NATIONAL RADIO ASTRONOMY OBSERVATORY

ZAP - NRAO

NOTEBOOK

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Order of Objects Observed July 26 (Sat)

Object	Time Start	Time End	Nature
3C 84			Cal
3C 147			Cal
DDO 84			Source
DDO 70			Source
3C 227			Cal
DDO 99			Source
DDO 133			Source
3C 286			Cal
DDO 125			Source
DDO 185			Cal

RLPC
DLPC from cal.

150. MHz. manual

2.

cond. cable

RH2

5 to 8.

6 to 9.

10 MHz bandwidth.

6.6 = RA

4.9 = RB

1½-25y .4 → .5 K.

5 .025

.325 0.100

1 min.

3C 84 03 16 29.6 41 19 52

Absorption 8115 km/sec

3C 147 05 38 43.5 49 49 42

Cal POINT (PEAK)

DDO 84 10 39 51 34 42 47

0° 633 km/sec

DDO 70 09 57 23 05 34 07

110° 295

3C 227 09 45 04.8 07 39 09

Cal

DDO 99 11 48 15 39 09 20

65° 248

DDO 133 12 30 25 31 48 53

0° 335

3C 286 13 28 49.7 30 45 58

Cal

DDO 125 12 25 14 43 46 20

130° 198

DDO 185 13 52 53 54 08 20

20° 141

MOVLOT

82

July 26

L.O. switch (cal-tune switch on receiver backend)
set at (1) FP for sources (FP)
set at 3 for continuum
set at 5 for 3C 84 absorbtion

→ set L.O. = 150 MHz manually

also for continuum –
cont. cable move 5 to 8
6 to 9
10 MHz bandwith – balance dials

if LA (variable frequency local oscillator) is not working, switch to linear polarization. Change receiver noise tube values to: RA = 6.6; RB = 4.9
For circular polarization
noise tube values: RA = RB = 5.7

When LO Freq changes by a large amount, 1100 stable osc. must be peaked (output filter dial)

Filter A & B Total power must be balanced with IF attenuation dials

```
 1  PROCEDURE MOVLOT
 2  PPV UST
 3  HP=HVC(1)

 4  VP=HVC(2)
 5  HSTEP=ABS(HVC(3))
 6  VSTEP=ABS(HVC(4))
 7  FOR I=1 TO REP1
 8  HVC(1)=HP;HVC(2)=VP
 9  MPT1 STALL OFTPO
10  MTPØ STALL ONTPO
11  END
12  FOR I=1 TO REP2
13  HVC(1)=HP;HVC(2)=VP
14  MPT1 STALL OFTPO
15  HVC(1)=HP+HSTEP
16  MTPO STALL ONTPO
17  END
18  FOR I=1 TO REP3
19  HVC(1)=HP;HVC(2)=VP
20  MTP1 STALL OFTPO
21  HVC(1)=HP+3*HSTEP
22  MTPØ STALL ONTPO
23  END
24  FOR I=1 TO REP2
25  HVC(1)=HP;HVC(2)=VP
26  MTP1 STALL OFTPO
27  HVC(2)=VP+VSTEP
28  MTPØ STALL ONTPO
29  END
30  FOR I=1 TO REP3
31  HVC(1)=HP;HVC(2)=VP
32  MTP1 STALL OFTPO
33  HVC(2)=VP+3*VSTEP
34  MTPØ STALL ONTPO
35  END
36  FINISH
```

```
  1  PROCEDURE MOVLOT
  2  PPV UST
  3  HP=HVC(1)
  4  VP=HVC(2)
  5  HSTEP=ABS(HVC(3))
  6  VSTEP=ABS(HVC(4))
  7  FOR I=1 TO REP1
  8  HVC(1)=HP;HVC(2)=VP
  9  MTP1 STALL ONTPO
 10  MTPØ STALL ONTPO
 11  END
 12  FOR I=1 TO REP2
 13  HVC(1)=HP;HVC(2)=VP
 14  MTP1 STALL OFTPO
 15  HVC(1)=HP+HSTEP
 16  MTPØ STALL ONTPO
 17  END
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 19  HVC(1)=HP;HVC(2)=VP
 20  MTP1 STALL OFTPO
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 26  MTP1 STALL OFTPO
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 30  FOR I=1 TO REP3
 31  HVC(1)=HP;HVC(2)=VP
 32  MTP1 STALL OFTPO
 33  HVC(2)=VP+3*VSTEP
 34  MTPØ STALL ONTPO
 35  END
 36  FINISH
```

ONTPO → OFTPO fixed online

3C84 observations
(checking system redshift calculations)
v = 8115 Km/sec.

scan #

1896 // L~~&~~A only

1897 on

The first ~~good~~ scan is #1896 (OFF)
Channel A is fine but B is not working.
B oscillator is driving A receiver
mistake (misunderstanding) on off position.
Offset is set at 1h!
velocity not set right! (we found gal. Hydrogen)

1899 // ~~the~~ LO level out of lock!

1900 (have to send for John Benson cause we're all dummies)
Pat came to the rescue
LO freq out of range for the 1.1 GHz
base - adjust level outputs until level locks

Both recievers working now one LO running A & B

1907 3c 84 channel 301 bad
(in receiver B)
to remedy this; use the verb "replace". in CV

1908 3c 84 on scan

OBSERVING CARDS LISTING 7/26 12:28:31

```
 1)  O 999 ZAPNRAO          T1ØØL  LINE
 2)  L 1    Ø.Ø      Ø.Ø      Ø.Ø   SUN   OPTICAL C A
 3)  R A Ø.Ø    Ø.Ø        11ØØ+L1*Ø1*Ø1+LA  142Ø.4Ø58 15Ø.ØØØ   6.6 2 2
 4)  R B Ø.Ø    Ø.Ø        11ØØ+L1*Ø1*Ø1+LB  142Ø.4Ø58 15Ø.ØØØ   4.9 2 2
 5)  P 195Ø.Ø      1Ø.Ø     1Ø.Ø 6 Ø 1  1Ø336.Ø  Ø1Ø336                 155.Ø   ØØ
 6)  A                      6Ø.Ø
 7)    REP1=2;REP2=3;REP3=4
 8)  D 1Ø3951.Ø  344247    Ø.Ø
 9)  S DDO 84       6  ØØØ.ØØØ  ØØ.ØØØ V      633.Ø SEQ    5ØØ              MOVLOT
1Ø)  D Ø95723.Ø  Ø534Ø7 +11Ø.Ø
11)  S DDO 7Ø       6  ØØØ.ØØØ  ØØ.ØØØ V      295.Ø SEQ    5ØØ              MOVLOT
12)  D 114815.Ø  39Ø92Ø + 65.Ø
13)  S DDO 99       6  ØØØ.ØØØ  ØØ.ØØØ V      248.Ø SEQ    5ØØ              MOVLOT
14)  D 123Ø25.Ø  314853 +  Ø.Ø
15)  S DDO 133      6  ØØØ.ØØØ  ØØ.ØØØ V      335.Ø SEQ    5ØØ              MOVLOT
16)  D 122514.Ø  43462Ø +13Ø.Ø
17)  S DDO 125      6  ØØØ.ØØØ  ØØ.ØØØ V      198.Ø SEQ    5ØØ              MOVLOT
18)  D 135253.Ø  54Ø82Ø + 2Ø.Ø
19)  S DDO 185      6  ØØØ.ØØØ  ØØ.ØØØ V      141.Ø SEQ    5ØØ              MOVLOT

   19  CARDS READ AND STORED IN FILE T1ØØL
```

SET LO 1 TO COMPUTER

SET RCVR A I.F. TO 15Ø.ØØØ MHZ
SET RCVR A BW TO 5MC
SET A/C MODE TO PARALLEL

SET RCVR B I.F. TO 15Ø.ØØØ MHZ
SET RCVR B BW TO 5MC

"P vals" entered on a blank card instead of LPC's (because of their large value).

$P_1 = +06.36$

$P_2 = -01.79$

$P_3 = -01.17$

3c 147   CONT. CAL SOURCE

procedure PEAK
cont. setup cards
get local pointing corrections.
RALPC = 30^s of time

BW = 21.0'
height counts = 306

(to determine gain, put in LPC's, redo peak).

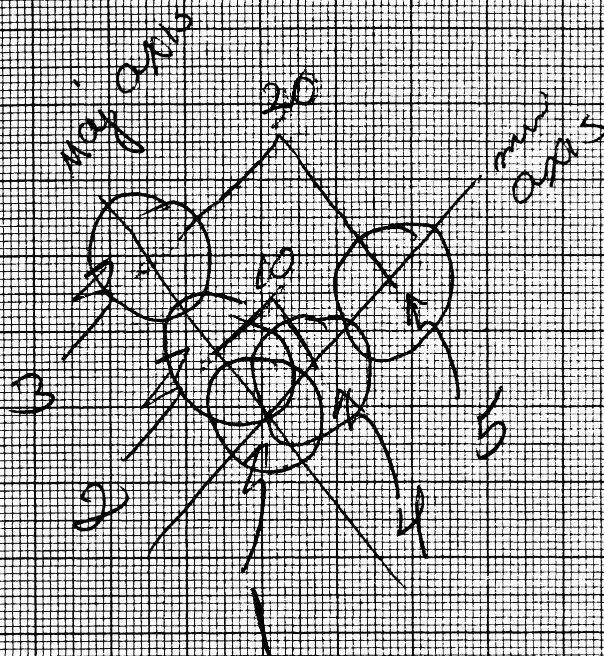
32.3 sec time α
$-1'3^{sec}$ δ

RLPC = 32.3 ← ~~used~~ not used
DLPC = -1.05 ←

α = 053843.5   δ = 494942

~~3C120~~ α = 043031.6   δ = 051459
RLPC = 18.4 sec. time
DLPC = -1'17" min, these neither

Trying to start program of DDO's
position won't set
resort to setting pos. manually until [illegible]
Ralph arrives - still no go
turns out there's a typo in modlot mtp → mpt


maj axis
20
min axis
10
3
2
1
4
5

(not) up again at 2:18 EST ~ 9:15 LST

DDO 84

moiré still not ok!

scans 1927-1928 garbage

1930

prob w/cal and IF - again
waiting for help
moiré still not right!

1930-1933 all on-scans. Telescope offset on cards formatted wrong
1934 killed

1935 First off scan with re-formatted offset (Manual gives correct format for descriptive origin).
Messing with LO. may not be first good scan. it's not

1936 is first scan with both LO's working. OFF scan. DDO84

~~3 scans~~ DDO 84-1

1936-1937 Good
1938-1939 Good
} DDO 84-1

~~Proc C~~: PROCEDURES:

```
LIST P
   1  PROC P
   2  PAGE SHOW;FINISH
>LIST H
   1  PROC H
   2  HANNING PAGE SHOW RETURN;FINISH
>LIST F
   1  PROC F
   2  FETCH TEMP BASELINE PAGE SHOW RETURN;FINISH
>LIST C
   1  PROC C
   2  CFETCH TEMP BASELINE PAGE SHOW RETURN;FINISH
>LIST A2
   1  PROC A2(FSCAN,LSCAN)
   2  BOTH
   3  FOR S=FSCAN TO LSCAN BY 2
   4      FETCH (S)
   5      TEMP BASELINE ACCUM
   6      END
   7  AVE SLIDE PAGE SHOW RETURN;FINISH
>
```

```
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 2  PPV UST
 3  HP=HVC(1)

 4  VP=HVC(2)
 5  HSTEP=ABS(HVC(3))
 6  VSTEP=ABS(HVC(4))
 7  FOR I=1 TO REP3
 8  HVC(1)=HP;HVC(2)=VP
 9  MTP1 STALL OFTPO
10  HVC(1)=HP+3*HSTEP
11  MTPØ STALL ONTPO
12  END
13  FOR I=1 TO REP2
14  HVC(1)=HP;HVC(2)=VP
15  MTP1 STALL OFTPO
16  HVC(2)=VP+VSTEP
17  MTPØ STALL ONTPO
18  END
19  FOR I=1 TO REP3
20  HVC(1)=HP;HVC(2)=VP
21  MTP1 STALL OFTPO
22  HVC(2)=VP+3*VSTEP
23  MTPØ STALL ONTPO
24  END
25  FINISH
```

After dump

START DDO 84

~~DDO 84-2~~

~~1940~~ - 1941 Good

	SCAN#	Baseline quality		position	Object
Autocorrelator Channel B has a spike in #301 so B is to be processed in a special fashion.	1936 - 1937	✓	OFF - ON	Center ①	DDO84
	1938 - 1939	✓	"	" ①	"
	1940 - 1941	✓	"	10" ②	"
	1942 - 1943	✓	"	10" ②	"

Stop program to work on bad correlator channel special modes created to pick up on DDO-84 at position ③

Tape dumped. New MOVLOT read in. Corr. channel [301] fixed!

Start after dump	1945 - 46 A	✓		30" ③	DDO 84
	B	✓			
	1947 - 1948	✓	✓	30" ③	prints
	1949 - 1950	✓	✓	30" ③	
	1951 - 1952	✓	✓	30" ③	
	1953 - 1954	✓	✓	10" ④	prints
	1955 - 1956	✓	✓	10" ④	
	1957 - 1958	✓	✓	10" ④	
	1959 - 1960	✓	✓	30" ⑤	print
	1961 - 1962	✓	✓	30" ⑤	
	1963 - 1964	✓	✓	30" ⑤	
	~~1965 - 1966~~	✓	✓	30" ⑤	

John changed linear polarization to circular.

We skipped DDO 70 (low in sky)

START DDO ~~9~~ 133

DDO ~~9~~ 133

Back to original MOVLOT

1967 - 1968 OFF-ON Center (1)

Something funny with this scan may not be valid N.G. on both A & B

1969 - 1970 OFF-ON Center (1) print, Strong spike at lower channels.

1971 - 1972 10' (2)

1973 - 1974 10' (2) PRINT

1975 - 1976 10' (2)

1977 - 1978 30' (3)

1979 - 1980 30' (3) PRINT

1981 - 1982 30' (3)

1983 - 1984 30' (3)

1985 - 1986 OFF/ON ~~30~~ 10' (4)

1987 - 1988 OFF/ON ~~30~~ 10' (4) good data then copy

1989 - 1990 10' (4)

1991 - 1992 30' (5)

1993 - 1994 30' (5) PRINT

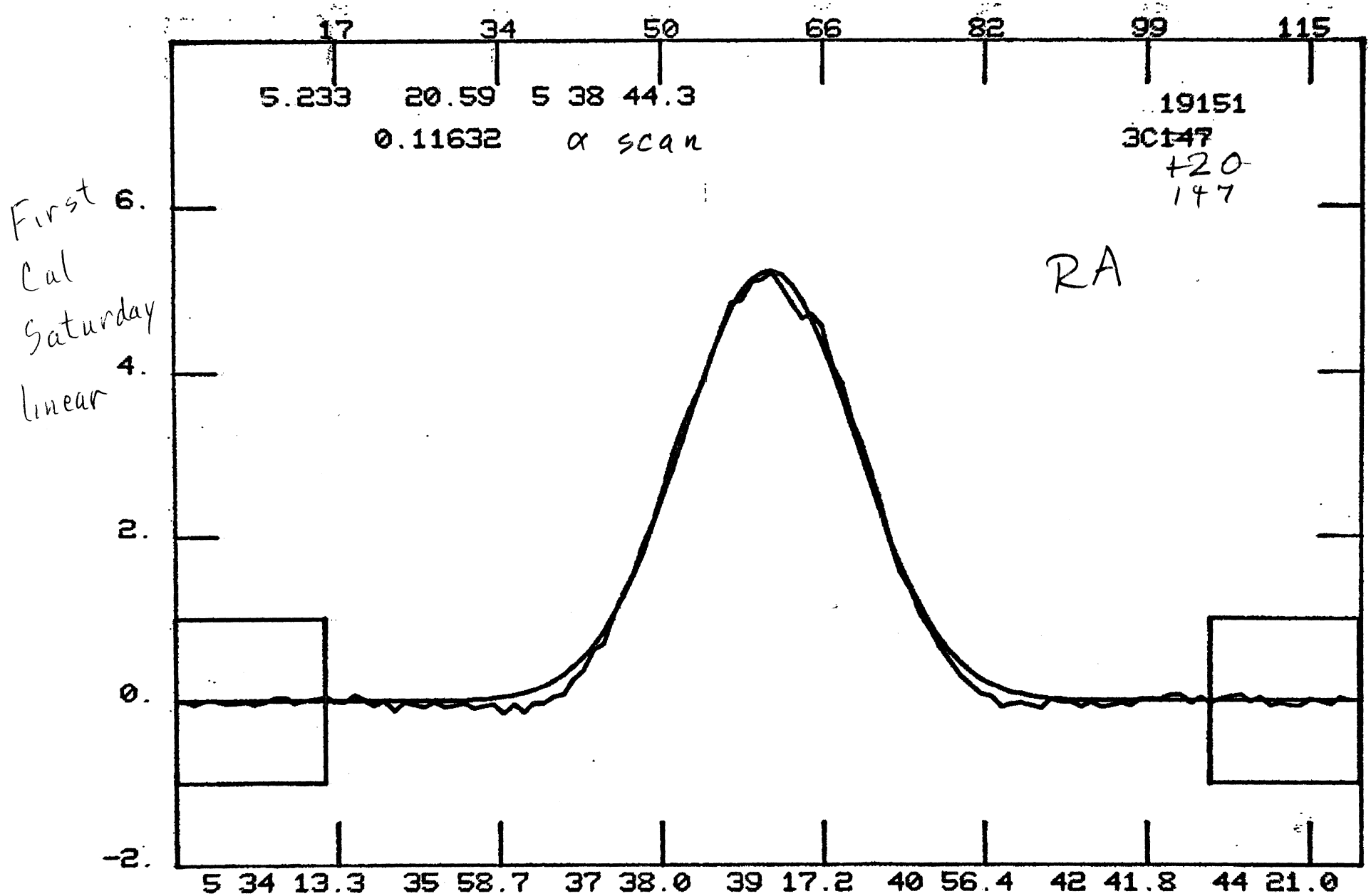
1995 - 1996 30' (5)

1997 - 1998 30' (5)

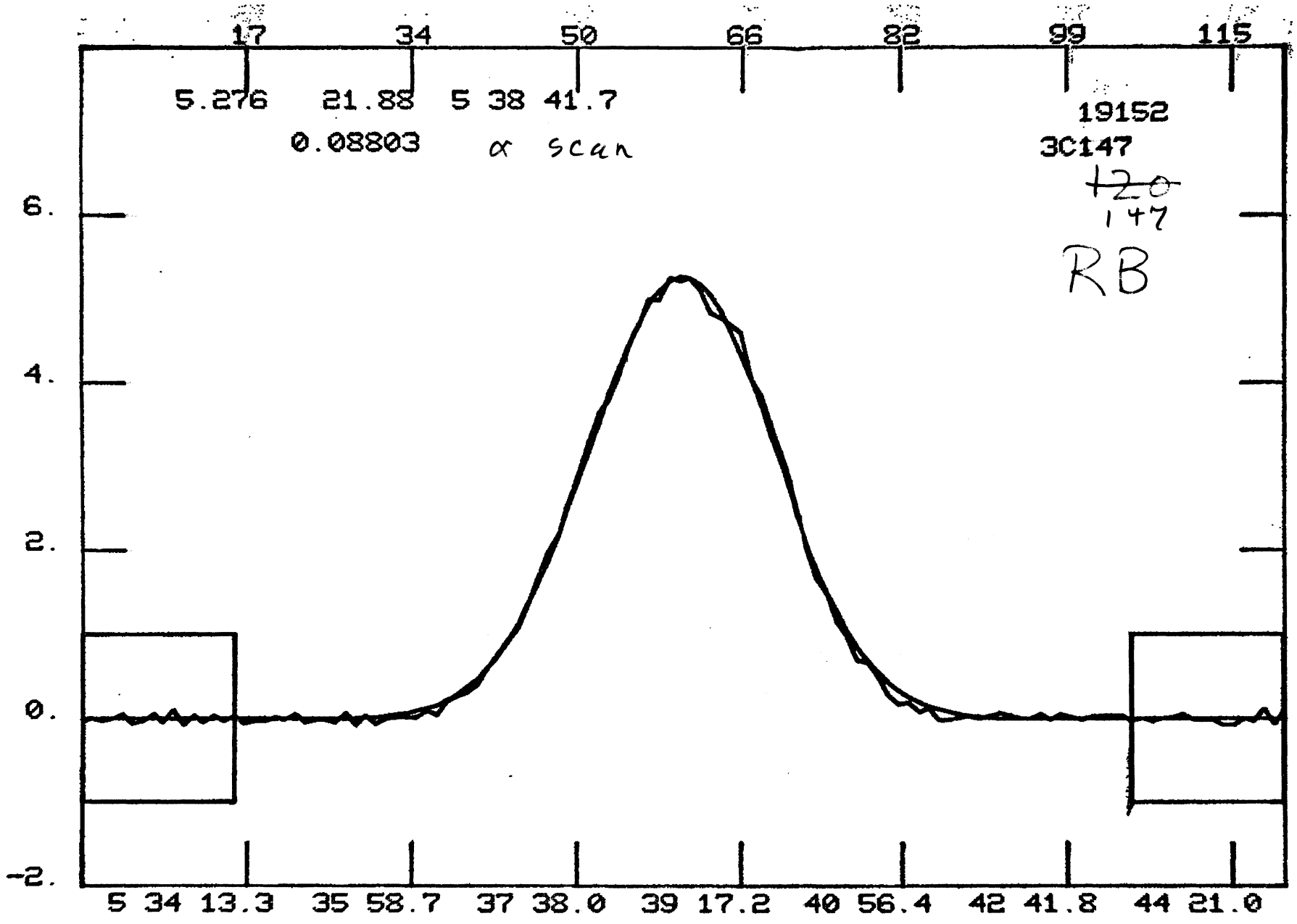
Start new MOVLOT 3

Look at center again (make up for first DDO 133

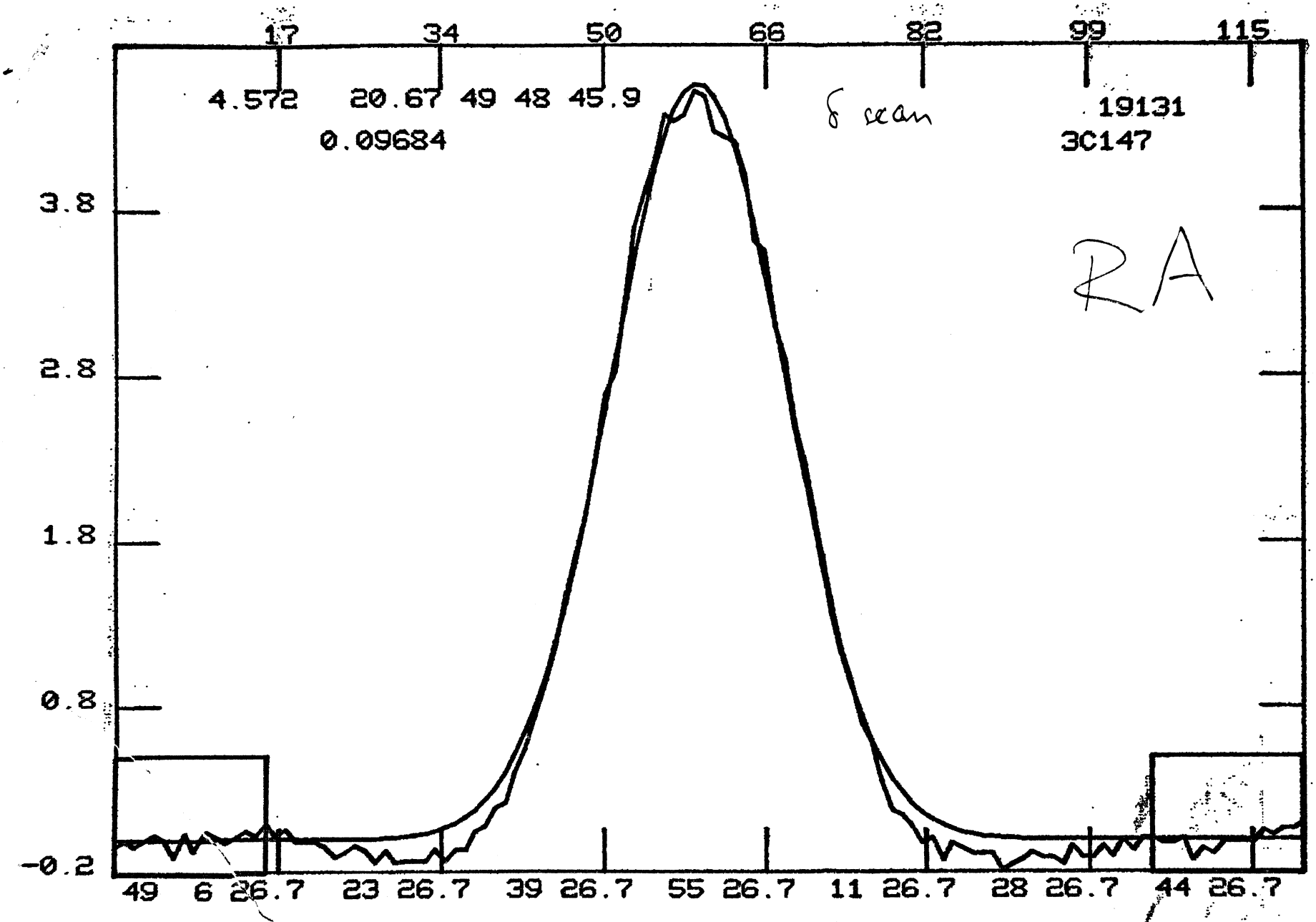
Redone 1999 - 2000 OFF/ON Center 5 min. print



