National Space Science Data Center/
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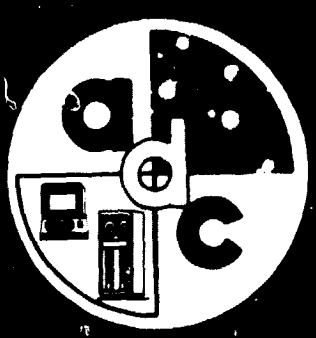
83-12



NSSDC/WDC-A-R&S 83-12

DOCUMENTATION FOR THE MACHINE-READABLE VERSION

OF

A CATALOGUE OF EXTRAGALACTIC RADIO SOURCE IDENTIFICATIONS

(VÉRON-CETTY AND VÉRON 1983)

Wayne H. Warren Jr.

November 1983

National Space Science Data Center (NSSDC)/
World Data Center A for Rockets and Satellites (WDC-A-R&S)
National Aeronautics and Space Administration
Goddard Space Flight Center
Greenbelt, Maryland 20771

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ABSTRACT

Detailed descriptions of the data and reference files of the updated and final version of the machine-readable catalog are given. The computerized catalog has greatly expanded since the original published version (1974), and additional information is given. A separate reference file contains bibliographical citations ordered simultaneously by numerical reference and alphabetically by author.

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LIST OF TABLES

Table

SECTION 1 - INTRODUCTION AND SOURCE REFERENCE

A Catalogue of extragalactic radio source identifications (1983) is a compilation of all published optical identifications of extragalactic radio sources. The present machine-readable catalog is an updated and greatly expanded version of the original published one (Véron and Véron 1974) and contains 14585 identifications and citations to 917 papers. Completeness has been attempted for all papers published through the end of 1982. The present version includes fewer references than the 1974 version (which had 935) because certain numbers were free in the previous edition and because certain references are no longer used in the 1983 version and were removed. The authors have prepared this final version and have discontinued future updates.

This document describes the machine-readable catalog as it is currently being distributed by the Astronomical Data Center. It is intended to enable users to read and process the data without problems and guesswork. A copy of this document should be transmitted to anyone receiving a copy of the machine version originally obtained from the Astronomical Data Center.

SOURCE REFERENCE

Véron-Cetty, M. P. and Véron, P. 1983, *Astron. Astrophys. Suppl.* 53, 219.

SECTION 2 - TAPE CONTENTS

Byte-by-byte descriptions of the contents of the machine-readable extragalactic radio source identification catalog files are given in Tables 1 and 2. The suggested format specifications are for FORTRAN formatted read statements and can be modified depending upon individual programming and processing requirements. Default values are always blanks where the primary suggested format is A (character), but they are indicated where numerical format specifications are suggested. If a numerical format default value is not given, then the field was found to always contain a numerical data value. Alternate format specifications are given in parentheses.

Table 1. Tape Contents. *A Catalogue of extragalactic radio source identifications*. Data File.

Byte(s)	Units	Suggested Format	Default Value	Description
1-12	---	12A1 (3A4)	---	Identification of the source. The most common name is used. Abbreviations and references for the radio designations are given in Table 2 of the source reference.
13-18	---	F6.2 (A6)	blank	Identification number of the source in the *Fourth Cambridge Radio Survey Catalogue* (4C) (Pilkington and Scott 1965; Gower, Scott and Wills 1967).
19	---	1X	---	Blank
20-21	hours	I2	---	Right ascension, α, equinox 1950.0. The position given in the source publication is generally used without any attempt to report the best available position; therefore, the positions can differ for the same source as taken from various references.
22	---	1X	---	Blank
23-24	min	I2	---	α
25	---	1X	---	Blank
26-29	sec	F4.1 (A4)	blank	α

Table 1. (continued)

