

NIMS GUIDE TO THE E26 ORBIT

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VERSION DATE: 001231

E26 Encounter starts 01/01/00,

E26 Playback starts 01/05/00

Foreword to the Revised Edition

This document was originally published by the NIMS team as a preview to data acquisition for one orbit. It has been revised and corrected after data receipt and systematic processing for inclusion on the CD-ROMs containing NIMS Experimental Data Records (EDRs) and Systematic Data Products (Cubes). It is also available on the NIMS website in both PostScript (PS) and Portable Document Format (PDF) form. Some material in the original document has been omitted, and a chapter added describing the data actually returned.

The aim of this guide is to provide detailed information on the various NIMS observations and calibrations. Also included in this document is background information on the orbit. A brief overview of the guide is given below. Please refer to the beginning of each chapter for a detailed list of contents.

Chapter 1 gives a brief introduction to the orbit. Chapter 2 gives an overview and summarizes the NIMS science objectives using tables, spreadsheets and timelines. Chapter 3 contains diagrams of various aspects of spacecraft geometry. Chapter 4 summarizes the NIMS observations in terms of a comprehensive sequence summary and a NIMS Observation Table (Obstab). Chapter 5 is a collection of the Detailed Observation Designs made up of OAPEL forms and POINTER plots. Chapter 6 contains plots of the NIMS wavelength edit tables used. Chapter 7 summarizes the NIMS data return from the orbit.

For more information, please refer to the Galileo Orbit Planning Guide (OPG) and the Galileo Orbit Activity Plan (OAP) for this orbit. Both of these documents are produced by the Galileo Project.

For more information on the NIMS instrument, please refer to the NIMS instrument paper: 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, Vol 60, pp 457-502, 1992.

Acknowledgements

The NIMS observations in this guide were designed by the NIMS Science Coordinators: Kevin Baines, John Hui, Rosaly Lopes-Gautier, Adriana Ocampo and Marcia Segura. Materials were also provided by Elias Barbinis, Paul Herrera, Bob Mehlman, Jim Shirley, Al Stevenson and Bill Smythe. Some figures and plots produced by various members of the Galileo Project were incorporated into this guide. Frank Leader provided some materials and edited the guide under the direction of Bob Mehlman and Bill Smythe.

Foreword

This document serves as a guide to the E26 Orbit for the NIMS Team. The aim of this guide is to provide detailed information on the various NIMS E26 observations and calibrations. Also included in this document is background information on the E26 orbit. This guide was produced before the start of the E26 orbit. After analysis of the NIMS E26 data is complete, it will be revised and corrected. A brief overview of the guide is given below. Please refer to the beginning of each chapter for a detailed list of contents.

Chapter 1 gives a brief introduction to the E26 orbit. Chapter 2 gives an overview of the E26 orbit and summarizes the NIMS science objectives for the E26 orbit using tables, spreadsheets and timelines. Chapter 3 contains diagrams of various aspects of spacecraft geometry for the E26 orbit. Chapter 4 summarizes the NIMS E26 observations in terms of a comprehensive sequence summary and a NIMS Observation Table (Obstab). Chapter 5 is a collection of the Detailed Observation Designs made up of OAPEL forms and POINTER plots. Chapter 6 contains plots of the NIMS wavelength edit tables used during the E26 orbit.

For more information on the E26 orbit, please refer to the Galileo Orbit Planning guide and the Galileo Orbit Activity Plan for the E26 Orbit. Both of these documents are produced by the Galileo Project.

For more information on the NIMS instrument, please refer to the NIMS instrument paper: 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, Vol 60, pp 457-502, 1992.

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Chapter 1 - Introduction

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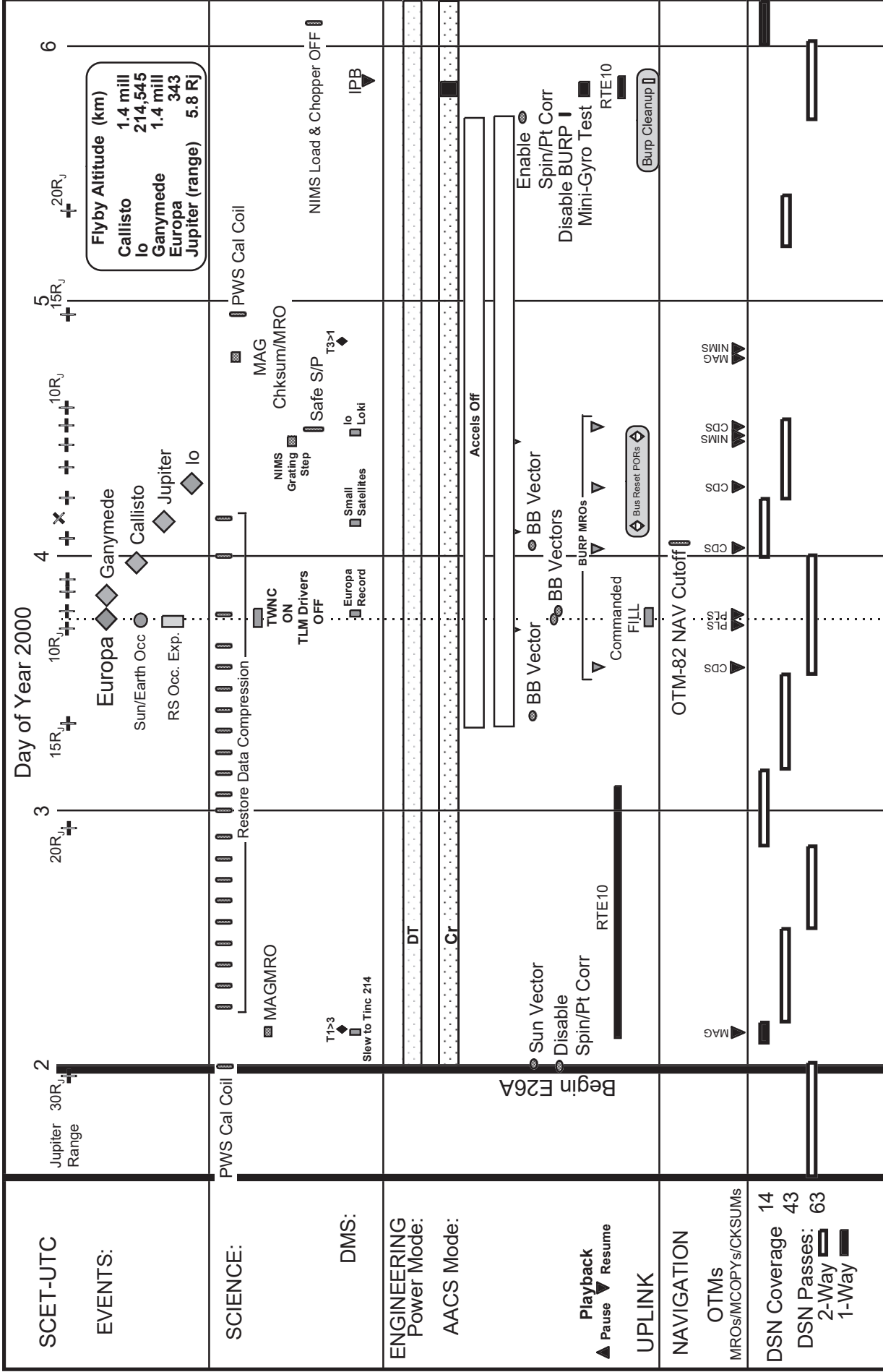
Introduction

This E26 orbit is the twenty-sixth of twenty-nine orbits in Galileo's Tour of the Jovian system and the first orbit in the Galileo Millennium Mission (GMM). E26 is the Europa Flyby of GMM. This orbit has a targetted satellite flyby of Europa and an untargetted flyby of Io.

There are 4 autonomous reloads of the NIMS RAM code from CDS planned during the E26A encounter period, one just before each science observation. These reloads are in response to the on-going flight-anomalies where the NIMS RAM code takes some bit hits and halts the instrument during when the spacecraft is close to Jupiter. NIMS personnel will monitor the NIMS engineering telemetry data on a regular schedule to track the instrument's status.

The E26 orbit consists of a single sequence load E26A. The Encounter and Cruise periods were combined into a single sequence. The E26A load begins on D001 (01/01/00) and ends on D051 (02/20/00). This load contains the flybys of Europa and Io. A high-level overview timeline of the I25 orbit can be found on the following two pages.

E26A Encounter Overview

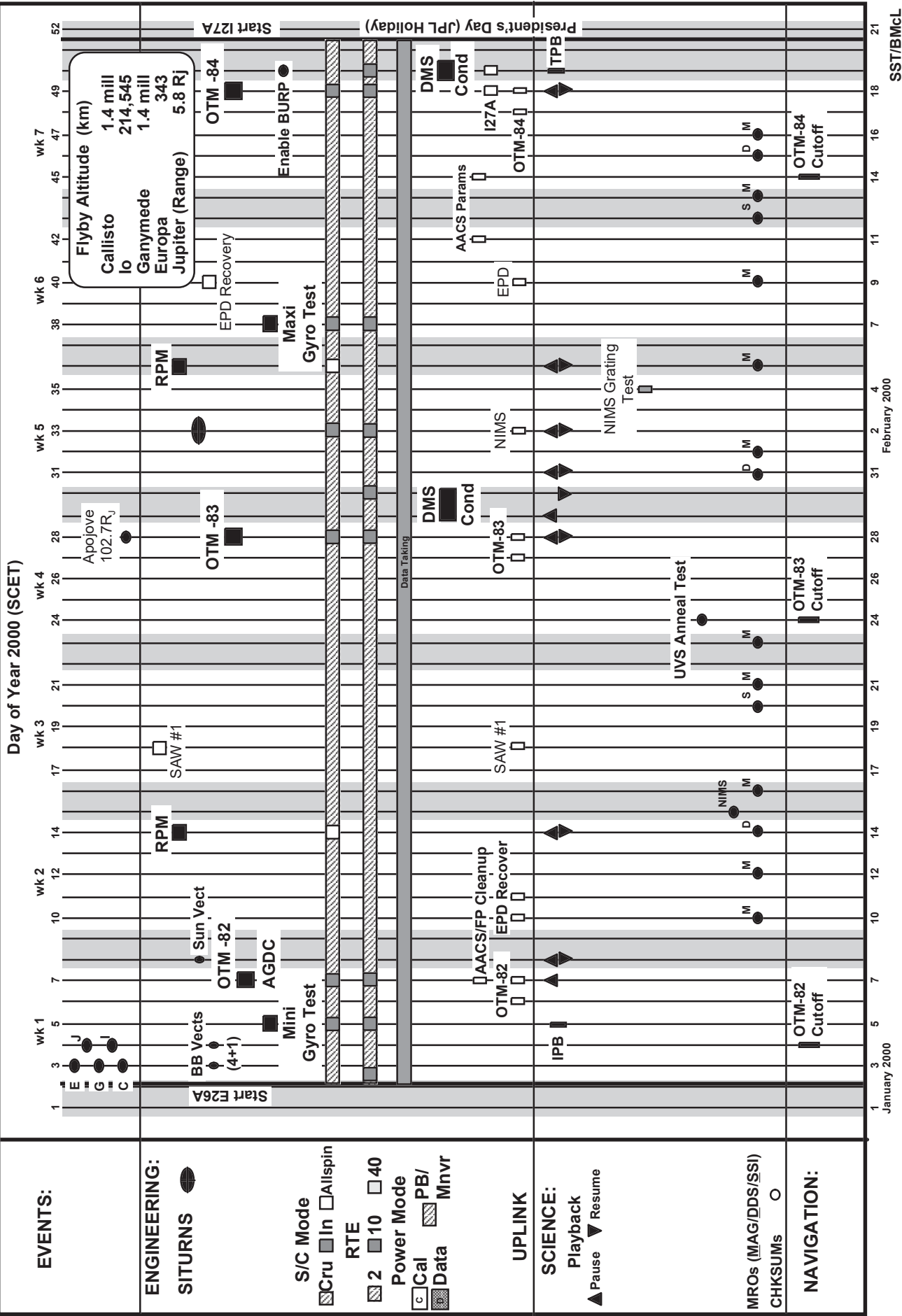


January 1 2 3 4 5 6

Note: Two Bus Reset PORs occurred during the encounter time period, both of which were properly handled by the on-board recovery routine. The times were: 00-004/02:51:51 SCET and 00-004/11:10:40 SCET.

BMCL/SSST
 1/6/00

E-26 Overview



Introduction

The following table lists the major events during E26, including NIMS Real Time observations, in UTC.

01/01/00	00-001/23:30:00	E26 Encounter Start
01/03/00	00-003/18:00:59	E26 Europa Closest Approach
01/04/00	00-004/03:34:02	PJ-26 Jupiter Closest Approach
01/04/00	00-004/06:56:31	Io Closest Approach
01/04/00	00-004/10:44:02	NIMS RAM Reload 01
01/04/00	00-004/10:50:05	NIMS Grating Test 01
01/04/00	00-004/11:15:25	NIMS RAM Reload 02
01/04/00	00-004/11:39:41	NIMS RAM Reload 03
01/04/00	00-004/11:45:41	NIMS Grating Test 02
01/05/00	00-005/20:54:29	Start E26 Playback
01/06/00	00-006/02:30:51	NIMS RAM Reload 04
02/04/00	00-035/11:02:00	NIMS Grating Tickle Test
02/06/00	00-037/11:01:10	NIMS RAM Reload 05
02/19/00	00-050/03:54:19	End E26 Playback

Chapter 2 - Orbit Overview

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Introduction to Chapter 2

This chapter gives an overview of the NIMS observations in the E26 Orbit.

The text on page 3 summarizes the NIMS science objectives for E26. The NIMS calibrations are discussed on page 3. Early data return and E26 playback are also discussed on page 3.

The table on page 4 is a time-ordered listing of the NIMS Oapels for E26.

The plot on page 5 shows the geometry of the NIMS E26 observations using a north trajectory pole view projection. The plot on page 6 shows the geometry of the NIMS E26 calibrations.

The spreadsheet on page 7 summarizes the various inputs for the NIMS E26 Observations. The spreadsheet on pages 8 and 9 summarizes the resource usage for the NIMS E26 observations.

The table on page 10 lists various NIMS E26 observing parameters: target latitude/longitude, range, cone angle, incidence angle (light), emission angle (view) and phase angle.

The timeline on pages 11 through 13 shows the placement of the E26 observations for all instruments during the E26 Encounter Period.

The tapemap on page 14 shows the placement of the E26 observations on the spacecraft's tape recorder.

The timeline on pages 15 through 21 shows the preliminary E26 playback schedule.

The NIMS E26 mosaic designs are summarized on page 22 in time-order.

NIMS E26 SCIENCE OVERVIEW

Io Science

There is only one science observation during E26 - a distant observation of Io similar to the distant observations of Io executed during the main mission. 26INHSLOKI01 is a global observation of Io composed of a single swath across a nearly completely lit disk, centered at 255 degrees West longitude. This is the first NIMS observation to see Loki on Io's dayside. Pele and Pillan are also visible.

Calibration

There are no NIMS calibration observations planned for E26.

Early Data Return

There are no realtime observations in E26.

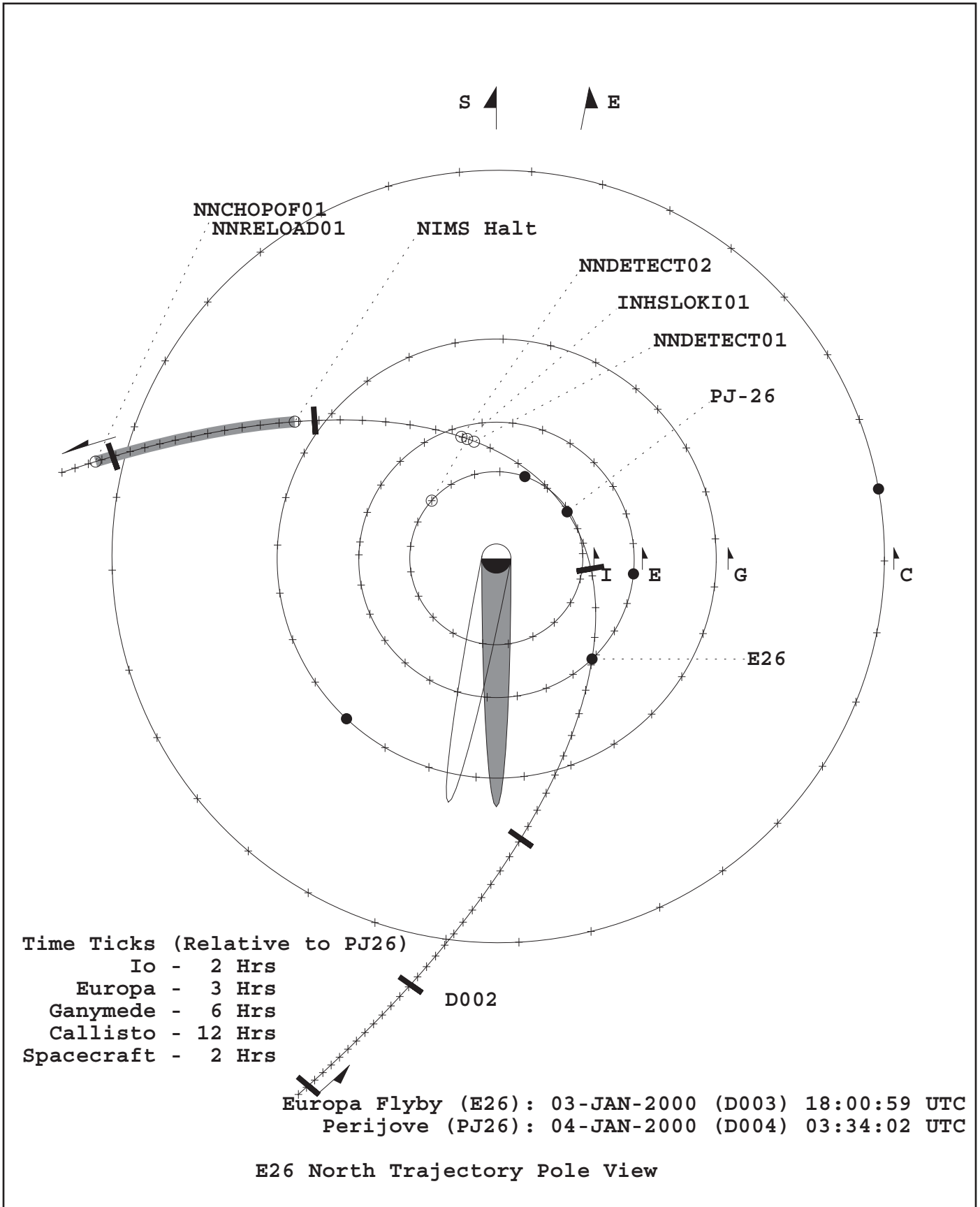
E26 Playback

E26 playback is split into two passes through the tape. A large portion of data recorded during I25 and not recorded over during E26 will be played back during E26 cruise.

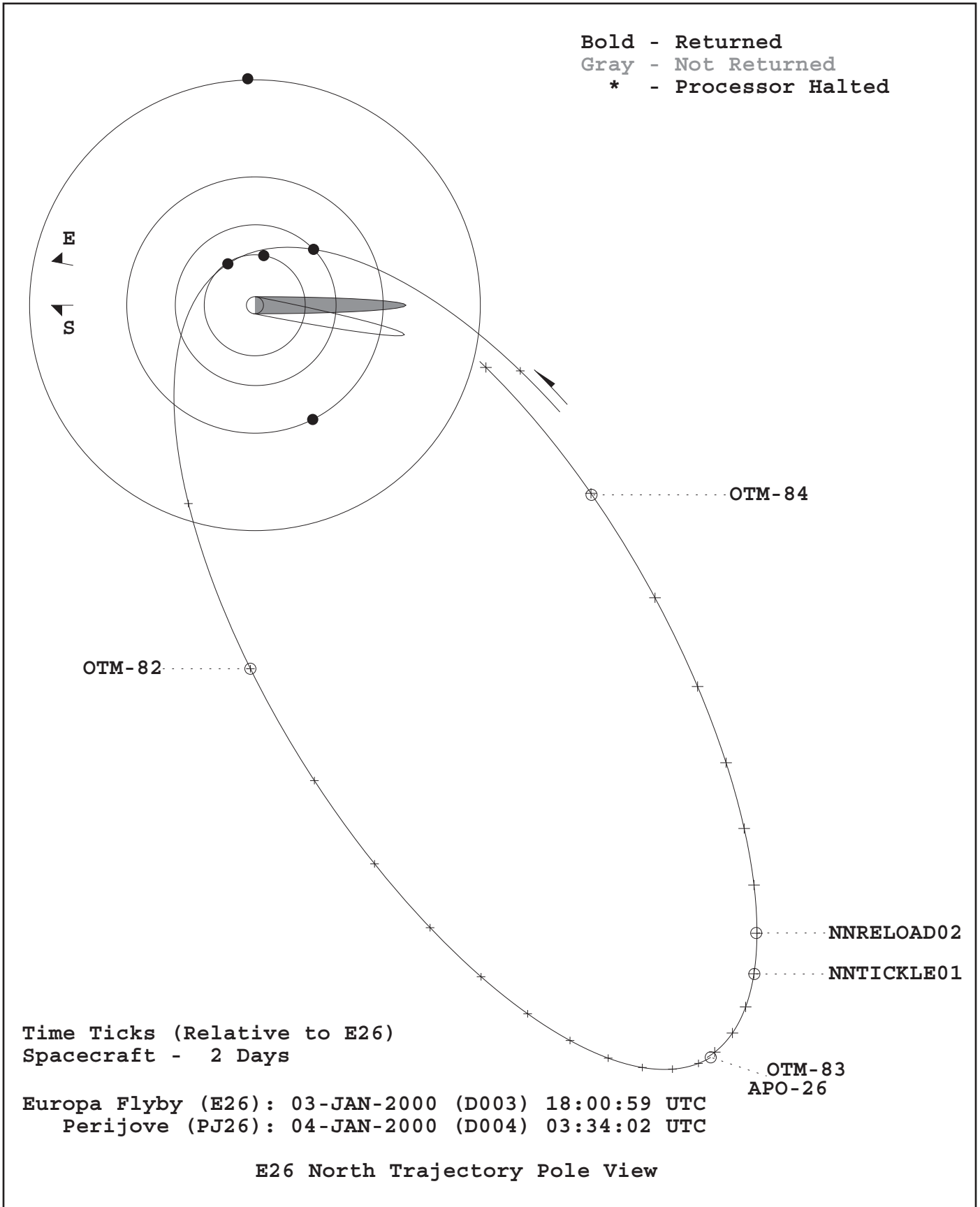
E26 Time-Ordered Listing

OAPEL	Start (UTC)	End (UTC)	Duration
26NNDETECT01-	00-004/10:44:01	00-004/10:49:04	000/00:05:03
26NNDETECT02-	00-004/10:49:04	00-004/11:03:13	000/00:14:09
26INHSLOKI01-	00-004/11:14:21	00-004/11:26:29	000/00:12:08
26NNHSLOKI01-	00-004/11:15:21	00-004/11:18:21	000/00:03:00
26NNDETECT03-	00-004/11:39:37	00-004/11:43:40	000/00:04:02
26NNDETECT04-	00-004/11:44:41	00-004/11:58:50	000/00:14:09
26INRELOAD01-	00-006/02:30:14	00-006/02:34:17	000/00:04:02
26NNCHOPOF01-	00-006/02:37:19	00-006/02:47:25	000/00:10:06
26NNMROGRT01-	00-015/20:59:51	00-016/00:01:51	000/03:02:00
26NNRELOAD02-	00-037/11:01:04	00-037/11:14:04	000/00:13:00

NIMS E26 OBSERVATIONS



NIMS E26 CALIBRATIONS



E26 NIMS INPUTS

Activity ID	Observation Title	NIMS Edit Table	NIMS PB Table	Mode	Gain	Grating Start	Grating Offset	Record Format	PSID
26NNDETECT01-	Grating Step Test P2								
26NNDETECT02-	Grating Step Test Copy								
26INHSLOKI01-	Io Loki Observation	I25IIM442	I25IIM360	LM	2	0	4	MPW	DA
26NNDETECT03-	Grating Step Test P2								
26NNDETECT04-	Grating Step Test Copy								
26INRELOAD01-	NIMS Software Reload								
26NNCHOP0F01-	NIMS Chopper Off								
26NNMROGRT01-	Grating MRO								

12/31/00

E. Barbinis

E26 RESOURCES

Activity ID	Mode	Record Format	Obs. Cost (tracks)	Obs. Cost (ticks)	Number Wavelengths Returned	Obs Duration (Minutes)	Obs Record (sec.)	Obs PB (sec.)	Selected Bits to sBOT (MBITS)	Bits to Tape BOT (Mbit)	Mode Cycle time (sec)
26INHSLOKI01-	LM	MPW	0.0608	354	360	6.67	400.00	408.00	4.70	4.61	8.667
Resource Totals			0.0608	354							

12/31/00

E. Barbinis

E26 RESOURCES

Activity ID	AACS Mbits	Comp	Thold	RT	Total BTG Mbits (w/4% ahead)	Data Reduction Factor (sBOT/BTG)	Pass
	c 2.5						
26INHSLOKI01-	0.02	1.05	0.00		3.3571	1.40	1,3
Resource Totals					3.3571		

12/31/00

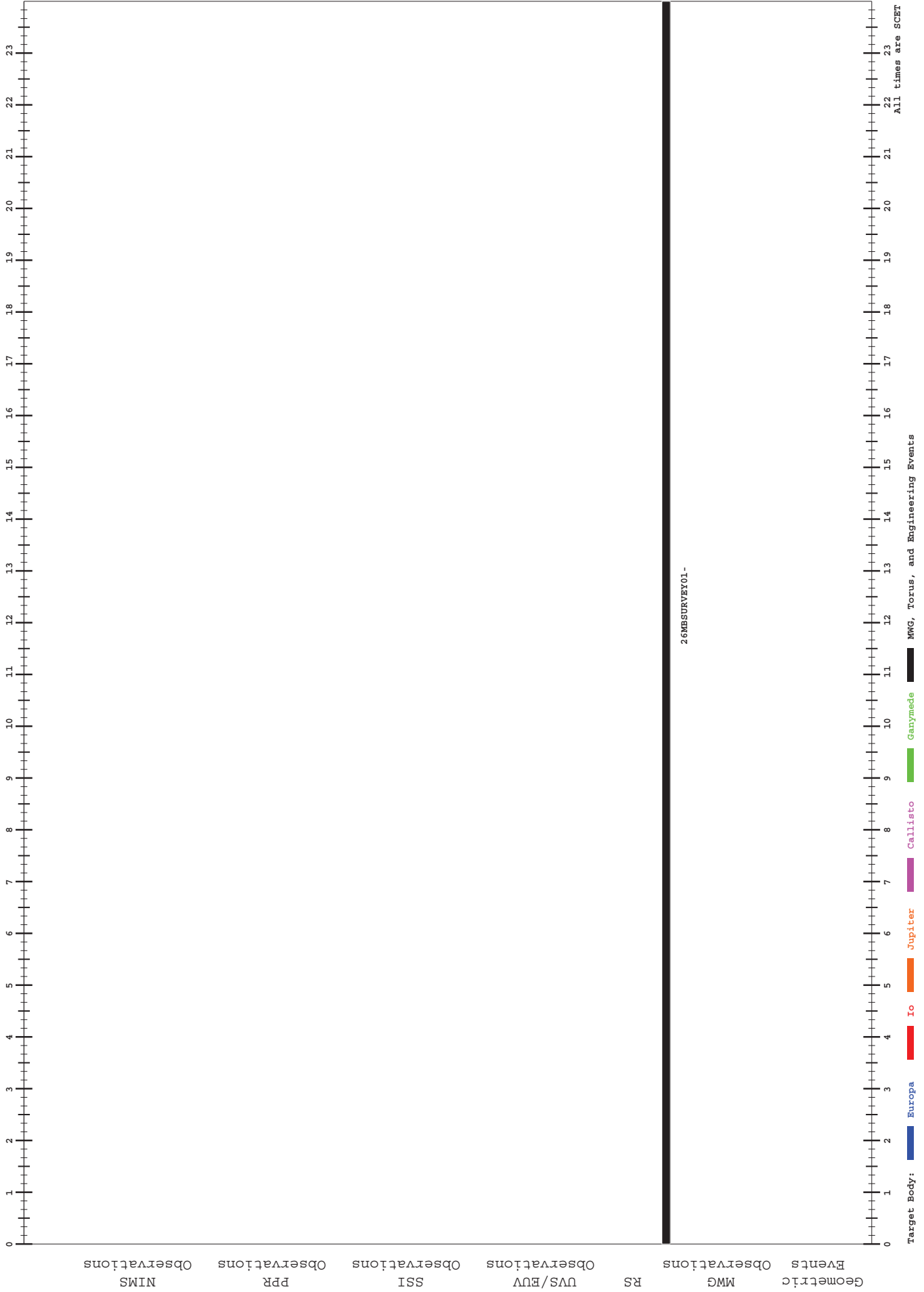
E. Barbinis

NIMS E26 OBSERVING GEOMETRY

OAPEL	Latitude (deg)	Longitude (deg)	Range (km)	Cone (deg)	Light (deg)	View (deg)	Phase (deg)
26INHSLOKI01	-90 to +90	165 to 345	335K	163	3 to 118	1 to 90	27

E26 ENCOUNTER
Plot Time: 00-002/00:00:00.000 to 00-3/00:00:00.000
Date of Plot: 26-May-100 11:40:55

GEM: E26

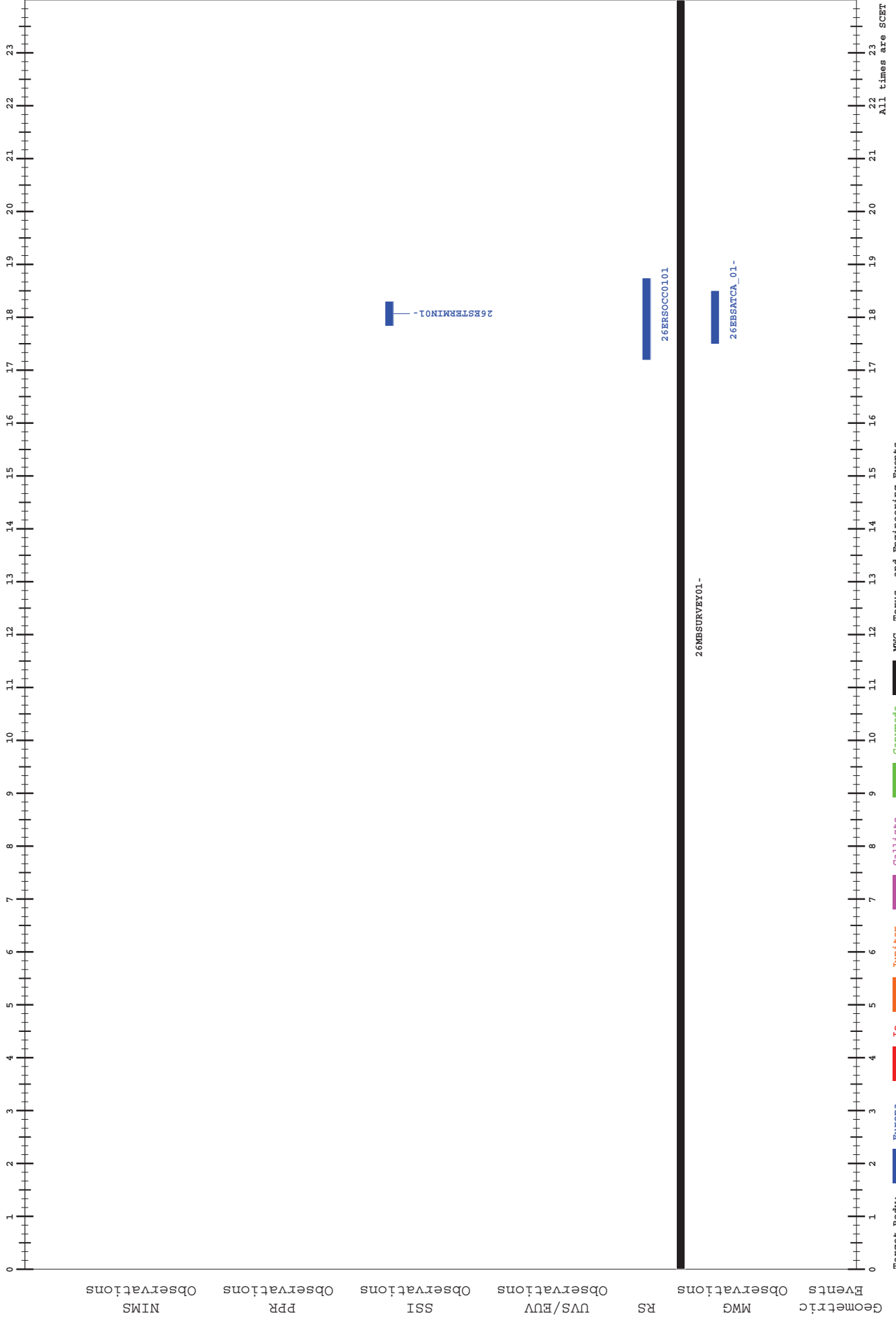


26MBSURVEY01-

All times are SCET

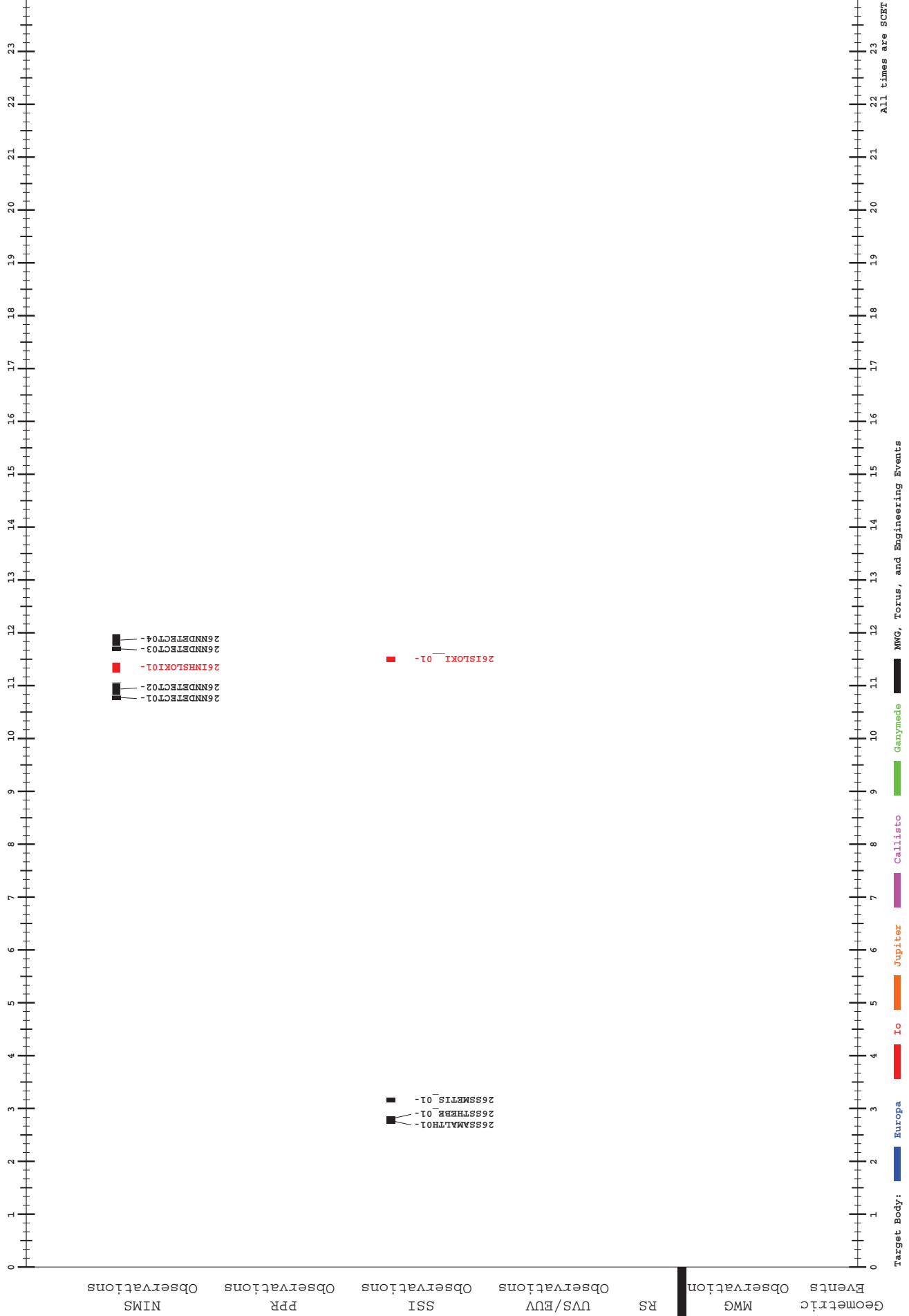
GEM: E26

E26 ENCOUNTER
Plot Time: 00-3/00:00:00.000 to 00-4/00:00:00.000
Date of Plot: 26-May-100 11:40:55

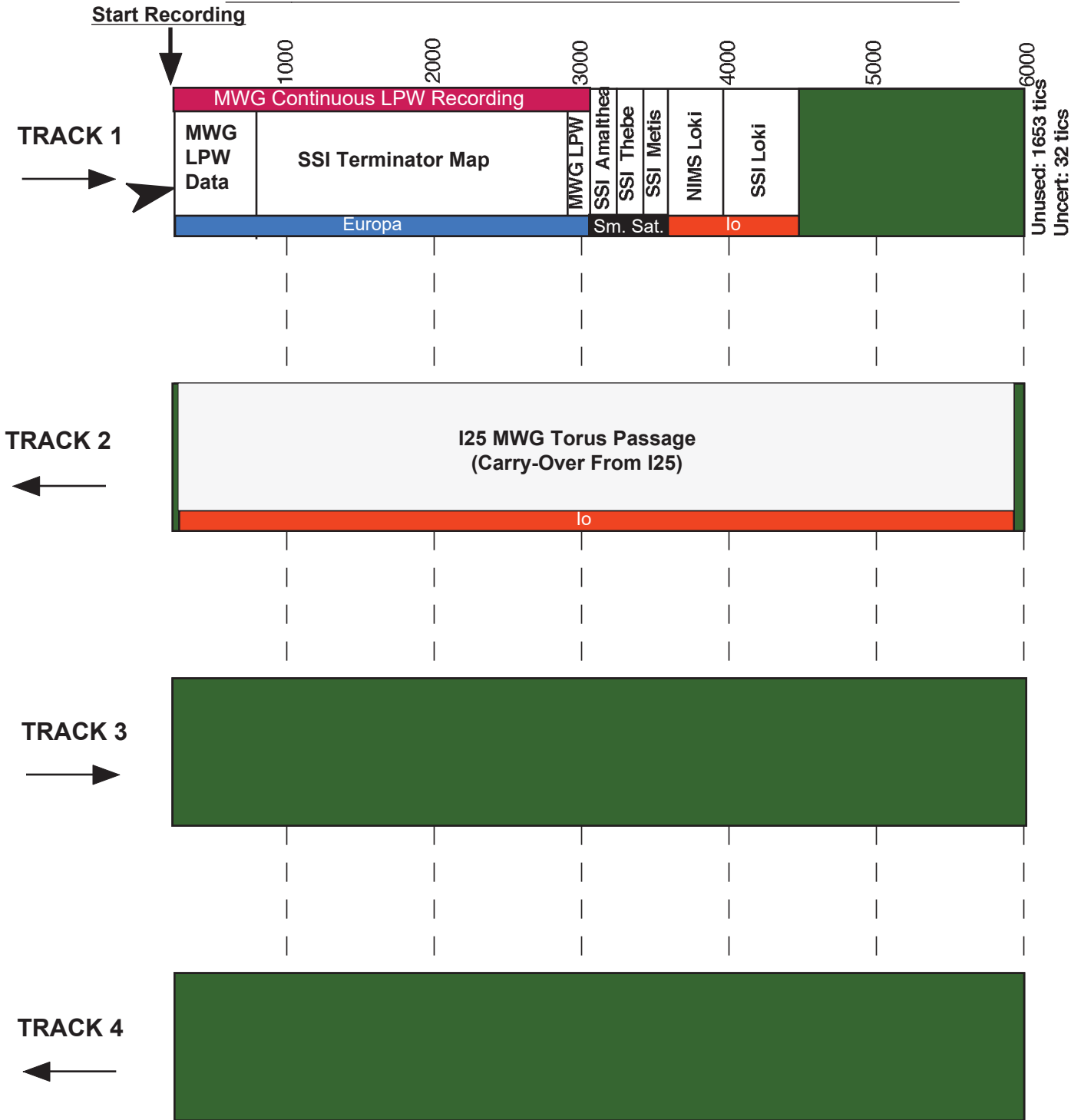


GEM: E26

E26 ENCOUNTER
Plot Time: 00-4/00:00:00.000 to 00-5/00:00:00.000
Date of Plot: 26-May-100 11:40:55



