

A Catalogue of Small-diameter Radio Sources Close to the Galactic Plane

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Abstract

A catalogue of 'small-diameter' galactic radio sources observed at a frequency of 408 MHz with the Molonglo radiotelescope is presented. The catalogue covers an area of 0.40 sr enclosed in the range $l^{\text{II}} = 190^\circ\text{--}360^\circ\text{--}50^\circ$, $|b^{\text{II}}| \leq 3^\circ$. The sources listed are those which show no significant broadening of the $\sim 3'$ arc aerial beam. Small-diameter features bounded or confused by extended regions of emission are not included. A total of 513 sources are listed above a flux density of 0.6 Jy. While most of these are expected to be extragalactic, the list includes some known pulsars and small-diameter HII regions. The catalogue should form a useful search list for the identification of other such galactic objects.

Introduction

A 408 MHz survey of the galactic plane (south of declination $+18^\circ$) was completed with the Molonglo Cross radiotelescope between December 1969 and June 1971. Data from this survey have already been used in a study of the galactic background emission (Green 1972), and have provided improved results for a number of galactic sources (e.g. Clark *et al.* 1974, and other references to the Molonglo survey therein). Previous galactic investigations with the Molonglo radiotelescope concentrated on selected regions of strong emission (e.g. Shaver and Goss 1970). As part of the routine analysis of the complete survey, a catalogue was prepared of 'small-diameter' sources which showed less than 10% broadening of the $\sim 3'$ arc pencil beam of the radiotelescope. Small-diameter features bounded or confused by extended regions of emission were not included. A total of 513 sources were listed above a flux density of 0.6 Jy* in the range $l^{\text{II}} = 190^\circ\text{--}360^\circ\text{--}50^\circ$, $|b^{\text{II}}| \leq 3^\circ$.

Observations and Analysis

The operation of the Molonglo Cross radiotelescope has been described by Mills *et al.* (1963), and details of the high resolution galactic survey have been given by Green (1972). The beam shape of the radiotelescope is approximately Gaussian with half-power widths of 2.86 min arc in right ascension and 2.86 sec Z min arc in declination, Z being the zenith angle. The aerial response is integrated over 3 s intervals and recorded digitally on magnetic tape; an analogue record is provided by a facsimile chart recorder. Primary calibration of the system is checked on each observing session by measuring selected standard sources from Hunstead (1971, 1972). The position and flux density calibration techniques have been described by Davies *et al.* (1973). The flux density scale used is that of Wyllie (1969).

* 1 jansky (Jy) = 10^{-26} W m $^{-2}$ Hz $^{-1}$.

Table 1 (Continued)

