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MASSACHUSETTS INST OF TECH LEXINGTON LINCOLN LAB
SPECULAR REFLECTION TIMING PREDICTIONS FOR THE PERIOD PRECEDING--ETC(U)
JAN 77 A S FRIEDMAN
ETS-8

F/G 22/3

F19628-76-C-0002

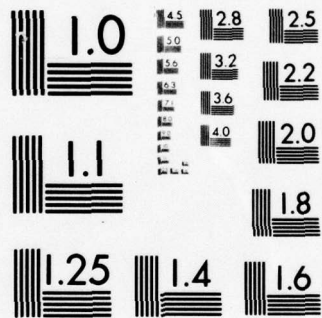
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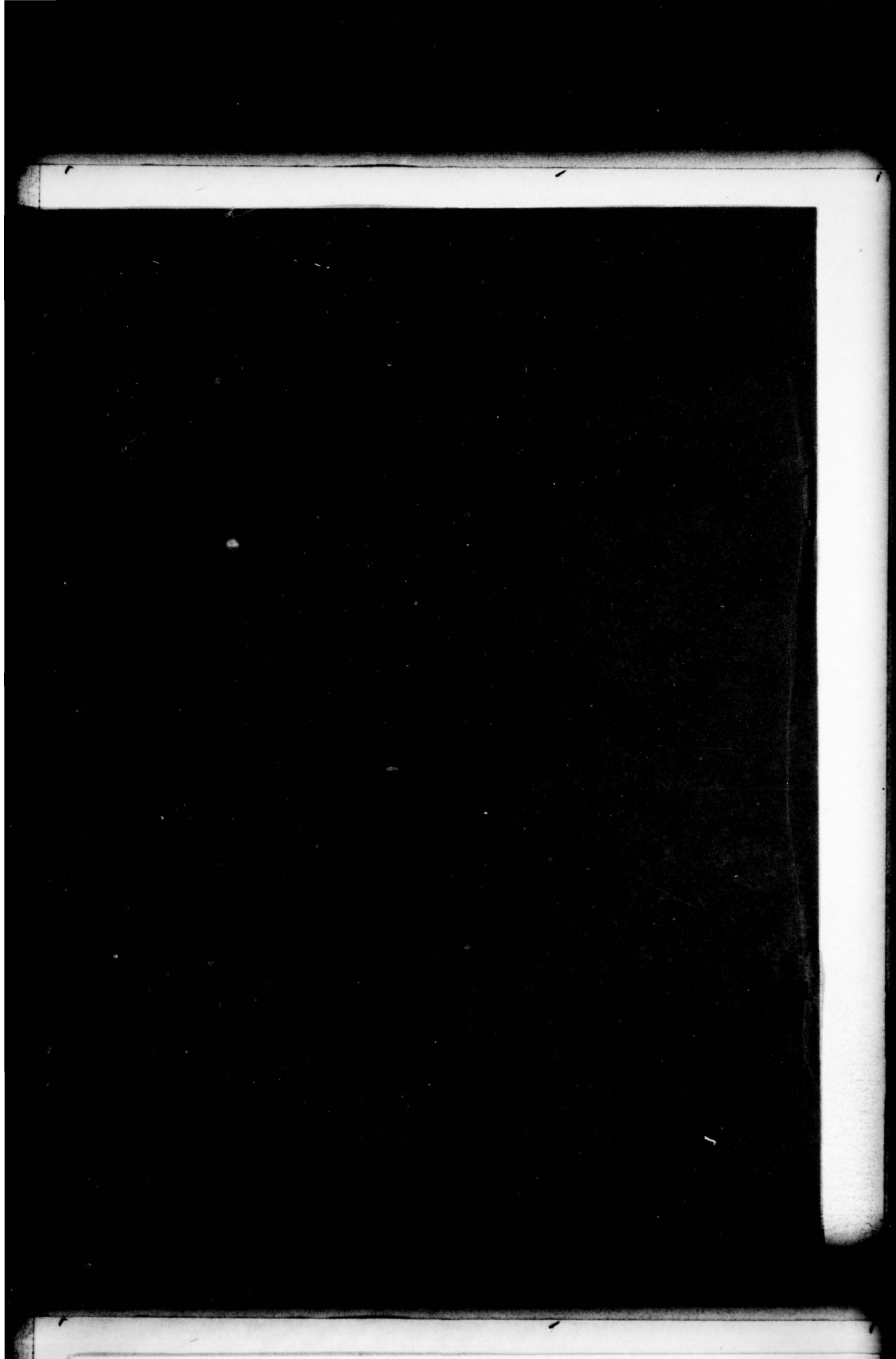


MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

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B.S.

RECEIVED
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C.



ESD-TR-77-29

ERRATA SHEET

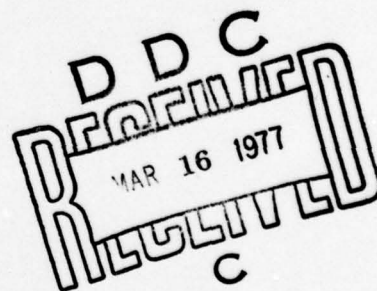
SPECULAR REFLECTION TIMING PREDICTIONS
FOR THE PERIOD
PRECEDING THE 1977 VERNAL EQUINOX

PROJECT REPORT ETS-8

Table I, page 2:

Since the figure numbers were inadvertently omitted from the computer printouts, column three has been changed to page numbers, NOT figure numbers.

Please insert this errata sheet in all copies of the above-designated report.



11 February 1977

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MASSACHUSETTS INSTITUTE OF TECHNOLOGY
LINCOLN LABORATORY

SPECULAR REFLECTION TIMING PREDICTIONS
FOR THE PERIOD
PRECEDING THE 1977 VERNAL EQUINOX

A. S. FRIEDMAN
Group 94

PROJECT REPORT ETS-8

26 JANUARY 1977

Approved for public release; distribution unlimited.

LEXINGTON

MASSACHUSETTS

ABSTRACT

With the approach of the vernal equinox, preparations for observing specular reflections from cylindrical synchronous satellites have begun. The purpose of this report is to assemble the results of preliminary computations to make them available for observation scheduling at the GEODSS Experimental Test Site.

With the approach of the vernal equinox, preparations for observing specular reflections from cylindrical synchronous satellites have begun. The purpose of this report is to assemble the results of preliminary computations to make them available for observation scheduling at the GEODSS Experimental Test Site. The reader should consult ETS-3* for details of the mathematics of specular timing.

The orbital elements and axial orientations on which the specular occurrence calculations are based are the best available on 20 January 1977. For data reduction and analysis, current values will be employed. A further assumption is that the symmetry axis of each satellite coincides with its spin axis. Analysis of the departure of observation times from the predicted values will provide information on axial misalignment.

The IDCSP satellites and LES-5 drift in and out of coverage. As no information on their axial position is available, by convention it is placed perpendicular to the orbital plane. For all other satellites, axial orientation is specified.

In 1977 the vernal equinox occurs on 20 March at 17^h43^m UT. As expected, February and March are the prime months for specular observing. Table 1 is an index of the satellites and their time tables.

*A. S. Friedman, "Determination of Specular Reflection From Cylindrical Satellites for Electro-Optical Surveillance and SOI," Project Report ETS-3, Lincoln Laboratory, M.I.T. (8 October 1976).

TABLE 1
INDEX TO SPECULAR TIMING CHARTS

Satellite Number	Satellite Name	Page
2866	LES-5	18
83505	GOES-1	9
83506	IDCSP 24	27
83507	IS II F-3	14
83509	Westar 1	3
83512	IS I-EB	13
83513	IS III F-2	16
83523	ATS-5	12
83533	ATS-3	11
83534	IS III F-6	17
83535	ATS-1	10
83538	IS II F-4	15
83541	IDCSP 23	26
83544	IDCSP 16	25
83546	IDCSP 14	24
83547	IDCSP 13	23
83548	IDCSP 12	22
83549	IDCSP 11	21
83550	IDCSP 10	20
83551	IDCSP 8	19
83560	SMS-2	8
83567	SMS-1	7
83569	Westar 2	4
83592	Comstar 1	5
83598	Comstar 2	6

☒ To the Section
☐ Out Section
☐

A

SPECULAR REFLECTION FROM CYLINDRICAL SATELLITE. SPIN AXIS = SYMMETRY AXIS
 33509. USA SITE= STAL
 DESTA 74 022 A WESTAK - I (SOC 7250)

EPNCH= 1977 6 10:14: 5.9 E= 0.0001994 I= 0.0130
 A= 1.0026417 A= 6.6109 M= 307.9709
 ANODE= 410.6090 ARGPER= 262.2318
 RHOAX= 0.43 MAX= 220.74 DECA= 89.91 MISALGNAX= 0.00
 OFFSET FROM ORB NORMLE= 0.08 LONG FROM ANODE= 270.15

SATELLITE GRAPHIC TIME TABLE
 FROM MAR 1977 THROUGH MAR 1977

	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	1977
1 MAR 60																		2 MAR 61
2 MAR 61																		3 MAR 62
3 MAR 62																		4 MAR 63
4 MAR 63																		5 MAR 64
5 MAR 64																		6 MAR 65
6 MAR 65																		7 MAR 66
7 MAR 66																		8 MAR 67
8 MAR 67																		9 MAR 68
9 MAR 68																		10 MAR 69
10 MAR 69																		11 MAR 70
11 MAR 70																		12 MAR 71
12 MAR 71																		13 MAR 72
13 MAR 72																		14 MAR 73
14 MAR 73																		15 MAR 74
15 MAR 74																		16 MAR 75
16 MAR 75																		17 MAR 76
17 MAR 76																		18 MAR 77
18 MAR 77																		19 MAR 78
19 MAR 78																		20 MAR 79
20 MAR 79																		21 MAR 80
21 MAR 80																		22 MAR 81
22 MAR 81																		23 MAR 82
23 MAR 82																		24 MAR 83
24 MAR 83																		25 MAR 84
25 MAR 84																		26 MAR 85
26 MAR 85																		27 MAR 86
27 MAR 86																		28 MAR 87
28 MAR 87																		29 MAR 88
29 MAR 88																		30 MAR 89
30 MAR 89																		31 MAR 90
31 MAR 90																		1 APR 91

