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SECOND SPECTRUM OF XENON[1]

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ABSTRACT

The description of the various xenon spectra excited in condensed Geissler-tube discharges has been improved and extended to include about 2,600 lines ranging from 2200 to 10200 A in wave length. The use of the method employed in the investigation of analogous spectra, that is, of noting intensity changes accompanying variations of inductance in the electrical circuit, has led to the selection of the lines belonging to the second spectrum of xenon (Xe II) characteristic of once-ionized xenon atoms (Xe^+). This description of Xe II includes estimates of relative intensities, wave-length measurements, and wave numbers for 1,200 lines, the list being abridged somewhat by the omission of very faint lines. 633 lines are classified as transitions between 103 energy levels, 75 of which have been more or less definitely identified with quantum numbers and electron configurations. Revisions and extensions of an earlier preliminary analysis are incorporated into the paper.

The $5s^2\,5p^5$ electron configuration of the Xe^+ ion in its normal state is represented by a previously known doublet P term with a level separation of 10537.3 cm^{-1}. The excited states, described by doublet and quartet terms, are built upon the ^3P, ^1D, and ^1S states of Xe III by the addition of *ns*, *np*, *nd*, or *nf* electrons to the $5s^2\,5p^4$ group constituting the outer structure of the doubly charged atom (Xe^{++}). Nearly all levels of excited states with lowest *n* values are accounted for. Quantum designations are given for most of the higher even levels. The use of extensive extreme-ultraviolet data, furnished by J. C. Boyce, which contain the combinations of even terms with the low doublet, has aided greatly in the location and confirmation of these levels. Limitations on the meaning of the quantum symbols imposed as a result of configuration interactions and approximate realization of *jj* coupling are discussed.

CONTENTS

I. INTRODUCTION

The spectra of the noble gases of the atmosphere have been the subject of an extensive series of investigations by members of the Spectroscopy Section of the National Bureau of Standards. These

[1] A report on this investigation was presented at the Washington meeting of the American Physical Society, April 1938. Phys. Rev. **53**, 940 (1938).

investigations, which have dealt principally with krypton and xenon, have included observations of the spectra of various stages of excitation throughout the wave-length range accessible to photography in air, preparation of descriptions of these spectra, comprising wave lengths in air, wave numbers in vacuum, estimated intensities and notes on the character of the lines, and, finally, the classification of the lines of the various spectra as transitions among the energy levels characteristic of the respective atoms. Spectra originating in neutral atoms, and in singly ionized and doubly ionized atoms have been studied. The investigation here reported is the last needed to complete the set of descriptions and analyses of the following spectra: Kr I, Kr II, and Kr III, and Xe I, Xe II, and Xe III. The title of this paper refers specifically to Xe II, the spectrum of singly ionized xenon, as distinguished from the composite spectrum of successive stages excited when the discharge circuit contains a spark gap and condensers. In old papers the word "second spectrum" is frequently used in the latter sense.

An account of earlier work on xenon spectra is given in a paper on the first spectrum by Meggers, deBruin, and the author, published in 1929 [1].[2] Subsequent to the preparation of a description of xenon spectra excited in Geissler-tube discharges with condensers and spark gap in the circuit, the same authors published in 1931 [2] a brief paper on Xe II. The low doublet, $s^2p^5\ ^2P$, having a separation of 10537.3 cm^{-1} and 30 higher levels, together with quantum-number assignments, were reported. Revision of this work has resulted in the retention of 20 of these levels with some changes of assignment. The present paper incorporates these revisions and contains a description consisting of wave lengths, wave numbers, and intensity estimates of 1,200 lines. Classifications are given for 633 of these lines as transitions among 103 levels. In the interim since the appearance of the preliminary publication, the wave-length data have been improved by additional observations with instruments of higher resolving power than those previously used and have been extended to beyond 10000 A in the infrared by use of new photographic materials.

It was intended originally by those who had collaborated previously in the program of investigations of noble-gas spectra that the analysis of Xe II should be brought to a state of completion comparable with that of Kr II reported by deBruin, Humphreys, and Meggers in 1933 [3]. This expectation has been substantially realized. The number of observed and measured lines is somewhat greater for Xe II, a feature attributable in part to extensive observations with recently discovered sensitizing agents for extending the range of photographically recorded spectra in the infrared, but mainly because of inherently greater complexity in the spectra of heavier atoms. The number of discovered energy levels whose reality seems beyond question and the number of lines classified as transitions between such levels is slightly less for Xe II, the relative number being about 80 percent for both levels and classified lines.

A Zeeman-effect analysis was included in the Kr II paper. The assignment of quantum numbers to the levels of Xe II was made without the aid of Zeeman effects. After completion of the analysis in essentially its present form, about 70 Zeeman-effect patterns were made available through the kindness of T. L. deBruin, who made the

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[2] Numbers in brackets indicate the literature references at the end of this paper.

observations at the laboratory "Physica" in Amsterdam. A study of these patterns, which made possible the computation of g values for many of the low terms, did not indicate any important changes of assignment. In only one instance was a correction made. It was decided, therefore, to publish the analysis without Zeeman effects.

II. OBSERVATIONS AND WAVE-LENGTH MEASUREMENTS

1. SOURCES

Geissler tubes operated by alternating-current transformers have been used exclusively as sources for the production of xenon spectra in this investigation. Tubes manufactured by Robert Gotze in Leipzig were used for all the recent observations. In some cases these had been refilled after they had become inoperative because of the occlusion of xenon resulting from sputtering of the electrodes. These tubes are so constructed as to permit end-on exposure, and, when operated with condensers and spark gap in the circuit, thus producing the spectra of ionized xenon, give a very brilliant discharge. Exposures of only a few minutes, using 21-foot grating mountings, were sufficient to record the spectrum in the regions of strongest emission for Xe II, the strongest lines of which, barring the extreme ultraviolet lines involving the normal state, are within the range of visible radiation.

2. SPECTROGRAPHS

The compilation of wave lengths of all observed lines in the composite xenon spectrum from condensed park discharges contains about 2600 entries, beginning at 2230 A in the ultraviolet and extending to 10220 A in the infrared. The ultraviolet region was observed, using quartz tubes along with a Hilger E_1 spectograph. It was found possible to extend grating observations down to 2575 A with the extremely thin-walled Gotze glass tubes. Consequently, all wave lengths greater than 2575 A are based on grating observations.

Most of the observations were made with the 21-foot radius, 20,000 lines-per-inch Rowland grating. For wave lengths greater than 8000 A the 7,500 lines-per-inch Anderson grating was used. These infrared observations have been extended whenever new sensitizing agents became available. Eastman Z–type plates being used in the most recent exposures. During the past year the Bureau obtained a new 30,000 lines-per-inch grating. A series of observations in the visible region was made with this instrument in order to improve the wave lengths.

3. SEPARATION OF Xe II FROM OTHER XENON SPECTRA

The method of separating higher spark spectra from the spectrum of the singly ionized atom by noting the intensity changes accompanying the introduction of inductance into the discharge circuit has been discussed in previous publications, particularly in the paper on Xe III [4]. The effect of inductance is to weaken or suppress the higher spark lines or, in general, those requiring greater excitation energy. The behavior of an electrodeless discharge source may also be used to differentiate between stages of excitation. Here the essential criteria are the effect of pressure and applied voltage on relative line intensities and the spatial distribution of ions in the tube, as indicated by the length of the lines when end-on illumination of a long slit is utilized. Lines of the first spark spectrum appear as short lines originating in the center of the tube; whereas, lines of the second or higher spark spectra are long lines whose emitters have greater population near the walls. Bloch, Bloch, and Déjardin [5] observed about 1,000 xenon spark lines, using the electrodeless discharge and noted the spectrum to which each line was assigned. The essential agreement of what we may call the roman-numeral classification made from the Bureau's data with the separation made by Bloch, Bloch, and Déjardin has been noted [4]. As determined by the final term analysis, it is more satisfactory for Xe II than for Xe III. It was estimated in the publication on Xe III [4] that three-fourths of the observed spark lines belonged to Xe II. Following the intensive examination of the wave-length list required in making the term analysis of Xe II, any revision of this estimate would be downward, although Xe II lines are clearly more abundant than those of all higher spectra taken together. The estimate is made difficult by the several hundred faint unclassified lines of uncertain origin. Furthermore, it was not feasible to test the effect of inductance on infrared lines beyond 8000 A because of the length of exposures required.

4. DESCRIPTION OF Xe II

The list of lines selected for publication is assembled in table 1, which gives estimated intensity, wave length in air, wave number in vacuum, and the levels involved in the transition for each classified line. The intensity estimates are given in two columns, the first being the intensity indicated with inductance; the second, without inductance. The intensities are comparable only over short ranges. Lines marked 1- are so faint as to be just barely measurable. The intensity estimates are in some cases accompanied by symbols which are explained as follows: *h* indicates that the line is hazy or diffuse; *H* very hazy; *l*, unsymmetrical and shaded towards longer wave lengths; *s*, unsymmetrical and shaded toward shorter wave lengths; *w*, wide; and *d*, double. Combinations of these symbols of obvious meaning are used, such as *hw* or *hl*. The table contains 1,200 entries, including all well-observed lines for which there is any reasonable probability of origin in Xe II ions. A small number of lines are included which show behavior with inductance contrary to that expected for Xe II. These are marked by an asterisk (*) and are, in all cases, lines attributed to Xe II by Bloch, Bloch, and Déjardin [5]. Because of the very poor agreement of the wave lengths of these observers with ours, the same line may not be under consideration in every instance. The list of Xe III lines published [4] included only those which could be classified as transitions between known levels. Following the publication of the list contained in table 1, there remain in our description about 1,100 lines, of which at least 450 originate in Xe III or higher spectra, the balance being very faint lines of uncertain origin. The latter group for the most part are observed only once and the wave lengths cannot be measured precisely.

TABLE 1.—*List of* Xe II *lines*

Intensity		Wave length (air)	Wave number (vac)	Transition
1*h*		2230. 79	44813. 2	$(^{3}P)\ 5d\ ^{4}D_{2\frac{1}{2}}-(^{1}S)\ 6p\ ^{2}P^{\circ}_{1\frac{1}{2}}$
2*h*		2241. 86	44591. 9	$(^{3}P)\ 5d\ ^{4}D_{3\frac{1}{2}}-15^{\circ}_{2\frac{1}{2}}$
4		2249. 86	44433. 4	$(^{3}P)\ 6s\ ^{4}P_{1\frac{1}{2}}-9^{\circ}_{1\frac{1}{2}}$
1*h*		2256. 56	44301. 5	$(^{3}P)\ 5d\ ^{4}D_{1\frac{1}{2}}-19^{\circ}_{1\frac{1}{2}}$
1*h*		2259. 22	44249. 1	$(^{3}P)\ 5d\ ^{4}D_{2\frac{1}{2}}-11^{\circ}_{2\frac{1}{2}}$
2		2262. 95	44176. 4	$(^{3}P)\ 5d\ ^{4}D_{1\frac{1}{2}}-(^{1}S)\ 6p\ ^{2}P^{\circ}_{1\frac{1}{2}}$
2		2264. 20	44152. 0	$(^{3}P)\ 5d\ ^{4}D_{1\frac{1}{2}}-17^{\circ}_{0\frac{1}{2}}$
3*h*		2265. 62	44124. 4	$(^{3}P)\ 6s\ ^{2}P_{0\frac{1}{2}}-31^{\circ}_{1\frac{1}{2}}$
2*h*		2265. 94	44118. 1	$(^{3}P)\ 6s\ ^{4}P_{1\frac{1}{2}}-7^{\circ}_{1\frac{1}{2}}$
3*h*		2266. 80	44101. 4	$(^{3}P)\ 5d\ ^{4}D_{2\frac{1}{2}}-9^{\circ}_{1\frac{1}{2}}$
1*h*		2268. 72	44064. 1	$(^{3}P)\ 6s\ ^{4}P_{1\frac{1}{2}}-5^{\circ}_{1\frac{1}{2}}$
2*h*		2285. 24	43746. 6	
8	2	2285. 94	43732. 2	$(^{3}P)\ 5d\ ^{4}D_{2\frac{1}{2}}-5^{\circ}_{1\frac{1}{2}}$
2*h*		2290. 84	43638. 6	$(^{3}P)\ 5d\ ^{2}P_{1\frac{1}{2}}-33^{\circ}_{1\frac{1}{2}}$
20	7	2292. 40	43608. 9	$(^{3}P)\ 5d\ ^{4}D_{2\frac{1}{2}}-3^{\circ}_{3\frac{1}{2}}$
15	5	2294. 57	43567. 7	$(^{3}P)\ 5d\ ^{4}D_{3\frac{1}{2}}-3^{\circ}_{3\frac{1}{2}}$
30	8	2296. 52	43530. 7	
2*h*		2299. 36	43476. 9	$(^{3}P)\ 5d\ ^{4}D_{0\frac{1}{2}}-19^{\circ}_{1\frac{1}{2}}$
6	2	2299. 98	43465. 2	$(^{3}P)\ 5d\ ^{4}D_{1\frac{1}{2}}-9^{\circ}_{1\frac{1}{2}}$
1*h*		2304. 60	43378. 1	$(^{1}D)\ 6s\ ^{2}D_{1\frac{1}{2}}-39^{\circ}_{1\frac{1}{2}}$
3	1	2307. 28	43327. 7	$(^{3}P)\ 5d\ ^{4}D_{0\frac{1}{2}}-17^{\circ}_{0\frac{1}{2}}$
5	1	2313. 70	43207. 5	$(^{3}P)\ 5d\ ^{4}P_{2\frac{1}{2}}-37^{\circ}_{2\frac{1}{2}}$
10	3	2316. 80	43149. 7	$(^{3}P)\ 5d\ ^{4}D_{1\frac{1}{2}}-7^{\circ}_{1\frac{1}{2}}$
7	2	2319. 70	43095. 8	$(^{3}P)\ 5d\ ^{4}D_{1\frac{1}{2}}-5^{\circ}_{1\frac{1}{2}}$
2*h*		2335. 42	42805. 7	$(^{3}P)\ 5d\ ^{4}P_{2\frac{1}{2}}-35^{\circ}_{2\frac{1}{2}}$
3*h*		2342. 18	42682. 2	
12	4	2344. 47	42640. 5	$(^{3}P)\ 5d\ ^{4}D_{0\frac{1}{2}}-9^{\circ}_{1\frac{1}{2}}$
4*h*		2351. 18	42518. 8	
4*h*		2351. 56	42493. 9	
1*h*		2353. 52	42476. 5	$(^{3}P)\ 5d\ ^{4}P_{2\frac{1}{2}}-33^{\circ}_{1\frac{1}{2}}$
1*h*		2353. 89	42469. 9	
1*h*		2356. 25	42427. 3	$(^{3}P)\ 5d\ ^{4}P_{0\frac{1}{2}}-31^{\circ}_{1\frac{1}{2}}$
4*h*	1	2356. 72	42418. 9	
1*h*		2360. 42	42352. 4	
1*h*		2362. 60	42313. 3	$(^{3}P)\ 6s\ ^{4}P_{0\frac{1}{2}}-23^{\circ}_{1\frac{1}{2}}$
5	1	2368. 68	42204. 7	$(^{3}P)\ 6s\ ^{4}P_{1\frac{1}{2}}-1^{\circ}_{1\frac{1}{2}}$
4*h*	1	2369. 62	42188. 0	
1*h*		2378. 04	42038. 6	
1		2385. 85	41901. 0	$(^{3}P)\ 5d\ ^{4}P_{2\frac{1}{2}}-31^{\circ}_{1\frac{1}{2}}$
2*h*		2386. 14	41895. 9	
4	1	2387. 75	41867. 6	$sp^{6}\ ^{2}S_{0\frac{1}{2}}-(^{1}D)\ 6p\ ^{2}P^{\circ}_{0\frac{1}{2}}$
2*h*		2392. 15	41790. 5	
2*h*		2392. 33	41787. 5	
4		2398. 76	41675. 5	$(^{3}P)\ 5d\ ^{2}D_{2\frac{1}{2}}-37^{\circ}_{2\frac{1}{2}}$
2*h*		2401. 79	41622. 9	$(^{3}P)\ 5d\ ^{4}P_{0\frac{1}{2}}-29^{\circ}_{1\frac{1}{2}}$
3*h*		2405. 92	41551. 5	$(^{1}D)\ 5d\ ^{2}F_{2\frac{1}{2}}-39^{\circ}_{1\frac{1}{2}}$
40	2	2409. 74	41485. 6	
7	1	2410. 72	41468. 8	$(^{3}P)\ 5d\ ^{2}P_{0\frac{1}{2}}-31^{\circ}_{1\frac{1}{2}}$
20*h*	1	2421. 27	41288. 1	
2		2422. 12	41273. 6	$(^{3}P)\ 5d\ ^{2}D_{2\frac{1}{2}}-35^{\circ}_{2\frac{1}{2}}$

TABLE 1.—*List of* Xe II *lines*—Continued

Intensity		Wave length (air)	Wave number (vac)	Transition
10	1	2422.94	41259.6	
40*h*	4	2425.05	41223.6	
12	2	2432.72	41093.8	$(^{3}P)\ 5d\ ^{4}P_{2½}-29^{\circ}_{1½}$
1	2	2435.12	41053.3	
6	1	2435.47	41047.4	$(^{3}P)\ 5d\ ^{2}D_{1½}-33^{\circ}_{1½}$
1-		2438.76	40992.0	$(^{3}P)\ 5d\ ^{4}P_{1½}-31^{\circ}_{1½}$
2*h*		2441.60	40944.3	$(^{3}P)\ 5d\ ^{2}D_{2½}-33^{\circ}_{1½}$
1H		2442.78	40924.5	
2*h*		2444.40	40897.4	
1-		2464.72	40560.3	
2*h*		2466.60	40529.4	
5	1	2468.43	40499.3	
5	1	2469.46	40482.4	
5	1	2470.18	40470.5	$(^{3}P)\ 5d\ ^{2}D_{1½}-31^{\circ}_{1½}$
100	12	2475.89	40377.0	
4		2478.82	40329.6	
50	5	2489.11	40162.9	$(^{3}P)\ 5d\ ^{4}P_{1½}-27^{\circ}_{2½}$
20	4	2490.76	40136.3	$(^{3}P)\ 5d\ ^{4}P_{1½}-25^{\circ}_{1½}$
5	1-	2491.78	40119.9	$(^{1}D)\ 6s\ ^{2}D_{2½}-37^{\circ}_{2½}$
8	8	2506.86	39878.5	
5	6	2514.29	39760.7	
12	12	2516.12	39731.8	
6	6	2519.17	39683.7	
3		2524.46	39600.5	$(^{3}P)\ 5d\ ^{4}F_{4½}-3^{\circ}_{3½}$
12	5	2526.79	39564.0	
12	5	2526.98	39561.0	$(^{3}P)\ 5d\ ^{2}D_{2½}-29^{\circ}_{1½}$
6	6	2528.49	39537.4	$(^{3}P)\ 5d\ ^{2}D_{2½}-27^{\circ}_{2½}$
2		2530.18	39512.0	$(^{3}P)\ 5d\ ^{2}D_{2½}-25^{\circ}_{1½}$
3H		2531.36	39492.6	
3*h*		2538.02	39389.0	$(^{1}D)\ 6s\ ^{2}D_{2½}-33^{\circ}_{1½}$
3*h*		2546.37	39259.8	
1-		2548.90	39221.8	
3	1-	2551.70	39177.8	$(^{3}P)\ 6s\ ^{4}P_{0½}-19^{\circ}_{1½}$
1-		2554.20	39139.5	$(^{3}P)\ 6s\ ^{4}P_{2½}-(^{1}D)\ 6p\ ^{2}D^{\circ}_{2½}$
3		2560.89	39037.2	
2		2561.48	39028.2	$(^{3}P)\ 6s\ ^{4}P_{0½}-17^{\circ}_{0½}$
15	4	2576.97	38793.6	$sp^{6}\ ^{2}S_{0½}-(^{1}D)\ 6p\ ^{2}P^{\circ}_{1½}$
1		2584.88	38675.0	$(^{3}P)\ 5d\ ^{4}F_{2½}-(^{1}S)\ 6p\ ^{2}P^{\circ}_{1½}$
1		2585.30	38668.7	
1		2594.64	38529.5	
	5	2596.86	38496.5	
4	4	2597.01	38494.3	$(^{3}P)\ 5d\ ^{4}F_{2½}-15^{\circ}_{2½}$
2	1	2598.42	38473.4	
50	10	2605.54	38368.3	
5	1	2606.93	38347.8	
1		2607.52	38339.2	$(^{3}P)\ 6s\ ^{4}P_{0½}-9^{\circ}_{1½}$
2*h*		2621.39	38136.3	
1*h*	1*h*	2621.74	38131.2	
5*h*	1	2629.54	38018.1	
6*h*	2	2630.40	38005.7	$(^{1}D)\ 6s\ ^{2}D_{2½}-29^{\circ}_{1½}$

TABLE 1.—*List of* Xe II *lines*—Continued

Intensity		Wave length (air)	Wave number (vac)	Transition
2[1]	2	2631.25	37993.4	$sp^6\ ^2S_{0\frac{1}{2}}-(^1D)\ 6p\ ^2F^\circ_{2\frac{1}{2}}$
2		2633.88	37955.5	$(^1D)\ 6s\ ^2D_{2\frac{1}{2}}-25^\circ_{1\frac{1}{2}}$
2		2634.20	37950.9	
2*h*	1	2655.39	37648.1	
5*h*	1	2657.00	37625.2	$(^1D)\ 5d\ ^2D_{1\frac{1}{2}}-33^\circ_{1\frac{1}{2}}$
1*h*		2659.28	37593.0	$(^3P)\ 5d\ ^4F_{2\frac{1}{2}}-5^\circ_{1\frac{1}{2}}$
3	2	2663.29	37536.4	$(^3P)\ 6s\ ^2P_{1\frac{1}{2}}-19^\circ_{1\frac{1}{2}}$
5	1	2668.02	37469.8	$(^3P)\ 5d\ ^4F_{2\frac{1}{2}}-3^\circ_{3\frac{1}{2}}$
1	1	2670.68	37432.5	
4	1	2672.22	37411.0	$(^3P)\ 6s\ ^2P_{1\frac{1}{2}}-(^1S)\ 6p\ ^2P^\circ_{1\frac{1}{2}}$
1*h*	1*h*	2673.80	37388.9	
50*h*	50	2677.18	37341.7	
1*h*	1*h*	2681.14	37286.5	
1*h*	1*h*	2682.75	37264.1	
1*h*	1*h*	2682.96	37261.2	
3*h*		2686.14	37217.1	$(^1S)\ 5d\ ^2D_{2\frac{1}{2}}-39^\circ_{1\frac{1}{2}}$
5	2	2687.03	37204.8	
1	1*h*	2689.70	37167.8	
1		2691.40	37144.4	}
	1	2691.53	37142.6	} $(^3P)\ 6s\ ^4P_{1\frac{1}{2}}-(^1D)\ 6p\ ^2D^\circ_{2\frac{1}{2}}$
1H	2H	2695.24	37091.4	
1*h*	3*h*	2699.16	37037.6	
2*h*		2701.60	37004.1	
2	1	2702.22	36995.6	$(^3P)\ 6s\ ^4P_{2\frac{1}{2}}-(^1D)\ 6p\ ^2F^\circ_{3\frac{1}{2}}$
2		2702.34	36994.0	$(^3P)\ 5d\ ^4P_{2\frac{1}{2}}-23^\circ_{1\frac{1}{2}}$
10	15	2703.44	36979.0	$(^1D)\ 5d\ ^2D_{2\frac{1}{2}}-37^\circ_{2\frac{1}{2}}$
1H	2H	2707.39	36925.0	
1*h*		2709.52	36896.0	}
	1*h*	2709.61	36894.8	}
1*h*		2709.89	36890.9	
1*h*	1*h*	2711.02	36875.6	
	2*h*	2711.65	36867.0	
1*h*		2711.88	36863.9	
1*h*		2713.40	36843.2	
	1*h*	2713.64	36840.0	
3	3	2715.76	36811.2	$(^3P)\ 5d\ ^4D_{2\frac{1}{2}}-(^1D)\ 6p\ ^2D^\circ_{2\frac{1}{2}}$
30	15	2717.35	36789.7	
1−		2718.79	36770.2	$(^3P)\ 5d\ ^4D_{3\frac{1}{2}}-(^1D)\ 6p\ ^2D^\circ_{2\frac{1}{2}}$
	1−	2721.28	36736.5	$(^3P)\ 6s\ ^2P_{0\frac{1}{2}}-21^\circ_{1\frac{1}{2}}$
	1	2723.40	36708.0	$(^3P)\ 5d\ ^4D_{1\frac{1}{2}}-(^1D)\ 6p\ ^2P^\circ_{0\frac{1}{2}}$
1−	1−	2725.66	36677.5	
1−		2731.46	36599.6	$(^3P)\ 6s\ ^4P_{2\frac{1}{2}}-(^1D)\ 6p\ ^2P^\circ_{1\frac{1}{2}}$
25*hs*	25*hs*	2733.15	36577.0	$(^1D)\ 5d\ ^2D_{2\frac{1}{2}}-35^\circ_{2\frac{1}{2}}$
50	50	2734.14	36563.8	$(^3P)\ 5d\ ^2P_{0\frac{1}{2}}-23^\circ_{1\frac{1}{2}}$
1−	1	2739.77	36488.6	
2H	2*h*	2743.16	36443.5	
2	1	2744.04	36431.9	
1−	1*h*	2746.77	36395.6	
	1	2747.68	36383.6	
1*h*	1	2748.79	36368.9	

[1] This is probably a fortuitous combination since the selection rule for inner quantum numbers is violated.

