	8165.733	4	4	12242.932	17272 _{9/2} - 29515 _{9/2}
8500.667	50	75	11760.551	10379 _{9/2} - 22139 _{9/2}	8165.153	8h	8	12243.802	12219 _{3/2} - 24463 _{5/2}
8498.514	2	5	11763.531	26965 _{3/2} - 38728 _{5/2}	8163.117	100	150	12246.855	7001 _{3/2} - 19248 _{5/2}
8496.718	8	4	11766.017	22513 _{5/2} - 34279 _{7/2}	8152.391	8	40	12262.968	10379 _{9/2} - 22642 _{9/2}
8481.756	2	4	11786.773	10855 _{7/2} - 22642 _{3/2} ^o	8150.530	0	8	12265.768	20310 _{5/2} - 32576 _{7/2}
8477.916	20	150	11792.111	43246 _{7/2} - 55038 _{9/2}	8145.474	2	5	12273.382	20686 _{5/2} - 32959 _{3/2}
8453.046	2h	1	11826.805	24982 _{7/2} - 36809 _{7/2}	8139.896	75	100	12281.792	9400 _{5/2} - 21682 _{7/2}
8452.387	4	2	11827.727	39396 _{7/2} - 51224 _{9/2}	8130.213	15	8	12296.420	1521 _{5/2} - 13818 _{9/2}
8450.675	75b	150	11830.123	10855 _{7/2} - 22685 _{7/2}	8127.630	2	8	12300.327	15710 _{3/2} - 28011 _{3/2}
8436.118	0	5	11850.537	32957 _{7/2} - 44807 _{7/2}	8125.514	1	3	12303.531	12570 _{7/2} - 24873 _{5/2}
8412.973	4	25	11883.139	15710 _{3/2} - 27593 _{5/2}	8123.655	2	5	12306.346	10379 _{9/2} - 22685 _{5/2}
8410.532	25	25	11886.588	4146 _{7/2} - 16033 _{5/2} ^o	8112.024	1	1	12323.991	6244 _{1/2} - 18568 _{1/2}
8405.770	3	8	11893.322	12570 _{7/2} - 24463 _{5/2}	8082.673	5	4	12368.743	23372 _{3/2} - 35741 _{5/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
8054.524	10	50	12411.970	12570 ⁰ _{7/2} - 24982 ⁰ _{7/2}	7743.934	5	25	12909.780	12472 ⁰ _{5/2} - 25381 ⁰ _{3/2}
8053.584	1	8	12413.418	35593 ⁰ _{9/2} - 48006 ⁰ _{9/2}	7731.716	75	100	12930.181	9711 ⁰ _{7/2} - 22642 ⁰ _{9/2}
8053.010	1	10	12414.303	22139 ⁰ _{9/2} - 34553 ⁰ _{9/2}	7729.542	2	4	12933.818	15786 ⁰ _{5/2} - 28720 ⁰ _{3/2}
8036.828	20	10	12439.299	16906 ⁰ _{5/2} - 29345 ⁰ _{5/2}	7701.101	15	20	12981.583	14275 ⁰ _{9/2} - 27257 ⁰ _{7/2}
8020.742	2	2	12464.246	25381 ⁰ _{3/2} - 37846 ⁰ _{5/2}	7676.212	100	15	13023.674	1521 ⁰ _{5/2} - 14545 ⁰ _{5/2}
8015.626	25	300	12472.202	0 ⁰ _{3/2} - 12472 ⁰ _{5/2}	7637.767	1	3	13089.229	20120 ⁰ _{5/2} - 33209 ⁰ _{7/2}
7984.363	8	10	12521.037	9585 ⁰ _{5/2} - 22106 ⁰ _{5/2}	7633.890	2	4	13095.876	20288 ⁰ _{11/2} - 33384 ⁰ _{9/2}
7983.722	1	10	12522.042	22139 ⁰ _{9/2} - 34661 ⁰ _{11/2}	7624.311	5	8	13112.330	9400 ⁰ _{5/2} - 22513 ⁰ _{5/2}
7981.670	5	50	12525.261	16906 ⁰ _{7/2} - 29431 ⁰ _{7/2}	7623.565	5	5	13113.613	8018 ⁰ _{3/2} - 21131 ⁰ _{3/2}
7981.213	75	1	12525.978	8605 ⁰ _{5/2} - 21131 ⁰ _{3/2}	7623.440	1	1	13113.828	9720 ⁰ _{7/2} - 22834 ⁰ _{7/2}
7973.517	5	4	12538.068	27357 ⁰ _{9/2} - 39895 ⁰ _{9/2}	7620.586	3	4	13118.739	7001 ⁰ _{3/2} - 20120 ⁰ _{5/2}
7972.881	4h	50	12539.069	22014 ⁰ _{11/2} - 34553 ⁰ _{9/2}	7616.576	1	2	13125.646	4146 ⁰ _{7/2} - 17272 ⁰ _{9/2}
7945.845	0	5	12581.733	27357 ⁰ _{9/2} - 39939 ⁰ _{11/2}	7614.810	3	8	13128.690	20080 ⁰ _{7/2} - 33209 ⁰ _{7/2}
7945.057	5	50	12582.981	17727 ⁰ _{11/2} - 30310 ⁰ _{11/2}	7608.659	2	3	13139.303	10379 ⁰ _{9/2} - 23518 ⁰ _{7/2}
7936.475	2	15	12596.587	21682 ⁰ _{7/2} - 34279 ⁰ _{7/2}	7566.526	5	20	13212.467	17272 ⁰ _{5/2} - 30484 ⁰ _{11/2}
7934.889	0	8	12599.105	21131 ⁰ _{3/2} - 33730 ⁰ _{5/2}	7556.892	1	4	13229.311	17727 ⁰ _{11/2} - 30956 ⁰ _{9/2}
7933.275	2	4	12601.668	17272 ⁰ _{9/2} - 29873 ⁰ _{7/2}	7547.309	1	8	13246.108	21297 ⁰ _{5/2} - 34543 ⁰ _{5/2}
7928.939	4	40	12608.559	16906 ⁰ _{7/2} - 29515 ⁰ _{9/2}	7536.407	50	10	13265.270	11116 ⁰ _{7/2} - 24381 ⁰ _{7/2}
7914.333	0	5	12631.829	29720 ⁰ _{3/2} - 42352 ⁰ _{5/2}	7536.011	0	8	13265.967	24309 ⁰ _{11/2} - 37575 ⁰ _{13/2}
7896.427	5c	40	12660.472	14101 ⁰ _{5/2} - 26762 ⁰ _{3/2}	7534.224	3	2	13269.113	1521 ⁰ _{5/2} - 14790 ⁰ _{7/2}
7894.776	4	20	12663.120	10855 ⁰ _{7/2} - 23518 ⁰ _{9/2}	7525.507	200	150	13284.483	9400 ⁰ _{5/2} - 22685 ⁰ _{7/2}
7892.892	3	5	12666.143	22355 ⁰ _{5/2} - 35021 ⁰ _{3/2}	7525.329	10	5	13284.797	1859 ⁰ _{3/2} - 15144 ⁰ _{3/2}
7891.743	3	8	12667.987	8018 ⁰ _{3/2} - 20686 ⁰ _{5/2}	7522.654	2	10	13289.521	20989 ⁰ _{9/2} - 34279 ⁰ _{7/2}
7883.986	1	8	12680.451	28026 ⁰ _{5/2} - 40706 ⁰ _{7/2}	7514.891	4	4	13303.250	7828 ⁰ _{1/2} - 21131 ⁰ _{3/2}
7880.761	4	8	12685.640	1859 ⁰ _{3/2} - 14545 ⁰ _{5/2}	7514.604	1	4	13303.758	20080 ⁰ _{7/2} - 33384 ⁰ _{9/2}
7877.057	15	50	12691.605	8605 ⁰ _{5/2} - 21297 ⁰ _{5/2}	7511.346	50	25	13309.528	7001 ⁰ _{3/2} - 20310 ⁰ _{5/2}
7875.448	8	100	12694.198	15242 ⁰ _{9/2} - 27937 ⁰ _{11/2}	7509.517	1	1	13312.770	16033 ⁰ _{5/2} - 29345 ⁰ _{5/2}
7871.284	4	1	12700.913	39861 ⁰ _{5/2} - 52562 ⁰ _{7/2}	7508.791	3		13314.057	4146 ⁰ _{7/2} - 17460 ⁰ _{5/2}
7853.482	0	15	12729.703	17722 ⁰ _{9/2} - 30452 ⁰ _{9/2}	7497.882	4	8	13333.428	24132 ⁰ _{3/2} - 37465 ⁰ _{5/2}
7849.616	8	150	12735.972	14790 ⁰ _{7/2} - 27526 ⁰ _{9/2}	7490.104	8	5	13347.274	4113 ⁰ _{5/2} - 17460 ⁰ _{5/2}
7836.703	0	5	12756.958	25188 ⁰ _{3/2} - 37945 ⁰ _{5/2}	7488.169	2	2	13350.723	15236 ⁰ _{3/2} - 28587 ⁰ _{5/2}
7836.081	1	5	12757.971	12488 ⁰ _{9/2} - 25246 ⁰ _{9/2}	7487.713	5	5	13351.536	10379 ⁰ _{9/2} - 23730 ⁰ _{9/2}
7835.266	2	40	12759.298	22834 ⁰ _{7/2} - 35593 ⁰ _{9/2}	7484.002	1	3	13358.156	24463 ⁰ _{5/2} - 37821 ⁰ _{3/2}
7834.805	2	10h	12760.049	4146 ⁰ _{7/2} - 16906 ⁰ _{7/2}	7483.374	2	8	13359.277	22834 ⁰ _{7/2} - 36193 ⁰ _{9/2}
7834.446	100	200	12760.633	12485 ⁰ _{7/2} - 25246 ⁰ _{9/2}	7479.821	3	15	13365.623	23697 ⁰ _{7/2} - 37063 ⁰ _{9/2}
7824.041	2	10	12777.603	17771 ⁰ _{11/2} - 30548 ⁰ _{13/2}	7454.096	2	4	13411.749	21131 ⁰ _{3/2} - 34543 ⁰ _{5/2}
7818.331	4	40	12786.935	27787 ⁰ _{9/2} - 40574 ⁰ _{11/2}	7439.086	8	8	13438.810	13818 ⁰ _{7/2} - 27257 ⁰ _{7/2}
7815.866	1	2	12790.968	30223 ⁰ _{15/2} - 43014 ⁰ _{13/2}	7438.494	2	8	13439.880	22685 ⁰ _{7/2} - 36125 ⁰ _{9/2}
7811.159	2	40	12798.676	20158 ⁰ _{5/2} - 32957 ⁰ _{7/2}	7437.708	2	5	13441.300	23372 ⁰ _{3/2} - 36812 ⁰ _{1/2}
7807.026	5	4	12805.451	24982 ⁰ _{7/2} - 37787 ⁰ _{7/2}				22014 ⁰ _{11/2} - 35456 ⁰ _{9/2}	
7806.029	4	3	12807.087	12219 ⁰ _{3/2} - 25027 ⁰ _{1/2}	7431.680	4	2	13452.202	9061 ⁰ _{5/2} - 22513 ⁰ _{5/2}
7787.793	75b	200	12837.076	8460 ⁰ _{3/2} - 21297 ⁰ _{5/2}	7431.378	5	3	13452.749	14484 ⁰ _{11/2} - 27937 ⁰ _{11/2}
7786.444	2	5	12839.300	20120 ⁰ _{5/2} - 32959 ⁰ _{3/2}	7423.311	10	4	13467.368	6691 ⁰ _{3/2} - 20158 ⁰ _{5/2}
7784.608	2	50	12842.328	10855 ⁰ _{7/2} - 23697 ⁰ _{7/2}	7414.052	5	4	13484.187	15236 ⁰ _{3/2} - 28720 ⁰ _{3/2}
7777.302	0	5	12854.392	30101 ⁰ _{7/2} - 42955 ⁰ _{9/2}	7412.008	4	5	13487.905	19248 ⁰ _{5/2} - 32736 ⁰ _{7/2}
7773.429	2	1	12860.796	21682 ⁰ _{7/2} - 34543 ⁰ _{5/2}	7399.724	2	4	13510.296	22014 ⁰ _{11/2} - 35525 ⁰ _{11/2}
7767.173	0	8	12871.155	21682 ⁰ _{7/2} - 34553 ⁰ _{9/2}	7396.009	8	8	13517.082	20120 ⁰ _{5/2} - 33637 ⁰ _{7/2}
7764.645	3	10	12875.346	10855 ⁰ _{7/2} - 23730 ⁰ _{9/2}	7393.434	200	150	13521.790	13248 ⁰ _{9/2} - 26770 ⁰ _{11/2}
7748.368	2	3	12902.393	0 ⁰ _{3/2} - 12902 ⁰ _{3/2}	7389.264	20	3	13529.421	14101 ⁰ _{5/2} - 27631 ⁰ _{3/2}
7747.415	5	4	12903.980	36581 ⁰ _{3/2} - 49485 ⁰ _{1/2}	7380.156	8	8	13546.117	16906 ⁰ _{7/2} - 30452 ⁰ _{9/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
7359.069	2	8	13584.933	20969 ^o _{7/2} - 34553 ^o _{9/2}	7098.675	1	3	14083.253	26963 ^o _{7/2} - 41047 ^o _{9/2}
7358.347	50	20	13586.266	12902 ^o _{3/2} - 26488 ^o _{5/2}	7089.699	4		14101.083	4113 ^o _{5/2} - 18214 ^o _{3/2}
7354.610	2	3	13593.169	20686 ^o _{9/2} - 34279 ^o _{7/2}	7089.334	400	100	14101.809	0 ^o _{3/2} - 14101 ^o _{1/2}
7353.034	8		13596.083	9238 ^o _{9/2} - 22834 ^o _{7/2}	7087.595	0	5	14105.269	24757 ^o _{9/2} - 38862 ^o _{11/2}
7353.007	15	8	13596.133	9238 ^o _{9/2} - 22834 ^o _{7/2}	7084.983	2	10	14110.469	22014 ^o _{11/2} - 36125 ^o _{9/2}
7352.581	5		13596.920	26770 ^o _{11/2} - 40367 ^o _{9/2}	7078.262	5	4	14123.867	22685 ^o _{7/2} - 36809 ^o _{7/2}
7349.315	3	8	13602.963	18973 ^o _{7/2} - 32576 ^o _{7/2}	7075.331	200	150	14129.718	11116 ^o _{7/2} - 25246 ^o _{9/2}
7347.048	8	15	13607.160	17272 ^o _{7/2} - 30879 ^o _{7/2}	7075.003	5	4	14130.373	7001 ^o _{3/2} - 21131 ^o _{3/2}
7346.341	15	15	13608.469	10855 ^o _{7/2} - 24463 ^o _{5/2}	7053.614	300	75	14173.221	1859 ^o _{3/2} - 16033 ^o _{5/2}
7338.591	5	3	13622.841	1521 ^o _{5/2} - 15144 ^o _{3/2}	7045.795	400	150	14188.950	15242 ^o _{9/2} - 29431 ^o _{7/2} 1521 ^o _{5/2} - 15710 ^o _{3/2}
7337.775	15	8	13624.356	9061 ^o _{5/2} - 22685 ^o _{7/2}					
7332.015	3	3	13635.059	15710 ^o _{3/2} - 29345 ^o _{5/2}	7008.051	2	5	14265.368	20288 ^o _{11/2} - 34553 ^o _{9/2}
7323.851	4	5	13650.258	20080 ^o _{7/2} - 33730 ^o _{5/2}	6995.930	2	5	14290.084	12472 ^o _{5/2} - 26762 ^o _{3/2}
7312.255	2	4	13671.905	20989 ^o _{9/2} - 34661 ^o _{11/2}	6993.034	300	200	14296.002	22513 ^o _{5/2} - 36809 ^o _{7/2} 7001 ^o _{3/2} - 21297 ^o _{5/2}
7308.515	5	8	13678.901	15144 ^o _{3/2} - 28823 ^o _{5/2}					
7305.397	100	75	13684.739	7001 ^o _{3/2} - 20686 ^o _{5/2}	6992.692	50	40	14296.701	9400 ^o _{5/2} - 23697 ^o _{7/2}
7292.669	5	5	13708.623	13818 ^o _{7/2} - 27526 ^o _{9/2}	6985.467	20	40	14311.488	9061 ^o _{5/2} - 23372 ^o _{3/2}
7289.438	3	8	13714.700	13250 ^o _{5/2} - 26965 ^o _{3/2}	6975.478	1	5	14331.982	25607 ^o _{9/2} - 39939 ^o _{11/2}
7257.189	4	4	13775.644	13818 ^o _{7/2} - 27593 ^o _{5/2}	6973.043	0	5	14336.987	8018 ^o _{3/2} - 22355 ^o _{1/2}
7250.587	15	20	13788.187	13468 ^o _{9/2} - 27257 ^o _{7/2}	6973.020	4	5	14337.034	8018 ^o _{3/2} - 22355 ^o _{1/2}
7240.981	5	2	13806.479	9711 ^o _{7/2} - 23518 ^o _{7/2}	6965.415	2	5	14352.687	16906 ^o _{7/2} - 31259 ^o _{5/2}
7225.125	20	5	13836.778	4146 ^o _{7/2} - 17983 ^o _{5/2}	6956.332	1	8	14371.428	14349 ^o _{1/2} - 28720 ^o _{3/2}
7217.759	150	50	13850.898	1859 ^o _{3/2} - 15710 ^o _{3/2}	6955.504	2	20	14373.139	20288 ^o _{11/2} - 34661 ^o _{11/2}
7216.158	4	4	13853.971	12570 ^o _{7/2} - 26424 ^o _{5/2}	6953.230	0	5	14377.839	22685 ^o _{7/2} - 37063 ^o _{9/2}
7195.955	5	5	13892.867	15453 ^o _{7/2} - 29345 ^o _{5/2}	6952.961	50	50	14378.396	10379 ^o _{9/2} - 24757 ^o _{9/2}
7194.925	3	5	13894.856	8460 ^o _{3/2} - 22355 ^o _{1/2}	6946.781	1	5	14391.187	18568 ^o _{1/2} - 32959 ^o _{3/2}
7191.128	500	300	13902.192	10855 ^o _{7/2} - 24757 ^o _{9/2}	6938.967	0	5	14407.393	23697 ^o _{7/2} - 38105 ^o _{9/2}
7188.415	3	2	13907.439	8605 ^o _{5/2} - 22513 ^o _{5/2}	6937.080	0	25	14411.312	22642 ^o _{9/2} - 37053 ^o _{11/2}
7187.438	2	4	13909.330	14101 ^o _{1/2} - 28011 ^o _{3/2}	6932.458	2	5	14420.920	15453 ^o _{7/2} - 29873 ^o _{7/2}
7181.902	1	3	13920.051	16564 ^o _{11/2} - 30484 ^o _{11/2}	6929.689	2	3	14426.682	23518 ^o _{7/2} - 37945 ^o _{5/2}
7179.048	1	8	13925.585	24463 ^o _{5/2} - 38389 ^o _{7/2}	6921.432	2	20	14443.893	21297 ^o _{5/2} - 35741 ^o _{5/2}
7176.719	25	25	13930.104	10379 ^o _{9/2} - 24309 ^o _{11/2}	6917.036	3	3	14453.072	26770 ^o _{11/2} - 41223 ^o _{11/2}
7176.184	20	10	13931.143	1521 ^o _{5/2} - 15453 ^o _{7/2}	6915.001	2b	8	14457.325	9061 ^o _{5/2} - 23518 ^o _{7/2}
7172.987	1	2	13937.352	25414 ^o _{11/2} - 39352 ^o _{11/2}	6910.690	1	3	14466.344	20989 ^o _{9/2} - 35456 ^o _{9/2}
7166.514	0	8	13949.940	35545 ^o _{9/2} - 49495 ^o _{9/2}	6909.845	100	200	14468.113	13468 ^o _{9/2} - 27937 ^o _{11/2}
7165.988	20	10	13950.964	9061 ^o _{5/2} - 23012 ^o _{3/2}	6907.384	2	5	14473.268	20080 ^o _{7/2} - 34553 ^o _{9/2}
7160.764	1	3	13961.142	19248 ^o _{5/2} - 33209 ^o _{7/2}	6903.086	2	40	14482.279	23697 ^o _{7/2} - 38179 ^o _{9/2}
7157.067	0	5	13968.353	20310 ^o _{5/2} - 34279 ^o _{7/2}	6902.652	5	2	14483.190	15305 ^o _{9/2} - 29788 ^o _{9/2}
7151.197	3	3	13979.819	31924 ^o _{11/2} - 45904 ^o _{9/2}	6898.146	0	8	14492.650	23187 ^o _{13/2} - 37679 ^o _{11/2}
7148.191	5	5	13985.698	9711 ^o _{7/2} - 23697 ^o _{7/2}	6891.087	1	3	14507.496	28243 ^o _{5/2} - 42751 ^o _{7/2}
7145.793	3	2	13990.391	6168 ^o _{7/2} - 20158 ^o _{5/2}	6889.297	300	200	14511.265	1521 ^o _{5/2} - 16033 ^o _{5/2}
7140.454	10	15	14000.852	13248 ^o _{9/2} - 27249 ^o _{7/2}	6888.720	10	3	14512.481	25188 ^o _{3/2} - 39700 ^o _{5/2}
7139.861	5	25	14002.015	17771 ^o _{11/2} - 31773 ^o _{9/2}	6877.881	1	10	14535.351	20989 ^o _{9/2} - 35525 ^o _{11/2}
7132.509	4h		14016.448	12472 ^o _{5/2} - 26488 ^o _{5/2}	6873.051	10	3	14545.566	0 ^o _{3/2} - 14545 ^o _{5/2}
7124.286	0	5	14032.626	14790 ^o _{7/2} - 28823 ^o _{5/2}	6870.154	2	2	14551.699	8460 ^o _{3/2} - 23012 ^o _{3/2}
7120.334	1	2	14040.414	20686 ^o _{5/2} - 34726 ^o _{7/2}	6869.274	2	5	14553.564	24309 ^o _{11/2} - 38862 ^o _{11/2}
7119.977	0	5	14041.118	27357 ^o _{9/2} - 41398 ^o _{9/2}	6868.638	2	3	14554.911	14790 ^o _{7/2} - 29345 ^o _{5/2}
7113.983	8	10	14052.949	8460 ^o _{3/2} - 22513 ^o _{5/2}	6854.496	10	15	14584.940	10855 ^o _{7/2} - 25440 ^o _{5/2}
7109.371	0	5	14062.065	15453 ^o _{7/2} - 29515 ^o _{9/2}	6851.210	1	5	14591.935	22685 ^o _{7/2} - 37277 ^o _{7/2}
7100.507	150	75	14079.619	8605 ^o _{5/2} - 22685 ^o _{7/2}	6850.531	5	40	14593.382	17983 ^o _{5/2} - 32576 ^o _{7/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
6845.852	3	4	14603.356	10379 _{9/2} - 24982 _{7/2}	6628.169	1	3	15082.957	14790 _{9/2} - 29873 _{7/2}
6845.132	1	2	14604.892	24463 _{5/2} - 39068 _{7/2}	6622.127	1	5	15096.719	20969 _{9/2} - 36065 _{5/2}
6832.885	5	20	14631.069	15242 _{9/2} - 29873 _{7/2}	6619.940	200	200	15101.706	4146 _{7/2} - 19248 _{5/2}
6832.196	2	3	14632.544	17121 _{3/2} - 31754 _{5/2}	6619.616	3	40	15102.445	22685 _{9/2} - 37787 _{7/2}
6812.762	40	750	14674.285	10572 _{5/2} - 25246 _{9/2}	6617.054	25	50	15108.293	12485 _{7/2} - 27593 _{1/2}
6810.539	40	100	14679.075	12570 _{7/2} - 27249 _{9/2}	6616.863	2	2	15108.729	12902 _{3/2} - 28011 _{3/2}
6804.731	8	20	14691.603	12902 _{3/2} - 27593 _{5/2}	6615.482	1	10	15111.883	26770 _{11/2} - 41882 _{13/2}
6796.776	10	10	14708.798	10673 _{3/2} - 25381 _{3/2}	6615.345	3	5	15112.196	20288 _{11/2} - 35400 _{13/2}
6792.470	1	2	14718.123	24982 _{7/2} - 39700 _{5/2}	6611.194	3	15	15121.684	17837 _{9/2} - 32959 _{3/2}
6789.687	1	3	14724.155	14790 _{9/2} - 29515 _{9/2}	6610.306	1	8	15123.716	19050 _{9/2} - 34174 _{5/2}
6786.360	2	8	14731.374	18118 _{3/2} - 32850 _{5/2}	6605.406	200	150	15134.935	4113 _{5/2} - 19248 _{5/2}
6784.629	1	2	14735.132	24132 _{3/2} - 38867 _{1/2}	6604.106	2	20	15137.914	24757 _{5/2} - 39895 _{9/2}
6784.159	1	2	14736.153	19594 _{1/2} - 34330 _{1/2}	6601.537	5	2	15143.805	9238 _{9/2} - 24381 _{7/2}
6779.987	15	10	14745.221	12219 _{3/2} - 26965 _{3/2}	6601.124	5	3	15144.752	0 _{3/2} - 15144 _{3/2}
6771.323	3	3	14764.088	22513 _{5/2} - 37277 _{7/2}	6594.891	2	4	15159.066	12472 _{5/2} - 27631 _{3/2}
6770.101	150	100	14766.752	8605 _{5/2} - 23372 _{3/2}	6593.606	3	10	15162.020	9711 _{7/2} - 24873 _{5/2}
6769.385	31	15	14768.314	21297 _{5/2} - 36065 _{5/2}	6592.555	0	8	15164.437	31259 _{3/2} - 46423 _{3/2}
6769.126	4h	5	14768.879	12488 _{9/2} - 27257 _{7/2}	6591.790	0	8	15166.197	23697 _{7/2} - 38863 _{5/2}
6768.164	1	3	14770.979	19248 _{5/2} - 34019 _{3/2}	6585.996	3	8	15179.539	9202 _{9/2} - 24381 _{7/2}
6767.945	2	5	14771.456	12485 _{7/2} - 27257 _{7/2}	6584.276	8	3	15183.505	7828 _{1/2} - 23012 _{3/2}
6766.341	8	10	14774.958	7331 _{9/2} - 22106 _{5/2}	6583.585	5	4	15185.098	28587 _{9/2} - 43772 _{5/2}
6760.888	25	25	14786.875	12570 _{7/2} - 27357 _{9/2}	6583.310	8	100	15185.733	44807 _{7/2} - 59993 _{9/2}
6757.310	0	5	14794.704	24757 _{9/2} - 39552 _{9/2}	6578.923	2	2	15195.859	25027 _{9/2} - 40222 _{3/2}
6756.540	100b	75	14796.390	9585 _{5/2} - 24381 _{7/2}	6577.651	20	100	15198.797	15349 _{11/2} - 30548 _{13/2}
6742.493	8	5	14827.216	4146 _{7/2} - 18973 _{7/2}	6576.800	0	5	15200.764	18973 _{7/2} - 34174 _{5/2}
6737.643	50	8	14837.889	25440 _{5/2} - 40278 _{3/2}	6573.986	2	10	15207.271	15786 _{5/2} - 30994 _{7/2}
6732.242	3	3	14849.793	17771 _{11/2} - 32620 _{11/2}	6573.482	2	10	15208.437	16564 _{11/2} - 31773 _{9/2}
6725.376	3	1	14864.953	27357 _{9/2} - 42222 _{7/2}	6572.883	5	40	15209.823	15242 _{9/2} - 30452 _{9/2}
6715.181	25	8	14887.521	6244 _{1/2} - 21131 _{3/2}	6570.097	1	2	15216.272	34279 _{7/2} - 49495 _{9/2}
6704.048	50	25	14912.244	8460 _{3/2} - 23372 _{3/2}	6569.628	8	50	15217.358	12570 _{7/2} - 27787 _{9/2}
6703.883	10	8	14912.611	8605 _{5/2} - 23518 _{7/2}	6569.057	5	2	15218.681	29431 _{7/2} - 44650 _{7/2}
6703.348	5		14913.801	22139 _{9/2} - 37053 _{11/2}	6566.192	0	8	15225.321	34270 _{9/2} - 49495 _{9/2}
6700.487	2	5	14920.169	22642 _{9/2} - 37562 _{11/2}	6565.909	3	8	15225.978	17983 _{5/2} - 33209 _{7/2}
6692.717	100	25	14937.491	4113 _{5/2} - 19050 _{3/2}	6561.566	1	4	15236.055	18118 _{3/2} - 33354 _{5/2}
6664.956	4h	5	14999.708	15453 _{9/2} - 30452 _{9/2}	6561.462	0	5	15236.297	26963 _{7/2} - 42200 _{9/2}
6662.624	10h	8	15004.958	15305 _{9/2} - 30310 _{11/2}	6561.244	0	8	15236.803	24463 _{9/2} - 39700 _{5/2}
6659.496	1h	2	15012.006	22834 _{7/2} - 37846 _{5/2}	6560.055	15	200	15239.565	14275 _{9/2} - 29515 _{9/2}
6651.164	2	3	15030.812	14484 _{11/2} - 29515 _{9/2}	6559.088	2	50	15241.811	15242 _{9/2} - 30484 _{11/2}
6651.058	2	3	15031.051	19248 _{5/2} - 34279 _{7/2}	6558.576	1	8	15243.001	24309 _{11/2} - 39552 _{9/2}
6651.000	1	2	15031.182	21297 _{5/2} - 36328 _{3/2}	6550.542	8	5	15261.696	1859 _{3/2} - 17121 _{3/2}
6648.956	50	50	15035.803	10379 _{9/2} - 25414 _{11/2}	6544.596	2	8	15275.562	17460 _{5/2} - 32736 _{7/2}
6648.496	50	50	15036.843	11725 _{9/2} - 26762 _{3/2}	6540.141	4	1	15285.967	24414 _{3/2} - 39700 _{5/2}
6647.693	2	51	15038.660	12488 _{9/2} - 27526 _{9/2}	6535.645	1	5	15296.483	18973 _{7/2} - 34270 _{9/2}
6646.542	40	50	15041.264	12485 _{9/2} - 27526 _{9/2}	6532.223	5	20	15304.496	17272 _{9/2} - 32576 _{7/2}
6644.661	200	150	15045.522	9711 _{7/2} - 24757 _{9/2}	6531.769	0	8	15305.560	18973 _{7/2} - 34279 _{7/2}
6643.374	1	8	15048.436	22014 _{11/2} - 37063 _{9/2}	6529.947	0	40	15309.830	25414 _{11/2} - 40724 _{13/2}
6637.032	1	2	15062.816	9400 _{5/2} - 24463 _{5/2}	6520.938	4	8	15330.981	23187 _{13/2} - 38517 _{13/2}
6633.453	10	20	15070.943	9061 _{5/2} - 24132 _{3/2}	6518.963	1	5	15335.626	25188 _{3/2} - 40523 _{1/2}
6631.806	1	3	15074.686	36193 _{5/2} - 51268 _{7/2}	6518.439	3	5	15336.859	13250 _{5/2} - 28587 _{5/2}
					6511.356	5	15	15353.542	9061 _{5/2} - 24414 _{3/2}

TABLE 3. Classified lines of Th II—Continued

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
6511.256	3	10	15353.778	7001 _{3/2} - 22355 _{1/2}	6381.966	1	101	15664.822	22014 _{11/2} - 37679 _{11/2}
6510.997	5	15	15354.388	8018 _{3/2} - 23372 _{3/2}	6379.795	2	10	15670.153	16906 _{7/2} - 32576 _{7/2}
6503.997	4	2	15370.914	14349 _{1/2} - 29720 _{3/2}	6379.170	5	10	15671.688	8460 _{3/2} - 24132 _{3/2}
6503.898	5	2	15371.148	31800 _{7/2} - 47171 _{9/2}	6378.756	4	10	15672.705	13250 _{5/2} - 28923 _{5/2}
6503.512	50	75	15372.060	11116 _{7/2} - 26488 _{5/2}	6378.494	1	3	15673.349	12570 _{7/2} - 28243 _{5/2}
6501.819	0	8	15376.063	26770 _{11/2} - 42146 _{11/2}	6377.495	2	50	15675.804	23187 _{13/2} - 38862 _{11/2}
6493.531	3	3	15395.688	30956 _{9/2} - 46352 _{7/2}	6368.957	8	8	15696.818	13818 _{7/2} - 29515 _{9/2}
6491.269	0	8	15401.053	31928 _{9/2} - 47324 _{5/2}	6363.271	8	5	15710.844	0 _{3/2} - 15710 _{3/2}
6490.583	5	10	15402.680	37277 _{7/2} - 52678 _{5/2}	6359.132	15	100	15721.070	16033 _{5/2} - 31754 _{5/2}
				9061 _{5/2} - 24463 _{5/2}	6358.623	8	100	15722.328	19880 _{9/2} - 35602 _{11/2}
6485.370	4	5	15415.061	6691 _{3/2} - 22106 _{5/2}	6356.218	2	8	15728.277	9711 _{7/2} - 25440 _{5/2}
6481.226	0	5	15424.917	30310 _{11/2} - 45735 _{11/2}	6353.285	1	5	15735.538	15236 _{3/2} - 30972 _{5/2}
6480.607	3	10	15426.390	15453 _{7/2} - 30879 _{7/2}	6348.559	2	50	15747.252	22642 _{9/2} - 38389 _{7/2}
6479.558	0	5	15428.888	30956 _{9/2} - 46385 _{7/2}	6348.435	1	5	15747.559	17983 _{5/2} - 33730 _{5/2}
6478.940	2	10	15430.360	20310 _{5/2} - 35741 _{5/2}	6347.103	8	40	15750.864	35156 _{5/2} - 50907 _{3/2}
6471.345	0	8	15448.469	32850 _{5/2} - 48298 _{7/2}	6343.157	0	5	15760.663	23697 _{7/2} - 39458 _{7/2}
6471.205	20	50	15448.803	12488 _{9/2} - 27937 _{11/2}	6339.442	0	40	15769.898	27357 _{9/2} - 43127 _{11/2}
6470.289	1	4	15450.990	18568 _{1/2} - 34019 _{3/2}	6332.510	5	20	15787.161	35741 _{5/2} - 51528 _{3/2}
6468.090	0	5	15456.243	25188 _{3/2} - 40644 _{5/2}				9400 _{5/2} - 25188 _{3/2}	
6467.558	2	1	15457.515	26762 _{3/2} - 42219 _{5/2}	6330.804	0	5	15791.415	25607 _{9/2} - 41398 _{9/2}
6462.622	200b	200b	15469.321	29720 _{3/2} - 45189 _{5/2}	6328.754	4	3	15796.530	9585 _{5/2} - 25381 _{3/2}
6455.482	1	5	15486.430	17722 _{9/2} - 33209 _{7/2}	6325.432	1	10	15804.826	18214 _{3/2} - 34019 _{3/2}
6450.369	15	10	15498.706	26647 _{13/2} - 42146 _{11/2}	6324.598	0	8	15806.910	31924 _{11/2} - 47731 _{9/2}
6448.726	3	8	15502.654	7331 _{5/2} - 22834 _{7/2}	6323.837	5	8	15808.813	8605 _{5/2} - 24414 _{3/2}
6438.372	2	8	15527.585	13818 _{7/2} - 29345 _{5/2}	6322.204	2	4	15812.896	9061 _{5/2} - 24873 _{5/2}
6432.950	1	4	15540.672	12488 _{9/2} - 28026 _{5/2}	6321.159	3	10	15815.510	10673 _{5/2} - 26488 _{5/2}
6430.229	2	10	15547.248	22028 _{15/2} - 37575 _{13/2}	6315.533	0	8	15829.599	16906 _{7/2} - 32736 _{7/2}
6428.524	1	2	15551.372	25440 _{5/2} - 40991 _{3/2}	6312.668	0	5	15836.783	20288 _{11/2} - 36125 _{9/2}
6427.011	0	8	15555.033	26963 _{7/2} - 42518 _{7/2}	6311.278	1	5	15840.271	20969 _{7/2} - 36809 _{7/2}
6424.809	5	200	15560.364	22014 _{11/2} - 37575 _{13/2}	6309.451	1	4	15844.858	18816 _{13/2} - 34661 _{11/2}
6423.402	1	2	15563.772	28243 _{5/2} - 43807 _{3/2}	6309.414	2	4	15844.951	13250 _{5/2} - 29095 _{5/2}
6421.673	1	3	15567.963	20310 _{5/2} - 35878 _{7/2}	6304.239	20	40	15857.957	8605 _{5/2} - 24463 _{5/2}
6421.417	0	8	15568.583	24132 _{3/2} - 39700 _{5/2}	6304.087	0	5	15858.340	33637 _{7/2} - 49495 _{9/2}
6416.097	25	75	15581.492	9400 _{5/2} - 24982 _{7/2}	6299.795	1	1	15869.144	36809 _{7/2} - 52678 _{5/2}
6408.869	0	8	15599.065	30956 _{9/2} - 46555 _{11/2}	6289.483	5	20	15895.162	9711 _{7/2} - 25607 _{9/2}
6408.193	2	4	15600.711	1859 _{3/2} - 17460 _{5/2}	6285.277	40	100	15905.799	11725 _{5/2} - 27631 _{3/2}
6406.278	4	3	15605.374	37130 _{9/2} - 52735 _{3/2}	6279.164	100	200	15921.283	12902 _{9/2} - 28823 _{5/2}
6405.870	0	8	15606.368	22685 _{7/2} - 38291 _{7/2}	6277.232	25	50	15926.183	6213 _{9/2} - 22139 _{9/2}
6404.390	0	8	15609.974	24757 _{9/2} - 40367 _{9/2}	6274.115	300	200	15934.096	4146 _{7/2} - 20080 _{7/2}
6402.932	3	8	15613.529	13818 _{7/2} - 29431 _{7/2}	6269.591	2	8	15945.593	20120 _{5/2} - 36065 _{5/2}
6401.729	0	40	15616.463	25607 _{9/2} - 41223 _{11/2}	6269.172	0	5	15946.659	29788 _{9/2} - 45735 _{11/2}
6399.797	0	10	15621.177	20120 _{5/2} - 35741 _{5/2}	6268.765	0	8	15947.694	24463 _{5/2} - 40411 _{7/2}
6388.731	0	8	15648.235	22139 _{9/2} - 37787 _{7/2}	6266.172	75	50	15954.294	8460 _{3/2} - 24414 _{3/2}
6388.136	2	8	15649.692	22642 _{9/2} - 38291 _{7/2}	6261.060	200	200	15967.320	4113 _{5/2} - 20080 _{7/2}
6387.865	2	15	15650.356	22106 _{5/2} - 37756 _{7/2}	6258.600	20	50	15973.596	4146 _{7/2} - 20120 _{5/2}
6387.473	0	8	15651.317	15305 _{9/2} - 30956 _{9/2}	6256.923	2	4	15977.877	1859 _{3/2} - 17837 _{1/2}
6386.386	0	40	15653.981	24757 _{9/2} - 40411 _{7/2}	6256.112	3	2	15979.948	21297 _{5/2} - 37277 _{7/2}
6384.094	5	5	15659.601	22834 _{7/2} - 38493 _{5/2}	6248.115	2	10	16000.401	14484 _{11/2} - 30484 _{11/2}
6383.342	5	40	15661.445	17722 _{9/2} - 33384 _{9/2}	6247.117	3	5	16002.957	8378 _{7/2} - 24381 _{7/2}
6383.222	5	40	15661.740	14790 _{7/2} - 30452 _{9/2}	6246.924	4	5	16003.451	8460 _{3/2} - 24463 _{5/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
6245.601	50	15	16006.841	4113 _{5/2} ° - 20120 _{5/2} °	6163.249	1	10	16220.719	22642 _{5/2} ° - 38862 _{11/2} °
6245.034	5	15	16008.295	9238 _{9/2} ° - 25246 _{9/2} °	6159.840	0	10	16229.696	24414 _{3/2} ° - 40644 _{5/2} °
6244.117	1	1	16010.646	7001 _{3/2} ° - 23012 _{3/2} °	6154.119	0	8b	16244.784	21297 _{5/2} ° - 37542 _{3/2} °
6243.103	0	5	16013.246	15786 _{5/2} ° - 31800 _{7/2} °	6147.454	3	2	16262.396	21682 _{7/2} ° - 37945 _{5/2} °
6241.694	2	4	16016.861	12570 _{7/2} ° - 28587 _{5/2} °	6146.272	1	3	16265.523	24309 _{11/2} ° - 40574 _{11/2} °
6241.408	2	8	16017.595	11576 _{5/2} ° - 27593 _{5/2} °	6145.287	20	50	16268.131	8605 _{5/2} ° - 24873 _{5/2} °
6239.543	2	2	16022.382	33354 _{5/2} ° - 49377 _{7/2} °	6138.650	3	40	16285.719	11725 _{1/2} ° - 28011 _{3/2} °
6239.083	3	15	16023.564	15786 _{5/2} ° - 31810 _{5/2} °	6138.526	0	8	16286.048	20158 _{5/2} ° - 36444 _{3/2} °
6238.970	1	5	16023.854	12219 _{3/2} ° - 28243 _{5/2} °	6134.794	2	5	16295.955	17983 _{5/2} ° - 34279 _{7/2} °
6238.244	0	5	16025.719	22139 _{9/2} ° - 38165 _{7/2} °	6132.228	2	5	16302.774	16906 _{7/2} ° - 33209 _{7/2} °
6235.793	1	8	16032.018	16818 _{7/2} ° - 32850 _{5/2} °	6131.967	3	1	16303.468	7828 _{1/2} ° - 24132 _{3/2} °
6235.346	2	2	16033.167	0 _{3/2} ° - 16033 _{5/2} °	6125.749	25	150	16320.017	15453 _{7/2} ° - 31773 _{9/2} °
6234.295	1	10	16035.870	17983 _{5/2} ° - 34019 _{3/2} °	6124.675	1	3	16322.879	22513 _{5/2} ° - 38836 _{3/2} °
6232.970	25	50	16039.279	9400 _{5/2} ° - 25440 _{5/2} °	6122.337	0	15	16329.112	18214 _{5/2} ° - 34543 _{5/2} °
6231.380	4	40	16043.371	15710 _{5/2} ° - 31754 _{5/2} °	6120.563	250	300	16333.845	14545 _{5/2} ° - 30879 _{7/2} °
6231.116	4	10	16044.051	9202 _{7/2} ° - 25246 _{9/2} °	6113.969	3	10	16351.461	12472 _{5/2} ° - 28823 _{5/2} °
6229.597	5	3	16047.963	25440 _{5/2} ° - 41488 _{7/2} °	6112.838	150	200	16354.486	1859 _{3/2} ° - 18214 _{3/2} °
6226.927	2	4	16054.844	11576 _{5/2} ° - 27631 _{3/2} °	6108.922	3	2	16364.970	17272 _{5/2} ° - 33637 _{7/2} °
6226.619	0	5	16055.638	13818 _{5/2} ° - 29873 _{7/2} °	6108.411	10	20	16366.339	26647 _{13/2} ° - 43014 _{13/2} °
6223.516	2	25	16063.643	20989 _{9/2} ° - 37053 _{11/2} °	6106.613	5	4	16371.158	7001 _{3/2} ° - 23372 _{3/2} °
6221.575	2	50	16068.655	30310 _{11/2} ° - 46378 _{13/2} °	6104.572	300	200	16376.631	8605 _{5/2} ° - 24982 _{7/2} °
6216.441	4	1	16081.925	25594 _{5/2} ° - 41676 _{3/2} °	6103.640	15	50	16379.132	9061 _{5/2} ° - 25440 _{5/2} °
6213.650	2	5	16089.149	10673 _{5/2} ° - 26762 _{3/2} °	6100.578	1	1	16387.353	22106 _{5/2} ° - 38493 _{5/2} °
6211.663	3	75	16094.295	20969 _{7/2} ° - 37063 _{9/2} °	6099.804	3	5	16389.432	27787 _{9/2} ° - 44177 _{11/2} °
6211.607	0	5	16094.441	26424 _{5/2} ° - 42518 _{7/2} °	6099.083	100	200	16391.370	10379 _{9/2} ° - 26770 _{11/2} °
6207.477	2	2	16105.149	21682 _{7/2} ° - 37787 _{7/2} °	6097.194	10	10	16396.448	8018 _{3/2} ° - 24414 _{3/2} °
6206.820	0	5	16106.853	24463 _{5/2} ° - 40570 _{7/2} °	6094.023	4	4	16404.980	34330 _{7/2} ° - 50735 _{3/2} °
6205.254	3	5	16110.918	6244 _{1/2} ° - 22355 _{5/2} °	6092.033	8	8	16410.338	13468 _{9/2} ° - 29873 _{7/2} °
6204.767	1	8	16112.183	17272 _{5/2} ° - 33384 _{9/2} °				21131 _{3/2} ° - 37542 _{3/2} °	
6204.123	4	8	16113.855	8018 _{3/2} ° - 24132 _{3/2} °				25266 _{7/2} ° - 41676 _{3/2} °	
								11116 _{7/2} ° - 27526 _{9/2} °	
6200.551	0	10	16123.138	20686 _{5/2} ° - 36809 _{7/2} °					
6200.427	40	40	16123.460	1859 _{3/2} ° - 17983 _{5/2} °	6090.816	8	8	16413.617	8460 _{3/2} ° - 24873 _{5/2} °
6199.054	2	5	16127.031	9061 _{5/2} ° - 25188 _{3/2} °	6090.109	15	25	16415.523	24309 _{11/2} ° - 40724 _{13/2} °
6196.396	5	10	16133.949	6700 _{9/2} ° - 22834 _{7/2} °	6087.576	0	8	16422.353	21682 _{7/2} ° - 38105 _{5/2} °
6194.315	0	5	16139.369	16818 _{7/2} ° - 32957 _{7/2} °	6087.387	3	3	16422.863	20158 _{5/2} ° - 36581 _{3/2} °
6193.978	0	5	16140.247	25188 _{5/2} ° - 41328 _{5/2} °	6087.262	75	300	16423.200	15349 _{11/2} ° - 31773 _{9/2} °
6193.858	50	200	16140.560	11116 _{5/2} ° - 27257 _{7/2} °	6085.998	4	5	16426.611	22642 _{9/2} ° - 39068 _{7/2} °
6189.417	0	50	16152.141	22139 _{9/2} ° - 38291 _{7/2} °	6085.430	2	40	16428.144	29788 _{9/2} ° - 46216 _{11/2} °
6188.051	20b	150	16155.707	30223 _{5/2} ° - 46378 _{13/2} °	6085.257	40	75	16428.611	6213 _{9/2} ° - 22642 _{5/2} °
6184.737	10b	8	16164.363	4146 _{7/2} ° - 20310 _{5/2} °	6078.968	40	8	16445.607	8018 _{3/2} ° - 24463 _{5/2} °
6184.469	2	15	16165.064	22014 _{11/2} ° - 38179 _{9/2} °	6078.588	5	8	16446.636	27357 _{9/2} ° - 43803 _{7/2} °
6184.390	8	10	16165.270	23187 _{13/2} ° - 39352 _{11/2} °	6077.358	15	10	16449.964	11576 _{5/2} ° - 28026 _{5/2} °
6179.847	8	50	16177.154	14275 _{5/2} ° - 30452 _{9/2} °	6076.639	3	3	16451.911	27357 _{9/2} ° - 43809 _{9/2} °
6178.885	3	2	16179.672	27593 _{5/2} ° - 43773 _{7/2} °	6076.195	8	5	16453.113	18568 _{11/2} ° - 35021 _{3/2} °
6178.549	0	8	16180.552	24463 _{5/2} ° - 40644 _{5/2} °	6073.710	3	3	16459.844	24463 _{5/2} ° - 40923 _{5/2} °
6172.044	1	2	16197.606	4113 _{5/2} ° - 20310 _{5/2} °	6073.100	100	150	16461.498	1521 _{5/2} ° - 17983 _{5/2} °
6168.580	2	2	16206.701	31800 _{7/2} ° - 48006 _{9/2} °	6071.415	2	2	16466.066	24757 _{9/2} ° - 41223 _{11/2} °
6167.907	0	5	16208.470	20120 _{5/2} ° - 36328 _{3/2} °	6070.892	3	4	16467.485	25414 _{11/2} ° - 41882 _{13/2} °
				23730 _{9/2} ° - 39939 _{11/2} °	6070.034	4	10	16469.812	13250 _{5/2} ° - 29720 _{3/2} °
6167.059	0	5	16210.698	29095 _{5/2} ° - 45306 _{3/2} °	6068.043	2	2	16475.216	22106 _{5/2} ° - 38581 _{5/2} °

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
6067.077	20	100	16477.839	16906 ⁰ _{7/2} - 33384 ⁰ _{9/2}	6015.424	50	200	16619.329	15305 ⁰ _{9/2} - 31924 ⁰ _{11/2}
6066.496	40	200	16479.417	26647 ⁰ _{3/2} - 43127 ⁰ _{11/2}	6011.349	25	20	16630.595	19248 ⁰ _{5/2} - 35878 ⁰ _{7/2}
6066.330	4h	3	16479.868	30101 ⁰ _{7/2} - 46581 ⁰ _{5/2}	6009.113	5	8	16636.783	23730 ⁰ _{9/2} - 40367 ⁰ _{9/2}
6063.355	2	2	16487.954	31810 ⁰ _{5/2} - 48298 ⁰ _{7/2}	6007.591	4	8	16640.998	24757 ⁰ _{9/2} - 41398 ⁰ _{9/2}
6063.068	8	15	16488.735	25188 ⁰ _{3/2} - 41676 ⁰ _{3/2}	5998.655	3	8	16665.787	6168 ⁰ _{7/2} - 22834 ⁰ _{7/2}
6062.614	15	40	16489.969	22028 ⁰ _{13/2} - 38517 ⁰ _{13/2}	5993.268	3	8	16680.767	37679 ⁰ _{11/2} - 54360 ⁰ _{9/2}
6062.431	3	2	16490.467	21297 ⁰ _{5/2} - 37787 ⁰ _{7/2}	5991.711	2	2	16685.102	10572 ⁰ _{9/2} - 27257 ⁰ _{7/2}
6061.486	3	25	16493.038	19248 ⁰ _{5/2} - 35741 ⁰ _{5/2}	5990.792	0	20	16687.661	30223 ⁰ _{15/2} - 46910 ⁰ _{13/2}
6060.230	3	2	16496.456	20969 ⁰ _{7/2} - 37465 ⁰ _{5/2}				31924 ⁰ _{11/2} - 48612 ⁰ _{13/2}	
6059.975	4		16497.150	21682 ⁰ _{7/2} - 38179 ⁰ _{9/2}	5990.267	3	40	16689.124	20120 ⁰ _{5/2} - 36809 ⁰ _{7/2}
6059.535	2	3	16498.348	20310 ⁰ _{5/2} - 36809 ⁰ _{7/2}	5989.987	1	4	16689.904	20989 ⁰ _{9/2} - 37679 ⁰ _{11/2}
6058.612	15	20	16500.862	12219 ⁰ _{3/2} - 28720 ⁰ _{3/2}	5989.893	1	8	16690.166	21131 ⁰ _{3/2} - 37821 ⁰ _{3/2}
6058.273	3	2	16501.785	30101 ⁰ _{7/2} - 46603 ⁰ _{5/2}	5989.200	0	5	16692.097	15236 ⁰ _{3/2} - 31928 ⁰ _{3/2}
6058.180	15	20	16502.038	10855 ⁰ _{7/2} - 27357 ⁰ _{9/2}	5989.045	400s	500	16692.529	1521 ⁰ _{5/2} - 18214 ⁰ _{3/2}
6055.160	3	3	16510.269	31810 ⁰ _{5/2} - 48320 ⁰ _{5/2}	5985.204	2	8	16703.242	12219 ⁰ _{3/2} - 28923 ⁰ _{5/2}
6054.535	2	4	16511.973	26586 ⁰ _{3/2} - 43096 ⁰ _{5/2}	5983.991	4	75	16706.627	21682 ⁰ _{7/2} - 38389 ⁰ _{7/2}
6052.173	2	1	16518.417	22355 ⁰ _{7/2} - 38867 ⁰ _{1/2}	5983.378	5	15	16708.339	1859 ⁰ _{3/2} - 18568 ⁰ _{5/2}
6049.925	8	10	16524.555	23697 ⁰ _{7/2} - 40216 ⁰ _{5/2}	5981.880	15	20	16712.523	971 ⁰ _{7/2} - 26424 ⁰ _{5/2}
6049.771	15	25	16524.975	21297 ⁰ _{5/2} - 37821 ⁰ _{3/2}	5981.385	1	5	16713.906	17460 ⁰ _{5/2} - 34174 ⁰ _{5/2}
				12570 ⁰ _{7/2} - 29095 ⁰ _{5/2}	5978.069	5	15	16723.177	22139 ⁰ _{9/2} - 38862 ⁰ _{11/2}
6048.174	3	1	16529.339	39861 ⁰ _{5/2} - 56391 ⁰ _{5/2}	5976.437	3	3	16727.744	8460 ⁰ _{3/2} - 25188 ⁰ _{3/2}
6045.467	2	2	16536.740	16818 ⁰ _{7/2} - 33354 ⁰ _{5/2}	5976.118	1	4	16728.637	20080 ⁰ _{7/2} - 36809 ⁰ _{7/2}
6044.430	100	200	16539.577	4146 ⁰ _{7/2} - 20686 ⁰ _{5/2}	5975.404	5	50	16730.636	16906 ⁰ _{7/2} - 33637 ⁰ _{7/2}
6042.962	25	50	16543.595	16033 ⁰ _{5/2} - 32576 ⁰ _{7/2}				24757 ⁰ _{9/2} - 41488 ⁰ _{7/2}	
6041.628	5h	3	16547.248	17722 ⁰ _{9/2} - 34270 ⁰ _{9/2}	5972.789	4l	75	16737.960	24309 ⁰ _{11/2} - 41047 ⁰ _{9/2}
6040.120	3	10	16551.379	30310 ⁰ _{11/2} - 46861 ⁰ _{11/2}	5972.436	15	15	16738.950	27357 ⁰ _{9/2} - 44096 ⁰ _{9/2}
6039.665	2	1	16552.626	37945 ⁰ _{5/2} - 54497 ⁰ _{7/2}	5961.970	25	50	16768.334	9720 ⁰ _{7/2} - 26488 ⁰ _{5/2}
6038.308	3	2	16556.346	17722 ⁰ _{9/2} - 34279 ⁰ _{7/2}	5960.372	4d	40	16772.830	22685 ⁰ _{7/2} - 39458 ⁰ _{7/2}
6036.088	2	3	16562.435	27403 ⁰ _{3/2} - 43965 ⁰ _{1/2}	5958.072	3	20	16779.304	20686 ⁰ _{5/2} - 37465 ⁰ _{5/2}
				22834 ⁰ _{7/2} - 39396 ⁰ _{7/2}	5957.736	5	2	16780.251	42518 ⁰ _{7/2} - 59299 ⁰ _{5/2}
6034.545	10	10	16566.670	8460 ⁰ _{3/2} - 25027 ⁰ _{1/2}	5957.091	2	15	16782.067	25440 ⁰ _{5/2} - 42222 ⁰ _{7/2}
6034.139	1	4	16567.785	35602 ⁰ _{11/2} - 52170 ⁰ _{11/2}	5956.813	2	5	16782.851	17771 ⁰ _{11/2} - 34553 ⁰ _{9/2}
6032.665	0	8	16571.833	18973 ⁰ _{7/2} - 35545 ⁰ _{9/2}	5955.952	2	10	16785.277	25414 ⁰ _{11/2} - 42200 ⁰ _{9/2}
6032.432	0	5	16572.473	20989 ⁰ _{9/2} - 37562 ⁰ _{11/2}	5952.350	5	8	16795.434	22355 ⁰ _{1/2} - 39150 ⁰ _{3/2}
6032.320	25b	15	16572.780	4113 ⁰ _{5/2} - 20686 ⁰ _{5/2}	5950.888	2	2	16799.560	35878 ⁰ _{7/2} - 52678 ⁰ _{5/2}
6031.911	10	25	16573.904	15236 ⁰ _{3/2} - 31810 ⁰ _{5/2}	5948.557	3	3	16806.143	8460 ⁰ _{3/2} - 25266 ⁰ _{1/2}
6030.808	1	2	16576.935	24414 ⁰ _{3/2} - 40991 ⁰ _{3/2}	5946.922	1	1	16810.764	28011 ⁰ _{3/2} - 44821 ⁰ _{5/2}
6028.863	10	5	16582.283	8605 ⁰ _{5/2} - 25188 ⁰ _{3/2}	5945.616	1	5	16814.456	24873 ⁰ _{5/2} - 41688 ⁰ _{7/2}
6028.273	10	3	16583.906	18816 ⁰ _{13/2} - 35400 ⁰ _{13/2}	5945.012	1	2	16816.165	22642 ⁰ _{9/2} - 39458 ⁰ _{7/2}
6028.240	2	10	16583.997	10673 ⁰ _{5/2} - 27257 ⁰ _{7/2}	5944.112	1	5	16818.711	17460 ⁰ _{5/2} - 34279 ⁰ _{7/2}
6027.952	2	2	16584.789	10379 ⁰ _{9/2} - 26963 ⁰ _{7/2}	5944.054	2	8	16818.875	20969 ⁰ _{7/2} - 37787 ⁰ _{7/2}
6027.481	5s	2	16586.085	7828 ⁰ _{1/2} - 24414 ⁰ _{3/2}	5942.792	40	50	16822.447	4146 ⁰ _{7/2} - 20969 ⁰ _{7/2}
6025.616	4	5	16591.219	20686 ⁰ _{5/2} - 37277 ⁰ _{7/2}	5942.120	3	40	16824.349	16906 ⁰ _{7/2} - 33730 ⁰ _{5/2}
6024.934	8	10	16593.097	25607 ⁰ _{9/2} - 42200 ⁰ _{9/2}	5938.571	20	40	16834.403	8605 ⁰ _{5/2} - 25440 ⁰ _{5/2}
6022.223	8	10	16600.566	30310 ⁰ _{11/2} - 46910 ⁰ _{13/2}	5936.602	1	15	16839.987	23730 ⁰ _{9/2} - 40570 ⁰ _{7/2}
6022.149	4	4	16600.771	22139 ⁰ _{9/2} - 38740 ⁰ _{11/2}	5934.714	1	25	16845.344	26963 ⁰ _{7/2} - 43809 ⁰ _{9/2}
6021.409	40	200	16602.811	22014 ⁰ _{11/2} - 38617 ⁰ _{9/2}	5932.701	0	5	16851.060	20989 ⁰ _{9/2} - 37840 ⁰ _{9/2}
6019.215	1	2	16608.862	22834 ⁰ _{7/2} - 39443 ⁰ _{9/2}	5932.128	4	10	16852.687	13248 ⁰ _{9/2} - 30101 ⁰ _{7/2}
6018.998	20	100	16609.461	15144 ⁰ _{3/2} - 31754 ⁰ _{5/2}	5930.957	2	10	16856.015	20686 ⁰ _{5/2} - 37542 ⁰ _{3/2}
6015.769	1	1	16618.376	26626 ⁰ _{1/2} - 43244 ⁰ _{3/2}	5929.479	8	40	16860.216	12485 ⁰ _{7/2} - 29345 ⁰ _{5/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
5929.141	1	8	16861.178	30310 ^o _{11/2} - 47171 _{9/2}	5849.999	1	4	17089.283	24309 ^o _{11/2} - 41398 _{9/2}
5927.949	1	15	16864.568	24463 ^o _{5/2} - 41328 _{5/2}	5849.077	2	10	17091.976	21297 ^o _{3/2} - 38389 _{7/2}
5926.933	3	8	16867.459	8378 ^o _{7/2} - 25246 _{9/2}	5838.945	75	20	17121.635	0 _{3/2} - 17121 ^o _{3/2}
5926.780	3	10	16867.894	18118 _{3/2} - 34986 ^o _{3/2}	5837.485	0	5	17125.917	23518 ^o _{7/2} - 40644 _{5/2}
5924.389	3	150	16874.702	32620 _{11/2} - 49495 ^o _{9/2}	5836.674	2	2	17128.297	6244 _{1/2} - 23372 ^o _{3/2}
5918.808	15	5	16890.613	17771 ^o _{11/2} - 34661 _{11/2}	5835.881	5	5	17130.624	7001 _{3/2} - 24132 ^o _{3/2}
5916.347	1	4	16897.639	17121 ^o _{5/2} - 34019 _{3/2}	5832.941	1	1	17139.259	27249 ^o _{7/2} - 44388 _{5/2}
5914.387	200	200	16903.239	9585 _{5/2} - 26488 _{5/2}	5830.492	10	20	17146.457	27357 ^o _{9/2} - 44503 _{7/2}
5912.104	4	5	16909.766	11116 ^o _{7/2} - 28026 _{5/2}	5822.522	10	5	17169.928	8018 _{3/2} - 25188 ^o _{3/2}
5911.360	5	5	16911.894	25440 ^o _{5/2} - 42352 _{5/2}	5820.381	15	25	17176.244	16033 ^o _{5/2} - 33209 _{7/2}
5910.507	5	40	16914.335	24309 ^o _{11/2} - 41223 _{11/2}	5820.168	5	10	17176.872	9585 ^o _{5/2} - 26762 _{3/2}
5910.041	5	2	16915.669	32957 ^o _{7/2} - 49873 _{5/2}	5817.733	15	5	17184.061	4113 _{5/2} - 21297 ^o _{5/2}
5908.403	251	50	16920.358	31924 ^o _{11/2} - 48844 _{9/2}	5817.326	10	5	17185.264	9400 _{5/2} - 26586 ^o _{3/2}
5908.244	5	8	16920.814	10673 ^o _{5/2} - 27593 _{5/2}	5816.994	8	10	17186.244	26586 ^o _{5/2} - 43772 _{5/2}
5906.316	5	40	16926.337	16033 ^o _{5/2} - 32959 _{3/2}	5815.422	100	150	17190.890	1859 _{3/2} - 19050 ^o _{3/2}
5902.560	0	8b	16937.108	36583 ^o _{7/2} - 53520 _{9/2}	5812.107	1	1	17200.695	27249 ^o _{7/2} - 44450 _{9/2}
5901.995	3	20	16938.729	35741 _{5/2} - 52678 ^o _{5/2}	5810.973	8	10	17204.052	23012 ^o _{3/2} - 40216 _{5/2}
5901.754	0	5	16938.729	17722 ^o _{5/2} - 34661 _{11/2}	5809.430	8	5	17208.621	14545 ^o _{5/2} - 31754 _{5/2}
5901.754	0	5	16939.421	27787 ^o _{9/2} - 44727 _{11/2}	5808.978	4	5	17209.960	22685 ^o _{7/2} - 39895 _{9/2}
5899.407	5	50	16946.160	12485 ^o _{7/2} - 29431 _{7/2}	5808.079	20	50	17212.624	22139 ^o _{5/2} - 39352 _{11/2}
5896.361	15	40	16954.914	10572 ^o _{5/2} - 27526 _{9/2}	5806.279	40	40	17217.960	12570 _{7/2} - 29788 ^o _{9/2}
5893.476	10	50	16963.214	14790 ^o _{7/2} - 31754 _{5/2}	5804.589	1	2	17222.973	30101 ^o _{7/2} - 47324 _{5/2}
5888.260	15	15	16978.240	10379 _{9/2} - 27357 ^o _{9/2}	5802.239	25	50	17229.948	25414 ^o _{11/2} - 42644 _{13/2}
5887.815	1	5	16979.523	25266 ^o _{1/2} - 42246 _{1/2}	5801.813	10	15	17231.214	20310 _{5/2} - 37542 _{3/2}
5886.741	8	50	16982.621	20080 ^o _{7/2} - 37063 _{9/2}	5798.910	2	3	17239.840	24982 ^o _{7/2} - 42222 _{7/2}
5886.346	5	10	16983.761	13468 _{9/2} - 30452 _{9/2}	5796.417	100	100	17247.254	11576 _{3/2} - 28823 _{5/2}
5884.178	2	8	16990.018	19050 ^o _{3/2} - 36040 _{1/2}	5795.963	15	20	17248.605	15710 ^o _{3/2} - 32959 _{3/2}
5881.414	2	5	16998.003	17272 ^o _{9/2} - 34270 _{9/2}	5794.377	20	25	17253.326	22642 ^o _{9/2} - 39895 _{9/2}
5879.479	5h	15	17003.597	17722 ^o _{9/2} - 34726 _{7/2}	5793.209	5	15	17256.805	29095 ^o _{5/2} - 46352 _{7/2}
5879.049	0	15	17004.841	35165 ^o _{13/2} - 52170 _{11/2}	5790.136	3	4	17265.963	17460 ^o _{5/2} - 34726 _{7/2}
5878.279	8		17007.068	17272 ^o _{5/2} - 34279 _{7/2}	5788.193	10	15	17271.759	23372 ^o _{3/2} - 40644 _{5/2}
5875.501	2		17015.109	22685 ^o _{7/2} - 39700 _{5/2}	5787.541	10	10	17273.705	20288 ^o _{11/2} - 37562 _{11/2}
5875.279	1	4	17015.752	13468 ^o _{9/2} - 30484 _{11/2}	5786.678	15	10	17276.281	14349 _{1/2} - 31625 ^o _{1/2}
5874.348	20	10	17018.449	4113 _{5/2} - 21131 ^o _{3/2}	5785.498	3	8	17279.805	42336 _{5/2} - 59616 ^o _{3/2}
5872.604	15	40	17023.503	9400 _{5/2} - 26424 ^o _{5/2}	5784.866	75b	50	17281.692	17272 ^o _{5/2} - 34553 _{9/2}
5872.312	0	5	17024.349	24463 ^o _{5/2} - 41488 _{7/2}	5784.373	4	5	17283.165	15453 ^o _{7/2} - 32736 _{7/2}
5871.447	2	4	17026.857	12488 ^o _{9/2} - 29515 _{9/2}	5783.757	1	1	17285.006	26488 _{5/2} - 43773 ^o _{7/2}
5870.554	25	150	17029.447	12485 ^o _{7/2} - 29515 _{9/2}	5783.205	151	200	17286.656	20288 ^o _{11/2} - 37575 _{13/2}
5867.621	2	5	17037.960	17983 ^o _{5/2} - 35021 _{3/2}	5782.499	1	1	17288.766	14484 ^o _{11/2} - 31773 _{9/2}
5867.348	0	5	17038.752	26770 ^o _{11/2} - 43809 _{9/2}	5782.047	5	10	17290.118	22106 _{5/2} - 39396 _{7/2}
5864.882	1	4	17045.916	21682 ^o _{7/2} - 38728 _{5/2}	5778.082	15h	15	17301.983	20989 ^o _{9/2} - 38291 _{7/2}
5860.879	1h	1	17057.559	22028 ^o _{15/2} - 39085 _{13/2}	5777.094	10	4	17304.942	6213 _{9/2} - 23518 ^o _{7/2}
5859.666	50	150	17061.090	13818 ^o _{7/2} - 30879 _{7/2}	5775.795	1	2	17308.834	33354 _{5/2} - 50663 _{5/2}
5859.524	15	40	17061.503	13248 _{9/2} - 30310 ^o _{11/2}	5775.035	2	5	17311.111	25440 ^o _{5/2} - 42751 _{7/2}
5856.379	2	5	17070.665	22014 ^o _{11/2} - 39085 _{13/2}	5773.204	3	4	17316.602	23730 _{9/2} - 41047 _{9/2}
5855.032	2	8	17074.593	21297 ^o _{5/2} - 38372 _{3/2}	5772.529	4	4	17318.626	22139 ^o _{9/2} - 39458 _{7/2}
5853.762	3	4	17078.297	13406 ^o _{13/2} - 30484 _{11/2}	5771.144	20	25	17322.783	20969 ^o _{7/2} - 38291 _{7/2}
5853.059	5	20	17080.348	19248 ^o _{5/2} - 36328 _{3/2}	5770.145	15b	50	17325.782	26770 ^o _{11/2} - 44096 _{9/2}
5852.188	8	15	17082.890	17460 ^o _{5/2} - 34543 _{5/2}	5767.459	4	2	17333.851	15242 ^o _{9/2} - 32576 _{7/2}
5850.258	1	8	17088.526	37756 ^o _{7/2} - 54845 _{9/2}	5766.470	3	8	17336.824	31353 _{3/2} - 48689 _{3/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
5766.101	20	10	17337.933	10189 ^o _{11/2} - 27526 ^o _{9/2}	5709.102	3	3	17511.031	20310 ^o _{5/2} - 37821 ^o _{3/2}
5765.947	10	15	17338.396	27787 ^o _{9/2} - 45126 ^o _{9/2}	5707.100	300	200	17517.174	6213 ^o _{9/2} - 23730 ^o _{9/2}
5765.697	1	2	17339.148	26626 ^o _{1/2} - 43965 ^o _{1/2}	5706.145	5	8	17520.105	25607 ^o _{9/2} - 43127 ^o _{11/2}
5764.766	1	2	17341.948	30956 ^o _{9/2} - 48298 ^o _{7/2}	5703.942	50	40	17526.872	18214 ^o _{3/2} - 35741 ^o _{5/2}
5763.645	10	15	17345.321	20120 ^o _{5/2} - 37465 ^o _{5/2}	5703.268	10	20	17528.943	1521 ^o _{5/2} - 19050 ^o _{3/2}
5762.237	3	5	17349.559	23697 ^o _{7/2} - 41047 ^o _{9/2}	5700.914	200b	200	17536.181	4146 ^o _{7/2} - 21682 ^o _{7/2}
5762.096	3b	5	17349.984	22834 ^o _{7/2} - 40184 ^o _{7/2}	5700.698	100	100	17536.846	9720 ^o _{7/2} - 27257 ^o _{7/2}
5761.018	4	3	17353.230	10673 ^o _{5/2} - 28026 ^o _{5/2}	5700.521	0	10	17537.390	22014 ^o _{11/2} - 39552 ^o _{9/2}
5758.920	10	5	17359.552	7828 ^o _{1/2} - 25188 ^o _{3/2}	5700.453	100	100	17537.599	9711 ^o _{7/2} - 27249 ^o _{7/2}
5757.648	5	4	17363.387	9061 ^o _{5/2} - 26424 ^o _{5/2}	5700.060	3	3	17538.809	21297 ^o _{5/2} - 38830 ^o _{3/2}
5757.551	5	5	17363.680	16906 ^o _{7/2} - 34270 ^o _{9/2}	5699.370	10	20	17540.932	25414 ^o _{11/2} - 42955 ^o _{9/2}
5757.099	15	10	17365.043	10572 ^o _{9/2} - 27937 ^o _{11/2}	5699.220	5	10	17541.394	27357 ^o _{9/2} - 44898 ^o _{7/2}
5754.551	50	40	17372.732	16906 ^o _{7/2} - 34279 ^o _{7/2}	5696.084	2	2	17551.051	23372 ^o _{3/2} - 40923 ^o _{5/2}
5752.303	5	8	17379.521	26424 ^o _{5/2} - 43803 ^o _{7/2}	5692.936	2	4	17560.756	17460 ^o _{5/2} - 35021 ^o _{3/2}
5751.173	2	4	17382.936	29788 ^o _{9/2} - 47171 ^o _{9/2}	5692.853	5	5	17561.012	19248 ^o _{5/2} - 36809 ^o _{7/2}
5750.556	25	20	17384.801	20080 ^o _{7/2} - 37465 ^o _{5/2}	5691.804	2	2	17564.248	9400 ^o _{5/2} - 26965 ^o _{3/2}
5750.268	15	10	17385.671	12488 ^o _{9/2} - 29873 ^o _{7/2}	5691.628	15	100	17564.792	27257 ^o _{7/2} - 44821 ^o _{5/2}
5750.117	2	3	17386.128	27403 ^o _{3/2} - 44789 ^o _{1/2}	5691.092	20	10	17566.446	21297 ^o _{5/2} - 38863 ^o _{5/2}
5749.582	40	50	17387.746	23187 ^o _{13/2} - 40574 ^o _{11/2}	5688.931	20	10	17573.119	24309 ^o _{11/2} - 41882 ^o _{13/2}
5749.383	200	200d	17388.348	1859 ^o _{3/2} - 19248 ^o _{5/2}	5687.682	10	20c	17576.978	31800 ^o _{7/2} - 49377 ^o _{7/2}
5749.157	3	8	17389.031	24757 ^o _{9/2} - 42146 ^o _{11/2}	5684.171	2h	2	17587.834	17837 ^o _{1/2} - 35425 ^o _{1/2}
5749.012	15	15	17389.470	17272 ^o _{9/2} - 34661 ^o _{11/2}	5682.436	5	5	17593.204	22355 ^o _{7/2} - 39948 ^o _{1/2}
5747.521	15	15	17393.981	16818 ^o _{7/2} - 34212 ^o _{5/2}	5681.249	8	8	17596.880	21131 ^o _{3/2} - 38728 ^o _{5/2}
5745.676	75	100	17399.566	20989 ^o _{9/2} - 38389 ^o _{7/2}	5680.489	2	2	17599.234	25414 ^o _{11/2} - 43014 ^o _{13/2}
5743.810	2	2	17405.219	23518 ^o _{7/2} - 40923 ^o _{5/2}	5680.211	8	5	17600.096	24309 ^o _{11/2} - 41909 ^o _{9/2}
5742.651	10	5	17408.731	10379 ^o _{9/2} - 27787 ^o _{9/2}	5678.920	15	20	17604.097	31810 ^o _{5/2} - 49414 ^o _{3/2}
5742.084	150	150	17410.450	13468 ^o _{9/2} - 30879 ^o _{7/2}	5676.763	1	3	17610.786	16033 ^o _{5/2} - 33637 ^o _{7/2}
5741.379	15	25	17412.588	22139 ^o _{9/2} - 39552 ^o _{9/2}	5675.019	75b	25	17616.198	29095 ^o _{5/2} - 46706 ^o _{7/2}
5741.170	150	100	17413.222	7001 ^o _{3/2} - 24414 ^o _{3/2}	5674.119	2	2	17618.992	4490 ^o _{5/2} - 22106 ^o _{5/2}
5738.819	3	4	17420.356	20969 ^o _{7/2} - 38389 ^o _{7/2}	5670.666	5	3	17629.720	23372 ^o _{3/2} - 40991 ^o _{3/2}
5738.515	1	2	17421.278	30310 ^o _{11/2} - 47731 ^o _{9/2}	5669.842	20	25	17632.283	17771 ^o _{11/2} - 35400 ^o _{13/2}
5738.306	25d	100b	17421.913	17121 ^o _{3/2} - 34543 ^o _{5/2}	5669.232	1	1	17634.180	23012 ^o _{3/2} - 40644 ^o _{5/2}
5738.271	1	10b	17422.019	20120 ^o _{5/2} - 37542 ^o _{3/2}	5668.890	3	3	17635.243	20310 ^o _{5/2} - 37945 ^o _{5/2}
5736.142	4	3	17428.485	8018 ^o _{3/2} - 25440 ^o _{5/2}	5668.792	1	1	17635.548	15324 ^o _{1/2} - 32959 ^o _{3/2}
5734.526	1	2	17433.397	15786 ^o _{5/2} - 33215 ^o _{3/2}	5668.340	20	15	17636.955	39443 ^o _{9/2} - 57078 ^o _{9/2}
5732.977	200	200	17438.107	31924 ^o _{11/2} - 49357 ^o _{11/2}	5668.722	2	2	17644.949	16906 ^o _{7/2} - 34543 ^o _{5/2}
5732.043	8	8	17440.948	17727 ^o _{11/2} - 35165 ^o _{13/2}	5665.625	100	100	17645.406	24873 ^o _{5/2} - 42518 ^o _{7/2}
5731.466	10	15	17442.704	13818 ^o _{7/2} - 31259 ^o _{5/2}	5664.999	25	15	17647.356	9711 ^o _{7/2} - 27357 ^o _{9/2}
5726.151	21	1	17458.894	24757 ^o _{9/2} - 42200 ^o _{9/2}	5663.441	0	20	17652.211	16906 ^o _{7/2} - 34553 ^o _{9/2}
5725.579	50	75	17460.639	30994 ^o _{7/2} - 48453 ^o _{7/2}	5661.551	1	1	17658.104	15305 ^o _{9/2} - 32957 ^o _{7/2}
5725.011	40	40	17462.371	0 ^o _{3/2} - 17460 ^o _{5/2}	5660.015	15	15	17662.896	28923 ^o _{5/2} - 46581 ^o _{5/2}
5721.655	1	1	17472.613	7001 ^o _{3/2} - 24463 ^o _{5/2}	5657.295	2	3	17671.388	19912 ^o _{13/2} - 37575 ^o _{13/2}
5721.618	2	1	17472.726	18568 ^o _{1/2} - 36040 ^o _{1/2}	5657.183	20	20	17671.738	28026 ^o _{5/2} - 45697 ^o _{3/2}
5719.847	3	5	17478.136	24463 ^o _{5/2} - 41936 ^o _{3/2}	5654.607	1	2	17679.788	9585 ^o _{5/2} - 27257 ^o _{7/2}
5717.328	5	10	17485.837	24873 ^o _{5/2} - 42352 ^o _{5/2}	5654.022	50	40	17681.617	26770 ^o _{11/2} - 44450 ^o _{9/2}
5714.894	8	10	17493.284	29095 ^o _{5/2} - 46581 ^o _{5/2}	5653.915	1	2	17681.952	6700 ^o _{9/2} - 24381 ^o _{7/2}
5713.828	1	2	17496.548	15242 ^o _{9/2} - 32736 ^o _{7/2}	5653.209	2	3	17684.160	39396 ^o _{7/2} - 57078 ^o _{9/2}
5713.519	3	2	17497.494	30956 ^o _{9/2} - 48453 ^o _{7/2}	5652.904	50	100	17685.114	21682 ^o _{7/2} - 39366 ^o _{5/2}
5712.588	40	20	17500.345	14275 ^o _{9/2} - 31773 ^o _{9/2}	5652.664	4	5	17685.865	17771 ^o _{11/2} - 35456 ^o _{9/2}
				12219 ^o _{3/2} - 29720 ^o _{3/2}				20686 ^o _{5/2} - 38372 ^o _{3/2}	

