ACCURATE POSITIONS OF 644 RADIO SOURCES

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[*Manuscript received May* 9, 1966]

Summary

The right ascensions and declinations of 644 extragalactic radio sources have been determined. For most sources the estimated error is less than 15″ arc in each coordinate. The sources were selected from the Parkes Catalogue of Radio Sources for the declination range +20° to −90°.

I. Introduction

A series of surveys of discrete radio sources has now been made using the 210 ft radio telescope of the Australian National Radio Astronomy Observatory at Parkes, N.S.W. (Bolton, Gardner, and Mackey 1964; Price and Milne 1965; Day, Shimmins, Ekers, and Cole 1966; Shimmins, Day, Ekers, and Cole, paper in preparation). These surveys have provided lists of radio source positions with an accuracy of about 1′ arc in both right ascension and declination. While these positions are accurate enough to make optical identifications with galaxies brighter than 17^m, more precise radio positions are required to confirm identifications with fainter objects. For this reason, a new series of observations has been undertaken to provide such positions. The telescope pointing errors, which have been discussed by Bolton, Gardner, and Mackey (1964), can occur in both the equatorial and altazimuth coordinate systems. Considerable improvement in positional accuracy can be achieved by restricting the observations to a range of $2\frac{1}{2}°$ in hour angle about the meridian, so that the significant errors occur only as a function of zenith angle. These errors were determined empirically for each day by observing a large number of calibration sources over a wide range of zenith angles. The positions for the calibration sources were either accurate radio determinations from lunar occultations or the optical positions of established identifications. Additional correction, as a function of right ascension, was necessary for some of the observations when extreme daytime temperatures or high winds affected the telescope pointing.

Six hundred and forty-four sources were observed, of which 462 are north of −33° (the latitude of Parkes). Most of the sources were selected from the Parkes Catalogue of Radio Sources (references given above). The remaining sources, which lie at those declinations between +20° and +27° for which the Parkes catalogue is not yet complete, were taken from the Cambridge 3C catalogue (Edge *et al.* 1959; Bennett 1962) and the MSH catalogue (Mills, Slee, and Hill 1958). Initially, the sources selected from the Parkes catalogue were those with flux densities greater than or equal to $1 \cdot 8 \times 10^{-26}$ W m^{-2} (c/s)$^{-1}$ at 1410 Mc/s. Thus, apart from a few sources with abnormally steep spectra, most of the objects had flux densities at 2650 Mc/s greater than 10^{-26} W m^{-2} (c/s)$^{-1}$. Weaker sources were also included

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where examination of the Palomar Sky Survey plates in the catalogue positions had suggested the possibility of an optical identification.

II. Equipment Used

The equipment used for these observations is a 210 ft reflector on an altazimuth mounting. A "master equatorial" system provides coordinate conversion for operation in equatorial coordinates (Bowen and Minnett 1962). The observations were made at 2650 Mc/s using a degenerate parametric switched radiometer (Cooper, Cousins, and Gruner 1964) with a system temperature of 150°K and an i.f. bandwidth of 40 Mc/s. With an output time constant of 2 sec, the peak-to-peak noise fluctuations

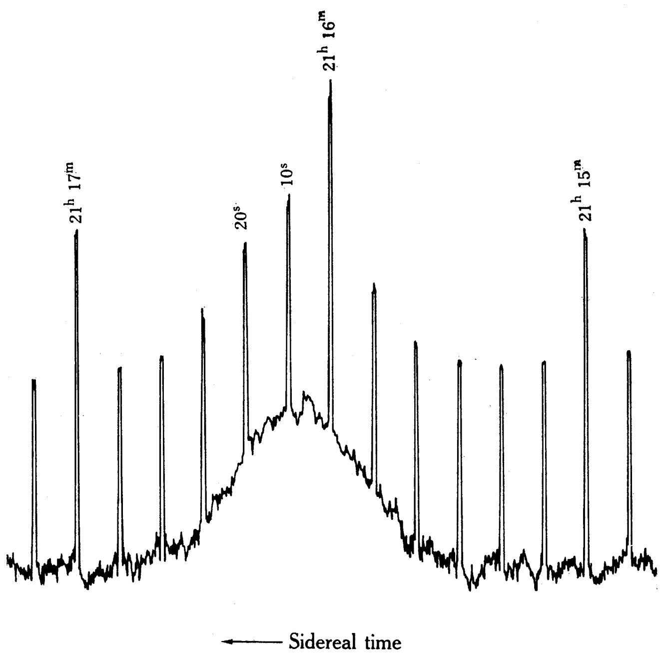

Fig. 1.—Typical transit record of a source of flux density $1 \cdot 3 \times 10^{-26}$ W m^{-2} (c/s)$^{-1}$. Vertical markers indicate tens of seconds in sidereal time.

were approximately $0 \cdot 2$ degK, and short-term receiver instabilities were of the same order. The beam shape was approximately Gaussian with a width of $7' \cdot 5$ arc at the half-intensity points. A typical record for a source of flux density $1 \cdot 3 \times 10^{-26}$ W m^{-2} (c/s)$^{-1}$ at 2650 Mc/s is shown in Figure 1.

III. Experimental Procedures

The observations were carried out in eight observing periods between May 1964 and September 1965. Calibration sources, distributed over a wide range of zenith angles, were observed each day. The gain of the receiver was calibrated at intervals throughout the observations by injecting a noise signal into the line between the feed and the r.f. switch.

(a) *Right Ascension Measurements*

The following method of making measurements of right ascension was used in the first five periods. With the telescope locked on the meridian and set at the appropriate zenith angle, a source was observed through transit. The receiver output was recorded on a paper chart run at 3 inches per minute. Sidereal time markers were recorded at 10 sec intervals on the same trace as the receiver output.

A different method was used for the last three observing sessions. The telescope was set, under master equatorial control, to the declination of the source and in turn to each of a series of hour angles within $2\frac{1}{2}°$ of the meridian. Thus, a number of drift scans were observed as the source crossed these pseudo-meridians. In the case of weak sources, where the main source of error is receiver noise fluctuations, the large number of observations more than offset the small errors introduced by operating under master equatorial control.

(b) *Declination Measurements*

All the declination measurements were made under master equatorial control and within $2\frac{1}{2}°$ hour angle of the meridian. The telescope was set to the right ascension of the source, and several scans in declination were made at a rate of $0°\cdot25$ per minute through the source position in each direction. The receiver output was recorded on a paper chart run at 3 inches per minute. Markers were recorded on the same trace at every $5'$ arc in declination.

IV. Analysis of Observations

The records were all analysed by hand. For sources where the records showed no sign of beam broadening or asymmetry, the apparent right ascensions or declinations were determined from the centre of symmetry of the right ascension drift scans or the declination drive scans. In some cases where there was evidence of a small confusing source, or second component of a double source, an attempt was made to estimate the positions of both objects. Table 2 (Section IX) contains notes on all sources that appeared extended or in any way confused.

For the declination observations, the effect of receiver time constant and backlash in the telescope drive are equal and opposite for scans made in opposite directions. Where odd numbers of scans were made for a source, a correction equal to half the difference between opposite scans was applied before the average of the set was determined. In the case of the right ascension measurements, the set of drift scans through the pseudo-meridians were averaged; effects of the receiver time constant were removed by the calibration procedure described in Section V.

All the observed right ascensions and declinations were then reduced to epoch 1950·0, using the Independent Day Numbers as described in the Astronomical Ephemeris.

The flux density of each source was obtained by measuring the peak amplitude of the smoothed record relative to the baseline, which was averaged out to $\pm15'$ arc from the centre of the source.

V. Calibration of Position Measurements

(a) *Right Ascension Measurements*

The right ascension α of a source is given by

$$\alpha = T + t + f(z) \sec \delta + g(t),$$

where

T is the observed transit time;

t is a time correction, which includes the receiver time constant and any clock error;

$f(z)$ is an unknown and slowly varying function of zenith angle, caused by beam squint, structural distortions of the dish and feed system as the telescope tilts, and any error in the telescope azimuth;

δ is the declination of the source;

$g(t)$ is a diurnal pointing error of the telescope, significant only when high temperature gradients cause distortion of the turret structure of the telescope.

The diurnal variation in pointing error, $g(t)$, was significant in only two of the observing sessions. A preliminary estimate of the magnitude and form of $g(t)$ was made by comparing the positions of sources common to both the affected series of observations and other observations in which $g(t)$ was negligible.

The function $f(z)$ was determined for all the observations using the positions of the calibration sources listed in Table 1. There were sufficient strong calibration sources on the northern meridian to calibrate each day's observations independently. South of declination $-33°$, where there are fewer good calibration sources, all the observations were reduced to a standard session by comparing the measurements of sources common to the different sessions. One calibration curve was then used to calibrate all the measurements.

The zenith angle variation $f(z)$ having been determined, the function $g(t)$ was re-evaluated using the calibration sources. It was found that a sinusoidal variation with period 24 hr was the simplest form of correction consistent with the observations.

Some sample calibration curves are shown in Figure 2. Figure 2(i) shows the calibration of a single day's observations north of the zenith as a function of zenith angle; $g(t)$ was negligible on this occasion. Figure 2(ii) shows the combined calibration south of the zenith.

For the northern meridian, the r.m.s. scatter of the calibration sources about the calibration curve was $5''$ arc, except for two days of unfavourable observing conditions when it increased to $7\frac{1}{2}''$ arc. Between $-33°$ and $-60°$ the r.m.s. scatter was $7''$ arc, and south of $-60°$ the scatter was $15''$ arc. These values are not significantly different from those expected from random errors (see Section VI) and uncertainties of calibration sources (quoted in Table 1).

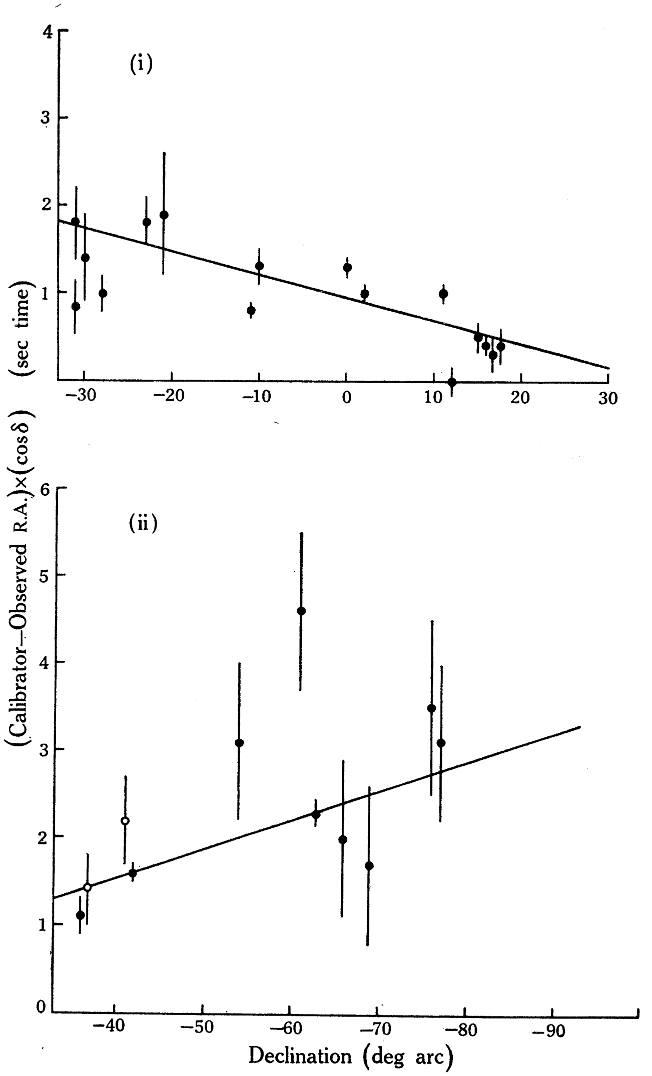

Fig. 2.—Differences between calibrator right ascensions (Table 1) and observed radio right ascensions, plotted against declination: (i) typical calibration for an observing session on the northern meridian; (ii) final calibration for the southern meridian. Open circles are the mean of more than one calibrator. Errors shown are due to receiver noise, uncertainties in the calibrator right ascensions, and probable misalignment between optical and radio centroids (Section VII).

TABLE 1

(*a*) POSITION CALIBRATORS NORTH OF DECLINATION −33°

(1) Parkes Catalogue Number	(2) Other Catalogue Number	(3) Right Ascension h m s	(4) Declination ° ′ ″	(5) S_{2650}	(6) Remarks*	(7) References†
0021−29	M 00−*29*	00 22 00·59(±0·05)	−29 45 27·4(± 1·0)	1·5	19^{m} QSO	9
0051−03	3C 26	00 51 35·3 (±0·07)	−03 49 51 (± 1·0)	1·1	19^{m} g	7
0157−31	M 01−*315*	01 57 58·3 (±0·4)	−31 07 54 (±12)	2·1	19^{m} QSO	1
0222−23	M 02−*27*	02 22 46·2 (±0·4)	−23 26 12 (±12)	1·3	18^{m} QSO	1
0240−00	3C 71	02 40 07·10(±0·03)	−00 13 31·5(± 0·4)	3·1	$9·8^{m}$ SO	4
0316+16	CTA 21	03 16 09·11(±0.2)	+16 17 40·3(±10)	4·7	Occultation	2
0451−28		04 51 14·0 (±0·5)	−28 12 36 (±12)	2·2	19^{m} QSO	1
0518+16	3C 138	05 18 16·5 (±0·06)	+16 35 30 (± 1)	6·4	18^{m} QSO	8
0855+14	3C 212	08 55 55·7 (±0·3)	+14 21 23 (± 2)	1·4	Occultation	5
0915−11	Hydra A	09 15 41·2 (±0·03)	−11 53 04·4(± 0·4)	23·5	16^{m} E	4
1040+12	3C 245	10 40 05·89(±0·06)	+12 19 17·6(± 1)	2·0	Occultation	5
1226+02	3C 273	12 26 33·0 (±0·1)	+02 19 38 (± 2)	40·4	Occultation C	6
1327−21		13 27 23·7 (±0·1)	−21 26 34·1(± 1)	1·1	17^{m} QSO	3
1416+06	3C 298	14 16 38·2 (±0·03)	+06 42 21·6(± 0·4)	2·6	18^{m} QSO (*d*)	4
1453−10	14−*121*	14 53 12·3 (±0·5)	−10 56 30 (±10)	2·4	Occultation C	5
1648+05	Herc A	16 48 40·0 (±0·8)	+05 04 35 (±12)	21·9	19^{m} g	11
2115−30	M 21−*34*	21 15 11·1 (±0·1)	−30 31 50·1(± 0·7)	1·3	17^{m} QSO	3
2230+11	CTA 102	22 30 07·71(±0·05)	+11 28 22·8(± 1·0)	5·3	17^{m} QSO	10

* C indicates that an estimated centroid at 2650 Mc/s has been used (quoted errors include errors in this estimation); (*d*) indicates object (*d*) in the list of Griffin (1963); other abbreviations are as for Table 2 (see text, Section IX).