SUNSET/SUNRISE
 TWILIGHT
 *SPECULAR REFLECTION AT SITE
 E=ECLIPSED BY EARTH
 X=ALTITUDE LESS THAN 0 DEG

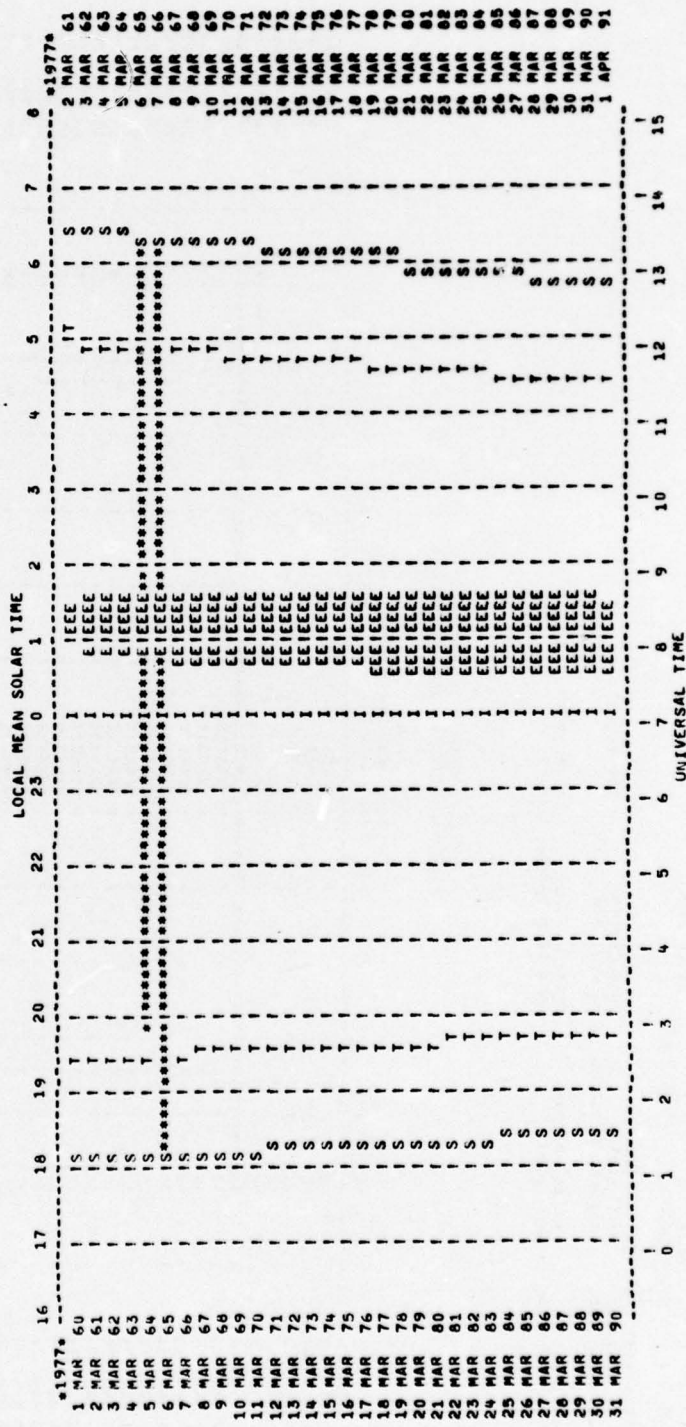
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EPNCH= 1976.350      1838455.7
N= 1.0274089          A= 6.6106
ANODE= 240.9216       ARGR= 309.7424
                                £= 0.0002922
                                M= 50.2318
                                T= 0.0486

RHOCS= 0.44          DECAF= 84.96
DENSITY FROM ORB      LONG FROM ANOUE=
                                M=SALGNAX=
                                58.71

```

SATELLITE GRAPHIC TIME TABLE
FROM MAR 1977 THROUGH MAR 1977



S=SUNSET/SUNRISE
T=TWILIGHT
* =SPECIAL REFLECTION AT SITE
E=ECLIPSED BY EARTH
X=ALTITUDE LESS THAN 0 DEG

