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The Second Spectrum of Nickel (Ni II)

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An analysis of Ni II based on 4300 observed lines is presented. The low structures are $3d^9$, $3d^8\,4s$ and $3d^7\,4s^2$ which are now complete except for $3d^8(^1S)4s\ ^2S$ and $3d^7\,4s^2\ ^2P_{1/2}$ and the higher of the two ^2D terms of $3d^7\,4s^2$. Long series occur such as $3d^8\,4s$ to $9s$, $4d$ to $8d$, $4f$ to $7f$, $5g$ to $7g$. The analysis also includes many terms of the complex structure $3d^7\,4s\,4p$ but only 55 percent of the levels within reach of the hollow cathode source have been found. The identification of the levels of $3d^8\,4d$ and $5d$ was assisted by the calculations of N. Spector. The $4d^7\,4s^2$ levels were calculated by Y. Shadmi, who also provided calculated positions for all the levels of $3d^7\,4s\,4p$ without which much of the analysis would have been impossible. The $3d^8\,ns$ and $3d^8\,nd$ series give a limit of 146532.0 but the $3d^8\,ng$ series gives 146541.56. The latter has been adopted though no explanation of the discrepancy has been found.

Key words: Energy levels; ionization potential; nickel; spectral series; spectroscopy; wavelength.

1. Introduction

Although there can be no such thing as a complete analysis of an atomic spectrum, there is no doubt that, by any criterion, many of the analyses published during the 1920's were quite inadequate. There were even some which were completely false. This situation was in part due to the paucity of available spectrum sources. First spectra could be fairly well analyzed from observations made with ordinary arcs in air or a partial vacuum. For second spectra one had to rely on more energetic sources such as the condensed spark under various electrical conditions. Such sparks do not in general give sharp lines or any lines due to high energy levels. Under those conditions I analyzed three second spectra in the 1920's, namely Cu II, Ni II, Pd II [1][1] but I was able to observe only the lowest levels and one higher term which provided the means for calculating the ionization potential to a first approximation. Higher ionizations required still more energetic sources and the very high ionizations had to wait for the full development of the spark in vacuo.

With the invention or discovery of the hollow cathode discharge by Paschen and its development by many physicists for a great variety of purposes, a remarkable source of second spectra became available. It has the ability to produce sharp lines even from high levels and to excite those levels strongly by collisions of the second kind between the atoms of the carrying gas and the atoms of the element composing part or all of the hollow cathode. The excitation is usually limited by the ionization potential of the carrying gas and helium is therefore the gas which gives the highest excitation. Its ionization potential is unfortunately a little small to carry most metals up to double ionization, which corresponds to the limit of the second spectrum.

After the second World War, I devoted my time mainly to the analysis of third spectra, one of which was Cu III for which a sliding spark or pulsed hollow-cathode was reasonably adequate. Difficulties with that spectrum led me to turn to the isoelectronic spectrum, Ni II, for help. The elements iron, cobalt, and nickel had proved in the past very difficult to excite in a hollow cathode [2] but with the high power that I had available from a constant current circuit, I decided to try the effect of going to high currents and temperatures. The result was startling and somewhat disconcerting, because the number of lines observed with this source reached 4500 in place of the few hundred with which I had worked in the 1920's. This great increase in available data made it evident that a new analysis of Ni II should be made and I therefore undertook it with some reluctance. The analysis of Cu III has, consequently, been in abeyance awaiting the extended analysis of Ni II.

2. Instruments and Observations

The whole spectrum was photographed in this laboratory with the following instruments.

1. A normal incidence vacuum spectrograph employing a grating of 30,000 lines per inch ruled by R. W. Wood on glass. It has no metallic surface but glass is nearly as good as any metal in the short wavelength region. This instrument gives beautiful spectra from

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[1] Figures in brackets indicate the literature references at the end of this paper.

2000 to 500 Å on a 16-inch plate, the resolving power being limited by the grain of the Ilford Q2 plates used.

2. A 21-foot Paschen circular spectrograph employing a Bausch and Lomb 30,000 lines per inch replica grating, the original of which was ruled for me. Unfortunately it shows a close satellite which can be only partially eliminated at the expense of reducing the area to 4 inch × 1 inch. The spectra from 2000 to 6500 Å were taken on this instrument, with suitable Eastman plates.

3. A Wadsworth spectrograph using a grating of 21-foot radius and 15,000 lines per inch. The grating was ruled by Professor Strong at Johns Hopkins on his new engine. It is blazed at about 9000 Å in the first order. The spectra from 6000 to 11,000 A were taken on this instrument.

4. The Bureau of Standards 30,000 lines per inch, 10 meter vacuum instrument was used by Dr. Kaufman to photograph the spectrum form 500 to 2223 Å for me. He used a water-cooled hollow cathode source and obtained spectra with nearly all the lines I found on my smaller instrument. The plates were measured by C. H. Corliss and some parts later by myself. The importance of these observations can hardly be exaggerated. In particular the high dispersion allowed a differentiation of line widths which led to the discovery that about 130 lines were due to the hydrogen molecule. Those lines appeared slightly broadened and a large number of them could be identified from a paper by C. Rulon Jeppesen [3]. There is however, another group from 1623 to 1555 Å which is not included in Jeppesen's paper. The presence of hydrogen bands on the plates taken with the vacuum instruments is due to the difficulty of cleaning the discharge tube after exposure to air while being attached to the spectrograph. On the other hand, the amount of hydrogen present in the sealed off tube is extremely small.

All of the plates from my instruments were measured by me on either or both of two comparators in this laboratory. One is a Hilger instrument of high accuracy and the other a Societe Genevoise comparator of 40-cm travel but having an accuracy of only about ± 0.002 mm. The standards in the region below 2100 Å were from a minute amount of copper in the cathode and from the usual impurities such as carbon and nitrogen. In the region from 2000 to 7000 Å the lines of Ni I and II [4] measured interferometrically by Burns were used wherever possible. They were usually immensely overexposed but a very short exposure put on after moving the occultor about a millimeter could be used with some confidence. In the red and infrared, neon lines from a slight impurity were very useful.

The accuracy of measurement throughout the whole spectrum is not as great as I had hoped, but the effort of remeasurement is too great for me to undertake after the several years I have spent on the analysis. The fault in the 21 foot grating is certainly partly responsible for the inaccuracies.

3. Sources

Although the chief source for the Ni II spectrum was the hollow cathode tube, both arc and spark spectra had to be taken in order to eliminate new arc lines. The electrodes for all sources were made of the purest nickel available (99.95%).

A plate of the arc in nitrogen was taken on the vacuum spectrograph and many arc lines were observed for the first time. Their measurement not only allowed me to eliminate arc lines from my lists in the Schumann region but they were also of great assistance to Miss Weeks of the Harvard Observatory in the calculation of wavelengths in absorption spectra taken at the Argonne Laboratory.

The hollow cathode tube was a two liter Pyrex flask fitted with ground glass joints for the anode, cathode and observation end. The last could be fitted directly on to the slit tube of the vacuum instrument or it could be closed by a short extension carrying a quartz window. The tube was mounted on a moveable gas circulation system which included a mercury circulation pump, a gas dosing tube and suitable traps cooled by liquid nitrogen. The hollow cathode was of about 1 cm internal diameter and 3 cm long, and was suspended from nickel rods by nickel wires. The anode was a disk of graphite. Before the system was cutoff from the high vacuum pumps the discharge was run for hours and even days and refilled with fresh helium until the spectrum appeared to be free from every impurity except small traces of mercury and hydrogen. The tube was operated at a helium pressure of 3 to 8 mm Hg at a current which heated the cathode nearly white hot. This was always between 0.5 and 1.5 A with a voltage of 250 to 600. With time the voltage rose slowly and the current had to be cut down to prevent melting, which occasionally occurred in spite of all precautions.

Two constant current circuits were available, the first being a 2-phase monocyclic network like the 3-phase circuit described by Green and Kuper [5]. The second was designed and built here by James Brault. It employs Sola transformers and transistor rectifiers and operates on 3-phase.

The exposures were made long enough to register lines of intrinsically low intensity. This necessitated times of 20 minutes to 2 hours with resultant immense over-exposure of all the strong lines. The device mentioned above of putting tails of very short exposure on all the strong lines made possible the measurement of a great range of intensities on any plate. In some ranges shorter exposures were made for special purposes. The relative intensities of many of the lines were estimated from plates taken with successive exposures of 1, 2, 4, 8, 16, 32, 64, 128 and 256 s. Table I is a list of the 4300 lines on which the analysis is based.

4. Analysis

I once made the remark in public that anyone working on the spectra of the atoms of the first or second *d*-periods without consulting the theoretical work of Racah and his school would be wasting valuable time. In the present case, I avoided much waste of time by consulting Y. Shadmi to obtain the most recent calculations of the low even levels of Ni II. He responded most generously by recalculating the even

TABLE I. *Lines of* Ni II

λ(vac)	Intensity	Wavenumber	Transition
727.100	2h	137532.7	$3d\,^2D_{2\frac{1}{2}} - 7f\,^4D^\circ_{2\frac{1}{2}}$?
737.300	5	135630.0	$3d\,^2D_{2\frac{1}{2}} - 6f\,^2F^\circ_{3\frac{1}{2}}$
			$3d\,^2D_{2\frac{1}{2}} - 6f\,^2D^\circ_{2\frac{1}{2}}$
738.201	2	135464.5	$3d\,^2D_{2\frac{1}{2}} - 4f''\,^2G^\circ_{3\frac{1}{2}}$
738.548	1	135400.8	$3d\,^2D_{2\frac{1}{2}} - 4f''\,^2F^\circ_{3\frac{1}{2}}$
744.636	2	134293.8	$3d\,^2D_{2\frac{1}{2}} - 6f\,^4D^\circ_{2\frac{1}{2}}$
744.867	5	134252.2	$3d\,^2D_{2\frac{1}{2}} - 6f\,^4P^\circ_{1\frac{1}{2}}$
			$3d\,^2D_{2\frac{1}{2}} - 6f\,^4S^\circ_{1\frac{1}{2}}$
745.640	1	134113.0	$3d\,^2D_{1\frac{1}{2}} - 6f\,^4D^\circ_{1\frac{1}{2}}$
746.241	5	134005.0	$3d\,^2D_{1\frac{1}{2}} - 4f''\,^4D^\circ_{2\frac{1}{2}}$
746.525	0	133954.0	$3d\,^2D_{1\frac{1}{2}} - 4f''\,^4F^\circ_{2\frac{1}{2}}$
752.403	0	132907.5	$3d\,^2D_{2\frac{1}{2}} - 4f'\,^2D^\circ_{2\frac{1}{2}}$?
752.626	4	132868.1	$3d\,^2D_{2\frac{1}{2}} - 4f'\,^2F^\circ_{3\frac{1}{2}}$
767.898	1	130225.6	$3d\,^2D_{2\frac{1}{2}} - 5f\,^2F^\circ_{3\frac{1}{2}}$
771.626	1	129596.5	$3d\,^2D_{1\frac{1}{2}} - 5f\,^4G^\circ_{2\frac{1}{2}}$
776.000	3	128866.0	$3d\,^2D_{2\frac{1}{2}} - 5f\,^4F^\circ_{3\frac{1}{2}}$
776.078	5	128853.0	$3d\,^2D_{2\frac{1}{2}} - 5f\,^4D^\circ_{2\frac{1}{2}}$
795.506	10	125706.15	$4s\,^4F_{4\frac{1}{2}} - v\,^4G^\circ_{5\frac{1}{2}}$
797.074	200	125458.87	$4s\,^4F_{4\frac{1}{2}} - v\,^4F^\circ_{4\frac{1}{2}}$
797.088	150	125456.66	$4s\,^4F_{4\frac{1}{2}} - s\,^4D^\circ_{3\frac{1}{2}}$
798.518	30	125231.99	$3d\,^2D_{1\frac{1}{2}} - x\,^4S^\circ_{1\frac{1}{2}}$
			$4s\,^4F_{4\frac{1}{2}} - v\,^4G^\circ_{5\frac{1}{2}}$?
799.145	2	125133.74	$4s\,^4F_{3\frac{1}{2}} - v\,^4F^\circ_{3\frac{1}{2}}$
802.292	100	124642.90	$4s\,^4F_{3\frac{1}{2}} - s\,^4D^\circ_{2\frac{1}{2}}$
803.064	15	124523.08	$4s\,^4F_{3\frac{1}{2}} - v\,^4F^\circ_{4\frac{1}{2}}$
805.168	150	124197.68	$4s\,^4F_{3\frac{1}{2}} - v\,^4F^\circ_{3\frac{1}{2}}$
806.188	30	124040.54	$4s\,^4F_{2\frac{1}{2}} - s\,^4D^\circ_{1\frac{1}{2}}$
807.391	0	123855.73	$4s\,^4F_{2\frac{1}{2}} - s\,^4D^\circ_{2\frac{1}{2}}$
808.933	5	123619.63	$4s\,^4F_{1\frac{1}{2}} - s\,^4D^\circ_{0\frac{1}{2}}$
809.772	0	123491.55	$4s\,^4F_{1\frac{1}{2}} - s\,^4D^\circ_{1\frac{1}{2}}$
810.292	20	123412.30	$4s\,^4F_{2\frac{1}{2}} - v\,^4F^\circ_{3\frac{1}{2}}$
811.389	2	123245.45	
812.388	100	123093.89	$4s\,^4F_{2\frac{1}{2}} - v\,^4F^\circ_{2\frac{1}{2}}$
813.602	2	122910.22	
814.050	5	122842.58	$4s\,^2F_{3\frac{1}{2}} - 6p'\,^2F^\circ_{3\frac{1}{2}}$
815.570	5	122613.63	$4s\,^4F_{2\frac{1}{2}} - 4f'\,^2F^\circ_{2\frac{1}{2}}$
816.024	8	122545.41	$4s\,^4F_{1\frac{1}{2}} - v\,^4F^\circ_{2\frac{1}{2}}$
816.150	30	122526.50	$4s\,^4F_{1\frac{1}{2}} - v\,^4F^\circ_{1\frac{1}{2}}$
816.156	150	122525.60	$4s\,^2F_{3\frac{1}{2}} - v\,^2G^\circ_{4\frac{1}{2}}$
816.864	1	122419.40	
817.884	1	122266.73	$4s\,^4F_{4\frac{1}{2}} - 7p\,^4G^\circ_{5\frac{1}{2}}$
819.090	5	122086.71	$4s\,^4F_{4\frac{1}{2}} - 7p\,^4D^\circ_{3\frac{1}{2}}$
821.612	1	121711.95	$4s\,^2F_{3\frac{1}{2}} - 8p\,^4G^\circ_{4\frac{1}{2}}$
821.634	20	121708.69	$4s\,^2F_{3\frac{1}{2}} - v\,^2D^\circ_{2\frac{1}{2}}$
821.875	1	121673.00	
823.277	3	121465.80	
824.856	2	121233.28	$4s\,^2F_{3\frac{1}{2}} - w\,^2D^\circ_{2\frac{1}{2}}$
828.152	10	120750.78	$4s\,^2F_{2\frac{1}{2}} - 4f''\,^2G^\circ_{3\frac{1}{2}}$
828.786	1	120658.41	$4s\,^2F_{3\frac{1}{2}} - w\,^2F^\circ_{2\frac{1}{2}}$
830.677	2	120383.73	
831.475	2	120268.20	$3d\,^2D_{2\frac{1}{2}} - 4f\,^2F^\circ_{3\frac{1}{2}}$
834.059	100	119895.59	$4s\,^2F_{3\frac{1}{2}} - w\,^2G^\circ_{4\frac{1}{2}}$
835.739	0	119654.58	$3d\,^2D_{1\frac{1}{2}} - 4f\,^4F^\circ_{1\frac{1}{2}}$
835.983	75	119619.66	$4s\,^2F_{3\frac{1}{2}} - w\,^2F^\circ_{3\frac{1}{2}}$
836.954	1	119480.88	$4s\,^2F_{3\frac{1}{2}} - 4f'\,^2H^\circ_{4\frac{1}{2}}$
837.624	50	119385.31	$4s\,^2F_{2\frac{1}{2}} - w\,^2G^\circ_{3\frac{1}{2}}$
838.224	10	119299.85	$4s\,^2F_{2\frac{1}{2}} - 6f\,^4D^\circ_{2\frac{1}{2}}$
838.524	1	119257.17	
838.834	50	119213.10	$4s\,^2F_{2\frac{1}{2}} - w\,^2F^\circ_{2\frac{1}{2}}$
840.878	5	118923.32	$3d\,^2D_{2\frac{1}{2}} - 4f\,^4F^\circ_{3\frac{1}{2}}$
841.056	10	118898.15	$3d\,^2D_{2\frac{1}{2}} - 4f\,^4D^\circ_{2\frac{1}{2}}$
841.205	0	118877.09	$3d\,^2D_{2\frac{1}{2}} - 4f\,^4P^\circ_{1\frac{1}{2}}$
844.748	2	118378.50	$3d\,^2D_{2\frac{1}{2}} - 5p'\,^2F^\circ_{2\frac{1}{2}}$
			$4s\,^2F_{3\frac{1}{2}} - 7p\,^2G^\circ_{4\frac{1}{2}}$
845.033	3	118338.57	
849.086	5	117773.70	
849.398	5	117730.44	
854.604	3	117013.26	
855.282	5	116920.50	$4s\,^2F_{3\frac{1}{2}} - 7p\,^4F^\circ_{4\frac{1}{2}}$
858.562	2	116473.83	
876.829	0	114047.32	$4s\,^4F_{4\frac{1}{2}} - 6p\,^4F^\circ_{4\frac{1}{2}}$
881.608	2	113429.10	$4s\,^4F_{4\frac{1}{2}} - 6p\,^4D^\circ_{3\frac{1}{2}}$
882.337	1	113335.38	
888.818	5	112508.97	$4s\,^4F_{4\frac{1}{2}} - 5p''\,^4D^\circ_{3\frac{1}{2}}$
893.630	3	111903.14	
894.004	2	111856.32	$4s'\,^2D_{2\frac{1}{2}} - w\,^2D^\circ_{1\frac{1}{2}}$
895.093	1	111720.23	$4s\,^4F_{3\frac{1}{2}} - 5p''\,^4D^\circ_{2\frac{1}{2}}$
895.458	15	111674.70	$4s'\,^2D_{2\frac{1}{2}} - w\,^2D^\circ_{2\frac{1}{2}}$
896.168	5	111586.22	$4s'\,^2D_{1\frac{1}{2}} - w\,^2P^\circ_{1\frac{1}{2}}$
898.716	2	111269.86	$4s\,^4F_{2\frac{1}{2}} - 5p''\,^4D^\circ_{1\frac{1}{2}}$
898.821	5	111256.86	
900.510	00	111048.18	$4s'\,^2D_{2\frac{1}{2}} - s\,^4D^\circ_{1\frac{1}{2}}$
901.007	10	110986.93	$4s'\,^2D_{1\frac{1}{2}} - w\,^2D^\circ_{2\frac{1}{2}}$
901.737	2	110897.08	$4s\,^4F_{1\frac{1}{2}} - 5p''\,^4D^\circ_{0\frac{1}{2}}$
901.999	50	110864.87	$4s'\,^2D_{2\frac{1}{2}} - s\,^4D^\circ_{2\frac{1}{2}}$
902.687	1	110780.37	
902.996	75?	110742.46	$4s'\,^2D_{2\frac{1}{2}} - s\,^4D^\circ_{3\frac{1}{2}}$
904.205	2	110594.39	$4s''\,^4P_{1\frac{1}{2}} - w\,^2P^\circ_{1\frac{1}{2}}$
904.986	1	110498.95	$4s\,^4F_{4\frac{1}{2}} - 4f\,^4H^\circ_{5\frac{1}{2}}$
			$4s'\,^2D_{1\frac{1}{2}} - 6f\,^4D^\circ_{2\frac{1}{2}}$
905.634	100	110419.88	$4s'\,^2D_{2\frac{1}{2}} - v\,^4F^\circ_{3\frac{1}{2}}$
905.696	3	110412.32	$4s'\,^2D_{1\frac{1}{2}} - w\,^2F^\circ_{2\frac{1}{2}}$
906.123	15	110360.29	$4s'\,^2D_{1\frac{1}{2}} - s\,^4D^\circ_{2\frac{1}{2}}$
906.237	2	110346.41	$4s''\,^4P_{2\frac{1}{2}} - w\,^2P^\circ_{1\frac{1}{2}}$
906.730	1	110286.41	
906.906	1	110265.01	
907.630	50	110177.05	$4s'\,^2D_{1\frac{1}{2}} - s\,^4D^\circ_{2\frac{1}{2}}$
907.692	10	110169.53	$4s\,^4F_{4\frac{1}{2}} - 5p'\,^2F^\circ_{3\frac{1}{2}}$
908.258	40	110100.87	$4s'\,^2D_{2\frac{1}{2}} - v\,^4F^\circ_{2\frac{1}{2}}$
908.584	20	110061.37	$4s'\,^2D_{2\frac{1}{2}} - w\,^2F^\circ_{3\frac{1}{2}}$
909.683	10	109928.40	$4s''\,^4P_{2\frac{1}{2}} - w\,^2D^\circ_{1\frac{1}{2}}$
911.187	15	109746.96	$4s''\,^4P_{2\frac{1}{2}} - w\,^2D^\circ_{2\frac{1}{2}}$
913.187	2	109506.60	$4s''\,^4P_{1\frac{1}{2}} - 6f\,^4D^\circ_{2\frac{1}{2}}$
913.279	3	109495.56	$4s''\,^4P_{1\frac{1}{2}} - s\,^4D^\circ_{0\frac{1}{2}}$
913.678	75	109447.75	$4s''\,^4P_{0\frac{1}{2}} - s\,^4D^\circ_{0\frac{1}{2}}$
913.909	15	109420.08	$4s''\,^4P_{1\frac{1}{2}} - w\,^2F^\circ_{2\frac{1}{2}}$
914.343	50	109368.15	$4s''\,^4P_{1\frac{1}{2}} - s\,^4D^\circ_{1\frac{1}{2}}$
914.743	40	109320.32	$4s''\,^4P_{0\frac{1}{2}} - s\,^4D^\circ_{1\frac{1}{2}}$
915.471	1	109233.39	$4s\,^4F_{3\frac{1}{2}} - 5p'\,^2F^\circ_{3\frac{1}{2}}$
915.877	75	109184.97	$4s''\,^4P_{1\frac{1}{2}} - s\,^4D^\circ_{2\frac{1}{2}}$
915.920	30	109179.84	$4s\,^4F_{4\frac{1}{2}} - w\,^4F^\circ_{4\frac{1}{2}}$
916.449	1	109116.82	$4s'\,^2D_{2\frac{1}{2}} - v\,^4P^\circ_{1\frac{1}{2}}$
917.017	10	109049.23	$4s\,^4F_{3\frac{1}{2}} - 5p'\,^2F^\circ_{2\frac{1}{2}}$
917.962	15	108936.97	$4s''\,^4P_{2\frac{1}{2}} - s\,^4D^\circ_{2\frac{1}{2}}$
918.022	3	108929.85	
918.946	4	108820.32	
918.994	150	108814.64	$4s''\,^4P_{2\frac{1}{2}} - s\,^4D^\circ_{3\frac{1}{2}}$
920.451	10	108642.39	$4s\,^4F_{3\frac{1}{2}} - w\,^4F^\circ_{3\frac{1}{2}}$
921.228	2	108550.76	
921.299	1	108542.39	$4s\,^4F_{3\frac{1}{2}} - 5p'\,^2D^\circ_{2\frac{1}{2}}$

TABLE I. *Lines of* Ni II – Continued

λ(vac)	Intensity	Wavenumber	Transition
921.730	75	108491.64	$4s''\ ^4P_{2\frac{1}{2}} - v\ ^4F^\circ_{3\frac{1}{2}}$
922.176	5	108439.17	
922.331	15	108420.95	$4s''\ ^4P_{1\frac{1}{2}} - v\ ^4F^\circ_{2\frac{1}{2}}$
922.571	1	108392.74	
924.710	1	108142.01	$4s\ ^2F_{3\frac{1}{2}} - x\ ^2G^\circ_{4\frac{1}{2}}$
924.783	10	108133.48	$4s''\ ^4P_{2\frac{1}{2}} - w\ ^2F^\circ_{3\frac{1}{2}}$
924.912	20	108118.39	$4s\ ^4F_{4\frac{1}{2}} - v\ ^4D^\circ_{3\frac{1}{2}}$
925.100	2	108096.42	
925.544	3	108044.57	
925.578	1	108040.60	
927.820	5	107779.53	$4s\ ^4F_{1\frac{1}{2}} - 5p'\ ^2P^\circ_{1\frac{1}{2}}$?
928.953	3	107648.07	$4s\ ^4F_{2\frac{1}{2}} - 5p'\ ^2D^\circ_{1\frac{1}{2}}$
929.586	1	107574.77	
929.681	3	107563.78	$4s\ ^4F_{3\frac{1}{2}} - v\ ^4D^\circ_{2\frac{1}{2}}$
929.831	5	107546.42	$4s\ ^4F_{2\frac{1}{2}} - v\ ^4D^\circ_{1\frac{1}{2}}$
930.351	10	107486.31	
930.707	3h	107445.20	
931.191	1h	107389.35	$4s''\ ^4P_{2\frac{1}{2}} - v\ ^4P^\circ_{1\frac{1}{2}}$
931.501	2	107353.62	$4s\ ^2F_{3\frac{1}{2}} - 5p''\ ^4D^\circ_{3\frac{1}{2}}$
932.321	2	107259.19	
933.339	2	107142.21	$3d\ ^2D_{2\frac{1}{2}} - 5p\ ^2D^\circ_{1\frac{1}{2}}$
933.421	1	107132.79	
933.866	1	107081.74	$3d\ ^2D_{2\frac{1}{2}} - 5p\ ^2F^\circ_{2\frac{1}{2}}$
935.085	2	106942.15	
935.200	1	106929.00	
936.188	1	106816.15	$4s\ ^4F_{4\frac{1}{2}} - x\ ^4G^\circ_{3\frac{1}{2}}$
936.704	15	106757.31	$4s\ ^4F_{3\frac{1}{2}} - w\ ^4G^\circ_{4\frac{1}{2}}$
939.276	30	106464.98	$4s\ ^4F_{4\frac{1}{2}} - w\ ^4G^\circ_{5\frac{1}{2}}$
940.886	20	106282.80	$3d\ ^2D_{2\frac{1}{2}} - 5p\ ^4G^\circ_{2\frac{1}{2}}$
941.972	10	106160.27	$4s\ ^4F_{2\frac{1}{2}} - w\ ^4G^\circ_{3\frac{1}{2}}$
			$4s\ ^4F_{1\frac{1}{2}} - w\ ^4G^\circ_{2\frac{1}{2}}$
941.996	4	106157.56	
942.360	2	106116.56	
942.587	5	106091.00	
944.343	1	105893.73	$4s''\ ^2P_{1\frac{1}{2}} - w\ ^2D^\circ_{1\frac{1}{2}}$
944.634	30	105861.11	$3d\ ^2D_{2\frac{1}{2}} - 5p\ ^2D^\circ_{2\frac{1}{2}}$
944.842	10	105837.80	$3d\ ^2D_{2\frac{1}{2}} - 5p\ ^2F^\circ_{3\frac{1}{2}}$
945.965	75	105712.16	$5s''\ ^2P_{1\frac{1}{2}} - w\ ^2D^\circ_{2\frac{1}{2}}$
946.657	15	105634.88	$3d\ ^2D_{1\frac{1}{2}} - 5p\ ^2D^\circ_{1\frac{1}{2}}$
946.769	3	105622.38	$4s'''\ ^2G_{4\frac{1}{2}} - 9p\ ^4F^\circ_{4\frac{1}{2}}$?
947.195	2	105574.88	$3d\ ^2D_{1\frac{1}{2}} - 5p\ ^2F^\circ_{2\frac{1}{2}}$
949.024	0	105371.41	$4s''\ ^2P_{0\frac{1}{2}} - w\ ^2D^\circ_{1\frac{1}{2}}$
949.137	1	105358.87	$4s\ ^4F_{4\frac{1}{2}} - x\ ^4G^\circ_{4\frac{1}{2}}$
952.027	1	105039.04	$4s'''\ ^2G_{3\frac{1}{2}} - 8p\ ^2G^\circ_{3\frac{1}{2}}$
952.266	8	105012.67	$4s\ ^2F_{3\frac{1}{2}} - 5p'\ ^2F^\circ_{3\frac{1}{2}}$
952.340	1	105004.51	$4s\ ^4F_{2\frac{1}{2}} - x\ ^4F^\circ_{2\frac{1}{2}}$
953.033	10	104928.16	$4s\ ^4F_{4\frac{1}{2}} - x\ ^4F^\circ_{4\frac{1}{2}}$
			$4s\ ^4F_{1\frac{1}{2}} - x\ ^4F^\circ_{1\frac{1}{2}}$
953.937	2	104828.73	$4s\ ^2F_{3\frac{1}{2}} - 5p\ ^2F^\circ_{2\frac{1}{2}}$
954.911	1	104721.80	$4s\ ^4F_{3\frac{1}{2}} - x\ ^4F^\circ_{3\frac{1}{2}}$
955.601	10	104646.19	$3d\ ^2D_{2\frac{1}{2}} - 5p\ ^4F^\circ_{3\frac{1}{2}}$
956.912	3	104502.82	$3d\ ^2D_{2\frac{1}{2}} - 5p\ ^4D^\circ_{2\frac{1}{2}}$
959.931	5	104174.15	$4s'''\ ^2G_{4\frac{1}{2}} - 8p\ ^2G^\circ_{4\frac{1}{2}}$
960.261	5	104138.35	$4s''\ ^2P_{1\frac{1}{2}} - v\ ^4F^\circ_{2\frac{1}{2}}$
960.269	5	104137.49	
961.516	1	104002.43	
962.526	1	103893.30	$4s'''\ ^2G_{4\frac{1}{2}} - 6p'\ ^2F^\circ_{3\frac{1}{2}}$
962.750	1	103869.12	$4s'''\ ^2G_{3\frac{1}{2}} - 6p'\ ^2F^\circ_{3\frac{1}{2}}$
963.855	15	103750.04	
965.470	20	103576.50	$4s'''\ ^2G_{4\frac{1}{2}} - v\ ^2G^\circ_{4\frac{1}{2}}$
968.784	20	103222.18	$4s'''\ ^2G_{3\frac{1}{2}} - v\ ^2G^\circ_{3\frac{1}{2}}$
971.415	50	102942.61	$4s'\ ^2D_{1\frac{1}{2}} - x\ ^4S^\circ_{1\frac{1}{2}}$
973.121	1	102762.14	$4s'''\ ^2G_{4\frac{1}{2}} - 8p\ ^4G^\circ_{4\frac{1}{2}}$
977.276	10	102325.24	
978.108	25	102238.20	
980.290	3	102010.63	
981.768	50	101857.06	$4s'''\ ^2G_{3\frac{1}{2}} - w\ ^2G^\circ_{3\frac{1}{2}}$
983.004	3	101728.99	
983.431	1	101684.82	$4s'''\ ^2G_{3\frac{1}{2}} - w\ ^2F^\circ_{2\frac{1}{2}}$
983.592	2	101668.17	$4s\ ^4F_{2\frac{1}{2}} - y\ ^4G^\circ_{3\frac{1}{2}}$
985.918	10	101428.31	
986.992	2	101317.94	
987.339	4	101282.34	
988.338	10	101179.96	
990.626	100	100946.27	$4s'''\ ^2G_{4\frac{1}{2}} - w\ ^2G^\circ_{4\frac{1}{2}}$
992.516	20	100754.04	$4s\ ^4F_{4\frac{1}{2}} - y\ ^4F^\circ_{4\frac{1}{2}}$
993.128	15	100691.96	$4s\ ^4F_{3\frac{1}{2}} - y\ ^4G^\circ_{4\frac{1}{2}}$
993.341	1	100670.36	$4s'''\ ^2G_{4\frac{1}{2}} - w\ ^2F^\circ_{3\frac{1}{2}}$
994.867	10h	100515.95	$4s\ ^4F_{3\frac{1}{2}} - y\ ^4F^\circ_{3\frac{1}{2}}$
995.256	30	100476.66	
995.445	4	100457.58	$4s\ ^4F_{2\frac{1}{2}} - y\ ^4F^\circ_{2\frac{1}{2}}$
995.453	3	100456.78	$4s\ ^4F_{1\frac{1}{2}} - y\ ^4F^\circ_{1\frac{1}{2}}$
997.974	1	100203.01	$4s\ ^2F_{3\frac{1}{2}} - x\ ^4G^\circ_{4\frac{1}{2}}$
1004.170	5	99584.73	
1005.021	8	99500.41	
1006.712	1	99333.27	
1008.218	10	99184.90	
1016.622	20	98364.98	
1016.677	8	98359.66	
1019.067	5	98128.97	
1021.060	5	97937.44	
1023.961	3	97659.97	$4s'\ ^2D_{1\frac{1}{2}} - 4p''\ ^4S^\circ_{1\frac{1}{2}}$
1023.999	15	97656.34	
1024.720	50	97587.63	$4s\ ^4F_{4\frac{1}{2}} - y\ ^6D^\circ_{5\frac{1}{2}}$
1025.591	2	97504.75	
1025.641	5	97500.00	
1026.981	5	97372.78	
1028.208	20	97256.59	
1031.306	1	96964.43	$4s''\ ^4P_{0\frac{1}{2}} - 5p''\ ^2D^\circ_{1\frac{1}{2}}$
1032.749	2	96828.95	
1033.443	10	96763.92	$4s''\ ^4P_{2\frac{1}{2}} - 5p''\ ^2D^\circ_{1\frac{1}{2}}$
1034.155	15	96697.30	
1034.249	10	96688.52	$4s'\ ^2D_{1\frac{1}{2}} - 5p''\ ^4P^\circ_{2\frac{1}{2}}$
1036.182	2	96508.14	$4s\ ^4F_{3\frac{1}{2}} - 5p\ ^2F^\circ_{3\frac{1}{2}}$
1038.866	5	96258.80	$4s\ ^4F_{4\frac{1}{2}} - 5p\ ^2G^\circ_{4\frac{1}{2}}$
1040.668	1	96092.12	
1042.704	2	95904.49	$4s\ ^4F_{4\frac{1}{2}} - 5p\ ^4G^\circ_{4\frac{1}{2}}$
1044.349	30	95753.43	$4s\ ^4F_{4\frac{1}{2}} - 5p\ ^4G^\circ_{5\frac{1}{2}}$
1044.871	2	95705.59	$4s\ ^4F_{1\frac{1}{2}} - 5p\ ^4F^\circ_{1\frac{1}{2}}$
1045.073	15	95687.10	$4s\ ^4F_{4\frac{1}{2}} - 5p\ ^4F^\circ_{4\frac{1}{2}}$
1045.813	5	95619.39	$4s\ ^4F_{1\frac{1}{2}} - 5p\ ^4G^\circ_{2\frac{1}{2}}$
1046.537	8	95553.24	$4s\ ^4F_{2\frac{1}{2}} - 5p\ ^4F^\circ_{2\frac{1}{2}}$
1047.497	1	95465.67	
1048.400	6	95383.44	$4s\ ^4F_{2\frac{1}{2}} - 5p\ ^4G^\circ_{3\frac{1}{2}}$
1048.936	1	95334.70	$4s'\ ^2D_{2\frac{1}{2}} - 5p'\ ^2P^\circ_{1\frac{1}{2}}$
1048.982	3	95330.52	$4s''\ ^4P_{0\frac{1}{2}} - 5p''\ ^4P^\circ_{1\frac{1}{2}}$
1049.051	1	95324.25	$4s\ ^4F_{2\frac{1}{2}} - 5p\ ^4D^\circ_{1\frac{1}{2}}$
1049.137	8	95316.44	$4s\ ^4F_{3\frac{1}{2}} - 5p\ ^4F^\circ_{3\frac{1}{2}}$
1049.755	100	95260.32	$4s\ ^4F_{4\frac{1}{2}} - 5p\ ^4D^\circ_{3\frac{1}{2}}$
1050.718	3	95173.01	$4s\ ^4F_{3\frac{1}{2}} - 5p\ ^4D^\circ_{2\frac{1}{2}}$

TABLE I. *Lines of* Ni II — Continued

λ(vac)	Intensity	Wavenumber	Transition
1052.534	10	95008.81	$4s''\ ^4P_{1\frac{1}{2}} - 5p''\ ^4P^\circ_{2\frac{1}{2}}$
1052.983	2	94968.29	$4s\ ^4F_{3\frac{1}{2}} - 5p\ ^4G^\circ_{4\frac{1}{2}}$
1053.729	15	94901.06	
1055.246	15	94764.63	$4s'\ ^2D_{2\frac{1}{2}} - 5p'\ ^2D^\circ_{2\frac{1}{2}}$
1055.291	30	94760.59	$4s''\ ^4P_{2\frac{1}{2}} - 5p''\ ^4P^\circ_{2\frac{1}{2}}$
1056.837	2h	94621.97	
1062.243	1	94140.42	
1062.965	1	94076.47	$4s'\ ^2D_{1\frac{1}{2}} - 5p'\ ^2D^\circ_{2\frac{1}{2}}$
1066.476	1	93766.76	
1070.590	10	93406.44	$4s''\ ^4P_{2\frac{1}{2}} - 5p'\ ^2P^\circ_{1\frac{1}{2}}$
1074.224	1	93090.45	
1075.551	3	92975.60	$4s''\ ^4P_{1\frac{1}{2}} - 5p'\ ^2D^\circ_{1\frac{1}{2}}$
1076.006	2	92936.28	$4s''\ ^4P_{2\frac{1}{2}} - w\ ^4F^\circ_{3\frac{1}{2}}$
1077.163	4	92836.46	$4s''\ ^4P_{2\frac{1}{2}} - 5p'\ ^2D^\circ_{2\frac{1}{2}}$
1081.035	200	92503.94	$4s'''\ ^2G_{4\frac{1}{2}} - y\ ^2H^\circ_{5\frac{1}{2}}$
1085.441	150	92128.45	$4s'''\ ^2G_{3\frac{1}{2}} - y\ ^2H^\circ_{4\frac{1}{2}}$
1086.503	4	92038.40	$4s\ ^2F_{3\frac{1}{2}} - 5p\ ^2G^\circ_{4\frac{1}{2}}$
1091.407	4	91624.85	$4s\ ^2F_{2\frac{1}{2}} - 5p\ ^2G^\circ_{3\frac{1}{2}}$
1099.471	1	90952.83	$4s\ ^2F_{3\frac{1}{2}} - 5p\ ^4D^\circ_{2\frac{1}{2}}$
1101.893	2	90752.91	
1101.956	5	90747.72	$4s\ ^2F_{3\frac{1}{2}} - 5p\ ^4G^\circ_{4\frac{1}{2}}$
1104.602	1	90530.34	$4s\ ^2F_{3\frac{1}{2}} - 5p\ ^4F^\circ_{4\frac{1}{2}}$
1105.315	1	90471.95	
1108.729	30	90193.37	
1109.022	1	90169.54	
1114.260	2	89745.66	
1116.557	40	89561.03	$4s''\ ^2P_{1\frac{1}{2}} - 5p'\ ^2P^\circ_{0\frac{1}{2}}$
1118.404	20	89413.13	
1118.547	25	89401.70	
1118.921	10	89371.81	$4s''\ ^2P_{1\frac{1}{2}} - 5p'\ ^2P^\circ_{1\frac{1}{2}}$
1119.330	75	89339.16	$4s'''\ ^2G_{3\frac{1}{2}} - x\ ^2G^\circ_{3\frac{1}{2}}$
1121.162	125	89193.18	$4s'''\ ^2G_{4\frac{1}{2}} - x\ ^2G^\circ_{4\frac{1}{2}}$
1123.113	2	89038.23	$4s''\ ^2P_{0\frac{1}{2}} - 5p'\ ^2P^\circ_{0\frac{1}{2}}$
1127.112	4	88722.33	
1127.486	5	88692.90	$4s''\ ^2P_{1\frac{1}{2}} - 5p'\ ^2D^\circ_{1\frac{1}{2}}$
1133.730	75	88204.42	$4s\ ^2F_{3\frac{1}{2}} - z\ ^2D^\circ_{2\frac{1}{2}}$
1134.533	150	88141.99	$4s\ ^4F_{4\frac{1}{2}} - z\ ^4D^\circ_{3\frac{1}{2}}$
1135.412	1	88073.76	
1136.360	1	88000.28	
1137.091	100	87943.71	$4s\ ^4F_{3\frac{1}{2}} - z\ ^4D^\circ_{2\frac{1}{2}}$
1138.547	10	87831.24	
1139.009	3	87795.62	$s^2\ ^4F_{4\frac{1}{2}} - 6p''\ ^4D^\circ_{3\frac{1}{2}}$
1139.638	75	87747.16	$4s\ ^2F_{2\frac{1}{2}} - z\ ^2D^\circ_{1\frac{1}{2}}$
1140.459	75	87683.99	$4s\ ^4F_{2\frac{1}{2}} - z\ ^4D^\circ_{1\frac{1}{2}}$
1141.579	2	87597.97	
1141.891	1	87574.03	
1143.397	50	87458.69	$4s\ ^4F_{1\frac{1}{2}} - z\ ^4D^\circ_{0\frac{1}{2}}$
1144.874	5	87345.86	
1147.633	1	87135.87	$4s\ ^4F_{1\frac{1}{2}} - z\ ^4D^\circ_{1\frac{1}{2}}$
1149.239	1	87014.10	
1153.439	2	86697.26	
1154.416	150	86623.89	$4s\ ^4F_{4\frac{1}{2}} - z\ ^4G^\circ_{4\frac{1}{2}}$
1156.319	2	86481.33	
1157.132	1	86420.56	
1158.830	100	86293.93	$4s\ ^2F_{3\frac{1}{2}} - z\ ^2G^\circ_{4\frac{1}{2}}$
1159.510	150	86243.33	$4s\ ^4F_{3\frac{1}{2}} - z\ ^4G^\circ_{3\frac{1}{2}}$
1160.776	2d	86149.26	$4p\ ^4D^\circ_{3\frac{1}{2}} - 8d\ ^4D_{3\frac{1}{2}}$ $4p\ ^4D^\circ_{3\frac{1}{2}} - 8d\ ^4P_{2\frac{1}{2}}$
1160.823	1	86145.78	
1161.297	15d	86110.62	
1161.927	1	86063.93	$4s'''\ ^2G_{4\frac{1}{2}} - 5p\ ^2F^\circ_{3\frac{1}{2}}$
1162.361	1	86031.79	
1162.492	8	86022.10	
1162.601	1	86014.03	
1162.748	150	86003.16	$4s\ ^4F_{4\frac{1}{2}} - z\ ^4G^\circ_{5\frac{1}{2}}$
1163.645	50	85936.86	$4s\ ^4F_{2\frac{1}{2}} - z\ ^4G^\circ_{2\frac{1}{2}}$
1163.729	8	85930.66	$4s'\ ^2D_{2\frac{1}{2}} - z\ ^6P^\circ_{1\frac{1}{2}}$
1163.880	4	85919.51	
1164.279	150	85890.06	$4s\ ^4F_{4\frac{1}{2}} - z\ ^4F^\circ_{4\frac{1}{2}}$
1164.574	100	85868.31	$4s\ ^2F_{3\frac{1}{2}} - z\ ^2F^\circ_{3\frac{1}{2}}$
1165.646	5	85789.34	
1165.798	12	85778.15	$4s\ ^4F_{2\frac{1}{2}} - z\ ^4F^\circ_{1\frac{1}{2}}$
1167.030	25	85687.60	$4s\ ^4F_{3\frac{1}{2}} - z\ ^4G^\circ_{4\frac{1}{2}}$
1167.803	10	85630.88	$4p\ ^4D^\circ_{3\frac{1}{2}} - 9s\ ^4F_{4\frac{1}{2}}$
1168.040	75	85613.51	$4s\ ^2F_{2\frac{1}{2}} - z\ ^2F^\circ_{2\frac{1}{2}}$
1169.919	3	85476.00	
1170.169	20	85457.74	$4s\ ^4F_{2\frac{1}{2}} - z\ ^4G^\circ_{3\frac{1}{2}}$
1171.117	15	85388.56	$4s\ ^4F_{1\frac{1}{2}} - z\ ^4G^\circ_{2\frac{1}{2}}$
1171.291	100	85375.88	$4s\ ^4F_{3\frac{1}{2}} - z\ ^4F^\circ_{3\frac{1}{2}}$
1173.121	1	85242.70	$4s'\ ^2D_{1\frac{1}{2}} - z\ ^6P^\circ_{1\frac{1}{2}}$
1173.298	50	85229.84	$4s\ ^4F_{1\frac{1}{2}} - z\ ^4F^\circ_{1\frac{1}{2}}$
1173.477	75	85216.84	$4s\ ^4F_{2\frac{1}{2}} - z\ ^4F^\circ_{2\frac{1}{2}}$
1177.006	1	84961.33	$4p\ ^4D^\circ_{3\frac{1}{2}} - 4d''\ ^4F_{4\frac{1}{2}}$
1177.109	50	84953.90	$4s\ ^4F_{3\frac{1}{2}} - z\ ^4F^\circ_{4\frac{1}{2}}$
1178.224	8d	84873.50	
1178.571	30	84848.52	$4s\ ^2F_{2\frac{1}{2}} - z\ ^2G^\circ_{3\frac{1}{2}}$
1180.271	150	84726.30	$4s\ ^2F_{3\frac{1}{2}} - z\ ^2G^\circ_{4\frac{1}{2}}$
1181.075	30	84668.63	$4s\ ^4F_{1\frac{1}{2}} - z\ ^4F^\circ_{2\frac{1}{2}}$
1181.620	15	84629.58	$4s'\ ^2D_{2\frac{1}{2}} - z\ ^4S^\circ_{1\frac{1}{2}}$
1182.169	75	84590.27	$4s\ ^4F_{2\frac{1}{2}} - z\ ^4F^\circ_{3\frac{1}{2}}$
1184.512	20	84422.95	$4s\ ^2F_{2\frac{1}{2}} - z\ ^2F^\circ_{3\frac{1}{2}}$
1184.980	3	84389.61	$4p\ ^4G^\circ_{4\frac{1}{2}} - 8d\ ^4G_{5\frac{1}{2}}$
1185.146	2	84377.79	$4p\ ^4G^\circ_{4\frac{1}{2}} - 8d\ ^4H_{5\frac{1}{2}}$
1186.347	1	84292.37	
1186.933	8	84250.75	$4s''\ ^4P_{1\frac{1}{2}} - z\ ^6P^\circ_{1\frac{1}{2}}$
1186.993	1	84246.50	$4p\ ^4G^\circ_{5\frac{1}{2}} - 8d\ ^4H_{5\frac{1}{2}}$
1187.102	20	84238.76	$4p\ ^4G^\circ_{5\frac{1}{2}} - 8d\ ^4H_{6\frac{1}{2}}$
1187.608	15	84202.87	$4s''\ ^4P_{0\frac{1}{2}} - z\ ^6P^\circ_{1\frac{1}{2}}$
1190.442	1	84002.41	$4s''\ ^4P_{2\frac{1}{2}} - z\ ^6P^\circ_{1\frac{1}{2}}$
1192.306	5	83871.09	$4p\ ^4G^\circ_{4\frac{1}{2}} - 9s\ ^4F_{3\frac{1}{2}}$
1192.596	00	83850.69	$4p\ ^4D^\circ_{2\frac{1}{2}} - 5d''\ ^4F_{3\frac{1}{2}}$
1192.983	3	83823.49	$4p\ ^4G^\circ_{4\frac{1}{2}} - 9s\ ^4F_{4\frac{1}{2}}$
1193.028	2	83820.33	
1193.267	5h?	83803.54	
1194.857	15	83692.02	$4p\ ^4G^\circ_{5\frac{1}{2}} - 9s\ ^4F_{4\frac{1}{2}}$
1200.077	1	83327.99	
1200.307	1	83312.02	$4p\ ^4D^\circ_{2\frac{1}{2}} - 8s\ ^2F_{2\frac{1}{2}}$
1201.002	3h	83263.81	$4p\ ^2G^\circ_{4\frac{1}{2}} - 9s\ ^2F_{3\frac{1}{2}}$
1201.119	8	83255.70	$s^2\ ^4F_{3\frac{1}{2}} - 4f''\ ^4F^\circ_{2\frac{1}{2}}$
1201.838	5	83205.89	$4p\ ^4D^\circ_{2\frac{1}{2}} - 7d\ ^2F_{3\frac{1}{2}}$
1201.957	3	83197.65	$4p\ ^4F^\circ_{4\frac{1}{2}} - 8d\ ^4G_{5\frac{1}{2}}$
1202.452	8	83163.40	$4p\ ^4D^\circ_{2\frac{1}{2}} - 7d\ ^4F_{2\frac{1}{2}}$
1202.511	10	83159.32	
1202.911	3	83131.67	$4p\ ^4D^\circ_{1\frac{1}{2}} - 5d''\ ^4F_{2\frac{1}{2}}$
1204.102	30	83049.44	$4p\ ^4D^\circ_{3\frac{1}{2}} - 7d\ ^4F_{4\frac{1}{2}}$
1205.088	15	82981.49	$4p\ ^4D^\circ_{3\frac{1}{2}} - 7d\ ^4P_{2\frac{1}{2}}$
1205.201	1	82973.71	$4p\ ^4G^\circ_{3\frac{1}{2}} - 9s\ ^4F_{3\frac{1}{2}}$
1205.266	20	82969.24	$4p\ ^4D^\circ_{3\frac{1}{2}} - 7d\ ^4D_{3\frac{1}{2}}$
1205.314	8	82965.93	
1205.552	10	82949.55	$4s''\ ^4P_{1\frac{1}{2}} - z\ ^4S^\circ_{1\frac{1}{2}}$

TABLE I. *Lines of* Ni II – Continued

λ(vac)	Intensity	Wavenumber	Transition
1206.246	7	82901.83	$4s'' \, {}^4P_{0\,1/2} - z \, {}^4S^\circ_{1\,1/2}$
1207.567	0	82811.14	$s^2 \, {}^4F_{2\,1/2} - 4f'' \, {}^4D^\circ_{2\,1/2}$
1207.620	4	82807.51	$s^2 \, {}^4F_{4\,1/2} - v \, {}^4F^\circ_{4\,1/2}$
1207.654	3	82805.17	$s^2 \, {}^4F_{4\,1/2} - s \, {}^4D^\circ_{3\,1/2}$
1208.433	1	82751.79	$4s' \, {}^2D_{2\,1/2} - 5p \, {}^2D^\circ_{2\,1/2}$?
1209.170	7	82701.36	$4s'' \, {}^4P_{2\,1/2} - z \, {}^4S^\circ_{1\,1/2}$
1209.492	1	82679.34	$4p \, {}^4F^\circ_{4\,1/2} - 9s \, {}^4F_{3\,1/2}$
1210.192	10	82631.52	$4p \, {}^4F^\circ_{4\,1/2} - 9s \, {}^4F_{4\,1/2}$
1210.729	3	82594.87	$4p \, {}^4G^\circ_{4\,1/2} - 7d \, {}^4H_{4\,1/2}$
1210.790	1	82590.71	$4p \, {}^4G^\circ_{4\,1/2} - 7d \, {}^2H_{5\,1/2}$
1211.403	1	82548.91	$4p \, {}^4D^\circ_{0\,1/2} - 5d'' \, {}^4P_{0\,1/2}$
1212.959	0	82443.02	$4p \, {}^2G^\circ_{4\,1/2} - 8d \, {}^4H_{5\,1/2}$
1213.149	7	82430.10	
1213.361	7	82415.70	$4p \, {}^4D^\circ_{1\,1/2} - 8s \, {}^2F_{2\,1/2}$
1214.104	3	82365.27	$4p \, {}^4D^\circ_{3\,1/2} - 5d' \, {}^2G_{4\,1/2}$
1214.153	40	82361.94	$4p \, {}^4D^\circ_{2\,1/2} - 8s \, {}^2F_{3\,1/2}$
1214.350	1	82348.58	$4p \, {}^4D^\circ_{1\,1/2} - 8s \, {}^4F_{1\,1/2}$
1217.180	100	82157.12	$4p \, {}^4D^\circ_{3\,1/2} - 8s \, {}^4F_{4\,1/2}$
1217.692	1	82122.57	
1220.530	3	81931.62	$4p \, {}^4D^\circ_{2\,1/2} - 7d \, {}^4P_{1\,1/2}$
1220.950	1	81903.44	$4p \, {}^4D^\circ_{2\,1/2} - 7d \, {}^4F_{3\,1/2}$
1221.213	1	81885.80	$4p \, {}^4D^\circ_{3\,1/2} - 6s'' \, {}^4P_{2\,1/2}$
1221.289	1	81880.70	$4p \, {}^4G^\circ_{2\,1/2} - 7d \, {}^4G_{2\,1/2}$
1221.992	40	81833.60	$4p \, {}^4G^\circ_{2\,1/2} - 7d \, {}^4F_{1\,1/2}$
1222.220	1	81818.33	$4p \, {}^4F^\circ_{3\,1/2} - 9s \, {}^4F_{3\,1/2}$
1222.395	20	81806.62	$4p \, {}^4D^\circ_{0\,1/2} - 8s \, {}^4F_{1\,1/2}$
1222.678	1	81787.68	$4p \, {}^4G^\circ_{3\,1/2} - 8s \, {}^2F_{2\,1/2}$
1222.989	1	81766.88	$s^2 \, {}^4F_{3\,1/2} - s \, {}^4D^\circ_{2\,1/2}$
1223.466	2	81735.00	$4p \, {}^4G^\circ_{4\,1/2} - 8s \, {}^2F_{3\,1/2}$
1223.643	5	81723.18	$4p \, {}^4G^\circ_{3\,1/2} - 7d \, {}^4G_{3\,1/2}$
1223.775	1	81714.37	$4p \, {}^4G^\circ_{3\,1/2} - 7d \, {}^2G_{4\,1/2}$
1224.033	75	81697.14	$4p \, {}^4G^\circ_{3\,1/2} - 7d \, {}^4H_{4\,1/2}$
1224.268	1	81681.46	$4p \, {}^4G^\circ_{3\,1/2} - 7d \, {}^2F_{3\,1/2}$
1224.839	2 H?	81643.38	$4s' \, {}^2D_{1\,1/2} - 5p \, {}^4D^\circ_{1\,1/2}$
1226.628	25	81524.31	$4s \, {}^4F_{4\,1/2} - z \, {}^6G^\circ_{4\,1/2}$
1227.267	15	81481.86	$4p \, {}^4D^\circ_{1\,1/2} - 8s \, {}^4F_{2\,1/2}$
1227.491	5	81466.99	$4s \, {}^2F_{3\,1/2} - z \, {}^4G^\circ_{4\,1/2}$
1228.581	0	81394.71	$4s' \, {}^2D_{2\,1/2} - 5p \, {}^4D^\circ_{2\,1/2}$
1229.684	10	81321.70	$s^2 \, {}^4F_{3\,1/2} - v \, {}^4F^\circ_{3\,1/2}$
1230.116	8	81293.15	$4p \, {}^4G^\circ_{4\,1/2} - 7d \, {}^4G_{4\,1/2}$
1230.367	1	81276.56	$4p \, {}^4G^\circ_{4\,1/2} - 7d \, {}^4F_{3\,1/2}$
1230.782	40	81249.16	$4p \, {}^4G^\circ_{4\,1/2} - 7d \, {}^4G_{5\,1/2}$
1230.869	50	81243.41	
1230.889	25	81242.09	$4p \, {}^4G^\circ_{4\,1/2} - 7d \, {}^4F_{4\,1/2}$
1231.041	100	81232.06	$4p \, {}^4G^\circ_{4\,1/2} - 7d \, {}^4H_{5\,1/2}$
1232.107	1	81161.78	$4p \, {}^4G^\circ_{4\,1/2} - 7d \, {}^4D_{3\,1/2}$ $4p \, {}^4G^\circ_{5\,1/2} - 7d \, {}^4G_{4\,1/2}$
1232.773	2	81117.93	$4p \, {}^4G^\circ_{5\,1/2} - 7d \, {}^4G_{5\,1/2}$
1232.886	3	81110.50	$4p \, {}^4G^\circ_{5\,1/2} - 7d \, {}^4F_{4\,1/2}$
1233.036	15	81100.63	$4p \, {}^4G^\circ_{5\,1/2} - 7d \, {}^4H_{5\,1/2}$
1233.250	150	81086.56	$4p \, {}^4G^\circ_{5\,1/2} - 7d \, {}^4H_{6\,1/2}$
1233.484	10	81071.18	$4p \, {}^4D^\circ_{2\,1/2} - 8s \, {}^4F_{3\,1/2}$
1233.557	100	81066.38	$4s \, {}^4F_{4\,1/2} - z \, {}^6G^\circ_{5\,1/2}$
1234.092	0	81031.24	$4p \, {}^4G^\circ_{2\,1/2} - 8s \, {}^2F_{2\,1/2}$
1234.375	4	81012.66	$4p \, {}^4G^\circ_{2\,1/2} - 7d \, {}^2D_{2\,1/2}$
1234.659	1	80994.02	
1235.069	6	80967.14	$4p \, {}^4G^\circ_{2\,1/2} - 7d \, {}^4G_{3\,1/2}$
1235.112	20	80964.32	$4p \, {}^4G^\circ_{2\,1/2} - 8s \, {}^4F_{1\,1/2}$
1235.405	10	80945.12	$4s \, {}^4F_{3\,1/2} - z \, {}^6G^\circ_{3\,1/2}$
1236.474	0	80875.13	$4p \, {}^4D^\circ_{2\,1/2} - 6s'' \, {}^4P_{1\,1/2}$
1236.799	25	80853.88	$4p \, {}^4G^\circ_{3\,1/2} - 8s \, {}^4F_{2\,1/2}$
1237.049	10	80837.54	$4p \, {}^4G^\circ_{3\,1/2} - 8s \, {}^2F_{3\,1/2}$
1237.247	1	80824.60	$4s'' \, {}^4P_{2\,1/2} - 5p \, {}^2D^\circ_{2\,1/2}$
1237.260	1	80823.76	$4p \, {}^4F^\circ_{2\,1/2} - 7d \, {}^4G_{2\,1/2}$
1237.961	4	80777.99	
1237.976	8	80777.01	$4p \, {}^4F^\circ_{2\,1/2} - 7d \, {}^4F_{1\,1/2}$
1238.919	1	80715.53	$4p \, {}^4G^\circ_{3\,1/2} - 7d \, {}^4D_{2\,1/2}$
1239.061	25	80706.28	$s^2 \, {}^4F_{3\,1/2} - 4f' \, {}^2D^\circ_{2\,1/2}$
1239.506	12	80677.30	$4p \, {}^2G^\circ_{4\,1/2} - 7d \, {}^2G_{4\,1/2}$
1239.832	60	80656.09	$4p \, {}^2G^\circ_{4\,1/2} - 7d \, {}^2H_{5\,1/2}$
1240.012	1	80644.38	$4p \, {}^2G^\circ_{4\,1/2} - 7d \, {}^2F_{3\,1/2}$
1240.029	2	80643.27	
1240.877	50	80588.16	$4p \, {}^2G^\circ_{3\,1/2} - 7d \, {}^2F_{2\,1/2}$
1241.189	1	80567.91	$4p \, {}^4F^\circ_{3\,1/2} - 7d \, {}^4G_{3\,1/2}$
1241.233	2	80565.05	$4p \, {}^2G^\circ_{3\,1/2} - 7d \, {}^2G_{3\,1/2}$?
1241.320	10	80559.40	$4p \, {}^4F^\circ_{3\,1/2} - 7d \, {}^2G_{4\,1/2}$
1241.548	3	80544.61	$4s' \, {}^2D_{2\,1/2} - 5p \, {}^4D^\circ_{3\,1/2}$
1241.588	10	80542.02	$4p \, {}^4F^\circ_{3\,1/2} - 7d \, {}^4H_{4\,1/2}$
1241.827	1	80526.51	$4p \, {}^4F^\circ_{3\,1/2} - 7d \, {}^2F_{3\,1/2}$
1242.099	30	80508.88	$4p \, {}^2G^\circ_{3\,1/2} - 7d \, {}^2H_{4\,1/2}$
1242.627	6	80474.67	$4p \, {}^4F^\circ_{1\,1/2} - 7d \, {}^4G_{2\,1/2}$
1243.093	75	80444.50	$4p \, {}^4G^\circ_{4\,1/2} - 8s \, {}^4F_{3\,1/2}$
1243.126	6	80442.37	
1243.345	1	80428.20	$4p \, {}^4F^\circ_{1\,1/2} - 7d \, {}^4F_{1\,1/2}$
1243.622	3	80410.29	$4s \, {}^4F_{2\,1/2} - z \, {}^6G^\circ_{2\,1/2}$
1243.848	5	80395.67	$4p \, {}^4G^\circ_{3\,1/2} - 7d \, {}^4G_{4\,1/2}$
1244.104	3	80379.13	$4p \, {}^4G^\circ_{3\,1/2} - 7d \, {}^4F_{3\,1/2}$
1244.255	5	80369.38	$4p \, {}^4G^\circ_{4\,1/2} - 5d' \, {}^2F_{3\,1/2}$
1244.560	50	80349.68	$4p \, {}^4G^\circ_{4\,1/2} - 8s \, {}^4F_{4\,1/2}$
1244.811	100?	80333.48	
1245.977	1	80258.30	
1246.598	150	80218.32	$4p \, {}^4G^\circ_{5\,1/2} - 8s \, {}^4F_{4\,1/2}$
1247.333	20	80171.05	$s^2 \, {}^4F_{2\,1/2} - v \, {}^4F^\circ_{2\,1/2}$
1247.509	6	80159.74	$4s \, {}^4F_{2\,1/2} - z \, {}^6G^\circ_{3\,1/2}$
1247.568	1	80155.95	$4p \, {}^2F^\circ_{3\,1/2} - 9s \, {}^4F_{3\,1/2}$
1248.413	9	80101.70	$4p \, {}^4F^\circ_{4\,1/2} - 7d \, {}^4G_{4\,1/2}$
1248.467	10	80098.23	$4p \, {}^4G^\circ_{2\,1/2} - 8s \, {}^4F_{2\,1/2}$
1248.844	4	80074.05	
1249.101	100	80057.58	$4p \, {}^4F^\circ_{4\,1/2} - 7d \, {}^4G_{5\,1/2}$
1249.213	8	80050.40	$4p \, {}^4F^\circ_{4\,1/2} - 7d \, {}^4F_{4\,1/2}$
1249.369	3	80040.40	$4p \, {}^4F^\circ_{4\,1/2} - 7d \, {}^4H_{5\,1/2}$
1250.467	6	79970.12	$4p \, {}^4F^\circ_{4\,1/2} - 7d \, {}^4D_{3\,1/2}$
1250.685	4	79956.18	$4p \, {}^4F^\circ_{2\,1/2} - 7d \, {}^2D_{2\,1/2}$
1250.901	1	79942.38	
1251.394	10	79910.88	$4p \, {}^4F^\circ_{2\,1/2} - 7d \, {}^4G_{3\,1/2}$
1251.438	16	79908.07	$4p \, {}^4F^\circ_{2\,1/2} - 8s \, {}^4F_{1\,1/2}$
1252.879	1	79816.17	$4p \, {}^2D^\circ_{2\,1/2} - 9s \, {}^4F_{3\,1/2}$
1253.122	50	79800.69	$4p \, {}^2G^\circ_{4\,1/2} - 8s \, {}^2F_{3\,1/2}$
1253.477	75	79778.09	$4s \, {}^4F_{4\,1/2} - z \, {}^6D^\circ_{4\,1/2}$
1253.599	4	79770.33	$4s \, {}^4F_{3\,1/2} - z \, {}^6D^\circ_{3\,1/2}$
1254.290	2	79726.38	$4p \, {}^4D^\circ_{0\,1/2} - 5d' \, {}^2P_{0\,1/2}$
1254.346	00	79722.82	$s^2 \, {}^4F_{3\,1/2} - 7p \, {}^2G^\circ_{4\,1/2}$
1254.471	1	79714.88	$4s'' \, {}^4P_{1\,1/2} - 5p \, {}^4D^\circ_{2\,1/2}$
1254.721	50	79698.99	$4p \, {}^4F^\circ_{3\,1/2} - 8s \, {}^4F_{2\,1/2}$
1254.978	7	79682.67	$4p \, {}^4F^\circ_{3\,1/2} - 8s \, {}^2F_{3\,1/2}$
1255.034	8	79679.12	$4p \, {}^2G^\circ_{3\,1/2} - 8s \, {}^2F_{2\,1/2}$
1255.335	6	79660.01	$4p \, {}^2G^\circ_{3\,1/2} - 7d \, {}^2D_{2\,1/2}$
1256.029	5	79616.00	$s^2 \, {}^4F_{4\,1/2} - 7p \, {}^4G^\circ_{5\,1/2}$?
1256.187	6	79605.98	$4p \, {}^2G^\circ_{3\,1/2} - 7d \, {}^2G_{4\,1/2}$
1256.459	00	79588.75	$4p \, {}^2G^\circ_{3\,1/2} - 7d \, {}^4H_{4\,1/2}$

TABLE I. *Lines of* Ni II — Continued

λ(vac)	Intensity	Wavenumber	Transition
1256.708	1	79572.98	$4p\ ^2G^\circ_{3\frac{1}{2}} - 7d\ ^2F_{3\frac{1}{2}}$
1256.764	1	79569.43	
1256.905	6	79560.51	$4p\ ^4F^\circ_{3\frac{1}{2}} - 7d\ ^4D_{2\frac{1}{2}}$
1256.930	40	79558.93	$4p\ ^4F^\circ_{1\frac{1}{2}} - 8s\ ^4F_{1\frac{1}{2}}$
1257.116	8	79547.15	$4p\ ^4G^\circ_{3\frac{1}{2}} - 8s\ ^4F_{3\frac{1}{2}}$
1257.829	2	79502.06	
1258.303	00	79472.11	$4p\ ^4G^\circ_{3\frac{1}{2}} - 5d'\ ^2F_{3\frac{1}{2}}$
1259.506	1	79396.21	
1259.886	1	79372.26	$4p\ ^4F^\circ_{4\frac{1}{2}} - 5d'\ ^2G_{3\frac{1}{2}}$
1261.068	1	79297.87	$4p\ ^2G^\circ_{4\frac{1}{2}} - 7d\ ^4H_{5\frac{1}{2}}$
1261.786	12	79252.74	$4p\ ^4F^\circ_{4\frac{1}{2}} - 8s\ ^4F_{3\frac{1}{2}}$
1261.975	10	79240.87	$4p\ ^4F^\circ_{3\frac{1}{2}} - 7d\ ^4G_{4\frac{1}{2}}$
1262.239	8	79224.30	$4p\ ^4F^\circ_{3\frac{1}{2}} - 7d\ ^4F_{3\frac{1}{2}}$
1262.979	2	79177.88	$4p\ ^4F^\circ_{4\frac{1}{2}} - 5d'\ ^2F_{3\frac{1}{2}}$
1263.294	100	79158.14	$4p\ ^4F^\circ_{4\frac{1}{2}} - 8s\ ^4F_{4\frac{1}{2}}$
1265.157	14	79041.57	$4p\ ^4F^\circ_{2\frac{1}{2}} - 8s\ ^4F_{2\frac{1}{2}}$
1266.065	1	78984.89	$4s\ ^4F_{2\frac{1}{2}} - z\ ^6D^\circ_{3\frac{1}{2}}$
1266.608	8	78951.02	$4p\ ^2F^\circ_{3\frac{1}{2}} - 7d\ ^2D_{2\frac{1}{2}}$
1267.478	6	78896.83	$4p\ ^2F^\circ_{3\frac{1}{2}} - 7d\ ^2G_{4\frac{1}{2}}$
1268.007	8	78863.92	$4p\ ^2F^\circ_{3\frac{1}{2}} - 7d\ ^2F_{3\frac{1}{2}}$
1268.359	2	78842.03	$4s\ ^4F_{3\frac{1}{2}} - z\ ^6D^\circ_{4\frac{1}{2}}$
1269.059	1	78798.54	$4s\ ^4F_{3\frac{1}{2}} - z\ ^6F^\circ_{2\frac{1}{2}}$
1269.917	2	78745.30	$4p\ ^2G^\circ_{3\frac{1}{2}} - 8s\ ^4F_{2\frac{1}{2}}$
1270.061	1	78736.37	$s^2\ ^4F_{4\frac{1}{2}} - t\ ^4D^\circ_{3\frac{1}{2}}$
1270.180	15	78729.00	$4p\ ^2G^\circ_{3\frac{1}{2}} - 8s\ ^2F_{3\frac{1}{2}}$
1271.993	1	78616.78	$4s''\ ^4P_{2\frac{1}{2}} - 5p\ ^4D^\circ_{3\frac{1}{2}}$
1272.080	1	78611.41	$4p\ ^2D^\circ_{2\frac{1}{2}} - 7d\ ^2D_{2\frac{1}{2}}$
1272.634	2	78577.19	
1273.488	2	78524.49	$4p\ ^2D^\circ_{2\frac{1}{2}} - 7d\ ^2F_{3\frac{1}{2}}$
1273.717	1	78510.37	$4p\ ^2G^\circ_{4\frac{1}{2}} - 8s\ ^4F_{3\frac{1}{2}}$
1274.180	2	78481.85	$4p\ ^2D^\circ_{2\frac{1}{2}} - 7d\ ^4F_{2\frac{1}{2}}$
1274.270	100	78476.30	$4s\ ^4F_{4\frac{1}{2}} - z\ ^6F^\circ_{4\frac{1}{2}}$
1274.802	10	78443.55	$4p\ ^2F^\circ_{2\frac{1}{2}} - 7d\ ^2G_{3\frac{1}{2}}$
1275.640	10	78392.02	$4p\ ^4F^\circ_{3\frac{1}{2}} - 8s\ ^4F_{3\frac{1}{2}}$
1276.602	2	78332.95	
1276.859	1	78317.18	$4p\ ^4F^\circ_{3\frac{1}{2}} - 5d'\ ^2F_{3\frac{1}{2}}$
1277.086	1	78303.26	
1277.243	20	78293.64	$4p\ ^4D^\circ_{2\frac{1}{2}} - 6d\ ^2D_{2\frac{1}{2}}$
1277.344	1	78287.45	$4p\ ^2G^\circ_{3\frac{1}{2}} - 7d\ ^4G_{4\frac{1}{2}}$
1277.617	1	78270.72	$4p\ ^2G^\circ_{3\frac{1}{2}} - 7d\ ^4F_{3\frac{1}{2}}$
1277.725	2	78264.10	
1277.967	18	78249.28	$4p\ ^2D^\circ_{1\frac{1}{2}} - 7d\ ^2P_{0\frac{1}{2}}$
1278.637	100	78208.28	$4s\ ^4F_{3\frac{1}{2}} - z\ ^6F^\circ_{3\frac{1}{2}}$
1279.400	1	78161.64	$4p\ ^4D^\circ_{1\frac{1}{2}} - 6d\ ^2F_{2\frac{1}{2}}$
1281.056	1	78060.60	$4p\ ^2D^\circ_{1\frac{1}{2}} - 5d''\ ^4F_{2\frac{1}{2}}$
1281.609	5	78026.92	$4p\ ^4F^\circ_{3\frac{1}{2}} - 6s''\ ^4P_{2\frac{1}{2}}$ $4p\ ^2D^\circ_{1\frac{1}{2}} - 5d''\ ^4F_{1\frac{1}{2}}$ $4p\ ^4D^\circ_{2\frac{1}{2}} - 6d\ ^2F_{3\frac{1}{2}}$
1281.704	4	78021.13	$4p\ ^4D^\circ_{1\frac{1}{2}} - 6d\ ^2P_{0\frac{1}{2}}$
1281.723	12	78019.98	$4p\ ^2F^\circ_{3\frac{1}{2}} - 8s\ ^2F_{3\frac{1}{2}}$
1281.834	50	78013.22	$4s\ ^4F_{2\frac{1}{2}} - z\ ^6F^\circ_{2\frac{1}{2}}$?
1282.179	2	77992.23	$4p\ ^4D^\circ_{2\frac{1}{2}} - 6d\ ^4F_{2\frac{1}{2}}$
1282.732	1	77958.61	
1282.825	10	77952.96	$4p\ ^4D^\circ_{2\frac{1}{2}} - 6d\ ^2P_{1\frac{1}{2}}$
1283.399	12	77918.09	$4s\ ^4F_{1\frac{1}{2}} - z\ ^6F^\circ_{1\frac{1}{2}}$
1283.731	3	77897.94	$4p\ ^2F^\circ_{3\frac{1}{2}} - 7d\ ^4D_{2\frac{1}{2}}$
1284.327	25	77861.79	$4p\ ^4D^\circ_{3\frac{1}{2}} - 6d\ ^4F_{4\frac{1}{2}}$
1286.338	50	77740.06	$4p\ ^4D^\circ_{3\frac{1}{2}} - 6d\ ^4D_{3\frac{1}{2}}$
1286.396	3	77736.56	$4p\ ^4D^\circ_{3\frac{1}{2}} - 7s\ ^4F_{2\frac{1}{2}}$
1286.561	50	77726.59	$4p\ ^4D^\circ_{3\frac{1}{2}} - 6d\ ^4P_{2\frac{1}{2}}$
1287.329	15	77680.22	$4p\ ^2D^\circ_{2\frac{1}{2}} - 8s\ ^2F_{3\frac{1}{2}}$
1287.432	8	77674.00	
1289.024	9	77578.07	$4p\ ^2F^\circ_{3\frac{1}{2}} - 7d\ ^4G_{4\frac{1}{2}}$
1289.298	3	77561.59	$4p\ ^2F^\circ_{3\frac{1}{2}} - 7d\ ^4F_{3\frac{1}{2}}$
1289.354	7	77558.22	$4p\ ^2G^\circ_{3\frac{1}{2}} - 5d'\ ^2G_{3\frac{1}{2}}$ $4p\ ^2D^\circ_{2\frac{1}{2}} - 7d\ ^4D_{2\frac{1}{2}}$
1289.369	11	77557.32	$4p\ ^2F^\circ_{2\frac{1}{2}} - 8s\ ^2F_{2\frac{1}{2}}$
1289.513	2	77548.66	$4s''\ ^2P_{0\frac{1}{2}} - 5p\ ^2D^\circ_{1\frac{1}{2}}$
1289.656	6	77540.06	$4s\ ^4F_{3\frac{1}{2}} - z\ ^6F^\circ_{4\frac{1}{2}}$
1289.682	1	77538.49	$4p\ ^2F^\circ_{2\frac{1}{2}} - 7d\ ^2D_{2\frac{1}{2}}$
1290.442	1	77492.83	$4p\ ^2F^\circ_{2\frac{1}{2}} - 7d\ ^4G_{3\frac{1}{2}}$
1290.908	4	77464.85	$4s\ ^4F_{1\frac{1}{2}} - z\ ^6F^\circ_{2\frac{1}{2}}$
1291.251	10	77444.28	$4p\ ^4D^\circ_{0\frac{1}{2}} - 6d\ ^4F_{1\frac{1}{2}}$
1291.614	10	77422.51	$4s\ ^4F_{2\frac{1}{2}} - z\ ^6F^\circ_{3\frac{1}{2}}$
1292.033	2	77397.40	$4p\ ^4D^\circ_{1\frac{1}{2}} - 6d\ ^2D_{2\frac{1}{2}}$
1292.224	2	77385.96	$4p\ ^4G^\circ_{4\frac{1}{2}} - 6d\ ^2H_{5\frac{1}{2}}$
1292.331	6	77379.56	
1292.669	5	77359.32	
1293.232	5	77325.65	$4p\ ^2D^\circ_{1\frac{1}{2}} - 7d\ ^2D_{2\frac{1}{2}}$
1293.533	6	77307.65	$4p\ ^4D^\circ_{1\frac{1}{2}} - 6d\ ^4D_{1\frac{1}{2}}$
1294.500	10	77249.90	$4p\ ^2D^\circ_{2\frac{1}{2}} - 7d\ ^4P_{1\frac{1}{2}}$
1294.968	2	77221.98	$4p\ ^2D^\circ_{2\frac{1}{2}} - 7d\ ^4F_{3\frac{1}{2}}$
1296.126	1	77152.99	
1296.950	13	77103.97	$4p\ ^4D^\circ_{2\frac{1}{2}} - 6d\ ^4D_{2\frac{1}{2}}$
1297.087	2	77095.83	$4p\ ^4D^\circ_{1\frac{1}{2}} - 6d\ ^4F_{2\frac{1}{2}}$
1297.417	3	77076.22	$4p\ ^4D^\circ_{1\frac{1}{2}} - 6d\ ^4P_{0\frac{1}{2}}$
1297.442	1	77074.74	
1302.246	10	76790.41	$4s''\ ^2P_{1\frac{1}{2}} - 5p\ ^2D^\circ_{2\frac{1}{2}}$
1302.603	1	76769.36	$4p\ ^4G^\circ_{3\frac{1}{2}} - 6d\ ^2D_{2\frac{1}{2}}$
1303.078	4	76741.38	$4p\ ^4D^\circ_{2\frac{1}{2}} - 6d\ ^4P_{1\frac{1}{2}}$
1303.170	2	76735.96	$4p\ ^4D^\circ_{2\frac{1}{2}} - 6d\ ^4F_{3\frac{1}{2}}$
1303.237	00	76732.01	$4p\ ^4G^\circ_{2\frac{1}{2}} - 6d\ ^2G_{3\frac{1}{2}}$
1303.283	5	76729.30	$4p\ ^2F^\circ_{3\frac{1}{2}} - 8s\ ^4F_{3\frac{1}{2}}$
1304.555	1	76654.49	$4p\ ^2F^\circ_{3\frac{1}{2}} - 5d'\ ^2F_{3\frac{1}{2}}$
1304.594	10	76652.20	$4p\ ^4G^\circ_{2\frac{1}{2}} - 6d\ ^4G_{2\frac{1}{2}}$
1305.083	6	76623.48	$4p\ ^2F^\circ_{2\frac{1}{2}} - 8s\ ^4F_{2\frac{1}{2}}$
1305.169	25	76618.43	$4p\ ^4G^\circ_{2\frac{1}{2}} - 6d\ ^4H_{3\frac{1}{2}}$
1306.279	4	76553.32	$4p\ ^4G^\circ_{3\frac{1}{2}} - 6d\ ^4G_{3\frac{1}{2}}$
1306.528	1	76538.73	$4p\ ^4G^\circ_{3\frac{1}{2}} - 6d\ ^2G_{4\frac{1}{2}}$
1306.621	6	76533.29	$4p\ ^4D^\circ_{2\frac{1}{2}} - 7s\ ^2F_{3\frac{1}{2}}$
1307.146	10	76502.55	$4p\ ^4G^\circ_{3\frac{1}{2}} - 6d\ ^2F_{3\frac{1}{2}}$
1307.276	50	76494.94	$4p\ ^4G^\circ_{3\frac{1}{2}} - 6d\ ^4H_{4\frac{1}{2}}$
1308.714	8	76410.89	$4p\ ^2D^\circ_{1\frac{1}{2}} - 8s\ ^4F_{2\frac{1}{2}}$
1308.869	16	76401.84	
1309.079	0	76389.58	$4p\ ^2D^\circ_{2\frac{1}{2}} - 8s\ ^4F_{3\frac{1}{2}}$
1310.358	1	76315.02	$4p\ ^2D^\circ_{2\frac{1}{2}} - 5d'\ ^2F_{3\frac{1}{2}}$
1310.457	15	76309.26	$4p\ ^4D^\circ_{3\frac{1}{2}} - 7s\ ^4F_{4\frac{1}{2}}$
1311.152	1	76268.81	$4p\ ^4F^\circ_{3\frac{1}{2}} - 6d\ ^2H_{4\frac{1}{2}}$
1311.365	5	76256.42	
1313.403	7	76138.09	$4p\ ^4G^\circ_{4\frac{1}{2}} - 6d\ ^4G_{4\frac{1}{2}}$
1313.903	2	76109.12	$4p\ ^4G^\circ_{4\frac{1}{2}} - 6d\ ^4F_{3\frac{1}{2}}$
1314.771	12	76058.87	$4p\ ^4G^\circ_{4\frac{1}{2}} - 6d\ ^4G_{5\frac{1}{2}}$
1314.847	12	76054.48	$4p\ ^4G^\circ_{4\frac{1}{2}} - 6d\ ^4F_{4\frac{1}{2}}$
1315.255	70	76030.88	$4p\ ^4G^\circ_{4\frac{1}{2}} - 6d\ ^4H_{5\frac{1}{2}}$
1315.558	3	76013.37	$4p\ ^4G^\circ_{2\frac{1}{2}} - 6d\ ^2D_{2\frac{1}{2}}$
1316.502	4	75958.87	$4p\ ^4D^\circ_{0\frac{1}{2}} - 7s\ ^4F_{1\frac{1}{2}}$
1317.045	6	75927.55	$4p\ ^4G^\circ_{5\frac{1}{2}} - 6d\ ^4G_{5\frac{1}{2}}$
1317.122	10	75923.11	$4p\ ^4G^\circ_{5\frac{1}{2}} - 6d\ ^4F_{4\frac{1}{2}}$
1317.220	500	75917.46	$3d\ ^2D_{2\frac{1}{2}} - 4p'''\ ^2F^\circ_{3\frac{1}{2}}$
1317.531	15	75899.54	$4p\ ^4G^\circ_{5\frac{1}{2}} - 6d\ ^4H_{5\frac{1}{2}}$

