Intense radio sources at 1400 MHz. II. Additions to the BDFL sample

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Sixteen sources with 1.4-GHz integrated flux densities greater than 1.7 Jy and $|b|>5°$ have been added to the 424 in the BDFL catalog (Paper I) between declinations $-5°$ and $+70°$, on the evidence of new 1.4-GHz observations at the NRAO 300-ft telescope. The BDFL "complete sample" of sources with $S_{1.4}\geq 2.00$ Jy in the region of sky between declinations $-5°$ and 70° at $|b|>20°$ has consequently been slightly revised. Five new sources have been added and two sources deleted. The revised BDFL "complete" sample of 237 sources (Table V of this paper) is estimated to be 99±1% complete. Data on the additional sources are given in Table II of this paper, which also presents new data on 14 sources from the BDFL catalog. All sources with 1.4-GHz flux densities greater than 1.5 Jy in the Ohio 40°–63° survey at $|b|>5°$ have now been observed at the 300-ft telescope, and the flux-density accuracy of this survey is assessed.

INTRODUCTION

THE BDFL source catalog (Bridle *et al.* 1972, Paper I) presented measurements of accurate flux densities of 424 sources at $|b|>5°$ from various 1.4-GHz finding surveys and determined a statistically complete and unbiased sample of sources at $|b|>20°$ brighter than 2.00 Jy at 1.4 GHz. The DA (Galt and Kennedy 1968) and Ohio (Scheer and Kraus 1967; Dixon and Kraus 1968; Fitch *et al.* 1969; Ehman *et al.* 1970) surveys were the major finding lists for the BDFL study. For 1.62 steradians of sky between declinations +43° and +70° only the DA survey was available as a finding list at the time of the BDFL observations. Because the completeness of the DA survey was found to be only 88% above 2 Jy over the rest of the sky, the BDFL "complete sample" was estimated to be missing 4±3 sources in these 1.62 steradians.

After the BDFL observations were completed, the Ohio group prepared a survey of 1.34 steradians of sky between declinations +40° and +63° (Brundage *et al.* 1973). This survey covers most of the area of sky in which the BDFL 2-Jy sample is likely to be incomplete. We therefore made new observations of sources brighter than 1.5 Jy in the Ohio 40°–63° survey, to check and increase the completeness of the BDFL study. This paper presents the results for 36 Ohio sources, as well as improved data for 14 sources from the original BDFL study and for several other sources now suspected to have flux densities near 2 Jy.

I. OBSERVATIONS

The observations were made at 1.4 GHz in May and August 1973 with the 300-ft meridian transit telescope at the National Radio Astronomy Observatory. Four independent feeds and radiometers mounted around the telescope focus were used as described by BDFL (Paper I) to map areas of sky ~55 arcmin in right ascension by ~35 arcmin in declination centered on each expected source position. The effective antenna beamwidths for our observations were 9.85 arcmin

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TABLE I. BDFL 1.4-GHz flux densities adopted for calibration.

Source	Flux density[a] (Jy)	Source	Flux density[a] (Jy)
0034−01	4.30	1150+49	1.97
0040+51	10.79	1232+21	2.97
0056−00	2.16	1336+39	3.32
0116+31	2.54	1343+50	2.28
0138+13	2.69	1441+52	2.46
0152+43	1.79	1448+63	2.94
0204+29	2.26	1511+26	3.87
0206+35	2.15	1522+54	2.38
0221+27	2.94	1533+55	1.94
0240−00	4.87	1622+23	2.71
0309+39	1.73	1626+39	3.53
0345+33	2.25	1627+23	2.38
0400+25	1.82	1634+62	5.17
0415+37	14.58	1637+62	4.66
0420+41	1.71	1709+46	1.86
0453+22	3.25	1939+60	4.75
0500+01	2.21	2012+23	13.04
0518+16	8.88	2018+23	1.75
0538+49	22.05	2030+25	1.81
0540+18	2.24	2044−02	2.24
0621+40	1.98	2050+36	4.84
0651+54	3.66	2059+28	1.72
0659+44	2.47	2111+62	2.75
0732+33	2.32	2128+04	3.98
0806+42	2.05	2141+27	3.26
0809+48	13.85	2153+37	6.70
0818+47	1.87	2203+29	2.51
0855+28	1.74	2244+36	2.03
0927+36	1.75	2311+46	1.88
1113+29	1.97	2337+22	2.13
...	...	2341+53	2.47

[a] Measured with linearly polarized feeds in position angle 0°.