(1) Position (1950.0) R.A. h m s			(2) Dec. ° ' "			(3) Galactic coordinates l^{II} ° ' "			(4) b^{II} ° ' "			(5) Flux density S_{408} (Jy)	(6) Other catalogue numbers
06 47 09.7			-03 50 44			216 12 16			-02 10 34			0.89	
06 47 18.3			-05 35 48			217 46 43			-02 56 50			1.34	
06 47 45.9			-00 52 36			212 04 44			00 07 44			0.70	
06 47 55.9			-01 10 20			213 55 05			-00 46 35			0.81	
06 48 04.2			-01 02 57			213 49 28			-00 41 21			0.83	
06 48 46.2			01 27 53			211 40 23			00 37 23			0.99	
06 50 32.9			-06 21 26			218 49 31			-02 34 44			0.75	
06 50 44.0			-00 19 19			213 29 07			00 14 12			1.37	
06 50 51.8			-07 15 56			219 40 10			-02 55 33			2.18	
06 51 11.5			04 07 27			209 35 18			02 22 55			1.04	4C 04.26
06 51 16.8			00 08 55			213 07 50			00 34 28			1.48	
06 52 09.6			02 10 56			211 25 31			01 42 18			1.40	
06 52 23.7			04 29 42			209 23 46			02 49 08			0.69	
06 52 27.7			02 55 56			210 47 37			02 07 00			1.43	4C 02.19
06 52 40.3			04 15 53			209 37 57			02 46 28			0.96	
06 54 36.2			-01 01 30			214 33 18			00 46 18			0.96	
06 54 56.0			02 15 07			211 40 55			02 21 10			0.98	
06 55 14.6			02 35 13			211 25 11			02 34 30			0.95	
06 55 18.3			02 23 15			211 36 15			02 29 49			1.26	
06 55 21.7			-08 11 16			221 00 06			-02 21 31			1.04	
06 55 54.9			-00 58 24			214 39 36			01 05 11			1.08	
06 56 01.3			-02 30 40			216 02 14			00 24 05			1.02	
06 57 37.4			-01 04 52			214 57 09			01 24 56			0.60	
06 58 25.5			-10 39 02			223 32 19			-02 49 09			1.24	
07 00 47.4			-00 46 18			215 02 34			02 15 39			0.93	
07 01 57.9			-08 10 27			221 44 36			-00 54 08			0.90	
07 03 38.6			-05 09 35			219 15 53			00 51 49			1.28	4C -05.26
07 03 41.0			-13 20 15			226 31 11			-02 54 54			1.67	
07 04 30.2			-11 08 33			224 39 53			-01 43 20			1.06	
07 04 31.2			-13 44 47			226 58 37			-02 55 24			0.61	
07 05 24.9			-07 54 58			221 54 38			-00 01 32			3.54	3C 174, PKS 0705-07
07 05 28.7			-12 51 17			226 17 36			-02 18 15			0.62	
07 05 45.1			-14 16 30			227 35 04			-02 54 09			0.63	
07 07 07.8			-12 24 36			226 05 11			-01 44 27			0.79	
07 08 35.2			-06 04 34			220 38 52			01 31 37			1.02	
07 08 55.0			-13 40 58			227 24 58			-01 56 52			0.78	
07 09 05.2			-12 12 34			226 07 52			-01 13 28			0.69	
07 09 18.6			-09 40 39			223 55 01			00 00 18			0.72	
07 09 23.2			-15 51 30			229 23 48			-02 51 33			0.90	
07 11 04.5			-14 03 24			227 59 29			-01 39 32			0.81	
07 12 17.5			-14 57 34			228 55 41			-01 49 16			0.67	
07 12 33.9			-11 28 08			225 52 30			-00 07 33			0.78	
07 12 47.5			-12 23 20			226 42 48			-00 30 31			0.67	
07 13 20.4			-13 54 36			228 07 09			-01 06 17			0.89	
07 13 25.9			-11 50 31			226 18 14			-00 06 49			1.62	

Table 1 (Continued)

Table 1 (Continued)