Byte(s)	Units	Suggested Format	Default Value	Description
30	---	A1	---	Sign of declination, δ, equinox 1950.0
31-32	°	I2	---	δ
33	---	1X	---	Blank
34-35	'	I2 (A2)	blank	δ
36	---	1X	---	Blank
37-38	"	I2 (A2)	blank	δ
39	---	1X	---	Blank
40-44	mag	F5.2 (A5)	blank	Magnitude estimate for the identification of the source as given in the reference. Data are inhomogeneous and generally only rough estimates; hence, caution is advised in their use. Magnitudes are reported to varying precision; thus, bytes 43-44 or only 44 are often blank when the whole field contains a datum.
45	---	1X	---	Blank
46-47	---	A2	---	Letter code indicating the nature of the proposed identification. The codes are defined in Table 3. When this field is blank, a finding chart has been published, but no identification proposed.
48	---	1X	---	Blank
49-51	---	I3 (A3)	---	Reference for the identification, as cited in the reference file of the catalog.
52-61	---	A10 (10A1)	---	Optical name for the identification.

Table 1. (continued)

Byte(s)	Units	Suggested Format	Default Value	Description
62-63	---	A2	---	Code for confirmation or invalidation of the identification: * : subsequent spectrum showed that proposed identification is a star. Q : subsequent spectrum showed that proposed identification is really a QSO (quasar). W : identification was discarded on the basis of a better radio or optical position. OK: identification was confirmed by means of accurate radio and optical positions; or, in the case of a quasar, by measuring its *UBV* color photoelectrically. EF: proposed identification was discarded and the field shown to be empty, or the preceding classification as an empty field was confirmed. OF: proposed identification was discarded and the field shown to be obscured.
64-66	---	I3	blank	Reference for the information in bytes 62-63.
67	---	I1	blank	If several finding charts have been published for the same source, and *if* these identifications are not confirmed, a running number for each proposed identification is given; if two charts have the same number in this field, then the two proposed identifications are identical.

Table 1. (concluded)

Byte(s)	Units	Suggested Format	Default Value	Description
68	---	I1	blank	Code for additions made to the catalog (blank if in original published catalog; 1, 2,... if added in 1974, 1975, ...).
69-73	---	A5	---	Redshift of the identification. OK indicates that the spectrum is continuous. Other characters (e.g. *?, *, Q) can appear in this field. Redshift values are reported to varying precision.
74-76	---	I3	blank	Reference for the spectrum. If this field is not blank when the redshift field (bytes 69-73) is, then the spectrum is inconclusive.
77	---	A1	---	An asterisk (*) is present when bytes 46-47 contain "EF" and there is no published finding chart.
78-80	---	3X	---	Blank

Table 2. Tape Contents. *A Catalogue of extragalactic radio source identifications*, Reference File.

Byte(s)	Description
1- 3	Reference number cited in the data file, or blank.
4	Asterisk (*) if reference continued from previous record; otherwise blank.
5-80	Reference or reference continuation.

The bibliography is ordered by reference number and, simultaneously, alphabetically by author, i.e. the reference numbers were assigned after alphabetical ordering. Since the bibliography contains a number of references without citation numbers, bytes 1-3 are frequently blank, and the reference list cannot be sorted by number to retrieve the original order.

Table 3. Codes for Nature of the Proposed Identification

Code	Type of Object
B	Appears only for reference 319: should be interpreted as Q.
EF	Empty field.
G	Galaxy. The type has not been retained, even if suggested in the reference.
H2	H II region.
OF	Obscured field
Q	Quasi-stellar object. Includes all related suggested identifications, such as quasars, stellar object, neutral object,....

Abbreviations used in the catalog for optical and radio designations are given in Tables I and II of Véron-Cetty and Véron (1983) but are repeated here in Tables 4 and 5 for convenience. The references cited are given in the machine-readable file.

