Multi-frequency study of the B3–VLA sample^{*}

I. 10.6-GHz data

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Abstract. We present radio continuum data for 1050 B3 radio sources at 10.6 GHz. These sources constitute the B3-VLA sample which is complete down to 100 mJy at 408 MHz. The aim is the construction of a homogeneous spectral database for a large sample of radio sources, 10 times fainter than the Kühr et al. (1981) sample, in the range 151 MHz to 10.6 GHz. Extended and complex radio sources (53) were mapped; the remaining ones were observed with cross-scans. We detected 99% of the radio sources with a flux density error of about 1 mJy for the fainter ones. The analysis of the quality of the 10.6 GHz data is presented.

Key words: radio continuum: general, galaxies: general — quasars: general

1. Introduction

The study of large samples of radio sources over a frequency range as wide as possible is still an important branch of modern astrophysics because of its cosmological relevance. While early radio surveys naturally discovered strong sources (many of which are also intrinsically luminous), the need for surveys of intermediate or low flux densities became apparent. One important radio survey aiming at lower source flux densities was the so-called B3 survey (Ficarra et al. 1985), carried out at 408 MHz and complete down to 100 mJy at that frequency and naturally delivering a huge number of radio sources, in this case

13354. A subsample of 1050 sources was later observed with the VLA (hereafter B3-VLA sample; Vigotti et al. 1989), the selection criterion ensuring roughly equal numbers of sources in 5 flux density intervals. Measurements of 429 sources at 1.4 GHz and of 770 sources at 4.75 GHz were conducted by Kulkarni et al. (1990). Based on these surveys the spectral properties and their possible spectral evolution has been investigated and discussed (e.g. Kulkarni & Mantovani 1985; Kapahi & Kulkarni 1986).

Our aim is the construction of a homogeneous spectral database for a large radio sources sample 10 times fainter than that of Kühr et al. (1981). The 6C survey (Hales et al. 1988) contributes the 151-MHz flux density, the WENSS (Rengelink et al. 1997) the 327-MHz flux density. The 408-MHz flux density is taken from the B3 survey (Ficarra et al. 1985) while the NVSS (Condon et al. 1998) yields the 1400-MHz flux density. The GB6 survey (Gregory et al. 1996) combined with the work of Kulkarni et al. (1990) provides the 4.75 GHz flux densities for 80% of the B3-VLA sample.

We have therefore embarked on a project to survey the entire sample at 10.6 GHz (i.e. $\lambda 2.8$ cm) using the Effelsberg 100-m telescope. Since all measurements were carried out using IF polarimeters we have information about the linear polarization of a large number of sources, which will be reported at a later stage.

In Sect. 2 we describe the observing techniques and data reduction. Section 3 presents the results.

2. Observations and data reduction

The observations reported here were carried out between May 1994 and January 1996. The 4-feed receiver system installed in the secondary focus of the 100-m telescope was used in a multi-beam mode. Each horn feeds a 2-channel receiver with an IF polarimeter providing full Stokes information simultaneously. The system temperature was ~ 80 K on the sky (zenith), the effective bandwidth was

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^{*} Table 1 is also available in electronic form at the CDS via anonymous ftp to cdsarc.u-strasbg.fr (130.79.128.5) or via <http://cdsweb.u-strasbg.fr/Abstract.html>

300 MHz. In the beginning of 1995 the receiver's band centre had to be moved from 10.55 GHz to 10.45 GHz in order to avoid the new ASTRA 1D satellite. This is only a change of 1% in frequency, which will not have any noticeable influence on the observed source properties (for a source with spectral index $\alpha = -1$ this implies a 1% change in flux density; $S_\nu \sim \nu^\alpha$). The nominal half-power beam width is $69''$. The total number of sources observed was 1050.

2.1. Cross-scans

Almost all the sources (95%) were observed with cross-scans, with the main beam scanning a distance of $7'$ to ensure adequate baselines. The scanning speed was $30'/\text{min}$. The offset feeds were used to efficiently remove atmospheric noise. For sources less extended than $30''$ the cross-scans were oriented in right ascension and declination. In the case of more extended sources, the cross-scans were oriented with one scan direction along the sources' major axes (e.g. along double or triple components), with the scan length increased to $10'$. This orientation was taken from the VLA maps of Vigotti et al. (1989). Depending on the expected flux density, the total number of such cross-scans was chosen to be between 8 and 64. Individual subscans were checked for interference or residual atmospheric fluctuations and discarded prior to averaging if necessary. We evaluated the differential signals between the main horn and two of the reference horns, which have beam throws of $+3'$ and $-5'$ in azimuth. This allowed a proper judgement of the data quality and enabled us to recognize confusing sources that had been accidentally scanned across by the reference feeds, thus causing a negative response: the probability of picking up unrelated background sources in both reference beams simultaneously is very small so that such a negative response only shows up in one of the two recorded differential signals. The data in the final cross-scans were sampled at $18''$ intervals. With the above scanning speed, this implies an integration time of 0.6 second in each subscan. Averaging also the two scanning directions we obtain a nominal rms noise in the final cross-scans between ~ 2.4 mJy/b.a. (8 scans) and ~ 0.9 mJy/b.a. (64 scans). The actually measured rms noise values were generally somewhat higher because of residual atmospheric noise. A fit with one Gaussian was applied to the final scan yielding the amplitude, the width, and the position of the centroid of the Gaussian for Stokes parameters I , Q and U . For the double sources with diameters larger than $40''$ we applied a fit with two Gaussians only to the scan along the major axis of the radio source. The decomposition was successful for 74 sources, whose data have S/N larger than 10. As mentioned in the introduction, the linear polarization of the sources will be presented in a future paper. Figure 1 displays some template plots of the cross-scans for sources with different flux densities.

Fig. 1. Examples of cross-scans at $\lambda 2.8$ cm: a) a 4 mJy source, b) a 20 mJy source, c) a 100 mJy source, d) a double source

Standard calibration sources were cross-scanned at regular intervals (about every two hours, with two cross-scans each) to check the telescope pointing and flux density scale. For the latter purpose the primary calibrators were 3C 286 and 3C 295, with 3C 48 and 3C 138 being used as secondaries. The pointing accuracy was found to be stable to within $\sim 3''$, sufficiently good to ensure reliable flux density measurements. The exact flux density scale for each target source was applied by checking two subsequent observations of calibration sources. The calibrated flux densities are on the flux density scale of Baars et al. (1977).

In order to recover the total flux the source extension can be used. Therefore we computed the FWHM obtained from the Gaussian fit of the data for point-like sources obtaining the following results: a mean value of $70'' \pm 4''$ for sources stronger than 50 mJy, and for fainter sources $71'' \pm 10''$. The spread of FWHM found permits to recover the total flux with an error of up to 15%. We then decided to determine the integrated flux using a simulation program. The correction factor has been applied to all double and diffuse sources with an angular extent between $20''$ and $40''$ and, in addition, to more extended sources where the deconvolution could not be done because of low S/N.

Our simulation program was built using two point-like components with a flux density ratio R_{20} obtained from the VLA 1.4-GHz maps convolved with the Effelsberg beam (HPBW = $69''$). We had to use R_{20} instead of the unknown flux density ratio of source components at 10.6 GHz ($R_{2.8}$); however, Fig. 4b (see below) will show that $R_{2.8}$ changes by up to a factor of 2. Our simulation

shows that this introduces an additional average error of less than 4%.

Another simulation, which takes into account the extended brightness distribution, was used to compute the correction factor for the diffuse sources. The factor for double and diffuse sources is in the range between $\sim 10\%$ and $\sim 35\%$.

2.2. Maps

A total of 53 sources were mapped: they have complex structures larger than $70''$. The map sizes were adjusted such as to ensure sufficient baseline areas and accounting at the same time for the maximum beam throw of the four-feed system, which is $17'$. The standard mapping technique with this receiver system was described by Gregorini et al. (1992). All four horns were employed by observing in the multi-beam mode and applying the restoration algorithm of Emerson et al. (1979). Depending on the strength of the sources, between 2 and 14 coverages were obtained by scanning the telescope in azimuth and separating subsequent scans in elevation by $20''$. After restoration to the equivalent single-beam map the individual coverages were averaged (in I , Q , and U) and then interpolated onto a grid in right ascension and declination. Also in the course of the mapping campaigns standard calibrators were observed and processed in the same way as the target sources. All maps were numerically integrated to yield total flux densities which were also brought to the flux density scale of Baars et al. (1977) by comparison with the mapped flux calibrators. Some of the maps show considerable detail. These will be displayed and briefly described in Sect. 3.

3. Results

3.1. Flux densities at $\lambda 2.8$ cm

The flux densities derived as described in Sect. 2 are compiled in Table 1. Column 1 gives the B3 source names, Cols. 2 and 3 the radio centroid (equinox B1950.0) from Vigotti et al. (1989) (computed as the geometric mean of the source components). Columns 4 and 5 contain the measured peak (S_{peak}) and integrated (S_{int}) flux densities. The peak flux density was not given for sources that were mapped. When a source was not detected we give an upper limit (marked with a “<” in Col. 5), which corresponds to a $3\text{-}\sigma$ noise computed for the final cross-scan. Column 6 is the updated optical identification. The symbols are g : radio galaxy identified on the POSS-I, most of which are at $z \leq 0.5$; G : far radio galaxy with measured redshift ($0.5 \leq z \leq 3.5$); Q : spectroscopically confirmed quasar; b : blue objects (i.e. non-confirmed quasars); BL : BL Lac; F : featureless spectrum; a blank means “empty field”, i.e. it lacks any optical counterpart down to the

Fig. 2. Plot of flux densities measured at two different epochs

POSS-I limit (more than 90% are distant radio galaxies, the remaining ones being quasars with magnitudes fainter than the POSS-I). So far the B3-VLA sample is composed of 27% galaxies, 12% quasars, and 61% empty fields. In order to have an independent check on the accuracy of our measurements and to evaluate the uncertainties of the flux densities, 143 sources were re-observed. These sources were chosen in different flux bins. Figure 2 shows the plot of the fluxes measured in the two independent observations. Intrinsic source variability increases the scatter of the plot. The analysis of the distribution of the differences between two or more independent flux measurements of the same source allowed for a determination of the random errors affecting the measurements. These errors are the quadratic sum of three terms: the first, proportional to the source intensity, is introduced by gain instabilities of the receiver; the other two, independent of the source flux density, are due to noise and confusion. The first term was computed using sources with flux densities greater than 500 mJy as well as calibrators, and was found to be $\sim 2\%$. From the faint sources we evaluated the rms noise; we subdivided the sources into different classes according to number of scans (i.e. observing time) and found that this term is in the range 0.6 – 0.8 mJy. To be conservative we chose 0.8 mJy. For the confusion term we refer to Reich (1993) who reports a value of 0.08 mJy. We expect that the error affecting the flux density measurements is:

$$\sigma_S = \sqrt{(0.02 \cdot S_{\text{tot}})^2 + 0.08^2 + 0.8^2}$$

where S_{tot} is in mJy. To compute the spectral index between 408 MHz and 10.6 GHz (presented in Fig. 3a) the low-frequency flux densities were increased by 5% to