(1) Position (1950.0) R.A. h m s			(2) Dec. ° ' "			(3) Galactic coordinates l^{II} ° ' "			(4) b^{II} ° ' "			(5) Flux density S_{408} (Jy)	(6) Other catalogue numbers
08 52 36.7			-48 40 59			268 27 16			-02 33 22			0.73	
08 54 38.9			-42 54 22			264 17 38			01 28 06			1.54	
08 55 38.6			-41 41 43			263 29 49			02 23 55			1.82	
08 58 03.2			-44 46 58			266 06 46			00 41 59			0.78	
08 59 39.9			-41 57 29			264 11 05			02 47 05			0.86	
09 00 10.3			-47 32 06			268 24 59			-00 51 03			0.91	
09 01 04.8			-45 43 46			267 10 28			00 28 09			2.70	
09 01 54.3			-46 12 39			267 37 41			00 15 14			0.94	
09 03 17.5			-50 02 40			270 37 34			-02 08 50			1.46	
09 03 46.3			-45 42 29			267 28 26			00 49 55			0.95	
09 06 57.6			-43 45 42			266 25 30			02 34 01			2.12	
09 08 41.0			-47 47 28			269 34 24			00 01 58			0.83	
09 09 18.9			-47 13 03			269 13 47			00 30 15			0.71	
09 09 23.2			-48 39 53			270 17 21			-00 28 54			0.76	
09 09 23.6			-44 52 15			267 31 59			02 07 33			1.75	
09 12 18.7			-49 46 48			271 25 32			-00 54 28			0.68	
09 17 15.9			-47 04 26			270 04 04			01 34 27			0.98	
09 18 07.3			-53 27 20			274 40 54			-02 50 16			7.32	
09 22 57.7			-47 50 48			271 17 48			01 41 59			0.77	
09 23 46.5			-47 07 31			270 53 39			02 18 51			0.66	
09 27 11.7			-48 31 59			272 16 53			01 41 24			0.82	
09 31 14.1			-49 42 27			273 33 54			01 16 41			2.78	
09 33 00.7			-49 09 18			273 24 25			01 52 52			1.16	
09 33 48.9			-50 34 10			274 27 00			00 55 00			0.83	
09 37 11.3			-52 02 56			275 49 35			00 09 35			0.98	
09 39 32.7			-51 13 45			275 33 52			01 01 05			1.67	
09 41 33.7			-55 41 10			278 41 32			-02 10 15			0.80	
09 42 35.1			-54 28 50			278 01 27			-01 09 25			0.73	
09 42 50.0			-54 03 26			277 46 44			-00 48 35			3.10	
09 42 56.3			-55 59 30			279 02 14			-02 16 45			1.04	
09 43 19.4			-49 32 05			274 55 25			02 41 56			1.46	
09 43 25.6			-51 54 51			276 28 03			00 53 15			0.98	
09 44 39.0			-51 46 21			276 31 18			01 07 03			1.16	
09 46 12.4			-52 19 39			277 03 36			00 50 33			0.82	
09 49 12.7			-54 54 57			279 02 23			-00 53 00			1.32	
09 50 46.2			-54 13 25			278 47 00			-00 12 07			0.64	
09 50 51.6			-53 00 58			278 02 30			00 45 04			2.88	
09 54 20.5			-50 37 02			276 58 51			02 58 09			2.03	
09 57 50.0			-56 49 31			281 10 06			-01 38 39			1.55	
09 59 15.1			-57 20 32			281 38 00			-01 56 28			1.99	
10 02 21.4			-55 27 39			280 51 35			-00 10 24			0.74	
10 06 50.7			-56 39 07			282 03 49			-00 46 29			2.48	
10 12 29.9			-57 31 52			283 11 43			-01 03 40			1.38	
10 13 20.4			-58 01 04			283 33 38			-01 24 07			1.17	
10 22 22.3			-55 39 43			283 19 05			01 14 47			6.06	

Table 1 (Continued)