TABLE I. *Lines of* Ni II—Continued

λ(vac)	Intensity	Wavenumber	Transition
1318.017	100	75871.55	$4p\ ^4G^\circ_{5\frac{1}{2}} - 6d\ ^4H_{6\frac{1}{2}}$
1319.310	8	75797.20	$4p\ ^4G^\circ_{2\frac{1}{2}} - 6d\ ^4G_{3\frac{1}{2}}$
1320.799	0	75711.75	$4p\ ^4G^\circ_{2\frac{1}{2}} - 6d\ ^4F_{2\frac{1}{2}}$
1321.432	3	75675.48	$4p\ ^4F^\circ_{2\frac{1}{2}} - 6d\ ^2G_{3\frac{1}{2}}$
1321.704	2	75659.91	$4p\ ^4D^\circ_{1\frac{1}{2}} - 7s\ ^4F_{2\frac{1}{2}}$
1322.825	2	75595.79	$4p\ ^4F^\circ_{2\frac{1}{2}} - 6d\ ^4G_{2\frac{1}{2}}$
1323.107	1	75579.68	$4p\ ^4G^\circ_{3\frac{1}{2}} - 6d\ ^4D_{2\frac{1}{2}}$
1323.417	25	75561.97	$4p\ ^4F^\circ_{2\frac{1}{2}} - 6d\ ^4H_{3\frac{1}{2}}$
1324.475	25	75501.61	$4p\ ^2G^\circ_{4\frac{1}{2}} - 6d\ ^2G_{4\frac{1}{2}}$
1325.105	1	75465.72	$4p\ ^2G^\circ_{4\frac{1}{2}} - 6d\ ^2F_{3\frac{1}{2}}$
1325.242	1	75457.92	$4p\ ^2G^\circ_{4\frac{1}{2}} - 6d\ ^4H_{4\frac{1}{2}}$
1325.359	100	75451.25	$4p\ ^2G^\circ_{4\frac{1}{2}} - 6d\ ^2H_{5\frac{1}{2}}$
1325.691	4	75432.36	$4s''\ ^2P_{1\frac{1}{2}} - 5p\ ^4D^\circ_{2\frac{1}{2}}$
1326.292	7	75398.18	$4p\ ^4F^\circ_{3\frac{1}{2}} - 6d\ ^4G_{3\frac{1}{2}}$
1326.548	11	75383.63	$4p\ ^4F^\circ_{3\frac{1}{2}} - 6d\ ^2G_{4\frac{1}{2}}$
1326.623	12	75379.37	$4p\ ^2G^\circ_{3\frac{1}{2}} - 6d\ ^2G_{3\frac{1}{2}}$
1327.187	3	75347.33	$4p\ ^2D^\circ_{1\frac{1}{2}} - 5d'\ ^2D_{2\frac{1}{2}}$
1327.319	20	75339.84	$4p\ ^4F^\circ_{3\frac{1}{2}} - 6d\ ^4H_{4\frac{1}{2}}$
1327.730	8	75316.52	$4p\ ^2F^\circ_{2\frac{1}{2}} - 8s\ ^4F_{3\frac{1}{2}}$
1327.755	50	75315.10	$4p\ ^2G^\circ_{3\frac{1}{2}} - 6d\ ^2H_{4\frac{1}{2}}$
1328.847	3	75253.21	$4p\ ^4D^\circ_{2\frac{1}{2}} - 7s\ ^4F_{3\frac{1}{2}}$
1328.964	25	75246.58	$4p\ ^4F^\circ_{1\frac{1}{2}} - 6d\ ^4G_{2\frac{1}{2}}$
1329.857	13	75196.05	$4p\ ^4F^\circ_{1\frac{1}{2}} - 6d\ ^4F_{1\frac{1}{2}}$
1331.264	9	75116.58	$4p\ ^4G^\circ_{2\frac{1}{2}} - 7s\ ^4F_{1\frac{1}{2}}$
1332.706	1	75035.30	$4p\ ^4G^\circ_{3\frac{1}{2}} - 6d\ ^4D_{3\frac{1}{2}}$
1332.766	6	75031.92	$4p\ ^4G^\circ_{3\frac{1}{2}} - 7s\ ^4F_{2\frac{1}{2}}$
1332.808	7	75029.56	$4p\ ^2D^\circ_{1\frac{1}{2}} - 5d'\ ^2F_{2\frac{1}{2}}$
1333.171	3	75009.13	$4p\ ^4G^\circ_{3\frac{1}{2}} - 7s\ ^2F_{3\frac{1}{2}}$
1334.101	10	74956.84	$4p\ ^4F^\circ_{2\frac{1}{2}} - 6d\ ^2D_{2\frac{1}{2}}$
1334.287	12	74946.39	$4p\ ^4F^\circ_{4\frac{1}{2}} - 6d\ ^4G_{4\frac{1}{2}}$
1334.320	7	74944.54	
1334.656	1	74925.67	
1334.689	1	74923.82	
1335.203	400	74894.98	$3d\ ^2D_{1\frac{1}{2}} - 4p'''\ ^2F^\circ_{2\frac{1}{2}}$
1335.779	18	74862.68	$4p\ ^4F^\circ_{4\frac{1}{2}} - 6d\ ^4F_{4\frac{1}{2}}$
1336.201	2	74839.04	$4p\ ^4F^\circ_{4\frac{1}{2}} - 6d\ ^4H_{5\frac{1}{2}}$
1337.958	15	74740.76	$4p\ ^4F^\circ_{4\frac{1}{2}} - 6d\ ^4D_{3\frac{1}{2}}$
			$4p\ ^4F^\circ_{2\frac{1}{2}} - 6d\ ^4G_{3\frac{1}{2}}$
1338.195	10	74727.52	
1338.402	1	74715.97	$4p\ ^2F^\circ_{3\frac{1}{2}} - 6d\ ^2F_{2\frac{1}{2}}$
1339.221	3	74670.27	$4p\ ^2F^\circ_{3\frac{1}{2}} - 6d\ ^2G_{3\frac{1}{2}}$
1339.394	1	74660.63	$4p\ ^2G^\circ_{3\frac{1}{2}} - 6d\ ^2D_{2\frac{1}{2}}$
1339.487	3	74655.45	$4p\ ^4F^\circ_{2\frac{1}{2}} - 6d\ ^4F_{2\frac{1}{2}}$
1340.007	15	74626.48	$4p\ ^4G^\circ_{4\frac{1}{2}} - 7s\ ^4F_{3\frac{1}{2}}$
1340.374	20	74606.04	$4p\ ^2F^\circ_{3\frac{1}{2}} - 6d\ ^2H_{4\frac{1}{2}}$
1341.226	00	74558.65	$4s'''\ ^2G_{3\frac{1}{2}} - 5p\ ^2F^\circ_{2\frac{1}{2}}$
1342.242	20	74502.21	$4p\ ^4G^\circ_{4\frac{1}{2}} - 7s\ ^4F_{4\frac{1}{2}}$
1343.544	10	74430.01	$4p\ ^2G^\circ_{3\frac{1}{2}} - 6d\ ^2G_{4\frac{1}{2}}$
1343.642	2	74424.59	$4p\ ^4F^\circ_{3\frac{1}{2}} - 6d\ ^4D_{2\frac{1}{2}}$
1344.196	2	74393.91	$4p\ ^2G^\circ_{3\frac{1}{2}} - 6d\ ^2F_{3\frac{1}{2}}$
1344.334	1	74386.28	$4p\ ^2G^\circ_{3\frac{1}{2}} - 6d\ ^4H_{4\frac{1}{2}}$
1344.614	50	74370.79	$4p\ ^4G^\circ_{5\frac{1}{2}} - 7s\ ^4F_{4\frac{1}{2}}$
1345.882	50	74300.72	$3d\ ^2D_{2\frac{1}{2}} - 4p''\ ^4S^\circ_{1\frac{1}{2}}$
1346.334	1	74275.77	$4p\ ^4G^\circ_{2\frac{1}{2}} - 7s\ ^4F_{2\frac{1}{2}}$
1348.333	30	74165.65	$4s'\ ^2D_{2\frac{1}{2}} - z\ ^4D^\circ_{2\frac{1}{2}}$
1349.594	00	74096.36	$4p\ ^2G^\circ_{4\frac{1}{2}} - 6d\ ^4H_{5\frac{1}{2}}$
1349.791	12	74085.54	$4p\ ^4F^\circ_{3\frac{1}{2}} - 6d\ ^4G_{4\frac{1}{2}}$
1350.256	5	74060.03	$4p\ ^4F^\circ_{2\frac{1}{2}} - 7s\ ^4F_{1\frac{1}{2}}$
1350.321	10	74056.46	$4p\ ^4F^\circ_{3\frac{1}{2}} - 6d\ ^4F_{3\frac{1}{2}}$
1351.287	10	74003.52	$4s'\ ^2D_{1\frac{1}{2}} - z\ ^4D^\circ_{2\frac{1}{2}}$
1351.862	35	73972.05	$4p\ ^2G^\circ_{4\frac{1}{2}} - 7s\ ^2F_{3\frac{1}{2}}$
1352.237	10	73951.53	$4p\ ^2F^\circ_{3\frac{1}{2}} - 6d\ ^2D_{2\frac{1}{2}}$
1353.606	8	73876.74	$4p\ ^4F^\circ_{2\frac{1}{2}} - 7s\ ^4F_{2\frac{1}{2}}$
1353.821	15	73865.01	$4p\ ^2G^\circ_{3\frac{1}{2}} - 7s\ ^2F_{2\frac{1}{2}}$
1354.023	2	73853.99	$4p\ ^4F^\circ_{3\frac{1}{2}} - 7s\ ^2F_{3\frac{1}{2}}$
1355.849	10	73754.53	
1356.318	5	73729.02	$4p\ ^4G^\circ_{3\frac{1}{2}} - 7s\ ^4F_{3\frac{1}{2}}$
1356.469	20	73720.81	$4p\ ^2F^\circ_{3\frac{1}{2}} - 6d\ ^2G_{4\frac{1}{2}}$
1356.653	9	73710.82	$4p\ ^4F^\circ_{1\frac{1}{2}} - 7s\ ^4F_{1\frac{1}{2}}$
1357.132	11	73684.80	$4p\ ^2F^\circ_{3\frac{1}{2}} - 6d\ ^2F_{3\frac{1}{2}}$
1357.371	5	73671.83	$4s''\ ^2P_{1\frac{1}{2}} - z\ ^2D^\circ_{1\frac{1}{2}}$
1358.475	25	73611.95	$4p\ ^2D^\circ_{2\frac{1}{2}} - 6d\ ^2D_{2\frac{1}{2}}$
1358.992	15	73583.95	
1360.956	14	73477.76	$4s'\ ^2D_{1\frac{1}{2}} - z\ ^4D^\circ_{2\frac{1}{2}}$
1361.757	5	73434.54	$4p\ ^4F^\circ_{4\frac{1}{2}} - 7s\ ^4F_{3\frac{1}{2}}$
1361.885	50	73427.64	$4s'\ ^2D_{2\frac{1}{2}} - z\ ^4D^\circ_{3\frac{1}{2}}$
1362.926	20	73371.55	
1363.421	3h	73344.92	$4p\ ^2D^\circ_{2\frac{1}{2}} - 6d\ ^2F_{3\frac{1}{2}}$
1363.540	2	73338.52	$4s'''\ ^2G_{4\frac{1}{2}} - 5p\ ^2F^\circ_{3\frac{1}{2}}$
1363.617	2	73334.37	$4s''\ ^4P_{1\frac{1}{2}} - z\ ^4D^\circ_{0\frac{1}{2}}$
1363.861	1	73321.25	
1364.067	25	73310.18	$4p\ ^4F^\circ_{4\frac{1}{2}} - 7s\ ^4F_{4\frac{1}{2}}$
1364.202	25	73302.93	$4p\ ^2F^\circ_{2\frac{1}{2}} - 6d\ ^2F_{2\frac{1}{2}}$
1364.440	1	73290.14	
1364.505	20	73286.65	$4s''\ ^4P_{0\frac{1}{2}} - z\ ^4D^\circ_{0\frac{1}{2}}$
1364.793	2	73271.18	$4p\ ^2D^\circ_{2\frac{1}{2}} - 6d\ ^2P_{1\frac{1}{2}}$
1365.048	25	73257.50	$4p\ ^2F^\circ_{2\frac{1}{2}} - 6d\ ^2G_{3\frac{1}{2}}$
1365.760	4	73219.31	$4p\ ^4F^\circ_{2\frac{1}{2}} - 7s\ ^4F_{2\frac{1}{2}}$
1366.947	5	73155.72	$4p\ ^2F^\circ_{3\frac{1}{2}} - 7s\ ^2F_{2\frac{1}{2}}$
1367.067	20	73149.30	$4s''\ ^2P_{0\frac{1}{2}} - z\ ^2D^\circ_{1\frac{1}{2}}$
1367.394	1	73131.81	$4p\ ^2G^\circ_{3\frac{1}{2}} - 6d\ ^4G_{4\frac{1}{2}}$
1368.171	10	73090.28	$4p\ ^2D^\circ_{1\frac{1}{2}} - 6d\ ^2F_{2\frac{1}{2}}$
1369.560	1	73016.15	
1369.651	20	73011.30	$4s''\ ^4P_{1\frac{1}{2}} - z\ ^4D^\circ_{1\frac{1}{2}}$
1370.136	500	72985.46	$3d\ ^2D_{2\frac{1}{2}} - 4p''\ ^2P^\circ_{1\frac{1}{2}}$
1370.549	25	72963.46	$4s''\ ^4P_{0\frac{1}{2}} - z\ ^4D^\circ_{1\frac{1}{2}}$
1370.804	4	72949.89	$4p\ ^2D^\circ_{1\frac{1}{2}} - 6d\ ^2P_{0\frac{1}{2}}$
1371.733	1	72900.48	$4p\ ^2G^\circ_{3\frac{1}{2}} - 7s\ ^2F_{3\frac{1}{2}}$
1373.746	4	72793.66	$3d\ ^2D_{1\frac{1}{2}} - 4p''\ ^4S^\circ_{1\frac{1}{2}}$
1374.075	150	72776.23	$3d\ ^2D_{1\frac{1}{2}} - 4p''\ ^2S^\circ_{0\frac{1}{2}}$
1375.822	50	72683.82	$4s''\ ^2P_{1\frac{1}{2}} - z\ ^2D^\circ_{2\frac{1}{2}}$
1377.001	10	72621.59	
1377.912	7	72573.57	$4p\ ^4F^\circ_{3\frac{1}{2}} - 7s\ ^4F_{3\frac{1}{2}}$
1378.578	1	72538.51	$4p\ ^2F^\circ_{2\frac{1}{2}} - 6d\ ^2D_{2\frac{1}{2}}$
1379.586	50	72485.51	$4s''\ ^4P_{1\frac{1}{2}} - z\ ^4D^\circ_{2\frac{1}{2}}$
1379.980	12	72464.82	$4s'\ ^2D_{2\frac{1}{2}} - z\ ^4G^\circ_{3\frac{1}{2}}$
1380.440	2	72440.67	
1380.793	20	72422.15	$4p\ ^2D^\circ_{2\frac{1}{2}} - 6d\ ^4D_{2\frac{1}{2}}$
1381.295	200	72395.83	$3d\ ^2D_{1\frac{1}{2}} - 4p''\ ^2P^\circ_{0\frac{1}{2}}$
1381.423	6	72389.12	$s^2\ ^4F_{4\frac{1}{2}} - 6p\ ^2G^\circ_{4\frac{1}{2}}$
1381.694	4	72374.92	$3d\ ^2D_{2\frac{1}{2}} - 4p''\ ^2D^\circ_{1\frac{1}{2}}$
1382.695	2	72322.53	$4p\ ^2F^\circ_{2\frac{1}{2}} - 6d\ ^4G_{3\frac{1}{2}}$
1383.356	1	72287.97	
1383.966	00	72256.11	$4s'\ ^2D_{1\frac{1}{2}} - 4p\ ^4G^\circ_{2\frac{1}{2}}$
1384.327	12	72237.27	$4p\ ^2F^\circ_{2\frac{1}{2}} - 6d\ ^4F_{2\frac{1}{2}}$
			$4s''\ ^4P_{2\frac{1}{2}} - z\ ^4D^\circ_{2\frac{1}{2}}$
1385.179	1	72192.83	
1385.216	6	72190.91	$4p\ ^2F^\circ_{3\frac{1}{2}} - 7s\ ^2F_{3\frac{1}{2}}$
1386.063	1	72146.79	$4s'''\ ^2G_{4\frac{1}{2}} - 5p\ ^4F^\circ_{3\frac{1}{2}}$
1387.745	10	72059.35	$4p\ ^2D^\circ_{2\frac{1}{2}} - 6d\ ^4P_{1\frac{1}{2}}$

TABLE I. *Lines of* Ni II — Continued

λ(vac)	Intensity	Wavenumber	Transition
1387.851	5	72053.84	$4p\ ^2D^\circ_{2\frac{1}{2}} - 6d\ ^4F_{3\frac{1}{2}}$
1388.796	1	72004.81	$4p\ ^2D^\circ_{1\frac{1}{2}} - 6d\ ^4P_{0\frac{1}{2}}$
1391.761	2	71851.42	$4p\ ^2D^\circ_{2\frac{1}{2}} - 7s\ ^2F_{3\frac{1}{2}}$
1393.330	100	71770.51	$3d\ ^2D_{2\frac{1}{2}} - 4p''\ ^2D^\circ_{2\frac{1}{2}}$
1393.867	12	71742.86	$4p\ ^2F^\circ_{2\frac{1}{2}} - 7s\ ^2F_{2\frac{1}{2}}$
1396.695	10	71597.59	$4s'\ ^2D_{2\frac{1}{2}} - z\ ^4F^\circ_{3\frac{1}{2}}$
1396.790	14	71592.72	
1397.480	2	71557.37	$4s'''\ ^2G_{3\frac{1}{2}} - 5p\ ^4G^\circ_{4\frac{1}{2}}$
1397.858	2	71538.02	$4s''\ ^2P_{1\frac{1}{2}} - z\ ^2F^\circ_{2\frac{1}{2}}$
1398.009	3	71530.30	$4p\ ^2D^\circ_{1\frac{1}{2}} - 7s\ ^2F_{2\frac{1}{2}}$
1398.612	40	71499.46	$4s''\ ^4P_{2\frac{1}{2}} - z\ ^4D^\circ_{3\frac{1}{2}}$
1398.758	16	71492.00	
1399.026	80	71478.30	$3d\ ^2D_{1\frac{1}{2}} - 4p''\ ^2P^\circ_{1\frac{1}{2}}$
1399.361	12	71461.19	
1400.644	30	71395.73	$s^2\ ^4F_{4\frac{1}{2}} - 6p\ ^4F^\circ_{4\frac{1}{2}}$
1402.379	20	71307.40	
1406.970	7	71074.72	$s^2\ ^4F_{4\frac{1}{2}} - 6p\ ^4G^\circ_{5\frac{1}{2}}$
1408.796	10	70982.60	
1409.612	15	70941.51	
1410.219	4	70910.97	$4p\ ^2F^\circ_{3\frac{1}{2}} - 7s\ ^4F_{3\frac{1}{2}}$
1411.071	100	70868.16	$3d\ ^2D_{1\frac{1}{2}} - 4p''\ ^2D^\circ_{1\frac{1}{2}}$
1412.868	30	70778.02	$3d\ ^2D_{2\frac{1}{2}} - 4p''\ ^4D^\circ_{3\frac{1}{2}}$
1413.679	10	70737.42	
1414.299	15	70706.41	$3d\ ^2D_{2\frac{1}{2}} - 4p''\ ^4D^\circ_{1\frac{1}{2}}$
1414.444	1	70699.16	
1415.728	20	70635.04	$3d\ ^2D_{2\frac{1}{2}} - 4p''\ ^4D^\circ_{2\frac{1}{2}}$
1415.846	1	70629.15	
1416.060	12	70618.48	
1416.660	0	70588.57	$4p\ ^2D^\circ_{1\frac{1}{2}} - 7s\ ^4F_{2\frac{1}{2}}$
1417.007	10	70571.28	$4p\ ^2D^\circ_{2\frac{1}{2}} - 7s\ ^4F_{3\frac{1}{2}}$
1417.553	1	70544.10	$4s''\ ^4P_{1\frac{1}{2}} - z\ ^4F^\circ_{2\frac{1}{2}}$
1417.699	10	70536.83	$4s''\ ^4P_{2\frac{1}{2}} - z\ ^4G^\circ_{3\frac{1}{2}}$
1420.674	5	70389.12	$4p''\ ^4P^\circ_{2\frac{1}{2}} - 5d''\ ^4P_{2\frac{1}{2}}$
1420.843	18	70380.75	$4p''\ ^4P^\circ_{1\frac{1}{2}} - 5d''\ ^4P_{2\frac{1}{2}}$
1421.913	1	70327.79	$4p''\ ^4P^\circ_{2\frac{1}{2}} - 5d''\ ^4P_{1\frac{1}{2}}$
1422.320	8	70307.67	
1423.212	16	70263.60	$3d\ ^2D_{1\frac{1}{2}} - 4p''\ ^2D^\circ_{2\frac{1}{2}}$
1423.786	11	70235.27	$s^2\ ^4F_{3\frac{1}{2}} - 6p\ ^4F^\circ_{4\frac{1}{2}}$
1423.994	1	70225.01	
1424.890	3	70180.86	$4p''\ ^4P^\circ_{0\frac{1}{2}} - 5d''\ ^4P_{0\frac{1}{2}}$
1425.025	10	70174.21	
1425.579	6	70146.94	
1425.604	3	70145.71	$4p''\ ^4P^\circ_{1\frac{1}{2}} - 5d''\ ^4P_{0\frac{1}{2}}$
1426.783	5	70087.74	
1427.448	1	70055.09	
1427.782	10	70038.70	
1431.270	8	69868.02	$4p''\ ^4P^\circ_{0\frac{1}{2}} - 5d''\ ^4P_{1\frac{1}{2}}$
1431.492	25	69857.18	$s^2\ ^4F_{4\frac{1}{2}} - 5p''\ ^4D^\circ_{3\frac{1}{2}}$
1433.745	1	69747.41	$4p''\ ^4P^\circ_{1\frac{1}{2}} - 5d''\ ^4D_{1\frac{1}{2}}$
1433.893	1	69740.21	
1434.317	1	69719.59	
1434.373	12	69716.87	$4p''\ ^4P^\circ_{2\frac{1}{2}} - 5d''\ ^4D_{2\frac{1}{2}}$
1434.493	14	69711.04	$4p''\ ^4P^\circ_{1\frac{1}{2}} - 5d''\ ^4D_{0\frac{1}{2}}$?
1434.546	12	69708.46	$4p''\ ^4P^\circ_{1\frac{1}{2}} - 5d''\ ^4D_{2\frac{1}{2}}$
1434.688	1	69701.57	$4p''\ ^4P^\circ_{0\frac{1}{2}} - 5d''\ ^4F_{1\frac{1}{2}}$
1434.837	1	69694.33	$4p''\ ^4P^\circ_{0\frac{1}{2}} - 5d''\ ^4P_{0\frac{1}{2}}$
1435.348	5	69669.51	$4s\ ^4P_{2\frac{1}{2}} - z\ ^4F^\circ_{3\frac{1}{2}}$
1436.165	50	69629.88	$4p''\ ^4P^\circ_{2\frac{1}{2}} - 5d''\ ^4D_{3\frac{1}{2}}$
1439.094	8	69488.16	
1439.283	1	69479.04	$4p''\ ^4P^\circ_{2\frac{1}{2}} - 8s\ ^2F_{2\frac{1}{2}}$
1439.352	8	69475.71	
1443.080	13	69296.23	$4p''\ ^4P^\circ_{0\frac{1}{2}} - 5d''\ ^4D_{1\frac{1}{2}}$
1443.838	10	69259.85	$4p''\ ^4P^\circ_{0\frac{1}{2}} - 5d''\ ^4D_{0\frac{1}{2}}$
1444.940	1	69207.03	
1445.098	13	69199.46	$3d\ ^2D_{1\frac{1}{2}} - 4p''\ ^4D^\circ_{1\frac{1}{2}}$
1445.460	14	69182.13	
1446.589	20	69128.13	$3d\ ^2D_{1\frac{1}{2}} - 4p''\ ^4D^\circ_{2\frac{1}{2}}$
1450.005	14	68965.28	$3d\ ^2D_{2\frac{1}{2}} - 4p'\ ^2P^\circ_{1\frac{1}{2}}$
1452.558	15	68844.07	
1453.359	15	68806.12	$4p'\ ^2D^\circ_{1\frac{1}{2}} - 5d''\ ^4P_{2\frac{1}{2}}$
1454.292	2	68761.98	$s^2\ ^4F_{2\frac{1}{2}} - 5p''\ ^2D^\circ_{1\frac{1}{2}}$
1454.852	200	68735.51	$3d\ ^2D_{2\frac{1}{2}} - 4p'\ ^2D^\circ_{2\frac{1}{2}}$
1456.913	16	68638.28	
1457.359	5	68617.27	
1457.863	4	68593.55	$4p'\ ^2F^\circ_{2\frac{1}{2}} - 5d''\ ^4D_{2\frac{1}{2}}$
1458.170	4	68579.11	$4p'\ ^4D^\circ_{2\frac{1}{2}} - 5d\ ^4G_{3\frac{1}{2}}$
1458.342	4	68571.02	$4p'\ ^2D^\circ_{1\frac{1}{2}} - 5d''\ ^4P_{0\frac{1}{2}}$
1459.459	4	68518.54	
1459.611	1	68511.40	
1459.640	1	68510.04	$4p\ ^4D^\circ_{1\frac{1}{2}} - 5d\ ^4G_{2\frac{1}{2}}$
1459.715	12	68506.52	$4p'\ ^2F^\circ_{2\frac{1}{2}} - 5d''\ ^4D_{3\frac{1}{2}}$
1459.809	9	68502.11	$4p\ ^4D^\circ_{2\frac{1}{2}} - 5d\ ^2F_{3\frac{1}{2}}$
1460.078	6	68489.49	$4p\ ^4D^\circ_{2\frac{1}{2}} - 5d\ ^4F_{2\frac{1}{2}}$
1460.136	1	68486.77	$4p\ ^4D^\circ_{3\frac{1}{2}} - 5d\ ^4G_{4\frac{1}{2}}$
1460.312	1	68478.52	$4p\ ^4D^\circ_{1\frac{1}{2}} - 5d\ ^2P_{0\frac{1}{2}}$
1460.408	2	68474.01	
1461.840	8	68406.94	$4p''\ ^4P^\circ_{2\frac{1}{2}} - 7d\ ^4D_{2\frac{1}{2}}$
1462.482	8	68376.91	$4p\ ^4D^\circ_{2\frac{1}{2}} - 5d\ ^2P_{1\frac{1}{2}}$
1462.944	20	68355.32	$4p\ ^4D^\circ_{3\frac{1}{2}} - 5d\ ^4F_{4\frac{1}{2}}$
1463.113	14	68347.42	$s^2\ ^4F_{2\frac{1}{2}} - 5p''\ ^4D^\circ_{1\frac{1}{2}}$
1464.301	8	68291.97	
1464.369	10	68288.80	
1467.265	60	68154.01	$3d\ ^2D_{2\frac{1}{2}} - 4p'\ ^2D^\circ_{1\frac{1}{2}}$
1467.637	10	68136.74	$4p'\ ^2D^\circ_{1\frac{1}{2}} - 5d''\ ^4D_{0\frac{1}{2}}$ $s^2\ ^2G_{4\frac{1}{2}} - w\ ^2G^\circ_{4\frac{1}{2}}$?
1467.694	10	68134.09	$4p'\ ^2D^\circ_{1\frac{1}{2}} - 5d''\ ^4D_{2\frac{1}{2}}$
1467.762	100	68130.94	$3d\ ^2D_{2\frac{1}{2}} - 4p'\ ^2F^\circ_{3\frac{1}{2}}$
1468.268	30	68107.46	$4p\ ^4D^\circ_{3\frac{1}{2}} - 5d\ ^4P_{2\frac{1}{2}}$
1468.465	25	68098.32	$4p\ ^4D^\circ_{3\frac{1}{2}} - 5d\ ^4D_{3\frac{1}{2}}$
1469.200	10	68064.25	$4p\ ^4D^\circ_{1\frac{1}{2}} - 5d\ ^4D_{1\frac{1}{2}}$
1469.601	3	68045.68	$4p'\ ^2P^\circ_{0\frac{1}{2}} - 5d''\ ^4D_{1\frac{1}{2}}$
1469.847	1	68034.29	
1470.322	1	68012.31	$s^2\ ^4F_{2\frac{1}{2}} - 5p''\ ^4D^\circ_{2\frac{1}{2}}$
1470.386	2	68009.35	$4p'\ ^2P^\circ_{0\frac{1}{2}} - 5d''\ ^4D_{0\frac{1}{2}}$
1470.666	5	67996.40	$4p'\ ^2D^\circ_{2\frac{1}{2}} - 5d''\ ^4F_{1\frac{1}{2}}$
1471.466	10	67959.44	$s^2\ ^4F_{1\frac{1}{2}} - 5p''\ ^4D^\circ_{0\frac{1}{2}}$
1471.961	1	67936.58	$4p\ ^4D^\circ_{0\frac{1}{2}} - 5d\ ^2P_{0\frac{1}{2}}$
1472.571	10	67908.44	$4p\ ^4D^\circ_{0\frac{1}{2}} - 5d\ ^4F_{1\frac{1}{2}}$
1472.835	5	67896.27	$4p'\ ^2D^\circ_{1\frac{1}{2}} - 8s\ ^2F_{2\frac{1}{2}}$
1472.889	2	67893.78	$s^2\ ^4F_{4\frac{1}{2}} - 4f\ ^4G^\circ_{5\frac{1}{2}}$?
1473.249	1	67877.19	$4p'\ ^2D^\circ_{1\frac{1}{2}} - 7d\ ^2D_{2\frac{1}{2}}$
1474.312	1	67828.25	
1474.597	4	67815.14	$4p\ ^4G^\circ_{4\frac{1}{2}} - 5d\ ^2H_{5\frac{1}{2}}$
1474.901	2	67801.16	
1474.910	1	67800.75	$4p'\ ^2P^\circ_{1\frac{1}{2}} - 5d''\ ^4F_{2\frac{1}{2}}$
1475.270	3	67784.20	$s^2\ ^4F_{1\frac{1}{2}} - 5p''\ ^4D^\circ_{1\frac{1}{2}}$?
1475.645	1	67766.98	$4p'\ ^2P^\circ_{1\frac{1}{2}} - 5d''\ ^4F_{1\frac{1}{2}}$
1475.734	3	67762.89	$s^2\ ^2G_{4\frac{1}{2}} - 9p\ ^4F^\circ_{4\frac{1}{2}}$
1475.801	2	67759.81	$4p'\ ^2P^\circ_{1\frac{1}{2}} - 5d''\ ^4P_{0\frac{1}{2}}$
1476.043	25	67748.70	$4p\ ^4D^\circ_{0\frac{1}{2}} - 5d\ ^4D_{0\frac{1}{2}}$

TABLE I. *Lines of* Ni II — Continued

λ(vac)	Intensity	Wavenumber	Transition
1477.063	1	67701.92	$4p'\ ^2P^\circ_{0\,1/2} - 8s\ ^4F_{1\,1/2}$
1477.227	4	67694.40	$3d\ ^2D_{2\,1/2} - 4p'\ ^2F^\circ_{2\,1/2}$
1477.264	1	67692.71	$s^2\ ^4P_{1\,1/2} - 4f'''\ ^4D^\circ_{2\,1/2}$
1479.443	10	67593.01	$4p\ ^4D^\circ_{1\,1/2} - 5d\ ^4F_{2\,1/2}$
1480.274	4	67555.06	
1480.331	30	67552.46	$4p'\ ^2D^\circ_{2\,1/2} - 5d''\ ^4D_{2\,1/2}$
1481.091	75	67517.79	$s^2\ ^4F_{4\,1/2} - 5p'\ ^2F^\circ_{3\,1/2}$
1481.210	9	67512.37	
1481.560	15	67496.42	$4p''\ ^4P^\circ_{2\,1/2} - 5d'\ ^2P_{1\,1/2}$
			$s^2\ ^4P_{1\,1/2} - 4f'''\ ^4D^\circ_{1\,1/2}$
1481.744	15	67488.04	$4p''\ ^4P^\circ_{1\,1/2} - 5d'\ ^2P_{1\,1/2}$
1481.883	12	67481.71	$4p''\ ^4P^\circ_{2\,1/2} - 5d'\ ^2D_{2\,1/2}$
1481.898	4	67481.03	$4p\ ^4D^\circ_{1\,1/2} - 5d\ ^2P_{1\,1/2}$
1481.982	10	67477.20	$4p\ ^4D^\circ_{1\,1/2} - 5d\ ^4P_{0\,1/2}$
1482.240	100	67465.46	$4p'\ ^2D^\circ_{2\,1/2} - 5d''\ ^4D_{3\,1/2}$
1482.393	8	67458.49	$3d\ ^2D_{1\,1/2} - 4p'\ ^2P^\circ_{1\,1/2}$
1483.277	40	67418.29	
1483.554	15	67405.70	$4p\ ^4D^\circ_{2\,1/2} - 5d\ ^4D_{2\,1/2}$
1483.760	1	67396.34	
1484.227	25	67375.14	$4p''\ ^4P^\circ_{1\,1/2} - 5d'\ ^2P_{0\,1/2}$
1484.592	1	67358.57	$4p''\ ^4P^\circ_{2\,1/2} - 5d'\ ^2G_{3\,1/2}$
1485.185	10	67331.68	$4p''\ ^4P^\circ_{2\,1/2} - 5d'\ ^2D_{1\,1/2}$
1485.375	60	67323.07	$4p'\ ^2P^\circ_{1\,1/2} - 5d''\ ^4D_{2\,1/2}$
1485.987	2	67295.34	$4p'\ ^2D^\circ_{2\,1/2} - 7d\ ^2D_{2\,1/2}$
1486.372	5	67277.91	$4p''\ ^4P^\circ_{1\,1/2} - 6s''\ ^4P_{0\,1/2}$
1486.668	7	67264.51	$4p\ ^4D^\circ_{2\,1/2} - 5d\ ^4F_{3\,1/2}$
1487.242	50	67238.55	$4p''\ ^4P^\circ_{2\,1/2} - 8s\ ^4F_{3\,1/2}$
1487.438	5	67229.69	
1487.455	6	67228.92	$3d\ ^2D_{1\,1/2} - 4p'\ ^2D^\circ_{2\,1/2}$
1487.778	5	67214.33	
1487.970	2	67205.66	
1488.109	1	67199.38	
1488.730	16	67171.35	$4p\ ^4D^\circ_{2\,1/2} - 5d\ ^4P_{1\,1/2}$
1488.845	5	67166.16	$4p'\ ^2D^\circ_{2\,1/2} - 7d\ ^4F_{2\,1/2}$
1488.896	100	67163.86	$4p''\ ^4P^\circ_{2\,1/2} - 5d'\ ^2F_{2\,1/2}$
1489.079	35	67155.60	$4p''\ ^4P^\circ_{1\,1/2} - 5d'\ ^2F_{2\,1/2}$
1489.729	5	67126.30	$4p\ ^4G^\circ_{2\,1/2} - 5d\ ^4G_{2\,1/2}$
1490.262	7	67102.29	$s^2\ ^4P_{1\,1/2} - v\ ^2D^\circ_{2\,1/2}$
1491.176	5	67061.17	
1491.308	4	67055.23	$4p\ ^4G^\circ_{3\,1/2} - 5d\ ^4G_{3\,1/2}$
1491.588	4	67042.64	$4p''\ ^4P^\circ_{2\,1/2} - 6s''\ ^4P_{1\,1/2}$
1491.776	6	67034.19	$4p''\ ^4P^\circ_{1\,1/2} - 6s''\ ^4P_{1\,1/2}$
1491.823	3	67032.08	$4p\ ^4G^\circ_{3\,1/2} - 5d\ ^2G_{4\,1/2}$
1491.899	40	67028.67	$4p\ ^4G^\circ_{2\,1/2} - 5d\ ^4H_{3\,1/2}$
1493.022	15	66978.25	$4p\ ^4G^\circ_{3\,1/2} - 5d\ ^2F_{3\,1/2}$
1493.315	2	66965.11	$4p\ ^4G^\circ_{3\,1/2} - 5d\ ^4F_{2\,1/2}$
1494.151	50	66927.64	$4p\ ^4G^\circ_{3\,1/2} - 5d\ ^4H_{4\,1/2}$
1494.236	6	66923.83	$4p''\ ^4P^\circ_{0\,1/2} - 5d'\ ^2P_{0\,1/2}$
1494.701	10	66903.01	$s^2\ ^4P_{2\,1/2} - w\ ^2D^\circ_{2\,1/2}$
1495.383	40	66872.50	$4p''\ ^4P^\circ_{2\,1/2} - 6s''\ ^4P_{2\,1/2}$
1495.570	20	66864.14	$4p''\ ^4P^\circ_{1\,1/2} - 6s''\ ^4P_{2\,1/2}$
1496.308	10	66831.16	$4p''\ ^4P^\circ_{0\,1/2} - 6s''\ ^2P_{1\,1/2}$
1496.409	2	66826.65	$4p''\ ^4P^\circ_{0\,1/2} - 6s''\ ^4P_{0\,1/2}$
1496.463	1	66824.24	$4p'\ ^2D^\circ_{1\,1/2} - 7d\ ^4D_{2\,1/2}$
1498.734	1	66722.98	$4p\ ^4F^\circ_{3\,1/2} - 5d\ ^2H_{4\,1/2}$
1499.704	15	66679.82	$4p\ ^4G^\circ_{4\,1/2} - 5d\ ^4G_{4\,1/2}$
1500.437	200	66647.25	$3d\ ^2D_{1\,1/2} - 4p'\ ^2D^\circ_{1\,1/2}$
1500.651	7	66637.75	$4p\ ^4G^\circ_{4\,1/2} - 5d\ ^4F_{3\,1/2}$
1501.885	20	66582.99	$4p''\ ^4P^\circ_{0\,1/2} - 4s''\ ^4P_{1\,1/2}$
1501.962	6	66579.58	$3d\ ^2D_{2\,1/2} - 4p''\ ^4P^\circ_{1\,1/2}$
1502.150	75	66571.25	$3d\ ^2D_{2\,1/2} - 4p''\ ^4P^\circ_{2\,1/2}$
1502.669	20	66548.25	$4p\ ^4G^\circ_{4\,1/2} - 5d\ ^4F_{4\,1/2}$
1503.123	7	66528.15	$s^2\ ^4F_{4\,1/2} - w\ ^4F^\circ_{4\,1/2}$
1503.209	12	66524.35	$4p\ ^4G^\circ_{4\,1/2} - 5d\ ^4G_{5\,1/2}$
1504.485	75	66467.93	$4p\ ^4G^\circ_{4\,1/2} - 5d\ ^4H_{5\,1/2}$
1504.590	5	66463.29	$4p''\ ^4D^\circ_{0\,1/2} - 5d''\ ^2P_{0\,1/2}$
1505.642	13	66416.85	$4p\ ^4G^\circ_{5\,1/2} - 5d\ ^4F_{4\,1/2}$
1506.184	16	66392.95	$4p\ ^4G^\circ_{5\,1/2} - 5d\ ^4G_{5\,1/2}$
1506.585	25	66375.28	
1506.851	7	66363.56	
1506.968	10	66358.41	
1506.995	5	66357.22	$s^2\ ^4F_{3\,1/2} - 5p'\ ^2F^\circ_{3\,1/2}$
1507.465	18	66336.53	$4p\ ^4G^\circ_{5\,1/2} - 5d\ ^4H_{5\,1/2}$
1507.961	15	66314.71	$s^2\ ^2G_{4\,1/2} - 8p\ ^2G^\circ_{4\,1/2}$
1508.249	10	66302.05	
1508.262	7	66301.48	$4p''\ ^4D^\circ_{2\,1/2} - 7d\ ^2G_{3\,1/2}$
1508.315	10	66299.15	$4p\ ^4G^\circ_{2\,1/2} - 5d\ ^4G_{3\,1/2}$
1508.352	7	66297.52	
1508.498	4	66291.10	$4p\ ^4G^\circ_{4\,1/2} - 5d\ ^4D_{3\,1/2}$
1508.816	100	66277.13	$4p\ ^4G^\circ_{5\,1/2} - 5d\ ^4H_{6\,1/2}$
1509.113	1	66264.09	$4p''\ ^4D^\circ_{2\,1/2} - 5d''\ ^4P_{1\,1/2}$
1509.308	12	66255.53	
1509.345	8	66253.90	$4p''\ ^4D^\circ_{1\,1/2} - 5d''\ ^4P_{2\,1/2}$
1509.602	4	66242.62	$4p'\ ^2D^\circ_{2\,1/2} - 7d\ ^4D_{2\,1/2}$
1509.767	100	66235.39	$4p'\ ^2F^\circ_{2\,1/2} - 5d'\ ^2G_{3\,1/2}$
1510.067	1	66222.23	$4p\ ^4G^\circ_{2\,1/2} - 5d\ ^2F_{3\,1/2}$
1510.232	16	66214.99	
1510.366	4	66209.12	$4p\ ^4G^\circ_{2\,1/2} - 5d\ ^4F_{2\,1/2}$
1510.690	3	66194.92	$4p\ ^4F^\circ_{2\,1/2} - 5d\ ^2G_{3\,1/2}$
1510.741	5	66192.68	$4p''\ ^4D^\circ_{1\,1/2} - 5d''\ ^4P_{1\,1/2}$
1510.859	75	66187.51	$3d\ ^2D_{1\,1/2} - 4p'\ ^2F^\circ_{2\,1/2}$
1511.185	8	66173.23	$s^2\ ^4F_{3\,1/2} - 5p'\ ^2F^\circ_{2\,1/2}$
1511.314	3	66167.59	$4p'\ ^2F^\circ_{2\,1/2} - 6s''\ ^2P_{1\,1/2}$
1511.467	10	66160.89	
1512.237	1	66127.20	$s^2\ ^4P_{1\,1/2} - s\ ^4D^\circ_{0\,1/2}$
1512.742	11	66105.12	$s^2\ ^2G_{3\,1/2} - 8p\ ^2G^\circ_{3\,1/2}$
1513.016	11	66093.15	$s^2\ ^4P_{2\,1/2} - s\ ^4D^\circ_{2\,1/2}$
			$s^2\ ^4P_{1\,1/2} - 6f\ ^4P^\circ_{1\,1/2}$
1513.550	1	66069.83	$4p\ ^4F^\circ_{2\,1/2} - 5d\ ^4G_{2\,1/2}$
1513.783	15	66059.67	$4p''\ ^4D^\circ_{1\,1/2} - 5d''\ ^4F_{2\,1/2}$
1514.222	50	66040.51	$4p'\ ^2F^\circ_{2\,1/2} - 5d'\ ^2F_{2\,1/2}$
1514.336	10	66035.54	
1514.372	80	66033.97	$s^2\ ^2G_{4\,1/2} - 6p'\ ^2F^\circ_{3\,1/2}$
1514.411	17	66032.27	
1514.552	5	66026.12	$4p''\ ^4D^\circ_{1\,1/2} - 5d''\ ^4F_{1\,1/2}$
1514.633	6	66022.59	
1514.644	2	66022.11	
1514.856	8	66012.87	$4p'\ ^2P^\circ_{1\,1/2} - 7d\ ^4D_{2\,1/2}$
1515.157	15	65999.76	$s^2\ ^4P_{1\,1/2} - s\ ^4D^\circ_{1\,1/2}$
1515.269	25	65994.88	$4p\ ^2G^\circ_{4\,1/2} - 5d\ ^2G_{4\,1/2}$
1515.329	8	65992.27	$4s'\ ^2D_{2\,1/2} - z\ ^6D^\circ_{3\,1/2}$
1515.518	5	65984.04	$4p''\ ^4D^\circ_{0\,1/2} - 5d''\ ^4F_{1\,1/2}$
1515.692	1	65976.46	$4p''\ ^4D^\circ_{0\,1/2} - 5d''\ ^4P_{0\,1/2}$
1515.791	30	65972.16	$4p\ ^4F^\circ_{2\,1/2} - 5d\ ^4H_{3\,1/2}$
1515.825	40	65970.68	$s^2\ ^4P_{2\,1/2} - s\ ^4D^\circ_{3\,1/2}$
1516.048	17	65960.97	$4p'\ ^2P^\circ_{0\,1/2} - 6s''\ ^2P_{0\,1/2}$?
1516.215	50	65953.71	$4p''\ ^4D^\circ_{2\,1/2} - 5d''\ ^4F_{3\,1/2}$
1516.503	3	65941.18	$4p\ ^2G^\circ_{4\,1/2} - 5d\ ^2F_{3\,1/2}$
1517.449	25	65900.07	$4p\ ^4F^\circ_{3\,1/2} - 5d\ ^4G_{3\,1/2}$
1517.480	40	65898.73	$4p\ ^2G^\circ_{3\,1/2} - 5d\ ^2G_{3\,1/2}$
			$4p'\ ^2D^\circ_{1\,1/2} - 5d'\ ^2D_{2\,1/2}$

TABLE I. *Lines of* Ni II — Continued

λ(vac)	Intensity	Wavenumber	Transition
1517.894	100	65880.75	$4p\ ^2G^\circ_{4\,1/2} - 5d\ ^2H_{5\,1/2}$
1517.984	15	65876.85	$4p\ ^4F^\circ_{3\,1/2} - 5d\ ^2G_{4\,1/2}$
1519.371	40	65816.71	$s^2\ ^4P_{1\,1/2} - s\ ^4D^\circ_{2\,1/2}$
1519.513	15	65810.56	
1519.745	4	65800.51	$4p'\ ^2D^\circ_{1\,1/2} - 5d'\ ^2P_{0\,1/2}$
1519.935	100	65792.29	$4p'\ ^2F^\circ_{3\,1/2} - 5d'\ ^2G_{4\,1/2}$?
1520.008	2	65789.13	
1520.077	4	65786.14	$4p'\ ^2P^\circ_{0\,1/2} - 4d'\ ^2P_{1\,1/2}$
1520.168	14	65782.20	$4p\ ^4G^\circ_{3\,1/2} - 5d\ ^4G_{4\,1/2}$
1520.294	10	65776.75	
1520.392	30	65772.51	$4p\ ^4F^\circ_{3\,1/2} - 5d\ ^4H_{4\,1/2}$
1520.467	40	65769.27	$4p\ ^2G^\circ_{3\,1/2} - 5d\ ^2H_{4\,1/2}$
1520.932	10	65749.16	$4p'\ ^2F^\circ_{2\,1/2} - 6s''\ ^4P_{2\,1/2}$
1520.944	20	65748.64	$4p'\ ^2D^\circ_{1\,1/2} - 5d'\ ^2D_{1\,1/2}$
1521.119	100	65741.08	$4p''\ ^4D^\circ_{3\,1/2} - 5d''\ ^4F_{4\,1/2}$
1521.596	15	65720.47	$4p\ ^4F^\circ_{1\,1/2} - 5d\ ^4G_{2\,1/2}$
1521.673	18	65717.14	$s^2\ ^2G_{4\,1/2} - v\ ^2G^\circ_{4\,1/2}$
1521.889	12	65707.81	$4p'\ ^2D^\circ_{1\,1/2} - 6s''\ ^2P_{1\,1/2}$
1521.992	10	65703.37	$4p'\ ^2D^\circ_{1\,1/2} - 6s''\ ^4P_{0\,1/2}$
1522.506	2	65681.19	
1522.517	0	65680.71	$4p\ ^4D^\circ_{1\,1/2} - 6s\ ^2F_{2\,1/2}$
1522.569	30	65678.47	$4p'\ ^2F^\circ_{3\,1/2} - 8s\ ^4F_{3\,1/2}$
1522.691	10	65673.21	$4p'\ ^2P^\circ_{0\,1/2} - 5d'\ ^2P_{0\,1/2}$
1522.846	12	65666.52	$s^2\ ^4F_{3\,1/2} - 5p'\ ^2D^\circ_{2\,1/2}$
1522.990	11	65660.31	$4p\ ^4F^\circ_{1\,1/2} - 5d\ ^4F_{1\,1/2}$
1523.102	3	65655.48	
1523.160	6	65652.98	$4p''\ ^4D^\circ_{2\,1/2} - 5d''\ ^4D_{2\,1/2}$
1523.278	30	65647.90	$s^2\ ^4P_{2\,1/2} - v\ ^4F^\circ_{3\,1/2}$
1523.897	15h	65621.23	$4p'\ ^2P^\circ_{0\,1/2} - 5d'\ ^2D_{1\,1/2}$
			$4p''\ ^4D^\circ_{1\,1/2} - 5d''\ ^4D_{1\,1/2}$
1524.302	50	65603.80	$4p''\ ^2F^\circ_{3\,1/2} - 5d'\ ^2F_{3\,1/2}$
1524.758	4	65584.18	$4p''\ ^4D^\circ_{1\,1/2} - 5d''\ ^4D_{0\,1/2}$
1524.834	22	65580.91	$4p'\ ^2D^\circ_{1\,1/2} - 5d'\ ^2D_{1\,1/2}$
1524.996	14	65573.94	$s^2\ ^4P_{0\,1/2} - s\ ^4D^\circ_{0\,1/2}$
1525.422	8	65555.63	$4p\ ^4D^\circ_{2\,1/2} - 6s\ ^2F_{3\,1/2}$
1526.480	4	65510.19	$4p''\ ^4D^\circ_{3\,1/2} - 5d''\ ^4D_{2\,1/2}$
1526.999	20	65487.93	$4p\ ^4F^\circ_{4\,1/2} - 5d\ ^4G_{4\,1/2}$
1527.497	15	65466.58	$s^2\ ^4F_{4\,1/2} - v\ ^4D^\circ_{3\,1/2}$
1527.661	1	65459.55	$4p'\ ^2D^\circ_{1\,1/2} - 6s''\ ^4P_{1\,1/2}$
1527.968	18	65446.40	$s^2\ ^4P_{0\,1/2} - s\ ^4D^\circ_{1\,1/2}$
1528.158	3	65438.26	
1528.508	22	65423.28	$4p''\ ^4D^\circ_{3\,1/2} - 5d''\ ^4D_{3\,1/2}$
1528.703	1	65414.93	$4p''\ ^4D^\circ_{2\,1/2} - 8s\ ^2F_{2\,1/2}$
1529.148	4	65395.89	$4p''\ ^4D^\circ_{2\,1/2} - 7d\ ^2D_{2\,1/2}$
1529.812	0	65367.51	$s^2\ ^4F_{3\,1/2} - w\ ^4F^\circ_{4\,1/2}$
1530.080	18	65356.06	$4p\ ^4F^\circ_{4\,1/2} - 5d\ ^4F_{4\,1/2}$
1530.428	10	65341.20	$s^2\ ^4F_{2\,1/2} - 5p'\ ^2F^\circ_{2\,1/2}$
1530.636	75	65332.32	$4p\ ^4F^\circ_{4\,1/2} - 5d\ ^4G_{5\,1/2}$
			$4p'\ ^2P^\circ_{0\,1/2} - 6s''\ ^4P_{1\,1/2}$
1530.663	30	65331.17	$4p''\ ^2D^\circ_{1\,1/2} - 8d\ ^4P_{2\,1/2}$
1530.995	16	65317.00	$4p'\ ^2D^\circ_{2\,1/2} - 5d'\ ^2D_{2\,1/2}$
1531.288	3	65304.50	
1531.336	1	65302.45	
1531.408	14	65299.38	
1531.640	18	65289.49	$4p'\ ^2D^\circ_{1\,1/2} - 6s''\ ^4P_{2\,1/2}$
1531.720	1	65286.08	$s^2\ ^2G_{4\,1/2} - 6f\ ^2H^\circ_{5\,1/2}$
1531.952	16	65276.20	$4p'\ ^2P^\circ_{1\,1/2} - 6s''\ ^2P_{0\,1/2}$
1531.972	20	65275.34	$4p\ ^4D^\circ_{3\,1/2} - 6s\ ^4F_{4\,1/2}$
1532.741	14	65242.59	$4p\ ^4F^\circ_{2\,1/2} - 5d\ ^4G_{3\,1/2}$
1533.669	17	65203.12	
1533.885	12	65193.94	$4p'\ ^2D^\circ_{2\,1/2} - 5d'\ ^2G_{3\,1/2}$
1533.991	20	65189.43	$4p\ ^2F^\circ_{3\,1/2} - 5d\ ^2G_{3\,1/2}$
1534.424	5	65171.03	
1534.484	12	65168.49	
1534.546	11	65165.85	$4p\ ^4F^\circ_{2\,1/2} - 5d\ ^2F_{3\,1/2}$
1534.628	1	65162.37	
1534.861	10	65152.48	$4p\ ^4F^\circ_{2\,1/2} - 5d\ ^4F_{2\,1/2}$
1535.083	2	65143.06	
1535.477	12	65126.34	$4p'\ ^2D^\circ_{2\,1/2} - 6s''\ ^2P_{1\,1/2}$
1535.961	15	65105.82	$s^2\ ^2G_{4\,1/2} - 4f''\ ^2G^\circ_{3\,1/2}$
1536.051	30	65102.00	$4p'\ ^2P^\circ_{1\,1/2} - 5d'\ ^2P_{1\,1/2}$
1536.118	15	65099.17	$4p\ ^4F^\circ_{4\,1/2} - 5d\ ^4D_{3\,1/2}$
1536.367	1	65088.61	
1536.398	20	65087.30	$4p'\ ^2P^\circ_{1\,1/2} - 5d'\ ^2D_{2\,1/2}$
1536.717	15	65073.79	$4p'\ ^2D^\circ_{2\,1/2} - 8s\ ^4F_{3\,1/2}$
1536.746	25	65072.56	$3d\ ^2D_{1\,1/2} - 4p''\ ^4P^\circ_{1\,1/2}$
1536.779	10	65071.16	
1536.944	12	65064.18	$3d\ ^2D_{1\,1/2} - 4p''\ ^4P^\circ_{2\,1/2}$
1537.038	12	65060.20	$4p\ ^2F^\circ_{3\,1/2} - 5d\ ^2H_{4\,1/2}$
1537.216	20	65052.67	$s^2\ ^4P_{1\,1/2} - v\ ^4F^\circ_{2\,1/2}$
1537.322	2	65048.18	
1537.477	15	65041.62	$s^2\ ^2G_{4\,1/2} - 4f''\ ^2F^\circ_{3\,1/2}$
1537.776	1	65028.98	
1537.859	25	65025.47	
1538.022	6	65018.58	
1538.388	30	65003.11	
1538.483	30	64999.09	$4p'\ ^2D^\circ_{2\,1/2} - 5d'\ ^2F_{3\,1/2}$
1538.567	4	64995.54	$4p''\ ^2D^\circ_{2\,1/2} - 5d''\ ^4F_{2\,1/2}$
1538.722	0	64989.00	$4p'\ ^2P^\circ_{1\,1/2} - 5d'\ ^2P_{0\,1/2}$
1538.831	3	64984.39	$4p\ ^4G^\circ_{2\,1/2} - 5d\ ^4F_{3\,1/2}$
1538.956	1	64979.12	
1539.649	15	64949.87	
1539.731	1	64946.41	$4p\ ^2G^\circ_{3\,1/2} - 5d\ ^4G_{3\,1/2}$
1539.949	2	64937.21	$4p'\ ^2P^\circ_{1\,1/2} - 5d'\ ^2D_{1\,1/2}$
1540.015	1	64934.43	$s^2\ ^4F_{2\,1/2} - w\ ^4F^\circ_{3\,1/2}$
1540.281	25	64923.22	$4p\ ^2G^\circ_{3\,1/2} - 5d\ ^2G_{4\,1/2}$
1540.656	1	64907.42	
1540.760	35	64903.03	$s^2\ ^2G_{4\,1/2} - 8p\ ^4G^\circ_{4\,1/2}$
1540.908	4	64896.80	$4p'\ ^2P^\circ_{1\,1/2} - 6s''\ ^2P_{1\,1/2}$
1541.324	14	64879.29	
1541.356	11	64877.94	$4p'\ ^2D^\circ_{2\,1/2} - 6s''\ ^4P_{1\,1/2}$
1541.560	4	64869.35	$4p\ ^2G^\circ_{3\,1/2} - 5d\ ^2F_{3\,1/2}$
1541.801	2	64859.21	$4p'''\ ^2H^\circ_{4\,1/2} - 6s'''\ ^2G_{3\,1/2}$
1542.024	1	64849.83	$4p\ ^2D^\circ_{2\,1/2} - 5d\ ^2G_{3\,1/2}$
1542.208	18	64842.10	
1542.238	2	64840.83	
1542.263	3	64839.78	
1542.388	1	64834.53	$s^2\ ^4F_{2\,1/2} - 5p'\ ^2D^\circ_{2\,1/2}$
1542.401	3	64833.98	
1542.773	15	64818.35	$4p''\ ^2D^\circ_{2\,1/2} - 5d''\ ^4F_{3\,1/2}$
1543.132	1	64803.27	$4p\ ^4F^\circ_{1\,1/2} - 5d\ ^4F_{2\,1/2}$
1543.806	3	64774.98	
1544.273	3	64755.39	$4p\ ^2D^\circ_{2\,1/2} - 5d\ ^2F_{2\,1/2}$
1544.968	5	64726.26	$4p\ ^4F^\circ_{3\,1/2} - 5d\ ^4D_{2\,1/2}$
1544.980	10	64725.76	
1545.408	30	64707.83	$4p'\ ^2D^\circ_{2\,1/2} - 6s''\ ^4P_{2\,1/2}$
1545.453	12	64705.95	
1545.717	16	64694.90	
1545.881	5	64688.03	$s^2\ ^4F_{3\,1/2} - v\ ^4D^\circ_{2\,1/2}$

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TABLE I. *Lines of* Ni II — Continued

λ(vac)	Intensity	Wavenumber	Transition
1546.053	1	64680.84	
1546.070	4	64680.12	$4p\ ^4D^\circ_{1\,1/2} - 6s\ ^4F_{2\,1/2}$
1547.337	15	64627.16	$4p\ ^4F^\circ_{3\,1/2} - 5d\ ^4G_{4\,1/2}$
			$4p\ ^2D^\circ_{2\,1/2} - 5d\ ^4H_{3\,1/2}$
1547.407	13	64624.24	$s^2\ ^4F_{2\,1/2} - v\ ^4D^\circ_{1\,1/2}$
1547.513	5	64619.81	
1547.547	3	64618.39	$s^2\ ^2G_{3\,1/2} - v\ ^2G^\circ_{4\,1/2}$
			$s^2\ ^4F_{3\,1/2} - w\ ^4G^\circ_{2\,1/2}$
1548.344	16	64585.13	$4p\ ^4F^\circ_{3\,1/2} - 5d\ ^4F_{3\,1/2}$
1548.416	7	64582.13	
1549.588	1	64533.28	$4p\ ^2G^\circ_{4\,1/2} - 5d\ ^4H_{5\,1/2}$
1549.818	0	64523.71	$4p''\ ^2D^\circ_{1\,1/2} - 5d''\ ^4P_{1\,1/2}$
1549.964	4	64517.63	$4p''\ ^2D^\circ_{2\,1/2} - 5d''\ ^4D_{2\,1/2}$
1550.479	3	64496.20	$s^2\ ^2G_{3\,1/2} - 4f''\ ^4D^\circ_{3\,1/2}$
1550.495	2	64495.53	$4p\ ^4F^\circ_{3\,1/2} - 5d\ ^4F_{4\,1/2}$
1550.912	10	64478.19	$4p'\ ^2P^\circ_{1\,1/2} - 6s''\ ^4P_{2\,1/2}$
1552.276	5	64421.53	$s^2\ ^2G_{3\,1/2} - 4f''\ ^4G^\circ_{3\,1/2}$
1553.012	00	64391.00	$4p''\ ^2D^\circ_{1\,1/2} - 5d''\ ^4F_{2\,1/2}$
1553.346	4	64377.16	
1554.108	5	64345.59	
1554.124	50	64344.93	$s^2\ ^4P_{2\,1/2} - v\ ^4P^\circ_{1\,1/2}$
1554.293	8	64337.93	
1554.332	8	64336.32	$4p\ ^4D^\circ_{2\,1/2} - 6s\ ^4F_{3\,1/2}$
1554.509	6	64328.99	$4p''\ ^4P^\circ_{2\,1/2} - 6s'\ ^2D_{2\,1/2}$?
1555.062	2	64306.12	$s^2\ ^4F_{3\,1/2} - v\ ^4D^\circ_{3\,1/2}$
1555.398	16	64292.23	$4p''\ ^2P^\circ_{1\,1/2} - 5d''\ ^2P_{1\,1/2}$?
1555.496	30	64288.18	$s^2\ ^2G_{3\,1/2} - v\ ^2G^\circ_{3\,1/2}$
1555.585	8	64284.50	$4p'''\ ^2H^\circ_{5\,1/2} - 6s'''\ ^2G_{4\,1/2}$
1555.957	13	64269.13	$4p\ ^4D^\circ_{3\,1/2} - 4d''\ ^4F_{3\,1/2}$
1556.350	7	64252.90	
1556.766	10	64235.73	
1556.997	4	64226.20	$4p''\ ^2P^\circ_{1\,1/2} - 5d''\ ^2P_{0\,1/2}$
1557.194	1	64218.07	$s^2\ ^4P_{0\,1/2} - 4f'\ ^2D^\circ_{1\,1/2}$
1557.290	12	64214.12	$4p\ ^2F^\circ_{3\,1/2} - 5d\ ^2G_{4\,1/2}$
1557.380	1	64210.40	
1558.087	10	64181.27	$4p\ ^4D^\circ_{3\,1/2} - 4d''\ ^4F_{4\,1/2}$
1558.443	12	64166.61	
1558.501	2	64164.22	$s^2\ ^4F_{4\,1/2} - x\ ^4G^\circ_{3\,1/2}$
1558.544	5	64162.45	$s^2\ ^4F_{1\,1/2} - 5p'\ ^2D^\circ_{1\,1/2}$
1558.597	15	64160.27	$4p\ ^2F^\circ_{3\,1/2} - 5d\ ^2F_{3\,1/2}$
1558.655	40	64157.88	
1559.159	18	64137.14	
1559.822	1	64109.88	$4p\ ^2F^\circ_{3\,1/2} - 5d\ ^4H_{4\,1/2}$
1560.341	6	64088.55	$4p'''\ ^2F^\circ_{3\,1/2} - 6s'''\ ^2G_{4\,1/2}$
1560.459	25	64083.71	
1560.517	10	64081.33	$4p\ ^4G^\circ_{2\,1/2} - 6s\ ^4F_{1\,1/2}$
1560.562	4	64079.48	
1560.796	5	64069.87	$s^2\ ^4F_{3\,1/2} - w\ ^4G^\circ_{3\,1/2}$
1560.831	15	64068.44	$s^2\ ^4P_{1\,1/2} - v\ ^4P^\circ_{1\,1/2}$
1560.935	4	64064.17	$s^2\ ^4F_{3\,1/2} - w\ ^4G^\circ_{3\,1/2}$
1561.015	4	64060.88	$s^2\ ^4F_{1\,1/2} - v\ ^4D^\circ_{1\,1/2}$
1561.229	15	64052.10	$4p\ ^4G^\circ_{3\,1/2} - 6s\ ^4F_{2\,1/2}$
1561.733	2	64031.43	$4p\ ^4G^\circ_{3\,1/2} - 6s\ ^2F_{3\,1/2}$
1561.968	11	64021.80	$s^2\ ^2G_{4\,1/2} - w\ ^2G^\circ_{3\,1/2}$
1562.329	18	64007.00	$s^2\ ^2G_{3\,1/2} - 4f''\ ^2G^\circ_{3\,1/2}$
1563.111	7	63974.98	$4p''\ ^2P^\circ_{1\,1/2} - 5d''\ ^4P_{2\,1/2}$
1563.376	50	63964.14	$s^2\ ^4P_{1\,1/2} - v\ ^4P^\circ_{0\,1/2}$
1563.604	120	63954.81	$s^2\ ^4F_{4\,1/2} - w\ ^4D^\circ_{3\,1/2}$
			$s^2\ ^4P_{2\,1/2} - v\ ^4P^\circ_{2\,1/2}$
1563.837	1	63945.28	
1564.273	15	63927.46	$4p\ ^4F^\circ_{2\,1/2} - 5d\ ^4F_{3\,1/2}$
1564.389	8	63922.72	
1565.001	1	63897.72	$4p\ ^4F^\circ_{3\,1/2} - 6s\ ^2F_{2\,1/2}$
			$4p\ ^2D^\circ_{2\,1/2} - 5d\ ^4G_{3\,1/2}$
1565.399	20	63881.48	$4s^2\ ^4F_{3\,1/2} - w\ ^4G^\circ_{4\,1/2}$
1565.970	3	63858.18	
1566.019	7	63856.19	$s^2\ ^4F_{2\,1/2} - v\ ^4D^\circ_{2\,1/2}$
1566.890	1	63820.69	$4p\ ^2D^\circ_{2\,1/2} - 5d\ ^2F_{3\,1/2}$
1567.069	15	63813.40	$s^2\ ^4F_{4\,1/2} - w\ ^4G^\circ_{5\,1/2}$
1567.220	10	63807.25	
1567.298	3	63804.08	$s^2\ ^2G_{3\,1/2} - 8p\ ^4G^\circ_{4\,1/2}$
1567.323	10	63803.06	
1567.336	12	63802.53	
1567.370	3	63801.14	$s^2\ ^2G_{3\,1/2} - v\ ^2D^\circ_{2\,1/2}$
1567.872	1	63780.72	$4p''\ ^2P^\circ_{1\,1/2} - 5d''\ ^4F_{2\,1/2}$
1567.966	4	63776.89	$4p\ ^2F^\circ_{2\,1/2} - 5d\ ^2G_{3\,1/2}$
1568.698	1	63747.13	$4p''\ ^2P^\circ_{1\,1/2} - 5d''\ ^4F_{1\,1/2}$
1569.172	16	63727.88	
1569.415	1	63718.01	
1569.624	13	63709.53	$4p\ ^4G^\circ_{4\,1/2} - 6s\ ^4F_{3\,1/2}$
1569.972	2	63695.40	$4p\ ^2D^\circ_{2\,1/2} - 5d\ ^2P_{1\,1/2}$
1570.302	10	63682.02	$4p\ ^2F^\circ_{2\,1/2} - 5d\ ^2F_{2\,1/2}$
1570.392	60	63678.37	$s^2\ ^4P_{1\,1/2} - v\ ^4P^\circ_{2\,1/2}$
1570.512	3	63673.50	$4p\ ^2G^\circ_{3\,1/2} - 5d\ ^4G_{4\,1/2}$
1570.701	1	63665.84	$4p''\ ^4P^\circ_{2\,1/2} - 7s\ ^2F_{2\,1/2}$
1570.879	1	63658.63	
1571.145	12	63647.85	
1571.162	12	63647.16	
1571.257	10	63643.31	
1571.532	2	63632.18	
1571.550	2	63631.45	$4p\ ^2G^\circ_{3\,1/2} - 5d\ ^4F_{3\,1/2}$
1572.018	4	63612.50	
1572.062	4	63610.72	
1572.540	25	63591.39	$4p\ ^2F^\circ_{2\,1/2} - 5d\ ^4F_{1\,1/2}$
1572.646	4	63587.10	$4p\ ^2F^\circ_{2\,1/2} - 4d'''\ ^2F_{2\,1/2}$
1572.993	1	63573.07	
1573.071	10	63569.92	
1574.202	18	63524.25	
1574.423	100	63515.33	$s^2\ ^4P_{0\,1/2} - v\ ^4P^\circ_{1\,1/2}$
1574.942	20	63494.40	
1574.976	5	63493.03	$4p''\ ^4D^\circ_{0\,1/2} - 6s''\ ^2P_{0\,1/2}$
1575.003	16	63491.94	$s^2\ ^2G_{4\,1/2} - s\ ^4D^\circ_{3\,1/2}$
1575.090	15	63488.44	
1575.559	1	63469.54	$4p\ ^2D^\circ_{1\,1/2} - 5d\ ^2F_{2\,1/2}$
1575.597	9	63468.01	$4p\ ^4G^\circ_{4\,1/2} - 6s\ ^4F_{4\,1/2}$
1576.747	1	63421.72	
1577.015	30	63410.94	$s^2\ ^4P_{0\,1/2} - v\ ^4P^\circ_{0\,1/2}$
1577.115	16	63406.92	$4p\ ^2D^\circ_{1\,1/2} - 5d\ ^2P_{0\,1/2}$
1577.210	7	63403.10	
1577.933	14	63374.05	$4p\ ^2D^\circ_{1\,1/2} - 4d'''\ ^2F_{2\,1/2}$
1578.865	20	63336.64	$4p\ ^4G^\circ_{5\,1/2} - 6s\ ^4F_{4\,1/2}$
1578.990	60	63331.62	
1579.073	18	63328.29	
1579.563	18	63308.65	$4p''\ ^2P^\circ_{0\,1/2} - 5d''\ ^2P_{0\,1/2}$
1579.791	17	63299.51	
1579.877	2	63296.07	$4p\ ^4G^\circ_{2\,1/2} - 6s\ ^4F_{2\,1/2}$
1579.959	3	63292.78	$s^2\ ^4F_{1\,1/2} - v\ ^4D^\circ_{2\,1/2}$
1580.588	8	63267.59	$4p''\ ^4D^\circ_{2\,1/2} - 5d'\ ^2D_{1\,1/2}$
1580.674	1	63264.15	
1580.698	2	63263.19	

TABLE I. *Lines of* Ni II — Continued

λ(vac)	Intensity	Wavenumber	Transition
1581.085	6	63247.71	$4p'\,^2F^\circ_{2\frac{1}{2}} - 6s'\,^2D_{1\frac{1}{2}}$
1581.334	25	63237.75	$s^2\,^4F_{2\frac{1}{2}} - w\,^4G^\circ_{3\frac{1}{2}}$
1581.704	10	63222.95	$s^2\,^4F_{1\frac{1}{2}} - w\,^4G^\circ_{2\frac{1}{2}}$
1581.826	6	63218.08	$4p\,^4D^\circ_{2\frac{1}{2}} - 4d''\,^4F_{2\frac{1}{2}}$
1582.135	2	63205.73	$4p\,^2F^\circ_{2\frac{1}{2}} - 5d\,^4D_{1\frac{1}{2}}$
1582.373	00	63196.22	$4p''\,^4D^\circ_{1\frac{1}{2}} - 5d'\,^2D_{1\frac{1}{2}}$
			$4p''\,^2P^\circ_{0\frac{1}{2}} - 5d''\,^4P_{1\frac{1}{2}}$
1582.571	2	63188.32	
1582.689	10	63183.61	
1583.051	17	63169.16	$s^2\,^2G_{4\frac{1}{2}} - v\,^4F^\circ_{3\frac{1}{2}}$
1583.398	1	63155.32	$4p''\,^4D^\circ_{1\frac{1}{2}} - 6s''\,^2P_{1\frac{1}{2}}$
1583.436	10	63153.80	
1583.509	15	63150.89	$4p''\,^4D^\circ_{1\frac{1}{2}} - 6s''\,^4P_{0\frac{1}{2}}$
1584.530	10	63110.20	
1584.563	16	63108.88	$4p''\,^4D^\circ_{0\frac{1}{2}} - 6s''\,^4P_{0\frac{1}{2}}$
1584.761	1	63101.00	
1585.117	200	63086.83	$s^2\,^2G_{4\frac{1}{2}} - w\,^2G^\circ_{4\frac{1}{2}}$
1585.702	4	63063.55	$4p\,^2F^\circ_{3\frac{1}{2}} - 5d\,^4D_{2\frac{1}{2}}$
1586.677	4	63024.80	$4p\,^4F^\circ_{2\frac{1}{2}} - 6s\,^4F_{1\frac{1}{2}}$
1587.138	3	63006.49	$s^2\,^4F_{4\frac{1}{2}} - x\,^4F^\circ_{3\frac{1}{2}}$
1587.207	8	63003.75	$s^2\,^4F_{3\frac{1}{2}} - x\,^4G^\circ_{3\frac{1}{2}}$
1587.443	18	62994.39	$4p\,^2G^\circ_{4\frac{1}{2}} - 6s\,^2F_{3\frac{1}{2}}$
1587.845	35	62978.44	$4p''\,^4D^\circ_{2\frac{1}{2}} - 6s''\,^4P_{1\frac{1}{2}}$
1588.200	10	62964.36	$4p\,^2F^\circ_{3\frac{1}{2}} - 5d\,^4G_{4\frac{1}{2}}$
1588.369	15	62957.66	
1588.464	10	62953.90	
1588.715	9	62943.95	$4p\,^2G^\circ_{3\frac{1}{2}} - 6s\,^2F_{2\frac{1}{2}}$
1588.798	20	62940.66	
1589.061	40	62930.25	
1589.116	80	62928.07	
1589.246	200	62922.92	$s^2\,^2G_{3\frac{1}{2}} - w\,^2G^\circ_{3\frac{1}{2}}$
1589.474	5	62913.89	$s^2\,^4F_{3\frac{1}{2}} - x\,^4F^\circ_{2\frac{1}{2}}$
1589.547	1	62911.01	$4p''\,^4S^\circ_{1\frac{1}{2}} - 5d''\,^2P_{0\frac{1}{2}}$
1589.563	3	62910.37	
1589.644	20	62907.17	$4p''\,^4D^\circ_{1\frac{1}{2}} - 6s''\,^4P_{1\frac{1}{2}}$
1589.772	80	62902.10	$s^2\,^4F_{3\frac{1}{2}} - w\,^4D^\circ_{2\frac{1}{2}}$
1589.903	8	62896.92	$4p\,^4F^\circ_{3\frac{1}{2}} - 6s\,^4F_{2\frac{1}{2}}$
1589.948	7	62895.14	
1590.422	0	62876.39	$4p\,^4F^\circ_{3\frac{1}{2}} - 6s\,^2F_{3\frac{1}{2}}$
1590.529	10	62872.16	
1590.703	1	62865.29	$4p''\,^4D^\circ_{0\frac{1}{2}} - 6s''\,^4P_{1\frac{1}{2}}$
1591.041	50	62851.93	$4s\,^2F_{3\frac{1}{2}} - 4p'''\,^2F^\circ_{2\frac{1}{2}}$
1591.099	16	62849.64	
1591.350	10	62839.73	
1591.415	80	62837.16	$s^2\,^2G_{3\frac{1}{2}} - 6f\,^4D^\circ_{2\frac{1}{2}}$
1591.732	2	62824.65	$4p\,^2F^\circ_{2\frac{1}{2}} - 5d\,^4G_{3\frac{1}{2}}$
1592.080	200	62810.91	$s^2\,^2G_{4\frac{1}{2}} - w\,^2F^\circ_{3\frac{1}{2}}$
1592.144	15	62808.39	$4p''\,^4D^\circ_{2\frac{1}{2}} - 6s''\,^4P_{2\frac{1}{2}}$
1592.248	25	62804.29	
1592.479	50	62795.18	
1592.502	15	62794.27	$s^2\,^4F_{3\frac{1}{2}} - w\,^4D^\circ_{3\frac{1}{2}}$
1592.662	1	62787.96	$4p'\,^2D^\circ_{1\frac{1}{2}} - 6s'\,^2D_{1\frac{1}{2}}$
			$4p'\,^2D^\circ_{1\frac{1}{2}} - 6d\,^4D_{1\frac{1}{2}}$
1593.132	1	62769.44	$4p'\,^2F^\circ_{3\frac{1}{2}} - 6s'\,^2D_{2\frac{1}{2}}$
1593.200	15	62766.76	
1593.522	15	62754.08	
1593.611	150	62750.57	$s^2\,^2G_{3\frac{1}{2}} - w\,^2F^\circ_{2\frac{1}{2}}$
1593.698	40	62747.15	$s^2\,^4F_{2\frac{1}{2}} - t\,^2D^\circ_{1\frac{1}{2}}$
1594.019	1	62734.51	$4p\,^2F^\circ_{2\frac{1}{2}} - 5d\,^4F_{2\frac{1}{2}}$
1594.287	6	62723.96	$4p\,^2D^\circ_{2\frac{1}{2}} - 5d\,^4D_{2\frac{1}{2}}$
1594.346	35	62721.64	
1594.575	1	62712.63	
1594.703	12	62707.60	$s^2\,^4F_{4\frac{1}{2}} - x\,^4G^\circ_{4\frac{1}{2}}$
1595.332	1	62682.88	
1595.519	8	62675.53	$4p\,^4F^\circ_{1\frac{1}{2}} - 6s\,^4F_{1\frac{1}{2}}$
1595.608	70	62672.03	$s^2\,^2G_{4\frac{1}{2}} - 4f'\,^2H^\circ_{4\frac{1}{2}}$
1595.768	70	62665.75	$4p''\,^4D^\circ_{3\frac{1}{2}} - 6s''\,^4P_{2\frac{1}{2}}$
1595.919	15	62659.82	$4p''\,^4S^\circ_{1\frac{1}{2}} - 5d''\,^4P_{2\frac{1}{2}}$
1596.074	60	62653.74	
1596.874	1	62622.35	$4p\,^2F^\circ_{2\frac{1}{2}} - 5d\,^2P_{1\frac{1}{2}}$
1597.031	1	62616.19	$4p''\,^2S^\circ_{0\frac{1}{2}} - 5d''\,^4P_{1\frac{1}{2}}$
1597.101	25	62613.45	
1597.484	9	62598.44	$4p''\,^4S^\circ_{1\frac{1}{2}} - 5d''\,^4P_{1\frac{1}{2}}$
1597.886	7	62582.69	$4p\,^2D^\circ_{2\frac{1}{2}} - 5d\,^4F_{3\frac{1}{2}}$
1598.282	40	62567.18	
1598.315	4	62565.89	
1598.371	30	62563.70	
1598.860	18	62544.56	
1599.251	40	62529.27	
1599.282	12	62528.06	$s^2\,^4F_{2\frac{1}{2}} - x\,^4G^\circ_{2\frac{1}{2}}$
1599.439	1	62521.92	$4p\,^2D^\circ_{1\frac{1}{2}} - 5d\,^4F_{2\frac{1}{2}}$
1599.549	10	62517.62	$4p\,^4F^\circ_{4\frac{1}{2}} - 6s\,^4F_{3\frac{1}{2}}$
1599.603	25	62515.51	$s^2\,^2G_{3\frac{1}{2}} - s\,^4D^\circ_{2\frac{1}{2}}$
1600.268	10	62489.53	$4p\,^2D^\circ_{2\frac{1}{2}} - 5d\,^4P_{1\frac{1}{2}}$
1600.565	18	62477.94	
1600.753	3	62470.60	
1601.045	16	62459.21	$s^2\,^2G_{4\frac{1}{2}} - 4f'\,^2G^\circ_{4\frac{1}{2}}$
1601.240	10	62451.60	$s^2\,^4P_{2\frac{1}{2}} - t\,^4D^\circ_{1\frac{1}{2}}$
1601.288	8	62449.73	$4p''\,^2S^\circ_{0\frac{1}{2}} - 4d''\,^2F_{1\frac{1}{2}}$
1601.400	3	62445.36	
1601.518	1	62440.76	$4s\,^4F_{3\frac{1}{2}} - 4p''\,^2D^\circ_{2\frac{1}{2}}$
1601.742	4	62432.03	$4p''\,^4S^\circ_{1\frac{1}{2}} - 5d''\,^4F_{1\frac{1}{2}}$
1601.928	10	62424.78	$4p''\,^4S^\circ_{1\frac{1}{2}} - 5d''\,^4P_{0\frac{1}{2}}$
1602.209	12	62413.83	$s^2\,^4P_{1\frac{1}{2}} - t\,^4D^\circ_{0\frac{1}{2}}$
1602.679	1	62395.53	
1602.973	20	62384.08	$4s\,^4F_{4\frac{1}{2}} - 4p''\,^4D^\circ_{3\frac{1}{2}}$
1603.224	1	62374.32	$4p\,^4G^\circ_{4\frac{1}{2}} - 4d''\,^4F_{4\frac{1}{2}}$
1603.410	20	62367.08	$4s\,^2F_{3\frac{1}{2}} - 4p'''\,^2F^\circ_{3\frac{1}{2}}$
1603.555	25	62361.44	
1603.728	16	62354.71	
1603.917	5	62347.37	$s^2\,^4P_{2\frac{1}{2}} - 5f\,^2D^\circ_{2\frac{1}{2}}$
1604.394	2	62328.83	$s^2\,^4P_{2\frac{1}{2}} - 5f\,^4G^\circ_{3\frac{1}{2}}$
1604.482	18	62325.41	
1604.570	5	62321.99	$4p\,^4D^\circ_{1\frac{1}{2}} - 4d''\,^4F_{2\frac{1}{2}}$
1604.696	3	62317.10	$s^2\,^4P_{2\frac{1}{2}} - 5f\,^4D^\circ_{1\frac{1}{2}}$
1605.027	9	62304.25	$s^2\,^4P_{2\frac{1}{2}} - 5f\,^4F^\circ_{2\frac{1}{2}}$
1605.217	4	62296.87	
1605.744	35	62276.43	$s^2\,^4F_{4\frac{1}{2}} - x\,^4F^\circ_{4\frac{1}{2}}$
1605.795	3	62274.45	
1605.910	60	62269.99	
1606.280	12	62255.65	
1606.469	30	62248.32	
1606.695	8	62239.57	$4p\,^4F^\circ_{2\frac{1}{2}} - 6s\,^4F_{2\frac{1}{2}}$
1606.729	15	62238.25	
1606.902	18	62231.55	
1607.477	1	62209.29	
1607.849	20	62194.90	
1607.987	3	62189.56	
1608.134	60	62183.87	$s^2\,^4F_{1\frac{1}{2}} - t\,^2D^\circ_{1\frac{1}{2}}$
1608.177	80	62182.21	$4s\,^2G_{3\frac{1}{2}} - z\,^4F^\circ_{3\frac{1}{2}}$