TABLE 1.—*List of* Xe II *lines*—Continued

Intensity		Wave length (air)	Wave number (vac)	Transition
1−	1	2756. 48	36267. 4	
40*h*	40*h*	2757. 86	36249. 3	$(^1D)\ 5d\ ^2D_{2\frac{1}{2}}-33^{\circ}_{1\frac{1}{2}}$
1−		2758. 36	36242. 7	$(^1D)\ 5d\ ^2D_{1\frac{1}{2}}-29^{\circ}_{1\frac{1}{2}}$
2		2762. 77	36184. 9	$(^3P)\ 6p\ ^4D^{\circ}_{2\frac{1}{2}}-(^1D)\ 6d\ ^2D_{2\frac{1}{2}}$
1	2	2763. 56	36174. 5	$(^3P)\ 5d\ ^4D_{1\frac{1}{2}}-(^1D)\ 6p\ ^2D^{\circ}_{2\frac{1}{2}}$
1	2*h*	2767. 00	36129. 6	$(^3P)\ 6p\ ^4P^{\circ}_{0\frac{1}{2}}-(^1D)\ 7s\ ^2D_{1\frac{1}{2}}$
2*h*	3	2770. 41	36085. 1	$(^3P)\ 6s\ ^2P_{0\frac{1}{2}}-19^{\circ}_{1\frac{1}{2}}$
5*h*	1	2773. 55	36044. 3	
15*h*	20	2774. 86	36027. 2	$(^1D)\ 6s\ ^2D_{1\frac{1}{2}}-33^{\circ}_{1\frac{1}{2}}$
2*h*	2H	2782. 73	35925. 4	
	1*h*	2783. 80	35911. 5	
1	1*h*	2784. 98	35896. 3	
3	4	2785. 42	35890. 7	$(^3P)\ 5d\ ^4D_{1\frac{1}{2}}-(^1D)\ 6p\ ^2D^{\circ}_{1\frac{1}{2}}$
2	1*h*	2789. 52	35837. 9	
1−		2792. 52	35799. 4	$(^3P)\ 6s\ ^4P_{2\frac{1}{2}}-(^1D)\ 6p\ ^2F^{\circ}_{2\frac{1}{2}}$
	1	2794. 68	35771. 8	
2*h*	6*hl*	2796. 49	35748. 6	
	30*h*	2797. 65	35733. 8	$(^3P)\ 5d\ ^4F_{2\frac{1}{2}}-1^{\circ}_{1\frac{1}{2}}$
	1*h*	2799. 69	35707. 7	
1*h*	2*h*	2802. 50	35671. 9	$(^1D)\ 5d\ ^2D_{2\frac{1}{2}}-31^{\circ}_{1\frac{1}{2}}$
5	1*h*	2803. 02	35665. 3	
2H	10H*l*	2807. 55	35607. 8	
4*h*	1	2808. 56	35595. 0	
1H	2H	2819. 02	35462. 9	$(^3P)\ 5d\ ^2D_{2\frac{1}{2}}-23^{\circ}_{1\frac{1}{2}}$
4*h*	10*h*	2820. 06	35449. 8	$(^1D)\ 6s\ ^2D_{1\frac{1}{2}}-31^{\circ}_{1\frac{1}{2}}$
1	1	2824. 63	35392. 5	
1*h*	2*h*	2825. 34	35383. 6	
5H	20H*l*	2826. 94	35363. 5	
2*h*	8*h*	2827. 90	35351. 5	
1*h*	2*h*	2828. 69	35341. 7	
1*h*		2829. 04	35337. 3	
1*h*	1*h*	2830. 24	35322. 3	
1H	2*hl*	2830. 89	35314. 2	
2*h*	2*h*	2832. 00	35300. 4	
2	3*h*	2832. 46	35293. 6	
1*h*	2	2836. 16	35248. 6	$(^3P)\ 6s\ ^2P_{0\frac{1}{2}}-9^{\circ}_{1\frac{1}{2}}$
3	1	2838. 85	35215. 2	
2	1	2839. 57	35206. 3	
1*hs*	3*hs*	2841. 81	35178. 5	
5	1	2844. 45	35145. 9	
8	1−	2845. 92	35127. 7	
3H	15*h*	2846. 48	35120. 8	
8	1	2849. 66	35081. 6	
3	5	2850. 95	35065. 8	$(^3P)\ 5d\ ^4D_{0\frac{1}{2}}-(^1D)\ 6p\ ^2D^{\circ}_{1\frac{1}{2}}$
3*h*	4*h*	2852. 39	35048. 0	
1	2*h*	2853. 11	35039. 2	$(^3P)\ 5d\ ^4P_{0\frac{1}{2}}-21^{\circ}_{1\frac{1}{2}}$
60	60	2854. 53	35021. 8	$(^3P)\ 5d\ ^2P_{1\frac{1}{2}}-19^{\circ}_{1\frac{1}{2}}$
2	1*h*	2856. 65	34995. 8	
1*h*	2*h*	2857. 32	34987. 6	
1−	1	2859. 02	34966. 8	

TABLE 1.—*List of* Xe II *lines*—Continued

Intensity		Wave length (air)	Wave number (vac)	Transition
1	1−	2859. 54	34960. 4	
20*h*	20	2861. 90	34931. 6	$(^1D)\ 5d\ ^2F_{2\frac{1}{2}}-37^{\circ}_{2\frac{1}{2}}$
150	200	2864. 73	34897. 1	$(^3P)\ 5d\ ^2P_{1\frac{1}{2}}-(^1S)\ 6p\ ^2P^{\circ}_{1\frac{1}{2}}$
5*h*	6	2866. 76	34872. 4	$(^3P)\ 5d\ ^2P_{1\frac{1}{2}}-17^{\circ}_{0\frac{1}{2}}$
2*h*	2	2867. 36	34865. 1	$(^1D)\ 5d\ ^2D_{2\frac{1}{2}}-29^{\circ}_{1\frac{1}{2}}$
1	1−	2869. 56	34834. 4	
50*hs*	10*hs*	2871. 24	34818. 0	
1H	2H	2877. 00	34748. 3	
1H	3H*l*	2878. 48	34730. 4	
	1−	2881. 14	34698. 3	$(^3P)\ 5d\ ^2P_{1\frac{1}{2}}-13^{\circ}_{0\frac{1}{2}}$
12	14	2883. 71	34667. 4	$(^3P)\ 5d\ ^4D_{2\frac{1}{2}}-(^1D)\ 6p\ ^2F^{\circ}_{3\frac{1}{2}}$
10	15	2887. 12	34626. 5	$(^3P)\ 5d\ ^4D_{3\frac{1}{2}}-(^1D)\ 6p\ ^2F^{\circ}_{3\frac{1}{2}}$
10	15	2889. 07	34603. 1	$(^3P)\ 6s\ ^4P_{1\frac{1}{2}}-(^1D)\ 6p\ ^2P^{\circ}_{1\frac{1}{2}}$
150*h*	150*h*	2895. 22	34529. 6	$(^1D)\ 5d\ ^2F_{2\frac{1}{2}}-35^{\circ}_{2\frac{1}{2}}$
3	5	2902. 68	34440. 9	
1	1−	2903. 66	34429. 2	
3	1	2904. 18	34423. 1	
2*h*	3*h*	2905. 10	34412. 2	$(^3P)\ 6p\ ^4P^{\circ}_{0\frac{1}{2}}-(^1D)\ 6d\ ^2D_{1\frac{1}{2}}$
80*h*	80	2907. 18	34387. 5	$(^3P)\ 5d\ ^4P_{0\frac{1}{2}}-19^{\circ}_{1\frac{1}{2}}$
3H	4H	2910. 27	34351. 0	
1*h*	2	2910. 64	34346. 7	$(^3P)\ 6p\ ^4P^{\circ}_{2\frac{1}{2}}-(^1D)\ 7s\ ^2D_{2\frac{1}{2}}$
1−	1	2917. 01	34271. 7	
40	50	2919. 87	34238. 1	$(^3P)\ 5d\ ^4P_{0\frac{1}{2}}-17^{\circ}_{0\frac{1}{2}}$
	1−	2923. 03	34201. 1	$(^1D)\ 5d\ ^2F_{2\frac{1}{2}}-33^{\circ}_{1\frac{1}{2}}$
6	2	2923. 95	34190. 3	
2	5	2924. 38	34185. 3	$(^3P)\ 5d\ ^2P_{1\frac{1}{2}}-9^{\circ}_{1\frac{1}{2}}$
2	3*h*	2927. 58	34147. 9	$(^3P)\ 6p\ ^4P^{\circ}_{1\frac{1}{2}}-(^3P)\ 6d\ ^2D_{1\frac{1}{2}}$
1H	3H	2929. 66	34123. 7	
1*h*	2*h*	2933. 34	34080. 9	$(^3P)\ 5d\ ^2P_{0\frac{1}{2}}-21^{\circ}_{1\frac{1}{2}}$
2*h*	3*h*	2934. 80	34063. 9	$(^3P)\ 5d\ ^4P_{0\frac{1}{2}}-13_{0\frac{1}{2}}$
60*h*	50*h*	2935. 86	34051. 6	
5	2	2939. 72	34006. 9	
8	3	2941. 38	33987. 7	
20*h*	15	2942. 10	33979. 4	
4	1	2943. 41	33964. 3	
4*h*	1−	2944. 61	33950. 5	
4*h*	8*h*	2949. 77	33891. 1	
1*h*	2*h*	2950. 69	33880. 5	
2	2	2951. 58	33870. 3	$(^3P)\ 5d\ ^2P_{1\frac{1}{2}}-7^{\circ}_{1\frac{1}{2}}$
2	3	2952. 48	33860. 0	$(^3P)\ 5d\ ^4P_{2\frac{1}{2}}-19^{\circ}_{1\frac{1}{2}}$
2*d*	4H	2954. 78	33833. 6	
2	1*h*	2955. 84	33821. 5	
50	60	2963. 41	33735. 1	$(^3P)\ 5d\ ^4P_{2\frac{1}{2}}-(^1S)\ 6p\ ^2P^{\circ}_{1\frac{1}{2}}$
12*	1	2964. 19	33726. 2	
	2	2966. 74	33697. 2	$sp^6\ ^2S_{0\frac{1}{2}}-(^3P)\ 6p\ ^2P^{\circ}_{0\frac{1}{2}}$
	1	2968. 95	33672. 1	
3	1−	2969. 23	33669. 0	
12	4	2969. 80	33662. 5	
8	10	2972. 31	33634. 1	$(^3P)\ 5d\ ^4D_{1\frac{1}{2}}-(^1D)\ 6p\ ^2P^{\circ}_{1\frac{1}{2}}$
1	2	2972. 78	33628. 8	

TABLE 1.—*List of* Xe II *lines*—Continued

Intensity		Wave length (air)	Wave number (vac)	Transition
20H*l*	40H*l*	2974.86	33605.2	$(^3P)\ 5d\ ^4P_{1\frac{1}{2}}-21^{\circ}_{1\frac{1}{2}}$
8	4	2976.39	33588.0	
	10H	2977.90	33570.9	
300	400	2979.32	33554.9	$(^3P)\ 5d\ ^4P_{2\frac{1}{2}}-15^{\circ}_{2\frac{1}{2}}$
2	2	2982.23	33522.2	
10*	1	2986.18	33477.9	
8	15	2986.82	33470.7	$(^3P)\ 5d\ ^4D_{2\frac{1}{2}}-(^1D)\ 6p\ ^2F^{\circ}_{2\frac{1}{2}}$
1—	1	2988.28	33454.3	
12	15	2990.54	33429.0	$(^3P)\ 5d\ ^2P_{0\frac{1}{2}}-19^{\circ}_{1\frac{1}{2}}$
3	5	2991.73	33415.8	{ $sp^6\ ^2S_{0\frac{1}{2}}-(^3P)\ 6p\ ^2D^{\circ}_{1\frac{1}{2}}$ $(^3P)\ 6p\ ^4D^{\circ}_{2\frac{1}{2}}-14_{2\frac{1}{2}}$
15H	15H	2999.21	33332.4	
1*h*	2*h*	3003.10	33289.2	
40	40	3003.98	33279.5	$(^3P)\ 5d\ ^2P_{0\frac{1}{2}}-17^{\circ}_{0\frac{1}{2}}$
1—	1	3005.97	33257.5	
2	2	3006.97	33246.4	
1		3012.88	33181.2	$(^3P)\ 5d\ ^4P_{0\frac{1}{2}}-5^{\circ}_{1\frac{1}{2}}$
	2*h*	3013.82	33170.8	$(^3P)\ 5d\ ^4P_{2\frac{1}{2}}-11^{\circ}_{2\frac{1}{2}}$
20*h*	15*h*	3015.52	33152.2	$(^1S)\ 6s\ ^2S_{0\frac{1}{2}}-41^{\circ}_{1\frac{1}{2}}$
100*h*	100*h*	3017.43	33131.2	
2*h*	3	3019.78	33105.4	$(^3P)\ 5d\ ^2P_{0\frac{1}{2}}-13^{\circ}_{0\frac{1}{2}}$
2	1	3020.29	33099.8	
2H	5H	3022.10	33080.0	
1—	2*h*	3024.24	33056.6	
3	5	3027.27	33023.5	$(^3P)\ 5d\ ^4P_{2\frac{1}{2}}-9^{\circ}_{1\frac{1}{2}}$
2*h*	3*h*	3027.63	33019.5	{ $(^3P)\ 6p\ ^2P_{0\frac{1}{2}}-1^{\circ}_{1\frac{1}{2}}$ $(^3P)\ 6p\ ^4D_{1\frac{1}{2}}-(^1D)\ 7s\ ^2D_{1\frac{1}{2}}$
6*		3033.11	32959.9	
10	15	3033.71	32953.4	$(^3P)\ 5d\ ^4P_{1\frac{1}{2}}-19^{\circ}_{1\frac{1}{2}}$
30*h*	30*h*	3036.80	32919.8	$(^1S)\ 5d\ ^2D_{1\frac{1}{2}}-41^{\circ}_{1\frac{1}{2}}$
6*h*	8	3037.35	32913.9	$(^3P)\ 6p\ ^4D^{\circ}_{1\frac{1}{2}}-(^1D)\ 6d\ ^2D_{2\frac{1}{2}}$
	1	3041.72	32866.6	
12*h*	2*h*	3042.12	32862.3	
10	12	3044.75	32833.9	$(^3P)\ 5d\ ^4D_{1\frac{1}{2}}-(^1D)\ 6p\ ^4F^{\circ}_{2\frac{1}{2}}$
30	40	3045.25	32828.5	$(^3P)\ 5d\ ^4P_{1\frac{1}{2}}-(^1S)\ 6p\ ^2P^{\circ}_{1\frac{1}{2}}$
25	25	3046.27	32817.5	$(^1D)\ 5d\ ^2F_{2\frac{1}{2}}-29^{\circ}_{1\frac{1}{2}}$
8H	12*h*	3047.76	32801.5	
5	1*h*	3048.17	32797.1	
	3*h*	3048.50	32793.5	$(^1D)\ 5d\ ^2F_{2\frac{1}{2}}-27^{\circ}_{2\frac{1}{2}}$
3*h*		3048.92	32789.0	
3	4	3050.98	32766.8	$(^1D)\ 5d\ ^2F_{2\frac{1}{2}}-25^{\circ}_{1\frac{1}{2}}$
20	25	3056.49	32707.8	$(^3P)\ 5d\ ^4P_{2\frac{1}{2}}-7^{\circ}_{1\frac{1}{2}}$
12	15	3061.54	32653.8	$(^3P)\ 5d\ ^4P_{2\frac{1}{2}}-5^{\circ}_{1\frac{1}{2}}$
1*h*	2*h*	3066.60	32600.0	$(^3P)\ 6p\ ^4D^{\circ}_{3\frac{1}{2}}-(^1D)\ 7s\ ^2D_{2\frac{1}{2}}$
30	40	3067.30	32592.5	$(^3P)\ 5d\ ^2P_{0\frac{1}{2}}-9^{\circ}_{1\frac{1}{2}}$
6*h*	1*h*	3071.39	32549.1	
2*h*	3	3073.17	32530.3	$(^3P)\ 5d\ ^4P_{2\frac{1}{2}}-3^{\circ}_{3\frac{1}{2}}$
20	25	3082.62	32430.5	$(^3P)\ 5d\ ^2D_{1\frac{1}{2}}-19^{\circ}_{1\frac{1}{2}}$
2		3082.87	32427.9	$(^3P)\ 6p\ ^4D^{\circ}_{2\frac{1}{2}}-(^3P)\ 6d\ ^2D_{1\frac{1}{2}}$
1—	1*h*	3085.12	32404.3	
1—	1—	3087.34	32381.0	$sp^6\ ^2S_{0\frac{1}{2}}-(^3P)\ 6p\ ^2P^{\circ}_{1\frac{1}{2}}$
3	1	3088.92	32364.4	

TABLE 1.—*List of* Xe II *lines*—Continued

Intensity		Wave length (air)	Wave number (vac)	Transition
1	1	3090. 47	32348. 2	$(^{3}P)\ 6p\ ^{4}P^{o}_{1½}-(^{3}P)\ 6d\ ^{4}P_{1½}$
15	20	3092. 41	32327. 9	$(^{3}P)\ 5d\ ^{2}D_{2½}-19^{o}_{1½}$
30*h*	25*h*	3094. 53	32305. 7	$(^{3}P)\ 5d\ ^{2}D_{1½}-(^{1}S)\ 6p\ ^{2}P^{o}_{1½}$
2	1−	3096. 42	32286. 0	
8	10	3096. 90	32281. 0	$(^{3}P)\ 5d\ ^{2}D_{1½}-17^{o}_{0½}$
2	2	3098. 21	32267. 4	$(^{3}P)\ 6p\ ^{4}P^{o}_{0½}-(^{3}P)\ 6d\ ^{2}D_{1½}$
1	2	3098. 50	32264. 4	$(^{3}P)\ 5d\ ^{4}P_{1½}-11^{o}_{2½}$
	1*h*	3099. 16	32257. 5	
50*h*	60*h*	3101. 51	32233. 0	$(^{1}S)\ 6s\ ^{2}S_{0½}-39^{o}_{1½}$
3	1	3102. 73	32220. 4	
70*h*	80*h*	3104. 40	32203. 0	$(^{3}P)\ 5d\ ^{2}D_{2½}-(^{1}S)\ 6p\ ^{2}P^{o}_{1½}$
20H*l*	30H*l*	3107. 82	32167. 6	
20	25	3112. 74	32116. 8	$(^{3}P)\ 5d\ ^{4}P_{1½}-9^{o}_{1½}$
	1*h*−	3115. 78	32085. 4	
2*h*	4	3116. 78	32075. 1	
250	300	3121. 87	32022. 8	$(^{3}P\ 5d\ ^{2}D_{2½}-15^{o}_{2½}$
12*h*	15*h*	3124. 02	32000. 8	$(^{1}S)\ 5d\ ^{2}D_{1½}-39^{o}_{1½}$
1H	2*h*	3128. 40	31956. 0	$(^{3}P)\ 5d\ ^{2}P_{1½}-1^{o}_{1½}$
3H	4*h*	3130. 40	31935. 6	
6	10	3143. 62	31801. 3	$(^{3}P)\ 5d\ ^{4}P_{1½}-7^{o}_{1½}$
4*h*	8	3145. 02	31787. 1	
	1*h*	3148. 07	31756. 3	
5	8	3148. 99	31747. 0	$(^{3}P)\ 5d\ ^{4}P_{1½}-5^{o}_{1½}$
4*h*	8*h*	3159. 75	31638. 9	$(^{3}P)\ 5d\ ^{2}D_{2½}-11^{o}_{2½}$
25	25	3162. 93	31607. 14	$(^{3}P)\ 6p\ ^{4}P^{o}_{1½}-(^{3}P)\ 6d\ ^{4}P_{2½}$
6	8	3164. 23	31594. 15	$(^{3}P)\ 5d\ ^{2}D_{1½}-9^{o}_{1½}$
4*		3164. 44	31592. 05	
6	8	3165. 27	31583. 77	$(^{3}P)\ 6s\ ^{4}P_{0½}-(^{1}D)\ 6p\ ^{2}P^{o}_{0½}$
3*h*	4*h*	3168. 67	31549. 88	$(^{3}P)\ 6p\ ^{4}P^{o}_{0½}-(^{3}P)\ 6d\ ^{2}P_{0½}$
1	2	3174. 59	31491. 05	$(^{3}P)\ 5d\ ^{2}D_{2½}-9^{o}_{1½}$
6*		3175. 25	31484. 50	
80	80	3175. 64	31480. 64	
3*h*	6*h*	3181. 39	31423. 74	$(^{1}D)\ 6s\ ^{2}D_{2½}-21^{o}_{1½}$
1*h*	1	3193. 75	31302. 14	$(^{3}P)\ 6p\ ^{4}D^{o}_{1½}-(^{1}D)\ 6d\ ^{2}D_{1½}$
25	10	3196. 22	31277. 95	
	1	3198. 82	31252. 52	
1−	1−	3200. 72	31233. 97	
3*h*	6*h*	3201. 68	31224. 61	$(^{3}P)\ 5d\ ^{2}D_{1½}-5^{o}_{0½}$
10	15	3202. 04	31221. 10	$(^{3}P)\ 6s\ ^{4}P_{2½}-(^{3}P)\ 6p\ ^{2}D^{o}_{1½}$
1	1	3205. 26	31189. 73	
	1−	3206. 72	31175. 54	$(^{3}P)\ 5d\ ^{2}D_{2½}-7^{o}_{1½}$
1H	3H	3211. 59	31128. 26	
5*h*	6*h*	3212. 29	31121. 48	$(^{3}P)\ 5d\ ^{2}D_{2½}-5^{o}_{1½}$
15	20	3225. 08	30998. 06	$(^{3}P)\ 5d\ ^{2}D_{2½}-3^{o}_{3½}$
	1	3228. 29	30967. 24	
4*h*	6*h*	3229. 03	30960. 15	
1	1−	3233. 23	30919. 93	$(^{3}P)\ 6p\ ^{2}D^{o}_{2½}-(^{1}D)\ 6d\ ^{2}F_{2½}$
6H*l*	8H*l*	3247. 74	30781. 79	
	1−	3249. 35	30766. 54	{ $(^{1}D)\ 5d\ ^{2}D_{2½}-23^{o}_{1½}$ $(^{3}P)\ 6s\ ^{4}P^{o}_{0½}-(^{1}D)\ 6p\ ^{2}D^{o}_{1½}$
2*h*	2	3250. 04	30760. 01	