E26 ENCOUNTER HIGH-LEVEL TAPEMAP



J. Gross, 7/26/99

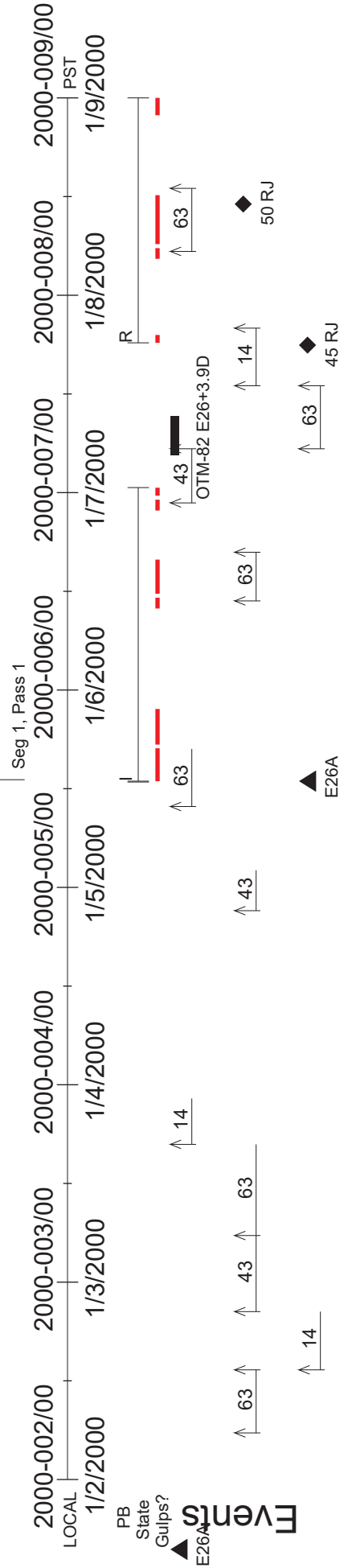
E26PBB

5959/2

25MBITORUS01-

Playback / Date Returned

2-15

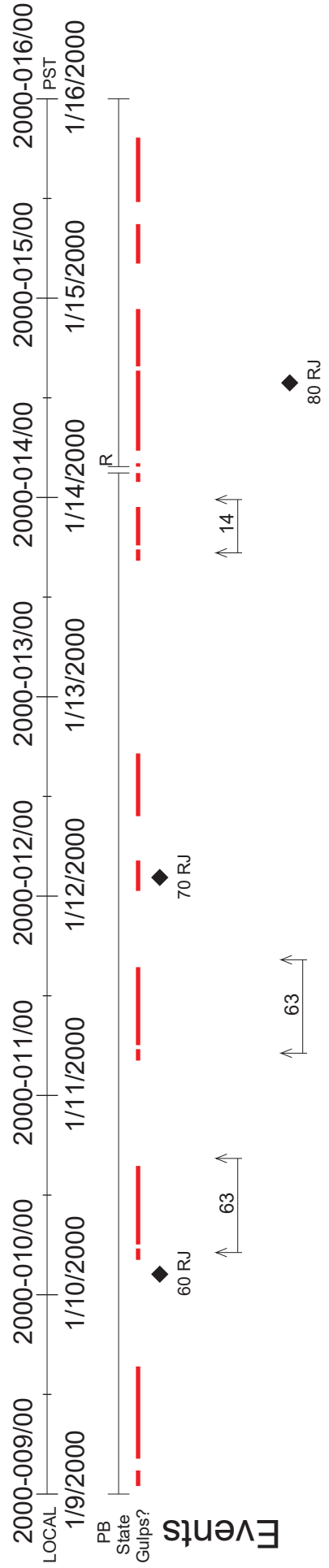


E26PBB

25MBITORUS01-

Playback / Date Returned

2-16



E26PB

3484/2

25MBITORUS01-

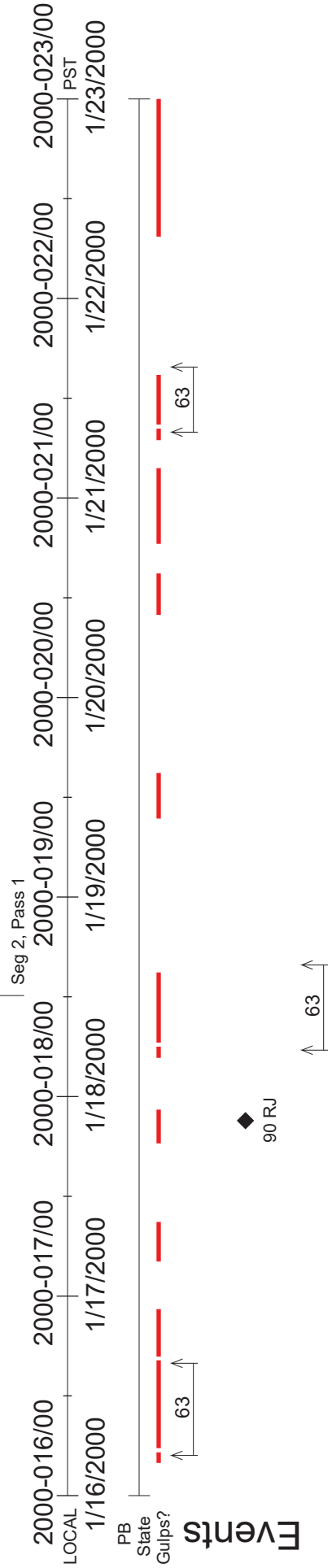
214/3

26EBSATCA_01

675/3

741/3
 26ESTERMIN01
 1135/3
 26EBSATCA_01

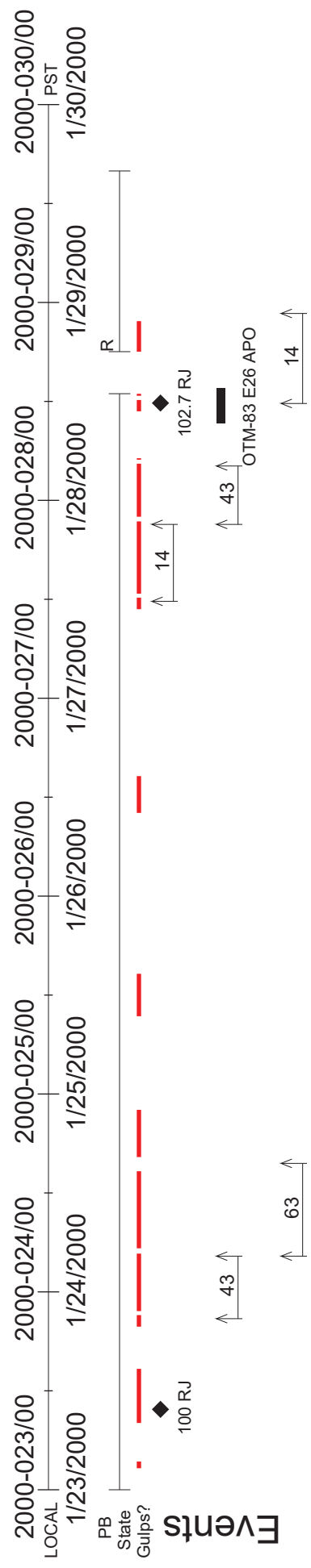
Playback / Date Returned



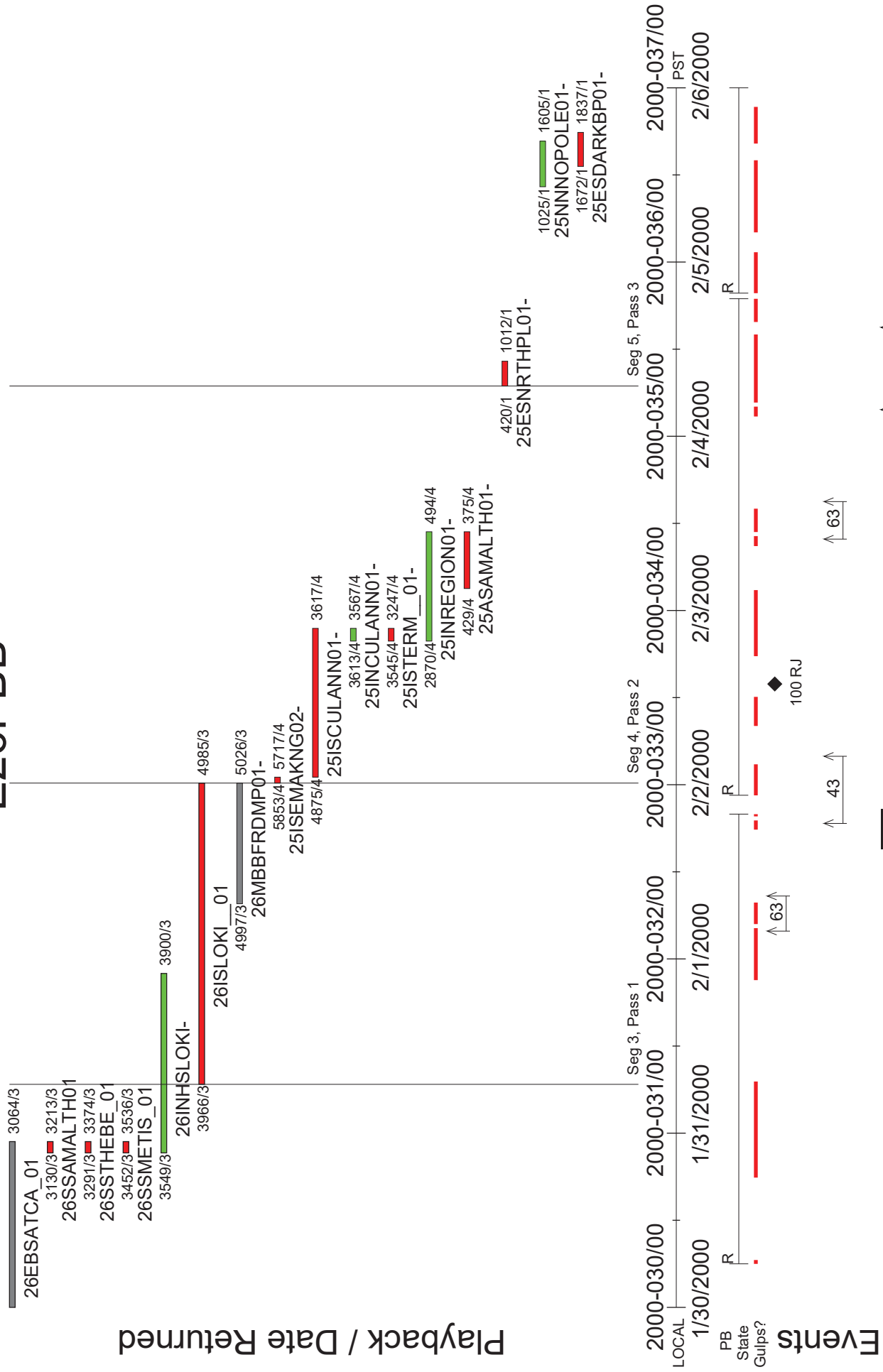
E26PBB



Playback / Date Returned



E26PBB

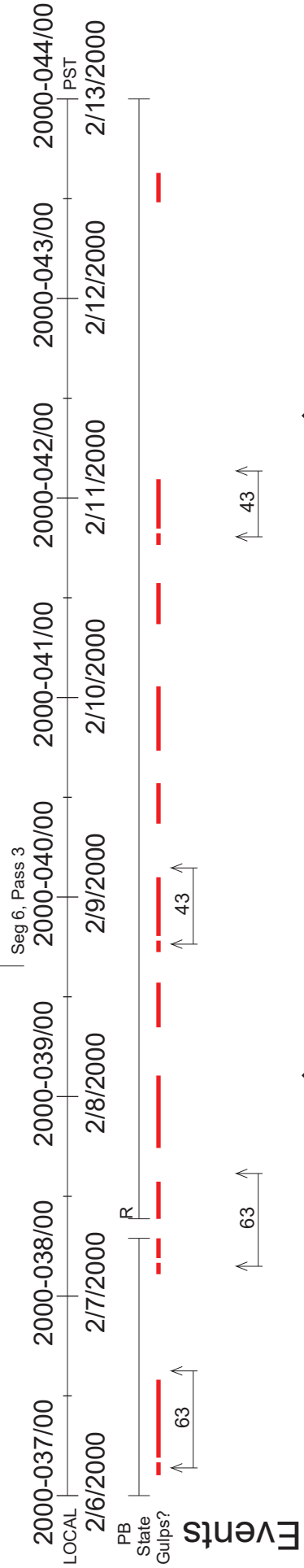


E26PB

1915/1 1982/1
 25ESMOTTER01- 4783/1
 2271/1
 25ESGLOBAL01-
 4819/1 5513/1
 25NNEQUATR01-
 5515/1 5957/1
 25NNGLOBAL01-
 5959/2
 25MBITORUS01-
 214/3

3484/2
 26EBSATCA_01 741/3 675/3
 26ESTERMIN01 2870/3
 3130/3 3213/3
 26SSAMALTH01
 3291/3 3374/3
 26SSTHEBE_01
 3452/3 3536/3
 26SSMETIS_01
 3549/3
 26INHSLOKI-

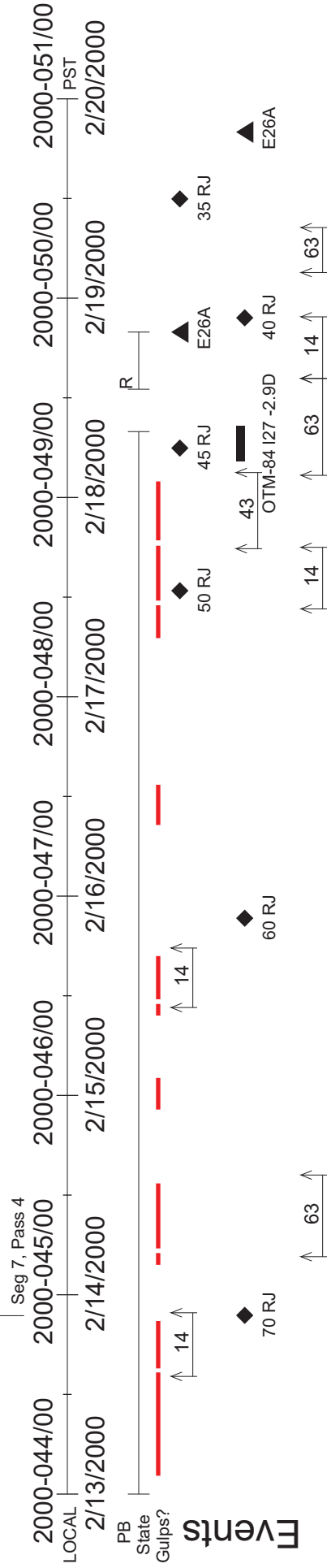
Playback / Date Returned



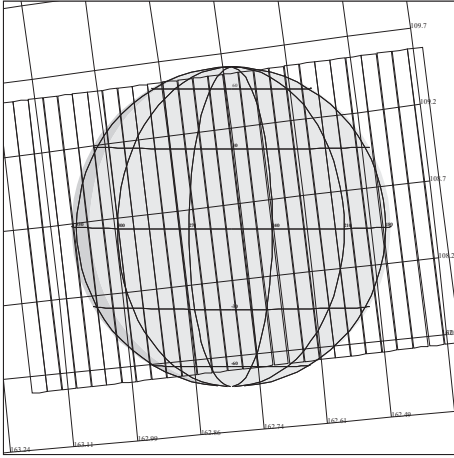
E26PBB

3900/3
 26INHSLOKI-
 3966/3 4985/3
 26ISLOKI_01
 4997/3 5026/3
 26MBBFRDMP01-
 5382/4 5000/4
 25ISGIANTS01-
 4875/4 3617/4
 25ISLULANN01-
 3545/4 3247/4
 25ISTERM__01-

Playback / Date Returned



E26 NIMS A



26INHSLOKI01

00-004/11:14:21

Chapter 3 - Orbit Geometries

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Introduction to Chapter 3

This chapter contains diagrams of various aspects of geometry for the E26 Orbit.

The figure on page 3 is a North Trajectory Pole View of the E26 Orbit from apoapsis to apoapsis.

The figure on page 4 is a North Trajectory Pole View of the E26 Orbit from +/- 5 days of Jupiter closest approach.

The figure on page 5 is a North Trajectory Pole View of the E26 Orbit from +/- 2 days of Jupiter closest approach.

The figure on page 6 is a North Trajectory Pole View of the E26 Orbit from +/- 1 day of Jupiter closest approach.

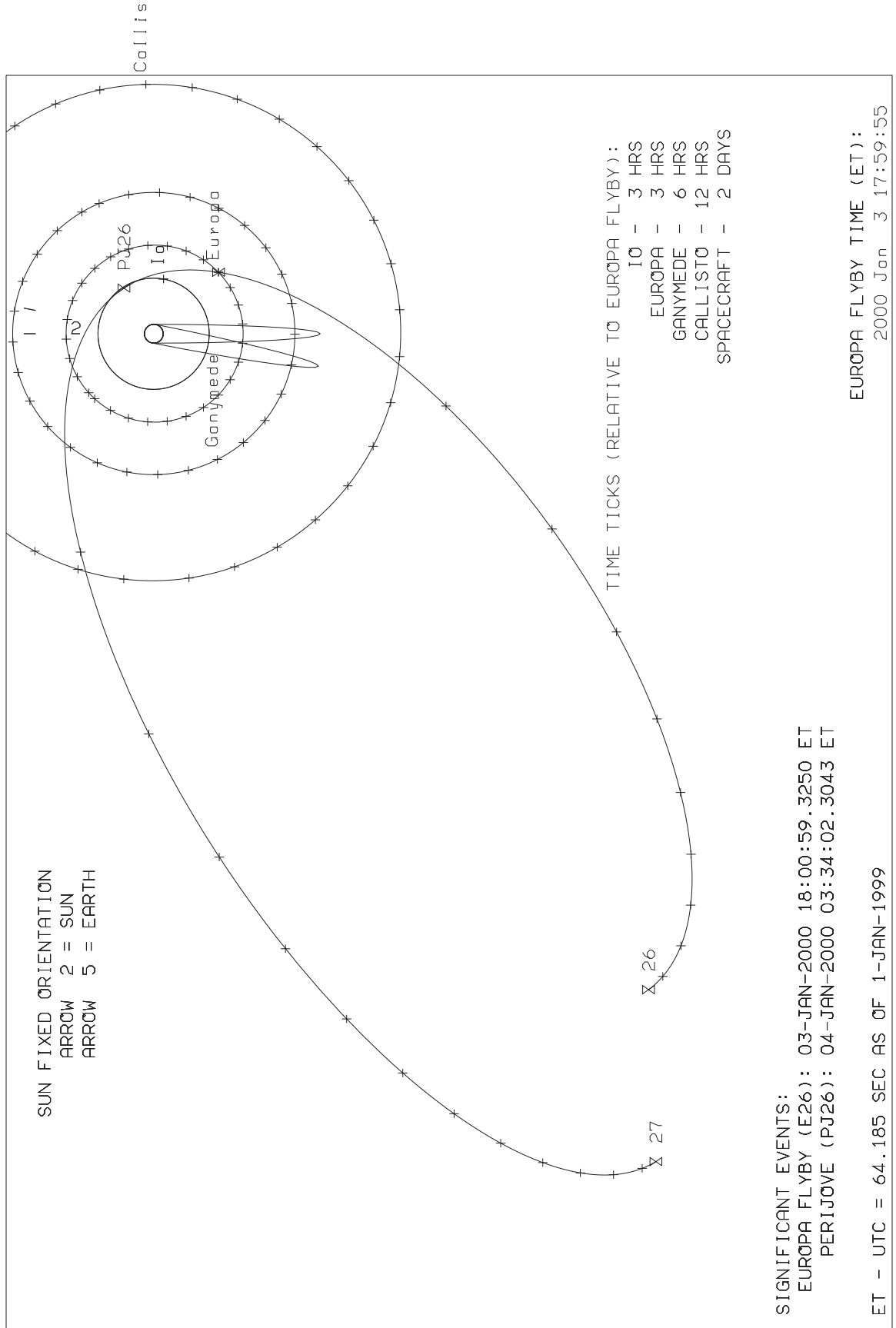
The figure on page 7 shows the spacecraft's groundtrack on Jupiter at Jupiter closest approach.

The figure on page 8 is a North Trajectory Pole View of the E26 Orbit from +/- 6 hours of Europa closest approach.

The figure on page 9 is a North Trajectory Pole View of the E26 Orbit from +/- 1 hour of Europa closest approach.

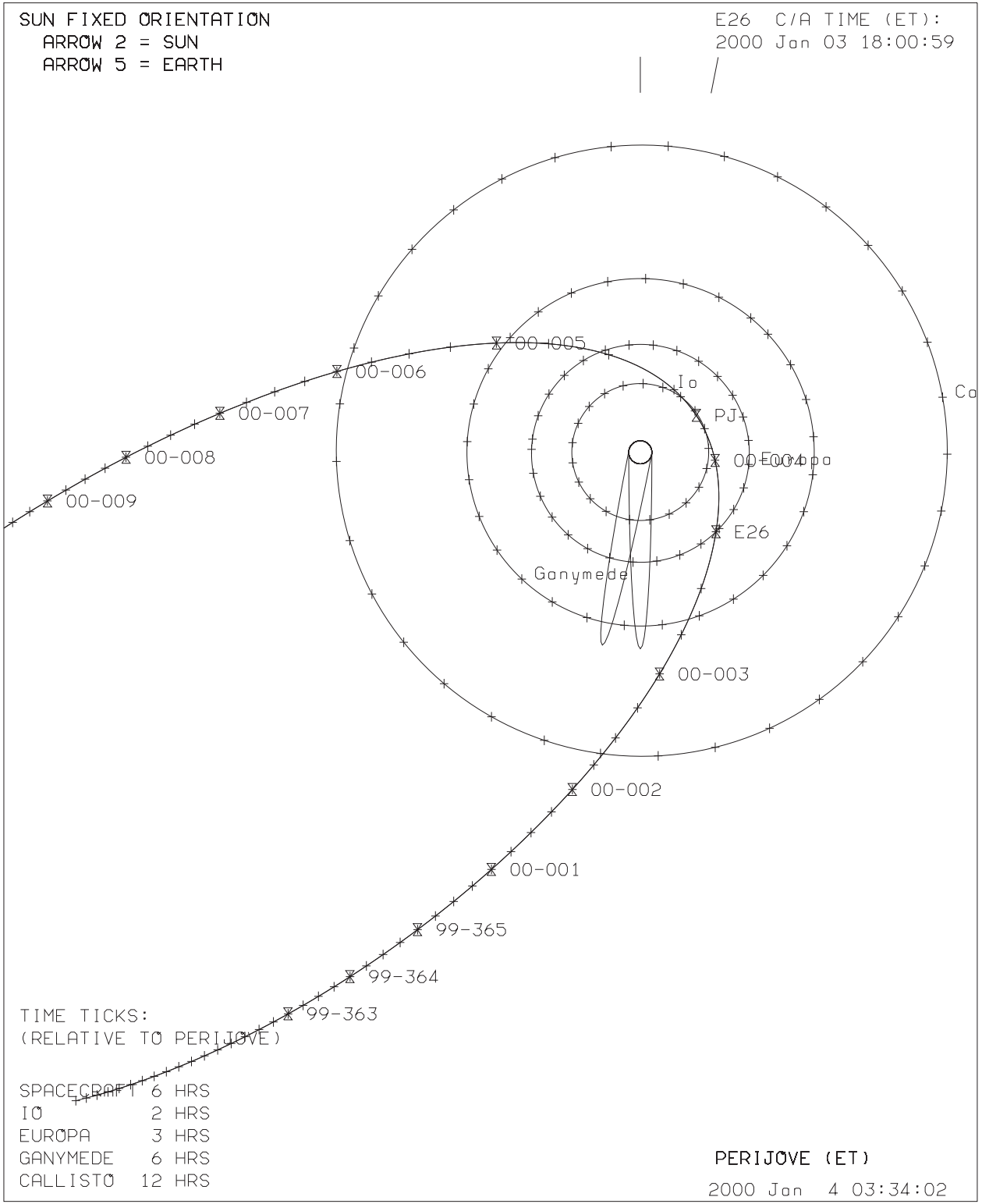
The figure on page 10 shows the spacecraft's groundtrack on Europa at Io closest approach.

Jupiter 26: North Traj Pole View (Europa26 Apo to Apo)



NAV Feb 4, 1999

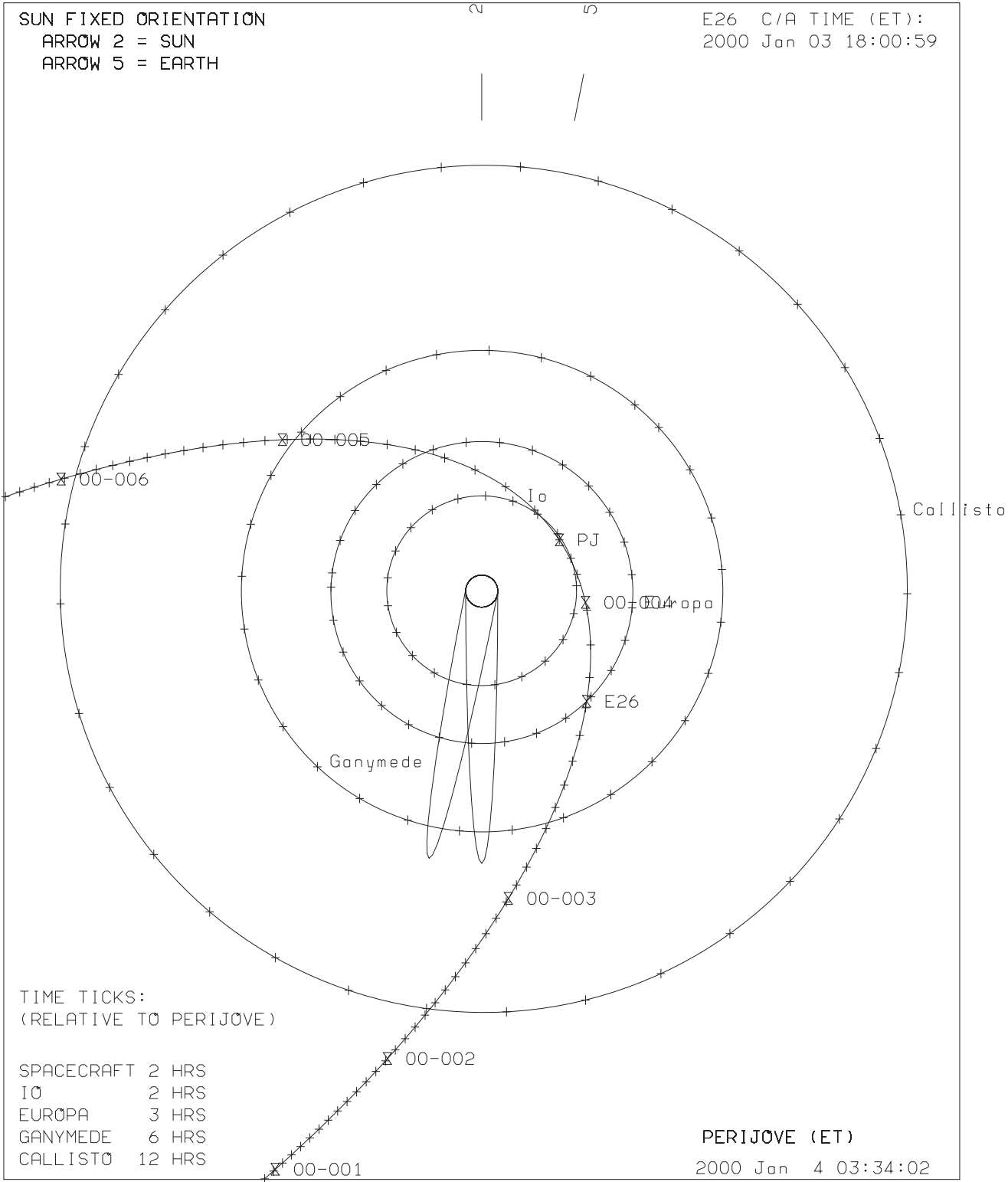
JUPITER 26: N. TRAJ. POLE VIEW (+/- 5 DAYS)



GEM-990114

NAV Feb 4, 1999

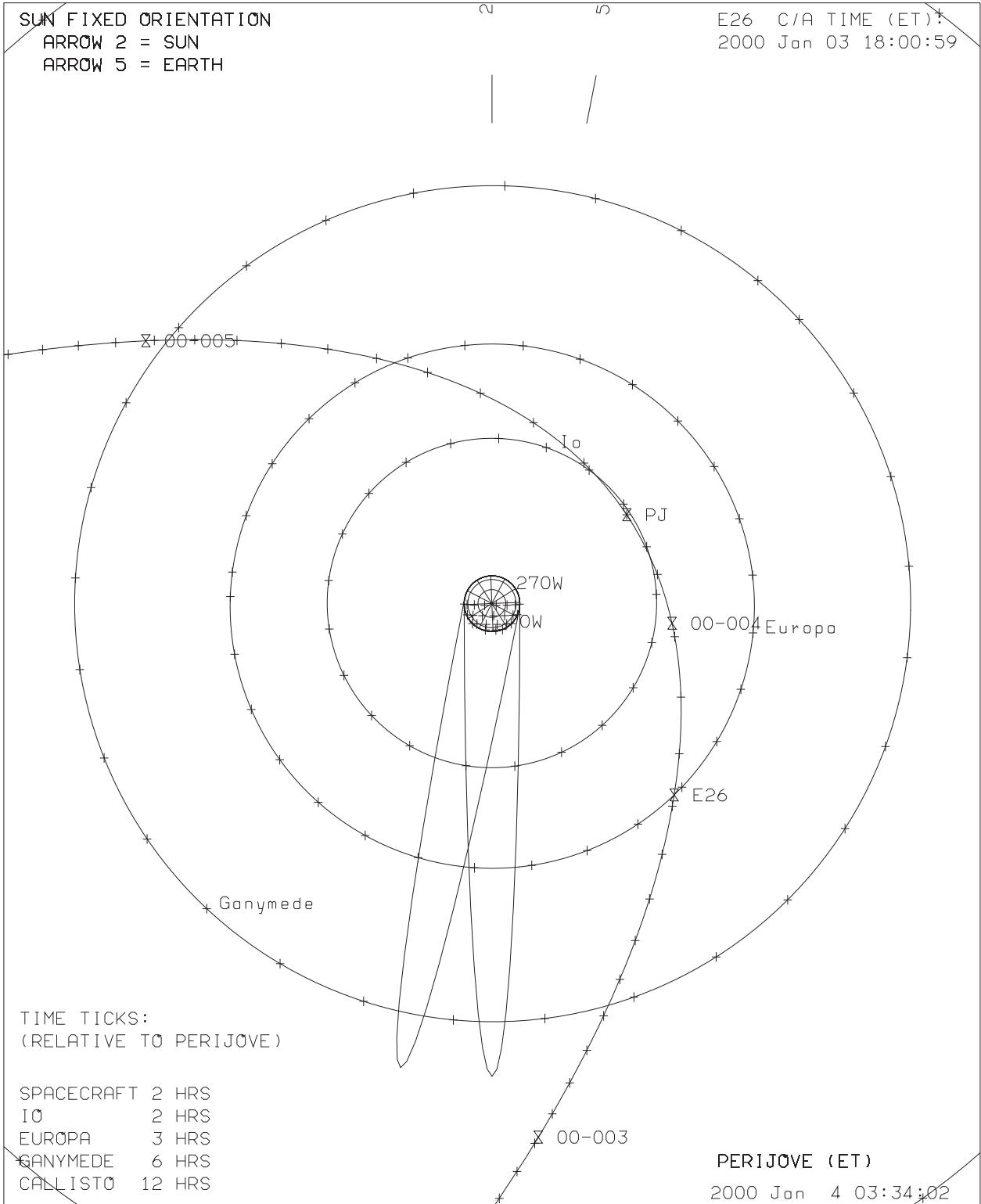
JUPITER 26: N. TRAJ. POLE VIEW (+/- 2 DAYS)



GEM-990114

NAV Feb 4, 1999

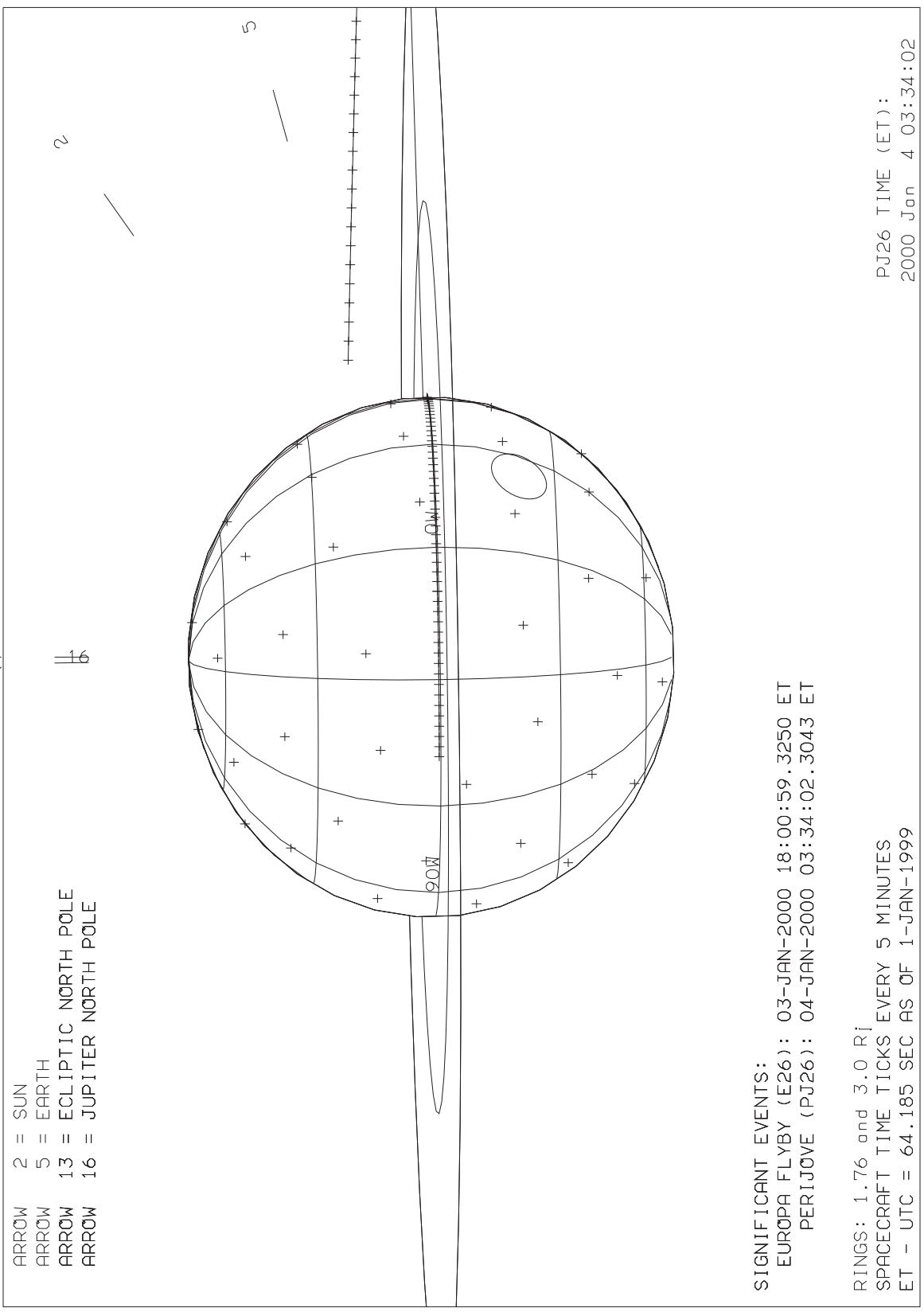
JUPITER 26: N. TRAJ. POLE VIEW (+/- 1 DAY)



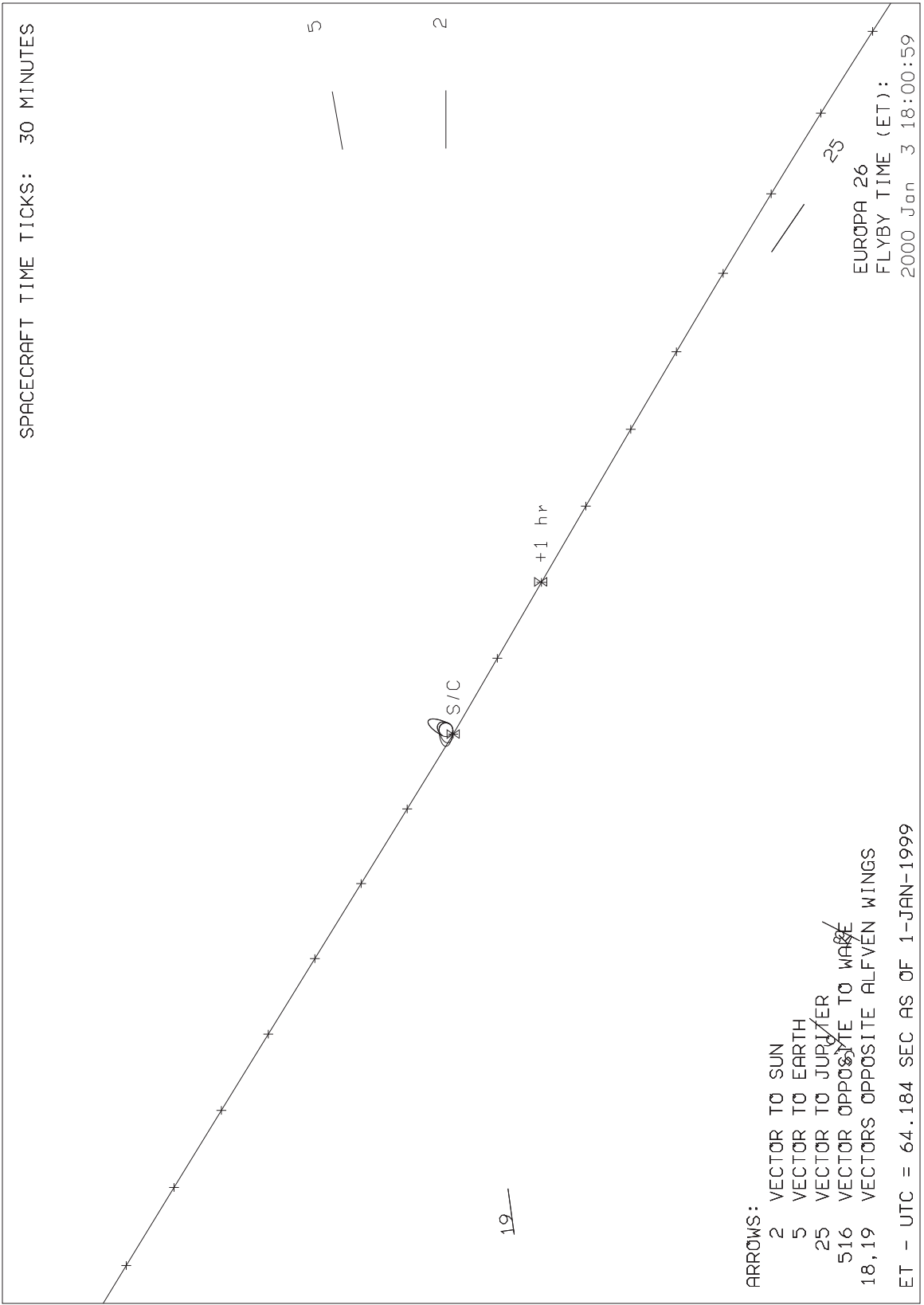
GEM-990114

NAV Feb 4, 1999

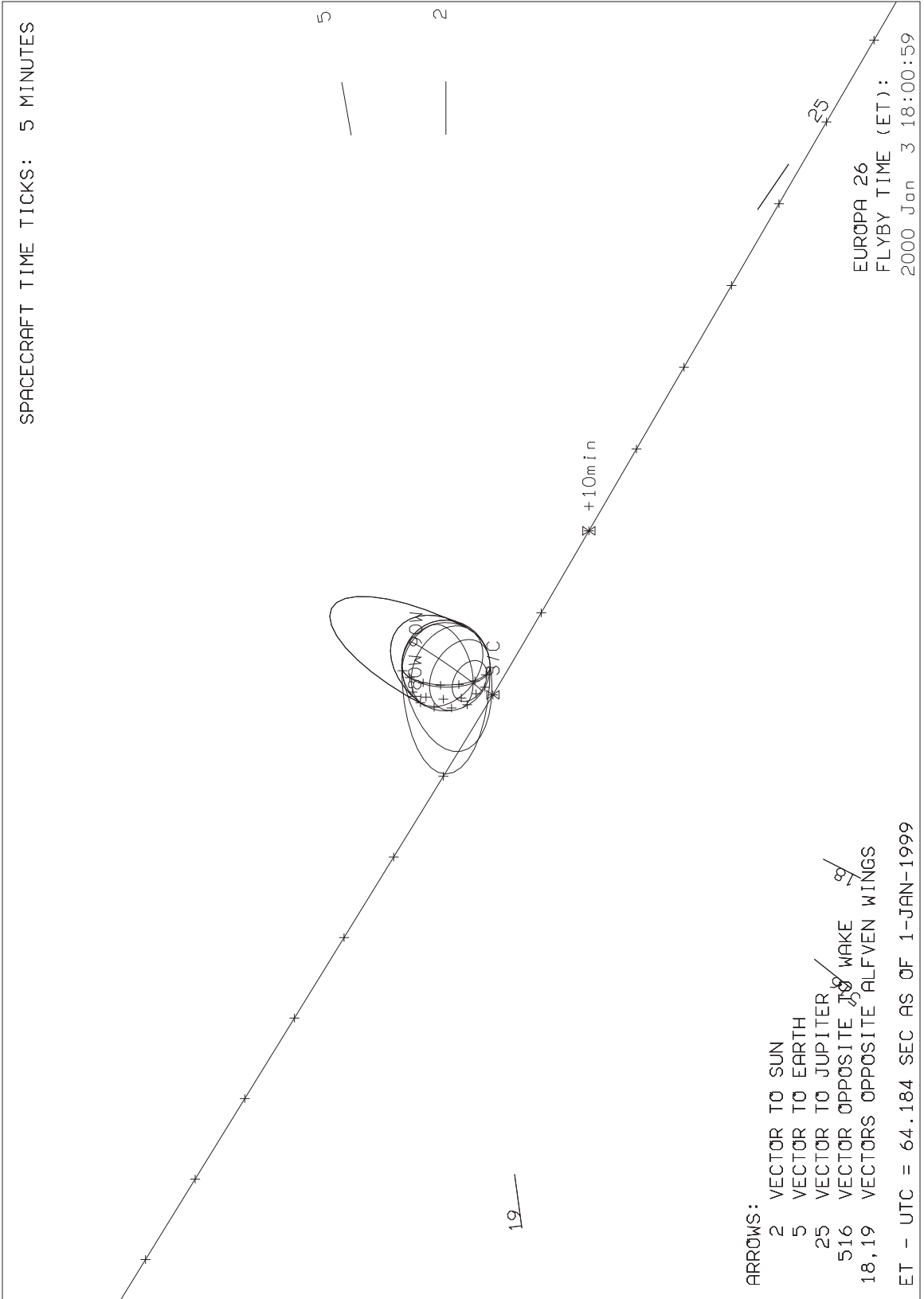
JUPITER 26: GROUNDTRACK AT CLOSEST APPROACH



EUROPA 26: N. TRAJ POLE VIEW (+/- 6 HRS)



EUROPA 26: N. TRAJ POLE VIEW (+/- 1 HR)



NAV 2/9/99

EUROPA 26: GROUNDTRACK AT CLOSEST APPROACH

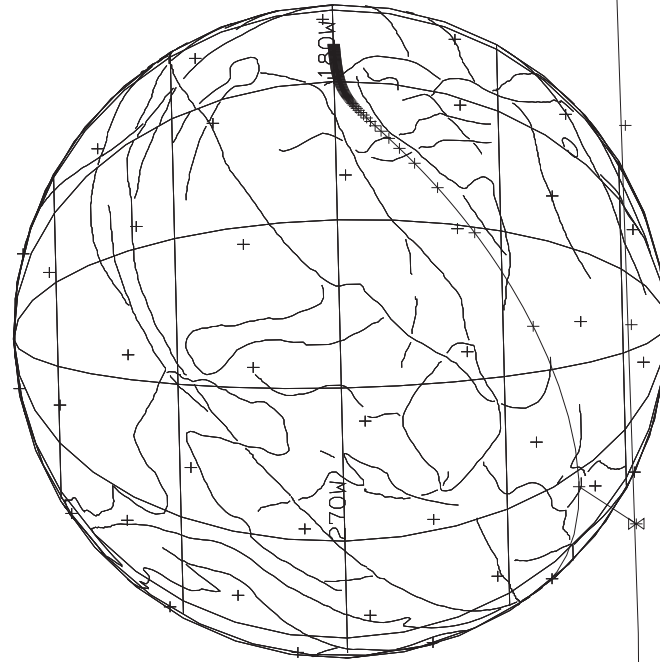
SPACECRAFT TIME TICKS EVERY 2 MINUTES

ARROW 2 = SUN

ARROW 5 = EARTH

ARROW 13 = ECLIPTIC NORTH POLE

ARROW 16 = EUROPA NORTH POLE



SIGNIFICANT EVENTS:

EUROPA FLYBY (E26): 03-JAN-2000 18:00:59.3250 ET

PERIJOVE (PJ26): 04-JAN-2000 03:34:02.3043 ET

ET - UTC = 64.185 SEC AS OF 1-JAN-1999

EUROPA FLYBY TIME (ET):
2000 Jan 3 18:00:59

NAV Feb 4, 1999

Chapter 4 - NIMS Observation Summaries

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Introduction to Chapter 4

This chapter summarizes the NIMS E26 observations in terms of a comprehensive sequence summary, Individual Obstab Summaries and a NIMS Obstab (Observation Table).