† References to positions used are: 1, Bolton, Clarke, and Ekers (1965); 2, Clarke and Batchelor (1965); 3, Ekers and Bolton (1965); 4, Griffin (1963); 5, Hazard, Mackey, and Nicholson (1964); 6, Hazard, Mackey, and Shimmins (1963); 7, Sandage (personal communication); 8, Sandage, Veron, and Wyndham (1965); 9, Veron (personal communication); 10, Veron (1965); 11, Williams, Dewhirst, and Leslie (1961).

Table 1 (*Continued*)

(*b*) POSITION CALIBRATORS SOUTH OF DECLINATION −33°

(1) Parkes Catalogue Number	(2) Other Catalogue Number	(3) Right Ascension h m s	(4) Declination ° ′ ″	(5) S_{2650}	(6) Remarks*	(7) References†
0043−42	00−*411*	00 43 55·93(±0·05)	−42 24 14·2(± 0·4)	5·0	17^m g	5
0202−76		02 02 07 (±2·0)	−76 34 30 (±12)	1·3	17^m QSO	3
0220−42	02−*45*	02 20 18·5 (±0·6)	−42 13 24 (±12)	1·6	19^m db.	1
0332−39	03−*32*	03 32 14 (±1·0)	−39 10 42 (±12)	0·9	17·4^m E	1
0344−34	03−*36*	03 44 36 (±1·0)	−34 32 00 (±12)	1·7	17·4^m E	1
0518−45	Pictor A		−45 49 48 (± 6)	30·0	19^m g	2‡
0521−36	05−*36*	05 21 13·00(±0·04)	−36 30 14 (± 6)	11·4	17^m N	3
0535−66		05 35 37·9 (±1·0)	−66 03 51 (± 5)	1·2	Supernova rem.	4
0614−34	06−*36*	06 14 48 (±1·0)	−34 55 06 (±12)	1·9	19^m db.	1
0618−37	06−*37*	06 18 19 (±1·0)	−37 10 18 (±12)	1·9	16·6^m db.	1
0625−35	06−*38*	06 25 21 (±1·0)	−35 27 12 (±12)	2·9	17·6^m db.	1
0715−36	07−*35*	07 15 22·5 (±0·5)	−36 16 24 (±12)	1·1	17·8^m E	1
0718−34	07−*37*	07 18 57 (±1·0)	−34 01 30 (±12)	1·2	16·5^m E	1
1123−35	11−*33*	11 23 28 (±1·0)	−35 07 18 (±12)	1·6	16·0^m E3	1
1211−41	12−*41*	12 11 42 (±1·2)	−41 43 12 (±12)	1·0	19^m E	1
1221−42		12 21 04 (±1·2)	−42 18 42 (±12)	1·6	18^m g	1
1413−36		14 13 32 (±1·0)	−36 27 18 (±12)	1·4	18·5^m D	1
1655−77		16 55 12·38(±0·2)	−77 37 32·8(± 0·4)	1·2	16·5^m E0	5
1934−63		19 34 48·3 (±0·5)	−63 49 36·7(± 0·4)	11·4	18·5^m g	3
2152−69	21−*64*	21 52 57·8 (±0·1)	−69 55 40·1(± 0·4)	17·5	14^m E3	5
2204−54		22 04 29·08(±0·05)	−54 01 21·4(± 0·4)	1·8	17^m SO	5
2356−61	23−*64*	23 56 29·32(±0·06)	−61 11 40·1(± 0·4)	11·0	16^m E3	5

* Abbreviations used are as for Table 2 (see text, Section IX).

† References to positions used are: 1, Bolton, Clarke, and Ekers (1965); 2, Bolton, Gardner, and Mackey (1964); 3, Ekers (unpublished data); 4, Westerlund (personal communication); 5, Westerlund and Smith (1966).

‡ Used for declination calibration only; radio source extended 7′ in R.A.

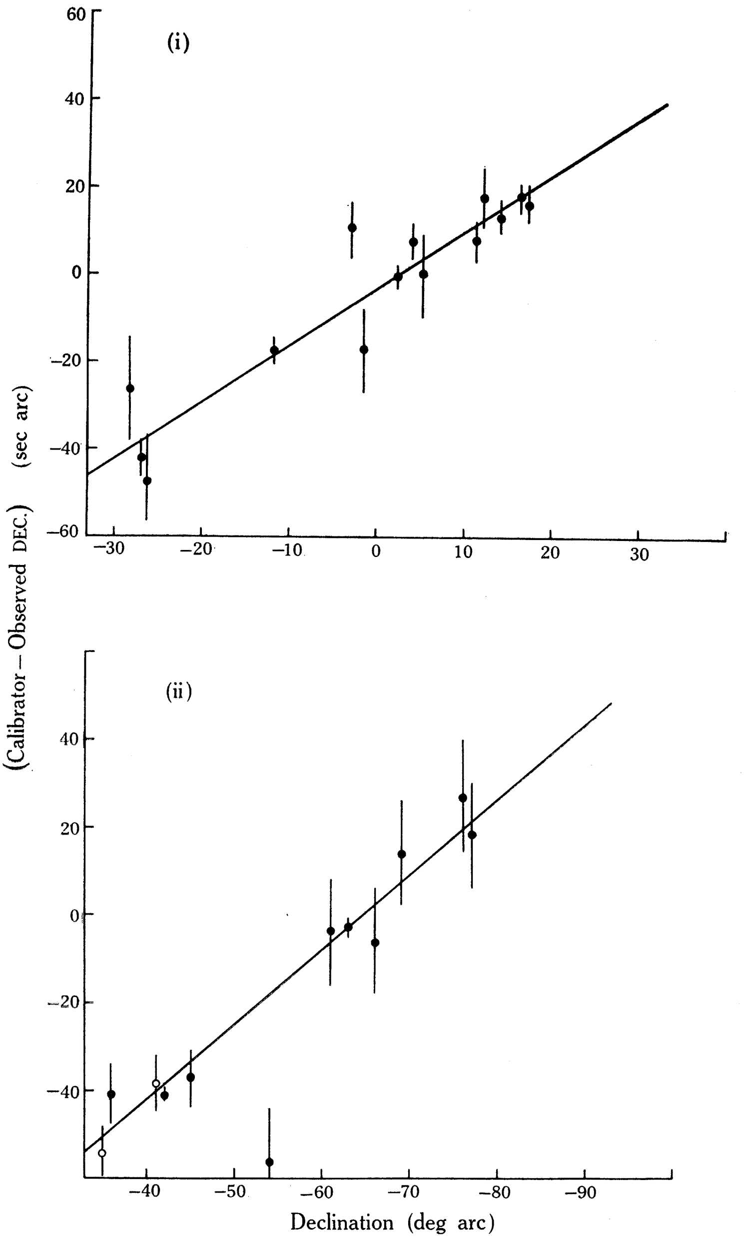

Fig. 3.—Differences between calibrator declinations (Table 1) and observed radio declinations, plotted against declination: (i) typical calibration for an observing session on the northern meridian; (ii) final calibration for the southern meridian. Open circles are the mean of more than one calibrator. Errors shown are due to receiver noise, uncertainties in the calibrator declinations, and probable misalignment between optical and radio centroids (Section VII).

(*b*) *Declination Measurements*

The declination δ of a source is given by

$$\delta = D+m(z)+n(t),$$

where

D is the declination indicated by the master equatorial;

$m(z)$ is an unknown, smooth, and slowly varying function of zenith angle, which includes the effects of beam squint, misalignment of the master equatorial unit and distortion of the dish, feed system, and master equatorial unit as the dish is tilted, and atmospheric refraction;* variation in refraction owing to changes in temperature and pressure during the observations was negligible;

$n(t)$ is the time-dependent variation in pointing error analogous to $g(t)$ above.

$m(z)$ and $n(t)$ were determined by calibration procedures similar to those described for the right ascension observations.

Some sample calibration curves are shown in Figure 3.

North of the zenith the r.m.s. scatter of the calibration sources about the calibration curve was 5″ arc, increasing to $7\frac{1}{2}$″ arc when observing conditions were unfavourable. The r.m.s. scatter between −33° and −66° was 7″ arc, and south of −60° it was 15″ arc.

VI. Errors in Position Measurements

The error e in right ascension and in declination has been calculated from

$$e = \left(\frac{\sigma_{\mathrm{n}}^2(S)+\sigma_{\mathrm{a}}^2}{n_{\mathrm{t}}^2}+\frac{\sigma_{\mathrm{P}}^2}{n_{\mathrm{d}}^2}+\sigma_{\mathrm{cal}}^2(\delta)\right)^{\frac{1}{2}},$$

where

n_{t} is the total number of scans of a source;

n_{d} is the number of days on which the source was observed;

σ_{a} is the r.m.s. error in the determination of the centre of the source profile relative to the sidereal time markers or to the declination indicators of the master equatorial unit;

$\sigma_{\mathrm{n}}(S)$ is the r.m.s. error, for a source of flux density S, due to receiver noise;

σ_{P} is the r.m.s. error due to small changes in the dish and feed system;

$\sigma_{\mathrm{cal}}(\delta)$ is the r.m.s. error, for a source of declination δ, in calibrating the measurements.

Analysis

For the strong sources, for which the effects of receiver noise are negligible, the uncertainty in the determination of the centre of the scan is about 2″ arc, and, as there are also slight irregularities of about 2″ arc in the positions of the markers on the records, for these sources the total uncertainty is about 3″ arc.

* For normal operation, electrical compensation is injected into the error detection system to correct for refraction. This compensation was disconnected for the declination measurements, since it could have been a source of additional error.

Receiver Noise

The error due to receiver noise was estimated by calculating the r.m.s. scatter between successive declination scans of a source and between successive drift scans when multiple transits were observed. These scatters, plotted as a function of flux density, are shown in Figure 4. They include the 3″ arc error, independent of receiver noise, discussed above.

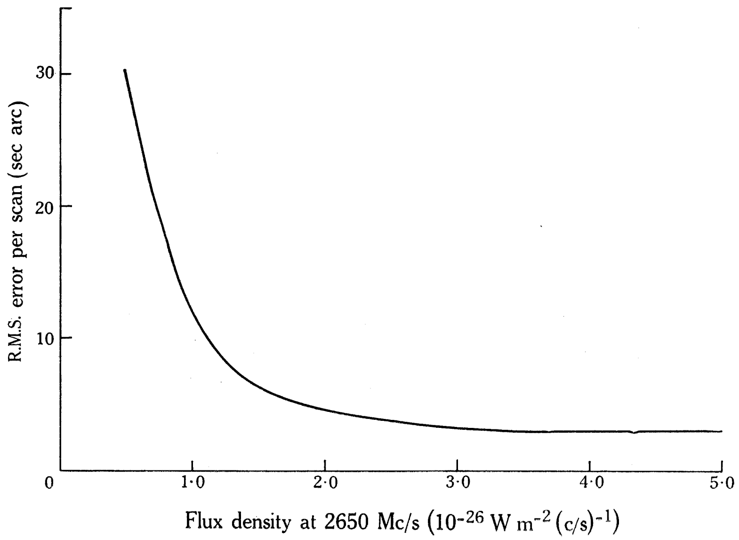

Fig. 4.—The r.m.s. receiver noise error per scan plotted against flux density at 2650 Mc/s.

Random Pointing Errors

The magnitude of the random pointing errors was estimated from a number of cross comparisons of different series of observations, using the measured positions of sources common to two or more series after systematic variations with right ascensions and declination had already been eliminated. This error was always greater than that expected from noise alone. After allowing for the estimated error due to noise, the residual scatter was calculated for each day's observations. This error varied from 6″ arc in right ascension and 4″ arc in declination for most observations to 12″ arc in right ascension and 7″ arc in declination for the observations made in unfavourable conditions.

Calibration Errors

The uncertainty in each calibration curve was estimated as a function of declination from the scatter of calibration sources about the calibration curve in different ranges of flux density. The calibration uncertainty for both right ascension and declination varies from about 2″ arc north of declination 0°, where there is a number of small diameter radio sources with accurately known positions, to 15″ arc south of declination —40°, where the calibrators are mainly sources identified with galaxies brighter than 17^{m}. For sources south of —40° the calibration error is the most significant. A re-evaluation of the present results will be worth while when better calibration sources are available.

Short-period Errors in the Master Equatorial

Errors that occur in declination over a range less than 10° still remain after calibration. The results of the optical measurements made for the initial calibration of the master equatorial, and other accurate position measurements (Roberts and

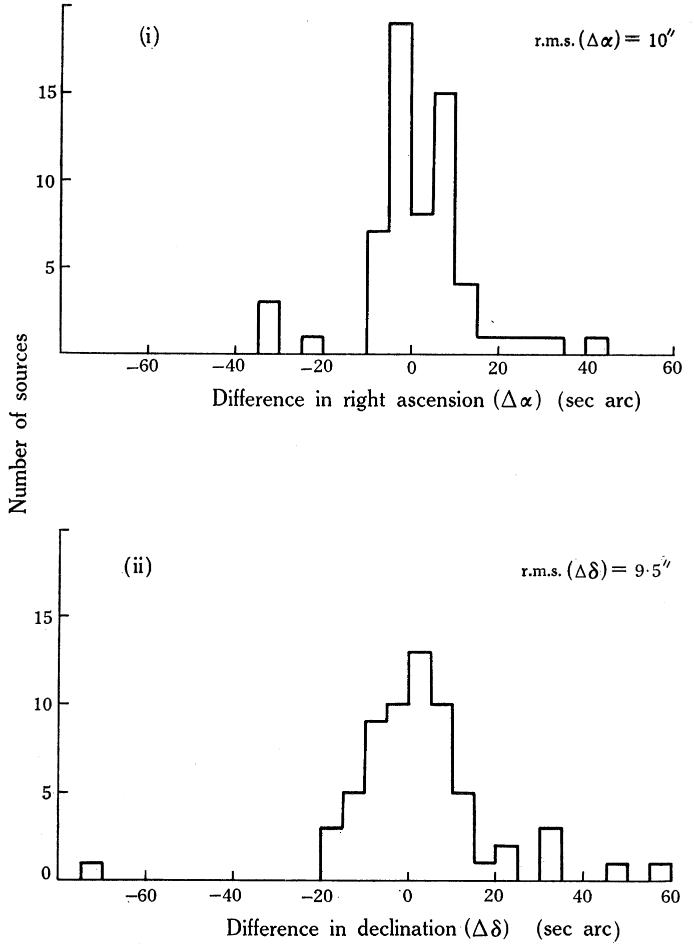

Fig. 5.—Histograms of differences between optical and radio positions for quasi-stellar objects, in (i) right ascension and (ii) declination.

Ekers 1966), have indicated that these short-period errors are less than a few seconds of arc. Since the scatter of the calibration sources in the present observations is not significantly greater than expected from a consideration of the errors discussed above, short-period errors have been ignored.

Complex Brightness Distribution and Confusion

No allowance has been made for confusion, since the density of sources to the level of the receiver noise is 1 per 400 beam areas. Notes are given in Table 2 (Section IX) in cases where there is a complex brightness distribution or a nearby confusing source. The uncertainty in position for the affected sources was estimated subjectively.