TABLE 1.—*List of* Xe II lines—Continued

Intensity		Wave length (air)	Wave number (vac)	Transition
25	30	3250. 56	30755. 09	$sp^6\ {}^2S_{0\frac{1}{2}}-({}^3P)\ 6p\ {}^4S^\circ_{1\frac{1}{2}}$
12	10	3259. 36	30672. 05	$({}^3P)\ 5d\ {}^4F_{2\frac{1}{2}}-({}^1D)\ 6p\ {}^2D^\circ_{2\frac{1}{2}}$
2	2	3260. 73	30659. 17	$({}^3P)\ 5d\ {}^4F_{4\frac{1}{2}}-({}^1D)\ 6p\ {}^2F^\circ_{3\frac{1}{2}}$
4*h*	6*h*	3262. 02	30647. 05	$({}^1D)\ 6s\ {}^2D_{2\frac{1}{2}}-({}^1S)\ 6p\ {}^2P^\circ_{1\frac{1}{2}}$
	8*hw*	3266. 08	30608. 95	
6*		3267. 05	30699. 86	
3*h*	8	3267. 34	30597. 14	$({}^1S)\ 5d\ {}^2D_{2\frac{1}{2}}-37^\circ_{2\frac{1}{2}}$
	1*h*	3268. 08	30590. 22	$({}^3P)\ 6p\ {}^4P^\circ_{1\frac{1}{2}}-({}^3P)\ 7s\ {}^2P_{1\frac{1}{2}}$
1	1—	3272. 24	30551. 33	
60	60	3272. 91	30545. 08	$({}^1D)\ 6s\ {}^2D_{1\frac{1}{2}}-23^\circ_{1\frac{1}{2}}$
	2H	3274. 80	30527. 45	
4H		3274. 94	30526. 14	
8*	1	3280. 48	30474. 59	
12*h*	15*h*	3281. 26	30467. 35	$({}^3P)\ 6p\ {}^4P^\circ_{0\frac{1}{2}}-({}^3P)\ 6d\ {}^4P_{1\frac{1}{2}}$
1*h*	2*h*	3296. 20	30329. 26	
6	8	3298. 72	30306. 09	$sp^6\ {}^2S_{0\frac{1}{2}}-({}^3P)\ 6p\ {}^2S^\circ_{0\frac{1}{2}}$
1	2	3302. 50	30271. 40	
2*h*	3*h*	3309. 39	30208. 38	
3*		3310. 38	30199. 35	
1*h*	1*h*	3310. 85	30195. 06	$({}^1S)\ 5d\ {}^2D_{2\frac{1}{2}}-35^\circ_{2\frac{1}{2}}$
2	4	3311. 80	30186. 40	$({}^3P)\ 6s\ {}^4P_{2\frac{1}{2}}-({}^3P)\ 6p\ {}^2P^\circ_{1\frac{1}{2}}$
2*h*	3*h*	3313. 48	30171. 10	
6*h*	10*h*	3316. 39	30144. 62	$({}^3P)\ 6p\ {}^4D^\circ_{1\frac{1}{2}}-14_{2\frac{1}{2}}$
1*h*	2*h*	3320. 57	30106. 68	
1—	1—	3324. 14	30074. 35	
15	15	3327. 46	30044. 34	$({}^3P)\ 6s\ {}^4P_{2\frac{1}{2}}-({}^3P)\ 6p\ {}^2D^\circ_{2\frac{1}{2}}$
1—	1	3330. 78	30014. 40	
4*h*	10	3338. 80	29942. 30	$({}^3P)\ 6s\ {}^2P_{1\frac{1}{2}}-({}^1D)\ 6p\ {}^2P^\circ_{0\frac{1}{2}}$
4*h*		3344. 97	29887. 07	$({}^3P)\ 6p\ {}^4D^\circ_{2\frac{1}{2}}-({}^3P)\ 6d\ {}^4P_{2\frac{1}{2}}$
3H	6H	3347. 27	29866. 54	$({}^1S)\ 5d\ {}^2D_{2\frac{1}{2}}-33^\circ_{1\frac{1}{2}}$
6H	8H*l*	3350. 44	29838. 28	
	2H	3351. 24	29831. 16	
	1*h*	3353. 44	29811. 59	
2	1*h*	3363. 50	29722. 43	
300*h*	200*h*	3366. 72	29694. 00	$({}^3P)\ 6p\ {}^4D^\circ_{3\frac{1}{2}}-({}^3P)\ 6d\ {}^4P_{2\frac{1}{2}}$
2*h*	4*h*	3373. 92	29630. 63	
3*h*	5*h*	3375. 16	29619. 74	$({}^1D)\ 6s\ {}^2D_{2\frac{1}{2}}-7^\circ_{1\frac{1}{2}}$
	1*h*	3381. 34	29565. 62	$({}^1D)\ 6s\ {}^2D_{2\frac{1}{2}}-5^\circ_{1\frac{1}{2}}$
40*h*	30	3384. 13	29541. 24	$sp^6\ {}^2S^\circ_{0\frac{1}{2}}-({}^3P)\ 6p\ {}^4D^\circ_{0\frac{1}{2}}$
2*h*	3*h*	3386. 30	29522. 31	$({}^3P)\ 6p\ {}^4D^\circ_{1\frac{1}{2}}-({}^1D)\ 7s\ {}^2D_{2\frac{1}{2}}$
2	3	3388. 05	29507. 06	$({}^3P)\ 6s\ {}^4P_{1\frac{1}{2}}-({}^3P)\ 6p\ {}^2P^\circ_{0\frac{1}{2}}$
3	4	3395. 50	29442. 32	$({}^1D)\ 6s\ {}^2D_{2\frac{1}{2}}-3^\circ_{3\frac{1}{2}}$
1	1	3399. 37	29408. 80	$({}^3P)\ 6s\ {}^2P_{1\frac{1}{2}}-({}^1D)\ 6p\ {}^2D^\circ_{2\frac{1}{2}}$
8H	10H*l*	3409. 49	29321. 52	
1H—	1H	3412. 58	29294. 97	
6H	8H	3413. 20	29289. 65	$({}^1S)\ 5d\ {}^2D_{2\frac{1}{2}}-31^\circ_{1\frac{1}{2}}$
1—	1—	3417. 04	29256. 73	$({}^3P)\ 6p\ {}^4P^\circ_{0\frac{1}{2}}-({}^3P)\ 7s\ {}^2P_{0\frac{1}{2}}$
1H	1H	3419. 20	29238. 25	
40	50	3420. 73	29225. 17	$({}^3P)\ 6s\ {}^4P_{1\frac{1}{2}}-({}^3P)\ 6p\ {}^2D^\circ_{1\frac{1}{2}}$
1	2	3432. 49	29125. 05	$({}^3P)\ 6s\ {}^2P_{1\frac{1}{2}}-({}^1D)\ 6p\ {}^2D^\circ_{1\frac{1}{2}}$

TABLE 1.—*List of* Xe II *lines*—Continued

Intensity		Wave length (air)	Wave number (vac)	Transition
	1*h*	3434. 35	29109. 28	
1—	1—	3436. 48	29091. 23	$(^3P)\ 6p\ ^4P^\circ_{1\frac{1}{2}} - (^3P)\ 6d\ ^4P_{0\frac{1}{2}}$
3H	1H*w*	3437. 73	29080. 66	
4*h*	5*h*	3440. 75	29055. 13	
25*h*	25	3446. 34	29008. 01	$(^1D)\ 5d\ ^2D_{1\frac{1}{2}} - 19^\circ_{1\frac{1}{2}}$
	1*h*	3450. 08	28976. 56	
	1H	3452. 22	28958. 60	
1—	1—	3456. 69	28921. 15	
8	10	3460. 08	28892. 82	$(^3P)\ 5d\ ^4D_{2\frac{1}{2}} - (^3P)\ 6p\ ^2D^\circ_{1\frac{1}{2}}$
100*h*	100*h*	3461. 26	28882. 97	$(^1D)\ 5d\ ^2D_{1\frac{1}{2}} - (^1S)\ 6p\ ^2P^\circ_{1\frac{1}{2}}$
1—	1—	3462. 81	28870. 04	$(^3P)\ 6p\ ^4D^\circ_{2\frac{1}{2}} - (^3P)\ 7s\ ^2P_{1\frac{1}{2}}$
1—	1—	3463. 53	28864. 04	
1*h*	3*h*	3464. 17	28858. 71	$(^1D)\ 5d\ ^2D_{1\frac{1}{2}} - 17^\circ_{0\frac{1}{2}}$
1—	1	3467. 68	28829. 50	
20*h*	25	3474. 23	28775. 15	$(^1D)\ 5d\ ^2P_{1\frac{1}{2}} - 39^\circ_{1\frac{1}{2}}$
2*h*	2*h*	3482. 21	28709. 21	$(^3P)\ 6p\ ^4P^\circ_{0\frac{1}{2}} - (^3P)\ 7s\ ^2P_{1\frac{1}{2}}$
1*h*	2*h*	3485. 23	28684. 33	$(^1D)\ 5d\ ^2D_{1\frac{1}{2}} - 13^\circ_{0\frac{1}{2}}$
30	20	3500. 36	28560. 35	$(^3P)\ 6s\ ^4P_{2\frac{1}{2}} - (^3P)\ 6p\ ^4S^\circ_{1\frac{1}{2}}$
20*h**	1*h*	3501. 77	28548. 85	
15	10	3503. 15	28537. 60	$(^3P)\ 5d\ ^4D_{1\frac{1}{2}} - (^3P)\ 6p\ ^2P^\circ_{0\frac{1}{2}}$
1	1	3504. 25	28528. 65	$(^3P)\ 5d\ ^4F_{2\frac{1}{2}} - (^1D)\ 6p\ ^2F^\circ_{3\frac{1}{2}}$
15	10	3506. 56	28509. 85	$(^3P)\ 6s\ ^4P_{0\frac{1}{2}} - (^1D)\ 6p\ ^2P^\circ_{1\frac{1}{2}}$
20	15	3508. 88	28491. 00	$(^3P)\ 6s\ ^2P_{0\frac{1}{2}} - (^1D)\ 6p\ ^2P^\circ_{0\frac{1}{2}}$
8H		3514. 58	28444. 80	
	1H*w*	3514. 91	28442. 13	
3H	6*h*	3530. 21	28318. 86	$(^1D)\ 5d\ ^2D_{1\frac{1}{2}} - 11^\circ_{2\frac{1}{2}}$
	1*h*	3534. 61	28283. 61	$(^1D)\ 5d\ ^2D_{2\frac{1}{2}} - 21^\circ_{1\frac{1}{2}}$
2		3537. 40	28261. 30	
2	4	3538. 08	28255. 87	$(^3P)\ 5d\ ^4D_{1\frac{1}{2}} - (^3P)\ 6p\ ^2D^\circ_{1\frac{1}{2}}$
1*h*	2	3546. 29	28190. 46	$(^3P)\ 6s\ ^4P_{1\frac{1}{2}} - (^3P)\ 6p\ ^2P^\circ_{1\frac{1}{2}}$
2*h*		3548. 69	28171. 39	$(^1D)\ 5d\ ^2D_{1\frac{1}{2}} - 9^\circ_{1\frac{1}{2}}$
	1—	3561. 75	28068. 10	$(^3P)\ 6p\ ^4S^\circ_{1\frac{1}{2}} - (^1D)\ 6d\ ^2D_{2\frac{1}{2}}$
	1—	3562. 50	28062. 19	$(^1D)\ 6s\ ^2D_{1\frac{1}{2}} - 21^\circ_{1\frac{1}{2}}$
20	20	3564. 30	28048. 02	$(^3P)\ 6s\ ^4P_{1\frac{1}{2}} - (^3P)\ 6p\ ^2D^\circ_{2\frac{1}{2}}$
1H	2H	3574. 18	27970. 49	
2	1	3578. 58	27936. 10	
6*h*	3	3588. 62	27857. 94	$(^3P)\ 5d\ ^4D_{2\frac{1}{2}} - (^3P)\ 6p\ ^2P^\circ_{1\frac{1}{2}}$
1H	2*h*	3589. 88	27848. 16	$(^3P)\ 6p\ ^4P^\circ_{1\frac{1}{2}} - (^3P)\ 6d\ ^4F_{1\frac{1}{2}}$
3*h*	4*h*	3604. 83	27732. 68	
8	10	3607. 41	27712. 84	$(^3P)\ 5d\ ^4D_{0\frac{1}{2}} - (^3P)\ 6p\ ^2P^\circ_{0\frac{1}{2}}$
1*h*	1*h*	3611. 52	27681. 31	$(^3P)\ 6p\ ^4P^\circ_{2\frac{1}{2}} - (^3P)\ 6d\ ^4F_{1\frac{1}{2}}$
20	10	3612. 37	27674. 79	$(^3P)\ 5d\ ^4D_{3\frac{1}{2}} - (^3P)\ 6p\ ^2D^\circ_{2\frac{1}{2}}$
3*h*	4*h*	3621. 98	27601. 37	$(^3P)\ 6p\ ^4D^\circ_{1\frac{1}{2}} - (^3P)\ 6d\ ^2D_{2\frac{1}{2}}$
1—	1	3634. 48	27506. 44	$(^1D)\ 5d\ ^2D_{2\frac{1}{2}} - (^1S)\ 6p\ ^2P^\circ_{1\frac{1}{2}}$
5	5	3644. 43	27431. 34	$(^3P)\ 5d\ ^4D_{0\frac{1}{2}} - (^3P)\ 6p\ ^2D^\circ_{0\frac{1}{2}}$
5	5	3644. 91	27427. 75	$(^3P)\ 5d\ ^2P_{1\frac{1}{2}} - (^1D)\ 6p\ ^2P^\circ_{0\frac{1}{2}}$
1	5	3650. 12	27388. 58	
5	5	3657. 74	27331. 53	$(^3P)\ 5d\ ^4F_{2\frac{1}{2}} - (^1D)\ 6p\ ^2F^\circ_{2\frac{1}{2}}$
6*h*	6	3658. 44	27326. 30	$(^1D)\ 5d\ ^2D_{2\frac{1}{2}} - 15^\circ_{2\frac{1}{2}}$
20H	20H*l*	3661. 70	27301. 97	$(^3P)\ 6p\ ^4P^\circ_{1\frac{1}{2}} - (^3P)\ 6d\ ^4F_{2\frac{1}{2}}$

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TABLE 1.—*List of* Xe II *lines*—Continued

Intensity		Wave length (air)	Wave number (vac)	Transition
5*h*	5	3663. 93	27285. 35	$(^1D)\ 6s\ ^2D_{1\frac{1}{2}}-(^1S)\ 6p\ ^2P^{\circ}_{1\frac{1}{2}}$
20	20	3672. 57	27221. 16	$(^3P)\ 5d\ ^4D_{1\frac{1}{2}}-(^3P)\ 6p\ ^2P^{\circ}_{1\frac{1}{2}}$
1—	1—	3674. 04	27210. 28	$(^3P)\ 6p\ ^4P^{\circ}_{0\frac{1}{2}}-(^3P)\ 6d\ ^4P_{\frac{1}{2}}$
2H*w*	1—	3680. 48	27162. 66	
1	1	3690. 74	27087. 15	$(^1D)\ 6s\ ^2D_{1\frac{1}{2}}-13^{\circ}_{0\frac{1}{2}}$
1*h*	2	3691. 84	27079. 09	$(^3P)\ 5d\ ^4D_{1\frac{1}{2}}-(^3P)\ 6p\ ^2D^{\circ}_{2\frac{1}{2}}$
1H	1H	3695. 60	27051. 53	
1*h*	2*h*	3698. 49	27030. 40	
20H	30H*l*	3711. 64	26934. 63	$(^3P)\ 6p\ ^4P^{\circ}_{1\frac{1}{2}}-(^3P)\ 6d\ ^4D_{0\frac{1}{2}}$
2H	3H	3715. 69	26905. 28	$(^3P)\ 6p\ ^2S^{\circ}_{0\frac{1}{2}}-(^1D)\ 6d\ ^2D_{1\frac{1}{2}}$
20	20	3717. 20	26894. 35	$(^3P)\ 5d\ ^2P_{1\frac{1}{2}}-(^1D)\ 6p\ ^2D^{\circ}_{2\frac{1}{2}}$
2	1—	3718. 06	26888. 12	
40	30	3720. 80	26868. 33	$(^3P)\ 6s\ ^2P_{1\frac{1}{2}}-(^1D)\ 6p\ ^2P^{\circ}_{1\frac{1}{2}}$
2*h*	1*h*	3727. 35	26821. 11	
2	1	3730. 22	26800. 48	
20	20	3731. 18	26793. 58	$(^3P)\ 5d\ ^2P_{0\frac{1}{2}}-(^1D)\ 6p\ ^2P^{\circ}_{0\frac{1}{2}}$
5H*w*	6H	3737. 20	26750. 42	
2H*w*	1*h*	3741. 96	26716. 39	
10	10	3756. 87	26610. 37	$(^3P)\ 5d\ ^2P_{1\frac{1}{2}}-(^1D)\ 6p\ ^2D^{\circ}_{1\frac{1}{2}}$
3*h*	5*h*	3762. 05	26573. 73	$(^1D)\ 6s\ ^2D_{1\frac{1}{2}}-9^{\circ}_{1\frac{1}{2}}$
10*	1	3762. 26	26572. 24	
15	15	3763. 37	26564. 41	$(^3P)\ 6s\ ^4P_{1\frac{1}{2}}-(^3P)\ 6p\ ^4S^{\circ}_{1\frac{1}{2}}$
3H*d*	3H	3770. 12	26516. 85	
1	1*h*	3775. 49	26479. 13	$(^1D)\ 5d\ ^2D_{2\frac{1}{2}}-7^{\circ}_{1\frac{1}{2}}$
1—	1*h*	3778. 78	26456. 08	$(^3P)\ 6p\ ^4S^{\circ}_{1\frac{1}{2}}-(^1D)\ 6d\ ^2D_{1\frac{1}{2}}$
1H		3780. 70	26442. 64	$(^3P)\ 6p\ ^2P^{\circ}_{1\frac{1}{2}}-(^1D)\ 6d\ ^2D_{2\frac{1}{2}}$
10*h*	10*h*	3783. 23	26424. 96	$(^1D)\ 5d\ ^2D_{2\frac{1}{2}}-5^{\circ}_{1\frac{1}{2}}$
3	3	3787. 32	26396. 43	$(^3P)\ 5d\ ^4D_{0\frac{1}{2}}-(^3P)\ 6p\ ^2P^{\circ}_{1\frac{1}{2}}$
1—	1	3800. 00	26308. 35	
15*h*	20	3800. 99	26301. 49	$(^1D)\ 5d\ ^2D_{2\frac{1}{2}}-3^{\circ}_{3\frac{1}{2}}$
1H	2*h*	3805. 68	26269. 08	
10*h*	15	3807. 29	26257. 97	$(^1D)\ 6s\ ^2D_{1\frac{1}{2}}-7^{\circ}_{1\frac{1}{2}}$
40	40	3811. 05	26232. 07	$(^3P)\ 5d\ ^4D_{2\frac{1}{2}}-(^3P)\ 6p\ ^4S^{\circ}_{1\frac{1}{2}}$
1*hw*	1	3815. 16	26203. 81	
2*h*	2	3823. 35	26147. 68	
2*h*	3*h*	3826. 27	26127. 73	$(^3P)\ 6p\ ^4D^{\circ}_{2\frac{1}{2}}-(^3P)\ 6d\ ^4F_{1\frac{1}{2}}$
10*h*	10	3829. 77	26103. 85	$(^3P)\ 6p\ ^4P^{\circ}_{2\frac{1}{2}}-12_{1\frac{1}{2}}$
6	6	3848. 58	25976. 27	$(^3P)\ 5d\ ^4P_{0\frac{1}{2}}-(^1D)\ 6p\ ^2D^{\circ}_{1\frac{1}{2}}$
50H*l*	40*hl*	3849. 87	25967. 56	$(^3P)\ 6p\ ^4P^{\circ}_{0\frac{1}{2}}-(^3P)\ 6d\ ^4F_{1\frac{1}{2}}$
2*h*	1	3852. 40	25950. 51	
20	20	3858. 53	25909. 29	$sp^6\ ^2S_{0\frac{1}{2}}-(^3P)\ 6p\ ^4D^{\circ}_{1\frac{1}{2}}$
20	20	3869. 63	25834. 97	$(^3P)\ 5d\ ^2P_{0\frac{1}{2}}-(^1D)\ 6p\ ^2P^{\circ}_{0\frac{1}{2}}$
1H	1H	3876. 39	25789. 91	
1H	2H*w*	3883. 67	25741. 57	
20	2	3885. 00	25732. 76	$(^3P)\ 5d\ ^4P_{2\frac{1}{2}}-(^1D)\ 6p\ ^2D^{\circ}_{2\frac{1}{2}}$
4H*l*	6H*l*	3885. 45	25729. 78	
1H—	1H*w*	3887. 83	25714. 03	
1—	1—	3901. 92	25621. 19	
1	1	3905. 34	25598. 74	$(^3P)\ 6p\ ^4D^{\circ}_{1\frac{1}{2}}-(^3P)\ 7s\ ^2P_{1\frac{1}{2}}$
10	10	3905. 85	25595. 40	$(^3P)\ 5d\ ^4D_{1\frac{1}{2}}-(^3P)\ 6p\ ^4S^{\circ}_{1\frac{1}{2}}$