The NIMS Sequence Summary is a time-ordered listing of all spacecraft activity pertinent to NIMS operations for the E26 Sequence. The information in this summary is derived from the E26 SEFs (Spacecraft Event File) and PBTs (Playback Tables) with inputs from the NIMS Science Coordinators regarding the start time and duration of the NIMS observations. There are twelve columns of information in this table:

- 1) Line - Line Count.
- 2) YR - Year.
- 3) DOY - Day of Year.
- 4) Time - SCET Time (UTC).
- 5) PSID - Parameter Set ID of the SEF line.
- 6) Command - Command name from the SEF.
- 7) Parameters - Parameters from the above Command Line.
- 8) Description - Description of the above Command for NIMS.
- 9) GCM - NIMS Gain, Chopper mode, Instrument Mode.
Gain = 1,2,3 or 4.
Chopper Mode = R (Reference) or 6 (63Hz).
Instrement Mode = 0-15
- 10) GO - NIMS Grating Offset.
- 11) GS - NIMS Grating Start Position.
- 12) RIM,MF,I - SCLK of the Command Line (RIM:MF:RTI)

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 Playback Select and DeSelect times are also inserted into this table to correlate the playback requests with the observations.

The Individual Obstab Summaries are expansions of the NIMS Obstab to one page per Obstab entry for ease in reading the NIMS Obstab.

The NIMS Obstab (Observation Table) is a time-ordered listing of the NIMS obsrvation parameters for use by downlink data processing of the NIMS E26 data. It is also derived from the E26 SEFs and PBTs. Each Obstab entry is 512 bytes long but is presented here as 4 lines of 128 characters per entry.

Sequence:		E26AC_BNMRD4		Created: 01/14/00		Begin: 00-001/23:30:00		Finish: 00-051/04:00:00				
Line	YR	DOY	SCET - GMT	PSID	Command	Parameters	Description	GCM	GO	GS	RIM	MF I
1	0	1	23:29:59.933		DMS:	: READY	RDY, TRACK 1, FWD, TIC 202.12 +/-	400	4	0	5,325,838:09:0	
2	0	1	23:30:00.000	20A3EW	37A	Initial Condition	NIMS Power ON	400	4	0	5,325,838:09:1	
3	0	1	23:30:00.000	20A3EX	37HR	Initial Condition	Replacement Heaters OFF	400	4	0	5,325,838:09:1	
4	0	1	23:30:00.000	20A3EY	37C1PR	Initial Condition	Optics Heater 1 OFF (primary relay)	400	4	0	5,325,838:09:1	
5	0	1	23:30:00.000	20A3EZ	37C2PR	Initial Condition	Optics Heater 2 OFF (primary relay)	400	4	0	5,325,838:09:1	
6	0	1	23:30:00.000	20A3FA	37F1PR	Initial Condition	Radiator Flash Heater OFF (primary relay)	400	4	0	5,325,838:09:1	
7	0	1	23:30:00.000	20A3FB	37F2PR	Initial Condition	Shield Flash Heater OFF (primary relay)	400	4	0	5,325,838:09:1	
8	0	1	23:30:00.000	20A3FD	40HRPR	Initial Condition	PCT Heater OFF (primary relay)	400	4	0	5,325,838:09:1	
9	0	1	23:30:00.000	20A3FE	40T1PR	Initial Condition	PCT Heater 1 OFF (primary relay)	400	4	0	5,325,838:09:1	
10	0	1	23:30:00.000	20A3FF	40T2R	Initial Condition	PCT Heater 2 OFF	400	4	0	5,325,838:09:1	
11	0	1	23:30:53.266	432JA6B	6RTDS2	NIMDSL,AACNCG,RT	NIMS R/T DESELECT	400	4	0	5,325,838:89:0	
12	0	1	23:30:53.933	432JA431A6A	6RCDL	DDSNCG,PLSDSL,EP	Record Deselect (DDS o	400	4	0	5,325,838:90:0	
13	0	1	23:30:54.600	432JA6C	6RTSL1		R/T Select of DDS and	400	4	0	5,325,839:00:0	
14	0	1	23:30:54.600	432JA6D	6RTSL2	NIMNCG,AACSEL,RT	AACS SELECT	400	4	0	5,325,839:00:0	
15	0	1	23:31:03.266	488AA6A	6TMSED	NORM,EL4	Sci, Eng. and D/L Chan	400	4	0	5,325,839:13:0	
16	0	2	00:01:53.933	488AA6B	6TMSED	FILL,EL4	Sci, Eng. and D/L Chan	400	4	0	5,325,869:59:0	
17	0	2	00:05:11.266	488AA6C	6TMSED	FILL,EL3	Sci, Eng. and D/L Chan	400	4	0	5,325,872:82:0	
18	0	2	00:15:51.266	488AA6D	6TMSED	FILL,EL6	Sci, Eng. and D/L Chan	400	4	0	5,325,883:41:0	
19	0	2	00:04:01.933	488AA6E	6TMSED	NORM,EL6	Sci, Eng. and D/L Chan	400	4	0	5,325,990:40:0	
20	0	2	02:29:59.933	488AB6A	6TMSED	NORM,EH6	Sci, Eng. and D/L Chan	400	4	0	5,326,016:11:0	
21	0	2	02:59:03.933	465KA6A	6DMSC	P7,1	DMS Control Tape P/B 7.68kbps	400	4	0	5,326,044:79:0	
22	0	2	02:59:03.933		DMS:	:*E4-DELAY	RDY, TRACK 1, FWD, TIC 202.12 +/-	400	4	0	5,326,044:79:0	
23	0	2	02:59:10.600		DMS:	:*RUNUP	P7, TRACK 1, FWD, TIC 202.12 +/-	400	4	0	5,326,044:89:0	
24	0	2	02:59:12.000		DMS:	:*P SLEW	P7, TRACK 1, FWD, TIC * 202.24 +/-	400	4	0	5,326,045:00:1	
25	0	2	02:59:12.000		DMS:	:*AT SPD	P7, TRACK 1, FWD, TIC 202.24 +/-	400	4	0	5,326,045:00:1	
26	0	2	03:00:12.600	465KA6B	6DMSC	RDY,1	DMS Control Tape stop	400	4	0	5,326,046:00:0	
27	0	2	03:00:12.600		DMS:	:*RUNDOWN	P7, TRACK 1, FWD, TIC * 216.45 +/-	400	4	0	5,326,046:00:0	
28	0	2	03:00:13.800		DMS:	:*READY	RDY, TRACK 1, FWD, TIC * 216.51 +/-	400	4	0	5,326,046:01:8	
29	0	2	03:04:15.266		DMS:	: READY	RDY, TRACK *3, FWD, TIC 216.51 +/-	400	4	0	5,326,050:00:0	
30	0	2	03:04:15.266	465KB6A	6DMSC	RDY,3	DMS Control Tape stop	400	4	0	5,326,050:00:0	
31	0	2	03:34:15.266	488AB6B	6TMSED	NORM,EH4	Sci, Eng. and D/L Chan	400	4	0	5,326,079:61:0	
32	0	2	03:53:27.266	488AB6C	6TMSED	NORM,EH5	Sci, Eng. and D/L Chan	400	4	0	5,326,098:60:0	
33	0	2	05:12:23.266	488AB6D	6TMSED	NORM,EH6	Sci, Eng. and D/L Chan	400	4	0	5,326,176:66:0	
34	0	2	05:31:03.933	20RM6B	6RTSL1		R/T Select of DDS and	400	4	0	5,326,195:18:0	
35	0	2	07:31:03.933	20RB6B	6RTSL1		R/T Select of DDS and	400	4	0	5,326,313:80:0	
36	0	2	09:31:03.866	20RN6B	6RTSL1		R/T Select of DDS and	400	4	0	5,326,432:51:0	
37	0	2	11:19:19.200	488AC6A	6TMSED	NORM,EH5	Sci, Eng. and D/L Chan	400	4	0	5,326,539:57:0	
38	0	2	11:31:03.866	20RC6B	6RTSL1		R/T Select of DDS and	400	4	0	5,326,551:22:0	
39	0	2	12:02:29.866	20OA6A	6HICON			400	4	0	5,326,582:30:0	
40	0	2	12:40:23.200	488AC6B	6TMSED	NORM,EH4	Sci, Eng. and D/L Chan	400	4	0	5,326,619:73:0	
41	0	2	13:31:03.866	20RO6B	6RTSL1		R/T Select of DDS and	400	4	0	5,326,669:84:0	
42	0	2	14:05:20.533	488AC6C	6TMSED	FILL,EH4	Sci, Eng. and D/L Chan	400	4	0	5,326,703:75:0	
43	0	2	14:38:59.200	488AC6D	6TMSED	NORM,EH4	Sci, Eng. and D/L Chan	400	4	0	5,326,737:09:0	
44	0	2	15:31:03.866	20RD6B	6RTSL1		R/T Select of DDS and	400	4	0	5,326,788:55:0	
45	0	2	15:33:11.200	488AC6E	6TMSED	NORM,EH5	Sci, Eng. and D/L Chan	400	4	0	5,326,790:64:0	
46	0	2	17:31:03.866	20RP6B	6RTSL1		R/T Select of DDS and	400	4	0	5,326,907:26:0	
47	0	2	19:31:03.866	20RE6B	6RTSL1		R/T Select of DDS and	400	4	0	5,327,025:88:0	
48	0	2	20:19:03.200	488AD6A	6TMSED	NORM,EH4	Sci, Eng. and D/L Chan	400	4	0	5,327,073:39:0	
49	0	2	21:31:03.866	20RQ6B	6RTSL1		R/T Select of DDS and	400	4	0	5,327,144:59:0	
50	0	2	21:45:35.200	488AD6B	6TMSED	FILL,EH4	Sci, Eng. and D/L Chan	400	4	0	5,327,159:01:0	
51	0	2	21:52:55.200	488AD6C	6TMSED	FILL,EH5	Sci, Eng. and D/L Chan	400	4	0	5,327,166:24:0	
52	0	2	22:27:14.533	488AD6D	6TMSED	NORM,EH5	Sci, Eng. and D/L Chan	400	4	0	5,327,200:19:0	
53	0	3	00:01:03.866	20RF6B	6RTSL1		R/T Select of DDS and	400	4	0	5,327,293:00:0	

Line	YR	DOY	SCET - GMT	PSID	Command Parameters	Description	GCM	GO	GS	RIM	MF I
54	0	3	01:31:03.866	20RR6B	6RTSL1	R/T Select of DDS and	400	4	0	5,327,382:01:0	
55	0	3	02:21:59.866	488AE6A	6TMSED NORM,EL5	Sci, Eng. and D/L Chan	400	4	0	5,327,432:35:0	
56	0	3	03:29:59.200	488AE6B	6TMSED NORM,EL4	Sci, Eng. and D/L Chan	400	4	0	5,327,499:57:0	
57	0	3	03:31:03.866	20RG6B	6RTSL1	R/T Select of DDS and	400	4	0	5,327,500:63:0	
58	0	3	04:50:23.200	488AE6C	6TMSED FILL,EL4	Sci, Eng. and D/L Chan	400	4	0	5,327,579:13:0	
59	0	3	05:25:11.200	488AE6D	6TMSED FILL,EL5	Sci, Eng. and D/L Chan	400	4	0	5,327,613:51:0	
60	0	3	05:31:03.866	20RS6B	6RTSL1	R/T Select of DDS and	400	4	0	5,327,619:34:0	
61	0	3	05:31:11.866	488AE6E	6TMSED NORM,EL5	Sci, Eng. and D/L Chan	400	4	0	5,327,619:46:0	
62	0	3	07:31:03.866	20RH6B	6RTSL1	R/T Select of DDS and	400	4	0	5,327,738:05:0	
63	0	3	07:49:59.866	20TO4A	7SAFE STOP	SIP NO MOVEMENT	400	4	0	5,327,756:71:0	
64	0	3	07:50:49.866	20TO4B	7SLEW DIS,POS,0.0	Stator movement	400	4	0	5,327,757:55:0	
65	0	3	07:50:55.866	20TO4E	7STAR 1,1610,278,815,3	Star catalog update	400	4	0	5,327,757:64:0	
66	0	3	07:50:57.866	20TO4F	7STAR 2,9000,2,664,14	Star catalog update	400	4	0	5,327,757:67:0	
67	0	3	07:50:59.866	20TO4G	7STAR 3,1610,278,815,3	Star catalog update	400	4	0	5,327,757:70:0	
68	0	3	07:51:01.866	20TO4H	7STAR 4,9000,2,664,14	Star catalog update	400	4	0	5,327,757:73:0	
69	0	3	07:51:03.866	20TO4I	7STAR 5,1610,278,815,3	Star catalog update	400	4	0	5,327,757:76:0	
70	0	3	07:51:05.866	20TO4J	7STAR 6,9000,2,664,14	Star catalog update	400	4	0	5,327,757:79:0	
71	0	3	07:55:02.533	432OC431A6A	6RCDSL DDSNCG,PLSNCG,EP	Record Deselect (DDS o	400	4	0	5,327,761:70:0	
72	0	3	07:55:03.200	432OC6A	6RTSL1	R/T Select of DDS and	400	4	0	5,327,761:71:0	
73	0	3	08:59:59.866	481UA4A	7VECT	Inert vect update UTC	400	4	0	5,327,826:01:0	
74	0	3	09:31:03.866	20RT6B	6RTSL1	R/T Select of DDS and	400	4	0	5,327,856:67:0	
75	0	3	11:04:23.200	488AF6A	6TMSED NORM,EL4	Sci, Eng. and D/L Chan	400	4	0	5,327,949:03:0	
76	0	3	11:31:03.866	20RI6B	6RTSL1	R/T Select of DDS and	400	4	0	5,327,975:38:0	
77	0	3	13:29:59.866	480SA6A	6MROH 44,23E8,0,A2	read from LLM2A44,23E8,0,A2	400	4	0	5,328,093:04:0	
78	0	3	13:31:03.866	20RU6B	6RTSL1	R/T Select of DDS and	400	4	0	5,328,094:09:0	
79	0	3	13:36:39.866	480SA6B	6MROH 45,23E8,0,B2	read from LLM2B45,23E8,0,B2	400	4	0	5,328,099:58:0	
80	0	3	13:55:25.200	488AF6B	6TMSED FILL,EL4	Sci, Eng. and D/L Chan	400	4	0	5,328,118:17:0	
81	0	3	14:08:59.866	488AF6C	6TMSED FILL,DL4	Sci, Eng. and D/L Chan	400	4	0	5,328,131:56:0	
82	0	3	14:39:04.533	488AF6D	6TMSED NORM,DL4	Sci, Eng. and D/L Chan	400	4	0	5,328,161:33:0	
83	0	3	15:11:51.200	488AF6E	6TMSED NORM,DL5	Sci, Eng. and D/L Chan	400	4	0	5,328,193:71:0	
84	0	3	15:31:03.866	20RJ6B	6RTSL1	R/T Select of DDS and	400	4	0	5,328,212:71:0	
85	0	3	17:03:45.800	488AG6A	6TMSED FILL,DL5	Sci, Eng. and D/L Chan	400	4	0	5,328,304:42:0	
86	0	3	17:29:24.466	DMS:	:*E4-DELAY	RDY, TRACK *1, FWD, TIC 216.51 +/-	400	4	0	5,328,329:75:0	
87	0	3	17:29:24.466	6DMSC	175TA422A6A R7,3	DMS Control	400	4	0	5,328,329:75:0	
88	0	3	17:29:31.133	DMS:	:*RUNUP	R7, TRACK *3, FWD, TIC 216.51 +/-	400	4	0	5,328,329:85:0	
89	0	3	17:29:32.466	175TA176A6A	6TMREC LPW	7.68 KBPS LOW RATE SCI PWS RECORD Record	400	4	0	5,328,329:87:0	
90	0	3	17:29:32.466	282NA431A6A	6RCSEL DDSNCG,PLSSEL,EP	Record Select (DDS onl	400	4	0	5,328,329:87:0	
91	0	3	17:29:32.533	DMS:	:*RECORD	R7, TRACK 3, FWD, TIC * 216.63 +/-	400	4	0	5,328,329:87:1	
92	0	3	17:29:32.533	DMS:	:*AT_SPD	R7, TRACK 3, FWD, TIC 216.63 +/-	400	4	0	5,328,329:87:1	
93	0	3	17:29:35.133	431MA6A	6RCSEL DDSSEL,PLSNCG,EP	Record Select (DDS onl	400	4	0	5,328,330:00:0	
94	0	3	17:49:47.800	165JZ4A	7SCAN NORM,79.566,33.2	Check SJP Position	400	4	0	5,328,349:90:0	
95	0	3	17:58:59.800	481UB4A	7VECT BB2	Inert vect update UTC	400	4	0	5,328,359:08:0	
96	0	3	17:59:58.466	428JA6A	6RCCLR		400	4	0	5,328,360:05:0	
97	0	3	17:59:59.133	428JA6B	6RCSET	14	400	4	0	5,328,360:06:0	
98	0	3	18:01:31.800	165IA4A	7SCAN NORM;121.898999,	Check SJP Position	400	4	0	5,328,361:54:0	
99	0	3	18:01:59.800	481UC4A	7VECT BB2	Inert vect update UTC	400	4	0	5,328,362:05:0	
100	0	3	18:02:00.466	118IA	SMOS GS		400	4	0	5,328,362:06:0	
101	0	3	18:02:17.800	175IA422A6A	6DMSC R806,3	DMS Control	400	4	0	5,328,362:32:0	
102	0	3	18:02:17.800	DMS:	:*RUNDOWN	R7, TRACK 3, FWD, TIC * 677.24 +/-	400	4	0	5,328,362:32:0	
103	0	3	18:02:19.000	DMS:	:*RUNUP	R806, TRACK 3, FWD, TIC * 677.30 +/-	400	4	0	5,328,362:33:8	
104	0	3	18:02:21.133	165IA4B	7VECT	Inert vect update UTC	400	4	0	5,328,362:37:0	
105	0	3	18:02:23.800	175IA176A6A	6TMREC IM8	806.4 KBPS IMAGE RECORD Record Mode Chang	400	4	0	5,328,362:41:0	
106	0	3	18:02:24.266	DMS:	:*RECORD	R806, TRACK 3, FWD, TIC * 743.30 +/-	400	4	0	5,328,362:41:7	
107	0	3	18:02:24.266	DMS:	:*AT_SPD	R806, TRACK 3, FWD, TIC 743.30 +/-	400	4	0	5,328,362:41:7	
108	0	3	18:02:24.466	118IA110A11A4A	7STRP 0.0002,-0.007,26	Slew = -3.51	400	4	0	5,328,362:42:0	

Line	YR	DOY	SCET - GMT	PSID	Command	Parameters	Description	GCM	GO	GS	RIM	MF I
109	0	3	18:02:33.133	1181A11A	SMOS	GE		400	4	0	5,328,362:55:0	
110	0	3	18:02:39.800	175TB422A6A	6DMSC	R7.3	DMS Control	400	4	0	5,328,362:65:0	
111	0	3	18:02:39.800		DMS:	: *RUNDOWN	R806, TRACK 3, FWD, TIC *1125.56 +/-	400	4	0	5,328,362:65:0	
112	0	3	18:02:42.533		DMS:	: *RUNUP	R7, TRACK 3, FWD, TIC *1137.06 +/-	400	4	0	5,328,362:69:1	
113	0	3	18:02:43.800	175TB176A6A	6TMREC	LPW	7.68 KBPS LOW RATE SCI PWS RECORD Record	400	4	0	5,328,362:71:0	
114	0	3	18:02:43.933		DMS:	: *AT_SPD	R7, TRACK 3, FWD, TIC 1137.18 +/-	400	4	0	5,328,362:71:2	
115	0	3	18:02:43.933		DMS:	: *RECORD	R7, TRACK 3, FWD, TIC *1137.18 +/-	400	4	0	5,328,362:71:2	
116	0	3	18:06:02.466	428JC6A	6RCCLR			400	4	0	5,328,366:05:0	
117	0	3	18:06:03.133	428JC6B	6RCSET		14	400	4	0	5,328,366:06:0	
118	0	3	18:07:08.466	116IA4A	7STRP	-0.007,-0.086213	Slew = -14.9	400	4	0	5,328,367:13:0	
119	0	3	18:07:55.800		DMS:	: *RUNDOWN	R7, TRACK 3, FWD, TIC *1210.27 +/-	400	4	0	5,328,367:84:0	
120	0	3	18:07:55.800	175IB422A6A	6DMSC	R806.3	DMS Control	400	4	0	5,328,367:84:0	
121	0	3	18:07:57.000		DMS:	: *RUNUP	R806, TRACK 3, FWD, TIC *1210.33 +/-	400	4	0	5,328,367:85:8	
122	0	3	18:08:01.800	175IB176A6A	6TMREC	IM8	806.4 KBPS IMAGE RECORD Record Mode Chang	400	4	0	5,328,368:02:0	
123	0	3	18:08:02.266		DMS:	: *AT_SPD	R806, TRACK 3, FWD, TIC 1276.33 +/-	400	4	0	5,328,368:02:7	
124	0	3	18:08:02.266		DMS:	: *RECORD	R806, TRACK 3, FWD, TIC *1276.33 +/-	400	4	0	5,328,368:02:7	
125	0	3	18:08:02.466	116IB4A	7STRP	0.0073,0.0019,0,	Slew = 3.71	400	4	0	5,328,368:03:0	
126	0	3	18:08:11.133	116IC4A	7STRP	0.0071,0.0019,0,	Slew =0.3.6	400	4	0	5,328,368:16:0	
127	0	3	18:08:13.133	428JD6A	6RCCLR			400	4	0	5,328,368:19:0	
128	0	3	18:08:13.800	428JD6B	6RCSET		11	400	4	0	5,328,368:20:0	
129	0	3	18:08:19.800	116ID4A	7STRP	0.0069,0.0019,0,	Slew =,3.51	400	4	0	5,328,368:29:0	
130	0	3	18:08:35.133	175TC422A6A	6DMSC	R7.3	DMS Control	400	4	0	5,328,368:52:0	
131	0	3	18:08:35.133		DMS:	: *RUNDOWN	R806, TRACK 3, FWD, TIC *2085.16 +/-	400	4	0	5,328,368:52:0	
132	0	3	18:08:37.866		DMS:	: *RUNUP	R7, TRACK 3, FWD, TIC *2096.66 +/-	400	4	0	5,328,368:56:1	
133	0	3	18:08:39.133	175TC176A6A	6TMREC	LPW	7.68 KBPS LOW RATE SCI PWS RECORD Record	400	4	0	5,328,368:58:0	
134	0	3	18:08:39.266		DMS:	: *AT_SPD	R7, TRACK 3, FWD, TIC 2096.78 +/-	400	4	0	5,328,368:58:2	
135	0	3	18:08:39.266		DMS:	: *RECORD	R7, TRACK 3, FWD, TIC *2096.78 +/-	400	4	0	5,328,368:58:2	
136	0	3	18:09:01.133	116JA4A	7STRP	-0.0035,-0.01780	Slew =0.3.3	400	4	0	5,328,369:00:0	
137	0	3	18:12:06.466	428JE6A	6RCCLR			400	4	0	5,328,372:05:0	
138	0	3	18:12:07.133	428JE6B	6RCSET		14	400	4	0	5,328,372:06:0	
139	0	3	18:16:44.466		DMS:	: *RUNDOWN	R7, TRACK 3, FWD, TIC *2210.50 +/-	400	4	0	5,328,376:58:0	
140	0	3	18:16:44.466	175IC422A6A	6DMSC	R806.3	DMS Control	400	4	0	5,328,376:58:0	
141	0	3	18:16:45.666		DMS:	: *RUNUP	R806, TRACK 3, FWD, TIC *2210.56 +/-	400	4	0	5,328,376:59:8	
142	0	3	18:16:50.466	175IC176A6A	6TMREC	IM8	806.4 KBPS IMAGE RECORD Record Mode Chang	400	4	0	5,328,376:67:0	
143	0	3	18:16:50.933		DMS:	: *AT_SPD	R806, TRACK 3, FWD, TIC 2276.56 +/- 1	400	4	0	5,328,376:67:7	
144	0	3	18:16:50.933		DMS:	: *RECORD	R806, TRACK 3, FWD, TIC *2276.56 +/-	400	4	0	5,328,376:67:7	
145	0	3	18:16:51.133	116JB4A	7STRP	0.007,0.0015,0,0	Slew =0.3,3.3	400	4	0	5,328,376:68:0	
146	0	3	18:16:58.466	428JF6A	6RCCLR			400	4	0	5,328,376:79:0	
147	0	3	18:16:59.133	428JF6B	6RCSET		11	400	4	0	5,328,376:80:0	
148	0	3	18:16:59.800	116JC4A	7STRP	0.0095,-0.0007,0	Slew =0.4.7	400	4	0	5,328,376:81:0	
149	0	3	18:17:15.133		DMS:	: *RUNDOWN	R806, TRACK 3, FWD, TIC *2872.11 +/- 1	400	4	0	5,328,377:13:0	
150	0	3	18:17:15.133	175TD422A6A	6DMSC	R7.3	DMS Control	400	4	0	5,328,377:13:0	
151	0	3	18:17:17.866		DMS:	: *RUNUP	R7, TRACK 3, FWD, TIC *2883.61 +/- 1	400	4	0	5,328,377:17:1	
152	0	3	18:17:19.133	175TD176A6A	6TMREC	LPW	7.68 KBPS LOW RATE SCI PWS RECORD Record	400	4	0	5,328,377:19:0	
153	0	3	18:17:19.266		DMS:	: *RECORD	R7, TRACK 3, FWD, TIC *2883.73 +/- 1	400	4	0	5,328,377:19:2	
154	0	3	18:17:19.266		DMS:	: *AT_SPD	R7, TRACK 3, FWD, TIC 2883.73 +/- 1	400	4	0	5,328,377:19:2	
155	0	3	18:26:03.800	20RA6B	6RTSL1		R/T Select of DDS and	400	4	0	5,328,385:78:0	
156	0	3	18:29:18.466	428JG6A	6RCCLR			400	4	0	5,328,389:06:0	
157	0	3	18:30:13.133	432MB431A6A	6RCDSL	DDSDSL,PLSNCG,EP	Record Deselect (DDS o	400	4	0	5,328,389:88:0	
158	0	3	18:30:13.800	432MB6A	6RTSL1		R/T Select of DDS and	400	4	0	5,328,389:89:0	
159	0	3	18:30:17.133	175TD422A6B	6DMSC	RDY,0	DMS Control Tape stop	400	4	0	5,328,390:03:0	
160	0	3	18:30:17.133	432OA431A6A	6RCDSL	DDSNCG,PLSNCG,EP	Record Deselect (DDS o	400	4	0	5,328,390:03:0	
161	0	3	18:30:17.133		DMS:	: *RUNDOWN	R7, TRACK 3, FWD, TIC *3066.04 +/- 1	400	4	0	5,328,390:03:0	
162	0	3	18:30:17.800	432OA6A	6RTSL1		R/T Select of DDS and	400	4	0	5,328,390:04:0	
163	0	3	18:30:18.333		DMS:	: *READY	RDY, TRACK 3, FWD, TIC *3066.10 +/- 1	400	4	0	5,328,390:04:8	

Line	YR	DOY	SCET - GMT	PSID	Command	Parameters	Description	GCM	GO	GS	RIM	MF I
164	0	3	18:30:21.133	282NB431A6A	6RCDSL	DDSNCG,PLSDSL,EP	Record Deselect (DDS o	400	4	0	5,328,390:09:0	
165	0	3	18:31:09.800	282NB432A431A6A	6RCDSL	DDSNCG,PLSDSL,EP	Record Deselect (DDS o	400	4	0	5,328,390:82:0	
166	0	3	18:31:10.466	282NB432A6A	6RTSL1		R/T Select of DDS and	400	4	0	5,328,390:83:0	
167	0	3	19:03:32.466	488AG6B	6TMSED	NORM,DL5	Sci, Eng, and D/L Chan	400	4	0	5,328,422:84:0	
168	0	3	19:08:59.800	488AG6C	6TMSED	NORM,EL5	Sci, Eng, and D/L Chan	400	4	0	5,328,428:29:0	
169	0	3	19:59:59.800	481UD4A	7VECT		Inert vect update UTC	400	4	0	5,328,478:69:0	
170	0	3	21:29:27.133	488AG6D	6TMSED	NORM,EL4	Sci, Eng, and D/L Chan	400	4	0	5,328,567:21:0	
171	0	3	23:31:03.800	20RY6B	6RTSL1		R/T Select of DDS and	400	4	0	5,328,687:46:0	
172	0	3	23:50:15.133	488AH6A	6TMSED	NORM,EL5	Sci, Eng, and D/L Chan	400	4	0	5,328,706:44:0	
173	0	4	00:44:59.800	480SB6A	6MROH	44,23E8,0,A2	read from LLM2A44:23E8,0,A2	400	4	0	5,328,760:57:0	
174	0	4	00:51:39.800	480SB6B	6MROH	45,23E8,0,B2	read from LLM2B45:23E8,0,B2	400	4	0	5,328,767:20:0	
175	0	4	00:59:59.800	481UE4A	7VECT	BB1	Inert vect update UTC	400	4	0	5,328,775:42:0	
176	0	4	01:03:12.466	488AH6B	6TMSED	FILL,EL5	Sci, Eng, and D/L Chan	400	4	0	5,328,778:58:0	
177	0	4	01:42:18.466	488AH6C	6TMSED	NORM,EL5	Sci, Eng, and D/L Chan	400	4	0	5,328,817:28:0	
178	0	4	02:43:09.800	165ID4A	7SCAN	NORM:337.776997,	Check S/P Position	400	4	0	5,328,877:45:0	
179	0	4	02:46:32.466	DMS:		: *E4-DELAY	RDY, TRACK *1, FWD, TIC 3066.10 +/- 1	400	4	0	5,328,880:76:0	
180	0	4	02:46:32.466	175ID422A6A	6DMSC	R806.3	DMS Control	400	4	0	5,328,880:76:0	
181	0	4	02:46:39.133	DMS:		: *RUNUP	R806, TRACK *3, FWD, TIC 3066.10 +/- 1	400	4	0	5,328,880:86:0	
182	0	4	02:46:41.133	165ID4B	7VECT		Inert vect update UTC	400	4	0	5,328,880:89:0	
183	0	4	02:46:43.800	175ID176A6A	6TMREC	IM8	806.4 KBPS IMAGE RECORD	400	4	0	5,328,881:02:0	
184	0	4	02:46:44.400	DMS:		: *AT_SPD	R806, TRACK 3, FWD, TIC 3132.10 +/- 1	400	4	0	5,328,881:02:9	
185	0	4	02:46:44.400	DMS:		: *RECORD	R806, TRACK 3, FWD, TIC *3132.10 +/- 1	400	4	0	5,328,881:02:9	
186	0	4	02:46:47.800	DMS:		: *RUNDOWN	R806, TRACK 3, FWD, TIC *3215.77 +/- 1	400	4	0	5,328,881:08:0	
187	0	4	02:46:47.800	175ID422A6B	6DMSC	RDY,0	DMS Control Tape stop	400	4	0	5,328,881:08:0	
188	0	4	02:46:50.533	DMS:		: *READY	RDY, TRACK 3, FWD, TIC *3227.27 +/- 1	400	4	0	5,328,881:12:1	
189	0	4	02:47:12.466	165IE4A	7SCAN	NORM:338.037998,	Check S/P Position	400	4	0	5,328,881:45:0	
190	0	4	02:49:34.466	175IE422A6A	6DMSC	R806.3	DMS Control	400	4	0	5,328,883:76:0	
191	0	4	02:49:34.466	DMS:		: *E4-DELAY	RDY, TRACK *1, FWD, TIC 3227.27 +/- 1	400	4	0	5,328,883:76:0	
192	0	4	02:49:41.133	DMS:		: *RUNUP	R806, TRACK *3, FWD, TIC 3227.27 +/- 1	400	4	0	5,328,883:86:0	
193	0	4	02:49:43.133	165IE4B	7VECT		Inert vect update UTC	400	4	0	5,328,883:89:0	
194	0	4	02:49:45.800	175IE176A6A	6TMREC	IM8	806.4 KBPS IMAGE RECORD	400	4	0	5,328,884:02:0	
195	0	4	02:49:46.400	DMS:		: *AT_SPD	R806, TRACK 3, FWD, TIC 3293.27 +/- 2	400	4	0	5,328,884:02:9	
196	0	4	02:49:46.400	DMS:		: *RECORD	R806, TRACK 3, FWD, TIC *3293.27 +/- 1	400	4	0	5,328,884:02:9	
197	0	4	02:49:49.800	175IE422A6B	6DMSC	RDY,0	DMS Control Tape stop	400	4	0	5,328,884:08:0	
198	0	4	02:49:49.800	DMS:		: *RUNDOWN	R806, TRACK 3, FWD, TIC *3376.94 +/- 2	400	4	0	5,328,884:08:0	
199	0	4	02:49:52.533	DMS:		: *READY	RDY, TRACK 3, FWD, TIC *3388.44 +/- 2	400	4	0	5,328,884:12:1	
200	0	4	03:07:25.800	165IF4A	7SCAN	NORM:342.807999,	Check S/P Position	400	4	0	5,328,901:45:0	
201	0	4	03:10:48.466	DMS:		: *E4-DELAY	RDY, TRACK *1, FWD, TIC 3388.44 +/- 2	400	4	0	5,328,904:76:0	
202	0	4	03:10:48.466	175IF422A6A	6DMSC	R806.3	DMS Control	400	4	0	5,328,904:76:0	
203	0	4	03:10:55.133	DMS:		: *RUNUP	R806, TRACK *3, FWD, TIC 3388.44 +/- 2	400	4	0	5,328,904:86:0	
204	0	4	03:10:57.133	165IF4B	7VECT		Inert vect update UTC	400	4	0	5,328,904:89:0	
205	0	4	03:10:59.800	175IF176A6A	6TMREC	IM8	806.4 KBPS IMAGE RECORD	400	4	0	5,328,905:02:0	
206	0	4	03:11:00.400	DMS:		: *RECORD	R806, TRACK 3, FWD, TIC *3454.44 +/- 2	400	4	0	5,328,905:02:9	
207	0	4	03:11:00.400	DMS:		: *AT_SPD	R806, TRACK 3, FWD, TIC 3454.44 +/- 2	400	4	0	5,328,905:02:9	
208	0	4	03:11:03.800	175IF422A6B	6DMSC	RDY,0	DMS Control Tape stop	400	4	0	5,328,905:08:0	
209	0	4	03:11:03.800	DMS:		: *RUNDOWN	R806, TRACK 3, FWD, TIC *3538.12 +/- 2	400	4	0	5,328,905:08:0	
210	0	4	03:11:06.533	DMS:		: *READY	RDY, TRACK 3, FWD, TIC *3549.62 +/- 2	400	4	0	5,328,905:12:1	
211	0	4	03:31:03.800	20RZ6B	6RTSL1		R/T Select of DDS and	400	4	0	5,328,924:79:0	
212	0	4	05:25:11.133	488AH6D	6TMSED	NORM,EL6	Sci, Eng, and D/L Chan	400	4	0	5,329,037:67:0	
213	0	4	06:29:59.800	480SC6A	6MROH	44,23E8,0,A2	read from LLM2A44:23E8,0,A2	400	4	0	5,329,101:76:0	
214	0	4	06:36:39.800	480SC6B	6MROH	45,23E8,0,B2	read from LLM2B45:23E8,0,B2	400	4	0	5,329,108:39:0	
215	0	4	06:49:35.800	488AI6A	6TMSED	FILL,EL6	Sci, Eng, and D/L Chan	400	4	0	5,329,121:20:0	
216	0	4	07:16:25.133	488AI6B	6TMSED	NORM,EL6	Sci, Eng, and D/L Chan	400	4	0	5,329,147:68:0	
217	0	4	10:44:01.133	26NNDETECT01-		-----START-----		400	4	0	:	
218	0	4	10:44:02.466	20FB5A	37PL		Program Load (halts microprocessor & unwri	400	4	0	5,329,353:08:0	

Line	YR	DOY	SCET - GMT	PSID	Command Parameters	Description	GCM	GO	GS	RIM	MF I
219	0	4	10:44:04.466	20FB5B	37MRL	Memory Realocate (software operates from R	4	0	5,329,353:11:0		
220	0	4	10:44:07.800	20FB6A	6MCOPI NIMS	NIMS,1000,LLM1A,7300,77F7	4	0	5,329,353:16:0		
221	0	4	10:44:17.800	20FB6B	6MCOPI NIMS	NIMS,1598,LLM1A,77F8,781D	4	0	5,329,353:31:0		
222	0	4	10:44:31.133	20FB5C	37IRT	Instrument Reset (goes into POR state)	4	0	5,329,353:51:0		
223	0	4	10:44:37.800	20FB5D	37MIN	Memory Normal (software operates from ROM)	260	4	0	5,329,353:61:0	
224	0	4	10:45:51.133	20FB4A	37IST	Chopper ON, Sync, Chopper (Ref)	2R0	4	0	5,329,354:80:0	
225	0	4	10:46:51.800	20FB4B	37IST	Gain State 2	2R0	4	0	5,329,355:80:0	
226	0	4	10:47:53.133	20FB4C	37MB	Selects mirror (spatial) edit table	2R0	4	0	5,329,356:81:0	
227	0	4	10:48:53.133	20FB4D	37IOP	Long Map, Grating Start Position =00	2R3	4	0	5,329,357:80:0	
228	0	4	10:48:53.800	20FB4E	37ETB	Loads wavelength edit table	2R3	4	0	5,329,357:81:0	
229	0	4	10:49:04.466	26NNDTECT02-	-----START-----		2R3	4	0	0	
230	0	4	10:50:01.133	26NNDTECT01-	-----STOP-----		2R3	4	0	0	
231	0	4	10:50:05.133	20FG6A	6MCOPI	B1A1A,68EF,NIMS,150F,1517	2R3	4	0	5,329,359:06:0	
232	0	4	10:50:13.800	20FG6B	6MCOPI	B1A1A,68F8,NIMS,150F,1517	2R3	4	0	5,329,359:19:0	
233	0	4	10:51:06.466	20FG6C	6MCOPI	B1A1A,6901,NIMS,150F,1517	2R3	4	0	5,329,360:07:0	
234	0	4	10:51:15.133	20FG6D	6MCOPI	B1A1A,690A,NIMS,150F,1517	2R3	4	0	5,329,360:20:0	
235	0	4	10:52:07.800	20FG6E	6MCOPI	B1A1A,6913,NIMS,150F,1517	2R3	4	0	5,329,361:08:0	
236	0	4	10:52:16.466	20FG6F	6MCOPI	B1A1A,691C,NIMS,150F,1517	2R3	4	0	5,329,361:21:0	
237	0	4	10:53:09.133	20FG6G	6MCOPI	B1A1A,6925,NIMS,150F,1517	2R3	4	0	5,329,362:09:0	
238	0	4	10:53:17.800	20FG6H	6MCOPI	B1A1A,692E,NIMS,150F,1517	2R3	4	0	5,329,362:22:0	
239	0	4	10:54:10.466	20FG6I	6MCOPI	B1A1A,6937,NIMS,150F,1517	2R3	4	0	5,329,363:10:0	
240	0	4	10:54:19.133	20FG6J	6MCOPI	B1A1A,6940,NIMS,150F,1517	2R3	4	0	5,329,363:23:0	
241	0	4	10:55:11.800	20FG6K	6MCOPI	B1A1A,6949,NIMS,150F,1517	2R3	4	0	5,329,364:11:0	
242	0	4	10:55:20.466	20FG6L	6MCOPI	B1A1A,6952,NIMS,150F,1517	2R3	4	0	5,329,364:24:0	
243	0	4	10:56:13.133	20FG6M	6MCOPI	B1A1A,695B,NIMS,150F,1517	2R3	4	0	5,329,365:12:0	
244	0	4	10:56:21.800	20FG6N	6MCOPI	B1A1A,696A,NIMS,150F,1517	2R3	4	0	5,329,365:25:0	
245	0	4	10:57:14.466	20FG6O	6MCOPI	B1A1A,696D,NIMS,150F,1517	2R3	4	0	5,329,366:13:0	
246	0	4	10:57:23.133	20FG6P	6MCOPI	B1A1A,6976,NIMS,150F,1517	2R3	4	0	5,329,366:26:0	
247	0	4	10:58:15.800	20FG6Q	6MCOPI	B1A1A,697F,NIMS,150F,1517	2R3	4	0	5,329,367:14:0	
248	0	4	10:58:24.466	20FG6R	6MCOPI	B1A1A,6988,NIMS,150F,1517	2R3	4	0	5,329,367:27:0	
249	0	4	10:59:17.133	20FG6S	6MCOPI	B1A1A,6991,NIMS,150F,1517	2R3	4	0	5,329,368:15:0	
250	0	4	10:59:25.800	20FG6T	6MCOPI	B1A1A,699A,NIMS,150F,1517	2R3	4	0	5,329,368:28:0	
251	0	4	11:00:18.466	20FG6U	6MCOPI	B1A1A,69A3,NIMS,150F,1517	2R3	4	0	5,329,369:16:0	
252	0	4	11:00:27.133	20FG6V	6MCOPI	B1A1A,69AC,NIMS,150F,1517	2R3	4	0	5,329,369:29:0	
253	0	4	11:01:19.800	20FG6W	6MCOPI	B1A1A,69B5,NIMS,150F,1517	2R3	4	0	5,329,370:17:0	
254	0	4	11:01:28.466	20FG6X	6MCOPI	B1A1A,69BE,NIMS,150F,1517	2R3	4	0	5,329,370:30:0	
255	0	4	11:02:21.133	20FG6Y	6MCOPI	B1A1A,69C7,NIMS,150F,1517	2R3	4	0	5,329,371:18:0	
256	0	4	11:02:29.800	20FG6Z	6MCOPI	B1A1A,69D0,NIMS,150F,151C	2R3	4	0	5,329,371:31:0	
257	0	4	11:08:39.133	488AI6C	6TMSD	Sci, Eng, and D/L Chan	2R3	4	0	5,329,377:39:0	
258	0	4	11:14:15.800	26INHSL0K101-	-----START-----		2R3	4	0	0	
259	0	4	11:14:16.466	165DA4A	7SCAN	Check SJP Position	2R3	4	0	5,329,382:90:0	
260	0	4	11:15:21.800	26NHNHSL0K101-	-----START-----		2R3	4	0	0	
261	0	4	11:15:25.133	20DA5A	37PL	Program Load (halts microprocessor & unwri	4	0	5,329,384:11:0		
262	0	4	11:15:26.466	20DA5B	37MRL	Memory Realocate (software operates from R	4	0	5,329,384:13:0		
263	0	4	11:15:35.133	20DA6A	6MCOPI NIMS	NIMS,1000,LLM1A,7300,77F7	4	0	5,329,384:26:0		
264	0	4	11:15:45.133	20DA6B	6MCOPI NIMS	NIMS,1598,LLM1A,77F8,781D	4	0	5,329,384:41:0		
265	0	4	11:15:55.133	20DA5C	37IRT	Instrument Reset (goes into POR state)	4	0	5,329,384:56:0		
266	0	4	11:15:58.466	20DA5D	37MIN	Memory Normal (software operates from ROM)	260	4	0	5,329,384:61:0	
267	0	4	11:16:11.133	20DA4A	37IST	Chopper ON, Sync, Chopper (Ref)Gain State	2R0	4	0	5,329,384:80:0	
268	0	4	11:17:11.800	20DA4B	37IOP	Long Map, Grating Start Position =00	2R3	4	0	5,329,385:80:0	
269	0	4	11:17:12.466	20DA4C	37ETB	Loads wavelength edit table	2R3	4	0	5,329,385:81:0	
270	0	4	11:18:06.466	DMS:	: *E4-DELAY	RDY, TRACK *1, FWD, TIC 3549.62 +/- 2	2R3	4	0	5,329,386:71:0	
271	0	4	11:18:06.466	175DA422A6A	6DMSC	DMS Control	2R3	4	0	5,329,386:71:0	
272	0	4	11:18:10.466	117DA	CSMOS	***** GROUP START CSMOS	2R3	4	0	5,329,386:77:0	
273	0	4	11:18:13.133	DMS:	: *RUNUP	R28, TRACK *3, FWD, TIC 3549.62 +/- 2	2R3	4	0	5,329,386:81:0	