```

EPACME= 1977 6 913742.5
NE= 1.0026044
ANODE= 248.6777
E= 0.0008773
A= 6.6109
M= 217.2144
I= 0.0074
ARPEK= 16.2747
DECA= 89.84
LONG FROM ANODE= 338.89
RHO= 0.47
OFFSET FROM ORH FORM= 0.16
WISALGNAX=

```

1977.		LOCAL MEAN SOLAR TIME												UNIVERSAL TIME																				
		16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 MAR	60	I	I	S	I	T	I	I	I	I	EEEE	I	I	I	I	S	I	2 MAR 61																
2 MAR	61	I	I	S	I	T	I	I	I	I	EEEE	I	I	I	I	S	I	3 MAR 62																
3 MAR	62	I	I	S	I	T	I	I	I	I	EEEE	I	I	I	I	S	I	4 MAR 63																
4 MAR	63	I	I	S	I	T	I	I	I	I	EEEE	I	I	I	I	S	I	5 MAR 64																
5 MAR	64	I	I	S	I	T	I	I	I	I	EEEE	I	I	I	I	S	I	6 MAR 65																
6 MAR	65	I	I	S	I	T	I	I	I	I	EEEE	I	I	I	I	S	I	7 MAR 66																
7 MAR	66	I	I	S	I	T	I	I	I	I	EEEE	I	I	I	I	S	I	8 MAR 67																
8 MAR	67	I	I	S	I	T	I	I	I	I	EEEE	I	I	I	I	S	I	9 MAR 68																
9 MAR	68	I	I	S	I	T	I	I	I	I	EEEE	I	I	I	I	S	I	10 MAR 69																
10 MAR	69	I	I	S	I	T	I	I	I	I	EEEE	I	I	I	I	S	I	11 MAR 70																
11 MAR	70	I	I	S	I	T	I	I	I	I	EEEE	I	I	I	I	S	I	12 MAR 71																
12 MAR	71	I	I	S	I	T	I	I	I	I	EEEE	I	I	I	I	S	I	13 MAR 72																
13 MAR	72	I	I	S	I	T	I	I	I	I	EEEE	I	I	I	I	S	I	14 MAR 73																
14 MAR	73	I	I	S	I	T	I	I	I	I	EEEE	I	I	I	I	S	I	15 MAR 74																
15 MAR	74	I	I	S	I	T	I	I	I	I	EEEE	I	I	I	I	S	I	16 MAR 75																
16 MAR	75	I	I	S	I	T	I	I	I	I	EEEE	I	I	I	I	S	I	17 MAR 76																
17 MAR	76	I	I	S	I	T	I	I	I	I	EEEE	I	I	I	I	S	I	18 MAR 77																
18 MAR	77	I	I	S	I	T	I	I	I	I	EEEE	I	I	I	I	S	I	19 MAR 78																
19 MAR	78	I	I	S	I	T	I	I	I	I	EEEE	I	I	I	I	S	I	20 MAR 79																
20 MAR	79	I	I	S	I	T	I	I	I	I	EEEE	I	I	I	I	S	I	21 MAR 80																
21 MAR	80	I	I	S	I	T	I	I	I	I	EEEE	I	I	I	I	S	I	22 MAR 81																
22 MAR	81	I	I	S	I	T	I	I	I	I	EEEE	I	I	I	I	S	I	23 MAR 82																
23 MAR	82	I	I	S	I	T	I	I	I	I	EEEE	I	I	I	I	S	I	24 MAR 83																
24 MAR	83	I	I	S	I	T	I	I	I	I	EEEE	I	I	I	I	S	I	25 MAR 84																
25 MAR	84	I	I	S	I	T	I	I	I	I	EEEE	I	I	I	I	S	I	26 MAR 85																
26 MAR	85	I	I	S	I	T	I	I	I	I	EEEE	I	I	I	I	S	I	27 MAR 86																
27 MAR	86	I	I	S	I	T	I	I	I	I	EEEE	I	I	I	I	S	I	28 MAR 87																
28 MAR	87	I	I	S	I	T	I	I	I	I	EEEE	I	I	I	I	S	I	29 MAR 88																
29 MAR	88	I	I	S	I	T	I	I	I	I	EEEE	I	I	I	I	S	I	30 MAR 89																
30 MAR	89	I	I	S	I	T	I	I	I	I	EEEE	I	I	I	I	S	I	31 MAR 90																
31 MAR	90	I	I	S	I	T	I	I	I	I	EEEE	I	I	I	I	S	I	1 APR 91																

S=SUNSET/SUNRISE
T=TWILIGHT
* = SPECULAR REFLECTION AT SITE
E=ECLIPSE BY EARTH
X=ALTITUDE LESS THAN 0 DEG

SPECULAR REFLECTION FROM CYLINDRICAL SATELLITE. SPIN AXIS = SYMMETRY AXIS
 33598. USA
 OFFSTA 76 073 A COMSTAR II PAYLOAD (ATT/COMSAT)

EPOCH = 1977 6 3:51:42.7 I = 0.0343
 A = 6.6108
 ANODE = 64.9058 ARGPER = 277.1700 ME = 86.3203
 RAAX = 0.47 HAAX = 225.10 DECA = 89.84 MISALNAX = 0.00
 OFFSET FROM ORH NORMLE = 0.17 LONG FROM ANODE = 149.55

SATELLITE GRAPHIC TIME TABLE
 FROM MAR 1977 THROUGH MAR 1977

	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	1977
1 MAR 60																		2 MAR 61
2 MAR 61																		3 MAR 62
3 MAR 62																		4 MAR 63
4 MAR 63																		5 MAR 64
5 MAR 64																		6 MAR 65
6 MAR 65																		7 MAR 66
7 MAR 66																		8 MAR 67
8 MAR 67																		9 MAR 68
9 MAR 68																		10 MAR 69
10 MAR 69																		11 MAR 70
11 MAR 70																		12 MAR 71
12 MAR 71																		13 MAR 72
13 MAR 72																		14 MAR 73
14 MAR 73																		15 MAR 74
15 MAR 74																		16 MAR 75
16 MAR 75																		17 MAR 76
17 MAR 76																		18 MAR 77
18 MAR 77																		19 MAR 78
19 MAR 78																		20 MAR 79
20 MAR 79																		21 MAR 80
21 MAR 80																		22 MAR 81
22 MAR 81																		23 MAR 82
23 MAR 82																		24 MAR 83
24 MAR 83																		25 MAR 84
25 MAR 84																		26 MAR 85
26 MAR 85																		27 MAR 86
27 MAR 86																		28 MAR 87
28 MAR 87																		29 MAR 88
29 MAR 88																		30 MAR 89
30 MAR 89																		31 MAR 90
31 MAR 90																		1 APR 91

S=SUNSET/SUNRISE
 T=TWILIGHT
 *S=SPECULAR REFLECTION AT SITE
 E=ECLIPSED BY EARTH
 X=ALTITUDE LESS THAN 0 DLG

SPECULAR REFLECTION FROM CYLINDRICAL SATELLITE. SPIN AXIS = SYMMETRY AXIS
 43567, USA SITE# STAL
 DESTTA 74 033 A SYNCHRONOUS METEOROLOGICAL SATELLITE - I (SDC 7298)

EPHCH= 1977 2 8148152.3 L= 0.0004127 I= 2.2862
 N= 1.00269297 A= 6.6108 M= 267.9732
 ANODE= 129.6061 ARGPER= 92.0748
 RMNAX= 0.31 RAAX= 122.20 DECAH= -82.50 MISALGNAX= 0.00
 OFFSET FROM ORH NORMLE= 8.02 LONG FROM ANODE= 156.43

SATELLITE GRAPHIC TIME TABLE
 FROM FEB 1977 THROUGH MAR 1977

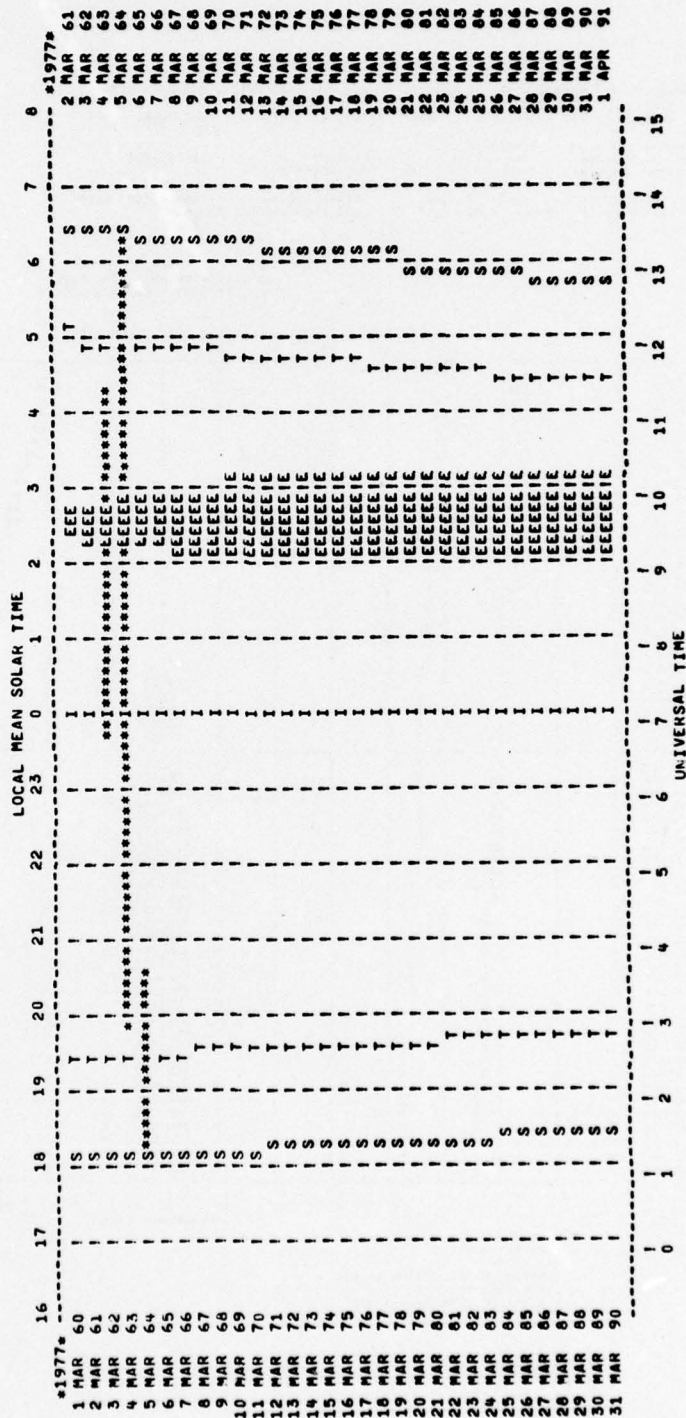
		LOCAL MEAN SOLAR TIME																
		16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8
1977																1977		
1 FEB	32	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	2 FEB 33
2 FEB	33	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	3 FEB 34
3 FEB	34	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	4 FEB 35
4 FEB	35	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	5 FEB 36
5 FEB	36	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	6 FEB 37
6 FEB	37	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	7 FEB 38
7 FEB	38	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	8 FEB 39
8 FEB	39	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	9 FEB 40
9 FEB	40	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	10 FEB 41
10 FEB	41	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	11 FEB 42
11 FEB	42	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	12 FEB 43
12 FEB	43	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	13 FEB 44
13 FEB	44	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	14 FEB 45
14 FEB	45	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	15 FEB 46
15 FEB	46	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	16 FEB 47
16 FEB	47	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	17 FEB 48
17 FEB	48	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	18 FEB 49
18 FEB	49	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	19 FEB 50
19 FEB	50	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	20 FEB 51
20 FEB	51	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	21 FEB 52
21 FEB	52	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	22 FEB 53
22 FEB	53	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	23 FEB 54
23 FEB	54	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	24 FEB 55
24 FEB	55	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	25 FEB 56
25 FEB	56	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	26 FEB 57
26 FEB	57	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	27 FEB 58
27 FEB	58	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	28 FEB 59
28 FEB	59	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	1 MAR 60
1977																1977		
1 MAR	60	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	2 MAR 61
2 MAR	61	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	3 MAR 62
3 MAR	62	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	4 MAR 63
4 MAR	63	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	5 MAR 64
5 MAR	64	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	6 MAR 65
6 MAR	65	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	7 MAR 66
7 MAR	66	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	8 MAR 67
8 MAR	67	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	9 MAR 68
9 MAR	68	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	10 MAR 69
10 MAR	69	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	11 MAR 70
11 MAR	70	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	12 MAR 71
12 MAR	71	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	13 MAR 72
13 MAR	72	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	14 MAR 73
14 MAR	73	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	15 MAR 74
15 MAR	74	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	16 MAR 75
16 MAR	75	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	17 MAR 76
17 MAR	76	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	18 MAR 77
18 MAR	77	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	19 MAR 78
19 MAR	78	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	20 MAR 79
20 MAR	79	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	21 MAR 80
21 MAR	80	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	22 MAR 81
22 MAR	81	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	23 MAR 82
23 MAR	82	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	24 MAR 83
24 MAR	83	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	25 MAR 84
25 MAR	84	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	26 MAR 85
26 MAR	85	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	27 MAR 86
27 MAR	86	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	28 MAR 87
28 MAR	87	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	29 MAR 88
29 MAR	88	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	30 MAR 89
30 MAR	89	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	31 MAR 90
31 MAR	90	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	1 APR 91

S=SUNSET/SUNRISE
 T=TWILIGHT
 *S=SPECULAR REFLECTION AT SITE
 *E=ECLIPSE BY EARTH
 *A=ALTITUDE LESS THAN 0 DEG

SPECULAR REFLECTION FROM CYLINDRICAL SATELLITE. SPIN AXIS = SYMMETRY AXIS
 85°60. USA SITE = STAL
 UESTTA 75 011 A SYNCHRONOUS METEOROLOGICAL SATELLITE II (SDC7648)

EPNCH= 1977 10 19:50:10.9 E= 0.0465876 T= 0.2036
 N= 1.00265781 A= 6.6110 M= 280.3859
 ANODE= 261.2774 ARGPE= 64.9134
 RHOEA= 0.51 RAX= 148.71 DECA= -89.51 MISALGNAX= 0.00
 OFFSET FROM ORB NORML= 0.68 LONG FROM ANODE= 74.05

SATELLITE GRAPHIC TIME TABLE
 FROM MAR 1977 THROUGH MAR 1977



SPECULAR REFLECTION FROM CYLINDRICAL SATELLITE. SPIN AXIS = SYMMETRY AXIS
 43505. USA SITE= STAL
 ORBITA 75 100 A SMC-3 AXA 60ESS-1 PAYLOAD (SUC 8366)