TABLE 1.—*List of* Xe II *lines*—Continued

Intensity		Wave length (air)	Wave number (vac)	Transition
100hl	100hl	3907.91	25581.91	$(^3P)\ 6p\ ^4D^\circ_{2½}-(^3P)\ 6d\ ^4F_{2½}$
1h	2h	3916.60	25525.15	$(^3P)\ 6p\ ^4D^\circ_{0½}-(^3P)\ 6d\ ^2D_{1½}$
2h		3918.57	25512.31	$(^3P)\ 6p\ ^2D^\circ_{1½}-(^1D)\ 7s\ ^2D_{1½}$
1	1	3920.18	25501.84	
1h	2h	3920.78	25497.94	
1	2	3926.80	25458.85	$(^1D)\ 5d\ ^2F_{2½}-(^1S)\ 6p\ ^2P^\circ_{1½}$
1	1—	3932.44	25422.34	
1	2	3933.22	25417.29	$(^3P)\ 6s\ ^2P_{0½}-(^1D)\ 6p\ ^2P^\circ_{1½}$
2	1—	3937.66	25388.63	$(^3P)\ 6p\ ^4D^\circ_{3½}-(^3P)\ 6d\ ^4F_{2½}$
15h	20	3938.92	25380.51	$(^1S)\ 5d\ ^2D_{1½}-37^\circ_{2½}$
3	4	3942.21	25359.33	$(^3P)\ 5d\ ^4P_{1½}-(^1D)\ 6p\ ^2P^\circ_{0½}$
20	20	3943.57	25350.58	$(^3P)\ 6s\ ^4P_{1½}-(^3P)\ 6p\ ^4D^\circ_{0½}$
5Hl	5Hl	3951.61	25299.01	$(^3P)\ 6p\ ^4S^\circ_{1½}-14_{2½}$
20hl	30hl	3954.73	25279.05	$(^1D)\ 5d\ ^2F_{2½}-15^\circ_{2½}$
1h	1	3967.54	25197.43	
50Hl	50hl	3972.58	25165.46	$(^1D)\ 6p\ ^2F^\circ_{2½}-(^1D)\ 6d\ ^2F_{2½}$
4	5	3975.59	25146.41	$(^3P)\ 5d\ ^4D_{1½}-(^3P)\ 6p\ ^2S^\circ_{0½}$
2h	2h	3978.98	25124.99	$(^3P)\ 6p\ ^2S^\circ_{0½}-(^1D)\ 7s\ ^2D_{2½}$
2h	2h	3980.41	25115.96	$(^1D)\ 5d\ ^2F_{3½}-15^\circ_{2½}$
1	1	3980.78	25113.63	
1h	1h	3981.21	25110.92	
60Hl	60Hl	3990.33	25053.52	$(^3P)\ 6p\ ^4P^\circ_{0½}-(^3P)\ 6d\ ^4D_{0½}$
3	4	3996.05	25017.66	$(^3P)\ 5d\ ^2P_{0½}-(^1D)\ 6p\ ^2D^\circ_{1½}$
1*		3998.54	25002.08	
5h	5h	4000.55	24989.52	
1*		4001.18	24985.59	
80Hl	80hl	4002.35	24978.29	$(^1S)\ 5d\ ^2D_{1½}-35^\circ_{2½}$
1H	1Hw	4008.46	24940.21	
2		4013.91	24906.29	
	1	4014.10	24905.17	
2h	2h	4016.56	24889.92	
2h	2h	4017.86	24881.86	$(^1S)\ 6s\ ^2S_{0½}-33^\circ_{1½}$
30	30	4025.19	24836.55	$(^3P)\ 5d\ ^2D_{1½}-(^1D)\ 6p\ ^2P^\circ_{0½}$
5Hl	6Hl	4026.20	24830.32	$(^3P)\ 6p\ ^2P^\circ_{1½}-(^1D)\ 6d\ ^2D_{1½}$
3h	2h	4027.97	24819.41	
1—		4029.82	24808.02	$(^3P)\ 6p\ ^4D^\circ_{0½}-(^3P)\ 6d\ ^2P_{0½}$
1	1	4035.87	24770.83	$(^3P)\ 5d\ ^4D_{0½}-(^3P)\ 6p\ ^4S^\circ_{1½}$
100	50	4037.29	24762.12	
200	100	4037.59	24760.28	$(^3P)\ 6p\ ^2S^\circ_{0½}-(^3P)\ 6d\ ^2D_{1½}$
1—	1	4039.69	24747.41	$(^1D)\ 5d\ ^2F_{2½}-9^\circ_{1½}$
6H	6H	4044.64	24717.12	
8H	8Hl	4044.90	24715.53	
10h	10h	4051.27	24676.67	$(^3P)\ 6p\ ^4S^\circ_{1½}-(^1D)\ 7s\ ^2D_{2½}$
	3	4051.66	24674.30	
1h	2h	4053.46	24663.34	
200Hl	200Hl	4057.46	24639.03	$(^3P)\ 6p\ ^4P^\circ_{2½}-(^3P)\ 6d\ ^4F_{3½}$
3	1—	4061.06	24617.18	$(^3P)\ 6s\ ^2P_{0½}-(^1D)\ 6p\ ^2F^\circ_{2½}$
6	6	4062.12	24610.76	$(^3P)\ 6p\ ^4P^\circ_{2½}-8_{2½}$
	1	4064.68	24595.26	
	1H	4064.94	24593.69	

TABLE 1.—*List of* Xe II *lines*—Continued

Intensity		Wave length (air)	Wave number (vac)	Transition
1		4065.10	24592.72	
2*h*	1—	4066.90	24581.84	
6*h*	7*h*	4072.10	24550.45	$({}^3P)\ 6p\ {}^4D^{\circ}_{2\frac{1}{2}}-12_{1\frac{1}{2}}$
15	15	4073.50	24542.01	$({}^3P)\ 5d\ {}^4P_{1\frac{1}{2}}-({}^1D)\ 6p\ {}^2D^{\circ}_{1\frac{1}{2}}$
	1	4078.84	24509.88	
1	1	4088.31	24453.11	
3*h*	3*h*	4091.88	24431.77	$({}^1D)\ 5d\ {}^2F_{2\frac{1}{2}}-7^{\circ}_{1\frac{1}{2}}$
	1	4092.78	24426.40	
1	1	4096.22	24405.89	
100*h*	100*h*	4098.89	24389.99	$({}^3P)\ 6p\ {}^4P^{\circ}_{0\frac{1}{2}}-12_{1\frac{1}{2}}$
20	20	4100.34	24381.37	$({}^3P)\ 5d\ {}^4D_{1\frac{1}{2}}-({}^3P)\ 6p\ {}^4D^{\circ}_{0\frac{1}{2}}$
1*h*	2*h*	4100.97	24377.62	$({}^1D)\ 5d\ {}^2F_{2\frac{1}{2}}-5^{\circ}_{1\frac{1}{2}}$
8*hl*	10*hl*	4103.10	24364.96	$({}^1D)\ 6p\ {}^2P^{\circ}_{1\frac{1}{2}}-({}^1D)\ 6d\ {}^2F_{2\frac{1}{2}}$
40	40	4104.95	24353.98	$({}^3P)\ 5d\ {}^2P_{1\frac{1}{2}}-({}^1D)\ 6p\ {}^2P^{\circ}_{1\frac{1}{2}}$
2	1	4106.20	24346.57	
30	30	4110.41	24321.63	$({}^3P)\ 5d\ {}^4D_{0\frac{1}{2}}-({}^3P)\ 6p\ {}^2S^{\circ}_{0\frac{1}{2}}$
1	1—	4111.30	24316.37	
30H*l*	30*hl*	4112.14	24311.40	$({}^3P)\ 6p\ {}^4S^{\circ}_{1\frac{1}{2}}-({}^3P)\ 6d\ {}^2D_{1\frac{1}{2}}$
2	2	4113.26	24304.78	$({}^1S)\ 6s\ {}^2S_{0\frac{1}{2}}-31^{\circ}_{1\frac{1}{2}}$
2	2	4113.52	24303.25	$({}^3P)\ 5d\ {}^2D_{1\frac{1}{2}}-({}^1D)\ 6p\ {}^2D^{\circ}_{2\frac{1}{2}}$
1	1	4114.44	24297.81	
5*h*	5	4121.86	24254.07	$({}^1D)\ 5d\ {}^2F_{2\frac{1}{2}}-3^{\circ}_{3\frac{1}{2}}$
20	20	4131.01	24200.35	$({}^3P)\ 5d\ {}^2D_{2\frac{1}{2}}-({}^1D)\ 6p\ {}^2D^{\circ}_{2\frac{1}{2}}$
3*h*	3*h*	4138.81	24154.75	
2*h*	2*h*	4148.19	24100.13	$({}^3P)\ 6p\ {}^4D^{\circ}_{1\frac{1}{2}}-({}^3P)\ 6d\ {}^4P_{0\frac{1}{2}}$
1	1—	4152.74	24073.72	
2	1	4154.65	24062.65	
2*h*	2*h*	4156.17	24053.85	
200H*l*	200H*l*	4158.04	24043.04	$({}^3P)\ 6p\ {}^2S^{\circ}_{0\frac{1}{2}}-({}^3P)\ 6d\ {}^2P_{0\frac{1}{2}}$
60	60	4162.16	24019.24	$({}^3P)\ 5d\ {}^2D_{1\frac{1}{2}}-({}^1D)\ 6p\ {}^2D^{\circ}_{1\frac{1}{2}}$
8H*l*	8H*l*	4170.99	23968.39	$({}^1D)\ 6p\ {}^2F^{\circ}_{3\frac{1}{2}}-({}^1D)\ 6d\ {}^2F_{2\frac{1}{2}}$
1000*h*	1000*h*	4180.10	23916.16	$({}^3P)\ 6p\ {}^4P^{\circ}_{1\frac{1}{2}}-({}^3P)\ 6d\ {}^4D_{1\frac{1}{2}}$
1*h*	1*h*	4185.26	23886.67	
	1*h*	4185.89	23883.07	
500*h*	500*h*	4193.15	23841.72	
	8	4193.54	23839.51	
10H	10H	4197.81	23815.26	$({}^3P)\ 6p\ {}^2D^{\circ}_{2\frac{1}{2}}-14_{2\frac{1}{2}}$
15H	15H	4201.25	23795.76	$({}^3P)\ 6p\ {}^2D^{\circ}_{1\frac{1}{2}}-({}^1D)\ 6d\ {}^2D_{1\frac{1}{2}}$
5	2	4203.22	23784.60	$({}^3P)\ 7s\ {}^4P_{2\frac{1}{2}}-39^{\circ}_{1\frac{1}{2}}$
1	2	4204.29	23778.55	
400*h*	300*h*	4208.48	23754.88	$({}^3P)\ 6p\ {}^4P^{\circ}_{1\frac{1}{2}}-({}^3P)\ 6d\ {}^4D_{2\frac{1}{2}}$
200*h*	100*h*	4209.47	23749.29	$({}^3P)\ 6p\ {}^4P^{\circ}_{2\frac{1}{2}}-({}^3P)\ 6d\ {}^4D_{1\frac{1}{2}}$
400*h*	300*h*	4213.72	23725.34	$({}^3P)\ 6p\ {}^4D^{\circ}_{0\frac{1}{2}}-({}^3P)\ 6d\ {}^4P_{1\frac{1}{2}}$
6	6	4214.69	23719.88	$({}^3P)\ 5d\ {}^4P_{0\frac{1}{2}}-({}^1D)\ 6p\ {}^2P^{\circ}_{1\frac{1}{2}}$
200	100	4215.60	23714.76	$({}^3P)\ 6s\ {}^4P_{2\frac{1}{2}}-({}^3P)\ 6p\ {}^4D^{\circ}_{1\frac{1}{2}}$
1	1	4218.93	23696.04	
400*h*	300*h*	4223.00	23673.20	$({}^3P)\ 6p\ {}^2P^{\circ}_{1\frac{1}{2}}-14_{2\frac{1}{2}}$
500*h*	400*h*	4238.25	23588.02	{ $({}^3P)\ 6p\ {}^4P^{\circ}_{2\frac{1}{2}}-({}^3P)\ 6d\ {}^4D_{2\frac{1}{2}}$ $({}^3P)\ 5d\ {}^4P_{2\frac{1}{2}}-({}^1D)\ 6p\ {}^2F^{\circ}_{3\frac{1}{2}}$
10	10	4243.88	23556.73	$({}^3P)\ 5d\ {}^4D_{0\frac{1}{2}}-({}^3P)\ 6p\ {}^4D^{\circ}_{0\frac{1}{2}}$
30	30	4244.41	23553.79	$({}^3P)\ 5d\ {}^2P_{1\frac{1}{2}}-({}^3P)\ 6p\ {}^2F^{\circ}_{2\frac{1}{2}}$

TABLE 1.—*List of* Xe II *lines*—Continued

Intensity		Wave length (air)	Wave number (vac)	Transition
500*h*	500*h*	4245. 38	23548. 41	$({}^3\mathrm{P})\ 6p\ {}^4\mathrm{P}^{\circ}_{2\frac{1}{2}}-({}^3\mathrm{P})\ 6d\ {}^4\mathrm{D}_{3\frac{1}{2}}$
1	1	4248. 65	23530. 29	
100H*l*	100H*l*	4251. 57	23514. 12	$({}^3\mathrm{P})\ 6p\ {}^2\mathrm{P}^{\circ}_{0\frac{1}{2}}-({}^1\mathrm{D})\ 6d\ {}^2\mathrm{D}_{1\frac{1}{2}}$
2	1	4253. 55	23503. 18	
2	1	4255. 96	23489. 87	
1	1—	4260. 68	23463. 85	
30*h*	30*h*	4263. 44	23448. 66	
?	10*h*	4263. 57	23447. 94	$({}^1\mathrm{S})\ 6s\ {}^2\mathrm{S}_{0\frac{1}{2}}-25^{\circ}_{1\frac{1}{2}}$
2	1	4267. 86	23424. 38	
1	1*h*	4268. 92	23418. 56	
40	40	4269. 84	23413. 51	$({}^3\mathrm{P})\ 6s\ {}^4\mathrm{P}_{0\frac{1}{2}}-({}^3\mathrm{P})\ 6p\ {}^2\mathrm{P}^{\circ}_{0\frac{1}{2}}$
500*h*	500*h*	4296. 40	23268. 78	$({}^3\mathrm{P})\ 6p\ {}^4\mathrm{P}^{\circ}_{1\frac{1}{2}}-({}^3\mathrm{P})\ 7s\ {}^4\mathrm{P}^{\circ}_{0\frac{1}{2}}$
2	10	4296. 75	23266. 88	$({}^1\mathrm{S})\ 5d\ {}^2\mathrm{D}_{1\frac{1}{2}}-29^{\circ}_{1\frac{1}{2}}$
1*h*	2*h*	4306. 21	23215. 77	$({}^1\mathrm{S})\ 5d\ {}^2\mathrm{D}_{1\frac{1}{2}}-25^{\circ}_{1\frac{1}{2}}$
500*h*	500*h*	4310. 51	23192. 61	$({}^3\mathrm{P})\ 6p\ {}^2\mathrm{D}^{\circ}_{2\frac{1}{2}}-({}^1\mathrm{D})\ 7s\ {}^2\mathrm{D}_{2\frac{1}{2}}$
1H	1H	4319. 48	23144. 45	
40	40	4321. 82	23131. 92	$({}^3\mathrm{P})\ 6s\ {}^4\mathrm{P}_{0\frac{1}{2}}-({}^3\mathrm{P})\ 6p\ {}^2\mathrm{D}^{\circ}_{1\frac{1}{2}}$
1000H*l*	1000H*l*	4330. 52	23085. 45	$({}^3\mathrm{P})\ 6p\ {}^4\mathrm{D}^{\circ}_{2\frac{1}{2}}-({}^3\mathrm{P})\ 6d\ {}^4\mathrm{F}_{3\frac{1}{2}}$
10	10	4335. 81	23057. 28	$({}^3\mathrm{P})\ 6p\ {}^4\mathrm{D}^{\circ}_{2\frac{1}{2}}-8_{2\frac{1}{2}}$
30H*l*	30H*l*	4337. 07	23050. 58	$({}^3\mathrm{P})\ 6p\ {}^2\mathrm{P}^{\circ}_{1\frac{1}{2}}-({}^1\mathrm{D})\ 7s\ {}^2\mathrm{D}_{2\frac{1}{2}}$
6H*l*	8H*l*	4342. 56	23021. 44	$({}^3\mathrm{P})\ 6p\ {}^4\mathrm{D}^{\circ}_{3\frac{1}{2}}-10_{2\frac{1}{2}}$
2*h*	3H	4360. 32	22927. 67	
30H	30H	4367. 05	22892. 34	$({}^3\mathrm{P})\ 6p\ {}^4\mathrm{D}^{\circ}_{3\frac{1}{2}}-({}^3\mathrm{P})\ 6d\ {}^4\mathrm{F}_{3\frac{1}{2}}$
200H	200H	4369. 20	22881. 08	
2*h*	2*h*	4372. 46	22864. 02	$({}^3\mathrm{P})\ 6p\ {}^4\mathrm{D}^{\circ}_{3\frac{1}{2}}-8_{2\frac{1}{2}}$
1*h*	3*hl*	4372. 88	22861. 82	
100H*l*	100H*l*	4373. 78	22857. 12	$({}^3\mathrm{P})\ 6p\ {}^4\mathrm{D}^{\circ}_{1\frac{1}{2}}-({}^3\mathrm{P})\ 6d\ {}^4\mathrm{F}_{1\frac{1}{2}}$
10H*l*	10*h*	4379. 44	22827. 58	$({}^3\mathrm{P})\ 6p\ {}^2\mathrm{D}^{\circ}_{2\frac{1}{2}}-({}^3\mathrm{P})\ 6d\ {}^2\mathrm{D}_{1\frac{1}{2}}$
60	60	4384. 93	22799. 00	$sp^6\ {}^2\mathrm{S}_{0\frac{1}{2}}-({}^3\mathrm{P})\ 6p\ {}^4\mathrm{P}^{\circ}_{0\frac{1}{2}}$
500H	500H	4393. 20	22756. 08	$({}^3\mathrm{P})\ 6p\ {}^4\mathrm{S}^{\circ}_{1\frac{1}{2}}-({}^3\mathrm{P})\ 6d\ {}^2\mathrm{D}_{2\frac{1}{2}}$
500H*l*	500H*l*	4395. 77	22742. 77	
200H*l*	200H*l*	4406. 88	22685. 44	$({}^3\mathrm{P})\ 6p\ {}^2\mathrm{P}^{\circ}_{1\frac{1}{2}}-({}^3\mathrm{P})\ 6d\ {}^2\mathrm{D}_{1\frac{1}{2}}$
300	300	4414. 84	22644. 54	$({}^1\mathrm{D})\ 6s\ {}^2\mathrm{D}_{2\frac{1}{2}}-({}^1\mathrm{D})\ 6p\ {}^2\mathrm{D}^{\circ}_{2\frac{1}{2}}$
150H*l*	150H*l*	4416. 07	22638. 24	$({}^3\mathrm{P})\ 6p\ {}^2\mathrm{D}^{\circ}_{1\frac{1}{2}}-14_{2\frac{1}{2}}$
1*h*	1*h*	4419. 90	22618. 62	
2*h*	2*h*	4427. 52	22579. 69	
50H	50H	4440. 95	22511. 40	$({}^3\mathrm{P})\ 6p\ {}^4\mathrm{S}^{\circ}_{1\frac{1}{2}}-({}^3\mathrm{P})\ 6d\ {}^4\mathrm{P}_{1\frac{1}{2}}$
500H*l*	500H	4448. 13	22475. 07	
1H	1H	4451. 32	22458. 96	
1000H*l*	1000H	4462. 19	22404. 25	
	1	4464. 60	22392. 16	$({}^3\mathrm{P})\ 5d\ {}^4\mathrm{P}_{2\frac{1}{2}}-({}^1\mathrm{D})\ 6p\ {}^2\mathrm{F}^{\circ}_{2\frac{1}{2}}$
30	30	4470. 90	22360. 61	$({}^1\mathrm{D})\ 6s\ {}^2\mathrm{D}_{2\frac{1}{2}}-({}^1\mathrm{D})\ 6p\ {}^2\mathrm{D}^{\circ}_{1\frac{1}{2}}$
4*h*	4*h*	4473. 85	22345. 86	
500H*l*	500*hl*	4480. 86	22310. 90	$({}^3\mathrm{P})\ 6p\ {}^4\mathrm{D}^{\circ}_{1\frac{1}{2}}-({}^3\mathrm{P})\ 6d\ {}^4\mathrm{F}_{2\frac{1}{2}}$
20	20	4485. 95	22285. 59	$({}^3\mathrm{P})\ 5d\ {}^4\mathrm{P}_{1\frac{1}{2}}-({}^1\mathrm{D})\ 6p\ {}^2\mathrm{P}^{\circ}_{1\frac{1}{2}}$
4H	4H	4488. 60	22272. 43	
5*h*	5*h*	4507. 11	22180. 97	
2*h*	2*h*	4511. 80	22157. 91	
3	3	4519. 69	22119. 23	
100*hl*	100*hl*	4521. 86	22108. 61	$({}^1\mathrm{D})\ 6p\ {}^2\mathrm{D}^{\circ}_{1\frac{1}{2}}-({}^1\mathrm{D})\ 6d\ {}^2\mathrm{F}_{2\frac{1}{2}}$

