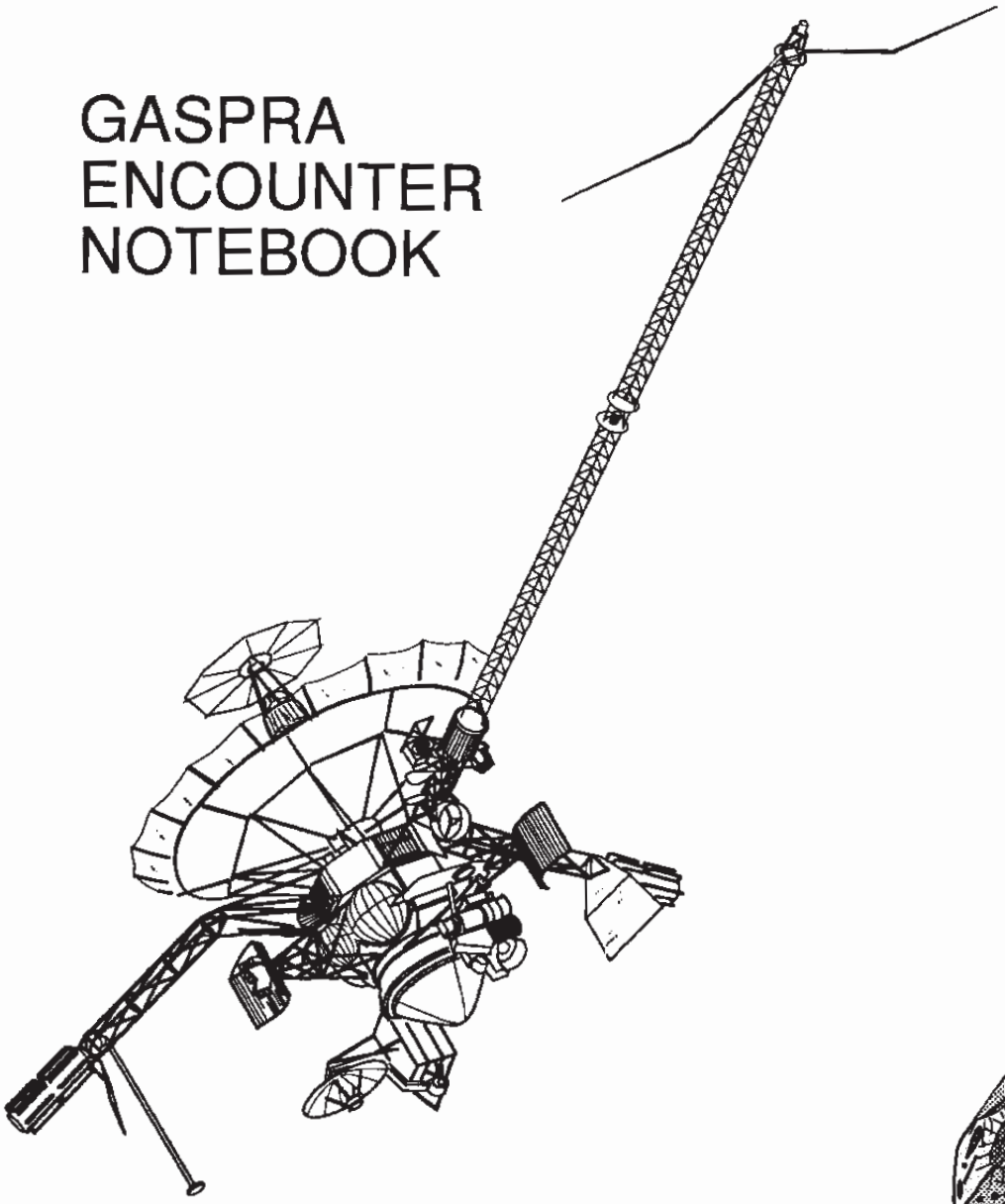
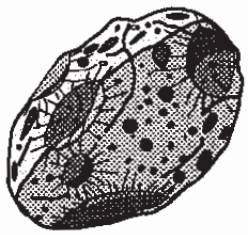
NIMS GUIDE TO THE GASPRA ENCOUNTER

Original: October 1991
Revised: May 1995

Galileo

GASPRA ENCOUNTER NOTEBOOK





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Introduction to the Revised Edition

This document was originally published by the NIMS team in October 1991 as a guide to the Galileo Encounter with the asteroid Gaspra. It has been revised and corrected for inclusion on the Asteroid (5th) CD-ROM of NIMS Experimental Data Records (EDRs). Some material in the original document has been omitted.

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

Chapter 1 gives an introduction to the Gaspra encounter as well as a discussion of various issues that went into the design of the Gaspra encounter sequence. Chapter 2 gives an overview of the entire Gaspra encounter using various timelines. Chapter 3 contains digrams of various aspects of geometry for the Gaspra encounter. Chapter 4 summarizes the NIMS Gaspra observations in terms of a comprehensize sequence summary, PA summary and Observation Table (OBSTAB). Chapter 5 is a collection of the Detailed Observation Designs made up of OAPEL forms and POINTER plots. The Appendix contains a JPL interoffice memo describing the NAV Team's OPNAV strategy and a discussion of error ellipses.

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

ACKNOWLEDGEMENTS

The NIMS Gaspra observations in this guide were designed by Cindy Byrne and Paul Weissman with the help of Larry Soderblom, Bill Smythe and Bob Carlson. The calibrations were designed by Cindy Byrne with help from Bill Smythe. Cindy Byrne prepared the original printed guide. Frank Leader subsequently retrieved most of the original material for the CD-ROM, edited the original Postscript files for consistency and clarity, recovered missing material by scanning parts of the original printed document. Some figures from the Galileo Gaspra Encounter Notebook prepared by the Galileo Mission Design Team were incorporated into this guide. Al stevenson generated the sequence summary. Bob Mehlman oversaw the production of this guide.

Introduction

On October 29, 1991, Galileo will attempt to record the best spatial and spectral information yet available on an asteroid. 951 Gaspra will serve as the target body and will provide the opportunity for the first ever spacecraft flyby of an asteroid.

This packet is provided as a NIMS guide to the Galileo Gaspra Encounter. In the following pages, you will find some information on the asteroid itself as well as mention of some questions regarding this body which still remain; the solutions to which won't be known until after playback of the recorded sequence in late 1992. Until then, we provide only the plans for obtaining this data on October 29, 1991. There are many critical activities occuring before Gaspra Closest Approach which will affect the quality of the planned observations -- OPNAV frames to be returned, spacecraft attitude adjustments to be made, a 'tweak', etc. Each of these activities are described in the following pages.

951 Gaspra - The Asteroid

Gaspra was discovered on August 30, 1916 by G. Neujmin and was named after a Crimean resort for scientists. It is a faint object to Earth-based telescopes and little Gaspra data were gathered until it became a potential Galileo flyby target. The most recent information is available in an article authored by Goldader, Tholen, Cruikshank and Hartmann and planned for publication in the October 1991 issue of "The Astronomical Journal".

Gaspra is an S-type asteroid, one of the most common types of asteroids found at its 2.2 AU range from the Sun. S-types have moderate albedos and moderate to strong absorption features shortward of 0.7 microns and moderate to non-existent absorption features beyond 0.7 microns. Gaspra, like most S-type asteroids, is expected to have a slightly reddish color and to be composed of a combination of olivine and pyroxene silicates and nickel-iron metal, although in unknown ratios. Goldader etal. suspect that Gaspra has a high olivine/pyroxene ratio which may indicate it originated in the lower mantle of a differentiated parent body. Gaspra is similar to 8 Flora and 15 Eunomia. With data from the Gaspra Flyby, NIMS will have the opportunity to further elucidate the nature of S-type asteroids, one of the most controversial issues in asteroid science.

Gaspra is known to have a non-spherical shape which, for planning purposes, has been assumed to be a tri-axial ellipsoid with axes given below. On the following two pages, you will find more information on Gaspra's physical constants, some of which have been updated with information in the publication previously mentioned. Also included are figures from the paper "Galileo Support Observations of Asteroid 951 Gaspra", which show ground-based observations of the variation in brightness of Gaspra as a function of rotational phase and also a plot of the ground-based near-infrared normalized spectral reflectance (with the expected NIMS spectral resolution noted).

JET PROPULSION LABORATORY

INTEROFFICE MEMORANDUM
GLL-MDT-89-230.IOM
December 13, 1990
Revision C: October 23, 1991

To: Distibution
From: Bruce McLaughlin
Subject: Physical Constants for Asteroid 951 Gaspra (UPDATE)

Concurrence:	J.Ludwinski	J.Dunne
	MDT Chief	S & MD Manager

To ensure Project-wide consistency in planning for the upcoming Galileo encounter with the asteroid Gaspra (currenly targeted to occur on Oct 29, 1991, 91-302/22:38 SCET - Ephemeris Time), the following data shall be used by all Project elements involved in developing planning and sequencing products based upon the physical properties of Gaspra. These data are the best estimates to date of the known constants for the asteroid. Gaspra is not a very well studied body to date, and the uncertainties can be quite large, as shown below. These data were presented and discussed at the Gaspra Aim-Point Selection Meeting held on Dec. 6, 1990 and are summarized along with historical data in a fact sheet compiled by Clark R. Chapman for the Galileo Project.

UPDATE: Due to misunderstandings and abiguities in the presentation of the original data, this update has been prepared. It has been coordinated with the Galileo Navigation Team, the Galileo Science Data Team, the Galileo POINTER Design Team and Dr. Alan Harris, JPL Gaspra Observational Astronomer. The key issues of the definitions of the epoch and prime meridian have been 'rephrased' to remove the verbal ambiguity and couched in terms of appropriate coordinate systems and absolute epochs. In addition, observations taken earlier this year provide revised estimates of some of the quantities. Clark Chapman and Alan Harris have provided these updates in a memo and unpublished E-mail which are available on request for use within Galileo Project only. These data are not for publication.

Change Control:

The coordination of updates to these values shall be the responsibility of the Mission Design Team to assure that timely and consistent values are used at each step of the planning process. Additional data taken by ground observers early in 1991 may be used to update these values and are included in the Update. Comments, corrections or updates to any of these values which occur with the passage of time should be addressed to myself or to the MDT Chief.

Asteroid 951 Gaspra - Physical Constants

Diameter: 12.5 km (range 8-20 km)

Shape: assume tri-axial ellipsoidal with axis ratios
a:b:c = 1.6 : 1.0 : 0.9
+/- 0.3 0.3 0.3
coupled with the assumed mean diameter yields:
a:b:c = 18 km : 11 km : 10 km
(12.5 km = cube root of (a*b*c))

Period: 7.0421 +/- 0.0001 hr (sidereal)

Sense of Rotation:
unknown, but for reference assume prograde
i.e., right-hand-rule about the c-axis (short axis)

North Pole Position:
assume 20 degrees ecliptic longitude, 20 degrees ecliptic latitude (uncertainty +/1 10 degrees in each direction)
(RA ~ 10.2 deg, Dec ~ +26.2 deg)

Epoch: adopt primary maximum (a-axis perpendicular to the vector between Gaspra and the spacecraft) occurs at 91-302/19:52 SCET. Maximum will occur at 91-302/21:38 SCET. This implies W0 = 251.924 deg and W-dot = 1226.906747 deg per ephemeris day (wrt EME50). W0 has an inherent ambiguity of 180 degrees, and this particular value is chosen arbitrarily.