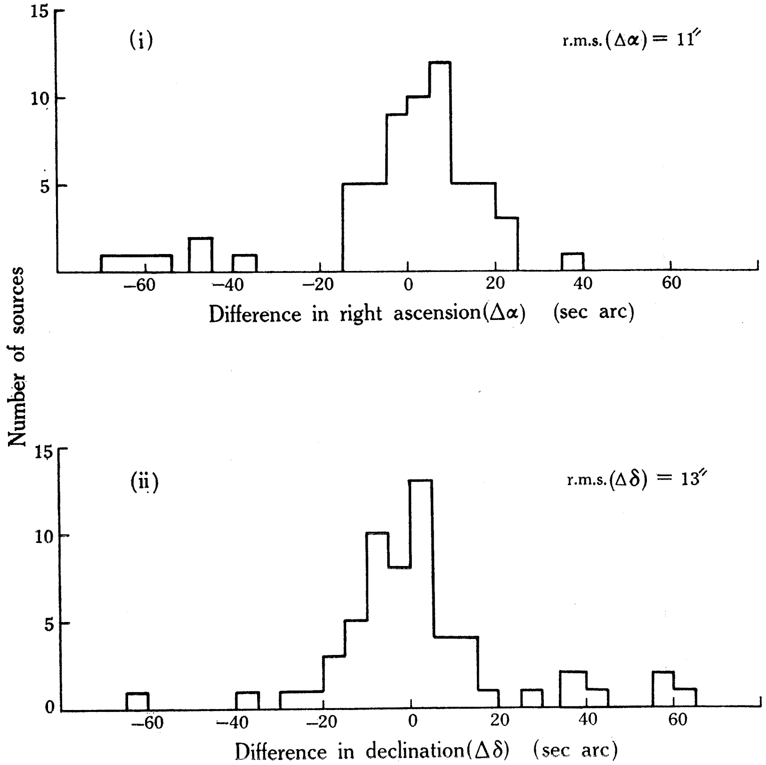

Fig. 6.—Histograms of differences between optical and radio positions for identified galaxies fainter than or equal to 17^{m}, in (i) right ascension and (ii) declination.

Total Error

Two-thirds of the sources observed have errors of less than 15″ arc in right ascension and less than 12″ arc in declination.

VII. Position Comparison with Optical Identifications

The optical fields of all the sources observed in this program with declination north of −44° have now been examined on the plates or prints of the 48 in. Palomar Sky Survey. Most of the results of this optical search have been published: declinations −20° to −44° (Bolton, Clarke, and Ekers 1965; Bolton and Ekers 1966*a*), declinations 0° to +20° (Bolton and Ekers 1966*b*; Clarke, Bolton, and Shimmins 1966), and declinations 0° to −20° (Bolton and Ekers 1966*c*). Brief optical data for these identifications are included in Table 2. These include identifications and optical data originally published by other authors, but no references are given here since further details are given in the publications quoted above.

A comparison between the optical positions and the radio positions measured in these observations has been made. The results are shown in Figures 5, 6, and 7, which show the distributions of the differences between the optical and radio positions. For the quasi-stellar objects, the 10″ arc r.m.s. scatter of the differences

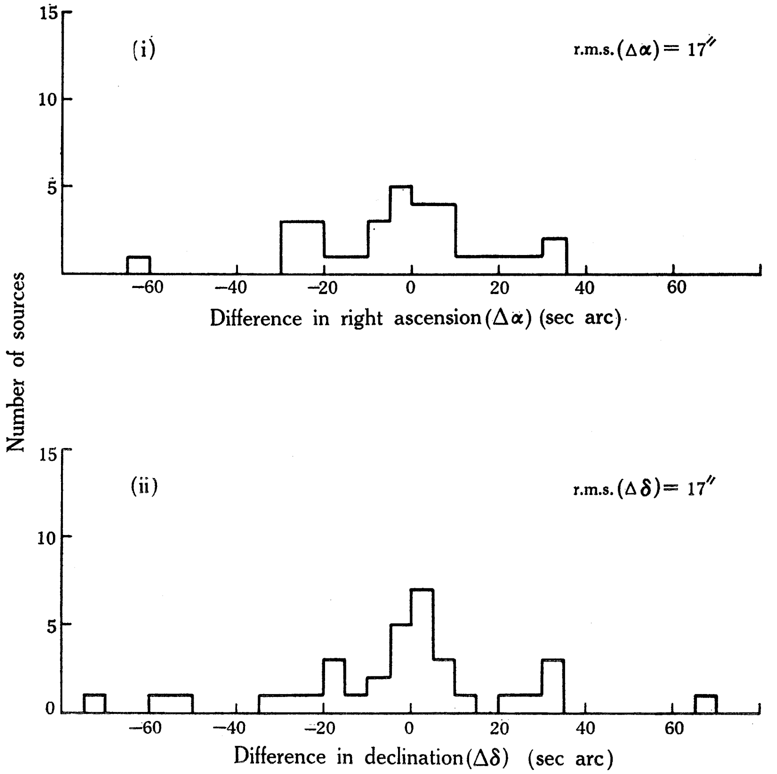

Fig. 7.—Histograms of differences between optical and radio positions for identified galaxies brighter than 17^m, in (i) right ascension and (ii) declination.

between the optical and radio positions in each coordinate can be attributed entirely to the uncertainty of at least 6″ arc in the optical positions estimated from the Palomar Sky Survey prints and the average error of ±8″ arc in the radio positions.

The r.m.s. scatter for galaxies fainter than 17^m is 12″ arc and for galaxies brighter than 17^m is 17″ arc. Since the accuracy of the radio positions is independent of the type of identification, the increasing scatter with increasing brightness indicates a real discrepancy in radio and optical centroids.

Table 2(*a*)

POSITIONS OF RADIO SOURCES NORTH OF DECLINATION −33°

(1) Parkes Catalogue Number	(2) Other Catalogue Number	(3) Right Ascension h m s	(4) Est. r.m.s. Error in R.A. s ″	(5) No. of Days Obs.	(6) No. of Scans	(7) Declination ° ′ ″	(8) Est. r.m.s. Error in Dec. ″	(9) No. of Days Obs.	(10) No. of Scans	(11) S_{2650}	(12) Identification	(13) Remarks
0000−17	00−*11*	00 00 47·9	0·7 10	1	4	−17 43 54	9	1	2	1·4	17·5^{m} g	
0002+12		00 02 17·9	1·5 22	3	3	+12 31 59	9	1	4	0·8	19·5^{m} g	
0003−00	3C 2	00 03 48·6	0·7 10	2	2	−00 20 57	12	1	3	2·3	QSO	
0007+12		00 07 18·2	1·2 18	3	3	+12 27 59	9	1	4	1·0	17·7^{m} E3	
0010+00	3C 5	00 10 36·0	0·8 12	3	5	+00 34 56	8	2	5	0·9		
0016−12	3C 8	00 16 16·6	0·9 13	1	2	−12 59 19	13	1	6	1·3		
0017+15	3C 9	00 17 50·0	1·5 21	1	1	+15 24 18	9	1	6	1·1	18·2^{m} QSO	
0019−00		00 19 51·3	0·7 10	1	3	−00 01 30	9	1	2	1·8		
0020−25	00−*27*	00 20 38·7	0·9 13	2	2	−25 18 56	11	1	6	1·3		
0020−08	00−*06*	00 20 46·9	2·1 31	1	2	−08 02 24	24	1	4	0·4		
0021−29	00−*29*	00 22 00·2	0·8 11	3	6	−29 45 25	8	3	20	1·6	20^{m} QSO	
0023−26	00−*210*	00 23 17·9	0·8 11	2	2	−26 18 45	9	1	4	5·6		
0030+19	3C 12	00 30 01·2	0·8 11	2	2	+19 37 34	10	1	2	1·2	19^{m} D?	
0032−20	00−*216*	00 32 38·1	1·1 16	2	2	−20 20 18	13	1	6	0·9		
0033+18	3C 14	00 33 29·3	0·7 10	2	2	+18 21 37	13	1	4	0·9		
0034−01	3C 15	00 34 29·9	1·0 15	1	1	−01 25 32	9	1	4	2·6	18^{m} E0	
0035+13	3C 16	00 35 08·8	2·1 31	1	1	+13 03 35	12	1	3	0·9		
0035−02	3C 17	00 35 46·3	0·4 6	1	6	−02 24 15	9	1	4	4·3	19^{m} E	
0038+09	3C 18	00 38 14·7	0·8 12	2	2	+09 47 03	7	1	4	2·7		
0045−25	00−*222*	00 45 04·9	0·7 10	3	3	−25 33 33	6	2	11	3·4	7·0^{m} Sc	Ext. in α
0049+17	3C 23	00 49 08·9	1·0 14	2	4	+17 30 58	16	1	4	0·7		
0051−03	3C 26	00 51 35·7	0·5 7	4	7	−03 50 10	5	3	12	1·2	19^{m} E	
0053−01		00 53 38·7	1·0 15	1	4	−01 34 30	13	1	6	0·9		Ext. in α and δ
0055−01	3C 29	00 55 01·0	0·8 12	2	4	−01 39 35	9	1	2	3·6	15·6^{m} E0	
0056−00		00 56 31·5	0·5 7	1	3	−00 09 22	10	1	6	1·9	18^{m} QSO	

0056−17	00−*126*	00 56 38·3	1·0 14	1	3	−17 17 04	13	1	10	1·0	17^{m} QSO?	
0101−12·9		01 01 52·5	0·8 12	1	4	−12 51 34	13	1	5	1·3		
0105−16	01−*112*	01 05 48·0	0·6 9	3	3	−16 20 21	6	2	12	2·2		
0106+01		01 06 01·9	2·7 40	2	4	+01 19 06	9	1	4	0·9	18·4^{m} QSO	
0106+13	3C 33	01 06 13·8	0·6 9	3	3	+13 03 44	7	1	4	6·6	15·6^{m} D	
0114−21	01−*26*	01 14 25·4	0·7 10	2	2	−21 07 55	6	2	6	2·2	19^{m} db.	
0114+07		01 14 49·0	0·9 13	2	3	+07 26 22	13	1	4	0·9	18^{m} QSO	
0116+08	01+*02*	01 16 24·6	0·7 10	3	3	+08 14 20	9	1	5	1·5		
0117−15	01−*19*	01 17 58·8	0·6 9	1	1	−15 35 59	9	1	4	2·7		
0119−04		01 19 56·2	1·0 15	2	4	−04 37 16	12	1	9	1·0	17^{m} QSO?	
0122−25	01−*29*	01 22 21·0	1·5 20	3	5	−25 33 02	11	1	4	0·6	17·8^{m} E3	
0122−00		01 22 54·8	0·8 12	1	3	−00 21 25	10	1	7	1·4	17^{m} QSO	
0123−01	3C 40	01 23 27·8	0·7 10	1	1	−01 38 29	30	1	2	1·9	13·2^{m} db. 13·4^{m} E	Ext. to north
0124+18		01 24 12·3	0·9 13	2	2	+18 57 46	15	1	2	1·0	15·5^{m} E	
0124+09	01+*05*	01 24 45·5	0·9 13	2	2	+08 59 10	11	1	5	1·1	19^{m} g	
0125−14	01−*111*	01 25 02·6	1·0 15	1	3	−14 18 40	12	1	6	1·5		
0128−26	01−*211*	01 28 06·6	2·7 37	1	1	(−26 25 30)		0		0·7		
0128+03	01+*06*	01 28 38·9	1·0 15	1	5	+03 59 26	11	1	4	0·8		Ext. to south
0128+06	3C 44	01 28 42·2	3·3 50	1	1	+06 08 24	7	2	8	0·6	18^{m} QSO?	
0130−17		01 30 16·0	0·7 10	1	2	−17 10 26	13	1	6	1·2	19^{m} QSO?	
0132+07	3C 45	01 32 37·9	1·1 16	2	2	+07 55 47	9	1	4	1·4		
0133+20	3C 47	01 33 39·9	0·8 11	2	2	+20 42 03	9	1	4	2·0	18^{m} QSO	
0138+13	3C 49	01 38 27·5	0·7 10	3	3	+13 38 31	9	1	4	1·6		
0148−29		01 48 19·2	0·7 9	4	4	−29 46 42	6	2	9	1·5		
0155−10	01−*110*	01 55 14·6	0·9 14	1	3	−10 58 30	12	1	6	1·2	17·5^{m} QSO?	
0157−31	01−*315*	01 57 58·1	0·3 7	5	5	−31 07 45	9	3	14	2·1	19^{m} QSO?	
0159−11	01−*121*	01 59 30·0	0·7 10	1	3	−11 47 24	13	1	4	2·3	17·5^{m} QSO	
0202+14		02 02 07·2	0·4 6	4	12	+14 59 58	6	2	9	2·9		
0202−17		02 02 34·0	0·8 11	1	3	−17 15 50	13	1	6	1·4	18·5^{m} QSO?	
0213−13	3C 62	02 13 11·5	1·0 15	1	1	−13 13 21	9	1	8	2·7	18·5^{m} E0	
0216−25	02−*25*	02 16 26·4	2·1 28	2	2	−25 02 07	12	1	5	0·6		
0218+11		02 18 04·4	1·1 16	1	5	+11 08 01	12	1	8	0·7		
0218−02	3C 63	02 18 21·1	0·5 8	1	4	−02 10 30	7	1	6	1·7	19·5^{m} E	
0219+08	3C 64	02 19 19·5	0·7 10	3	3	+08 13 28	11	1	6	1·4	19·5^{m} g	
0222−23	02−*27*	02 22 45·6	0·4 5	5	18	−23 26 28	10	3	16	1·2	18^{m} QSO?	