TABLE 1.—*List of* Xe II *lines*—Continued

Intensity		Wave length (air)	Wave number (vac)	Transition
200	200	4524.21	22097.13	$(^3P)\ 6s\ ^4P_{0\frac{1}{2}}-(^3P)\ 6p\ ^2P^\circ_{1\frac{1}{2}}$
200	200	4532.49	22056.76	$(^3P)\ 5d\ ^2D_{2\frac{1}{2}}-(^1D)\ 6p\ ^2F^\circ_{3\frac{1}{2}}$
1*h*	1*h*	4535.09	22044.12	
80H	80H	4536.92	22035.23	$(^3P)\ 6p\ ^4P^\circ_{0\frac{1}{2}}-(^3P)\ 6d\ ^4D_{1\frac{1}{2}}$
400*hl*	400*h*	4540.89	22015.96	$(^3P)\ 6p\ ^2D^\circ_{1\frac{1}{2}}-(^1D)\ 7s\ ^2D_{2\frac{1}{2}}$
400H*l*	400H*l*	4545.23	21994.94	$(^3P)\ 6p\ ^4D^\circ_{2\frac{1}{2}}-(^3P)\ 6d\ ^4D_{3\frac{1}{2}}$
10H	15*h*	4550.79	21968.07	$(^3P)\ 6p\ ^2P^\circ_{1\frac{1}{2}}-(^3P)\ 6d\ ^2P_{0\frac{1}{2}}$
200H*l*	200H*l*	4555.94	21943.24	$(^3P)\ 6p\ ^4D^\circ_{1\frac{1}{2}}-(^3P)\ 6d\ ^4D_{0\frac{1}{2}}$
2H	2H	4563.00	21909.29	
4	1—	4569.12	21879.94	
30H*d*	30H*w*	4571.85	21866.87	
200H	200H	4577.06	21841.98	$(^3P)\ 6p\ ^4D^\circ_{3\frac{1}{2}}-(^3P)\ 6d\ ^4D_{2\frac{1}{2}}$
80H*l*	80H	4580.70	21824.63	$(^1D)\ 6p\ ^2D^\circ_{2\frac{1}{2}}-(^1D)\ 6d\ ^2F_{2\frac{1}{2}}$
500H*l*	500*h*	4585.48	21801.88	$(^3P)\ 6p\ ^4D^\circ_{3\frac{1}{2}}-(^3P)\ 6d\ ^4D_{3\frac{1}{2}}$
1*h*	3	4588.36	21788.19	
300H*l*	300*h*	4592.05	21770.69	$(^3P)\ 6p\ ^4S^\circ_{1\frac{1}{2}}-(^3P)\ 6d\ ^4P_{2\frac{1}{2}}$
6	10	4593.70	21762.87	$(^3P)\ 5d\ ^2D_{1\frac{1}{2}}-(^1D)\ 6p\ ^2P^\circ_{1\frac{1}{2}}$
1	1	4596.30	21750.56	$(^3P)\ 6p\ ^2S^\circ_{0\frac{1}{2}}-(^3P)\ 7s\ ^2P_{0\frac{1}{2}}$
600*h*	600	4603.03	21718.76	$(^3P)\ 6s\ ^4P_{1\frac{1}{2}}-(^3P)\ 6p\ ^4D^\circ_{1\frac{1}{2}}$
100*hl*	100*hl*	4615.06	21662.14	$(^3P)\ 6p\ ^4P^\circ_{1\frac{1}{2}}-4$
200	200	4615.50	21660.08	$(^3P)\ 5d\ ^2D_{2\frac{1}{2}}-(^1D)\ 6p\ ^2P^\circ_{1\frac{1}{2}}$
90*hl*	100	4617.50	21650.70	$(^3P)\ 6p\ ^2D^\circ_{1\frac{1}{2}}-(^3P)\ 6d\ ^2D_{1\frac{1}{2}}$
1	3	4619.57	21641.00	
2	2	4620.11	21638.47	
50	50	4633.30	21576.87	$(^3P)\ 5d\ ^4F_{2\frac{1}{2}}-(^3P)\ 6p\ ^2D^\circ_{2\frac{1}{2}}$
2*h*	3*h*	4649.17	21503.22	
200	200	4651.94	21490.41	$(^3P)\ 6s\ ^2P_{1\frac{1}{2}}-(^3P)\ 6p\ ^2D^\circ_{1\frac{1}{2}}$
40	50	4653.00	21485.51	$(^3P)\ 5d\ ^4P_{1\frac{1}{2}}-(^1D)\ 6p\ ^2F^\circ_{2\frac{1}{2}}$
40H*l*	50*h*	4666.28	21424.37	$(^1D)\ 5d\ ^2P_{1\frac{1}{2}}-33^\circ_{1\frac{1}{2}}$
100	100	4668.49	21414.23	$(^1D)\ 5d\ ^2D_{1\frac{1}{2}}-(^1D)\ 6p\ ^2P^\circ_{0\frac{1}{2}}$
100H*l*	100*hl*	4672.20	21397.22	$(^3P)\ 6p\ ^4P^\circ_{1\frac{1}{2}}-(^3P)\ 7s\ ^4P_{1\frac{1}{2}}$
40	50	4674.56	21386.42	$(^3P)\ 5d\ ^4D_{2\frac{1}{2}}-(^3P)\ 6p\ ^4D^\circ_{1\frac{1}{2}}$
200H*l*	200H*l*	4676.46	21377.73	
2	10*h*	4676.75	21376.41	
2*h*	3*h*	4678.31	21369.28	$(^3P)\ 6p\ ^2P^\circ_{0\frac{1}{2}}-(^3P)\ 6d\ ^2D_{1\frac{1}{2}}$
3*hl*	5*h*	4679.45	21364.08	$(^1D)\ 5d\ ^2P_{0\frac{1}{2}}-31^\circ_{1\frac{1}{2}}$
15*hl*	20*hl*	4693.34	21300.85	$(^3P)\ 6p\ ^4S^\circ_{1\frac{1}{2}}-(^3P)\ 7s\ ^2P_{0\frac{1}{2}}$
300*hl*	300	4698.01	21279.67	$(^3P)\ 6p\ ^4D^\circ_{1\frac{1}{2}}-12_{1\frac{1}{2}}$
3H*l*	6*h*	4699.62	21272.38	$(^3P)\ 6p\ ^2D^\circ_{2\frac{1}{2}}-(^3P)\ 6d\ ^2D_{2\frac{1}{2}}$
10H*l*	15H*l*	4704.67	21249.55	$(^1S)\ 5d\ ^2D_{2\frac{1}{2}}-19^\circ_{1\frac{1}{2}}$
2H	2H*w*	4706.96	21239.21	
8*hl*	15*h*	4708.92	21230.37	$(^3P)\ 6p\ ^4P^\circ_{2\frac{1}{2}}-(^3P)\ 7s\ ^4P_{1\frac{1}{2}}$
40	30	4712.63	21213.66	
100	150	4715.18	21202.18	$(^3P)\ 6p\ ^2S^\circ_{0\frac{1}{2}}-(^3P)\ 7s\ ^2P_{1\frac{1}{2}}$
2H*l*	4H*l*	4721.00	21176.05	
100*hl*	100*h*	4731.19	21130.44	$(^3P)\ 6p\ ^2P^\circ_{0\frac{1}{2}}-(^3P)\ 6d\ ^2D_{2\frac{1}{2}}$
15H*l*	20*hl*	4732.51	21124.55	{ $(^1S)\ 5d\ ^2D_{2\frac{1}{2}}-(^1S)\ 6p\ ^2P^\circ_{1\frac{1}{2}}$ $(^3P)\ 6p\ ^4P^\circ_{1\frac{1}{2}}-2_{0\frac{1}{2}}$
150	200	4769.05	20962.69	$(^3P)\ 5d\ ^2D_{1\frac{1}{2}}-(^1D)\ 6p\ ^2F^\circ_{2\frac{1}{2}}$
80*h*	100	4773.19	20944.51	$(^1S)\ 5d\ ^2D_{2\frac{1}{2}}-15^\circ_{2\frac{1}{2}}$
5H*l*	20H*l*	4775.18	20935.78	$(^1D)\ 6p\ ^2F^\circ_{2\frac{1}{2}}-(^1D)\ 7s\ ^2D_{1\frac{1}{2}}$

TABLE 1.—*List of* Xe II *lines*—Continued

Intensity		Wave length (air)	Wave number (vac)	Transition
8H*l*	20H*l*	4775. 76	20933. 24	$(^3P)\ 6p\ ^2D^\circ_{1\frac{1}{2}}-(^3P)\ 6d\ ^2P_{0\frac{1}{2}}$
80	100	4779. 18	20918. 26	$sp^6\ ^2S_{0\frac{1}{2}}-(^3P)\ 6p\ ^4P^\circ_{1\frac{1}{2}}$
10H*l*	15*h*	4786. 65	20885. 62	$(^3P)\ 6p\ ^2P^\circ_{1\frac{1}{2}}-(^3P)\ 6d\ ^4P_{1\frac{1}{2}}$
100	100	4787. 77	20880. 73	$(^1D)\ 5d\ ^2D_{1\frac{1}{2}}-(^1D)\ 6p\ ^2D^\circ_{2\frac{1}{2}}$
	3*h*	4790. 20	20870. 14	
	2*h*	4791. 84	20863. 00	
	3*h*	4795. 40	20847. 51	$(^1D)\ 5d\ ^2P_{1\frac{1}{2}}-31^\circ_{1\frac{1}{2}}$
	10H*l*	4796. 48	20842. 81	}
6H*l*		4796. 53	20842. 60	}
15H*l*	20*hl*	4799. 45	20829. 91	$(^1D)\ 6p\ ^2F^\circ_{2\frac{1}{2}}-(^1D)\ 6d\ ^2D_{2\frac{1}{2}}$
1	1—	4802. 10	20818. 42	
3*h*	2*h*	4806. 92	20797. 55	
	60*h*	4817. 14	20753. 42	} $(^3P)\ 6p\ ^4S^\circ_{1\frac{1}{2}}-(^3P)\ 7s\ ^2P_{1\frac{1}{2}}$
40H*l*		4817. 22	20753. 08	}
200	200	4818. 02	20749. 63	$(^3P)\ 5d\ ^4D_{1\frac{1}{2}}-(^3P)\ 6p\ ^4D^\circ_{1\frac{1}{2}}$
	300	4823. 35	20726. 70	} $(^3P)\ 6p\ ^4P^\circ_{1\frac{1}{2}}-(^3P)\ 7s\ ^4P_{2\frac{1}{2}}$
300*h*		4823. 41	20726. 45	}
2H	1	4827. 55	20708. 67	
2H		4830. 11	20697. 70	}
	1	4830. 25	20697. 10	}
2	1	4832. 20	20688. 74	
	3	4834. 65	20678. 26	
1H—	1H	4837. 82	20664. 71	
1		4840. 87	20651. 69	$(^3P)\ 6p\ ^2P^\circ_{0\frac{1}{2}}-(^3P)\ 6d\ ^2P_{0\frac{1}{2}}$
2000*h*	3000	4844. 33	20636. 94	$(^3P)\ 6s\ ^4P_{2\frac{1}{2}}-(^3P)\ 6p\ ^4D^\circ_{3\frac{1}{2}}$
40	60	4853. 77	20596. 81	$(^1D)\ 5d\ ^2D_{1\frac{1}{2}}-(^1D)\ 6p\ ^2D^\circ_{1\frac{1}{2}}$
1	1	4857. 20	20582. 26	
1H	2*h*	4858. 82	20575. 40	
	1000	4862. 45	20560. 04	} $(^3P)\ 6p\ ^4P^\circ_{2\frac{1}{2}}-(^3P)\ 7s\ ^4P_{2\frac{1}{2}}$
800*hl*		4862. 54	20559. 66	}
1*h*	2*h*	4868. 87	20532. 93	
500*hl*	500	4876. 50	20500. 80	$(^1D)\ 6s\ ^2D_{2\frac{1}{2}}-(^1D)\ 6p\ ^4F^\circ_{3\frac{1}{2}}$
1*d*?	1	4880. 78	20482. 83	
600*h*	600	4883. 53	20471. 29	$(^3P)\ 6s\ ^4P_{0\frac{1}{2}}-(^3P)\ 6p\ ^4S^\circ_{1\frac{1}{2}}$
100H	100H	4884. 15	20468. 69	$(^3P)\ 6p\ ^4D^\circ_{0\frac{1}{2}}-(^3P)\ 6d\ ^4P_{0\frac{1}{2}}$
4*h*	5*h*	4885. 19	20464. 34	
300*h*	300	4887. 30	20455. 50	$(^3P)\ 6s\ ^2P_{1\frac{1}{2}}-(^3P)\ 6p\ ^2P^\circ_{1\frac{1}{2}}$
300*h*	300	4890. 09	20443. 83	$(^3P)\ 6s\ ^4P_{2\frac{1}{2}}-(^3P)\ 6p\ ^4D^\circ_{2\frac{1}{2}}$
1	1	4895. 24	20422. 32	
	1	4899. 9	20402. 9	$(^3P)\ 6p\ ^4D^\circ_{2\frac{1}{2}}-6_{2\frac{1}{2}}$
2H	3*h*	4905. 20	20380. 85	
	2	4911. 64	20354. 13	
200	250	4919. 66	20320. 95	$(^3P)\ 6s\ ^2P_{0\frac{1}{2}}-(^3P)\ 6p\ ^2P^\circ_{0\frac{1}{2}}$
1*h*	1*h*	4920. 59	20317. 11	
800	1000	4921. 48	20313. 44	$(^3P)\ 6s\ ^2P_{1\frac{1}{2}}-(^3P)\ 6p\ ^2D^\circ_{2\frac{1}{2}}$
1*h*	2*h*	4925. 89	20295. 25	
	2	4931. 33	20272. 86	
1	2	4936. 25	20252. 66	
1	2	4941. 10	20232. 78	
1H		4946. 72	20209. 79	$(^3P)\ 6p\ ^4D^\circ_{3\frac{1}{2}}-6_{2\frac{1}{2}}$

TABLE 1.—*List of* Xe II *lines*—Continued

Intensity		Wave length (air)	Wave number (vac)	Transition
1—	1	4947.70	20205.79	
	1—	4962.8	20144.3	$(^{3}P)\ 6p\ ^{2}P^{\circ}_{1½}-(^{3}P)\ 6d\ ^{4}P_{2½}$
4H*l*	8H*l*	4965.00	20135.38	$(^{1}D)\ 6p\ ^{2}P^{\circ}_{1½}-(^{1}D)\ 7s\ ^{2}D_{1½}$
1*h*	2*h*	4966.23	20130.40	
200H*l*	200H*l*	4971.71	20108.21	
400*h*	400	4972.71	20104.17	$(^{1}D)\ 6s\ ^{2}D_{2½}-(^{1}D)\ 6p\ ^{2}P^{\circ}_{1½}$
	1	4974.41	20097.30	$(^{1}S)\ 5d\ ^{2}D_{2½}-7^{\circ}_{1½}$
2*h*	3*h*	4974.87	20095.44	$(^{3}P)\ 6p\ ^{2}D^{\circ}_{1½}-(^{3}P)\ 6d\ ^{2}D_{2½}$
2*h*	2*h*	4985.63	20052.07	
300*h*	300	4988.77	20039.45	$(^{3}P)\ 6s\ ^{2}P_{0½}-(^{3}P)\ 6p\ ^{2}D^{\circ}_{1½}$
100H*l*	100H*l*	4991.17	20029.81	$(^{1}D)\ 6p\ ^{2}P^{\circ}_{1½}-(^{1}D)\ 6d\ ^{2}D_{2½}$
10	20	4993.03	20022.35	$(^{3}P)\ 6s\ ^{4}P_{0½}-(^{3}P)\ 6p\ ^{2}S^{\circ}_{0½}$
5H*l*	20H*l*	4993.93	20018.74	$(^{1}D)\ 5d\ ^{2}P_{1½}-27^{\circ}_{2½}$
1—	1*h*	4996.22	20009.59	
3*h*	10*h*	5001.01	19990.40	
50H*l*	100*h*	5012.83	19943.26	$(^{3}P)\ 6p\ ^{4}D^{\circ}_{1½}-10_{2½}$
1	2	5017.41	19925.06	
	1	5018.75	19919.74	$(^{1}S)\ 5d\ ^{2}D_{2½}-3^{\circ}_{3½}$
3H*l*	5*h*	5036.15	19850.92	$(^{3}P)\ 6p\ ^{2}D^{\circ}_{1½}-(^{3}P)\ 6d\ ^{4}P_{1½}$
2	1*h*	5038.69	19840.91	
150*h*	200	5044.92	19816.41	$(^{1}D)\ 6s\ ^{2}D_{1½}-(^{1}D)\ 6p\ ^{2}P^{\circ}_{0½}$
30*h*	50	5052.54	19786.52	$(^{3}P)\ 6p\ ^{4}D^{\circ}_{1½}-8_{2½}$
3H*l*	4H	5066.33	19732.67	
10H*w*	20H*w*	5069.82	19719.08	
	1*h*	5073.8	19703.6	{ $(^{1}D)\ 5d\ ^{2}S_{0½}-33^{\circ}_{1½}$ $(^{3}P)\ 6p\ ^{2}S^{\circ}_{0½}-(^{3}P)\ 6d\ ^{4}P_{0½}$
600*h*	1000	5080.62	19677.17	$(^{3}P)\ 6p\ ^{4}D^{\circ}_{2½}-(^{3}P)\ 7s\ ^{4}P_{0½}$
30	50	5081.07	19675.42	$(^{3}P)\ 6p\ ^{2}P^{\circ}_{1½}-(^{3}P)\ 7s\ ^{2}P_{0½}$
	80	5091.93	19633.46	} $(^{1}D)\ 6p\ ^{2}F^{\circ}_{3½}-(^{1}D)\ 6d\ ^{2}D_{2½}$
60H*l*		5092.02	19633.12	}
5H	10H	5099.59	19603.97	
2*h*	5*h*	5108.58	19569.47	$(^{3}P)\ 6p\ ^{2}P^{\circ}_{0½}-(^{3}P)\ 6d\ ^{4}P_{1½}$
2*h*	5*h*	5117.76	19534.37	
200*hl*	300	5122.42	19516.60	$(^{3}P)\ 6p\ ^{4}P^{\circ}_{0½}-(^{3}P)\ 7s\ ^{4}P_{1½}$
30	100	5125.70	19504.11	$(^{1}D)\ 5d\ ^{2}D_{2½}-(^{1}D)\ 6p\ ^{2}D^{\circ}_{2½}$
50*h*	100	5178.82	19304.06	$(^{1}D)\ 6s\ ^{2}D_{2½}-(^{1}D)\ 6p\ ^{2}F^{\circ}_{2½}$
50	80	5184.48	19282.98	$(^{1}D)\ 6s\ ^{2}D_{1½}-(^{1}D)\ 6p\ ^{2}D^{\circ}_{2½}$
	300	5188.04	19269.75	} $(^{3}P)\ 6p\ ^{2}D^{\circ}_{2½}-(^{3}P)\ 7s\ ^{2}P_{1½}$
200		5188.11	19269.49	}
300	400	5191.37	19257.39	$(^{3}P)\ 6s\ ^{4}P_{0½}-(^{3}P)\ 6p\ ^{4}D^{\circ}_{0½}$
80	100	5192.10	19254.68	$(^{3}P)\ 6p\ ^{4}S^{\circ}_{1½}-(^{3}P)\ 6d\ ^{4}P_{0½}$
5H	20H	5194.92	19244.23	$(^{3}P)\ 6p\ ^{4}P^{\circ}_{0½}-2_{0½}$
	1*h*	5199.9	19225.8	$(^{3}P)\ 6p\ ^{4}D^{\circ}_{0½}-(^{3}P)\ 6d\ ^{4}F_{1½}$
20	30	5201.42	19220.18	$(^{1}D)\ 5d\ ^{2}D_{2½}-(^{1}D)\ 6p\ ^{2}D^{\circ}_{1½}$
	10H	5201.88	19218.48	$(^{1}D)\ 6p\ ^{2}F^{\circ}_{2½}-(^{1}D)\ 6d\ ^{2}D_{1½}$
1*h*	3*h*	5213.17	19176.86	
1H	1H	5218.20	19158.38	
	50*hl*	5226.57	19127.70	} $(^{3}P)\ 6p\ ^{2}P^{\circ}_{1½}-(^{3}P)\ 7s\ ^{2}P_{1½}$
20*hl*		5226.62	19127.51	}
?	10*hl*	5226.90	19126.49	$(^{1}D)\ 5d\ ^{2}S_{0½}-31^{\circ}_{1½}$
1—	1	5240.9	19075.4	

TABLE 1.—*List of* Xe II *lines*—Continued

Intensity		Wave length (air)	Wave number (vac)	Transition
20*h*	100	5247.75	19050.50	
30	50	5259.89	19006.53	$(^3P)\ 6p\ ^4D^{\circ}_{2\frac{1}{2}} - (^3P)\ 7s\ ^4P_{2\frac{1}{2}}$
200	500	5260.44	19004.54	$(^3P)\ 6s\ ^2P_{2\frac{1}{2}} - (^3P)\ 6p\ ^2P^{\circ}_{1\frac{1}{2}}$
200	500	5261.95	18999.09	$(^1D)\ 6s\ ^2D_{1\frac{1}{2}} - (^1D)\ 6p\ ^2D^{\circ}_{1\frac{1}{2}}$
1	1	5263.98	18991.76	
50	100	5268.31	18976.15	$(^3P)\ 5d\ ^2P_{1\frac{1}{2}} - (^3P)\ 6p\ ^2D^{\circ}_{1\frac{1}{2}}$
1*h*	3	5281.66	18928.19	
2*h*	20	5282.46	18925.32	$(^3P)\ 6p\ ^4D^{\circ}_{1\frac{1}{2}} - (^3P)\ 6d\ ^4D_{1\frac{1}{2}}$
2*h*	2*h*	5291.3	18893.7	
1000	2000	5292.22	18890.42	$(^3P)\ 6s\ ^4P_{2\frac{1}{2}} - (^3P)\ 6p\ ^4P^{\circ}_{2\frac{1}{2}}$
	4	5302.83	18852.62	
200	300	5309.27	18829.76	$(^3P)\ 6s\ ^2P_{1\frac{1}{2}} - (^3P)\ 6p\ ^4S^{\circ}_{1\frac{1}{2}}$
800	1000	5313.87	18813.46	$(^3P)\ 6p\ ^4D^{\circ}_{3\frac{1}{2}} - (^3P)\ 7s\ ^4P_{2\frac{1}{2}}$
	3	5319.83	18792.38	
1−	1	5320.44	18790.23	
	1	5323.35	18779.93	
	20	5327.83	18764.16	}
3		5327.90	18763.93	}
1−	3	5328.69	18761.13	
1*h*	1*h*	5338.38	18727.08	
	2000	5339.33	18723.75	$(^3P)\ 6p\ ^4D^{\circ}_{1\frac{1}{2}} - (^3P)\ 6d\ ^4D_{3\frac{1}{2}}$
1000		5339.38	18723.59	$(^3P)\ 6s\ ^4P_{2\frac{1}{2}} - (^3P)\ 6p\ ^4P^{\circ}_{1\frac{1}{2}}$
	3	5350.03	18686.30	
1H*l*	2*h*	5357.9	18658.9	
1−	1	5359.41	18653.60	
1−	2	5360.73	18649.00	
	2	5361.65	18645.80	
	200	5363.20	18640.41	} $(^3P)\ 6p\ ^2D^{\circ}_{1\frac{1}{2}} - (^3P)\ 7s\ ^2P_{0\frac{1}{2}}$
150		5363.27	18640.17	}
100	200	5368.07	18623.50	$(^3P)\ 5d\ ^4P_{0\frac{1}{2}} - (^3P)\ 6p\ ^2P^{\circ}_{0\frac{1}{2}}$
300	500	5372.39	18608.53	$(^3P)\ 6s\ ^4P_{1\frac{1}{2}} - (^3P)\ 6p\ ^4P^{\circ}_{0\frac{1}{2}}$
	1	5383.17	18571.27	
1*h*	1	5388.65	18552.72	
1−	1	5390.22	18546.98	
	1	5392.78	18538.17	
1−	2	5393.90	18534.32	
1H	2	5397.47	18522.06	
1−	1	5402.90	18503.45	
	3	5408.34	18484.84	
	50H	5415.36	18460.87	$(^3P)\ 6p\ ^2S^{\circ}_{0\frac{1}{2}} - (^3P)\ 6d\ ^4F_{1\frac{1}{2}}$
2*h*	2*h*	5418.2	18451.2	
2000	3000	5419.15	18447.96	$(^3P)\ 6s\ ^4P_{1\frac{1}{2}} - (^3P)\ 6p\ ^4D^{\circ}_{2\frac{1}{2}}$
	2*hs*	5428.07	18417.65	$(^1D)\ 6p\ ^2P^{\circ}_{1\frac{1}{2}} - (^1D)\ 6d\ ^2D_{1\frac{1}{2}}$
	3	5430.06	18410.90	
400	800	5438.96	18380.77	$(^3P)\ 6s\ ^2P_{1\frac{1}{2}} - (^3P)\ 6p\ ^2S^{\circ}_{0\frac{1}{2}}$
	300	5445.45	18358.86	} $(^3P)\ 6p\ ^2P^{\circ}_{0\frac{1}{2}} - (^3P)\ 7s\ ^2P_{0\frac{1}{2}}$
150		5445.52	18358.63	}
100	200	5450.45	18342.02	$(^3P)\ 5d\ ^4P_{0\frac{1}{2}} - (^3P)\ 6p\ ^2D^{\circ}_{1\frac{1}{2}}$
20	50	5450.90	18340.51	$(^1D)\ 5d\ ^2D_{1\frac{1}{2}} - (^1D)\ 6p\ ^2P^{\circ}_{1\frac{1}{2}}$
300	400	5460.39	18308.63	$(^3P)\ 5d\ ^4D_{2\frac{1}{2}} - (^3P)\ 6p\ ^4D^{\circ}_{3\frac{1}{2}}$