Line	YR	DOY	SCET - GMT	PSID	Command	Parameters	Description	GCM	GO	GS	RIM	MF I
274	0	4	11:18:16.466	175DA176A8A	6TMREC	MPW	28.8 KBPS PWS + NIMS RECORD Record Mode C	2R3	4	0	5,329,386:86:0	
275	0	4	11:18:17.133	26INHSLOK101-	NIMPBK	301DA	IO LOKI OBSERVATION	2R3	4	0	:	
276	0	4	11:18:17.133		DMS:	:*AT_SPD	R28, TRACK 3, FWD, TIC 3551.12 +/- 2	2R3	4	0	5,329,386:87:0	
277	0	4	11:18:17.133		DMS:	:*RECORD	R28, TRACK 3, FWD, TIC *3551.12 +/- 2	2R3	4	0	5,329,386:87:0	
278	0	4	11:18:18.466	165DA4B	7VECT		Inert vect update UTC	2R3	4	0	5,329,386:89:0	
279	0	4	11:18:19.800	117DA105A106A4A	7STRP	-0.014301,0.0,0.0,	Slew =,0.03	2R3	4	0	5,329,387:00:0	
280	0	4	11:18:21.800	26NNHSLOK101-		-----STOP-----		2R3	4	0	:	
281	0	4	11:21:35.133	26INHSLOK101-	NIMPBK	301DB	IO LOKI OBSERVATION	2R3	4	0	:	
282	0	4	11:21:43.800	26INHSLOK101-	DESELC	300DA	IO LOKI OBSERVATION	2R3	4	0	:	
283	0	4	11:24:56.466	26INHSLOK101-	DESELC	300DB	IO LOKI OBSERVATION	2R3	4	0	:	
284	0	4	11:24:57.133	175DA422A6B	6DMSC	RDY,0	DMS Control Tape stop	2R3	4	0	5,329,393:50:0	
285	0	4	11:24:57.133		DMS:	:*RUNDOWN	R28, TRACK 3, FWD, TIC *3902.68 +/- 2	2R3	4	0	5,329,393:50:0	
286	0	4	11:24:58.333		DMS:	:*READY	RDY, TRACK 3, FWD, TIC *3902.98 +/- 2	2R3	4	0	5,329,393:51:8	
287	0	4	11:26:21.800	26INHSLOK101-		-----STOP-----		2R3	4	0	:	
288	0	4	11:26:21.800	117DA11A	CSMOS	GE	***** GROUP END CSMOS	2R3	4	0	5,329,394:86:0	
289	0	4	11:28:02.466	165IG4A	7SCAN	NORM,8.784,4.265	Check SJP Position	2R3	4	0	5,329,396:55:0	
290	0	4	11:30:17.800		DMS:	:*E4-DELAY	RDY, TRACK *1, FWD, TIC 3902.98 +/- 2	2R3	4	0	5,329,398:76:0	
291	0	4	11:30:17.800	175IG422A6A	6DMSC	R806,3	DMS Control	2R3	4	0	5,329,398:76:0	
292	0	4	11:30:24.466		DMS:	:*RUNUP	R806, TRACK *3, FWD, TIC 3902.98 +/- 2	2R3	4	0	5,329,398:86:0	
293	0	4	11:30:26.466	165IG4B	7VECT		Inert vect update UTC	2R3	4	0	5,329,398:89:0	
294	0	4	11:30:29.133	175IG176A6A	6TMREC	IM8	806.4 KBPS IMAGE RECORD Record Mode Chang	2R3	4	0	5,329,399:02:0	
295	0	4	11:30:29.733		DMS:	:*AT_SPD	R806, TRACK 3, FWD, TIC 3968.98 +/- 3	2R3	4	0	5,329,399:02:9	
296	0	4	11:30:29.733		DMS:	:*RECORD	R806, TRACK 3, FWD, TIC *3968.98 +/- 2	2R3	4	0	5,329,399:02:9	
297	0	4	11:31:11.133		DMS:	:*RUNDOWN	R806, TRACK 3, FWD, TIC *4987.81 +/- 3	2R3	4	0	5,329,399:65:0	
298	0	4	11:31:11.133	175IG422A6B	6DMSC	RDY,0	DMS Control Tape stop	2R3	4	0	5,329,399:65:0	
299	0	4	11:31:13.866		DMS:	:*READY	RDY, TRACK 3, FWD, TIC *4999.31 +/- 3	2R3	4	0	5,329,399:69:1	
300	0	4	11:39:37.800	26NNDETECT03-		-----START-----		2R3	4	0	:	
301	0	4	11:39:41.133	20FC5A	37PL		Program Load (halts microprocessor & unwri	4	0	5,329,408:11:0		
302	0	4	11:39:43.133	20FC5B	37MRL		Memory Realocate (software operates from R	4	0	5,329,408:14:0		
303	0	4	11:39:47.800	20FC6A	6MCOPI	NIMS	NIMS,1000,LLM1A,7300,77F7	4	0	5,329,408:21:0		
304	0	4	11:39:57.800	20FC6B	6MCOPI	NIMS	NIMS,1598,LLM1A,77F8,781D	4	0	5,329,408:36:0		
305	0	4	11:40:07.800	20FC5C	37IRT		Instrument Reset (goes into POR state)	4	0	5,329,408:51:0		
306	0	4	11:40:14.466	20FC5D	37MN		Memory Normal (software operates from ROM)	260	4	0	5,329,408:61:0	
307	0	4	11:40:27.133	20FC4A	37IST	1,2,0,OFF,0,0,0	Chopper ON, Sync, Chopper (Ref)	2R0	4	0	5,329,408:80:0	
308	0	4	11:41:27.800	20FC4B	37IST	0,2,0,OFF,0,1,0	Gain State 2	2R0	4	0	5,329,409:80:0	
309	0	4	11:42:28.466	20FC4C	37MB	0,0,0,0,0,0,0	Selects mirror (spatial) edit table	2R0	4	0	5,329,410:80:0	
310	0	4	11:43:29.133	20FC4D	37IOP	3.0	Long Map, Grating Start Position =00	2R3	4	0	5,329,411:80:0	
311	0	4	11:43:29.800	20FC4E	37ETB	4,C,4,35,FF,FF	Loads wavelength edit table	2R3	4	0	5,329,411:81:0	
312	0	4	11:43:37.800	26NNDETECT03-		-----STOP-----		2R3	4	0	:	
313	0	4	11:44:41.133	26NNDETECT04-		-----START-----		2R3	4	0	:	
314	0	4	11:45:41.800	20FH6A	6MCOPI	B1A1A,69DE,NIMS,	B1A1A,69DE,NIMS,150F,1517	2R3	4	0	5,329,414:06:0	
315	0	4	11:45:50.466	20FH6B	6MCOPI	B1A1A,69E7,NIMS,	B1A1A,69E7,NIMS,150F,1517	2R3	4	0	5,329,414:19:0	
316	0	4	11:46:43.133	20FH6C	6MCOPI	B1A1A,69F0,NIMS,	B1A1A,69F0,NIMS,150F,1517	2R3	4	0	5,329,415:07:0	
317	0	4	11:46:51.800	20FH6D	6MCOPI	B1A1A,69F9,NIMS,	B1A1A,69F9,NIMS,150F,1517	2R3	4	0	5,329,415:20:0	
318	0	4	11:47:44.466	20FH6E	6MCOPI	B1A1A,6A02,NIMS,	B1A1A,6A02,NIMS,150F,1517	2R3	4	0	5,329,416:08:0	
319	0	4	11:47:53.133	20FH6F	6MCOPI	B1A1A,6A0B,NIMS,	B1A1A,6A0B,NIMS,150F,1517	2R3	4	0	5,329,416:21:0	
320	0	4	11:48:45.800	20FH6G	6MCOPI	B1A1A,6A14,NIMS,	B1A1A,6A14,NIMS,150F,1517	2R3	4	0	5,329,417:09:0	
321	0	4	11:48:54.466	20FH6H	6MCOPI	B1A1A,6A1D,NIMS,	B1A1A,6A1D,NIMS,150F,1517	2R3	4	0	5,329,417:22:0	
322	0	4	11:49:47.133	20FH6I	6MCOPI	B1A1A,6A26,NIMS,	B1A1A,6A26,NIMS,150F,1517	2R3	4	0	5,329,418:10:0	
323	0	4	11:49:55.800	20FH6J	6MCOPI	B1A1A,6A2F,NIMS,	B1A1A,6A2F,NIMS,150F,1517	2R3	4	0	5,329,418:23:0	
324	0	4	11:50:05.133	20KC4A	7SAFE	UNSTOW	S/P TO 153 deg cone	2R3	4	0	5,329,418:37:0	
325	0	4	11:50:48.466	20FH6K	6MCOPI	B1A1A,6A38,NIMS,	B1A1A,6A38,NIMS,150F,1517	2R3	4	0	5,329,419:11:0	
326	0	4	11:50:57.133	20FH6L	6MCOPI	B1A1A,6A41,NIMS,	B1A1A,6A41,NIMS,150F,1517	2R3	4	0	5,329,419:24:0	
327	0	4	11:51:49.800	20FH6M	6MCOPI	B1A1A,6A4A,NIMS,	B1A1A,6A4A,NIMS,150F,1517	2R3	4	0	5,329,420:12:0	
328	0	4	11:51:58.466	20FH6N	6MCOPI	B1A1A,6A53,NIMS,	B1A1A,6A53,NIMS,150F,1517	2R3	4	0	5,329,420:25:0	

Line	YR	DOY	SCET - GMT	PSID	Command	Parameters	Description	GCM	GO	GS	RIM	MF I
329	0	4	11:52:51.133	20FH60	6MCOPI	B1A1A,6A5C,NIMS,	B1A1A,6A5C,NIMS,150F,1517	2R3	4	0	5,329,421:13:0	
330	0	4	11:52:59.800	20FH6P	6MCOPI	B1A1A,6A65,NIMS,	B1A1A,6A65,NIMS,150F,1517	2R3	4	0	5,329,421:26:0	
331	0	4	11:53:52.466	20FH6Q	6MCOPI	B1A1A,6A6E,NIMS,	B1A1A,6A6E,NIMS,150F,1517	2R3	4	0	5,329,422:14:0	
332	0	4	11:54:01.133	20FH6R	6MCOPI	B1A1A,6A77,NIMS,	B1A1A,6A77,NIMS,150F,1517	2R3	4	0	5,329,422:27:0	
333	0	4	11:54:53.800	20FH6S	6MCOPI	B1A1A,6A80,NIMS,	B1A1A,6A80,NIMS,150F,1517	2R3	4	0	5,329,423:15:0	
334	0	4	11:55:02.466	20FH6T	6MCOPI	B1A1A,6A89,NIMS,	B1A1A,6A89,NIMS,150F,1517	2R3	4	0	5,329,423:28:0	
335	0	4	11:55:55.133	20FH6U	6MCOPI	B1A1A,6A92,NIMS,	B1A1A,6A92,NIMS,150F,1517	2R3	4	0	5,329,424:16:0	
336	0	4	11:56:03.800	20FH6V	6MCOPI	B1A1A,6A9B,NIMS,	B1A1A,6A9B,NIMS,150F,1517	2R3	4	0	5,329,424:29:0	
337	0	4	11:56:56.466	20FH6W	6MCOPI	B1A1A,6AA4,NIMS,	B1A1A,6AA4,NIMS,150F,1517	2R3	4	0	5,329,425:17:0	
338	0	4	11:57:05.133	20FH6X	6MCOPI	B1A1A,6AAD,NIMS,	B1A1A,6AAD,NIMS,150F,1517	2R3	4	0	5,329,425:30:0	
339	0	4	11:57:57.800	20FH6Y	6MCOPI	B1A1A,6AB6,NIMS,	B1A1A,6AB6,NIMS,150F,1517	2R3	4	0	5,329,426:18:0	
340	0	4	11:58:06.466	20FH6Z	6MCOPI	B1A1A,6ABF,NIMS,	B1A1A,6ABF,NIMS,150F,1517	2R3	4	0	5,329,426:31:0	
341	0	4	11:58:50.466	26NNDTECT04-		-----STOP-----		2R3	4	0	:::	
342	0	4	11:59:41.133	26NNDTECT02-		-----STOP-----		2R3	4	0	:::	
343	0	4	12:04:59.800	480SD6A	6MROH	44,23E8,0,A2	read from LLM2A44,23E8,0,A2	2R3	4	0	5,329,433:14:0	
344	0	4	12:11:39.800	480SD6B	6MROH	45,23E8,0,B2	read from LLM2B45,23E8,0,B2	2R3	4	0	5,329,439:68:0	
345	0	4	12:29:43.133	488AI6D	6TMSED	NORM,EL4	Sci, Eng. and D/L Chan	2R3	4	0	5,329,457:55:0	
346	0	4	12:46:29.800	488AI6E	6TMSED	FILL,EL4	Sci, Eng. and D/L Chan	2R3	4	0	5,329,474:18:0	
347	0	4	12:48:23.133	488AJ6A	6TMSED	FILL,AL4	Sci, Eng. and D/L Chan	2R3	4	0	5,329,476:06:0	
348	0	4	12:48:55.133	488AJ6B	6TMSED	FILL,AL3	Sci, Eng. and D/L Chan	2R3	4	0	5,329,476:54:0	
349	0	4	12:59:35.133	488AJ6C	6TMSED	FILL,AL4	Sci, Eng. and D/L Chan	2R3	4	0	5,329,487:13:0	
350	0	4	18:43:21.133	20MC6A	6CKSUM	MAG,4040,46F0		2R3	4	0	5,329,827:12:0	
351	0	4	19:56:01.133		DMS:	:*E4-DELAY	RDY, TRACK *1, FWD, TIC 4999.31 +/- 3	2R3	4	0	5,329,899:00:0	
352	0	4	19:56:01.133	411JA6A	6DMSC	R7,0	DMS Control Tape runup 7.68kps	2R3	4	0	5,329,899:00:0	
353	0	4	19:56:07.800		DMS:	:*RUNUP	R7, TRACK *3, FWD, TIC 4999.31 +/- 3	2R3	4	0	5,329,899:10:0	
354	0	4	19:56:09.200		DMS:	:*RECORD	R7, TRACK 3, FWD, TIC 4999.43 +/- 3	2R3	4	0	5,329,899:12:1	
355	0	4	19:56:09.200		DMS:	:*AT SPD	R7, TRACK 3, FWD, TIC 4999.43 +/- 3	2R3	4	0	5,329,899:12:1	
356	0	4	19:56:11.133	411JA6B	6TMREC	BDT	7.68 KBPS BUFFER DUMP TO TAPE Record Mode	2R3	4	0	5,329,899:15:0	
357	0	4	19:58:12.466	411JA6C	6TMREC	NRC	NO RECORD Record Mode Change	2R3	4	0	5,329,901:15:0	
358	0	4	19:58:13.133	411JA6D	6DMSC	RDY,0	DMS Control Tape stop	2R3	4	0	5,329,901:16:0	
359	0	4	19:58:13.133		DMS:	:*RUNDOWN	R7, TRACK 3, FWD, TIC *5028.47 +/- 3	2R3	4	0	5,329,901:16:0	
360	0	4	19:58:14.333		DMS:	:*READY	RDY, TRACK 3, FWD, TIC *5028.53 +/- 3	2R3	4	0	5,329,901:17:8	
361	0	4	20:05:05.133		DMS:	:*E4-DELAY	RDY, TRACK *1, FWD, TIC 5028.53 +/- 3	2R3	4	0	5,329,907:88:0	
362	0	4	20:05:05.133	175KA422A6A	6DMSC	R7,3	DMS Control	2R3	4	0	5,329,907:88:0	
363	0	4	20:05:11.800		DMS:	:*RUNUP	R7, TRACK *3, FWD, TIC 5028.53 +/- 3	2R3	4	0	5,329,908:07:0	
364	0	4	20:05:13.133	175KA176A6A	6TMREC	LPW	7.68 KBPS LOW RATE SCI PWS RECORD Record	2R3	4	0	5,329,908:09:0	
365	0	4	20:05:13.200		DMS:	:*AT SPD	R7, TRACK 3, FWD, TIC 5028.65 +/- 3	2R3	4	0	5,329,908:09:1	
366	0	4	20:05:13.200		DMS:	:*RECORD	R7, TRACK 3, FWD, TIC *5028.65 +/- 3	2R3	4	0	5,329,908:09:1	
367	0	4	20:05:36.466	175KA422A6B	6DMSC	RDY,0	DMS Control Tape stop	2R3	4	0	5,329,908:44:0	
368	0	4	20:05:36.466		DMS:	:*RUNDOWN	R7, TRACK 3, FWD, TIC *5034.11 +/- 3	2R3	4	0	5,329,908:44:0	
369	0	4	20:05:37.666		DMS:	:*READY	RDY, TRACK 3, FWD, TIC *5034.17 +/- 3	2R3	4	0	5,329,908:45:8	
370	0	4	20:15:13.800	465KC6A	6DMSC	RDY,1	DMS Control Tape stop	2R3	4	0	5,329,918:00:0	
371	0	4	20:15:13.800		DMS:	:*READY	RDY, TRACK *1, FWD, TIC 5034.17 +/- 3	2R3	4	0	5,329,918:00:0	
372	0	5	01:57:58.400	432JB6B	6RTD52	NIMCG,AACDSL,RT	AACS DESELECT	2R3	4	0	5,330,256:89:0	
373	0	5	04:16:27.733	488AK6A	6TMSED	NORM,AL4	Sci, Eng. and D/L Chan	2R3	4	0	5,330,393:86:0	
374	0	5	04:36:07.066	488AK6B	6TMSED	NORM,AL5	Sci, Eng. and D/L Chan	2R3	4	0	5,330,413:35:0	
375	0	5	05:33:20.400	488AK6C	6TMSED	FILL,AL5	Sci, Eng. and D/L Chan	2R3	4	0	5,330,469:89:0	
376	0	5	06:02:26.400	488AK6D	6TMSED	NORM,AL5	Sci, Eng. and D/L Chan	2R3	4	0	5,330,498:69:0	
377	0	5	09:15:32.400	488AK6E	6TMSED	FILL,AL5	Sci, Eng. and D/L Chan	2R3	4	0	5,330,689:67:0	
378	0	5	16:54:35.733	488AL6A	6TMSED	NORM,AL5	Sci, Eng. and D/L Chan	2R3	4	0	5,331,143:68:0	
379	0	5	17:29:59.733	20TS4A	7SAFE	STOP	S/P NO MOVEMENT	2R3	4	0	5,331,178:69:0	
380	0	5	17:30:49.733	20TS4B	7SLEW	DIS,POS,0.0	Stator movement	2R3	4	0	5,331,179:53:0	
381	0	5	17:30:57.733	20TS4F	7STAR	1,1610,278,815.3	Star catalog update	2R3	4	0	5,331,179:65:0	
382	0	5	17:30:59.733	20TS4G	7STAR	2,317,120,456,-3	Star catalog update	2R3	4	0	5,331,179:68:0	
383	0	5	17:31:01.733	20TS4H	7STAR	3,133,165,161.62	Star catalog update	2R3	4	0	5,331,179:71:0	

Line	YR	DOY	SCET - GMT	PSID	Command	Parameters	Description	GCM	GO	GS	RM	MF I
384	0	5	17:31:03.733	20TS4I	7STAR	4,0,0,0,0,0	Star catalog update	2R3	4	0	5,331,179:74:0	
385	0	5	17:31:05.733	20TS4J	7STAR	5,0,0,0,0,0	Star catalog update	2R3	4	0	5,331,179:77:0	
386	0	5	17:31:07.733	20TS4K	7STAR	6,0,0,0,0,0	Star catalog update	2R3	4	0	5,331,179:80:0	
387	0	5	18:13:25.733	488AL6B	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	2R3	4	0	5,331,221:65:0	
388	0	5	18:42:31.733	488AL6C	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	2R3	4	0	5,331,250:45:0	
389	0	5	19:02:59.733	488AL6D	6TMSED	NORM,AH5	Sci, Eng, and D/L Chan	2R3	4	0	5,331,270:67:0	
390	0	5	19:38:59.733	20SV4I	7MODE	INT	AACS INERTIAL MODE	2R3	4	0	5,331,306:31:0	
391	0	5	19:53:59.733	20SV4K	7SLEW	INIT_POS,17,45	Stator movement	2R3	4	0	5,331,321:16:0	
392	0	5	20:05:59.733	20SV4L	7SLEW	DIS_POS,0,0	Stator movement	2R3	4	0	5,331,333:04:0	
393	0	5	20:12:59.733	20SV4M	7SLEW	INIT_NEG,17,45	Stator movement	2R3	4	0	5,331,339:88:0	
394	0	5	20:24:59.733	20SV4N	7SLEW	DIS_POS,0,0	Stator movement	2R3	4	0	5,331,351:76:0	
395	0	5	20:36:59.733	20SV4AH	7MODE	CRU	AACS CRUISE MODE	2R3	4	0	5,331,363:64:0	
396	0	5	20:53:03.733	20SU4A	7SAFE	STOP	S/P NO MOVEMENT	2R3	4	0	5,331,379:54:0	
397	0	5	20:53:53.733	20SU4B	7SLEW	DIS_POS,0,0	Stator movement	2R3	4	0	5,331,380:38:0	
398	0	5	20:54:29.066	176TE6A	6TMREC	IPB	INITIATE PLAYBACK (PB CONTROL) Record Mod	2R3	4	0	5,331,381:00:0	
399	0	5	21:12:59.733	488AL6E	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	2R3	4	0	5,331,399:28:0	
400	0	5	22:39:51.066	488AM6A	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	2R3	4	0	5,331,485:19:0	
401	0	5	23:54:31.066	488AM6B	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	2R3	4	0	5,331,559:05:0	
402	0	6	00:54:50.400	488AM6C	6TMSED	FILL,AL6	Sci, Eng, and D/L Chan	2R3	4	0	5,331,618:65:0	
403	0	6	01:21:40.400	488AM6D	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	2R3	4	0	5,331,645:23:0	
404	0	6	01:29:59.733	480SE6A	6MROH	44,23E8,0,A2	read from LLM2A44,23E8,0,A2	2R3	4	0	5,331,653:44:0	
405	0	6	01:36:39.733	480SE6B	6MROH	45,23E8,0,B2	read from LLM2B45,23E8,0,B2	2R3	4	0	5,331,660:07:0	
406	0	6	01:44:59.733	480MB6A	6MROH	12,2282,0,A2	read from LLM1A12,2282,0,A2	2R3	4	0	5,331,668:29:0	
407	0	6	01:44:59.733	480MB6B	6MROH	12,2282,0,A2	read from LLM1A12,2282,0,A2	2R3	4	0	5,331,668:29:0	
408	0	6	02:10:56.400	43TZL6A	6RCDSL	DDSNCG,PLSNCG,EP	Record Deselect (DDS o	2R3	4	0	5,331,693:89:0	
409	0	6	02:15:04.400	20ZM6A	6EUVOH			2R3	4	0	5,331,698:06:0	
410	0	6	02:16:01.066	431ZM6A	6RCSEL	DDSNCG,PLSNCG,EP	Record Select (DDS onl	2R3	4	0	5,331,699:00:0	
411	0	6	02:24:06.400	432YL6A	6RTSL1		R/T Select of DDS and	2R3	4	0	5,331,707:00:0	
412	0	6	02:30:45.733	26NNRELOAD01-		-----START-----		2R3	4	0	:	
413	0	6	02:30:51.066	20FN5A	37PL		Program Load (halts microprocessor & unwri	4	0	5,331,713:61:0		
414	0	6	02:30:54.400	20FN5B	37MRL		Memory Realocate (software operates from R	4	0	5,331,713:66:0		
415	0	6	02:30:57.733	20FN6A	6MCOPY	NIMS	NIMS,1000,LLM1A,7300,77F7	4	0	5,331,713:71:0		
416	0	6	02:31:07.733	20FN6B	6MCOPY	NIMS	NIMS,1598,LLM1A,77F8,781D	4	0	5,331,713:86:0		
417	0	6	02:31:21.733	20FN5C	37IRT		Instrument Reset (goes into POR state)	4	0	5,331,714:16:0		
418	0	6	02:31:25.066	20FN5D	37MIN		Memory Normal (software operates from ROM)	260	4	0	5,331,714:21:0	
419	0	6	02:32:05.066	20FN4A	37IST	1,2,0,OFF,0,1,0	Chopper ON, Sync, Chopper (Ref)Gain State	2R0	4	0	5,331,714:81:0	
420	0	6	02:33:07.733	127FO4A	37IOP	3,0	Long Map, Grating Start Position =00	2R3	4	0	5,331,715:84:0	
421	0	6	02:33:07.733	127FO	NIMSTAB	GS	%%%%GROUP START TAB	2R3	4	0	5,331,715:84:0	
422	0	6	02:33:08.400	127FO4B	37ETB	04,C4,35,FF,FF	Loads wavelength edit table	2R3	4	0	5,331,715:85:0	
423	0	6	02:33:16.400	127FO11A	NIMSTAB	GE	%%%%GROUP END TAB	2R3	4	0	5,331,716:06:0	
424	0	6	02:33:45.733	26NNRELOAD01-		-----STOP-----		2R3	4	0	:	
425	0	6	02:38:11.066	127FN4A	37IOP	0,0	Safe, Grating Start Position =00	2R0	4	0	5,331,720:84:0	
426	0	6	02:38:11.066	127FN	NIMSTAB	GS	%%%%GROUP START TAB	2R0	4	0	5,331,720:84:0	
427	0	6	02:38:11.066	26NNC-HOPOF01-		-----START-----		2R0	4	0	:	
428	0	6	02:38:11.733	127FN4B	37ETB	04,C4,02,00,00	Loads wavelength edit table	2R0	4	0	5,331,720:85:0	
429	0	6	02:38:19.733	127FN11A	NIMSTAB	GE	%%%%GROUP END TAB	2R0	4	0	5,331,721:06:0	
430	0	6	02:41:13.066	125FN4A	37IST	1,0,0,OFF,0,0,0	Chopper ON, Sync, 63Hz (Ref)	260	4	0	5,331,723:84:0	
431	0	6	02:41:13.066	125FN	NIMSNIT	GS	##### GROUP START INIT	260	4	0	5,331,723:84:0	
432	0	6	02:42:13.733	125FN4B	37IST	1,1,0,OFF,0,0,0	Chopper OFF, N/A, 63Hz (Ref)	200	4	0	5,331,724:84:0	
433	0	6	02:43:14.400	125FN11A	NIMSNIT	GE	##### GROUP END INIT	200	4	0	5,331,725:84:0	
434	0	6	02:43:14.400	125FN4C	37MB	0,0,0,0,0,0,0	Selects mirror (spatial) edit table	200	4	0	5,331,725:84:0	
435	0	6	05:41:29.066	488AN6A	6TMSED	FILL,AL6	Sci, Eng, and D/L Chan	200	4	0	5,331,902:19:0	
436	0	6	05:44:23.066	488AN6B	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,331,905:07:0	
437	0	6	13:34:29.000	26NNC-HOPOF01-		-----STOP-----		200	4	0	:	
438	0	6	17:54:25.666	488AO6A	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,332,627:09:0	

Line	YR	DOY	SCET - GMT	PSID	Command	Parameters	Description	GCM	GO	GS	RIM	MF I
439	0	6	19:13:34.333	488AO6B	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,332,705:34:0	
440	0	6	19:42:40.333	488AO6C	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,332,734:14:0	
441	0	6	22:44:07.000	488AO6D	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,332,913:55:0	
442	0	6	23:51:19.666	488AO6E	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,332,980:07:0	
443	0	6	23:54:31.000	488AP6A	6TMSED	FILL,AL3	Sci, Eng, and D/L Chan	200	4	0	5,332,983:21:0	
444	0	7	00:05:11.000	488AP6B	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,332,993:71:0	
445	0	7	01:00:00.333	481UH4A	7VECT		Inert vect update UTC	200	4	0	5,333,048:00:0	
446	0	7	04:47:30.333	432YN6A	6RTSL1		R/T Select of DDS and	200	4	0	5,333,273:00:0	
447	0	7	05:49:21.666	488AP6C	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,333,334:16:0	
448	0	7	07:08:39.666	488AQ6A	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,333,412:55:0	
449	0	7	07:37:45.666	488AQ6B	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,333,441:35:0	
450	0	7	08:36:01.000	176QA6A	6TMREC	PPB	PAUSE PLAYBACK (PB CONTROL) Record Mode C	200	4	0	5,333,499:00:0	
451	0	7	08:41:20.333	20UM4B	7SAFE	UNSTOW	S/P TO 153 deg cone	200	4	0	5,333,504:24:0	
452	0	7	09:00:20.333	20UM4D	7MODE	INT	AACS INERTIAL MODE	200	4	0	5,333,523:05:0	
453	0	7	11:47:00.333	20UM4F	7MODE	CRU	AACS CRUISE MODE	200	4	0	5,333,687:81:0	
454	0	7	11:53:00.333	488AQ6C	6TMSED	NORM,AH5	Sci, Eng, and D/L Chan	200	4	0	5,333,693:75:0	
455	0	7	11:53:27.000	488AQ6D	6TMSED	NORM,AH4	Sci, Eng, and D/L Chan	200	4	0	5,333,694:24:0	
456	0	7	12:08:00.333	20AA4AA	7STAT	10.00,109.7424,-	Stator inertial point	200	4	0	5,333,708:60:0	
457	0	7	12:08:12.333	20AA6AA	6MROH	7,6744,0,A10	read from AACSA7,6744,0,A10	200	4	0	5,333,708:78:0	
458	0	7	12:14:00.333	474AA416A4B	7MODE	INT	AACS INERTIAL MODE	200	4	0	5,333,714:54:0	
459	0	7	12:16:00.333	474AA416A4D	7SAFE	UNSTOW	S/P TO 153 deg cone	200	4	0	5,333,716:52:0	
460	0	7	12:16:20.333	20AA4AD	7STAT	17.45,109.7424,-	Stator inertial point	200	4	0	5,333,716:82:0	
461	0	7	12:18:00.333	20AA6AC	6TMSED	NORM,BA4	Sci, Eng, and D/L Chan	200	4	0	5,333,718:50:0	
462	0	7	12:20:14.333	474AA416A4E	7BURN	09.742399,-24.16	ALERT -- Thruster fire	200	4	0	5,333,720:69:0	
463	0	7	13:27:58.333	20AA4AF	7SLEW	DIS,POS,0.0	Stator movement	200	4	0	5,333,787:68:0	
464	0	7	13:31:35.000	488AR6A	6TMSED	NORM,AH5	Sci, Eng, and D/L Chan	200	4	0	5,333,791:29:0	
465	0	7	13:33:50.333	20AA4AG	7MODE	CRU	AACS CRUISE MODE	200	4	0	5,333,793:50:0	
466	0	7	13:43:42.333	488AR6B	6TMSED	FILL,AH5	Sci, Eng, and D/L Chan	200	4	0	5,333,803:28:0	
467	0	7	14:17:48.333	488AR6C	6TMSED	NORM,AH5	Sci, Eng, and D/L Chan	200	4	0	5,333,837:03:0	
468	0	7	14:52:06.333	20AA4AL	7STAT	10.00,109.7424,-	Stator inertial point	200	4	0	5,333,870:87:0	
469	0	7	14:52:18.333	20AA6AB	6MROH	7,6744,0,A10	read from AACSA7,6744,0,A10	200	4	0	5,333,871:14:0	
470	0	7	14:58:06.333	20AA4AN	7MODE	INT	AACS INERTIAL MODE	200	4	0	5,333,876:81:0	
471	0	7	15:00:06.333	474AA416A4K	7BURN	09.742399,-24.16	ALERT -- Thruster fire	200	4	0	5,333,878:79:0	
472	0	7	16:07:30.933	20AA4AP	7SLEW	DIS,POS,0.0	Stator movement	200	4	0	5,333,945:49:0	
473	0	7	16:12:22.933	20AA4AQ	7MODE	CRU	AACS CRUISE MODE	200	4	0	5,333,950:32:0	
474	0	7	17:55:54.933	20AB4A	7SAFE	STOP	S/P NO MOVEMENT	200	4	0	5,334,052:68:0	
475	0	7	17:56:44.933	20AB4B	7SLEW	DIS,POS,0.0	Stator movement	200	4	0	5,334,053:52:0	
476	0	7	17:58:11.600	176AA6A	6TMREC	PPB	RESUME PLAYBACK (PB CONTROL) Record Mode	200	4	0	5,334,055:00:0	
477	0	7	19:59:50.933	488AS6A	6TMSED	NORM,AH4	Sci, Eng, and D/L Chan	200	4	0	5,334,175:29:0	
478	0	7	20:36:06.933	488AS6B	6TMSED	NORM,AH5	Sci, Eng, and D/L Chan	200	4	0	5,334,211:17:0	
479	0	7	21:18:44.266	488AS6C	6TMSED	FILL,AH5	Sci, Eng, and D/L Chan	200	4	0	5,334,253:31:0	
480	0	7	21:52:50.933	488AS6D	6TMSED	NORM,AH5	Sci, Eng, and D/L Chan	200	4	0	5,334,287:07:0	
481	0	7	23:16:06.933	488AS6E	6TMSED	NORM,AH6	Sci, Eng, and D/L Chan	200	4	0	5,334,369:39:0	
482	0	8	02:01:00.266	488AT6A	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,334,532:46:0	
483	0	8	02:01:30.266	176QF6A	6TMREC	PPB	PAUSE PLAYBACK (PB CONTROL) Record Mode C	200	4	0	5,334,533:00:0	
484	0	8	02:05:00.266	444SB443A4A	7MODE	CRU	AACS CRUISE MODE	200	4	0	5,334,536:42:0	
485	0	8	02:10:04.266	20UF4A	7SAFE	STOP	S/P NO MOVEMENT	200	4	0	5,334,541:43:0	
486	0	8	02:10:54.266	20UF4B	7SLEW	DIS,POS,0.0	Stator movement	200	4	0	5,334,542:27:0	
487	0	8	02:12:37.600	176QG6A	6TMREC	PPB	RESUME PLAYBACK (PB CONTROL) Record Mode	200	4	0	5,334,544:00:0	
488	0	8	02:54:03.600	431YL6A	6RCDSL	DDSNCG,PLSNCG,EP	Record Deselect (DDS o	200	4	0	5,334,584:89:0	
489	0	8	02:57:13.600	20YC6A	6HICON		Record Select (DDS onl	200	4	0	5,334,588:10:0	
490	0	8	02:58:07.600	431YM6A	6RCSEL	DDSNCG,PLSNCG,EP	Record Select (DDS onl	200	4	0	5,334,589:00:0	
491	0	8	03:10:17.600	488AT6B	6TMSED	FILL,AL6	Sci, Eng, and D/L Chan	200	4	0	5,334,601:03:0	
492	0	8	03:12:54.933	488AT6C	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,334,603:57:0	
493	0	8	12:25:56.266	488AU6A	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,335,150:52:0	

Line	YR	DOY	SCET - GMT	PSID	Command	Parameters	Description	GCM	GO	GS	RIM	MF I
494	0	8	13:31:34.933	488AU6B	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,335,215:45:0	
495	0	8	13:43:51.600	488AU6C	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,335,227:58:0	
496	0	8	14:12:57.600	488AU6D	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,335,256:38:0	
497	0	8	20:10:00.266	488AV6A	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,335,609:49:0	
498	0	8	20:16:54.933	488AV6B	6TMSED	FILL,AL6	Sci, Eng, and D/L Chan	200	4	0	5,335,616:34:0	
499	0	9	05:53:09.533	488AW6A	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,336,186:26:0	
500	0	9	06:35:34.866	488AW6B	6TMSED	NORM,AL7	Sci, Eng, and D/L Chan	200	4	0	5,336,228:22:0	
501	0	9	08:58:30.866	488AW6C	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,336,369:55:0	
502	0	9	10:50:35.533	488AW6D	6TMSED	FILL,AL6	Sci, Eng, and D/L Chan	200	4	0	5,336,480:41:0	
503	0	9	10:53:42.866	488AW6E	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,336,483:49:0	
504	0	9	11:59:54.200	431MB6A	6RCSSEL	DDSSSEL,PLSNCG,EP	Record Select (DDS onl	200	4	0	5,336,549:00:0	
505	0	9	12:15:47.533	488AX6A	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,336,564:65:0	
506	0	9	12:46:46.866	488AX6B	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,336,595:33:0	
507	0	9	14:12:06.866	488AX6C	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,336,679:69:0	
508	0	9	21:44:22.866	488AY6A	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,337,127:05:0	
509	0	9	23:09:42.866	488AY6B	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,337,211:41:0	
510	0	9	23:21:50.866	488AY6C	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,337,223:41:0	
511	0	9	23:28:54.866	488AY6D	6TMSED	FILL,AL3	Sci, Eng, and D/L Chan	200	4	0	5,337,230:40:0	
512	0	10	12:11:58.800	488AZ6A	6TMSED	NORM,AL3	Sci, Eng, and D/L Chan	200	4	0	5,337,985:11:0	
513	0	10	12:21:10.800	488AZ6B	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,337,994:20:0	
514	0	10	13:27:18.800	488AZ6C	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,338,059:57:0	
515	0	10	13:34:09.466	488AZ6D	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,338,066:36:0	
516	0	10	14:03:15.466	488AZ6E	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,338,095:16:0	
517	0	10	22:18:30.800	488BA6A	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,338,584:90:0	
518	0	10	23:30:33.466	488BA6B	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,338,656:22:0	
519	0	10	23:33:10.800	488BA6C	6TMSED	FILL,AL3	Sci, Eng, and D/L Chan	200	4	0	5,338,658:76:0	
520	0	11	12:11:49.466	488BB6A	6TMSED	NORM,AL3	Sci, Eng, and D/L Chan	200	4	0	5,339,409:13:0	
521	0	11	12:21:10.800	488BB6B	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,339,418:36:0	
522	0	11	13:25:10.800	488BB6C	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,339,481:63:0	
523	0	11	13:34:18.800	488BB6D	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,339,490:66:0	
524	0	11	14:03:24.800	488BB6E	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,339,519:46:0	
525	0	11	12:14:14.733	488BC6A	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,340,004:86:0	
526	0	11	23:26:45.400	488BC6B	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,340,076:60:0	
527	0	11	23:35:18.733	488BC6C	6TMSED	FILL,AL6	Sci, Eng, and D/L Chan	200	4	0	5,340,085:11:0	
528	0	12	08:37:41.400	488BD6A	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,340,621:49:0	
529	0	12	11:38:30.733	488BD6B	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,340,800:34:0	
530	0	12	12:12:38.733	488BD6C	6TMSED	NORM,AL3	Sci, Eng, and D/L Chan	200	4	0	5,340,834:12:0	
531	0	12	12:17:13.400	488BD6D	6TMSED	FILL,AL3	Sci, Eng, and D/L Chan	200	4	0	5,340,838:60:0	
532	0	12	12:23:18.733	488BD6E	6TMSED	FILL,AL2	Sci, Eng, and D/L Chan	200	4	0	5,340,844:62:0	
533	0	12	12:38:14.733	488BE6A	6TMSED	FILL,AL6	Sci, Eng, and D/L Chan	200	4	0	5,340,859:41:0	
534	0	12	17:37:38.066	488BE6B	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,341,155:50:0	
535	0	12	19:27:50.733	488BF6A	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,341,264:50:0	
536	0	12	19:55:34.733	488BF6B	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,341,291:89:0	
537	0	12	20:51:02.733	488BF6C	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,341,346:76:0	
538	0	13	01:10:28.666	488BF6D	6TMSED	FILL,AL6	Sci, Eng, and D/L Chan	200	4	0	5,341,603:38:0	
539	0	13	01:13:26.666	488BF6E	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,341,606:32:0	
540	0	14	00:23:19.333	488BG6A	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,342,980:87:0	
541	0	14	01:44:40.666	488BG6B	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,343,061:38:0	
542	0	14	02:13:46.666	488BG6C	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,343,090:18:0	
543	0	14	05:57:10.666	488BG6D	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,343,311:13:0	
544	0	14	06:51:25.333	488BH6A	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,343,364:72:0	
545	0	14	07:01:10.666	488BH6B	6TMSED	FILL,AL6	Sci, Eng, and D/L Chan	200	4	0	5,343,374:40:0	
546	0	14	09:52:23.266	488BH6C	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,343,543:70:0	
547	0	14	10:56:19.266	176UW6A	6TMREC	PPB	PAUSE PLAYBACK (PB CONTROL)	200	4	0	5,343,607:00:0	
548	0	14	11:01:59.933	20UQ4B	7SLEW	DIS,POS:0.0	Stator movement	200	4	0	5,343,612:56:0	

