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Searching out and studying sources of low-frequency radio emission near infrared objects

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Abstract. A procedure of sampling objects by way of cross-identification of the low-frequency radio catalogue of objects obtained with the aid of the Texas interferometer at the frequency 365 MHz and of the IRAS catalogue is discussed. Statistical properties of different subsamples of sources are investigated. From the results of cross-identification with the radio catalogues of the database CATS, continuous radio spectra of objects are plotted, identification with optical and X-ray catalogues is carried out. From the steep spectrum objects sources are selected for further studies.

Key words: radio sources: general, radio sources — infrared emission

1. Introduction

An important route to understanding physical nature of cosmic objects is opened up by investigations in new ranges of the electromagnetic spectrum which were previously inaccessible to astronomers. The astrophysical catalogues of the sources in IR, UV and X-ray ranges are now used frequently for searching out coordinate coincidence with radio sources and optical objects. The sieving of radio catalogues through other catalogues — cross-identification, may be helpful in detecting unusual objects. Using the CATS database (Verkhodanov et al., 1997; Trushkin et al., 1997a,b) which includes over 150 catalogues, and specially developed procedures of search, the authors performed cross-identification (Trushkin and Verkhodanov, 1996) of three catalogues of IR sources (PSC, FSC and SSC) obtained in the IRAS all-sky survey (Beichman et al., 1988) and of a radio catalogue obtained in the Texas sky survey at 365 MHz (Douglas et al., 1996).

The three principal IRAS catalogues used in this paper in the database CATS are the catalogue of point sources PSC with 245889 objects, the catalogue of faint sources FSC with 235935 objects and the serendipitous catalogue SSC obtained in the specified fields with 43886 objects. The catalogues contain data of the all-sky surveys in four ranges (12, 25, 60 and 100μm) and also identification with the catalogues of stars, quasars, galaxies, infrared and radio sources.

The Texas catalogue of discrete radio sources (Douglas et al., 1996) brighter than 250 mJy at the frequency 365 MHz was obtained in the range $-35° < \mathrm{Dec} < +71.5°$. It involves accurate positions, flux densities and parameters of the structure of 66841 sources.

The radio properties of faint objects of the IRAS catalogue (FSC) had already been investigated by way of cross-identification with the objects of the Green Bank Atlas (Condon et al., 1995) at the frequency 4.86 GHz, selected according to the criterion $S(60\mu m) \geq S(12\mu m)$. As a result a catalogue of 354 sources has been compiled and a statistically significant number of radiobright FIR galaxies and quasars has been detected. Besides, in the VLA observations at the frequency 1.425 GHz with different telescope configurations Condon et al. (1996) obtained an atlas of IRAS bright galaxies.

The aim of the authors of this paper was to study objects both galactic and extragalactic near the IRAS sources, which have first of all a low-frequency radiation. This would help separate infrared objects with steep radio spectra, AGN and active galactic objects. The presence of a great number of various radio-range catalogues in the CATS database would be useful in examining in more detail the properties of the sample obtained.

2. Cross-identification. Catalogue

The cross-identification procedure consisted in searching for a match in the IRAS catalogues in the areas of different radius for each source of the Texas catalogue. We specified several radii of identification (R=3, 10, 20, 30, 40, 60 and 120″) in order to follow the growth of the number of objects falling within the given circle. The coordinate errors of the sources were

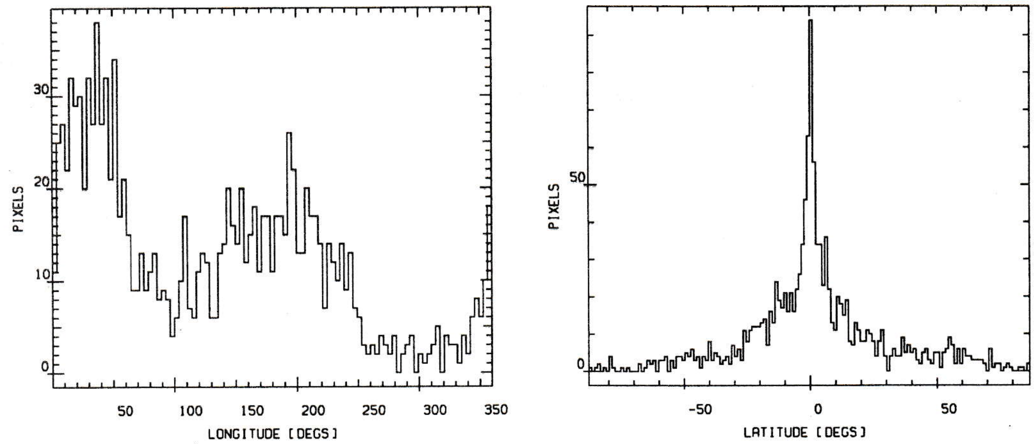

Figure 1: *The distribution of sources against galactic latitude (right panel) and longitude (left panel) for the PSC sample from the ITA catalogue.*

disregarded in cross-identification, although they are known to be varied from 40″ to 80″ for IRAS, while in the Texas catalogue with a coordinate accuracy of ~1″, shifts of the positions up to 52″ are possible due to the ambiguity in choosing the interferometer lobe. A complete sample of the ITA (IRAS-TEXAS association) catalogue was primary obtained for a window of R=120″, whereas complete radio astronomy statistical studies were performed for the catalogue obtained with a window of R=60″.

Simple estimates of the probability of fall-in within the circle of radius 120″ for 133000 sources of the PSC in the region with $|b| > 10°$ yield $P = 0.012$, while for the remaining 113000 sources in the region with $|b| > 10°$ $P = 0.063$. Nevertheless, we have to use a window of radius over 1–2′ for identification of extended sources in the galactic plane. The probability of random identification in cross-identification still remains. As a result, the ITA catalogue has been compiled which comprises 884 sources from the FSC, 1263 sources from the PSC and 13 ones from the SSC (208, 626 and 13 of them, respectively, have been identified for the first time). The ITA catalogue underwent the procedure of cross-identification with the radio astronomical, X-ray and optical catalogues of the CATS database, which resulted in the construction of radio spectra and investigation of statistical distinguishing features of the ITA catalogue sample. In Fig.1 is presented the distribution of objects of the PSC sample from the ITA catalogue versus galactic latitude and longitude (b, l).

The resulting catalogue of identifications of radio sources with the PSC, FSC and SSC obtained with the window of radius 60″ contains 715 objects and includes all objects falling within the indicated zone with allowance made for coordinate errors, which increases to a certain degree the separation of the centres of gravity.

Continuous spectra of 715 objects are plotted in this paper, taking account of all radio catalogues available in the CATS database. For statistical studies the authors have selected 495 objects (Table 1) for which the distance between the centres of gravity of the Texas catalogue objects and the associated IRAS objects is less than 60″. The rest 220 objects picked up in the original sample were not considered since they were selected taking into account the coordinate determination errors. The information about these objects is also available in the CATS database.

40 of the objects found have a single point in radio identifications (at 365 MHz). 185 objects are available simultaneously in the PSC and FSC catalogues. Besides, among the random identifications the authors are likely to have found 4 stars of class A(2 A0, A3, A5), 3 stars of class B (B0 and 2 B9), 2 stars of class F (F0 and F5), 3 stars of class G (2 G5 and G9), 51 stars of class K (from K0 to K7), 6 of them having a single radio point, 2 stars of class M (M0 and M5).

In Table 1 is presented a catalogue of radio sources for which the distance from the centre of gravity of the infrared source does not exceed 60″. The columns indicate the following: 1 — the name of the source in the Texas catalogue, 2 — the name of the source in the IRAS catalogue, 3 — the coordinates in the Texas catalogue for the epoch 1950.0, 4 — the seconds of the right ascension and minutes and seconds of the declination of coordinates in the IRAS catalogue for the epoch 1950.0, 5 — the distance between the centroids of the sources in the Texas and IRAS catalogues in seconds of arc, 6 — the galactic latitude in degrees, 7 — the galactic longitude in degrees, 8 — the flux density at the frequency 365 MHz in mJy, 9, 10, 11 and 12 — the flux density at the wavelengths 12μ, 25μ, 60μ and 100μ, respectively, 13 — the spectral index at 365 MHz calculated as the inclination of the tangent to the radio spectrum at the given point, 14

— the spectral index at 1400 MHz, 15 — the formula of approximation of the spectrum, 16 — the possible identification or the type of object.

3. Radio properties of objects

The identification of objects of the ITA catalogue obtained by way of cross-identification of the data of the IRAS and TEXAS catalogues (Trushkin & Verkhodanov, 1996; 1997; Verkhodanov, Trushkin, 1997), made with the use of the CATS database (Verkhodanov et al., 1997), made it possible to investigate both the statistical characteristic properties of the given sample and the radio spectra of each source. The cross-identification with all radio catalogues included also the cleaning of spectra from inaccurate, in the authors' opinion, flux measurements and spectrum approximation using the standard set of curves, which enabled accurate enough evaluation of spectral indices and fluxes at the specified frequencies.

The following functions were used for approximation of spectra:

- $y = A + Bx$,
- $y = A + Bx + Cx^2$,
- $y = A + Bx + C \times exp(x)$,
- $y = A + Bx + C \times exp(-x)$,

where $x = log\ \nu$, $y = log\ S$, ν is the frequency (MHz), S is the flux density (Jy). The type of approximation was chosen automatically by the method χ^2, after which the records were interactively examined in the visual mode of operation of the system *spg* (Verkhodanov, 1997). The weight of the spectrum points of the object was taken in inverse proportion to the squares of relative flux density errors.

Spectral indices of sources at different frequencies were computed as the inclination of the tangent at the given point of the approximation curve. It is interesting that with the general likeness of the distribution of spectral indices of the subsamples of point and faint sources of IRAS (PSC and FSC, respectively) from the ITA catalogue at the frequencies 365 and 1400 MHz there is a difference at 5000 MHz. For the sample of FSC a second peak at $\alpha \sim 0$ is clearly seen, and for the samples at all frequencies there is a peak near $\alpha = 0.8$ (Fig. 2). This peak may due to the appearance of a population of extragalactic objects with flat spectra which may be identified with faint FSC sources, for instance, with unknown AGN.

The majority of the ITA catalogue sources have radio flux densities less than 5 Jy at the frequency of the Texas survey, whereas the fluxes in the IR range are varied from tens to a few thousands of Jy.

Among the sources of the ITA catalogue, for which identifications have been obtained for the first time, there exist at least two classes of "peculiar" objects: these are sources with inverse ($\alpha > 0$) and anomalously steep ($\alpha < -2$) spectra.

When identifying infrared sources with galactic ones, we used the following criterion: $\alpha(25\mu m, 60\mu m) \geq +1.5$ and $|b| > 10°$ (Condon and Broderick, 1991). 138 sources from the PSC sample of the ITA catalogue satisfy this criterion. This subsample has $R = S_{IRAS}/S_{radio} < 200$ (where S_{IRAS} is the flux at decimetre wavelengths), and the mean flux density is $S_{365} = 0.6 \pm 0.6\ Jy, S_{60} = 31$ Jy. Only 91 ITA sources from the PSC sample were earlier identified with galaxies.

3.1. The catalogue of radio sources identified with infrared sources to an accuracy of 10 arcseconds

The sample of objects in which the separation of centroids is less than 10 seconds of arc is of separate interest. This sample has the highest percentage of correct identifications.

20 of 98 objects of this sample lie in the Galactic plane ($|b| < 10°$), 37 objects have X-ray radiation; one of these lies in the Galactic plane. Only one object of this sample has a single identification in the Texas catalogue. For 33 objects no identifications have been found in the known optical catalogues. 2 stars of class K have also fallen within the region of identifications of 3 arcseconds.

The known active galactic nuclei (of type BL Lac, QSO, Seyfert 1, 2), many of which have X-ray radiation, make up a large percentage of the identified extragalactic objects.

In Fig. 3 are displayed the spectra of the objects of the subsample of the sources with identification inside the window of radius 10″, which have non-power spectra.

3.2. Galactic objects

Strong IR sources in the Galactic plane have been established to have the flux ratio R >500. These sources are identified with Galactic HII regions, whereas nonthermal Galactic sources, supernova remnants, have R <100 (Broadbent et al., 1989). The PSC sample of the ITA catalogue has 45 sources with R >500. They are all identified with HII regions. For the ITA sources with $S_{60} > 100$ Jy the authors have checked the relationship between S_{365} and S_{60}. A significant correlation coefficient (0.6) has been obtained only for the sources with $S_{60} > 500$ Jy.

The thermal IR and radio emission in HII regions are proportional to the rates of ionization and recombination. For an HII region, which becomes opti-

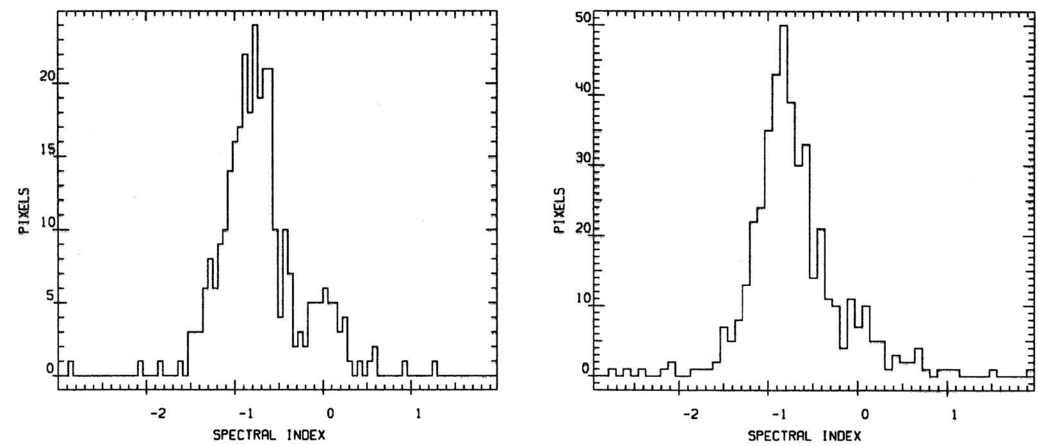

Figure 2: *The distribution of spectral indices for the FSC (left) and PSC (right) samples from the ITA catalogue at a frequency of 5 GHz.*

cally thin at the frequency ν, the emission capacity ϵ_ν(radio) is equal (Broadbent et al., 1989) to

$$\epsilon_\nu(radio) = 2 \times 10^{-36} T_e^{0.45} \nu^{-0.1} rWcm^{-3}Hz^{-1}sr^{-1},$$

where T_e is the electron temperature. The ratio of emissivities for T_e=7000 K at 60μm and at 2.7 GHz is then $\epsilon(60\mu m/\epsilon(2.7\ GHz) = 190f$, where f is the infrared excess which is determined as the ratio of the total IR luminosity to the luminosity in L_α and, as has been shown, equal to 3–4 for typical HII regions (Broadbent et al., 1989). This ratio of emissivities at 365 MHz remains the same for an optically thin HII region, but it increases for an optically thick one.

3.3. Objects with inverse spectra

Among the objects obtained by cross-identification we have separated 31 objects (see Table 2) with spectral indices ≥ 0.1 at frequencies 360 and 1400 MHz, 18 of which lie in the Galactic plane ($|b| < 10$). 10 extragalactic sources (77 percent of the sources located outside the Milky Way) are identified with active galactic nuclei, 7 of them have X-ray radiation. The Galactic objects are likely to be identified with HII regions having a thermal spectrum.

3.4. Steep spectrum objects

In Table 3 is given a list of 130 objects having steep spectra, ($\alpha < -0.9$), at the frequencies 365 and 1400 MHz. 37 of these objects are in the Galaxy plane. For a number of the list objects a steep spectrum is frequently obtained only from measurement of fluxes in two points: at the frequencies 365 MHz (TEXAS) and 1450 MHz (NVSS). For this reason such spectra need to be confirmed by radio observations.

It should be noted that all presented objects are missing in the compiled lists of steep spectrum objects of Rötgering et al. (1994) and Chambers et al. (1996).

Eight objects have anomalously steep spectra ($\alpha < -2$): B0031-057, B0132+519, B0525+156, B1340+391, B1709+243, B1723-282, B1749-240, B1802-247. One of them, B1340+391, is observed in the survey of Bozyan (1992), however it has not been identified. In the IRAS survey in a circle of radius 60″ is located a star of class K0 with coordinates $\alpha = 13^h40^m03.2, \delta = +39°12'18$. Three objects with ultrasteep spectra are located in the Galactic plane.

4. Identification with high sensitive VLA surveys

Identification with high sensitive VLA surveys with a resolution of 5″ (FIRST with a resolution of 1 mJy) and 45″ (NVSS, up to 2.4 mJy) at the 21 cm wavelength has been performed. Nearly for all ITA objects (450 of 495) NVSS images are available. 44 of them are multi-component in NVSS. In the region of the FIRST survey there are observed 77 sources 52 of which are multicomponent. The multicomponent structure of objects in Galactic sources is observed in extended HII regions, and in extragalactic objects it is associated with hot spots and knots in jets.

A detailed study of the structure of objects on the basis of the data of these surveys is now under way and will be available in a separate paper.

5. Optical identifications

Cross-identification of data of different wavelength ranges is a powerful tool in searching out peculiar objects. The ITA catalogue objects were identified with both the ROSAT survey X-ray sources and the sources of the catalogue of extragalactic objects.

165 identifications with the objects of the optical catalogues AGN, PGC, MCG, the catalogue of nonstellar objects by Dixon et al. (1985) and other

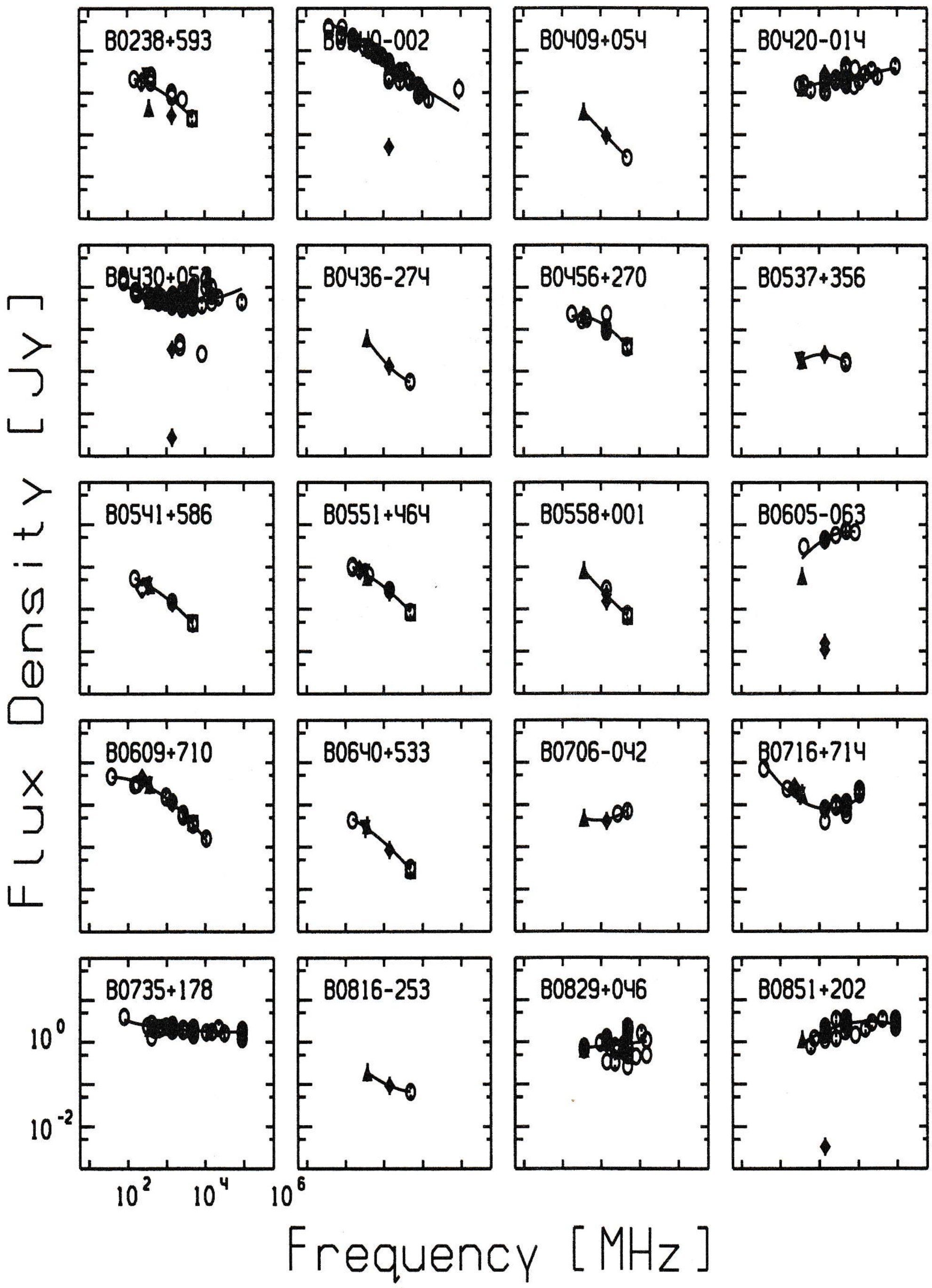

Figure 3: *Radio spectra of some objects from a subsample of the ITA catalogue with identification within 10′. The filled triangles show the points of the Texas catalogue, the diamonds are for the points of the NVSS and FIRST surveys.*