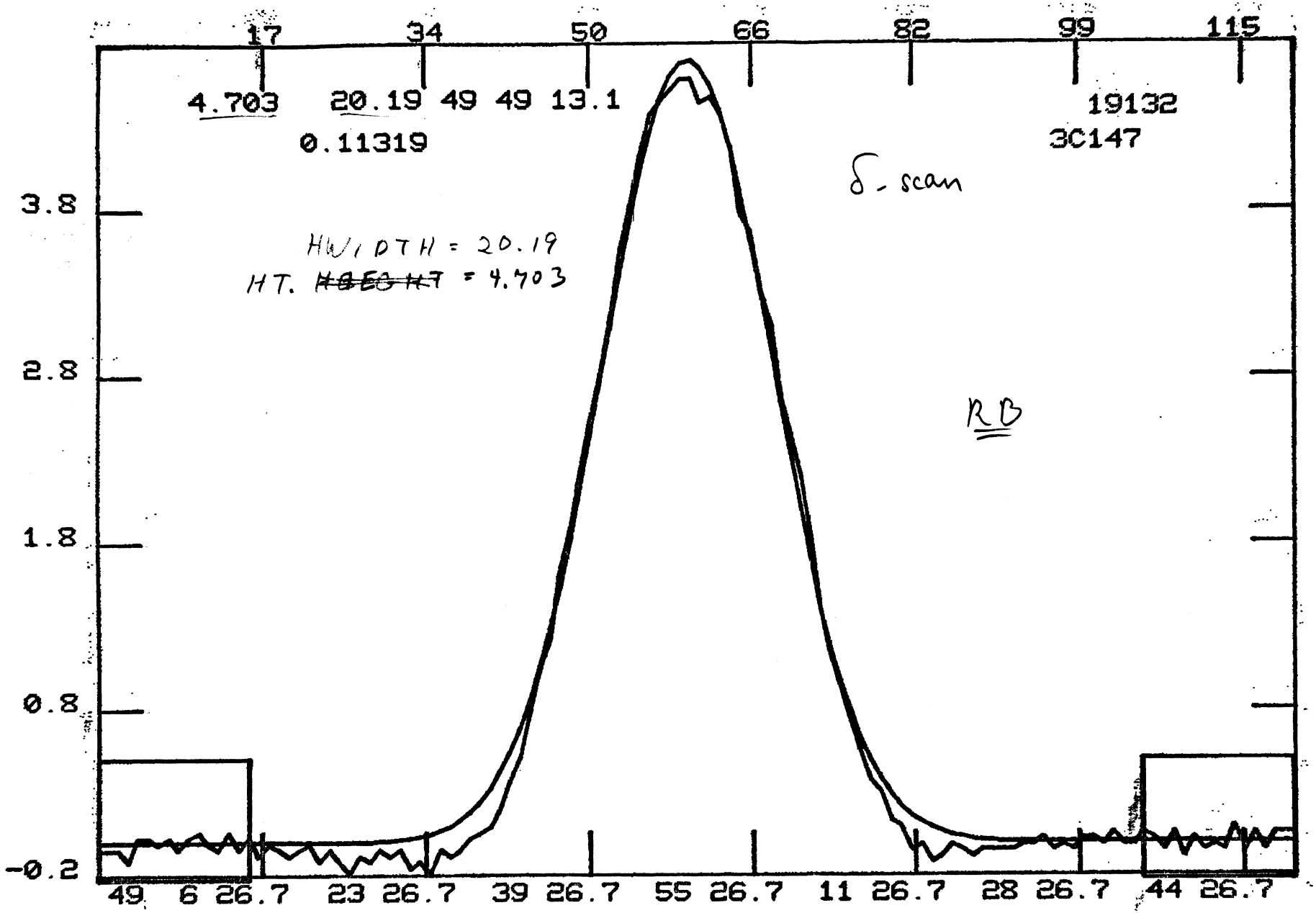
>PEAK GAUSS GMODEL RESBOW



>PEAK GAUSS GMODEL RESHOW



>PEAK GAUSS GMODEL RESHOW



>PEAK GAUSS GMODEL RESHOW

4.703°k = 22.4

1°k (140') = 4.76 Jy
2/cm

Calibration Scans

3C147 #19132

Flux = 22.4 Jy @ 1.4 GHz

peak on scan # 19132 @ ~~5.8~~ 4.703K

1K = 4.76 Jy channel B

peak on scan # ~~19152~~ 19131 @ 4.572K

1K = 4.90 Jy

δ scans Ave 1K = 4.83 Jy

19151 @ 5.233K 1K = 4.28 Jy
19152 @ 5.276K 1K = 4.25 Jy

α scans Ave 1K = 4.265

α - δ Ave 1K = 4.55 Jy
1K = 4.55 Jy final

Observers

140-FOOT TELESCOPE LOG

USER 999 ZAPNRAO T100L 7/26/80 TAPE 0238 COPY 2 DUMP 6

SCAN#	SOURCE	PROG	ID	CNFREQ	M	FOC	PA	RA (1950.00)	DEC	LST	EST	#B	#R	TR#	REMARKS
1945.	DDO 84	TPWR	OF	1417.36	2	154.	270.	10:34:37.4	35:45:57	11:24:40	15:25:16	1	5	1520	
1946.	DDO 84	TPWR	ON	1417.36	2	154.	270.	10:39:50.9	35:12:47	11:30:10	15:30:45	1	5	1525	
1947.	DDO 84	TPWR	OF	1417.36	2	154.	270.	10:34:37.5	35:45:57	11:35:40	15:36:14	1	5	1530	
1948.	DDO 84	TPWR	ON	1417.36	2	154.	270.	10:39:51.0	35:12:46	11:41:10	15:41:43	1	5	1535	
1949.	DDO 84	TPWR	OF	1417.36	2	154.	270.	10:34:37.5	35:45:57	11:46:40	15:47:13	1	5	1540	
1950.	DDO 84	TPWR	ON	1417.36	2	154.	270.	10:39:51.0	35:12:46	11:52:10	15:52:42	1	5	1545	
1951.	DDO 84	TPWR	OF	1417.36	2	154.	270.	10:34:37.3	35:45:57	11:57:40	15:58:11	1	5	1550	
1952.	DDO 84	TPWR	ON	1417.36	2	154.	270.	10:39:50.9	35:12:47	12: 3:10	16: 3:40	1	5	1555	
1953.	DDO 84	TPWR	OF	1417.36	2	154.	270.	10:34:37.4	35:45:58	12: 8:30	16: 8:59	1	5	1560	
1954.	DDO 84	TPWR	ON	1417.36	2	154.	270.	10:39: 2.4	34:42:46	12:14: 0	16:14:28	1	5	1565	
1955.	DDO 84	TPWR	OF	1417.36	2	153.	270.	10:34:37.4	35:45:59	12:19:30	16:19:57	1	5	1570	
1956.	DDO 84	TPWR	ON	1417.36	2	154.	270.	10:39: 2.3	34:42:46	12:25: 0	16:25:26	1	5	1575	
1957.	DDO 84	TPWR	OF	1417.36	2	153.	270.	10:34:37.3	35:45:57	12:30:30	16:30:56	1	5	1580	
1958.	DDO 84	TPWR	ON	1417.36	2	153.	270.	10:39: 2.4	34:42:46	12:36: 0	16:36:25	1	5	1585	
1959.	DDO 84	TPWR	OF	1417.36	2	153.	270.	10:34:37.3	35:45:56	12:41:30	16:41:54	1	5	1590	
1960.	DDO 84	TPWR	ON	1417.36	2	153.	270.	10:37:25.1	34:42:44	12:47: 0	16:47:23	1	5	1595	
1961.	DDO 84	TPWR	OF	1417.36	2	153.	270.	10:34:37.5	35:45:57	12:52:30	16:52:52	1	5	1600	
1962.	DDO 84	TPWR	ON	1417.36	2	153.	270.	10:37:24.9	34:42:42	12:58:20	16:58:41	1	5	1605	
1963.	DDO 84	TPWR	OF	1417.36	2	152.	270.	10:34:37.6	35:45:56	13: 3:50	17: 4:10	1	5	1610	
1964.	DDO 84	TPWR	ON	1417.36	2	152.	270.	10:37:24.8	34:42:41	13: 9:20	17: 9:39	1	5	1615	
1965.	DDO 84	TPWR	OF	1417.36	2	152.	270.	10:34:37.4	35:45:56	13:14:50	17:15: 8	1	5	1620	
1966.	DDO 84	TPWR	ON	1417.36	2	152.	270.	10:37:25.0	34:42:41	13:20:20	17:20:37	1	5	1625	
1967.	DDO 133	TPWR	OF	1418.73	2	154.	270.	12:25:21.9	32:52: 5	13:40:40	17:40:54	1	5	1630	
1968.	DDO 133	TPWR	ON	1418.73	2	154.	270.	12:30:24.8	31:48:52	13:46:10	17:46:23	1	5	1635	
1969.	DDO 133	TPWR	OF	1418.73	2	154.	270.	12:25:22.2	32:52: 5	13:51:40	17:51:52	1	5	1640	
1970.	DDO 133	TPWR	ON	1418.73	2	154.	270.	12:30:24.9	31:48:52	13:57:10	17:57:21	1	5	1645	
1971.	DDO 133	TPWR	OF	1418.73	2	154.	270.	12:25:22.2	32:52: 6	14: 2:40	18: 2:50	1	5	1650	
1972.	DDO 133	TPWR	ON	1418.73	2	154.	270.	12:30:24.8	31:58:53	14: 8:10	18: 8:19	1	5	1655	
1973.	DDO 133	TPWR	OF	1418.73	2	153.	270.	12:25:22.1	32:52: 6	14:13:40	18:13:49	1	5	1660	
1974.	DDO 133	TPWR	ON	1418.73	2	153.	270.	12:30:24.8	31:58:53	14:19:10	18:19:18	1	5	1665	
1975.	DDO 133	TPWR	OF	1418.73	2	153.	270.	12:25:22.0	32:52: 6	14:24:40	18:24:47	1	5	1670	
1976.	DDO 133	TPWR	ON	1418.73	2	153.	270.	12:30:24.8	31:58:53	14:30:10	18:30:16	1	5	1675	
1977.	DDO 133	TPWR	OF	1418.73	2	153.	270.	12:25:22.0	32:52: 6	14:35:40	18:35:45	1	5	1680	
1978.	DDO 133	TPWR	ON	1418.73	2	153.	270.	12:30:24.9	32:18:52	14:41:10	18:41:14	1	5	1685	
1979.	DDO 133	TPWR	OF	1418.73	2	153.	270.	12:25:21.9	32:52: 6	14:46:40	18:46:43	1	5	1690	
1980.	DDO 133	TPWR	ON	1418.73	2	152.	270.	12:30:24.9	32:18:54	14:52:10	18:52:12	1	5	1695	
1981.	DDO 133	TPWR	OF	1418.73	2	152.	270.	12:25:22.1	32:52: 9	14:57:40	18:57:42	1	5	1700	
1982.	DDO 133	TPWR	ON	1418.73	2	152.	270.	12:30:24.8	32:18:51	15: 3:10	19: 3:11	1	5	1705	
1983.	DDO 133	TPWR	OF	1418.73	2	152.	270.	12:25:22.0	32:52: 6	15: 8:40	19: 8:40	1	5	1710	
1984.	DDO 133	TPWR	ON	1418.73	2	152.	270.	12:30:24.9	32:18:52	15:14:10	19:14: 8	1	5	1715	
1985.	DDO 133	TPWR	OF	1418.73	2	151.	270.	12:25:22.0	32:52: 6	15:19:40	19:19:37	1	5	1720	
1986.	DDO 133	TPWR	ON	1418.73	2	151.	270.	12:29:37.9	31:48:52	15:25:10	19:25: 7	1	5	1725	
1987.	DDO 133	TPWR	OF	1418.73	2	151.	270.	12:25:22.0	32:52: 6	15:30:40	19:30:36	1	5	1730	
1988.	DDO 133	TPWR	ON	1418.73	2	151.	270.	12:29:37.8	31:48:53	15:36:10	19:36: 5	1	5	1735	
1989.	DDO 133	TPWR	OF	1418.73	2	151.	270.	12:25:22.1	32:52: 6	15:41:40	19:41:34	1	5	1740	
1990.	DDO 133	TPWR	ON	1418.73	2	151.	270.	12:29:37.8	31:48:54	15:47:10	19:47: 3	1	5	1745	
1991.	DDO 133	TPWR	OF	1418.73	2	150.	270.	12:25:22.0	32:52: 6	15:52:40	19:52:32	1	5	1750	
1992.	DDO 133	TPWR	ON	1418.73	2	150.	270.	12:28: 3.6	31:48:49	15:58:10	19:58: 1	1	5	1755	
1993.	DDO 133	TPWR	OF	1418.73	2	150.	270.	12:25:22.0	32:52: 6	16: 3:40	20: 3:30	1	5	1760	
1994.	DDO 133	TPWR	ON	1418.73	2	150.	270.	12:28: 3.9	31:48:49	16: 9:10	20: 9: 0	1	5	1765	
1995.	DDO 133	TPWR	OF	1418.73	2	150.	270.	12:25:22.0	32:52: 6	16:14:40	20:14:29	1	5	1770	
1996.	DDO 133	TPWR	ON	1418.73	2	149.	270.	12:28: 3.6	31:48:47	16:20:10	20:19:58	1	5	1775	
1997.	DDO 133	TPWR	OF	1418.73	2	149.	270.	12:25:22.1	32:52: 5	16:25:40	20:25:27	1	5	1780	
1998.	DDO 133	TPWR	ON	1418.73	2	149.	270.	12:28: 3.8	31:48:49	16:31:10	20:30:56	1	5	1785	
1999.	DDO 133	TPWR	OF	1418.73	2	148.	270.	12:25:22.1	32:52: 6	16:42:20	20:42: 4	1	5	1790	
2000.	DDO 133	TPWR	ON	1418.73	2	148.	270.	12:30:24.9	31:48:55	16:47:50	20:47:33	1	5	1795	

Start Sunday

Continuum deck read in
Procedure peak on 3C147
Circular Polarization

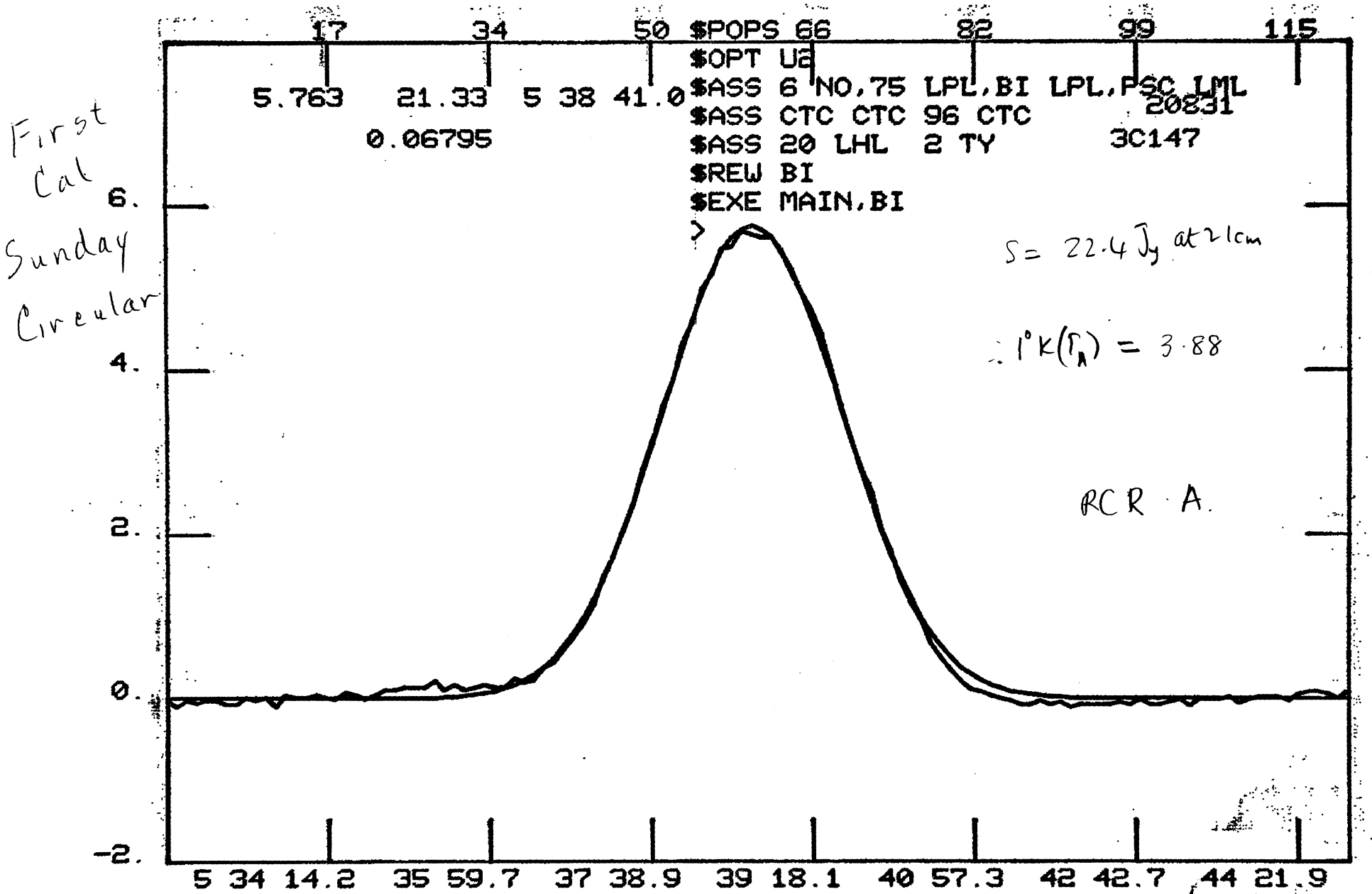
MOVLOT 4 read in (MOVLOT 3 already in)

Pointing correction accurate (RA)
RA corr = -2.5"
Dec corr = -3"
No LPC needed.

LINE Deck read in
MOVLOT 3 had to be read in again

Start Scan # 2086 Line

Cal from 3C147 (above)
Scan # 20831 δ scan RA 1k = 3.88 Jy
20832 δ scan RB 1k = 5.26 Jy
20841 α scan RA 1k = 4.07 Jy
20842 α scan RB 1k = 5.47 Jy



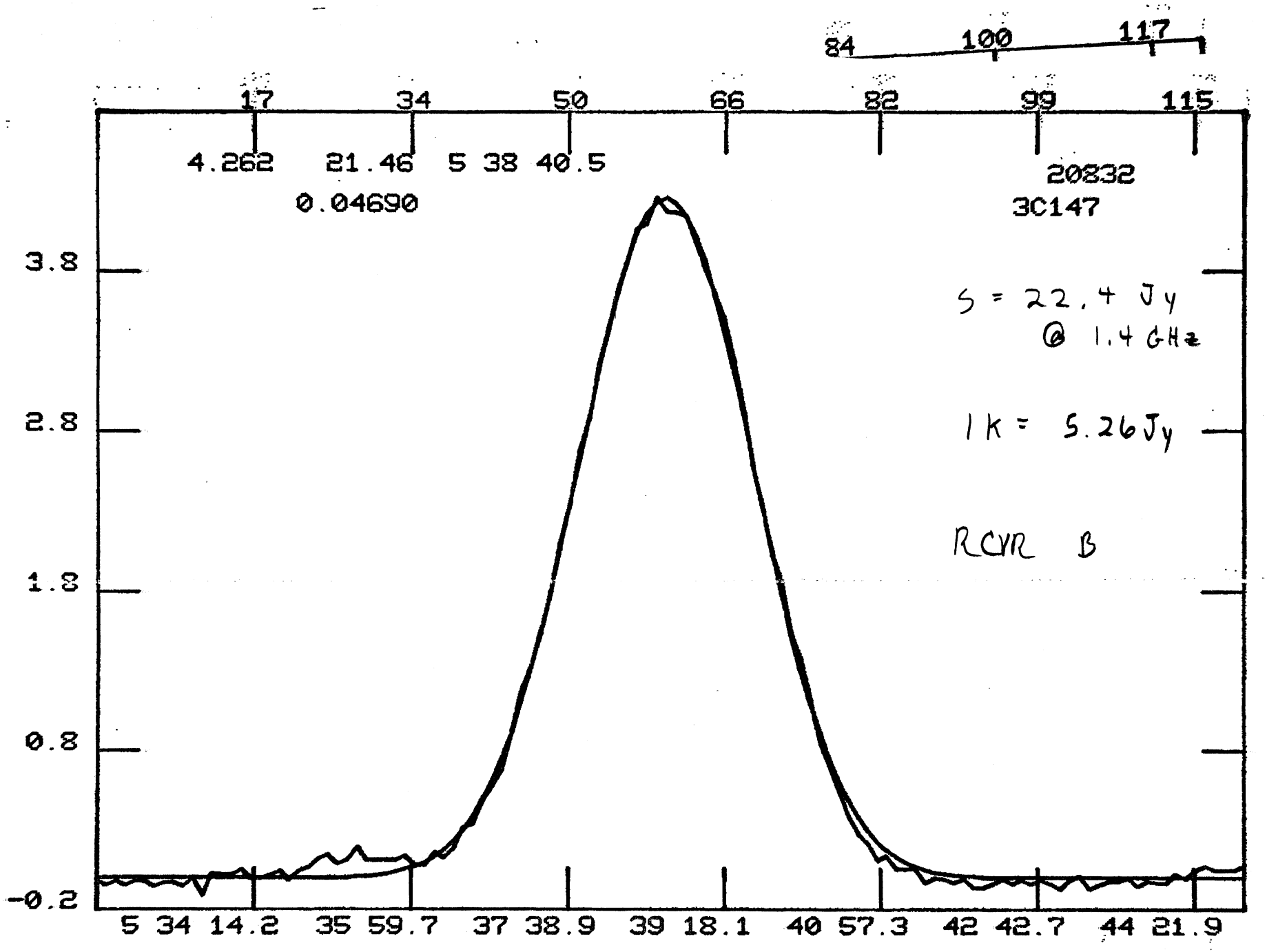
First Cal Sunday Circular

$S = 22.4\ \mathrm{Jy}$ at 21cm

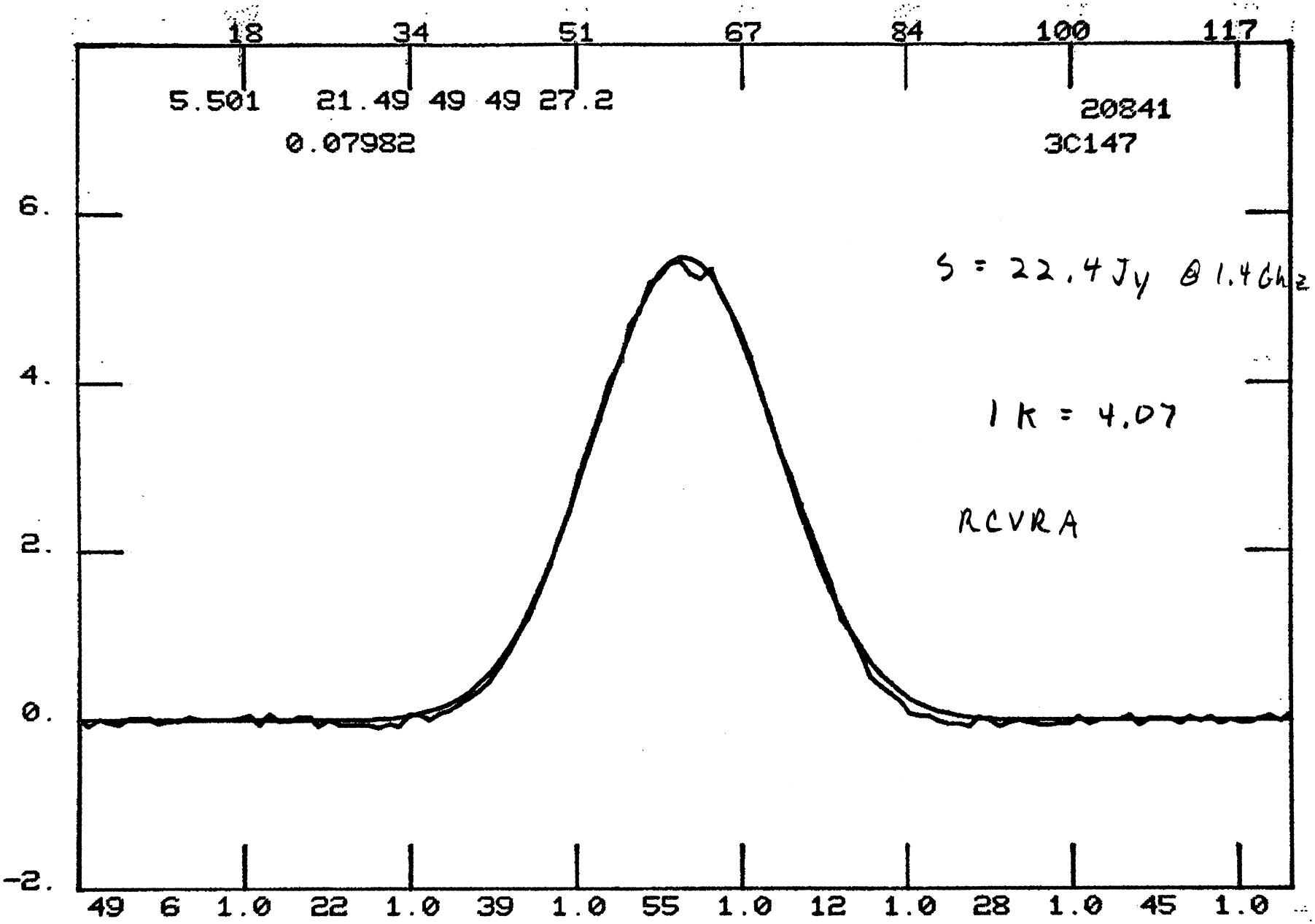
$\therefore 1^{\circ}K(T_A) = 3.88$

RCR A.