TABLE I. *Lines of* Ni II – Continued

λ(vac)	Intensity	Wavenumber	Transition
1608.244	4	62179.62	
1608.358	30	62175.21	$s^2\,{}^4P_{1\frac{1}{2}} - t\,{}^4D^\circ_{1\frac{1}{2}}$
1608.442	25	62171.96	$s^2\,{}^4F_{2\frac{1}{2}} - x\,{}^4G^\circ_{3\frac{1}{2}}$
1608.708	1	62161.68	$4p'''\,{}^2F^\circ_{2\frac{1}{2}} - 9s\,{}^2F_{3\frac{1}{2}}$
1609.343	1	62137.16	
1609.474	12	62132.10	$4p''\,{}^2D^\circ_{2\frac{1}{2}} - 5d'\,{}^2D_{1\frac{1}{2}}$
1610.102	20	62107.87	$s^2\,{}^4P_{1\frac{1}{2}} - t\,{}^4D^\circ_{2\frac{1}{2}}$
1610.532	18	62091.28	$4p''\,{}^2D^\circ_{2\frac{1}{2}} - 6s''\,{}^2P_{1\frac{1}{2}}$
1611.061	8	62070.90	$s^2\,{}^4P_{1\frac{1}{2}} - 5f\,{}^2D^\circ_{2\frac{1}{2}}$
1611.079	6	62070.20	$s^2\,{}^2G_{3\frac{1}{2}} - v\,{}^4F^\circ_{3\frac{1}{2}}$
			$s^2\,{}^4F_{2\frac{1}{2}} - w\,{}^4D^\circ_{2\frac{1}{2}}$
1611.238	2	62064.08	
1611.390	25	62058.22	
1611.927	2	62037.55	
1612.163	1	62028.47	
1612.450	20	62017.43	$s^2\,{}^4P_{1\frac{1}{2}} - 5f\,{}^2P^\circ_{1\frac{1}{2}}$
1613.132	2	61991.21	$s^2\,{}^4F_{1\frac{1}{2}} - x\,{}^4F^\circ_{1\frac{1}{2}}$
			$s^2\,{}^4P_{1\frac{1}{2}} - 5f\,{}^4P^\circ_{0\frac{1}{2}}$
1613.216	60	61987.98	$s^2\,{}^2G_{3\frac{1}{2}} - w\,{}^2G^\circ_{4\frac{1}{2}}$
1613.820	20	61964.78	$s^2\,{}^4F_{1\frac{1}{2}} - x\,{}^4G^\circ_{2\frac{1}{2}}$
1613.949	1	61959.83	
1614.218	2	61949.50	
1614.495	10	61938.87	
1614.824	30	61926.25	
1614.911	90	61922.92	$4p\,{}^2G^\circ_{3\frac{1}{2}} - 6s\,{}^2F_{3\frac{1}{2}}$
1615.459	120	61901.91	$s^2\,{}^4P_{2\frac{1}{2}} - t\,{}^4D^\circ_{3\frac{1}{2}}$
1615.704	9	61892.52	
1616.387	15	61866.37	$4p''\,{}^2D^\circ_{1\frac{1}{2}} - 6s''\,{}^2P_{0\frac{1}{2}}$
1616.456	2	61863.73	
1616.536	25	61860.67	$s^2\,{}^4P_{0\frac{1}{2}} - t\,{}^4D^\circ_{0\frac{1}{2}}$
1616.917	25	61846.09	$s^2\,{}^4F_{3\frac{1}{2}} - x\,{}^4F^\circ_{3\frac{1}{2}}$
1616.993	2	61843.19	$4p''\,{}^2D^\circ_{2\frac{1}{2}} - 6s''\,{}^4P_{1\frac{1}{2}}$
1617.088	50	61839.55	
1617.144	40	61837.41	
1617.299	40	61831.49	$s^2\,{}^4F_{2\frac{1}{2}} - w\,{}^4D^\circ_{1\frac{1}{2}}$
			$s^2\,{}^4P_{1\frac{1}{2}} - t\,{}^4D^\circ_{2\frac{1}{2}}$
1618.950	20	61768.43	$s^2\,{}^2H_{5\frac{1}{2}} - w\,{}^2G^\circ_{4\frac{1}{2}}$
1619.193	1	61759.16	$s^2\,{}^2P_{1\frac{1}{2}} - 4f'''\,{}^4D^\circ_{1\frac{1}{2}}$
1619.395	6	61751.46	$s^2\,{}^2G_{3\frac{1}{2}} - v\,{}^4F^\circ_{2\frac{1}{2}}$
1619.607	7	61743.37	
1619.857	20	61733.84	
1619.964	6	61729.77	$s^2\,{}^2P_{1\frac{1}{2}} - 6f\,{}^2P^\circ_{1\frac{1}{2}}$
1619.989	5	61728.81	
1620.331	18	61715.79	
1620.428	1	61712.09	$s^2\,{}^2G_{3\frac{1}{2}} - w\,{}^2F^\circ_{3\frac{1}{2}}$
1620.842	3	61696.33	
1620.946	1	61692.37	$4p''\,{}^2D^\circ_{1\frac{1}{2}} - 5d'\,{}^2P_{1\frac{1}{2}}$
1621.460	40	61672.81	$4p''\,{}^2D^\circ_{2\frac{1}{2}} - 6s''\,{}^4P_{2\frac{1}{2}}$?
1621.880	6	61656.84	$4p\;{}^4F^\circ_{3\frac{1}{2}} - 6s\;{}^4F_{3\frac{1}{2}}$
1621.926	18	61655.09	$4s\,{}^4F_{2\frac{1}{2}} - 4p''\,{}^2D^\circ_{2\frac{1}{2}}$
1622.106	80	61648.25	
1622.164	2	61646.05	
1622.796	20	61622.04	$s^2\,{}^4P_{0\frac{1}{2}} - t\,{}^4D^\circ_{1\frac{1}{2}}$
1622.923	1	61617.22	
1622.981	1	61615.02	$4p\,{}^4D^\circ_{3\frac{1}{2}} - 4d'\,{}^2G_{4\frac{1}{2}}$
1624.084	60	61573.17	$s^2\,{}^2G_{3\frac{1}{2}} - 4f'\,{}^2H^\circ_{4\frac{1}{2}}$
1624.172	20	61569.83	$s^2\,{}^2G_{4\frac{1}{2}} - 7p\,{}^2G^\circ_{4\frac{1}{2}}$
1624.435	00	61559.87	
1624.773	16	61547.06	$s^2\,{}^4F_{3\frac{1}{2}} - x\,{}^4G^\circ_{4\frac{1}{2}}$
1625.233	25	61529.64	
1625.288	2	61527.56	$4p''\,{}^2D^\circ_{1\frac{1}{2}} - 5d'\,{}^2D_{1\frac{1}{2}}$
1626.161	12	61494.53	
1626.309	20	61488.93	$s^2\,{}^2P_{1\frac{1}{2}} - w\,{}^2P^\circ_{1\frac{1}{2}}$
1626.320	15	61488.51	
1626.366	6	61486.77	$4p''\,{}^2D^\circ_{1\frac{1}{2}} - 6s''\,{}^2P_{1\frac{1}{2}}$
1626.961	12	61464.29	$s^2\,{}^4P_{0\frac{1}{2}} - 5f\,{}^2P^\circ_{1\frac{1}{2}}$
1627.396	12	61447.86	$4s\,{}^4F_{3\frac{1}{2}} - 4p''\,{}^4D^\circ_{3\frac{1}{2}}$
1627.656	4	61438.04	$4p\,{}^2D^\circ_{1\frac{1}{2}} - 5d\,{}^4D_{2\frac{1}{2}}$
			$s^2\,{}^4P_{0\frac{1}{2}} - 5f\,{}^4P^\circ_{0\frac{1}{2}}$
1628.126	15	61420.31	$4p''\,{}^4P^\circ_{2\frac{1}{2}} - 7s\,{}^4F_{3\frac{1}{2}}$
1628.497	10	61406.31	$4s\,{}^2F_{2\frac{1}{2}} - 4p'''\,{}^2F^\circ_{2\frac{1}{2}}$
1628.726	15	61397.68	
1628.810	20	61394.51	$s^2\,{}^2H^\circ_{5\frac{1}{2}} - 9p\,{}^4F^\circ_{4\frac{1}{2}}$
1629.282	100	61376.73	$s^2\,{}^4F_{4\frac{1}{2}} - x\,{}^4G^\circ_{5\frac{1}{2}}$?
1629.445	11	61370.59	
1629.591	70	61365.09	$s^2\,{}^2P_{1\frac{1}{2}} - v\,{}^2D^\circ_{2\frac{1}{2}}$
1629.718	1	61360.31	$s^2\,{}^2G_{3\frac{1}{2}} - 4f'\,{}^2G^\circ_{4\frac{1}{2}}$
1630.130	20	61344.80	
1630.356	10	61336.30	
1631.024	25	61311.18	
1631.182	12	61305.24	$4s\,{}^4F_{3\frac{1}{2}} - 4p''\,{}^4D^\circ_{2\frac{1}{2}}$
1632.152	15	61268.80	
1632.171	30	61268.09	$s^2\,{}^4F_{1\frac{1}{2}} - w\,{}^4D^\circ_{1\frac{1}{2}}$
1632.416	1	61258.89	
1632.488	6	61256.19	$4p''\,{}^2P^\circ_{1\frac{1}{2}} - 6s''\,{}^2P_{0\frac{1}{2}}$
1632.960	2	61238.49	$4p''\,{}^2D^\circ_{1\frac{1}{2}} - 6s''\,{}^4P_{1\frac{1}{2}}$
1633.189	4	61229.90	
1633.625	10	61213.56	$4p\,{}^2F^\circ_{3\frac{1}{2}} - 6s\,{}^2F_{3\frac{1}{2}}$
1633.988	35	61199.96	
1635.070	30	61159.46	
1635.340	100	61149.36	
1636.068	1	61122.15	
1636.231	4	61116.06	$s^2\,{}^4F_{3\frac{1}{2}} - x\,{}^4F^\circ_{4\frac{1}{2}}$
1636.488	3	61106.47	$4p'\,{}^2D^\circ_{2\frac{1}{2}} - 6d\,{}^4D_{2\frac{1}{2}}$
1637.072	20	61084.67	
1637.140	2	61082.13	$4p''\,{}^2P^\circ_{1\frac{1}{2}} - 5d'\,{}^2P_{1\frac{1}{2}}$
1637.267	10	61077.39	
1637.439	100	61070.98	$s^2\,{}^2P_{1\frac{1}{2}} - w\,{}^2D^\circ_{1\frac{1}{2}}$
1637.509	20	61068.37	$4p''\,{}^2D^\circ_{1\frac{1}{2}} - 6s''\,{}^4P_{2\frac{1}{2}}$
1637.589	300	61065.38	$s^2\,{}^2G_{4\frac{1}{2}} - x\,{}^2H^\circ_{5\frac{1}{2}}$
1638.963	4	61014.19	$4s^2\,{}^4F_{2\frac{1}{2}} - x\,{}^4F^\circ_{3\frac{1}{2}}$
1639.987	8	60976.09	
1640.769	7	60947.03	$s^2\,{}^4P_{2\frac{1}{2}} - 5f\,{}^4D^\circ_{3\frac{1}{2}}$
1641.418	10	60922.93	$s^2\,{}^4P_{2\frac{1}{2}} - 5f\,{}^4P^\circ_{2\frac{1}{2}}$
1642.299	20	60890.25	
1642.324	40	60889.32	$s^2\,{}^2P_{1\frac{1}{2}} - w\,{}^2D^\circ_{2\frac{1}{2}}$
1642.351	15	60888.32	
1642.670	5	60876.50	$4p''\,{}^2P^\circ_{1\frac{1}{2}} - 6s''\,{}^2P_{1\frac{1}{2}}$
1642.739	2	60873.94	$4p\,{}^2D^\circ_{2\frac{1}{2}} - 6s\,{}^2F_{3\frac{1}{2}}$
1642.792	2	60871.98	$4p''\,{}^2P^\circ_{1\frac{1}{2}} - 6s''\,{}^4P_{0\frac{1}{2}}$
1643.271	80	60854.24	$s^2\,{}^2G_{3\frac{1}{2}} - x\,{}^2H^\circ_{4\frac{1}{2}}$
1643.334	20	60851.90	$s^2\,{}^4P_{2\frac{1}{2}} - 5f\,{}^4S^\circ_{1\frac{1}{2}}$
1644.040	14	60825.77	
1644.137	6	60822.18	$4p\,{}^2F^\circ_{2\frac{1}{2}} - 6s\,{}^2F_{2\frac{1}{2}}$
1645.654	0	60766.11	$4p\,{}^4D^\circ_{0\frac{1}{2}} - 4d''\,{}^4D_{1\frac{1}{2}}$
1647.637	10	60692.98	
1648.353	3	60666.62	
1648.381	1	60665.59	$s^2\,{}^4P_{1\frac{1}{2}} - 5f\,{}^4P^\circ_{1\frac{1}{2}}$
1649.396	13	60628.25	$4p''\,{}^2P^\circ_{1\frac{1}{2}} - 6s''\,{}^4P_{1\frac{1}{2}}$
1649.905	3	60609.55	$4p\,{}^2D^\circ_{1\frac{1}{2}} - 6s\,{}^2F_{2\frac{1}{2}}$

TABLE I. *Lines of* Ni II — Continued

λ(vac)	Intensity	Wavenumber	Transition
1650.412	14	60590.93	$4s\ ^4F_{2\frac{1}{2}} - 4p''\ ^4D^\circ_{1\frac{1}{2}}$
1650.636	4	60582.71	
1650.835	10	60575.41	$s^2\ ^4P_{1\frac{1}{2}} - 5f\ ^4S^\circ_{1\frac{1}{2}}$
1652.270	13	60522.80	
1652.355	3	60519.68	$4s\ ^4F_{2\frac{1}{2}} - 4p''\ ^4D^\circ_{2\frac{1}{2}}$
1652.477	3	60515.21	
1652.726	10	60506.10	
1652.839	15	60501.96	
1653.369	18	60482.57	
1653.687	10	60470.94	$s^2\ ^2G_{3\frac{1}{2}} - 7p\ ^2G^\circ_{4\frac{1}{2}}$
1653.779	10	60467.57	
1654.667	1	60435.12	
1655.749	1	60395.63	
1655.903	0	60390.01	$s^2\ ^2P_{1\frac{1}{2}} - s\ ^4D^\circ_{0\frac{1}{2}}$
1656.840	3	60355.86	$s^2\ ^2P_{1\frac{1}{2}} - 6f\ ^4P^\circ_{1\frac{1}{2}}$
1657.273	2	60340.09	
1657.313	10	60338.63	$4p''\ ^2P^\circ_{0\frac{1}{2}} - 6s''\ ^2P_{0\frac{1}{2}}$
1661.018	20	60204.04	
1662.063	3	60166.19	
1662.423	20	60153.16	
1662.892	25	60136.20	
1663.563	16	60111.94	$s^2\ ^2G_{4\frac{1}{2}} - l\ ^2G^\circ_{4\frac{1}{2}}$
1664.316	10	60084.74	$4s\ ^4F_{1\frac{1}{2}} - 4p''\ ^4D^\circ_{0\frac{1}{2}}$
1664.384	2	60082.29	$4p'''\ ^2G^\circ_{4\frac{1}{2}} - 6s'''\ ^2G_{4\frac{1}{2}}$
1664.459	8	60079.58	$s^2\ ^2P_{1\frac{1}{2}} - s\ ^4D^\circ_{2\frac{1}{2}}$
1665.477	4	60042.86	$4s\ ^4F_{1\frac{1}{2}} - 4p''\ ^4D^\circ_{1\frac{1}{2}}$
1665.860	1	60029.05	
1666.045	0	60022.39	$s^2\ ^4P_{0\frac{1}{2}} - 5f\ ^4S^\circ_{1\frac{1}{2}}$
1666.828	4	59994.19	$4p\ ^2F^\circ_{3\frac{1}{2}} - 6s\ ^4F_{3\frac{1}{2}}$
1667.930	4	59954.55	$4p''\ ^2P^\circ_{0\frac{1}{2}} - 6s''\ ^4P_{0\frac{1}{2}}$
1668.122	1	59947.65	$4p\ ^4D^\circ_{2\frac{1}{2}} - 4d'\ ^2F_{2\frac{1}{2}}$
1670.935	7	59846.73	$s^2\ ^2G_{4\frac{1}{2}} - 5f\ ^2H^\circ_{5\frac{1}{2}}$
1671.514	12	59826.00	$s^2\ ^2H_{4\frac{1}{2}} - 8p\ ^2G^\circ_{3\frac{1}{2}}$
1674.000	10	59737.16	$4s\ ^4F_{4\frac{1}{2}} - 4p'\ ^2F^\circ_{3\frac{1}{2}}$
1676.317	3	59654.59	$4p\ ^2D^\circ_{2\frac{1}{2}} - 6s\ ^4F_{3\frac{1}{2}}$
1676.671	2	59641.99	
1677.297	1	59619.73	$4p''\ ^2S^\circ_{0\frac{1}{2}} - 5d'\ ^2D_{1\frac{1}{2}}$
1678.447	5	59578.88	$4p''\ ^2S^\circ_{0\frac{1}{2}} - 6s''\ ^2P_{1\frac{1}{2}}$
1678.476	10	59577.85	$s^2\ ^4F_{3\frac{1}{2}} - y\ ^4G^\circ_{3\frac{1}{2}}$
1678.941	1	59561.35	$4p''\ ^4S^\circ_{1\frac{1}{2}} - 6s''\ ^2P_{1\frac{1}{2}}$
1679.068	7	59556.85	$4p''\ ^4S^\circ_{1\frac{1}{2}} - 6s''\ ^4P_{0\frac{1}{2}}$
1684.952	70	59348.87	$s^2\ ^2H_{5\frac{1}{2}} - v\ ^2G^\circ_{4\frac{1}{2}}$
1685.465	8	59330.81	$4p''\ ^2S^\circ_{0\frac{1}{2}} - 6s''\ ^4P_{1\frac{1}{2}}$
1685.965	9	59313.21	$4p''\ ^4S^\circ_{1\frac{1}{2}} - 6s''\ ^4P_{1\frac{1}{2}}$
1686.934	9	59279.14	
1690.814	12	59143.11	$4p''\ ^4S^\circ_{1\frac{1}{2}} - 6s''\ ^4P_{2\frac{1}{2}}$
1691.231	11	59128.53	
1693.177	10	59060.57	$s^2\ ^2D_{2\frac{1}{2}} - 6p'\ ^2F^\circ_{3\frac{1}{2}}$
1694.384	2	59018.50	$s^2\ ^2P_{1\frac{1}{2}} - 4f'\ ^2D^\circ_{2\frac{1}{2}}$
1695.594	8	58976.38	$s^2\ ^4F_{4\frac{1}{2}} - y\ ^4G^\circ_{4\frac{1}{2}}$
1695.897	1	58965.84	
1696.527	2	58943.95	
1698.400	4	58878.94	
1699.772	2	58831.42	
1700.665	1	58800.53	$s^2\ ^4F_{4\frac{1}{2}} - y\ ^4F^\circ_{3\frac{1}{2}}$
1701.504	2	58771.53	$4p\ ^2D^\circ_{2\frac{1}{2}} - 4d''\ ^2F_{2\frac{1}{2}}$
1702.150	1	58749.23	
1702.265	7	58745.26	$s^2\ ^4F_{2\frac{1}{2}} - y\ ^4G^\circ_{3\frac{1}{2}}$?
1703.408	25	58705.84	$3d\ ^2D_{2\frac{1}{2}} - 4p\ ^2D^\circ_{1\frac{1}{2}}$
1705.581	11	58631.05	
1705.739	8	58625.62	
1706.170	2	58610.81	
1708.386	25	58534.78	$s^2\ ^2H_{5\frac{1}{2}} - 8p\ ^4G^\circ_{4\frac{1}{2}}$
1708.570	1	58528.48	
1709.598	200	58493.28	$3d\ ^2D_{2\frac{1}{2}} - 4p\ ^2F^\circ_{2\frac{1}{2}}$
1710.032	3	58478.44	$s^2\ ^2G_{4\frac{1}{2}} - 5f\ ^4F^\circ_{5\frac{1}{2}}$
1713.285	2	58367.40	$s^2\ ^4F_{3\frac{1}{2}} - y\ ^4F^\circ_{2\frac{1}{2}}$
1716.148	1	58270.03	
1717.700	3	58217.38	$s^2\ ^2H_{4\frac{1}{2}} - 4f'''\ ^4D^\circ_{3\frac{1}{2}}$
1719.906	5	58142.71	$s^2\ ^2H_{4\frac{1}{2}} - 4f'''\ ^4G^\circ_{3\frac{1}{2}}$
1721.092	15	58102.65	$s^2\ ^4F_{4\frac{1}{2}} - y\ ^4F^\circ_{4\frac{1}{2}}$
1722.113	1	58068.20	$s^2\ ^2D_{2\frac{1}{2}} - 4f'''\ ^2F^\circ_{3\frac{1}{2}}$
1722.646	2	58050.23	$s^2\ ^2D_{2\frac{1}{2}} - w\ ^2P^\circ_{1\frac{1}{2}}$
1723.859	20	58009.38	$s^2\ ^2H_{4\frac{1}{2}} - v\ ^2G^\circ_{3\frac{1}{2}}$
1723.957	1	58006.09	
1724.818	1	57977.13	
1726.324	4	57926.55	$s^2\ ^2D_{2\frac{1}{2}} - v\ ^2D^\circ_{2\frac{1}{2}}$
1728.022	1	57869.63	
1728.133	2	57865.92	
1728.625	6	57849.45	
1732.620	1	57716.06	
1734.904	8	57640.08	$s^2\ ^4F_{3\frac{1}{2}} - y\ ^4F^\circ_{3\frac{1}{2}}$
1735.135	5	57632.40	$s^2\ ^2D_{2\frac{1}{2}} - w\ ^2D^\circ_{1\frac{1}{2}}$
1738.059	3	57535.45	$s^2\ ^4F_{2\frac{1}{2}} - y\ ^4F^\circ_{2\frac{1}{2}}$
1738.311	12	57527.10	$4p''\ ^2D^\circ_{2\frac{1}{2}} - 6d\ ^4D_{3\frac{1}{2}}$
1738.549	1	57519.23	$s^2\ ^4F_{1\frac{1}{2}} - y\ ^4F^\circ_{1\frac{1}{2}}$
1738.793	4	57511.16	$s^2\ ^2H_{5\frac{1}{2}} - 6f\ ^4I^\circ_{6\frac{1}{2}}$
1740.619	30	57450.83	$s^2\ ^2D_{2\frac{1}{2}} - w\ ^2D^\circ_{2\frac{1}{2}}$
1741.547	1000	57420.21	$3d\ ^2D_{2\frac{1}{2}} - 4p\ ^2D^\circ_{2\frac{1}{2}}$
1746.989	1	57241.34	$4s\ ^4F_{3\frac{1}{2}} - 4p''\ ^4P^\circ_{2\frac{1}{2}}$
1748.285	500	57198.91	$3d\ ^2D_{1\frac{1}{2}} - 4p\ ^2D^\circ_{1\frac{1}{2}}$
1751.911	300	57080.52	$3d\ ^2D_{2\frac{1}{2}} - 4p\ ^2F^\circ_{3\frac{1}{2}}$
1754.808	50	56986.29	$3d\ ^2D_{1\frac{1}{2}} - 4p\ ^2F^\circ_{2\frac{1}{2}}$
1756.829	2	56920.74	
1763.097	1	56718.38	$s^2\ ^2H_{5\frac{1}{2}} - w\ ^2G^\circ_{4\frac{1}{2}}$
1769.940	2	56499.09	$s^2\ ^2G_{4\frac{1}{2}} - 5p'''\ ^2H^\circ_{5\frac{1}{2}}$
1771.865	4	56437.71	$s^2\ ^2G_{3\frac{1}{2}} - 5p'''\ ^2G^\circ_{3\frac{1}{2}}$
1772.197	1	56427.13	$s^2\ ^2D_{1\frac{1}{2}} - w\ ^2P^\circ_{1\frac{1}{2}}$
1773.949	25	56371.41	$3d\ ^2D_{2\frac{1}{2}} - 4p\ ^2G^\circ_{3\frac{1}{2}}$
1783.317	1	56075.28	$3d\ ^2D_{2\frac{1}{2}} - 4p\ ^4F^\circ_{2\frac{1}{2}}$
1788.485	100	55913.24	$3d\ ^2D_{1\frac{1}{2}} - 4p\ ^2D^\circ_{2\frac{1}{2}}$
1789.640	1	55877.16	
1791.219	1	55827.90	$s^2\ ^2D_{1\frac{1}{2}} - w\ ^2D^\circ_{2\frac{1}{2}}$
1804.451	1	55418.52	
1804.473	30	55417.84	$3d\ ^2D_{2\frac{1}{2}} - 4p\ ^4F^\circ_{3\frac{1}{2}}$
1808.330	2	55299.64	$4p\ ^2D^\circ_{2\frac{1}{2}} - 4d'\ ^2F_{3\frac{1}{2}}$
1812.065	30	55185.66	$4s\ ^2F_{3\frac{1}{2}} - 4p'\ ^2D^\circ_{2\frac{1}{2}}$
1817.112	1	55032.38	
1820.916	1	54917.42	$3d\ ^2D_{1\frac{1}{2}} - 4p\ ^4F^\circ_{1\frac{1}{2}}$
1825.068	1	54792.48	$s^2\ ^4F_{4\frac{1}{2}} - 5p\ ^2F^\circ_{3\frac{1}{2}}$
1832.144	1	54580.86	$4s\ ^2F_{3\frac{1}{2}} - 4p'\ ^2F^\circ_{3\frac{1}{2}}$
1832.566	1	54568.29	$3d\ ^2D_{1\frac{1}{2}} - 4p\ ^4F^\circ_{2\frac{1}{2}}$
1833.403	5	54543.38	$s^2\ ^4F_{4\frac{1}{2}} - 5p\ ^2G^\circ_{4\frac{1}{2}}$
1837.744	1	54414.54	$s^2\ ^4F_{3\frac{1}{2}} - 5p\ ^2G^\circ_{3\frac{1}{2}}$
1837.985	2	54407.41	
1842.889	1	54262.63	$3d\ ^2D_{2\frac{1}{2}} - 4p\ ^4G^\circ_{3\frac{1}{2}}$
1852.522	2	53980.47	$4p\ ^2D^\circ_{1\frac{1}{2}} - 4d'\ ^2F_{2\frac{1}{2}}$
1852.875	2	53970.18	$4s\ ^2F_{2\frac{1}{2}} - 4p'\ ^2P^\circ_{1\frac{1}{2}}$
1857.587	6	53833.28	
1860.689	1	53743.53	$s^2\ ^2H_{5\frac{1}{2}} - 7p\ ^4F^\circ_{4\frac{1}{2}}$

TABLE I. *Lines of* Ni II — Continued

λ(vac)	Intensity	Wavenumber	Transition
1860.796	1	53740.44	$4s\,^2F_{2\frac{1}{2}} - 4p'\,^2D^\circ_{2\frac{1}{2}}$
1864.558	6	53632.01	$s^2\,^4F_{3\frac{1}{2}} - 5p\,^2F^\circ_{3\frac{1}{2}}$
1865.637	5	53601.00	$s^2\,^4F_{4\frac{1}{2}} - 5p\,^4F^\circ_{3\frac{1}{2}}$
1866.499	5	53576.24	$s^2\,^4P_{2\frac{1}{2}} - 5p''\,^4S^\circ_{1\frac{1}{2}}$
1870.460	8	53462.78	$s^2\,^4F_{3\frac{1}{2}} - 5p\,^4F^\circ_{2\frac{1}{2}}$
1875.069	3	53331.37	$s^2\,^4F_{2\frac{1}{2}} - 5p\,^4F^\circ_{1\frac{1}{2}}$
1876.180	1	53299.79	$s^2\,^4P_{1\frac{1}{2}} - 5p''\,^4S^\circ_{1\frac{1}{2}}$
1876.418	2	53293.03	$s^2\,^4F_{3\frac{1}{2}} - 5p\,^4G^\circ_{3\frac{1}{2}}$
1877.838	40	53252.73	$s^2\,^4F_{4\frac{1}{2}} - 5p\,^4G^\circ_{4\frac{1}{2}}$
1878.103	2	53245.22	$s^2\,^4F_{2\frac{1}{2}} - 5p\,^4G^\circ_{2\frac{1}{2}}$
1881.155	25	53158.83	$4s\,^2F_{2\frac{1}{2}} - 4p'\,^2D^\circ_{1\frac{1}{2}}$
1883.170	4	53101.95	$s^2\,^4F_{4\frac{1}{2}} - 5p\,^4G^\circ_{5\frac{1}{2}}$
1885.525	20	53035.63	$s^2\,^4F_{4\frac{1}{2}} - 5p\,^4F^\circ_{4\frac{1}{2}}$
1886.043	12	53021.06	$4s\,^2F_{3\frac{1}{2}} - 4p''\,^4P^\circ_{2\frac{1}{2}}$
1893.600	1	52809.46	$4s'\,^2D_{2\frac{1}{2}} - 4p'''\,^2F^\circ_{3\frac{1}{2}}$
1895.082	6	52768.17	$s^2\,^4F_{1\frac{1}{2}} - 5p\,^4F^\circ_{1\frac{1}{2}}$
1896.147	2	52738.53	$3d\,^2D_{2\frac{1}{2}} - 4p\,^4D^\circ_{2\frac{1}{2}}$
1900.025	4	52630.89	$s^2\,^4F_{2\frac{1}{2}} - 5p\,^4F^\circ_{2\frac{1}{2}}$
1900.865	15	52607.63	$s^2\,^4F_{4\frac{1}{2}} - 5p\,^4D^\circ_{3\frac{1}{2}}$
1900.921	2	52606.08	$4s'\,^2D_{1\frac{1}{2}} - 4p'''\,^2F^\circ_{2\frac{1}{2}}$
1907.612	1	52421.56	$s^2\,^4F_{1\frac{1}{2}} - 5p\,^4D^\circ_{0\frac{1}{2}}$
1908.326	1	52401.95	$s^2\,^4F_{2\frac{1}{2}} - 5p\,^4D^\circ_{1\frac{1}{2}}$
1912.146	2	52297.26	$s^2\,^4F_{3\frac{1}{2}} - 5p\,^4D^\circ_{2\frac{1}{2}}$
1920.582	1	52067.55	$s^2\,^4F_{1\frac{1}{2}} - 5p\,^4F^\circ_{2\frac{1}{2}}$
1927.707	2	51875.10	$s^2\,^4F_{3\frac{1}{2}} - 5p\,^4F^\circ_{4\frac{1}{2}}$
1929.063	1	51838.64	$s^2\,^4F_{1\frac{1}{2}} - 5p\,^4D^\circ_{1\frac{1}{2}}$
1930.493	1	51800.24	
1937.661	1	51608.61	$s^2\,^4F_{2\frac{1}{2}} - 5p\,^4F^\circ_{3\frac{1}{2}}$
1938.579	2	51584.18	$4s\,^2F_{2\frac{1}{2}} - 4p''\,^4P^\circ_{1\frac{1}{2}}$
1939.901	10	51549.02	
1943.060	2	51465.21	$s^2\,^4F_{2\frac{1}{2}} - 5p\,^4D^\circ_{2\frac{1}{2}}$
1943.744	2	51447.10	$s^2\,^4F_{3\frac{1}{2}} - 5p\,^4D^\circ_{3\frac{1}{2}}$
1953.407	40	51192.61	$4s'\,^2D_{2\frac{1}{2}} - 4p''\,^4S^\circ_{1\frac{1}{2}}$
1954.709	1	51158.51	$s^2\,^2H_{5\frac{1}{2}} - 5p'''\,^2G^\circ_{4\frac{1}{2}}$
1965.357	8	50881.34	$4s''\,^4P_{2\frac{1}{2}} - 4p'''\,^2F^\circ_{3\frac{1}{2}}$
1980.010	15	50504.80	$4s'\,^2D_{1\frac{1}{2}} - 4p''\,^4S^\circ_{1\frac{1}{2}}$
1980.699	3	50487.23	$4s'\,^2D_{1\frac{1}{2}} - 4p''\,^2S^\circ_{0\frac{1}{2}}$
1993.570	2	50161.27	$4p''\,^4P^\circ_{2\frac{1}{2}} - 4d''\,^4P_{2\frac{1}{2}}$
1993.906	1	50152.82	$4p''\,^4P^\circ_{1\frac{1}{2}} - 4d''\,^4P_{2\frac{1}{2}}$
1995.723	15	50107.15	$4s'\,^2D_{1\frac{1}{2}} - 4p''\,^2P^\circ_{0\frac{1}{2}}$
2004.123	3	49897.14	$4p''\,^4P^\circ_{2\frac{1}{2}} - 4d''\,^2D_{1\frac{1}{}}$
2004.460	1	49888.75	$4p''\,^4P^\circ_{1\frac{1}{2}} - 4d''\,^2D_{1\frac{1}{2}}$
2004.914	50	49877.45	$4s'\,^2D_{2\frac{1}{2}} - 4p''\,^2P^\circ_{1\frac{1}{2}}$
2010.411	2	49741.07	$4p''\,^4P^\circ_{2\frac{1}{2}} - 4d''\,^4P_{1\frac{1}{2}}$
2012.797	4	49682.11	$4p''\,^4P^\circ_{1\frac{1}{2}} - 4d''\,^4P_{0\frac{1}{2}}$
2015.648	2	49611.84	$4p''\,^4P^\circ_{1\frac{1}{2}} - 4d''\,^2F_{2\frac{1}{2}}$
2019.683	50	49512.72	$4s''\,^4P_{1\frac{1}{2}} - 4p''\,^4S^\circ_{1\frac{1}{2}}$
2020.399	5	49495.17	$4s''\,^4P_{1\frac{1}{2}} - 4p''\,^2S^\circ_{0\frac{1}{2}}$
2021.632	50	49464.99	$4s''\,^4P_{0\frac{1}{2}} - 4p''\,^4S^\circ_{1\frac{1}{2}}$
2028.787	3	49290.54	$4p''\,^4P^\circ_{1\frac{1}{2}} - 4d''\,^2D_{2\frac{1}{2}}$
2029.165	6	49281.35	$4p''\,^4P^\circ_{0\frac{1}{2}} - 4d''\,^4P_{1\frac{1}{2}}$
2029.750	2	49267.15	$4s'\,^2D_{2\frac{1}{2}} - 4p''\,^2D^\circ_{1\frac{1}{2}}$
2029.859	50	49264.51	$4s''\,^4P_{2\frac{1}{2}} - 4p''\,^4S^\circ_{1\frac{1}{2}}$
2032.957	25	49189.43	$4s'\,^2D_{1\frac{1}{2}} - 4p''\,^2P^\circ_{1\frac{1}{2}}$
2034.045	3	49163.12	$4s\,^4F_{3\frac{1}{2}} - 4p\,^2F^\circ_{2\frac{1}{2}}$
2036.040	2	49114.95	$4s''\,^4P_{1\frac{1}{2}} - 4p''\,^2P^\circ_{0\frac{1}{2}}$
2038.264	2	49061.36	$4p\,^4D^\circ_{3\frac{1}{2}} - 4d\,^2G_{4\frac{1}{2}}$

TABLE I. *Lines of* Ni II

λ(air)	Intensity	Wavenumber	Transition
2050.355	1	48756.42	
2053.300	5	48686.50	$4s\ ^4F_{4\frac{1}{2}} - 4p\ ^2F^\circ_{3\frac{1}{2}}$
2054.313	20	48662.49	$4s'\ ^2D_{2\frac{1}{2}} - 4p''\ ^2D^\circ_{2\frac{1}{2}}$
2055.579	1	48632.52	$4p'\ ^2D^\circ_{1\frac{1}{2}} - 4d''\ ^2P_{0\frac{1}{2}}$
2057.376	1	48590.05	$4s\ ^4F_{2\frac{1}{2}} - 4p\ ^2D^\circ_{1\frac{1}{2}}$
2057.480	0	48587.60	$4p\ ^2D^\circ_{2\frac{1}{2}} - 5s'\ ^2D_{2\frac{1}{2}}$
2057.838	1	48579.14	$4s'\ ^2D_{1\frac{1}{2}} - 4p''\ ^2D^\circ_{1\frac{1}{2}}$
2060.820	0	48508.86	$4p\ ^4D^\circ_{2\frac{1}{2}} - 4d\ ^2F_{2\frac{1}{2}}$
2064.225	2	48428.85	
2066.417	3	48377.49	$4s\ ^4F_{2\frac{1}{2}} - 4p\ ^2F^\circ_{2\frac{1}{2}}$
2067.049	5	48362.70	$4p''\ ^4P^\circ_{1\frac{1}{2}} - 4d''\ ^4D_{1\frac{1}{2}}$
2069.130	1	48314.06	$4p'\ ^2P^\circ_{1\frac{1}{2}} - 4d''\ ^2D_{1\frac{1}{2}}$
2069.579	6	48303.58	$4p''\ ^4P^\circ_{2\frac{1}{2}} - 4d''\ ^4D_{2\frac{1}{2}}$
2069.940	18	48295.16	$4p''\ ^4P^\circ_{1\frac{1}{2}} - 4d''\ ^4D_{2\frac{1}{2}}$
2071.220	30	48265.32	$4p''\ ^4P^\circ_{2\frac{1}{2}} - 4d''\ ^4D_{3\frac{1}{2}}$
2074.138	1	48197.43	$4s''\ ^4P_{1\frac{1}{2}} - 4p''\ ^2P^\circ_{1\frac{1}{2}}$
2078.016	3	48107.49	$4p'\ ^2D^\circ_{1\frac{1}{2}} - 4d''\ ^4P_{0\frac{1}{2}}$
2079.174	30	48080.70	
2080.850	20	48041.98	$4s\ ^4F_{1\frac{1}{2}} - 4p\ ^2D^\circ_{1\frac{1}{2}}$
2081.338	2	48030.72	$4p'\ ^2P^\circ_{0\frac{1}{2}} - 4d''\ ^4P_{1\frac{1}{2}}$
2082.605	4	48001.50	$4p\ ^4D^\circ_{3\frac{1}{2}} - 4d\ ^4D_{2\frac{1}{2}}$
2083.649	1	47977.45	$4s\ ^4F_{4\frac{1}{2}} - 4p\ ^2G^\circ_{3\frac{1}{2}}$
2083.770	5	47974.67	$4s'\ ^2D_{1\frac{1}{2}} - 4p''\ ^2D^\circ_{2\frac{1}{2}}$
2084.875	30	47949.24	$4s''\ ^4P_{2\frac{1}{2}} - 4p''\ ^2P^\circ_{1\frac{1}{2}}$
2085.315	25	47939.13	$4p''\ ^4P^\circ_{0\frac{1}{2}} - 4d''\ ^4D_{0\frac{1}{2}}$
2085.654	50	47931.34	
2086.519	20	47911.47	$4p''\ ^4P^\circ_{0\frac{1}{2}} - 4d''\ ^4D_{1\frac{1}{2}}$
2087.672	7	47885.01	$4p\ ^4D^\circ_{3\frac{1}{2}} - 4d\ ^4G_{4\frac{1}{2}}$
2088.212	1	47872.63	$4p'\ ^2P^\circ_{1\frac{1}{2}} - 4d''\ ^2P_{1\frac{1}{2}}$
2089.000	35	47854.57	$4p\ ^4D^\circ_{2\frac{1}{2}} - 4d\ ^4G_{3\frac{1}{2}}$
2090.103	15	47829.32	$4s\ ^4F_{1\frac{1}{2}} - 4p\ ^2F^\circ_{2\frac{1}{2}}$
2092.142	3	47782.71	$4p\ ^4D^\circ_{3\frac{1}{2}} - 4d\ ^4F_{3\frac{1}{2}}$
2092.840	3	47766.78	$4p'\ ^2P^\circ_{1\frac{1}{2}} - 4d''\ ^4P_{2\frac{1}{2}}$
2093.466	15	47752.50	$4p\ ^4D^\circ_{2\frac{1}{2}} - 4d\ ^4D_{1\frac{1}{2}}$
2093.555	20	47750.47	$4s\ ^4F_{3\frac{1}{2}} - 4p\ ^2F^\circ_{3\frac{1}{2}}$
2094.128	15	47737.40	$4p\ ^4D^\circ_{2\frac{1}{2}} - 4d\ ^2F_{3\frac{1}{2}}$
2094.348	1	47732.39	$4p'\ ^2D^\circ_{2\frac{1}{2}} - 4d''\ ^2D_{1\frac{1}{2}}$
2094.388	7	47731.48	$4p\ ^4D^\circ_{1\frac{1}{2}} - 4d\ ^4G_{2\frac{1}{2}}$
2095.852	1	47698.14	$4p'''\ ^2H^\circ_{4\frac{1}{2}} - 4d'''\ ^2G_{3\frac{1}{2}}$
2096.306	0	47687.81	$4p'''\ ^2H^\circ_{4\frac{1}{2}} - 4d'''\ ^2G_{4\frac{1}{2}}$
2097.094	200	47669.90	$4s'\ ^2D_{2\frac{1}{2}} - 4p''\ ^4D^\circ_{3\frac{1}{2}}$
2098.368	10	47640.96	$4p'''\ ^2H^\circ_{4\frac{1}{2}} - 4d'''\ ^2H_{4\frac{1}{2}}$
2099.150	0	47623.21	$4p\ ^4D^\circ_{1\frac{1}{2}} - 4d\ ^4F_{1\frac{1}{2}}$?
2099.614	12	47612.69	$4p\ ^4D^\circ_{1\frac{1}{2}} - 4d\ ^2F_{2\frac{1}{2}}$
2099.668	6	47611.46	$4p\ ^4D^\circ_{1\frac{1}{2}} - 4d\ ^2P_{0\frac{1}{2}}$
2099.925	13	47605.64	
2100.240	3	47598.50	$4s'\ ^2D_{2\frac{1}{2}} - 4p''\ ^4D^\circ_{1\frac{1}{2}}$
2100.308	60	47596.96	$4p\ ^4D^\circ_{3\frac{1}{2}} - 4d\ ^4F_{4\frac{1}{2}}$
2101.218	3	47576.35	$4p'\ ^2D^\circ_{2\frac{1}{2}} - 4d''\ ^4P_{1\frac{1}{2}}$
2102.849	1	47539.45	$4s''\ ^4P_{0\frac{1}{2}} - 4p''\ ^2D^\circ_{1\frac{1}{2}}$
2103.392	20	47527.18	$4s'\ ^2D_{2\frac{1}{2}} - 4p''\ ^4D^\circ_{2\frac{1}{2}}$
2106.937	0	47447.22	
2107.826	1	47427.21	$4p\ ^2D^\circ_{1\frac{1}{2}} - 5s'\ ^2D_{1\frac{1}{2}}$
2107.954	200	47424.33	$4s'''\ ^2G_{4\frac{1}{2}} - 4p'''\ ^2G^\circ_{4\frac{1}{2}}$
2109.023	18	47400.30	$4s'''\ ^2G_{3\frac{1}{2}} - 4p'''\ ^2G^\circ_{4\frac{1}{2}}$
2111.418	2	47346.54	$4p'\ ^2P^\circ_{1\frac{1}{2}} - 4d''\ ^4P_{1\frac{1}{2}}$
2112.450	50	47323.41	$4s'''\ ^2G_{4\frac{1}{2}} - 4p'''\ ^2G^\circ_{3\frac{1}{2}}$
2113.300	0	47304.38	$4s\ ^4F_{2\frac{1}{2}} - 4p\ ^2D^\circ_{2\frac{1}{2}}$
2113.579	300	47298.13	$4s'''\ ^2G_{3\frac{1}{2}} - 4p'''\ ^2G^\circ_{3\frac{1}{2}}$
2113.674	4	47296.01	$4p'\ ^2P^\circ_{1\frac{1}{2}} - 4d''\ ^4P_{0\frac{1}{2}}$
2115.176	3	47262.43	
2116.228	0	47238.94	$4p\ ^4F^\circ_{1\frac{1}{2}} - 4d\ ^2D_{1\frac{1}{2}}$
2116.818	1	47225.77	$4p'\ ^2P^\circ_{1\frac{1}{2}} - 4d''\ ^2F_{2\frac{1}{2}}$
2117.494	1	47210.70	$4p\ ^4D^\circ_{1\frac{1}{2}} - 4d\ ^4D_{0\frac{1}{2}}$
2118.863	2	47180.20	$4p'\ ^2F^\circ_{2\frac{1}{2}} - 4d''\ ^4D_{2\frac{1}{2}}$
2120.582	6	47141.96	$4p'\ ^2F^\circ_{2\frac{1}{2}} - 4d''\ ^4D_{3\frac{1}{2}}$
2120.915	0	47134.56	$4p'\ ^2D^\circ_{2\frac{1}{2}} - 4d''\ ^2D_{2\frac{1}{2}}$
2121.769	1	47115.59	$4p'''\ ^2H^\circ_{5\frac{1}{2}} - 4d'''\ ^2G_{4\frac{1}{2}}$
2121.995	0	47110.57	$4p\ ^4G^\circ_{4\frac{1}{2}} - 4d\ ^2F_{3\frac{1}{2}}$
2122.474	25	47099.94	$4p'''\ ^2H^\circ_{5\frac{1}{2}} - 4d'''\ ^2H_{5\frac{1}{2}}$
2122.590	2	47097.36	
2122.720	0	47094.48	$4p\ ^4G^\circ_{3\frac{1}{2}} - 4d\ ^2H_{4\frac{1}{2}}$
2123.298	50	47081.66	$4p\ ^4D^\circ_{0\frac{1}{2}} - 4d\ ^4F_{1\frac{1}{2}}$
2123.836	3	47069.74	$4p\ ^4D^\circ_{0\frac{1}{2}} - 4d\ ^2P_{0\frac{1}{2}}$
2125.030	10	47043.29	$4p''\ ^4P^\circ_{1\frac{1}{2}} - 4d'\ ^2S_{0\frac{1}{2}}$
2125.122	40	47041.26	$4s\ ^4F_{3\frac{1}{2}} - 4p\ ^2G^\circ_{3\frac{1}{2}}$
			$6s\ ^4F_{4\frac{1}{2}} - 6p''\ ^4D^\circ_{3\frac{1}{2}}$
2125.914	25	47023.73	$4s\ ^4F_{4\frac{1}{2}} - 4p\ ^4F^\circ_{3\frac{1}{2}}$
2126.838	300	47003.31	$4p\ ^4D^\circ_{3\frac{1}{2}} - 4d\ ^4P_{2\frac{1}{2}}$
2127.685	1	46984.60	$4p\ ^4G^\circ_{3\frac{1}{2}} - 4d\ ^2F_{2\frac{1}{2}}$
2127.777	40	46982.57	$4s''\ ^4P_{1\frac{1}{2}} - 4p''\ ^2D^\circ_{2\frac{1}{2}}$
2128.583	70	46964.78	$4s\ ^4F_{2\frac{1}{2}} - 4p\ ^2F^\circ_{3\frac{1}{2}}$
2129.061	1	46954.23	$4p'\ ^2F^\circ_{3\frac{1}{2}} - 5s'''\ ^2G_{3\frac{1}{2}}$
2129.141	3	46952.47	$4s'\ ^2D_{1\frac{1}{2}} - 4p''\ ^4D^\circ_{0\frac{1}{2}}$
2129.523	8	46944.05	$4p\ ^4G^\circ_{4\frac{1}{2}} - 4d\ ^2H_{5\frac{1}{2}}$
2130.172	0	46929.75	$4p'''\ ^2F^\circ_{3\frac{1}{2}} - 4d'''\ ^2G_{3\frac{1}{2}}$
2130.628	3	46919.71	$4p'''\ ^2F^\circ_{3\frac{1}{2}} - 4d'''\ ^2G_{4\frac{1}{2}}$
2131.046	60	46910.50	$4s'\ ^2D_{1\frac{1}{2}} - 4p''\ ^4D^\circ_{1\frac{1}{2}}$
2131.099	300	46909.34	$4p\ ^4D^\circ_{3\frac{1}{2}} - 4d\ ^4D_{3\frac{1}{2}}$
2131.265	35	46905.68	$4s\ ^4F_{4\frac{1}{2}} - 4p\ ^2G^\circ_{4\frac{1}{2}}$
2131.370	1	46903.37	
2132.353	1	46881.75	$4p\ ^4G^\circ_{3\frac{1}{2}} - 4d\ ^4H_{3\frac{1}{2}}$?
2133.517	50	46856.18	$4p\ ^4D^\circ_{1\frac{1}{2}} - 4d\ ^4D_{1\frac{1}{2}}$
2134.289	50	46839.23	$4s'\ ^2D_{1\frac{1}{2}} - 4p''\ ^4D^\circ_{2\frac{1}{2}}$
2134.375	10	46837.35	$4p''\ ^4P^\circ_{2\frac{1}{2}} - 4d'\ ^2P_{1\frac{1}{2}}$
2134.441	15	46835.90	$4p''\ ^4P^\circ_{2\frac{1}{2}} - 4d'\ ^2D_{2\frac{1}{2}}$
2134.760	20	46828.90	$4p''\ ^4P^\circ_{1\frac{1}{2}} - 4d'\ ^2P_{1\frac{1}{2}}$
2135.127	250	46820.85	$4p\ ^4D^\circ_{2\frac{1}{2}} - 4d\ ^4D_{2\frac{1}{2}}$
2136.622	10	46788.09	$4p'\ ^2D^\circ_{1\frac{1}{2}} - 4d''\ ^4D_{1\frac{1}{2}}$
2138.143	25	46754.81	$4p\ ^4D^\circ_{1\frac{1}{2}} - 4d\ ^4F_{2\frac{1}{2}}$
2138.582	50	46745.22	$4s\ ^4F_{3\frac{1}{2}} - 4p\ ^4F^\circ_{2\frac{1}{2}}$
2139.085	0	46734.23	$4s''\ ^4P_{2\frac{1}{2}} - 4p''\ ^2D^\circ_{2\frac{1}{2}}$
2139.668	1	46721.49	$4p\ ^4G^\circ_{2\frac{1}{2}} - 4d\ ^2G_{3\frac{1}{2}}$
2139.710	20	46720.58	$4p'\ ^2D^\circ_{1\frac{1}{2}} - 4d''\ ^4D_{2\frac{1}{2}}$
2141.184	12	46688.42	$4p'\ ^2P^\circ_{0\frac{1}{2}} - 4d''\ ^4D_{0\frac{1}{2}}$
2142.069	40	46669.13	$4p\ ^4D^\circ_{0\frac{1}{2}} - 4d\ ^4D_{0\frac{1}{2}}$
2142.453	3	46660.77	$4p'\ ^2P^\circ_{0\frac{1}{2}} - 4d''\ ^4D_{1\frac{1}{2}}$
2143.165	20	46645.27	$4p''\ ^4P^\circ_{1\frac{1}{2}} - 4d'\ ^2P_{0\frac{1}{2}}$
2144.958	1	46606.28	$4p''\ ^4P^\circ_{2\frac{1}{2}} - 4d'\ ^2G_{3\frac{1}{2}}$
2145.152	30	46602.07	$4p\ ^4D^\circ_{2\frac{1}{2}} - 4d\ ^4F_{3\frac{1}{2}}$
2145.609	2	46592.14	$4p''\ ^4P^\circ_{0\frac{1}{2}} - 5d'\ ^2S_{0\frac{1}{2}}$
2152.381	4	46445.57	$4p'''\ ^2F^\circ_{2\frac{1}{2}} - 4d'''\ ^2G_{3\frac{1}{2}}$
2152.449	16	46444.10	$4p\ ^4D^\circ_{1\frac{1}{2}} - 4d\ ^2P_{1\frac{1}{2}}$
2155.635	35	46375.46	$4p\ ^4D^\circ_{1\frac{1}{2}} - 4d\ ^4P_{0\frac{1}{2}}$
2156.512	8	46356.61	$4p\ ^4G^\circ_{3\frac{1}{2}} - 4d\ ^2G_{4\frac{1}{2}}$
2156.941	25	46347.39	$4p\ ^4G^\circ_{2\frac{1}{2}} - 4d\ ^4G_{2\frac{1}{2}}$
2157.490	1	46335.59	$4p''\ ^4P^\circ_{2\frac{1}{2}} - 4d'\ ^2D_{1\frac{1}{2}}$
2157.736	18	46330.31	$4p\ ^4G^\circ_{3\frac{1}{2}} - 4d\ ^4G_{3\frac{1}{2}}$
2157.882	20	46327.18	$4p''\ ^4P^\circ_{1\frac{1}{2}} - 4d'\ ^2D_{1\frac{1}{2}}$
2158.467	5	46314.62	$4p\ ^4D^\circ_{0\frac{1}{2}} - 4d\ ^4D_{1\frac{1}{2}}$
2158.741	50	46308.75	$4s\ ^4F_{3\frac{1}{2}} - 4p\ ^4F^\circ_{1\frac{1}{2}}$
2159.043	100	46302.27	$4p\ ^4D^\circ_{2\frac{1}{2}} - 4d\ ^4P_{1\frac{1}{2}}$

TABLE I. *Lines of* Ni II – Continued

λ(air)	Intensity	Wavenumber	Transition
2159.698	25	46288.23	$4p'''\,{}^2H^\circ_{41/2} - 4d'''\,{}^2I_{51/2}$
2161.217	80	46255.70	$4s\,{}^4F_{21/2} - 4p\,{}^2G^\circ_{31/2}$
2161.792	18	46243.40	$4p\,{}^2D^\circ_{21/2} - 4d\,{}^2D_{11/2}$
2161.984	11	46239.29	$4p\,{}^4G^\circ_{21/2} - 4d\,{}^4F_{11/2}$
2162.481	18	46228.66	$4p\,{}^4G^\circ_{21/2} - 4d\,{}^2F_{21/2}$
2163.208	50	46213.13	$4p\,{}^4G^\circ_{31/2} - 4d\,{}^2F_{31/2}$
2163.521	1	46206.44	$4p'\,{}^2D^\circ_{21/2} - 4d''\,{}^4D_{11/2}$
2164.102	10	46194.04	$4p''\,{}^4P^\circ_{01/2} - 4d'\,{}^2P_{01/2}$
2165.278	30	46168.95	$4p'''\,{}^2F^\circ_{31/2} - 4d'''\,{}^2F_{31/2}$
2165.553	1000	46163.09	$4s\,{}^4F_{41/2} - 4p\,{}^4F^\circ_{41/2}$
2166.242	70	46148.41	$4p''\,{}^4P^\circ_{21/2} - 4d'\,{}^2F_{31/2}$
2166.688	25	46138.91	$4p'\,{}^2D^\circ_{21/2} - 4d''\,{}^4D_{21/2}$
2167.256	30	46126.82	$4p\,{}^4G^\circ_{31/2} - 4d\,{}^4F_{21/2}$
2167.299	150	46125.91	$4p\,{}^4G^\circ_{21/2} - 4d\,{}^4H_{31/2}$
2167.815	50	46114.93	$4p''\,{}^4P^\circ_{21/2} - 4d'\,{}^2F_{21/2}$
2168.212	50	46106.48	$4p''\,{}^4P^\circ_{11/2} - 4d'\,{}^2F_{21/2}$
2168.486	80	46100.66	$4p'\,{}^2D^\circ_{21/2} - 4d''\,{}^4D_{31/2}$
2169.096	2000	46087.70	$4s\,{}^4F_{31/2} - 4p\,{}^4F^\circ_{31/2}$
2169.569	40	46077.65	$4p\,{}^4G^\circ_{41/2} - 4d\,{}^4G_{41/2}$
2169.955	300	46069.45	$4p\,{}^4G^\circ_{31/2} - 4d\,{}^4H_{41/2}$
2174.119	6	45981.23	
2174.331	10	45976.75	$4p'\,{}^2P^\circ_{11/2} - 4d''\,{}^4D_{11/2}$
2174.396	30	45975.37	$4p\,{}^4G^\circ_{41/2} - 4d\,{}^4F_{31/2}$
2174.666	2000	45969.66	$4s\,{}^4F_{31/2} - 4p\,{}^2G^\circ_{41/2}$
2175.147	1500	45959.50	$4s\,{}^4F_{21/2} - 4p\,{}^4F^\circ_{21/2}$
2175.832	30	45945.03	$4p\,{}^2F^\circ_{31/2} - 4d\,{}^2D_{21/2}$
2176.101	7	45939.35	$4p''\,{}^2D^\circ_{11/2} - 6s\,{}^4F_{21/2}$ $4p\,{}^4F^\circ_{31/2} - 4d\,{}^2H_{41/2}$
2176.796	2	45924.69	$4p\,{}^4D^\circ_{11/2} - 4d\,{}^4D_{21/2}$
2177.086	500	45918.57	$4s''\,{}^4P_{11/2} - 4p''\,{}^4D^\circ_{11/2}$
2177.361	400	45912.77	$4s''\,{}^4P_{01/2} - 4p''\,{}^4D^\circ_{01/2}$
2177.531	25	45909.19	$4p'\,{}^2P^\circ_{11/2} - 4d''\,{}^4D_{21/2}$
2177.847	25	45902.53	$4p\,{}^4D^\circ_{01/2} - 4d\,{}^2P_{11/2}$
2179.110	12	45875.93	$4p''\,{}^4P^\circ_{01/2} - 4d'\,{}^2D_{11/2}$
2179.352	400	45870.83	$4s''\,{}^4P^\circ_{01/2} - 4p''\,{}^4D_{11/2}$
2179.453	20	45868.71	$4s\,{}^4F_{41/2} - 4p\,{}^4G^\circ_{31/2}$
2179.990	50	45857.41	$4s'\,{}^2D_{21/2} - 4p'\,{}^2P^\circ_{11/2}$
2180.473	800	45847.25	$4s''\,{}^4P_{11/2} - 4p''\,{}^4D^\circ_{21/2}$
2181.135	1	45833.34	
2183.217	80	45789.63	$4p\,{}^4G^\circ_{41/2} - 4d\,{}^4F_{41/2}$
2184.268	7	45767.60	$5p\,{}^4G^\circ_{41/2} - 5d\,{}^4G_{51/2}$
2184.605	800	45760.54	$4s\,{}^4F_{11/2} - 4p\,{}^4F^\circ_{11/2}$
2184.875	35	45754.89	$4p'''\,{}^2H^\circ_{51/2} - 4d'''\,{}^2I_{61/2}$
2185.504	2500	45741.72	$4s''\,{}^4P_{21/2} - 4p''\,{}^4D^\circ_{31/2}$
2186.120	20	45728.84	$4p\,{}^4D^\circ_{21/2} - 4d\,{}^4D_{31/2}$
2186.893	18	45712.67	$4p'\,{}^2F^\circ_{21/2} - 4d'\,{}^2D_{21/2}$
2187.315	25	45703.85	$s^2\,{}^2F_{31/2} - u\,{}^2G^\circ_{41/2}$
2187.696	2	45695.90	
2188.045	25	45688.61	$4s\,{}^4F_{31/2} - 4p\,{}^4G^\circ_{21/2}$
2188.541	25	45678.25	$4p'''\,{}^2F^\circ_{21/2} - 4d'''\,{}^2F_{21/2}$
2188.918	2	45670.39	$4s''\,{}^4P_{21/2} - 4p''\,{}^4D^\circ_{11/2}$
2189.174	4	45665.05	$4p\,{}^4F^\circ_{21/2} - 4d\,{}^2G_{31/2}$
2189.498	45	45658.29	$4p\,{}^4G^\circ_{51/2} - 4d\,{}^4F_{41/2}$
2190.557	80	45636.22	$4p\,{}^4G^\circ_{51/2} - 4d\,{}^4G_{51/2}$
2190.967	30	45627.68	$4s'\,{}^2D_{21/2} - 4p'\,{}^2D^\circ_{21/2}$
2192.036	100	45605.43	$4p\,{}^2D^\circ_{21/2} - 4d\,{}^2D_{21/2}$
2192.090	3000	45604.31	$4p\,{}^4G^\circ_{41/2} - 4d\,{}^4H_{51/2}$
2192.341	150	45599.09	$4s''\,{}^4P_{21/2} - 4p''\,{}^4D^\circ_{21/2}$
2193.009	1	45585.20	
2193.534	50	45574.29	$4p\,{}^4G^\circ_{21/2} - 4d\,{}^4G_{31/2}$
2197.854	25	45484.72	$4p''\,{}^4D^\circ_{11/2} - 5d''\,{}^2F_{21/2}$
2197.936	200	45483.03	$4p'\,{}^2F^\circ_{21/2} - 4d'\,{}^2G_{31/2}$
2198.423	120	45472.95	$4p\,{}^4G^\circ_{51/2} - 4d\,{}^4H_{51/2}$
2199.188	20	45457.13	$4p\,{}^4G^\circ_{21/2} - 4d\,{}^2F_{31/2}$
2201.028	25	45419.14	$4p''\,{}^4D^\circ_{01/2} - 4d''\,{}^4F_{11/2}$
2201.409	600	45411.28	$4s\,{}^4F_{11/2} - 4p\,{}^4F^\circ_{21/2}$
2203.068	40	45377.08	$4p'''\,{}^2F^\circ_{31/2} - 5d\,{}^2G_{41/2}$
2203.373	25	45370.80	$4p\,{}^4G^\circ_{21/2} - 4d\,{}^4F_{21/2}$
2203.468	60	45368.85	$4p\,{}^2G^\circ_{31/2} - 4d\,{}^2G_{31/2}$
2204.799	10	45341.46	$4p'\,{}^2P^\circ_{01/2} - 4d'\,{}^2S_{01/2}$
2205.548	5000	45326.07	$4p\,{}^4G^\circ_{51/2} - 4d\,{}^4H_{61/2}$
2205.783	20	45321.24	$4p''\,{}^4D^\circ_{21/2} - 4d''\,{}^4F_{21/2}$
2205.866	80	45319.53	$4p\,{}^2G^\circ_{41/2} - 4d\,{}^2G_{41/2}$
2206.321	5	45310.19	$4p'''\,{}^2F^\circ_{31/2} - 5d\,{}^4F_{21/2}$
2206.715	4000	45302.10	$4s\,{}^4F_{21/2} - 4p\,{}^4F^\circ_{31/2}$
2206.961	20	45297.05	$4p'''\,{}^2F^\circ_{21/2} - 5d\,{}^4D_{11/2}$
2206.981	30	45296.64	$4p\,{}^4G^\circ_{31/2} - 4d\,{}^4D_{21/2}$
2207.148	1	45293.21	$4p\,{}^2G^\circ_{41/2} - 4d\,{}^4G_{31/2}$
2207.262	20	45290.87	$4p\,{}^4F^\circ_{21/2} - 4d\,{}^4G_{21/2}$
2209.040	1	45254.42	$4p'\,{}^2D^\circ_{11/2} - 4d'\,{}^2P_{11/2}$
2209.111	25	45252.97	$4p'\,{}^2D^\circ_{11/2} - 4d'\,{}^2D_{21/2}$
2209.260	50	45249.92	$4p''\,{}^4D^\circ_{11/2} - 4d''\,{}^4F_{21/2}$
2210.001	20	45234.75	$4p''\,{}^4D^\circ_{21/2} - 4d''\,{}^2D_{21/2}$
2210.238	6	45229.90	$4s''\,{}^2P_{11/2} - 4p''\,{}^4S^\circ_{11/2}$
2210.382	300	45226.95	$4s\,{}^4F_{31/2} - 4p\,{}^4F^\circ_{41/2}$
2211.097	300	45212.33	$4s''\,{}^2P_{11/2} - 4p''\,{}^2S^\circ_{01/2}$
			$4p'\,{}^2F^\circ_{21/2} - 4d'\,{}^2D_{11/2}$
2211.630	25	45201.43	$4p\,{}^4F^\circ_{31/2} - 4d\,{}^2G_{41/2}$
2212.109	150	45191.64	$4p''\,{}^4D^\circ_{21/2} - 4d''\,{}^4F_{31/2}$
2212.673	50	45180.13	$4p\,{}^4G^\circ_{31/2} - 4d\,{}^4G_{41/2}$
2212.872	20	45176.06	$4p\,{}^2G^\circ_{41/2} - 4d\,{}^2F_{31/2}$
2212.917	40	45175.15	$4p\,{}^4F^\circ_{31/2} - 4d\,{}^4G_{31/2}$
2213.066	12	45172.10	$4p\,{}^4F^\circ_{21/2} - 4d\,{}^2F_{21/2}$
2213.155	50	45170.29	$4p\,{}^2F^\circ_{21/2} - 4d\,{}^2D_{11/2}$
2213.196	150	45169.45	$4s'\,{}^2D_{11/2} - 4p'\,{}^2P^\circ_{11/2}$
2213.489	1	45163.47	$4p''\,{}^4D^\circ_{11/2} - 4d''\,{}^2D_{21/2}$
2214.895	20	45134.81	
2215.275	6	45127.06	$4p'\,{}^2P^\circ_{01/2} - 4d'\,{}^2P_{11/2}$
2216.482	6000	45102.49	$4s\,{}^4F_{41/2} - 4p\,{}^4G^\circ_{51/2}$
2217.695	40	45077.83	$4p\,{}^4G^\circ_{31/2} - 4d\,{}^4F_{31/2}$
2218.045	5	45070.71	$4p'\,{}^2D^\circ_{11/2} - 4d'\,{}^2P_{01/2}$
2218.111	150	45069.37	$4p\,{}^4F^\circ_{21/2} - 4d\,{}^4H_{31/2}$
2218.207	1	45067.42	$4p''\,{}^2D^\circ_{21/2} - 4d''\,{}^2P_{11/2}$
2218.573	2	45059.99	$4p\,{}^4G^\circ_{21/2} - 4d\,{}^2P_{11/2}$
2219.116	20	45048.96	$4p''\,{}^4D^\circ_{31/2} - 4d''\,{}^4F_{31/2}$
2219.246	1	45046.33	$4p'\,{}^2F^\circ_{31/2} - 4d'\,{}^2G_{31/2}$
2219.472	200	45041.74	$4p'\,{}^2F^\circ_{31/2} - 4d'\,{}^2G_{41/2}$
2219.936	2	45032.33	$4p\,{}^2G^\circ_{41/2} - 4d\,{}^4H_{41/2}$
2220.402	800	45022.87	$4s'\,{}^2D_{21/2} - 4p'\,{}^2F^\circ_{31/2}$
2221.062	500	45009.50	$4p\,{}^2G^\circ_{41/2} - 4d\,{}^2H_{51/2}$
2221.759	25	44995.38	
2222.236	120	44985.72	$4p\,{}^2G^\circ_{31/2} - 4d\,{}^2H_{41/2}$
2222.957	900	44971.13	$4s\,{}^4F_{41/2} - 4p\,{}^4G^\circ_{41/2}$
2223.455	300	44961.06	$4p''\,{}^4D^\circ_{31/2} - 4d''\,{}^4F_{41/2}$
2223.619	15	44957.75	$4p\,{}^2D^\circ_{11/2} - 4d\,{}^2D_{11/2}$
2224.327	5	44943.44	$4p'\,{}^2P^\circ_{01/2} - 4d'\,{}^2P_{01/2}$
2224.355	10	44942.87	$4s\,{}^2F_{31/2} - 4p\,{}^2F^\circ_{21/2}$
2224.414	15	44941.68	$4p\,{}^4F^\circ_{11/2} - 4d\,{}^4G_{21/2}$
2224.504	5	44939.86	$4s'\,{}^2D_{11/2} - 4p'\,{}^2D^\circ_{21/2}$
2224.864	200	44932.59	$4s\,{}^4F_{31/2} - 4p\,{}^4G^\circ_{31/2}$
2225.768	50	44914.34	$4p\,{}^4F^\circ_{31/2} - 4d\,{}^4H_{41/2}$

TABLE I. *Lines of* Ni II – Continued

λ(air)	Intensity	Wavenumber	Transition
2226.329	100	44903.03	$4s\ ^4F_{2\frac{1}{2}} - 4p\ ^4G^\circ_{2\frac{1}{2}}$
2226.866	5	44892.20	$4p\ ^4G^\circ_{3\frac{1}{2}} - 4d\ ^4F_{4\frac{1}{2}}$
2227.186	40	44885.75	$4p\ ^4F^\circ_{4\frac{1}{2}} - 4d\ ^4G_{4\frac{1}{2}}$
2227.672	15	44875.96	$4p\ ^2G^\circ_{3\frac{1}{2}} - 4d\ ^2F_{2\frac{1}{2}}$
2229.776	50	44833.62	$4p\ ^4F^\circ_{1\frac{1}{2}} - 4d\ ^4F_{1\frac{1}{2}}$
2230.308	2	44822.92	$4p\ ^4F^\circ_{1\frac{1}{2}} - 4d\ ^2F_{2\frac{1}{2}}$
2230.368	2	44821.72	$4p\ ^4F^\circ_{1\frac{1}{2}} - 4d\ ^2P_{0\frac{1}{2}}$
2233.809	20	44752.68	$4p'\ ^2D^\circ_{1\frac{1}{2}} - 4d'\ ^2D_{1\frac{1}{2}}$
2235.758	8	44713.67	$4p'''\ ^2F^\circ_{2\frac{1}{2}} - 5d\ ^2P_{1\frac{1}{2}}$
2236.063	3	44707.57	$4s''\ ^2P_{0\frac{1}{2}} - 4p''\ ^4S^\circ_{1\frac{1}{2}}$
2236.566	8	44697.52	$4p''\ ^2D^\circ_{2\frac{1}{2}} - 4d''\ ^2D_{1\frac{1}{2}}$
2236.984	2	44689.17	$4s''\ ^2P_{0\frac{1}{2}} - 4p''\ ^2S^\circ_{0\frac{1}{2}}$
2237.161	1	44685.63	
2237.803	5	44672.81	$4p'\ ^2D^\circ_{2\frac{1}{2}} - 4d'\ ^2P_{1\frac{1}{2}}$
2237.876	20	44671.36	$4p'\ ^2D^\circ_{2\frac{1}{2}} - 4d'\ ^2D_{2\frac{1}{2}}$
2238.033	2	44668.22	
2238.452	20	44659.86	$4p\ ^2F^\circ_{3\frac{1}{2}} - 4d\ ^2G_{3\frac{1}{2}}$
2238.572	15	44657.47	$4p'\ ^2P^\circ_{1\frac{1}{2}} - 4d'\ ^2S_{0\frac{1}{2}}$
2239.999	20	44629.02	
2240.185	15	44625.32	$4p'\ ^2P^\circ_{0\frac{1}{2}} - 4d'\ ^2D_{1\frac{1}{2}}$
2241.571	200	44597.73	$4p\ ^4F^\circ_{4\frac{1}{2}} - 4d\ ^4F_{4\frac{1}{2}}$
2242.031	100	44588.58	$4p'\ ^2F^\circ_{3\frac{1}{2}} - 4d'\ ^2F_{3\frac{1}{2}}$
2242.141	2	44586.39	$4s'\ ^2D_{2\frac{1}{2}} - 4p'\ ^2F^\circ_{2\frac{1}{2}}$
2242.680	500	44575.68	$4p\ ^4F^\circ_{4\frac{1}{2}} - 4d\ ^4G_{5\frac{1}{2}}$
2243.715	10	44555.12	$4p'\ ^2F^\circ_{3\frac{1}{2}} - 4d'\ ^2F_{2\frac{1}{2}}$
2244.858	60	44532.43	$4p\ ^2F^\circ_{2\frac{1}{2}} - 4d\ ^2D_{2\frac{1}{2}}$
2244.878	30	44532.04	$4p'\ ^2D^\circ_{1\frac{1}{2}} - 4d'\ ^2F_{2\frac{1}{2}}$
2245.596	20	44517.80	$4p\ ^4F^\circ_{2\frac{1}{2}} - 4d\ ^4G_{3\frac{1}{2}}$
2246.611	2	44497.69	
2247.228	100	44485.47	$4s'\ ^2D_{1\frac{1}{2}} - 4p'\ ^2P^\circ_{0\frac{1}{2}}$
2248.369	15	44462.90	$4p''\ ^2D^\circ_{1\frac{1}{2}} - 4d''\ ^2P_{1\frac{1}{2}}$
2249.027	0	44449.89	$4p''\ ^4D^\circ_{2\frac{1}{2}} - 5s'''\ ^2G_{3\frac{1}{2}}$
2249.371	15	44443.09	$4p'\ ^2P^\circ_{1\frac{1}{2}} - 4d'\ ^2P_{1\frac{1}{2}}$
2249.444	30	44441.65	$4p'\ ^2P^\circ_{1\frac{1}{2}} - 4d'\ ^2D_{2\frac{1}{2}}$
			$4p'\ ^2D^\circ_{2\frac{1}{2}} - 4d'\ ^2G_{3\frac{1}{2}}$
2250.488	10	44421.04	$4p\ ^4F^\circ_{1\frac{1}{2}} - 4d\ ^4D_{0\frac{1}{2}}$
2250.508	20	44420.64	$4p''\ ^2D^\circ_{2\frac{1}{2}} - 4d''\ ^2F_{2\frac{1}{2}}$
2250.755	10	44415.77	$4p\ ^4F^\circ_{2\frac{1}{2}} - 4d\ ^4D_{1\frac{1}{2}}$
2250.920	3	44412.51	$4p\ ^4F^\circ_{4\frac{1}{2}} - 4d\ ^4H_{5\frac{1}{2}}$
2250.998	3	44410.97	$4p''\ ^2D^\circ_{1\frac{1}{2}} - 4d''\ ^2P_{0\frac{1}{2}}$
2251.520	30	44400.68	$4p\ ^4F^\circ_{2\frac{1}{2}} - 4d\ ^2F_{3\frac{1}{2}}$
2252.830	200	44374.86	$4p''\ ^2D^\circ_{2\frac{1}{2}} - 4d''\ ^2F_{3\frac{1}{2}}$
2253.679	50	44358.15	$4s'\ ^2D_{1\frac{1}{2}} - 4p'\ ^2D^\circ_{1\frac{1}{2}}$
2253.734	25?	44357.06	$4p''\ ^2D^\circ_{1\frac{1}{2}} - 4d''\ ^4P_{2\frac{1}{2}}$
2253.848	500	44354.82	$4s\ ^4F_{1\frac{1}{2}} - 4p\ ^4G^\circ_{2\frac{1}{2}}$
2254.258	8	44346.76	
2255.612	15	44320.14	$4p\ ^2D^\circ_{2\frac{1}{2}} - 4d\ ^2G_{3\frac{1}{2}}$
2255.632	30	44319.75	$4p\ ^2D^\circ_{1\frac{1}{2}} - 4d\ ^2D_{2\frac{1}{2}}$
2255.908	50	44314.32	$4p\ ^4F^\circ_{2\frac{1}{2}} - 4d\ ^4F_{2\frac{1}{2}}$
2256.137	75	44309.83	$4s''\ ^2P_{1\frac{1}{2}} - 4p''\ ^2P^\circ_{0\frac{1}{2}}$
2256.279	3	44307.04	$4p''\ ^4D^\circ_{2\frac{1}{2}} - 4d''\ ^4D_{1\frac{1}{2}}$
2256.708	5	44298.61	$4p\ ^4G^\circ_{3\frac{1}{2}} - 4d\ ^4P_{2\frac{1}{2}}$
2257.826	200	44276.68	$4p\ ^2F^\circ_{3\frac{1}{2}} - 4d\ ^2H_{4\frac{1}{2}}$
2258.504	5	44263.39	$4p''\ ^4D^\circ_{1\frac{1}{2}} - 4d''\ ^4D_{0\frac{1}{2}}$
2258.704	3	44259.47	$4p'\ ^2P^\circ_{1\frac{1}{2}} - 4d'\ ^2P_{0\frac{1}{2}}$
2259.294	200	44247.92	$4p\ ^2G^\circ_{3\frac{1}{2}} - 4d\ ^2G_{4\frac{1}{2}}$
2259.726	10	44239.46	$4p''\ ^4D^\circ_{2\frac{1}{2}} - 4d''\ ^4D_{2\frac{1}{2}}$
2259.917	10	44235.72	$4p''\ ^4D^\circ_{1\frac{1}{2}} - 4d''\ ^4D_{1\frac{1}{2}}$
2260.383	50	44226.60	$4p'''\ ^2F^\circ_{3\frac{1}{2}} - 5d\ ^4D_{2\frac{1}{2}}$
2260.644	30	44221.49	$4p\ ^2G^\circ_{3\frac{1}{2}} - 4d\ ^2G_{3\frac{1}{2}}$
			$4p''\ ^4D^\circ_{0\frac{1}{2}} - 4d''\ ^4D_{0\frac{1}{2}}$
2261.685	5	44201.14	$4p''\ ^4D^\circ_{2\frac{1}{2}} - 4d''\ ^4D_{3\frac{1}{2}}$
2262.066	10	44193.70	$4p''\ ^4D^\circ_{0\frac{1}{2}} - 4d''\ ^4D_{1\frac{1}{2}}$
2262.459	2	44186.02	$4p''\ ^2D^\circ_{2\frac{1}{2}} - 4d''\ ^4F_{2\frac{1}{2}}$?
2262.898	30	44177.45	$4s''\ ^4P_{1\frac{1}{2}} - 4p'\ ^2P^\circ_{1\frac{1}{2}}$
2263.375	3	44168.14	$4p''\ ^4D^\circ_{1\frac{1}{2}} - 4d''\ ^4D_{2\frac{1}{2}}$
2263.443	5	44166.81	$4p\ ^2F^\circ_{3\frac{1}{2}} - 4d\ ^2F_{2\frac{1}{2}}$
2264.461	1000	44146.96	$4s\ ^4F_{2\frac{1}{2}} - 4p\ ^4G^\circ_{3\frac{1}{2}}$
2264.739	50	44141.54	$4p\ ^4F^\circ_{3\frac{1}{2}} - 4d\ ^4D_{2\frac{1}{2}}$
2265.345	30	44129.74	$4s''\ ^4P_{0\frac{1}{2}} - 4p'\ ^2P^\circ_{1\frac{1}{2}}$
2266.647	30	44104.39	$4p\ ^2G^\circ_{3\frac{1}{2}} - 4d\ ^2F_{3\frac{1}{2}}$
2266.903	10	44099.41	$4p''\ ^2D^\circ_{2\frac{1}{2}} - 4d''\ ^2D_{2\frac{1}{2}}$
2267.038	5	44096.78	$4p''\ ^4D^\circ_{3\frac{1}{2}} - 4d''\ ^4D_{2\frac{1}{2}}$
2267.236	100	44092.93	$4p''\ ^2D^\circ_{1\frac{1}{2}} - 4d''\ ^2D_{1\frac{1}{2}}$
2268.732	1	44063.86	
2269.008	100	44058.50	$4p''\ ^4D_{3\frac{1}{2}} - 4d''\ ^4D^\circ_{3\frac{1}{2}}$
2269.278	2	44053.26	$s^2\ ^2D_{2\frac{1}{2}} - 5p''\ ^4D^\circ_{1\frac{1}{2}}$
2270.214	2000	44035.10	$4s\ ^4F_{3\frac{1}{2}} - 4p\ ^4G^\circ_{4\frac{1}{2}}$
2270.734	100	44025.01	$4p\ ^4F^\circ_{3\frac{1}{2}} - 4d\ ^4G_{4\frac{1}{2}}$
2271.086	2	44018.19	$4p\ ^2G^\circ_{3\frac{1}{2}} - 4d\ ^4F_{2\frac{1}{2}}$
2271.843	30	44003.52	$4p\ ^4F^\circ_{2\frac{1}{2}} - 4d\ ^2P_{1\frac{1}{2}}$
2272.251	3	43995.62	$4p'''\ ^2F^\circ_{3\frac{1}{2}} - 5d\ ^4F_{4\frac{1}{2}}$
2272.865	100	43983.74	$4p'\ ^2D^\circ_{2\frac{1}{2}} - 4d'\ ^2F_{3\frac{1}{2}}$
2274.058	5	43960.67	$4p\ ^2G^\circ_{3\frac{1}{2}} - 4d\ ^4H_{4\frac{1}{2}}$
2274.595	3	43950.29	$4p'\ ^2D^\circ_{2\frac{1}{2}} - 4d'\ ^2F_{2\frac{1}{2}}$
2274.724	200	43947.80	$4s''\ ^4P_{1\frac{1}{2}} - 4p'\ ^2D^\circ_{2\frac{1}{2}}$
2275.063	1	43941.25	$4p'\ ^2P^\circ_{1\frac{1}{2}} - 4d'\ ^2D_{1\frac{1}{2}}$
2275.284	1	43936.98	$4p''\ ^2D^\circ_{1\frac{1}{2}} - 4d''\ ^4P_{1\frac{1}{2}}$
2275.684	300	43929.26	$4s''\ ^4P_{2\frac{1}{2}} - 4p'\ ^2P^\circ_{1\frac{1}{2}}$
2276.023	150	43922.72	$4p\ ^4F^\circ_{3\frac{1}{2}} - 4d\ ^4F_{3\frac{1}{2}}$
2276.437	200	43914.73	$4s''\ ^2P_{1\frac{1}{2}} - 4p''\ ^2P^\circ_{1\frac{1}{2}}$
2276.672	300	43910.20	$4p\ ^4F^\circ_{4\frac{1}{2}} - 4d\ ^4D_{3\frac{1}{2}}$
2277.282	800	43898.44	$4s'\ ^2D_{1\frac{1}{2}} - 4p'\ ^2F^\circ_{2\frac{1}{2}}$
2278.318	400	43878.48	$4s'''\ ^2G_{3\frac{1}{2}} - 4p'''\ ^2F^\circ_{2\frac{1}{2}}$
2278.770	800	43869.78	$4s\ ^2F_{3\frac{1}{2}} - 4p\ ^2D^\circ_{2\frac{1}{2}}$
2279.534	1	43855.07	$4p\ ^2G^\circ_{4\frac{1}{2}} - 4d\ ^4F_{4\frac{1}{2}}$
2279.660	15	43852.65	$4p''\ ^2P^\circ_{1\frac{1}{2}} - 4d''\ ^2P_{1\frac{1}{2}}$
2280.680	3	43833.04	$4p\ ^2G^\circ_{4\frac{1}{2}} - 4d\ ^4G_{5\frac{1}{2}}$
2280.984	75	43827.20	$4p\ ^2D^\circ_{2\frac{1}{2}} - 4d\ ^2F_{2\frac{1}{2}}$
2281.564	30	43816.06	$4p''\ ^2D^\circ_{1\frac{1}{2}} - 4d''\ ^2F_{2\frac{1}{2}}$
2282.361	8	43800.76	$4p''\ ^2P^\circ_{1\frac{1}{2}} - 4d''\ ^2P_{0\frac{1}{2}}$
2284.995	2	43750.27	$5s\ ^4F_{3\frac{1}{2}} - v\ ^2G^\circ_{4\frac{1}{2}}$
2285.178	50	43746.77	$4p''\ ^2P^\circ_{1\frac{1}{2}} - 4d''\ ^4P_{2\frac{1}{2}}$
2285.415	5	43742.23	$4p'''\ ^2F^\circ_{2\frac{1}{2}} - 5d\ ^4D_{2\frac{1}{2}}$
2285.687	25	43737.03	$4p\ ^4F^\circ_{3\frac{1}{2}} - 4d\ ^4F_{4\frac{1}{2}}$
2286.853	2	43714.73	
2287.089	300	43710.22	$4s\ ^2F_{2\frac{1}{2}} - 4p\ ^2D^\circ_{1\frac{1}{2}}$
2287.648	500	43699.54	$4s''\ ^4P_{2\frac{1}{2}} - 4p'\ ^2D^\circ_{2\frac{1}{2}}$
2289.209	6	43669.74	$4p\ ^2G^\circ_{4\frac{1}{2}} - 4d\ ^4H_{5\frac{1}{2}}$
2293.626	4	43585.65	$4p\ ^4F^\circ_{1\frac{1}{2}} - 4d\ ^4P_{0\frac{1}{2}}$
2294.628	1	43566.62	$5s\ ^4F_{4\frac{1}{2}} - 8p\ ^4G^\circ_{5\frac{1}{2}}$
2296.089	100	43538.90	$4p\ ^2F^\circ_{3\frac{1}{2}} - 4d\ ^2G_{4\frac{1}{2}}$
2296.552	400	43530.13	$4s\ ^2F_{3\frac{1}{2}} - 4p\ ^2F^\circ_{3\frac{1}{2}}$
2297.141	400	43518.97	$4s\ ^4F_{2\frac{1}{2}} - 4p\ ^4D^\circ_{1\frac{1}{2}}$
2297.489	300	43512.37	$4s\ ^4F_{1\frac{1}{2}} - 4p\ ^4D^\circ_{0\frac{1}{2}}$
2297.735	3	43507.72	
2298.270	300	43497.59	$4s\ ^2F_{2\frac{1}{2}} - 4p\ ^2F^\circ_{2\frac{1}{2}}$
2298.417	2	43494.81	$4p''\ ^2D^\circ_{1\frac{1}{2}} - 4d''\ ^2D_{2\frac{1}{2}}$
2298.491	100	43493.41	$4s''\ ^4P_{1\frac{1}{2}} - 4p'\ ^2P^\circ_{0\frac{1}{2}}$
2299.058	30	43482.68	$4p''\ ^2P^\circ_{1\frac{1}{2}} - 4d''\ ^2D_{1\frac{1}{2}}$