TABLE 2(*a*) (*Continued*)

(1) Parkes Catalogue Number	(2) Other Catalogue Number	(3) Right Ascension h m s	(4) Est. r.m.s. Error in R.A. s ″	(5) No. of Days Obs.	(6) No. of Scans	(7) Declination ° ′ ″	(8) Est. r.m.s. Error in Dec. ″	(9) No. of Days Obs.	(10) No. of Scans	(11) S_{2650}	(12) Identification	(13) Remarks
0231−23	02−*211*	02 31 07·0	0·9 13	2	3	−23 33 51	20	1	2	0·6	15^m QSO?	
0235−19	02−*110*	02 35 24·9	0·7 10	2	2	−19 45 35	7	2	12	2·8		
0238+08		02 38 26·4	1·2 18	2	2	+08 31 57	9	1	7	0·7	$14·8^m$ db.	
0240−00	3C 71	02 40 06·8	0·5 7	5	12	−00 13 36	7	3	15	3·0	$9·8^m$ Sc	
0248+05		02 48 24·4	2·7 40	1	1	+05 59 54	25	1	2	0·5		
0255+05	3C 75	02 55 04·9	0·5 7	5	5	+05 50 41	7	2	13	3·3	$14·8^m$ db.	
0300+16	3C 76·1	03 00 27·2	0·5 7	5	5	+16 14 30	7	1	4	1·5	16^m E	
0305+03	3C 78	03 05 49·1	0·7 10	2	2	+03 55 16	9	1	5	5·1	$14·7^m$ D	
0307+16	3C 79	03 07 11·0	0·5 7	4	8	+16 54 42	6	4	14	2·6	19^m E	
0310−18		03 10 25·5	0·8 12	2	7	−18 05 08	11	1	8	1·3		
0316+16	CTA 21	03 16 09·0	0·5 7	7	17	+16 17 40	5	5	25	4·8		
0319+12		03 19 08·5	1·5 21	1	1	+12 10 50	11	1	10	1·4		
0319−29		03 19 23·3	0·7 9	3	3	−29 51 22	11	1	4	1·3		
0320+05		03 20 41·8	1·1 16	1	1	+05 23 30	9	1	5	1·4	20^m g	
0325+02	3C 88	03 25 19·8	0·7 10	3	3	+02 23 24	9	1	2	2·8	15^m D	
0331−01	3C 89	03 31 41·8	0·5 8	4	8	−01 21 10	9	1	5	1·5	$18·5^m$ D	
0332−05		03 32 08·6	0·9 13	1	4	−05 44 47	12	1	6	1·0		
0333+12	3C 90	03 33 40·8	0·7 10	3	3	+12 52 50	8	1	4	1·3	18^m QSO?	
0336−01	CTA 26	03 36 58·6	0·5 8	4	10	−01 56 12	9	1	4	2·4	$17·5^m$ QSO?	
0340+04	3C 93	03 40 51·6	0·5 8	5	5	+04 48 25	9	1	7	1·5	$18·1^m$ QSO	
0346−27	03−*210*	03 46 33·3	1·1 15	1	1	−27 58 40	10	1	2	1·1	19^m E3	
0347+05	03+*010*	03 47 06·5	0·7 10	3	3	+05 42 35	9	1	5	1·8		
0349−14	03−*19*	03 49 09·7	0·7 10	1	5	−14 38 18	9	2	14	1·5	$16·2^m$ QSO	
0349−27	03−*212*	03 49 32·6	0·6 8	3	3	−27 53 05	6	2	12	2·9	$16·8^m$ E	
0350−07	03−*06*	03 50 04·8	0·8 12	1	4	−07 20 08	11	1	8	1·5	$17·5^m$ QSO	
0356+10	3C 98	03 56 10·4	0·5 7	4	4	+10 17 34	8	1	4	5·5	$15·0^m$ E	

0357−16	03−1*11*	03 57 59·1	0·9 13	1	5	−16 18 46	15	1	4	1·0		
0358+00	3C 99	03 58 32·7	0·9 13	2	2	+00 28 16	9	1	5	1·0		
0403−13	04−1*1*	04 03 13·7	0·5 7	1	4	−13 16 29	9	1	4	3·0	18^m QSO	
0404+03	3C 105	04 04 45·2	0·6 9	4	4	+03 33 12	9	1	6	3·4		
0405−12	04−1*2*	04 05 26·5	0·7 10	2	2	−12 19 28	12	1	3	2·6	16^m QSO	
0406−18		04 06 51·7	0·9 13	1	7	−18 05 08	11	1	8	1·3		
0409−01	3C 107	04 09 48·5	1·3 20	1	1	−01 07 20	15	1	6	0·7		
0410+11	3C 109	04 10 54·9	0·6 9	1	2	+11 04 53	9	1	2	2·4		
0411+14		04 11 41·0	0·9 13	2	2	+14 08 45	9	1	4	1·4		
0411+05	04+0*4*	04 11 57·3	2·7 40	1	1	+05 27 12	9	1	7	1·1		
0413−21	04−2*4*	04 13 53·7	0·9 13	2	2	−21 03 41	7	2	13	1·7		
0417+17	3C 114	04 17 28·0	1·9 27	2	2	+17 47 03	19	1	6	0·5		
0420−26	04−2*6*	04 20 30·2	1·2 16	2	2	−26 23 13	11	1	2	0·8	$18{\cdot}5^m$ E	
0420−01		04 20 43·1	0·9 13	1	4	−01 27 32	9	1	6	2·0	18^m QSO?	
0424−26		04 24 36·3	1·1 16	2	2	−26 50 38	18	1	3	0·6	$17{\cdot}2^m$ E3	
0430+05	(3C 120)	04 30 31·2	0·6 9	3	3	+05 15 03	9	1	8	3·5	$15{\cdot}0^m$ D	
0431−02		04 31 23·6	1·1 16	1	3	−02 36 02	13	1	6	1·0		
0431−13·5	04−1*12*	04 31 49·3	1·1 16	4	5	−13 28 58	20	2	8	0·4	$16{\cdot}3^m$ E	
0431−13·3		04 31 55·3	1·5 22	1	3	−13 16 58	20	2	8	0·8	$18{\cdot}8^m$ E	
0439+01	3C 124	04 39 23·6	0·8 12	2	4	+01 15 22	10	1	5	0·6	$19{\cdot}5^m$ E	
0440−00		04 40 04·7	0·9 13	1	2	−00 23 16	9	1	5	4·4	18^m QSO?	
0442−28	04−2*18*	04 42 36·7	0·5 7	4	4	−28 15 12	9	1	5	3·6	$18{\cdot}2^m$ E	
0445−22		04 45 29·5	0·7 10	2	2	−22 08 40	9	1	7	1·1	20^m g	
0451−28		04 51 14·9	0·6 8	4	8	−28 12 30	6	3	15	2·1	19^m QSO?	
0453−20	04−2*22*	04 53 13·3	0·7 10	2	2	−20 38 52	9	1	4	2·9	14^m E	
0453−30	04−3*14*	04 53 18·2	0·9 12	2	2	−30 11 50	9	1	4	1·9		Small source $3^m\ 15^s$ east
0454−22	04−2*21*	04 54 01·6	1·5 20	1	1	−22 04 06	9	1	6	1·3		
0454+06	04+0*12*	04 54 20·6	2·1 31	1	1	+06 39 47	12	1	4	0·5	$17{\cdot}5^m$ QSO?	
0456−30		04 56 29·7	0·7 9	3	3	−30 11 49	9	1	6	1·4		
0458−02		04 58 41·1	0·8 12	1	5	−02 03 48	8	1	3	1·9	20^m QSO?	
0502−10	05−1*1*	05 02 29·9	0·8 12	1	3	−10 19 30	14	1	8	0·7	$15{\cdot}4^m$ db.	
0503−28	05−2*2*	05 03 36·9	2·7 36	1	1	(−28 59 42)		0		0·5		
0505+03		05 04 59·4	2·1 31	1	1	+03 03 37	13	1	2	0·7	$19{\cdot}5^m$ g	
0508−22	05−2*3*	05 08 53·3	0·8 11	2	2	−22 05 11	9	1	4	0·9	$18{\cdot}5^m$ QSO?	
0511+00	3C 135	05 11 31·7	0·8 12	2	2	+00 53 04	9	1	2	1·6	18^m E	

TABLE 2(a) (*Continued*)

(1) Parkes Catalogue Number	(2) Other Catalogue Number	(3) Right Ascension (h m s)	(4) Est. r.m.s. Error in R.A. (s ″)	(5) No. of Days Obs.	(6) No. of Scans	(7) Declination (° ′ ″)	(8) Est. r.m.s. Error in Dec. (″)	(9) No. of Days Obs.	(10) No. of Scans	(11) S_{2650}	(12) Identification	(13) Remarks
0511−30	05−*35*	05 11 38·2	0·9 12	3	3	−30 32 55	9	1	4	1·3	17^m E	Second source 5′ north
0513−13	05−*15*	05 13 03·8	0·9 14	1	6	−13 41 45	12	1	8	1·0		
0518+16	3C 138	05 18 16·5	0·5 7	6	16	+16 35 28	7	3	15	6·3	18^m QSO	
0519−20	05−*24*	05 19 29·5	1·3 18	3	3	−20 50 32	8	2	11	0·8		
0523−32		05 23 35·7	2·1 27	1	1	−32 46 29	15	1	7	0·9	16^m E	
0528+06	3C 142·1	05 28 48·6	1·5 22	1	1	+06 28 12	9	1	2	1·8		
0530+04		05 30 25·4	0·9 13	2	2	+04 03 24	9	1	6	1·2	18^m D	
0531+19		05 31 47·6	0·8 11	2	2	+19 25 31	9	1	5	3·8	$17·7^m$ E	
0533−12	05−*114*	05 33 13·1	0·8 12	2	10	−12 04 31	15	1	6	0·8	$17·8^m$ N	
0539−01	3C 147·1	05 39 11·1	0·5 7	1	3	−01 55 42	7	1	4	53·2		
0541−24	05−*27*	05 41 09·9	2·7 36	1	1	−24 22 32	9	1	6	0·5	$18·5^m$ QSO?	
0554−32	05−*316*	05 54 25·5	2·1 27	1	1	(−32 23 18)		0		0·5		
0558+02		05 59 01·8	1·4 21	2	3	+02 28 26	23	1	4	0·3		
0602−31	06−*32*	06 02 22·7	0·9 12	2	2	−31 55 48	8	2	12	1·7		
0604−20	06−*22*	06 04 26·0	0·7 10	3	3	−20 21 46	9	1	6	1·7		
0605−06		06 05 19·2	0·7 10	1	4	−06 22 41	10	1	4	5·6	HII	
0605−08		06 05 36·4	0·7 10	1	4	−08 34 39	11	1	5	2·7		
0607−15	06−*14*	06 07 25·6	0·5 7	2	10	−15 42 21	13	2	8	1·6		
0611−25		06 11 31·2	0·8 11	2	7	−25 30 01	9	1	8	0·6	$18·5^m$ E	
0624−05	3C 161	06 24 43·2	0·5 8	4	4	−05 51 19	5	3	13	12·6		
0630−27		06 30 24·3	1·0 13	2	6	−27 19 15	14	1	3	0·4		
0634−20 A	06−*210*	06 34 23·1	0·5 7	1	3	−20 39 18	30	1	2	2·3	} $16·8^m$ E	
0634−20 B		06 34 22·0	0·7 10	1	3	−20 29 18	30	1	2	2·2	}	
0638−27	06−*211*	06 37 56·3	1·0 13	1	5	−27 42 20	17	1	4	0·5		
0643−15	06−*112*	06 43 28·4	1·0 15	1	4	−15 46 56	11	2	11	0·9		

0648−16		06 48 10·5	0·9 13	1	5	−16 34 01	10	2	13	1·4		
0656−24	06−*216*	06 56 53·6	0·6 8	5	5	−24 13 17	6	3	19	1·6		
0702−10		07 02 06·0	2·0 30	2	10	−10 22 33	15	1	6	1·0	7·1^m HII	Second source 2^m east; ext. in α and δ
0704−23	07−*21*	07 04 27·5	0·7 10	4	4	−23 06 52	9	1	5	2·2		
0707−18		07 07 42·8	0·7 10	1	2	−18 25 28	12	1	6	2·1		Ext. in α and δ
0709−20	07−*23*	07 09 38·7	0·7 10	3	3	−20 38 25	11	1	6	1·1		
0710+11	3C 175	07 10 15·4	0·8 12	2	2	+11 51 18	7	1	6	1·3		
0711+14	3C 175·1	07 11 15·5	1·0 15	2	2	+14 41 15	13	1	4	1·2		
0713−02	07−*03*	07 13 14·2	1·0 15	1	6	−02 26 02	15	1	4	0·8		
0715−25	07−*24*	07 15 14·2	0·6 8	3	3	−24 59 15	9	1	8	1·7		
0716−13		07 16 14·9	0·9 13	1	4	−13 08 41	11	1	5	1·6	HII	Ext. in α and δ
0719−11		07 19 01·2	1·0 15	1	3	−11 59 57	12	1	6	1·1	16^m E	
0719−18	07−*16*	07 19 55·7	1·0 15	1	4	−18 43 07	10	2	11	0·9		
0722−09	3C 178	07 22 31·1	0·9 13	1	3	−09 34 03	11	1	2	0·7	14^m Sc	
0724−01	3C 180	07 24 33·5	1·1 16	1	1	−01 58 44	10	1	6	1·6	19^m g	
0725+14	3C 181	07 25 20·4	0·7 10	4	4	+14 44 25	25	2	6	1·1	19^m QSO	
0727−22	07−*211*	07 27 17·7	2·7 37	1	1	−22 12 02	13	1	2	0·7		
0727+15		07 27 44·4	0·9 13	1	3	+15 21 17	11	1	4	0·9		
0727−11		07 27 58·5	0·9 13	1	4	−11 34 53	11	1	3	2·0		
0735+17		07 35 14·3	0·7 10	2	2	+17 49 12	10	1	4	2·0		
0736−30	07−*313*	07 36 21·7	0·9 12	2	2	−30 18 18	12	1	3	0·8		
0736+01		07 36 43·0	0·6 9	3	3	+01 44 00	7	2	8	1·7	18^m QSO?	
0741−06		07 41 54·6	0·8 12	1	5	−06 22 16	9	2	13	4·9		
0742+02	3C 187	07 42 28·9	1·2 18	2	2	+02 07 30	8	1	6	0·7		
0745−19	07−*117*	07 45 19·5	0·7 10	4	6	−19 10 14	7	2	10	0·9	18^m D	
0750−26	07−*215*	07 50 19·6	1·0 13	2	2	−26 17 25	9	1	6	7·2	HII	Ext. in α
0758+14	3C 190	07 58 45·0	0·7 10	3	3	+14 22 58	7	2	8	1·4	17·5^m QSO	
0800−09		08 00 15·0	0·9 13	1	5	−09 49 50	11	2	14	1·1	16^m E	Ext. in α and δ
0802+10	3C 191	08 02 04·4	1·2 18	3	3	+10 24 06	9	1	4	0·9	18·4^m QSO	
0803−00	3C 193	08 03 04·5	0·8 12	1	4	−00 49 40	8	1	6	0·7	15·9^m E4	
0806−10	3C 195	08 06 30·6	0·6 9	3	3	−10 19 03	9	1	2	2·3	18·8^m E	
0809−05·7	08−*04*	08 09 34·9	1·0 15	1	2	−05 40 46	14	1	4	0·8	18^m QSO?	
0812+02	08+*02*	08 12 47·5	0·6 9	5	5	+02 04 16	9	1	6	1·2	18·5^m QSO?	Second source 25^s east

TABLE 2(*a*) (*Continued*)