Table 1. B3 VLA sources at 10.6 GHz

B3 name	RA (B1950) [h m s]	DEC (B1950) [° ' "]	S_{peak} [mJy]	S_{int} [mJy]	ID	B3 name	RA (B1950) [h m s]	DEC (B1950) [° ' "]	S_{peak} [mJy]	S_{int} [mJy]	ID
0000+394	00 00 08.3	39 29 52		17.5		0036+398	00 36 49.8	39 52 07	9.7	9.7	
0000+399	00 00 57.7	39 56 44	12.6	12.6		0037+394	00 37 36.3	39 28 23	12.2	12.2	
0001+395	00 01 41.4	39 33 10	1.5	1.5		0037+396	00 37 34.0	39 38 37		< 5	
0001+398	00 01 45.0	39 49 27	9.1	10.9	g	0038+399	00 38 41.2	39 56 04	11.6	14.6	g
0003+380	00 03 22.3	38 03 33	655.2	655.2	g	0039+373	00 39 24.3	37 23 10	89.3	89.3	G
0003+387	00 03 45.8	38 43 45	29.6	29.6	G	0039+391	00 39 11.6	39 08 54	23.7	23.7	G
0004+380A	00 04 01.4	38 02 25	27.0	27.0		0039+398	00 39 33.7	39 53 23	85.7	85.7	
0005+383B	00 05 47.4	38 20 30		92.5	g	0039+412	00 39 34.5	41 13 01	61.1	61.1	
0006+397	00 06 28.5	39 45 05	253.4	253.4	Q	0040+470	00 40 37.3	47 00 12	41.3	41.3	G
0008+392	00 08 01.4	39 17 34	13.4	15.3		0041+382A	00 41 05.9	38 13 45	17.8	17.8	
0010+392	00 10 07.1	39 16 15	18.8	18.8		0041+393	00 41 14.5	39 21 31	25.3	25.3	
0010+395	00 10 35.9	39 31 26	2.8	3.1		0041+405	00 41 10.0	40 30 10	36.7	36.7	
0010+402	00 10 16.5	40 16 07	49.6	49.6	g	0041+425	00 41 53.9	42 31 37	55.5	55.5	
0010+405	00 10 54.2	40 34 56	818.5	818.5	g	0042+381A	00 42 24.7	38 06 53	70.8	70.8	
0013+387	00 13 22.8	38 43 47	41.5	41.5	Q	0042+381B	00 42 33.7	38 08 52	40.0	40.0	
0013+393	00 13 11.2	39 20 27	16.1	16.1		0042+386	00 42 01.4	38 40 36	17.0	17.0	
0014+395	00 14 16.4	39 31 23	9.2	9.2		0043+398	00 43 11.1	39 50 19	3.9	4.9	g
0015+399	00 15 03.7	39 59 49	32.0	32.0		0045+393	00 45 17.1	39 21 05	76.6	76.6	
0017+395	00 17 10.0	39 35 15	8.6	8.6		0045+395	00 45 10.4	39 32 37	49.2	49.2	BL
0017+432	00 17 29.4	43 13 31	26.6	26.6		0045+396	00 46 00.0	39 37 20	21.4	22.4	g
0018+393	00 18 44.1	39 21 55	12.1	18.0		0045+400	00 45 27.6	40 05 32	60.5	67.0	g
0019+391	00 19 21.0	39 09 08	5.7	5.7		0045+404	00 45 58.6	40 28 43	28.3	28.3	
0019+431	00 19 08.6	43 11 47	66.9	74.8	Q	0046+439	00 46 03.6	43 57 22	22.6	23.7	G
0020+437	00 20 51.3	43 46 26	44.2	44.2	F	0049+379	00 49 31.5	37 59 11	56.5	56.5	
0021+383	00 21 34.1	38 18 33	28.7	28.7		0049+395	00 49 27.6	39 35 06	4.7	4.7	
0021+395	00 21 38.7	39 32 29	9.6	9.6		0050+401	00 50 45.3	40 14 50		117.4	g
0022+390	00 22 46.7	39 02 59	493.1	493.1	Q	0051+397	00 51 13.6	39 42 44	8.1	8.1	
0022+394	00 22 24.4	39 29 18	12.8	12.8		0051+404	00 51 40.5	40 25 56	111.0	111.0	
0022+399	00 22 03.4	39 59 35	21.8	21.8	Q	0052+380	00 52 10.1	38 05 35	30.9	32.4	
0022+424	00 22 54.9	42 27 15	59.8	59.8	g	0052+392	00 52 53.8	39 17 22	15.1	16.2	
0023+382	00 23 30.0	38 14 55	48.1	48.1	g	0052+395	00 52 53.8	39 32 02	24.0	24.0	
0025+394	00 25 53.5	39 28 06	5.1	5.5	g	0053+394	00 53 02.5	39 28 47	23.6	26.3	g
0026+397	00 26 50.7	39 46 40	2.8	4.5	g	0053+439	00 53 57.2	43 57 11	54.0	55.1	
0027+380	00 27 42.1	38 00 48	22.5	22.5	Q	0054+396	00 54 42.1	39 41 05	13.7	13.7	
0027+395	00 27 03.4	39 32 04	38.0	38.0	Q	0056+389	00 56 51.2	38 54 12	7.6	7.6	
0028+390	00 28 56.9	39 02 31	27.0	27.0		0057+395	00 57 17.5	39 33 26	15.0	15.0	
0028+394	00 28 30.4	39 25 23	20.9	22.9		0057+397	00 57 03.2	39 42 37		< 3	
0028+409	00 28 07.6	40 54 20	17.4	17.4	G	0058+403	00 58 04.8	40 19 52	32.6	32.6	
0028+450	00 28 08.4	45 05 14	32.6	38.0	g	0059+397	00 59 38.3	39 48 14	7.5	8.3	
0029+394	00 29 54.0	39 25 42	43.6	43.6	G	0059+461	00 59 54.4	46 08 31	96.6	111.8	
0029+398	00 29 34.9	39 50 38	57.4	57.4		0100+388	01 00 55.1	38 48 35	20.2	20.2	
0030+390	00 30 13.6	39 03 43	5.6	5.6		0100+397	01 00 09.5	39 43 56	5.9	6.0	
0031+391	00 31 33.1	39 07 42	127.1	139.4	G	0103+422	01 03 51.5	42 13 53	76.5	76.5	
0031+393	00 31 30.0	39 19 42	19.5	19.5		0105+441	01 05 17.8	44 09 01	78.5	78.5	
0032+390	00 32 29.2	39 02 35	8.8	9.3		0106+380	01 06 36.5	38 00 46	40.4	40.4	Q
0032+394	00 32 43.8	39 24 15	19.6	19.6		0106+397	01 06 35.1	39 44 04	14.3	14.3	
0032+423	00 32 23.2	42 21 47	60.0	60.0	Q	0107+397	01 07 00.8	39 42 30	24.7	24.7	
0033+397	00 33 19.3	39 45 17	5.9	5.9		0107+398	01 07 53.9	39 51 25	13.3	13.3	Q
0033+425	00 33 55.3	42 35 54	19.4	21.2		0107+399	01 07 13.2	39 55 16	5.8	5.8	
0034+387	00 34 37.1	38 42 46	22.4	22.4		0108+396	01 08 11.4	39 36 10	10.3	10.9	
0034+393	00 34 54.2	39 21 42	56.7	56.7	Q	0108+402	01 08 14.1	40 17 47	21.4	21.8	
0034+444	00 34 09.6	44 26 51	68.7	68.7	G						
0035+385A	00 35 04.7	38 31 25		126.9	F						

Table 1. continued

B3 name	RA (B1950) [h m s]	DEC (B1950) [° ' "]	S_{peak} [mJy]	S_{int} [mJy]	ID	B3 name	RA (B1950) [h m s]	DEC (B1950) [° ' "]	S_{peak} [mJy]	S_{int} [mJy]	ID
0109+390	01 09 45.5	39 02 10	6.9	7.4		0147+398	01 47 36.9	39 52 23	9.8	11.1	g
0109+415	01 09 16.5	41 31 05	97.4	106.9	g	0147+400	01 47 20.1	40 02 38	162.7	162.7	
0109+416B	01 09 23.5	41 39 18	59.9	59.9	g	0149+398	01 49 08.7	39 49 46	72.7	79.4	g
0110+386	01 10 07.2	38 37 23	20.3	21.8		0150+406	01 50 48.2	40 41 09	24.3	27.2	
0110+395	01 10 46.6	39 34 40	39.1	39.1		0152+382	01 52 18.8	38 16 38	47.3	59.2	
0110+398	01 10 37.6	39 54 35	5.7	5.7		0152+435	01 52 26.3	43 31 20	251.6	251.6	G
0110+401	01 10 26.5	40 10 19	143.6	143.6	Q	0153+417	01 53 18.6	41 47 49	100.5	100.5	g
0112+400	01 12 23.5	40 04 20	17.9	17.9		0157+393A	01 57 08.6	39 19 24	11.6	13.1	G
0112+432	01 12 03.5	43 16 25	41.9	41.9		0157+393B	01 57 50.0	39 20 19		163.5	g
0113+400	01 13 32.7	40 01 36	88.0	93.2		0157+405A	01 57 27.8	40 34 23		94.6	g
0114+399	01 14 35.7	39 57 03	14.4	15.4		0157+442	01 57 32.7	44 12 46	147.4	147.4	Q
0115+394	01 15 03.5	39 28 46	7.4	7.4		0158+391	01 58 50.0	39 09 57	16.2	17.5	
0115+453A	01 15 03.5	45 20 35	144.4	144.4	G	0158+394	01 59 00.2	39 28 54	144.3	144.3	Q
0115+469	01 15 25.3	46 56 35		64.3		0159+390	01 59 51.6	39 02 15	20.1	20.1	g
0116+397	01 16 25.2	39 43 06	7.0	7.0		0159+397	01 59 18.2	39 45 12	9.9	10.1	
0116+438	01 16 27.5	43 51 54	60.6	70.7	g	0200+393	02 00 48.6	39 18 19	49.7	49.7	
0119+395	01 19 34.6	39 32 46	7.9	7.9		0201+390	02 01 43.0	39 05 04	15.1	15.1	
0119+397	01 19 40.9	39 45 26	30.5	30.5		0201+396	02 01 36.0	39 40 58	4.3	4.3	
0120+380	01 20 00.0	38 02 41	9.6	10.3		0201+402	02 01 36.3	40 15 21	23.2	23.2	
0120+405	01 20 32.2	40 31 20	65.4	65.4	G	0202+380	02 02 52.3	38 01 25	42.0	42.0	g
0121+389	01 21 15.9	38 57 48	19.8	19.8		0205+395	02 05 04.5	39 30 47	34.4	34.4	
0122+395	01 22 34.7	39 30 17	8.9	9.3		0205+398	02 05 52.9	39 52 50	3.4	3.4	
0123+385	01 23 17.7	38 35 12	16.4	16.4	G	0207+389	02 07 06.9	38 57 15	18.5	19.2	g
0123+396	01 23 31.9	39 38 39	39.0	40.4	g	0207+395	02 07 07.3	39 35 52	19.3	19.3	Q
0123+402	01 23 04.9	40 13 01	25.0	25.0		0207+397	02 07 52.4	39 47 32	30.1	30.1	g
0124+387	01 24 50.8	38 44 39	15.6	15.6		0207+399	02 07 12.6	39 59 26	13.4	13.4	
0126+392A	01 26 33.8	39 14 27	6.8	6.8		0209+386	02 09 41.0	38 36 50	22.6	23.0	
0127+395	01 27 47.6	39 34 48	6.1	6.1		0209+390	02 09 47.2	39 03 17	5.5	5.5	
0127+399	01 27 54.3	39 54 41	8.7	8.7		0209+394	02 09 33.8	39 28 15	42.4	42.4	Q
0128+394	01 28 34.7	39 27 32	24.9	24.9		0210+396	02 10 30.1	39 40 07	7.9	7.9	
0130+381	01 30 48.6	38 07 38	105.3	105.3	g	0211+393	02 11 02.4	39 19 01		28.2	g
0130+384	01 30 05.3	38 25 39	27.0	32.8	Q	0213+392	02 13 09.0	39 17 00	14.2	14.2	G
0130+398	01 30 17.3	39 47 59	25.2	25.2		0213+398	02 13 18.2	39 51 39	9.7	9.7	G
0131+390	01 31 49.8	39 04 33		27.0	g	0213+407	02 13 46.1	40 47 02	18.3	18.3	g
0132+376A	01 32 35.1	37 38 54		196.7	g	0213+412	02 13 23.8	41 17 58	116.4	116.4	G
0132+392	01 32 38.9	39 12 54	20.9	20.9		0214+393	02 14 33.7	39 22 28		85.5	g
0133+381	01 33 43.4	38 10 45	20.5	21.4		0216+388	02 16 48.6	38 52 00	7.3	7.3	
0134+386	01 34 54.0	38 36 13	63.0	77.6	g	0216+393	02 16 30.4	39 18 51	34.5	34.5	
0134+389	01 34 20.1	38 56 20	17.4	17.4		0216+403	02 16 57.3	40 21 58	36.1	36.1	
0136+396	01 36 34.0	39 41 56	115.0	115.0	g	0216+423	02 16 01.0	42 19 13	117.2	117.2	
0137+385	01 37 50.5	38 33 39	15.3	19.7		0217+395	02 17 03.1	39 30 56	9.8	9.8	
0137+401	01 37 36.3	40 09 04	49.7	49.7	Q	0217+417	02 17 06.6	41 43 51	55.0	55.0	Q
0138+394	01 38 31.5	39 25 30	14.4	14.4		0218+396	02 18 42.7	39 41 53	156.9	156.9	
0139+389A	01 39 13.0	38 57 33	42.1	42.1	Q	0218+399A	02 18 40.7	39 55 24	20.4	20.4	
0140+387	01 40 36.0	38 47 06	17.5	17.5		0218+402A	02 18 55.5	40 14 36	21.9	21.9	
0141+398	01 41 33.8	39 48 11	11.0	11.0		0219+397	02 19 33.3	39 47 02	18.8	18.8	
0143+393	01 43 02.4	39 18 15	6.6	6.6		0219+421	02 19 24.1	42 07 17	152.0	152.0	g
0143+446B	01 43 45.4	44 40 25	36.5	36.5	Q	0219+428A	02 19 30.1	42 48 32		1235.2	BL
0144+391	01 44 24.5	39 09 52	13.2	13.2		0219+443	02 19 06.1	44 19 18	64.1	64.1	Q
0144+399	01 44 17.9	39 58 52	9.4	9.4		0220+388	02 20 04.4	38 49 31	12.7	12.7	
0144+430	01 44 55.8	43 04 47	31.8	32.5	Q	0220+393A	02 20 28.2	39 22 24	165.3	169.7	g
0144+432	01 44 53.6	43 17 19	50.6	50.6	Q	0220+397	02 20 36.6	39 47 17	284.6	289.5	G
0146+394	01 46 47.1	39 24 20	15.1	15.1		0220+427A	02 20 06.8	42 46 02		1806.3	g
0147+397	01 47 16.1	39 44 46	20.8	22.3	g						