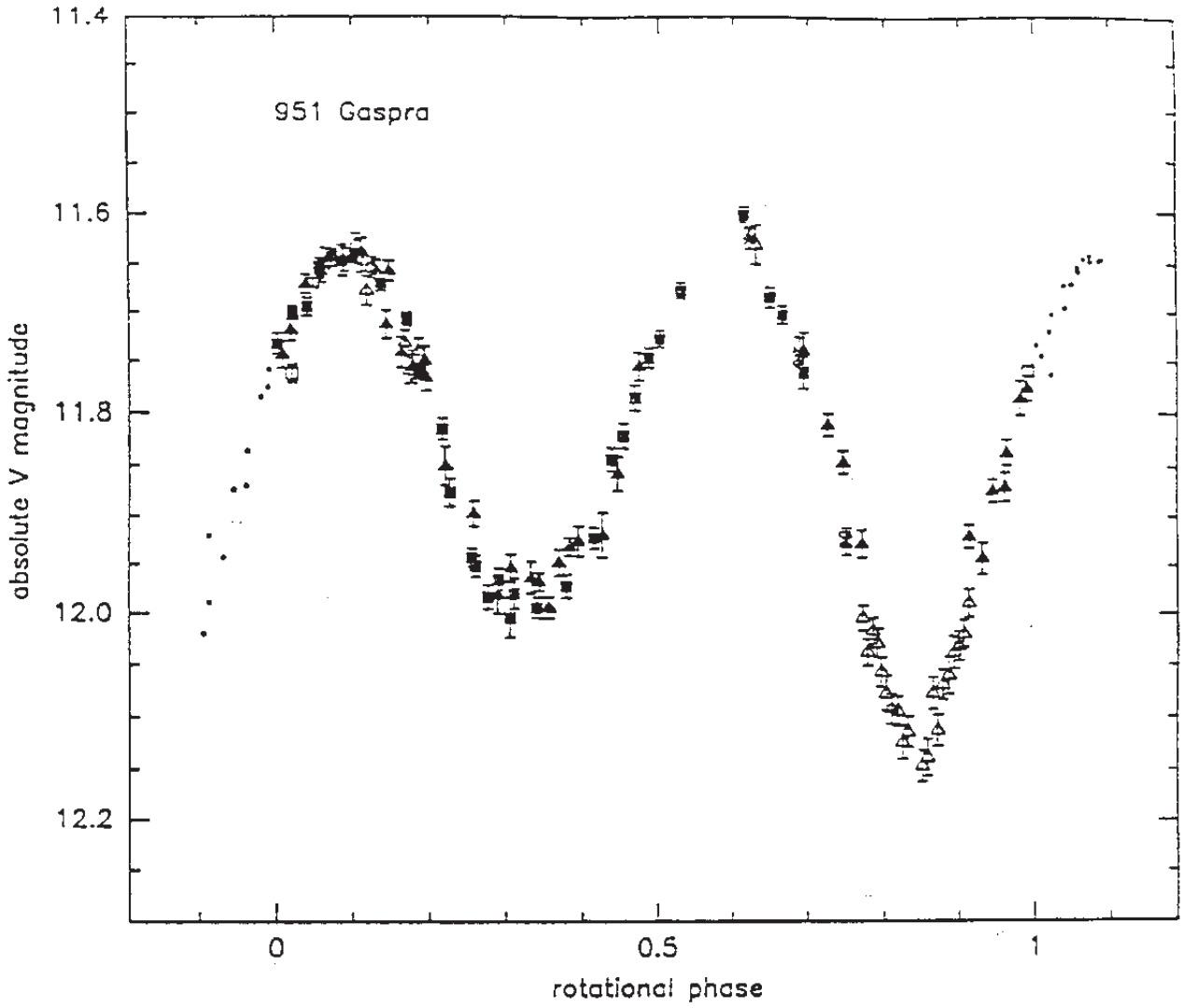
Albedo: 0.20 (range 0.16 - 0.28)

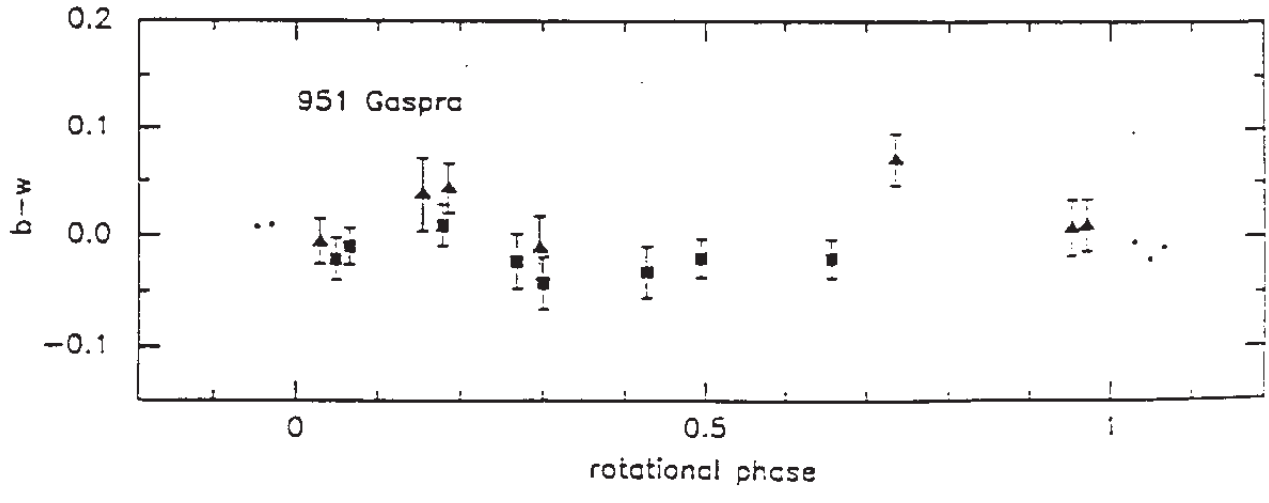
Magnitudes:
H = 11.65 +/- 0.05
G = 0.24 +/- 0.01
B(1,0) = 12.9 (absolute magnitude prior to adoption of H/G system)
U-B = 0.55
B-V = 0.87

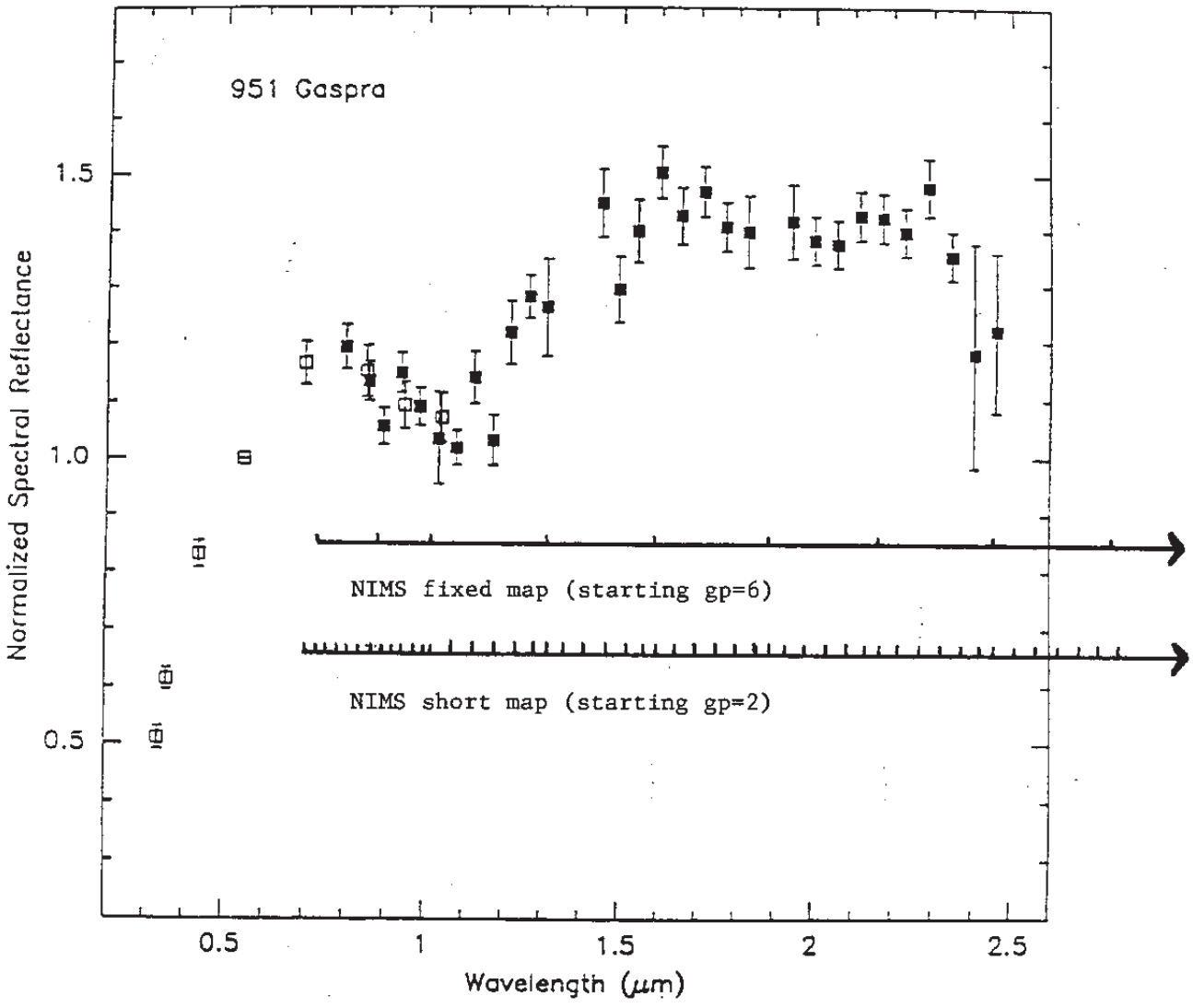
Revised Orbital Elements:
Updated merged ephemeris files in LGFIO and NAVIO format are available on Unisys tape as described in IOM 314.6-1332, Updated Orbit and Ephemeris for Asteroid 951 Gaspra, D.K. Yeomans and M.S. Keesey to W.E. Kirhofer.

The osculating orbital elements (refered to EME50) presented there are:

Epoch	1991 Dec. 10.0 TDT
T	1992 July 19.52985
q	1.8254967 AU
e	0.1738608
w	129.12909 deg.
Node	252.65713 deg.
I	4.09891 deg.


951 Gaspra
11.4
11.6
11.8
12.0
12.2
absolute V magnitude
0
0.5
1
rotational phase


951 Gaspra
0.2
0.1
0.0
−0.1
b−w
0
0.5
1
rotational phase


951 Gaspra
Normalized Spectral Reflectance
1.5
1.0
0.5
0.5
1
1.5
2
2.5
Wavelength (μm)
NIMS fixed map (starting gp=6)
NIMS short map (starting gp=2)

History of Gaspra Sequence: HGA to LGA

The original Gaspra sequence assumed use of the High Gain Antenna and a dayside, 1900 km closest approach, 60 degrees north of the ecliptic plane. On April 11, 1991, the Galileo High Gain Antenna failed to deploy and the sequence plan was changed to include tape recorded observations that could be played back at a later time at lower data rates with the Low Gain Antenna. The resulting sequence is now know as EE3 prime (EE3p). One of the drawbacks to the new sequence is that fewer OP NAV pictures can be taken and played back in time (see Appendix A for a description of OP NAV stratagies and a discussion of error ellipses). This caused the error ellipses to grow considerably and greatly reduced the probabilities of capturing Gaspra at Closest Approach. The 'time-of-flight' axis was much larger than the semi-major of semi-minor axis of the tri-axial error ellipsoid. As a result, it has been necessary to move the SSI and NIMS science observations back in time to allow an 'end-on' approach of the error ellipse.

The ultimate sequence became a darkside approach at 1600 km which met the SSI requirements of high (> 45 degrees) phase angles while Gaspra filled the largest number of pixels possible in the SSI field of view. A diagram of the phase angle (Sun-Gaspra-Spacecraft Angle) with respect to time is plotted in the Geometry Section of this guide. These high phase angles (over 45 degrees) introduce shadows on the object, which is less desirable for spectral instruments such as NIMS.

Spacecraft Orientation and Trajectory

Two obvious gains to the change to the Low Gain Antenna sequence were: 1) Galileo would be pointed Sun-pointed (the High Gain Antenna requires Earth-pointing withing 1.0 degrees) and 2) the spacecraft trajectory could nearly lie in the ecliptic plane. The first of these benefits allowed science observations outside of the spacecraft cone pole region where pointing stability is lessened. It also created an opportunity for a NIMS photometric calibration.

The second benefit mentioned above permitted science observations to be performed with almost pure cone slews, taking out the cross-cone movement which can complicate NIMS data analysis. A plot of Gaspra's and Galileo's trajectories from a sun-centerd north ecliptic pole view is presented in the Geometry Section of this guide.

Galileo off-sun angle:	3 degrees (approx)
Radial Distance:	1600 km @ Closest Approach (Darkside)
Closest Approach point:	3.9 deg north ecliptic latitude
Encounter Time:	October 29, 1991, DOY 91-302 22:37:00.702 UTC

The OPNAV Strategy and Error Ellipse Determination

Spacecraft position and velocity is well known using radio signatures from the spacecraft. This is not the case for Gaspra's trajectory. As a result, science observations must take into account a region of uncertainty in the position of Gaspra relative to the spacecraft. The resultant 'error ellipse' is a locus of possible Gaspra centers and is fixed in RA/Dec space using the most recent OPNAV information. Determination of the error ellipse size is described in greater detail in Appendix A. For planning purposes, 'Case 1, ON2' of that memo has been assumed.

It is critical that these OPNAV frames be returned and processed in time, particularly the last frame. This last frame will be used to update only the closest approach observations from 4 hours before Closest Aproach to a few minutes after Closest Approach. The process of updating parameters such as RA/Dec of Gaspra's position and scan platform slew rates which account for this new position is known as the 'tweak'.

Due to concern over lack of dual DSN coverage for this tweak activity, the Galileo Project has decided that those observations from -4 hours to -1 hours will be tweaked using realtime commands on an as-needed basis. These observations do not use Target Motion Compensation (TMC). This strategy allows postponement of the tweak window to Closest Approach - 1 hour (C/A - 1hr) when dual DSN coverage is available. Therefore, the remaining observations, all of which use TMC, occuring from Closest Approach - 1 hour to Closest Approach will be tweaked at Closest Approach - 1 hour. The NAV schedule for the Tweak is presented in the Overview section of this guide. The Science and Mission Design Office will utilize NAV inputs to determine new probabilities of Gaspra capture. These probabilities will be reported to the Project which will then give a go/no-go decision for realtime commanding.

Originally, all science teams were directed to design to a 92%, or 2.24 sigma, error ellipse. However, since return of the latest OPNAVS 1,3 and 4, the size of the error ellipse has drastically diminished. Currently, B . R = 48.3 km and B . T - 26.3 km (1 sigma). As a result, our probabilities of Gaspra capture have increased.

