

Scanning at -29° declination, F = 893 mc.

Date

6-10 Aperture $5\frac{1}{2}$ " dia + 1" above focal plane
 Measure current and gain at times

Time	current	time	scale	Time	scale
0707A	73	947	66	0230	76
715	72	955	66	0235	76
724	71	1000	66	0240	74
732	70	1005	66	0245	70
737	69	1013	66	0250	68
745	70	1023	65	0255	67
753	68	1029	65	0300	65
0800	68	1040	66	0305	65
810	67	1048	65	0310	64
823	66	1055	67	0315	62
828	66	1100	70	0320	60
835	66	1102	75	0325	
844	65	1103	78	0330	
856	66	0150P	86	0335	
0903	66	0155	85		
0908	66	0200	86		
913	66	0205	83		
919	65	0210	80		
924	65	0215	78		
932	66	0220	75		
940	65	0225	76		

Drop dia to better

Focal length time

Focal length time

At -29° Declination the galactic equator
transits the meridian at 0751 and 1736 RA.

June 10 - March 21 = 81 days.

$81 \cdot 3.93 = 5 \text{ hrs } 18 \text{ min.}$

$1200N + 0751 = 751 \text{ PM}$

- Date correction 518

233 PM

- Station correction $7\frac{1}{2}$

225 $\frac{1}{2}$ PM

$1200N + 1736 = 536 \text{ AM June 11}$

- Date correction 518

1218 AM

- Station correction $7\frac{1}{2}$

1210 $\frac{1}{2}$ AM, June 11

July 7 - March 21 = 108 days.

$108 \cdot 3.93 = 7 \text{ hrs } 4 \text{ min gain.}$

$536 \text{ AM} - 7\frac{1}{2} \text{ station correction} = 528\frac{1}{2} \text{ AM}$

- date correction 74

July 7

1024 $\frac{1}{2}$ PM

Scanning at -21° Declination, $F = 893$ m.

Date

6-9 Aperture $5\frac{1}{2}$ " dia + 1" above focal plane.
 Weather clear, only a few scattered clouds.

Time	mag	Time	scale
0225P	80	433	69
230	96	446	70
235	80	0506	70
240	74	0607	71
245	72	615	71
250	70	625	72
255	70	636	70
0300	70	644	70
305	70	656	70
311	70	0706	69
318	71	714	70
323	69	721	69
330	71	726	69
337	70	732	69
342	70	738	69
350	70	742	69
357	70	745	69
0405	70		
410	71		
417	71		
424	70		

These readings in some doubt.

Dec +42° freq 893mc, Weather clear both days.

6-14-38

6-15-38

Time	scale
230P	94 on
300	94
330	92
400	90
430	88
500	90
530	90
600	89
630	89
700	89
730	87 off

Drop apparently due to
instruments now being off 10V
for some time or other

Time	scale
240P	89
310	88
405	88
415	87
505	88
555	86
640	88
735	90
805	89
850	90 off

6-15-38 on

630A	99 on
700A	95
730	94
830	92
900	91
930	92
1050	88
1120	91
1220	89
1240	89
130P	90

6-11, 12, 13-38 changed
power supply over to 250 volts
plus instead of batteries; so
from this sheet on readings
are from power supplied by
110 volt line.

+ 42° Declination cuts galactic plane at .0455
and 2030 S.T.

June 15 - March 21 = 86 days.

$86 \cdot 3.93 = 5 \text{ hrs } 38 \text{ minutes gain}$

$1200_{\text{noon}} + 0455 = 455 \text{ PM}$

- Date correction 538

11 17 AM

- Station correction $7\frac{1}{2}$

11 09 $\frac{1}{2}$ AM CST

$1200_{\text{noon}} + 2030 = 830 \text{ AM June 16}$

- Date correction 538

2 52 AM

- Station correction $7\frac{1}{2}$

2 44 $\frac{1}{2}$ AM June 16 CST

July 7, - March 21 = 108 days.

