

NIMS GUIDE TO THE SL9 ENCOUNTER

Original: July 1994

Revised: June 1995

Galileo

**The NIMS
Shoemaker-Levy 9
Impact
Handbook**

Impact starts on July 16, 1994 and ends on July 22, 1994.

Table of Contents

	Chapter	Page
1.0	Introduction	1-01
2.0	Encounter Overview	2-01
3.0	Encounter Geometries	3-01
4.0	NIMS Sequence Summary	4.01
5.0	NIMS Detailed Observation Designs	5-01
6.0	Date Return	6-01

Chapter 1 - Introduction

Contents

	Sub-Section	Page
1.0	Contents	1
1.1	Introduction to the Revised Edition	2
1.2	Original Introduction	3
1.3	Discovery of Comet Shoemaker-Levy 9	3
1.4	Galileo Observations	3
1.5	Predicted Impact Times for SL9 Fragments	4
1.6	Galileo Science Overview	5
1.7	NIMS Observations	6
1.8	Data Playback	7-8

Introduction to the Revised Edition

This document was originally published by the NIMS team in July 1994 as a guide to the Galileo Observations of the Impacts of the Fragments of Comet Shoemaker-Levy 9 with Jupiter. It has been revised and corrected for inclusion on the 4th CD-ROM of NIMS Experimental Data Records (EDRs). Some material in the original document has been omitted, and a chapter added describing the SL9 data actually returned to the ground.

The aim of the revised guide is to provide detailed information on the various NIMS observations and calibrations. Also included is background information on the encounter. An overview of the guide is given below. Please refer to the beginning of each chapter for a detailed list of contents.

Chapter 1 gives an introduction to the SL9 encounter as well as a discussion of various issues that went into the design of the SL9 encounter sequence. Chapter 2 gives an overview of the entire SL9 encounter using various timelines. Chapter 3 contains digrams of various aspects of geometry for the SL9 encounter. Chapter 4 summarizes the NIMS SL9 observations in terms of a comprehensive sequence summary, PA summary and Observation Table (OBSTAB). Chapter 5 is a collection of the Detailed Observation Designs made up of OAPEL forms and POINTER plots. Chapter 6 is a summary of the NIMS data return for the SL9 Impact observations.

For information on the NIMS instrument, please see the preprint of the NIMS instrument paper provided elsewhere on the CD-ROM, or refer to the published version: R.W. Carlson, P.R. Weissman, W.D. Smythe, J.C. Mahoney and the NIMS Science and Engineering Teams, "Near-infrared Mapping Spectrometer Experiment on Galileo", Space Science Reviews 60: 457-502, 1992.

ACKNOWLEDGEMENTS

The NIMS SL9 observations in this guide were designed by John Hui and Paul Weissman with the help of Bill Smythe and Bob Carlson. Marcia Segura and Paul Weissman were responsible for the data return. John Hui prepared the original printed guide. Frank Leader subsequently retrieved most of the original material for the CD-ROM, edited the original Postscript files for consistency and clarity, recovered missing material by scanning parts of the original printed document and prepared the last chapter describing the data return. Al Stevenson generated the sequence summary. Bob Mehlman oversaw the production of this guide.

Introduction

From July 16, 1994 through July 22, 1994, the Galileo spacecraft will directly observe the impact of the fragments of Comet Shoemaker-Levy 9 (SL9) with the planet Jupiter. This handbook is provided to the NIMS Team as a guide to the SL9 Impact.

Discovery of Comet Shoemaker-Levy 9

Gene and Carolyn Shoemaker and David Levy discovered Comet Shoemaker-Levy 9 on March 25, 1993 using the Palomar Mountain 18-inch Schmidt telescope. Their initial images showed multiple comet-like fragments aligned like a "string of pearls" subtending an angular extent of about 50 arc seconds (180,000 km at Jupiter's distance from Earth) with a dust train of material associated with the comet. Astrometric observations have shown that the object is in a loosely bound, highly elliptic orbit about Jupiter and that the comet likely underwent tidal disruption during a very close Jupiter approach (~1.3 Jupiter radii) that took place on July 8, 1992. These observations also predicted that these fragments would impact with Jupiter.

Currently there are over 22 fragments, and this number may increase because some larger fragments have been splitting into two or three smaller fragments, as the original Q and G fragments have done. All fragments are predicted to impact on the dark side of Jupiter near the eastern limb (dawn terminator), as seen from Earth. The predicted impact times are still fluctuating. A table listing the best estimate of impact times for the fragments can be found on the following page. This table was provided by the Galileo Mission Design Team. The estimates were made by D.K. Yeomans and P.W. Chodas.

The expected observed phenomena from the impacts of the fragments on Jupiter are the entry flash of each fragment entering the Jovian atmosphere and beginning to burn up like a meteor, followed by the explosion of the fragment at depth in the Jovian atmosphere, likely below the visible cloud decks. The explosion will create a fireball that will rise through the clouds and become visible about one minute following the entry flash, and might last 10 to 20 minutes. Alternative hypotheses suggest that the SL9 fragments may break up prior to entry and will only produce the bright entry flashes, but not massive fireballs.

Galileo Observations

At the time of the impacts, from July 16 to July 22 of 1994, the Galileo spacecraft will be at a position to observe directly the impacts, while Earth observers will not see the impact sites until they rotate into view about twenty minutes later. The Galileo Project plans to observe the impacts with its full complement of instruments, including the remote sensing and fields and particles instruments. The remote sensing instruments will observe 18 impacts.

All of the observations will be recorded on the on-board tape recorder. There will be a two-part playback process. First, there will be a search through the data looking for the onset of the impacts using the information from the near-realtime PPR data and from the ground-based observations. Using this search information, the rest of the desired data will be returned.

Predicted Impact Times for Fragments of P/Shoemaker-Levy 9

Predict date: 11-Jul-94

SL9ET Source: D. K. Yeomans, P.W. Chodas, 314.10 - 084

IMPACT	1-sigma (min)	SL9ET (UTC)	J-S OWLT (h:mm:ss)	SCET (UTC)	S-E OWLT (h:mm:ss)	J-S-ERT (UTC)	J-E OWLT (h:mm:ss)	J-ERT (UTC)
A = 21	8.2	16-Jul 19:14:55	0:13:22	94-197/19:28:17	0:33:39	20:01:56	0:42:40	19:57:35
B = 20	6.8	17-Jul 02:11:21	0:13:22	94-198/02:24:42	0:33:42	02:58:24	0:42:42	02:54:03
C = 19	7.0	17-Jul 06:16:42	0:13:21	94-198/06:30:03	0:33:43	07:03:46	0:42:43	06:59:25
D = 18	7.5	17-Jul 11:02:45	0:13:21	94-198/11:16:06	0:33:45	11:49:51	0:42:45	11:45:30
E = 17	5.6	17-Jul 14:22:15	0:13:21	94-198/14:35:36	0:33:46	15:09:22	0:42:46	15:05:01
F = 16	6.0	17-Jul 23:43:51	0:13:20	94-198/23:57:11	0:33:50	00:31:01	0:42:49	00:26:40
G = 15	4.8	18-Jul 06:44:45	0:13:20	94-199/06:58:05	0:33:52	07:31:57	0:42:51	07:27:36
H = 14	4.7	18-Jul 18:43:01	0:13:19	94-199/18:56:20	0:33:57	19:30:17	0:42:55	19:25:56
K = 12	4.8	19-Jul 09:34:51	0:13:18	94-200/09:48:09	0:34:02	10:22:11	0:42:59	10:17:50
L = 11	5.1	19-Jul 21:24:04	0:13:18	94-200/21:37:22	0:34:07	22:11:28	0:43:03	22:07:07
N = 9	6.7	20-Jul 09:38:08	0:13:17	94-201/09:51:25	0:34:11	10:25:36	0:43:07	10:21:15
P2 = 8b	6.6	20-Jul 14:26:43	0:13:17	94-201/14:40:00	0:34:13	15:14:13	0:43:08	15:09:51
Q2 = 7b	≈15.0	20-Jul 18:48:52	0:13:17	94-201/19:02:08	0:34:15	19:36:23	0:43:10	19:32:02
Q1 = 7a	5.4	20-Jul 19:16:19	0:13:17	94-201/19:29:35	0:34:15	20:03:50	0:43:10	19:59:29
R = 6	6.2	21-Jul 04:41:04	0:13:16	94-202/04:54:20	0:34:18	05:28:38	0:43:13	05:24:17
S = 5	5.9	21-Jul 14:26:37	0:13:16	94-202/14:39:52	0:34:22	15:14:14	0:43:16	15:09:53
T = 4	13.2	21-Jul 17:22:33	0:13:15	94-202/17:35:48	0:34:23	18:10:11	0:43:17	18:05:50
U = 3	14.5	21-Jul 21:09:21	0:13:15	94-202/21:22:36	0:34:24	21:57:00	0:43:18	21:52:39
V = 2	10.3	22-Jul 03:31:22	0:13:15	94-203/03:44:37	0:34:27	04:19:04	0:43:20	04:14:42
W = 1	7.2	22-Jul 07:13:31	0:13:15	94-203/07:26:45	0:34:28	08:01:14	0:43:21	07:56:52

ACRONYMS

- SL9ET Shoemaker-Levy 9 Event Time: Impact time at Jupiter
- J-S OWLT Jupiter to Spacecraft One-Way Light Time
- SCET Spacecraft Event Time: Impact time as seen by Spacecraft
- S-E OWLT Spacecraft to Earth One-Way Light Time
- J-S-ERT Jupiter to Spacecraft to Earth Received Time: Impact time as seen by Spacecraft and monitored by the Ground
- J-E OWLT Jupiter to Earth One-Way Light Time
- J-ERT Jupiter to Earth Received Time: Impact time as seen by Earth Observers

CHANGE 5, JULY 11, 1994

Galileo Science Overview

Due to the large number of impacts, it was possible to assign specific fragments to individual instruments. However, PPR and UVS are also performing ride-along observations with NIMS. The following table shows the instruments, their fragments, observation descriptions and expected data return. SSI is using a new method to observe the impacts to save tape; the OCM method involving multiple exposures on the CCD chip. Also PPR is using a CDS looper to collect data into spacecraft memory buffers and then use MROs to return the data in near-realtime.

Instrument	Comet Fragment	Observation Description	Expected Data Return
NIMS	C,F,G,R	Continuous 5 1/3 sec scan 97 minutes record 64 minutes	Playback 10 2/3 secs Locate Jupiter, then Jailbar return 4 secs for G or 3.33 secs for R from each 5 1/3 sec scan for 2.8 or 3 min.
SSI	K,N	Diagonal scan 6-shutter OCM, 30 1/3 sec shuttering, 18 HCM records	Jailbar search, Jailbar return of 4 of 8 lines for half of up to 3 frames.
SSI	V	Horizontal scan 8-shutter OCM, 30 1/3 sec shuttering, 14 HCM records	Jailbar search, Jailbar return two 75-line swaths.
SSI	D,E	8x8 OCM, 8 2/3 sec shuttering, 7 IM4 records	Jailbar search, Jailbar return three 75-line swaths.
SSI	W	8x8 OCM, 2 1/3 sec shuttering, 16 IM4 records	Jailbar search, Jailbar return eight swaths.
PPR	P	Point and Stare 1 hour record LRS	Playback 10 min.
PPR	B,H,L,Q,S	Point and Stare CDS looper, collect 12 bytes/mf for 40 min	MRO CDS buffer space during event period.
UVS	Ride-along with NIMS, PPR and SSI		
PWS	All	CDS looper, collect 2 bytes every 29 mf continuously for 33 hours, repeat 9 times	MRO CDS buffer space during event period.

NIMS Observations

During the period of the SL9 impacts, July 16 to July 22, 1994, Galileo will be approximately 239 million km (~1.6 AU) from Jupiter. At this distance Jupiter is 0.59 mrad in diameter, slightly larger than a NIMS pixel of 0.5 mrad. NIMS will observe four of the SL9 fragments impacting Jupiter. They are nominally labelled C, F, G and R. In addition, NIMS will observe Jupiter three days before any of the impacts occur to get a relatively clean spectrum of Jupiter for reference. Impact C occurs on July 17 (UTC); impact F occurs at the end of day July 17; impact G occurs on July 18 and impact R occurs on July 21. Each observation has the same slew pattern. NIMS will scan in the cone direction for a distance of 3 mrad, with Jupiter in the middle of the scan. Then it will scan in the reverse direction the same distance. Each scan is 5 1/3 seconds, or 8 mf, in duration. The slew rate for this back and forth scanning is 0.92 mrad/sec. For each observation NIMS is in Fixed Map mode (XM), grating start 2, gain state 2, chopper reference mode, grating offset 4. The reference observation is 1 Rim (60 2/3 sec) in duration, while each of the four impact observations will have a duration of 96 Rims. However, NIMS will record only 64 Rims per observation, each centered on the best estimate of the impact time and updates as late as possible in the sequence design process. NIMS will not be able to return all of the observations. Two scans of the reference observations will be returned, followed by two scans each from the G and R observations. These data will be used to locate Jupiter within each scan pattern. Using this information, NIMS will return 6 mf out of 8 mf per scan for a total of 32 scans for the G observation. This corresponds to ~2.8 minutes of observing time. For the R observation, NIMS will play back 34 scans, ~3 minutes of observing time. The reference observation data will be played back on July 26, the G search data on August 03, the R search data on August 12, the G data return from September 24 to October 07 and the R data return will be in the end of October to November, 1994. This playback plan is not rigid and will most likely be modified to maximize science return using ground-based observations of the impacts.

The following is a table of the NIMS SL9 Observations:

ACTIVITY ID	Date	Start Time	Duration	Activity Title
SLNNNIMSON01	07/12/94	94-193/06:29:00	0:04:00	NIMS POWER ON
SLJNREFJUP01	07/14/94	94-195/08:04:00	0:07:00	REFERENCE SPECTRUM JUPITER BEFORE SL9
SLJNFRAGMC01	07/17/94	94-198/05:26:26	1:43:07	NIMS OBSERVATION OF SL9 FRAGMENT C
SLJNFRAGMF01	07/17/94	94-198/22:49:54	1:43:07	NIMS OBSERVATION OF SL9 FRAGMENT F
SLJNFRAGMG01	07/18/94	94-199/06:11:46	1:43:07	NIMS OBSERVATION OF SL9 FRAGMENT G
SLJNFRAGMR01	07/21/94	94-202/04:15:57	1:43:07	NIMS OBSERVATION OF SL9 FRAGMENT R
SLNNNIMSON01	07/22/94	94-203/13:39:00	0:03:00	NIMS POWER OFF

Data Playback

Due to the downlink limitations, the current telemetry performance is 10 bits per second. This limits the amount of data that can be returned before February 1995 when the Galileo Phase 1 software uplink is scheduled to begin. NIMS is planning to playback data from three observations; the reference spectrum observation (SLJNREFJUP01) and impacts G and R (SLJNFRAGMG01 and SLJNFRAGMR01).

For the reference spectrum, 10 $\frac{2}{3}$ seconds of continuous data will be played back, or one back and forth scan across Jupiter, in the middle of the observation. This amount of data guarantees that NIMS will see Jupiter in the data. This playback is done with one DMSMRO and this is one of the first datasets to be played back from tape.

The next NIMS playback will be the search data from the G and R observations. NIMS will use the PPR near-realtime data and ground-based observations of G and R to get precise timing of the impacts. Using these times, 10 $\frac{2}{3}$ seconds of continuous data around the impact time will be played back for each observation. These 10 $\frac{2}{3}$ seconds of data guarantee that NIMS will see Jupiter in the scanning pattern and help locate Jupiter within the scanning pattern. Hopefully, the impact is within this time also. Each search requires one DMSMRO.

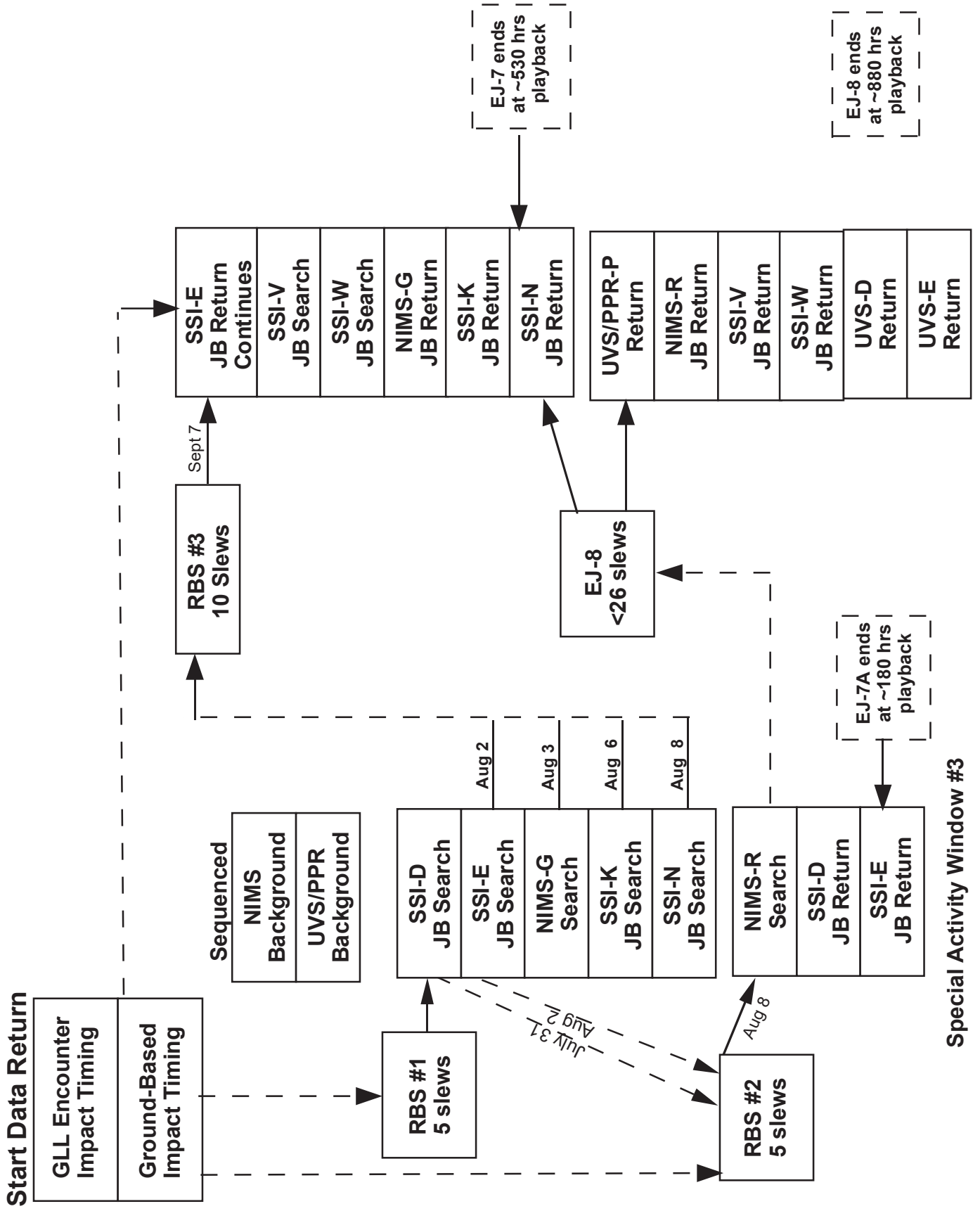
For the G observation, NIMS is playing back 32 scans (16 complete back and forth scans). The first 16 scans all have the same cone slew direction, that is, playback of every other scan. The second set of 16 scans all have the reverse cone slew direction interleaved with the first set of scans played back. For each scan, NIMS is bringing back 6 mf (4 sec) of data out of 8 mf (5 $\frac{1}{3}$ sec) per scan. The playback is accomplished by using the location of Jupiter determined within the back and forth scanning pattern from the search data and is known as a jailbar search. In case the initial tape positioning is off, NIMS has the option to update the tape position after the first few scans have been returned. Total data returned is about 2 minutes, which is in 2.8 minutes of actual observing time.

The R observation data return is different from that of G's. Again, using the search data, NIMS will determine where Jupiter lies in the back and forth scans. NIMS will playback two complete back and forth scans (4 scans) of data, 21.3 seconds. This will give enough information to update the tape position, if needed. Then, 5 mf (3 $\frac{1}{3}$ sec) out of 8 mf per scan for 30 scans, or 15 complete back and forth scans, again playing back alternating scans using two DMS slews. This plan returns 34 scans, or 17 complete back and forth scans, which is about 2 minutes of total data return in 3 minutes of observing time.

Of course, the NIMS playback strategy can be modified to maximize science return based on ground-based observations of the impacts.

The flowchart on the following page is an overview of the SL9 data return process.