TABLE I. *Lines of* Ni II — Continued

λ(air)	Intensity	Wavenumber	Transition	λ(air)	Intensity	Wavenumber	Transition
2299.651	200	43471.47	$4s'\,^2D_{2\frac{1}{2}} - 4p''\,^4P^\circ_{1\frac{1}{2}}$	2343.491	200	42658.31	$4p\,^2D^\circ_{2\frac{1}{2}} - 4d\,^2P_{1\frac{1}{2}}$
2300.097	300	43463.04	$4s'\,^2D_{2\frac{1}{2}} - 4p''\,^4P^\circ_{2\frac{1}{2}}$	2343.947	20	42650.02	$4s'''\,^2G_{4\frac{1}{2}} - 4p'''\,^2H^\circ_{4\frac{1}{2}}$
2301.014	20	43445.72	$4s''\,^4P_{0\frac{1}{2}} - 4p'\,^2P^\circ_{0\frac{1}{2}}$	2345.267	200	42626.01	$4s'''\,^2G_{3\frac{1}{2}} - 4p'''\,^2H^\circ_{4\frac{1}{2}}$
2302.141	1	43424.46		2345.442	50	42622.83	$4s\,^4F_{2\frac{1}{2}} - 4p\,^4D^\circ_{2\frac{1}{2}}$
2302.479	200	43418.08	$4s'''\,^2G_{4\frac{1}{2}} - 4p'''\,^2F^\circ_{3\frac{1}{2}}$	2349.176	50	42555.09	$4p''\,^2S^\circ_{0\frac{1}{2}} - 4d''\,^2P_{1\frac{1}{2}}$
2302.996	1000	43408.34	$4s\,^4F_{3\frac{1}{2}} - 4p\,^4D^\circ_{2\frac{1}{2}}$	2349.331	3	42552.28	$4p\,^2D^\circ_{1\frac{1}{2}} - 4d\,^4F_{1\frac{1}{2}}$
2303.688	50	43395.30	$4p\,^2F^\circ_{3\frac{1}{2}} - 4d\,^2F_{3\frac{1}{2}}$	2349.580	1	42547.77	$5s\,^2F_{3\frac{1}{2}} - v\,^2G^\circ_{4\frac{1}{2}}$
2303.754	0	43394.05	$4s'''\,^2G_{3\frac{1}{2}} - 4p'''\,^2F^\circ_{3\frac{1}{2}}$	2349.922	30	42541.58	$4p\,^2D^\circ_{1\frac{1}{2}} - 4d\,^2F_{2\frac{1}{2}}$
2303.848	50	43392.28	$4s''\,^2P_{0\frac{1}{2}} - 4p''\,^2P^\circ_{1\frac{1}{2}}$	2349.991	60	42540.33	$4p\,^2D^\circ_{1\frac{1}{2}} - 4d\,^2P_{0\frac{1}{2}}$
2305.239	200	43366.10	$4s''\,^4P_{1\frac{1}{2}} - 4p'\,^2D^\circ_{1\frac{1}{2}}$	2350.147	3	42537.51	$4p''\,^4S^\circ_{1\frac{1}{2}} - 4d''\,^2P_{1\frac{1}{2}}$
2306.028	30	43351.27	$s^2\,^4F_{4\frac{1}{2}} - z\,^4G^\circ_{5\frac{1}{2}}$	2350.269	3	42535.30	$s^2\,^4F_{2\frac{1}{2}} - z\,^4G^\circ_{3\frac{1}{2}}$
2307.781	50	43318.34	$4s''\,^4P_{0\frac{1}{2}} - 4p'\,^2D^\circ_{1\frac{1}{2}}$	2350.845	10	42524.88	$4s\,^2F_{3\frac{1}{2}} - 4p\,^4F^\circ_{2\frac{1}{2}}$
2308.278	2	43309.01		2351.204	1	42518.39	$4p''\,^4D^\circ_{1\frac{1}{2}} - 4d'\,^2P_{0\frac{1}{2}}$
2308.518	150	43304.51	$4s''\,^2P_{1\frac{1}{2}} - 4p''\,^2D^\circ_{1\frac{1}{2}}$	2352.048	75	42503.13	$4p''\,^2S^\circ_{0\frac{1}{2}} - 4d''\,^2P_{0\frac{1}{2}}$
2310.147	2	43273.98		2352.226	1	42499.91	$s^2\,^4F_{3\frac{1}{2}} - z\,^4F^\circ_{3\frac{1}{2}}$
2310.610	1	43265.31	$4p\,^4F^\circ_{2\frac{1}{2}} - 4d\,^4F_{3\frac{1}{2}}$	2353.007	10	42485.81	$4p\,^4F^\circ_{2\frac{1}{2}} - 4d\,^4P_{2\frac{1}{2}}$
2311.061	6	43256.87		2353.391	2	42478.88	$4p\,^2F^\circ_{3\frac{1}{2}} - 4d\,^4D_{2\frac{1}{2}}$
2311.341	5	43251.63	$4p\,^2F^\circ_{3\frac{1}{2}} - 4d\,^4H_{4\frac{1}{2}}$	2353.528	1	42476.40	$4p''\,^4D^\circ_{0\frac{1}{2}} - 4d'\,^2P_{0\frac{1}{2}}$
2311.585	75	43247.06	$4p\,^2F^\circ_{2\frac{1}{2}} - 4d\,^2G_{3\frac{1}{2}}$	2354.922	5	42451.26	$s^2\,^4F_{1\frac{1}{2}} - z\,^4G^\circ_{2\frac{1}{2}}$
2312.054	2	43238.29	$s^2\,^4F_{4\frac{1}{2}} - z\,^4F^\circ_{4\frac{1}{2}}$	2355.147	10	42447.21	$4p'''\,^2G^\circ_{3\frac{1}{2}} - 5d\,^2G_{3\frac{1}{2}}$
2312.240	50	43234.81	$4s'\,^2D_{1\frac{1}{2}} - 4p''\,^4P^\circ_{0\frac{1}{2}}$	2356.013	75	42431.61	$4p''\,^4S^\circ_{1\frac{1}{2}} - 4d''\,^4P_{2\frac{1}{2}}$
2312.916	200	43222.18	$4s'''\,^2G_{4\frac{1}{2}} - 4p'''\,^2H^\circ_{5\frac{1}{2}}$	2356.403	100	42424.58	$4s\,^2F_{2\frac{1}{2}} - 4p\,^2D^\circ_{2\frac{1}{2}}$
2313.208	3	43216.72		2358.054	2	42394.88	$4p''\,^4D^\circ_{3\frac{1}{2}} - 4d'\,^2G_{4\frac{1}{2}}$
2313.789	2	43205.87	$4p''\,^2P^\circ_{1\frac{1}{2}} - 4d''\,^2F_{2\frac{1}{2}}$	2358.208	1	42392.12	$4p\,^4F^\circ_{2\frac{1}{2}} - 4d\,^4D_{3\frac{1}{2}}$
2315.066	2	43182.04	$4p''\,^2P^\circ_{1\frac{1}{2}} - 4d''\,^4F_{1\frac{1}{2}}$	2359.816	1	42363.23	
2315.558	20	43172.86	$4p\,^2D^\circ_{2\frac{1}{2}} - 4d\,^4G_{3\frac{1}{2}}$	2359.862	100	42362.41	$4p\,^2F^\circ_{3\frac{1}{2}} - 4d\,^4G_{4\frac{1}{2}}$
2315.842	2	43167.57	$4p\,^2G^\circ_{4\frac{1}{2}} - 4d\,^4D_{3\frac{1}{2}}$	2360.396	1	42352.82	
2316.039	1000	43163.90	$4s\,^4F_{4\frac{1}{2}} - 4p\,^4D^\circ_{3\frac{1}{2}}$	2360.766	2	42346.19	$4p'''\,^2G^\circ_{4\frac{1}{2}} - 5d\,^2G_{3\frac{1}{2}}$
2318.321	5	43121.41		2362.111	5	42322.07	$4p'''\,^2G^\circ_{3\frac{1}{2}} - 5d\,^4G_{2\frac{1}{2}}$
2318.509	200	43117.92	$4s''\,^4P_{2\frac{1}{2}} - 4p'\,^2D^\circ_{1\frac{1}{2}}$	2362.351	1	42317.78	$4p'''\,^2G^\circ_{3\frac{1}{2}} - 5d\,^2H_{4\frac{1}{2}}$
2319.252	15	43104.11	$4p''\,^2D^\circ_{2\frac{1}{2}} - 4d''\,^4D_{2\frac{1}{2}}$	2362.527	1	42314.62	
2319.750	500	43094.85	$4s''\,^4P_{2\frac{1}{2}} - 4p'\,^2F^\circ_{3\frac{1}{2}}$	2363.649	1	42294.54	$s^2\,^4F_{2\frac{1}{2}} - z\,^4F^\circ_{2\frac{1}{2}}$
2321.011	30	43071.44	$4p\,^2G^\circ_{3\frac{1}{2}} - 4d\,^4G_{4\frac{1}{2}}$	2364.305	50	42282.81	$s^2\,^2H_{5\frac{1}{2}} - z\,^2I^\circ_{6\frac{1}{2}}$
2321.047	15	43070.77	$4p\,^2D^\circ_{2\frac{1}{2}} - 4d\,^4D_{1\frac{1}{2}}$	2365.383	2	42263.54	$4p'''\,^2G^\circ_{3\frac{1}{2}} - 4d'''\,^2F_{3\frac{1}{2}}$
2321.861	15	43055.68	$4p\,^2D^\circ_{2\frac{1}{2}} - 4d\,^2F_{3\frac{1}{2}}$	2365.576	100	42260.09	$4p\,^2F^\circ_{3\frac{1}{2}} - 4d\,^4F_{3\frac{1}{2}}$
2322.195	10	43049.48	$4p\,^4F^\circ_{3\frac{1}{2}} - 4d\,^4D_{3\frac{1}{2}}$	2365.739	15	42257.18	$4p'''\,^2G^\circ_{3\frac{1}{2}} - 4d'''\,^2F_{2\frac{1}{2}}$
2323.541	30	43024.55	$4p'''\,^2G^\circ_{3\frac{1}{2}} - 4d'''\,^2G_{3\frac{1}{2}}$	2366.542	100	42242.84	$4s''\,^4P_{1\frac{1}{2}} - 4p''\,^4P^\circ_{0\frac{1}{2}}$
2324.094	5	43014.31	$4p'''\,^2G^\circ_{3\frac{1}{2}} - 4d'''\,^2G_{4\frac{1}{2}}$	2367.385	100	42227.80	$4s\,^4F_{3\frac{1}{2}} - 4p\,^4D^\circ_{3\frac{1}{2}}$
2324.272	50	43011.02		2367.668	2	42222.75	
2326.230	2	42974.82		2368.935	2	42200.17	$4p''\,^4D^\circ_{1\frac{1}{2}} - 4d'\,^2D_{1\frac{1}{2}}$
2326.451	50	42970.74	$4s\,^4F_{1\frac{1}{2}} - 4p\,^4D^\circ_{1\frac{1}{2}}$	2369.218	50	42195.13	$4s''\,^4P_{0\frac{1}{2}} - 4p''\,^4P^\circ_{0\frac{1}{2}}$
2326.527	5	42969.33	$4p\,^2D^\circ_{2\frac{1}{2}} - 4d\,^4F_{2\frac{1}{2}}$	2369.512	2	42189.90	$4p\,^2G^\circ_{3\frac{1}{2}} - 4d\,^4P_{2\frac{1}{2}}$
2326.635	5	42967.34	$4p'''\,^2G^\circ_{3\frac{1}{2}} - 4d'''\,^2H_{4\frac{1}{2}}$	2369.863	15	42183.65	$4p''\,^4P^\circ_{1\frac{1}{2}} - 5s''\,^4P_{0\frac{1}{2}}$
2329.553	20	42913.52	$4p'''\,^2G^\circ_{4\frac{1}{2}} - 4d'''\,^2G_{4\frac{1}{2}}$	2370.765	50	42167.60	$4p''\,^4S^\circ_{1\frac{1}{2}} - 4d''\,^2D_{1\frac{1}{2}}$
2329.937	40	42906.45	$4s''\,^4P_{1\frac{1}{2}} - 4p'\,^2F^\circ_{2\frac{1}{2}}$	2371.038	40	42162.74	$4p'''\,^2G^\circ_{4\frac{1}{2}} - 4d'''\,^2F_{3\frac{1}{2}}$
2330.409	30	42897.76	$4p'''\,^2G^\circ_{4\frac{1}{2}} - 4d'''\,^2H_{5\frac{1}{2}}$	2372.361	15	42139.23	$4p\,^2D^\circ_{2\frac{1}{2}} - 4d\,^4D_{2\frac{1}{2}}$
2331.121	40	42884.66	$4p''\,^2P^\circ_{1\frac{1}{2}} - 4d''\,^2D_{2\frac{1}{2}}$	2374.582	20	42099.82	$4p\,^2F^\circ_{2\frac{1}{2}} - 4d\,^4G_{3}$
2331.760	10	42872.91	$4p\,^2F^\circ_{2\frac{1}{2}} - 4d\,^4G_{2\frac{1}{2}}$	2374.802	5	42095.92	$4p\,^2G^\circ_{3\frac{1}{2}} - 4d\,^4D_{3\frac{1}{2}}$
2332.108	15	42866.51	$4p'''\,^2G^\circ_{4\frac{1}{2}} - 4d'''\,^2H_{4\frac{1}{2}}$	2375.418	1000	42085.01	$4s\,^2F_{2\frac{1}{2}} - 4p\,^2F^\circ_{3\frac{1}{2}}$
2332.970	5	42850.67		2375.901	3	42076.45	$s^2\,^2H_{5\frac{1}{2}} - 4f\,^4I^\circ_{6\frac{1}{2}}$
2333.883	1	42833.91	$s^2\,^2D_{2\frac{1}{2}} - 5p''\,^4P^\circ_{1\frac{1}{2}}$	2376.010	75	42074.52	$4s\,^4F_{1\frac{1}{2}} - 4p\,^4D^\circ_{2\frac{1}{2}}$
2334.584	500	42821.05	$4s\,^2F_{3\frac{1}{2}} - 4p\,^2G^\circ_{3\frac{1}{2}}$	2377.350	5	42050.81	$4p''\,^4D^\circ_{2\frac{1}{2}} - 4d'\,^2F_{2\frac{1}{2}}$
2335.100	15	42811.59	$s^2\,^4F_{3\frac{1}{2}} - z\,^4G^\circ_{4\frac{1}{2}}$	2378.580	10	42029.07	$4p''\,^2S^\circ_{0\frac{1}{2}} - 4d''\,^4P_{1\frac{1}{2}}$
2336.625	30	42783.65	$4s'\,^2D_{1\frac{1}{2}} - 4p''\,^4P^\circ_{1\frac{1}{2}}$	2379.574	100	42011.51	$4p''\,^4S^\circ_{1\frac{1}{2}} - 4d''\,^4P_{1\frac{1}{2}}$
2336.712	100	42782.06	$4s''\,^2P_{0\frac{1}{2}} - 4p''\,^2D^\circ_{1\frac{1}{2}}$	2380.353	10	41997.76	$4p\,^2F^\circ_{2\frac{1}{2}} - 4d\,^4D_{1\frac{1}{2}}$
2337.268	1	42771.88	$4p''\,^4D^\circ_{2\frac{1}{2}} - 4d'\,^2D_{2\frac{1}{2}}$	2380.723	5	41991.24	$s^2\,^2F_{3\frac{1}{2}} - w\,^2D^\circ_{2\frac{1}{2}}$
2338.233	30	42754.23	$4p\,^2F^\circ_{2\frac{1}{2}} - 4d\,^2F_{2\frac{1}{2}}$	2381.098	1	41984.62	$4p''\,^2P^\circ_{1\frac{1}{2}} - 4d''\,^4D_{0\frac{1}{2}}$
2339.240	1	42735.83		2381.210	30	41982.65	$4p\,^2F^\circ_{2\frac{1}{2}} - 4d\,^2F_{3\frac{1}{2}}$
2341.202	500	42700.02	$4s''\,^2P_{1\frac{1}{2}} - 4p''\,^2D^\circ_{2\frac{1}{2}}$	2381.516	10	41977.26	$4p''\,^4P^\circ_{2\frac{1}{2}} - 5s''\,^4P_{1\frac{1}{2}}$
2343.381	3	42660.32	$4p\,^2D^\circ_{1\frac{1}{2}} - 4d\,^4G_{2\frac{1}{2}}$	2381.892	8	41970.63	$4p\,^4D^\circ_{3\frac{1}{2}} - 5s\,^2F_{3\frac{1}{2}}$

TABLE I. *Lines of* Ni II – Continued

λ(air)	Intensity	Wavenumber	Transition
2381.993	8	41968.85	$4p''\ ^4P^\circ_{1\frac{1}{2}} - 5s''\ ^4P_{1\frac{1}{2}}$
2382.439	40	41960.99	$4p''\ ^4S^\circ_{1\frac{1}{2}} - 4d''\ ^4P_{0\frac{1}{2}}$
2382.675	8	41956.84	$4p''\ ^2P^\circ_{1\frac{1}{2}} - 4d''\ ^4D_{1\frac{1}{2}}$
2383.540	5	41941.61	$4p''\ ^4D^\circ_{3\frac{1}{2}} - 4d'\ ^2F_{3\frac{1}{2}}$
2384.745	100	41920.42	$4p\ ^2D^\circ_{2\frac{1}{2}} - 4d\ ^4F_{3\frac{1}{2}}$
2386.115	15	41896.35	$4p\ ^2F^\circ_{2\frac{1}{2}} - 4d\ ^4F_{2\frac{1}{2}}$
2386.438	5	41890.69	$4p''\ ^4S^\circ_{1\frac{1}{2}} - 4d''\ ^2F_{2\frac{1}{2}}$
2387.764	100	41867.42	$4s\ ^2F_{3\frac{1}{2}} - 4p\ ^4F^\circ_{3\frac{1}{2}}$
2391.805	20	41796.69	$4p''\ ^4P^\circ_{2\frac{1}{2}} - 5s''\ ^4P_{2\frac{1}{2}}$
2392.106	30	41791.43	$4s''\ ^4P_{1\frac{1}{2}} - 4p''\ ^4P^\circ_{1\frac{1}{2}}$
2392.289	5	41788.24	$4p''\ ^4P^\circ_{1\frac{1}{2}} - 5s''\ ^4P_{2\frac{1}{2}}$
2392.588	100	41783.02	$4s''\ ^4P_{1\frac{1}{2}} - 4p''\ ^4P^\circ_{2\frac{1}{2}}$
2394.519	1000	41749.32	$4s\ ^2F_{3\frac{1}{2}} - 4p\ ^2G^\circ_{4\frac{1}{2}}$
2394.843	100	41743.68	$4s''\ ^4P_{0\frac{1}{2}} - 4p''\ ^4P^\circ_{1\frac{1}{2}}$
2395.507	1	41732.11	$4p''\ ^4P^\circ_{0\frac{1}{2}} - 5s''\ ^4P_{0\frac{1}{2}}$
2397.509	1	41697.26	
2398.288	75	41683.72	$4p\ ^2D^\circ_{1\frac{1}{2}} - 4d\ ^4F_{2\frac{1}{2}}$
2398.625	2	41677.86	$4s''\ ^2P_{1\frac{1}{2}} - 4p''\ ^4D^\circ_{0\frac{1}{2}}$
2400.374	1	41647.50	$5s\ ^4F_{3\frac{1}{2}} - s\ ^4D^\circ_{2\frac{1}{2}}$
2400.925	3	41637.94	$4p''\ ^2D^\circ_{2\frac{1}{2}} - 4d'\ ^2P_{1\frac{1}{2}}$
2401.929	100	41620.54	$4p\ ^2D^\circ_{2\frac{1}{2}} - 4d\ ^4P_{1\frac{1}{2}}$
2403.708	1	41589.73	
2403.956	30	41585.44	$4p\ ^2F^\circ_{2\frac{1}{2}} - 4d\ ^2P_{1\frac{1}{2}}$
2404.548	1	41575.21	$4p'\ ^2F^\circ_{2\frac{1}{2}} - 5s''\ ^2P_{1\frac{1}{2}}$
2404.881	10	41569.45	$4p''\ ^4S^\circ_{1\frac{1}{2}} - 4d''\ ^2D_{2\frac{1}{2}}$
2405.163	100	41564.58	$4s''\ ^2P_{0\frac{1}{2}} - 4p''\ ^4D^\circ_{2\frac{1}{2}}$
2406.389	15	41543.40	$4s''\ ^4P_{2\frac{1}{2}} - 4p''\ ^4P^\circ_{1\frac{1}{2}}$
2406.875	50	41535.01	$4s''\ ^4P_{2\frac{1}{2}} - 4p''\ ^4P^\circ_{2\frac{1}{2}}$
2407.890	40	41517.51	$4p''\ ^4P^\circ_{0\frac{1}{2}} - 5s''\ ^4P_{1\frac{1}{2}}$
2408.111	3	41513.70	$4p'''\ ^2G^\circ_{4\frac{1}{2}} - 4d'''\ ^2I_{5\frac{1}{2}}$
2409.209	2	41494.78	$4p'''\ ^2G^\circ_{3\frac{1}{2}} - 5d\ ^4G_{3\frac{1}{2}}$
2410.027	5	41480.70	$4p\ ^2F^\circ_{3\frac{1}{2}} - 4d\ ^4P_{2\frac{1}{2}}$
2410.744	10	41468.36	$4s\ ^2F_{3\frac{1}{2}} - 4p\ ^4G^\circ_{2\frac{1}{2}}$
2412.265	10	41442.21	$4s\ ^4F_{2\frac{1}{2}} - 4p\ ^4D^\circ_{3\frac{1}{2}}$
2413.040	50	41428.91	$4s\ ^2F_{2\frac{1}{2}} - 4p\ ^4F^\circ_{1\frac{1}{2}}$
2414.329	10	41406.79	$4p''\ ^2D^\circ_{2\frac{1}{2}} - 4d'\ ^2G_{3\frac{1}{2}}$
2415.067	5	41394.14	$4p'\ ^2P^\circ_{0\frac{1}{2}} - 5s''\ ^2P_{0\frac{1}{2}}$
2415.502	15	41386.68	$4p\ ^2F^\circ_{3\frac{1}{2}} - 4d\ ^4D_{3\frac{1}{2}}$
2416.134	2000	41375.86	$4s\ ^2F_{2\frac{1}{2}} - 4p\ ^2G^\circ_{3\frac{1}{2}}$
2416.306	30	41372.91	$4p\ ^2D^\circ_{1\frac{1}{2}} - 4d\ ^2P_{1\frac{1}{2}}$
2418.889	1	41328.74	$4p\ ^4D^\circ_{2\frac{1}{2}} - 5s\ ^4F_{1\frac{1}{2}}$
2420.317	40	41304.35	$4p\ ^2D^\circ_{1\frac{1}{2}} - 4d\ ^4P_{0\frac{1}{2}}$
2424.623	2	41231.01	$5s\ ^4F_{4\frac{1}{2}} - 4f'\ ^2H_{4\frac{1}{2}}$
2426.316	3	41202.24	$5s\ ^4F_{3\frac{1}{2}} - v\ ^4F^\circ_{3\frac{1}{2}}$
2431.561	40	41113.37	$4s''\ ^2P_{0\frac{1}{2}} - 4p''\ ^4D^\circ_{1\frac{1}{2}}$
2432.670	20	41094.63	$4p\ ^4D^\circ_{1\frac{1}{2}} - 5s\ ^2F_{2\frac{1}{2}}$
2433.556	100	41079.67	$4s\ ^2F_{2\frac{1}{2}} - 4p\ ^4F^\circ_{2\frac{1}{2}}$
2434.319	2	41066.79	$4p''\ ^2P^\circ_{0\frac{1}{2}} - 4d''\ ^4D_{0\frac{1}{2}}$
2435.491	8	41047.03	$4p\ ^2D^\circ_{2\frac{1}{2}} - 4d\ ^4D_{3\frac{1}{2}}$
2435.958	8	41039.16	$4p''\ ^2P^\circ_{0\frac{1}{2}} - 4d''\ ^4D_{1\frac{1}{2}}$
2436.313	5	41033.18	$4p''\ ^2D^\circ_{1\frac{1}{2}} - 4d'\ ^2P_{1\frac{1}{2}}$
2437.892	500	41006.61	$4s\ ^2F_{3\frac{1}{2}} - 4p\ ^4F^\circ_{4\frac{1}{2}}$
2438.997	2	40988.03	$4p'\ ^2P^\circ_{0\frac{1}{2}} - 5s''\ ^2P_{1\frac{1}{2}}$
2441.330	10	40948.87	$4p''\ ^2D^\circ_{2\frac{1}{2}} - 4d'\ ^2F_{3\frac{1}{2}}$
2447.013	10	40853.77	$4p'\ ^2F^\circ_{2\frac{1}{2}} - 5s''\ ^4P_{1\frac{1}{2}}$?
2447.257	3	40849.70	$4p''\ ^2D^\circ_{1\frac{1}{2}} - 4d'\ ^2P_{0\frac{1}{2}}$
2447.393	30	40847.43	$4p\ ^2F^\circ_{2\frac{1}{2}} - 4d\ ^4F_{3\frac{1}{2}}$
2447.590	5	40844.14	$5s\ ^4F_{3\frac{1}{2}} - w\ ^2F^\circ_{3\frac{1}{2}}$
2448.080	1	40835.97	$s^2\ ^2F_{2\frac{1}{2}} - v\ ^4F^\circ_{2\frac{1}{2}}$
2449.234	5	40816.73	$s^2\ ^2F_{2\frac{1}{2}} - v\ ^4F^\circ_{1\frac{1}{2}}$
2449.347	15	40814.85	$4p'''\ ^2F^\circ_{3\frac{1}{2}} - 4d''\ ^4P_{2\frac{1}{2}}$
2450.839	100	40790.00	$4p\ ^4D^\circ_{2\frac{1}{2}} - 5s\ ^2F_{3\frac{1}{2}}$
2452.160	8	40768.03	$4p\ ^4D^\circ_{3\frac{1}{2}} - 5s\ ^4F_{3\frac{1}{2}}$
2452.476	2	40762.78	
2455.519	30	40712.26	$4s\ ^2F_{3\frac{1}{2}} - 4p\ ^4G^\circ_{3\frac{1}{2}}$
2455.651	5	40710.08	$4p'\ ^2P^\circ_{1\frac{1}{2}} - 5s''\ ^2P_{0\frac{1}{2}}$
2457.723	3	40675.76	
2457.865	30	40673.41	$4p'\ ^2F^\circ_{2\frac{1}{2}} - 5s''\ ^4P_{2\frac{1}{2}}$
2459.180	20	40651.66	$4p\ ^4D^\circ_{2\frac{1}{2}} - 6s\ ^4F_{2\frac{1}{2}}$
2460.038	50	40637.48	$4p''\ ^2P^\circ_{1\frac{1}{2}} - 4d'\ ^2S_{0\frac{1}{2}}$
2461.763	10	40609.01	$4p'\ ^2D^\circ_{1\frac{1}{2}} - 5s''\ ^4P_{0\frac{1}{2}}$
2465.493	15	40547.58	$4p\ ^2F^\circ_{2\frac{1}{2}} - 4d\ ^4P_{1\frac{1}{2}}$
2465.940	3	40540.23	$s^2\ ^2D_{2\frac{1}{2}} - 5p'\ ^2D^\circ_{2\frac{1}{2}}$
2466.470	8	40531.52	$4p''\ ^2D^\circ_{1\frac{1}{2}} - 4d'\ ^2D_{1\frac{1}{2}}$
2467.380	5	40516.57	
2467.647	20	40512.19	$s^2\ ^2H_{4\frac{1}{2}} - z\ ^2I^\circ_{5\frac{1}{2}}$
2468.711	1	40494.73	
2468.848	2	40492.48	$5s\ ^4F_{3\frac{1}{2}} - 4f'\ ^2G^\circ_{4\frac{1}{2}}$?
2469.520	3	40481.46	$4p'\ ^2P^\circ_{0\frac{1}{2}} - 5s''\ ^4P_{0\frac{1}{2}}$?
2470.026	1	40473.17	$s^2\ ^2F_{2\frac{1}{2}} - 4f'\ ^2G^\circ_{3\frac{1}{2}}$
2470.429	2	40466.57	$4p\ ^4G^\circ_{3\frac{1}{2}} - 5s\ ^2F_{2\frac{1}{2}}$
2470.503	1	40465.35	
2472.282	10	40436.24	$4p'''\ ^2F^\circ_{2\frac{1}{2}} - 4d''\ ^2P_{1\frac{1}{2}}$
2472.507	15	40432.56	$4p\ ^4D^\circ_{1\frac{1}{2}} - 5s\ ^4F_{1\frac{1}{2}}$
2473.085	50	40423.11	$4p''\ ^2P^\circ_{1\frac{1}{2}} - 4d'\ ^2P_{1\frac{1}{2}}$
2473.148	100	40422.08	$4s\ ^2F_{2\frac{1}{2}} - 4p\ ^4F^\circ_{3\frac{1}{2}}$
2473.444	2	40417.24	$s^2\ ^2F_{3\frac{1}{2}} - v\ ^4F^\circ_{2\frac{1}{2}}$
2474.850	10	40394.28	$4p'\ ^2D^\circ_{1\frac{1}{2}} - 5s''\ ^4P_{1\frac{1}{2}}$
2475.147	1	40389.44	
2475.858	2	40377.84	$s^2\ ^2F_{3\frac{1}{2}} - w\ ^2F^\circ_{3\frac{1}{2}}$
2477.193	1	40356.08	$s^2\ ^2F_{2\frac{1}{2}} - 4f'\ ^2F^\circ_{2\frac{1}{2}}$
2478.497	10	40334.85	$4p\ ^2D^\circ_{1\frac{1}{2}} - 4d\ ^4P_{1\frac{1}{2}}$
2479.972	1	40310.86	$4p''\ ^2D^\circ_{1\frac{1}{2}} - 4d'\ ^2F_{2\frac{1}{2}}$
2482.254	20	40273.81	$4p'''\ ^2F^\circ_{3\frac{1}{2}} - 4d''\ ^2F_{2\frac{1}{2}}$
2482.680	15	40266.90	$4p'\ ^2P^\circ_{0\frac{1}{2}} - 5s''\ ^4P_{1\frac{1}{2}}$
2484.204	200	40242.19	$4p\ ^4D^\circ_{3\frac{1}{2}} - 5s\ ^4F_{4\frac{1}{2}}$
2484.381	10	40239.33	$4p''\ ^2P^\circ_{1\frac{1}{2}} - 4d'\ ^2P_{0\frac{1}{2}}$
2484.526	2	40236.98	$4p'\ ^2F^\circ_{3\frac{1}{2}} - 5s''\ ^4P_{2\frac{1}{2}}$
2485.960	30	40213.77	$4p'\ ^2D^\circ_{1\frac{1}{2}} - 5s''\ ^4P_{2\frac{1}{2}}$
2489.081	1	40163.35	$4p\ ^4G^\circ_{4\frac{1}{2}} - 5s\ ^2F_{3\frac{1}{2}}$
2491.695	1	40121.22	$4p'''\ ^2G^\circ_{4\frac{1}{2}} - 5d\ ^4G_{4\frac{1}{2}}$?
2493.666	1	40089.51	
2495.900	50	40053.63	$4p\ ^4D^\circ_{2\frac{1}{2}} - s^2\ ^2F_{3\frac{1}{2}}$
2496.807	1	40039.08	$4p'''\ ^2F^\circ_{3\frac{1}{2}} - 4d'''\ ^4F_{2\frac{1}{2}}$
2497.621	1	40026.03	$s^2\ ^2F_{3\frac{1}{2}} - 4f'\ ^2G^\circ_{4\frac{1}{2}}$
2497.805	10	40023.08	$4s\ ^2F_{2\frac{1}{2}} - 4p\ ^4G^\circ_{2\frac{1}{2}}$
2500.873	2	39973.99	$4p\ ^2F^\circ_{2\frac{1}{2}} - 4d\ ^4D_{3\frac{1}{2}}$
2501.105	1	39970.28	
2502.215	5	39952.55	$4p'''\ ^2F^\circ_{3\frac{1}{2}} - 4d''\ ^2D_{2\frac{1}{2}}$
2503.256	100	39935.94	$4p'''\ ^2H^\circ_{4\frac{1}{2}} - 5s'''\ ^2G_{3\frac{1}{2}}$
2503.509	5	39931.90	$4p'''\ ^2H^\circ_{4\frac{1}{2}} - 5s'''\ ^2G_{4\frac{1}{2}}$
2504.175	1	39921.28	$4p''\ ^2P^\circ_{1\frac{1}{2}} - 4d'\ ^2D_{1\frac{1}{2}}$
2504.424	5	39917.31	$5s\ ^2F_{3\frac{1}{2}} - w\ ^2G^\circ_{4\frac{1}{2}}$
2505.843	150	39894.71	$4s''\ ^4P_{1\frac{1}{2}} - 4p'\ ^2P^\circ_{1\frac{1}{2}}$
2506.091	100	39890.76	$4p\ ^4D^\circ_{0\frac{1}{2}} - 5s\ ^4F_{1\frac{1}{2}}$
2510.450	8	39821.50	$4p'''\ ^2F^\circ_{3\frac{1}{2}} - 4d''\ ^4F_{4\frac{1}{2}}$
2510.871	500	39814.83	$4s\ ^2F_{3\frac{1}{2}} - 4p\ ^4G^\circ_{4\frac{1}{2}}$
2511.016	5	39812.53	$4p'\ ^2D^\circ_{2\frac{1}{2}} - 5s''\ ^4P_{1\frac{1}{2}}$
2511.235	10h	39809.06	
2511.965	2	39797.49	$4p'\ ^2P^\circ_{1\frac{1}{2}} - 5s''\ ^4P_{0\frac{1}{2}}$

TABLE I. *Lines of* Ni II—Continued

λ(air)	Intensity	Wavenumber	Transition	λ(air)	Intensity	Wavenumber	Transition
2514.627	200	39755.36	$4p\ ^4D^\circ_{1\frac{1}{2}} - 5s\ ^4F_{2\frac{1}{2}}$	2583.998	200	38688.14	$4s''\ ^2P_{0\frac{1}{2}} - 4p'\ ^2P^\circ_{0\frac{1}{2}}$
2515.371	5	39743.60	$4p'''\ ^2F^\circ_{2\frac{1}{2}} - 4d''\ ^2F_{3\frac{1}{2}}$	2584.314	50	38683.41	$4p'''\ ^2F^\circ_{2\frac{1}{2}} - 5s'''\ ^2G_{3\frac{1}{2}}$
2516.875	15	39719.85	$4p''\ ^2P^\circ_{0\frac{1}{2}} - 4d'\ ^2S_{0\frac{1}{2}}$	2586.106	1	38656.61	
2517.469	20	39710.48	$4p\ ^4G^\circ_{2\frac{1}{2}} - 5s\ ^2F_{2\frac{1}{2}}$	2586.285	2	38653.93	$4p\ ^4F^\circ_{2\frac{1}{2}} - 5s\ ^2F_{2\frac{1}{2}}$
2520.351	5	39665.08	$4s''\ ^2P_{1\frac{1}{2}} - 4p'\ ^2D^\circ_{2\frac{1}{2}}$	2586.798	10	38646.27	
2521.217	5	39651.45	$5s\ ^2F_{2\frac{1}{2}} - w\ ^2G^\circ_{3\frac{1}{2}}$	2587.289	8	38638.93	$4s\ ^2F_{2\frac{1}{2}} - 4p\ ^4D^\circ_{1\frac{1}{2}}$
2521.853	10	39641.46	$5s\ ^2F_{3\frac{1}{2}} - w\ ^2F^\circ_{3\frac{1}{2}}$	2587.598	10	38634.32	$4p''\ ^4D^\circ_{2\frac{1}{2}} - 5s''\ ^2P_{1\frac{1}{2}}$
2522.266	1h	39634.97	$4p\ ^4D^\circ_{2\frac{1}{2}} - s^2\ ^2F_{2\frac{1}{2}}$	2588.310	20	38623.69	$4s''\ ^2P_{1\frac{1}{2}} - 4p'\ ^2F^\circ_{2\frac{1}{2}}$
2522.453	75	39632.03	$4p'\ ^2D^\circ_{2\frac{1}{2}} - 5s''\ ^4P_{2\frac{1}{2}}$	2589.584	18	38604.69	
2524.213	20	39604.40		2590.787	2	38586.77	
2525.296	300	39587.41	$4p\ ^4D^\circ_{2\frac{1}{2}} - 5s\ ^4F_{3\frac{1}{2}}$	2591.193	1	38580.72	
2526.670	3	39565.89		2591.259	15	38579.74	$4d\ ^2H_{5\frac{1}{2}} - 7f\ ^2\ I^\circ_{6\frac{1}{2}}$?
2527.471	15	39553.35	$4p''\ ^4P^\circ_{1\frac{1}{2}} - 5s'\ ^2D_{1\frac{1}{2}}$	2592.155	0	38566.41	$4d\ ^4H_{5\frac{1}{2}} - 7f\ ^4G^\circ_{5\frac{1}{2}}$
2530.532	5	39505.51	$4p''\ ^2P^\circ_{0\frac{1}{2}} - 5d'\ ^2P_{1\frac{1}{2}}$	2592.390	1	38562.91	$4p''\ ^4D^\circ_{1\frac{1}{2}} - 5s''\ ^2P_{1\frac{1}{2}}$
2532.231	5	39479.00	$5s\ ^2F_{2\frac{1}{2}} - w\ ^2F^\circ_{2\frac{1}{2}}$	2592.477	15	38561.62	$4d\ ^4H_{5\frac{1}{2}} - 7f\ ^4F^\circ_{4\frac{1}{2}}$
2534.959	150	39436.52	$4p''\ ^4P^\circ_{2\frac{1}{2}} - 5s'\ ^2D_{2\frac{1}{2}}$	2592.530	1	38560.83	$4s''\ ^2P_{0\frac{1}{2}} - 4p'\ ^2D^\circ_{1\frac{1}{2}}$
2535.302	2	39431.18	$z\ ^4F^\circ_{4\frac{1}{2}} - 8s\ ^4F_{4\frac{1}{2}}$	2592.595	5	38559.86	$4d\ ^4H_{5\frac{1}{2}} - 7f\ ^4H^\circ_{6\frac{1}{2}}$
2535.501	100	39428.09	$4p''\ ^4P^\circ_{1\frac{1}{2}} - 5s'\ ^2D_{2\frac{1}{2}}$	2593.913	3	38540.27	$4p'''\ ^2F^\circ_{2\frac{1}{2}} - 4d''\ ^4D_{1\frac{1}{2}}$
2535.580	5	39426.86	$4p\ ^4G^\circ_{4\frac{1}{2}} - s^2\ ^2F_{3\frac{1}{2}}$	2594.645	75	38529.40	$4p\ ^4G^\circ_{3\frac{1}{2}} - s^2\ ^2F_{3\frac{1}{2}}$
2535.696	3	39425.06	$4p'''\ ^2F^\circ_{2\frac{1}{2}} - 4d''\ ^4F_{3\frac{1}{2}}$	2595.973	10	38509.69	$4p\ ^4G^\circ_{2\frac{1}{2}} - 5s\ ^2F_{3\frac{1}{2}}$
2537.157	15	39402.36	$4p'\ ^2P^\circ_{1\frac{1}{2}} - 5s''\ ^4P_{2\frac{1}{2}}$	2596.284	2	38505.08	
2539.100	75	39372.21	$4s''\ ^2P_{0\frac{1}{2}} - 4p'\ ^2P^\circ_{1\frac{1}{2}}$	2596.448	1	38502.64	
2539.902	100	39359.78	$4p'''\ ^2H^\circ_{5\frac{1}{2}} - 5s'''\ ^2G_{4\frac{1}{2}}$	2596.569	5	38500.85	
2541.876	2	39329.21		2596.685	5	38499.13	
2541.994	3	39327.38		2597.575	3	38485.94	$4d\ ^4P_{1\frac{1}{2}} - 7f\ ^4D^\circ_{2\frac{1}{2}}$
2542.354	15d	39321.82	$4p''\ ^2P^\circ_{0\frac{1}{2}} - 4d'\ ^2P_{0\frac{1}{2}}$	2599.936	10	38450.99	
2545.903	200	39267.01	$4s\ ^2F_{2\frac{1}{2}} - 4p\ ^4G^\circ_{3\frac{1}{2}}$	2600.022	10	38449.72	
2545.990	50	39265.66	$4p\ ^4G^\circ_{3\frac{1}{2}} - 5s\ ^2F_{3\frac{1}{2}}$	2600.779	300	38438.53	$4p'\ ^2F^\circ_{2\frac{1}{2}} - 5s'\ ^2D_{1\frac{1}{2}}$
2547.188	8	39247.20	$4s'''\ ^2G_{3\frac{1}{2}} - 4p''\ ^2D^\circ_{2\frac{1}{2}}$	2601.029	200	38434.84	$4p\ ^4G^\circ_{4\frac{1}{2}} - 5s\ ^4F_{4\frac{1}{2}}$
2549.548	75	39210.87	$4s''\ ^2P_{1\frac{1}{2}} - 4p'\ ^2P^\circ_{0\frac{1}{2}}$?	2601.835	2	38422.93	
2551.034	10	39188.03	$4s\ ^2F_{3\frac{1}{2}} - 4p\ ^4D^\circ_{2\frac{1}{2}}$	2602.113	3	38418.83	
2552.617	100	39163.73	$4p'''\ ^2F^\circ_{3\frac{1}{2}} - 5s'''\ ^2G_{4\frac{1}{2}}$	2602.374	30	38414.97	$s^2\ ^4F_{4\frac{1}{2}} - z\ ^6G^\circ_{5\frac{1}{2}}$
2554.988	200	39127.39	$4p\ ^4G^\circ_{3\frac{1}{2}} - 5s\ ^4F_{2\frac{1}{2}}$	2603.180	8	38403.08	$s^2\ ^4P_{2\frac{1}{2}} - 5p\ ^4G^\circ_{2\frac{1}{2}}$
2556.265	3	39107.84	$4p''\ ^4S^\circ_{1\frac{1}{2}} - 4d'\ ^2P_{1\frac{1}{2}}$				$4d\ ^4G_{5\frac{1}{2}} - 7f\ ^4G^\circ_{5\frac{1}{2}}$
2556.356	2	39106.45	$4p''\ ^4S^\circ_{1\frac{1}{2}} - 4d'\ ^2D_{2\frac{1}{2}}$	2603.492	0	38398.48	$4d\ ^4G_{5\frac{1}{2}} - 7f\ ^4F^\circ_{4\frac{1}{2}}$
2556.638	15	39102.14	$4p''\ ^4P^\circ_{0\frac{1}{2}} - 5s'\ ^2D_{1\frac{1}{2}}$	2603.620	15	38396.59	$4d\ ^4G_{5\frac{1}{2}} - 7f\ ^4H^\circ_{6\frac{1}{2}}$
2557.868	15	39083.34	$4s''\ ^2P_{1\frac{1}{2}} - 4p'\ ^2D^\circ_{1\frac{1}{2}}$	2604.671	10	38381.10	$4d\ ^4F_{4\frac{1}{2}} - 7f\ ^4G^\circ_{5\frac{1}{2}}$
2558.830	0	39068.64	$4d\ ^4D_{3\frac{1}{2}} - 7f\ ^4F^\circ_{3\frac{1}{2}}$				$4d\ ^4F_{4\frac{1}{2}} - 7f\ ^4F^\circ_{3\frac{1}{2}}$
2559.135	8	39063.99	$4d\ ^4D_{3\frac{1}{2}} - 7f\ ^4F^\circ_{4\frac{1}{2}}$	2604.998	10	38376.28	$4d\ ^4F_{4\frac{1}{2}} - 7f\ ^4F^\circ_{4\frac{1}{2}}$
2559.922	5	39051.98	$4d\ ^4D_{3\frac{1}{2}} - 7f\ ^4P^\circ_{2\frac{1}{2}}$	2605.331	300	38371.37	$4p\ ^4G^\circ_{2\frac{1}{2}} - 5s\ ^4F_{2\frac{1}{2}}$
2560.156	150	39048.41	$4p\ ^4G^\circ_{2\frac{1}{2}} - 5s\ ^4F_{1\frac{1}{2}}$	2605.516	3	38368.65	$4d\ ^4F_{4\frac{1}{2}} - 7f\ ^4D^\circ_{3\frac{1}{2}}$?
2562.356	5	39014.89		2606.255	500	38357.77	$4p\ ^2G^\circ_{3\frac{1}{2}} - 5s\ ^2F_{2\frac{1}{2}}$
2565.210	15	38971.48	$4p\ ^4F^\circ_{4\frac{1}{2}} - 5s\ ^2F_{3\frac{1}{2}}$	2609.286	15	38313.22	$4p'\ ^2F^\circ_{2\frac{1}{2}} - 5s'\ ^2D_{2\frac{1}{2}}$
2565.923	500	38960.65	$4p\ ^4G^\circ_{4\frac{1}{2}} - 5s\ ^4F_{3\frac{1}{2}}$	2609.945	500	38303.54	$4p\ ^4G^\circ_{5\frac{1}{2}} - 5s\ ^4F_{4\frac{1}{2}}$
2566.097	5	38958.01	$4d\ ^4P_{2\frac{1}{2}} - 7f\ ^4P^\circ_{2\frac{1}{2}}$	2610.170	5	38300.24	
2566.241	5	38955.83		2610.478	3	38295.72	
2566.856	1	38946.49		2611.647	75	38278.58	$4s'''\ ^2G_{4\frac{1}{2}} - 4p''\ ^4D^\circ_{3\frac{1}{2}}$
2567.120	3	38942.49		2611.965	2	38273.92	
2568.136	3	38927.08	$4p''\ ^4D^\circ_{0\frac{1}{2}} - 5s''\ ^2P_{0\frac{1}{2}}$	2612.235	8	38269.97	
2568.670	3	38918.99	$4p'''\ ^2F^\circ_{3\frac{1}{2}} - 4d''\ ^4D_{3\frac{1}{2}}$	2613.291	2	38254.50	$4s'''\ ^2G_{3\frac{1}{2}} - 4p''\ ^4D^\circ_{3\frac{1}{2}}$
2568.793	1	38917.13	$s^2\ ^2D_{1\frac{1}{2}} - 5p'\ ^2D^\circ_{2\frac{1}{2}}$	2614.633	3	38234.87	$4p\ ^4F^\circ_{4\frac{1}{2}} - s^2\ ^2F_{3\frac{1}{2}}$
2572.207	2	38865.48		2615.056	500	38228.69	$4p\ ^2G^\circ_{4\frac{1}{2}} - 5s\ ^2F_{3\frac{1}{2}}$
2572.495	3	38861.13	$5s\ ^4F_{4\frac{1}{2}} - 7p\ ^4G^\circ_{5\frac{1}{2}}$	2617.336	10	38195.39	$4d\ ^4F_{3\frac{1}{2}} - 7f\ ^4F^\circ_{3\frac{1}{2}}$
2575.004	10	38823.26		2617.543	5	38192.37	
2576.247	2	38804.53		2617.967	2	38186.18	$4d\ ^4F_{3\frac{1}{2}} - 7f\ ^4D^\circ_{2\frac{1}{2}}$
2578.805	1	38766.04		2623.071	10	38111.88	$4s'''\ ^2G_{3\frac{1}{2}} - 4p''\ ^4D^\circ_{2\frac{1}{2}}$
2580.622	5	38738.75	$4p\ ^4D^\circ_{1\frac{1}{2}} - s^2\ ^2F_{2\frac{1}{2}}$	2623.154	20	38110.68	$4p\ ^4F^\circ_{3\frac{1}{2}} - 5s\ ^2F_{3\frac{1}{2}}$
2582.326	0	38713.19	$4d\ ^4H_{6\frac{1}{2}} - 7f\ ^4G^\circ_{5\frac{1}{2}}$	2624.367	10	38093.06	$4d\ ^4G_{4\frac{1}{2}} - 7f\ ^4F^\circ_{3\frac{1}{2}}$
2582.751	10	38706.82	$4d\ ^4H_{6\frac{1}{2}} - 7f\ ^4H^\circ_{6\frac{1}{2}}$	2624.697	15	38088.27	$4d\ ^4G_{4\frac{1}{2}} - 7f\ ^4F^\circ_{4\frac{1}{2}}$
2583.401	20	38697.08	$4d\ ^4H_{6\frac{1}{2}} - 7f\ ^4I^\circ_{7\frac{1}{2}}$	2626.426	200	38063.20	$4p\ ^4G^\circ_{3\frac{1}{2}} - 5s\ ^4F_{3\frac{1}{2}}$

TABLE I. *Lines of* Ni II — Continued

λ(air)	Intensity	Wavenumber	Transition	λ(air)	Intensity	Wavenumber	Transition
2626.570	5	38061.11		2690.925	1	37150.91	$4p'''\ ^2G^\circ_{4\frac{1}{2}} - 6s\ ^4F_{3\frac{1}{2}}$
2626.888	40	38056.51	$4p''\ ^4D^\circ_{1\frac{1}{2}} - 5s''\ ^4P_{0\frac{1}{2}}$	2692.697	3	37126.47	$s^2\ ^4F_{4\frac{1}{2}} - z\ ^6D^\circ_{4\frac{1}{2}}$
2629.787	40	38014.56	$4p''\ ^4D^\circ_{0\frac{1}{2}} - 5s''\ ^4P_{0\frac{1}{2}}$	2698.823	50	37042.20	$4p'\ ^2P^\circ_{1\frac{1}{2}} - 5s'\ ^2D_{2\frac{1}{2}}$
2630.273	30	38007.53	$4s\ ^2F_{3\frac{1}{2}} - 4p\ ^4D^\circ_{3\frac{1}{2}}$	2699.994	20	37026.13	$4p\ ^2G^\circ_{4\frac{1}{2}} - 5s\ ^4F_{3\frac{1}{2}}$
2630.545	1	38003.60	$4d\ ^4D_{2\frac{1}{2}} - 8p\ ^4G^\circ_{3\frac{1}{2}}$	2702.796	3	36987.75	$4d\ ^4D_{2\frac{1}{2}} - 6f\ ^2G^\circ_{3\frac{1}{2}}$
2631.349	100	37991.99	$4p\ ^4F^\circ_{2\frac{1}{2}} - 5s\ ^4F_{1\frac{1}{2}}$	2702.905	4	36986.26	$4s''\ ^2P_{0\frac{1}{2}} - 4p''\ ^4P^\circ_{1\frac{1}{2}}$
2632.040	5	37982.02	$5s\ ^4F_{4\frac{1}{2}} - t\ ^4D^\circ_{3\frac{1}{2}}$	2704.248	3	36967.89	$4d\ ^4D_{3\frac{1}{2}} - 4f'''\ ^4F^\circ_{4\frac{1}{2}}$
2632.255	50	37978.92	$4p'\ ^2D^\circ_{1\frac{1}{2}} - 5s'\ ^2D_{1\frac{1}{2}}$	2704.415	20	36965.61	$4p\ ^4F^\circ_{1\frac{1}{2}} - 5s\ ^4F_{2\frac{1}{2}}$
2632.713	150	37972.31	$4p\ ^4F^\circ_{3\frac{1}{2}} - 5s\ ^4F_{2\frac{1}{2}}$	2705.154	3	36955.51	$4p\ ^4F^\circ_{3\frac{1}{2}} - s^2\ ^2F_{2\frac{1}{2}}$
2633.054	3	37967.39	$4d\ ^4D_{2\frac{1}{2}} - 7f\ ^4D^\circ_{2\frac{1}{2}}$	2707.390	3	36924.99	$s^2\ ^4F_{1\frac{1}{2}} - z\ ^6G^\circ_{2\frac{1}{2}}$
2633.558	2	37960.13	$4s''\ ^2P_{1\frac{1}{2}} - 4p''\ ^4P^\circ_{0\frac{1}{2}}$	2708.635	200	36908.02	$4p\ ^4F^\circ_{3\frac{1}{2}} - 5s\ ^4F_{3\frac{1}{2}}$
2636.824	75	37913.11	$4p''\ ^4D^\circ_{2\frac{1}{2}} - 5s''\ ^4P_{1\frac{1}{2}}$	2709.636	50	36894.39	$4p''\ ^2D^\circ_{1\frac{1}{2}} - 5s''\ ^2P_{1\frac{1}{2}}$
2638.336	2	37891.39		2716.434	5	36802.06	$4p'''\ ^2F^\circ_{3\frac{1}{2}} - 4d'\ ^2F_{3\frac{1}{2}}$
2639.358	200	37876.72	$4p'\ ^2F^\circ_{3\frac{1}{2}} - 5s'\ ^2D_{2\frac{1}{2}}$	2718.239	5	36777.63	$4p''\ ^2D^\circ_{2\frac{1}{2}} - 5s''\ ^4P_{1\frac{1}{2}}$?
2640.970	10	37853.60	$4p'\ ^2D^\circ_{1\frac{1}{2}} - 5s'\ ^2D_{2\frac{1}{2}}$	2718.392	15	36775.56	$4p'''\ ^2F^\circ_{2\frac{1}{2}} - 4d'\ ^2G_{3\frac{1}{2}}$
2641.117	40	37851.49	$4p'\ ^2P^\circ_{0\frac{1}{2}} - 5s'\ ^2D_{1\frac{1}{2}}$	2721.770	3	36729.92	$s^2\ ^4P_{0\frac{1}{2}} - 5p\ ^4D^\circ_{1\frac{1}{2}}$
2641.790	50	37841.85	$4p''\ ^4D^\circ_{1\frac{1}{2}} - 5s''\ ^4P_{1\frac{1}{2}}$	2722.738	10	36716.86	$4p\ ^4F^\circ_{2\frac{1}{2}} - s^2\ ^2F_{3\frac{1}{2}}$
2644.726	10	37799.84	$4p''\ ^4D^\circ_{0\frac{1}{2}} - 5s''\ ^4P_{1\frac{1}{2}}$	2724.165	3	36697.63	
2646.436	3	37775.42		2724.725	50	36690.08	$4p''\ ^2P^\circ_{1\frac{1}{2}} - 5s''\ ^2P_{0\frac{1}{2}}$
2646.583	2	37773.32	$4p\ ^4G^\circ_{2\frac{1}{2}} - s^2\ ^2F_{3\frac{1}{2}}$	2727.943	1	36646.81	$4p\ ^2D^\circ_{2\frac{1}{2}} - 5s\ ^4F_{1\frac{1}{2}}$
2646.895	200	37768.87	$4p\ ^4F^\circ_{4\frac{1}{2}} - 5s\ ^4F_{3\frac{1}{2}}$	2728.683	3	36636.87	$4d\ ^4H_{5\frac{1}{2}} - 6f\ ^4I^\circ_{5\frac{1}{2}}$
2648.719	10	37742.86	$4s\ ^2F_{2\frac{1}{2}} - 4p\ ^4D^\circ_{2\frac{1}{2}}$	2729.712	3	36623.06	$s^2\ ^4P_{2\frac{1}{2}} - 5p\ ^4D^\circ_{2\frac{1}{2}}$
2649.436	40	37732.65	$4p''\ ^4D^\circ_{2\frac{1}{2}} - 5s''\ ^4P_{2\frac{1}{2}}$	2731.517	3	36598.86	
2649.710	1	37728.75		2731.642	5	36597.18	$4p''\ ^2D^\circ_{2\frac{1}{2}} - 5s''\ ^4P_{2\frac{1}{2}}$
2650.856	10	37712.44	$s^2\ ^4F_{3\frac{1}{2}} - z\ ^6G^\circ_{4\frac{1}{2}}$	2732.708	3	36582.91	$4d\ ^4P_{1\frac{1}{2}} - 6f\ ^2P^\circ_{1\frac{1}{2}}$
2651.408	1	37704.58	$s^2\ ^4P_{1\frac{1}{2}} - 5p\ ^2D^\circ_{2\frac{1}{2}}$	2737.678	3	36516.50	
			$z\ ^4D^\circ_{2\frac{1}{2}} - 7d\ ^4D_{2\frac{1}{2}}$	2738.890	20	36500.34	$4p\ ^2G^\circ_{4\frac{1}{2}} - 5s\ ^4F_{4\frac{1}{2}}$
2654.392	1	37662.20	$5s\ ^4F_{3\frac{1}{2}} - t\ ^4D^\circ_{2\frac{1}{2}}$	2739.649	2	36490.23	$4d\ ^4F_{4\frac{1}{2}} - 6f\ ^2H^\circ_{5\frac{1}{2}}$
2654.460	3	37661.24	$4p''\ ^4D^\circ_{1\frac{1}{2}} - 5s''\ ^4P_{2\frac{1}{2}}$	2739.761	3	36488.74	
2655.345	150	37648.69	$4p\ ^2F^\circ_{3\frac{1}{2}} - 5s\ ^2F_{2\frac{1}{2}}$	2742.359	3	36454.17	$4p''\ ^4P^\circ_{2\frac{1}{2}} - 4d\ ^2D_{2\frac{1}{2}}$
2655.769	150	37642.67	$4p\ ^4F^\circ_{1\frac{1}{2}} - 5s\ ^4F_{1\frac{1}{2}}$	2742.489	3	36452.44	$4d\ ^2P_{1\frac{1}{2}} - 6f\ ^4F^\circ_{1\frac{1}{2}}$
2659.498	150	37589.90	$4p''\ ^4D^\circ_{3\frac{1}{2}} - 5s''\ ^4P_{2\frac{1}{2}}$				$4d\ ^4P_{1\frac{1}{2}} - 4f'''\ ^4F^\circ_{1\frac{1}{2}}$
2661.006	1	37568.60		2742.831	300	36447.90	$4p\ ^2F^\circ_{3\frac{1}{2}} - 5s\ ^2F_{3\frac{1}{2}}$
2663.220	3	37537.37	$4p\ ^4G^\circ_{3\frac{1}{2}} - 5s\ ^4F_{4\frac{1}{2}}$	2747.780	15	36382.26	$4p\ ^4F^\circ_{3\frac{1}{2}} - 5s\ ^4F_{4\frac{1}{2}}$
2665.252	50	37508.75	$4s''\ ^2P_{1\frac{1}{2}} - 4p''\ ^4P^\circ_{1\frac{1}{2}}$	2747.920	2	36380.40	
2665.852	15	37500.31	$4s''\ ^2P_{1\frac{1}{2}} - 4p''\ ^4P^\circ_{2\frac{1}{2}}$	2750.475	5	36346.61	$s^2\ ^4P_{1\frac{1}{2}} - 5p\ ^4D^\circ_{2\frac{1}{2}}$
2665.950	100	37498.93	$4p''\ ^2D^\circ_{2\frac{1}{2}} - 5s''\ ^2P_{1\frac{1}{2}}$	2753.285	10	36309.52	$4p\ ^2F^\circ_{3\frac{1}{2}} - 5s\ ^4F_{2\frac{1}{2}}$
2666.423	50	37492.28	$4p\ ^2G^\circ_{4\frac{1}{2}} - s^2\ ^2F_{3\frac{1}{2}}$	2754.929	2	36287.85	$4d\ ^4F_{3\frac{1}{2}} - 6f\ ^2G^\circ_{4\frac{1}{2}}$
2666.616	2	37489.56	$4p'''\ ^2F^\circ_{3\frac{1}{2}} - 4d'\ ^2D_{2\frac{1}{2}}$	2755.208	75	36284.18	$4p''\ ^2P^\circ_{1\frac{1}{2}} - 5s''\ ^2P_{1\frac{1}{2}}$
2669.211	15	37453.12	$4p\ ^4F^\circ_{2\frac{1}{2}} - 5s\ ^2F_{3\frac{1}{2}}$	2757.761	20	36250.59	$4p\ ^4F^\circ_{2\frac{1}{2}} - 5s\ ^4F_{3\frac{1}{2}}$
2669.365	1	37450.96	$4p'''\ ^2H^\circ_{5\frac{1}{2}} - 4d'\ ^2G_{4\frac{1}{2}}$?	2758.874	150	36235.96	$4p\ ^2F^\circ_{2\frac{1}{2}} - 5s\ ^2F_{2\frac{1}{2}}$
2670.326	30	37437.48	$4s''\ ^2P_{0\frac{1}{2}} - 4p''\ ^4P^\circ_{0\frac{1}{2}}$	2760.671	15	36212.38	$4s'''\ ^2G_{3\frac{1}{2}} - 4p'\ ^2D^\circ_{2\frac{1}{2}}$
2673.207	40	37397.14	$4p'\ ^2D^\circ_{2\frac{1}{2}} - 5s'\ ^2D_{1\frac{1}{2}}$	2761.452	2	36202.14	$4d\ ^4G_{4\frac{1}{2}} - 6f\ ^2H^\circ_{5\frac{1}{2}}$
2674.848	50	37374.19	$4p\ ^4F^\circ_{3\frac{1}{2}} - s^2\ ^2F_{3\frac{1}{2}}$	2761.805	1	36197.51	$4d\ ^4G_{4\frac{1}{2}} - 6f\ ^4H^\circ_{4\frac{1}{2}}$
2676.231	2	37354.88	$4p\ ^4G^\circ_{2\frac{1}{2}} - s^2\ ^2F_{2\frac{1}{2}}$	2762.726	1	36185.44	$4d\ ^4G_{4\frac{1}{2}} - 6f\ ^2G^\circ_{4\frac{1}{2}}$
2679.109	200	37314.76	$4p\ ^4F^\circ_{2\frac{1}{2}} - 5s\ ^4F_{2\frac{1}{2}}$	2763.440	5	36176.09	$4d\ ^4H_{4\frac{1}{2}} - 6f\ ^2I^\circ_{5\frac{1}{2}}$
2679.521	30	37309.02	$4p\ ^2D^\circ_{2\frac{1}{2}} - 5s\ ^2F_{2\frac{1}{2}}$	2764.412	8	36163.38	$4d\ ^4G_{4\frac{1}{2}} - 6f\ ^4I^\circ_{5\frac{1}{2}}$
2679.659	5	37307.10	$4p\ ^4G^\circ_{2\frac{1}{2}} - 5s\ ^4F_{3\frac{1}{2}}$	2768.634	150	36108.23	$4p\ ^2D^\circ_{2\frac{1}{2}} - 5s\ ^2F_{3\frac{1}{2}}$
2680.153	75	37300.22	$4p''\ ^2D^\circ_{1\frac{1}{2}} - 5s''\ ^2P_{0\frac{1}{2}}$	2771.473	10	36071.25	$4d\ ^4D_{2\frac{1}{2}} - 6f\ ^2D^\circ_{2\frac{1}{2}}$
2680.310	2	37298.04					$4d\ ^2F_{3\frac{1}{2}} - 6f\ ^2G^\circ_{3\frac{1}{2}}$
2681.376	3	37283.21	$s^2\ ^4P_{1\frac{1}{2}} - 5p\ ^4D^\circ_{1\frac{1}{2}}$	2771.567	8	36070.02	$4d\ ^4D_{2\frac{1}{2}} - 6f\ ^2F^\circ_{3\frac{1}{2}}$
2682.194	100	37271.84	$4p'\ ^2D^\circ_{2\frac{1}{2}} - 5s'\ ^2D_{2\frac{1}{2}}$	2772.018	5	36064.15	$4d\ ^4D_{2\frac{1}{2}} - 6f\ ^2P^\circ_{1\frac{1}{2}}$
2682.782	5	37263.67		2772.090	5	36063.22	$4d\ ^4D_{2\frac{1}{2}} - 6f\ ^4G^\circ_{3\frac{1}{2}}$
2683.385	30	37255.30	$4p'''\ ^2F^\circ_{3\frac{1}{2}} - 4d'\ ^2G_{4\frac{1}{2}}$	2772.296	3	36060.54	$4d\ ^4D_{2\frac{1}{2}} - 6f\ ^4D^\circ_{1\frac{1}{2}}$
2684.277	300	37242.92	$4p\ ^4F^\circ_{4\frac{1}{2}} - 5s\ ^4F_{4\frac{1}{2}}$	2773.435	8	36045.73	
2684.680	10	37237.33	$s^2\ ^4F_{2\frac{1}{2}} - z\ ^6G^\circ_{3\frac{1}{2}}$	2773.856	15	36040.26	$4d\ ^4D_{1\frac{1}{2}} - 6f\ ^4F^\circ_{1\frac{1}{2}}$
2688.881	5	37179.15		2774.938	8	36026.21	$4d\ ^4D_{1\frac{1}{2}} - 6f\ ^4D^\circ_{0\frac{1}{2}}$
2689.730	50	37167.42	$4p'\ ^2P^\circ_{1\frac{1}{2}} - 5s'\ ^2D_{1\frac{1}{2}}$	2775.160	150	36023.32	$4p\ ^2D^\circ_{1\frac{1}{2}} - 5s\ ^2F_{2\frac{1}{2}}$
2690.178	3	37161.23	$4d\ ^4D_{3\frac{1}{2}} - 6f\ ^2G^\circ_{4\frac{1}{2}}$	2776.349	1	36007.90	
2690.485	150	37156.99	$4p\ ^2G^\circ_{3\frac{1}{2}} - 5s\ ^2F_{3\frac{1}{2}}$	2776.806	40	36001.97	$4p\ ^2G^\circ_{3\frac{1}{2}} - s^2\ ^2F_{2\frac{1}{2}}$

TABLE I. *Lines of* Ni II – Continued

λ(air)	Intensity	Wavenumber	Transition
2779.288	8	35969.82	$4p\ ^2D^\circ_{2\frac{1}{2}} - 5s\ ^4F_{2\frac{1}{2}}$
2779.360	3	35968.89	$4p'\ ^2F^\circ_{2\frac{1}{2}} - 4d\ ^2D_{1\frac{1}{2}}$
2779.591	5	35965.90	$s^2\ ^4F_{3\frac{1}{2}} - z\ ^6D^\circ_{4\frac{1}{2}}$
2780.482	30	35954.38	$4p\ ^2G^\circ_{3\frac{1}{2}} - 5s\ ^4F_{3\frac{1}{2}}$
2780.551	10	35953.48	$4d\ ^4G_{3\frac{1}{2}} - 6f\ ^2H^\circ_{4\frac{1}{2}}$
2780.905	10	35948.91	$4p\ ^4F^\circ_{1\frac{1}{2}} - s^2\ ^2F_{2\frac{1}{2}}$
2782.258	5	35931.43	$4d\ ^4G_{3\frac{1}{2}} - 6f\ ^4I^\circ_{4\frac{1}{2}}$
2782.947	1	35922.53	$s^2\ ^4F_{3\frac{1}{2}} - z\ ^6F^\circ_{2\frac{1}{2}}$
2785.861	2	35884.96	$4d\ ^4D_{2\frac{1}{2}} - 4f'''\ ^4F^\circ_{3\frac{1}{2}}$?
2790.557	15	35824.57	$s^2\ ^4F_{4\frac{1}{2}} - z\ ^6F^\circ_{4\frac{1}{2}}$
2792.133	50	35804.35	$4d\ ^4D_{3\frac{1}{2}} - 6f\ ^4F^\circ_{4\frac{1}{2}}$
2792.872	50	35794.88	$4d\ ^4D_{3\frac{1}{2}} - 6f\ ^4D^\circ_{3\frac{1}{2}}$
2793.344	40	35788.83	$4d\ ^4D_{3\frac{1}{2}} - 6f\ ^4P^\circ_{2\frac{1}{2}}$
2793.597	20	35785.59	$4d\ ^4D_{3\frac{1}{2}} - 6f\ ^4F^\circ_{3\frac{1}{2}}$
2794.621	100	35772.48	$4p''\ ^2P^\circ_{0\frac{1}{2}} - 5s''\ ^2P_{0\frac{1}{2}}$
2795.139	3	35765.85	
2799.251	3	35713.31	
2799.390	20	35711.54	$4p\ ^2F^\circ_{3\frac{1}{2}} - s^2\ ^2F_{3\frac{1}{2}}$
2799.559	5	35709.39	
2800.230	15	35700.83	$4d\ ^4P_{2\frac{1}{2}} - 6f\ ^4D^\circ_{3\frac{1}{2}}$
2800.701	40	35694.83	$4d\ ^4P_{2\frac{1}{2}} - 6f\ ^4P^\circ_{2\frac{1}{2}}$
2800.807	40	35693.48	$4d\ ^4P_{2\frac{1}{2}} - 6f\ ^4S^\circ_{1\frac{1}{2}}$
2800.950	1	35691.65	$4d\ ^4P_{2\frac{1}{2}} - 6f\ ^4F^\circ_{3\frac{1}{2}}$
2801.199	15	35688.48	$4d\ ^4P_{2\frac{1}{2}} - 6f\ ^4P^\circ_{1\frac{1}{2}}$
2801.711	1	35681.96	
2801.775	15	35681.14	
2802.510	10	35671.79	$4d\ ^4D_{0\frac{1}{2}} - 6f\ ^4D^\circ_{0\frac{1}{2}}$
2803.916	3	35653.90	
2804.768	3	35643.07	
2805.668	60	35631.64	$4s'''\ ^2G_{4\frac{1}{2}} - 4p'\ ^2F^\circ_{3\frac{1}{2}}$
2806.236	8	35624.43	$s^2\ ^2G_{3\frac{1}{2}} - 5p\ ^2F^\circ_{2\frac{1}{2}}$
2806.719	5	35618.30	
2807.083	10d	35613.68	$4d\ ^4P_{0\frac{1}{2}} - 6f\ ^2P^\circ_{1\frac{1}{2}}$?
2807.388	3	35609.81	$4d\ ^4P_{0\frac{1}{2}} - 6f\ ^4D^\circ_{1\frac{1}{2}}$
2807.560	1	35607.63	$4s'''\ ^2G_{3\frac{1}{2}} - 4p'\ ^2F^\circ_{3\frac{1}{2}}$
2808.343	20	35597.70	$4s'\ ^2D_{2\frac{1}{2}} - 4p\ ^2D^\circ_{1\frac{1}{2}}$
2809.044	10	35588.82	$4d\ ^4P_{0\frac{1}{2}} - 6f\ ^4P^\circ_{0\frac{1}{2}}$
2810.221	10	35573.91	$4p\ ^2F^\circ_{2\frac{1}{2}} - 5s\ ^4F_{1\frac{1}{2}}$
2811.092	10	35562.89	$4p''\ ^2P^\circ_{1\frac{1}{2}} - 5s''\ ^4P_{1\frac{1}{2}}$
2811.207	3	35561.43	
2811.331	2	35559.87	$z\ ^2F^\circ_{3\frac{1}{2}} - 7d\ ^4D_{2\frac{1}{2}}$
2811.960	10	35551.91	$4d\ ^2P_{1\frac{1}{2}} - 6f\ ^2D^\circ_{2\frac{1}{2}}$
2812.521	20	35544.82	$4d\ ^2P_{1\frac{1}{2}} - 6f\ ^2P^\circ_{1\frac{1}{2}}$
2812.582	5	35544.05	$s^2\ ^4F_{2\frac{1}{2}} - z\ ^6F^\circ_{1\frac{1}{2}}$
2814.469	8	35520.22	$4d\ ^2P_{1\frac{1}{2}} - 6f\ ^4P^\circ_{0\frac{1}{2}}$
2815.341	8	35509.22	$4p'\ ^2D^\circ_{1\frac{1}{2}} - 4d\ ^2D_{1\frac{1}{2}}$
2815.980	5	35501.16	
2816.256	1	35497.68	$4p''\ ^4D^\circ_{2\frac{1}{2}} - 5s'\ ^2D_{1\frac{1}{2}}$
2817.407	2h	35483.18	$4d\ ^4P_{0\frac{1}{2}} - 4f'''\ ^4F^\circ_{1\frac{1}{2}}$?
2817.722	8	35479.22	$s^2\ ^2G_{4\frac{1}{2}} - 5p\ ^2F^\circ_{3\frac{1}{2}}$
2819.882	5	35452.04	$4d\ ^4H_{6\frac{1}{2}} - 6f\ ^4G^\circ_{5\frac{1}{2}}$
2820.472	40	35444.62	$4d\ ^4H_{6\frac{1}{2}} - 6f\ ^4H^\circ_{6\frac{1}{2}}$
2821.745	150	35428.64	$4p\ ^2G^\circ_{3\frac{1}{2}} - 5s\ ^4F_{4\frac{1}{2}}$
			$4d\ ^4H_{6\frac{1}{2}} - 6f\ ^4I^\circ_{7\frac{1}{2}}$
2822.879	2	35414.40	$4d\ ^2P_{1\frac{1}{2}} - 4f'''\ ^4F^\circ_{1\frac{1}{2}}$
2823.877	2	35401.89	$4d\ ^4H_{3\frac{1}{2}} - 6f\ ^2H^\circ_{4\frac{1}{2}}$
2824.214	8	35397.66	$4d\ ^4H_{3\frac{1}{2}} - 6f\ ^4H^\circ_{3\frac{1}{2}}$
2825.142	3	35386.04	
2825.231	15	35384.92	$4s'\ ^2D_{2\frac{1}{2}} - 4p\ ^2F^\circ_{2\frac{1}{2}}$
2825.416	1	35382.60	$4p''\ ^2P^\circ_{1\frac{1}{2}} - 5s''\ ^4P_{2\frac{1}{2}}$?
			$4d\ ^2P_{1\frac{1}{2}} - 4f'''\ ^4F^\circ_{2\frac{1}{2}}$?
2825.477	1	35381.84	$4p'\ ^2P^\circ_{0\frac{1}{2}} - 4d\ ^2D_{1\frac{1}{2}}$
2825.641	50	35379.79	$4d\ ^4H_{3\frac{1}{2}} - 6f\ ^4I^\circ_{4\frac{1}{2}}$
2826.043	3	35374.76	$4p''\ ^4S^\circ_{1\frac{1}{2}} - 5s''\ ^2P_{0\frac{1}{2}}$
2826.270	20	35371.91	$4p\ ^2D^\circ_{2\frac{1}{2}} - s^2\ ^2F_{3\frac{1}{2}}$
2826.693	1	35366.62	$4p''\ ^2P^\circ_{0\frac{1}{2}} - 5s''\ ^2P_{1\frac{1}{2}}$
2827.126	10	35361.21	$4p\ ^2D^\circ_{1\frac{1}{2}} - 5s\ ^4F_{1\frac{1}{2}}$
2827.507	5	35356.44	$4d\ ^4F_{2\frac{1}{2}} - 4f''\ ^2D^\circ_{1\frac{1}{2}}$
2829.452	3	35332.14	$s^2\ ^4F_{3\frac{1}{2}} - z\ ^6F^\circ_{3\frac{1}{2}}$
2829.545	1	35330.98	$4p'\ ^2F^\circ_{2\frac{1}{2}} - 4d\ ^2D_{2\frac{1}{2}}$
2830.496	2	35319.11	$4d\ ^2H_{5\frac{1}{2}} - 6f\ ^2G^\circ_{4\frac{1}{2}}$
2830.675	4	35316.87	$4d\ ^4H_{5\frac{1}{2}} - 6f\ ^4G^\circ_{4\frac{1}{2}}$
2831.054	5	35312.15	$4d\ ^4H_{5\frac{1}{2}} - 6f\ ^4H^\circ_{5\frac{1}{2}}$
2831.354	15	35308.40	$4d\ ^4H_{4\frac{1}{2}} - 6f\ ^4H^\circ_{4\frac{1}{2}}$
2831.622	30	35305.06	$4d\ ^4H_{5\frac{1}{2}} - 6f\ ^4G^\circ_{5\frac{1}{2}}$
2831.861	3	35302.08	$4d\ ^4H_{5\frac{1}{2}} - 6f\ ^4F^\circ_{4\frac{1}{2}}$
2831.937	5	35301.13	$4p''\ ^4D^\circ_{1\frac{1}{2}} - 5s'\ ^2D_{2\frac{1}{2}}$
			$4d\ ^2F_{2\frac{1}{2}} - 6f\ ^4G^\circ_{2\frac{1}{2}}$
2832.050	10	35299.73	$4d\ ^2F_{2\frac{1}{2}} - 6f\ ^2G^\circ_{3\frac{1}{2}}$
2832.209	50	35297.74	$4d\ ^4H_{5\frac{1}{2}} - 6f\ ^4H^\circ_{6\frac{1}{2}}$
			$s^2\ ^4F_{4\frac{1}{2}} - z\ ^6F^\circ_{5\frac{1}{2}}$
2832.267	200	35297.02	$4d\ ^2H_{5\frac{1}{2}} - 6f\ ^2I^\circ_{6\frac{1}{2}}$
2832.444	2	35294.82	$4d\ ^2F_{2\frac{1}{2}} - 6f\ ^4H^\circ_{3\frac{1}{2}}$
2832.791	15	35290.49	$4d\ ^4H_{4\frac{1}{2}} - 6f\ ^4G^\circ_{3\frac{1}{2}}$
			$4d\ ^4F_{1\frac{1}{2}} - 6f\ ^4G^\circ_{2\frac{1}{2}}$
2833.321	8	35283.89	$4d\ ^2F_{2\frac{1}{2}} - 6f\ ^4F^\circ_{1\frac{1}{2}}$
2833.602	2	35280.39	$s^2\ ^4F_{1\frac{1}{2}} - z\ ^6F^\circ_{0\frac{1}{2}}$
2833.699	1	35279.19	
2834.110	100	35274.07	$4d\ ^4H_{4\frac{1}{2}} - 6f\ ^4I^\circ_{5\frac{1}{2}}$
2834.172	5	35273.30	$4d\ ^4F_{1\frac{1}{2}} - 6f\ ^4F^\circ_{1\frac{1}{2}}$
2834.354	5	35271.03	$4d\ ^2P_{0\frac{1}{2}} - 6f\ ^4D^\circ_{0\frac{1}{2}}$
			$4d\ ^2H_{5\frac{1}{2}} - 4f''\ ^2G^\circ_{4\frac{1}{2}}$
2834.525	100	35268.91	$4d\ ^4H_{5\frac{1}{2}} - 6f\ ^4I^\circ_{6\frac{1}{2}}$
2835.060	100	35262.25	$4p'''\ ^2G^\circ_{3\frac{1}{2}} - 5s'''\ ^2G_{3\frac{1}{2}}$
2835.703	10	35254.25	$4d\ ^4P_{1\frac{1}{2}} - 6f\ ^4D^\circ_{2\frac{1}{2}}$
2835.816	10	35252.85	
2836.195	2	35248.14	$4d\ ^4H_{4\frac{1}{2}} - 4f''\ ^2G^\circ_{4\frac{1}{2}}$
2836.425	75	35245.28	$4p\ ^2F^\circ_{3\frac{1}{2}} - 5s\ ^4F_{3\frac{1}{2}}$
2836.612	1	35242.96	
2836.758	2	35241.14	$4d\ ^4F_{2\frac{1}{2}} - 6f\ ^2D^\circ_{2\frac{1}{2}}$
2836.857	15	35239.92	$4d\ ^4F_{2\frac{1}{2}} - 6f\ ^2F^\circ_{3\frac{1}{2}}$
2837.415	20	35232.98	$4d\ ^4F_{2\frac{1}{2}} - 6f\ ^4G^\circ_{3\frac{1}{2}}$
2837.632	3	35230.29	$4d\ ^4F_{2\frac{1}{2}} - 6f\ ^4D^\circ_{1\frac{1}{2}}$
2837.680	3	35229.69	$4p''\ ^4D^\circ_{3\frac{1}{2}} - 5s'\ ^2D_{2\frac{1}{2}}$
2837.769	30	35228.59	$4d\ ^4F_{2\frac{1}{2}} - 6f\ ^4F^\circ_{2\frac{1}{2}}$
2839.353	20	35208.94	$4d\ ^4P_{1\frac{1}{2}} - 6f\ ^4P^\circ_{1\frac{1}{2}}$
2840.168	2	35198.83	
2840.472	20	35195.07	
2840.930	20	35189.39	$4d\ ^2H_{4\frac{1}{2}} - 6f\ ^2H^\circ_{4\frac{1}{2}}$
2841.496	5	35182.39	$4d\ ^4G_{2\frac{1}{2}} - 6f\ ^4G^\circ_{2\frac{1}{2}}$
2841.611	8	35180.96	$4d\ ^4G_{2\frac{1}{2}} - 6f\ ^2G^\circ_{3\frac{1}{2}}$
2842.002	40	35176.12	$4d\ ^4G_{2\frac{1}{2}} - 6f\ ^4H^\circ_{3\frac{1}{2}}$
2842.417	50	35170.99	$4s'''\ ^2G_{3\frac{1}{2}} - 4p'\ ^2F^\circ_{2\frac{1}{2}}$
2842.701	2	35167.47	$4d\ ^2H_{4\frac{1}{2}} - 6f\ ^4I^\circ_{4\frac{1}{2}}$?
2842.906	10	35164.94	
2842.929	30	35164.65	$4d\ ^2F_{3\frac{1}{2}} - 6f\ ^4H^\circ_{4\frac{1}{2}}$
2843.189	5	35161.44	$4p'''\ ^2G^\circ_{4\frac{1}{2}} - 5s'''\ ^2G_{3\frac{1}{2}}$
2843.520	75	35157.34	$4p'''\ ^2G^\circ_{4\frac{1}{2}} - 5s'''\ ^2G_{4\frac{1}{2}}$
2843.731	5	35154.74	$4d\ ^2F_{3\frac{1}{2}} - 6f\ ^2D^\circ_{2\frac{1}{2}}$
2843.827	30	35153.55	$4d\ ^2F_{3\frac{1}{2}} - 6f\ ^2F^\circ_{3\frac{1}{2}}$
			$4d\ ^4G_{5\frac{1}{2}} - 6f\ ^4G^\circ_{4\frac{1}{2}}$