Table 4. Abbreviations and References for the Optical Designations

Abbreviation(s)	Reference(s)
A	Abell's clusters of galaxies (Abell 1958).
M	Messier Catalogue.
NGC, IC	Dreyer (1888, 1895, and 1908).
VV	Vorontsov-Velyaminov (1959).
ZW, ZW, CL	Zwicky *et al.* (1961).
AKN	Arakelian (1975).
B	Braccesi *et al.* (1970).
LB	Luyten blue star (Luyten 1962).
MARK	Markarian (1967, 1969a and b); Markarian and Lipovetski (1971, 1972, 1973, 1974, 1976a and b); Markarian *et al.* (1977a and b, 1979a and b, 1981).
PB	Berger and Fringant (1977, 1980).
PG	Schmidt and Green (1983).
PHL	Palomar Haro-Luyten Object (Haro and Luyten 1962).
POX	Kunth *et al.* (1981).
TON	Iriarte and Chavira (1957); Chavira (1958 and 1959).

Table 5. Abbreviations and References for the Radio Designations

Abbreviation(s)	Reference(s)
AO	Arecibo Occultation (Hazard *et al.* 1967; Hazard *et al.* 1968; Gulkis *et al.* 1969; Lang *et al.* 1970).
BDA	Blum and Davis (1968).
B1	Braccesi *et al.* (1965).
B2	The B2 Catalogue of radio sources (Colla *et al.* 1970, 1972 and 1973).
CTA	CalTech list A (Harris and Roberts 1960).
CTD	CalTech list D (Kellermann and Read 1965).
DA	Galt and Kennedy (1968).
DW	Davis (1967)
GC	Browne *et al.* (1973).
MSH	Mills *et al.* (1958, 1960, and 1961).
NB	Branson (1967).
NRAO	Pauliny-Toth *et al.* (1966).
O	Ohio catalogue of radio sources (Scheer and Kraus 1967; Dixon and Kraus 1968; Fitch *et al.* 1969; Ehman *et al.* 1970; Brundage *et al.* 1971; Kraus and Andrew 1971).
OTL	Ooty radio sources (Kapahi *et al.* 1973a and b).
PKS	Parkes catalogue of radio sources (CSIRO Staff 1969; Wall *et al.* 1971).

Table 5. (continued)

Abbreviation(s)	Reference(s)
RN	Ryle and Neville (1962).
VRO	Vermilion River Observatory catalogue of radio sources (McLeod *et al.* 1965; Dickel *et al.* 1967; Wendker *et al.* 1970; Dickel *et al.* 1971).
WK	Windram and Kenderdine (1969).
WKB	Williams *et al.*(1966).
3C	Third Catalogue of Cambridge (Edge *et al.* 1959; Bennet 1962; Windram amd Kenderdine 1969).
4C	Fourth Catalogue of Cambridge (Pilkington and Scott 1965; Gower *et al.* 1967; Caswell and Crowther 1969).
5C	Fifth Cambridge Catalogue (Pooley and Kenderdine 1968; Pooley 1969; Wilson 1970).

Note to Table 5

Some sources appear with a Parkes-like number without any catalog number. They come from: Hoskins *et al.* (1972); Fanti *et al.* (1973); Baldwin *et al.* (1973); Douglas *et al.* (1973), Ghigo and Owen (1973); Sharp and Bash (1975).

SECTION 3 - TAPE CHARACTERISTICS

The information contained in Table 6 is sufficient for a user to describe the indigenous characteristics of the catalog files to a computer. Information easily varied from installation to installation, such as block size (physical record length), blocking factor (number of logical records per physical record), total number of blocks, tape density, and internal coding (EBCDIC, ASCII, etc.) is not included. These parameters should always be transmitted if secondary copies of the catalog are supplied to other users or installations. Parameters relating to the two files of the catalog are separated by commas.

Table 6. Tape Characteristics. *A Catalogue of extragalactic radio source identifications.*

NUMBER OF FILES	2
LOGICAL RECORD LENGTH	80, 80
RECORD FORMAT	FB*
TOTAL NUMBER OF LOGICAL RECORDS	14585, 1244

* Fixed block length (last block may be short)

SECTION 4 - REMARKS, MODIFICATIONS, ACKNOWLEDGMENTS AND REFERENCES

The machine-readable file A *Catalogue of extragalactic radio source identifications* was received on magnetic tape on 1 November 1983 from Dr. M. P. Véron-Cetty. As received, the data were contained in one file with a "997" record separating the references and data, and a "FIN" record delimiting the file. The following modifications were made in order to effect uniformity with other computerized catalogs and to make the data easier to process and search by computer.