$108 \cdot 3.93 = 424 \text{ min} = 7 \text{ hrs } 4 \text{ min gain}$

$455 \text{ PM} - 7\frac{1}{2} \text{ station correction} = 447\frac{1}{2} \text{ PM}$

- date correction 74

9 43 AM

weather
overcast
Dec. +42

weather
clear & sunny
Dec +42⁰

6-17-38

6-17-38

6-18-38

time	scale	time	scale
545A	98 on	530A	90 on
610	94	645	88
630	93	710	87
720	95	735	87
755	94	830	86
830	93	910	86
850	92	1030	84
915	90	1035	84
1010	89	1040	83
1040	88	1045	82
1050	89	1050	82
1055	88	1055	81
1100	89	1100	83
1105	89	1105	83
1110	88	1110	83
1115	89	1120	82
1120	88	1125	82
1200	87	1130	82
0115P	88	1145	81
0210	87	1225	79
0300	88	0115P	80
0350	88	0155	80
0445	87	0315	79
0505	87	0345	80
745	87 off		

time	scale
0420P	81
0500	79
0630	81 off

These readings taken with 250 volt B+ and appropriate bias derived from filter on high voltage. The slight drop in reading over long periods is probably due to warming up of amplifiers because the plate and filament voltages were accurately set at 250 and 8 volts respectively before each reading.

The basement amplifier was changed from 6-201a in parallel, band filter, 2-201a in parallel, output step up 2 to 1; to band filter, 6F5, output step down 4.2 to 1. The net gain was same with each setup in that the output meter could be run up to 3ma on thermal noise with gain wide open in each case. The filament drain was reduced 1.7 amps by this change.

Plate bend detector using 9555

6-20-38 - Dec-29^o

add one minute for true EST on clock slow.

	Time Scale	Time	Scale
1050P	115	1113	145
1051	125	1114	147
1052	125	1115	133
1053	126	1116	137
1054	123	1117	142
1055	126	1118	140
1056	130	1119	138
1057	125	1120	139
1058	123	1121	135
1059	125	1122	134
1100	124	1123	136
1101	126	1124	139
1102	124	1125	137
1103	125	1126	136
1104	123	1127	135
1105	124	1128	137
1106	124	1129	135
1107	127	1130	131
1108	126	1131	129
1109	140N	1132	128
1110	145	1133	129
1111	143	1134	130
1112	151	1135	130

all these readings quite high due to noise which gradually burned itself out on succeeding days.

B+ 290 volts weather clear + starry

6-21-38

time	scale	time	scale
1136	126	1200MN	120
1137	128	0101A	122
1138	130	0102	120
1139	132	0103	119
1140	125	0104	120
1141	124	0105	119
1142	123	0106	120
1143	121	0107	119
1144	121	0108	120
1145	122	0109	120
1146	119	0110	119
1147	119	clock corrected	
1148	120	0540A	135 on
1149	120	0550	125
1150	120	0620	121
1151	122	0630	118
1152	121	0640	115
1153	121	0650	115
1154	120	0700	110
1155	121	0712	108
1156	119	0730	106
1157	119	0745	101
1158	120	0800	98
1159P	120	0824A	94

6-21-38 Weather sunny Dec -29°
Longest day in year.

time scale time scale

900 A	86	0158	80
930	84	0206	79
950	90 N	0212	80
1010	86	0220	81
1030	95 N	0323	80
1034	87	0402	79
1052	84	0443	77
1100	86	0522	80
1110	85	0627	85
1125	84	0631	84
1141 A	82	0728 P	86
1214 P	80	on continuous down 1053 P	
1233	79	The readings rise toward	
0105	82	evening as the air	
0113	84	becomes cooler.	
0130	85		
0137	85		
0141	87 N		
0142	83		
0143	81		
0145	79		
0146	80		
0149	83		
0153	80		