EPACHE 1976 352 15119: 5.9
 ME 1.00270930 A= 6.6108 T= 0.2868
 ANODE= 241.5296 ARGPER= 45.5607 M= 314.4895
 RMC= 0.31 HAAX= 6.96 DECAVE= -89.82 MISALGNAX= 0.00
 OFFSET FROM UNB ACOML= 0.17 LONG FROM ARQUE= 52.38

SATELLITE GRAPHIC TIME TABLE
 FROM MAR 1977 THROUGH MAR 1977

		LOCAL MEAN SOLAR TIME																										
		23	0	1	2	3	4	5	6	7	8			UNIVERSAL TIME														

APPROXIMATE REFLECTION FROM CYLINDRICAL SATELLITE, SPIN AXIS = SYMMETRY AXIS
 43535, USA SITE: BTAL
 JESTTA 66 110 & APPLICATIONS TECHNOLOGY SATELLITE - 1 (SDC 2600)

DATE: 1976 294 11:30124.6 E= 0.0009100 I= 7.7890
 Az= 6.6100 M= 189.8745
 UNDEF= 52.6277 ARGPER= 170.1461
 INCL= 0.14 HAAX= 125.20 DECA= -84.40 MISALGN= 0.00
 IFFSET FROM ORB NORMAL= 2.94 LONG FROM ANODE= 129.21

SATELLITE GRAPHIC TIME TABLE
 FROM FEB 1977 THROUGH MAR 1977

		LOCAL MEAN SOLAR TIME																	
		16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	1977
1 FEB	42	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	2 FEB 33
2 FEB	43	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	3 FEB 34
3 FEB	44	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	4 FEB 35
4 FEB	45	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	5 FEB 36
5 FEB	46	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	6 FEB 37
6 FEB	47	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	7 FEB 38
7 FEB	48	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	8 FEB 39
8 FEB	49	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	9 FEB 40
9 FEB	50	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	10 FEB 41
10 FEB	51	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	11 FEB 42
11 FEB	52	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	12 FEB 43
12 FEB	53	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	13 FEB 44
13 FEB	54	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	14 FEB 45
14 FEB	55	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	15 FEB 46
15 FEB	56	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	16 FEB 47
16 FEB	57	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	17 FEB 48
17 FEB	58	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	18 FEB 49
18 FEB	59	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	19 FEB 50
19 FEB	60	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	20 FEB 51
20 FEB	61	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	21 FEB 52
21 FEB	62	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	22 FEB 53
22 FEB	63	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	23 FEB 54
23 FEB	64	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	24 FEB 55
24 FEB	65	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	25 FEB 56
25 FEB	66	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	26 FEB 57
26 FEB	67	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	27 FEB 58
27 FEB	68	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	28 FEB 59
28 FEB	69	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	1 MAR 60
1 MAR	70	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	2 MAR 61
2 MAR	71	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	3 MAR 62
3 MAR	72	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	4 MAR 63
4 MAR	73	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	5 MAR 64
5 MAR	74	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	6 MAR 65
6 MAR	75	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	7 MAR 66
7 MAR	76	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	8 MAR 67
8 MAR	77	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	9 MAR 68
9 MAR	78	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	10 MAR 69
10 MAR	79	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	11 MAR 70
11 MAR	80	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	12 MAR 71
12 MAR	81	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	13 MAR 72
13 MAR	82	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	14 MAR 73
14 MAR	83	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	15 MAR 74
15 MAR	84	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	16 MAR 75
16 MAR	85	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	17 MAR 76
17 MAR	86	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	18 MAR 77
18 MAR	87	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	19 MAR 78
19 MAR	88	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	20 MAR 79
20 MAR	89	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	21 MAR 80
21 MAR	90	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	22 MAR 81
22 MAR	91	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	23 MAR 82
23 MAR	92	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	24 MAR 83
24 MAR	93	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	25 MAR 84
25 MAR	94	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	26 MAR 85
26 MAR	95	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	27 MAR 86
27 MAR	96	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	28 MAR 87
28 MAR	97	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	29 MAR 88
29 MAR	98	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	30 MAR 89
30 MAR	99	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	31 MAR 90
31 MAR	100	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I	I	1 APR 91

S=SET/SUNRISE
 T=TILIGHT
 *S=SPECULAR REFLECTION AT SITE
 E=ECLIPSED BY EARTH
 X=ALTITUDE LESS THAN 0 DEG

IPFCULAR REFLECTION FROM CYLINDRICAL SATELLITE. SPIN AXIS = SYMMETRY AXIS
 43553. USA SITE= STAL
 DEF17A 67 111 A APPLICATIONS TECHNOLOGY SATELLITE - 3 (SDC 3829)

POCH= 1977 12 2127130.5 E= 0.0017181 I= 6.3301
 IE 1.00205567 AM 6.6136 M= 299.6602
 MODE= 57.0658 ARGPEX= 64.5200
 IN:PP= 0.14 HAAX= 154.30 DECAKX= -86.90 MISALGNAX= 0.00
 IPFSET FROM ORB NORML= 3.28 LONG FROM ANODE= 83.16

SATELLITE GRAPHIC TIME TABLE
 FROM FEB 1977 THROUGH MAR 1977

	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	
1 FEB 72	I	S	I	IT				I						I	T	I	SI	2 FEB 33
2 FEB 33	I	S	I	IT				I						I	T	I	SI	3 FEB 34
3 FEB 34	I	S	I	IT				I						I	T	I	SI	4 FEB 35
4 FEB 35	I	S	I	IT				I						I	T	I	SI	5 FEB 36
5 FEB 36	I	S	I	IT				I						I	T	I	SI	6 FEB 37
6 FEB 37	I	S	I	IT				I						I	T	I	SI	7 FEB 38
7 FEB 38	I	S	I	IT				EE I						I	T	I	SI	8 FEB 39
8 FEB 39	I	S	I	IT				EE I						I	T	I	SI	9 FEB 40
9 FEB 40	I	S	I	IT				EEEEI						I	T	I	SI	10 FEB 41
10 FEB 41	I	S	I	IT				EEEEI						I	T	I	SI	11 FEB 42
11 FEB 42	I	S	I	IT				EEEEI						I	T	I	SI	12 FEB 43
12 FEB 43	I	S	I	IT				EEEEI						I	T	I	SI	13 FEB 44
13 FEB 44	I	S	I	IT				EEEEI						I	T	I	SI	14 FEB 45
14 FEB 45	I	S	I	IT				EEEEI						I	T	I	SI	15 FEB 46
15 FEB 46	I	S	I	IT				EEEEI						I	T	I	SI	16 FEB 47
16 FEB 47	I	S	I	IT				EEEEI						I	T	I	SI	17 FEB 48
17 FEB 48	I	S	I	IT				EEEEI						I	T	I	SI	18 FEB 49
18 FEB 49	I	S	I	IT				EEEEI						I	T	I	SI	19 FEB 50
19 FEB 50	I	S	I	IT				EEEEI						I	T	I	SI	20 FEB 51
20 FEB 51	I	S	I	IT				EEEEI						I	T	I	SI	21 FEB 52
21 FEB 52	I	S	I	IT				EEEEI						I	T	I	SI	22 FEB 53
22 FEB 53	I	S	I	IT				EEEEI						I	T	I	SI	23 FEB 54
23 FEB 54	I	S	I	IT				EEEEI						I	T	I	SI	24 FEB 55
24 FEB 55	I	S	I	IT				EEEEI						I	T	I	SI	25 FEB 56
25 FEB 56	I	S	I	IT				EEEEI						I	T	I	SI	26 FEB 57
26 FEB 57	I	S	I	IT				EEEEI						I	T	I	SI	27 FEB 58
27 FEB 58	I	S	I	IT				EEEEI						I	T	I	SI	28 FEB 59
28 FEB 59	I	S	I	IT				EEEEI						I	T	I	SI	1 MAR 60
1 MAR 60	I	S	I	IT				EEEEI						I	T	I	SI	2 MAR 61
2 MAR 61	I	S	I	IT				EEEEI						I	T	I	SI	3 MAR 62
3 MAR 62	I	S	I	IT				EEEEI						I	T	I	SI	4 MAR 63
4 MAR 63	I	S	I	IT				EEEEI						I	T	I	SI	5 MAR 64
5 MAR 64	I	S	I	IT				EEEEI						I	T	I	SI	6 MAR 65
6 MAR 65	I	S	I	IT				EEEEI						I	T	I	SI	7 MAR 66
7 MAR 66	I	S	I	IT				EEEEI						I	T	I	SI	8 MAR 67
8 MAR 67	I	S	I	IT				EEEEI						I	T	I	SI	9 MAR 68
9 MAR 68	I	S	I	IT				EEEEI						I	T	I	SI	10 MAR 69
10 MAR 69	I	S	I	IT				EEEEI						I	T	I	SI	11 MAR 70
11 MAR 70	I	S	I	IT				EEEEI						I	T	I	SI	12 MAR 71
12 MAR 71	I	S	I	IT				EEEEI						I	T	I	SI	13 MAR 72
13 MAR 72	I	S	I	IT				EEEEI						I	T	I	SI	14 MAR 73
14 MAR 73	I	S	I	IT				EEEEI						I	T	I	SI	15 MAR 74
15 MAR 74	I	S	I	IT				EEEEI						I	T	I	SI	16 MAR 75
16 MAR 75	I	S	I	IT				EEEEI						I	T	I	SI	17 MAR 76
17 MAR 76	I	S	I	IT				EEEEI						I	T	I	SI	18 MAR 77
18 MAR 77	I	S	I	IT				EEEEI						I	T	I	SI	19 MAR 78
19 MAR 78	I	S	I	IT				EEEEI						I	T	I	SI	20 MAR 79
20 MAR 79	I	S	I	IT				EEEEI						I	T	I	SI	21 MAR 80
21 MAR 80	I	S	I	IT				EEEEI						I	T	I	SI	22 MAR 81
22 MAR 81	I	S	I	IT				EEEEI						I	T	I	SI	23 MAR 82
23 MAR 82	I	S	I	IT				EEEEI						I	T	I	SI	24 MAR 83
24 MAR 83	I	S	I	IT				EEEEI						I	T	I	SI	25 MAR 84
25 MAR 84	I	S	I	IT				EEEEI						I	T	I	SI	26 MAR 85
26 MAR 85	I	S	I	IT				EEEEI						I	T	I	SI	27 MAR 86
27 MAR 86	I	S	I	IT				EEEEI						I	T	I	SI	28 MAR 87
28 MAR 87	I	S	I	IT				EEEEI						I	T	I	SI	29 MAR 88
29 MAR 88	I	S	I	IT				EEEEI						I	T	I	SI	30 MAR 89
30 MAR 89	I	S	I	IT				EEEEI						I	T	I	SI	31 MAR 90
31 MAR 90	I	S	I	IT				EEEEI						I	T	I	SI	1 APR 91

S=SUNSET/SUNRISE
 T=TWILIGHT
 *S=SPECULAR REFLECTION AT SITE
 E=ECLIPSED BY EARTH
 *A=ALTITUDE LESS THAN 0 DEG

SPECULAR REFLECTION FROM CYLINDRICAL SATELLITE. SPIN AXIS = SYMMETRY AXIS
 ASD23. USA SITE# STAL
 DESTTA 69 069 A APPLICATIONS TECHNOLOGY SATELLITE - S (SDC 4068)

EPNCH= 1976 345 6:13:41.5 E= 0.0013508 I= 3.6766
 N= 1.00272675 Az 6.6107 M= 162.2092
 ANODE= 66.9449 ARGPN= 177.7979
 H=0.00118 HAAK= 26.20 DECAY= 66.20 MISALOMAX= 0.00
 OFFSET FROM ORB NURML= 3.23 LONG FROM ANODE= 23.61

SATELLITE GRAPHIC TIME TABLE
 FROM FEB 1977 THROUGH MAR 1977

		LOCAL MEAN SOLAR TIME															
		16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7
1977		16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7
1 FEB	32	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
2 FEB	33	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
3 FEB	34	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
4 FEB	35	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
5 FEB	36	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
6 FEB	37	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
7 FEB	38	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