Table 1. continued

B3 name	RA (B1950) [h m s]	DEC (B1950) [° ' "]	S_{peak} [mJy]	S_{int} [mJy]	ID	B3 name	RA (B1950) [h m s]	DEC (B1950) [° ' "]	S_{peak} [mJy]	S_{int} [mJy]	ID
0221+383	02 21 12.2	38 18 34	28.8	28.8		0254+406	02 54 36.6	40 38 33	63.5	63.5	G
0221+393	02 21 37.3	39 19 14		7.6		0255+460	02 55 08.0	46 04 08	96.7	96.7	Q
0221+396	02 21 44.4	39 41 44	27.2	32.6		0258+435	02 58 53.9	43 31 00		109.0	g
0222+403	02 22 37.6	40 18 05		182.5	g	0258+443	02 58 13.7	44 18 38	68.8	68.8	
0222+422A	02 22 22.6	42 16 10	23.3	23.3		0259+387	02 59 48.5	38 44 58	21.2	25.0	g
0224+393	02 24 00.9	39 18 15	185.6	185.6	Q	0259+391	02 59 18.0	39 09 11	13.8	14.2	
0224+396	02 24 52.0	39 36 28	11.5	11.5		0700+375	07 00 41.1	37 31 27	51.2	51.2	G
0225+381	02 25 25.0	38 07 50	25.0	30.3	g	0700+390	07 00 38.5	39 03 00	34.9	34.9	
0225+389	02 25 53.8	38 55 41		34.7	Q	0700+398	07 00 37.8	39 52 55	3.1	3.1	
0225+427	02 25 44.1	42 47 31	42.6	42.6	G	0700+399	07 00 56.8	39 53 51	16.2	17.1	
0226+394	02 26 40.6	39 29 28		31.3	g	0701+392	07 01 05.1	39 15 54	77.2	77.2	Q
0226+396	02 26 49.6	39 39 47	2.5	2.5		0701+397	07 01 44.1	39 42 22	4.2	4.6	
0226+467	02 26 05.0	46 46 58	108.0	108.0	Q	0701+401	07 01 53.4	40 07 02	76.2	79.7	
0227+397	02 27 22.7	39 45 27	7.9	8.1		0702+396	07 02 24.2	39 39 25	7.8	7.8	
0227+398	02 27 59.7	39 50 15	29.8	29.8		0703+390	07 03 22.8	39 00 12	20.0	20.0	
0228+392	02 28 00.8	39 14 05	11.9	11.9		0703+426A	07 03 09.6	42 36 51		608.2	g
0228+393	02 28 41.8	39 19 47	85.7	85.7	G	0703+426B	07 03 30.6	42 37 35		71.1	
0228+409A	02 28 29.6	40 56 39	47.2	47.2		0703+468	07 03 05.9	46 52 36	280.9	280.9	
0231+385	02 31 21.6	38 31 47	84.4	84.4		0704+384	07 04 08.3	38 26 57	106.9	110.9	Q
0231+391	02 31 45.1	39 10 36	8.4	8.4		0704+397	07 04 05.8	39 46 24	4.6	4.6	
0231+405A	02 31 50.9	40 30 52	31.2	31.2		0704+399	07 04 17.8	39 54 19	14.4	14.4	
0232+411B	02 32 46.2	41 10 13	156.6	156.6	Q	0704+418	07 04 49.4	41 53 39	46.9	48.6	
0233+390	02 33 43.0	39 00 02	11.0	12.9		0705+398	07 05 52.3	39 53 24	4.5	4.5	
0236+399	02 37 00.2	39 59 44	3.6	3.6		0706+396	07 06 34.5	39 41 39	13.4	13.6	
0236+438	02 36 52.7	43 48 38	15.8	24.0		0707+380A	07 07 16.1	38 04 14	17.6	17.6	
0237+389	02 37 42.2	38 58 43	5.2	10.1		0708+384	07 08 25.5	38 28 55	9.5	9.5	
0237+396	02 37 46.1	39 37 48	8.1	8.1		0708+388	07 08 43.1	38 53 28	56.3	56.3	g
0237+435	02 37 14.2	43 35 06	61.2	64.0	G	0709+393	07 09 39.9	39 18 40		42.6	
0239+395	02 39 47.8	39 31 25	25.6	26.8	g	0709+398	07 09 22.6	39 53 51	21.4	21.4	
0239+397	02 39 44.6	39 43 02	18.3	18.3	Q	0709+405	07 09 32.7	40 33 11	22.1	22.5	
0240+404	02 40 26.8	40 28 58	32.8	32.8	g	0709+409	07 09 01.1	40 56 31	38.6	41.1	g
0241+393B	02 41 21.7	39 21 20		221.3	g	0710+403	07 10 56.8	40 21 14	26.3	28.9	g
0241+395	02 41 29.2	39 31 03	9.9	9.9		0710+457	07 10 52.3	45 45 19	247.5	247.5	g
0242+395	02 42 18.4	39 34 06	11.9	11.9		0711+397	07 11 51.5	39 45 10	11.3	11.3	
0243+439	02 43 02.4	43 59 10	76.5	79.7		0711+399	07 11 05.3	39 58 00	5.3	5.3	
0244+377	02 44 23.8	37 42 21	100.4	100.4		0712+382	07 12 26.8	38 13 26	13.5	13.5	
0246+392	02 46 22.6	39 16 51	34.2	36.5		0712+387	07 12 09.8	38 44 21	23.9	30.8	
0246+393	02 47 04.9	39 22 12		380.8	g	0712+388	07 12 24.5	38 53 54	15.2	15.2	
0246+396	02 46 48.0	39 39 18	45.6	45.6		0712+390	07 12 12.0	39 05 23	12.6	12.6	
0246+428A	02 46 15.5	42 53 06	189.5	189.5	g	0712+391	07 12 03.8	39 06 26	34.6	37.8	
0247+395	02 47 10.0	39 30 28	5.0	5.3		0714+405	07 14 43.4	40 30 38	10.9	13.5	
0247+404	02 47 58.2	40 29 53	46.4	46.4	G	0717+393	07 17 22.3	39 21 50	11.8	12.8	
0248+392	02 48 46.2	39 16 08	32.7	32.7		0720+381	07 20 43.1	38 09 18	26.6	37.9	g
0248+396	02 48 44.7	39 39 13	5.8	5.8		0720+412	07 20 11.5	41 14 09	17.8	18.2	
0248+467	02 47 38.4	46 45 03		379.0	g	0721+394	07 21 34.3	39 27 18	18.8	18.8	
0249+383	02 49 59.0	38 23 11	381.6	381.6	Q	0721+398	07 21 00.4	39 49 48	6.3	6.3	
0250+384	02 50 41.8	38 29 27	29.9	29.9		0722+385	07 22 21.0	38 32 39	27.1	27.1	
0250+396	02 50 07.7	39 41 30	26.5	28.7		0722+393A	07 22 25.1	39 23 32	59.8	59.8	
0251+393	02 51 32.3	39 19 23	374.8	405.9	g	0723+397	07 23 28.5	39 45 52	21.1	22.0	
0252+385	02 52 59.8	38 30 27	10.4	11.7		0724+396	07 24 45.0	39 36 33	10.5	10.5	Q
0252+388	02 52 50.0	38 52 17	14.0	14.0		0726+402	07 26 37.9	40 17 19	47.3	47.3	
0252+399	02 52 35.0	39 54 13	5.6	5.6		0726+431	07 26 16.7	43 07 35	48.3	50.4	Q
0253+396	02 53 35.0	39 39 52	5.4	5.4							

Table 1. continued

B3 name	RA (B1950) [h m s]	DEC (B1950) [° ' "]	S_{peak} [mJy]	S_{int} [mJy]	ID	B3 name	RA (B1950) [h m s]	DEC (B1950) [° ' "]	S_{peak} [mJy]	S_{int} [mJy]	ID
0727+401	07 27 10.0	40 07 42	49.3	49.3		0757+395	07 57 31.4	39 32 54		27.3	g
0728+389	07 28 34.4	38 57 51	22.0	22.0		0757+399	07 57 10.6	39 55 24	13.5	13.5	
0728+395	07 28 30.8	39 29 59	9.3	9.6		0759+392	07 59 02.8	39 12 59	11.7	11.7	
0729+391	07 29 57.1	39 11 36	65.5	65.5	Q	0759+397	07 59 40.9	39 45 02	15.4	15.4	
0729+395	07 29 36.5	39 31 35	10.5	10.5	g	0800+399	08 00 39.3	39 58 35	19.8	19.8	b
0729+397	07 29 33.2	39 45 07	6.7	6.7		0800+472	08 00 38.2	47 13 12	171.1	171.1	b
0729+437	07 29 11.1	43 42 07	59.4	59.4		0801+394	08 01 17.8	39 29 06	6.3	6.3	
0730+396	07 30 25.0	39 41 51	9.2	9.2		0801+399	08 01 11.1	39 58 28		< 2	
0731+438	07 31 49.4	43 50 57	46.7	46.7	G	0801+401	08 01 58.9	40 06 18	63.6	63.6	
0733+389	07 33 35.8	38 59 13	6.9	11.0		0802+398	08 02 36.6	39 49 21	22.5	22.5	Q
0735+388	07 35 32.7	38 53 13	17.6	28.0	g	0802+406	08 02 08.6	40 36 35	29.3	29.3	
0735+390	07 35 38.4	39 03 05	17.9	19.0	g	0803+426	08 03 16.1	42 41 30	10.1	10.3	g
0735+395	07 35 41.0	39 32 37	19.6	19.6		0803+427	08 03 41.0	42 43 18	3.6	5.7	g
0736+386	07 36 48.5	38 40 45	37.5	37.5		0804+399	08 04 25.1	39 55 23	6.1	6.1	g
0736+398	07 36 04.3	39 54 04	14.2	17.3		0805+391	08 05 02.4	39 09 47	18.4	18.8	g
0736+400	07 36 41.5	40 01 47	38.8	38.8	g	0805+392	08 05 24.4	39 15 36	10.7	10.9	
0739+396	07 39 28.4	39 36 32	10.6	11.7		0805+406	08 05 40.7	40 41 45	110.4	110.4	b
0739+397A	07 39 46.0	39 46 29	18.0	19.7		0806+399	08 06 11.4	39 58 20	37.1	37.1	
0739+397B	07 39 46.0	39 48 41	251.4	251.4	Q	0806+426	08 06 37.9	42 36 58	175.6	179.0	G
0739+398	07 39 13.2	39 51 42	95.7	95.7	Q	0807+399	08 07 22.1	39 59 05	13.0	13.0	
0740+380C	07 40 56.8	38 00 31	92.2	92.2	Q	0809+404	08 09 31.6	40 28 03	194.6	194.6	g
0740+393	07 40 35.7	39 22 14	65.2	65.2		0810+460B	08 10 58.6	46 05 48	112.8	112.8	g
0740+474B	07 40 48.8	47 25 56	62.3	62.3		0811+388	08 11 53.9	38 49 54	46.6	52.4	g
0741+396	07 41 07.1	39 41 47	4.0	4.9		0811+391	08 11 07.9	39 08 33	9.6	9.6	G
0741+399	07 41 57.0	39 58 21	15.1	15.1		0812+382	08 12 44.2	38 13 29	86.2	91.2	g
0741+407	07 41 52.9	40 45 39	15.5	16.2		0812+398	08 12 38.9	39 52 45	2.5	2.6	
0742+376	07 42 20.7	37 38 53	85.0	85.0		0812+399	08 12 38.1	39 58 26	5.2	5.4	
0742+394	07 42 39.5	39 24 19	12.8	13.1		0812+406	08 12 46.9	40 38 33	31.8	31.8	
0743+392B	07 43 53.8	39 17 19	27.1	27.1		0813+381	08 13 34.7	38 08 22	13.3	13.3	
0743+399	07 43 07.0	39 58 43	1.3	1.3		0813+393	08 13 34.5	39 20 32	19.1	21.8	g
0744+399	07 44 09.5	39 57 38	10.2	10.2		0813+398	08 13 26.4	39 53 26	16.9	16.9	g
0744+464	07 44 07.2	46 26 25	56.1	56.1	G	0814+383	08 14 02.0	38 20 47	17.8	17.8	
0745+397	07 45 38.9	39 46 23	8.0	8.0		0814+425	08 14 51.7	42 32 08	1075.7	1075.7	BL
0745+398	07 45 18.5	39 48 38	13.1	13.1		0814+441	08 14 08.6	44 08 55	39.0	39.0	
0746+399	07 46 59.6	39 58 51	23.0	23.6		0815+397	08 15 25.0	39 47 40	3.9	4.0	
0747+398A	07 47 02.6	39 49 12	37.9	37.9		0818+472A	08 18 00.9	47 12 10	193.5	197.3	g
0747+398B	07 47 57.2	39 51 47	23.5	23.5		0819+397	08 19 10.5	39 45 26	7.9	7.9	
0748+413B	07 48 54.1	41 23 37	23.9	23.9		0820+392	08 20 06.1	39 16 07	23.3	25.7	g
0749+398	07 49 15.4	39 52 02	18.2	18.2		0820+431	08 20 02.9	43 06 38	103.1	103.1	g
0749+399	07 49 28.5	39 54 35	9.3	9.3		0821+394	08 21 37.4	39 26 29	1741.1	1741.1	Q
0750+400	07 50 58.1	40 03 44	10.7	15.8		0821+395	08 21 32.0	39 33 18		< 5	
0750+402	07 50 17.2	40 12 40	9.2	12.1		0821+447	08 21 50.3	44 46 15	89.9	96.8	Q
0751+392	07 51 05.6	39 16 04	46.1	46.1		0822+390	08 22 12.6	39 02 02	15.8	15.8	
0752+398	07 52 08.3	39 51 18	8.5	9.5		0822+394	08 22 05.5	39 29 33	126.9	126.9	G
0753+383	07 53 31.3	38 17 51	32.2	50.0		0822+398	08 22 12.5	39 50 54	3.8	3.8	
0753+391	07 53 05.8	39 09 26	19.9	35.7	g	0823+384B	08 23 56.7	38 29 53	21.2	22.4	g
0754+394	07 54 41.3	39 28 50	4.4	4.8	Q	0823+399	08 23 35.4	39 58 37	16.9	17.5	g
0754+396	07 54 46.9	39 37 35	48.9	48.9	G	0824+397	08 24 48.8	39 45 40	14.8	14.8	Q
0754+397	07 54 36.9	39 44 45	2.9	3.1	g	0827+378	08 27 55.2	37 52 18	494.5	494.5	Q
0755+379B	07 55 09.0	37 55 20		732.3	g	0827+387	08 27 08.8	38 47 57	15.1	15.1	
0756+377	07 56 28.4	37 47 04	168.7	172.4		0827+395	08 27 01.6	39 33 52	12.5	12.8	g
0756+383	07 56 32.9	38 22 37	62.0	64.3	g	0827+458	08 27 07.3	45 53 36	45.8	47.5	
0756+406	07 56 52.6	40 38 11	41.9	41.9	Q	0828+381	08 28 35.8	38 06 43	17.7	18.7	g