1. The data and references were separated and placed into individual files, while the "FIN" record and "997" record were removed.

2. Plus signs were added to positive 4C numbers and δ° fields (previously blank).

The data file was left as originally ordered: by increasing right ascension.

ACKNOWLEDGMENTS

Appreciation is expressed to L. S. Fischer for supplying a preliminary version of the catalog on magnetic tape and to M. P. Véron-Cetty for supplying a magnetic tape of the final version, for thoroughly reviewing a draft copy of this document and making many valuable comments, and for supplying new code definitions for codes which had been added since the 1974 version.

REFERENCES

Gower, J. F. R., Scott, P. F. and Wills, D. 1967, *Mem. Roy. Astron. Soc.* 71, 49.

Pilkington, J. D. H. and Scott, P. F. 1965, *Mem. Roy. Astron. Soc.* 69, 183.

Véron, M. P. and Véron, P. 1974, *Astron. Astrophys. Suppl.* 18, 229.

Véron-Cetty, M. P. and Véron, P. 1983, *Astron. Astrophys. Suppl.* 53, 219.

SECTION 5 - SAMPLE LISTING

The sample listing given on the following pages contains logical data records exactly as they are recorded on the tape. Groups of records from the beginning and end of each file of the catalog are illustrated. The beginning of each record and bytes within the record are indicated by the column heading index across the top of each page (digits read vertically).

LISTING OF RECORDS FROM TAPE FILE

TAPE FILE NAME: extragal radio srcs data
RECORDS 1 TO 30
TAPE FILE 63
RECORD LENGTH 80 BYTES
INPUT VOLSER ADC007

```
COLUMN
HEADING                  1111111111222222222233333333334444444444555555555566666666667777777777888888888899999999990000000000111111
INDEX           1234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345

RECORD     1 0000+304            0  0 17.9+30 27  0        EP 146            0 6      0*
RECORD     2 PKS 0000-006        0  0 23.4- 0 41 29 20.0   Q  217            0 3      0
RECORD     3 OB-001              0  0 28.0- 6 43 37 18.    Q  841PdL 2569    0 2      0
RECORD     4 0000-398            0  0 30.0-39 49  0 18.0   Q  717Q 0000-398Q 717 32.827554
RECORD     5 0000-398            0  0 30.0-39 49  0 18.0   Q  291Q 0000-398Q 717 42.827554
RECORD     6 0000-398            0  0 31.0-39 49  0 19.0   Q  553Q 0000-398Q 717 82.827554
RECORD     7 PKS 0000-550        0  0 36.2-55  1 55 14.    G  828            0 1      0
RECORD     8 0000+110            0  0 43.7+10 59 18 14.    Q   74          *  74      0
RECORD     9 PKS 0000-17         0  0 48.0-17 43 54 17.80  G  123          * 6841     0
RECORD    10 PKS 0000-17         0  0 48.5-17 43 56 19.0   Q  373          Q 373251.465373
RECORD    11 PKS 0000-160        0  0 53.7-16  3 48        EP 220          EP220 5    0*
RECORD    12                     0  0 54.1-42 44  4 19.5   Q  3570000-427  Q 357 41.70 803
RECORD    13                     0  0 56.0-42 39 14 20.0   Q  3570000-426  Q 357 42.19 552
RECORD    14 0001+034            0  1  1.0+ 3 29 36 20.0   G  146            0 6      0
RECORD    15 0001+128            0  1  7.1+12 49 54        EP 146            0 6      0*
RECORD    16                     0  1 17.8-42 27 50 19.0   Q  3570001-424A Q 357 42.24 552
RECORD    17                     0  1 23.5-42 56 10 18.5   Q  3570001-429A Q 357 42.03 552
RECORD    18 PKS 0001-121        0  1 24.0-12  6 36        EP 220          EP220 5    0*
RECORD    19 OTL 0001+058+05.01  0  1 27.0+ 5 50 49        EP 295          OK295 4    0*
RECORD    20 OTL 0001+058+05.01  0  1 27.6+ 5 50 49        EP 804          OK295 6    0*
RECORD    21 PKS 0001-233        0  1 32.6-23 23 24 18.0   G  668            0 3      0
RECORD    22 PKS 0001-531        0  1 42.1-53 11 33 14.5   G  658            0 2      0
RECORD    23                     0  1 42.8-42 25 52 20.0   Q  3570001-424B Q 357 41.30 552
RECORD    24                     0  1 56.9-42 55 13 18.5   Q  3570001-429B Q 357 42.04 552
RECORD    25                     0  2  1.0-43 16 30 19.5   Q  3570002-432  Q 357 41.84 552
RECORD    25 PKS 0002-478        0  2  3.1-47 53  6 19.0   Q  665            0 3      0
RECORD    27                     0  2  8.4-38 47 41 19.9   Q  558Q 0002-387Q 558 72.23 558
RECORD    28                     0  2 15.5-42 14 10 17.0   Q  357Q 0002-422Q 717 42.758554
RECORD    29                     0  2 18.0-42 13  0 17.0   Q  717Q 0002-422Q 717 32.758554
RECORD    30                     0  2 15.0-42 14  0        Q  803Q 0002-422Q 717 92.758554
```