Line	YR	DOY	SCET - GMT	PSID	Command	Parameters	Description	GCM	GO	GS	RIM	MF I
549	0	14	11:02:59.933	20UQ4D	7MODE	SPNL	AACS ALL-SPIN LOW	200	4	0	5,343,613:55:0	
550	0	14	11:04:59.933	20UQ4E	7SAFE	UNSTOW	S/P TO 153 deg cone	200	4	0	5,343,615:53:0	
551	0	14	11:10:29.933	20UQ4G	7VENT	0.611,1.333,8	ALERT -- Thruster fire	200	4	0	5,343,621:02:0	
552	0	14	11:10:30.600	20UQ4H	7VENT	0.611,10.989,8	ALERT -- Thruster fire	200	4	0	5,343,621:03:0	
553	0	14	11:10:50.600	20UQ4I	7VENT	0.611,1.333,6	ALERT -- Thruster fire	200	4	0	5,343,621:33:0	
554	0	14	11:10:51.266	20UQ4J	7VENT	0.611,10.989,6	ALERT -- Thruster fire	200	4	0	5,343,621:34:0	
555	0	14	11:11:11.266	20UQ4K	7VENT	0.611,1.333,4	ALERT -- Thruster fire	200	4	0	5,343,621:64:0	
556	0	14	11:11:11.933	20UQ4L	7VENT	0.611,0.666,5	ALERT -- Thruster fire	200	4	0	5,343,621:65:0	
557	0	14	11:11:21.933	20UQ4M	7VENT	0.611,1.333,4	ALERT -- Thruster fire	200	4	0	5,343,621:80:0	
558	0	14	11:11:22.600	20UQ4N	7VENT	0.611,0.666,5	ALERT -- Thruster fire	200	4	0	5,343,621:81:0	
559	0	14	11:11:32.600	20UQ4O	7VENT	1.211,1.333,10	ALERT -- Thruster fire	200	4	0	5,343,622:05:0	
560	0	14	11:11:33.266	20UQ4P	7VENT	1.211,0.666,12	ALERT -- Thruster fire	200	4	0	5,343,622:06:0	
561	0	14	11:13:19.933	20UQ4S	7VENT	0.611,1.333,7	ALERT -- Thruster fire	200	4	0	5,343,623:75:0	
562	0	14	11:13:20.600	20UQ4T	7VENT	0.611,10.989,7	ALERT -- Thruster fire	200	4	0	5,343,623:76:0	
563	0	14	11:13:40.600	20UQ4U	7VENT	0.611,1.333,1	ALERT -- Thruster fire	200	4	0	5,343,624:15:0	
564	0	14	11:13:41.266	20UQ4V	7VENT	0.611,10.989,1	ALERT -- Thruster fire	200	4	0	5,343,624:16:0	
565	0	14	11:14:01.266	20UQ4AC	7VENT	0.611,1.333,2	ALERT -- Thruster fire	200	4	0	5,343,624:46:0	
566	0	14	11:14:01.933	20UQ4AD	7VENT	0.611,0.666,3	ALERT -- Thruster fire	200	4	0	5,343,624:47:0	
567	0	14	11:14:11.933	20UQ4AE	7VENT	0.611,1.333,2	ALERT -- Thruster fire	200	4	0	5,343,624:62:0	
568	0	14	11:14:12.600	20UQ4AF	7VENT	0.611,0.666,3	ALERT -- Thruster fire	200	4	0	5,343,624:63:0	
569	0	14	11:14:22.600	20UQ4AW	7VENT	1.211,1.333,9	ALERT -- Thruster fire	200	4	0	5,343,624:78:0	
570	0	14	11:14:23.266	20UQ4X	7VENT	1.211,0.666,11	ALERT -- Thruster fire	200	4	0	5,343,624:79:0	
571	0	14	11:15:19.933	20UQ4Z	7MODE	CRU	AACS CRUISE MODE	200	4	0	5,343,625:73:0	
572	0	14	11:27:50.600	488BH6D	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,343,638:16:0	
573	0	14	11:40:03.933	20UW4A	7SAFE	STOP	S/P NO MOVEMENT	200	4	0	5,343,650:24:0	
574	0	14	11:40:53.933	20UW4B	7SLEW	DIS,POS,0.0	Stator movement	200	4	0	5,343,651:08:0	
575	0	14	11:42:49.933	176UX6A	6TMREC	RPB	RESUME PLAYBACK (PB CONTROL) Record Mode	200	4	0	5,343,653:00:0	
576	0	14	12:07:09.933	488BH6E	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,343,677:06:0	
577	0	14	12:08:22.600	488BI6A	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,343,678:24:0	
578	0	14	12:16:54.600	488BI6B	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,343,686:64:0	
579	0	14	13:38:14.600	488BI6C	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,343,767:13:0	
580	0	14	14:16:22.600	488BI6D	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,343,804:78:0	
581	0	14	21:03:50.600	488BJ6A	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,344,207:77:0	
582	0	14	22:41:58.600	488BJ6B	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,344,304:82:0	
583	0	14	23:16:19.266	488BJ6C	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,344,338:79:0	
584	0	14	23:24:38.600	488BJ6D	6TMSED	FILL,AL6	Sci, Eng, and D/L Chan	200	4	0	5,344,347:09:0	
585	0	14	23:47:17.933	488BJ6E	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,344,369:46:0	
586	0	15	05:27:18.600	488BK6A	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,344,705:71:0	
587	0	15	06:27:02.600	488BK6B	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,344,764:78:0	
588	0	15	06:41:15.933	488BK6C	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,344,778:84:0	
589	0	15	12:09:53.266	488BL6A	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,345,103:85:0	
590	0	15	12:29:42.600	488BL6B	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,345,123:49:0	
591	0	15	14:16:22.600	488BL6C	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,345,229:03:0	
592	0	15	16:55:01.200	488BL6D	6TMSED	FILL,AL6	Sci, Eng, and D/L Chan	200	4	0	5,345,385:85:0	
593	0	15	16:58:30.533	488BL6E	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,345,389:35:0	
594	0	15	19:34:50.533	488BM6A	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,345,544:00:0	
595	0	15	19:44:54.533	488BM6B	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,345,553:87:0	
596	0	15	20:51:02.533	488BM6C	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,345,619:33:0	
597	0	15	20:59:59.866	26NNMROGRT01-	6MROH	-----START-----		200	4	0	:	
598	0	15	21:00:03.866	20EA6A	6MROH	17:68EF,15,B2	read from B1A2B17,68EF,15,B	200	4	0	5,345,628:26:0	
599	0	15	23:59:59.866	26NNMROGRT01-	6MROH	-----STOP-----		200	4	0	:	
600	0	16	03:19:58.533	488BN6A	6TMSED	FILL,AL6	Sci, Eng, and D/L Chan	200	4	0	5,346,004:02:0	
601	0	16	03:23:34.533	488BN6B	6TMSED	FILL,AL3	Sci, Eng, and D/L Chan	200	4	0	5,346,007:53:0	
602	0	16	11:56:05.866	488BO6A	6TMSED	NORM,AL3	Sci, Eng, and D/L Chan	200	4	0	5,346,514:43:0	
603	0	16	12:06:14.533	488BO6B	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,346,524:46:0	

Line	YR	DOY	SCET - GMT	PSID	Command	Parameters	Description	GCM	GO	GS	RM	MF I
604	0	16	13:12:16.533	488BO6C	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,346,589:74:0	
605	0	16	13:35:50.533	488BO6D	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,346,613:11:0	
606	0	16	13:42:40.533	488BO6E	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,346,619:80:0	
607	0	16	21:37:58.533	488BP6A	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,347,089:87:0	
608	0	16	22:41:58.533	488BP6B	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,347,153:23:0	
609	0	17	00:16:29.800	488BP6C	6TMSED	FILL,AL6	Sci, Eng, and D/L Chan	200	4	0	5,347,246:67:0	
610	0	17	00:43:19.133	488BP6D	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,347,273:24:0	
611	0	17	05:12:22.466	488BQ6A	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,347,539:33:0	
612	0	17	06:18:30.466	488BQ6B	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,347,604:70:0	
613	0	17	06:25:59.133	488BQ6C	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,347,612:15:0	
614	0	17	12:09:36.466	488BR6A	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,347,952:01:0	
615	0	17	12:25:26.466	488BR6B	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,347,967:61:0	
616	0	17	14:16:22.466	488BR6C	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,348,077:35:0	
617	0	17	16:55:04.466	488BR6D	6TMSED	FILL,AL6	Sci, Eng, and D/L Chan	200	4	0	5,348,234:31:0	
618	0	18	02:21:51.133	488BS6A	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,348,794:81:0	
619	0	18	05:08:06.466	488BS6B	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,348,959:29:0	
620	0	18	06:12:06.466	488BS6C	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,349,022:56:0	
621	0	18	06:25:50.466	488BS6D	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,349,036:18:0	
622	0	18	12:39:27.733	488BT6A	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,349,405:65:0	
623	0	18	13:25:10.400	488BT6B	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,349,450:84:0	
624	0	18	14:00:20.400	488BT6C	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,349,485:64:0	
625	0	18	14:29:26.400	488BT6D	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,349,514:44:0	
626	0	18	21:23:02.400	488BU6A	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,349,923:49:0	
627	0	18	22:55:44.400	488BU6B	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,350,015:20:0	
628	0	18	23:05:26.400	488BU6C	6TMSED	FILL,AL6	Sci, Eng, and D/L Chan	200	4	0	5,350,024:74:0	
629	0	19	17:26:36.333	488BV6A	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,351,113:80:0	
630	0	19	20:16:54.333	488BV6B	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,351,282:28:0	
631	0	19	22:16:22.333	488BV6C	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,351,400:42:0	
632	0	19	22:55:35.000	488BV6D	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,351,439:22:0	
633	0	19	23:05:26.333	488BV6E	6TMSED	FILL,AL6	Sci, Eng, and D/L Chan	200	4	0	5,351,448:90:0	
634	0	20	17:56:28.333	488BW6A	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,352,567:54:0	
635	0	20	20:06:14.333	488BW6B	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,352,695:85:0	
636	0	20	22:12:06.333	488BW6C	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,352,820:38:0	
637	0	20	22:55:27.000	488BW6D	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,352,863:26:0	
638	0	21	02:29:05.600	488BX6A	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,353,074:53:0	
639	0	21	02:38:46.266	488BX6B	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,353,084:14:0	
640	0	21	03:15:02.266	488BX6C	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,353,120:02:0	
641	0	21	10:51:34.266	488BY6A	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,353,571:49:0	
642	0	21	11:32:06.266	488BY6B	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,353,611:57:0	
643	0	21	11:35:22.266	488BY6C	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,353,614:78:0	
644	0	21	11:44:54.266	488BY6D	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,353,624:26:0	
645	0	21	14:57:13.600	488BY6E	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,353,814:45:0	
646	0	21	16:20:46.266	488BZ6A	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,353,897:11:0	
647	0	21	16:49:52.933	488BZ6B	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,353,925:83:0	
648	0	21	21:01:42.266	488BZ6C	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,354,174:88:0	
649	0	21	22:46:14.266	488CA6A	6TMSED	NORM,AL3	Sci, Eng, and D/L Chan	200	4	0	5,354,278:32:0	
650	0	21	22:48:13.600	488CA6B	6TMSED	FILL,AL3	Sci, Eng, and D/L Chan	200	4	0	5,354,280:29:0	
651	0	21	22:59:02.266	488CA6C	6TMSED	FILL,AL6	Sci, Eng, and D/L Chan	200	4	0	5,354,291:01:0	
652	0	22	15:26:12.200	488CB6A	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,355,267:30:0	
653	0	22	19:47:02.200	488CB6B	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,355,525:27:0	
654	0	22	20:51:02.200	488CB6C	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,355,588:54:0	
655	0	23	10:36:38.200	488CC6A	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,356,405:11:0	
656	0	23	11:25:24.200	488CC6B	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,356,453:32:0	
657	0	23	11:25:42.200	488CC6C	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,356,453:59:0	
658	0	23	11:34:14.200	488CC6D	6TMSED	FILL,AL6	Sci, Eng, and D/L Chan	200	4	0	5,356,462:08:0	

Line	YR	DOY	SCET - GMT	PSID	Command	Parameters	Description	GCM	GO	GS	RIM	MF I
659	0	23	16:06:03.466	488CC6E	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,356,730:84:0	
660	0	23	19:36:22.133	488CD6A	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,356,938:84:0	
661	0	23	21:57:10.133	488CD6B	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,357,078:16:0	
662	0	23	22:40:01.466	488CD6C	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,357,120:51:0	
663	0	23	22:48:22.133	488CD6D	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,357,128:74:0	
664	0	24	03:46:52.800	488CE6A	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,357,424:04:0	
665	0	24	05:11:08.800	488CE6B	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,357,507:35:0	
666	0	24	05:40:14.800	488CE6C	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,357,536:15:0	
667	0	24	10:02:30.133	488CF6A	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,357,795:49:0	
668	0	24	11:17:10.133	488CF6B	6TMSED	NORM,AL3	Sci, Eng, and D/L Chan	200	4	0	5,357,869:35:0	
669	0	24	11:34:14.133	488CF6C	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,357,886:24:0	
670	0	24	12:38:24.133	488CF6D	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,357,949:66:0	
671	0	24	13:17:03.466	488CF6E	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,357,987:87:0	
672	0	24	13:25:10.133	488CG6A	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,357,995:89:0	
673	0	24	15:03:30.133	20ZG6A	6MCOPI	B1A1A,5018,UVS,0	B1A1A,5018,UVS,0118,01FF	200	4	0	5,358,093:21:0	
674	0	24	15:05:31.466	20ZG6B	6MCOPI	B1A1A,5118,UVS,0	B1A1A,5118,UVS,0118,01FF	200	4	0	5,358,095:21:0	
675	0	24	17:05:50.800	20ZG6C	6MCOPI	B1A1A,5218,UVS,0	B1A1A,5218,UVS,0118,01FF	200	4	0	5,358,214:21:0	
676	0	24	20:36:06.133	488CH6A	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,358,422:16:0	
677	0	24	22:35:34.133	488CH6B	6TMSED	NORM,AL3	Sci, Eng, and D/L Chan	200	4	0	5,358,540:30:0	
678	0	24	22:37:48.800	488CH6C	6TMSED	FILL,AL3	Sci, Eng, and D/L Chan	200	4	0	5,358,542:50:0	
679	0	24	22:48:22.133	488CH6D	6TMSED	FILL,AL6	Sci, Eng, and D/L Chan	200	4	0	5,358,552:90:0	
680	0	25	00:20:52.066	488CH6E	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,358,644:43:0	
681	0	25	00:30:10.066	20ZD6A	6MCOPI	B1A1A,5318,UVS,0	B1A1A,5318,UVS,0118,01FF	200	4	0	5,358,653:61:0	
682	0	25	00:31:00.733	20ZD6B	6MROH	17,5000,31,B2	read from B1A2B17,5000,31,B	200	4	0	5,358,654:46:0	
683	0	25	04:21:10.066	488C16A	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,358,882:12:0	
684	0	25	05:42:14.066	488C16B	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,358,962:28:0	
685	0	25	06:04:51.400	488C16C	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,358,984:62:0	
686	0	25	06:14:14.066	488C16D	6TMSED	FILL,AL6	Sci, Eng, and D/L Chan	200	4	0	5,358,993:87:0	
687	0	25	17:25:46.066	488CJ6A	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,359,658:10:0	
688	0	25	19:06:30.066	488CJ6B	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,359,757:67:0	
689	0	25	21:46:30.066	488CJ6C	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,359,915:89:0	
690	0	25	22:34:45.400	488CJ6D	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,359,963:64:0	
691	0	25	22:44:06.066	488CJ6E	6TMSED	FILL,AL6	Sci, Eng, and D/L Chan	200	4	0	5,359,972:86:0	
692	0	26	18:05:37.333	488CK6A	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,361,121:64:0	
693	0	26	18:45:10.000	488CK6B	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,361,160:74:0	
694	0	26	21:42:14.000	488CK6C	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,361,335:85:0	
695	0	26	22:33:12.666	488CK6D	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,361,386:32:0	
696	0	26	22:35:34.000	488CK6E	6TMSED	FILL,AL3	Sci, Eng, and D/L Chan	200	4	0	5,361,388:62:0	
697	0	26	22:46:14.000	488CL6A	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,361,399:21:0	
698	0	27	18:48:09.266	488CM6A	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,362,587:86:0	
699	0	27	20:08:21.933	488CM6B	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,362,667:25:0	
700	0	27	20:11:38.600	488CM6C	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,362,670:47:0	
701	0	27	20:40:44.600	488CM6D	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,362,699:27:0	
702	0	28	05:26:41.266	488CN6A	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,363,219:42:0	
703	0	28	06:00:47.933	488CN6B	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,363,253:18:0	
704	0	28	09:21:57.933	488CN6C	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,363,452:14:0	
705	0	28	12:08:21.933	488CO6A	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,363,616:66:0	
706	0	28	12:26:43.266	488CO6B	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,363,634:80:0	
707	0	28	12:55:49.933	488CO6C	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,363,663:61:0	
708	0	28	13:06:26.600	488CO6D	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,363,674:15:0	
709	0	28	13:10:13.933	488CO6E	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,363,677:83:0	
710	0	28	18:48:01.266	488CP6A	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,364,011:90:0	
711	0	28	20:10:06.600	488CP6B	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,364,093:16:0	
712	0	28	20:14:45.933	488CP6C	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,364,097:71:0	
713	0	28	20:40:52.600	488CP6D	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,364,123:55:0	

Line	YR	DOY	SCET - GMT	PSID	Command	Parameters	Description	GCM	GO	GS	RIM	MF I
714	0	28	20:52:59.933	488CP6E	6TMSD	NORM,AH5	Sci, Eng, and D/L Chan	200	4	0	5,364,135:54:0	
715	0	28	20:55:25.933	176QB6A	6TMREC	PPB	PAUSE PLAYBACK (PB CONTROL) Record Mode C	200	4	0	5,364,138:00:0	
716	0	29	02:00:59.866	488CQ6A	6TMSD	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,364,440:19:0	
717	0	29	02:01:47.866	176QD6A	6TMREC	RPB	RESUME PLAYBACK (PB CONTROL) Record Mode	200	4	0	5,364,441:00:0	
718	0	29	04:21:10.533	488CQ6B	6TMSD	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,364,578:77:0	
719	0	29	05:43:59.866	488CQ6C	6TMSD	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,364,660:69:0	
720	0	29	05:50:46.533	488CQ6D	6TMSD	FILL,AL3	Sci, Eng, and D/L Chan	200	4	0	5,364,667:42:0	
721	0	29	06:01:26.533	488CQ6E	6TMSD	FILL,AL6	Sci, Eng, and D/L Chan	200	4	0	5,364,678:01:0	
722	0	29	23:56:14.533	176VA6A	6TMREC	PPB	PAUSE PLAYBACK (PB CONTROL) Record Mode C	200	4	0	5,365,741:00:0	
723	0	30	00:02:18.533	465WK6A	6DMST		5000 DMS Slew to TIC	200	4	0	5,365,747:00:0	
724	0	30	00:02:18.533		DMS:	: *SLEW-TIC	P7, TRACK *2, *REV, TIC 5034.17 +/- 3	200	4	0	5,365,747:00:0	
725	0	30	00:02:18.533		DMS:	: *US-RUNUP	P7, TRACK *1, *FWD, TIC 5034.17 +/- 3	200	4	0	5,365,747:00:0	
726	0	30	00:02:19.933		DMS:	: *US_AT_SP	P7, TRACK 1, FWD, TIC *5034.29 +/- 3	200	4	0	5,365,747:02:1	
727	0	30	00:02:25.200		DMS:	: *US_RD	P7, TRACK 1, FWD, TIC *5035.52 +/- 3	200	4	0	5,365,747:10:0	
728	0	30	00:02:26.400		DMS:	: *RUNUP	P7, TRACK *2, *REV, TIC *5035.58 +/- 3	200	4	0	5,365,747:11:8	
729	0	30	00:02:27.800		DMS:	: *AT_SPD	P7, TRACK 2, REV, TIC *5035.46 +/- 3	200	4	0	5,365,747:13:9	
730	0	30	00:04:49.333		DMS:	: *RUNDOWN	P7, TRACK 2, REV, TIC *5002.06 +/- 3	200	4	0	5,365,749:44:2	
731	0	30	00:04:50.533		DMS:	: *READY	RDY, TRACK 2, REV, TIC *5002.00 +/- 3	200	4	0	5,365,749:46:0	
732	0	30	05:20:09.200	488CR6A	6TMSD	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,366,061:32:0	
733	0	30	05:55:59.866	465WL6A	6DMSC	P100.4	DMS Control Tape P/B 100.8kbps	200	4	0	5,366,096:73:0	
734	0	30	05:55:59.866		DMS:	: *US-RUNUP	P7, TRACK *1, *FWD, TIC 5002.00 +/- 3	200	4	0	5,366,096:73:0	
735	0	30	05:56:01.266		DMS:	: *US_AT_SP	P7, TRACK 1, FWD, TIC *5002.12 +/- 3	200	4	0	5,366,096:75:1	
736	0	30	05:56:06.533		DMS:	: *US_RD	P7, TRACK 1, FWD, TIC *5003.35 +/- 3	200	4	0	5,366,096:83:0	
737	0	30	05:56:07.733		DMS:	: *RUNUP	P100, TRACK *4, *REV, TIC *5003.41 +/- 3	200	4	0	5,366,096:84:8	
738	0	30	05:56:11.600		DMS:	: *AT_SPD	P100, TRACK 4, REV, TIC 4997.91 +/- 3	200	4	0	5,366,096:90:6	
739	0	30	05:56:11.600		DMS:	: *P_SLEW	P100, TRACK 4, REV, TIC *4997.91 +/- 3	200	4	0	5,366,096:90:6	
740	0	30	06:21:51.866		DMS:	: *RUNDOWN	P100, TRACK 4, REV, TIC *259.79 +/- 3	200	4	0	5,366,122:35:0	
741	0	30	06:21:51.866	465WL6B	6DMSC	RDY,4	DMS Control Tape stop	200	4	0	5,366,122:35:0	
742	0	30	06:21:53.066		DMS:	: *READY	RDY, TRACK 4, REV, TIC *258.99 +/- 3	200	4	0	5,366,122:36:8	
743	0	30	09:49:43.133	488CR6B	6TMSD	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,366,327:87:0	
744	0	30	10:25:02.466	465WM6A	6DTRN	CMD,6DTRN,465WM6	DMS TRACK TURNAROUND	200	4	0	5,366,362:81:0	
745	0	30	10:25:02.466		DMS:	: *DMS-TURN	P7, TRACK 4, REV, TIC 258.99 +/- 3	200	4	0	5,366,362:81:0	
746	0	30	10:25:02.466		DMS:	: *US-RUNUP	P7, TRACK *1, *FWD, TIC 258.99 +/- 3	200	4	0	5,366,362:81:0	
747	0	30	10:25:03.866		DMS:	: *US_AT_SP	P7, TRACK 1, FWD, TIC *259.11 +/- 3	200	4	0	5,366,362:83:1	
748	0	30	10:25:09.133		DMS:	: *US_RD	P7, TRACK 1, FWD, TIC *260.34 +/- 3	200	4	0	5,366,363:00:0	
749	0	30	10:25:10.333		DMS:	: *RUNUP	P7, TRACK *4, *REV, TIC *260.40 +/- 3	200	4	0	5,366,363:01:8	
750	0	30	10:25:11.733		DMS:	: *AT_SPD	P7, TRACK 4, REV, TIC *260.28 +/- 3	200	4	0	5,366,363:03:9	
751	0	30	10:29:09.133	488CR6C	6TMSD	NORM,AH5	Sci, Eng, and D/L Chan	200	4	0	5,366,366:87:0	
752	0	30	10:29:29.466		DMS:	: *REVERSE	P7, TRACK 4, REV, TIC *199.87 +/- 3	200	4	0	5,366,367:26:5	
753	0	30	10:29:30.666		DMS:	: *TURNARND	P7, TRACK *1, *FWD, TIC *199.81 +/- 3	200	4	0	5,366,367:28:3	
754	0	30	10:29:30.666		DMS:	: *RUNUP	P7, TRACK 1, FWD, TIC 199.81 +/- 3	200	4	0	5,366,367:28:3	
755	0	30	10:29:32.066		DMS:	: *AT_SPD	P7, TRACK 1, FWD, TIC *199.93 +/- 3	200	4	0	5,366,367:30:4	
756	0	30	10:29:44.066		DMS:	: *AUTOSTOP	P7, TRACK 1, FWD, TIC *202.06 +/- 3	200	4	0	5,366,367:48:4	
757	0	30	10:29:45.266		DMS:	: *READY	RDY, TRACK 1, FWD, TIC *202.12 +/- 3	200	4	0	5,366,367:50:2	
758	0	30	10:35:05.133		DMS:	: *E4-DELAY	RDY, TRACK 1, FWD, TIC 202.12 +/- 3	200	4	0	5,366,372:75:0	
759	0	30	10:35:05.133	465WN6A	6DMSC	P100.1	DMS Control Tape P/B 100.8kbps	200	4	0	5,366,372:75:0	
760	0	30	10:35:11.800		DMS:	: *RUNUP	P100, TRACK 1, FWD, TIC 202.12 +/- 3	200	4	0	5,366,372:85:0	
761	0	30	10:35:15.666		DMS:	: *AT_SPD	P100, TRACK 1, FWD, TIC 207.62 +/- 3	200	4	0	5,366,372:90:8	
762	0	30	10:35:15.666		DMS:	: *P_SLEW	P100, TRACK 1, FWD, TIC *207.62 +/- 3	200	4	0	5,366,372:90:8	
763	0	30	10:51:35.133	488CR6D	6TMSD	NORM,AH4	Sci, Eng, and D/L Chan	200	4	0	5,366,389:13:0	
764	0	30	11:06:59.133	465WN6B	6DMSC	RDY,1	DMS Control Tape stop	200	4	0	5,366,404:34:0	
765	0	30	11:06:59.133		DMS:	: *RUNDOWN	P100, TRACK 1, FWD, TIC *6063.01 +/- 3	200	4	0	5,366,404:34:0	
766	0	30	11:07:00.333		DMS:	: *READY	RDY, TRACK 1, FWD, TIC *6063.81 +/- 3	200	4	0	5,366,404:35:8	
767	0	30	11:08:39.133	488CR6E	6TMSD	NORM,AH2	Sci, Eng, and D/L Chan	200	4	0	5,366,406:02:0	
768	0	30	11:22:35.133	465WO6A	6DMSC	P100.2	DMS Control Tape P/B 100.8kbps	200	4	0	5,366,419:73:0	

Line	YR	DOY	SCET - GMT	PSID	Command	Parameters	Description	GCM	GO	GS	RIM	MF I
769	0	30	11:22:35.133		DMS:	: *US-RUNUP	P7, TRACK 1, FWD, TIC 6063.81 +/-	200	4	0	5,366,419:73:0	
770	0	30	11:22:36.533		DMS:	: *US_AT_SP	P7, TRACK 1, FWD, TIC *6063.93 +/-	200	4	0	5,366,419:75:1	
771	0	30	11:22:41.800		DMS:	: *US_RD	P7, TRACK 1, FWD, TIC *6065.17 +/-	200	4	0	5,366,419:83:0	
772	0	30	11:22:43.000		DMS:	: *RUNUP	P100, TRACK *2, *REV, TIC *6065.23 +/-	200	4	0	5,366,419:84:8	
773	0	30	11:22:46.866		DMS:	: *P_SLEW	P100, TRACK 2, REV, TIC *6059.73 +/-	200	4	0	5,366,419:90:6	
774	0	30	11:22:46.866		DMS:	: *AT_SPD	P100, TRACK 2, REV, TIC 6059.73 +/-	200	4	0	5,366,419:90:6	
775	0	30	11:23:35.133	488CS6A	6TMSD	NORM, AH4	Sci, Eng. and D/L Chan	200	4	0	5,366,420:72:0	
776	0	30	11:54:43.133		DMS:	: * RUNDOWN	P100, TRACK 2, REV, TIC * 164.96 +/-	200	4	0	5,366,451:53:0	
777	0	30	11:54:43.133	465WP6A	6DMSC	P100.3	DMS Control Tape P/B 100.8kbps	200	4	0	5,366,451:53:0	
778	0	30	11:54:44.333		DMS:	: *RUNUP	P100, TRACK *3, *FWD, TIC * 164.16 +/-	200	4	0	5,366,451:54:8	
779	0	30	11:54:48.200		DMS:	: *AT_SPD	P100, TRACK 3, FWD, TIC 169.66 +/-	200	4	0	5,366,451:60:6	
780	0	30	11:54:48.200		DMS:	: *P_SLEW	P100, TRACK 3, FWD, TIC * 169.66 +/-	200	4	0	5,366,451:60:6	
781	0	30	12:08:23.133	488CS6B	6TMSD	NORM, AH5	Sci, Eng. and D/L Chan	200	4	0	5,366,465:09:0	
782	0	30	12:26:43.800	465WP6B	6DMSC	RDY, 3	DMS Control Tape stop	200	4	0	5,366,483:22:0	
783	0	30	12:26:43.800		DMS:	: * RUNDOWN	P100, TRACK 3, FWD, TIC *6062.38 +/-	200	4	0	5,366,483:22:0	
784	0	30	12:26:45.000		DMS:	: *READY	RDY, TRACK 3, FWD, TIC *6063.18 +/-	200	4	0	5,366,483:23:8	
785	0	30	12:41:27.133	465WQ6A	6DMSC	P100.4	DMS Control Tape P/B 100.8kbps	200	4	0	5,366,497:73:0	
786	0	30	12:41:27.133		DMS:	: *US-RUNUP	P7, TRACK *1, FWD, TIC 6063.18 +/-	200	4	0	5,366,497:73:0	
787	0	30	12:41:28.533		DMS:	: *US_AT_SP	P7, TRACK 1, FWD, TIC *6063.30 +/-	200	4	0	5,366,497:75:1	
788	0	30	12:41:33.800		DMS:	: *US_RD	P7, TRACK 1, FWD, TIC *6064.53 +/-	200	4	0	5,366,497:83:0	
789	0	30	12:41:35.000		DMS:	: *RUNUP	P100, TRACK *4, *REV, TIC *6064.59 +/-	200	4	0	5,366,497:84:8	
790	0	30	12:41:38.866		DMS:	: *AT_SPD	P100, TRACK 4, REV, TIC 6059.09 +/-	200	4	0	5,366,497:90:6	
791	0	30	12:41:38.866		DMS:	: *P_SLEW	P100, TRACK 4, REV, TIC *6059.09 +/-	200	4	0	5,366,497:90:6	
792	0	30	13:13:34.466		DMS:	: * RUNDOWN	P100, TRACK 4, REV, TIC * 166.38 +/-	200	4	0	5,366,529:52:0	
793	0	30	13:13:34.466	465WR6A	6DMSC	P100.3	DMS Control Tape P/B 100.8kbps	200	4	0	5,366,529:52:0	
794	0	30	13:13:35.666		DMS:	: *RUNUP	P100, TRACK *3, *FWD, TIC * 165.58 +/-	200	4	0	5,366,529:53:8	
795	0	30	13:13:39.533		DMS:	: *AT_SPD	P100, TRACK 3, FWD, TIC 171.08 +/-	200	4	0	5,366,529:59:6	
796	0	30	13:13:39.533		DMS:	: *P_SLEW	P100, TRACK 3, FWD, TIC * 171.08 +/-	200	4	0	5,366,529:59:6	
797	0	30	13:14:40.466	465WR6B	6DMSC	RDY, 3	DMS Control Tape stop	200	4	0	5,366,530:60:0	
798	0	30	13:14:40.466		DMS:	: * RUNDOWN	P100, TRACK 3, FWD, TIC * 358.52 +/-	200	4	0	5,366,530:60:0	
799	0	30	13:14:41.666		DMS:	: *READY	RDY, TRACK 3, FWD, TIC * 359.32 +/-	200	4	0	5,366,530:61:8	
800	0	30	13:15:59.133	488CS6C	6TMSD	NORM, AL5	Sci, Eng. and D/L Chan	200	4	0	5,366,531:87:0	
801	0	30	13:29:10.466		DMS:	: READY	RDY, TRACK *4, *REV, TIC 359.32 +/-	200	4	0	5,366,545:00:0	
802	0	30	13:29:10.466	465WS6A	6DMSC	RDY, 4	DMS Control Tape stop	200	4	0	5,366,545:00:0	
803	0	30	13:30:04.466		DMS:	: *DMS-TURN	P7, TRACK 4, REV, TIC 359.32 +/-	200	4	0	5,366,545:81:0	
804	0	30	13:30:04.466		DMS:	: *US-RUNUP	P7, TRACK *1, *FWD, TIC 359.32 +/-	200	4	0	5,366,545:81:0	
805	0	30	13:30:04.466	465WT6A	6DTRN	CMD, 6DTRN, 465WT6	DMS TRACK TURNAROUND	200	4	0	5,366,545:81:0	
806	0	30	13:30:05.866		DMS:	: *US_AT_SP	P7, TRACK 1, FWD, TIC * 359.44 +/-	200	4	0	5,366,545:83:1	
807	0	30	13:30:11.133		DMS:	: *US_RD	P7, TRACK 1, FWD, TIC * 360.67 +/-	200	4	0	5,366,546:00:0	
808	0	30	13:30:12.333		DMS:	: *RUNUP	P7, TRACK *4, *REV, TIC * 360.73 +/-	200	4	0	5,366,546:01:8	
809	0	30	13:30:13.733		DMS:	: *AT_SPD	P7, TRACK 4, REV, TIC * 360.61 +/-	200	4	0	5,366,546:03:9	
810	0	30	13:41:39.533		DMS:	: *REVERSE	P7, TRACK 4, REV, TIC * 199.87 +/-	200	4	0	5,366,557:31:6	
811	0	30	13:41:40.733		DMS:	: *RUNUP	P7, TRACK 1, FWD, TIC 199.81 +/-	200	4	0	5,366,557:33:4	
812	0	30	13:41:40.733		DMS:	: *TURNARND	P7, TRACK *1, *FWD, TIC * 199.81 +/-	200	4	0	5,366,557:33:4	
813	0	30	13:41:42.133		DMS:	: *AT_SPD	P7, TRACK 1, FWD, TIC * 199.93 +/-	200	4	0	5,366,557:35:5	
814	0	30	13:41:54.133		DMS:	: *AUTOSTOP	P7, TRACK 1, FWD, TIC * 202.06 +/-	200	4	0	5,366,557:53:5	
815	0	30	13:41:55.333		DMS:	: *READY	RDY, TRACK 1, FWD, TIC * 202.12 +/-	200	4	0	5,366,557:55:3	
816	0	30	13:57:03.800	20VP4A	7SAFE	STOP	S/P NO MOVEMENT	200	4	0	5,366,572:53:0	
817	0	30	13:57:53.800	20VP4B	7SLEW	DIS, POS, 0.0	Stator movement	200	4	0	5,366,573:37:0	
818	0	30	13:59:30.466	176VB6A	6TMREC	RPB	RESUME PLAYBACK (PB CONTROL) Record Mode	200	4	0	5,366,575:00:0	
819	0	30	14:31:23.133	488CS6D	6TMSD	FILL, AL5	Sci, Eng. and D/L Chan	200	4	0	5,366,606:48:0	
820	0	30	14:35:34.466	488CS6E	6TMSD	FILL, AL4	Sci, Eng. and D/L Chan	200	4	0	5,366,610:61:0	
821	0	31	01:52:42.466	488CT6A	6TMSD	NORM, AL4	Sci, Eng. and D/L Chan	200	4	0	5,367,280:33:0	
822	0	31	02:08:54.466	488CT6B	6TMSD	NORM, AL5	Sci, Eng. and D/L Chan	200	4	0	5,367,296:35:0	
823	0	31	03:08:38.466	488CT6C	6TMSD	NORM, AL6	Sci, Eng. and D/L Chan	200	4	0	5,367,355:42:0	

Line	YR	DOY	SCET - GMT	PSID	Command	Parameters	Description	GCM	GO	GS	RIM	MF I
824	0	31	09:45:26.466	488CU6A	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,367,747:82:0	
825	0	31	10:45:10.466	488CU6B	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,367,806:89:0	
826	0	31	12:08:22.466	488CU6C	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,367,889:24:0	
827	0	31	15:06:45.733	488CU6D	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,368,065:63:0	
828	0	31	15:13:59.066	488CU6E	6TMSED	FILL,AL6	Sci, Eng, and D/L Chan	200	4	0	5,368,072:76:0	
829	0	32	05:04:53.066	488CV6A	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,368,894:55:0	
830	0	32	09:34:46.400	488CV6B	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,369,161:48:0	
831	0	32	10:38:46.400	488CV6C	6TMSED	NORM,AL3	Sci, Eng, and D/L Chan	200	4	0	5,369,224:75:0	
832	0	32	11:12:54.400	488CV6A	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,369,258:53:0	
833	0	32	12:14:29.066	488CV6B	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,369,319:44:0	
834	0	32	12:48:08.400	488CV6C	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,369,352:70:0	
835	0	32	15:33:10.400	488CV6D	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,369,515:90:0	
836	0	32	15:45:52.400	488CV6E	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,369,528:50:0	
837	0	32	15:50:14.400	488CX6A	6TMSED	FILL,AL3	Sci, Eng, and D/L Chan	200	4	0	5,369,532:79:0	
838	0	33	01:48:46.333	488CY6A	6TMSED	NORM,AL3	Sci, Eng, and D/L Chan	200	4	0	5,370,124:75:0	
839	0	33	01:58:15.000	488CY6B	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,370,134:18:0	
840	0	33	03:04:34.333	488CY6C	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,370,199:72:0	
841	0	33	03:38:13.666	488CY6D	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,370,233:07:0	
842	0	33	03:53:00.333	488CY6E	6TMSED	NORM,AH4	Sci, Eng, and D/L Chan	200	4	0	5,370,247:63:0	
843	0	33	03:56:21.000	176UA6A	6TMREC	PPB	PAUSE PLAYBACK (PB CONTROL) Record Mode C	200	4	0	5,370,251:00:0	
844	0	33	04:06:00.333	20SM4C	7STAT	10.00,207.49,-10	Stator inertial point	200	4	0	5,370,260:50:0	
845	0	33	04:06:12.333	20SM6D	6MROH	7.6744,0,A10	read from AACSA7,6744,0,A10	200	4	0	5,370,260:68:0	
846	0	33	04:25:02.333	490UA412A4B	7MODE	INT	AACS INERTIAL MODE	200	4	0	5,370,279:34:0	
847	0	33	04:30:00.333	490UA412A4D	7SAFE	UNSTOW	S/P TO 153 deg cone	200	4	0	5,370,284:26:0	
848	0	33	04:30:20.333	20SM4D	7STAT	17.45,207.49,-10	Stator inertial point	200	4	0	5,370,284:56:0	
849	0	33	04:34:10.333	490UA412A4E	7VECT		Inert vect update UTC	200	4	0	5,370,288:37:0	
850	0	33	04:34:14.333	490UA412A4F	7TURN	2,RTH	ALERT Thruster	200	4	0	5,370,288:43:0	
851	0	33	04:38:02.333	490UA412A4G	7STAR	11,610,278.81	Star catalog update	200	4	0	5,370,292:21:0	
852	0	33	04:38:04.333	490UA412A4H	7STAR	2,111,285.778,-6	Star catalog update	200	4	0	5,370,292:24:0	
853	0	33	04:38:06.333	490UA412A4I	7STAR	3,317,120.46	Star catalog update	200	4	0	5,370,292:27:0	
854	0	33	04:38:08.333	490UA412A4J	7STAR	4,0,0,0,0,0	Star catalog update	200	4	0	5,370,292:30:0	
855	0	33	04:38:10.333	490UA412A4K	7STAR	5,0,0,0,0,0	Star catalog update	200	4	0	5,370,292:33:0	
856	0	33	04:38:12.333	490UA412A4L	7STAR	6,0,0,0,0,0	Star catalog update	200	4	0	5,370,292:36:0	
857	0	33	04:38:15.000	488CZ6A	6TMSED	NORM,AH5	Sci, Eng, and D/L Chan	200	4	0	5,370,292:40:0	
858	0	33	04:48:06.333	20SM4F	7SLEW	DIS,POS:0.0	Stator movement	200	4	0	5,370,302:17:0	
859	0	33	04:56:10.333	490UA412A4G	7MODE	CRU	AACS CRUISE MODE	200	4	0	5,370,310:15:0	
860	0	33	06:30:04.333	20US4A	7SAFE	STOP	S/P NO MOVEMENT	200	4	0	5,370,403:03:0	
861	0	33	06:30:54.333	20US4B	7SLEW	DIS,POS:0.0	Stator movement	200	4	0	5,370,403:78:0	
862	0	33	06:31:00.333	488CZ6B	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,370,403:87:0	
863	0	33	06:32:03.666	176UB6A	6TMREC	RPB	RESUME PLAYBACK (PB CONTROL) Record Mode	200	4	0	5,370,405:00:0	
864	0	33	07:54:30.333	488CZ6C	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,370,486:49:0	
865	0	33	10:45:10.333	488DA6A	6TMSED	NORM,AL3	Sci, Eng, and D/L Chan	200	4	0	5,370,655:30:0	
866	0	33	10:48:30.333	488DA6B	6TMSED	FILL,AL3	Sci, Eng, and D/L Chan	200	4	0	5,370,658:57:0	
867	0	33	10:55:50.333	488DA6C	6TMSED	FILL,AL1	Sci, Eng, and D/L Chan	200	4	0	5,370,665:80:0	
868	0	33	11:32:06.333	488DA6D	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,370,701:68:0	
869	0	33	16:05:35.666	488DA6E	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,370,972:21:0	
870	0	33	20:06:04.333	488DB6A	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,371,210:06:0	
871	0	33	20:10:30.333	488DB6B	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,371,214:41:0	
872	0	34	01:42:18.333	488DB6C	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,371,542:55:0	
873	0	34	02:02:30.333	488DB6D	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,371,562:53:0	
874	0	34	03:08:38.333	488DC6A	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,371,627:90:0	
875	0	34	09:19:50.933	488DD6A	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,371,995:11:0	
876	0	34	10:30:14.933	488DD6B	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,372,064:68:0	
877	0	34	10:48:36.266	488DD6C	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,372,082:82:0	
878	0	34	16:52:14.266	488DE6A	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,372,442:49:0	