Table 1. continued

B3 name	RA (B1950) [h m s]	DEC (B1950) [° ' "]	S_{peak} [mJy]	S_{int} [mJy]	ID	B3 name	RA (B1950) [h m s]	DEC (B1950) [° ' "]	S_{peak} [mJy]	S_{int} [mJy]	ID
0829+395	08 29 58.3	39 31 34	29.5	29.5		0906+383	09 06 53.3	38 18 31	20.4	20.4	
0829+425	08 29 26.4	42 35 13	135.1	135.1	Q	0906+421	09 06 30.8	42 09 33	4.5	4.6	g
0831+393	08 31 38.4	39 21 13	15.4	15.4		0906+430	09 06 17.3	43 05 59	1128.4	1128.4	Q
0831+399	08 31 16.3	39 55 13		16.7		0907+381	09 07 45.0	38 11 32	106.9	106.9	Q
0832+395	08 32 14.6	39 33 09	36.2	36.2		0908+380B	09 08 39.6	38 02 37	26.3	26.3	G
0832+399	08 32 21.8	39 55 04	5.4	5.7		0908+380C	09 08 54.0	38 03 54	103.2	108.7	G
0834+399	08 34 08.9	39 57 53	7.8	7.8		0909+395	09 09 30.0	39 35 07	6.0	6.0	
0834+450A	08 34 27.1	45 00 54		301.3	g	0909+432	09 09 44.9	43 17 44	36.1	36.1	
0836+399	08 36 55.2	39 54 29	7.8	7.8		0910+392	09 10 41.6	39 14 35	19.2	19.2	Q
0836+402	08 36 54.3	40 14 38	84.5	84.5	g	0911+384	09 11 27.9	38 29 10	29.7	29.7	
0836+426	08 36 35.6	42 38 33	207.5	207.5	Q	0911+395	09 11 28.1	39 35 08	16.0	16.0	
0837+399	08 37 51.4	39 55 30	5.7	6.2		0911+418	09 11 32.2	41 49 36	114.2	114.2	g
0838+396	08 38 54.6	39 37 58	8.1	8.1		0912+388	09 12 25.0	38 50 26	15.1	15.1	
0840+400	08 40 50.5	40 03 53	2.4	2.4		0912+392	09 12 55.5	39 12 51	7.2	7.2	Q
0840+424A	08 40 11.5	42 26 20	272.0	272.0		0913+385	09 13 39.3	38 30 41	59.5	62.7	g
0841+386	08 41 14.8	38 41 49	245.1	245.1		0913+391	09 13 39.5	39 07 02	487.0	487.0	Q
0841+397	08 41 06.0	39 45 03		< 3		0914+390	09 14 32.7	39 01 54	6.9	8.7	
0841+403	08 41 39.4	40 19 09	46.5	54.6	g	0917+458A	09 17 50.4	45 51 47		1279.0	g
0841+407	08 41 51.5	40 42 12	35.0	38.0		0918+381	09 18 38.8	38 06 56	90.3	113.7	Q
0842+401	08 42 47.6	40 07 55	21.1	22.7		0918+395	09 18 24.6	39 30 31	10.5	11.1	g
0843+425	08 43 59.0	42 34 42		51.1	g	0918+444	09 18 15.8	44 26 33	84.6	84.6	g
0844+396	08 44 35.5	39 41 06	7.3	7.3		0919+381	09 19 08.0	38 06 52	27.9	27.9	G
0847+406	08 47 24.8	40 40 28	12.8	12.8		0920+390	09 20 06.3	39 02 32	299.0	299.0	
0849+394	08 49 24.9	39 30 26	5.4	6.2		0920+408	09 20 52.4	40 47 54	50.8	53.5	g
0849+424	08 49 15.6	42 26 47	57.3	57.3	Q	0921+400	09 21 40.8	40 03 27	20.7	20.7	
0850+383	08 50 41.3	38 22 39	12.0	12.0		0922+397	09 22 44.1	39 48 06	2.4	2.4	
0852+384	08 52 43.2	38 25 03	24.0	24.4		0922+407	09 22 50.7	40 42 49	326.6	326.6	Q
0854+399B	08 54 29.0	39 57 12	70.9	70.9	G	0922+422	09 22 47.8	42 16 35	20.9	20.9	Q
0855+397	08 55 02.1	39 42 33	3.8	4.5		0922+425	09 22 11.9	42 30 26	30.5	30.5	Q
0855+419	08 55 44.0	41 54 59	25.4	25.4		0923+392	09 23 55.3	39 15 24	12040.8	12040.8	Q
0856+397	08 56 25.4	39 42 04	9.6	10.2		0923+398	09 23 38.3	39 50 47	75.6	75.6	g
0856+406	08 56 45.1	40 36 18	10.4	10.4	G	0926+388	09 26 34.5	38 49 12	10.8	10.8	Q
0857+391	08 57 41.7	39 07 59	82.6	86.4	g	0926+392	09 26 08.4	39 12 23	12.8	12.8	
0857+402	08 57 15.9	40 16 43	22.4	22.4		0929+395	09 29 18.2	39 31 52	19.0	19.0	
0858+386	08 58 20.8	38 38 59	58.0	58.0		0930+389	09 30 00.7	38 55 10	26.3	26.3	G
0858+388	08 58 03.0	38 53 55	10.5	10.5		0930+395	09 30 35.0	39 35 10	25.7	26.8	
0858+452	08 58 54.7	45 12 43	104.2	104.2		0931+399	09 31 59.7	39 55 30	190.9	190.9	g
0859+470	08 59 39.9	47 02 56	933.4	933.4	Q	0932+397	09 32 05.2	39 46 26	12.0	12.0	
0900+380B	09 00 49.8	38 04 28	15.5	16.0		0934+387	09 34 48.2	38 46 14	32.4	32.4	
0900+389	09 01 00.3	38 58 26		23.5		0935+397	09 35 33.0	39 47 53	45.4	45.4	Q
0900+395	09 00 13.4	39 30 35	5.9	9.0		0935+428A	09 35 06.6	42 52 07	42.4	42.4	G
0900+428	09 00 58.8	42 50 02	450.9	450.9	g	0936+398	09 36 17.9	39 53 19	11.6	11.6	
0902+383	09 02 17.7	38 19 26	27.6	28.3		0936+405	09 36 13.7	40 30 26	37.8	41.6	g
0902+384	09 02 02.5	38 26 34	11.0	11.0		0937+391	09 37 58.8	39 07 34	83.5	104.2	Q
0902+414	09 02 48.0	41 28 31	132.7	132.7	g	0937+396	09 37 38.7	39 42 14	5.8	5.8	
0902+416	09 02 07.2	41 40 39	103.8	103.8		0938+399B	09 38 18.3	39 58 23		341.6	g
0903+428	09 03 09.7	42 51 08	26.8	26.8	G	0942+394	09 42 51.9	39 28 49	7.8	7.8	
0904+386	09 04 34.9	38 39 46	27.0	27.0	Q	0942+399	09 42 56.6	39 56 43	14.9	14.9	
0904+396	09 04 26.8	39 36 36	5.6	6.0		0943+399	09 43 13.9	39 58 10	22.2	22.2	
0904+399	09 04 15.5	39 56 26	36.1	36.1	g	0944+390A	09 44 07.3	39 05 10	8.5	8.5	
0904+417B	09 04 18.4	41 46 49	126.9	200.2	g	0944+390B	09 44 23.6	39 00 46	15.2	15.2	g
0905+380A	09 05 41.3	38 00 29	158.4	161.2	G	0944+397	09 44 44.8	39 47 07	4.6	4.6	
0905+399	09 05 05.8	39 55 24	16.9	16.9	G						

Table 1. continued

B3 name	RA (B1950) [h m s]	DEC (B1950) [° ' "]	S_{peak} [mJy]	S_{int} [mJy]	ID	B3 name	RA (B1950) [h m s]	DEC (B1950) [° ' "]	S_{peak} [mJy]	S_{int} [mJy]	ID
0945+408	09 45 50.1	40 53 43	1391.5	1391.5	Q	1025+394	10 25 55.9	39 26 08	12.6	12.6	
0945+419	09 45 23.7	41 55 41	39.7	41.0		1027+383	10 27 46.3	38 18 46	32.0	32.0	
0947+405	09 47 23.7	40 31 59	16.4	16.4		1027+390	10 27 31.7	39 02 25	11.3	12.1	
0947+424	09 47 11.8	42 27 00	60.2	60.2		1027+392	10 27 21.7	39 13 18	80.7	80.7	
0948+390	09 48 58.6	39 04 38	15.4	15.4	g	1028+400	10 28 21.8	40 02 21	19.8	19.8	
0950+402	09 50 59.1	40 14 02	12.0	13.1		1028+402	10 28 07.4	40 16 09	26.0	26.0	
0951+398	09 51 27.3	39 52 11	15.0	15.0	g	1030+398	10 30 27.5	39 51 20	382.3	382.3	G
0951+408	09 51 39.2	40 50 57	32.7	34.1	Q	1030+415	10 30 07.8	41 31 34	230.3	230.3	Q
0951+422	09 51 07.0	42 15 19	110.3	110.3	g	1033+387A	10 33 30.3	38 47 07		21.5	g
0953+382	09 53 43.4	38 17 19	28.9	28.9		1033+387B	10 33 52.8	38 42 19	7.9	8.1	
0953+398	09 53 05.9	39 49 31	129.0	129.0	Q	1033+388	10 33 41.8	38 51 07		31.8	g
0954+436	09 54 39.2	43 41 08	51.0	51.0	g	1033+408	10 33 31.3	40 51 01	25.3	27.0	
0955+380	09 55 30.4	38 01 37	11.1	11.1		1034+397	10 34 40.5	39 43 36	5.7	6.6	
0955+387	09 55 01.6	38 44 19	44.0	46.1	Q	1034+404	10 34 18.3	40 27 13	84.0	84.0	G
0955+390	09 55 42.9	39 02 44	58.9	58.9		1035+398	10 35 23.5	39 48 32	16.9	16.9	
0955+396	09 55 55.0	39 36 52	17.9	17.9		1037+399	10 37 19.2	39 58 06		8.6	
0956+391	09 56 42.4	39 11 26	12.3	12.3		1038+398	10 38 36.5	39 49 38	16.5	16.5	
0956+404	09 56 34.8	40 29 52	7.1	7.1		1039+397	10 39 08.7	39 42 41	47.9	49.3	g
0956+475	09 56 08.0	47 35 37	29.9	29.9	G	1039+424	10 39 11.8	42 26 13	23.2	23.2	
0957+399	09 57 44.4	39 55 12	4.3	4.3		1040+395	10 40 13.2	39 30 00	50.3	50.3	
0958+390A	09 58 23.8	39 02 24	15.8	15.8		1040+397	10 40 25.3	39 45 22	8.5	8.5	
0958+391	09 58 17.7	39 06 14	2.8	2.9		1040+398	10 40 43.8	39 49 57	8.5	9.3	g
1004+446	10 04 14.3	44 39 53	141.9	168.1		1041+392	10 41 34.5	39 16 36	30.3	30.3	
1007+417	10 07 26.1	41 47 16	323.1	335.3	Q	1042+392	10 42 23.6	39 12 25	87.8	87.8	
1007+422	10 07 22.8	42 14 19	72.7	72.7		1042+393	10 42 29.7	39 20 06	7.3	8.4	
1008+395	10 08 56.2	39 34 54	8.3	8.3		1042+397	10 42 48.6	39 45 56	27.1	27.1	
1008+423	10 08 53.5	42 19 23	101.4	101.4		1043+394	10 43 06.4	39 28 55	13.3	14.2	
1008+467A	10 08 39.3	46 43 09	92.8	92.8	G	1044+454	10 44 38.6	45 24 43	23.6	23.6	
1009+389A	10 09 26.0	38 58 56	16.8	16.8		1047+387	10 47 56.0	38 47 43	28.5	28.5	
1009+434	10 09 07.0	43 27 55	9.2	9.2	G	1047+396	10 47 23.1	39 41 37	5.9	5.9	
1012+389	10 12 59.2	38 56 50	18.9	18.9		1049+384	10 49 22.3	38 27 39	71.2	71.2	
1012+395	10 12 52.6	39 35 04	8.4	9.2		1050+391	10 50 44.2	39 09 46	18.7	18.7	
1012+425	10 12 31.5	42 34 45	22.0	23.6		1052+380	10 52 56.1	38 02 02	10.7	10.7	
1013+410	10 12 58.2	41 01 46		186.3	g	1052+389	10 52 36.0	38 56 19	4.5	4.8	
1014+392	10 14 16.5	39 16 23	228.6	228.6	g	1053+384	10 53 23.9	38 24 45	42.1	52.4	
1014+397A	10 14 19.5	39 46 32		110.2	g	1053+394	10 53 59.8	39 27 28	15.3	16.4	
1015+383	10 15 29.0	38 20 30	61.5	65.9	Q	1054+396	10 54 37.8	39 41 18	17.0	17.0	
1016+388B	10 16 50.5	38 48 40	18.0	19.3		1055+381	10 55 20.3	38 10 19	40.5	46.6	G
1016+396	10 16 29.5	39 37 45		< 3		1055+396	10 55 51.7	39 35 51	19.9	19.9	
1016+397	10 16 57.5	39 45 25	9.4	9.4	g	1055+404A	10 55 11.1	40 26 23	48.8	48.8	
1016+443	10 16 46.5	44 23 30	21.1	21.1	g	1055+404B	10 55 48.8	40 30 12	41.2	49.0	
1018+393	10 18 41.1	39 19 03	10.3	10.3		1056+387	10 56 28.3	38 41 59	25.3	25.9	
1018+405	10 18 47.1	40 34 48	20.2	20.7		1056+396	10 56 22.8	39 41 10	22.5	22.5	G
1019+382A	10 19 27.2	38 18 02	39.5	39.5		1056+399	10 56 15.0	40 00 07	24.4	24.4	
1019+394	10 19 58.7	39 24 00	45.4	45.4	G	1056+432A	10 56 08.2	43 17 29	329.4	329.4	G
1019+395	10 19 18.8	39 32 39	8.4	8.4		1058+393	10 58 42.2	39 20 40	177.2	177.2	
1019+397	10 19 41.3	39 47 01	25.3	26.6	Q	1100+398	11 00 36.2	39 49 56	5.9	5.9	
1020+400	10 20 14.6	40 03 28	852.1	852.1	Q	1101+384	11 01 40.5	38 28 43	522.4	522.4	g
1021+384	10 21 00.9	38 24 00	40.9	40.9		1101+395	11 01 50.5	39 31 02	5.3	5.3	
1022+432	10 22 30.6	43 12 58	76.0	76.0		1101+396	11 01 15.4	39 37 06		< 5	
1023+393	10 23 08.6	39 20 39	16.2	16.2	g	1103+393	11 03 21.4	39 22 17	28.0	28.0	
1024+463	10 24 13.3	46 18 09	113.9	214.7	G	1104+390	11 04 54.0	39 05 18	12.8	14.6	
1025+390B	10 25 49.4	38 59 57	220.3	220.3	g	1104+397	11 04 14.3	39 45 27		< 4	

