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THE FARADAY ROTATION MEASURES OF EXTRAGALACTIC RADIO SOURCES

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ABSTRACT

The rotation measures of 555 extragalactic radio sources are calculated as a result of a large number of new linear polarization measurements carried out by us at several wavelengths.

A summary of references for previous polarization measurements is included, and the procedure for optimizing the number of unambiguous rotation measures is described.

Subject headings: galaxies: intergalactic medium — interstellar: matter — polarization — radio sources: general

I. INTRODUCTION

Rotation measures (RM) of extragalactic radio sources can be used as probes of the interstellar medium provided that they are well distributed over the sky with sufficient density. Previous analyses of RM distributions on the sky (e.g., Gardner and Whiteoak 1963; Berge and Seielstad 1967; Mitton 1972; Morris and Tabara 1973; Wright 1973; Haves 1975; Vallée and Kronberg 1975) have shown that at low galactic latitudes the RM is dominated by galactic effects for the majority of sources. Intergalactic and extragalactic Faraday rotation can also be investigated at high galactic latitudes (see Wagoner 1967; Nelson 1973; Kronberg, Reinhardt, and Simard-Normandin 1977; Sofue, Fujimoto, and Kawabata 1979). It is of interest in this latter context to improve the quantity and quality of rotation measures for distant sources in order to investigate intergalactic Faraday rotation in clusters of galaxies at early cosmological epochs and within the sources themselves.

The RM is the best fit of a straight line of the form

$$\chi(\lambda^2)=\chi_0+(\mathrm{RM})\lambda^2 \tag{1}$$

(λ in meters, RM in radians m^{-2}), where χ is the direction on the sky of the maximum-E vector plane of a radio source's *integrated* linear polarization. Because of measurement errors in χ, and since χ is ambiguous by $n180$ degrees it is usually necessary in practice to have polarization measurements at several ($\gtrsim 4$) wavelengths in order to obtain a reliable RM.

II. THE DATA USED

We have augmented the existing published linear polarization data by undertaking further measurements on extragalactic sources at several wavelengths: 2.86 cm (10.5 GHz), λ3.71 cm (8.1 GHz), λ11.1 cm (2.7 GHz), and several wavelengths between λ17.3 cm and λ18.9 cm (1.73 GHz→1.59 GHz). Published integrated polarizations at these wavelengths were measured with the 46 m ARO radio telescope (Simard-Normandin and Kronberg 1978), the NRAO three-element interferometer (Wardle and Kronberg 1974; Kronberg and Wardle 1977), and the 100 m Effelsberg telescope of the Max-Planck-Institut für Radioastronomie (Simard-Normandin, Kronberg, and Neidhöfer 1980).

These have been combined with other published radio polarization data and with as yet unpublished data of ours, for the wavelength range 8 mm $< \lambda <$ 32 cm. In addition to these we have used unpublished linear polarization data from the 100 m Effelsberg telescope at wavelengths of 11 cm and 2 cm, kindly provided by D. Hills, D. Morris, J. Baker, K. Weilèr, and J. Neidhöfer, data from the Westerbork Synthesis radio telescope provided by G. K. Miley and A. P. Hartsuijker, and data from the Jodrell Bank, provided by D. Stannard. Data at $\lambda >$ 32 cm were usually ignored because the very large intervals in λ^2 between measurements make long wavelength polarization measurements unsuitable for determining RM. Table 1 lists references to the published data which we have used in our RM determinations.

III. THE PROCEDURE FOR CALCULATING THE RM

Our best fitted value for the RM is determined by a regression line fit on our *assumed* straight line (eq. [1]) and gives a slope as well as an intercept χ_0. The latter is the integrated intrinsic position angle (IPA).

The determination of polarization angle is always ambiguous by $n180°$, so that a *minimum* of three observations at different wavelengths is needed to establish an unambiguous rotation measure. In practice many factors influence the number of polarization measurements (normally $\gtrsim 4$) needed to establish an unambiguous RM for a given source. The distribution in λ^2 of

TABLE 1

INTEGRATED POLARIZATION REFERENCES

Allen, Barrett, and Crowther (1968).	Macleod and Andrew (1968).
Aller (1970).	Maltby and Seielstad (1966).
Altschuler and Wardle (1977).	Mayer, McCullough, and Sloanaker (1964).
Baldwin *et al.* (1970).	McCullough and Waak (1969).
Berge and Seielstad (1967, 1969, 1972).	Mezger and Schraml (1966).
Bignell and Seaquist (1973).	Miley and Hartsuijker (1978).
Boland *et al.* (1966).	Miley and van der Laan (1973).
Bologna, McClain, and Sloanaker (1969).	Morris and Berge (1964).
Conway, Burn, and Vallée (1977).	Morris and Whiteoak (1968).
Conway, *et al.* (1972).	Rudnick *et al.* (1978).
Gardner and Davies (1966).	Ryle, Odell, and Waggett (1975).
Gardner, Morris, and Whiteoak (1969).	Sastry, Pauliny-Toth, and Kellermann (1967).
Gardner, Whiteoak, and Morris (1969, 1975).	Schraml and Turlo (1967).
Haves, Conway, and Stannard (1974).	Seaquist, Gregory, and Clarke (1974).
Hobbs (1968).	Seielstad and Weiler (1969).
Hobbs and Haddock (1967*a*, 1967*b*).	Shimmins, *et al.* (1968).
Hobbs, Hollinger, and Marandino (1968).	Simard-Normandin and Kronberg (1978).
Hobbs and Hollinger (1968).	Simard-Normandin, Kronberg, and Neidhöfer (1980).
Hobbs, Maran, and Brown (1978).	Soboleva (1966).
Hobbs and Waak (1972).	Strom (1973).
Högbom and Carlsson (1974).	Vallée and Kronberg (1974).
Hollinger and Hobbs (1968).	Wardle (1971).
Hollinger, Mayer, and Manella (1964).	Wardle and Kronberg (1974).
Inoue *et al.* (1977).	Weiler and Raimond (1976).
Kalaghan and Wulfsberg (1967).	Weiler and Wilson (1977).
Kronberg and Conway (1970).	Wright (1973).
Kronberg and Wardle (1977).	

the measurements is one factor. In particular, *both* long *and* short intervals of λ^2 between data values are desirable. Short intervals test for a possibly high RM and thereby help eliminate $n180°$ ambiguities, while the longer intervals define the slope more accurately. Figure 1, showing the $p(\%)$ and $\chi(°)$ values plotted against λ^2, illustrates these points. It also illustrates the fact that the true χ-λ^2 variation for a source sometimes deviates from the simple linear Faraday rotation law. This fact introduces an inevitable uncertainty in the RM determination but is unlikely to cause convergence on a completely false RM, provided that there are sufficient data. Our large body of χ-λ^2 data demonstrates that the relationship is surprisingly linear for the *majority* of sources.

Other sources of error are noise and very low degrees of polarization, both of which result in larger errors in χ. We have found that this condition can sometimes be overcome by having correspondingly more measured wavelengths, in which case a well-defined slope (RM) can often still be obtained.

The degree (p) of polarization does not always decrease monotonically with wavelength. This fact could be because of "beating" in λ^2 of two or more polarized source components with different RMs. Alternatively, it could be because of spectral index differences between more- and less-polarized components of a single source. Where a source's polarization increases and then decreases with increasing λ—as happens in the example in Figure 1—we normally omit $\chi°$ data in the λ range where p is rising from the RM determination.

Some sources depolarize strongly over the wavelength range of interest. On the expectation that nonlinearities in χ-λ^2 may set in where the source is essentially depolarized, we normally omitted all data points whose value was $\lesssim 0.25\, p_{\max}$, where $p_{\max}$ is the maximum degree of polarization attained. Also for sources having strong variability, we confined the accepted data to a suitably narrow range of epochs.

In the following we give a brief description of the computer procedure used to test for unsuitable data and search for the most likely value of RM. The algorithm used is the extension of an earlier program written by Vallée (1973). The program executes the following steps, having been given all the available integrated polarization data for a given source.

1) Data at $\lambda >$ 32 cm and manually flagged (preedited) data are rejected.

2) Data are averaged together if $\lambda_2{}^2 - \lambda_1{}^2 < 10^{-3}$ m^2, i.e., if two independent measurements are insignificantly different in λ^2. The regression analysis is redone.

3) The unaveraged data are examined for measurements having $p(\lambda^2) <$ 0.25 $p_{\max}$, and these data are rejected. If no point satisfies the criterion, the program goes to step (5). The regression analysis is done.

4) Step (2) is repeated on the purged data. If no averaging is necessary, the program goes to (5). The regression analysis is performed on the averaged data.