(1) Parkes Catalogue Number	(2) Other Catalogue Number	(3) Right Ascension h m s	(4) Est. r.m.s. Error in R.A. s ″	(5) No. of Days Obs.	(6) No. of Scans	(7) Declination ° ′ ″	(8) Est. r.m.s. Error in Dec. ″	(9) No. of Days Obs.	(10) No. of Scans	(11) S_{2650}	(12) Identification	(13) Remarks
0812−02	3C 196·1	08 12 55·6	1·3 19	1	1	−02 59 19	9	1	4	0·9	18·5^m D	
0818+17		08 18 52·8	0·8 12	2	2	+17 57 56	11	1	5	1·0	19^m g	
0819−30	08−*23*	08 19 25·8	0·6 8	4	4	−30 01 13	9	1	5	1·6	18·2^m E3	
0819+06	3C 198	08 19 50·8	0·9 13	1	3	+06 06 35	11	1	2	0·9	17·4^m E	
0825−20	08−*24*	08 25 04·0	0·6 9	3	3	−20 16 24	6	2	7	2·2	18^m QSO	
0831+17·2	3C 202	08 31 59·6	0·6 9	4	4	+17 10 52	9	1	5	1·0		
0832+14		08 32 19·1	2·5 36	1	1	(+14 22 00)		0		0·4		
0834−20		08 34 24·7	0·5 7	1	4	−20 06 35	10	3	16	3·0		
0834−19		08 34 55·6	0·5 7	1	4	−19 41 41	7	1	2	2·6		
0838+13	3C 207	08 38 02·9	0·5 7	6	6	+13 23 10	6	2	10	1·8	18·2^m QSO	
0850+14	3C 208	08 50 22·6	1·6 23	2	2	+14 04 09	8	1	4	1·0	17·4^m QSO	Ext. to north
0850−20	08−*216*	08 50 45·7	0·7 10	3	3	−20 36 05	9	1	6	1·1		
0851−14	08−*116*	08 51 28·0	1·0 15	1	5	−14 16 43	13	1	6	0·9		
0851+14	3C 208·1	08 51 53·5	0·8 12	2	2	+14 17 11	9	1	6	1·2		
0855−19	08−*119*	08 55 48·1	1·5 22	1	5	−19 39 17	14	1	4	1·0	19·5^m QSO?	
0855+14	3C 212	08 55 56·0	0·6 9	6	6	+14 21 09	9	2	9	1·5	21^m N	
0859−25	08−*219*	08 59 37·3	0·6 8	3	3	−25 43 24	7	2	9	2·7		
0859−14	09−*11*	08 59 54·9	0·5 7	1	4	−14 04 00	10	1	4	2·7	17·8^m QSO?	
0903+16	3C 215	09 03 43·8	1·4 20	2	2	+16 58 10	9	1	4	0·8	18·3^m QSO	
0909+16		09 09 15·7	2·1 30	2	2	(+16 30 36)		0		0·7	18·5^m E	
0912−16		09 12 52·8	2·0 29	1	2	−16 18 53	25	1	3	0·4		
0915−11	Hydra A	09 15 41·3	0·4 6	9	16	−11 53 05	5	6	29	23·5	16^m D	
0919−14		09 19 49·4	0·8 12	1	1	−14 16 10	10	1	2	1·2		
0922+14		09 22 20·7	1·1 16	3	5	(+14 57 36)		0		0·3	18·0^m QSO	
0933+04	3C 222	09 33 55·4	1·9 27	2	2	+04 35 33	14	1	3	0·3		
0935−28	09−*27*	09 35 48·7	1·3 17	3	3	−28 59 05	9	1	7	1·0		

0939+14 B		09 39 25·2	1·5	21	1	3	+14 09 21	30	1	2	0·7			
0939+14 A	3C 225	09 39 31·7	0·5	7	3	8	+14 00 24	20	2	5	1·7			
0940+02		09 40 37·7	1·5	22	2	2	+02 57 02	11	1	4	0·8			
0941−08		09 41 09·4	0·9	13	1	5	−08 05 43	11	1	6	1·8	18^m	E	
0941+10	3C 226	09 41 36·1	0·8	12	2	2	+10 00 08	9	1	6	1·0			
0945+07	3C 227	09 45 08·5	0·7	10	3	5	+07 39 19	10	1	5	4·0	17^m	N	
0947+14	3C 228	09 47 28·3	0·7	10	3	3	+14 34 16	9	1	2	1·9			Previous QSO identification not supported by this position
0947−24	09−*210*	09 47 35·5	1·7	23	2	2	−24 57 56	16	1	3	0·9			
0949+00	3C 230	09 49 26·6	0·9	13	2	2	+00 12 24	9	1	4	1·5	$18{\cdot}5^m$	QSO?	Second source 45^s east
0955−28	09−*212*	09 55 49·0	0·8	11	3	5	−28 50 08	19	1	4	0·6			
0957+00		09 57 43·8	2·0	30	2	2	+00 19 36	9	1	6	0·5	$17{\cdot}6^m$	QSO	
1002−21	10−*21*	10 02 48·0	2·0	28	3	6	−21 30 53	13	2	8	0·7			Ext. in δ
1005+07	3C 237	10 05 22·0	0·8	12	2	2	+07 44 56	7	2	8	3·4			
1008+06	3C 238	10 08 23·1	0·7	10	3	3	+06 39 26	9	1	6	1·4			
1011−31	10−*33*	10 11 33·6	2·1	27	1	1	(−31 37 36)		0		0·9			
1011+11		10 11 36·2	2·7	39	3	4	+11 05 53	10	1	4	0·5			
1015−31	10−*35*	10 15 53·3	0·6	8	3	3	−31 29 28	9	1	4	3·0			
1022+20	3C 242	10 22 36·0	2·7	38	2	5	+20 25 42	11	1	4	0·6			
1031−11		10 31 07·6	0·9	14	1	3	−11 55 04	12	1	6	1·2			
1031+11		10 31 26·9	2·0	29	2	2	+11 28 36	20	1	2	0·6			
1039+02	10+*07*	10 39 04·7	0·8	12	2	2	+02 58 10	9	1	6	1·5			
1040+12	3C 245	10 40 06·1	0·5	7	5	15	+12 19 16	6	2	12	2·1	18^m	QSO	
1048−09	10−*019*	10 48 59·6	0·9	14	1	5	−09 02 24	12	1	6	1·1			
1055+01	10+*010*	10 55 55·4	0·4	6	7	10	+01 49 53	9	1	6	3·3	18^m	QSO	
1059−01	3C 249	10 59 30·7	0·9	13	2	2	−01 00 03	9	1	6	1·4			
1103−20	11−*22*	11 03 54·6	0·6	8	4	4	−20 52 46	9	1	7	1·3			
1107+10		11 07 09·6	0·8	12	2	4	+10 59 45	12	1	3	0·8	$18{\cdot}5^m$	QSO?	
1116+12		11 16 20·2	0·9	13	2	2	+12 50 59	9	1	6	1·7	$19{\cdot}3^m$	QSO	
1116−02	3C 255	11 16 51·1	1·7	26	1	2	−02 46 44	22	1	3	0·6			
1117+14		11 17 51·9	0·7	10	3	3	+14 37 24	9	1	4	1·5	19^m	QSO?	
1120+05	3C 257	11 20 34·5	1·2	18	4	4	+05 46 31	12	1	3	0·9			

TABLE 2(*a*) (*Continued*)

(1) Parkes Catalogue Number	(2) Other Catalogue Number	(3) Right Ascension h m s	(4) Est. r.m.s. Error in R.A. s ″	(5) No. of Days Obs.	(6) No. of Scans	(7) Declination ° ′ ″	(8) Est. r.m.s. Error in Dec. ″	(9) No. of Days Obs.	(10) No. of Scans	(11) S_{2650}	(12) Identification	(13) Remarks
1127−14		11 27 36·3	0·9 13	1	2	−14 32 53	11	1	3	6·5	QSO?	
1131−19	11−*16*	11 31 08·3	2·7 38	1	1	−19 37 53	10	2	7	0·5		
1136−13	11−*18*	11 36 37·8	0·5 7	1	8	−13 34 08	10	1	4	2·7	17·8^m QSO	
1136−32	11−*38*	11 36 46·3	1·1 14	1	1	−32 06 02	15	1	2	1·2		
1138−26	11−*27*	11 38 19·3	2·1 28	1	1	−26 12 48	16	1	4	0·4		
1138+01	11+*08*	11 38 34·2	0·8 12	2	2	+01 30 53	9	2	6	1·4		
1139−28	11−*28*	11 39 03·9	0·9 12	2	2	−28 34 22	12	1	5	1·3		
1142+19	3C 264	11 42 30·2	1·0 14	1	1	+19 53 29	9	1	3	3·0	13^m E	
1143−31	11−*310*	11 43 46·2	1·5 19	2	2	−31 40 44	20	1	4	0·9		
1147+13	3C 267	11 47 22·7	0·6 9	4	4	+13 03 55	9	1	4	1·2		
1148−00		11 48 10·4	0·9 13	1	5	−00 07 10	11	1	5	2·5	QSO?	
1159−10		11 59 39·1	1·0 15	1	4	−10 24 05	11	2	7	0·9	18·5^m E	
1201−04·1		12 01 29·0	1·0 15	1	2	−04 06 10	12	1	4	1·3	18^m db.	
1203−26		12 02 59·4	1·0 13	6	10	−26 17 48	12	1	7	1·0		
1203+04	12+*02*	12 03 46·5	1·5 22	2	2	+04 22 45	9	1	6	0·8		
1213−17		12 13 12·4	1·0 14	1	4	−17 15 04	12	1	4	4·4		
1215+03	12+*04*	12 14 59·7	0·7 10	4	4	+03 55 09	8	1	3	1·1	17^m D }	
											17·4^m E }	
1216−10	12−*09*	12 16 00·6	0·8 12	1	2	−10 02 55	11	1	4	1·6		
1216+06	3C 270	12 16 50·1	1·1 16	1	1	+06 06 09	9	1	2	8·3	12·0^m E	Ext. in a
1222+13	3C 272·1	12 22 32·2	0·5 7	1	4	+13 09 38	9	1	2	4·0	9·3^m E	
1226+02	3C 273	12 26 33·2	0·4 6	10	13	+02 19 35	6	4	18	39	13^m QSO	
1229−02		12 29 27·1	0·9 14	1	2	−02 07 35	11	1	6	1·5	QSO?	
1233−24	12−*27*	12 32 59·1	0·7 10	4	4	−24 55 44	7	2	13	1·1	17^m QSO	
1233+16	NRAO 403	12 33 58·2	0·7 10	4	4	+16 48 58	15	1	2	1·0	18·0^m db.	
1237−10		12 37 06·3	0·9 13	1	2	−10 07 12	11	1	4	1·2	18·2^m QSO	

1239−04	3C 275	12 39 45·0	0·7 10	1	3	−04 29 37	10	1	4	2·0		
1240−20		12 40 33·5	1·6 22	3	3	−20 56 06	12	1	3	1·5		
1241+16	3C 275·1	12 41 27·1	0·7 10	4	4	+16 39 14	9	1	4	1·5	19·0^m QSO	
1245−19		12 45 44·6	0·6 9	3	3	−19 42 59	9	1	3	3·5		
1249+09		12 49 10·4	0·9 13	2	2	+09 12 35	8	2	7	1·0	19^m E	
1252−12	3C 278	12 52 00·1	0·8 12	2	2	−12 17 07	7	1	4	4·6	13·5/13·2 db.	
1252+11		12 52 08·0	0·9 13	2	2	+11 57 12	9	1	6	1·1	16·6^m QSO	
1253−05	3C 279	12 53 35·0	0·5 7	2	6	−05 31 15	6	2	6	11·2	17·7^m QSO	
1303+09	13+*01*	13 03 06·8	2·1 31	1	1	+09 11 45	9	1	4	0·7		
1306−09	13−*02*	13 06 01·4	0·7 10	1	6	−09 34 29	10	1	4	2·9	18·5^m D	
1309−22	13−*23*	13 08 57·3	0·5 7	4	4	−22 00 49	6	2	10	2·3	20^m g	
1309+04	13+*04*	13 09 48·8	1·4 21	1	2	(+04 10 30)		0		0·4		
1313+07	13+*05*	13 13 46·3	0·8 12	3	3	+07 17 59	9	1	6	1·2	15·5^m D	
1317−00	13−*08*	13 17 04·0	0·9 13	2	4	−00 34 11	13	1	5	0·9		Ext. in δ
1317+17		13 17 55·3	0·9 13	2	2	+17 58 56	9	1	3	1·1		
1318+11		13 18 49·7	0·9 13	2	2	+11 22 15	9	1	6	1·1	19^m QSO?	
1320+03		13 20 45·6	0·9 13	2	4	+03 23 49	11	1	3	0·7	19·5^m D	
1327−21		13 27 23·4	0·6 8	5	6	−21 26 43	7	5	19	1·1	16·7^m QSO	
1330+03	3C 287 1	13 30 21·3	0·7 10	3	3	+02 16 04	9	1	4	1·8	19^m N	
1334−29	13−*25*	13 34 09·5	0·7 9	4	4	−29 36 25	9	2	5	1·1	8·0^m Sc	Ext. in α
1334−17	13−*18*	13 34 55·8	1·0 15	1	5	−17 56 39	11	1	2	0·9	19·5^m g	
1335−06	13−*011*	13 35 31·0	0·7 10	1	2	−06 11 53	10	1	4	1·9	17·2^m QSO	
1340+05		13 40 12·9	0·7 10	3	3	+05 19 30	12	1	3	1·1	17·8^m N	
1341+14		13 41 57·2	0·8 12	1	4	(+14 23 36)		0		0·6	18^m QSO?	
1344−07		13 44 22·5	0·7 13	1	2	−07 48 31	8	1	4	1·0		
1345+12		13 45 06·0	0·5 7	5	5	+12 32 35	17	1	2	3·4	17·0^m SO	
1352+16	3C 293·1	13 52 14·4	2·7 39	1	1	+16 29 42	22	1	3	0·4		
1354−17	13−*115*	13 54 22·5	0·7 10	2	6	−17 29 38	10	2	7	1·4		Ext. to south
1354+01	13+*012*	13 54 29·3	0·7 10	3	3	+01 19 10	8	2	11	1·2	18·2^m E	
1354+19		13 54 41·5	0·9 13	2	2	+19 33 29	9	1	4	1·5	16·5^m QSO?	
1358−11	13−*117*	13 58 58·4	0·9 13	1	3	−11 22 00	9	1	4	1·0	15·0^m E2	
1404−01	14−*01*	14 04 14·9	1·7 25	1	2	−01 40 03	15	1	6	0·6	19·5^m QSO	
1407+17		14 07 39·8	2·0 29	2	3	+17 47 44	10	1	3	0·7	13·4^m E3	
1411+09		14 11 29·0	3·0 45	2	3	+09 29 05	12	1	6	0·6	18·3^m E	
1411−30		14 11 43·6	2·1 27	1	1	−30 11 38	18	1	4	0·7		
1414+11	3C 296	14 14 28·2	0·8 12	2	2	+11 01 56	11	1	3	2·3	13·3^m E2	

TABLE 2(*a*) (*Continued*)