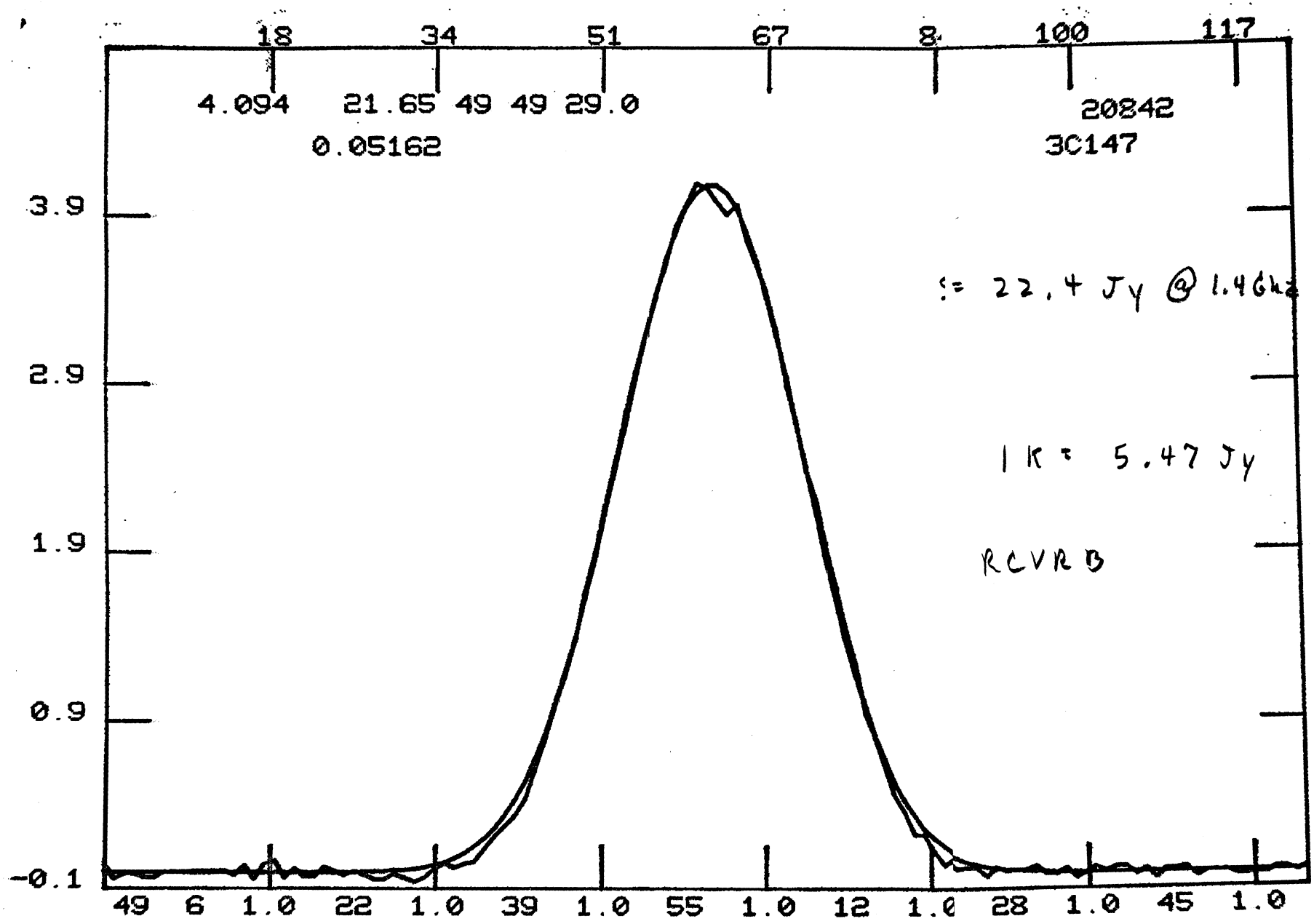
XPEAK GAUSS MODDEL RESHOW
>EXIT
$END DO



>PEAK GAUSS GMODEL RESHOW



>PEAK GAUSS GMODEL RESHOW



>PEAK GAUSS GMODEL RESHOW

DDO 39

2086 - 2087 OFF/ON Center 5 min

2088 - 2089 Center 5 min

Interrupt routine to get another Cal run (first was funny, ?)

3C 147 again. Going to take a look at system temp for A and B, not peak again, just T_{sys}

Restart program

getting galactic → DDO 70

2090 - 2091 OFF/ON Center ① 5 min.

2092 - 2093 ① 5 min

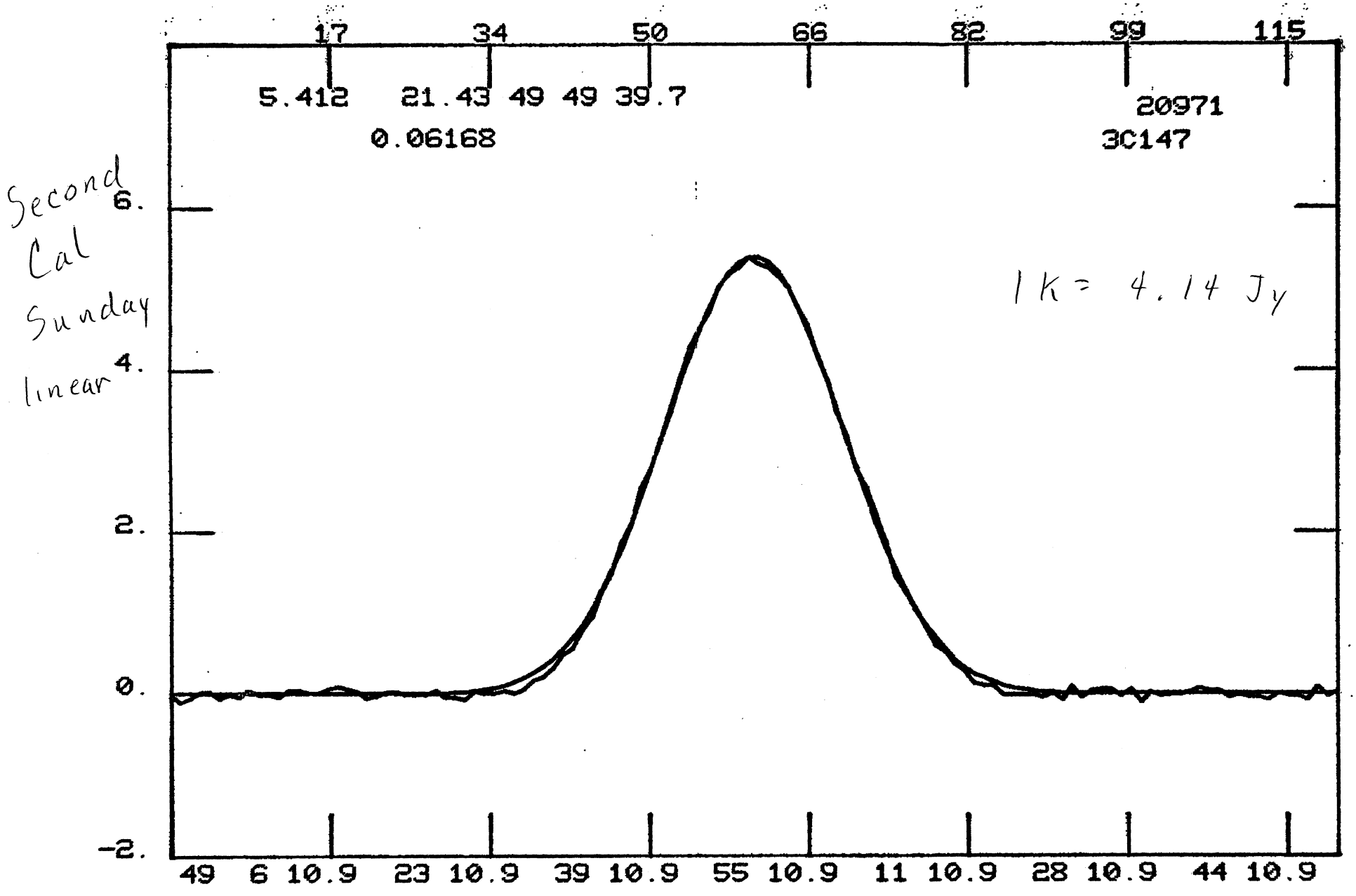
Going back to linear pol cal no good

Cal on 3C147 (continuum)

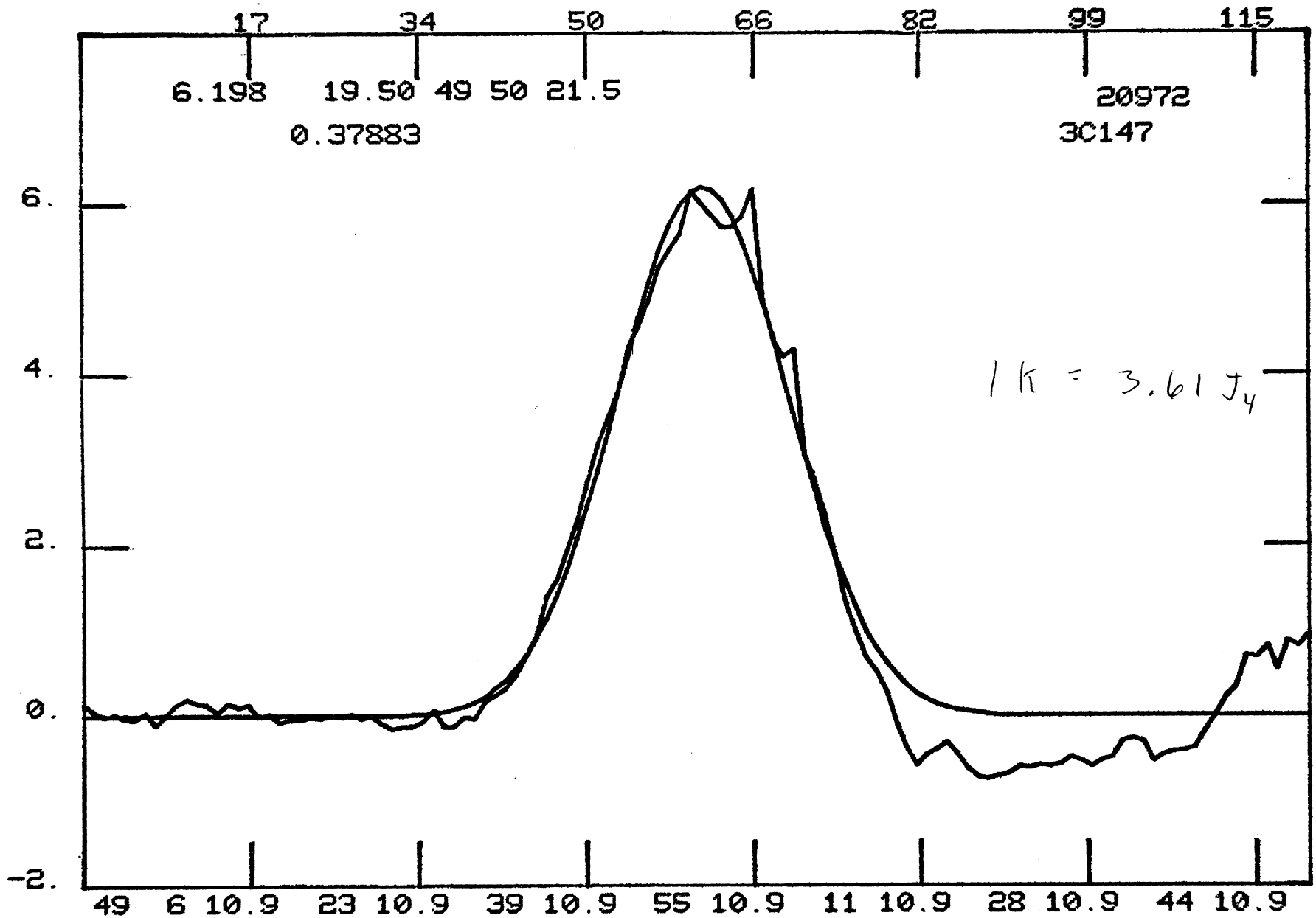
scan # 2094 noise tube

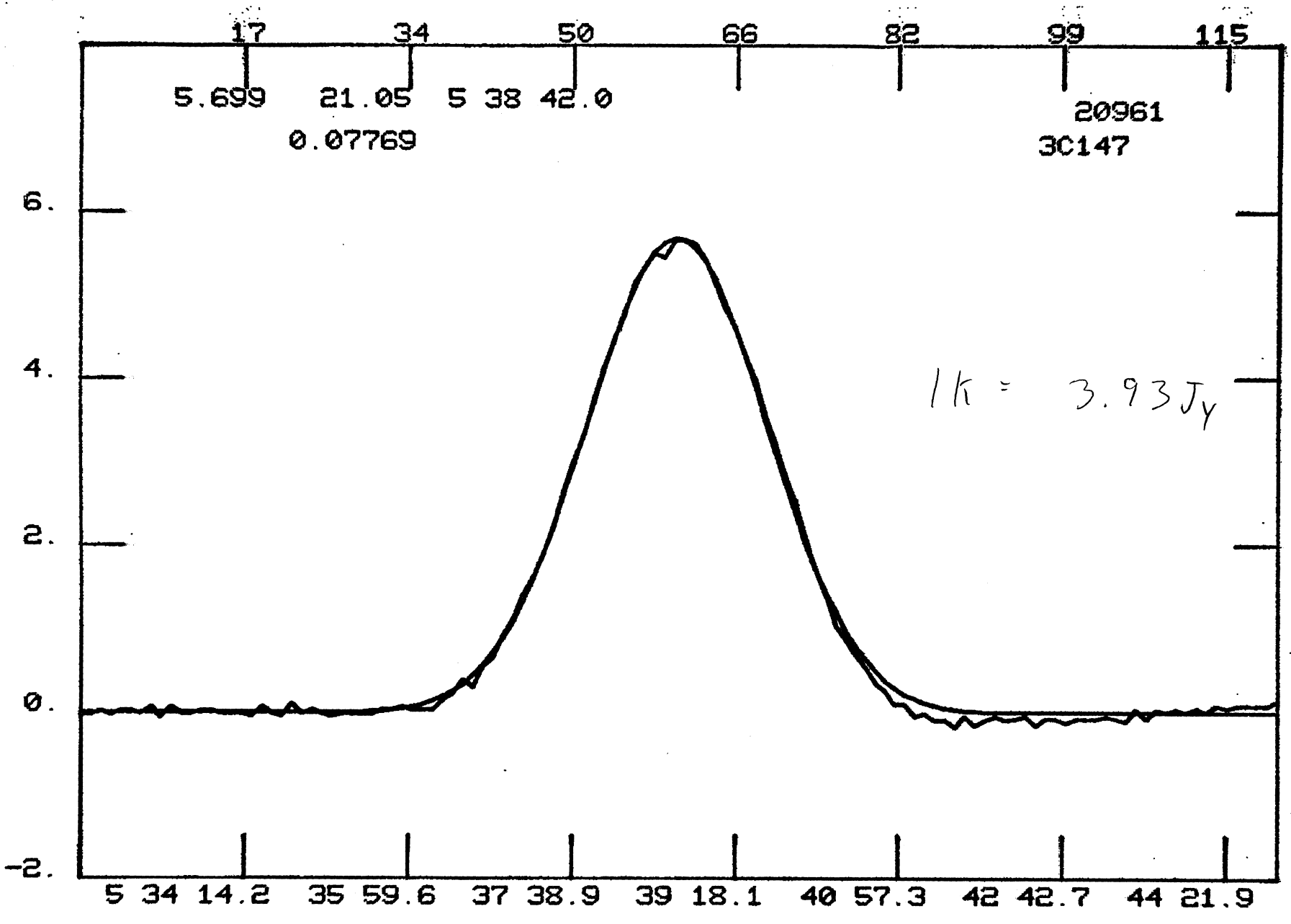
2095 - 2098 3C147

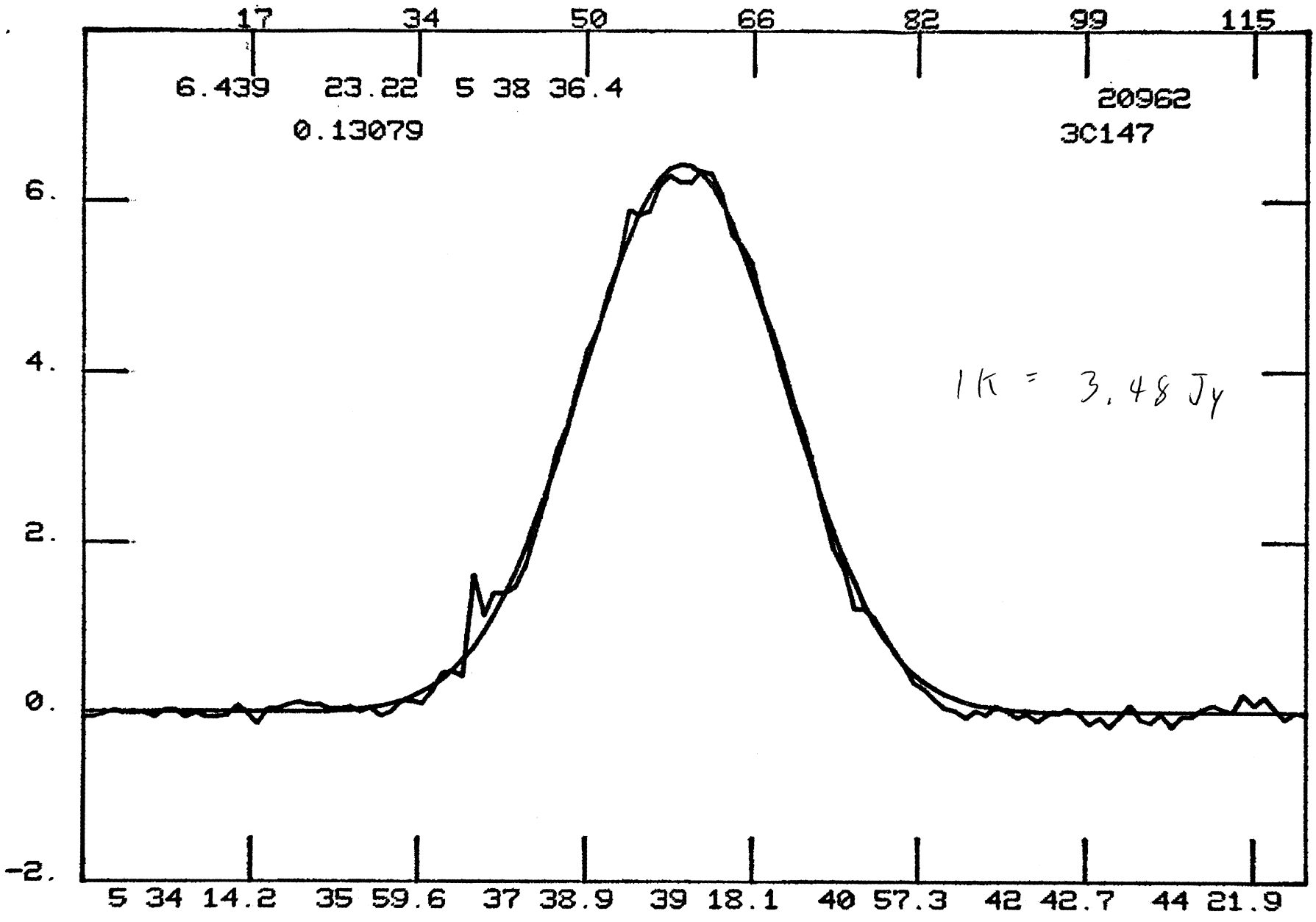
Receiver B gain wrong.

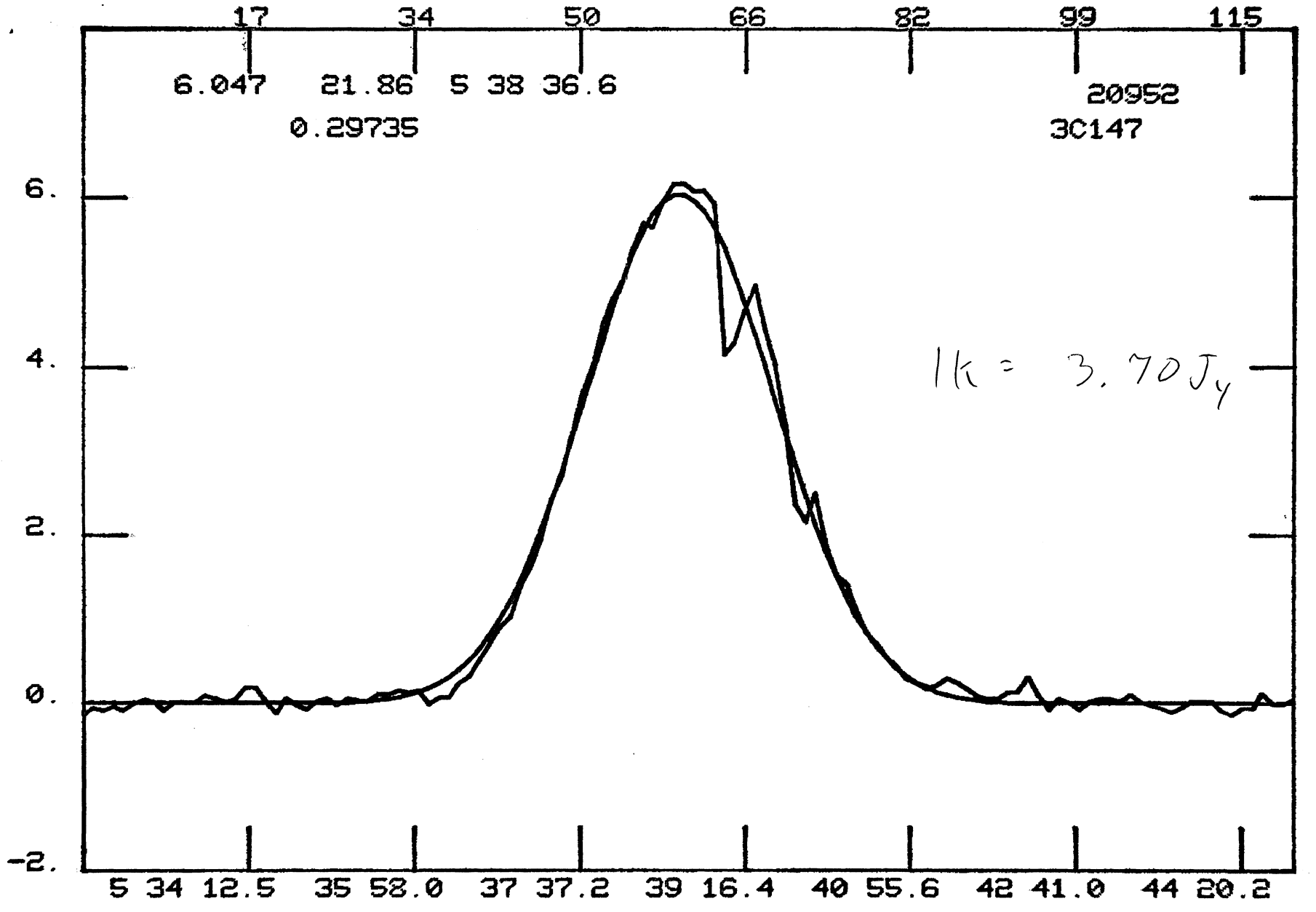

17
34
50
66
82
99
115
5.412
21.43 49 49 39.7
0.06168
20971
3C147
Second
Cal
Sunday
linear
6.
4.
2.
0.
-2.
1K = 4.14 Jy
49 6 10.9
23 10.9
39 10.9
55 10.9
11 10.9
28 10.9
44 10.9

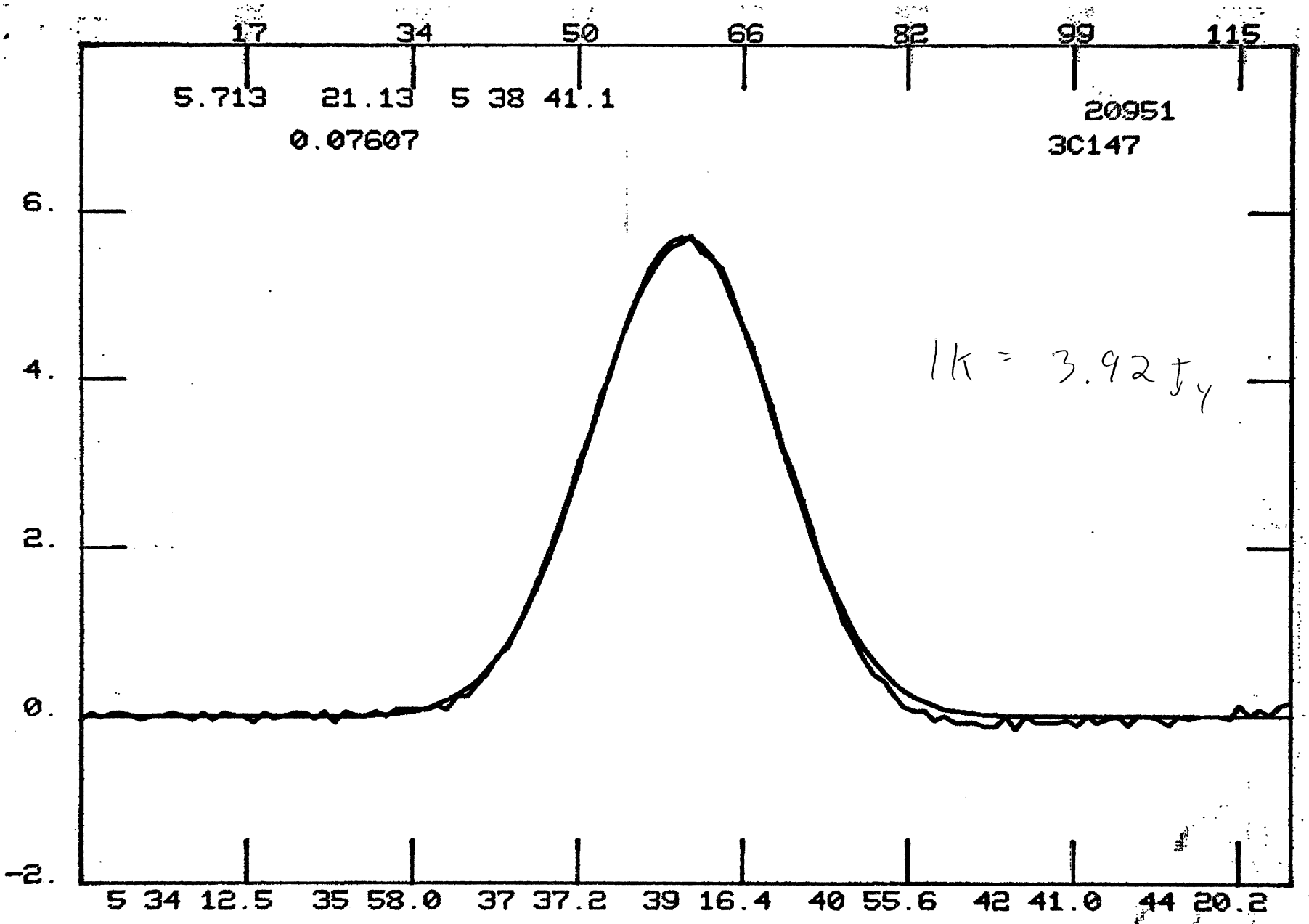
>


17
34
50
66
82
99
115
6.198
19.50 49 50 21.5
0.37883
20972
3C147
6.
4.
2.
0.
-2.
1 K = 3.61 Jy
49 6 10.9
23 10.9
39 10.9
55 10.9
11 10.9
28 10.9
44 10.9


17
34
50
66
82
99
115
5.699
21.05
5 38 42.0
0.07769
20961
3C147
6.
4.
2.
0.
-2.
1k = 3.93 Jy
5 34 14.2
35 59.6
37 38.9
39 18.1
40 57.3
42 42.7
44 21.9


17
34
50
66
82
99
115
6.439
23.22
5 38 36.4
0.13079
20962
3C147
6.
4.
2.
0.
-2.
1K = 3,48 Jy
5 34 14.2
35 59.6
37 38.9
39 18.1
40 57.3
42 42.7
44 21.9


17
34
50
66
82
99
115
6.047
21.86
5 38 36.6
0.29735
20952
3C147
6.
4.
2.
0.
-2.
1k = 3.70 Jy
5 34 12.5
35 58.0
37 37.2
39 16.4
40 55.6
42 41.0
44 20.2


17
34
50
66
82
99
115
5.713
21.13
5 38 41.1
0.07607
20951
3C147
6.
4.
2.
0.
-2.
1k = 3.92 Jy
5 34 12.5
35 58.0
37 37.2
39 16.4
40 55.6
42 41.0
44 20.2

scans stopped while work

For ~~all these scans~~ Rec B is being worked on.