Table 1. continued

B3 name	RA (B1950) [h m s]	DEC (B1950) [° ' "]	S_{peak} [mJy]	S_{int} [mJy]	ID	B3 name	RA (B1950) [h m s]	DEC (B1950) [° ' "]	S_{peak} [mJy]	S_{int} [mJy]	ID
1105+390	11 05 36.4	39 02 07	17.1	19.3	g	1142+392	11 42 56.5	39 13 36	32.0	32.0	Q
1105+392	11 05 51.8	39 14 55	128.1	128.1	Q	1143+405	11 43 50.0	40 31 38	12.7	12.7	
1106+380	11 06 43.4	38 00 48	502.2	502.2		1143+456	11 43 37.0	45 37 17	43.3	43.3	G
1107+379	11 07 04.3	37 54 46	293.3	293.3	g	1144+398	11 44 40.0	39 53 32	8.6	8.6	
1108+394	11 08 28.7	39 28 51		< 5		1144+402	11 44 21.0	40 15 13	918.4	918.4	Q
1108+399	11 08 33.7	39 56 32	79.4	79.4	g	1144+404	11 44 05.5	40 24 41	34.8	34.8	
1108+411B	11 08 52.8	41 06 35	94.6	97.4	g	1148+387	11 48 53.3	38 42 33	139.5	139.5	Q
1109+437	11 09 52.0	43 42 21	144.6	144.6	Q	1148+477	11 48 32.3	47 45 36	52.2	52.2	Q
1110+391	11 10 41.6	39 09 45	12.1	13.5		1149+390	11 49 01.8	39 02 55	7.0	7.0	
1111+391	11 11 44.6	39 06 56	23.9	23.9		1149+398	11 49 08.6	39 50 55	15.3	15.3	
1111+396A	11 11 53.0	39 43 35	5.1	5.1		1150+388	11 50 09.4	38 48 26	33.5	33.5	
1111+408	11 11 53.0	40 53 41	249.1	249.1	Q	1150+401	11 50 25.4	40 10 33	14.6	17.1	
1112+435	11 12 34.4	43 31 05	63.5	63.5	g	1150+438	11 50 06.2	43 53 00	31.2	31.2	
1115+380A	11 15 21.0	38 04 31	34.9	34.9		1151+383	11 51 25.9	38 21 49	67.7	67.7	g
1115+399	11 15 12.8	39 57 08	19.4	19.4		1151+384B	11 51 17.3	38 28 27	128.1	222.2	g
1116+388	11 16 11.4	38 50 50	12.8	12.8		1151+408	11 51 19.0	40 53 34	396.6	396.6	Q
1116+392	11 16 19.7	39 15 17	15.6	15.6	Q	1151+456	11 51 44.8	45 40 19	203.3	203.3	g
1117+441	11 17 30.7	44 11 17	54.9	63.4		1153+407B	11 53 17.6	40 47 26	29.6	29.6	
1118+390	11 18 29.6	39 00 35	7.1	7.1		1153+451	11 53 33.6	45 06 57	93.1	105.7	
1121+399	11 21 04.3	39 54 18	39.2	39.2		1154+397	11 54 12.7	39 45 00		16.1	g
1121+435	11 21 48.2	43 32 09	62.1	62.1		1154+398	11 54 54.8	39 52 48	5.0	5.0	
1121+444	11 21 10.5	44 25 03	27.8	31.3		1156+389	11 56 30.2	38 56 51	16.7	17.9	G
1122+390	11 22 01.2	39 02 16	33.2	35.9	g	1157+396	11 57 17.3	39 41 00	3.1	3.1	
1122+397	11 23 00.1	39 42 01	19.5	22.3		1157+460	11 57 57.2	46 05 24	121.3	121.3	G
1123+395	11 23 46.2	39 35 13	26.3	26.3	Q	1158+393	11 58 21.8	39 19 39	9.7	10.2	
1127+380	11 27 14.6	38 04 37	30.6	30.6		1159+395	11 59 16.3	39 35 52	116.7	116.7	G
1128+385	11 28 12.5	38 31 51	943.8	943.8	Q	1200+393	12 00 26.9	39 22 28	8.1	8.1	
1128+392	11 28 31.8	39 17 07	20.6	20.6		1201+394	12 01 33.7	39 29 00	74.5	74.5	g
1128+396	11 28 48.3	39 38 06	8.0	8.7		1201+396	12 01 09.4	39 39 37	5.8	5.8	
1128+436	11 28 05.4	43 41 37	38.4	38.4		1202+388	12 02 58.4	38 50 45	23.5	23.5	
1128+455	11 28 56.4	45 31 23	231.3	231.3	g	1202+397	12 02 15.9	39 46 29	7.2	7.2	
1130+387	11 30 17.0	38 43 31	28.3	28.3		1203+384	12 03 44.5	38 29 15	32.0	37.0	Q
1131+388	11 31 23.7	38 52 24	52.1	62.6	g	1204+399	12 04 04.6	39 57 45	280.2	280.2	Q
1131+391	11 31 33.1	39 07 52	72.4	74.3		1204+401	12 04 33.9	40 11 21	22.0	22.0	G
1131+437	11 31 57.3	43 44 36	215.7	215.7	G	1205+390	12 05 25.2	39 05 31	5.9	5.9	
1132+396	11 32 22.0	39 39 37	4.0	4.0		1205+392	12 05 20.2	39 12 40	73.4	79.6	g
1132+406	11 32 00.6	40 37 51	37.6	41.1	g	1206+399A	12 06 31.6	39 56 57	9.0	9.5	g
1132+410	11 32 05.3	41 00 28	29.1	29.1		1206+399B	12 06 36.7	39 55 24	9.0	9.5	g
1133+395	11 33 46.3	39 33 51	12.8	12.8		1206+439B	12 06 42.0	43 56 00	262.0	262.0	Q
1133+432	11 33 15.3	43 15 20	172.3	172.3		1207+386	12 07 37.6	38 37 55	36.0	38.4	G
1134+406	11 34 47.1	40 39 07	29.8	29.8		1208+396	12 08 01.0	39 41 02	69.3	69.3	g
1135+390	11 35 18.8	39 01 45	7.5	7.5		1209+396	12 09 56.7	39 39 41	30.9	31.8	
1135+401	11 35 01.1	40 07 25	33.7	33.7		1209+399	12 09 24.3	39 59 30	7.2	7.2	
1136+383	11 36 55.2	38 20 19	84.0	84.0		1211+388	12 11 59.5	38 51 40	9.2	9.2	
1136+390	11 36 30.5	39 03 55	32.2	32.2		1212+380	12 12 26.1	38 05 31	22.9	22.9	
1136+420	11 36 19.5	42 05 17	75.6	75.6	G	1212+389	12 12 43.2	38 56 03	19.6	19.6	Q
1137+396	11 37 46.2	39 38 38	6.5	7.2	g	1213+389	12 13 53.2	38 54 57	13.6	13.9	
1140+394	11 40 36.4	39 25 50	7.1	7.8		1216+400	12 16 34.8	40 04 30	14.3	14.3	
1140+399	11 40 41.3	39 55 05	6.9	7.8		1216+402	12 16 07.5	40 17 25	50.8	50.8	G
1141+374	11 41 49.4	37 25 19	442.0	442.0	g	1217+427	12 17 25.1	42 46 29	37.4	37.4	
1141+392	11 41 10.9	39 15 21	29.1	29.1		1218+395	12 18 42.5	39 35 24	8.9	11.2	
1141+400	11 41 55.1	40 00 02	27.1	27.1	Q	1218+398	12 18 24.8	39 53 50	4.3	4.3	
1141+466	11 41 00.4	46 37 59	60.3	60.3	g						

Table 1. continued

B3 name	RA (B1950) [h m s]	DEC (B1950) [° ' "]	S_{peak} [mJy]	S_{int} [mJy]	ID	B3 name	RA (B1950) [h m s]	DEC (B1950) [° ' "]	S_{peak} [mJy]	S_{int} [mJy]	ID
1218+421	12 18 44.1	42 08 56	91.0	101.3	g	1253+374	12 53 55.9	37 29 54	59.8	73.4	
1219+382	12 19 42.4	38 15 52	8.8	8.8		1253+432	12 53 24.5	43 14 39	58.8	58.8	G
1220+393	12 20 54.0	39 21 00	10.1	11.7		1254+476	12 54 40.9	47 36 32	727.0	727.0	G
1220+408	12 20 06.8	40 52 59	47.4	47.4		1255+448	12 55 43.9	44 51 33	133.7	149.2	
1221+394	12 21 41.7	39 25 27	11.7	11.7		1256+392	12 56 42.2	39 16 30	42.8	42.8	Q
1221+397	12 21 39.6	39 46 33	11.3	11.3		1257+383	12 57 53.3	38 20 39	58.7	67.9	
1221+398	12 21 19.4	39 49 21	11.7	13.7	g	1257+399	12 57 25.7	39 56 46	3.6	4.1	
1222+390	12 22 53.2	39 05 06	13.5	13.5		1258+395	12 58 24.0	39 35 12	9.2	12.1	
1222+398	12 22 03.3	39 48 54		< 4		1258+404	12 58 13.8	40 25 16	134.3	139.9	Q
1222+423	12 22 00.6	42 23 09	148.5	148.5	G	1259+395	12 59 41.2	39 31 29	14.5	15.9	Q
1223+395	12 23 22.6	39 30 59	331.1	331.1	G	1300+397	13 00 29.1	39 46 00	21.5	21.5	Q
1225+403	12 25 45.9	40 20 48	8.9	8.9		1301+382	13 01 24.3	38 12 14	74.5	79.9	g
1225+442	12 25 15.7	44 17 16	37.4	37.4	g	1301+393	13 01 01.5	39 19 23	12.1	13.3	
1226+395	12 26 44.9	39 32 26	9.4	9.4		1302+388	13 02 38.8	38 48 32	31.7	31.7	G
1228+397	12 28 26.2	39 46 32	26.4	26.4	Q	1305+393	13 05 19.0	39 20 43	17.3	17.3	
1228+419A	12 28 08.5	41 55 28		154.7	g	1306+396	13 06 10.5	39 42 01	5.2	5.5	
1229+397	12 29 32.5	39 47 13	16.3	16.3		1308+392	13 08 20.6	39 12 57	36.3	36.3	
1229+405	12 29 14.2	40 34 05	58.3	58.3	Q	1309+412A	13 09 27.1	41 14 53		116.9	g
1230+398	12 30 17.4	39 53 25	8.9	8.9		1311+419	13 11 49.5	41 56 27	27.9	33.1	
1231+394	12 31 57.3	39 25 21	14.8	14.8		1312+393	13 12 49.5	39 19 34	39.7	39.7	Q
1231+432	12 31 53.7	43 13 44	39.8	41.0		1313+387	13 13 07.4	38 46 20		45.8	
1232+394	12 32 45.7	39 27 30	11.2	11.2		1313+392	13 13 25.2	39 14 22	28.8	28.8	g
1232+397A	12 32 03.9	39 47 06	20.6	21.1	G	1314+453A	13 13 59.8	45 20 18	93.5	93.5	G
1232+397B	12 32 39.0	39 42 10	15.7	15.7	G	1315+395	13 15 34.5	39 31 05	30.3	30.8	
1232+399	12 32 24.8	39 55 15	15.7	15.7		1315+396	13 15 02.8	39 41 14	285.2	285.2	Q
1232+414A	12 32 05.0	41 26 05	92.9	92.9	g	1317+380	13 17 36.2	38 03 07	46.6	46.6	Q
1233+399	12 33 50.2	39 56 33	5.2	5.2		1317+389	13 17 45.0	38 56 05	80.9	80.9	
1233+418	12 33 10.8	41 53 38	131.1	131.1	g	1317+393	13 17 28.0	39 18 35	14.1	14.5	G
1234+396	12 34 26.2	39 36 58	170.6	170.6		1318+398	13 18 12.6	39 48 36	9.9	9.9	
1236+444A	12 36 10.5	44 30 12		88.8		1318+388	13 19 04.7	38 51 13	14.6	14.6	
1236+444B	12 36 24.1	44 26 15		38.7	g	1319+397	13 19 57.6	39 46 29	8.5	8.5	
1239+382	12 39 47.8	38 15 22	29.4	34.6	g	1319+398	13 19 33.9	39 53 55	13.2	13.2	
1239+390	12 39 09.1	39 05 06	26.9	28.2		1318+428C	13 19 05.4	42 50 47		418.2	g
1239+396	12 39 23.8	39 37 14	35.9	35.9	g	1320+389	13 20 06.4	38 59 44	9.6	10.1	
1239+442B	12 39 57.3	44 12 37	71.5	91.0	Q	1321+415	13 21 11.0	41 30 52	88.8	88.8	g
1240+381	12 40 27.0	38 07 25	340.7	340.7	Q	1322+398	13 22 30.9	39 49 19	5.9	5.9	
1240+395	12 40 29.0	39 32 11	7.7	7.7		1324+390	13 24 47.8	39 05 23	11.4	11.4	
1241+411	12 41 57.1	41 08 00	73.5	73.5	g	1324+431	13 24 51.1	43 10 03	25.1	26.4	
1242+391	12 42 06.7	39 10 21	5.3	6.8		1327+390	13 27 51.5	39 00 55	10.7	10.7	
1242+410	12 42 26.4	41 04 29	339.9	339.9	Q	1327+391	13 27 15.2	39 09 43	6.7	6.7	
1244+389	12 44 22.9	38 58 02	48.6	52.1		1327+398	13 27 54.1	39 52 46	4.2	6.8	
1244+397	12 44 57.0	39 44 10	6.7	6.7		1327+474C	13 27 46.3	47 27 09	235.0	235.0	g
1245+389	12 45 57.6	38 58 36	32.2	32.9		1328+388	13 28 58.2	38 50 26	33.4	33.4	
1245+396	12 45 41.0	39 38 26	9.4	11.3		1328+396	13 28 45.7	39 36 43	58.3	58.3	
1245+399	12 45 26.9	39 56 45	13.7	14.4		1330+380	13 30 36.4	38 00 36		31.7	
1246+385C	12 46 50.8	38 33 16	24.5	38.3		1330+389	13 30 14.1	38 55 33	6.4	6.5	
1247+450A	12 47 03.3	45 01 09	92.8	97.0	Q	1330+406	13 30 44.1	40 39 46	18.6	19.3	
1249+393	12 49 23.7	39 19 28	30.7	30.7		1331+381	13 31 15.7	38 11 21	16.5	17.2	
1249+432	12 49 41.0	43 14 00	69.0	69.0		1332+385	13 32 12.5	38 33 17	47.6	54.1	g
1249+475	12 49 58.8	47 31 55	68.5	88.4		1333+392	13 33 38.7	39 15 13	15.2	15.2	
1250+384	12 50 09.6	38 27 00	21.1	21.1	g	1333+412	13 33 09.5	41 15 22	94.6	94.6	g
1250+390	12 50 27.8	39 05 53	14.1	14.1		1334+417	13 34 16.6	41 46 29	62.3	62.3	G
1251+398	12 51 49.4	39 49 38	6.5	7.3	Q	1336+391A	13 36 38.3	39 06 24	362.6	362.6	g