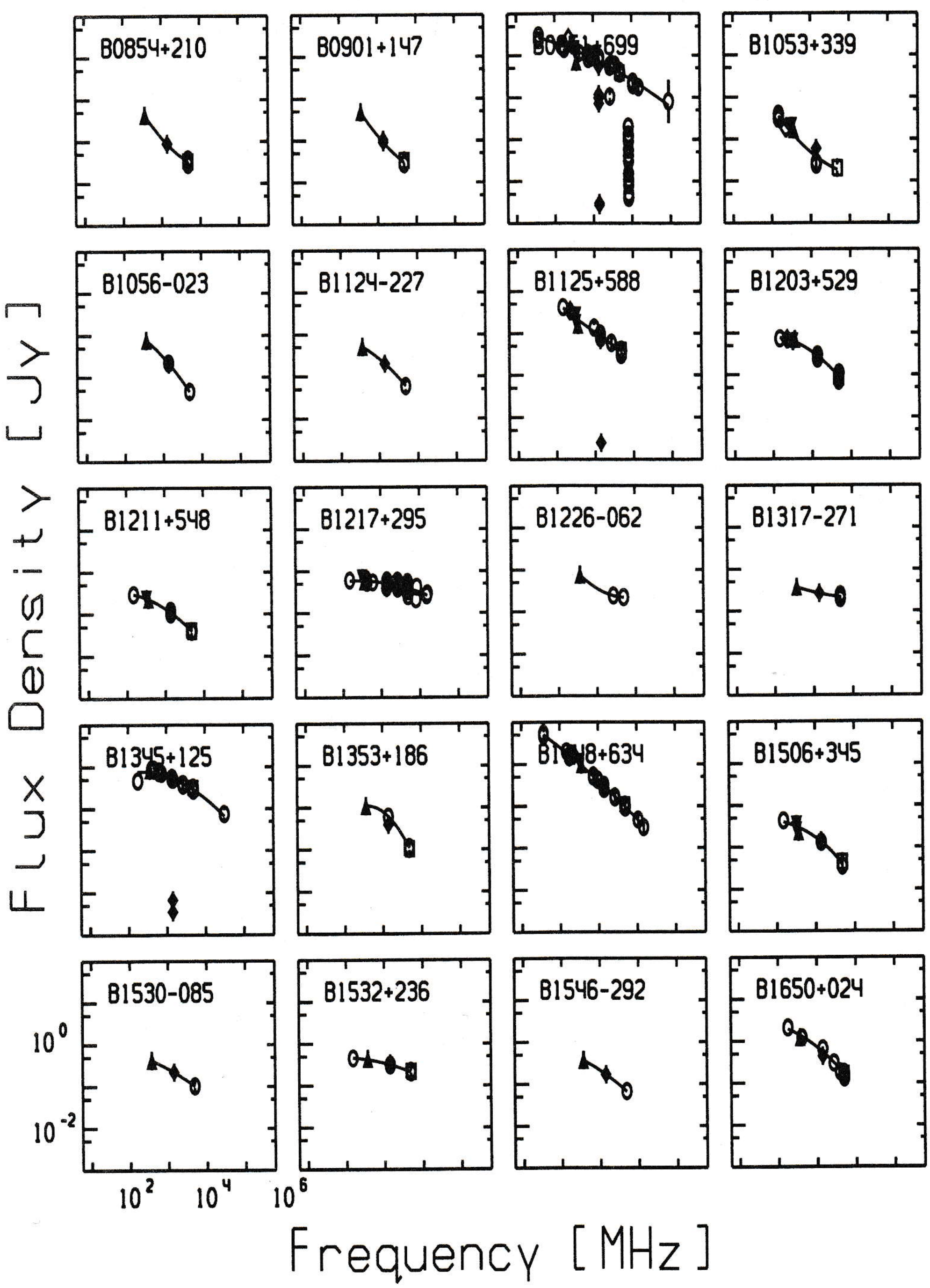

Figure 3: *(Continued)*

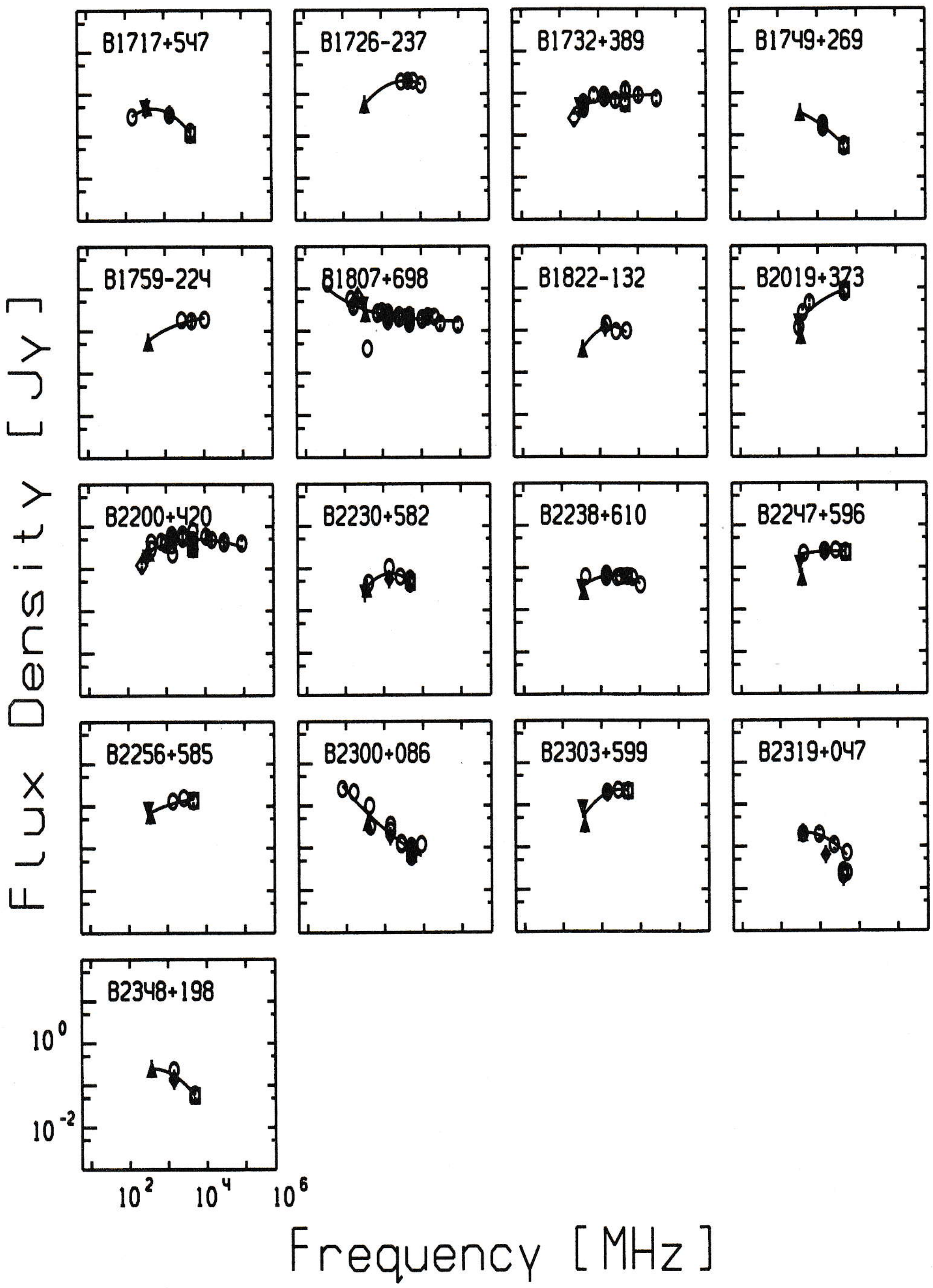

Figure 3: *(Continued)*

catalogues have been found. The results of the identifications are presented in Table 4.

Apart from the CATS catalogues an identification has been carried out with the Palomar Sky Survey objects with the aid of the system APM. Finding identification charts have been constructed, which are used for optical observations.

In the first column of the given table are presented the names of the sources of the Texas catalogue, the second column gives the names of the objects for which information is available in the CATS optical catalogues. In brackets are indicated stellar magnitudes if available. The reference publications are compilations in which the information about the filters used to obtain stellar magnitudes is missing. However, they can be recognized with the use of the references in the appropriate collections of papers. It was not of our concern to give full information about the presence of optical counterparts, but we just performed a cross-identification with the catalogues available in the CATS database. Attention should be drawn to 3 points: 1) the presence of a source in the list does not at all mean the existence of an optical candidate for identification, but may give a lower stellar magnitude limit if an empty field was observed; 2) not all the lists of optical objects, including those identified with radio sources, are present in CATS; this is why the data given are only the information about the objects stored in CATS; 3) part of our objects are identified with the sources of the 3C catalogue, for all 3C sources optical identifications are presently available.

In the second column of Table 4 are given the names of optical counterparts taken from the following catalogues:
3C (Spinrad et al., 1985),
MKN (Markarian et al., 1989),
MCG (Kogashvili, 1982),
PGC (Paturel et al., 1989),
QSO1 (Hewitt & Burbidge, 1991),
QSO2 (Hewitt & Burbidge, 1993),
UGC (Cotton et al., 1999),
VV83 (Veron-Cetty & Veron, 1983),
PNESO – planetary nebulae
(Acker et al., 1998),
HII_S – HII region catalogue (Sharpless, 1959).

For a number of sources with negative declinations there are optical data in the survey of redshifts in the southern sky (da Costa et al., 1998).

6. X-ray identifications

In identification with a circular window of radius 60″ 82 objects of the ITA catalogue are X-ray sources, 18 of them being in the region $|b| < 10°$ (see Table 5).

Tables 1 and 5 show that nearly all the X-ray sources of our catalogue (with the exception of Crab) are identified with AGN.

7. New data on the ITA catalogue objects

In the fall of 1999 new investigations of steep spectrum objects identified with the IRAS sources within 10″ were started. Observations of 17 objects of the subsample: B0031-057, B0148+223, B0204+099, B0235+072, B0243+128, B0356+121, B0519-054, B0607+023, B0649-303, B0713+247, B1418-308, B1651-098, B1938+187, B2033-047, B2123-292, B2144-137, B2338+030 were accomplished with the radio telescope RATAN-600.

The observations were performed in 1999 November at six wavelengths during 12 days concurrently. Almost at the same time observations of spectra of 9 sources of the catalogue B0031-057, B0117+248, B0204+099, B0441+298, B2009+144 B2130-074, B2144-137, B2152-289, B2332+399, for which identifications are missing, were made under the supervision of V.H. Chavushyan with the 2.1 m telescope at the Institute of Astrophysics, Optics and Electronics (INAOE) in Mexico. The results of processing of the observations will be available in the nearest future.

One of the interesting objects of the sample, BO204+099 (IRAS FO2044+0956), is the counterpart of interacting galaxies (Fig. 4). From the results of the 2.1 m telescope observations at INAOE a redshift of 0.1 has been obtained for this pair of galaxies (Chavushyan et al., 2001).

8. Conclusions

From the results of cross-identification of the catalogues obtained at different ranges it is managed to isolate extragalactic active objects of the type of AGN. These objects may be seen in the X-ray range as well. The given approach to compiling samples may also be helpful in searching for distant dusty objects, for instance, such as IRAS F1024+4724 having a redshift z=2.3. This source is a distant radio galaxy and has a steep radio spectrum, and at the same time it is observed as a powerful source of infrared radiation due to dust and molecular gas. Such objects are extremely important for studying the regions of gas fragmentation into protostars. The selection of objects with the aid of the described procedure and their further investigation may increase the number of such objects.

Among Galactic objects the technique discussed isolates to advantage HII regions and planetary nebulae having low frequency radiation.

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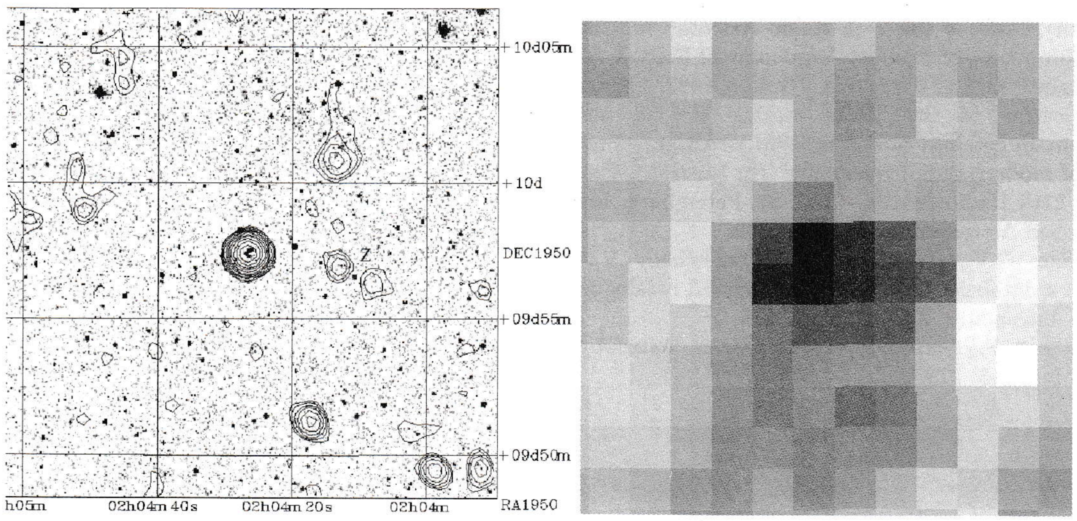

Figure 4: *Upper panel: radio isophotes overlaid on the DSS* $20' \times 20'$ *image centered on the object IRAS F02044+0957; lower panel: IRAS grey-scale image at* $60\mu m$ *of the same area (pixel =* $90''$*). Radio isophotes are plotted in linear scale step of 0.8 mJy/beam from the level of 0.8 mJy/beam, rms of the map = 0.45 mJy/beam.*

de Gunajuato, Mexico) for co-operation in establishing the CATS database and V. H. Chavushyan, R.Mujica and J.Valdes (INAOE) for making observations of the ITA catalogue objects with the 2.1 m telescope of INAOE.

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Table 1: The list of ITA radio identified sources

name 1	IRAS name 2	TXS coordnates 3 (h m s +° ′ ″)	IR coors 4 (s +′ ″)	dist 5 (″)	l 6 (°)	b 7 (°)	S_{365} 8 (mJy)	$S_{12\mu}$ 9 (Jy)	$S_{25\mu}$ 10 (Jy)	$S_{60\mu}$ 11 (Jy)	$S_{100\mu}$ 12 (Jy)	α_{365} 13	α_{1400} 14	spectrum 15	Possible ID 16
0001−333	F00015−3318	000133.608−331815.95	30.7−1837	42.1	0.11	−78.20	338	<.1302	.1519	.4468	.6976	−1.51	−1.51	$3.398 - 1.510x$	
0001−130	F00017−1304	000147.309−130333.66	44.1−0411	59.9	83.09	−71.91	191	<.0777	<.2186	.3418	.7983	−2.89	−2.89	$6.698 - 2.895x$	
0003+438	00036+4347	000339.915+434800.44	36.3+4717	58.5	114.42	−18.04	691	.8488	<.3584	<.4	<3.042	−1.00	−1.00	$2.375 - 0.995x$	*SAO K5
0004+080	00042+0804	000415.752+080329.79	16.3+0400	31.3	104.42	−52.92	686	<.4444	<.5817	.6044	2.244	−1.02	−0.86	$3.358 - 1.724x + 0.137x^2$	M+01-01-035(036)
0005−262	F00059−2615	000553.458−261553.75	56.4−1524	49.5	37.27	−80.32	486	2.474	.6103	<.2129	<.3494	+0.49	−0.01	$-4.431 + 2.698x - 0.431x^2$	*SAO M0
0023−279	F00232−2759	002320.016−275929.95	16.1−5908	56.3	25.57	−84.29	1634	1.182	.2543	<.1022	<.3233				*SAO K0
0031−057	F00318−0543	003152.941−054325.52	49.8−4333	47.5	111.60	−67.95	495	<.1002	<.2234	.8662	1.484	−3.32	−3.32	$8.203 - 3.321x$	
0044+617	00449+6146	004456.698+614528.33	54.4+4624	58.0	122.52	−0.84	258	2.563	.7121	<.4692	<21.21	−0.65	−0.65	$1.101 - 0.665x + 0.002x^2$	
0045−255	F00450−2533	004505.750−253339.80	05.7−3337	02.9	97.37	−87.96	3350	24.02	119.7	784.2	993.1	−0.58	−0.58	$2.495 - 0.583x$	N253, (Sc, S3), M-04-03-009, PKS0045-25
0046+316	F00460+3141	004604.793+314104.19	05.9+4104	14.1	122.28	−30.91	603	.308	.8347	1.29	1.549	−0.22	−0.22	$0.262 - 0.215x$	N262, ZG 046+31, M+05-03-008, MKN 348
0050−014	F00504−0125	005022.718−012516.82	25.7−2504	46.5	123.79	−64.02	628	18.18	4.339	.8563	<.855	−2.27	−0.47	$15.762 - 10.184x + 1.544x^2$	*SAO K0, PKS0050-014
0055+300	F00550+3004	005504.291+300510.65	05.6+0450	26.7	124.56	−32.50	1863	<.08048	<.1498	.2703	<.7055	−0.27	−0.27	$1.054 - 0.272x$	N315, M+05-03-031, ZG 055+30
0056+639	00563+6356	005614.715+635635.44	18.8+5649	30.1	123.80	1.35	695	<.2565	<.2547	1.488	4.65	−0.90	−0.90	$2.154 - 0.903x$	
0059+581	00596+5807	005943.376+580805.25	41.8+0743	25.5	124.42	−4.44	961	<.3171	<.2686	.5584	<11.11	+0.02	+0.54	$2.793 - 2.288x + 0.450x^2$	
0100−326	F01009−3241	010054.479−324158.37	57.5−4143	41.1	277.80	−84.11	2749	<.06919	<.1228	.2909	<.7496	−1.31	−1.31	$3.836 - 1.314x$	
0104+321	F01046+3208	010437.408+320906.95	39.3+0832	42.4	126.83	−30.33	1580	<.1099	<.08261	.4423	1.196	−0.65	−0.65	$2.712 - 0.649x$	N382 (N383, N375), ZG 104+32, M+05-03-052 (053) M-03-04-001 (004)
0105−177	F01053−1746	010517.301−174713.78	18.6−4632	45.7	145.18	−79.68	906	.6782	3.574	22.58	30.37	−0.88	−0.88	$2.203 - 0.883x$	
0106+612	01065+6117	010636.866+611733.33	35.1+1757	26.9	125.11	−1.24	324	<.3411	<.25	1.039	10.85	−0.90	+0.09	$7.483 - 5.244x + 0.848x^2$	
0106+596	01067+5941	010653.858+594146.41	47.8+4151	46.1	125.26	−2.83	354	<.25	<.25	.7092	<9.089	−0.52	−0.93	$0.114 - 0.000x - 0.040e^x$	
0108+662	01080+6616	010800.429+661626.92	01.5+1639	13.7	124.91	3.75	343	.3203	<.25	<.4	<16.66	−0.73	−0.81	$0.954 - 0.374x - 0.070x^2$	
0108+402	F01081+4018	010814.030+401746.95	11.6+1805	33.1	126.96	−22.16	685	<.06626	<.1077	.2823	1.013	−0.92	−0.92	$2.154 - 0.924x$	
0109−279	F01098−2754	010955.885−275412.95	51.8−5429	56.5	220.41	−85.34	125	<.1068	<.107	.6366	.7181				
0115+632	01150+6315	011500.166+631431.44	04.3+1511	48.4	125.92	0.79	749	.45	<.25	<.4	<3.876	−0.61	−1.09	$0.501 - 0.000x - 0.047e^x$	
0117+248	F01173+2448	011722.418+244834.11	22.7+4819	15.6	131.10	−37.34	365	<.07482	<.1423	.2348	<1.083	−0.78	−0.78	$1.531 - 0.776x$	
0121+035	F01219+0331	012159.692+033152.73	59.1+3152	08.9	138.71	−58.06	346	.7665	2.866	30.87	45.81	−0.66	−0.66	$1.478 - 0.658x$	N520, ZG 122+03, M+01-04-052
0131−296	F01319−2940	013159.398−294022.92	59.0−4031	09.6	229.07	−80.29	387	.9973	2.447	22.01	49.95	−0.64	−0.64	$1.348 - 0.638x$	N613, M-05-04-044 (Sc)
0132+519	F01324+5154	013225.861+515441.45	28.0+5424	26.4	129.78	−10.12	270	1.4	.3357	<.1693	<1.512	−3.51	−3.51	$8.433 - 3.513x$	*SAO K2
0133+627	01333+6247	013324.129+624713.11	19.9+4721	30.1	128.05	0.62	575	1.151	.482	<.4991	<4.951	−0.70	−0.87	$0.761 + 0.045x - 0.146x^2$	
0134+329	F01348+3254	013449.840+325420.72	48.3+5408	23.2	133.96	−28.72	42347	<.06821	.1614	.7399	<1.146	−0.46	−0.77	$1.065 + 0.885x - 0.263x^2$	QSO 3C 48 (S1)
0137−320	F01379−3203	013759.344−320328.23	59.0−0328	04.4	239.61	−78.40	403	<.1206	<.1458	.6862	.9289	−0.90	−0.90	$1.902 - 0.896x$	
0140+133	F01403+1323	014021.662+132339.75	21.4+2340	03.8	141.61	−47.35	612	2.421	7.526	65.54	102	−0.60	−0.60	$1.461 - 0.601x$	N660, M+02-05-013, ZG140+13
0145+523	01454+5224	014528.138+522358.84	26.7+2401	13.3	131.67	−9.25	144	<.25	<.25	.6414	<9.091	−0.95	−0.95	$1.271 - 0.948x$	
0148+223	F01484+2220	014828.325+222005.68	27.5+2006	11.5	140.59	−38.23	389	.4917	.8387	7.692	12.84	−1.03	−1.03	$2.155 - 1.028x$	N695, ZG 148+22
0149+359	F01497+3555	014945.438+355515.93	45.2+5513	04.1	136.55	−25.08	333	<.1187	<.09997	.2475	.87	−0.95	−0.95	$2.018 - 0.953x$	N703(N708), ZG 149+35, M+06-05-029(28,30,31)
0154+312	F01544+3113	015425.124+311410.90	25.7+1317	54.4	139.03	−29.32	288	.2401	<.1462	<.2093	<.782				SAO
0156−296	F01569−2939	015659.077−293908.08	58.0−3910	14.2	225.60	−74.91	350	<.1093	.143	1.734	1.514	−0.76	−0.76	$1.496 - 0.762x$	HII
0200−127	F02006−1247	020038.466−124735.28	36.0−4752	39.8	175.46	−67.78	1591	<.06931	<.1511	.222	<.7006	−0.92	−0.92	$2.563 - 0.922x$	M-02-06-018
0201+339	F02017+3400	020147.563+335921.83	46.8+0011	50.1	139.78	−26.23	557	.1239	<.08361	<.108	<.8021	−0.53	−0.95	$0.226 - 0.000x - 0.041e^x$	
0204+099	F02044+0957	020426.369+095732.80	27.0+5733	09.3	151.66	−48.41	398	<.0959	<.163	.632	<1.586	−1.23	−1.23	$2.748 - 1.229x$	HII
0205+395	F02050+3931	020504.531+393048.55	05.5+3133	45.8	138.60	−20.78	512	.1546	<.09757	<.143	<.6517	−0.71	−0.71	$1.448 - 0.708x$	*SAO K0
0207+389	F02070+3857	020707.125+385715.41	05.9+5711	15.0	139.19	−21.18	292	.7004	1.029	10.89	22.83	−0.68	−0.68	$1.146 - 0.677x$	N828, M+06-05-092, ZG 207+38
0207−168	F02072−1649	020713.171−164924.38	13.3−4943	18.7	186.73	−69.07	1164	<.0972	<.1842	.2651	<.632	−1.00	−0.99	$2.651 - 1.022x + 0.005x^2$	
0209+220	F02097+2203	020941.615+220343.94	44.2+0302	55.2	146.53	−36.83	437	.1318	<.1259	<.1089	<.7179	−1.10	−1.10	$2.433 - 1.103x$	
0220−250	F02206−2503	022044.886−250248.54	41.3−0319	57.5	211.69	−69.32	314	<.06334	<.08377	.2265	<.8294	−0.89	−0.89	$1.782 - 0.892x$	
0226−038	F02263−0351	022622.070−035059.42	21.8−5144	44.8	171.90	−56.93	2226	<.05503	<.1023	.2117	<.8	−0.70	−0.46	$3.483 - 1.774x + 0.209x^2$	PKS0226-038
0231+322	F02310+3214	023107.976+321311.80	05.7+1404	59.7	146.85	−25.62	433	.3444	<.1653	<.3793	<3.186	−0.74	−0.74	$1.525 - 0.737x$	M+05-07-014(*SAO K0)
0235+072	02358+0712	023550.690+071330.15	48.3+1300	46.6	163.64	−46.79	392	<.25	<.3294	<.4	1.53	−1.41	−1.41	$3.204 - 1.409x$	
0235+164	F02358+1623	023552.573+162404.35	52.3+2355	10.1	156.77	−39.11	1031	<.1105	<.1068	.2344	<.9074	+0.48	+0.31	$-2.218 + 1.230x - 0.146x^2$	BL
0238+593	02381+5923	023807.898+592325.41	08.1+2324	02.1	136.50	−0.33	429	3.624	9.238	93.36	226.6	−0.44	−0.71	$-0.192 + 0.739x - 0.230x^2$	