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
5652.433	2	3	17686.588	28011 _{3/2} ° - 45697 _{3/2} °	5611.775	3	2	17814.728	15144 _{3/2} ° - 32959 _{3/2} °
5652.164	5	4	17687.430	20158 _{5/2} ° - 37846 _{5/2} °	5611.144	1	2	17816.731	36193 _{9/2} ° - 54010 _{7/2} °
5651.446	2	2	17689.677	19880 _{9/2} ° - 37569 _{9/2} °	5609.300	20	15	17822.588	17722 _{9/2} ° - 35545 _{9/2} °
5649.218	2	8	17696.653	30310 _{11/2} ° - 48006 _{9/2} °	5608.100	8	10	17826.402	18214 _{3/2} ° - 36040 _{1/2} °
5648.862	20	20	17697.769	16033 _{5/2} ° - 33730 _{5/2} °	5606.539	8	10	17831.365	24414 _{3/2} ° - 42246 _{1/2} °
5647.878	1	1	17700.852	23697 _{7/2} ° - 41398 _{9/2} °	5605.247	15	10	17835.475	18973 _{7/2} ° - 36809 _{7/2} °
5647.108	2	1	17703.266	20686 _{5/2} ° - 38389 _{7/2} °	5604.666	15	20	17837.324	24309 _{11/2} ° - 42146 _{11/2} °
5646.359	8	5	17705.614	16564 _{11/2} ° - 34270 _{9/2} °	5604.514	100	40	17837.808	0 _{3/2} ° - 17837 _{1/2} °
5645.894	100b	200d	17707.072	11116 _{7/2} ° - 28823 _{5/2} °	5601.136	3	1	17848.566	9400 _{5/2} ° - 27249 _{7/2} °
5645.856	20b	25b	17707.191	20080 _{7/2} ° - 37787 _{7/2} °	5599.300	15b	15	17854.418	20310 _{5/2} ° - 38165 _{7/2} °
5645.084	2	2	17709.613	22513 _{5/2} ° - 40222 _{3/2} °	5596.152	10	15	17864.462	20080 _{7/2} ° - 37945 _{5/2} °
5644.231	1	1	17712.289	25414 _{11/2} ° - 43127 _{11/2} °	5595.610	50	75	17866.192	17727 _{11/2} ° - 35593 _{9/2} °
5643.596	1	1	17714.282	26586 _{3/2} ° - 44300 _{3/2} °	5594.583	20	25	17869.472	21682 _{7/2} ° - 39552 _{9/2} °
5640.081	50	75	17725.322	22642 _{9/2} ° - 40367 _{9/2} °	5593.612	100	50	17872.574	7001 _{3/2} ° - 24873 _{5/2} °
5639.849	4	8	17726.051	22685 _{7/2} ° - 40411 _{7/2} °	5593.480	15	25	17872.995	20989 _{9/2} ° - 38862 _{11/2} °
5639.746	300	300	17726.375	1521 _{5/2} ° - 19248 _{5/2} °	5593.266	25	15	17873.679	9720 _{7/2} ° - 27593 _{5/2} °
5637.947	3	2	17732.031	21131 _{3/2} ° - 38863 _{5/2} °	5592.796	5	5	17875.181	17727 _{11/2} ° - 35602 _{11/2} °
5635.409	2	8	17740.017	10855 _{7/2} ° - 28587 _{5/2} °	5592.510	8	10	17876.095	26424 _{5/2} ° - 44300 _{3/2} °
5634.221	15	15	17743.757	37756 _{7/2} ° - 55496 _{9/2} °	5592.321	15	15	17876.700	27249 _{7/2} ° - 45126 _{9/2} °
5633.649	20b	25	17745.559	13250 _{5/2} ° - 30994 _{7/2} °	5592.125	3	5	17877.326	24873 _{5/2} ° - 42751 _{7/2} °
5632.872	25l	20	17748.007	10189 _{11/2} ° - 27937 _{11/2} °	5591.270	3	4	17880.060	23518 _{7/2} ° - 41398 _{9/2} °
5632.036	15	25	17750.641	20989 _{9/2} ° - 38740 _{11/2} °	5591.124	1	2	17880.527	22014 _{11/2} ° - 39895 _{9/2} °
5631.111	3	8	17753.557	35165 _{13/2} ° - 52918 _{13/2} °	5589.671	15	15	17885.174	22685 _{7/2} ° - 40570 _{7/2} °
5630.922	8	4	17754.153	17771 _{11/2} ° - 35525 _{11/2} °	5588.867	40	20	17887.747	6244 _{1/2} ° - 24132 _{3/2} °
5630.589	3	3	17755.203	22106 _{5/2} ° - 39861 _{5/2} °	5588.662	4	8l	17888.404	30956 _{9/2} ° - 48844 _{9/2} °
5630.411	10	40	17755.764	22139 _{9/2} ° - 39895 _{9/2} °	5587.857	25	25	17890.981	24309 _{11/2} ° - 42200 _{9/2} °
5630.231	5	4	17756.332	15453 _{7/2} ° - 33209 _{7/2} °	5587.734	75	10	17891.374	20288 _{11/2} ° - 38179 _{9/2} °
5629.856	2	4	17757.514	23730 _{9/2} ° - 41488 _{7/2} °	5586.658	8	10	17894.820	20969 _{7/2} ° - 38863 _{5/2} °
5629.731	2	1	17757.909	17983 _{5/2} ° - 35741 _{5/2} °	5586.453	40	20	17895.477	17983 _{5/2} ° - 35878 _{7/2} °
5629.174	3	4	17759.666	20969 _{7/2} ° - 38728 _{5/2} °	5585.610	20	4	17898.178	22513 _{5/2} ° - 40411 _{7/2} °
5628.963	1	2	17760.331	18568 _{1/2} ° - 36328 _{3/2} °	5585.121	4	1	17899.745	17121 _{3/2} ° - 35021 _{3/2} °
5628.624	3	5	17761.401	24757 _{9/2} ° - 42518 _{7/2} °	5584.161	15	75	17902.822	9061 _{5/2} ° - 26963 _{7/2} °
5628.568	1	2	17761.578	37277 _{7/2} ° - 55038 _{9/2} °	5583.758	100	15	17904.114	9061 _{5/2} ° - 26965 _{3/2} °
5626.734	40	50	17767.367	19912 _{13/2} ° - 37679 _{11/2} °	5583.073	2	15	17906.311	38179 _{9/2} ° - 56086 _{9/2} °
5626.256	5	15	17768.877	27357 _{9/2} ° - 45126 _{9/2} °	5581.283	20	20	17912.053	23187 _{13/2} ° - 41099 _{15/2} °
5626.085	3b	4b	17769.416	24982 _{7/2} ° - 42751 _{7/2} °	5577.905	25	40	17922.901	22355 _{1/2} ° - 40278 _{3/2} °
5626.057	10b	25b	17769.505	22642 _{9/2} ° - 40411 _{7/2} °	5577.489	20	40	17924.238	22014 _{11/2} ° - 39939 _{11/2} °
5625.495	1	1	17771.280	11576 _{5/2} ° - 29345 _{5/2} °	5576.510	2	4	17927.384	35593 _{7/2} ° - 53520 _{9/2} °
5624.146	10	10	17775.543	21297 _{5/2} ° - 39068 _{7/2} °	5575.264	2	4	17931.391	15453 _{7/2} ° - 33384 _{9/2} °
5620.918	15	10	17785.751	21682 _{7/2} ° - 39458 _{7/2} °	5574.876	5b	50	17932.639	22642 _{9/2} ° - 40574 _{11/2} °
5619.422	2	2	17790.486	14790 _{7/2} ° - 32576 _{7/2} °	5573.873	40	25	17935.866	13818 _{7/2} ° - 31754 _{5/2} °
5615.728	75	100	17802.188	23697 _{7/2} ° - 41488 _{7/2} °	5568.000	300b	150	17954.784	13818 _{7/2} ° - 31773 _{9/2} °
5615.635	15	20	17802.483	17722 _{9/2} ° - 35525 _{11/2} °	5567.395	20	40	17956.735	26770 _{11/2} ° - 44727 _{11/2} °
5615.008	10	8	17804.471	26586 _{3/2} ° - 44388 _{5/2} °	5566.730	3	3	17958.880	22685 _{7/2} ° - 40644 _{5/2} °
5614.515	5	1	17806.034	24132 _{3/2} ° - 41936 _{3/2} °	5565.105	5	4	17964.124	8460 _{3/2} ° - 26424 _{3/2} °
5614.337	3	5	17806.599	36687 _{5/2} ° - 54493 _{5/2} °	5565.005	50	75	17964.447	12488 _{9/2} ° - 30452 _{9/2} °
5614.187	3	4	17807.074	25440 _{5/2} ° - 43246 _{7/2} °	5564.371	50	50	17966.494	15242 _{9/2} ° - 33209 _{7/2} °
5613.471	1	4	17809.346	29095 _{5/2} ° - 46902 _{5/2} °	5564.201	200	200	17967.043	12485 _{7/2} ° - 30452 _{9/2} °
				33215 _{3/2} ° - 51024 _{3/2} °	5563.375	5	4	17969.710	23518 _{7/2} ° - 41488 _{7/2} °

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
5560.556	6	5	17978.820	15236 _{3/2} ^o - 33215 _{3/2} ^o	5495.806	75	75	18190.639	14545 _{5/2} ^o - 32736 _{7/2}
5560.339	5	8	17979.522	23012 _{3/2} ^o - 40991 _{3/2} ^o	5494.556	50	50	18194.777	19912 _{13/2} ^o - 38107 _{15/2}
5560.054	15	10	17980.443	8605 _{5/2} ^o - 26586 _{5/2} ^o	5493.931	2	4	18196.847	25607 _{9/2} ^o - 43803 _{7/2}
5559.141	8	2	17983.396	0 _{3/2} ^o - 17983 _{5/2} ^o	5493.478	3	4	18198.348	24757 _{9/2} ^o - 42955 _{9/2}
5557.311	75	75	17989.318	16564 _{11/2} ^o - 34553 _{9/2} ^o	5492.332	40	20	18202.145	25607 _{9/2} ^o - 43809 _{9/2}
5556.146	40	10	17993.090	4146 _{7/2} ^o - 22139 _{9/2} ^o	5492.061	20	25	18203.043	26586 _{3/2} ^o - 44789 _{1/2}
5555.115	2	1	17996.429	12488 _{9/2} ^o - 30484 _{11/2} ^o					17837 _{1/2} ^o - 36040 _{1/2}
5551.515	3	4	18008.099	33354 _{5/2} ^o - 51362 _{5/2} ^o	5491.528	20	25	18204.810	24132 _{3/2} ^o - 42336 _{5/2}
5551.370	100	75	18008.570	9585 _{5/2} ^o - 27593 _{5/2} ^o	5489.623	10	10	18211.127	20080 _{7/2} ^o - 38291 _{7/2}
5548.516	20	25	18017.833	21682 _{7/2} ^o - 39700 _{5/2} ^o	5489.452	3	3	18211.694	23697 _{7/2} ^o - 41909 _{9/2}
5547.824	3	2	18020.080	15710 _{3/2} ^o - 33730 _{5/2} ^o	5488.922	50	40	18213.453	6168 _{7/2} ^o - 24381 _{7/2}
5546.490	20	20	18024.414	20080 _{7/2} ^o - 38105 _{5/2} ^o	5488.622	75	15	18214.448	0 _{3/2} ^o - 18214 _{3/2} ^o
5545.323	4	5	18028.207	38863 _{5/2} ^o - 26892 _{5/2} ^o	5488.518	2	3	18214.793	28720 _{3/2} ^o - 46935 _{3/2}
5545.051	5	3	18029.092	19248 _{5/2} ^o - 37277 _{7/2} ^o	5487.426	1	3	18218.418	29788 _{9/2} ^o - 48006 _{9/2}
5544.405	4	3	18031.192	14545 _{5/2} ^o - 32576 _{7/2} ^o	5487.133	2	4	18219.391	30101 _{7/2} ^o - 48320 _{5/2}
5543.672	2	2	18033.576	33902 _{7/2} ^o - 51935 _{5/2} ^o	5486.917	20	40	18220.108	24132 _{3/2} ^o - 42352 _{5/2}
5543.375	5	5	18034.543	15349 _{11/2} ^o - 33384 _{9/2} ^o	5486.180	2	2	18222.556	24873 _{5/2} ^o - 43096 _{5/2}
5542.766	50	75	18036.524	23187 _{13/2} ^o - 41223 _{11/2} ^o	5484.615	3b	2	18227.756	22139 _{9/2} ^o - 40367 _{9/2}
5542.472	5	5	18037.481	31800 _{7/2} ^o - 49837 _{9/2} ^o	5484.268	15h	15	18228.909	29095 _{5/2} ^o - 47324 _{5/2}
5540.102	8	4	18045.197	20120 _{5/2} ^o - 38165 _{7/2} ^o	5484.138	150	200	18229.341	11116 _{7/2} ^o - 29345 _{5/2}
5539.909	300	3000	18045.826	9585 _{5/2} ^o - 27631 _{3/2} ^o	5482.406	20	75	18235.100	21131 _{3/2} ^o - 39366 _{5/2}
5538.500	50	20	18050.416	7331 _{1/2} ^o - 25381 _{3/2} ^o	5481.961	20	20	18236.580	18816 _{13/2} ^o - 37053 _{11/2}
5537.663	1	1	18053.145	29095 _{5/2} ^o - 47148 _{3/2} ^o	5481.477	75	100	18238.190	22685 _{7/2} ^o - 40923 _{5/2}
5537.131	75	50	18054.879	9202 _{7/2} ^o - 27257 _{7/2} ^o	5480.886	50	25	18240.157	10855 _{7/2} ^o - 29095 _{5/2} ^o
5533.146	20	10	18067.882	10855 _{7/2} ^o - 28923 _{5/2} ^o	5479.680	15	15	18244.171	18568 _{1/2} ^o - 36812 _{1/2}
5532.179	15h	15	18071.040	20686 _{5/2} ^o - 38757 _{3/2} ^o	5479.310	1	2	18245.403	24982 _{7/2} ^o - 43227 _{5/2}
5530.693	50	150	18075.896	9711 _{7/2} ^o - 27787 _{9/2} ^o	5477.380	2	1	18251.832	20120 _{5/2} ^o - 38372 _{7/2}
5529.782	10	8	18078.874	20989 _{9/2} ^o - 39068 _{7/2} ^o	5477.046	50	50	18252.945	17272 _{5/2} ^o - 35525 _{11/2}
5529.651	5	8	18079.302	26424 _{5/2} ^o - 44503 _{7/2} ^o	5474.856	50	20	18260.246	1859 _{3/2} ^o - 20120 _{5/2} ^o
5528.001	50	50	18084.698	20080 _{7/2} ^o - 38165 _{7/2} ^o	5473.616	3	4	18264.383	24982 _{5/2} ^o - 43246 _{7/2}
5524.219	100	100	18097.079	16564 _{11/2} ^o - 34661 _{11/2} ^o	5473.404	25	40	18265.090	7001 _{3/2} ^o - 25266 _{1/2} ^o
5523.431	20	15	18099.661	20969 _{7/2} ^o - 39068 _{7/2} ^o	5471.387	50	75	18271.824	22139 _{9/2} ^o - 40411 _{7/2}
5520.753	10	5	18108.441	28243 _{5/2} ^o - 46352 _{7/2} ^o					18118 _{3/2} ^o - 36390 _{3/2} ^o
5520.341	15	8	18109.792	8378 _{7/2} ^o - 26488 _{5/2} ^o	5470.937	15	20	18273.327	17272 _{5/2} ^o - 35545 _{9/2}
5518.722	15	15	18115.105	15786 _{3/2} ^o - 33902 _{7/2} ^o	5469.708	2	2	18277.432	20158 _{5/2} ^o - 38436 _{3/2} ^o
5517.791	10	8	18118.161	15236 _{3/2} ^o - 33354 _{5/2} ^o	5468.742	20	15	18280.661	17460 _{5/2} ^o - 35741 _{5/2}
5514.743	10	15	18128.175	26424 _{5/2} ^o - 44552 _{5/2} ^o	5466.685	2	2	18287.539	24463 _{5/2} ^o - 42751 _{7/2}
5514.438	4	8	18129.178	28026 _{5/2} ^o - 46155 _{5/2} ^o	5466.266	4	2	18288.941	9238 _{9/2} ^o - 27526 _{9/2}
5513.871	8	15	18131.042	22513 _{5/2} ^o - 40644 _{5/2} ^o	5464.784	5	5	18293.901	19248 _{5/2} ^o - 37542 _{3/2}
5512.699	20	15	18134.897	38757 _{3/2} ^o - 56892 _{5/2} ^o	5462.611	150	150	18301.178	14275 _{9/2} ^o - 32576 _{7/2}
5512.191	8h	5	18136.568	14484 _{11/2} ^o - 32620 _{11/2} ^o	5461.890	20	25	18303.594	18973 _{7/2} ^o - 37277 _{7/2}
5510.680	50	40	18141.541	15242 _{5/2} ^o - 33384 _{9/2} ^o	5461.735	100	100	18304.113	13468 _{9/2} ^o - 31773 _{9/2}
5507.948	50s	25	18150.539	10673 _{5/2} ^o - 28823 _{5/2} ^o	5461.151	10	8	18306.071	9720 _{7/2} ^o - 28026 _{5/2}
5506.334	3	2	18155.859	17722 _{9/2} ^o - 35878 _{7/2} ^o	5458.403	4	2	18315.287	11116 _{7/2} ^o - 29431 _{7/2}
5504.964	3	8	18160.378	31800 _{7/2} ^o - 49960 _{7/2} ^o	5458.105	20	40	18316.287	23012 _{5/2} ^o - 41328 _{5/2}
5502.034	2	4	18170.049	23518 _{7/2} ^o - 41688 _{7/2} ^o	5453.355	2	3	18332.240	25440 _{5/2} ^o - 43772 _{5/2}
5501.944	50	50	18170.346	6244 _{1/2} ^o - 24414 _{3/2} ^o	5452.518	5	4	18335.055	20158 _{5/2} ^o - 38493 _{5/2}
5501.543	25	25	18171.670	20120 _{5/2} ^o - 38291 _{7/2} ^o	5452.334	15	20	18335.673	24309 _{11/2} ^o - 42644 _{13/2}
5497.752	15	15	18184.200	15453 _{7/2} ^o - 33637 _{7/2} ^o	5449.895	20	10	18343.879	4490 _{5/2} ^o - 22834 _{7/2}
5496.464	2	1	18188.461	9061 _{5/2} ^o - 27249 _{7/2} ^o	5449.479	200	200	18345.279	14275 _{9/2} ^o - 32620 _{11/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
5448.568	4h	5	18348.347	28587 ^o _{5/2} - 46935 _{3/2}	5396.538	8	20	18525.248	20310 ^o _{5/2} - 38836 _{3/2}
5447.313	50	20	18352.574	22014 ^o _{11/2} - 40367 _{9/2}	5393.113	15b	75	18537.013	20080 ^o _{7/2} - 38617 _{9/2}
5446.021	25	8	18356.928	12902 ^o _{5/2} - 31259 _{5/2}	5392.569	200	75	18538.883	4146 ^o _{7/2} - 22685 ^o _{7/2}
5445.295	4	2	18359.375	28243 ^o _{5/2} - 46603 ^o _{5/2}	5392.356	20	40	18539.615	19248 ^o _{5/2} - 37787 _{7/2}
				8605 ^o _{5/2} - 26965 ^o _{5/2}	5391.942	2	3	18541.038	25266 ^o _{1/2} - 43807 _{3/2}
5444.792	5	4	18361.071	27249 ^o _{7/2} - 45610 _{5/2}	5391.071	20	10	18544.034	6213 ^o _{5/2} - 24757 ^o _{5/2}
5444.589	2	4	18361.756	22685 ^o _{7/2} - 41047 _{9/2}	5390.658	1	4	18545.454	31924 ^o _{11/2} - 50470 _{9/2}
5444.371	3	4	18362.491	20989 ^o _{5/2} - 39352 _{11/2}	5390.458	150b	75	18546.142	6700 ^o _{9/2} - 25246 _{9/2}
5443.999	3	5	18363.746	25440 ^o _{5/2} - 43803 _{7/2}	5390.197	10	25	18547.040	27357 ^o _{5/2} - 45904 _{9/2}
5443.114	100	50	18366.731	4146 ^o _{7/2} - 22513 ^o _{5/2}	5389.913	2	2	18548.018	22106 ^o _{5/2} - 40654 ^o _{5/2}
5442.943	1	3	18367.308	25440 ^o _{5/2} - 43807 _{3/2}	5389.453	50h	50	18549.601	16906 ^o _{7/2} - 35456 _{9/2}
5441.298	5	15	18372.861	24873 ^o _{5/2} - 43246 _{7/2}	5389.126	15	50	18550.726	27249 ^o _{7/2} - 45800 _{5/2}
5437.385	50	50	18386.083	12570 ^o _{7/2} - 30956 ^o _{9/2}	5388.903	20	15	18551.494	13248 _{9/2} - 31800 ^o _{7/2}
5436.499	20	75	18389.079	30223 ^o _{13/2} - 48612 _{13/2}	5386.783	15	10	18558.795	1521 ^o _{5/2} - 20080 ^o _{7/2}
5435.893	150	200	18391.129	12488 ^o _{5/2} - 30879 _{7/2}	5386.476	8b	10b	18559.853	22014 ^o _{11/2} - 40574 _{11/2}
5435.722	20	25	18391.708	9202 ^o _{7/2} - 27593 _{5/2}	5386.425	8g	10b	18560.029	13250 _{5/2} - 31810 ^o _{5/2}
5435.126	100	100	18393.725	12485 ^o _{7/2} - 30879 _{7/2}	5385.731	8	10	18562.420	20989 ^o _{5/2} - 39552 _{9/2}
5434.947	25	50	18394.330	25414 ^o _{11/2} - 43809 _{9/2}	5384.031	50	15	18568.281	0 ^o _{3/2} - 18568 ^o _{5/2}
				15242 ^o _{9/2} - 33637 _{7/2}	5383.899	2	1	18568.736	21131 ^o _{3/2} - 39700 ^o _{5/2}
5433.699	75	75	18398.555	11116 ^o _{7/2} - 29515 _{9/2}	5383.746	2	2	18569.264	18118 _{3/2} - 36687 ^o _{5/2}
5433.287	20	8	18399.950	4113 ^o _{5/2} - 22513 ^o _{5/2}	5382.923	100	50	18572.103	4113 ^o _{5/2} - 22685 ^o _{7/2}
5432.580	10	25	18402.345	17722 ^o _{5/2} - 36125 _{9/2}	5380.211	8	20	18581.465	22642 ^o _{9/2} - 41223 _{11/2}
5431.774	10	25	18405.076	22642 ^o _{9/2} - 41047 _{9/2}	5379.700	8	15	18583.229	20969 ^o _{7/2} - 39552 _{9/2}
5431.418	8	4	18406.282	8018 ^o _{3/2} - 26424 ^o _{5/2}	5379.374	2	10	18584.356	25188 ^o _{3/2} - 43772 _{5/2}
5428.961	10	20	18414.612	19050 ^o _{3/2} - 37465 _{5/2}	5375.767	100	100	18596.825	15305 _{9/2} - 33902 ^o _{7/2}
5428.048	8	10	18417.709	20310 ^o _{5/2} - 38728 _{5/2}	5375.349	200	100	18598.271	1521 ^o _{5/2} - 20120 ^o _{5/2}
5426.526	1	1	18422.875	20158 ^o _{5/2} - 38581 ^o _{5/2}	5373.223	8	15	18605.630	19912 ^o _{3/2} - 38517 _{13/2}
5426.261	15	15	18423.775	12570 ^o _{7/2} - 30994 ^o _{7/2}	5373.148	4	8	18605.890	20158 _{5/2} - 38764 ^o _{7/2}
5425.678	300	300	18425.754	9585 ^o _{5/2} - 28011 _{3/2}	5372.938	20	50l	18606.617	17272 ^o _{9/2} - 35878 _{7/2}
5424.793	3	2	18428.760	27787 ^o _{9/2} - 46216 _{11/2}	5372.456	10	8	18608.286	8018 _{3/2} - 26626 ^o _{5/2}
5424.135	50	75	18430.996	22139 ^o _{9/2} - 40570 _{7/2}	5372.397	2	3	18608.491	20120 ^o _{5/2} - 38728 _{5/2}
5421.837	75	75	18438.808	7001 ^o _{3/2} - 25440 ^o _{5/2}	5369.170	40h	50	18619.675	17121 ^o _{3/2} - 35741 _{5/2}
5421.205	10	10	18440.957	9585 ^o _{5/2} - 28026 _{5/2}	5364.363	5	10	18636.359	22355 ^o _{5/2} - 40991 _{3/2}
5419.658	3	4	18446.221	20310 ^o _{5/2} - 38757 _{3/2}	5364.175	20	50	18637.013	20120 ^o _{5/2} - 38757 _{3/2}
5415.434	200b	200	18460.609	33215 ^o _{3/2} - 51676 _{3/2}	5363.611	25	40	18638.972	16906 ^o _{7/2} - 35545 _{9/2}
				14275 ^o _{9/2} - 32736 _{7/2}	5362.257	20	20	18643.679	8605 ^o _{5/2} - 27249 ^o _{7/2}
5414.530	40h	40	18463.691	15710 ^o _{3/2} - 34174 _{5/2}	5361.766	2	4	18645.386	26965 ^o _{3/2} - 45610 _{5/2}
5413.805	20	25	18466.163	17727 _{11/2} - 36193 ^o _{9/2}	5361.409	75	100	18646.627	24309 ^o _{11/2} - 42955 _{9/2}
5413.128	3	4	18468.473	20989 ^o _{5/2} - 39458 _{7/2}	5360.998	15	15	18648.057	20080 ^o _{7/2} - 38728 _{5/2}
5412.808	15	50	18469.565	23730 ^o _{9/2} - 42200 _{9/2}	5357.832	5	2	18659.076	41328 _{5/2} - 59987 ^o _{3/2}
5411.005	2	10	18475.719	33354 ^o _{5/2} - 51830 _{7/2}	5357.446	1	3	18660.421	33902 ^o _{7/2} - 52562 _{7/2}
5410.258	10b	15	18478.270	22513 ^o _{5/2} - 40991 _{3/2}	5356.471	10h	10	18663.817	14545 ^o _{5/2} - 33209 _{7/2}
5407.078	2b	2	18489.137	25607 ^o _{9/2} - 44096 _{9/2}	5356.199	3b	10	18664.765	23012 ^o _{3/2} - 41676 _{3/2}
5406.336	20	50	18491.674	23730 ^o _{5/2} - 42222 _{7/2}	5354.747	2	5	18669.826	31800 ^o _{7/2} - 50470 _{9/2}
				18973 ^o _{9/2} - 37465 _{5/2}	5352.334	3b	3	18678.243	13250 _{5/2} - 31928 _{3/2}
5405.207	10	3	18495.537	4146 ^o _{7/2} - 22642 ^o _{9/2}	5351.614	4	10	18680.756	20686 ^o _{5/2} - 39366 _{5/2}
5402.780	1	8	18503.845	34174 _{5/2} - 52678 ^o _{5/2}	5351.452	8	40	18681.321	25414 ^o _{11/2} - 44096 _{9/2}
5400.872	4	4	18510.382	33354 ^o _{5/2} - 51865 _{5/2}	5351.325	10	20	18681.765	23518 ^o _{7/2} - 42200 _{9/2}
				16033 ^o _{5/2} - 34543 _{5/2}	5350.495	2	10	18684.663	21682 ^o _{7/2} - 40367 _{9/2}
5396.705	3	3	18524.674	23697 ^o _{7/2} - 42222 _{7/2}	5349.401	1	10	18688.484	35156 ^o _{5/2} - 53845 _{5/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
5347.432	10	15	18695.365	23187 ^o _{3/2} - 41882 _{13/2}	5292.919	15	20	18887.911	21682 ^o _{7/2} - 40570 _{7/2}
5347.036	100w	150	18696.750	22028 ^o _{15/2} - 40724 _{13/2}	5291.895	10	8	18891.565	16564 ^o _{11/2} - 35456 _{9/2}
5346.375	50	40	18699.061	9238 ^o _{9/2} - 27937 _{11/2}	5291.133	3	3	18894.286	19050 ^o _{3/2} - 37945 _{5/2}
5345.000	15	25	18703.871	23518 ^o _{7/2} - 42222 _{7/2}	5290.665	4	5	18895.958	27357 ^o _{9/2} - 46253 _{9/2}
5344.244	4	20	18706.517	31924 ^o _{11/2} - 50631 _{11/2}	5289.895	50	25	18898.708	4113 _{5/2} - 23012 ^o _{3/2}
5343.297	15	50	18709.833	22014 ^o _{11/2} - 40724 _{13/2}	5289.503	5h	5	18900.109	14484 ^o _{11/2} - 33384 _{9/2}
5342.373	2	3	18713.069	22685 ^o _{7/2} - 41398 _{9/2}	5287.963	3	3	18905.613	20989 ^o _{9/2} - 39895 _{9/2}
5339.960	10b	10	18721.524	15453 ^o _{7/2} - 34174 _{5/2}	5284.758	8	15	18917.078	19248 ^o _{5/2} - 38165 _{7/2}
5333.163	15	10	18745.384	18816 ^o _{13/2} - 37562 _{11/2}	5284.542	50	50	18917.851	13818 ^o _{7/2} - 32736 _{7/2}
5331.226	2	1	18752.195	12219 _{3/2} - 30972 ^o _{5/2}	5284.305	4	5	18918.700	21297 ^o _{5/2} - 40216 _{5/2}
5329.758	25	25	18757.360	11116 ^o _{7/2} - 29873 _{7/2}	5280.286	5	5	18933.099	10855 _{7/2} - 29788 ^o _{9/2}
5329.651	5	8	18757.737	20310 ^o _{5/2} - 39068 _{7/2}	5278.375	3	5	18939.954	14790 ^o _{7/2} - 33730 _{5/2}
5329.476	40	50	18758.352	18816 ^o _{13/2} - 37575 _{13/2}	5278.228	2b	10	18940.481	26963 ^o _{7/2} - 45904 _{9/2}
5329.373	50	50	18758.715	10673 ^o _{5/2} - 29431 _{7/2}	5277.500	300	200	18943.094	10572 ^o _{9/2} - 29515 _{9/2}
5328.339	5	15	18762.355	25414 ^o _{11/2} - 44177 _{11/2}	5277.219	10	50	18944.103	17121 ^o _{3/2} - 36065 _{5/2}
5325.559	3	4	18772.149	20686 ^o _{5/2} - 39458 _{7/2}	5276.407	40	15	18947.018	8018 _{3/2} - 26965 ^o _{3/2}
5325.145	200	200	18773.609	12485 ^o _{7/2} - 31259 _{5/2}	5276.293	1	10	18947.427	33730 _{5/2} - 52678 ^o _{5/2}
5324.650	20b	20	18775.354	16818 _{7/2} - 35593 ^o _{9/2}	5275.775	3	4	18949.287	20989 ^o _{9/2} - 39939 _{11/2}
5324.043	3	20	18777.494	25188 ^o _{5/2} - 43965 _{5/2}	5275.447	3	5	18950.466	19912 ^o _{13/2} - 38862 _{11/2}
5322.464	3b	10b	18783.065	24463 ^o _{5/2} - 43246 _{7/2}	5272.643	75	75	18960.543	16564 ^o _{11/2} - 35525 _{11/2}
5322.432	4	20b	18783.178	20080 ^o _{7/2} - 38863 _{5/2}	5271.614	8	15	18964.244	23372 ^o _{3/2} - 42336 _{5/2}
5321.315	15	75	18787.121	12472 ^o _{5/2} - 31259 _{5/2}	5270.744	5	50	18967.375	30101 ^o _{7/2} - 49068 _{5/2}
5320.991	8	15	18788.265	23730 ^o _{9/2} - 42518 _{7/2}	5270.124	2	8	18969.606	29720 ^o _{3/2} - 48689 _{3/2}
5320.494	2	4	18790.020	24982 ^o _{7/2} - 43772 _{5/2}	5269.650	15	20	18971.312	18973 ^o _{7/2} - 37945 _{5/2}
5318.423	50	20	18797.337	8605 _{5/2} - 27403 ^o _{9/2}	5269.385	40	50	18972.266	16906 ^o _{7/2} - 35878 _{7/2}
5315.755	1	3	18806.771	31928 ^o _{3/2} - 50735 _{3/2}	5268.932	15	20	18973.898	18568 ^o _{1/2} - 37542 _{3/2}
5313.671	10	15b	18814.147	18973 ^o _{7/2} - 37787 _{7/2}	5268.737	15	25	18974.600	17837 ^o _{1/2} - 36812 _{1/2}
5313.612	8	20	18814.356	30310 ^o _{11/2} - 49124 _{11/2}	5268.716	2c	8	18974.675	17837 ^o _{1/2} - 36812 _{1/2}
5310.864	15	15	18824.091	9202 ^o _{7/2} - 28026 _{5/2}	5267.365	10	40	18979.542	23372 ^o _{3/2} - 42352 _{5/2}
5310.260	200	100	18826.232	1859 _{3/2} - 20686 ^o _{5/2}	5267.030	4b	5	18980.749	21297 ^o _{5/2} - 40278 _{3/2}
5310.103	4	15	18826.788	24982 ^o _{7/2} - 43809 _{9/2}	5264.956	50	50	18988.226	16033 ^o _{9/2} - 35021 _{3/2}
5309.728	15	20	18828.118	19912 ^o _{13/2} - 38740 _{11/2}	5263.118	8	25	18994.857	27357 ^o _{9/2} - 46352 _{7/2}
5308.430	20	50	18832.722	15710 ^o _{3/2} - 34543 _{5/2}	5260.867	20	20	19002.985	22685 ^o _{7/2} - 41688 _{7/2}
5308.154	15	40	18833.701	23518 ^o _{7/2} - 42352 _{5/2}	5258.471	8	4	19011.643	18118 _{3/2} - 37130 ^o _{1/2}
5307.710	2	200	18835.276	35525 ^o _{11/2} - 54360 ^o _{9/2}	5255.972	50	50	19020.682	23730 ^o _{9/2} - 42751 _{7/2}
5307.466	100	150	18836.142	16564 ^o _{11/2} - 35400 _{13/2}	5253.939	2	4	19028.042	27357 ^o _{9/2} - 46385 _{7/2}
5306.033	1	5	18841.229	27526 _{9/2} - 46368 ^o _{9/2}	5253.443	100	75	19029.839	15144 ^o _{3/2} - 34174 _{5/2}
5305.577	75	50	18842.849	9400 _{5/2} - 28243 ^o _{5/2}	5253.249	5	75	19030.541	20120 ^o _{5/2} - 39150 _{3/2}
5305.495	4	5	18843.140	25607 ^o _{9/2} - 44450 _{9/2}	5252.766	50	75	19032.291	22014 ^o _{11/2} - 41047 _{9/2}
5304.675	15b	20b	18846.053	22642 _{9/2} - 41488 _{7/2}	5252.280	3	10	19034.052	25266 ^o _{1/2} - 44300 _{3/2}
5304.620	25	25	18846.248	14790 ^o _{7/2} - 33637 _{7/2}	5251.930	4	10	19035.321	25414 ^o _{11/2} - 44450 _{9/2}
5303.048	50	40	18851.835	12902 ^o _{3/2} - 31754 _{5/2}	5249.853	2	8	19042.852	30452 _{9/2} - 49495 _{9/2}
5302.698	3	4	18853.079	31810 ^o _{5/2} - 50663 _{5/2}	5249.657	3	2	19043.563	19248 ^o _{5/2} - 38291 _{7/2}
5301.649	3	3	18856.809	17272 ^o _{9/2} - 36125 _{9/2}	5248.855	3	3	19046.472	24757 ^o _{9/2} - 43803 _{7/2}
5301.403	100	100	18857.684	19248 ^o _{5/2} - 38105 _{5/2}	5247.654	500	100	19050.831	0 _{3/2} - 19050 ^o _{3/2}
5300.969	2	5	18859.228	14101 ^o _{1/2} - 32959 _{3/2}	5242.091	3	200	19071.048	22028 ^o _{15/2} - 41099 _{15/2}
5296.676	10	40	18874.513	27357 ^o _{9/2} - 46216 _{11/2}	5240.200	8	75	19077.930	6168 ^o _{7/2} - 25246 _{9/2}
5295.617	20h	15	18878.288	15144 ^o _{3/2} - 34019 _{3/2}	5237.907	5	500	19086.282	17722 ^o _{9/2} - 36809 _{7/2}
5294.826	2	3	18881.108	8378 _{7/2} - 27257 _{7/2}	5237.626	2	300	19087.306	26647 ^o _{13/2} - 45735 _{11/2}
				30956 ^o _{9/2} - 49837 _{9/2}	5236.425	4	10	19091.684	14545 ^o _{5/2} - 33637 _{7/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
5233.225	150	175	19103.358	9720 ^o _{7/2} - 28823 ^o _{5/2}	5148.212	200	1500	19418.810	15242 ^o _{9/2} - 34661 ^o _{11/2}
5232.985	0	25	19104.234	37787 ^o _{7/2} - 56892 ^o _{5/2}	5145.035	150s	200	19430.800	26965 ^o _{3/2} - 46395 ^o _{3/2}
5231.715	3	4	19108.871	14275 ^o _{9/2} - 33384 ^o _{9/2}					7331 ^o _{5/2} - 26762 ^o _{3/2}
5227.642	2	10	19123.759	19248 ^o _{5/2} - 38372 ^o _{3/2}	5143.268	300l	500	19437.476	1859 ^o _{3/2} - 21297 ^o _{5/2}
5225.579	3	75	19131.309	18973 ^o _{7/2} - 38105 ^o _{5/2}	5137.708	20	25	19458.511	25440 ^o _{5/2} - 44898 ^o _{7/2}
5225.074	3	2	19133.158	12219 ^o _{3/2} - 31353 ^o _{3/2}	5135.232	10	10	19467.893	31800 ^o _{7/2} - 51268 ^o _{7/2}
5224.116	5	2	19136.666	7828 ^o _{1/2} - 26965 ^o _{3/2}	5132.236	8	8	19479.257	14790 ^o _{7/2} - 34270 ^o _{9/2}
5219.960	4	8	19151.902	13468 ^o _{9/2} - 32620 ^o _{11/2}	5131.490	4	5	19482.089	17983 ^o _{5/2} - 37465 ^o _{5/2}
5218.527	75	100	19157.162	7331 ^o _{5/2} - 26488 ^o _{5/2}	5131.072	25	250	19483.676	15242 ^o _{5/2} - 34726 ^o _{7/2}
5216.593	200	1	19164.264	1521 ^o _{5/2} - 20686 ^o _{5/2}	5129.844	5h	20	19488.340	14790 ^o _{7/2} - 34279 ^o _{7/2}
5214.156	5	100	19173.221	19912 ^o _{13/2} - 39085 ^o _{13/2}	5124.430	3h	10	19508.929	19248 ^o _{5/2} - 38757 ^o _{3/2}
5211.574	5	8	19182.720	9061 ^o _{5/2} - 28243 ^o _{5/2}	5123.477	2	10	19512.558	21131 ^o _{3/2} - 40644 ^o _{5/2}
5210.572	3	1	19186.408	9400 ^o _{5/2} - 28587 ^o _{5/2}	5122.896	3	3	19514.771	24873 ^o _{5/2} - 44388 ^o _{5/2}
5206.659	15	50	19200.828	25607 ^o _{9/2} - 44807 ^o _{7/2}					22685 ^o _{7/2} - 42200 ^o _{9/2}
5206.489	25	20	19201.454	10673 ^o _{5/2} - 29873 ^o _{7/2}	5119.564	0	15	19527.472	30310 ^o _{11/2} - 49837 ^o _{9/2}
5205.776	20	400	19204.084	6213 ^o _{9/2} - 25414 ^o _{11/2}	5113.379	15	25	19551.091	4146 ^o _{7/2} - 23697 ^o _{7/2}
5204.998	5	20	19206.955	15349 ^o _{11/2} - 34553 ^o _{9/2}	5110.863	15	300	19560.716	16564 ^o _{11/2} - 36125 ^o _{9/2}
5196.042	15	15	19207.955	17121 ^o _{3/2} - 36328 ^o _{3/2}	5108.743	0	25	19568.833	28923 ^o _{5/2} - 48429 ^o _{5/2}
5194.250	0	10	19240.060	12570 ^o _{7/2} - 31810 ^o _{5/2}	5107.235	3	2	19574.611	7828 ^o _{1/2} - 27403 ^o _{3/2}
			19246.698	20120 ^o _{5/2} - 39366 ^o _{5/2}	5104.778	2	1	19584.032	4146 ^o _{7/2} - 23730 ^o _{9/2}
5193.822	75	100	19248.284	0 ^o _{3/2} - 19248 ^o _{5/2}	5104.563	3b	2	19584.857	7001 ^o _{3/2} - 26586 ^o _{3/2}
5190.867	100	100	19259.241	4113 ^o _{5/2} - 23372 ^o _{3/2}	5103.765	5	100	19587.919	19248 ^o _{5/2} - 38836 ^o _{3/2}
5189.674	10	300	19263.668	20288 ^o _{11/2} - 39552 ^o _{9/2}	5098.657	4h	2	19607.543	18214 ^o _{3/2} - 37821 ^o _{3/2}
5188.721	2	25	19267.206	22642 ^o _{9/2} - 41909 ^o _{9/2}	5098.039	100	75	19609.920	1521 ^o _{5/2} - 21131 ^o _{3/2}
5188.364	20	150	19268.532	13468 ^o _{9/2} - 32736 ^o _{7/2}	5093.086	3	20	19628.990	14545 ^o _{5/2} - 34174 ^o _{5/2}
5184.730	10	75	19282.037	12485 ^o _{7/2} - 31754 ^o _{5/2}	5090.752	300	400	19637.989	26965 ^o _{3/2} - 46603 ^o _{5/2}
5184.660	0	10	19282.298	12472 ^o _{5/2} - 31754 ^o _{5/2}					8605 ^o _{5/2} - 28243 ^o _{5/2}
5183.987	100	250	19284.801	28587 ^o _{5/2} - 47869 ^o _{3/2}	5089.224	3	1	19643.886	18973 ^o _{7/2} - 38617 ^o _{9/2}
5183.601	3	2	19286.237	12488 ^o _{9/2} - 31773 ^o _{9/2}	5087.503	2	50	19650.531	20288 ^o _{11/2} - 39939 ^o _{11/2}
				20080 ^o _{7/2} - 39366 ^o _{5/2}	5085.117	2	10	19659.751	9061 ^o _{5/2} - 28720 ^o _{3/2}
5182.527	20	30	19290.234	18816 ^o _{13/2} - 38107 ^o _{13/2}	5079.138	8	15	19682.893	11576 ^o _{3/2} - 31259 ^o _{5/2}
5178.988	2	1	19303.415	36193 ^o _{9/2} - 55496 ^o _{9/2}	5076.600	5	50	19692.734	24757 ^o _{9/2} - 44450 ^o _{9/2}
5177.097	0	25	19310.466	31353 ^o _{3/2} - 50663 ^o _{5/2}	5076.196	0	5	19694.301	29720 ^o _{3/2} - 49414 ^o _{3/2}
5176.735	4	8	19311.816	15349 ^o _{11/2} - 34661 ^o _{11/2}	5075.470	15	150	19697.118	15324 ^o _{1/2} - 35021 ^o _{3/2}
5175.073	2	5	19318.018	18973 ^o _{7/2} - 38291 ^o _{7/2}	5073.981	4	5	19702.898	20158 ^o _{5/2} - 39861 ^o _{5/2}
5172.912	10	25	19326.088	10189 ^o _{11/2} - 29515 ^o _{9/2}	5073.080	5s	25	19706.397	19050 ^o _{3/2} - 38757 ^o _{3/2}
5170.220	10	100	19336.151	11116 ^o _{7/2} - 30452 ^o _{9/2}	5072.930	0	1	19706.980	13250 ^o _{5/2} - 32957 ^o _{7/2}
5169.684	2h	1	19338.155	20120 ^o _{5/2} - 39458 ^o _{7/2}	5072.627	10	150	19708.157	16033 ^o _{5/2} - 35741 ^o _{5/2}
5169.160	1	25	19340.116	23012 ^o _{9/2} - 42352 ^o _{5/2}	5072.480	3	125	19708.728	12219 ^o _{3/2} - 31928 ^o _{3/2}
5166.923	2b	25	19348.489	29720 ^o _{3/2} - 49068 ^o _{5/2}					13248 ^o _{9/2} - 32957 ^o _{7/2}
				22139 ^o _{9/2} - 41488 ^o _{7/2}	5072.331	0	25	19709.307	40278 ^o _{3/2} - 59987 ^o _{3/2}
5166.875	3	20	19348.669	17460 ^o _{5/2} - 36809 ^o _{7/2}	5068.239	0	15	19725.220	31928 ^o _{3/2} - 51653 ^o _{1/2}
5160.678	50	25	19371.903	4146 ^o _{7/2} - 23518 ^o _{7/2}	5064.330	20b	50	19740.445	13468 ^o _{9/2} - 33209 ^o _{7/2}
5159.781	0	25	19375.270	28923 ^o _{5/2} - 48298 ^o _{7/2}	5061.219	25	200	19752.579	14790 ^o _{7/2} - 34543 ^o _{5/2}
5159.153	3		19377.629	20989 ^o _{9/2} - 40367 ^o _{9/2}	5058.589	1b	2	19762.848	11116 ^o _{7/2} - 30879 ^o _{7/2}
				20080 ^o _{7/2} - 39458 ^o _{7/2}	5058.563	40h	200	19762.950	14790 ^o _{7/2} - 34553 ^o _{9/2}
5154.893	8	8	19393.642	6213 ^o _{9/2} - 25607 ^o _{9/2}	5057.848	2		19765.743	16818 ^o _{7/2} - 36583 ^o _{7/2}
5154.867	0	5	19393.740	40222 ^o _{3/2} - 59616 ^o _{9/2}	5056.331	0	15	19771.673	30101 ^o _{7/2} - 49873 ^o _{5/2}
5153.516	4	25	19398.824	15144 ^o _{3/2} - 34543 ^o _{5/2}	5055.338	300	50	19775.557	1521 ^o _{5/2} - 21297 ^o _{5/2}
5151.855	50	20	19405.078	4113 ^o _{5/2} - 23518 ^o _{7/2}	5053.309	4	2	19783.497	8460 ^o _{3/2} - 28243 ^o _{5/2}

TABLE 3. Classified lines of Th II—Continued

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
5051.331	5	75	19791.244	17771 ^o _{1/2} - 37562 _{1/2}	4979.135	5	15	20078.207	20969 ^o _{7/2} - 41047 _{9/2}
5049.799	500	300	19797.248	6691 ^o _{3/2} - 26488 _{5/2}	4978.308	2	8	20081.543	17460 ^o _{5/2} - 37542 _{3/2}
5047.431	3	100	19806.536	15786 _{5/2} - 35593 ^o _{7/2}	4978.034	10	50	20082.648	22139 ^o _{9/2} - 42222 _{7/2}
5044.935	2	10	19816.335	19050 ^o _{3/2} - 38867 _{1/2}	4976.591	50	75	20088.471	12488 ^o _{9/2} - 32576 _{7/2}
5040.555	8	5	19833.554	24132 ^o _{3/2} - 43965 _{1/2}	4975.947	100	100	20091.071	12485 ^o _{7/2} - 32576 _{7/2}
5037.729	2	3	19844.680	36390 ^o _{3/2} - 56235 _{3/2}	4975.572	3	4	20092.585	15453 ^o _{7/2} - 35545 _{9/2}
5037.285	1	4	19846.429	9585 ^o _{7/2} - 29431 _{1/2}	4974.998	4	5	20094.903	18973 ^o _{7/2} - 39068 _{7/2}
5033.902	1	10	19859.767	21131 ^o _{3/2} - 40991 _{3/2}	4974.737	1	5	20095.958	20120 ^o _{5/2} - 40216 _{5/2}
5029.632	5	75	19876.627	15144 ^o _{3/2} - 35021 _{3/2}	4974.441	1	3	20097.154	28720 ^o _{3/2} - 48817 _{3/2}
5028.613	150b	200b	19880.655	10572 ^o _{9/2} - 30452 _{9/2}	4973.769	5	10	20099.869	19050 ^o _{3/2} - 39150 _{3/2}
5023.049	3	50	19902.676	16906 ^o _{7/2} - 36809 _{7/2}	4973.596	5	10	20100.568	20310 ^o _{5/2} - 40411 _{7/2}
5021.758	4	25	19907.793	26647 ^o _{13/2} - 46555 _{11/2}	4973.384	100l	150	20101.425	15324 ^o _{1/2} - 35425 _{1/2}
5020.541	50	40	19912.618	13818 ^o _{7/2} - 33730 _{5/2}	4973.092	5b	20b	20102.605	28587 ^o _{5/2} - 48689 _{3/2}
5019.614	2	10	19916.296	24982 ^o _{7/2} - 44898 _{7/2}	4973.050	8	50	20102.775	20120 ^o _{5/2} - 40222 _{3/2}
5019.324	150	150	19917.446	14101 ^o _{1/2} - 34019 _{3/2}	4972.668	5	10	20104.319	13250 _{5/2} - 33354 ^o _{5/2}
5018.220	2	10	19921.828	27249 ^o _{7/2} - 47171 _{9/2}	4972.174	50	150	20106.316	23697 ^o _{7/2} - 43803 _{7/2}
5017.255	300	400	19925.660	7331 ^o _{5/2} - 27257 _{7/2}				15349 ^o _{11/2} - 35456 _{9/2}	
5015.888	100	100	19931.090	10379 _{9/2} - 30310 ^o _{11/2}	4971.186	2	3	20110.312	22834 _{7/2} - 42944 ^o _{7/2}
5014.751	50	50	19935.609	30972 ^o _{5/2} - 50907 _{3/2}	4970.029	15b	75	20114.994	8605 _{5/2} - 28720 _{3/2}
5013.994	1	3	19938.619	26963 ^o _{7/2} - 46902 _{5/2}	4968.377	2l	3	20121.682	17983 ^o _{5/2} - 38105 _{5/2}
5013.600	20l	50	19940.186	23187 ^o _{13/2} - 43127 _{11/2}	4967.058	5	3	20127.025	8460 _{3/2} - 28587 ^o _{5/2}
5012.729	2	5	19943.650	27787 ^o _{9/2} - 47731 _{9/2}	4964.982	15	20b	20135.441	20080 ^o _{7/2} - 40216 _{5/2}
5009.976	50b	100	19954.609	20969 ^o _{7/2} - 40923 _{5/2}	4964.116	100	150	20138.953	10855 _{7/2} - 30994 _{7/2}
5009.442	10	20	19956.736	17722 ^o _{9/2} - 37679 _{11/2}	4963.791	0	5	20140.272	26770 ^o _{11/2} - 46910 _{13/2}
5009.078	2	3	19958.187	20686 ^o _{5/2} - 40644 _{5/2}	4963.550	3	25	20141.250	24757 ^o _{9/2} - 44898 _{7/2}
5008.377	1	3	19960.980	26424 ^o _{5/2} - 46385 _{7/2}	4963.184	75	100	20142.735	11116 ^o _{7/2} - 31259 _{5/2}
5008.190	100	150	19961.725	17983 ^o _{5/2} - 37945 _{5/2}	4962.959	25b	100b	20143.648	9202 ^o _{7/2} - 29345 _{5/2}
5007.377	8	8	19964.966	13250 _{5/2} - 33215 ^o _{5/2}	4962.925	40b	75b	20143.786	24982 ^o _{7/2} - 45126 _{9/2}
5006.821	3	5	19967.183	20310 ^o _{5/2} - 40278 _{3/2}	4960.492	25b	20	20153.666	9720 _{7/2} - 29873 _{7/2}
5005.738	2	2	19971.503	26424 ^o _{5/2} - 46395 _{3/2}	4959.738	1	1	20156.730	16906 ^o _{7/2} - 37063 _{9/2}
5003.503	2	10	19980.424	29515 _{9/2} - 49495 ^o _{9/2}	4959.438	3	10	20157.949	20120 ^o _{5/2} - 40278 _{3/2}
5002.567	15	20	19984.162	17837 ^o _{1/2} - 37821 _{3/2}	4958.974	1	8	20159.835	30310 ^o _{11/2} - 50470 _{9/2}
4999.937	100	100	19994.674	14275 ^o _{9/2} - 34270 _{9/2}	4958.717	10	5	20160.880	1521 _{5/2} - 21682 ^o _{7/2}
4999.105	20	20	19998.002	14545 ^o _{5/2} - 34543 _{5/2}	4956.836	5b	75	20168.531	24132 ^o _{3/2} - 44300 _{3/2}
4997.669	40	50	20003.748	14275 ^o _{9/2} - 34279 _{7/2}	4956.370	1	2	20170.427	25440 ^o _{5/2} - 45610 _{5/2}
4997.326	40	50	20005.121	17272 ^o _{9/2} - 37277 _{7/2}	4955.960	2	10	20172.096	29788 ^o _{9/2} - 49960 _{7/2}
4996.982	3	4	20006.498	22106 ^o _{5/2} - 42112 _{5/2}	4954.657	150b	200	20177.401	14484 ^o _{11/2} - 34661 _{11/2}
4996.873	5	10	20006.934	31928 ^o _{3/2} - 51935 _{5/2}	4954.555	50	150	20177.816	11576 ^o _{3/2} - 31754 _{5/2}
4992.275	2	4	20025.361	20158 _{5/2} - 40184 ^o _{7/2}	4954.336	3	10	20178.708	26424 ^o _{5/2} - 46603 _{5/2}
4991.925	3	5	20026.765	19912 ^o _{13/2} - 39939 _{11/2}	4951.826	8	15	20188.936	18568 ^o _{1/2} - 38757 _{3/2}
4991.007	10b	20	20030.448	15710 ^o _{3/2} - 35741 _{5/2}	4951.385	8	15	20190.734	21297 ^o _{5/2} - 41488 _{7/2}
4990.472	5	4	20032.596	16033 ^o _{5/2} - 36065 _{5/2}	4950.621	150	100	20193.850	9238 ^o _{9/2} - 29431 _{7/2}
4990.030	20	15	20034.370	9061 ^o _{5/2} - 29095 ^o _{5/2}	4950.167	10	20	20195.702	15349 ^o _{9/2} - 35545 _{9/2}
4987.149	200	300	20045.944	18816 ^o _{13/2} - 38862 _{11/2}	4949.961	8	40	20196.542	21131 ^o _{3/2} - 41328 _{5/2}
4986.029	4	25	20050.446	24757 ^o _{9/2} - 44807 _{7/2}	4947.315	4	10	20207.344	35878 _{7/2} - 56086 _{9/2}
4984.301	1	1	20057.397	20989 ^o _{9/2} - 41047 _{9/2}	4946.661	100	100	20210.016	19248 ^o _{9/2} - 39458 _{7/2}
4981.228	3b	4	20069.771	17771 ^o _{11/2} - 37840 _{9/2}	4945.863	15	20	20213.277	15242 ^o _{9/2} - 35456 _{9/2}
4980.949	50	40	20070.895	6691 ^o _{3/2} - 26762 _{3/2}	4945.249	2	3b	20215.786	23012 ^o _{3/2} - 43227 _{5/2}
4979.976	3	10	20074.817	23697 ^o _{7/2} - 43772 _{5/2}	4942.844	15	15	20225.622	8018 _{3/2} - 28243 _{5/2}
4979.438	1	4	20076.986	28243 ^o _{5/2} - 48320 _{5/2}	4942.616	3	15	20226.555	21682 ^o _{7/2} - 41909 _{9/2}