The NIMS designs given in a later section are designed to cover an error ellipse which includes the OPNAV information of Gaspra position uncertainty, the relative size of Gaspra and a possible scan platform error. The error ellipses appear to be 'dirigibles' if observed end-on, which is indeed the observation perspective of NIMS since the time of flight error is into the paper and in the direction of spacecraft motion. Due to limitations of the planning tools, we were unable to provide the actual orientation and shape of the error ellipse from the end-on perspective. Thus, what appears to be a circular ellipse is a tri-axial ellipsoid.

Science Priorities

The Asteroid Working Group decided on the science priorities at Gaspra, as given by the following viewgraph:

SCIENCE OBJECTIVES

Characterization of Global Properties

- Accurate Size/Shape
- Rotation Period
- Pole Orientation
- Cratering Statisitics

Characterization of Compositional Properties

- Surface Composition (minerals, metals etc.)
  - Global properties
  - Heterogeneities
  - Stratigraphy in craters

Characterization of Surface Morphology

- Morphology of craters as a function of diameter

Characterization of Regolith Properties

- Stratigraphy
- Photometric properties
- Polarimetric properties
- Radiometric/thermophysical properties

Asteroid Environment

- Outgassing from asteroid
- Dust concentrations and radial gradient
- Search for close debris

Hopefull this will provide data for Comparative Processes with

- Other asteroids
- Phobos/Deimos
- Other small planetary satellites

NIMS Science Priorities

Using the Asteroid Working Group's Science Objectives, and information on Gaspra's size and spacecraft range, the NIMS Gaspra observations were sequenced according to the following priorities. They have been updated to reflect a small increase in tape resource discovered during the final tape useage estimates. In particular, we were able to add Fixed Map Observations (XM) to give rotational phase sampling every 15 degrees.

("Start" and "End" times are in Rims before Gaspra Closest Approach.)

Priority	Start	End	Observation
1	-23	-8	XM, 0.75 mrad/sec, 2 coverages of error ellipse for spatial resolution/phase angle trade-off
2	Broken intervals between -48	-24	SM, 0.11 mrad/sec, Low(er) phase, multicolor
3	-8hrs	-61	FM, 0.03 mrad/sec, every 90 degrees of Gaspra rotation, with a fifth FM verifying the first. SM, 0.11 mrad/sec, 30 degrees samples XM, 0.75 mrad/sec, 15 degree samples
4	After Closest Approach		PCT Calibration - 2 Rims RCT Calibration - 2 Rims

The NIMS Sequence

The following timeline shows the NIMS, SSI, UVS and PPR science observations after incorporating the above NIMS priorities with the priorities of the other teams. The description of each NIMS observation is located in the 'OAPEL Description' section which provides actual time of observation, observation objective and design detail. You will notice a "+", "-" or "*" after each Activity ID. These symbols stand for the following, respectively: 1 of 2 or more similar observations; not a joint observation; a joint observation.

The NIMS Gaspra sequence uses four NIMS modes for science observations: Long Map (LM), Full Map (FM), Short Map (SM) and Fixed Map (XM). The sequence also includes the first use of 2 special sequences (RAM modes) which allow the instrument to toggle between two different modes in one Rim. Further details on the special sequences can be found in the information on the OAPELs GASVIS01 and GASNAP01.

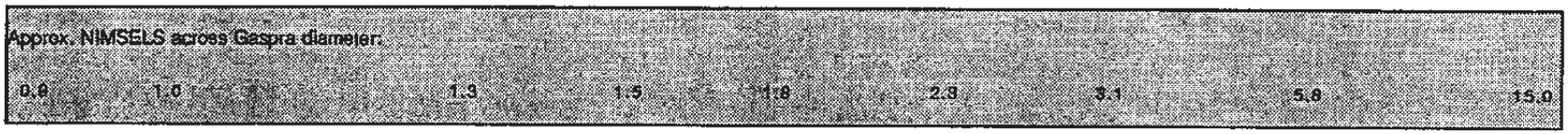
In every case, the following grating offsets are used to allow sampling of the 1.05 micron absorption band. The 1.05 micron samples maximize the scene contrast and should provide the best information on the olivine/pyroxene band.

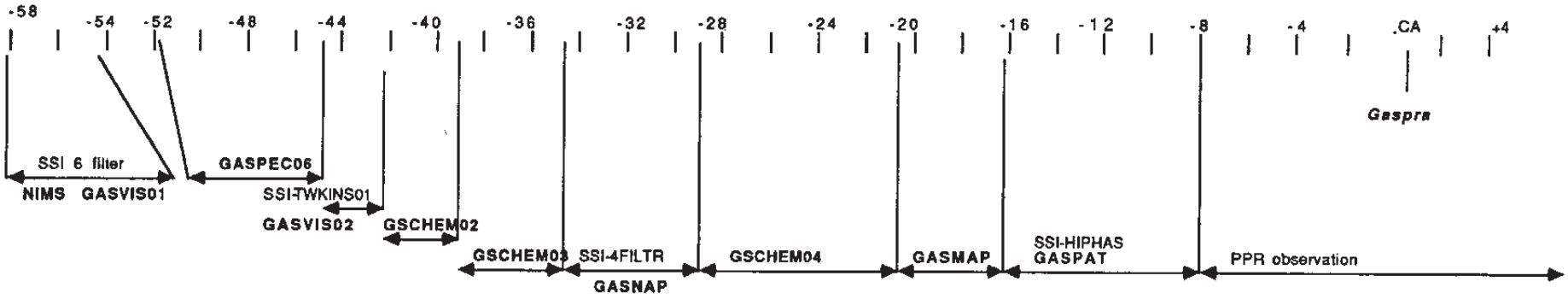
Mode	Grating Start Position
Long Map	0
Full Map	0
Short Map	2
Fixed Map	6

GASPRA Encounter

Gaspra Closest Approach (GCA), 302/22:37:00.702

GCA-58 rims to -8 rims (1 RIM = 60.67 sec)





GASVIS01 NIMS ride-along in XM/LM Special Sequence with SSI in IM4 (2.333 sec frames).
GASVIS02 NIMS ride-along in XM with SSI in IM4 (2.333 sec frames)

GASPEC06 NIMS completes the last FM observation at LM Nyquist rate by covering lower hemisphere. GASPEC05 covers upper hemisphere.

GSCHEM02,03,04 NIMS scans each of 2 error ellipse hemispheres(02,03), and center of error ellipse (04) in SM @Nyquist rate (0.11 mrad/sec).

GASNAP NIMS ride-along in XM/LM Special Sequence with SSI in IM4 (2.333 sec frames).

GASMAP NIMS scans the error ellipse in XM @Nyquist rate. (0.75 mrad/sec).

GASPAT Joint NIMS/SSI observation, NIMS in XM @ 0.84 mrad/sec slew rates.

NIMS/SSI Gaspra Activities - Far Encounter
Gaspra Closest Approach (GCA) = 302/22:37:00.702 UTC

Approximate nimsels across Gaspra diameter	.01											.18									.41				.76	
RIMS to C/A:	473		442		407		368		337		302		263		232		197		158		127		92		64	
SSI observations: [1] (every 30° of rotation)	•		•		•		•		•		•		•		•		•		•		•		•		•	
NIMS observations:[1] (every 15° of rotation)	F	X	S	X	S	X	F	X	S	X	S	X	F	X	S	X	S	UVS Obs.	F	X	S	X	S	X	F	

1-14

Totals

Number	Mode
12	X - Fixed Map (17 λ) (GASPER)
8	S - Short Map (102 λ) (GASCUR)
5	F - Full Map (204 λ) (GASPEC)

1 Gaspra rotation period = 7.0421 hr.

NIMS Gaspra Activity Plan Time Ordered Listing

Gaspra Closest Approach (GCA) - 91-302/22:37:00.702 (UTC)
15:37:00.702 (PDT)

Observation	Start Time (PDT)	Start Time (UTC)	Duration	Gain
Full Map- GASPEC01	91-302/07:37:44	91-302/14:37:44	0:03:17	4
Fixed Map- GASPER01	/07:52:01	/14:52:01	0:00:26	4
Fixed Map- GASCUR01	/08:09:12	/15:09:12	0:01:22	4
Short Map- GASPER02	/08:27:24	/15:27:24	0:00:24	4
Fixed Map- GASCUR02	/08:44:35	/15:44:35	0:01:22	4
Short Map- GASPER03	/09:02:48	/16:02:48	0:00:24	4
Fixed Map- GASPEC02	/09:23:58	/16:23:58	0:03:41	4
Full Map- GASPER04	/09:38:11	/16:38:11	0:00:20	4
Fixed Map- GASCUR03	/09:55:22	/16:55:22	0:01:35	4
Short Map- GASPER05	/10:33:34	/17:33:34	0:00:20	4
Fixed Map- GASCUR04	/10:30:45	/17:30:45	0:01:35	4
Short Map- GASPER06	/10:48:58	/17:48:58	0:00:20	4
Full Map- GASPEC03	/11:10:12	/18:10:12	0:04:05	4
Fixed Map- GASPER07	/11:24:21	/18:24:21	0:00:18	4
Short Map- GASCUR05	/11:41:32	/18:41:32	0:01:32	4
Fixed Map- GASPER08	/11:59:44	/18:59:44	0:00:18	4
Short Map- GASCUR06	/12:16:55	/19:16:55	0:01:14	4
Full Map- GASPEC04	/12:56:22	/19:56:22	0:04:20	4
Fixed Map- GASPER10	/13:10:31	/20:10:31	0:00:18	4
Short Map- GASCUR07	/13:27:42	/20:27:42	0:01:63	4
Fixed Map- GASPER11	/13:45:50	/20:45:50	0:00:16	4
Short Map- GASCUR08	/14:03:01	/21:03:01	0:01:69	3
Fixed Map- GASPER12	/14:15:10	/21:15:10	0:00:16	3
Full Map- GASPEC05	/14:31:24	/21:31:24	0:04:83	1
LM/FM- GASVIS01	/14:37:52	/21:37:52	0:04:00	1
Full Map- GASPEC06	/14:44:10	/21:44:10	0:03:38	1
Fixed Map- GASVIS02	/14:51:35	/21:51:35	0:02:46	1
Short Map- GSCHEM02	/14:54:28	/21:54:28	0:05:82	1
LM/FM- GASNAP01	/15:01:07	/22:01:07	0:06:00	1
Short Map- GSCHEM04	/15:07:12	/22:07:12	0:08:29	1
Fixed Map- GASMAP01	/15:16:30	/22:16:30	0:03:67	1
Fixed Map- GASPAT01 (HIPHAS01)	/15:20:55	/22:20:55	0:03:00	1
PCT CAL	/18:35:58	91-303/01:35:58	0:02:00	1
RCT CAL	/23:50:26	/06:50:26	0:20:00	1
NIMS Turn Off	91-303/18:35:58	/08:58:50		

Chapter 2 - Encounter Overview

Contents

Introduction to Chapter 2

This chapter gives an overview of the entire Gaspra Encounter.

The first two timelines on pages 3 and 4, the EE2' Overview - Parts 1 and 2, show the activities leading up to the Gaspra Encounter, the most important activity being the replay of the OPNAV images of Gaspra

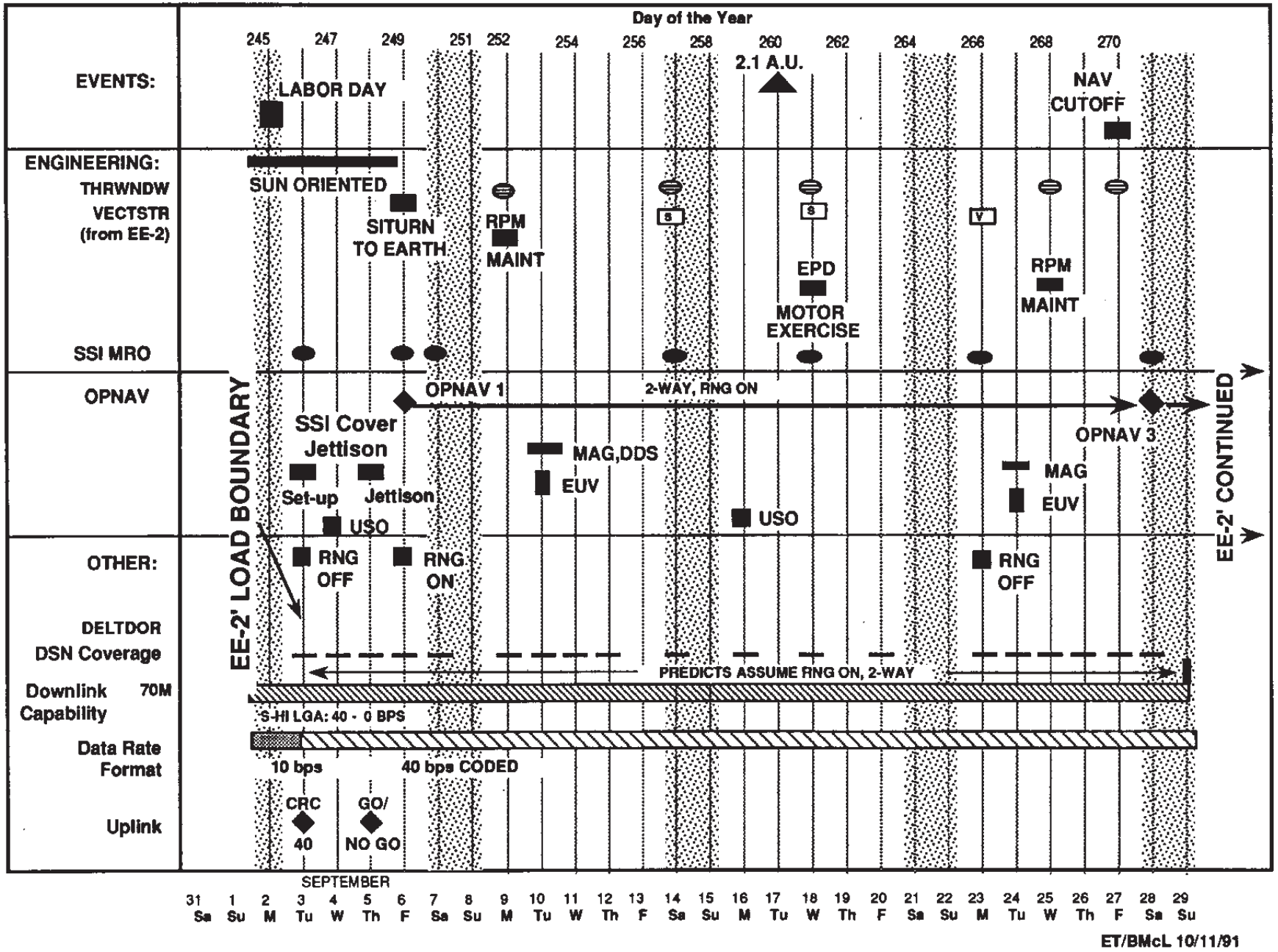
The timeline on page 5 shows the various activities involved in the processing of the final OPNAV 5 image of Gaspra leading up to the decision of go/no-go on the final 'tweak' .