5-2

L I S T I N G O F R E C O R D S F R O M T A P E F I L E

TAPE FILE NAME: Extended Radio Sites data
RECORDS 14556 TO 14585
TAPE FILE 03
RECORD LENGTH 80 BYTES
INPUT VOLSER ADC007

```
COLUMN
HEADING      1111111111222222222233333333334444444444555555555566666666667777777777888888888899999999900000000001111111111
INDEX    1234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345
RECORD   14556 PKS 2357+00          23 57 25.0+ 0 25  0 16.00 G  237          OK277  0.084774
RECORD   14557 PKS 2357+00          23 57 25.7+ 0 25 16 15.5  G  217          W 207 3       0
RECORD   14558 PKS 2357-326         23 57 45.8-32 38  2 17.00 Q  586          Q 667  1.275667
RECORD   14559 PKS 2357-326         23 57 46.5-32 37 45 18.5  Q  382          Q 667 91.275667
RECORD   14560 PKS 2357-476         23 57 50.7-47 30 42 17.0  G  665             0 3       0
RECORD   14561 MC2 2358+109         23 58 14.0+10 57 38 17.   Q   74          *  74         0
RECORD   14562 02 496       +40.52 23 58 19.2+40 37 18       EP 210          OK432 4       0*
RECORD   14563 32 496       +40.52 23 58 19.4+40 37 20       EP 432          OK432 4       0*
RECORD   14564 MC2 2358+103+10.75  23 58 29.2+10 19  4       EP 269             0 8       0*
RECORD   14565 2358+100             23 58 31.0+10  2 42       EP 146             0 6       0*
RECORD   14566 PKS 2358-161         23 58 31.6-16  7 50 18.0  Q  658          Q 905 32.044905
RECORD   14567 PKS 2358-128         23 58 35.1-12 49 54 18.0  G  668             0 3       0
RECORD   14568                      23 58 42.0- 0 14 24 18.0  Q  4082358-002      015       0
RECORD   14569                      23 58 43.0- 0 14 36 19.0  Q   94PB 5685      016       0
RECORD   14570 3C 471       +41.47 23 58 46.5+41 36 32       EP 210          OK210 4       0*
RECORD   14571 PKS 2358-049-04.90   23 58 50.3- 4 54 53 18.0  Q  668             0 3     875
RECORD   14572 PKS 2358-049-04.90   23 58 50.3- 4 54 53       EP 905             0 9       0*
RECORD   14573 2358+107             23 58 56.9+10 44 58       EP 146             0 6       0*
RECORD   14574 PKS 2359-159         23 59  8.3-15 57 15 17.0  G  668             0 3       0
RECORD   14575                      23 59 11.0- 2 16  0 17.0  Q  4082359-022A Q 463 50.86 463
RECORD   14576                      23 59 15.0- 2 16 12 18.0  Q  4082359-022B Q 463 52.82 463
RECORD   14577 2359+018             23 59 21.6+ 1 48 11       EP 146             0 6       0*
RECORD   14578                      23 59 23.7-39 44  7 19.0  Q  558Q 2359-397Q 558 62.03 719
RECORD   14579 PKS 2359-221         23 59 38.4-22  9 52 19.5  G  220          OK220 5       0
RECORD   14580 02 2359+31           23 59 40.1+31 23  0       EP 566             0 8       0*
RECORD   14581 01L 2359+038         23 59 43.[illegible] 3 51 26       EP 387             0 8       0*
RECORD   14582 PKS 2359-259         23 59 44.8-25 56 14 17.0  Q  668             0 3       0
RECORD   14583 PKS 2359-14          23 59 46.0-14 23 28 20.00 Q  531                0       0
RECORD   14584                      23 59 52.6+ 3  4 26       G  495NGC 7811      019       0
RECORD   14585                      23 59 52.6+ 3  4 26       G  491MA3K 543       019       0
```