Start new DDO 70

scan # 2100

Rec B invalid.

read MOV1074 back in

2100 - 2101 OFF/ON center ① 5 min

~~position~~ 3 and 5 switched to 25' off center

Time cut down: 5 min on center

10 min on ② & ④

15 min on ③ & ⑤

because time is running out and 70 & 75 are very strong sources

started work on Rec B after 2103

2102 - 2103 OFF/ON 10' ② 5 min

scans stopped here while Rec B is being worked on.

☆ It's taking forever! ☆

We played frisbee at 3:30

OBSERVING CARDS LISTING 7/26 13:52:12

Start run (15:47 LST)

Cal 3C295 procedure peak

scan # 2106 Cal scan
2107 Peak
2108
2109
2110

Pointing Corr: -2.2" RA 0 Dec
No LPC needed.

Linear polarization.

scan # 2112 start

2112 - 2113 OFF/ON CENTER DDO 161
2114 - 2115
2116 - 2117 " CENTER DDO 185
2118 - 2119

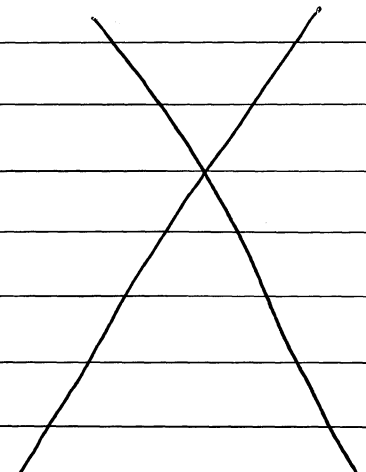
run stopped

" CENTER DDO 125

" CENTER DDO 126

" CENTER DDO 105

" CENTER DDO 99



Calibration Results (previous page)

3C295

A scan	REC A	1k = 3.934 Jy
δ scan	REC A	1k = 3.908 Jy
α scan	REC A	1k = 3.915 Jy
δ scan	Rec A	1k = 3.904 Jy
α scan	Rec B	1k = 4.018 Jy
α scan	Rec B	1k = 4.186 Jy
δ scan	Rec B	1k = 4.073 Jy
δ scan	Rec B	1k = 4.030 Jy

Rec A avg : 1k = 3.915 Jy
Rec B avg : 1k = 4.076 Jy

avg : 1k = 3.995 Jy

☆ Start Monday

Cal 3C147

Scan # 2200 Cal scan
2201 - 2204 3C147 Peak

No LPC needed

Cal results

22011	α scan	REC A	1K = 3.99	Jy
22012	α scan	REC B	1K = 4.08	Jy
22021	α scan	REC A	1K = 3.98	Jy
22022	α scan	REC B	1K = 4.08	Jy
22031	δ scan	REC A	1K = 4.02	Jy
22032	δ scan	REC B	1K = 4.05	Jy
22041	δ scan	REC A	1K = 4.01	Jy
22042	δ scan	REC B	1K = 4.12	Jy

ave rec A 1K = 4.00 Jy

ave rec B 1K = 4.08 Jy

ave 1K = 4.04 Jy

OBSERVING CARDS LISTING 7/28 10:27: Ø

```
 1)   O 999 ZAPNRAO          T1ØØL  LINE
 2)   L 1    Ø.Ø      Ø.Ø      Ø.Ø   SUN   OPTICAL C A
 3)   R A Ø.Ø    Ø.Ø        11ØØ+L1*Ø1*Ø1+LA  142Ø.4Ø58 15Ø.ØØØ   6.6 2 2
 4)   R B Ø.Ø    Ø.Ø        11ØØ+L1*Ø1*Ø1+LB  142Ø.4Ø58 15Ø.ØØØ   4.9 2 2
 5)   P 195Ø.Ø      1Ø.Ø     1Ø.Ø 6 Ø 1  1Ø336.Ø  Ø1Ø336                 155.Ø   ØØ
 6)     REP1=1;REP2=2;REP3=3;REP4=2
 7)   A                      6Ø.Ø
 8)   D Ø95723.Ø  Ø534Ø7 +11Ø.Ø
 9)   S DDO 7Ø       6  ØØØ.ØØØ  ØØ.ØØØ V      295.Ø SEQ    5ØØ              MOVLOT6
10)   D 1ØØ83Ø.Ø -Ø42647 +  Ø.Ø
11)   S DDO 75       6  ØØØ.ØØØ  ØØ.ØØØ V      321.Ø SEQ    5ØØ              MOVLOT6
12)   D 114815.Ø  39Ø92Ø + 65.Ø
13)   S DDO 99       6  ØØØ.ØØØ  ØØ.ØØØ V      248.Ø SEQ    5ØØ              MOVLOT3
14)   D 115554.Ø  382ØØ + 7Ø.Ø
15)   S DDO 1Ø5      6  ØØØ.ØØØ  ØØ.ØØØ V      917.Ø SEQ    5ØØ              MOVLOT3
16)   D 122436.Ø  372507 +13Ø.Ø
17)   S DDO 126      6  ØØØ.ØØØ  ØØ.ØØØ V      222.Ø SEQ    5ØØ              MOVLOT3
18)   D 122514.Ø  434628 +13Ø.Ø
19)   S DDO 125      6  ØØØ.ØØØ  ØØ.ØØØ V      198.Ø SEQ    5ØØ              MOVLOT3

  19  CARDS READ AND STORED IN FILE T1ØØL
```

SET LO 1 TO COMPUTER

SET RCVR A I.F. TO 15Ø.ØØØ MHZ
SET RCVR A BW TO 5MC
SET A/C MODE TO PARALLEL

SET RCVR B I.F. TO 15Ø.ØØØ MHZ
SET RCVR B BW TO 5MC

Start DDO 70 scan # 2208

print	2208 - 2209	DDO 70	Center	①	5 min
prints {	2210 - 2211	DDO 70	10'	②	5 min
	2212 - 2213	DDO 70	10'	②	5 min
	2214 - 2215	DDO 70	25'	③	5 min
	2216 - 2217	DDO 70	25'	③	"
	2218 - 2219	"	"	"	"
new Galaxy →	2220 - 2221	DDO 75	Center	①	5 min
	2222 - 2223	DDO 75	10'	②	5 min
	2224 - 2225	DDO 75	10'	②	5 min
	2226 - 2227	DDO 75	25'	③	5 min
	2228 - 2229	DDO 75	25'	③	5 min
	2230 - 2231	DDO 75	25'	③	5 min.

Run stopped here
~1:30 Monday 7/28/80

WE ARE NOW PROS...
... AT USING UP OBSERVING TIME.
(USELESSLY)

OBSERVING CARDS LISTING 7/26 13:52:12

```
1)   O 999 ZAPNRAO          T1ØØL  LINE
2)   L 1    Ø.Ø      Ø.Ø      Ø.Ø   SUN   OPTICAL C A
3)   R A Ø.Ø    Ø.Ø        11ØØ+L1*Ø1*Ø1+LA  142Ø.4Ø58 15Ø.ØØØ   6.6 2 2
4)   R B Ø.Ø    Ø.Ø        11ØØ+L1*Ø1*Ø1+LB  142Ø.4Ø58 15Ø.ØØØ   4.9 2 2
5)   P 195Ø.Ø      1Ø.Ø     1Ø.Ø 6 Ø 1  1Ø336.Ø  Ø1Ø336                155.Ø   ØØ
6)   A                     6Ø.Ø
7)     REP1=2;REP2=3;REP3=4
8)   D 1Ø3951.Ø  344247    Ø.Ø
9)   S DDO 84       6  ØØØ.ØØØ  ØØ.ØØØ V      633.Ø SEQ    5ØØ            MOVLOT
10)  D Ø95723.Ø  Ø534Ø7 +11Ø.Ø
11)  S DDO 7Ø       6  ØØØ.ØØØ  ØØ.ØØØ V      295.Ø SEQ    5ØØ            MOVLOT
12)  D 114815.Ø  39Ø92Ø + 65.Ø
13)  S DDO 99       6  ØØØ.ØØØ  ØØ.ØØØ V      248.Ø SEQ    5ØØ            MOVLOT
14)  D 123Ø25.Ø  314853 +  Ø.Ø
15)  S DDO 133      6  ØØØ.ØØØ  ØØ.ØØØ V      335.Ø SEQ    5ØØ            MOVLOT
16)  D 122514.Ø  43462Ø +13Ø.Ø
17)  S DDO 125      6  ØØØ.ØØØ  ØØ.ØØØ V      198.Ø SEQ    5ØØ            MOVLOT
18)  D 135253.Ø  54Ø82Ø + 2Ø.Ø
19)  S DDO 185      6  ØØØ.ØØØ  ØØ.ØØØ V      141.Ø SEQ    5ØØ            MOVLOT

  19  CARDS READ AND STORED IN FILE T1ØØL
```

Linear

SET LO 1 TO COMPUTER

SET RCVR A I.F. TO 15Ø.ØØØ MHZ
SET RCVR A BW TO 5MC
SET A/C MODE TO PARALLEL

SET RCVR B I.F. TO 15Ø.ØØØ MHZ
SET RCVR B BW TO 5MC

SKIP

– 1936-44, 1945 –

OBSERVING CARDS LISTING 7/26 17:23:29

```
1)  O 999 ZAPNRAO          T100L  LINE
2)  L 1    0.0      0.0       0.0   SUN   OPTICAL C A
3)  R A 0.0    0.0          1100+L1*01*01+LA  1420.4058 150.000  5.7 2 2
4)  R B 0.0    0.0          1100+L1*01*01+LB  1420.4058 150.000  5.7 2 2
5)  P 1950.0      10.0       10.0 6 0 1  10336.0  010336              155.0   00
6)  A                        60.0
7)    REP1=2;REP2=3;REP3=4
8)  D 103951.0  344247     0.0
9)  S DDO 84        6  000.000  00.000 V      633.0 SEQ    500            MOVLOT
10) D 095723.0  053407 +110.0
11) S DDO 70        6  000.000  00.000 V      295.0 SEQ    500            MOVLOT
12) D 114815.0  390920 + 65.0
13) S DDO 99        6  000.000  00.000 V      248.0 SEQ    500            MOVLOT
14) D 123025.0  314853 +  0.0
15) S DDO 133       6  000.000  00.000 V      335.0 SEQ    500            MOVLOT
16) D 122514.0  434620 +130.0
17) S DDO 125       6  000.000  00.000 V      198.0 SEQ    500            MOVLOT
18) D 135253.0  540820 + 20.0
19) S DDO 185       6  000.000  00.000 V      141.0 SEQ    500            MOVLOT

  19  CARDS READ AND STORED IN FILE T100L
```