The timeline on page 6, the EE3' Overview, shows the various activities occuring near Gaspra Closest Approach (GCA).

The timeline on page 7, the Gaspra Flyby Timeline, shows a closeup of the activities occuring right around Gaspra Closest Approach (GCA).

The timeline on page 8, the Galileo Gaspra Key Events Timeline, shows the science activities occuring during the Gaspra Encounter, with graphical representations of the major Gaspra mosaics.

EE-2' OVERVIEW, PART 1



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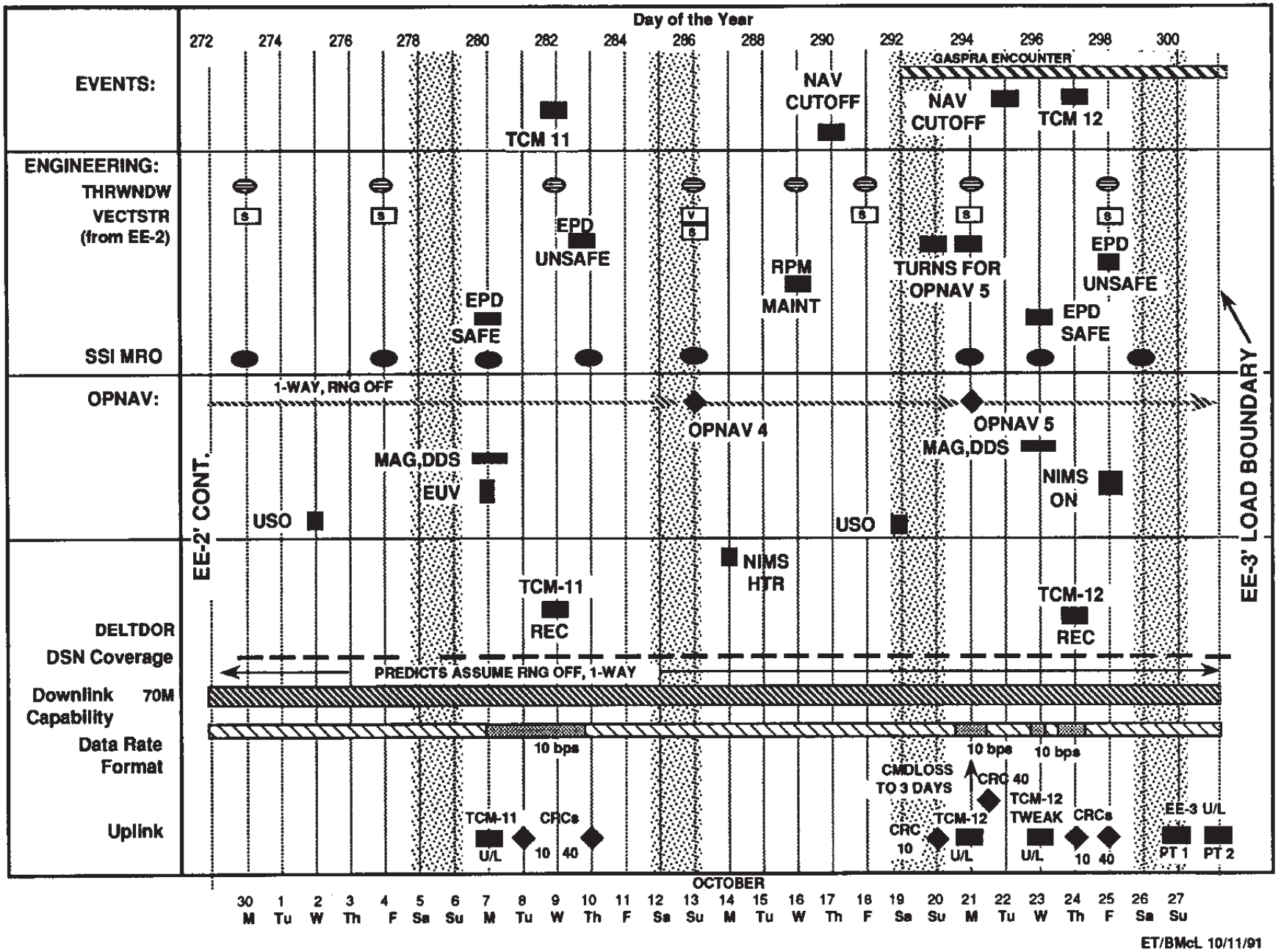
EE-2' OVERVIEW, PART 2



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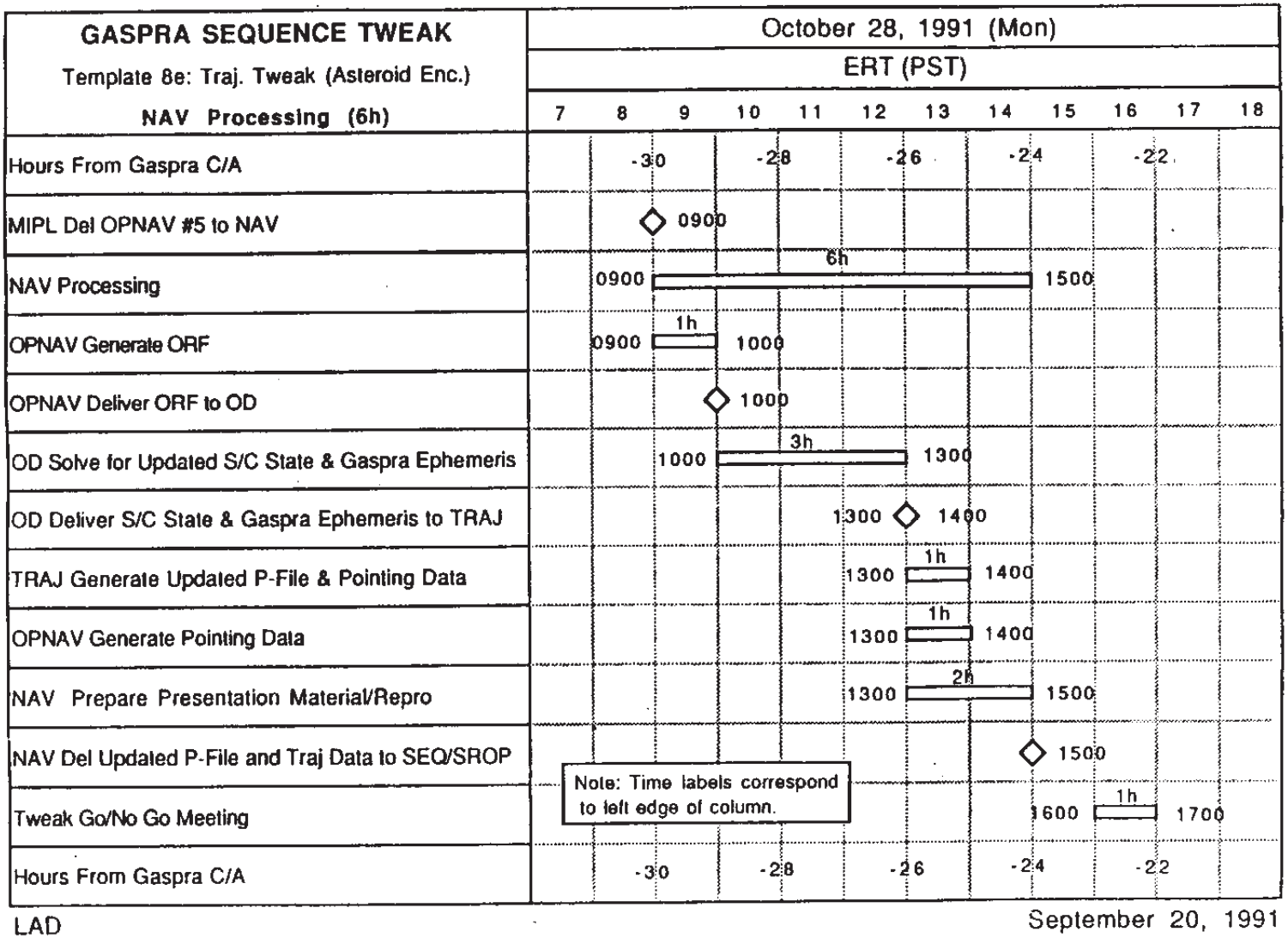

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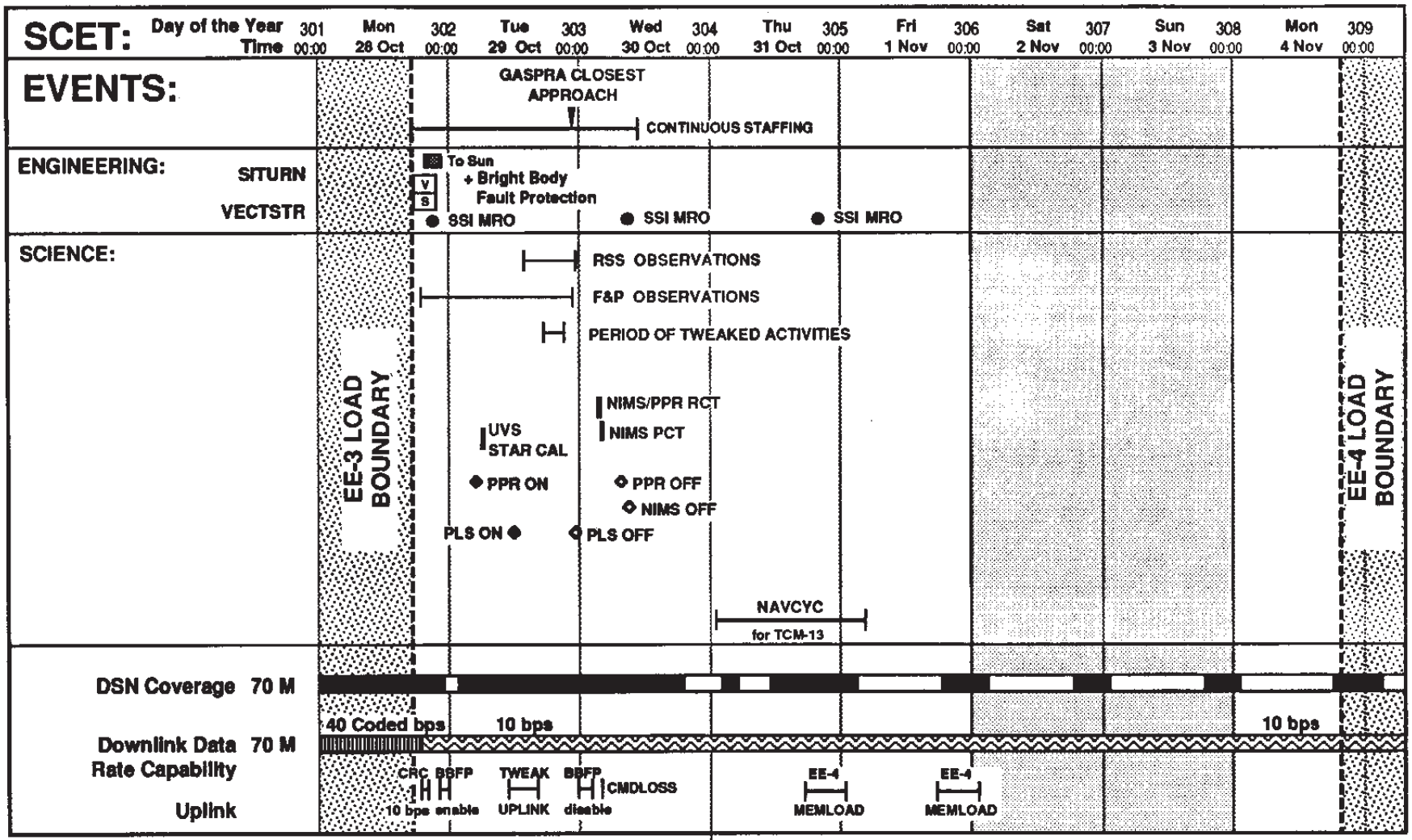
September 20, 1991