LISTING OF RECORDS FROM TAPE FILE

TAPE FILE NAME: Extragal Radio Srcs refs
RECORDS 1 TO 30
TAPE FILE 64
RECORD LENGTH 80 BYTES
INPUT VOLSER ADL007

COLUMN HEADING

RECORD 1 1 AARONSON,M. AND BOROSON,T. 1980,NATURE 283,746.
RECORD 2 2 ABELL,G.O. 1958,ASTROPHYS. J. SUPPL. 3,211.
RECORD 3 3 ADAM,G. 1977,ASTRON. ASTROPHYS. SUPPL. 29,293.
RECORD 4 4 ADAM,G. 1978,ASTRON. ASTROPHYS. SUPPL. 31,151.
RECORD 5 5 ADAMS,T.F. 1977,ASTAPHYS. J. SUPPL. SER. 33,19.
RECORD 6 6 ADAMS,M.T. AND BOROSON,T.A. 1979,NATURE 282,183.
RECORD 7 7 ADAMS,M.T. AND MUDRICK,L. 1977,ASTRON. J. 82,857.
RECORD 8 6 ADAMS,T.F. AND WEYMANN,M.J. 1972,ASTROPHYS. LETTERS 12,143.
RECORD 9 9 ADGIE,R.L.,GROUTHER,J.H. AND GENT,H. 1972,MONTHLY NOTICES ROY. ASTRON. SOC.
RECORD 10 9*159,233.
RECORD 11 10 ADGIE,R.L.,PALMER,H.P. AND PENSTON,M.V. 1975,MONTHLY NOTICES ROY. ASTRON.
RECORD 12 10*SOC. 170,31P.
RECORD 13 11 AFANAS'EV,V.L.,DENISYUK,E.K. AND LIPOVETSKII,V.A. 1979,SOVIET AJ LETTERS
RECORD 14 11*5,144(RUSSE 5,271).
RECORD 15 12 AFANASJEV,V.L.,KARACHENTSEV,I.D.,LIPOVETSKY,V.A.,LORENZ,H. AND STOLL,D.
RECORD 16 12*1979,ASTRON. NACHR. 300,31.
RECORD 17 13 AFANASJEV,V.L.,KARACHENTSEVA,V.,KARACHENTSEV,I.D. AND HOTNI,P. 1979,ASTRON.
RECORD 18 13*NACHR. 300,37.
RECORD 19 14 AFANASJEV,V.L.,KARACHENTSEV,I.D.,LIPOVETSKY,V.A. AND LORENZ,H. 1979,ASTRON.
RECORD 20 14*NACHR. 300,77.
RECORD 21 15 AFANAS'EV,V.L.,LIPOVETSKII,V.A.,MARKARIAN,B.E. AND STEPANYAN,D.A. 1980,
RECORD 22 15*ASTROPHYSICS 16,119(RUSSE 16,193).
RECORD 23 16 AGNEW,D. AND AMP,H. 1973,PUBL. ASTRON. SOC. PACIFIC 85,162.
RECORD 24 17 AIZU,K. 1966,PUBL. ASTRON. SOC. JAPAN 8,219.
RECORD 25 18 ALLAN,D.A.,WRIGHT,A.E. AND ABLES,J.G. 1982,J. ASTROPHYS. ASTRON. 3,189.
RECORD 26 19 ALLINGTON-SMITH,J.R.,PENNYMAN,H.A.C.,LONSAIR,M.S.,GUNN,J.E. AND WESTPHAL,
RECORD 27 19*J.A. 1982,MONTHLY NOTICES ROY. ASTRON. SOC. 201,331.
RECORD 28 20 ALDERMACH,H.,WALDTHAUSEN,H. AND WIELEBINSKI,R. 1980,ASTRON. ASTROPHYS.
RECORD 29 20*SUPPL. 41,339.
RECORD 30 21 ANDREW,B.H.,VERCH VAN DEN,S.,CONKLIN,E.K. AND KRAUS,J.D. 1971,PUBL. ASTRON.