TABLE 3. Classified lines of Th II—Continued

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
4941.621	1	2h	20230.628	28587 ^o _{5/2} - 48817 _{3/2}	4885.985	2b	3	20460.988	13818 ^o _{7/2} - 34279 _{7/2}
4939.948	8	15	20237.479	20686 ^o _{5/2} - 40923 _{5/2}	4885.529	1	3	20462.898	18118 ^o _{3/2} - 38581 ^o _{5/2}
4939.808	5	15	20238.053	22513 ^o _{5/2} - 42751 _{7/2}	4884.684	2	3	20466.437	27403 ^o _{3/2} - 47869 _{3/2}
4937.962	2	5	20245.618	31924 ^o _{11/2} - 52170 _{11/2}	4882.446	4	10	20475.819	14545 ^o _{5/2} - 35021 _{3/2}
4937.405	2	2b	20247.902	12488 ^o _{9/2} - 32736 _{7/2}	4881.106	0	1	20481.440	28587 ^o _{5/2} - 49068 _{5/2}
4934.534	3	4	20259.683	20310 ^o _{5/2} - 40570 _{7/2}	4880.230	3b	4	20485.116	22642 ^o _{9/2} - 43127 _{11/2}
4933.850	15b	75	20262.491	7331 ^o _{5/2} - 27593 _{5/2}	4879.349	5	20	20488.815	16564 ^o _{11/2} - 37053 _{11/2}
4933.563	4b	5b	20263.670	10189 ^o _{11/2} - 30452 _{9/2}	4879.186	0	1	20489.499	25414 ^o _{11/2} - 45904 _{9/2}
4933.480	3b	5b	20264.011	12472 ^o _{5/2} - 32736 _{7/2}	4879.154	5	4	20489.634	8605 ^o _{5/2} - 29095 _{5/2}
4932.587	0	3	20267.680	30956 ^o _{5/2} - 51224 _{9/2}	4877.809	15	5	20495.283	1859 _{3/2} - 22355 ^o _{11/2}
4932.532	8h	5h	20267.906	18568 ^o _{1/2} - 38836 _{3/2}	4877.704	1	2	20495.725	20158 _{5/2} - 40654 ^o _{5/2}
4932.345	1	2	20268.674	18816 ^o _{13/2} - 39085 _{13/2}	4877.002	25	150	20498.675	16564 ^o _{11/2} - 37063 _{9/2}
4929.985	10	100	20278.377	24381 _{7/2} - 44650 ^o _{7/2}	4874.152	2	3	20510.661	27787 _{9/2} - 48298 _{7/2}
4929.378	2	15	20280.874	14275 ^o _{9/2} - 34553 _{9/2}	4874.030	1	2	20511.174	26424 ^o _{5/2} - 46935 _{3/2}
4927.587	4	15	20288.245	15144 ^o _{3/2} - 35425 _{1/2}	4873.351	2	3	20514.032	27357 _{9/2} - 47871 _{7/2}
4926.969	1	1	20290.790	15453 ^o _{7/2} - 35741 _{7/2}	4872.971	0	8	20515.631	17272 _{9/2} - 37787 _{7/2}
4925.795	2b	3	20295.626	15305 _{9/2} - 35593 ^o _{7/2}	4872.537	1	1	20517.459	21682 _{7/2} - 42200 _{9/2}
4925.418	5	50	20297.179	23518 ^o _{7/2} - 43809 _{9/2}	4872.138	3	5	20519.139	20969 _{7/2} - 41488 _{7/2}
4925.002	3	75	20298.893	10189 ^o _{11/2} - 30484 _{11/2}	4868.274	5	25	20535.425	18816 ^o _{13/2} - 39352 _{11/2}
4924.798	2	8	20299.734	15305 _{9/2} - 35602 ^o _{11/2}	4863.163	300d	1000	20557.006	6213 _{9/2} - 26770 _{11/2}
4924.420	15	50	20301.293	18568 ^o _{1/2} - 38867 _{1/2}	4862.203	0	2	20561.065	35525 _{11/2} - 56086 ^o _{9/2}
4923.421	1	2	20305.412	7331 ^o _{5/2} - 27631 _{3/2}	4862.128	1	3	20561.382	22685 _{7/2} - 43246 _{7/2}
4922.946	15	100	20307.371	4113 _{5/2} - 24414 ^o _{3/2}	4861.932	1	5	20562.211	30101 _{7/2} - 50663 _{5/2}
4921.876	0	2	20311.786	20686 ^o _{5/2} - 40991 _{3/2}	4860.421	3	200	20568.603	17272 _{9/2} - 37840 _{9/2}
4921.612	50b	150	20312.875	10572 ^o _{9/2} - 30879 _{7/2}	4858.332	40	500	20577.448	10379 _{9/2} - 30956 ^o _{9/2}
4920.554	2b	3	20317.243	22106 _{5/2} - 42418 _{3/2}	4858.241	0	5	20577.833	23518 _{7/2} - 44096 _{9/2}
4920.526	10b	100	20317.358	9202 ^o _{7/2} - 29515 _{9/2}	4858.096	5	300	20578.447	18973 _{7/2} - 39552 _{9/2}
4919.816	500	500	20320.290	4146 _{7/2} - 24463 ^o _{5/2}	4857.159	2	75	20582.417	18568 ^o _{1/2} - 39150 _{3/2}
4917.468	2	2b	20329.993	8605 _{5/2} - 28923 ^o _{5/2}	4856.957	1	2	20583.273	22513 _{5/2} - 43096 _{5/2}
4914.119	5	100	20343.847	6168 ^o _{7/2} - 26488 _{5/2}	4856.273	3	40	20586.172	10673 _{5/2} - 31259 _{5/2}
4912.526	50	100	20350.444	15710 ^o _{3/2} - 36040 _{1/2}	4854.647	1	1	20593.067	23372 ^o _{3/2} - 43965 _{1/2}
4911.447	2	4	20354.915	17121 ^o _{3/2} - 37465 _{5/2}	4851.898	2	40	20604.734	22642 ^o _{9/2} - 43246 _{7/2}
4911.147	8	75	20356.159	4113 _{5/2} - 24463 ^o _{5/2}	4850.437	100	300	20610.941	4146 _{7/2} - 24757 _{9/2}
4910.418	0	1	20359.180	15710 ^o _{3/2} - 36065 _{5/2}	4850.263	0	2	20611.680	22139 _{9/2} - 42751 _{7/2}
4910.312	1	1	20359.620	13818 _{7/2} - 34174 _{5/2}	4850.024	3	100	20612.696	20310 ^o _{5/2} - 40923 _{5/2}
4906.680	3	1	20374.690	26965 ^o _{3/2} - 47324 _{5/2}	4849.439	3	15	20615.182	15453 _{7/2} - 36065 _{5/2}
4903.122	1	1	20389.475	10189 ^o _{11/2} - 30548 _{13/2}	4849.043	20	500	20616.866	10379 _{9/2} - 30994 ^o _{7/2}
4899.158	2	8	20405.972	24414 ^o _{3/2} - 44789 _{1/2}	4848.826	1	2	20617.789	22028 ^o _{15/2} - 42644 _{13/2}
4898.802	51	75	20407.455	9711 _{7/2} - 30101 ^o _{7/2}	4848.887	2	3	20621.782	15710 ^o _{3/2} - 36328 _{3/2}
4898.457	8	100	20408.893	17983 ^o _{5/2} - 38389 _{7/2}	4845.936	3	100	20630.084	18214 ^o _{3/2} - 38836 _{3/2}
4897.928	2	10	20411.097	17272 ^o _{9/2} - 37679 _{11/2}	4844.755	4	100	20635.113	12219 _{3/2} - 32850 ^o _{5/2}
4895.660	2	5	20420.553	17771 ^o _{11/2} - 38179 _{9/2}	4844.559	8	200	20635.948	8460 _{3/2} - 29095 ^o _{5/2}
4894.397	1	1	20425.822	22685 ^o _{7/2} - 43096 _{5/2}	4844.257	3	100b	20637.234	15242 ^o _{9/2} - 35878 _{7/2}
4894.351	0	1	20426.014	17121 ^o _{3/2} - 37542 _{3/2}	4844.164	50	300b	20637.631	9238 ^o _{9/2} - 29873 _{7/2}
4893.517	1	2	20429.495	15453 ^o _{7/2} - 35878 _{7/2}	4843.815	0	1	20639.118	14349 _{1/2} - 34986 ^o _{3/2}
4889.853	8	5	20444.803	24463 ^o _{5/2} - 44889 _{3/2}	4842.562	1	1	20644.458	11116 ^o _{7/2} - 31754 _{5/2}
4888.498	2	2	20450.470	20969 ^o _{7/2} - 41398 _{9/2}	4841.385	1	3	20649.477	21297 ^o _{5/2} - 41936 _{3/2}
4888.365	2	2	20451.026	8378 ^o _{7/2} - 28823 _{5/2}	4841.320	2	20	20649.754	17460 _{5/2} - 38105 _{5/2}
				20120 ^o _{5/2} - 40570 _{7/2}					27357 ^o _{9/2} - 48006 _{9/2}
				14275 ^o _{9/2} - 34726 _{7/2}					19050 ^o _{3/2} - 39700 _{5/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
4841.037	0	3	20650.961	33843 ^{3/2} - 54493 ^{3/2}	4800.921	0	1	20823.516	17121 ^{3/2} - 37945 ^{5/2}
4840.471	40	300	20653.376	13248 ^{9/2} - 33902 ^{7/2} 1859 ^{3/2} - 22513 ⁰ _{5/2}	4800.168	20	200	20826.782	6700 ^{9/2} - 27526 ^{9/2}
4839.738	3	75	20656.504	11116 ^{9/2} - 31773 ^{9/2}	4800.050	0	2	20827.295	28587 ⁰ _{5/2} - 49414 ^{3/2}
4839.563	0	1	20657.251	24132 ^{5/2} - 44789 ^{1/2}	4799.756	3	40	20828.570	12902 ^{3/2} - 33730 ^{5/2}
4838.353	8	300	20662.417	19912 ^{13/2} - 40574 ^{11/2}	4799.158	0	1	20831.165	17460 ^{5/2} - 38291 ^{7/2}
4837.701	3	100	20665.202	14790 ^{7/2} - 35456 ^{9/2}	4797.569	2	10	20838.065	22106 ^{5/2} - 42944 ⁰ _{7/2}
4836.725	0	2	20669.372	25594 ^{7/2} - 46264 ^{3/2} 21682 ⁰ _{7/2} - 42352 ^{5/2}	4796.511	0	2	20842.661	29788 ^{9/2} - 50631 ^{11/2}
4836.179	2	15	20671.705	9202 ^{9/2} - 29873 ^{7/2}	4796.448	0	2	20842.935	20080 ^{7/2} - 40923 ^{5/2}
					4794.918	2	4	20849.585	14349 ^{1/2} - 35198 ⁰ _{1/2}
					4794.175	1	2	20852.817	17983 ^{9/2} - 38836 ^{3/2}
4833.872	0	3	20681.571	29788 ^{9/2} - 50470 ^{9/2}	4793.669	2	40	20855.018	23697 ^{9/2} - 44552 ^{5/2}
4833.826	25	40b	20681.767	31625 ⁰ _{1/2} - 52307 ^{3/2}	4792.910	4	2	20858.321	30972 ⁰ _{5/2} - 51830 ^{7/2}
4832.799	75	300	20686.162	0 ^{3/2} - 20686 ⁰ _{5/2}	4790.434	5	40	20869.101	4113 ^{3/2} - 24982 ⁰ _{7/2}
4831.645	0	3	20691.103	23697 ^{9/2} - 44388 ^{5/2}	4790.148	0	2	20870.347	23518 ^{7/2} - 44388 ^{5/2}
4829.884	1	25	20698.647	20989 ^{9/2} - 41688 ^{7/2}	4789.903	2	40	20871.415	20120 ^{5/2} - 40991 ^{3/2}
4828.952	2	8	20702.642	8018 ^{3/2} - 28720 ^{3/2}	4788.375	2	2	20878.075	19594 ^{1/2} - 40472 ⁰ _{3/2}
4828.463	4	200	20704.738	17460 ^{5/2} - 38165 ^{7/2}	4787.827	2	50	20880.464	17983 ^{9/2} - 38863 ^{5/2}
4824.647	5	100	20721.114	12488 ^{9/2} - 33209 ^{7/2}	4787.372	4	150	20882.449	15242 ^{9/2} - 36125 ^{9/2}
4824.044	1	2	20723.704	12485 ^{9/2} - 33209 ^{7/2}	4785.721	1	2	20889.653	22355 ^{9/2} - 43244 ^{3/2}
4823.692	2	5	20725.217	13818 ^{7/2} - 34543 ^{5/2}	4785.295	0	4b	20891.513	24414 ^{3/2} - 45306 ^{3/2}
4823.319	3	75	20726.820	18973 ^{9/2} - 39700 ^{5/2}	4784.929	5	200	20893.110	17272 ^{9/2} - 38165 ^{7/2}
4823.179	8b	200	20727.421	4146 ^{7/2} - 24873 ⁰ _{5/2}	4784.565	2	8	20894.700	17722 ^{9/2} - 38617 ^{9/2}
4821.272	10	500	20735.620	13818 ^{7/2} - 34553 ^{9/2}	4784.237	1	3	20896.132	15144 ^{9/2} - 36040 ^{1/2}
4821.035	0	2	20736.639	24873 ^{5/2} - 45610 ^{5/2}					12488 ^{9/2} - 33384 ^{9/2}
4820.693	0	3	20738.110	26586 ^{3/2} - 47324 ^{5/2}	4783.904	8	15	20897.587	19050 ^{3/2} - 39948 ^{1/2}
4819.017	3	40	20745.322	17983 ^{5/2} - 38728 ^{5/2}	4783.636	3	200	20898.758	12485 ^{7/2} - 33384 ^{9/2}
4818.644	50	500	20746.928	17771 ^{11/2} - 38517 ^{13/2}	4783.167	0	2	20900.807	27631 ^{3/2} - 48532 ⁰ _{1/2}
4817.826	2	8	20750.451	6213 ^{9/2} - 26963 ⁰ _{7/2}	4782.759	20	200	20902.590	6691 ^{3/2} - 27593 ^{5/2}
4817.320	2	40	20752.630	23697 ^{7/2} - 44450 ^{9/2}	4782.204	2	2	20905.016	8018 ^{3/2} - 28923 ^{5/2}
4816.859	3b	100	20754.616	14790 ^{9/2} - 35545 ^{9/2}	4781.584	3	5	20907.726	17272 ^{9/2} - 38179 ^{9/2}
4816.129	1	10	20757.762	24132 ^{5/2} - 44889 ^{3/2}	4779.587	5	2	20916.462	14484 ^{9/2} - 35400 ^{13/2}
4815.927	0	2	20758.633	20288 ^{9/2} - 41047 ^{9/2}	4778.921	1	4	20919.377	17837 ^{9/2} - 38757 ^{3/2}
4815.460	8	3	20760.646	4113 ^{3/2} - 24873 ⁰ _{5/2}	4778.883	4	200	20919.543	20989 ^{9/2} - 41909 ^{9/2}
4813.591	0	1	20768.707	34270 ^{9/2} - 55038 ^{9/2}	4778.547	1	3	20921.014	15144 ^{3/2} - 36065 ^{5/2}
4812.562	1	3	20773.147	23730 ^{9/2} - 44503 ^{7/2}	4777.649	3	75	20924.946	39068 ^{7/2} - 59993 ^{9/2}
4812.449	1	5	20773.635	25381 ^{3/2} - 46155 ⁰ _{5/2}	4777.350	0	2	20926.256	24873 ^{5/2} - 45800 ^{5/2}
4812.020	3	50	20775.487	15349 ^{11/2} - 36125 ^{9/2}	4776.779	50	150	20928.757	17460 ^{5/2} - 38389 ^{7/2}
4811.867	4	75	20776.147	16033 ^{5/2} - 36809 ^{7/2}	4776.076	0	2	20931.838	23518 ^{9/2} - 44450 ^{9/2}
4811.369	2	25	20778.298	25607 ^{9/2} - 46385 ^{7/2}	4775.357	3b	40	20934.989	20288 ^{11/2} - 41223 ^{11/2}
4810.874	2	1	20780.436	38836 ^{3/2} - 59616 ^{3/2}	4775.067	2	50	20936.261	18214 ^{3/2} - 39150 ^{3/2}
4807.079	3	50	20796.841	15786 ^{5/2} - 36583 ⁰ _{7/2}	4774.499	2	50	20938.751	16818 ^{7/2} - 37756 ⁰ _{7/2}
4806.050	3	75	20801.294	13468 ^{9/2} - 34270 ^{9/2}	4774.331	2	5	20939.488	22834 ^{7/2} - 43773 ⁰ _{7/2}
4805.963	4	200	20801.670	25414 ^{11/2} - 46216 ^{11/2}	4774.254	50b	200	20939.826	6691 ^{3/2} - 27631 ^{3/2}
4805.880	2	15b	20802.029	20686 ^{5/2} - 41488 ^{9/2}	4773.991	1	3	20940.979	22014 ^{9/2} - 42955 ^{9/2}
4805.547	3	50	20803.471	20120 ^{9/2} - 40923 ^{5/2}	4773.955	1	3	20941.137	27357 ^{9/2} - 48298 ^{7/2}
4805.290	0	2	20804.583	35878 ^{7/2} - 56683 ⁰ _{7/2}	4773.482	0	1	20943.212	33902 ^{7/2} - 54845 ^{9/2}
4803.954	8	200	20810.369	13468 ^{9/2} - 34279 ^{7/2}	4773.104	3	50	20944.871	10855 ^{7/2} - 31800 ^{9/2}
4803.483	50	300	20812.410	19912 ^{13/2} - 40724 ^{13/2}	4771.952	1	4	20949.927	28923 ^{5/2} - 49873 ^{5/2}
4802.612	0	3	20816.184	22139 ^{9/2} - 42955 ^{9/2}	4771.862	2	10	20950.322	14790 ^{7/2} - 35741 ^{5/2}
4802.422	1	3	20817.008	24309 ^{9/2} - 45126 ^{9/2}	4771.123	1h	2	20953.567	23012 ^{3/2} - 43965 ^{1/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
4770.945	0	2	20954.349	31353 _{3/2} ^o - 52307 _{3/2}	4726.254	2	4	21152.488	18214 _{3/2} ^o - 39366 _{5/2}
4770.744	2b	100	20955.232	10855 _{7/2} ^o - 31810 _{5/2}	4725.943	5	100	21153.880	15236 _{3/2} ^o - 36390 _{3/2}
4769.429	1	3	20961.009	26770 _{11/2} ^o - 47731 _{9/2}	4725.305	3	15	21156.736	20989 _{9/2} ^o - 42146 _{11/2}
4768.761	3	100	20963.945	25414 _{11/2} ^o - 46378 _{13/2}	4724.822	5b	40b	21158.899	6244 _{1/2} ^o - 27403 _{3/2}
4768.170	3	75	20966.544	20080 _{7/2} ^o - 41047 _{9/2}	4724.771	40b	300	21159.127	9720 _{7/2} ^o - 30879 _{7/2}
4768.054	5	100	20967.054	8378 _{7/2} ^o - 29345 _{5/2}	4724.553	2	8	21160.104	32850 _{5/2} ^o - 54010 _{7/2}
4767.871	1	10	20967.859	19248 _{5/2} ^o - 40216 _{5/2}	4724.155	2	50	21161.886	22642 _{9/2} ^o - 43803 _{7/2}
4766.961	5	150	20971.861	14484 _{11/2} ^o - 35456 _{9/2}	4723.783	300	500	21163.553	1521 _{5/2} ^o - 22685 _{7/2}
4766.016	0b	25	20976.020	33384 _{9/2} ^o - 54360 _{9/2}	4722.974	2b	25	21167.178	22642 _{9/2} ^o - 43809 _{9/2}
4765.655	5b	25	20977.608	24757 _{9/2} ^o - 45735 _{11/2}	4722.948	1b	10b	21167.294	17983 _{5/2} ^o - 39150 _{3/2}
4763.890	1	5	20985.380	23518 _{7/2} ^o - 44503 _{7/2}	4721.882	3	100	21172.073	19050 _{9/2} ^o - 40222 _{3/2}
4763.718	2	20	20986.138	22028 _{15/2} ^o - 43014 _{13/2}	4719.979	20l	400	21180.609	14275 _{9/2} ^o - 35456 _{9/2}
4763.398	0	2	20987.548	22139 _{9/2} ^o - 43127 _{11/2}	4719.251	3	50	21183.877	15144 _{3/2} ^o - 36328 _{3/2}
4762.519	5	20	20991.422	1521 _{5/2} ^o - 22513 _{5/2}	4718.616	25	300	21186.727	19912 _{13/2} ^o - 41099 _{15/2}
4761.854	4	100	20994.353	31924 _{11/2} ^o - 52918 _{13/2}	4717.277	1	5	21192.741	13468 _{9/2} ^o - 34661 _{11/2}
4761.631	0	1	20995.336	32850 _{5/2} ^o - 53845 _{5/2}	4716.606	2	8	21195.756	14545 _{5/2} ^o - 35741 _{5/2}
4761.353	1	8	20996.562	23730 _{9/2} ^o - 44727 _{11/2}	4715.998	3b	75	21198.488	16906 _{7/2} ^o - 38105 _{5/2}
4761.106	75	500	20997.651	16564 _{11/2} ^o - 37562 _{11/2}	4715.429	20	200	21201.046	10572 _{9/2} ^o - 31773 _{9/2}
4760.937	3	75	20998.396	17837 _{1/2} ^o - 38836 _{3/2}	4714.867	3	50	21203.573	27249 _{7/2} ^o - 48453 _{7/2}
4760.052	2	20	21002.301	20686 _{5/2} ^o - 41688 _{7/2}	4713.839	2	8	21208.198	20120 _{5/2} ^o - 41328 _{5/2}
4759.582	3	75	21004.375	15324 _{1/2} ^o - 36328 _{3/2}	4712.393	50b	150	21214.705	9238 _{9/2} ^o - 30452 _{9/2}
4756.619	3	50	21017.458	17722 _{9/2} ^o - 38740 _{11/2}	4711.141	2	10	21220.343	21131 _{3/2} ^o - 42352 _{5/2}
4754.403	3	2	21027.254	26647 _{13/2} ^o - 47675 _{11/2}	4709.598	2	8	21227.295	19050 _{3/2} ^o - 40278 _{3/2}
4754.208	2	40	21028.117	16818 _{7/2} ^o - 37846 _{5/2}	4708.102	50	200	21234.040	11725 _{1/2} ^o - 32959 _{3/2}
4753.810	2	25	21029.877	19248 _{5/2} ^o - 40278 _{3/2}	4707.581	2	25	21236.390	26770 _{11/2} ^o - 48006 _{9/2}
4752.414	200	500	21036.055	6213 _{9/2} ^o - 27249 _{7/2}	4706.250	50	200b	21242.396	7001 _{3/2} ^o - 28243 _{5/2}
4751.328	2	20	21040.863	14484 _{11/2} ^o - 35525 _{11/2}	4705.758	200	500	21244.617	9711 _{7/2} ^o - 30956 _{9/2}
4751.117	2	1	21041.797	25381 _{3/2} ^o - 46423 _{3/2}	4705.615	50	200	21245.262	12485 _{7/2} ^o - 33730 _{5/2}
4748.585	3b	75	21053.017	8378 _{7/2} ^o - 29431 _{7/2}	4705.294	2	10	21246.712	9238 _{9/2} ^o - 30484 _{11/2}
4747.550	2	2	21057.606	24132 _{3/2} ^o - 45189 _{5/2}	4705.084	1	4	21247.660	20080 _{7/2} ^o - 41328 _{5/2}
4743.693	150w	300	21074.728	4113 _{5/2} ^o - 25188 _{3/2}	4704.657	2	25	21249.589	14275 _{9/2} ^o - 35525 _{11/2}
4743.112	2	10	21077.309	23730 _{9/2} ^o - 44807 _{7/2}	4703.844	2	5	21253.261	20969 _{7/2} ^o - 42222 _{7/2}
4742.259	10s	100	21081.100	10673 _{5/2} ^o - 31754 _{5/2}	4703.577	1	3	21254.467	25607 _{9/2} ^o - 46861 _{11/2}
4741.384	5	200	21084.991	13468 _{9/2} ^o - 34553 _{9/2}	4703.404	3	4	21255.249	13406 _{13/2} ^o - 34661 _{11/2}
4740.529	500	500	21088.793	6168 _{7/2} ^o - 27257 _{7/2}	4702.624	3	25	21258.775	16906 _{7/2} ^o - 38165 _{7/2}
4739.860	5	100	21091.770	17771 _{11/2} ^o - 38862 _{11/2}	4702.359	3	25b	21259.973	12472 _{5/2} ^o - 33730 _{5/2}
4737.656	4	100	21101.582	15710 _{3/2} ^o - 36812 _{1/2}	4702.309	8	200	21260.199	8460 _{3/2} ^o - 29720 _{3/2}
4736.399	4	200	21107.182	22139 _{9/2} ^o - 43246 _{7/2}	4700.574	1	4	21268.046	17460 _{5/2} ^o - 38728 _{5/2}
4735.780	2	5	21109.941	20288 _{11/2} ^o - 41398 _{9/2}	4700.137	75	200	21270.023	14275 _{9/2} ^o - 35545 _{9/2}
4735.702	2	8	21110.288	23697 _{7/2} ^o - 44807 _{7/2}	4699.460	1	10	21273.087	21682 _{7/2} ^o - 42955 _{9/2}
4735.245	2	15	21112.326	22014 _{11/2} ^o - 43127 _{11/2}	4699.091	2	20	21274.758	14790 _{7/2} ^o - 36065 _{5/2}
4734.757	2	10	21114.502	8605 _{5/2} ^o - 29720 _{3/2}	4698.767	4	100	21276.225	16564 _{11/2} ^o - 37840 _{9/2}
4734.626	2	10	21115.086	16564 _{11/2} ^o - 37679 _{11/2}	4698.270	2	50	21278.475	33215 _{3/2} ^o - 54493 _{5/2}
4733.023	3	50h	21122.237	18816 _{13/2} ^o - 39939 _{11/2}	4695.835	1	5	21289.509	23518 _{7/2} ^o - 44807 _{7/2}
4732.668	8	200	21123.821	22685 _{7/2} ^o - 43809 _{9/2}	4694.921	10	200	21293.654	4146 _{7/2} ^o - 25440 _{5/2}
4730.877	4	10	21131.818	0 _{3/2} ^o - 21131 _{3/2}	4694.844	1	3	21294.003	9585 _{5/2} ^o - 30879 _{7/2}
4729.875	50	200	21136.295	8378 _{7/2} ^o - 29515 _{9/2}	4694.783	5l	40l	21294.280	22513 _{5/2} ^o - 43807 _{3/2}
4729.084	50b	40	21139.830	17722 _{9/2} ^o - 38862 _{11/2}	4694.282	1	25	21296.512	17460 _{5/2} ^o - 38757 _{3/2}
4726.462	4	200	21151.558	12485 _{7/2} ^o - 33637 _{7/2}					
4726.333	5	40	21152.135	1859 _{3/2} ^o - 23012 _{3/2}					

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
4694.090	400	300	21297.423	0 _{3/2} ° - 21297 _{5/2} °	4647.913	2	4	21509.010	16033 _{5/2} ° - 37542 _{3/2} °
4691.050	10	400	21311.225	19912 _{3/2} ° - 41223 _{11/2} °	4646.140	1	3	21517.218	23372 _{3/2} ° - 44889 _{3/2} °
4690.680	10	200	21312.906	17837 _{9/2} ° - 39150 _{3/2} °	4645.495	2	20	21520.205	14545 _{5/2} ° - 36065 _{5/2} °
4690.331	3	100	21314.492	17771 _{11/2} ° - 39085 _{13/2} °	4642.889	1	5	21532.284	34553 _{9/2} ° - 56086 _{9/2} °
4689.596	1	5	21317.832	20080 _{7/2} ° - 41398 _{9/2} °	4642.272	1	5	21535.146	22642 _{9/2} ° - 44177 _{11/2} °
4689.170	100	300b	21319.769	6691 _{9/2} ° - 28011 _{3/2} °	4642.055	3	75	21536.153	20686 _{5/2} ° - 42222 _{7/2} °
4688.276	3	100	21323.834	14101 _{1/2} ° - 35425 _{1/2} °	4641.435	2	3	21539.029	9720 _{7/2} ° - 31259 _{5/2} °
4686.568	4	75	21331.605	12570 _{7/2} ° - 33902 _{7/2} °	4641.181	50	200	21540.208	23187 _{13/2} ° - 44727 _{11/2} °
4685.963	3	50	21334.359	14790 _{7/2} ° - 36125 _{9/2} °	4640.045	50	200b	21545.482	10379 _{9/2} ° - 31924 _{11/2} °
4685.827	3	8	21334.979	6691 _{3/2} ° - 28026 _{5/2} °	4639.704	75	300	21547.065	12472 _{5/2} ° - 34019 _{3/2} °
4685.494	2	200	21336.495	24463 _{5/2} ° - 45800 _{5/2} °	4639.094	3	100	21549.898	20969 _{7/2} ° - 42518 _{7/2} °
4685.448	1	5	21336.704	27787 _{9/2} ° - 49124 _{11/2} °	4633.830	40b	40	21574.378	6213 _{9/2} ° - 27787 _{9/2} °
4684.127	2	25	21342.722	35602 _{11/2} ° - 56945 _{11/2} °	4631.760	150	400	21584.020	10189 _{11/2} ° - 31773 _{9/2} °
4683.533	1	2	21345.428	17272 _{9/2} ° - 38617 _{9/2} °	4631.348	2	4	21585.940	7001 _{3/2} ° - 28587 _{5/2} °
4683.484	2	3	21345.652	17722 _{9/2} ° - 39068 _{7/2} °	4630.353	2	50	21590.579	17272 _{9/2} ° - 38862 _{11/2} °
4681.649	2	2	21354.018	37945 _{5/2} ° - 59299 _{5/2} °	4629.769	10	75	21593.302	9400 _{5/2} ° - 30994 _{7/2} °
4681.163	2	20	21356.235	15453 _{7/2} ° - 36809 _{7/2} °	4629.375	25	200	21595.140	24309 _{11/2} ° - 45904 _{9/2} °
4680.640	40b	150b	21358.621	6168 _{7/2} ° - 27526 _{9/2} °	4629.005	2	75	21596.866	18973 _{7/2} ° - 40570 _{7/2} °
4679.045	1	20	21365.902	20310 _{5/2} ° - 41676 _{3/2} °	4627.628	3	75	21603.292	14275 _{9/2} ° - 35878 _{7/2} °
4678.594	1	2	21367.962	20120 _{5/2} ° - 41488 _{7/2} °	4626.818	1	2	21607.074	17121 _{9/2} ° - 38728 _{5/2} °
4678.200	4	10	21369.761	24982 _{7/2} ° - 46352 _{7/2} °	4626.666	2	50	21607.784	20080 _{7/2} ° - 41688 _{7/2} °
4676.936	3	5	21375.537	17460 _{5/2} ° - 38836 _{3/2} °	4626.604	2	10	21608.074	17460 _{5/2} ° - 39068 _{7/2} °
4676.680	1	5	21376.707	23012 _{9/2} ° - 44388 _{5/2} °	4626.133	2	4	21610.274	15453 _{9/2} ° - 37063 _{9/2} °
4676.502	2	75	21377.520	20310 _{5/2} ° - 41688 _{7/2} °	4625.054	10	300	21615.315	16564 _{11/2} ° - 38179 _{9/2} °
4675.934	2	75	21380.117	18568 _{7/2} ° - 39948 _{1/2} °	4624.136	10	200	21619.606	11116 _{7/2} ° - 32736 _{7/2} °
4675.290	2	15	21383.062	11576 _{3/2} ° - 32959 _{3/2} °	4623.892	5	400	21620.747	24982 _{7/2} ° - 46603 _{5/2} °
4674.816	1	3	21385.230	16906 _{7/2} ° - 38291 _{7/2} °	4623.397	1	5	21623.062	20288 _{11/2} ° - 41909 _{9/2} °
4674.730	1	3	21385.624	24414 _{5/2} ° - 45800 _{5/2} °	4623.065	2	5	21629.293	12219 _{3/2} ° - 33843 _{3/2} °
4670.889	1	2	21403.209	17460 _{5/2} ° - 38863 _{5/2} °	4622.065	2	5	21629.293	28243 _{5/2} ° - 49873 _{5/2} °
4666.991	4	20	21421.085	10379 _{9/2} ° - 31800 _{7/2} °	4620.725	3	20	21635.565	17121 _{9/2} ° - 38757 _{3/2} °
4666.002	40	200	21425.626	6168 _{7/2} ° - 27593 _{5/2} °	4619.561	50	300	21641.017	14484 _{11/2} ° - 36125 _{9/2} °
4665.955	2	25	21425.842	24309 _{11/2} ° - 45735 _{11/2} °	4619.480	100b	400	21641.396	9238 _{5/2} ° - 30879 _{7/2} °
4664.542	1	3	21432.332	16033 _{5/2} ° - 37465 _{5/2} °	4613.978	2	100	21667.202	22106 _{5/2} ° - 43773 _{7/2} °
4663.372	1	5	21437.709	18973 _{7/2} ° - 40411 _{7/2} °	4613.875	2	25	21667.686	15144 _{3/2} ° - 36812 _{1/2} °
4661.423	2	100	21446.672	25414 _{11/2} ° - 46861 _{11/2} °	4613.762	2	50	21668.217	24132 _{3/2} ° - 45800 _{5/2} °
4659.846	1	3	21453.930	21297 _{5/2} ° - 42751 _{7/2} °	4613.468	3	100	21669.598	22139 _{9/2} ° - 43809 _{9/2} °
4659.799	5	3	21454.147	22642 _{9/2} ° - 44096 _{9/2} °	4613.263	2	8	21670.561	18973 _{7/2} ° - 40644 _{5/2} °
4658.727	2	15	21459.083	24757 _{9/2} ° - 46216 _{11/2} °	4612.544	200	150	21673.938	9585 _{5/2} ° - 31259 _{5/2} °
4658.492	10b	10b	21460.166	11116 _{7/2} ° - 32576 _{7/2} °	4612.168	2	20	21675.705	16818 _{7/2} ° - 38493 _{5/2} °
4656.748	2	8	21468.203	17272 _{9/2} ° - 38740 _{11/2} °	4611.859	50	300	21677.158	9202 _{7/2} ° - 30879 _{7/2} °
4655.727	1	3	21472.911	19050 _{3/2} ° - 40523 _{1/2} °	4609.370	50	400	21688.863	12485 _{7/2} ° - 34174 _{5/2} °
4654.272	2	2	21479.623	29788 _{5/2} ° - 51268 _{7/2} °	4606.501	25	200	21702.371	12472 _{5/2} ° - 34174 _{5/2} °
4653.084	2	15	21485.107	35593 _{9/2} ° - 57078 _{9/2} °	4606.299	2	50	21703.322	22685 _{7/2} ° - 44388 _{5/2} °
4652.851	2	15	21486.183	18214 _{3/2} ° - 39700 _{5/2} °	4605.232	2	75	21708.351	25440 _{5/2} ° - 47148 _{3/2} °
4652.415	3	8	21488.197	15324 _{7/2} ° - 36812 _{1/2} °	4604.651	2	25	21711.090	16906 _{7/2} ° - 38617 _{9/2} °
4651.986	75	200	21490.178	1521 _{5/2} ° - 23012 _{3/2} °	4604.160	2	8	21713.405	15349 _{11/2} ° - 37063 _{9/2} °
4651.554	150b	500	21492.174	7331 _{5/2} ° - 28823 _{5/2} °	4603.907	2	100	21714.599	17121 _{5/2} ° - 38836 _{3/2} °
4650.918	8	75	21495.113	8378 _{7/2} ° - 29873 _{7/2} °	4602.885	75	300	21719.420	7001 _{3/2} ° - 28720 _{3/2} °
4650.815	50	75	21495.589	8605 _{5/2} ° - 30101 _{7/2} °	4601.952	2	50	21723.823	24982 _{7/2} ° - 46706 _{7/2} °
4650.757	2	75	21495.857	25414 _{11/2} ° - 46910 _{13/2} °					

TABLE 3. Classified lines of Th II—Continued

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
4599.522	2	5	21735.300	17722 ^o _{9/2} - 39458 ^o _{7/2}	4556.806	2	10	21939.046	14101 ^o _{1/2} - 36040 _{1/2}
4599.353	8	10	21736.099	13250 ^o _{5/2} - 34986 ^o _{3/2}	4555.063	2	50	21947.441	21297 ^o _{5/2} - 43244 ^o _{3/2}
4598.055	1	5	21742.235	17121 ^o _{3/2} - 38863 ^o _{5/2}	4554.792	3	75	21948.747	24757 ^o _{9/2} - 46706 ^o _{7/2}
4597.915	1	50	21742.897	30564 ^o _{1/2} - 52307 ^o _{3/2}	4554.657	2	50	21949.397	21297 ^o _{5/2} - 43246 ^o _{7/2}
4597.357	1	3	21745.536	17121 ^o _{3/2} - 38867 ^o _{1/2}	4554.565	3	25	21949.840	18973 ^o _{7/2} - 40923 ^o _{5/2}
4596.937	1	5	21747.522	25188 ^o _{3/2} - 46935 ^o _{3/2}	4554.082	3	10	21952.169	9400 ^o _{5/2} - 31353 ^o _{3/2}
4594.749	1	3	21757.878	18816 ^o _{13/2} - 40574 ^o _{11/2}	4553.837	4	100	21953.350	16564 ^o _{11/2} - 38517 ^o _{13/2}
4593.979	3	75	21761.525	20989 ^o _{9/2} - 42751 ^o _{7/2}	4553.162	2	15	21956.604	22139 ^o _{9/2} - 44096 ^o _{9/2}
4593.553	5	75	21763.543	16818 ^o _{7/2} - 38581 ^o _{5/2}	4553.118	2	40	21956.816	34726 ^o _{7/2} - 56683 ^o _{7/2}
4593.283	3	200	21764.822	22685 ^o _{7/2} - 44450 ^o _{9/2}	4553.027	3b	200	21957.255	16906 ^o _{7/2} - 38863 ^o _{5/2}
4592.781	8	25	21767.201	27357 ^o _{9/2} - 49124 ^o _{11/2}	4552.359	2	20	21960.477	25188 ^o _{3/2} - 47148 ^o _{3/2}
4589.835	2	100	21781.172	17771 ^o _{11/2} - 39552 ^o _{9/2}	4551.541	3	20	21964.423	26647 ^o _{13/2} - 48612 ^o _{13/2}
4589.667	50b	150	21781.970	12488 ^o _{9/2} - 34270 ^o _{9/2}	4551.205	1	8	21966.045	20989 ^o _{9/2} - 42955 ^o _{9/2}
4589.445	1	3	21783.023	14545 ^o _{5/2} - 36328 ^o _{3/2}	4550.429	2	4	21969.791	15786 ^o _{5/2} - 37756 ^o _{7/2}
4589.121	20	200	21784.561	12485 ^o _{7/2} - 34270 ^o _{9/2}	4550.377	1	4	21970.042	19912 ^o _{13/2} - 41882 ^o _{13/2}
4588.226	10	300	21788.810	16033 ^o _{5/2} - 37821 ^o _{3/2}	4546.832	25	15	21987.171	13468 ^o _{9/2} - 35456 ^o _{9/2}
4587.756	20	75	21791.043	12488 ^o _{9/2} - 34279 ^o _{7/2}	4546.132	10	40	21990.556	22513 ^o _{5/2} - 44503 ^o _{7/2}
4587.209	3	50	21793.641	12485 ^o _{7/2} - 34279 ^o _{7/2}	4545.824	2	25	21992.046	12219 ^o _{3/2} - 34212 ^o _{5/2}
4586.620	3	75	21796.440	17272 ^o _{9/2} - 39068 ^o _{7/2}	4545.348	3b	3	21994.349	13406 ^o _{13/2} - 35400 ^o _{13/2}
4586.267	4	200	21798.117	24757 ^o _{3/2} - 46555 ^o _{11/2}	4545.270	2	4	21994.727	10855 ^o _{7/2} - 32850 ^o _{5/2}
4586.061	50b	50	21799.097	21297 ^o _{5/2} - 43096 ^o _{5/2}	4544.895	8	15	21996.541	1521 ^o _{5/2} - 23518 ^o _{7/2}
4584.368	8	200	21807.147	12472 ^o _{5/2} - 34279 ^o _{7/2}	4544.512	150	200	21998.395	4490 ^o _{5/2} - 26488 ^o _{5/2}
4584.159	1	5	21808.141	22642 ^o _{9/2} - 44450 ^o _{9/2}	4543.208	4	20	22004.709	10572 ^o _{9/2} - 32576 ^o _{7/2}
4583.654	2	40	21810.544	15242 ^o _{9/2} - 37053 ^o _{11/2}	4542.427	2	15	22008.493	18214 ^o _{3/2} - 40222 ^o _{3/2}
4582.778	2	50	21814.712	15786 ^o _{5/2} - 37601 ^o _{3/2}	4541.615	3	40	22012.427	15453 ^o _{7/2} - 37465 ^o _{5/2}
4582.436	3	50	21816.341	22834 ^o _{7/2} - 44650 ^o _{7/2}	4541.204	4	10	22014.420	7331 ^o _{5/2} - 29345 ^o _{5/2}
4581.815	1	1	21819.297	27249 ^o _{7/2} - 49068 ^o _{5/2}	4540.403	40	200	22018.303	14790 ^o _{7/2} - 36809 ^o _{7/2}
4581.581	20	200	21820.412	15242 ^o _{9/2} - 37063 ^o _{9/2}	4540.087	4	15	22019.836	27357 ^o _{9/2} - 49377 ^o _{7/2}
4581.229	25b	150	21822.088	16906 ^o _{7/2} - 38728 ^o _{5/2}	4538.844	4	25	22025.866	20310 ^o _{5/2} - 42336 ^o _{5/2}
4580.758	2	15	21824.332	15453 ^o _{7/2} - 37277 ^o _{7/2}	4538.182	1	2	22029.079	17121 ^o _{3/2} - 39150 ^o _{3/2}
4579.292	3	75	21831.319	15710 ^o _{3/2} - 37542 ^o _{3/2}	4537.072	20	200	22034.468	15242 ^o _{9/2} - 37277 ^o _{7/2}
4578.995	3	25	21832.735	20686 ^o _{5/2} - 42518 ^o _{7/2}	4536.427	1	4	22037.601	22139 ^o _{9/2} - 44177 ^o _{11/2}
4575.425	10	200	21849.770	14275 ^o _{9/2} - 36125 ^o _{9/2}	4535.708	2b	5	22041.094	14349 ^o _{1/2} - 36390 ^o _{3/2}
4573.703	25	150	21857.996	6168 ^o _{7/2} - 28026 ^o _{5/2}	4534.117	75	200	22048.828	10572 ^o _{9/2} - 32620 ^o _{11/2}
4572.935	1	8	21861.667	22642 ^o _{3/2} - 44503 ^o _{7/2}	4533.302	50	300	22052.792	9720 ^o _{7/2} - 31773 ^o _{9/2}
4570.614	2	75	21872.768	19050 ^o _{3/2} - 40923 ^o _{5/2}	4533.240	50	40b	22053.094	16564 ^o _{11/2} - 38617 ^o _{9/2}
4569.812	2	5	21876.607	23518 ^o _{7/2} - 45395 ^o _{7/2}	4532.430	3	50	22057.035	9202 ^o _{7/2} - 31259 ^o _{5/2}
4568.236	2	10	21884.154	25440 ^o _{5/2} - 47324 ^o _{5/2}	4532.256	50	300	22057.882	12485 ^o _{9/2} - 34543 ^o _{5/2}
4566.650	20	200	21891.754	7828 ^o _{1/2} - 29720 ^o _{3/2}	4531.713	8	300	22060.525	13818 ^o _{7/2} - 35878 ^o _{7/2}
4566.282	1	50	21893.519	29788 ^o _{9/2} - 51681 ^o _{9/2}	4531.611	2	10	22061.021	20158 ^o _{5/2} - 42219 ^o _{5/2}
4566.247	2		21893.686	15236 ^o _{3/2} - 37130 ^o _{1/2}	4531.196	3b	50	22063.042	10673 ^o _{5/2} - 32736 ^o _{7/2}
4564.178	15	200	21903.611	10673 ^o _{5/2} - 32576 ^o _{7/2}	4530.656	1	1	22065.671	12488 ^o _{9/2} - 34553 ^o _{9/2}
4563.727	3	8	21905.775	26586 ^o _{3/2} - 48492 ^o _{5/2}	4529.484	4	200	22071.381	12472 ^o _{5/2} - 34543 ^o _{5/2}
4563.291	50	500b	21907.868	18816 ^o _{13/2} - 40724 ^o _{13/2}	4529.376	2	3	22071.907	16033 ^o _{5/2} - 38105 ^o _{5/2}
4563.219	10	300	21908.214	23187 ^o _{3/2} - 45095 ^o _{15/2}	4528.973	3	50	22073.871	8378 ^o _{7/2} - 30452 ^o _{9/2}
4562.632	2	5	21911.032	9061 ^o _{5/2} - 30972 ^o _{5/2}	4528.409	2	50	22076.620	13468 ^o _{9/2} - 35545 ^o _{9/2}
4562.565	2	15	21911.354	20310 ^o _{5/2} - 42222 ^o _{7/2}	4527.710	2b	150	22080.028	17272 ^o _{9/2} - 39352 ^o _{11/2}
4562.439	3	25	21911.959	16033 ^o _{5/2} - 37945 ^o _{5/2}	4526.028	4	50	22088.234	9711 ^o _{7/2} - 31800 ^o _{7/2}
4560.394	3	10	21921.785	7001 ^o _{3/2} - 28923 ^o _{5/2}	4525.090	10	200	22092.812	11116 ^o _{7/2} - 33209 ^o _{7/2}
4558.029	2	10	21933.159	9061 ^o _{5/2} - 30994 ^o _{7/2}	4524.838	25	150	22094.043	7001 ^o _{3/2} - 29095 ^o _{5/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
4524.560	1	2	22095.400	14349 _{1/2} ° - 36444 _{3/2} °	4471.978	8	20	22355.196	0 _{3/2} ° - 22355 _{1/2} °
4524.432	1	2	22096.025	21131 _{3/2} ° - 43227 _{5/2} °	4471.764	2	200	22356.266	16033 _{5/2} ° - 38389 _{7/2} °
4522.783	2	150	22104.081	24757 _{9/2} ° - 46861 _{11/2} °					20288 _{1/2} ° - 42644 _{13/2} °
4521.458	1	5	22110.559	12219 _{3/2} ° - 34330 _{1/2} °	4470.005	2	75	22365.063	15236 _{1/2} ° - 37601 _{3/2} °
				17837 _{1/2} ° - 39948 _{1/2} °	4469.754	2	3	22366.319	8605 _{5/2} ° - 30972 _{5/2} °
4520.949	2	75	22113.048	21131 _{3/2} ° - 43244 _{3/2} °	4465.931	2	2	22385.465	22513 _{5/2} ° - 44898 _{7/2} °
4520.034	3	15	22117.524	24463 _{5/2} ° - 46581 _{5/2} °	4465.341	200	200	22388.423	8605 _{5/2} ° - 30994 _{7/2} °
4519.621	1	2	22119.546	20080 _{7/2} ° - 42200 _{9/2} °	4463.190	2	20	22399.213	9400 _{5/2} ° - 31800 _{7/2} °
4518.636	3b	100	22124.367	25607 _{9/2} ° - 47731 _{9/2} °	4463.080	1	25	22399.765	25607 _{9/2} ° - 48006 _{9/2} °
				17771 _{11/2} ° - 39895 _{9/2} °	4461.705	4	200	22406.668	18816 _{13/2} ° - 41223 _{11/2} °
4517.036	4b	200	22132.204	24132 _{3/2} ° - 46264 _{3/2} °	4461.125	4	150	22409.581	9400 _{5/2} ° - 31810 _{5/2} °
				16033 _{5/2} ° - 38165 _{7/2} °	4461.065	4	200	22409.882	13468 _{9/2} ° - 35878 _{7/2} °
4512.483	8	200	22154.535	11576 _{3/2} ° - 33730 _{5/2} °	4457.082	2	4	22429.908	18214 _{3/2} ° - 40644 _{5/2} °
4510.946	2	3	22162.083	16906 _{7/2} ° - 39068 _{7/2} °	4456.708	4	150	22431.790	10189 _{11/2} ° - 32620 _{11/2} °
4510.526	200	600	22164.147	10572 _{5/2} ° - 32736 _{7/2} °	4455.715	2	100	22436.789	15242 _{5/2} ° - 37679 _{11/2} °
4509.581	2		22168.791	9585 _{5/2} ° - 31754 _{5/2} °	4455.576	3	2	22437.489	28587 _{5/2} ° - 51024 _{3/2} °
4508.841	1	2	22172.429	17722 _{9/2} ° - 39895 _{9/2} °	4455.424	2	2	22438.255	20080 _{7/2} ° - 42518 _{7/2} °
4508.639	1	2	22173.423	12488 _{5/2} ° - 34661 _{11/2} °	4455.294	5	20	22438.909	19880 _{9/2} ° - 42319 _{5/2} °
4508.163	5	40	22175.764	1521 _{5/2} ° - 23697 _{7/2} °	4455.045	3	200	22440.164	19248 _{5/2} ° - 41688 _{7/2} °
4506.071	2	2	22186.059	17272 _{9/2} ° - 39458 _{7/2} °	4455.005	2	10	22440.365	20310 _{5/2} ° - 42751 _{7/2} °
4498.108	1	1	22225.335	15349 _{11/2} ° - 37575 _{13/2} °	4454.513	8	300	22442.844	11576 _{3/2} ° - 34019 _{3/2} °
4496.315	8	200	22234.197	19912 _{13/2} ° - 42146 _{11/2} °	4452.791	1	8	22451.522	15305 _{9/2} ° - 37756 _{7/2} °
4495.489	3	100	22238.282	12488 _{9/2} ° - 34726 _{7/2} °	4451.268	5	4	22459.204	23187 _{13/2} ° - 45646 _{15/2} °
4495.241	3	150	22239.509	17983 _{5/2} ° - 40222 _{3/2} °	4451.051	2	100	22460.299	16906 _{7/2} ° - 39366 _{5/2} °
4494.964	4	200	22240.880	12485 _{7/2} ° - 34726 _{7/2} °	4448.555	5	100	22472.901	4113 _{5/2} ° - 26586 _{3/2} °
4494.076	4	40	22245.274	17121 _{3/2} ° - 39366 _{5/2} °	4448.133	1	2	22475.033	21297 _{5/2} ° - 43772 _{5/2} °
4493.651	1	2	22247.378	13818 _{7/2} ° - 36065 _{5/2} °	4447.834	100	400	22476.544	6244 _{1/2} ° - 28720 _{3/2} °
4492.236	4	200	22254.386	12472 _{5/2} ° - 34726 _{7/2} °	4447.787	8	20	22476.781	26647 _{13/2} ° - 49124 _{11/2} °
4491.884	2	100	22256.130	20080 _{7/2} ° - 42336 _{5/2} °	4444.987	4	150	22490.940	15349 _{11/2} ° - 37840 _{9/2} °
4491.708	2	100	22257.002	20989 _{9/2} ° - 43246 _{7/2} °	4443.086	20	300	22500.562	8378 _{7/2} ° - 30879 _{7/2} °
4491.378	2	100	22258.637	16033 _{5/2} ° - 38291 _{7/2} °	4442.370	1	15	22504.189	22685 _{7/2} ° - 45189 _{5/2} °
4490.354	2	50	22263.713	14545 _{5/2} ° - 36809 _{7/2} °	4441.905	2	25	22506.545	21297 _{5/2} ° - 43803 _{7/2} °
4490.198	2	150	22264.486	15305 _{9/2} ° - 37569 _{9/2} °	4440.866	200	200	22511.810	8460 _{3/2} ° - 30972 _{5/2} °
4489.611	2	2	22267.397	29095 _{5/2} ° - 51362 _{5/2} °	4440.574	150	200	22513.291	0 _{3/2} ° - 22513 _{5/2} °
4489.527	2	40	22267.814	11116 _{7/2} ° - 33384 _{9/2} °	4439.124	150	400	22520.644	11116 _{7/2} ° - 33637 _{7/2} °
4488.678	100	500	22272.026	4490 _{5/2} ° - 26762 _{3/2} °	4437.722	20	20	22527.759	9400 _{5/2} ° - 31928 _{5/2} °
4488.628	3	20	22272.274	14790 _{7/2} ° - 37063 _{9/2} °	4436.553	75	8	22533.695	14275 _{5/2} ° - 36809 _{7/2} °
4487.495	100	300	22277.897	4146 _{7/2} ° - 26424 _{5/2} °	4436.375	1	8	22534.599	22355 _{1/2} ° - 44889 _{3/2} °
4486.631	15	300	22282.187	18816 _{13/2} ° - 41099 _{15/2} °	4436.286	50	200	22535.051	9238 _{9/2} ° - 31773 _{9/2} °
4485.795	8	200	22286.340	10673 _{5/2} ° - 32959 _{3/2} °	4436.145	1	15	22535.767	18118 _{3/2} ° - 40654 _{5/2} °
4484.291	4	75	22293.814	11725 _{1/2} ° - 34019 _{3/2} °	4436.049	20	200	22536.255	10673 _{5/2} ° - 33209 _{7/2} °
4484.235	2	2	22294.092	23012 _{5/2} ° - 45306 _{3/2} °	4434.829	4	50	22542.455	7331 _{5/2} ° - 29873 _{7/2} °
4484.106	2	25	22294.734	17983 _{5/2} ° - 40278 _{3/2} °	4434.516	1	5	22544.046	22106 _{5/2} ° - 44650 _{7/2} °
4481.640	3	150	22307.001	13818 _{7/2} ° - 36125 _{9/2} °	4434.332	4	75	22544.981	15242 _{9/2} ° - 37787 _{7/2} °
4481.178	2	150	22309.301	18214 _{3/2} ° - 40523 _{1/2} °	4433.723	2	75	22548.078	23187 _{13/2} ° - 45735 _{11/2} °
4480.909	2	2	22310.640	22139 _{9/2} ° - 44450 _{9/2} °	4432.962	500	800	22551.948	9202 _{7/2} ° - 31754 _{5/2} °
4479.158	3	150	22319.362	15242 _{9/2} ° - 37562 _{11/2} °	4432.420	2	4	22554.706	1859 _{3/2} ° - 24414 _{3/2} °
4474.073	20	200	22344.728	13248 _{9/2} ° - 35593 _{5/2} °	4431.628	1	5	22558.737	20686 _{5/2} ° - 43244 _{3/2} °
4472.275	5	200	22353.711	13248 _{9/2} ° - 35602 _{11/2} °	4429.594	3	75	22569.095	14484 _{11/2} ° - 37053 _{11/2} °
4472.105	1	1	22354.561	18973 _{7/2} ° - 41328 _{5/2} °	4429.258	50	100	22570.807	9202 _{7/2} ° - 31773 _{9/2} °