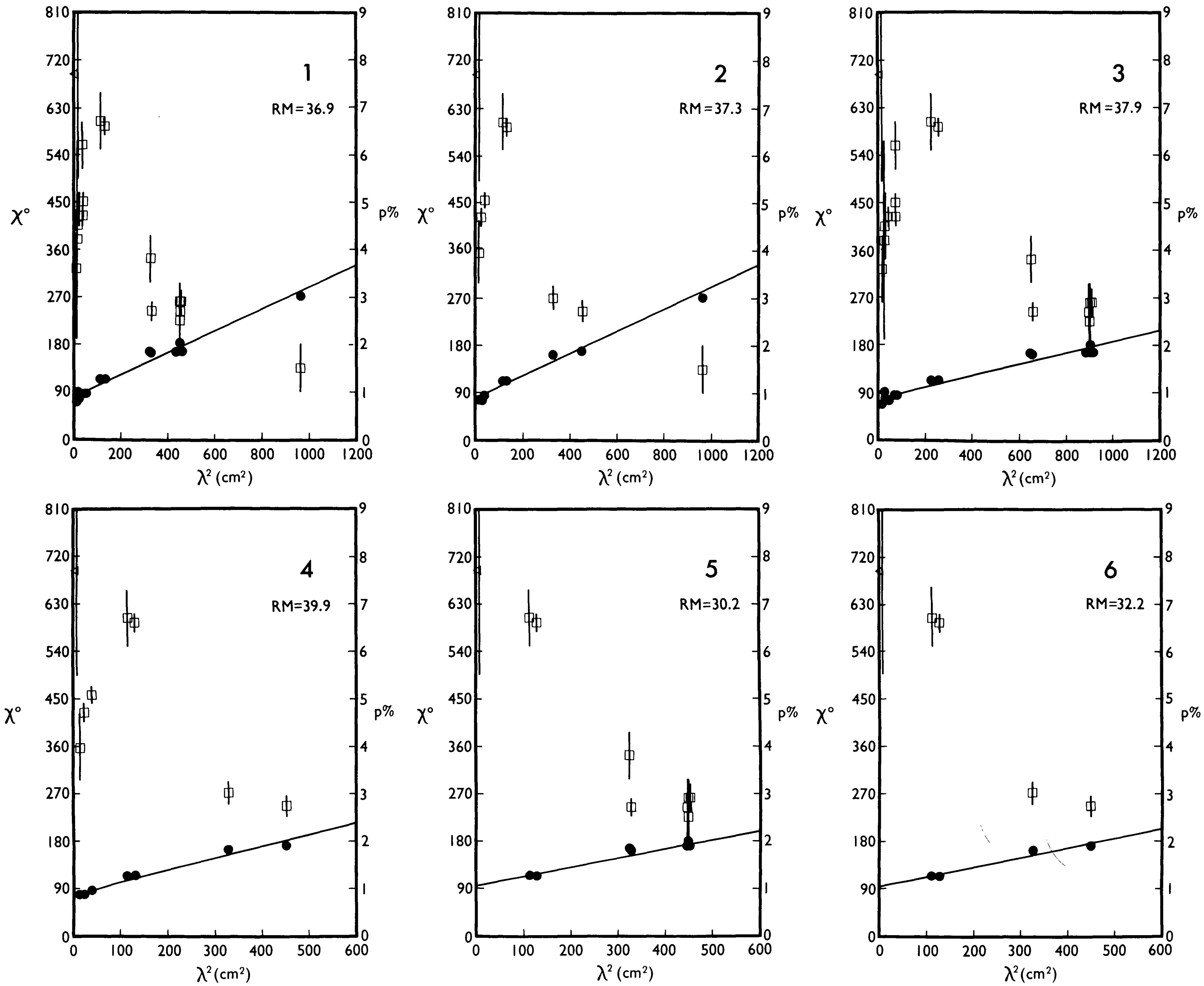

FIG. 1.—Plots of the integrated polarization *p* (*open squares*) and position angle χ (*filled circles*) vs. λ^2 for 3C 353, showing the best fit rotation measure. Plots 1–6 correspond to steps (1)–(6) outlined in the text. Flagged points not used in the computation are represented by triangles.

5) If p_{max} is observed at some λ_{max} which is longer than the shortest observed wavelength, points at $\lambda < \lambda_{max}$ are rejected (see discussion above). The regression analysis is performed on the remaining data.

6) Step (2) is repeated on the remaining data, and the regression analysis is performed.

7) The program goes to step (1) for the next source.

The above procedure results in a maximum of six evaluations of the RM for each source. In *each* evaluation, the program repeats the regression analysis (done two ways) over a search range of $-1100 < \mathrm{RM} < 1100$ rad m^{-2}. The search limit of ± 1100 rad m^{-2} was lifted in cases where the RM appeared to be possibly higher; likewise the stepping interval in RM was reduced if the credible minimum in the CHI^2 appeared to lie between two adjacent search RMs.

A complete search over $-1100 < \mathrm{RM} < 1100$ rad m^{-2} for the best RM for between one and six different versions or subsets of the data was executed for each source. For each of these (up to six) "trys," we inspected a computer-generated plot of $p_i(\lambda_i^2)$ and $\chi_i(\lambda_i^2)$ measurements and a plot of CHI^2 residual of best fit for all different slopes stepped in intervals of 10 rad m^{-2} from -1100 to 1100 rad m^{-2}. If a satisfactory best RM was not obtained, the source was either rejected or the whole procedure was reattempted. Second attempts involved one or more of the following: stepping in smaller "trial RM" increments; omitting further dubious data; omitting certain wavelength ranges to test for any influence of λ^2 coverage on the resulting best-fit to RM, restricting epochs of observation, etc. In a large sample of RMs, the heterogeneiety of the data, effects of noise, and $n180°$ ambiguities will cause some values to be incorrect. This has proven to be the case in some earlier RM determinations based on fewer data, when these are compared with our latest best estimate that uses more data. We believe that very few of our RMs (~3% at most) are affected by unrecognized $n180°$ ambiguities in the data.

IV. THE RESULTS

Figure 2 shows our rotation measures for 555 extragalactic radio sources plotted on a Hammer-Aitoff equal-area projection of galactic coordinates. Open circles represent negative and filled circles the positive values of RM, and the magnitude scale is shown in the figure.

Table 2 lists the rotation measures and their estimated uncertainties. The latter are the errors of the best fit regression line and assume that all $n180°$ ambiguities have been sorted out. Columns (1) and (2) give the source name by coordinates and commonly used catalog designation, respectively. Columns (3) and