TABLE II. Additions to the BDFL source catalog.

(1)	(2)	(3)	(4)	(5)	(6)
Source		Coordinates (1950.0) Right ascension	Declination	Galactic latitude	Flux density
0055+26	PK0055+26	00h55m42s.8±1.0	26°35′41″±15″	−35°	1.70±0.07 Jy
0300+47	OE400	03 00 11.7±1.6	47 04 18 ±15	− 9	2.06±0.06
0538+47	OG463	05 38 04.3±0.7	47 27 23 ±15	+ 8	2.05±0.09
0710+43	OI417	07 10 03.5±0.7	43 54 06 ±15	+22	1.82±0.08
0816+52[d]	OJ527	08 16 00.2±0.7	52 41 48 ±15	+34	2.02±0.06
0859+47[d]	OJ499	08 59 39.4±0.7	47 02 53 ±15	+41	2.24±0.07
0912+58[a]	OK520	09 12 51.2±1.5	58 53 43 ±20	+41	1.74±0.06
1031+56[b]	OL553	10 31 53.7±0.7	56 44 20 ±15	+51	1.90±0.08
1138+59[d]	OM564	11 38 04.8±0.7	59 28 39 ±15	+55	2.09±0.06
1156+54	OM594	11 56 38.8±0.7	54 09 52 ±15	+61	1.74±0.08
1227+11[c,d]	Abell 1552	12 27 21.8±2.4	11 57 24 ±60	+73	2.11±0.13
1437+62[d]	OQ663	14 37 30.5±0.7	62 24 33 ±15	+50	2.31±0.06
1633+38	4C38.31	16 33 31.8±1.0	38 14 07 ±15	+42	1.96±0.08
2021+61	OW637	20 21 12.4±0.7	61 27 17 ±15	+13	2.09±0.07
2146+60	OX677	21 46 47.6±0.7	60 52 53 ±15	+ 5	1.96±0.06
2323+43	OZ438	23 23 17.3±0.7	43 30 36 ±15	−16	1.95±0.06

Notes to Table II

[a] 0912+58 Two unresolved sources separated by 8.3 arcmin in position angle 121°.
[b] 1031+56−0.45 Jy unresolved source at $\alpha(1950)=10^h29^m59^s$, $\delta(1950)=56°56'02''$.
[c] 1227+11 Extended 5′.3 in right ascension. Peak flux density = 1.88 Jy. Data from Owen (1974).
[d] Additional source to the BDFL complete sample for $S_{1.4}\geq 2.00$, $|b|\geq 20°$, $\theta<10$ arcmin.

TABLE III. Sources with $S_{OSU}\geq 1.7$ Jy rejected from this catalog.