Table 1: The list of ITA radio identified sources (continued)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		h m s +° ′ ″	s +′ ″	″	°	°	mJy	Jy	Jy	Jy	Jy				
0238−084	F02386−0828	023837.311−082809.22	35.7−2813	24.2	182.02	−57.93	640	.2031	.4906	.9027	1.515	−0.47	−0.09	$3.374 - 2.134x + 0.325x^2$	N1052, M-01-07-034
0240−002	F02401−0013	024007.064−001330.93	07.7−1329	09.7	172.10	−51.93	11420	39.7	85.04	176.2	224	−0.65	−0.63	$2.827 - 0.746x + 0.018x^2$	N1068, ZG240-00(S2)
0241+622	02410+6215	024100.907+621526.81	01.6+1527	04.8	135.64	2.43	454	.5931	.8879	<.7709	<32.3	−0.03	−0.03	$-0.384 - 0.029x$	S1
0243+128	F02435+1253	024332.417+125312.90	33.1+5311	10.2	161.29	−41.07	446	.4035	.565	7.703	15.28	−0.90	−0.90	$1.898 - 0.903x$	M+02-08-003, ZG 243+12
0244−304	F02441−3029	024410.867−302902.46	10.8−2902	01.0	226.91	−64.68	493	1.985	5.509	44.54	85.34	−0.59	−0.59	$1.468 - 0.594x$	N1097, M-05-07-022(024)
0247+414	F02474+4127	024726.785+412756.81	25.9+2750	12.1	145.64	−15.88	222	.1108	.4213	1.231	1.662	−0.63	−0.63	$1.003 - 0.631x$	NG C1106, M+07-06-076, ZG 247+41
0248+430	F02483+4302	024818.498+430256.08	20.1+0252	18.0	145.04	−14.40	736	<.06539	.19	4.023	6.916	+0.20	+0.20	$-0.698 + 0.198x$	QSO
0249+312	F02498+3112	024951.071+311208.32	53.7+1229	39.6	151.28	−24.70	466	.2049	<.265	<.2841	<1.37	−0.78	−0.91	$0.915 - 0.201x - 0.113x^2$	
0252−003	F02526−0023	025238.581−002305.58	39.3−2305	10.8	175.87	−49.89	453	.2781	.6332	5.302	11.34	−1.39	−0.78	$-1.750 - 0.000x + 18.057e^{-x}$	N1143 (N1144), M+00-08-047(048), ZG 252-00
0255+024	F02555+0229	025533.180+022902.02	34.9+2935	41.9	173.64	−47.33	292	.203	<.1353	<.1344	<.5527	−0.43	−0.75	$-1.211 + 0.959x - 0.271x^2$	
0256+366	F02568+3637	025650.025+363718.38	49.4+3719	07.5	149.75	−19.27	235	.4471	2.263	10.98	12.15	−0.58	−0.58	$0.677 - 0.579x$	M+06-07-027, ZG256+36, MKN1066
0257+297	F02573+2943	025720.985+294234.69	22.9+4308	41.6	153.65	−25.17	839	<.09129	<.08834	.3124	<1.661	−0.84	−0.84	$2.048 - 0.838x$	
0300+470	030023+470523	030010.051+470432.69	14.1+0447	43.8	144.99	−9.86	1753	<.1018	<.1425	.2056	<.8384	−0.18	+0.24	$2.935 - 2.017x + 0.359x^2$	
0305+553	03053+5517	030522.676+551824.88	21.5+1748	38.2	141.62	−2.30	331	.7132	.3479	<.4301	<4.205	−0.54	−0.98	$-0.055 + 0.000x - 0.042e^{x}$	
0311−188	F03113−1853	031125.353−185252.62	22.3−5328	55.9	206.09	−56.30	638	.1879	.08674	<.1305	<.4846	−0.80	−0.80	$1.868 - 0.802x$	*SAO K2
0312−114	F03123−1125	031219.699−112525.39	17.2−2505	42.0	194.69	−52.81	738	<.05805	<.1187	.4134	.9693	−0.86	−0.86	$2.065 - 0.863x$	
0313+411	03135+4108	031326.018+410828.80	31.1+0841	58.7	150.19	−13.73	634	<.4146	<.25	.4683	1.992	−1.67	−0.29	$11.841 - 7.726x + 1.182x^2$	M+07-07-045
0313−026	F03135−0236	031329.313−023638.94	30.2−3636	13.6	183.67	−47.51	370	.1235	1.104	12.83	17.07	−0.84	−0.84	$1.716 - 0.838x$	M-01-09-023
0316+546	03164+5440	031627.337+543920.19	24.2+4005	52.4	143.32	−2.04	752	<.25	<.25	.6889	7.851	−0.43	−0.70	$-0.646 + 0.757x - 0.231x^2$	
0316+413	F03164+4119	031629.539+411952.55	28.1+1947	17.1	150.58	−13.26	18055	1.069	3.539	7.146	6.981	−0.62	−0.23	$5.316 - 2.365x + 0.340x^2$	N1275, ZG 316+41, M+07-07-062 (63, 64,65) (BL)
0321+585	03211+5835	032113.118+583528.55	10.6+3543	24.4	141.75	1.63	298	2.169	.6339	2.149	13.83	−0.59	−0.59	$0.817 - 0.586x$	
0326+552	03261+5516	032606.023+551710.80	09.6+1647	38.7	144.13	−0.75	966	.4402	<.25	<2.848	<26.14	−0.82	−1.14	$0.132 + 0.568x - 0.271x^2$	*SAO 13
0326+442	03265+4413	032631.183+441343.81	31.0+1307	36.9	150.48	−9.83	185	.4101	<.3352	<.4	<1.842	−0.93	−0.93	$1.579 - 0.932x$	
0326−288	F03265−2852	032631.647−285207.02	30.8−5216	14.3	224.91	−55.40	4460	<.06256	.2445	.4649	.4647	−0.77	−0.77	$2.582 - 0.774x$	
0330+303	F03304+3023	033030.392+302300.31	26.0+2308	57.3	159.64	−20.53	248	.2017	<.1147	<1.235	<11.74				
0335+530	03351+5301	033505.518+530137.12	09.6+0156	41.4	182.41	−39.67	291	1.872	.5334	<.4	<16.23	−1.02	−1.02	$2.347 - 1.018x$	
0338−214	F03384−2129	033823.321−212906.77	25.4−2903	29.3	213.79	−51.18	990	<.1013	<.1398	.2347	<.801	−0.37	−0.07	$2.680 - 1.677x + 0.255x^2$	PKS 0338-214
0339−186	F03397−1838	033945.174−183849.56	46.9−3836	28.0	209.74	−49.95	918	<.06238	<.1126	.373	1.176	−1.65	−0.89	$8.493 - 5.004x + 0.654x^2$	M-03-10-037
0341+091	F03419+0906	034157.354+090655.27	54.6+0650	41.1	178.11	−34.45	542	.144	<.1155	<.1693	<1.123	−1.10	−0.90	$3.681 - 1.978x + 0.171x^2$	
0344+445	03448+4432	034453.208+443249.81	49.2+3251	42.9	152.95	−7.62	358	130.3	93.87	21.86	6.03	−0.80	−0.80	$1.580 - 0.798x$	
0345+699	F03451+6956	034508.900+695617.97	07.6+5635	18.3	137.13	12.32	659	1.615	6.256	37.99	47.96	−0.33	−0.67	$-1.363 + 1.151x - 0.289x^2$	M+12-04-006, ZG 345+69
0347+387	03474+3845	034726.723+384456.05	26.0+4533	37.9	157.03	−11.82	546	<.2848	<.3158	<.4767	3.008	−0.64	−0.86	$0.182 + 0.312x - 0.186x^2$	
0352−206	F03524−2038	035226.373−203854.96	27.4−3852	14.7	214.12	−47.80	679	1.54	4.542	31.95	45.32	−0.69	−0.69	$1.599 - 0.693x$	N1482, M-03-10-054 (Sa)
0354−243	F03541−2422	035412.758−242306.85	11.5−2247	26.3	219.67	−48.47	838	<.08062	<.1248	.3861	<.6624	−1.21	−1.11	$3.536 - 1.616x + 0.080x^2$	
0355+607	03556+6043	035535.578+604306.94	37.4+4334	30.2	143.95	5.93	418	1.151	.359	<.4	<2.099	−0.77	−0.77	$1.510 - 0.770x$	
0356+121	03561+1207	035605.069+120726.21	07.8+0744	43.8	178.23	−29.86	369	<.2895	<.3457	<.4	1.871	−1.05	−1.05	$2.250 - 1.047x$	
0356−055	F03564−0536	035624.342−053549.99	24.1−3639	49.1	195.67	−40.48	623	1.659	.3429	.2406	1.52	−0.61	−0.84	$0.042 + 0.416x - 0.200x^2$	*SAO K0
0359+382	F03592+3816	035918.531+381529.84	17.8+1608	39.1	159.15	−10.68	12520	.3419	<.1732	<.4819	<2.574	−0.84	−1.13	$0.525 + 0.466x - 0.254x^2$	
0400+214	F04004+2127	040024.280+212754.91	28.3+2751	56.3	171.41	−22.71	172	.2135	<.1997	<.203	<1.55				
0404+035	04047+0332	040447.907+033245.75	44.8+3243	46.6	187.65	−33.60	8752	<.25	<.3092	<.4	4.759	−0.60	−0.67	$2.265 - 0.322x - 0.055x^2$	PKS0404+03 (Gal)
0409+054	F04097+0525	040943.374+052510.93	43.0+2510	05.7	186.74	−31.50	342	.5497	.7794	8.351	16.89	−0.98	−0.97	$2.119 - 1.037x + 0.011x^2$	M+01-11-013, ZG 409+05
0411+672	04119+6715	041146.212+671529.58	55.5+1513	56.4	140.80	11.95	566	<.25	<.25	<.4	3.371	−0.84	−0.84	$1.774 - 0.838x$	
0412−186	F04127−1836	041244.669−183700.62	46.2−3636	32.9	213.67	−42.62	306	.2296	<.09791	<.1134	<.6526	−0.89	−0.89	$1.768 - 0.891x$	
0418+236	04183+2342	041821.194+234156.93	24.0+4225	47.7	172.72	−18.16	1836	<.2628	<.3122	<.5573	2.72	−0.80	−0.94	$1.516 - 0.195x - 0.118x^2$	4C+23.08, PKS0418+23
0420−014	F04207−0127	042043.567−012728.34	43.7−2728	02.0	195.29	−33.14	1281	.08264	.1747	.4464	<1.726	+0.18	+0.18	$-0.333 + 0.182x$	QSO PKS 0420-01
0424+535	04242+5331	042423.114+533117.80	17.1+3126	54.3	151.74	3.36	317	<.298	<.2712	1.223	<18.79	−0.48	−1.09	$-2.722 + 2.216x - 0.526x^2$	

Table 1: The list of ITA radio identified sources (continued)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		h m s +° ′ ″	s +′ ″	″	°	°	mJy	Jy	Jy	Jy	Jy				
0430+095	04303+0932	043023.778+093254.25	23.0+3253	11.6	186.45	−24.93	217	<.25	<.2878	1.518	3.076	−0.55	−0.55	$0.741 - 0.548x$	
0430+052	F04305+0514	043031.584+051500.06	31.1+1500	07.2	190.37	−27.40	4798	.2861	.6353	1.283	2.786	−0.29	−0.11	$2.542 - 1.076x + 0.153x^2$	M+01-12-009, 3C120, PKS0430+05 (S1)
0432−255	F04328−2534	043247.704−253443.06	49.6−3446	25.8	224.41	−40.32	416	<.06698	<.1145	.2616	<1.043	−1.03	−1.03	$2.267 - 1.033x$	
0436−274	F04367−2726	043644.936−272647.63	45.2−2651	04.9	227.07	−39.94	610	<.1341	<.08179	.5851	.7176	−1.36	−0.90	$5.876 - 3.393x + 0.396x^2$	
0439+401	04395+4007	043932.402+400748.41	30.1+0746	26.5	163.34	−3.83	632	<.25	<.2668	<.4	3.135	−0.95	−0.95	$2.262 - 0.954x$	
0441+298	04411+2951	044104.957+295144.53	06.6+5130	25.8	171.39	−10.29	1035	<.25	<.6208	<.4	2.203	−0.95	−0.95	$2.418 - 0.951x$	
0441+110	04416+1103	044135.201+110225.86	36.7+0308	47.6	186.90	−21.82	353	.5499	.3001	<.4	<1.931	−0.81	−0.79	$1.734 - 0.896x + 0.017x^2$	*SAO A3
0442−109	04421−1058	044211.107−105733.47	10.6−5820	47.1	208.30	−33.06	393	<.25	<.5342	<.4	1.619	−1.05	−1.05	$2.279 - 1.048x$	
0445+185	04459+1834	044557.527+183400.03	56.3+3426	31.3	181.16	−16.49	448	<.4694	<.3161	.9453	<1.776	−0.66	−0.92	$-0.103 + 0.468x - 0.220x^2$	
0446+114	F04466+1126	044643.113+112710.52	41.7+2655	25.9	187.32	−20.56	234	.9517	.3168	<.2909	<1.591	−1.16	−1.16	$2.349 - 1.163x$	HII
0448+365	04489+3633	044853.703+363358.94	57.4+3330	53.1	167.25	−4.74	206	.8814	<.3687	<.4	<9.083				*SAO K0
0453+272	04534+2712	045327.789+271212.65	29.2+1249	40.9	175.22	−9.85	247	<.302	<.3884	<.4	1.654	−1.00	−1.00	$2.039 - 1.005x$	
0456+270	04568+2701	045649.445+270136.34	48.9+0135	07.4	175.83	−9.36	2110	<.25	.699	1.053	<7.999	−0.16	−0.64	$-2.042 + 1.980x - 0.417x^2$	
0500+511	05010+5110	050059.232+511039.42	02.9+1026	37.0	157.18	6.08	245	<.2776	<.2522	<.4	2.531	−0.76	−0.97	$0.069 + 0.179x - 0.183x^2$	
0502−103	05025−1018	050231.008−101855.08	30.8−1858	04.2	210.14	−28.28	4953	<.25	<.25	.6337	1.712	−0.92	−0.92	$3.057 - 0.922x$	M-02-13-040a, PKS0502-10
0508+648	F05088+6453	050853.756+645255.11	49.9+5321	35.7	146.46	14.91	338	.7761	.2031	<.1394	<1.173	−0.64	−0.77	$0.390 - 0.077x - 0.110x^2$	*SAO K5
0516−138	F05163−1351	051617.473−135121.04	20.7−5105	49.7	215.36	−26.71	1254	.3	.08433	<.1594	<1.538	−1.46	−0.82	$7.477 - 4.296x + 0.553x^2$	*SAO K0
0517−056	05174−0537	051730.137−053815.22	26.8−3752	55.0	207.34	−22.87	345	.2911	<.25	<.4	<12.8	−0.84	−0.84	$1.679 - 0.836x$	
0519−054	05192−0524	051914.455−052436.51	16.1−2421	29.1	207.34	−22.38	597	<.25	<.25	.6522	7.751	−1.03	−1.03	$2.405 - 1.026x$	
0519+011	F05197+0110	051942.314+011041.88	44.4+1048	31.9	201.21	−19.13	1050	.1442	<.1594	<.2117	<.913	−0.93	−0.40	$5.574 - 3.263x + 0.455x^2$	PKS0519+01
0520+486	05201+4840	052004.922+484006.55	06.7+4008	17.7	161.03	7.11	371	<.3039	1.58	5.117	5.046	−0.64	−0.83	$0.153 + 0.175x - 0.160x^2$	
0525+156	05259+1540	052559.602+154017.65	58.7+4038	24.2	189.22	−10.29	673	<.25	<.3452	<.4133	1.821	−2.38	−1.11	$13.034 - 7.931x + 1.084x^2$	
0526−141	F05267−1407	052644.186−140827.11	44.0−0732	55.2	216.79	−24.51	390	<.08665	<.1041	.7712	<3.941	−1.07	−0.74	$4.211 - 2.530x + 0.284x^2$	
0526+308	05267+3049	052645.754+304937.67	42.8+4928	39.3	176.56	−1.83	540	.7084	<.2565	<.4	<9.356	−0.79	−0.83	$1.522 - 0.605x - 0.036x^2$	
0527+123	F05270+1221	052701.313+122134.44	02.9+2159	33.8	192.21	−11.84	225	<.4485	.5228	<12.69	<55.38	−0.65	−0.65	$1.018 - 0.650x$	
0528+582	05279+5811	052802.563+581214.56	58.1+1142	48.0	153.52	13.26	266	<.25	<.3908	<.4	1.99	−0.83	−0.83	$1.558 - 0.832x$	
0529+375	05299+3731	052955.555+373132.27	55.8+3128	05.2	171.33	2.42	396	.7033	<.3883	<1.465	<14.78	−0.85	−0.85	$1.773 - 0.850x$	
0531+219	05315+2158	053134.402+215840.16	32.0+5842	33.5	184.57	−5.78	5817	<1.253	4.11	61.51	120.6				Crab Neb., 3C144, 4C+21.19
0535+223	05354+2223	053529.064+222338.74	26.6+2312	43.4	184.70	−4.79	328	.5377	<.3271	<.4	<13.41	−1.51	−1.51	$3.384 - 1.510x$	
0537+356	05375+3540	053731.367+354045.93	32.1+4045	09.0	173.71	2.70	188	28.25	226.4	1709	1635	+0.52	−0.07	$-5.398 + 3.123x - 0.507x^2$	
0537−253	F05378−2520	053748.766−252124.31	50.6−2052	40.8	229.39	−26.25	381	<.05236	<.08009	.2853	<.751	−1.35	−1.35	$3.032 - 1.347x$	
0540+549	F05406+5457	054032.018+545803.30	36.6+5739	46.3	157.28	13.11	941	.2231	<.08841	<.1166	<.9468	−1.07	−1.07	$2.526 - 1.074x$	
0540+087	F05408+0843	054049.971+084416.40	51.8+4345	41.5	197.16	−10.79	588	.5659	.1323	<.5485	<2.43	−1.17	−1.17	$2.773 - 1.172x$	
0541+586	F05414+5840	054124.682+584052.38	25.3+4050	05.4	153.99	15.01	371	.501	.8129	14.45	29.26	−0.56	−0.80	$-0.328 + 0.463x - 0.200x^2$	M+10-09-002
0541+057	05416+0546	054140.100+054551.68	38.7+4607	25.9	199.89	−12.10	519	<.25	<.2526	.8691	6.737	−0.71	−0.71	$1.573 - 0.707x$	
0542+250	05424+2505	054232.477+250547.24	28.5+0550	54.1	183.26	−1.99	892	.6	<.3719	<.4	<2.118	−0.97	−0.97	$2.337 - 0.972x$	*SAO K0
0549−074	F05497−0728	054946.426−072800.39	47.3−2802	13.1	212.93	−16.54	697	.3488	.8397	4.129	5.676	−0.56	−0.56	$1.279 - 0.560x$	N2110 (S2)
0551+464	F05511+4625	055109.779+462551.27	10.0+2551	02.3	165.73	10.41	573	.6394	1.948	3.005	4.235	−0.55	−0.79	$-0.089 + 0.477x - 0.201x^2$	M+08-11-011, ZG 551+46
0556+124	05566+1228	055638.189+122827.20	40.0+2804	35.2	195.85	−5.56	341	.733	<.2798	<.4	<1.45	−0.70	−0.55	$2.164 - 1.355x + 0.128x^2$	*SAO K0
0557+653	F05576+6522	055738.158+652216.05	38.6+2214	03.4	148.56	19.64	179	.1437	.1902	.9718	2.848	−0.45	−0.45	$0.365 - 0.453x$	M+11-08-008, ZG 557+65
0558+001	F05581+0006	055806.330+000616.54	06.3+0616	00.7	206.97	−11.23	808	.1746	.5525	<.7152	<4.061	−1.05	−0.94	$3.257 - 1.562x + 0.099x^2$	
0559+134	05590+1328	055906.211+132748.83	05.7+2826	37.9	195.28	−4.55	507	3.877	1.702	.4006	<2.181	−0.63	−0.96	$-0.563 + 0.837x - 0.286x^2$	
0600+462	06001+4617	060011.002+461705.02	07.1+1739	52.8	166.62	11.71	330	18.82	9.104	.7496	<1.063	−0.50	−0.89	$-1.515 + 1.209x - 0.334x^2$	
0605−063	F06053−0622	060519.688−062231.70	19.7−2229	02.7	213.70	−12.60	602	471.1	3953	12290	19190	+1.03	+0.55	$-5.152 + 3.145x - 0.413x^2$	
0607+023	06074+0218	060722.582+021805.36	24.2+1804	24.3	206.11	−8.15	794	<.4186	<.25	.8771	3.396	−1.20	−1.20	$3.054 - 1.203x$	
0609+710	F06098+7103	060948.623+710309.72	49.1+0311	02.7	143.30	22.72	2979	.7125	2.896	3.77	3.361	−0.49	−0.78	$0.027 + 0.792x - 0.250x^2$	M+12-06-019 (S2) ZG609+71, MKN 3
0617+493	F06173+4922	061716.322+492242.03	18.3+2239	19.6	165.04	15.64	270	.3204	.1216	<.1156	<.5899	−0.76	−0.76	$1.081 - 0.758x$	*SAO
0619+700	F06194+7005	061922.363+700540.62	30.0+0503	54.2	144.55	23.19	496	.1438	<.06738	<.09636	<1.148	−0.90	−0.90	$1.837 - 0.898x$	*SAO K0
0620−171	06208−1706	062053.701−170641.14	51.4−0614	42.7	225.34	−13.84	1114	<.25	<.25	.5095	<1.011	−0.56	−0.63	$1.100 - 0.257x - 0.060x^2$	
0622−105	06228−1032	062249.322−103151.91	52.8−3212	55.1	219.47	−10.58	499	1.195	1.409	10.86	38.4	−1.61	−0.72	$8.803 - 5.500x + 0.760x^2$	
0622−090	06229−0903	062255.201−090250.29	55.0−0313	22.9	218.12	−9.90	1065	.6766	<.25	<.4	<1.378	−1.11	−1.11	$2.860 - 1.106x$	
0628+699	F06287+6959	062836.855+695930.05	46.1+5935	47.7	144.89	23.92	664	<.06081	<.06541	.2189	<1.271	−0.93	−1.12	$1.090 - 0.098x - 0.163x^2$	
0631+659	F06320+6554	063151.814+655408.55	00.3+5412	52.1	149.28	23.14	301	<.06908	<.07633	.2582	<3.207	−0.86	−0.86	$1.564 - 0.860x$	