Line	YR	DOY	SCET - GMT	PSID	Command	Parameters	Description	GCM	GO	GS	RIM	MF I		
879	0	34	18:14:46.933	488DE6B	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,372,524:16:0			
880	0	34	18:48:26.266	488DE6C	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,372,557:42:0			
881	0	34	21:44:22.266	488DE6D	6TMSED	NORM,AL3	Sci, Eng, and D/L Chan	200	4	0	5,372,731:42:0			
882	0	34	22:01:28.266	488DE6E	6TMSED	FILL,AL3	Sci, Eng, and D/L Chan	200	4	0	5,372,748:34:0			
883	0	35	10:43:28.266	488DF6A	6TMSED	NORM,AL3	Sci, Eng, and D/L Chan	200	4	0	5,373,502:00:0			
884	0	35	11:02:00.266	24NNIIRD01-		-----START-----		200	4	0	:			
885	0	35	11:02:14.266	488DF6B	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,373,520:51:0			
886	0	35	11:02:44.933	20NC6A	6TMSED	NORM,BA4	Sci, Eng, and D/L Chan	200	4	0	5,373,521:06:0			
887	0	35	11:11:01.600	24NNOPTICS01-		-----START-----		200	4	0	:			
888	0	35	11:11:15.600	20NA3A	37AR		1 NIMS Power OFF				5,373,529:44:0			
889	0	35	11:11:15.600	20NA3B	37AR		2 NIMS Power OFF				5,373,529:44:0			
890	0	35	11:11:28.933	20NA3C	37H		1 Replacement Heaters ON				5,373,529:64:0			
891	0	35	11:11:28.933	20NA3D	37H		2 Replacement Heaters ON				5,373,529:64:0			
892	0	35	11:14:48.933	176NA6A	6TMREC	PPB	PAUSE PLAYBACK (PB CONTROL) Record Mode C				5,373,533:00:0			
893	0	35	11:16:18.933	20NA3E	37HR		1 Replacement Heaters OFF				5,373,534:44:0			
894	0	35	11:16:18.933	20NA3F	37HR		2 Replacement Heaters OFF				5,373,534:44:0			
895	0	35	11:16:32.266	20NA3G	37A		1 NIMS Power ON				PHASE 0			
896	0	35	11:16:32.266	20NA3H	37A		2 NIMS Power ON				PHASE 0			
897	0	35	11:19:06.933	20NA3O	37C2P		1 Optics Heater 2 ON (primary relay)				260	4	0	5,373,537:23:0
898	0	35	11:19:06.933	20NA3P	37C2P		2 Optics Heater 2 ON (primary relay)				260	4	0	5,373,537:23:0
899	0	35	11:20:16.266	20NA4A	37IST	1,0,0,OFF,0,0,0	Chopper ON, Sync, 63Hz (Ref)				260	4	0	5,373,538:36:0
900	0	35	11:21:16.933	20NA4B	37IST	1,2,0,OFF,0,0,0	Chopper ON, Sync, Chopper (Ref)				2R0	4	0	5,373,539:36:0
901	0	35	11:22:17.600	20NA4C	37IST	0,2,0,OFF,0,1,1	Gain State 4				4R0	4	0	5,373,540:36:0
902	0	35	11:25:19.600	20NA4F	37IOP	8,11	Band Edge Map, Grating Start Position =11				4R8	4	11	5,373,543:36:0
903	0	35	11:26:20.266	20NA4G	37MPT		1,139,151 Modify Parameter Table (affects scanning m				4R8	4	11	5,373,544:36:0
904	0	35	11:29:09.600	20NA6A	6MROH	37,150F,0,A40	read from NIMS37,150F,0,A4				4R8	4	11	5,373,547:17:0
905	0	35	11:49:22.933	20NA6B	6MROH	37,150F,0,A40	read from NIMS37,150F,0,A4				4R8	4	11	5,373,567:17:0
906	0	35	12:04:52.933	488DF6C	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	4R8	4	11	5,373,582:47:0			
907	0	35	12:38:32.266	488DF6D	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	4R8	4	11	5,373,615:73:0			
908	0	35	12:46:00.266	20NC6B	6TMSED	NORM,BA4	Sci, Eng, and D/L Chan	4R8	4	11	5,373,623:17:0			
909	0	35	13:30:29.600	20NA6D	6MROH	37,150F,0,A40	read from NIMS37,150F,0,A4				4R8	4	11	5,373,667:17:0
910	0	35	14:31:09.533	20NA6E	6MROH	37,150F,0,A40	read from NIMS37,150F,0,A4				4R8	4	11	5,373,727:17:0
911	0	35	15:31:49.533	20NA6F	6MROH	37,150F,0,A40	read from NIMS37,150F,0,A4				4R8	4	11	5,373,787:17:0
912	0	35	16:32:29.533	20NA6G	6MROH	37,150F,0,A40	read from NIMS37,150F,0,A4				4R8	4	11	5,373,847:17:0
913	0	35	17:33:09.533	20NA6H	6MROH	37,150F,0,A40	read from NIMS37,150F,0,A4				4R8	4	11	5,373,907:17:0
914	0	35	18:33:49.533	20NA6I	6MROH	37,150F,0,A40	read from NIMS37,150F,0,A4				4R8	4	11	5,373,967:17:0
915	0	35	19:14:16.200	20NA6J	6MROH	37,150F,0,A40	read from NIMS37,150F,0,A4				4R8	4	11	5,374,007:17:0
916	0	35	19:34:29.533	20NA6K	6MROH	37,150F,0,A40	read from NIMS37,150F,0,A4				4R8	4	11	5,374,027:17:0
917	0	35	19:54:42.866	20NA6L	6MROH	37,150F,0,A40	read from NIMS37,150F,0,A4				4R8	4	11	5,374,047:17:0
918	0	35	20:14:56.200	20NA6N	6MROH	37,150F,0,A40	read from NIMS37,150F,0,A4				4R8	4	11	5,374,067:17:0
919	0	35	20:16:00.866	24NNTICKLE01-		-----START-----					4R8	4	11	:
920	0	35	20:18:06.200	20NB6A	6MROH	37,150F,0,A40	read from NIMS37,150F,0,A4				4R8	4	11	5,374,070:29:0
921	0	35	20:26:07.533	20NA3R	37C2PR		2 Optics Heater 2 OFF (primary relay)				4R8	4	11	5,374,078:23:0
922	0	35	20:26:07.533	20NA3Q	37C2PR		1 Optics Heater 2 OFF (primary relay)				4R8	4	11	5,374,078:23:0
923	0	35	20:27:53.533	176NB6A	6TMREC	RPB	RESUME PLAYBACK (PB CONTROL) Record Mode				4R8	4	11	5,374,080:00:0
924	0	35	20:29:13.533	20NB6B	6MROH	37,150F,0,A40	read from NIMS37,150F,0,A4				4R8	4	11	5,374,081:29:0
925	0	35	20:31:02.200	20NB4A	37IST	0,2,1,OFF,1,0,1	OPCAL				4R8	4	11	5,374,083:10:0
926	0	35	20:31:03.533	20NB6C	6RTSL2	NIMSEL,AACNCG,RT	NIMS R/T SELECT				4R8	4	11	5,374,083:12:0
927	0	35	20:33:03.533	20NB4B	37IST	0,2,1,ON,0,1,0	ECAL Gain State 2				2R8	4	11	5,374,085:10:0
928	0	35	20:36:06.866	20NB6D	6RTDS2	NIMDSL,AACNCG,RT	NIMS R/T DESELECT				2R8	4	11	5,374,088:12:0
929	0	35	20:38:19.533	20NB6E	6MROH	37,150F,0,A40	read from NIMS37,150F,0,A4				2R8	4	11	5,374,090:29:0
930	0	35	20:39:07.533	20NB4C	37IST	1,0,0,OFF,0,0,1	Chopper ON, Sync, 63Hz (Ref)				268	4	11	5,374,091:10:0
931	0	35	20:40:08.200	20NB4D	37IST	1,1,0,OFF,0,0,1	Chopper OFF, N/A, 63Hz (Ref)				208	4	11	5,374,092:10:0
932	0	35	20:41:08.866	20NB4E	37MB	0,0,0,0,0,0	Selects mirror (spatial) edit table				208	4	11	5,374,093:10:0
933	0	35	20:42:10.200	20NB4F	37ETB	04,C4,02,00,00	Loads wavelength edit table				208	4	11	5,374,094:11:0

Line	YR	DOY	SCET - GMT	PSID	Command	Parameters	Description	GCM	GO	GS	RM	MF I
934	0	35	20:43:10.200	20NB4G	37IOP	0,0	Safe, Grating Start Position =00	200	4	0	5,374,095:10:0	
935	0	35	20:48:26.200	20NB6F	6MROH	37,150F,0,A40	read from NIMS37,150F,0,A4	200	4	0	5,374,100:29:0	
936	0	35	20:54:24.200	24NNIMROD01-		-----STOP-----		200	4	0	:	
937	0	35	21:16:00.866	24NNTICKLE01-		-----STOP-----		200	4	0	:	
938	0	35	21:40:06.866	488DG6A	6TMSED	NORM,AL3	Sci, Eng, and D/L Chan	200	4	0	5,374,151:39:0	
939	0	35	22:01:20.200	488DG6B	6TMSED	FILL,AL3	Sci, Eng, and D/L Chan	200	4	0	5,374,172:38:0	
940	0	35	22:12:06.866	488DG6C	6TMSED	FILL,AL6	Sci, Eng, and D/L Chan	200	4	0	5,374,183:07:0	
941	0	35	23:44:24.200	488DG6D	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,374,274:32:0	
942	0	36	01:30:30.200	488DG6E	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,374,379:26:0	
943	0	36	01:51:50.200	488DH6A	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,374,400:35:0	
944	0	36	02:56:09.533	176UY6A	6TMREC	PPB	PAUSE PLAYBACK (PB CONTROL) Record Mode C	200	4	0	5,374,464:00:0	
945	0	36	02:57:58.200	488DH6B	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,374,465:72:0	
946	0	36	03:02:00.200	20UR4B	7SLEW	DIS,POS,0.0	Stator movement	200	4	0	5,374,469:71:0	
947	0	36	03:03:00.200	20UR4D	7MODE	SPNL	AACS ALL-SPIN LOW	200	4	0	5,374,470:70:0	
948	0	36	03:05:00.200	20UR4E	7SAFE	UNSTOW	S/P TO 153 deg cone	200	4	0	5,374,472:68:0	
949	0	36	03:10:30.200	20UR4G	7VENT	0.611,1.333,8	ALERT -- Thruster fire	200	4	0	5,374,478:17:0	
950	0	36	03:10:30.866	20UR4H	7VENT	0.611,10.989,8	ALERT -- Thruster fire	200	4	0	5,374,478:18:0	
951	0	36	03:10:50.866	20UR4I	7VENT	0.611,1.333,6	ALERT -- Thruster fire	200	4	0	5,374,478:48:0	
952	0	36	03:10:51.533	20UR4J	7VENT	0.611,10.989,6	ALERT -- Thruster fire	200	4	0	5,374,478:49:0	
953	0	36	03:11:11.533	20UR4K	7VENT	0.611,1.333,4	ALERT -- Thruster fire	200	4	0	5,374,478:79:0	
954	0	36	03:11:12.200	20UR4L	7VENT	0.611,0.666,5	ALERT -- Thruster fire	200	4	0	5,374,478:80:0	
955	0	36	03:11:22.200	20UR4M	7VENT	0.611,1.333,4	ALERT -- Thruster fire	200	4	0	5,374,479:04:0	
956	0	36	03:11:22.866	20UR4N	7VENT	0.611,0.666,5	ALERT -- Thruster fire	200	4	0	5,374,479:05:0	
957	0	36	03:11:32.866	20UR4O	7VENT	1.211,1.333,10	ALERT -- Thruster fire	200	4	0	5,374,479:20:0	
958	0	36	03:11:33.533	20UR4P	7VENT	1.211,0.666,12	ALERT -- Thruster fire	200	4	0	5,374,479:21:0	
959	0	36	03:13:20.200	20UR4S	7VENT	0.611,1.333,7	ALERT -- Thruster fire	200	4	0	5,374,480:90:0	
960	0	36	03:13:20.866	20UR4T	7VENT	0.611,10.989,7	ALERT -- Thruster fire	200	4	0	5,374,481:00:0	
961	0	36	03:13:40.866	20UR4U	7VENT	0.611,1.333,1	ALERT -- Thruster fire	200	4	0	5,374,481:30:0	
962	0	36	03:13:41.533	20UR4V	7VENT	0.611,10.989,1	ALERT -- Thruster fire	200	4	0	5,374,481:31:0	
963	0	36	03:14:01.533	20UR4AC	7VENT	0.611,1.333,2	ALERT -- Thruster fire	200	4	0	5,374,481:61:0	
964	0	36	03:14:02.200	20UR4AD	7VENT	0.611,0.666,3	ALERT -- Thruster fire	200	4	0	5,374,481:62:0	
965	0	36	03:14:12.200	20UR4AE	7VENT	0.611,1.333,2	ALERT -- Thruster fire	200	4	0	5,374,481:77:0	
966	0	36	03:14:12.866	20UR4AF	7VENT	0.611,0.666,3	ALERT -- Thruster fire	200	4	0	5,374,481:78:0	
967	0	36	03:14:22.866	20UR4AW	7VENT	1.211,1.333,9	ALERT -- Thruster fire	200	4	0	5,374,482:02:0	
968	0	36	03:14:23.533	20UR4X	7VENT	1.211,0.666,11	ALERT -- Thruster fire	200	4	0	5,374,482:03:0	
969	0	36	03:15:20.200	20UR4Z	7MODE	CRU	AACS CRUISE MODE	200	4	0	5,374,482:88:0	
970	0	36	03:40:04.200	20UY4A	7SAFE	STOP	S/P NO MOVEMENT	200	4	0	5,374,507:39:0	
971	0	36	03:40:54.200	20UY4B	7SLEW	DIS,POS,0.0	Stator movement	200	4	0	5,374,508:23:0	
972	0	36	03:42:40.200	176UZ6A	6TMREC	RPB	RESUME PLAYBACK (PB CONTROL) Record Mode	200	4	0	5,374,510:00:0	
973	0	36	05:39:01.533	24NNOPTICS01-		-----STOP-----		200	4	0	:	
974	0	36	09:15:34.200	488DJ6A	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,374,839:22:0	
975	0	36	09:21:08.200	488DJ6B	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,374,844:68:0	
976	0	36	12:05:13.533	488DJ6C	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,375,007:03:0	
977	0	36	20:40:22.200	488DJ6A	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,375,516:47:0	
978	0	36	21:59:18.200	488DJ6B	6TMSED	NORM,AL3	Sci, Eng, and D/L Chan	200	4	0	5,375,594:53:0	
979	0	36	22:01:13.533	488DJ6C	6TMSED	FILL,AL3	Sci, Eng, and D/L Chan	200	4	0	5,375,596:44:0	
980	0	36	22:12:06.866	488DJ6D	6TMSED	FILL,AL6	Sci, Eng, and D/L Chan	200	4	0	5,375,607:23:0	
981	0	37	00:19:16.133	488DJ6E	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,375,733:01:0	
982	0	37	02:30:14.800	488DK6A	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,375,862:50:0	
983	0	37	04:40:22.800	488DK6B	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,375,991:23:0	
984	0	37	05:22:21.466	488DK6C	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,376,032:70:0	
985	0	37	05:29:26.800	488DK6D	6TMSED	FILL,AL2	Sci, Eng, and D/L Chan	200	4	0	5,376,039:71:0	
986	0	37	10:27:14.133	488DL6A	6TMSED	NORM,AL2	Sci, Eng, and D/L Chan	200	4	0	5,376,334:27:0	
987	0	37	10:32:22.133	488DL6B	6TMSED	NORM,AL3	Sci, Eng, and D/L Chan	200	4	0	5,376,339:34:0	
988	0	37	10:57:58.133	488DL6C	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,376,364:63:0	

Line	YR	DOY	SCET - GMT	PSID	Command	Parameters	Description	GCM	GO	GS	RIM	MF I
989	0	37	11:01:04.800	26NNRELOAD02-		-----START-----		200	4	0	:	
990	0	37	11:01:10.133	20ND5A	37PL		Program Load (halts microprocessor & unwr	200	4	0	:	5,376,367:78:0
991	0	37	11:01:13.466	20ND5B	37MRL		Memory Realocate (software operates from R	200	4	0	:	5,376,367:83:0
992	0	37	11:01:16.800	20ND6A	6MCPY	NIMS	NIMS,1000,LLM1A,7300,77F7	200	4	0	:	5,376,367:88:0
993	0	37	11:01:26.800	20ND6B	6MCPY	NIMS	NIMS,1598,LLM1A,77F8,781D	200	4	0	:	5,376,368:12:0
994	0	37	11:01:40.800	20ND5C	37IRT		Instrument Reset (goes into POR state)	200	4	0	:	5,376,368:33:0
995	0	37	11:01:44.133	20ND5D	37MN		Memory Normal (software operates from ROM)	260	4	0	:	5,376,368:38:0
996	0	37	11:02:24.133	20ND4A	37IST	1,2,0,OFF,0,1,0	Chopper ON, Sync, Chopper (Ref)Gain State	2R0	4	0	:	5,376,369:07:0
997	0	37	11:03:24.133	20ND4B	37IOP	3,0	Long Map, Grating Start Position =00	2R3	4	0	:	5,376,370:06:0
998	0	37	11:03:24.800	20ND4C	37ETB	04,C4,35,FF,FF	Loads wavelength edit table	2R3	4	0	:	5,376,370:07:0
999	0	37	11:05:25.466	20ND4D	37IOP	0,0	Safe, Grating Start Position =00	2R0	4	0	:	5,376,372:06:0
1000	0	37	11:05:26.133	20ND4E	37ETB	04,C4,02,00,00	Loads wavelength edit table	2R0	4	0	:	5,376,372:07:0
1001	0	37	11:09:28.800	20ND4F	37IST	1,0,0,OFF,0,0,0	Chopper ON, Sync, 63Hz (Ref)	260	4	0	:	5,376,376:07:0
1002	0	37	11:10:29.466	20ND4G	37IST	1,1,0,OFF,0,0,0	Chopper OFF, N/A, 63Hz (Ref)	200	4	0	:	5,376,377:07:0
1003	0	37	11:11:30.133	20ND4H	37MB	0,0,0,0,0,0	Selects mirror (spatial) edit table	200	4	0	:	5,376,378:07:0
1004	0	37	11:14:04.800	26NNRELOAD02-		-----STOP-----		200	4	0	:	
1005	0	37	12:00:08.133	488DL6D	6TMSED	FILL,AL4	Sci, Eng. and D/L Chan	200	4	0	:	5,376,426:16:0
1006	0	37	12:33:47.466	488DL6E	6TMSED	NORM,AL4	Sci, Eng. and D/L Chan	200	4	0	:	5,376,459:42:0
1007	0	37	15:41:42.133	488DM6A	6TMSED	NORM,AL5	Sci, Eng. and D/L Chan	200	4	0	:	5,376,645:28:0
1008	0	37	16:49:58.133	488DM6B	6TMSED	NORM,AL4	Sci, Eng. and D/L Chan	200	4	0	:	5,376,712:75:0
1009	0	37	21:33:42.133	488DM6C	6TMSED	NORM,AL3	Sci, Eng. and D/L Chan	200	4	0	:	5,376,993:40:0
1010	0	37	21:56:38.800	488DN6A	6TMSED	FILL,AL3	Sci, Eng. and D/L Chan	200	4	0	:	5,377,016:12:0
1011	0	37	21:59:18.133	488DN6B	6TMSED	FILL,AL2	Sci, Eng. and D/L Chan	200	4	0	:	5,377,018:69:0
1012	0	37	22:14:14.133	488DN6C	6TMSED	FILL,AL3	Sci, Eng. and D/L Chan	200	4	0	:	5,377,033:48:0
1013	0	38	10:38:05.400	488DO6A	6TMSED	NORM,AL3	Sci, Eng. and D/L Chan	200	4	0	:	5,377,769:19:0
1014	0	38	10:51:34.733	488DO6B	6TMSED	NORM,AL4	Sci, Eng. and D/L Chan	200	4	0	:	5,377,782:50:0
1015	0	38	12:00:15.400	488DO6C	6TMSED	FILL,AL4	Sci, Eng. and D/L Chan	200	4	0	:	5,377,850:43:0
1016	0	38	12:33:54.733	488DO6D	6TMSED	NORM,AL4	Sci, Eng. and D/L Chan	200	4	0	:	5,377,883:69:0
1017	0	38	14:53:00.066	488DO6E	6TMSED	NORM,AH4	Sci, Eng. and D/L Chan	200	4	0	:	5,378,021:29:0
1018	0	38	14:56:43.400	176UC6A	6TMREC	PPB	PAUSE PLAYBACK (PB CONTROL) Record Mode C	200	4	0	:	5,378,025:00:0
1019	0	38	15:11:50.066	488DP6A	6TMSED	NORM,AH5	Sci, Eng. and D/L Chan	200	4	0	:	5,378,039:86:0
1020	0	38	15:23:30.066	20SN4I	7MODE	INT	AACS INERTIAL MODE	200	4	0	:	5,378,051:44:0
1021	0	38	15:38:30.066	20SN4K	7SLEW	INIT_POS,17,45	Stator movement	200	4	0	:	5,378,066:29:0
1022	0	38	15:50:30.066	20SN4L	7SLEW	DIS_POS,0,0	Stator movement	200	4	0	:	5,378,078:17:0
1023	0	38	15:57:30.066	20SN4M	7SLEW	INIT_NEG,17,45	Stator movement	200	4	0	:	5,378,085:10:0
1024	0	38	16:09:30.066	20SN4N	7SLEW	DIS_POS,0,0	Stator movement	200	4	0	:	5,378,096:89:0
1025	0	38	16:16:30.066	20SN4O	7SLEW	INIT_POS,4,36	Stator movement	200	4	0	:	5,378,103:82:0
1026	0	38	16:28:30.066	20SN4P	7SLEW	DIS_POS,0,0	Stator movement	200	4	0	:	5,378,115:70:0
1027	0	38	16:35:30.066	20SN4Q	7SLEW	INIT_NEG,4,36	Stator movement	200	4	0	:	5,378,122:63:0
1028	0	38	16:47:30.066	20SN4R	7SLEW	DIS_POS,0,0	Stator movement	200	4	0	:	5,378,134:51:0
1029	0	38	16:59:30.066	20SN4AH	7MODE	CRU	AACS CRUISE MODE	200	4	0	:	5,378,146:39:0
1030	0	38	17:15:00.066	488DP6B	6TMSED	NORM,AL5	Sci, Eng. and D/L Chan	200	4	0	:	5,378,161:69:0
1031	0	38	17:15:04.066	20UC4A	7SAFE	STOP	S/P NO MOVEMENT	200	4	0	:	5,378,161:75:0
1032	0	38	17:15:34.066	488DP6C	6TMSED	NORM,AL4	Sci, Eng. and D/L Chan	200	4	0	:	5,378,162:29:0
1033	0	38	17:15:54.066	20UC4B	7SLEW	DIS_POS,0,0	Stator movement	200	4	0	:	5,378,162:59:0
1034	0	38	17:17:16.066	176UD6A	6TMREC	RPB	RESUME PLAYBACK (PB CONTROL) Record Mode	200	4	0	:	5,378,164:00:0
1035	0	38	21:33:42.066	488DQ6A	6TMSED	NORM,AL3	Sci, Eng. and D/L Chan	200	4	0	:	5,378,417:56:0
1036	0	38	21:45:58.733	488DQ6B	6TMSED	FILL,AL3	Sci, Eng. and D/L Chan	200	4	0	:	5,378,429:69:0
1037	0	38	21:57:10.066	488DQ6C	6TMSED	FILL,AL6	Sci, Eng. and D/L Chan	200	4	0	:	5,378,440:75:0
1038	0	39	01:49:01.400	488DQ6D	6TMSED	NORM,AL6	Sci, Eng. and D/L Chan	200	4	0	:	5,378,670:12:0
1039	0	39	02:30:14.066	488DQ6E	6TMSED	NORM,AL5	Sci, Eng. and D/L Chan	200	4	0	:	5,378,710:81:0
1040	0	39	04:33:58.066	488DR6A	6TMSED	NORM,AL4	Sci, Eng. and D/L Chan	200	4	0	:	5,378,833:24:0
1041	0	39	05:18:46.066	488DR6B	6TMSED	NORM,AL6	Sci, Eng. and D/L Chan	200	4	0	:	5,378,877:52:0
1042	0	39	09:09:10.066	488DR6C	6TMSED	NORM,AL5	Sci, Eng. and D/L Chan	200	4	0	:	5,379,105:40:0
1043	0	39	10:08:54.066	488DR6D	6TMSED	NORM,AL4	Sci, Eng. and D/L Chan	200	4	0	:	5,379,164:47:0

Line	YR	DOY	SCET - GMT	PSID	Command	Parameters	Description	GCM	GO	GS	RIM	MF I
1044	0	39	10:31:41.400	488DR6E	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,379,187:05:0	
1045	0	39	10:34:30.066	488DS6A	6TMSED	FILL,AL3	Sci, Eng, and D/L Chan	200	4	0	5,379,189:76:0	
1046	0	39	10:45:10.066	488DS6B	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,379,200:35:0	
1047	0	39	16:19:49.333	488DS6C	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,379,531:33:0	
1048	0	39	20:33:58.666	488DT6A	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,379,782:66:0	
1049	0	39	21:42:28.000	488DT6B	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,379,850:42:0	
1050	0	39	21:48:38.666	488DT6C	6TMSED	FILL,AL3	Sci, Eng, and D/L Chan	200	4	0	5,379,856:52:0	
1051	0	40	01:22:53.333	488DT6D	6TMSED	NORM,AL3	Sci, Eng, and D/L Chan	200	4	0	5,380,068:42:0	
1052	0	40	01:32:38.000	488DT6E	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,380,078:09:0	
1053	0	40	02:45:27.333	488DU6A	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,380,150:11:0	
1054	0	40	03:19:06.666	488DU6B	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,380,183:37:0	
1055	0	40	04:06:14.000	488DU6C	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,380,230:01:0	
1056	0	40	07:39:34.000	488DU6D	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,380,441:00:0	
1057	0	40	10:19:34.000	488DV6A	6TMSED	NORM,AL3	Sci, Eng, and D/L Chan	200	4	0	5,380,599:22:0	
1058	0	40	10:22:50.000	488DV6B	6TMSED	FILL,AL3	Sci, Eng, and D/L Chan	200	4	0	5,380,602:43:0	
1059	0	40	10:30:14.000	488DV6C	6TMSED	FILL,AL1	Sci, Eng, and D/L Chan	200	4	0	5,380,609:72:0	
1060	0	40	11:06:30.000	488DV6D	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,380,645:60:0	
1061	0	40	16:49:42.666	488DW6A	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,380,985:09:0	
1062	0	40	20:29:42.000	488DW6B	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,381,202:61:0	
1063	0	40	21:41:31.333	488DW6C	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,381,273:64:0	
1064	0	40	21:44:22.000	488DW6D	6TMSED	FILL,AL3	Sci, Eng, and D/L Chan	200	4	0	5,381,276:47:0	
1065	0	40	21:55:02.600	488DW6E	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,381,287:07:0	
1066	0	41	01:36:26.600	488DX6A	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,381,506:04:0	
1067	0	41	01:47:34.600	488DX6B	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,381,517:05:0	
1068	0	41	02:43:02.600	488DX6C	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,381,571:83:0	
1069	0	41	08:54:13.933	488DY6A	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,381,939:02:0	
1070	0	41	09:20:31.266	488DY6B	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,381,965:02:0	
1071	0	41	16:49:35.933	488DZ6A	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,382,409:15:0	
1072	0	41	20:23:17.933	488DZ6B	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,382,620:47:0	
1073	0	41	21:40:05.933	488DZ6C	6TMSED	NORM,AL3	Sci, Eng, and D/L Chan	200	4	0	5,382,696:43:0	
1074	0	41	21:45:36.600	488DZ6D	6TMSED	FILL,AL3	Sci, Eng, and D/L Chan	200	4	0	5,382,701:84:0	
1075	0	41	21:57:09.933	488DZ6E	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,382,713:32:0	
1076	0	42	02:21:19.266	488EA6A	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,382,974:55:0	
1077	0	42	03:45:41.933	488EA6B	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,383,058:05:0	
1078	0	42	04:19:21.266	488EA6C	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,383,091:31:0	
1079	0	42	04:27:33.933	488EA6D	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,383,099:42:0	
1080	0	42	07:03:18.533	488EA6E	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,383,253:45:0	
1081	0	42	10:08:54.533	488EB6A	6TMSED	NORM,AL3	Sci, Eng, and D/L Chan	200	4	0	5,383,437:05:0	
1082	0	42	10:15:32.533	488EB6B	6TMSED	FILL,AL3	Sci, Eng, and D/L Chan	200	4	0	5,383,443:56:0	
1083	0	42	10:25:58.533	488EB6C	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,383,453:85:0	
1084	0	43	19:34:20.466	488EC6A	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,385,420:41:0	
1085	0	43	21:27:18.466	488EC6B	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,385,532:16:0	
1086	0	43	23:06:10.466	488EC6C	6TMSED	FILL,AL6	Sci, Eng, and D/L Chan	200	4	0	5,385,629:87:0	
1087	0	43	23:09:41.800	488EC6D	6TMSED	FILL,AL3	Sci, Eng, and D/L Chan	200	4	0	5,385,633:40:0	
1088	0	44	10:12:23.800	488ED6A	6TMSED	NORM,AL3	Sci, Eng, and D/L Chan	200	4	0	5,386,288:78:0	
1089	0	44	10:21:41.800	488ED6B	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,386,298:05:0	
1090	0	44	11:42:45.800	488ED6C	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,386,378:21:0	
1091	0	44	19:59:49.800	488EE6A	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,386,869:76:0	
1092	0	44	21:08:05.800	488EE6B	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,386,937:32:0	
1093	0	44	22:38:47.733	488EE6C	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,387,027:05:0	
1094	0	44	23:07:53.733	488EE6D	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,387,055:76:0	
1095	0	45	02:13:10.400	488EF6A	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,387,239:07:0	
1096	0	45	04:48:54.400	488EF6B	6TMSED	NORM,AL3	Sci, Eng, and D/L Chan	200	4	0	5,387,393:09:0	
1097	0	45	04:50:14.400	488EF6C	6TMSED	FILL,AL3	Sci, Eng, and D/L Chan	200	4	0	5,387,394:38:0	
1098	0	45	05:01:42.400	488EF6D	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,387,405:69:0	

Line	YR	DOY	SCET - GMT	PSID	Command	Parameters	Description	GCM	GO	GS	RIM	MF I
1099	0	45	11:35:56.400	488EG6A	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,387,795:60:0	
1100	0	45	13:01:05.066	488EG6B	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,387,879:79:0	
1101	0	45	13:34:44.400	488EG6C	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,387,913:14:0	
1102	0	45	20:59:33.733	488EH6A	6TMSED	NORM,AL3	Sci, Eng, and D/L Chan	200	4	0	5,388,353:08:0	
1103	0	45	21:24:35.066	488EH6B	6TMSED	FILL,AL3	Sci, Eng, and D/L Chan	200	4	0	5,388,377:76:0	
1104	0	45	21:33:41.733	488EH6C	6TMSED	FILL,AL2	Sci, Eng, and D/L Chan	200	4	0	5,388,386:77:0	
1105	0	45	21:48:37.733	488EH6D	6TMSED	FILL,AL6	Sci, Eng, and D/L Chan	200	4	0	5,388,401:56:0	
1106	0	46	06:18:11.000	488E16A	6TMSED	NORM,AL6	Sci, Eng, and D/L Chan	200	4	0	5,388,905:52:0	
1107	0	46	07:58:46.333	488E16B	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,389,005:05:0	
1108	0	46	09:34:46.333	488E16C	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,389,100:00:0	
1109	0	46	10:06:33.000	488E16D	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,389,131:39:0	
1110	0	46	10:08:54.333	488E16E	6TMSED	FILL,AL2	Sci, Eng, and D/L Chan	200	4	0	5,389,133:69:0	
1111	0	46	10:23:50.333	488E16A	6TMSED	FILL,AL3	Sci, Eng, and D/L Chan	200	4	0	5,389,148:48:0	
1112	0	46	17:37:08.333	488EK6A	6TMSED	NORM,AL3	Sci, Eng, and D/L Chan	200	4	0	5,389,577:06:0	
1113	0	46	17:51:49.666	488EK6B	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,389,591:54:0	
1114	0	46	19:01:13.000	488EK6C	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,389,660:20:0	
1115	0	46	19:34:52.333	488EK6D	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,389,693:46:0	
1116	0	46	21:50:45.666	488EK6E	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,389,827:82:0	
1117	0	47	00:13:41.666	488EL6A	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,389,969:24:0	
1118	0	47	00:47:07.000	488EL6B	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,390,002:29:0	
1119	0	47	00:56:21.666	488EL6C	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,390,011:42:0	
1120	0	47	16:33:55.600	488EM6A	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,390,938:66:0	
1121	0	47	19:08:38.266	488EM6B	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,391,091:67:0	
1122	0	47	21:14:30.266	488EM6C	6TMSED	NORM,AL3	Sci, Eng, and D/L Chan	200	4	0	5,391,216:20:0	
1123	0	47	21:24:26.933	488EM6D	6TMSED	FILL,AL3	Sci, Eng, and D/L Chan	200	4	0	5,391,226:05:0	
1124	0	47	21:33:42.266	488EM6E	6TMSED	FILL,AL2	Sci, Eng, and D/L Chan	200	4	0	5,391,235:19:0	
1125	0	47	21:48:37.600	488EN6A	6TMSED	FILL,AL5	Sci, Eng, and D/L Chan	200	4	0	5,391,249:88:0	
1126	0	48	15:03:49.600	488EO6A	6TMSED	NORM,AL5	Sci, Eng, and D/L Chan	200	4	0	5,392,273:72:0	
1127	0	48	17:28:21.600	488EO6B	6TMSED	NORM,AL3	Sci, Eng, and D/L Chan	200	4	0	5,392,416:67:0	
1128	0	48	17:51:49.600	488EO6C	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,392,439:86:0	
1129	0	48	19:01:24.933	488EO6D	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,392,508:70:0	
1130	0	48	19:35:04.266	488EO6E	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,392,542:05:0	
1131	0	49	01:07:02.200	488EP6A	6TMSED	NORM,AL3	Sci, Eng, and D/L Chan	200	4	0	5,392,870:34:0	
1132	0	49	01:21:58.200	488EP6B	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,392,885:13:0	
1133	0	49	02:11:27.533	488EP6C	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,392,934:08:0	
1134	0	49	02:50:06.200	488EP6D	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,392,972:28:0	
1135	0	49	09:24:05.533	488EQ6A	6TMSED	NORM,AL3	Sci, Eng, and D/L Chan	200	4	0	5,393,361:88:0	
1136	0	49	09:56:05.533	488EQ6B	6TMSED	NORM,AL2	Sci, Eng, and D/L Chan	200	4	0	5,393,393:56:0	
1137	0	49	10:11:01.533	488EQ6C	6TMSED	NORM,AL3	Sci, Eng, and D/L Chan	200	4	0	5,393,408:35:0	
1138	0	49	10:47:17.533	488EQ6D	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,393,444:23:0	
1139	0	49	11:11:29.533	488EQ6E	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,393,468:17:0	
1140	0	49	11:50:08.200	488ER6A	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,393,506:37:0	
1141	0	49	15:53:00.200	488ER6B	6TMSED	NORM,AH4	Sci, Eng, and D/L Chan	200	4	0	5,393,746:55:0	
1142	0	49	15:55:25.533	176QH6A	6TMREC	PPB	PAUSE PLAYBACK (PB CONTROL) Record Mode C	200	4	0	5,393,749:00:0	
1143	0	49	20:23:17.533	488ES6A	6TMSED	NORM,AH3	Sci, Eng, and D/L Chan	200	4	0	5,394,013:84:0	
1144	0	49	21:01:00.200	488ES6B	6TMSED	NORM,AL3	Sci, Eng, and D/L Chan	200	4	0	5,394,051:20:0	
1145	0	49	21:01:47.533	176QJ6A	6TMREC	RPB	RESUME PLAYBACK (PB CONTROL) Record Mode	200	4	0	5,394,052:00:0	
1146	0	49	21:08:05.533	488ES6C	6TMSED	NORM,AL2	Sci, Eng, and D/L Chan	200	4	0	5,394,058:21:0	
1147	0	49	21:25:09.533	488ES6D	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,394,075:10:0	
1148	0	49	22:16:32.200	488ES6E	6TMSED	FILL,AL4	Sci, Eng, and D/L Chan	200	4	0	5,394,125:84:0	
1149	0	49	23:20:11.533	488ET6A	6TMSED	NORM,AL4	Sci, Eng, and D/L Chan	200	4	0	5,394,188:80:0	
1150	0	50	03:54:19.533	176SB6A	6TMREC	TPB	TERMINATE PLAYBACK (PB CONTROL) Record Mo	200	4	0	5,394,460:00:0	
1151	0	50	04:08:21.533	488ET6B	6TMSED	NORM,AL3	Sci, Eng, and D/L Chan	200	4	0	5,394,473:80:0	
1152	0	50	04:40:06.866	488ET6C	6TMSED	FILL,AL3	Sci, Eng, and D/L Chan	200	4	0	5,394,505:26:0	
1153	0	50	04:42:29.533	488ET6D	6TMSED	FILL,AL2	Sci, Eng, and D/L Chan	200	4	0	5,394,507:58:0	

Line	YR	DOY	SCET - GMT	PSID	Command	Parameters	Description	GCM	GO	GS	RIM	MF I
1154	0	50	04:57:25.533	488ET6E	6TMSD	FILL,AL3	Sci, Eng. and D/L Chan	200	4	0	5,394,522:37:0	
1155	0	50	10:06:46.800	488EU6A	6TMSD	NORM,AL3	Sci, Eng. and D/L Chan	200	4	0	5,394,828:33:0	
1156	0	50	10:51:34.133	488EU6B	6TMSD	NORM,AL4	Sci, Eng. and D/L Chan	200	4	0	5,394,872:60:0	
1157	0	50	11:31:35.466	488EU6C	6TMSD	FILL,AL4	Sci, Eng. and D/L Chan	200	4	0	5,394,912:22:0	
1158	0	50	12:00:38.133	432MC431A6A	6RCDL	DDSDSL,PLSNCG,EP	Record Deselect (DDS o	200	4	0	5,394,940:88:0	
1159	0	50	12:00:38.800	432MC6A	6RTSL1		R/T Select of DDS and	200	4	0	5,394,940:89:0	
1160	0	50	12:05:14.133	488EU6D	6TMSD	NORM,AL4	Sci, Eng. and D/L Chan	200	4	0	5,394,945:47:0	
1161	0	50	15:31:46.133	488EU6E	6TMSD	FILL,AL4	Sci, Eng. and D/L Chan	200	4	0	5,395,149:71:0	
1162	0	50	15:41:41.466	488EV6A	6TMSD	FILL,AL5	Sci, Eng. and D/L Chan	200	4	0	5,395,159:54:0	
1163	0	50	16:07:22.800	465WA6A	6DMST		5000 DMS Slew to TIC	200	4	0	5,395,185:00:0	
1164	0	50	16:07:22.800		DMS:	: *TURNARND	P7, TRACK 1, FWD, TIC 202.12 +/-	200	4	0	5,395,185:00:0	
1165	0	50	16:07:22.800		DMS:	: *E4-DELAY	RDY, TRACK 1, FWD, TIC 202.12 +/-	200	4	0	5,395,185:00:0	
1166	0	50	16:07:22.800		DMS:	: *SLEW-TIC	P7, TRACK 1, FWD, TIC 202.12 +/-	200	4	0	5,395,185:00:0	
1167	0	50	16:07:29.466		DMS:	: *RUNUP	P7, TRACK 1, FWD, TIC 202.12 +/-	200	4	0	5,395,185:10:0	
1168	0	50	16:07:30.866		DMS:	: *AT SPD	P7, TRACK 1, FWD, TIC *202.24 +/-	200	4	0	5,395,185:12:1	
1169	0	50	21:48:31.600		DMS:	: *RUNDOWN	P7, TRACK 1, FWD, TIC *4997.94 +/-	200	4	0	5,395,522:36:2	
1170	0	50	21:48:32.800		DMS:	: *READY	RDY, TRACK 1, FWD, TIC *4998.00 +/-	200	4	0	5,395,522:38:0	
1171	0	50	22:01:04.133	465WB6A	6DMSC	P100.4	DMS Control Tape P/B 100.8kbps	200	4	0	5,395,534:73:0	
1172	0	50	22:01:04.133		DMS:	: *US-RUNUP	P7, TRACK 1, FWD, TIC 4998.00 +/-	200	4	0	5,395,534:73:0	
1173	0	50	22:01:05.533		DMS:	: *US_AT SP	P7, TRACK 1, FWD, TIC *4998.12 +/-	200	4	0	5,395,534:75:1	
1174	0	50	22:01:10.800		DMS:	: *US_RD	P7, TRACK 1, FWD, TIC *4999.35 +/-	200	4	0	5,395,534:83:0	
1175	0	50	22:01:12.000		DMS:	: *RUNUP	P100, TRACK *4, *REV, TIC *4999.41 +/-	200	4	0	5,395,534:84:8	
1176	0	50	22:01:15.866		DMS:	: *P SLEW	P100, TRACK 4, REV, TIC *4993.91 +/-	200	4	0	5,395,534:90:6	
1177	0	50	22:01:15.866		DMS:	: *AT SPD	P100, TRACK 4, REV, TIC 4993.91 +/-	200	4	0	5,395,534:90:6	
1178	0	50	22:18:36.800	488EW6A	6TMSD	NORM,AL5	Sci, Eng. and D/L Chan	200	4	0	5,395,552:14:0	
1179	0	50	22:26:56.133		DMS:	: *RUNDOWN	P100, TRACK 4, REV, TIC * 255.79 +/-	200	4	0	5,395,560:35:0	
1180	0	50	22:26:56.133	465WB6B	6DMSC	RDY.4	DMS Control Tape stop	200	4	0	5,395,560:35:0	
1181	0	50	22:26:57.333		DMS:	: *READY	RDY, TRACK 4, REV, TIC * 254.99 +/-	200	4	0	5,395,560:36:8	
1182	0	51	00:25:44.800		DMS:	: *DMS-TURN	P7, TRACK 4, REV, TIC 254.99 +/-	200	4	0	5,395,677:81:0	
1183	0	51	00:25:44.800	465WC6A	6DTRN	CMD,6DTRN,465WC6	DMS TRACK TURNAROUND	200	4	0	5,395,677:81:0	
1184	0	51	00:25:44.800		DMS:	: *US-RUNUP	P7, TRACK *1, *FWD, TIC 254.99 +/-	200	4	0	5,395,677:81:0	
1185	0	51	00:25:46.200		DMS:	: *US_AT SP	P7, TRACK 1, FWD, TIC * 255.11 +/-	200	4	0	5,395,677:83:1	
1186	0	51	00:25:51.466		DMS:	: *US_RD	P7, TRACK 1, FWD, TIC * 256.34 +/-	200	4	0	5,395,678:00:0	
1187	0	51	00:25:52.666		DMS:	: *RUNUP	P7, TRACK *4, *REV, TIC * 256.40 +/-	200	4	0	5,395,678:01:8	
1188	0	51	00:25:54.066		DMS:	: *AT SPD	P7, TRACK 4, REV, TIC * 256.28 +/-	200	4	0	5,395,678:03:9	
1189	0	51	00:29:09.466	488EW6B	6TMSD	NORM,AH5	Sci, Eng. and D/L Chan	200	4	0	5,395,681:24:0	
1190	0	51	00:29:54.733		DMS:	: *REVERSE	P7, TRACK 4, REV, TIC * 199.87 +/-	200	4	0	5,395,682:00:9	
1191	0	51	00:29:55.933		DMS:	: *TURNARND	P7, TRACK *1, *FWD, TIC * 199.81 +/-	200	4	0	5,395,682:02:7	
1192	0	51	00:29:55.933		DMS:	: *RUNUP	P7, TRACK 1, FWD, TIC 199.81 +/-	200	4	0	5,395,682:02:7	
1193	0	51	00:29:57.333		DMS:	: *AT SPD	P7, TRACK 1, FWD, TIC * 199.93 +/-	200	4	0	5,395,682:04:8	
1194	0	51	00:30:09.333		DMS:	: *AUTOSTOP	P7, TRACK 1, FWD, TIC * 202.06 +/-	200	4	0	5,395,682:22:8	
1195	0	51	00:30:10.533		DMS:	: *READY	RDY, TRACK 1, FWD, TIC * 202.12 +/-	200	4	0	5,395,682:24:6	
1196	0	51	00:35:47.466	465WD6A	6DMSC	P100.1	DMS Control Tape P/B 100.8kbps	200	4	0	5,395,687:75:0	
1197	0	51	00:35:47.466		DMS:	: *E4-DELAY	RDY, TRACK 1, FWD, TIC 202.12 +/-	200	4	0	5,395,687:75:0	
1198	0	51	00:35:54.133		DMS:	: *RUNUP	P100, TRACK 1, FWD, TIC 202.12 +/-	200	4	0	5,395,687:85:0	
1199	0	51	00:35:58.000		DMS:	: *AT SPD	P100, TRACK 1, FWD, TIC 207.62 +/-	200	4	0	5,395,687:90:8	
1200	0	51	00:35:58.000		DMS:	: *P SLEW	P100, TRACK 1, FWD, TIC * 207.62 +/-	200	4	0	5,395,687:90:8	
1201	0	51	01:07:41.466		DMS:	: *RUNDOWN	P100, TRACK 1, FWD, TIC *6063.01 +/-	200	4	0	5,395,719:34:0	
1202	0	51	01:07:41.466	465WD6B	6DMSC	RDY.1	DMS Control Tape stop	200	4	0	5,395,719:34:0	
1203	0	51	01:07:42.666		DMS:	: *READY	RDY, TRACK 1, FWD, TIC *6063.81 +/-	200	4	0	5,395,719:35:8	
1204	0	51	01:23:17.466	465WE6A	6DMSC	P100.2	DMS Control Tape P/B 100.8kbps	200	4	0	5,395,734:73:0	
1205	0	51	01:23:17.466		DMS:	: *US-RUNUP	P7, TRACK 1, FWD, TIC 6063.81 +/-	200	4	0	5,395,734:73:0	
1206	0	51	01:23:18.866		DMS:	: *US_AT SP	P7, TRACK 1, FWD, TIC *6063.93 +/-	200	4	0	5,395,734:75:1	
1207	0	51	01:23:24.133		DMS:	: *US_RD	P7, TRACK 1, FWD, TIC *6065.17 +/-	200	4	0	5,395,734:83:0	
1208	0	51	01:23:25.333		DMS:	: *RUNUP	P100, TRACK *2, *REV, TIC *6065.23 +/-	200	4	0	5,395,734:84:8	