OSU name	OSU flux density[a]	NRAO measurements 1950.0 Flux density	Right ascension	Declination	Notes	Comments
OB522.4	(1.9) m, p, c	0.88±0.05	00h13m17s.1	50°22′06″		Possibly extended, peak 0.76 Jy.
OB547	1.84 p, c	1.34±0.06	00 28 15.3	53 45 04		
OB467	1.78 e	···	(00 40)	(41 03)		Extended emission regions near M31. (00N4A),
OB469.9	1.72 e	···	(00 42)	(42 33)		peak ≲0.5 Jy.
OE410	2.65 u	1.36±0.06	03 06 51.5	42 38 43		Extended 5 arcmin EW, 4 arcmin NS, peak 1.12 Jy ∼0.6 Jy in 18 arcmin diameter region to north.
OE684	2.19 p, c	1.66±0.09	03 50 42.1	61 16 00		
OH666	1.77 u, c	1.47±0.10	06 39 34.8	59 58 38		North preceding component of BDFL 0640+59.
OH471	2.09 p	1.60±0.07	06 42 53.8	44 53 46		Variable (Gearhart *et al.* 1974).
OI418.2	1.88 p	1.37±0.06	07 10 52.9	45 45 41		Possibly extended ∼3.5 EW, peak 1.29 Jy.
		0.44±0.04	07 11 17	45 26 25		
		0.31±0.04	07 10 17	45 33		Peak 0.21 Jy.
OJ448	1.72 u	1.01±0.04	08 28 48.5	49 23 38		
OJ573	2.25 p, n	1.67±0.05	08 44 12.2	54 03 31		Possible ∼0.1 Jy from south following source.
OK531	1.81 p	1.53±0.07	09 19 21.8	53 14 53		
OK545	1.74 u	1.11±0.05	09 27 15.0	59 07 48		
		0.25±0.05	09 26 50	58 55		Extended ∼9 arcmin EW?; peak 0.16 Jy.
OL430	1.88 u, c	1.66±0.05	10 17 43.9	48 45 55		Possibly extended EW and NS?; peak 1.5 Jy. Possible ∼0.2 Jy source to south.
OL552	(1.8) m, p, c	1.67±0.06	10 31 12.3	50 28 43		Extended 4 arcmin EW, peak 1.53 Jy.
ON470.5	(1.7) m, p, c	1.59±0.06	12 42 24.4	41 04 50	1	
OR605	1.75 p, c	1.67±0.13	15 03 03.1	60 12 29	2	
OR668	1.98 p, c	1.29±0.05	15 40 49.3	60 25 42	2	
OR492	1.70 p	1.66±0.08	15 54 59.2	43 06 32		
OS494	1.86 u, c	1.02±0.05	16 56 43.5	47 41 24		Extended 3′.5 EW and 4′.8 NS; peak 0.87 Jy.
		1.00±0.05	16 56 24.9	48 13 13		
OT538	1.70 p, c	1.43±0.06	17 23 06.6	50 59 34	2	
OV573	(1.8) m, p, c	1.65±0.07	19 43 22.0	54 40 52		
OW571	1.81 e	0.32±0.04	20 41 36	55 31		Extended 11 arcmin EW and NS; peak 0.15 Jy.
		0.28±0.04	20 42 27	55 16 23		
OZ533	2.76 p, c	1.36±0.06	23 20 06.7	50 41 01		

Notes to Table III

1. Data from Bridle *et al.* (1972).
2. Data from Pauliny-Toth *et al.* (1966).

[a] Classification codes from OSU catalog (Brundage *et al.* 1971):
c—confused source,
e—extended source,
m—manual data reduction, less accurate,
n—data incomplete or obscured by noise,
p—point source at OSU resolution,
u—two or more closely grouped sources.

TABLE IV. Further data on sources in the BDFL catalog.

Source name	New data
0053−01	Extended in both coordinates, see contour map (Fig. 2).
0055+30	Confirm main component ~6 arcmin diameter EW by ~5 arcmin NS. Nearby source $00^h54^m01^s.2\pm1.0$, $+30°14'06''\pm15$ may be unresolved.
0512+24	Reobservation finds EW diameter 4.3 arcmin, in good agreement with interferometer data in BDFL. Improved full-beam flux density is 3.36±0.12 Jy (integrated), 3.07±0.11 Jy (peak).
0528+06	Reobservation does not confirm 4.2 arcmin angular extent claimed by Pauliny-Toth *et al.* (1966). Improved full-beam flux density is 2.99±0.11 Jy.
0723−00	Flux density has decreased to 2.04±0.08 Jy since BDFL observations. Source is known to be rapidly variable (Brandie and Stull 1971).
0736+01	Flux density has decreased to 2.34±0.09 Jy since BDFL observations.
0824+29	Reobservation does not confirm 2.8 arcmin angular extent claimed by Pauliny-Toth *et al.* (1966). Improved full-beam flux density is 1.90±0.08 Jy. Removed from BDFL complete sample.
0831+17	Reobservation does not confirm 5.9 arcmin angular extent claimed by Pauliny-Toth *et al.* (1966). Improved full-beam flux density is 1.78±0.07 Jy. Removed from BDFL complete sample.
1056+43	Reobservation shows confusing sources noted by Mackay (1969) but *also* supports EW extension of main component. Estimated EW angular size is 4.1±0.7 arcmin, full-beam flux density 2.91±0.11 Jy (integrated), 2.68±0.10 Jy (peak).
1150+49	Parameters of nearby source 1149+500 are poorly determined. Revised estimates are $\alpha(1950.0) = 11^h49^m47^s.2\pm2^s.0$, $\delta(1950.0)=50°02'40''\pm60''$, peak flux density 0.20 Jy, extent uncertain.
1222+13	Reobservation does not confirm 4.3 arcmin EW angular extent claimed by BDFL. Improved full-beam flux density is 5.8±0.2 Jy.
1704+60	Reobservation confirms ~3.5 arcmin EW angular density is 3.3±0.2 Jy (integrated), 3.04±0.11 Jy (peak).
2341+53	Reobservation confirms EW resolution of source at 300 ft (BDFL). Improved EW diameter estimate is 3.5 arcmin, full-beam flux density remains unchanged, peak is 1.75±0.07 Jy.
2344+09	Reobservation confirms resolution of source at 300 ft (BDFL). Improved diameter estimates are 3.7 arcmin EW by 5.3 arcmin NS. Improved full-beam flux density is 2.19±0.11 Jy (integrated), 1.83 ±0.06 Jy (peak).