SET LO 1 TO COMPUTER

SET RCVR A I.F. TO 150.000 MHZ
SET RCVR A BW TO 5MC
SET A/C MODE TO PARALLEL

SET RCVR B I.F. TO 150.000 MHZ
SET RCVR B BW TO 5MC

Linear
circular

SKIP

(1) 1967-98
(3) 1999-2000

CALIBRATION

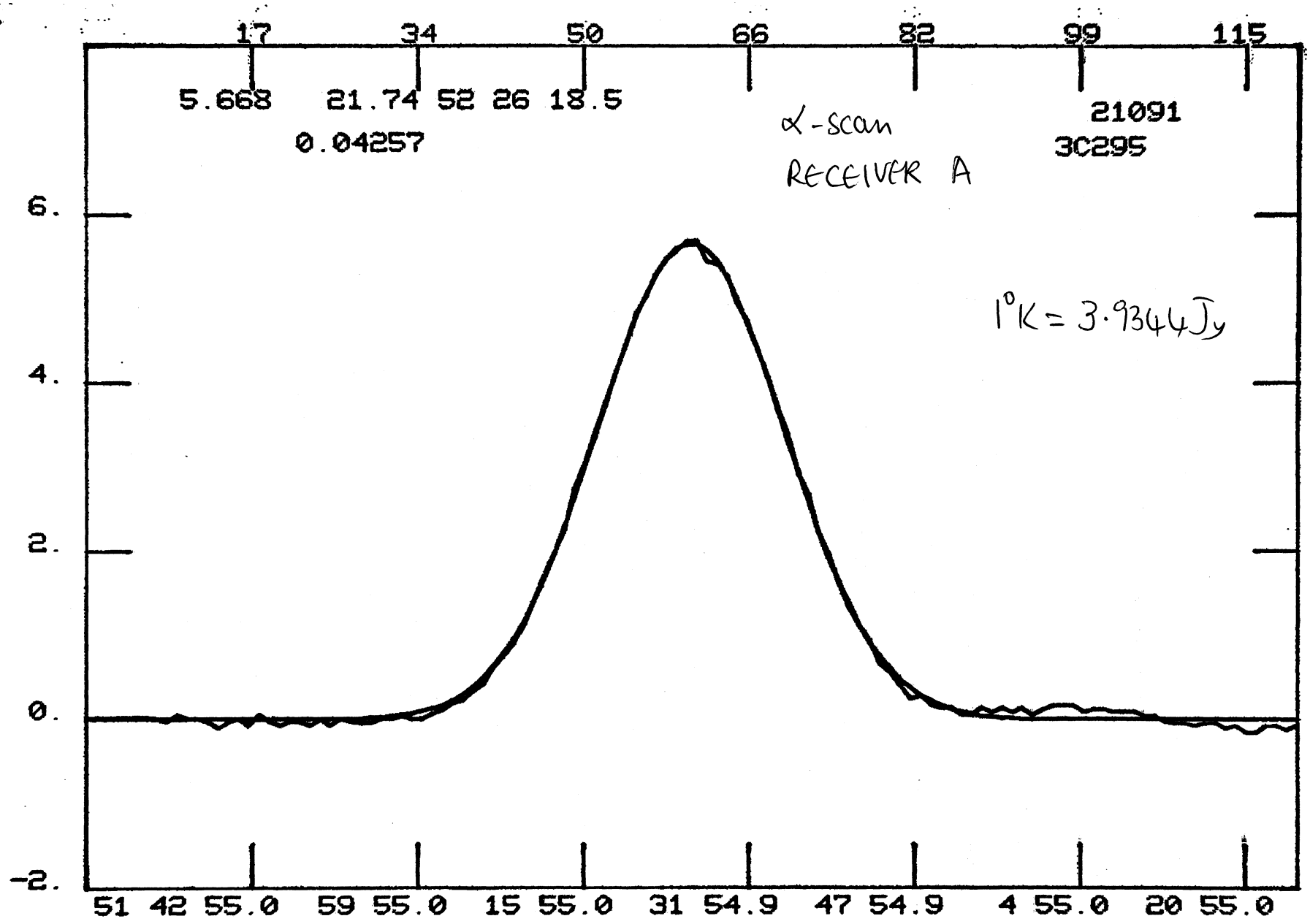
Chnl B: 3.9151 Jy

Chl B: 4.0758 Jy

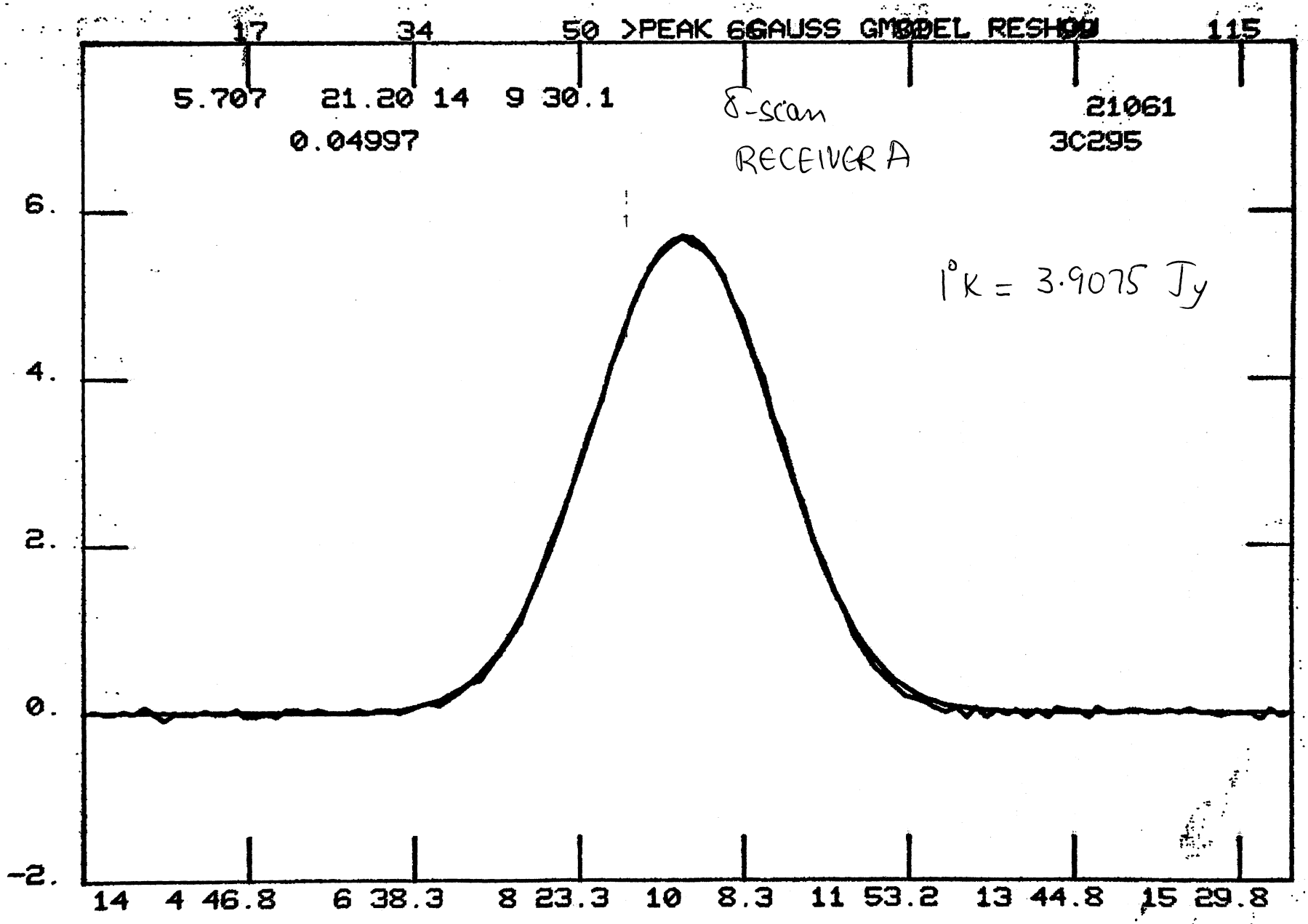
Av 'K = 3.995 Jy

Done at ≐ 1600 LST = 2000 Hrs EST

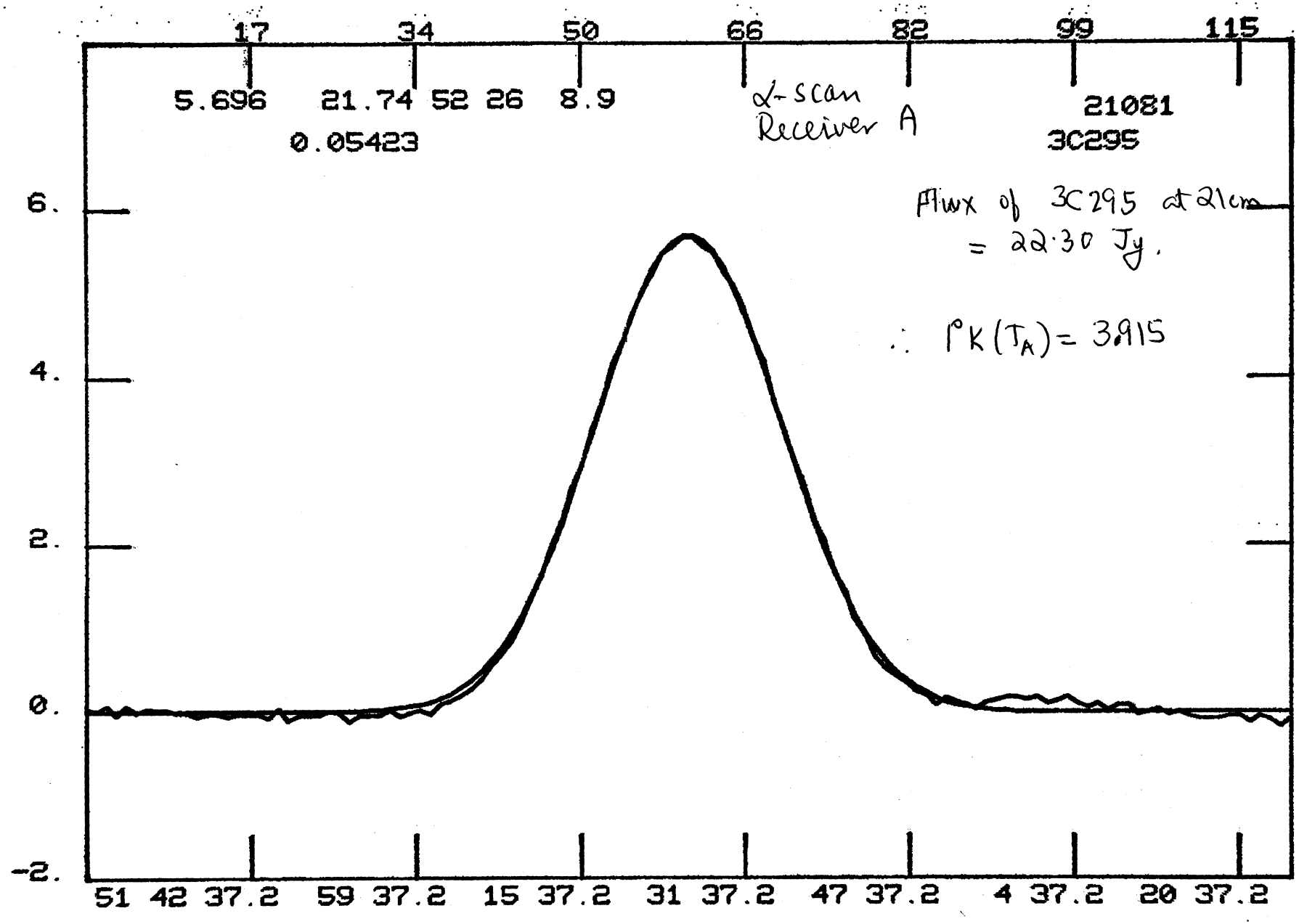
on 28th July 80



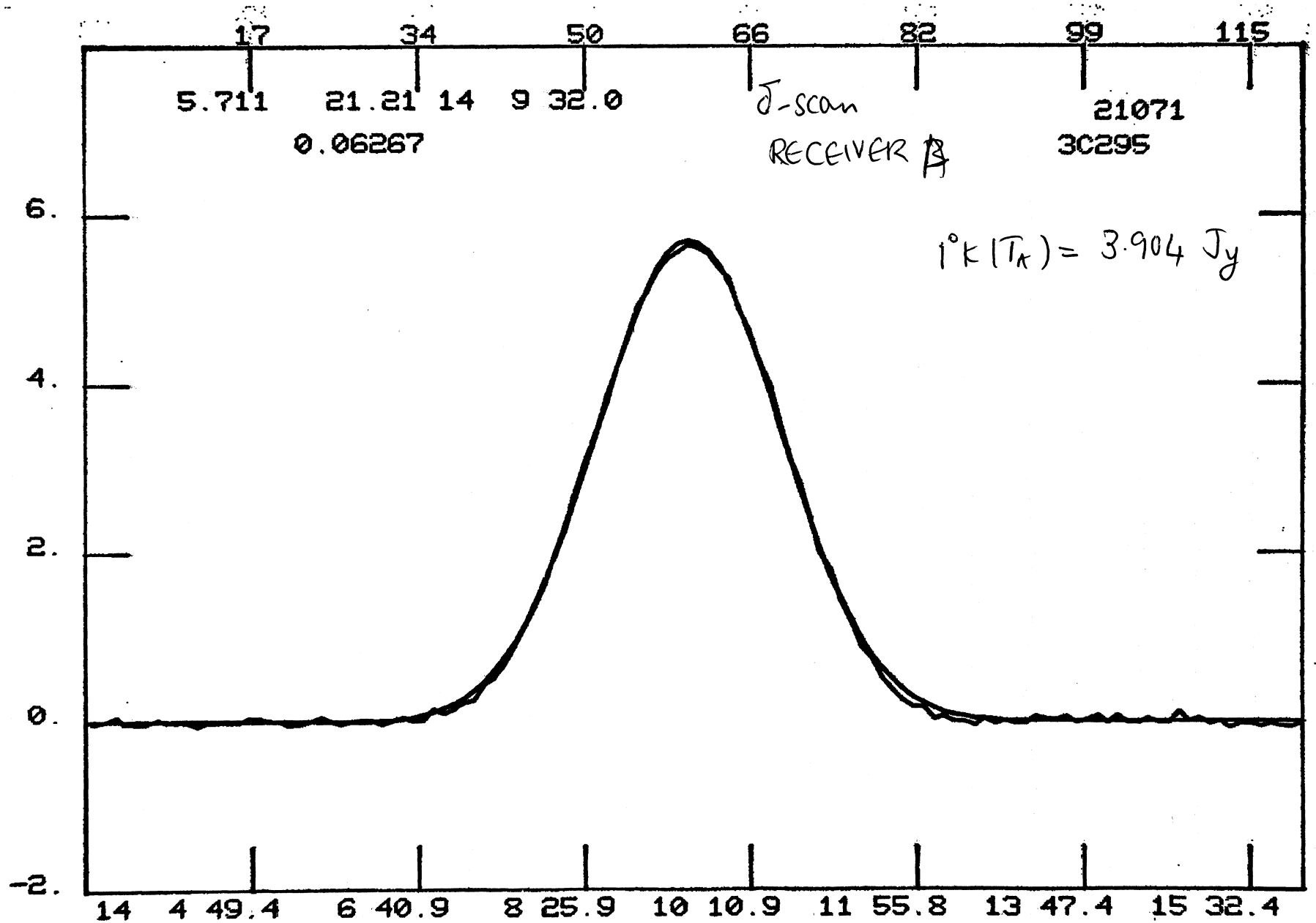
>PEAK GAUSS GMODEL RESHOW



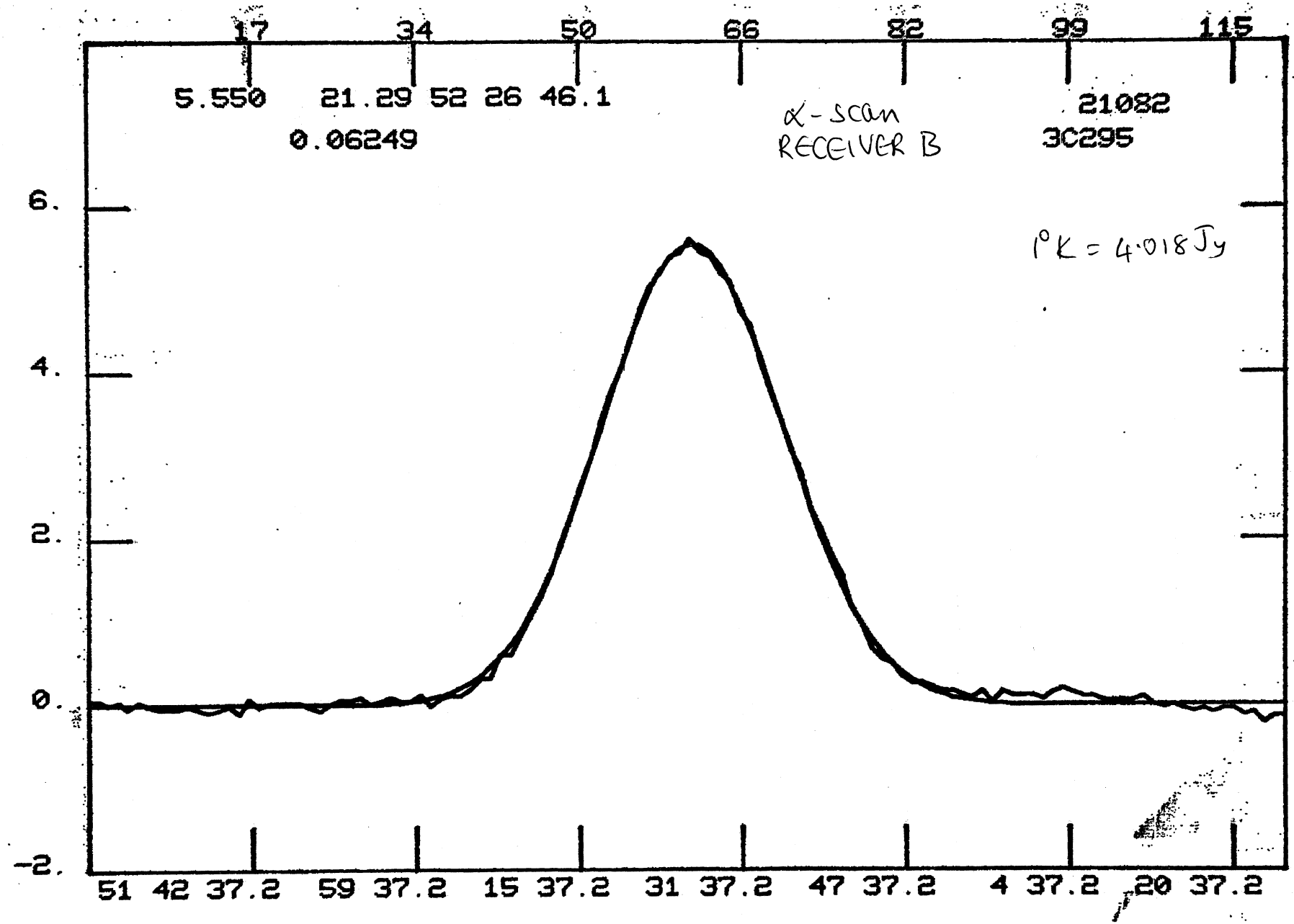
XPESAK
>PEAK GAUSS GMODEL RESHOWW
SYMBOL? RESHOWW