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1414−03	3C 297	14 14 47·1	0·9 13	1	2	−03 47 06	15	1	2	1·1		
1416−15	14−*14*	14 16 14·4	0·9 13	1	2	−15 41 52	15	1	2	1·1	18·5^{m} g	
1416+06	3C 298	14 16 38·4	0·5 7	5	6	+06 42 20	6	2	10	2·6	16·8^{m} QSO	
1417−19	14−*15*	14 17 01·8	1·1 15	1	1	−19 15 00	13	1	4	1·1	17·5^{m} N	
1420−27	14−*28*	14 19 54·2	2·1 28	1	1	−27 14 18	9	2	12	1·1	18^{m} QSO?	
1420+19	3C 300	14 20 40·0	1·5 21	2	2	+19 48 52	15	1	2	1·7	18·8^{m} E5	
1422−29	14−*210*	14 22 32·3	0·9 12	2	2	−29 46 39	11	1	4	1·1	17·5^{m} QSO?	
1425−01	3C 300·1	14 25 55·7	0·5 7	2	4	−01 10 37	6	3	12	1·7	18^{m} QSO?	
1427+07		14 27 32·3	0·6 9	4	4	+07 28 26	9	1	4	1·1	15·6^{m} E	
1434+03	14+*010*	14 34 25·6	0·5 7	6	6	+03 37 04	9	1	7	1·8		
1436−16		14 36 42·0	0·9 13	1	2	−16 46 13	14	1	4	1·1	19^{m} D	
1445−16	14−*118*	14 45 29·5	1·0 15	1	3	−16 08 02	14	1	3	1·1		
1446+00		14 46 06·6	0·7 10	6	6	+00 30 32	9	1	4	0·9	19·2^{m} E	
1452+16	3C 306	14 52 01·4	1·7 24	2	2	+16 34 36	9	1	4	0·8	14·9^{m} E3	
1452−04	3C 306·1	14 52 25·5	1·2 18	1	2	−04 08 49	10	1	3	0·9	E	
1453−10	14−*121*	14 53 11·9	0·6 9	4	7	−10 56 50	6	4	18	2·5	18^{m} QSO	
1454−06	14−*018*	14 54 03·8	1·1 16	1	3	−06 05 31	14	1	4	0·9	QSO?	
1502+26	3C 310	15 02 48·6	1·0 13	1	1	+26 12 29	8	1	4	2·9		
1504−16·7	15−*13*	15 04 16·5	1·0 14	1	1	−16 40 57	9	2	11	2·3	18·6^{m} g	
1508−05	15−*05*	15 08 13·3	0·5 7	1	4	−05 31 50	30	1	4	2·8		
1508+08	3C 313	15 08 33·3	0·8 12	2	2	+08 02 58	9	1	4	1·9	19·5^{m} E	
1509+01	15+*04*	15 09 53·4	0·9 13	2	2	+01 32 02	11	1	4	1·1		
1510−08		15 10 09·0	1·0 15	1	1	−08 54 51	9	1	6	3·2	17·8^{m} QSO?	
1511+26	3C 315	15 11 30·8	1·1 15	1	1	+26 18 26	8	1	4	2·1		
1514+07	3C 317	15 14 17·1	1·1 16	1	1	+07 12 18	9	1	2	2·2	16·0^{m} E3	
1514−16		15 14 36·9	1·0 14	1	4	−16 30 47	16	1	4	0·8		

1514−24		15 14 45·1	0·9	12	3	3	−24 11 26	9	1	4	1·8	$16{\cdot}2^m$	E	
1517+20	3C 318	15 17 51·0	0·9	13	2	2	+20 26 40	9	1	4	1·3			
1518−29		15 18 44·0	2·7	35	1	1	(−29 30 48)		0		0·6			
1518+04·7		15 18 44·8	0·7	10	2	2	+04 40 57	9	1	4	2·3	$18{\cdot}2^m$	g	
1520−04	15−0*7*	15 20 04·9	0·8	12	1	4	(−04 53 30)		0		0·7			
1523+03		15 23 18·1	0·7	10	3	3	+03 18 59	8	1	4	1·1	$19{\cdot}5^m$	E	
1524−13		15 24 12·2	1·0	15	1	5	−13 40 39	10	1	5	1·7	$20{\cdot}5^m$	QSO?	
1528−29		15 28 54·4	0·7	9	3	3	−29 19 57	11	1	5	1·0			
1539−09		15 39 26·4	0·9	14	1	6	(−09 18 24)		0		1·0			
1542+02	15+0*13*	15 43 01·5	1·5	23	2	4	+01 59 11	12	1	4	0·5	$18{\cdot}5^m$	E	
1550+20	3C 326	15 50 11·9	0·6	9	4	4	+20 14 51	9	1	6	1·0			Ext. in δ; second source 52^s west
1553+20	3C 326·1	15 53 57·3	0·6	9	3	3	(+20 14 06)		0		1·2			
1556−21	15−2*13*	15 56 09·7	2·0	28	2	2	−21 31 30	9	1	6	0·9			
1559+02	3C 327	15 59 56·7	0·7	10	2	2	+02 06 20	9	1	6	4·3	$17{\cdot}0^m$	D	
1602−28	16−*21*	16 02 05·9	0·7	9	3	3	−28 50 53	13	1	4	1·2			
1602−17	16−1*1*	16 02 9·7	1·2	17	1	6	−17 25 42	17	1	5	0·7			
1602+01	3C 327·1	16 02 12·1	1·0	15	1	1	+01 26 04	8	1	3	2·1			
1602−09	16−0*1*	16 02 43·0	0·5	7	1	3	−09 19 09	10	1	5	1·9			
1603+00	16+0*3*	16 03 40·6	1·1	16	1	1	+00 08 33	8	1	4	1·3	$16{\cdot}5^m$	E4	
1607+26		16 07 07·9	1·1	16	1	1	+26 48 58	9	1	8	2·7			
1618+17	3C 334	16 18 07·3	0·8	11	5	7	+17 43 48	7	2	9	1·0	$16{\cdot}4^m$	QSO	
1621−11	16−1*8*	16 21 13·3	0·7	10	2	12	−11 34 01	10	2	9	1·4			
1622−29		16 22 56·1	0·7	9	3	3	−29 44 48	8	2	13	1·6			
1635−14	16−1*13*	16 35 54·6	0·9	13	1	2	−14 10 01	6	1	4	1·0			
1641+17	(3C 346)	16 41 34·8	0·5	7	4	4	+17 21 15	9	1	4	2·1	$17{\cdot}5^m$	E3	
1643−22	16−*29*	16 43 04·5	0·7	10	3	3	−22 22 28	11	1	6	1·0			
1644−10	16−1*19*	16 44 43·4	0·8	12	2	6	−10 39 02	11	1	4	1·4			
1648+05	Herc A	16 48 40·8	0·5	7	5	10	+05 04 36	6	3	15	22·0	$19{\cdot}0^m$	D	
1648−06		16 48 59·3	0·8	12	1	3	−06 13 17	11	1	5	1·2			
1708+00		17 08 02·1	0·8	12	2	2	+00 40 09	12	1	5	0·7	20^m	db.	
1712−12		17 12 51·2	1·5	22	1	6	−12 02 57	19	1	4	0·6	$17{\cdot}5^m$	D	
1717−14		17 17 11·8	0·9	13	1	3	−14 23 10	10	1	3	0·8			
1717−06		17 17 29·1	1·0	15	1	4	−06 58 42	14	1	4	0·8			
1717−00	3C 353	17 17 55·6	0·5	7	5	5	−00 55 53	9	1	6	27·8	$16{\cdot}8^m$	D	

TABLE 2(*a*) (*Continued*)

(1) Parkes Catalogue Number	(2) Other Catalogue Number	(3) Right Ascension h m s	(4) Est. r.m.s. Error in R.A. s ″	(5) No. of Days Obs.	(6) No. of Scans	(7) Declination ° ′ ″	(8) Est. r.m.s. Error in Dec. ″	(9) No. of Days Obs.	(10) No. of Scans	(11) S_{2650}	(12) Identification	(13) Remarks
1722−02		17 21 59·7	0·5 7	3	6	−02 39 06	9	1	2	1·4		
1727−21	3C 358	17 27 40·7	0·5 7	4	4	−21 27 00	6	2	14	9·5	Supernova 1604 A.D.	
1730−13		17 30 12·1	0·7 10	1	4	−13 02 52	10	1	4	5·0		
1732−09		17 32 21·1	0·5 7	2	8	−09 14 51	7	1	4	1·5		
1732+16		17 32 26·0	1·5 22	2	2	(+16 02 54)		0		0·7		
1739+17		17 39 26·8	0·7 10	5	5	+17 21 40	6	2	9	0·9	15^m D	
1751+04	(3C 363·1)	17 51 00·0	2·0 30	2	6	+04 30 03	12	1	5	0·2		Complex source
1759+13		17 59 21·5	0·9 13	7	7	+13 51 17	8	3	20	0·7		
1800−02		18 00 14·0	0·6 9	2	11	−02 07 36	12	1	5	1·0		
1820+17	(3C 375)	18 20 09·2	0·5 7	5	5	+17 58 28	6	3	15	1·0		
1836+17	3C 386	18 36 12·7	0·5 7	7	7	+17 09 10	6	3	15	3·8	16^m D	
1846−00	3C 391	18 46 48·5	1·1 16	1	1	−00 58 58	8	2	6	10·8		
1920−07		19 20 47·6	0·8 12	2	11	−07 47 43	6	2	13	1·0		
1930−08		19 30 08·2	0·6 9	2	10	−08 24 15	8	2	11	1·0		
1938−15		19 38 24·5	0·6 9	3	3	−15 31 39	6	2	11	4·0		Second source $1^m 50^s$ west
1946−23		19 46 22·8	2·1 29	1	1	−23 34 47	8	3	21	0·7		
1949+02	3C 403	19 49 43·9	0·5 7	6	6	+02 22 40	6	2	16	3·6	$16·5^m$ SO	
1949−01	3C 403·1	19 49 52·8	0·8 12	2	10	−01 25 15	10	2	7	0·7	$17·5^m$ E	
1953−07	3C 404	19 53 27·7	0·8 12	1	4	−07 45 13	11	1	2	0·9		
2004+11		20 04 29·5	1·9 28	2	2	+11 51 18	13	1	2	0·6		
2005−10		20 05 12·8	1·0 15	1	7	−10 25 59	13	1	9	0·8		
2012+01		20 12 00·7	2·7 40	1	1	+01 05 28	20	1	2	0·5		
2019+09	3C 411	20 19 44·5	0·5 7	6	6	+09 51 31	6	3	20	1·6		
2025−15	20−*16*	20 25 18·5	0·7 10	2	13	−15 31 31	9	3	19	0·9		

2029+18	(3C 415)	20 29 25·2	2·7 38	2	5	+18 49 27	18	1	2	0·3		
2030−23	20−*28*	20 30 20·1	0·6 8	5	5	−23 03 36	6	3	13	1·4	20^m D	
2033+18		20 33 17·3	1·9 27	2	2	+18 46 51	13	1	2	0·6		
2040−26	20−*212*	20 40 44·2	0·6 8	4	4	−26 43 50	9	2	9	1·2	$15{\cdot}4^m$ E	
2044−02	3C 422	20 44 33·7	0·6 9	1	3	−02 47 31	9	1	2	1·5		
2045+06	3C 424	20 45 44·3	0·7 10	3	3	+06 50 20	9	1	6	1·2	$18{\cdot}4^m$ E	
2048−14	20−*112*	20 48 21·9	0·5 7	3	10	−14 46 16	8	1	4	1·1	$19{\cdot}5^m$ D	
2053−20	20−*214*	20 53 11·3	0·7 10	4	4	−20 08 07	8	2	8	1·5	$17{\cdot}8^m$ E2	
2058−28	20−*215*	20 58 39·1	0·5 7	6	6	−28 13 49	9	1	4	2·7	$15{\cdot}6^m$ E	
2059−13	20−*119*	20 58 56·7	0·8 12	1	4	−13 30 38	18	2	9	0·6	$15{\cdot}2^m$ E3	
2103+12		21 03 48·6	2·0 29	2	2	+12 27 54	9	1	6	0·9	$17{\cdot}3^m$ SO	
2104−25	21−*21*	21 04 24·9	0·6 8	5	5	−25 39 06	9	1	6	5·6	$16{\cdot}8^m$ E	Ext. in α
2111−25		21 11 43·8	0·7 9	3	3	−25 54 13	9	1	6	1·2	19^m QSO?	
2113−21	21−*23*	21 13 46·0	0·9 13	2	2	−21 08 33	11	1	3	1·2		
2115−30	21−*34*	21 15 10·8	0·4 6	8	23	−30 31 55	7	3	11	1·3	$16{\cdot}5^m$ QSO	
2120+16	3C 432	21 20 24·3	1·0 14	2	6	+16 51 43	15	1	2	0·7	$18{\cdot}8^m$ QSO?	
2121+24	3C 433	21 21 31·5	1·1 15	1	1	+24 52 16	9	1	2	5·6		
2126+07	3C 435	21 26 37·6	1·1 16	1	1	+07 19 48	10	1	2	1·0	20^m QSO?	
2127+04		21 28 02·6	0·6 9	3	3	+04 49 04	9	1	5	2·9		
2128−20	21−*29*	21 28 11·0	0·7 10	3	3	−20 50 07	12	1	3	1·1		
2128−12		21 28 51·5	0·5 7	1	2	−12 20 07	8	1	4	2·0		
2135−14	21−*115*	21 35 00·6	0·8 12	2	9	−14 46 27	11	1	4	2·0	17^m QSO?	
2135−18	21−*116*	21 35 18·2	1·0 14	1	3	−18 56 56	15	1	2	0·8	$19{\cdot}5^m$ D	
2144−17		21 44 17·1	1·3 19	1	3	−17 54 05	22	1	4	0·6	$19{\cdot}5^m$ QSO	
2144+15	3C 437	21 45 00·5	1·0 14	2	2	+15 06 54	9	2	4	1·5		
2145+06		21 45 36·3	0·7 10	2	2	+06 43 42	9	1	7	3·3	$17{\cdot}5^m$ QSO?	
2145−17	21−*118*	21 45 51·2	1·1 16	1	3	−17 37 45	16	1	4	0·8		
2146−13	21−*119*	21 46 46·0	1·0 15	1	4	−13 18 40	13	1	6	0·9	QSO	
2147+14	NRAO 667	21 47 58·9	1·1 16	1	1	+14 35 52	9	1	2	1·3		
2148+14	NRAO 668	21 48 19·6	0·8 12	2	2	+14 19 17	9	1	4	1·2		
2149−20	21−*121*	21 49 04·1	0·5 7	1	3	−20 00 26	14	1	4	1·3		
2149−28	21−*214*	21 49 09·8	0·9 12	2	2	−28 42 26	9	1	6	1·9		
2154−18	21−*123*	21 54 11·8	0·9 12	1	3	−18 28 17	9	2	10	1·0	$16{\cdot}5^m$ QSO?	
2159+04	21+*014*	21 59 29·0	0·6 9	5	5	+04 20 59	7	2	6	1·0	$19{\cdot}5^m$ E	
2203−18	22−*11*	22 03 25·1	0·5 7	1	5	−18 50 16	9	1	2	5·0	$19{\cdot}5^m$ QSO?	
2209+08		22 09 32·6	0·9 13	2	2	+08 04 29	8	3	8	1·5	$18{\cdot}5^m$ QSO?	