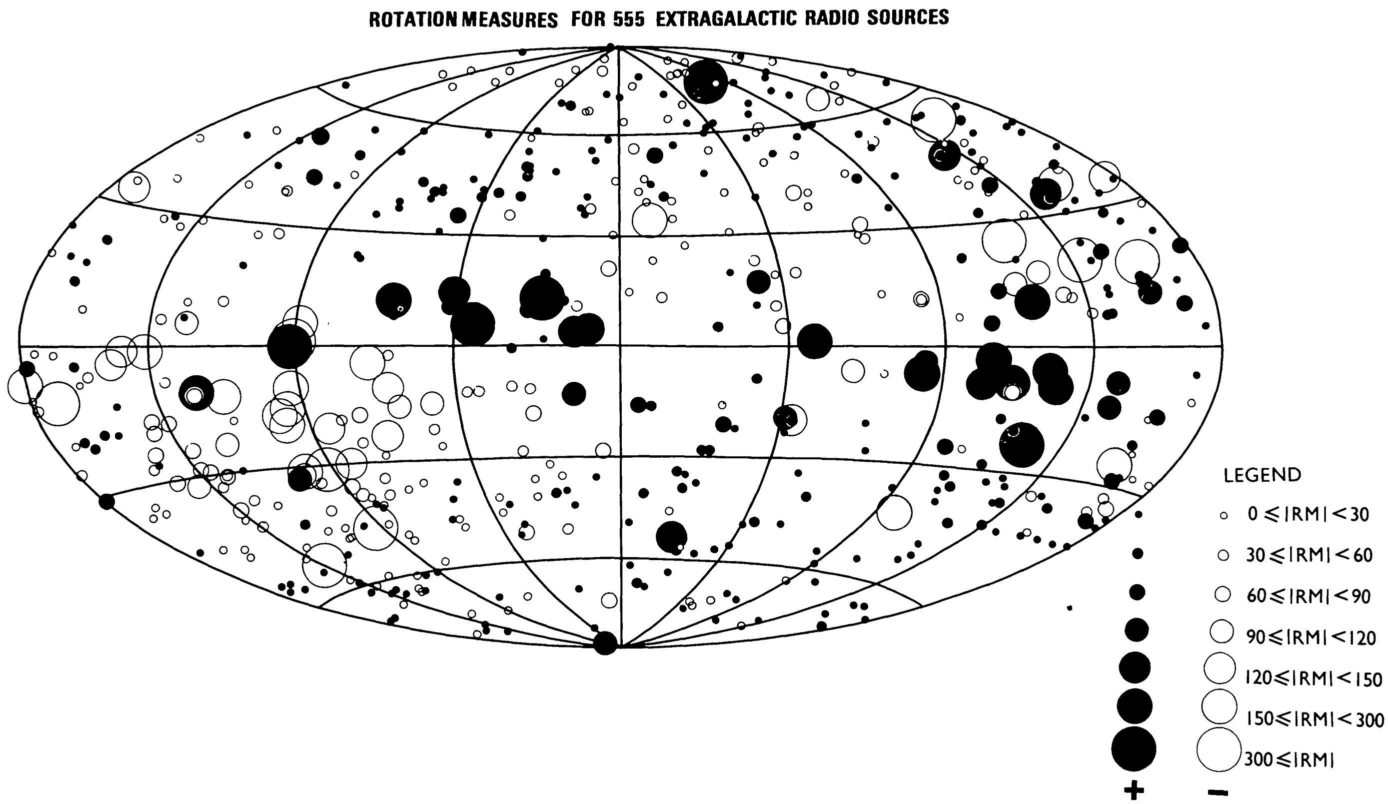

FIG. 2.—Hammer-Aitoff equal area plot of the RMs of 555 extragalactic radio sources. The galactic center is at the center, and longitude increases leftward.

TABLE 2

Source	Name	l°	b°	Z	ID	RM	Error	IPA	Error
0002+12....	P	105.7	−48.5	...	G	−17	2	178	2
0003−00....	P 3C 2	99.3	−60.9	1.0370	Q	+12	3	105	3
0004−83....	P	304.5	−33.9	...	...	+26	2	6	3
0007+12....	4C 12.03	107.4	−48.9	...	G	−4	2	104	2
0010+005...	P	103.2	−60.5	...	...	−11	2	118	4
0016−12....	P	93.5	−73.7	...	...	−4	5	138	4
0017+15....	P 3C 9	112.0	−46.5	2.0120	Q	−22	1	33	1
0020−25....	P	49.6	−83.3	...	G	+4	2	50	2
0031+39....	3C 13	119.3	−23.3	...	G	−92	9	92	15
0033+18....	3C 14	117.9	−44.1	...	G	+44	12	71	7
0034−01....	P 3C 15	114.8	−63.8	0.0730	E0	−12	2	49	2
0035−02....	3C 17	115.2	−64.8	0.2197	N	+10	3	163	7
0035+23....	...	119.0	−38.7	...	...	−1	5	47	3
0036+03....	P	117.0	−59.4	0.0145	E2	−18	2	91	2
0038−02....	P	116.8	−64.5	1.1760	Q	−24	8	49	4
0038+09....	P 3C 18	118.6	−52.7	0.1880	G	+13	4	71	4
0038+32....	3C 19	120.4	−29.7	0.4820	G	+4	54	118	5
0039−44....	P	308.6	−72.8	...	...	−17	4	78	3
0040+51....	3C 20	121.6	−10.8	...	G	+159	2	61	6
0043−42....	P	306.6	−75.0	0.0526	E	+2	1	137	1
0045−25.....	P	97.3	−88.0	0.0011	G	+92	5	114	6
0048−09....	P OB−080	122.3	−72.4	...	L	−5	5	108	2
0048+50....	3C 22	122.9	−11.7	...	G	−82	2	25	4
0049−43....	P	302.4	−74.0	...	...	−9	2	172	2
0052+68....	3C 27	123.4	+5.5	...	...	−91	1	180	3
0055−01....	P 3C 29	126.5	−64.2	0.0445	E0	+1	1	159	1
0056−00....	P	127.1	−62.7	0.7170	Q	+2	3	75	4
0100+25....	4C 25.03	126.1	−36.9	0.0784	DB	−34	4	67	4
0101−12....	P	135.3	−75.2	...	...	+3	2	146	2
0103−45....	P	295.0	−71.8	...	...	−27	2	147	1
0104+32....	3C 31	126.9	−30.4	0.0169	E3	−60	2	28	5
0105−16....	P 3C 32	143.3	−78.3	...	G	+2	3	24	2
0105−008...	P	132.4	−63.2	1.3690	Q	+8	6	123	5
0105+69....	3C 33.2	124.5	+6.6	...	...	+11	9	154	20
0105+72....	3C 33.1	124.3	+10.4	0.1810	DB	−15	3	134	5
0106+01....	P OC 012	131.8	−61.0	2.1070	Q	−11	1	128	3
0106+13....	P 3C 33	129.4	−49.3	0.0595	E4	−12	1	92	2
0107+31....	3C 34	127.6	−30.9	...	...	−66	5	7	8
0110−69....	P	300.2	−48.0	...	...	+18	2	62	2
0114−47....	P	291.0	−69.2	0.1460	E	+8	2	123	3
0115+02....	3C 37	136.1	−59.2	0.6720	Q	+9	11	6	5
0116+08....	P	134.5	−53.8	0.5936	G	−344	17	94	8
0117−15....	P 3C 38	154.2	−76.4	...	...	+3	13	110	5
0118+03....	P 3C 39	137.1	−58.3	0.7650	Q	−5	13	11	14
0119−04....	P	142.3	−66.1	1.9550	Q	−3	1	39	4
0122−00....	P	141.2	−61.8	1.0700	Q	+16	3	17	3
0123+32....	3C 41	131.4	−29.1	...	...	−66	1	35	2
0124+09....	P	137.3	−51.6	...	G	−4	6	62	3
0124+18....	P	134.4	−42.9	0.0432	E	−55	2	19	2
0125+28....	3C 42	132.6	−33.1	0.3952	G	−47	1	13	3
0127+23....	P 3C 43	134.2	−38.4	1.4590	Q	−65	3	4	4
0128+06....	3C 44	140.5	−55.1	...	...	+6	2	95	3
0130−17....	P	168.1	−76.0	...	Q	−7	3	169	5
0131−44....	P	280.1	−70.5	...	...	+9	2	56	4
0131−367...	P	261.7	−77.0	0.0297	S0	+6	1	105	1
0132+37....	3C 46	132.4	−24.1	0.4373	G	−87	1	155	2
0133+20....	P 3C 47	136.8	−40.7	0.4250	Q	−23	1	43	2
0134+32....	3C 48	134.0	−28.7	0.3670	Q	−61	7	116	2
0145+53....	3C 52	131.5	−8.4	...	G	−58	3	163	6
0148−29....	P	226.9	−76.8	...	...	−1	2	102	4