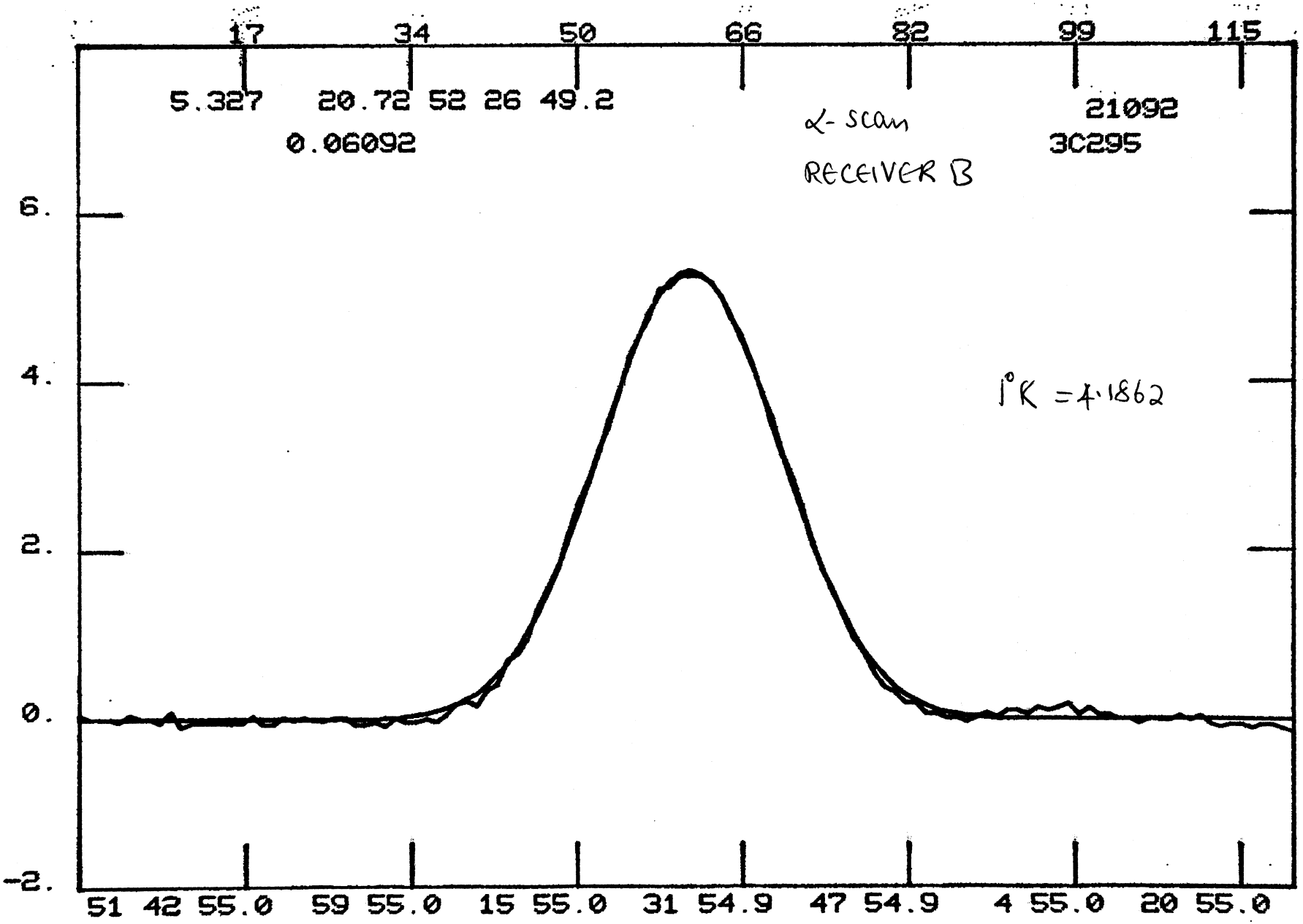
>PEAK GAUSS DODBEL RESHOW



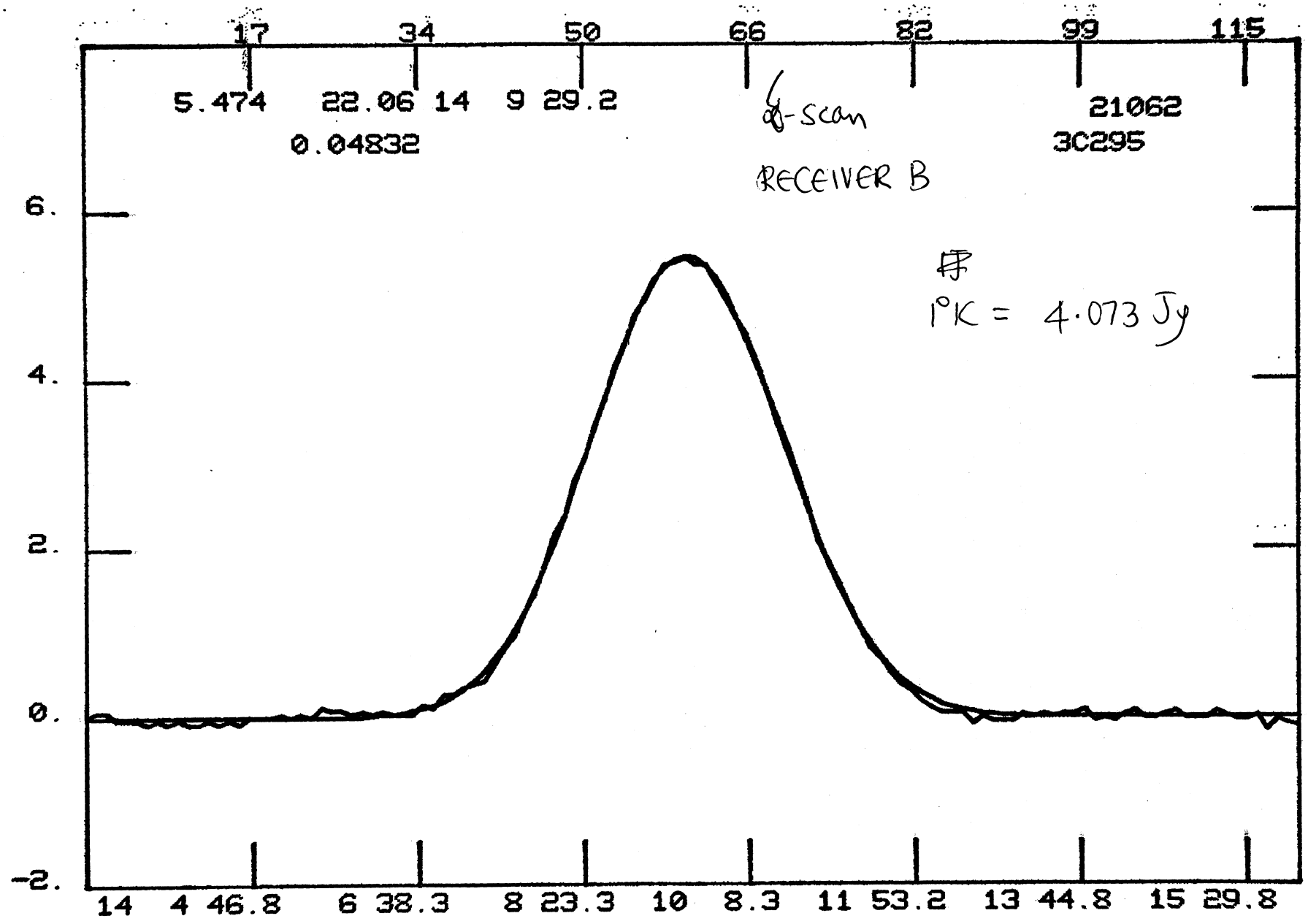
>PEAK GAUSS [redacted]EL RESHOW



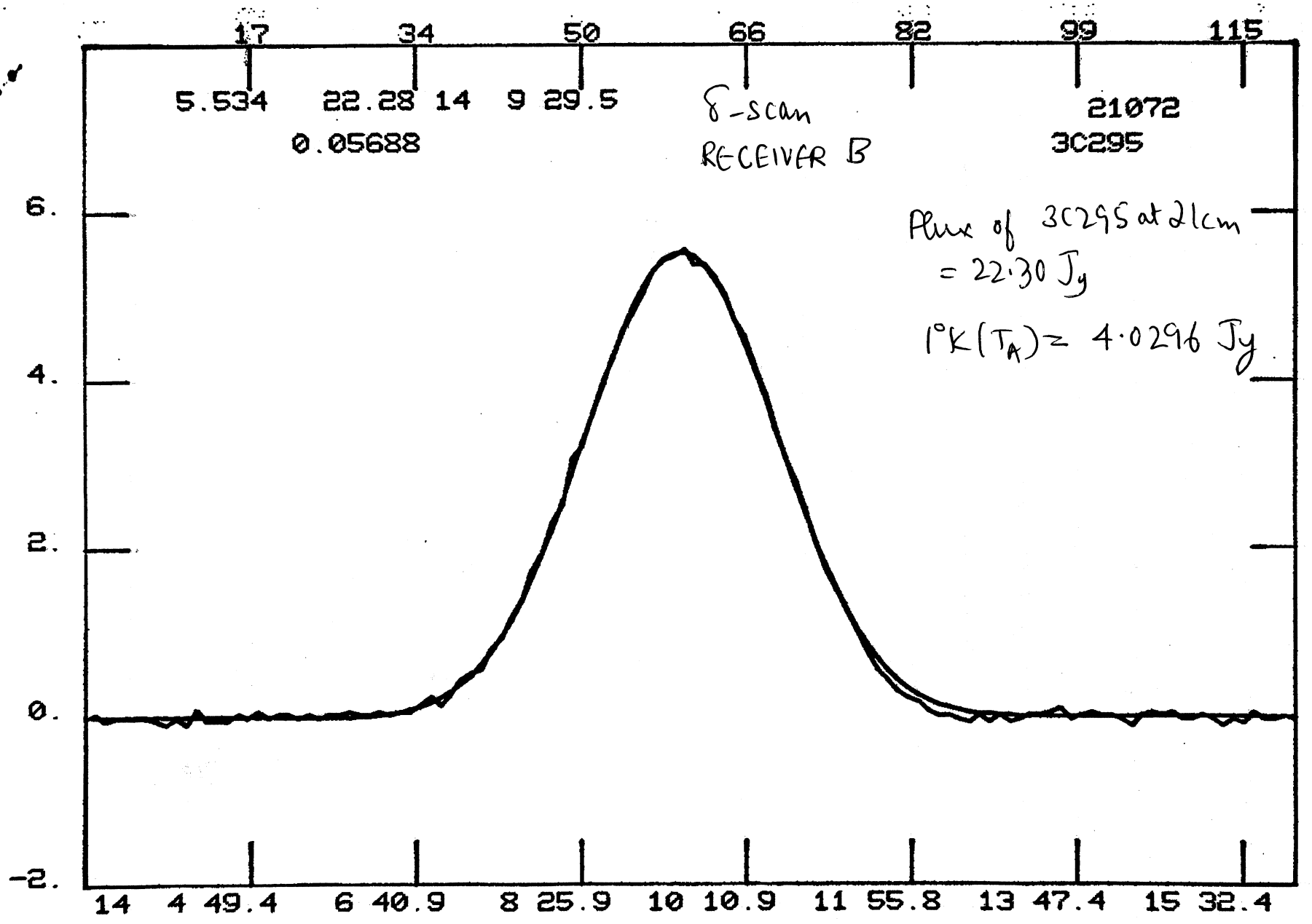
>PEAK GAUSS GMODEL RESHOW



>PEAK GAUSS GMODEL RESHOW



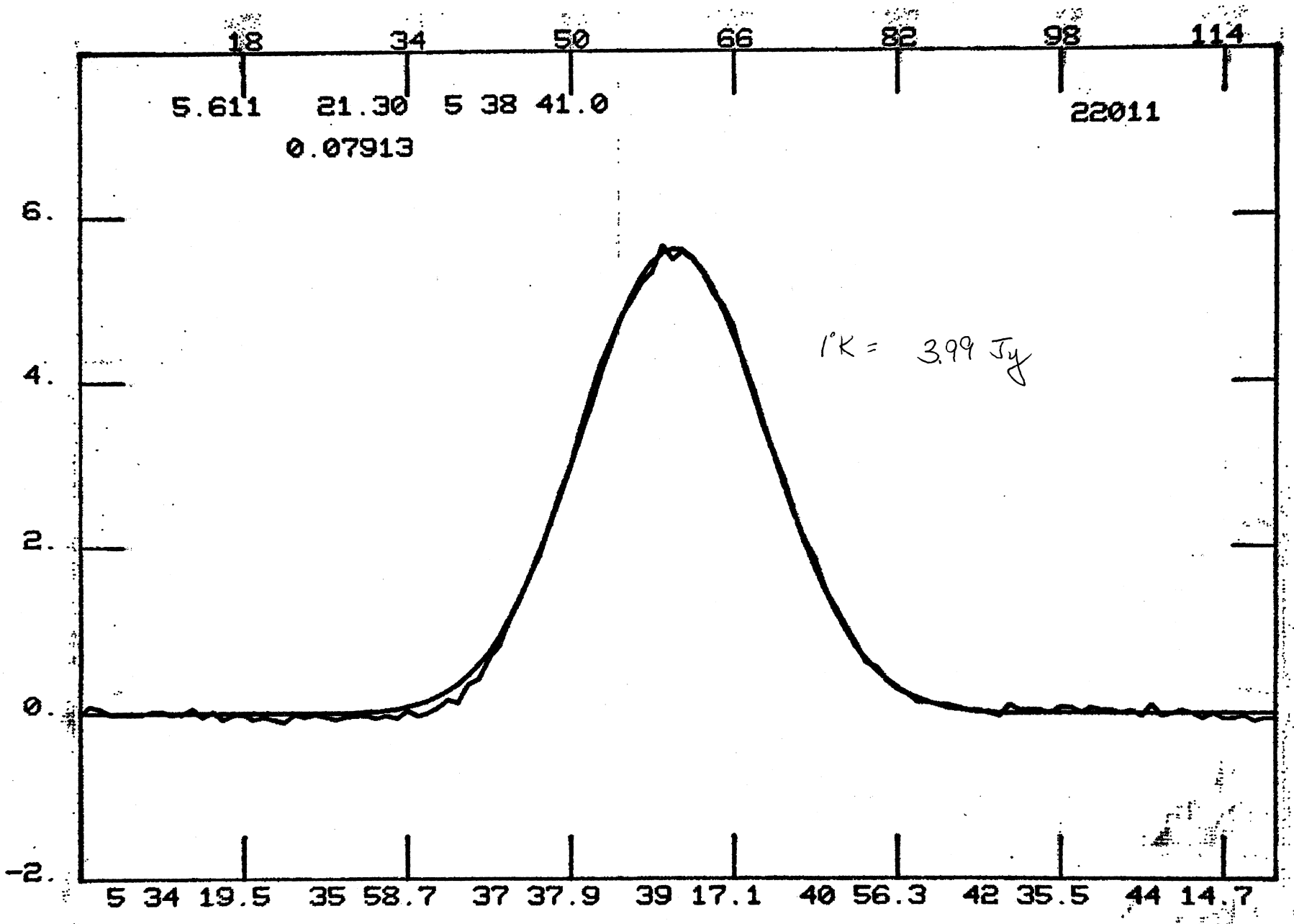
>PEAK GAUSS GMODEL RESHOW



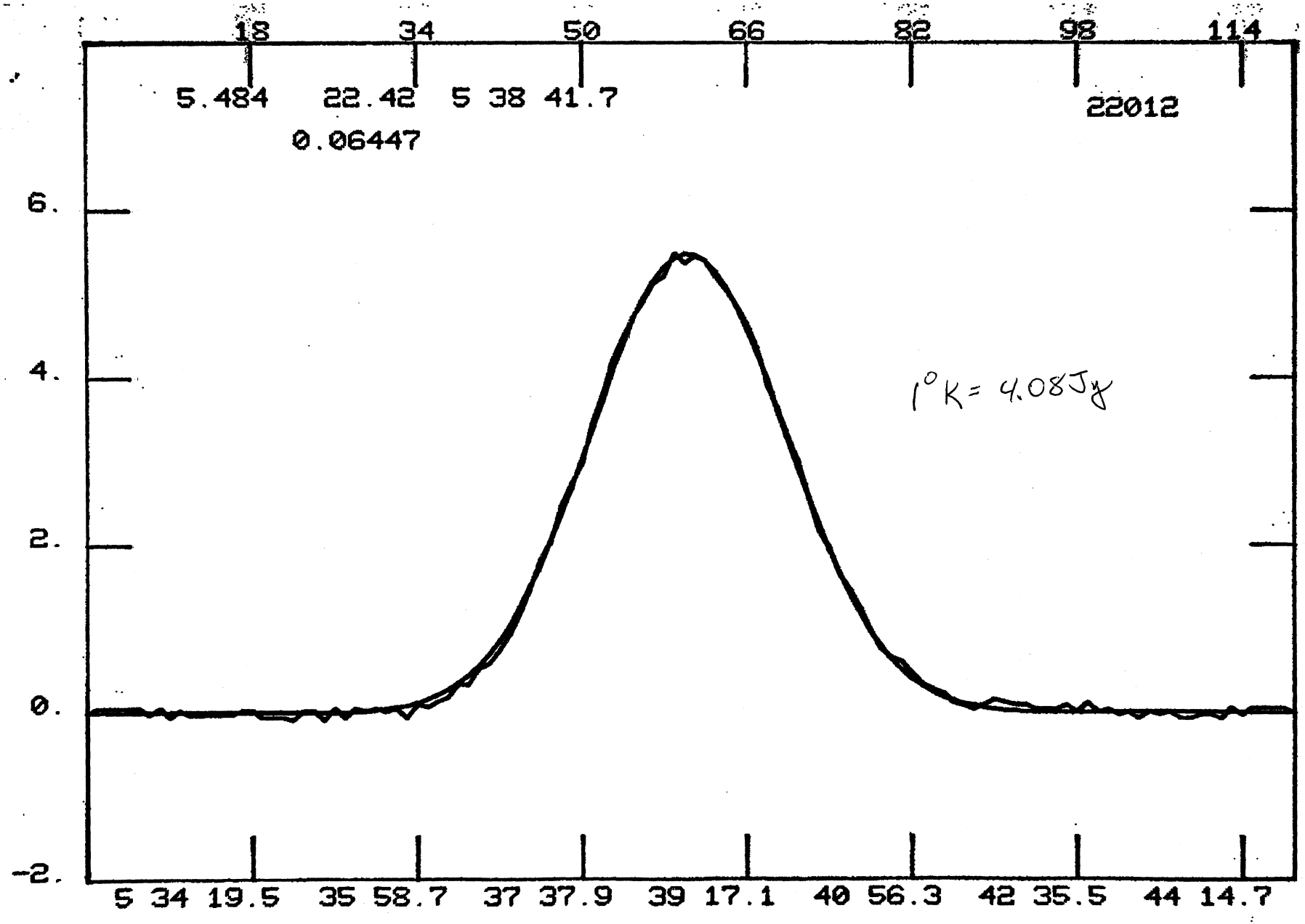
Flux of 3C295 at 21cm
= 22.30 Jy

1°K (T_A) = 4.0296 Jy

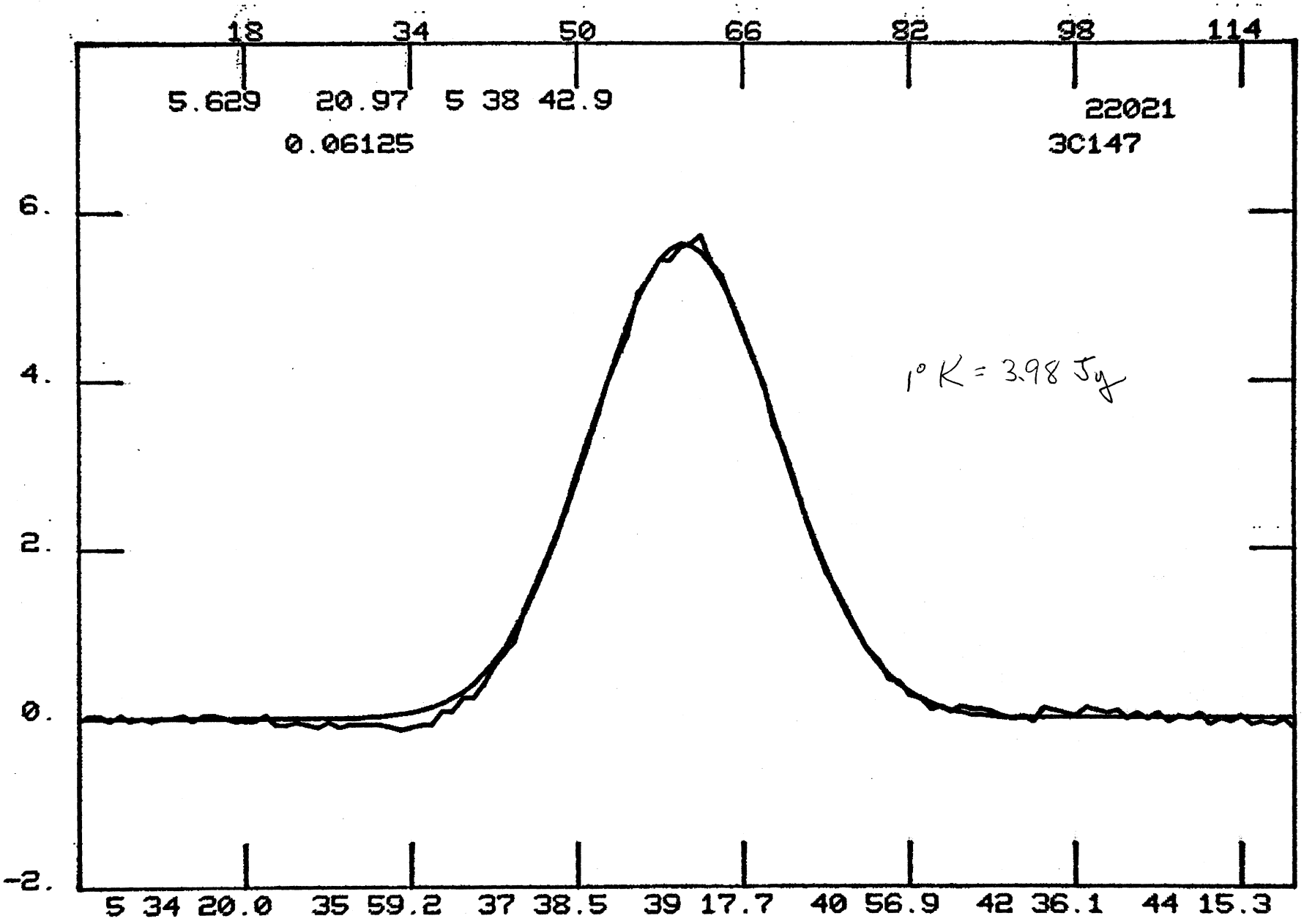
>PEAK GAUSS GMODEL RESHOW



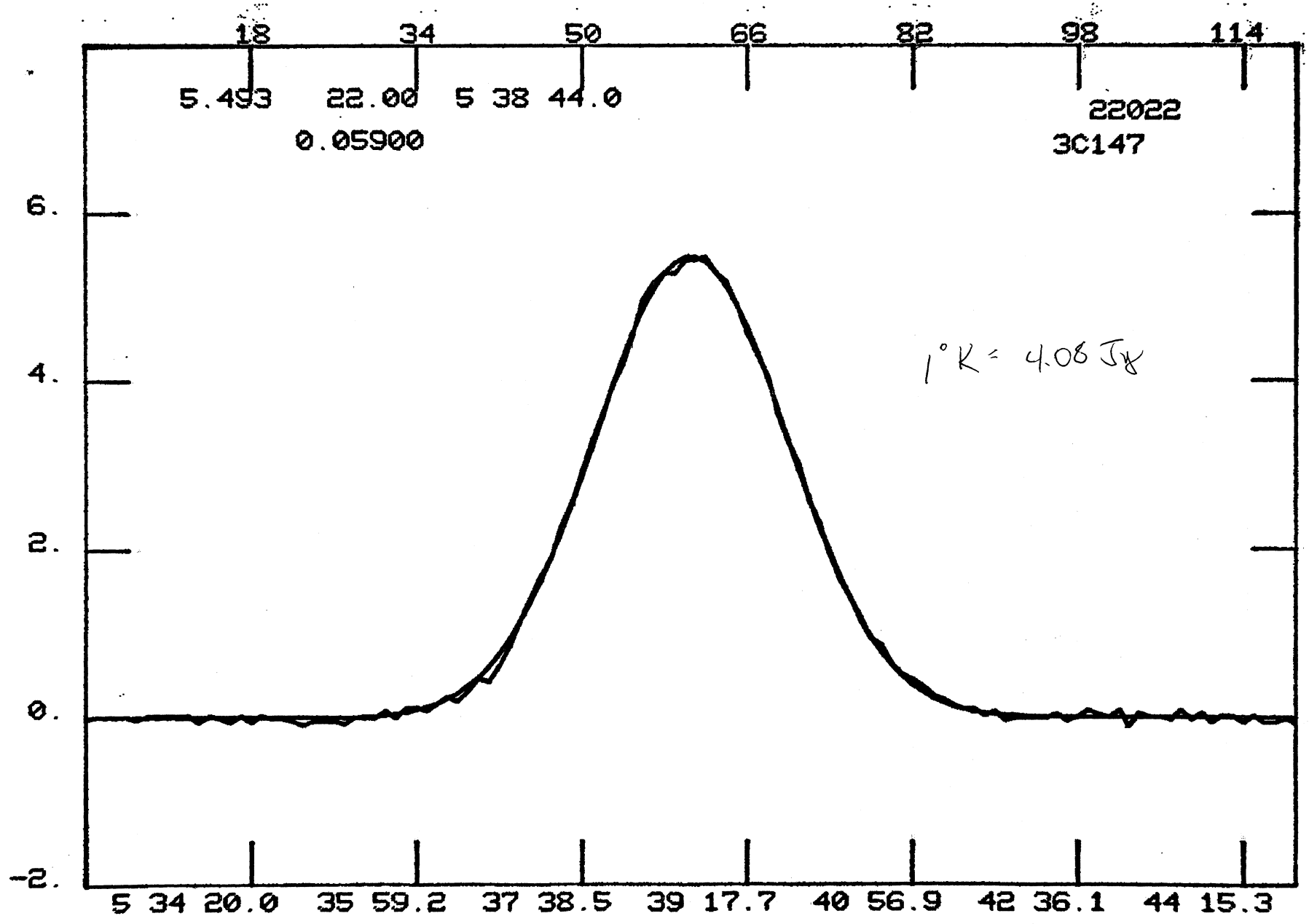
XBASELINE
>PEAK GAUSS GMODEL RESHOW



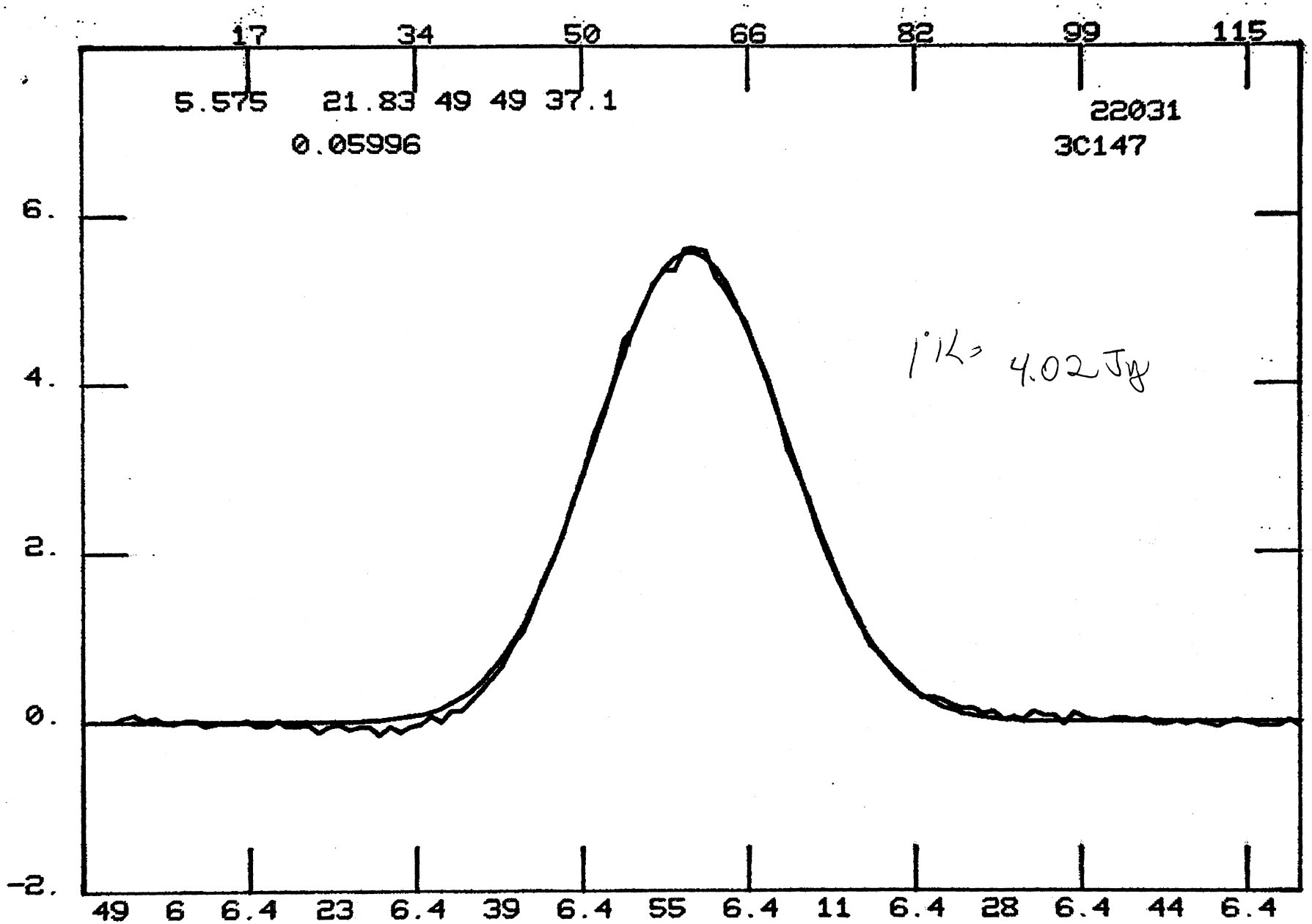
>PEAK GAUSS GMODEL RESOW
SYMBOL? RESOW
>PEAK GAUSS GMODEL RESHOW



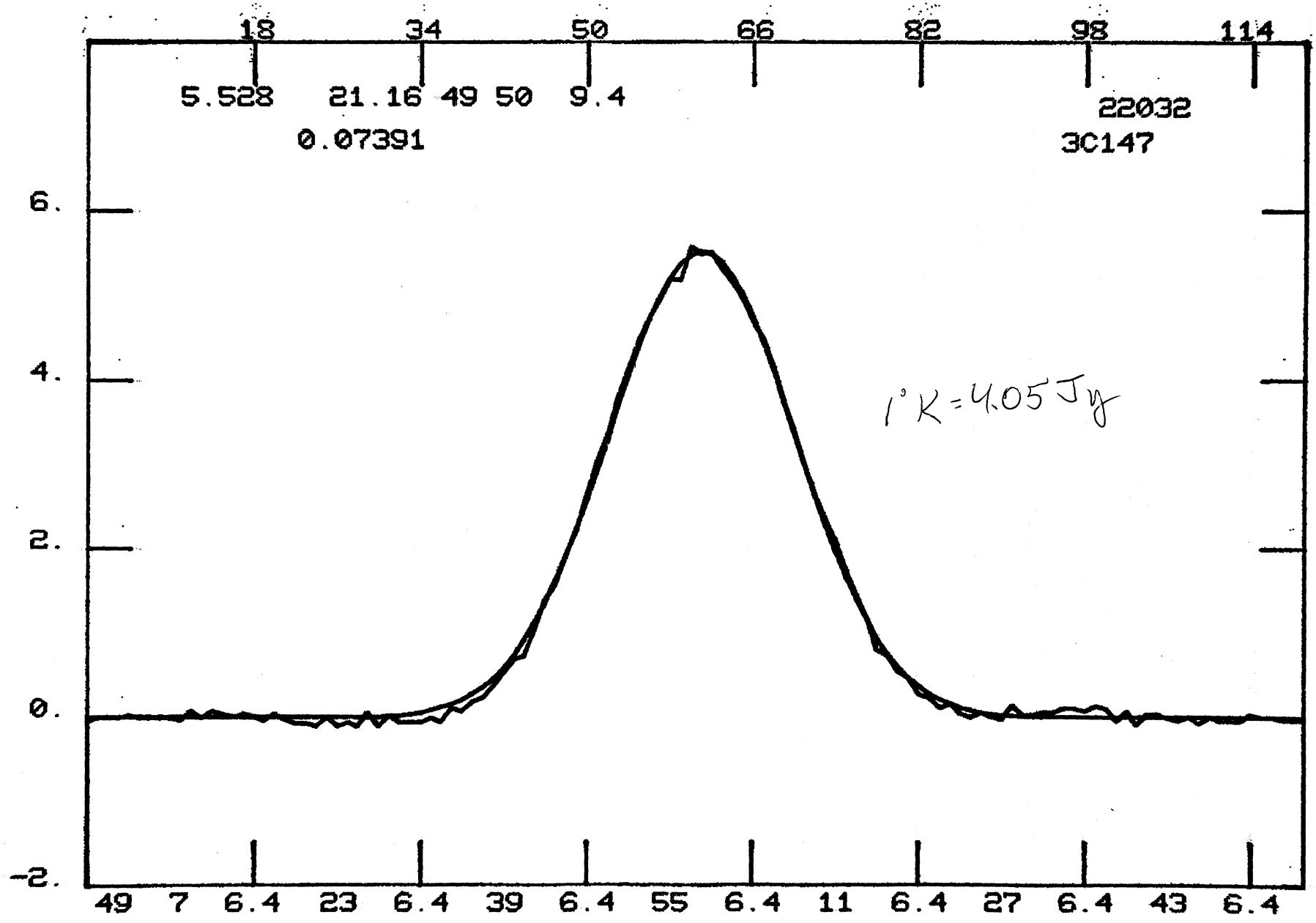
>PEAK GAUSS GMODEL RESHOW



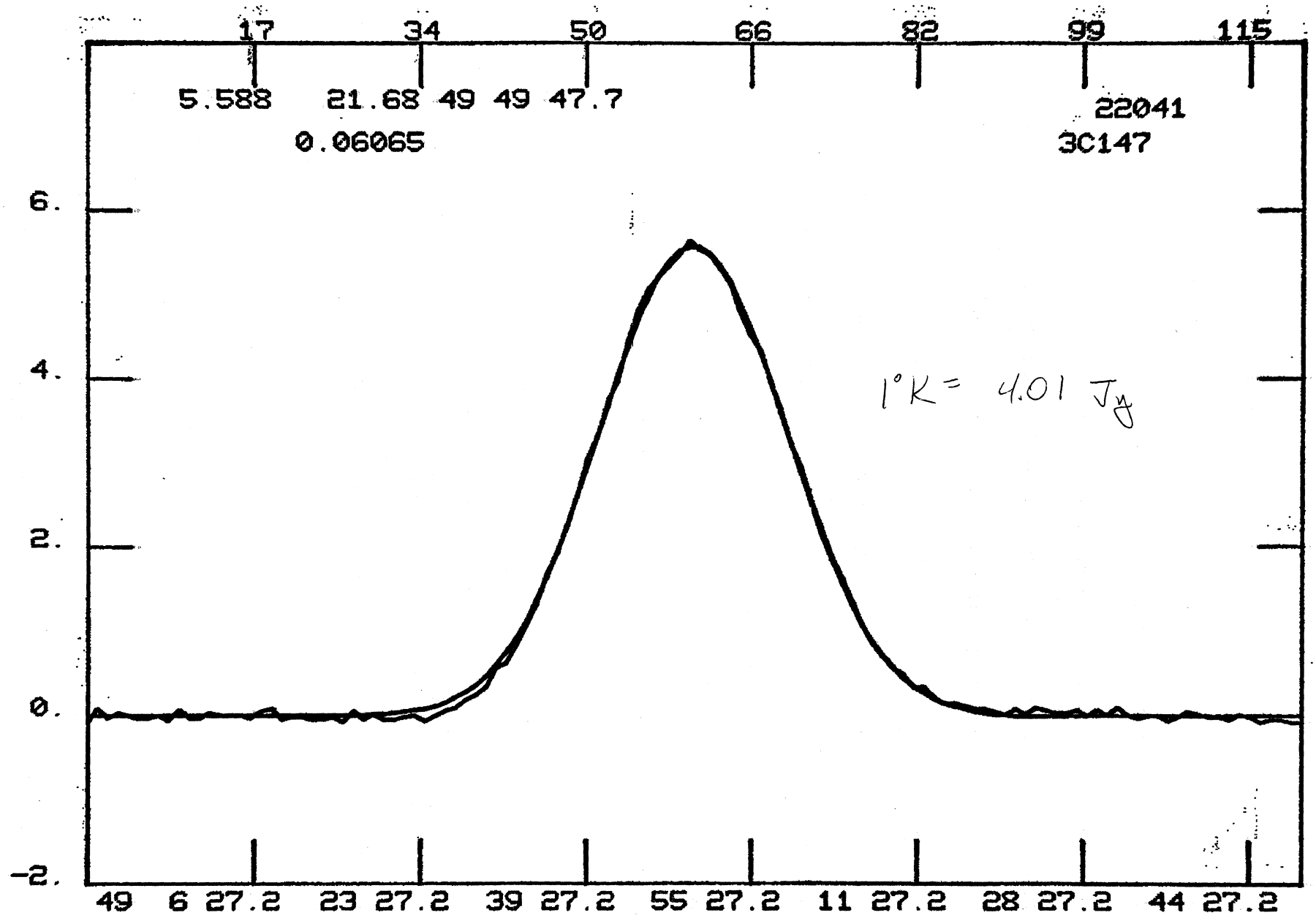
>PEAK GAUSS GMODEL RESHOW



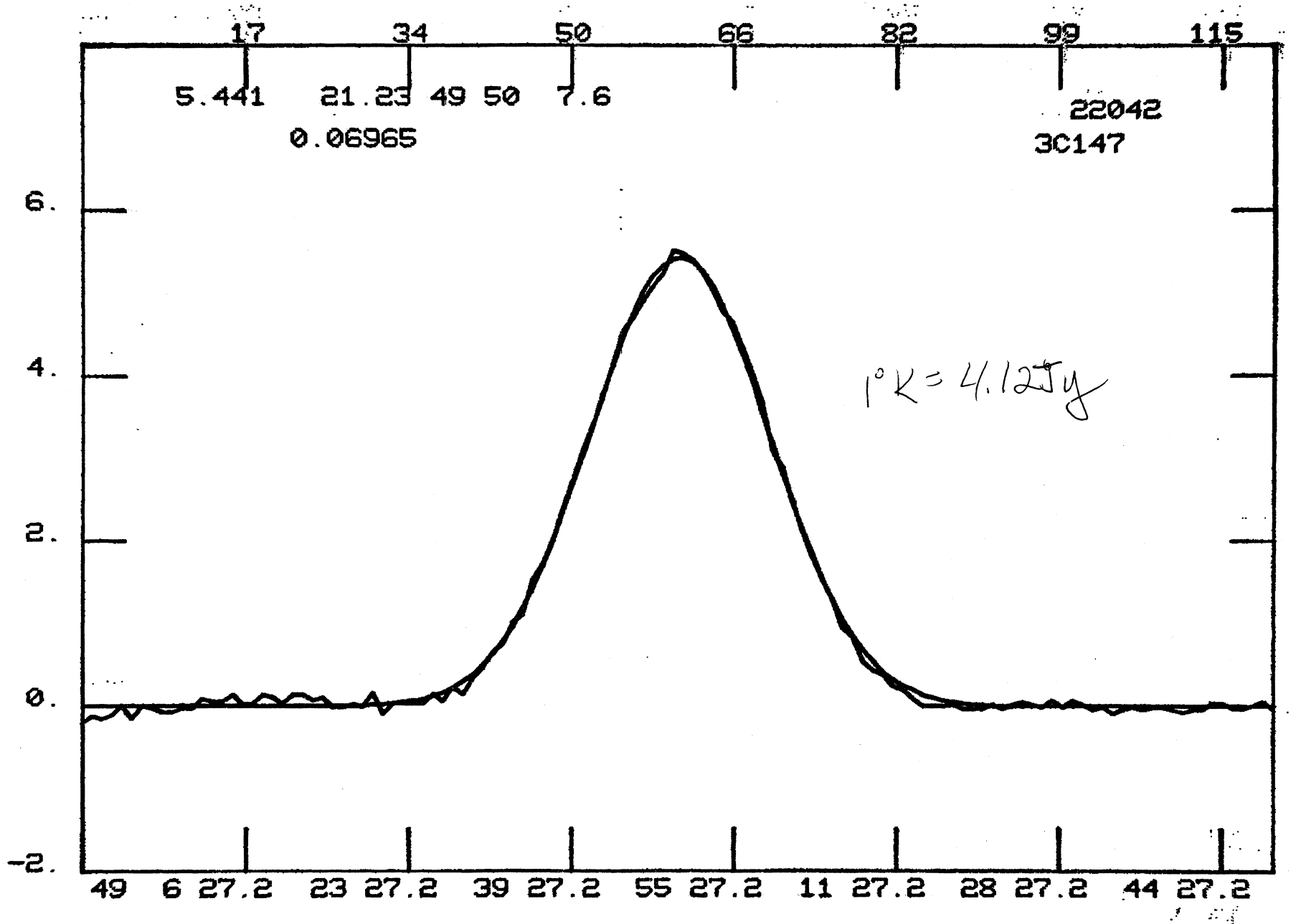
>PEAK GAUSS GMODEL REBBOW



>PEAK GAUSSSGMODEL RESHOW



>PEAK GAUSS GMODEL RESBOW



>PEAK GAUSS GMODEL RESHOW

Cal (Both) : 4.04 -

Cal (Rec A) = 4.00
Cal (Rec B) = 4.08

140-FOOT TELESCOPE LOG

USER 466 BENSON&DICKEY D117C 7/28/80 TAPE 0238 COPY 2 DUMP 8

SCAN#	SOURCE	PROG	ID	CNFREQ	M	FOC	PA	RA (1950.00)	DEC	LST	EST	#B	#R	TR#	REMARKS
2181.	0234+28	TPWR	ON	1420.52	2	154.	270.	2:34:56.3	28:35:12	2:35:50	6:30: 1	1	2	2433	
2182.	0234+28X	TPWR	ON	1420.51	2	155.	270.	2:40:27.1	28:35:12	2:41:30	6:35:40	1	2	2435	
2183.	CTA21 X	TPWR	ON	1420.49	2	153.	270.	3:10:58.1	16:17:40	2:47:40	6:41:49	1	14	2437	
2184.	CTA21	TPWR	ON	1420.49	2	153.	270.	3:16: 9.1	16:17:42	3:17:20	7:11:24	1	2	2451	
2185.	CTA26 X	TPWR	ON	1420.46	2	150.	270.	3:31:47.9	- 1:56:15	3:23:30	7:17:33	1	7	2453	
2186.	CTA26	TPWR	ON	1420.46	2	151.	270.	3:36:59.0	- 1:56:16	3:38:10	7:32:11	1	2	2460	
2187.	NRAO150X	TPWR	ON	1420.50	2	154.	270.	3:48:34.0	50:49:21	3:46: 0	7:39:59	1	4	2462	
2188.	NRAO150	TPWR	ON	1420.50	2	154.	270.	3:55:44.9	50:49:20	3:56:20	7:50:18	1	3	2466	
2189.	3C111	TPWR	ON	1420.63	2	155.	270.	4:15: 1.1	37:54:36	4: 4:10	7:58: 7	1	8	2469	
2190.	3C123	TPWR	ON	1420.66	2	154.	270.	4:33:55.1	29:34:13	4:22:40	8:16:34	1	8	2477	
2191.	VLA0454	TPWR	ON	1420.49	2	149.	270.	4:54:59.5	84:27:52	4:43:40	8:37:30	1	14	2485	
2192.	3C138	TPWR	ON	1420.44	2	153.	270.	5:18:17.0	16:35:26	5:17: 0	9:10:45	1	3	2499	
2193.	3C138 X	TPWR	ON	1420.44	2	153.	270.	5:23:27.9	16:35:26	5:24:40	9:18:24	1	2	2502	
2194.	ORIONA	TPWR	ON	1420.38	2	150.	270.	5:33: 7.0	- 5:25: 5	5:31: 0	9:24:43	1	4	2504	
2195.	W12	TPWR	ON	1420.36	2	150.	270.	5:39:12.8	- 1:56:42	5:39:50	9:33:31	1	2	2508	
2196.	W12 X	TPWR	ON	1420.36	2	151.	270.	5:44:23.9	- 1:56:42	5:45:30	9:39:10	1	1	2510	
2197.	DA193	TPWR	ON	1420.45	2	155.	270.	5:52: 0.9	39:48:20	5:52: 0	9:45:39	1	3	2511	
2198.	DA193 X	TPWR	ON	1420.45	2	155.	270.	5:58:11.9	39:48:21	5:59:20	9:52:58	1	2	2514	