(1) Position (1950.0) R.A. h m s			(2) Dec. ° ' "			(3) Galactic coordinates l^{II} ° ' "			(4) b^{II} ° ' "			(5) Flux density S_{408} (Jy)	(6) Other catalogue numbers
10 23 53.1			-60 34 50			286 04 56			-02 49 33			1.26	
10 27 30.4			-57 11 48			284 43 19			00 18 28			4.37	
10 29 14.4			-58 08 39			285 24 20			-00 23 16			1.19	
10 30 04.6			-54 41 48			283 45 22			02 38 30			0.86	
10 30 15.8			-54 48 40			283 50 13			02 33 24			0.98	
10 30 50.8			-59 02 33			286 02 26			-01 03 25			9.11	
10 32 36.8			-56 50 42			285 08 37			00 57 46			1.26	
10 35 55.5			-58 32 39			286 21 55			-00 17 53			0.67	
10 37 39.2			-55 58 58			285 19 44			02 03 22			0.77	
10 38 47.3			-56 30 49			285 43 20			01 39 58			1.34	
10 41 42.1			-60 02 23			287 43 41			-01 15 36			3.00	
10 47 08.4			-57 45 54			287 18 25			01 05 00			0.82	
10 56 15.4			-62 12 53			290 16 07			-02 25 38			1.04	
11 02 33.2			-60 52 59			290 24 32			-00 54 20			1.72	
11 03 33.9			-62 12 51			291 02 49			-02 04 48			0.73	RCW 56
11 05 35.6			-61 32 32			291 00 15			-01 22 05			2.81	
11 07 48.6			-57 04 49			289 33 16			02 51 40			2.96	
11 10 37.0			-59 31 07			290 48 38			00 44 19			6.78	
11 11 52.2			-57 29 13			290 12 58			02 41 18			1.11	
11 13 35.7			-57 45 44			290 31 52			02 30 56			1.55	
11 17 54.8			-59 18 16			291 36 05			01 16 11			1.09	
11 22 34.0			-61 56 51			293 01 31			-01 01 43			1.87	
11 28 14.7			-60 55 37			293 20 45			00 09 15			1.30	
11 35 35.9			-60 17 46			294 01 25			01 01 17			1.94	
11 38 13.3			-62 42 43			294 59 17			-01 12 55			1.22	
11 40 42.3			-62 48 02			295 17 09			-01 13 32			2.99	
11 42 33.2			-60 04 46			294 47 57			01 27 39			1.10	
11 49 16.5			-63 43 59			296 26 56			-01 53 37			1.88	
11 53 57.6			-59 34 25			296 04 33			02 17 08			1.41	
11 56 58.3			-61 50 34			296 54 11			00 08 29			1.67	
11 59 18.7			-64 47 45			297 44 18			-02 42 12			1.27	
12 01 27.4			-63 04 59			297 38 57			-00 58 36			2.24	
12 08 49.2			-59 19 15			297 53 16			02 52 50			1.27	
12 10 25.9			-63 30 20			298 42 50			-01 13 35			1.31	
12 17 39.5			-63 29 53			299 30 42			-01 06 36			1.34	
12 19 05.1			-63 50 48			299 42 36			-01 26 15			4.37	
12 22 33.7			-59 25 41			299 38 21			02 59 59			0.71	
12 23 21.9			-62 21 32			300 01 54			00 05 37			0.72	
12 28 17.9			-62 55 01			300 38 47			-00 24 41			3.10	
12 32 02.4			-61 22 29			300 58 12			01 09 32			3.00	RCW 65, OH 301.0+1.1
12 32 44.6			-62 37 58			301 07 59			-00 05 29			1.67	
12 33 09.3			-61 34 30			301 06 55			00 58 02			2.23	RCW 66
12 37 30.7			-61 27 54			301 37 41			01 06 16			1.03	
12 37 48.8			-61 13 08			301 39 13			01 21 07			1.68	
12 39 57.4			-64 48 13			302 02 13			-02 13 14			1.57	

Table 1 (Continued)