SL-9 Data Return Process Overview



Chapter 2 - Encounter Overview

Contents

	Sub-Section	Page
2.0	Contents	1
2.1	Introduction to Chapter 2	2
2.2	EJ7A Overview, Part 1	3
2.3	EJ7A Overview, Part 2	4
2.4	SL9 Science Data Acquisition Overview	5

Introduction to Chapter 2

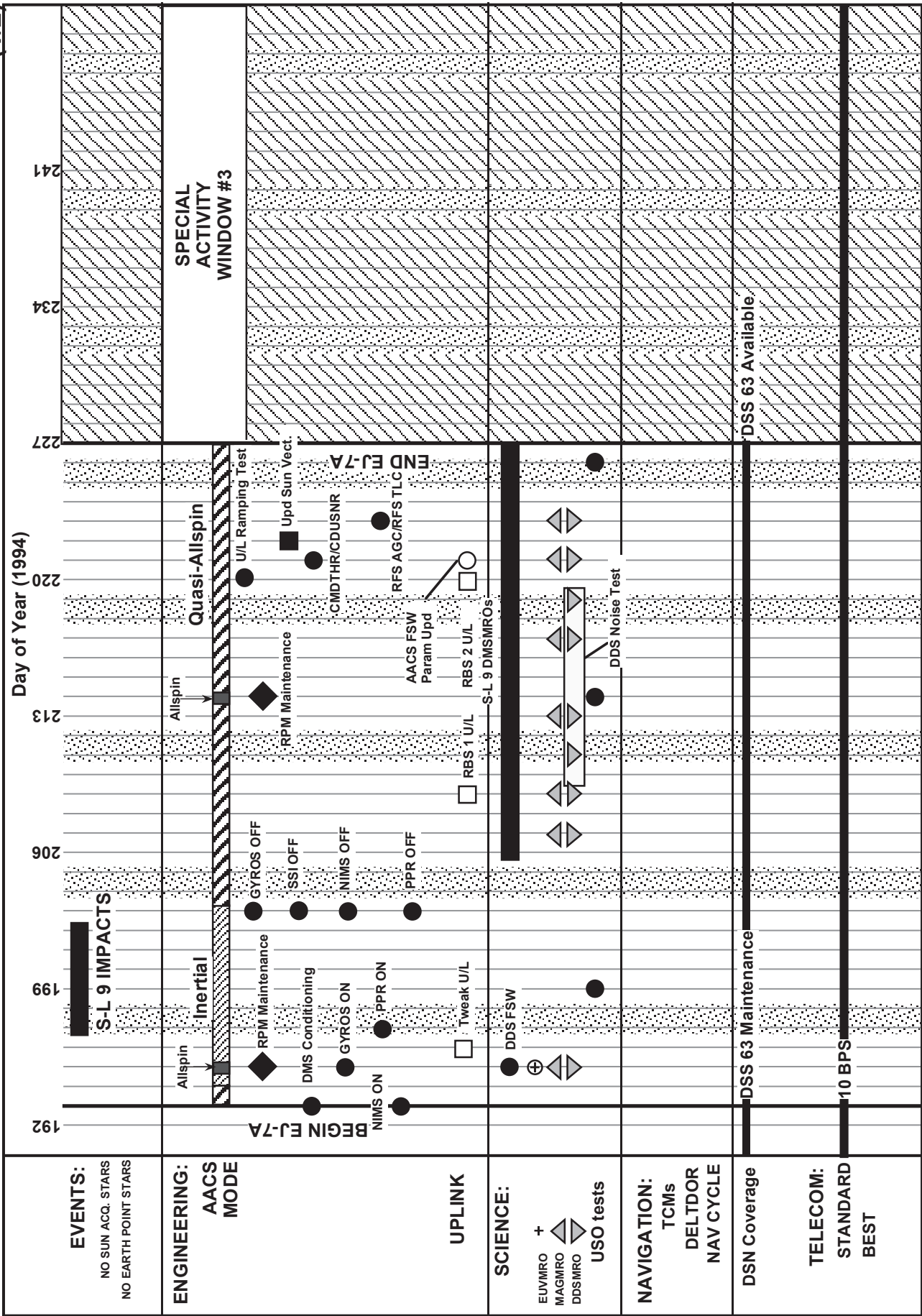
This chapter gives an overview of the entire SL9 Encounter.

The first two timelines on pages 3 and 4, the EJ7A Overview - Parts 1 and 2, show the activities from just before the SL9 Encounter through the first two series of DMSMRO playback segments.

The timeline on page 5 shows the timing of the data acquisition windows for each SL9 fragment (A through W).

EJ-7A OVERVIEW

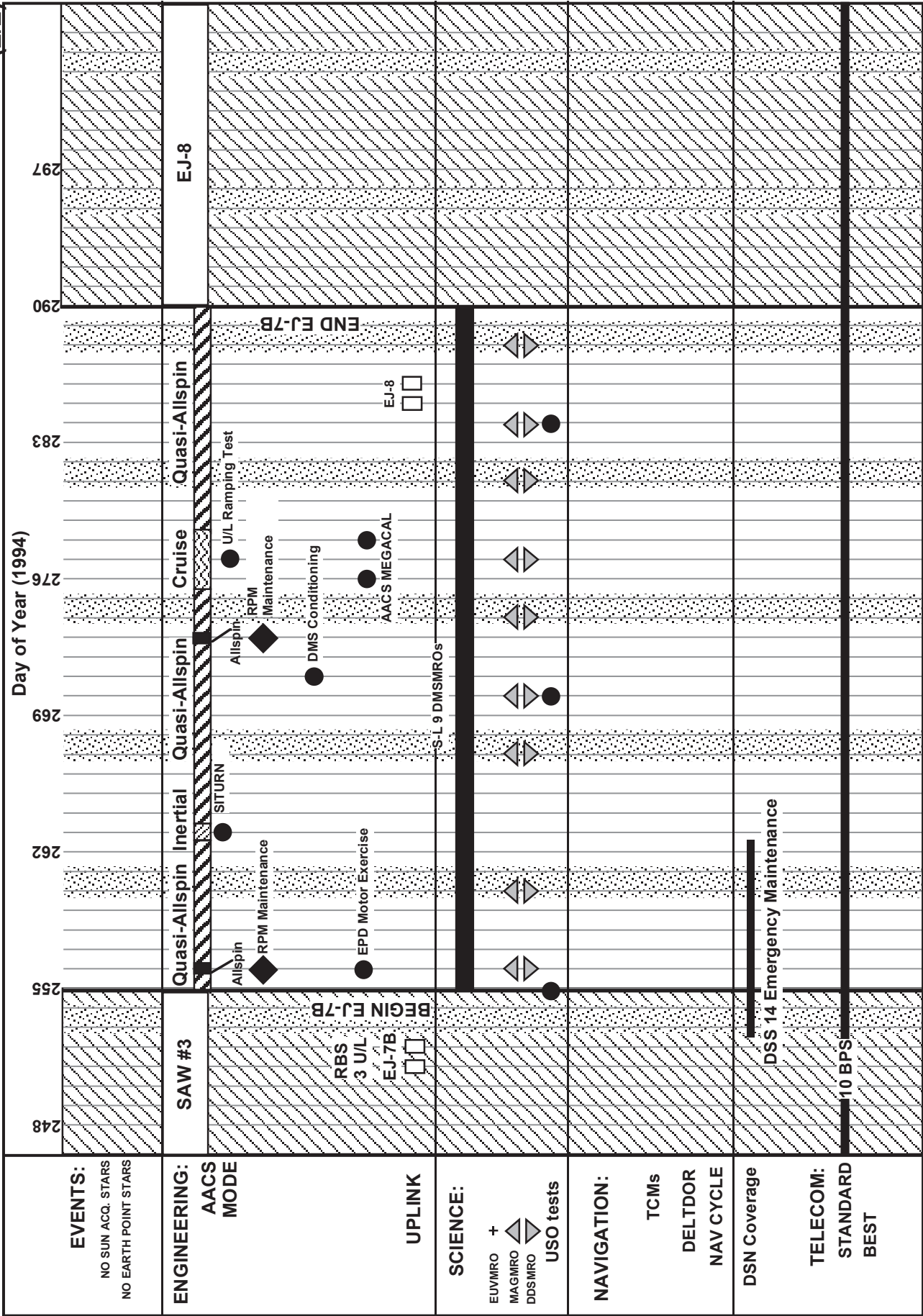
(1/2)



July 11 18 25 Aug 1 8 15 22 29
 M Tu W Th F Sa Su M Tu W Th F Sa Su M Tu W Th F Sa Su M Tu W Th F Sa Su M Tu W Th F Sa Su M
 6-27-94

EJ-7B OVERVIEW

(2/2)



EVENTS:
NO SUN ACQ. STARS
NO EARTH POINT STARS

ENGINEERING:
AACS MODE

UPLINK

SCIENCE:
EUVIRO +
MAGMRO
DDSMRO
USO tests

NAVIGATION:
TCMs
DELTDR
NAV CYCLE

DSN Coverage

TELECOM:
STANDARD
BEST

Sept 5

12

19

26

Oct 3

10

17

24

M Tu W Th F Sa Su M Tu W Th F Sa Su M Tu W Th F Sa Su M Tu W Th F Sa Su M Tu W Th F Sa Su M

SL-9 SCIENCE DATA ACQUISITION OVERVIEW

SL-9 IMPACTS (UTC-SCET)	LEGEND														DOW	DOY	CAL DATE	WEEK	Active Seq.						
		A	B-PPR	C-NIMS	D-SSI	E-SSI	F-NIMS	G-NIMS	H-PPR	K-SSI	L-PPR	N-SSI	P-PPR/LRS	Q-PPR						R-NIMS	S-PPR	T	U	V-SSI	W-SSI
SCIENCE																									
S/P Motion	☐																								
PPR CDS Looper	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐					
PPR CDS MRO	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐					
PWS CDS Looper	-----																								
PWS CDS MRO	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐					
Cruise Science	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐					
DOW	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	WEEK 28				Sun	WEEK 29								
DOY	195	196	197	198	199	200	201	202	203	204	205	WEEK 28				206	WEEK 29								
CAL DATE	14 July	15 July	16 July	17 July	18 July	19 July	20 July	21 July	22 July	23 July	24 July	WEEK 28				25 July	WEEK 29								
WEEK													EJ-7												

Chapter 3 - Encounter Geometries

Contents

	Sub-Section	Page
3.0	Contents	1
3.1	Introduction to Chapter 3	2
3.2	Galileo Trajectory Relative to Jupiter	3
3.3	Galileo's View of Jupiter and SL9 Impact	4
	(with the NIMS FOV shown)	

Introduction to Chapter 3

This chapter contains diagrams of various aspects of geometry for the SL9 Encounter.

The figure on page 3 shows the trajectory of the Galileo spacecraft relative to Jupiter at the time of the SL9 Impacts on Jupiter.

The figure on page 4 shows the planet Jupiter as it would be seen by Galileo at the time of the SL9 Impacts on Jupiter. The trajectory of the comet fragments is drawn, as well as Jupiter's Terminator. The NIMS footprint is drawn to scale to show its size relative to the size of Jupiter. Note that Jupiter is just slightly wider than the NIMS field of view.

* DEVELOPMENT*
MAGPAC V4.4D

GALILEO
TRAJECTORY

Tour: OD-68
Post-E2 + Ida
Segment 19

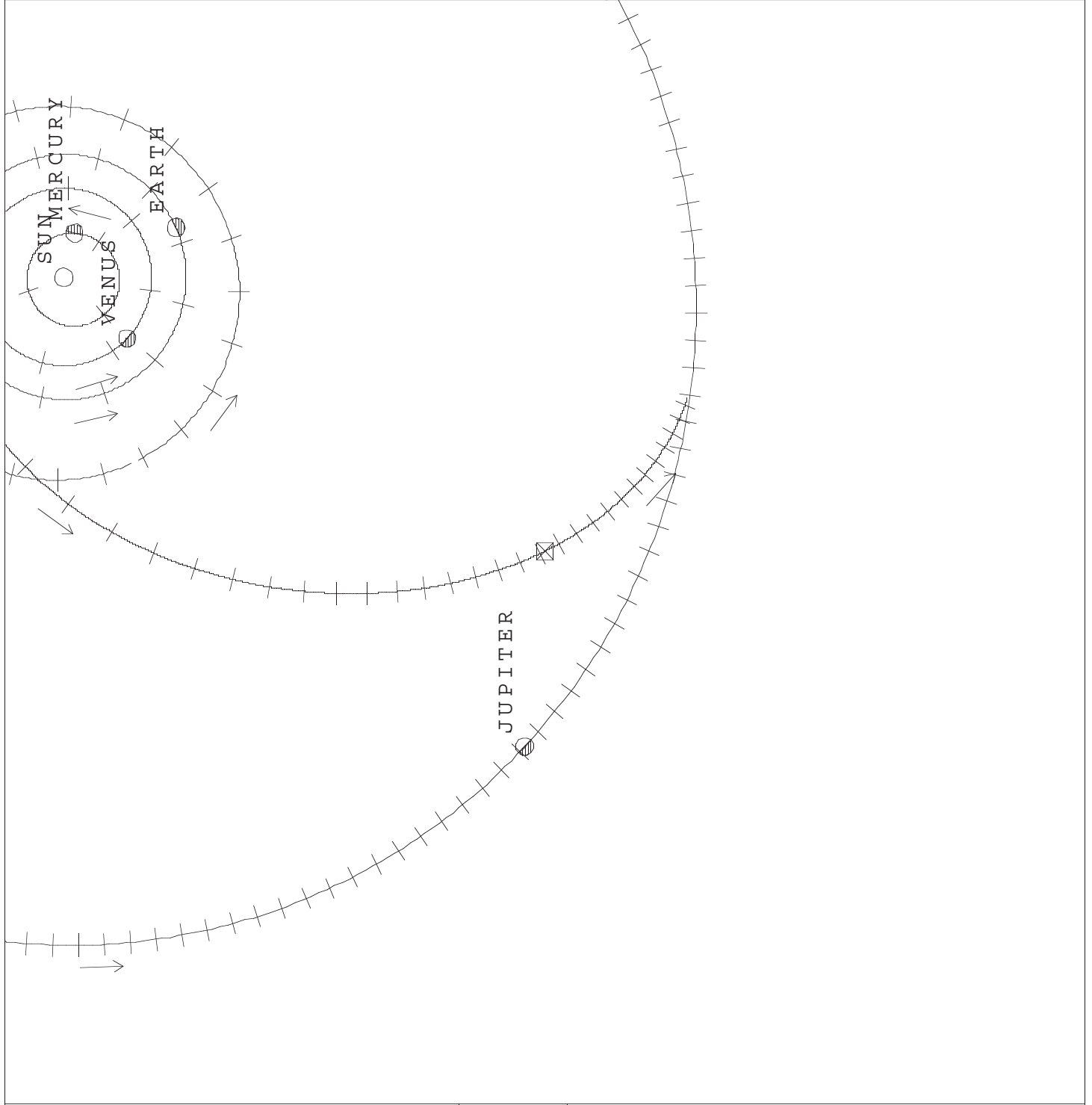
SOLAR-BASED
ECLIPTIC SYSTEM
X-Y PLANE PROJ.

CENTER: GALILEO
Plot Scale:
9. AU

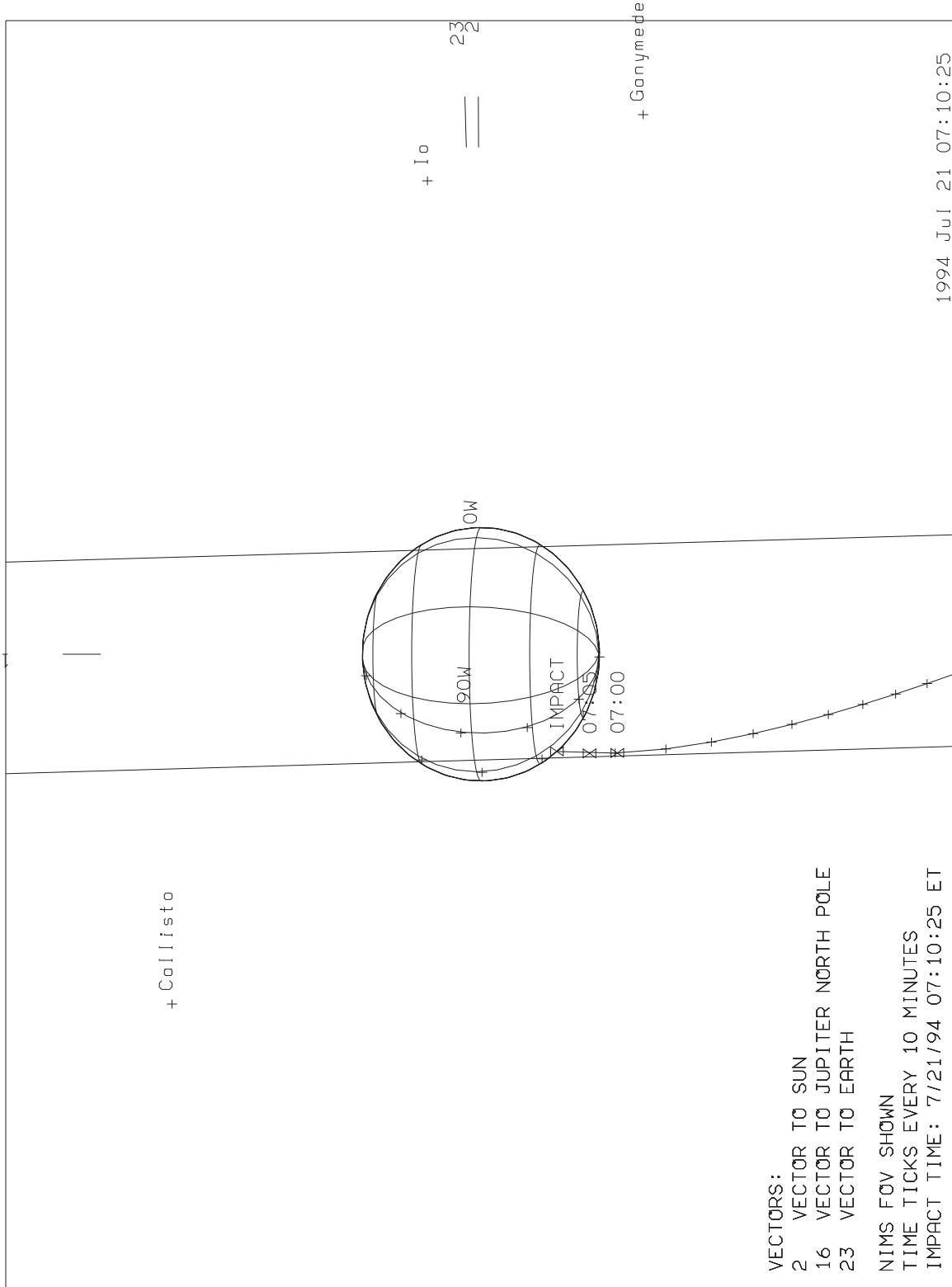
DATE: 1994 JUL 17
TIME: 00:00:00
[C +14048:50:35]

C = Earth CA
S/C POSITION:
LATITUDE: -0.39 °
LONGITUDE
[W of vernal]:
119.13 °
RANGE [AU]:
4.58

30. day
time tics
Body sizes are
not to scale



GALILEO'S VIEW OF SHOEMAKER-LEVY IMPACT



Chapter 4 - NIMS Observation Summaries

Contents

	Sub-Section	Page
4.0	Contents	1
4.1	Introduction to Chapter 4	2
4.2	NIMS Sequence Summary	3-15
4.3	NIMS PA Summary	16
4.4	NIMS OBSTAB (Planned)	17

Introduction to Chapter 4

This chapter summarizes the NIMS Gaspra observations in terms of a comprehensive sequence summary, PA summary and Observation Table (OBSTAB).

The NIMS Sequence Summary is a time-ordered listing of all spacecraft activity pertinent to NIMS operations for the EJ7 Sequence. The information in this summary is derived from the EJ7 SEF (Spacecraft Event File) with inputs from the NIMS Science Coordinators regarding the start time and duration of the NIMS observations. There are eight columns of information in this table:

- 1) DOY - Day of Year.
- 2) Time - SCET Time (UTC).
- 3) PSID - Parameter Set ID of the SEF line.
- 4) Command - Command name from the SEF.
- 5) Parameters - Parameters from the above Command Line.
- 6) Description - Description of the above Command for NIMS.
- 7) GCM - NIMS Gain, Chopper mode, Instrument Mode.
Gain = 1,2,3 or 4.
Chopper Mode = R (Reference) or 6 (63Hz).
Instrument Mode = 0-15
- 8) RIM - SCLK of the Command Line (RIM:MF:RTI)

Also, an additional line is inserted into this table at the start and stop times of each NIMS Observation (Opel) to bracket the commands which affect each NIMS Observation.

The NIMS PA Summary is a time-ordered listing of all PAs (Profile Activities) listed in the EJ7 SEF which affect NIMS observations.

The NIMS Observation Table (OBSTAB) is a time-ordered listing of the NIMS observation parameters for use by downlink data processing. It is also derived from the EJ7 SEF.