LISTING OF RECORDS FROM TAPE FILE

TAPE FILE NAME: EXTragal Radio Secs 1215
RECORDS 1215 TO 1244
TAPE FILE 04
RECORD LENGTH 80 BYTES
INPUT VOLSER ADC007

```
COLUMN      1111111111222222222233333333334444444445555555556666666666777777777788888888899999999900000000011111111
INDEX   12345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345
RECORD  1215 900 BLEAICK,J. AND LELIEVRE,G. 1972,ASTRON. ASTROPHYS. 18,53.
RECORD  1216 901 BLEAICK,G.,LELIEVRE,G. AND VERON,P. 1971,ASTRON. ASTROPHYS. 11,142.
RECORD  1217 902 BLEAICK,G.,MICHEF,D. AND LELIEVRE,G. 1974,COMPT. REND. ACAD. SCI. PARIS
RECORD  1218 902*278B,245.
RECORD  1219 903 BLEAICK,G. AND VERON,P. 1966,ANN. ASTROPHYS. 30,341.
RECORD  1220 904 BOLSTENCROFT,R.D.,KU,W.H.M.,ARP,H.C. AND SCARROTT,S.M. 1982,MONTHLY NOTICES
RECORD  1221 904*ROY. ASTRON. SOC. 'SIX QUASARS NEAR THE JETS OF NGC 1097'.
RECORD  1222 905 BRIGHT,A.E.,ABLES,J.G. AND ALLEN,D.A. 1982,'A STUDY OF A REPRESENTATIVE
RECORD  1223 905*SAMPLE OF FLAT SPECTRUM RADIO SOURCES'.
RECORD  1224 906 BRIGHT,A.E.,JAUNCEY,D.L.,PETERSON,B.A. AND CONDON,J.J. 1977,ASTROPHYS.J.
RECORD  1225 906*LETTERS 211,115.
RECORD  1226 907 BRIGHT,A.E.,JAUNCEY,D.L.,BOLTON,J.G. AND SAVAGE,A. 198 AUSTRALIAN J. PHYS.
RECORD  1227 907*35,177.
RECORD  1228 908 BRIGHT,A.E.,HORTON,D.C.,PETERSON,B.A. AND JAUNCEY,D.L. 1982,MONTHLY NOTICES
RECORD  1229 908*ROY. ASTRON. SOC. 199,81.
RECORD  1230 909 BRIGHT,A.E.,PETERSON,B.A.,JAUNCEY,D.L. AND CONDON,J.J. 1978,ASTROPHYS. J.
RECORD  1231 909*LETTERS 226,61.
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