Table 1. continued

B3 name	RA (B1950) [h m s]	DEC (B1950) [° ' "]	S_{peak} [mJy]	S_{int} [mJy]	ID	B3 name	RA (B1950) [h m s]	DEC (B1950) [° ' "]	S_{peak} [mJy]	S_{int} [mJy]	ID
1336+393	13 36 04.0	39 21 10	16.2	16.2		1411+391B	14 11 56.1	39 09 24	30.9	37.9	
1336+396C	13 36 57.8	39 41 34	50.7	58.0		1411+397	14 11 09.3	39 44 56	13.9	14.2	g
1336+397A	13 36 05.3	39 43 45	47.5	47.5		1411+427	14 11 40.7	42 43 22	32.7	37.8	
1336+397B	13 36 44.2	39 45 07	3.2	3.2		1412+392	14 12 59.5	39 13 11	53.5	53.5	
1337+385	13 37 13.3	38 30 20	8.1	8.1		1412+397	14 12 46.7	39 44 01	5.5	5.5	
1338+394	13 38 57.8	39 29 59	15.1	15.5	Q	1413+398	14 13 12.8	39 51 37	3.9	3.9	
1339+438	13 39 46.8	43 50 26	37.3	39.5	G	1414+398	14 14 30.0	39 50 26	11.1	11.1	g
1339+472	13 39 41.8	47 12 23	85.8	85.8	Q	1415+391	14 15 51.2	39 11 52	10.2	10.2	
1340+439	13 40 59.9	43 58 27	40.9	40.9		1416+400	14 16 56.7	40 00 25	68.2	74.1	Q
1341+392	13 41 10.1	39 13 39	69.1	71.3	Q	1417+383	14 17 51.6	38 20 09	30.3	30.3	
1342+389A	13 42 14.8	38 56 31	44.2	44.2	Q	1417+385	14 17 43.0	38 35 32	899.2	899.2	Q
1342+389B	13 42 37.9	38 59 37	24.6	25.1	g	1417+397	14 17 46.6	39 46 04	5.0	7.4	
1343+386	13 43 26.6	38 38 12	194.7	194.7	Q	1418+388	14 18 58.6	38 49 25	10.2	10.2	
1343+430	13 43 26.7	43 05 16	160.4	160.4	G	1419+397	14 19 21.6	39 47 11	97.6	97.6	g
1344+397	13 44 55.2	39 43 55	77.1	77.1		1419+399	14 19 23.9	39 57 08	51.5	56.5	Q
1345+398	13 45 04.5	39 50 54	6.7	6.7		1419+419	14 19 06.4	41 58 30	372.2	372.2	g
1346+392	13 46 47.8	39 15 36	13.5	13.5		1420+386	14 20 10.6	38 40 32	23.3	26.3	
1347+391	13 47 16.6	39 06 34	32.0	32.0		1422+395	14 22 20.8	39 35 16		33.4	g
1347+396	13 47 00.5	39 37 59	28.9	28.9		1422+401B	14 22 27.9	40 06 51	44.9	44.9	
1347+398	13 47 07.4	39 51 39	20.3	21.6		1424+380	14 24 02.9	38 02 26		< 3	
1347+403	13 47 44.2	40 21 12	12.9	12.9		1426+394	14 26 12.9	39 25 41	155.3	155.3	
1348+392	13 48 23.6	39 14 12	101.4	101.4	Q	1426+398	14 26 45.3	39 51 59	6.2	6.2	
1348+396	13 48 31.4	39 36 15	26.6	26.6		1427+404	14 27 57.4	40 24 35	23.2	28.9	g
1349+394	13 49 41.3	39 28 31	12.4	12.4		1428+380	14 28 32.3	38 03 26	31.5	40.0	g
1349+388	13 49 10.9	38 53 02	115.7	115.7	Q	1428+385	14 28 53.7	38 32 51	28.6	36.3	
1350+395	13 50 21.3	39 33 22	7.3	7.3		1429+392	14 29 36.1	39 12 48	7.5	7.5	
1350+432	13 50 24.0	43 14 09	10.1	10.1	G	1429+395	14 29 42.3	39 32 18	19.2	19.2	
1352+383	13 52 54.5	38 19 35	16.3	18.4		1430+399	14 30 27.5	39 58 01	3.5	6.6	
1352+397	13 52 03.7	39 42 38	16.3	16.3		1432+382	14 32 56.4	38 17 54	69.0	71.8	g
1352+403	13 52 00.3	40 20 39	22.8	24.7		1432+389	14 32 14.0	38 56 03	8.8	8.8	
1353+380	13 53 44.9	38 00 03	21.8	24.2		1432+397A	14 32 19.8	39 42 39		< 3	
1353+397	13 53 56.3	39 48 01	14.3	14.3		1432+397B	14 32 57.1	39 47 13	16.1	16.1	g
1354+397	13 54 08.8	39 44 02		11.7		1432+428B	14 32 32.4	42 49 25	182.8	182.8	
1355+380	13 55 31.5	38 04 17	60.6	71.3	Q	1435+383	14 35 32.9	38 20 42	47.5	47.5	Q
1356+393	13 56 40.8	39 18 35	41.3	41.3		1435+429	14 34 59.0	42 57 15	25.6	26.2	
1356+397	13 56 08.8	39 47 21	7.4	8.7	Q	1436+399	14 36 41.2	39 55 53	7.3	7.3	
1357+392	13 57 05.3	39 15 05	6.2	6.7	b	1437+397	14 37 12.1	39 46 28	16.4	16.4	
1357+394A	13 57 48.8	39 27 34	14.2	14.2		1437+427	14 37 51.8	42 47 18	56.5	56.5	G
1357+394B	13 57 56.5	39 25 23	21.4	22.7	Q	1438+382	14 38 11.5	38 14 46	14.4	14.4	
1358+433	13 58 29.6	43 18 32	37.3	42.4		1438+385	14 38 22.4	38 33 05	640.2	640.2	Q
1359+419	13 59 30.0	41 56 42	49.3	49.3	G	1438+406	14 38 30.9	40 41 17	18.5	18.5	g
1401+387	14 01 05.1	38 42 14	114.5	114.5		1441+409	14 41 03.1	40 57 10	143.6	143.6	
1401+395	14 01 59.3	39 35 30	5.9	5.9		1442+383	14 42 17.8	38 21 12	26.5	26.5	
1402+382	14 02 21.1	38 14 49	18.2	20.5		1442+384	14 42 40.4	38 29 54	23.0	23.0	
1403+395	14 03 06.6	39 31 41	8.0	8.2		1442+441	14 42 58.1	44 10 18	27.6	38.5	
1406+397	14 06 20.4	39 45 42	18.3	18.3		1444+395	14 44 30.1	39 33 32	10.2	10.2	
1407+388	14 07 21.7	38 52 10	23.3	23.3	g	1444+417A	14 44 32.7	41 45 51	71.5	71.5	Q
1408+398	14 08 37.3	39 48 42	15.5	16.1		1445+410	14 45 17.3	41 00 15	101.6	101.6	g
1408+399	14 08 13.7	39 59 32	4.0	4.2		1446+399	14 46 10.8	39 56 47	10.7	10.7	
1409+390	14 09 37.7	39 00 23	28.6	28.6		1446+440	14 46 41.3	44 05 01	70.0	70.0	
1409+394	14 09 22.7	39 28 21	13.9	14.6		1447+380	14 47 18.1	38 01 06	10.0	10.0	
1410+438	14 10 18.3	43 51 54	55.9	55.9		1447+400	14 47 33.3	40 00 46	40.0	50.2	
1411+391A	14 11 48.8	39 07 26	18.9	18.9							

Table 1. continued

B3 name	RA (B1950) [h m s]	DEC (B1950) [° ' "]	S_{peak} [mJy]	S_{int} [mJy]	ID	B3 name	RA (B1950) [h m s]	DEC (B1950) [° ' "]	S_{peak} [mJy]	S_{int} [mJy]	ID
1447+402	14 47 06.2	40 12 45		104.4	g	2326+395	23 26 24.9	39 31 25	22.3	22.3	
1449+380	14 49 01.2	38 03 50	17.0	17.4		2326+422	23 26 33.0	42 15 31	92.7	96.2	g
1449+421	14 49 14.2	42 07 00	40.6	40.6		2327+391	23 27 58.5	39 10 39	14.4	14.4	G
1450+391B	14 50 08.9	39 10 34		71.7	g	2327+407	23 27 42.7	40 47 52	82.7	82.7	Q
1450+396	14 50 07.4	39 38 07	7.4	7.4		2327+422	23 27 39.5	42 17 13	44.9	45.7	
1451+396	14 51 53.3	39 37 59	7.9	7.9		2328+397	23 29 00.0	39 46 58	5.3	5.3	
1452+394	14 52 59.4	39 23 58	23.6	23.6	g	2329+398	23 29 47.0	39 50 45	10.1	11.9	Q
1453+397	14 53 34.5	39 46 03	9.1	9.1		2330+387	23 30 35.4	38 44 38	251.5	251.5	g
1454+394	14 54 24.2	39 26 48	12.4	12.4	G	2330+389	23 30 01.3	38 58 28	10.5	10.5	
1455+399	14 55 52.1	39 57 58	2.5	2.5		2330+397	23 30 27.2	39 45 21	12.8	12.8	
1455+421	14 55 49.0	42 10 48	114.7	114.7	G	2330+402	23 30 26.2	40 14 02	149.8	149.8	
1457+388A	14 57 14.8	38 48 31	11.2	12.1		2330+435	23 30 56.3	43 30 12	15.6	15.6	g
1458+433	14 58 40.5	43 21 41	61.8	61.8	G	2331+399	23 31 17.2	39 55 53	41.0	42.0	G
1459+399	14 59 15.0	39 54 29	18.6	18.6		2332+388	23 32 34.8	38 49 34	19.0	19.0	Q
2300+382	23 00 54.4	38 12 28	33.5	33.5	g	2332+399	23 32 07.1	39 56 47	22.7	22.7	
2301+394A	23 01 28.4	39 25 13	25.0	25.0		2333+397	23 33 01.4	39 43 33	4.3	4.4	
2301+394B	23 01 36.7	39 26 56	19.3	19.3		2333+399	23 33 06.2	39 55 07	10.6	10.6	
2301+398	23 01 06.9	39 50 04	8.2	9.2	G	2334+398	23 34 27.9	39 49 09	43.9	45.0	g
2301+430	23 01 29.0	43 00 49	36.1	36.1		2335+392	23 35 43.0	39 16 56	32.4	32.4	Q
2301+443	23 01 27.8	44 22 55	60.9	60.9		2336+381	23 36 24.9	38 06 47	39.4	41.9	
2302+396	23 02 27.2	39 40 32		< 3		2337+398	23 37 15.0	39 52 07	26.3	26.3	g
2302+402	23 02 34.8	40 12 41	159.8	159.8		2338+390	23 38 44.9	39 01 51	40.5	40.5	Q
2303+391A	23 03 44.0	39 10 55		151.1	g	2338+393	23 38 52.0	39 19 26	35.4	35.4	
2304+377	23 04 39.4	37 46 28	234.0	234.0	g	2340+386	23 40 00.2	38 38 07	18.3	20.3	
2304+398	23 04 42.6	39 53 45	12.1	12.6		2341+396A	23 41 37.5	39 37 15		20.3	g
2304+429	23 04 13.0	42 54 33	36.4	36.4		2341+396B	23 41 44.2	39 35 26		22.6	g
2305+404	23 05 33.1	40 25 34	16.2	16.2	G	2341+399	23 41 54.5	39 56 12	33.8	34.4	
2306+392	23 06 34.6	39 17 19	10.7	10.7		2342+394	23 42 29.2	39 29 46	2.3	2.3	
2308+393	23 08 35.4	39 22 21	15.0	15.0		2344+429	23 44 52.9	42 54 12	254.2	254.2	Q
2308+395	23 08 19.4	39 35 24	7.0	7.0		2347+397	23 47 54.1	39 45 21	4.2	4.2	
2308+400	23 08 32.7	40 03 51	16.9	16.9		2348+387	23 48 03.1	38 47 40	14.1	21.2	
2311+387	23 11 37.5	38 45 29	31.7	31.7		2348+450	23 48 57.0	45 01 49	87.9	87.9	G
2311+396A	23 11 27.9	39 36 42		< 3	F	2349+396	23 49 31.8	39 38 21	21.8	21.8	
2311+396B	23 11 53.8	39 38 51	3.7	3.7		2349+410	23 49 21.5	41 04 33	47.6	47.6	Q
2311+469	23 11 29.2	46 55 55	243.6	243.6	Q	2350+395	23 50 17.2	39 31 13	262.0	262.0	
2313+406	23 13 47.2	40 38 54	25.5	25.5		2351+394	23 51 09.3	39 26 41	16.9	20.1	
2315+396	23 15 25.1	39 36 13	149.5	211.7	g	2351+398	23 51 09.1	39 49 00	2.4	2.4	
2316+398	23 16 57.3	39 53 43	20.1	22.1	Q	2351+400B	23 51 25.2	40 01 13		157.8	
2318+389	23 18 54.8	38 55 48	9.9	9.9		2351+456	23 51 50.0	45 36 22	727.3	727.3	Q
2320+396	23 20 19.9	39 41 33	25.3	27.1		2352+385	23 52 05.8	38 30 53	33.0	33.0	
2320+416B	23 20 21.5	41 42 11		68.1	g	2354+397	23 54 34.5	39 46 20	10.1	10.1	
2321+423	23 21 30.3	42 19 19	96.4	96.4	G	2354+471	23 54 58.0	47 09 24		383.6	g
2322+396	23 22 52.8	39 41 06	116.7	116.7	F	2355+397	23 55 38.7	39 45 11	12.9	12.9	
2322+403	23 22 23.8	40 23 52	33.0	33.0		2355+398	23 55 28.0	39 49 47	27.0	27.0	
2323+388	23 23 14.8	38 49 25	30.9	30.9		2356+390	23 56 26.5	39 05 47	241.2	241.2	Q
2323+398	23 23 06.2	39 51 49	4.7	4.9		2356+437	23 56 03.0	43 48 06	177.6	186.1	G
2323+435A	23 23 18.4	43 30 28	368.1	368.1	g	2357+398	23 57 05.3	39 49 54	10.6	10.6	g
2324+394B	23 24 42.6	39 26 48	9.6	9.8		2358+390	23 58 07.9	39 01 22	110.1	110.4	
2324+405	23 24 30.5	40 31 36	425.8	441.5		2358+406	23 58 19.4	40 37 19	260.1	260.1	
2325+396	23 25 33.2	39 39 10	15.0	15.0		2358+416	23 58 45.8	41 36 25	29.1	31.4	G
						2359+394	23 59 09.3	39 29 39	32.1	42.9