DOY	Time	PSID	Command	Parameters	Description	GCM	RIM
193	04:00:03.866	20AA6A	6DMSC	S806,1	Tape slew 806.4kb		2,477,751:68
193	04:07:03.866	20AA6B	6DMSR		Tape recorder rewind		2,477,758:61
193	05:15:00.000	NIMSSHLDOF	0	-----START-----			2,477,825:78
193	05:15:03.866	20A3A	37F2PR 1		Shield Flash Heater OFF (primary relay)		2,477,825:84
193	05:15:09.866	20A3B	37F2PR 2		Shield Flash Heater OFF (primary relay)		2,477,826:02
193	05:20:00.000	NIMSSHLDOF		-----STOP-----			2,477,830:73
193	05:30:03.866	20AB3A	40T1P 1		PCT Heater 1 ON (primary relay)		2,477,840:69
193	05:30:09.866	20AB3B	40T1P 2		PCT Heater 1 ON (primary relay)		2,477,840:78
193	06:30:00.000	SLNNIMSON01	-7123	-----START-----			2,477,900:03
193	06:29:59.866	20ZU3Q	37HR 1		Replacement Heaters OFF		2,477,900:03
193	06:30:01.866	20ZU3S	37HR 2		Replacement Heaters OFF		2,477,900:06
193	06:30:27.866	20ZU3R	37A 1		NIMS Power ON	260	2,477,900:45
193	06:30:29.866	20ZU3T	37A 2		NIMS Power ON	260	2,477,900:48
193	06:32:29.200	20ZU4A	37IST	1,2,0,OFF,0,0,0	Chopper ON, Sync, Chopper (Ref)	2R0	2,477,902:45
193	06:40:00.000	SLNNIMSON01		-----STOP-----			2,477,909:84
193	06:44:59.866	480A6A	6MROH	36,202C,0,A		2R0	2,477,914:79
193	06:46:19.866	480A6B	6MROH	36,202C,0,A		2R0	2,477,916:17
193	06:47:39.866	480A6C	6MROH	36,202C,0,A		2R0	2,477,917:46
193	09:49:59.866	480NJ6A	6MROH	21,5000,33,A		2R0	2,478,097:76
194	23:49:59.733	480NK6A	6MROH	21,6216,29,A		2R0	2,480,352:71
195	00:39:59.733	480AA6A	6MROH	7,6CCC,0,A		2R0	2,480,402:21
195	00:41:19.733	480AA6B	6MROH	7,6CCC,0,A		2R0	2,480,403:50
195	00:42:39.733	480AA6C	6MROH	7,6CCC,0,A		2R0	2,480,404:79
195	01:41:59.733	20AE4B	7SLEW	DIS,POS,0,0	Stator movement	2R0	2,480,463:50
195	01:42:59.733	20AE4C	7SAFE	UNSTOW	S/P TO 153 deg cone	2R0	2,480,464:49
195	01:49:29.733	20AE4G	7VENT	0.611,1.333,8	ALERT -- Thruster fire	2R0	2,480,470:88
195	01:49:30.400	20AE4H	7VENT	0.611,11.022,8	ALERT -- Thruster fire	2R0	2,480,470:89
195	01:49:50.400	20AE4I	7VENT	0.611,1.333,6	ALERT -- Thruster fire	2R0	2,480,471:28
195	01:49:51.066	20AE4J	7VENT	0.611,11.022,6	ALERT -- Thruster fire	2R0	2,480,471:29
195	01:50:11.066	20AE4K	7VENT	0.611,1.333,4	ALERT -- Thruster fire	2R0	2,480,471:59
195	01:50:11.733	20AE4L	7VENT	0.611,0.666,5	ALERT -- Thruster fire	2R0	2,480,471:60
195	01:50:21.733	20AE4M	7VENT	0.611,1.333,4	ALERT -- Thruster fire	2R0	2,480,471:75
195	01:50:22.400	20AE4N	7VENT	0.611,0.666,5	ALERT -- Thruster fire	2R0	2,480,471:76
195	01:50:32.400	20AE4O	7VENT	1.211,1.333,10	ALERT -- Thruster fire	2R0	2,480,472:00
195	01:50:33.066	20AE4P	7VENT	1.211,0.666,12	ALERT -- Thruster fire	2R0	2,480,472:01
195	01:53:39.733	20AE4S	7VENT	0.611,1.333,7	ALERT -- Thruster fire	2R0	2,480,475:08
195	01:53:40.400	20AE4T	7VENT	0.611,11.022,7	ALERT -- Thruster fire	2R0	2,480,475:09
195	01:54:00.400	20AE4U	7VENT	0.611,1.333,1	ALERT -- Thruster fire	2R0	2,480,475:39
195	01:54:01.066	20AE4V	7VENT	0.611,11.022,1	ALERT -- Thruster fire	2R0	2,480,475:40
195	01:54:21.066	20AE4W	7VENT	0.611,1.333,2	ALERT -- Thruster fire	2R0	2,480,475:70

DOY	Time	PSID	Command	Parameters	Description	GCM	RIM
195	01:54:21.733	20AE4X	7VENT	0.611,.666,3	ALERT -- Thruster fire	2R0	2,480,475:71
195	01:54:31.733	20AE4Y	7VENT	0.611,1.333,2	ALERT -- Thruster fire	2R0	2,480,475:86
195	01:54:32.400	20AE4Z	7VENT	0.611,0.666,3	ALERT -- Thruster fire	2R0	2,480,475:87
195	01:54:42.400	20AE4AA	7VENT	1.211,1.333,9	ALERT -- Thruster fire	2R0	2,480,476:11
195	01:54:43.066	20AE4AB	7VENT	1.211,0.666,11	ALERT -- Thruster fire	2R0	2,480,476:12
195	02:03:49.733	20AE4AG	7SLEW	INIT,NEG,3.5	Stator movement	2R0	2,480,485:13
195	02:10:03.733	20AF4A	7SLEW	DIS,POS,0.0	Stator movement	2R0	2,480,491:28
195	03:06:05.733	20AF4C	7MODE	CRU	AACS CRUISE MODE	2R0	2,480,546:66
195	03:32:06.400	20AF4E	7MODE	INT	AACS INERTIAL MODE	2R0	2,480,572:41
195	04:10:03.733	20AG3A	40T1PR	1	PCT Heater 1 OFF (primary relay)	2R0	2,480,609:90
195	04:10:09.733	20AG3B	40T1PR	2	PCT Heater 1 OFF (primary relay)	2R0	2,480,610:08
195	06:36:59.733	480NL6A	6MROH	21,6B76,62,A		2R0	2,480,755:28
195	08:00:59.733	480NL6B	6MROH	21,5000,64,A		2R0	2,480,838:35
195	08:04:37.733	165JA4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	2R0	2,480,841:89
195	08:04:38.400	165JA4B	7SCAN	NORM,176.344,6.7	Check S/P Position	2R0	2,480,841:90
195	08:05:00.000	SLJNREFJUP01	-4181	-----START-----		2R0	2,480,842:31
195	08:06:35.733	157JA156A121A4A	371ST	1,2,0,OFF,0,0,0	Chopper ON, Sync, Chopper (Ref)	2R0	2,480,843:84
195	08:07:36.400	157JA156A121B4A	371OP	7,2	Fixed Map, Grating Start Position =2	2R7	2,480,844:84
195	08:08:32.400	117JA	CSMOS	GS	***** GROUP START *****	2R7	2,480,845:77
195	08:08:33.066	176JA6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + NIMS RECOR	2R7	2,480,845:78
195	08:08:37.733	175JA422A6A	6DMSC	R28,0	Tape runup 28.8kbp	2R7	2,480,845:85
195	08:08:41.733	117JA105A106A4A	7STRP	0.003,0.0,0,0,0,0	Slew =,0.92	2R7	2,480,846:00
195	08:08:47.066	117JA105A106A4B	7STRP	-0.003,0.0,0,0,0,0	Slew =,0.92	2R7	2,480,846:08
195	08:08:52.400	117JA105A106A4C	7STRP	0.003,0.0,0,0,0,0	Slew =,0.92	2R7	2,480,846:16
195	08:08:57.733	117JA105A106A4D	7STRP	-0.003,0.0,0,0,0,0	Slew =,0.92	2R7	2,480,846:24
195	08:09:03.066	117JA105A106A4E	7STRP	0.003,0.0,0,0,0,0	Slew =,0.92	2R7	2,480,846:32
195	08:09:08.400	117JA105A106A4F	7STRP	-0.003,0.0,0,0,0,0	Slew =,0.92	2R7	2,480,846:40
195	08:09:13.733	117JA105A106A4G	7STRP	0.003,0.0,0,0,0,0	Slew =,0.92	2R7	2,480,846:48
195	08:09:19.066	117JA105A106A4H	7STRP	-0.003,0.0,0,0,0,0	Slew =,0.92	2R7	2,480,846:56
195	08:09:24.400	117JA105A106A4I	7STRP	0.003,0.0,0,0,0,0	Slew =,0.92	2R7	2,480,846:64
195	08:09:29.733	117JA105A106A4J	7STRP	-0.003,0.0,0,0,0,0	Slew =,0.92	2R7	2,480,846:72
195	08:09:35.066	117JA105A106A4K	7STRP	0.003,0.0,0,0,0,0	Slew =,0.92	2R7	2,480,846:80
195	08:09:40.400	117JA11A	CSMOS	GE	***** GROUP END *****	2R7	2,480,846:88
195	08:09:41.733	175JA422A6B	6DMSC	RDY,0	Tape stop	2R7	2,480,846:90
195	08:10:38.400	157JA156A121C4A	371OP	0,2	Safe, Grating Start Position =2	2R0	2,480,847:84
195	08:15:00.000	SLJNREFJUP01	-----STOP-----			2R0	2,480,852:21
195	08:19:49.066	176KB6A	6TMCHG	ELSLRS	10 BPS TDM / LRS Rec 7.68kb/s	2R0	2,480,857:00
195	08:19:59.733	165KB4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	2R0	2,480,857:16
195	08:20:00.400	165KB4B	7SCAN	NORM,176.415998,	Check S/P Position	2R0	2,480,857:17
195	08:20:48.400	175KB422A6A	6DMSC	R7,0	Tape runup 7.68kps	2R0	2,480,857:89
195	08:29:55.733	175KB422A6B	6DMSC	RDY,0	Tape stop	2R0	2,480,867:00
195	09:00:05.066	20EB4A	7SAFE	UNSTOW	S/P TO 153 deg cone	2R0	2,480,896:75

DOY	Time	PSID	Command	Parameters	Description	GCM	RIM
195	09:27:59.733	480MA6A	6MROH	35,4800,16,A		2R0	2,480,924:39
195	09:52:01.066	480KZ6A	6MROH	28,0900,20,A		2R0	2,480,948:17
195	10:20:59.733	480MD6A	6MROH	29,0200,6,A		2R0	2,480,976:77
195	10:30:19.733	480MD6B	6MROH	29,0220,6,A		2R0	2,480,986:07
195	10:39:39.733	480MD6C	6MROH	29,0240,5,A		2R0	2,480,995:28
195	10:47:39.733	480MD6D	6MROH	29,0685,3,A		2R0	2,481,003:20
195	10:52:59.733	480MD6E	6MROH	29,06A5,3,A		2R0	2,481,008:45
195	10:58:19.733	480MD6F	6MROH	29,06C5,2,A		2R0	2,481,013:70
195	11:11:59.733	480WA6A	6MROH	29,0000,25,A		2R0	2,481,027:26
195	11:46:39.733	480WA6B	6MROH	29,0020,24,A		2R0	2,481,061:52
195	12:19:59.733	480WA6C	6MROH	29,0040,24,A		2R0	2,481,094:49
195	12:53:19.733	480WA6D	6MROH	29,0000,25,A		2R0	2,481,127:46
195	13:27:59.733	480WA6E	6MROH	29,0020,24,A		2R0	2,481,161:72
195	14:01:19.733	480WA6F	6MROH	29,0040,24,A		2R0	2,481,194:69
195	14:35:59.733	480WB6A	6MROH	29,0480,3,A		2R0	2,481,229:04
195	14:41:19.733	480WB6B	6MROH	29,04B0,3,A		2R0	2,481,234:29
195	14:46:39.733	480WB6C	6MROH	29,0480,3,A		2R0	2,481,239:54
195	14:51:59.733	480WB6D	6MROH	29,04B0,3,A		2R0	2,481,244:79
196	01:45:00.333	480MB6A	6MROH	29,0200,6,A		2R0	2,481,890:64
196	01:54:20.333	480MB6B	6MROH	29,0230,6,A		2R0	2,481,899:85
196	02:03:40.333	480MB6C	6MROH	29,0685,3,A		2R0	2,481,909:15
196	02:09:00.333	480MB6D	6MROH	29,06B5,2,A		2R0	2,481,914:40
196	03:01:59.666	480NM6A	6MROH	21,6450,85,A		2R0	2,481,966:77
196	04:56:39.666	480NM6B	6MROH	21,5000,50,A		2R0	2,482,080:23
196	06:48:20.333	480NX6A	6MROH	21,5E6E,4,A		2R0	2,482,190:64
197	06:34:00.266	480NN6A	6MROH	21,5FC9,8,A		2R0	2,483,600:64
197	06:39:59.600	165LA4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	2R0	2,483,606:57
197	06:40:00.266	165LA4B	7SCAN	NORM,176.369999,	Check S/P Position	2R0	2,483,606:58
198	03:46:00.266	480LC6A	6MROH	10,4000,201,A		2R0	2,484,858:66
198	05:26:26.000	SLJNFRAGMC01	-52	-----START-----		2R0	2,484,958:04
198	05:27:22.266	165JB4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	2R0	2,484,958:89
198	05:27:22.933	165JB4B	7SCAN	NORM,176.285,6.7	Check S/P Position	2R0	2,484,958:90
198	05:30:20.933	157JB156A121A4A	37IOP	7,2	Fixed Map, Grating Start Position =2	2R7	2,484,961:84
198	05:31:16.933	117JB	CSMOS	GS	**** GROUP START ****	2R7	2,484,962:77
198	05:31:26.266	117JB105A106A4A	7STRP	0.003,0.0,0.0,0,0,	Slew =,0.92	2R7	2,484,963:00
198	05:31:26.266	176JB6A	6TMCHG	ELEMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + NIMS RECOR	2R7	2,484,963:00
198	05:31:31.600	117JB105A106A4B	7STRP	-0.003,0.0,0.0,0,0,	Slew =,0.92	2R7	2,484,963:08
198	05:31:36.933	117JB105A106A4C	7STRP	0.003,0.0,0.0,0,0,	Slew =,0.92	2R7	2,484,963:16
198	05:31:42.266	117JB105A106A4D	7STRP	-0.003,0.0,0.0,0,0,	Slew =,0.92	2R7	2,484,963:24
198	05:31:47.600	117JB105A106A4E	7STRP	0.003,0.0,0.0,0,0,	Slew =,0.92	2R7	2,484,963:32
198	07:08:03.533	117JB105A106C4BQ	7STRP	-0.003,0.0,0.0,0,0,	This slew pattern repeats every 16 mf until ...	2R7	2,485,058:51

DOY	Time	PSID	Command	Parameters	Description	GCM	RIM
198	07:08:08.866	117JB105A106C4BR	7STRP	0.003,0.0,0.0,0.0,	Slew =,0.92	2R7	2,485,058:59
198	07:08:14.200	117JB105A106C4BS	7STRP	-0.003,0.0,0.0,0.0,	Slew =,0.92	2R7	2,485,058:67
198	07:08:19.533	117JB105A106C4BT	7STRP	0.003,0.0,0.0,0.0,	Slew =,0.92	2R7	2,485,058:75
198	07:08:24.866	117JB11A	CSMOS	GE	***** GROUP END *****	2R7	2,485,058:83
198	07:08:32.000	SLJNFRAGMC01		-----STOP-----		2R7	2,485,059:02
198	07:24:40.866	20VM4A	7SAFE	UNSTOW	S/P TO 153 deg cone	2R7	2,485,075:00
198	08:15:20.200	480LC6B	6MROH	11,4000,184,A		2R7	2,485,125:09
198	09:37:06.866	165ID4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	2R7	2,485,205:89
198	09:37:07.533	165ID4B	7SCAN	NORM,176.115999,	Check S/P Position	2R7	2,485,205:90
198	09:41:12.866	118ID110A111A4A	7STRP	0.00087,0.0,26,0	Slew =,0.51	2R7	2,485,210:03
198	09:41:36.866	61ID176KD6A	6TMCHG	ELSLS	10 BPS TDM / LRS Rec 7.68kb/s	2R7	2,485,210:39
198	09:42:13.533	118ID110A111B4A	7STRP	0.0,0.00087,0,0,	Slew =,4.01	2R7	2,485,211:03
198	09:42:22.200	118ID110A111B4B	7STRP	0.00087,0.0,26,0	Slew =,0.51	2R7	2,485,211:16
198	09:43:22.866	118ID110A111B4C	7STRP	0.0,0.00087,0,0,	Slew =,4.01	2R7	2,485,212:16
198	15:43:02.866	118IF110A111B4EZ	7STRP	0.00087,0.0,26,0	This slew pattern repeats every 13 mf until ...	2R7	2,485,567:81
198	15:44:03.533	118IF110A111C4Y	7STRP	0.0,0.00087,0,0,	Slew =,4.01	2R7	2,485,568:81
198	15:44:10.200	61IE176IE6A	6TMCHG	NGC1M4	NO CHANGE / 403.2 KBPS IMAGE + 1/8 NIMS RECORD	2R7	2,485,569:00
198	15:44:12.200	118IF110A111C4Z	7STRP	0.00087,0.0,26,0	Slew =,0.51	2R7	2,485,569:03
198	15:44:46.866	118IF110A111D4Y	7STRP	-0.00348,-0.0060	Slew =,4.01	2R7	2,485,569:55
198	15:44:55.533	118IF110A111D4Z	7STRP	0.00087,0.0,26,0	Slew =,0.51	2R7	2,485,569:68
198	22:38:53.533	20SA6A	6DMSC	S28,1	Tape slew 28.8kbp	2R7	2,485,979:15
198	22:49:54.000	SLJNFRAGMF01	-53	-----START-----		2R7	2,485,990:04
198	22:51:50.866	165JC4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	2R7	2,485,991:89
198	22:51:51.533	165JC4B	7SCAN	NORM,176.271,6.7	Check S/P Position	2R7	2,485,991:90
198	22:55:45.533	117JC	CSMOS	GS	***** GROUP START *****	2R7	2,485,995:77
198	22:55:54.866	176JC6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + NIMS RECOR	2R7	2,485,996:00
198	22:55:54.866	117JC105A106A4A	7STRP	0.003,0.0,0.0,0.0,	Slew =,0.92	2R7	2,485,996:00
198	22:56:00.200	117JC105A106A4B	7STRP	-0.003,0.0,0.0,0.0,	Slew =,0.92	2R7	2,485,996:08
198	22:56:05.533	117JC105A106A4C	7STRP	0.003,0.0,0.0,0.0,	Slew =,0.92	2R7	2,485,996:16
198	22:56:10.866	117JC105A106A4D	7STRP	-0.003,0.0,0.0,0.0,	Slew =,0.92	2R7	2,485,996:24
199	00:32:32.200	117JC105A106C4BQ	7STRP	-0.003,0.0,0.0,0.0,	This slew pattern repeats every 16 mf until ...	2R7	2,486,091:51
199	00:32:37.533	117JC105A106C4BR	7STRP	0.003,0.0,0.0,0.0,	Slew =,0.92	2R7	2,486,091:59
199	00:32:42.866	117JC105A106C4BS	7STRP	-0.003,0.0,0.0,0.0,	Slew =,0.92	2R7	2,486,091:67
199	00:32:48.200	117JC105A106C4BT	7STRP	0.003,0.0,0.0,0.0,	Slew =,0.92	2R7	2,486,091:75
199	00:32:53.533	117JC11A	CSMOS	GE	***** GROUP END *****	2R7	2,486,091:83
199	00:33:01.000	SLJNFRAGMF01		-----STOP-----		2R7	2,486,092:03
199	05:16:30.200	480MC6A	6MROH	35,4800,16,A		2R7	2,486,372:37
199	05:39:10.200	480MC6B	6MROH	29,0200,6,A		2R7	2,486,394:75
199	05:48:30.200	480MC6C	6MROH	29,0220,6,A		2R7	2,486,404:05
199	05:57:50.200	480MC6D	6MROH	29,0685,3,A		2R7	2,486,413:26