TABLE 2—*Continued*

Source	Name	l°	b°	Z	ID	RM	Error	IPA	Error
0152+43....	3C 54	135.0	−17.6	...	G	−75	3	67	7
0154+28....	3C 55	139.9	−31.8	0.2400	G	−94	3	172	6
0155−10....	P	169.6	−67.4	0.6160	Q	+11	2	3	9
0157−31....	P	231.1	−74.5	...	Q	+2	12	74	5
0159−11....	3C 57	173.1	−67.3	0.6800	Q	+6	1	32	2
0202−76....	P	297.5	−40.0	0.3890	Q	+36	3	135	2
0202−17....	P	186.0	−70.2	1.7400	Q	+57	4	102	2
0213−132...	P 3C 62	181.4	−65.8	...	G	+19	1	78	1
0214−48....	P	269.8	−63.5	0.0640	D	−27	7	82	2
0214+10....	P OD 124	154.3	−46.5	0.4080	Q	−6	3	154	5
0218−02....	P 3C 63	167.1	−56.9	0.1750	E	+4	2	39	2
0219+08....	P 3C 64	157.8	−48.2	...	G	−11	2	31	2
0219+42....	3C 66B	140.2	−16.8	0.0215	L	−67	3	76	6
0220+39....	3C 65	141.5	−19.5	...	...	−81	2	169	2
0221+27....	3C 67	146.8	−30.7	0.3102	G	−64	1	54	4
0222−23....	P	207.6	−68.5	...	...	+13	5	9	6
0222−000...	P	167.1	−55.2	0.6870	Q	+6	3	17	5
0224+67....	DW	132.1	+6.2	...	Q	−36	1	94	2
0229+34....	3C 68.1	145.6	−24.0	1.2370	Q	−63	2	78	5
0231+31....	3C 68.2	147.3	−26.4	...	...	+16	3	92	8
0232−04....	P OD−055	174.4	−56.1	1.4340	Q	+5	1	32	3
0232−02....	P	172.5	−54.8	1.3210	Q	+12	3	18	5
0234+58....	3C 69	136.2	−0.9	...	...	−180	2	109	4
0235−19....	P	201.3	−64.5	...	...	+6	2	174	2
0237−23....	P OD−263	209.8	−65.1	2.2240	Q	+5	1	151	1
0238+08....	P 4C 08.11	163.3	−45.4	0.0214	DB	−6	3	154	5
0240−42....	...	253.5	−62.9	...	...	+2	4	131	2
0241−51....	P	269.1	−58.0	...	...	+10	10	75	23
0241+29....	4C 29.08	150.6	−27.3	...	...	−60	5	53	11
0245−55....	P	274.8	−54.7	...	...	21	2	25	2
0300+16....	P 3C 76.1	163.1	−36.0	0.0324	E3	−18	0.3	113	1
0305+03....	P 3C 78	174.9	−44.5	0.0289	E3	+14	2	85	3
0307+16....	P 3C 79	164.1	−34.5	0.2255	N	−19	0.4	29	1
0313+34....	4C 34.13	154.1	−19.3	1.1560	Q	+29	3	125	8
0314+41....	3C 83.1B	150.1	−13.1	0.0180	D3	+18	1	116	2
0319−45....	P	254.2	−55.2	...	...	+8	2	57	3
0319+12....	P	170.6	−36.2	...	Q	−15	2	72	2
0323+55....	3C 86A	143.9	−1.1	...	...	−130	3	116	3
0325+02....	P 3C 88	181.0	−42.0	0.0302	D4	+22	2	81	2
0333+32....	NRAO 140	159.0	−18.8	1.2630	Q	+58	1	48	1
0334+50....	3C 91	147.8	−3.9	...	...	−136	1	48	2
0336−35....	P	236.6	−53.6	0.0049	E	+30	3	116	2
0336−01....	PCTA 26	188.0	−42.5	0.8520	Q	+17	6	151	8
0340−37....	P	239.4	−52.9	...	...	−5	6	41	3
0340+04....	P 3C 93	181.9	−37.5	0.3570	L	+9	2	136	2
0344−34....	P	234.9	−52.0	...	G	+16	2	154	4
0347+05....	P	182.3	−35.7	...	...	+26	3	69	4
0349+26....	4C 26.12	165.8	−21.1	...	...	+49	1	120	3
0350−07....	P 3C 94	196.6	−42.7	0.9620	Q	+19	1	8	1
0356+10....	P 3C 98	179.8	−31.0	0.0306	D3	+79	1	46	2
0357−37....		239.1	−49.3	...	G	+23	2	55	2
0358+00....	P 3C 99	189.6	−36.7	0.4260	N	+72	4	99	4
0400+25....	OF 200	168.1	−19.7	2.1090	Q	+42	2	122	2
0403−13....	P	205.8	−42.7	0.5710	Q	+13	2	176	3
0404+03....	P 3C 105	187.7	−33.6	0.0886	G	−65	2	49	2
0404+42....	3C 103	156.8	−6.6	...	G	−42	1	72	2
0405−12....	P	204.9	−41.8	0.5740	Q	−14	2	88	5
0409−01....	3C 107	193.2	−35.2	...	...	−33	5	98	9
0409+22....	P 3C 108	171.9	−20.1	...	Q	−4	4	80	4
0410+11....	P 3C 109	181.8	−27.8	0.3056	N	−16	2	60	3

TABLE 2—*Continued*

Source	Name	l°	b°	Z	ID	RM	Error	IPA	Error
0411+14....	P	179.3	−25.7	...	...	−55	4	22	4
0413−21....	P	216.9	−43.2	...	...	+7	6	43	3
0415+37....	3C 111	161.7	−8.8	0.0488	N	−19	2	140	4
0421+00....	P	193.5	−32.0	...	...	−50	6	178	3
0424−26....	P	225.4	−42.4	...	...	+46	8	37	7
0427−53....	P	262.4	−42.4	0.0392	DB	−268	4	175	3
0427−36....	P	238.8	−43.3	...	...	+45	3	91	3
0429+41....	3C 119	161.0	−4.3	...	Q	+45	3	103	6
0430+05....	P 3C 120	190.4	−27.4	0.0334	G	−3	1	174	2
0431−133...	P	209.6	−36.3	...	...	+53	2	137	2
0433+29....	3C 123	170.6	−11.7	0.2177	CD	−324	14	15	2
0439+01....	3C 124	195.5	−27.8	...	G	+22	14	46	32
0440−00....	P	197.2	−28.5	0.8440	Q	+71	2	174	2
0449−17....	P	216.5	−34.2	0.0313	E	+17	3	151	3
0451−28....	P	229.0	−37.0	...	Q	+46	7	84	2
0453−30....	P	231.6	−37.1	...	G	+4	2	89	3
0453−20....	P	220.3	−34.4	0.0339	E	−49	10	153	5
0453+22....	P 3C 132	178.9	−12.5	0.2140	E	−38	1	18	1
0454−46....	P	252.0	−38.8	...	...	+13	2	13	2
0458−02....	4C-021.9	201.5	−25.3	2.2860	Q	−170	17	59	4
0459+25....	P 3C 133	178.5	−10.5	...	G	−22	1	155	3
0500+019...	OG 003	197.9	−22.8	...	...	−7	33	58	17
0501+38....	3C 134	167.6	−1.9	...	...	−21	3	91	3
0506−61....	P	270.6	−36.1	1.0930	Q	+28	4	163	6
0511−48....	P	254.7	−36.0	...	G	+28	1	154	2
0511−30....	P	233.1	−33.3	...	G	+3	2	160	4
0511+00....	P 3C 135	200.4	−21.0	0.1273	N	+41	5	87	4
0512+24....	P 3C 136.1	179.7	−7.7	0.0640	D	−172	2	110	2
0515+50....	3C 137	158.8	+7.8	...	...	−3	2	35	4
0518−45....	P	251.6	−34.6	0.0342	ND	+53	2	95	4
0518+16....	P 3C 138	187.4	−11.3	0.7590	Q	−2	0.2	170	1
0521−36....	P	240.6	−32.7	0.0617	N	+9	1	68	2
0521+28....	3C 139.2	178.1	−4.3	...	...	+72	4	136	8
0523−32....	P	236.5	−31.4	...	G	+6	4	42	5
0523+32....	3C 141	174.5	−1.3	...	...	−1	3	39	7
0528+06....	3C 142.1	197.6	−14.5	...	...	+84	3	42	5
0530+04....	P	200.0	−15.4	...	G	−13	2	1	3
0534−49....	P	256.6	−32.2	...	G	+34	5	142	3
0540+18....	P	188.5	−5.7	...	...	+30	4	100	4
0547−40....	P	246.8	−28.6	...	...	+48	2	111	2
0602−319...	P	238.2	−23.3	0.4520	Q	393	12	152	6
0605−08....	P	215.8	−13.5	...	...	93	3	158	3
0605+48....	3C 153	165.4	+13.4	0.2771	G	34	3	37	3
0607−15....	P	222.6	−16.2	...	...	27	4	43	6
0610+26....	P 3C 154	185.6	+4.0	...	...	2	3	13	3
0616−48....	P...	256.7	−25.3	...	...	−5	2	142	2
0618−37....	P...	244.7	−21.9	0.0326	DB	0	1	72	2
0624−05....	P 3C 161	215.4	−8.1	...	G	111	1	96	1
0625−53....	P...	262.4	−25.1	...	...	64	2	83	2
0625−35....	P...	243.5	−20.0	...	G	45	4	161	4
0625+50....	OH 542	164.5	+17.4	...	G	11	3	127	5
0637−75....	P	286.4	−27.2	...	Q	19	2	7	4
0640+23....	P 3C 165	191.1	+8.7	...	...	62	2	65	3
0642+44....	OH 471	171.1	+17.9	3.4020	Q	30	7	122	10
0646−39....	P	249.4	−17.6	...	G	44	2	56	3
0651+54....	3C 171	162.2	+22.2	0.2387	N	+53	2	85	2
0656−24....	P	235.6	−9.3	...	...	+216	2	25	3
0658+38....	3C 173	179.0	+18.3	...	...	−11	6	1	11
0659+25....	P 3C 172	191.2	+13.4	...	Q	+20	2	95	2
0702+74....	3C 173.1	140.0	+27.3	0.2920	G	−29	4	52	8