Table 1: The list of ITA radio identified sources (continued)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		h m s +° ′ ″	s +′ ″	″	°	°	mJy	Jy	Jy	Jy	Jy				
0635−003	06355−0022	063528.850−002247.39	31.7−2251	42.9	211.78	−3.17	946	<.2842	<.2575	.7011	4.467	−0.87	−0.96	$1.752 - 0.511x - 0.071x^2$	
0640+533	F06401+5320	064006.793+532048.77	06.8+2054	05.2	162.53	20.41	327	1.185	.3078	<.2377	<.8183	−0.66	−0.88	$-0.058 + 0.270x - 0.182x^2$	*SAO K0
0641−010	06412−0105	064115.557−010516.50	12.5−0502	48.1	213.08	−2.22	215	13.92	159.1	612	532.6	+0.72	+0.40	$0.119 + 0.000x - 9.373e^{-x}$	
0646+255	F06466+2532	064639.572+253219.49	38.7+3233	17.9	189.78	10.97	521	2.918	.8642	.28	<1.427	−1.20	−1.20	$2.784 - 1.197x$	*SAO K2
0648+275	06488+2731	064854.727+273118.33	53.6+3124	16.0	188.17	12.26	316	<.25	1.056	2.493	1.999	−0.47	−0.66	$-0.402 + 0.370x - 0.164x^2$	M+05-16-010, ZG 648+27
0649−303	06492−3021	064914.211−302113.77	16.8−2125	35.3	240.49	−13.40	257	<.25	<.25	.539	1.892	−1.08	−1.08	$2.164 - 1.075x$	Uppsala Sb
0653+587	F06540+5847	065356.188+584737.48	00.6+4746	35.3	157.48	23.80	910	.1854	<.1128	<.2862	<1.424	−1.07	−1.07	$2.561 - 1.067x$	*SAO
0656+330	F06567+3304	065641.953+330348.77	43.5+0415	32.7	183.63	16.03	443	.3372	<.1925	<.1558	<.5884	−0.52	−0.86	$-1.001 + 1.000x - 0.296x^2$	
0700−304	07002−3026	070019.686−302557.01	17.6−2605	28.1	241.59	−11.26	313	<.4008	<.25	.5319	<1.182	−0.90	−0.90	$1.792 - 0.896x$	
0706−042	07061−0414	070609.922−041416.26	09.8−1417	02.0	218.74	1.85	478	14.08	71	529.1	615.9	−0.30	+0.19	$3.166 - 2.428x + 0.416x^2$	
0707−003	07074−0019	070726.557−002030.07	26.7−1947	43.1	215.43	3.94	600	<.25	<.2663	<.4	2.219	−0.83	−1.21	$-0.237 + 0.841x - 0.326x^2$	
0707+472	F07075+4715	070733.822+471559.14	35.5+1534	30.4	170.18	22.75	378	.3677	.1191	<.1604	<.7353				
0709+214	F07098+2126	070950.930+212606.00	48.3+2614	37.6	195.88	14.08	229	.5665	<.285	<.1938	<.6407	−0.47	−0.87	$-1.700 + 1.296x - 0.344x^2$	*SAO G5
0710+038	07103+0349	071019.570+035017.55	18.5+4946	35.4	212.03	6.50	384	.3156	<.25	<.4	<5.096	−1.15	−1.15	$2.539 - 1.153x$	*SAO G5
0713+247	F07130+2445	071302.986+244528.65	02.2+4528	10.7	193.04	16.09	255	.1946	<.1331	<.1763	<.7232	−0.99	−0.99	$2.021 - 0.991x$	*SAO K2
0716+714	F07162+7126	071613.008+712615.77	12.5+2614	03.0	143.98	28.02	1838	<.1121	.126	.2374	<.7825	−0.53	−0.07	$4.055 - 2.576x + 0.399x^2$	BL
0716−179	07167−1757	071645.773−175715.56	46.8−5706	17.5	232.08	−2.28	377	2.792	13.55	58.15	95.12	−0.63	−0.63	$1.206 - 0.635x$	
0717+194	F07175+1929	071736.711+192959.27	34.9+2930	38.9	198.47	14.94	2762	.3305	<.1332	<.1445	<1.446	−1.19	−1.19	$3.406 - 1.189x$	*SAO
0718+214	F07186+2124	071839.355+212458.75	41.3+2407	58.4	196.76	15.94	462	.2306	<.1457	<.121	<1.467	−0.95	−0.80	$2.922 - 1.595x + 0.126x^2$	*SAO K5
0720+412	F07202+4114	072011.494+411409.80	15.0+1417	40.2	177.15	23.20	1008	.6425	.234	<.1191	<.5064	−0.97	−1.15	$1.487 - 0.195x - 0.151x^2$	
0722+300	F07224+3003	072227.623+300313.15	28.6+0313	12.7	188.70	20.01	413	.1813	.479	3.014	3.919	−0.98	−0.70	$3.709 - 2.213x + 0.241x^2$	M+05-18-012, MKN1201, ZG722+30
0722−095	07225−0933	072231.986−093359.96	33.3−3335	31.6	225.36	2.93	6274	.4181	.9485	8.927	17.94	−1.09	−1.09	$3.548 - 1.085x$	N2377, PKS 0722-09
0729+043	F07298+0419	072954.080+041843.40	51.4+1913	49.8	213.86	11.06	210	.1635	<.09971	<.1505	<.7514	−0.76	−0.76	$1.269 - 0.760x$	
0733−264	07333−2629	073322.963−262940.59	22.1−2939	11.7	241.42	−3.00	220	.2602	.4394	13.97	27.07	−0.26	−0.26	$0.006 - 0.259x$	
0735+178	F07352+1749	073514.170+174909.32	14.8+4909	09.0	201.85	18.07	2176	.1868	.1907	.2519	<.5198	−0.16	−0.09	$0.224 + 0.000x + 2.052e^{-x}$	PKS 0735+17 (BL)
0736−222	07365−2218	073629.875−221745.19	31.7−1813	37.6	238.12	−0.32	283	.5858	<.25	<.4	<2.032	−1.18	−0.63	$5.578 - 3.597x + 0.471x^2$	*SAO K0
0742+360	F07426+3605	074238.672+360532.74	38.9+0555	22.4	183.94	25.94	582	.1677	<.1089	<.1864	<.8221	−0.71	−0.71	$1.464 - 0.712x$	*SAO K0
0746−261	07466−2607	074639.672−260719.73	39.0−0711	12.6	242.59	−0.24	222	.8264	1.325	13.28	28.25	−0.47	−0.47	$0.546 - 0.468x$	Sb
0754+100	F07543+1004	075422.643+100440.17	21.0+0445	24.7	211.31	19.06	737	.08944	.2346	.2065	.4363	+0.06	+0.06	$-0.238 + 0.064x$	PKS0754+100 (BL)
0755−178	07554−1751	075529.908−175128.55	29.2−5130	10.2	236.55	5.78	1950	.2896	<.3197	<.4	<1.256	−0.99	−0.99	$2.840 - 0.988x$	*SAO K7
0759+249	F07597+2454	075945.338+245407.53	45.0+5435	27.9	197.05	26.01	571	<.0522	<.1771	.2127	<.7735	−1.69	−0.94	$-1.884 + 0.000x + 21.863e^{-x}$	
0800+195	F08007+1930	080041.842+193107.68	42.7+3022	47.3	202.69	24.29	284	<.09958	<.09869	.2459	<1.07				
0801+052	F08014+0515	080127.039+051522.92	27.3+1519	05.5	216.70	18.48	227	.4965	2.075	1.892	1.304	−0.45	−0.45	$0.549 - 0.453x$	M+01-21-009 (S2), MKN1210, ZG801+05
0806−103	F08064−1018	080628.807−101929.64	29.7−1847	44.6	231.43	11.96	8190	.09005	.3373	.5337	.8694	−0.79	−0.79	$3.095 - 0.788x$	PKS0806-10 (GAL)
0807+283	F08079+2822	080759.879+282257.11	58.0+2234	33.9	193.99	28.86	885	<.06789	<.1705	.2841	.519	−1.03	−1.03	$2.422 - 1.027x$	
0808−142	F08086−1411	080839.895−141211.15	42.0−1142	42.3	235.08	10.39	338	.1266	<.07797	<.1103	<.8882	−1.06	−1.06	$2.238 - 1.057x$	*SAO K0
0815−266	08156−2640	081534.686−263956.91	37.1−4014	36.6	246.52	4.94	1568	<1.42	<.5218	<.4784	1.012	−0.76	−0.72	$2.379 - 0.938x + 0.034x^2$	
0816−253	08166−2520	081638.199−252036.59	38.1−2032	04.8	245.55	5.88	192	.7237	3.465	22.45	39.43	−0.69	−0.40	$2.709 - 1.979x + 0.251x^2$	N2566, M-04-20-008
0825−202	F08250−2015	082503.551−201626.53	04.9−1552	39.4	242.43	10.34	11233	.1988	<.1117	<.09792	<.6444	−0.72	−0.87	$2.057 - 0.064x - 0.128x^2$	PKS0825-20 (QSO)
0828+025	F08281+0236	082806.564+023532.07	06.8+3612	40.1	222.54	23.11	407	<.1133	.1924	.4109	<1.1	−1.57	−0.84	$7.677 - 4.732x + 0.618x^2$	
0829+046	F08291+0439	082910.893+043948.45	10.8+3952	03.8	220.69	24.33	671	.1728	.2556	.4285	<.773	+0.10	+0.10	$-0.392 + 0.096x$	PKS0829+046 (BL)
0832+085	08322+0835	083212.230+083557.24	14.0+3542	30.4	217.19	26.80	198	<.3059	<.5328	<.4	1.261	−0.68	−0.68	$1.031 - 0.677x$	
0835+402	F08353+4014	083522.238+401420.27	18.2+1434	48.2	181.62	36.92	386	<.07514	<.1015	.2392	.7153	−2.01	−0.73	$11.499 - 7.638x + 1.098x^2$	
0835+126	F08356+1240	083537.939+124027.36	36.5+4003	32.2	213.44	29.31	694	.1524	<.1465	<.1606	<1.032	−0.77	−0.94	$0.836 - 0.007x - 0.149x^2$	*SAO K0
0835+645	F08358+6430	083544.164+643032.72	50.3+3020	41.6	151.36	35.94	339	8.34	2.039	.2678	<.629	−0.31	−0.25	$0.486 - 0.557x + 0.048x^2$	*SAO K0
0836+299	F08369+2959	083658.693+295936.34	57.7+5944	15.0	194.19	35.38	1391	<.1138	<.2422	.4525	<.7226	−1.29	−0.59	$7.289 - 4.375x + 0.602x^2$	ZG 837+30
0840+503	F08400+5023	084002.945+502310.03	04.1+2309	11.1	168.87	38.19	304	.1617	.209	1.988	7.056	−0.71	−0.71	$1.263 - 0.714x$	N2639, M+08-16-024, ZG 840+50
0840+184	08403+1824	084018.039+182451.20	18.3+2402	49.3	207.78	32.59	1512	<.25	<.4828	.6169	1.63	−0.79	−0.79	$2.137 - 0.786x$	M+03-22-024, ZG 840+18
0851−152	F08510−1511	085100.725−151203.83	03.3−1148	40.5	241.86	18.31	234	.2194	<.1089	<.1113	<.9024	−1.13	−1.13	$2.266 - 1.130x$	*SAO K0
0851+202	F08519+2017	085157.268+201758.88	57.6+1800	04.8	206.81	35.82	1134	.2838	.4335	.8911	1.158	+0.60	+0.40	$-2.723 + 1.497x - 0.175x^2$	BL
0851+075	F08519+0732	085158.363+073248.88	57.6+3208	42.4	220.79	30.69	141	<.06509	<.1141	.3031	<.707				
0854−292	F08542−2915	085413.863−291508.31	12.0−1537	37.7	253.76	10.23	1372	.1964	<.09305	<.1261	<1.124	−0.27	−0.87	$-2.563 + 2.372x - 0.515x^2$	*SAO K0
0854+210	F08544+2100	085428.832+210030.24	29.0+0031	02.5	206.23	36.61	425	<.1268	<.2867	.7622	.9757	−1.38	−0.98	$5.454 - 3.165x + 0.348x^2$	
0856+609	F08563+6058	085616.545+605846.84	18.3+5847	12.8	155.04	39.01	450	<.08241	<.09878	.7836	.8356	−0.75	−0.75	$1.588 - 0.751x$	

Table 1: The list of ITA radio identified sources (continued)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		h m s +° ′ ″	s +′ ″	″	°	°	mJy	Jy	Jy	Jy	Jy				
0856−165	F08564−1633	085625.967−163238.26	27.3−3316	42.3	243.81	18.55	1171	1.525	.3373	<.1501	<.6857	−1.38	−1.04	$5.523 - 2.880x + 0.293x^2$	*SAO K0
0858+092	F08589+0916	085855.449+091643.57	56.8+1638	20.8	219.90	33.01	510	<.07211	<.1785	.287	<1.683	−1.05	−1.07	$2.255 - 0.941x - 0.021x^2$	
0901+147	F09018+1447	090148.906+144736.63	49.4+4737	07.2	214.20	35.99	478	.1799	.5023	4.123	6.978	−1.41	−1.06	$5.270 - 2.953x + 0.301x^2$	M+03-23-030, ZG901+14, MKN 1224
0910+403	F09109+4019	091053.465+401914.81	54.2+1913	08.6	182.15	43.68	213	.4943	1.414	8.668	14.57	−0.66	−0.66	$1.190 - 0.663x$	N2782, M+07-19-036, ZG 910+40
0913+007	F09136+0043	091334.000+004350.65	37.2+4328	53.1	230.85	31.97	612	<.08902	<.06794	.1798	<.9478	−1.33	−0.98	$5.137 - 2.849x + 0.297x^2$	
0916−050	F09167−0500	091641.871−050100.50	45.3−0051	52.1	236.91	29.41	1064	<.07762	<.08582	.1744	<.4494	−1.53	−1.53	$3.942 - 1.528x$	
0917+294	F09176+2928	091744.344+292903.39	40.1+2856	55.9	197.31	43.92	453	<.06743	<.1563	.2816	.737	−1.14	−1.14	$2.500 - 1.143x$	
0921−093	F09212−0922	092116.105−092228.34	17.3−2214	22.8	241.66	27.72	2434	<.07575	<.08159	.228	<.8844	−0.47	−0.76	$-0.060 + 0.811x - 0.250x^2$	PKS 0921-093
0935+359	F09359+3554	093554.121+355504.02	54.9+5459	10.7	188.71	48.46	359	<.0591	<.114	.1992	<.6904	−0.90	−0.90	$1.806 - 0.905x$	
0943−140	F09432−1405	094317.516−140543.71	15.9−0531	26.7	249.71	28.78	591	.4926	1.262	<8.5	<29.36	−0.72	−0.68	$1.833 - 0.892x + 0.034x^2$	N2992, M-02-25-014
0944+045	F09440+0432	094405.801+043254.61	02.9+3241	45.5	231.94	40.45	1327	<.1005	.2861	1.161	1.496	−0.64	−0.80	$0.849 + 0.097x - 0.143x^2$	4C+04.33
0947+248	F09473+2447	094720.062+244803.07	19.5+4749	16.0	206.02	49.36	1448	.2582	<.1351	<.1385	<.3799	+0.07	−0.67	$-4.268 + 3.327x - 0.636x^2$	*SAO F5
0951+699	F09517+6954	095143.484+695500.81	44.4+5455	07.5	141.41	40.57	6915	57.38	267.8	1089	1150	−0.39	−0.46	$1.676 - 0.055x - 0.065x^2$	N3034, M+12-10-011, ZG 951+69
0958+559	F09585+5555	095835.277+555517.53	35.1+5519	02.1	157.81	48.36	1043	1.523	2.272	44.5	89.22	−0.68	−0.68	$2.021 - 0.679x$	N3079, M+09-17-010, ZG 958+55, 4C+55.19
0958+290	F09589+2901	095855.934+290132.88	57.0+0140	15.7	200.21	52.70	15782	.1601	.2578	.2307	<.344	−0.89	−0.89	$3.439 - 0.887x$	3C234,4C+29.35(S1)
1001−062	F10015−0614	100131.738−061359.29	32.6−1401	13.0	246.38	37.39	268	.5887	1.043	10.7	19.2	−0.73	−0.73	$1.288 - 0.726x$	
1011+144	F10119+1429	101156.348+142955.16	54.6+2939	30.1	224.32	51.32	484	<.1162	<.2689	.2252	<.7565	−0.81	−0.71	$2.339 - 1.260x + 0.087x^2$	
1011−000	101122−004349	101158.273−000153.44	00.0−0219	36.4	242.42	43.41	316	<.07265	<.1599	.09422	<.2608				
1017+648	F10170+6451	101707.238+645110.75	05.3+5118	14.3	144.93	45.56	1150	<.09499	<.06191	.8599	1.238	−0.56	−0.90	$-0.553 + 0.933x - 0.292x^2$	
1025+702	F10252+7013	102515.250+701343.16	17.9+1321	25.9	138.63	42.55	1223	<.1059	<.1105	1.266	2.249	−0.67	−0.67	$1.729 - 0.669x$	
1030+161	F10301+1606	103009.047+160640.82	09.1+0621	19.8	225.08	55.98	204	<.1083	<.18	.3704	1.013	−0.78	−0.78	$1.303 - 0.778x$	M+03-27-060, ZG 1030+16
1036+362	F10360+3616	103600.508+361653.78	01.3+1634	22.0	187.05	60.56	1412	.273	.1238	.1272	.393	−0.96	−1.13	$1.645 - 0.217x - 0.145x^2$	*SAO G5
1039−272	F10399−2712	103953.891−271200.71	57.7−1206	51.1	270.72	27.21	448	.5819	.1608	<.1536	<.7349	−1.13	−1.13	$2.558 - 1.134x$	*SAO K5
1041+118	F10418+1153	104152.230+115355.78	52.0+5348	08.5	234.18	56.45	513	<.115	<.1592	.2631	<.5917	−0.68	−0.68	$1.447 - 0.678x$	
1044−170	F10443−1701	104423.129−170226.07	23.6−0152	34.7	265.16	36.27	1213	.3467	<.07019	<.1366	<.5417	−2.00	−1.19	$9.822 - 5.596x + 0.701x^2$	*SAO A0
1047−277	10470−2746	104702.836−274732.86	04.7−4648	51.2	272.59	27.53	703	<.4057	<.25	.6408	1.076	−0.79	−0.86	$1.480 - 0.486x - 0.059x^2$	
1051+550	F10511+5504	105100.270+550412.05	06.0+0407	49.5	152.49	55.06	708	.3739	.09931	<.08697	<.5695	−0.94	−0.94	$2.119 - 0.937x$	M+09-18-048 (050), *SAO K0
1053+339	F10534+3355	105327.055+335542.27	27.3+5539	04.5	191.09	64.40	167	<.07402	<.09917	.2051	.5395	−1.06	−0.72	$3.702 - 2.537x + 0.288x^2$	
1056−023	F10560−0219	105602.754−021944.92	02.3−1942	07.4	256.02	49.71	754	<.09782	<.1915	1.304	1.747	−0.75	−1.09	$-0.119 + 0.749x - 0.293x^2$	
1100+282	F11004+2814	110028.758+281430.46	28.4+1432	05.0	204.60	66.04	471	1.06	3.726	21.2	32.7	−0.63	−0.63	$1.349 - 0.630x$	N3504, M+05-26-039, ZG 1100+28
1100−316	F11009−3141	110057.910−314132.60	54.4−4142	45.8	277.64	25.55	437	6.15	1.379	.2049	<1.188	−1.27	−1.27	$2.896 - 1.270x$	*SAO M0
1103+027	F11032+0242	110312.836+024326.31	12.2+4252	35.6	252.70	54.67	491	<.09219	<.1866	.3908	.8699	−0.85	−0.85	$1.856 - 0.845x$	
1109+581	F11099+5806	110957.527+580623.77	57.1+0627	04.7	145.55	54.75	309	<.07415	<.07742	.2244	<.726	−0.88	−0.88	$1.645 - 0.876x$	
1117+138	F11176+1351	111740.293+135146.25	40.7+5145	06.1	240.85	64.78	480	2.491	4.969	49.56	103.5	−0.55	−0.55	$1.432 - 0.552x$	N3628, M+02-29-020, ZG 1117+13
1124−227	F11243−2244	112424.047−224443.25	23.7−4441	05.3	278.76	35.85	507	<.1324	.1152	.2993	.6581	−0.53	−0.84	$-0.678 + 0.832x - 0.266x^2$	
1125+588	F11257+5850	112543.094+585015.45	43.2+5012	03.5	141.90	55.41	1555	3.805	23.19	103.7	107.4	−0.71	−0.65	$2.498 - 0.985x + 0.053x^2$	N3690, ZG 1125+58, M+10-17-002 (3,5) MKN 171
1127+005	F11270+0031	112702.109+003149.77	03.9+3124	37.2	263.38	56.71	2585	<.08483	<.2258	.2255	.5686	−0.84	−0.75	$3.053 - 1.238x + 0.078x^2$	
1149+487	F11498+4844	114957.211+484401.73	52.6+4400	45.7	147.21	65.80	318	<.08028	<.1089	.4342	1.398	−0.65	−0.96	$-0.697 + 0.699x - 0.264x^2$	M+08-22-023, ZG 1149+48
1203+529	F12038+5259	120351.664+525923.73	51.8+5918	05.9	138.08	63.07	698	1.509	6.76	46.93	69.74	−0.39	−0.75	$-1.235 + 1.186x - 0.308x^2$	N4102, M+09-20-094, ZG 1203+53
1211+548	F12116+5448	121140.988+544814.73	40.3+4820	07.9	134.39	61.76	225	.8344	4.312	21.38	25.88	−0.39	−0.68	$-1.259 + 0.866x - 0.245x^2$	N4194, M+09-20-119, ZG1211+54, MKN 201
1216+507	F12163+5042	121620.297+504248.34	18.7+4238	18.4	135.71	65.88	1240	<.07372	<.09811	.2207	.6328	−0.76	−0.76	$2.072 - 0.764x$	
1217+295	F12176+2933	121736.238+293328.66	36.3+3331	02.5	193.78	82.77	569	<.1913	<.08495	.5568	1.568	−0.04	−0.16	$-0.839 + 0.508x - 0.106x^2$	N4278, ZG1217+29, M+05-29-062(63)(S1)
1223+129	F12232+1256	122314.629+125613.12	13.8+5626	17.7	279.12	74.33	309	.9964	3.463	10.24	18.1	−0.83	−0.48	$3.563 - 2.344x + 0.296x^2$	N4388, M+02-32-041, ZG 1223+12 (S2)
1226−062	F12262−0615	122617.633−061513.52	17.5−1520	06.8	292.90	55.90	751	.5424	<.1856	<.1577	<.4498	−0.90	−0.46	$4.654 - 2.831x + 0.377x^2$	*SAO K2