DOY	Time	PSID	Command	Parameters	Description	GCM	RIM
199	06:03:10.200	480MC6E	6MROH	29,06A5,3,A		2R7	2,486,418:51
199	06:09:30.200	480LD6A	6MROH	11,7981,17,A		2R7	2,486,424:75
199	06:11:46.000	SLJNFRAGMG01	-52	-----START-----		2R7	2,486,427:05
199	06:12:41.533	165JD4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	2R7	2,486,427:89
199	06:12:42.200	165JD4B	7SCAN	NORM,176.264999,	Check S/P Position	2R7	2,486,427:90
199	06:16:36.200	117JD	CSMOS	GS	***** GROUP START *****	2R7	2,486,431:77
199	06:16:45.533	176JD6A	6TMCHG	ELSMPEW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + NIMS RECOR	2R7	2,486,432:00
199	06:16:45.533	117JD105A106A4A	7STRP	0.003,0.0,0.0,0,0,	Slew =,0.92	2R7	2,486,432:00
199	06:16:50.866	117JD105A106A4B	7STRP	-0.003,0.0,0.0,0,0,	Slew =,0.92	2R7	2,486,432:08
199	06:16:56.200	117JD105A106A4C	7STRP	0.003,0.0,0.0,0,0,	Slew =,0.92	2R7	2,486,432:16
199	06:17:01.533	117JD105A106A4D	7STRP	-0.003,0.0,0.0,0,0,	Slew =,0.92	2R7	2,486,432:24
199	07:53:22.866	117JD105A106C4BQ	7STRP	This slew pattern repeats every 16 mf until ...		2R7	2,486,527:51
199	07:53:28.200	117JD105A106C4BR	7STRP	0.003,0.0,0.0,0,0,	Slew =,0.92	2R7	2,486,527:59
199	07:53:33.533	117JD105A106C4BS	7STRP	-0.003,0.0,0.0,0,0,	Slew =,0.92	2R7	2,486,527:67
199	07:53:38.866	117JD105A106C4BT	7STRP	0.003,0.0,0.0,0,0,	Slew =,0.92	2R7	2,486,527:75
199	07:53:44.200	117JD11A	CSMOS	GE	***** GROUP END *****	2R7	2,486,527:83
199	07:54:45.533	157JY156A121A4A	37IOP	0,2	Safe, Grating Start Position =2	2R0	2,486,528:84
199	07:54:53.000	SLJNFRAGMG01	-----STOP-----			2R0	2,486,529:04
199	07:59:53.533	20VN4A	7SAFE	UNSTOW	S/P TO 153 deg cone	2R0	2,486,534:00
199	09:57:00.200	480NP6A	6MROH	21,52D0,100,A		2R0	2,486,649:75
199	12:14:59.466	165LB4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	2R0	2,486,786:27
199	12:15:00.133	165LB4B	7SCAN	NORM,176.33,6.74	Check S/P Position	2R0	2,486,786:28
199	22:55:30.133	20SB6A	6DMSC	S28,2		2R0	2,487,419:70
199	23:00:00.133	20SB6B	6DMSC	RDY,3	Tape stop	2R0	2,487,424:20
199	23:01:00.133	480LF6A	6MROH	10,4000,201,A		2R0	2,487,425:19
200	03:30:20.133	480LF6B	6MROH	11,4000,52,A		2R0	2,487,691:53
200	05:39:00.133	480LG6A	6MROH	11,5090,148,A		2R0	2,487,818:76
200	08:49:14.133	165IK4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	2R0	2,488,006:89
200	08:49:14.800	165IK4B	7SCAN	NORM,176.115999,	Check S/P Position	2R0	2,488,006:90
200	08:53:10.800	117IK	CSMOS	GS	***** GROUP START *****	2R0	2,488,010:80
200	08:53:18.133	176IK6A	6TMCHG	NCGHCM		2R0	2,488,011:00
200	08:53:20.133	117IK105A106A4A	7STRP	0.001,0.0034,0,0,	Slew =,0.17	2R0	2,488,011:03
200	08:53:46.800	117IK105A106A4B	7STRP	0.0,-0.0034,0,0,	Slew =,0.3.5	2R0	2,488,011:43
200	08:53:50.800	117IK105A106A4C	7STRP	0.001,0.0034,0,0,	Slew =,0.17	2R0	2,488,011:49
200	08:54:17.466	117IK105A106B4A	7STRP	0.0,-0.0034,0,0,	Slew =,0.3.5	2R0	2,488,011:89
200	10:52:08.800	117IK105A106G4CV	7STRP	This slew pattern repeats every Rim until ...		2R0	2,488,128:49
200	10:52:35.466	117IK105A106G4CW	7STRP	0.001,0.0034,0,0,	Slew =,0.17	2R0	2,488,128:89
200	10:52:39.466	117IK105A106G4CX	7STRP	0.0,-0.0034,0,0,	Slew =,0.3.5	2R0	2,488,128:89
200	10:52:39.466	117IK105A106G4CY	7STRP	0.001,0.0034,0,0,	Slew =,0.17	2R0	2,488,129:04
200	10:53:06.133	117IK105A106H4AG	7STRP	-0.006,0.0,0.0,0,0,	Slew =,0.3.5	2R0	2,488,129:44
200	10:53:29.466	117IK105A106H4AH	7STRP	0.0,0.0,0.0,0,0,0,	Slew =,0.17	2R0	2,488,129:79

DOY	Time	PSID	Command	Parameters	Description	GCM	RIM
200	10:53:35.466	117IK11A	CSMOS	GE	***** GROUP END *****	2R0	2,488,129:88
200	10:58:40.800	20VO4A	7SAFE	UNSTOW	S/P TO 153 deg cone	2R0	2,488,135:00
200	12:23:00.133	480NR6A	6MROH	21,7236,12,A		2R0	2,488,218:36
200	12:39:59.466	165LC4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	2R0	2,488,235:18
200	12:40:00.133	165LC4B	7SCAN	NORM,176.309999,	Check S/P Position	2R0	2,488,235:19
200	23:15:40.066	480NS6A	6MROH	21,7646,27,A		2R0	2,488,863:81
200	23:53:00.066	480NS6B	6MROH	21,5000,129,A		2R0	2,488,900:74
201	02:46:30.066	480LI6A	6MROH	10,7140,43,A		2R0	2,489,072:37
201	03:45:10.066	480LI6B	6MROH	11,4000,30,A		2R0	2,489,130:39
201	08:32:52.733	165IN4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	2R0	2,489,414:89
201	08:32:53.400	165IN4B	7SCAN	NORM,176.095999,	Check S/P Position	2R0	2,489,414:90
201	08:36:49.400	117IN	CSMOS	GS	***** GROUP START *****	2R0	2,489,418:80
201	08:36:56.733	176IN6A	6TMCHG	NCGHCM		2R0	2,489,419:00
201	08:36:58.733	117IN105A106A4A	7STRP	0.001,0.0034,0,0	Slew =,0.17	2R0	2,489,419:03
201	08:37:25.400	117IN105A106A4B	7STRP	0.0,-0.0034,0,0,	Slew =,0.3.5	2R0	2,489,419:43
201	08:37:29.400	117IN105A106A4C	7STRP	0.001,0.0034,0,0	Slew =,0.17	2R0	2,489,419:49
201	08:37:56.066	117IN105A106B4A	7STRP	0.0,-0.0034,0,0,	Slew =,0.3.5	2R0	2,489,419:89
201	10:35:16.733	117IN105A106G4CT	7STRP	0.001,0.0034,0,0	This slew pattern repeats every Rim until ...	2R0	2,489,536:03
201	10:35:43.400	117IN105A106G4CU	7STRP	0.0,-0.0034,0,0,	Slew =,0.17	2R0	2,489,536:43
201	10:35:47.400	117IN105A106G4CV	7STRP	0.001,0.0034,0,0	Slew =,0.3.5	2R0	2,489,536:49
201	10:36:14.066	117IN105A106G4CW	7STRP	0.0,-0.0034,0,0,	Slew =,0.17	2R0	2,489,536:89
201	10:36:18.066	117IN105A106G4CX	7STRP	0.001,0.0034,0,0	Slew =,0.3.5	2R0	2,489,537:04
201	10:36:44.733	117IN105A106H4AG	7STRP	-0.006,0.0,0,0,0	Slew =,0.17	2R0	2,489,537:44
201	10:37:08.066	117IN105A106H4AH	7STRP	0.0,0.0,0,0,0,0,	Slew =,0.17	2R0	2,489,537:79
201	10:37:14.066	117IN11A	CSMOS	GE	***** GROUP END *****	2R0	2,489,537:88
201	11:07:36.066	20VP4A	7SAFE	UNSTOW	S/P TO 153 deg cone	2R0	2,489,568:00
201	12:56:10.733	165LD4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	2R0	2,489,675:35
201	12:56:11.400	165LD4B	7SCAN	NORM,176.294998,	Check S/P Position	2R0	2,489,675:36
201	12:58:00.066	480NT6A	6MROH	21,78A0,20,A		2R0	2,489,677:17
201	13:05:54.066	176LA6A	6TMCHG	ELSLRS	10 BPS TDM / LRS Rec 7.68kb/s	2R0	2,489,685:00
201	13:26:00.066	480NT6B	6MROH	21,5000,32,A		2R0	2,489,704:80
201	13:55:25.400	20LD6A	6DMSC	R7,0	Tape runup 7.68kps	2R0	2,489,733:89
201	16:55:26.733	20LD6B	6DMSC	RDY,0	Tape stop	2R0	2,489,912:02
202	03:45:30.000	20SC6A	6DMSC	S115,3	Tape slew 115.2kb	2R0	2,490,554:85
202	03:46:00.000	480LM6A	6MROH	10,5E80,103,A		2R0	2,490,555:39
202	03:57:00.000	20SC6B	6DMSC	RDY,4	Tape stop	2R0	2,490,566:28
202	04:15:57.000	SLJNFRAGMR01	-52	-----START-----		2R0	2,490,585:04
202	04:16:53.333	165JE4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	2R0	2,490,585:89
202	04:16:54.000	165JE4B	7SCAN	NORM,176.206999,	Check S/P Position	2R0	2,490,585:90
202	04:19:52.000	157JE156A121A4A	37IOP	7,2	Fixed Map, Grating Start Position =2	2R7	2,490,588:84
202	04:20:48.000	117JE	CSMOS	GS	***** GROUP START *****	2R7	2,490,589:77

DOY	Time	PSID	Command	Parameters	Description	GCM	RIM
202	04:20:57.333	176JE6A	6TMCHG	ELSPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + NIMS RECOR	2R7	2,490,590:00
202	04:20:57.333	117JE105A106A4A	7STRP	0.003,0.0,0.0,0.0,	Slew =,0.92	2R7	2,490,590:00
202	04:21:02.666	117JE105A106A4B	7STRP	-0.003,0.0,0.0,0.0,	Slew =,0.92	2R7	2,490,590:08
202	04:21:08.000	117JE105A106A4C	7STRP	0.003,0.0,0.0,0.0,	Slew =,0.92	2R7	2,490,590:16
202	04:21:13.333	117JE105A106A4D	7STRP	-0.003,0.0,0.0,0.0,	Slew =,0.92	2R7	2,490,590:24
202	05:57:34.666	117JE105A106C4BQ	7STRP	This slew pattern repeats every 16 mf until ...			
202	05:57:40.000	117JE105A106C4BR	7STRP	-0.003,0.0,0.0,0.0,	Slew =,0.92	2R7	2,490,685:51
202	05:57:45.333	117JE105A106C4BS	7STRP	0.003,0.0,0.0,0.0,	Slew =,0.92	2R7	2,490,685:59
202	05:57:50.666	117JE105A106C4BT	7STRP	-0.003,0.0,0.0,0.0,	Slew =,0.92	2R7	2,490,685:67
202	05:57:56.000	117JE11A	CSMOS	GE	***** GROUP END *****	2R7	2,490,685:75
202	05:58:57.333	157JX156A121A4A	37IOP	0,0	Safe, Grating Start Position = 0	2R0	2,490,685:84
202	05:59:04.000	SLJNFRAGMR01	0,0	-----STOP-----		2R0	2,490,687:02
202	06:04:05.333	20VQ4A	7SAFE	UNSTOW	S/P TO 153 deg cone	2R0	2,490,692:00
202	06:04:40.000	480LM6B	6MROH	11,4000,201,A		2R0	2,490,692:52
202	10:34:00.000	480LM6C	6MROH	17,5000,52,B		2R0	2,490,958:86
202	11:44:59.333	165LE4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	2R0	2,491,029:14
202	11:45:00.000	165LE4B	7SCAN	NORM,176.279999,	Check S/P Position	2R0	2,491,029:15
203	02:05:16.000	165IV4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	2R0	2,491,879:89
203	02:05:16.666	165IV4B	7SCAN	NORM,176.023998,	Check S/P Position	2R0	2,491,879:90
203	02:09:12.666	117IV	CSMOS	GS	***** GROUP START *****	2R0	2,491,883:80
203	02:09:20.000	176IV6A	6TMCHG	NCGHCN		2R0	2,491,884:00
203	02:09:22.000	117IV105A106A4A	7STRP	0.00609,0.0,0.0,0.0,	Slew =,0.31	2R0	2,491,884:03
203	02:09:48.666	117IV105A106B4A	7STRP	0.0,0.00087,0.0,	Slew =,3.51	2R0	2,491,884:43
203	02:09:52.666	117IV105A106B4B	7STRP	-0.00609,0.0,0.0,0.0,	Slew =,0.31	2R0	2,491,884:49
203	02:10:18.666	117IV105A106C4A	7STRP	0.0,0.00087,0.0,	Slew =,3.51	2R0	2,491,884:88
203	04:06:09.266	117IV105A106P4Z	7STRP	This slew pattern repeats every Rim until ...			
203	04:06:35.266	117IV105A106Q4Y	7STRP	0.00609,0.0,0.0,0.0,	Slew =,0.31	2R0	2,491,999:49
203	04:06:39.266	117IV105A106Q4Z	7STRP	-0.00609,0.0,0.0,0.0,	Slew =,3.51	2R0	2,491,999:88
203	04:07:05.933	117IV105A106R4Y	7STRP	0.0,-0.00609,0.0,	Slew =,0.31	2R0	2,492,000:03
203	04:07:25.933	117IV105A106R4Z	7STRP	0.0,0.0,0.0,0.0,	Slew =,0.31	2R0	2,492,000:43
203	04:07:35.933	117IV11A	CSMOS	GE	***** GROUP END *****	2R0	2,492,000:73
203	05:50:39.933	480NU6B	6MROH	21,5000,73,A		2R0	2,492,000:88
203	06:47:21.933	165IW4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	2R0	2,492,102:82
203	06:47:22.600	165IW4B	7SCAN	NORM,176.021999,	Check S/P Position	2R0	2,492,158:89
203	06:51:16.600	117IW	CSMOS	GS	***** GROUP START *****	2R0	2,492,158:90
203	06:51:25.933	117IW105A106A4A	7STRP	0.0061,0.0,0.0,0.0,	Slew =,0.39	2R0	2,492,162:77
203	06:51:25.933	176IW6A	6TMCHG	NCGIM4	NO CHANGE / 403.2 KBPS IMAGE + 1/8 NIMS RECORD	2R0	2,492,163:00
203	06:51:44.600	117IW105A106B4A	7STRP	0.0,0.00087,0.0,	Slew =,0.41	2R0	2,492,163:28
203	06:51:49.266	117IW105A106B4B	7STRP	-0.0061,0.0,0.0,0.0,	Slew =,0.39	2R0	2,492,163:35
203	06:52:07.933	117IW105A106C4A	7STRP	0.0,0.00087,0.0,	Slew =,0.41	2R0	2,492,163:63

DOY	Time	PSID	Command	Parameters	Description	GCM	RIM
203	06:52:12.600	117IW105A106C4B	7STRP	0.0061,0.0,0,0,0	Slew =,0.39	2R0	2,492,163:70
					This slew pattern repeats every Rim until ...		
203	08:51:03.266	117IW105A106G4BH	7STRP	0.0061,0.0,0,0,0	Slew =,0.39	2R0	2,492,281:28
203	08:51:21.933	117IW105A106H4BG	7STRP	0.0,0.00087,0,0,	Slew =,0.41	2R0	2,492,281:56
203	08:51:26.600	117IW105A106H4BH	7STRP	-0.0061,0.0,0,0,0,	Slew =,0.39	2R0	2,492,281:63
203	08:51:45.266	117IW105A106I4BG	7STRP	0.0,-0.00609,0,0	Slew =,0.41	2R0	2,492,282:00
203	08:52:34.600	117IW105A106I4BH	7STRP	0.0,0.0,0,0,0,0,	Slew =,0.39	2R0	2,492,282:74
203	08:52:41.266	117IW11A	CSMOS	GE	***** GROUP END *****	2R0	2,492,282:84
203	08:57:55.933	20EC4A	7SAFE	UNSTOW	S/P TO 153 deg cone	2R0	2,492,288:10
203	10:05:03.933	20F6A	6MROH	36,202C,0,A		2R0	2,492,354:46
203	10:06:23.933	20F6B	6MROH	36,202C,0,A		2R0	2,492,355:75
203	10:07:43.933	20F6C	6MROH	36,202C,0,A		2R0	2,492,357:13
203	10:20:03.933	20F6D	6MROH	36,202C,0,A		2R0	2,492,369:31
203	10:21:23.933	20F6E	6MROH	36,202C,0,A		2R0	2,492,370:60
203	10:22:43.933	20F6F	6MROH	36,202C,0,A		2R0	2,492,371:89
203	13:29:59.933	480AB6A	6MROH	7,6CCC,0,A		2R0	2,492,557:17
203	13:31:19.933	480AB6B	6MROH	7,6CCC,0,A		2R0	2,492,558:46
203	13:32:39.933	480AB6C	6MROH	7,6CCC,0,A		2R0	2,492,559:75
203	13:34:30.600	20B3B	37F2P	2	Shield Flash Heater ON (primary relay)	2R0	2,492,561:59
203	13:34:33.933	20B3A	37F2P	1	Shield Flash Heater ON (primary relay)	2R0	2,492,561:64
203	13:40:00.000	NIMSSHLDON	0	-----START-----		2R0	2,492,567:06
203	13:39:59.933	20YU4A	37IOP	0,0	Safe, Grating Start Position =0	2R0	2,492,567:07
203	13:41:00.600	20YU3A	37AR	1	NIMS Power OFF	2,492,568:07	
203	13:41:03.266	20YU3C	37AR	2	NIMS Power OFF	2,492,568:11	
203	13:41:20.600	20YU3B	37H	1	Replacement Heaters ON	2,492,568:37	
203	13:41:23.266	20YU3D	37H	2	Replacement Heaters ON	2,492,568:41	
203	13:45:00.000	NIMSSHLDON		-----STOP-----		2,492,572:01	
203	13:48:00.000	SLNINIMSOFO1	7551	-----START-----		2,492,574:89	
203	13:58:00.000	SLNINIMSOFO1		-----STOP-----		2,492,584:80	
203	14:15:03.933	20AH4B	7MODE	CRU	AACS CRUISE MODE	2,492,601:69	
203	14:20:03.933	20AI4A	7MODE	SPNL	AACS ALL-SPIN LOW	2,492,606:64	
203	14:30:03.933	20AI4B	7SLEW	INIT,NEG,3.5	Stator movement	2,492,616:54	
204	03:29:59.933	480LP6A	6MROH	10,4000,140,A		2,493,387:87	
204	06:41:59.933	480NV6A	6MROH	21,6720,76,A		2,493,577:77	
204	08:24:39.866	480NV6B	6MROH	21,5000,55,A		2,493,679:35	
205	07:00:29.866	20SD6A	6DMSR		Tape recorder rewind	2,495,020:29	
205	07:14:59.866	20SD6B	6DMSC	S7,1	Tape slew 7.68kbps	2,495,034:60	
205	07:16:25.200	20SD6C	6DMSC	RDY,1	Tape stop	2,495,036:06	
205	09:06:59.866	480LQ6A	6MROH	10,6C10,60,A		2,495,145:39	
205	10:28:19.866	480LQ6B	6MROH	11,4000,41,A		2,495,225:79	
206	03:44:59.800	480LR6A	6MROH	11,4D20,159,A		2,496,251:13	
206	07:18:19.800	480LR6B	6MROH	17,5000,150,B		2,496,462:12	

DOY	Time	PSID	Command	Parameters	Description	GCM	RIM
206	10:39:59.800	480NW6A	6MROH	21,6100,95,A			2,496,661:53
207	03:29:03.733	423SK6A	6TMCHG	LPB	7.68 KBPS LOW RATE PLAYBACK		2,497,659:51
207	03:29:09.733	423SK6B	6DMSC	P7,1	Tape P/B 7.68kbps		2,497,659:60
207	03:30:23.066	423SK6I	6DMSC	RDY,0	Tape stop		2,497,660:79
207	03:30:31.733	423SK6J	6TMCHG	ELS	10 BPS TDM		2,497,661:01
207	03:33:00.400	423SK6K	6MROH	10,4000,19,A			2,497,663:42
207	04:59:59.733	480MF6A	6MROH	35,4800,16,A			2,497,749:45
207	05:22:39.733	480MF6B	6MROH	29,0200,6,A			2,497,771:83
207	05:31:59.733	480MF6C	6MROH	29,0220,6,A			2,497,781:13
207	05:41:19.733	480MF6D	6MROH	29,0685,3,A			2,497,790:34
207	05:46:39.733	480MF6E	6MROH	29,06A5,3,A			2,497,795:59
207	05:52:00.400	423SK6L	6MROH	10,4640,108,A			2,497,800:85
207	13:00:01.066	20SE6A	6DMSC	S7,1	Tape slew 7.68kbps		2,498,224:22
207	13:02:25.733	20SE6B	6DMSC	RDY,1	Tape stop		2,498,226:57
207	22:44:00.333	423SK6M	6MROH	10,6850,70,A			2,498,801:74
208	00:18:40.333	423SK6N	6MROH	17,5000,151,B			2,498,895:40
208	03:41:20.333	423SK6O	6MROH	21,5000,18,A			2,499,095:80
208	04:44:00.333	423SK6P	6MROH	21,55F0,108,A			2,499,157:78
208	07:15:04.333	423TK6A	6TMCHG	LPB	7.68 KBPS LOW RATE PLAYBACK		2,499,307:24
208	07:15:10.333	423TK6B	6DMSC	P7,1	Tape P/B 7.68kbps		2,499,307:33
208	07:16:23.666	423TK6I	6DMSC	RDY,0	Tape stop		2,499,308:52
208	07:16:32.333	423TK6J	6TMCHG	ELS	10 BPS TDM		2,499,308:65
208	07:20:00.333	423TK6K	6MROH	4,EB00,63,A			2,499,312:13
208	08:45:20.333	423TK6L	6MROH	10,4000,199,A			2,499,396:49
208	13:12:00.333	423TK6M	6MROH	17,5000,51,B			2,499,660:25
209	05:14:00.266	423TK6N	6MROH	17,6040,99,B			2,500,611:64
209	07:27:20.266	423TK6O	6MROH	21,5000,151,A			2,500,743:52
209	10:50:00.266	423TK6P	6MROH	11,4000,19,A			2,500,944:01
209	23:00:00.266	480MG6A	6MROH	35,4800,16,A			2,501,665:90
209	23:22:40.266	480MG6B	6MROH	29,0200,18,A			2,501,688:37
209	23:48:00.266	480MG6C	6MROH	29,0230,18,A			2,501,713:42
210	00:15:00.266	423TK6Q	6MROH	11,4640,116,A			2,501,740:15
210	10:46:00.200	423TK6R	6MROH	11,6AD0,22,A			2,502,364:21
210	11:25:10.200	20SF6A	6DMSC	S115,2	Tape slew 115kbps		2,502,402:88
210	12:06:04.866	20SH6TA	6TMCHG	LPB	7.68 KBPS LOW RATE PLAYBACK		2,502,443:39
210	12:06:10.866	20SH6A	6DMSC	P7,1	Tape P/B 7.68kbps		2,502,443:48
210	12:26:18.200	20SH6AS	6DMSC	RDY,1	Tape stop		2,502,463:39
210	12:26:26.866	20SH6TB	6TMCHG	ELS	10 BPS TDM		2,502,463:52
210	12:27:00.200	423SN6A	6MROH	4,EB00,63,A			2,502,464:11
210	13:52:20.200	423SN6B	6MROH	10,4000,9,A			2,502,548:47
211	04:05:00.200	423SN6C	6MROH	10,4320,189,A			2,503,391:74
211	08:18:20.200	423SN6D	6MROH	17,5000,102,B			2,503,642:33