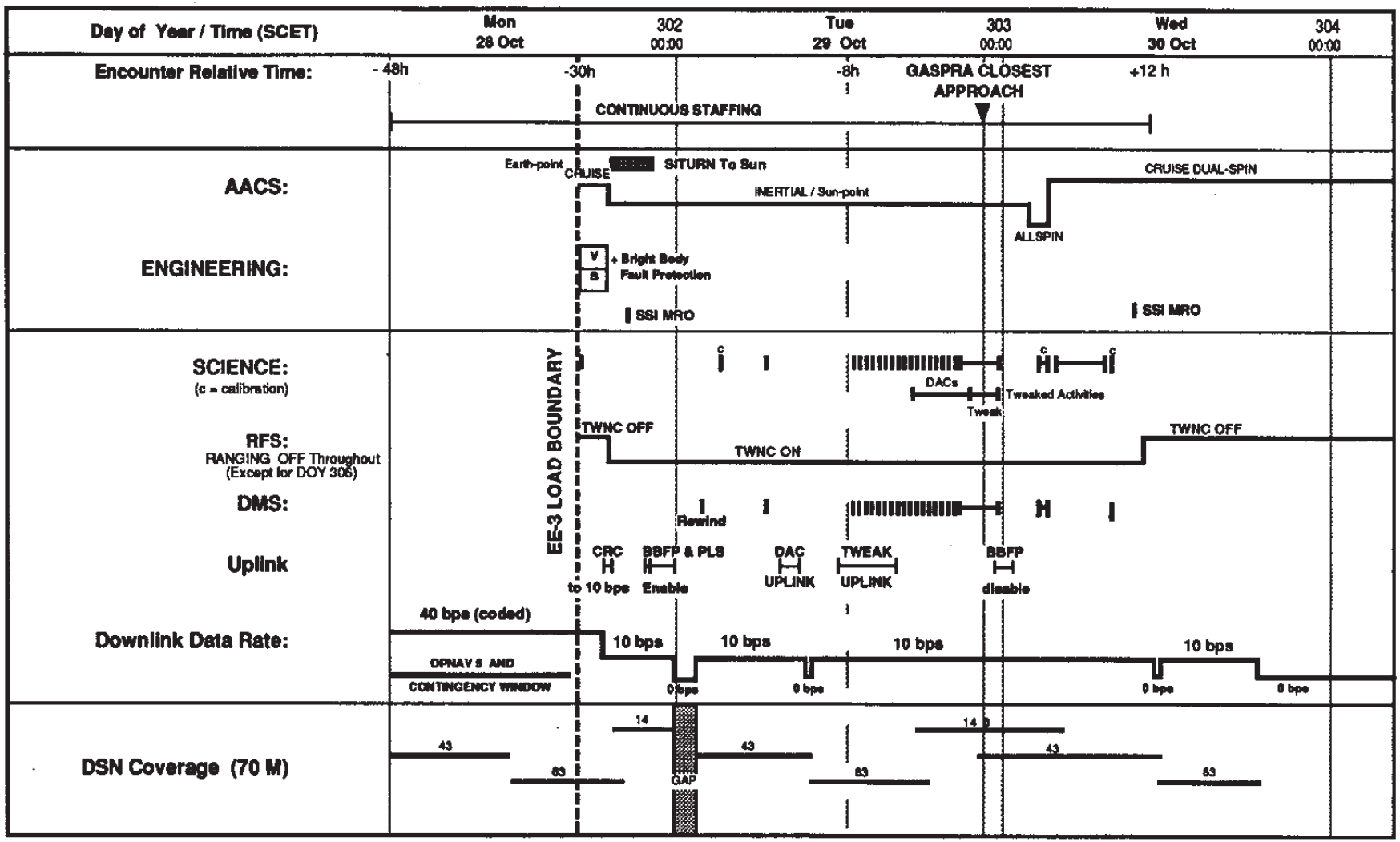
EE-3' Overview



Project Galileo
Mission Design Team

JMK/BMcL/ET
11 October 91

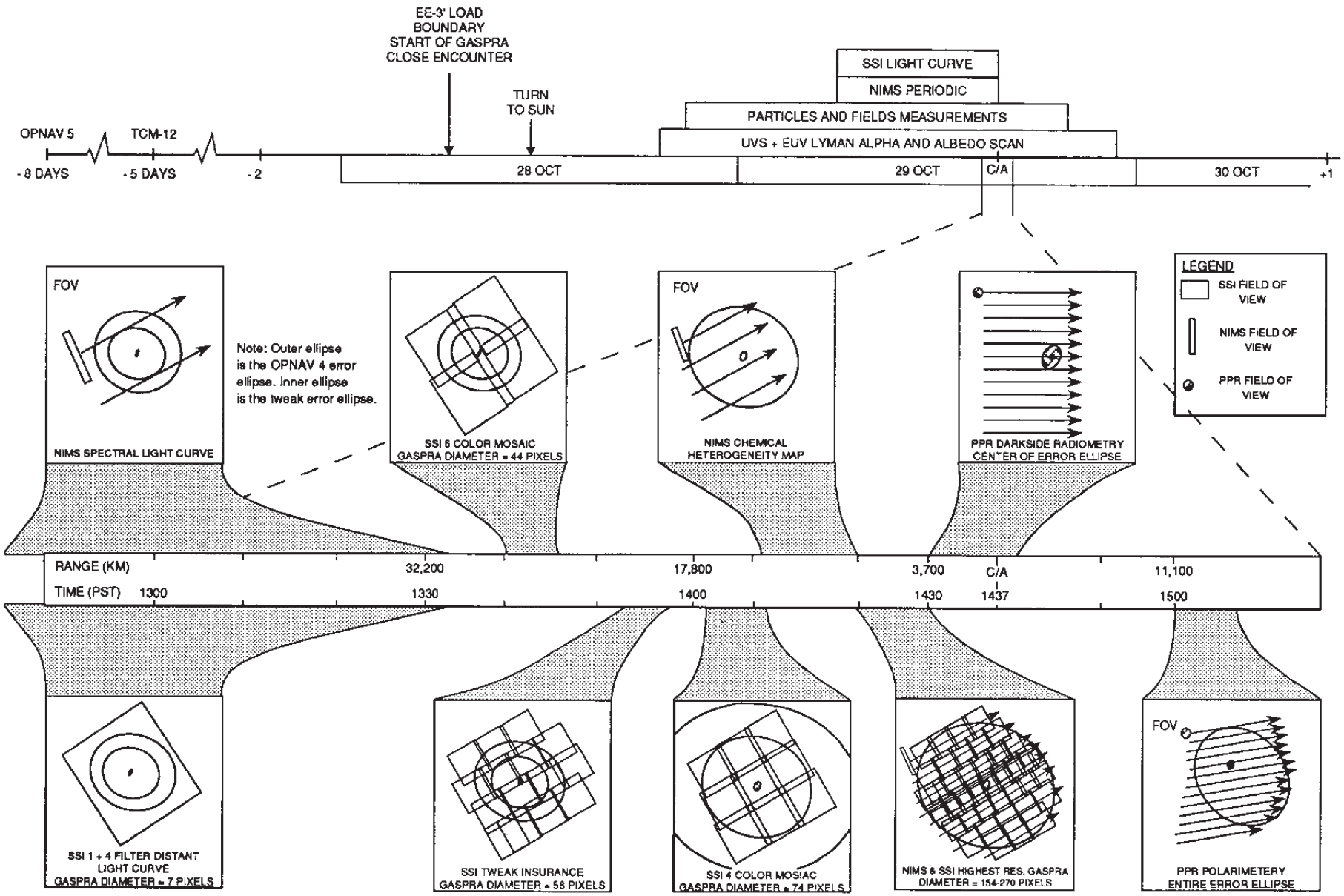
Gaspra Flyby Timeline



Project Galileo
Mission Design Team

B.McL./E.T
11 October 91

GALILEO GASPRA KEY EVENTS TIMELINE



Chapter 3 - Encounter Geometries

Contents

Introduction to Chapter 3

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

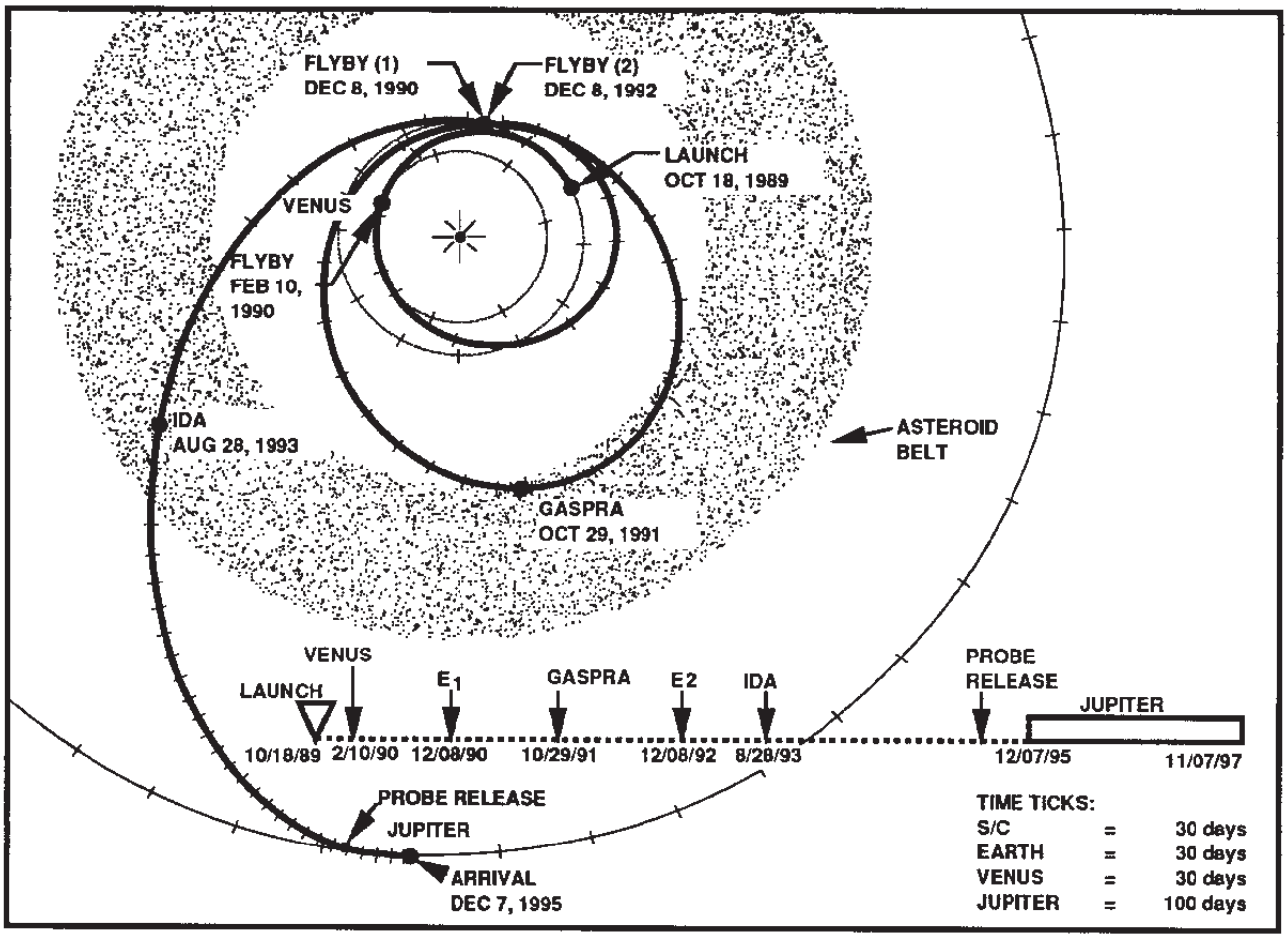
The figure on page 3 shows the entire Galileo VEEGA Trajectory from launch through Jupiter arrival with various 'milestones' labeled along the trajectory.

The figure on page 4 shows the geometry of the 5 OPNAV images taken on approach to Gaspra.