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
4427.786	4	50	22578.311	10379 _{9/2} - 32957 _{7/2}	4396.477	75	300	22739.097	9061 _{5/2} - 31800 _{7/2}
4427.655	50	300	22578.979	17121 _{3/2} - 39700 _{5/2}	4394.894	100	300	22747.287	8605 _{5/2} - 31353 _{3/2}
4426.050	1	50	22587.166	14484 _{11/2} - 37063 _{9/2}	4393.059	40l	400	22756.788	26770 _{11/2} - 49527 _{13/2}
4425.983	8	200	22587.508	29720 _{3/2} - 52307 _{3/2}	4392.611	1	8	22759.109	22139 _{9/2} - 44898 _{7/2}
4425.114	2	25	22591.944	26770 _{11/2} - 49357 _{11/2}	4391.110	600	1000	22766.889	4490 _{5/2} - 27257 _{7/2}
4423.933	25b	50b	22597.975	25414 _{11/2} - 48006 _{9/2}	4390.580	1	50	22769.637	29095 _{5/2} - 51865 _{5/2}
4423.903	20b	40b	22598.128	15242 _{9/2} - 37840 _{9/2}	4390.409	2	15	22770.524	24132 _{3/2} - 46902 _{5/2}
4422.781	50	100	22603.861	11576 _{3/2} - 34174 _{5/2}	4389.438	1	1	22775.561	28587 _{5/2} - 51362 _{5/2}
4421.831	5	100	22608.717	1859 _{3/2} - 24463 _{5/2}	4388.999	3	3	22777.839	14275 _{9/2} - 37053 _{11/2}
				30310 _{11/2} - 52918 _{13/2}	4388.402	10	150	22780.938	14349 _{1/2} - 37130 _{1/2}
4421.664	1	5	22609.571	15236 _{3/2} - 37846 _{5/2}	4387.502	2	50	22785.611	20310 _{5/2} - 43096 _{5/2}
4421.544	400l	200	22610.184	1521 _{5/2} - 24132 _{5/2}	4387.479	3	3	22785.730	20158 _{5/2} - 42944 _{7/2}
4420.737	5	4	22614.312	11116 _{7/2} - 33730 _{5/2}	4387.104	5	100	22787.678	16564 _{11/2} - 39352 _{11/2}
4419.322	2	10	22621.552	23730 _{9/2} - 46352 _{7/2}	4386.107	2	2	22792.857	22513 _{5/2} - 45306 _{3/2}
4419.006	5	200	22623.170	17272 _{9/2} - 39895 _{9/2}	4384.019	5	5	22803.713	17771 _{11/2} - 40574 _{11/2}
4418.661	40	200	22624.936	16818 _{7/2} - 39443 _{9/2}	4383.933	1	3	22804.160	36812 _{1/2} - 59616 _{3/2}
4416.236	100	300	22637.360	10572 _{9/2} - 33209 _{7/2}	4382.007	2	2	22814.183	20989 _{9/2} - 43803 _{7/2}
4415.592	3	10h	22640.662	21131 _{3/2} - 43772 _{5/2}	4381.860	800	1000	22814.949	6700 _{9/2} - 29515 _{9/2}
4414.853	1	8	22644.451	17722 _{9/2} - 40367 _{9/2}	4381.402	75	200	22817.333	4146 _{7/2} - 26963 _{7/2}
4414.623	15	200	22645.631	16906 _{7/2} - 39552 _{9/2}	4380.144	2	2	22823.887	19594 _{1/2} - 42418 _{3/2}
4413.373	5b	150	22652.045	15453 _{7/2} - 38105 _{5/2}	4379.941	2	1	22824.944	23730 _{9/2} - 46555 _{11/2}
4412.891	100	200	22654.519	6691 _{3/2} - 29345 _{5/2}	4379.587	3	8	22826.789	17121 _{3/2} - 39948 _{1/2}
4412.797	50	100	22655.001	22834 _{7/2} - 45489 _{9/2}	4378.957	3	4	22830.073	15349 _{11/2} - 38179 _{9/2}
4412.739	300	400	22655.299	6168 _{7/2} - 28823 _{5/2}	4378.833	4	15	22830.720	16033 _{5/2} - 38863 _{5/2}
4412.533	50b	400b	22656.357	13468 _{9/2} - 36125 _{9/2}	4377.313	40	200	22838.647	20288 _{11/2} - 43127 _{11/2}
4411.641	3	50	22660.938	17983 _{5/2} - 40644 _{5/2}	4377.261	3	25	22838.919	12902 _{3/2} - 35741 _{5/2}
4410.488	20	200	22666.862	17272 _{9/2} - 39939 _{11/2}	4375.588	10	100	22847.651	17722 _{9/2} - 40570 _{7/2}
4410.410	5	200	22667.263	20288 _{11/2} - 42955 _{9/2}	4375.022	8	15	22850.607	4113 _{5/2} - 26963 _{7/2}
4409.005	15	50	22674.486	14790 _{7/2} - 37465 _{5/2}	4374.785	150	400	22851.845	4113 _{5/2} - 26965 _{3/2}
4408.769	1	8	22675.700	21131 _{3/2} - 43807 _{3/2}	4373.901	100	200	22856.463	9720 _{7/2} - 32576 _{7/2}
4407.510	1	4	22682.177	27787 _{9/2} - 50470 _{9/2}	4372.814	2	20	22862.145	24309 _{11/2} - 47171 _{9/2}
4406.997	1	8	22684.817	24463 _{5/2} - 47148 _{3/2}	4371.767	4	4	22867.620	9061 _{5/2} - 31928 _{3/2}
4406.785	2	20	22685.908	17837 _{1/2} - 40523 _{1/2}	4370.773	4	2	22872.820	34019 _{3/2} - 56892 _{5/2}
4406.429	2	50	22687.741	23697 _{7/2} - 46385 _{7/2}	4370.011	4	2	22876.809	33209 _{7/2} - 56086 _{9/2}
4406.329	1	10	22688.256	19248 _{5/2} - 41936 _{3/2}	4369.317	50b	200b	22880.442	33354 _{5/2} - 56235 _{3/2}
4405.724	1	25	22691.371	25607 _{9/2} - 48298 _{7/2}					8378 _{7/2} - 31259 _{5/2}
4404.917	2	25	22695.529	16033 _{5/2} - 38728 _{5/2}	4369.061	5	20	22881.783	22513 _{5/2} - 45395 _{7/2}
4402.736	4	100	22706.771	15786 _{5/2} - 38493 _{5/2}	4368.706	2	2	22883.642	23697 _{7/2} - 46581 _{5/2}
4401.992	2	25	22710.609	14101 _{1/2} - 36812 _{1/2}	4368.314	1	1	22885.695	19050 _{3/2} - 41936 _{3/2}
4401.658	10	200	22712.332	15453 _{7/2} - 38165 _{7/2}	4366.961	75	50	22892.786	8460 _{3/2} - 31353 _{3/2}
4401.209	3	100	22714.649	18973 _{7/2} - 41688 _{7/2}	4364.187	2	25	22907.337	28923 _{5/2} - 51830 _{7/2}
4401.050	1	8	22715.470	22106 _{5/2} - 44821 _{5/2}	4362.361	5	25	22916.925	20310 _{5/2} - 43227 _{5/2}
4400.646	1	2	22717.555	34174 _{5/2} - 56892 _{5/2}	4361.792	10	100	22919.915	14545 _{5/2} - 37465 _{5/2}
4400.384	20	150	22718.908	7001 _{3/2} - 29720 _{3/2}	4361.307	100l	200	22922.464	15242 _{9/2} - 38165 _{7/2}
4399.093	10	300	22725.575	20288 _{11/2} - 43014 _{13/2}	4359.804	1	1	22930.366	37063 _{9/2} - 59993 _{7/2}
4398.837	1	5	22726.897	15453 _{7/2} - 38179 _{9/2}	4359.127	5	25	22933.927	20310 _{5/2} - 43244 _{3/2}
4398.020	1	25	22731.119	24414 _{3/2} - 47145 _{1/2}	4358.815	5	40	22935.569	18973 _{7/2} - 41909 _{9/2}
4397.914	75	300	22731.667	6700 _{9/2} - 29431 _{7/2}	4358.668	4	4	22936.342	15453 _{7/2} - 38389 _{7/2}
4397.752	2	1	22732.504	19912 _{13/2} - 42644 _{13/2}	4358.549	50s	100	22936.968	12219 _{3/2} - 35156 _{5/2}
4397.260	1	15	22735.048	29095 _{5/2} - 51830 _{7/2}	4357.928	2	2	22940.237	17983 _{5/2} - 40923 _{5/2}
									37053 _{11/2} - 59993 _{9/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
4357.614	100b	150	22941.890	1521 _{5/2} - 24463 _{5/2}	4327.228	50	75	23102.986	4146 _{7/2} - 27249 _{7/2}
4357.074	4	8	22944.733	13248 _{9/2} - 36193 _{9/2}	4327.091	25	75	23103.717	4490 _{5/2} - 27593 _{5/2}
4355.911	2	8	22950.859	17460 _{5/2} - 40411 _{7/2}	4326.576	2	2	23106.467	20989 _{9/2} - 44096 _{9/2}
4355.320	100	300	22953.973	8018 _{3/2} - 30972 _{5/2}	4326.341	2	5	23107.722	20120 _{5/2} - 43227 _{5/2}
4353.405	75b	200	22964.070	10673 _{5/2} - 33637 _{7/2}	4326.179	3	8	23108.588	18568 _{1/2} - 41676 _{3/2}
4352.818	40	75	22967.167	11576 _{5/2} - 34543 _{5/2}	4325.920	2		23109.971	17460 _{5/2} - 40570 _{7/2}
4352.677	50	200	22967.911	12488 _{9/2} - 35456 _{9/2}	4325.663	2		23111.344	22014 _{11/2} - 45126 _{9/2}
4352.182	5	10	22970.523	36328 _{3/2} - 59299 _{5/2}	4325.189	2		23113.877	24757 _{9/2} - 47871 _{7/2}
4351.073	3		22976.378	20120 _{5/2} - 43096 _{5/2}	4324.958	4		23115.112	22106 _{5/2} - 45221 _{5/2}
					4324.442	4	4	23117.870	20686 _{5/2} - 43803 _{7/2}
4350.572	4	8	22979.024	12219 _{3/2} - 35198 _{1/2}	4323.165	1		23124.698	20120 _{5/2} - 43244 _{3/2}
4348.943	4s	8	22987.631	16564 _{11/2} - 39552 _{9/2}	4323.043	8	25	23125.351	15710 _{3/2} - 38836 _{3/2}
4348.713	3		22988.847	16906 _{7/2} - 39895 _{9/2}	4322.788	1	1	23126.715	20120 _{5/2} - 43246 _{7/2}
4348.312	20	40	22990.967	13818 _{7/2} - 36809 _{7/2}	4322.386	2	1	23128.866	20158 _{5/2} - 43287 _{3/2}
4348.236	5	8	22991.368	9585 _{5/2} - 32576 _{7/2}	4322.001	3	10	23130.926	23730 _{9/2} - 46861 _{11/2}
4347.430	1		22995.631	24873 _{5/2} - 47869 _{3/2}	4321.012	8	20	23136.220	4113 _{5/2} - 27249 _{7/2}
4347.239	25h	200	22996.641	26963 _{7/2} - 49960 _{7/2}	4320.657	3	20	23138.121	9711 _{7/2} - 32850 _{5/2}
4347.193	20	200	22996.885	14790 _{7/2} - 37787 _{7/2}	4320.590	50	300	23138.480	12902 _{3/2} - 36040 _{1/2}
4347.092	1		22997.419	24873 _{5/2} - 47871 _{7/2}	4320.449	5	200	23139.235	17272 _{9/2} - 40411 _{7/2}
4346.262	5	15	23001.811	14275 _{9/2} - 37277 _{7/2}	4320.126	200	500	23140.965	4490 _{5/2} - 27631 _{3/2}
4345.052	10	40	23008.216	17983 _{5/2} - 40991 _{3/2}	4319.097	10	300	23146.478	15242 _{9/2} - 38389 _{7/2}
4344.984	3	20	23008.576	23697 _{5/2} - 46706 _{7/2}	4318.959	2	50	23147.218	20080 _{7/2} - 43227 _{5/2}
4344.326	400	300	23012.061	0 _{3/2} - 23012 _{3/2}	4318.293	50	300	23150.787	9585 _{5/2} - 32736 _{7/2}
4343.951	200	300	23014.048	1859 _{3/2} - 24873 _{5/2}	4317.756	2	8	23153.667	11116 _{7/2} - 34270 _{9/2}
4343.602	50	200	23015.897	30994 _{7/2} - 54010 _{7/2}	4317.670	2	10	23154.128	14790 _{7/2} - 37945 _{5/2}
				9720 _{7/2} - 32736 _{7/2}	4317.222	3	20	23156.531	17121 _{3/2} - 40278 _{3/2}
4343.238	10	20	23017.826	15710 _{3/2} - 38728 _{5/2}	4315.946	25	100	23163.377	12902 _{3/2} - 36065 _{5/2}
4342.255	100	200	23023.036	12570 _{7/2} - 35593 _{7/2}	4315.706	4	25	23164.665	15453 _{7/2} - 38617 _{9/2}
4341.992	1		23024.431	24982 _{7/2} - 48006 _{9/2}	4315.579	4	8	23165.347	8460 _{3/2} - 31625 _{1/2}
4341.030	50	300	23029.533	23187 _{13/2} - 46216 _{11/2}	4314.010	5	8	23173.771	6700 _{9/2} - 29873 _{7/2}
4339.650	4h	8	23036.856	12488 _{9/2} - 35525 _{11/2}	4313.308	15	50	23177.543	6168 _{7/2} - 29345 _{5/2}
4338.383	4	10	23043.584	16818 _{7/2} - 39861 _{5/2}	4312.156	3	5	23183.735	17460 _{5/2} - 40644 _{5/2}
4337.860	5	10	23046.362	15710 _{3/2} - 38757 _{3/2}	4310.644	2	40	23191.867	23187 _{13/2} - 46378 _{13/2}
4337.384	100	800	23048.891	15242 _{9/2} - 38291 _{7/2}	4310.550	1		23192.372	24132 _{3/2} - 47324 _{5/2}
4336.494	3		23053.621	30956 _{9/2} - 54010 _{7/2}	4310.179	5	25	23194.369	8605 _{5/2} - 31800 _{7/2}
4335.797	50	200	23057.327	12488 _{9/2} - 35545 _{9/2}	4309.991	100	800	23195.380	14484 _{11/2} - 37679 _{11/2}
4335.687	25b	200b	23057.912	11116 _{7/2} - 34174 _{5/2}				10189 _{11/2} - 33384 _{9/2}	
4335.312	25b	200	23059.907	12485 _{7/2} - 35545 _{9/2}	4309.215	1		23199.557	15236 _{3/2} - 38436 _{3/2}
4334.316	5	5	23065.206	10572 _{9/2} - 33637 _{7/2}	4308.255	8	15	23204.727	8605 _{5/2} - 31810 _{5/2}
4334.254	5	5	23065.536	18816 _{13/2} - 41882 _{13/2}	4307.956	2	10	23206.337	21297 _{5/2} - 44503 _{7/2}
4333.933	50	150	23067.244	22028 _{15/2} - 45095 _{15/2}	4306.365	200b	200b	23214.911	19912 _{13/2} - 43127 _{11/2}
4331.924	75l	200	23077.942	14484 _{11/2} - 37562 _{11/2}	4306.159	1	5	23216.021	21682 _{7/2} - 44898 _{7/2}
4330.351	2		23086.325	20686 _{5/2} - 43772 _{5/2}	4305.328	2	100	23220.502	27249 _{7/2} - 50470 _{9/2}
4329.907	3	10	23088.692	28587 _{5/2} - 51676 _{3/2}	4304.070	2	5	23227.289	15144 _{3/2} - 38372 _{3/2}
4329.489	40	100	23090.921	14484 _{11/2} - 37575 _{13/2}	4302.109	2	40	23237.876	25607 _{9/2} - 48844 _{9/2}
4329.107	10	50	23092.959	22642 _{9/2} - 45735 _{11/2}	4301.280	3	10	23242.355	14545 _{5/2} - 37787 _{7/2}
4328.686	40	100	23095.205	17272 _{9/2} - 40367 _{9/2}	4300.793	8	150	23244.987	13818 _{7/2} - 37063 _{9/2}
4328.286	15	50	23097.339	22513 _{5/2} - 45610 _{5/2}	4300.700	2	3	23245.489	9711 _{7/2} - 32957 _{7/2}
4327.546	5	50	23101.288	17121 _{3/2} - 40222 _{3/2}	4300.135	2	10	23248.544	18973 _{7/2} - 42222 _{7/2}
4327.448	4	50	23101.811	19912 _{13/2} - 43014 _{13/2}	4299.435	3	50	23252.329	14349 _{1/2} - 37601 _{3/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
4298.891	25	50	23255.271	21297 ^o _{5/2} - 44552 ^o _{5/2}	4271.546	3	20	23404.141	14275 ^o _{9/2} - 37679 ^o _{11/2}
4298.826	20	200b	23255.623	12485 ^o _{7/2} - 35741 ^o _{5/2}	4271.240	3	50	23405.818	24463 ^o _{5/2} - 47869 ^o _{3/2}
4298.283	1		23258.560	14349 ^o _{1/2} - 37607 ^o _{1/2}	4271.103	40b	200	23406.568	1859 ^o _{3/2} - 25266 ^o _{1/2}
4297.365	25b	75	23263.529	6168 ^o _{7/2} - 29431 ^o _{7/2}	4271.084	20b		23406.672	12472 ^o _{5/2} - 35878 ^o _{7/2}
4296.580	3	10	23267.779	15349 ^o _{11/2} - 38617 ^o _{9/2}	4270.911	1	10	23407.620	24463 ^o _{5/2} - 47871 ^o _{7/2}
4295.125	8	100	23275.661	15453 ^o _{7/2} - 38728 ^o _{5/2}	4270.326	50	200	23410.827	15453 ^o _{7/2} - 38863 ^o _{5/2}
4295.035	20		23276.149	17771 ^o _{11/2} - 41047 ^o _{9/2}	4267.716	4	15	23425.144	16033 ^o _{5/2} - 39458 ^o _{7/2}
4293.218	1		23286.000	19050 ^o _{3/2} - 42336 ^o _{5/2}	4267.518	20	50	23426.231	12902 ^o _{3/2} - 36328 ^o _{3/2}
4293.089	1	3	23286.700	14275 ^o _{9/2} - 37562 ^o _{11/2}	4267.381	2	5	23426.983	11116 ^o _{7/2} - 34543 ^o _{5/2}
4292.509	10b	8	23289.846	4113 ^o _{5/2} - 27403 ^o _{3/2}	4266.823	1		23430.047	25414 ^o _{11/2} - 48844 ^o _{9/2}
4291.382	4	40	23295.962	11725 ^o _{1/2} - 35021 ^o _{3/2}	4265.661	1		23436.429	27787 ^o _{9/2} - 51224 ^o _{9/2}
4290.829	1		23298.965	33384 ^o _{9/2} - 56683 ^o _{7/2}	4265.488	8	15	23437.380	11116 ^o _{7/2} - 34553 ^o _{9/2}
4290.169	15	50	23302.549	17272 ^o _{9/2} - 40574 ^o _{11/2}	4265.034	5	25	23439.874	18568 ^o _{1/2} - 42008 ^o _{1/2}
4288.047	20	200	23314.080	14790 ^o _{7/2} - 38105 ^o _{5/2}	4264.943	5		23440.375	14101 ^o _{1/2} - 37542 ^o _{3/2}
4287.683	4	75	23316.059	24982 ^o _{7/2} - 48298 ^o _{7/2}	4264.374	4l	100	23443.502	21682 ^o _{7/2} - 45126 ^o _{9/2}
4286.699	5	200	23321.411	22834 ^o _{7/2} - 46155 ^o _{5/2}	4264.105	20	50	23444.981	11576 ^o _{5/2} - 35021 ^o _{3/2}
4286.187	15b	200b	23324.197	17722 ^o _{9/2} - 41047 ^o _{9/2}	4263.355	200	75	23449.105	9400 ^o _{3/2} - 32850 ^o _{5/2}
4285.450	3	8	23328.208	1859 ^o _{3/2} - 25188 ^o _{3/2}	4262.739	5	3	23452.494	17771 ^o _{11/2} - 41223 ^o _{11/2}
4285.181	15	200	23329.672	18816 ^o _{13/2} - 42146 ^o _{11/2}	4261.273	50	4	23460.562	1521 ^o _{7/2} - 24982 ^o _{7/2}
4284.975	50	200	23330.794	16564 ^o _{11/2} - 39895 ^o _{9/2}	4260.936	4		23462.418	18214 ^o _{3/2} - 41676 ^o _{3/2}
4284.927	3	5	23331.056	13250 ^o _{5/2} - 36581 ^o _{3/2}	4259.857	3		23468.360	8460 ^o _{3/2} - 31928 ^o _{3/2}
4284.514	10b	10	23333.305	13250 ^o _{5/2} - 36583 ^o _{7/2}	4258.828	2		23474.031	33209 ^o _{7/2} - 56683 ^o _{7/2}
4284.431	3	8	23333.756	16033 ^o _{5/2} - 39366 ^o _{5/2}	4258.466	3		23476.026	6244 ^o _{1/2} - 29720 ^o _{3/2}
4284.215	2	8	23334.933	8018 ^o _{3/2} - 31353 ^o _{3/2}	4256.094	50	10	23489.109	9720 ^o _{7/2} - 33209 ^o _{7/2}
4284.181	3	1	23335.118	13248 ^o _{9/2} - 36583 ^o _{7/2}	4254.739	1		23496.590	20310 ^o _{5/2} - 43807 ^o _{3/2}
4283.519	150	400	23338.724	9238 ^o _{7/2} - 32576 ^o _{7/2}	4254.451	75	8	23498.180	9238 ^o _{7/2} - 32736 ^o _{7/2}
4282.370	10l	200	23344.986	17983 ^o _{5/2} - 41328 ^o _{5/2}	4254.169	1		23499.738	30994 ^o _{7/2} - 54493 ^o _{5/2}
4282.042	300b	500b	23346.774	15236 ^o _{3/2} - 38581 ^o _{5/2}	4254.021	5		23500.555	17722 ^o _{5/2} - 41223 ^o _{11/2}
4281.758	2	2	23348.323	6168 ^o _{7/2} - 29515 ^o _{9/2}	4253.975	2		23500.810	14790 ^o _{7/2} - 38291 ^o _{7/2}
4281.416	150	400	23350.188	28587 ^o _{5/2} - 51935 ^o _{5/2}	4253.867	15	8	23501.406	10673 ^o _{5/2} - 34174 ^o _{5/2}
4281.068	200	500	23352.086	8460 ^o _{3/2} - 31810 ^o _{3/2}	4253.259	3b		23504.766	17983 ^o _{5/2} - 41488 ^o _{7/2}
4280.253	3	8	23356.532	1521 ^o _{5/2} - 24873 ^o _{5/2}	4253.239	2b		23504.876	16906 ^o _{7/2} - 40411 ^o _{7/2}
4280.221	5	8	23356.707	14484 ^o _{11/2} - 37840 ^o _{9/2}	4253.017	1		23506.103	26963 ^o _{7/2} - 50470 ^o _{9/2}
4278.507	5	50	23366.064	10855 ^o _{7/2} - 34212 ^o _{5/2}	4252.876	1		23506.883	21682 ^o _{7/2} - 45189 ^o _{5/2}
4278.110	1		23368.232	16818 ^o _{7/2} - 40184 ^o _{7/2}	4251.958	1		23511.957	15324 ^o _{1/2} - 38836 ^o _{3/2}
4277.313	600	500	23372.586	18568 ^o _{1/2} - 41936 ^o _{3/2}	4251.781	1		23512.936	15349 ^o _{11/2} - 38862 ^o _{11/2}
4277.039	40	100	23374.083	0 ^o _{3/2} - 23372 ^o _{5/2}	4251.592	2		23513.982	20989 ^o _{5/2} - 44503 ^o _{7/2}
4276.966	100l	300	23374.482	9585 ^o _{5/2} - 32959 ^o _{3/2}	4250.341	100b		23520.902	4490 ^o _{5/2} - 28011 ^o _{3/2}
4276.909	4		23374.794	16564 ^o _{11/2} - 39939 ^o _{11/2}	4250.014	1		23522.712	17121 ^o _{5/2} - 40644 ^o _{5/2}
4276.808	100	400	23375.346	9202 ^o _{7/2} - 32576 ^o _{7/2}	4249.969	3		23522.961	10379 ^o _{9/2} - 33902 ^o _{7/2}
4275.439	3	3	23382.830	15242 ^o _{9/2} - 38617 ^o _{9/2}	4249.678	75	10	23524.572	7828 ^o _{1/2} - 31353 ^o _{3/2}
4275.240	2		23383.919	8378 ^o _{7/2} - 31754 ^o _{5/2}	4247.989	150	100	23533.925	9202 ^o _{7/2} - 32736 ^o _{7/2}
4275.203	2		23384.121	9238 ^o _{9/2} - 32620 ^o _{11/2}	4247.598	50	5	23536.091	4490 ^o _{5/2} - 28026 ^o _{5/2}
4274.321	50		23388.947	23012 ^o _{3/2} - 46395 ^o _{3/2}	4246.363	3		23542.936	15324 ^o _{1/2} - 38867 ^o _{1/2}
4274.024	100	300	23390.572	23518 ^o _{7/2} - 46902 ^o _{5/2}	4244.824	2		23551.472	25266 ^o _{3/2} - 48817 ^o _{3/2}
4273.357	300	800	23394.223	14790 ^o _{7/2} - 38179 ^o _{9/2}	4243.925	75	15	23556.461	9400 ^o _{5/2} - 32957 ^o _{7/2}
4271.913	3	25	23402.130	12488 ^o _{9/2} - 35878 ^o _{7/2}	4243.674	1		23557.854	35741 ^o _{5/2} - 59299 ^o _{5/2}
				15349 ^o _{11/2} - 38740 ^o _{11/2}	4243.375	2		23559.514	14545 ^o _{5/2} - 38105 ^o _{5/2}
				8378 ^o _{7/2} - 31773 ^o _{9/2}	4242.720	15	4	23563.151	7001 ^o _{5/2} - 30564 ^o _{1/2}
				17121 ^o _{3/2} - 40523 ^o _{1/2}	4242.338	5	3	23565.272	14275 ^o _{9/2} - 37840 ^o _{9/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
4241.865	2		23567.900	22685 ^o _{7/2} - 46253 _{9/2}	4214.073	1		23723.329	20080 ^o _{7/2} - 43803 _{7/2}
4240.676	4	1	23574.508	22642 ^o _{9/2} - 46216 _{11/2}	4213.994	3		23723.773	23187 ^o _{13/2} - 46910 _{13/2}
4240.594	40	5	23574.964	6213 _{9/2} - 29788 ^o _{9/2}	4213.146	1	2	23728.548	20080 ^o _{7/2} - 43809 _{9/2}
4239.673	5	1	23580.085	12485 ^o _{7/2} - 36065 _{5/2}	4212.452	2		23732.457	29788 ^o _{9/2} - 53520 _{9/2}
4239.030	2		23583.662	20969 ^o _{7/2} - 44552 _{5/2}	4211.514	10	10	23737.743	16906 ^o _{7/2} - 40644 _{5/2}
4238.978	5	4	23583.951	15144 ^o _{3/2} - 38728 _{5/2}	4210.400	1		23744.023	30101 ^o _{7/2} - 53845 _{5/2}
4238.884	1		23584.474	13468 ^o _{9/2} - 37053 _{11/2}	4208.890	200b	200	23752.542	6700 ^o _{7/2} - 30452 _{9/2}
4237.685	2		23591.147	23012 ^o _{3/2} - 46603 _{5/2}	4207.922	1		23758.006	21131 ^o _{3/2} - 44889 _{3/2}
4237.657	1		23591.303	22106 _{5/2} - 45697 ^o _{3/2}	4206.656	5	10	23765.156	17722 ^o _{9/2} - 41488 _{7/2}
4237.113	5	5	23594.332	13468 ^o _{9/2} - 37063 _{9/2}	4201.847	20	100	23792.354	8018 _{3/2} - 31810 ^o _{3/2}
4236.915	2		23595.434	22139 ^o _{9/2} - 45735 _{11/2}	4201.602	8	8	23793.742	18214 ^o _{3/2} - 42008 _{1/2}
4236.390	8	3	23598.358	14790 ^o _{7/2} - 38389 _{7/2}	4201.005	1		23797.123	7828 _{1/2} - 31625 ^o _{1/2}
4235.849	1		23601.372	21297 ^o _{3/2} - 44898 _{7/2}	4199.015	3	10	23808.401	13468 ^o _{9/2} - 37277 _{7/2}
4234.984	25	5	23606.193	10673 ^o _{5/2} - 34279 _{7/2}	4197.936	2	2	23814.520	9400 _{5/2} - 33215 ^o _{3/2}
4234.752	5		23607.486	8018 _{3/2} - 31625 ^o _{1/2}	4195.949	3	15	23825.797	15242 ^o _{9/2} - 39068 _{7/2}
4234.375	3		23609.588	15786 _{5/2} - 39396 ^o _{7/2}	4195.832	4	75	23826.462	14545 ^o _{5/2} - 38372 _{3/2}
4234.302	8	3	23609.995	11116 ^o _{7/2} - 34726 _{7/2}	4195.557	4	75	23828.023	18816 ^o _{13/2} - 42644 _{13/2}
4234.083	1		23611.216	22642 ^o _{9/2} - 46253 _{9/2}	4194.082	2	4	23836.403	16818 _{7/2} - 40654 ^o _{5/2}
4233.511	2		23614.406	20686 ^o _{5/2} - 44300 _{3/2}	4191.995	1		23848.270	19248 ^o _{7/2} - 43096 _{5/2}
4233.287	25	20	23615.656	15453 ^o _{7/2} - 39068 _{7/2}	4191.826	5	10	23849.231	11576 ^o _{3/2} - 35425 _{1/2}
4232.525	3b		23619.907	15242 ^o _{9/2} - 38862 _{11/2}	4190.562	1		23856.425	12472 ^o _{5/2} - 36328 _{3/2}
4231.983	3		23622.932	12570 _{7/2} - 36193 ^o _{3/2}	4188.580	2	5	23867.713	17460 ^o _{5/2} - 41328 _{5/2}
4231.794	4		23623.987	9585 ^o _{5/2} - 33209 _{7/2}	4188.103	1	2	23870.432	10673 ^o _{5/2} - 34543 _{5/2}
4231.174	3		23627.449	17771 ^o _{11/2} - 41398 _{9/2}	4185.035	1	2	23887.931	6213 _{9/2} - 30101 ^o _{7/2}
4229.454	75	15	23637.057	12488 ^o _{9/2} - 36125 _{9/2}	4184.903	3	4	23888.684	20288 ^o _{11/2} - 44177 _{11/2}
4228.988	5	4	23639.662	12485 ^o _{7/2} - 36125 _{9/2}	4184.709	4	25	23889.791	14275 ^o _{9/2} - 38165 _{7/2}
4228.701	10b		23641.266	4146 _{7/2} - 27787 ^o _{9/2}	4184.282	2		23892.229	21297 ^o _{5/2} - 45189 _{5/2}
4227.654	4b	5	23647.121	13818 ^o _{7/2} - 37465 _{5/2}	4183.562	5	15	23896.341	9061 _{5/2} - 32957 ^o _{7/2}
4226.726	3		23652.312	20120 ^o _{5/2} - 43772 _{5/2}	4183.414	1		23897.186	27631 _{3/2} - 51528 ^o _{3/2}
4225.803	5		23657.479	21131 ^o _{3/2} - 44789 _{1/2}	4182.155	5	50	23904.380	14275 ^o _{9/2} - 38179 _{9/2}
4224.614	15	5	23664.137	9720 ^o _{7/2} - 33384 _{9/2}	4181.348	2	4	23908.994	22355 ^o _{7/2} - 46264 _{3/2}
4224.238	10	5	23666.243	1521 _{5/2} - 25188 ^o _{3/2}	4181.161	2	5	23910.063	20989 ^o _{9/2} - 44898 _{7/2}
4224.142	2		23666.781	22685 ^o _{7/2} - 46352 _{7/2}	4181.077	2	3	23910.543	12902 ^o _{3/2} - 36812 _{1/2}
4222.749	4		23674.588	23187 ^o _{13/2} - 46861 _{11/2}	4181.077	2	3	23910.543	8018 _{3/2} - 31928 ^o _{3/2}
4222.579	3		23675.541	17722 ^o _{9/2} - 41398 _{9/2}	4181.041	2	1	23910.749	27357 ^o _{9/2} - 51268 _{7/2}
4222.185	2		23677.750	18568 ^o _{1/2} - 42246 _{1/2}	4179.958	75	150	23916.944	9720 _{7/2} - 33637 _{7/2}
4219.678	4		23691.818	20080 ^o _{7/2} - 43772 _{5/2}	4179.713	100	150	23918.346	1521 _{5/2} - 25440 ^o _{3/2}
4219.414	2		23693.300	19594 _{1/2} - 43287 ^o _{3/2}	4178.060	150	300	23927.809	7331 _{5/2} - 31259 ^o _{5/2}
4219.380	5	5	23693.491	17983 _{5/2} - 41676 ^o _{3/2}	4176.895	2		23934.483	27593 _{5/2} - 51528 ^o _{3/2}
4218.998	3		23695.636	14484 ^o _{11/2} - 38179 _{9/2}	4176.333	2	5	23937.703	14790 ^o _{7/2} - 38728 _{5/2}
				24757 ^o _{9/2} - 48453 _{7/2}					
4218.820	1		23696.636	31800 ^o _{7/2} - 55496 _{9/2}	4175.482	1		23942.582	26965 ^o _{3/2} - 50907 _{3/2}
4218.636	2		23697.669	24309 ^o _{11/2} - 48006 _{9/2}	4173.959	1		23951.318	17272 ^o _{9/2} - 41223 _{11/2}
4218.539	10	10	23698.214	10572 ^o _{9/2} - 34270 _{9/2}	4173.530	41	4	23953.780	9400 _{5/2} - 33354 ^o _{5/2}
4218.224	3		23699.984	22685 ^o _{7/2} - 46385 _{7/2}	4170.783	4	25	23969.556	13818 ^o _{7/2} - 37787 _{7/2}
4218.187	8	5	23700.192	11725 ^o _{7/2} - 35425 _{1/2}	4170.469	25	50	23971.361	9238 ^o _{9/2} - 33209 _{7/2}
4217.759	4	1	23702.597	20686 ^o _{5/2} - 44388 _{5/2}	4168.633	10	100	23981.919	10572 ^o _{9/2} - 34553 _{9/2}
4214.629	4		23720.199	22014 _{11/2} - 45735 _{11/2}	4167.275	2	15	23989.733	15710 ^o _{3/2} - 39700 _{5/2}
4214.537	5	8	23720.717	17727 _{11/2} - 41447 ^o _{11/2}	4166.493	2h	2	23994.236	18118 _{3/2} - 42112 ^o _{3/2}
4214.227	1		23722.462	15144 ^o _{3/2} - 38867 _{1/2}	4165.070	3	10	24002.434	15349 ^o _{11/2} - 39352 _{11/2}
					4164.253	10	50	24007.143	9202 ^o _{7/2} - 33209 _{7/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
4163.733	5	75	24010.141	16564 ^o _{11/2} - 40574 _{11/2}	4132.979	1		24188.800	24132 ^o _{3/2} - 48320 _{5/2}
4163.645	20	200	24010.648	9720 ^o _{7/2} - 33730 _{5/2}	4132.754	150	200	24190.116	9711 ^o _{7/2} - 33902 ^o _{7/2}
4163.179	3	15	24013.336	12570 ^o _{7/2} - 36583 ^o _{7/2}	4132.287	2		24192.850	20310 ^o _{5/2} - 44503 _{7/2}
4162.678	10	100	24016.226	14275 ^o _{7/2} - 38291 _{7/2}	4132.090	2		24194.003	19050 ^o _{3/2} - 43244 _{3/2}
4161.587	2	5	24022.522	13818 ^o _{7/2} - 37840 _{9/2}	4131.529	5	10	24197.289	18816 ^o _{13/2} - 43014 _{13/2}
4159.657	10	100	24033.668	14484 ^o _{11/2} - 38517 _{13/2}	4131.425	50	100	24197.898	8378 ^o _{7/2} - 32576 _{7/2}
4156.987	1		24049.104	22106 ^o _{5/2} - 46155 _{5/2}	4130.663	5	3	24202.361	15349 ^o _{11/2} - 39552 _{9/2}
4156.512	100b	150	24051.852	9585 ^o _{5/2} - 33637 _{7/2}	4129.914	3b	4	24206.751	17121 ^o _{3/2} - 41328 _{5/2}
4156.235	50	100	24053.455	10673 ^o _{5/2} - 34726 _{7/2}	4128.912	1		24212.625	20686 ^o _{5/2} - 44898 _{7/2}
4155.474	1		24057.860	21131 ^o _{3/2} - 45189 _{5/2}	4128.300	3	3	24216.215	17460 ^o _{5/2} - 41676 _{3/2}
4153.722	2		24068.007	22513 ^o _{5/2} - 46581 _{5/2}	4127.289	3		24222.146	15144 ^o _{5/2} - 39366 _{5/2}
4151.447	4	5	24081.196	10189 ^o _{11/2} - 34270 _{9/2}	4126.607	1		24226.149	24463 ^o _{5/2} - 48689 _{3/2}
4150.482	4	5	24086.795	14349 _{1/2} - 38436 ^o _{3/2}	4124.666	5	15	24237.549	15710 ^o _{3/2} - 39948 _{1/2}
4150.369	4	8	24087.451	24757 ^o _{9/2} - 48844 _{9/2}	4124.513	5	10	24238.449	22014 ^o _{11/2} - 46253 _{9/2}
4149.986	200b	300	24089.674	10572 ^o _{9/2} - 34661 _{11/2}	4123.953	2		24241.740	20310 ^o _{5/2} - 44552 _{5/2}
4149.711	4	5	24091.270	15305 _{9/2} - 39396 ^o _{7/2}	4123.530	40	25	24244.226	8605 ^o _{5/2} - 32850 _{5/2}
4148.773	2		24096.717	6213 ^o _{9/2} - 30310 ^o _{11/2}	4123.401	2		24244.985	16033 ^o _{5/2} - 40278 _{3/2}
4148.684	4		24097.234	4146 ^o _{7/2} - 28243 ^o _{5/2}	4123.270	2		24245.755	22139 ^o _{9/2} - 46385 _{7/2}
4148.425	2		24098.738	17837 _{1/2} - 41936 _{3/2}	4122.965	8	15	24247.549	15453 _{7/2} - 39700 _{5/2}
4148.344	20	50	24099.209	15453 ^o _{7/2} - 39552 _{9/2}	4122.673	5b		24249.266	25246 _{9/2} - 49495 ^o _{9/2}
4148.180	200	150	24100.162	7828 _{1/2} - 31928 ^o _{3/2}	4121.857	5	10	24254.067	18973 ^o _{7/2} - 43227 _{5/2}
4148.026	4	10	24101.056	18118 _{3/2} - 42219 ^o _{5/2}	4120.014	3	4	24264.916	19912 ^o _{13/2} - 44177 _{11/2}
4146.664	2		24108.972	26626 ^o _{1/2} - 50735 _{3/2}	4119.390	2	2	24268.592	20120 ^o _{5/2} - 44388 _{5/2}
4146.256	1		24111.345	17771 ^o _{11/2} - 41882 _{13/2}	4118.594	5	10	24273.282	13406 ^o _{13/2} - 37679 _{11/2}
4146.069	2		24112.432	25414 ^o _{11/2} - 49527 _{13/2}	4117.839	4	4	24277.732	35021 _{3/2} - 59299 ^o _{5/2}
4145.836	2b		24113.787	14275 ^o _{9/2} - 38389 _{7/2}				14790 ^o _{7/2} - 39068 _{7/2}	
4145.664	1		24114.788	35878 _{7/2} - 59993 ^o _{9/2}	4116.714	500b	400	24284.367	6168 ^o _{7/2} - 30452 _{9/2}
4145.197	1		24117.504	12570 ^o _{7/2} - 36687 _{5/2}	4116.311	4	4	24286.744	13818 _{7/2} - 38105 _{5/2}
4144.453	5	2	24121.834	20686 ^o _{5/2} - 44807 _{7/2}	4115.144	8l		24293.632	9061 _{5/2} - 33354 ^o _{5/2}
4143.603	3	5	24126.782	13818 ^o _{7/2} - 37945 _{5/2}	4114.145	2		24299.530	18118 _{3/2} - 42418 ^o _{3/2}
4142.970	5	3	24130.468	4113 _{5/2} - 28243 ^o _{5/2}	4113.557	5		24303.004	24309 ^o _{11/2} - 48612 _{13/2}
4142.700	300	100	24132.041	0 _{3/2} - 24132 ^o _{3/2}	4112.485	1		24309.339	15242 ^o _{9/2} - 39552 _{9/2}
4142.475	50	150	24133.352	14484 ^o _{11/2} - 38617 _{9/2}	4112.313	5	15	24310.355	18816 ^o _{13/2} - 43127 _{11/2}
4141.947	1		24136.428	20989 ^o _{9/2} - 45126 _{9/2}	4111.986	3		24312.288	23012 ^o _{5/2} - 47324 _{5/2}
4141.631	50	75	24138.269	17771 ^o _{11/2} - 41909 _{9/2}	4111.458	3		24315.411	11725 ^o _{7/2} - 36040 _{1/2}
4141.225	2		24140.636	16906 ^o _{7/2} - 41047 _{9/2}	4111.427	3	2	24315.594	27631 _{3/2} - 51946 ^o _{5/2}
4140.385	50	100	24145.533	9585 ^o _{5/2} - 33730 _{5/2}	4111.133	4	5	24317.333	22106 ^o _{5/2} - 46423 _{3/2}
4140.235	200	150	24146.408	9238 ^o _{9/2} - 33384 _{9/2}	4110.968	4	4	24318.309	14545 ^o _{5/2} - 38863 _{5/2}
4139.934	2		24148.164	25266 ^o _{7/2} - 49414 _{3/2}	4110.633	15	15	24320.291	6244 _{1/2} - 30564 ^o _{1/2}
4139.758	1		24149.190	26586 ^o _{3/2} - 50735 _{3/2}	4110.512	40	25	24321.006	12488 ^o _{5/2} - 36809 _{7/2}
4138.841	5	5	24154.541	10572 ^o _{9/2} - 34726 _{7/2}	4110.075	5	4	24323.592	12485 ^o _{7/2} - 36809 _{7/2}
4137.886	2		24160.115	16564 ^o _{11/2} - 40724 _{13/2}	4108.420	500	150	24333.391	4490 ^o _{5/2} - 28823 _{5/2}
4137.612	2		24161.715	20288 ^o _{11/2} - 44450 _{9/2}	4107.793	5	8	24337.105	12472 ^o _{5/2} - 36809 _{7/2}
4137.068	2		24164.892	11576 ^o _{3/2} - 35741 _{5/2}	4107.370	20	8	24339.611	11116 ^o _{7/2} - 35456 _{9/2}
4136.393	75b	20b	24168.836	13406 ^o _{13/2} - 37575 _{13/2}	4106.950	4		24342.100	14275 ^o _{9/2} - 38617 _{9/2}
4136.101	2		24170.542	12219 ^o _{9/2} - 36390 ^o _{3/2}	4106.120	5b	5b	24347.020	13818 ^o _{7/2} - 38165 _{7/2}
4134.989	2		24177.042	19050 ^o _{3/2} - 43227 _{5/2}	4105.911	25b	50	24348.260	10673 ^o _{5/2} - 35021 _{3/2}
4134.414	1		24180.404	20120 ^o _{5/2} - 44300 _{3/2}	4105.037	2b		24353.444	17983 ^o _{5/2} - 42336 _{5/2}
4134.106	100b	100b	24182.205	9202 ^o _{7/2} - 33384 _{9/2}				25607 ^o _{9/2} - 49960 _{7/2}	
4133.396	2		24186.359	17722 ^o _{9/2} - 41909 _{9/2}	4104.381	150	75	24357.336	8378 ^o _{7/2} - 32736 _{7/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
4103.669	5b		24361.562	13818 ^o _{7/2} - 38179 ^o _{9/2}	4075.709	5	8	24528.682	9202 ^o _{7/2} - 33730 ^o _{5/2}
4103.264	5	15	24363.966	12219 ^o _{3/2} - 36581 ^o _{3/2}	4074.642	1		24535.106	30310 ^o _{11/2} - 54845 ^o _{9/2}
4103.112	4		24364.869	22014 ^o _{11/2} - 46378 ^o _{13/2}	4074.245	2	4	24537.496	35456 ^o _{9/2} - 59993 ^o _{9/2}
4102.462	2		24368.729	10189 ^o _{11/2} - 34553 ^o _{9/2}	4073.708	10	40	24540.731	16033 ^o _{5/2} - 40570 ^o _{7/2}
4101.326	4	5	24375.479	17983 ^o _{5/2} - 42352 ^o _{5/2}	4072.907	10	5	24545.557	22014 ^o _{11/2} - 46555 ^o _{11/2}
4100.847	10b		24378.326	17771 ^o _{11/2} - 42146 ^o _{11/2}	4072.178	3	1	24549.951	15349 ^o _{11/2} - 39895 ^o _{9/2}
4100.820	50b	75	24378.486	16033 ^o _{5/2} - 40411 ^o _{7/2}	4071.466	5		24554.244	9720 ^o _{7/2} - 34270 ^o _{9/2}
4098.932	50	20	24389.715	14484 ^o _{11/2} - 38862 ^o _{11/2}	4071.302	1		24555.233	30484 ^o _{11/2} - 55038 ^o _{9/2}
4098.093	2		24394.708	8460 ^o _{3/2} - 32850 ^o _{5/2}	4070.671	15	3	24559.040	17121 ^o _{3/2} - 41676 ^o _{3/2}
4097.691	15b	10	24397.102	24982 ^o _{7/2} - 49377 ^o _{7/2}	4069.757	15	3	24564.555	9720 ^o _{7/2} - 34279 ^o _{7/2}
4096.332	8	2	24405.196	15786 ^o _{5/2} - 40184 ^o _{7/2}	4069.299	4		24567.320	1859 ^o _{3/2} - 26424 ^o _{5/2}
4094.747	500	200	24414.642	20989 ^o _{5/2} - 45395 ^o _{7/2}	4069.202	300	200	24567.905	15710 ^o _{3/2} - 40278 ^o _{3/2}
4094.490	3		24416.174	0 ^o _{3/2} - 24414 ^o _{3/2}	4068.025	5	3	24575.013	6691 ^o _{3/2} - 31259 ^o _{5/2}
4093.556	3	3	24421.745	17272 ^o _{9/2} - 41688 ^o _{7/2}	4068.025	5	3	24575.013	12488 ^o _{7/2} - 37063 ^o _{9/2}
4093.392	20	10	24422.724	16906 ^o _{7/2} - 41328 ^o _{5/2}	4067.876	10		24575.913	14790 ^o _{7/2} - 39366 ^o _{5/2}
4093.327	2		24423.111	7331 ^o _{5/2} - 31754 ^o _{5/2}	4067.594	15	4	24577.617	12485 ^o _{7/2} - 37063 ^o _{9/2}
4093.255	2		24423.541	20080 ^o _{7/2} - 44503 ^o _{7/2}	4066.169	1		24586.230	30452 ^o _{7/2} - 55038 ^o _{9/2}
4092.338	2s		24429.014	17722 ^o _{9/2} - 42146 ^o _{11/2}	4066.003	8	4	24587.234	14275 ^o _{9/2} - 38862 ^o _{11/2}
4092.314	1		24429.157	11116 ^o _{7/2} - 35545 ^o _{9/2}	4065.687	401	8	24589.145	9585 ^o _{5/2} - 34174 ^o _{5/2}
4091.530	5	4	24433.838	17771 ^o _{11/2} - 42200 ^o _{9/2}	4065.254	4	4	24591.764	17727 ^o _{11/2} - 42319 ^o _{9/2}
4091.347	50	8	24434.931	9585 ^o _{5/2} - 34019 ^o _{3/2}	4064.610	4	2	24595.660	13250 ^o _{5/2} - 37846 ^o _{5/2}
4090.367	3		24440.785	9202 ^o _{7/2} - 33637 ^o _{7/2}	4063.755	3		24600.835	23697 ^o _{7/2} - 48298 ^o _{7/2}
4090.103	2l		24442.362	4146 ^o _{7/2} - 28587 ^o _{5/2}	4063.691	5	4	24601.222	14484 ^o _{11/2} - 39085 ^o _{13/2}
4088.108	1		24454.290	15453 ^o _{7/2} - 39895 ^o _{9/2}	4063.054	100		24605.079	14545 ^o _{3/2} - 39150 ^o _{3/2}
4086.520	500	150	24463.793	9720 ^o _{7/2} - 34174 ^o _{5/2}	4062.661	20		24607.459	4113 ^o _{5/2} - 28720 ^o _{3/2}
4086.412	5	8	24464.439	0 ^o _{3/2} - 24463 ^o _{5/2}	4062.305	8		24609.616	8605 ^o _{3/2} - 33215 ^o _{3/2}
4086.336	3		24464.894	11576 ^o _{3/2} - 36040 ^o _{1/2}	4059.888	50		24624.267	7001 ^o _{3/2} - 31625 ^o _{1/2}
4085.815	8	8	24468.014	14275 ^o _{9/2} - 38740 ^o _{11/2}	4059.815	4		24624.709	11116 ^o _{7/2} - 35741 ^o _{5/2}
4085.042	300	200	24472.644	12219 ^o _{3/2} - 36687 ^o _{5/2}	4059.766	3		24625.007	15236 ^o _{3/2} - 39861 ^o _{5/2}
4084.953	10	10	24473.177	10189 ^o _{11/2} - 34661 ^o _{11/2}	4057.776	25	50	24637.083	17272 ^o _{9/2} - 41909 ^o _{9/2}
4084.815	2b		24474.004	27357 ^o _{9/2} - 51830 ^o _{7/2}	4057.327	50		24639.809	12902 ^o _{3/2} - 37542 ^o _{3/2}
4084.499	2	2	24475.897	4113 ^o _{5/2} - 28587 ^o _{5/2}	4057.034	4		24641.589	20969 ^o _{7/2} - 45610 ^o _{5/2}
4084.278	3	3	24477.221	17460 ^o _{5/2} - 41936 ^o _{3/2}	4054.765	3	2	24655.377	14101 ^o _{1/2} - 38757 ^o _{3/2}
4084.008	1		24478.840	17722 ^o _{9/2} - 42200 ^o _{9/2}	4054.185	4	20	24658.905	16564 ^o _{11/2} - 41223 ^o _{11/2}
4083.388	4b	8	24482.556	21131 ^o _{3/2} - 45610 ^o _{5/2}	4052.443	8	10	24669.504	21682 ^o _{7/2} - 46352 ^o _{7/2}
4082.256	20		24489.345	16564 ^o _{11/2} - 41047 ^o _{9/2}	4051.277	2		24676.604	18568 ^o _{3/2} - 43244 ^o _{3/2}
4081.853	3	20h	24491.763	11576 ^o _{3/2} - 36065 ^o _{5/2}	4049.825	8	8	24685.452	15786 ^o _{5/2} - 40472 ^o _{3/2}
4081.829	4		24491.907	20158 ^o _{5/2} - 44650 ^o _{7/2}	4049.747	10	2	24685.927	24132 ^o _{3/2} - 48817 ^o _{3/2}
4080.975	3		24497.032	16906 ^o _{7/2} - 41398 ^o _{9/2}	4048.030	15	50	24696.398	13468 ^o _{9/2} - 38165 ^o _{7/2}
4080.590	2		24499.343	20310 ^o _{5/2} - 44807 ^o _{7/2}	4045.627	75	50	24711.066	6168 ^o _{7/2} - 30879 ^o _{7/2}
4080.470	2		24500.064	23372 ^o _{3/2} - 47869 ^o _{3/2}	4043.852	1		24721.913	22139 ^o _{9/2} - 46861 ^o _{11/2}
4080.297	5	4	24501.102	17722 ^o _{9/2} - 42222 ^o _{7/2}	4043.128	200	40	24726.340	1859 ^o _{3/2} - 26586 ^o _{3/2}
4079.900	4	8	24503.486	9711 ^o _{7/2} - 34212 ^o _{5/2}	4042.973	8	75	24727.288	20080 ^o _{7/2} - 44807 ^o _{7/2}
4079.603	4	5	24505.270	9400 ^o _{5/2} - 33902 ^o _{7/2}	4041.811	10	15	24734.396	14101 ^o _{7/2} - 38836 ^o _{3/2}
4079.434	1		24506.286	20686 ^o _{5/2} - 45189 ^o _{5/2}	4041.207	200	400	24738.093	10855 ^o _{7/2} - 35593 ^o _{9/2}
4079.135	4	4	24508.082	15710 ^o _{3/2} - 40216 ^o _{5/2}	4040.391	40	20	24743.089	6213 ^o _{9/2} - 30956 ^o _{9/2}
4077.103	1		24508.082	13250 ^o _{5/2} - 37756 ^o _{7/2}	4039.431	40	15	24748.969	8605 ^o _{3/2} - 33354 ^o _{5/2}
4076.633	2		24523.123	13248 ^o _{9/2} - 37756 ^o _{7/2}	4038.903	1		24752.205	11576 ^o _{3/2} - 36328 ^o _{3/2}
				25440 ^o _{5/2} - 49960 ^o _{7/2}	4038.427	8		24755.122	8460 ^o _{3/2} - 33215 ^o _{3/2}
				14545 ^o _{5/2} - 39068 ^o _{7/2}	4038.351	50	25	24755.588	34543 ^o _{5/2} - 59299 ^o _{5/2}

TABLE 3. *Classified lines of Th II* – Continued

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
4037.434	4	4	24761.210	14790 ⁰ _{7/2} – 39552 ⁰ _{9/2}	4007.019	200	300	24949.155	11116 ⁰ _{7/2} – 36065 ⁰ _{5/2}
4037.259	25	50	24762.284	11116 ⁰ _{7/2} – 35878 ⁰ _{7/2}	4006.874	1		24950.058	17272 ⁰ _{3/2} – 42222 ⁰ _{7/2}
4037.132	8	4	24763.063	15453 ⁰ _{3/2} – 40216 ⁰ _{5/2}	4006.378	200	100	24953.146	10572 ⁰ _{3/2} – 35525 ⁰ _{11/2}
4036.565	300b	300	24766.541	1859 ⁰ _{3/2} – 26626 ⁰ _{1/2}	4005.571	50	100	24958.173	9585 ⁰ _{5/2} – 34543 ⁰ _{5/2}
4035.236	3		24774.698	27787 ⁰ _{5/2} – 52562 ⁰ _{7/2}	4005.528	50	500b	24958.441	15453 ⁰ _{7/2} – 40411 ⁰ _{7/2}
4034.919	75	25	24776.644	4146 ⁰ _{7/2} – 28923 ⁰ _{5/2}				16033 ⁰ _{5/2} – 40991 ⁰ _{3/2}	
4034.364	2		24780.052	23518 ⁰ _{7/2} – 48298 ⁰ _{7/2}	4003.307	300	600	24972.288	9202 ⁰ _{7/2} – 34174 ⁰ _{5/2}
4034.246	200	200	24780.777	6213 ⁰ _{7/2} – 30994 ⁰ _{7/2}	4003.104	100	200	24973.554	10572 ⁰ _{3/2} – 35545 ⁰ _{9/2}
4032.893	10	10	24789.091	12488 ⁰ _{3/2} – 37277 ⁰ _{7/2}	4002.106	3	2	24979.782	12485 ⁰ _{7/2} – 37465 ⁰ _{5/2}
4032.238	2		24793.117	14275 ⁰ _{9/2} – 39068 ⁰ _{7/2}	4001.732	100	20	24982.116	4113 ⁰ _{3/2} – 29095 ⁰ _{5/2}
4032.035	2		24794.366	23697 ⁰ _{7/2} – 48492 ⁰ _{5/2}	3999.944	20	10	24993.283	12472 ⁰ _{3/2} – 37465 ⁰ _{5/2}
4031.781	3		24795.928	17722 ⁰ _{9/2} – 42518 ⁰ _{7/2}	3997.977	15	15	25005.580	8378 ⁰ _{5/2} – 33384 ⁰ _{9/2}
4031.225	3		24799.347	13818 ⁰ _{7/2} – 38617 ⁰ _{9/2}	3997.865	200	200	25006.280	9720 ⁰ _{7/2} – 34726 ⁰ _{7/2}
4029.518	20	10	24809.853	4113 ⁰ _{5/2} – 28923 ⁰ _{5/2}	3997.467	40b	100	25008.770	11116 ⁰ _{7/2} – 36125 ⁰ _{9/2}
4029.322	25	40	24811.060	9400 ⁰ _{5/2} – 34212 ⁰ _{5/2}	3996.061	150	300	25017.569	15349 ⁰ _{11/2} – 40367 ⁰ _{9/2}
4029.025	10	50	24812.889	15710 ⁰ _{3/2} – 40523 ⁰ _{1/2}	3995.701	2		25019.823	34279 ⁰ _{7/2} – 59299 ⁰ _{5/2}
4028.629	50	40	24815.328	24309 ⁰ _{11/2} – 49124 ⁰ _{11/2}	3995.030	2		25607 ⁰ _{3/2} – 50631 ⁰ _{11/2}	
4027.651	15	75	24821.353	14545 ⁰ _{5/2} – 39366 ⁰ _{5/2}	3994.549	600	200	25027.038	0 ⁰ _{3/2} – 25027 ⁰ _{1/2}
4027.412	8	25	24822.826	13468 ⁰ _{9/2} – 38291 ⁰ _{7/2}	3994.341	10	200	25028.341	17722 ⁰ _{9/2} – 42751 ⁰ _{7/2}
4027.341	50	75	24823.264	9720 ⁰ _{7/2} – 34543 ⁰ _{5/2}	3993.722	201	10	25032.221	9238 ⁰ _{3/2} – 34270 ⁰ _{9/2}
4026.043	10		24831.267	20969 ⁰ _{7/2} – 45800 ⁰ _{5/2}	3992.273	100h	150	25041.306	9238 ⁰ _{3/2} – 34279 ⁰ _{7/2}
4025.944	10	3	24831.877	8018 ⁰ _{3/2} – 32850 ⁰ _{5/2}	3992.046	8	20	25042.730	12902 ⁰ _{3/2} – 37945 ⁰ _{5/2}
4025.654	100b	300b	24833.666	9720 ⁰ _{7/2} – 34553 ⁰ _{9/2}	3991.601	4b		25045.521	13818 ⁰ _{7/2} – 38863 ⁰ _{5/2}
4025.620	25	8b	24833.876	16564 ⁰ _{11/2} – 41398 ⁰ _{9/2}	3991.066	10	15	25048.879	14101 ⁰ _{7/2} – 39150 ⁰ _{3/2}
4024.467	25	40	24840.990	9061 ⁰ _{5/2} – 33902 ⁰ _{7/2}	3990.118	2		25054.830	21297 ⁰ _{5/2} – 46352 ⁰ _{7/2}
4023.765	1		24845.324	29515 ⁰ _{9/2} – 54360 ⁰ _{9/2}	3989.568	2		25058.284	17460 ⁰ _{3/2} – 42518 ⁰ _{7/2}
4023.542	2b		24846.701	22014 ⁰ _{11/2} – 46861 ⁰ _{11/2}	3988.845	200	200	25062.826	6691 ⁰ _{3/2} – 31754 ⁰ _{5/2}
4022.091	100b	75	24855.665	4490 ⁰ _{5/2} – 29345 ⁰ _{5/2}	3988.599	100	25	25064.371	1521 ⁰ _{3/2} – 26586 ⁰ _{3/2}
4020.915	3		24862.934	25607 ⁰ _{3/2} – 50470 ⁰ _{9/2}	3988.025	200b	500b	25067.979	9202 ⁰ _{7/2} – 34270 ⁰ _{9/2}
4020.100	5	10	24867.974	14484 ⁰ _{11/2} – 39352 ⁰ _{11/2}	3987.706	50	50	25069.984	12472 ⁰ _{5/2} – 37542 ⁰ _{3/2}
4019.129	1000b	800	24873.982	0 ⁰ _{3/2} – 24873 ⁰ _{5/2}	3987.483	10	15	25071.386	15144 ⁰ _{1/2} – 40216 ⁰ _{5/2}
4018.768	5	50	24876.216	17460 ⁰ _{5/2} – 42336 ⁰ _{5/2}	3987.219	200b	75	25073.046	34543 ⁰ _{3/2} – 59616 ⁰ _{3/2}
4017.709	2		24882.773	22028 ⁰ _{5/2} – 46910 ⁰ _{13/2}	3987.071	5	3	25073.977	12488 ⁰ _{3/2} – 37562 ⁰ _{11/2}
4017.486	75	50	24884.155	10572 ⁰ _{9/2} – 35456 ⁰ _{9/2}	3985.464	15	40	25084.087	20310 ⁰ _{5/2} – 45395 ⁰ _{7/2}
4016.459	1		24890.517	16033 ⁰ _{5/2} – 40923 ⁰ _{5/2}	3985.408	2		25084.439	27593 ⁰ _{3/2} – 52678 ⁰ _{5/2}
4016.438	1		24890.647	24982 ⁰ _{7/2} – 49873 ⁰ _{5/2}	3985.065	2	8	25086.598	24873 ⁰ _{5/2} – 49960 ⁰
4016.299	5	50	24891.509	17460 ⁰ _{5/2} – 42352 ⁰ _{5/2}	3984.620	10		25089.400	22642 ⁰ _{9/2} – 47731 ⁰ _{9/2}
4015.826	15	15	24894.441	8460 ⁰ _{3/2} – 33354 ⁰ _{5/2}	3984.373	50	25	25090.955	6168 ⁰ _{7/2} – 31259 ⁰ _{5/2}
4015.589	2	10	24895.910	22014 ⁰ _{11/2} – 46910 ⁰ _{13/2}	3982.232	75	25	25104.445	14790 ⁰ _{7/2} – 39895 ⁰ _{9/2}
4015.142	21		24898.681	15324 ⁰ _{1/2} – 40222 ⁰ _{3/2}	3982.100	200	40	25105.277	1859 ⁰ _{3/2} – 26965 ⁰ _{3/2}
4014.937	1		24899.952	26965 ⁰ _{5/2} – 51865 ⁰ _{5/2}	3981.534	10	20	25108.846	6244 ⁰ _{1/2} – 31353 ⁰ _{3/2}
4014.511	75	25	24902.595	1521 ⁰ _{5/2} – 26424 ⁰ _{5/2}	3981.105	150	200	25111.551	13406 ⁰ _{3/2} – 38517 ⁰ _{13/2}
4013.257	15	40	24910.376	12219 ⁰ _{3/2} – 37130 ⁰ _{1/2}	3980.753	8	100	25113.772	24381 ⁰ _{7/2} – 49495 ⁰ _{9/2}
4011.775	50b	100b	24919.578	12902 ⁰ _{3/2} – 37821 ⁰ _{3/2}	3980.143	5	15	25117.621	15453 ⁰ _{7/2} – 40570 ⁰ _{7/2}
4010.984	2		24924.492	20686 ⁰ _{5/2} – 45610 ⁰ _{5/2}	3979.038	200	200	25124.596	34174 ⁰ _{5/2} – 59299 ⁰ _{5/2}
4010.531	15	8	24927.307	7001 ⁰ _{3/2} – 31928 ⁰ _{3/2}	3977.795	3	15	25132.447	21131 ⁰ _{3/2} – 46264 ⁰ _{3/2}
4010.427	4	20	24927.954	17272 ⁰ _{9/2} – 42200 ⁰ _{9/2}	3976.414	100	200	25141.175	9585 ⁰ _{5/2} – 34726 ⁰ _{7/2}
4010.326	1		24928.582	29431 ⁰ _{7/2} – 54360 ⁰ _{9/2}	3975.222	20	75	25148.714	13468 ⁰ _{9/2} – 38617 ⁰ _{9/2}
4009.535	4	10	24933.499	15710 ⁰ _{3/2} – 40644 ⁰ _{5/2}	3974.873	1		25150.922	9061 ⁰ _{5/2} – 34212 ⁰ _{5/2}
4008.743	2		24938.425	26424 ⁰ _{5/2} – 51362 ⁰ _{5/2}	3974.391	20	50	25153.972	31924 ⁰ _{11/2} – 57078 ⁰ _{9/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
3974.224	15	100	25155.029	14545 ^o _{5/2} - 39700 _{5/2}	3945.818	75	300	25336.116	10189 ^o _{11/2} - 35525 _{11/2}
3973.993	1		25156.491	22014 ^o _{11/2} - 47171 _{9/2}	3945.506	200	300	25338.120	10855 _{7/2} - 36193 ^o _{5/2}
3969.854	5	50	25182.719	14275 ^o _{9/2} - 39458 _{7/2}	3943.688	100	200	25349.800	12472 ^o _{5/2} - 37821 _{3/2}
3969.826	3	10	25182.896	19912 ^o _{13/2} - 45095 _{15/2}	3943.395	100	300	25351.684	9202 ^o _{7/2} - 34553 _{9/2}
3969.561	75	50	25184.577	26762 _{3/2} - 51946 ^o _{5/2}	3943.258	20	100	25352.564	12488 ^o _{5/2} - 37840 _{9/2}
3969.529	5	50	25184.780	17771 ^o _{11/2} - 42955 _{9/2}	3942.855	8	40	25355.155	12485 ^o _{7/2} - 37840 _{9/2}
3969.337	5	50	25185.999	20120 ^o _{5/2} - 45306 _{3/2}	3942.700	5b	10	25356.152	17771 ^o _{11/2} - 43127 _{11/2}
3969.289	10	10	25186.303	12570 _{7/2} - 37756 ^o _{7/2}	3942.668	100b	50	25356.358	22513 ^o _{5/2} - 47869 _{3/2}
3969.002	200	150	25188.124	0 _{3/2} - 25188 ^o _{3/2}	3942.639	50	50	25356.544	10189 ^o _{11/2} - 35545 _{9/2}
3968.484	100	400	25191.412	12488 _{9/2} - 37679 _{11/2}	3942.042	5b	10	25360.385	18816 _{13/2} - 44177 _{11/2}
3967.212	50	200	25199.489	15324 ^o _{5/2} - 40523 _{1/2}	3941.725	25	25	25362.424	20989 ^o _{5/2} - 46352 _{7/2}
3966.707	3		25202.697	12902 ^o _{3/2} - 38105 _{5/2}	3941.360	3	40	25364.773	22642 _{9/2} - 48006 _{9/2}
3966.231	15	25	25205.722	10673 ^o _{5/2} - 35878 _{7/2}	3940.369	2	25	25371.152	23697 ^o _{7/2} - 49068 _{5/2}
3966.054	1		25206.847	30879 _{7/2} - 56086 ^o _{5/2}	3939.793	15	50	25374.861	15349 ^o _{5/2} - 40724 _{13/2}
3964.865	40	75	25214.406	10379 _{9/2} - 35593 ^o _{7/2}	3938.779	100	100	25381.393	6244 _{1/2} - 31625 ^o _{1/2}
3964.738	200	200d	25215.213	17121 ^o _{3/2} - 42336 _{5/2}	3938.726	20	100	25381.735	12219 _{3/2} - 37601 ^o _{3/2}
3963.468	40	100	25223.293	10379 _{7/2} - 35602 ^o _{11/2}	3938.580	5b		25382.676	8460 _{3/2} - 33843 ^o _{3/2}
3963.220	40	200	25224.871	15349 ^o _{11/2} - 40574 _{11/2}	3938.421	15	15	25383.701	4490 ^o _{5/2} - 29873 _{7/2}
3962.921	3	20	25226.774	20989 ^o _{9/2} - 46216 _{11/2}	3937.923	100	200	25386.910	7828 _{1/2} - 33215 ^o _{5/2}
3962.336	50	200b	25230.498	17121 ^o _{3/2} - 42352 _{5/2}	3937.040	200s	300	25392.604	10673 ^o _{5/2} - 36065 _{5/2}
3961.966	4	75	25232.855	17722 ^o _{9/2} - 42955 _{9/2}	3936.838	1		25393.907	23730 ^o _{9/2} - 49124 _{11/2}
3961.503	2		25235.804	15236 _{3/2} - 40472 ^o _{3/2}	3936.604	75	40	25395.416	30101 ^o _{7/2} - 55496 _{9/2}
3960.955	2b		25239.295	18568 ^o _{7/2} - 43807 _{3/2}	3936.125	1		25398.507	29095 ^o _{5/2} - 54493 _{5/2}
3960.360	4b	25b	25243.087	17771 ^o _{11/2} - 43014 _{13/2}	3935.945	10h	200	25399.668	26770 ^o _{11/2} - 52170 _{11/2}
3960.333	100b	200b	25243.259	13250 _{5/2} - 38493 ^o _{5/2}	3935.631	20	200	25401.695	16818 _{7/2} - 42219 _{5/2}
3960.019	8	8	25245.260	7331 ^o _{3/2} - 32576 _{7/2}	3935.240	2	20	25404.219	17722 ^o _{9/2} - 43127 _{11/2}
3959.222	8	40	25250.342	13818 ^o _{7/2} - 39068 _{7/2}	3934.175	5	50	25411.096	14484 ^o _{11/2} - 39895 _{9/2}
3959.024	1	10	25251.605	26424 ^o _{5/2} - 51676 _{3/2}	3933.571	2b		25414.997	18973 ^o _{7/2} - 44388 _{5/2}
3958.014	1		25258.049	28587 ^o _{5/2} - 53845 _{5/2}	3933.353	5	50	25416.406	20969 ^o _{5/2} - 46385 _{7/2}
3957.480	2		25261.457	17983 ^o _{5/2} - 43244 _{3/2}	3932.226	200	250	25423.690	9238 ^o _{9/2} - 34661 _{11/2}
3957.157	10		25263.519	20989 ^o _{9/2} - 46253 _{9/2}	3932.002	15	300	25425.138	14790 ^o _{7/2} - 40216 _{5/2}
3956.690	300	300	25266.500	0 _{3/2} - 25266 ^o _{1/2}	3931.257	2	100	25429.957	25594 ^o _{11/2} - 51024 _{3/2}
3956.593	100	500	25267.120	10189 ^o _{11/2} - 35456 _{9/2}	3929.669	800	500	25440.233	0 _{3/2} - 25440 ^o _{5/2}
3955.252	25		25275.686	12570 _{7/2} - 37846 ^o _{5/2}	3929.192	2		25443.321	1521 _{5/2} - 26965 ^o _{3/2}
3955.101	5	15	25276.651	14275 ^o _{9/2} - 39552 _{9/2}	3928.940	5b		25444.953	9711 _{7/2} - 35156 ^o _{5/2}
3954.591	1		25279.911	34019 _{3/2} - 59299 ^o _{5/2}	3928.698	4	20	25446.520	20288 ^o _{11/2} - 45735 _{11/2}
3954.464	10	25	25280.723	15710 _{3/2} - 40991 _{3/2}	3928.239	1		25449.493	21131 ^o _{3/2} - 46581 _{5/2}
3953.970	2		25283.881	21297 ^o _{5/2} - 46581 _{5/2}	3927.421	50	300	25454.794	14484 ^o _{11/2} - 39939 _{11/2}
3953.900	2		25284.329	20969 ^o _{7/2} - 46253 _{9/2}	3927.176	100	300	25456.382	13406 ^o _{13/2} - 38862 _{11/2}
3952.901	2		25290.719	17460 ^o _{5/2} - 42751 _{7/2}	3926.706	50	200	25459.429	12485 ^o _{7/2} - 37945 _{5/2}
3952.448	3	8	25293.617	16906 ^o _{7/2} - 42200 _{9/2}	3924.987	20	40	25470.579	15453 ^o _{7/2} - 40923 _{5/2}
3951.515	300	400	25299.589	12488 ^o _{9/2} - 37787 _{7/2}	3924.628	3	2	25472.909	12472 ^o _{5/2} - 37945 _{5/2}
3951.107	40	200	25302.202	12485 ^o _{7/2} - 37787 _{7/2}	3922.218	50	50	25488.560	9238 ^o _{9/2} - 34726 _{7/2}
3950.088	1		25308.729	23012 ^o _{5/2} - 48320 _{5/2}	3922.098	8	40	25489.340	20310 ^o _{5/2} - 45800 _{5/2}
3949.206	4	25	25314.381	20080 ^o _{7/2} - 45395 _{7/2}	3921.019	5	10	25496.354	12219 _{3/2} - 37716 ^o _{1/2}
3948.999	8b		25315.708	16906 ^o _{7/2} - 42222 _{7/2}	3920.951	15	25	25496.796	24463 ^o _{5/2} - 49960 _{7/2}
3948.964	200b	500	25315.932	12472 ^o _{5/2} - 37787 _{7/2}	3920.520	5b		25499.599	15144 ^o _{9/2} - 40644 _{5/2}
3946.596	2		25331.122	9238 ^o _{9/2} - 34553 _{9/2}	3920.312	50	300	25500.952	16818 _{7/2} - 42319 ^o _{9/2}
3946.144	150	500	25334.023	13250 _{5/2} - 38581 ^o _{5/2}	3920.170	1		25501.876	19050 ^o _{3/2} - 44552 _{5/2}
				13406 ^o _{13/2} - 38740 _{11/2}	3918.285	10	75	25514.144	13250 _{5/2} - 38764 _{7/2}

TABLE 3. *Classified lines of Th II*—Continued

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
3918.011	20	100	25515.928	13248 _{9/2} ° - 38764 _{7/2} °	3888.460	3b	8	25709.836	20686 _{5/2} ° - 46395 _{3/2} °
3916.796	50	300	25523.843	17722 _{9/2} ° - 43246 _{7/2} °	3888.048	2		25712.561	24757 _{9/2} ° - 50470 _{9/2} °
3916.724	75	200	25524.312	9202 _{7/2} ° - 34726 _{7/2} °	3887.434	3	15	25716.622	22014 _{11/2} ° - 47731 _{9/2} °
3915.770	8	40	25530.531	20158 _{3/2} ° - 45689 _{7/2} °	3885.766	75	50	25727.661	1521 _{5/2} ° - 27249 _{7/2} °
3914.470	10	75	25539.009	20158 _{3/2} ° - 45697 _{3/2} °	3885.639	8	20	25728.501	10855 _{7/2} ° - 36583 _{7/2} °
3913.823	75	20	25543.231	1859 _{3/2} ° - 27403 _{3/2} °	3885.151	3	50	25731.733	22139 _{9/2} ° - 47871 _{7/2} °
3913.195	1		25547.330	25188 _{3/2} ° - 50735 _{3/2} °	3884.949	2		25733.071	27787 _{9/2} ° - 53520 _{9/2} °
3913.005	75	300	25548.571	13818 _{7/2} ° - 39366 _{5/2} °	3884.819	500	500	25733.932	19912 _{13/2} ° - 45646 _{15/2} °
3912.282	75	200	25553.292	10572 _{9/2} ° - 36125 _{9/2} °	3884.523	50	200	25735.893	9720 _{7/2} ° - 35456 _{9/2} °
3911.299	15	25	25559.714	19248 _{5/2} ° - 44807 _{7/2} °	3884.318	2	10	25737.251	20969 _{7/2} ° - 46706 _{7/2} °
3908.488	3	50	25578.096	20686 _{5/2} ° - 46264 _{3/2} °	3882.214	1		25751.199	18214 _{5/2} ° - 43965 _{1/2} °
3907.905	10	50	25581.912	16564 _{11/2} ° - 42146 _{11/2} °	3882.142	100	150	25751.677	8460 _{3/2} ° - 34212 _{5/2} °
3907.336	10	10	25585.637	9400 _{3/2} ° - 34986 _{3/2} °	3881.497	50		25755.956	9400 _{3/2} ° - 35156 _{5/2} °
3906.828	3		25588.964	15236 _{3/2} ° - 40825 _{1/2} °	3879.796	15	15	25767.248	17460 _{5/2} ° - 43227 _{5/2} °
3906.033	3		25594.172	15453 _{7/2} ° - 41047 _{9/2} °	3878.047	20	15	25778.869	15144 _{3/2} ° - 40923 _{5/2} °
3905.924	15	25	25594.886	0 _{3/2} ° - 25594 _{1/2} °	3877.238	5	15	25784.247	17460 _{5/2} ° - 43244 _{3/2} °
3905.356	3	50	25598.609	26963 _{7/2} ° - 52562 _{7/2} °	3876.946	1		25786.189	17460 _{5/2} ° - 43246 _{7/2} °
3905.186	150	300	25599.723	13468 _{9/2} ° - 39068 _{7/2} °	3876.510	2		25789.089	17983 _{5/2} ° - 43772 _{5/2} °
3904.200	10	15	25606.188	8605 _{3/2} ° - 34212 _{5/2} °	3875.518	4	5	25795.690	8378 _{7/2} ° - 34174 _{5/2} °
3904.082	200	200	25606.962	4113 _{5/2} ° - 29720 _{3/2} °	3873.981	1	10	25805.925	23012 _{3/2} ° - 48817 _{3/2} °
3903.764	2		25609.048	19880 _{9/2} ° - 45489 _{9/2} °	3873.950	5	10	25806.131	12485 _{7/2} ° - 38291 _{7/2} °
3902.731	3		25615.826	20288 _{11/2} ° - 45904 _{9/2} °	3872.721	200	600	25814.320	10379 _{9/2} ° - 36193 _{9/2} °
3902.474	8	40	25617.513	15710 _{3/2} ° - 41328 _{5/2} °	3872.358	25	100	25816.740	11725 _{5/2} ° - 37542 _{3/2} °
3902.120	20	100	25619.837	14275 _{9/2} ° - 39895 _{9/2} °	3871.925	3	10	25819.627	12472 _{5/2} ° - 38291 _{7/2} °
3901.152	75	200	25626.194	12219 _{3/2} ° - 37846 _{3/2} °	3871.781	1		25820.587	17983 _{5/2} ° - 43803 _{7/2} °
3900.878	400	400	25627.994	7331 _{3/2} ° - 32959 _{3/2} °	3871.455	8	200	25822.762	19912 _{13/2} ° - 45735 _{11/2} °
3900.131	50s	100	25632.902	12472 _{5/2} ° - 38105 _{5/2} °	3871.245	5	25	25824.163	17983 _{5/2} ° - 43807 _{3/2} °
3900.037	1	40b	25633.520	30452 _{9/2} ° - 56086 _{9/2} °	3871.142	3		25824.850	8018 _{3/2} ° - 33843 _{3/2} °
3899.674	2		25635.906	17460 _{5/2} ° - 43096 _{5/2} °	3871.073	25	15	25825.310	9720 _{7/2} ° - 35545 _{9/2} °
3899.318	1		25638.247	21297 _{5/2} ° - 46935 _{3/2} °	3870.923	5	8	25826.311	12902 _{3/2} ° - 38728 _{5/2} °
3898.488	4b		25643.705	16033 _{5/2} ° - 41676 _{3/2} °	3869.971	75	100	25832.664	10855 _{7/2} ° - 36687 _{5/2} °
3898.062	1		25646.507	23730 _{9/2} ° - 49377 _{7/2} °	3868.161	1		25844.751	16906 _{7/2} ° - 42751 _{7/2} °
3897.456	1		25650.495	19248 _{5/2} ° - 44898 _{7/2} °	3867.883	2		25846.609	14101 _{1/2} ° - 39948 _{1/2} °
3895.982	1		25660.199	22014 _{11/2} ° - 47675 _{11/2} °	3867.849	20	300	25846.836	15144 _{3/2} ° - 40991 _{3/2} °
3895.854	1		25661.042	25607 _{9/2} ° - 51268 _{7/2} °	3867.696	1	8	25847.858	26424 _{5/2} ° - 52272 _{7/2} °
3894.899	15	40	25667.334	15324 _{9/2} ° - 40991 _{3/2} °	3867.577	50	75	25848.654	7001 _{3/2} ° - 32850 _{5/2} °
3894.408	10	40	25670.570	14545 _{5/2} ° - 40216 _{5/2} °	3867.197	1		25851.193	21297 _{5/2} ° - 47148 _{3/2} °
3893.423	10	75	25677.064	12488 _{9/2} ° - 38165 _{7/2} °	3866.876	15b	50	25853.339	14790 _{7/2} ° - 40644 _{5/2} °
3893.111	20	75	25679.122	13406 _{13/2} ° - 39085 _{13/2} °	3866.657	1		25854.803	12902 _{3/2} ° - 38757 _{3/2} °
3893.046	1b		25679.551	23697 _{7/2} ° - 49377 _{7/2} °	3866.632	3	5	25854.971	17272 _{9/2} ° - 43127 _{11/2} °
3893.026	20	75	25679.683	20158 _{3/2} ° - 45838 _{3/2} °	3866.064	5	200	25858.769	23518 _{7/2} ° - 49377 _{7/2} °
3892.432	4	15	25683.601	12485 _{7/2} ° - 38165 _{7/2} °	3864.993	3b		25865.935	14545 _{5/2} ° - 40411 _{7/2} °
3892.307	75	100	25684.426	17272 _{9/2} ° - 42955 _{9/2} °	3864.370	25b	75	25870.105	8460 _{3/2} ° - 34330 _{11/2} °
3891.053	75	100	25692.704	6244 _{1/2} ° - 31928 _{3/2} °	3864.118	2	25	25871.792	20989 _{9/2} ° - 46861 _{11/2} °
3890.981	10	50	25693.179	11116 _{7/2} ° - 36809 _{7/2} °	3863.593	4		25875.307	15453 _{7/2} ° - 41328 _{5/2} °
3890.821	15l	25	25694.236	12472 _{5/2} ° - 38165 _{7/2} °	3863.405	500	600	25876.566	6700 _{9/2} ° - 32576 _{7/2} °
3890.821	15l	25	25694.236	12485 _{7/2} ° - 38179 _{9/2} °	3863.205	5	5	25877.906	7331 _{5/2} ° - 33209 _{7/2} °
3890.351	4b	10	25697.340	15349 _{11/2} ° - 41047 _{9/2} °	3862.701	20b	25	25881.282	1521 _{5/2} ° - 27403 _{3/2} °
3890.057	1		25699.282	20686 _{5/2} ° - 46385 _{7/2} °	3862.654	200b	200	25881.597	9711 _{7/2} ° - 35593 _{7/2} °
3888.673	50	100h	25708.428	25027 _{1/2} ° - 50735 _{3/2} °	3862.557	5		25882.247	13818 _{7/2} ° - 39700 _{5/2} °