Line	YR	DOY	SCET - GMT	PSID	Command	Parameters	Description	GCM	GO	GS	RIM	MF I
1209	0	51	01:23:29.200		DMS:	: *AT_SPD	P100, TRACK 2, REV, TIC 6059.73 +/-	200	4	0	5,395,734:90:6	
1210	0	51	01:23:29.200		DMS:	: *P_SLEW	P100, TRACK 2, REV, TIC *6059.73 +/-	200	4	0	5,395,734:90:6	
1211	0	51	01:55:25.466	465WF6A	6DMSC	P100.3	DMS Control Tape P/B 100.8kbps	200	4	0	5,395,766:53:0	
1212	0	51	01:55:25.466		DMS:	: *RUNDOWN	P100, TRACK 2, REV, TIC * 164.96 +/-	200	4	0	5,395,766:53:0	
1213	0	51	01:55:26.666		DMS:	: *RUNUP	P100, TRACK *3, *FWD, TIC * 164.16 +/-	200	4	0	5,395,766:54:8	
1214	0	51	01:55:30.533		DMS:	: *P_SLEW	P100, TRACK 3, FWD, TIC * 169.66 +/-	200	4	0	5,395,766:60:6	
1215	0	51	01:55:30.533		DMS:	: *AT_SPD	P100, TRACK 3, FWD, TIC 169.66 +/-	200	4	0	5,395,766:60:6	
1216	0	51	02:17:25.466	488EW6C	6TMSED	NORM, AH4	Sci, Eng, and D/L Chan	200	4	0	5,395,788:31:0	
1217	0	51	02:27:26.133		DMS:	: *RUNDOWN	P100, TRACK 3, FWD, TIC *6062.38 +/-	200	4	0	5,395,798:22:0	
1218	0	51	02:27:26.133	465WF6B	6DMSC	RDY.3	DMS Control Tape stop	200	4	0	5,395,798:22:0	
1219	0	51	02:27:27.333		DMS:	: *READY	RDY, TRACK 3, FWD, TIC *6063.18 +/-	200	4	0	5,395,798:23:8	
1220	0	51	02:42:09.466		DMS:	: *US-RUNUP	P7, TRACK *1, FWD, TIC 6063.18 +/-	200	4	0	5,395,812:73:0	
1221	0	51	02:42:09.466	465WG6A	6DMSC	P100.4	DMS Control Tape P/B 100.8kbps	200	4	0	5,395,812:73:0	
1222	0	51	02:42:10.866		DMS:	: *US_AT_SP	P7, TRACK 1, FWD, TIC *6063.30 +/-	200	4	0	5,395,812:75:1	
1223	0	51	02:42:16.133		DMS:	: *US_RD	P7, TRACK 1, FWD, TIC *6064.53 +/-	200	4	0	5,395,812:83:0	
1224	0	51	02:42:17.333		DMS:	: *RUNUP	P100, TRACK *4, *REV, TIC *6064.59 +/-	200	4	0	5,395,812:84:8	
1225	0	51	02:42:21.200		DMS:	: *AT_SPD	P100, TRACK 4, REV, TIC 6059.09 +/-	200	4	0	5,395,812:90:6	
1226	0	51	02:42:21.200		DMS:	: *P_SLEW	P100, TRACK 4, REV, TIC *6059.09 +/-	200	4	0	5,395,812:90:6	
1227	0	51	03:14:16.800	465WH6A	6DMSC	P100.3	DMS Control Tape P/B 100.8kbps	200	4	0	5,395,844:52:0	
1228	0	51	03:14:16.800		DMS:	: *RUNDOWN	P100, TRACK 4, REV, TIC * 166.38 +/-	200	4	0	5,395,844:52:0	
1229	0	51	03:14:18.000		DMS:	: *RUNUP	P100, TRACK *3, *FWD, TIC * 165.58 +/-	200	4	0	5,395,844:53:8	
1230	0	51	03:14:21.866		DMS:	: *P_SLEW	P100, TRACK 3, FWD, TIC * 171.08 +/-	200	4	0	5,395,844:59:6	
1231	0	51	03:14:21.866		DMS:	: *AT_SPD	P100, TRACK 3, FWD, TIC 171.08 +/-	200	4	0	5,395,844:59:6	
1232	0	51	03:15:22.800		DMS:	: *RUNDOWN	P100, TRACK 3, FWD, TIC * 358.52 +/-	200	4	0	5,395,845:60:0	
1233	0	51	03:15:22.800	465WH6B	6DMSC	RDY.3	DMS Control Tape stop	200	4	0	5,395,845:60:0	
1234	0	51	03:15:24.000		DMS:	: *READY	RDY, TRACK 3, FWD, TIC * 359.32 +/-	200	4	0	5,395,845:61:8	
1235	0	51	03:15:59.466	488EW6D	6TMSED	NORM, AL4	Sci, Eng, and D/L Chan	200	4	0	5,395,846:24:0	
1236	0	51	03:29:51.466	432JZ6B	6RTDS2	NIMDSL, AACNCG, RT	NIMS R/T DESELECT	200	4	0	5,395,859:89:0	
1237	0	51	03:29:52.133	432JZ431A6A	6RCDSL	DDSNCG, PLSDSL, EP	Record Deselect (DDS o	200	4	0	5,395,859:90:0	
1238	0	51	03:29:52.800	465WI6A	6DMSC	RDY.4	DMS Control Tape stop	200	4	0	5,395,860:00:0	
1239	0	51	03:29:52.800	432JZ6D	6RTSL2	NIMNCG, AACSEL, RT	AACS SELECT	200	4	0	5,395,860:00:0	
1240	0	51	03:29:52.800	432JZ6C	6RTSL1		R/T Select of DDS and	200	4	0	5,395,860:00:0	
1241	0	51	03:29:52.800		DMS:	: *READY	RDY, TRACK *4, *REV, TIC 359.32 +/-	200	4	0	5,395,860:00:0	
1242	0	51	03:30:46.800		DMS:	: *US-RUNUP	P7, TRACK *1, *FWD, TIC 359.32 +/-	200	4	0	5,395,860:81:0	
1243	0	51	03:30:46.800		DMS:	: *DMS-TURN	P7, TRACK 4, REV, TIC 359.32 +/-	200	4	0	5,395,860:81:0	
1244	0	51	03:30:46.800	465WJ6A	6DTRN	CMD, 6DTRN, 465WJ6	DMS TRACK TURNAROUND	200	4	0	5,395,860:81:0	
1245	0	51	03:30:48.200		DMS:	: *US_AT_SP	P7, TRACK 1, FWD, TIC * 359.44 +/-	200	4	0	5,395,860:83:1	
1246	0	51	03:30:53.466		DMS:	: *US_RD	P7, TRACK 1, FWD, TIC * 360.67 +/-	200	4	0	5,395,861:00:0	
1247	0	51	03:30:54.666		DMS:	: *RUNUP	P7, TRACK *4, *REV, TIC * 360.73 +/-	200	4	0	5,395,861:01:8	
1248	0	51	03:30:56.066		DMS:	: *AT_SPD	P7, TRACK 4, REV, TIC * 360.61 +/-	200	4	0	5,395,861:03:9	
1249	0	51	03:31:56.800	20PA6A	6HICON			200	4	0	5,395,862:04:0	
1250	0	51	03:42:21.866		DMS:	: *REVERSE	P7, TRACK 4, REV, TIC * 199.87 +/-	200	4	0	5,395,872:31:6	
1251	0	51	03:42:23.066		DMS:	: *TURNARND	P7, TRACK *1, *FWD, TIC * 199.81 +/-	200	4	0	5,395,872:33:4	
1252	0	51	03:42:23.066		DMS:	: *RUNUP	P7, TRACK 1, FWD, TIC 199.81 +/-	200	4	0	5,395,872:33:4	
1253	0	51	03:42:24.466		DMS:	: *AT_SPD	P7, TRACK 1, FWD, TIC * 199.93 +/-	200	4	0	5,395,872:35:5	
1254	0	51	03:42:36.466		DMS:	: *AUTOSTOP	P7, TRACK 1, FWD, TIC * 202.06 +/-	200	4	0	5,395,872:53:5	
1255	0	51	03:42:37.666		DMS:	: *READY	RDY, TRACK 1, FWD, TIC * 202.12 +/-	200	4	0	5,395,872:55:3	
1256	0	51	04:00:00.000	20A3EW	37A	Final Condition	NIMS Power ON	200	4	0	5,395,889:71:8	
1257	0	51	04:00:00.000	20A3FF	40T2R	Final Condition	PCT Heater 2 OFF	200	4	0	5,395,889:71:8	
1258	0	51	04:00:00.000	20A3FE	40T1PR	Final Condition	PCT Heater 1 OFF (primary relay)	200	4	0	5,395,889:71:8	
1259	0	51	04:00:00.000	20A3FD	40HRPR	Final Condition	RCT Heater OFF (primary relay)	200	4	0	5,395,889:71:8	
1260	0	51	04:00:00.000	20A3FB	37F2PR	Final Condition	Shield Flash Heater OFF (primary relay)	200	4	0	5,395,889:71:8	
1261	0	51	04:00:00.000	20A3FA	37F1PR	Final Condition	Radiator Flash Heater OFF (primary relay)	200	4	0	5,395,889:71:8	
1262	0	51	04:00:00.000	20A3EZ	37C2PR	Final Condition	Optics Heater 2 OFF (primary relay)	200	4	0	5,395,889:71:8	
1263	0	51	04:00:00.000	20A3EY	37C1PR	Final Condition	Optics Heater 1 OFF (primary relay)	200	4	0	5,395,889:71:8	

Line	YR	DOY	SCET - GMT	PSID	Command	Parameters	Description	GCM	GO	GS	RIM	MF I
1264	0	51	04:00:00.000	20A3EX	37HR	Final Condition	Replacement Heaters OFF	200	4	0	5,395,889	71:8
1265	0	51	04:00:00.133		DMS:	: READY	RDY, TRACK 1, FWD, TIC - 202.12 +/-	200	4	0	5,395,889	72:0

26INHSLOKI01

```

OAPEL: 26INHSLOKI01      ALIAS: 26INHSLOKI01
EXT: A                    PSID: DA
SCLK1: 05329386:87:0     SCLK2: 05329393:48:0
SCET1: 00-004/11:18:17.133 SCET2: 00-004/11:24:56.466
TARGET: IO                PARTITION: 1
  
```

```

MODE: 3                   GAIN: 2
CHOP: 1                   GRAT_OFF: 4
PTAB_A: 1 1 0 0 124      PTAB_B: 1 1 0 0 124
ECAL: 0                   OPCAL: 0
R/T: 0                    RECORD: 1
  
```

```

MB_DOWN: 00000           MB_UP: 00000
COMP_FLAG: 1
EST_COMP: 2.0           EST_COMPV: 0.3
RATE_CON1: 00000        RATE_CON2: 65525
NWAVETOT: 360           TLMFMT: MPW
  
```

```

THRESHOLD_SEL: 0
THRESHOLD_VALUES: 000, 000, 000, 000, 000, 000, 000, 000, 000, 000
                  000, 000, 000, 000, 000, 000, 000, 000, 000
  
```

```

WETGID: 0326360001      03 26 360 001
WTGRP_SIZ: 26
  
```

EDIT TABLE

GRATING STEP	HEX MASK	DETECTOR MASK
0	1BDFF	1,1011,1101,1111,1111
1	1BDFF	1,1011,1101,1111,1111
2	1BDFF	1,1011,1101,1111,1111
3	1BDFF	1,1011,1101,1111,1111
4	1BDFF	1,1011,1101,1111,1111
5	1BDFF	1,1011,1101,1111,1111
6	1BDFF	1,1011,1101,1111,1111
7	1BDFF	1,1011,1101,1111,1111
8	1BDFF	1,1011,1101,1111,1111
9	1BDFF	1,1011,1101,1111,1111
10	1BDFF	1,1011,1101,1111,1111
11	1BDFF	1,1011,1101,1111,1111
12	1BDFF	1,1011,1101,1111,1111
13	1BDFF	1,1011,1101,1111,1111
14	1BDFF	1,1011,1101,1111,1111
15	1BDFF	1,1011,1101,1111,1111
16	1BDFF	1,1011,1101,1111,1111
17	1BDFF	1,1011,1101,1111,1111
18	1BDFF	1,1011,1101,1111,1111
19	1BDFF	1,1011,1101,1111,1111
20	1BDFF	1,1011,1101,1111,1111
21	1BDFF	1,1011,1101,1111,1111
22	1BDFF	1,1011,1101,1111,1111
23	1BDFF	1,1011,1101,1111,1111
24	00000	0,0000,0000,0000,0000
25	00000	0,0000,0000,0000,0000

NIMS E26 OBSTAB

This is a time-ordered ASCII TABLE (listing) of GALILEO NIMS observation parameters for use by downlink data processing of the NIMS E26 data. Each Obstab entry is 512 bytes long but is presented here as 4 lines of 128 characters per entry. Included items come from NIMS commands in (1) the Standard Sequence Data File (SSDF) and (2) the Playback Table Update Process (PTUP), plus some items from (3) the NIMS/CDS software load.

Note that SCLK1, SCLK2, SCET1 and SCET2 of non-realtime observations reflect the amount of data actually played back, rather than the amount recorded on tape. Likewise, the wavelength edit table pointers of non-realtime observations point to the playback edit table masks, rather than the ones used during recording.

Some of these items are needed for MIPS realtime processing of NIMS data, others for NIMSMERGE generation of the EDR and still others by NIMS/ISIS and MIPS systematic processing of EDRs into cubes. Missing non-required items will not interfere with a processing step. For completeness, almost all uplinked parameters are included in the table. (Only those items which will almost certainly remain constant have been omitted; e.g. Rice decision tables.)

The source below is one of:

- SEF for the Standard Sequence Data File (SSDF), specifying parameters of one of the NIMS (37) commands
- PBK for the Playback Table Update Process (PTUP), specifying parameters of the NIMPBK SINGLE command
- S/W for the NIMS/CDS software load process
- NIMS for NIMS team systematic processing requests to MIPS

* indicates item absolutely required for UDR generation (decompression, wavelength edit processing)

indicates item useful for UDR generation (for checking)

unmarked items needed for cube generation or useful for general information

<tbd> indicates more details will be forthcoming

name	nchar	columns	.description	.source
OAPEL	12	1 - 12	.Oapel Name from SEF (no aliases yet)	SEF: activity ID, 1st 12 chars should be unique
ALIAS	12	13 - 24	.NIMS alias name for OAPEL	NIMS:
EXT	1	25 - 25	.Extension, for split OAPELS, A,B,C... for playback, R,S,T... for realtime. Required for realtime.	NIMS: if breaking activity into several cubes
PSID	2	26 - 27	.Parameter Set Identification	SEF: <tbd>
* SCLK1	13	28 - 40	.Start time of played-back OBS in SCLK	PBK (except realtime data: SEF)
* SCLK2	13	41 - 53	.Stop time of played-back OBS in SCLK	PBK (except realtime data: SEF)
* PARTITION	1	54 - 54	.Partition for SCLK1 and SCLK2.	
<spare>	9	55 - 63		
TARGET	8	64 - 71	.Primary Target of OBS	SEF: translate from 3rd char in OAPEL (activity ID)

```

-----
MODE      2 72 - 73      .NIMS Instrument MODE (0-15)      SEF: 37IOP, data byte 2, bits 5-8
GAIN      1 74 - 74      .Gain State (true value)          SEF: 37IST, data byte 3, bits 7-8 (if bit 6 = 1)
                                         0=gs2, 1=gs4, 2=gs3, 3=gs1
CHOP      1 75 - 75      .Chopper State (1=Ref,2=63Hz,3=FreeRun,4=Off) SEF: 37IST, data byte 2, bits 7-8 (if bit 6 = 1)
                                         0=63hz, 1=off, 2=ref, 3=freeerun
GRAT_OFF  1 76 - 76      .Grating Offset (0-7, default 4)   SEF: 37GOF, data byte 2, bits 5-8
PTAB_A(6) 12 77 - 88      .First PTAB |repeat count,mirror op,autobias...SEF: functions of MODE (from 37IOP) as modified by
PTAB_B(6) 12 89 - 100  .Second PTAB |...grating start, grating delta... 37MPT, unless special sequence (modes 12-15)
.          |...number of grating positions)         in which case values come from 37SS
                                         parameters <tbd>
ECAL      1 101 - 101     .Electronics Calibration Active (1=yes) SEF: 37IST, data byte 3, bit 4 (1=on)
OPCAL     1 102 - 102     .Optics Calibration active (1=yes)   SEF: 37IST, data byte 3, bit 5 (1=on)
# REAL_TIME 1 103 - 103     .NIMS in Real-Time Telemetry (1=yes) SEF: track RT_INST_SEL .and. 37RT
# RECORD   1 104 - 104     .NIMS in Record Telemetry (1=yes)   SEF: track DMS status event:
                                         RECORD, REVERSE, RESUME, RUNDOWN <tbd>

* THRESHSEL 1 105 - 105     .Threshold value select (>0 = yes)   PBK: THRESHLD_TBL > 0 (i.e. 1-3)
<spare>    1 106 - 106     .
# RTISELDN 5 107 - 111     .RTI select, 5 binary bits (for mirror SEF: 37MB data byte 1, bits 4-8 <tbd>
                                         position blocking, down scan)
# RTISELUP 5 112 - 116     .RTI select, 5 binary bits (for mirror SEF: 37MB data byte 2, bits 4-8 <tbd>
                                         position blocking, up scan)
<spare>    1 117 - 117     .
* RICEFLAG 1 118 - 118     .Rice compression flag              PBK: 0 no compression
                                         1 Rice compression, ref vals each mirror scan
                                         3 Rice compression, ref vals each RIM rollover

<spare>    1 119 - 119     .
ESTCOMP    3 120 - 122     .Rice estimated compression ratio (m.n) PBK: CMPR_DVSR <tbd>
ESTCOMPV   3 123 - 125     .Rice estimated error in compression ratio (m.n)PBK: CMPR_UNC <tbd>
# RATECON1 5 126 - 130     .Rate control lower limit           PBK: | S/W table entry indexed by LOSSY_COMP (1-7)
# RATECON2 5 131 - 135     .Rate control upper limit           PBK: | or 0 if LOSSY_COMP = 0 (no rate control)
                                         17 136 - 152
NWAVERTOT 3 153 - 155     .Total number of wavelengths selected Compute from relevant Wavelength Edit Table group
TLMFMT     3 156 - 158     .Telemetry format (MPW et al, LPU or LNR) SEF: 6TMREC command
SCET1      21 159 - 179     .Start time of played-back OBS in UTC PBK (except realtime data: SEF)
SCET2      21 180 - 200     .Stop time of played-back OBS in UTC  PBK (except realtime data: SEF)
<spares>   67 201 - 267     .Start time of played-back OBS in UTC  PBK (except realtime data: SEF)
* THRESH   51 268 - 318     .Threshold values (17 3-digit values, 0-999) PBK: S/W table indexed by THRESH_TBL > 0, else 0s
-----

```

```

# WETGID      10 319 - 328      .Wavelength selection group ID (unique)      PBK: WET_GID      (realtime <tbd>)
Rule of formation: mmeelll1nnn where
mm = instrument mode (0-15)
ee = # entries in group
lll = number of wavelengths selected
nnn = sequence number
* WETGRPSIZ      2 329 - 330      .# Wavelength Edit entries (1-26)      PBK: ED_GRP_LEN      (realtime SEF: 37ETB <tbd>)
* WETGRP      182 331 - 512      .Wavelength Edit Table group: WETGRPSIZ      PBK: ED_GRP      (realtime SEF: 37ETB data bytes 2..)

```

entries, each one has 7 characters. The first 2 characters are the repeat count (01-26). The other 5 characters contain 5 hex digits, representing the detector mask in the form BHHH where B is 0 or 1 and H has range 0-15. (These entries are from the 37ETB instrument edit group for realtime data and from the logical AND of corresponding entries in the instrument and playback edit groups for playback data.)

.The TARGET names used are:

```

CAL      - N - non-science targets, usually calibration targets
EARTH    - W - Earth
MOON     - L - Moon
SKY      - H - Stellar Space (space and stars)
VENUS    - V - Venus
GASPRA   - P - Gaspra
IDA      - U - Ida
JUPITER  - J - Jupiter
IO       - I - Io
EUROPA   - E - Europa
GANYMEDE - G - Ganymede
CALLISTO - C - Callisto
J_RING   - R - Jupiter rings

```

(the single letter abbreviation appears as the third character in the OAPEL name).

```
-----
26INHSLOKI0126INHSLOKI01ADA05329386:87:005329393:48:01      IO      3214 1 1 0 0 124 1 1 0 0 124 0 0 12400010 0000000000 1 2.00.3000
0065525      1      360MPW 00-004/11:18:17.133 00-004/11:24:56.466
      0000000000000000000000000000000000000000000032636000126011BDFF011BDFF011BDFF011BDFF011BDFF011BD
FF011BDFF011BDFF011BDFF011BDFF011BDFF011BDFF011BDFF011BDFF011BDFF011BDFF011BDFF011BDFF011BDFF011000000100000
-----
```


Chapter 5 - Detailed Observation Designs

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Introduction to Chapter 5

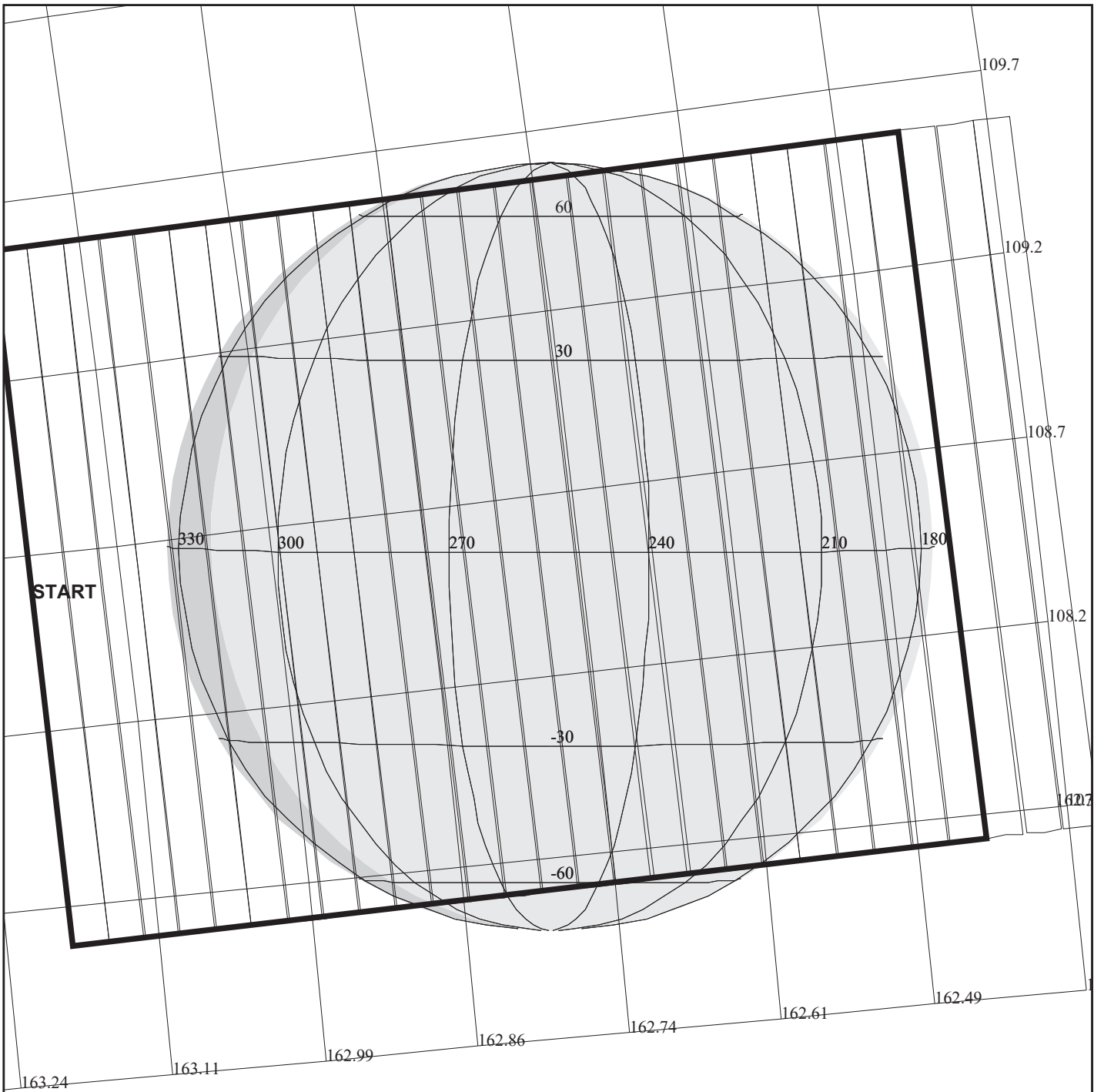
Detailed Observation Designs

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.

NIMS Software Reload		ACTIVITY ID: 26NNDETECT01-	
		START TIME: 00-004/10:44:01.133	
Activity ID: Orbit 26 Target N Inst N OAPEL DETECT SeqNo 01 -			
Title	NIMS Software Reload	Instrument	NIMS
Requestor	NIMS-SWG/M. SEGURA	Team NIMS Working Group	SWG
Time System	CDS	Load ID	Calendar Date 01/04/00 Week 01
Start	IEE+CDS 00000225:00:0	00-004/10:44:01.133	IEE+000/03:47:30.000
End	IEE+CDS 00000230:00:0	00-004/10:49:04.466	IEE+000/03:52:33.333
Duration	00000005:00:0	000/00:05:03.333	000/00:05:03.333
Top Label	26NNDETECT01-		
Bottom Label			
Plot Key	NIMS	Type	SCI
CDS Bytes	0	Report Options	BOTH
CDS Source	OAP	Spin State	DUAL
		Scan Platform	No
		DMS	No
Observation Objective			
<p>NIMS reload prior to the inbound NIMS Grating Step Test. Each NIMS GEM observation will have an instrument reload before the start of each observation. Each reload has its own OAPEL form, but only this first is included in the NIMSGUIDE. The NIMS E26 reload OAPELS are:</p> <p>26NNDETECT01, 26NNHSLOKI01, 26NNDETECT03, 26NNRELOAD01, 26NNRELOAD02.</p>			
Design Detail			
<p>Use a standard set of commands to halt the instrument, load the software and reinitialize the instrument.</p> <p>37PL - Halt NIMS Processor 37MRL - Memory Reallocate 6MCPY - Copy flight software from CDS to NIMS 1000 6MCPY - Copy flight software from CDS to NIMS 1598 37IRT - Instrument Reset 37MN - Memory Normal 37IST - Chopper Reference.</p>			
Galileo Activity Plan Form		12/08/99 14:39:28	rev 6/95

Grating Step Test		ACTIVITY ID: 26NNDETECT02-	
		START TIME: 00-004/10:49:04.466	
Activity ID: Orbit 26 Target N Inst N OAPEL DETECT SeqNo 02 -			
Title	Grating Step Test	Instrument	
Requestor	NIMS-SWG/M. SEGURA	Team NIMS	Working Group NIMS SWG
Time System	CDS	Load ID	Calendar Date 01/04/00 Week 01
Start	IEE+CDS 00000230:00:0	00-004/10:49:04.466	IEE+000/03:52:33.333
End	IEE+CDS 00000244:00:0	00-004/11:03:13.799	IEE+000/04:06:42.666
Duration	00000014:00:0	000/00:14:09.333	000/00:14:09.333
Top Label	26NNDETECT02-		
Bottom Label			
Plot Key	NIMS	Type	SCI
CDS Bytes	0	Report Options	BOTH
CDS Source	OAP	Spin State	DUAL
		Scan Platform	No
		DMS	No
Observation Objective			
Procedure to return NIMS Grating position Housekeeping via CDS and MROH			
Design Detail			
NIMS Housekeeping values, including Grating Position, are copied using 6MCOPY commands from NIMS memory locations to CDS memory locations at selected MF times to collect every other grating position over the NIMS grating cycle. These CDS locations are sent down via a 6MROH command during E26 Cruise after the E26 Encounter period.			
Galileo Activity Plan Form		12/08/99 14:39:28	rev 6/95

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26INHSLOKI01

165DA:TT= 0 TMC= 1 C= 5.50 XC= 0.00 BS= 0/7299 TC= 1(0 274)
 A= 728 pD= 1446 SR=17.450 RA50= 7.50 DEC50= 3.46 cone=163.18 clock=108.61
 117DA:#SB= 1 OR= 0.030 RR=12.000 BM=F RC= 1 BS= 0/7299
 1:#s= 1 Cs= -14.30 XCs= 0.00 Cr= 0.00 XCr= 0.00 sD= 1446 rD= 2

TARGET G3.1 lisac:12/ 2/1999 10:30:12

FILE:P.26INHSLOKI01

TARGET BODY : IO

MINI:m.target

S/C EPH:/DATA/NAVIO/991130-tour.NS

PERIAPSIS:

THINNING:NIM 2

START:IEE 00-004/06:56:31.133 +CDS 259:00:0

BODY PLOT TIME:TARGET-TIME D= 1446 S= 0.700

OBSERVATION:26INHSLOKI01

DESCRIP:IO_LOKI_OBSERVATION

Io Loki Observation		ACTIVITY ID:	26INHSLOKI01-		
		START TIME:	00-004/11:14:21.133		
Activity ID: Orbit 26 Target I Inst N OAPEL HSLOKI SeqNo 01 -					
Title	Io Loki Observation		Instrument		NIMS
Requestor	NIMS-SWG/M. SEGURA		Team	NIMS Working Group	SWG
Time System	CDS	Load ID	Calendar Date	01/04/00	Week 01
Start	IEE+CDS 00000255:00:0		00-004/11:14:21.133	IEE+000/04:17:50.000	
End	IEE+CDS 00000267:00:0		00-004/11:26:29.133	IEE+000/04:29:58.000	
Duration	00000012:00:0		000/00:12:08.000	000/00:12:08.000	
Top Label	26INHSLOKI01-				
Bottom Label					
Plot Key	NIMS	Type	SCI		
CDS Bytes	300	Report Options	BOTH		
CDS Source	OAP	Spin State	DUAL	Scan Platform	No
				DMS	No
Observation Objective					
Nearly global observation of Loki hemisphere at ~160 Km/NIMS pixel.					
Data Returned					
Design Detail					
BTG=3.29 Mbits, TICs=354, FMT=MPW					
Center observation at 274 deg. West longitude - equator.					
Long Map, Nyquist sampling.					
4 Rims for targetting, 8 Rims scan.					
Single swath across the daylit disk.					
SPACECRAFT IN CRUISE MODE - UNCOMPENSATED SPACECRAFT WOBBLE PRESENT					
Fixed Long Map (XLM), Gain 4, Grating Start 0, MPW, ILM442, ILM360					
Galileo Activity Plan Form			12/08/99	14:39:28	rev 6/95

Grating Step Test		ACTIVITY ID: 26NNDETECT04-	
		START TIME: 00-004/10:49:04.466	
Activity ID: Orbit 26 Target N Inst N OAPEL DETECT SeqNo 04 -			
Title	Grating Step Test	Instrument	
Requestor	NIMS-SWG/M. SEGURA	Team	NIMS Working Group
			NIMS SWG
Time System	CDS	Load ID	Calendar Date 01/04/00 Week 01
Start	IEE+CDS 00000285:00:0	00-004/11:44:41.133	IEE+000/04:48:10.000
End	IEE+CDS 00000299:00:0	00-004/11:58:50.466	IEE+000/05:02:19.333
Duration	00000014:00:0	000/00:14:09.333	000/00:14:09.333
Top Label	26NNDETECT04-		
Bottom Label			
Plot Key	NIMS	Type	SCI
CDS Bytes	0	Report Options	BOTH
CDS Source	OAP	Spin State	DUAL
			Scan Platform
			No
			No
Observation Objective			
Procedure to return NIMS Grating position Housekeeping via CDS and MROH			
Design Detail			
NIMS Housekeeping values, including Grating Position, are copied using 6MCOPY commands from NIMS memory locations to CDS memory locations at selected MF times to collect every other grating position over the NIMS grating cycle. These CDS locations are sent down via a 6MROH command during E26 Cruise after the E26 Encounter period.			
Galileo Activity Plan Form		12/08/99 14:39:28	rev 6/95

NIMS Chopper Off		ACTIVITY ID: 26NNCHOPOF01-	
		START TIME: 00-006/02:41:13.000	
Activity ID: Orbit 26 Target N Inst N OAPEL CHOPOF SeqNo 01 -			
Title	NIMS Chopper Off	Instrument	NIMS
Requestor	NIMS-SWG/M. SEGURA	Team NIMS Working Group	AWG
Time System	CDS	Load ID	Calendar Date 06/07/00 Week 23
Start	JEE+CDS 00000000:00:0	00-006/02:41:13.000	JEE+001/23:07:11.000
End	JEE+CDS 00000000:00:0	00-006/02:43:15.000	JEE+001/23:09:13.000
Duration	00000000:00:0	000/00:02:02.000	000/00:02:02.000
Top Label	26NNCHOPOF01-		
Bottom Label			
Plot Key	NIMS	Type	SCI
CDS Bytes	000	Report Options	TOL
CDS Source	***	Spin State	N
		Scan Platform	No
		DMS	No
Observation Objective			
Turn off NIMS Chopper			
Design Detail			
Galileo Activity Plan Form		12/08/99 00:00:00	rev 6/95

Chapter 6 - Edit Tables

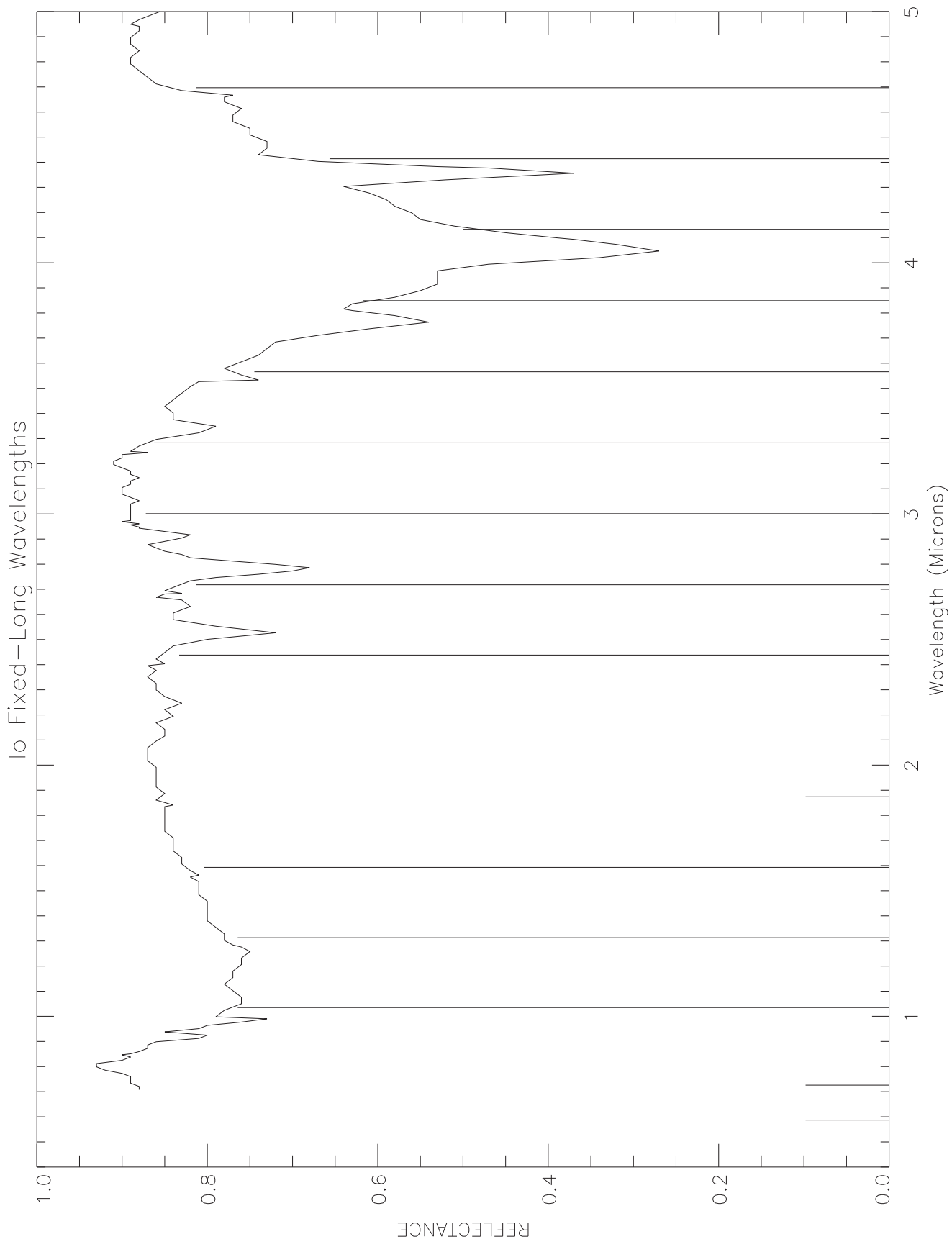
Contents

	Sub-Section	Page
6.0	Contents	1
6.1	Introduction	2
6.2	Io	3

Introduction to Chapter 6

NIMS Edit Table Plots

This chapter contains plots of the NIMS Edit Tables used in E26. The representative spectra used in these plots are observational reference spectra for the target body as obtained from telescopic observations from the Earth. Each reference spectrum is a composite of multiple published sources. Vertical lines below the reference curves mark the wavelengths selected for return. Where no spectral information is available, the selected wavelengths are shown as lines with amplitude equal to .05 on the vertical axis.



Chapter 7 - Data Return

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Introduction to Chapter 7

This chapter is a report on the NIMS data return for the E26 orbit. Due to the low downlink data rates available for Galileo Jupiter Operations and other unforeseen and unpredictable events during the E26 Encounter and Cruise, not all NIMS data recorded on the tape recorder or selected in real-time were returned. The previous 6 chapters nominally describe the planning and intention of the NIMS observations for this orbit, except the obstab section in chapter 4 which was updated to give the latest parameters for the data that were actually returned.

The cruise portion of I25 was too short in duration to return all of the data recorded during the I25 encounter. Some of the I25 data were not recorded over during the E26 encounter and were returned during E26 cruise.

There were five autonomous reloads of the NIMS RAM code from CDS during the E26 encounter, one just before each science observation. The NIMS processor halted once during E26 encounter, but well after the Io observation. NIMS was reloaded by the end-of-encounter reload. The approach that we are taking to avoid data loss due to processor halts has proven to be very successful.

The spacecraft suffered two 'standard' CDS bus reset and recovered without any ill effects.

The NIMS grating became stuck some time between C22 and I24. NIMS can now return only 17 (of 408) wavelengths. This has caused a drastic change in NIMS science capabilities. Detectors 1, 2 and 7 now have very low sensitivity. Detectors 3 and 8 are still not functioning. NIMS now returns only 12 useful wavelengths. Interesting science can still be carried out given the current condition of the instrument.

The plots on the pages 3 and 4 show the geometry of the NIMS E26 observations using a north trajectory pole projection. The 'returned' observations are in Bold characters and the 'non-returned' in gray. The observations with an asterix were taken with the NIMS software halted.