TABLE I. *Lines of* Ni II — Continued

λ(air)	Intensity	Wavenumber	Transition
2843.904	20	35152.60	$4d\,^2F_{3\frac{1}{2}} - 6f\,^2G^\circ_{4\frac{1}{2}}$
2844.032	75	35151.02	$4d\,^2H_{4\frac{1}{2}} - 6f\,^2\,I^\circ_{5\frac{1}{2}}$
2844.032	75	35151.02	$4d\,^2H_{4\frac{1}{2}} - 6f\,^2\,I^\circ_{5\frac{1}{2}}$
2844.206	30	35148.86	$4d\,^4G_{5\frac{1}{2}} - 6f\,^4H^\circ_{5\frac{1}{2}}$
2844.777	20	35141.81	$4d\,^4G_{5\frac{1}{2}} - 6f\,^4G^\circ_{5\frac{1}{2}}$
2845.023	10	35138.77	$4d\,^4G_{5\frac{1}{2}} - 6f\,^4F^\circ_{4\frac{1}{2}}$
2845.377	75	35134.40	$4d\,^4G_{5\frac{1}{2}} - 6f\,^4H^\circ_{6\frac{1}{2}}$
2845.498	5	35132.91	
2845.601	15	35131.63	$4d\,^4F_{4\frac{1}{2}} - 6f\,^4G^\circ_{4\frac{1}{2}}$
2845.815	10	35128.99	$4d\,^4D_{1\frac{1}{2}} - 6f\,^4D^\circ_{1\frac{1}{2}}$
2845.991	5	35126.82	$4d\,^4F_{4\frac{1}{2}} - 6f\,^4H^\circ_{5\frac{1}{2}}$
2846.562	50	35119.77	$4d\,^4F_{4\frac{1}{2}} - 6f\,^4G^\circ_{5\frac{1}{2}}$
2846.803	50	35116.80	$4d\,^4F_{4\frac{1}{2}} - 6f\,^4F^\circ_{4\frac{1}{2}}$
2847.581	20	35107.21	$4d\,^4F_{4\frac{1}{2}} - 6f\,^4D^\circ_{3\frac{1}{2}}$
2847.706	40	35105.67	$4d\,^4G_{5\frac{1}{2}} - 6f\,^4\,I^\circ_{6\frac{1}{2}}$
2848.329	2	35097.99	$4d\,^4F_{4\frac{1}{2}} - 6f\,^4F^\circ_{3\frac{1}{2}}$
2848.921	3	35090.70	$s^2\,^4F_{2\frac{1}{2}} - z\,^6F^\circ_{2\frac{1}{2}}$
2849.552	10	35082.93	
2852.433	50	35047.49	$4d\,^4G_{3\frac{1}{2}} - 6f\,^4H^\circ_{4\frac{1}{2}}$
2853.032	10	35040.13	
2853.407	50	35035.53	$4d\,^4G_{3\frac{1}{2}} - 6f\,^2G^\circ_{4\frac{1}{2}}$
2853.439	25	35035.14	$4p\,^2F^\circ_{2\frac{1}{2}} - 5s\,^2F_{3\frac{1}{2}}$
2853.890	5	35029.60	$4d\,^4G_{3\frac{1}{2}} - 6f\,^4G^\circ_{3\frac{1}{2}}$
2854.200	75	35025.80	$4d\,^2G_{4\frac{1}{2}} - 6f\,^2H^\circ_{5\frac{1}{2}}$
2854.259	30	35025.07	$4d\,^4G_{3\frac{1}{2}} - 6f\,^4F^\circ_{2\frac{1}{2}}$
2854.575	3	35021.20	
2855.481	8	35010.08	$4d\,^2G_{4\frac{1}{2}} - 6f\,^2F^\circ_{3\frac{1}{2}}$
2855.557	30	35009.15	$4d\,^2G_{4\frac{1}{2}} - 6f\,^2G^\circ_{4\frac{1}{2}}$
2856.260	5	35000.54	
2856.398	8	34998.85	
2857.408	100	34986.48	$4p''\,^2S^\circ_{0\frac{1}{2}} - 5s''\,^2P_{1\frac{1}{2}}$
2857.870	1	34980.82	$s^2\,^4F_{1\frac{1}{2}} - z\,^6F^\circ_{1\frac{1}{2}}$
2858.839	15	34968.96	$4p''\,^4S^\circ_{1\frac{1}{2}} - 5s''\,^2P_{1\frac{1}{2}}$
2859.101	3	34965.76	
2859.492	20	34960.98	$4d\,^2G_{4\frac{1}{2}} - 4f'''\,^2G^\circ_{4\frac{1}{2}}$
2860.028	5	34954.43	$4d\,^4F_{3\frac{1}{2}} - 6f\,^4D^\circ_{2\frac{1}{2}}$
2860.126	30	34953.23	$4p\,^2D^\circ_{2\frac{1}{2}} - s^2\,^2F_{2\frac{1}{2}}$
2860.732	100	34945.83	$4d\,^4F_{3\frac{1}{2}} - 6f\,^4G^\circ_{4\frac{1}{2}}$
2861.385	2	34937.85	
2862.723	20	34921.52	$4d\,^4F_{3\frac{1}{2}} - 6f\,^4D^\circ_{3\frac{1}{2}}$
2863.214	3	34915.53	$4d\,^4F_{3\frac{1}{2}} - 6f\,^4P^\circ_{2\frac{1}{2}}$
2863.482	30	34912.27	$4d\,^4F_{3\frac{1}{2}} - 6f\,^4F^\circ_{3\frac{1}{2}}$
2863.699	100	34909.62	$4s'\,^2D_{1\frac{1}{2}} - 4p\,^2D^\circ_{1\frac{1}{2}}$
2864.024	500	34905.66	$4p\,^2D^\circ_{2\frac{1}{2}} - 5s\,^4F_{3\frac{1}{2}}$
2864.750	10	34896.81	$4p\,^2F^\circ_{2\frac{1}{2}} - 5s\,^4F_{2\frac{1}{2}}$
2864.954	5	34894.33	$4p'\,^2F^\circ_{3\frac{1}{2}} - 4d\,^2D_{2\frac{1}{2}}$
2866.526	3	34875.19	$4d\,^2F_{2\frac{1}{2}} - 4f'''\,^2F^\circ_{2\frac{1}{2}}$
2866.848	5	34871.28	$4p'\,^2D^\circ_{1\frac{1}{2}} - 4d\,^2D_{2\frac{1}{2}}$
2867.137	3	34867.76	
2867.774	4	34860.02	$4p''\,^2P^\circ_{0\frac{1}{2}} - 5s''\,^4P_{0\frac{1}{2}}$
2869.136	75	34843.47	$4d\,^4G_{4\frac{1}{2}} - 6f\,^4G^\circ_{4\frac{1}{2}}$
2869.522	200	34838.78	$4d\,^4G_{4\frac{1}{2}} - 6f\,^4H^\circ_{5\frac{1}{2}}$
2870.101	10	34831.75	$4d\,^4G_{4\frac{1}{2}} - 6f\,^4G^\circ_{5\frac{1}{2}}$
2870.348	10	34828.76	$4d\,^4G_{4\frac{1}{2}} - 6f\,^4F^\circ_{4\frac{1}{2}}$
2870.957	5	34821.37	$4d\,^4D_{2\frac{1}{2}} - w\,^2G^\circ_{3\frac{1}{2}}$
2871.102	5	34819.61	
2871.898	8	34809.96	$4d\,^4G_{4\frac{1}{2}} - 6f\,^4F^\circ_{3\frac{1}{2}}$
2872.153	20	34806.87	$4d\,^2G_{3\frac{1}{2}} - 6f\,^2G^\circ_{3\frac{1}{2}}$
2872.208	100	34806.20	$4d\,^2G_{3\frac{1}{2}} - 6f\,^2H^\circ_{4\frac{1}{2}}$
2872.562	3	34801.92	$4d\,^2G_{3\frac{1}{2}} - 6f\,^4H^\circ_{3\frac{1}{2}}$
2878.045	20	34735.62	$4d\,^4D_{2\frac{1}{2}} - 6f\,^4D^\circ_{2\frac{1}{2}}$
2879.382	10	34719.49	$4p\,^2F^\circ_{3\frac{1}{2}} - 5s\,^4F_{4\frac{1}{2}}$
2880.781	1	34702.63	$4d\,^4D_{2\frac{1}{2}} - 6f\,^4D^\circ_{3\frac{1}{2}}$
2881.188	5	34697.73	$4p'\,^2P^\circ_{1\frac{1}{2}} - 4d\,^2D_{1\frac{1}{2}}$
2881.255	2	34696.92	$4s'\,^2D_{1\frac{1}{2}} - 4p\,^2F^\circ_{2\frac{1}{2}}$
2881.543	15	34693.45	$4d\,^4D_{2\frac{1}{2}} - 6f\,^4F^\circ_{3\frac{1}{2}}$
2882.317	50	34684.14	$4p\,^2D^\circ_{1\frac{1}{2}} - 5s\,^4F_{2\frac{1}{2}}$
2882.832	2	34677.94	
2882.996	2	34675.97	$4p''\,^4P^\circ_{2\frac{1}{2}} - 4d\,^2F_{2\frac{1}{2}}$
2883.811	8	34666.17	
2883.986	1	34664.06	$s^2\,^4F_{3\frac{1}{2}} - z\,^6F^\circ_{4\frac{1}{2}}$
2885.253	8	34648.84	$4d\,^4D_{2\frac{1}{2}} - w\,^2F^\circ_{2\frac{1}{2}}$?
2889.703	3	34595.49	
2891.231	3	34577.21	
2896.604	3	34513.07	
2896.641	1	34512.63	
2898.050	5	34495.85	$4d\,^4H_{3\frac{1}{2}} - 6f\,^4H^\circ_{4\frac{1}{2}}$
2898.234	1	34493.66	$4d\,^2D_{2\frac{1}{2}} - 7f\,^4P^\circ_{2\frac{1}{2}}$
2900.862	50	34462.41	$4p''\,^4S^\circ_{1\frac{1}{2}} - 5s''\,^4P_{0\frac{1}{2}}$
2905.963	2	34401.92	$4d\,^4D_{3\frac{1}{2}} - 4f'\,^2F^\circ_{3\frac{1}{2}}$
2907.543	8	34383.23	$4d\,^2F_{2\frac{1}{2}} - 6f\,^2D^\circ_{2\frac{1}{2}}$
2907.642	8	34382.06	$4d\,^2F_{2\frac{1}{2}} - 6f\,^2F^\circ_{3\frac{1}{2}}$
2908.148	3	34376.08	$4d\,^2F_{2\frac{1}{2}} - 6f\,^2P^\circ_{1\frac{1}{2}}$
2908.228	1	34375.13	$4d\,^2F_{2\frac{1}{2}} - 6f\,^4G^\circ_{3\frac{1}{2}}$
2908.443	3	34372.59	$4d\,^2F_{2\frac{1}{2}} - 6f\,^4D^\circ_{1\frac{1}{2}}$
			$4d\,^4F_{1\frac{1}{2}} - 6f\,^2D^\circ_{2\frac{1}{2}}$
2908.599	3	34370.75	
2909.127	3	34364.51	
2909.328	5	34362.13	$4p''\,^2D^\circ_{2\frac{1}{2}} - 5s'\,^2D_{1\frac{1}{2}}$
2913.590	100	34311.87	$4s'\,^2D_{2\frac{1}{2}} - 4p\,^2D^\circ_{2\frac{1}{2}}$
2914.695	15	34298.86	$4p\,^2F^\circ_{2\frac{1}{2}} - s^2\,^2F_{3\frac{1}{2}}$
2915.479	3	34289.64	$4p'\,^2D^\circ_{2\frac{1}{2}} - 4d\,^2D_{2\frac{1}{2}}$
2915.646	8	34287.68	$s^2\,^2G_{4\frac{1}{2}} - 5p\,^4F^\circ_{3\frac{1}{2}}$
2917.561	8	34265.17	$4p''\,^2S^\circ_{0\frac{1}{2}} - 5s''\,^4P_{1\frac{1}{2}}$
2918.934	3	34249.06	$4d\,^2H_{4\frac{1}{2}} - 6f\,^4\,I^\circ_{5\frac{1}{2}}$
2919.052	75	34247.67	$4p''\,^4S^\circ_{1\frac{1}{2}} - 5s''\,^4P_{1\frac{1}{2}}$
2919.967	10	34236.94	$4p''\,^2D^\circ_{2\frac{1}{2}} - 5s'\,^2D_{2\frac{1}{2}}$
2926.800	2	34157.01	
2931.622	10	34100.83	$5p\,^4D^\circ_{3\frac{1}{2}} - 8d\,^4F_{4\frac{1}{2}}$
2934.516	100	34067.20	$4p''\,^4S^\circ_{1\frac{1}{2}} - 5s''\,^4P_{2\frac{1}{2}}$
2935.092	5	34060.52	$5p\,^4D^\circ_{2\frac{1}{2}} - 9s\,^2F_{3\frac{1}{2}}$
2935.149	5	34059.86	$4p'\,^2P^\circ_{1\frac{1}{2}} - 4d\,^2D_{2\frac{1}{2}}$
2935.632	20	34054.25	$5p\,^4D^\circ_{3\frac{1}{2}} - 8d\,^4D_{3\frac{1}{2}}$
2935.682	20	34053.67	$5p\,^4D^\circ_{3\frac{1}{2}} - 8d\,^4P_{2\frac{1}{2}}$
2942.788	2	33971.45	
2947.454	40	33917.67	$4s''\,^4P_{1\frac{1}{2}} - 4p\,^2D^\circ_{1\frac{1}{2}}$
2948.515	5	33905.47	$4d\,^4F_{2\frac{1}{2}} - 6f\,^4D^\circ_{2\frac{1}{2}}$
2948.964	4	33900.31	$4d\,^2G_{3\frac{1}{2}} - 6f\,^4H^\circ_{4\frac{1}{2}}$
2950.716	15	33880.18	$4p\,^2F^\circ_{2\frac{1}{2}} - s^2\,^2F_{2\frac{1}{2}}$
2952.183	2	33863.34	$4d\,^4F_{2\frac{1}{2}} - 6f\,^4F^\circ_{3\frac{1}{2}}$
2954.863	75	33832.63	$4p\,^2F^\circ_{2\frac{1}{2}} - 5s\,^4F_{3\frac{1}{2}}$
2956.860	5	33809.78	$4p''\,^4P^\circ_{1\frac{1}{2}} - 4d\,^4F_{2\frac{1}{2}}$
2959.638	2	33778.05	
2964.602	10	33721.49	
2966.368	2	33701.42	$5p\,^4F^\circ_{4\frac{1}{2}} - 8d\,^4G_{4\frac{1}{2}}$
2968.804	2	33673.77	$5p\,^4F^\circ_{4\frac{1}{2}} - 8d\,^4G_{5\frac{1}{2}}$
2968.892	25	33672.77	$5p\,^4F^\circ_{4\frac{1}{2}} - 8d\,^4F_{4\frac{1}{2}}$
2969.348	150	33667.60	$4p\,^2D^\circ_{1\frac{1}{2}} - s^2\,^2F_{2\frac{1}{2}}$
2969.846	30	33661.95	$5p\,^4F^\circ_{4\frac{1}{2}} - 8d\,^4H_{5\frac{1}{2}}$

TABLE I. *Lines of* Ni II – Continued

λ(air)	Intensity	Wavenumber	Transition
2970.651	1	33652.83	
2971.475	3	33643.50	
2972.457	10	33632.38	$4p''\ ^2D^\circ_{1\frac{1}{2}} - 5s'\ ^2D_{2\frac{1}{2}}$
2973.004	15	33626.20	$5p\ ^4F^\circ_{4\frac{1}{2}} - 8d\ ^4D_{3\frac{1}{2}}$
2974.655	3	33607.53	$5p\ ^4G^\circ_{5\frac{1}{2}} - 8d\ ^4G_{4\frac{1}{2}}$
2974.729	20	33606.70	$5p\ ^4G^\circ_{5\frac{1}{2}} - 8d\ ^4F_{4\frac{1}{2}}$
2975.710	10	33595.62	$5p\ ^4G^\circ_{5\frac{1}{2}} - 8d\ ^4H_{5\frac{1}{2}}$
2976.391	40	33587.93	$5p\ ^4G^\circ_{5\frac{1}{2}} - 8d\ ^4H_{6\frac{1}{2}}$
2978.695	2	33561.95	
2981.042	25	33535.53	$5p\ ^4D^\circ_{3\frac{1}{2}} - 9s\ ^4F_{4\frac{1}{2}}$
2982.291	10	33521.49	$4d\ ^2D_{2\frac{1}{2}} - 6f\ ^2G^\circ_{3\frac{1}{2}}$
2982.943	20	33514.16	$5p\ ^2G^\circ_{4\frac{1}{2}} - 8d\ ^2H_{5\frac{1}{2}}$
2983.197	10	33511.31	$5p\ ^4D^\circ_{2\frac{1}{2}} - 8d\ ^4D_{2\frac{1}{2}}$
2983.544	10	33507.41	$4p''\ ^4P^\circ_{2\frac{1}{2}} - 4d\ ^2P_{1\frac{1}{2}}$
2985.611	10	33484.21	$5p\ ^4G^\circ_{4\frac{1}{2}} - 8d\ ^4G_{4\frac{1}{2}}$
2986.135	1	33478.34	$5p\ ^4G^\circ_{4\frac{1}{2}} - 8d\ ^4F_{3\frac{1}{2}}$
2988.075	60	33456.60	$5p\ ^4G^\circ_{4\frac{1}{2}} - 8d\ ^4G_{5\frac{1}{2}}$
2988.166	2	33455.58	$5p\ ^4G^\circ_{4\frac{1}{2}} - 8d\ ^4F_{4\frac{1}{2}}$
2990.964	2	33424.29	
2991.071	20	33423.09	$4d\ ^4D_{2\frac{1}{2}} - 4f'\ ^2P^\circ_{1\frac{1}{2}}$
2992.343	1	33408.89	$5p\ ^4G^\circ_{4\frac{1}{2}} - 8d\ ^4D_{3\frac{1}{2}}$
2996.008	5	33368.02	$5p\ ^4F^\circ_{3\frac{1}{2}} - 8d\ ^4D_{2\frac{1}{2}}$
2998.054	5	33345.25	
2999.977	2	33323.87	
3000.337	2	33319.87	
3004.534	3	33273.33	$5p\ ^4D^\circ_{2\frac{1}{2}} - 8d\ ^4F_{3\frac{1}{2}}$
3005.082	3	33267.27	
3009.433	3	33219.17	
3013.567	5	33173.60	$5p\ ^4G^\circ_{2\frac{1}{2}} - 9s\ ^4F_{1\frac{1}{2}}$
3013.713	5	33171.99	
3015.238	5	33155.22	$5p\ ^4F^\circ_{4\frac{1}{2}} - 9s\ ^4F_{3\frac{1}{2}}$
3015.947	20	33147.42	$4p''\ ^2P^\circ_{1\frac{1}{2}} - 5s'\ ^2D_{1\frac{1}{2}}$
3016.996	20	33135.90	$5p\ ^4D^\circ_{1\frac{1}{2}} - 9s\ ^4F_{2\frac{1}{2}}$
			$5p\ ^4F^\circ_{3\frac{1}{2}} - 8d\ ^4G_{4\frac{1}{2}}$
3017.531	10	33130.03	$5p\ ^4F^\circ_{3\frac{1}{2}} - 8d\ ^4F_{3\frac{1}{2}}$
3019.580	20	33107.55	$5p\ ^4F^\circ_{4\frac{1}{2}} - 9s\ ^4F_{4\frac{1}{2}}$
3020.902	10	33093.06	$4p'\ ^2D^\circ_{1\frac{1}{2}} - 4d\ ^2F_{2\frac{1}{2}}$
3021.015	20	33091.82	$4p'\ ^2D^\circ_{1\frac{1}{2}} - 4d\ ^2P_{0\frac{1}{2}}$
3021.415	3	33087.44	$5p\ ^4F^\circ_{1\frac{1}{2}} - 9s\ ^4F_{1\frac{1}{2}}$
3022.407	10	33076.58	$5p\ ^4G^\circ_{3\frac{1}{2}} - 9s\ ^4F_{2\frac{1}{2}}$
3025.054	2	33047.64	$4p''\ ^4P^\circ_{0\frac{1}{2}} - 4d\ ^2P_{1\frac{1}{2}}$
			$4d\ ^2F_{2\frac{1}{2}} - 6f\ ^4D^\circ_{2\frac{1}{2}}$
3025.635	30	33041.29	$5p\ ^4G^\circ_{5\frac{1}{2}} - 9s\ ^4F_{4\frac{1}{2}}$
3027.267	1	33023.48	
3027.383	50	33022.21	$4p''\ ^2P^\circ_{1\frac{1}{2}} - 5s'\ ^2D_{2\frac{1}{2}}$
3029.030	2	33004.26	$4p'\ ^2D^\circ_{2\frac{1}{2}} - 4d\ ^2G_{3\frac{1}{2}}$
3030.390	2	32989.45	
3031.735	20	32974.81	$5p\ ^2G^\circ_{4\frac{1}{2}} - 9s\ ^2F_{3\frac{1}{2}}$
3032.458	5	32966.95	$4s'\ ^2D_{2\frac{1}{2}} - 4p\ ^4F^\circ_{2\frac{1}{2}}$
3035.117	20	32938.07	$5p\ ^4G^\circ_{4\frac{1}{2}} - 9s\ ^4F_{3\frac{1}{2}}$
3039.521	10	32890.35	$5p\ ^4G^\circ_{4\frac{1}{2}} - 9s\ ^4F_{4\frac{1}{2}}$
3040.020	5	32884.95	$4d\ ^2D_{1\frac{1}{2}} - 6f\ ^4G^\circ_{2\frac{1}{2}}$
3041.261	5	32871.53	$5p\ ^2G^\circ_{3\frac{1}{2}} - 9s\ ^2F_{2\frac{1}{2}}$
3041.619	5	32867.66	$4d\ ^2D_{1\frac{1}{2}} - 6f\ ^4F^\circ_{1\frac{1}{2}}$
3042.049	2	32863.02	
3042.915	3	32853.67	$4d\ ^2D_{1\frac{1}{2}} - 6f\ ^4D^\circ_{0\frac{1}{2}}$
3047.009	2	32809.53	
3054.822	10	32725.62	$5p\ ^2F^\circ_{3\frac{1}{2}} - 9s\ ^2F_{3\frac{1}{2}}$
3056.985	8	32702.46	$5p\ ^2D^\circ_{2\frac{1}{2}} - 9s\ ^2F_{3\frac{1}{2}}$
3063.942	5	32628.21	$4s'\ ^2D_{1\frac{1}{2}} - 4p\ ^4F^\circ_{1\frac{1}{2}}$
3066.237	8	32603.79	$4d\ ^2D_{2\frac{1}{2}} - 6f\ ^2F^\circ_{3\frac{1}{2}}$
3067.558	15	32589.75	$5p\ ^4F^\circ_{3\frac{1}{2}} - 9s\ ^4F_{3\frac{1}{2}}$
3078.930	15	32469.38	$4p''\ ^4P^\circ_{2\frac{1}{2}} - 4d\ ^4P_{1\frac{1}{2}}$
3084.578	4	32409.93	$5p\ ^2F^\circ_{2\frac{1}{2}} - 9s\ ^2F_{2\frac{1}{2}}$
3087.069	75	32383.78	$4s''\ ^4P_{2\frac{1}{2}} - 4p\ ^2D^\circ_{2\frac{1}{2}}$
3087.904	4	32375.03	$4d\ ^2D_{2\frac{1}{2}} - 4f''\ ^2F^\circ_{3\frac{1}{2}}$
3109.196	8	32153.33	$5p\ ^2D^\circ_{2\frac{1}{2}} - 8d\ ^4D_{2\frac{1}{2}}$
3118.012	2	32062.42	$4d\ ^4P_{1\frac{1}{2}} - 5f\ ^4G^\circ_{2\frac{1}{2}}$
3127.276	5	31967.44	$s^2\ ^2P_{1\frac{1}{2}} - 5p\ ^2D^\circ_{2\frac{1}{2}}$
3137.363	2	31864.67	$4p'\ ^2F^\circ_{2\frac{1}{2}} - 4d\ ^4D_{2\frac{1}{2}}$
3138.238	8	31855.78	$4p'\ ^2D^\circ_{1\frac{1}{2}} - 4d\ ^4P_{0\frac{1}{2}}$
3138.877	8	31849.30	$4d\ ^2D_{1\frac{1}{2}} - 4f''\ ^2D^\circ_{2\frac{1}{2}}$
3143.948	8	31797.93	$4d\ ^2D_{1\frac{1}{2}} - 4f''\ ^4F^\circ_{2\frac{1}{2}}$
3148.207	4	31754.92	$4p'\ ^2D^\circ_{2\frac{1}{2}} - 4d\ ^4D_{1\frac{1}{2}}$
3148.870	10	31748.23	$4d\ ^4D_{3\frac{1}{2}} - 5f\ ^2G^\circ_{4\frac{1}{2}}$
3149.525	5	31741.63	$4d\ ^4D_{3\frac{1}{2}} - 5f\ ^4G^\circ_{3\frac{1}{2}}$
3149.700	10	31739.86	$4p'\ ^2D^\circ_{2\frac{1}{2}} - 4d\ ^2F_{3\frac{1}{2}}$
3167.084	20	31565.65	$4d\ ^4D_{2\frac{1}{2}} - 5f\ ^2G^\circ_{3\frac{1}{2}}$
3179.620	20	31441.20	$5p\ ^4D^\circ_{2\frac{1}{2}} - 7d\ ^2F_{3\frac{1}{2}}$
3189.630	30	31342.54	$4p'\ ^2D^\circ_{2\frac{1}{2}} - 4d\ ^2P_{1\frac{1}{2}}$
3192.582	4	31313.56	$5p\ ^4F^\circ_{3\frac{1}{2}} - 7d\ ^4H_{4\frac{1}{2}}$
3193.677	2	31302.82	
3194.183	10	31297.86	$5p\ ^4F^\circ_{3\frac{1}{2}} - 7d\ ^2F_{3\frac{1}{2}}$
3195.177	8	31288.13	$4p''\ ^2D^\circ_{1\frac{1}{2}} - 4d\ ^2D_{1\frac{1}{2}}$
3195.294	5	31286.98	$4s''\ ^4P_{1\frac{1}{2}} - 4p\ ^4F^\circ_{2\frac{1}{2}}$
3202.312	10	31218.42	$4d\ ^4H_{5\frac{1}{2}} - 5f\ ^2I^\circ_{6\frac{1}{2}}$
3211.062	5	31133.35	$5p\ ^2G^\circ_{3\frac{1}{2}} - 8d\ ^4F_{4\frac{1}{2}}$
			$4d\ ^4P_{1\frac{1}{2}} - 5f\ ^2P^\circ_{1\frac{1}{2}}$
3213.172	3	31112.91	$4p'\ ^2P^\circ_{1\frac{1}{2}} - 4d^2P_{1\frac{1}{2}}$
3213.771	8	31107.11	$4d\ ^4P_{1\frac{1}{2}} - 5f\ ^4P^\circ_{0\frac{1}{2}}$
3214.498	10	31100.07	$4d\ ^4P_{0\frac{1}{2}} - 5f\ ^4F^\circ_{1\frac{1}{2}}$
3215.299	4	31092.33	
3222.336	10	31024.43	$4d\ ^2P_{1\frac{1}{2}} - 5f\ ^4G^\circ_{2\frac{1}{2}}$
3229.634	40	30954.32	$5p\ ^4D^\circ_{3\frac{1}{2}} - 7d\ ^4F_{4\frac{1}{2}}$
3230.237	2	30948.55	
3234.279	20	30909.87	
3236.743	150	30886.34	$5p\ ^4D^\circ_{3\frac{1}{2}} - 7d\ ^4P_{2\frac{1}{2}}$
3237.932	5h	30875.00	$4d\ ^4F_{3\frac{1}{2}} - 5f\ ^2G^\circ_{4\frac{1}{2}}$
3238.017	100	30874.19	$5p\ ^4D^\circ_{3\frac{1}{2}} - 7d\ ^4D_{3\frac{1}{2}}$
3243.894	10	30818.26	
3247.111	5	30787.72	
3248.703	10	30772.64	$4d\ ^4G_{4\frac{1}{2}} - 5f\ ^2G^\circ_{4\frac{1}{2}}$
3249.746	15	30762.76	$4d\ ^4G_{4\frac{1}{2}} - 5f\ ^2H^\circ_{5\frac{1}{2}}$
3249.836	20	30761.91	
3251.249	20	30748.54	
3251.966	30	30741.76	$4d\ ^4G_{4\frac{1}{2}} - 5f\ ^4I^\circ_{5\frac{1}{2}}$
3252.639	5	30735.40	$4d\ ^4F_{2\frac{1}{2}} - 5f\ ^2G^\circ_{3\frac{1}{2}}$
3259.778	5	30668.09	$4d\ ^4D_{2\frac{1}{2}} - 5f\ ^2D^\circ_{2\frac{1}{2}}$
3259.947	30	30666.50	$4d\ ^4D_{2\frac{1}{2}} - 5f\ ^2F^\circ_{3\frac{1}{2}}$
3260.246	10	30663.69	
3261.086	2	30655.79	
3261.753	40	30649.52	$4d\ ^4D_{2\frac{1}{2}} - 5f\ ^4G^\circ_{3\frac{1}{2}}$
3262.481	1	30642.68	$4d\ ^4D_{1\frac{1}{2}} - 5f\ ^2F^\circ_{2\frac{1}{2}}$
3262.615	15	30641.43	$s^2\ ^2F_{3\frac{1}{2}} - 6p\ ^2G^\circ_{4\frac{1}{2}}$?
3263.309	10	30634.91	
3264.364	100	30625.01	$4d\ ^4D_{2\frac{1}{2}} - 5f\ ^4F^\circ_{2\frac{1}{2}}$
3264.980	20	30619.23	$4d\ ^4D_{1\frac{1}{2}} - 5f\ ^4F^\circ_{1\frac{1}{2}}$
3265.173	8	30617.42	$4d\ ^2F_{3\frac{1}{2}} - 5f\ ^2H^\circ_{4\frac{1}{2}}$
3265.306	20	30616.17	$5p\ ^4G^\circ_{2\frac{1}{2}} - 7d\ ^4G_{2\frac{1}{2}}$
3265.466	30	30614.67	$5p\ ^4D^\circ_{1\frac{1}{2}} - 7d\ ^4D_{1\frac{1}{2}}$
			$4d\ ^4D_{2\frac{1}{2}} - 5f\ ^2P^\circ_{1\frac{1}{2}}$

TABLE I. *Lines of* Ni II — Continued

λ(air)	Intensity	Wavenumber	Transition
3265.730	100	30612.20	$4d\ ^4D_{1\frac{1}{2}} - 5f\ ^4G^\circ_{2\frac{1}{2}}$
			$5p\ ^4G^\circ_{2\frac{1}{2}} - 7d\ ^4H_{3\frac{1}{2}}$?
3265.896	30	30610.64	$5p\ ^4D^\circ_{1\frac{1}{2}} - 8s\ ^2F_{2\frac{1}{2}}$
3266.546	10	30604.55	$4p'\ ^2D^\circ_{2\frac{1}{2}} - 4d\ ^4F_{3\frac{1}{2}}$
3267.329	40	30597.22	$5p\ ^4D^\circ_{2\frac{1}{2}} - 8s\ ^2F_{3\frac{1}{2}}$
3267.962	3h	30591.29	$4d\ ^2D_{1\frac{1}{2}} - 6f\ ^4S^\circ_{1\frac{1}{2}}$
3268.654	5	30584.82	$4d\ ^4D_{1\frac{1}{2}} - 5f\ ^2D^\circ_{1\frac{1}{2}}$
3269.432	15	30577.54	$5p\ ^4F^\circ_{4\frac{1}{2}} - 7d\ ^4G_{4\frac{1}{2}}$
3269.925	20	30572.93	$4d\ ^4D_{1\frac{1}{2}} - 5f\ ^4D^\circ_{0\frac{1}{2}}$
3270.317	200	30569.26	$5p\ ^4G^\circ_{2\frac{1}{2}} - 7d\ ^4F_{1\frac{1}{2}}$
3271.199	5	30561.02	$5p\ ^4F^\circ_{4\frac{1}{2}} - 7d\ ^4F_{3\frac{1}{2}}$
3272.042	20	30553.15	
3272.223	5	30551.46	$5p\ ^4G^\circ_{3\frac{1}{2}} - 8s\ ^2F_{2\frac{1}{2}}$
3273.389	2	30540.58	$4p''\ ^4D^\circ_{1\frac{1}{2}} - 4d\ ^2F_{2\frac{1}{2}}$
			$4d\ ^4G_{3\frac{1}{2}} - 5f\ ^2F^\circ_{2\frac{1}{2}}$
3273.519	4	30539.36	$4p''\ ^4D^\circ_{1\frac{1}{2}} - 4d\ ^2P_{0\frac{1}{2}}$
3274.148	15	30533.50	$5p\ ^4F^\circ_{4\frac{1}{2}} - 7d\ ^4G_{5\frac{1}{2}}$
3274.310	10	30531.99	$4d\ ^4G_{3\frac{1}{2}} - 5f\ ^2G^\circ_{3\frac{1}{2}}$
3274.517	100	30530.06	$5p\ ^4F^\circ_{1\frac{1}{2}} - 7d\ ^4G_{2\frac{1}{2}}$
3274.917	100	30526.33	$4s'\ ^2D_{2\frac{1}{2}} - 4p\ ^4D^\circ_{1\frac{1}{2}}$
			$5p\ ^4F^\circ_{4\frac{1}{2}} - 7d\ ^4F_{4\frac{1}{2}}$
3275.982	150	30516.40	$5p\ ^4F^\circ_{4\frac{1}{2}} - 7d\ ^4H_{5\frac{1}{2}}$
3276.331	2	30513.15	
3276.747	2	30509.28	$4p''\ ^4D^\circ_{0\frac{1}{2}} - 4d\ ^4F_{1\frac{1}{2}}$
3277.711	75	30500.31	$4d\ ^4G_{3\frac{1}{2}} - 5f\ ^2H^\circ_{4\frac{1}{2}}$
3279.141	50	30487.01	$5p\ ^4G^\circ_{3\frac{1}{2}} - 7d\ ^4G_{3\frac{1}{2}}$
3279.161	25	30486.82	
3279.556	2	30483.15	$5p\ ^4F^\circ_{1\frac{1}{2}} - 7d\ ^4F_{1\frac{1}{2}}$
3280.085	2	30478.23	$5p\ ^4G^\circ_{3\frac{1}{2}} - 7d\ ^2G_{4\frac{1}{2}}$
3280.407	50	30475.24	$5p\ ^4D^\circ_{2\frac{1}{2}} - 7d\ ^4D_{2\frac{1}{2}}$
3280.469	3	30474.67	
3280.661	30	30472.88	$5s''\ ^4P_{2\frac{1}{2}} - 6p''\ ^4D^\circ_{3\frac{1}{2}}$
3281.269	20	30467.24	$5p\ ^4G^\circ_{5\frac{1}{2}} - 7d\ ^4G_{5\frac{1}{2}}$
3281.592	2	30464.24	
3281.824	10	30462.08	$5p\ ^4D^\circ_{1\frac{1}{2}} - 7d\ ^4F_{2\frac{1}{2}}$
3281.938	100	30461.03	$5p\ ^4G^\circ_{3\frac{1}{2}} - 7d\ ^4H_{4\frac{1}{2}}$
3282.044	20	30460.04	$5p\ ^4G^\circ_{5\frac{1}{2}} - 7d\ ^4F_{4\frac{1}{2}}$
3282.236	10	30458.26	$4d\ ^4D_{2\frac{1}{2}} - t\ ^4D^\circ_{2\frac{1}{2}}$?
3283.113	75	30450.12	$5p\ ^4G^\circ_{5\frac{1}{2}} - 7d\ ^4H_{5\frac{1}{2}}$
3283.537	30	30446.19	$5p\ ^4F^\circ_{4\frac{1}{2}} - 7d\ ^4D_{3\frac{1}{2}}$
3284.660	300	30435.78	$5p\ ^4G^\circ_{5\frac{1}{2}} - 7d\ ^4H_{6\frac{1}{2}}$
3285.281	20	30430.03	$4p'\ ^2F^\circ_{3\frac{1}{2}} - 4d\ ^4P_{2\frac{1}{2}}$
3288.050	3	30404.40	
3288.850	15	30397.01	$5p\ ^2G^\circ_{4\frac{1}{2}} - 7d\ ^4G_{3\frac{1}{2}}$
3288.954	30	30396.05	
3289.043	50	30395.23	$4d\ ^4D_{3\frac{1}{2}} - 5f\ ^4F^\circ_{4\frac{1}{2}}$
3289.781	100	30388.41	$5p\ ^2G^\circ_{4\frac{1}{2}} - 7d\ ^2G_{4\frac{1}{2}}$
3289.976	200	30386.61	$4d\ ^4D_{3\frac{1}{2}} - 5f\ ^4D^\circ_{2\frac{1}{2}}$
			$4d\ ^4D_{3\frac{1}{2}} - 5f\ ^4G^\circ_{4\frac{1}{2}}$
3290.075	2	30385.69	$5p\ ^4F^\circ_{2\frac{1}{2}} - 7d\ ^4D_{1\frac{1}{2}}$
3290.138	25	30385.11	$5s'\ ^2D^\circ_{2\frac{1}{2}} - 6p'\ ^2F^\circ_{3\frac{1}{2}}$
3290.506	10	30381.71	$5p\ ^4F^\circ_{2\frac{1}{2}} - 8s\ ^2F_{2\frac{1}{2}}$
3290.533	5	30381.46	$4s''\ ^4P_{2\frac{1}{2}} - 4p\ ^4F^\circ_{3\frac{1}{2}}$
3290.679	3	30380.11	$4s'\ ^2D_{1\frac{1}{2}} - 4p\ ^4D^\circ_{1\frac{1}{2}}$
3291.645	2	30371.20	$5p\ ^2G^\circ_{4\frac{1}{2}} - 7d\ ^4H_{4\frac{1}{2}}$
3292.087	300	30367.12	$5p\ ^2G^\circ_{4\frac{1}{2}} - 7d\ ^2H_{5\frac{1}{2}}$
3292.492	2	30363.39	$5p\ ^4F^\circ_{1\frac{1}{2}} - 5d''\ ^4F_{1\frac{1}{2}}$
3292.575	30	30362.62	$5p\ ^4F^\circ_{3\frac{1}{2}} - 7d\ ^2D_{2\frac{1}{2}}$
3292.820	50	30360.36	$5p\ ^4G^\circ_{4\frac{1}{2}} - 7d\ ^4G_{4\frac{1}{2}}$
3292.872	400	30359.88	$4d\ ^4D_{3\frac{1}{2}} - 5f\ ^4D^\circ_{3\frac{1}{2}}$
3293.345	20	30355.52	$5p\ ^2G^\circ_{4\frac{1}{2}} - 7d\ ^2F_{3\frac{1}{2}}$
3294.612	2	30343.85	$5p\ ^4G^\circ_{4\frac{1}{2}} - 7d\ ^4F_{3\frac{1}{2}}$
3295.464	300	30336.00	$4d\ ^4D_{3\frac{1}{2}} - 5f\ ^4P^\circ_{2\frac{1}{2}}$
3295.905	50	30331.95	$5p\ ^2F^\circ_{3\frac{1}{2}} - 7d\ ^4D_{2\frac{1}{2}}$
3296.350	10	30327.85	
3297.150	15	30320.49	$5s\ ^4F_{4\frac{1}{2}} - 6p\ ^4G^\circ_{5\frac{1}{2}}$
3297.501	150	30317.26	$5p\ ^4F^\circ_{2\frac{1}{2}} - 7d\ ^4G_{3\frac{1}{2}}$
3297.600	500	30316.35	$5p\ ^4G^\circ_{4\frac{1}{2}} - 7d\ ^4G_{5\frac{1}{2}}$
			$5p\ ^2G^\circ_{3\frac{1}{2}} - 7d\ ^2G_{3\frac{1}{2}}$
3298.381	40	30309.18	$5p\ ^4G^\circ_{4\frac{1}{2}} - 7d\ ^4F_{4\frac{1}{2}}$
3298.478	2	30308.29	
3298.749	20	30305.80	$4d\ ^4P_{2\frac{1}{2}} - 5f\ ^4F^\circ_{3\frac{1}{2}}$
3298.857	30	30304.80	$4p'\ ^2D^\circ_{2\frac{1}{2}} - 4d\ ^4P_{1\frac{1}{2}}$
3299.561	1	30298.34	
3300.184	20	30292.62	$4d\ ^4P_{2\frac{1}{2}} - 5f\ ^4D^\circ_{2\frac{1}{2}}$
3303.091	100	30265.96	$4d\ ^4P_{2\frac{1}{2}} - 5f\ ^4D^\circ_{3\frac{1}{2}}$
3303.225	30	30264.73	$4d\ ^4D_{0\frac{1}{2}} - 5f\ ^4F^\circ_{1\frac{1}{2}}$
3303.631	75	30261.01	$4d\ ^4D_{2\frac{1}{2}} - 5f\ ^4P^\circ_{1\frac{1}{2}}$
3303.738	300	30260.03	$5p\ ^2G^\circ_{3\frac{1}{2}} - 7d\ ^2H_{4\frac{1}{2}}$
3304.495	2	30253.10	
3305.709	400	30241.99	$4d\ ^4P_{2\frac{1}{2}} - 5f\ ^4P^\circ_{2\frac{1}{2}}$
3306.672	30	30233.18	$5p\ ^4F^\circ_{2\frac{1}{2}} - 7d\ ^4F_{2\frac{1}{2}}$
3307.126	25	30229.03	$5p\ ^4G^\circ_{4\frac{1}{2}} - 7d\ ^4D_{3\frac{1}{2}}$
3308.287	200	30218.43	$4d\ ^4D_{0\frac{1}{2}} - 5f\ ^4D^\circ_{0\frac{1}{2}}$
3308.935	5	30212.51	$5p\ ^2F^\circ_{3\frac{1}{2}} - 8s\ ^2F_{2\frac{1}{2}}$
3311.033	2	30193.36	$5p\ ^2F^\circ_{3\frac{1}{2}} - 7d\ ^2D_{2\frac{1}{2}}$
3311.473	20	30189.35	$5p\ ^2D^\circ_{2\frac{1}{2}} - 8s\ ^2F_{2\frac{1}{2}}$
3311.614	10	30188.07	
3311.718	100	30187.12	$4d\ ^4P_{0\frac{1}{2}} - 5f\ ^4D^\circ_{1\frac{1}{2}}$
3313.512	100	30170.78	$4d\ ^4P_{2\frac{1}{2}} - 5f\ ^4S^\circ_{1\frac{1}{2}}$
3313.569	10	30170.26	$5p\ ^2D^\circ_{2\frac{1}{2}} - 7d\ ^2D_{2\frac{1}{2}}$
3313.942	40	30166.86	$5p\ ^4D^\circ_{2\frac{1}{2}} - 7d\ ^4P_{1\frac{1}{2}}$
3314.734	10	30159.65	
3315.929	40	30148.79	$4d\ ^2P_{1\frac{1}{2}} - 5f\ ^2D^\circ_{2\frac{1}{2}}$
3316.507	40	30143.53	
3316.974	100	30139.29	$5p\ ^2F^\circ_{3\frac{1}{2}} - 7d\ ^2G_{4\frac{1}{2}}$
3317.019	30	30138.88	$5p\ ^4D^\circ_{2\frac{1}{2}} - 7d\ ^4F_{3\frac{1}{2}}$
3317.144	20	30137.74	$4d\ ^4P_{0\frac{1}{2}} - 5f\ ^4P^\circ_{0\frac{1}{2}}$
3318.043	2	30129.58	
3318.197	3	30128.18	
3318.391	10	30126.42	
3319.272	40	30118.42	$4d\ ^2P_{1\frac{1}{2}} - 5f\ ^4D^\circ_{1\frac{1}{2}}$
3320.604	50	30106.34	$5p\ ^2F^\circ_{2\frac{1}{2}} - 7d\ ^2F_{3\frac{1}{2}}$
3320.688	10	30105.58	$4d\ ^2P_{1\frac{1}{2}} - 5f\ ^4F^\circ_{2\frac{1}{2}}$
3321.665	30	30096.72	$4p''\ ^4D^\circ_{0\frac{1}{2}} - 4d\ ^4D_{0\frac{1}{2}}$
3321.829	50	30095.24	$4d\ ^2P_{1\frac{1}{2}} - 5f\ ^2P^\circ_{1\frac{1}{2}}$
3323.003	2	30084.61	
3323.164	25	30083.15	$5p\ ^2D^\circ_{2\frac{1}{2}} - 7d\ ^2F_{3\frac{1}{2}}$
3324.650	5	30069.70	$5p\ ^2D^\circ_{1\frac{1}{2}} - 5d''\ ^2P_{0\frac{1}{2}}$?
3324.720	75	30069.07	$4d\ ^2P_{1\frac{1}{2}} - 5f\ ^4P^\circ_{0\frac{1}{2}}$
3325.292	20	30063.90	$5p\ ^2F^\circ_{3\frac{1}{2}} - 7d\ ^4F_{2\frac{1}{2}}$
3325.494	200	30062.07	$5p\ ^4D^\circ_{3\frac{1}{2}} - 8s\ ^4F_{4\frac{1}{2}}$
3327.125	30	30047.34	$4d\ ^4H_{6\frac{1}{2}} - 5f\ ^4G^\circ_{5\frac{1}{2}}$
3327.859	25	30040.71	$5p\ ^2D^\circ_{2\frac{1}{2}} - 7d\ ^4F_{2\frac{1}{2}}$
3327.943	25	30039.95	$4p''\ ^2P^\circ_{1\frac{1}{2}} - 4d\ ^2D_{2\frac{1}{2}}$
3328.310	60	30036.64	
3331.034	150	30012.08	$5p\ ^4F^\circ_{3\frac{1}{2}} - 7d\ ^4G_{4\frac{1}{2}}$
3331.875	2000	30004.50	$4d\ ^4H_{6\frac{1}{2}} - 5f\ ^4I^\circ_{7\frac{1}{2}}$
3332.868	150	29995.56	$5p\ ^4F^\circ_{3\frac{1}{2}} - 7d\ ^4F_{3\frac{1}{2}}$

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TABLE I. *Lines of* Ni II — Continued

λ(air)	Intensity	Wavenumber	Transition
3333.703	20	29988.05	
3333.872	50	29986.53	
3335.316	2	29973.55	
3335.562	30	29971.34	
3335.639	400	29970.64	$4d\,^4H_{3\frac{1}{2}} - 5f\,^4I^\circ_{4\frac{1}{2}}$
3336.770	40	29960.49	$5p\,^4D^\circ_{0\frac{1}{2}} - 8s\,^4F_{1\frac{1}{2}}$
3337.108	2	29957.45	$4p''\,^4D^\circ_{2\frac{1}{2}} - 4d\,^4G_{3\frac{1}{2}}$
3337.177	1	29956.83	$4d\,^2D_{2\frac{1}{2}} - 4f'\,^2P^\circ_{1\frac{1}{2}}$
3338.092	500	29948.62	$4d\,^4H_{3\frac{1}{2}} - 5f\,^2H^\circ_{4\frac{1}{2}}$
3338.344	3	29946.36	$5s'\,^2D_{2\frac{1}{2}} - 4f''\,^4D^\circ_{3\frac{1}{2}}$
3340.376	5	29928.14	
3341.371	2	29919.23	$5p\,^4F^\circ_{1\frac{1}{2}} - 5d''\,^4D_{2\frac{1}{2}}$?
3342.640	5	29907.87	
3342.831	15	29906.17	$4d\,^2H_{5\frac{1}{2}} - 5f\,^2G^\circ_{4\frac{1}{2}}$
			$5s\,^2F_{3\frac{1}{2}} - 6p\,^2G^\circ_{4\frac{1}{2}}$
3343.352	2	29901.51	
3343.473	80	29900.42	$4d\,^4H_{5\frac{1}{2}} - 5f\,^4G^\circ_{5\frac{1}{2}}$
3343.938	100	29896.27	$4d\,^2H_{5\frac{1}{2}} - 5f\,^2H^\circ_{5\frac{1}{2}}$
3344.224	5	29893.71	$4d\,^4H_{4\frac{1}{2}} - 5f\,^2F^\circ_{3\frac{1}{2}}$
3344.304	30	29892.99	$4d\,^4H_{5\frac{1}{2}} - 5f\,^4F^\circ_{4\frac{1}{2}}$
3345.070	300	29886.15	$4d\,^4H_{5\frac{1}{2}} - 5f\,^4H^\circ_{6\frac{1}{2}}$
			$4d\,^2F_{2\frac{1}{2}} - 5f\,^2F^\circ_{2\frac{1}{2}}$
3345.385	10	29883.33	$4d\,^4H_{4\frac{1}{2}} - 5f\,^2G^\circ_{4\frac{1}{2}}$
3345.930	400	29878.47	$4d\,^2H_{5\frac{1}{2}} - 5f\,^2I^\circ_{6\frac{1}{2}}$
3346.023	200	29877.64	$5p\,^2F^\circ_{2\frac{1}{2}} - 7d\,^2F_{2\frac{1}{2}}$
			$4d\,^2F_{2\frac{1}{2}} - 5f\,^2G^\circ_{3\frac{1}{2}}$
3346.257	150	29875.55	$4d\,^4F_{1\frac{1}{2}} - 5f\,^2F^\circ_{2\frac{1}{2}}$
3346.340	100	29874.81	$4d\,^4H_{4\frac{1}{2}} - 5f\,^4H^\circ_{4\frac{1}{2}}$
3346.485	40	29873.51	$4d\,^4H_{4\frac{1}{2}} - 5f\,^2H^\circ_{5\frac{1}{2}}$
3347.141	200	29867.66	$4d\,^4H_{5\frac{1}{2}} - 5f\,^4H^\circ_{5\frac{1}{2}}$
3347.549	50	29864.02	$4d\,^2P_{0\frac{1}{2}} - 5f\,^4F^\circ_{1\frac{1}{2}}$
3347.685	20	29862.80	$4d\,^2F_{2\frac{1}{2}} - 5f\,^4F^\circ_{1\frac{1}{2}}$
3348.477	30	29855.74	$4d\,^2F_{2\frac{1}{2}} - 5f\,^4G^\circ_{2\frac{1}{2}}$
3348.516	10	29855.39	$4p''\,^4D^\circ_{2\frac{1}{2}} - 4d\,^4D_{1\frac{1}{2}}$
3348.609	40	29854.56	$5p\,^2F^\circ_{2\frac{1}{2}} - 7d\,^2G_{3\frac{1}{2}}$
3348.842	500	29852.49	$4d\,^4H_{4\frac{1}{2}} - 5f\,^4I^\circ_{5\frac{1}{2}}$
3349.235	500	29848.98	$4d\,^4H_{5\frac{1}{2}} - 5f\,^4I^\circ_{6\frac{1}{2}}$
3349.523	1	29846.42	
3349.669	75	29845.12	$4d\,^4F_{1\frac{1}{2}} - 5f\,^4G^\circ_{2\frac{1}{2}}$
3349.851	40	29843.50	$4d\,^2D_{2\frac{1}{2}} - 4f'\,^2F^\circ_{3\frac{1}{2}}$
3350.410	20	29838.52	$4s'\,^2D_{1\frac{1}{2}} - 4p\,^4D^\circ_{1\frac{1}{2}}$
3350.467	75	29838.01	$4d\,^4F_{2\frac{1}{2}} - 5f\,^2D^\circ_{2\frac{1}{2}}$
3350.647	150	29836.41	$4d\,^4F_{2\frac{1}{2}} - 5f\,^2F^\circ_{3\frac{1}{2}}$
3351.101	2	29832.36	
3351.404	100	29829.67	$4d\,^2P_{0\frac{1}{2}} - 5f\,^2D^\circ_{1\frac{1}{2}}$
3352.562	200	29819.36	$4d\,^4F_{2\frac{1}{2}} - 5f\,^4G^\circ_{3\frac{1}{2}}$
3352.741	20	29817.77	$5p\,^2D^\circ_{1\frac{1}{2}} - 7d\,^2F_{2\frac{1}{2}}$
3352.813	10	29817.13	$5p\,^2F^\circ_{2\frac{1}{2}} - 7d\,^4G_{2\frac{1}{2}}$
3353.260	100	29813.16	$4d\,^4P_{1\frac{1}{2}} - 5f\,^4D^\circ_{2\frac{1}{2}}$
			$5p\,^2D^\circ_{1\frac{1}{2}} - 7d\,^2P_{0\frac{1}{2}}$
3353.456	1	29811.41	
3353.874	25	29807.70	$4d\,^4F_{2\frac{1}{2}} - 5f\,^4D^\circ_{1\frac{1}{2}}$
3354.085	40	29805.82	$4d\,^4F_{1\frac{1}{2}} - 5f\,^4D^\circ_{0\frac{1}{2}}$
3355.315	30	29794.90	$4d\,^4F_{2\frac{1}{2}} - 5f\,^4F^\circ_{2\frac{1}{2}}$
3356.525	25	29784.16	$4p''\,^4D^\circ_{1\frac{1}{2}} - 4d\,^4D_{1\frac{1}{2}}$
3356.825	150	29781.50	$4d\,^4P_{1\frac{1}{2}} - 5f\,^4P^\circ_{1\frac{1}{2}}$
3357.035	10	29779.63	
3357.850	5	29772.41	
3358.254	2	29768.82	
3358.368	1	29767.81	$4d\,^2H_{4\frac{1}{2}} - 5f\,^2G^\circ_{3\frac{1}{2}}$
3358.400	25	29767.53	$4d\,^4G_{2\frac{1}{2}} - 5f\,^2F^\circ_{2\frac{1}{2}}$?
3358.676	600	29765.08	$4d\,^2H_{4\frac{1}{2}} - 5f\,^2I^\circ_{5\frac{1}{2}}$
3358.975	2	29762.43	$4d\,^4P_{1\frac{1}{2}} - 5f\,^4P^\circ_{2\frac{1}{2}}$
3359.218	10	29760.28	$4p''\,^2P^\circ_{0\frac{1}{2}} - 4d\,^2D_{1\frac{1}{2}}$
3359.366	150	29758.97	$4d\,^4P_{1\frac{1}{2}} - 5f\,^2S^\circ_{0\frac{1}{2}}$
			$4d\,^2G_{2\frac{1}{2}} - 5f\,^2G^\circ_{3\frac{1}{2}}$
3359.463	40	29758.11	$4d\,^2H_{4\frac{1}{2}} - 5f\,^4I^\circ_{4\frac{1}{2}}$
3359.566	10	29757.20	$5p\,^2D^\circ_{1\frac{1}{2}} - 5d''\,^4P_{1\frac{1}{2}}$
3359.927	3	29754.00	$4p''\,^4D^\circ_{2\frac{1}{2}} - 4d\,^4F_{2\frac{1}{2}}$
3360.189	30	29751.68	$4d\,^2F_{3\frac{1}{2}} - 5f\,^2D^\circ_{2\frac{1}{2}}$
3360.372	300	29750.06	$4d\,^2F_{3\frac{1}{2}} - 5f\,^2F^\circ_{3\frac{1}{2}}$
3361.825	100	29737.20	$4d\,^4G_{5\frac{1}{2}} - 5f\,^4G^\circ_{5\frac{1}{2}}$
3361.858	200	29736.91	$4d\,^4G_{2\frac{1}{2}} - 5f\,^4G^\circ_{2\frac{1}{2}}$
3361.944	30	29736.15	$4d\,^2H_{4\frac{1}{2}} - 5f\,^2H^\circ_{4\frac{1}{2}}$
3362.292	40	29733.07	$4d\,^2F_{3\frac{1}{2}} - 5f\,^4G^\circ_{3\frac{1}{2}}$
3362.519	100	29731.07	$4d\,^2F_{3\frac{1}{2}} - 5f\,^4H^\circ_{4\frac{1}{2}}$
3362.674	10	29729.70	$4d\,^4G_{5\frac{1}{2}} - 5f\,^4F^\circ_{4\frac{1}{2}}$
3363.451	500	29722.83	$4d\,^4G_{5\frac{1}{2}} - 5f\,^4H^\circ_{6\frac{1}{2}}$
3363.644	30	29721.12	$4d\,^4G_{5\frac{1}{2}} - 5f\,^4G^\circ_{4\frac{1}{2}}$
3364.324	400	29715.12	$4d\,^4F_{4\frac{1}{2}} - 5f\,^4G^\circ_{5\frac{1}{2}}$
3364.445	10	29714.05	
3364.660	20	29712.15	$4d\,^4F_{4\frac{1}{2}} - 5f\,^4F^\circ_{3\frac{1}{2}}$
3365.070	30	29708.53	$4d\,^2F_{3\frac{1}{2}} - 5f\,^4F^\circ_{2\frac{1}{2}}$
3365.166	300	29707.68	$4d\,^4F_{4\frac{1}{2}} - 5f\,^4F^\circ_{4\frac{1}{2}}$
3365.329	20	29706.24	$4d\,^4D_{1\frac{1}{2}} - 5f\,^4D^\circ_{1\frac{1}{2}}$
3365.552	30	29704.27	$4d\,^4G_{5\frac{1}{2}} - 5f\,^4H^\circ_{5\frac{1}{2}}$
3366.035	100	29700.01	$5p\,^4G^\circ_{2\frac{1}{2}} - 8s\,^4F_{1\frac{1}{2}}$
3367.025	8	29691.28	$4d\,^4P_{1\frac{1}{2}} - 5f\,^4S^\circ_{1\frac{1}{2}}$
3367.667	200	29685.62	$4d\,^4G_{5\frac{1}{2}} - 5f\,^4I^\circ_{6\frac{1}{2}}$
3367.956	20	29683.07	$4d\,^4D_{1\frac{1}{2}} - 5f\,^2P^\circ_{1\frac{1}{2}}$
3368.041	50	29682.32	$4d\,^4F_{4\frac{1}{2}} - 5f\,^4H^\circ_{5\frac{1}{2}}$
3368.662	75	29676.85	$5p\,^4D^\circ_{1\frac{1}{2}} - 8s\,^4F_{2\frac{1}{2}}$
3369.178	75	29672.31	$4d\,^4F_{4\frac{1}{2}} - 5f\,^4D^\circ_{3\frac{1}{2}}$
3370.274	30	29662.66	
3371.284	10	29653.77	$5p\,^4F^\circ_{4\frac{1}{2}} - 5d'\,^2F_{3\frac{1}{2}}$
3373.527	200	29634.05	$5p\,^4F^\circ_{4\frac{1}{2}} - 8s\,^4F_{4\frac{1}{2}}$
3373.666	5	29632.83	$4d\,^4G_{3\frac{1}{2}} - 5f\,^2F^\circ_{3\frac{1}{2}}$
3373.978	30	29630.09	$4s'\,^2D_{2\frac{1}{2}} - 4p\,^4D^\circ_{2\frac{1}{2}}$
3374.837	40	29622.55	$4d\,^4G_{3\frac{1}{2}} - 5f\,^4G^\circ_{4\frac{1}{2}}$
3375.395	150	29617.66	$5p\,^4G^\circ_{3\frac{1}{2}} - 8s\,^4F_{2\frac{1}{2}}$
3375.596	75	29615.89	$4d\,^4G_{3\frac{1}{2}} - 5f\,^4G^\circ_{3\frac{1}{2}}$
3375.817	400	29613.95	$5p\,^4F^\circ_{1\frac{1}{2}} - 8s\,^4F_{1\frac{1}{2}}$
			$4d\,^4G_{3\frac{1}{2}} - 5f\,^4H^\circ_{4\frac{1}{2}}$
3376.655	10	29606.60	$4d\,^2G_{4\frac{1}{2}} - 5f\,^2F^\circ_{3\frac{1}{2}}$
3377.385	2	29600.21	
3377.579	2	29598.51	
3377.838	200	29596.24	$4d\,^2G_{4\frac{1}{2}} - 5f\,^2G^\circ_{4\frac{1}{2}}$
3378.385	20	29591.44	$4d\,^4G_{3\frac{1}{2}} - 5f\,^4F^\circ_{2\frac{1}{2}}$
3378.481	3	29590.60	$5p\,^2D^\circ_{1\frac{1}{2}} - 5d''\,^4F_{1\frac{1}{2}}$
3378.594	20	29589.61	$4d\,^2G_{4\frac{1}{2}} - 5f\,^4G^\circ_{3\frac{1}{2}}$
3378.826	5h	29587.58	$4d\,^2G_{4\frac{1}{2}} - 5f\,^4H^\circ_{4\frac{1}{2}}$
3378.966	500	29586.36	$4d\,^2G_{4\frac{1}{2}} - 5f\,^2H^\circ_{5\frac{1}{2}}$
3381.077	150	29567.88	$5p\,^4G^\circ_{5\frac{1}{2}} - 8s\,^4F_{4\frac{1}{2}}$
3381.362	10	29565.39	$4d\,^1G_{4\frac{1}{2}} - 5f\,^4I^\circ_{5\frac{1}{2}}$
3381.629	1	29563.06	
3383.154	5	29549.73	$5p\,^4D^\circ_{2\frac{1}{2}} - 5d'\,^2D_{2\frac{1}{2}}$
3383.611	2	29545.74	
3385.815	400	29526.51	$4d\,^4F_{3\frac{1}{2}} - 5f\,^4F^\circ_{3\frac{1}{2}}$
3386.332	400	29522.00	$4d\,^4F_{3\frac{1}{2}} - 5f\,^4F^\circ_{4\frac{1}{2}}$
3387.323	200	29513.36	$4d\,^4F_{3\frac{1}{2}} - 5f\,^4D^\circ_{2\frac{1}{2}}$
			$4d\,^4F_{3\frac{1}{2}} - 5f\,^4G^\circ_{4\frac{1}{2}}$

TABLE I. *Lines of* Ni II — Continued

λ(air)	Intensity	Wavenumber	Transition
3387.524	200	29511.61	$5p\ ^2G^\circ_{4\frac{1}{2}} - 8s\ ^2F_{3\frac{1}{2}}$
3388.743	5	29501.00	
3390.164	3	29488.63	
3393.284	25h	29461.52	
3394.845	150	29447.97	$5p\ ^4F^\circ_{2\frac{1}{2}} - 8s\ ^4F_{2\frac{1}{2}}$
3395.388	10	29443.26	$4p''\ ^4D^\circ_{2\frac{1}{2}} - 4d\ ^2P_{1\frac{1}{2}}$
3396.645	2	29432.37	
3396.920	30	29429.99	$5p\ ^2G^\circ_{3\frac{1}{2}} - 8s\ ^2F_{2\frac{1}{2}}$
3397.247	2	29427.15	$4d\ ^4G_{4\frac{1}{2}} - 5f\ ^4G^\circ_{5\frac{1}{2}}$
3397.590	30	29424.18	$4d\ ^4G_{4\frac{1}{2}} - 5f\ ^4F^\circ_{3\frac{1}{2}}$
3397.810	5	29422.28	$4s''\ ^2P_{1\frac{1}{2}} - 4p\ ^2F^\circ_{2\frac{1}{2}}$
3398.111	40	29419.67	$4d\ ^4G_{4\frac{1}{2}} - 5f\ ^4F^\circ_{4\frac{1}{2}}$
3398.430	100	29416.91	$5p\ ^4G^\circ_{4\frac{1}{2}} - 8s\ ^4F_{4\frac{1}{2}}$
3399.107	400	29411.05	$4d\ ^4G_{4\frac{1}{2}} - 5f\ ^4G^\circ_{4\frac{1}{2}}$
3399.644	2	29406.41	$5p\ ^4F^\circ_{3\frac{1}{2}} - 5d'\ ^2D_{2\frac{1}{2}}$
3401.046	500	29394.28	$4d\ ^4G_{4\frac{1}{2}} - 5f\ ^4H^\circ_{5\frac{1}{2}}$
3401.765	20	29388.07	$4s''\ ^4P_{1\frac{1}{2}} - 4p\ ^4D^\circ_{0\frac{1}{2}}$
3402.680	2	29380.17	$4p''\ ^2S^\circ_{0\frac{1}{2}} - 4d\ ^2D_{1\frac{1}{2}}$
3403.276	300	29375.02	$4d\ ^2G_{3\frac{1}{2}} - 5f\ ^4I^\circ_{4\frac{1}{2}}$
3403.620	2	29372.06	$4p''\ ^4D^\circ_{1\frac{1}{2}} - 4d\ ^2P_{1\frac{1}{2}}$
3404.682	5	29362.89	$4d\ ^2G_{3\frac{1}{2}} - 5f\ ^4G^\circ_{2\frac{1}{2}}$
3405.826	200	29353.03	$4d\ ^2G_{3\frac{1}{2}} - 5f\ ^2H^\circ_{4\frac{1}{2}}$
3407.297	100	29340.36	$4s''\ ^4P_{0\frac{1}{2}} - 4p\ ^4D^\circ_{0\frac{1}{2}}$
3411.098	50	29307.67	$4d\ ^4D_{2\frac{1}{2}} - 5f\ ^4F^\circ_{3\frac{1}{2}}$
3411.230	40	29306.53	$5p\ ^4D^\circ_{2\frac{1}{2}} - 8s\ ^4F_{3\frac{1}{2}}$
3411.597	20	29303.38	$4p''\ ^4D^\circ_{1\frac{1}{2}} - 4d\ ^4P_{0\frac{1}{2}}$
3412.631	75	29294.50	$4d\ ^4D_{2\frac{1}{2}} - 5f\ ^4D^\circ_{2\frac{1}{2}}$
3415.685	5	29268.31	
3415.740	10	29267.84	$4d\ ^4D_{2\frac{1}{2}} - 5f\ ^4D^\circ_{3\frac{1}{2}}$
3416.375	60	29262.40	$5p\ ^2F^\circ_{3\frac{1}{2}} - 8s\ ^2F_{3\frac{1}{2}}$
3418.551	10	29243.77	$4d\ ^4D_{2\frac{1}{2}} - 5f\ ^4P^\circ_{2\frac{1}{2}}$
3419.085	150	29239.21	$5p\ ^2D^\circ_{2\frac{1}{2}} - 8s\ ^2F_{3\frac{1}{2}}$
3419.961	10	29231.72	$5p\ ^4D^\circ_{2\frac{1}{2}} - 5d'\ ^2F_{3\frac{1}{2}}$
3420.456	3	29227.49	
3425.838	20	29181.57	
3426.888	10	29172.63	$4d\ ^4D_{2\frac{1}{2}} - 5f\ ^4S^\circ_{1\frac{1}{2}}$
3428.003	50	29163.14	$5p\ ^4F^\circ_{3\frac{1}{2}} - 8s\ ^4F_{3\frac{1}{2}}$
3429.266	2	29152.40	
3432.034	5	29128.89	
3432.784	5	29122.53	
3435.086	5	29103.01	$5s\ ^4F_{4\frac{1}{2}} - 5p''\ ^4D^\circ_{3\frac{1}{2}}$
3435.586	5	29098.77	
3436.817	40	29088.35	$5p\ ^4F^\circ_{3\frac{1}{2}} - 5d'\ ^2F_{3\frac{1}{2}}$
3439.843	15	29062.76	
3439.900	20	29062.28	$4d\ ^4H_{3\frac{1}{2}} - 5f\ ^4H^\circ_{4\frac{1}{2}}$
3443.979	15	29027.86	
3449.642	5	28980.21	$4d\ ^2F_{2\frac{1}{2}} - 5f\ ^2D^\circ_{2\frac{1}{2}}$
3449.837	20	28978.57	$4d\ ^2F_{2\frac{1}{2}} - 5f\ ^2F^\circ_{3\frac{1}{2}}$
3450.917	20	28969.50	$4d\ ^4F_{1\frac{1}{2}} - 5f\ ^2D^\circ_{2\frac{1}{2}}$
3451.055	40	28968.35	$5p\ ^2F^\circ_{2\frac{1}{2}} - 8s\ ^2F_{2\frac{1}{2}}$
3451.861	30	28961.58	$4d\ ^2F_{2\frac{1}{2}} - 5f\ ^4G^\circ_{3\frac{1}{2}}$
3453.331	15h	28949.25	$5p\ ^2F^\circ_{2\frac{1}{2}} - 7d\ ^2D_{2\frac{1}{2}}$
3454.157	75	28942.33	$4s'\ ^2D_{1\frac{1}{2}} - 4p\ ^4D^\circ_{2\frac{1}{2}}$
3454.531	15	28939.20	$4d\ ^4F_{1\frac{1}{2}} - 5f\ ^4D^\circ_{1\frac{1}{2}}$
3454.783	40	28937.09	$4d\ ^2F_{2\frac{1}{2}} - 5f\ ^4F^\circ_{2\frac{1}{2}}$
3456.025	15h	28926.69	$4d\ ^2F_{2\frac{1}{2}} - 5f\ ^2P^\circ_{1\frac{1}{2}}$
3456.356	25	28923.92	$4p''\ ^4D^\circ_{2\frac{1}{2}} - 4d\ ^4D_{2\frac{1}{2}}$
3456.493	3	28922.77	
3456.921	5	28919.19	
3457.323	15h	28915.83	$4d\ ^4F_{1\frac{1}{2}} - 5f\ ^2P^\circ_{1\frac{1}{2}}$?
3460.497	30h	28889.31	$5p\ ^2D^\circ_{1\frac{1}{2}} - 7d\ ^2D_{2\frac{1}{2}}$
3465.641	200	28846.43	$4s''\ ^4P_{1\frac{1}{2}} - 4p\ ^4D^\circ_{1\frac{1}{2}}$
3467.921	10	28827.47	$4d\ ^2H_{4\frac{1}{2}} - 6f\ ^4I^\circ_{5\frac{1}{2}}$
3468.752	10	28820.56	$5p\ ^2F^\circ_{3\frac{1}{2}} - 7d\ ^2G_{4\frac{1}{2}}$
3470.161	20	28808.86	$5p\ ^2D^\circ_{2\frac{1}{2}} - 7d\ ^4P_{1\frac{1}{2}}$
3470.738	10	28804.07	$5p\ ^2F^\circ_{3\frac{1}{2}} - 7d\ ^4F_{3\frac{1}{2}}$
3471.385	150	28798.70	$4s''\ ^4P^\circ_{0\frac{1}{2}} - 4p\ ^4D_{1\frac{1}{2}}$
3473.497	5	28781.19	$4p''\ ^4D^\circ_{3\frac{1}{2}} - 4d\ ^4D_{2\frac{1}{2}}$
3473.528	10	28780.93	$5p\ ^2D^\circ_{2\frac{1}{2}} - 7d\ ^4F_{3\frac{1}{2}}$
3474.231	5	28775.11	$4d\ ^2P_{1\frac{1}{2}} - 5f\ ^4D^\circ_{2\frac{1}{2}}$
3474.768	3	28770.66	
3478.019	10	28743.77	
3478.290	20	28741.53	
3480.783	5	28720.95	$4d\ ^2P_{1\frac{1}{2}} - 5f\ ^2S^\circ_{0\frac{1}{2}}$
3483.519	20	28698.39	
3484.215	15	28692.66	
3491.216	10h	28635.12	
3491.404	3h	28633.58	
3493.859	20	28613.46	
3495.715	3	28598.27	$4s''\ ^4P_{2\frac{1}{2}} - 4p\ ^4D^\circ_{1\frac{1}{2}}$
3498.183	1	28578.09	
3504.039	1	28530.33	$4d\ ^4H_{4\frac{1}{2}} - 5f\ ^4F^\circ_{4\frac{1}{2}}$
3506.654	5	28509.06	$4d\ ^2H_{5\frac{1}{2}} - 5f\ ^4I^\circ_{6\frac{1}{2}}$
3507.154	10	28504.99	$4d\ ^4H_{4\frac{1}{2}} - 5f\ ^4H^\circ_{5\frac{1}{2}}$
3511.875	20	28466.68	$4d\ ^2G_{3\frac{1}{2}} - 5f\ ^4H^\circ_{4\frac{1}{2}}$
3512.164	20	28464.33	$4d\ ^4F_{2\frac{1}{2}} - 5f\ ^4D^\circ_{2\frac{1}{2}}$
3513.486	10	28453.62	
3513.976	200	28449.66	$4s'\ ^2D_{2\frac{1}{2}} - 4p\ ^4D^\circ_{3\frac{1}{2}}$
3516.073	5	28432.69	$4d\ ^4F_{2\frac{1}{2}} - 5f\ ^4P^\circ_{1\frac{1}{2}}$
3516.612	3	28428.33	
3519.462	20	28405.31	$4p''\ ^4D^\circ_{2\frac{1}{2}} - 4d\ ^4P_{1\frac{1}{2}}$
3520.460	2	28397.26	
3520.908	5	28393.65	
3521.220	2	28391.13	$4d\ ^2F_{3\frac{1}{2}} - 5f\ ^4F^\circ_{3\frac{1}{2}}$
3522.845	2	28378.03	$4d\ ^2F_{3\frac{1}{2}} - 5f\ ^4D^\circ_{2\frac{1}{2}}$ $4d\ ^2F_{3\frac{1}{2}} - 5f\ ^4G^\circ_{4\frac{1}{2}}$
3526.416	10	28349.30	$4s''\ ^2P_{1\frac{1}{2}} - 4p\ ^2D^\circ_{2\frac{1}{2}}$
3528.385	3	28333.48	
3537.439	2	28260.96	$4d\ ^4G_{3\frac{1}{2}} - 5f\ ^4G^\circ_{4\frac{1}{2}}$
3539.657	2	28243.25	$4d\ ^2G_{4\frac{1}{2}} - 5f\ ^4F^\circ_{4\frac{1}{2}}$
3540.790	0	28234.22	$4d\ ^4G_{3\frac{1}{2}} - 5f\ ^4D^\circ_{3\frac{1}{2}}$
3542.840	20	28217.88	$4d\ ^2G_{4\frac{1}{2}} - 5f\ ^4H^\circ_{5\frac{1}{2}}$
3549.880	0	28161.92	$5s'\ ^2D_{1\frac{1}{2}} - 6f\ ^4D^\circ_{2\frac{1}{2}}$
3556.689	10	28108.01	$4d\ ^2D_{2\frac{1}{2}} - 5f\ ^2F^\circ_{2\frac{1}{2}}$
3557.776	40	28099.42	$4d\ ^2D_{2\frac{1}{2}} - 5f\ ^2G^\circ_{3\frac{1}{2}}$
3559.275	2	28087.59	
3559.655	2	28084.59	$4d\ ^2D_{2\frac{1}{2}} - 5f\ ^4F^\circ_{1\frac{1}{2}}$
3560.542	10	28077.59	$4d\ ^2D_{2\frac{1}{2}} - 5f\ ^4G^\circ_{2\frac{1}{2}}$
3560.845	15	28075.20	$5s'\ ^2D_{1\frac{1}{2}} - w\ ^2F^\circ_{2\frac{1}{2}}$
3564.780	3	28044.21	
3573.640	10	27974.69	$5p\ ^2D^\circ_{1\frac{1}{2}} - 8s\ ^4F_{2\frac{1}{2}}$
3574.017	5	27971.74	$5p\ ^2F^\circ_{3\frac{1}{2}} - 8s\ ^4F_{3\frac{1}{2}}$
3576.765	150	27950.25	$4s''\ ^4P_{1\frac{1}{2}} - 4p\ ^4D^\circ_{2\frac{1}{2}}$
3576.979	20	27948.57	$5p\ ^2D^\circ_{2\frac{1}{2}} - 8s\ ^4F_{3\frac{1}{2}}$
3583.298	5	27899.29	
3583.605	1	27896.90	$5p\ ^2F^\circ_{3\frac{1}{2}} - 5d'\ ^2F_{3\frac{1}{2}}$
3585.905	2	27879.01	
3591.986	1	27831.81	$4p''\ ^4D^\circ_{2\frac{1}{2}} - 4d\ ^4D_{3\frac{1}{2}}$
3598.282	30	27783.11	$4p''\ ^4D^\circ_{3\frac{1}{2}} - 4d\ ^4P_{2\frac{1}{2}}$