6-20-38 The 955s were changed from grid leak (400,000 Ω) detectors to plate load detectors with 40,000 Ω bypassed with 12 mfd dry electrolytic condenser. This self bias produced .19 ma plate current per tube with 290 volts plus on plates. The head amplifier was changed by eliminating the 6C5 and feeding +290 direct to plate of 6F5 thru the primary of output transformer. The basement amplifier was changed by replacing the 50,000 Ω volume control with one of 1,000,000 ohms and the input transformer from one with step up ratio of 28.1 to 100. The elimination of 6C5 reduced gain quite considerably as there seemed to be some regeneration in that stage. The output meter was changed from a 1 ma. meter to a 0.2 ma meter with the 35404 input transformer and 80 mfd of electrolytic as filter. The overall gain was reduced so much that now volume is used wide open. The filament drain is reduced to 1 amp and only 7.5 instead of 8.0 volts are maintained on line.

6-21-38 Weather slightly overcast, a few stars.

time	scale	time	scale
1053 ^P	96	1118	94
1054	94	1119	94
1055	93	1120	95
1056	95	1121	97
1057	97	1122	97
1058	96	1123	96
1059	95	1124	96
1100	94	1125	97
1101	93	1126	97
1102	95	1127	98
1103	95	1128	97
1104	96	1129	97
1105	96	1130	98
1106	95	1131	99 N
1107	96	1132	97
1108	95	1133	97
1109	96	1134	96
1110	98 N	1135	95
1111	97	1136	104 N (check)
1112	97	1137	97
1113	96	1138	105 N
1114	95	1139	110 N
1115	95	1140	101 N
1116	94	1141	103 N
1117	93	1142	97

The temperature of head seems to affect gain because readings highest when first starting and at night.

6-21-38

Readings lowest during hottest part of day on a continuous run.

time	scale	time	scale
1143	100N	1207A	94
1144	96	1208	95
1145	97	1209	94
1146	97	1210	93
1147	98	0520	89 (on continuous from 1210)
1148	97	0525	92N
1149	99N	0528	91N
1150	97	0530	90N
1151	102N	0540	86
1152	101N	0544	85
1153	103N	0613	80
1154	98	0622	75
1155	96	0637	73
1156	96	0710	75
1157	95	0805	67
1158	96	0835	66
1159	96	0850	64
6-22-38	-	0906	65
1200MN	95	0925	63
1201A	96	0954	62
1202	96	1012	64
1203	95	1028	77N
1204	96	1054	66
1205	96	1118	65
1206	95	1145	70NA

Sun rises over 30° N of E. 6-22-38, clear.

6-22-38

morning overcast.

time scale
 1205P 64
 1220 70N
 0120P off
 Condenser blew
 on return of
 input A.F. from 955s

time scale
 1110 59
 1115 59
 1120 59
 1125 59
 1130 60
 1135 59
 1140 59

up to 1000 ft.

6-24 38, clear

changed back to
grid leak detector.

1145P 59 off
 6-25 38

weather overcast.

time scale
 420P 64 on
 425 60
 438 59
 519 58
 616 57
 727 57
 816 58
 1035 59
 1040 59
 1045 59
 1050 58
 1055 59
 1100 58
 1105 59

640A 62 on
 645 61
 710 60
 820 57
 955 55
 1028 55
 1118A 56
 1215P 56
 0145 55
 0310 55
 0445 55
 0600 55
 0700 56
 0812 57 off