8 FEB	39	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
9 FEB	40	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
10 FEB	41	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
11 FEB	42	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
12 FEB	43	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
13 FEB	44	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
14 FEB	45	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
15 FEB	46	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
16 FEB	47	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
17 FEB	48	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
18 FEB	49	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
19 FEB	50	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
20 FEB	51	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
21 FEB	52	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
22 FEB	53	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
23 FEB	54	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
24 FEB	55	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
25 FEB	56	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
26 FEB	57	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
27 FEB	58	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
28 FEB	59	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
1 MAR	60	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
2 MAR	61	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
3 MAR	62	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
4 MAR	63	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
5 MAR	64	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
6 MAR	65	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
7 MAR	66	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
8 MAR	67	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
9 MAR	68	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
10 MAR	69	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
11 MAR	70	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
12 MAR	71	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
13 MAR	72	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
14 MAR	73	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
15 MAR	74	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
16 MAR	75	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
17 MAR	76	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
18 MAR	77	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
19 MAR	78	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
20 MAR	79	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
21 MAR	80	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
22 MAR	81	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
23 MAR	82	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
24 MAR	83	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
25 MAR	84	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
26 MAR	85	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
27 MAR	86	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
28 MAR	87	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
29 MAR	88	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
30 MAR	89	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
31 MAR	90	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I
1 APR	91	I	S	I	T	I	I	I	I	I	I	I	I	I	I	I	I

S=SUNRISE
 T=TWILIGHT
 *S=SPECULAR REFLECTION AT SITE
 L=ECLIPSED BY EARTH
 X=ALTITUDE LESS THAN 0 DEG

SPECULAR REFLECTION FROM CYLINDRICAL SATELLITE: SPIN AXIS = SYMMETRY AXIS
 A3512, USA SITEM STAL
 DESTA 65 028 A INTELSAT I-EB EARLY BIRD (SDC 1317)

EPNCH= 1976 344 01 01 0.0 E= 0.0003107 I= 10.1006
 NZ= 1.00179139 AZ= 6.6146 M= 135.0002
 ANONE= 46,2015 ARGPE= 130,2428
 HMAAX= 0.05 HMAAX= 190.21 DECAK= -84.98 MISALGNAX= 0.00
 OFFSET FROM ORR NORML= 0.29 LONG FROM ANODE= 60.96

SATELLITE GRAPHIC TIME TABLE
 FROM FEB 1977 THROUGH MAR 1977

		LOCAL MEAN SOLAR TIME																
		16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8
1977																		1977
1 FEB 34																		2 FEB 33
2 FEB 35																		3 FEB 34
3 FEB 36																		4 FEB 35
4 FEB 37																		5 FEB 36
5 FEB 38																		6 FEB 37
6 FEB 39																		7 FEB 38
7 FEB 40																		8 FEB 39
8 FEB 41																		9 FEB 40
9 FEB 42																		10 FEB 41
10 FEB 43																		11 FEB 42
11 FEB 44																		12 FEB 43
12 FEB 45																		13 FEB 44
13 FEB 46																		14 FEB 45
14 FEB 47																		15 FEB 46
15 FEB 48																		16 FEB 47
16 FEB 49																		17 FEB 48
17 FEB 50																		18 FEB 49
18 FEB 51																		19 FEB 50
19 FEB 52																		20 FEB 51
20 FEB 53																		21 FEB 52
21 FEB 54																		22 FEB 53
22 FEB 55																		23 FEB 54
23 FEB 56																		24 FEB 55
24 FEB 57																		25 FEB 56
25 FEB 58																		26 FEB 57
26 FEB 59																		27 FEB 58
27 FEB 60																		28 FEB 59
28 FEB 61																		1 MAR 60
1977																		1977
1 MAR 60																		2 MAR 61
2 MAR 61																		3 MAR 62
3 MAR 62																		4 MAR 63
4 MAR 63																		5 MAR 64
5 MAR 64																		6 MAR 65
6 MAR 65																		7 MAR 66
7 MAR 66																		8 MAR 67
8 MAR 67																		9 MAR 68
9 MAR 68																		10 MAR 69
10 MAR 69																		11 MAR 70
11 MAR 70																		12 MAR 71
12 MAR 71																		13 MAR 72
13 MAR 72																		14 MAR 73
14 MAR 73																		15 MAR 74
15 MAR 74																		16 MAR 75
16 MAR 75																		17 MAR 76
17 MAR 76																		18 MAR 77
18 MAR 77																		19 MAR 78
19 MAR 78																		20 MAR 79
20 MAR 79																		21 MAR 80
21 MAR 80																		22 MAR 81
22 MAR 81																		23 MAR 82
23 MAR 82																		24 MAR 83
24 MAR 83																		25 MAR 84
25 MAR 84																		26 MAR 85
26 MAR 85																		27 MAR 86
27 MAR 86																		28 MAR 87
28 MAR 87																		29 MAR 88
29 MAR 88																		30 MAR 89
30 MAR 89																		31 MAR 90
31 MAR 90																		1 APR 91

S=SUNSET/SUNRISE
 T=TILIGHT
 *S=SPECULAR REFLECTION AT SITE
 E=ECLIPSED BY EARTH
 A=ALTITUDE LESS THAN 0 DEG

SPECULAR REFLECTION FROM CYLINDRICAL SATELLITE: SPIN AXIS = SYMMETRY AXIS
 43507 USA SITE= BTAL
 DESITA 67 026 A INTLSAT 11 F = 3 (SOC 2717)

EPNCH= 1976 344 01 01 0.0 Lx 0.0016574 Lz 7.0400
 Az 1.00501526 AR= 6.6059 Mx 531.6946
 ANCHER 51.0075 ARGPER= 295.5469
 HNSAR= 0.07 HAPX= 103.27 DECAH= -88.84 MISALGNAX= 0.00
 OFSET1 FROM ORH NORML= 5.97 LONG FROM ANODE= 90.79

SATELLITE GRAPHIC TIME TABLE
 FROM FEB 1977 THROUGH MAR 1977

		LOCAL MEAN SOLAR TIME																	
		16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	
1977																			1977
1 FEB 32		S	I	T						I					I	T		ST	2 FEB 33
2 FEB 33		S	I	T						I					I	T		ST	3 FEB 34
3 FEB 34		S	I	T						I					I	T		ST	4 FEB 35
4 FEB 35		S	I	T						I					I	T		ST	5 FEB 36
5 FEB 36		S	I	T						I					I	T		ST	6 FEB 37
6 FEB 37		S	I	T						I					I	T		ST	7 FEB 38
7 FEB 38		S	I	T						I					I	T		ST	8 FEB 39
8 FEB 39		S	I	T						I					I	T		ST	9 FEB 40
9 FEB 40		S	I	T						I					I	T		ST	10 FEB 41
10 FEB 41		S	I	T						I					I	T		ST	11 FEB 42
11 FEB 42		S	I	T						I					I	T		ST	12 FEB 43
12 FEB 43		S	I	T						I					I	T		ST	13 FEB 44
13 FEB 44		S	I	T						I					I	T		ST	14 FEB 45
14 FEB 45		S	I	T						I					I	T		ST	15 FEB 46
15 FEB 46		S	I	T						I					I	T		ST	16 FEB 47
16 FEB 47		S	I	T						I					I	T		ST	17 FEB 48
17 FEB 48		S	I	T						I					I	T		ST	18 FEB 49
18 FEB 49		S	I	T						I					I	T		ST	19 FEB 50
19 FEB 50		S	I	T						I					I	T		ST	20 FEB 51
20 FEB 51		S	I	T						I					I	T		ST	21 FEB 52
21 FEB 52		S	I	T						I					I	T		ST	22 FEB 53
22 FEB 53		S	I	T						I					I	T		ST	23 FEB 54
23 FEB 54		S	I	T						I					I	T		ST	24 FEB 55
24 FEB 55		S	I	T						I					I	T		ST	25 FEB 56
25 FEB 56		S	I	T						I					I	T		ST	26 FEB 57
26 FEB 57		S	I	T						I					I	T		ST	27 FEB 58
27 FEB 58		S	I	T						I					I	T		ST	28 FEB 59
28 FEB 59		S	I	T						I					I	T		ST	1 MAR 60
1977																			1977
1 MAR 60		S	I	T						I					I	T		ST	2 MAR 61
2 MAR 61		S	I	T						I					I	T		ST	3 MAR 62
3 MAR 62		S	I	T						I					I	T		ST	4 MAR 63
4 MAR 63		S	I	T						I					I	T		ST	5 MAR 64
5 MAR 64		S	I	T						I					I	T		ST	6 MAR 65
6 MAR 65		S	I	T						I					I	T		ST	7 MAR 66
7 MAR 66		S	I	T						I					I	T		ST	8 MAR 67
8 MAR 67		S	I	T						I					I	T		ST	9 MAR 68
9 MAR 68		S	I	T						I					I	T		ST	10 MAR 69
10 MAR 69		S	I	T						I					I	T		ST	11 MAR 70
11 MAR 70		S	I	T						I					I	T		ST	12 MAR 71
12 MAR 71		S	I	T						I					I	T		ST	13 MAR 72
13 MAR 72		S	I	T						I					I	T		ST	14 MAR 73
14 MAR 73		S	I	T						I					I	T		ST	15 MAR 74
15 MAR 74		S	I	T						I					I	T		ST	16 MAR 75
16 MAR 75		S	I	T						I					I	T		ST	17 MAR 76
17 MAR 76		S	I	T						I					I	T		ST	18 MAR 77
18 MAR 77		S	I	T						I					I	T		ST	19 MAR 78
19 MAR 78		S	I	T						I					I	T		ST	20 MAR 79
20 MAR 79		S	I	T						I					I	T		ST	21 MAR 80
21 MAR 80		S	I	T						I					I	T		ST	22 MAR 81
22 MAR 81		S	I	T						I					I	T		ST	23 MAR 82
23 MAR 82		S	I	T						I					I	T		ST	24 MAR 83
24 MAR 83		S	I	T						I					I	T		ST	25 MAR 84
25 MAR 84		S	I	T						I					I	T		ST	26 MAR 85
26 MAR 85		S	I	T						I					I	T		ST	27 MAR 86
27 MAR 86		S	I	T						I					I	T		ST	28 MAR 87
28 MAR 87		S	I	T						I					I	T		ST	29 MAR 88
29 MAR 88		S	I	T						I					I	T		ST	30 MAR 89
30 MAR 89		S	I	T						I					I	T		ST	31 MAR 90
31 MAR 90		S	I	T						I					I	T		ST	1 APR 91

S=SET/SUNRISE
 T=TWILIGHT
 *S=SPECULAR REFLECTION AT SITE
 *E=ECLIPSED BY LANTH
 *A=ALTITUDE LESS THAN 0 DEG

SPECULAR REFLECTION FROM CYLINDRICAL SATELLITE. SPIN AXIS = SYMMETRY AXIS
 03530, USA SITE: STAL
 NESTTA 67 094 A INTELSAT II F - 4 (SOC 2949)

EPACH= 1976 329 01 01 0.0
 NS 1.06189957 AS 6.6143 E= 0.0002886 I= 7.1889
 ANODE= 55.2918 ARGPER= 187.7616 R= 153.6489
 RH= 42 A.07 HAAX= 154.27 DECA= -88.15 HISALONAX= 0.00
 OFFSET FROM ORB NORMLE 5.28 LONG FROM ANODE= 86.86