TABLE I. *Lines of* Ni II – Continued

λ(air)	Intensity	Wavenumber	Transition
3608.811	30	27702.06	$4s''\ ^4P_{2\frac{1}{2}} - 4p\ ^4D^\circ_{2\frac{1}{2}}$
3608.998	20	27700.62	
3621.296	10	27606.55	$4d\ ^2F_{2\frac{1}{2}} - 5f\ ^4D^\circ_{2\frac{1}{2}}$
3628.834	15	27549.21	
3630.638	10	27535.52	
3633.503	3	27513.81	
3639.287	20	27470.08	$4d\ ^2D_{1\frac{1}{2}} - 5f\ ^2F^\circ_{2\frac{1}{2}}$
3643.326	20	27439.63	$4d\ ^2D_{1\frac{1}{2}} - 5f\ ^4G^\circ_{2\frac{1}{2}}$
3646.968	5	27412.23	$4d\ ^2D_{1\frac{1}{2}} - 5f\ ^2D^\circ_{1\frac{1}{2}}$
3648.552	3	27400.33	$4d\ ^2D_{1\frac{1}{2}} - 5f\ ^4D^\circ_{0\frac{1}{2}}$
3657.812	3	27330.96	
3664.983	10	27277.49	
3665.185	20	27275.98	
3665.432	10	27274.15	
3666.000	20	27269.92	$4p''\ ^2D^\circ_{2\frac{1}{2}} - 4d\ ^4P_{1\frac{1}{2}}$
3666.047	20	27269.57	
3666.522	3h	27266.04	
3667.760	20	27256.83	
3669.883	10	27241.07	
3672.795	5	27219.47	
3675.165	15	27201.92	$4d\ ^2D_{2\frac{1}{2}} - 5f\ ^2D^\circ_{2\frac{1}{2}}$
3675.389	30	27200.26	$4d\ ^2D_{2\frac{1}{2}} - 5f\ ^2F^\circ_{3\frac{1}{2}}$
3676.524	5	27191.86	
3678.245	20	27179.14	
3678.857	30	27174.62	
3680.570	3	27161.97	$5s'\ ^2D_{2\frac{1}{2}} - w\ ^2F^\circ_{3\frac{1}{2}}$
3680.999	3	27158.81	$4d\ ^2D_{2\frac{1}{2}} - 5f\ ^4F^\circ_{2\frac{1}{2}}$
3681.309	5	27156.52	
3682.192	30	27150.01	
3682.408	3	27148.41	$4d\ ^2D_{2\frac{1}{2}} - 5f\ ^2P^\circ_{1\frac{1}{2}}$
3684.457	30	27133.32	$5s\ ^2F_{2\frac{1}{2}} - x\ ^2G^\circ_{3\frac{1}{2}}$
3687.495	30	27110.96	
3689.312	20	27097.61	
3689.892	2	27093.35	$4p''\ ^2P^\circ_{1\frac{1}{2}} - 4d\ ^2P_{1\frac{1}{2}}$?
3690.980	20	27085.37	
3692.542	3	27073.91	
3694.334	10	27060.78	
3694.919	5	27056.49	
3695.075	1	27055.35	
3696.999	3	27041.27	
3699.276	2	27024.63	$4p''\ ^2P^\circ_{1\frac{1}{2}} - 4d\ ^4P_{1\frac{1}{2}}$
3699.942	2	27019.76	
3700.677	20	27014.40	$5s''\ ^4P_{2\frac{1}{2}} - w\ ^2P^\circ_{1\frac{1}{2}}$
3707.804	10	26962.47	
3708.534	3	26957.16	
3723.689	5	26847.45	
3735.406	2	26763.24	$5s\ ^4F_{4\frac{1}{2}} - 5p'\ ^2F^\circ_{3\frac{1}{2}}$
3753.047	2	26637.45	
3761.872	20	26574.96	
3763.424	10	26564.00	$4d\ ^2D_{1\frac{1}{2}} - 5f\ ^2D^\circ_{2\frac{1}{2}}$
3767.725	10	26533.68	$4d\ ^2D_{1\frac{1}{2}} - 5f\ ^4D^\circ_{1\frac{1}{2}}$
3768.424	5	26528.75	$5p\ ^4D^\circ_{2\frac{1}{2}} - 6d\ ^2D_{2\frac{1}{2}}$
3793.061	5	26356.45	$5p\ ^4D^\circ_{1\frac{1}{2}} - 6d\ ^2F_{2\frac{1}{2}}$
3806.701	20	26262.01	$5p\ ^4D^\circ_{2\frac{1}{2}} - 6d\ ^2F_{3\frac{1}{2}}$
3809.080	10h	26245.61	
3811.208	3	26230.95	$5p\ ^4D^\circ_{1\frac{1}{2}} - 6d\ ^4G_{2\frac{1}{2}}$
3811.737	5	26227.31	$5p\ ^4D^\circ_{2\frac{1}{2}} - 6d\ ^4F_{2\frac{1}{2}}$
3812.692	3	26220.75	$4p''\ ^4P^\circ_{2\frac{1}{2}} - s^2\ ^2F_{3\frac{1}{2}}$
3813.382	10	26216.00	$5p\ ^4D^\circ_{1\frac{1}{2}} - 6d\ ^2P_{0\frac{1}{2}}$
3817.437	20	26188.15	$5p\ ^4D^\circ_{2\frac{1}{2}} - 6d\ ^2P_{1\frac{1}{2}}$
3817.532	3	26187.50	$5p\ ^4G^\circ_{3\frac{1}{2}} - 6d\ ^2H_{4\frac{1}{2}}$
3822.304	20	26154.81	$5p\ ^4F^\circ_{3\frac{1}{2}} - 6d\ ^2G_{4\frac{1}{2}}$
3826.310	5	26127.43	$5p\ ^4F^\circ_{2\frac{1}{2}} - 6d\ ^2F_{2\frac{1}{2}}$
3827.586	20	26118.72	$5p\ ^4F^\circ_{3\frac{1}{2}} - 6d\ ^2F_{3\frac{1}{2}}$
3828.719	3	26110.99	$5p\ ^4F^\circ_{3\frac{1}{2}} - 6d\ ^4H_4$
3832.982	5	26081.95	$5p\ ^4F^\circ_{2\frac{1}{2}} - 6d\ ^2G_{3\frac{1}{2}}$
3849.551	30	25969.69	$4s'''\ ^2G_{3\frac{1}{2}} - 4p\ ^2F^\circ_{2\frac{1}{2}}$
3857.576	10	25915.67	
3868.655	20	25841.45	$4d\ ^2D_{2\frac{1}{2}} - 5f\ ^4F^\circ_{3\frac{1}{2}}$
3870.630	20	25828.27	$4d\ ^2D_{2\frac{1}{2}} - 5f\ ^4D^\circ_{2\frac{1}{2}}$
3875.382	3	25796.60	$4d\ ^2D_{2\frac{1}{2}} - 5f\ ^4P^\circ_{1\frac{1}{2}}$
3878.692	10	25774.58	$4p\ ^4D^\circ_{3\frac{1}{2}} - s^2\ ^2D_{2\frac{1}{2}}$
3879.910	60	25766.49	$5p\ ^4D^\circ_{3\frac{1}{2}} - 6d\ ^4F_{4\frac{1}{2}}$
3881.715	10	25754.51	$4p''\ ^4P^\circ_{2\frac{1}{2}} - 5s\ ^4F_{3\frac{1}{2}}$
3898.314	100	25644.85	$5p\ ^4D^\circ_{3\frac{1}{2}} - 6d\ ^4D_{3\frac{1}{2}}$
3898.833	20	25641.44	$5p\ ^4D^\circ_{3\frac{1}{2}} - 7s\ ^4F_{2\frac{1}{2}}$
3900.121	2	25632.97	$5p\ ^4D^\circ_{0\frac{1}{2}} - 6d\ ^2P_{0\frac{1}{2}}$
3900.350	40	25631.46	$5p\ ^4D^\circ_{3\frac{1}{2}} - 6d\ ^4P_{2\frac{1}{2}}$
3902.307	2	25618.61	$5p\ ^4D^\circ_{3\frac{1}{2}} - 7s\ ^2F_{3\frac{1}{2}}$
3902.806	2	25615.33	
3905.489	40	25597.74	
3906.343	15	25592.14	$5p\ ^4D^\circ_{1\frac{1}{2}} - 6d\ ^2D_{2\frac{1}{2}}$
3912.135	20	25554.25	
3915.383	40	25533.05	$5p\ ^4G^\circ_{3\frac{1}{2}} - 6d\ ^2D_{2\frac{1}{2}}$
3920.078	40	25502.47	$5p\ ^4D^\circ_{1\frac{1}{2}} - 6d\ ^4D_{1\frac{1}{2}}$
3920.651	5	25498.75	
3923.097	10	25482.85	$5s''\ ^4P_{2\frac{1}{2}} - s\ ^4D^\circ_{3\frac{1}{2}}$
3932.051	2	25424.82	$5s''\ ^4P_{1\frac{1}{2}} - s\ ^4D^\circ_{2\frac{1}{2}}$
3932.458	10	25422.19	$5p\ ^4F^\circ_{4\frac{1}{2}} - 6d\ ^4G_{4\frac{1}{2}}$
3936.944	10	25393.22	$5p\ ^4F^\circ_{4\frac{1}{2}} - 6d\ ^4F_{3\frac{1}{2}}$
3937.797	50	25387.72	$5p\ ^4G^\circ_{2\frac{1}{2}} - 6d\ ^4G_{2\frac{1}{2}}$
3941.599	20	25363.23	$5p\ ^4F^\circ_{2\frac{1}{2}} - 6d\ ^2D_{2\frac{1}{2}}$
3943.044	200	25353.94	$5p\ ^4G^\circ_{2\frac{1}{2}} - 6d\ ^4H_{3\frac{1}{2}}$
3944.746	3	25343.00	$5p\ ^4F^\circ_{4\frac{1}{2}} - 6d\ ^4G_{5\frac{1}{2}}$
3945.350	40	25339.12	$5p\ ^4D^\circ_{2\frac{1}{2}} - 6d\ ^4D_{2\frac{1}{2}}$
3945.437	100	25338.56	$5p\ ^4F^\circ_{4\frac{1}{2}} - 6d\ ^4F_{4\frac{1}{2}}$
3945.642	10	25337.25	$5p\ ^4G^\circ_{2\frac{1}{2}} - 6d\ ^4F_{1\frac{1}{2}}$
3947.498	5	25325.33	
3948.823	40	25316.84	$5p\ ^4G^\circ_{3\frac{1}{2}} - 6d\ ^4G_{3\frac{1}{2}}$
3949.107	200	25315.02	$5p\ ^4F^\circ_{4\frac{1}{2}} - 6d\ ^4H_{5\frac{1}{2}}$
3951.101	3	25302.24	$5p\ ^2G^\circ_{3\frac{1}{2}} - 6d\ ^2G_{4\frac{1}{2}}$
3951.207	75	25301.56	$5p\ ^4F^\circ_{1\frac{1}{2}} - 6d\ ^4G_{2\frac{1}{2}}$
3952.907	30	25290.68	$5p\ ^4D^\circ_{1\frac{1}{2}} - 6d\ ^4F_{2\frac{1}{2}}$
3955.095	30	25276.69	$5p\ ^4G^\circ_{5\frac{1}{2}} - 6d\ ^4G_{5\frac{1}{2}}$
3955.593	20	25273.51	$5p\ ^4F^\circ_{2\frac{1}{2}} - 6d\ ^4D_{1\frac{1}{2}}$
3955.789	25	25272.26	$5p\ ^4G^\circ_{5\frac{1}{2}} - 6d\ ^4F_{4\frac{1}{2}}$
3955.985	30	25271.00	$5p\ ^4D^\circ_{1\frac{1}{2}} - 6d\ ^4P_{0\frac{1}{2}}$
3956.742	2	25266.17	$5p\ ^4G^\circ_{3\frac{1}{2}} - 6d\ ^2F_{3\frac{1}{2}}$
3957.951	200	25258.45	$5p\ ^4G^\circ_{3\frac{1}{2}} - 6d\ ^4H_{4\frac{1}{2}}$
3959.091	50	25251.18	$5p\ ^4F^\circ_{1\frac{1}{2}} - 6d\ ^4F_{1\frac{1}{2}}$
3959.475	75	25248.73	$5p\ ^4G^\circ_{5\frac{1}{2}} - 6d\ ^4H_{5\frac{1}{2}}$
3963.888	300	25220.62	$5p\ ^4G^\circ_{5\frac{1}{2}} - 6d\ ^4H_{6\frac{1}{2}}$
3965.171	100	25212.46	$5p\ ^2G^\circ_{4\frac{1}{2}} - 6d\ ^2G_{4\frac{1}{2}}$
3966.351	150	25204.96	$Rp\ ^4G^\circ_{4\frac{1}{2}} - 6d\ ^4G_{4\frac{1}{2}}$
3966.586	30	25203.47	
3967.794	30	25195.79	$5p\ ^4F^\circ_{3\frac{1}{2}} - 6d\ ^4D_{2\frac{1}{2}}$
3968.085	40	25193.95	$5p\ ^2F^\circ_{3\frac{1}{2}} - 6d\ ^2D_{2\frac{1}{2}}$
3970.851	10	25176.40	$5p\ ^2G^\circ_{4\frac{1}{2}} - 6d\ ^2F_{3\frac{1}{2}}$
3970.911	2	25176.02	$5p\ ^4G^\circ_{4\frac{1}{2}} - 6d\ ^4F_{3\frac{1}{2}}$
3970.957	5	25175.72	$5p\ ^2G^\circ_{3\frac{1}{2}} - 6d\ ^2F_{2\frac{1}{2}}$

TABLE I. *Lines of* Ni II — Continued

λ(air)	Intensity	Wavenumber	Transition
3971.736	100	25170.79	$5p\,^2D^\circ_{2\frac{1}{2}} - 6d\,^2D_{2\frac{1}{2}}$
3973.101	400	25162.14	$5p\,^2G^\circ_{4\frac{1}{2}} - 6d\,^2H_{5\frac{1}{2}}$
3973.425	3h	25160.09	$5s''\,^4P_{2\frac{1}{2}} - v\,^4F^\circ_{3\frac{1}{2}}$
3973.923	2	25156.93	
3974.099	1	25155.82	
3975.471	100	25147.14	$5p\,^4F^\circ_{2\frac{1}{2}} - 6d\,^4G_{3\frac{1}{2}}$
3976.737	3	25139.13	
3978.153	75	25130.19	$5p\,^2G^\circ_{3\frac{1}{2}} - 6d\,^2G_{3\frac{1}{2}}$
3978.840	200	25125.85	$5p\,^4G^\circ_{4\frac{1}{2}} - 6d\,^4G_{5\frac{1}{2}}$
3979.543	50	25121.41	$5p\,^4G^\circ_{4\frac{1}{2}} - 6d\,^4F_{4\frac{1}{2}}$
3988.335	200	25066.03	$5p\,^2G^\circ_{3\frac{1}{2}} - 6d\,^2H_{4\frac{1}{2}}$
3989.021	60	25061.72	$5p\,^4F^\circ_{2\frac{1}{2}} - 6d\,^4F_{2\frac{1}{2}}$
3999.651	30	24995.11	
4001.060	25	24986.31	
4002.418	5	24977.83	$5p\,^2F^\circ_{3\frac{1}{2}} - 6d\,^4G_{3\frac{1}{2}}$
4002.633	60	24976.49	$5p\,^4D^\circ_{2\frac{1}{2}} - 6d\,^4P_{1\frac{1}{2}}$
4003.506	30	24971.05	$5p\,^4D^\circ_{2\frac{1}{2}} - 6d\,^4F_{3\frac{1}{2}}$
4004.752	150	24963.28	$5p\,^2F^\circ_{3\frac{1}{2}} - 6d\,^2G_{4\frac{1}{2}}$
4006.987	3h	24949.35	
4007.656	10h	24945.19	
4009.929	3	24931.05	
4010.543	100	24927.23	$5p\,^2F^\circ_{3\frac{1}{2}} - 6d\,^2F_{3\frac{1}{2}}$
4013.546	10h	24908.58	
4014.274	25	24904.07	$5p\,^2D^\circ_{2\frac{1}{2}} - 6d\,^2F_{3\frac{1}{2}}$
4015.477	3	24896.60	$4s'''\,^2G_{3\frac{1}{2}} - 4p\,^2D^\circ_{2\frac{1}{2}}$
4016.140	10	24892.49	$5p\,^2F^\circ_{3\frac{1}{2}} - 6d\,^4F_{2\frac{1}{2}}$
4018.972	5h	24874.95	
4019.878	10	24869.35	$5p\,^2D^\circ_{2\frac{1}{2}} - 6d\,^4F_{2\frac{1}{2}}$
4021.919	100	24856.73	$5p\,^4F^\circ_{3\frac{1}{2}} - 6d\,^4G_{4\frac{1}{2}}$
4023.767	3	24845.31	$4p'''\,^2F^\circ_{2\frac{1}{2}} - 4d\,^2F_{2\frac{1}{2}}$
4031.702	2	24796.41	$5p\,^4D^\circ_{1\frac{1}{2}} - 7s\,^2F_{2\frac{1}{2}}$
4032.340	20	24792.49	$4p'\,^2D^\circ_{2\frac{1}{2}} - 5s\,^2F_{3\frac{1}{2}}$
4035.500	2	24773.08	$5p\,^4F^\circ_{3\frac{1}{2}} - 6d\,^4F_{4\frac{1}{2}}$
4036.241	10	24768.53	$5p\,^4D^\circ_{2\frac{1}{2}} - 7s\,^2F_{3\frac{1}{2}}$
4045.138	50	24714.05	$5p\,^2F^\circ_{2\frac{1}{2}} - 6d\,^2F_{2\frac{1}{2}}$
4050.910	20	24678.84	$4p'\,^2F^\circ_{2\frac{1}{2}} - s^2\,^2F_{2\frac{1}{2}}$
4052.603	50	24668.53	$5p\,^2F^\circ_{2\frac{1}{2}} - 6d\,^2G_{3\frac{1}{2}}$
4053.860	10	24660.88	$4p'\,^2F^\circ_{3\frac{1}{2}} - s^2\,^2F_{3\frac{1}{2}}$
4054.963	30	24654.17	$5p\,^2D^\circ_{1\frac{1}{2}} - 6d\,^2F_{2\frac{1}{2}}$
4057.627	2	24637.99	$5p\,^4F^\circ_{3\frac{1}{2}} - 6d\,^4P_{2\frac{1}{2}}$
4059.734	3	24625.20	$5p\,^4F^\circ_{3\frac{1}{2}} - 7s\,^2F_{3\frac{1}{2}}$
4067.033	15	24581.01	$4s'''\,^2G_{4\frac{1}{2}} - 4p\,^2F^\circ_{3\frac{1}{2}}$
4070.814	3	24558.18	$4p'''\,^2F^\circ_{3\frac{1}{2}} - 4d\,^2F_{3\frac{1}{2}}$
4078.204	30	24513.68	$5p\,^2D^\circ_{1\frac{1}{2}} - 6d\,^2P_{0\frac{1}{2}}$
4127.719	2	24219.62	$5s'\,^2D_{2\frac{1}{2}} - 5f\,^2D^\circ_{2\frac{1}{2}}$
4127.793	10	24219.19	$4p'\,^2D^\circ_{1\frac{1}{2}} - s^2\,^2F_{2\frac{1}{2}}$
4128.661	40	24214.10	$5p\,^4D^\circ_{3\frac{1}{2}} - 7s\,^4F_{4\frac{1}{2}}$
4146.067	10	24112.44	$5p\,^4D^\circ_{0\frac{1}{2}} - 7s\,^4F_{1\frac{1}{2}}$
4168.763	5	23981.17	$5p\,^2D^\circ_{2\frac{1}{2}} - 6d\,^4D_{2\frac{1}{2}}$
4181.078	20	23910.54	$5p\,^4F^\circ_{4\frac{1}{2}} - 7s\,^4F_{3\frac{1}{2}}$
4183.085	5	23899.07	
4187.837	2	23871.95	$4s'''\,^2G_{4\frac{1}{2}} - 4p\,^2G^\circ_{3\frac{1}{2}}$
4190.872	10	23854.66	$5p\,^4D^\circ_{1\frac{1}{2}} - 7s\,^4F_{2\frac{1}{2}}$
4191.334	40	23852.03	$5p\,^4G^\circ_{2\frac{1}{2}} - 7s\,^4F_{1\frac{1}{2}}$
4200.698	3	23798.86	$5p\,^4G^\circ_{3\frac{1}{2}} - 6d\,^4D_{3\frac{1}{2}}$
4201.299	30	23795.46	$5p\,^4G^\circ_{3\frac{1}{2}} - 7s\,^4F_{2\frac{1}{2}}$
4202.950	40	23786.11	$5p\,^4F^\circ_{4\frac{1}{2}} - 7s\,^4F_{4\frac{1}{2}}$
4206.111	2	23768.24	
4206.526	30	23765.89	$5p\,^4F^\circ_{1\frac{1}{2}} - 7s\,^4F_{1\frac{1}{2}}$
4212.231	10	23733.70	$5p\,^2F^\circ_{2\frac{1}{2}} - 6d\,^4G_{3\frac{1}{2}}$
4214.700	100	23719.80	$5p\,^4G^\circ_{5\frac{1}{2}} - 7s\,^4F_{4\frac{1}{2}}$
4219.412	50	23693.31	$5p\,^4G^\circ_{4\frac{1}{2}} - 7s\,^4F_{3\frac{1}{2}}$
4221.280	60	23682.83	$5p\,^2G^\circ_{4\frac{1}{2}} - 7s\,^2F_{3\frac{1}{2}}$
4223.767	2	23668.88	$4p'\,^2F^\circ_{3\frac{1}{2}} - 5s\,^4F_{4\frac{1}{2}}$
4224.423	10	23665.21	$5p\,^2F^\circ_{3\frac{1}{2}} - 6d\,^4G_{4\frac{1}{2}}$
4229.598	10	23636.25	$5p\,^2F^\circ_{3\frac{1}{2}} - 6d\,^4F_{3\frac{1}{2}}$
4230.867	2	23629.16	$5p\,^4F^\circ_{2\frac{1}{2}} - 6d\,^4D_{3\frac{1}{2}}$
4231.479	30	23625.75	$5p\,^4F^\circ_{2\frac{1}{2}} - 7s\,^4F_{2\frac{1}{2}}$
4232.766	20	23618.56	$5p\,^2D^\circ_{2\frac{1}{2}} - 6d\,^4P_{1\frac{1}{2}}$
4233.273	40	23615.73	$5p\,^2G^\circ_{3\frac{1}{2}} - 7s\,^2F_{2\frac{1}{2}}$
4233.745	3	23613.10	$5p\,^2D^\circ_{2\frac{1}{2}} - 6d\,^4F_{3\frac{1}{2}}$
4236.611	2	23597.13	
4237.907	5	23589.91	$4p'\,^2D^\circ_{2\frac{1}{2}} - 5s\,^4F_{3\frac{1}{2}}$
4238.166	2	23588.47	$5p\,^2D^\circ_{1\frac{1}{2}} - 6d\,^4F_{2\frac{1}{2}}$
4241.684	30	23568.91	$5p\,^4G^\circ_{4\frac{1}{2}} - 7s\,^4F_{4\frac{1}{2}}$
4249.567	2	23525.19	
4256.235	10	23488.33	$5p\,^4D^\circ_{2\frac{1}{2}} - 7s\,^4F_{3\frac{1}{2}}$
4258.820	40	23474.07	$4p\,^4G^\circ_{3\frac{1}{2}} - s^2\,^2H_{4\frac{1}{2}}$
4266.159	40	23433.69	$5p\,^2F^\circ_{3\frac{1}{2}} - 7s\,^2F_{3\frac{1}{2}}$
4270.381	20	23410.53	$5p\,^2D^\circ_{2\frac{1}{2}} - 7s\,^2F_{3\frac{1}{2}}$
4278.546	2	23365.85	$x\,^4G^\circ_{3\frac{1}{2}} - 9s\,^4F_{2\frac{1}{2}}$
4279.210	200	23362.22	$4p\,^4G^\circ_{4\frac{1}{2}} - s^2\,^2H_{5\frac{1}{2}}$
4279.545	1	23360.40	$4p''\,^4D^\circ_{1\frac{1}{2}} - 5s\,^4F_{1\frac{1}{2}}$
4282.360	15	23345.04	$5p\,^4F^\circ_{3\frac{1}{2}} - 7s\,^4F_{3\frac{1}{2}}$
4285.028	2	23330.51	
4287.251	2	23318.41	$4p''\,^4D^\circ_{0\frac{1}{2}} - 5s\,^4F_{1\frac{1}{2}}$
4314.567	3	23170.78	
4317.688	30	23154.03	$5p\,^2F^\circ_{2\frac{1}{2}} - 7s\,^2F_{2\frac{1}{2}}$
4328.883	20	23094.15	$5p\,^2D^\circ_{1\frac{1}{2}} - 7s\,^2F_{2\frac{1}{2}}$
4362.104	1	22918.28	$4s'''\,^2G_{4\frac{1}{2}} - 4p\,^4F^\circ_{3\frac{1}{2}}$
4363.707	2	22909.86	
4366.927	2	22892.96	$4p''\,^4D^\circ_{2\frac{1}{2}} - 5s\,^2F_{3\frac{1}{2}}$
4401.032	5	22715.56	$4d'\,^2F_{3\frac{1}{2}} - 4f'''\,^4F^\circ_{4\frac{1}{2}}$
4422.364	5	22605.99	$4d'\,^2D_{1\frac{1}{2}} - 4f'''\,^2D^\circ_{2\frac{1}{2}}$
4432.438	5	22554.61	$4d'\,^2D_{1\frac{1}{2}} - 4f'''\,^4F^\circ_{2\frac{1}{2}}$
4454.942	3	22440.68	$4d'\,^2P_{1\frac{1}{2}} - 4f'''\,^4D^\circ_{2\frac{1}{2}}$
4479.226	40	22319.02	$4p\,^4F^\circ_{3\frac{1}{2}} - s^2\,^2H_{4\frac{1}{2}}$
4509.269	200	22170.33	$4p\,^4F^\circ_{4\frac{1}{2}} - s^2\,^2H_{5\frac{1}{2}}$
4512.040	2	22156.71	$4p''\,^4D^\circ_{2\frac{1}{2}} - s^2\,^2F_{3\frac{1}{2}}$
4517.399	5	22130.43	$5p\,^2D^\circ_{2\frac{1}{2}} - 7s\,^4F_{3\frac{1}{2}}$
4522.349	3	22106.20	$4d\,^4P_{1\frac{1}{2}} - 4f\,^4G^\circ_{2\frac{1}{2}}$
4532.324	20	22057.55	$4d'\,^2D_{2\frac{1}{2}} - 4f'''\,^2G^\circ_{3\frac{1}{2}}$
			$4s'''\,^2G_{4\frac{1}{2}} - 4p\,^4F^\circ_{4\frac{1}{2}}$
4533.002	10	22054.25	$4d'\,^2D_{2\frac{1}{2}} - 4f'''\,^4F^\circ_{2\frac{1}{2}}$
4533.297	10	22052.82	$4d'\,^2P_{1\frac{1}{2}} - 4f'''\,^4F^\circ_{2\frac{1}{2}}$
4536.508	8	22037.21	$4d'\,^2D_{2\frac{1}{2}} - 4f'''\,^4F^\circ_{3\frac{1}{2}}$
4545.550	30	21993.37	$4d'\,^2D_{2\frac{1}{2}} - 4f'''\,^2F^\circ_{3\frac{1}{2}}$
4561.885	5	21914.62	$4p\,^4F^\circ_{3\frac{1}{2}} - s^2\,^2D_{2\frac{1}{2}}$
4582.971	10	21813.79	$4d\,^4D_{3\frac{1}{2}} - 4f\,^2G^\circ_{4\frac{1}{2}}$
4589.472	3	21782.90	$4d\,^4D_{3\frac{1}{2}} - 4f\,^4G^\circ_{3\frac{1}{2}}$
4633.182	5	21577.40	
4637.338	5	21558.06	
4665.559	200	21427.66	$4p\,^2G^\circ_{4\frac{1}{2}} - s^2\,^2H_{5\frac{1}{2}}$
4679.160	200	21365.38	$4p\,^2G^\circ_{3\frac{1}{2}} - s^2\,^2H_{4\frac{1}{2}}$
4695.696	5	21290.14	
4704.831	10	21248.80	$4d\,^4H_{5\frac{1}{2}} - 4f\,^2\,I^\circ_{6\frac{1}{2}}$
4705.073	30	21247.71	$4d''\,^4D_{2\frac{1}{2}} - 4f'''\,^2F^\circ_{2\frac{1}{2}}$
4723.968	2	21162.72	$4d\,^4P_{1\frac{1}{2}} - 4f\,^4F^\circ_{2\frac{1}{2}}$
4724.931	1	21158.41	$4d\,^4P_{1\frac{1}{2}} - 4f\,^2P^\circ_{1\frac{1}{2}}$
4725.630	0	21155.28	$4p\,^4D^\circ_{2\frac{1}{2}} - s^2\,^2P_{1\frac{1}{2}}$

TABLE I. *Lines of* Ni II — Continued

λ(air)	Intensity	Wavenumber	Transition	λ(air)	Intensity	Wavenumber	Transition
4726.441	2	21151.61	$4d\,^4P_{01/2} - 4f\,^4F^\circ_{11/2}$	4886.283	60	20459.74	$4d\,^4D_{31/2} - 4f\,^4F^\circ_{41/2}$
4734.111	10	21117.38	$4d'\,^2G_{31/2} - 6f\,^4D^\circ_{21/2}$	4887.193	5	20455.93	$4d\,^4D_{31/2} - 4f\,^4F^\circ_{31/2}$
			$4d''\,^4D_{31/2} - 4f'''\,^4D^\circ_{31/2}$	4887.736	40	20453.66	
4741.527	3	21084.35		4889.305	50	20447.09	$4d\,^4D_{31/2} - 4f\,^4G^\circ_{41/2}$
4742.375	2	21080.58	$4d\,^4P_{01/2} - 5f\,^4D^\circ_{01/2}$	4893.225	1	20430.71	$4d\,^4D_{31/2} - 4f\,^4D^\circ_{21/2}$
4742.698	5	21079.15	$4d''\,^4D_{21/2} - 4f'''\,^4D^\circ_{31/2}$	4895.260	8	20422.22	
4745.163	5	21068.20	$4d\,^2P_{11/2} - 4f\,^4G^\circ_{21/2}$	4897.587	1	20412.52	
4746.002	5	21064.47		4898.950	100	20406.84	$4d\,^4D_{31/2} - 4f\,^4D^\circ_{31/2}$
4755.597	5	21021.98	$4p''\,^4D^\circ_{31/2} - 5s\,^4F_{41/2}$	4902.137	10	20393.57	
4755.752	8	21021.29	$4p''\,^2D^\circ_{21/2} - s^2\,^2F_{31/2}$	4903.865	10	20386.39	
4757.671	20	21012.81	$4d''\,^4D_{31/2} - 4f'''\,^4D^\circ_{21/2}$	4909.746	10	20361.97	$4d\,^4P_{21/2} - 4f\,^4F^\circ_{31/2}$
4766.370	2	20974.46	$4d''\,^4D_{21/2} - 4f'''\,^4D^\circ_{21/2}$	4909.889	100	20361.37	$4d\,^4D_{31/2} - 4f\,^4P^\circ_{21/2}$
4768.805	2	20963.75	$4d\,^2P_{11/2} - 4f\,^2D^\circ_{11/2}$	4911.570	20	20354.41	
4769.418	2	20961.06	$4p\,^2G^\circ_{31/2} - s^2\,^2D_{21/2}$	4915.840	15	20336.73	$4d\,^4P_{21/2} - 4f\,^4D^\circ_{21/2}$
4774.083	3	20940.58	$4d\,^4F_{31/2} - 4f\,^2G^\circ_{41/2}$	4920.771	3	20316.35	$4d\,^4D_{01/2} - 4f\,^4F^\circ_{11/2}$
4781.765	40	20906.94	$4d''\,^4D_{11/2} - 4f'''\,^4D^\circ_{21/2}$	4920.889	3	20315.86	$4d\,^4P_{21/2} - 4f\,^4P^\circ_{11/2}$
4781.963	20	20906.07		4923.328	3	20305.80	
4789.227	5	20874.36		4925.657	2	20296.19	$4d'\,^2F_{21/2} - 4f'\,^2P^\circ_{11/2}$
4797.523	3	20838.26	$4d\,^4G_{41/2} - 4f\,^2G^\circ_{41/2}$	4932.460	5	20268.20	
4799.968	10	20827.65	$4d\,^4G_{41/2} - 4f\,^2H^\circ_{51/2}$	4932.657	100	20267.39	$4d\,^4P_{21/2} - 4f\,^4P^\circ_{21/2}$
4802.150	30	20818.19		4936.319	0	20252.36	$4d''\,^2D_{21/2} - 4f'''\,^2F^\circ_{21/2}$
4808.883	1	20789.04	$4d\,^4F_{21/2} - 4f\,^2G^\circ_{31/2}$	4936.419	10	20251.95	$4p\,^2F^\circ_{31/2} - s^2\,^2D_{21/2}$
4808.958	10	20788.72	$4d\,^4H_{41/2} - 4f\,^2\,I^\circ_{51/2}$	4937.352	20	20248.12	$4d\,^4P_{21/2} - 4f\,^4S^\circ_{11/2}$?
4811.448	3	20777.96	$4d''\,^4D_{21/2} - 4f'''\,^4D^\circ_{11/2}$	4938.050	50	20245.26	$4d\,^4D_{01/2} - 4f\,^4D^\circ_{01/2}$
4813.651	5	20768.45	$4d\,^4G_{41/2} - 4f\,^4\,I^\circ_{51/2}$	4938.630	100	20242.88	
4822.023	2	20732.39		4939.917	3	20237.61	$4d\,^4D_{21/2} - 5p''\,^4P^\circ_{21/2}$
4823.045	5	20728.00	$4d''\,^4D_{11/2} - 4f'''\,^4D^\circ_{01/2}$	4940.031	2	20237.14	
4823.493	5	20726.07	$4d'\,^2F_{31/2} - w\,^2G^\circ_{41/2}$	4942.786	20	20225.86	$4d'\,^2F_{21/2} - 4f'\,^2D^\circ_{21/2}$
4826.626	10	20712.62	$4d\,^4D_{21/2} - 4f\,^2D^\circ_{21/2}$	4945.990	20	20212.76	$4d\,^4P_{01/2} - 4f\,^4D^\circ_{11/2}$
4827.127	15	20710.47	$4d''\,^4D_{11/2} - 4f'''\,^4D^\circ_{11/2}$	4949.847	0	20197.01	$4d\,^4D_{01/2} - 4f\,^2D^\circ_{11/2}$
4827.357	20	20709.48	$4d\,^4D_{21/2} - 4f\,^2F^\circ_{31/2}$	4950.771	20	20193.24	$4d\,^2P_{11/2} - 4f\,^2D^\circ_{21/2}$
4829.487	5	20700.35	$4d''\,^4D_{01/2} - 4f'''\,^4D^\circ_{01/2}$	4950.970	5	20192.43	$4d'\,^2F_{31/2} - 4f'\,^2D^\circ_{21/2}$
4831.710	30	20690.82	$4d\,^4D_{21/2} - 4f\,^4G^\circ_{31/2}$	4952.880	2	20184.64	
4835.451	2	20674.82		4953.317	3	20182.86	$4d'\,^2F_{21/2} - 4f'\,^2F^\circ_{31/2}$
4836.367	5	20670.90	$4d\,^4D_{11/2} - 4f\,^4F^\circ_{11/2}$	4954.167	20	20179.40	$4d\,^4P_{01/2} - 4f\,^2P^\circ_{01/2}$
4839.787	30	20656.29	$4p\,^2F^\circ_{31/2} - s^2\,^2H_{41/2}$	4957.478	10	20165.92	$4d''\,^4F_{21/2} - 4f'''\,^2F^\circ_{21/2}$
4839.859	40	20655.99	$4d\,^4D_{11/2} - 4f\,^4G^\circ_{21/2}$	4958.879	200	20160.22	$4d'\,^2F_{21/2} - 4f'\,^2G^\circ_{31/2}$
4841.369	2	20649.55	$4d\,^2F_{31/2} - 4f\,^4\,I^\circ_{41/2}$	4959.192	40	20158.95	
4842.636	40	20644.14	$4d\,^4D_{21/2} - 4f\,^4F^\circ_{21/2}$	4959.846	1	20156.29	$4d\,^4P_{01/2} - 5p''\,^4P^\circ_{11/2}$
4843.652	15	20639.81	$4d\,^4D_{21/2} - 4f\,^2P^\circ_{11/2}$	4961.539	50	20149.41	$4d'\,^2F_{31/2} - 4f'\,^2F^\circ_{31/2}$
4844.081	20	20637.98	$4d''\,^4D_{21/2} - 4f'''\,^2D^\circ_{21/2}$	4962.844	20	20144.12	$4d\,^2P_{11/2} - 4f\,^4D^\circ_{11/2}$
4848.701	2	20618.32	$4d''\,^4D_{21/2} - 4f'''\,^4F^\circ_{11/2}$	4967.116	15	20126.79	$4d'\,^2F_{31/2} - 4f'''\,^4D^\circ_{31/2}$
4851.169	60	20607.83	$4d''\,^4D_{31/2} - 4f'''\,^4F^\circ_{31/2}$	4967.630	0	20124.71	$4d\,^2P_{11/2} - 4f\,^4F^\circ_{21/2}$
4851.352	2	20607.05	$4d\,^4D_{21/2} - 5p''\,^4P^\circ_{11/2}$	4968.556	2	20120.96	
4853.064	3	20599.78	$4d\,^4D_{11/2} - 4f\,^4D^\circ_{01/2}$	4968.685	20	20120.43	$4d\,^2P_{11/2} - 4f\,^2P^\circ_{11/2}$
4853.337	100	20598.63	$4d''\,^4D_{31/2} - 4f'''\,^4F^\circ_{41/2}$	4969.533	5	20117.00	$4d\,^4H_{61/2} - 4f\,^4G^\circ_{51/2}$
4855.949	5	20587.55	$4d\,^4G_{31/2} - 4f\,^2H^\circ_{41/2}$	4970.017	5	20115.04	
4856.164	30	20586.63	$4d''\,^4D_{21/2} - 4f'''\,^4F^\circ_{21/2}$	4971.077	15	20110.75	$4d\,^2P_{11/2} - 4f\,^2P^\circ_{01/2}$
4856.420	2	20585.55	$4d\,^4G_{31/2} - 4f\,^2G^\circ_{31/2}$	4971.216	0	20110.19	
4856.856	2	20583.70		4974.122	200	20098.44	$4d'\,^2F_{31/2} - 4f'\,^2G^\circ_{41/2}$
4859.987	10	20570.44	$4d''\,^4D_{11/2} - 4f'''\,^2D^\circ_{21/2}$	4975.089	0	20094.54	$4d'\,^2D_{11/2} - 4f'\,^2P^\circ_{01/2}$
4860.186	100	20569.60	$4d''\,^4D_{21/2} - 4f'''\,^4F^\circ_{31/2}$	4977.744	0	20083.82	$4d''\,^2D_{21/2} - 4f'''\,^4D^\circ_{31/2}$
4864.445	5	20551.59	$4d\,^4D_{11/2} - 4f\,^2D^\circ_{11/2}$	4980.530	40	20072.58	
4864.632	40	20550.80	$4d''\,^4D_{11/2} - 4f'''\,^4F^\circ_{11/2}$	4981.005	50	20070.67	$4d\,^4H_{61/2} - 4f\,^4H^\circ_{61/2}$
4868.987	20	20532.42	$4d\,^4G_{31/2} - 4f\,^4\,I^\circ_{41/2}$	4985.579	5	20052.26	$4d''\,^4F_{31/2} - 4f'''\,^4G^\circ_{31/2}$
4870.566	5	20525.76	$4d''\,^4D_{21/2} - 4f'''\,^2F^\circ_{31/2}$	4986.719	20	20047.67	$4d\,^4H_{31/2} - 4f\,^4H^\circ_{31/2}$
4871.190	30	20523.13	$4d''\,^4D_{01/2} - 4f'''\,^4F^\circ_{11/2}$	4987.037	8	20046.39	
4872.147	50	20519.10	$4d''\,^4D_{11/2} - 4f'''\,^4F^\circ_{21/2}$	4987.832	40	20043.20	$4d'\,^2F_{21/2} - 4f'\,^2F^\circ_{21/2}$
4876.315	2	20501.56	$4d\,^2G_{41/2} - 4f\,^2\,I^\circ_{51/2}$	4989.143	10	20037.93	
4885.673	5	20462.29	$4p\,^2F^\circ_{21/2} - s^2\,^2D_{11/2}$	4989.645	20	20035.92	$4d\,^4H_{31/2} - 4f\,^2H^\circ_{41/2}$

TABLE I. *Lines of* Ni II—Continued

λ(air)	Intensity	Wavenumber	Transition
4992.024	500	20026.37	$4d\,^4H_{6\frac{1}{2}}-4f\,^4I^\circ_{7\frac{1}{2}}$
4993.033	50	20022.32	$4d''\,^4F_{3\frac{1}{2}}-4f''\,^4D^\circ_{2\frac{1}{2}}$
4993.343	20	20021.08	$4d'\,^2D_{1\frac{1}{2}}-4f'\,^2D^\circ_{1\frac{1}{2}}$
4996.170	8	20009.75	$4d'\,^2F_{3\frac{1}{2}}-4f'\,^2F^\circ_{2\frac{1}{2}}$
4996.314	3	20009.17	$4d''\,^2D_{2\frac{1}{2}}-4f''\,^4G^\circ_{3\frac{1}{2}}$
4998.290	3	20001.26	
4999.085	2	19998.08	$4p''\,^2D^\circ_{1\frac{1}{2}}-s^2\,^2F_{2\frac{1}{2}}$
4999.271	0	19997.34	$4d''\,^4F_{2\frac{1}{2}}-4f''\,^4D^\circ_{3\frac{1}{2}}$
5001.366	1	19988.96	
5003.413	100	19980.78	$4d\,^4H_{3\frac{1}{2}}-4f\,^4I^\circ_{4\frac{1}{2}}$
5005.665	3	19971.79	$4d\,^2H_{5\frac{1}{2}}-4f\,^2G^\circ_{4\frac{1}{2}}$
5006.088	20	19970.11	$4d\,^4H_{5\frac{1}{2}}-4f\,^4G^\circ_{5\frac{1}{2}}$
5007.165	2	19965.81	
5007.305	10	19965.25	
5008.328	40	19961.18	$4d\,^2H_{5\frac{1}{2}}-4f\,^2H^\circ_{5\frac{1}{2}}$
5009.244	10	19957.53	$4d\,^4H_{5\frac{1}{2}}-4f\,^4F^\circ_{4\frac{1}{2}}$
5010.662	30	19951.88	
5011.085	2	19950.19	
5011.940	10	19946.79	$4d\,^2F_{2\frac{1}{2}}-4f\,^2F^\circ_{2\frac{1}{2}}$
5013.536	15	19940.44	$4d\,^4H_{4\frac{1}{2}}-4f\,^4H^\circ_{4\frac{1}{2}}$
5014.075	30	19938.30	$4d\,^4H_{4\frac{1}{2}}-4f\,^2H^\circ_{5\frac{1}{2}}$
5014.625	20	19936.11	$4d\,^4F_{1\frac{1}{2}}-4f\,^2F^\circ_{2\frac{1}{2}}$
5016.542	25	19928.49	
5017.728	10	19923.78	$4d\,^4H_{5\frac{1}{2}}-4f\,^4H^\circ_{6\frac{1}{2}}$
5017.814	10	19923.44	$4d\,^4H_{5\frac{1}{2}}-4f\,^4H^\circ_{5\frac{1}{2}}$
5018.010	20	19922.66	$4d''\,^4F_{2\frac{1}{2}}-4f''\,^4G^\circ_{3\frac{1}{2}}$
5019.758	5?	19915.72	$4d\,^2P_{0\frac{1}{2}}-4f\,^4F^\circ_{1\frac{1}{2}}$
5020.081	2	19914.44	$4d\,^2F_{2\frac{1}{2}}-4f\,^4F^\circ_{1\frac{1}{2}}$
5020.619	2	19912.31	$4p\,^2D^\circ_{2\frac{1}{2}}-s^2\,^2D_{2\frac{1}{2}}$
5021.455	200	19908.99	$4d\,^2H_{5\frac{1}{2}}-4f\,^2I^\circ_{6\frac{1}{2}}$
5022.226	40	19905.94	$4d''\,^4F_{4\frac{1}{2}}-6f\,^2H^\circ_{5\frac{1}{2}}$
5022.769	5	19903.79	$4d\,^4F_{1\frac{1}{2}}-4f\,^4F^\circ_{1\frac{1}{2}}$
5023.220	5	19902.00	$4d\,^2H_{5\frac{1}{2}}-4f\,^4I^\circ_{5\frac{1}{2}}$
5023.823	15	19899.61	$4d\,^2F_{2\frac{1}{2}}-4f\,^4G^\circ_{2\frac{1}{2}}$
5026.514	15	19888.96	$4d\,^4F_{1\frac{1}{2}}-4f\,^4G^\circ_{2\frac{1}{2}}$
5028.158	20	19882.45	$4d\,^4F_{2\frac{1}{2}}-4f\,^2D^\circ_{2\frac{1}{2}}$
5028.981	150	19879.20	$4d\,^4H_{4\frac{1}{2}}-4f\,^4I^\circ_{5\frac{1}{2}}$
5029.448	2	19877.35	
5032.066	0	19867.01	$4d''\,^4F_{4\frac{1}{2}}-6f\,^4I^\circ_{5\frac{1}{2}}$
5033.678	40	19860.65	$4d\,^4F_{2\frac{1}{2}}-4f\,^4G^\circ_{3\frac{1}{2}}$
5033.818	1	19860.10	
5034.356	1	19857.98	$4d'\,^2G_{4\frac{1}{2}}-4f'\,^2H^\circ_{4\frac{1}{2}}$
5034.546	20	19857.23	$4d\,^4P_{1\frac{1}{2}}-4f\,^4D^\circ_{2\frac{1}{2}}$
5035.520	100	19853.39	$4d'\,^2G_{3\frac{1}{2}}-4f'\,^2H^\circ_{4\frac{1}{2}}$
5037.748	2	19844.61	$4d\,^2P_{0\frac{1}{2}}-4f\,^4D^\circ_{0\frac{1}{2}}$
5038.634	150	19841.12	$4d'\,^2G_{4\frac{1}{2}}-4f'\,^2H^\circ_{5\frac{1}{2}}$ $4d''\,^4F_{4\frac{1}{2}}-4f''\,^2G^\circ_{4\frac{1}{2}}$
5039.836	30	19836.38	$4d\,^4P_{1\frac{1}{2}}-4f\,^4P^\circ_{1\frac{1}{2}}$
5040.360	150	19834.32	$4d\,^4H_{5\frac{1}{2}}-4f\,^4I^\circ_{5\frac{1}{2}}$
5040.608	3	19833.35	$4d\,^4F_{2\frac{1}{2}}-4f\,^4D^\circ_{1\frac{1}{2}}$
5040.775	10	19832.69	$4d\,^4F_{1\frac{1}{2}}-4f\,^4D^\circ_{0\frac{1}{2}}$
5040.924	30	19832.10	
5041.841	20	19828.50	
5041.954	10	19828.05	$4d\,^4G_{2\frac{1}{2}}-4f\,^2F^\circ_{2\frac{1}{2}}$
5042.425	100	19826.20	$4d\,^4G_{2\frac{1}{2}}-4f\,^4H^\circ_{3\frac{1}{2}}$
5042.732	2	19824.99	
5043.147	20	19823.36	$4d\,^2H_{4\frac{1}{2}}-4f\,^2H^\circ_{4\frac{1}{2}}$
5043.648	2	19821.39	$4d\,^2H_{4\frac{1}{2}}-4f\,^2G^\circ_{3\frac{1}{2}}$
5044.105	2	19819.60	$4d''\,^4F_{4\frac{1}{2}}-4f''\,^4G^\circ_{4\frac{1}{2}}$
5045.533	15	19813.99	$4d\,^4F_{2\frac{1}{2}}-4f\,^4F^\circ_{2\frac{1}{2}}$
5045.673	5	19813.44	$4d''\,^4F_{3\frac{1}{2}}-6f\,^4H^\circ_{4\frac{1}{2}}$
5046.969	5	19808.35	$4d''\,^2F_{3\frac{1}{2}}-4f''\,^4D^\circ_{3\frac{1}{2}}$
5047.359	80	19806.82	$4d\,^4G_{5\frac{1}{2}}-4f\,^4F^\circ_{4\frac{1}{2}}$
5048.757	5	19801.33	$4d''\,^4F_{3\frac{1}{2}}-6f\,^2G^\circ_{4\frac{1}{2}}$
5049.236	150	19799.46	$4d''\,^4F_{4\frac{1}{2}}-4f''\,^4G^\circ_{5\frac{1}{2}}$
5049.938	30	19796.70	$4d\,^2F_{3\frac{1}{2}}-4f\,^4H^\circ_{4\frac{1}{2}}$
5050.023	1	19796.37	$4d\,^2P_{0\frac{1}{2}}-4f\,^2D^\circ_{1\frac{1}{2}}$
5050.082	5	19796.14	$4d\,^2F_{3\frac{1}{2}}-4f\,^2D^\circ_{2\frac{1}{2}}$
5050.330	2	19795.17	$4d\,^2F_{2\frac{1}{2}}-4f\,^2D^\circ_{1\frac{1}{2}}$
5050.567	10	19794.24	$4d\,^4G_{5\frac{1}{2}}-4f\,^4F^\circ_{4\frac{1}{2}}$
5050.885	40	19792.99	$4d\,^2F_{3\frac{1}{2}}-4f\,^2F^\circ_{3\frac{1}{2}}$
5051.812	5	19789.36	$4d''\,^4F_{2\frac{1}{2}}-4f''\,^2D^\circ_{1\frac{1}{2}}$
5052.185	1	19787.90	$4d\,^4P_{1\frac{1}{2}}-4f\,^4P^\circ_{2\frac{1}{2}}$
5052.982	75	19784.78	$4d\,^4F_{4\frac{1}{2}}-4f\,^4G^\circ_{5\frac{1}{2}}$
5053.803	10	19781.56	$4d\,^4G_{5\frac{1}{2}}-4f\,^4G^\circ_{4\frac{1}{2}}$
5053.931	5	19781.06	$4d\,^4D_{1\frac{1}{2}}-4f\,^2D^\circ_{2\frac{1}{2}}$
5053.980	10	19780.87	$4d\,^4G_{2\frac{1}{2}}-4f\,^4G^\circ_{2\frac{1}{2}}$
5055.116	15	19776.43	$4d'\,^2P_{0\frac{1}{2}}-4f'\,^2P^\circ_{0\frac{1}{2}}$
5055.646	10	19774.35	$4d\,^2F_{3\frac{1}{2}}-4f\,^4G^\circ_{3\frac{1}{2}}$
5056.194	150	19772.21	$4d\,^4F_{4\frac{1}{2}}-4f\,^4F^\circ_{4\frac{1}{2}}$
5057.169	20	19768.40	$4d\,^4F_{4\frac{1}{2}}-4f\,^4F^\circ_{3\frac{1}{2}}$
5057.215	2	19768.22	$4d\,^2H_{4\frac{1}{2}}-4f\,^4I^\circ_{4\frac{1}{2}}$
5057.659	2	19766.48	
5058.376	200	19763.68	$4d\,^2H_{4\frac{1}{2}}-4f\,^2I^\circ_{5\frac{1}{2}}$
5058.655	0	19762.59	$4d'\,^2D_{2\frac{1}{2}}-w\,^2F^\circ_{3\frac{1}{2}}$
			$4d''\,^2F_{2\frac{1}{2}}-4f''\,^4D^\circ_{3\frac{1}{2}}$
5059.197	200	19760.47	$4d\,^4G_{5\frac{1}{2}}-4f\,^4H^\circ_{6\frac{1}{2}}$
5059.433	15	19759.55	$4d\,^4F_{4\frac{1}{2}}-4f\,^4G^\circ_{4\frac{1}{2}}$
5064.910	40	19738.18	$4d\,^4F_{4\frac{1}{2}}-4f\,^4H^\circ_{5\frac{1}{2}}$
5065.982	30	19734.01	$4d\,^4P_{1\frac{1}{2}}-4f\,^2S^\circ_{0\frac{1}{2}}$
5066.406	3	19732.36	
5066.571	75	19731.71	$4d''\,^4F_{3\frac{1}{2}}-4f''\,^4G^\circ_{4\frac{1}{2}}$
5067.607	5	19727.68	$4d\,^2F_{3\frac{1}{2}}-4f\,^4F^\circ_{2\frac{1}{2}}$
5069.760	30	19719.30	$4d\,^4F_{4\frac{1}{2}}-4f\,^4D^\circ_{3\frac{1}{2}}$
5071.487	20	19712.59	$4d\,^4D_{1\frac{1}{2}}-4f\,^4F^\circ_{2\frac{1}{2}}$
5072.602	10	19708.25	$4d\,^4D_{1\frac{1}{2}}-4f\,^2P^\circ_{1\frac{1}{2}}$
5073.384	2	19705.22	$4d''\,^4F_{4\frac{1}{2}}-4f''\,^4F^\circ_{3\frac{1}{2}}$
5073.761	80	19703.75	$4d''\,^2F_{3\frac{1}{2}}-4f''\,^4D^\circ_{2\frac{1}{2}}$
5073.973	40	19702.93	$4d'\,^2P_{0\frac{1}{2}}-4f'\,^2D^\circ_{1\frac{1}{2}}$
5075.747	30	19696.04	$4d'\,^2G_{4\frac{1}{2}}-4f'\,^2F^\circ_{3\frac{1}{2}}$
			$4d''\,^4F_{4\frac{1}{2}}-4f''\,^4F^\circ_{4\frac{1}{2}}$
5077.063	3	19690.94	
5077.778	30	19688.17	$4d\,^4G_{3\frac{1}{2}}-4f\,^2G^\circ_{4\frac{1}{2}}$
5077.846	30	19687.90	$4d''\,^2F_{2\frac{1}{2}}-4f''\,^4G^\circ_{3\frac{1}{2}}$
5079.999	75	19679.56	$4d\,^4G_{3\frac{1}{2}}-4f\,^4H^\circ_{4\frac{1}{2}}$
5082.199	50	19671.04	$4d\,^4G_{5\frac{1}{2}}-4f\,^4I^\circ_{6\frac{1}{2}}$
5082.753	30	19668.89	$4d'\,^2G_{3\frac{1}{2}}-4f'\,^2G^\circ_{3\frac{1}{2}}$
5084.427	2	19662.42	
5084.583	50	19661.82	$4d\,^2G_{4\frac{1}{2}}-4f\,^2G^\circ_{4\frac{1}{2}}$
5085.777	40	19657.20	$4d\,^4G_{3\frac{1}{2}}-4f\,^4G^\circ_{3\frac{1}{2}}$
5086.539	0	19654.25	$4d''\,^2D_{1\frac{1}{2}}-4f''\,^2F^\circ_{2\frac{1}{2}}$
5087.139	3	19651.94	
5087.328	100	19651.21	$4d\,^2G_{4\frac{1}{2}}-4f\,^2H^\circ_{5\frac{1}{2}}$
5087.759	5	19649.54	$4d\,^2G_{4\frac{1}{2}}-4f\,^2F^\circ_{3\frac{1}{2}}$
5088.898	40	19645.14	$4d'\,^2G_{4\frac{1}{2}}-4f'\,^2G^\circ_{4\frac{1}{2}}$
5089.537	2	19642.68	$4d''\,^2D_{2\frac{1}{2}}-4f''\,^2D^\circ_{2\frac{1}{2}}$
5090.084	5	19640.57	$4d'\,^2G_{3\frac{1}{2}}-4f'\,^2G^\circ_{4\frac{1}{2}}$
5090.826	2	19637.70	$4d''\,^4F_{3\frac{1}{2}}-4f''\,^2G^\circ_{3\frac{1}{2}}$
5091.727	10	19634.23	$4d''\,^4F_{3\frac{1}{2}}-4f''\,^4F^\circ_{2\frac{1}{2}}$?
5092.288	1	19632.07	

TABLE I. *Lines of* Ni II — Continued

λ(air)	Intensity	Wavenumber	Transition	λ(air)	Intensity	Wavenumber	Transition
5092.595	2	19630.88	$4d\,^2G_{4\frac{1}{2}} - 4f\,^4G^\circ_{3\frac{1}{2}}$	5175.139	10	19317.77	$4d\,^4D_{2\frac{1}{2}} - 4f\,^4P^\circ_{1\frac{1}{2}}$
5095.021	10	19621.54		5175.949	5	19314.75	$4d\,^4D_{2\frac{1}{2}} - 4f\,^4D^\circ_{3\frac{1}{2}}$
5096.109	5	19617.35	$4d''\,^4F_{3\frac{1}{2}} - 4f''\,^4F^\circ_{3\frac{1}{2}}$	5182.708	5	19289.56	$4d''\,^2F_{3\frac{1}{2}} - 4f''\,^4F^\circ_{4\frac{1}{2}}$
5097.884	10	19610.52	$4d\,^4G_{3\frac{1}{2}} - 4f\,^4F^\circ_{2\frac{1}{2}}$	5184.140	3	19284.23	$4d''\,^2P_{1\frac{1}{2}} - 4f''\,^2F^\circ_{2\frac{1}{2}}$
5102.026	30	19594.60	$4d''\,^2D_{2\frac{1}{2}} - 4f''\,^2G^\circ_{3\frac{1}{2}}$	5185.893	20	19277.71	$4d''\,^2D_{1\frac{1}{2}} - 4f''\,^2D^\circ_{1\frac{1}{2}}$
5102.510	10	19592.74	$4d'\,^2P_{1\frac{1}{2}} - 4f''\,^2P^\circ_{0\frac{1}{2}}$	5187.064	25	19273.36	$4d''\,^2F_{2\frac{1}{2}} - 4f''\,^2G^\circ_{3\frac{1}{2}}$
5102.881	5	19591.31	$4d''\,^2D_{2\frac{1}{2}} - 4f''\,^4F^\circ_{2\frac{1}{2}}$	5188.166	5	19269.27	$4d\,^4D_{2\frac{1}{2}} - 4f\,^4P^\circ_{2\frac{1}{2}}$
5103.532	5	19588.81		5192.027	5	19254.94	$4d''\,^2F_{3\frac{1}{2}} - 4f''\,^2F^\circ_{3\frac{1}{2}}$
5104.144	40	19586.47	$4d\,^4F_{3\frac{1}{2}} - 4f\,^4F^\circ_{4\frac{1}{2}}$	5193.466	30	19249.60	
5105.134	60	19582.67	$4d\,^4F_{3\frac{1}{2}} - 4f\,^4F^\circ_{3\frac{1}{2}}$	5204.392	30	19209.19	$4d''\,^2F_{2\frac{1}{2}} - 4f''\,^2F^\circ_{3\frac{1}{2}}$
5107.076	2	19575.22	$4d'\,^2D_{2\frac{1}{2}} - 4f'\,^2P^\circ_{1\frac{1}{2}}$	5206.730	20	19200.57	$4d''\,^4P_{1\frac{1}{2}} - 4f''\,^2D^\circ_{2\frac{1}{2}}$
5107.449	100	19573.79	$4d\,^4F_{3\frac{1}{2}} - 4f\,^4G^\circ_{4\frac{1}{2}}$	5216.798	10	19163.51	
			$4d'\,^2P_{1\frac{1}{2}} - 4f'\,^2P^\circ_{1\frac{1}{2}}$	5220.537	3	19149.79	
5110.046	2	19563.84		5221.317	20	19146.93	$4d''\,^4P_{2\frac{1}{2}} - 4f''\,^4G^\circ_{3\frac{1}{2}}$
5111.727	20	19557.41	$4d\,^4F_{3\frac{1}{2}} - 4f\,^4D^\circ_{2\frac{1}{2}}$	5226.509	3	19127.91	$4d\,^4H_{3\frac{1}{2}} - 4f\,^4H^\circ_{4\frac{1}{2}}$
5112.462	1	19554.60	$4d''\,^2F_{2\frac{1}{2}} - 4f''\,^2D^\circ_{1\frac{1}{2}}$	5228.757	10	19119.68	
5113.176	3	19551.87	$4d'\,^2G_{3\frac{1}{2}} - 4f'\,^2F^\circ_{2\frac{1}{2}}$	5236.945	20	19089.79	
5117.046	40	19537.08	$4d''\,^4P_{1\frac{1}{2}} - 4f''\,^4D^\circ_{2\frac{1}{2}}$	5249.986	20	19042.37	
5118.793	40	19530.41	$4d''\,^2D_{2\frac{1}{2}} - 4f''\,^2F^\circ_{3\frac{1}{2}}$	5251.225	10	19037.88	
5119.809	5	19526.54		5254.875	2	19024.65	$4d\,^2F_{2\frac{1}{2}} - 4f\,^2D^\circ_{2\frac{1}{2}}$
5121.718	0	19519.26	$4d'\,^2P_{1\frac{1}{2}} - 4f'\,^2D^\circ_{1\frac{1}{2}}$	5255.750	10	19021.49	$4d\,^2F_{2\frac{1}{2}} - 4f\,^2F^\circ_{3\frac{1}{2}}$
5124.639	2	19508.13	$4d''\,^4F_{2\frac{1}{2}} - 4f''\,^2G^\circ_{3\frac{1}{2}}$	5257.827	2	19013.97	$4d\,^4F_{1\frac{1}{2}} - 4f\,^2D^\circ_{2\frac{1}{2}}$
5125.505	30	19504.84	$4d'\,^2D_{2\frac{1}{2}} - 4f'\,^2D^\circ_{2\frac{1}{2}}$	5257.912	10	19013.66	$4d''\,^4P_{2\frac{1}{2}} - 4f''\,^2D^\circ_{1\frac{1}{2}}$
			$4d''\,^4F_{2\frac{1}{2}} - 4f''\,^4F^\circ_{2\frac{1}{2}}$	5260.912	5	19002.82	$4d\,^2F_{2\frac{1}{2}} - 4f\,^4G^\circ_{3\frac{1}{2}}$
5125.885	50	19503.39	$4d'\,^2P_{1\frac{1}{2}} - 4f'\,^2D^\circ_{2\frac{1}{2}}$	5267.643	3	18978.54	
5127.633	40	19496.74	$4d\,^4G_{4\frac{1}{2}} - 4f\,^4G^\circ_{5\frac{1}{2}}$	5271.450	2	18964.83	$4d\,^4F_{1\frac{1}{2}} - 4f\,^4D^\circ_{1\frac{1}{2}}$
5128.129	5	19494.86	$4d''\,^2F_{3\frac{1}{2}} - 6f\,^4H^\circ_{4\frac{1}{2}}$	5273.870	10	18956.13	$4d\,^2F_{2\frac{1}{2}} - 4f\,^4F^\circ_{2\frac{1}{2}}$
5130.529	75	19485.74		5275.067	3	18951.83	$4d\,^2F_{2\frac{1}{2}} - 4f\,^2P^\circ_{1\frac{1}{2}}$
5130.942	2	19484.17	$4d\,^4G_{4\frac{1}{2}} - 4f\,^4F^\circ_{4\frac{1}{2}}$	5279.694	30	18935.22	
5131.945	5	19480.36	$4d\,^4G_{4\frac{1}{2}} - 4f\,^4F^\circ_{3\frac{1}{2}}$	5288.799	10	18902.62	$4d\,^4G_{2\frac{1}{2}} - 4f\,^2F^\circ_{3\frac{1}{2}}$
5133.098	5	19475.99		5298.909	25	18866.56	$4d''\,^2P_{0\frac{1}{2}} - 4f''\,^4D^\circ_{1\frac{1}{2}}$
5134.285	60	19471.48	$4d\,^4G_{4\frac{1}{2}} - 4f\,^4G^\circ_{4\frac{1}{2}}$	5302.404	5	18854.12	$4d\,^2H_{4\frac{1}{2}} - 4f\,^4\,I^\circ_{5\frac{1}{2}}$
5136.828	80	19461.84	$4d'\,^2D_{2\frac{1}{2}} - 4f'\,^2F^\circ_{3\frac{1}{2}}$	5306.464	2	18839.70	
5137.077	5	19460.90		5307.169	1	18837.20	$4d''\,^2P_{0\frac{1}{2}} - 6f\,^2P^\circ_{1\frac{1}{2}}$
5138.944	0	19453.83	$4d\,^2G_{3\frac{1}{2}} - 4f\,^2F^\circ_{2\frac{1}{2}}$	5313.534	0	18814.63	$4d''\,^2P_{1\frac{1}{2}} - 4f''\,^4D^\circ_{1\frac{1}{2}}$
5139.926	100	19450.11	$4d\,^4G_{4\frac{1}{2}} - 4f\,^4H^\circ_{5\frac{1}{2}}$	5318.134	0	18798.36	$4d\,^2P_{1\frac{1}{2}} - 4f\,^4P^\circ_{1\frac{1}{2}}$
5141.558	3	19443.94	$4d''\,^4F_{2\frac{1}{2}} - 4f''\,^2F^\circ_{3\frac{1}{2}}$	5327.820	1	18764.18	$4f\,^4\,I^\circ_{6\frac{1}{2}} - 7g\,^4K_{7\frac{1}{2}}$
5142.535	80	19440.25	$4d\,^2G_{3\frac{1}{2}} - 4f\,^2H^\circ_{4\frac{1}{2}}$	5336.856	0	18732.41	$4d''\,^4P_{2\frac{1}{2}} - 4f''\,^2G^\circ_{3\frac{1}{2}}$
5142.810	10	19439.21	$4d'\,^2D_{2\frac{1}{2}} - 4f'\,^2G^\circ_{3\frac{1}{2}}$	5337.790	0	18729.14	$4d''\,^4P_{2\frac{1}{2}} - 4f''\,^4F^\circ_{2\frac{1}{2}}$
5143.058	40	19438.27	$4d\,^2G_{3\frac{1}{2}} - 4f\,^2G^\circ_{3\frac{1}{2}}$	5340.652	2	18719.10	$4f\,^4\,I^\circ_{7\frac{1}{2}} - 7g\,^4K_{8\frac{1}{2}}$
5144.905	15	19431.29	$4d\,^4G_{4\frac{1}{2}} - 4f\,^4D^\circ_{3\frac{1}{2}}$	5342.291	0	18713.36	$4f\,^2\,I^\circ_{5\frac{1}{2}} - 7g\,^2K_{6\frac{1}{2}}$
5145.343	20	19429.64		5342.664	5	18712.05	$4d''\,^4P_{2\frac{1}{2}} - 4f''\,^4F^\circ_{3\frac{1}{2}}$
5149.719	60	19413.13	$4d''\,^2F_{3\frac{1}{2}} - 4f''\,^4G^\circ_{4\frac{1}{2}}$	5343.112	0	18710.48	$4f\,^2\,I^\circ_{6\frac{1}{2}} - 7g\,^2K_{7\frac{1}{2}}$
5150.898	20	19408.68	$4d''\,^4P_{0\frac{1}{2}} - 4f''\,^4D^\circ_{0\frac{1}{2}}$	5344.144	5	18706.87	$4d''\,^2P_{0\frac{1}{2}} - 4f''\,^4F^\circ_{1\frac{1}{2}}$
5155.550	10	19391.17	$4d''\,^4P_{0\frac{1}{2}} - 4f''\,^4D^\circ_{1\frac{1}{2}}$	5347.256	0	18695.98	$4d\,^2P_{1\frac{1}{2}} - 4f\,^2S^\circ_{0\frac{1}{2}}$
5155.839	30	19390.08	$4d''\,^4P_{2\frac{1}{2}} - 4f''\,^2F^\circ_{2\frac{1}{2}}$	5351.773	1	18680.20	$4f\,^4H^\circ_{5\frac{1}{2}} - 7g\,^4H_{5\frac{1}{2}}$
5157.162	10	19385.11	$4d\,^2G_{3\frac{1}{2}} - 4f\,^4\,I^\circ_{4\frac{1}{2}}$	5351.847	2	18679.94	$4f\,^4H^\circ_{6\frac{1}{2}} - 7g\,^4H_{6\frac{1}{2}}$
5158.243	10	19381.05	$4d''\,^2D_{1\frac{1}{2}} - 4f''\,^4D^\circ_{2\frac{1}{2}}$	5353.372	40	18674.62	$4d''\,^2P_{1\frac{1}{2}} - 4f''\,^2D^\circ_{2\frac{1}{2}}$
5158.962	20	19378.35	$4d'\,^2S_{0\frac{1}{2}} - 4f'\,^2P^\circ_{0\frac{1}{2}}$	5355.219	1	18668.18	$4d''\,^4P_{2\frac{1}{2}} - 4f''\,^2F^\circ_{3\frac{1}{2}}$
5160.008	8	19374.42		5359.013	3	18654.96	$4d''\,^2P_{1\frac{1}{2}} - 4f''\,^4F^\circ_{1\frac{1}{2}}$
5162.824	20	19363.85	$4d\,^4D_{2\frac{1}{2}} - 4f\,^4F^\circ_{3\frac{1}{2}}$	5364.579	1	18635.61	$4f\,^4G^\circ_{5\frac{1}{2}} - 7g\,^4G_{5\frac{1}{2}}$
5164.012	40	19359.40	$4d'\,^2S_{0\frac{1}{2}} - 4f'\,^2P^\circ_{1\frac{1}{2}}$	5368.135	30	18623.26	$4d''\,^2P_{1\frac{1}{2}} - 4f''\,^4F^\circ_{2\frac{1}{2}}$
5164.343	2	19358.16	$4d''\,^4P_{0\frac{1}{2}} - 6f\,^4D^\circ_{1\frac{1}{2}}$	5375.204	3	18598.77	
			$4d''\,^4P_{1\frac{1}{2}} - 4f''\,^4D^\circ_{0\frac{1}{2}}$	5375.931	3	18596.26	
5169.022	10	19340.63	$4d''\,^4P_{1\frac{1}{2}} - 4f''\,^4D^\circ_{1\frac{1}{2}}$	5386.189	3	18560.84	$4d\,^4H_{4\frac{1}{2}} - 4f\,^4H^\circ_{5\frac{1}{2}}$
5169.564	30	19338.60	$4d\,^4D_{2\frac{1}{2}} - 4f\,^4D^\circ_{2\frac{1}{2}}$	5394.085	5	18533.67	$4d\,^4F_{2\frac{1}{2}} - 4f\,^4F^\circ_{3\frac{1}{2}}$
5173.065	5	19325.52	$4d''\,^4F_{1\frac{1}{2}} - 4f''\,^4F^\circ_{1\frac{1}{2}}$				$6s\,^4F_{4\frac{1}{2}} - 8p\,^4G^\circ_{5\frac{1}{2}}$
5173.976	3	19322.11	$4d'\,^2D_{2\frac{1}{2}} - 4f'\,^2F^\circ_{2\frac{1}{2}}$	5394.498	15	18532.25	$4d\,^4F_{3\frac{1}{2}} - 5p'\,^2D^\circ_{2\frac{1}{2}}$
5174.155	5	19321.45	$4d''\,^2F_{2\frac{1}{2}} - 4f''\,^2D^\circ_{2\frac{1}{2}}$				$4d\,^2G_{3\frac{1}{2}} - 4f\,^4H^\circ_{4\frac{1}{2}}$
5174.775	3	19319.13	$4d''\,^2F_{3\frac{1}{2}} - 4f''\,^2G^\circ_{3\frac{1}{2}}$	5401.445	5	18508.42	$4d\,^4F_{2\frac{1}{2}} - 4f\,^4D^\circ_{2\frac{1}{2}}$

TABLE I. *Lines of* Ni II—Continued

λ(air)	Intensity	Wavenumber	Transition	λ(air)	Intensity	Wavenumber	Transition
5405.513	3	18494.49	$4d\,^2H_{5\,1/2}-4f\,^4\,I^\circ_{6\,1/2}$	6298.502	15	15872.40	$4d\,^2D_{2\,1/2}-4f\,^4D^\circ_{2\,1/2}$
5470.824	5	18273.70	$4d\,^2G_{4\,1/2}-4f\,^4H^\circ_{5\,1/2}$	6302.417	40	15862.54	$5p'\,^2D^\circ_{2\,1/2}-5d'\,^2F_{2\,1/2}$
5502.486	3	18168.56	$4d\,^2D_{2\,1/2}-4f\,^2F^\circ_{2\,1/2}$	6302.532	75	15862.25	$5p'\,^2D^\circ_{2\,1/2}-5d'\,^2F_{3\,1/2}$
5507.214	30	18152.96	$4d\,^2D_{2\,1/2}-4f\,^2G^\circ_{3\,1/2}$	6302.699	3	15861.83	$5p\,^4G^\circ_{2\,1/2}-5d\,^4G_{2\,1/2}$
5516.811	3	18121.38	$4d\,^2D_{2\,1/2}-4f\,^4G^\circ_{2\,1/2}$	6314.457	40	15832.30	$5p\,^4F^\circ_{4\,1/2}-5d\,^4F_{4\,1/2}$
5588.975	15	17887.40		6319.828	15	15818.84	$5p\,^4G^\circ_{3\,1/2}-5d\,^4G_{3\,1/2}$
5633.532	2	17745.93	$5d\,^4H_{6\,1/2}-7f\,^4\,I^\circ_{7\,1/2}$	6326.641	5	15801.81	$4p\,^4F^\circ_{4\,1/2}-s^2\,^2G_{4\,1/2}$
5655.744	1	17676.23		6332.209	3	15787.91	$5p\,^4D^\circ_{1\,1/2}-5d\,^4F_{2\,1/2}$
5702.726	5	17530.61	$4d\,^2D_{1\,1/2}-4f\,^2F^\circ_{2\,1/2}$	6337.120	20	15775.68	$5p\,^4F^\circ_{1\,1/2}-5d\,^4G_{2\,1/2}$
5713.523	3	17497.48		6341.012	3	15765.99	$5p\,^4G^\circ_{5\,1/2}-5d\,^4F_{4\,1/2}$
5718.117	10	17483.42	$4d\,^2D_{1\,1/2}-4f\,^4G^\circ_{2\,1/2}$	6341.761	50	15764.13	$5p\,^4G^\circ_{2\,1/2}-5d\,^4H_{3\,1/2}$
5741.882	3	17411.06		6346.657	75	15751.97	$5p\,^4F^\circ_{4\,1/2}-5d\,^4H_{5\,1/2}$
5752.486	3	17378.97	$4d\,^2D_{1\,1/2}-4f\,^2D^\circ_{1\,1/2}$	6348.783	40	15746.70	$5p\,^4G^\circ_{4\,1/2}-5d\,^4G_{4\,1/2}$
5765.246	5	17340.50		6350.621	20	15742.14	$5p\,^4G^\circ_{5\,1/2}-5d\,^4G_{5\,1/2}$
5769.015	0	17329.18	$5p\,^4G^\circ_{5\,1/2}-4d'''\,^2\,I_{6\,1/2}$?	6361.388	10	15715.49	$5p\,^4F^\circ_{1\,1/2}-5d\,^4F_{1\,1/2}$
5773.635	1h	17315.31		6365.320	30	15705.79	$5p\,^2G^\circ_{4\,1/2}-5d\,^2G_{4\,1/2}$
5796.702	10	17246.41	$4d\,^2D_{2\,1/2}-4f\,^2D^\circ_{2\,1/2}$	6371.200	75	15691.29	$5p\,^4G^\circ_{3\,1/2}-5d\,^4H_{4\,1/2}$
5797.761	20	17243.26	$4d\,^2D_{2\,1/2}-4f\,^2F^\circ_{3\,1/2}$	6373.474	30	15685.69	$5p\,^4G^\circ_{5\,1/2}-5d\,^4H_{5\,1/2}$
5814.001	5	17195.09	$4p\,^4G^\circ_{3\,1/2}-s^2\,^2G_{3\,1/2}$	6379.028	10	15672.04	$5p\,^4D^\circ_{1\,1/2}-5d\,^4P_{0\,1/2}$
5819.821	1	17177.90	$4d\,^2D_{2\,1/2}-4f\,^4F^\circ_{2\,1/2}$	6388.193	10	15649.55	$5p\,^2G^\circ_{3\,1/2}-5d\,^2G_{3\,1/2}$
5820.908	1	17174.69		6388.255	3	15649.40	
5821.290	1	17173.56	$4d\,^2D_{2\,1/2}-4f\,^2P^\circ_{1\,1/2}$	6388.374	30	15649.11	$5p\,^4F^\circ_{2\,1/2}-5d\,^4G_{3\,1/2}$
5882.812	10?	16993.96	$4p\,^4G^\circ_{4\,1/2}-s^2\,^2G_{4\,1/2}$	6391.707	20	15640.95	$5p\,^4D^\circ_{2\,1/2}-5d\,^4D_{2\,1/2}$
6037.275	3h	16559.18	$4d\,^2D_{1\,1/2}-4f\,^4D^\circ_{1\,1/2}$	6397.694	150	15626.31	$5p\,^4G^\circ_{5\,1/2}-5d\,^4H_{6\,1/2}$
6040.924	2	16549.18		6398.162	5	15625.17	
6044.315	1	16539.89	$4d\,^2D_{1\,1/2}-4f\,^4F^\circ_{2\,1/2}$	6398.206	30	15625.06	$5p'\,^2P^\circ_{1\,1/2}-5d'\,^2P_{1\,1/2}$
6045.860	1	16535.67	$4d\,^2D_{1\,1/2}-4f\,^2P^\circ_{1\,1/2}$	6401.460	5	15617.12	
			$5p'\,^2P^\circ_{1\,1/2}-7d\,^4D_{2\,1/2}$	6401.920	50	15616.00	$5p'''\,^4D^\circ_{3\,1/2}-5d'''\,^4F_{4\,1/2}$
6048.768	1	16527.72		6402.246	30	15615.20	$5p\,^4G^\circ_{4\,1/2}-5d\,^4F_{4\,1/2}$
6062.008	3	16491.62	$5p'''\,^4P^\circ_{2\,1/2}-5d'''\,^4D_{2\,1/2}$				$5d\,^4F_{3\,1/2}-6f\,^4F^\circ_{2\,1/2}$
6068.641	20	16473.59	$4p\,^2D^\circ_{2\,1/2}-s^2\,^2P_{1\,1/2}$	6402.709	5	15614.07	
6094.190	20	16404.53	$5p'''\,^4P^\circ_{2\,1/2}-5d'''\,^4D_{3\,1/2}$	6404.258	30	15610.30	$5p'\,^2P^\circ_{1\,1/2}-5d'\,^2D_{2\,1/2}$
6124.910	50	16322.25	$4p\,^4D^\circ_{3\,1/2}-s^2\,^4P_{2\,1/2}$	6411.571	3	15592.49	
6137.382	0	16289.08	$5p'\,^2D^\circ_{1\,1/2}-5d'\,^2D_{2\,1/2}$	6411.913	80	15591.66	$5p\,^2G^\circ_{4\,1/2}-5d\,^2H_{5\,1/2}$
6148.256	5	16260.27	$5p\,^4D^\circ_{3\,1/2}-5d\,^4F_{4\,1/2}$	6412.069	60	15591.28	$5p\,^4G^\circ_{4\,1/2}-5d\,^4G_{5\,1/2}$
6148.674	2	16259.17	$5p\,^4D^\circ_{1\,1/2}-5d\,^4D_{1\,1/2}$	6418.674	20	15575.24	$5p\,^4F^\circ_{1\,1/2}-5d\,^4D_{3\,1/2}$
6155.711	1h	16240.58		6418.782	20	15574.97	$5p'''\,^4D^\circ_{1\,1/2}-5d'''\,^4P_{2\,1/2}$
6158.188	1	16234.05		6419.961	1	15572.11	$5p\,^4F^\circ_{2\,1/2}-5d\,^2F_{3\,1/2}$
6173.036	5	16195.00	$5p'\,^2D^\circ_{2\,1/2}-5d'\,^2P_{1\,1/2}$	6425.366	40	15559.02	$5p\,^4F^\circ_{2\,1/2}-5d\,^4F_{2\,1/2}$
6173.377	3h	16194.11		6426.130	2	15557.17	
6174.596	0	16190.91	$5p'\,^2D^\circ_{1\,1/2}-5d'\,^2P_{0\,1/2}$	6426.669	2	15555.86	$5p\,^4F^\circ_{1\,1/2}-5d\,^4D_{0\,1/2}$
6178.653	10	16180.28	$5p'\,^2D^\circ_{2\,1/2}-5d'\,^2D_{2\,1/2}$	6428.869	100	15550.54	$5p'\,^2F^\circ_{2\,1/2}-5d'\,^2G_{3\,1/2}$?
6194.433	3	16139.06	$5p'\,^2D^\circ_{1\,1/2}-5d'\,^2D_{1\,1/2}$	6429.817	5	15548.24	
6199.957	5	16124.68		6433.786	60	15538.65	$5p'''\,^4D^\circ_{2\,1/2}-5d'''\,^4F_{3\,1/2}$
6200.959	5	16122.08	$5p'''\,^4P^\circ_{1\,1/2}-5d'''\,^4D_{2\,1/2}$	6435.364	5	15534.84	$5p\,^4G^\circ_{4\,1/2}-5d\,^4H_{5\,1/2}$
6210.132	2	16098.26	$5p'\,^2D^\circ_{1\,1/2}-6s'''\,^2P_{1\,1/2}$	6437.533	2	15529.61	$4f\,^4\,I^\circ_{6\,1/2}-6g\,^4H_{5\,1/2}$
6219.909	3	16072.96		6440.970	20	15521.32	$4f\,^4\,I^\circ_{6\,1/2}-6g\,^4K_{7\,1/2}$
6224.134	3	16062.05	$5p\,^4D^\circ_{0\,1/2}-5d\,^4F_{1\,1/2}$	6441.099	10	15521.01	$5d\,^4F_{4\,1/2}-4f'''\,^4F^\circ_{4\,1/2}$
6236.492	2	16030.22	$5p\,^4F^\circ_{2\,1/2}-5d\,^4D_{1\,1/2}$	6441.426	75	15520.22	$5p\,^2G^\circ_{3\,1/2}-5d\,^2H_{4\,1/2}$
			$5p'\,^2D^\circ_{2\,1/2}-5d'\,^2D_{1\,1/2}$	6443.163	2	15516.04	
6243.486	40	16012.26	$5p\,^4D^\circ_{3\,1/2}-5d\,^4P_{2\,1/2}$	6445.111	5	15511.35	
6243.775	2	16011.52	$5p'''\,^4P^\circ_{0\,1/2}-5d'''\,^4D_{1\,1/2}$	6447.322	3	15506.03	
6247.024	30	16003.20	$5p\,^4D^\circ_{3\,1/2}-5d\,^4D_{3\,1/2}$	6447.583	20	15505.40	
6259.467	10	15971.38	$5p'\,^2D^\circ_{1\,1/2}-5d'\,^2F_{2\,1/2}$	6447.998	20	15504.40	$5p'''\,^4S^\circ_{1\,1/2}-5d'''\,^4P_{2\,1/2}$
			$4p'''\,^2F^\circ_{2\,1/2}-s^2\,^2F_{2\,1/2}$	6449.266	2	15501.36	
6272.945	30	15937.07	$5p'\,^2D^\circ_{2\,1/2}-8s\,^4F_{3\,1/2}$	6449.958	10	15499.69	$5p\,^4D^\circ_{2\,1/2}-5d\,^4F_{3\,1/2}$
6278.953	1	15921.82	$5p\,^4F^\circ_{4\,1/2}-5d\,^4F_{3\,1/2}$	6450.280	3	15498.92	$4f\,^4P^\circ_{2\,1/2}-5g\,^4D_{3\,1/2}$
6286.633	5	15902.37	$5p\,^4D^\circ_{0\,1/2}-5d\,^4D_{0\,1/2}$	6450.676	2	15497.97	
6288.500	10	15897.65	$5p\,^4G^\circ_{5\,1/2}-5d\,^4G_{4\,1/2}$	6450.818	5	15497.63	$5p\,^4F^\circ_{3\,1/2}-5d\,^4D_{2\,1/2}$
			$4d\,^2D_{2\,1/2}-4f\,^4F^\circ_{3\,1/2}$	6451.544	1	15495.88	