TABLE 2(*a*) (*Continued*)

(1) Parkes Catalogue Number	(2) Other Catalogue Number	(3) Right Ascension h m s	(4) Est. r.m.s. Error in R.A. s ″	(5) No. of Days Obs.	(6) No. of Scans	(7) Declination ° ′ ″	(8) Est. r.m.s. Error in Dec. ″	(9) No. of Days Obs.	(10) No. of Scans	(11) S_{2650}	(12) Identification	(13) Remarks
2210+01		22 10 04·4	0·9 13	2	2	+01 37 57	12	1	3	1·6		
2211−17	3C 444	22 11 41·4	0·7 10	2	2	−17 16 38	6	3	18	4·5	19^m D	
2212+13	3C 442	22 12 13·3	3·0 44	1	1	+13 35 33	11	1	2	1·3	$14·3^m$ db.	Ext. to west
2216−03	22−06	22 16 16·1	0·9 13	1	3	−03 50 37	10	1	3	1·1	$17·5^m$ QSO	
2216−28		22 16 54·2	0·7 9	4	4	−28 11 34	12	1	6	0·9	18^m E	
2221−02	3C 445	22 21 15·6	0·6 9	3	3	−02 21 54	8	2	6	2·3		Ext. in δ
2223−05	3C 446	22 23 10·5	0·7 10	1	2	−05 12 23	9	1	3	4·7	$18·4^m$ QSO	
2230+11	CTA 102	22 30 07·3	0·4 6	9	27	+11 28 28	6	4	19	5·3	$17·3^m$ QSO	
2235−12	22−*114*	22 35 16·4	1·2 18	1	3	−12 01 39	25	1	4	0·4		
2236−17		22 36 27·6	1·0 15	1	4	−13 18 40	13	1	6	0·9	QSO?	
2247+11		22 47 20·8	1·1 16	1	1	+11 20 19	9	2	11	1·3	$14·4^m$ E	
2247+14		22 47 56·0	1·1 16	1	1	(+14 04 36)		0		1·4		
2248+06	22+*09*	22 48 14·5	1·5 22	1	1	+06 46 30	10	1	2	1·0	$18·5^m$ E2	
2249+18	3C 454	22 49 09·2	1·0 15	2	2	(+18 32 54)		0		1·2	18^m QSO?	
2251+15	3C 454·3	22 51 29·2	0·7 10	3	3	+15 52 54	9	1	6	10·0		
2251+11		22 51 39·7	2·7 40	1	1	+11 20 54	11	1	2	0·7	17^m QSO?	
2252+12	3C 455	22 52 35·9	0·9 13	2	2	+12 57 28	9	1	8	1·5	$15·2^m$ E3	
2258+19		22 58 49·8	1·2 17	1	3	+19 24 10	16	1	2	0·4		
2258+08		22 59 00·6	1·4 21	1	7	(+08 22 30)		0		0·4		
2300−18		23 00 22·8	0·7 10	2	10	−18 57 49	9	2	14	0·9	$18·3^m$ N?	
2308+07	23+*02*	23 08 09·3	1·5 22	1	1	+07 18 48	11	1	2	0·9	$14·9^m$ E	
2309+18	3C 457	23 09 36·5	1·0 14	2	5	+18 29 09	11	1	2	0·9		
2309+09	3C 456	23 09 56·8	1·1 16	1	1	+09 03 07	9	1	4	1·3	$19·5^m$ E	
2310+05	3C 458	23 10 18·7	1·1 16	1	1	+05 01 01	9	1	4	1·3		
2313−18		23 13 08·6	0·9 13	1	4	−18 17 05	15	1	4	0·9	$19·3^m$ g	
2313+03	3C 459	23 14 01·4	0·8 12	2	2	+03 49 06	9	1	4	2·5	18^m N	

2317−27	23−*24*	23 17 14·9	0·7 9	3	3	−27 44 27	9	1	8	1·3	18^{m} E	
2318−16	23−*18*	23 18 23·8	0·6 9	1	4	−16 39 25	9	1	2	1·0		
2322−12	23−*112*	23 22 42·5	1·2 18	4	4	−12 24 07	11	1	2	0·8	17·2^{m} E5	
2322−05		23 22 44·4	1·1 17	1	4	−05 14 10	19	1	2	0·8	N	
2324−02	23−*011*	23 24 19·7	0·9 13	1	3	−02 18 48	11	1	4	1·6	18^{m} E	
2325−15	23−*113*	23 25 54·8	0·8 12	1	4	−15 11 11	13	1	5	1·3		
2328+10		23 28 08·8	2·1 31	1	1	+10 44 05	11	1	2	0·8	18^{m} QSO?	
2329−16		23 29 00·4	1·0 14	1	4	−16 14 10	14	1	3	1·1		
2329−10	23−*118*	23 29 50·1	1·3 20	1	3	−10 14 37	17	1	5	0·7		
2337−06		23 37 12·7	1·2 18	1	3	−06 21 01	16	1	4	0·8		
2337+13		23 37 59·5	1·1 16	5	5	(+13 16 24)		0		0·7		
2338−16	23−*121*	23 38 37·0	0·7 10	2	8	−16 37 45	18	1	2	0·8		
2344+09		23 44 03·9	0·7 10	3	3	+09 14 00	9	1	8	1·6	17·5^{m} QSO?	Ext. to east
2345−16		23 45 27·2	0·8 10	1	2	−16 48 11	12	1	4	1·4	18·5^{m} QSO?	
2345+18	3C 467	23 45 56·4	1·7 24	2	2	+18 27 27	8	2	11	0·8	19·5^{m} E	
2347−02		23 47 51·3	0·9 14	1	6	−02 41 42	14	1	4	0·9		
2349−01	23−*020*	23 49 22·5	1·0 15	1	4	−01 26 04	16	1	2	0·9	17^{m} N	
2354+14		23 54 43·5	1·3 19	5	5	+14 29 29	10	2	5	0·5	18·5^{m} QSO?	
2354−11		23 54 56·4	0·7 10	1	4	−11 42 33	7	2	12	2·0	19^{m} QSO	

TABLE 2(*b*)

POSITIONS OF RADIO SOURCES SOUTH OF DECLINATION −33°

(1) Parkes Catalogue Number	(2) Other Catalogue Number	(3) Right Ascension h m s	(4) Est. r.m.s. Error in R.A. s ″	(5) No. of Days Obs.	(6) No. of Scans	(7) Declination ° ′ ″	(8) Est. r.m.s. Error in Dec. ″	(9) No. of Days Obs.	(10) No. of Scans	(11) S_{2650}	(12) Identification	(13) Remarks
0003−56	00−*51*	00 03 26·6	1·7 15	2	2	−56 45 10	14	1	5	1·0		
0004−83		(00 04 09)		0	0	−83 22 41	15	1	4	1·2		
0007−44	00−*43*	00 08 00·0	1·3 14	2	4	−44 39 47	12	1	9	0·7		
0008−42		00 08 21·6	0·9 10	2	2	−42 9 47	11	1	6	2·3		
0013−63	00−*61*	00 13 38·6	2·0 13	2	4	−63 27 3	14	1	5	0·8		
0023−33	00−*38*	00 23 4·0	1·2 15	3	3	(−33 20 06)		0	0	0·6	16·7^{m} E	
0032−63		00 32 46·0	2·3 16	3	4	(−63 36 42)		0	0	0·4		
0039−44	00−*410*	00 39 47·0	1·0 10	2	2	−44 30 42	11	1	6	1·9		
0042−35	00−*315*	00 42 16·5	1·1 14	1	1	(−35 47 06)		0	0	1·5		
0043−42	00−*411*	00 43 55·8	0·7 7	4	4	−42 24 6	9	2	27	4·1	18^{m} E	
0049−43	00−*414*	00 49 56·2	0·9 10	2	3	−43 22 58	11	1	5	1·6		
0103−45	01−*41*	01 03 6·2	1·0 10	3	5	−45 21 45	9	2	12	1·1		
0110−69		01 10 3·0	3·2 17	2	3	−69 15 51	13	1	8	0·7		
0114−47	01−*45*	01 14 14·8	1·5 15	3	3	−47 37 26	14	1	7	0·6	16·5^{m} E	Ext. in α and δ
0125−41		01 25 0·4	1·4 15	3	3	−41 28 21	11	2	16	0·5		
0131−36 A	01−*311*	01 31 17·8	1·0 12	1	1	−36 44 43	11	1	8	2·0	14·2^{m} SO	Two components barely resolved; component A ext. to west
0131−36 B	01−*311*	01 31 56·8	1·0 12	1	1	(−36 44 36)		0	0	2·2		
0131−44	01−*49*	01 31 25·1	1·1 11	2	5	−44 59 50	12	1	7	0·9		
0157−78		(01 57 33)		0	0	−78 56 31	17	1	6	0·7		
0201−44	02−*41*	02 01 40·4	0·9 10	2	6	−44 4 15	11	1	7	1·4		
0202−76	01−*71*	02 03 4·4	4·2 15	2	2	−76 34 41	14	1	7	1·3	18^{m} QSO	
0214−48	02−*43*	02 14 53·8	1·1 11	2	3	−48 2 54	11	1	8	1·2		Ext. in δ

0220−42	02−*45*	02 20 17·5	1·4 16	2	3	−42 13 19	9	2	15	0·8	19ᵐ db.	
0230−66	02−*63*	02 30 59·3	2·6 16	3	4	−66 39 35	15	1	6	0·5		
0240−42	02−*410*	02 40 43·4	1·6 18	2	2	−42 14 12	12	1	8	0·7		
0241−51	02−*53*	02 41 54·4	2·1 19	2	2	−51 21 34	17	1	4	0·6		Ext. in *α* and *δ*
0245−55	02−*54*	02 45 29·3	1·5 13	3	3	−55 54 7	13	1	6	0·9		
0251−67	02−*65*	02 51 15·8	4·3 25	1	1	−67 30 26	15	1	6	0·5		
0319−45	03−*43*	03 19 42·4	0·9 10	2	6	−45 21 23	11	1	6	1·4		
0332−39	03−*32*	03 32 14·4	1·3 16	2	3	−39 10 28	12	1	6	0·7	17·4ᵐ E	Ext. in *α*
0336−35	03−*33*	03 36 48·1	0·8 10	3	3	−35 33 3	10	2	5	1·3	10·9ᵐ E	
0340−37		03 40 12·7	0·9 11	4	4	(−37 12 54)		0	0	1·1		
0344−34	03−*36*	03 44 35·3	0·9 11	2	2	−34 32 17	11	1	5	1·4	17·4ᵐ E	Ext. in *α*
0349−88		(03 49 00)		0	0	−88 25 57	22	1	2	0·6		
0357−37	03−*39*	03 57 56·0	1·1 13	3	5	−37 9 4	10	2	8	0·7		
0408−65	04−*62*	04 07 59·4	1·9 12	1	3	−65 53 1	12	1	3	6·6		
0410−75	04−*71*	04 10 0·9	2·8 11	3	3	−75 15 22	13	1	6	6·7		
0411−56	04−*52*	(04 11 42)		0	0	−56 8 22	13	1	8	1·1		
0420−62	04−*63*	04 20 21·2	2·1 14	1	1	−62 30 38	13	1	5	1·5		
0427−36	04−*36*	04 27 53·1	1·1 14	1	3	−36 37 22	12	1	8	0·9		
0427−53	04−*54*	04 27 53·5	1·1 10	4	4	(−53 56 06)		0	0	1·8		Ext. in *α*
0438−43	04−*49*	04 38 44·0	0·7 8	3	3	−43 38 51	9	2	14	5·8		
0454−46	04−*412*	04 54 25·1	0·9 9	3	3	−46 20 54	11	1	6	1·8		
0506−61	05−*61*	05 06 9·8	1·5 11	3	6	−61 13 27	11	2	13	1·2		
0511−48	05−*42*	05 11 32·5	0·9 9	3	3	−48 28 4	11	1	8	1·8		
0518−45	Pictor A	05 18 18·2	0·8 8	3	3	−45 49 39	10	1	8	30·0		Ext. in *α*
0521−36	05−*36*	05 21 13·3	0·7 9	2	3	−36 30 15	9	2	10	10·5	16·8ᵐ N	
0535−49	05−*46*	05 34 59·9	1·2 11	3	3	−49 46 12	12	1	4	1·0		
0535−66		05 35 38·3	2·2 13	2	4	−66 3 45	13	1	8	1·0		
0546−44	05−*48*	(05 46 13)		0	0	−44 31 50	12	1	7	0·8		
0547−40	05−*410*	05 47 48·0	0·8 9	3	3	−40 52 11	11	1	8	1·5		
0600−34	06−*31*	(06 00 25)		0	0	−34 40 52	14	1	7	0·4		
0601−34	06−*31*	06 01 25·1	1·2 15	3	3	(−34 26 18)		0	0	0·7		
0614−34	06−*36*	06 14 49·8	0·8 10	2	2	−34 55 0	11	1	6	1·7	19ᵐ db.	
0618−37	06−*37*	06 18 18·0	0·9 11	2	3	−37 10 10	11	1	7	1·3	16·6ᵐ db.	
0620−52	06−*53*	06 20 37·3	1·2 11	2	2	−52 40 01	12	1	7	2·0		
0625−53	06−*55*	06 25 20·0	1·2 11	2	2	−53 39 27	12	1	6	3·2		
0625−35	06−*38*	06 25 22·0	0·9 11	1	1	−35 27 21	11	1	6	2·7	17·6ᵐ db.	
0637−75	06−*71*	06 37 21·9	3·0 12	2	2	−75 13 54	13	1	6	4·3		

TABLE 2(*b*) (*Continued*)

(1) Parkes Catalogue Number	(2) Other Catalogue Number	(3) Right Ascension h m s	(4) Est. r.m.s. Error in R.A. s ″	(5) No. of Days Obs.	(6) No. of Scans	(7) Declination ° ′ ″	(8) Est. r.m.s. Error in Dec. ″	(9) No. of Days Obs.	(10) No. of Scans	(11) S_{2650}	(12) Identification	(13) Remarks
0642−43	06−*412*	06 42 55·1	1·1 12	2	4	−43 41 02	12	1	5	0·9	17^{m} E	
0646−39	06−*312*	06 46 33·0	0·9 11	3	3	−39 53 44	11	1	8	1·3		
0700−47	07−*41*	07 00 46·8	1·4 14	3	4	−47 21 54	28	1	7	0·5		
0715−36	07−*35*	07 15 20·2	0·9 11	2	3	−36 16 22	11	1	10	1·1	17·8^{m} E	
0718−34	07−*37*	07 18 57·2	1·0 12	2	2	−34 1 9	12	1	4	1·2	16·5^{m} E	
0720−52	07−*54*	07 20 20·4	2·7 25	1	1	(−52 51 06)		0	0	0·7		
0727−36		07 27 18·6	0·9 11	3	3	−36 24 1	12	1	5	1·3		
0748−45	07−*412*	(07 48 03)		0	0	−45 28 53	9	2	16	0·9		
0748−44	07−*413*	07 48 7·2	0·9 10	3	5	−44 5 14	12	1	5	1·2		
0807−38	08−*31*	08 07 44·4	0·9 11	3	3	−38 56 29	11	1	10	1·1		
0814−35		08 14 21·8	0·7 9	4	4	−35 26 0	11	1	6	2·0		Ext. 17′ in α and 8′ in δ, centroid given
0842−75	08−*71*	08 42 58·1	3·3 13	2	2	−75 29 55	14	1	8	2·4		
0843−33	08−*38*	08 43 8·7	0·9 11	2	2	−33 36 21	13	1	3	1·2	12·3^{m} E3	
0847−57	08−*53*	(08 47 0)		0	0	−57 15 41	15	1	6	0·5		
0903−57		09 03 32·7	1·4 11	3	4	−57 23 3	12	1	10	1·3		
0909−56		09 09 26·4	1·5 13	3	4	−56 24 29	11	2	10	0·9		
0916−54	09−*52*	09 16 0·6	1·2 11	3	4	−54 42 57	12	1	6	1·8		
0920−39	09−*34*	09 20 49·2	1·1 13	1	1	−39 46 41	11	1	8	1·6		
0943−76		09 43 27·3	3·7 13	3	5	−76 5 47	13	2	15	1·1		
1010−64	10−*61*	10 10 50·1	1·7 11	3	4	−64 42 51	13	1	8	1·4		
1017−42	10−*44*	10 17 37·3	2·1 23	1	1	(−42 09 06)		0	0	0·6		
1018−42	10−*44*	10 17 56·3	0·8 9	3	5	−42 36 19	11	1	8	2·0		
1036−69		10 37 5·0	2·1 11	3	5	−69 47 19	13	1	8	1·2		
1116−46		11 16 6·1	1·0 10	3	3	−46 17 19	11	1	8	1·6		