in right ascension and 10.7 arcmin in declination; these are slightly narrower than the beamwidths given in Paper I due to our use of a different data-smoothing procedure. The radiometer calibration and data reduction were carried out as described in Paper I.

The flux-density scale was normalized to the BDFL scale by adopting their flux densities for 33 sources which are not resolved or confused at 1.4 GHz with the 300-ft telescope and which are not known to vary at this frequency (Table I). The standard error of the normalization was 0.8%. The BDFL scale is defined to be identical with that of Kellermann *et al.* (1969) at 1.4 GHz, and was shown in Paper I to be consistent with that of the Parkes catalog (Ekers 1969) at 1.4 GHz for sources north of −5° declination. The positional calibration was made with reference to positions of 42 unresolved sources from the BDFL study.

All sources with 1.4-GHz flux densities greater than 1.5 Jy in the Ohio 40°–63° survey at $|b|>5°$ were observed, unless they had previously been studied at the 300-ft telescope by BDFL or by Pauliny-Toth *et al.* (1966). We also observed some BDFL sources for which the angular size data from the 300-ft telescope conflicted with that from the Caltech interferometer (see footnotes to Table II in Paper I), and several sources whose 1.4-GHz flux densities were suspected to be near 2 Jy on the evidence of other recent radio source studies.

Table II presents data on 16 sources which have been added to the BDFL catalog of sources in the region of sky $-5°<\delta<+70°$, $|b|>5°$ with 1.4-GHz integrated flux densities exceeding 1.70 Jy. Column (1) gives the source designation in Parkes-type notation. Column (2) gives the source name in the Ohio or other finding list. Columns (3) and (4) give the (epoch 1950.0) right ascension and declination of the source measured at the 300-ft telescope, together with their standard errors. Column (5) gives the galactic latitude of the source truncated to the nearest degree. Column (6) gives the 1.4-GHz integrated flux density, together with its standard error including the effects of confusion and noise. Only two sources were appreciably resolved; the others have angular diameters less than ~4 arcmin in both coordinates.

Table III presents data on 24 sources whose flux densities in the Ohio 40°–63° survey exceed 1.70 Jy (the adopted cutoff for the full BDFL catalog) but which are shown to have flux densities below that cutoff by observations made at the 300-ft telescope. The positional errors are similar to those given in Table II for the more intense sources. For sources with 1.4-GHz flux densities less than 0.5 Jy or with large angular sizes, the positional errors are larger and the quoted positions are rounded accordingly.

Table IV presents new data on 14 sources from the BDFL catalog, primarily confirming or revoking questionable angular-size estimates from the BDFL 300-ft observations and giving the associated revisions to the integrated flux densities quoted in Paper I.

II. SAMPLE COMPLETENESS

Five of the sixteen sources listed in Table II have integrated 1.4-GHz flux densities exceeding 2.00 Jy and are at $|b|>20°$. These five sources (0816+52, 0859+47,

TABLE V. Revised BDFL 2-Jy source list.