Range

6-30-38 Dec + 42°

time	na	time	na	time	na
5:35A	65 on	8:45	61	1125	59
6:10	62	9:25	61	1127	59
6:35	62	10:05	61 off	1130	59
7:00	63	7-1-38		1135	59
7:15	62	505A	63 on	1140	58
7:40	62	530A	61	1205P	57
8:10	62	555	60	1225	58
8:30	61	620	60	1250	57
9:10	60	720	59	0125	57
9:55	60	740	59	0230	57
10:30	60	810	59	0250	57
10:55	61	830	58	0410	57
11:40	60	910	57	0455	58
12:25	59	1010	55	0525	60N
01:20P	60	1040	56	0610	58
02:30	59	1045	58	0800	57
03:20	59	1050	58	0835	57 off
04:00	60	1055	59	7-2-38	
04:35	59	11:00	58	0630A	61 on
05:10	61	11:05	59	0650	59
05:55	60	11:15	60	0735	57
06:40	61	11:17	61	0830	58
07:15	60	11:20	60	0920	59
08:15	61	11:22	59	0955	58

Beginning to rain

still raining slightly

Rain stopped

Rain

stopped

7-2-38 Dec +42°

These seem to rise whenever country puts carrier on air 9 X EC

time	ua	time	ua	time	ua
1030	59	1030	56	0700	57
1100	60	1035	56	0730	57
1140	58	1040	57	0800	58
1230P	57	1043	57	0830	58
0135	57	1045	56	0900P	59 off
0210	56	1050	56	7-4-38	
0235	55	1055	56	0630A	60 on
0305	55	1100	56	0700	58
0340	55	1105	56	0730	57
0415	55	1110	56	0800	56
0440	55	1115	56	0840	55
0540	56	1140	55	0900	56
0610	58	1215P	55	0935	57
0640	59	1250	54	0940	57
0715	57	0130	55	0941	57
0750	57	0200	54	0942	58
0828P	57 off	0230	54	0943	58

inadequate fall of night

sunny & cloudy

sun & rain

day forecast

time	ua	time	ua	time	ua
7-3-38					
0645A	60 on	0300	54	0944	59
0715	58	0330	55	0945	58
0750	57	0400	55	0946	57
0820	57	0430	55	0947	58
0900	56	0500	56	0948	58
0930	56	0530	56	0949	58
1000	56	0600	56	0950	58
		0630	57	0951	58

Dec + 420

7-4-38

time	na	time	na
0952A	58	0945	50
0953	58	0946	50
0954	58	0947	50
0955	58	0948	49
0956	59N	0949	49
0957	59	0950	49
0958	57	1015	48
0959	56	1045	48
1000	56	1120	48
1045	55	1210P	47
1110	54	0105	47
1245	55 off	0215	46
7-5-38		0300	45
0545A	63 on	0505	55
0600	59	0540	54
0615	58	0630	54 off
0650	56		
0720	55		
0840	54		
0910	51		
0940	50		
0941	51		
0942	51		
0943	51		
0944	50		

7.0 Volts fill. Dec - $32\frac{1}{2}^{\circ}$

300 V B+ 160 mc

clock 2 minutes past.

altitude 14.5 degrees.

Dec.