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
3862.398	100b	150b	25883.312	13468 ^o _{5/2} - 39352 ^o _{11/2}	3826.022	10	75	26129.393	12488 ^o _{9/2} - 38617 ^o _{9/2}
3862.052	2	100	25885.631	33730 ^o _{5/2} - 59616 ^o _{3/2}	3825.546	2		26132.644	14790 ^o _{7/2} - 40923 ^o _{5/2}
3861.540	25b	50	25889.063	11576 ^o _{3/2} - 37465 ^o _{5/2}	3825.034	150	400	26136.142	10673 ^o _{5/2} - 36809 ^o _{7/2}
3859.931	50	200	25899.855	12472 ^o _{5/2} - 38372 ^o _{3/2}	3824.759	5	50	26138.021	26424 ^o _{5/2} - 52562 ^o _{7/2}
3859.840	300	500	25900.466	8378 ^o _{7/2} - 34279 ^o _{7/2}	3824.645	5	25	26138.800	19050 ^o _{5/2} - 45189 ^o _{5/2}
3859.747	50	200	25901.090	12488 ^o _{9/2} - 38389 ^o _{7/2}	3823.873	1		26144.077	20120 ^o _{5/2} - 46264 ^o _{3/2}
3857.507	4	200	25916.130	26762 ^o _{3/2} - 52678 ^o _{5/2}	3823.584	75	300	26146.053	13250 ^o _{5/2} - 39396 ^o _{7/2}
3857.347	10	50	25917.205	12472 ^o _{5/2} - 38389 ^o _{7/2}	3823.321	157	100	26147.852	13248 ^o _{9/2} - 39396 ^o _{7/2}
3856.188	3	25	25924.994	18973 ^o _{7/2} - 44898 ^o _{7/2}	3822.149	300b	200b	26155.869	9585 ^o _{5/2} - 35741 ^o _{5/2}
3856.113	5	10	25925.498	9061 ^o _{5/2} - 34986 ^o _{3/2}	3821.755	20	50	26158.566	9720 ^o _{7/2} - 35878 ^o _{7/2}
3856.060	2		25925.855	28243 ^o _{5/2} - 54169 ^o _{7/2}	3821.431	200	500	26160.784	11116 ^o _{7/2} - 37277 ^o _{7/2}
3854.920	3		25933.521	20969 ^o _{7/2} - 46902 ^o _{5/2}	3821.032	2		26163.515	27357 ^o _{9/2} - 53520 ^o _{9/2}
3854.876	10	150	25933.817	12902 ^o _{3/2} - 38836 ^o _{3/2}	3819.941	3b	40	26170.988	23187 ^o _{13/2} - 49357 ^o _{11/2}
3854.510	300	600	25936.280	10189 ^o _{11/2} - 36125 ^o _{9/2}	3819.339	8	8	26175.113	8378 ^o _{7/2} - 34553 ^o _{9/2}
3854.319	2b	8	25937.565	23187 ^o _{13/2} - 49124 ^o _{11/2}	3819.286	3	8	26175.476	23697 ^o _{7/2} - 49873 ^o _{5/2}
3853.437	1		25943.502	24463 ^o _{5/2} - 50407 ^o _{7/2}	3819.161	2		26176.332	14101 ^o _{1/2} - 40278 ^o _{3/2}
3853.083	2		25945.885	13406 ^o _{13/2} - 39352 ^o _{11/2}	3818.099	5	25	26183.613	15144 ^o _{3/2} - 41328 ^o _{5/2}
3852.958	40	200	25946.727	11116 ^o _{7/2} - 37063 ^o _{9/2}	3817.366	8	100	26188.641	21682 ^o _{7/2} - 47871 ^o _{7/2}
3850.768	2		25961.483	12902 ^o _{3/2} - 38863 ^o _{5/2}	3817.291	5	40	26189.155	16033 ^o _{5/2} - 42222 ^o _{7/2}
3850.281	20	150	25964.767	20288 ^o _{11/2} - 46253 ^o _{9/2}	3816.793	10	40	26192.572	9400 ^o _{5/2} - 35593 ^o _{7/2}
				12902 ^o _{3/2} - 38867 ^o _{1/2}					21131 ^o _{3/2} - 47324 ^o _{5/2}
3850.132	75	200	25965.771	11576 ^o _{3/2} - 37542 ^o _{3/2}	3816.607	5	10	26193.849	8018 ^o _{3/2} - 34212 ^o _{5/2}
3850.092	2		25966.041	15710 ^o _{3/2} - 41676 ^o _{3/2}	3816.561	8	75	26194.164	12570 ^o _{7/2} - 38764 ^o _{7/2}
3849.542	1		25969.751	17837 ^o _{1/2} - 43807 ^o _{3/2}	3815.026	75	200	26204.704	10379 ^o _{9/2} - 36583 ^o _{7/2}
3848.823	2		25974.602	17272 ^o _{9/2} - 43246 ^o _{7/2}	3813.666	100	150	26214.048	7001 ^o _{3/2} - 33215 ^o _{3/2}
3846.832	10	8	25988.046	4113 ^o _{5/2} - 30101 ^o _{7/2}	3813.400	1		26215.877	18973 ^o _{7/2} - 45189 ^o _{5/2}
3846.753	2		25988.579	30956 ^o _{9/2} - 56945 ^o _{11/2}	3813.324	5	200	26216.399	20686 ^o _{5/2} - 46902 ^o _{5/2}
3846.247	10	200	25991.998	22014 ^o _{11/2} - 48006 ^o _{9/2}	3813.068	400	500	26218.159	9238 ^o _{9/2} - 35456 ^o _{9/2}
3845.535	8	300	25996.810	20158 ^o _{5/2} - 46155 ^o _{5/2}	3812.300	1		26223.441	25607 ^o _{9/2} - 51830 ^o _{7/2}
3845.223	10	15	25998.920	28923 ^o _{5/2} - 54922 ^o _{3/2}	3811.975	3		26225.677	15710 ^o _{3/2} - 41936 ^o _{3/2}
3843.415	4	10	26011.150	12570 ^o _{7/2} - 38581 ^o _{5/2}	3811.355	3	20	26229.943	23730 ^o _{9/2} - 49960 ^o _{7/2}
3842.919	25b		26014.507	7828 ^o _{1/2} - 33843 ^o _{3/2}	3810.558	2		26235.429	15453 ^o _{7/2} - 41688 ^o _{7/2}
3841.960	300	800	26021.000	9720 ^o _{7/2} - 35741 ^o _{5/2}	3810.497	2		26235.849	25440 ^o _{5/2} - 51676 ^o _{3/2}
3841.358	4b	10	26025.078	14545 ^o _{5/2} - 40570 ^o _{7/2}	3810.295	15	5	26237.239	10572 ^o _{9/2} - 36809 ^o _{7/2}
3839.744	1000b	800b	26036.017	6700 ^o _{9/2} - 32736 ^o _{7/2}	3809.834	75	300	26240.414	14484 ^o _{11/2} - 40724 ^o _{13/2}
3838.964	1		26041.307	20310 ^o _{5/2} - 46352 ^o _{7/2}	3809.629	1		26241.826	24982 ^o _{7/2} - 51224 ^o _{9/2}
3838.850	2		26042.080	23372 ^o _{3/2} - 49414 ^o _{3/2}	3809.457	1		26243.011	12485 ^o _{7/2} - 38728 ^o _{5/2}
3837.794	2		26049.246	16906 ^o _{7/2} - 42955 ^o _{9/2}	3809.132	3	25	26245.250	15242 ^o _{9/2} - 41488 ^o _{7/2}
3834.080	2		26074.479	20310 ^o _{5/2} - 46385 ^o _{7/2}	3809.081	1		26245.601	11576 ^o _{3/2} - 37821 ^o _{3/2}
3833.693	50	100	26077.111	13818 ^o _{7/2} - 39895 ^o _{9/2}	3808.688	4		26248.310	12902 ^o _{3/2} - 39150 ^o _{3/2}
3833.231	10	50	26080.254	16564 ^o _{11/2} - 42644 ^o _{13/2}	3808.512	3		26249.523	20686 ^o _{5/2} - 46935 ^o _{3/2}
3832.789	25	200	26083.261	13468 ^o _{9/2} - 39552 ^o _{9/2}	3808.128	50	200	26252.169	12488 ^o _{9/2} - 38740 ^o _{11/2}
3832.347	2		26086.270	17722 ^o _{9/2} - 43809 ^o _{9/2}	3807.875	300	800	26253.914	9202 ^o _{7/2} - 35456 ^o _{9/2}
3831.737	100	500	26090.422	14484 ^o _{11/2} - 40574 ^o _{11/2}	3807.671	3	100	26255.320	19050 ^o _{3/2} - 45306 ^o _{3/2}
3831.525	8	25	26091.866	14275 ^o _{9/2} - 40367 ^o _{9/2}	3807.500	3		26256.499	12472 ^o _{5/2} - 38728 ^o _{5/2}
3830.946	25	50	26095.809	9061 ^o _{5/2} - 35156 ^o _{5/2}	3806.266	5	75	26265.011	20158 ^o _{5/2} - 46423 ^o _{3/2}
3830.836	25b	100	26096.558	11725 ^o _{1/2} - 37821 ^o _{3/2}	3806.230	2		26265.260	20120 ^o _{5/2} - 46385 ^o _{7/2}
3830.511	25	100	26098.773	14545 ^o _{5/2} - 40644 ^o _{5/2}	3805.969	8	200	26267.061	20288 ^o _{11/2} - 46555 ^o _{11/2}
3829.415	50b	40	26106.242	17121 ^o _{3/2} - 43227 ^o _{5/2}					25414 ^o _{11/2} - 51681 ^o _{9/2}
3826.949	100	400	26123.064	14349 ^o _{1/2} - 40472 ^o _{3/2}	3805.820	200	400	26268.089	6691 ^o _{3/2} - 32959 ^o _{3/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
3805.341	2b	50b	26271.396	27249 ^o _{7/2} - 53520 _{9/2}	3783.012	150	400	26426.457	13468 ^o _{9/2} - 39895 _{9/2}
3805.314	500l	400b	26271.582	20080 ^o _{7/2} - 46352 _{7/2}	3782.108	5		26432.774	15786 ^o _{5/2} - 42219 ^o _{5/2}
3804.995	100	200	26273.785	12219 ^o _{3/2} - 38493 ^o _{5/2}	3780.282	3		26445.541	15242 ^o _{9/2} - 41688 _{7/2}
3804.335	8h	20	26278.343	18816 ^o _{13/2} - 45095 _{13/2}	3779.712	1		26449.529	16564 ^o _{11/2} - 43014 _{13/2}
3803.369	2		26285.017	12472 ^o _{5/2} - 38757 _{3/2}	3778.744	10	75	26456.305	15453 ^o _{7/2} - 41909 _{9/2}
3802.320	1		26292.268	20310 ^o _{5/2} - 46603 _{5/2}	3777.286	3	40	26466.516	19912 ^o _{13/2} - 46378 _{13/2}
3802.147	25	75	26293.465	9585 ^o _{5/2} - 35878 _{7/2}	3775.901	8	200	26476.224	14349 ^o _{1/2} - 40825 _{1/2}
3801.916	10	50	26295.062	14275 ^o _{5/2} - 40570 _{7/2}	3775.312	10	25	26480.354	9585 ^o _{5/2} - 36065 _{5/2}
3801.324	15	150	26299.157	14275 ^o _{5/2} - 40574 _{11/2}	3774.924	1		26483.076	20120 ^o _{5/2} - 46603 _{5/2}
3800.588	10	400	26304.250	19912 ^o _{13/2} - 46216 _{11/2}	3774.202	100b	500	26488.142	19880 _{9/2} - 46368 _{9/2}
3800.371	75	200	26305.752	7331 ^o _{5/2} - 33637 _{7/2}	3773.758	300	400	26491.259	10572 ^o _{5/2} - 37063 _{9/2}
3800.113	20	20	26307.538	9238 ^o _{9/2} - 35545 _{9/2}	3772.429	1		26500.591	20080 ^o _{7/2} - 46581 _{5/2}
3799.489	3		26311.858	17460 ^o _{5/2} - 43772 _{5/2}	3772.236	100	200	26501.947	7828 _{7/2} - 34330 ^o _{1/2}
3799.422	2		26312.322	8018 ^o _{3/2} - 34330 ^o _{1/2}	3771.201	1		26509.220	6700 ^o _{5/2} - 33209 _{7/2}
3798.459	4	15	26318.993	16033 ^o _{5/2} - 42352 _{5/2}	3768.778	3	10	26526.263	8460 ^o _{3/2} - 34986 ^o _{3/2}
3798.426	200	75	26319.221	23518 ^o _{7/2} - 49837 _{9/2}	3768.435	20	100	26528.677	11576 ^o _{5/2} - 38105 _{5/2}
3797.718	2		26324.128	21682 ^o _{7/2} - 48006 _{9/2}	3768.003	3	5	26531.719	17272 ^o _{9/2} - 43803 _{7/2}
3797.564	2		26325.195	17771 ^o _{11/2} - 44096 _{9/2}	3767.946	8b	50	26532.120	15144 ^o _{3/2} - 41676 _{3/2}
3797.453	15	200	26325.965	15786 ^o _{5/2} - 42112 ^o _{5/2}	3767.898	300s	500	26532.458	9061 ^o _{5/2} - 35593 ^o _{7/2}
3796.185	1	5	26334.758	28587 ^o _{5/2} - 54922 _{3/2}	3767.868	4		26532.669	13406 ^o _{13/2} - 39939 _{11/2}
				22355 ^o _{1/2} - 48689 _{3/2}					
3795.678	3	75	26338.276	18214 ^o _{5/2} - 44552 _{5/2}	3767.513	2		26535.169	15710 ^o _{3/2} - 42246 _{1/2}
3794.951	2		26343.321	9202 ^o _{7/2} - 35545 _{9/2}	3767.252	2		26537.007	17272 ^o _{5/2} - 43809 _{9/2}
3794.646	4	20	26345.438	9720 ^o _{7/2} - 36065 _{5/2}	3767.201	10	200	26537.367	14790 ^o _{7/2} - 41328 _{5/2}
3794.428	2		26346.952	17460 ^o _{5/2} - 43807 _{3/2}	3765.535	8h	20	26549.108	13818 ^o _{7/2} - 40367 _{9/2}
3794.316	150	100	26347.730	8378 ^o _{7/2} - 34726 _{7/2}	3765.129	3	10	26551.970	19248 ^o _{5/2} - 45800 _{5/2}
3794.150	100	200	26348.882	11116 ^o _{7/2} - 37465 _{5/2}	3764.070	2	50	26559.440	15349 ^o _{11/2} - 41909 _{9/2}
3793.309	2		26354.724	23518 ^o _{7/2} - 49873 _{5/2}	3763.581	15	300b	26562.891	14484 ^o _{11/2} - 41047 _{9/2}
3792.312	15b	200	26361.652	12219 ^o _{3/2} - 38581 ^o _{5/2}	3763.554	2	25	26563.082	25607 ^o _{5/2} - 52170 _{11/2}
3791.972	15	100	26364.016	12472 ^o _{5/2} - 38836 _{3/2}	3763.320	40	300	26564.733	16818 ^o _{7/2} - 43382 ^o _{5/2}
					3762.885	400b	600	26567.804	6168 ^o _{7/2} - 32736 _{7/2}
3791.296	100	300	26368.717	11576 ^o _{5/2} - 37945 _{5/2}	3762.679	1		26569.259	17983 ^o _{5/2} - 44552 _{5/2}
3790.459	3		26374.539	12488 ^o _{9/2} - 38862 _{11/2}	3762.417	1	20	26571.109	29515 ^o _{9/2} - 56086 ^o _{9/2}
3789.951	25	200	26378.075	14545 ^o _{5/2} - 40923 _{5/2}	3762.012	1		26573.969	21297 ^o _{5/2} - 47871 _{7/2}
3789.610	2	15	26380.448	24982 ^o _{5/2} - 51362 _{5/2}	3761.887	2		26574.852	18214 ^o _{5/2} - 44789 _{1/2}
3789.563	4		26380.775	8605 ^o _{5/2} - 34986 ^o _{3/2}	3761.101	50	200	26580.406	12488 ^o _{9/2} - 39068 _{7/2}
3789.413	2		26381.819	27787 ^o _{9/2} - 54169 _{7/2}	3760.733	1		26583.007	12485 ^o _{7/2} - 39068 _{7/2}
3789.122	500b	400	26383.845	1859 ^o _{3/2} - 28243 ^o _{5/2}	3760.295	3b		26586.103	20120 ^o _{5/2} - 46706 _{7/2}
3788.358	50	100	26389.166	4490 ^o _{5/2} - 30879 _{7/2}	3760.271	50b	25b	26586.273	0 _{3/2} - 26586 ^o _{3/2}
3788.062	1		26391.228	16564 ^o _{11/2} - 42955 _{9/2}	3758.822	4	40	26596.521	12472 ^o _{5/2} - 39068 _{7/2}
3787.995	1		26391.695	12472 ^o _{5/2} - 38863 _{5/2}	3757.276	1		26607.465	14790 ^o _{7/2} - 41398 _{9/2}
3787.478	10	100	26395.297	20310 ^o _{5/2} - 46706 _{7/2}	3756.889	1		26610.205	24414 ^o _{5/2} - 51024 _{3/2}
3787.116	8	200	26397.820	13818 ^o _{7/2} - 40216 _{5/2}	3756.757	8	50	26611.141	13250 _{5/2} - 39861 ^o _{5/2}
3786.881	100	200	26399.458	7331 ^o _{5/2} - 33730 _{5/2}	3754.843	1		26624.705	20310 ^o _{5/2} - 46935 _{3/2}
3786.076	2		26405.071	9720 ^o _{7/2} - 36125 _{9/2}	3754.592	200	200	26626.485	0 _{3/2} - 26626 ^o _{1/2}
3785.913	100	300	26406.208	17771 ^o _{11/2} - 44177 _{11/2}	3752.568	500	800	26640.846	9238 ^o _{9/2} - 35878 _{7/2}
3785.600	500	500	26408.391	6168 ^o _{7/2} - 32576 _{7/2}	3751.758	8	40	26646.597	11725 ^o _{7/2} - 38372 _{3/2}
3785.428	2		26409.591	25266 ^o _{5/2} - 51676 _{3/2}	3750.658	2	40	26654.412	29431 _{7/2} - 56086 ^o _{9/2}
3783.752	4	10	26421.289	18973 ^o _{7/2} - 45395 _{7/2}	3748.975	200	100	26666.378	15242 ^o _{9/2} - 41909 _{9/2}
3783.660	100b	100	26421.932	14101 ^o _{1/2} - 40523 _{1/2}	3748.282	50	200	26671.308	11116 ^o _{7/2} - 37787 _{7/2}
3783.295	200	300	26424.481	0 _{3/2} - 26424 ^o _{5/2}	3747.706	2	20	26675.407	18214 ^o _{3/2} - 44889 _{3/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
3747.539	300	500	26676.595	9202 ^o _{7/2} - 35878 ^o _{7/2}	3721.824	800b	500	26860.906	1859 ^o _{3/2} - 28720 ^o _{3/2}
3747.270	1		26678.511	12472 ^o _{5/2} - 39150 ^o _{3/2}	3721.344	8	40	26864.371	10189 ^o _{11/2} - 37053 ^o _{11/2}
3747.170	3	10	26679.222	17771 ^o _{9/2} - 44450 ^o _{9/2}	3721.137	2b	2	26865.865	16906 ^o _{5/2} - 43772 ^o _{5/2}
3746.463	25	50	26684.257	6700 ^o _{9/2} - 33384 ^o _{9/2}	3720.700	10	75	26869.020	10673 ^o _{5/2} - 37542 ^o _{3/2}
3746.227	5	75	26685.938	17121 ^o _{3/2} - 43807 ^o _{3/2}	3720.307	200s	400	26871.859	9711 ^o _{7/2} - 36583 ^o _{7/2}
3745.968	400	500	26687.783	7331 ^o _{5/2} - 34019 ^o _{3/2}	3720.214	150	100	26872.530	12570 ^o _{7/2} - 39443 ^o _{9/2}
3744.735	200	200	26696.570	8460 ^o _{3/2} - 35156 ^o _{5/2}	3719.976	300b	500	26874.249	10189 ^o _{11/2} - 37063 ^o _{9/2}
3744.652	15	200	26697.162	14790 ^o _{7/2} - 41488 ^o _{7/2}	3719.693	20	200	26876.294	15236 ^o _{3/2} - 42112 ^o _{3/2}
3743.806	100	200	26703.194	18118 ^o _{3/2} - 44821 ^o _{5/2}	3719.152	1	1	26880.204	26965 ^o _{3/2} - 53845 ^o _{5/2}
3743.506	20	200	26705.334	10572 ^o _{9/2} - 37277 ^o _{7/2}	3719.057	10	5	26880.890	4113 ^o _{5/2} - 30994 ^o _{7/2}
3742.228	5	200	26714.454	10855 ^o _{7/2} - 37569 ^o _{9/2}	3719.012	3	5	26881.215	12485 ^o _{7/2} - 39366 ^o _{5/2}
3741.183	1000r	600	26721.916	1521 ^o _{5/2} - 28243 ^o _{3/2}	3718.806	1	2	26882.704	24982 ^o _{7/2} - 51865 ^o _{5/2}
3740.854	40o	300	26724.266	11116 ^o _{9/2} - 37840 ^o _{9/2}	3718.656	10	200	26883.789	15453 ^o _{7/2} - 42336 ^o _{5/2}
3740.411	15	20	26727.431	1859 ^o _{3/2} - 28587 ^o _{5/2}	3718.168	75	200	26887.317	9238 ^o _{9/2} - 36125 ^o _{9/2}
3738.847	300	300	26738.611	8460 ^o _{3/2} - 35198 ^o _{1/2}	3717.830	15	200	26889.762	14101 ^o _{7/2} - 40991 ^o _{3/2}
3738.758	3b	400	26739.248	14484 ^o _{11/2} - 41223 ^o _{11/2}	3716.773	4	5	26897.408	16906 ^o _{7/2} - 43803 ^o _{7/2}
3738.103	8b		26743.933	6213 ^o _{9/2} - 32957 ^o _{7/2}	3716.542	2b		26899.080	15453 ^o _{7/2} - 42352 ^o _{5/2}
3737.647	3		26747.196	15453 ^o _{7/2} - 42200 ^o _{9/2}	3716.214	4	2	26901.454	10855 ^o _{7/2} - 37756 ^o _{7/2}
3737.334	1		26749.435	19050 ^o _{3/2} - 45800 ^o _{5/2}	3716.088	1		26902.366	20969 ^o _{7/2} - 47871 ^o _{7/2}
3736.936	15	200	26752.284	13818 ^o _{7/2} - 40570 ^o _{7/2}	3715.911	3	2	26903.648	15242 ^o _{9/2} - 42146 ^o _{11/2}
3735.511	3	15	26762.490	20969 ^o _{7/2} - 47731 ^o _{9/2}	3715.721	3	25	26905.023	17272 ^o _{7/2} - 44177 ^o _{11/2}
3734.698	1	2	26768.315	30310 ^o _{11/2} - 57078 ^o _{9/2}	3714.455	1		26914.193	14484 ^o _{11/2} - 41398 ^o _{9/2}
3734.598	100b	200b	26769.032	4490 ^o _{5/2} - 31259 ^o _{5/2}	3714.338	2	3	26915.041	24309 ^o _{11/2} - 51224 ^o _{9/2}
3734.566	3b	10b	26769.261	15453 ^o _{7/2} - 42222 ^o _{7/2}	3714.291	8b	200	26915.382	17983 ^o _{5/2} - 44898 ^o _{7/2}
3734.414	1		26770.351	21682 ^o _{7/2} - 48453 ^o _{7/2}	3712.533	40b	25b	26928.127	17460 ^o _{5/2} - 44388 ^o _{5/2}
3734.232	1		26771.656	14275 ^o _{9/2} - 41047 ^o _{9/2}	3711.780	3	2	26933.589	13250 ^o _{5/2} - 40184 ^o _{7/2}
3734.128	1		26772.401	23697 ^o _{7/2} - 50470 ^o _{9/2}	3711.304	300	500	26937.044	6700 ^o _{5/2} - 33637 ^o _{7/2}
3732.736	2		26782.385	20120 ^o _{5/2} - 46902 ^o _{5/2}	3710.552	5	50	26942.503	13468 ^o _{9/2} - 40411 ^o _{7/2}
3732.679	3	20	26782.794	14545 ^o _{5/2} - 41328 ^o _{5/2}	3709.817	3	8	26947.841	7331 ^o _{5/2} - 34279 ^o _{7/2}
3732.473	1		26784.272	33209 ^o _{7/2} - 59993 ^o _{9/2}	3709.624	5	200	26949.242	19912 ^o _{13/2} - 46861 ^o _{11/2}
3731.425	8	75	26791.794	15144 ^o _{3/2} - 41936 ^o _{3/2}	3709.310	2		26951.524	17837 ^o _{7/2} - 44789 ^o _{1/2}
3731.354	4b		26792.304	10673 ^o _{5/2} - 37465 ^o _{5/2}	3708.754	5	150	26955.564	16818 ^o _{7/2} - 43773 ^o _{7/2}
3730.748	75	500	26796.656	15349 ^o _{11/2} - 42146 ^o _{11/2}	3708.671	5b	75	26956.167	17771 ^o _{11/2} - 44727 ^o _{11/2}
3730.532	2		26798.207	12902 ^o _{3/2} - 39700 ^o _{5/2}	3707.428	75	75	26965.205	0 ^o _{3/2} - 26965 ^o _{3/2}
3729.678	25	50	26804.343	24463 ^o _{5/2} - 51268 ^o _{7/2}	3706.046	8	200	26975.260	18214 ^o _{5/2} - 45189 ^o _{5/2}
3728.990	1		26809.289	21682 ^o _{7/2} - 48492 ^o _{5/2}	3705.942	5	50	26976.017	9711 ^o _{7/2} - 36687 ^o _{5/2}
3728.965	1		26809.468	29873 ^o _{7/2} - 56683 ^o _{7/2}	3704.966	25	200	26983.123	15236 ^o _{3/2} - 42219 ^o _{5/2}
3726.946	1		26823.991	17272 ^o _{5/2} - 44096 ^o _{9/2}	3704.342	20h	100	26987.668	8605 ^o _{5/2} - 35593 ^o _{7/2}
3726.724	200	200	26825.589	4146 ^o _{7/2} - 30972 ^o _{5/2}	3704.085	100	200	26989.541	9400 ^o _{5/2} - 36390 ^o _{3/2}
3726.659	25	50	26826.057	12570 ^o _{7/2} - 39396 ^o _{7/2}	3703.990	100	300	26990.233	10572 ^o _{9/2} - 37562 ^o _{11/2}
3726.197	3	50	26829.383	18816 ^o _{13/2} - 45646 ^o _{13/2}	3703.907	75	200	26990.838	10855 ^o _{7/2} - 37846 ^o _{5/2}
3726.099	2	1	26830.089	22014 ^o _{11/2} - 48844 ^o _{9/2}	3702.864	10	300	26998.440	19912 ^o _{13/2} - 46910 ^o _{13/2}
3725.875	3	100	26831.702	19594 ^o _{1/2} - 46426 ^o _{1/2}	3702.067	3	15	27004.252	17722 ^o _{9/2} - 44727 ^o _{11/2}
3725.822	1	3	26832.084	25440 ^o _{5/2} - 52272 ^o _{7/2}	3700.766	50	500	27013.745	15305 ^o _{9/2} - 42319 ^o _{9/2}
3724.733	40	200	26839.928	17460 ^o _{5/2} - 44300 ^o _{3/2}	3700.526	1	2	27015.497	22106 ^o _{5/2} - 49121 ^o _{7/2}
3724.498	75	50	26841.622	7001 ^o _{3/2} - 33843 ^o _{3/2}	3700.462	25	75	27015.964	19248 ^o _{5/2} - 46264 ^o _{3/2}
3724.299	3	1	26843.056	7331 ^o _{5/2} - 34174 ^o _{5/2}	3698.755	5	200	27028.432	20120 ^o _{5/2} - 47148 ^o _{3/2}
3723.657	100	200	26847.684	4146 ^o _{7/2} - 30994 ^o _{7/2}	3698.301	10b	8	27031.750	11725 ^o _{1/2} - 38757 ^o _{3/2}
3723.291	20	200	26850.323	15349 ^o _{11/2} - 42200 ^o _{9/2}	3697.234	2		27039.551	6691 ^o _{3/2} - 33730 ^o _{5/2}
3722.115	300b	500	26858.806	4113 ^o _{5/2} - 30972 ^o _{5/2}	3697.030	100	200	27041.043	6168 ^o _{7/2} - 33209 ^o _{7/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
3696.647	50	200	27043.845	9400 _{3/2} ° - 36444 _{3/2} °	3672.205	2		27223.842	9585 _{3/2} ° - 36809 _{7/2}
3696.316	1	1	27046.266	26963 _{7/2} ° - 54010 _{7/2}	3671.164	10	50	27231.562	17272 _{3/2} ° - 44503 _{7/2}
3695.974	100	300	27048.769	11116 _{7/2} ° - 38165 _{7/2}	3670.057	300	150	27239.775	4113 _{3/2} ° - 31353 _{3/2}
3694.785	1	2	27057.473	27787 _{9/2} ° - 54845 _{9/2}	3669.403	4	10l	27244.630	16564 _{11/2} ° - 43809 _{9/2}
3693.901	50	300	27063.948	12488 _{9/2} ° - 39552 _{9/2}	3666.373	3b	2	27267.146	17121 _{9/2} ° - 44388 _{5/2}
3693.693	100	100	27065.472	1521 _{5/2} ° - 28587 _{5/2}	3666.150	2	2	27268.804	10572 _{9/2} ° - 37840 _{9/2}
3693.640	1		27065.860	15453 _{7/2} ° - 42518 _{7/2}	3665.723	20	100	27271.980	10673 _{5/2} ° - 37945 _{5/2}
3693.544	4b		27066.564	12485 _{7/2} ° - 39552 _{7/2}	3665.181	15	100	27276.013	15242 _{9/2} ° - 42518 _{7/2}
3692.075	50	200	27077.333	8378 _{9/2} ° - 35456 _{9/2}	3663.702	300b	500b	27287.024	9400 _{5/2} ° - 36687 _{5/2}
3690.486	150	300	27088.991	9720 _{7/2} ° - 36809 _{7/2}	3663.318	2	3	27289.884	24982 _{7/2} ° - 52272 _{7/2}
3690.070	5b	20	27092.045	17460 _{5/2} ° - 44552 _{5/2}	3662.631	2	1	27295.003	15349 _{11/2} ° - 42644 _{13/2}
3688.812	8	40	27101.284	15144 _{3/2} ° - 42246 _{1/2}	3662.562	2	3	27295.517	25440 _{3/2} ° - 52735 _{3/2}
3688.756	100b	150b	27101.695	13468 _{9/2} ° - 40570 _{7/2}	3662.191	15l	25	27298.282	15453 _{7/2} ° - 42751 _{7/2}
3688.266	3	2	27105.296	13818 _{7/2} ° - 40923 _{5/2}	3660.117	4b	3	27313.750	12902 _{3/2} ° - 40216 _{5/2}
3688.198	4	10	27105.796	13468 _{9/2} ° - 40574 _{11/2}	3659.508	300l	500s	27318.296	13406 _{3/2} ° - 40724 _{13/2}
3687.671	10h	75	27109.669	22014 _{11/2} ° - 49124 _{11/2}	3659.208	1		27320.535	12902 _{3/2} ° - 40222 _{3/2}
3687.524	100b	100	27110.750	11725 _{5/2} ° - 38836 _{3/2}	3658.226	100	200	27327.869	6691 _{3/2} ° - 34019 _{3/2}
3686.980	20	100	27114.750	10673 _{5/2} ° - 37787 _{7/2}	3658.063	100b	200b	27329.087	7001 _{3/2} ° - 34330 _{1/2}
3686.494	1		27118.325	14790 _{7/2} ° - 41909 _{9/2}	3656.199	50	300	27343.019	9720 _{7/2} ° - 37063 _{9/2}
3685.867	8	100	27122.937	14275 _{9/2} ° - 41398 _{9/2}	3655.624	1		27347.320	17460 _{5/2} ° - 44807 _{7/2}
3683.936	5	75	27137.154	19248 _{5/2} ° - 46385 _{7/2}	3655.027	2	2	27351.786	20969 _{7/2} ° - 48320 _{5/2}
3683.723	5	1	27138.723	8018 _{3/2} ° - 35156 _{5/2}	3654.605	2	2	27354.945	19248 _{5/2} ° - 46603 _{5/2}
3683.313	20	200	27141.744	11725 _{5/2} ° - 38867 _{1/2}	3654.572	4	20	27355.192	17771 _{11/2} ° - 45126 _{9/2}
3682.846	2	2	27145.185	23518 _{7/2} ° - 50663 _{5/2}	3653.602	50	50	27362.454	8378 _{7/2} ° - 35741 _{5/2}
3682.350	25	200	27148.842	10673 _{5/2} ° - 37821 _{3/2}	3652.536	100	300	27370.440	7828 _{1/2} ° - 35198 _{1/2}
3681.880	100	200	27152.307	11576 _{3/2} ° - 38728 _{5/2}	3652.224	1	20	27372.778	32620 _{11/2} ° - 59993 _{9/2}
3681.180	10	200	27157.470	15786 _{5/2} ° - 42944 _{7/2}				24309 _{11/2} ° - 51681 _{9/2}	
3681.103	5	10	27158.038	7828 _{1/2} ° - 34986 _{3/2}	3652.167	200	500	27373.205	10189 _{11/2} ° - 37562 _{11/2}
3680.540	2	3	27162.192	21682 _{7/2} ° - 48844 _{9/2}	3651.825	5	50	27375.768	12902 _{3/2} ° - 40278 _{3/2}
3679.710	200	500	27168.319	29515 _{9/2} ° - 56683 _{7/2}	3651.468	4	75	27378.445	18973 _{7/2} ° - 46352 _{7/2}
				13406 _{13/2} ° - 40574 _{11/2}					
3678.776	4	2	27175.217	11116 _{7/2} ° - 38291 _{7/2}	3650.765	100	300	27383.717	9061 _{5/2} ° - 36444 _{3/2}
3678.273	5	20	27178.933	17121 _{3/2} ° - 44300 _{3/2}	3650.502	4b	3	27385.689	15710 _{3/2} ° - 43096 _{5/2}
3678.047	150	150	27180.603	9400 _{5/2} ° - 36581 _{3/2}	3649.249	200	400	27395.092	7331 _{5/2} ° - 34726 _{7/2}
3678.021	150	150	27180.795	8018 _{3/2} ° - 35198 _{1/2}	3648.634	5	300	27399.710	18816 _{13/2} ° - 46216 _{11/2}
				11576 _{3/2} ° - 38757 _{3/2}	3648.420	100b	150	27401.317	1521 _{3/2} ° - 28923 _{5/2}
3677.915	200	300	27181.578	15236 _{3/2} ° - 42418 _{3/2}	3648.172	150	200	27403.180	0 _{3/2} ° - 27403 _{3/2}
3677.742	100	200	27182.857	9400 _{5/2} ° - 36583 _{7/2}	3647.646	200b	200	27407.131	12488 _{9/2} ° - 39895 _{9/2}
3677.089	2	2	27187.684	22685 _{7/2} ° - 49873 _{5/2}	3647.369	10	100	27409.213	14790 _{7/2} ° - 42200 _{9/2}
3676.823	2	2	27189.651	16906 _{7/2} ° - 44096 _{9/2}	3647.299	15	100	27409.739	12485 _{7/2} ° - 39895 _{9/2}
					3647.046	10	40	27411.640	18973 _{7/2} ° - 46385 _{7/2}
								17983 _{5/2} ° - 45395 _{7/2}	
3676.690	20	100	27190.634	10379 _{9/2} ° - 37569 _{9/2}					
3675.567	500	500	27198.942	1521 _{5/2} ° - 28720 _{3/2}	3646.883	15	100	27412.865	14275 _{9/2} ° - 41688 _{7/2}
3674.648	2	2	27205.744	26963 _{7/2} ° - 54169 _{7/2}	3645.268	1	2	27425.010	14484 _{11/2} ° - 41909 _{9/2}
3673.793	150	300	27212.075	7331 _{5/2} ° - 34543 _{5/2}	3645.235	2		27425.258	11725 _{5/2} ° - 39150 _{3/2}
3673.615	2		27213.394	19050 _{5/2} ° - 46264 _{3/2}	3644.714	8	200	27429.178	17460 _{5/2} ° - 44889 _{3/2}
3673.411	2		27214.905	12485 _{7/2} ° - 39700 _{5/2}	3644.461	1		27431.082	17121 _{9/2} ° - 44552 _{5/2}
3673.283	400b	300b	27215.853	10572 _{9/2} ° - 37787 _{7/2}	3644.431	15	5	27431.308	14790 _{7/2} ° - 42222 _{7/2}
3673.255	40b	75b	27216.061	6168 _{7/2} ° - 33384 _{9/2}	3644.348	20	150	27431.933	10673 _{5/2} ° - 38105 _{5/2}
3672.950	5	20	27218.321	22139 _{9/2} ° - 49357 _{11/2}	3642.888	3	8	27442.927	20288 _{11/2} ° - 47731 _{9/2}
3672.466	1	2	27221.908	13250 _{5/2} ° - 40472 _{3/2}	3641.882	1	10	27450.507	24414 _{3/2} ° - 51865 _{5/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
3641.841	10	300	27450.816	12488 ⁰ _{9/2} - 39939 ^{11/2}	3617.731	8b	2	27633.755	14275 ⁰ _{9/2} - 41909 ^{9/2}
3641.287	3	20	27454.993	17272 ⁰ _{9/2} - 44727 ^{11/2}	3617.615	1	2	27634.641	20686 ⁰ _{5/2} - 48320 ^{5/2}
3641.113	15	200	27456.305	13250 ⁰ _{9/2} - 40706 ^{7/2}	3617.117	200	500	27638.445	10855 ^{7/2} - 38493 ^{5/2}
3640.873	3	2	27458.115	13248 ⁰ _{9/2} - 40706 ⁰ _{7/2}	3617.017	100	500	27639.209	15305 ⁰ _{9/2} - 42944 ⁰ _{7/2}
3640.184	1	1	27463.312	20989 ⁰ _{9/2} - 48453 ^{7/2}	3616.697	8	200	27641.655	12219 ⁰ _{3/2} - 39861 ⁰ _{5/2}
3639.587	2	3	27467.816	28923 ⁰ _{5/2} - 56391 ^{5/2}	3615.372	25	150	27651.785	10189 ⁰ _{11/2} - 37840 ^{9/2}
3639.446	300	500	27468.880	6168 ⁰ _{7/2} - 33637 ^{7/2}	3615.132	400	500	27653.621	4146 ^{7/2} - 31800 ⁰ _{7/2}
3637.686	5	100	27482.170	16906 ⁰ _{7/2} - 44388 ^{5/2}	3615.040	2		27654.324	19248 ⁰ _{5/2} - 46902 ^{5/2}
3637.555	75	200	27483.160	6691 ⁰ _{5/2} - 34174 ^{5/2}	3614.009	75	500	27662.213	14484 ⁰ _{11/2} - 42146 ^{11/2}
3636.918	1	2	27487.973	27357 ⁰ _{9/2} - 54845 ^{9/2}	3613.778	100	150	27663.981	4146 ^{7/2} - 31810 ⁰ _{5/2}
3636.566	20	200	27490.634	10189 ⁰ _{11/2} - 37679 ^{11/2}	3613.611	2	3	27665.260	23697 ⁰ _{7/2} - 51362 ^{5/2}
3636.357	4	2	27492.214	10673 ⁰ _{5/2} - 38165 ^{7/2}	3612.113	4	25	27676.733	14545 ⁰ _{5/2} - 42222 ^{7/2}
3636.172	5	50	27493.613	23730 ⁰ _{9/2} - 51224 ^{9/2}	3610.793	100	200	27686.850	4113 ^{5/2} - 31800 ⁰ _{7/2}
3635.420	15	400	27499.299	22028 ⁰ _{15/2} - 49527 ^{13/2}	3610.562	2		27688.622	6213 ^{9/2} - 33902 ⁰ _{7/2}
3635.327	8	10	27500.003	8378 ⁰ _{7/2} - 35878 ^{7/2}	3610.398	75	200	27689.879	7331 ^{5/2} - 35021 ^{3/2}
3635.242	20	400	27500.646	15786 ⁰ _{5/2} - 43287 ^{3/2}	3610.125	50	200	27691.973	9585 ⁰ _{5/2} - 37277 ^{7/2}
3634.953	1		27502.832	15453 ⁰ _{7/2} - 42955 ^{9/2}	3610.036	200b	300	27692.656	13406 ⁰ _{13/2} - 41099 ^{15/2}
3634.214	10		27508.425	15242 ⁰ _{7/2} - 42751 ^{7/2}	3609.444	1000	600	27697.198	4113 ^{5/2} - 31810 ⁰ _{5/2}
3634.002	1		27510.029	13818 ⁰ _{5/2} - 41328 ^{5/2}	3609.224	100	300	27698.886	10673 ⁰ _{5/2} - 38372 ^{3/2}
3633.740	1	2	27512.013	27526 ⁰ _{9/2} - 55038 ^{9/2}	3607.910	2		27708.974	27787 ⁰ _{9/2} - 55496 ^{9/2}
3633.683	1	2	27512.445	22014 ⁰ _{11/2} - 49527 ^{13/2}	3607.392	10	150	27712.952	15242 ⁰ _{5/2} - 42955 ^{9/2}
3633.369	2	15	27514.822	24757 ⁰ _{9/2} - 52272 ^{7/2}	3607.009	2		27715.895	14484 ⁰ _{11/2} - 42200 ^{9/2}
3633.077	3	2	27517.034	15710 ⁰ _{5/2} - 43227 ^{5/2}	3606.963	2		27716.248	10673 ⁰ _{5/2} - 38389 ^{7/2}
3632.625	75	100	27520.457	9061 ⁰ _{3/2} - 36581 ⁰ _{5/2}	3606.696	3		27718.300	20288 ⁰ _{11/2} - 48006 ^{9/2}
3631.151	4	5	27531.629	16564 ⁰ _{11/2} - 44096 ^{9/2}	3606.505	2		27719.768	10572 ⁰ _{9/2} - 38291 ^{7/2}
3630.677	2		27535.223	23372 ⁰ _{5/2} - 50907 ^{3/2}	3605.654	20	200	27726.310	10855 ^{7/2 - 38581⁰_{5/2}}
3630.613	15	15	27535.708	17272 ⁰ _{9/2} - 44807 ^{7/2}	3605.440	15	20	27727.956	14790 ⁰ _{7/2} - 42518 ^{7/2}
3629.278	4	2	27545.837	14790 ⁰ _{7/2} - 42336 ^{5/2}	3605.296	2		27729.063	17460 ⁰ _{5/2} - 45189 ^{5/2}
3627.799	5	40	27557.066	9720 ⁰ _{7/2} - 37277 ^{7/2}	3605.117	3		27730.440	12485 ⁰ _{5/2} - 40216 ^{5/2}
3627.658	2	1	27558.138	21131 ⁰ _{3/2} - 48689 ^{3/2}	3604.039	8b		27738.734	18816 ⁰ _{13/2} - 46555 ^{11/2}
3627.591	4	50	27558.646	20310 ⁰ _{5/2} - 47869 ^{3/2}	3603.620	10	100	27741.959	12902 ⁰ _{3/2} - 40644 ^{5/2}
3627.265	10	50	27561.123	14790 ⁰ _{7/2} - 42352 ^{5/2}	3603.362	50	200	27743.946	12472 ⁰ _{5/2} - 40216 ^{5/2}
3627.150	8	75	27561.997	18816 ⁰ _{13/2} - 46378 ^{13/2}	3603.204	300	300	27745.162	9720 ⁰ _{7/2} - 37465 ^{5/2}
3627.073	15	20	27562.582	6168 ⁰ _{7/2} - 33730 ^{5/2}	3603.031	20	50	27746.494	8378 ⁰ _{7/2} - 36125 ^{9/2}
3626.090	25	50	27570.054	6700 ⁰ _{9/2} - 34270 ^{9/2}	3602.936	5		27747.226	11116 ⁰ _{7/2} - 38863 ^{5/2}
3625.931	75b	75b	27571.263	9238 ⁰ _{9/2} - 36809 ^{7/2}	3602.646	1		27749.459	20120 ⁰ _{5/2} - 47869 ^{3/2}
3625.628	500	300	27573.567	1521 ⁰ _{5/2} - 29095 ⁰ _{5/2}	3602.478	4	5	27750.754	12472 ⁰ _{5/2} - 40222 ^{3/2}
3625.536	5	20	27574.267	11576 ⁰ _{5/2} - 39150 ^{3/2}	3601.980	5	50	27754.590	13468 ⁰ _{9/2} - 41223 ^{11/2}
3624.896	300	400	27579.135	6700 ⁰ _{9/2} - 34279 ^{7/2}	3601.034	100	500	27761.881	17727 ⁰ _{11/2} - 45489 ⁰ _{9/2}
3624.776	2	2	27580.048	24982 ⁰ _{7/2} - 52562 ^{7/2}	3600.816	8	100	27763.562	14349 ^{1/2} - 42112 ⁰ _{3/2}
3624.014	3	4	27585.847	18214 ⁰ _{3/2} - 45800 ^{5/2}	3600.606	2	3	27765.181	22642 ⁰ _{9/2} - 50407 ^{7/2}
3623.847	1	3	27587.118	31800 ⁰ _{7/2} - 59387 ^{7/2}	3599.872	5	75	27770.842	16033 ⁰ _{5/2} - 43803 ^{7/2}
3623.034	8	20	27593.308	10572 ⁰ _{9/2} - 38165 ^{7/2}	3599.355	10	100	27774.831	15453 ^{7/2 - 43227^{5/2}}
3621.168	3	5	27607.527	18973 ⁰ _{7/2} - 46581 ^{5/2}	3599.030	5	50	27777.339	15349 ⁰ _{11/2} - 43127 ^{11/2}
3621.118	200	500	27607.908	10572 ⁰ _{9/2} - 38179 ^{9/2}	3596.901	8	20	27793.780	15453 ^{7/2 - 43246^{7/2}}
3620.569	4	1	27612.094	11116 ⁰ _{7/2} - 38728 ^{5/2}	3595.326	20	100	27805.955	12472 ⁰ _{5/2} - 40278 ^{3/2}
3620.502	25b	4	27612.605	16564 ⁰ _{11/2} - 44177 ^{11/2}	3594.110	50	75	27815.363	4113 ^{5/2} - 31928 ⁰ _{3/2}
3620.370	100	200	27613.612	12570 ⁰ _{7/2} - 40184 ^{7/2}	3593.880	25	300	27817.143	13406 ⁰ _{13/2} - 41223 ^{11/2}
3619.709	20	100	27618.654	10673 ⁰ _{5/2} - 38291 ^{7/2}	3593.855	8b		27817.336	10572 ⁰ _{9/2} - 38389 ^{7/2}
3619.356	4	40	27621.348	12902 ⁰ _{3/2} - 40523 ^{1/2}	3593.392	1	2	27820.920	22139 ⁰ _{9/2} - 49960 ^{7/2}

TABLE 3. *Classified lines of Th II*—Continued

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
3593.150	2	3	27822.794	22014 ^o _{11/2} —49837 ^o _{9/2}	3559.964	50b	25b	28082.151	8605 ^o _{5/2} —36687 ^o _{5/2}
3592.826	150b	100	27825.303	9238 ^o _{9/2} —37063 ^o _{9/2}	3559.940	50b	500	28082.340	12488 ^o _{5/2} —40570 ^o _{7/2}
3592.487	2	50	27827.929	22642 ^o _{9/2} —50470 ^o _{9/2}	3559.730	25	100	28083.997	12570 ^o _{7/2} —40654 ^o _{5/2}
3591.906	3		27832.430	16818 ^o _{7/2} —44650 ^o _{7/2}	3559.614	150	200	28084.912	12485 ^o _{7/2} —40570 ^o _{7/2}
3591.607	3	3	27834.747	14101 ^o _{9/2} —41936 ^o _{3/2}	3559.450	300b	500	28086.206	6244 ^o _{1/2} —34330 ^o _{1/2}
3589.358	150	300	27852.187	6691 ^o _{9/2} —34543 ^o _{5/2}	3559.415	25b	50b	28086.482	4490 ^o _{5/2} —32576 ^o _{7/2}
3589.153	50b	200	27853.777	6700 ^o _{9/2} —34553 ^o _{9/2}					12488 ^o _{9/2} —40574 ^o _{11/2}
3589.127	5b		27853.979	17272 ^o _{9/2} —45126 ^o _{9/2}	3558.842	3	25	28091.004	13818 ^o _{7/2} —41909 ^o _{9/2}
3588.974	1		27855.167	20989 ^o _{9/2} —48844 ^o _{9/2}	3558.471	2	50	28093.933	18816 ^o _{13/2} —46910 ^o _{13/2}
3588.640	3	2	27857.759	9711 ^o _{7/2} —37569 ^o _{9/2}	3558.344	2	3	28094.935	19050 ^o _{3/2} —47145 ^o _{1/2}
3588.300	50	75	27860.399	1859 ^o _{3/2} —29720 ^o _{3/2}	3558.120	1		28096.704	15710 ^o _{9/2} —43807 ^o _{3/2}
3588.216	20	75	27861.051	9202 ^o _{7/2} —37063 ^o _{9/2}	3557.898	1		28098.457	12472 ^o _{5/2} —40570 ^o _{7/2}
3587.051	2		27870.099	13818 ^o _{7/2} —41688 ^o _{7/2}	3557.727	2		28099.808	20969 ^o _{7/2} —49068 ^o _{5/2}
3586.941	4	50	27870.954	14275 ^o _{9/2} —42146 ^o _{11/2}	3557.464	100	300	28101.885	6168 ^o _{7/2} —34270 ^o _{9/2}
3585.884	10	40	27879.169	12488 ^o _{9/2} —40367 ^o _{9/2}	3556.313	15	100	28110.980	6168 ^o _{7/2} —34279 ^o _{7/2}
3585.769	40	75	27880.063	9585 ^o _{5/2} —37465 ^o _{5/2}	3555.101	75	100	28120.563	9720 ^o _{7/2} —37840 ^o _{9/2}
3585.549	5	20	27881.774	12485 ^o _{7/2} —40367 ^o _{9/2}	3554.823	5	15b	28122.762	17272 ^o _{9/2} —45395 ^o _{7/2}
3585.050	20	40	27885.655	16564 ^o _{11/2} —44450 ^o _{9/2}	3554.644	4	8	28124.178	11576 ^o _{3/2} —39700 ^o _{5/2}
3583.036	8	200	27901.328	16906 ^o _{7/2} —44807 ^o _{7/2}	3553.377	50	200	28134.206	9711 ^o _{7/2} —37846 ^o _{5/2}
3582.391	3	2	27906.352	14101 ^o _{1/2} —42008 ^o _{1/2}	3553.110	100	300	28136.320	12570 ^o _{7/2} —40706 ^o _{7/2}
3582.217	1		27907.707	26586 ^o _{3/2} —54493 ^o _{5/2}	3551.869	8	150	28146.151	15236 ^o _{3/2} —43382 ^o _{5/2}
3582.006	100	300	27909.351	10855 ^o _{7/2} —38764 ^o _{7/2}	3550.292	50	200	28158.653	12485 ^o _{7/2} —40644 ^o _{5/2}
3580.226	25b	200	27923.227	12488 ^o _{9/2} —40411 ^o _{7/2}	3549.736	40	200	28163.063	10673 ^o _{5/2} —38836 ^o _{3/2}
3580.043	3	10	27924.654	14275 ^o _{9/2} —42200 ^o _{9/2}	3549.179	1		28167.483	23697 ^o _{7/2} —51865 ^o _{5/2}
3579.414	5		27929.561	13468 ^o _{9/2} —41398 ^o _{9/2}	3548.589	2		28172.166	12472 ^o _{5/2} —40644 ^o _{5/2}
3579.334	100l	200	27930.185	8460 ^o _{3/2} —36390 ^o _{3/2}	3548.175	1		28175.453	24132 ^o _{3/2} —52307 ^o _{3/2}
3578.164	20	200	27939.318	12472 ^o _{5/2} —40411 ^o _{7/2}	3545.390	50	200	28197.585	7001 ^o _{3/2} —35198 ^o _{1/2}
3577.214	10	5	27946.737	14275 ^o _{9/2} —42222 ^o _{7/2}					18973 ^o _{7/2} —47171 ^o _{9/2}
3575.930	2	4	27956.772	9585 ^o _{5/2} —37542 ^o _{3/2}	3545.284	100	75	28198.428	1521 ^o _{5/2} —29720 ^o _{3/2}
3575.320	300b	400	27961.541	6700 ^o _{9/2} —34661 ^o _{11/2}	3545.180	50	200	28199.255	13248 ^o _{9/2} —41447 ^o _{11/2}
3573.811	2	2	27973.347	14545 ^o _{5/2} —42518 ^o _{7/2}	3544.993	40b	75	28200.742	9400 ^o _{5/2} —37601 ^o _{3/2}
3573.508	40	100	27975.719	8605 ^o _{5/2} —36581 ^o _{3/2}	3544.775	10	40	28202.477	9585 ^o _{5/2} —37787 ^o _{7/2}
3573.220	100	300	27977.974	8605 ^o _{5/2} —36583 ^o _{7/2}	3544.361	10	50	28205.771	14545 ^o _{5/2} —42751 ^o _{7/2}
3572.392	150	400	27984.459	8460 ^o _{3/2} —36444 ^o _{3/2}	3542.639	40b	50	28219.481	13468 ^o _{9/2} —41688 ^o _{7/2}
3572.299	40	150	27985.187	7001 ^o _{3/2} —34986 ^o _{3/2}	3542.620	40b	50	28219.632	16906 ^o _{7/2} —45126 ^o _{9/2}
3571.810	2	2	27989.018	22642 ^o _{9/2} —50631 ^o _{11/2}	3542.301	4		28222.173	22513 ^o _{5/2} —50735 ^o _{3/2}
3571.572	40	200	27990.883	10189 ^o _{11/2} —38179 ^o _{9/2}	3542.201	15	25	28222.970	11725 ^o _{1/2} —39948 ^o _{1/2}
3569.918	3	4	28003.852	16818 ^o _{7/2} —44821 ^o _{5/2}	3541.969	10	4	28224.818	9720 ^o _{7/2} —37945 ^o _{5/2}
3569.620	50	150	28006.189	6168 ^o _{7/2} —34174 ^o _{5/2}	3541.615	100	200	28227.640	8460 ^o _{3/2} —36687 ^o _{5/2}
3567.965	10	150	28019.180	13468 ^o _{9/2} —41488 ^o _{7/2}	3540.312	1		28238.028	23697 ^o _{7/2} —51935 ^o _{5/2}
3567.701	50b	75	28021.253	12902 ^o _{3/2} —40923 ^o _{5/2}	3540.047	5	2	28240.142	20080 ^o _{7/2} —48320 ^o _{5/2}
3567.047	40	150	28026.390	6700 ^o _{9/2} —34726 ^o _{7/2}	3539.587	1000	500	28243.812	0 ^o _{3/2} —28243 ^o _{5/2}
3565.721	10	5	28036.812	18118 ^o _{3/2} —46155 ^o _{5/2}	3539.322	800	400	28245.927	4490 ^o _{5/2} —32736 ^o _{7/2}
3565.398	75b	200	28039.352	9238 ^o _{9/2} —37277 ^o _{7/2}	3538.501	15	10	28252.480	12219 ^o _{3/2} —40472 ^o _{3/2}
3564.712	25b		28044.748	18816 ^o _{13/2} —46861 ^o _{11/2}	3538.211	50	100	28254.796	15710 ^o _{3/2} —43965 ^o _{1/2}
3564.706	50	200	28044.795	9711 ^o _{7/2} —37756 ^o _{7/2}	3537.158	400	300	28263.207	9202 ^o _{7/2} —37465 ^o _{5/2}
3564.599	8	40	28045.637	10572 ^o _{9/2} —38617 ^o _{9/2}	3536.632	50b	100	28267.410	16033 ^o _{5/2} —44300 ^o _{3/2}
3561.571	10	4	28069.480	26424 ^o _{5/2} —54493 ^o _{5/2}	3536.609	3		28267.594	22139 ^o _{9/2} —50407 ^o _{7/2}
3560.857	5		28075.109	9202 ^o _{7/2} —37277 ^o _{7/2}	3535.863	1		28273.558	19050 ^o _{3/2} —47324 ^o _{5/2}
3560.264	2	2	28079.785	21297 ^o _{5/2} —49377 ^o _{7/2}	3535.329	8	2	28277.828	21682 ^o _{7/2} —49960 ^o _{7/2}