TABLE 1.—*List of* Xe II lines—Continued

Intensity		Wave length (air)	Wave number (vac)	Transition
	50	5469. 54	18278. 01	$(^3P)\ 6p\ ^4D^\circ_{1\frac{1}{2}}-(^3P)\ 7s\ ^4P_{0\frac{1}{2}}$
20h		5469. 58	18277. 87	
500	1000	5472. 61	18267. 75	$(^3P)\ 5d\ ^4D_{3\frac{1}{2}}-(^3P)\ 6p\ ^4D^\circ_{3\frac{1}{2}}$
1*h*	3*h*	5481. 13	18239. 36	
	1	5483. 59	18231. 18	
	2H*w*	5486. 60	18221. 17	
	100H*l*	5494. 86	18193. 78	
20H*lw*		5495. 07	18193. 09	
2*h*	20	5507. 46	18152. 16	
	20H*lw*	5509. 20	18146. 43	
1	5	5518. 56	18115. 65	$(^3P)\ 5d\ ^4D_{2\frac{1}{2}}-(^3P)\ 6p\ ^4D^\circ_{2\frac{1}{2}}$
	1	5520. 00	18110. 92	
	200	5525. 53	18092. 80	$(^3P)\ 6p\ ^2D^\circ_{1\frac{1}{2}}-(^3P)\ 7s\ ^2P_{1\frac{1}{2}}$
50		5525. 59	18092. 60	
400	600	5531. 07	18074. 68	$(^3P)\ 5d\ ^4D_{3\frac{1}{2}}-(^3P)\ 6p\ ^4D^\circ_{2\frac{1}{2}}$
	4H*s*	5551. 50	18008. 16	
3*h*	3*h*	5554. 99	17996. 85	
50	100	5572. 19	17941. 30	
2H	10H	5581. 93	17909. 99	
2H	20H	5583. 5	17905. 0	
2H	100H	5591. 61	17878. 98	$(^1D)\ 6p\ ^2D^\circ_{1\frac{1}{2}}-(^1D)\ 7s\ ^2D_{1\frac{1}{2}}$
	15H*wl*	5594. 87	17868. 57	
1*h*−	3*h*	5612. 89	17811. 20	$(^3P)\ 6p\ ^2P^\circ_{0\frac{1}{2}}-(^3P)\ 7s\ ^2P_{1\frac{1}{2}}$
150	300	5616. 67	17799. 21	$(^3P)\ 5d\ ^2P_{1\frac{1}{2}}-(^3P)\ 6p\ ^2D^\circ_{2\frac{1}{2}}$
1H*l*	10H*l*	5624. 78	17773. 55	$(^1D)\ 6p\ ^2D^\circ_{1\frac{1}{2}}-(^1D)\ 6d\ ^2D_{2\frac{1}{2}}$
3H	10H*wl*	5633. 24	17746. 86	
1*h*	2H*w*	5650. 53	17692. 56	
150	300	5659. 38	17664. 89	$(^3P)\ 5d\ ^2P_{0\frac{1}{2}}-(^3P)\ 6p\ ^2P^\circ_{0\frac{1}{2}}$
3*h*	2H	5664. 02	17650. 42	
300	600	5667. 56	17639. 39	$(^3P)\ 5d\ ^4D_{1\frac{1}{2}}-(^3P)\ 6p\ ^4P^\circ_{0\frac{1}{2}}$
	150	5670. 91	17628. 97	$(^3P)\ 6p\ ^2P^\circ_{1\frac{1}{2}}-(^3P)\ 6d\ ^4P_{\frac{1}{2}}$
50		5670. 96	17628. 82	
1	10	5675. 15	17615. 80	$(^3P)\ 6s\ ^2P_{1\frac{1}{2}}-(^3P)\ 6p\ ^4D^\circ_{0\frac{1}{2}}$
	1	5678. 93	17604. 08	
1*h*	2H*w*	5681. 87	17594. 97	$(^1D)\ 6p\ ^2D^\circ_{2\frac{1}{2}}-(^1D)\ 7s\ ^2D_{1\frac{1}{2}}$
	2	5682. 63	17592. 62	
2*h*	3*h*	5686. 49	17580. 67	
	2H*s*	5686. 6	17580. 3	
	2	5688. 20	17575. 39	
100	200	5699. 61	17540. 20	$(^1D)\ 5d\ ^2D_{1\frac{1}{2}}-(^1D)\ 6p\ ^2F^\circ_{2\frac{1}{2}}$
	200	5716. 10	17489. 60	$(^1D)\ 6p\ ^2D^\circ_{2\frac{1}{2}}-(^1D)\ 6d\ ^2D_{2\frac{1}{2}}$
100H		5716. 19	17489. 33	
200	500	5726. 91	17456. 59	$(^1D)\ 5d\ ^2F_{2\frac{1}{2}}-(^1D)\ 6p\ ^2D^\circ_{2\frac{1}{2}}$ $(^3P)\ 6p\ ^4P^\circ_{1\frac{1}{2}}-(^1D)\ 5d\ ^2S_{0\frac{1}{2}}$
	1	5738. 40	17421. 64	
1H*w*	20H	5746. 88	17395. 93	
200	500	5751. 03	17383. 38	$(^3P)\ 5d\ ^2P_{0\frac{1}{2}}-(^3P)\ 6p\ D^\circ_{1\frac{1}{2}}$
10	30	5752. 56	17378. 75	$(^3P)\ 6s\ ^2P_{0\frac{1}{2}}-(^3P)\ 6p\ ^4S^\circ_{1\frac{1}{2}}$
	5	5754. 18	17373. 86	
100	300	5758. 65	17360. 38	$(^1D)\ 5d\ ^2D_{2\frac{1}{2}}-(^1D)\ 6p\ ^4F^\circ_{3\frac{1}{2}}$
100	300	5776. 39	17307. 06	$(^3P)\ 5d\ ^4P_{0\frac{1}{2}}-(^3P)\ 6p\ ^2P^\circ_{1\frac{1}{2}}$

TABLE 1.—*List of* Xe II *lines*—Continued

Intensity		Wave length (air)	Wave number (vac)	Transition
1—	2	5780.83	17293.77	
	5*hld*	5791.88	17260.78	$(^1D)\ 6p\ ^2P^\circ_{1\frac{1}{2}}-14_{2\frac{1}{2}}$
1*hl*		5791.98	17260.48	
1—	1H*l*	5797.76	17243.27	
1H*w*	1H*w*	5809.5	17208.4	$(^3P)\ 6d\ ^4F_{2\frac{1}{2}}-39^\circ_{1\frac{1}{2}}$
50	100	5815.96	17189.31	$(^3P)\ 5d\ ^4P_{1\frac{1}{2}}-(^3P)\ 6p\ ^2P^\circ_{0\frac{1}{2}}$
1—	2*h*	5821.57	17172.75	$(^1D)\ 5d\ ^2F_{2\frac{1}{2}}-(^1D)\ 6p\ ^2D^\circ_{1\frac{1}{2}}$
5H*w*	100H*w*	5835.5	17131.8	$(^3P)\ 6p\ ^4D^\circ_{1\frac{1}{2}}-6_{2\frac{1}{2}}$
2	6	5846.69	17098.97	
1	5H	5855.47	17073.33	$(^1D)\ 6p\ ^4F^\circ_{2\frac{1}{2}}-(^3P)\ 6d\ ^2D_{1\frac{1}{2}}$
2H	50H	5859.47	17061.67	$(^1D)\ 6p\ ^2P^\circ_{0\frac{1}{2}}-(^1D)\ 7s\ ^2D_{1\frac{1}{2}}$
1*h*	1*h*	5868.86	17034.37	
150	300	5893.29	16963.76	$(^1D)\ 5d\ ^2D_{2\frac{1}{2}}-(^1D)\ 6p\ ^2P^\circ_{1\frac{1}{2}}$; $(^1D)\ 6p\ ^2F^\circ_{3\frac{1}{2}}-14_{2\frac{1}{2}}$
200	200	5905.13	16929.75	$(^3P)\ 6s\ ^2P_{0\frac{1}{2}}-(^3P)\ 6p\ ^2S^\circ_{0\frac{1}{2}}$
30*h*	50*h*	5909.67	16916.74	$(^1S)\ 6s\ ^2S_{0\frac{1}{2}}-21^\circ_{1\frac{1}{2}}$
5*h*	10	5912.80	16907.79	$(^3P)\ 5d\ ^4P_{1\frac{1}{2}}-(^3P)\ 6p\ ^2D^\circ_{1\frac{1}{2}}$
50	100	5917.44	16894.53	$(^3P)\ 6s\ ^4P_{1\frac{1}{2}}-(^3P)\ 6p\ ^4P^\circ_{2\frac{1}{2}}$
1	5H*l*	5921.50	16882.95	$(^3P)\ 6p\ ^2S^\circ_{0\frac{1}{2}}-12_{1\frac{1}{2}}$
1H	4H	5934.55	16845.82	
300	500	5945.53	16814.71	$(^3P)\ 5d\ ^4D_{0\frac{1}{2}}-(^3P)\ 6p\ ^4P^\circ_{0\frac{1}{2}}$
50	100	5958.03	16779.43	$(^3P)\ 5d\ ^4P_{2\frac{1}{2}}-(^3P)\ 6p\ ^2P^\circ_{1\frac{1}{2}}$
1—	2	5964.52	16761.17	
200	300	5971.13	16742.62	$(^1D)\ 6s\ ^2D_{1\frac{1}{2}}-(^1D)\ 6p\ ^2P^\circ_{1\frac{1}{2}}$
1000	2000	5976.46	16727.69	$(^3P)\ 6s\ ^4P_{1\frac{1}{2}}-(^3P)\ 6p\ ^4P^\circ_{1\frac{1}{2}}$
1	4	5988.44	16694.22	
1H	20*h*	5991.86	16684.70	$(^1S)\ 5d\ ^2D_{1\frac{1}{2}}-21^\circ_{1\frac{1}{2}}$
	1	5998.10	16667.34	
	1	5998.3	16666.8	$(^3P)\ 5d\ ^2D_{1\frac{1}{2}}-(^3P)\ 6p^2\ P^\circ_{0\frac{1}{2}}$
1—	1	6000.3	16661.2	
100	200	6008.92	16637.33	$(^3P)\ 5d\ ^4P_{2\frac{1}{2}}-(^3P)\ 6p\ ^2D^\circ_{2\frac{1}{2}}$
1	1	6012.0	16628.8	
	2	6024.14	16595.30	
	2*h*	6024.58	16594.08	$(^3P)\ 6p\ ^2D^\circ_{1\frac{1}{2}}-(^3P)\ 6d\ ^4P_{0\frac{1}{2}}$
3H		6024.77	16593.56	
500	1000	6036.20	16562.14	$(^3P)\ 5d\ ^4D_{2\frac{1}{2}}-(^3P)\ 6p\ ^4P^\circ_{2\frac{1}{2}}$
	5*h*	6048.53	16528.38	$(^3P)\ 6p\ ^2D^\circ_{2\frac{1}{2}}-(^3P)\ 6d\ ^4F_{1\frac{1}{2}}$
1000	2000	6051.15	16521.22	$(^3P)\ 5d\ ^4D_{3\frac{1}{2}}-(^3P)\ 6p\ ^4P^\circ_{2\frac{1}{2}}$
1—	3	6063.29	16488.14	
1H—	1	6067.05	16477.92	
	1*h*	6069.33	16471.73	
	1*h*	6075.32	16455.49	
	1	6079.29	16444.75	
	1	6081.36	16439.15	
1*h*—	5*h*	6083.21	16434.15	$(^3P)\ 6p\ ^4S^\circ_{1\frac{1}{2}}-12_{1\frac{1}{2}}$
	2	6085.38	16428.29	
	600	6093.50	16406.40	$(^3P)\ 6p\ ^4D^\circ_{1\frac{1}{2}}-(^3P)\ 7s\ ^4P_{1\frac{1}{2}}$
300		6093.56	16406.24	
1000	1500	6097.59	16395.39	$(^3P)\ 5d\ ^4D_{2\frac{1}{2}}-(^3P)\ 6p\ ^4P^\circ_{1\frac{1}{2}}$
200	400	6101.43	16385.07	$(^3P)\ 5d\ ^2D_{1\frac{1}{2}}-(^3P)\ 6p\ ^2D^\circ_{1\frac{1}{2}}$
	2	6109.86	16362.47	

TABLE 1.—*List of* Xe II *lines*—Continued

Intensity		Wave length (air)	Wave number (vac)	Transition
50	100	6115.08	16348.50	$(^3P)\ 5d\ ^2P_{0\frac{1}{2}}-(^3P)\ 6p\ ^2P^{\circ}_{1\frac{1}{2}}$
2	15	6127.44	16315.52	$(^3P)\ 5d\ ^2P_{1\frac{1}{2}}-(^3P)\ 6p\ ^4S^{\circ}_{1\frac{1}{2}}$
1*h*	10*h*	6143.40	16273.14	$(^1D)\ 6p\ ^2P^{\circ}_{1\frac{1}{2}}-(^3P)\ 6d\ ^2D_{1\frac{1}{2}}$
50	100	6146.45	16265.06	$(^1S)\ 6s\ ^2S_{0\frac{1}{2}}-19^{\circ}_{1\frac{1}{2}}$
1H*w*—	3H	6155.28	16241.73	$(^1D)\ 6p\ ^4F^{\circ}_{3\frac{1}{2}}-(^1D)\ 7s\ ^2D_{2\frac{1}{2}}$
	1	6160.72	16227.39	
20	50	6184.57	16164.81	$(^3P)\ 6s\ ^2P_{0\frac{1}{2}}-(^3P)\ 6p\ ^4D^{\circ}_{0\frac{1}{2}}$
15	30	6185.03	16163.61	$(^1D)\ 5d\ ^2D_{2\frac{1}{2}}-(^1D)\ 6p\ ^2F^{\circ}_{2\frac{1}{2}}$
	3H	6185.79	16161.62	} $(^1D)\ 6p\ ^2D^{\circ}_{1\frac{1}{2}}-(^1D)\ 6d\ ^2D_{1\frac{1}{2}}$
1H		6185.93	16161.26	}
300	500	6194.07	16140.02	$(^1S)\ 6s\ ^2S_{0\frac{1}{2}}-(^1S)\ 6p\ ^2P^{\circ}_{1\frac{1}{2}}$
	3	6196.55	16133.56	} $(^3P)\ 6p\ ^4D^{\circ}_{1\frac{1}{2}}-2_{0\frac{1}{2}}$
4*h*		6196.63	16133.35	}
	1*h*	6203.45	16115.61	$(^1S)\ 6s\ ^2S_{0\frac{1}{2}}-17^{\circ}_{0\frac{1}{2}}$
	50	6206.08	16108.78	}
200		6206.16	16108.58	}
10H*w*	2H	6234.04	16036.53	$2_{0\frac{1}{2}}-33^{\circ}_{1\frac{1}{2}}$
1*h*	10*h*	6235.40	16033.04	$(^1S)\ 5d\ ^2D_{1\frac{1}{2}}-19^{\circ}_{1\frac{1}{2}}$
1	1	6250.23	15995.00	
1H*l*	1H*l*	6254.0	15985.4	
	2H*l*	6255.32	15981.98	$(^3P)\ 6p\ ^2D^{\circ}_{2\frac{1}{2}}-(^3P)\ 6d\ ^4F_{2\frac{1}{2}}$
	1	6264.94	15957.44	
400	500	6270.82	15942.48	$(^1D)\ 6s\ ^2D_{1\frac{1}{2}}-(^1D)\ 6p\ ^2F^{\circ}_{2\frac{1}{2}}$
300	400	6277.54	15925.41	$(^3P)\ 5d\ ^4D_{1\frac{1}{2}}-(^3P)\ 6p\ ^4P^{\circ}_{2\frac{1}{2}}$
50	100	6284.41	15908.00	$(^1S)\ 5d\ ^2D_{1\frac{1}{2}}-(^1S)\ 6p\ ^2P^{\circ}_{1\frac{1}{2}}$
	2	6288.21	15898.39	
	1	6290.15	15893.49	
	10H	6296.39	15877.73	$(^1D)\ 6p\ ^2D^{\circ}_{2\frac{1}{2}}-(^1D)\ 6d\ ^2D_{1\frac{1}{2}}$
20	50	6298.31	15872.89	$(^3P)\ 5d\ ^4P_{1\frac{1}{2}}-(^3P)\ 6p\ ^2P^{\circ}_{1\frac{1}{2}}$
100	250	6300.86	15866.47	$(^3P)\ 5d\ ^2P_{1\frac{1}{2}}-(^3P)\ 6p\ ^2S^{\circ}_{0\frac{1}{2}}$
1*h*	1*h*	6304.09	15858.34	
1*h*	2H	6305.01	15856.03	$(^3P)\ 7s\ ^4P_{2\frac{1}{2}}-31^{\circ}_{1\frac{1}{2}}$
5H*w*	50H*l*	6311.46	15839.82	$(^3P)\ 6p\ ^2P^{\circ}_{1\frac{1}{2}}-(^3P)\ 6d\ ^4F_{2\frac{1}{2}}$
	2	6324.94	15806.07	}
2H		6325.17	15805.49	}
300	400	6343.96	15758.68	$(^3P)\ 5d\ ^4D_{1\frac{1}{2}}-(^3P)\ 6p\ ^4P^{\circ}_{1\frac{1}{2}}$
	100*hl*	6353.20	15735.76	} $(^3P)\ 6p\ ^4D^{\circ}_{1\frac{1}{2}}-(^3P)\ 7s\ ^4P_{2\frac{1}{2}}$
50H*l*		6353.29	15735.53	} $(^3P)\ 6p\ ^4P^{\circ}_{1\frac{1}{2}}-(^1D)\ 5d\ ^2P_{1\frac{1}{2}}$
500	600	6356.35	15727.96	$(^1S)\ 5d\ ^2D_{1\frac{1}{2}}-15^{\circ}_{2\frac{1}{2}}$
2H	3H	6362.8	15712.0	
100	200	6375.28	15681.25	$(^3P)\ 5d\ ^4P_{0\frac{1}{2}}-(^3P)\ 6p\ ^4S^{\circ}_{1\frac{1}{2}}$
60	100	6397.99	15625.60	$(^3P)\ 6s\ ^4P_{0\frac{1}{2}}-(^3P)\ 6p\ ^4D^{\circ}_{1\frac{1}{2}}$
20	50	6418.58	15575.47	$(^3P)\ 6p\ ^4P^{\circ}_{0\frac{1}{2}}-(^1D)\ 5d\ ^2S_{0\frac{1}{2}}$
	1	6421.47	15568.46	$(^3P)\ 6p\ ^4P^{\circ}_{2\frac{1}{2}}-(^1D)\ 5d\ ^2P_{1\frac{1}{2}}$
	2H	6426.73	15555.72	$(^1D)\ 6p\ ^2P^{\circ}_{1\frac{1}{2}}-(^3P)\ 6d\ ^2P_{0\frac{1}{2}}$
1—	1	6430.15	15547.45	
	1H	6442.3	15518.1	$(^1D)\ 6p\ ^4F^{\circ}_{2\frac{1}{2}}-(^3P)\ 6d\ ^2D_{2\frac{1}{2}}$
	10H	6461.48	15472.06	
2H	3H	6479.69	15428.58	$(^1S)\ 6s\ ^2S_{0\frac{1}{2}}-9^{\circ}_{1\frac{1}{2}}$
300*h*	300	6512.83	15350.07	$(^3P)\ 5d\ ^2D_{1\frac{1}{2}}-(^3P)\ 6p\ ^2P^{\circ}_{1\frac{1}{2}}$