140-FOOT TELESCOPE LOG

USER 999 ZAPNRAO T100C 7/28/80 TAPE 0238 COPY 2 DUMP 8

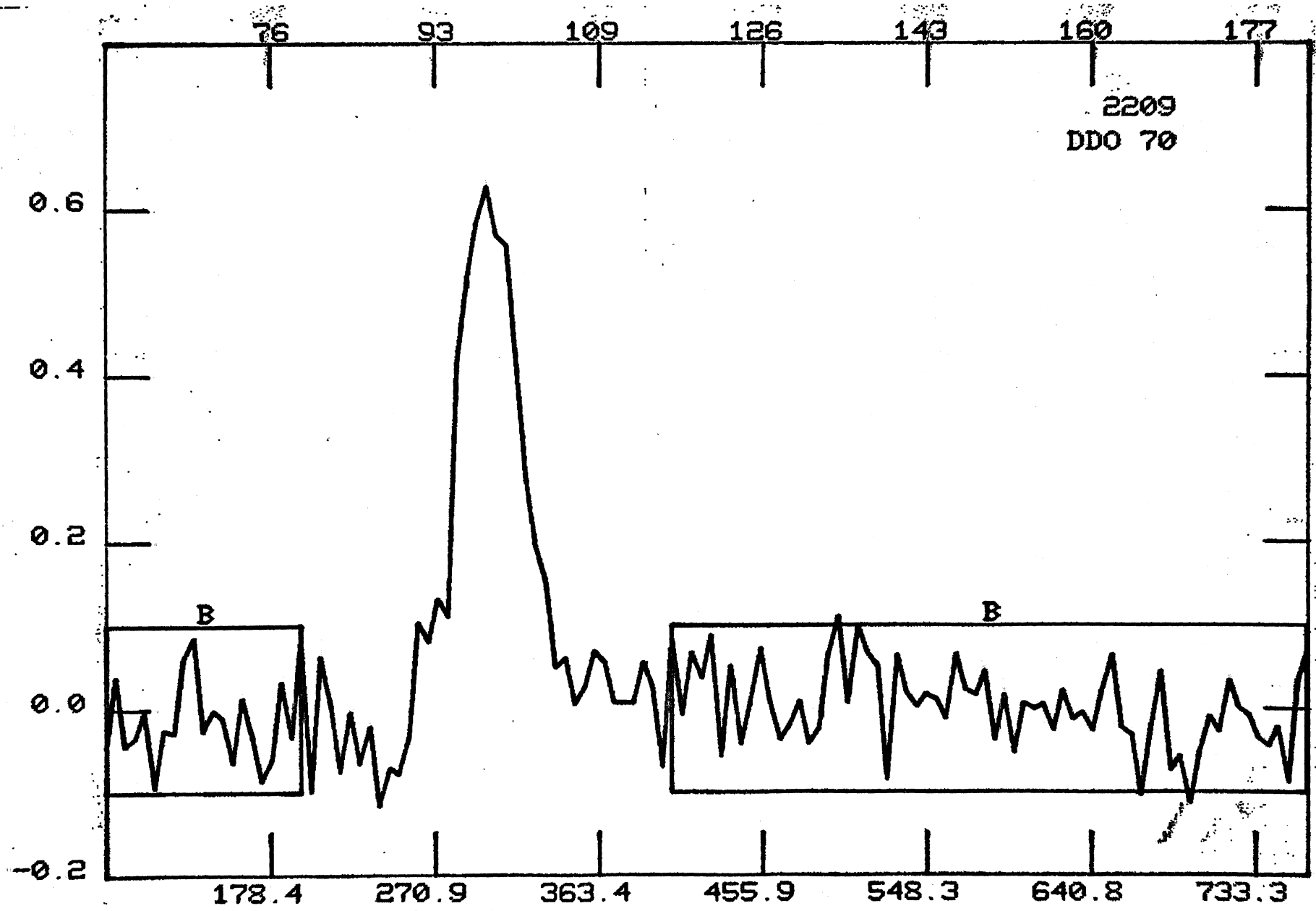
SCAN#	SOURCE	PROG	ID	CNFREQ	M	FOC	PA	RA (1950.00)	DEC	LST	EST	#B	#R	TR#	REMARKS
2200.		CONT	TI	0.00	0	154.	270.	5:29:18.7	49:49:40	6:10:48	10: 4:24	40	1	2516	
2201.		CONT		0.00	0	154.	270.	5:32:34.0	49:49:41	6:11:31	10: 5: 7	120	1	2517	
2202.	3C147	CONT		0.00	0	154.	270.	5:44:52.4	49:49:41	6:12:58	10: 6:34	120	1	2518	
2203.	3C147	CONT		0.00	0	154.	270.	5:38:43.6	48:50: 6	6:14:30	10: 8: 5	120	1	2519	
2204.	3C147	CONT		0.00	0	154.	270.	5:38:43.6	50:49:27	6:15:48	10: 9:24	120	1	2520	
2205.	3C147	CONT	TI	0.00	0	154.	270.	5:38:43.5	49:49:40	6:17: 9	10:10:43	40	1	2521	
2206.	CAL	CONT	TI	0.00	0	154.	270.	5:38:43.5	49:49:42	6:17:50	10:11:24	40	1	2522	
2207.	DDO 70	TPWR	OF	1418.95	2	146.	270.	10: 2:50.9	6:12: 2	6:27: 0	10:20:33	1	2	2523	
2208.	DDO 70	TPWR	OF	1418.95	2	147.	270.	10: 2:51.0	6:12: 2	6:30:10	10:23:43	1	5	2525	
2209.	DDO 70	TPWR	ON	1418.95	2	147.	270.	9:57:23.1	5:34: 7	6:35:50	10:29:22	1	5	2530	
2210.	DDO 70	TPWR	OF	1418.95	2	147.	270.	10: 2:50.9	6:12: 2	6:41:20	10:34:51	1	5	2535	
2211.	DDO 70	TPWR	ON	1418.95	2	147.	270.	9:58: 0.6	5:30:40	6:46:40	10:40:10	1	5	2540	
2212.	DDO 70	TPWR	OF	1418.95	2	147.	270.	10: 2:50.9	6:12: 1	6:52:10	10:45:39	1	5	2545	
2213.	DDO 70	TPWR	ON	1418.95	2	148.	270.	9:58: 0.8	5:30:41	6:57:40	10:51: 8	1	5	2550	
2214.	DDO 70	TPWR	OF	1418.95	2	148.	270.	10: 2:51.0	6:12: 2	7: 3:10	10:56:37	1	5	2555	
2215.	DDO 70	TPWR	ON	1418.95	2	148.	270.	9:58:57.2	5:25:33	7: 8:30	11: 1:56	1	5	2560	
2216.	DDO 70	TPWR	OF	1418.95	2	148.	270.	10: 2:51.0	6:12: 2	7:13:50	11: 7:16	1	5	2565	
2217.	DDO 70	TPWR	ON	1418.95	2	149.	270.	9:58:57.2	5:25:35	7:19:10	11:12:35	1	5	2570	
2218.	DDO 70	TPWR	OF	1418.95	2	149.	270.	10: 2:50.9	6:12: 1	7:24:30	11:17:54	1	5	2575	
2219.	DDO 70	TPWR	ON	1418.95	2	149.	270.	9:58:57.4	5:25:34	7:29:50	11:23:13	1	5	2580	
2220.	DDO 75	TPWR	OF	1418.82	2	147.	270.	10: 4:15.1	- 3:23: 6	7:35:50	11:29:12	1	5	2585	
2221.	DDO 75	TPWR	ON	1418.82	2	147.	270.	10: 8:29.9	- 4:26:48	7:41:10	11:34:31	1	5	2590	
2222.	DDO 75	TPWR	OF	1418.82	2	148.	270.	10: 4:15.0	- 3:23: 8	7:46:40	11:40: 0	1	5	2595	
2223.	DDO 75	TPWR	ON	1418.82	2	148.	270.	10: 8:29.9	- 4:16:47	7:52: 0	11:45:20	1	5	2600	
2224.	DDO 75	TPWR	OF	1418.82	2	148.	270.	10: 4:15.0	- 3:23: 8	7:57:30	11:50:49	1	5	2605	
2225.	DDO 75	TPWR	ON	1418.82	2	148.	270.	10: 8:30.0	- 4:16:46	8: 3: 0	11:56:18	1	5	2610	
2226.	DDO 75	TPWR	OF	1418.82	2	148.	270.	10: 4:15.1	- 3:23: 8	8: 8:20	12: 1:36	1	5	2615	
2227.	DDO 75	TPWR	ON	1418.82	2	149.	270.	10: 8:29.9	- 4: 1:47	8:13:50	12: 7: 5	1	5	2620	
2228.	DDO 75	TPWR	OF	1418.82	2	149.	270.	10: 4:15.0	- 3:23: 9	8:19:10	12:12:25	1	5	2625	
2229.	DDO 75	TPWR	ON	1418.82	2	149.	270.	10: 8:29.8	- 4: 1:47	8:24:40	12:17:54	1	5	2630	
2230.	DDO 75	TPWR	OF	1418.82	2	149.	270.	10: 4:15.0	- 3:23: 8	8:30: 0	12:23:13	1	5	2635	
2231.	DDO 75	TPWR	ON	1418.82	2	149.	270.	10: 8:30.0	- 4: 1:45	8:35:30	12:28:42	1	5	2640	

140-FOOT TELESCOPE LOG

USER 999 ZAPNRAO T100L 7/28/80 TAPE 0238 COPY 2 DUMP 8

SCAN#	SOURCE	PROG	ID	CNFREQ	M	FOC	PA	RA (1980.57)	DEC	LST	EST	#B	#R	TR#	REMARKS
2232.	DDO 99	TPWR	ON	1419.24	2	154.	270.	8:43: 8.5	24: 4:16	8:41:10	12:34:21	1	1	2645	
2233.	DDO 99	TPWR	ON	1419.24	2	155.	270.	8:39:56.8	38:34:10	8:42:20	12:35:31	1	1	2646	

*** END OF DUMP 8 ***




```
>MOMENT PRINT SEZE
  26.489          26.489
>
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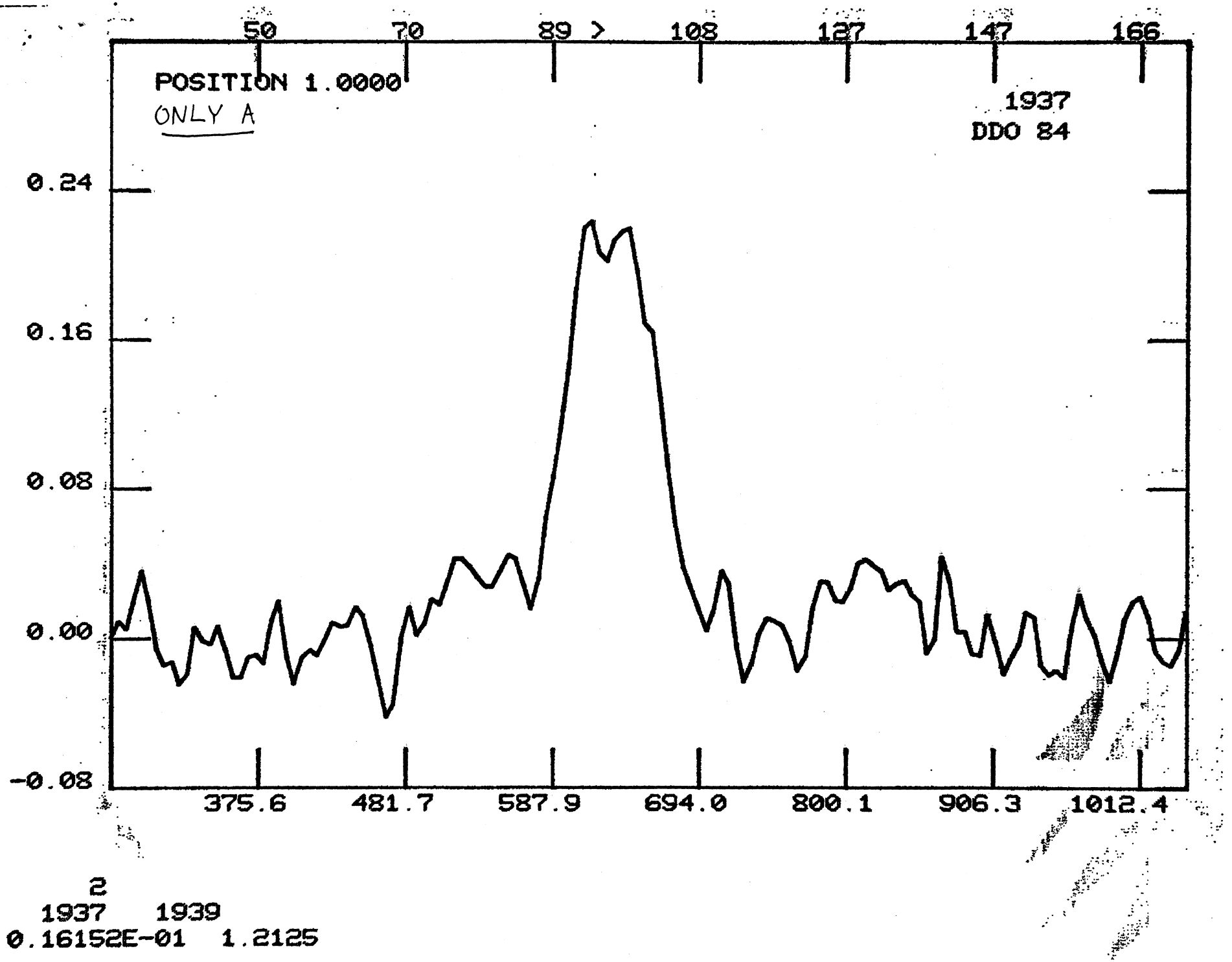


2
1937 1939
0.16152E-01 1.2125

140-FOOT TELESCOPE LOG

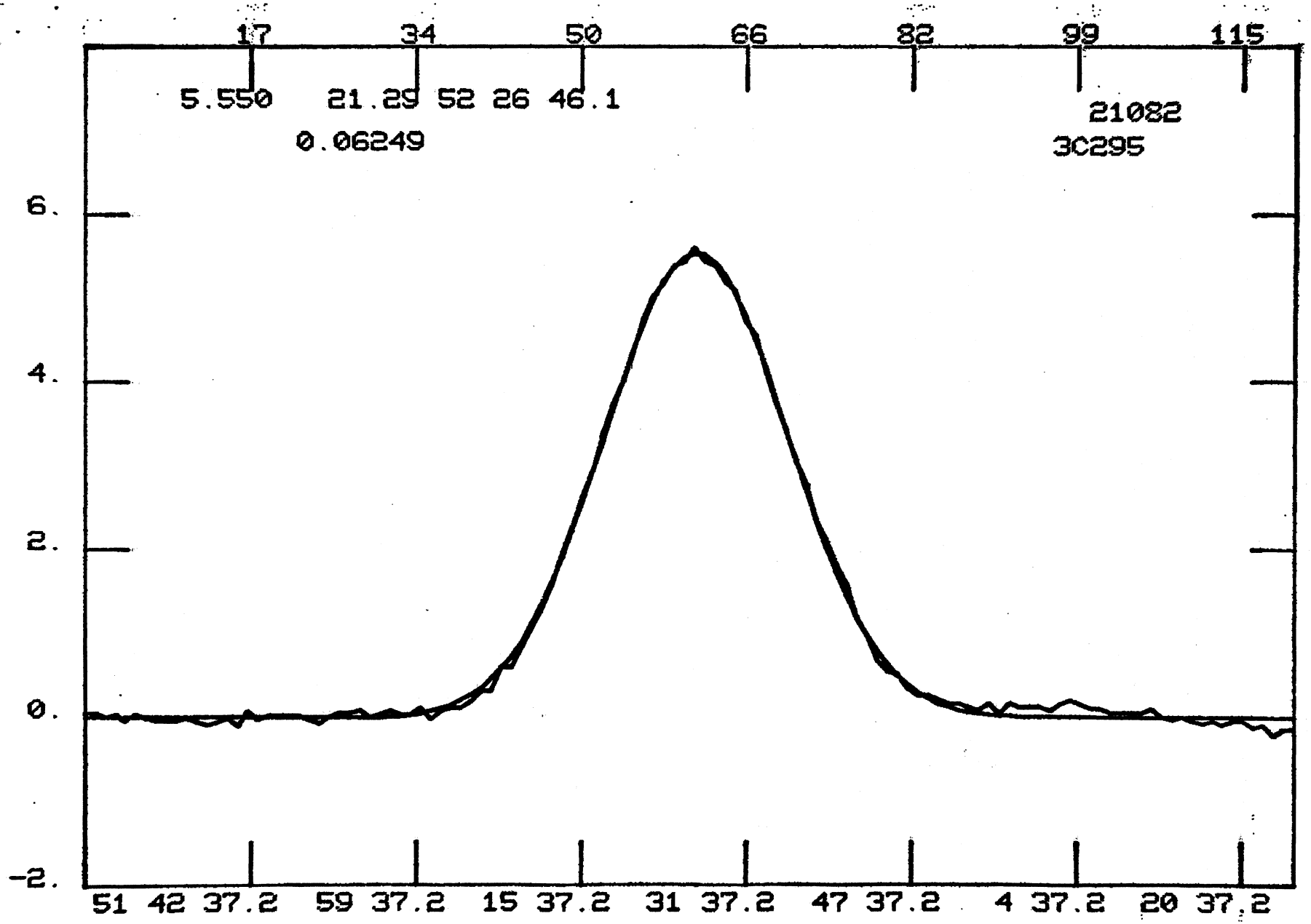
USER 999 ZAPNRAO T100C 7/27/80 TAPE 0238 COPY 2 OBSERVERS DUMP 7

SCAN#	SOURCE	PROG	ID	CNFREQ	M	FOC	PA	RA (1950.00)	DEC	LST	EST	#B	#R	TR#	REMARKS
2081.	3C147	CONT	TI	0.00	0	154.	270.	5:29:18.5	49:49:43	6:18:42	10:16:13	40	1	2103	
2082.	3C147	CONT		0.00	0	154.	270.	5:32:34.1	49:49:41	6:19:25	10:16:56	120	1	2104	
2083.	3C147	CONT		0.00	0	154.	270.	5:44:52.9	49:49:40	6:20:48	10:18:18	120	1	2105	
2084.	3C147	CONT		0.00	0	154.	270.	5:38:43.6	48:49: 1	6:22:20	10:19:50	122	1	2106	
2085.	3C147	CONT		0.00	0	154.	270.	5:38:43.6	50:50:19	6:23:39	10:21: 8	122	1	2107	
2086.	DDO 39	TPWR	OF	1416.59	2	151.	270.	5:31:56.3	76:19:32	6:33:40	10:31: 8	1	5	2108	
2087.	DDO 39	TPWR	ON	1416.59	2	151.	270.	5:49:53.3	75:18:22	6:39:30	10:36:57	1	5	2113	
2088.	DDO 39	TPWR	OF	1416.59	2	151.	270.	5:31:56.2	76:19:30	6:45:10	10:42:36	1	5	2118	
2089.	DDO 39	TPWR	ON	1416.59	2	151.	270.	5:49:53.3	75:18:20	6:51: 0	10:48:25	1	5	2123	
2090.	DDO 70	TPWR	OF	1418.95	2	148.	270.	10: 2:50.9	6:12: 0	7: 5:20	11: 2:43	1	5	2128	
2091.	DDO 70	TPWR	ON	1418.95	2	149.	270.	9:57:22.9	5:34: 5	7:11: 0	11: 8:22	1	5	2133	
2092.	DDO 70	TPWR	OF	1418.95	2	148.	270.	10: 2:50.8	6:12: 2	7:16:30	11:13:51	1	5	2138	
2093.	DDO 70	TPWR	ON	1418.95	2	149.	270.	9:57:23.0	5:34: 7	7:22: 0	11:19:20	1	2	2143	
2094.	3C147	CONT	TI	0.00	0	153.	270.	5:29:18.7	49:49:42	7:37:55	11:35:13	40	1	2145	
2095.	3C147	CONT		0.00	0	153.	270.	5:32:33.3	49:49:43	7:38:38	11:35:56	120	1	2146	
2096.	3C147	CONT		0.00	0	153.	270.	5:44:53.2	49:49:43	7:40: 0	11:37:18	120	1	2147	
2097.	3C147	CONT		0.00	0	153.	270.	5:38:43.4	48:50:11	7:41:33	11:38:50	120	1	2148	
2098.	3C147	CONT		0.00	0	153.	270.	5:38:43.6	50:49:21	7:42:54	11:40:10	120	1	2149	
2100.	DDO 70	TPWR	OF	1418.95	2	151.	270.	10: 2:50.7	6:12: 2	8:22:30	12:19:40	1	5	2150	
2101.	DDO 70	TPWR	ON	1418.95	2	151.	270.	9:57:22.9	5:34: 5	8:28:10	12:25:19	1	5	2155	
2102.	DDO 70	TPWR	OF	1418.95	2	151.	270.	10: 2:51.0	6:12: 1	8:33:40	12:30:49	1	5	2160	
2103.	DDO 70	TPWR	ON	1418.95	2	151.	270.	9:58: 0.7	5:30:41	8:39: 0	12:36: 8	1	5	2165	
2105.	3C295	CONT	TI	0.00	0	153.	270.	13:59:35.9	52:26:12	15:48: 5	19:44: 2	40	1	2170	
2106.	3C295	CONT		0.00	0	153.	270.	14: 3: 1.8	52:26:12	15:48:48	19:44:45	120	1	2171	
2107.	3C295	CONT		0.00	0	154.	270.	14:16: 5.3	52:26:13	15:50:10	19:46: 8	120	1	2172	
2108.	3C295	CONT		0.00	0	153.	270.	14: 9:33.4	51:26:37	15:51:43	19:47:40	120	1	2173	
2109.	3C295	CONT		0.00	0	153.	270.	14: 9:33.4	53:25:55	15:53: 2	19:48:59	120	1	2174	
2110.	3C295	CONT	TI	0.00	0	153.	270.	14: 9:33.5	52:26:13	15:55:16	19:51:13	40	1	2175	
2112.	DDO 161	TPWR	OF	1416.75	2	143.	270.	13: 6:41.0	-16:45:36	16: 7:10	20: 3: 4	1	5	2176	
2113.	DDO 161	TPWR	ON	1416.75	2	143.	270.	13: 0:37.9	-17: 9:12	16:12:40	20: 8:33	1	5	2181	
2114.	DDO 161	TPWR	OF	1416.75	2	143.	270.	13: 6:40.8	-16:45:36	16:18:10	20:14: 2	1	5	2186	
2115.	DDO 161	TPWR	ON	1416.75	2	142.	270.	13: 0:38.0	-17: 9:13	16:23:40	20:19:31	1	5	2191	
2116.	DDO 185	TPWR	OF	1419.69	2	152.	270.	13:48:24.6	55:29:33	16:32:50	20:28:40	1	5	2196	
2117.	DDO 185	TPWR	ON	1419.68	2	152.	270.	13:52:53.1	54: 8:22	16:38:20	20:34: 9	1	5	2201	
2118.	DDO 185	TPWR	OF	1419.69	2	152.	270.	13:48:24.7	55:29:34	16:43:50	20:39:38	1	5	2206	
2119.	DDO 185	TPWR	ON	1419.68	2	152.	270.	13:52:52.9	54: 8:19	16:49:20	20:45: 7	1	5	2211	

```
 1  PROCEDURE MOVLOT3
 2  PPV-UST
 3  HP=HVC(1)

 4  VP=HVC(2)
 5  HVC(1)=HP;HVC(2)=VP
 6  FOR I=1 TO REP4
 7  MTP1 STALL OFTPO
 8  MTPØ STALL ONTPO
 9  END
10  FINISH
 1  PROCEDURE MOVLOT6
 2  PPV UST
 3  HP=HVC(1)