SOURCE	FLUX DENSITY	SOURCE	FLUX DENSITY	SOURCE	FLUX DENSITY	SOURCE	FLUX DENSITY	SOURCE	FLUX DENSITY	SOURCE	FLUX DENSITY
0003-00	3.54	0331-01	2.72	0923+39	2.52	1215+03	2.34	1442+10	2.43	1648+05	44.43
0019-00	2.73	0336-01	2.30	0936+36	3.35	1216+06	17.50	1448+63	2.94	1658+47	3.18
0034-01	4.30	0340+04	2.84	0939+14	4.34	1218+33	2.50	1502+26	7.67	*1704+60	3.30
0035-02	6.25	0347+05	3.25	0941+10	2.25	*1222+13	5.80	1508+08	3.65	1716+00	2.18
0038+32	3.12	0356+10	9.56	0945+07	7.40	1225+36	2.06	1509+01	2.12	1726+31	2.72
0038+09	4.26	0404+03	4.93	0947+14	3.47	1226+02	38.84	1511+26	3.87	1739+17	2.00
0051-03	2.11	0410+11	4.09	0949+00	3.03	*1227+11	2.11	1514+00	2.44	1807+69	2.59
0053-01	2.36	0411+14	2.15	0951+69	7.94	1228+12	214.00	1514+07	5.35	1819+39	3.39
0055-01	5.22	0430+05	5.48	0954+55	3.52	1232+21	2.97	1517+20	2.50	1828+48	14.11
0056-00	2.16	0440-00	3.18	0958+29	5.35	1239-04	3.34	1518+04	4.01	1832+47	3.79
0104+32	5.22	0500+01	2.21	1003+35	3.24	1241+16	2.81	1522+54	2.38	1833+65	2.38
0106+13	12.59	0511+00	2.80	1005+07	6.25	1250+56	2.42	1529+24	3.59	1842+45	5.57
0116+08	2.38	0651+54	3.66	1008+06	2.93	1251+27	2.89	1545+21	2.49	2044-02	2.24
0116+31	2.54	0659+44	2.47	1030+58	3.74	1254+47	5.08	1547+21	2.28	2045+06	2.04
0123+01	6.42	0703+42	2.85	1039+02	2.84	1306+66	2.24	1548+05	2.52	2126+07	2.01
0123+32	3.49	0723+67	2.38	1040+12	3.06	1318+11	2.18	1549+62	3.62	2128+04	3.98
0125+28	2.64	0732+33	2.32	1055+20	2.19	1319+42	2.01	1553+20	2.35	2134+00	3.13
0127+23	2.78	0738+31	2.20	1055+01	3.10	1323+32	4.56	1559+02	8.95	2145+15	2.84
0128+03	2.52	0755+37	2.54	*1056+43	2.91	1328+25	6.72	1600+33	2.36	2145+06	2.97
0132+07	2.33	0758+14	2.47	1059-01	2.56	1328+30	14.78	1602+01	4.07	2147+14	2.42
0133+20	3.68	0802+24	4.89	1106+37	3.22	1330+02	3.02	1603+00	2.26	2148+14	2.13
0134+32	15.29	0806+42	2.05	1111+40	3.05	1336+39	3.32	1607+26	4.43	2203+29	2.51
0138+13	2.69	0809+48	13.85	1116+12	2.25	1343+50	2.28	1609+66	6.98	2210+01	2.60
0154+28	2.50	0814+42	2.48	1117+14	2.35	1345+12	5.01	1611+34	2.92	2212+13	3.29
0202+14	3.40	*0816+52	2.02	1128+45	2.00	1349+64	2.31	1615+35	2.38	2221-02	5.59
0204+29	2.26	0819+06	2.08	1137+66	2.98	1350+31	4.42	1615+32	2.40	2223+21	2.59
0206+35	2.15	0820+22	2.31	*1138+59	2.09	1354+01	2.47	1618+17	2.12	2230+11	6.01
0218-02	3.32	0821+39	2.65	1138+01	2.47	1354+19	2.08	1622+23	2.71	2247+11	2.38
0219+08	2.51	0827+37	2.22	1140+22	2.96	1358+62	4.32	1624+41	2.08	2247+14	2.10
0221+27	2.94	0828+32	2.06	1141+37	2.11	1409+52	22.18	1626+27	2.44	2249+18	2.06
0223+34	2.17	0831+55	8.04	1142+19	5.78	1413+34	2.09	1626+39	3.53	2251+15	11.84
0229+34	2.42	0835+58	2.34	1142+31	2.80	1414+11	4.32	1627+44	2.97	2252+12	2.93
0240-00	4.87	0838+13	2.46	1147+13	2.16	1416+06	5.66	1627+23	2.38	2309+09	2.51
0255+05	6.22	0850+14	2.29	1148-00	3.06	1419+41	2.95	1634+62	5.17	2310+05	2.70
0300+16	2.60	0851+14	2.06	1152+55	2.24	1420+19	3.44	1637+62	4.66	2314+03	4.17
0305+03	7.24	0855+14	2.47	1153+31	2.77	1425-01	3.30	1638+12	2.08	2324-02	2.36
0307+16	4.59	*0859+47	2.24	1201-04	2.10	1434+03	2.86	1641+39	6.30	2335+26	7.51
0316+16	7.60	0905+38	2.12	1203+64	3.53	*1437+62	2.31	1641+17	3.64	2337+22	2.13
0320+05	2.86	0906+43	3.76	1206+43	2.04	1441+52	2.46	1645+17	2.08	*2344+09	2.19
0325+02	4.85	0917+45	8.02	1213+53	2.65						

* Additions or changes to the original BDFL Catalog (Bridle *et al.* 1972).