TABLE 1.—*List of* Xe II *lines*—Continued

Intensity		Wave length (air)	Wave number (vac)	Transition
1H	2H	6515.48	15343.83	$(^1\mathrm{S})\,5d\,^2\mathrm{D}_{1\frac{1}{2}}-11^{\circ}_{2\frac{1}{2}}$ $(^1\mathrm{D})\,6p\,^2\mathrm{P}^{\circ}_{0\frac{1}{2}}-(^1\mathrm{D})\,6d\,^2\mathrm{D}_{1\frac{1}{2}}$
200*h*	200	6528.65	15312.88	$(^1\mathrm{D})\,5d\,^2\mathrm{F}_{2\frac{1}{2}}-(^1\mathrm{D})\,6p\,^2\mathrm{F}^{\circ}_{3\frac{1}{2}}$
4	5	6556.70	15247.37	$(^3\mathrm{P})\,5d\,^4\mathrm{F}_{2\frac{1}{2}}-(^3\mathrm{P})\,6p\,^4\mathrm{D}^{\circ}_{1\frac{1}{2}}$ $(^3\mathrm{P})\,5d\,^2\mathrm{D}_{2\frac{1}{2}}-(^3\mathrm{P})\,6p\,^2\mathrm{P}^{\circ}_{1\frac{1}{2}}$
15	15	6563.19	15232.29	$(^3\mathrm{P})\,5d\,^4\mathrm{P}_{0\frac{1}{2}}-(^3\mathrm{P})\,6p\,^2\mathrm{S}^{\circ}_{0\frac{1}{2}}$
5	8	6569.13	15218.52	$(^3\mathrm{P})\,6p\,^4\mathrm{P}^{\circ}_{1\frac{1}{2}}-(^1\mathrm{D})\,5d\,^2\mathrm{P}_{0\frac{1}{2}}$
30	50	6573.68	15207.99	$(^3\mathrm{P})\,5d\,^2\mathrm{D}_{1\frac{1}{2}}-(^3\mathrm{P})\,6p\,^2\mathrm{D}^{\circ}_{2\frac{1}{2}}$
800	1000	6595.01	15158.80	
300	400	6597.25	15153.65	$(^3\mathrm{P})\,5d\,^4\mathrm{P}_{2\frac{1}{2}}-(^3\mathrm{P})\,6p\,^4\mathrm{S}^{\circ}_{1\frac{1}{2}}$
80	100	6598.84	15150.00	$(^1\mathrm{D})\,5d\,^2\mathrm{F}_{3\frac{1}{2}}-(^1\mathrm{D})\,6p\,^2\mathrm{F}^{\circ}_{3\frac{1}{2}}$
4*h*	3	6613.31	15116.85	
10H	10*h*	6614.96	15113.08	$(^1\mathrm{S})\,6s\,^2\mathrm{S}_{0\frac{1}{2}}-7^{\circ}_{1\frac{1}{2}}$
50	40	6618.40	15105.23	$(^3\mathrm{P})\,5d\,^2\mathrm{D}_{2\frac{1}{2}}-(^3\mathrm{P})\,6p\,^2\mathrm{D}^{\circ}_{2\frac{1}{2}}$
200*h*	100	6620.02	15101.53	$(^3\mathrm{P})\,5d\,^2\mathrm{P}_{1\frac{1}{2}}-(^3\mathrm{P})\,6p\,^4\mathrm{D}^{\circ}_{0\frac{1}{2}}$
2	3	6632.44	15073.25	
6H*l*	10H*l*	6634.13	15069.41	$(^3\mathrm{P})\,6p\,^2\mathrm{P}^{\circ}_{0\frac{1}{2}}-(^3\mathrm{P})\,6d\,^4\mathrm{F}_{1\frac{1}{2}}$
2*h*	2*h*	6638.85	15058.70	$(^1\mathrm{S})\,6s\,^2\mathrm{S}_{0\frac{1}{2}}-5^{\circ}_{1\frac{1}{2}}$
1*h*	1*h*	6642.9	15049.5	$(^3\mathrm{P})\,7s\,^4\mathrm{P}_{2\frac{1}{2}}-29^{\circ}_{1\frac{1}{2}}$
2		6663.1	15003.9	$(^1\mathrm{D})\,6p\,^2\mathrm{D}^{\circ}_{1\frac{1}{2}}-14_{2\frac{1}{2}}$
1−	1	6678.9	14968.4	
1	2	6691.22	14940.84	$(^3\mathrm{P})\,6p\,^4\mathrm{S}^{\circ}_{1\frac{1}{2}}-8_{2\frac{1}{2}}$
400*h*	300	6694.32	14933.92	$(^3\mathrm{P})\,5d\,^4\mathrm{D}_{0\frac{1}{2}}-(^3\mathrm{P})\,6p\,^4\mathrm{P}^{\circ}_{1\frac{1}{2}}$
80	60	6702.25	14916.25	$(^1\mathrm{D})\,5d\,^2\mathrm{F}_{2\frac{1}{2}}-(^1\mathrm{D})\,6p\,^2\mathrm{P}^{\circ}_{1\frac{1}{2}}$
100*h*	150	6788.71	14726.28	$(^1\mathrm{D})\,6s\,^2\mathrm{D}_{2\frac{1}{2}}-(^3\mathrm{P})\,6p\,^2\mathrm{D}^{\circ}_{1\frac{1}{2}}$
80*h*	100	6790.37	14722.68	$(^3\mathrm{P})\,5d\,^2\mathrm{P}_{0\frac{1}{2}}-(^3\mathrm{P})\,6p\,^4\mathrm{S}^{\circ}_{1\frac{1}{2}}$
1000*h*	1000	6805.74	14689.43	$(^3\mathrm{P})\,5d\,^4\mathrm{F}_{3\frac{1}{2}}-(^3\mathrm{P})\,6p\,^4\mathrm{D}^{\circ}_{2\frac{1}{2}}$
10H*w*	10H*w*	6873.2	14545.3	
3H*w*	3H	6876.69	14537.88	
3H*w*	3H	6890.41	14508.93	
100	80	6910.22	14467.34	$(^3\mathrm{P})\,5d\,^4\mathrm{P}_{0\frac{1}{2}}-(^3\mathrm{P})\,6p\,^4\mathrm{D}^{\circ}_{0\frac{1}{2}}$
1000H*w*	800H*w*	6942.11	14400.88	
2000	2000	6990.88	14300.41	$(^3\mathrm{P})\,5d\,^4\mathrm{F}_{4\frac{1}{2}}-(^3\mathrm{P})\,6p\,^4\mathrm{D}^{\circ}_{3\frac{1}{2}}$
50	50	7003.96	14273.71	$(^3\mathrm{P})\,5d\,^2\mathrm{P}_{o\frac{1}{2}}-(^3\mathrm{P})\,6p\,^2\mathrm{S}^{\circ}_{0\frac{1}{2}}$
80	50	7017.06	14247.06	$(^3\mathrm{P})\,5d\,^4\mathrm{P}_{1\frac{1}{2}}-(^3\mathrm{P})\,6p\,^4\mathrm{S}^{\circ}_{1\frac{1}{2}}$
3H*w*	3H*w*	7052.57	14175.33	
4H*w*	4H*w*	7072.43	14135.52	
2H*s*	2H	7075.0	14130.4	
200	150	7082.15	14116.12	$(^1\mathrm{D})\,5d\,^2\mathrm{F}_{2\frac{1}{2}}-(^1\mathrm{D})\,6p\,^2\mathrm{F}^{\circ}_{2\frac{1}{2}}$
1H*w*	1*h*	7094.7	14091.1	
	5*h*	7100.8	14079.0	$(^3\mathrm{P})\,6p\,^4\mathrm{S}^{\circ}_{1\frac{1}{2}}-(^3\mathrm{P})\,6d\,^4\mathrm{D}_{1\frac{1}{2}}$
10	10	7133.27	14014.96	$(^3\mathrm{P})\,6p\,^4\mathrm{D}^{\circ}_{2\frac{1}{2}}-(^1\mathrm{D})\,5d\,^2\mathrm{P}_{1\frac{1}{2}}$
	2H*w*	7143.3	13995.3	
8H*w*		7143.81	13994.28	
100H*ws*	50H*ws*	7147.50	13987.05	
300*h*	200	7149.03	13984.06	$(^3\mathrm{P})\,6s\,^2\mathrm{P}_{1\frac{1}{2}}-(^3\mathrm{P})\,6p\,^4\mathrm{D}^{\circ}_{1\frac{1}{2}}$
800*h*	500	7164.83	13953.23	$(^1\mathrm{D})\,5d\,^2\mathrm{F}_{3\frac{1}{2}}-(^1\mathrm{D})\,6p\,^2\mathrm{F}^{\circ}_{2\frac{1}{2}}$
20*h*	30	7215.97	13854.34	$(^3\mathrm{P})\,6p\,^4\mathrm{P}^{\circ}_{0\frac{1}{2}}-(^1\mathrm{D})\,5d\,^2\mathrm{P}_{1\frac{1}{2}}$
2*h*	3	7245.38	13798.10	$(^3\mathrm{P})\,5d\,^4\mathrm{P}_{1\frac{1}{2}}-(^3\mathrm{P})\,6p\,^2\mathrm{S}^{\circ}_{0\frac{1}{2}}$
2H	2H	7258.6	13773.0	$(^3\mathrm{P})\,6p\,^2\mathrm{D}^{\circ}_{1\frac{1}{2}}-12_{1\frac{1}{2}}$
4H*ws*	2H*w*	7276.47	13739.15	
4H*ws*	2H*w*	7279.75	13732.96	$(^1\mathrm{D})\,6p\,^2\mathrm{D}^{\circ}_{2\frac{1}{2}}-(^3\mathrm{P})\,6d\,^2\mathrm{D}_{1\frac{1}{2}}$

TABLE 1.—*List of* Xe II *lines*—Continued

Intensity		Wave length (air)	Wave number (vac)	Transition
100	100	7284. 34	13724. 30	$(^3P)\ 5d\ ^2D_{1\frac{1}{2}}-(^3P)\ 6p\ ^4S^{\circ}_{1\frac{1}{2}}$
200	200	7301. 80	13691. 49	$(^1D)\ 6s\ ^2D_{2\frac{1}{2}}-(^3P)\ 6p\ ^2P^{\circ}_{1\frac{1}{2}}$
300*h*	200	7339. 30	13621. 53	$(^3P)\ 5d\ ^2D_{2\frac{1}{2}}-(^3P)\ 6p\ ^4S^{\circ}_{1\frac{1}{2}}$
30H*w*	20H*w*	7343. 37	13613. 98	$(^3P)\ 6p\ ^2D^{\circ}_{2\frac{1}{2}}-10_{2\frac{1}{2}}$
30	40	7378. 38	13549. 39	$(^1D)\ 6s\ ^2D_{2\frac{1}{2}}-(^3P)\ 6p\ ^2D^{\circ}_{2\frac{1}{2}}$
4*h*	5*h*	7400. 5	13508. 9	$(^3P)\ 5d\ ^2P_{0\frac{1}{2}}-(^3P)\ 6p\ ^4D^{\circ}_{0\frac{1}{2}}$
4H*w*	6H*w*	7410. 14	13491. 31	$(^3P)\ 6p\ ^2P^{\circ}_{0\frac{1}{2}}-12_{1\frac{1}{2}}$
50	60	7495. 36	13337. 92	$(^3P)\ 6p\ ^4P^{\circ}_{0\frac{1}{2}}-(^1D)\ 5d\ ^2P_{0\frac{1}{2}}$
3*h*	3*h*	7503. 00	13324. 34	$(^1D)\ 5d\ ^2P_{0\frac{1}{2}}-19^{\circ}_{1\frac{1}{2}}$
1H		7508. 6	13314. 4	$(^3P)\ 7s\ ^4P_{0\frac{1}{2}}-31^{\circ}_{1\frac{1}{2}}$
50	50	7530. 70	13275. 32	$(^3P)\ 5d\ ^2D_{1\frac{1}{2}}-(^3P)\ 6p\ ^2S^{\circ}_{0\frac{1}{2}}$
300	300	7548. 45	13244. 11	$(^1D)\ 5d\ ^2D_{1\frac{1}{2}}-(^3P)\ 6p\ ^2P^{\circ}_{0\frac{1}{2}}$
100	80	7618. 57	13122. 22	$(^1S)\ 5d\ ^2D_{2\frac{1}{2}}-(^1D)\ 6p\ ^2D^{\circ}_{2\frac{1}{2}}$
200	200	7670. 66	13033. 10	$(^3P)\ 5d\ ^4P_{1\frac{1}{2}}-(^3P)\ 6p\ ^4D^{\circ}_{0\frac{1}{2}}$
30	50	7712. 42	12962. 54	$(^1D)\ 5d\ ^2D_{1\frac{1}{2}}-(^3P)\ 6p\ ^2D^{\circ}_{1\frac{1}{2}}$
20*hl*[2]		7772. 12	12862. 97	
4		7774. 18	12859. 56	
10		7777. 1	12854. 7	
100	60	7787. 04	12838. 32	$(^1S)\ 5d\ ^2D_{2\frac{1}{2}}-(^1D)\ 6p\ ^2D^{\circ}_{1\frac{1}{2}}$
1		7805. 8	12807. 5	$(^1D)\ 5d\ ^2P_{1\frac{1}{2}}-19^{\circ}_{1\frac{1}{2}}$
10H*w*	15H*w*	7818. 31	12786. 97	
2		7826. 1	12774. 2	
20*h*		7828. 28	12770. 69	
3		7862. 7	12714. 8	$(^1D)\ 6p\ ^2P^{\circ}_{1\frac{1}{2}}-(^3P)\ 7s\ ^2P_{1\frac{1}{2}}$
20		7882. 71	12682. 51	$(^1D)\ 5d\ ^2P_{1\frac{1}{2}}-(^1S)\ 6p\ ^2P^{\circ}_{1\frac{1}{2}}$
50*h*		7889. 4	12671. 8	
5H*s*		7897. 7	12658. 4	$(^1D)\ 5d\ ^2P_{1\frac{1}{2}}-17^{\circ}_{0\frac{1}{2}}$
10H*w*	6H*w*	7920. 48	12622. 03	
100		7942. 54	12586. 97	
2		7970. 0	12543. 6	
20*h*		7974. 76	12536. 12	
3H*w*		7976. 4	12533. 5	$(^3P)\ 6s\ ^2P_{0\frac{1}{2}}-(^3P)\ 6p\ ^4D^{\circ}_{0\frac{1}{2}}$
100H*w*		7981. 1	12526. 2	
40	60	7987. 99	12515. 36	$(^3P)\ 6s\ ^4P_{0\frac{1}{2}}-(^3P)\ 6p\ ^4P^{\circ}_{0\frac{1}{2}}$
5H	5H	7991. 5	12509. 9	$(^3P)\ 6p\ ^4P^{\circ}_{1\frac{1}{2}}-(^1S)\ 5d\ ^2D_{1\frac{1}{2}}$
100H		7992. 34	12508. 54	
3H*w*		7996. 5	12502. 0	$(^3P)\ 6p\ ^4D^{\circ}_{0\frac{1}{2}}-2_{0\frac{1}{2}}$
10*hs*		8001. 95	12493. 52	
2		8005. 8	12487. 5	$(^1D)\ 5d\ ^2P_{0\frac{1}{2}}-9^{\circ}_{1\frac{1}{2}}$
300*h*		8008. 45	12483. 38	
50*hs*		8014. 26	12474. 33	
5		8020. 07	12465. 30	$(^3P)\ 6p\ ^4D^{\circ}_{1\frac{1}{2}}-(^1D)\ 5d\ ^2S_{0\frac{1}{2}}$
50*h*		8023. 85	12459. 42	
1H*w*		8028. 0	12453. 0	$(^3P)\ 6p\ ^2P^{\circ}_{1\frac{1}{2}}-(^3P)\ 6d\ ^4D_{1\frac{1}{2}}$
100*h*		8031. 64	12447. 34	
20*h*		8035. 40	12441. 51	
100*h*		8038. 26	12437. 09	
20*h*		8047. 28	12423. 15	
50		8070. 97	12386. 68	
50*hs*		8080. 31	12372. 36	

[2] Beginning at this point and going in the direction of longer wave lengths, the effect of inductance has not been investigated fully. Possibly a few of the infrared lines belong to Xe III.

TABLE 1.—*List of* Xe II *lines*—Continued

Intensity		Wave length (air)	Wave number (vac)	Transition
10*h*		8095.13	12349.71	
12*h*		8098.55	12344.50	
50*h*		8115.94	12318.05	
30		8120.16	12311.65	
20		8131.40	12294.63	
30*h*		8136.83	12286.42	$(^3\mathrm{P})\ 6p\ {}^4\mathrm{S}^\circ_{1\frac{1}{2}}-6_{2\frac{1}{2}}$
5H		8142.13	12278.43	}
	5H	8142.6	12277.7	}
3H*w*	5H*w*	8144.8	12274.4	$(^3\mathrm{P})\ 6p\ {}^2\mathrm{S}^\circ_{0\frac{1}{2}}-4$
100	150*h*	8151.80	12263.86	
10*h*		8167.55	12240.21	
10*h*		8186.9	12211.2	
1		8194.9	12199.4	
2*h*		8213.50	12171.73	
20	30	8214.85	12169.74	$(^3\mathrm{P})\ 5d\ {}^4\mathrm{F}_{2\frac{1}{2}}-(^3\mathrm{P})\ 6p\ {}^4\mathrm{D}^\circ_{3\frac{1}{2}}$
4		8245.37	12124.69	
2*h*		8251.30	12115.98	
20		8256.40	12108.49	
5		8260.81	12102.02	
30*h*		8262.73	12099.22	
15*h*		8282.85	12069.82	
15*h*	20*h*	8285.70	12065.67	$(^1\mathrm{D})\ 6s\ {}^2\mathrm{D}_{2\frac{1}{2}}-(^3\mathrm{P})\ 6p\ {}^4\mathrm{S}^\circ_{1\frac{1}{2}}$
100*h*		8297.55	12048.44	
	10H*w*	8316.2	12021.4	
40H*w*		8317.10	12020.12	
30H*w*	40H*w*	8329.44	12002.31	
100		8347.24	11976.72	$(^3\mathrm{P})\ 5d\ {}^4\mathrm{F}_{2\frac{1}{2}}-(^3\mathrm{P})\ 6p\ {}^4\mathrm{D}^\circ_{2\frac{1}{2}}$
3		8351.3	11970.9	$(^1\mathrm{D})\ 5d\ {}^2\mathrm{P}_{1\frac{1}{2}}-9^\circ_{1\frac{1}{2}}$
30*h*		8366.4	11949.3	
	2H*w*	8372.2	11941.0	
5*h*		8378.3	11932.3	$(^1\mathrm{D})\ 6p\ {}^2\mathrm{D}^\circ_{2\frac{1}{2}}-(^3\mathrm{P})\ 6d\ {}^4\mathrm{P}_{1\frac{1}{2}}$
2		8446.6	11835.8	
1−		8467.8	11806.2	$(^3\mathrm{P})\ 6p\ {}^2\mathrm{P}^\circ_{1\frac{1}{2}}-(^3\mathrm{P})\ 7s\ {}^4\mathrm{P}_{0\frac{1}{2}}$
5*h*	8*h*	8482.64	11785.55	$(^1\mathrm{D})\ 5d\ {}^2\mathrm{D}_{1\frac{1}{2}}-(^3\mathrm{P})\ 6p\ {}^2\mathrm{D}^\circ_{2\frac{1}{2}}$
2*h*		8500.96	11760.15	
50H*w*	50H*w*	8515.19	11740.50	
1*h*		8565.1	11672.1	
2*h*		8566.7	11669.9	
1		8584.0	11646.4	$(^1\mathrm{D})\ 6s\ {}^2\mathrm{D}_{1\frac{1}{2}}-(^3\mathrm{P})\ 6p\ {}^2\mathrm{P}^\circ_{0\frac{1}{2}}$
50H*w*		8604.23	11619.00	
25*h*		8628.94	11585.73	$(^1\mathrm{D})\ 5d\ {}^2\mathrm{D}_{2\frac{1}{2}}-(^3\mathrm{P})\ 6p\ {}^2\mathrm{D}^\circ_{1\frac{1}{2}}$
2H*w*		8636.4	11575.7	
3H		8655.72	11549.89	
1*h*		8704.3	11485.4	
50*h*		8716.19	11469.76	$(^3\mathrm{P})\ 5d\ {}^2\mathrm{P}_{1\frac{1}{2}}-(^3\mathrm{P})\ 6p\ {}^4\mathrm{D}^\circ_{1\frac{1}{2}}$
7H		8752.14	11422.64	
6H		8760.14	11412.21	
4H*w*		8785.88	11378.77	
2*h*		8796.92	11364.50	$(^1\mathrm{D})\ 6s\ {}^2\mathrm{D}_{1\frac{1}{2}}-(^3\mathrm{P})\ 6p\ {}^2\mathrm{D}^\circ_{1\frac{1}{2}}$
30		8804.61	11354.57	

TABLE 1.—*List of* Xe II *lines*—Continued

Intensity	Wave length (air)	Wave number (vac)	Transition
3H	8839. 9	11309. 2	
5H	8855. 74	11289. 02	
2H	8869. 40	11271. 63	
2H	8881. 48	11256. 30	
5H	8902. 66	11229. 52	
2H	9068. 0	11024. 8	
1	9106. 24	10978. 47	$(^1S)\ 5d\ ^2D_{2\frac{1}{2}}-(^1D)\ 6p\ ^2F^{\circ}_{3\frac{1}{2}}$
5H	9136. 6	10942. 0	
2*h*	9193. 8	10873. 9	$(^3P)\ 6s\ ^2P_{1\frac{1}{2}}-(^3P)\ 6p\ ^4P^{\circ}_{0\frac{1}{2}}$
7*h*	9226. 39	10835. 51	$(^3P)\ 5d\ ^4P_{0\frac{1}{2}}-(^3P)\ 6p\ ^4D^{\circ}_{1\frac{1}{2}}$
2*h*	9238. 59	10821. 19	
2*h*	9244. 15	10814. 69	
1*h*	9259. 60	10796. 64	
10*h*	9265. 67	10789. 57	$(^3P)\ 6p\ ^4D^{\circ}_{2\frac{1}{2}}-(^1S)\ 5d\ ^2D_{1\frac{1}{2}}$
5H	9288. 4	10763. 2	$(^1D)\ 5d\ ^2S_{0\frac{1}{2}}-13^{\circ}_{0\frac{1}{2}}$
2H	9298. 7	10751. 2	
1*h*	9304. 77	10744. 23	$(^3P)\ 6p\ ^4D^{\circ}_{1\frac{1}{2}}-(^1D)\ 5d\ ^2P_{1\frac{1}{2}}$
4*h*	9331. 67	10713. 26	$(^3P)\ 6s\ ^2P_{1\frac{1}{2}}-(^3P)\ 6p\ ^4D^{\circ}_{2\frac{1}{2}}$
15*h*	9400. 59	10634. 72	$(^3P)\ 6s\ ^4P_{0\frac{1}{2}}-(^3P)\ 6p\ ^4P^{\circ}_{1\frac{1}{2}}$
1	9407. 57	10626. 82	
1	9447. 6	10581. 8	$(^1S)\ 5d\ ^2D_{2\frac{1}{2}}-(^1D) 6p\ ^2P^{\circ}_{1\frac{1}{2}}$
10H	9464. 3	10563. 1	
3*h*	9475. 23	10550. 94	$(^1D)\ 5d\ ^2D_{2\frac{1}{2}}-(^3P)\ 6p\ ^2P^{\circ}_{1\frac{1}{2}}$
2*h*	9577. 70	10438. 06	
50*h*	9591. 35	10423. 19	$(^3P)\ 5d\ ^4F_{2\frac{1}{2}}-(^3P)\ 6p\ ^4P^{\circ}_{2\frac{1}{2}}$
7*h*	9604. 50	10408. 93	$(^1D)\ 5d\ ^2D_{2\frac{1}{2}}-(^3P)\ 6p\ ^2D^{\circ}_{2\frac{1}{2}}$
4*h*	9615. 71	10396. 80	
3H	9630. 95	10380. 35	
4H	9641. 6	10368. 9	
50*hl*	9698. 68	10307. 86	$(^3P)\ 5d\ ^4P_{2\frac{1}{2}}-(^3P)\ 6p\ ^4D^{\circ}_{1\frac{1}{2}}$
2H	9706. 2	10299. 9	
3H	9734. 0	10270. 5	
1*h*	9744. 8	10259. 1	$(^1D)\ 5d\ ^2P_{0\frac{1}{2}}-1^{\circ}_{1\frac{1}{2}}$
1*h*	9774. 8	10227. 6	$(^3P)\ 6p\ ^4D^{\circ}_{1\frac{1}{2}}-(^1D)\ 5d\ ^2P_{0\frac{1}{2}}$
2H	9810. 28	10190. 6	
2*h*	9820. 90	10179. 58	
2*h*	9837. 8	10162. 1	
6H	9865. 56	10133. 50	
1H	9895. 8	10102. 5	
2H	9908. 9	10089. 2	
1*h*	9983. 4	10013. 9	
2H	9990. 9	10006. 4	
1*h*	10054. 2	9943. 3	
1H	10095. 7	9902. 5	
1	10206. 9	9794. 6	
3*h*	10220. 8	9751. 3	

Impurity lines due to traces of other noble gases have been found on some spectrograms, particularly in cases where refilled tubes were used as sources. It is believed that these impurity lines have all been removed, along with such lines of Xe I as appear in condensed discharges. The only other impurity lines which might plausibly remain are band lines caused by traces of moisture or by organic compounds. These would be expected to be very faint, since tubes after some hours of use "clean up" and give a remarkably pure noble-gas spectrum.