DOY	Time	PSID	Command	Parameters	Description	GCM	RIM
211	22:30:00	133 480MH6A	6MROH	29,0200,18,A			2,504,484:61
211	22:55:20	133 480MH6B	6MROH	29,0220,18,A			2,504,509:66
211	23:22:00	133 423SN6E	6MROH	17,7030,48,B			2,504,536:09
212	00:27:20	133 423SN6F	6MROH	21,5000,151,A			2,504,600:65
212	03:50:00	133 423SN6G	6MROH	11,4000,148,A			2,504,801:14
212	07:15:04	133 20SK6TA	6TMCHG	LPB	7.68 KBPS LOW RATE PLAYBACK		2,505,003:88
212	07:15:10	133 20SK6A	6DMSC	P7,1	Tape P/B 7.68kbps		2,505,004:06
212	07:35:17	466 20SK6AS	6DMSC	RDY,1	Tape stop		2,505,023:88
212	07:35:26	133 20SK6TB	6TMCHG	ELS	10 BPS TDM		2,505,024:10
212	07:39:00	133 423SO6A	6MROH	4,EB00,63,A			2,505,027:58
212	09:04:20	133 423SO6B	6MROH	10,4000,186,A			2,505,112:03
213	10:22:00	066 423SO6C	6MROH	10,7A70,12,A			2,506,613:02
213	10:39:20	066 423SO6D	6MROH	17,5000,135,B			2,506,630:15
214	04:13:00	000 480MI6A	6MROH	35,4700,19,A			2,507,672:23
214	04:39:40	000 480MI6B	6MROH	29,0200,18,A			2,507,698:57
214	05:05:00	000 480MI6C	6MROH	29,0230,18,A			2,507,723:62
214	05:32:00	000 423SO6E	6MROH	17,7A80,15,B			2,507,750:35
214	05:53:20	000 423SO6F	6MROH	21,5000,151,A			2,507,771:44
214	09:16:00	000 423SO6G	6MROH	11,4000,148,A			2,507,971:84
214	12:55:01	333 20SM6A	6DMSC	S28,1	Tape slew 28.8kbp		2,508,188:49
214	13:15:04	000 20AO3A	40T1P	1	PCT Heater 1 ON (primary relay)		2,508,208:33
214	13:15:10	000 20AO3B	40T1P	2	PCT Heater 1 ON (primary relay)		2,508,208:42
214	23:32:00	000 20AP4B	7SLEW	DIS,POS,0.0	Stator movement		2,508,818:47
214	23:33:00	000 20AP4C	7SAFE	UNSTOW	S/P TO 153 deg cone		2,508,819:46
214	23:39:30	000 20AP4G	7VENT	0.611,1.333,8	ALERT -- Thruster fire		2,508,825:85
214	23:39:30	666 20AP4H	7VENT	0.611,11.022,8	ALERT -- Thruster fire		2,508,825:86
214	23:39:50	666 20AP4I	7VENT	0.611,1.333,6	ALERT -- Thruster fire		2,508,826:25
214	23:39:51	333 20AP4J	7VENT	0.611,11.022,6	ALERT -- Thruster fire		2,508,826:26
214	23:40:11	333 20AP4K	7VENT	0.611,1.333,4	ALERT -- Thruster fire		2,508,826:56
214	23:40:12	000 20AP4L	7VENT	0.611,0.666,5	ALERT -- Thruster fire		2,508,826:57
214	23:40:22	000 20AP4M	7VENT	0.611,1.333,4	ALERT -- Thruster fire		2,508,826:72
214	23:40:22	666 20AP4N	7VENT	0.611,0.666,5	ALERT -- Thruster fire		2,508,826:73
214	23:40:32	666 20AP4O	7VENT	1.211,1.333,10	ALERT -- Thruster fire		2,508,826:88
214	23:40:33	333 20AP4P	7VENT	1.211,0.666,12	ALERT -- Thruster fire		2,508,826:89
214	23:43:40	000 20AP4S	7VENT	0.611,1.333,7	ALERT -- Thruster fire		2,508,830:05
214	23:43:40	666 20AP4T	7VENT	0.611,11.022,7	ALERT -- Thruster fire		2,508,830:06
214	23:44:00	666 20AP4U	7VENT	0.611,1.333,1	ALERT -- Thruster fire		2,508,830:36
214	23:44:01	333 20AP4V	7VENT	0.611,11.022,1	ALERT -- Thruster fire		2,508,830:37
214	23:44:21	333 20AP4W	7VENT	0.611,1.333,2	ALERT -- Thruster fire		2,508,830:67
214	23:44:22	000 20AP4X	7VENT	0.611,0.666,3	ALERT -- Thruster fire		2,508,830:68
214	23:44:32	000 20AP4Y	7VENT	0.611,1.333,2	ALERT -- Thruster fire		2,508,830:83
214	23:44:32	666 20AP4Z	7VENT	0.611,0.666,3	ALERT -- Thruster fire		2,508,830:84

DOY	Time	PSID	Command	Parameters	Description	GCM	RIM
214	23:44:42.666	20AP4AA	7VENT	1.211,1.333,9	ALERT -- Thruster fire		2,508,831:08
214	23:44:43.333	20AP4AB	7VENT	1.211,0.666,11	ALERT -- Thruster fire		2,508,831:09
214	23:53:50.000	20AP4AG	7SLEW	INIT,NEG,3.5	Stator movement		2,508,840:10
215	02:00:04.000	20AQ3A	40T1PR	1	PCT Heater 1 OFF (primary relay)		2,508,964:87
215	02:00:10.000	20AQ3B	40T1PR	2	PCT Heater 1 OFF (primary relay)		2,508,965:05
215	04:20:04.000	423SL6A	6TMCHG	LPB	7.68 KBPS LOW RATE PLAYBACK		2,509,103:38
215	04:20:10.000	423SL6B	6DMSC	P7,2	Tape P/B 7.68kbps		2,509,103:47
215	04:21:23.333	423SL6I	6DMSC	RDY,0	Tape stop		2,509,104:66
215	04:21:32.000	423SL6J	6TMCHG	ELS	10 BPS TDM		2,509,104:79
215	06:02:00.600	423SL6K	6MROH	10,4000,199,A			2,509,204:22
215	10:28:40.600	423SL6L	6MROH	17,5000,135,B			2,509,467:89
215	23:58:00.600	423SL6M	6MROH	17,7A80,15,B			2,510,268:38
216	00:19:20.600	423SL6N	6MROH	21,5000,127,A			2,510,289:47
216	03:00:01.266	20SP6A	6DMSC	S115,2	Tape slew 115kbps		2,510,448:39
216	03:28:03.933	20SR6TA	6TMCHG	LPB	7.68 KBPS LOW RATE PLAYBACK		2,510,476:15
216	03:28:09.933	20SR6A	6DMSC	P7,3	Tape P/B 7.68kbps		2,510,476:24
216	03:47:37.933	20SR6AJ	6DMSC	RDY,3	Tape stop		2,510,495:47
216	03:47:46.600	20SR6TB	6TMCHG	ELS	10 BPS TDM		2,510,495:60
216	04:38:00.600	423SV6A	6MROH	4,EB00,63,A			2,510,545:31
216	06:03:20.600	423SV6B	6MROH	10,4000,199,A			2,510,629:67
216	10:30:00.533	423SV6C	6MROH	17,5000,3,B			2,510,893:43
216	22:13:00.533	423SV6D	6MROH	17,5140,147,B			2,511,588:68
217	01:30:20.533	423SV6E	6MROH	21,5000,44,A			2,511,783:83
217	10:17:00.533	423SV6F	6MROH	21,5E10,106,A			2,512,304:72
217	12:39:40.533	423SV6G	6MROH	11,4000,44,A			2,512,445:81
217	22:12:59.800	480MJ6A	6MROH	35,4700,19,A			2,513,012:83
217	22:39:39.800	480MJ6B	6MROH	29,0200,18,A			2,513,039:26
217	23:04:59.800	480MJ6C	6MROH	29,0220,18,A			2,513,064:31
219	01:22:00.400	423SV6H	6MROH	11,4E10,154,A			2,514,624:02
219	04:48:40.400	423SV6I	6MROH	5,EB00,17,B			2,514,828:38
219	07:22:59.733	480MK6A	6MROH	29,0200,18,A			2,514,981:04
219	07:48:19.733	480MK6B	6MROH	29,0230,18,A			2,515,006:09
219	08:33:03.733	20SU6TA	6TMCHG	LPB	7.68 KBPS LOW RATE PLAYBACK		2,515,050:31
219	08:33:09.733	20SU6A	6DMSC	P7,3	Tape P/B 7.68kbps		2,515,050:40
219	08:52:37.733	20SU6AJ	6DMSC	RDY,3	Tape stop		2,515,069:63
219	08:52:46.400	20SU6TB	6TMCHG	ELS	10 BPS TDM		2,515,069:76
219	08:58:00.400	423SZ6A	6MROH	4,EB00,63,A			2,515,075:01
219	10:23:20.400	423SZ6B	6MROH	10,4000,8,A			2,515,159:37
219	23:12:00.400	423SZ6C	6MROH	10,42D0,177,A			2,515,919:57
		481AA4A	7VECT		Inert vect update UTC		2,518,948:88
222	04:38:00.266	480ML6A	6MROH	35,4700,19,A			2,519,090:36
222	05:04:40.266	480ML6B	6MROH	29,0200,18,A			2,519,116:70

DOY	Time	PSID	Command	Parameters	Description	GCM	RIM
222	05:30:00.266	480ML6C	6MROH	29,0220,18,A			2,519,141:75
222	06:00:00.266	423SZ6D	6MROH	10,7A70,12,A			2,519,171:45
222	06:17:20.266	423SZ6E	6MROH	17,5000,94,B			2,519,188:58
223	21:42:00.133	480MM6A	6MROH	35,4700,19,A			2,521,527:29
223	22:08:40.133	480MM6B	6MROH	29,0200,18,A			2,521,553:63
223	22:34:00.133	480MM6C	6MROH	29,0230,18,A			2,521,578:68
223	23:00:00.133	423SZ6F	6MROH	17,6DB0,56,B			2,521,604:42
224	00:16:00.133	423SZ6G	6MROH	21,5000,91,A			2,521,679:57
224	02:47:00.133	423SZ6H	6MROH	21,6CC0,59,A			2,521,828:88
224	04:07:00.133	423SZ6I	6MROH	11,4000,199,A			2,521,908:08
224	08:33:40.133	423SZ6J	6MROH	5,EB00,17,B			2,522,171:75
224	09:05:00.800	20SW6A	6DMSC	S115,3	Tape slew 115.2kb		2,522,202:75
224	10:10:04.133	423SM6A	6TMCHG	LPB	7.68 KBPS LOW RATE PLAYBACK		2,522,267:15
224	10:10:10.133	423SM6B	6DMSC	P7,4	Tape P/B 7.68kbps		2,522,267:24
224	10:11:23.466	423SM6I	6DMSC	RDY,0	Tape stop		2,522,268:43
224	10:11:32.133	423SM6J	6TMCHG	ELS	10 BPS TDM		2,522,268:56
224	10:32:00.133	423SM6K	6MROH	10,4000,109,A			2,522,288:78
225	03:33:00.066	423SM6L	6MROH	10,6260,89,A			2,523,298:58
225	05:33:00.066	423SM6M	6MROH	17,5000,151,B			2,523,417:29
225	08:55:40.066	423SM6N	6MROH	21,5000,127,A			2,523,617:69
225	11:40:00.733	20SZ6A	6DMSC	S115,2	Tape slew 115kbps		2,523,780:27
225	12:40:04.066	20TE6TA	6TMCHG	LPB	7.68 KBPS LOW RATE PLAYBACK		2,523,839:63
225	12:40:10.066	20TE6A	6DMSC	P7,1	Tape P/B 7.68kbps		2,523,839:72
225	12:40:47.400	20TE6E	6DMSC	RDY,1	Tape stop		2,523,840:37
225	12:40:56.066	20TE6TB	6TMCHG	ELS	10 BPS TDM		2,523,840:50
225	23:58:00.066	423TE6A	6MROH	10,4000,97,A			2,524,510:16
226	03:11:00.000	423TE6B	6MROH	10,5EA0,101,A			2,524,701:05
226	05:27:00.000	423TE6C	6MROH	17,5000,18,B			2,524,835:51
226	06:01:00.000	423TE6D	6MROH	17,55F0,132,B			2,524,869:17
226	08:58:20.000	423TE6E	6MROH	21,5000,43,A			2,525,044:52
226	10:06:04.000	20TF6TA	6TMCHG	LPB	7.68 KBPS LOW RATE PLAYBACK		2,525,111:51
226	10:06:10.000	20TF6A	6DMSC	P7,1	Tape P/B 7.68kbps		2,525,111:60
226	10:06:47.333	20TF6E	6DMSC	RDY,1	Tape stop		2,525,112:25
226	10:06:56.000	20TF6TB	6TMCHG	ELS	10 BPS TDM		2,525,112:38
226	10:10:00.000	423TF6A	6MROH	10,4000,126,A			2,525,115:41
227	03:18:00.000	423TF6B	6MROH	10,67B0,72,A			2,526,132:14
227	04:55:20.000	423TF6C	6MROH	17,5000,151,B			2,526,228:38
227	08:17:59.933	423TF6D	6MROH	21,5000,43,A			2,526,428:78
227	09:35:03.933	20TG6TA	6TMCHG	LPB	7.68 KBPS LOW RATE PLAYBACK		2,526,505:07
227	09:35:09.933	20TG6A	6DMSC	P7,1	Tape P/B 7.68kbps		2,526,505:16
227	09:35:47.266	20TG6E	6DMSC	RDY,1	Tape stop		2,526,505:72
227	09:35:55.933	20TG6TB	6TMCHG	ELS	10 BPS TDM		2,526,505:85

DOY	Time	PSID	Command	Parameters	Description	GCM	RIM
227	09:40:00.600	423TG6A	6MROH	10,4000,148,A			2,526,509:88
227	14:26:00.600	423TG6B	6MROH	10,6E90,50,A			2,526,792:75
227	15:34:00.600	423TG6C	6MROH	17,5000,151,B			2,526,860:07
227	18:56:40.600	423TG6D	6MROH	21,5000,43,A			2,527,060:47

PA Summary Table

This summary is a listing of the PAs (Profile Activities) used by NIMS during the SL9 Encounter.

INPUT FILE: EJ7HIA.SEF

OAPEL	PA	PSID	SCLK1	SCLK2	SCET1	TARGET
S/C-HTRS	UTILITY	20A	02477825:78	02477830:73	94-193/05:14:59	
S/C-HTRS	UTILITY	20AB	02477840:63	02477845:58	94-193/05:29:59	
SLNNNIMSON01	UTILITY	20ZU	02477900:03	02477902:69	94-193/06:29:59	NIMS ON
SLJNREFJUP01	TARGET	165JA	02480841:89	02480847:00	94-195/08:04:37	JUPITER
SLJNREFJUP01	CMDRS	157JA	02480843:00	02480849:00	94-195/08:05:39	JUPITER
SLJNREFJUP01	CSMOS	117JA	02480845:77	02480846:88	94-195/08:08:32	JUPITER
SLJNREFJUP01	SCITLM	176JA	02480845:78	02480846:00	94-195/08:08:33	JUPITER
SLJNREFJUP01	SCIREC	175JA	02480845:85	02480847:01	94-195/08:08:37	JUPITER
SLJNFRAGMC01	TARGET	165JB	02484958:89	02484963:00	94-198/05:27:22	JUPITER
SLJNFRAGMC01	CMDRS	157JB	02484961:00	02484964:00	94-198/05:29:24	JUPITER
SLJNFRAGMC01	CSMOS	117JB	02484962:77	02485058:83	94-198/05:31:16	JUPITER
SLJNFRAGMC01	SCITLM	176JB	02484963:00	02484963:13	94-198/05:31:26	JUPITER
SLJNFRAGMC01	CMDRS	157JZ	02485059:00	02485062:00	94-198/07:08:30	JUPITER
SLJNFRAGMF01	TARGET	165JC	02485991:89	02485996:00	94-198/22:51:50	JUPITER
SLJNFRAGMF01	CMDRS	157JC	02485994:00	02485997:00	94-198/22:53:53	JUPITER
SLJNFRAGMF01	CSMOS	117JC	02485995:77	02486091:83	94-198/22:55:45	JUPITER
SLJNFRAGMF01	SCITLM	176JC	02485996:00	02485996:13	94-198/22:55:54	JUPITER
SLJNFRAGMF01	CMDRS	157JW	02486092:00	02486095:00	94-199/00:32:58	JUPITER
SLJNFRAGMG01	TARGET	165JD	02486427:89	02486432:00	94-199/06:12:41	JUPITER
SLJNFRAGMG01	CMDRS	157JD	02486430:00	02486433:00	94-199/06:14:44	JUPITER
SLJNFRAGMG01	CSMOS	117JD	02486431:77	02486527:83	94-199/06:16:36	JUPITER
SLJNFRAGMG01	SCITLM	176JD	02486432:00	02486432:13	94-199/06:16:45	JUPITER
SLJNFRAGMG01	CMDRS	157JY	02486528:00	02486531:00	94-199/07:53:49	JUPITER
SLJNFRAGMR01	TARGET	165JE	02490585:89	02490590:00	94-202/04:16:53	JUPITER
SLJNFRAGMR01	CMDRS	157JE	02490588:00	02490591:00	94-202/04:18:56	JUPITER
SLJNFRAGMR01	CSMOS	117JE	02490589:77	02490685:83	94-202/04:20:48	JUPITER
SLJNFRAGMR01	SCITLM	176JE	02490590:00	02490590:13	94-202/04:20:57	JUPITER
SLJNFRAGMR01	CMDRS	157JX	02490686:00	02490689:00	94-202/05:58:01	JUPITER
SLNNNIMOFF01	UTILITY	20YU	02492567:07	02492568:51	94-203/13:39:59	NIMS OFF

NIMS Obstab (Planned)

Heading	Columns	Comments
OAPEL	1 - 12	.Oapel Name from SEF (no aliases yet)
EXT	14 - 14	.Extension (allow for split OAPELs)
PSID	16 - 17	.2 Letter ID for the OAPEL
SCLK1	19 - 29	.Start time of OBS in SCLK
SCLK2	31 - 41	.STOP time of OBS in SCLK
MODE	43 - 44	.NIMS Instrument MODE
GAIN	46 - 47	.Gain State (true value)
CHOP	49 - 50	.Chopper State (1=Ref,2=63Hz,3=FreeRun,4=Off)
GRAT_OFF	52 - 53	.Grating Offset
PTAB_A(6)	55 - 71	.First PTAB (repeat count,mirror op,autobias...
PTAB_B(6)	73 - 89	.Second PTAB (...grating start, grating delta... (...number of grating postions)
ECAL	92 - 92	.Electronics Calibration Active (1=yes)
OPCAL	94 - 94	.Optics Calibration active (1=yes)
UTC1	96 - 112	.Start time of OBS in UTC (from SEF - ISO STANDARD)
REAL_TIME	115 - 115	.NIMS in Real-Time Telemetry (1=yes)
RECORD	117 - 117	.NIMS in Record Telemetry(1=yes)
TARGET	120 - 127	.Primary Target of OBS
JUPITER - J - Jupiter		
(the single letter abbreviation appears as the third character in the OBSNAME (OAPEL Name)).		
INPUT SEF FILE: EJ7HIA.SEF		

OAPEL, EXT, PSID, SCLK1, SCLK2, MODE, GAIN, CHOP, GRAT_OFF, PTAB_A(6), PTAB_B(6), ECAL, OPCAL, UTC1, REAL_TIME, RECORD, TARGET		
OAPEL	EXT PSID SCLK1	SCLK2 M G C O PTAB A PTAB B E O UTC1 R T TARGET
SLJNREFJUP01 A JA	02480846:00	02480846:90 7 2 1 4 1 1 0 2 0 12 1 1 0 2 0 12 0 0 1994-195T08:08:41 0 1 JUPITER
SLJNFRAGMC01 A JB	02484979:06	02485043:06 7 2 1 4 1 1 0 2 0 12 1 1 0 2 0 12 0 0 1994-198T05:47:40 0 1 JUPITER
SLJNFRAGMF01 A JC	02486012:06	02486076:06 7 2 1 4 1 1 0 2 0 12 1 1 0 2 0 12 0 0 1994-198T23:12:09 0 1 JUPITER
SLJNFRAGMG01 A JD	02486448:06	02486512:06 7 2 1 4 1 1 0 2 0 12 1 1 0 2 0 12 0 0 1994-199T06:33:00 0 1 JUPITER
SLJNFRAGMR01 A JE	02490606:06	02490670:06 7 2 1 4 1 1 0 2 0 12 1 1 0 2 0 12 0 0 1994-202T04:37:12 0 1 JUPITER

Chapter 5 - Detailed Observation Designs

Contents

	Sub-Section	Page
5.0	Contents	1
5.1	Introduction to Chapter 5	2
5.2	NIMS SL9 Observations	3-14