1138+59, 1227+11, and 1437+62) represent incompleteness in the BDFL 2-Jy sample, which was estimated in Paper I to be missing 4±3 sources. Our observations have explored the completeness of the 2-Jy sample over approximately 80% of the area of sky in which the most serious incompleteness was expected. The recognition of five new sample members is therefore in excellent agreement with the previously estimated completeness of 98±2%. Our new data on sources with "questionable" diameters observed only by Pauliny-Toth *et al.* (1966), showed that two BDFL sources (0824+29 and 0831+17) have flux densities below the 2-Jy limit and should therefore be removed from the complete sample.

Less than 0.3 steradians of the area at $-5°<\delta<+70°$, $|b|>20°$ remain surveyed only by Galt and Kennedy (1968) whose "DA" survey's completeness to 2.00 Jy is 88%. Our augmented sample of 237 sources in this area of sky with equivalent diameters less than 10 arcmin and integrated flux densities exceeding 2.00 Jy is therefore estimated to be 99±1% complete. A complete list of the revised BDFL 2-Jy complete sample is given in Table V. The revised BDFL catalog is also available on punched cards.

III. ASSESSMENT OF THE OSU SURVEY FLUX DENSITIES

The estimated errors in the flux-density measurements made at the 300-ft telescope are typically 3% or 4% for a 2-Jy source, whereas the estimated errors in the OSU flux densities are ≳30% (Brundage *et al.*

TABLE VI. Comparison of Ohio and 300-ft telescope 1.4-GHz flux densities.

(1)	(2)	(3)		(4)
Ohio reliability code	Number of sources	$S_{OSU}=A\cdot S_{300}+B$ $\hat{A}$	$\hat{B}$	Standard deviation of ratio S_{OSU}/S_{300}
p	27	1.01±0.02	+0.07±0.08	13%
p, c	50	0.99±0.02	+0.22±0.10	19%
other	43	1.00±0.03	+0.19±0.18	44%

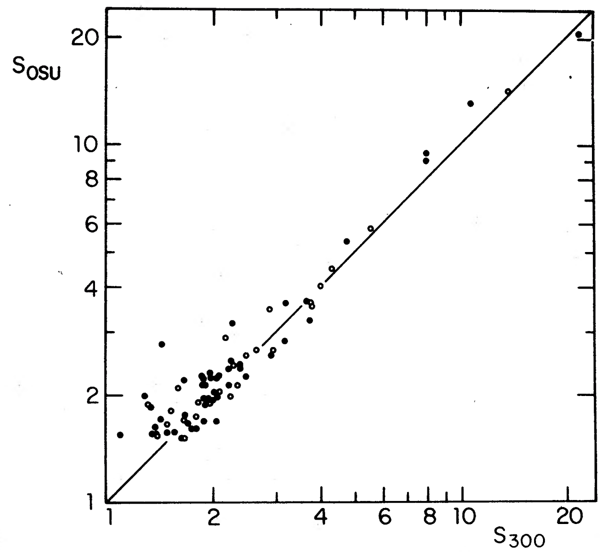

FIG. 1(a). Comparison of the Ohio flux density S_{OSU} and the 300-ft flux density S_{300} for sources designated "p" (open circles) and "p, c" (filled circles) in the Ohio survey. A line through the origin of slope unity is shown.

1973, Table II). Comparison of the OSU flux densities with those measured at the 300-ft telescope therefore provides a measure of the accuracy of the OSU measurements. Table VI gives this comparison for 120 sources with flux densities exceeding 1.5 Jy in the OSU survey. The results are subdivided into groups according to the classification codes assigned by the OSU observers (p—unconfused "point source"; p, c—confused "point source"; other—all other, less reliable, OSU codes). Column (2) of Table VI gives the number of sources analyzed in each group, column (3) gives the parameters $\hat{A}$ (scale ratio) and $\hat{B}$ (zero offset in Jy) estimated from a least-squares linear regression of OSU flux densities on 300-ft flux densities, and column (4) the standard deviation of the ratio (S_{OSU}/S_{300}) for each group.