TABLE 2—*Continued*

Source	Name	l°	b°	Z	ID	RM	Error	IPA	Error
0710+11....	P 3C 175	204.8	+10.1	0.7680	Q	+7	2	16	3
0711+14....	P 3C 175.1	202.3	+11.5	...	Q	+93	4	136	5
0711+35....	OI 318	182.2	+19.7	1.6200	Q	+90	1	157	3
0715−36....	P	248.3	−11.0	...	G	−75	8	26	3
0715−24....	P	238.1	−5.9	...	...	154	2	8	4
0721+15....	4C 15.19	202.8	+14.1	...	G	+66	1	13	2
0722+68....	3C 179	148.0	+28.4	...	...	−20	5	174	5
0723−00....	OI 039	217.7	+7.2	0.1270	N	+52	1	73	1
0724−01....	P 3C 180	218.9	+7.0	...	G	+41	4	153	7
0725+14....	P 3C 181	203.8	+14.6	1.3820	Q	+52	3	67	5
0727−36....	P	249.5	−8.9	...	...	+242	2	5	2
0727+40....	...	179.0	+24.0	...	...	+13	18	48	6
0733+70....	3C 184	145.1	+29.4	...	G	+10	3	176	5
0734+80....	3C 184.1	133.6	+28.9	0.1178	D	−14	8	65	18
0735+17....	P OI 158	201.8	+18.1	...	L	−304	3	91	4
0736−06....	OI-161	224.1	+7.5	1.9000	Q	−43	6	146	5
0736+01....	P	217.0	+11.4	0.1910	Q	+22	1	66	2
0738+31....	OI 363	188.6	+23.6	0.6310	Q	+12	10	17	2
0742+02....	3C 187	217.3	+12.8	...	...	+20	3	56	4
0748−44....	P	258.3	−9.1	...	...	+122	4	74	3
0755+37....	NRAO 276	182.7	+28.8	0.0433	S0	−1	2	113	3
0800−092...	P	229.4	+11.3	...	G	−32	5	109	5
0802+10....	P 3C 191	211.9	+20.9	1.9560	Q	+89	2	89	4
0802+24....	P 3C 192	197.9	+26.4	0.0599	E1	+20	2	72	3
0805+04....	4C 04.34	217.7	+19.1	2.8770	Q	+13	16	57	17
0806−10....	P 3C 195	231.4	+12.0	0.1070	G	−69	2	122	4
0807−38....	P	255.8	−3.2	...	...	+272	4	153	4
0809+48....	3C 196	171.2	+33.2	0.8710	Q	−142	5	157	2
0812+02....	P	221.1	+19.5	0.4060	Q	−382	5	113	4
0814+22....	3C 197	200.6	+28.5	0.9800	Q	+43	5	9	4
0818+47....	3C 197.1	172.7	+34.5	0.1302	DE	−5	2	168	3
0819+06....	3C 198	218.1	+23.0	0.0815	D4	+26	2	95	3
0821+39....	OJ 336	182.1	+34.2	1.2160	Q	+14	5	119	7
0824+29....	3C 200	193.9	+32.6	0.4580	G	+15	1	34	3
0825−20....	P	242.4	+10.3	...	Q	+199	3	79	5
0827+37....	4C 37.24	184.3	+35.1	0.9140	Q	−130	5	35	4
0835+58....	3C 205	159.3	+36.9	1.5340	Q	−15	1	74	2
0836+19....	4C 19.31	206.1	+32.1	1.6910	Q	+10	1	98	4
0837−12....	P	237.2	+17.4	0.2000	Q	−105	7	8	10
0838+13....	P 3C 207	213.0	+30.1	0.6840	Q	+27	1	20	3
0842−75....	P	289.4	−19.9	0.5240	Q	+9	2	157	4
0843−33....	P OJ 374	255.7	+5.7	0.0076	E3	+70	1	155	1
0850−20....	P	246.3	+15.0	...	...	−104	3	125	3
0851+14....	3C 208.1	213.6	+33.6	...	...	+33	4	102	6
0851+20....	OJ 287	206.8	+35.8	...	L	−176	2	90	1
0855+14....	P 3C 212	214.0	+34.5	1.0630	Q	+140	3	51	5
0855+28....	3C 210	197.8	+38.8	...	G	−35	26	98	18
0858+29....	3C 213.1	196.5	+39.7	0.1940	G	+38	3	166	6
0859−25....	P	251.8	+13.4	...	...	+71	2	28	4
0859−14....	P	242.3	+20.7	1.3270	Q	+9	1	78	2
0903−57....	P	276.1	−7.0	...	...	+185	2	61	1
0903+16....	P 3C 215	211.9	+37.2	0.4110	Q	+31	2	70	4
0905+38....	3C 217	185.2	+42.6	...	Q	+7	2	9	4
0906+01....	P OK 011	228.9	+30.9	1.0180	Q	−7	4	131	2
0915−11....	P 3C 218	242.9	+25.1	0.0650	D	−871	8	3	2
0916−54....	P	275.4	−3.9	...	...	+99	3	60	4
0917+45....	3C 219	174.4	+44.8	0.1745	D5	−19	2	155	4
0920−39....	P	265.4	+7.2	...	...	−20	2	93	3
0927+36....	3C 220.2	188.1	+46.8	1.1570	Q	+14	3	19	4
0932+02....	P	232.4	+36.8	0.6590	Q	−11	1	157	5

TABLE 2—*Continued*

Source	Name	l°	b°	Z	ID	RM	Error	IPA	Error
0933+04...	3C 222	230.1	+38.3	...	G	+75	11	12	18
0936+36...	3C 223	188.3	+48.7	0.1367	D2	+14	0.3	80	1
0938+39...	3C 223.1	182.6	+48.9	0.1075	E5	+3	4	46	8
0939+13...	3C 225	220.0	+44.0	...	...	−25	5	108	10
0941−08...	P	244.1	+32.4	...	G	+35	13	45	10
0941+10...	P 3C 226	225.2	+42.7	...	...	+12	2	67	2
0945+07...	P 3C 227	228.6	+42.3	0.0855	N	−7	2	162	3
0947−24...	P	259.0	+21.8	...	...	+38	3	118	3
0947+14...	P 3C 228	220.4	+46.0	0.2000	G	+5	1	108	1
0949+00...	P 3C 230	237.6	+39.1	...	...	−20	2	70	3
0949+24...	P 3C 229	206.5	+49.7	...	G	+26	6	150	4
0952+17...	AO	216.5	+48.4	1.4720	Q	−3	1	74	2
0954+55...	4C 55.17	158.6	+47.9	0.9010	Q	+1	1	180	2
0957+00...	4C 00.34	239.1	+40.8	0.9070	Q	−6	1	34	3
0958+29...	3C 234	200.2	+52.7	0.1846	N	+42	1	171	4
1004+13...	4C 13.41	225.1	+49.1	0.2400	Q	−16	5	78	6
1005+07...	P 3C 237	232.1	+46.6	...	G	+141	5	8	7
1008+06...	P 3C 238	234.0	+46.7	...	...	+50	4	72	5
1010−64...	P	287.1	−7.1	...	G	−14	2	147	2
1010+35...		190.0	+55.0	...	...	+25	7	173	4
1012+23...	4C 23.24	210.7	+54.4	0.5650	Q	−308	32	81	21
1017−426..	P	275.6	+11.8	...	...	−37	3	114	4
1017−421..	P	275.3	+12.2	...	...	−89	2	176	2
1019+22...	P 3C 241	213.2	+55.7	...	...	+18	20	94	29
1022+19...	4C 19.34	218.3	+55.5	0.8280	Q	+11	2	148	5
1030+58...	3C 244.1	151.0	+50.7	0.4280	G	−4	2	118	3
1040+12...	P 3C 245	233.1	+56.3	1.0290	Q	+30	2	22	1
1045+35...		189.0	+63.0	...	...	+17	7	2	5
1048−09...	P 3C 246	260.2	+43.4	0.3440	Q	+0	3	48	4
1055+01...	P	251.5	+52.8	0.8950	Q	−45	1	124	1
1056+43...	3C 247	170.7	+62.3	...	G	+19	1	12	4
1059−01...	P 3C 249	255.7	+51.3	...	Q	+16	2	30	3
1100+77...	3C 249.1	130.4	+38.5	0.3110	Q	−29	1	7	3
1103−20...	P	272.5	+35.4	...	G	+18	7	161	3
1104+16...	4C 16.30	231.4	+63.6	0.6340	Q	−7	1	101	5
1106+023..	P	254.1	+54.9	...	G	+22	4	151	3
1106+25...	3C 250	212.3	+66.9	...	G	−25	3	161	4
1108+35...	3C 252	184.7	+67.1	...	G	−10	5	99	8
1113+29...	4C 29.41	201.5	+69.0	0.0485	ED	+2	17	68	10
1116−46...	P	286.7	+13.4	0.7100	Q	−12	3	178	4
1117+14...	P	239.4	+65.3	...	...	−112	39	69	12
1127−14...	P	275.3	+43.6	1.1870	Q	+33	1	168	2
1136−67...	P	296.2	−6.3	...	...	−100	3	136	1
1136−32...	P	285.7	+28.1	...	...	−50	3	78	4
1136−13...	P	277.5	+45.4	0.5540	Q	−26	1	51	2
1137+12...	P	251.7	+67.5	...	G	+7	2	3	3
1137+66...	3C 263	134.2	+49.7	0.6520	Q	+6	4	41	7
1138+01...	P	266.9	+59.1	...	...	+5	4	86	4
1139−28...	P	285.0	+31.6	...	...	−63	2	104	3
1140+22...	P 3C 263.1	227.2	+73.8	...	G	+18	4	88	7
1142+19...	P 3C 264	235.7	+73.0	0.0206	E0	+16	8	129	2
1142+31...	3C 265	191.8	+75.0	0.8110	G	−3	2	41	5
1143−31...	P	287.2	+28.9	...	...	−25	4	170	4
1147+13...	P 3C 267	254.8	+69.7	...	...	+0	3	149	5
1148−00...	P	272.5	+58.8	1.9820	Q	+1	1	155	2
1156+29...	4C 29.45	199.4	+78.4	0.7290	Q	−36	5	163	2
1157+73...	3C 268.1	128.1	+43.6	...	G	+8	3	148	6
1158+31...	3C 268.2	187.9	+78.2	0.3610	G	+11	1	95	3
1201−04...	P	281.2	+56.4	...	G	+0	2	139	2
1203+64...	3C 268.3	130.9	+52.2	0.3710	G	+86	11	77	10