The spreadsheets on pages 5 and 6 summarize the 'final' playback model for both the I25 and E26 data returned during E26 cruise.

The text on page 7 gives a 'recap' of the E26 playback events which affected which observations were returned.

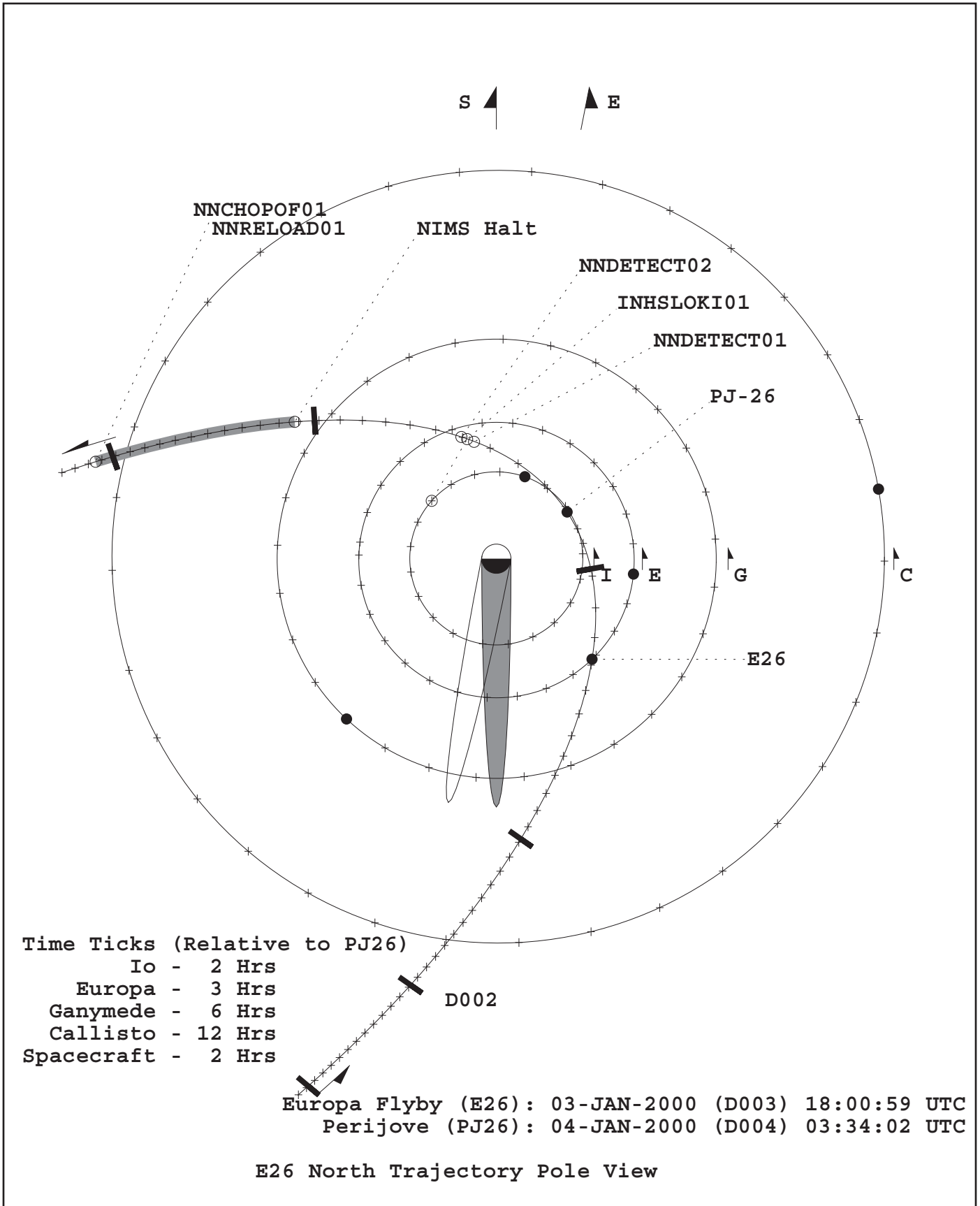
A Timeline of E26 playback events is on pages 7 through 14.

The text on pages 15 through 17 describes the E26 NIMS and Spacecraft Anomalies.

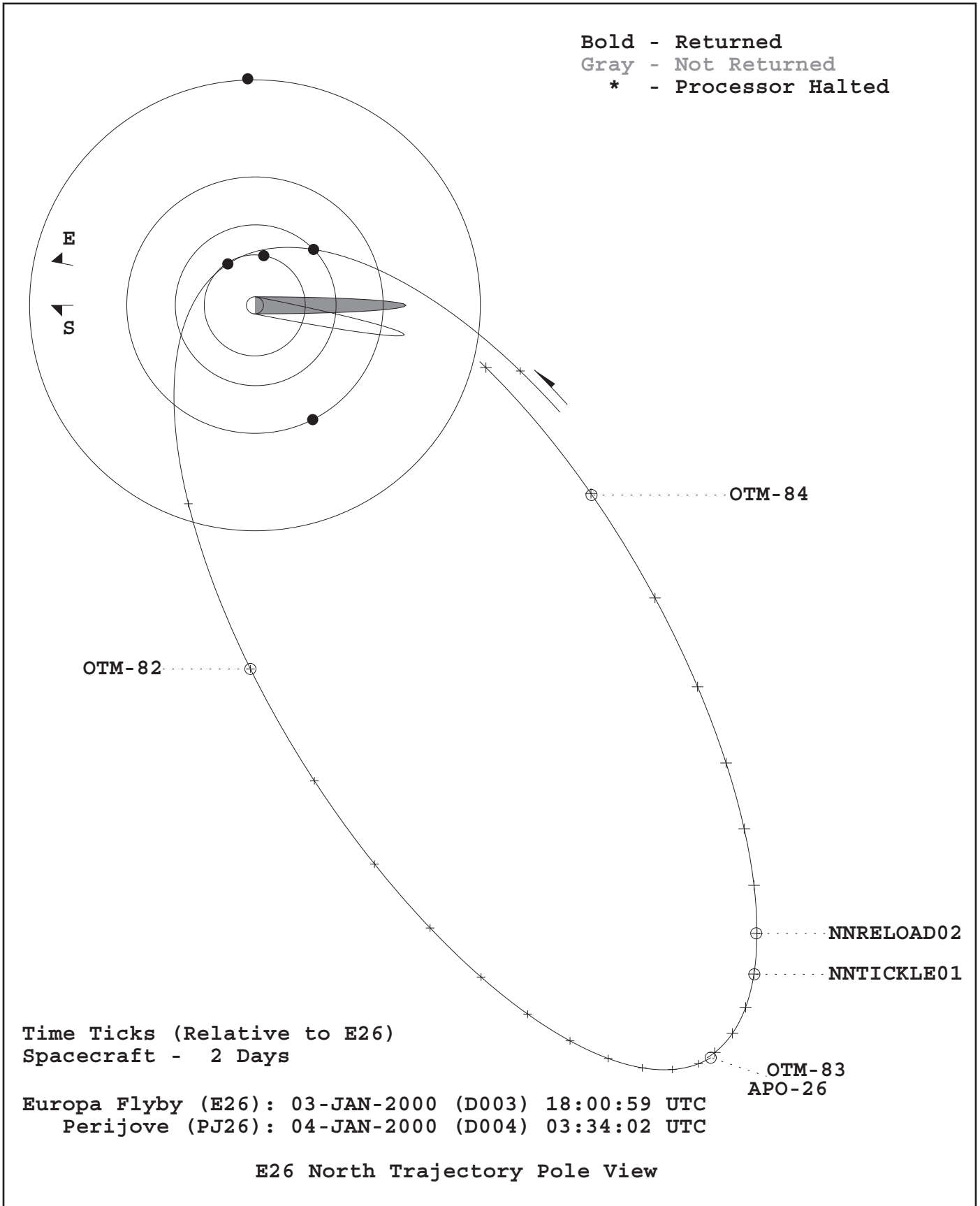
The text on page 18 gives a brief discussion of the NIMS data files. Additional information about NIMS data formats, data types, data labels and data access is given on pages 19 and 20.

The text on page 21 is a guide to understanding the NIMS MASK.

NIMS E26 OBSERVATIONS



NIMS E26 CALIBRATIONS



NIMS - FEL - 12/12/00

NIMS E26 DATA RETURN

Activity ID	Observation Title	NIMS Edit Table	NIMS PB Table	Mode	Gain	Grating	Grating Record	PSID
							Start	Offset
							Format	
26NNDETECT01-	Grating Step Test P2							
26NNDETECT02-	Grating Step Test Copy							
26INHSLOKI01-	Io Loki Observation	I26IILM442	I26IILM360	LM	2	0	4	MPW
26NNDETECT03-	Grating Step Test P2							
26NNDETECT04-	Grating Step Test Copy							
26INRELOAD01-	NIMS Software Reload							
26NNCHOPOF01-	NIMS Chopper Off							
26NNMROGRT01-	Grating MRO							
25INCULANN01-gf	Io Culann Obs	I25IILM442	I25IILM288	LM	2	0	4	MPW
25INREGION01-gf	Io Regional Observation	I25IILM442	I25IILM288	LM	2	0	4	MPW
25ENNOPOLE01-gf	Europa North Polar Meridional Obs.	I25EELM442	I25EELM360	LM	4	0	4	MPW
25ENNOPOLE01-gf	Europa North Polar Meridional Obs.	I25EELM442	I25EELM144	LM	4	0	4	MPW
25ENNEQUAT01-gf	Europa Equatorial Band	I25EELM442	I25EELM360	LM	3,4	0	4	MPW
25ENGLOBAL01-	Europa Jupiter-Facing Hemisphere Global	I25EELM442	I25EELM144	LM	3	0	4	MPW
25ENGLOBAL01-	Europa Jupiter-Facing Hemisphere Global	I25EELM442	I25EELM216	LM	3	0	4	MPW
26INHSLOKI01-gf	Io Loki Observation	I26IILM442	I26IILM360	LM	2	0	4	MPW
26INHSLOKI01-	Io Loki Observation	I26IILM442	I26IILM360	LM	2	0	4	MPW
25INREGION01-gf	Io Regional Observation	I25IILM442	I25IILM288	LM	2	0	4	MPW

NIMS E26 DATA RETURN

Activity ID	Mode	Record Format	Wave-lengths Returned	Record Time (sec)	PB Time (sec)	Selected Bits to Tape (MBITS)	Total Bits of Tape (Mbit)	Mode Cycle (sec)	Comp Thold	RT	Total BTG Mbits (4% overhead)	Data Reduction Factor	Pass
26NNDETECT01-													
26NNDETECT02-													
26INHSLOKI01-	LM	MPW	360	400.00	207.00	2.38	4.61	8.67	1.29		1.3864	1.72	1
26NNDETECT03-													
26NNDETECT04-													
26INRELOAD01-													
26NNCHOPOF01-													
26NNMROGRT01-													
25INCULANN01-gf	LM	MPW	288	52	29	0.33	0.60	8.67	1.18		0.1699	1.97	2
25INREGION01-gf	LM	MPW	288	2,702	408	4.70	31.13	8.67	1.24		2.2742	2.07	2
25ENNOPOLE01-gf	LM	MPW	360	660	60	0.69	7.60	8.67	1.24		0.4180	1.65	3
25ENNOPOLE01-gf	LM	MPW	144	660	41	0.47	7.60	8.67	1.24		0.1143	4.13	3
25ENNEQUATRO1-gf	LM	MPW	360	790	15	0.17	9.10	8.67	1.19		0.1089	1.59	3
25ENGLOBAL01-	LM	MPW	144	503	99	1.14	5.79	8.67	1.20		0.2851	4.00	3
25ENGLOBAL01-	LM	MPW	216	503	110	1.27	5.79	8.67	1.20		0.4752	2.67	3
26INHSLOKI01-gf	LM	MPW	360	400.00	36.00	0.41	4.61	8.67	1.29		0.2411	1.72	3
26INHSLOKI01-	LM	MPW	360	400.00	223.00	2.57	4.61	8.67	1.29		1.4935	1.72	3
25INREGION01-gf	LM	MPW	288	2,702	21	0.24	31.13	8.67	1.24		0.1171	2.07	4
7.0836 Total													
6.935 Allocation													
0.1486 Over/Under													

12/31/00

RECAP OF E26 PLAYBACK EVENTS

E26 was an extremely short and therefore bit-limited orbit; only 46 days elapsed between perijove and the end of the playback (cruise) period. NIMS recorded only a single distant observation of Io (26INHSLOKI01). Our allocation reached only about 7 Megabits. With this we were able to return additional data recorded in I25, primarily gap fills but also some new spatial coverage for 25ENGLOBAL01.

Sets of commands designed to exercise the instrument and hopefully free the stuck grating were performed in E26, without the desired result. These involved pausing playback for a period of some hours, at the cost of about 1.1 Mbits of playback allocation, on 4 February. This followed an initial test performed during I25 cruise on 12-16-99:. Descriptions of both tests are included below.

NIMS experienced one software halt late in the encounter, at approximately 15 Rj outbound. E26 was otherwise uneventful, with onboard software handling two "despun bus resets" without incident.

The following timeline details the most significant events of the I24 playback period. Most of the text below is excerpted from messages issued at the time.

E26 Playback Events Timeline (11-23-99 to 02-19-00)

11-23-99: (J. Gross) Here are your allocations, based on your OPG percentages, and your old OPG allocations for comparison:

TEAM	OPG %	ALLOC	ALLOC
SSI	30.0	18.632	11.4
NIMS	9.5	5.884	3.6
PPR	0.0	0.0	0.0
UVS	1.3	0.817	0.5
MWG	59.2	36.774	22.5

Bruce feels that, at least in an order-of-magnitude sense, the telecom profile is probably pretty stable, so enjoy your extra bits!

As you are well aware, in addition to the new track of E26 data, there are also three tracks of I25 data available for playback (Tracks 2,3,and 4). In general it is up to each team decide how they want to divide their E26 playback allocation between E26 and I25 data. There are no technical issues that arise from playing back both datasets.

Playback will proceed in the following order:

Track 2 (I25 MWG Torus),
Track 3 (I25 C/A),
Track 4 (I25 C/A cont.),
Track 1 (E26).

That puts the data in time-order beginning with Track 2, so there are no games we have to play with the pass numbers. Note that E26 will be the last data off the tape.

E26 Playback Events Timeline (11-23-99 to 02-19-00)

- 11-29-99: (J. Gross) Let's wait on the E26 PBT delivery 'til we know exactly what we're going to do with E26 in the wake of I25. For example, moving the E26 records from Track 1 to Track 3 would preserve the I25 Europa data for further playback during E26 cruise. I'm sure we'll have conversations along these lines at tomorrow's SPOT meeting and tomorrow's E26 integration meeting.
- 12-07-99: (J. Gross) Well, I've got good news and bad news about our allocations. The bad news is that when I sent out the first allocations, I had a typo in my spreadsheet. The good news is, the typo works in our favor. Instead of about 66 MB of capability in E26, we have about 86! So, Merry Christmas! Here are your PB Allocations after subtracting off any R/T usage:
- | Team | PB Alloc |
|------|---|
| SSI | 24.334 |
| NIMS | 7.684 |
| PPR | ----- |
| UVS | 0.957 (after 0.04 MB EUV and 0.07 MB UVS) |
| MWG | 47.657 (after 0.37 MB DDS) |
- As decided in the 12/7 SPOT meeting, we're going to change the order of E26 playback in order to insure that we have time to get bested data for all the I25 data. So here is the order of playback and the pass numbers you should use:
- Pass 1 - Track 2 (I25 Torus) and Track 3 (E26)
Pass 2 - Track 4 (I25 Io)
Pass 3 - Track 1 (I25 Europa), Track 2 (I25 Torus), and Track 3 (E26)
Pass 4 - Track 4 (I25 Io) [if necessary]
- Note that this plan only allows one opportunity in E26 cruise to playback the I25 Europa data.
- 12-16-99: (J. Gross) Based on the E26AFC product, there is a small negative change to your playback allocations. The total capability decreased by <1.0 MB, so it's nothing to get too worried about. Here are the usage v. capability numbers with the latest PB allocations and the usage from the Dec 9th PBT delivery:
- | | |
|------|-------|
| NIMS | 7.684 |
|------|-------|
- 12-16-99: (M. Segura) The NIMS grating warming began this afternoon around 2 pm. Approximately one hour into the test the phase 2 software crashed. Big surprise - the software doesn't enjoy heat any better than radiation. A discussion with Bill brought about a plan to recover part of the test. Run in Phase 0 software. The commands were uplinked to power cycle the instrument and set the instrument in the same configuration as previously commanded in the sequence. We got the commands generated and uplinked to the spacecraft in time to recover the last 3 hours of the test. The temperatures just prior the end of the warming cycle of 10 hours was: Chopper: -62.6 C, Telescope: -25.0 C, and Grating: -82 C with optics heater 1 on.

E26 Playback Events Timeline (11-23-99 to 02-19-00)

The grating current prior to the software crash was 134 DN after power cycle it was and continues to be in the 114 DN range. The MROs of the actual grating position still show hex "00" after 10 hours of warming.

The NIMS instrument state at the end of the test will be: chopper off, safe mode, with phase 0 software in place. I would like to leave the instrument in this state until E26 at which time the encounter sequence will reload the Phase 2 software just before the Io observation we have planned. There are two reasons for doing this - we could more easily convince the project to repeat the activity with optics heater 2 before E26 if the only work required by the SST is a simple parameter edit to an existing file. The second reason is to reload the instrument, it will require the same people to do the work as supported this activity and I suspect there will be some resistance to doing both.... The downside of this is that any data SSI is taking in E26 prior to our IO observation will have no NIMS data embedded.

12-17-99: Due to holiday schedules, today's update is expected to be the final update before uplink and the start of E26 playback. The new table includes, in addition to the two sets of commands to return 26INHSLOKI01, 12 additional sets for filling gaps in our I25 observations. There are single sets for 25INCULANN01, 25ENEQUATR01, and 25ENGLOBAL01, together with 6 sets of singles for 25INREGION01 and 3 for 25ENNOPOLE01. In all cases all 15 detectors are commanded for playback.

It is my understanding that playback begins with the E26 data on Track 3. The pass numbers assigned are 1 and 3 for 26INHSLOKI01, 2 for the I25 Io gap fills on track 4, and 3 for the I25 Europa recordings on track 1. NIMS currently has a surplus of E26 downlink bits, but I25 playback is only about 60% completed at this point, and additional gaps are likely to appear. It will be critical to have gaps information for the last observations in the I25 table (i.e., Europa) early next year. We have only one pass over track 1 during E26 playback.

12-20-99: (J. Gross) The order-of-playback during E26 cruise will be a little different than we're used to seeing. Pass 1 will consist of the I25 MWG Torus data on Track 2, followed by the E26 data on Track 3. Pass 2 will be the I25 Io data on Track 4. Pass 3 will be the I25 Europa data on Track 1, plus the I25 Torus data on Track 2, plus the E26 data on Track 3. Pass 4 will be the I25 Io data on Track 4. Note that this strategy results in only one pass through the I25 Europa data on Track 1. The unusual pass number strategy is a result of having I25 data on Tracks 1,2,4 and having E26 data on Track 3. Our playback capability in E26 is nearly 2X what was predicted in the GMM OPG. This is due to a) continued use of the ultra-cone, which was originally thought to be gone by E26, and b) a significant increase in the number of stations.

E26 Playback Events Timeline (11-23-99 to 02-19-00)

The increase in allocations will allow the MWG to fully play back the I25 Torus from Track 2 by the end of E26 playback. Originally this track was to be carried over and played back during I27 cruise. This frees up the constraints on the I27 DMS plan and will allow the science teams an opportunity in that sequence to recover some lost science from I24 and I25.

NIMS 7.668

What If There's an E26 Anomaly? Segment 1 from E26PBB contains ONLY I25 Torus data, which is already on the tape. Even in the event of an E26 anomaly, Segment 1 from this table is perfectly valid and usable. The only requirement is that the tape be positioned somewhere on Track 1 before the Initiate Playback.

- 01-01-00: E26 encounter begins at 23:30 UTC.
- 01-03-00: Europa close approach occurs at 18:00 UTC.
- 01-03-00: (J. Erickson) The Galileo spacecraft is operating normally. Remote sensing observations of the small satellites Amalthea, Thebe, and Metis appear to have been recorded as planned at approximately 7:30 pm PST ground receipt time. Observations of Io will commence on 1/4/2000 at approximately 4:00 am PST ground receipt time. The Galileo spacecraft passed perijove (Jupiter close approach) at approximately 8:12 pm PST ground receipt time. So far, radiation levels have appeared nominal, with no problems identified.
- 01-04-00: Perijove occurs at 03:34 UTC. A NIMS software crash occurs later in the day as the spacecraft is outbound from the encounter.
- 01-04-00: (J. Erickson) The Galileo spacecraft is operating normally. Remote sensing observations of Io appear to have been recorded as planned on 1/4/2000 at approximately 4:00 am PST ground receipt time. This completes all of the planned recording for the encounter. Playback is scheduled to begin 1/5/2000 at approximately 1:34 pm PST ground receipt time. So far, radiation levels have appeared about average, with no problems identified. The peak radiation level was around 600 (measured by the star scanner in pulse counts), significantly lower than the maximum of 1400 seen in previous GEM orbits. The only identified radiation related effects so far were a pair of standard bus resets, handled normally by the on-board recovery software without any effect on the planned sequence. These occurred at approximately 7:31 pm on 1/3/2000, and at approximately 3:49 am on 1/4/2000 PST ground receipt time.

E26 Playback Events Timeline (11-23-99 to 02-19-00)

- 01-12-00: Although we recorded only one observation in E26, the playback table delivered today has 23 sets of commands. All but 2 of these will bring down data recorded in I25. There were many gaps in 25INREGION01 that will hopefully be filled during E26. We are also recovering about 1.3 Mbits of gap fills and new data for the I25 Europa observations. We are somewhat below our allocation of 7.68 Mbits for E26. However, we may be required to pay part of the cost of pausing playback in order to perform another grating test at the end of this week. There should be ample time to adjust playback commands following that test. To come in under our allocation this time, I cut back on our wavelength coverage for 25ENGLOBAL01. In the current plan we will get all detectors for the center scan, but only 9 of 15 for the upper and lower scans. And, there is additional data that was recorded after the end of the last slew for this observation that would also be worth returning. There is only one pass over this data in E26. Hopefully we will receive some additional downlink bits in time to let us recover some of this data.
- 01-13-00: (J. Gross) Re: Playback bits required for NIMS grating test: Pausing from 2000-035/11:00 to 2000-035/21:00 costs 1.11 Mb. We are currently in Segment 1 on Track 2, playing back MWG Torus data from I25. Thanks to the predictable nature of this data, we are right on schedule, as of Thursday afternoon. To date we have received 13.55 MB of data and have suffered losses of 0.54 MB.
- 01-14-00: (J. Erickson) Europa 26 is behind us, with a much less stressful passing than normal (it's a little strange to think of normal as being "the usual new anomaly"). Io 27 is coming up quick, along with the official passing of the GEM mission (on 1/31/2000).
In addition to the regular encounter cleanup commanding for AACS and CDS, the gyro scale factors were updated to account for further degradation from the E26 flyby. The bad axes, -ly, -lx, and -2x are now at 23.05%, 65.55% and 18.09% error, respectively. The good axes have not changed significantly. The scale factors are adjusted to remove the error with the exception of the -lx axis which is biased to decrease the pointing error during maneuvers. The next gyro test is February 7, in preparation for I27.
Realtime commands were sent to protect playback from a partial station loss as the front end of DSS-14 on Friday, January 14 was given to DS-1 for part of their recovery. NIMS suffered one processor stoppage during E26, at roughly 15 Rj outbound. This is unusually far from Jupiter for such events to occur. A sequenced memory reload occurred in the E26 sequence after the stoppage, so no further commanding was required.

E26 Playback Events Timeline (11-23-99 to 02-19-00)

NIMS is pursuing a redo of their "Warm Tickle" exercise. This time they will use their Optics Heater #2 (rather than #1) in an attempt to heat up the grating and free it. Work is ongoing to adapt the existing RBS for this exercise to the current conditions. The sequence is tentatively planned to execute on Friday, Feb 4th.

- 01-19-00: We are faced with some hard choices for the playback table update that occurs next week (January 26). Below is a statement of the problem and a proposed strategy. My solution may cause problems on the downlink data processing side. Other suggestions are welcome. Our allocation is about 7.7 Mbits. Our current usage is 7.5 Mbits. Our grating test (warm and tickle) on February 4 will cost 1.1 Mbits. Thus we need to make cuts amounting to .9 Mbits. There are 3 categories of recorded data planned for playback:
1. 26INHSL0KI01: New data from E26, about 3 Mbits with all 15 detectors selected.
 2. I25 Io gapfills, principally 25INREGION01, also about 3 Mbits with all 15 detectors selected.
 3. I25 Europa observations, both new coverage and gap fills, about 1.5 Mbits. This has previously been cut to the bone, with most of 25ENGLOBAL01 coming down with 9 detectors only.
- The Europa data is unique, our only view of the Jupiter facing hemisphere. In my opinion it should not be cut further. We can achieve the needed reductions by NOT returning data from detectors 1, 2, and 7 for the I25 Io gap fills and for the second half (all that we can affect) of 26INHSL0KI01. There is little or no signal present for these due to the position of the grating. The down side of this approach is the added work it will cause in assembling the merged final products. (There are nearly two dozen gaps in 25INREGION01). The existing gaps will be unfilled only in detectors 1, 2, and 7. However, to my knowledge, we have not yet produced any products in which the wavelength coverage varies from place to place (correct me if I'm wrong). Is this an insurmountable problem? We can discuss these questions Thursday and next Tuesday morning.
- 01-26-00: The cost of pausing playback while we perform our next grating exercise (February 4) is about 1.1 Mbits. In this update we trimmed our wavelength coverage for the remaining Io observations in order to come up with the bits to pay for the grating test. No timing changes were made. The new detectors selection for 25INCULANN01 gap fills, 25INREGION01 gap fills, and 26INHSL0KI01 pass 2 data includes 12 detectors, all but 1, 2, and 7, which have extremely low signal levels at the present time. It is expected that this will involve some new programming on the downlink data side, in order to merge data files with overlapping times that have different detectors selected.

E26 Playback Events Timeline (11-23-99 to 02-19-00)

In response to Frank's request (below), I can move the NIMPBK for the pass 2 26INHSLOKI earlier by about 15 seconds, to catch the RIM rollover. This will cost about .1 Mbit and we will have about that much redundant data.

(FEL:) I noticed that 26INHSLOKI01 is being played back in two sections with two separate edit tables. It would make downlink alot easier if the two playback segments were broken at RIM roll-over. With the latest PBT, we must deliver two separate Obstabs to MIPL and break the playback processing at an as yet unknown ERT time to separate the use of the two playback edit tables (obstabs)

01-27-00: (J. Gross) As of Thursday morning we are currently in Segment 2, playing back the E26 NIMS Io Loki observation from Track 3. To date we have received 42.5 MB of data, and have suffered 1.7 MB of losses. NIMS added gap fills and reduced their wavelength coverage for their remaining Io observations to come up with 1.1 MB cost of pausing playback for their grating test on Feb. 4. The NIMS playback allocation has been reduced to reflect this. The schedule currently does not finish by ~16 hours. This will be addressed with the next update. Looking ahead on the schedule, Segments 7 and 8 are extremely short (numerous gap fill SINGLES returning a small amount of data). The timing for uplinking these segments will need to be closely watched, although at the present time there is no danger of not getting the segments up.

02-02-00: (J. Gross) After examining our position in playback, I am able to release 3.0 MB of SPOT margin back to the teams. The 3.0 MB are being given to SSI, NIMS, and MWG, according to their relative OPG percentages. The increase in allocation, the new total PB allocation, and the updated unused MBTG are shown below:

	NEW MBTG	NEW PB ALLOC	UNUSED MBTG
SSi	0.912	25.238	4.216
NIMS	0.288	6.935	0.343
MWG	1.800	47.654	0.568

We're still retaining 2.4 MB of 2-pass inefficiency margin, which should be more than sufficient to see us thru to the end of playback. A decision about releasing the rest of the 2-pass margin will be made next week.

02-03-00: We received a small increase in our allocation due to the release of 3 Mb of office margin this week. Together with some small savings due to good compression, this was

E26 Playback Events Timeline (11-23-99 to 02-19-00)

sufficient to cover our gap-filling requirements for the first pass data for 26INHSLOKI01. In addition we bumped our detectors/wavelengths coverage for the pass 2 portion back up to 15/360. This will make it easier to merge the pass 1 and 2 portions. As previously noted we could not get all detectors for our I25 Io gap fills. If there is a major windfall of new bits (unlikely), it is theoretically possible that we could retrieve them at the end of E26 playback. Gap fills for 25INREGION01 should be finished soon, and we should see those for 25ENNOPOLE01 on Saturday. The balance of the I25 Europa data should hit the ground about the middle of next week.

- 02-03-00: (J. Gross) Segments 7, 8, and 9 will be clocking out rather quickly next week, due to the large number of SINGLES but relatively small amount of data selected. And due to the small number of uplink passes next week, we will be sending Segment 9 earlier than usual to avoid the risk of an autonomous pause. There is no risk in sending Segment 9 once we've seen NIMS from Segment 6. There will most likely be only one uplink pass (Thursday's 43-pass) between the first NIMS data of Segment 7 on Wednesday morning and the start of Segment 10 Saturday night. If we miss Thursday's pass, the next uplink pass isn't until Sunday afternoon.
- 02-04-00: (M. Segura) The optics heater was turned off just a few minutes ago. The highest temperature on the grating was - 54 C. The final MRO just came in. I am sorry to report there was no change to the physical grating position value - still hex "00". The instrument is currently in "safe" mode with phase 0 software enabled. The chopper is off. NIMS will stay in that state until early Sunday morning at which time the Phase 2 software will be reloaded.
- 02-08-00: (J. Gross) After analyzing the situation, I am releasing 1.8 MB of 2-pass margin for the final playback table update. NIMS has indicated that they have no need for their share of the 1.8 MB. MWG requests only 0.4 MB for new gap-fills, so the remaining 1.4 MB goes to SSI.
- 02-09-00: Only one change to the prior table was included in today's new file. This new set of singles is to fill a gap in our I25 gap fill requests. The PSID is ER, the pass number is 4, and the estimated additional BTG is 0.11 Mbits. Today's is the final update for E26. Playback terminates on 19 February.
- 02-09-00: (J. Gross) There is only one uplink pass to get Segment 11 to the spacecraft before it's scheduled to go active. Missing this pass would cause an autonomous pause, putting the last few observations at risk of not being returned.
- 02-19-00: Playback terminated.

NIMS Anomaly Report - E26 Sequence

The NIMS grating became stuck prior to the I24 encounter. The grating continued to be stuck for the E26 encounter. This development caused a drastic change in NIMS operations. Detectors 1, 2 and 7 now have very low sensitivity. Detectors 3 and 8 are still not functioning. NIMS now returns only 12 useful wavelengths.

There was one NIMS processor halt detected during the E26 Encounter. This occurred outbound past Ganymede's orbit.

The spacecraft experienced two of the usual radiation-induced bus resets that were handled by the on-board recovery software. NIMS did not appear to halt because of these bus resets.

Stuck Grating (from the I24 NIMS Guide)

At I24, NIMS experienced a fundamental change in the way that it operates. Sometime between C22 and I24, the NIMS grating became stuck at a position corresponding to a pshift of about 14.5. This unusual grating position produces wavelengths for each detector far shorter than previously used. With the stuck grating, NIMS is permanently in a "fixed grating" mode. At this new grating position, Detectors 1, 2 and 7 return very low DN, as their new wavelengths are outside of the passband of their blocking filters and therefore are of minimal use. As before, detectors 3 and 8 are still not functioning.

There is no ground calibration for the wavelengths corresponding to this pshift. Flight calibration was derived from the I24 RCT and PCT calibrations. Details of this new flight calibration will be discussed in the as yet unpublished NIMS calibration report.

The spectral capability of the NIMS instrument shrank from 408 wavelengths to 17 wavelengths with the stuck grating. Now all commanded modes, Long Map, Full Map, Short Map or Fixed Map, select the same 17 wavelengths. Two effects of the stuck grating have been put to good use: spatial editing and noise reduction.

Even though the grating is stuck, the grating cycle still plays an important role. The playback edit table can now be used for spatial data editing. In Long Map mode, each mirror scan can be selected or deselected using the playback edit table. This allows a range of spatial density versus areal coverage choices.

If an observation is performed in Long Map mode at the Long Map scan rate, the 24 mirror scans over a single grating cycle can be averaged together to increase the signal to noise level. The adverse effects of the high levels of radiation-induced noise encountered close-in to Jupiter are greatly alleviated by this averaging.

NIMS Anomaly Report - E26 Sequence

Response to Stuck Grating Anomaly (E26)

Optics Heater 2

At E26 the cause of the stuck grating was not known (and is still not clearly understood). An attempt was made during E26 cruise to unstick the grating by heating up the NIMS instrument by turning on the NIMS Optics heaters. This attempt was not successful in freeing up the stuck grating.

During I25 cruise, NIMS Optics Heater 1 was turned on in an attempt to warm up the NIMS grating mechanism. This heater did not warm up the NIMS mechanisms, only the NIMS telescope. During E26 cruise Optics Heater 2, which is located in a different part of the NIMS instrument than heater 1, was turned on. The grating test was conducted with NIMS running Phase 0 code. Phase 2 code crashed during the I25 grating test when Optics Heater 1 was turned on.

On Day 035 NIMS Optics Heater 2 was turned for about 9 hours. The NIMS engineering telemetry showed a rise in the FPA, Shield, Telescope, Grating and Chopper temperatures, and no change in the Electronics temperature. NIMS Optics Heater 2 did indeed heat up the NIMS instrument differently than Optics Heater 1 during I25 cruise.

NIMS was commanded to band edge mode (as in I24 and I25) to have the grating jump between grating positions 11 and 23 every minor frame. MROs were commanded once per hour during this 9 hour period to return the NIMS grating position engineering to test if the grating was moving (unstuck). Analysis of the grating position engineering showed the values remaining 00x as before.

After NIMS Optic Heater 2 was turned off, real time commands were sent to reload and run the NIMS Phase 2 software.

Grating Position Engineering MROs

NIMS grating position engineering values were copied from NIMS RAM to CDS RAM to verify the lack of movement of the NIMS grating. This was done twice during the E26 encounter, once 20 minutes before the 26INHSLOKI01 observations and the other 20 minutes after. This monitoring activity is similar to the grating position monitoring started during C22. In the current test, a segment of NIMS memory containing the grating position engineering DN was copied to CDS via 6MCOPY commands for every minor frame over a long map grating cycle, sampling every other grating position. The CDS memory locations containing the NIMS engineering DN were then sent to ground via MRO. Analysis of the grating position engineering showed the values remaining 00x as before.

NIMS Anomaly Report - E26 Sequence

Processor Halts

NIMS suffered one processor halt during the E26 Encounter. This halt occurred in the outbound portion of the encounter when the spacecraft was outside of Ganymede's orbit well about 12 hours after the last NIMS observation. NIMS remained halted for about 24 hours until the NIMS software was reloaded during the scheduled reload at the end of encounter when the spacecraft was outside of Callisto's orbit.

The halt was detected by analysis of the NIMS SCLK engineering values. The SCLK values continued to indicate a halt until the time of the planned reload. After the that time the SCLK values resumed reporting correct values.

Timing:

SCLK	Comments
5329408:11	Software reload after 26INHSLOKI01
5329635:58	Good SCLK 5329633 reported
5330400:48	Anomalous SCLK 5330237 reported
5331218:05	Anomalous SCLK 5330237 reported
5331360:43	Anomalous SCLK 5330237 reported
5331713:61	Software reload 26NNRELOAD01
5331993:40	Good SCLK 5331991 reported

Spacecraft Anomaly

During the E26 encounter CDS suffered 2 'standard' despun bus reset errors. These bus resets happen at least once every encounter. These bus resets were handled by the on-board recovery software without any effect on the planned sequence. NIMS did not appear to have halted due to loss of RTI synch.

NIMS Archived EDRs and CUBEs

The NIMS data are stored in EDRs (Experimental Data Records) produced by JPL-MIPS (Multi-mission Image Processing System). The NIMS Phase2 EDR is described in the NIMS EDR SIS (Software Interface Specification) Number 232-08. The same information is available in both human and machine-readable form in the PDS (Planetary Data System) structure files EDRHDR.FMT and EDRDATA.FMT in the LABEL directory of the NIMS EDR CD-ROM. Each observation has at least one EDR. The EDR file name is derived from the 12 character observation name plus a single character which allows an observation to be broken up into multiple EDRs. The 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 from the EDR (but kept separately on CD) and the file is renamed so as to conform to the 8.3 DOS file-naming convention. The 8.3 EDR name consists of a 2 character orbit identifier, a single character target identifier, a 3 digit counter and the suffix EDR. For example, the MIPS EDR G1GNGLOBAL01A.1 becomes G1G001.EDR. More information about NIMS EDRs can be found in the VOLINFO.TXT file on the EDR CD-ROM.

NIMS EDR data typically require considerable processing before they are readily amenable to science analysis. Normally, the EDRs are processed into spectral image cubes by one of several sets of software. MIPS systematically processes the EDRs into CUBEs (band sequential image files) and MASKs (spatial/spectral summary images) which are distributed on the NIMS CUBE CD-ROMs. Information about the structure of the NIMS CUBEs can be found in the VOLINFO.TXT file on the CUBE CD-ROM. The name of the CUBE file is derived from the input EDR filename. For archiving on CD-ROM, the CUBE files are renamed so as to conform to the 8.3 DOS file-naming convention. The 8.3 CUBE name consists of a 2 character orbit identifier, a single character target identifier, a 3 digit counter, a single character cube-type identifier, a single character data unit-type (DN, radiance or IOF) and the suffix QUB. For example, the MIPS IOF radiance cube for the observation G1GNGLOBAL01A.1 (G1G001) becomes G1G001CR.EDR. The summary MASKs on the CD-ROM have the same 6 character name as the EDR name with the suffix JPG or GIF to denote its graphics format.

Data Format

All data files have PDS labels. The raw data (EDR) file contains time-sequential, 16 bit integers. Reduced data files (TUBES and CUBES) may be viewed as images or spectra. They contain VAX real numbers, are band sequential (BSQ - the images are stacked in band order) and have geometry information appended as backplanes after the last NIMS band.

Data Types

Mask files contain summary images (3 band BSQ) and spectra of up to six selected regions that provide a quick indication of data location, data quality and spectral content. A Guide to understanding the NIMS mask is available.

Cube files contain data that have been projected and resampled. The core data are BSQ - spatial in the first two dimensions, and spectral in the third. Cubes of the satellites are projected in point-of-view, and, with few exceptions have no photometric correction applied. Cubes of Jupiter are (generally) projected as simple cylindrical. Cubes of Europa, Ganymede, and Callisto have been despiked. The cubes are available both in radiance and I/F (intensity divided by flux) form.

Tube files contain data in (almost) time order and normally have a NIMS-related 20 pixel spatial dimension (20 x n or n x 20). Projection coordinates are contained in backplanes, but the data have not been resampled. The data are in units of radiance and no despiking has been applied. All data in cubes are also available in tube form. Some data (such as spatially undersampled data) appear in tube form only.

A spike file contains a list of pixels that have been identified as spikes, but not replaced, in the tube. Spike files can be used to remove spikes from both tube and EDR files.

EDR files contain the most primitive form of the data available. They should be used only for advanced data analysis. The format is complex and the files do not form images or spectra without prior processing.

Data Labels

A data label (PDS form) is attached to the front of each file (except masks, which have an attached VICAR label and a detached PDS label). The labels are in ASCII keyword=value format and contain pointers to various data objects in the file, descriptions of the data objects and descriptions of the observation associated with the file. A history object in similar format follows and describes the processing steps that produced the file. Much of this information is necessary for understanding and viewing the cube. In particular, the label contains the offset to the cube, the dimensions of the cube, axes labels, and explicit wavelength information.

Data Access

Software for processing this data is called ISIS and is available for DEC VAX VMS, SUN Solaris, DEC Alpha Digital Unix, Silicon Graphics Unix and PC LINUX systems. The Unix versions are available from the USGS Astrogeology team. Images from NIMS cubes and tubes can be viewed with any image display program which allows an offset from the beginning of the file to the selected image. Packages tested include ISIS, VICAR, ENVI, SAO IMAGE, and NASAVIEW. ISIS and ENVI (and soon NASAVIEW) additionally display spectra. The ISIS viewer is named CV (UNIX) or QL3 (VMS).

Labels may be displayed with some editors (eg DOS edit), and with most "type" and "search" functions. Some editors do not recognize the PDS line termination conventions. The label may be listed by the ISIS function LHLIST (VMS) or LABEL (UNIX).

Software for converting EDRs to cubes exist in both ISIS (DEC VAX VMS) and VICAR (DEC Alpha VMS) versions only. A primitive list of values in an EDR may be obtained with the program EDRDMP2.

Understanding the NIMS Mask

The NIMS mask is designed to provide a quick summary of the contents of a NIMS data cube (or tube). It displays a view of both the spatial and spectral content of the data.

The mask has four regions. Starting from the upper left and proceeding clockwise: a spatial display; six or fewer representative spectra; annotation; and a spectral histogram.

The spatial display of an observation which has been projected and resampled (a cube) has a maximum size of 600x600 pixels. This is overlaid with surface coordinates and is embedded in a 700x700 grid of pixel coordinates. It is accompanied by two 1-dimensional histograms describing the raw image and the image stretched for display. The data image can range from a simple combination of up to 3 NIMS bands displayed in the RGB planes, to complicated arithmetic functions of NIMS bands displayed in the RGB planes. (The formulas appear as annotation below the histograms.) The graphics directly below the image show the input and output data histograms for the three color planes. The "shortest" color for each bin displays in front. The image also contains from one to six numbered rectangles, which show the from which averaged spectra (displayed on the right) were taken.

The spatial display of an observation in time sequence (a tube) is a graphic showing a footprint of the observation over a grid of surface coordinates on the target body. Numerals 1-6 on the graphic mark the locations of the average spectra displayed on the right.

The spectra to the right of the image may display either BDRF or radiance (or both). If both are displayed, then a vertical "radiance fence" line will appear where the breakpoint occurs. This permits display of both atmospheric data, which have significant reflectance and thermal components, and I/F satellite surface data which have strong absorptions at longer wavelengths (such as water spectra.) The spectra are labelled with wavelength in microns and location in both pixel and latitude-longitude space.

The annotation provides information about the observation, including its name, a brief description, its geometry, instrument and projection parameters. TCA is the time from Galileo's closest approach to the target body.

The 2-dimensional spectral histogram in the lower left corner shows the number of pixels at a given radiance for each wavelength. If a surface contains spatial mixtures with significantly different spatial fractions for several components, the spectra of the components will be evident in this display.