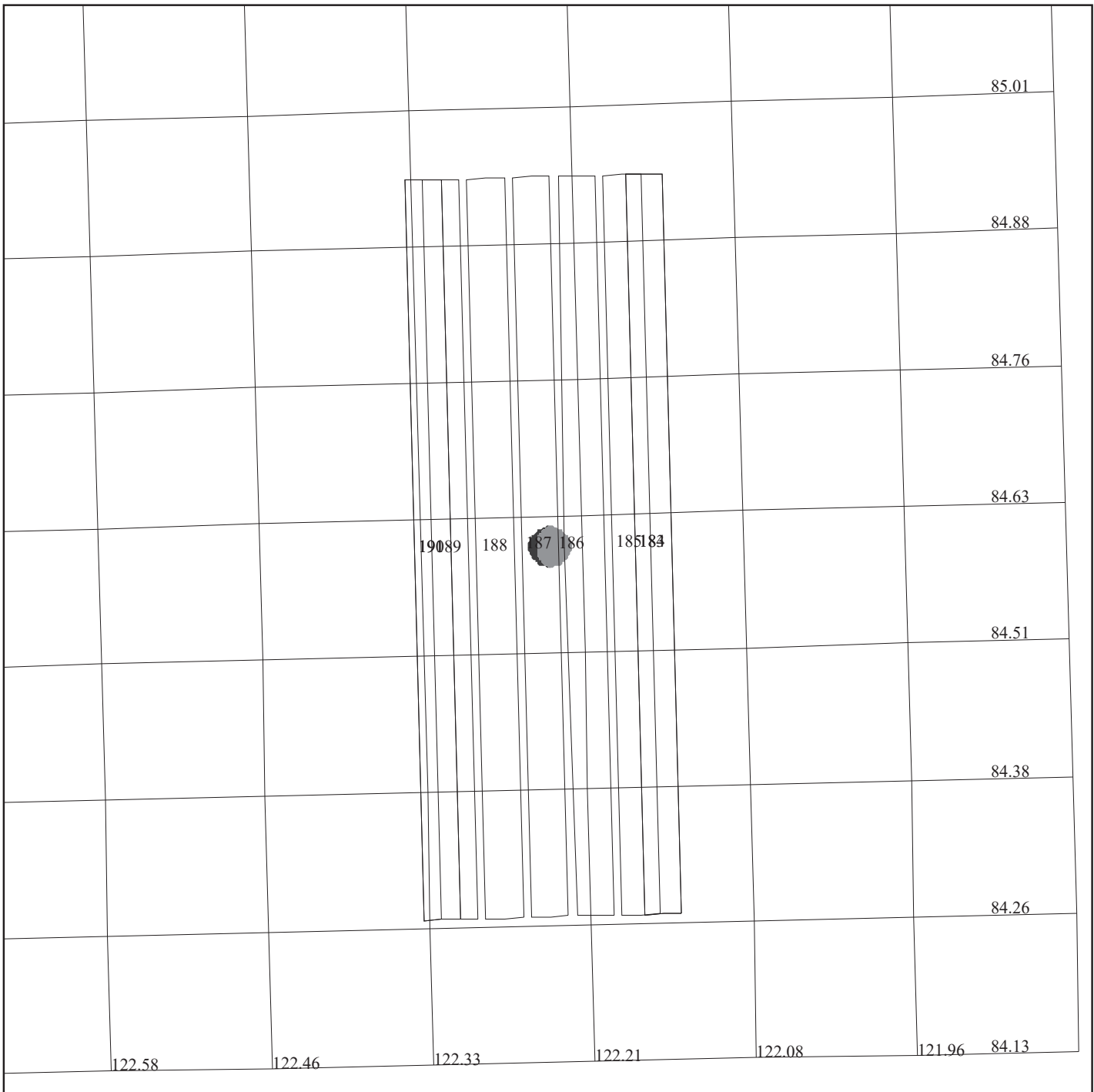
Introduction to Chapter 5

Detailed Observation Designs

Each NIMS Detailed Observation Design consists of an OAPEL form and a Pointer plot. The OAPEL form is a brief description of the design of the observation. The Pointer plot is a plot of the target body with the NIMS footprint incorporated in the mosaic design superimposed on the target body. The size and orientation of the target body is plotted as it appears at the time of the first NIMS footprint plotted. For long observations, the target body may rotate or move relative to the spacecraft during the observation. Some observations, such as calibrations, do not have Pointer plots.

Each NIMS observation of an impact consists of 1092 scans across Jupiter. The Pointer plots show only one of these scans.

NIMS POWER ON		ACTIVITY ID: SLNNNIMSON01- START TIME: SLC-CDS 00007110:90:0					
Activity ID Title Requestor Bottom Label	Orbit SL NIMS POWER ON J. HUI NIMS	Target N	Inst N	OAPEL NIMSON	SeqNo 01	Multi -	
			Plot Key	NIMS	Working Group Science Team	SWG NIMS	
Time System	UTC	Load ID	C3	Calendar Date	07/12/94	Week	28
Start	SLC-CDS 00007110:90:0	94-193/06:29:00		SLC-004/23:50:00			
End	SLC-CDS 00007107:03:0	94-193/06:33:00		SLC-004/23:46:00			
Duration	00000003:87:0	000/00:04:00		000/00:04:00			
Inertial NC SP N Earth Ref Y Spin Stat NC Coop Imag N DSP .F. RSTrack							
RECORD: Format	Record Duration			Tic Duration			
Multiple Records	Acq Start/Stop Cycles 0			Start Tics 0 Track			
Instrument Compression:							
DDS 0	SSI 0	PWS 0	EUV 0	EPD 0	NIM% 0	UVS 0	
MAG 0	AACS 0	PWSW 0	HIC 0	PPR 0	NIMS 0	PLS 0	
REALTIME: RTS FORMAT	RTS Rate		Playback		Duration		
DDS	EUV	PLS	EPD	NIMS			
MAG	HIC	PWS	UVS	OPNAV			
Tracks	0.0000	Bits-to-Ground		0	Playback S/S Cycles		0
Observation Objective To power NIMS instrument on.							
Design Detail							
CDS	67	POINTER Design N	Frames	0.00	Exc	Alias	
Use Library Sequence.							
Created on	04/22/94	Version	5			07/11/94	
Last Changed	07/06/94	Changed By	J. HUI			13:16:54	
Galileo Activity Plan Form						rev 6/93	



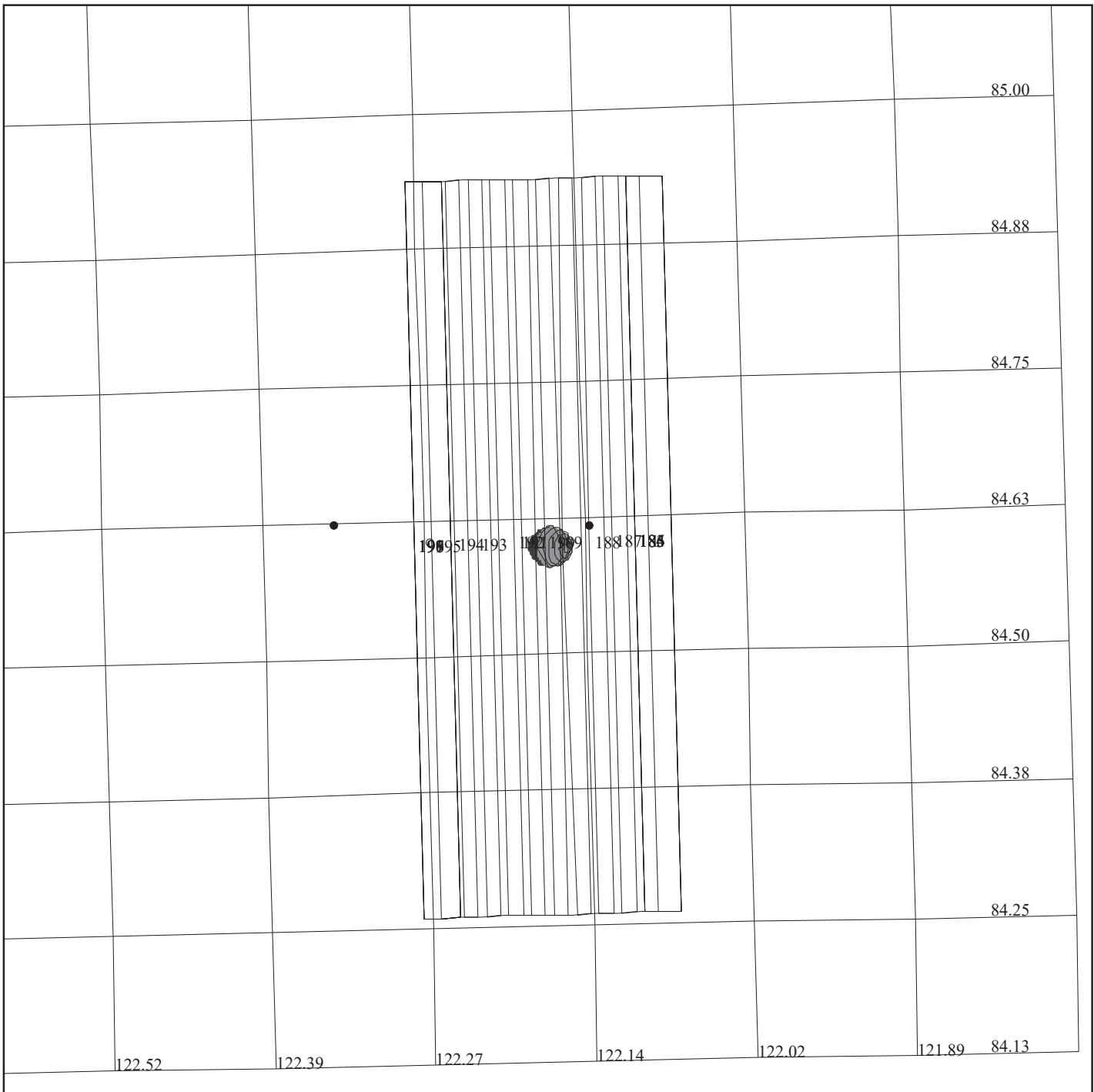
SLJNREFJUP01

POINTER E2.0 bradc: 6/27/1994 13:44:47
 FILE:P.SLJNREFJUP01
 CENTRAL BODY:JUPITER III
 MINI:m.target
 S/C EPH:/DATA/NAVIO/SHOELEVY.NSC
 PERIAPSIS:94-202/12:00:00
 START:94-195/08:08:59.733
 OBSERVATION:SLJNREFJUP01

165JA:TT= 0 TMC= 1 C= -1.40 XC= 0.00 BS= 0/3166 TC= 3
 A= 728 pD= 182 SR=17.450 RA50=176.34 DEC50= 6.74 cone=122.15 clock= 84.60
 117JA:#SB= 1 OR= 0.910 RR= 0.910 BM=F RC= 1 BS= 0/3166
 1:#s= 6 Cs= 3.00 XC= 0.00 Cr= -3.00 XCr= 0.00 sD= 16 rD= 16

Mode:XM, Gr_Strt 2, Gain 2, Chop Ref, Gr_Off 4
 17 Wavelengths
 Every second NIMS Footprint, 8 per slew
 Slew Rate: .92 mrad/sec, 3.0 mrad wide Box Scan
 Only 1/2 cycle of 6 cycles plotted
 THINNING:NIM 2
 BODY PLOT TIME:TARGET-TIME D= 182
 DESCRIP:NIMS REFERENCE SPECTRA OF JUPITER

REFERENCE SPECTRA OF JUPITER BEFORE SL-9		ACTIVITY ID: SLJNREFJUP01+ START TIME: SLC-CDS 00004168:62:0																						
Activity ID Title Requestor Bottom Label	Orbit SL REFERENCE SPECTRA OF JUPITER BEFORE SL-9 J. HUI NIMS	Target J	Inst N	OAPEL REFJUP	SeqNo 01	Multi +																		
		Plot Key	NIMS	Working Group Science Team	SWG NIMS																			
Time System	UTC	Load ID	C3	Calendar Date	07/14/94	Week 28																		
Start	SLC-CDS 00004168:62:0	94-195/08:04:00	SLC-002/22:15:00																					
End	SLC-CDS 00004161:69:0	94-195/08:11:00	SLC-002/22:08:00																					
Duration	00000006:84:0	000/00:07:00	000/00:07:00																					
Inertial YES SP Y Earth Ref Y Spin Stat D Coop Imag N DSP .F. RSTrack																								
RECORD: Format	MPW	Record Duration	1:00:0	Tic Duration																				
Multiple Records		Acq Start/Stop Cycles	1	Start Tics	0	Track																		
Instrument Compression:																								
DDS 0	SSI 0	PWS 0	EUV 0	EPD 0	NIM% 100	UVS 1																		
MAG 0	AACS 0	PWSW 0	HIC 0	PPR 0	NIMS 1	PLS 0																		
REALTIME: RTS	FORMAT	RTS Rate	Playback YES	Duration	/	:																		
DDS	EUV	PLS	EPD	NIMS																				
MAG	HIC	PWS	UVS	OPNAV																				
Tracks	0.0000	Bits-to-Ground	0	Playback S/S Cycles		0																		
<p style="text-align: center;">Observation Objective</p> <p>This observation will give NIMS reference spectra of Jupiter before the first shoemaker-Levy 9 fragment impact.</p>																								
<p style="text-align: center;">Design Detail</p> <table> <tr> <td>CDS</td> <td>191</td> <td>POINTER</td> <td>Design Y</td> <td>Frames</td> <td>0.00</td> <td>Exc</td> <td>Alias</td> </tr> <tr> <td>TARGET</td> <td>72</td> <td>CSMOS</td> <td>24</td> <td>CMDRS</td> <td>52</td> <td>SCIREC</td> <td>18</td> <td>SCITLM</td> <td>25</td> </tr> </table> <p>NIMS will be in Fixed Map mode (XM, 17 wavelengths). Gain=2, Chopper=Reference, Grating start=2, and Grating offset=4. Target to Jupiter and offset in cone 1.5 mrad. Scan back and forth in box mode (no cross-cone slew) for 3 mrad/swath. The cycle time for each swath is 5 1/3 seconds at slew rate of 0.91 mrad/sec The observation will last 1 RIM (recorded), but will playback only one complete cycle of data, i.e. 10 2/3 seconds. UVS will be riding along in this observation.</p> <p>Fixed Map (XM), Gain 2, Grating Start 2, Chopper Ref, MPW</p>							CDS	191	POINTER	Design Y	Frames	0.00	Exc	Alias	TARGET	72	CSMOS	24	CMDRS	52	SCIREC	18	SCITLM	25
CDS	191	POINTER	Design Y	Frames	0.00	Exc	Alias																	
TARGET	72	CSMOS	24	CMDRS	52	SCIREC	18	SCITLM	25															
Created on	03/25/94	Version	23			07/11/94																		
Last Changed	07/06/94	Changed By	J. HUI			13:16:57																		
Galileo Activity Plan Form						rev 6/93																		



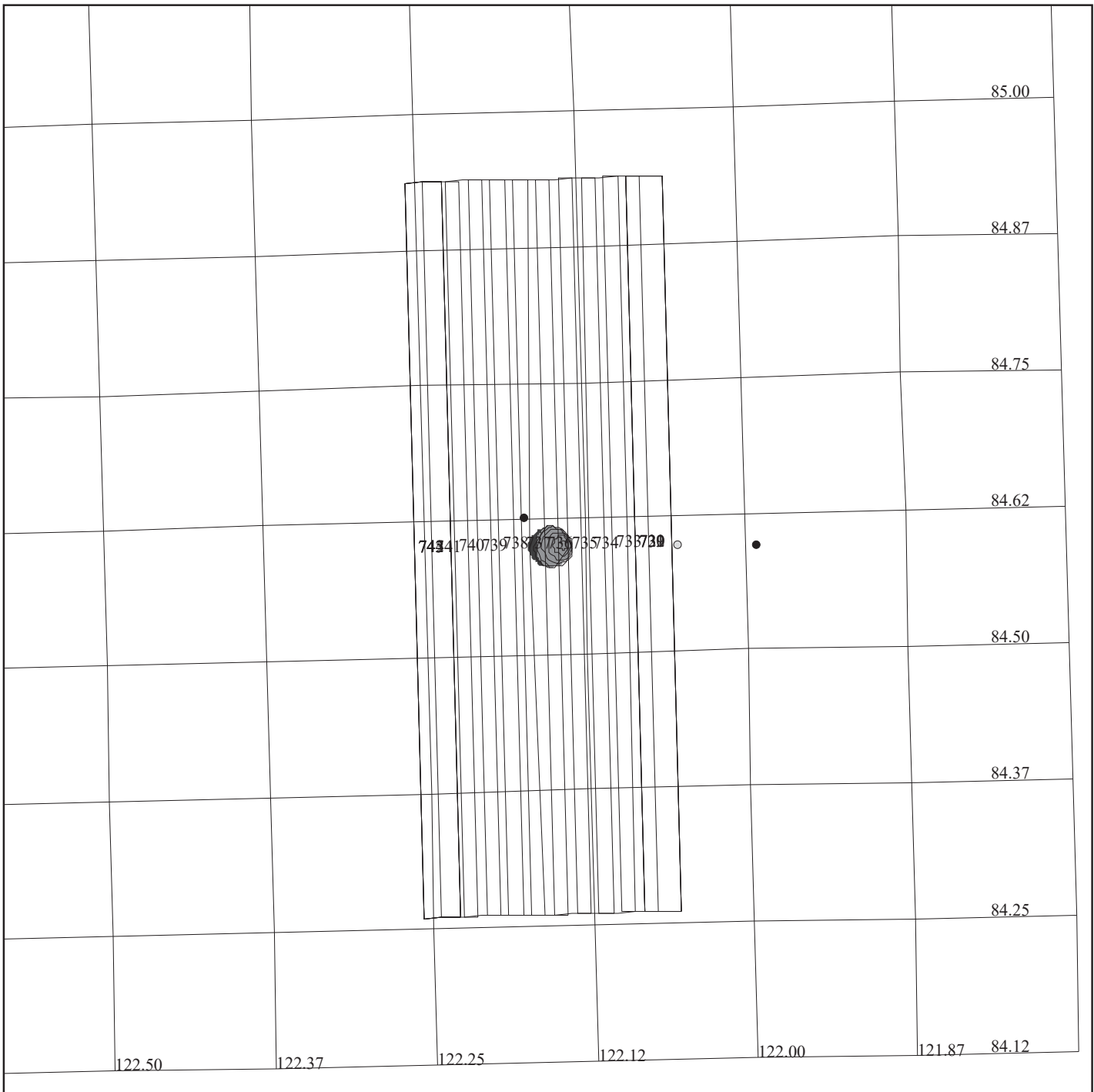
SLJNFRAGMC01

POINTER E2.0 bradc: 6/27/1994 13:44:47
 FILE:P.SLJNFRAGMC01
 CENTRAL BODY:JUPITER
 MINI:m.target
 S/C EPH:/DATA/NAVIO/SHOELEVY.NSC
 PERIAPSIS:94-202/12:00:00
 START:SLC 94-198/06:19:00 -CDS 47:00:0
 OBSERVATION:SLJNFRAGMC01

165JB:TT= 0 TMC= 1 C= -1.40 XC= 0.00 BS= 0/2459 TC= 3
 A= 728 pD= 0 SR=17.450 RA50=176.29 DEC50= 6.77 cone=122.09 clock= 84.60
 117JB:#SB= 3 OR= 0.910 RR= 0.910 BM=F RC= 1 BS= 0/2459
 1:#s=546 Cs= 3.00 XCs= 0.00 Cr= -3.00 XCr= 0.00 sD= 16 rD= 16

Mode:XM, Gr_Strt 2, Gain 2, Chop Ref, Gr_Off 4
 17 Wavelengths
 Every NIMS Footprint, 16 per slew
 Slew Rate: .92 mrad/sec, 3.0 mrad wide Box Scan
 Only 1/2 cycle of 546 cycles plotted
 THINNING:NIM 1
 BODY PLOT TIME:TARGET-TIME D= 0
 DESCRIP:NIMS FRAGMENT C OBSERVATION