Table 1: The list of ITA radio identified sources (continued)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		h m s +° ′ ″	s +′ ″	″	°	°	mJy	Jy	Jy	Jy	Jy				
1226+023	F12265+0219	122632.547+021931.06	34.1+1937	24.0	289.95	64.36	66452	.5477	.8957	2.06	2.891	−0.39	−0.22	$1.378 + 0.001x + 5.114e^{-x}$	3C 273, PKS1226+02 (S1)
1231+024	F12319+0227	123153.812+022750.50	55.1+2740	22.0	292.95	64.73	333	1.401	3.574	30.13	42.46	−0.91	−0.91	$2.218 - 0.914x$	N4536, M+00-32-023, ZG 1232+02
1237+224	F12373+2229	123722.660+222931.86	22.0+2932	09.1	274.15	84.43	1562	<.09321	<.0979	<.234	.5118	−0.95	−0.95	$2.545 - 0.950x$	PKS1237+22
1244−255	F12440−2531	124406.590−253126.89	05.4−3119	17.9	301.62	37.06	1237	<.1266	.1627	.4079	.8729	−0.42	+0.08	$4.054 - 2.649x + 0.434x^2$	PKS1244-255 (QSO)
1253−055	F12535−0530	125335.812−053107.77	32.9−3046	48.6	305.10	57.06	15461	<.1166	<.2135	.2529	<.6701	−0.26	−0.14	$0.949 - 0.000x + 3.323e^{-x}$	3C 279 (QSO), PKS1253-05
1254+571	F12540+5708	125404.797+570835.95	05.8+0830	10.1	121.61	60.24	551	1.872	8.662	31.99	30.29	−0.51	+0.05	$4.062 - 2.978x + 0.481x^2$	M+10-19-004, ZG 1254+57, MKN 231
1305−241	F13059−2406	130559.316−240657.06	58.7−0652	09.8	307.94	38.32	596	<.1452	.6713	1.44	1.49	−0.39	−0.39	$0.806 - 0.394x$	H2
1308+326	F13080+3237	130807.566+323641.47	05.4+3701	33.6	85.70	83.35	1157	<.1744	.271	.4198	.576	+0.04	+0.08	$0.266 - 0.149x + 0.036x^2$	BL
1308+373	F13086+3719	130837.387+371926.28	37.1+1929	04.4	101.62	79.25	171	.9514	1.209	19.65	54.26	−0.74	−0.74	$1.522 - 0.742x$	N5005, M+06-29-052, ZG 1308+37 (S2)
1309+210	F13095+2103	130936.508+210306.38	33.2+0332	52.9	340.60	82.10	1409	<.08278	<.1575	.5837	1.434	−0.62	−0.82	$0.610 + 0.251x - 0.170x^2$	ZG 1309+21, PKS1309+21
1317−271	F13170−2708	131704.574−270854.47	04.7−0853	02.2	310.63	35.04	368	.6868	.7153	9.967	29.76	−0.30	−0.20	$0.868 - 0.719x + 0.082x^2$	N5078, M-04-32-001
1317−168	F13174−1651	131725.594−165123.73	27.1−5129	22.3	312.68	45.21	439	<.1258	<.1866	.408	.9493	−0.75	−0.75	$1.552 - 0.747x$	M-03-34-049
1319−164	F13197−1627	131943.680−162801.93	42.8−2754	14.9	313.54	45.50	476	.8785	2.855	5.895	5.476	−0.19	−0.61	$-2.217 + 1.666x - 0.362x^2$	M-03-34-063 (064)
1322−295	F13229−2934	132256.305−293423.93	55.5−3419	11.6	311.75	32.45	527	.638	2.401	16.91	28.64	−0.80	−0.61	$2.851 - 1.642x + 0.164x^2$	N5135, M-05-32-013
1325+097	F13256+0943	132536.164+094308.44	39.4+4312	48.0	330.75	70.33	226	.4851	<.2098	<.1463	<.3255				*SAO K0
1327−035	F13270−0331	132703.922−033121.49	05.4−3131	24.1	321.01	57.74	737	<.09591	<.3062	.9536	.7974	−0.77	−0.77	$1.846 - 0.772x$	
1327−206	13273−2040	132723.973−204049.29	20.2−4046	53.1	314.94	41.03	1525	<.25	<.3308	.4159	1.445	−0.83	−0.60	$3.604 - 1.837x + 0.196x^2$	PKS1327-206 (Sa)
1334−296	F13341−2936	133411.125−293642.25	09.6−3630	23.4	314.58	31.97	866	4.832	19.6	110.3	236.3	−0.62	−0.62	$2.171 - 0.615x$	N5236, M-05-32-050, PKS1334-29 (Sc)
1336+485	F13362+4831	133614.844+483149.84	15.4+3141	10.4	102.72	66.97	353	.2307	.9765	7.342	11.07	−0.71	−0.71	$1.306 - 0.706x$	N5256,M+08-25-031, ZG1336+48,MKN266(S2)
1342+561	F13428+5608	134251.531+560813.34	51.4+0815	02.0	108.11	59.68	335	.2352	2.282	21.74	21.38	−0.39	−0.39	$0.437 - 0.392x$	M+09-23-002 (4), ZG1342+56, MKN 273
1345+125	F13451+1232	134506.184+123220.24	06.3+3219	02.1	347.22	70.17	8309	<.1433	.6695	1.916	2.06	−0.12	−0.37	$-0.249 + 0.993x - 0.217x^2$	PKS1345+12 (S2), 4C+12.50
1350+316	F13500+3141	135003.242+314130.08	04.4+4111	24.1	54.59	76.06	1207	<.05572	<.1048	.2013	.7157	−0.60	−0.65	$2.270 - 0.380x - 0.043x^2$	M+05-33-012, ZG1350+31, 3C293
1353+186	F13536+1836	135339.883+183656.82	39.7+3657	02.6	5.82	72.75	1088	.5098	1.576	2.184	1.924	+0.08	−0.93	$-5.862 + 4.524x - 0.867x^2$	M+03-36-005 (S2), ZG 1353+18, MKN 463
1400−322	F14000−3218	140001.117−321756.92	00.4−1822	26.7	319.97	27.96	219	.6726	.1562	<.1856	<.7122				
1404+286	F14047+2841	140445.887+284128.45	44.0+4138	26.6	41.86	73.25	179	<.185	.3994	.7288	.9376	+2.02	+1.11	$-11.205 + 6.014x - 0.780x^2$	MKN 668 (S1)
1409+204	F14097+2029	140945.672+202938.86	43.9+2955	29.7	16.83	70.33	329	<.05447	<.1264	.3246	<1.149	−0.85	−1.07	$0.411 + 0.148x - 0.194x^2$	
1410−029	F14106−0258	141039.312−025827.07	38.3−5823	15.7	339.15	53.81	534	1.282	3.638	8.409	8.886	−0.43	−0.43	$0.833 - 0.431x$	N5506, M+00-36-028, ZG1410-02, MKN1376
1411+078	F14111+0753	141109.848+075334.47	11.3+5331	21.9	351.74	62.46	435	<.1591	.2351	1.308	2.342	−0.32	−0.85	$-2.503 + 1.990x - 0.451x^2$	M+01-36-023, ZG 1411+07
1411+034	F14116+0327	141134.551+032753.99	37.1+2738	41.4	346.09	58.99	386	<.1239	<.2178	.423	1.211				ZG 1411+03
1418+546	F14180+5437	141806.066+543657.25	05.7+3658	03.3	98.30	58.31	836	<.06594	.08567	.2121	<.5459	−0.00	−0.00	$-0.006 - 0.000x$	BL
1418−308	14189−3050	141858.676−305046.93	59.2−5041	09.0	324.82	27.92	3458	<.25	<.4279	<.5123	1.239	−1.21	−1.21	$3.636 - 1.210x$	
1422+456	F14220+4538	142203.246+453840.95	00.5+3842	28.8	83.86	64.06	189	<.05377	<.04695	.1713	.4198	−0.65	−0.65	$0.926 - 0.648x$	
1429−045	F14292−0432	142916.160−043208.83	16.4−3243	34.4	344.01	49.93	303	.1897	<.211	<.162	<.8687				*SAO K6
1432+593	F14326+5920	143238.152+591956.17	40.0+2004	16.2	101.03	53.43	682	<.06014	<.05964	.166	.4427	−0.68	−0.76	$1.205 - 0.337x - 0.067x^2$	
1435+304	F14354+3024	143529.633+302401.28	27.5+2405	27.8	46.73	66.55	198	<.05493	<.1648	.2356	<.3001	−1.00	−0.70	$3.545 - 2.293x + 0.253x^2$	
1438+005	F14382+0030	143817.121+003031.43	14.1+3011	49.7	351.86	52.45	232	<.1036	<.1553	.5721	.953				
1442+009	F14429+0055	144254.562+005534.72	55.4+5547	17.6	353.71	51.97	1568	.1872	<.1862	<.1458	<.5835	−0.81	−0.81	$2.184 - 0.813x$	*SAO B9
1443+107	144234+101656	144306.977+104443.37	07.1+4411	32.4	6.72	58.45	266	<.07765	<.1172	<.1123	.2646	−1.04	−1.04	$2.096 - 1.042x$	
1448+169	F14481+1656	144804.680+165644.96	06.5+5706	33.5	18.44	60.61	423	<.1206	<.1004	.4604	1.454	−1.07	−0.53	$5.340 - 3.437x + 0.462x^2$	M+03-38-034, ZG 1448+16
1448+634	F14483+6328	144817.430+632836.16	18.1+2831	06.8	103.18	49.09	9820	<.05014	<.09581	.2041	<.8814	−0.80	−0.87	$2.635 - 0.500x - 0.059x^2$	M+11-18-008(9) (S2), ZG 1448+63, 3C 305
1449+164	F14495+1625	144935.203+162457.67	33.0+2545	57.0	17.81	60.05	218	<.1079	<.1688	.7584	1.688	−0.68	−0.68	$1.076 - 0.678x$	
1450+066	F14501+0639	145010.793+063954.27	11.4+3945	13.0	2.80	54.57	368	<.04929	<.1422	.2917	<.555	+0.36	−0.23	$-4.657 + 2.940x - 0.504x^2$	
1451+037	F14514+0344	145127.891+034435.33	27.1+4443	14.1	359.43	52.42	441	.9958	1.192	17.27	45.79	−0.84	−0.84	$1.861 - 0.843x$	N5775, M+01-38-014,

Table 1: The list of ITA radio identified sources (continued)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		h m s +° ′ ″	s +′ ″	″	°	°	mJy	Jy	Jy	Jy	Jy				
1453+245	F14537+2435	145347.496+243451.87	47.6+3514	22.2	34.38	61.89	396	.9523	.2353	<.132	<.5074				ZG 1451+03 *SAO K0
1459+136	F14592+1336	145915.988+133636.68	18.0+3637	29.3	15.19	56.67	1253	<.08068	<.1402	.2241	<.5814	−1.36	−1.36	$3.582 - 1.360x$	
1500+423	F15001+4223	150007.855+422329.30	10.7+2303	41.0	71.03	59.49	324	<.07946	.06742	.1691	<.5489	−0.71	−0.77	$1.045 - 0.470x - 0.047x^2$	ZG 1500+42
1501−310	F15018−3105	150146.902−310544.23	50.1−0509	54.1	333.74	23.48	312	.8058	.2248	<.2318	<1.153	−0.49	−0.49	$0.745 - 0.488x$	*SAO K5
1506+345	F15060+3434	150605.723+343450.17	05.4+3449	04.2	55.37	59.91	227	.1508	.2235	2.559	5.037	−0.43	−0.77	$-0.108 + 0.000x - 0.033e^{x}$	M+06-33-022, ZG 1506+34
1512+045	F15129+0432	151255.363+043246.05	57.1+3248	26.0	5.81	48.82	271	<.08493	<.1172	.7745	1.076	−0.47	−0.47	$0.642 - 0.472x$	M+01-39-011
1513+128	15132+1249	151317.863+125018.36	14.9+4949	52.3	16.93	53.31	276	.3857	<.25	<.4	<1	−0.93	−0.93	$1.820 - 0.928x$	
1513+406	F15136+4041	151336.953+404118.19	38.9+4111	23.3	66.58	57.52	239	<.05172	<.08772	.5749	<1.193	−0.89	−0.89	$1.545 - 0.893x$	
1513+650	F15137+6505	151342.328+650506.31	43.7+0514	11.6	102.03	46.00	321	.1083	<.05013	<.09781	<.35				
1514+509	15140+5055	151400.266+505515.33	04.9+5530	46.2	83.69	53.96	267	<.25	<.25	.6219	.6527	−0.81	−0.81	$1.636 - 0.813x$	
1515+340	F15151+3404	151509.535+340420.50	09.5+0420	00.7	54.18	58.07	417	<.06329	<.1045	.1508	<.5818	−0.74	−0.74	$1.429 - 0.737x$	
1518+489	F15182+4853	151816.973+485403.19	12.3+5359	46.3	80.07	54.19	206	<.05256	<.04712	.2044	.708	−0.84	−0.84	$1.513 - 0.838x$	
1521+452	F15217+4516	152142.562+451623.52	43.9+1641	22.5	73.86	54.89	223	<.05965	<.06344	.1631	.6342	−0.70	−0.70	$1.195 - 0.704x$	
1530−085	F15306−0832	153038.848−083157.13	39.2−3203	07.9	356.28	36.89	421	.12	.3566	1.944	2.998	−0.41	−0.55	$-0.152 + 0.230x - 0.124x^2$	M-01-40-001
1532+236	F15327+2340	153246.820+234008.06	46.8+4007	01.1	36.63	53.03	435	.4837	7.907	103.8	112.4	−0.15	−0.27	$-0.704 + 0.398x - 0.106x^2$	M+04-37-005, ZG 1532+23(S2)
1535+385	15358+3831	153550.965+383037.56	49.8+3111	36.1	61.61	53.62	196	<.25	<.25	.3587	<1.037	−0.50	−0.75	$-0.719 + 0.568x - 0.209x^2$	
1536+375	F15363+3732	153625.109+373310.36	20.6+3255	55.8	59.99	53.59	410	.1154	<.06371	<.06991	<.2981	−0.73	−0.73	$1.337 - 0.734x$	
1546−292	F15467−2914	154644.594−291406.01	44.1−1406	06.5	343.30	19.17	368	1.245	5.059	35.51	52.61	−0.50	−0.67	$-0.125 + 0.253x - 0.146x^2$	M-05-37-003(Sb)
1549+076	F15496+0740	154937.227+074019.52	36.6+4040	22.5	16.88	42.99	246	<.04791	<.1298	.3763	.696	−1.01	−1.01	$1.975 - 1.009x$	
1553+088	F15533+0849	155318.812+084921.01	19.9+4910	19.5	18.86	42.78	223	<.07514	<.06972	.4446	1.108	−0.45	−0.45	$0.500 - 0.449x$	ZG 1553+08
1600+567	F16008+5644	160048.457+564419.38	53.5+4414	41.8	87.61	45.31	925	.3185	.1075	<.1006	<.404	−0.63	−0.63	$1.556 - 0.635x$	*SAO K5
1606−337	16063−3345	160623.902−334604.26	23.1−4545	21.7	343.34	13.00	504	.7681	<.4286	<.4	<2.523				
1610+301	F16102+3005	161012.086+300607.42	12.2+0543	24.5	49.01	46.17	316	<.05708	<.04063	.1864	<.6771	−0.26	−0.77	$-2.683 + 1.978x - 0.437x^2$	
1615−201	16156−2010	161539.152−201024.13	36.7−1007	38.5	355.05	20.99	1412	1.08	<.6018	1.262	<12.35	−0.76	−0.76	$1.934 - 0.761x$	
1632−281	16327−2806	163249.137−280708.75	45.1−0650	56.6	351.54	12.80	453	1.315	<.4012	<2.029	<22.97				*SAO B0
1635+066	F16353+0637	163520.473+063714.66	18.2+3736	40.0	22.79	32.60	348	.5466	.2268	<.1442	<1.099	−0.77	−0.77	$1.518 - 0.771x$	
1636−206	16366−2038	163636.461−203741.59	38.0−3808	34.1	358.05	16.95	733	<.25	<.5432	<.6057	3.132	−0.41	−0.74	$0.148 + 0.000x - 0.032e^{x}$	
1639−062	16393−0614	163921.387−061542.67	22.4−1458	47.2	10.83	25.01	748	<.25	<.3388	<.4	2.097	+0.18	+0.18	$-0.592 + 0.182x$	
1641+399	F16413+3954	164117.594+395411.34	18.7+5410	12.8	63.45	40.95	9559	.1068	.2918	.5999	<1.384	−0.20	−0.11	$0.822 - 0.001x + 2.536e^{-x}$	3C 345 (QSO)
1641+244	F16414+2425	164125.379+242525.16	27.8+2511	36.0	43.67	38.13	290	<.07446	<.05165	.2297	<.9818	−0.89	−0.61	$3.365 - 2.150x + 0.245x^2$	
1643+022	F16431+0217	164311.066+021708.71	09.5+1717	24.9	19.51	28.77	6638	<.1306	<.1756	.248	<.7006	−0.77	−0.77	$2.669 - 0.766x$	PKS1643+022
1650+024	F16504+0228	165027.566+022857.85	27.5+2857	01.3	20.73	27.29	1210	.5578	3.417	22.68	27.78	−0.55	−0.83	$-0.011 + 0.665x - 0.237x^2$	N6240, M+00-43-004, ZG 1650+02 (S3)
1651−098	F16516−0948	165139.648−094831.32	39.3−4833	05.4	9.51	20.50	346	.2433	.4644	5.302	12.98	−1.15	−1.15	$2.481 - 1.148x$	
1655−058	16551−0552	165510.844−055302.49	11.4−5210	53.1	13.53	21.94	406	<.25	<.7843	<.4	1.781	−1.01	−1.01	$2.210 - 1.015x$	
1656−226	16562−2235	165619.051−223618.51	17.7−3542	41.0	359.35	12.12	306	.4905	<.4113	<.4	<12.47	−0.73	−0.73	$1.353 - 0.729x$	*SAO K0
1657+590	F16577+5900	165745.305+590041.78	44.1+0046	10.2	88.01	37.43	431	.3305	.4941	7.878	22.59	−0.61	−0.76	$0.249 + 0.067x - 0.132x^2$	N 6286, ZG 1657+59 M+10-24-081(084)
1709+243	F17091+2418	170907.621+241833.37	11.4+1846	53.2	45.85	32.07	1126	.1481	<.08825	<.184	<.8893	−1.18	−1.18	$3.017 - 1.177x$	*SAO F2
1709−257	17098−2547	170954.816−254741.15	51.2−4737	49.0	358.59	7.74	1173	.6272	.4224	<.4944	<7.085	−1.30	−1.05	$4.857 - 2.436x + 0.221x^2$	
1715+315	F17157+3130	171541.105+313002.72	42.7+3001	20.5	54.51	32.70	560	.1044	<.05295	<.08751	<.5253	−0.13	−0.62	$-2.720 + 2.014x - 0.419x^2$	*SAO
1716+410	F17166+4104	171635.715+410457.30	39.3+0429	49.4	65.83	34.40	571	.2727	.06045	<.1851	<.7842	−0.85	−0.85	$1.878 - 0.851x$	
1717+547	F17179+5444	171753.320+544448.09	54.2+4451	08.2	82.46	35.04	494	<.07618	.2018	1.362	1.915	+0.19	−0.53	$-4.849 + 3.322x - 0.612x^2$	
1720−008	F17201−0050	172012.465−005051.36	10.6−5049	28.1	21.58	19.18	283	.6088	<.169	<.2005	<1.37	−0.63	−0.63	$1.057 - 0.626x$	*SAO K5
1721+135	F17216+1330	172137.113+133033.87	38.5+3047	24.1	35.59	25.39	467	.1112	<.07272	<.1853	<.9963	−1.13	−1.13	$2.569 - 1.132x$	
1723−282	17239−2812	172355.773−281257.16	56.2−1300	06.3	358.38	3.79	454	105.4	82.32	19.11	<14.25	−2.44	−2.44	$5.603 - 2.436x$	
1724−032	F17243−0314	172420.223−031508.02	18.2−1448	36.3	19.92	17.09	659	.136	<.08998	<.2711	<1.145	−0.93	−0.93	$2.211 - 0.933x$	
1726−237	17262−2343	172617.516−234317.53	17.4−4314	03.9	2.43	5.85	562	9.038	65.52	109.3	57.04	+1.07	+0.48	$-6.282 + 3.643x - 0.503x^2$	Planet.Neb.
1726−054	F17267−0525	172645.258−052512.89	45.5−2555	42.3	18.29	15.48	367	.3637	<.1807	<.2429	<3.544				
1726−332	17269−3312	172658.109−331223.38	57.2−1202	24.2	354.60	0.47	863	19.21	137.4	1030	1964	−0.09	−0.09	$0.176 - 0.094x$	
1727−338	17279−3350	172755.488−335102.71	59.8−5038	59.1	354.18	−0.05	958	25.24	166.6	1237	3899	−1.19	+0.57	$12.928 - 8.917x + 1.508x^2$	HII
1731−217	17311−2142	173107.938−214316.08	06.1−4248	38.0	4.73	6.00	245	.7323	<.3581	<.4173	<4.337				
1732+389	F17326+3859	173240.379+385947.20	40.2+5946	02.4	64.03	31.01	468	.0964	.1688	.328	.6699	+0.32	+0.18	$0.012 + 0.000x - 4.096e^{-x}$	Gal
1734+114	F17345+1124	173434.555+112425.31	35.7+2428	17.0	34.95	21.64	330	<.0809	.1955	.4842	<3.308	−0.85	−0.85	$1.703 - 0.853x$	
1737−287	17374−2847	173731.285−284642.49	28.6−4702	40.3	359.55	0.99	386	8.229	4.943	<8.513	<66.63	−1.12	−1.12	$2.254 - 1.115x$	
1737−080	17376−0804	173737.117−080455.37	36.4−0405	51.5	17.33	11.81	314	.4315	<.276	<.4654	<15.07	−0.52	−0.52	$0.838 - 0.523x$	*SAO K0