 4  VP=HVC(2)
 5  HSTEP=ABS(HVC(3))
 6  VSTEP=ABS(HVC(4))
 7  HVC(1)=HP;HVC(2)=VP
 8  FOR I=1 TO REP1
 9  MTP1 STALL OFTPO
10  MTPØ STALL ONTPO
11  END
12  FOR I=1 TO REP2
13  HVC(1)=HP;HVC(2)=VP
14  MTP1 STALL OFTPO
15  HVC(1)=HP+HSTEP
16  MTP1 STALL ONTPO
17  END
18  FOR I=1 TO REP3
19  HVC(1)=HP;HVC(2)=VP
20  MTP1 STALL OFTPO
21  HVC(2)=VP+VSTEP
22  MTP1 STALL ONTPO
23  END
24  FINISH
```



XPEAK GAUSS GMODEL RESHOW
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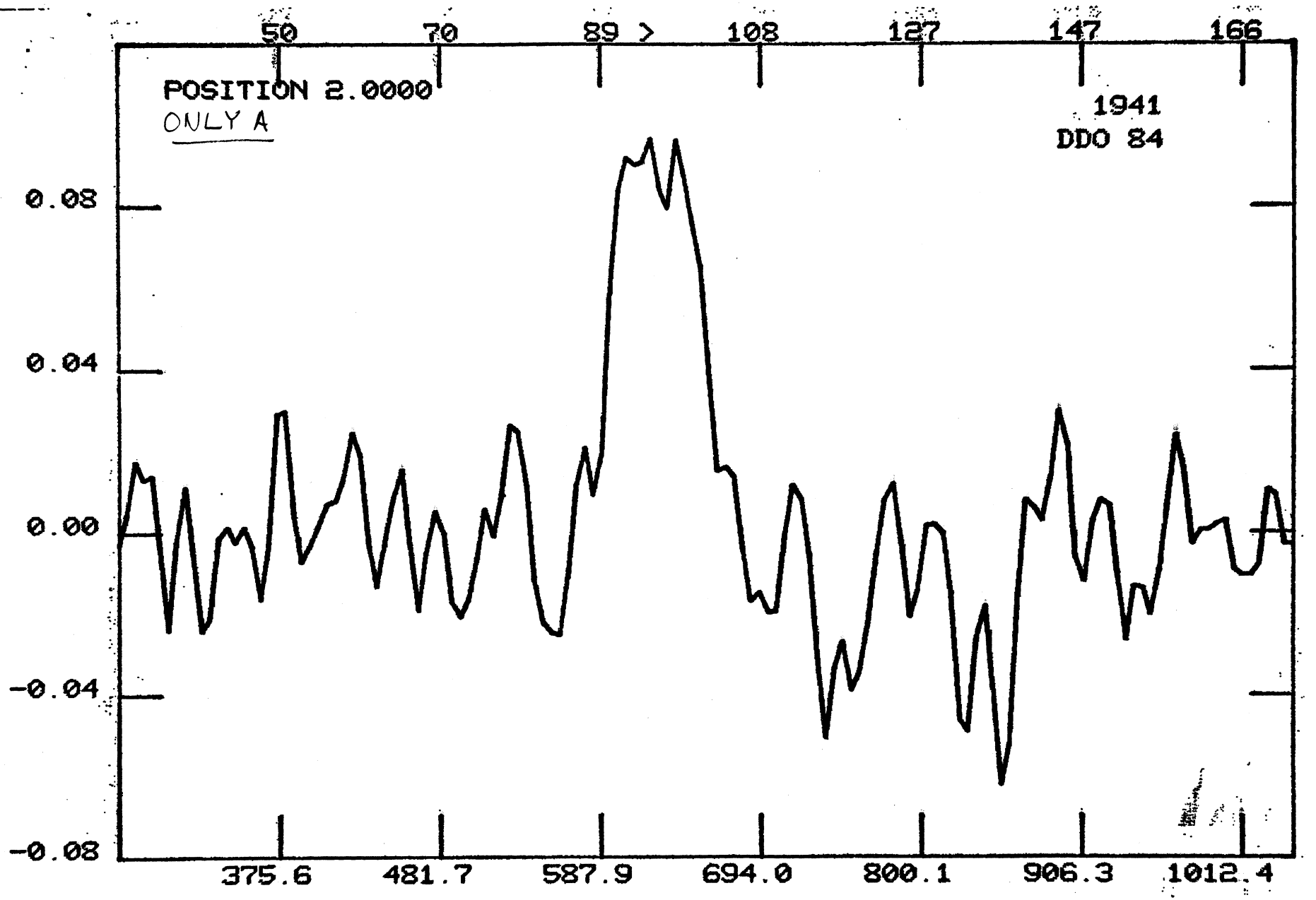
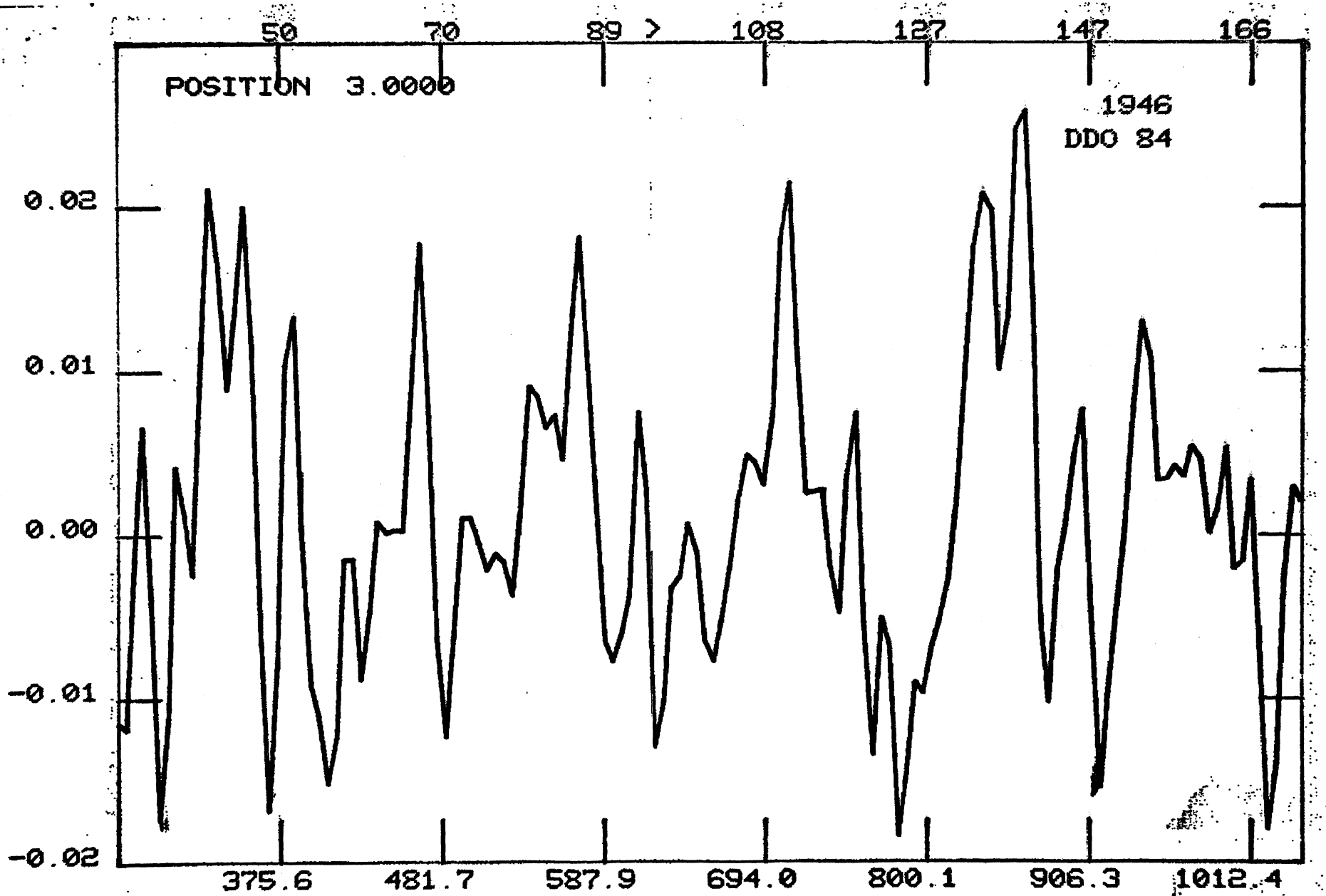


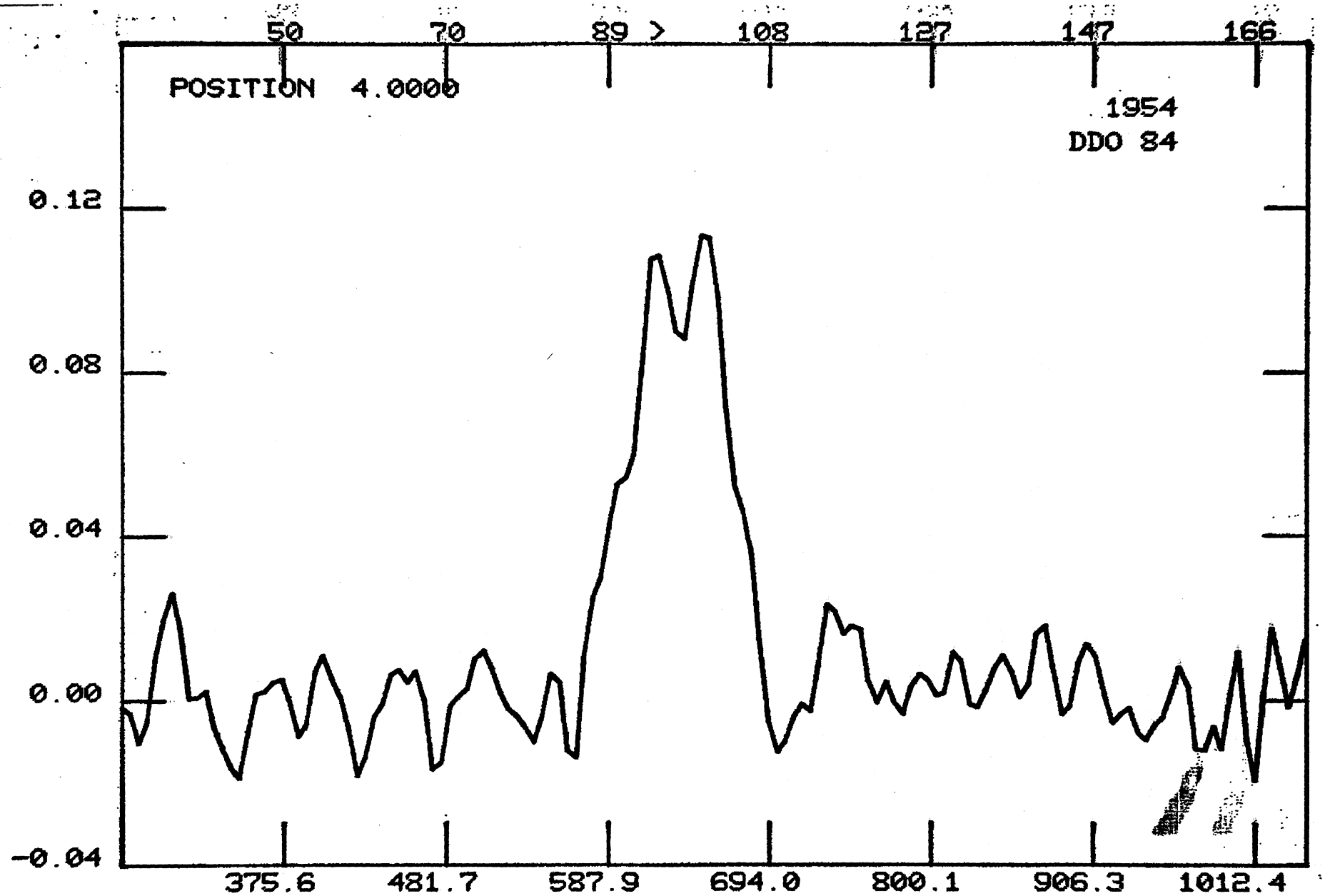
2
1941 1943
0.12940E-01 0.58577



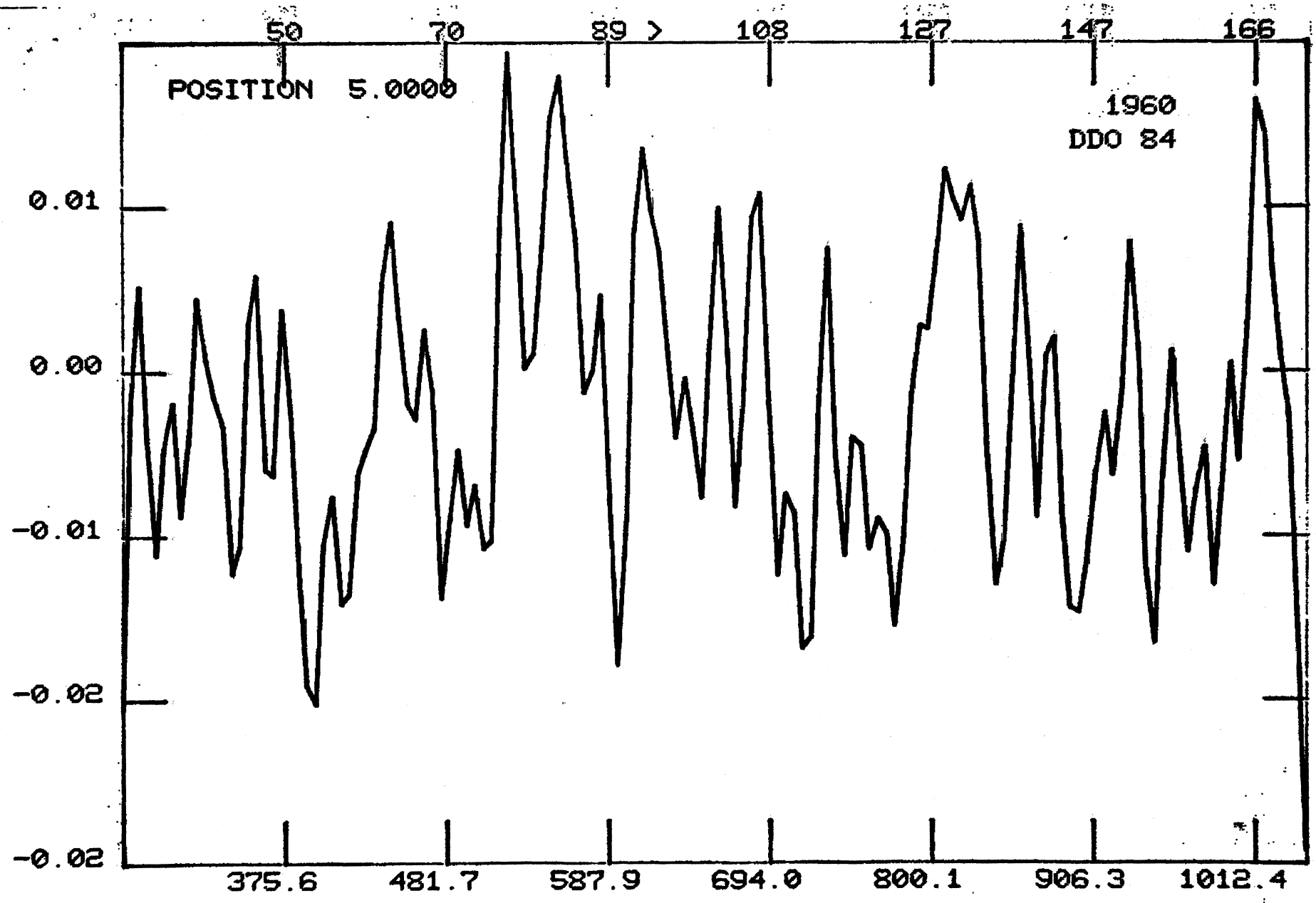
4

1946 1948 1950 1952

0.89986E-02 0.10706E-01



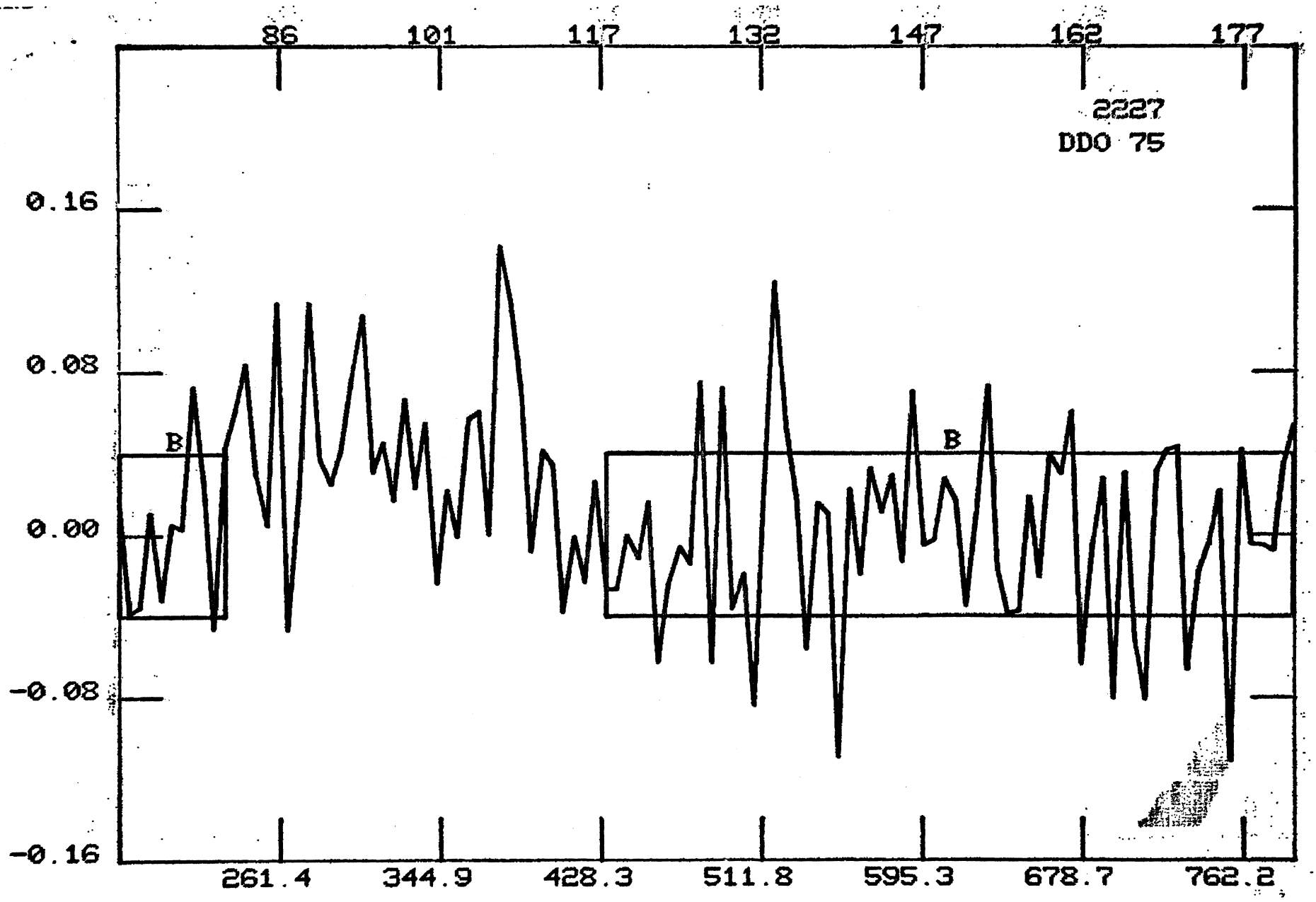
3
1954 1956 1958
0.95130E-02 0.12061E-01



4

1960 1962 1964 1966

0.81607E-02 0.10491E-01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117
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147
162
177
2227
DDO 75
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0.08
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B
B
261.4
344.9
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511.8
595.3
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762.2

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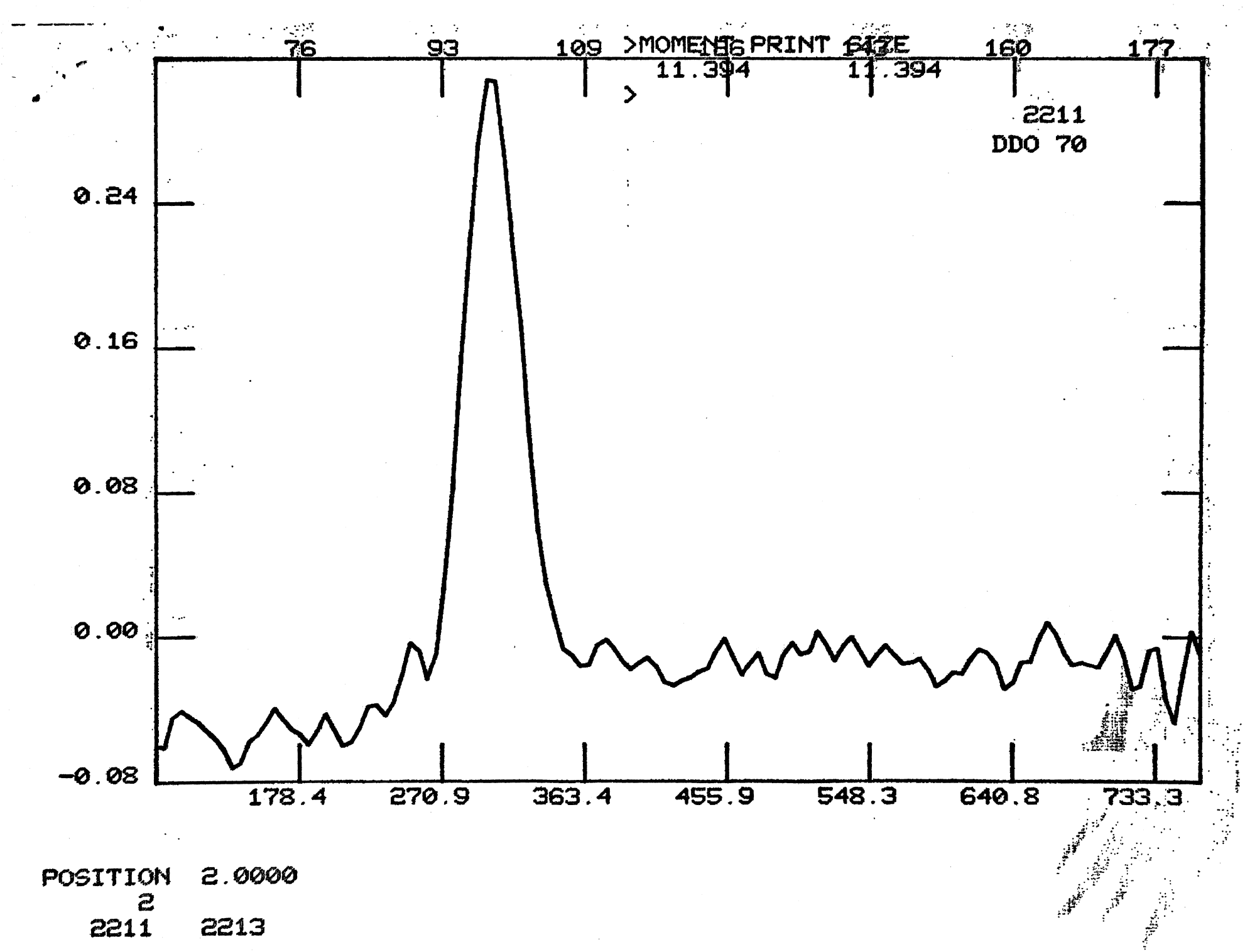

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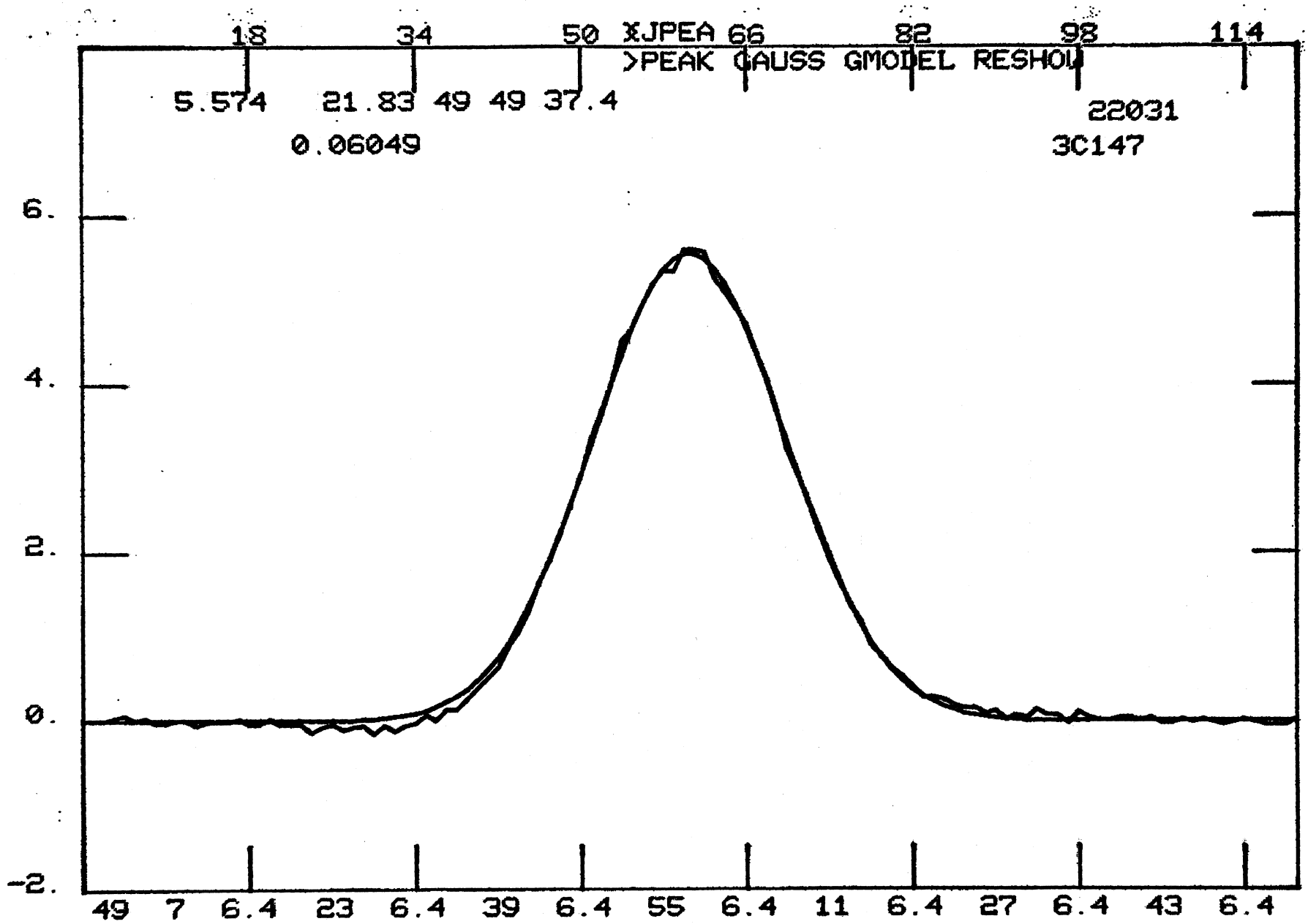

>PEAK GAUSS GMODEL RESOW
SYMBOL? RESOW
XFPEAK