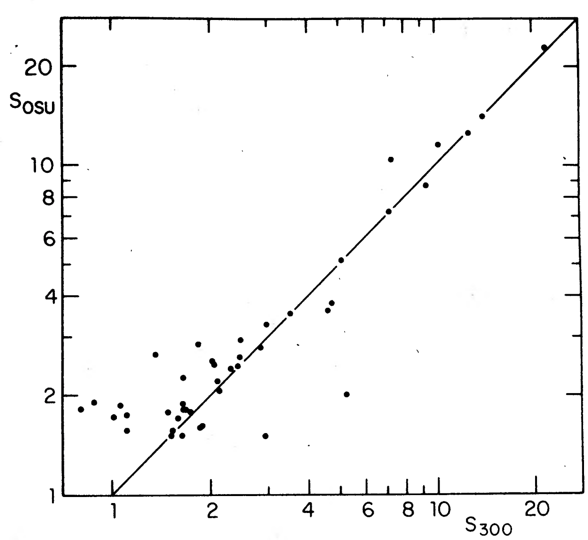

FIG. 1(b). Comparison of the Ohio flux density S_{OSU} and the 300-ft flux density S_{300} for sources designated other than "p" and "p, c" in the Ohio survey. A line through the origin of slope unity is shown.

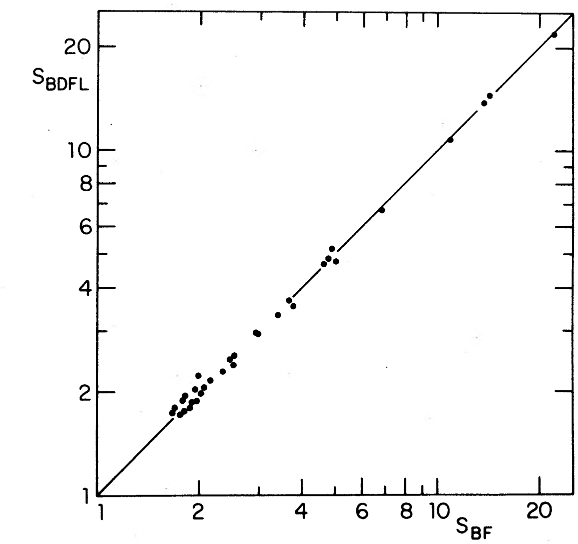

FIG. 1(c). Comparison of the BDFL flux density S_{BDFL} and our flux density S_{BF} for the 33 sources used to calibrate our observations of the Ohio sources (Table I). A line through the origin of slope unity is shown.

The three values of $\hat{A}$ do not differ significantly from unity. There is, therefore, no significant difference in flux-density *scales* between the OSU and 300-ft observations. The three values of $\hat{B}$ are all positive, corresponding to a zero-level offset between the two sets of flux-density measurements in the sense $S_{OSU}>S_{300}$. The estimates of the size of this offset are poorly determined due to the large scatter of the OSU flux densities about the mean regression lines. Column (4) shows that the scatter in the OSU measurements is less than the 30% estimated by Brundage *et al.* (1973) for the class "p" and "p, c" sources, but is 44% for the other OSU classes. The effects of this scatter on individual Ohio flux-density measurements are displayed in Figs. 1(a) and 1(b). Figure 1(c) shows the same plot for the 33 sources used to calibrate our observations, to illustrate the internal consistency of data from the 300-ft telescope.

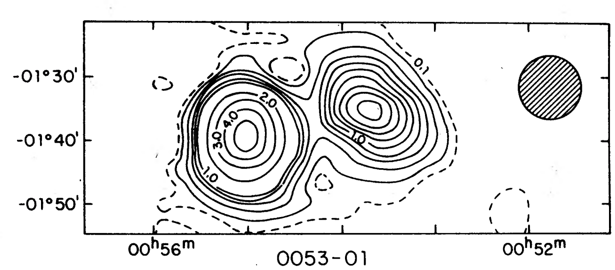

FIG. 2. Contour map for the source 0053−01. The coordinates refer to epoch 1950.0 and the contour levels are in Jansky's per beam area. The half-power beam size is shown by the cross-hatched area.

While the OSU survey is uniquely valuable as a "finding" survey, it is evident that analyses of radio spectra and source counts depending on its detailed flux-density measurements should be interpreted with great caution, especially for sources fainter than ~3 Jy at 1.4 GHz.

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