Table 1: The list of ITA radio identified sources (continued)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		h m s +° ′ ″	s +′ ″	″	°	°	mJy	Jy	Jy	Jy	Jy				
1737−186	17378−1841	173749.137−184153.91	48.8−4158	06.3	8.14	6.29	353	.544	<.3733	<.7807	<4.549	−0.98	−0.98	$2.048 - 0.976x$	
1738−216	17379−2138	173803.813−213816.25	59.8−3818	56.0	5.66	4.68	302	.7197	<.4774	<.7315	<9.236				
1739+162	F17391+1617	173911.797+161641.99	09.0+1716	52.7	40.24	22.62	1190	.9054	.2251	<.3247	<1.617	−1.03	−1.03	$2.785 - 1.033x$	*SAO
1744+000	17442−0000	174414.367+000040.19	12.8−0004	50.1	25.40	14.34	383	<.25	<.25	.4038	4.263				
1747+440	F17473+4401	174721.785+440145.55	20.6+0144	12.9	70.36	29.30	753	<.06884	.1131	.3196	<.7606	−0.36	−0.65	$0.156 - 0.000x - 0.028e^{x}$	
1748−206	17488−2035	174847.996−203642.16	48.1−3555	47.2	7.85	3.08	465	<.4832	<.4387	1.879	<15.39	−0.66	−0.66	$1.356 - 0.663x$	
1749+269	F17490+2659	174905.543+265947.03	05.4+5947	01.9	52.04	24.42	336	.1483	.2356	.4664	<1.374	−0.41	−0.71	$-1.103 + 0.902x - 0.256x^2$	
1753+183	F17537+1820	175348.379+182038.79	46.7+2048	25.6	43.76	20.23	332	.1007	.1005	.6424	2.548	−0.38	−0.21	$1.470 - 1.141x + 0.148x^2$	N6500, ZG 1753+18 M+03-46-003(4),(S3)
1759−224	17591−2228	175911.699−222753.66	11.2−2800	09.4	7.47	0.06	546	9.968	63.73	962.4	1624	+0.71	+0.39	$0.482 + 0.000x - 9.171e^{-x}$	
1800−291	18001−2909	180007.855−290915.69	09.3−0931	24.3	1.77	−3.45	834	1.033	.5862	<9.604	<130.6				
1801−158	18013−1552	180118.977−155213.48	21.6−5227	40.2	13.45	2.90	321	.8836	.5678	<2.061	<12.87				
1802−247	18021−2445	180206.289−244605.02	09.4−4554	43.8	5.80	−1.66	771	<3.305	<1.12	6.981	<142.7	−2.17	−2.17	$5.447 - 2.170x$	
1802−233	18026−2323	180240.023−232313.40	38.3−2358	50.5	7.07	−1.09	1287	1.431	1.619	<27.35	<269.1	−0.88	−0.88	$2.357 - 0.877x$	
1802+025	18029+0229	180251.543+023023.29	54.9+2953	58.7	29.89	11.39	538	7.374	1.805	<.4	<1.348	−0.66	−0.66	$1.412 - 0.656x$	*SAO K0
1805−090	18054−0904	180529.504−090448.69	28.6−0417	34.4	19.89	5.33	349	.9964	<.2957	<.6564	<9.053	−0.80	−0.80	$1.592 - 0.800x$	
1806−200	18060−2005	180602.672−200524.13	00.3−0557	46.9	10.32	−0.15	1039	140.4	1042	6027	12010				
1807+698	F18072+6948	180717.887+694857.14	17.3+4857	03.0	100.13	29.17	2582	.1032	.1807	.2697	<.7022	−0.30	−0.17	$0.202 - 0.001x + 3.910e^{-x}$	ZG1807+69,3C371(BL)
1810+066	18104+0641	181025.008+064115.39	26.2+4137	28.0	34.57	11.61	358	<.2772	<.25	.6063	<8.206	−1.00	−1.00	$2.114 - 0.999x$	ZG 1810+06
1811+498	F18115+4948	181135.465+494815.69	33.1+4836	30.6	77.69	26.40	201	<.06988	<.08166	.2736	<.905	−0.83	−0.83	$1.425 - 0.834x$	
1812−166	18123−1641	181215.816−164052.05	18.8−4127	55.3	14.02	0.21	568	1.636	<3.227	<26.23	<346.3	−0.67	−0.67	$1.463 - 0.667x$	HII
1813−263	18130−2621	181300.977−262119.90	00.1−2125	12.8	5.61	−4.58	398	<.4813	<.5827	.812	<22.11	−1.56	−1.56	$3.596 - 1.560x$	
1813+217	18130+2146	181308.484+214656.70	04.5+4641	57.7	48.99	17.41	927	.4153	<.25	<.4	<1.057	−1.13	−1.13	$2.896 - 1.133x$	
1813−017	18135−0144	181332.453−014433.30	31.2−4420	23.0	27.34	7.05	169	.4096	<.2818	<.4	<6.672				
1813−012	18139−0115	181357.695−011524.61	55.0−1506	44.5	27.82	7.18	372	.4024	<.2551	<.4081	<4.075	−0.80	−0.80	$1.620 - 0.800x$	
1814+426	F18146+4238	181439.344+423829.02	38.6+3825	09.1	70.14	24.16	344	<.0752	.1187	.4953	<1.608	−0.93	−0.93	$1.818 - 0.931x$	M+07-37-031(030)
1814−000	18147−0001	181441.758−000138.20	45.1−0131	50.6	29.01	7.59	403	.4275	.3243	<.4086	<2.925				
1815−171	18151−1707	181508.984−170653.34	06.8−0708	34.6	13.97	−0.60	392	2.696	2.692	<30.86	<414.3	−0.42	−0.42	$0.674 - 0.422x$	HII
1820+022	18201+0212	182010.820+021233.57	10.7+1218	15.7	31.64	7.41	595	<.9607	<.3177	<.4524	3.158				
1820−004	18207−0024	182041.250−002431.17	42.1−2457	28.8	29.36	6.09	262	.5198	<.25	<.6227	<6.395				
1822−090	18221−0905	182209.039−090436.39	06.7−0501	42.5	21.86	1.71	681	.9054	.5197	<3.651	<28.27	−1.39	−1.39	$3.389 - 1.388x$	
1822−132	18228−1312	182252.844−131201.33	52.9−1206	04.7	18.30	−0.39	356	52.09	419.9	2007	3540	+1.38	+0.31	$-10.018 + 6.093x - 0.919x^2$	HII
1825−041	18251−0406	182506.609−040741.59	06.7−0642	59.6	26.58	3.38	836	.3258	<.6149	<1.262	<54.49	−0.29	−0.29	$0.657 - 0.287x$	
1825−173	18253−1719	182523.703−171844.12	20.3−1904	52.6	14.96	−2.85	545	.4228	<.3803	<4.001	<50.65				
1830−210	18306−2106	183040.609−210559.65	37.4−0627	52.6	12.17	−5.71	10735	12.55	9.887	2.676	<7.601	+0.06	−0.12	$-0.129 + 0.854x - 0.155x^2$	
1831+130	18312+1300	183112.383+130027.29	15.2+0100	52.6	42.64	9.83	601	.6174	<.25	<.4	<1.636	−1.13	−1.13	$2.684 - 1.134x$	
1831−116	18312−1139	183119.875−113915.05	16.3−3940	58.1	20.64	−1.49	552	<1.814	<1.812	<2.896	38.19	−0.90	−0.72	$3.078 - 1.704x + 0.157x^2$	
1833+326	F18332+3239	183311.633+323902.69	12.1+3917	15.5	61.30	17.45	6549	.09528	.1056	<.1822	<.7727	−0.65	−0.65	$2.773 - 0.654x$	ZG1833+32,3C382(S1)
1833−096	18332−0939	183313.414−093956.45	13.6−3924	32.6	22.61	−0.98	390	1.445	.9384	<7.595	<100.6	−0.76	−0.76	$1.549 - 0.764x$	
1835−098	18351−0951	183511.797−095123.18	11.0−5119	12.5	22.67	−1.50	255	1.35	<.8051	<25.95	<315				
1835−055	18355−0532	183536.273−053227.06	35.9−3217	11.5	26.54	0.41	243	24.63	209	1127	1930	+0.69	+0.69	$-2.388 + 0.692x$	HII
1840−101	18402−1010	184017.172−101019.79	16.9−1038	18.6	22.97	−2.75	249	2.482	1.621	<8.127	<104.4				
1840−156	18406−1537	184036.734−153736.28	40.3−3740	51.6	18.14	−5.32	1650	5.332	7.695	2.299	<26.66	−1.08	−0.92	$3.904 - 1.798x + 0.140x^2$	
1840−036	18406−0338	184038.969−033840.70	39.6−3848	11.9	28.80	0.17	398	27.73	151.9	1247	<3132	+0.65	+0.65	$-2.074 + 0.653x$	HII
1841+054	18415+0528	184131.852+052754.99	33.6+2816	33.5	37.00	4.17	363	1.87	1.129	<.6096	<5.584	−0.60	−0.90	$-0.571 + 0.704x - 0.255x^2$	
1841−043	18416−0420	184143.734−042049.82	39.8−2100	59.7	28.30	−0.39	374	91.27	821	3374	4358	+0.35	+0.35	$-1.323 + 0.350x$	HII
1842+559	F18420+5559	184201.906+555955.48	00.4+5950	13.8	85.49	23.37	353	.1291	<.04802	<.1081	<.6056	−0.98	−0.98	$1.846 - 0.975x$	*SAO K0
1843−030	18437−0302	184346.203−030305.89	46.5−0233	33.2	29.69	−0.24	6780	4.818	8.581	<18.24	<282	−1.51	−1.51	$4.933 - 1.507x$	HII
1844−025	18443−0231	184423.891−023111.44	21.7−3112	32.8	30.23	−0.14	770	<2.667	12.19	<1203	<3490	+0.39	+0.39	$-1.094 + 0.393x$	HII
1844+392	F18445+3912	184432.758+391204.80	30.7+1209	24.3	68.58	17.71	322	.1674	<.08329	<.274	<3.381	−1.27	−1.27	$2.755 - 1.267x$	*SAO
1845+013	18454+0119	184523.148+011857.86	25.0+1945	54.7	33.75	1.41	232	1.168	.7529	<3.93	<38.25	−0.53	−0.73	$-0.411 + 0.353x - 0.172x^2$	
1848−059	18482−0554	184811.180−055438.64	13.7−5457	41.8	27.66	−2.54	864	1.195	.9286	<10.9	19.04	−0.74	−0.71	$1.985 - 0.860x + 0.024x^2$	
1848+029	18487+0255	184844.180+025602.22	45.9+5555	26.8	35.58	1.41	1174	<.4301	1.063	<4.4	<44.83	−0.90	−0.69	$3.627 - 1.852x + 0.185x^2$	
1849−102	18498−1016	184946.617−101708.51	49.0−1623	57.5	23.93	−4.88	569	1.841	.5709	<.4786	<28.01	−2.16	+0.25	$18.788 - 12.698x + 2.057x^2$	*SAO K5
1850+011	18507+0110	185046.352+011013.29	47.0+1049	37.0	34.24	0.14	924	140.2	1106	11500	32460	+2.36	+0.99	$-13.775 + 8.385x - 1.176x^2$	HII
1851+302	18518+3016	185147.531+301548.93	49.7+1637	55.7	60.64	12.86	492	<.7331	<.6125	.3587	<6.437	−0.88	−0.88	$2.030 - 0.883x$	
1854−318	F18548−3152	185452.664−315228.28	52.4−5248	20.0	4.61	−15.21	366	.3794	.1953	<.1992	<1.381	−0.85	−0.85	$1.744 - 0.851x$	*SAO K2
1855−280	18553−2805	185518.008−280529.32	19.2−0513	22.7	8.23	−13.78	640	<.25	<.4642	<.7226	2.949	−0.88	−0.88	$2.056 - 0.878x$	
1855+089	18557+0855	185543.695+085519.12	44.9+5536	24.6	41.70	2.62	292	.5429	.2901	<1.156	<14.98	−1.10	−1.10	$2.277 - 1.097x$	

Table 1: The list of ITA radio identified sources (continued)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		h m s +° ′ ″	s +′ ″	″	°	°	mJy	Jy	Jy	Jy	Jy				
1858+041	18585+0407	185832.555+040750.88	30.2+0748	35.4	37.76	−0.21	731	9.179	57.84	961.7	2147				HII
1859+041	18593+0408	185923.781+040822.47	23.9+0828	05.8	37.87	−0.40	500	44.66	304.3	2964	4524	+0.65	+0.65	$-1.919+0.647x$	HII
1901−002	19010−0013	190104.555−001323.86	00.8−1322	56.4	34.19	−2.78	443	.8633	.6029	<.9031	<109.2	−0.69	−0.69	$1.418-0.691x$	
1903+180	19033+1800	190322.414+180040.09	20.2+0020	37.4	50.65	5.13	429	.2684	<.25	<.4062	<3.393	−0.91	−0.91	$1.973-0.913x$	
1907+508	F19070+5051	190701.148+505108.42	00.8+5108	03.3	81.50	18.23	244	.3611	1.29	6.328	11.56	−0.79	−0.79	$1.460-0.787x$	N6764,ZG1907+50(H2)
1907+008	19071+0051	190711.469+005059.87	10.7+5153	54.4	35.85	−3.64	826	1.722	.7998	<.4607	<26.22	−0.92	−0.88	$2.486-1.088x+0.033x^2$	
1907+090	19078+0901	190752.867+090112.12	51.7+0111	17.3	43.17	−	1140	105.3	1090	7566	<36150	+0.86	+0.86	$-1.401+0.855x$	HII
1908−063	19086−0619	190838.031−061856.33	41.8−1905	56.9	29.62	−7.25	815	1.224	1.073	<.4	<14.84				
1908+374	19089+3728	190857.914+372753.23	54.4+2801	42.6	68.87	12.63	586	<.25	<.25	<.4	2.876	−1.17	−1.02	$3.606-1.846x+0.131x^2$	
1911+108	19111+1048	191109.094+104804.67	06.2+4823	46.4	45.12	0.12	801	250	1395	5913	7497	+1.43	+1.43	$-4.502+1.435x$	HII
1919+394	F19190+3929	191902.367+392933.34	04.3+2940	23.3	71.61	11.72	1297	.5563	.1468	<.22	<1.925	−0.48	−0.86	$0.594-0.000x-0.037e^x$	
1920+154	19202+1524	192017.570+152426.56	16.1+2424	21.4	50.23	0.33	973	1.449	<2.411	<6.751	<257.9	−1.43	+0.08	$12.205-8.046x+1.291x^2$	HII
1920+143	19209+1421	192053.133+142053.99	54.6+2101	22.4	49.37	−0.30	851	45.87	455.1	<5263	14310				HII
1922+155	19224+1535	192223.289+153447.45	25.9+3511	44.5	50.63	−0.03	399	<2.131	<1.438	2.059	<78.62	+0.05	+0.05	$-0.492+0.048x$	HII
1922−224	F19226−2225	192240.289−222532.92	36.4−2542	54.7	16.18	−17.20	384	.1665	<.1545	<.2154	<1.124	+0.23	+0.11	$-1.640+0.729x-0.098x^2$	*SAO K0
1929+377	19299+3743	192951.359+374324.95	55.0+4348	49.0	70.98	9.04	443	.3673	<.25	<.4	<1.646	−1.07	−1.07	$2.408-1.072x$	
1930+410	F19310+4102	193059.859+410317.25	02.4+0254	37.0	74.08	10.38	495	.1786	<.06357	<.3311	<2.752	−0.47	−0.63	$0.028+0.212x-0.134x^2$	*SAO
1931+201	19311+2008	193114.531+200826.42	11.7+0813	42.1	55.64	0.33	188	<1.639	.3979	3.355	<55.07	−0.72	−0.72	$1.152-0.723x$	
1932−260	F19329−2601	193254.711−260100.35	58.1−0100	45.7	13.60	−20.72	322	.1845	<.1185	<.1488	<.9367				
1933+161	19334+1609	193331.922+160958.06	27.9+0943	59.9	52.44	−2.09	264	.3908	<.2625	1.343	<45.61				*SAO B9
1940+165	19408+1633	194046.984+163313.33	49.2+3327	34.7	53.63	−3.41	803	9.813	5.807	.7813	<12.32	−0.62	−0.66	$1.279-0.451x-0.033x^2$	
1944+250	19446+2505	194441.625+250517.43	41.4+0517	03.1	61.47	0.10	563	93.16	1185	8686	13210				PKS1944+25
1949−326	F19495−3236	194930.180−323604.44	31.1−3610	12.9	8.12	−26.30	372	.2789	<.2036	<.1595	<1.115				*SAO K0
1949+023	F19497+0222	194943.539+022241.73	44.8+2236	19.7	42.26	−12.31	11218	.117	.2314	.4524	<1.39	−0.74	−0.74	$3.075-0.735x$	PKS1949+02 (GAL)
1953+284	19529+2827	195302.117+282738.10	58.3+2741	50.4	65.32	0.23	927	.2461	<.25	<2.745	<44.73	−0.88	−0.88	$2.233-0.882x$	
1956−111	F19566−1107	195636.484−110717.60	40.2−0717	54.7	30.56	−2	880	.7681	.1772	<.2194	<1.191	−0.96	−0.96	$2.397-0.957x$	
2001+094	F20018+0924	200154.328+092412.22	51.2+2436	52.0	50.03	−11.47	307	.1439	<.1349	<.2275	<1.845				
2002+335	20024+3330	200227.664+333033.35	26.8+3025	13.7	70.67	1.19	1370	33.28	94.76	258.4	260.1	−0.30	−0.30	$0.895-0.296x$	
2007+091	20079+0906	200755.469+090613.50	55.5+0656	42.5	50.55	−12.89	311	.4542	<.25	<.4	<6.382	−0.90	−0.90	$1.809-0.904x$	*SAO K2
2008+108	F20081+1049	200810.570+105004.84	09.1+4946	28.7	52.10	−12.05	174	.1352	<.09389	<.2107	<1.575	−0.79	−0.79	$1.264-0.790x$	
2009+144	20089+1427	200900.930+142754.74	58.4+2745	38.0	55.36	−10.32	333	<.5601	<.5935	<.4	1.798	−0.60	−0.60	$1.052-0.597x$	
2010+400	20103+4000	201019.906+400059.25	22.1+0032	37.1	76.99	3.42	312	<1.075	<1.12	<8.687	29.12				
2011−054	F20115−0525	201134.461−052600.09	33.5−2533	30.7	37.75	−20.80	523	<.08177	<.09287	.3085	1.411	−0.56	−0.56	$1.152-0.560x$	
2016−096	F20168−0936	201651.016−093614.34	51.7−3613	10.2	34.35	−23.84	695	.2597	<.1728	<.1171	<.6225	−0.92	−0.92	$2.203-0.921x$	
2019+373	20197+3721	201946.250+372131.84	46.8+2134	06.9	75.83	0.40	731	<423.7	1225	7417	<6985	+1.04	+0.58	$1.286+0.001x-13.458e^{-x}$	
2022+352	20225+3511	202232.195+351201.26	33.8+1143	26.8	74.39	−1.30	430	1.086	.4463	1.956	<106.4	−0.79	−0.79	$1.639-0.787x$	
2023+335	20232+3332	202312.992+333311.16	14.2+3259	19.4	73.13	−2.37	1121	.4231	<.2782	<6.922	<76.96	+0.21	+0.37	$-0.216+0.000x+0.016e^x$	
2024+154	F20245+1527	202436.422+152711.55	33.2+2707	46.8	58.29	−12.95	3895	.8969	.5156	<.2173	<1.724	−0.76	−1.07	$0.833+0.595x-0.264x^2$	
2025+372	20255+3712	202534.922+371256.77	33.6+1250	17.2	76.39	−0.62	999	204.5	2510	10140	13130	+0.30	+0.45	$0.448-0.381x+0.132x^2$	
2027+050	F20275+0506	202734.773+050558.11	31.8+0620	49.5	49.61	−19.14	350	.484	<.1931	<.2311	<1.508	−0.91	−0.91	$1.871-0.908x$	*SAO K5
2027+145	F20275+1432	202738.352+143240.06	35.2+3239	45.8	57.93	−14.06	1154	.1065	<.06321	<.1706	<1.716	−1.08	−1.08	$2.822-1.075x$	
2033−047	F20337−0447	203345.477−044743.74	45.5−4740	03.8	41.16	−25.40	586	<.09629	<.1093	.3853	1.51	−1.07	−1.07	$2.517-1.073x$	M-01-52-010
2039−309	20400−3058	203959.367−305814.25	00.4−5845	33.5	13.20	−36.25	226	<.25	<.3273	<.4	1.675				
2041+382	20411+3815	204104.625+381519.41	07.5+1529	35.2	79.06	−2.44	207	<.25	<.8857	<6.205	25.29	−0.85	−0.85	$1.489-0.848x$	
2041+041	20417+0409	204141.008+040837.29	43.4+0904	44.7	50.72	−22.63	393	.6937	<.25	<.4	<1.095	−0.87	−0.87	$1.821-0.869x$	*SAO K5
2101−115	F21014−1133	210127.523−113347.70	28.2−3343	11.0	37.76	−34.57	217	6.39	57.28	86.67	45.38	+1.13	+0.46	$-7.305+4.057x-0.572x^2$	N7009
2105−012	F21055−0111	210533.414−011219.67	35.2−1132	54.7	49.14	−30.52	628	.1361	<.1357	<.1255	<1.009	−1.38	−0.66	$7.379-4.540x+0.617x^2$	*SAO A5
2109+339	21096+3359	210941.281+335925.97	36.9+5948	58.8	79.58	−9.60	532	.6927	.2171	<.4	<1.519	−1.37	−0.73	$6.961-4.155x+0.544x^2$	*SAO
2123−292	F21237−2913	212343.039−291408.23	43.4−1359	10.4	17.99	−45.15	2972	.2196	<.1349	<.1595	<.96	−1.10	−1.10	$3.291-1.100x$	*SAO K2
2130−074	F21309−0726	213054.320−072610.99	54.8−2613	07.4	46.52	−39.13	583	<.1456	.1897	.3298	<.4603	−0.78	−0.78	$1.771-0.783x$	
2135−102	F21356−1015	213539.172−101526.81	39.5−1531	06.4	44.00	−41.50	391	<.1198	.159	.4604	.5497	−0.80	−0.80	$1.629-0.795x$	
2139+371	21397+3710	213940.688+371032.33	42.9+1009	35.3	86.27	−11.62	362	<.25	<.25	.4348	3.96	−0.87	−0.87	$1.671-0.871x$	
2144−137	F21443−1346	214421.844−134606.75	21.2−4605	09.5	40.99	−44.98	385	<.09741	<.2713	.2896	<.6358	−1.14	−1.14	$2.499-1.137x$	
2148+498	21480+4950	214800.578+495013.83	05.2+5019	45.0	95.70	−2.95	377	<.25	<.25	<.443	3.111	−0.87	−0.87	$1.725-0.873x$	
2149−084	F21497−0824	214947.203−082431.77	47.7−2427	08.8	48.49	−43.67	481	.1151	.635	3.124	3.802	−0.76	−0.76	$1.631-0.764x$	
2152−289	F21527−2856	215244.914−285623.21	43.5−5618	19.3	20.03	−51.35	513	<.09537	<.1614	.2298	<.4386	−0.23	−0.42	$-0.752+0.593x-0.161x^2$	
2154+666	21541+6638	215400.430+663839.28	07.4+3846	42.0	106.85	9.69	427	<.7191	<.25	<.5412	3.601	−0.64	−1.02	$-0.820+0.995x-0.320x^2$	
2158+527	21587+5246	215844.859+524640.45	44.0+4650	12.3	98.84	−1.67	817	<.25	<.25	1.149	10.4	−0.90	−0.90	$2.263-0.902x$	
2200+420	F22006+4202	220039.352+420208.81	38.8+0206	06.8	92.59	−10.44	2399	.1393	.2495	.4029	<1.969	+0.42	+0.23	$-1.690+1.237x-0.160x^2$	BL LAC