10-10-38

Time	na
4:06 PM.	104 X

4:07	109
------	-----

4:10	109
------	-----

4:13	110
------	-----

4:18	105
------	-----

4:23	103
------	-----

4:29	101
------	-----

4:35	97
------	----

4:45	90 (Fil 6.95)
------	---------------

4:50	84
------	----

4:56	80
------	----

5:00	78
------	----

5:06	76
------	----

5:14	72
------	----

5:19	68
------	---------------

5:28	64
------	----

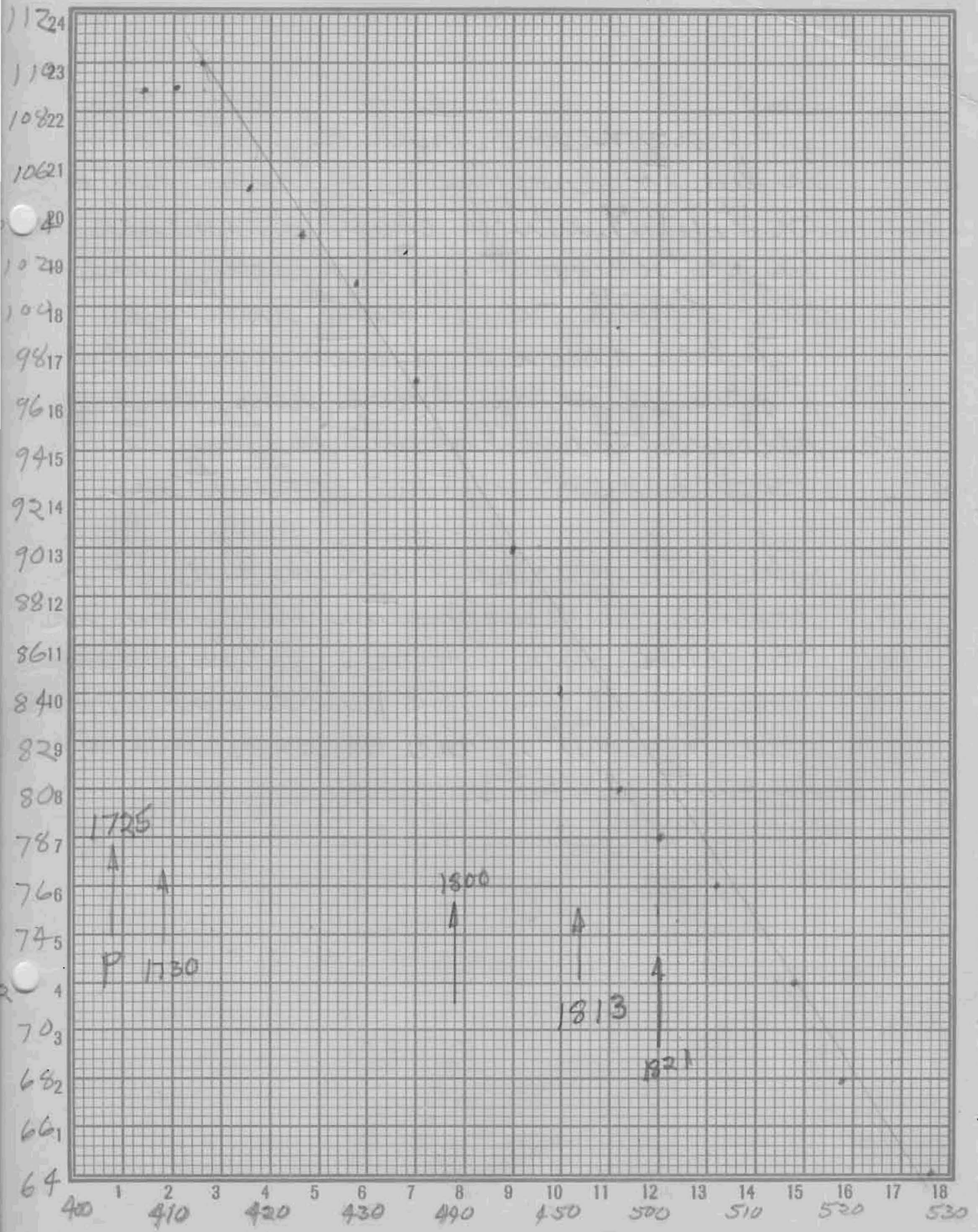
} pyrit noises, $\frac{1}{2}$ sec
loud + faint

Fil held constant,

B+ + V.T.V. Plate

allowed to decrease.

10-10-38 Dec -32 1/2°



The downward trend of first data is due to dropping of filament voltage on V, T, V, M. which caused a decrease in plate current. After some time had passed the filament battery stepped down. Later readings were taken after an hours run had allowed the filament battery to reach a near constant potential.

The late upward trend is due to a coupling off of apparatus on drum as the sun goes down. This reduces gas current in 953 diode and drops the V, T, V, M. bias causing an increase in plate current.