Fig. 3. Histograms of spectral indices between 408 MHz and 10.6 GHz. **a)** for the whole sample, **b)** for POSS-I galaxies, **c)** for empty fields, and **d)** for quasars (see text)

Table 2. Spectral indices for different optical identifications

	N	$\bar{\alpha}$	$\Delta\alpha$
Galaxies on POSS-I	181	-0.837	0.021
Quasars	132	-0.716	0.077
Empty Fields	701	-0.969	0.007

adjust them to the scale of Baars et al. (1977). The spectral indices of B30226+394, B30241+393B, B30920+408, B31016+388B, B31428+385, B31447+402, B32333+397, and B32348+387 were not included; the VLA maps show that the components of these triple sources are probably not physically connected. The spectral indices have a broad distribution with a median value of $\alpha_{\text{med}} = -0.933$ and an average value of $\bar{\alpha} = -0.906$. Figures 3b, 3c, and 3d show the histograms of the spectral indices for three different classes of optical counterparts, i.e. galaxies bright enough to appear on the POSS-I (most of which are at $z < 0.5$), empty fields on the POSS-I (most of which are galaxies $z > 0.5$), and quasars. In Table 2 we have compiled the mean spectral indices ($\bar{\alpha}$) and their uncertainties ($\Delta\alpha$) for different optical identifications.

The distributions of the first two classes are similar, but the different average values (see Table 2) indicate that high-redshift radio galaxies have steeper spectra. The distribution for quasars shows the presence of two populations: steep-spectrum and flat-spectrum quasars.

For the decomposed double sources (see Sect. 2) Table 3 presents in Col. 1 the B3 source names, in Cols. 2 and 3 the positions (equinox B1950.0) of the components

Fig. 4. Histograms of ratios of component flux densities of double sources at **a)** $\lambda 2.8$ cm, and **b)** the ratio of the ratios (see text)

Fig. 5. Histogram of the difference $\Delta\alpha$ between the spectral indices of the two components of double sources

from Vigotti et al. (1989); Cols. 4 and 5 give the flux densities at $\lambda 2.8$ cm and $\lambda 20$ cm (Vigotti et al. 1989), respectively. For each source we have computed the component ratio $R_{2.8}$ of the flux density at $\lambda 2.8$ cm (see Fig. 4a), and the ratio R_{20} of the flux density at $\lambda 20$ cm, then the ratio $R = R_{2.8}/R_{20}$ (see Fig. 4b). These ratios were computed considering as the first component the brightest one at 20 cm. Figure 4a shows that the double sources at $\lambda 2.8$ cm

Table 3. B3–VLA decomposed double sources

B3 name	RA (B1950) [^o ' "]	DEC (B1950) [^h ^m ^s]	<i>F</i> (2.8 cm) [mJy]	<i>F</i> (20 cm) [mJy]	B3 Name	RA (B1950) [^o ' "]	DEC (B1950) [^h ^m ^s]	<i>F</i> (2.8 cm) [mJy]	<i>F</i> (20 cm) [mJy]
0010+402	00 10 14.3	40 15 52	34.1	150	1016+397	10 17 00.0	39 44 43	4.0	23
	00 10 18.6	40 16 22	15.5	150		10 16 55.0	39 46 07	5.4	28
0015+399	00 15 03.5	40 00 26	24.7	13	1027+383	10 27 43.7	38 18 58	13.6	55
	00 15 03.9	39 59 13	7.3	48		10 27 48.8	38 18 34	18.4	182
0017+432	00 17 26.4	43 13 29	14.5	162	1028+402	10 28 07.2	40 16 36	14.6	137
	00 17 32.3	43 13 33	12.1	84		10 28 07.6	40 15 43	11.4	48
0020+437	00 20 49.7	43 46 13	30.0	233	1040+395	10 40 10.5	39 29 39	25.9	94
	00 20 53.0	43 46 39	14.2	99		10 40 15.9	39 30 22	24.4	119
0146+394	01 46 46.9	39 25 26	9.3	85	1047+396	10 47 20.8	39 41 43	3.4	26
	01 46 47.2	39 23 14	5.8	32		10 47 25.4	39 41 31	2.5	14
0152+435	01 52 25.3	43 30 58	150.8	987	1055+396	10 55 45.8	39 36 54	10.8	42
	01 52 27.2	43 31 43	100.8	522		10 55 57.6	39 34 48	9.1	26
0153+417	01 53 17.6	41 48 10	63.6	243	1105+392	11 05 49.8	39 15 16	109.8	669
	01 53 19.6	41 47 28	36.9	320		11 05 53.9	39 14 35	18.3	90
0159+390	01 59 49.9	39 02 26	10.3	34	1107+379	11 07 02.6	37 54 35	148.0	975
	01 59 53.3	39 02 04	9.8	28		11 07 06.1	37 54 57	145.3	1090
0213+392	02 13 11.1	39 16 56	7.5	42	1109+437	11 09 51.2	43 42 47	48.9	554
	02 13 06.9	39 17 05	6.7	47		11 09 52.8	43 41 56	95.7	634
0216+423	02 15 58.8	42 19 04	79.8	429	1118+390	11 18 28.2	39 01 17	2.5	23
	02 16 03.3	42 19 23	37.4	191		11 18 31.0	38 59 54	4.6	31
0217+417	02 17 04.5	41 43 34	33.1	97	1128+436	11 28 04.9	43 41 10	30.9	271
	02 17 06.5	41 43 50	21.9	32		11 28 05.9	43 42 05	7.5	64
0218+396	02 18 44.9	39 41 18	86.4	404	1141+392	11 41 09.3	39 15 06	15.2	89
	02 18 40.4	39 42 28	70.5	342		11 41 12.4	39 15 37	13.9	71
0218+399A	02 18 44.9	39 55 48	10.0	100	1149+398	11 49 04.7	39 51 25	7.5	40
	02 18 36.5	39 55 01	10.4	101		11 49 12.5	39 50 28	7.8	30
0219+443	02 19 05.1	44 19 57	25.4	112	1222+423	12 21 59.6	42 22 45	60.6	506
	02 19 07.2	44 19 39	38.7	88		12 22 01.6	42 23 33	87.9	636
0221+383	02 21 15.6	38 18 19	9.8	38	1230+398	12 30 16.0	39 53 06	3.1	26
	02 21 08.8	38 18 49	19.0	94		12 30 18.7	39 53 45	5.8	13
0231+391	02 31 43.3	39 10 49	4.1	33	1324+390	13 24 48.3	39 05 56	4.8	25
	02 31 46.9	39 10 23	4.3	37		13 24 47.4	39 04 50	6.6	45
0232+411B	02 32 41.6	41 09 55	93.3	430	1346+392	13 46 47.6	39 15 00	5.9	32
	02 32 50.8	41 10 31	63.3	350		13 46 47.9	39 16 12	7.6	37
0240+404	02 40 22.0	40 29 12	22.5	138	1348+396	13 48 30.4	39 36 35	9.2	40
	02 40 31.6	40 28 45	10.3	30		13 48 32.4	39 35 56	17.4	56
0250+384	02 50 41.2	38 29 50	6.8	159	1349+394	13 49 39.6	39 26 43	7.1	21
	02 50 42.3	38 29 04	23.1	180		13 49 42.9	39 30 20	5.3	16
0700+390	07 00 44.7	39 04 06	10.4	70	1352+397	13 52 00.2	39 42 02	13.9	66
	07 00 32.2	39 01 55	24.5	100		13 52 07.2	39 43 14	2.4	22
0710+457	07 10 49.3	45 45 27	175.1	573	1401+387	14 01 04.6	38 42 50	73.3	290
	07 10 55.3	45 45 12	72.4	300		14 01 05.5	38 41 38	41.2	262
0742+376	07 42 18.8	37 39 13	42.1	427	1410+438	14 10 20.2	43 51 24	22.5	130
	07 42 22.6	37 38 33	42.9	71		14 10 16.4	43 52 25	33.4	208
0759+392	07 59 02.5	39 12 38	6.0	29	1414+398	14 14 30.8	39 51 35	7.6	46
	07 59 03.2	39 13 21	5.7	37		14 14 29.2	39 49 17	3.5	15
0811+391	08 11 04.6	39 09 29	6.9	21	1415+391	14 15 49.9	39 12 11	2.8	11
	08 11 11.2	39 07 37	2.7	53		14 15 52.4	39 11 33	7.4	50
0813+398	08 13 29.6	39 53 46	7.1	45	1436+399	14 36 36.9	39 55 56	2.5	11
	08 13 23.1	39 53 06	9.8	70		14 36 45.5	39 55 50	4.8	23
0824+397	08 24 47.0	39 45 20	12.6	60	1437+427	14 37 50.8	42 46 53	39.7	330
	08 24 50.7	39 46 00	2.2	20		14 37 52.8	42 47 43	16.8	94
0836+402	08 36 54.1	40 15 03	28.7	140	1442+384	14 42 43.5	38 29 52	10.4	53
	08 36 54.4	40 14 14	55.8	395		14 42 37.3	38 29 57	12.6	85
0850+383	08 50 42.1	38 23 06	4.4	32	1444+417A	14 44 28.3	41 45 46	33.3	200
	08 50 40.6	38 22 13	7.6	67		14 44 37.0	41 45 57	38.2	225
0854+399B	08 54 34.0	39 56 18	48.3	234	1446+399	14 46 05.4	39 55 26	3.4	20
	08 54 23.9	39 58 07	22.6	100		14 46 16.1	39 58 08	7.3	50
0905+399	09 05 01.3	39 55 37	11.2	181	1446+440	14 46 40.1	44 04 39	43.3	260
	09 05 10.2	39 55 11	5.7	50		14 46 42.4	44 05 24	26.7	193
0910+392	09 10 39.5	39 14 36	8.4	43	1459+399	14 59 08.1	39 53 49	11.4	38
	09 10 43.7	39 14 35	10.8	60		14 59 21.9	39 55 09	7.2	58
0911+418	09 11 31.7	41 50 09	55.7	226	2304+429	23 04 12.1	42 54 15	25.5	138
	09 11 32.7	41 49 03	58.5	24		23 04 13.8	42 54 52	10.9	116
0918+444	09 18 22.1	44 26 53	68.0	224	2308+393	23 08 34.5	39 22 41	8.2	36
	09 18 09.5	44 26 13	16.6	40		23 08 36.3	39 22 01	6.8	41
0934+387	09 34 48.1	38 45 20	22.7	129	2313+406	23 13 46.9	40 39 24	16.3	127
	09 34 48.2	38 47 08	9.7	65		23 13 47.5	40 38 25	9.2	66
0947+424	09 47 09.3	42 26 54	38.3	251	2330+435	23 30 54.5	43 30 08	4.6	146
	09 47 14.2	42 27 07	21.9	166		23 30 58.2	43 30 17	11.0	88
0951+398	09 51 27.0	39 52 38	12.3	40	2338+393	23 38 47.6	39 20 14	16.2	74
	09 51 27.5	39 51 44	2.7	33		23 38 56.4	39 18 39	19.2	59
0956+391	09 56 41.0	39 12 02	5.6	29	2354+397	23 54 32.7	39 46 53	5.5	35
	09 56 43.8	39 10 51	6.7	29		23 54 36.2	39 45 47	4.6	14