TABLE 2—*Continued*

Source	Name	l°	b°	Z	ID	RM	Error	IPA	Error
1206+43 ...	3C 268.4	147.5	+71.4	1.4000	Q	−1	1	40	2
1210+13 ...	4C 13.46	268.7	+73.4	1.1370	Q	+12	7	55	3
1216−10 ...	P	289.8	51.7	0.0875	D	−3	2	113	3
1216+06 ...	P 3C 270	281.8	+67.4	0.0073	E	+12	1	93	1
1218+33 ...	3C 270.1	166.3	+80.6	1.5190	Q	+0	0.4	91	1
1222+13 ...	P 3C 272.1	278.2	+74.5	0.0037	E	−8	1	147	1
1222+21 ...	P 4C 21.35	255.1	+81.7	0.4330	Q	−7	2	123	3
1223+42 ...	3C 272	140.8	+74.1	...	...	−3	3	114	7
1226−21 ...	P	295.9	+41.1	...	G	−29	4	161	2
1226+02 ...	P 3C 273	290.0	+64.4	0.1580	Q	+2	0.2	150	1
1228+12 ...	P 3C 274	283.8	+74.5	0.0043	E2	+872	10	21	1
1229−02 ...	P	293.2	+60.1	1.0380	Q	−52	2	1	3
1232−24 ...	P	298.4	+37.5	0.3550	Q	−29	2	75	2
1232+21 ...	P 3C 274.1	269.9	+83.2	0.4220	G	−4	0.3	165	1
1233+16 ...	P	284.1	+78.9	0.0784	E	−27	12	24	4
1237−10 ...	P	298.2	+52.4	0.7530	Q	+13	2	40	3
1239−04 ...	P 3C 275	298.6	+58.0	0.4800	G	−10	3	88	6
1240−20 ...	ON −268	300.4	+41.6	...	...	−81	27	34	6
1241+16 ...	P 3C 275.1	293.4	+79.1	0.5570	Q	−11	1	126	3
1249+09 ...	P	303.2	+71.8	...	G	+12	3	146	2
1251+15 ...	3C 277.2	305.5	+78.6	...	G	−3	1	165	3
1251+27 ...	3C 277.3	72.3	89.2	0.0857	G	+3	1	2	2
1252−12 ...	P 3C 278	304.1	+50.3	0.0143	E0	−13	1	14	2
1253−05 ...	P 3C 279	305.1	57.1	0.5380	Q	+15	0.3	112	1
1254+47 ...	3C 280	120.2	+69.8	...	G	−17	1	43	3
1258+40 ...	3C 280.1	115.3	+76.8	1.6590	Q	−24	4	38	6
1307+000 ..	4C 00.46	312.9	+62.3	...	G	+4	5	10	4
1308+27 ...	3C 284	38.6	+85.6	0.2394	G	−4	1	17	2
1313+07 ...	P	320.4	+69.1	...	G	−3	3	66	3
1317−00 ...	P	317.7	+61.2	0.8900	Q	+11	0.4	129	1
1317+17 ...	OP 129.8	339.8	+78.5	...	...	+2	2	175	2
1318+11 ...	4C 11.45	328.0	+72.5	2.1710	Q	0	1	80	2
1319+42 ...	3C 285	103.4	+73.4	0.0797	E	−17	3	82	7
1322−42 ...	NGC 5128	309.5	19.4	0.0016	E	−56	1	149	2
1323−61 ...	P	307.1	+1.2	...	...	185	1	12	1
1325−01 ...	P	321.0	59.6	...	G	0	2	143	2
1327−21 ...	P	314.7	+40.3	0.5280	Q	+12	1	14	4
1328+254 ..	P 3C 287	22.5	+81.0	1.0550	Q	−58	1	164	1
1328+30 ...	3C 286	56.5	+80.7	0.8490	Q	−1	0.2	33	0
1330+02 ...	P 3C 287.1	326.3	+63.0	0.2156	N	+1	2	145	4
1331+170 ..	OP 151	348.4	+75.8	2.0810	Q	−20	7	178	6
1335−06 ...	P	323.2	+54.6	0.6250	Q	−27	6	5	4
1340+05 ...	P	334.2	+64.8	0.1334	N	−2	3	47	4
1340+60 ...	3C 288.1	111.8	+55.7	0.9610	Q	+4	7	127	8
1350+31 ...	3C 293	54.6	+76.1	0.0450	D6	−3	2	68	6
1352+16 ...	P 3C 293.1	359.6	+71.8	...	G	6	4	131	5
1354−17 ...	OP −190.4	324.3	+42.4	...	...	−29	15	26	6
1354+19 ...	P	9.0	+73.0	0.7200	Q	+5	1	69	2
1355−41 ...	P	316.2	+19.2	0.3130	Q	−28	2	77	3
1358−11 ...	P	329.0	+47.7	0.0250	E2	+2	2	121	3
1402−012 ..	P	337.5	+56.4	2.5180	Q	17	19	87	12
1413−36 ...	P	321.4	+23.1	...	G	−37	3	164	3
1414+11 ...	P 3C 296	358.0	+64.1	0.0237	E4	−3	2	36	4
1416−49 ...	P	317.3	+10.8	...	G	−41	4	77	8
1418−55 ...	P	315.6	+5.4	...	...	−86	3	136	2
1419−27 ...	P	326.7	+31.2	...	Q	−12	4	44	5
1420+19 ...	P 3C 300	18.1	+67.7	0.2720	G	−6	4	102	9
1422+20 ...	4C 20.33	19.5	+67.5	0.8710	Q	−29	1	115	3
1422+26 ...	OQ 237	36.6	+69.2	0.0370	E	+9	6	108	3
1423+24 ...	4C 24.31	30.0	+68.5	0.6490	Q	+33	18	97	9