1123−35	11−*33*	11 23 29·0	0·9 11	3	3	−35 6 42	11	1	8	1·2	16·0^{m} E3	
1136−67	11−*64*	11 36 7·6	2·0 12	3	4	−67 53 38	13	1	4	1·3		
1143−48	11−*46*	11 43 3·8	0·9 9	3	3	−48 19 17	11	1	8	1·6		
1151−34	11−*314*	11 51 49·4	0·8 10	1	1	−34 48 29	10	1	4	4·1		
1151−69	11−*66*	11 52 01·5	2·5 13	2	4	(−69 28 54)		0	0	0·8		
1209−52	12−*51*	12 09 18·2	1·4 13	2	3	−52 22 56	15	1	2	1·2		Ext. 12′ in α and 18′ in δ, centroid given
1211−41	12−*41*	12 11 41·7	2·1 23	1	1	−41 43 18	14	1	6	0·6	19^{m} E	Ext. in α
1215−45	12−*43*	12 15 27·6	0·8 8	3	3	−45 43 36	11	1	5	2·8		
1221−42		12 21 3·1	0·9 10	3	4	−42 18 48	11	1	6	1·4	18^{m} g	
1232−41	12−*44*	12 32 57·9	1·0 12	2	4	−41 36 20	13	1	4	0·9		
1245−41	12−*45*	12 46 4·1	0·8 9	3	3	−41 2 8	11	1	6	1·8	12·2^{m} Sc	
1302−49	13−*41*	13 02 33·1	0·8 7	4	4	−49 12 0	10	1	8	4·0		
1302−82		13 03 32·0	10·3 22	1	2	(−82 42 56)		0	0	0·6		
1346−39	13−*34*	13 46 51·4	0·9 10	3	6	−39 7 53	12	1	6	0·9		
1355−41	13−*45*	13 55 57·1	0·7 8	3	6	−41 38 18	11	1	3	2·4		
1413−36		14 13 31·0	0·9 10	2	5	−36 26 57	10	2	9	1·2	18·5^{m} D	Ext. in δ
1416−49	14−*44*	14 16 43·6	3·2 30	1	1	(−49 22 48)		0	0	1·3	17^{m} E	
1421−38	14−*34*	14 21 11·6	0·9 11	2	3	−38 12 55	12	1	3	1·1		
1424−41		14 24 47·7	0·9 10	2	2	−41 52 52	11	1	4	2·3		
1427−50	14−*56*	14 27 7·5	1·8 17	2	3	−50 29 6	17	1	4	0·5		
1445−46	14−*49*	14 45 7·9	1·0 11	3	4	(−46 49 36)		0	0	0·5		
1451−36	14−*38*	14 51 22·4	0·9 10	3	5	−36 27 56	11	1	7	1·1		
1459−41	14−*41*	14 59 5·6	0·9 10	4	6	−41 54 2	12	1	6	1·0		Ext. in α and δ
1517−75		15 18 10·2	6·8 26	1	1	−75 15 57	17	1	6	0·4		
1540−73		15 40 34·0	3·7 16	3	5	−73 1 8	13	2	11	0·7		
1547−79		15 47 38·9	4·5 13	2	2	−79 32 36		0	0	2·2		
1549−79		15 49 28·9	3·8 11	3	4	−79 5 22	12	2	10	3·9		
1602−63		16 02 14·3	1·6 11	3	4	−63 23 26	13	1	3	1·7	18^{m} g	Ext. in α
1610−60 A	16−*61*	16 10 40·8	1·4 10	2	2	−60 47 46	12	1	5	15·3		Two components resolved; component A ext. in α
1610−60 B	16−*61*	(16 10 47)		0	0	−60 31 50	12	1	5	2·0		
1610−77		16 10 51·5	3·6 12	2	3	−77 9 46	14	1	7	3·4		
1632−68		16 32 58·0	4·4 25	1	1	(−68 08 24)		0	0	0·7		

TABLE 2(*b*) (*Continued*)

(1) Parkes Catalogue Number	(2) Other Catalogue Number	(3) Right Ascension h m s	(4) Est. r.m.s. Error in R.A. s ″	(5) No. of Days Obs.	(6) No. of Scans	(7) Declination ° ′ ″	(8) Est. r.m.s. Error in Dec. ″	(9) No. of Days Obs.	(10) No. of Scans	(11) S_{2650}	(12) Identification	(13) Remarks
1636−77		16 37 2·9	3·2 11	4	5	−77 9 57	14	1	6	3·3	17^m E	
1655−77		16 55 11·1	3·3 11	5	8	−77 37 42	11	3	26	1·4	17^m E0	
1716−80		17 16 30·6	6·2 16	2	2	−80 1 29	15	1	7	1·0		
1733−56		17 33 22·9	1·1 9	4	6	−56 31 57	12	1	4	4·6		Ext. in δ
1737−60		17 37 29·8	1·5 11	2	4	−60 54 2	11	2	14	1·6		
1746−64		17 46 12·6	2·2 15	3	5	−64 58 15	15	1	7	0·4		
1754−59	17−*51*	17 54 37·1	1·5 12	3	3	−59 49 9	13	1	3	1·3		
1814−51	18−*52*	18 14 8·9	1·1 11	3	5	−51 59 33	26	1	7	1·4		
1814−63	18−*61*	18 14 45·2	1·5 10	2	2	−63 47 14	10	2	10	6·9		
1819−67		18 19 22·1	1·9 11	3	4	−67 19 15	13	1	5	1·4		
1821−58		18 21 21·6	3·1 25	1	1	(−58 17 42)		0	0	0·5		
1827−36		18 27 37·1	0·7 8	3	3	−36 4 55	9	2	7	2·9		
1834−43		18 34 6·8	1·0 11	3	4	−43 37 59	12	1	6	0·8		
1839−48	18−*43*	18 39 26·7	0·9 9	3	3	−48 39 43	11	1	6	1·9		
1840−40	18−*44*	18 40 58·8	0·9 10	2	5	−40 25 19	11	1	6	1·4		
1904−80		(19 04 0)		0	0	−80 15 17	13	2	9	1·2		
1910−55		19 10 13·6	1·6 14	3	6	−55 10 59	14	1	9	0·5		
1922−62	19−*61*	19 22 53·0	1·7 12	3	4	−62 45 53	14	1	4	1·0		
1928−34		19 28 24·1	1·4 18	2	2	(−34 01 42)		0	0	0·3	17^m E	
1932−46	19−*46*	19 32 19·2	1·0 10	1	2	−46 27 32	10	1	3	6·1		
1933−58	19−*56*	19 33 18·2	1·8 14	1	1	−58 45 19	13	1	3	1·5		
1934−63		19 34 48·5	1·4 9	3	3	−63 49 41	10	2	10	10·5	18·5^m g	
1940−40	19−*410*	19 40 23·0	1·2 13	3	5	−40 38 3	19	1	2	0·3		Ext. in α
1953−42	19−*413*	19 53 48·2	1·1 12	1	3	−42 30 37	11	1	6	1·4		
1954−55	19−*57*	19 54 19·7	1·1 10	3	3	−55 17 40	12	1	5	3·3		
1955−35	19−*35*	19 55 48·6	1·4 17	1	1	−35 43 0	12	1	5	1·0		
2006−56	20−*52*	20 06 23·9	2·3 19	2	2	−56 38 58	17	1	4	0·4	16^m SO	Ext. in α

2009−52	20−53	20 09 36·3	1·6 15	1	3	−52 27 18	12	2	8	0·9		
2014−55	20−54	20 14 4·9	2·0 17	3	3	−55 49 03	18	1	3	0·4	15·5^m E0	
2020−57	20−55	20 20 22·8	1·3 10	3	5	−57 33 16	12	1	6	1·6		
2028−73	20−71	20 28 23·6	6·0 26	1	1	(−73 14 30)		0	0	0·6		
2032−35	20−37	20 32 38·2	0·7 8	3	5	−35 4 32	8	3	14	3·1		
2041−60	20−61	20 41 19·3	1·7 13	3	3	−60 29 57	13	1	8	1·0		
2048−57	20−57	20 48 6·0	1·7 14	3	3	−57 15 15	14	1	4	0·8		
2052−47		20 52 51·4	0·9 9	2	5	−47 26 29	9	2	14	2·6		
2059−78		20 59 12·5	6·0 19	2	3	−78 37 22	15	1	6	0·6		
2107−34	21−32	21 07 46·8	1·9 23	1	1	(−34 03 36)		0	0	0·4		
2118−64		21 17 50·9	1·9 12	3	5	−64 17 23	13	2	10	0·7		
2130−53	21−54	21 30 47·8	1·9 17	3	3	−53 49 57	13	2	13	0·6		Ext. in α and δ
2140−43	21−47	21 40 23·9	1·0 11	2	2	−43 26 32	11	1	5	1·4		
2141−81		21 40 41·9	6·5 15	2	2	(−81 46 36)		0	0	1·3		
2150−52	21−58	21 50 49·4	1·4 13	1	3	−52 4 48	12	1	5	2·1		
2153−69	21−64	21 53 1·6	1·7 9	4	4	−69 55 46	10	2	10	15·3	14^m E3	
2201−55		22 01 44·2	1·9 16	2	4	−55 32 24	16	1	2	0·8		
2204−54		22 04 26·8	1·2 10	4	4	−54 0 53	13	1	4	1·9	17^m SO	
2213−45		(22 13 49)		0	0	−45 36 45	13	1	3	1·1		
2218−50		22 18 2·6	1·4 13	2	4	−50 33 2	12	2	8	0·7		
2223−52	22−52	22 23 54·8	1·8 17	1	1	(−52 49 24)		0	0	1·3		
2226−41	22−43	22 26 22·5	0·9 10	2	2	−41 6 48	11	1	6	1·7		
2226−38		22 26 52·5	1·1 13	1	4	−38 39 37	12	1	6	0·8		
2244−37		22 44 14·3	1·2 14	2	2	−37 13 28	13	1	4	0·8		
2250−41	22−46	22 50 12·6	0·8 9	2	5	−41 13 43	11	1	7	2·1		
2253−52	22−55	22 53 51·0	1·8 17	1	1	−52 14 51	11	2	8	1·3		
2259−37	22−35	22 59 38·1	0·8 10	3	4	−37 34 37	11	1	3	1·5		
2305−41		23 05 5·2	1·0 11	3	4	−41 49 14	13	1	4	0·8		
2310−41		23 10 9·0	1·4 15	3	3	−41 43 20	12	1	6	0·8		Small source 45^s west
2319−55		23 19 16·4	1·8 16	3	4	−55 3 39	15	1	7	0·7		
2323−40	23−43	23 23 52·6	0·9 10	2	2	−40 43 44	11	1	6	1·9		
2331−41	23−44	23 31 45·6	0·8 9	2	2	−41 42 14	11	1	8	2·8		
2332−66	23−63	23 32 20·6	2·4 15	2	2	(−66 54 30)		0	0	1·1		
2338−58	23−52	23 38 36·6	1·4 11	3	5	−58 32 56	13	1	5	1·4		
2353−68		(23 53 31)		0	0	−68 37 03	14	1	4	0·8		
2354−35	23−37	23 54 26·2	1·3 16	2	3	−35 11 19	15	1	4	0·3	15·5^m D	
2356−61	23−64	23 56 24·3	1·4 10	2	2	−61 11 40	12	1	5	10·8	16^m E3	Ext. in α and δ

VIII. Flux Density Measurements

Since flux densities at 2650 Mc/s have not been previously published for some of the sources, and since the observations were all made under similar conditions with constant feed angle ($\underline{E} = 0°$), the measured flux densities are given here (Table 2). The flux density scale was calibrated by assuming that the flux density of Hydra A was $23 \cdot 5 \times 10^{-26}$ W m^{-2} (c/s)$^{-1}$. The average value of the error in the flux densities was 8%, as estimated from comparisons between measurements of the same source on different occasions.

IX. Tabulation of Results

The results of the work described in the present paper are contained in Table 2, which is presented in two parts; the results for sources north of the zenith are given in Table 2(*a*) and for those south of the zenith in Table 2(*b*). Information concerning the use of this table is given below.

Column 1.—Source number from the Parkes catalogue of radio sources.

Column 2.—Other catalogue number.

Column 3.—Measured right ascension (epoch 1950·0).

Column 4.—Estimated r.m.s. error in right ascension, given in both seconds of time and seconds of arc.

Column 5.—Number of days on which right ascension measurements of the source were made.

Column 6.—Total number of drift scans used in deriving the final measurement of right ascension.

Column 7.—Measured declination (epoch 1950·0).

Column 8.—Estimated r.m.s. error in declination, in seconds of arc.

Column 9.—Number of days on which declination measurements of the source were made.

Column 10.—Total number of scans used in deriving the declination.

Column 11.—Measured flux density at 2650 Mc/s, in units of 10^{-26} W m^{-2} (c/s)$^{-1}$.

Column 12.—Type and estimated photographic magnitude for optical identifications. E: elliptical galaxy; D: spherical galaxy with extended envelope; SO: spherical system with dust lane; db.: dumb-bell or double system; N: compact galaxy with very bright nucleus; g: galaxy too faint for identification; QSO: confirmed quasi-stellar object; QSO?: suspected quasi-stellar object.

Column 13.—Remarks and miscellaneous data.

For a few sources measurements were made in one coordinate only. The other coordinate, taken from the Parkes catalogue, has been included and is bracketed to distinguish it from the present observations.

X. Acknowledgments

Thanks are due to Mrs. Jennifer Ekers for assistance with the observations and analysis and to Mr. J. G. Bolton for initiating the program and assisting with some of the observations.

One of us (R.D.E.) wishes to acknowledge the support of an Australian National University Postgraduate Scholarship.

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