(1) Position (1950-0) R.A.			(2) Dec.			(3) Galactic coordinates l^{II}			(4) b^{II}			(5) Flux density S_{408} (Jy)		(6) Other catalogue numbers	
h	m	s	°	'	"	°	'	"	°	'	"				
15	30	03.4	-56	31	58	323	52	53	-00	35	25	1.08			
15	30	33.6	-53	41	13	325	34	33	01	41	50	1.27			
15	32	41.0	-52	53	03	326	17	58	02	10	06	0.77			
15	34	15.7	-54	03	16	325	48	23	01	04	53	2.70			
15	36	42.2	-52	26	30	327	03	12	02	10	05	1.03			
15	37	40.7	-53	04	24	326	47	45	01	34	21	1.14			
15	38	29.2	-53	48	57	326	26	56	00	54	19	2.93			
15	40	03.4	-55	09	07	325	49	43	-00	18	00	1.36			
15	41	21.1	-56	10	24	325	21	23	-01	13	26	1.63			
15	43	10.4	-52	24	09	327	51	52	01	36	17	0.76			
15	43	12.1	-53	19	17	327	18	20	00	52	31	0.86			
15	44	15.0	-52	25	29	327	58	49	01	29	11	0.82			
15	44	18.1	-56	31	34	325	27	52	-01	45	11	1.49			
15	52	20.8	-49	33	44	330	46	05	02	55	12	1.30			
15	54	06.7	-53	39	50	328	21	18	-00	24	31	1.61			
15	54	14.1	-49	54	40	330	46	46	02	27	23	0.76			
15	56	10.3	-50	36	33	330	33	56	01	43	24	1.19			
16	00	10.0	-48	55	54	332	09	02	02	34	23	1.60			
16	00	50.2	-50	32	13	331	10	25	01	17	39	2.16			
16	01	04.7	-52	17	56	330	02	22	-00	03	18	0.91			
16	02	02.4	-54	00	55	329	00	45	-01	26	16	2.79			
16	05	57.4	-53	00	45	330	06	57	-01	04	47	0.86			
16	09	36.6	-47	59	11	333	56	50	02	13	30	1.03			
16	10	35.5	-52	32	38	330	56	55	-01	12	40	2.99			
16	15	14.2	-47	28	58	334	58	50	01	56	17	0.70			
16	18	17.7	-47	23	52	335	24	36	01	38	14	0.68			
16	21	11.1	-51	17	30	332	59	35	-01	27	08	0.74			
16	21	39.7	-47	31	32	335	43	19	01	08	40	0.79			
16	22	40.7	-49	01	08	334	46	41	-00	01	30	0.98			
16	25	27.1	-44	15	02	338	31	41	02	57	39	0.61			
16	26	19.5	-44	25	29	338	30	37	02	43	39	0.95			
16	27	20.4	-51	32	02	333	29	19	-02	18	33	0.92			
16	28	18.5	-49	03	07	335	23	42	-00	42	42	1.64			
16	29	20.5	-43	50	34	339	18	22	02	44	08	0.91			
16	29	29.9	-45	03	12	338	26	32	01	53	11	1.85			
16	35	16.1	-47	20	34	337	26	13	-00	24	01	2.29			
16	38	42.8	-46	29	14	338	28	01	00	16	01	1.90			
16	39	12.2	-43	54	58	340	26	57	01	22	21	1.14			
16	39	24.7	-46	42	17	338	23	00	-00	30	04	1.62			
16	41	10.6	-45	53	33	339	11	42	-00	11	40	0.67	Pulsar		
16	41	30.3	-45	04	50	339	50	41	00	17	45	1.27			
16	41	48.4	-47	37	27	337	57	36	-01	24	48	0.93			
16	44	56.7	-48	21	15	337	44	56	-02	17	14	3.26			
16	48	12.2	-40	39	07	344	00	43	02	14	08	0.86			
16	49	00.1	-43	18	21	342	04	02	00	25	22	2.05	MHR 58(a)		

Table 1 (*Continued*)