TABLE 2—*Continued*

Source	Name	l°	b°	Z	ID	RM	Error	IPA	Error
1424−41...	P	321.4	+17.3	...	...	116	8	24	9
1425−01...	P 3C 300.1	346.1	+53.1	0.3080	G	+64	6	120	4
1434+03...	P	354.3	+55.4	...	...	−54	30	32	9
1441+52...	3C 303	90.5	+57.5	0.1410	N	+18	2	36	5
1442+10...	OQ 172	5.8	+58.2	3.5300	Q	+18	4	59	7
1444+77...	3C 303.1	115.2	+38.3	0.2670	G	−24	13	148	18
1445−46...	P	322.8	+11.3	...	...	+11	4	155	2
1447+77...	3C 305.1	114.9	+38.3	0.4560	G	−57	10	119	19
1448+63...	3C 305	103.2	+49.1	0.0416	SA	+37	14	65	6
1449−12...	P	342.8	+40.1	...	G	−7	2	167	3
1451−36...	P	328.8	+19.9	...	...	+3	3	62	4
1452−04...	P 3C 306.1	351.2	+46.6	0.4415	G	−7	1	90	3
1453−10...	P	345.3	+41.3	0.9400	Q	+39	31	28	12
1454−06...	P	349.7	+44.9	1.2490	Q	0	1	151	3
1458+71...	3C 309.1	110.0	+42.1	0.9040	Q	+63	2	39	3
1502+10...	OR 103	11.4	+54.6	1.8330	Q	+6	3	10	3
1502+26...	P 3C 310	38.4	+60.2	0.0545	DB	+10	3	35	3
1504−167..	OR −107	343.6	+35.1	...	G	−19	3	113	5
1508−05...	P	353.9	+42.9	1.1910	Q	−25	1	79	1
1508+08...	P 3C 313	9.2	+51.8	0.4610	E	+15	5	4	6
1510−08...	P	351.3	+40.1	0.3610	Q	−15	1	74	2
1511+26...	P 3C 315	39.4	+58.3	0.1086	DB	−1	0.4	116	2
1512+37...	4C 37.43	59.9	+58.3	0.3700	Q	+10	2	10	6
1514−24...	P	340.7	+27.6	...	L	−20	2	50	2
1514+00...	P	1.4	+46.0	0.0530	E3	−11	3	161	4
1522+54...	3C 319	88.1	+51.1	...	G	+7	3	92	7
1524−13...	P	350.5	+34.3	...	...	−182	14	105	5
1529+24...	P 3C 321	37.2	+53.8	0.0960	G	+12	1	0	1
1538+14...	4C 14.60	24.3	+48.8	...	L	+13	4	32	4
1545+21...	P 3C 323.1	33.9	+49.5	0.2640	Q	+14	0.4	136	1
1546+027..	P	10.8	+40.9	0.4120	Q	+10	1	107	3
1547−79...	P	310.8	−19.8	...	G	+38	1	123	1
1547+21...	P 3C 324	34.9	+49.2	...	G	+42	2	150	3
1549−79...	P	311.2	−19.5	...	...	−122	11	65	9
1549+62...	3C 325	96.3	+44.1	...	G	−9	2	79	5
1550+20...	P 3C 326	33.3	+48.2	...	G	+24	2	11	3
1553+20...	P 3C 326.1	33.7	+47.3	...	G	+58	5	156	8
1555+00...	P	9.6	+37.7	...	Q	−33	17	121	4
1556−46...	P	333.5	+5.3	...	...	+39	2	116	1
1556−21...	P	350.6	+23.4	...	G	−22	7	131	7
1559+02...	P 3C 327	12.5	+37.8	0.1041	D	+9	1	160	1
1602−63...	P	322.8	−8.5	0.0591	DB	+52	4	112	2
1602−09...	P	1.9	+30.5	...	...	−3	1	25	2
1603+00...	P	11.1	+36.0	...	Q	+13	3	93	5
1609+66...	3C 330	98.8	+40.7	0.5490	G	+13	2	131	7
1610−77...	P	313.4	−18.9	...	...	+98	3	87	3
1615+32...	3C 332	52.7	+45.3	0.1520	E3	+2	1	124	2
1618+17...	P 3C 334	33.2	+41.1	0.5550	Q	+41	1	46	2
1622−29...	P	348.8	+13.3	...	...	−53	2	13	2
1622+23...	P 3C 336	41.4	+42.1	0.9270	Q	+33	3	131	3
1625+27...	3C 341	46.8	+42.3	0.4480	G	+18	0.3	147	1
1627+23...	P 3C 340	41.3	+40.9	0.3100	G	+24	1	176	2
1627+44...	3C 337	69.5	+43.6	...	G	+37	2	67	5
1633+38...	4C 38.41	61.1	+42.3	1.8140	Q	+28	3	175	5
1634+26...	P 3C 342	46.2	+40.3	0.5610	Q	+34	1	141	3
1635−14...	P	3.3	+21.1	...	...	−87	4	170	5
1637−77...	P	314.4	−20.0	0.0423	D3	+49	4	125	7
1638+39...	NRAO 512	63.4	+41.4	...	Q	+45	13	179	11
1641+17...	P 3C 346	35.3	+35.8	0.1610	G	−32	2	168	4
1641+37...	4C 37.49	60.4	+40.7	...	G	+19	4	124	10

TABLE 2—*Continued*

Source	Name	l°	b°	Z	ID	RM	Error	IPA	Error
1641+39...	3C 345	63.5	+40.9	0.5950	Q	+22	0.2	33	1
1643−22...	P	357.6	+14.7	...	...	−12	3	109	2
1648+05...	P 3C 348	23.0	+28.9	0.1570	G	+21	4	20	1
1652+39...	...	63.0	+39.0	...	...	+14	4	159	2
1658+47...	3C 349	73.0	+38.2	0.2050	G	+12	2	39	3
1702+29...	4C 29.50	51.7	+35.1	1.9270	Q	+62	4	6	9
1709+46...	3C 352	71.8	+36.2	0.8057	...	+8	2	64	3
1716−80...	P	313.0	−23.1	...	...	+7	2	114	2
1717−00...	P 3C 353	21.2	+19.6	0.0307	D	+32	2	93	3
1723+51...	3C 356	77.9	+34.2	...	G	+10	4	130	8
1726+31...	3C 357	55.5	+30.6	0.1670	E4	+2	2	36	4
1730−13...	P	12.0	+10.8	...	Q	−56	1	74	2
1732−09...	P	15.6	+12.3	...	...	+55	1	170	1
1737−60...	P	331.7	−15.6	...	...	−4	2	69	4
1741−038..	P	21.6	+13.1	...	...	+301	6	26	5
1744−19...	P	8.7	+4.9	...	...	+139	3	99	4
1755−16...	P	12.4	+3.8	...	...	+129	2	109	1
1800−02...	P	25.4	+9.8	...	...	+61	3	137	2
1817−64...	P	330.7	−21.1	...	...	+70	2	154	2
1819−67...	P	327.4	−22.4	...	...	+8	2	40	2
1819−09...	OU−033	21.0	+2.0	...	...	+5	14	101	12
1820+17...	P	46.1	+14.4	...	...	+125	4	84	4
1826+74...	3C 379.1	105.3	+27.8	0.2560	E	−36	3	114	7
1828+48...	3C 380	77.2	+23.5	0.6920	Q	+15	3	20	5
1832+47...	3C 381	76.1	+22.5	0.1614	E	+25	1	71	3
1834−43...	P	351.7	−16.0	...	...	+55	3	155	3
1836+17...	P 3C 386	47.0	+10.5	0.0177	E2	+90	3	28	7
1840−40...	P	355.3	−15.9	...	...	+76	5	6	6
1843−03...	3C 389	29.4	−0.4	...	...	+51	4	69	9
1843+09...	P 3C 390	41.1	+5.8	...	...	+313	1	10	3
1845+79...	3C 390.3	111.4	+27.1	0.0569	N	−5	1	18	2
1859−23...	P	12.9	−12.8	...	...	+118	31	177	7
1901+31...	3C 395	63.0	+11.8	...	Q	+169	1	31	1
1913+30...	3C 399.1	62.7	+8.5	...	...	+60	1	78	1
1915−12...	P	25.0	−11.3	...	G	−39	7	168	5
1920−07...	P	29.7	−10.6	...	...	−54	3	157	3
1922−62...	P	333.8	−28.0	...	...	+44	2	131	5
1925−610..	...	335.8	−28.0	...	...	+50	4	52	4
1938−15...	P	24.4	−17.8	...	G	−77	1	57	2
1943+002..	...	39.3	−12.0	...	...	−58	4	128	4
1949+02...	P 3C 403	42.3	−12.3	0.0590	E3	−36	1	45	2
1955−35...	P	5.1	−28.4	...	...	−80	3	63	5
1958+25...	P	63.7	−2.3	...	...	−60	8	100	4
2014−55...	P	342.3	−34.2	0.0606	E0	+41	4	108	5
2018+29...	3C 410	69.2	−3.8	...	...	−222	2	2	3
2019+09...	P 3C 411	52.8	−15.0	0.4690	N	−117	3	172	3
2020−57...	P	340.1	−35.0	...	...	+16	4	136	10
2025−15...	P	29.1	−28.2	...	...	−60	4	149	4
2030−23...	P	21.7	−32.0	...	G	−24	2	155	2
2031+21...	P	64.4	−10.8	...	G	−148	5	167	8
2032−35...	P	7.8	−35.6	...	G	+2	1	93	2
2037+51...	3C 418	88.8	+6.0	...	Q	−258	1	128	2
2040−26...	P	18.3	−35.3	0.0406	E	−19	3	160	4
2041−60...	P	336.1	−37.3	...	...	+15	7	19	7
2041+17...	...	62.1	−15.5	...	...	−91	6	19	4
2045+06...	P 3C 424	53.8	−22.0	0.1270	E	−55	4	71	4
2048−57...	P	340.0	−38.7	0.0110	SO	+55	4	32	8
2052−47...	P	352.6	−40.4	...	...	+40	3	169	2
2053−20...	P	27.1	−36.0	...	G	−8	7	136	14
2058−28...	P	17.8	−39.6	0.0394	E	+13	2	57	5