NIMS OBSERVATION OF SL-9 FRAGMENT C				ACTIVITY ID: SLJNFRAGMC01+ START TIME: SLC-CDS 00000052:00:0																					
Activity ID	Orbit SL	Target J	Inst N	OAPEL	FRAGMC	SeqNo 01	Multi +																		
Title	NIMS OBSERVATION OF SL-9 FRAGMENT C																								
Requestor	J. HUI		Working Group		SWG																				
Bottom Label	NIMS	Plot Key	NIMS	Science Team	NIMS																				
Time System	EPOCH	Load ID	C3	Calendar Date	07/17/94	Week 28																			
Start	SLC-CDS	00000052:00:0	94-198/05:26:26	SLC-000/00:52:34																					
End	SLC+CDS	00000049:00:0	94-198/07:08:32	SLC+000/00:49:32																					
Duration		00000101:00:0	000/01:42:06	000/01:42:06																					
Inertial YES SP Y Earth Ref Y Spin Stat D Coop Imag N DSP .F. RSTrack																									
RECORD:	Format	MPW	Record Duration	60:00:0	Tic Duration																				
Multiple Records			Acq Start/Stop Cycles	1	Start Tics	0	Track																		
Instrument Compression:																									
DDS 0	SSI 0	PWS 0	EUV 0	EPD 0	NIM% 100	UVS 1																			
MAG 0	AACS 0	PWSW 0	HIC 0	PPR 0	NIMS 1	PLS 0																			
REALTIME:	RTS FORMAT	RTS Rate	Playback YES	Duration																					
	DDS	EUV	PLS	EPD	NIMS																				
	MAG	HIC	PWS	UVS	OPNAV																				
Tracks	0.0000	Bits-to-Ground	0	Playback S/S Cycles	0																				
<p style="text-align: center;">Observation Objective</p> <p>NIMS will observe the Shoemaker-Levy 9 fragment C impact on Jupiter to study the impact flash and subsequent events such as the fireball.</p>																									
<p style="text-align: center;">Design Detail</p> <table border="0"> <tr> <td>CDS</td> <td>189</td> <td>POINTER</td> <td>Design Y</td> <td>Frames</td> <td>0.00</td> <td>Exc</td> <td>Alias</td> </tr> <tr> <td>TARGET</td> <td>72</td> <td>CSMOS</td> <td>50</td> <td>CMDRS</td> <td>24</td> <td>SCIREC</td> <td>18</td> <td>SCITLM</td> <td>25</td> </tr> </table> <p>NIMS will be in Fixed Map mode (XM, 17 wavelengths). Gain=2, Chopper=Reference, Grating start=2, and Grating offset=4. Target to Jupiter and offset 1.5 mrad in cone. Scan back and forth in box mode (no cross-cone slew) for 3 mrad/swath. The cycle time for each swath is 5 1/3 seconds at slew rate of 0.91 mrad/sec The observation will last 96mins, but will record only one hour of data. This observation will be play backed only if there is more downlink bits after the NIMS fragment G and R observations have been play backed. UVS will be riding along in this observation. Fixed Map (XM), Gain 2, Grating Start 2, Chopper Ref, MPW</p>								CDS	189	POINTER	Design Y	Frames	0.00	Exc	Alias	TARGET	72	CSMOS	50	CMDRS	24	SCIREC	18	SCITLM	25
CDS	189	POINTER	Design Y	Frames	0.00	Exc	Alias																		
TARGET	72	CSMOS	50	CMDRS	24	SCIREC	18	SCITLM	25																
Created on	03/25/94	Version	23			07/11/94																			
Last Changed	06/17/94	Changed By	J. HUI			13:17:01																			
Galileo Activity Plan Form							rev 6/93																		



SLJNFRAGMF01

POINTER E2.0 bradc: 6/27/1994 13:44:47

FILE:P.SLJNFRAGMF01

CENTRAL BODY:JUPITER

MINI:m.target

S/C EPH:/DATA/NAVIO/SHOELEVY.NSC

PERIAPSIS:94-202/12:00:00

START:SLF 94-198/23:43:29 -CDS 47:00:0

OBSERVATION:SLJNFRAGMF01

165JC:TT= 0 TMC= 1 C= -1.40 XC= 0.00 BS= 0/0465 TC= 3
 A= 728 pD= 0 SR=17.450 RA50=176.27 DEC50= 6.78 cone=122.07 clock= 84.60
 117JC:#SB= 3 OR= 0.910 RR= 0.910 BM=F RC= 1 BS= 0/0465
 1:#s=546 Cs= 3.00 XCs= 0.00 Cr= -3.00 XCr= 0.00 sD= 16 rD= 16

Mode:XM, Gr_Strt 2, Gain 2, Chop Ref, Gr_Off 4

17 Wavelengths

Every NIMS Footprint, 16 per slew

Slew Rate: .92 mrad/sec, 3.0 mrad wide Box Scan

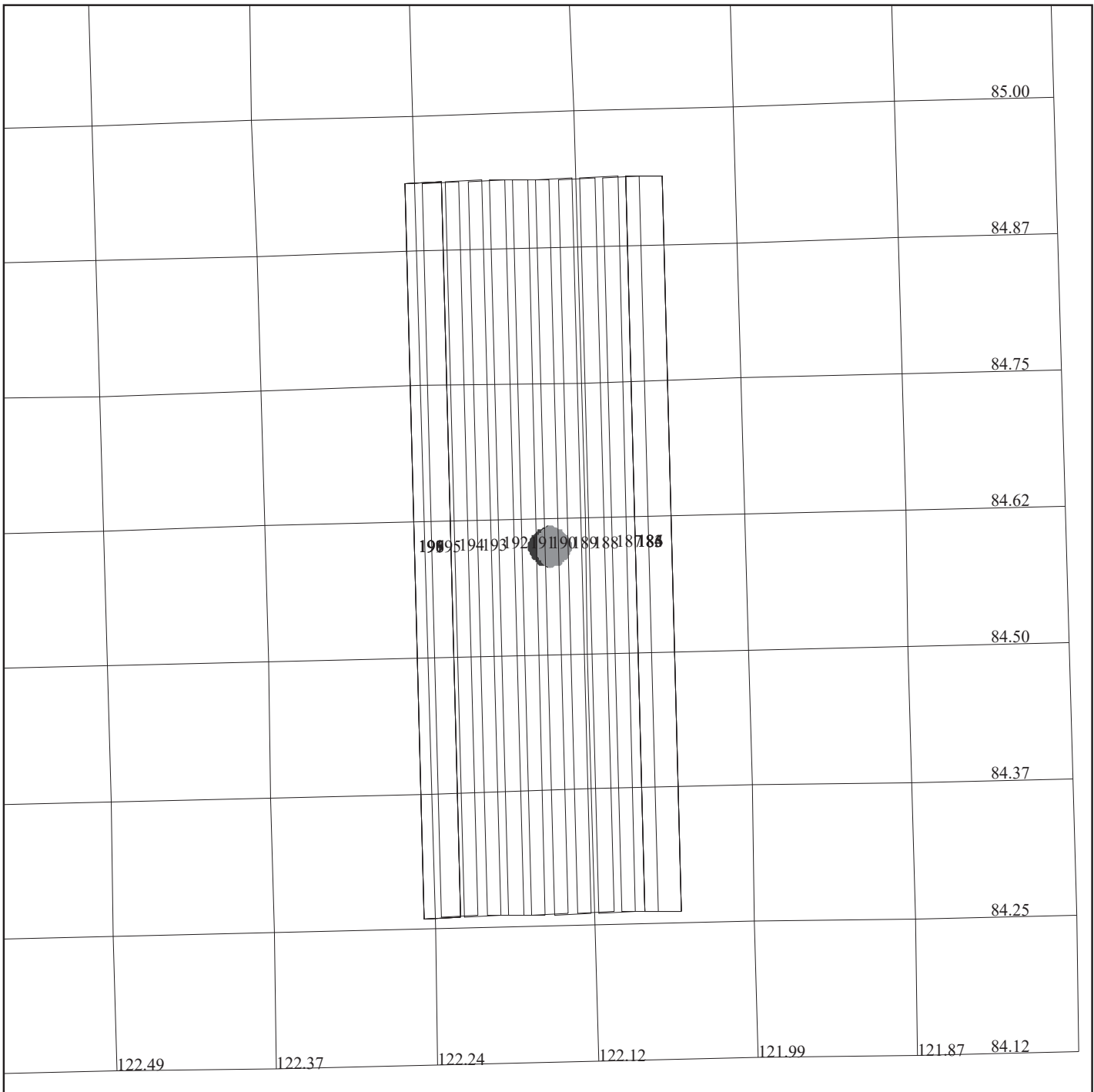
Only 1/2 cycle of 546 cycles plotted

THINNING:NIM 1

BODY PLOT TIME:TARGET-TIME D= 0

DESCRIP:NIMS FRAGMENT F OBSERVATION

NIMS OBSERVATION OF SL-9 FRAGMENT F				ACTIVITY ID: SLJNFRAGMF01+ START TIME: SLF-CDS 00000053:00:0			
Activity ID	Orbit SL	Target J	Inst N	OAPEL FRAGMF	SeqNo 01	Multi +	
Title	NIMS OBSERVATION OF SL-9 FRAGMENT F						
Requestor	J. HUI			Working Group		SWG	
Bottom Label	NIMS	Plot Key		NIMS	Science Team	NIMS	
Time System	EPOCH	Load ID	C3	Calendar Date	07/17/94	Week 28	
Start	SLF-CDS	00000053:00:0		94-198/22:49:54	SLF-000/00:53:35		
End	SLF+CDS	00000049:00:0		94-199/00:33:01	SLF+000/00:49:32		
Duration		00000102:00:0		000/01:43:07	000/01:43:07		
Inertial YES SP Y Earth Ref Y Spin Stat D Coop Imag N DSP .F. RSTrack							
RECORD:	Format	MPW	Record Duration	60:00:0	Tic Duration		
Multiple Records			Acq Start/Stop Cycles	1	Start Tics	0	Track
Instrument Compression:							
DDS 0	SSI 0	PWS 0	EUV 0	EPD 0	NIM% 100	UVS 1	
MAG 0	AACS 0	PWSW 0	HIC 0	PPR 0	NIMS 1	PLS 0	
REALTIME:	RTS FORMAT	RTS Rate		Playback YES	Duration		
	DDS	EUV	PLS	EPD	NIMS		
	MAG	HIC	PWS	UVS	OPNAV		
Tracks	0.0000	Bits-to-Ground		0	Playback S/S Cycles	0	
<p style="text-align: center;">Observation Objective</p> <p>NIMS will observe the Shoemaker-Levy 9 fragment F impact on Jupiter to study the impact flash and subsequent events such as the fireball.</p>							
<p style="text-align: center;">Design Detail</p> <p>CDS 165 POINTER Design Y Frames 0.00 Exc Alias</p> <p>TARGET 72 CS MOS 50 CMDRS 0 SCIREC 18 SCITLM 25</p> <p>NIMS will be in Fixed Map mode (XM, 17 wavelengths). Gain=2, Chopper=Reference, Grating start=2, and Grating offset=4. Target to Jupiter and offset 1.5 mrad in cone. Scan back and forth in box mode (no cross-cone slew) for 3 mrad/swath. The cycle time for each swath is 5 1/3 seconds at slew rate of 0.91 mrad/sec The observation will last 96 mins, but will record only one hour of data. This observation will be play backed only if there is more downlink bits after the NIMS fragment G and R observations have been play backed. UVS will be riding along in this observation. Fixed Map (XM), Gain 2, Grating Start 2, Chopper Ref, MPW</p>							
Created on	03/25/94	Version	25			07/11/94	
Last Changed	06/17/94	Changed By	J. HUI			13:17:04	
Galileo Activity Plan Form						rev 6/93	



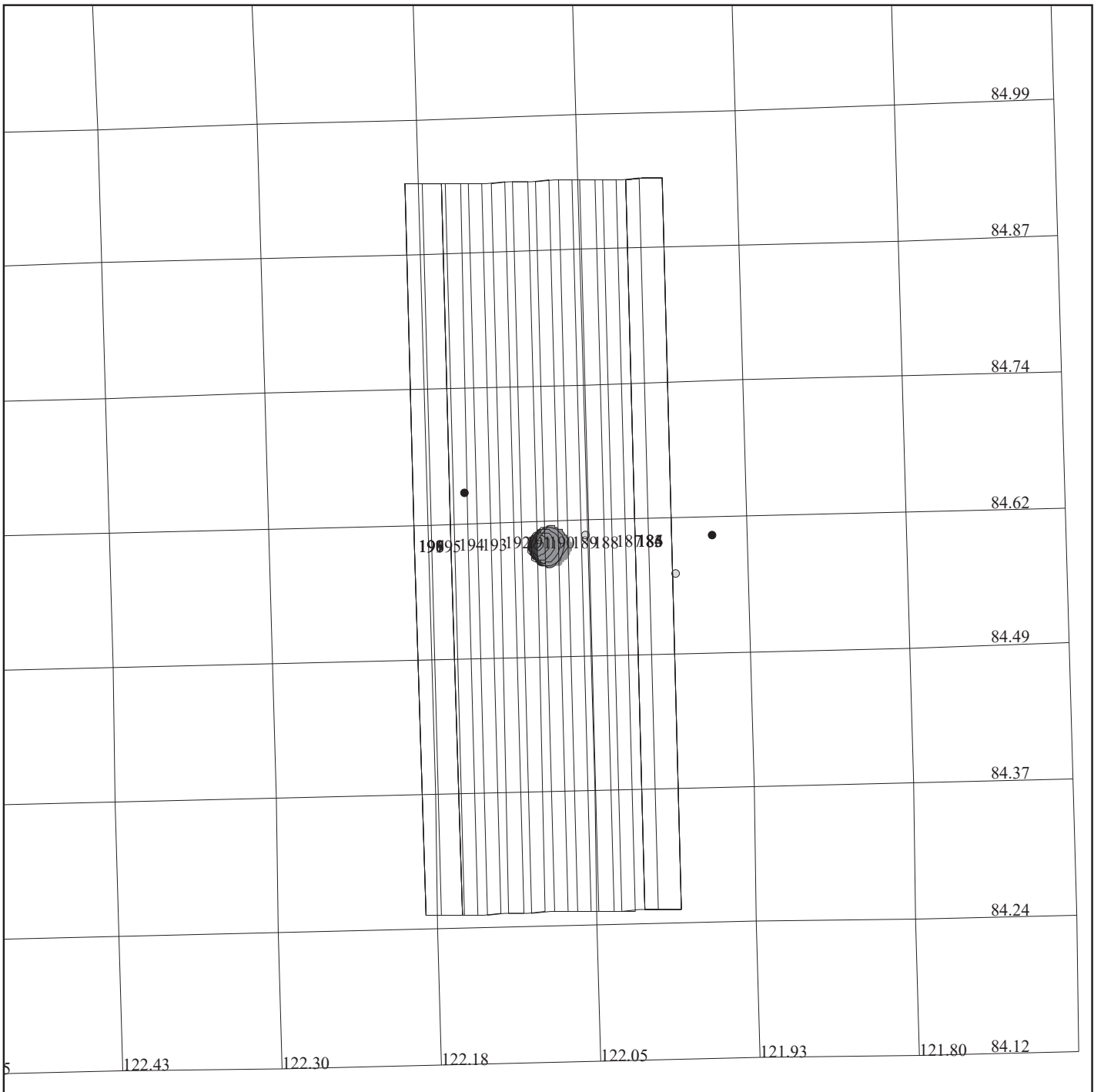
SLJNFRAGMG01

POINTER E2.0 jhui : 7/11/1994 15:41:18
FILE:P.SLJNFRAGMG01
CENTRAL BODY:JUPITER III
MINI:m.SLJNFRAGMG01
S/C EPH:/DATA/NAVIO/SHOELEVY.NSC
PERIAPSIS:94-202/12:00:00
START:SLG 94-199/07:04:20 -CDS 47:00:0
OBSERVATION:SLJNFRAGMG01

165JD:TT= 0 TMC= 1 C= -1.40 XC= 0.00 BS= 0/9816 TC= 3
 A= 728 pD= 0 SR=17.450 RA50=176.26 DEC50= 6.78 cone=122.06 clock= 84.60
 117JD:#SB= 3 OR= 0.910 RR= 0.910 BM=F RC= 1 BS= 0/9816
 1:#s=546 Cs= 3.00 XCs= 0.00 Cr= -3.00 XCr= 0.00 sD= 16 rD= 16

Mode:XM, Gr_Strt 2, Gain 2, Chop Ref, Gr_Off 4
17 Wavelengths
Every NIMS Footprint, 16 per slew
Slew Rate: .92 mrad/sec, 3.0 mrad wide Box Scan
Only 1/2 cycle of 546 cycles plotted
THINNING:NIM 1
BODY PLOT TIME:TARGET-TIME D= 0
DESCRIP:NIMS FRAGMENT G OBSERVATION

NIMS OBSERVATION OF SL-9 FRAGMENT G				ACTIVITY ID: SLJNFRAGMG01+ START TIME: SLG-CDS 00000052:00:0			
Activity ID	Orbit SL	Target J	Inst N	OAPEL	FRAGMG	SeqNo 01	Multi +
Title	NIMS OBSERVATION OF SL-9 FRAGMENT G						
Requestor	J. HUI			Working Group		SWG	
Bottom Label	NIMS	Plot Key		NIMS	Science Team		NIMS
Time System	EPOCH	Load ID	C3	Calendar Date	07/18/94	Week 29	
Start	SLG-CDS	00000052:00:0		94-199/06:11:46	SLG-000/00:52:34		
End	SLG+CDS	00000050:00:0		94-199/07:54:53	SLG+000/00:50:33		
Duration		00000102:00:0		000/01:43:07	000/01:43:07		
Inertial YES SP Y Earth Ref Y Spin Stat D Coop Imag N DSP .F. RSTrack							
RECORD:	Format	MPW	Record Duration	60:00:0	Tic Duration		
Multiple Records			Acq Start/Stop Cycles	1	Start Tics	0	Track
Instrument Compression:							
DDS 0	SSI 0	PWS 0	EUV 0	EPD 0	NIM% 100	UVS 1	
MAG 0	AACS 0	PWSW 0	HIC 0	PPR 0	NIMS 1	PLS 0	
REALTIME:	RTS FORMAT	RTS Rate	Playback YES	Duration			
	DDS	EUV	PLS	EPD	NIMS		
	MAG	HIC	PWS	UVS	OPNAV		
Tracks	0.0000	Bits-to-Ground	0	Playback S/S Cycles	0		
<p style="text-align: center;">Observation Objective</p> <p>NIMS will observe the Shoemaker-Levy 9 fragment G impact on Jupiter to study the impact flash and subsequent events such as the fireball.</p>							
<p style="text-align: center;">Design Detail</p> <p>CDS 189 POINTER Design Y Frames 0.00 Exc Alias</p> <p>TARGET 72 CSMOS 50 CMDRS 24 SCIREC 18 SCITLM 25</p> <p>NIMS will be in Fixed Map mode (XM, 17 wavelengths). Gain=2, Chopper=Reference, Grating start=2, and Grating offset=4. Target to Jupiter and offset 1.5 mrad in cone. Scan back and forth in box mode (no cross-cone slew) for 3 mrad/swath. The cycle time for each swath is 5 1/3 seconds at slew rate of 0.91 mrad/sec The observation will last 96 mins, but will record only one hour of data. This observation will be playback according to an editing scheme, TBD. (Play 10.667 seconds of continuous data during the impact, and 2.5 mins worth of jail bar data.) UVS will be riding along in this observation. Fixed Map (XM), Gain 2, Grating Start 2, Chopper Ref, MPW</p>							
Created on	03/25/94	Version	23	07/11/94			
Last Changed	06/17/94	Changed By	J. HUI	13:17:07			
Galileo Activity Plan Form							rev 6/93



SLJNFRAGMR01

POINTER E2.0 bradc: 6/27/1994 13:44:47
 FILE:P.SLJNFRAGMR01
 CENTRAL BODY:JUPITER
 MINI:m.target
 S/C EPH:/DATA/NAVIO/SHOELEVY.NSC
 PERIAPSIS:94-202/12:00:00
 START:SLR 94-202/05:08:31 -CDS 47:00:0
 OBSERVATION:SLJNFRAGMR01

165JE:TT= 0 TMC=1 C= -1.40 XC= 0.00 BS= 0/6572 TC= 3
 A= 728 pD= 0 SR=17.450 RA50=176.21 DEC50= 6.81 cone=122.00 clock= 84.60
 117JE:#SB= 3 OR= 0.910 RR= 0.910 BM=F RC= 1 BS= 0/6572
 1:#s=456 Cs= 3.00 XCs= 0.00 Cr= -3.00 XCr= 0.00 sD= 16 rD= 16

Mode:XM, Gr_Strt 2, Gain 2, Chop Ref, Gr_Off 4
 17 Wavelengths
 Every NIMS Footprint, 16 per slew
 Slew Rate: .92 mrad/sec, 3.0 mrad wide Box Scan
 Only 1/2 cycle of 546 cycles plotted
 THINNING:NIM 1
 BODY PLOT TIME:TARGET-TIME D= 0
 DESCRIP:NIMS FRAGMENT R OBSERVATION

NIMS OBSERVATION OF SL-9 FRAGMENT R				ACTIVITY ID: SLJNFRAGMR01+ START TIME: SLR-CDS 00000052:00:0																					
Activity ID	Orbit SL	Target J	Inst N	OAPEL	FRAGMR	SeqNo 01	Multi +																		
Title	NIMS OBSERVATION OF SL-9 FRAGMENT R																								
Requestor	J. HUI		Working Group			SWG																			
Bottom Label	NIMS	Plot Key		NIMS	Science Team		NIMS																		
Time System	EPOCH	Load ID	C3	Calendar Date	07/21/94	Week 29																			
Start	SLR-CDS	00000052:00:0	94-202/04:15:57	SLR-000/00:52:34																					
End	SLR+CDS	00000050:00:0	94-202/05:59:04	SLR+000/00:50:33																					
Duration		00000102:00:0	000/01:43:07	000/01:43:07																					
Inertial YES SP Y Earth Ref Y Spin Stat D Coop Imag N DSP .F. RSTrack																									
RECORD:	Format	MPW	Record Duration	60:00:0	Tic Duration																				
Multiple Records			Acq Start/Stop Cycles	1	Start Tics	0	Track																		
Instrument Compression:																									
DDS 0	SSI 0	PWS 0	EUV 0	EPD 0	NIM% 100	UVS 1																			
MAG 0	AACS 0	PWSW 0	HIC 0	PPR 0	NIMS 1	PLS 0																			
REALTIME:	RTS	FORMAT	RTS Rate	Playback	YES	Duration																			
	DDS	EUV	PLS	EPD	NIMS																				
	MAG	HIC	PWS	UVS	OPNAV																				
Tracks	0.0000	Bits-to-Ground	0	Playback	S/S Cycles	0																			
<p style="text-align: center;">Observation Objective</p> <p>NIMS will observe the Shoemaker-Levy 9 fragment R impact on Jupiter to study the impact flash and subsequent events such as the fireball.</p>																									
<p style="text-align: center;">Design Detail</p> <table border="0"> <tr> <td>CDS</td> <td>203</td> <td>POINTER</td> <td>Design Y</td> <td>Frames</td> <td>0.00</td> <td>Exc</td> <td>Alias</td> </tr> <tr> <td>TARGET</td> <td>72</td> <td>CSMOS</td> <td>50</td> <td>CMDRS</td> <td>38</td> <td>SCIREC</td> <td>18</td> <td>SCITLM</td> <td>25</td> </tr> </table> <p>NIMS will be in Fixed Map mode (XM, 17 wavelengths). Gain=2, Chopper=Reference, Grating start=2, and Grating offset=4. Target to Jupiter and offset 1.5 mrad in cone. Scan back and forth in box mode (no cross-cone slew) for 3 mrad/swath. The cycle time for each swath is 5 1/3 seconds at slew rate of 0.91 mrad/sec The observation will last 96 mins, but will record only one hour of data. This observation will be playback according to an editing scheme, TBD. (Play 10.667 seconds of continuous data during the impact, and 2.5 mins worth of jail bar data.) UVS will be riding along in this observation. Fixed Map (XM), Gain 2, Grating Start 2, Chopper Ref, MPW</p>								CDS	203	POINTER	Design Y	Frames	0.00	Exc	Alias	TARGET	72	CSMOS	50	CMDRS	38	SCIREC	18	SCITLM	25
CDS	203	POINTER	Design Y	Frames	0.00	Exc	Alias																		
TARGET	72	CSMOS	50	CMDRS	38	SCIREC	18	SCITLM	25																
Created on	03/25/94	Version	21				07/11/94																		
Last Changed	06/17/94	Changed By	J. HUI				13:17:11																		
Galileo Activity Plan Form							rev 6/93																		