SATELLITE GRAPHIC TIME TABLE
 FROM FEB 1977 THROUGH MAR 1977

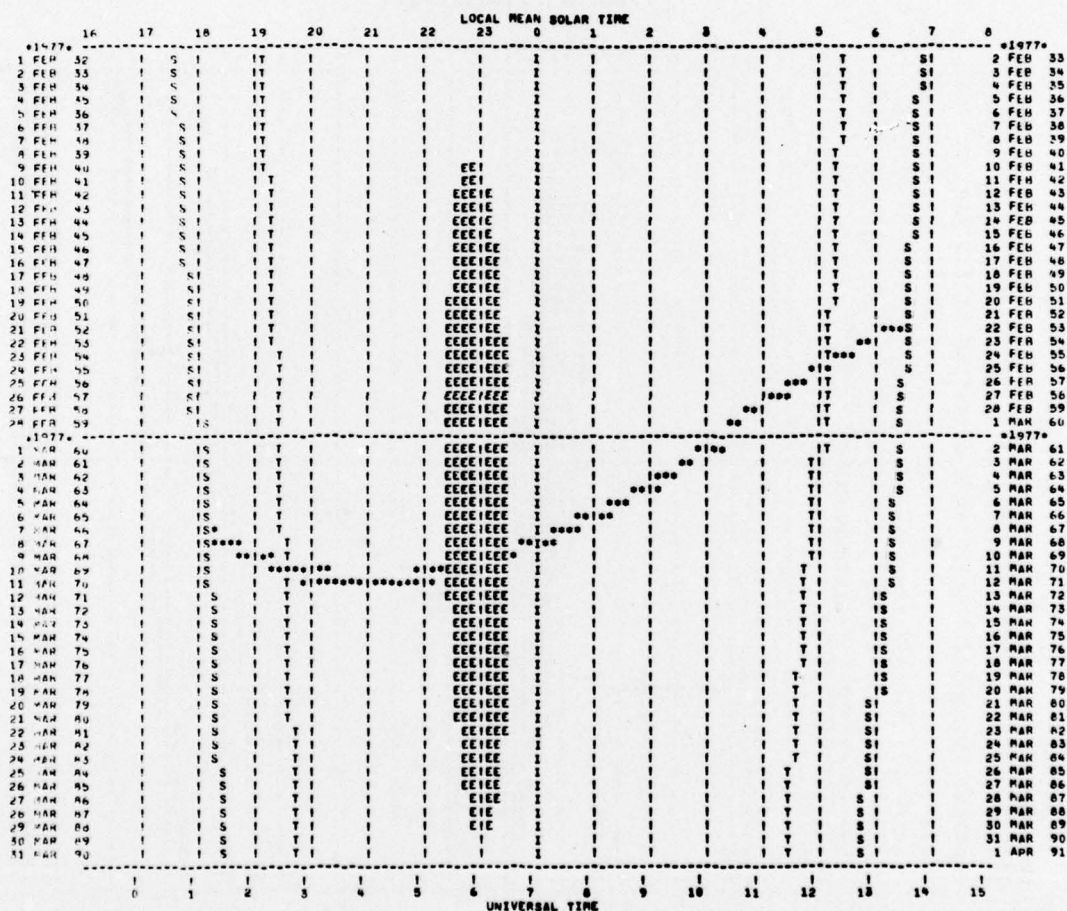
J	LOCAL MEAN SOLAR TIME																J	
	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	
1977	1 FEB 52	S	I	IT					I	I					I	T	SI	*1977*
	2 FEB 53	S	I	IT					I	I					I	T	SI	2 FEB 53
	3 FEB 54	S	I	IT					I	I					I	T	SI	3 FEB 54
	4 FEB 55	S	I	IT					I	I					I	T	SI	4 FEB 55
	5 FEB 56	S	I	IT					I	I					I	T	SI	5 FEB 56
	6 FEB 57	S	I	IT					I	I					I	T	SI	6 FEB 57
	7 FEB 58	S	I	IT					I	I					I	T	SI	7 FEB 58
	8 FEB 59	S	I	IT					I	I					I	T	SI	8 FEB 59
	9 FEB 60	S	I	IT					I	I					I	T	SI	9 FEB 60
	10 FEB 61	S	I	IT					I	I					I	T	SI	10 FEB 61
	11 FEB 62	S	I	IT					I	I					I	T	SI	11 FEB 62
	12 FEB 63	S	I	IT					I	I					I	T	SI	12 FEB 63
	13 FEB 64	S	I	IT					I	I					I	T	SI	13 FEB 64
	14 FEB 65	S	I	IT					I	I					I	T	SI	14 FEB 65
	15 FEB 66	S	I	IT					I	I					I	T	SI	15 FEB 66
	16 FEB 67	S	I	IT					I	I					I	T	SI	16 FEB 67
	17 FEB 68	S	I	IT					I	I					I	T	SI	17 FEB 68
	18 FEB 69	S	I	IT					I	I					I	T	SI	18 FEB 69
	19 FEB 70	S	I	IT					I	I					I	T	SI	19 FEB 70
	20 FEB 71	S	I	IT					I	I					I	T	SI	20 FEB 71
	21 FEB 72	S	I	IT					I	I					I	T	SI	21 FEB 72
	22 FEB 73	S	I	IT					I	I					I	T	SI	22 FEB 73
	23 FEB 74	S	I	IT					I	I					I	T	SI	23 FEB 74
	24 FEB 75	S	I	IT					I	I					I	T	SI	24 FEB 75
	25 FEB 76	S	I	IT					I	I					I	T	SI	25 FEB 76
	26 FEB 77	S	I	IT					I	I					I	T	SI	26 FEB 77
	27 FEB 78	S	I	IT					I	I					I	T	SI	27 FEB 78
	28 FEB 79	S	I	IT					I	I					I	T	SI	28 FEB 79
	29 FEB 80	S	I	IT					I	I					I	T	SI	29 FEB 80
	30 FEB 81	S	I	IT					I	I					I	T	SI	30 FEB 81
	31 FEB 82	S	I	IT					I	I					I	T	SI	31 FEB 82
1977	1 MAR 83	S	I	IT					I	I					I	T	SI	*1977*
	2 MAR 84	S	I	IT					I	I					I	T	SI	2 MAR 84
	3 MAR 85	S	I	IT					I	I					I	T	SI	3 MAR 85
	4 MAR 86	S	I	IT					I	I					I	T	SI	4 MAR 86
	5 MAR 87	S	I	IT					I	I					I	T	SI	5 MAR 87
	6 MAR 88	S	I	IT					I	I					I	T	SI	6 MAR 88
	7 MAR 89	S	I	IT					I	I					I	T	SI	7 MAR 89
	8 MAR 90	S	I	IT					I	I					I	T	SI	8 MAR 90
	9 MAR 91	S	I	IT					I	I					I	T	SI	9 MAR 91
	10 MAR 92	S	I	IT					I	I					I	T	SI	10 MAR 92
	11 MAR 93	S	I	IT					I	I					I	T	SI	11 MAR 93
	12 MAR 94	S	I	IT					I	I					I	T	SI	12 MAR 94
	13 MAR 95	S	I	IT					I	I					I	T	SI	13 MAR 95
	14 MAR 96	S	I	IT					I	I					I	T	SI	14 MAR 96
	15 MAR 97	S	I	IT					I	I					I	T	SI	15 MAR 97
	16 MAR 98	S	I	IT					I	I					I	T	SI	16 MAR 98
	17 MAR 99	S	I	IT					I	I					I	T	SI	17 MAR 99
	18 MAR 00	S	I	IT					I	I					I	T	SI	18 MAR 00
	19 MAR 01	S	I	IT					I	I					I	T	SI	19 MAR 01
	20 MAR 02	S	I	IT					I	I					I	T	SI	20 MAR 02
	21 MAR 03	S	I	IT					I	I					I	T	SI	21 MAR 03
	22 MAR 04	S	I	IT					I	I					I	T	SI	22 MAR 04
	23 MAR 05	S	I	IT					I	I					I	T	SI	23 MAR 05
	24 MAR 06	S	I	IT					I	I					I	T	SI	24 MAR 06
	25 MAR 07	S	I	IT					I	I					I	T	SI	25 MAR 07
	26 MAR 08	S	I	IT					I	I					I	T	SI	26 MAR 08
	27 MAR 09	S	I	IT					I	I					I	T	SI	27 MAR 09
	28 MAR 10	S	I	IT					I	I					I	T	SI	28 MAR 10
	29 MAR 11	S	I	IT					I	I					I	T	SI	29 MAR 11
	30 MAR 12	S	I	IT					I	I					I	T	SI	30 MAR 12
	31 MAR 13	S	I	IT					I	I					I	T	SI	31 MAR 13
	1 APR 14	S	I	IT					I	I					I	T	SI	1 APR 14
	2 APR 15	S	I	IT					I	I					I	T	SI	2 APR 15
	3 APR 16	S	I	IT					I	I					I	T	SI	3 APR 16
	4 APR 17	S	I	IT					I	I					I	T	SI	4 APR 17
	5 APR 18	S	I	IT					I	I					I	T	SI	5 APR 18
	6 APR 19	S	I	IT					I	I					I	T	SI	6 APR 19
	7 APR 20	S	I	IT					I	I					I	T	SI	7 APR 20
	8 APR 21	S	I	IT					I	I					I	T	SI	8 APR 21
	9 APR 22	S	I	IT					I	I					I	T	SI	9 APR 22
	10 APR 23	S	I	IT					I	I					I	T	SI	10 APR 23
	11 APR 24	S	I	IT					I	I					I	T	SI	11 APR 24
	12 APR 25	S	I	IT					I	I					I	T	SI	12 APR 25
	13 APR 26	S	I	IT					I	I					I	T	SI	13 APR 26
	14 APR 27	S	I	IT					I	I					I	T	SI	14 APR 27
	15 APR 28	S	I	IT					I	I					I	T	SI	15 APR 28
	16 APR 29	S	I	IT					I	I					I	T	SI	16 APR 29
	17 APR 30	S	I	IT					I	I					I	T	SI	17 APR 30
	18 APR 31	S	I	IT					I	I					I	T	SI	18 APR 31
	19 APR 32	S	I	IT					I	I					I	T	SI	19 APR 32
	20 APR 33	S	I	IT					I	I					I	T	SI	20 APR 33
	21 APR 34	S	I	IT					I	I					I	T	SI	21 APR 34
	22 APR 35	S	I	IT					I	I					I	T	SI	22 APR 35
	23 APR 36	S	I	IT					I	I					I	T	SI	23 APR 36
	24 APR 37	S	I	IT					I	I					I	T	SI	24 APR 37
	25 APR 38	S	I	IT					I	I					I	T	SI	25 APR 38
	26 APR 39	S	I	IT					I	I					I	T	SI	26 APR 39
	27 APR 40	S	I	IT					I	I					I	T	SI	27 APR 40
	28 APR 41	S	I	IT					I	I					I	T	SI	28 APR 41
	29 APR 42	S	I	IT					I	I					I	T	SI	29 APR 42
	30 APR 43	S	I	IT					I	I					I	T	SI	30 APR 43
	31 APR 44	S	I	IT					I	I					I	T	SI	31 APR 44
	1 MAY 45	S	I	IT					I	I					I	T	SI	1 MAY 45
	2 MAY 46	S	I	IT					I	I					I	T	SI	2 MAY 46
	3 MAY 47	S	I	IT					I	I					I	T	SI	3 MAY 47
	4 MAY 48	S	I	IT					I	I					I	T	SI	4 MAY 48
	5 MAY 49	S	I	IT					I	I					I	T	SI	5 MAY 49
	6 MAY 50	S	I	IT					I	I					I	T	SI	6 MAY 50
	7 MAY 51	S	I	IT					I	I					I	T	SI	7 MAY 51
	8 MAY 52	S	I	IT					I	I					I	T	SI	8 MAY 52
	9 MAY 53	S	I	IT					I	I					I	T	SI	9 MAY 53
	10 MAY 54	S	I	IT					I	I					I	T	SI	10 MAY 54
	11 MAY 55	S	I	IT					I	I					I	T	SI	11 MAY 55
	12 MAY 56	S	I	IT					I	I					I	T	SI	12 MAY 56
	13 MAY 57	S	I	IT					I	I					I	T	SI	13 MAY 57
	14 MAY 58	S	I	IT					I	I					I	T	SI	14 MAY 58
	15 MAY 59	S	I	IT					I	I					I	T	SI	15 MAY 59
	16 MAY 60	S	I	IT					I	I					I	T	SI	16 MAY 60
	17 MAY 61	S	I	IT					I	I					I	T	SI	17 MAY 61
	18 MAY 62	S	I	IT					I	I					I	T	SI	18 MAY 62
	19 MAY 63	S	I	IT					I	I					I	T	SI	19 MAY 63
	20 MAY 64	S	I	IT					I	I					I	T	SI	20 MAY 64
	21 MAY 65	S	I	IT					I	I					I	T	SI	21 MAY 65
	22 MAY 66	S	I	IT					I	I					I	T	SI	22 MAY 66
	23 MAY 67	S	I	IT					I	I					I	T	SI	23 MAY 67
	24 MAY 68	S	I	IT					I	I					I	T	SI	24 MAY 68
	25 MAY 69	S	I	IT					I	I					I	T	SI	25 MAY 69
	26 MAY 70	S	I															

SUNSET/SUNRISE
 TWILIGHT
 *SPECCULAR REFLECTION AT SITE
 ECLIPSED BY EARTH
 ALTITUDE LESS THAN 0 DEG

SPECULAR REFLECTION FROM CYLINDRICAL SATELLITE, SPIN AXIS = SYMMETRY AXIS
 45513, USA SITE: STAL
 NSTT 60 116 A INTELSAT III F-2 PAYLOAD (SDC 3628)

EPICHR 1976 317 5145140.5 E= 0.0007979 I= 6.0000
 NR 1.00241088 AR 6.6121 NR 240.2120
 ANODE= 61.7210 ARGPER= 119.8603
 RHO= 0.10 RAAX= 162.66 DECA= -87.54 MISALNAX= 0.00
 OFSET FROM ORH NORMLE 3.66 LONG FROM ANODE= 82.55

SATELLITE GRAPHIC TIME TABLE
 FROM FEB 1977 THROUGH MAR 1977



S=SET/SUNRISE
 T=TWILIGHT
 I=SPECULAR REFLECTION AT SITE
 E=ECLIPSED BY EARTH
 X=ALTITUDE LESS THAN 0 DEG

SPECULAR REFLECTION FROM CYLINDRICAL SATELLITE. SPIN AXIS = SYMMETRY AXIS
 85534 USA SITE= STAL
 DESTTA 70 005 A INTLSAT III F - 6 (SDC 4297)

FOCUS 1974 344 01 01 0.0 E= 0.0013929 I= 4.8706
 VE 1.00234984 AZ 6.6122 R= 175.2242
 ANODE= 61.9031 ARGPER= 41.0313
 RMSE= 0.10 RAAX= 161.04 DECA= -86.50 MISALGN= 0.00
 OFFSET FROM ORN NORM= 1.52 LONG FROM ANODE= 68.56

SATELLITE GRAPHIC TIME TABLE
 FROM FEB 1977 THROUGH MAR 1977

	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	
1977																		*1977*
1 FEB 32		S	I	T					I					I	T		S	2 FEB 33
2 FEB 33		S	I	T					I					I	T		S	3 FEB 34
3 FEB 34		S	I	T					I					I	T		S	4 FEB 35
4 FEB 35		S	I	T					I					I	T		S	5 FEB 36
5 FEB 36		S	I	T					I					I	T		S	6 FEB 37
6 FEB 37		S	I	T					I					I	T		S	7 FEB 38
7 FEB 38		S	I	T					I					I	T		S	8 FEB 39
8 FEB 39		S	I	T					I					I	T		S	9 FEB 40
9 FEB 40		S	I	T					I					I	T		S	10 FEB 41
10 FEB 41		S	I	T					I					I	T		S	11 FEB 42
11 FEB 42		S	I	T					I					I	T		S	12 FEB 43
12 FEB 43		S	I	T					I					I	T		S	13 FEB 44
13 FEB 44		S	I	T					I					I	T		S	14 FEB 45
14 FEB 45		S	I	T					I					I	T		S	15 FEB 46
15 FEB 46		S	I	T					I					I	T		S	16 FEB 47
16 FEB 47		S	I	T					I					I	T		S	17 FEB 48
17 FEB 48		S	I	T					I					I	T		S	18 FEB 49
18 FEB 49		S	I	T					I					I	T		S	19 FEB 50
19 FEB 50		S	I	T					I					I	T		S	20 FEB 51
20 FEB 51		S	I	T					I					I	T		S	21 FEB 52
21 FEB 52		S	I	T					I					I	T		S	22 FEB 53
22 FEB 53		S	I	T					I					I	T		S	23 FEB 54
23 FEB 54		S	I	T					I					I	T		S	24 FEB 55
24 FEB 55		S	I	T					I					I	T		S	25 FEB 56
25 FEB 56		S	I	T					I					I	T		S	26 FEB 57
26 FEB 57		S	I	T					I					I	T		S	27 FEB 58
27 FEB 58		S	I	T					I					I	T		S	28 FEB 59
28 FEB 59		S	I	T					I					I	T		S	1 MAR 60
1977																		*1977*
1 MAR 61		S	I	T					I					I	T		S	2 MAR 61
2 MAR 62		S	I	T					I					I	T		S	3 MAR 62
3 MAR 63		S	I	T					I					I	T		S	4 MAR 63
4 MAR 64		S	I	T					I					I	T		S	5 MAR 64
5 MAR 65		S	I	T					I					I	T		S	6 MAR 65
6 MAR 66		S	I	T					I					I	T		S	7 MAR 66
7 MAR 67		S	I	T					I					I	T		S	8 MAR 67
8 MAR 68		S	I	T					I					I	T		S	9 MAR 68
9 MAR 69		S	I	T					I					I	T		S	10 MAR 69
10 MAR 70		S	I	T					I					I	T		S	11 MAR 70
11 MAR 71		S	I	T					I					I	T		S	12 MAR 71
12 MAR 72		S	I	T					I					I	T		S	13 MAR 72
13 MAR 73		S	I	T					I					I	T		S	14 MAR 73
14 MAR 74		S	I	T					I					I	T		S	15 MAR 74
15 MAR 75		S	I	T					I					I	T		S	16 MAR 75
16 MAR 76		S	I	T					I					I	T		S	17 MAR 76
17 MAR 77		S	I	T					I					I	T		S	18 MAR 77
18 MAR 78		S	I	T					I					I	T		S	19 MAR 78
19 MAR 79		S	I	T					I					I	T		S	20 MAR 79
20 MAR 80		S	I	T					I					I	T		S	21 MAR 80
21 MAR 81		S	I	T					I					I	T		S	22 MAR 81
22 MAR 82		S	I	T					I					I	T		S	23 MAR 82
23 MAR 83		S	I	T					I					I	T		S	24 MAR 83
24 MAR 84		S	I	T					I					I	T		S	25 MAR 84
25 MAR 85		S	I	T					I					I	T		S	26 MAR 85
26 MAR 86		S	I	T					I					I	T		S	27 MAR 86
27 MAR 87		S	I	T					I					I	T		S	28 MAR 87
28 MAR 88		S	I	T					I					I	T		S	29 MAR 88
29 MAR 89		S	I	T					I					I	T		S	30 MAR 89
30 MAR 90		S	I	T					I					I	T		S	31 MAR 90
31 MAR 91		S	I	T					I					I	T		S	1 APR 91

S=SET/SUNRISE
 T=TWILIGHT
 *S=SPECULAR REFLECTION AT SITE
 *E=ECLIPSED BY EARTH
 *X=ALTITUDE LESS THAN 0 DEG

SPECULAR REFLECTION FROM CYLINDRICAL SATELLITE. SPIN AXIS = SYMMETRY AXIS
 2866 USA SITE# 28AL
 OBJECT 67 086 LINCOLN EXPERIMENTAL SATELLITE-3 (SDC 2866)

EPOCH= 1977 3 01 01 0.0 E= 0.0048382 I= 2.9169
 NA= 1.0441385A A= 6.2572 M= 51.5704
 ANODE= 127.6491 ARGPER= 250.7868
 HRA= 1.00 HAPX= 237.90 DECA= 87.08 MISALIGN= 0.00
 OFFSET EQUX ORH NORPL= 0.00 LONG FROM ANODE= 0.00

SATELLITE GRAPHIC TIME TABLE
 FROM FEB 1977 THROUGH MAR 1977

		LOCAL MEAN SOLAR TIME																		