TABLE 2—*Continued*

Source	Name	l°	b°	Z	ID	RM	Error	IPA	Error
2059+034...	P	52.7	−26.6	0.3700	Q	−11	21	112	10
2104−25....	P	21.4	−40.2	...	G	+42	10	175	3
2104+76....	3C 427.1	111.0	+19.3	...	G	+19	17	51	4
2106+49....	3C 428	90.5	+1.3	...	...	−359	1	66	2
2113−21....	P	27.9	−40.9	...	...	−22	2	77	3
2115−30....	P	15.7	−43.6	0.9800	Q	+28	2	84	2
2117+49....	3C 431	91.7	+0.1	...	...	+347	3	24	5
2120+16....	P 3C 432	67.9	−22.8	1.8050	Q	−124	4	22	7
2121+24....	P 3C 433	74.5	−17.7	0.1016	D4	−73	1	163	1
2128−12....	P	40.5	−41.0	0.5010	Q	−1	1	143	4
2130−532...	P	342.7	−45.3	0.0763	DB	−3	5	77	5
2131−021...	P	52.4	−36.5	0.5570	Q	+10	8	131	1
2135−14....	P	38.4	−43.3	0.2000	Q	+21	2	5	4
2140−43....	P	357.2	−49.0	...	...	+5	2	86	3
2141+27....	3C 436	80.2	−18.8	0.2145	G	−53	0.4	171	1
2145+15....	P 3C 437	70.9	−28.4	...	...	−15	1	46	3
2146−13....	P	41.9	−45.3	1.8000	Q	−1	1	85	3
2149−28....	P	20.2	−50.5	...	...	−39	4	131	7
2149+21....	4C 21.59	76.6	−24.8	1.5340	Q	−37	1	73	4
2150+05....	POX 085	63.4	−36.0	1.9790	Q	−30	3	110	4
2154−18....	P	36.0	−49.0	...	...	+12	5	66	11
2154−016...	P	57.0	−40.9	...	...	+1	6	89	10
2200+42....	BL LAC	92.6	−10.4	0.0700	L	−183	0.4	43	2
2203−18....	P	36.7	−51.2	...	Q	−64	38	33	7
2203+29....	3C 441	84.9	−20.9	...	...	−125	1	180	2
2209+08....	P	69.8	−37.6	0.4860	Q	−13	1	88	2
2211−17....	P 3C 444	40.2	−52.4	...	G	+1	2	176	4
2212+13....	P 3C 442	75.1	−34.1	0.0270	DB	−31	3	148	4
2216−03....	P	59.0	−46.6	0.9010	Q	−7	9	83	4
2221−02....	P 3C 445	61.9	−46.7	0.0568	N	+12	2	103	3
2223−52....	P	339.5	−53.1	...	...	+138	5	0	10
2223−05....	P 3C 446	59.0	−48.8	1.4030	Q	−28	1	6	2
2223+21....	P	83.2	−30.1	1.9590	Q	−125	2	146	1
2229+39....	3C 449	95.4	−15.9	0.0171	E2	−162	1	92	2
2230+11....	PCTA 102	77.4	−38.6	1.0370	Q	−53	0.4	61	1
2243+39....	3C 452	98.1	−17.1	0.0811	ED	−275	1	6	1
2244+36....	4C 36.47	96.8	−19.5	0.0815	E	−231	3	126	3
2247+11....	P	81.6	−41.3	0.0243	EO	−21	3	54	6
2247+14....	P	83.9	−39.2	0.2370	Q	−3	15	113	7
2248+712...	...	113.6	+10.9	...	...	−49	2	13	4
2249+18....	P 3C 454	87.4	−35.6	1.7570	Q	−87	0.4	103	1
2250−41....	P	355.6	−62.0	...	G	+15	2	65	3
2251+11....	P	82.8	−41.9	0.3230	Q	+28	4	45	7
2251+15....	P3C 454.3	86.1	−38.2	0.8590	Q	−57	0.3	26	1
2251+24....	4C 24.61	91.7	−30.9	2.3280	Q	−558	43	80	3
2252−53....	P	335.0	−56.6	0.5430	...	−3	4	46	4
2252+12....	P 3C 455	84.3	−40.7	0.5430	Q	+7	6	145	6
2253−52....	P	335.9	−57.2	...	...	+32	12	112	7
2309+09....	P 3C 456	86.2	−46.4	0.2337	G	−12	2	47	4
2310+05....	P 3C 458	82.9	−49.8	0.2900	E	−7	6	49	8
2314+03....	P 3C 459	83.0	−51.3	0.2205	N	−6	1	7	3
2317−27....	P	26.7	−69.7	...	G	+10	1	91	2
2318+23....	3C 460	97.7	−34.7	0.2680	E5	−60	6	92	8
2319−55....	P	327.3	−57.9	...	...	+24	3	146	3
2319+27....	4C 27.50	99.7	−31.2	0.1188	E	−254	3	138	4
2323−40....	P	350.2	−68.0	...	G	+43	3	130	3
2324−02....	P	80.4	−57.8	...	G	−25	2	40	4
2325+26....	3C 463	101.0	−32.0	0.8750	Q	−117	20	78	10
2326−477...	...	335.7	−64.1	1.2990	Q	+25	2	119	2
2328+10....	OX 146.9	93.1	−47.1	1.4890	Q	−307	3	76	2

TABLE 2—*Continued*

Source	Name	l°	b°	Z	ID	RM	Error	IPA	Error
2331−41....	P	345.8	−68.7	...	G	+30	6	157	3
2332−66....	P	314.3	−48.8	...	...	+28	2	90	2
2335+26....	P 3C 465	103.5	−33.1	0.0293	D	102	1	21	2
2337−334...	...	8.8	−73.5	...	...	−90	10	152	4
2338−58....	P	319.6	−56.5	...	...	+1	5	88	5
2338−16....	P	62.9	−70.5	...	...	−5	5	32	7
2344+09....	P	97.5	−50.1	0.6770	Q	+1	1	143	4
2345+18....	P 3C 467	102.8	−41.7	0.6310	N	−55	6	114	4
2349−01....	P	91.7	−60.4	0.1740	G	+6	12	49	8
2353−68....	P	310.5	−48.0	0.7160	Q	+47	7	23	7
2353+49....	DA 611	113.7	−12.0	...	G	−182	29	34	15
2354−11....	P	81.4	−69.8	...	Q	+28	16	77	8
2354+14....	P	103.9	−46.1	1.8100	Q	−22	1	4	2
2356−61....	P	314.0	−55.1	0.0959	E3	+18	1	19	2
2356+43....	3C 470	113.0	−17.8	...	G	−20	2	132	3

(4) give the galactic coordinates corresponding to the precise radio position, and columns (5) and (6) redshift and optical identification where a published value exists. The rotation measure (rad m^{-2}) with its error is given in column (7), and the intrinsic, or "zero λ", integrated position angle (degrees) and its error are presented in column (8).

We note that comparison of the RMs in Table 2 with a recent list of 145 RMs by Ruzmaikin and Sokoloff (1979) shows agreement to within 10 rad m^{-2} for only 77 sources. This is because (i) they have included RM values for a few galactic sources (which we have omitted from Table 2); (ii) they quote RMs for sources which we have rejected according to the criteria outlined in § III; or (iii) their RM disagrees with ours. We have reexamined the disagreeing RM values that are not consistent with ours, i.e., subgroup (iii), and find that of the 17 worst disagreements (by $\gtrsim$30 rad m^{-2}), we would reject their value in 16 cases. For eight of these we have additional polarization data not available at the time their paper was written. This fact suggests that their procedure for evaluating RMs is prone to admitting a significant number of incorrect RMs. For one source, 1137+66 (3C 263), our value of +6 rad m^{-2} is close to but above our borderline of acceptability, and their value of −132.7 rad m^{-2}, although less likely in our judgement, cannot yet be entirely ruled out.

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The establishment of such a large number of new RMs required many integrated polarization measurements and therefore a large investment in observing time on the most sensitive radio telescopes available. We are thus grateful to the Max-Planck-Institut für Radioastronomie at Bonn, the National Radio Astronomy Observatory at Green Bank,[1] and the Herzberg Institute of Astrophysics (ARO) for their hospitality and generous allotment of observing time.

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