TABLE 3. Classified lines of Th II—Continued

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
3533.710	50	25	28290.784	10572 ^o _{3/2} - 38862 ^o _{11/2}	3512.351	10	25	28462.818	17272 ^o _{3/2} - 45735 ^o _{11/2}
3532.984	10	100	28296.597	24381 ^o _{7/2} - 52678 ^o _{5/2}	3511.562	400	150	28469.213	4490 ^o _{3/2} - 32959 ^o _{3/2}
3531.928	50	300	28305.057	18118 ^o _{3/2} - 46423 ^o _{3/2}	3511.387	3		28470.632	16033 ^o _{5/2} - 44503 ^o _{7/2}
3531.867	40	4	28305.546	14790 ^o _{3/2} - 43096 ^o _{5/2}	3511.277	20	50	28471.524	14484 ^o _{11/2} - 42955 ^o _{9/2}
3531.645	100	150	28307.325	18118 ^o _{3/2} - 46426 ^o _{1/2}	3510.755	8b		28475.757	14275 ^o _{9/2} - 42751 ^o _{7/2}
3531.049	3		28312.103	23518 ^o _{7/2} - 51830 ^o _{7/2}	3510.535	50	40	28477.542	10673 ^o _{5/2} - 39150 ^o _{3/2}
3530.134	8		28319.441	15453 ^o _{7/2} - 43772 ^o _{5/2}	3509.953	10	25	28482.263	17771 ^o _{11/2} - 46253 ^o _{9/2}
3529.922	2		28321.142	24414 ^o _{3/2} - 52735 ^o _{3/2}	3509.824	5		28483.310	15324 ^o _{1/2} - 43807 ^o _{3/2}
3528.953	300	400	28328.918	10189 ^o _{11/2} - 38517 ^o _{13/2}	3509.189	25	40	28488.464	16906 ^o _{7/2} - 45395 ^o _{7/2}
3528.819	150	40	28329.994	6691 ^o _{3/2} - 35021 ^o _{3/2}	3509.123	10		28489.000	17121 ^o _{3/2} - 45610 ^o _{5/2}
3528.092	8	2	28335.831	26586 ^o _{3/2} - 54922 ^o _{3/2}	3508.819	1		28491.468	22139 ^o _{9/2} - 50631 ^o _{11/2}
3527.361	10		28341.704	11116 ^o _{7/2} - 39458 ^o _{7/2}	3508.687	5	25	28492.540	23372 ^o _{3/2} - 51865 ^o _{5/2}
3526.253	25	75	28350.609	18973 ^o _{3/2} - 47324 ^o _{5/2}	3508.180	20	40	28496.658	10572 ^o _{3/2} - 39068 ^o _{7/2}
3525.868	5h	75	28353.704	21131 ^o _{3/2} - 49485 ^o _{1/2}	3506.903	8		28507.034	20310 ^o _{5/2} - 48817 ^o _{3/2}
3525.629	40h	75	28355.626	16033 ^o _{5/2} - 44388 ^o _{5/2}	3506.852	50	300	28507.449	15236 ^o _{3/2} - 43744 ^o _{1/2}
3525.605	8b		28355.819	9400 ^o _{3/2} - 37756 ^o _{7/2}	3505.493	100	200	28518.500	13818 ^o _{5/2} - 42336 ^o _{5/2}
3525.551	8h	4h	28356.254	15453 ^o _{7/2} - 43809 ^o _{9/2}	3505.384	10	15	28519.387	12472 ^o _{5/2} - 40991 ^o _{3/2}
3525.122	25		28359.704	9585 ^o _{5/2} - 37945 ^o _{5/2}	3505.350	5	10	28519.663	9585 ^o _{5/2} - 38105 ^o _{5/2}
3524.230	3		28366.882	18214 ^o _{3/2} - 46581 ^o _{5/2}	3504.100	2		28529.837	14484 ^o _{11/2} - 43014 ^o _{13/2}
3524.068	2		28368.186	20989 ^o _{9/2} - 49357 ^o _{11/2}	3504.037	25	75	28530.350	17722 ^o _{9/2} - 46253 ^o _{9/2}
3523.615	8	8	28371.833	20120 ^o _{5/2} - 48492 ^o _{5/2}	3503.615	100	200	28533.786	13818 ^o _{7/2} - 42352 ^o _{5/2}
3523.196	10	8	28375.207	6168 ^o _{7/2} - 34543 ^o _{5/2}	3502.778	100b	200	28540.604	9061 ^o _{5/2} - 37601 ^o _{3/2}
3522.569	3		28380.258	22355 ^o _{1/2} - 50735 ^o _{3/2}	3502.701	10	10	28541.232	10855 ^o _{7/2} - 39396 ^o _{7/2}
3522.367	5b		28381.885	13818 ^o _{7/2} - 42200 ^o _{9/2}	3502.648	1		28541.663	23730 ^o _{9/2} - 52272 ^o _{7/2}
3521.912	800	300	28385.552	10379 ^o _{9/2} - 37764 ^o _{7/2}	3501.945	25	25	28547.393	7331 ^o _{3/2} - 35878 ^o _{7/2}
3521.688	4		28387.357	20989 ^o _{9/2} - 49377 ^o _{7/2}	3501.642	15	25	28549.863	9238 ^o _{9/2} - 37787 ^o _{7/2}
3521.514	4		28388.760	18214 ^o _{3/2} - 46603 ^o _{3/2}	3501.455	200	200	28551.388	10189 ^o _{11/2} - 38740 ^o _{11/2}
3520.801	1		28394.509	22513 ^o _{3/2} - 50907 ^o _{3/2}	3500.843	20	100	28556.379	20288 ^o _{11/2} - 48844 ^o _{9/2}
3519.869	1		28402.027	17983 ^o _{5/2} - 46385 ^o _{7/2}	3500.531	40	75	28558.924	12488 ^o _{9/2} - 41047 ^o _{9/2}
3519.741	5		28403.060	25607 ^o _{9/2} - 54010 ^o _{7/2}	3500.267	25	200	28561.078	15242 ^o _{9/2} - 43803 ^o _{7/2}
3519.688	50	200	28403.488	16818 ^o _{7/2} - 45221 ^o _{3/2}	3500.206	10	4	28561.575	16564 ^o _{11/2} - 45126 ^o _{9/2}
3519.482	1		28405.150	25440 ^o _{5/2} - 53845 ^o _{5/2}	3499.986	200	200	28563.371	8018 ^o _{3/2} - 36581 ^o _{3/2}
3518.902	25b		28409.832	7331 ^o _{3/2} - 35741 ^o _{5/2}	3498.989	75b	100b	28571.509	9720 ^o _{7/2} - 38291 ^o _{7/2}
3518.713	4		28411.357	20080 ^o _{7/2} - 48492 ^o _{5/2}	3498.478	1		28575.682	21297 ^o _{5/2} - 49873 ^o _{5/2}
3518.558	4s		28412.609	17983 ^o _{5/2} - 46395 ^o _{3/2}	3498.008	100	75	28579.522	1521 ^o _{5/2} - 30101 ^o _{7/2}
3516.903	15		28425.979	12902 ^o _{3/2} - 41328 ^o _{5/2}	3497.955	15	50	28579.955	9585 ^o _{5/2} - 38165 ^o _{7/2}
3516.823	200	75	28426.626	8018 ^o _{3/2} - 36444 ^o _{3/2}	3497.686	15	200	28582.153	22642 ^o _{3/2} - 51224 ^o _{9/2}
3516.576	50	40	28428.623	10189 ^o _{11/2} - 38617 ^o _{9/2}	3497.460	8	40	28584.000	11116 ^o _{7/2} - 39700 ^o _{5/2}
3516.354	200	300	28430.417	8378 ^o _{7/2} - 36809 ^o _{7/2}	3497.262	50	200	28585.618	9202 ^o _{7/2} - 37787 ^o _{7/2}
3515.849	15	25	28434.501	12219 ^o _{3/2} - 40654 ^o _{5/2}	3497.010	40	200	28587.678	10855 ^o _{7/2} - 39443 ^o _{9/2}
3515.706	75	100	28435.657	11116 ^o _{7/2} - 39552 ^o _{9/2}	3496.762	8	15	28589.705	15710 ^o _{3/2} - 44300 ^o _{3/2}
3515.555	8		28436.879	14790 ^o _{7/2} - 43227 ^o _{5/2}	3495.158	25	4	28602.825	9238 ^o _{9/2} - 37840 ^o _{9/2}
3515.424	10		28437.938	12485 ^o _{7/2} - 40923 ^o _{5/2}	3494.815	25	10	28605.632	12219 ^o _{3/2} - 40825 ^o _{7/2}
3515.224	15		28439.556	23730 ^o _{9/2} - 52170 ^o _{11/2}	3493.518	500	200	28616.252	7828 ^o _{1/2} - 36444 ^o _{3/2}
3514.960	100	100	28441.692	9238 ^o _{9/2} - 37679 ^o _{11/2}	3493.084	8	20	28619.807	17983 ^o _{5/2} - 46603 ^o _{5/2}
3514.526	300b	200	28445.204	9400 ^o _{3/2} - 37846 ^o _{5/2}	3492.898	5	10	28621.331	19248 ^o _{5/2} - 47869 ^o _{3/2}
3513.755	20	75	28451.445	12472 ^o _{5/2} - 40923 ^o _{5/2}	3492.680	8	25	28623.118	19248 ^o _{5/2} - 47871 ^o _{7/2}
3513.299	15	40	28455.138	22014 ^o _{11/2} - 50470 ^o _{9/2}	3492.327	4	5	28626.011	22642 ^o _{9/2} - 51268 ^o _{7/2}
3513.213	50	75	28455.835	14790 ^o _{7/2} - 43246 ^o _{7/2}	3492.117	4	3	28627.732	15144 ^o _{5/2} - 43772 ^o _{5/2}
3512.742	100b	200	28459.650	9720 ^o _{7/2} - 38179 ^o _{9/2}	3491.580	75	100	28632.135	17272 ^o _{9/2} - 45904 ^o _{9/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
3490.795	1b		28638.574	9202 ^o _{7/2} - 37840 _{9/2}	3473.092	4		28784.545	17771 ^o _{11/2} - 46555 _{11/2}
3490.656	5	4	28639.714	11576 ^o _{5/2} - 40216 _{5/2}	3473.027	150b	100	28785.084	9061 ^o _{5/2} - 37846 _{5/2}
3490.504	8	25	28640.961	17727 ^o _{11/2} - 46368 ^o _{9/2}	3472.842	15	10	28786.618	9585 ^o _{5/2} - 38372 _{3/2}
3490.452	50	100	28641.388	15324 ^o _{7/2} - 43965 _{1/2}	3472.759	3		28787.306	21682 ^o _{7/2} - 50470 _{9/2}
3490.389	2		28641.905	23012 ^o _{3/2} - 51653 _{1/2}	3470.788	4		28803.653	17460 ^o _{5/2} - 46264 _{3/2}
3490.269	20	100	28642.889	14484 ^o _{11/2} - 43127 _{11/2}	3469.919	2000h	800	28810.866	4146 ^o _{7/2} - 32957 _{7/2}
3490.230	8	10	28643.209	15453 ^o _{7/2} - 44096 _{9/2}	3468.966	3	8	28818.781	19050 ^o _{5/2} - 47869 _{3/2}
3489.829	25	20	28646.501	11576 ^o _{5/2} - 40222 _{3/2}	3468.714	25	10	28820.875	15144 ^o _{5/2} - 43965 _{1/2}
3487.884	5		28662.475	17722 ^o _{9/2} - 46385 _{7/2}	3468.219	800	300	28824.988	6700 ^o _{9/2} - 35525 _{11/2}
3487.845	75	100	28662.795	15144 ^o _{3/2} - 43807 _{3/2}	3467.301	3		28832.619	17722 ^o _{9/2} - 46555 _{11/2}
3487.805	1		28663.124	21297 ^o _{5/2} - 49960 _{7/2}	3466.896	20	15	28835.987	20288 ^o _{11/2} - 49124 _{11/2}
3487.700	3		28663.987	23012 ^o _{3/2} - 51676 _{3/2}	3465.924	200	15	28844.074	4113 ^o _{5/2} - 32957 ^o _{7/2}
3487.081	20	75	28669.075	9720 ^o _{7/2} - 38389 _{7/2}	3465.764	1000	200	28845.406	6700 ^o _{9/2} - 35545 _{9/2}
3486.971	40	100	28669.979	8460 ^o _{3/2} - 37130 ^o _{1/2}	3465.471	8	15	28847.844	20989 ^o _{5/2} - 49837 _{9/2}
3486.841	8		28671.048	16818 ^o _{7/2} - 45489 ^o _{9/2}	3465.262	3	10	28849.584	22513 ^o _{5/2} - 51362 _{5/2}
3486.514	500b	200	28673.737	10189 ^o _{11/2} - 38862 _{11/2}	3465.017	50b	75	28851.624	14275 ^o _{9/2} - 43127 _{11/2}
3486.050	31		28677.554	13468 ^o _{9/2} - 42146 _{11/2}	3464.841	8	20h	28853.090	23012 ^o _{5/2} - 51865 _{5/2}
3485.917	4		28678.648	17121 ^o _{3/2} - 45800 _{5/2}	3464.471	15	8	28856.171	12472 ^o _{5/2} - 41328 _{5/2}
3485.721	5	5	28680.260	14275 ^o _{9/2} - 42955 _{9/2}	3464.409	40	50	28856.687	16033 ^o _{5/2} - 44889 _{3/2}
3485.473	15	50	28682.301	14545 ^o _{5/2} - 43227 _{5/2}	3464.228	2		28858.195	18816 ^o _{13/2} - 47675 _{11/2}
3485.212	100b	150	28684.449	8378 ^o _{7/2} - 37063 _{9/2}	3463.719	500	400	28862.436	13250 _{5/2} - 42112 ^o _{3/2}
3484.414	5	25	28691.018	20686 ^o _{5/2} - 49377 _{7/2}	3463.592	20	8	28863.494	15786 _{5/2} - 44650 ^o _{7/2}
3484.080	100	100	28693.768	10673 ^o _{5/2} - 39366 _{5/2}	3463.424	1		28864.894	23697 ^o _{7/2} - 52562 _{7/2}
3483.589	3		28697.813	20120 ^o _{5/2} - 48817 _{3/2}	3462.850	800	400	28869.678	9711 _{7/2} - 38581 ^o _{5/2}
3483.409	20b	50	28699.295	14545 ^o _{5/2} - 43244 _{3/2}	3460.223	3		28891.596	17460 ^o _{5/2} - 46352 _{7/2}
3483.254	10	25	28700.572	13818 ^o _{7/2} - 42518 _{7/2}	3459.974	5	15	28893.675	16906 ^o _{5/2} - 45800 _{5/2}
3483.169	15	100	28701.273	14545 ^o _{5/2} - 43246 _{7/2}	3459.641	75b	10	28896.456	10189 ^o _{11/2} - 39085 _{13/2}
3483.113	8	5	28701.734	11576 ^o _{5/2} - 40278 _{3/2}	3459.397	5	4	28898.494	8378 ^o _{7/2} - 37277 _{7/2}
3482.834	20	150	28704.033	16906 ^o _{7/2} - 45610 _{5/2}	3458.882	5	8	28902.797	9202 ^o _{7/2} - 38105 _{5/2}
3482.761	100	100	28704.635	1859 ^o _{3/2} - 30564 ^o _{1/2}	3458.724	3		28904.117	20969 ^o _{7/2} - 49873 _{5/2}
3482.547	200	100	28706.399	9585 ^o _{5/2} - 38291 _{7/2}	3457.683	15	8	28912.819	12485 ^o _{7/2} - 41398 _{9/2}
3481.003	20	200	28719.131	4490 ^o _{5/2} - 33209 _{7/2}	3456.928	8	3	28919.133	17983 ^o _{5/2} - 46902 _{5/2}
3480.798	50	4	28720.822	0 _{3/2} - 28720 ^o _{3/2}	3456.253	1		28924.781	17460 ^o _{5/2} - 46385 _{7/2}
3480.750	2		28721.219	18214 ^o _{5/2} - 46935 _{3/2}	3455.951	20	40	28927.308	9238 ^o _{9/2} - 38165 _{7/2}
3480.549	51	5	28722.877	17983 ^o _{5/2} - 46706 _{7/2}	3455.469	1		28931.343	18214 ^o _{5/2} - 47145 _{7/2}
3480.350	4	4	28724.519	21682 ^o _{7/2} - 50407 _{7/2}	3455.273	20	5	28932.984	13818 ^o _{7/2} - 42751 _{7/2}
3479.912	1		28728.135	31259 ^o _{5/2} - 59987 ^o _{3/2}	3455.131	4b		28934.173	18214 ^o _{5/2} - 47148 _{3/2}
3479.172	500b	200	28734.245	6691 ^o _{3/2} - 35425 _{1/2}	3455.112	4b	20	28934.332	15242 ^o _{5/2} - 44177 _{11/2}
3478.463	150	150	28740.101	7331 ^o _{5/2} - 36065 _{5/2}	3455.044	3		28934.902	23372 ^o _{3/2} - 52307 _{3/2}
3478.131	150	150	28742.845	13406 ^o _{13/2} - 42146 _{11/2}	3454.992	8	25b	28935.337	17460 ^o _{5/2} - 46395 _{3/2}
3477.704	100	150	28746.374	9202 ^o _{7/2} - 37945 _{5/2}	3454.946	8	20	28935.723	15453 ^o _{7/2} - 44388 _{5/2}
3476.902	15	8	28753.004	15349 ^o _{11/2} - 44096 _{9/2}	3454.715	50	20	28937.657	19594 _{11/2} - 48532 ^o _{1/2}
3476.540	150b	100	28755.998	7828 _{1/2} - 36581 ^o _{3/2}	3454.646	10	15	28938.235	14349 _{3/2} - 43287 ^o _{3/2}
3476.332	5	8	28757.719	6700 ^o _{9/2} - 35456 _{9/2}	3454.206	200	15	28941.921	9238 ^o _{9/2} - 38179 _{9/2}
3475.537	25	10	28764.297	18973 ^o _{7/2} - 47731 _{9/2}	3453.920	15	5	28944.318	17272 ^o _{9/2} - 46216 _{11/2}
3474.270	10	50b	28774.786	20080 ^o _{7/2} - 48844 _{9/2}	3453.559	50b	50	28947.343	11576 ^o _{5/2} - 40523 _{1/2}
3473.780	20	8	28778.845	16033 ^o _{5/2} - 44807 _{7/2}	3453.404	5		28948.643	20120 ^o _{5/2} - 49068 _{5/2}
3473.610	5	3	28780.253	11116 ^o _{7/2} - 39895 _{9/2}	3452.970	4		28952.281	17983 ^o _{5/2} - 46935 _{3/2}
3473.422	150	150	28781.811	10572 ^o _{3/2} - 39352 _{11/2}	3452.682	400	200	28954.696	6244 _{1/2} - 35198 ^o _{1/2}
				9711 _{7/2} - 38493 ^o _{5/2}	3450.948	100	15	28969.244	13250 _{5/2} - 42219 ^o _{5/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
3450.769	1		28970.747	20989 ^o _{5/2} - 49960 _{7/2}	3430.124	20	8	29145.109	22685 ^o _{7/2} - 51830 _{7/2}
3450.710	15	4	28971.242	14275 ^o _{9/2} - 43246 _{7/2}	3429.903	100b	200	29146.987	4490 ^o _{5/2} - 33637 _{7/2}
3450.108	5	10	28976.297	15324 ^o _{1/2} - 44300 _{3/2}	3429.827	5		29147.633	8460 _{3/2} - 37607 ^o _{1/2}
3449.949	200	5	28977.633	9202 ^o _{7/2} - 38179 _{9/2}	3429.433	4		29150.981	8605 _{5/2} - 37756 ^o _{7/2}
3449.566	2b		28980.850	21682 ^o _{7/2} - 50663 _{5/2}	3429.390	75	100	29151.347	9238 ^o _{9/2} - 38389 _{7/2}
3449.543	3b		28981.043	17272 ^o _{9/2} - 46253 _{9/2}	3427.993	25	50	29163.226	10189 ^o _{11/2} - 39352 _{11/2}
3449.493	8	4	28981.463	14790 ^o _{7/2} - 43772 _{5/2}	3427.464	8	40	29167.727	13250 ^o _{5/2} - 42418 _{3/2}
3449.286	50	300	28983.202	23187 ^o _{13/2} - 52170 _{11/2}	3426.988	10	25	29171.778	9585 ^o _{5/2} - 38757 _{3/2}
3448.737	5		28987.816	27403 ^o _{3/2} - 56391 _{5/2}	3426.177	2		29178.683	6700 ^o _{9/2} - 35878 _{7/2}
3448.296	1		28991.523	20969 ^o _{7/2} - 49960 _{7/2}	3426.144	8	75	29178.964	15710 _{3/2} - 44889 _{3/2}
3447.632	8	2	28997.107	7331 ^o _{5/2} - 36328 _{3/2}	3426.058	4	10	29179.697	22685 ^o _{7/2} - 51865 _{5/2}
3446.997	8	4	29002.448	12485 ^o _{7/2} - 41488 _{7/2}	3425.944	100	200	29180.668	9400 _{5/2} - 38581 ^o _{5/2}
3446.288	8	2	29008.415	9720 ^o _{7/2} - 38728 _{5/2}	3425.185	100b	200	29187.134	9202 ^o _{7/2} - 38389 _{7/2}
3445.743	300	200	29013.003	14790 ^o _{7/2} - 43803 _{7/2}	3423.356	5	3	29202.727	12485 ^o _{7/2} - 41688 _{7/2}
3445.389	150l	150	29015.984	12472 ^o _{5/2} - 41488 _{7/2}	3423.129	150	150	29204.664	12472 ^o _{5/2} - 41676 _{3/2}
3445.217	200	100	29017.432	10379 _{9/2} - 39396 ^o _{7/2}	3422.809	3		29207.394	15242 ^o _{9/2} - 44450 _{9/2}
3445.121	8	3	29018.241	14790 ^o _{7/2} - 43809 _{9/2}	3422.576	25		29209.382	22014 ^o _{11/2} - 51224 _{9/2}
3444.028	25	100	29027.450	10673 ^o _{5/2} - 39700 _{5/2}	3422.306	2		29211.687	24309 ^o _{11/2} - 53520 _{9/2}
3443.139	50b	20b	29034.944	15786 _{5/2} - 44821 ^o _{5/2}	3422.245	1		29212.207	19912 ^o _{13/2} - 49124 _{11/2}
3443.110	40b	75b	29035.189	9400 _{5/2} - 38436 _{3/2}	3421.770	3		29216.262	12472 ^o _{5/2} - 41688 _{7/2}
3441.365	200	25	29049.911	6691 ^o _{3/2} - 35741 _{5/2}	3419.173	500	300	29238.453	13406 ^o _{13/2} - 42644 _{13/2}
3441.036	100	20	29052.688	9711 _{7/2} - 38764 ^o _{7/2}	3418.952	150b	40b	29240.342	8605 _{5/2} - 37846 ^o _{5/2}
3440.909	10	20	29053.761	9238 ^o _{9/2} - 38291 _{7/2}	3418.914	100b	40b	29240.667	4490 ^o _{5/2} - 33730 _{5/2}
3439.711	500b	400	29063.879	25440 ^o _{5/2} - 54493 _{5/2}	3418.776	200	300	29241.848	19880 _{9/2} - 49121 ^o _{7/2}
3439.232	10	5	29067.927	10379 _{9/2} - 39443 ^o _{9/2}	3418.523	4		29244.012	15144 ^o _{3/2} - 44388 _{5/2}
3439.056	10	4	29069.415	11576 ^o _{5/2} - 40644 _{5/2}	3418.333	3		29245.637	17460 ^o _{5/2} - 46706 _{7/2}
3438.951	500	300	29070.302	20288 ^o _{11/2} - 49357 _{11/2}	3417.794	1		29250.249	22685 ^o _{7/2} - 51935 _{5/2}
3438.689	4	10	29072.517	13248 _{9/2} - 42319 ^o _{5/2}	3417.724	50	75	29250.848	11116 ^o _{7/2} - 40367 _{9/2}
3437.808	8	20	29079.967	19248 ^o _{5/2} - 48320 _{5/2}	3417.126	15	15	29255.967	8460 _{3/2} - 37716 ^o _{1/2}
3437.024	100	150b	29086.600	17272 ^o _{9/2} - 46352 _{7/2}	3417.001	1		29257.037	20120 ^o _{5/2} - 49377 _{7/2}
3436.679	75b	100b	29089.520	8378 ^o _{7/2} - 37465 _{5/2}	3416.551	1		29260.891	15242 ^o _{9/2} - 44503 _{7/2}
3436.288	3	2	29092.830	9202 ^o _{7/2} - 38291 _{7/2}	3416.421	40b	50	29262.004	14545 ^o _{5/2} - 43807 _{3/2}
3435.975	800b	200	29095.480	9400 _{5/2} - 38493 ^o _{5/2}	3415.487	3b		29270.006	19050 ^o _{3/2} - 48320 _{5/2}
3435.695	3l	5	29097.851	0 _{3/2} - 29095 ^o _{5/2}	3414.979	3		29274.360	26965 ^o _{3/2} - 56235 _{3/2}
3435.193	15	10	29102.103	17837 ^o _{1/2} - 46935 _{3/2}	3414.503	100	200	29278.441	17121 ^o _{3/2} - 46395 _{3/2}
3435.004	2		29103.705	4113 _{5/2} - 33215 ^o _{3/2}	3414.634	3b		29285.894	9585 ^o _{5/2} - 38863 _{5/2}
3434.759	100b	40	29105.780	20310 ^o _{3/2} - 49414 _{3/2}	3413.634	100	75	29287.833	30101 ^o _{7/2} - 59387 _{7/2}
3434.266	4	8	29109.959	12902 ^o _{3/2} - 42008 _{1/2}	3413.408	4		29294.492	6168 ^o _{7/2} - 35456 _{9/2}
3433.999	1000h	300	29112.222	18214 ^o _{3/2} - 47324 _{5/2}	3412.632	3		29295.445	20120 ^o _{5/2} - 49414 _{3/2}
3433.946	40	15	29112.671	1859 _{3/2} - 30972 ^o _{5/2}	3412.521	25	4	29296.493	23012 ^o _{3/2} - 52307 _{3/2}
3433.890	15	100	29113.146	22834 _{7/2} - 51946 ^o _{5/2}	3412.399	200b	100	29301.765	20080 ^o _{7/2} - 49377 _{7/2}
3432.085	5	40	29128.457	17272 ^o _{9/2} - 46385 _{7/2}	3411.785	2	5	29305.827	7828 _{1/2} - 37130 ^o _{1/2}
3431.811	50	200	29130.782	22139 ^o _{9/2} - 51268 _{7/2}	3411.312	3		29307.984	25188 ^o _{3/2} - 54493 _{5/2}
3431.019	15	75	29137.506	20158 _{5/2} - 49289 ^o _{5/2}	3411.061	3		29317.223	17837 ^o _{1/2} - 47145 _{1/2}
3430.761	5	2	29139.698	13818 _{7/2} - 42955 _{9/2}	3409.986	3		29320.868	22513 ^o _{5/2} - 51830 _{7/2}
3430.567	15	75	29141.345	17771 ^o _{11/2} - 46910 _{13/2}	3409.562	3		29323.380	22355 ^o _{7/2} - 51676 _{3/2}
3430.419	8	75	29142.603	8460 _{3/2} - 37601 ^o _{3/2}	3409.270	400	200	29324.739	10572 ^o _{9/2} - 39895 _{9/2}
3430.339	8b	15	29143.282	17460 ^o _{5/2} - 46603 _{5/2}	3409.112	3b		29328.765	18973 ^o _{7/2} - 48298 _{7/2}
				17121 ^o _{9/2} - 46264 _{3/2}	3408.644	200	150	29337.483	10855 _{7/2} - 40184 ^o _{7/2}
				9585 ^o _{5/2} - 38728 _{5/2}	3407.631	40	200		16818 _{7/2} - 46155 ^o _{5/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
3407.221	3s		29341.013	17983 ^o _{5/2} - 47324 ^o _{5/2}	3387.532	2		29511.544	24982 ^o _{7/2} - 54493 ^o _{5/2}
3406.730	3		29345.242	15305 ^o _{9/2} - 44650 ^o _{7/2}	3386.763	10	75	29518.244	18973 ^o _{7/2} - 48492 ^o _{5/2}
3406.365	8	8	29348.386	9720 ^o _{7/2} - 39068 ^o _{7/2}	3386.500	500	300	29520.537	9061 ^o _{5/2} - 38581 ^o _{5/2}
3406.242	150	100	29349.446	6691 ^o _{3/2} - 36040 ^o _{1/2}	3385.825	8	15	29526.422	9202 ^o _{7/2} - 38728 ^o _{5/2}
3405.607	50		29354.918	15453 ^o _{7/2} - 44807 ^o _{7/2}	3385.596	8	2	29528.419	14275 ^o _{9/2} - 43803 ^o _{7/2}
3404.798	8	15	29361.893	16033 ^o _{5/2} - 45395 ^o _{7/2}	3385.531	800	200	29528.986	4490 ^o _{5/2} - 34019 ^o _{3/2}
3404.651	200	100	29363.161	10189 ^o _{11/2} - 39552 ^o _{9/2}	3385.206	2		29531.821	21131 ^o _{3/2} - 50663 ^o _{5/2}
				23372 ^o _{3/2} - 52735 ^o _{3/2}	3384.991	100	100	29533.696	14275 ^o _{9/2} - 43809 ^o _{9/2}
3404.592	40	40	29363.669	9400 ^o _{5/2} - 38764 ^o _{7/2}	3384.095	2		29541.516	21682 ^o _{7/2} - 51224 ^o _{9/2}
3404.198	4		29367.068	10572 ^o _{9/2} - 39939 ^o _{11/2}	3384.001	8	40	29542.336	22139 ^o _{9/2} - 51681 ^o _{9/2}
3403.353	100	25	29374.359	6691 ^o _{3/2} - 36065 ^o _{5/2}	3383.149	25b	25b	29549.776	10673 ^o _{5/2} - 40222 ^o _{3/2}
3403.271	200	200b	29375.067	9061 ^o _{5/2} - 38436 ^o _{3/2}	3383.107	100b	200	29550.143	16818 ^o _{7/2} - 46368 ^o _{9/2}
3403.006	15	40	29377.354	15349 ^o _{11/2} - 44727 ^o _{11/2}	3381.374	50b	40b	29565.287	9585 ^o _{5/2} - 39150 ^o _{3/2}
3402.698	800b	400b	29380.013	6213 ^o _{9/2} - 35593 ^o _{7/2}	3381.343	50b	50b	29565.558	15324 ^o _{1/2} - 44889 ^o _{3/2}
3402.027	200	200	29385.808	8460 ^o _{3/2} - 37846 ^o _{5/2}	3380.500	3	2	29572.931	6168 ^o _{7/2} - 35741 ^o _{5/2}
3401.647	150	150	29389.090	7001 ^o _{3/2} - 36390 ^o _{5/2}	3379.981	8	15	29577.472	16033 ^o _{5/2} - 45610 ^o _{5/2}
3400.998	10	15	29394.699	14349 ^o _{1/2} - 43744 ^o _{1/2}	3379.292	8		29583.502	8018 ^o _{3/2} - 37601 ^o _{3/2}
3400.350	8		29400.300	17771 ^o _{11/2} - 47171 ^o _{9/2}	3379.090	15	50	29585.270	15236 ^o _{3/2} - 44821 ^o _{5/2}
3399.466	5	2	29407.945	15144 ^o _{5/2} - 44552 ^o _{5/2}	3378.905	4		29586.890	22685 ^o _{7/2} - 52272 ^o _{7/2}
3399.344	25b	75b	29409.001	8378 ^o _{7/2} - 37787 ^o _{7/2}	3378.803	5	3	29587.783	27357 ^o _{9/2} - 56945 ^o _{11/2}
3399.284	20	40	29409.520	13818 ^o _{7/2} - 43227 ^o _{5/2}	3378.573	500	300	29589.797	8018 ^o _{3/2} - 37607 ^o _{1/2}
3397.953	15	25	29421.039	12488 ^o _{9/2} - 41909 ^o _{9/2}	3377.943	2b		29595.316	15710 ^o _{5/2} - 45306 ^o _{3/2}
3397.844	20	150	29421.983	22106 ^o _{5/2} - 51528 ^o _{3/2}	3377.661	10b	15	29597.786	14790 ^o _{7/2} - 44388 ^o _{5/2}
3397.255	3		29427.084	26963 ^o _{7/2} - 56391 ^o _{5/2}	3377.538	3		29598.864	29788 ^o _{9/2} - 59387 ^o _{7/2}
3397.092	15b	40	29428.496	13818 ^o _{5/2} - 43246 ^o _{7/2}	3376.840	75	50	29604.982	10673 ^o _{5/2} - 40278 ^o _{3/2}
3396.874	2		29430.384	25414 ^o _{11/2} - 54845 ^o _{9/2}	3376.529	4	5	29607.709	13406 ^o _{13/2} - 43014 ^o _{13/2}
3396.612	100	100	29432.654	9061 ^o _{5/2} - 38493 ^o _{5/2}	3376.411	2		29608.744	26626 ^o _{1/2} - 56235 ^o _{3/2}
3396.456	50	100	29434.006	17272 ^o _{9/2} - 46706 ^o _{7/2}	3376.049	3	3	29611.918	14484 ^o _{11/2} - 44096 ^o _{9/2}
3396.394	50	100	29434.543	15786 ^o _{5/2} - 45221 ^o _{5/2}	3374.582	300	300	29624.791	9238 ^o _{9/2} - 38862 ^o _{11/2}
3395.966	8b		29438.253	20969 ^o _{7/2} - 50407 ^o _{7/2}	3373.964	2		29630.217	22642 ^o _{9/2} - 52272 ^o _{7/2}
3395.628	8	50	29441.183	19050 ^o _{3/2} - 48492 ^o _{5/2}	3373.165	2		29637.235	6691 ^o _{5/2} - 36328 ^o _{3/2}
3395.573	3		29441.660	19248 ^o _{5/2} - 48689 ^o _{3/2}	3372.955	8	20	29639.081	19050 ^o _{3/2} - 48689 ^o _{3/2}
3395.545	2		29441.903	17460 ^o _{5/2} - 46902 ^o _{5/2}	3372.702	50	100	29641.304	20989 ^o _{9/2} - 50631 ^o _{11/2}
3395.372	100	150	29443.403	7001 ^o _{3/2} - 36444 ^o _{3/2}	3372.334	10	15	29644.538	15144 ^o _{5/2} - 44789 ^o _{1/2}
3395.112	20	100	29445.658	19912 ^o _{13/2} - 49357 ^o _{11/2}	3372.097	1		29646.622	9720 ^o _{7/2} - 39366 ^o _{5/2}
3394.797	150	200	29448.390	17722 ^o _{9/2} - 47171 ^o _{9/2}	3371.795	500b	300	29649.277	12570 ^o _{7/2} - 42219 ^o _{5/2}
3394.640	8	10	29449.752	12902 ^o _{3/2} - 42352 ^o _{5/2}	3371.492	10	50	29651.941	16564 ^o _{11/2} - 46216 ^o _{11/2}
3394.583	15	3	29450.246	1521 ^o _{5/2} - 30972 ^o _{5/2}	3371.123	2		29655.187	18214 ^o _{3/2} - 47869 ^o _{3/2}
3394.145	150	200	29454.047	11116 ^o _{7/2} - 40570 ^o _{7/2}	3371.043	1		29655.891	15242 ^o _{9/2} - 44898 ^o _{7/2}
3393.500	5	3	29459.645	17121 ^o _{3/2} - 46581 ^o _{5/2}	3370.656	2		29659.296	14790 ^o _{7/2} - 44450 ^o _{9/2}
3393.230	50	100	29461.989	8378 ^o _{7/2} - 37840 ^o _{9/2}	3370.397	10		29661.575	9202 ^o _{7/2} - 38863 ^o _{5/2}
3392.958	150b	50b	29464.350	12472 ^o _{5/2} - 41936 ^o _{3/2}	3369.077	8		29673.196	15453 ^o _{7/2} - 45126 ^o _{9/2}
3392.878	3		29465.045	15324 ^o _{7/2} - 44789 ^o _{1/2}	3368.908	5	10	29674.684	16906 ^o _{7/2} - 46581 ^o _{5/2}
3392.035	1000d	1000	29472.368	1521 ^o _{5/2} - 30994 ^o _{7/2}	3367.819	500b	150b	29684.279	4490 ^o _{5/2} - 34174 ^o _{5/2}
3391.296	5	8	29478.790	15710 ^o _{3/2} - 45189 ^o _{5/2}	3367.784	100b	50b	29684.588	9711 ^o _{7/2} - 39396 ^o _{7/2}
3391.131	2		29480.224	20989 ^o _{9/2} - 50470 ^o _{9/2}	3367.399	8	5	29687.982	17460 ^o _{5/2} - 47148 ^o _{3/2}
3390.780	25	50	29483.276	9585 ^o _{5/2} - 39068 ^o _{7/2}	3367.318	5		29688.696	16564 ^o _{11/2} - 46253 ^o _{9/2}
3389.640	500	300	29493.191	1859 ^o _{3/2} - 31353 ^o _{3/2}	3367.073	2h	12	29690.856	22139 ^o _{9/2} - 51830 ^o _{7/2}
3388.578	100	75	29502.434	9238 ^o _{9/2} - 38740 ^o _{11/2}	3366.721	40	100	29693.960	13250 ^o _{5/2} - 42944 ^o _{7/2}
3387.834	4		29508.913	30484 ^o _{11/2} - 59993 ^o _{9/2}	3366.649	8	200	29694.595	20969 ^o _{7/2} - 50663 ^o _{5/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
3366.517	200	200	29695.759	13248 ^o _{9/2} - 42944 ^o _{7/2}	3351.150	50b	50b	29831.928	9720 ^o _{7/2} - 39552 ^o _{9/2}
3366.423	10	20	29696.588	16906 ^o _{7/2} - 46603 ^o _{5/2}	3350.308	5	4	29839.425	10572 ^o _{9/2} - 40411 ^o _{7/2}
3365.633	15	15	29703.559	9061 ^o _{5/2} - 38764 ^o _{9/2}	3350.202	5h	4	29840.369	22106 ^o _{5/2} - 51946 ^o _{5/2}
3365.318	25b		29706.339	10189 ^o _{11/2} - 39895 ^o _{9/2}	3349.883	10	8	29843.210	14545 ^o _{5/2} - 44388 ^o _{5/2}
3364.846	15	15	29710.506	6168 ^o _{7/2} - 35878 ^o _{7/2}	3348.992	5b		29851.150	12485 ^o _{7/2} - 42336 ^o _{5/2}
3364.685	75b	200b	29711.928	12488 ^o _{9/2} - 42200 ^o _{9/2}	3348.953	100	400	29851.497	10855 ^o _{7/2} - 40706 ^o _{7/2}
3364.587	20	75	29712.793	14790 ^o _{7/2} - 44503 ^o _{7/2}	3347.678	2		29862.866	24982 ^o _{7/2} - 54845 ^o _{9/2}
3364.388	15	25	29714.550	12485 ^o _{7/2} - 42200 ^o _{9/2}	3347.576	15	15	29863.776	17460 ^o _{5/2} - 47324 ^o _{5/2}
3363.733	50	10	29720.336	0 ^o _{3/2} - 29720 ^o _{3/2}	3347.478	3		29864.651	12472 ^o _{5/2} - 42336 ^o _{5/2}
3363.682	200	100	29720.787	13406 ^o _{13/2} - 43127 ^o _{11/2}	3346.746	8	10	29871.182	18973 ^o _{7/2} - 48844 ^o _{9/2}
3363.066	100	100	29726.231	8378 ^o _{7/2} - 38105 ^o _{5/2}	3346.555	150	150	29872.887	9585 ^o _{5/2} - 39458 ^o _{7/2}
3362.674	100	50	29729.696	4113 ^o _{5/2} - 33843 ^o _{5/2}	3345.384	5	8	29883.343	15242 ^o _{7/2} - 45126 ^o _{9/2}
3362.521	50b	100	29731.049	9711 ^o _{7/2} - 39443 ^o _{9/2}	3345.060	5h	8	29886.238	17983 ^o _{5/2} - 47869 ^o _{3/2}
3362.427	15b	5	29731.880	23187 ^o _{13/2} - 52918 ^o _{13/2}	3344.872	50b	50	29887.917	8605 ^o _{5/2} - 38493 ^o _{5/2}
3362.184	75	200	29734.029	12488 ^o _{9/2} - 42222 ^o _{7/2}	3344.670	1	3	29889.722	25607 ^o _{5/2} - 55496 ^o _{9/2}
3361.890	10	40	29736.628	15453 ^o _{7/2} - 45189 ^o _{5/2}	3343.813	75s	20	29897.383	6168 ^o _{7/2} - 36065 ^o _{5/2}
3361.734	150	150	29738.008	12485 ^o _{7/2} - 42222 ^o _{7/2}	3343.617	100	150	29899.135	17272 ^o _{9/2} - 47171 ^o _{9/2}
3361.617	100	200	29739.043	9720 ^o _{7/2} - 39458 ^o _{7/2}	3343.545	3	5b	29899.779	15710 ^o _{5/2} - 45610 ^o _{5/2}
3360.937	3b		29745.060	17727 ^o _{11/2} - 47466 ^o _{11/2}	3343.258	25b	50b	29902.346	15786 ^o _{5/2} - 45689 ^o _{7/2}
3360.371	150	100	29750.070	15144 ^o _{3/2} - 44889 ^o _{3/2}	3342.069	200	10	29912.984	8378 ^o _{7/2} - 38291 ^o _{7/2}
3360.156	100	50	29751.974	10189 ^o _{11/2} - 39939 ^o _{11/2}	3340.097	2		29930.644	11116 ^o _{7/2} - 41047 ^o _{9/2}
3360.043	3		29752.974	11576 ^o _{5/2} - 41328 ^o _{5/2}	3338.828	10	40	29942.019	15453 ^o _{7/2} - 45395 ^o _{7/2}
3359.755	20	40	29755.524	20120 ^o _{5/2} - 49873 ^o _{5/2}	3338.396	150	200	29945.894	7331 ^o _{5/2} - 37277 ^o _{7/2}
3359.059	15	25	29761.690	4146 ^o _{7/2} - 33902 ^o _{7/2}	3337.870	800	150	29950.613	1859 ^o _{3/2} - 31810 ^o _{5/2}
3358.602	500	300	29765.739	14790 ^o _{7/2} - 44552 ^o _{5/2}	3337.780	10	10	29951.420	11725 ^o _{7/2} - 41676 ^o _{3/2}
3358.446	10	15	29767.122	1859 ^o _{3/2} - 31625 ^o _{1/2}	3337.684	2b		29952.282	22355 ^o _{1/2} - 52307 ^o _{3/2}
3357.765	8	10	29773.159	16033 ^o _{5/2} - 45800 ^o _{5/2}	3337.478	5	50	29954.130	13818 ^o _{7/2} - 43772 ^o _{5/2}
3357.403	15	40	29776.369	19050 ^o _{3/2} - 48817 ^o _{3/2}	3337.159	50	20	29956.994	6168 ^o _{7/2} - 36125 ^o _{9/2}
3357.233	50b	50	29777.877	7828 ^o _{1/2} - 37601 ^o _{3/2}	3337.019	1		29958.250	14545 ^o _{5/2} - 44503 ^o _{7/2}
3357.056	25	40	29779.447	15349 ^o _{11/2} - 45126 ^o _{9/2}	3336.775	8	25	29960.441	17771 ^o _{11/2} - 47731 ^o _{9/2}
3356.888	10	40	29780.937	13468 ^o _{9/2} - 43246 ^o _{7/2}	3336.161	50	40	29965.955	14484 ^o _{11/2} - 44450 ^o _{9/2}
3356.821	75	75	29781.531	7828 ^o _{1/2} - 37607 ^o _{1/2}	3335.576	2	2	29971.210	10673 ^o _{5/2} - 40644 ^o _{5/2}
3356.262	8		29786.491	17121 ^o _{5/2} - 46902 ^o _{5/2}	3335.064	100b	100	29975.811	8460 ^o _{3/2} - 38436 ^o _{5/2}
3356.005	4		29788.772	9585 ^o _{5/2} - 39366 ^o _{5/2}	3334.879	4	20	29977.474	8605 ^o _{5/2} - 38581 ^o _{5/2}
3355.970	10	10	29789.083	8378 ^o _{7/2} - 38165 ^o _{7/2}	3334.603	600l	300	29979.955	20686 ^o _{5/2} - 50663 ^o _{5/2}
3355.567	50	200	29792.661	4113 ^o _{5/2} - 33902 ^o _{7/2}	3334.053	10	25	29984.900	6213 ^o _{3/2} - 36193 ^o _{3/2}
3355.256	100	100	29795.422	4490 ^o _{5/2} - 34279 ^o _{7/2}	3333.969	8	10	29985.656	15236 ^o _{3/2} - 45221 ^o _{5/2}
3354.836	5	5	29799.152	25246 ^o _{9/2} - 55038 ^o _{9/2}	3333.383	15	15	29990.927	13818 ^o _{7/2} - 43803 ^o _{7/2}
3354.780	8	10	29799.649	10572 ^o _{9/2} - 40367 ^o _{9/2}	3332.532	5	3b	29998.585	13818 ^o _{7/2} - 43809 ^o _{9/2}
3354.616	150	100	29801.106	10855 ^o _{7/2} - 40654 ^o _{5/2}	3332.460	3b	8	29999.234	10572 ^o _{9/2} - 40570 ^o _{7/2}
3354.180	500	200	29804.980	16906 ^o _{7/2} - 46706 ^o _{7/2}	3332.399	75	50	29999.783	21682 ^o _{7/2} - 51681 ^o _{9/2}
3353.948	100	100	29807.041	8378 ^o _{7/2} - 38179 ^o _{9/2}	3332.074	20	5	30002.709	12219 ^o _{9/2} - 42219 ^o _{5/2}
3353.160	4b		29814.046	10379 ^o _{9/2} - 40184 ^o _{7/2}	3331.429	2	1	30008.517	10572 ^o _{9/2} - 40574 ^o _{11/2}
3353.141	25b	50b	29814.215	11116 ^o _{7/2} - 40923 ^o _{5/2}	3331.207	15	15	30010.517	17722 ^o _{9/2} - 47731 ^o _{9/2}
3352.415	5	2	29820.671	17121 ^o _{5/2} - 46935 ^o _{3/2}	3330.379	0	2	30017.978	8378 ^o _{7/2} - 38389 ^o _{7/2}
3351.594	20s	25	29827.976	16564 ^o _{11/2} - 46378 ^o _{13/2}	3329.380	3	15	30026.985	19050 ^o _{3/2} - 49068 ^o _{5/2}
3351.288	50	25	29830.699	14275 ^o _{9/2} - 44096 ^o _{9/2}	3328.976	20	20	30030.629	17121 ^o _{3/2} - 47148 ^o _{3/2}
3351.228	800b	200b	29831.233	8018 ^o _{3/2} - 37846 ^o _{5/2}	3328.845	2	3	30031.811	12488 ^o _{9/2} - 42518 ^o _{7/2}
				9238 ^o _{9/2} - 39068 ^o _{7/2}	3328.688	1b		30033.227	17837 ^o _{1/2} - 47869 ^o _{3/2}
				1521 ^o _{5/2} - 31353 ^o _{3/2}					12485 ^o _{7/2} - 42518 ^o _{7/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
3328.668	5	8	30033.407	8460 _{3/2} ° - 38493 _{5/2} °	3303.481	100	100	30262.386	14545 _{5/2} ° - 44807 _{7/2} °
3328.255	100	75	30037.134	13250 _{5/2} ° - 43287 _{3/2} °	3303.410	5	5	30263.036	12488 _{9/2} ° - 42751 _{7/2} °
3327.392	4	5	30044.924	15144 _{3/2} ° - 45189 _{5/2} °	3303.126	3	4	30265.638	12485 _{7/2} ° - 42751 _{7/2} °
3327.041	2		30048.094	24873 _{5/2} ° - 54922 _{3/2} °	3301.823	2		30277.582	18214 _{5/2} ° - 48492 _{5/2} °
3326.913	5	15	30049.250	22513 _{5/2} ° - 52562 _{7/2} °	3301.785	10	50	30277.930	13818 _{9/2} ° - 44096 _{9/2} °
3326.670	1	5	30051.445	15786 _{5/2} ° - 45838 _{9/2} °	3301.743	15	20	30278.315	1521 _{5/2} ° - 31800 _{9/2} °
3326.465	150	40	30053.297	4490 _{5/2} ° - 34543 _{5/2} °				20989 _{9/2} ° - 51268 _{7/2} °	
3325.120	1000	500	30065.453	4146 _{7/2} ° - 34212 _{5/2} °	3301.651	1500r	150	30279.159	12472 _{5/2} ° - 42751 _{7/2} °
3324.752	800	400	30068.780	1859 _{3/2} ° - 31928 _{3/2} °	3301.349	300	300	30281.929	11116 _{5/2} ° - 41398 _{9/2} °
3323.583	2	5	30079.356	24414 _{3/2} ° - 54493 _{5/2} °	3301.264	100	100	30282.708	11725 _{1/2} ° - 42008 _{1/2} °
3322.470	10	15	30089.432	15710 _{3/2} ° - 45800 _{5/2} °	3300.616	100b	5b	30288.653	1521 _{5/2} ° - 31810 _{5/2} °
3321.707	4	5	30096.344	20310 _{5/2} ° - 50407 _{7/2} °	3299.707	2		30296.997	16564 _{11/2} ° - 46861 _{11/2} °
3321.451	800	800	30098.663	4113 _{5/2} ° - 34212 _{5/2} °	3299.670	50	200	30297.337	26647 _{11/2} ° - 56945 _{11/2} °
3321.254	10	15	30100.448	11576 _{5/2} ° - 41676 _{3/2} °	3299.478	1		30299.100	20969 _{7/2} ° - 51268 _{7/2} °
3320.301	600	500	30109.088	6700 _{9/2} ° - 36809 _{7/2} °	3298.542	1		30307.697	18816 _{13/2} ° - 49124 _{11/2} °
3319.629	25	100	30115.183	9585 _{5/2} ° - 39700 _{5/2} °	3298.019	8	10	30312.503	23697 _{7/2} ° - 54010 _{7/2} °
3318.984	75	200	30121.035	6691 _{3/2} ° - 36812 _{1/2} °	3297.833	200	500	30314.213	9238 _{9/2} ° - 39552 _{9/2} °
3318.958	50	50	30121.271	8460 _{3/2} ° - 38581 _{5/2} °	3297.735	3h	3	30315.114	17983 _{5/2} ° - 48298 _{7/2} °
3318.915	4	10b	30121.661	18568 _{7/2} ° - 48689 _{3/2} °	3297.374	150	300	30318.432	10673 _{5/2} ° - 40991 _{3/2} °
3318.118	5h	8	30128.896	19248 _{5/2} ° - 49377 _{7/2} °	3297.305	5	8	30319.067	16033 _{5/2} ° - 46352 _{7/2} °
3318.018	2l	1	30129.804	26762 _{3/2} ° - 56892 _{5/2} °	3296.607	150	200	30325.486	12902 _{5/2} ° - 43227 _{5/2} °
3317.746	75	200	30132.274	13250 _{5/2} ° - 43382 _{5/2} °	3296.485	5	10	30326.609	20080 _{7/2} ° - 50407 _{7/2} °
3317.560	50	100	30133.963	7331 _{5/2} ° - 37465 _{5/2} °	3296.445	4	8	30326.976	23518 _{7/2} ° - 53845 _{5/2} °
3316.215	100	40	30146.185	6244 _{1/2} ° - 36390 _{3/2} °	3295.571	10b	20	30335.019	13468 _{5/2} ° - 43803 _{7/2} °
3316.042	3	5	30147.757	23697 _{7/2} ° - 53845 _{5/2} °	3295.523	75l	100l	30335.461	9061 _{5/2} ° - 39396 _{7/2} °
3315.971	4	10	30148.403	17722 _{9/2} ° - 47871 _{7/2} °	3295.325	200b	500	30337.283	6244 _{1/2} ° - 36581 _{9/2} °
3315.832	25	20	30149.667	9711 _{7/2} ° - 39861 _{5/2} °	3294.998	100	300	30340.294	13468 _{5/2} ° - 43809 _{3/2} °
3315.560	10	50	30152.140	15242 _{9/2} ° - 45395 _{7/2} °	3294.753	40	100	30342.550	20288 _{11/2} ° - 50631 _{11/2} °
3315.210	5	10	30155.323	22014 _{11/2} ° - 52170 _{11/2} °	3294.568	75	50	30344.254	14545 _{5/2} ° - 44889 _{3/2} °
3314.827	300b	300	30158.807	8605 _{5/2} ° - 38764 _{7/2} °	3294.362	4	8	30346.151	16564 _{11/2} ° - 46910 _{13/2} °
3314.541	3		30161.410	15144 _{3/2} ° - 45306 _{3/2} °	3294.244	100	200	30347.238	15453 _{7/2} ° - 45800 _{5/2} °
3314.187	2h	1	30164.631	9202 _{7/2} ° - 39366 _{5/2} °	3293.948	500	500	30349.965	9202 _{7/2} ° - 39552 _{9/2} °
3313.996	10h	50	30166.369	19248 _{5/2} ° - 49414 _{3/2} °	3293.698	100	200	30352.269	16033 _{5/2} ° - 46385 _{7/2} °
3313.036	8	5b	30175.110	9720 _{7/2} ° - 39895 _{9/2} °	3293.654	3		30352.674	20310 _{5/2} ° - 50663 _{5/2} °
3312.680	20	15	30178.353	10189 _{11/2} ° - 40367 _{9/2} °	3293.595	100	300	30353.218	14545 _{5/2} ° - 44898 _{7/2} °
3312.076	20	150	30183.856	15305 _{9/2} ° - 45489 _{9/2} °	3292.844	5	4	30360.140	11576 _{5/2} ° - 41936 _{3/2} °
3310.946	5	8	30194.157	12902 _{5/2} ° - 43096 _{5/2} °	3292.551	50b	5w	30362.842	16033 _{5/2} ° - 46395 _{3/2} °
3310.497	75	100	30198.252	12219 _{3/2} ° - 42418 _{3/2} °	3292.520	1000b	1000b	30363.128	6700 _{9/2} ° - 37063 _{9/2} °
3310.249	150b	200	30200.515	6244 _{1/2} ° - 36444 _{3/2} °	3291.932	15	40	30368.551	15786 _{5/2} ° - 46155 _{9/2} °
3310.001	4	8	30202.777	17121 _{3/2} ° - 47324 _{5/2} °	3291.739	1000	800	30370.331	6213 _{9/2} ° - 36583 _{7/2} °
3309.135	150	200	30210.681	7331 _{5/2} ° - 37542 _{3/2} °	3291.606	50	15	30371.559	11116 _{5/2} ° - 41488 _{7/2} °
3309.016	8	15	30211.768	11116 _{7/2} ° - 41328 _{5/2} °	3291.343	8	100	30373.986	12570 _{7/2} ° - 42944 _{9/2} °
3308.085	10b	40	30220.270	9238 _{9/2} ° - 39458 _{7/2} °	3290.633	2		30380.539	22355 _{1/2} ° - 52735 _{3/2} °
3307.215	3h	8	30228.219	14275 _{9/2} ° - 44503 _{7/2} °	3290.250	15	15	30384.075	15305 _{9/2} ° - 45689 _{7/2} °
3306.389	1b	40	30235.771	17771 _{11/2} ° - 48006 _{9/2} °	3290.126	150	40	30385.220	15349 _{11/2} ° - 45735 _{11/2} °
3306.054	10	20	30238.835	8378 _{7/2} ° - 38617 _{9/2} °	3289.675	0	2	30389.386	20080 _{7/2} ° - 50470 _{9/2} °
3305.607	8	20	30242.923	14484 _{11/2} ° - 44727 _{11/2} °	3288.159	50	400	30403.396	18973 _{9/2} ° - 49377 _{7/2} °
3304.780	3	4	30250.491	10673 _{5/2} ° - 40923 _{5/2} °	3287.789	800	1000	30406.818	1521 _{5/2} ° - 31928 _{3/2} °
3304.512	4	10	30252.945	21682 _{7/2} ° - 51935 _{5/2} °	3287.363	4		30410.758	17460 _{5/2} ° - 47871 _{7/2} °
3304.176	50b	25	30256.021	9202 _{7/2} ° - 39458 _{7/2} °	3287.083	50	50	30413.348	18118 _{3/2} ° - 48532 _{1/2} °

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
3286.583	400	500	30417.975	8018 _{3/2} ^o - 38436 _{3/2} ^o	3263.626	15	150	30631.934	13818 _{7/2} ^o - 44450 _{9/2}
3284.776	3		30434.708	19050 _{3/2} ^o - 49485 _{1/2}	3263.111	4		30636.768	15786 _{5/2} ^o - 46423 _{3/2}
3284.310	2		30439.026	23730 _{3/2} ^o - 54169 _{7/2}	3263.032	100	200	30637.510	9585 _{3/2} ^o - 40222 _{3/2}
3282.979	100	500	30451.366	15453 _{3/2} ^o - 45904 _{9/2}	3262.952	8	15	30638.261	21297 _{5/2} ^o - 51935 _{5/2}
3282.948	5		30451.654	14275 _{9/2} ^o - 44727 _{11/2}	3262.882	5	5	30638.918	12488 _{9/2} ^o - 43127 _{11/2}
3282.231	2	50	30458.306	24463 _{3/2} ^o - 54922 _{3/2}	3262.669	800	800	30640.918	6168 _{7/2} ^o - 36809 _{7/2}
3282.130	15	50	30459.243	17272 _{9/2} ^o - 47731 _{9/2}	3262.564	15	50	30641.905	14484 _{11/2} ^o - 45126 _{9/2}
3281.976	25		30460.672	9400 _{3/2} ^o - 39861 _{5/2}	3262.005	2	5	30647.155	9720 _{7/2} ^o - 40367 _{9/2}
3281.604	2		30464.125	28923 _{3/2} ^o - 59387 _{7/2}	3261.541	100	200	30651.515	10572 _{9/2} ^o - 41223 _{11/2}
3281.414	100b		30465.889	15144 _{3/2} ^o - 45610 _{5/2}	3261.148	4	20	30655.209	10673 _{5/2} ^o - 41328 _{5/2}
3281.234	5		30467.560	12488 _{9/2} ^o - 42955 _{9/2}	3261.114	10	100	30655.528	15144 _{3/2} ^o - 45800 _{5/2}
3281.000	3		30469.733	17983 _{3/2} ^o - 48453 _{7/2}	3260.941	20b		30657.155	24381 _{7/2} ^o - 55038 _{9/2}
3280.954	10	25	30470.160	12485 _{9/2} ^o - 42955 _{9/2}	3260.915	50b	200b	30657.399	9238 _{9/2} ^o - 39895 _{9/2}
3280.740	25	40	30472.148	9711 _{7/2} ^o - 40184 _{7/2}	3260.478	4		30661.508	15242 _{9/2} ^o - 45904 _{9/2}
3280.415	50b	75	30475.166	10572 _{9/2} ^o - 41047 _{9/2}	3259.616	100	200	30669.616	11576 _{3/2} ^o - 42246 _{1/2}
3280.372	150	500	30475.566	8018 _{3/2} ^o - 38493 _{5/2}	3259.245	50b	50	30673.107	16033 _{9/2} ^o - 46706 _{7/2}
3279.357	10	25	30484.998	8378 _{9/2} ^o - 38863 _{5/2}	3257.934	100	200	30685.450	13818 _{7/2} ^o - 44503 _{7/2}
3278.767	150	75	30490.484	7331 _{3/2} ^o - 37821 _{3/2}	3257.718	4	5	30687.484	14101 _{7/2} ^o - 44789 _{1/2}
3278.630	3		30491.758	23518 _{7/2} ^o - 54010 _{7/2}	3257.162	300	400	30692.722	9585 _{3/2} ^o - 40278 _{3/2}
3278.193	10	25	30495.822	9720 _{3/2} ^o - 40216 _{5/2}	3256.274	800	800	30701.092	9238 _{9/2} ^o - 39939 _{11/2}
3277.925	20	25	30498.316	9202 _{3/2} ^o - 39700 _{5/2}	3255.691	3		30706.589	17983 _{3/2} ^o - 48689 _{3/2}
3276.941	8		30507.473	24414 _{3/2} ^o - 54922 _{3/2}	3255.509	200	200	30708.306	13468 _{9/2} ^o - 44177 _{11/2}
3276.814	3h		30508.656	17983 _{3/2} ^o - 48492 _{5/2}	3255.283	8	400	30710.438	18816 _{13/2} ^o - 49527 _{13/2}
3275.365	1		30522.152	21131 _{3/2} ^o - 51653 _{1/2}	3255.014	3		30712.976	20969 _{7/2} ^o - 51681 _{9/2}
3275.261	25	40	30523.121	13250 _{3/2} ^o - 43773 _{7/2}	3254.810	150	200	30714.901	7001 _{3/2} ^o - 37716 _{1/2}
3275.068	300b	800	30524.920	13248 _{9/2} ^o - 43773 _{7/2}	3254.398	3		30718.789	19912 _{13/2} ^o - 50631 _{11/2}
3274.404	50	25	30531.110	4490 _{3/2} ^o - 35021 _{3/2}	3252.750	15	75	30734.352	13818 _{7/2} ^o - 44552 _{5/2}
3274.266	4		30532.396	14275 _{9/2} ^o - 44807 _{7/2}	3252.721	15	100	30734.626	17272 _{9/2} ^o - 48006 _{9/2}
3274.192	4		30533.086	21297 _{5/2} ^o - 51830 _{7/2}	3251.308	5	20	30747.983	17121 _{3/2} ^o - 47869 _{3/2}
3273.916	400	800	30535.660	10189 _{11/2} ^o - 40724 _{13/2}	3250.494	2		30755.683	12472 _{5/2} ^o - 43227 _{5/2}
3272.995	2		30544.252	21131 _{3/2} ^o - 51676 _{3/2}	3250.191	10	50	30758.550	12488 _{9/2} ^o - 43246 _{7/2}
3272.577	8	100	30548.154	16033 _{3/2} ^o - 46581 _{5/2}	3249.973	10b	40	30760.613	14545 _{5/2} ^o - 45306 _{3/2}
3271.121	20	150	30561.750	29431 _{7/2} ^o - 59993 _{9/2}	3249.916	75b	100	30761.152	12485 _{7/2} ^o - 43246 _{7/2}
3270.940	5		30563.441	8018 _{3/2} ^o - 38581 _{5/2}	3248.893	100b	200	30770.838	13406 _{13/2} ^o - 44177 _{11/2}
3270.818	150	100	30564.582	0 _{3/2} ^o - 30564 _{1/2}	3248.602	40	40	30773.594	7331 _{5/2} ^o - 38105 _{5/2}
3270.234	15	100	30570.039	16033 _{9/2} ^o - 46603 _{5/2}	3248.490	75	100	30774.655	12472 _{5/2} ^o - 43246 _{7/2}
3270.193	3	8	30570.423	13818 _{7/2} ^o - 44388 _{5/2}	3248.376	50	100	30775.735	11576 _{3/2} ^o - 42352 _{5/2}
3270.041	1		30571.844	11116 _{9/2} ^o - 41688 _{7/2}	3247.594	150	300	30783.146	9400 _{5/2} ^o - 40184 _{7/2}
3269.470	100	100	30577.183	6700 _{3/2} ^o - 37277 _{7/2}	3247.081	4		30788.009	14101 _{1/2} ^o - 44889 _{3/2}
3268.855	5		30582.935	20080 _{7/2} ^o - 50663 _{5/2}	3246.795	15b	25	30790.720	8605 _{5/2} ^o - 39396 _{7/2}
3268.146	2		30589.570	21682 _{9/2} ^o - 52272 _{7/2}	3246.581	20	50	30792.750	11116 _{7/2} ^o - 41909 _{9/2}
3267.368	1		30596.853	20310 _{9/2} ^o - 50907 _{3/2}	3246.558	1b		30792.968	28823 _{5/2} ^o - 59616 _{3/2}
3267.003	200	300	30600.272	7001 _{3/2} ^o - 37601 _{3/2}	3246.345	5		30794.989	25440 _{5/2} ^o - 56235 _{3/2}
3266.601	5		30604.037	14790 _{7/2} ^o - 45395 _{7/2}	3245.761	200b	1000	30800.529	9061 _{5/2} ^o - 39861 _{5/2}
3266.330	5b		30606.576	7001 _{3/2} ^o - 37607 _{3/2}	3244.522	15		30812.291	12570 _{7/2} ^o - 43382 _{5/2}
3266.313	40b	100	30606.736	16564 _{11/2} ^o - 47171 _{9/2}	3244.236	10	25	30815.007	10673 _{5/2} ^o - 41488 _{7/2}
3265.578	150l	200	30613.624	7331 _{5/2} ^o - 37945 _{5/2}	3243.748	5	50	30819.643	14790 _{7/2} ^o - 45610 _{5/2}
3264.434	100	500	30624.352	12472 _{3/2} ^o - 43096 _{5/2}	3243.469	1		30822.294	19050 _{3/2} ^o - 49873 _{5/2}
3264.121	100	200	30627.289	13468 _{9/2} ^o - 44096 _{9/2}	3243.195	2		30824.898	16906 _{7/2} ^o - 47731 _{9/2}
3263.756	40	40	30630.714	9585 _{5/2} ^o - 40216 _{5/2}	3243.070	10	25	30826.086	9585 _{5/2} ^o - 40411 _{7/2}

TABLE 3. *Classified lines of Th II* – Continued

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
3243.029	50	25	30826.475	10572 ^o _{9/2} – 41398 ^o _{7/2}	3224.488	3	3	31003.723	10673 ^o _{5/2} – 41676 ^o _{3/2}
3242.251	75l	800	30833.872	7331 ^o _{5/2} – 38165 ^o _{7/2}	3223.911	5	20	31009.272	14790 ^o _{7/2} – 45800 ^o _{5/2}
3242.176	4		30834.585	17983 ^o _{5/2} – 48817 ^o _{3/2}	3223.800	25	20	31010.340	4146 ^o _{7/2} – 35156 ^o _{5/2}
3241.830	4		30837.876	17460 ^o _{5/2} – 48298 ^o _{7/2}	3223.435	4	5	31013.851	9202 ^o _{7/2} – 40216 ^o _{5/2}
3241.612	5	25	30839.950	25246 ^o _{9/2} – 56086 ^o _{9/2}	3223.285	20	15	31015.294	10673 ^o _{5/2} – 41688 ^o _{7/2}
3241.533	15l	200	30840.702	20989 ^o _{9/2} – 51830 ^o _{7/2}	3221.864	20	150	31028.973	15349 ^o _{11/2} – 46378 ^o _{13/2}
3241.484	5	3	30841.168	17771 ^o _{11/2} – 48612 ^o _{13/2}	3221.291	400b	40	31034.492	10189 ^o _{11/2} – 41223 ^o _{11/2}
3241.108	400	500	30844.746	7001 ^o _{3/2} – 37846 ^o _{5/2}	3220.351	200	300	31043.550	4113 ^o _{5/2} – 35156 ^o _{5/2}
3240.521	15	75	30850.333	9720 ^o _{7/2} – 40570 ^o _{7/2}	3218.866	75	150	31057.872	7331 ^o _{5/2} – 38389 ^o _{7/2}
3240.475	100	150	30850.771	6691 ^o _{3/2} – 37542 ^o _{3/2}	3218.755	100	40	31058.943	9585 ^o _{5/2} – 40644 ^o _{5/2}
3240.330	8	75	30852.151	17837 ^o _{1/2} – 48689 ^o _{3/2}	3218.340	4		31062.948	15305 ^o _{9/2} – 46368 ^o _{9/2}
3240.090	8	3	30854.436	18214 ^o _{3/2} – 49068 ^o _{5/2}	3218.309	10	40	31063.247	12902 ^o _{3/2} – 43965 ^o _{1/2}
3239.700	4		30858.150	10189 ^o _{9/2} – 41047 ^o _{9/2}	3218.123	5	15	31065.042	14545 ^o _{5/2} – 45610 ^o _{5/2}
3239.288	100	200	30862.075	6700 ^o _{9/2} – 37562 ^o _{11/2}	3217.853	40	100	31067.649	12219 ^o _{3/2} – 43287 ^o _{3/2}
3238.802	10	75	30866.706	15349 ^o _{11/2} – 46216 ^o _{11/2}	3217.730	75	150	31068.836	10379 ^o _{9/2} – 41447 ^o _{11/2}
3238.445	4	5	30870.109	12902 ^o _{3/2} – 43772 ^o _{5/2}	3217.456	100b	300	31071.482	9400 ^o _{5/2} – 40472 ^o _{3/2}
3238.408	5	4	30870.461	15710 ^o _{3/2} – 46581 ^o _{5/2}	3217.432	15b		31071.714	15324 ^o _{1/2} – 46395 ^o _{3/2}
3238.116	1000	800	30873.245	4113 ^o _{5/2} – 34986 ^o _{3/2}	3216.634	20		31079.422	8378 ^o _{7/2} – 39458 ^o _{7/2}
3237.534	2b		30878.795	22642 ^o _{9/2} – 53520 ^o _{9/2}	3216.530	8		31080.427	13818 ^o _{7/2} – 44898 ^o _{7/2}
3236.773	8	100	30886.054	6244 ^o _{1/2} – 37130 ^o _{1/2}	3216.013	5	10	31085.423	17983 ^o _{5/2} – 49068 ^o _{5/2}
3236.261	8		30890.941	22028 ^o _{15/2} – 52918 ^o _{13/2}	3215.778	100	100	31087.694	6700 ^o _{9/2} – 37787 ^o _{7/2}
3236.113	5	5	30892.353	15710 ^o _{3/2} – 46603 ^o _{5/2}	3214.478	2		31100.267	16906 ^o _{7/2} – 48006 ^o _{9/2}
3235.841	800r	500	30894.950	6168 ^o _{7/2} – 37063 ^o _{9/2}	3213.574	200	300	31109.015	6168 ^o _{7/2} – 37277 ^o _{7/2}
3235.397	5b	50	30899.190	15453 ^o _{7/2} – 46352 ^o _{7/2}	3212.812	10	15b	31116.393	10572 ^o _{9/2} – 41688 ^o _{7/2}
3235.381	2b		30899.342	18973 ^o _{7/2} – 49873 ^o _{5/2}	3212.494	3		31119.473	14275 ^o _{9/2} – 45395 ^o _{7/2}
3234.888	10	100	30904.051	22014 ^o _{11/2} – 52918 ^o _{13/2}	3212.241	2		31121.924	17722 ^o _{9/2} – 48844 ^o _{9/2}
3234.771	2		30905.169	12902 ^o _{3/2} – 43807 ^o _{3/2}	3212.131	20	75	31122.990	9061 ^o _{5/2} – 40184 ^o _{7/2}
3233.626	10	25	30916.112	10572 ^o _{9/2} – 41488 ^o _{7/2}	3211.467	8	50	31129.424	9238 ^o _{9/2} – 40367 ^o _{9/2}
3233.506	3		30917.259	18568 ^o _{1/2} – 49485 ^o _{1/2}	3210.309	300	300	31140.653	6700 ^o _{9/2} – 37840 ^o _{9/2}
3233.334	20	50	30918.904	15236 ^o _{3/2} – 46155 ^o _{5/2}	3209.332	10	50	31150.132	15453 ^o _{7/2} – 46603 ^o _{5/2}
3232.797	50l	100	30924.040	9720 ^o _{7/2} – 40644 ^o _{5/2}	3208.418	2		31159.006	19248 ^o _{5/2} – 50407 ^o _{7/2}
3231.925	5		30932.383	15453 ^o _{7/2} – 46385 ^o _{7/2}	3208.026	100	150	31162.813	12219 ^o _{3/2} – 43382 ^o _{5/2}
3231.579	2		30935.695	20288 ^o _{11/2} – 51224 ^o _{9/2}	3207.784	100	200	31165.164	9202 ^o _{7/2} – 40367 ^o _{9/2}
3230.867	500	400	30942.512	9711 ^o _{7/2} – 40654 ^o _{5/2}	3207.202	5	15	31170.819	18118 ^o _{3/2} – 49289 ^o _{5/2}
3229.336	4		30957.181	20310 ^o _{5/2} – 51268 ^o _{7/2}	3206.933	75b	100	31173.434	9238 ^o _{9/2} – 40411 ^o _{7/2}
3229.010	1000	1000	30960.306	7331 ^o _{5/2} – 38291 ^o _{7/2}	3206.218	8	20	31180.386	8378 ^o _{7/2} – 39552 ^o _{9/2}
3228.542	5		30964.794	16906 ^o _{7/2} – 47871 ^o _{7/2}	3206.170	10	50	31180.852	20989 ^o _{9/2} – 52170 ^o _{11/2}
3228.342	5	15	30966.712	20969 ^o _{7/2} – 51935 ^o _{5/2}	3205.480	5	50	31187.564	17272 ^o _{9/2} – 48453 ^o _{7/2}
3227.774	150b	100b	30972.161	0 ^o _{3/2} – 30972 ^o _{5/2}	3205.290	25	150	31189.412	24309 ^o _{11/2} – 55496 ^o _{9/2}
3227.488	2b		30974.906	21297 ^o _{5/2} – 52272 ^o _{7/2}	3205.056	5		31191.690	15236 ^o _{3/2} – 46426 ^o _{1/2}
3227.419	2		30975.568	23518 ^o _{7/2} – 54493 ^o _{5/2}	3204.180	10	50	31200.217	15710 ^o _{3/2} – 46902 ^o _{5/2}
3227.008	100	200	30979.513	6700 ^o _{9/2} – 37679 ^o _{11/2}	3203.881	50	200	31203.128	18214 ^o _{3/2} – 49414 ^o _{3/2}
3226.940	3		30980.166	17837 ^o _{1/2} – 48817 ^o _{3/2}	3203.755	1		31204.356	12570 ^o _{7/2} – 43773 ^o _{7/2}
3226.817	1		30981.347	13468 ^o _{9/2} – 44450 ^o _{9/2}	3203.616	10	150	31205.710	14101 ^o _{1/2} – 45306 ^o _{3/2}
3226.413	100	200	30985.226	9585 ^o _{5/2} – 40570 ^o _{7/2}	3203.255	8b	20b	31209.226	15349 ^o _{11/2} – 46555 ^o _{11/2}
3226.119	100	200	30988.050	8378 ^o _{7/2} – 39366 ^o _{5/2}	3203.233	20b	100b	31209.441	9202 ^o _{7/2} – 40411 ^o _{7/2}
3225.957	3		30989.606	13818 ^o _{7/2} – 44807 ^o _{7/2}	3202.125	10	15	31220.239	10189 ^o _{11/2} – 41398 ^o _{9/2}
3225.902	50	50	30990.134	1859 ^o _{3/2} – 32850 ^o _{5/2}	3201.655	2b		31224.822	11116 ^o _{7/2} – 42336 ^o _{5/2}
3225.657	75	100	30992.488	17460 ^o _{5/2} – 48453 ^o _{7/2}	3201.194	8	20	31229.319	15710 ^o _{3/2} – 46935 ^o _{3/2}
3225.412	400	400	30994.842	9711 ^o _{7/2} – 40706 ^o _{7/2}					17460 ^o _{5/2} – 48689 ^o _{3/2}

TABLE 3. *Classified lines of Th II* — Continued

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
3200.556	10	25	31235.544	11116 ^o _{7/2} - 42352 _{5/2}	3181.758	8	50	31420.078	14484 ^o _{11/2} - 45904 _{9/2}
3199.123	2		31249.535	20686 ^o _{5/2} - 51935 _{5/2}	3181.189	200	300	31425.698	7331 ^o _{5/2} - 38757 _{3/2}
3198.969	75s		31251.039	4490 ^o _{5/2} - 35741 _{5/2}	3180.773	3	8	31429.808	13468 ^o _{9/2} - 44898 _{7/2}
3198.694	50b		31253.726	6691 ^o _{3/2} - 37945 _{5/2}	3180.194	1000r	1500	31435.530	1521 _{5/2} - 32957 ^o _{7/2}
3198.596	4	4	31254.683	14545 ^o _{5/2} - 45800 _{5/2}	3179.969	40	100	31437.754	15710 ^o _{3/2} - 47148 _{3/2}
3198.482	100	100	31255.797	8605 _{5/2} - 39861 ^o _{5/2}	3179.531	2	5	31442.085	9202 ^o _{7/2} - 40644 _{5/2}
3198.229	100	200	31258.270	13468 ^o _{9/2} - 44727 _{11/2}	3179.048	500s	500	31446.862	4146 _{7/2} - 35593 ^o _{9/2}
3197.704	8	2	31263.401	10673 ^o _{5/2} - 41936 _{3/2}	3178.781	20	200	31449.503	15453 ^o _{7/2} - 46902 _{5/2}
3197.530	3		31265.103	21297 ^o _{5/2} - 52562 _{7/2}	3177.876	20	100	31458.459	15144 ^o _{3/2} - 46603 _{5/2}
3195.313	25		31286.795	12485 ^o _{7/2} - 43772 _{5/2}	3177.769	8	75	31459.518	14275 ^o _{9/2} - 45735 _{11/2}
3194.859	4		31291.240	16033 ^o _{5/2} - 47324 _{5/2}	3177.485	8	100	31462.330	14790 ^o _{7/2} - 46253 _{9/2}
3194.260	5	40	31297.108	6168 ^o _{7/2} - 37465 _{5/2}	3177.382	3		31463.350	15242 ^o _{7/2} - 46706 _{7/2}
3193.624	1		31303.340	20969 ^o _{7/2} - 52272 _{7/2}	3177.346	2		31463.706	10855 _{7/2} - 42319 ^o _{9/2}
3193.368	50	200	31305.850	9400 _{5/2} - 40706 ^o _{7/2}	3177.198	50		31465.172	6700 ^o _{9/2} - 38165 _{7/2}
3193.159	75	200	31307.899	13818 ^o _{7/2} - 45126 _{9/2}	3176.568	5		31471.412	25607 ^o _{9/2} - 57078 _{9/2}
3192.364	8	20	31315.695	12488 ^o _{9/2} - 43803 _{7/2}	3176.506	100	150	31472.026	6244 _{1/2} - 37716 ^o _{11/2}
3192.099	50	150	31318.295	12485 ^o _{7/2} - 43803 _{7/2}	3175.726	400	500	31479.756	6700 ^o _{9/2} - 38179 _{9/2}
3191.843	10b	150	31320.807	13406 ^o _{13/2} - 44727 _{11/2}	3175.057	5	50	31486.388	12902 ^o _{3/2} - 44388 _{3/2}
3191.749	5	5	31321.729	8378 ^o _{7/2} - 39700 _{5/2}	3174.975	2	2	31487.201	19248 ^o _{5/2} - 50735 _{3/2}
3191.560	2	4	31323.584	12485 ^o _{7/2} - 43809 _{9/2}	3174.457	100	200	31492.339	7001 _{3/2} - 38493 ^o _{5/2}
3191.221	150	300	31326.911	9720 ^o _{7/2} - 41047 _{9/2}	3174.204	300	200	31494.849	1859 _{3/2} - 33354 ^o _{5/2}
3191.093	300	200	31328.168	1521 _{5/2} - 32850 ^o _{5/2}	3174.062	2		31496.258	18973 ^o _{7/2} - 50470 _{9/2}
3190.360	75	200	31335.365	12472 ^o _{5/2} - 43807 _{3/2}	3173.211	15	100	31504.705	7331 ^o _{5/2} - 38836 _{3/2}
3190.220	10	100	31336.740	9238 ^o _{9/2} - 40574 _{11/2}	3173.078	4		31506.025	22014 ^o _{11/2} - 53520 _{9/2}
3190.164	200	400	31337.290	10572 ^o _{9/2} - 41909 _{9/2}	3172.506	10	100	31511.705	15349 ^o _{11/2} - 46861 _{11/2}
3190.070	300	300	31338.213	9585 ^o _{5/2} - 40923 _{5/2}	3172.017	5	8	31516.563	8378 ^o _{7/2} - 39895 _{9/2}
3189.038	5	25	31348.355	14349 _{1/2} - 45697 ^o _{3/2}	3171.727	15b	200	31519.445	11725 ^o _{1/2} - 43244 _{3/2}
3188.552	10	20	31353.132	0 _{3/2} - 31353 ^o _{3/2}	3171.658	10	100	31520.130	11576 ^o _{3/2} - 43096 _{5/2}
3188.515	5		31353.496	17771 ^o _{11/2} - 49124 _{11/2}	3170.428	200l	150l	31532.358	7331 ^o _{5/2} - 38863 _{5/2}
3188.307	500	800	31355.542	1859 _{3/2} - 33215 ^o _{3/2}	3169.328	300	300	31543.302	6213 _{9/2} - 37756 ^o _{7/2}
3188.234	500b	1000	31356.259	6213 _{9/2} - 37569 ^o _{9/2}	3168.705	4		31549.504	23372 ^o _{3/2} - 54922 _{3/2}
3188.118	300	300	31357.400	6244 _{1/2} - 37601 ^o _{3/2}	3168.234	1		31554.194	20310 ^o _{5/2} - 51865 _{5/2}
3187.478	50	50	31363.696	6244 _{1/2} - 37607 ^o _{11/2}	3167.560	50b	400b	31560.908	15349 ^o _{11/2} - 46910 _{13/2}
3187.403	100	150	31364.434	10855 _{7/2} - 42219 ^o _{5/2}	3167.529	8b	100b	31561.217	14790 ^o _{7/2} - 46352 _{7/2}
3187.332	3		31365.133	20310 ^o _{5/2} - 51676 _{3/2}	3166.816	5	25	31568.322	17121 ^o _{3/2} - 48689 _{3/2}
3187.033	5b		31368.076	22642 ^o _{9/2} - 54010 _{7/2}	3166.376	5	5	31572.709	17272 ^o _{9/2} - 48844 _{9/2}
3187.003	50	100	31368.371	9202 ^o _{7/2} - 40570 _{7/2}				20989 ^o _{9/2} - 52562 _{7/2}	
3186.704	3		31371.314	13818 ^o _{7/2} - 45189 _{5/2}	3166.197	10	50	31574.494	10572 ^o _{9/2} - 42146 _{11/2}
3184.949	400	800	31388.600	4490 ^o _{5/2} - 35878 _{7/2}	3166.098	300	300	31575.481	4490 ^o _{5/2} - 36065 _{5/2}
3184.615	10	150	31391.892	16906 ^o _{7/2} - 48298 _{7/2}	3165.819	200	500	31578.264	8605 _{5/2} - 40184 ^o _{7/2}
3183.977	15	150	31398.182	12902 ^o _{3/2} - 44300 _{3/2}	3165.624	150	200	31580.209	7001 _{3/2} - 38581 ^o _{5/2}
3183.795	200	200	31399.976	13250 _{5/2} - 44650 ^o _{7/2}	3164.952	3	25	31586.914	17771 ^o _{11/2} - 49357 _{11/2}
3183.611	3	40	31401.791	13248 _{9/2} - 44650 ^o _{7/2}	3164.482	200	200	31591.605	6700 ^o _{9/2} - 38291 _{7/2}
3183.556	75	200	31402.334	11116 ^o _{7/2} - 42518 _{7/2}	3164.306	20	50	31593.362	9061 ^o _{5/2} - 40654 ^o _{5/2}
3183.167	4	8	31406.171	9585 ^o _{5/2} - 40991 _{3/2}	3164.201	2		31594.411	14790 ^o _{7/2} - 46385 _{7/2}
3182.924	1		31408.568	24982 ^o _{7/2} - 56391 _{5/2}	3163.510	4	8	31601.311	20080 ^o _{7/2} - 51681 _{9/2}
3182.642	100	200	31411.351	9061 _{5/2} - 40472 ^o _{3/2}	3163.248	5	20	31603.929	21131 ^o _{3/2} - 52735 _{3/2}
3182.405	200b	200	31413.691	6691 ^o _{3/2} - 38105 _{5/2}	3163.096	5	100	31605.447	28011 _{3/2} - 59616 _{3/2}
3182.357	8b	40	31414.164	16906 ^o _{7/2} - 48320 _{5/2}	3162.839	150w	300	31608.015	9720 ^o _{7/2} - 41328 _{5/2}
3182.236	2		31415.359	19248 ^o _{5/2} - 50663 _{5/2}				12488 ^o _{9/2} - 44096 _{9/2}	