		16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8		
1977																			1977	
1 FEB	42																		2 FEB	43
2 FEB	43																		3 FEB	44
3 FEB	44																		4 FEB	45
4 FEB	45																		5 FEB	46
5 FEB	46																		6 FEB	47
6 FEB	47																		7 FEB	48
7 FEB	48																		8 FEB	49
8 FEB	49																		9 FEB	50
9 FEB	50																		10 FEB	51
10 FEB	51																		11 FEB	52
11 FEB	52																		12 FEB	53
12 FEB	53																		13 FEB	54
13 FEB	54																		14 FEB	55
14 FEB	55																		15 FEB	56
15 FEB	56																		16 FEB	57
16 FEB	57																		17 FEB	58
17 FEB	58																		18 FEB	59
18 FEB	59																		19 FEB	60
19 FEB	60																		20 FEB	61
20 FEB	61																		21 FEB	62
21 FEB	62																		22 FEB	63
22 FEB	63																		23 FEB	64
23 FEB	64																		24 FEB	65
24 FEB	65																		25 FEB	66
25 FEB	66																		26 FEB	67
26 FEB	67																		27 FEB	68
27 FEB	68																		28 FEB	69
28 FEB	69																		1 MAR	60
29 FEB	60																			
1977																			1977	
1 MAR	60																		2 MAR	61
2 MAR	61																		3 MAR	62
3 MAR	62																		4 MAR	63
4 MAR	63																		5 MAR	64
5 MAR	64																		6 MAR	65
6 MAR	65																		7 MAR	66
7 MAR	66																		8 MAR	67
8 MAR	67																		9 MAR	68
9 MAR	68																		10 MAR	69
10 MAR	69																		11 MAR	70
11 MAR	70																		12 MAR	71
12 MAR	71																		13 MAR	72
13 MAR	72																		14 MAR	73
14 MAR	73																		15 MAR	74
15 MAR	74																		16 MAR	75
16 MAR	75																		17 MAR	76
17 MAR	76																		18 MAR	77
18 MAR	77																		19 MAR	78
19 MAR	78																		20 MAR	79
20 MAR	79																		21 MAR	80
21 MAR	80																		22 MAR	81
22 MAR	81																		23 MAR	82
23 MAR	82																		24 MAR	83
24 MAR	83																		25 MAR	84
25 MAR	84																		26 MAR	85
26 MAR	85																		27 MAR	86
27 MAR	86																		28 MAR	87
28 MAR	87																		29 MAR	88
29 MAR	88																		30 MAR	89
30 MAR	89																		31 MAR	90
31 MAR	90																		1 APR	91
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15			
		UNIVERSAL TIME																		

SEMI-SET/SUNRISE
 TET=ILLUM
 **SPECULAR REFLECTION AT SITE
 ECLIPSED BY EARTH
 ALTITUDE LESS THAN 0 DEG

SPECULAR REFLECTION FROM CYLINDRICAL SATELLITE. SPIN AXIS = SYMMETRY AXIS
 83551. USA
 SITE = SIAL
 AT 003 A 10CSP 8 (SUC 26445)

EPOCH = 1974 A1 14:17:33.6
 NE 1.0314293 A = 6.2791
 ANGLE = 60.4435 ANGPER = 141.5672
 RHO = 1.00 KAYE = 330.44
 OFFSET FROM OBS NORM = 0.00
 L = 0.000864 T = 6.1751
 M = 57.1588
 DECAVE = 83.82 MISALGNAX = 0.00
 LONG FROM ANQUE = 0.00

SATELLITE GRAPHIC TIME TABLE
 FROM FEB 1977 THROUGH FEB 1977

	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	1977
1 FEB 32	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	2 FEB 33
2 FEB 33	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	3 FEB 34
3 FEB 34	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	4 FEB 35
4 FEB 35	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	5 FEB 36
5 FEB 36	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	6 FEB 37
6 FEB 37	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	7 FEB 38
7 FEB 38	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	8 FEB 39
8 FEB 39	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	9 FEB 40
9 FEB 40	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	10 FEB 41
10 FEB 41	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	11 FEB 42
11 FEB 42	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	12 FEB 43
12 FEB 43	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	13 FEB 44
13 FEB 44	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	14 FEB 45
14 FEB 45	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	15 FEB 46
15 FEB 46	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	16 FEB 47
16 FEB 47	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	17 FEB 48
17 FEB 48	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	18 FEB 49
18 FEB 49	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	19 FEB 50
19 FEB 50	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	20 FEB 51
20 FEB 51	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	21 FEB 52
21 FEB 52	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	22 FEB 53
22 FEB 53	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	23 FEB 54
23 FEB 54	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	24 FEB 55
24 FEB 55	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	25 FEB 56
25 FEB 56	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	26 FEB 57
26 FEB 57	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	27 FEB 58
27 FEB 58	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	28 FEB 59
28 FEB 59	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	1 MAR 60

S= SUNSET/SUNRISE
 T= TWILIGHT
 * = SPECULAR REFLECTION AT SITE
 E = ECLIPSED BY EARTH
 X = ALTITUDE LESS THAN 0 DEG

SPECIAL REFLECTION FROM CYLINDRICAL SATELLITE, SPIN AXIS = SYMMETRY AXIS
 A3550.
 DESITA 67 003 C 10CSP 10 (SCC 2650)

EPOCH= 1977 1 0: 0: 0.0 I= 7.6918
 N= 1.00218792 A= 6.2850 E= 0.0029845
 ANODE= 45.9669 ARGPEM= 94.7935 M= 239.3822
 RHO= 1.00 MAX= 315.97 DECA= 62.11 MISALGNAX= 0.00
 OFFSET FROM ORB NOML= 0.00 LONG FROM ANODE= 0.00

SATELLITE GRAPHIC TIME TABLE
 FROM FEB 1977 THROUGH FEB 1977

	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	1977
1 FEB 30																		2 FEB 33
2 FEB 31																		3 FEB 34
3 FEB 32																		4 FEB 35
4 FEB 33																		5 FEB 36
5 FEB 34																		6 FEB 37
6 FEB 35																		7 FEB 38
7 FEB 36																		8 FEB 39
8 FEB 37																		9 FEB 40
9 FEB 38																		10 FEB 41
10 FEB 39																		11 FEB 42
11 FEB 40																		12 FEB 43
12 FEB 41																		13 FEB 44
13 FEB 42																		14 FEB 45
14 FEB 43																		15 FEB 46
15 FEB 44																		16 FEB 47
16 FEB 45																		17 FEB 48
17 FEB 46																		18 FEB 49
18 FEB 47																		19 FEB 50
19 FEB 48																		20 FEB 51
20 FEB 49																		21 FEB 52
21 FEB 50																		22 FEB 53
22 FEB 51																		23 FEB 54
23 FEB 52																		24 FEB 55
24 FEB 53																		25 FEB 56
25 FEB 54																		26 FEB 57
26 FEB 55																		27 FEB 58
27 FEB 56																		28 FEB 59
28 FEB 57																		1 MAR 60
29 FEB 58																		
30 FEB 59																		
1 MAR 60																		

S=SUNSET/SUNRISE
 T=TWILIGHT
 *SPECIAL REFLECTION AT SITE
 F=ECLIPSED BY EARTH
 X=ALTITUDE LESS THAN 0 DEG

SPECULAR REFLECTION FROM CYLINDRICAL SATELLITE, SPIN AXIS = SYMMETRY AXIS
 31548. HISA SITE= STAL
 ORBITA 67 003 E INCSF 12 (SFC 2642)

EPOCH= 1975 25 0: 0: 0.0
 ME 1.07945719 AE 6.2936 LE 0.0051696 I= 5.9630
 ANGLE= 54.6107 ARGPER= 182.3763 ME 48.2211
 RHOA= 1.00 HADY= 324.61 DECA= 84.04 MISALGNAX= 9.00
 OFFSET FROM ORB NOML= 0.00 LONG FROM ANQUE= 0.00

SATELLITE GRAPHIC TIME TABLE
 FROM FEB 1977 THROUGH FEB 1977

	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	*1977*
1 FEB 32	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	2 FEB 33	
2 FEB 33	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	3 FEB 34	
3 FEB 34	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	4 FEB 35	
4 FEB 35	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	5 FEB 36	
5 FEB 36	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	6 FEB 37	
6 FEB 37	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	7 FEB 38	
7 FEB 38	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	8 FEB 39	
8 FEB 39	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	9 FEB 40	
9 FEB 40	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	10 FEB 41	
10 FEB 41	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	11 FEB 42	
11 FEB 42	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	12 FEB 43	
12 FEB 43	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	13 FEB 44	
13 FEB 44	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	14 FEB 45	
14 FEB 45	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	15 FEB 46	
15 FEB 46	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	16 FEB 47	
16 FEB 47	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	17 FEB 48	
17 FEB 48	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	18 FEB 49	
18 FEB 49	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	19 FEB 50	
19 FEB 50	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	20 FEB 51	
20 FEB 51	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	21 FEB 52	
21 FEB 52	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	22 FEB 53	
22 FEB 53	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	23 FEB 54	
23 FEB 54	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	24 FEB 55	
24 FEB 55	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	25 FEB 56	
25 FEB 56	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	26 FEB 57	
26 FEB 57	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	27 FEB 58	
27 FEB 58	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	28 FEB 59	
28 FEB 59	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	29 FEB 60	
29 FEB 60	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	1 MAR	

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
UNIVERSAL TIME																

S= SUNSET/SUNRISE
 T= TWILIGHT
 * = SPECULAR REFLECTION AT SITE
 E = ECLIPSED BY EARTH
 X = ALTITUDE LESS THAN 0 DEG

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PACH= 1976 290      5:24:22.9      I= 7.7132
A= 1.07745777      A= 6.3014      L= 0.0076861
WNOE= 47.3056      ARCPER= 32.3941      M= 328.0781
INRA= 1.00          DECA= 82.29      MISALGNAX=
JEFET FROM ORB UCRL= 0.00      LONG FROM ANOUE=
                                0.00

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[illegible]