(1) Position (1950.0) R.A. h m s			(2) Dec. ° ' "			(3) Galactic coordinates l^{II} ° ' "			(4) b^{II} ° ' "			(5) Flux density S_{408} (Jy)	(6) Other catalogue numbers
16 49 53.9			-41 56 22			343 11 55			01 08 49			1.20	
16 50 02.3			-42 25 51			342 51 43			00 50 06			1.49	
16 50 28.2			-40 32 35			344 22 13			01 58 25			1.60	
16 50 48.1			-46 46 44			339 35 32			-02 02 06			1.14	
16 53 26.4			-42 05 08			343 31 40			00 33 58			0.77	
16 54 17.7			-43 58 15			342 09 32			-00 44 22			0.84	
16 55 25.7			-43 20 11			342 46 55			-00 30 08			0.91	
16 56 43.1			-37 37 55			347 24 00			02 51 27			0.67	
16 58 57.2			-44 51 35			341 58 46			-01 56 36			0.82	
16 59 11.3			-44 02 50			342 38 44			-01 28 35			0.84	
17 01 28.4			-45 27 08			341 47 03			-02 39 24			0.95	
17 03 00.8			-37 17 30			348 26 10			02 04 48			3.50	
17 03 22.1			-38 12 56			347 44 31			01 27 52			0.93	
17 05 58.5			-35 21 30			350 20 22			02 46 11			3.23	
17 06 47.0			-35 26 34			350 22 14			02 35 14			0.70	
17 07 32.2			-35 24 52			350 29 06			02 28 51			1.86	
17 08 49.4			-36 29 02			349 46 48			01 38 08			0.98	
17 09 40.4			-38 56 25			347 54 05			00 02 36			1.37	
17 09 52.6			-34 14 50			351 42 39			02 47 13			0.71	
17 10 15.6			-42 45 31			344 53 13			-02 18 14			0.76	
17 10 47.9			-33 42 16			352 15 45			02 57 09			0.80	
17 11 50.4			-40 21 57			346 59 47			-01 08 03			0.64	
17 13 05.4			-34 14 54			352 06 00			02 14 56			1.38	
17 14 10.2			-34 39 28			351 53 49			01 49 46			1.54	
17 14 10.3			-39 45 32			347 44 59			-01 08 29			4.74	
17 14 20.6			-33 39 16			352 44 06			02 23 01			1.08	
17 14 32.1			-36 34 15			350 23 02			00 39 22			1.06	
17 14 36.8			-37 23 09			349 43 47			00 10 10			27.81	Supernova remnant
17 17 32.2			-34 51 59			352 07.37			01 08 39			0.91	
17 22 00.0			-36 29 39			351 18 25			-00 31 42			0.78	
17 22 11.8			-36 19 09			351 28 25			-00 27 43			1.68	
17 22 19.4			-31 48 02			355 13 04			02 04 08			0.79	
17 25 50.8			-38 24 14			350 09 14			-02 13 56			1.06	
17 26 30.5			-31 15 41			356 09 51			01 37 56			0.82	
17 27 10.2			-34 39 55			353 24 39			-00 22 28			4.26	
17 28 35.2			-34 47 40			353 27 52			-00 41 18			0.85	
17 29 08.3			-35 33 42			352 53 11			-01 12 20			2.21	
17 29 50.4			-37 20 18			351 28 44			-02 18 00			0.89	
17 30 59.1			-30 31 09			357 18 48			01 14 25			1.85	
17 32 24.4			-32 17 04			355 59 59			00 01 21			0.90	
17 34 29.4			-31 29 40			356 54 12			00 04 46			3.44	
17 34 58.7			-26 23 10			01 15 49			02 44 46			0.68	
17 35 39.0			-36 12 11			353 03 56			-02 39 39			1.00	
17 39 45.3			-35 25 22			354 10 14			-02 56 57			1.84	
17 40 45.1			-26 09 36			02 08 43			01 46 18			1.02	

Table 1 (Continued)