TABLE I. *Lines of* Ni II — Continued

λ(air)	Intensity	Wavenumber	Transition
6451.805	5	15495.26	$4f\ ^4P^\circ_{2\frac{1}{2}} - 6g\ ^4P_{2\frac{1}{2}}$
6452.844	2	15492.76	$4d''\ ^4P_{2\frac{1}{2}} - v\ ^4P^\circ_{1\frac{1}{2}}$
6455.543	2	15486.28	
6455.671	5	15485.98	
6456.301	5	15484.47	$4f\ ^4I^\circ_{7\frac{1}{2}} - 6g\ ^4H_{6\frac{1}{2}}$
6457.032	1	15482.71	
6457.223	1	15482.25	$4f\ ^4I^\circ_{5\frac{1}{2}} - 6g\ ^4H_{4\frac{1}{2}}$
6457.347	2	15481.96	
6458.217	5	15479.87	$5p\ ^2F^\circ_{3\frac{1}{2}} - 5d\ ^4G_{3\frac{1}{2}}$
6458.949	1	15478.12	
6459.735	100	15476.23	$4f\ ^4I^\circ_{7\frac{1}{2}} - 6g\ ^4K_{8\frac{1}{2}}$
6459.937	1	15475.75	$4d\ ^4D_{2\frac{1}{2}} - 6f\ ^4D^\circ_{1\frac{1}{2}}$
6460.103	60	15475.35	$4f\ ^4I^\circ_{5\frac{1}{2}} - 6g\ ^4K_{6\frac{1}{2}}$
			$4f\ ^2I^\circ_{6\frac{1}{2}} - 6g\ ^2H_{5\frac{1}{2}}$
6460.182	40	15475.16	$4f\ ^2I^\circ_{5\frac{1}{2}} - 6g\ ^2K_{6\frac{1}{2}}$
6462.072	20	15470.64	$4f\ ^4I^\circ_{4\frac{1}{2}} - 6g\ ^4K_{5\frac{1}{2}}$
6463.008	60	15468.40	$4f\ ^2I^\circ_{6\frac{1}{2}} - 6g\ ^2K_{7\frac{1}{2}}$
6463.736	2	15466.65	$5p''\ ^4D^\circ_{1\frac{1}{2}} - 7d\ ^4F_{1\frac{1}{2}}$
6465.439	1	15462.58	$4f\ ^4D^\circ_{3\frac{1}{2}} - 6g\ ^4G_{4\frac{1}{2}}$
6466.754	8	15459.44	
6467.472	10	15457.72	$4f\ ^4D^\circ_{3\frac{1}{2}} - 6g\ ^4F_{4\frac{1}{2}}$
6467.923	75	15456.64	$5p\ ^2F^\circ_{3\frac{1}{2}} - 5d\ ^2G_{4\frac{1}{2}}$
6468.835	15	15454.46	
6469.263	8	15453.44	$4f\ ^4D^\circ_{3\frac{1}{2}} - 6g\ ^4D_{3\frac{1}{2}}$
6470.107	10	15451.43	
6470.486	1	15450.52	$4f\ ^4P^\circ_{1\frac{1}{2}} - 6g\ ^4D_{2\frac{1}{2}}$
6470.796	1	15449.78	$4f\ ^4D^\circ_{3\frac{1}{2}} - 6g\ ^4P_{2\frac{1}{2}}$
6472.044	5	15446.80	$5p\ ^4F^\circ_{2\frac{1}{2}} - 5d\ ^2P_{1\frac{1}{2}}$
			$4f\ ^4P^\circ_{1\frac{1}{2}} - 6g\ ^4P_{1\frac{1}{2}}$
6473.341	5	15443.71	$4f\ ^4H^\circ_{5\frac{1}{2}} - 6g\ ^4G_{4\frac{1}{2}}$
6473.457	5h	15443.43	$4f\ ^4H^\circ_{6\frac{1}{2}} - 6g\ ^4G_{5\frac{1}{2}}$
			$4f\ ^4G^\circ_{3\frac{1}{2}} - 6g\ ^4H_{4\frac{1}{2}}$
6473.523	20h	15443.27	$4f\ ^4G^\circ_{3\frac{1}{2}} - 6g\ ^4F_{2\frac{1}{2}}$
6473.625	5	15443.03	$5p''\ ^4S^\circ_{1\frac{1}{2}} - 5d''\ ^4P_{1\frac{1}{2}}$
6474.717	40	15440.42	$4f\ ^4H^\circ_{5\frac{1}{2}} - 6g\ ^4H_{5\frac{1}{2}}$
6474.821	60	15440.18	$4f\ ^4H^\circ_{6\frac{1}{2}} - 6g\ ^4H_{6\frac{1}{2}}$
6475.175	3	15439.33	
6476.357	2h	15436.51	
6477.429	5	15433.96	$4f\ ^4D^\circ_{2\frac{1}{2}} - 6g\ ^4F_{3\frac{1}{2}}$
6479.234	4	15429.66	$4f\ ^4D^\circ_{2\frac{1}{2}} - 6g\ ^4D_{2\frac{1}{2}}$
6480.420	10	15426.84	$5p\ ^2G^\circ_{3\frac{1}{2}} - 5d\ ^4H_{3\frac{1}{2}}$
			$4f\ ^2F^\circ_{3\frac{1}{2}} - 6g\ ^2G_{4\frac{1}{2}}$
6480.811	2h	15425.90	$4f\ ^4D^\circ_{2\frac{1}{2}} - 6g\ ^4P_{1\frac{1}{2}}$
6480.976	8	15425.51	
6481.120	2	15425.17	$4f\ ^2H^\circ_{5\frac{1}{2}} - 6g\ ^2G_{4\frac{1}{2}}$
6481.344	4h	15424.64	$4f\ ^2F^\circ_{3\frac{1}{2}} - 6g\ ^2F_{3\frac{1}{2}}$
6481.669	20	15423.86	$4f\ ^4H^\circ_{5\frac{1}{2}} - 6g\ ^4I_{6\frac{1}{2}}$
6481.797	40	15423.56	$4f\ ^4H^\circ_{6\frac{1}{2}} - 6g\ ^4I_{7\frac{1}{2}}$
6481.972	2	15423.14	$4f\ ^2H^\circ_{5\frac{1}{2}} - 6g\ ^2H_{5\frac{1}{2}}$
			$4f\ ^4H^\circ_{4\frac{1}{2}} - 6g\ ^2G_{4\frac{1}{2}}$
6482.308	5	15422.34	$4f\ ^4G^\circ_{4\frac{1}{2}} - 6g\ ^4G_{4\frac{1}{2}}$
6482.659	30h	15421.51	$4f\ ^2D^\circ_{2\frac{1}{2}} - 6g\ ^2F_{3\frac{1}{2}}$
6483.539	2	15419.41	$5d\ ^4P_{0\frac{1}{2}} - 6f\ ^4F^\circ_{1\frac{1}{2}}$
			$5p'\ ^2P^\circ_{1\frac{1}{2}} - 6s''\ ^2P_{1\frac{1}{2}}$
6483.868	5	15418.63	
6484.056	40	15418.18	$4f\ ^2H^\circ_{4\frac{1}{2}} - 6g\ ^2I_{5\frac{1}{2}}$
6484.083	10	15418.12	$4p\ ^4D^\circ_{2\frac{1}{2}} - s^2\ ^4P_{1\frac{1}{2}}$
6484.347	10	15417.49	$4f\ ^4G^\circ_{4\frac{1}{2}} - 6g\ ^4F_{3\frac{1}{2}}$
6485.584	15	15414.55	$4f\ ^2G^\circ_{4\frac{1}{2}} - 6g\ ^2G_{4\frac{1}{2}}$
6486.523	15	15412.32	$4f\ ^2G^\circ_{4\frac{1}{2}} - 6g\ ^2F_{3\frac{1}{2}}$
6486.616	5	15412.10	
6486.768	1	15411.74	
6486.817	1	15411.62	$5p''\ ^2D^\circ_{1\frac{1}{2}} - 5d''\ ^2P_{0\frac{1}{2}}$
6487.539	5	15409.91	
6487.634	10	15409.68	$4f\ ^4F^\circ_{4\frac{1}{2}} - 6g\ ^4G_{5\frac{1}{2}}$
6488.058	4	15408.67	$4f\ ^4F^\circ_{3\frac{1}{2}} - 6g\ ^4F_{3\frac{1}{2}}$
6488.128	10	15408.51	
6488.452	50	15407.74	$4f\ ^2H^\circ_{5\frac{1}{2}} - 6g\ ^2I_{6\frac{1}{2}}$
6488.971	20	15406.51	$5p\ ^4D^\circ_{2\frac{1}{2}} - 5d\ ^4P_{1\frac{1}{2}}$
6489.684	3	15404.81	$4f\ ^4F^\circ_{4\frac{1}{2}} - 6g\ ^4F_{4\frac{1}{2}}$
6490.509	25	15402.86	$5p\ ^2F^\circ_{3\frac{1}{2}} - 5d\ ^2F_{3\frac{1}{2}}$
6491.481	2h	15400.55	$4f\ ^4F^\circ_{4\frac{1}{2}} - 6g\ ^4D_{3\frac{1}{2}}$
			$4p\ ^2F^\circ_{2\frac{1}{2}} - s^2\ ^2P_{1\frac{1}{2}}$
6492.379	40	15398.42	$5p\ ^4F^\circ_{3\frac{1}{2}} - 5d\ ^4G_{4\frac{1}{2}}$
6492.934	20	15397.10	$4f\ ^4G^\circ_{5\frac{1}{2}} - 6g\ ^4G_{5\frac{1}{2}}$
6493.437	8	15395.91	$4d\ ^2D_{2\frac{1}{2}} - 5f\ ^4P^\circ_{2\frac{1}{2}}$
6497.913	1h	15385.31	$5p''\ ^4D^\circ_{3\frac{1}{2}} - 5d''\ ^4D_{2\frac{1}{2}}$
6499.074	2h	15382.56	$4p\ ^4F^\circ_{2\frac{1}{2}} - s^2\ ^2G_{3\frac{1}{2}}$
6499.860	20	15380.70	$5p''\ ^4D^\circ_{1\frac{1}{2}} - 5d''\ ^4F_{2\frac{1}{2}}$
6500.283	15	15379.70	$5p\ ^2D^\circ_{2\frac{1}{2}} - 5d\ ^2F_{3\frac{1}{2}}$
6502.317	75	15374.89	
6508.607	100	15360.03	
6509.452	3	15358.03	$5p\ ^4G^\circ_{4\frac{1}{2}} - 5d\ ^4D_{3\frac{1}{2}}$
6510.169	30	15356.34	$5p\ ^4F^\circ_{3\frac{1}{2}} - 5d\ ^4F_{3\frac{1}{2}}$
6510.371	2h	15355.86	$5p'\ ^2F^\circ_{2\frac{1}{2}} - 5d'\ ^2F_{3\frac{1}{2}}$
6524.833	2h	15321.83	
6534.903	10	15298.22	$5p''\ ^4D^\circ_{3\frac{1}{2}} - 5d''\ ^4D_{3\frac{1}{2}}$
6541.396	1h	15283.03	
6541.858	1h	15281.96	
6546.986	1h	15269.99	
6547.270	2h	15269.32	
6548.339	2	15266.83	$5p\ ^4F^\circ_{3\frac{1}{2}} - 5d\ ^4F_{4\frac{1}{2}}$
6553.677	5	15254.40	$5p\ ^2D^\circ_{2\frac{1}{2}} - 5d\ ^4P_{1\frac{1}{2}}$
6557.122	10	15246.38	$5p'\ ^2F^\circ_{3\frac{1}{2}} - 8s\ ^4F_{3\frac{1}{2}}$
6570.916	3	15214.38	
6572.648	2	15210.37	
6580.931	3	15191.22	
6582.377	20	15187.89	$5p\ ^2F^\circ_{2\frac{1}{2}} - 5d\ ^2G_{3\frac{1}{2}}$
6589.340	4	15171.84	$5p'\ ^2F^\circ_{3\frac{1}{2}} - 5d'\ ^2F_{2\frac{1}{2}}$
6589.457	20	15171.57	$5p'\ ^2F^\circ_{3\frac{1}{2}} - 5d'\ ^2F_{3\frac{1}{2}}$
			$5p''\ ^4D^\circ_{0\frac{1}{2}} - 5d''\ ^4F_{1\frac{1}{2}}$
6590.259	4	15169.72	
6594.779	4	15159.32	
6602.461	10	15141.69	$4p\ ^4D^\circ_{2\frac{1}{2}} - s^2\ ^4P_{2\frac{1}{2}}$
6603.496	2	15139.31	
6626.687	50	15086.33	$4p\ ^2G^\circ_{3\frac{1}{2}} - s^2\ ^2G_{3\frac{1}{2}}$
6630.191	10	15078.36	
6631.637	10	15075.07	$4p\ ^4D^\circ_{1\frac{1}{2}} - s^2\ ^4P_{0\frac{1}{2}}$
6634.702	1h	15068.11	
6638.651	20	15059.14	$4p\ ^2G^\circ_{4\frac{1}{2}} - s^2\ ^2G_{4\frac{1}{2}}$
6647.893	2	15038.21	
6665.713	5	14998.00	$5p\ ^2F^\circ_{2\frac{1}{2}} - 4d'''\ ^2F_{2\frac{1}{2}}$
6691.092	3	14941.12	$4p\ ^4F^\circ_{3\frac{1}{2}} - s^2\ ^2G_{4\frac{1}{2}}$
6692.432	2	14938.13	$5p\ ^2D^\circ_{1\frac{1}{2}} - 4d'''\ ^2F_{2\frac{1}{2}}$
6702.123	2	14916.53	
6705.406	1	14909.22	$5s'\ ^2D_{1\frac{1}{2}} - 5p''\ ^2P^\circ_{1\frac{1}{2}}$
6713.493	2	14891.26	
6735.74	1	14842.08	$w\ ^4D^\circ_{3\frac{1}{2}} - 6d\ ^4D_{2\frac{1}{2}}$
6738.75	1	14835.45	
6740.20	2	14832.26	$5d\ ^4D_{1\frac{1}{2}} - 6f\ ^4F^\circ_{1\frac{1}{2}}$

TABLE I. *Lines of* Ni II — Continued

λ(air)	Intensity	Wavenumber	Transition
6839.57	1	14616.77	$5p\ ^2F^\circ_{2\frac{1}{2}} - 5d\ ^4D_{1\frac{1}{2}}$
6840.28	5	14615.25	$5d\ ^4D_{3\frac{1}{2}} - 6f\ ^4F^\circ_{4\frac{1}{2}}$
6844.73	5	14605.75	$5d\ ^4D_{3\frac{1}{2}} - 6f\ ^4D^\circ_{3\frac{1}{2}}$
6847.55	3	14599.73	$5d\ ^4D_{3\frac{1}{2}} - 6f\ ^4P^\circ_{2\frac{1}{2}}$
6849.03	2	14596.58	$5d\ ^4D_{3\frac{1}{2}} - 6f\ ^4F^\circ_{3\frac{1}{2}}$
6851.80	3	14590.68	$5d\ ^4P_{2\frac{1}{2}} - 6f\ ^4P^\circ_{2\frac{1}{2}}$
6852.42	3	14589.36	$5d\ ^4P_{2\frac{1}{2}} - 6f\ ^4S^\circ_{1\frac{1}{2}}$
6854.81	1	14584.27	
6857.68	2	14578.17	
6858.26	1	14576.94	
6863.57	1	14565.66	
6867.68	3	14556.94	$5p\ ^2D^\circ_{1\frac{1}{2}} - 5d\ ^4D_{1\frac{1}{2}}$
6868.73	2	14554.72	
6878.77	40	14533.47	$4p\ ^4D^\circ_{0\frac{1}{2}} - s^2\ ^4P_{0\frac{1}{2}}$
6884.23	50	14521.95	$4p\ ^4D^\circ_{1\frac{1}{2}} - s^2\ ^4P_{1\frac{1}{2}}$
6889.74	100	14510.33	
6890.87	2	14507.95	$5d\ ^4H_{6\frac{1}{2}} - 6f\ ^4H^\circ_{5\frac{1}{2}}$
			$5d\ ^4P_{0\frac{1}{2}} - 6f\ ^4D^\circ_{1\frac{1}{2}}$
			$5d\ ^2P_{1\frac{1}{2}} - 6f\ ^2P^\circ_{1\frac{1}{2}}$
6891.53	2	14506.56	
6897.73	5	14493.52	$5d\ ^4H_{6\frac{1}{2}} - 6f\ ^4H^\circ_{6\frac{1}{2}}$
6899.02	2	14490.81	
6905.32	100	14477.59	$5d\ ^4H_{6\frac{1}{2}} - 6f\ ^4I^\circ_{7\frac{1}{2}}$
6905.55	50	14477.11	$5d\ ^4H_{3\frac{1}{2}} - 6f\ ^4I^\circ_{4\frac{1}{2}}$
6910.46	2	14466.83	$4d'''\ ^2F_{2\frac{1}{2}} - 6f\ ^2G^\circ_{3\frac{1}{2}}$
6911.54	1	14464.57	$5d\ ^2H_{5\frac{1}{2}} - 6f\ ^2H^\circ_{5\frac{1}{2}}$
6911.97	2	14463.67	$5d\ ^4F_{1\frac{1}{2}} - 6f\ ^4G^\circ_{2\frac{1}{2}}$
6918.46	1	14450.10	$5d\ ^4H_{4\frac{1}{2}} - 6f\ ^4H^\circ_{4\frac{1}{2}}$
6920.25	1	14446.36	$5d\ ^4F_{1\frac{1}{2}} - 6f\ ^4F^\circ_{1\frac{1}{2}}$
6922.50	20	14441.66	$5d\ ^4H_{5\frac{1}{2}} - 6f\ ^4G^\circ_{5\frac{1}{2}}$
6926.12	15	14434.12	$5d\ ^4H_{5\frac{1}{2}} - 6f\ ^4H^\circ_{6\frac{1}{2}}$
6930.09	100	14425.85	$5d\ ^2H_{5\frac{1}{2}} - 6f\ ^2I^\circ_{6\frac{1}{2}}$
6934.90	50	14415.84	$5d\ ^4H_{4\frac{1}{2}} - 6f\ ^4I^\circ_{5\frac{1}{2}}$
6939.94	50	14405.37	$5d\ ^4H_{5\frac{1}{2}} - 6f\ ^4I^\circ_{6\frac{1}{2}}$
6942.71	3	14399.63	$5d\ ^2F_{3\frac{1}{2}} - 6f\ ^4H^\circ_{4\frac{1}{2}}$
			$5d\ ^2H_{5\frac{1}{2}} - 6f'''\ ^2G^\circ_{4\frac{1}{2}}$
6943.87	5	14397.22	$5d\ ^4G_{2\frac{1}{2}} - 6f\ ^4H^\circ_{3\frac{1}{2}}$
6945.02	1	14394.84	$5d\ ^4F_{2\frac{1}{2}} - 6f\ ^4G^\circ_{3\frac{1}{2}}$
6946.34	5	14392.10	$5d\ ^4G_{5\frac{1}{2}} - 6f\ ^4H^\circ_{5\frac{1}{2}}$
			$5d\ ^4F_{2\frac{1}{2}} - 6f\ ^4D^\circ_{1\frac{1}{2}}$
6947.22	2	14390.28	
6947.41	1	14389.88	$5d\ ^4H_{4\frac{1}{2}} - 4f'''\ ^2G^\circ_{4\frac{1}{2}}$
6948.08	5	14388.50	$5d\ ^2F_{3\frac{1}{2}} - 6f\ ^2F^\circ_{3\frac{1}{2}}$
6948.53	3	14387.56	$5d\ ^2F_{3\frac{1}{2}} - 6f\ ^2G^\circ_{4\frac{1}{2}}$
6953.30	40	14377.69	$5d\ ^4G_{5\frac{1}{2}} - 6f\ ^4H^\circ_{6\frac{1}{2}}$
6958.25	50	14367.47	$5d\ ^2H_{4\frac{1}{2}} - 6f\ ^2I^\circ_{5\frac{1}{2}}$
6961.28	30	14361.21	$5d\ ^4F_{4\frac{1}{2}} - 6f\ ^4G^\circ_{5\frac{1}{2}}$
6962.72	20	14358.24	$5d\ ^4F_{4\frac{1}{2}} - 6f\ ^4F^\circ_{4\frac{1}{2}}$
6966.49	30	14350.47	$5d\ ^2G_{4\frac{1}{2}} - 6f\ ^2H^\circ_{5\frac{1}{2}}$
6967.24	50	14348.93	$5d\ ^4G_{5\frac{1}{2}} - 6f\ ^4I^\circ_{6\frac{1}{2}}$
6971.59	2	14339.97	$5d\ ^4P_{1\frac{1}{2}} - 6f\ ^4P^\circ_{1\frac{1}{2}}$
6974.59	5	14333.81	$5d\ ^2G_{4\frac{1}{2}} - 6f\ ^2G^\circ_{4\frac{1}{2}}$
6978.32	2	14326.15	
6980.02	10	14322.66	$5d\ ^4G_{3\frac{1}{2}} - 6f\ ^4H^\circ_{4\frac{1}{2}}$
6985.92	3	14310.56	$5d\ ^4G_{3\frac{1}{2}} - 6f\ ^2G^\circ_{4\frac{1}{2}}$
6990.98	2	14300.20	$5d\ ^4G_{3\frac{1}{2}} - 6f\ ^4F^\circ_{2\frac{1}{2}}$
6998.11	2	14285.63	$5d\ ^2G_{4\frac{1}{2}} - 4f'''\ ^2G^\circ_{4\frac{1}{2}}$
6999.16	25	14283.49	$5d\ ^4F_{3\frac{1}{2}} - 6f\ ^4G^\circ_{4\frac{1}{2}}$
6999.41	2	14282.98	$5p\ ^2D^\circ_{2\frac{1}{2}} - 5d\ ^4D_{2\frac{1}{2}}$
7002.34	1	14277.00	$5d\ ^2G_{3\frac{1}{2}} - 6f\ ^2G^\circ_{3\frac{1}{2}}$
7002.64	15	14276.39	$5d\ ^2G_{3\frac{1}{2}} - 6f\ ^2H^\circ_{4\frac{1}{2}}$
7006.33	2	14268.87	$5d\ ^4F_{3\frac{1}{2}} - 6f\ ^4F^\circ_{4\frac{1}{2}}$
7011.10	2	14259.16	$5d\ ^4F_{3\frac{1}{2}} - 6f\ ^4D^\circ_{3\frac{1}{2}}$
7015.63	5	14249.96	$5d\ ^4F_{3\frac{1}{2}} - 6f\ ^4F^\circ_{3\frac{1}{2}}$
7017.83	1	14245.49	$4p\ ^4D^\circ_{1\frac{1}{2}} - s^2\ ^4P_{2\frac{1}{2}}$
7019.85	10	14241.39	$5d\ ^4G_{4\frac{1}{2}} - 6f\ ^4G^\circ_{4\frac{1}{2}}$
7022.17	50	14236.69	$5d\ ^4G_{4\frac{1}{2}} - 6f\ ^4H^\circ_{5\frac{1}{2}}$
7022.65	2	14235.71	$5p\ ^2F^\circ_{2\frac{1}{2}} - 5d\ ^4G_{3\frac{1}{2}}$
7025.97	2	14228.99	
7027.14	1	14226.62	$5d\ ^4G_{4\frac{1}{2}} - 6f\ ^4F^\circ_{4\frac{1}{2}}$
7036.88	10	14206.93	$5p\ ^2F^\circ_{3\frac{1}{2}} - 5d\ ^4G_{4\frac{1}{2}}$
7085.86	3	14108.72	$5d\ ^4D_{2\frac{1}{2}} - 6f\ ^4F^\circ_{3\frac{1}{2}}$
7097.45	3	14085.68	$5p\ ^2D^\circ_{1\frac{1}{2}} - 5d\ ^4F_{2\frac{1}{2}}$
7101.52	30	14077.61	
7102.73	5h	14075.21	$5p\ ^2F^\circ_{3\frac{1}{2}} - 5d\ ^4F_{4\frac{1}{2}}$
7103.57	15	14073.55	
7104.44	5h	14071.83	
7116.23	10	14048.51	$5p\ ^2D^\circ_{2\frac{1}{2}} - 5d\ ^4P_{1\frac{1}{2}}$
7121.76	20	14037.60	$4p\ ^2D^\circ_{2\frac{1}{2}} - s^2\ ^2G_{3\frac{1}{2}}$
7124.04	3h	14033.11	$5s'\ ^2D_{1\frac{1}{2}} - 5p'\ ^4P^\circ_{1\frac{1}{2}}$?
7147.29	50	13987.46	$4p\ ^2G^\circ_{3\frac{1}{2}} - s^2\ ^2G_{4\frac{1}{2}}$
7150.97	2	13980.26	$4p\ ^4D^\circ_{0\frac{1}{2}} - s^2\ ^4P_{1\frac{1}{2}}$
7154.44	1	13973.48	$5p\ ^2D^\circ_{1\frac{1}{2}} - 5d\ ^2P_{1\frac{1}{2}}$
7156.33	1	13969.79	$5p\ ^2D^\circ_{1\frac{1}{2}} - 5d\ ^4P_{0\frac{1}{2}}$
7158.54	2	13965.48	
7187.98	5	13908.28	
7198.05	3	13888.82	
7235.44	20	13817.05	$5p''\ ^4P^\circ_{2\frac{1}{2}} - 6s''\ ^4P_{1\frac{1}{2}}$
7249.15	5	13790.92	$5p\ ^4D^\circ_{2\frac{1}{2}} - 6s\ ^2F_{3\frac{1}{2}}$
7261.11	10	13768.21	
7265.53	10	13759.83	
7295.00	3	13704.24	$5p''\ ^4D^\circ_{3\frac{1}{2}} - 7d\ ^4F_{4\frac{1}{2}}$
7301.61	10	13691.84	
7301.93	20	13691.24	$5p''\ ^4P^\circ_{1\frac{1}{2}} - 6s''\ ^4P_{0\frac{1}{2}}$
7325.63	300	13646.94	$5p\ ^4F^\circ_{2\frac{1}{2}} - 6s\ ^2F_{2\frac{1}{2}}$
			$5p''\ ^4P^\circ_{2\frac{1}{2}} - 6s''\ ^4P_{2\frac{1}{2}}$
7331.37	3	13636.26	$5p''\ ^4D^\circ_{3\frac{1}{2}} - 7d\ ^4P_{2\frac{1}{2}}$
7337.92	3	13624.09	$5p''\ ^4D^\circ_{3\frac{1}{2}} - 7d\ ^4D_{3\frac{1}{2}}$
7386.18	10	13535.07	$5d\ ^4F_{1\frac{1}{2}} - 6f\ ^4D^\circ_{1\frac{1}{2}}$
7401.86	15	13506.40	
7404.37	2	13501.82	
7411.54	2	13488.76	$5d\ ^2H_{4\frac{1}{2}} - 6f\ ^2F^\circ_{3\frac{1}{2}}$
7434.29	2	13447.48	$5p''\ ^4P^\circ_{1\frac{1}{2}} - 6s''\ ^4P_{1\frac{1}{2}}$
7442.73	3	13432.23	$5s''\ ^4P_{2\frac{1}{2}} - 5p''\ ^2D^\circ_{1\frac{1}{2}}$
7492.54	1	13342.93	$5s\ ^4F_{3\frac{1}{2}} - 5p\ ^4F^\circ_{2\frac{1}{2}}$
7517.83	50	13298.05	$5p''\ ^4P^\circ_{0\frac{1}{2}} - 6s''\ ^4P_{1\frac{1}{2}}$
7528.98	200	13278.36	$4p\ ^2F^\circ_{3\frac{1}{2}} - s^2\ ^2G_{4\frac{1}{2}}$
7529.51	50	13277.42	$5p''\ ^4P^\circ_{1\frac{1}{2}} - 6s''\ ^4P_{2\frac{1}{2}}$
7537.66	20	13263.06	$5s\ ^4F_{3\frac{1}{2}} - 5p\ ^2G^\circ_{4\frac{1}{2}}$
7548.14	3	13244.65	$4f\ ^2P^\circ_{1\frac{1}{2}} - 6s''\ ^4P_{2\frac{1}{2}}$
7556.27	10	13230.40	$5s\ ^4F_{2\frac{1}{2}} - 5p\ ^2G^\circ_{3\frac{1}{2}}$
7585.11	150	13180.10	$5p\ ^4D^\circ_{3\frac{1}{2}} - 6s\ ^4F_{4\frac{1}{2}}$
7595.83	1	13161.49	
7597.12	3	13159.26	$5p'\ ^2D^\circ_{2\frac{1}{2}} - 6d\ ^2D_{2\frac{1}{2}}$
7603.49	5	13148.24	$5p'''\ ^2H^\circ_{5\frac{1}{2}} - 6s'''\ ^2G_{4\frac{1}{2}}$
7638.38	5	13088.18	$5s''\ ^4P_{2\frac{1}{2}} - 5p''\ ^4S^\circ_{1\frac{1}{2}}$
7644.74	10	13077.29	
7659.13	50	13052.72	
7678.07	2	13020.52	
7693.96	20	12993.63	$5p\ ^4F^\circ_{4\frac{1}{2}} - 6s\ ^4F_{3\frac{1}{2}}$

TABLE I. *Lines of* Ni II — Continued

λ(air)	Intensity	Wavenumber	Transition
7706.08	2	12973.20	
7707.70	2	12970.47	
7711.24	200	12964.51	$4p\ ^2F^\circ_{2½} - s^2\ ^2G_{3½}$
7726.35	3	12939.16	
7745.16	15	12907.74	$5s''\ ^4P_{1½} - 5p''\ ^4S^\circ_{1½}$
7755.08	1	12891.23	$4f\ ^4F^\circ_{1½} - 5d'\ ^2D_{2½}$
7755.34	1	12890.79	
7764.87	30	12874.97	$5p\ ^4D^\circ_{1½} - 6s\ ^4F_{2½}$
7771.71	5	12863.64	
7785.95	15	12840.11	
7787.74	3	12837.16	$5s''\ ^4P_{1½} - 5p''\ ^4D^\circ_{1½}$
7798.40	3	12819.62	$5p''\ ^2P^\circ_{1½} - 6s''\ ^2P_{1½}$
7800.05	30	12816.90	$5p\ ^4G^\circ_{2½} - 6s\ ^4F_{1½}$
7800.74	40	12815.77	$5p\ ^4G^\circ_{3½} - 6s\ ^4F_{2½}$
7803.07	1	12811.94	$5p''\ ^4D^\circ_{3½} - 8s\ ^4F_{4½}$
7803.32	0	12811.53	$5p''\ ^4D^\circ_{3½} - 6s''\ ^2P_{1½}$
7804.27	30	12809.97	$5s'''\ ^2G_{3½} - 5p'''\ ^2G^\circ_{3½}$
7807.61	75	12804.49	$5s'''\ ^2G_{4½} - 5p'''\ ^2G^\circ_{4½}$
7811.73	10	12797.74	$5s''\ ^4P_{0½} - 5p''\ ^4D^\circ_{0½}$
7812.34	2	12796.74	$4f\ ^4D^\circ_{3½} - 6d\ ^4G_{2½}$
7816.19	5	12790.44	
7818.78	10	12786.20	$5p'''\ ^2F^\circ_{3½} - 6s'''\ ^2G_{4½}$
7824.74	30	12776.46	$5p\ ^4G^\circ_{4½} - 6s\ ^4F_{3½}$
			$5s''\ ^4P_{1½} - 5p''\ ^2D^\circ_{2½}$
7825.68	2	12774.93	
7839.67	30	12752.13	$5p\ ^4F^\circ_{4½} - 6s\ ^4F_{4½}$
7842.34	50	12747.79	
7845.10	1	12743.30	$4f\ ^4P^\circ_{1½} - 6d\ ^4F_{1½}$?
7848.34	3	12738.04	
7851.28	2	12733.27	
7852.82	20	12730.78	$5p\ ^4F^\circ_{1½} - 6s\ ^4F_{1½}$
7868.58	40	12705.28	$5p\ ^2G^\circ_{4½} - 6s\ ^2F_{3½}$
7875.01	30	12694.90	$5p\ ^2G^\circ_{3½} - 6s\ ^2F_{2½}$
7876.19	1	12693.00	$5s''\ ^4P_{0½} - 5p''\ ^4S^\circ_{1½}$
7880.64	100	12685.83	$5p\ ^4G^\circ_{5½} - 6s\ ^4F_{4½}$
7882.70	0	12682.52	$5s''\ ^4P_{2½} - 5p''\ ^4D^\circ_{2½}$
7884.84	2	12679.08	
7905.44	30	12646.04	$5p\ ^4F^\circ_{2½} - 6s\ ^4F_{2½}$
7914.39	1	12631.74	
7920.21	25	12622.46	$5s''\ ^4P_{0½} - 5p''\ ^4D^\circ_{1½}$
7921.19	10	12620.89	
7925.05	20	12614.75	
7935.53	5h	12598.09	
7944.58	2h	12583.74	
7951.99	2	12572.01	
7952.32	40	12571.49	$5p\ ^4D^\circ_{2½} - 6s\ ^4F_{3½}$
			$5p''\ ^2P^\circ_{1½} - 6s''\ ^4P_{1½}$
7957.52	300	12563.27	$5p''\ ^4D^\circ_{2½} - 6s''\ ^4P_{1½}$
7962.41	150	12555.56	$5s'\ ^2D_{2½} - 5p'\ ^2F^\circ_{3½}$
7963.36	20	12554.06	
7965.02	8	12551.44	
7965.54	3	12550.62	$5d\ ^4D_{1½} - 6f\ ^4P^\circ_{1½}$
7971.90	200	12540.61	$5p''\ ^4D^\circ_{3½} - 6s''\ ^4P_{2½}$
7973.87	2	12537.51	
7974.14	30	12537.09	$6s''\ ^2P_{1½} - 5p''\ ^2D^\circ_{2½}$
7975.39	100	12535.12	$5s''\ ^4P_{2½} - 5p''\ ^4D^\circ_{3½}$
7981.78	10	12525.09	
7982.98	3	12523.21	$4f\ ^4D^\circ_{0½} - 6s''\ ^4P_{1½}$
7986.81	1	12517.20	$5p''\ ^4D^\circ_{1½} - 5d'\ ^2D_{1½}$
7988.17	3h	12515.07	
7988.64	15	12514.33	
7992.64	10	12508.07	
7996.48	50	12502.06	$5s''\ ^4P_{1½} - 5p''\ ^4D^\circ_{2½}$
7998.03	2	12499.64	$5p'\ ^2P^\circ_{1½} - 6s'\ ^2D_{1½}$
7998.56	2	12498.81	$5s'\ ^2D_{1½} - 5p'\ ^2P^\circ_{0½}$
7998.97	100	12498.17	$5s\ ^4F_{4½} - 5p\ ^4G^\circ_{4½}$
8001.64	5	12494.00	$5s''\ ^4P_{1½} - 5p''\ ^2P^\circ_{1½}$
8003.73	5	12490.74	
8006.25	2	12486.81	
8007.15	2	12485.40	
8008.85	8	12482.75	
8009.81	20	12481.26	
8012.61	8	12476.90	$5p\ ^2F^\circ_{3½} - 6s\ ^4F_{2½}$?
8012.91	2	12476.43	$5p''\ ^4D^\circ_{1½} - 6s''\ ^2P_{1½}$
8014.02	1	12474.70	
8014.77	40	12473.53	
8015.79	75	12471.95	$5p''\ ^4D^\circ_{1½} - 6s''\ ^4P_{0½}$
8017.40	40	12469.44	
8019.00	2	12466.95	$4f\ ^4G^\circ_{2½} - 6s''\ ^4P_{1½}$
8020.56	5	12464.53	
8020.95	2	12463.92	
8021.81	50	12462.59	
8022.68	2	12461.24	
8024.87	20	12457.83	$5p'\ ^2P^\circ_{1½} - 6s'\ ^2D_{2½}$
8025.97	50	12456.13	$5p\ ^2F^\circ_{3½} - 6s\ ^2F_{3½}$
8028.49	15	12452.22	$4f\ ^4F^\circ_{1½} - 6s''\ ^4P_{1½}$
8031.22	0	12447.98	$5s\ ^4F_{2½} - 5p\ ^2F^\circ_{3½}$
8032.07	1	12446.67	$5p''\ ^4S^\circ_{1½} - 5d'\ ^2D_{1½}$
8035.38	20	12441.54	$5p''\ ^2D^\circ_{1½} - 6s''\ ^2P_{0½}$
8036.82	1	12439.31	
8036.95	5	12439.11	
8039.68	15	12434.89	$5s'\ ^2D_{2½} - 5p'\ ^2P^\circ_{1½}$
8040.92	30	12432.97	$5p\ ^2D^\circ_{2½} - 6s\ ^2F_{3½}$
8044.01	75	12428.19	$5p\ ^4F_{3½} - 6s\ ^4F_{3½}$
8048.06	25	12421.94	
8053.54	5	12413.49	
8053.94	150	12412.87	$5s\ ^2F_{2½} - 5p\ ^2D^\circ_{1½}$
8058.49	15	12405.86	$5p''\ ^4S^\circ_{1½} - 6s''\ ^2P_{1½}$
8061.41	5	12401.37	$5p''\ ^4S^\circ_{1½} - 6s''\ ^4P_{0½}$
			$5p''\ ^2P^\circ_{1½} - 6s''\ ^4P_{2½}$
8064.29	10	12396.94	
8066.32	3	12393.82	$5p''\ ^4D^\circ_{0½} - 5d'\ ^2P_{0½}$
8066.68	2	12393.27	$5p''\ ^4D^\circ_{2½} - 6s''\ ^4P_{2½}$
8070.58	2	12387.28	
8071.30	1	12386.17	
8078.09	1	12375.76	$4p''\ ^4P^\circ_{1½} - s^2\ ^2D_{1½}$
8078.78	1	12374.70	
8084.12	1	12366.53	
8087.02	50	12362.09	
8093.00	300	12352.96	$5s\ ^2F_{2½} - 5p\ ^2F^\circ_{2½}$
8094.23	5	12351.08	
8096.75	1000	12347.24	$5s\ ^4F_{4½} - 5p\ ^4G^\circ_{5½}$
8100.66	5	12341.28	
8106.26	300	12332.75	$5s\ ^2F_{3½} - 5p\ ^2D^\circ_{2½}$
8108.52	1	12329.32	
8109.39	15	12327.99	
8114.21	500	12320.67	$5s\ ^4F_{3½} - 5p\ ^4F^\circ_{3½}$
8117.80	2	12315.22	
8121.00	10	12310.37	$5p'\ ^2P^\circ_{0½} - 6s'\ ^2D_{1½}$
8121.48	700	12309.64	$5s\ ^2F_{3½} - 5p\ ^2F^\circ_{3½}$

TABLE I. *Lines of* Ni II — Continued

λ(air)	Intensity	Wavenumber	Transition
8126.42	75	12302.16	$5s\ ^4F_{1\frac{1}{2}} - 5p\ ^4F^\circ_{1\frac{1}{2}}$
8130.06	25	12296.65	$5p''\ ^4D^\circ_{0\frac{1}{2}} - 6s''\ ^4P_{0\frac{1}{2}}$
8135.04	3	12289.12	
8135.98	5	12287.70	
8140.45	100	12280.96	$5s\ ^4F_{4\frac{1}{2}} - 5p\ ^4F^\circ_{4\frac{1}{2}}$
8141.94	50	12278.71	$5s\ ^4F_{3\frac{1}{2}} - 5p\ ^4F^\circ_{2\frac{1}{2}}$
8143.09	5	12276.97	
8148.80	1	12268.37	
8153.49	5	12261.32	
8158.26	10	12254.15	
8163.49	30	12246.30	$5s'''\ ^2G_{3\frac{1}{2}} - 5p'''\ ^2F^\circ_{3\frac{1}{2}}$
8164.87	3	12244.23	
8166.92	2	12241.15	
8172.20	25	12233.24	$5p\ ^2F^\circ_{2\frac{1}{2}} - 6s\ ^2F_{2\frac{1}{2}}$
8175.54	3	12228.25	$5p''\ ^4D^\circ_{1\frac{1}{2}} - 6s''\ ^4P_{1\frac{1}{2}}$
8177.51	1	12225.30	
8183.72	100	12216.02	$5s\ ^4F_{1\frac{1}{2}} - 5p\ ^4G^\circ_{2\frac{1}{2}}$
8184.38	3	12215.04	
8192.04	2	12203.62	
8194.83	1	12199.46	
8203.59	5	12186.43	$5s''\ ^2P_{1\frac{1}{2}} - 5p''\ ^4S^\circ_{1\frac{1}{2}}$
8208.21	1	12179.58	
8209.70	150	12177.37	$5s\ ^4F_{3\frac{1}{2}} - 5p\ ^4D^\circ_{2\frac{1}{2}}$
8211.97	3	12174.00	$5p\ ^4D^\circ_{3\frac{1}{2}} - 4d''\ ^4F_{3\frac{1}{2}}$
8212.39	10	12173.38	$5p\ ^2D^\circ_{1\frac{1}{2}} - 6s\ ^2F_{2\frac{1}{2}}$
8222.99	8	12157.68	$5p''\ ^4S^\circ_{1\frac{1}{2}} - 6s''\ ^4P_{1\frac{1}{2}}$
8224.04	5	12156.13	
8235.91	50	12138.61	$5s'''\ ^2G_{4\frac{1}{2}} - 5p'''\ ^2F^\circ_{3\frac{1}{2}}$
8236.96	1	12137.07	
8242.99	3h	12128.19	
8245.41	10	12124.63	$5s''\ ^2P_{0\frac{1}{2}} - 5p''\ ^2D^\circ_{1\frac{1}{2}}$
8245.91	2	12123.89	
8248.36	5	12120.29	$5p'''\ ^2G^\circ_{4\frac{1}{2}} - 6s'''\ ^2G_{4\frac{1}{2}}$
8249.37	30	12118.81	$6s''\ ^4P_{2\frac{1}{2}} - 5p''\ ^2D^\circ_{2\frac{1}{2}}$
8256.06	200	12108.99	$5s\ ^4F_{2\frac{1}{2}} - 5p\ ^4G^\circ_{3\frac{1}{2}}$
8256.52	5	12108.31	
8263.62	3	12097.91	
8266.38	2	12093.87	
8271.96	3	12085.71	
8275.38	3	12080.72	
8289.30	200	12060.43	$5s\ ^2F_{3\frac{1}{2}} - 5p\ ^2G^\circ_{4\frac{1}{2}}$
8290.89	5	12058.12	$5p''\ ^4D^\circ_{1\frac{1}{2}} - 6s''\ ^4P_{2\frac{1}{2}}$
8292.88	5	12055.22	$5s''\ ^2P_{1\frac{1}{2}} - 5p''\ ^2D^\circ_{2\frac{1}{2}}$
8296.62	100	12049.79	$5s\ ^4F_{2\frac{1}{2}} - 5p\ ^4D^\circ_{1\frac{1}{2}}$
8320.34	0	12015.44	$4d''\ ^2P_{1\frac{1}{2}} - 5f\ ^4D^\circ_{2\frac{1}{2}}$
8322.57	2	12012.22	
8339.68	15	11987.57	$5p''\ ^4S^\circ_{1\frac{1}{2}} - 6s''\ ^4P_{2\frac{1}{2}}$
8350.26	200	11972.38	$5s\ ^4F_{3\frac{1}{2}} - 5p\ ^4G^\circ_{4\frac{1}{2}}$
8350.94	2	11971.41	
8351.50	1	11970.61	$5s\ ^2F_{3\frac{1}{2}} - 5p\ ^4G^\circ_{3\frac{1}{2}}$
8354.06	2	11966.94	
8355.66	30	11964.65	$5s'\ ^2D_{2\frac{1}{2}} - w\ ^4F^\circ_{3\frac{1}{2}}$
8361.74	15	11955.95	
8361.98	25	11955.60	$5s\ ^4F_{1\frac{1}{2}} - 5p\ ^4D^\circ_{0\frac{1}{2}}$
8379.50	20	11930.61	
8407.21	150	11891.28	$5s\ ^2F_{2\frac{1}{2}} - 5p\ ^2G^\circ_{3\frac{1}{2}}$
8415.11	1	11880.12	
8425.92	50	11864.88	$5s'\ ^2D_{2\frac{1}{2}} - 5p'\ ^2D^\circ_{2\frac{1}{2}}$
8434.38	150	11852.98	$5s\ ^4F_{4\frac{1}{2}} - 5p\ ^4D^\circ_{3\frac{1}{2}}$
8473.40	10	11798.40	$5s''\ ^4P_{2\frac{1}{2}} - 5p''\ ^4P^\circ_{1\frac{1}{2}}$
8486.09	15	11780.75	$5s''\ ^2P_{1\frac{1}{2}} - 5p''\ ^4D^\circ_{2\frac{1}{2}}$
8489.08	25	11776.60	$5s'''\ ^2G_{4\frac{1}{2}} - 5p'''\ ^2H^\circ_{5\frac{1}{2}}$
8491.90	3	11772.69	$5s''\ ^2P_{1\frac{1}{2}} - 5p''\ ^2P^\circ_{1\frac{1}{2}}$
8495.70	5	11767.43	$5s''\ ^4P_{1\frac{1}{2}} - 5p''\ ^4P^\circ_{0\frac{1}{2}}$
8503.93	0	11756.04	$6s'\ ^2D_{2\frac{1}{2}} - 5p'\ ^2D^\circ_{1\frac{1}{2}}$
8504.52	75	11755.22	$5s\ ^4F_{3\frac{1}{2}} - 5p\ ^4F^\circ_{4\frac{1}{2}}$
8508.84	3	11749.26	
8527.73	3	11723.23	
8537.35	1	11710.02	$5s''\ ^2P_{0\frac{1}{2}} - 5p''\ ^4D^\circ_{1\frac{1}{2}}$
8549.16	10	11693.84	
8563.38	1	11674.42	
8576.99	3	11655.90	
8577.97	1	11654.57	
8580.40	1	11651.27	
8586.11	10	11643.52	$5p''\ ^2D^\circ_{1\frac{1}{2}} - 6s''\ ^4P_{2\frac{1}{2}}$
8594.49	2	11632.17	
8595.54	3	11630.75	$5s'\ ^2D_{1\frac{1}{2}} - 5p'\ ^2D^\circ_{1\frac{1}{2}}$
8605.05	0	11617.89	$5s'''\ ^4P_{1\frac{1}{2}} - 5p''\ ^4P^\circ_{1\frac{1}{2}}$
8608.01	20	11613.90	$5d\ ^2P_{1\frac{1}{2}} - 4f'\ ^2F^\circ_{2\frac{1}{2}}$
8622.32	30	11594.62	$5s'''\ ^2G_{3\frac{1}{2}} - 5p'''\ ^2H^\circ_{4\frac{1}{2}}$
8644.68	3h	11564.63	
8652.66	0	11553.97	$5s\ ^2F_{2\frac{1}{2}} - 5p\ ^4G^\circ_{2\frac{1}{2}}$
8708.07	2	11480.45	
8715.99	1	11470.02	
8723.56	1	11460.06	
8729.03	2	11452.88	$4f\ ^4I^\circ_{7\frac{1}{2}} - 5g\ ^4K_{6\frac{1}{2}}$
8735.96	5	11443.80	
8738.68	1	11440.23	
8741.99	2	11435.90	$5s''\ ^4P_{0\frac{1}{2}} - 4f\ ^2P^\circ_{1\frac{1}{2}}$
8744.16	10	11433.06	
8747.39	30	11428.84	$5s''\ ^4P_{2\frac{1}{2}} - 5p''\ ^4P^\circ_{2\frac{1}{2}}$
8755.37	5	11418.43	
8767.07	3	11403.19	$5s''\ ^4P_{0\frac{1}{2}} - 5p''\ ^4P^\circ_{1\frac{1}{2}}$
8767.89	1	11402.12	$4f\ ^2F^\circ_{3\frac{1}{2}} - 6d\ ^4G_{2\frac{1}{2}}$
8770.16	1	11399.17	$4f\ ^4G^\circ_{4\frac{1}{2}} - 5g\ ^4I_{5\frac{1}{2}}$
8778.95	1	11387.76	
8790.59	1	11372.68	$5s\ ^4F_{1\frac{1}{2}} - 5p\ ^4D^\circ_{1\frac{1}{2}}$
8798.93	50	11361.90	
8806.33	1	11352.35	
8815.14	3	11341.01	
8827.31	1	11325.37	
8850.42	2	11295.80	
8867.83	10	11273.62	
8881.32	0	11256.50	$5s\ ^4F_{2\frac{1}{2}} - 5p\ ^4F^\circ_{3\frac{1}{2}}$
8887.74	3	11248.37	$5s''\ ^4P_{1\frac{1}{2}} - 5p''\ ^4P^\circ_{2\frac{1}{2}}$
8897.00	2	11236.66	$5p\ ^2F^\circ_{3\frac{1}{2}} - 6s\ ^4F_{3\frac{1}{2}}$
8900.22	0	11232.59	$5p\ ^2F^\circ_{2\frac{1}{2}} - 6s\ ^4F_{2\frac{1}{2}}$
8909.43	5	11220.98	
8915.37	5	11213.51	$5p\ ^2D^\circ_{2\frac{1}{2}} - 6s\ ^4F_{3\frac{1}{2}}$
8965.58	3	11150.71	
9006.58	3	11099.95	
9086.56	30	11002.24	
9109.31	5	10974.77	$5s\ ^2F_{3\frac{1}{2}} - 5p\ ^4D^\circ_{2\frac{1}{2}}$
9255.77	3	10801.11	$4p'\ ^2D^\circ_{1\frac{1}{2}} - s^2\ ^2D_{1\frac{1}{2}}$
9282.76	10	10769.70	$5s\ ^2F_{3\frac{1}{2}} - 5p\ ^4G^\circ_{4\frac{1}{2}}$
9777.86	3	10224.38	
9820.01	1	10180.50	$4f\ ^2D^\circ_{1\frac{1}{2}} - 5g\ ^2F_{2\frac{1}{2}}$
9824.11	10	10176.25	
9830.49	1	10169.64	
9830.78	10	10169.34	

TABLE I. *Lines of* Ni II – Continued

λ(air)	Intensity	Wavenumber	Transition
9834.94	5	10165.04	$4f\ ^2S^\circ_{01/2} - 5g\ ^4P_{11/2}$
9837.15	3	10162.76	$4f\ ^4I^\circ_{61/2} - 5g\ ^4G_{51/2}$
9842.82	15	10156.90	$4f\ ^4I^\circ_{61/2} - 5g\ ^4H_{51/2}$
9856.97	300	10142.32	$4f\ ^4I^\circ_{61/2} - 5g\ ^4K_{71/2}$
9859.02	2	10140.22	
9861.94	10	10137.21	
9863.45	10	10135.66	
9865.69	2	10133.36	
9866.77	2	10132.25	$4f\ ^4D^\circ_{01/2} - 5g\ ^4F_{11/2}$
9876.55	20	10122.22	$4f\ ^4P^\circ_{21/2} - 5g\ ^4D_{31/2}$
9877.61	30	10121.13	$4f\ ^4I^\circ_{61/2} - 5g\ ^4I_{61/2}$
9881.24	5	10117.41	$4f\ ^4F^\circ_{21/2} - 5g\ ^4G_{31/2}$
9882.92	40	10115.69	$4f\ ^4P^\circ_{21/2} - 5g\ ^4D_{21/2}$
9883.67	0	10114.93	$4f\ ^2P^\circ_{11/2} - 5g\ ^4F_{21/2}$
9886.09	2	10112.45	$4f\ ^2I^\circ_{51/2} - 5g\ ^2H_{41/2}$
9886.69	30	10111.84	$4f\ ^4I^\circ_{71/2} - 5g\ ^4H_{61/2}$
9887.35	5	10111.16	$4f\ ^4P^\circ_{21/2} - 5g\ ^4P_{11/2}$
9887.96	50	10110.54	$4f\ ^2I^\circ_{51/2} - 5g\ ^2K_{61/2}$ $4f\ ^4F^\circ_{21/2} - 5g\ ^4F_{21/2}$
9890.57	20w	10107.87	$4f\ ^4I^\circ_{41/2} - 5g\ ^4H_{31/2}$
9894.83	30	10103.52	$4f\ ^2I^\circ_{61/2} - 5g\ ^2H_{51/2}$
9896.09	3	10102.23	$4f\ ^4I^\circ_{51/2} - 5g\ ^4I_{51/2}$
9900.56	100	10097.67	$4f\ ^2I^\circ_{51/2} - 5g\ ^2K_{61/2}$
9900.92	500w	10097.30	$4f\ ^4I^\circ_{71/2} - 5g\ ^4K_{81/2}$ $4f\ ^2I^\circ_{51/2} - 5g\ ^2I_{51/2}$
9905.03	100	10093.11	$4f\ ^2I^\circ_{61/2} - 5g\ ^2K_{71/2}$
9906.90	3	10091.21	$4f\ ^4D^\circ_{11/2} - 5g\ ^4F_{21/2}$
9907.60	200	10090.49	$4f\ ^4D^\circ_{31/2} - 5g\ ^4F_{41/2}$ $4f\ ^4I^\circ_{51/2} - 5g\ ^4K_{61/2}$
9913.77	40	10084.21	$4f\ ^4P^\circ_{21/2} - 5g\ ^4P_{21/2}$
9921.12	20	10076.74	$4f\ ^4D^\circ_{31/2} - 5g\ ^4D_{31/2}$
9921.85	30	10076.00	$4f\ ^4G^\circ_{21/2} - 5g\ ^4F_{11/2}$? $4f\ ^4I^\circ_{71/2} - 5g\ ^4I_{61/2}$
9923.28	0	10074.55	$4f\ ^4G^\circ_{31/2} - 5g\ ^2G_{41/2}$
9923.98	1	10073.84	
9924.29	5	10073.53	$4f\ ^4H^\circ_{51/2} - 5g\ ^4G_{41/2}$
9924.55	8	10073.26	$4f\ ^4H^\circ_{61/2} - 5g\ ^4G_{51/2}$
9927.02	30	10070.76	$4f\ ^4G^\circ_{31/2} - 5g\ ^4G_{31/2}$
9927.54	2	10070.23	$4f\ ^4D^\circ_{31/2} - 5g\ ^4D_{21/2}$
9929.98	75	10067.75	$4f\ ^4H^\circ_{51/2} - 5g\ ^4H_{51/2}$
9930.24	100	10067.49	$4f\ ^4H^\circ_{61/2} - 5g\ ^4H_{61/2}$
9930.52	2	10067.21	$4f\ ^4P^\circ_{11/2} - 5g\ ^4D_{21/2}$
9932.81	2	10064.88	
9933.81	5	10063.87	$4f\ ^4G^\circ_{31/2} - 5g\ ^4F_{21/2}$
9935.03	0	10062.64	$4f\ ^4P^\circ_{11/2} - 5g\ ^4P_{11/2}$
9936.48	5	10061.17	$4f\ ^4F^\circ_{11/2} - 5g\ ^4F_{11/2}$
9937.19	10	10060.45	$4f\ ^4D^\circ_{21/2} - 5g\ ^4F_{31/2}$
9941.70	20	10055.88	$4f\ ^2F^\circ_{31/2} - 5g\ ^2G_{41/2}$
9942.81	3	10054.76	$4f\ ^2G^\circ_{31/2} - 5g\ ^2H_{41/2}$
9943.29	40	10054.28	$4f\ ^2H^\circ_{51/2} - 5g\ ^2G_{41/2}$
9944.60	3	10052.95	$4f\ ^4D^\circ_{21/2} - 5g\ ^4D_{31/2}$
9944.76	50	10052.79	$4f\ ^2H^\circ_{41/2} - 5g\ ^2H_{41/2}$
9945.37	40w	10052.17	$4f\ ^4G^\circ_{41/2} - 5g\ ^4G_{41/2}$ $4f\ ^2F^\circ_{31/2} - 5g\ ^4G_{31/2}$ $4f\ ^4H^\circ_{41/2} - 5g\ ^2G_{41/2}$
9946.24	75	10051.29	$4f\ ^2H^\circ_{51/2} - 5g\ ^2H_{51/2}$
9947.25	15	10050.27	$4f\ ^4G^\circ_{41/2} - 5g\ ^4F_{41/2}$
9948.29	30	10049.22	$4f\ ^4H^\circ_{41/2} - 5g\ ^2H_{51/2}$
9948.51	10	10049.00	$4f\ ^2D^\circ_{21/2} - 5g\ ^4G_{31/2}$
9951.10	1	10046.39	$4f\ ^4D^\circ_{21/2} - 5g\ ^4D_{21/2}$
9952.24	0	10045.23	$4f\ ^2F^\circ_{31/2} - 5g\ ^4F_{21/2}$
9953.04	2	10044.43	$4f\ ^2G^\circ_{31/2} - 5g\ ^2F_{21/2}$
9953.48	5	10043.98	$4f\ ^4G^\circ_{41/2} - 5g\ ^4F_{31/2}$
9953.83	30	10043.63	$4f\ ^2G^\circ_{41/2} - 5g\ ^2G_{41/2}$
9955.34	3	10042.11	$4f\ ^2D^\circ_{21/2} - 5g\ ^4F_{21/2}$
9956.00	15	10041.44	$4f\ ^4F^\circ_{31/2} - 5g\ ^4F_{41/2}$
9956.44	15	10041.00	$4f\ ^4H^\circ_{41/2} - 5g\ ^4I_{51/2}$ $4f\ ^4H^\circ_{31/2} - 5g\ ^2H_{41/2}$
9956.88	5	10040.55	$4f\ ^2H^\circ_{41/2} - 5g\ ^2G_{31/2}$
9957.61	3	10039.82	$4f\ ^2G^\circ_{41/2} - 5g\ ^4G_{31/2}$
9957.92	10	10039.51	$4f\ ^4F^\circ_{41/2} - 5g\ ^4G_{51/2}$
9958.73	20	10038.69	$4f\ ^4D^\circ_{31/2} - 5g\ ^4P_{21/2}$
9959.79	20	10037.62	$4f\ ^4F^\circ_{41/2} - 5g\ ^4F_{41/2}$
9962.20	10	10035.19	$4f\ ^4F^\circ_{31/2} - 5g\ ^4F_{31/2}$
9966.02	5	10031.35	$4f\ ^4F^\circ_{41/2} - 5g\ ^4F_{31/2}$
9968.50	0	10028.85	$4f\ ^2F^\circ_{21/2} - 5g\ ^2F_{21/2}$
9969.66	0	10027.68	$4f\ ^4F^\circ_{31/2} - 5g\ ^4D_{31/2}$
9970.40	75	10026.94	$4f\ ^4G^\circ_{51/2} - 5g\ ^4G_{51/2}$ $4f\ ^2F^\circ_{21/2} - 5g\ ^2G_{31/2}$
9972.30	15	10025.03	$4f\ ^4G^\circ_{51/2} - 5g\ ^4F_{41/2}$
9973.47	0	10023.85	$4f\ ^4F^\circ_{41/2} - 5g\ ^4D_{31/2}$
9978.56	0	10018.74	
10027.38	0	9969.96	

levels; and moreover, at my request, he had the very large number of odd levels calculated. The analysis was assisted quite fundamentally by his work. I had been helped in the same way by Shadmi some years ago when analyzing Pd III.

The spectrum Ni II arises from the transitions between the structures $3d^9$, $3d^8\ nx$, $3d^7 4s^2$ and $3d^7 4s\,4p$. Of these only $3d^9$, $3d^8 4s$, $3d^8 4p$ and part of $3d^8 5s$ were known from my previous analysis. The levels $3d^8(^1S)4s\ ^2S$ and its corresponding $^2P^\circ$ term were lacking and still do not appear to have been found with any certainty in any spectrum. The first necessity of the new analysis was to increase the accuracy of the known levels since all further analysis depends on them. Next followed the discovery of the levels due to the addition of a $5p$ electron to the ground term, ^3F, of Ni III. On those bases it was then possible to determine higher $d^8 ns$ members which led to a calculation of a more accurate limit. The series $3d^8(^3F)ns$ was eventually carried to $9s$ and the series based on ^1D, ^3P and ^1G to $6s$. Amongst the six components of the ns-series there is one oddity of convergence. The $^2F_{31/2}$, which is above $^4F_{21/2}$ in $4s$ and $5s$, crosses over so that it is the lower of the two levels from $6s$ on.

The great value of the Shadmi calculations of the even levels was in the prediction of the levels of $3d^7 4s^2$ comprising ^4F, ^4P, ^2PDFGH and ^2D. The predictions led M. C. Diago of the Instituto de Optica in Madrid [6] to the discovery of ^2G and ^2H. Her additional identification of the ^2F and the high ^2D terms are not confirmed by my more complete results. I have been able to add to the terms ^4F, ^4P, ^2D, ^2F and $^2P_{11/2}$, but the higher ^2D term has eluded me as well as the level $^2P_{1/2}$.

The next most important levels to find are those described by $3d^8(^3F)4d$. It was in fact the difficulty of identifying those levels in Cu III which made me turn to Ni II for assistance. With the new very complete list of lines it was possible to identify quite rapidly the 10 levels based on $^3F_4$, nine of the 10 based on $^3F_3$ and eight of the nine on $^3F_2$. Moreover it was possible from intensities to assign reasonable Russell-Saunders names to all the levels. It then appeared that the missing levels were $^2D_{21/2}$ from $^3F_3$ and $^2D_{11/2}$ from $^3F_2$. A very broad search for them was unsuccessful. At this point I mentioned the problem to N. Spector during a meeting at the National Bureau of Standards. He was good enough to make a theoretical calculation which surprisingly predicted the positions of the two levels more than 2000 cm^{-1} above the groups to which they belong. The theory of this very curious effect, I must leave to Spector.

Spector's predictions proved very close indeed, the actual levels falling 67 cm^{-1} and 40 cm^{-1}, respectively, from the predicted positions. They make the astonishingly large numbers of combinations: 33 for $^2D_{21/2}$ and 27 for $^2D_{11/2}$. Spector's calculation included all of the $3d^8\ 4d$ and $3d^8\ 5d$ levels. In the latter configuration I had again failed to find ^2D levels, and it is surprising that even with the predictions those levels remain unidentified. For the configuration $3d^8 6d$ the $^2D_{21/2}$ level is present in my analysis but not $^2D_{11/2}$, and the same is true for $7d$. The $3d^8 8d$ configuration is fragmentary.

In both the $4d$ and $5d$ groups the ^4D term departs from the theoretical values by large and irregular amounts. For $4d$ the values of observed-theoretical for the four levels of the ^4D term are, respectively, $380, -122, -20, -60$ and for $5d$, $-105, -343, +258, -28$. Although no theoretical values have been calculated for $6d$, $7d$, $8d$, it is obvious from plots of the groups of levels based on the three components of ^3F that $^4D_{21/2}$ and $^4D_{11/2}$ fluctuate quite widely.

The $4d$-electron levels based on $3d^8\ ^1D$ were all found as were also those from $3d^8\ ^3P$. In the $5d$-group, all but one based on ^1D have been identified but four levels based on ^3P are missing.

The identification of the numerous levels produced by the addition of an s, p, or d-electron to the $3d^8$ ion left unclassified a very large number of lines throughout the spectrum. Certain strong groups were obviously due to transitions such as $4d-nf$ and $4f-ng$. The $4d-4f$ group was analyzed empirically and later compared with Shadmi's calculations. The groups of $5f$, $6f$ and $7f$-levels were found but with decreasing completeness. The $5g$ levels from ^3F were found from a strong group of lines around 9000 Å, but none of the three groups based on the components of the parent term is complete. The $6g$ structure from $^3F_4$ is nearly complete but very few of the levels from $^3F_3$ and $^3F_2$ have been found. The $7g$ structure is represented by only 5 levels.

As I mentioned above, I got essential assistance from Shadmi's computer analysis of all the odd levels due to $3d^8 4p$, $3d^8 5p$, $3d^7 4s\,4p$ as a group. For the calculation of the last structure, it was necessary to assume some particular form of coupling. Shadmi chose the type which can be written $3d^7(X)4s\,4p(^3P$ or $^1P)$ where X stands for any one of the terms of $3d^7$. Shadmi also calculated the configuration $3d^8 4f$ independently, by assuming that it would not be perturbed by the other odd configurations. The assumption does not seem to be entirely warranted.

In the main calculation Shadmi was able to give origins and Russell-Saunders names to the great majority of the terms and the remainder can be logically assigned, from their positions, as belonging in the main to definite structures.

Shadmi's table lists the terms, not the levels, in order of increasing energy, and for identification I have adopted a nomenclature based on the very old recommendation made by Russell, Shenstone and Turner in 1929 [7]. For example, there are six $^4F^\circ$ terms from $3d^7 4s\,4p$ which I have serially lettered z, y, x, w, v, u [8]. Not all the calculated terms are within range of the hollow cathode source in which the maximum energy of excitation by collisions of the second kind is at 136,731 cm^{-1}. A few levels are observed above that point, excited either by direct electron bombardment or by excitation of atoms in levels above the lowest point. From the table of calculated terms, it appears that 170 levels of the $3d^7 4s\,4p$ configuration should be within range. Only 93 have been identified, leaving 77

still to be found. Tables II and III list all of the even and odd levels which have been discovered. The nomenclature for the levels based on $3d^8$ follows that used in "Atomic Energy Levels" [1].

The search for odd levels was assisted by the fact that the excitation in the hollow cathode restricts the range of wave numbers in which combinations of any particular level may be found. By assuming that energy is available up to 137,000 cm^{-1}, it is obvious that all lines higher than 128,000 cm^{-1} must be due to $3d\,^2D$. The successive terms come in at decreasing energies so that, for instance, $s^2\,^2F$ cannot have combinations in which it is the lower level, greater then about 44,500 cm^{-1}. In point of fact, most even levels come into operation at about 2,000 cm^{-1} less than their possible limit. The odd levels appear as initial levels in a combination at, on the average, only about 200 cm^{-1} below the calculated points. A few odd levels appear at wave numbers higher than the calculated ones, indicating that high even levels may appear at energies above those strictly due to collisions of the second kind.