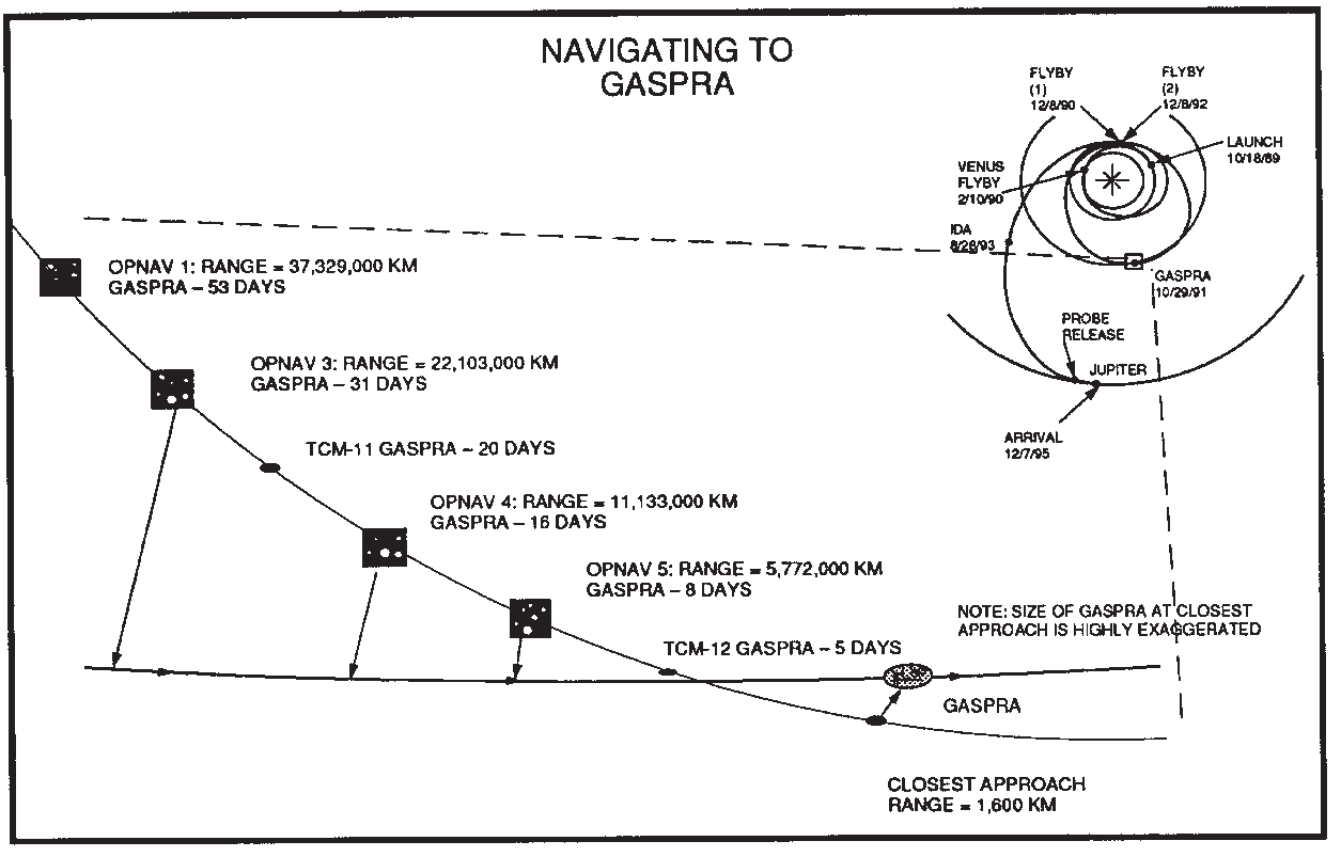
The figure on page 5 is a cartoon of the geometry of the Galileo Flyby of Gaspra.

The figure on page 6 is a Pole View of the Trajectory of Galileo during the Gaspra Flyby produced by the Galileo NAV Team.

The figure on page 7 is a plot of Phase Angle (Sun-Gaspra-S/C) as a function of time during the Gaspra Flyby.

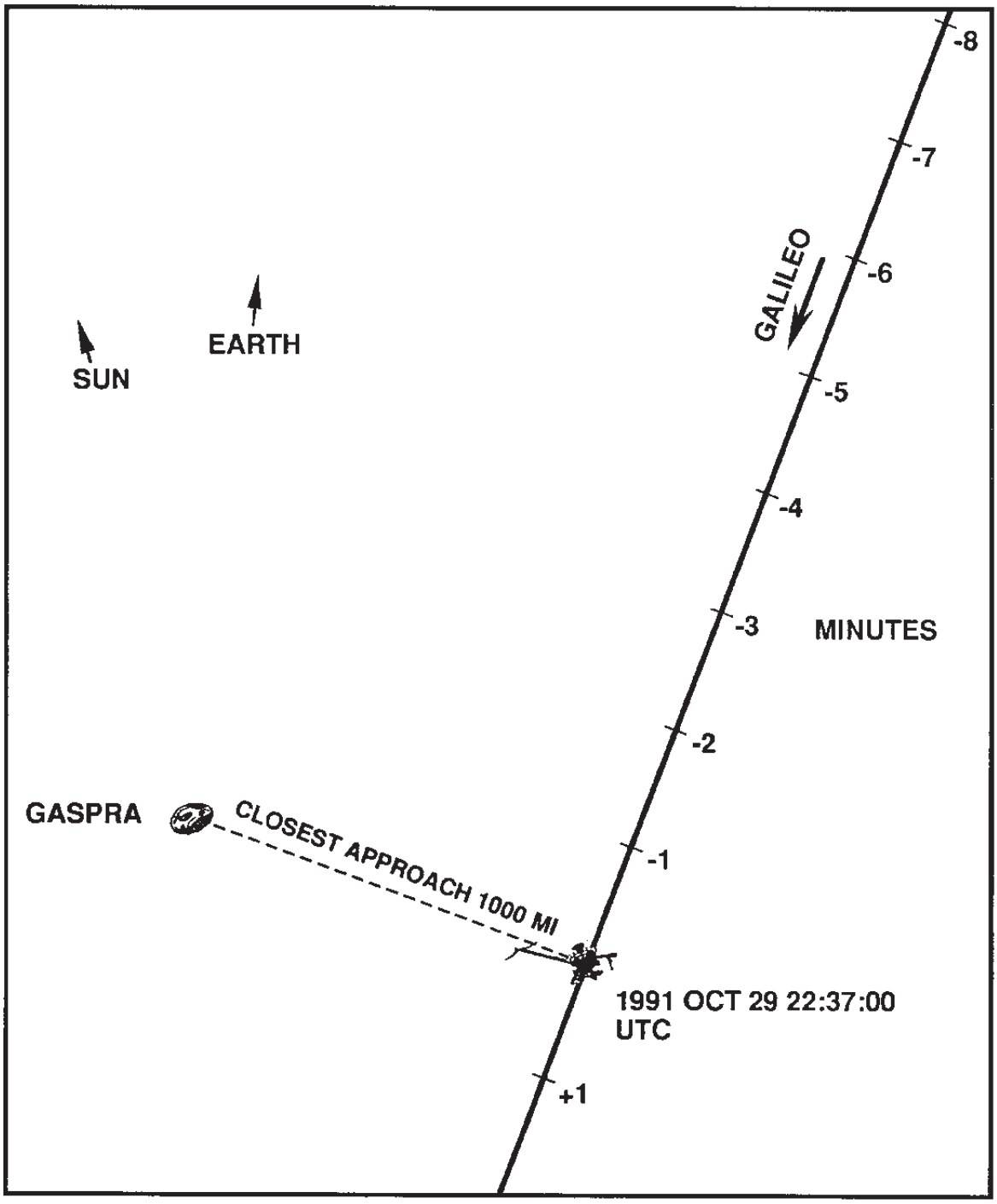


VEEGA TRAJECTORY



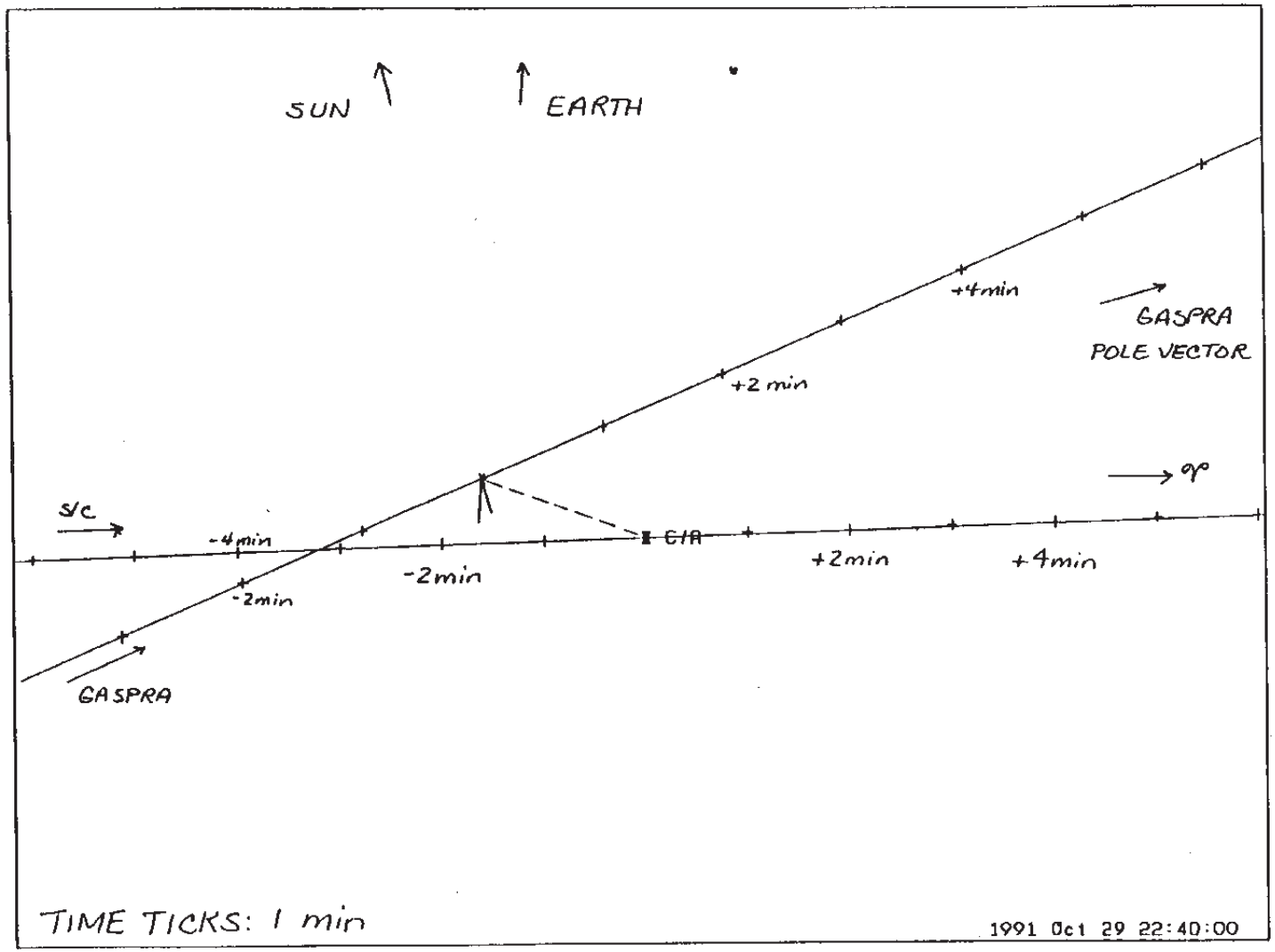
Path of Galileo past Gaspra showing OPNAV locations and ranges.

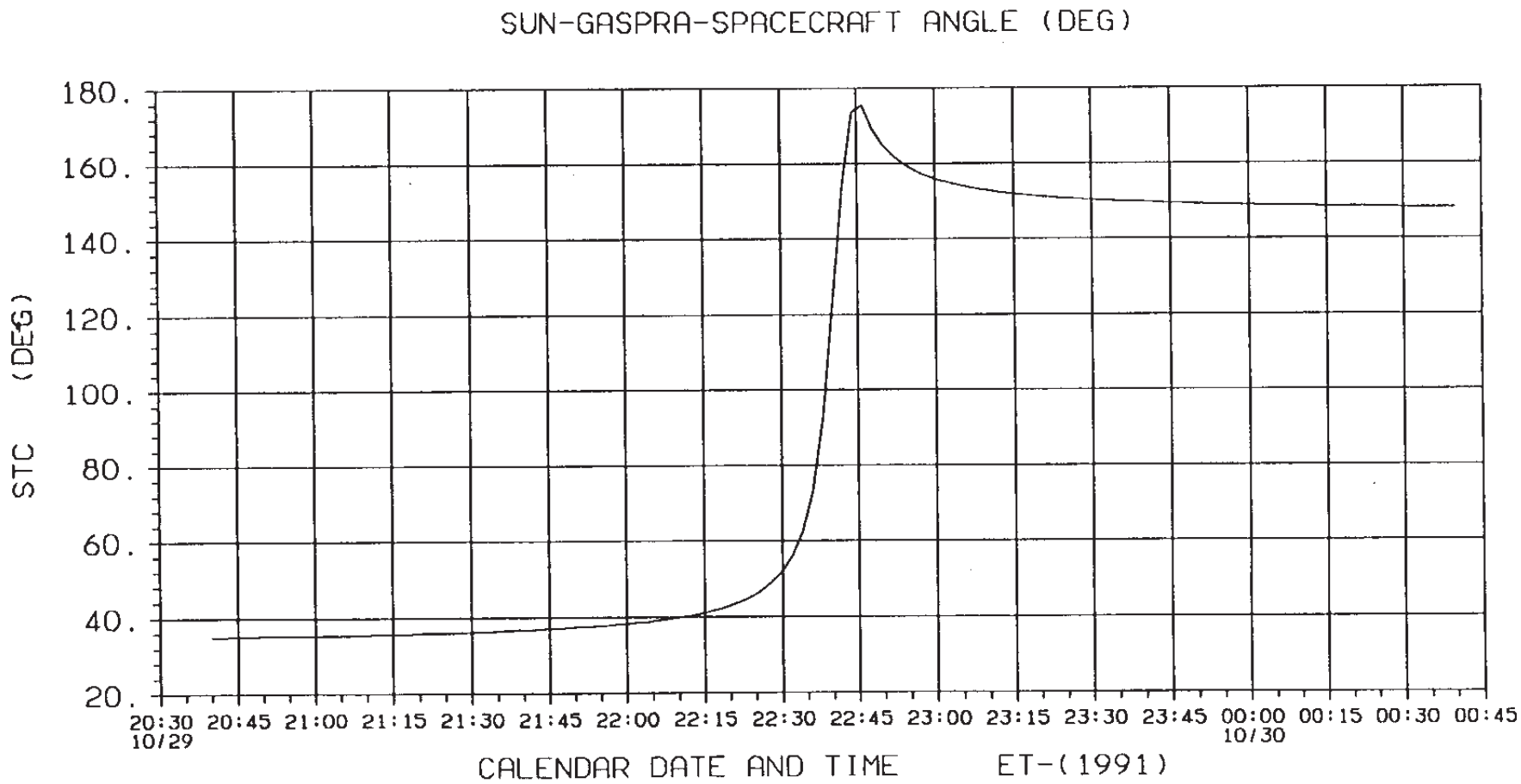
GALILEO AT ASTEROID GASPRA



DARKSIDE FLYBY

SUN-CENTERED N. ECLIPTIC POLE VIEW: CA -/+ 6 MIN




SUN-GASPRA-SPACECRAFT ANGLE (DEG)
STC (DEG)
180.
160.
140.
120.
100.
80.
60.
40.
20.
20:30
10/29
20:45
21:00
21:15
21:30
21:45
22:00
22:15
22:30
22:45
23:00
23:15
23:30
23:45
00:00
10/30
00:15
00:30
00:45
CALENDAR DATE AND TIME ET-(1991)