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
3162.583	20	50	31610.574	12485 ^o _{7/2} - 44096 ^o _{9/2}	3140.064	15	75	31837.261	8378 ^o _{7/2} - 40216 ^o _{5/2}
3162.362	2		31612.783	19050 ^o _{9/2} - 50663 ^o _{5/2}	3139.964	2s		31838.275	16033 ^o _{5/2} - 47871 ^o _{7/2}
3162.286	2		31613.542	15710 ^o _{3/2} - 47324 ^o _{5/2}	3139.866	15		31839.268	11116 ^o _{7/2} - 42955 ^o _{9/2}
3161.687	75	200	31619.531	6168 ^o _{7/2} - 37787 ^o _{7/2}	3139.306	500b	800	31844.948	9202 ^o _{7/2} - 41047 ^o _{9/2}
3161.511	1		31621.292	20686 ^o _{5/2} - 52307 ^o _{3/2}	3139.225	100b	200	31845.769	10673 ^o _{5/2} - 42518 ^o _{7/2}
3161.072	10	15	31625.683	0 ^o _{3/2} - 31625 ^o _{1/2}	3138.767	5	10	31850.416	14545 ^o _{5/2} - 46395 ^o _{3/2}
3160.823	15	50	31628.174	10572 ^o _{9/2} - 42200 ^o _{9/2}	3138.580	3	8	31852.314	17272 ^o _{9/2} - 49124 ^o _{11/2}
3160.758	2	4	31628.825	14275 ^o _{9/2} - 45904 ^o _{9/2}	3138.314	10	100	31855.013	20080 ^o _{7/2} - 51935 ^o _{5/2}
3160.167	15	100	31634.740	11116 ^o _{7/2} - 42751 ^o _{7/2}	3137.172	25	100	31866.609	8605 ^o _{5/2} - 40472 ^o _{3/2}
3159.071	50	200	31645.714	9061 ^o _{5/2} - 40706 ^o _{7/2}	3136.705	40	150	31871.353	15453 ^o _{7/2} - 47324 ^o _{5/2}
3158.871	5	10	31647.718	17837 ^o _{1/2} - 49485 ^o _{1/2}	3135.696	1		31881.608	20288 ^o _{11/2} - 52170 ^o _{11/2}
3158.617	75b	100b	31650.263	10572 ^o _{9/2} - 42222 ^o _{7/2}	3134.896	5h	10	31889.744	17983 ^o _{5/2} - 49873 ^o _{5/2}
3157.918	20	100	31657.268	13468 ^o _{9/2} - 45126 ^o _{9/2}	3134.425	150	500	31894.536	14484 ^o _{11/2} - 46378 ^o _{13/2}
3157.296	8b		31663.505	22834 ^o _{7/2} - 54497 ^o _{7/2}	3133.618	150	200	31902.749	9585 ^o _{5/2} - 41488 ^o _{7/2}
3157.277	3b		31663.695	10673 ^o _{5/2} - 42336 ^o _{5/2}	3132.902	2b		31910.040	23012 ^o _{3/2} - 54922 ^o _{3/2}
3156.400	150	200	31672.493	6168 ^o _{7/2} - 37840 ^o _{9/2}	3132.389	8	20	31915.266	14790 ^o _{7/2} - 46706 ^o _{7/2}
3155.830	200	500	31678.213	9720 ^o _{7/2} - 41398 ^o _{9/2}	3132.259	50	25	31916.590	12472 ^o _{5/2} - 44388 ^o _{5/2}
3155.754	2		31678.976	10673 ^o _{5/2} - 42352 ^o _{5/2}	3132.169	8b	8	31917.507	6700 ^o _{9/2} - 38617 ^o _{9/2}
3155.589	10		31680.632	6691 ^o _{3/2} - 38372 ^o _{3/2}	3131.093	15b		31928.475	15242 ^o _{9/2} - 47171 ^o _{9/2}
3155.189	4s	10	31684.649	19050 ^o _{9/2} - 50735 ^o _{3/2}	3131.069	300b	200b	31928.720	0 ^o _{3/2} - 31928 ^o _{3/2}
3154.774	300b	500	31688.816	13406 ^o _{3/2} - 45095 ^o _{15/2}	3130.539	2		31934.125	19594 ^o _{1/2} - 51528 ^o _{3/2}
3154.760	200b	300	31688.957	12488 ^o _{9/2} - 44177 ^o _{11/2}	3130.284	5	50	31936.727	6168 ^o _{7/2} - 38105 ^o _{5/2}
3154.325	15b		31693.327	10189 ^o _{11/2} - 41882 ^o _{13/2}	3130.124	2		31938.359	16906 ^o _{7/2} - 48844 ^o _{9/2}
3154.301	500b	600	31693.568	1521 ^o _{5/2} - 33215 ^o _{3/2}	3129.973	150	200	31939.900	10379 ^o _{9/2} - 42319 ^o _{9/2}
3154.024	8	20	31696.352	17121 ^o _{3/2} - 48817 ^o _{3/2}	3129.863	2h		31941.022	14275 ^o _{9/2} - 46216 ^o _{11/2}
3153.218	25	50	31704.453	24381 ^o _{7/2} - 56086 ^o _{9/2}	3129.289	10	100	31946.881	10572 ^o _{3/2} - 42518 ^o _{7/2}
3152.631	1		31710.356	20120 ^o _{5/2} - 51830 ^o _{7/2}	3129.258	3		31947.197	17121 ^o _{3/2} - 49068 ^o _{5/2}
3151.836	5h	25b	31718.354	15453 ^o _{7/2} - 47171 ^o _{9/2}	3128.588	5	100	31954.039	17460 ^o _{5/2} - 49414 ^o _{3/2}
3151.647	100	200	31720.256	10189 ^o _{11/2} - 41909 ^o _{9/2}	3128.251	2h		31957.481	10189 ^o _{11/2} - 42146 ^o _{11/2}
3151.538	8b	25	31721.353	9202 ^o _{7/2} - 40923 ^o _{5/2}	3127.872	8	20	31961.353	20310 ^o _{5/2} - 52272 ^o _{7/2}
3150.455	200	400	31732.257	14484 ^o _{11/2} - 46216 ^o _{11/2}	3127.554	15	100	31964.603	12485 ^o _{7/2} - 44450 ^o _{9/2}
3149.963	20	100	31737.213	7331 ^o _{5/2} - 39068 ^o _{7/2}	3127.207	150	300	31968.149	9720 ^o _{7/2} - 41688 ^o _{7/2}
3149.395	3	2	31742.937	9585 ^o _{5/2} - 41328 ^o _{5/2}	3126.924	5	10	31971.042	13250 ^o _{5/2} - 45221 ^o _{5/2}
3146.926	2		31767.841	9720 ^o _{7/2} - 41488 ^o _{7/2}	3126.635	3	8	31973.998	19050 ^o _{3/2} - 51024 ^o _{3/2}
3146.880	3b		31768.305	17727 ^o _{11/2} - 49495 ^o _{9/2}	3126.267	5	15	31977.761	14275 ^o _{9/2} - 46253 ^o _{9/2}
3146.811	10	50	31769.002	14484 ^o _{11/2} - 46253 ^o _{9/2}	3126.204	1		31978.405	23518 ^o _{7/2} - 55496 ^o _{9/2}
3146.043	500	500	31776.757	6168 ^o _{7/2} - 37945 ^o _{5/2}	3126.052	50	150	31979.960	11116 ^o _{7/2} - 43096 ^o _{5/2}
3145.281	5	50	31784.455	20080 ^o _{7/2} - 51865 ^o _{5/2}	3125.982	1		31980.677	22513 ^o _{5/2} - 54493 ^o _{5/2}
3144.702	10	25	31790.307	14790 ^o _{7/2} - 46581 ^o _{5/2}	3125.858	10	40	31981.945	13818 ^o _{7/2} - 45800 ^o _{5/2}
3144.641	1		31790.924	15144 ^o _{3/2} - 46935 ^o _{3/2}	3125.745	200	200	31983.101	1859 ^o _{3/2} - 33843 ^o _{3/2}
3144.506	10		31792.288	13818 ^o _{7/2} - 45610 ^o _{5/2}	3125.507	500	1000	31985.537	9238 ^o _{9/2} - 41223 ^o _{11/2}
3143.084	8	20	31806.671	14545 ^o _{5/2} - 46352 ^o _{7/2}	3125.321	4	5	31987.440	12902 ^o _{5/2} - 44889 ^o _{3/2}
3142.836	400	600	31809.181	9238 ^o _{9/2} - 41047 ^o _{9/2}	3125.208	300	600	31988.597	8378 ^o _{7/2} - 40367 ^o _{9/2}
3142.701	50	40	31810.548	0 ^o _{3/2} - 31810 ^o _{3/2}	3124.387	500	600	31997.002	6168 ^o _{7/2} - 38165 ^o _{7/2}
3142.538	10	100	31812.197	14790 ^o _{7/2} - 46603 ^o _{5/2}	3123.994	8		32001.027	15144 ^o _{3/2} - 47145 ^o _{1/2}
3142.209	1		31815.528	20120 ^o _{5/2} - 51935 ^o _{5/2}	3123.004	100b	150	32011.171	10189 ^o _{11/2} - 42200 ^o _{9/2}
3141.847	200	300	31819.194	7331 ^o _{5/2} - 39150 ^o _{3/2}	3122.963	600b	800b	32011.591	6168 ^o _{7/2} - 38179 ^o _{9/2}
3141.337	10	100	31824.359	15324 ^o _{7/2} - 47148 ^o _{3/2}	3122.914	8g		32012.094	8460 ^o _{3/2} - 40472 ^o _{3/2}
3140.940	50	150	31828.382	12472 ^o _{5/2} - 44300 ^o _{3/2}	3122.582	3		32015.497	12488 ^o _{9/2} - 44503 ^o _{7/2}
3140.494	10	8	31832.902	1521 ^o _{5/2} - 33354 ^o _{3/2}	3122.327	10		32018.112	12485 ^o _{7/2} - 44503 ^o _{7/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
3122.158	2		32019.845	19248 ^o _{5/2} - 51268 _{7/2}	3100.937	300	500	32238.961	12488 ^o _{9/2} - 44727 _{11/2}
3121.888	1		32022.614	27593 _{5/2} - 59616 ^o _{3/2}	3100.797	200b	200	32240.417	13248 _{9/2} - 45489 ^o _{9/2}
3121.169	1		32029.990	22139 ^o _{9/2} - 54169 _{7/2}	3099.863	150	200	32250.131	9238 ^o _{9/2} - 41488 _{7/2}
3121.011	25	100	32031.612	12472 ^o _{5/2} - 44503 _{7/2}	3099.740	100	200	32251.410	12570 _{7/2} - 44821 ^o _{5/2}
3120.912	5		32032.628	8378 ^o _{7/2} - 40411 _{7/2}	3099.118	1		32257.883	19912 ^o _{13/2} - 52170 _{11/2}
3120.639	5	10	32035.430	7331 ^o _{5/2} - 39366 _{5/2}	3098.387	40	100	32265.493	8378 ^o _{7/2} - 40644 _{5/2}
3120.607	1		32035.759	14545 ^o _{5/2} - 46581 _{5/2}	3098.325	20	75	32266.139	13468 ^o _{9/2} - 45735 _{11/2}
3120.455	75	8	32037.319	6691 ^o _{3/2} - 38728 _{5/2}	3097.267	200	300	32277.160	4113 _{5/2} - 36390 ^o _{3/2}
3120.168	8		32040.266	6700 ^o _{9/2} - 38740 _{11/2}	3097.142	20		32278.463	15453 _{7/2} - 47731 _{9/2}
3119.526	600b	100	32046.859	4146 _{7/2} - 36193 ^o _{9/2}	3096.991	5	10b	32280.037	14275 ^o _{9/2} - 46555 _{11/2}
3119.354	150	200	32048.626	8605 _{5/2} - 40654 ^o _{5/2}	3096.963	5	10b	32280.328	16564 ^o _{11/2} - 48844 _{9/2}
3118.478	25b		32057.629	14545 ^o _{5/2} - 46603 _{5/2}	3096.430	150	200	32285.885	9202 ^o _{7/2} - 41488 _{7/2}
3117.683	400	300	32065.803	6691 ^o _{3/2} - 38757 _{3/2}	3096.295	10b	15b	32287.292	12902 ^o _{3/2} - 45189 _{5/2}
3117.150	15	50	32071.286	14484 ^o _{11/2} - 46555 _{11/2}	3096.260	40b	100	32287.657	16033 ^o _{5/2} - 48320 _{5/2}
3116.626	2	3	32076.678	14275 ^o _{9/2} - 46352 _{7/2}	3095.744	10	75	32293.039	17121 ^o _{3/2} - 49414 _{3/2}
3116.478	200	150	32078.201	14349 _{1/2} - 46426 ^o _{1/2}	3095.634	3b		32294.186	14101 _{1/2} - 46393 _{3/2}
3116.303	150b	400	32080.002	10673 _{5/2} - 42751 _{7/2}	3095.620	10b	75	32294.333	18973 _{7/2} - 51268 _{7/2}
3115.745	40	200	32085.747	12570 _{7/2} - 44650 ^o _{7/2}	3094.706	40b	100	32303.870	16818 _{7/2} - 49121 _{7/2}
3115.715	2		32086.056	17272 ^o _{9/2} - 49357 _{11/2}	3093.254	8p	8	32319.033	4490 ^o _{5/2} - 36809 _{7/2}
3115.415	8	40	32089.146	13818 ^o _{7/2} - 45904 _{9/2}	3093.196	5	8	32319.639	12488 _{9/2} - 44807 _{7/2}
3115.191	5	8	32091.453	10855 _{7/2} - 42944 ^o _{7/2}	3093.051	150	100	32321.154	1521 _{5/2} - 33843 ^o _{3/2}
3114.744	3h		32096.059	9585 ^o _{5/2} - 41676 _{3/2}	3092.945	40	100	32322.262	12485 ^o _{7/2} - 44807 _{7/2}
3114.266	100	200	32100.985	24982 ^o _{7/2} - 57078 _{9/2}	3092.452	2		32327.414	21682 ^o _{7/2} - 54010 _{7/2}
3114.067	100	100	32103.036	8605 _{5/2} - 40706 ^o _{7/2}	3092.332	20	100	32328.669	13406 ^o _{13/2} - 45735 _{11/2}
3113.408	8		32109.831	9585 ^o _{5/2} - 41688 _{7/2}	3091.653	50b	75	32335.769	12472 ^o _{5/2} - 44807 _{7/2}
3113.242	8		32111.543	14275 ^o _{9/2} - 46385 _{7/2}	3091.290	1		32339.566	18568 ^o _{1/2} - 50907 _{3/2}
3112.941	4	10	32114.647	14790 ^o _{7/2} - 46902 _{5/2}	3090.184	20	25	32351.140	9585 _{5/2} - 41936 _{3/2}
3112.088	75	100	32123.449	19248 ^o _{5/2} - 51362 _{5/2}	3090.094	300	300	32352.082	1859 _{3/2} - 34212 ^o _{5/2}
3111.832	50	100	32126.092	17722 ^o _{9/2} - 49837 _{9/2}	3089.699	1		32356.218	27631 _{3/2} - 59987 ^o _{3/2}
3111.762	50	100	32126.815	6168 ^o _{7/2} - 38291 _{7/2}	3089.626	75	75	32356.982	14545 ^o _{5/2} - 46902 _{5/2}
3111.429	15	75	32130.253	9202 ^o _{7/2} - 41328 _{5/2}	3088.967	4		32363.885	17121 ^o _{3/2} - 49485 _{1/2}
3110.020	600	500	32144.809	7331 ^o _{5/2} - 39458 _{7/2}	3088.839	100	100	32365.226	8460 _{3/2} - 40825 ^o _{1/2}
3108.671	5		32158.758	11116 ^o _{7/2} - 43246 _{7/2}	3088.526	25b		32368.506	6700 ^o _{9/2} - 39068 _{7/2}
3108.454	40b	200	32161.003	6691 ^o _{3/2} - 38836 _{3/2}	3088.470	500	500	32369.093	7331 ^o _{5/2} - 39700 _{5/2}
3108.297	1000	1000	32162.627	15710 ^o _{3/2} - 47869 _{3/2}	3087.691	15	10	32377.259	14484 ^o _{11/2} - 46861 _{11/2}
3107.855	2		32167.201	15305 _{9/2} - 47466 ^o _{11/2}	3087.275	8	15	32381.622	15349 ^o _{11/2} - 47731 _{9/2}
3107.345	20	25	32172.480	6700 ^o _{9/2} - 38862 _{11/2}	3087.067	2		32383.803	10572 ^o _{9/2} - 42955 _{9/2}
3107.026	500	500	32175.783	18568 ^o _{1/2} - 50735 _{3/2}	3086.466	3	2	32390.109	14545 ^o _{5/2} - 46935 _{3/2}
3106.687	50	200b	32179.294	6691 ^o _{3/2} - 38863 _{5/2}	3086.361	8		32391.211	22106 _{5/2} - 54497 ^o _{7/2}
3106.652	8	100	32179.657	6691 ^o _{3/2} - 38867 _{1/2}	3086.147	2		32393.457	27593 _{5/2} - 59987 ^o _{3/2}
3105.747	800b	600	32189.033	10572 ^o _{9/2} - 42751 _{7/2}	3085.165	4		32403.767	12902 ^o _{3/2} - 45306 _{3/2}
3105.473	100	150	32191.874	15144 ^o _{5/2} - 47324 _{5/2}	3084.689	1		32408.767	22513 ^o _{5/2} - 54922 _{3/2}
3105.257	8	5	32194.113	9720 ^o _{7/2} - 41909 _{9/2}	3084.524	2b		32410.501	12488 ^o _{9/2} - 44898 _{7/2}
3105.050	100	150	32196.259	6244 _{1/2} - 38436 ^o _{3/2}	3084.335	3		32412.487	17460 ^o _{5/2} - 49873 _{5/2}
3104.381	5	25	32203.197	8460 _{3/2} - 40654 ^o _{5/2}	3084.279	2		32413.075	12485 ^o _{7/2} - 44898 _{7/2}
3102.664	500	500	32221.017	9202 ^o _{7/2} - 41398 _{9/2}	3083.845	20	20	32417.637	12472 ^o _{5/2} - 44889 _{3/2}
3101.688	100	200	32231.156	22642 ^o _{9/2} - 54845 _{9/2}	3083.777	1		32418.351	15453 ^o _{7/2} - 47871 _{7/2}
3101.069	2		32237.589	6168 ^o _{7/2} - 38389 _{7/2}	3083.624	8	15	32419.960	16033 ^o _{5/2} - 48453 _{7/2}
				11576 ^o _{3/2} - 43807 _{3/2}	3083.298	400	200	32423.387	10673 ^o _{5/2} - 43096 _{5/2}
				17722 ^o _{9/2} - 49960 _{7/2}	3082.995	100b	200	32426.574	12472 ^o _{5/2} - 44898 _{7/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
3082.606	2		32430.666	14275 ⁰ _{3/2} - 46706 ⁰ _{7/2}	3063.126	200b	100	32636.901	9585 ⁰ _{3/2} - 42222 ⁰ _{7/2}
3082.194	75	150	32435.001	13818 ⁰ _{7/2} - 46253 ⁰ _{9/2}	3063.029	300	150	32637.934	12488 ⁰ _{3/2} - 45126 ⁰ _{9/2}
3082.153	75	100	32435.432	13468 ⁰ _{3/2} - 45904 ⁰ _{9/2}	3062.784	5	3	32640.545	12485 ⁰ _{7/2} - 45126 ⁰ _{9/2}
3081.982	400	200	32437.232	4146 ⁰ _{7/2} - 36583 ⁰ _{7/2}	3061.700	800	200	32652.101	6700 ⁰ _{3/2} - 39352 ⁰ _{11/2}
3081.660	150	100	32440.621	13248 ⁰ _{3/2} - 45689 ⁰ _{7/2}	3061.345	40	25	32655.887	11116 ⁰ _{7/2} - 43772 ⁰ _{5/2}
3080.834	50		32449.318	6168 ⁰ _{7/2} - 38617 ⁰ _{9/2}	3061.259	10b		32656.805	16033 ⁰ _{3/2} - 48689 ⁰ _{3/2}
3080.730	8		32450.413	9238 ⁰ _{9/2} - 41688 ⁰ _{7/2}	3061.241	50b	40l	32656.997	15349 ⁰ _{11/2} - 48006 ⁰ _{9/2}
3080.217	800	600	32455.818	10189 ⁰ _{11/2} - 42644 ⁰ _{13/2}	3060.178	400	200	32668.340	8378 ⁰ _{7/2} - 41047 ⁰ _{9/2}
3079.888	150	75	32459.285	6691 ⁰ _{3/2} - 39150 ⁰ _{3/2}	3059.899	3		32671.319	9238 ⁰ _{9/2} - 41909 ⁰ _{9/2}
3079.042	20		32468.203	4113 ⁰ _{5/2} - 36581 ⁰ _{3/2}	3059.505	3		32675.526	6691 ⁰ _{3/2} - 39366 ⁰ _{5/2}
3078.829	100w	200	32470.449	4113 ⁰ _{5/2} - 36583 ⁰ _{7/2}	3059.321	3		32677.491	16818 ⁰ _{7/2} - 49495 ⁰ _{9/2}
3078.734	50	15b	32471.451	16818 ⁰ _{7/2} - 49289 ⁰ _{5/2}	3059.063	8b		32680.247	17983 ⁰ _{3/2} - 50663 ⁰ _{5/2}
3077.932	200	150	32479.911	9720 ⁰ _{7/2} - 42200 ⁰ _{9/2}	3058.685	3		32684.285	17722 ⁰ _{9/2} - 50407 ⁰ _{7/2}
3077.339	300	200	32486.170	9202 ⁰ _{7/2} - 41688 ⁰ _{7/2}	3058.426	100b	100b	32687.053	14484 ⁰ _{11/2} - 47171 ⁰ _{9/2}
3077.271	4		32486.888	21682 ⁰ _{7/2} - 54169 ⁰ _{7/2}	3058.395	8b	4b	32687.385	11116 ⁰ _{7/2} - 43803 ⁰ _{7/2}
3076.035	75	100	32499.941	17460 ⁰ _{5/2} - 49960 ⁰ _{7/2}	3058.307	8	5	32688.325	17272 ⁰ _{9/2} - 49960 ⁰ _{7/2}
3075.840	75		32502.001	9720 ⁰ _{7/2} - 42222 ⁰ _{7/2}	3058.139	50	8	32690.121	1521 ⁰ _{5/2} - 34212 ⁰ _{5/2}
3075.293	8		32507.782	9711 ⁰ _{7/2} - 42219 ⁰ _{5/2}	3057.901	25	10	32692.665	11116 ⁰ _{7/2} - 43809 ⁰ _{7/2}
3075.057	50	150	32510.277	24381 ⁰ _{7/2} - 56892 ⁰ _{5/2}	3057.837	4		32693.349	18214 ⁰ _{9/2} - 50907 ⁰ _{3/2}
3074.171	1		32519.647	20158 ⁰ _{5/2} - 52678 ⁰ _{5/2}				23697 ⁰ _{7/2} - 56391 ⁰ _{5/2}	
3074.041	1		32521.022	18214 ⁰ _{9/2} - 50735 ⁰ _{3/2}	3057.637	100	50	32695.488	6168 ⁰ _{7/2} - 38863 ⁰ _{5/2}
3073.432	50	15	32527.465	10855 ⁰ _{7/2} - 43382 ⁰ _{5/2}	3057.311	2		32698.974	17771 ⁰ _{11/2} - 50470 ⁰ _{9/2}
3073.089	2		32531.096	20989 ⁰ _{9/2} - 53520 ⁰ _{9/2}	3056.845	15	10	32703.958	12485 ⁰ _{7/2} - 45189 ⁰ _{5/2}
3072.825	400	200	32533.890	13818 ⁰ _{7/2} - 46352 ⁰ _{7/2}	3056.555	5	2	32707.061	9202 ⁰ _{7/2} - 41909 ⁰ _{9/2}
3072.115	800	300	32541.409	4146 ⁰ _{7/2} - 36687 ⁰ _{5/2}	3056.445	20	10	32708.238	12902 ⁰ _{3/2} - 45610 ⁰ _{5/2}
3071.798	5	10	32544.767	8378 ⁰ _{7/2} - 40923 ⁰ _{5/2}	3056.097	50	15	32711.963	9400 ⁰ _{5/2} - 42112 ⁰ _{3/2}
3071.496	1		32547.967	21297 ⁰ _{5/2} - 53845 ⁰ _{5/2}	3056.024	2		32712.744	12129 ⁰ _{5/2} - 54010 ⁰ _{7/2}
3071.195	15	5	32551.157	6213 ⁰ _{9/2} - 38764 ⁰ _{7/2}	3055.944	4		32713.600	21131 ⁰ _{9/2} - 53845 ⁰ _{5/2}
3071.124	1		32551.909	20969 ⁰ _{7/2} - 53520 ⁰ _{9/2}	3055.582	5		32717.476	12472 ⁰ _{9/2} - 45189 ⁰ _{5/2}
3070.943	150	150	32553.828	15453 ⁰ _{7/2} - 48006 ⁰ _{9/2}	3054.959	10	8	32724.147	11576 ⁰ _{3/2} - 44300 ⁰ _{3/2}
3070.817	800	400	32555.164	10572 ⁰ _{9/2} - 43127 ⁰ _{11/2}	3054.892	5	4	32724.865	15144 ⁰ _{9/2} - 47869 ⁰ _{3/2}
3070.330	5		32560.327	6168 ⁰ _{7/2} - 38728 ⁰ _{5/2}	3052.771	8	5	32747.601	13468 ⁰ _{9/2} - 46216 ⁰ _{11/2}
3069.851	5	5	32565.407	17272 ⁰ _{3/2} - 49837 ⁰ _{9/2}	3052.414	10	4	32751.431	9585 ⁰ _{3/2} - 42336 ⁰ _{5/2}
3069.694	5		32567.073	13818 ⁰ _{7/2} - 46385 ⁰ _{7/2}	3052.353	1b		32752.085	17983 ⁰ _{5/2} - 50735 ⁰ _{3/2}
3069.255	150	150	32571.731	10673 ⁰ _{5/2} - 43244 ⁰ _{3/2}	3051.792	150	40	32758.106	6700 ⁰ _{9/2} - 39458 ⁰ _{7/2}
3069.070	50s	15	32573.694	10673 ⁰ _{3/2} - 43246 ⁰ _{7/2}	3051.340	2		32762.958	13818 ⁰ _{7/2} - 46581 ⁰ _{5/2}
3068.981	300b	150	32574.639	4113 ⁰ _{5/2} - 36687 ⁰ _{5/2}	3050.985	150b	100	32766.770	10189 ⁰ _{11/2} - 42955 ⁰ _{9/2}
3068.935	20b		32575.127	11725 ⁰ _{9/2} - 44300 ⁰ _{3/2}	3049.863	100	50	32778.824	14545 ⁰ _{5/2} - 47324 ⁰ _{5/2}
3068.263	15b	15b	32582.261	19248 ⁰ _{9/2} - 51830 ⁰ _{7/2}	3049.643	100	100	32781.188	15710 ⁰ _{9/2} - 48492 ⁰ _{5/2}
3067.909	5	4	32586.021	14275 ⁰ _{9/2} - 46861 ⁰ _{11/2}	3049.347	5	3	32784.370	13468 ⁰ _{9/2} - 46253 ⁰ _{9/2}
3067.729	800	500	32587.932	13250 ⁰ _{5/2} - 45838 ⁰ _{3/2}	3049.302	10	5	32784.854	13818 ⁰ _{7/2} - 46603 ⁰ _{5/2}
3066.412	150	100	32601.928	12219 ⁰ _{5/2} - 44821 ⁰ _{5/2}	3049.092	500b	200	32787.112	4490 ⁰ _{5/2} - 37277 ⁰ _{7/2}
3066.307	4	50	32603.044	14545 ⁰ _{5/2} - 47148 ⁰ _{3/2}	3048.023	5	3	32798.611	9720 ⁰ _{7/2} - 42518 ⁰ _{7/2}
3065.930	300	150	32607.053	9711 ⁰ _{7/2} - 42319 ⁰ _{9/2}	3047.206	5	3	32807.404	8018 ⁰ _{3/2} - 40825 ⁰ _{1/2}
3065.038	50	10	32616.543	9720 ⁰ _{7/2} - 42336 ⁰ _{5/2}	3046.952	300	200	32810.139	13406 ⁰ _{3/2} - 46216 ⁰ _{11/2}
3063.916	2		32628.486	15242 ⁰ _{9/2} - 47871 ⁰ _{7/2}	3046.745	5	2	32812.368	11576 ⁰ _{3/2} - 44388 ⁰ _{5/2}
3063.744	1		32630.318	20288 ⁰ _{11/2} - 52918 ⁰ _{13/2}	3046.564	1		32814.317	19050 ⁰ _{3/2} - 51865 ⁰ _{5/2}
3063.602	8b		32631.830	9720 ⁰ _{7/2} - 42352 ⁰ _{5/2}	3046.149	15	5	32818.788	9400 ⁰ _{5/2} - 42219 ⁰ _{5/2}
3063.217	5		32635.931	24309 ⁰ _{11/2} - 56945 ⁰ _{11/2}	3045.565	200	100	32825.080	10189 ⁰ _{11/2} - 43014 ⁰ _{13/2}
3063.185	10		32636.272	8018 ⁰ _{3/2} - 40654 ⁰ _{5/2}	3045.069	8	15	32830.427	22014 ⁰ _{11/2} - 54845 ⁰ _{9/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
3044.750	20	8	32833.867	14101 ^o _{7/2} - 46935 _{3/2}	3025.845	10	2	33038.999	15453 ^o _{7/2} - 48492 _{5/2}
3043.671	2		32845.506	15453 ^o _{7/2} - 48298 _{7/2}	3025.647	4	4	33041.161	20969 ^o _{7/2} - 54010 _{7/2}
3043.248	100	5	32850.071	0 _{3/2} - 32850 ^o _{5/2}	3025.623	2		33041.423	17983 ^o _{5/2} - 51024 _{3/2}
3043.065	200	100	32852.046	6700 ^o _{5/2} - 39552 _{9/2}	3025.391	40b	25	33043.957	14101 ^o _{1/2} - 47145 _{1/2}
3042.630	4	4	32856.743	18973 ^o _{7/2} - 51830 _{7/2}	3025.131	10	5	33046.796	14101 ^o _{1/2} - 47148 _{3/2}
3042.308	10	4	32860.220	7001 _{3/2} - 39861 ^o _{5/2}	3024.669	50b	20	33051.844	9061 _{5/2} - 42112 ^o _{3/2}
3042.086	1		32862.618	23372 ^o _{3/2} - 56235 _{3/2}	3024.475	5	2	33053.964	16906 ^o _{7/2} - 49960 _{7/2}
3041.608	2		32867.783	15453 ^o _{7/2} - 48320 _{5/2}	3023.570	8	3	33063.857	11725 ^o _{1/2} - 44789 _{1/2}
3041.163	2		32872.592	23518 _{7/2} - 56391 _{5/2}	3022.095	200	100	33079.994	7331 ^o _{5/2} - 40411 _{7/2}
3040.177	8	4	32883.253	13468 ^o _{9/2} - 46352 _{7/2}	3022.062	1		33080.355	14790 ^o _{7/2} - 47871 _{7/2}
3040.049	150	50	32884.637	7331 ^o _{5/2} - 40216 _{5/2}	3021.709	2		33084.219	13818 ^o _{7/2} - 46902 _{5/2}
3039.425	8	5	32891.388	7331 ^o _{5/2} - 40222 _{3/2}	3021.488	100b	20	33086.639	13468 ^o _{9/2} - 46555 _{11/2}
3039.017	2		32895.804	18973 ^o _{7/2} - 51865 _{5/2}	3020.329	3	2	33099.335	10673 ^o _{5/2} - 43772 _{5/2}
3038.825	40	20	32897.882	14275 ^o _{9/2} - 47171 _{9/2}	3019.421	200	100	33109.289	8378 ^o _{7/2} - 41488 _{7/2}
3038.598	200	75	32900.340	12902 ^o _{5/2} - 45800 _{5/2}	3018.549	4	3	33118.853	12570 _{7/2} - 45689 ^o _{7/2}
3038.164	2		32905.039	6168 _{7/2} - 39068 _{7/2}	3018.490	150	150	33119.500	13248 _{9/2} - 46368 _{9/2}
3038.007	40	25	32906.740	13250 _{5/2} - 46155 ^o _{5/2}	3017.457	4	2	33130.838	10673 ^o _{5/2} - 43803 _{7/2}
3037.842	2		32908.527	12488 _{7/2} - 45395 _{7/2}	3017.132	100	75	33134.406	10673 ^o _{5/2} - 43807 _{3/2}
3037.766	3	3	32909.350	9238 ^o _{9/2} - 42146 _{11/2}	3016.763	4	2	33138.459	12472 _{5/2} - 45610 _{5/2}
3037.111	8	5	32916.448	12485 ^o _{7/2} - 45395 _{7/2}	3015.725	100	40	33149.865	9202 ^o _{7/2} - 42352 _{5/2}
3036.938	8b	3b	32918.323	13468 ^o _{9/2} - 46385 _{7/2}	3014.926	75	10	33158.650	9061 _{5/2} - 42219 ^o _{5/2}
3036.910	25	8b	32918.626	10855 _{7/2} - 43773 _{7/2}	3014.405	10	5	33164.380	11725 ^o _{1/2} - 44889 _{3/2}
3035.764	20	20	32931.052	12570 _{7/2} - 45489 ^o _{9/2}	3013.599	100	50	33173.250	13250 _{5/2} - 46423 ^o _{3/2}
3035.536	100	20	32933.526	16906 ^o _{7/2} - 49837 _{9/2}	3013.343	2	2	33176.068	15144 ^o _{5/2} - 48320 _{5/2}
3035.110	300	150	32938.148	9585 ^o _{5/2} - 42518 _{7/2}	3013.000	5	4	33179.845	20989 _{7/2} - 54169 _{7/2}
3034.893	10	10	32940.503	10189 ^o _{11/2} - 43127 _{11/2}	3012.707	100	75	33183.071	6213 _{9/2} - 39396 ^o _{7/2}
3034.327	40	15	32946.647	14790 ^o _{7/2} - 47731 _{9/2}	3012.347	2		33187.037	17837 ^o _{7/2} - 51024 _{3/2}
3034.065	500	300	32949.492	7331 ^o _{5/2} - 40278 _{3/2}	3012.014	1		33190.706	14484 _{11/2} - 47675 _{11/2}
3032.895	15	5	32962.203	17460 ^o _{5/2} - 50407 _{7/2}	3011.602	200	40	33195.246	6700 _{9/2} - 39895 _{9/2}
3032.834	2		32962.865	8378 _{7/2} - 41328 _{5/2}	3011.481	2		33196.580	21297 ^o _{5/2} - 54493 _{5/2}
3031.955	100	75	32972.422	9238 ^o _{9/2} - 42200 _{9/2}	3011.370	1		33197.804	17272 ^o _{5/2} - 50470 _{9/2}
3031.699	50b	8	32975.205	26424 ^o _{5/2} - 59387 _{7/2}	3011.302	5	8	33198.553	6168 _{7/2} - 39366 _{5/2}
3031.600	5	2	32976.282	13406 ^o _{13/2} - 46378 _{13/2}	3010.899	8b	8	33202.997	17460 ^o _{5/2} - 50663 _{5/2}
3031.339	10	4	32979.122	4490 ^o _{5/2} - 37465 _{5/2}	3010.245	2		33210.210	15242 ^o _{3/2} - 48453 _{7/2}
3031.287	75	10	32979.687	11576 ^o _{3/2} - 44552 _{5/2}	3010.002	20	20	33212.891	11576 ^o _{3/2} - 44789 _{1/2}
3030.864	50b	15	32984.290	15710 ^o _{3/2} - 48689 _{3/2}	3009.857	5		33214.491	23730 ^o _{9/2} - 56945 _{11/2}
3029.692	5	2	32997.049	11116 ^o _{3/2} - 44096 _{9/2}	3009.768	200	50	33215.473	0 _{3/2} - 33215 ^o _{3/2}
3029.609	10		32997.953	9238 ^o _{9/2} - 42222 _{7/2}	3009.733	2		33215.859	14790 ^o _{7/2} - 48006 _{9/2}
3029.414	8	4	33000.077	7828 _{1/2} - 40825 ^o _{1/2}	3008.497	300	150	33229.505	6213 _{9/2} - 39443 ^o _{9/2}
3029.278	2		33001.558	9202 ^o _{7/2} - 42200 _{9/2}	3008.277	75	75	33231.935	10572 ^o _{9/2} - 43803 _{7/2}
3028.577	200	150	33009.197	15453 ^o _{7/2} - 48453 _{7/2}	3008.226	3	3	33232.498	9711 _{7/2} - 42944 ^o _{7/2}
3027.837	2		33017.263	12219 _{5/2} - 45221 ^o _{5/2}	3007.950	100	50	33235.547	9720 ^o _{7/2} - 42955 _{9/2}
3027.617	15	5	33019.663	6691 ^o _{3/2} - 39700 _{5/2}	3007.799	75	100	33237.216	10572 ^o _{9/2} - 43809 _{9/2}
3027.583	8	3	33020.033	9400 _{3/2} - 42418 ^o _{3/2}	3007.643	50b	40b	33238.940	6700 _{9/2} - 39939 _{11/2}
3027.554	1		33020.350	8378 _{7/2} - 41398 _{9/2}	3007.625	100b	50b	33239.139	7331 ^o _{5/2} - 40570 _{7/2}
3027.216	4b		33024.036	9202 ^o _{7/2} - 42222 _{7/2}	3006.932	200	150	33246.799	12488 ^o _{9/2} - 45735 _{11/2}
3026.575	300	200	33031.030	20989 _{9/2} - 54010 _{7/2}	3006.008	50	15	33257.018	6691 _{3/2} - 39948 _{1/2}
3026.150	20	20	33035.669	19248 _{5/2} - 52272 _{7/2}	3005.527	10	8	33262.340	15349 _{11/2} - 48612 _{13/2}
				9720 ^o _{7/2} - 42751 _{7/2}	3004.637	20	5	33272.192	11116 ^o _{7/2} - 44388 _{5/2}
				16033 ^o _{5/2} - 49068 _{3/2}	3004.562	2		33273.023	16564 ^o _{11/2} - 49837 _{9/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
3004.398	2		33274.839	17460 ^o _{5/2} - 50735 _{3/2}	2983.817	300	150	33504.344	13406 ^o _{3/2} - 46910 _{13/2}
3003.851	8	3	33280.898	9238 ^o _{9/2} - 42518 _{7/2}	2983.664	50	25	33506.062	13818 ^o _{7/2} - 47324 _{5/2}
3003.036	8	5	33289.930	6168 ^o _{7/2} - 39458 _{7/2}	2983.572	150b	75	33507.095	8605 ^o _{5/2} - 42112 ^o _{3/2}
3002.401	200b	100	33296.970	1859 ^o _{3/2} - 35156 ^o _{5/2}	2983.531	10b	3	33507.555	9720 ^o _{5/2} - 43227 _{5/2}
3002.259	2	3	33298.545	18973 ^o _{7/2} - 52272 _{7/2}	2983.213	15	4	33511.127	9585 ^o _{5/2} - 43096 _{5/2}
3001.264	200	100	33309.584	8378 ^o _{7/2} - 41688 _{7/2}	2983.018	100	25	33513.317	9238 ^o _{5/2} - 42751 _{7/2}
3000.969	10	8	33312.858	7331 ^o _{5/2} - 40644 _{5/2}	2982.198	10	5	33522.532	14484 ^o _{11/2} - 48006 _{9/2}
3000.920	15	10	33313.402	11576 ^o _{3/2} - 44889 _{3/2}	2982.048	50	8	33524.218	10572 ^o _{9/2} - 44096 _{9/2}
3000.845	15	3	33314.235	19248 ^o _{5/2} - 52562 _{7/2}	2982.003	40	5	33524.724	6691 ^o _{5/2} - 40216 _{5/2}
3000.814	3		33314.579	12485 ^o _{7/2} - 45800 _{5/2}	2981.843	100	25	33526.523	9720 ^o _{7/2} - 43246 _{7/2}
3000.627	3	2	33316.655	9202 ^o _{7/2} - 42518 _{7/2}	2981.550	15g	4	33529.818	14790 ^o _{5/2} - 48320 _{5/2}
2999.962	1		33324.040	20686 ^o _{5/2} - 54010 _{7/2}	2981.492	200	100	33530.470	8378 ^o _{7/2} - 41909 _{9/2}
2999.801	100	100	33325.828	14545 ^o _{5/2} - 47869 _{3/2}	2981.399	100	25	33531.516	6691 ^o _{5/2} - 40222 _{3/2}
2999.272	75	10	33331.706	14545 ^o _{5/2} - 47871 _{7/2}	2981.337	100	40	33532.213	6168 ^o _{7/2} - 39700 _{5/2}
2999.094	400	150	33333.684	4490 ^o _{5/2} - 37821 _{3/2}	2981.139	3		33534.440	20310 ^o _{5/2} - 53845 _{5/2}
2998.611	8		33339.053	11116 ^o _{7/2} - 44450 _{9/2}	2980.335	150	25	33543.486	9400 _{5/2} - 42944 _{7/2}
2997.871	1	1	33347.282	1859 _{3/2} - 35198 ^o _{1/2}	2980.185	15		33545.174	15144 ^o _{3/2} - 48689 _{3/2}
2997.819	2	3	33347.861	15144 ^o _{3/2} - 48492 _{5/2}				17722 ^o _{9/2} - 51268 _{7/2}	
2997.354	2		33353.034	23730 ^o _{9/2} - 57078 _{9/2}	2979.837	8	2	33549.092	9202 ^o _{7/2} - 42751 _{7/2}
				13818 ^o _{7/2} - 47171 _{9/2}	2978.860	2		33560.094	23518 ^o _{7/2} - 57078 _{9/2}
2997.327	1		33353.334	18816 ^o _{3/2} - 52170 _{11/2}	2978.564	2		33563.429	16906 ^o _{7/2} - 50470 _{9/2}
2996.986	200s	100	33357.129	9061 ^o _{5/2} - 42418 ^o _{3/2}	2978.497	3		33564.184	17460 ^o _{5/2} - 51024 _{3/2}
2996.911	5	4	33357.964	15710 ^o _{3/2} - 49068 _{5/2}	2977.030	8	2	33580.723	11725 ^o _{1/2} - 45306 _{3/2}
2996.829	1		33358.877	17272 ^o _{5/2} - 50631 _{11/2}	2976.648	100	10	33585.032	12570 _{7/2} - 46155 ^o _{5/2}
2996.561	1		33361.860	12902 ^o _{3/2} - 46264 _{3/2}	2976.497	8b		33586.736	6691 ^o _{3/2} - 40278 _{3/2}
2996.216	8		33365.701	15324 ^o _{7/2} - 48689 _{3/2}	2976.320	2		33588.733	18973 ^o _{7/2} - 52562 _{7/2}
2995.270	50	15	33376.239	9720 ^o _{7/2} - 43096 _{5/2}	2976.019	200	75	33592.130	7331 ^o _{5/2} - 40923 _{3/2}
2994.980	1		33379.470	17983 ^o _{5/2} - 51362 _{5/2}	2974.860	4		33605.217	10572 ^o _{9/2} - 44177 _{11/2}
2994.585	8	2	33383.873	6168 ^o _{7/2} - 39552 _{9/2}	2974.418	10	1	33610.211	4146 _{7/2} - 37756 ^o _{7/2}
2994.283	1		33387.240	11116 ^o _{7/2} - 44503 _{7/2}	2974.091	75	20	33613.906	8605 _{5/2} - 42219 ^o _{5/2}
2993.801	400	200	33392.615	13468 ^o _{9/2} - 46861 _{11/2}	2974.011	500	100	33614.810	4490 ^o _{5/2} - 38105 _{5/2}
2993.631	150	100	33394.511	10379 _{9/2} - 43773 ^o _{7/2}	2973.926	2	2	33615.771	15453 ^o _{7/2} - 49068 _{5/2}
2991.696	100	75	33416.110	12488 ^o _{5/2} - 45904 _{9/2}	2973.536	400	100	33620.180	10189 ^o _{11/2} - 43809 _{9/2}
2991.461	1		33418.735	12485 ^o _{7/2} - 45904 _{9/2}	2972.895	8b	4	33627.429	10673 ^o _{5/2} - 44300 _{3/2}
2991.062	400b	75	33423.192	4146 _{7/2} - 37569 ^o _{9/2}	2972.224	400b	100	33635.020	1521 _{5/2} - 35156 ^o _{5/2}
2989.907	50	15	33436.103	11116 ^o _{7/2} - 44552 _{5/2}	2971.481	400	40	33643.430	4113 _{5/2} - 37756 ^o _{7/2}
2989.599	1		33439.548	18214 ^o _{5/2} - 51653 _{1/2}	2970.632	20		33653.045	7001 _{3/2} - 40654 ^o _{5/2}
2989.537	3		33440.241	20080 ^o _{7/2} - 53520 _{9/2}	2970.066	10	3	33659.457	9585 ^o _{5/2} - 43244 _{3/2}
2988.232	500b	200	33454.845	4490 ^o _{5/2} - 37945 _{5/2}	2970.011	10	2	33660.081	7331 ^o _{5/2} - 40991 _{3/2}
2987.350	8	2	33464.721	1521 _{5/2} - 34986 ^o _{3/2}	2969.892	50b	8	33661.429	9585 ^o _{5/2} - 43246 _{7/2}
2986.786	100b	40	33471.040	7001 _{3/2} - 40472 ^o _{3/2}	2969.378	100	8	33667.256	6700 ^o _{9/2} - 40367 _{9/2}
2985.815	2		33481.925	22014 ^o _{11/2} - 55496 _{9/2}	2969.064	75	8	33670.816	9711 _{7/2} - 43382 ^o _{5/2}
2985.321	1b		33487.465	19248 ^o _{5/2} - 52735 _{3/2}	2968.687	800	150	33675.092	4490 ^o _{5/2} - 38165 _{7/2}
2985.243	400	75	33488.340	4113 _{5/2} - 37601 ^o _{3/2}	2968.348	101	1	33678.938	12902 ^o _{3/2} - 46581 _{5/2}
2984.774	10b		33493.602	12902 ^o _{3/2} - 46395 _{3/2}	2967.823	101	4	33684.895	19050 ^o _{5/2} - 52735 _{3/2}
2984.765	8b	8	33493.703	15324 ^o _{7/2} - 48817 _{3/2}	2967.254	8	2	33691.354	11116 ^o _{7/2} - 44807 _{7/2}
2984.642	8	3	33495.083	15349 ^o _{11/2} - 48844 _{9/2}	2966.561	2		33699.224	20310 ^o _{5/2} - 54010 _{7/2}
2984.145	3	2	33500.661	16906 ^o _{7/2} - 50407 _{7/2}	2966.530	5		33699.576	4146 _{7/2} - 37846 ^o _{5/2}
2984.090	4	3	33501.279	17722 ^o _{9/2} - 51224 _{9/2}	2966.423	5		33700.792	12902 ^o _{3/2} - 46603 _{5/2}
2983.979	2		33502.525	15786 _{5/2} - 49289 ^o _{5/2}	2966.405	2		33700.996	14790 ^o _{7/2} - 48492 _{5/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
2966.282	2		33702.394	13468 ^o _{9/2} -47171 _{9/2}	2950.576	10	50	33881.785	4490 ^o _{5/2} -38372 _{3/2}
2966.005	4		33705.541	22685 ^o _{7/2} -56391 _{5/2}	2950.437	200	300	33883.381	9061 _{5/2} -42944 ^o _{7/2}
2965.500	300	75	33711.281	6700 ^o _{9/2} -40411 _{7/2}	2950.150	1		33886.677	9400 ^o _{5/2} -43287 ^o _{3/2}
2965.118	75	10	33715.624	10673 ^o _{5/2} -44388 _{5/2}	2949.930	300	300	33889.204	9238 ^o _{9/2} -43127 _{11/2}
2964.924	200	50	33717.829	9238 ^o _{9/2} -42955 _{9/2}	2949.487	10	25	33894.294	9202 ^o _{7/2} -43096 _{5/2}
2964.624	2		33721.242	18214 ^o _{3/2} -51935 _{5/2}	2949.240	50	150	33897.133	12488 ^o _{9/2} -46385 _{7/2}
2964.112	100b	20	33727.066	6168 ^o _{7/2} -39895 _{9/2}	2949.068	500	300	33899.109	4490 ^o _{5/2} -38389 _{7/2}
2964.005	75	15	33728.283	12488 ^o _{9/2} -46216 _{11/2}	2948.793	8	100	33902.271	17460 ^o _{5/2} -51362 _{5/2}
2963.876	50	20	33729.751	11576 ^o _{3/2} -45306 _{3/2}	2948.711	1		33903.213	17121 ^o _{3/2} -51024 _{3/2}
2963.608	75	8	33732.801	4113 _{5/2} -37846 ^o _{5/2}	2948.518	2	2	33905.432	16564 ^o _{11/2} -50470 _{9/2}
2963.046	5	2	33739.199	18568 ^o _{1/2} -52307 _{3/2}	2948.362	5	50	33907.226	10189 ^o _{11/2} -44096 _{9/2}
2961.842	1		33752.914	14545 ^o _{5/2} -48298 _{7/2}	2948.332	4	1	33907.571	14545 ^o _{5/2} -48453 _{7/2}
2961.783	4b		33753.586	9202 ^o _{7/2} -42955 _{9/2}	2947.843	8	150	33913.196	12472 ^o _{5/2} -46385 _{7/2}
2961.273	8		33759.399	8460 _{3/2} -42219 ^o _{5/2}				13818 ^o _{7/2} -47731 _{9/2}	
2960.806	5		33764.724	20080 ^o _{7/2} -53845 _{5/2}	2946.922	2		33923.794	12472 ^o _{5/2} -46395 _{3/2}
2960.779	15	5	33765.032	12488 ^o _{9/2} -46253 _{9/2}	2946.896	4	25	33924.094	15144 ^o _{3/2} -49068 _{5/2}
2960.549	2b		33767.654	12485 ^o _{7/2} -46253 _{9/2}	2946.607	20	200	33927.421	16033 ^o _{5/2} -49960 _{7/2}
2960.536	5b		33767.803	14101 ^o _{1/2} -47869 _{3/2}	2946.231	10		33931.750	10572 ^o _{9/2} -44503 _{7/2}
2959.934	8		33774.670	15710 ^o _{3/2} -49485 _{1/2}	2945.899	5		33935.574	12219 _{3/2} -46155 _{5/2}
				15349 ^o _{11/2} -49124 _{11/2}	2944.950	75	150	33946.509	14545 ^o _{5/2} -48492 _{5/2}
2959.883	15	100b	33775.252	14545 ^o _{5/2} -48320 _{5/2}	2944.471	10	150b	33952.031	17272 ^o _{9/2} -51224 _{9/2}
2959.449	4		33780.205	25607 ^o _{9/2} -59387 _{7/2}	2944.448	4		33952.297	17983 ^o _{5/2} -51935 _{5/2}
2959.275	10	75	33782.191	11116 ^o _{7/2} -44898 _{7/2}	2944.391	5	3	33952.954	6691 ^o _{3/2} -40644 _{5/2}
2958.565	8	200	33790.298	21131 ^o _{3/2} -54922 _{3/2}	2943.962	25	75	33957.901	8460 _{3/2} -42418 ^o _{3/2}
2958.409	10	50	33792.080	12472 ^o _{5/2} -46264 _{3/2}	2943.867	3		33958.997	17722 ^o _{9/2} -51681 _{9/2}
2958.139	200b	200	33795.164	10855 _{7/2} -44650 ^o _{7/2}	2943.210	8	10	33966.577	10855 _{7/2} -44821 ^o _{5/2}
2957.916	300	400	33797.712	12570 _{7/2} -46368 ^o _{9/2}	2942.860	800h	500h	33970.617	6213 _{9/2} -40184 ^o _{7/2}
2957.580	500	500	33801.551	4490 ^o _{5/2} -38291 _{7/2}	2942.628	200b	200	33973.295	8378 ^o _{7/2} -42352 _{5/2}
2957.059	10	150	33807.506	17460 ^o _{5/2} -51268 _{7/2}	2941.890	75	200	33981.817	9400 _{5/2} -43382 ^o _{5/2}
2956.631	40	150	33812.400	8605 _{5/2} -42418 ^o _{3/2}	2941.337	100	200	33988.206	10189 ^o _{11/2} -44177 _{11/2}
2956.484	1		33814.081	21682 ^o _{7/2} -55496 _{9/2}	2940.674	100	300	33995.868	17272 ^o _{9/2} -51268 _{7/2}
2956.257	8	2	33816.678	15305 _{9/2} -49121 ^o _{7/2}	2940.587	100	300	33996.874	7331 ^o _{5/2} -41328 _{5/2}
2955.847	100	200	33821.368	8378 ^o _{7/2} -42200 _{9/2}	2940.303	10	50	34000.158	12902 ^o _{3/2} -46902 _{5/2}
2955.601	100s	300	33824.183	7001 _{3/2} -40825 ^o _{1/2}	2939.616	75b	300	34008.103	15349 ^o _{11/2} -49357 _{11/2}
2955.255	2		33828.143	18118 _{3/2} -51946 ^o _{5/2}	2939.555	100b	300	34008.809	9238 ^o _{9/2} -43246 _{7/2}
2955.036	150	300	33830.650	10673 ^o _{5/2} -44503 _{7/2}	2938.336	10	75	34022.917	14275 ^o _{9/2} -48298 _{7/2}
2954.887	100	200	33832.356	6691 ^o _{3/2} -40523 _{1/2}	2938.104	100	150	34025.604	9202 ^o _{7/2} -43227 _{5/2}
2954.369	8h	2	33838.287	17837 ^o _{1/2} -51676 _{3/2}	2937.441	100b	300	34033.283	12902 ^o _{3/2} -46935 _{3/2}
2954.218	3		33840.017	16033 ^o _{5/2} -49873 _{5/2}	2937.361	20	200	34034.210	11576 ^o _{3/2} -45610 _{5/2}
2953.917	5	1	33843.465	8378 ^o _{7/2} -42222 _{7/2}	2936.467	400b	500b	34044.571	9202 ^o _{7/2} -43246 _{7/2}
2953.595	10	100	33847.154	17983 ^o _{5/2} -51830 _{7/2}	2936.192	400	300	34047.760	6168 ^o _{7/2} -40216 _{5/2}
2952.584	4	2	33858.743	20310 ^o _{5/2} -54169 _{7/2}	2935.812	40	200	34052.166	9720 ^o _{7/2} -43772 _{5/2}
2952.129	50	200	33863.962	12488 ^o _{9/2} -46352 _{7/2}	2935.752	20	100	34052.862	15236 _{3/2} -49289 _{5/2}
2951.902	20	50	33866.566	12485 ^o _{7/2} -46352 _{7/2}	2935.658	50	200	34053.953	14790 ^o _{7/2} -48844 _{9/2}
2951.562	25	150	33870.467	6700 ^o _{9/2} -40570 _{7/2}	2934.992	150	200	34061.680	9711 _{7/2} -43773 ^o _{7/2}
2951.203	200	300	33874.587	6700 ^o _{9/2} -40574 _{11/2}	2934.578	5	20	34066.485	16564 ^o _{11/2} -50631 _{11/2}
2951.052	4	75l	33876.320	20969 ^o _{7/2} -54845 _{9/2}	2934.507	5	50	34067.309	12488 ^o _{9/2} -46555 _{11/2}
2950.883	4		33878.260	10572 ^o _{9/2} -44450 _{9/2}	2934.135	200	200	34071.628	1521 _{5/2} -35593 ^o _{7/2}
2950.769	10	50	33879.569	10673 ^o _{5/2} -44552 _{5/2}	2934.012	10	100	34073.056	11116 _{7/2} -45189 _{5/2}
2950.725	10	50	33880.074	12472 ^o _{5/2} -46352 _{7/2}	2933.099	200b	200	34083.662	9720 ^o _{7/2} -43803 _{7/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
2932.644	100	400	34088.950	9720 ⁰ _{7/2} -43809 _{9/2}	2916.429	10		34278.472	11116 ⁰ _{7/2} -45395 _{7/2}
2932.293	3		34093.030	18214 ⁰ _{3/2} -52307 _{3/2}	2915.926	3	2	34284.385	7828 ⁰ _{7/2} -42112 ⁰ _{3/2}
2932.147	50	100	34094.727	8018 ⁰ _{3/2} -42112 ⁰ _{3/2}	2915.536	3		34288.970	17983 ⁰ _{5/2} -52272 _{7/2}
2932.073	3	3	34095.588	12485 ⁰ _{7/2} -46581 _{5/2}	2914.582	50	20	34300.193	6691 ⁰ _{3/2} -40991 _{3/2}
2931.519	4		34102.031	18816 ⁰ _{13/2} -52918 _{13/2}	2914.342	300	100	34303.018	22642 ⁰ _{3/2} -56945 _{11/2}
2931.045	4h	2	34107.546	17722 ⁰ _{9/2} -51830 _{7/2}	2913.097	3		34317.678	16906 ⁰ _{7/2} -51224 _{9/2}
2930.911	300	300	34109.105	12472 ⁰ _{5/2} -46581 _{5/2}	2912.756	150	200	34321.695	9061 ⁰ _{5/2} -43382 _{5/2}
2930.190	5	10	34117.497	12485 ⁰ _{7/2} -46603 _{5/2}	2912.661	100	75	34322.814	4113 ⁰ _{5/2} -38436 _{3/2}
2929.297	100	150	34127.898	14484 ⁰ _{11/2} -48612 _{13/2}	2912.328	3		34326.739	10572 ⁰ _{9/2} -44898 _{7/2}
2929.027	1		34131.044	12472 ⁰ _{5/2} -46603 _{5/2}	2912.009	400b	200	34330.499	0 _{3/2} -34330 ⁰ _{1/2}
2928.254	600	500	34140.053	8378 ⁰ _{7/2} -42518 _{7/2}	2911.321	200	150	34338.611	8605 _{5/2} -42944 ⁰ _{7/2}
2927.883	5b	25	34144.379	14545 ⁰ _{5/2} -48689 _{3/2}	2911.137	4	3	34340.782	15144 ⁰ _{3/2} -49485 _{1/2}
2926.956	15	50	34155.192	10572 ⁰ _{9/2} -44727 _{11/2}	2910.747	20	20	34345.383	7331 ⁰ _{5/2} -41676 _{3/2}
2926.831	10		34156.651	7331 ⁰ _{5/2} -41488 _{7/2}	2910.596	400l	300	34347.164	4146 _{7/2} -38493 ⁰ _{5/2}
2926.435	10	50	34161.273	15324 ⁰ _{1/2} -49485 _{1/2}	2909.767	25	40	34356.950	7331 ⁰ _{5/2} -41688 _{7/2}
2926.349	5	3	34162.277	15710 ⁰ _{3/2} -49873 _{5/2}	2909.456	8	15	34360.622	14484 ⁰ _{11/2} -48844 _{9/2}
2925.903	3		34167.484	18568 ⁰ _{1/2} -52735 _{3/2}	2909.378	8	5	34361.543	16906 ⁰ _{7/2} -51268 _{7/2}
2925.051	600b	600	34177.436	15349 ⁰ _{11/2} -49527 _{13/2}	2908.984	10	50	34366.197	10855 _{7/2} -45221 ⁰ _{5/2}
2924.604	1		34182.659	14349 _{1/2} -48532 ⁰ _{1/2}	2908.672	4	10	34369.883	17460 ⁰ _{5/2} -51830 _{7/2}
2924.572	8	50b	34183.033	20310 ⁰ _{5/2} -54493 _{5/2}	2908.436	2g		34372.672	9400 _{5/2} -43773 ⁰ _{7/2}
2924.228	5	8	34187.054	9585 ⁰ _{5/2} -43772 _{5/2}	2908.383	10b		34373.298	12488 ⁰ _{9/2} -46861 _{11/2}
2924.103	75	100	34188.516	13818 ⁰ _{7/2} -48006 _{9/2}	2908.359	150b	100	34373.582	4490 ⁰ _{5/2} -38863 _{5/2}
2923.950	5b		34190.304	15305 _{9/2} -49495 ⁰ _{9/2}	2908.314	10b	50b	34374.114	16033 ⁰ _{5/2} -50407 _{7/2}
2923.199	4	3	34199.088	6168 ⁰ _{7/2} -40367 _{9/2}	2908.156	8	4	34375.981	9720 ⁰ _{7/2} -44096 _{9/2}
2922.990	100	100	34201.533	8018 _{3/2} -42219 ⁰ _{5/2}	2907.781	40	10	34380.414	4113 _{5/2} -38493 ⁰ _{5/2}
2922.799	150	150	34203.768	12219 _{3/2} -46423 ⁰ _{3/2}	2906.122	50	200	34400.040	8018 _{3/2} -42418 ⁰ _{3/2}
2922.602	300	300	34206.073	12219 _{3/2} -46426 ⁰ _{1/2}	2905.931	75	100	34402.301	6168 ⁰ _{7/2} -40570 _{7/2}
2922.094	10	3	34212.020	13468 ⁰ _{9/2} -47675 _{11/2}	2905.745	4	8	34404.503	17460 ⁰ _{5/2} -51865 _{5/2}
2921.802	3		34215.439	0 _{3/2} -34212 ⁰ _{5/2}	2905.303	4	8	34409.737	17272 ⁰ _{9/2} -51681 _{9/2}
2921.622	200	300	34217.546	17460 ⁰ _{5/2} -51676 _{3/2}	2904.999	50	40	34413.338	20080 ⁰ _{7/2} -54493 _{5/2}
2921.534	100b	150	34218.58	13248 _{9/2} -47466 ⁰ _{11/2}	2904.702	5	15	34416.856	12485 ⁰ _{7/2} -46902 _{5/2}
2921.365	100	200	34220.56	9585 ⁰ _{5/2} -43803 _{7/2}	2904.429	5		34420.091	15453 ⁰ _{7/2} -49873 _{5/2}
2921.083	75	100	34223.860	12485 _{7/2} -46706 _{7/2}	2904.267	10	50b	34422.011	12902 ⁰ _{7/2} -47324 _{5/2}
2920.932	200	200	34225.629	11576 ⁰ _{3/2} -45800 _{5/2}	2903.166	200	150	34435.064	4146 _{7/2} -38581 ⁰ _{5/2}
2920.856	5	3	34226.520	10673 ⁰ _{5/2} -44898 _{3/2}	2903.052	8	20	34436.416	22642 ⁰ _{9/2} -57078 _{9/2}
2920.717	8	5	34228.148	9061 ⁰ _{5/2} -43287 _{3/2}	2902.144	2	5	34447.190	17722 ⁰ _{9/2} -52170 _{11/2}
2920.369	150b	100	34232.227	6244 _{1/2} -40472 ⁰ _{3/2}	2901.378	3		34456.284	16906 ⁰ _{7/2} -51362 _{5/2}
2920.212	8	5	34234.067	6691 ⁰ _{3/2} -40923 _{5/2}	2900.772	4	10	34463.482	12472 ⁰ _{5/2} -46935 _{3/2}
2920.056	40	40	34235.896	12472 ⁰ _{5/2} -46706 _{7/2}	2900.367	5	8	34468.294	4113 ⁰ _{5/2} -38581 ⁰ _{5/2}
2919.841	400	300	34238.417	10572 ⁰ _{9/2} -44807 _{7/2}	2899.720	600	400	34475.985	6168 ⁰ _{7/2} -40644 _{5/2}
2919.597	1		34241.279	4490 ⁰ _{5/2} -38728 _{5/2}	2899.369	50	150	34480.158	13818 ⁰ _{7/2} -48298 _{7/2}
2919.439	15b	8	34243.132	17121 ⁰ _{3/2} -51362 _{5/2}	2898.729	1		34487.771	15349 ⁰ _{11/2} -49837 _{9/2}
2919.175	20	100b	34246.228	6168 ⁰ _{7/2} -40411 _{7/2}	2898.262	20	40	34493.327	6213 ⁰ _{7/2} -40706 ⁰ _{7/2}
2917.898	150	200	34261.215	12902 ⁰ _{7/2} -47148 _{3/2}	2898.202	10	15	34494.042	11116 ⁰ _{7/2} -45610 _{5/2}
2917.787	150	150b	34262.519	10189 ⁰ _{11/2} -44450 _{9/2}	2897.493	3	5	34502.481	13818 ⁰ _{7/2} -48320 _{5/2}
2917.411	800r	300	34266.934	13468 ⁰ _{9/2} -47731 _{9/2}	2897.112	40b	20b	34507.019	20989 _{9/2} -55496 _{9/2}
2917.034	150	200	34271.363	4490 ⁰ _{5/2} -38757 _{3/2}	2897.069	75b	100b	34507.531	15453 ⁰ _{7/2} -49960 _{7/2}
2916.945	10	15	34272.408	10379 _{9/2} -44650 _{7/2}	2896.315	4	10	34516.514	10673 ⁰ _{5/2} -45189 _{5/2}
2916.484	40	50	34277.825	14545 ⁰ _{5/2} -48817 _{3/2}	2895.913	2	5	34521.305	18214 ⁰ _{3/2} -52735 _{3/2}
				14790 ⁰ _{7/2} -49068 _{5/2}	2895.747	4	10	34523.284	14545 ⁰ _{5/2} -49068 _{5/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
2895.370	1		34527.779	20969 ^o _{7/2} - 55496 ^o _{9/2}	2874.753	2	3	34775.392	16906 ^o _{7/2} - 51681 ^o _{9/2}
2895.136	300	150	34530.570	1859 ^o _{3/2} - 36390 ^o _{3/2}	2874.624	15	40	34776.952	8605 ^o _{3/2} - 43382 ^o _{5/2}
2894.988	3	75	34532.335	17121 ^o _{3/2} - 51653 ^o _{1/2}	2873.714	25b	75	34787.965	6700 ^o _{3/2} - 41488 ^o _{7/2}
2894.501	25b	20b	34538.145	10189 ^o _{11/2} - 44727 ^o _{11/2}	2873.168	2		34794.575	19050 ^o _{3/2} - 53845 ^o _{5/2}
2894.446	10	8	34538.801	11725 ^o _{1/2} - 46264 ^o _{3/2}	2872.441	2l		34803.381	9585 ^o _{5/2} - 44388 ^o _{5/2}
2893.747	2	5	34547.143	18973 ^o _{7/2} - 53520 ^o _{9/2}	2872.267	2		34805.489	22139 ^o _{3/2} - 56945 ^o _{11/2}
2893.157	3	5	34554.188	10572 ^o _{9/2} - 45126 ^o _{9/2}	2871.754	3		34811.706	17460 ^o _{3/2} - 52272 ^o _{7/2}
2892.815	1		34558.273	17272 ^o _{3/2} - 51830 ^o _{7/2}	2871.105	5	10	34819.575	11576 ^o _{3/2} - 46395 ^o _{5/2}
2892.171	50	100	34565.968	9238 ^o _{9/2} - 43803 ^o _{7/2}	2870.822	40	75	34823.007	10572 ^o _{9/2} - 45395 ^o _{7/2}
2891.815	150	100	34570.223	9202 ^o _{7/2} - 43772 ^o _{5/2}	2870.406	800r	300	34828.054	1859 ^o _{3/2} - 36687 ^o _{5/2}
2891.730	150	150	34571.239	9238 ^o _{9/2} - 43809 ^o _{9/2}	2870.285	8h	8	34829.522	13468 ^o _{9/2} - 48298 ^o _{7/2}
2891.249	300	300	34576.990	22106 ^o _{5/2} - 56683 ^o _{7/2}	2870.049	15	10	34832.386	9720 ^o _{3/2} - 44552 ^o _{5/2}
2891.128	15	10	34578.438	8378 ^o _{7/2} - 42955 ^o _{9/2}	2869.916	100	200	34834.000	10855 ^o _{7/2} - 45689 ^o _{7/2}
2890.888	15	20	34581.308	4490 ^o _{5/2} - 39068 ^o _{7/2}	2869.528	2	3	34838.710	12485 ^o _{7/2} - 47324 ^o _{5/2}
2890.589	3		34584.885	6244 ^o _{1/2} - 40825 ^o _{1/2}	2868.679	40	100	34849.020	8378 ^o _{7/2} - 43227 ^o _{5/2}
2890.480	5b	10b	34586.189	1859 ^o _{3/2} - 36444 ^o _{3/2}	2868.416	5		34852.215	12472 ^o _{5/2} - 47324 ^o _{9/2}
2890.316	1		34588.151	14790 ^o _{7/2} - 49377 ^o _{7/2}	2867.920	5	10	34858.242	9238 ^o _{9/2} - 44096 ^o _{9/2}
2890.188	5	4	34589.683	14101 ^o _{3/2} - 48689 ^o _{3/2}	2867.120	5		34867.968	8378 ^o _{7/2} - 43246 ^o _{7/2}
2889.564	1		34597.152	7828 ^o _{1/2} - 42418 ^o _{3/2}	2867.067	10	5	34868.613	1521 ^o _{5/2} - 36390 ^o _{3/2}
2889.181	100r	25	34601.739	19248 ^o _{5/2} - 53845 ^o _{5/2}	2867.029	5	5	34869.075	14545 ^o _{5/2} - 49414 ^o _{3/2}
2888.904	5	5b	34605.056	9202 ^o _{7/2} - 43803 ^o _{7/2}	2866.652	15	150	34873.660	14484 ^o _{11/2} - 49357 ^o _{11/2}
2887.818	600	500	34618.069	7331 ^o _{5/2} - 41936 ^o _{3/2}	2866.407	25	20	34876.641	4490 ^o _{5/2} - 39366 ^o _{5/2}
2886.785	2	2	34630.456	4146 ^o _{7/2} - 38764 ^o _{7/2}	2865.242	15	20	34890.821	7331 ^o _{5/2} - 42222 ^o _{7/2}
2886.506	100	150	34633.803	16033 ^o _{5/2} - 50663 ^o _{5/2}	2864.980	2		34894.012	9202 ^o _{7/2} - 44096 ^o _{9/2}
2886.242	100	100	34636.971	10855 ^o _{7/2} - 45489 ^o _{5/2}	2864.657	50	200	34897.946	17837 ^o _{1/2} - 52735 ^o _{3/2}
2885.968	5	10	34640.260	6691 ^o _{3/2} - 41328 ^o _{5/2}	2863.069	1		34917.301	17272 ^o _{9/2} - 52170 ^o _{11/2}
2885.048	800	500	34651.305	14484 ^o _{11/2} - 49124 ^o _{11/2}	2862.732	1		34921.412	24381 ^o _{7/2} - 59299 ^o _{5/2}
2884.289	600	400	34660.423	4113 ^o _{5/2} - 38764 ^o _{7/2}	2862.646	3		34922.461	19248 ^o _{5/2} - 54169 ^o _{7/2}
2883.618	50b	20	34668.488	4490 ^o _{5/2} - 39150 ^o _{3/2}	2862.610	300r	20	34922.900	8460 ^o _{3/2} - 43382 ^o _{5/2}
2883.446	5	4	34670.556	9720 ^o _{3/2} - 44388 ^o _{5/2}	2862.527	8b	75	34923.912	1521 ^o _{5/2} - 36444 ^o _{3/2}
2883.184	2		34673.707	11725 ^o _{1/2} - 46395 ^o _{3/2}	2862.007	5		34930.257	16906 ^o _{7/2} - 51830 ^o _{7/2}
2882.959	2		34676.412	13818 ^o _{7/2} - 48492 ^o _{5/2}	2861.442	8b		34937.154	22014 ^o _{11/2} - 56945 ^o _{11/2}
2882.511	100	50	34681.802	12472 ^o _{5/2} - 47148 ^o _{3/2}	2861.415	300	300	34937.484	10189 ^o _{11/2} - 45126 ^o _{9/2}
2882.402	1		34683.113	8605 ^o _{3/2} - 43287 ^o _{3/2}	2861.331	100b	150b	34938.509	10673 ^o _{5/2} - 45610 ^o _{5/2}
2882.354	8	8	34683.691	12488 ^o _{9/2} - 47171 ^o _{9/2}	2861.271	15b	25b	34939.242	9711 ^o _{7/2} - 44650 ^o _{7/2}
2882.191	1		34685.652	11116 ^o _{3/2} - 45800 ^o _{5/2}	2859.691	1		34958.545	9238 ^o _{9/2} - 44177 ^o _{11/2}
2882.008	300s	300	34687.854	12485 ^o _{7/2} - 47171 ^o _{9/2}	2858.979	5	3	34967.251	16906 ^o _{7/2} - 51865 ^o _{5/2}
2881.137	100	150	34698.341	11576 ^o _{3/2} - 46264 ^o _{3/2}	2858.915	15	10	34968.034	12902 ^o _{3/2} - 47869 ^o _{3/2}
2880.803	1		34702.363	6700 ^o _{3/2} - 41398 ^o _{5/2}					9585 ^o _{5/2} - 44552 ^o _{5/2}
2880.313	1		34708.267	16033 ^o _{5/2} - 50735 ^o _{3/2}	2857.599	2	3	34984.137	4490 ^o _{5/2} - 39458 ^o _{7/2}
2879.958	2		34712.545	21682 ^o _{7/2} - 56391 ^o _{5/2}	2857.491	50	75	34985.459	13468 ^o _{9/2} - 48453 ^o _{7/2}
2879.531	40	75	34717.692	9061 ^o _{5/2} - 43773 ^o _{7/2}	2857.398	8	4	34986.597	6691 ^o _{3/2} - 41676 ^o _{3/2}
2879.203	50b	20b	34721.647	8378 ^o _{7/2} - 43096 ^o _{3/2}	2857.262	2		34988.263	0 ^o _{3/2} - 34986 ^o _{3/2}
2879.181	10b	10b	34721.912	1859 ^o _{3/2} - 36581 ^o _{3/2}	2856.300	2		35000.046	6700 ^o _{3/2} - 41688 ^o _{7/2}
2878.644	50b	75	34728.389	10673 ^o _{5/2} - 45395 ^o _{7/2}	2855.904	15b	100	35004.899	17272 ^o _{9/2} - 52272 ^o _{7/2}
2877.390	5		34743.523	15144 ^o _{3/2} - 49873 ^o _{5/2}	2855.867	10b	50b	35005.352	11576 ^o _{3/2} - 46581 ^o _{5/2}
2876.658	3		34752.364	17121 ^o _{3/2} - 51865 ^o _{5/2}	2854.918	10	100	35016.988	7331 ^o _{5/2} - 42336 ^o _{5/2}
2876.417	200b	150	34755.275	17983 ^o _{5/2} - 52735 ^o _{5/2}	2854.620	5	10	35020.643	15453 ^o _{7/2} - 50470 ^o _{9/2}
2875.641	25	200	34764.654	6168 ^o _{7/2} - 40923 ^o _{5/2}	2854.297	2		35024.606	7331 ^o _{5/2} - 42352 ^o _{5/2}
				20080 ^o _{7/2} - 54845 ^o _{9/2}					15710 ^o _{3/2} - 50735 ^o _{3/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
2854.134	100	200	35026.606	13818 ^o _{7/2} - 48844 _{9/2}	2832.314	1000r	400	35296.436	4146 ^o _{7/2} - 39443 _{9/2}
2853.933	2		35029.073	16906 ^o _{7/2} - 51935 _{5/2}	2832.012	10	25	35300.200	10855 ^o _{7/2} - 46155 _{5/2}
2853.338	1		35036.377	18973 ^o _{7/2} - 54010 _{7/2}	2831.206	15	100b	35310.249	10379 ^o _{9/2} - 45689 _{7/2}
2852.799	1		35042.996	14484 ^o _{11/2} - 49527 _{13/2}	2830.997	3		35312.855	14101 ^o _{1/2} - 49414 _{3/2}
2852.501	15	150	35046.657	14790 ^o _{7/2} - 49837 _{9/2}	2830.955	3		35313.380	9585 ^o _{5/2} - 44898 _{7/2}
2851.443	200	150	35059.660	1521 ^o _{5/2} - 36581 _{3/2}	2830.905	1		35314.003	15710 ^o _{3/2} - 51024 _{3/2}
2851.260	600r	300	35061.910	1521 ^o _{5/2} - 36583 _{7/2}	2830.683	5	8	35316.772	6691 ^o _{3/2} - 42008 _{1/2}
2849.592	2	2	35082.433	14275 ^o _{9/2} - 49357 _{11/2}	2830.441	200	150	35319.792	6168 ^o _{7/2} - 41488 _{7/2}
2849.169	8		35087.641	9720 ^o _{7/2} - 44807 _{7/2}	2829.932	25	100	35326.144	11576 ^o _{3/2} - 46902 _{5/2}
2848.686	1		35093.590	21297 ^o _{5/2} - 56391 _{5/2}	2829.645	3		35329.727	16033 ^o _{5/2} - 51362 _{5/2}
2848.013	10b	75	35101.882	17460 ^o _{5/2} - 52562 _{7/2}	2829.433	20	50	35332.374	10572 ^o _{9/2} - 45904 _{9/2}
2847.890	2		35103.398	21131 ^o _{3/2} - 56235 _{3/2}	2827.988	100	150	35350.427	9202 ^o _{7/2} - 44552 _{5/2}
2847.354	150	200	35110.006	10379 ^o _{9/2} - 45489 _{9/2}	2827.755	20	150	35353.339	14484 ^o _{11/2} - 49837 _{9/2}
2847.231	5b		35111.523	7001 ^o _{3/2} - 42112 ^o _{3/2}	2827.280	10	75	35359.279	11576 ^o _{3/2} - 46935 _{3/2}
2846.757	1		35117.369	16564 ^o _{11/2} - 51681 _{9/2}	2826.855	500	200	35364.594	8018 ^o _{3/2} - 43382 ^o _{9/2}
2846.531	15	50	35120.157	15349 ^o _{11/2} - 50470 _{9/2}	2825.941	15b	100	35376.032	13468 ^o _{9/2} - 48844 _{9/2}
2845.966	3		35127.129	10673 ^o _{5/2} - 45800 _{5/2}	2825.375	25	100l	35383.119	12488 ^o _{9/2} - 47871 _{7/2}
2845.835	15b	75	35128.746	16818 ^o _{7/2} - 51946 ^o _{5/2}	2825.172	10	5	35385.661	12485 ^o _{7/2} - 47871 _{7/2}
2845.186	15	50	35136.758	11116 ^o _{7/2} - 46253 _{9/2}	2824.536	8	2	35393.628	8378 ^o _{7/2} - 43772 _{5/2}
2843.553	8	2	35156.936	0 ^o _{3/2} - 35156 ^o _{5/2}	2824.365	1		35395.771	21682 ^o _{7/2} - 57078 _{9/2}
2843.304	15b	75b	35160.015	6168 ^o _{7/2} - 41328 _{5/2}	2824.232	8	10	35397.438	12472 ^o _{5/2} - 47869 _{3/2}
2843.056	10	20	35163.081	10572 ^o _{9/2} - 45735 _{11/2}	2824.091	4		35399.205	12472 ^o _{5/2} - 47871 _{7/2}
2842.812	800	200	35166.099	1521 ^o _{5/2} - 36687 ^o _{5/2}	2823.553	50	100	35405.950	9720 ^o _{7/2} - 45126 _{9/2}
2842.674	20	50	35167.806	8605 ^o _{5/2} - 43773 ^o _{7/2}	2823.132	25	75	35411.229	15324 ^o _{1/2} - 50735 _{3/2}
2842.530	2		35169.588	14790 ^o _{7/2} - 49960 _{7/2}	2822.832	15	40	35414.992	14545 ^o _{5/2} - 49960 _{7/2}
2841.811	200	50	35178.485	9720 ^o _{7/2} - 44898 _{7/2}	2822.741	2	28	35416.134	20080 ^o _{7/2} - 55496 _{9/2}
2841.162	200	200	35186.521	9202 ^o _{7/2} - 44388 _{5/2}	2822.688	25	150	35416.799	7001 ^o _{3/2} - 42418 _{5/2}
2841.087	8	3	35187.450	7331 ^o _{5/2} - 42518 _{7/2}	2822.559	20	150	35418.418	12902 ^o _{3/2} - 48320 _{5/2}
2840.154	200	150	35199.008	0 ^o _{3/2} - 35198 ^o _{7/2}	2822.446	15	50	35419.835	7331 ^o _{5/2} - 42751 _{7/2}
2839.605	20	100	35205.813	13406 ^o _{13/2} - 48612 _{13/2}	2822.407	10	10b	35420.325	11725 ^o _{1/2} - 47145 _{1/2}
2839.335	25	40	35209.161	6700 ^o _{9/2} - 41909 _{9/2}	2822.359	20	25	35420.927	9400 ^o _{5/2} - 44821 ^o _{5/2}
2839.240	200	150	35210.339	4490 ^o _{5/2} - 39700 _{5/2}	2822.275	2		35421.982	20969 ^o _{7/2} - 56391 _{5/2}
2839.084	10	10	35212.273	9238 ^o _{9/2} - 44450 _{9/2}	2822.181	15b	75	35423.161	11725 ^o _{1/2} - 47148 _{3/2}
2838.593	8	5	35218.364	7001 ^o _{3/2} - 42219 ^o _{5/2}	2822.025	200	200	35425.119	8378 ^o _{7/2} - 43803 _{7/2}
2838.255	10	15	35222.558	9585 ^o _{5/2} - 44807 _{7/2}	2821.602	100b	200	35430.430	8378 ^o _{7/2} - 43809 _{9/2}
2837.886	3		35227.138	15242 ^o _{9/2} - 50470 _{9/2}	2820.589	2		35443.154	19050 ^o _{3/2} - 54493 _{5/2}
2837.641	10b	5	35230.179	6168 ^o _{7/2} - 41398 _{9/2}	2820.335	200	150	35446.346	6700 ^o _{9/2} - 42146 _{11/2}
2837.295	1000r	500	35234.475	6213 ^o _{9/2} - 41447 ^o _{11/2}	2819.322	200	200	35459.081	7828 ^o _{1/2} - 43287 ^o _{3/2}
2837.201	8b	5	35235.642	11116 ^o _{7/2} - 46352 _{7/2}	2818.875	3	2	35464.704	11116 ^o _{7/2} - 46581 _{5/2}
2836.593	2		35243.194	12488 ^o _{9/2} - 47731 _{9/2}	2818.505	5		35469.359	9720 ^o _{7/2} - 45189 _{5/2}
2836.435	75b	20	35245.157	6691 ^o _{3/2} - 41936 _{3/2}	2817.135	20	50	35486.607	11116 ^o _{7/2} - 46603 _{5/2}
2836.205	25	15	35248.015	9202 ^o _{7/2} - 44450 _{9/2}	2816.927	20	50	35489.228	9238 ^o _{9/2} - 44727 _{11/2}
2836.047	500	300	35249.979	4146 ^o _{7/2} - 39396 ^o _{7/2}	2816.070	100	150	35500.027	6700 ^o _{9/2} - 42200 _{9/2}
2835.305	2		35259.203	21131 ^o _{3/2} - 56391 _{5/2}	2815.312	5	4	35509.585	9711 ^o _{7/2} - 45221 ^o _{5/2}
2834.776	25	40	35265.783	9238 ^o _{9/2} - 44503 _{7/2}	2815.050	10	15	35512.890	10855 ^o _{7/2} - 46368 _{9/2}
2834.530	50	75	35268.843	11116 ^o _{7/2} - 46385 _{7/2}	2814.576	50	150	35518.870	15144 ^o _{3/2} - 50663 _{5/2}
2834.482	150	100	35269.441	8018 ^o _{3/2} - 43287 ^o _{5/2}	2814.480	25b	75	35520.081	6168 ^o _{7/2} - 41688 _{7/2}
2834.025	3	3	35275.128	17460 ^o _{5/2} - 52735 _{3/2}	2814.473	2b		35520.170	18973 ^o _{7/2} - 54493 _{5/2}
2833.532	15	150	35281.265	15349 ^o _{11/2} - 50631 _{11/2}	2814.319	300	200	35522.114	6700 ^o _{9/2} - 42222 _{7/2}
2833.334	200	100	35283.730	8460 ^o _{3/2} - 43744 ^o _{1/2}	2812.424	15b	100	35546.047	10189 ^o _{11/2} - 45735 _{11/2}