S=SUNSET/SUNRISE
T=TWILIGHT
*==SPECULAR REFLECTION AT SITE
E=ECLIPSED BY EARTH
X=ALTITUDE LESS THAN 0 DEG

SPECULAR REFLECTION FROM CYLINDRICAL SATELLITE. SPIN AXIS = SYMMETRY AXIS
 1977
 DESITA 67 003 6 IOCSP 14 (SFC 2654) SITE: SIAL

POC= 1976 294 9: 9:13.4
 E= 0.0057556 I= 7.6760
 A= 6.3106
 ARGPEM= 25.5366
 DECA= 82.32 MISALGNAX= 0.00
 RAAX= 317.13 LONG FROM ANOUE= 0.00
 WFESET FROM ORR NORMLE= 0.00

SATELLITE GRAPHIC TIME TABLE
 FROM FEB 1977 THROUGH FEB 1977

	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	1977
1 FEB 32	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	2 FEB 33
2 FEB 33	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	3 FEB 34
3 FEB 34	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	4 FEB 35
4 FEB 35	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	5 FEB 36
5 FEB 36	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	6 FEB 37
6 FEB 37	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	7 FEB 38
7 FEB 38	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	8 FEB 39
8 FEB 39	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	9 FEB 40
9 FEB 40	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	10 FEB 41
10 FEB 41	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	11 FEB 42
11 FEB 42	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	12 FEB 43
12 FEB 43	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	13 FEB 44
13 FEB 44	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	14 FEB 45
14 FEB 45	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	15 FEB 46
15 FEB 46	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	16 FEB 47
16 FEB 47	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	17 FEB 48
17 FEB 48	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	18 FEB 49
18 FEB 49	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	19 FEB 50
19 FEB 50	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	20 FEB 51
20 FEB 51	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	21 FEB 52
21 FEB 52	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	22 FEB 53
22 FEB 53	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	23 FEB 54
23 FEB 54	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	24 FEB 55
24 FEB 55	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	25 FEB 56
25 FEB 56	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	26 FEB 57
26 FEB 57	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	27 FEB 58
27 FEB 58	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	28 FEB 59
28 FEB 59	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	1 MAR 60

S=SUNSET/SUNRISE
 T=TILIGHT
 *S=SPECULAR REFLECTION AT SITE
 E=ECLIPSED BY EARTH
 X=ALTITUDE LESS THAN 0 DEG

SPICULAR REFLECTION FROM CYLINDRICAL SATELLITE, SPIN AXIS = SYMMETRY AXIS
 3544, USA SITE= STAL
 RESTT 67 066 A IUCSP 16 (SIC 2062)

EPCH= 1976 275 0: 0: 0.0
 N= 1.09955460 A= 6.2167 I= 0.2349
 INJUE= 46.5782 ARGPE= 236.6675 M= 61.4320
 HMAE= 1.00 HAAE= 356.58 DECAE= 49.77 MISALGNAX= 0.00
 OFFSET FROM ORH NGRML= 0.00 LONG FROM ANODE= 0.00

SATELLITE GRAPHIC TIME TABLE
 FROM FEB 1977 THROUGH FEB 1977

	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	1977
1 FEB 32	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	2 FEB 33	
2 FEB 33	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	3 FEB 34	
3 FEB 34	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	4 FEB 35	
4 FEB 35	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	5 FEB 36	
5 FEB 36	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	6 FEB 37	
6 FEB 37	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	7 FEB 38	
7 FEB 38	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	8 FEB 39	
8 FEB 39	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	9 FEB 40	
9 FEB 40	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	10 FEB 41	
10 FEB 41	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	11 FEB 42	
11 FEB 42	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	12 FEB 43	
12 FEB 43	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	13 FEB 44	
13 FEB 44	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	14 FEB 45	
14 FEB 45	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	15 FEB 46	
15 FEB 46	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	16 FEB 47	
16 FEB 47	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	17 FEB 48	
17 FEB 48	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	18 FEB 49	
18 FEB 49	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	19 FEB 50	
19 FEB 50	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	20 FEB 51	
20 FEB 51	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	21 FEB 52	
21 FEB 52	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	22 FEB 53	
22 FEB 53	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	23 FEB 54	
23 FEB 54	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	24 FEB 55	
24 FEB 55	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	25 FEB 56	
25 FEB 56	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	26 FEB 57	
26 FEB 57	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	27 FEB 58	
27 FEB 58	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	28 FEB 59	
28 FEB 59	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	1 MAR 60	

	9	10	11	12	13	14	15
1							
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11							
12							
13							
14							
15							

1977

UNIVERSAL TIME

S=SUNSET/SUNRISE
 T=TAILLIGHT
 *S=SPECULAR REFLECTION AT SITE
 E=ECLIPSED BY EARTH
 X=ALTITUDE LESS THAN 0 DEG

SPECULAR REFLECTION FROM CYLINDRICAL SATELLITE. SPIN AXIS = SYMMETRY AXIS
 93541. SITE = STAL
 NESTTA 48 050 0 IODESP 23 (SDC 3247)

POC= 1976 352 15:24:58.0
 I= 1.01460593 A= 6.5590 E= 0.000490 I= 0.2643
 MODE= 271.1139 ARPE= 174.9760 M= 165.0324
 H000= 1.00 MAX= 181.11 DECA= 89.74 MISALGNAX= 0.00
 JFSET FROM ORR MORALE= 0.00 LONG FROM ANQUE= 0.00

SATELLITE GRAPHIC TIME TABLE
 FROM FEB 1977 THROUGH FEB 1977

	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	1977
1 FEB 32																		2 FEB 33
2 FEB 33																		3 FEB 34
3 FEB 34																		4 FEB 35
4 FEB 35																		5 FEB 36
5 FEB 36																		6 FEB 37
6 FEB 37																		7 FEB 38
7 FEB 38																		8 FEB 39
8 FEB 39																		9 FEB 40
9 FEB 40																		10 FEB 41
10 FEB 41																		11 FEB 42
11 FEB 42																		12 FEB 43
12 FEB 43																		13 FEB 44
13 FEB 44																		14 FEB 45
14 FEB 45																		15 FEB 46
15 FEB 46																		16 FEB 47
16 FEB 47																		17 FEB 48
17 FEB 48																		18 FEB 49
18 FEB 49																		19 FEB 50
19 FEB 50																		20 FEB 51
20 FEB 51																		21 FEB 52
21 FEB 52																		22 FEB 53
22 FEB 53																		23 FEB 54
23 FEB 54																		24 FEB 55
24 FEB 55																		25 FEB 56
25 FEB 56																		26 FEB 57
26 FEB 57																		27 FEB 58
27 FEB 58																		28 FEB 59
28 FEB 59																		1 MAR 60

SUNSET/SUNRISE
 TWILIGHT
 *SPECIAL REFLECTION AT SITE
 *ECLIPSED BY EARTH
 *ALTITUDE LESS THAN 0 DEG

SPECULAR REFLECTION FROM CYLINDRICAL SATELLITE. SPIN AXIS = SYMMETRY AXIS
 83506. USA SITE= STAL
 MESITA 68 050 E IDOSP 24 (SUC 328A)

POCHE= 1976.344 0: 0: 0.0
 L= 0.0091757 I= 2.4326
 A= 6.6641
 ARGPE= 70.3699 M= 205.6774

INODE= 276.3216
 INOAE= 1.00 RAAX= 186.38 DECA= 87.57 MISALGNAX= 0.00
 OFFSET FROM ORB NORMLE= 0.00 LONG FROM ANODE= 0.00

SATELLITE GRAPHIC TIME TABLE
 FROM FEB 1977 THROUGH FEB 1977

	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	1977
1 FEB 32	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	2 FEB 33
2 FEB 33	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	3 FEB 34
3 FEB 34	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	4 FEB 35
4 FEB 35	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	5 FEB 36
5 FEB 36	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	6 FEB 37
6 FEB 37	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	7 FEB 38
7 FEB 38	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	8 FEB 39
8 FEB 39	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	9 FEB 40
9 FEB 40	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	10 FEB 41
10 FEB 41	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	11 FEB 42
11 FEB 42	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	12 FEB 43
12 FEB 43	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	13 FEB 44
13 FEB 44	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	14 FEB 45
14 FEB 45	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	15 FEB 46
15 FEB 46	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	16 FEB 47
16 FEB 47	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	17 FEB 48
17 FEB 48	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	18 FEB 49
18 FEB 49	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	19 FEB 50
19 FEB 50	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	20 FEB 51
20 FEB 51	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	21 FEB 52
21 FEB 52	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	22 FEB 53
22 FEB 53	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	23 FEB 54
23 FEB 54	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	24 FEB 55
24 FEB 55	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	25 FEB 56
25 FEB 56	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	26 FEB 57
26 FEB 57	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	27 FEB 58
27 FEB 58	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	28 FEB 59
28 FEB 59	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	1 MAR 60

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With the approach of the vernal equinox, preparations for observing specular reflections from cylindrical synchronous satellites have begun. The purpose of this report is to assemble the results of preliminary computations to make them available for observation scheduling at the GEODSS Experimental Test Site.		

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