Chapter 4 - NIMS Observation Summaries

Contents

Introduction to Chapter 4

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

The NIMS Sequence Summary is a time-ordered listing of all spacecraft activity pertinent to NIMS operations for the EE3 Sequence. The information in this summary is derived from the EE3 SEF (Spacecraft Event File) with inputs from the NIMS Science Coordinators regarding the start time and duration of the NIMS observations. There are ten columns of information in this table:

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

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

The NIMS PA Summary is a time-ordered listing of all PAs (Profile Activities) listed in the EE3 SEF which affect NIMS observations.

The NIMS Observation Table (OBSTAB) is a time-ordered listing of the NIMS obsrvation parameters for use by downlink data processing. It is also derived from the EE3 SEF.

Sequence: EE3PEF Created: 10/08/91 Begin: 91-301/16:30:00.000 Finish: 91-308/22:10:00.000

YR	DOY	Time	PSID	Command	Parameters	Description	GCM	O S	RIM	MF	I
91	301	16:30:00.133		DMS:	READY	RDY, TRACK 3, FWD, TIC 216 +/- 0;			1,071,406	72	0
91	301	16:31:58.800	481A4A	7VECT		Inert vect update UTC			1,071,408	68	0
91	301	19:42:54.133	490A476A6A	6TMCHG	EHRLRS				1,071,597	52	0
91	301	19:42:56.133	20Q6A	6TMCHG	ELSNCG	10 BPS TDM-NO NIMS R/T / NO CHANGE			1,071,597	55	0
91	301	19:43:00.800	490A412A4C	7MODE	INT	AACS INERTIAL MODE			1,071,597	62	0
91	301	19:45:00.800	490A412A4E	7SAFE	UNSTOW	S/P TO 153 deg cone			1,071,599	60	0
91	301	19:49:10.800	490A412A4F	7VECT		Inert vect update UTC			1,071,603	71	0
91	301	19:49:14.800	490A412A4G	7TURN	2,MVR	ALERT Thruster			1,071,603	77	0
91	301	19:53:02.800	490A412A406A4A	7STAR	7,3000,95.710999	Star catalog update			1,071,607	55	0
91	301	19:53:04.800	490A412A406A4B	7STAR	8,131,322.005997	Star catalog update			1,071,607	58	0
91	301	19:53:06.800	490A412A406A4C	7STAR	9,396,206.390999	Star catalog update			1,071,607	61	0
91	301	19:53:08.800	490A412A406A4D	7STAR	10,0,0.0,0.0	Star catalog update			1,071,607	64	0
91	301	19:53:10.800	490A412A406A4E	7STAR	11,0,0.0,0.0	Star catalog update			1,071,607	67	0
91	301	19:53:12.800	490A412A406A4F	7STAR	12,0,0.0,0.0	Star catalog update			1,071,607	70	0
91	301	21:04:00.800	481B4A	7VECT	RTH	Inert vect update UTC			1,071,677	72	0
91	301	21:04:02.800	481B4B	7STAR	1,3000,95.710999	Star catalog update			1,071,677	75	0
91	301	21:04:04.800	481B4C	7STAR	2,131,322.005997	Star catalog update			1,071,677	78	0
91	301	21:04:06.800	481B4D	7STAR	3,396,206.390999	Star catalog update			1,071,677	81	0
91	301	21:04:08.800	481B4E	7STAR	4,0,0.0,0.0	Star catalog update			1,071,677	84	0
91	301	21:04:10.800	481B4F	7STAR	5,0,0.0,0.0	Star catalog update			1,071,677	87	0
91	301	21:04:12.800	481B4G	7STAR	6,0,0.0,0.0	Star catalog update			1,071,677	90	0
91	302	02:30:05.400	20A3A	40T1PR	CMD,40T1PR,20A3A	PCT Heater 1 OFF (primary relay)			1,072,000	26	0
91	302	02:30:10.733	20A3B	40T1PR	CMD,40T1PR,20A3B	PCT Heater 1 OFF (primary relay)			1,072,000	34	0
91	302	02:33:05.400	20A3C	40T2R	CMD,40T2R,20A3C,	PCT Heater 2 OFF			1,072,003	23	0
91	302	02:33:10.733	20A3D	40T2R	CMD,40T2R,20A3D,	PCT Heater 2 OFF			1,072,003	31	0
91	302	02:37:04.733		DMS:	*REWIND	S806, TRACK *4, *REV, TIC 216 +/- 0;			1,072,007	18	0
91	302	02:37:04.733	20L6A	6DMSR	CMD,6DMSR,20L6A,	Tape recorder rewind			1,072,007	18	0
91	302	02:37:13.133		DMS:	*READY	RDY, TRACK *1, *FWD, TIC * 201 +/- 0;			1,072,007	30	6
91	302	06:35:28.733	165KA4A	7TMOT	DIS,TMC	Disable IVP - Target Motion			1,072,242	89	0
91	302	06:35:29.400	165KA4B	7SCAN	NORM,200.460999,	Check S/P Position			1,072,242	90	0
91	302	06:35:30.066	176KB6A	6TMCHG	ELSLRS	10 BPS TDM / LRS Rec 7.68kb/s			1,072,243	00	0
91	302	06:39:23.400	117KA	CSMOS	GS	***** GROUP START CSMOS			1,072,246	77	0
91	302	06:39:31.400	175KB422A6A	6DMSC	R7,0	DMS Control Tape runup 7.68kps			1,072,246	89	0
91	302	06:39:31.400		DMS:	*RUNUP	R7, TRACK 1, FWD, TIC 201 +/- 0;			1,072,246	89	0
91	302	06:39:32.733	117KA105A106A4A	7STRP	0.0059,0.0,0,0,0	Slew =,0.04			1,072,247	00	0
91	302	06:39:32.866		DMS:	*RECORD	R7, TRACK 1, FWD, TIC * 202 +/- 0;			1,072,247	00	2
91	302	06:42:08.733	117KA105A106A4B	7STRP	-0.0059,0.0014,0	Slew =16.97			1,072,249	52	0
91	302	06:42:22.733	117KA105A106A4C	7STRP	0.0059,0.0,0,0,0	Slew =,0.04			1,072,249	73	0
91	302	06:44:54.066	175KB422A6B	6DMSC	RDY,0	DMS Control Tape stop			1,072,252	27	0
91	302	06:44:54.066		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC * 277 +/- 0;			1,072,252	27	0

YR	DOY	Time	PSID	Command	Parameters	Description	GCM	O S	RIM	MF	I
91	302	06:44:55.333		DMS:	*READY	RDY, TRACK 1, FWD, TIC * 278 +/- 0;			1,072,252:28:9		
91	302	06:44:58.733	117KA11A	CSMOS	GE	***** GROUP END CSMOS			1,072,252:34:0		
91	302	06:49:38.733	20KB4A	7SAFE	UNSTOW	S/P TO 153 deg cone			1,072,256:90:0		
91	302	14:29:41.400	165IG4A	7TMOT	DIS,TMC	Disable IVP - Target Motion			1,072,711:89:0		
91	302	14:29:42.066	165IG4B	7SCAN	NORM,247.091999,	Check S/P Position			1,072,711:90:0		
91	302	14:32:40.066	128IE149A131A4A	37IST	1,0,0,OFF,0,1,1	Chopper ON, Sync, 63Hz (Ref)Gain State 4	46		1,072,714:84:0		
91	302	14:33:40.733		DMS:	*RUNUP	R806, TRACK 1, FWD, TIC 278 +/- 0;	46		1,072,715:84:0		
91	302	14:33:40.733	175IQ422A6A	6DMSC	R806,0	DMS Control Tape runup 806.4kb	46		1,072,715:84:0		
91	302	14:33:40.733	128IE149A131B4A	37IOP	1,0	Full Map, Grating Start Position =0	461	00	1,072,715:84:0		
91	302	14:33:45.400	176IQ6A	6TMCHG	NCGAI8	NO CHANGE / 806.4 KBPS SSI + 1/8 NIMS RECO	461	00	1,072,716:00:0		
91	302	14:33:45.933		DMS:	*RECORD	R806, TRACK 1, FWD, TIC * 343 +/- 3;	461	00	1,072,716:00:8		
91	302	14:33:54.733		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC * 559 +/- 3;	461	00	1,072,716:14:0		
91	302	14:33:54.733	175IQ422A6B	6DMSC	RDY,0	DMS Control Tape stop	461	00	1,072,716:14:0		
91	302	14:33:57.400		DMS:	*READY	RDY, TRACK 1, FWD, TIC * 570 +/- 4;	461	00	1,072,716:18:0		
91	302	14:37:24.733	GAPNGASPEC01		-----START------		461	00	: :		
91	302	14:37:24.733	165JA4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	461	00	1,072,719:56:0		
91	302	14:37:25.400	165JA4B	7SCAN	NORM,246.922998,	Check S/P Position	461	00	1,072,719:57:0		
91	302	14:37:42.733	117JA	CSMOS	GS	***** GROUP START CSMOS	461	00	1,072,719:83:0		
91	302	14:37:44.066	175JK422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	461	00	1,072,719:85:0		
91	302	14:37:44.066		DMS:	*RUNUP	R28, TRACK 1, FWD, TIC 570 +/- 4;	461	00	1,072,719:85:0		
91	302	14:37:48.066	176JK6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + N	461	00	1,072,720:00:0		
91	302	14:37:48.066		DMS:	*RECORD	R28, TRACK 1, FWD, TIC * 572 +/- 4;	461	00	1,072,720:00:0		
91	302	14:37:52.066	117JA105A106A4A	7STRP	0.0055,0.0,0,0,0	Slew =,0.03	461	00	1,072,720:06:0		
91	302	14:41:05.400		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC * 745 +/- 4;	461	00	1,072,723:23:0		
91	302	14:41:05.400	GAPNGASPEC01		-----STOP-------		461	00	: :		
91	302	14:41:05.400	175JK422A6B	6DMSC	RDY,0	DMS Control Tape stop	461	00	1,072,723:23:0		
91	302	14:41:05.400	117JA11A	CSMOS	GE	***** GROUP END CSMOS	461	00	1,072,723:23:0		
91	302	14:41:06.600		DMS:	*READY	RDY, TRACK 1, FWD, TIC * 746 +/- 4;	461	00	1,072,723:24:8		
91	302	14:49:58.733	165JB4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	461	00	1,072,732:04:0		
91	302	14:49:58.733	GAPNGASPER01		-----START------		461	00	: :		
91	302	14:49:59.400	165JB4B	7SCAN	NORM,246.894999,	Check S/P Position	461	00	1,072,732:05:0		
91	302	14:51:52.066	117JB	CSMOS	GS	***** GROUP START CSMOS	461	00	1,072,733:83:0		
91	302	14:51:52.733	128JB149A131A4A	37IOP	7,6	Fixed Map, Grating Start Position =6	467	06	1,072,733:84:0		
91	302	14:51:57.400	176JW6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + N	467	06	1,072,734:00:0		
91	302	14:51:57.400	175JW422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	467	06	1,072,734:00:0		
91	302	14:51:57.400		DMS:	*RUNUP	R28, TRACK 1, FWD, TIC 746 +/- 4;	467	06	1,072,734:00:0		
91	302	14:52:01.400		DMS:	*RECORD	R28, TRACK 1, FWD, TIC * 748 +/- 5;	467	06	1,072,734:06:0		
91	302	14:52:01.400	117JB105A106A4A	7STRP	0.006,0.0,0,0,0,	Slew =,0.76	467	06	1,072,734:06:0		
91	302	14:52:12.066	117JB11A	CSMOS	GE	***** GROUP END CSMOS	467	06	1,072,734:22:0		
91	302	14:52:12.066	175JW422A6B	6DMSC	RDY,0	DMS Control Tape stop	467	06	1,072,734:22:0		
91	302	14:52:12.066		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC * 757 +/- 5;	467	06	1,072,734:22:0		
91	302	14:52:13.266		DMS:	*READY	RDY, TRACK 1, FWD, TIC * 758 +/- 5;	467	06	1,072,734:23:8		