TABLE 3. *Classified lines of Th II* – Continued

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
2812.187	2		35549.042	20686 ^o _{5/2} – 56235 _{3/2}	2788.687	10	50	35848.596	12472 ^o _{5/2} – 48320 _{3/2}
2811.744	8b		35554.643	6691 ^o _{3/2} – 42246 _{1/2}	2788.077	10	15	35856.439	1859 _{3/2} – 37716 ^o _{5/2}
2811.413	5	10	35558.829	13818 ^o _{7/2} – 49377 _{7/2}	2787.666	5	50	35861.725	14545 _{5/2} – 50407 _{7/2}
2811.157	3	5	35562.067	14275 ^o _{9/2} – 49837 _{9/2}	2787.131	50	75	35868.608	6244 _{1/2} – 42112 ^o _{3/2}
2810.580	4	20	35569.367	11576 ^o _{3/2} – 47145 _{1/2}	2786.915	10	150	35871.388	13250 _{5/2} – 49121 ^o _{7/2}
2810.358	4		35572.177	11576 ^o _{3/2} – 47148 _{3/2}	2786.684	8	75	35874.362	15349 ^o _{11/2} – 51224 _{9/2}
2809.460	1		35583.547	15324 ^o _{1/2} – 50907 _{3/2}	2786.239	4	50	35880.091	15144 ^o _{3/2} – 51024 _{3/2}
2808.996	200b	200	35589.424	9061 ^o _{5/2} – 44650 ^o _{3/2}	2785.603	4	20b	35888.282	9238 ^o _{9/2} – 45126 _{9/2}
2808.894	8		35590.716	15144 ^o _{3/2} – 50735 _{3/2}	2785.544	5	15b	35889.042	13468 ^o _{9/2} – 49357 _{11/2}
2808.864	25	20	35591.096	10673 ^o _{5/2} – 46264 _{3/2}	2784.975	15	75	35896.375	7331 ^o _{5/2} – 43227 _{5/2}
2807.827	200	200	35604.240	9585 ^o _{5/2} – 45189 _{5/2}	2784.060	8	75	35908.172	10673 ^o _{5/2} – 46581 _{5/2}
2807.715	100	100	35605.661	9202 ^o _{7/2} – 44807 _{7/2}	2783.924	5	10	35909.926	15453 ^o _{7/2} – 51362 _{5/2}
2807.048	10	50	35614.121	17121 ^o _{3/2} – 52735 _{3/2}	2783.662	0	15	35913.306	7331 ^o _{5/2} – 43244 _{3/2}
2806.879	10	25	35616.265	14790 ^o _{7/2} – 50407 _{7/2}	2783.489	10b	75	35915.537	7828 _{1/2} – 43744 _{7/2}
2805.721	4		35630.964	18214 ^o _{3/2} – 53845 _{5/2}	2783.053	50	75	35921.164	4490 ^o _{5/2} – 40411 _{7/2}
2804.652	10	3	35644.544	10572 ^o _{9/2} – 46216 _{11/2}	2782.824	0	20	35924.119	9202 ^o _{7/2} – 45126 _{9/2}
2804.580	10	3	35645.459	6691 ^o _{3/2} – 42336 _{5/2}	2782.364	4	15	35930.058	10673 ^o _{5/2} – 46603 _{5/2}
2803.760	2		35655.883	16906 ^o _{7/2} – 52562 _{7/2}	2781.353	2	8	35943.118	15710 _{3/2} – 51653 _{1/2}
2803.376	50b	50	35660.767	9238 ^o _{9/2} – 44898 _{7/2}	2780.694	15b	75	35951.636	13406 ^o _{13/2} – 49357 _{11/2}
2802.278	40	20	35674.739	9720 ^o _{7/2} – 45395 _{7/2}	2780.410	3	75	35955.308	20989 ^o _{9/2} – 56945 _{11/2}
2801.938	50	25	35679.068	10673 ^o _{5/2} – 46352 _{7/2}	2779.671	2b	10b	35964.867	12488 ^o _{9/2} – 48453 _{7/2}
2801.766	8		35681.258	14790 ^o _{7/2} – 50470 _{9/2}	2779.646	1	10b	35965.190	15710 ^o _{3/2} – 51676 _{3/2}
2800.569	200	100	35696.508	10572 ^o _{9/2} – 46253 _{9/2}	2779.476	2	10	35967.389	12485 ^o _{7/2} – 48453 _{7/2}
2800.249	10	15	35700.587	9202 ^o _{7/2} – 44898 _{7/2}	2778.704	10	75	35977.382	9711 _{7/2} – 45689 _{7/2}
2799.334	0	8	35712.256	15324 ^o _{1/2} – 51024 _{3/2}	2778.426	1	5	35980.981	12472 ^o _{5/2} – 48453 _{7/2}
2799.110	50	75	35715.114	10673 ^o _{5/2} – 46385 _{7/2}	2778.401	1	5	35981.305	15242 ^o _{9/2} – 51224 _{9/2}
2798.921	3	10	35717.525	4146 ^o _{7/2} – 39861 ^o _{5/2}	2778.055	5b	15	35985.786	14484 ^o _{11/2} – 50470 _{9/2}
2798.866	2	10	35718.227	8378 ^o _{7/2} – 44096 _{9/2}	2778.020	10	25	35986.240	1859 _{3/2} – 37846 ^o _{5/2}
2798.661	50	50	35720.843	13406 ^o _{13/2} – 49124 _{11/2}	2777.929	3	50	35987.419	9202 ^o _{7/2} – 45189 _{5/2}
2798.499	5	15	35722.911	9585 ^o _{5/2} – 45306 _{3/2}	2777.807	0	4	35988.999	10379 _{9/2} – 46368 _{9/2}
2798.263	20	100	35725.924	10673 ^o _{5/2} – 46395 _{3/2}	2776.470	0	4	36006.328	12485 ^o _{7/2} – 48492 _{5/2}
2797.736	200	150	35732.653	8018 _{3/2} – 43744 ^o _{9/2}	2776.196	3	5	36009.882	8378 ^o _{7/2} – 44388 _{5/2}
2797.020	50	150	35741.800	4490 ^o _{5/2} – 40222 _{3/2}	2775.459	0	75	36019.443	13818 _{7/2} – 49837 _{9/2}
2796.509	20	25	35748.330	1859 _{3/2} – 37601 ^o _{3/2}	2774.840	10	75	36027.478	10189 ^o _{11/2} – 46216 _{11/2}
2795.528	5	25	35760.874	4113 _{5/2} – 39861 ^o _{5/2}	2774.498	20	8	36031.919	6168 ^o _{7/2} – 42200 _{9/2}
2795.195	10	25	35765.134	9061 ^o _{5/2} – 44821 ^o _{5/2}	2774.411	1	5	36033.048	10673 ^o _{5/2} – 46706 _{7/2}
2794.716	0	3	35771.264	7331 ^o _{5/2} – 43096 _{5/2}	2774.065	50	50	36037.54	4146 _{7/2} – 40184 ^o _{7/2}
2794.255	25	100	35777.165	15453 ^o _{7/2} – 51224 _{9/2}	2773.951	5	75	36039.024	13250 _{5/2} – 49289 ^o _{5/2}
2794.012	4	50	35780.277	9711 _{7/2} – 45489 ^o _{9/2}	2773.523	3	8	36044.585	8605 _{5/2} – 44650 ^o _{7/2}
2793.567	4	15p	35785.976	10572 ^o _{9/2} – 46352 _{7/2}	2773.022	10	25	36051.096	6700 ^o _{9/2} – 42751 _{7/2}
2793.432	1	8	35787.705	11116 ^o _{7/2} – 46902 _{5/2}	2772.808	1	4	36053.879	6168 ^o _{7/2} – 42222 _{7/2}
2792.674	2	8	35797.418	12902 ^o _{3/2} – 48689 _{3/2}	2772.741	2	8	36054.750	13818 ^o _{7/2} – 49873 _{5/2}
2791.670	3	10	35810.292	16033 ^o _{5/2} – 51830 _{7/2}	2772.010	50	25	36064.257	11116 ^o _{7/2} – 47171 _{9/2}
2791.432	8b	75	35813.345	12488 ^o _{9/2} – 48298 _{7/2}	2771.515	50b	100b	36070.698	10189 ^o _{11/2} – 46253 _{9/2}
2791.007	50	75	35818.799	10572 ^o _{9/2} – 46385 _{7/2}	2771.469	20b	100b	36071.297	4113 _{5/2} – 40184 ^o _{7/2}
2790.868	3	10	35820.582	6700 ^o _{9/2} – 42518 _{7/2}	2771.134	2	20	36079.810	8378 ^o _{7/2} – 44450 _{9/2}
2790.420	5	50	35826.333	9400 _{5/2} – 45221 ^o _{5/2}	2770.815	75	100	36088.680	1521 _{5/2} – 37601 ^o _{3/2}
2789.981	1	4	35831.970	12472 ^o _{5/2} – 48298 _{7/2}	2770.134	2	20	36088.680	20989 ^o _{9/2} – 57078 _{9/2}
2789.729	0	5	35835.206	16033 ^o _{5/2} – 51865 _{5/2}	2768.841	50	150	36105.531	6213 _{9/2} – 42319 ^o _{9/2}
				12485 ^o _{7/2} – 48320 _{3/2}	2768.106	0	3	36115.118	20120 ^o _{5/2} – 56235 _{3/2}

TABLE 3. *Classified lines of Th II* — Continued

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
2767.884	3	15	36118.014	14545 ^o _{5/2} - 50663 ^o _{5/2}	2738.816	15	20	36501.327	4490 ^o _{5/2} - 40991 ^o _{3/2}
2767.669	0	4l	36120.820	13406 ^o _{13/2} - 49527 ^o _{13/2}	2738.324	20	50	36507.885	4146 ^o _{7/2} - 40654 ^o _{5/2}
2767.357	4	25	36124.892	8378 ^o _{7/2} - 44503 ^o _{7/2}	2738.224	1	10	36509.218	15144 ^o _{3/2} - 51653 ^o _{1/2}
2766.637	3	5	36134.293	10572 ^o _{9/2} - 46706 ^o _{7/2}	2738.119	1	8	36510.618	17983 ^o _{5/2} - 54493 ^o _{5/2}
2765.124	50	150	36154.064	4490 ^o _{5/2} - 40644 ^o _{5/2}	2737.422	15	75	36519.914	8378 ^o _{7/2} - 44898 ^o _{7/2}
2764.640	20	150	36160.393	9061 ^o _{5/2} - 45221 ^o _{5/2}	2737.185	0	3	36523.076	18973 ^o _{5/2} - 55496 ^o _{9/2}
2764.180	2	5b	36166.410	12902 ^o _{3/2} - 49068 ^o _{5/2}	2736.710	2	25	36529.415	16033 ^o _{5/2} - 52562 ^o _{7/2}
2763.605	50b	100	36173.934	6244 ^o _{1/2} - 42418 ^o _{3/2}	2736.439	8	20	36533.032	9720 ^o _{7/2} - 46253 ^o _{9/2}
2762.835	3	15l	36184.016	9720 ^o _{7/2} - 45904 ^o _{9/2}	2736.177	4	5	36536.530	6691 ^o _{3/2} - 43227 ^o _{5/2}
2762.402	8	25	36189.687	10189 ^o _{11/2} - 46378 ^o _{13/2}	2735.837	20	500	36541.070	4113 ^o _{5/2} - 40654 ^o _{5/2}
2762.041	1	3	36194.417	14275 ^o _{9/2} - 50470 ^o _{9/2}	2735.197	1	10	36549.620	17460 ^o _{5/2} - 54010 ^o _{7/2}
2761.021	2	8	36207.787	11116 ^o _{7/2} - 47324 ^o _{5/2}	2735.060	4	15	36551.451	12570 ^o _{7/2} - 49121 ^o _{7/2}
2760.391	20	200	36216.051	8605 ^o _{5/2} - 44821 ^o _{5/2}	2734.907	3	4	36553.495	6691 ^o _{3/2} - 43244 ^o _{3/2}
2759.720	3	15	36224.856	15710 ^o _{3/2} - 51935 ^o _{5/2}	2734.405	50	75	36560.206	4146 ^o _{7/2} - 40706 ^o _{7/2}
2759.405	5	75	36228.991	15453 ^o _{7/2} - 51681 ^o _{9/2}	2733.529	3	15	36571.922	14790 ^o _{7/2} - 51362 ^o _{5/2}
2758.958	15	15	36234.860	1521 ^o _{5/2} - 37756 ^o _{7/2}	2733.205	15	25	36576.257	1859 ^o _{3/2} - 38436 ^o _{5/2}
2757.900	0	8	36248.760	17272 ^o _{9/2} - 53520 ^o _{9/2}	2732.808	50	50	36581.570	0 ^o _{3/2} - 36581 ^o _{3/2}
2757.382	8	15	36255.569	6700 ^o _{9/2} - 42955 ^o _{9/2}	2732.702	15	50	36582.989	6168 ^o _{7/2} - 42751 ^o _{7/2}
2756.855	2	8	36262.499	10673 ^o _{5/2} - 46935 ^o _{3/2}	2731.918	10	25	36593.487	4113 ^o _{5/2} - 40706 ^o _{5/2}
2755.955	4	50	36274.341	16033 ^o _{5/2} - 52307 ^o _{3/2}	2730.308	8b	150b	36615.064	11116 ^o _{7/2} - 47731 ^o _{9/2}
2755.561	0	3	36279.527	18214 ^o _{3/2} - 54493 ^o _{5/2}	2730.261	15b	150b	36615.694	8605 ^o _{5/2} - 45221 ^o _{5/2}
2755.051	4	15	36286.243	7001 ^o _{3/2} - 43287 ^o _{3/2}	2729.327	15	150	36628.224	9061 ^o _{5/2} - 45689 ^o _{5/2}
2754.890	2	10	36288.363	9400 ^o _{5/2} - 45689 ^o _{7/2}	2729.053	4	5	36631.901	9720 ^o _{7/2} - 46352 ^o _{7/2}
2754.801	1	10	36289.536	10572 ^o _{9/2} - 46861 ^o _{11/2}	2728.909	20	25	36633.834	1859 ^o _{3/2} - 38493 ^o _{5/2}
2754.520	2	5b	36293.238	11576 ^o _{5/2} - 47869 ^o _{3/2}	2728.701	0	10b	36636.626	9061 ^o _{5/2} - 45697 ^o _{5/2}
2754.252	4	15	36296.769	9400 ^o _{5/2} - 45697 ^o _{3/2}	2727.578	0	3	36651.709	13818 ^o _{7/2} - 50470 ^o _{9/2}
2753.092	5	50	36312.061	12219 ^o _{3/2} - 48532 ^o _{7/2}	2727.231	5	20	36656.373	9711 ^o _{7/2} - 46368 ^o _{3/2}
2752.166	75	100	36324.279	1521 ^o _{5/2} - 37846 ^o _{5/2}	2726.482	15	75	36666.442	9238 ^o _{9/2} - 45904 ^o _{9/2}
2751.754	2	50	36329.717	15324 ^o _{1/2} - 51653 ^o _{1/2}	2726.027	2	10	36672.562	10189 ^o _{11/2} - 46861 ^o _{11/2}
2751.572	4	3	36332.120	15349 ^o _{11/2} - 51681 ^o _{9/2}	2725.559	4	15	36678.858	9585 ^o _{5/2} - 46264 ^o _{3/2}
2750.538	1	4	36345.777	12472 ^o _{5/2} - 48817 ^o _{3/2}	2724.881	50	200	36687.984	0 ^o _{3/2} - 36687 ^o _{5/2}
2750.174	2	4	36350.587	6168 ^o _{7/2} - 42518 ^o _{7/2}	2723.821	0	10d	36702.261	9202 ^o _{7/2} - 45904 ^o _{9/2}
2749.713	8	100	36356.681	12488 ^o _{9/2} - 48844 ^o _{9/2}	2723.416	0	5	36707.719	18214 ^o _{3/2} - 54922 ^o _{3/2}
2749.531	50	100	36359.088	4113 ^o _{5/2} - 40472 ^o _{3/2}	2723.317	4	75	36709.053	17460 ^o _{5/2} - 54169 ^o _{7/2}
2749.355	25	25	36361.415	8460 ^o _{3/2} - 44821 ^o _{5/2}	2722.571	0	10	36719.111	12570 ^o _{7/2} - 49289 ^o _{5/2}
2748.805	5	50b	36368.690	13468 ^o _{9/2} - 49837 ^o _{3/2}	2722.468	3	10	36720.500	15144 ^o _{3/2} - 51865 ^o _{5/2}
2748.137	2	10	36377.530	15453 ^o _{7/2} - 51830 ^o _{7/2}	2722.380	25b	50b	36721.687	1859 ^o _{3/2} - 38581 ^o _{5/2}
2747.847	8	50	36381.369	7001 ^o _{3/2} - 43382 ^o _{5/2}				10189 ^o _{11/2} - 46910 ^o _{13/2}	
2747.586	3	50	36384.825	17460 ^o _{5/2} - 53845 ^o _{5/2}	2722.313	5	50	36722.591	14545 ^o _{5/2} - 51268 ^o _{7/2}
2747.156	75	100	36390.520	0 ^o _{3/2} - 36390 ^o _{3/2}	2722.216	0	20b	36723.899	17121 ^o _{3/2} - 53845 ^o _{5/2}
2745.527	25	25	36412.110	15453 ^o _{7/2} - 51865 ^o _{5/2}	2721.691	20	200b	36730.982	6213 ^o _{9/2} - 42944 ^o _{7/2}
2744.247	3	4	36429.093	8378 ^o _{7/2} - 44807 ^o _{7/2}	2721.172	1	5	36737.988	17272 ^o _{9/2} - 54010 ^o _{7/2}
2743.499	1	5	36439.025	15242 ^o _{9/2} - 51681 ^o _{9/2}	2721.022	0	4	36740.013	14484 ^o _{11/2} - 51224 ^o _{9/2}
2743.155	3b	10	36443.594	9711 ^o _{7/2} - 46155 ^o _{5/2}	2720.822	0	15	36742.713	7001 ^o _{3/2} - 43744 ^o _{1/2}
2743.063	50	50	36444.816	0 ^o _{3/2} - 36444 ^o _{5/2}	2720.687	0	4	36744.536	11576 ^o _{5/2} - 48320 ^o _{5/2}
2740.712	1	4	36476.077	7331 ^o _{5/2} - 43807 ^o _{3/2}	2720.627	0	10	36745.347	22642 ^o _{9/2} - 59387 ^o _{7/2}
2740.469	3	50	36479.311	14545 ^o _{5/2} - 51024 ^o _{3/2}	2720.471	5	15	36747.454	8378 ^o _{7/2} - 45126 ^o _{9/2}
2740.218	1	15	36482.653	15453 ^o _{5/2} - 51935 ^o _{5/2}	2719.929	15	75	36754.776	11116 ^o _{7/2} - 47871 ^o _{1/2}
2739.545	0	50	36491.614	13468 ^o _{9/2} - 49960 ^o _{7/2}	2719.449	4	25	36761.263	8460 ^o _{3/2} - 45221 ^o _{5/2}
2739.133	2	4	36497.103	9238 ^o _{9/2} - 45735 ^o _{11/2}	2717.251	3	15	36790.998	15144 ^o _{3/2} - 51935 ^o _{5/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
2716.578	5	25	36800.112	9585 _{5/2} ^o - 46385 _{7/2}	2690.311	25	20	37159.392	10572 _{5/2} ^o - 47731 _{9/2}
2716.328	50	100	36803.499	19880 _{9/2} ^o - 56683 _{7/2} ^o 8018 _{3/2} ^o - 44821 _{5/2} ^o	2690.102	1	15b	37162.279	13468 _{5/2} ^o - 50631 _{11/2}
2715.156	0	10b	36819.384	15453 _{7/2} ^o - 52272 _{7/2} ^o	2690.064	3	15b	37162.804	15144 _{5/2} ^o - 52307 _{3/2}
2715.082	8	100b	36820.387	15349 _{11/2} ^o - 52170 _{11/2}	2689.371	2	5	37172.379	7331 _{3/2} ^o - 44503 _{7/2}
2713.768	0	25b	36838.215	4490 _{5/2} ^o - 41328 _{5/2}	2688.667	3	15	37182.112	9720 _{5/2} ^o - 46902 _{5/2}
2713.243	4	50	36845.342	13818 _{5/2} ^o - 50663 _{5/2}	2688.582	2	3	37183.287	9202 _{7/2} ^o - 46385 _{7/2}
2712.084	3	20	36861.087	9720 _{7/2} ^o - 46581 _{5/2}	2688.337	8	15	37186.676	4490 _{5/2} ^o - 41676 _{3/2}
2711.448	15b	75	36869.733	12488 _{9/2} ^o - 49357 _{11/2}	2687.903	3	20	37192.679	22106 _{5/2} ^o - 59299 _{5/2} ^o
2711.130	0	5s	36874.057	22513 _{5/2} ^o - 59387 _{7/2}	2687.533	3b	8b	37197.800	14484 _{5/2} ^o - 51681 _{9/2}
					2687.500	5	10b	37198.257	10673 _{5/2} ^o - 47871 _{7/2}
2710.474	5	50	36882.981	9720 _{7/2} ^o - 46603 _{5/2}	2687.125	50b	100	37203.447	8018 _{3/2} ^o - 45221 _{5/2} ^o
2710.034	2	25	36888.969	12488 _{9/2} ^o - 49377 _{7/2}	2685.586	3	15	37224.766	13406 _{5/2} ^o - 50631 _{11/2}
2709.934	2	8	36890.331	11116 _{7/2} ^o - 48006 _{9/2}	2685.024	0	8b	37232.557	8605 _{5/2} ^o - 45838 _{3/2} ^o
2709.843	3	25	36891.569	12485 _{5/2} ^o - 49377 _{7/2}	2684.669	5	8	37237.480	8460 _{3/2} ^o - 45697 _{3/2} ^o
2709.407	2	251	36897.505	17272 _{9/2} ^o - 54169 _{7/2}	2684.288	50	100	37242.765	1521 _{5/2} ^o - 38764 _{7/2} ^o
2708.176	50	100	36914.276	1521 _{5/2} ^o - 38436 _{3/2} ^o	2682.018	0	5	37274.285	6691 _{5/2} ^o - 43965 _{1/2}
2708.071	5	25b	36915.707	11576 _{3/2} ^o - 48492 _{5/2}	2680.210	3	10	37299.428	10572 _{9/2} ^o - 47871 _{7/2}
2707.525	8	10	36923.152	14101 _{5/2} ^o - 51024 _{3/2}	2678.934	15	50	37317.193	9585 _{5/2} ^o - 46902 _{5/2}
2706.408	2	25	36938.390	13468 _{9/2} ^o - 50407 _{7/2}	2678.752	0	20	37319.728	15242 _{5/2} ^o - 52562 _{7/2}
2704.489	3	50	36964.598	11725 _{1/2} ^o - 48689 _{3/2}	2677.544	2	10	37336.564	11116 _{7/2} ^o - 48453 _{7/2}
2703.957	75	200	36971.871	1521 _{5/2} ^o - 38493 _{5/2} ^o	2676.623	3	25	37349.411	12488 _{9/2} ^o - 49837 _{9/2}
2703.189	3	15	36982.374	10189 _{11/2} ^o - 47171 _{9/2}	2676.559	3	25	37350.304	9585 _{5/2} ^o - 46935 _{3/2}
2702.922	5	25	36986.027	9720 _{7/2} ^o - 46706 _{7/2}	2676.440	3	25s	37351.964	12485 _{7/2} ^o - 49837 _{9/2}
2702.852	2	15	36986.985	19248 _{5/2} ^o - 56235 _{3/2}	2675.670	5	50	37362.713	9061 _{5/2} ^o - 46423 _{3/2} ^o
2702.202	2	4b	36995.882	9585 _{5/2} ^o - 46581 _{5/2}	2674.988	0	10d	37372.238	17121 _{3/2} ^o - 54493 _{5/2}
2702.052	4	5	36997.935	4490 _{5/2} ^o - 41488 _{7/2}	2674.580	0	5	37377.939	8460 _{3/2} ^o - 45838 _{3/2} ^o
2701.818	8	75	37001.139	13468 _{9/2} ^o - 50470 _{9/2}	2673.281	2	4	37396.100	6700 _{9/2} ^o - 44096 _{9/2}
2700.602	4	15	37017.799	9585 _{5/2} ^o - 46603 _{5/2}	2672.945	50	40	37400.80	9202 _{7/2} ^o - 46603 _{5/2}
2700.080	0	100	37024.955	15710 _{3/2} ^o - 52735 _{3/2}	2672.171	4	5	37411.634	15324 _{1/2} ^o - 52735 _{3/2}
2699.012	3	50	37039.605	14790 _{7/2} ^o - 51830 _{7/2}	2671.469	4	50	37421.464	8378 _{7/2} ^o - 45800 _{5/2}
2698.730	15b	75	37043.475	6244 _{1/2} ^o - 43287 _{5/2} ^o	2669.695	3	5	37446.329	4490 _{5/2} ^o - 41936 _{3/2}
2698.169	5	15s	37051.177	9202 _{7/2} ^o - 46253 _{9/2} ^o	2669.447	3	25	37449.808	13818 _{7/2} ^o - 51268 _{7/2}
2697.720	3	8	37057.343	7331 _{5/2} ^o - 44388 _{5/2}	2667.544	8	15	37476.522	7331 _{5/2} ^o - 44807 _{7/2}
2697.546	25	75	37059.733	1521 _{5/2} ^o - 38581 _{5/2} ^o	2667.504	2	4	37477.084	6700 _{9/2} ^o - 44177 _{11/2}
2696.827	8	75	37069.613	12219 _{3/2} ^o - 49289 _{5/2} ^o	2667.193	0	5	37481.454	14790 _{7/2} ^o - 52272 _{7/2}
2696.174	10	25	37078.591	6168 _{5/2} ^o - 43246 _{7/2}	2666.412	2	5	37492.432	11576 _{3/2} ^o - 49068 _{5/2}
2695.988	2	3	37081.149	6691 _{5/2} ^o - 43772 _{5/2}	2665.884	5	50	37499.857	6244 _{1/2} ^o - 43744 _{1/2} ^o
2695.810	25	75	37083.597	8605 _{5/2} ^o - 45689 _{7/2} ^o	2664.051	5	15b	37525.657	8378 _{7/2} ^o - 45904 _{9/2}
2695.553	50	150	37087.132	10379 _{9/2} ^o - 47466 _{11/2} ^o	2662.861	20	75	37542.426	10189 _{11/2} ^o - 47731 _{9/2}
2695.203	50	100	37091.948	8605 _{5/2} ^o - 45697 _{3/2}	2662.343	10	75	37549.730	8605 _{5/2} ^o - 46155 _{5/2} ^o
2695.017	8	50	37094.508	9061 _{5/2} ^o - 46155 _{5/2} ^o	2662.171	1	8	37552.156	14101 _{1/2} ^o - 51653 _{1/2}
2694.341	5	15	37103.814	6700 _{9/2} ^o - 43803 _{7/2}	2661.969	0	5	37555.005	14275 _{9/2} ^o - 51830 _{7/2}
2693.959	30	30	37109.07	6700 _{9/2} ^o - 43809 _{9/2}	2661.724	0	4	37558.462	7331 _{5/2} ^o - 44889 _{3/2}
2693.628	2	100b	37113.635	11576 _{3/2} ^o - 48689 _{3/2}	2661.386	15	75	37563.232	9585 _{5/2} ^o - 47148 _{3/2}
2693.099	3	8	37120.925	9585 _{5/2} ^o - 46706 _{7/2}	2661.090	1	25	37567.410	7331 _{5/2} ^o - 44898 _{7/2}
2692.416	75	200	37130.341	0 _{3/2} ^o - 37130 _{1/2} ^o	2660.965	1	8	37569.174	15349 _{9/2} ^o - 52918 _{13/2}
2691.513	0	81	37142.798	19248 _{5/2} ^o - 56391 _{5/2}	2660.680	0	4	37573.198	17272 _{9/2} ^o - 54845 _{9/2}
2691.374	8b	15	37144.716	14790 _{7/2} ^o - 51935 _{5/2}	2660.596	15	25	37574.384	14101 _{1/2} ^o - 51676 _{3/2}
2691.172	10	75	37147.504	9238 _{5/2} ^o - 46385 _{7/2}	2659.417	1	5	37591.041	15144 _{5/2} ^o - 52735 _{3/2}
2690.994	8b	20	37149.961	9202 _{7/2} ^o - 46352 _{7/2}	2658.664	25	75	37601.687	0 _{3/2} ^o - 37601 _{3/2} ^o

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
2658.490	4	10b	37604.149	9720 ^o _{7/2} - 47324 ^o _{5/2}	2629.620	3	50	38016.971	14545 ^o _{5/2} - 52562 ^o _{7/2}
				6168 ^o _{7/2} - 43772 ^o _{5/2}	2629.365	0	3	38020.658	18214 ^o _{3/2} - 56235 ^o _{3/2}
2658.216	8	15	37608.024	0 ^o _{3/2} - 37607 ^o _{1/2}	2628.918	0	8	38027.122	6700 ^o _{9/2} - 44727 ^o _{11/2}
2656.262	4	8	37635.688	6168 ^o _{7/2} - 43803 ^o _{7/2}	2628.811	20	100	38028.670	4490 ^o _{5/2} - 42518 ^o _{7/2}
2655.887	3	20	37641.002	6168 ^o _{7/2} - 43809 ^o _{9/2}	2627.557	2	50	38046.818	13818 ^o _{7/2} - 51865 ^o _{5/2}
2655.408	0	10	37647.791	10673 ^o _{5/2} - 48320 ^o _{5/2}	2626.394	15	25	38063.665	7331 ^o _{5/2} - 45395 ^o _{7/2}
2653.163	2	25	37679.645	16818 ^o _{7/2} - 54497 ^o _{7/2}	2626.098	0	20	38067.955	15453 ^o _{7/2} - 53520 ^o _{9/2}
2652.065	15	50	37695.244	8460 ^o _{3/2} - 46155 ^o _{5/2}	2625.737	25	100	38073.188	4146 ^o _{7/2} - 42219 ^o _{5/2}
2651.907	4	3	37697.490	6691 ^o _{3/2} - 44388 ^o _{5/2}	2624.582	0	3b	38089.942	21297 ^o _{5/2} - 59387 ^o _{7/2}
2651.703	2	20	37700.390	9202 ^o _{7/2} - 46902 ^o _{5/2}	2624.033	2	3	38097.911	6691 ^o _{3/2} - 44789 ^o _{1/2}
2651.402	1	4	37704.670	21682 ^o _{7/2} - 59387 ^o _{7/2}	2623.448	25	100	38106.406	4113 ^o _{5/2} - 42219 ^o _{5/2}
2650.583	25	200	37716.319	0 ^o _{3/2} - 37716 ^o _{7/2}	2622.686	10	8	38117.477	13818 ^o _{7/2} - 51935 ^o _{5/2}
2649.866	15	100	37726.524	10572 ^o _{9/2} - 48298 ^o _{7/2}	2622.361	4	50	38122.201	9202 ^o _{7/2} - 47324 ^o _{5/2}
2649.736	1	5	37728.375	11116 ^o _{7/2} - 48844 ^o _{9/2}	2621.506	0	10	38134.633	15710 ^o _{3/2} - 53845 ^o _{5/2}
2649.477	10	25	37732.063	4490 ^o _{5/2} - 42222 ^o _{7/2}	2621.376	2	50	38136.524	16033 ^o _{5/2} - 54169 ^o _{7/2}
2648.994	1	8	37738.942	9585 ^o _{5/2} - 47324 ^o _{5/2}	2620.942	2	15	38142.839	12488 ^o _{9/2} - 50631 ^o _{11/2}
2648.210	3	20	37750.114	6700 ^o _{9/2} - 44450 ^o _{9/2}	2620.375	1	8	38151.092	9720 ^o _{7/2} - 47871 ^o _{7/2}
2647.844	0	4l	37755.332	13468 ^o _{9/2} - 51224 ^o _{9/2}	2619.008	10	75	38171.004	15349 ^o _{1/2} - 53520 ^o _{9/2}
2647.507	2	15b	37760.138	11725 ^o _{1/2} - 49485 ^o _{1/2}	2618.912	25b	100	38172.403	4146 ^o _{7/2} - 42319 ^o _{9/2}
2647.423	4	8	37761.335	12902 ^o _{3/2} - 50663 ^o _{5/2}	2618.625	0	3	38176.586	18214 ^o _{3/2} - 56391 ^o _{3/2}
2647.382	2	15	37761.920	14545 ^o _{5/2} - 52307 ^o _{3/2}	2617.114	20	15	38198.626	6700 ^o _{9/2} - 44898 ^o _{7/2}
2646.543	1	3	37773.891	17722 ^o _{9/2} - 55496 ^o _{9/2}	2616.850	10	15	38202.480	8378 ^o _{7/2} - 46581 ^o _{5/2}
2644.775	2	15	37799.141	13468 ^o _{9/2} - 51268 ^o _{7/2}	2616.631	1	10	38205.677	14101 ^o _{1/2} - 52307 ^o _{3/2}
2644.681	2	25	37800.484	17121 ^o _{3/2} - 54922 ^o _{3/2}	2615.641	2	5	38220.137	7001 ^o _{3/2} - 45221 ^o _{5/2}
2644.460	2	5	37803.643	6700 ^o _{9/2} - 44503 ^o _{7/2}	2615.345	3	50	38224.462	17272 ^o _{9/2} - 55496 ^o _{9/2}
2643.461	3	20	37817.929	8605 ^o _{5/2} - 46423 ^o _{5/2}					8378 ^o _{7/2} - 46603 ^o _{5/2}
2643.385	0	5	37819.016	10673 ^o _{5/2} - 48492 ^o _{5/2}	2612.875	3	25	38260.594	11116 ^o _{7/2} - 49377 ^o _{7/2}
2643.280	4	20	37820.518	7001 ^o _{3/2} - 44821 ^o _{5/2}	2612.688	2	10	38263.332	12472 ^o _{5/2} - 50735 ^o _{1/2}
2642.401	3	15	37833.098	12902 ^o _{3/2} - 50735 ^o _{3/2}	2612.465	0	10	38266.598	10855 ^o _{7/2} - 49121 ^o _{7/2}
2642.037	0	4	37838.311	11576 ^o _{3/2} - 49414 ^o _{3/2}	2612.031	0	4	38272.956	10572 ^o _{9/2} - 48844 ^o _{9/2}
2641.488	75	150	37846.174	0 ^o _{3/2} - 37846 ^o _{5/2}	2611.688	4	50	38277.982	13250 ^o _{5/2} - 51528 ^o _{3/2}
2640.424	2	5	37861.424	6691 ^o _{3/2} - 44552 ^o _{5/2}					15242 ^o _{9/2} - 53520 ^o _{9/2}
2640.391	5	10	37861.897	4490 ^o _{5/2} - 42352 ^o _{5/2}	2611.420	2	5	38281.910	6168 ^o _{7/2} - 44450 ^o _{9/2}
2640.269	10	25	37863.646	13818 ^o _{7/2} - 51681 ^o _{9/2}	2611.263	2	8	38284.212	9585 ^o _{5/2} - 47869 ^o _{3/2}
2639.879	4	50	37869.240	7828 ^o _{1/2} - 45697 ^o _{5/2}	2611.134	2b	10b	38286.103	9585 ^o _{5/2} - 47871 ^o _{7/2}
2639.503	25	50	37874.634	1521 ^o _{5/2} - 39396 ^o _{7/2}	2610.412	1	3	38296.692	11576 ^o _{3/2} - 49873 ^o _{5/2}
2639.053	1	5	37881.092	10572 ^o _{9/2} - 48453 ^o _{7/2}	2609.857	25	75	38304.835	4113 ^o _{5/2} - 42418 ^o _{3/2}
2637.098	0	8	37909.173	11576 ^o _{3/2} - 49485 ^o _{1/2}	2608.321	4	25	38327.391	8378 ^o _{7/2} - 46706 ^o _{7/2}
2635.414	3	10	37933.395	9238 ^o _{9/2} - 47171 ^o _{9/2}	2607.775	3	8	38335.415	6168 ^o _{7/2} - 44503 ^o _{7/2}
2635.290	3	15	37935.180	12472 ^o _{5/2} - 50407 ^o _{7/2}	2607.481	8	25	38339.738	1521 ^o _{5/2} - 39861 ^o _{5/2}
2635.043	0	5	37938.736	16906 ^o _{7/2} - 54845 ^o _{9/2}	2605.994	4	25	38361.613	13468 ^o _{9/2} - 51830 ^o _{7/2}
2634.108	2	20	37952.202	11116 ^o _{7/2} - 49068 ^o _{5/2}	2603.909	3	25	38392.328	15453 ^o _{7/2} - 53845 ^o _{5/2}
2633.327	10	50	37963.457	8460 ^o _{3/2} - 46423 ^o _{3/2}	2603.560	0	15	38397.474	17837 ^o _{1/2} - 56235 ^o _{3/2}
2632.925	2	10	37969.253	9202 ^o _{5/2} - 47171 ^o _{9/2}					20989 ^o _{9/2} - 59387 ^o _{7/2}
2632.641	2	15	37973.349	8378 ^o _{7/2} - 46352 ^o _{7/2}	2603.014	3	25b	38405.528	8018 ^o _{3/2} - 46423 ^o _{3/2}
2632.050	0	3	37981.875	12488 ^o _{9/2} - 50470 ^o _{9/2}	2602.154	0	4	38418.220	20969 ^o _{7/2} - 59387 ^o _{7/2}
2630.817	10	50	37999.675	4113 ^o _{5/2} - 42112 ^o _{3/2}	2601.820	3	10	38423.151	10189 ^o _{11/2} - 48612 ^o _{13/2}
2630.671	10	8	38001.784	1859 ^o _{3/2} - 39861 ^o _{5/2}	2601.630	2	3	38425.957	6700 ^o _{9/2} - 45126 ^o _{9/2}
2630.107	0	5	38009.932	7828 ^o _{1/2} - 45838 ^o _{3/2}	2601.045	2	5	38434.599	14484 ^o _{11/2} - 52918 ^o _{13/2}
2630.015	5	75	38011.262	9720 ^o _{7/2} - 47731 ^o _{9/2}	2600.935	8b	10	38436.225	0 ^o _{3/2} - 38436 ^o _{5/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
2600.880	25b	25	38437.037	9238 ^o _{3/2} - 47675 ^o _{11/2}	2552.923	0	3	39159.036	11576 ^o _{3/2} - 50735 ^o _{3/2}
2598.741	0	10	38468.673	7331 ^o _{5/2} - 45800 ^o _{3/2}	2552.281	0	8	39168.885	10189 ^o _{11/2} - 49357 ^o _{11/2}
2597.046	50b	150b	38493.778	0 ^o _{3/2} - 38493 ^o _{3/2}	2551.934	3	10	39174.211	4113 ^o _{5/2} - 43287 ^o _{3/2}
2595.036	8	20	38523.592	8378 ^o _{7/2} - 46902 ^o _{5/2}	2551.234	5	10	39184.96	1521 ^o _{5/2} - 40706 ^o _{7/2}
2594.662	2	20	38529.145	9202 ^o _{7/2} - 47731 ^o _{9/2}	2550.749	0	8	39192.409	15305 ^o _{9/2} - 54497 ^o _{7/2}
2592.786	0	15	38557.020	15453 ^o _{7/2} - 54010 ^o _{7/2}	2550.255	0	3	39200.000	10673 ^o _{5/2} - 49873 ^o _{5/2}
2591.370	2	5	38578.088	9720 ^o _{7/2} - 48298 ^o _{7/2}	2549.987	5	15	39204.120	6700 ^o _{9/2} - 45904 ^o _{9/2}
2590.229	4	20	38595.080	7828 ^o _{1/2} - 46423 ^o _{3/2}	2548.134	8l	50	39232.62	9585 ^o _{5/2} - 48817 ^o _{3/2}
2590.070	2	5	38597.449	7828 ^o _{1/2} - 46426 ^o _{1/2}	2547.898	15	75	39236.261	4146 ^o _{7/2} - 43382 ^o _{5/2}
2589.485	3	8	38606.169	4490 ^o _{5/2} - 43096 ^o _{5/2}	2547.016	0	3	39249.847	7331 ^o _{5/2} - 46581 ^o _{5/2}
2589.059	50	100	38612.520	1859 ^o _{3/2} - 40472 ^o _{3/2}	2546.953	0	8	39250.818	9202 ^o _{7/2} - 48453 ^o _{7/2}
2588.916	8	20	38614.653	6691 ^o _{3/2} - 45306 ^o _{3/2}	2545.744	8	25	39269.458	4113 ^o _{5/2} - 43382 ^o _{5/2}
2587.615	0	4	38634.067	14101 ^o _{1/2} - 52735 ^o _{3/2}	2545.339	8	50	39275.70	6213 ^o _{9/2} - 45489 ^o _{3/2}
2587.252	3	20	38639.486	6168 ^o _{7/2} - 44807 ^o _{7/2}	2544.364	0	8	39290.755	11116 ^o _{7/2} - 50407 ^o _{7/2}
2587.246	0	20	38639.576	6168 ^o _{7/2} - 44807 ^o _{7/2}	2543.217	0	8	39308.474	12219 ^o _{3/2} - 51528 ^o _{3/2}
2586.158	3	25b	38655.831	10189 ^o _{11/2} - 48844 ^o _{9/2}	2542.871	0	4l	39313.822	4490 ^o _{5/2} - 43803 ^o _{7/2}
2585.726	4	5	38662.289	1521 ^o _{5/2} - 40184 ^o _{7/2}	2542.642	4	25	39317.36	4490 ^o _{5/2} - 43807 ^o _{3/2}
2583.456	4	20	38696.258	13250 ^o _{5/2} - 51946 ^o _{5/2}	2540.865	0	3	39344.858	12485 ^o _{7/2} - 51830 ^o _{7/2}
2582.939	0	4b	38704.003	7001 ^o _{3/2} - 45697 ^o _{3/2}	2540.360	2	10b	39352.679	8378 ^o _{7/2} - 47731 ^o _{9/2}
2582.099	2	20	38716.593	10673 ^o _{5/2} - 49377 ^o _{7/2}	2540.309	0	8b	39353.469	11116 ^o _{7/2} - 50470 ^o _{9/2}
2580.844	0	5	38735.419	15453 ^o _{7/2} - 54169 ^o _{7/2}	2538.931	10	20	39374.827	7331 ^o _{5/2} - 46706 ^o _{7/2}
2580.699	10	50	38737.595	9585 ^o _{5/2} - 48320 ^o _{5/2}	2538.832	0	5	39376.362	12570 ^o _{7/2} - 51946 ^o _{5/2}
2580.354	5	50	38742.774	4490 ^o _{5/2} - 43227 ^o _{5/2}	2538.680	0	3s	39378.719	14790 ^o _{7/2} - 54169 ^o _{7/2}
2580.264	0	15	38744.125	10379 ^o _{9/2} - 49121 ^o _{7/2}	2538.047	0	3	39388.540	10572 ^o _{9/2} - 49960 ^o _{7/2}
2579.768	0	5	38751.574	13818 ^o _{7/2} - 52562 ^o _{7/2}	2537.759	0	10l	39393.010	12472 ^o _{5/2} - 51865 ^o _{3/2}
2579.437	15	75b	38756.55	12902 ^o _{3/2} - 51653 ^o _{1/2}	2535.873	4	20	39422.306	7001 ^o _{3/2} - 46423 ^o _{3/2}
2578.958	2	25	38763.744	4490 ^o _{5/2} - 43246 ^o _{7/2}	2534.589	4	10	39442.275	6168 ^o _{7/2} - 45610 ^o _{3/2}
2578.619	0	10	38768.840	13406 ^o _{3/2} - 52170 ^o _{11/2}	2534.193	0	3	39448.438	11576 ^o _{9/2} - 51024 ^o _{3/2}
2578.238	0	4	38774.569	9238 ^o _{9/2} - 48006 ^o _{9/2}	2534.091	0	20	39450.026	12485 ^o _{7/2} - 51935 ^o _{5/2}
2576.910	10	50	38794.550	17460 ^o _{5/2} - 56235 ^o _{3/2}	2533.871	0	15	39453.451	6244 ^o _{1/2} - 45697 ^o _{3/2}
2576.688	25	75	38797.892	1859 ^o _{3/2} - 40654 ^o _{3/2}	2533.224	0	10	39463.527	12472 ^o _{5/2} - 51935 ^o _{5/2}
2576.322	0	75	38803.404	4146 ^o _{7/2} - 42944 ^o _{7/2}	2533.152	0	5	39464.648	14545 ^o _{5/2} - 54010 ^o _{7/2}
2576.209	0	8	38805.105	13468 ^o _{9/2} - 52272 ^o _{7/2}	2532.432	5	25	39475.86	6213 ^o _{9/2} - 45689 ^o _{7/2}
2574.485	15	5	38831.10	10572 ^o _{9/2} - 49377 ^o _{7/2}	2531.883	0	10	39484.427	16906 ^o _{7/2} - 56391 ^o _{7/2}
2573.631	0	10	38843.974	4113 ^o _{5/2} - 42944 ^o _{7/2}	2527.877	0	15	39546.995	11116 ^o _{7/2} - 50663 ^o _{5/2}
2570.653	0	50	38888.970	11116 ^o _{7/2} - 49960 ^o _{7/2}	2526.343	3	25	39571.007	7331 ^o _{5/2} - 46902 ^o _{5/2}
2566.916	0	25	38945.583	16033 ^o _{5/2} - 54922 ^o _{3/2}	2526.223	3b	15	39572.88	6691 ^o _{3/2} - 46264 ^o _{3/2}
2566.588	50	100	38950.559	8378 ^o _{7/2} - 47324 ^o _{5/2}	2525.925	0	25	39577.554	9711 ^o _{7/2} - 49289 ^o _{5/2}
2565.593	75	100	38965.665	1521 ^o _{5/2} - 40472 ^o _{3/2}	2524.229	2l	3	39604.144	7331 ^o _{5/2} - 46935 ^o _{3/2}
2562.675	0	8	39010.030	1859 ^o _{3/2} - 40825 ^o _{1/2}	2522.775	5	15	39626.969	4146 ^o _{7/2} - 43773 ^o _{7/2}
2561.938	0	75	39021.251	11725 ^o _{1/2} - 50735 ^o _{3/2}	2522.713	0	4	39627.942	8378 ^o _{7/2} - 48006 ^o _{9/2}
2561.149	0	25	39033.272	6168 ^o _{7/2} - 45189 ^o _{5/2}	2521.777	0	5	39642.650	9202 ^o _{7/2} - 48844 ^o _{9/2}
2560.934	2	75	39036.549	12902 ^o _{3/2} - 51935 ^o _{5/2}	2520.660	8	75	39660.216	4113 ^o _{3/2} - 43773 ^o _{7/2}
2559.793	0	10	39053.947	14484 ^o _{11/2} - 53520 ^o _{9/2}	2519.848	0	20	39672.995	17272 ^o _{9/2} - 56945 ^o _{11/2}
2558.328	0	10b	39076.310	7331 ^o _{5/2} - 46385 ^o _{7/2}	2519.288	0	3	39681.813	12488 ^o _{9/2} - 52170 ^o _{11/2}
2557.024	0	4	39096.236	20310 ^o _{5/2} - 59387 ^o _{7/2}	2519.070	0	15	39685.247	6700 ^o _{9/2} - 46385 ^o _{7/2}
2556.480	0	10	39104.555	9202 ^o _{7/2} - 48298 ^o _{7/2}	2516.430	0	50	39726.878	12219 ^o _{3/2} - 51946 ^o _{5/2}
2554.649	5	2	39132.58	9585 ^o _{5/2} - 48689 ^o _{3/2}	2515.997	0	3	39733.715	15305 ^o _{9/2} - 55038 ^o _{9/2}
2553.243	4	25	39154.128	1521 ^o _{5/2} - 40654 ^o _{3/2}	2515.853	0	5	39735.989	6168 ^o _{7/2} - 45904 ^o _{9/2}
				7001 ^o _{3/2} - 46155 ^o _{5/2}	2511.414	0	8	39806.219	17272 ^o _{9/2} - 57078 ^o _{9/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
2511.159	5	10	39810.261	4490 ^o _{5/2} - 44300 _{3/2}	2460.168	0	2	40635.335	9202 ^o _{7/2} - 49837 _{9/2}
2509.969	3	20	39829.134	9585 ^o _{5/2} - 49414 _{3/2}	2459.008	8	25	40654.503	0 _{3/2} - 40654 ^o _{5/2}
2509.707	0	8	39833.291	12902 _{3/2} - 52735 _{3/2}	2458.015	0	5	40670.925	9202 ^o _{7/2} - 49873 _{5/2}
2507.924	10	251	39861.609	0 _{3/2} - 39861 ^o _{5/2}	2457.746	2b	10	40675.376	4146 _{7/2} - 44821 ^o _{5/2}
2505.611	8	25	39898.404	4490 ^o _{5/2} - 44388 _{5/2}	2456.865	3	25	40689.961	8378 ^o _{7/2} - 49068 _{5/2}
2504.279	10b	75	39919.62	8378 ^o _{7/2} - 48298 _{7/2}	2456.380	5	10	40697.994	1521 _{5/2} - 42219 ^o _{5/2}
2502.339	0	4	39950.570	11725 ^o _{1/2} - 51676 _{3/2}	2456.290	4b	50	40699.485	4490 ^o _{5/2} - 45189 _{5/2}
2499.696	0	5	39992.808	7331 ^o _{5/2} - 47324 _{5/2}	2455.904	0	5	40705.882	14790 ^o _{5/2} - 55496 _{9/2}
2498.873	8	75	40005.979	6700 ^o _{9/2} - 46706 _{7/2}	2454.890	5	5	40722.694	9238 ^o _{9/2} - 49960 _{7/2}
2498.405	8	20	40013.472	4490 ^o _{5/2} - 44503 _{7/2}	2454.195	0	3	40734.225	6168 ^o _{7/2} - 46902 _{5/2}
2496.522	2	10	40043.650	15453 ^o _{7/2} - 55496 _{9/2}	2449.087	5	20	40819.178	11116 ^o _{7/2} - 51935 _{5/2}
2496.014	1	5	40051.800	13468 ^o _{9/2} - 53520 _{9/2}	2448.694	0	4	40825.729	0 _{3/2} - 40825 ^o _{7/2}
2495.563	0	4	40059.038	10572 ^o _{9/2} - 50631 _{11/2}	2444.463	10	25	40896.386	15786 _{5/2} - 56683 ^o _{7/2}
2495.454	0	4	40060.787	9061 _{5/2} - 49121 ^o _{7/2}				1521 _{5/2} - 42418 ^o _{5/2}	
2495.354	8	75	40062.39	4490 ^o _{5/2} - 44552 _{5/2}	2443.953	10	15	40904.920	4490 ^o _{5/2} - 45395 _{7/2}
2494.775	1	10	40071.690	8460 _{3/2} - 48532 ^o _{1/2}	2437.536	0	75	41012.597	14484 ^o _{11/2} - 55496 _{9/2}
2494.452	0	3	40076.878	12485 ^o _{7/2} - 52562 _{7/2}	2436.353	0	5	41032.510	12488 ^o _{9/2} - 53520 _{9/2}
2494.416	0	4	40077.457	11576 ^o _{3/2} - 51653 _{1/2}	2432.847	8	50	41091.638	10855 _{7/2} - 51946 ^o _{5/2}
2493.616	2	10	40090.313	12472 ^o _{5/2} - 52562 _{7/2}	2431.140	8	8	41120.488	4490 ^o _{5/2} - 45610 _{5/2}
2492.538	0	8	40107.651	11116 ^o _{7/2} - 51224 _{9/2}	2429.041	0	8	41156.019	6168 ^o _{7/2} - 47324 _{5/2}
2490.596	2	8	40138.921	19248 ^o _{5/2} - 59387 _{7/2}	2426.927	0	10	41191.865	10673 ^o _{5/2} - 51865 _{5/2}
2490.104	0	15	40146.852	15349 ^o _{11/2} - 55496 _{9/2}	2423.665	0	75	41247.301	13250 _{5/2} - 54497 ^o _{7/2}
2489.736	4	15	40152.785	9720 ^o _{7/2} - 49873 _{5/2}	2422.457	2	3	41267.868	9202 ^o _{7/2} - 50470 _{9/2}
2489.607	10	100	40154.866	6213 _{9/2} - 46368 ^o _{3/2}	2422.246	3	8	41271.463	8018 _{7/2} - 49289 ^o _{5/2}
2488.554	0	5	40171.856	16906 ^o _{7/2} - 57078 _{9/2}	2419.979	0	5	41310.122	4490 ^o _{5/2} - 45800 _{5/2}
2488.087	2	15	40179.395	6244 _{1/2} - 46423 ^o _{5/2}	2418.074	5	10	41342.665	4146 _{7/2} - 45489 _{9/2}
2487.322	0	8	40191.752	13818 ^o _{7/2} - 54010 _{7/2}	2418.407	25	50	41422.606	1521 _{5/2} - 42944 ^o _{7/2}
2486.691	0	4	40201.950	16033 ^o _{5/2} - 56235 _{3/2}	2412.043	0	4	41446.029	11116 ^o _{7/2} - 52562 _{7/2}
2486.126	3	25	40211.085	6691 ^o _{9/2} - 46902 _{5/2}	2411.291	0	25	41458.954	8378 ^o _{7/2} - 49837 _{9/2}
2485.764	0	5	40216.941	6168 ^o _{7/2} - 46385 _{7/2}	2411.143	0	4	41461.498	9202 ^o _{7/2} - 50663 _{5/2}
2485.055	2	20	40228.42	9061 _{5/2} - 49289 ^o _{5/2}	2407.574	5	8b	41522.956	1859 _{3/2} - 43382 ^o _{5/2}
2484.330	0	4	40240.153	9720 ^o _{7/2} - 49960 _{7/2}	2407.480	0	4b	41524.577	12485 ^o _{7/2} - 54010 _{7/2}
2484.074	0	10	40244.300	6691 ^o _{3/2} - 46935 _{3/2}	2407.137	10	10	41530.494	7001 _{3/2} - 48532 ^o _{7/2}
2483.955	2	10	40246.228	11116 ^o _{7/2} - 51362 _{5/2}	2406.704	0	10b	41537.965	12472 ^o _{5/2} - 54010 _{7/2}
2483.489	0	4	40253.779	15242 ^o _{9/2} - 55496 _{9/2}	2404.497	0	50	41576.088	4113 _{5/2} - 45689 ^o _{7/2}
2482.892	0	5	40263.457	12472 ^o _{5/2} - 52735 _{3/2}	2404.171	10	50	41581.72	8378 ^o _{7/2} - 49960 _{7/2}
2481.813	2	5	40280.961	10189 ^o _{11/2} - 50470 _{9/2}	2401.635	0	3	41625.630	15453 ^o _{7/2} - 57078 _{9/2}
2481.405	2	25	40287.584	9585 ^o _{5/2} - 49873 _{5/2}	2401.413	0	3	41629.478	6691 ^o _{3/2} - 48320 _{5/2}
2479.557	0	8	40317.608	4490 ^o _{5/2} - 44807 _{7/2}	2401.139	0	4	41634.228	10673 ^o _{5/2} - 52307 _{3/2}
2477.087	0	15	40357.807	16033 ^o _{5/2} - 56391 _{5/2}	2398.341	0	4	41682.796	9585 ^o _{5/2} - 51268 _{7/2}
2476.971	8	25	40359.697	1859 _{3/2} - 42219 ^o _{5/2}	2398.267	0	5	41684.083	12485 ^o _{7/2} - 54169 _{7/2}
2476.898	0	25	40360.886	14484 ^o _{11/2} - 54845 _{9/2}	2397.491	1	4	41697.573	12472 ^o _{5/2} - 54169 _{7/2}
2471.005	1	5	40457.135	6691 ^o _{3/2} - 47148 _{3/2}	2395.200	0	3	41737.454	7331 ^o _{5/2} - 49068 _{5/2}
2470.148	0	15	40471.170	6700 ^o _{9/2} - 47171 _{9/2}	2393.574	5	3	41765.805	1521 _{5/2} - 43287 ^o _{3/2}
2468.151	5	100	40503.913	4146 _{7/2} - 44650 ^o _{7/2}	2393.111	50	25	41773.88	4490 ^o _{5/2} - 46264 _{3/2}
2467.416	2	15	40515.978	8605 _{5/2} - 49121 ^o _{7/2}	2388.143	10	10	41860.779	1521 _{5/2} - 43382 ^o _{5/2}
2466.904	0	5	40524.386	15710 ^o _{9/2} - 56235 _{3/2}	2388.073	8	8	41862.006	4490 ^o _{5/2} - 46352 _{7/2}
2466.128	10r	50	40537.14	4113 _{5/2} - 44650 ^o _{7/2}	2386.179	0	3	41895.231	4490 ^o _{5/2} - 46385 _{7/2}
2466.065	5	8	40538.172	7331 ^o _{5/2} - 47869 _{3/2}	2384.358	5	20	41927.23	12570 _{7/2} - 54497 _{7/2}
2462.333	0	3	40599.609	9238 ^o _{9/2} - 49837 _{9/2}	2379.751	0	4	42008.386	12485 ^o _{7/2} - 54493 _{5/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
2377.830	25	100	42042.321	4113 _{5/2} - 46155 _{5/2}	2290.644	0	20	43642.388	10855 _{7/2} - 54497 _{7/2}
2375.076	15	25	42091.067	4490 _{5/2} - 46581 _{5/2}	2287.248	0	4	43707.181	6700 _{5/2} - 50407 _{7/2}
2373.991	1	4	42110.302	9720 _{7/2} - 51830 _{7/2}	2285.315	5	5	43744.147	0 _{3/2} - 43744 _{1/2}
2373.840	15	50	42112.981	0 _{3/2} - 42112 _{3/2}	2282.362	0	5	43800.739	9720 _{5/2} - 53520 _{9/2}
2373.723	0	50	42115.057	4490 _{5/2} - 46603 _{5/2}	2281.965	4	20	43808.359	4490 _{5/2} - 48298 _{7/2}
2372.043	2	8	42144.882	17272 _{5/2} - 59387 _{7/2}	2280.425	20	50	43837.941	1859 _{3/2} - 45697 _{3/2}
2371.155	0	5	42160.664	9720 _{7/2} - 51865 _{5/2}	2277.538	0	3	43893.504	8378 _{7/2} - 52272 _{7/2}
2368.047	15	25	42215.994	9202 _{7/2} - 51362 _{5/2}	2276.922	0	5	43905.378	12485 _{7/2} - 56391 _{5/2}
2367.842	50	100	42219.649	4490 _{5/2} - 46706 _{7/2}	2275.594	0	3	43930.998	6700 _{5/2} - 50631 _{11/2}
				0 _{3/2} - 42219 _{5/2}	2271.931	5	8	44001.821	4490 _{5/2} - 48492 _{5/2}
2367.725	0	3	42221.735	4146 _{7/2} - 46368 _{9/2}	2270.403	0	3	44031.431	7331 _{5/2} - 51362 _{5/2}
2366.991	10	100	42234.83	9711 _{7/2} - 51946 _{5/2}	2265.919	3	20b	44118.557	10379 _{9/2} - 54497 _{7/2}
2366.040	10	20	42251.801	1521 _{5/2} - 43773 _{7/2}	2263.408	5	15	44167.497	1521 _{5/2} - 45689 _{7/2}
2364.194	3	10	42284.789	6168 _{5/2} - 48453 _{7/2}	2261.759	0	4	44199.695	4490 _{5/2} - 48689 _{3/2}
2364.025	0	25	42287.812	8378 _{7/2} - 50663 _{5/2}	2255.536	0	3	44321.630	12570 _{7/2} - 56892 _{5/2}
2362.759	3	5	42310.469	6244 _{7/2} - 48532 _{1/2}	2245.131	0	3	44527.018	7001 _{5/2} - 51528 _{3/2}
2362.021	0	4	42323.687	4113 _{5/2} - 46423 _{3/2}	2243.275	8	20	44563.855	1859 _{3/2} - 46423 _{3/2}
2360.533	0	3	42350.365	6168 _{7/2} - 48492 _{5/2}	2238.629	0	4	44566.333	10189 _{11/2} - 54845 _{9/2}
2356.758	10	10	42418.20	9585 _{5/2} - 51935 _{5/2}	2230.360	10	20	44821.879	0 _{3/2} - 44821 _{5/2}
				0 _{3/2} - 42418 _{3/2}	2225.268	0	5	44924.433	4490 _{5/2} - 49414 _{3/2}
2355.242	15	20	42445.496	4490 _{5/2} - 46935 _{3/2}	2222.430	0	3	44981.795	6700 _{5/2} - 51681 _{9/2}
2355.003	0	4	42449.803	12472 _{5/2} - 54922 _{3/2}	2222.287	0	3	44984.689	6691 _{3/2} - 51676 _{3/2}
2354.030	8	25	42467.348	9061 _{5/2} - 51528 _{3/2}	2216.767	0	5	45096.695	9400 _{5/2} - 54497 _{7/2}
2349.686	0	4	42545.853	9400 _{5/2} - 51946 _{5/2}	2215.115	0	3	45130.324	6700 _{5/2} - 51830 _{7/2}
2349.344	0	3	42552.046	9720 _{7/2} - 52272 _{7/2}	2214.539	1	15	45142.061	8378 _{7/2} - 53520 _{9/2}
2343.494	0	10	42658.259	4490 _{5/2} - 47148 _{3/2}	2212.980	0	3	45173.859	6691 _{3/2} - 51865 _{5/2}
2343.242	1	5	42662.846	9202 _{7/2} - 51865 _{5/2}	2210.648	5	20	45221.508	0 _{3/2} - 45221 _{5/2}
2342.873	0	5	42669.565	14275 _{5/2} - 56945 _{11/2}	2207.592	0	5	45284.102	6244 _{1/2} - 51528 _{3/2}
2339.566	0	4	42729.873	10189 _{11/2} - 52918 _{13/2}	2206.445	0	5	45307.641	10189 _{11/2} - 55496 _{9/2}
2336.051	0	3	42794.163	6691 _{3/2} - 49485 _{1/2}	2200.186	2	10	45436.517	9061 _{3/2} - 54497 _{7/2}
2333.684	0	3	42837.564	13248 _{9/2} - 56086 _{9/2}	2198.736	1	10q	45466.478	8378 _{7/2} - 53845 _{5/2}
2333.258	3	10	42845.385	8378 _{7/2} - 51224 _{9/2}	2178.354	0	8	45891.845	8605 _{3/2} - 54497 _{7/2}
2330.868	4	25	42889.313	8378 _{7/2} - 51268 _{7/2}	2177.158	2	15	45917.053	4490 _{5/2} - 50407 _{7/2}
2329.057	0	10	42922.660	8605 _{3/2} - 51528 _{3/2}	2167.808	0	10	46115.076	8378 _{7/2} - 54493 _{5/2}
2326.920	50	50	42962.075	1859 _{3/2} - 44821 _{5/2}	2159.403	0	3	46294.549	9202 _{7/2} - 55496 _{9/2}
2325.729	0	8	42984.074	8378 _{7/2} - 51362 _{5/2}	2153.397	2	10	46423.655	0 _{3/2} - 46423 _{3/2}
2317.451	0	3	43137.602	6700 _{5/2} - 49837 _{9/2}	2151.412	0	10	46466.483	8378 _{7/2} - 54845 _{9/2}
2308.754	0	3	43300.085	1521 _{5/2} - 44821 _{5/2}	2148.266	0	5	46534.522	4490 _{5/2} - 51024 _{3/2}
2308.590	4	15	43303.161	8378 _{7/2} - 51681 _{9/2}	2141.930	0	4	46672.160	1859 _{3/2} - 48532 _{1/2}
2306.573	1	8	43341.025	8605 _{3/2} - 51946 _{5/2}	2132.770	2	15	46872.588	4490 _{5/2} - 51362 _{5/2}
2305.545	0	8	43360.348	9202 _{7/2} - 52562 _{7/2}	2118.875	0	3	47179.930	9711 _{7/2} - 56892 _{5/2}
2305.474	25	25	43361.683	1859 _{3/2} - 45221 _{5/2}	2118.604	0	3	47185.964	4490 _{5/2} - 51676 _{3/2}
2304.534	2	4	43379.368	4490 _{5/2} - 47869 _{3/2}	2111.708	0	10	47340.036	4490 _{5/2} - 51830 _{7/2}
2300.695	0	10	43451.746	8378 _{7/2} - 51830 _{7/2}	2110.148	0	4	47375.030	4490 _{5/2} - 51865 _{5/2}
2298.855	3	15	43486.521	8460 _{3/2} - 51946 _{5/2}	2092.794	0	3	47767.828	1521 _{5/2} - 49289 _{5/2}
2298.732	0	4	43488.848	12902 _{5/2} - 56391 _{5/2}	2091.383	0	4	47800.052	4146 _{7/2} - 51946 _{5/2}
2297.596	0	5	43510.348	8018 _{3/2} - 51528 _{3/2}	2090.632	0	15	47817.221	4490 _{5/2} - 52307 _{3/2}
2297.491	0	75	43512.337	15786 _{3/2} - 59299 _{5/2}	2089.920	0	15	47833.509	4113 _{3/2} - 51946 _{5/2}
2295.141	0	3	43556.885	8378 _{7/2} - 51935 _{5/2}	2088.053	0	2	47876.273	9202 _{7/2} - 57078 _{9/2}
2291.974	0	4	43617.066	9061 _{3/2} - 52678 _{5/2}	2079.541	0	5	48072.217	4490 _{5/2} - 52562 _{7/2}

TABLE 3. *Classified lines of Th II—Continued*

Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification	Wavelength Å	Intensity		Wavenumber cm ⁻¹	Classification
	Lamp	Spark				Lamp	Spark		
2072.081	0	3	48245.266	4490 ^o _{5/2} — 52735 ^o _{3/2}					
2059.848	0	8	48531.747	4146 ^o _{7/2} — 52678 ^o _{5/2}					
2028.185	0	3	49289.296	0 ^o _{3/2} — 49289 ^o _{5/2}					
1999.098	0	3	50006.353	1521 ^o _{5/2} — 51528 ^o _{3/2}					
1995.888	0	10	50086.766	1859 ^o _{3/2} — 51946 ^o _{5/2}					