Table 4. B3 VLA sources at 10.6 GHz: the maps

B3 name		RA (B1950) [^h ^m ^s]	DEC (B1950) [[°] ' "]	Total flux [mJy]	Comp. flux [mJy]	Dimensions [" × "]	PA [[°]]	Noise [mJy/beam]
0000+394	N	00 00 08.9	39 31 23.7	17.5	6.5	Point-like		0.8
	S	00 00 09.2	39 28 26.0		11.0	Point-like		
0005+383B		00 05 47.4	38 20 27.4	92.5		60.2 × 33.1	39	0.8
0035+385A		00 35 01.5	38 31 34.1		55.6	Point-like		
0035+385B		00 35 08.2	38 31 14.9	126.9	71.1	22.2 × 4.2	110	0.7
0050+401		00 50 45.2	40 10 54.8		73.8	41.8 × 29.9	5	
0050+402B		00 50 45.4	40 14 58.3	117.4	14.2	Point-like		1.2
0050+403		00 50 45.5	40 18 13.6		29.4	39.5 × 24.0	165	
0115+469	S	01 15 23.6	46 55 39.3		32.3	48.1 × 17.1	23	
	N	01 15 27.2	46 57 14.6	64.3	32.0	Point-like		0.5
0131+390	S	01 31 48.2	39 03 45.0		16.1	22.9 × 13.1	29	
	N	01 31 50.5	39 05 17.5	27.0	10.9	Point-like		0.3
0132+376A		01 32 29.5	37 38 29.8		97.0	43.9 × 37.8	63	
0132+376B		01 32 39.7	37 39 19.6	196.7	99.7	52.5 × 41.3	47	1.7
0157+393B	S	01 57 47.5	39 19 00.0		55.4	124.4 × 57.6	41	
	N	01 57 51.5	39 21 01.2	163.5	108.1	77.2 × 35.4	1	0.9
0157+405A		01 57 01.6	40 36 04.5		49.0*	—		
0157+405B		01 57 49.0	40 33 01.0	94.6*	45.6*	—		1.1
0211+393	W	02 10 57.6	39 18 44.9		14.9	Point-like		
	E	02 11 07.3	39 19 09.5	28.2	13.3	Point-like		0.4
0214+393		02 14 34.0	39 22 36.2	85.5		70.3 × 39.9	37	0.7
0219+428A		02 19 29.8	42 48 31.9	1235.2		51.0 × 9.0	175	3.0
0220+427A		02 20 02.4	42 45 50.9	1806.3*		—		
0221+393	S	02 21 34.3	39 17 57.7		2.3	Point-like		
	N	02 21 37.9	39 20 20.2	7.6	5.3	70.8 × 25.4	104	0.5
0222+403		02 22 37.8	40 18 08.7	182.5		110.3 × 39.9	168	1.3
0225+389		02 25 53.2	38 54 55.3	34.7*		—		1.5
0226+394		02 26 40.9	39 29 57.5	31.3*		—		1.1
0232+411B		02 32 42.0	41 09 59.6		115.6	41.5 × 28.2	75	
0232+411C		02 32 50.3	41 10 32.7	190.1	74.5	35.3 × 21.7	74	1.0
0241+393B	W	02 41 20.1	39 21 02.5		156.7	63.6 × 26.5	62	
	E	02 41 27.0	39 22 06.3	221.3	64.6	39.1 × 21.4	122	0.8
0246+393	W	02 46 59.8	39 22 19.5		207.5	59.7 × 40.9	102	
	E	02 47 10.3	39 22 05.6	380.8	173.3	58.7 × 40.4	85	1.2
0248+467		02 47 38.9	46 44 52.2	379.0*		—		1.1
0258+435		02 58 52.4	43 30 48.0	109.0		Point-like		0.9
	N	07 03 05.2	42 38 33.7		75.2	69.2 × 48.0	127	
0703+426A	C	07 03 10.0	42 36 39.7	608.2	299.8	55.2 × 40.5	148	0.9
	S	07 03 12.0	42 35 08.3		233.2	45.2 × 36.2	20	
0703+426B	N	07 03 30.0	42 38 12.4	71.1	26.7	Point-like		0.9
	S	07 03 30.2	42 36 39.7		44.4	43.1 × 22.8	160	
0709+393	W	07 09 35.6	39 18 51.3		25.9	30.0 × 18.7	3	
	E	07 09 43.9	39 18 17.1	42.6	16.7	Point-like		0.7
0755+379B		07 55 09.4	37 55 17.4	732.3		89.1 × 39.8	109	1.9
0757+395		07 57 32.1	39 33 05.5	27.3*		—		0.7
0831+399	W	08 31 13.0	39 55 31.3		11.1	Point-like		
	E	08 31 21.0	39 54 56.4	16.7	5.6	Point-like		0.9
0834+450A	S	08 34 26.4	45 00 05.6		129.8	50.6 × 29.3	130	
	N	08 34 27.7	45 01 27.7	301.3	171.5	53.6 × 31.7	175	1.2
0843+425	S	08 43 57.5	42 34 07.5		20.4	Point-like		
	N	08 43 59.8	42 35 26.3	51.1	30.7	36.8 × 13.3	13	1.2
0900+389	N	09 00 56.9	38 59 04.1	23.5	16.6	39.4 × 22.4	137	0.8
	S	09 01 01.5	38 57 57.4		6.9	Point-like		
0917+458A	W	09 17 47.0	45 51 02.2		659.4	63.8 × 39.2	43	
	E	09 17 53.9	45 52 44.5	1279.0	619.6	58.9 × 46.3	44	1.9
0938+399B		09 38 17.9	39 58 25.0	341.6		97.5 × 39.7	178	2.8
1013+410	W	10 12 53.0	41 01 43.1		83.8	51.0 × 38.9	88	
	E	10 13 02.9	41 02 02.3	186.3	102.5	59.0 × 44.4	89	1.5
1014+397A	N	10 14 15.4	39 47 29.8	110.2	63.9	121.2 × 43.4	132	1.4
	S	10 14 22.8	39 46 04.6		46.3	81.3 × 40.9	111	
1033+388	S	10 33 41.9	38 50 14.2		16.8	Point-like		
	N	10 33 43.2	38 51 18.6	31.8	15.0	Point-like		0.8
1037+399		10 37 19.3	39 58 07.3	8.6		Point-like		0.8
1154+397		11 54 12.7	39 44 52.1	16.1		109.5 × 36.2	145	0.8
1228+419A		12 28 08.3	41 55 39.8	154.7		140.5 × 69.7	119	1.3
1236+444A	N	12 36 10.6	44 30 20.8	88.8	69.5	Point-like		0.5
	E	12 36 32.6	44 25 09.0		18.8	Point-like		
1236+444B	W	12 36 15.6	44 27 13.8		16.4	Point-like		
	C	12 36 23.3	44 26 11.2	38.7	3.5	Point-like		0.5
1309+412A	S	13 09 26.1	41 12 09.2		52.5	74.8 × 52.8	29	
	N	13 09 28.2	41 17 41.8	116.9	64.4	86.3 × 52.1	179	1.0

Table 4. continued

B3 name		RA (B1950) [^h ^m ^s]	DEC (B1950) [[°] ' ^{''}]	Total flux [mJy]	Comp. flux [mJy]	Dimensions [" × "]	PA [[°]]	Noise [mJy/beam]
1313+387	S	13 13 05.8	38 45 40.5		14.6	Point-like		
	N	13 13 08.4	38 47 22.4	45.8	31.2	30.3 × 14.2	118	1.1
1318+428C		13 18 59.3	42 50 34.5		180.9	62.8 × 35.9	110	
1318+428A		13 19 08.9	42 51 04.3	418.2	237.3	56.1 × 32.8	98	1.2
1330+380	W	13 30 32.0	38 01 20.4		17.6	52.0 × 3.5	116	
	E	13 30 39.8	38 00 18.9	31.7	14.1	Point-like		1.0
1422+395	W	14 22 17.5	39 35 26.0		17.3	49.3 × 9.6	33	
	E	14 22 28.7	39 35 15.6	33.4	16.1	84.8 × 69.7	113	0.6
1447+402		14 47 03.1	40 13 53.4	104.4*		—		0.9
1450+391B		14 50 09.1	39 09 02.7	71.7*		—		0.7
2303+391A	N	23 03 43.0	39 12 05.8	151.1	67.0	44.5 × 22.8	166	0.7
	S	23 03 44.9	39 09 57.8		84.1	64.5 × 26.1	170	
2320+416B		23 20 18.6	41 41 33.1		54.1	26.3 × 6.0	20	
2320+417		23 20 24.2	41 43 03.4	68.1	14.0	Point-like		1.0
2341+396A		23 41 37.2	39 37 18.9	20.3		Point-like		1.4
2341+396B		23 41 43.5	39 35 28.7	22.6*		—		
2351+400B	W	23 51 22.9	40 01 21.8		98.0	58.0 × 36.1	108	
	E	23 51 28.9	40 00 57.9	157.8	59.8	42.6 × 40.5	27	1.6
2354+471		23 54 53.0	47 09 13.2		197.1	70.2 × 46.0	57	
2354+471A		23 55 02.4	47 10 08.2	383.6	186.5	71.7 × 42.2	61	0.9

are symmetric with respect to the flux densities; in fact only 18% have a ratio greater than 2 (very high values could also be an indication that the two components are not physically connected). Figure 4b shows that only 10% of double sources change their flux density ratio between 1.4 and 10.6 GHz by more than a factor of 2.

The spectral index computed between $\lambda\lambda 20$ cm and 2.8 cm for the single components has a median value of -0.890 . Figure 5 presents the difference $\Delta\alpha$ between the spectral indices of the two components of the 74 double sources. The distribution of $\Delta\alpha$ is asymmetric, in the sense that source components that are brighter at $\lambda 20$ cm exhibit slightly steeper spectra on average. The parameters of the mapped sources are presented in Table 4. Column 1 gives the B3 source names, Col. 2 a letter which marks the component. All the parameters presented in Cols. 3 through 8 are determined with a two-dimensional Gaussian fit to the $\lambda 2.8$ cm data. Columns 3 and 4 contain the component positions (equinox B1950.0); Cols. 5 and 6 give the integrated flux of the whole source and of the components, respectively; Cols. 7 and 8 have the FWHM and position angle. Column 9 gives the noise of the map. For complex sources, not well approximated by a Gaussian, the total flux densities are marked with an asterisk. Note that the rms noise in the maps is comparatively low with respect to the cross-scans. This is due to the fact that in mapping all four horns have been used, while in the cross-scans only the main beam was measuring the target, and the offset feeds were used to reject atmospheric noise. It is clear that the reference feeds add uncorrelated noise to the differential signal in the cross-scans, whereas in case of mapping they contribute to the source flux density measurement. In Fig. 6 we show five maps of those sources that exhibit the most complex structure at this resolution.

3.2. Notes on individual mapped sources

- **B3 0050+401:** This is a triple source consisting of a core and two lobes. The core has an inverted spectrum ($\alpha = 0.64$) between 1.465 and 10.6 GHz. Note that there is an error in Table 2 of Vigotti et al. (1989), which gives 111 mJy for the core at 1.465 GHz, while this should be 4 mJy. The source has a total spectral index $\alpha = -0.719$ between 0.408 and 10.6 GHz (Fig. 6a).
- **B3 0157+393:** This one is reminiscent of wide-angle tailed sources. The brightness asymmetry visible at 1.465 GHz (Vigotti et al. 1989) is also visible at 10.6 GHz. The spectrum is relatively flat ($\alpha = -0.59$) between 408 MHz and 10.6 GHz, indicating that the core may contribute proportionally more at the high frequency.
- **B3 0157+405:** This turns out to be a giant radio galaxy (Schoenmakers, priv. comm.). The spectrum is steep ($\alpha = -1.18$) between 0.408 and 10.6 GHz, indicating significant particle ageing. This is in line with the rather relaxed radio continuum morphology seen at both frequencies, and with the lack of any core and jets.
- **B3 0220+427:** This is 3C 66: between 408 MHz and 10.6 GHz the spectrum of the compact source B3 0219+428A (3C 66A) is relatively flat ($\alpha = -0.432$), the radio source B3 0220+427A/D is a FRI with $\alpha = -0.646$.
- **B3 0248+467:** An S-shaped radio galaxy identified with IC 260. At 10.6 GHz the core becomes very prominent. The total spectral index between 0.408 and 10.6 GHz is $\alpha = -0.57$ (Fig. 6b).
- **B3 0703+426:** The map contains two sources: B3 0703+426A and B3 0703+426B.

Fig. 6. Maps of four B3 sources with complex structure at $\lambda 2.8$ cm: a) B3 0050+401 – contour levels: $-3, 3, 5, 7, 10, 15, 20, 30, 50$ mJy; b) B3 0248+467 – contour levels: $-3, 3, 5, 7, 10, 15, 20, 30, 50, 70, 100, 150, 200$ mJy; c) B3 0703+426 – contour levels: $-3, 3, 5, 7, 10, 15, 20, 30, 50, 70, 100, 150, 200$ mJy; d) B3 1309+412A – contour levels: $-2, 2, 3, 5, 7, 10, 15, 20, 30$ mJy

The first, identified with a cluster galaxy, has $\alpha = -0.60$ (between 0.408 and 10.6 GHz); the second, identified with a compact object, has $\alpha = -0.82$ (Fig. 6c).

- **B3 1309+412A:** A FR II radio galaxy; the spectral index was not computed because the 408 MHz flux density also includes B3 1309+413 (Fig. 6d).
- **B3 1450+391:** A very diffuse radio source probably identifiable with a cluster galaxy. The spectrum is steep ($\alpha = -0.97$); however, the flux densities at 408 MHz and at 10.6 GHz can be underestimated.

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