(1) Position (1950.0) R.A.			(2) Dec.			(3) Galactic coordinates l^{II}			(4) b^{II}			(5) Flux density S_{408} (Jy)		(6) Other catalogue numbers	
h	m	s	°	'	"	°	'	"	°	'	"				
17	41	09.3	-31	15	18	357	51	56	-00	59	42	0.89			
17	45	15.5	-32	40	12	357	06	56	-02	28	38	1.30			
17	45	29.6	-22	51	04	05	31	55	02	35	06	0.70			
17	45	35.8	-27	09	05	01	26	20	00	19	48	1.18			
17	46	00.1	-29	23	07	00	00	04	-00	54	26	0.73			
17	48	43.4	-25	23	29	03	44	15	00	38	28	0.79			
17	48	52.6	-24	04	01	04	53	28	01	17	49	0.71			
17	49	16.0	-28	37	12	01	01	52	-01	07	24	0.81			
17	49	31.8	-22	29	36	06	19	08	01	58	19	5.60			
17	49	46.6	-28	06	16	01	31	51	-00	57	18	1.21	Pulsar		
17	52	45.1	-23	32	48	05	47	30	00	47	49	1.22			
17	54	26.1	-22	38	52	06	45	44	00	55	07	1.58			
17	57	04.3	-19	39	15	09	39	36	01	53	36	0.85			
17	59	58.8	-21	48	09	08	08	15	00	13	55	3.00			
18	00	31.5	-16	20	37	12	56	34	02	49	44	0.68			
18	00	56.3	-24	57	04	05	30	47	-01	31	19	0.79			
18	01	17.9	-20	20	54	09	33	09	00	41	12	1.24			
18	01	34.4	-18	00	53	11	36	47	01	47	06	1.02			
18	02	09.2	-19	36	12	10	17	58	00	52	50	3.04			
18	04	55.7	-14	06	53	15	24	33	02	59	58	1.50			
18	05	39.4	-19	53	29	10	27	15	00	01	16	0.94			
18	08	06.1	-20	55	59	09	49	27	-00	59	14	1.47			
18	08	09.7	-18	29	09	11	58	11	00	11	27	1.80			
18	09	48.8	-18	40	54	11	59	18	-00	14	47	0.66			
18	10	07.6	-14	33	13	15	38	16	01	41	08	0.82			
18	11	47.9	-11	13	33	18	45	09	02	55	54	2.53			
18	16	25.8	-14	20	23	16	33	29	00	26	58	0.73			
18	16	51.5	-12	38	47	18	05	47	01	09	56	0.83			
18	17	43.2	-12	31	01	18	18	36	01	02	32	1.04			
18	17	52.8	-09	48	42	20	42	38	02	17	32	2.10			
18	17	59.3	-11	49	06	18	57	23	01	18	59	1.71			
18	19	21.2	-13	11	22	17	54	27	00	22	20	1.51			
18	19	43.4	-09	40	25	21	02	51	01	57	29	10.66			
18	20	07.5	-12	17	27	18	47	17	00	37	57	0.90			
18	20	25.0	-13	06	06	18	06	27	00	11	10	1.02			
18	21	50.4	-13	10	22	18	12	31	-00	09	11	1.12			
18	22	43.4	-14	57	47	16	43	50	-01	11	10	1.18			
18	22	55.7	-08	39	18	22	19	10	01	44	26	0.68			
18	27	52.4	-03	40	54	27	17	40	02	58	51	0.83			
18	29	33.0	-10	37	36	21	20	30	-00	37	29	1.30			
18	30	29.5	-08	57	32	22	55	32	-00	03	09	1.40			
18	30	38.9	-07	33	38	24	10	52	00	33	51	1.51			
18	30	46.0	-10	36	42	21	29	40	-00	52	56	4.98			
18	31	22.9	-03	05	42	28	13	17	02	28	41	1.13	4C -03.68		
18	32	16.9	-09	28	02	22	40	52	-00	40	49	1.13			

Table 1 (Continued)