5. PRECISION OF WAVE-LENGTH MEASUREMENTS

The wave lengths are given in table 1 to six figures, or hundredths of an angstrom unit, one less being retained for a few lines observed only once or showing poor agreement between observations. The wave numbers are given to seven figures, or hundredths of a reciprocal centimeter, for wave numbers smaller than 31,600 cm^{-1}, and to six figures for greater wave numbers. At this point in the wave-number scale, or correspondingly at 3160 A in the wave length scale, an error of 0.01 A affects the wave number by 0.1 cm^{-1}. The seventh place has no significance for wave numbers associated with six-place wave lengths shorter than 3160 A. The question of retention of significant figures in the wave number is not of great importance since it is a derived and not a measured quantity. The precision of data can be determined best in a classified spectrum by application of the combination principle. This has been done for a part of the classified lines of Xe II. A list was prepared of the wave numbers of lines represented by transitions between low levels, leaving out only those not observed with gratings. This list contained 228 entries, including all the intense, sharp classified lines. The differences between observed and calculated wave numbers were recorded, and, adjacent to these, the derived differences between observed and calculated wave lengths. The combination principle is regarded as an exact physical law. Hence, these differences may be regarded as representing errors of observation, assuming that the most satisfactory adjustment of the relative values of the levels has been obtained. Of the 228 lines, 146 showed a wave-number error less than 0.05 cm^{-1} and the average for the group was 0.054 cm^{-1}. Similarly, 134 showed a wave-length error less than 0.01 A, with a group average, 0.012 A. This study indicates that in the case of the sharp lines, the measurements are precise enough to permit retention of seven figures in the final values of wave lengths, which is hardly necessary unless difficulty is encountered in making an unambiguous classification of the lines. Xe II contains a preponderance of lines which are hazy or unsymmetrical. Obviously, these cannot be measured with a precision comparable with that of the group just discussed. It is believed, however, that on account of the large number of observations represented in the final compilation, the wave lengths are known with sufficient precision to permit finding any observable regularities.

6. SPECTRA OF XENON IN THE EXTREME ULTRAVIOLET

The xenon spark spectra in the extreme ultraviolet have been observed by Boyce, who used the Carnegie Institution vacuum spectrograph located at the Massachusetts Institute of Technology. These data, which are much superior, both in extent and precision, to the earlier description of Abbink and Dorgelo [6], have been made available for use in this analysis. The progress of the work has been materially aided by Boyce's generous cooperation. A selected portion of these

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extreme-ultraviolet data already published [7] contains 128 classified Xe III lines and 20 classified Xe II lines which could be identified with certainty when the paper appeared. The place of the extreme-ultraviolet data in the array of classified lines will be pointed out in the following discussion of the analysis of the spectrum.

III. ANALYSIS OF XE II

1. THEORETICAL TERMS

The singly ionized xenon atom, in common with singly ionized atoms of the other noble atmospheric gases, is characterized by an outer electronic structure the same as that of neutral atoms of the halogen elements or of doubly ionized alkali metals. It is isoelectronic with neutral iodine and doubly ionized cesium. The Hund [8] theory predicts for Xe II, the spectrum characteristic of Xe^+, an array of levels corresponding in number and assignment of inner quantum numbers to those belonging to the spectra of the elements mentioned. Such levels may be regarded as fine-structure components of multiple spectral terms for atoms or ions characterized by the *ls*-coupling scheme, and the use of the generally adopted spectral notation, if strictly interpreted, presupposes that such a scheme is operative, at least to such an extent that the multiplets are clearly recognizable. When the coupling is of the *jj* type the multiplet relationships have disappeared completely and the usual notation is no longer valid. For a given electron configuration the same number of levels occur as in other coupling schemes with an identical set of *j* values.

Cases of pure *jj* coupling are unknown. Instances of intermediate coupling are fairly common. All noble-gas spectra depart considerably from *ls* coupling. Their first spectra are still described by the special notation used by Paschen for Ne I [9], although many levels can be designated unambiguously by the later quantum notation. There is a progressive approach toward *jj* coupling as one goes down through the column of rare gases and, as expected, xenon shows the characteristics of such coupling more than the others. Conspicuous features of Xe II are: Nonconformity to multiplet interval rules, overlapping of terms both from the same and from different configurations, abundance of intersystem and interlimit transitions, and frequent occurrence of levels of indistinguishable characteristics as to *j* value and combining properties, indicating strong configuration interactions. In spite of the difficulties of interpretation, it has seemed advantageous to retain the customary notation [10] for designating levels because of its simplicity and because it facilitates comparison with analogous spectra, particularly Kr II. The symbols have been used, therefore, with the reservations based on the considerations just given.

The normal electron configuration of Xe^+, $5s^2\,5p^5$, gives rise to an inverted doublet, $^2P^\circ_{1\frac{1}{2},\,\frac{1}{2}}$, the lowest term of Xe II. The two levels of this term are the convergence limits of the various series in Xe I.[3] The importance of this term in the analysis of rare-gas spectra has been discussed in detail [3]. Except for the next lowest term ^2S, from $5s5p^6$, all of the remaining terms are associated with the electron group $5s^2\,5p^4$ of the doubly charged atom. The configuration $5s^2\,5p^4$ gives rise to ^3P, ^1D, and ^1S terms in the third spectrum, Xe III [4].

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[3] Only first members of Xe I series converging to $^2P^\circ_{\frac{1}{2}}$ are known. Second members of these series would be expected to lie higher than the convergence limit $^2P^\circ_{1\frac{1}{2}}$ and would acquire negative values.

These terms are the convergence limits for three families of terms in the second spectrum, Xe II. These Xe II terms are derived from the addition of *ns*, *np*, *nd*, probably *nf*, and possibly *ng* electrons to the $5s^2\ 5p^4$ configuration of the doubly charged atom. The terms which may be theoretically expected to account for the second spectrum of a rare gas are shown for the specific case of Xe II in table 2, where the term correlation with electron configuration and convergence limits is illustrated. Because of the presence of three families of terms corresponding to the three convergence limits, the second spectra of rare gases are fairly complex. With Geissler-tube sources there is, however, very little development of series. Of the theoretically predicted terms listed in table 2 only those caused by the interaction of a valence electron of *s*, *p*, or *d* type have been identified as certain. There is some question about the identification of *f*-type terms. None from *g* electrons have been found. Because a large number of lines, for the most part relatively faint and hazy, remain unclassified, it may be inferred that many of these *f*- and *g*-type terms are developed but with an insufficient number of combinations to be detected by regularities. Such lines may also arise from combinations of second- or third-series members, or it is barely possible that some other configuration, such as $sp^5\ np$, may be responsible for undetected terms, although terms from the latter configuration have not yet been found in spectra originating in singly ionized noble-gas atoms.

TABLE 2.—*Electron configurations and spectral terms of* Xe II

Electron configuration			
$5s^2\ 5p^5$	$^2P^\circ$		
$5s\ 5p^6$	^2S		
	Term limit $5s^2\ 5p^4\ ^3P$	*Term limit* $5s^2\ 5p^4\ ^1D$	*Term limit* $5s^2\ 5p^4\ ^1S$
$5s^2\ 5p^4\ 6s$	$^2P\ ^4P$	^2D	^2S
$5s^2\ 5p^4\ 6p$	$^2S^\circ\ ^2P^\circ\ ^2D^\circ\ ^4S^\circ\ ^4P^\circ\ ^4D^\circ$	$^2P^\circ\ ^2D^\circ\ ^2F^\circ$	$^2P^\circ$
$5s^2\ 5p^4\ 5d$	$^2P\ ^2D\ ^2F\ ^4P\ ^4D\ ^4F$	$^2S\ ^2P\ ^2D\ ^2F\ ^2G$	^2D
$5s^2\ 5p^4\ 7s$	$^2P\ ^4P$	^2D	^2S
$5s^2\ 5p^4\ 7p$	$^2S^\circ\ ^2P^\circ\ ^2D^\circ\ ^4S^\circ\ ^4P^\circ\ ^4D^\circ$	$^2P^\circ\ ^2D^\circ\ ^2F^\circ$	$^2P^\circ$
$5s^2\ 5p^4\ 6d$	$^2P\ ^2D\ ^2F\ ^4P\ ^4D\ ^4F$	$^2S\ ^2P\ ^2D\ ^2F\ ^2G$	^2D
$5s^2\ 5p^4\ 6f$	$^2D^\circ\ ^2F^\circ\ ^2G^\circ\ ^4D^\circ\ ^4F^\circ\ ^4G^\circ$	$^2P^\circ\ ^2D^\circ\ ^2F^\circ\ ^2G^\circ\ ^2H^\circ$	$^2F^\circ$
$5s^2\ 5p^4\ 6g$	$^2F\ ^2G\ ^2H\ ^4F\ ^4G\ ^4H$	$^2D\ ^2F\ ^2G\ ^2H\ ^2I$	^2G

2. TABLE OF TERMS

A total of 103 levels have been found in Xe II, which are reported in this publication. A considerable number of possible levels have not been retained because of an insufficient number of combinations, regularities requiring too large a tolerance, or conflicts with existing classifications. There remain a few ambiguous classifications, generally of hazy lines, for which the possibility of duplicity is reasonable. Complete quantum designations are given for 75 levels. *j* values are assigned to the remaining 28 levels, and each is designated by a number even or odd according to the parity of the level and in the order of their magnitude. All the known terms and unclassified levels are assembled in table 3. These are grouped according to electron configuration, and the series-forming terms are correlated with the appropriate limits. The levels are arranged in order of magnitude, beginning with the lowest, so far as the arrangement is not in conflict with the grouping scheme.

TABLE 3.—Xe II *terms*

Electron configuration						
$5s^2\,5p^5$			$^2P^\circ_{1\frac12}$	171068.4		
			$^2P^\circ_{0\frac12}$	160531.1		
$5s\,5p^6$			$^2S_{0\frac12}$	80194.57		
	Term limit $5s^2\,5p^4\,{}^3P$		*Term limit* $5s^2\,5p^4\,{}^1D$		*Term limit* $5s^2\,5p^4\,{}^1S$	
$5s^2\,5p^4\,6s$	$^4P_{2\frac12}$	78000.00				
	$^4P_{1\frac12}$	76004.06	$^2D_{2\frac12}$	61505.25		
	$^4P_{0\frac12}$	69910.89	$^2D_{1\frac12}$	58143.70	$^2S_{0\frac12}$	46998.31
	$^2P_{1\frac12}$	68269.34				
	$^2P_{0\frac12}$	66818.34				
$5s^2\,5p^4\,6p$	$^4D^\circ_{3\frac12}$	57363.07				
	$^4D^\circ_{2\frac12}$	57556.11				
	$^4D^\circ_{1\frac12}$	54285.29	$^2F^\circ_{3\frac12}$	41004.37		
	$^4D^\circ_{0\frac12}$	50653.53	$^2F^\circ_{2\frac12}$	42201.21		
	$^4P^\circ_{2\frac12}$	59109.56				
	$^4P^\circ_{1\frac12}$	59276.32	$^2D^\circ_{2\frac12}$	38860.72	$^2P^\circ_{1\frac12}$	30858.18
	$^4P^\circ_{0\frac12}$	57395.55	$^2D^\circ_{1\frac12}$	39144.64	$^2P^\circ_{0\frac12}$	
	$^4S^\circ_{1\frac12}$	49439.60				
	$^2D^\circ_{2\frac12}$	47955.90	$^2P^\circ_{1\frac12}$	41401.03		
	$^2D^\circ_{1\frac12}$	46778.90	$^2P^\circ_{0\frac12}$	38327.31		
	$^2P^\circ_{1\frac12}$	47813.79				
	$^2P^\circ_{0\frac12}$	46497.38				
	$^2S^\circ_{0\frac12}$	49888.58				
$5s^2\,5p^4\,5d$	$^4F_{4\frac12}$	71663.50				
	$^4F_{3\frac12}$	72245.54				
	$^4F_{2\frac12}$	69532.75	$^2G_{4\frac12}$			
	$^4F_{1\frac12}$		$^2G_{3\frac12}$			
	$^4D_{3\frac12}$	75630.80				
	$^4D_{2\frac12}$	75671.72	$^2F_{3\frac12}$	56154.44		
	$^4D_{1\frac12}$	75034.96	$^2F_{2\frac12}$	56317.32		
	$^4D_{0\frac12}$	74210.26				
	$^4P_{2\frac12}$	64593.23	$^2D_{2\frac12}$	58364.82	$^2D_{2\frac12}$	51982.90
	$^4P_{1\frac12}$	63686.65	$^2D_{1\frac12}$	59741.47	$^2D_{1\frac12}$	46766.22
	$^4P_{0\frac12}$	65120.86				
	$^2F_{3\frac12}$		$^2P_{1\frac12}$	43541.0		
	$^2F_{2\frac12}$		$^2P_{0\frac12}$	44057.7		
	$^2D_{2\frac12}$	63061.15				
	$^2D_{1\frac12}$	63163.90	$^2S_{0\frac12}$	41819.9		
	$^2P_{1\frac12}$	65755.07				
	$^2P_{0\frac12}$	64162.29				
$5s^2\,5p^4\,7s$	$^4P_{2\frac12}$	38549.7				
	$^4P_{1\frac12}$	37879.2	$^2D_{2\frac12}$	24763.0	$^2S_{0\frac12}$	
	$^4P_{0\frac12}$	36007.5	$^2D_{1\frac12}$	21266.0		
	$^2P_{1\frac12}$	28686.2				
	$^2P_{0\frac12}$	28138.4				
$5s^2\,5p^4\,6d$	$^4F_{4\frac12}$					
	$^4F_{3\frac12}$	34470.7	$^2G_{4\frac12}$			
	$^4F_{2\frac12}$	31974.3	$^2G_{3\frac12}$			
	$^4F_{1\frac12}$	31428.1				
	$^4D_{3\frac12}$	35561.2				
	$^4D_{2\frac12}$	35521.4	$^2F_{3\frac12}$			
	$^4D_{1\frac12}$	35360.2	$^2F_{2\frac12}$	17036.1		
	$^4D_{0\frac12}$	32342.0				
	$^4P_{2\frac12}$	27669.0	$^2D_{2\frac12}$	21371.1	$^2D_{2\frac12}$	
	$^4P_{1\frac12}$	26928.2	$^2D_{1\frac12}$	22983.2	$^2D_{1\frac12}$	
	$^4P_{0\frac12}$	30185.0				
	$^2F_{3\frac12}$		$^2P_{1\frac12}$			
	$^2F_{2\frac12}$		$^2P_{0\frac12}$			
	$^2D_{2\frac12}$	26683.4	$^2S_{0\frac12}$			
	$^2D_{1\frac12}$	25128.3				
	$^2P_{1\frac12}$					
	$^2P_{0\frac12}$	25845.7				

Table 3.—Xe II *terms*—Continued

Unclassified even levels

$2_{0\frac{1}{2}}$	38151.5	$10_{2\frac{1}{2}}$	34341.9
$4_{0\frac{1}{2}}$ or $_{1\frac{1}{2}}$	37614.2	$12_{1\frac{1}{2}}$	33005.6
$6_{2\frac{1}{2}}$	37153.3	$14_{2\frac{1}{2}}$	24140.6
$8_{2\frac{1}{2}}$	34498.8		

Unclassified odd levels

$1^{\circ}_{1\frac{1}{2}}$	33798.9	$23^{\circ}_{1\frac{1}{2}}$	27598.6
$3^{\circ}_{3\frac{1}{2}}$	32063.0	$25^{\circ}_{1\frac{1}{2}}$	23550.4
$5^{\circ}_{1\frac{1}{2}}$	31939.56	$27^{\circ}_{2\frac{1}{2}}$	23523.8
$7^{\circ}_{1\frac{1}{2}}$	31885.48	$29^{\circ}_{1\frac{1}{2}}$	23499.8
$9^{\circ}_{1\frac{1}{2}}$	31569.77	$31^{\circ}_{1\frac{1}{2}}$	22693.5
$11^{\circ}_{2\frac{1}{2}}$	31422.3	$33^{\circ}_{1\frac{1}{2}}$	22116.0
$13^{\circ}_{0\frac{1}{2}}$	31056.9	$35^{\circ}_{2\frac{1}{2}}$	21787.4
$15^{\circ}_{2\frac{1}{2}}$	31038.29	$37^{\circ}_{2\frac{1}{2}}$	21385.7
$17^{\circ}_{0\frac{1}{2}}$	30882.75	$39^{\circ}_{1\frac{1}{2}}$	14765.5
$19^{\circ}_{1\frac{1}{2}}$	30733.28	$41^{\circ}_{1\frac{1}{2}}$	13846.3
$21^{\circ}_{1\frac{1}{2}}$	30081.4		

3. LOW LEVELS OF Xe II

The lines of Xe II vary greatly in appearance. The range of intensities represented by numbers from 1 to 3,000 is enormous. Some of the lines are sharp and symmetrical and not affected, except possibly in intensity, by changes in the electrical circuit. The majority are broad and hazy in varying degrees. Usually, but not always, the effect of inductance is to sharpen a line. In some cases the line position is slightly changed with insertion of inductance. In such instances two entries are shown in table 1.

The sharp lines are invariably classified as transitions between levels of first excited states, specifically transitions from the levels arising from the interaction of the $6p$ electron with $5s^2\,5p^4$ to levels due to $6s$ or $5d$. The precision with which the combination principle is satisfied for these transitions leaves no question as to the reality of these levels, although the meaning of the symbolic designations should not be overemphasized owing to the properties of this spectrum mentioned in the discussion of the origin of the terms. Only one very intense sharp line, located at 6595.01 A, remains unclassified. Reference to table 3 will show that nearly all levels of first excited states have been found. The identifications have been based mainly on intensities of combinations and comparison with analogous spectra, particularly Kr II.[3] For instance, we expect the combinations of the $6s$ levels to be somewhat more intense than those of $5d$ levels. The distinction between doublets and quartets has to be based partly on intensity considerations, but this is not very clear-cut because of the high intensity of intersystem combinations. Hund's rule for complex spectra [4] is obeyed in regard to relative elevation of quartets and doublets from a given configuration, the former being lower in every case but one. The second part of the rule, namely, that among terms of the same multiplicity from a given configuration those of greatest l value are lowest, is not obeyed at all.

With the single exception of the level designated $5d\,^4F_{2\frac{1}{2}}$, all even levels of j value $2\frac{1}{2}$ or less combine with the low doublet, $5s^2\,5p^5\,^2P^{\circ}$. The lines caused by these transitions occur in Boyce's extreme-ultraviolet data. In some instances these levels have been formed by searching through the extreme-ultraviolet data for the doublet difference.

[4] Linienspectren [8, p. 124].

Grouping of the experimental terms into families according to the respective convergence limits, the low terms of Xe III, has been facilitated by the analysis of the third spectrum of xenon [4]. The relative values of the low terms of Xe III are indicated as follows:

$^3P_2$	0
$^3P_1$	9795
$^3P_0$	8131
$^1D_2$	17100
$^1S_0$	37398

Although a knowledge of the positions of the series limits indicates at what elevation levels of the various families should appear in the term scheme, it is not a certain criterion owing to the prevalence of interfamily transitions. The grouping of the low odd levels is fairly certain. These all arise from one configuration, $5s^2\,5p^4\,6p$, the theoretically predicted quantum numbers are found, and the levels fall into fairly compact groups separated by intervals which can be reasonably predicted from the positions of the convergence limits.

The $6p$ levels present some problems, however, owing to the similarity of combining properties of levels of like j values. It has been explained that such ambiguities are attributable to configuration interactions and inherent in spectra of this character. The level at 57556.11 was chosen for $6p\ ^4D^{\circ}_{2\frac{1}{2}}$ rather than 59109.56 because of the combinations with $5d\ ^4F$. $^4S^{\circ}$ was selected because of strong quartet combinations and because the choice placed it highest among the quartets of the odd group converging to (^3P). The level at 49888.58 is assigned to $^2S^{\circ}$ and is lower than $^4S^{\circ}$. This assignment is the result of the single change which was made in the term scheme after study of the Zeeman effects. The group of six odd levels converging to ^1D, which are of reasonably certain origin, are arranged in almost the same order as the analogous group in Kr II. The level at 30858.18 is found among a large group of odd levels but is assigned to (^1S) $^2P^{\circ}_{1\frac{1}{2}}$ because its combinations are much more intense than those of any of its neighbors.

The level at 80194.57, for which the assignment $5s\,5p^6\ ^2S$ has been retained from the earlier paper [2], is of interest because the classification was regarded as questionable by Fitzgerald and Sawyer [11] in a paper on Cs III and Ba IV, which are isoelectronic with Xe II. They predicted this ^2S term by the irregular doublet law at 102,700 cm^{-1} above the lowest state, bringing it very close to 68269.34 assigned to $6s\ ^2P_{1\frac{1}{2}}$. The latter term certainly has a j value of 1½, leaving the only alternative choice for ^2S, 69910.89 assigned to $6s\ ^4P_{\frac{1}{2}}$. For a term arising from a single s electron coupled with a completed shell of p electrons the g value is exactly 2 for both ls and jj couplings. Zeeman-effect data indicate a g value of 2 for 80194.57 within the limits of precision of the measurements and confirm the original assignment for ^2S.

4. HIGH LEVELS OF Xe II

About half of the high even levels combine with the low doublet giving extreme-ultraviolet lines in Boyce's data. Assignments have been made for most of these levels as second-series members from the configurations $5s^2\,5p^4\,7s$ and $5s^2\,5p^4\,6d$. The possibility of g-type levels among this group has been mentioned. The configuration $5s^2\,5p^4\,6g$ would lead to many more levels of larger j value than have been found. The less probable hypothesis of terms from $5s\,5p^5\,6p$ has been mentioned also.

Twenty-one high odd levels have been found. In Kr II the analogous group was interpreted as *f*-type levels, second-series members from the interaction of *p* electrons being the alternative explanation. It is not felt that there is sufficient evidence in the experimental data to justify more than the assignment of *j* values of such levels in Xe II. If they are second-series members of *p* type, the series constants differ considerably from those associated with the series of even terms, for when an attempt is made to correlate second-series members with the first, the second-series members seem to be somewhat low if the scale of absolute term values is at all correct.

5. ABSOLUTE VALUES OF TERMS

The absolute values of the terms are based on the $^4P_{2\frac{1}{2}}$ series from the *s*-electron configuration. The estimate is retained from the earlier publication [2]. There is no important evidence to justify a revision of the calculation which gave an ionization potential of 21.1 volts for Xe II.

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