TABLE II. Ni II *Even levels (1970)*

Configuration	Name	Level Observed	Level Computed	O–C	Configuration	Name	Level Observed	Level Computed	O–C
$3d^9$	$3d\ ^2D_{2\frac{1}{2}}$	0.00	053	−53	$3d^7\,4s^2$	$s^2\ ^2F_{3\frac{1}{2}}$	92792.08	92888	−96
$3d^9$	$3d\ ^2D_{1\frac{1}{2}}$	1506.94	1581	−74	$3d^8(^3F_3)5s$	$5s\ ^4F_{2\frac{1}{2}}$	93390.06		
$3d^8(^3F)4s$	$4s\ ^4F_{4\frac{1}{2}}$	8393.90	8323	+71	$3d^8(^3F_3)5s$	$5s\ ^2F_{3\frac{1}{2}}$	93528.44		
$3d^8(^3F)4s$	$4s\ ^4F_{3\frac{1}{2}}$	9330.04	9261	+69	$3d^8(^3F_2)5s$	$5s\ ^4F_{1\frac{1}{2}}$	94067.14		
$3d^8(^3F)4s$	$4s\ ^4F_{2\frac{1}{2}}$	10115.66	10055	+61	$3d^8(^3F_2)5s$	$5s\ ^2F_{2\frac{1}{2}}$	94729.25		
$3d^8(^3F)4s$	$4s\ ^4F_{1\frac{1}{2}}$	10663.89	10613	+51	$3d^8(^3F_4)4d$	$4d\ ^4D_{3\frac{1}{2}}$	98467.25	98847	−380
$3d^8(^3F)4s$	$4s\ ^2F_{3\frac{1}{2}}$	13550.39	13486	+64	$3d^8(^3F_4)4d$	$4d\ ^4P_{2\frac{1}{2}}$	98561.22	98567	−6
$3d^8(^3F)4s$	$4s\ ^2F_{2\frac{1}{2}}$	14995.57	14960	+36	$3d^8(^3F_4)4d$	$4d\ ^4H_{6\frac{1}{2}}$	98822.55	98743	+80
$3d^8(^1D)4s$	$4s'\ ^2D_{2\frac{1}{2}}$	23108.28	23103	+5	$3d^8(^3F_4)4d$	$4d\ ^4H_{5\frac{1}{2}}$	98969.44	98920	+49
$3d^8(^1D)4s$	$4s'\ ^2D_{1\frac{1}{2}}$	23796.18	23774	+22	$3d^8(^3F_4)4d$	$4d\ ^4P_{1\frac{1}{2}}$	99040.75	98942	+99
$3d^8(^3P)4s$	$4s''\ ^4P_{1\frac{1}{2}}$	24788.20	24754	+34	$3d^8(^3F_4)4d$	$4d\ ^4G_{5\frac{1}{2}}$	99132.78	99137	−4
$3d^8(^3P)4s$	$4s''\ ^4P_{0\frac{1}{2}}$	24835.93	24779	+57	$3d^8(^3F_4)4d$	$4d\ ^4F_{4\frac{1}{2}}$	99154.81	99088	+67
$3d^8(^3P)4s$	$4s''\ ^4P_{2\frac{1}{2}}$	25036.38	25062	−26	$3d^8(^3F_4)4d$	$4d\ ^4F_{3\frac{1}{2}}$	99340.55	99185	+156
$3d^8(^3P)4s$	$4s''\ ^2P_{1\frac{1}{2}}$	29070.93	28959	+112	$3d^8(^3F_4)4d$	$4d\ ^4G_{4\frac{1}{2}}$	99442.86	99443	0
$3d^8(^3P)4s$	$4s''\ ^2P_{0\frac{1}{2}}$	29593.46	29433	+160	$3d^8(^3F_4)4d$	$4d\ ^4D_{2\frac{1}{2}}$	99559.33	99681	−122
$3d^8(^1G)4s$	$4s'''\ ^2G_{4\frac{1}{2}}$	32499.53	32510	−10	$3d^8(^3F_3)4d$	$4d\ ^4P_{0\frac{1}{2}}$	100010.17	100130	−120
$3d^8(^1G)4s$	$4s'''\ ^2G_{3\frac{1}{2}}$	32523.54	32514	+10	$3d^8(^3F_3)4d$	$4d\ ^2P_{1\frac{1}{2}}$	100078.78	100134	−55
$3d^8(^1S)4s$	$4s^{IV}\ ^2S_{0\frac{1}{2}}$		61473		$3d^8(^3F_3)4d$	$4d\ ^2H_{5\frac{1}{2}}$	100309.29	100241	+68
$3d^7\,4s^2$	$s^2\ ^4F_{4\frac{1}{2}}$	51045.46	51079	−34	$3d^8(^3F_3)4d$	$4d\ ^4H_{4\frac{1}{2}}$	100332.09	100327	+5
$3d^7\,4s$	$s^2\ ^4F_{3\frac{1}{2}}$	52205.95	52224	−18	$3d^8(^3F_3)4d$	$4d\ ^4F_{2\frac{1}{2}}$	100389.52	100358	+32
$3d^7\,4s$	$s^2\ ^4F_{2\frac{1}{2}}$	53037.93	53053	−15	$3d^8(^3F_3)4d$	$4d\ ^2F_{3\frac{1}{2}}$	100475.82	100580	−104
$3d^7\,4s$	$s^2\ ^4F_{1\frac{1}{2}}$	53601.19	53616	−15	$3d^8(^3F_3)4d$	$4d\ ^4D_{1\frac{1}{2}}$	100490.95	100511	−20
$3d^7\,4s$	$s^2\ ^4P_{2\frac{1}{2}}$	67880.16	67980	−100	$3d^8(^3F_3)4d$	$4d\ ^4G_{3\frac{1}{2}}$	100592.98	100451	+142
$3d^7\,4s$	$s^2\ ^4P_{1\frac{1}{2}}$	68156.57	68265	−108	$3d^8(^3F_3)4d$	$4d\ ^2G_{4\frac{1}{2}}$	100619.26	100623	−4
$3d^7\,4s$	$s^2\ ^4P_{0\frac{1}{2}}$	68709.76	68863	−153	$3d^8(^3F_2)4d$	$4d\ ^4D_{0\frac{1}{2}}$	100845.41	100905	−60
$3d^7\,4s$	$s^2\ ^2G_{4\frac{1}{2}}$	70358.94	70386	−27	$3d^8(^3F_2)4d$	$4d\ ^4H_{3\frac{1}{2}}$	101144.63	101171	−26
$3d^7\,4s$	$s^2\ ^2G_{3\frac{1}{2}}$	71457.74	71493	−35	$3d^8(^3F_2)4d$	$4d\ ^2P_{0\frac{1}{2}}$	101246.16	101192	+54
$3d^7\,4s$	$s^2\ ^2P_{1\frac{1}{2}}$	73893.73	73791	+103	$3d^8(^3F_2)4d$	$4d\ ^2F_{2\frac{1}{2}}$	101247.37	101138	+109
$3d^7\,4s$	$s^2\ ^2P_{0\frac{1}{2}}$		74775		$3d^8(^3F_2)4d$	$4d\ ^4F_{1\frac{1}{2}}$	101258.01	101245	+13
$3d^7\,4s$	$s^2\ ^2H_{5\frac{1}{2}}$	76727.36	76805	−78	$3d^8(^3F_2)4d$	$4d\ ^2H_{4\frac{1}{2}}$	101357.20	101300	+57
$3d^7\,4s$	$s^2\ ^2D_{2\frac{1}{2}}$	77332.47	77444	−112	$3d^8(^3F_2)4d$	$4d\ ^4G_{2\frac{1}{2}}$	101366.14	101432	−66
$3d^7\,4s$	$s^2\ ^2H_{4\frac{1}{2}}$	77736.79	77805	−68	$3d^8(^3F_2)4d$	$4d\ ^2G_{3\frac{1}{2}}$	101740.27	101807	−67
$3d^7\,4s$	$s^2\ ^2D_{1\frac{1}{2}}$	78955.45	79039	−84	$3d^8(^3F_3)4d$	$4d\ ^2D_{2\frac{1}{2}}$	103025.58	102958	+68
$3d^8(^3F_4)4s$	$5s\ ^4F_{4\frac{1}{2}}$	91800.05			$3d^8(^3F_2)4d$	$4d\ ^2D_{1\frac{1}{2}}$	103663.50	103623	+41
$3d^8(^3F_4)5s$	$5s\ ^4F_{3\frac{1}{2}}$	92325.85			$3d^8(^1D)5s$	$5s'\ ^2D_{2\frac{1}{2}}$	106007.89		
$3d^7\,4s^2$	$s^2\ ^2F_{2\frac{1}{2}}$	92373.45	92392	−19	$3d^8(^1D)5s$	$5s'\ ^2D_{1\frac{1}{2}}$	106133.14		

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TABLE II. Ni II *Even levels (1970)*—Continued

Configuration	Name	Level Observed	Level Computed	O–C	Configuration	Name	Level Observed	Level Computed	O–C
$3d^8(^3P)5s$	$5s''\ ^4P_{2\frac{1}{2}}$	108368.05			$3d^8(^3F_3)6s$	$6s\ ^4F_{2\frac{1}{2}}$	118314.82		
$3d^8(^3P)5s$	$5s''\ ^4P_{1\frac{1}{2}}$	108548.61			$3d^8(^3F_2)6s$	$6s\ ^4F_{1\frac{1}{2}}$	119100.06		
$3d^8(^3P)5s$	$5s''\ ^4P_{0\frac{1}{2}}$	108763.32			$3d^8(^3F_2)6s$	$6s\ ^2F_{2\frac{1}{2}}$	119315.44		
$3d^8(^3P)5s$	$5s''\ ^2P_{1\frac{1}{2}}$	109269.83			$3d^8(^3F_4)5d$	$5d\ ^4D_{3\frac{1}{2}}$	119656.25	119761	−105
$3d^8(^3P)5s$	$5s''\ ^2P_{0\frac{1}{2}}$	109675.72			$3d^8(^3F_4)5d$	$5d\ ^4P_{2\frac{1}{2}}$	119665.29	119641	+24
$3d^8(^1D)4d$	$4d'\ ^2F_{2\frac{1}{2}}$	112686.30	112700	−14	$3d^8(^3F_4)5d$	$5d\ ^4H_{6\frac{1}{2}}$	119773.60	119709	+65
$3d^8(^1D)4d$	$4d'\ ^2F_{3\frac{1}{2}}$	112719.75	112666	+54	$3d^8(^3F_4)5d$	$5d\ ^4H_{5\frac{1}{2}}$	119833.00	119840	−7
$3d^8(^1D)4d$	$4d'\ ^2D_{1\frac{1}{2}}$	112906.93	113087	−180	$3d^8(^3F_4)5d$	$5d\ ^4G_{5\frac{1}{2}}$	119889.47	119852	+37
$3d^8(^1D)4d$	$4d'\ ^2G_{4\frac{1}{2}}$	113172.96	113119	+54	$3d^8(^3F_4)5d$	$5d\ ^4P_{1\frac{1}{2}}$	119909.72	119911	−1
$3d^8(^1D)4d$	$4d'\ ^2G_{3\frac{1}{2}}$	113177.61	113155	+23	$3d^8(^3F_4)5d$	$5d\ ^4F_{4\frac{1}{2}}$	119913.33	119859	+54
$3d^8(^1D)4d$	$4d'\ ^2P_{0\frac{1}{2}}$	113225.06	113116	+109	$3d^8(^3F_4)5d$	$5d\ ^4F_{3\frac{1}{2}}$	120002.86	119919	+84
$3d^8(^1D)4d$	$4d'\ ^2D_{2\frac{1}{2}}$	113407.31	113488	−81	$3d^8(^3F_4)5d$	$5d\ ^4G_{4\frac{1}{2}}$	120044.95	120092	−47
$3d^8(^1D)4d$	$4d'\ ^2P_{1\frac{1}{2}}$	113408.71	113308	+101	$3d^8(^3F_4)5d$	$5d\ ^4D_{2\frac{1}{2}}$	120144.17	120487	−343
$3d^8(^1D)4d$	$4d'\ ^2S_{0\frac{1}{2}}$	113623.10	113716	−93	$3d^8(^3F_3)5d$	$5d\ ^4P_{0\frac{1}{2}}$	121111.90	121137	−25
$3d^8(^3P)4d$	$4d''\ ^4D_{3\frac{1}{2}}$	114836.63	114782	+55	$3d^8(^3F_3)5d$	$5d\ ^2P_{1\frac{1}{2}}$	121115.59	121135	−19
$3d^8(^3P)4d$	$4d''\ ^4D_{2\frac{1}{2}}$	114874.88	114924	−49	$3d^8(^3F_3)5d$	$5d\ ^2H_{5\frac{1}{2}}$	121180.55	121139	+42
$3d^8(^3P)4d$	$4d''\ ^4D_{1\frac{1}{2}}$	114942.42	114927	+15	$3d^8(^3F_3)5d$	$5d\ ^4H_{4\frac{1}{2}}$	121190.34	121188	+2
$3d^8(^3P)4d$	$4d''\ ^4D_{0\frac{1}{2}}$	114970.19	114892	+78	$3d^8(^3F_3)5d$	$5d\ ^4F_{2\frac{1}{2}}$	121227.80	121185	+43
$3d^8(^1G)5s$	$5s'''\ ^2G_{4\frac{1}{2}}$	115081.36			$3d^8(^3F_3)5d$	$5d\ ^2F_{3\frac{1}{2}}$	121240.90	121341	−100
$3d^8(^1G)5s$	$5s'''\ ^2G_{3\frac{1}{2}}$	115085.36			$3d^8(^3F_3)5d$	$5d\ ^2G_{4\frac{1}{2}}$	121294.67	121326	−31
$3d^8(^3P)4d$	$4d''\ ^4F_{4\frac{1}{2}}$	115739.15	115728	+11	$3d^8(^3F_3)5d$	$5d\ ^4G_{3\frac{1}{2}}$	121317.89	121233	+85
$3d^8(^3P)4d$	$4d''\ ^4F_{3\frac{1}{2}}$	115827.12	115814	+13	$3d^8(^1G)4d$	$4d'''\ ^2I_{5\frac{1}{2}}$	121437.68	121350	+88
$3d^8(^3P)4d$	$4d''\ ^2D_{2\frac{1}{2}}$	115870.28	115960	−90	$3d^8(^1G)4d$	$4d'''\ ^2I_{6\frac{1}{2}}$	121476.56	121350	+127
$3d^8(^3P)4d$	$4d''\ ^4F_{2\frac{1}{2}}$	115956.71	115843	+114	$3d^8(^3F_3)5d$	$5d\ ^4D_{1\frac{1}{2}}$	121699.02	121441	+258
$3d^8(^3P)4d$	$4d''\ ^2F_{3\frac{1}{2}}$	116145.69	116059	+87	$3d^8(^3F_2)5d$	$5d\ ^4D_{0\frac{1}{2}}$	121925.16	121953	−28
$3d^8(^3P)4d$	$4d''\ ^4F_{1\frac{1}{2}}$	116167.76	116083	+85	$3d^8(^3F_2)5d$	$5d\ ^4H_{3\frac{1}{2}}$	122047.29	122049	−2
$3d^8(^3P)4d$	$4d''\ ^2F_{2\frac{1}{2}}$	116191.47	116354	−163	$3d^8(^1G)4d$	$4d'''\ ^2F_{2\frac{1}{2}}$	122080.25	122038	+42
$3d^8(^3P)4d$	$4d''\ ^4P_{0\frac{1}{2}}$	116261.81	116314	−52	$3d^8(^3F_2)5d$	$5d\ ^4F_{1\frac{1}{2}}$	122084.79	122090	−5
$3d^8(^3P)4d$	$4d''\ ^4P_{1\frac{1}{2}}$	116312.34	116281	+31	$3d^8(^1G)4d$	$4d'''\ ^2F_{3\frac{1}{2}}$	122086.58	122040	+47
$3d^8(^3P)4d$	$4d''\ ^2D_{1\frac{1}{2}}$?	116468.40	116623	−155	$3d^8(^3F_2)5d$	$5d\ ^2P_{0\frac{1}{2}}$	122112.94?	122135	−22
$3d^8(^3P)4d$	$4d''\ ^4P_{2\frac{1}{2}}$	116732.51	116622	+111	$3d^8(^3F_2)5d$	$5d\ ^2H_{4\frac{1}{2}}$	122140.71	122127	+14
$3d^8(^3P)4d$	$4d''\ ^2P_{0\frac{1}{2}}$	116786.42	116815	−29	$3d^8(^3F_2)5d$	$5d\ ^4G_{2\frac{1}{2}}$	122144.99	122169	−24
$3d^8(^3F_4)6s$	$6s\ ^4F_{4\frac{1}{2}}$	116833.15			$3d^8(^3F_2)5d$	$5d\ ^2F_{2\frac{1}{2}}$	122175.42?	121844	+331
$3d^8(^3P)4d$	$4d''\ ^2P_{1\frac{1}{2}}$	116838.33	116891	−53	$3d^8(^3F_2)5d$	$5d\ ^2G_{3\frac{1}{2}}$	122270.05	122378	−108
$3d^8(^3F_4)6s$	$6s\ ^4F_{3\frac{1}{2}}$	117074.70			$3d^8(^1G)4d$	$4d'''\ ^2H_{4\frac{1}{2}}$	122790.41	122846	−56
$3d^8(^3F_3)6s$	$6s\ ^2F_{3\frac{1}{2}}$	118294.17			$3d^8(^1G)4d$	$4d'''\ ^2H_{5\frac{1}{2}}$	122821.63	122844	−22

TABLE II. Ni II *Even levels (1970)*—Continued

Configuration	Name	Level Observed	Level Computed	O–C	Configuration	Name	Level Observed	Level Computed	O–C
$3d^8(^1G)4d$	$4d'''\ ^2G_{4\frac{1}{2}}$	122837.33	123012	−175	$3d^8(^3F_3)5g$	$5g\ ^4G_{3\frac{1}{2}}$	130320.94		
$3d^8(^1G)4d$	$4d'''\ ^2G_{3\frac{1}{2}}$	122847.60	123005	−157	$3d^8(^3F_3)5g$	$5g\ ^2H_{5\frac{1}{2}}$	130321.74		
$3d^8(^3F_4)7s$	$7s\ ^4F_{4\frac{1}{2}}$	127867.13			$3d^8(^3F_3)5g$	$5g\ ^2G_{4\frac{1}{2}}$	130324.71		
$3d^8(^3F_4)7s$	$7s\ ^4F_{3\frac{1}{2}}$	127991.56			$3d^8(^3F_3)6d$	$6d\ ^2P_{1\frac{1}{2}}$	130691.35		
$3d^8(^3F_4)5g$	$5g\ ^4P_{2\frac{1}{2}}$	128912.81			$3d^8(^3F_3)6d$	$6d\ ^4P_{0\frac{1}{2}}$	130710.85		
$3d^8(^3F_4)5d$	$5g\ ^4I_{7\frac{1}{2}}$	128924.94			$3d^8(^3F_3)6d$	$6d\ ^4F_{2\frac{1}{2}}$	130730.53		
$3d^8(^3F_4)5d$	$5g\ ^4I_{6\frac{1}{2}}$	128924.94			$3d^8(^3F_3)6d$	$6d\ ^2H_{5\frac{1}{2}}$	130751.03		
$3d^8(^3F_4)5d$	$5g\ ^4P_{1\frac{1}{2}}$	128939.74			$3d^8(^3F_3)6d$	$6d\ ^4H_{4\frac{1}{2}}$	130757.51		
$3d^8(^3F_4)5d$	$5g\ ^4D_{2\frac{1}{2}}$	128944.31			$3d^8(^3F_3)6d$	$6d\ ^2F_{3\frac{1}{2}}$	130765.26		
$3d^8(^3F_4)5d$	$5g\ ^4K_{7\frac{1}{2}}$	128946.15			$3d^8(^3F_3)6d$	$6d\ ^2G_{4\frac{1}{2}}$	130801.33		
$3d^8(^3F_4)5d$	$5g\ ^4K_{8\frac{1}{2}}$	128946.22			$3d^8(^3F_3)6d$	$6d\ ^4G_{3\frac{1}{2}}$	130815.91		
$3d^8(^3F_4)5d$	$5g\ ^4D_{3\frac{1}{2}}$	128950.87			$3d^8(^1D)6s$	$6s'\ ^2D_{2\frac{1}{2}}$	130900.65		
$3d^8(^3F_4)5d$	$5g\ ^4F_{3\frac{1}{2}}$	128958.37			$3d^8(^3F_3)6d$	$6d\ ^4D_{1\frac{1}{2}}$	130942.30		
$3d^8(^3F_4)5d$	$5g\ ^4H_{5\frac{1}{2}}$	128960.74			$3d^8(^1D)6s$	$6s'\ ^2D_{1\frac{1}{2}}$	130942.36		
$3d^8(^3F_4)5d$	$5g\ ^4H_{6\frac{1}{2}}$	128960.74			$3d^8(^3F_3)6d$	$6d\ ^2D_{2\frac{1}{2}}$	131032.01		
$3d^8(^3F_4)5d$	$5g\ ^4F_{4\frac{1}{2}}$	128964.63			$3d^8(^3F_2)5g$	$5g\ ^2K_{6\frac{1}{2}}$	131218.55?		
$3d^8(^3F_4)5d$	$5g\ ^4G_{5\frac{1}{2}}$	128966.52			$3d^8(^3F_2)5g$	$5g\ ^2G_{3\frac{1}{2}}$	131221.09?		
$3d^8(^3F_4)5d$	$5g\ ^4G_{4\frac{1}{2}}$	128966.52			$3d^8(^3F_2)5g$	$5g\ ^4F_{1\frac{1}{2}}$	131222.97		
$3d^8(^3F_3)7s$	$7s\ ^2F_{3\frac{1}{2}}$	129271.72			$3d^8(^3F_2)5g$	$5g\ ^2F_{2\frac{1}{2}}$	131223.02		
$3d^8(^3F_4)6d$	$6d\ ^4P_{2\frac{1}{2}}$	129284.50			$3d^8(^3F_2)5g$	$5g\ ^4H_{3\frac{1}{2}}$	131233.28?		
$3d^8(^3F_3)7s$	$7s\ ^4F_{2\frac{1}{2}}$	129294.51			$3d^8(^3F_2)5g$	$5g\ ^2H_{4\frac{1}{2}}$	131233.32		
$3d^8(^3F_4)6d$	$6d\ ^4D_{3\frac{1}{2}}$	129297.91			$3d^8(^3F_2)6d$	$6d\ ^4F_{1\frac{1}{2}}$	131620.45		
$3d^8(^3F_4)6d$	$6d\ ^4H_{6\frac{1}{2}}$	129367.91			$3d^8(^3F_2)6d$	$6d\ ^4H_{3\frac{1}{2}}$	131637.10		
$3d^8(^3F_4)6d$	$6d\ ^4H_{5\frac{1}{2}}$	129396.04			$3d^8(^3F_2)6d$	$6d\ ^2P_{0\frac{1}{2}}$	131655.83		
$3d^8(^3F_4)6d$	$6d\ ^4F_{4\frac{1}{2}}$	129419.58			$3d^8(^3F_2)6d$	$6d\ ^4G_{2\frac{1}{2}}$	131670.87		
$3d^8(^3F_4)6d$	$6d\ ^4G_{5\frac{1}{2}}$	129424.03			$3d^8(^3F_2)6d$	$6d\ ^2H_{4\frac{1}{2}}$	131686.56		
$3d^8(^3F_4)6d$	$6d\ ^4F_{3\frac{1}{2}}$	129474.27			$3d^8(^3F_2)6d$	$6d\ ^2G_{3\frac{1}{2}}$	131750.73		
$3d^8(^3F_4)6d$	$6d\ ^4P_{1\frac{1}{2}}$	129479.73			$3d^8(^3F_2)6d$	$6d\ ^2F_{2\frac{1}{2}}$	131796.26		
$3d^8(^3F_4)6d$	$6d\ ^4G_{4\frac{1}{2}}$	129503.24			$3d^8(^3P)6s$	$6s''\ ^4P_{2\frac{1}{2}}$	133443.89		
$3d^8(^3F_4)6d$	$6d\ ^4D_{2\frac{1}{2}}$	129842.33			$3d^8(^3P)6s$	$6s''\ ^4P_{1\frac{1}{2}}$	133613.99		
$3d^8(^3F_2)7s$	$7s\ ^4F_{1\frac{1}{2}}$	130135.19			$3d^8(^3F_4)8s$	$8s\ ^4F_{4\frac{1}{2}}$	133715.13		
$3d^8(^3F_2)7s$	$7s\ ^2F_{2\frac{1}{2}}$	130236.26			$3d^8(^1D)5d$	$5d'\ ^2F_{3\frac{1}{2}}$	133734.98	133690	+45
$3d^8(^3F_3)5g$	$5g\ ^4K_{6\frac{1}{2}}$	130301.80?			$3d^8(^1D)5d$	$5d'\ ^2F_{2\frac{1}{2}}$	133735.26	133695	+40
$3d^8(^3F_3)5g$	$5g\ ^2K_{7\frac{1}{2}}$	130311.33			$3d^8(^3F_4)8s$	$8s\ ^4F_{3\frac{1}{2}}$	133809.76		
$3d^8(^3F_3)5g$	$5g\ ^4I_{5\frac{1}{2}}$	130313.51			$3d^8(^3P)6s$	$6s''\ ^4P_{0\frac{1}{2}}$	133857.73		
$3d^8(^3F_3)5g$	$5g\ ^4F_{2\frac{1}{2}}$	130314.07			$3d^8(^3P)6s$	$6s''\ ^2P_{1\frac{1}{2}}$	133862.21		

TABLE II. Ni II *Even levels (1970)*—Continued

Configuration	Name	Level Observed	Level Computed	O–C
$3d^8(^1D)5d$	$5d'\ ^2D_{1\frac{1}{2}}$	133903.00	133911	−8
$3d^8(^1D)5d$	$5d'\ ^2G_{4\frac{1}{2}}$	133922.91	133842	+71
$3d^8(^1D)5d$	$5d'\ ^2G_{3\frac{1}{2}}$	133929.88	133862	+68
$3d^8(^1D)5d$	$5d'\ ^2P_{0\frac{1}{2}}$	133954.85	133838	+117
$3d^8(^1D)5d$	$5d'\ ^2D_{2\frac{1}{2}}$	134053.05	134196	−143
$3d^8(^1D)5d$	$5d'\ ^2P_{1\frac{1}{2}}$	134067.76	133980	+88
$3d^8(^3P)6s$	$6s''\ ^2P_{0\frac{1}{2}}$	134241.96		
$3d^8(^3F_4)6g$	$6g\ ^4I_{7\frac{1}{2}}$	134316.80		
$3d^8(^2F_4)6g$	$6g\ ^4I_{6\frac{1}{2}}$	134316.85		
$3d^8(^3F_4)6g$	$6g\ ^4P_{2\frac{1}{2}}$	134323.88		
$3d^8(^3F_4)6g$	$6g\ ^4P_{1\frac{1}{2}}$	134323.88		
$3d^8(^3F_4)6g$	$6g\ ^4K_{8\frac{1}{2}}$	134325.15		
$3d^8(^3F_4)6g$	$6g\ ^4K_{7\frac{1}{2}}$	134325.15		
$3d^8(^3F_4)6g$	$6g\ ^4D_{3\frac{1}{2}}$	134327.54		
$3d^8(^3F_4)6g$	$6g\ ^4D_{2\frac{1}{2}}$	134327.61		
$3d^8(^3F_4)6g$	$6g\ ^4F_{4\frac{1}{2}}$	134331.84		
$3d^8(^3F_4)6g$	$6g\ ^4F_{3\frac{1}{2}}$	134331.89		
$3d^8(^3F_4)6g$	$6g\ ^4H_{6\frac{1}{2}}$	134333.41		
$3d^8(^3F_4)6g$	$6g\ ^4H_{5\frac{1}{2}}$	134333.41		
$3d^8(^3F_4)7d$	$6g\ ^4D_{1\frac{1}{2}}$	134334.46?		
$3d^8(^3F_4)7d$	$6g\ ^4G_{5\frac{1}{2}}$	134336.68		
$3d^8(^3F_4)7d$	$6g\ ^4G_{4\frac{1}{2}}$	134336.68		
$3d^8(^3F_4)7d$	$7d\ ^4D_{3\frac{1}{2}}$	134527.24		
$3d^8(^3F_4)7d$	$7d\ ^4P_{2\frac{1}{2}}$	134539.37		
$3d^8(^3F_4)7d$	$7d\ ^4H_{6\frac{1}{2}}$	134583.07		
$3d^8(^3F_4)7d$	$7d\ ^4H_{5\frac{1}{2}}$	134597.43		
$3d^8(^3F_4)7d$	$7d\ ^4F_{4\frac{1}{2}}$	134607.37		
$3d^8(^3F_4)7d$	$7d\ ^4G_{5\frac{1}{2}}$	134614.55		
$3d^8(^3F_4)7d$	$7d\ ^4F_{3\frac{1}{2}}$	134642.09		
$3d^8(^3F_4)7d$	$7d\ ^4G_{4\frac{1}{2}}$	134658.60		
$3d^8(^3F_4)7d$	$7d\ ^4P_{1\frac{1}{2}}$	134670.07		
$3d^8(^3F_4)7d$	$7d\ ^4D_{2\frac{1}{2}}$	134978.47		
$3d^8(^3F_3)8s$	$8s\ ^2F_{3\frac{1}{2}}$	135100.45		
$3d^8(^3F_3)8s$	$8s\ ^4F_{2\frac{1}{2}}$	135116.72		
$3d^8(^3F_3)6g$	$6g\ ^2I_{6\frac{1}{2}}$	135678.18?		
$3d^8(^3F_3)6g$	$6g\ ^2K_{7\frac{1}{2}}$	135686.64		
$3d^8(^3F_3)6g$	$6g\ ^4K_{6\frac{1}{2}}$	135686.64		
$3d^8(^3F_3)6g$	$6g\ ^2F_{3\frac{1}{2}}$	135693.43		
$3d^8(^3F_3)6g$	$6g\ ^4F_{2\frac{1}{2}}$	135693.43		
$3d^8(^3F_3)6g$	$6g\ ^2H_{5\frac{1}{2}}$	135693.57		
$3d^8(^3F_3)6g$	$6g\ ^4H_{4\frac{1}{2}}$?	135693.57?		
$3d^8(^3F_3)6g$	$6g\ ^2G_{4\frac{1}{2}}$	135695.67		
$3d^8(^3F_3)7d$	$7d\ ^4F_{2\frac{1}{2}}$	135901.96		
$3d^8(^3F_3)7d$	$7d\ ^2F_{3\frac{1}{2}}$	135944.40		
$3d^8(^3F_3)7d$	$7d\ ^2H_{5\frac{1}{2}}$	135956.01		
$3d^8(^3F_3)7d$	$7d\ ^4H_{4\frac{1}{2}}$	135960.08		
$3d^8(^3F_3)7d$	$7d\ ^2G_{4\frac{1}{2}}$	135977.31		
$3d^8(^3F_2)8s$	$8s\ ^4F_{1\frac{1}{2}}$	135983.22		
$3d^8(^3F_3)7d$	$7d\ ^4G_{3\frac{1}{2}}$	135986.06		
$3d^8(^3F_3)7d$	$7d\ ^2D_{2\frac{1}{2}}$	135031.43		
$3d^8(^3F_2)8s$	$8s\ ^2F_{2\frac{1}{2}}$	136050.53		
$3d^8(^3F_3)7d$	$7d\ ^4D_{1\frac{1}{2}}$	136054.50		
$3d^8(^3P)5d$	$5d''\ ^4D_{3\frac{1}{2}}$	136201.46	136181	+20
$3d^8(^3P)5d$	$5d''\ ^4D_{2\frac{1}{2}}$	136288.60	136256	+33
$3d^8(^3P)5d$	$5d''\ ^4D_{0\frac{1}{2}}$	136290.83?	136289	+2
$3d^8(^3P)5d$	$5d''\ ^4D_{1\frac{1}{2}}$	136327.55	136290	+38
$3d^8(^3P)5d$	$5d''\ ^4F_{4\frac{1}{2}}$	136519.28	136543	−24
$3d^8(^3P)5d$	$5d''\ ^4F_{3\frac{1}{2}}$	136589.35	136643	−54
$3d^8(^3F_2)6g$	$6g\ ^2K_{6\frac{1}{2}}$	136596.04		
$3d^8(^3F_2)6g$	$6g\ ^4K_{5\frac{1}{2}}$	136596.04		
$3d^8(^3F_2)6g$	$6g\ ^2I_{5\frac{1}{2}}$	136598.73?		
$3d^8(^3F_2)6g$	$6g\ ^2G_{3\frac{1}{2}}$	136604.79?		
$3d^8(^3P)5d$	$5d''\ ^4P_{0\frac{1}{2}}$	136725.33	136814	−89
$3d^8(^3P)5d$	$5d''\ ^4F_{1\frac{1}{2}}$	136732.74	136927	−194
$3d^8(^3P)5d$	$5d''\ ^4F_{2\frac{1}{2}}$	136766.49	136716	+50
$3d^8(^3F_2)7d$	$7d\ ^4F_{1\frac{1}{2}}$	136852.44		
$3d^8(^3F_2)7d$	$7d\ ^2H_{4\frac{1}{2}}$	136880.56		
$3d^8(^3F_2)7d$	$7d\ ^4H_{3\frac{1}{2}}$	136895.36?		
$3d^8(^3F_2)7d$	$7d\ ^4G_{2\frac{1}{2}}$	136899.34		
$3d^8(^3P)5d$	$5d''\ ^4P_{1\frac{1}{2}}$	136899.33	136827	+72
$3d^8(^3F_2)7d$	$7d\ ^2G_{3\frac{1}{2}}$	136936.82		
$3d^8(^3F_2)7d$	$7d\ ^2P_{0\frac{1}{2}}$	136955.28		

TABLE II. Ni II *Even levels (1970)*—Continued

Configuration	Name	Level Observed	Level Computed	O–C	Configuration	Name	Level Observed	Level Computed	O–C
$3d^8(^3F_2)7d$	$7d\ ^2F_{2\frac{1}{2}}$	136959.86			$3d^8(^3F_4)8d$	$8d\ ^4F_{4\frac{1}{2}}$	137753.87		
$3d^8(^3P)5d$	$5d''\ ^4P_{2\frac{1}{2}}$	136960.75	136909	+ 52	$3d^8(^3F_4)8d$	$8d\ ^4G_{5\frac{1}{2}}$	137754.78		
$3d^8(^3F_4)9s$	$9s\ ^4F_{4\frac{1}{2}}$	137188.58			$3d^8(^3F_4)8d$	$8d\ ^4F_{3\frac{1}{2}}$	137776.55		
$3d^8(^3P)5d$	$5d''\ ^2P_{0\frac{1}{2}}$	137211.93	137134	+ 78	$3d^8(^3F_4)8d$	$8d\ ^4G_{4\frac{1}{2}}$	137782.50?		
$3d^8(^3F_4)9s$	$9s\ ^4F_{3\frac{1}{2}}$	137236.28			$3d^8(^3F_4)8d$	$8d\ ^4D_{2\frac{1}{2}}$	138014.53		
$3d^8(^3P)5d$	$5d''\ ^2P_{1\frac{1}{2}}$	137278.22?	137241	+ 37	$3d^8(^3F_3)9s$	$9s\ ^2F_{3\frac{1}{2}}$	138563.71		
$3d^8(^3F_4)7g$	$7g\ ^4K_{8\frac{1}{2}}$	137568.02			$3d^8(^3F_3)9s$	$9s\ ^4F_{2\frac{1}{2}}$	138575.69		
$3d^8(^3F_4)7g$	$7g\ ^4K_{7\frac{1}{2}}$	137568.00			$3d^8(^3F_3)7g$	$7g\ ^2K_{7\frac{1}{2}}$	138928.70		
$3d^8(^3F_4)7g$	$7g\ ^4H_{6\frac{1}{2}}$	137573.19			$3d^8(^3F_3)8d$	$8d\ ^2H_{5\frac{1}{2}}$	139103.05		
$3d^8(^3F_4)7g$	$7g\ ^4H_{5\frac{1}{2}}$	137573.19			$3d^8(^3F_2)9s$	$9s\ ^4F_{1\frac{1}{2}}$	139456.75		
$3d^8(^3F_4)7g$	$7g\ ^4G_{5\frac{1}{2}}$	137575.14?			$3d^8(^3F_2)9s$	$9s\ ^2F_{2\frac{1}{2}}$	139492.10		
$3d^8(^3F_4)8d$	$8d\ ^4P_{2\frac{1}{2}}$	137706.71			$3d^8(^3F_2)7g$	$7g\ ^2K_{6\frac{1}{2}}$	139834.24		
$3d^8(^3F_4)8d$	$8d\ ^4D_{3\frac{1}{2}}$	137707.26			$3d^8(^1G)6s$	$6s'''\ ^2G_{4\frac{1}{2}}$	140006.17		
$3d^8(^3F_4)8d$	$8d\ ^4H_{6\frac{1}{2}}$	137735.22			$3d^8(^1G)6s$	$6s'''\ ^2G_{3\frac{1}{2}}$	140008.76		
$3d^8(^3F_4)8d$	$8d\ ^4H_{5\frac{1}{2}}$	137742.95			$3d^8\ ^3F_4$(Ni III)		146541.56		

TABLE III. Ni II *Odd levels (1970)*

Configuration	Name	Level Observed	Level Computed	O–C	Configuration	Name	Level Observed	Level Computed	O–C
$3d^8(^3F)4p$	$4p\ ^4D^\circ_{3\frac{1}{2}}$	51557.85	51680	−122	$3d^8(^3P)4p$	$4p''\ ^4S^\circ_{1\frac{1}{2}}$	74300.93	74297	+4
$3d^8(^3F)4p$	$4p\ ^4D^\circ_{2\frac{1}{2}}$	52738.45	52837	−99	$3d^8(^1G)4p$	$4p'''\ ^2H^\circ_{4\frac{1}{2}}$	75149.48	75135	+14
$3d^8(^3F)4p$	$4p\ ^4G^\circ_{4\frac{1}{2}}$	53365.17	53351	+14	$3d^8(^1G)4p$	$4p'''\ ^2H^\circ_{5\frac{1}{2}}$	75721.68	75661	+61
$3d^8(^3F)4p$	$4p\ ^4G^\circ_{5\frac{1}{2}}$	53496.49	53394	+102	$3d^8(^1G)4p$	$4p'''\ ^2F^\circ_{3\frac{1}{2}}$	75917.63	75942	−24
$3d^8(^3F)4p$	$4p\ ^4D^\circ_{1\frac{1}{2}}$	53634.62	53721	−86	$3d^8(^1G)4p$	$4p'''\ ^2F^\circ_{2\frac{1}{2}}$	76402.03	76372	+30
$3d^8(^3F)4p$	$4p\ ^4D^\circ_{0\frac{1}{2}}$	54176.26	54258	−82	$3d^8(^1G)4p$	$4p'''\ ^2G^\circ_{3\frac{1}{2}}$	79823.03	79854	−31
$3d^8(^3F)4p$	$4p\ ^4G^\circ_{3\frac{1}{2}}$	54262.63	54214	+49	$3d^8(^1G)4p$	$4p'''\ ^2G^\circ_{4\frac{1}{2}}$	79923.88	79959	−35
$3d^8(^3F)4p$	$4p\ ^4F^\circ_{4\frac{1}{2}}$	54557.05	54501	+56	$3d^7(^4F)sp(^3P)$	$z\ ^6F^\circ_{5\frac{1}{2}}$	86343.21	86612	−269
$3d^8(^3F)4p$	$4p\ ^4G^\circ_{2\frac{1}{2}}$	55018.71	54958	+61	$3d^7(^4F)sp(^3P)$	$z\ ^6F^\circ_{4\frac{1}{2}}$	86870.03	86978	−108
$3d^8(^3F)4p$	$4p\ ^2G^\circ_{4\frac{1}{2}}$	55299.65	55289	+11	$3d^7(^4F)sp(^3P)$	$z\ ^6F^\circ_{3\frac{1}{2}}$	87538.09	87608	−70
$3d^8(^3F)4p$	$4p\ ^4F^\circ_{3\frac{1}{2}}$	55417.83	55339	+79	$3d^7(^4F)sp(^3P)$	$z\ ^6F^\circ_{2\frac{1}{2}}$	88128.56	88163	−34
$3d^8(^3F)4p$	$4p\ ^4F^\circ_{2\frac{1}{2}}$	56075.26	55990	+85	$3d^7(^4F)sp(^3P)$	$z\ ^6D^\circ_{4\frac{1}{2}}$	88171.88	88263	−91
$3d^8(^3F)4p$	$4p\ ^2G^\circ_{3\frac{1}{2}}$	56371.41	56429	−58	$3d^7(^4F)sp(^3P)$	$z\ ^6F^\circ_{1\frac{1}{2}}$	88582.01	88586	−4
$3d^8(^3F)4p$	$4p\ ^4F^\circ_{1\frac{1}{2}}$	56424.49	56348	+76	$3d^7(^4F)sp(^3P)$	$z\ ^6F^\circ_{0\frac{1}{2}}$	88881.59	88851	+31
$3d^8(^3F)4p$	$4p\ ^2F^\circ_{3\frac{1}{2}}$	57080.55	57093	−12	$3d^7(^4F)sp(^3P)$	$z\ ^6D^\circ_{3\frac{1}{2}}$	89100.49	89157	−57
$3d^8(^3F)4p$	$4p\ ^2D^\circ_{2\frac{1}{2}}$	57420.16	57394	+26	$3d^7(^4F)sp(^3P)$	$z\ ^6G^\circ_{5\frac{1}{2}}$	89460.35	89297	+163
$3d^8(^3F)4p$	$4p\ ^2F^\circ_{2\frac{1}{2}}$	58493.21	58481	+12	$3d^7(^4F)sp(^3P)$	$z\ ^6G^\circ_{4\frac{1}{2}}$	89918.47	89782	+136
$3d^8(^3F)4p$	$4p\ ^2D^\circ_{1\frac{1}{2}}$	58705.95	58675	+31	$3d^7(^4F)sp(^3P)$	$z\ ^6G^\circ_{3\frac{1}{2}}$	90275.30	90166	+109
$3d^8(^3P)4p$	$4p''\ ^4P^\circ_{2\frac{1}{2}}$	66571.34	66608	−37	$3d^7(^4F)sp(^3P)$	$z\ ^6G^\circ_{2\frac{1}{2}}$	90526.18?	90446	+80
$3d^8(^3P)4p$	$4p''\ ^4P^\circ_{1\frac{1}{2}}$	66579.71	66606	−26	$3d^7(^4F)sp(^3P)$	$z\ ^4F^\circ_{4\frac{1}{2}}$	94283.94	94253	+31
$3d^8(^3P)4p$	$4p''\ ^4P^\circ_{0\frac{1}{2}}$	67031.02	67028	+3	$3d^7(^4F)sp(^3P)$	$z\ ^4G^\circ_{5\frac{1}{2}}$	94396.74	94355	+42
$3d^8(^1D)4p$	$4p'\ ^2F^\circ_{2\frac{1}{2}}$	67694.64	67687	+8	$3d^7(^4F)sp(^3P)$	$z\ ^4F^\circ_{3\frac{1}{2}}$	94705.93	94704	+2
$3d^8(^1D)4p$	$4p'\ ^2F^\circ_{3\frac{1}{2}}$	68131.21	68086	+45	$3d^7(^4F)sp(^3P)$	$z\ ^4G^\circ_{4\frac{1}{2}}$	95017.71	94983	+35
$3d^8(^1D)4p$	$4p'\ ^2D^\circ_{1\frac{1}{2}}$	68154.31	68237	−83	$3d^7(^4F)sp(^3P)$	$z\ ^4F^\circ_{2\frac{1}{2}}$	95332.53	95311	+22
$3d^8(^1D)4p$	$4p'\ ^2P^\circ_{0\frac{1}{2}}$	68281.62	68176	+106	$3d^7(^4F)sp(^3P)$	$z\ ^4G^\circ_{3\frac{1}{2}}$	95573.39	95583	−10
$3d^8(^1D)4p$	$4p'\ ^2D^\circ_{2\frac{1}{2}}$	68735.98	68816	−80	$3d^7(^4F)sp(^3P)$	$z\ ^4F^\circ_{1\frac{1}{2}}$	95893.76	95845	+49
$3d^8(^1D)4p$	$4p'\ ^2P^\circ_{1\frac{1}{2}}$	68965.65	68884	+82	$3d^7(^4F)sp(^3P)$	$z\ ^4G^\circ_{2\frac{1}{2}}$	96052.48	96067	−15
$3d^8(^3P)4p$	$4p''\ ^4D^\circ_{2\frac{1}{2}}$	70635.46	70632	+3	$3d^7(^4F)sp(^3P)$	$z\ ^4D^\circ_{3\frac{1}{2}}$	96535.87	96627	−91
$3d^8(^3P)4p$	$4p''\ ^4D^\circ_{1\frac{1}{2}}$	70706.77	70678	+29	$3d^7(^4F)sp(^3P)$	$z\ ^4D^\circ_{2\frac{1}{2}}$	97273.83	97361	−87
$3d^8(^3P)4p$	$4p''\ ^4D^\circ_{0\frac{1}{2}}$	70748.70	70725	+24	$3d^7(^4F)sp(^3P)$	$z\ ^4D^\circ_{1\frac{1}{2}}$	97799.66	97899	−99
$3d^8(^3P)4p$	$4p''\ ^4D^\circ_{3\frac{1}{2}}$	70778.12	70775	+3	$3d^7(^4F)sp(^3P)$	$z\ ^4D^\circ_{0\frac{1}{2}}$	98122.63	98231	−108
$3d^8(^3P)4p$	$4p''\ ^2D^\circ_{2\frac{1}{2}}$	71770.83	71860	−89	$3d^7(^4F)sp(^3P)$	$z\ ^2G^\circ_{4\frac{1}{2}}$	98276.70	98385	−108
$3d^8(^3P)4p$	$4p''\ ^2D^\circ_{1\frac{1}{2}}$	72375.42	72425	−50	$3d^7(^4F)sp(^3P)$	$z\ ^2F^\circ_{3\frac{1}{2}}$	99418.61	99183	+236
$3d^8(^3P)4p$	$4p''\ ^2P^\circ_{1\frac{1}{2}}$	72985.65	72944	+42	$3d^7(^4F)sp(^3P)$	$z\ ^2G^\circ_{3\frac{1}{2}}$?	99844.13	99908	−64
$3d^8(^3P)4p$	$4p''\ ^2P^\circ_{0\frac{1}{2}}$	73903.25	73887	+16	$3d^7(^4F)sp(^3P)$	$z\ ^2F^\circ_{2\frac{1}{2}}$	100609.01	100380	+229
$3d^8(^3P)4p$	$4p''\ ^2S^\circ_{0\frac{1}{2}}$	74283.33	74442	−159	$3d^7(^4F)sp(^3P)$	$z\ ^2D^\circ_{2\frac{1}{2}}$	101754.80	101694	+61

TABLE III. Ni II *Odd levels (1970)*—Continued

Configuration	Name		Level Observed	Level Computed	O–C	Configuration	Name		Level Observed	Level Computed	O–C
$3d^7(^4F)sp(^3P)$	z	$^2D^\circ_{1\frac{1}{2}}$	102742.74	102736	+7	$3d^7(^4F)sp(^1P)$	x	$^4F^\circ_{2\frac{1}{2}}$	115120.00?	114897	+223
$3d^8(^3F_4)5p$	$5p$	$^4D^\circ_{3\frac{1}{2}}$	103653.03	103735	−82	$3d^7(^4F)sp(^1P)$	x	$^4G^\circ_{3\frac{1}{2}}$	115209.85	114832	+378
$3d^8(^3F_4)5p$	$5p$	$^4F^\circ_{4\frac{1}{2}}$	104081.04	104132	−51	$3d^7(^4F)sp(^1P)$	x	$^4G^\circ_{2\frac{1}{2}}$	115565.98	115499	+67
$3d^8(^3F_4)5p$	$5p$	$^4G^\circ_{5\frac{1}{2}}$	104147.29	104008	+139	$3d^7(^4F)sp(^1P)$	x	$^4F^\circ_{1\frac{1}{2}}$	115592.25?	115274	+318
$3d^8(^3F_4)5p$	$5p$	$^4G^\circ_{4\frac{1}{2}}$	104298.23	104344	−46	$3d^7(^2P)sp(^3P)$	t	$^2D^\circ_{1\frac{1}{2}}$	115785.06	115707	+78
$3d^8(^3F_4)5p$	$5p$	$^4D^\circ_{2\frac{1}{2}}$	104503.22	104531	−28	$3d^7(^2H)sp(^3P)$	w	$^4G^\circ_{4\frac{1}{2}}$	116087.38	115529	+558
$3d^8(^3F_4)5p$	$5p$	$^4F^\circ_{3\frac{1}{2}}$	104646.52	104673	−26	$3d^7(^2H)sp(^3P)$	w	$^4G^\circ_{3\frac{1}{2}}$	116275.81	116170	+106
$3d^8(^3F_3)5p$	$5p$	$^4D^\circ_{1\frac{1}{2}}$	105439.85	105464	−24	$3d^7(^2D)sp(^3P)$	v	$^4D^\circ_{3\frac{1}{2}}$	116512.06	116903	−391
$3d^8(^3F_3)5p$	$5p$	$^4G^\circ_{3\frac{1}{2}}$	105499.05	105480	+19	$3d^7(^2H)sp(^3P)$	w	$^4G^\circ_{2\frac{1}{2}}$	116824.15	116614	+210
$3d^8(^3F_3)5p$	$5p$	$^2G^\circ_{4\frac{1}{2}}$	105588.89	105539	+50	$3d^7(^2D)sp(^3P)$	v	$^4D^\circ_{2\frac{1}{2}}$	116893.98	117125	−231
$3d^8(^3F_3)5p$	$5p$	$^4F^\circ_{2\frac{1}{2}}$	105668.78	105676	−7	$3d^7(^2D)sp(^3P)$	w	$^4F^\circ_{4\frac{1}{2}}$	117573.68	118039	−465
$3d^8(^3F_3)5p$	$5p$	$^2F^\circ_{3\frac{1}{2}}$	105838.06	105873	−35	$3d^7(^2D)sp(^3P)$	v	$^4D^\circ_{1\frac{1}{2}}$	117662.11	118000	−338
$3d^8(^3F_3)5p$	$5p$	$^2D^\circ_{2\frac{1}{2}}$	105861.19	105872	−11	$3d^8(^1D)5p$	$5p'$	$^2D^\circ_{1\frac{1}{2}}$	117763.91	117798	−34
$3d^7(^4P)sp(^3P)$	y	$^6D^\circ_{5\frac{1}{2}}$	105981.50?	105931	+50	$3d^8(^1D)5p$	$5p'$	$^2D^\circ_{2\frac{1}{2}}$	117872.78	117894	−21
$3d^8(^3F_2)5p$	$5p$	$^4D^\circ_{0\frac{1}{2}}$	106022.79	106042	−19	$3d^7(^2D)sp(^3P)$	w	$^4F^\circ_{3\frac{1}{2}}$	117972.47	118369	−397
$3d^8(^3F_2)5p$	$5p$	$^4G^\circ_{2\frac{1}{2}}$	106283.16	106229	+54	$3d^7(^2H)sp(^3P)$	z	$^2I^\circ_{5\frac{1}{2}}$	118248.98	118195	+54
$3d^8(^3F_2)5p$	$5p$	$^4F^\circ_{1\frac{1}{2}}$	106369.30	106410	−41	$3d^8(^1D)5p$	$5p'$	$^2F^\circ_{2\frac{1}{2}}$	118379.11	118484	−105
$3d^8(^3F_2)5p$	$5p$	$^2G^\circ_{3\frac{1}{2}}$	106620.53	106643	−22	$3d^8(^1D)5p$	$5p'$	$^2P^\circ_{1\frac{1}{2}}$	118442.81	118397	+46
$3d^8(^3F_2)5p$	$5p$	$^2F^\circ_{2\frac{1}{2}}$	107082.21	107107	−25	$3d^8(^1D)5p$	$5p'$	$^2F^\circ_{3\frac{1}{2}}$	118563.39	118617	−54
$3d^8(^3F_2)5p$	$5p$	$^2D^\circ_{1\frac{1}{2}}$	107142.21	107138	+4	$3d^8(^1D)5p$	$5p'$	$^2P^\circ_{0\frac{1}{2}}$	118631.95	118575	+57
$3d^7(^4P)sp(^3P)$	z	$^4S^\circ_{1\frac{1}{2}}$	107737.81	107810	−72	$3d^8(^3F_4)4f$	$4f$	$^2S^\circ_{0\frac{1}{2}}$	118774.76	118805	−30
$3d^7(^4P)sp(^3P)$	z	$^6P^\circ_{1\frac{1}{2}}$	109038.84	109005	+34	$3d^8(^3F_4)4f$	$4f$	$^4I^\circ_{6\frac{1}{2}}$	118803.82	118840	−36
$3d^7(^2G)sp(^3P)$	y	$^4F^\circ_{4\frac{1}{2}}$	109148.05	109102	+46	$3d^8(^3F_4)4f$	$4f$	$^4S^\circ_{1\frac{1}{2}}$	118809.34?	118801	+8
$3d^7(^2G)sp(^3P)$	y	$^4F^\circ_{3\frac{1}{2}}$	109846.00	109818	+28	$3d^8(^3F_4)4f$	$4f$	$^4P^\circ_{2\frac{1}{2}}$	118828.61	118834	−5
$3d^7(^2G)sp(^3P)$	y	$^4G^\circ_{4\frac{1}{2}}$?	110021.92	111703	−1681	$3d^8(^3F_4)4f$	$4f$	$^4I^\circ_{7\frac{1}{2}}$	118848.92	118840	+9
$3d^7(^2G)sp(^3P)$	y	$^4F^\circ_{2\frac{1}{2}}$	110573.36	110460	+113	$3d^8(^3F_4)4f$	$4f$	$^4D^\circ_{3\frac{1}{2}}$	118874.11	118873	+1
$3d^7(^2G)sp(^3P)$	y	$^4F^\circ_{1\frac{1}{2}}$	111120.54	110944	+177	$3d^8(^3F_4)4f$	$4f$	$^4P^\circ_{7\frac{1}{2}}$	118877.09	118849	+28
$3d^7(^2G)sp(^3P)$	y	$^4G^\circ_{3\frac{1}{2}}$	111783.79	111951	−167	$3d^8(^3F_4)4f$	$4f$	$^4H^\circ_{5\frac{1}{2}}$	118892.99	118912	−19
$3d^7(^4F)sp(^1P)$	x	$^4G^\circ_{5\frac{1}{2}}$	112422.19?	112818	−396	$3d^8(^3F_4)4f$	$4f$	$^4H^\circ_{6\frac{1}{2}}$	118893.24	118912	−19
$3d^7(^4F)sp(^1P)$	x	$^4F^\circ_{4\frac{1}{2}}$	113321.95	113064	+258	$3d^8(^3F_4)4f$	$4f$	$^4D^\circ_{2\frac{1}{2}}$	118897.94	118895	+3
$3d^7(^4F)sp(^1P)$	x	$^4G^\circ_{4\frac{1}{2}}$	113753.04	113893	−140	$3d^8(^3F_4)4f$	$4f$	$^4G^\circ_{4\frac{1}{2}}$	118914.34	118908	+6
$3s^7(^4F)sp(^1P)$	x	$^4F^\circ_{3\frac{1}{2}}$	114052.04	113841	+211	$3d^8(^3F_4)4f$	$4f$	$^4F^\circ_{3\frac{1}{2}}$	118923.20	118923	0
$3d^7(^2H)sp(^3P)$	w	$^4G^\circ_{5\frac{1}{2}}$	114858.88	114822	+37	$3d^8(^3F_4)4f$	$4f$	$^4F^\circ_{4\frac{1}{2}}$	118927.02	118928	−1
$3d^7(^2P)sp(^3P)$	w	$^4D^\circ_{1\frac{1}{2}}$	114869.35	115058	−189	$3d^8(^3F_4)4f$	$4f$	$^4G^\circ_{5\frac{1}{2}}$	118939.53	118928	+12
$3d^7(^2P)sp(^3P)$	w	$^4D^\circ_{3\frac{1}{2}}$	115000.25	115277	−277	$3d^7(^2H)sp(^3P)$	z	$^2I^\circ_{6\frac{1}{2}}$	119010.21	118817	+193
$3d^7(^2P)sp(^3P)$	w	$^4D^\circ_{2\frac{1}{2}}$	115108.09	115301	−193	$3d^8(^3P)5p$	$5p''$	$^4P^\circ_{2\frac{1}{2}}$	119796.98	119814	−17

TABLE III. Ni II *Odd levels (1970)*—Continued

Configuration	Name	Level Observed	Level Computed	O–C	Configuration	Name	Level Observed	Level Computed	O–C
$3d^8(^3P)5p$	$5p''\ ^4P^\circ_{1\frac{1}{2}}$	120166.52	119822	+345	$3d^8(^3F_4)6p$	$6p\ ^4D^\circ_{3\frac{1}{2}}$	122812.97		
$3d^8(^3F_3)4f$	$4f\ ^2P^\circ_{0\frac{1}{2}}$	120189.55	120169	+21	$3d^8(^3F_3)6p$	$6p\ ^2G^\circ_{4\frac{1}{2}}$	123434.60		
$3d^8(^3F_3)4f$	$4f\ ^2P^\circ_{1\frac{1}{2}}$	120199.18	120192	+7	$3d^7(^2H)sp(^3P)$	$y\ ^2H^\circ_{4\frac{1}{2}}$	124652.00	124681	−29
$3d^8(^3F_3)4f$	$4f\ ^4F^\circ_{2\frac{1}{2}}$	120203.49	120182	+21	$3d^7(^2H)sp(^3P)$	$y\ ^2H^\circ_{5\frac{1}{2}}$	125003.44	125025	−22
$3d^8(^3F_3)4f$	$4f\ ^4I^\circ_{5\frac{1}{2}}$	120211.30	120207	+4	$3d^8(^1G)5p$	$5p'''\ ^2H^\circ_{4\frac{1}{2}}$	126679.98	126979	−299
$3d^8(^3F_3)4f$	$4f\ ^2I^\circ_{6\frac{1}{2}}$	120218.22	120207	+11	$3d^7(^4P)sp(^1P)$	$x\ ^4S^\circ_{1\frac{1}{2}}$?	126738.82	127058	−319
$3d^8(^3F_3)4f$	$4f\ ^4D^\circ_{1\frac{1}{2}}$	120222.89	120223	0	$3d^8(^1G)5p$	$5p'''\ ^2H^\circ_{5\frac{1}{2}}$	126857.97	127106	−248
$3d^8(^3F_3)4f$	$4f\ ^4G^\circ_{3\frac{1}{2}}$	120250.17	120251	−1	$3d^8(^1G)5p$	$5p'''\ ^2F^\circ_{3\frac{1}{2}}$	127219.97	126712	+508
$3d^8(^3F_3)4f$	$4f\ ^2F^\circ_{3\frac{1}{2}}$	120268.81	120281	−12	$3d^8(^1G)5p$	$5p'''\ ^2F^\circ_{2\frac{1}{2}}$	127331.60	126801	+531
$3d^8(^3F_3)4f$	$4f\ ^2H^\circ_{5\frac{1}{2}}$	120270.44	120268	+2	$3d^8(^1G)5p$	$5p'''\ ^2G^\circ_{4\frac{1}{2}}$	127885.86	127962	−76
$3d^8(^3F_3)4f$	$4f\ ^2D^\circ_{2\frac{1}{2}}$	120271.97	120263	+9	$3d^8(^1G)5p$	$5p'''\ ^2G^\circ_{3\frac{1}{2}}$	127895.33	127964	−69
$3d^8(^3F_3)4f$	$4f\ ^4H^\circ_{4\frac{1}{2}}$	120272.53	120268	+5	$3d^8(^3F_4)5f$	$5f\ ^4S^\circ_{1\frac{1}{2}}$	128732.03		
$3d^8(^3F_3)4f$	$4f\ ^2G^\circ_{4\frac{1}{2}}$	120281.11	120274	+7	$3d^8(^3F_4)5f$	$5f\ ^2S^\circ_{0\frac{1}{2}}$	128799.72		
$3d^8(^3P)5p$	$5p''\ ^4P^\circ_{0\frac{1}{2}}$	120316.02	120174	+142	$3d^8(^3F_4)5f$	$5f\ ^4P^\circ_{2\frac{1}{2}}$	128803.23		
$3d^8(^3P)5p$	$5p''\ ^4D^\circ_{3\frac{1}{2}}$	120903.20	121027	−124	$3d^8(^3F_4)5f$	$5f\ ^4I^\circ_{6\frac{1}{2}}$	128818.41		
$3d^8(^3F_2)4f$	$4f\ ^2D^\circ_{1\frac{1}{2}}$	121042.52	121090	−48	$3d^8(^3F_4)5f$	$5f\ ^4P^\circ_{1\frac{1}{2}}$	128822.23		
$3d^8(^3P)5p$	$5p''\ ^2P^\circ_{1\frac{1}{2}}$	121042.57	121007	+36	$3d^8(^3F_4)5f$	$5f\ ^4I^\circ_{7\frac{1}{2}}$	128827.05		
$3d^8(^3P)5p$	$5p''\ ^4D^\circ_{2\frac{1}{2}}$	121050.66	121318	−267	$3d^8(^3F_4)5f$	$5f\ ^4D^\circ_{3\frac{1}{2}}$	128827.15		
$3d^8(^3F_2)4f$	$4f\ ^4D^\circ_{0\frac{1}{2}}$	121090.71	121090	+1	$3d^8(^3F_4)5f$	$5f\ ^4H^\circ_{5\frac{1}{2}}$	128837.11		
$3d^8(^3F_2)4f$	$4f\ ^2I^\circ_{5\frac{1}{2}}$	121120.88	121124	−3	$3d^8(^3F_4)5f$	$5f\ ^4D^\circ_{2\frac{1}{2}}$	128853.87		
$3d^8(^3F_2)4f$	$4f\ ^4I^\circ_{4\frac{1}{2}}$	121125.41	121124	+1	$3d^8(^3F_4)5f$	$5f\ ^4G^\circ_{4\frac{1}{2}}$	128853.91		
$3d^8(^3F_2)4f$	$4f\ ^4G^\circ_{2\frac{1}{2}}$	121146.98	121144	+3	$3d^8(^3F_4)5f$	$5f\ ^4H^\circ_{6\frac{1}{2}}$	128855.60		
$3d^8(^3F_2)4f$	$4f\ ^4F^\circ_{1\frac{1}{2}}$	121161.81	121145	+17	$3d^8(^3F_4)5f$	$5f\ ^4F^\circ_{4\frac{1}{2}}$	128862.49		
$3d^8(^3F_2)4f$	$4f\ ^2G^\circ_{3\frac{1}{2}}$	121178.56	121193	−14	$3d^8(^3F_4)5f$	$5f\ ^4F^\circ_{2\frac{1}{2}}$	128867.00		
$3d^8(^3F_2)4f$	$4f\ ^2H^\circ_{4\frac{1}{2}}$	121180.54	121192	−11	$3d^8(^3F_4)5f$	$5f\ ^4G^\circ_{5\frac{1}{2}}$	128869.89		
$3d^8(^3F_2)4f$	$4f\ ^4H^\circ_{3\frac{1}{2}}$	121192.32	121184	+8	$3d^7(^4P)sp(^1P)$	$t\ ^4D^\circ_{3\frac{1}{2}}$	129782.07	130301	−519
$3d^8(^3F_2)4f$	$4f\ ^2F^\circ_{2\frac{1}{2}}$	121194.14	121187	+7	$3d^7(^4P)sp(^1P)$	$t\ ^4D^\circ_{2\frac{1}{2}}$	129988.05	130483	−495
$3d^8(^3P)5p$	$5p''\ ^2D^\circ_{2\frac{1}{2}}$	121325.09	121079	+246	$3d^8(^3F_3)5f$	$5f\ ^4P^\circ_{0\frac{1}{2}}$	130147.87		
$3d^8(^3P)5p$	$5p''\ ^4D^\circ_{1\frac{1}{2}}$	121385.80	121338	+48	$3d^8(^3F_3)5f$	$5f\ ^2P^\circ_{1\frac{1}{2}}$	130174.03		
$3d^8(^3P)5p$	$5p''\ ^4S^\circ_{1\frac{1}{2}}$	121456.32	121424	+32	$3d^8(^3F_3)5f$	$5f\ ^4F^\circ_{2\frac{1}{2}}$	130184.39		
$3d^8(^3P)5p$	$5p''\ ^4D^\circ_{0\frac{1}{2}}$	121561.06	121506	+55	$3d^8(^3F_3)5f$	$5f\ ^4I^\circ_{5\frac{1}{2}}$	130184.61		
$3d^7(^2H)sp(^3P)$	$x\ ^2G^\circ_{4\frac{1}{2}}$	121692.55	121483	+210	$3d^8(^3F_3)5f$	$5f\ ^2I^\circ_{6\frac{1}{2}}$	130187.81		
$3d^8(^3P)5p$	$5p''\ ^2D^\circ_{1\frac{1}{2}}$	121800.34	121649	+151	$3d^8(^3F_3)5f$	$5f\ ^4D^\circ_{1\frac{1}{2}}$	130197.23		
$3d^7(^2H)sp(^3P)$	$x\ ^2G^\circ_{3\frac{1}{2}}$	121862.57	121608	+255	$3d^8(^3F_3)5f$	$5f\ ^2H^\circ_{5\frac{1}{2}}$	130205.62		
$3d^8(^3F_4)6p$	$6p\ ^4G^\circ_{5\frac{1}{2}}$	121120.37			$3d^8(^3F_3)5f$	$5f\ ^4H^\circ_{4\frac{1}{2}}$	130206.90		
$3d^8(^3F_4)6p$	$6p\ ^4F^\circ_{4\frac{1}{2}}$?	122441.22			$3d^8(^3F_3)5f$	$5f\ ^4G^\circ_{3\frac{1}{2}}$	130208.89		

TABLE III. Ni II *Odd levels (1970)*—Continued

Configuration	Name		Level Observed	Level Computed	O–C
$3d^8(^3F_3)5f$	$5f$	$^2G^\circ_{4\frac{1}{2}}$	130215.50		
$3d^8(^3F_3)5f$	$5f$	$^2F^\circ_{3\frac{1}{2}}$	130225.87		
$3d^8(^3F_3)5f$	$5f$	$^2D^\circ_{2\frac{1}{2}}$	130227.52		
$3d^7(^4P)sp(^1P)$	t	$^4D^\circ_{1\frac{1}{2}}$	130331.78	130732	−400
$3d^8(^3F_4)7p$	$7p$	$^4F^\circ_{4\frac{1}{2}}$?	130470.90		
$3d^8(^3F_4)7p$	$7p$	$^4D^\circ_{3\frac{1}{2}}$	130480.55		
$3d^7(^4P)sp(^1P)$	t	$^4D^\circ_{0\frac{1}{2}}$	130570.42	130953	−383
$3d^8(^3F_4)7p$	$7p$	$^4G^\circ_{5\frac{1}{2}}$	130661.32		
$3d^8(^3F_2)5f$	$5f$	$^4D^\circ_{0\frac{1}{2}}$	131063.85		
$3d^8(^3F_2)5f$	$5f$	$^2D^\circ_{1\frac{1}{2}}$	131075.78		
$3d^8(^3F_2)5f$	$5f$	$^2H^\circ_{4\frac{1}{2}}$	131093.30		
$3d^8(^3F_2)5f$	$5f$	$^4G^\circ_{2\frac{1}{2}}$	131103.18		
$3d^8(^3F_2)5f$	$5f$	$^4I^\circ_{4\frac{1}{2}}$	131115.28		
$3d^8(^3F_2)5f$	$5f$	$^2I^\circ_{5\frac{1}{2}}$	131122.28?		
$3d^8(^3F_2)5f$	$5f$	$^2G^\circ_{3\frac{1}{2}}$	131124.96		
$3d^8(^3F_2)5f$	$5f$	$^2F^\circ_{2\frac{1}{2}}$	131133.58		
$3d^7(^2G)sp(^1P)$	x	$^2H^\circ_{5\frac{1}{2}}$	131424.32?	131225	+199
$3d^7(^4P)sp(^1P)$	v	$^4P^\circ_{2\frac{1}{2}}$	131834.94	133393	−1558
$3d^8(^3F_3)7p$	$7p$	$^2G^\circ_{4\frac{1}{2}}$	131928.77		
$3d^7(^4P)sp(^1P)$	v	$^4P^\circ_{0\frac{1}{2}}$	132120.70	133715	−1594
$3d^7(^4P)sp(^1P)$	v	$^4P^\circ_{1\frac{1}{2}}$	132225.15	133715	−1490
$3d^7(^2G)sp(^1P)$	x	$^2H^\circ_{4\frac{1}{2}}$	132311.98?	132201	+111
$3d^8(^1D)4f$	$4f'$	$^2F^\circ_{2\frac{1}{2}}$	132729.48	132875	−146
$3d^8(^1D)4f$	$4f'$	$^2G^\circ_{4\frac{1}{2}}$	132818.16	132856	−38
$3d^8(^1D)4f$	$4f'$	$^2G^\circ_{3\frac{1}{2}}$	132846.53	132857	−10
$3d^8(^1D)4f$	$4f'$	$^2F^\circ_{3\frac{1}{2}}$	132869.16	132885	−16
$3d^8(^1D)4f$	$4f'$	$^2D^\circ_{2\frac{1}{2}}$	132912.15	132943	−31
$3d^8(^1D)4f$	$4f'$	$^2D^\circ_{1\frac{1}{2}}$	132927.97	132940	−12
$3d^8(^1D)4f$	$4f'$	$^2P^\circ_{1\frac{1}{2}}$	132982.51	133007	−24
$3d^8(^1D)4f$	$4f'$	$^2P^\circ_{0\frac{1}{2}}$	133001.47	133007	−6
$3d^8(^1D)4f$	$4f'$	$^2H^\circ_{5\frac{1}{2}}$	133014.08	132952	+62
$3d^8(^1D)4f$	$4f'$	$^2H^\circ_{4\frac{1}{2}}$	133031.00	132952	+79
$3d^7(^2G)sp(^1P)$	w	$^2F^\circ_{3\frac{1}{2}}$	133169.92	132985	+185
$3d^7(^2F)sp(^3P)$	v	$^4F^\circ_{1\frac{1}{2}}$	133190.19?	133016	+174
$3d^7(^2F)sp(^3P)$	v	$^4F^\circ_{2\frac{1}{2}}$	133209.30	133251	−42
$3d^7(^2G)sp(^1P)$	w	$^2G^\circ_{4\frac{1}{2}}$	133445.75	133724	−278
$3d^7(^2F)sp(^3P)$	v	$^4F^\circ_{3\frac{1}{2}}$	133528.02	133578	−50
$3d^7(^2F)sp(^3P)$	v	$^4G^\circ_{5\frac{1}{2}}$	133625.96	133461	+165
$3d^7(^2F)sp(^3P)$	s	$^4D^\circ_{3\frac{1}{2}}$	133850.83	133917	−66
$2d^7(^2F)sp(^3P)$	v	$^4F^\circ_{4\frac{1}{2}}$	133853.04	133906	−53
$3d^7(^2F)sp(^3P)$	s	$^4D^\circ_{2\frac{1}{2}}$	133973.33	133904	+69
$3d^7(^2F)sp(^3P)$	s	$^4D^\circ_{1\frac{1}{2}}$	134156.28	134112	+44
$3d^7(^2G)sp(^1P)$	w	$^2F^\circ_{2\frac{1}{2}}$	134208.30	134160	+48
$3d^8(^3F_4)6f$	$6f$	$^4I^\circ_{6\frac{1}{2}}$	134238.44		
$3d^8(^3F_4)6f$	$6f$	$^4P^\circ_{1\frac{1}{2}}$	134249.72		
$3d^8(^3F_4)6f$	$6f$	$^4I^\circ_{7\frac{1}{2}}$	134251.30		
$3d^8(^3F_4)6f$	$6f$	$^4F^\circ_{3\frac{1}{2}}$	134252.85		
$3d^8(^3F_4)6f$	$6f$	$^4S^\circ_{1\frac{1}{2}}$	134254.69		
$3d^8(^3F_4)6f$	$6f$	$^4P^\circ_{2\frac{1}{2}}$	134256.05		
$3d^8(^3F_4)6f$	$6f$	$^4D^\circ_{3\frac{1}{2}}$	134262.07		
$3d^8(^3F_4)6f$	$6f$	$^4H^\circ_{6\frac{1}{2}}$	134267.20		
$3d^8(^3F_4)6f$	$6f$	$^4F^\circ_{4\frac{1}{2}}$	134271.59		
$3d^8(^3F_4)6f$	$6f$	$^4G^\circ_{5\frac{1}{2}}$	134274.62		
$3d^8(^3F_4)6f$	$6f$	$^4H^\circ_{5\frac{1}{2}}$	134281.66		
$3d^7(^2F)sp(^3P)$	s	$^4D^\circ_{0\frac{1}{2}}$	134283.76	134193	+91
$3d^8(^3F_4)6f$	$6f$	$^4G^\circ_{4\frac{1}{2}}$	134286.38		
$3d^8(^3F_4)6f$	$6f$	$^4D^\circ_{2\frac{1}{2}}$	134294.99		
$3d^7(^2G)sp(^1P)$	w	$^2G^\circ_{3\frac{1}{2}}$	134380.82	134827	−446
$3d^7(^2F)sp(^3P)$	w	$^2D^\circ_{2\frac{1}{2}}$	134783.14	134956	−173
$3d^7(^2F)sp(^3P)$	w	$^2D^\circ_{1\frac{1}{2}}$?	134964.78	134155	−190
$3d^7(^2P)sp(^1P)$	v	$^2D^\circ_{2\frac{1}{2}}$	135258.92	136090	−831
$3d^8(^3F_4)8p$	$8p$	$^4G^\circ_{4\frac{1}{2}}$	135261.99		
$3d^8(^3F_4)8p$	$8p$	$^4G^\circ_{5\frac{1}{2}}$	135338.01		
$3d^7(^2P)sp(^1P)$	w	$^2P^\circ_{1\frac{1}{2}}$	135382.53	135737	−354
$3d^8(^3P)4f$	$4f''$	$^2F^\circ_{3\frac{1}{2}}$	135400.67	135436	−35
$3d^8(^3P)4f$	$4f''$	$^4F^\circ_{4\frac{1}{2}}$	135435.26	135413	+22
$3d^8(^3P)4f$	$4f''$	$^4F^\circ_{3\frac{1}{2}}$	135444.47	135425	+19
$3d^8(^3P)4f$	$4f''$	$^4F^\circ_{2\frac{1}{2}}$	135461.55	135477	+15
$3d^8(^3P)4f$	$4f''$	$^2G^\circ_{3\frac{1}{2}}$	135464.86	135776	−311
$3d^8(^3P)4f$	$4f''$	$^4F^\circ_{1\frac{1}{2}}$	135493.26	135483	+10
$3d^8(^3P)4f$	$4f''$	$^2D^\circ_{2\frac{1}{2}}$	135512.92	135494	+19
$3d^8(^3P)4f$	$4f''$	$^4G^\circ_{5\frac{1}{2}}$	135538.61?	135583	−44

TABLE III. Ni II *Odd levels (1970)*—Continued

Configuration	Name	Level Observed	Level Computed	O–C	Configuration	Name	Level Observed	Level Computed	O–C
$3d^8(^3P)4f$	$4f''\ ^4G^\circ_{4\frac{1}{2}}$	135558.80	135583	−24	$3d^8(^3F_2)6f$	$6f\ ^2I^\circ_{5\frac{1}{2}}$	136508.20		
$3d^8(^3P)4f$	$4f''\ ^2G^\circ_{4\frac{1}{2}}$?	135580.25	135773	−193	$3d^8(^3F_2)6f$	$6f\ ^4D^\circ_{0\frac{1}{2}}$	136517.20		
$3d^8(^3F_3)6f$	$6f\ ^2P^\circ_{0\frac{1}{2}}$	135599.00			$3d^8(^3F_2)6f$	$6f\ ^4I^\circ_{4\frac{1}{2}}$	136524.42		
$3d^8(^3F_3)6f$	$6f\ ^4I^\circ_{5\frac{1}{2}}$	135606.20			$3d^8(^3F_2)6f$	$6f\ ^4F^\circ_{1\frac{1}{2}}$	136531.26		
$3d^8(^3F_3)6f$	$6f\ ^2I^\circ_{6\frac{1}{2}}$	135606.30			$3d^8(^3F_2)6f$	$6f\ ^4H^\circ_{3\frac{1}{2}}$	136542.28		
$3d^8(^3F_3)6f$	$6f\ ^4F^\circ_{2\frac{1}{2}}$	135618.08			$3d^8(^3F_2)6f$	$6f\ ^2H^\circ_{4\frac{1}{2}}$	136546.50		
$3d^8(^3F_3)6f$	$6f\ ^4D^\circ_{1\frac{1}{2}}$	135619.91			$3d^8(^3F_2)6f$	$6f\ ^2G^\circ_{3\frac{1}{2}}$	136547.13		
$3d^8(^3F_3)6f$	$6f\ ^4G^\circ_{3\frac{1}{2}}$	135622.60			$3d^8(^3F_2)6f$	$6f\ ^4G^\circ_{2\frac{1}{2}}$	136548.55		
$3d^8(^6F_3)6f$	$6f\ ^2P^\circ_{1\frac{1}{2}}$	135623.59			$3d^8(^3F_3)8p$	$8p\ ^2G^\circ_{4\frac{1}{2}}$	136673.64		
$3d^8(^6F_3)6f$	$6f\ ^2G^\circ_{4\frac{1}{2}}$	135628.41			$3d^8(^3F_4)7f$	$7f\ ^4P^\circ_{2\frac{1}{2}}$	137519.23		
$3d^8(^6F_3)6f$	$6f\ ^2F^\circ_{3\frac{1}{2}}$	135629.40			$3d^8(^3F_4)7f$	$7f\ ^4I^\circ_{7\frac{1}{2}}$	137519.63		
$3d^8(^6F_3)6f$	$6f\ ^2D^\circ_{2\frac{1}{2}}$	135630.63			$3d^8(^3F_4)7f$	$7f\ ^4D^\circ_{3\frac{1}{2}}$	137523.51?		
$3d^8(^6F_3)6f$	$6f\ ^4H^\circ_{4\frac{1}{2}}$	135640.53			$3d^8(^3F_4)7f$	$7f\ ^4D^\circ_{2\frac{1}{2}}$	137526.73		
$3d^8(^6F_3)6f$	$6f\ ^2H^\circ_{5\frac{1}{2}}$	135645.10			$3d^8(^3F_4)7f$	$7f\ ^4H^\circ_{6\frac{1}{2}}$	137529.37		
$3d^8(^3P)4f$	$4f''\ ^4D^\circ_{1\frac{1}{2}}$	135652.93	135663	−10	$3d^8(^3F_4)7f$	$7f\ ^4F^\circ_{4\frac{1}{2}}$	137531.18		
$3d^8(^3P)4f$	$4f''\ ^4D^\circ_{0\frac{1}{2}}$	135670.49	135661	+9	$3d^8(^3F_4)7f$	$7f\ ^4G^\circ_{5\frac{1}{2}}$	137535.83		
$3d^7(^2F)sp(^3P)$	$o\ ^2G^\circ_{3\frac{1}{2}}$	135746.06	135789	−43	$3d^8(^3F_4)7f$	$7f\ ^4F^\circ_{3\frac{1}{2}}$	137535.96		
$3d^8(^3P)4f$	$4f''\ ^2D^\circ_{1\frac{1}{2}}$	135746.13	135785	−39	$3d^8(^3F_2)8p$	$8p\ ^2G^\circ_{3\frac{1}{2}}$?	137562.74		
$3d^8(^3P)4f$	$4f''\ ^4D^\circ_{2\frac{1}{2}}$	135849.41	135867	−18	$3d^8(^3F_4)9p$	$9p\ ^4F^\circ_{4\frac{1}{2}}$	138121.88		
$3d^8(^3P)4f$	$4f''\ ^4G^\circ_{3\frac{1}{2}}$	135879.41	135866	+13	$3d^7(^2F)sp(^1P)$	$w\ ^2G^\circ_{4\frac{1}{2}}$	138495.84?	138576	−80
$3d^8(^3P)4f$	$4f''\ ^4D^\circ_{3\frac{1}{2}}$?	135954.09	136055	−101	$3d^8(^3P)6p$	$6p''\ ^4D^\circ_{3\frac{1}{2}}$	138841.00		
$3d^7(^2F)sp(^3P)$	$v\ ^2G^\circ_{4\frac{1}{2}}$	136076.26	135927	+149	$3d^8(^3F_3)7f$	$7f\ ^2I^\circ_{6\frac{1}{2}}$	138888.93?		
$3d^8(^3P)4f$	$4f''\ ^2F^\circ_{2\frac{1}{2}}$	136122.61	136055	+68	$3d^8\ ^3F_4$		146541.56		
$3d^8(^1D)6p$	$6p'\ ^2F^\circ_{3\frac{1}{2}}$?	136392.85							

The differences of $4s\ ^4F$ yielded many high levels, amongst them two terms due to $(^2F)sp(^3P)$, later called $v\ ^4F^\circ$ and $s\ ^4D^\circ$, which were useful to Shadmi in his calculations. Help also came from C. H. Corliss, of the National Bureau of Standards, who made a computer search by using all of the lines measured on the Bureau plates and all of the low even levels. Unfortunately the necessary allowance for inaccuracy of the wave numbers was great enough to make computed levels based on pairs of lines unreasonably frequent. Levels based on three lines were real in less than 50 percent of the cases and even five line levels were not always real. After many of the levels had been found by means of the calculated positions, it was discovered that some of them were present in the computer lists but buried in sheets of pairs of lines.

From a comparison of the empirical levels with the computed levels it seemed that many real levels appeared to have no counterpart in the list of calculated terms unless large differences between them were permitted. In fact it became evident that in some cases a group of actual levels gave agreement with a computed term with a nearly constant difference of up to 1600 cm^{-1}. This allowed a broadening of the search, so that eventually $w\ ^4G$, $w\ ^4F$, $w\ ^4D$, $x\ ^4F$, $t\ ^4D$, $v\ ^4P$ were found by this method.

Some remarks as follows must be made about certain identifications:

1. In the $4p'''$ group the value of the former level $^2F^\circ_{2\frac{1}{2}}$ has been replaced by 76402.04 cm^{-1}.

2. In the $5p$ group the computer identifies my $^2G^\circ_{4\frac{1}{2}}$ level as $^4G^\circ_{4\frac{1}{2}}$ contrary to all the experimental evidence.

It also places $^4F^\circ_{41/2}$ as the lowest of the three levels and I have adopted that change.

3. All the levels of $5p'$ have been found, but the $^2F^\circ$ levels have much quartet nature. In the $5p''$ group the levels which combine like $^4D^\circ_{21/2}$ and $^2D^\circ_{21/2}$ fit very much better if the computed values are interchanged.

4. In the two terms $w\,^4D^\circ$ and $v\,^4D^\circ$ I have interchanged the computed values of $^4D^\circ_{31/2}$ to improve the fit. Also the computed value of an unidentified level $t\,^2D^\circ_{21/2}$ has been used for $v\,^4D^\circ_{21/2}$ and $t\,^2D^\circ_{11/2}$ has been used for $w\,^4D^\circ_{11/2}$. The $w\,^4D^\circ_{11/2}$ and $v\,^4D^\circ_{21/2}$ calculated values are now placed as $t\,^2D^\circ_{11/2}$ and $t\,^2D^\circ_{21/2}$.

5. The doublet levels of $3d^7(^2H)sp(^3P)$, $z\,^2I^\circ$ and $y\,^2H^\circ$ are based on single very strong lines.

6. The term which deviates most from the calculated position is $v\,^4P^\circ$ with differences of -1558, -1490, -1594. All of these levels are well determined by combinations which show them to be typical $^4P^\circ$ levels.

As noted above, the $3d^8\,4f$ levels were calculated as an independent unit. The fit with the empirical levels is excellent in the group based on the ^3F limit, although lacking one level with $J=1/2$. The $4f'$ levels from ^1D also fit very well except the lowest and the two highest. Most of the levels are of mixed origin, judging from their combinations. The $4f''$ levels from ^3P proved much more difficult to identify chiefly because they are very mixed with $6f$ and $d^7\,sp$ levels. The levels $^2F^\circ_{31/2}$, $^2G^\circ_{31/2}$, $^4G^\circ_{31/2}$, $^4D^\circ_{31/2}$ are especially mixed. The J-values are definite but the names are rather arbitrary. One level of the group, 135,580, however, cannot be put in the same category as any of the other $4f''$ levels. It combines with $4d$ and $5d\,^4H_{41/2}$, $^2G_{41/2}$ and $^2G_{51/2}$ and, therefore, has the character of $6f\,^2G_{41/2}$ or $6f\,^2H_{51/2}$. There is no place for it in the $6f$ group and it has been placed questionably as $4f''\,^2G_{41/2}$.

5. Excitation in the Hollow Cathode

It is well established that excitation in the hollow cathode comes chiefly from collisions of the second kind with the excited or ionized atoms of the carrying gas and that the most probable excitation occurs when nearly the whole of the available energy is handed over.

The Ni II spectrum exhibits these effects more completely than any other spectrum with which I have worked. I have plotted the ratio of observed to predicted levels of $d^7\,sp$ from 94,000 to 136,000. The resulting curve has maxima of nearly 1.0 at each end and a minimum of 0.1 in the middle. The lack of uniform excitation in the tube can therefore take the blame for some of my failure to find many predicted terms in the intermediate range. It is also responsible for the difficulty of finding the $d^8\,6p$ levels since they fall in the central region. Some $7p$, $8p$ and $9p$ levels were more easily identified than the $6p$ ones, since they appear in the more efficient region.

6. Series Limits

There are many series from which to obtain the value of the limit $3d^8\,^3F_4$. The $3d^8\,ns$ series extends from $4s$ to $9s$ and the $3d^8\,nd$ series from $4d$ to $8d$. The nf and ng series are also available and they are usually preferred. Unfortunately there is a rather large discrepancy between the best component series of those groups.

The $ns\,^4F$ series appears to be unperturbed except that $7s\,^4F_{31/2}$ is obviously low by about 20 cm^{-1} to fit smoothly into the series, although there is apparently no perturbing term. By assuming that the $^4F_{41/2}$ levels are unperturbed one finds by plotting that a limit of 146532.0 yields a nearly straight line corresponding to a Ritz formula. The same can be said of the series $nd\,^4H_{61/2}$ and $nd\,^2H_{51/2}$. The latter converges to $^3F_3$ which is 1360.7 cm^{-1} above $^4F_{41/2}$.

However, it is usually considered that the nearly hydrogenic series are more reliable. An exact fitting of $ng\,^4K_{81/2}$ yields a limit of 146541.41 and $ng\,^4H_{61/2}$ 146541.71. The difference of the average of those limits from that found from ns and nd series is 9.56 cm^{-1} and the choice of either limit distorts the other series quite markedly.

There is no evidence to fix the choice unambiguously. The $ns\,^4F$ series may be perturbed by the levels of $3d^7\,4s\,5s$ which should be about 5000 cm^{-1} above the $3d^8$ limit, but there is no obvious perturbing term for the nd series. Although the $ng\,^4K_{81/2}$ levels are all based on single strong lines, the $ng\,^4H_{61/2}$ levels are determined quite certainly. Tentatively, therefore, I shall accept the limit based on the ng series as being the more probably correct, i.e., 146541.56.

7. Unidentified Lines

The line list (table I) includes 4306 lines attributable to Ni II, of which 937 or 22 percent remain unclassified. Of the unclassified lines 159 are of intensity 15 or greater on the rather wide intensity scale I have used. It is possible that some of the lines in the Schuman region are due to the hydrogen molecule, but such lines would not be among the strong ones.

There are two regions which include most of the strong unclassified lines. The most important is from 69,000 cm^{-1} to 65,000 cm^{-1} where the even terms involved cannot be higher than $s^2\,^4P$ or just possibly $s^2\,^2G$. The only terms that are apt to give strong lines in this region are in fact $s^2\,^4F$ or $s^2\,^4P$. There are no unidentified calculated levels which should make strong combinations in that region with $s^2\,^4P$ and it must be concluded that $s^2\,^4F$ term is chiefly responsible for the unidentified lines. There are two predicted $^4D^\circ$ terms and a number of doublet terms in the proper energy range but a search for the intervals of the $s^2\,^4F$ term has yielded nothing that appears significant.

The other part of the spectrum where there are many unclassified lines is between 7000 and 9100 Å. The strong lines of this region are due mostly to transitions $5s-5p$ and $5p-6s$ which are all known, but there are a few unclassified lines of considerable intensity. It is possible that some of the weak lines are due to He bands which occur in some strength. However, over most of the region, the spectra were exposed in such a way that the band lines were distinguishable by their length.

Table IV is a synopsis of all the terms found in Ni II.

TABLE IV. Ni II *Observed terms*

Configuration	Observed Terms				
$3d^9$	$3d\ ^2D$				
$3d^7\,4s^2$	$s^2\ ^4F\ ^4P\ ^2G\ ^2P\ ^2H\ ^2D\ ^2F$				
	$ns\ n \geq 4$	$np\ n \geq 4$	$nd\ n \geq 4$	$nf\ n \geq 4$	$ng\ n \geq 5$
$3d^8(^3F)nx$	$4s$ to $9s$ $^4F\ ^2F$	$4p$ to $9p$ $^{4,2}D^\circ\ F^\circ\ G^\circ$	$4d$ to $8d$ $^{4,2}P\ D\ F\ G\ H$	$4f$ to $7f$ $^{4,2}S^\circ\ P^\circ\ D^\circ\ F^\circ\ G^\circ\ H^\circ\ I^\circ$	$5g$ to $7g$ $^{4,2}P\ D\ F\ G\ H\ I\ K$
$3d^8(^1D)nx$	$4s'$ to $6s'$ ^2D	$4p'$ to $6p'$ $^2P^\circ\ D^\circ\ F^\circ$	$4d'$, $5d'$ $^2S\ P\ D\ F\ G$	$4f'$ $^2P^\circ\ D^\circ\ F^\circ\ G^\circ\ H^\circ$	
$3d^8(^3P)nx$	$4s''$ to $6s''$ $^4P\ ^2P$	$4p''$ to $6p''$ $^{4,2}S^\circ\ P^\circ\ D^\circ$	$4d''$, $5d''$ $^{4,2}P\ D\ F$	$4f''$ $^{4,2}D^\circ\ F^\circ\ G^\circ$	
$3d^8(^1G)nx$	$4s'''$ to $6s'''$ ^2G	$4p'''$, $5p'''$ $^2F^\circ\ G^\circ H^\circ$	$4d'''$ $^2F\ G\ H\ I$		
$3d^7(^4F)4s4p(^3P)$		$z\ ^{6,4,2}D^\circ\ F^\circ\ G^\circ$			
$(^4F)\quad(^1P)$		$x\ ^4F^\circ$, $x\ ^4G^\circ$			
$(^4P)\quad(^3P)$		$z\ ^4S^\circ$, $y\ ^6D^\circ$?			
$(^4P)\quad(^1P)$		$x\ ^4S^\circ$, $v\ ^4P^\circ$, $t\ ^4D^\circ$			
$(^2G)\quad(^3P)$		$y\ ^4F^\circ$, $y\ ^4G^\circ$			
$(^2G)\quad(^1P)$		$w\ ^2F^\circ$, $w\ ^2G^\circ$, $x\ ^2H^\circ$			
$(^2P)\quad(^3P)$		$w\ ^4D^\circ$, $t\ ^2D^\circ$,			
$(^2P)\quad(^1P)$		$w\ ^2P^\circ$, $v\ ^2D^\circ$			
$(^2H)\quad(^3P)$		$w\ ^4G^\circ$, $x\ ^2G^\circ$, $y\ ^2H^\circ$, $z\ ^2I^\circ$			
$(^2H)\quad(^1P)$		$u\ ^2G^\circ$?			
$(^2D)\quad(^3P)$		$v\ ^4D^\circ$, $w\ ^4F^\circ$			
$(^2F)\quad(^3P)$		$s\ ^4D^\circ$, $v\ ^4F^\circ$, $v\ ^4G^\circ$, $w\ ^2D^\circ$, $v\ ^2G^\circ$			

This paper is the result of work which has occupied my attention for the past 5 years. Up to the spring of 1969, I was partially supported by a grant from the National Science Foundation and I also got much assistance from the Spectroscopy Section of the National Bureau of Standards. Especially, I would like to mention again the spectra taken by V. Kaufman on the Bureau's 10.6 meter vacuum instrument and measured by C. H. Corliss. Since April 1969 I have had the advantage of a part-time salary from a NASA contract held by L. C. Green of Haverford College. All of this assistance has made it possible for me to continue my full time research after my retirement from the faculty in physics at Princeton University. I have mentioned above the essential assistance given me by Y. Shadmi and by N. Spector. My colleagues and the University have been most cooperative in helping me with supplies, typing, etc., and especially ample space in which to work.

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[8] There are eight $^4D°$ terms but in error the prefix *u* was omitted.

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