(1) Position (1950.0) R.A. h m s			(2) Dec. ° ' "			(3) Galactic coordinates l^{II} ° ' "			(4) b^{II} ° ' "			(5) Flux density S_{408} (Jy)	(6) Other catalogue numbers
19 10 23.6			04 25 56			39 24 06			-02 41 26			0.74	
19 10 27.0			05 13 17			40 06 27			-02 20 07			0.78	
19 11 10.6			09 13 49			43 44 14			-00 37 17			1.40	
19 11 53.1			07 39 56			42 26 10			-01 30 31			0.88	
19 12 40.8			05 10 42			40 19 43			-02 50 47			0.92	
19 14 26.9			14 58 32			49 11 11			01 22 06			1.28	
19 14 33.1			15 53 19			50 00 15			01 46 32			1.00	
19 15 22.0			06 15 47			41 36 06			-02 55 46			6.10	4C 06.66
19 15 52.4			06 38 10			41 59 26			-02 51 54			0.89	
19 21 04.7			13 01 37			48 13 51			-00 58 15			1.24	
19 21 32.5			09 38 09			45 18 03			-02 41 03			0.79	4C 09.64
19 22 56.8			13 53 40			49 12 37			-00 57 21			1.85	4C 13.73
19 28 38.0			15 26 03			51 13 20			-01 25 13			1.61	4C 15.66
19 30 43.1			13 06 56			49 26 17			-02 59 11			2.68	4C 13.74
19 31 01.7			15 38 11			51 40 46			-01 49 35			0.70	
19 32 35.6			17 25 52			53 25 46			-01 16 38			1.06	
19 33 30.5			16 42 32			52 54 24			-01 49 19			1.86	4C 16.65
19 34 48.6			15 32 52			52 02 52			-02 39 49			0.84	

The KDF9 computer of the Basser Computing Department, University of Sydney, was used to detect small-diameter sources from the galactic survey with flux densities greater than the pre-determined detection level. Details of the computer program used to do this are to be given separately (Crawford, to be published). Briefly, the search technique examined every local maximum in the data and accepted for further analysis those which were large enough to be a possible source. The source flux density and position were obtained by using an iterative least squares method to fit a theoretical beam shape to the data points.

From the computer-produced list, sources were selected for inclusion in the final catalogue only if examination of the facsimile record revealed that they were genuine sources and not sidelobe responses, and that they were isolated from extended regions of strong emission.

Results

The catalogue is presented in Table 1. Columns 1 and 2 give the measured positions in equatorial coordinates at epoch 1950.0, and columns 3 and 4 the galactic longitude l^{II} and latitude b^{II} respectively. Column 5 gives the fitted flux density S_{408} at 408 MHz.

The possible errors in the source parameters listed have been discussed by Davies *et al.* (1973). The standard errors in right ascension, σ_α , declination, σ_δ , and flux density, σ_S , evaluated from the empirical relations derived by Davies *et al.* are set

out below for three flux density values.

S_{408} (Jy)	σ_s (s time)	σ_δ (sec arc)	σ_s (%)
0.6	0.52	5.6	7.4
1.0	0.36	3.9	5.4
5.0	0.23	2.6	4.0

As well as these random errors, systematic declination-dependent errors in flux density of up to 2% may be present.

On the basis of source counts remote from the galactic plane (Mills *et al.* 1973), the expected number of extragalactic sources with flux density ≥ 0.6 f.u. within the 0.4 sr field of interest is 480. We have estimated that the selection criteria rejecting confused or bounded sources will have eliminated at least 10% of this number. The total source list of 513 therefore probably represents a statistically significant excess of approximately 20% in the expected number of extragalactic sources. The catalogue does contain several sources previously recognized as being galactic: the pulsars PSR 0833-44, 1641-45 and 1749-28 (the flux densities quoted for these are their mean values); the supernova remnant G349.7+0.2; and the hydroxyl emitter OH 301.0+1.1. Sources that are shown in column 6 of Table 1 to be optically identified with nebulosities from the RCW catalogue (Rodgers *et al.* 1960) are almost certain to be galactic. It is likely that Table 1 also contains other such galactic objects as yet unidentified. Further evidence for this has been provided by an initial 5000 MHz survey of 50 sources selected at random from Table 1. The distribution of spectral indices for these sources shows two distinct groups: the larger group of 41 sources has a maximum at a spectral index near -1.0; the remaining 9 sources peak around a spectral index of 0.0, and are presumably small-diameter galactic HII regions.

The galactic latitude distribution of the complete catalogue is fairly uniform (262 sources above the plane and 251 below). Shaver and Goss (1970) noted an apparent absence of unresolved sources within 20° of the galactic centre, but we are unable to confirm this result. The number in the range 350°-10° is 43, while the expected number of extragalactic sources in this range from source counts is 44.

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