Table 1: The list of ITA radio identified sources (continued)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		h m s +° ′ ″	s +′ ″	″	°	°	mJy	Jy	Jy	Jy	Jy				
2203+427	F22032+4246	220320.461+424623.31	16.9+4642	43.4	93.44	−10.15	386	.7255	.2013	<.2779	<1.76	−0.72	−0.72	1.435 − 0.717x	
2204+099	F22045+0959	220433.688+095919.88	34.0+5923	05.6	70.42	−35.38	370	.1955	.769	2.885	4.895	−0.83	−0.83	1.721 − 0.835x	N7212, M+02-56-011, ZG 2204+10 (S2)
2212+511	22121+5111	221208.250+511131.28	11.4+1137	30.2	99.59	−4.16	378	.5231	<.2599	<.4	<6.857	−0.88	−0.67	3.030 − 1.793x + 0.178x^2	*SAO K2
2217−047	F22178−0443	221749.141−044414.34	49.7−4333	42.2	58.33	−47.49	298	.195	<.2326	<.1649	<.595	−0.83	−0.83	1.592 − 0.827x	*SAO K2
2223−052	F22231−0512	222311.438−051212.78	10.0−1224	24.2	58.96	−48.84	2231	<.1136	.2839	.5972	.9332	−0.52	−0.38	3.174 − 1.123x + 0.118x^2	3C 446, (QSO), PKS 2223-05
2225+546	22257+5442	222551.602+544142.47	45.6+4202	55.6	103.23	−2.33	597	<.4344	<.25	.6419	6.182	−0.96	−0.96	2.360 − 0.956x	
2226−184	F22265−1826	222629.648−182606.87	30.2−2616	12.0	40.64	−56.11	198	<.1469	<.2605	.3094	<.7848	−0.75	−0.75	1.222 − 0.751x	
2228+567	22281+5647	222801.883+564737.56	08.4+4745	54.1	104.58	−0.69	241	1.035	.507	<1.985	<17.27				
2230+582	22308+5812	223052.078+581252.98	52.9+1253	06.5	105.63	0.34	330	25.09	175.3	873.7	1038	+1.01	+0.07	−8.292 + 5.122x − 0.803x^2	
2233−187	F22330−1846	223301.938−184652.59	00.4−4649	22.1	41.11	−57.68	259	1.082	.2892	<.1493	<.3252	−0.74	−0.74	1.315 − 0.742x	
2237+360	22377+3601	223741.719+360055.75	44.5+0113	37.9	95.29	−19.44	639	<.2534	<1.013	<.4	1.117	−0.78	−0.78	1.784 − 0.779x	
2237+667	22378+6645	223747.320+664534.09	49.0+4526	12.8	110.55	7.38	461	<.25	<.25	3.539	9.583	−0.68	−0.68	1.551 − 0.675x	
2238+610	22384+6101	223828.070+610128.59	28.1+0126	02.6	107.84	2.31	270	3.555	35.2	48.98	28.76	+0.60	+0.15	−4.542 + 2.613x − 0.392x^2	
2246+313	F22465+3119	224629.094+311939.99	32.9+1917	53.9	94.45	−24.41	515	<.1072	<.0543	.2915	<1.309	−0.87	−0.87	1.947 − 0.871x	Planet.Neb ZG 2246+31
2247+596	22475+5939	224730.234+593904.39	30.9+3903	05.2	108.20	0.58	570	24.96	150.7	832.1	1066	+0.16	+0.05	−0.714 + 0.637x − 0.093x^2	
2256+585	22566+5830	225636.141+583056.81	37.0+3052	08.3	108.76	−0.95	619	23.75	110.5	1186	2228	+0.48	+0.26	0.326 + 0.000x − 6.159e^{-x}	*SAO K2
2259+568	22593+5650	225919.273+565014.97	23.2+5010	32.6	108.39	−2.63	817	3.664	.8818	<.4	<13.64	−0.43	−0.43	1.024 − 0.425x	
2300+086	230110+083410	230044.438+083617.23	44.9+3621	03.0	83.10	−45.47	397	1.185	5.45	26.02	38.21	−0.91	−0.76	3.002 − 1.580x + 0.131x^2	N7469, ZG2300+08 M+01-58-025(26),S1
2303+599	23030+5958	230304.711+595826.80	04.9+5828	01.9	110.11	0.04	349	40.3	258.9	1550	1833	+1.26	+0.47	−7.885 + 4.718x − 0.675x^2	
2307+150	23070+1502	230702.227+150251.63	02.2+0225	26.6	89.66	−40.88	453	<.25	<.5068	<.4	2.105				
2311+387	23115+3845	231137.398+384530.22	34.7+4505	40.4	102.99	−20.04	579	<.25	<.25	<.4	1.504	−0.42	−0.71	−0.868 + 0.878x − 0.253x^2	
2314+038	F23140+0348	231402.297+034855.67	00.8+4851	22.9	83.04	−51.28	17206	<.07238	<.1855	.6015	.7886	−0.92	−0.92	3.538 − 0.921x	3C 459 (Gal), PKS2313+03
2319+047	F23196+0442	231939.523+044236.59	39.8+4241	06.0	85.70	−51.32	207	<.1537	.2205	.4289	<1.082	+0.05	−0.50	−3.835 + 2.418x − 0.463x^2	
2322+149	F23223+1459	232216.961+145946.60	18.2+5959	21.8	93.97	−42.67	206	.1441	<.3392	1.31	4.461	−0.63	−0.63	0.919 − 0.627x	M+02-59-038, ZG 2322+15
2323+637	23233+6346	232313.797+634626.42	18.3+4617	31.3	113.69	2.73	174	.3343	<.5133	<2.391	<23.3				
2323+422	F23234+4215	232329.297+421536.19	28.4+1530	11.7	106.56	−17.60	283	4.134	37.34	36.29	16.16	+0.46	+0.24	−2.907 + 1.426x − 0.188x^2	Planet. Neb.
2323+334	F23236+3327	232332.891+332811.55	36.7+2747	53.6	103.27	−25.84	371	<.113	<.1211	.3598	<7.817	−0.95	−0.95	1.981 − 0.953x	
2325+085	F23254+0830	232524.312+083013.17	24.6+3014	04.4	90.63	−48.79	470	.6724	1.896	5.588	8.146	−0.71	−0.71	1.506 − 0.715x	N7674, ZG 2325+08, M+01-59-080(81,83), MKN 533 (S2)
2332+399	F23320+3957	233207.133+395649.02	05.4+5705	25.5	107.39	−20.32	456	.3534	.08577	<.2283	<1.114	−0.23	−0.87	−3.375 + 2.563x − 0.545x^2	
2338+030	F23389+0300	233856.898+030048.21	57.7+0052	12.6	91.21	−55.21	2563	<.09327	<.3491	1.233	1.171	−1.00	−1.00	3.003 − 0.998x	*SAO A0 PKS2338+03
2345+272	F23456+2713	234545.234+271310.57	41.7+1320	48.1	106.15	−33.31	324	<.07204	.1268	.2838	<.6884	−0.90	−0.90	1.752 − 0.899x	
2348+198	F23488+1949	234852.055+195001.01	52.0+4958	03.1	104.26	−40.57	248	.7262	1.762	18.99	38.43	+0.04	−0.58	−4.200 + 2.765x − 0.532x^2	N7770 (N7771), M+03-60-035(34) ZG 2348+19
2348+235	23489+2330	234855.859+233046.98	55.2+3025	23.8	105.68	−37.06	327	.2872	<.3793	<.4	<1.059				
2349−014	F23493−0126	234922.414−012557.21	20.9−2615	28.8	91.67	−60.36	4404	<.1026	<.2299	.2412	<.5471	−1.05	−0.83	4.597 − 2.006x + 0.187x^2	PKS 2349-01 (S1)
2353+299	F23532+2956	235311.430+295602.64	12.4+5611	15.1	108.87	−31.13	728	<.1516	.4027	.6456	<1.209	−0.82	−0.82	1.946 − 0.825x	ZG 2353+29

Table 2: *ITA objects having inverse spectrum*

TXS name	Flux mJy	α_{365}	α_{1400}	RA(1950) $^{h\ m\ s}$	Dec(1950) $^{\circ\ \prime\ \prime\prime}$	IRAS name	b $^{\circ}$	Identification
B0235+164	1031	0.48	0.31	02 35 52.57	16 24 04.3	F02358+1623	-39.109	AO 0235+164,QSO,X
B0248+430	736	0.20	0.20	02 48 18.50	43 02 56.1	F02483+4302	-14.400	AN 0248+430, QSO
B0420−014	1281	0.18	0.18	04 20 43.57	-01 27 28.3	F04207-0127	-33.139	PKS 0420-01, QSO
B0605−063	602	1.03	0.55	06 05 19.69	-06 22 31.7	F06053-0622	-12.604	X
B0641−010	215	1.07	0.41	06 41 15.56	-01 05 16.5	06412-0105	-2.218	MIN.47 06
B0829+046	671	0.10	0.10	08 29 10.89	04 39 48.4	F08291+0439	24.331	PKS 0829+046, QSO
B0851+202	1134	0.60	0.40	08 51 57.27	20 17 58.9	F08519+2017	35.821	OJ 287, QSO, X
B1404+286	179	2.02	1.11	14 04 45.89	28 41 28.4	F14047+2841	73.250	MKN 668, X
B1639−062	748	0.18	0.18	16 39 21.39	-06 15 42.7	16393-0614	25.013	
B1726−237	562	1.07	0.48	17 26 17.52	-23 43 17.5	17262-2343	5.846	PK002+05.1
B1732+389	468	0.42	0.22	17 32 40.38	38 59 47.2	F17326+3859	31.008	B2 1732+38A, X
B1759−224	546	0.88	0.46	17 59 11.70	-22 27 53.7	17591-2228	0.059	
B1822−132	356	1.38	0.31	18 22 52.85	-13 12 01.3	18228-1312	-0.389	
B1835−055	243	0.69	0.69	18 35 36.27	-05 32 27.1	18355-0532	0.411	
B1840−036	398	0.65	0.65	18 40 38.97	-03 38 40.7	18406-0338	0.173	
B1841−043	374	0.35	0.35	18 41 43.74	-04 20 49.8	18416-0420	-0.389	
B1844−025	770	0.39	0.39	18 44 23.89	-02 31 11.4	18443-0231	-0.138	
B1850+011	924	2.36	0.99	18 50 46.35	01 10 13.3	18507+0110	0.145	
B1859+041	500	0.65	0.65	18 59 23.78	04 08 22.5	18593+0408	-0.397	
B1907+090	1140	0.86	0.86	19 07 52.87	09 01 12.1	19078+0901	-0.000	
B1911+108	801	1.43	1.43	19 11 09.09	10 48 04.7	19111+1048	0.119	
B1922−224	384	0.23	0.11	19 22 40.29	-22 25 32.9	F19226-2225	-17.199	
B2019+373	731	2.90	0.65	20 19 46.25	37 21 31.8	20197+3721	0.401	
B2023+335	1121	0.26	0.37	20 23 12.99	33 33 11.2	20232+3332	-2.367	
B2025+372	999	0.30	0.45	20 25 34.92	37 12 56.8	20255+3712	-0.623	
B2101−115	217	1.13	0.46	21 01 27.52	-11 33 47.7	F21014-1133	-34.571	PKS 2101-115, X
B2200+420	2399	0.42	0.23	22 00 39.35	42 02 08.8	F22006+4202	-10.441	VRO 42.22.01, QSO, X
B2247+596	570	0.24	0.38	22 47 30.24	59 39 04.4	22475+5939	0.580	HII_M
B2256+585	619	0.89	0.28	22 56 36.14	58 30 56.8	22566+5830	-0.949	HII_M
B2303+599	349	1.87	0.64	23 03 04.71	59 58 26.8	23030+5958	0.045	HII_M
B2323+422	283	0.46	0.24	23 23 29.30	42 15 36.2	F23234+4215	-17.600	PK 106-17.1

Table 3: *ITA-objects having ultra steep spectrum*

TXS name	Flux mJy	α_{365}	α_{1400}	RA(1950) h m s	Dec(1950) ° ′ ″	IRAS name	b °	Identification
1	2	3	4	5	6	7	8	9
B0001−130	191	-2.89	-2.89	00 01 47.309	-13 03 33.66	F00017-1304	-71.9072	
B0001−333	338	-1.51	-1.51	00 01 33.608	-33 18 15.95	F00015-3318	-78.1966	
B0003+438	691	-1.00	-1.00	00 03 39.915	+43 48 00.44	00036+4347	-18.0452	
B0003+547	657	-1.15	-1.15	00 03 31.941	+54 45 47.16	00036+5445	-7.2562	
B0031−057	495	-3.32	-3.32	00 31 52.941	-05 43 25.52	F00318-0543	-67.9449	
B0038−019	3769	-1.25	-0.90	00 38 52.622	-01 59 40.96	00388-0159	-64.4794	PKS 0038-019, PGC 2477, QSO
B0050−327	355	-1.14	-1.14	00 50 56.773	-32 44 12.49	F00509-3243	-84.6466	
B0100−326	2749	-1.31	-1.31	01 00 54.479	-32 41 58.37	F01009-3241	-84.108	
B0132+519	270	-3.51	-3.51	01 32 25.861	+51 54 41.45	F01324+5154	-10.1173	
B0145+523	144	-1.49	-1.49	01 45 28.138	+52 23 58.84	01454+5224	-9.2492	
B0148+223	389	-1.03	-1.03	01 48 28.325	+22 20 05.68	F01484+2220	-38.2308	PGC 6844,5ZW 123
B0204+099	398	-1.23	-1.23	02 04 26.369	+09 57 32.8	F02044+0957	-48.4089	
B0207−168	1164	-1.00	-0.99	02 07 13.171	-16 49 24.38	F02072-1649	-69.0662	
B0209+220	437	-1.10	-1.10	02 09 41.615	+22 03 43.94	F02097+2203	-36.8322	
B0221−049	255	-1.15	-1.15	02 21 26.334	-04 54 47.91	02215-0455	-58.5381	PGC 9107, MCG+01-07-007
B0235+072	392	-1.41	-1.41	02 35 50.690	+07 13 30.15	02358+0712	-46.7939	
B0310−303	953	-1.13	-1.13	03 10 34.592	-30 19 52.7	F03105-3020	-58.9893	
B0335+530	441	-1.02	-1.02	03 35 16.644	+03 05 47.06	03351+5301	-39.6722	
B0341+091	542	-1.10	-0.90	03 41 57.354	+09 06 55.27	F03419+0906	-34.4511	
B0346+253	346	-1.16	-1.16	03 46 10.151	+25 22 00.68	03462+2521	-22.1517	
B0354−243	838	-1.21	-1.11	03 54 12.758	-24 23 06.85	F03541-2422	-48.4716	
B0356+121	369	-1.05	-1.05	03 56 05.069	+12 07 26.21	03561+1207	-29.8585	
B0432−255	416	-1.03	-1.03	04 32 47.704	-25 34 43.06	F04328-2534	-40.3224	
B0436−274	610	-1.36	-0.90	04 36 44.936	-27 26 47.63	F04367-2726	-39.9375	
B0442−109	393	-1.05	-1.05	04 42 11.107	-10 57 33.47	04421-1058	-33.0623	
B0446+114	234	-1.16	-1.16	04 46 43.113	+11 27 10.52	F04466+1126	-20.5589	
B0453+272	247	-1.00	-1.00	04 53 27.789	+27 12 12.65	04534+2712	-9.8479	
B0519−054	597	-1.03	-1.03	05 19 14.455	-05 24 36.51	05192-0524	-22.3814	
B0525+145	463	-1.06	-1.06	05 25 54.801	+14 32 29.82	05260+1431	-10.9075	
B0525+156	673	-2.38	-1.11	05 25 59.602	+15 40 17.65	05259+1540	-10.2862	
B0532−033	440	-1.43	-1.43	05 32 56.953	-03 22 49.21	05328-0322	-18.4129	
B0535+223	328	-1.51	-1.51	05 35 29.064	+22 23 38.74	05354+2223	-4.7893	
B0537−253	381	-1.35	-1.35	05 37 48.766	-25 21 24.31	F05378-2520	-26.2503	
B0540+087	588	-1.17	-1.17	05 40 49.971	+08 44 16.4	F05408+0843	-10.7929	
B0540+549	941	-1.07	-1.07	05 40 32.018	+54 58 03.3	F05406+5457	13.1104	
B0557−317	363	-1.21	-1.21	05 57 28.018	-31 44 10.69	05575-3143	-24.2315	
B0558+001	808	-1.05	-0.94	05 58 06.330	+00 06 16.54	F05581+0006	-11.2272	
B0607+023	794	-1.20	-1.20	06 07 22.582	+02 18 05.36	06074+0218	-8.149	
B0616−149	475	-1.24	-1.24	06 16 36.875	-14 59 37.6	F06165-1500	-13.8772	
B0622−090	1065	-1.11	-1.11	06 22 55.201	-09 02 50.29	06229-0903	-9.8996	
B0626+532	650	-1.51	-1.51	06 26 28.184	+53 13 22.34	F06263+5314	18.4476	
B0628−322	444	-1.25	-1.25	06 28 23.178	-32 15 29.19	06284-3214	-18.2439	
B0628+699	664	-0.93	-1.12	06 28 36.855	+69 59 30.05	F06287+6959	23.9186	
B0646+255	521	-1.20	-1.20	06 46 39.572	+25 32 19.49	F06466+2532	10.9657	
B0649−303	257	-1.08	-1.08	06 49 14.211	-30 21 13.77	06492-3021	-13.401	PGC 19728
B0652−057	256	-1.20	-1.20	06 52 20.402	-05 46 18.52	06524-0546	-1.9145	
B0653+587	910	-1.07	-1.07	06 53 56.188	+58 47 37.48	F06540+5847	23.7984	
B0657−109	668	-1.14	-0.96	06 57 07.615	-10 57 36.13	06569-1057	-3.2443	
B0657+080	307	-1.08	-1.08	06 57 11.180	+08 03 21.11	06571+0803	5.5022	
B0710+038	384	-1.15	-1.15	07 10 19.570	+03 50 17.55	07103+0349	6.4949	
B0717+194	2762	-1.19	-1.19	07 17 36.711	+19 29 59.27	F07175+1929	14.9411	OTL 0717+195
B0718−136	233	-1.36	-1.36	07 18 18.400	-13 39 11.28	07181-1337	0.0798	
B0720+412	1008	-0.97	-1.15	07 20 11.494	+41 14 09.8	F07202+4114	23.1993	
B0722−095	6274	-1.09	-1.09	07 22 31.986	-09 33 59.96	07225-0933	2.9322	
B0732−333	588	-1.01	-1.01	07 32 27.510	-33 21 41.02	07323-3321	-6.5058	
B0759+249	571	-1.69	-0.94	07 59 45.338	+24 54 07.53	F07597+2454	26.0055	
B0807+283	885	-1.03	-1.03	08 07 59.879	+28 22 57.11	F08079+2822	28.8617	
B0808−142	338	-1.06	-1.06	08 08 39.895	-14 12 11.15	F08086-1411	10.3856	
B0818−152	520	-1.19	-1.19	08 18 07.141	-15 15 47.86	08180-1516	11.746	
B0851−152	234	-1.13	-1.13	08 51 00.725	-15 12 03.83	F08510-1511	18.3129	
B0854+210	425	-1.38	-0.98	08 54 28.832	+21 00 30.24	F08544+2100	36.6145	PGC 25163
B0856−165	1171	-1.38	-1.04	08 56 25.967	-16 32 38.26	F08564-1633	18.5519	
B0858+092	510	-1.05	-1.07	08 58 55.449	+09 16 43.57	F08589+0916	33.0068	
B0901+147	478	-1.41	-1.06	09 01 48.906	+14 47 36.63	F09018+1447	35.985	MARK 1224, PGC 25476
B0913+007	612	-1.33	-0.98	09 13 34	+00 43 50.65	F09136+0043	31.968	
B0916−050	1064	-1.53	-1.53	09 16 41.871	-05 01 00.5	F09167-0500	29.4115	
B0917+294	453	-1.14	-1.14	09 17 44.344	+29 29 03.39	F09176+2928	43.9154	B2 0917+29
B1023+071	1606	-1.76	-0.98	10 23 25.926	+07 06 26.49	10233+0706	50.0067	
B1036+362	1412	-0.96	-1.13	10 36 00.508	+36 16 53.78	F10360+3616	60.5583	
B1039−272	448	-1.13	-1.13	10 39 53.891	-27 12 00.71	F10399-2712	27.2112	