NIMS POWER OFF		ACTIVITY ID: SLNNNIMOFF01- START TIME: SLC+CDS 00007556:04:0								
Activity ID	Orbit SL	Target N	Inst N	OAPEL	NIMOFF	SeqNo	01	Multi	-	
Title	NIMS POWER OFF									
Requestor	J. HUI				Working Group		SWG			
Bottom Label	NIMS	Plot Key		NIMS	Science Team		NIMS			
Time System	UTC	Load ID	C3	Calendar Date	07/22/94	Week 29				
Start	SLC+CDS	00007556:04:0	94-203/13:39:00	SLC+005/07:20:00						
End	SLC+CDS	00007559:01:0	94-203/13:42:00	SLC+005/07:23:00						
Duration		00000002:88:0	000/00:03:00	000/00:03:00						
Inertial NC	SP	N	Earth Ref	Y	Spin Stat	NC	Coop	Imag	N DSP .F. RSTrack	
RECORD:	Format	Record Duration			Tic Duration					
Multiple Records		Acq Start/Stop	Cycles	0	Start Tics	0	Track			
Instrument Compression:										
DDS 0	SSI 0	PWS 0	EUV 0	EPD 0	NIM% 0	UVS 0				
MAG 0	AACS 0	PWSW 0	HIC 0	PPR 0	NIMS 0	PLS 0				
REALTIME:	RTS FORMAT	RTS Rate		Playback		Duration				
	DDS	EUV	PLS	EPD	NIMS					
	MAG	HIC	PWS	UVS	OPNAV					
Tracks	0.0000	Bits-to-Ground		0	Playback S/S Cycles		0			
Observation Objective										
Power NIMS instrument off.										
Design Detail										
CDS	50	POINTER	Design N	Frames	0.00	Exc	Alias			
TARGET	72	CSMOS	50	CMDRS	38	SCIREC	18	SCITLM	25	
Use Library Sequence.										
Created on	04/22/94	Version	7				07/11/94			
Last Changed	07/06/94	Changed By	J. HUI				13:17:14			
Galileo Activity Plan Form								rev 6/93		

Chapter 6 - Data Return

Contents

	Sub-Section	Page
6.0	Contents	1
6.1	Introduction to Chapter 6	2-3
6.2	NIMS Obstab (Data Returned)	4-4
6.3	NIMS SL9 Data Tables	5-8

Introduction to Chapter 6

Data Return

The SL9 data were recorded on tape during the SL9 Impact and partially played back over a number of months. Due to the low data rates, not all of the NIMS SL9 observations were returned. NIMS data return efforts were concentrated on SL9 fragments G and R. First, about 17 mf of data were returned from the Jupiter reference, G and R observations to locate Jupiter within the scans. The start time of the G impact data return was derived from ground-based observations of the G impact. The initial playback strategy was to return every other scan (8 mf) to locate the first indication in the NIMS data of the G impact, then fill in the missing scans to better locate the time of impact. Since it was not known what the NIMS impact data would look like, NIMS continued to return every other scan until the playback allocation for the G impact data return was used up. The data return strategy for the R impact was similar to that used for the G impact, but modified using knowledge gained from the G impact. NIMS returned every other scan of the initial fireball data until the DN values fell to dark values, then jumped 6 RIMs ahead on the tape recorder to the 'splash' data: the ejected material's fallback onto and heating up of Jupiter's atmosphere. NIMS then returned as much data as possible until all NIMS playback resources were used up. Unfortunately, not all of the useful NIMS data for the 'splash' parts of the G and R impacts were returned and some very interesting science opportunities were lost.

The NIMS data are stored in EDRs (Experiment Data Records) produced by JPL-MIPS (Multi-mission Image Processing System). The NIMS EDR is described in the NIMS Experiment Data Record SIS (Software Interface Specification) Number 232-08. This document is part of the Galileo Project document GLL-625-610. The NIMS EDR file name is determined by the start time (SCLK) of the data. It begins with the letter "N", which is followed by the partition number, RIM and MOD91 counts; the file extension is a number which represents the version number of duplicate files. For example, if the clock is in its second cycle and the first record's SCLK is equal to 12345678.90.7, and this is the first such EDR, then the file will be named: "N21234567890.1".

The MIPS-generated EDRs have a Vicar label, followed by a PDS/ISIS label, binary header records and the data records. For archiving on CD-ROM, the Vicar labels are detached (but kept separately on the CD) and the file is renamed so as to conform to the 8.3 DOS file-naming convention as follows: The initial "N" becomes an "E", the partition number is preserved, the RIM count is split between the name and the extension, and a final character (A,B,...) is added to the extension to distinguish any EDRs that start in the same RIM. For example, the MIPS EDR N21234567890.1 becomes E2123456.78A.

Along with this NIMS Guide, other files are distributed on the NIMS EDR CD to help describe the NIMS data. Among these files are the OBSCAT, OBSPLN and RIMCAT. The OBSCAT is very similar to the OBSTAB described below in this chapter and as well as in its PDS label on the

CD. The OBSPLN, the planned OBSTAB, is a table similar to the planned Obstab found in Chapter 4 of this NIMS Guide. It is also described in its PDS label on the CD. The RIMCAT is a table which describes the NIMS EDR data on a RIM by RIM basis. It contains one entry (row) for each RIM of each NIMS EDR. The RIMCAT may be used to track instrument mode and state changes, etc. It too is described in its PDS label on the CD.

The table on the following page, the NIMS Playback Obstab (Observation Table), is a time-ordered listing of the NIMS observation parameters for use by downlink data processing for the data played back from the SL9 Impact. The NIMS Obstab found in Chapter 4 of this NIMS Guide is the Predict Obstab - the Observation Table for the NIMS data that was recorded to the spacecraft's tape recorder.

The table on the following four pages gives a brief summary of the NIMS data returned for the SL9 Impacts G and R. Each row in this table represents a scan across Jupiter with entries for the start and end times for each data segment, duration (mf.rti) and times when Jupiter is seen by NIMS (mf.rti). Jupiter is seen by NIMS at most four times in each scan, generally in mirror positions 9 and 10. Approximate start times for the fireball and splash phases of both the G and R impacts are indicated in this table.

NIMS Obstab (Data Returned)

Heading	Columns	Comments
OAPEL	1 - 12	.Opel Name from SEF
EXT	14 - 14	.Extension (allow for split OAPELs)
PSID	16 - 17	.2 Letter ID for the OAPEL
SCLK1	19 - 29	.Start time of OBS in SCLK
SCLK2	31 - 41	.STOP time of OBS in SCLK
MODE	43 - 44	.NIMS Instrument MODE
GAIN	46 - 47	.Gain State (true value)
CHOP	49 - 50	.Chopper State (1=Ref,2=63Hz,3=FreeRun,4=Off)
GRAT_OFF	52 - 53	.Grating Offset
PTAB_A(6)	55 - 71	.First PTAB (repeat count,mirror op,autobias...
PTAB_B(6)	73 - 89	.Second PTAB (...grating start, grating delta... (...number of grating postions)
ECAL	92 - 92	.Electronics Calibration Active (1=yes)
OPCAL	94 - 94	.Optics Calibration active (1=yes)
UTC1	96 - 112	.Start time of OBS in UTC (from SEF - ISO STANDARD)
REAL_TIME	115 - 115	.NIMS in Real-Time Telemetry (1=yes)
RECORD	117 - 117	.NIMS in Record Telemetry(1=yes)
TARGET	120 - 127	.Primary Target of OBS JUPITER - J - Jupiter

(the single letter abbreviation appears as the third character in the OBSNAME (OAPEL Name)).
INPUT SEF FILE: EJ7HIA.SEF

OAPEL	EXT	PSID	SCLK1	SCLK2	MODE	GAIN	CHOP	GRAT_OFF	PTAB_A(6)	PTAB_B(6)	ECAL	OPCAL	UTC1	REAL_TIME	RECORD	TARGET
SLJNREFJUP01 A JA	02480846:33	02480846:49	7 2 1 4 1 1 0 2 0 12 1 1 0 2 0 12 1 1 0 2 0 12 0 0 12 0 0 1994-195T08:09:03	0 1	JUPITER											
SLJNFRAGMG01 A JD	02486477:17	02486487:74	7 2 1 4 1 1 0 2 0 12 1 1 0 2 0 12 0 0 12 0 0 12 0 0 1994-199T07:02:26	0 1	JUPITER											
SLJNFRAGMR01 A JE	02490632:26	02490635:78	7 2 1 4 1 1 0 2 0 12 1 1 0 2 0 12 0 0 12 0 0 12 0 0 1994-202T05:03:42	0 1	JUPITER											
SLJNFRAGMR01 B JE	02490639:16	02490643:24	7 2 1 4 1 1 0 2 0 12 1 1 0 2 0 12 0 0 12 0 0 12 0 0 1994-202T05:10:40	0 1	JUPITER											

NIMS SL9 G Impact Observations

N	SCLK1 Start	SCLK2 Stop	Dur (mf)	When 1	Jupiter 2	Seen 3	by NIMS 4	Comment
1	2486477.17.9	2486477.33.7	15.9	22.3,	22.8,	23.3		
2				29.3,	29.8,	30.3		
3	2486477.35.7	2486477.41.7	6.1	38.3,	***,	39.3		
4	2486477.55.3	2486477.57.6	2.4	*	*	55.3		
5	2486477.67.7	2486477.73.6	6.0	70.3,	70.8,	***		
6	2486477.83.7	2486477.89.5	5.9	85.8,	86.3,	86.8,	87.3	
7	2486478.09.7	2486478.15.6	6.0	10.8,	11.3,	11.8,	12.3	
8	2486478.25.7	2486478.31.4	5.8	26.8,	27.3,	27.8,	*	
9	2486478.42.0	2486478.47.6	5.7	43.3,	43.8,	44.3		
10	2486478.57.7	2486478.63.5	5.9	59.3,	59.8,	60.3		
11	2486478.73.7	2486478.79.7	6.1	74.8,	75.3,	75.8,	76.3	
12	2486478.90.0	2486479.04.6	5.7	00.3,	00.8,	01.3		---Fireball---
13	2486479.06.0	2486479.11.8	5.9	07.8,	08.3,	08.8		Start
14	2486479.14.6	2486479.20.6	6.1	15.8,	16.3,	16.8		
15	2486479.22.0	2486479.27.9	6.0	23.8,	24.3			
16	2486479.30.9	2486479.36.5	5.7	31.8,	***,	32.3,	32.8	
17	2486479.38.0	2486479.43.9	6.0	39.3,	39.8,	40.3		
18	2486479.47.4	2486479.51.3	4.0	48.3,	48.8,	49.3		
19	2486479.54.0	2486479.59.9	6.0	55.8,	56.3,	56.8		
20	2486479.63.4	2486479.67.3	4.0	63.8,	64.3,	***,	65.3	
21	2486479.70.0	2486479.75.0	5.1	***,	71.8,	72.3		
22	2486479.79.4	2486479.83.3	4.0	*	80.3,	80.8		
23	2486479.86.0	2486480.01.0	6.1	87.3,	87.8,	88.3		
24	2486480.04.4	2486480.08.3	4.0	05.3,	05.8,	***		
25	2486480.11.0	2486480.17.0	6.1	***,	13.3			
26	2486480.20.4	2486480.24.3	4.0	20.8,	21.3,	21.8		
27	2486480.27.0	2486480.32.9	6.0	*	28.8,	29.3		
28	2486480.36.4	2486480.40.2	3.9	36.8,	37.3,	37.8		
29	2486480.43.0	2486480.48.8	5.9	44.8,	45.3,	45.8		
30	2486480.55.1	2486480.56.0	1.0	*	*	*		
31	2486480.59.0	2486480.65.0	6.1	60.3,	60.8,	61.3		
32	2486480.68.3	2486480.72.2	4.0	68.8,	69.3,	69.8		
33	2486480.75.3	2486480.80.9	5.7	76.8,	77.3,	***		
34	2486480.84.3	2486480.88.2	4.0	85.3,	85.8,	86.3		
35	2486481.00.0	2486481.05.9	6.0	01.3,	01.8,	02.3		
36	2486481.09.3	2486481.13.2	4.0	09.8,	10.3,	10.8,	11.3	
37	2486481.16.0	2486481.21.8	5.9	17.8,	18.3			
38	2486481.25.3	2486481.29.2	4.0	***,	26.3,	26.8		
39	2486481.41.3	2486481.45.2	4.0	41.8,	42.3,	42.8		
40	2486481.57.3	2486481.61.2	4.0	***,	58.8			
41	2486481.73.3	2486481.77.2	4.0	73.8,	74.3,	***		
42	2486481.89.3	2486482.02.3	4.1	89.8,	90.3,	***		
43	2486482.14.7	2486482.18.2	3.6	14.8,	15.3,	15.8		
44	2486482.30.3	2486482.32.5	2.3	30.8,	31.3,	31.8		
45	2486482.47.4	2486482.50.2	2.9	*	47.8,	48.3		

NIMS SL9 G Impact Observations

N	SCLK1 Start	SCLK2 Stop	Dur (mf)	When 1	Jupiter 2	Seen 3	by NIMS 4	Comment
46	2486482.62.3	2486482.66.2	4.0	62.8,	63.3,	63.8		
47	2486482.78.3	2486482.82.0	3.8	79.3,	79.8,	80.3		
48	2486483.03.3	2486483.07.1	3.9	04.3,	04.8,	05.3		
49	2486483.19.3	2486483.23.2	4.0	20.3,	20.8,	21.3		
50	2486483.35.3	2486483.39.2	4.0	35.8,	36.3,	36.8,	37.3	
51	2486483.51.3	2486483.55.1	3.9	52.3,	*	53.3		
52	2486483.67.2	2486483.71.1	4.0	*	*	69.3		
53	2486483.83.2	2486483.87.1	4.0	***,	84.8,	85.3		
54	2486484.08.2	2486484.12.1	4.0	08.8,	09.3,	09.8,	10.3	
55	2486484.24.2	2486484.28.1	4.0	24.8,	25.3,	***		
56	2486484.40.2	2486484.44.0	3.9	41.3,	41.8,	42.3		---Splash---
57	2486484.56.9	2486484.60.1	3.3	57.3,	57.8,	***		Start
58	2486484.72.2	2486484.76.1	4.0	73.8,	74.3,	74.8		
59	2486484.88.2	2486485.01.1	4.0	88.8,	89.3,	89.8,	90.3	
60	2486485.13.2	2486485.17.1	4.0	13.8,	14.3,	14.8,	15.3	
61	2486485.29.2	2486485.33.0	3.9	29.8,	30.3,	30.8,	31.3	
62	2486485.45.2	2486485.49.1	4.0	45.8,	46.3,	46.8,	47.3	
63	2486485.61.2	2486485.65.0	3.9	*	*	*		
64	2486485.77.2	2486485.81.2	4.1	***,	78.3,	78.8,	79.3	
65	2486486.02.2	2486486.06.1	4.0	02.8,	03.3,	03.8		
66	2486486.18.2	2486486.22.1	4.0	***,	19.8,	20.3		
67	2486486.34.2	2486486.38.1	4.0	34.8,	35.3,	35.8,	36.3	
68	2486486.50.2	2486486.54.1	4.0	50.8,	52.3,	***,	52.3	
69	2486486.66.2	2486486.70.0	3.9	67.3,	67.8,	68.3		
70	2486486.82.1	2486486.86.0	4.0	83.3,	83.8,	***		
71	2486487.07.1	2486487.10.0	4.0	07.8,	08.3,	08.8		
72	2486487.23.1	2486487.27.0	4.0	23.8,	24.3,	24.8,	25.3	
73	2486487.39.1	2486487.43.0	4.0	40.3,	40.8,	41.3		
74	2486487.55.1	2486487.59.0	4.0	56.3,	56.8,	57.3		
75	2486487.71.1	2486487.74.9	3.9	72.3,	72.8,	73.3		

**

* data missing
 ** end of data
 *** mirror wait

NIMS SL9 R Impact Observations

N	SCLK1 Start	SCLK2 Stop	Dur (mf)	When 1	Jupiter 2	Seen 3	by NIMS 4	Comment
1	2490632.26.3	2490632.41.9	15.7	30.8	31.3,	31.8,	***	
2				***,	39.3,	39.8		
3	2490632.45.1	2490632.48.6	3.7	46.3	46.8,	47.3,	47.8	
4	2490632.61.8	2490632.65.0	3.1	62.3,	62.8	63.3,	63.8	
5	2490632.77.1	2490632.81.6	4.6	78.3,	78.8,	79.3,	79.8	
6	2490633.02.1	2490633.06.0	4.0	03.3,	03.8,	04.3,		
7	2490633.18.1	2490633.22.6	4.6	***,	19.8,	20.3,	20.8	
8	2490633.34.1	2490633.38.6	4.6	35.3,	35.8,	36.3,	36.8	
9	2490633.50.7	2490633.54.6	4.0	51.3,	***,	52.3,	52.8	
10	2490633.66.7	2490633.68.4	1.8	67.3,	67.8,	68.3,		
11	2490633.82.7	2490633.86.6	4.0	83.3,	83.8,	84.3,	84.8	
12	2490634.07.7	2490634.11.6	4.0	08.3,	08.8,	09.3,		---Fireball---
13	2490634.23.7	2490634.27.6	4.0	24.3,	24.8,	25.3,	25.8	Start
14	2490634.39.7	2490634.43.6	4.0	40.3,	*	41.3,	41.8	
15	2490634.55.7	2490634.59.6	4.0		56.8,	57.3,	57.8	
16	2490634.71.7	2490634.75.6	4.0	72.3,	72.8,	73.3,	73.8	
17	2490634.87.7	2490635.00.6	4.0		88.8,	89.3,	89.8	
18	2490635.12.7	2490635.16.6	4.0	13.3,	13.8	14.3,	14.8	
19	2490635.28.7	2490635.32.6	4.0	29.3,	29.8,	30.3,	30.8	
10	2490635.44.7	2490635.46.3	1.6	***,	45.8,	*	*	
21	2490635.60.7	2490635.64.6	4.0	61.3,	61.8,	62.3,	62.8	
22	2490635.76.7	2490635.78.9	2.3	77.3,	***,	78.3,		

Push Ahead to Splash								

23	2490639.16.7	2490639.18.9	2.3	17.3,	17.8,	18.3		
24	2490639.34.4	2490639.36.6	2.3					
25	2490639.48.7	2490639.51.9	3.3	49.3,	49.8,	50.3		
26	2490639.67.6	2490639.68.6	1.1					
27	2490639.80.7	2490639.84.6	4.0		81.8,	82.3		---Splash---
28	2490640.05.7	2490640.09.5	3.9		06.8,	07.3,	07.8	Start
29	2490640.21.7	2490640.25.6	4.0	22.3,	22.8,	23.3		
30	2490640.37.7	2490640.41.6	4.0	38.3,	***,	39.3		
31	2490640.53.7	2490640.57.6	4.0		54.8,	55.3		
32	2490640.69.7	2490640.73.6	4.0	70.3,	70.8,	***,	71.8	
33	2490640.85.7	2490640.86.2	0.6	*	*	*		
34	2490641.10.7	2490641.14.5	3.9		11.8,	12.3,	***	
35	2490641.26.7	2490641.30.6	4.0	27.3,	27.8,	28.3,	28.8	
36	2490641.42.7	2490641.46.5	3.9	43.3,	43.8,	44.3		
37	2490641.60.4	2490641.62.7	2.4	*	*	*		
38	2490641.74.7	2490641.78.6	4.0	75.3,	75.8,	76.3		
39	2490641.90.7	2490642.01.7	4.0	00.3,	00.8,	01.3		
40	2490641.90.7	2490642.03.6	4.0	00.3,	00.8,	01.3,	01.8	
41	2490642.15.7	2490642.19.5	3.9	16.3,	16.8,	17.3		
42	2490642.31.7	2490642.35.7	3.9	***,	32.8,	33.3		