Table 3: *ITA-objects having ultra steep spectrum (continued)*

1	2 mJy	3	4	5 h m s	6 ° ′ ″	7	8 °	9
B1044−170	1213	-2.00	-1.19	10 44 23.129	-17 02 26.07	F10443-1701	36.2678	
B1100−316	437	-1.27	-1.27	11 00 57.910	-31 41 32.6	F11009-3141	25.548	
B1221+343	314	-1.15	-0.98	12 21 49.945	+34 21 45.76	F12217+3422	80.9248	TXSO 1221+343
B1301+195	360	-1.01	-1.01	13 01 19.336	+19 32 22.35	F13014+1932	81.6483	MSLO ARC 1668
B1315−155	179	-1.05	-1.05	13 15 14.773	-15 33 02.78	13153-1532	46.5802	
B1331+068	1816	-1.05	-1.05	13 31 48.301	+06 49 51.27	F13317+0649	67.0607	
B1340+391	277	-3.15	-3.15	13 40 08.867	+39 11 54.83	F13400+3912	74.1143	TXSO 1340+391
B1418−308	3458	-1.21	-1.21	14 18 58.676	-30 50 46.93	14189-3050	27.9224	
B1433−050	2344	-1.05	-1.05	14 33 11.660	-05 03 09.38	14331-0502	48.9384	
B1443+107	266	-1.04	-1.04	14 43 06.977	+10 44 43.37	S144234+1016	58.4449	
B1459+136	1253	-1.36	-1.36	14 59 15.988	+13 36 36.68	F14592+1336	56.6681	
B1526−307	340	-2.82	-2.82	15 26 53.453	-30 43 01.57	15269-3042	20.7387	
B1549+076	246	-1.01	-1.01	15 49 37.227	+07 40 19.52	F15496+0740	42.9933	
B1603−235	837	-1.20	-1.08	16 03 58.301	-23 30 41.14	F16038-2330	20.6873	
B1651−098	346	-1.15	-1.15	16 51 39.648	-09 48 31.32	F16516-0948	20.4992	PGC 59239
B1655−058	406	-1.01	-1.01	16 55 10.844	-05 53 02.49	16551-0552	21.9383	
B1705−337	768	-1.36	-1.36	17 05 39.926	-33 45 59.25	17054-3346	3.7744	
B1709−257	1173	-1.30	-1.05	17 09 54.816	-25 47 41.15	17098-2547	7.7398	
B1709+243	1126	-2.30	-1.06	17 09 07.621	+24 18 33.37	F17091+2418	32.0717	
B1711−052	421	-1.22	-1.22	17 11 00	-05 17 53.8	17109-0518	18.9112	
B1715−183	582	-1.25	-1.25	17 15 13.285	-18 19 54.38	17153-1819	10.9855	
B1721+135	467	-1.13	-1.13	17 21 37.113	+13 30 33.87	F17216+1330	25.3866	
B1723−282	454	-2.44	-2.44	17 23 55.773	-28 12 57.16	17239-2812	3.7949	
B1727−338	958	-1.19	0.57	17 27 55.488	-33 51 02.71	17279-3350	-0.0526	
B1734−292	507	-1.63	-1.63	17 34 34.008	-29 16 09.53	17346-2915	1.2681	
B1737−287	386	-1.12	-1.12	17 37 31.285	-28 46 42.49	17374-2847	0.9871	
B1739+162	1190	-1.03	-1.03	17 39 11.797	+16 16 41.99	F17391+1617	22.6169	
B1749−240	382	-2.62	-2.62	17 49 36.898	-24 00 19.49	17497-2400	1.1795	
B1750−353	582	-1.03	-1.03	17 50 52.879	-35 21 15.45	17507-3520	-4.8544	
B1801−217	843	-0.31	-1.22	18 01 37.465	-21 47 24.14	18015-2146	-0.0932	
B1802−247	771	-2.17	-2.17	18 02 06.289	-24 46 05.02	18021-2445	-1.6615	
B1810+066	358	-1.00	-1.00	18 10 25.008	+06 41 15.39	18104+0641	11.6154	
B1811+498	201	-1.13	-1.13	18 11 35.465	+49 48 15.69	F18115+4948	26.4	
B1813−263	398	-1.56	-1.56	18 13 00.977	-26 21 19.9	18130-2621	-4.5832	
B1813+217	927	-1.13	-1.13	18 13 08.484	+21 46 56.7	18130+2146	17.4119	
B1817−326	389	-1.23	-1.23	18 17 12	-32 36 45.94	18171-3236	-8.3139	
B1820−049	391	-1.13	-1.13	18 20 52.789	-04 59 22.55	18207-0459	3.9118	
B1822−090	681	-1.39	-1.39	18 22 09.039	-09 04 36.39	18221-0905	1.7118	
B1827+093	830	-1.11	-1.11	18 27 51.227	+09 19 54.12	18279+0920	8.9364	
B1831+130	601	-1.13	-1.13	18 31 12.383	+13 00 27.29	18312+1300	9.8270	
B1840−156	1650	-1.08	-0.92	18 40 36.734	-15 37 36.28	18406-1537	-5.3177	
B1843−030	6780	-1.51	-1.51	18 43 46.203	-03 03 05.89	18437-0302	-0.2446	
B1844+392	322	-1.27	-1.27	18 44 32.758	+39 12 04.8	F18445+3912	17.7123	
B1855+089	292	-1.10	-1.10	18 55 43.695	+08 55 19.12	18557+0855	2.6151	
B1900+143	705	-0.90	-1.25	19 00 02.969	+14 19 03.24	19001+1418	4.1488	
B1907+077	1338	-1.12	-1.12	19 07 52.977	+07 43 34.43	19077+0743	-0.6035	
B1908+374	586	-1.17	-1.02	19 08 57.914	+37 27 53.23	19089+3728	12.6278	
B1922+100	555	-1.06	-0.94	19 22 34.344	+10 04 00.71	19226+1004	-2.7026	
B1929+377	443	-1.07	-1.07	19 29 51.359	+37 43 24.95	19299+3743	9.0357	
B1938+187	423	-1.04	-1.04	19 38 31.953	+18 44 02.44	19384+1843	-1.8623	
B1943−077	449	-1.18	-1.18	19 43 25.727	-07 42 32.28	19432-0742	-15.5878	
B2021+177	420	-1.03	-1.08	20 21 26.922	+17 45 53.57	F20213+1746	-11.0384	
B2026+062	328	-1.19	-1.19	20 26 49.852	+06 14 41.8	F20268+0614	-18.3809	
B2027+145	1154	-1.08	-1.08	20 27 38.352	+14 32 40.06	F20275+1432	-14.0626	
B2033−047	586	-1.07	-1.07	20 33 45.477	-04 47 43.74	F20337-0447	-25.3997	PGC 65054, MCG-01-52-010
B2040+082	527	-1.07	-0.94	20 40 23.758	+08 14 26.84	F20404+0813	-20.1508	
B2115+197	583	-0.95	-1.02	21 15 31.578	+19 47 21.21	21154+1947	-20.0379	
B2123−292	2972	-1.10	-1.10	21 23 43.039	-29 14 08.23	F21237-2913	-45.1483	
B2144−137	385	-1.14	-1.14	21 44 21.844	-13 46 06.75	F21443-1346	-44.976	
B2338+030	2563	-1.00	-1.00	23 38 56.898	+03 00 48.21	F23389+0300	-55.2153	PKS 2338+03

Table 4: *Result of search for optical counterparts within a radius of 10″in CATS optical catalogs*

name	optical counterpats
B0004+080	PGC 516 (15.4), PGC 525 (15.3), MCG+01-01-035, MCG+01-01-036
B0005−262	VV83 PKS 0005-262 (20)
B0045−255	NGC 253 (7.34), PGC 2789
B0046+316	NGC 262, MCG+05-03-008 , MKN 348, PGC 2855 (14.3), QSO1
B0055+300	NGC 313, NGC 315, NGC 316, PGC 3455 (12.2)
B0104+321	NGC 383, PGC 3981 (14.6), VV83 3C 31, PGC 3982
B0105−177	PGC 4007 (14.5)
B0121+035	NGC 520, PGC 5193 (12.2), MCG+01-04-052, QSO2
B0131−296	NGC 613, PGC 5849 (10.7)
B0134+329	VV83 3C 48 (16.2), QSO2
B0140+133	NGC 660, PGC 6318 (11.7)
B0148+223	NGC 695, PGC 6844 (13.9)
B0149+359	MCG+06-05-029, MCG+06-05-031, PGC 6957 (14.3)
B0200−127	VV83 PKS 0200-127 (18.5)
B0207+389	NGC 828, MCG+06-05-092, PGC 8283 (13.1)
B0226−038	VV8Q PKS 0226-038 (17.5)
B0235+164	VV83 AO 0235+164 (19), QSO2
B0238+593	PGC 10217 (14.5)
B0238−084	NGC 1052, PGC 10175 (11.4)
B0240−002	M77, NGC 1068, VV83 3C 71, PGC 10266 (9.7)
B0241+622	VV83 4U 0241+61 (16.7), QSO1
B0243+128	PGC 10486 (14.8)
B0244−304	NGC 1097, PGC 10488 (10.3), VV83 PKS 0244-304 (10.6)
B0247+414	PGC 10792 (13.5)
B0248+430	VV83 0248+43 (15.5)
B0252−003	PGC 11007 (14.1), NGC 1144, MCG+00-08-047, PGC 11012 (13.8), QSO1
B0256+366	MCG+06-07-027, MKN 1066, PGC 11341 (13.7), QSO1
B0300+470	VV83 (18), QSO2, VV8BL 4C 47.08
B0313+411	VV83 (14.3), PGC 12171 (14)
B0313−026	PGC 12131 (13.5)
B0316+413	MKN 1505 (12.4), VV83 3C 84 (13.2), NGC 1275, PGC 12429 (12.7), QSO1
B0326−288	VV83 PKS 0326-288 (17.5)
B0338−214	VV83 PKS 0338-214 (18)
B0339−186	MCG-03-10-037, PGC 13589 (14.8)
B0345+699	MCG+12-04-006, PGC 13943 (15.1)
B0352−206	NGC 1482, PGC 14084 (13.1)
B0404+035	VV83 3C 105
B0409+054	MCG+01-11-013, PGC 14651 (15.4)
B0418+236	VV83 (20)
B0420−014	VV83 PKS 0420-01 (18), QSO2

Table 4: *Result of search for optical counterparts within a radius of 10″in CATS optical catalogs (continued)*

name	optical counterpats
B0430+052	MKN 1506 (14.3), PGC 15504 (15), VV83 3C 120, QSO1
B0456+270	VV83 B2 0456+27 (18)
B0502−103	VV83 PKS 0502-10 (15.4), QSO1
B0531+219	3C 144
B0537+356	HII_M, PNESO 173.7+02.7
B0541+586	UCGC 03351
B0549−074	NGC 2110, PGC 18030 (13.2), QSO1
B0551+464	PGC 18078 (14.9), UGC 03374 (13.9), QSO1
B0557+653	MCG+11-08-008, PGC 18312 (14.3)
B0609+710	MKN 3 (13.8), PGC 18722 (13.9), QSO1
B0648+275	VV83 B2 0648+27 (14.9)
B0649−303	PGC 19728 (15)
B0656+330	VV83 B2 0656+33 (16.5)
B0716+714	VV83 (11), QSO2
B0717+194	VV83 OTL 0717+195 (18)
B0722+300	VV83 B2 0722+30 (15.6), QSO1
B0722−095	NGC 2377, PGC 20948 (13.5), VV83 3C 178, QSO1
B0735+178	VV83 PKS 0735+17 (16.5), QSO2
B0746−261	PGC 21863 (15.3)
B0754+100	VV83 PKS 0754+100 (16.5), QSO2
B0801+052	MKN 1210, MCG+01-21-009, PGC 22641 (14.4)
B0806−103	VV83 3C 195 (18.8)
B0816−253	PGC 23303 (11.8)
B0825−202	VV83 PKS 0825-20 (18)
B0829+046	VV83 PKS 0829+046 (18), QSO2
B0836+299	PGC 24369 (15.5), VV83 B2 0836+29B (14), QSO1
B0840+503	NGC 2639, MCG+08-16-024, PGC 24506 (12.6), QSO1
B0840+184	MCG+03-22-024, PGC 24485 (15.2)
B0851+202	VV83 (14.5), QSO2 (20)
B0901+147	MKN 1224, PGC 25476 (14.6)
B0910+403	NGC 2782, PGC 26034 (12.3)
B0943−140	NGC 2992, PGC 27982 (13.1), QSO1
B0944+045	VV83 (16.5)
B0947+248	VV83 B2 0947+24
B0951+699	M82, NGC 3034, PGC 28655 (9.2), VV83 3C 231, QSO2
B0958+559	NGC 3079, PGC 29050 (11.5)
B0958+290	VV83 3C 234 (17.5), QSO1
B1001−062	MCG-01-26-014, PGC 29192 (13.5)
B1030+161	MCG+03-27-060, PGC 31159 (14.4)
B1056−023	LCRS B1056-0219 (16.97)
B1100+282	NGC 3504, MCG+05-26-039, PGC 33371 (11.7), VV83 B2 1100+28 (11.8)
B1117+138	NGC 3628 (9), PGC 34697 (10.4),

Table 4: *Result of search for optical counterparts within a radius of 10″ in CATS optical catalogs (continued)*

name	optical counterpats
	MCG+02-29-020 (V=11.5)
B1125+588	NGC 3690, MKN 171, PGC 35321 (12), PGC 35325, PGC 35326 (12.1), MCG+10-17-002 (V=16), MCG+10-17-003 (V=11.8)
B1127+005	VV83 PKS 1127+005 (20.6)
B1149+487	NGC 3932, MCG+08-22-023, PGC 37194 (15)
B1203+529	NGC 4102, MCG+09-20-094 (V=11.8), PGC 38392
B1211+548	NGC 4194, MKN 201, PGC 39068 (13)
B1216+507	VV83 4CP 50.33A (16)
B1217+295	NGC 4278, PGC 39764 (11.1), VV83 B2 1217+29
B1223+129	NGC 4388, MCG+02-32-041, PGC 40581 (11.8)
B1226+023	VV83 3C 273 (13), PGC 41121, QSO2
B1231+024	NGC 4536, PGC 41823 (11.1)
B1237+224	VV83 PKS 1237+224 (1)
B1244−255	VV83 PKS 1244-255 (18), QSO2
B1253−055	VV83 3C 279 (16.8), QSO2
B1254+571	MKN 231, PGC 44117 (14.3), QSO1
B1305−241	PGC 45566, QSO1, VV83 PKS 1306-241 (16),
B1308+326	VV83 B2 1308+32 (19), QSO2
B1308+373	NGC 5005, MCG+06-29-052, PGC 45749 (10.6), VV83 B2 1308+37
B1309+210	VV83 PKS 1309+21 (15.5)
B1317−271	NGC 5078, MCG-04-32-001 (V=12.5), PGC 46490 (11.7)
B1317−168	PGC 46510 (14.8), PGC 46511 (14.5)
B1319−164	MCG-03-34-063, QSO1, PGC 46710 (14.5)
B1322−295	MCG-05-32-013, NGC 5135, PGC 46974 (12.8), QSO1
B1327−206	PGC 47430 (14.6), QSO1, VV83 PKS 1327-206 (16.9)
B1334−296	M83, NGC 5236, PGC 48082 (8), MCG-05-32-050 (V=8.4), VV83 PKS 1334-29
B1336+485	NGC 5256, MCG+08-25-031 (V=14.1), MKN 266, PGC 48192 (13.9), VV83, QSO1
B1342+561	MCG+09-23-004 (V=15), MKN 273, PGC 48711 (15.1), QSO1
B1345+125	PGC 48898, QSO1, VV83 PKS 1345+12 (17)
B1350+316	PGC 49258 (15.3), VV83 3C 293 (15.6, 12.2)
B1353+186	MCG+03-36-005 (V=14.8), MKN 463, PGC 49538 (14.7), QSO1,

Table 4: *Result of search for optical counterparts within a radius of 10″ in CATS optical catalogs (continued)*

name	optical counterpats
	VV83 PKS 1353+18 (16)
B1404+286	MKN 668, PGC 50352 (16), VV83
B1410−029	NGC 5506, MCG+00-36-028 (V=13.6), MKN 1376, PGC 50782 (12.8), QSO1
B1411+078	NGC 5514, MCG+01-36-023 (V=14.5), PGC 50809 (14.1)
B1411+034	PGC 50845 (15.2)
B1418+546	VV83 (14.5), QSO2, BL
B1435+304	VV83 B2 1435+30
B1448+169	PGC 52984 (15.2), VV83 (13)
B1448+634	PGC 52924 (14.5), QSO1, VV83 3C 305 (16)
B1449+164	PGC 53079, PGC 53082
B1451+037	NGC 5775, MCG+01-38-014 (V=13), PGC 53247 (12.5)
B1500+423	UGC 09671 (15.6)
B1506+345	PGC 54033 (15.6), MCG+06-33-022 (V=15.6), VV83 B2 1506+34A (15)
B1512+045	PGC 54448 (16.3)
B1515+340	VV83 B2 1515+34A (15)
B1530−085	MCG-01-40-001 (V=13.5), PGC 55410 (15.3), QSO1 1530-085 (15.7)
B1532+236	MCG+04-37-005 (V=14.4), PGC 55497 (14)
B1546−292	NGC 6000, PGC 56145 (13)
B1615−201	VV83
B1641+399	VV83 3C 345 (16.3), QSO2
B1643+022	VV83 PKS 1643+022 (16.5, 18)
B1650+024	NGC 6240, MCG+00-43-004 (V=14.7), PGC 59186 (13.8)
B1651−098	PGC 59239
B1657+590	MCG+10-24-084 (V=14.2), PGC 59352 (14.1)
B1726−237	NGC 6369 (13), PK002+05.1 (10.4), PNESO
B1732+389	VV83 B2 1732+38A (19), QSO2
B1753+183	NGC 6500, MCG+03-46-003 (V=13.4), PGC 61123 (13.1)
B1807+698	MCG+12-17-000 (V=14.4), VV83 3C 371 (14.2), QSO2
B1814+426	MCG+07-37-030 (V=15.9), MCG+07-37-031 (V=16.1), PGC 61664 (15.9)
B1833+326	PGC 62082 (15.6), QSO1, VV83 3C 382 (14.5, 15.5)
B1907+508	NGC 6764, MCG+08-35-003 (V=13.2), PGC 62806 (12.7)
B1949+023	PGC 63758, VV83 3C 403 (14.5), QSO1
B2024+154	VV83 PKS 2024+154 (19.5)

Table 4: *Result of search for optical counterparts within a radius of 10″in CATS optical catalogs (continued)*

name	optical counterpats
B2025+372	HII_S 106
B2033−047	MCG-01-52-010 (V=13.5), PGC 65054 (13.5)
B2101−115	NGC 7009, PK037-34.1 (8.9), PNESO 037.7-34.5, VV83 PKS 2101-115 (8.4)
B2149−084	VV83 (14)
B2200+420	VV83 (14, 15), QSO2, BL LAC
B2204+099	NGC 7212, PGC 68065 (14.9), QSO1
B2223−052	VV83 3C 446 (16.9, 18.4), QSO2
B2230+582	HII_S 138
B2238+610	NGC 7354, PK107+02.1 (12.9), PNESO 107.8+02.3
B2247+596	HII_S 146
B2256+585	HII_S 152
B2300+086	NGC 7469, MKN 1514, PGC 70348 (12.9), QSO1 (13.15)
B2303+599	NGC 1470, HII_S 156
B2314+038	PGC 70899, QSO1, 3C 459
B2319+047	ZCG 2319+04 (15.9)
B2322+149	MCG+02-59-038, PGC 71370 (13.4)
B2323+422	NGC 7662, PK106-17.1 (9.2), PNESO 106.5-17.6
B2325+085	NGC 7674, MCG+01-59-080 (V=14), MCG+01-59-081 (V=16), MKN 533, PGC 71504 (13.9), PGC 71505 (15.4), QSO1
B2338+030	VV83 PKS 2338+03 (20.2)
B2348+198	NGC 7770,7771, PGC 72635 (14.5), PGC 72638 (13)
B2349−014	PGC 72664, QSO1, QSO2, VV83 PKS 2349-01 (16, 17.5)
B2353+299	ZWG 499.010 (15.2), PGC 72893 (15.1)

Table 5: *Result of search for X-ray counterparts within a radius of 60″in CATS optical catalogs*

name	X-ray counterpats
B0045−255	ENOBS, RXJ004733-2517.3
B0046+316	1WGA J0048.7+3157, RXJ004847+3157.2, ENOBS
B0055+300	1WGA J0057.8+3021, RXJ005748+3021.2, ENOBS
B0104+321	EXSS, EIN2S
B0106+612	ENOBS
B0121+035	1WGA J0124.5+0347, RXJ012434+0347.6, ENOBS
B0134+329	1WGA J0137.6+3309, RXJ013741+3309.6, ENOBS
B0140+133	1WGA J0143.0+1338, RXJ014302+1338.6
B0226−038	ENOBS, EIN2S
B0235+164	1WGA J0238.6+1637, RXJ023838+1637.1, ENOBS

Table 5: *Result of search for X-ray counterparts within a radius of 60″in CATS optical catalogs (continued)*

name	X-ray counterpats
B0238−084	1WGA J0241.0-0814, RXJ024104-0815.2, ENOBS
B0240−002	1WGA J0242.6-0000, RXJ024240-0000.7, EIN2S
B0241+622	ENHRI, ENOBS
B0244−304	1WGA J0246.3-3016, RXJ024619-3016.4, EIN2S
B0252−003	1WGA J0255.1-0010, RXJ025511-0010.7
B0313+411	1WGA J0316.7+4119, RXJ031641+4119.4, ENOBS
B0313−026	1WGA J0315.9-0225
B0316+413	RXJ031945+4130.7, ENOBS
B0338−214	ENOBS, EIN2S
B0420−014	ENOBS, EIN2S
B0430+052	1WGA J0433.1+0521, RXJ043311+0521.2, ENOBS
B0531+219	ENSNR Crab
B0549−074	ENHRI, EIN2S
B0551+464	EIN2S
B0605−063	1WGA J0607.8-0622, RXJ060747-0623.9
B0609+710	1WGA J0615.5+7102, RXJ061535+7102.1, EIN2S
B0716+714	1WGA J0721.8+7120, RXJ072152+7120.4, EIN2S
B0735+178	1WGA J0738.1+1742, RXJ073807+1742.4, EIN2S
B0754+100	EIN2S
B0829+046	EIN2S
B0835+645	1WGA J0840.1+6419, RXJ084006+6419.7
B0840+503	1WGA J0843.6+5012, RXJ084338+5012.1
B0851+202	1WGA J0854.8+2006, RXJ085448+2006.4, EIN2S
B0910+403	EIN2S
B0943−140	1WGA J0945.6-1419, RXJ094541-1419.6, EIN2S
B0951+699	1WGA J0955.8+6940, RXJ095550+6940.4, EIN2S
B0958+559	1WGA J1001.9+5539, RXJ100159+5541.0, EIN2S
B0958+290	ENQSO
B1100+282	EIN2S
B1117+138	1WGA J1120.2+1335, RXJ112015+1335.6, EIN2S
B1125+588	1WGA J1128.5+5833, RXJ112831+5833.7
B1217+295	1WGA J1220.1+2916, RXJ122007+2916.7
B1223+129	RXJ122546+1239.7

Table 5: *Result of search for X-ray counterparts within a radius of 60″in CATS optical catalogs (continued)*

name	X-ray counterpats
B1226+023	1WGA J1229.1+0202, RXJ122906+0203.0, ENHRI
B1231+024	EIN2S
B1253−055	1WGA J1256.1-0547, RXJ125611-0547.3, EIN2S
B1254+571	RXJ125613+5652.2
B1308+326	1WGA J1310.4+3220, RXJ131028+3220.6, EIN2S
B1308+373	1WGA J1310.9+3703, RXJ131056+3703.3
B1322−295	1WGA J1325.7-2950, RXJ132543-2950.1
B1334−296	1WGA J1337.0-2952, RXJ133700-2952.0, ENHRI
B1336+485	1WGA J1338.3+4816, RXJ133818+4816.6
B1342+561	1WGA J1344.6+5553, RXJ134441+5553.0
B1345+125	1WGA J1347.5+1217, RXJ134732+1217.2
B1350+316	EIN2S
B1353+186	1WGA J1356.0+1822, RXJ135603+1822.2, EIN2S
B1404+286	1WGA J1406.9+2827
B1410−029	1WGA J1413.2-0312, RXJ141315-0312.3, EIN2S
B1418+546	RXJ141946+5423.0, EIN2S
B1448+634	EIN2S
B1530−085	EIN2S
B1532+236	1WGA J1534.9+2330

Table 5: *Result of search for X-ray counterparts within a radius of 60″in CATS optical catalogs (continued)*

name	X-ray counterpats
B1632−281	1WGA J1635.8-2812, RXJ163552-2813.0
B1641+399	1WGA J1642.9+3948, RXJ164258+3948.6, ENHRI
B1650+024	1WGA J1652.9+0224, RXJ165259+0224.1
B1732+389	1WGA J1734.3+3857, RXJ173420+3857.7
B1737−080	EIN2S
B1802+025	E_sl
B1807+698	1WGA J1806.8+6949, RXJ180649+6949.5, EIN2S
B1830−210	RXJ183339-2103.7
B1833+326	ENHRI, EIN2S
B2002+335	RXJ200422+3339.0
B2023+335	1WGA J2025.1+3343, RXJ202510+3342.9
B2101−115	1WGA J2104.1-1121, RXJ210410-1121.8
B2200+420	1WGA J2202.7+4216, RXJ220243+4216.6, EIN2S
B2223−052	1WGA J2225.7-0456, RXJ222547-0456.9, EIN2S
B2300+086	1WGA J2303.2+0852, RXJ230315+0852.5, ENHRI
B2325+085	1WGA J2327.9+0846, RXJ232757+0846.7
B2348+198	1WGA J2351.4+2006, RXJ235124+2006.7, EIN2S
B2349−014	EIN2S