YR	DOY	Time	PSID	Command	Parameters	Description	GCM	O S	RIM	MF	I
91	302	14:52:54.733	GAPNGASPER01		-----STOP-------		467	06		:	:
91	302	15:07:06.066	GAPNGASCUR01		-----START------		467	06		:	:
91	302	15:07:06.066	165EA4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	467	06	1,072,748	89	0
91	302	15:07:06.733	165EA4B	7SCAN	NORM,247.058998,	Check S/P Position	467	06	1,072,748	90	0
91	302	15:08:59.400	117EA	CSMOS	GS	***** GROUP START CSMOS	467	06	1,072,750	77	0
91	302	15:09:04.066	128EA149A131A4A	37IOP	5,2	Short Map, Grating Start Position =2	465	02	1,072,750	84	0
91	302	15:09:08.066		DMS:	*RUNUP	R115, TRACK 1, FWD, TIC 758 +/- 5;	465	02	1,072,750	90	0
91	302	15:09:08.066	175IP422A6A	6DMSC	R115,0	DMS Control Tape runup 115.2kb	465	02	1,072,750	90	0
91	302	15:09:08.733	117EA105A106A4A	7STRP	0.00001,0.0,0,0,	Slew =,0.12	465	02	1,072,751	00	0
91	302	15:09:08.733	176IP6A	6TMCHG	NCGHCM	NO CHANGE / 115.2 comp image + NIMS + PW	465	02	1,072,751	00	0
91	302	15:09:12.066		DMS:	*RECORD	R115, TRACK 1, FWD, TIC * 765 +/- 5;	465	02	1,072,751	05	0
91	302	15:09:14.066	117EA105A106B4A	7STRP	-0.00325,0.0,0,0	Slew =,4.87	465	02	1,072,751	08	0
91	302	15:09:18.733	117EA105A106B4B	7STRP	0.00227,0.0,0,0,	Slew =,0.12	465	02	1,072,751	15	0
91	302	15:09:39.400		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC * 861 +/- 5;	465	02	1,072,751	46	0
91	302	15:09:39.400	175IP422A6B	6DMSC	RDY,0	DMS Control Tape stop	465	02	1,072,751	46	0
91	302	15:09:39.400	117EA105A106C4A	7STRP	-0.0005,0.0,0,0,	Slew =,4.87	465	02	1,072,751	46	0
91	302	15:09:40.600		DMS:	*READY	RDY, TRACK 1, FWD, TIC * 862 +/- 6;	465	02	1,072,751	47	8
91	302	15:09:43.400	175IS422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	465	02	1,072,751	52	0
91	302	15:09:43.400		DMS:	*RUNUP	R28, TRACK 1, FWD, TIC 862 +/- 6;	465	02	1,072,751	52	0
91	302	15:09:43.400	176IR6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + N	465	02	1,072,751	52	0
91	302	15:09:47.400		DMS:	*RECORD	R28, TRACK 1, FWD, TIC * 863 +/- 6;	465	02	1,072,751	58	0
91	302	15:09:47.400	117EA105A106C4B	7STRP	0.0045,0.0,0,0,0	Slew =,0.12	465	02	1,072,751	58	0
91	302	15:10:28.733	117EA11A	CSMOS	GE	***** GROUP END CSMOS	465	02	1,072,752	29	0
91	302	15:10:28.733	GAPNGASCUR01		-----STOP-------		465	02		:	:
91	302	15:10:28.733		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC * 900 +/- 6;	465	02	1,072,752	29	0
91	302	15:10:28.733	175IS422A6B	6DMSC	RDY,0	DMS Control Tape stop	465	02	1,072,752	29	0
91	302	15:10:29.933		DMS:	*READY	RDY, TRACK 1, FWD, TIC * 901 +/- 6;	465	02	1,072,752	30	8
91	302	15:25:22.066	GAPNGASPER02		-----START------		465	02		:	:
91	302	15:25:22.066	165JC4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	465	02	1,072,767	04	0
91	302	15:25:22.733	165JC4B	7SCAN	NORM,246.858999,	Check S/P Position	465	02	1,072,767	05	0
91	302	15:27:15.400	117JC	CSMOS	GS	***** GROUP START CSMOS	465	02	1,072,768	83	0
91	302	15:27:16.066	128JC149A131A4A	37IOP	7,6	Fixed Map, Grating Start Position =6	467	06	1,072,768	84	0
91	302	15:27:20.733	176JV6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + N	467	06	1,072,769	00	0
91	302	15:27:20.733	175JV422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	467	06	1,072,769	00	0
91	302	15:27:20.733		DMS:	*RUNUP	R28, TRACK 1, FWD, TIC 901 +/- 6;	467	06	1,072,769	00	0
91	302	15:27:24.733	117JC105A106A4A	7STRP	0.006,0.0,0,0,0,	Slew =,0.76	467	06	1,072,769	06	0
91	302	15:27:24.733		DMS:	*RECORD	R28, TRACK 1, FWD, TIC * 902 +/- 7;	467	06	1,072,769	06	0
91	302	15:27:35.400	117JC11A	CSMOS	GE	***** GROUP END CSMOS	467	06	1,072,769	22	0
91	302	15:27:35.400		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC * 911 +/- 7;	467	06	1,072,769	22	0
91	302	15:27:35.400	175JV422A6B	6DMSC	RDY,0	DMS Control Tape stop	467	06	1,072,769	22	0
91	302	15:27:36.600		DMS:	*READY	RDY, TRACK 1, FWD, TIC * 912 +/- 7;	467	06	1,072,769	23	8
91	302	15:28:18.066	GAPNGASPER02		-----STOP-------		467	06		:	:

YR	DOY	Time	PSID	Command	Parameters	Description	GCM	O S	RIM	MF I
91	302	15:42:29.400	165EB4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	467	06	1,072,783	89:0
91	302	15:42:29.400	GAPNGASCUR02		-----START------		467	06	:	:
91	302	15:42:30.066	165EB4B	7SCAN	NORM,247.019999,	Check S/P Position	467	06	1,072,783	90:0
91	302	15:44:22.733	117EB	CSMOS	GS	***** GROUP START CSMOS	467	06	1,072,785	77:0
91	302	15:44:27.400	128EB149A131A4A	37IOP	5,2	Short Map, Grating Start Position =2	465	02	1,072,785	84:0
91	302	15:44:31.400	175IO422A6A	6DMSC	R115,0	DMS Control Tape runup 115.2kb	465	02	1,072,785	90:0
91	302	15:44:31.400		DMS:	*RUNUP	R115, TRACK 1, FWD, TIC 912 +/- 7;	465	02	1,072,785	90:0
91	302	15:44:32.066	117EB105A106A4A	7STRP	0.00001,0.0,0,0,	Slew =,0.12	465	02	1,072,786	00:0
91	302	15:44:32.066	176IO6A	6TMCHG	NCGHCM	NO CHANGE / 115.2 comp image + NIMS + PW	465	02	1,072,786	00:0
91	302	15:44:35.400		DMS:	*RECORD	R115, TRACK 1, FWD, TIC * 919 +/- 7;	465	02	1,072,786	05:0
91	302	15:44:37.400	117EB105A106B4A	7STRP	-0.0035,0.0,0,0,	Slew =,4.87	465	02	1,072,786	08:0
91	302	15:44:42.066	117EB105A106B4B	7STRP	0.00227,0.0,0,0,	Slew =,0.12	465	02	1,072,786	15:0
91	302	15:45:02.733	117EB105A106C4A	7STRP	-0.0005,0.0,0,0,	Slew =,4.87	465	02	1,072,786	46:0
91	302	15:45:02.733		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *1015 +/- 7;	465	02	1,072,786	46:0
91	302	15:45:02.733	175IO422A6B	6DMSC	RDY,0	DMS Control Tape stop	465	02	1,072,786	46:0
91	302	15:45:03.933		DMS:	*READY	RDY, TRACK 1, FWD, TIC *1016 +/- 7;	465	02	1,072,786	47:8
91	302	15:45:06.733	175IT422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	465	02	1,072,786	52:0
91	302	15:45:06.733		DMS:	*RUNUP	R28, TRACK 1, FWD, TIC 1016 +/- 7;	465	02	1,072,786	52:0
91	302	15:45:06.733	176IS6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + N	465	02	1,072,786	52:0
91	302	15:45:10.733		DMS:	*RECORD	R28, TRACK 1, FWD, TIC *1018 +/- 8;	465	02	1,072,786	58:0
91	302	15:45:10.733	117EB105A106C4B	7STRP	0.005,0.0,0,0,0,	Slew =,0.12	465	02	1,072,786	58:0
91	302	15:45:56.733		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *1058 +/- 8;	465	02	1,072,787	36:0
91	302	15:45:56.733	117EB11A	CSMOS	GE	***** GROUP END CSMOS	465	02	1,072,787	36:0
91	302	15:45:56.733	GAPNGASCUR02		-----STOP-------		465	02	:	:
91	302	15:45:56.733	175IT422A6B	6DMSC	RDY,0	DMS Control Tape stop	465	02	1,072,787	36:0
91	302	15:45:57.933		DMS:	*READY	RDY, TRACK 1, FWD, TIC *1059 +/- 8;	465	02	1,072,787	37:8
91	302	16:00:45.400	GAPNGASPER03		-----START------		465	02	:	:
91	302	16:00:45.400	165JD4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	465	02	1,072,802	04:0
91	302	16:00:46.066	165JD4B	7SCAN	NORM,246.816,-21	Check S/P Position	465	02	1,072,802	05:0
91	302	16:02:38.733	117JD	CSMOS	GS	***** GROUP START CSMOS	465	02	1,072,803	83:0
91	302	16:02:39.400	128JD149A131A4A	37IOP	7,6	Fixed Map, Grating Start Position =6	467	06	1,072,803	84:0
91	302	16:02:44.066	175JU422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	467	06	1,072,804	00:0
91	302	16:02:44.066	176JU6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + N	467	06	1,072,804	00:0
91	302	16:02:44.066		DMS:	*RUNUP	R28, TRACK 1, FWD, TIC 1059 +/- 8;	467	06	1,072,804	00:0
91	302	16:02:48.066		DMS:	*RECORD	R28, TRACK 1, FWD, TIC *1060 +/- 8;	467	06	1,072,804	06:0
91	302	16:02:48.066	117JD105A106A4A	7STRP	0.006,0.0,0,0,0,	Slew =,0.76	467	06	1,072,804	06:0
91	302	16:02:58.733	175JU422A6B	6DMSC	RDY,0	DMS Control Tape stop	467	06	1,072,804	22:0
91	302	16:02:58.733		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *1070 +/- 8;	467	06	1,072,804	22:0
91	302	16:02:58.733	117JD11A	CSMOS	GE	***** GROUP END CSMOS	467	06	1,072,804	22:0
91	302	16:02:59.933		DMS:	*READY	RDY, TRACK 1, FWD, TIC *1071 +/- 9;	467	06	1,072,804	23:8
91	302	16:03:41.400	GAPNGASPER03		-----STOP-------		467	06	:	:
91	302	16:15:51.400	165IF4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	467	06	1,072,816	89:0

YR	DOY	Time	PSID	Command	Parameters	Description	GCM	O	S	RIM	MF	I
91	302	16:15:52.066	165IF4B	7SCAN	NORM,246.973999,	Check S/P Position	467	06		1,072,816	90	0
91	302	16:19:50.733		DMS:	*RUNUP	R806, TRACK 1, FWD, TIC 1071 +/- 9;	467	06		1,072,820	84	0
91	302	16:19:50.733	128ID149A131A4A	37IOP	1,0	Full Map, Grating Start Position =0	461	00		1,072,820	84	0
91	302	16:19:50.733	175IN422A6A	6DMSC	R806,0	DMS Control Tape runup 806.4kb	461	00		1,072,820	84	0
91	302	16:19:55.400	176IN6A	6TMCHG	NCGAI8	NO CHANGE / 806.4 KBPS SSI + 1/8 NIMS RECO	461	00		1,072,821	00	0
91	302	16:19:55.933		DMS:	*RECORD	R806, TRACK 1, FWD, TIC *1136 +/- 12;	461	00		1,072,821	00	8
91	302	16:20:04.733	175IN422A6B	6DMSC	RDY,0	DMS Control Tape stop	461	00		1,072,821	14	0
91	302	16:20:04.733		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *1352 +/- 12;	461	00		1,072,821	14	0
91	302	16:20:07.400		DMS:	*READY	RDY, TRACK 1, FWD, TIC *1363 +/- 13;	461	00		1,072,821	18	0
91	302	16:23:34.733	GAPNGASPEC02		-----START------		461	00			:	:
91	302	16:23:34.733	165JE4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	461	00		1,072,824	56	0
91	302	16:23:35.400	165JE4B	7SCAN	NORM,246.786999,	Check S/P Position	461	00		1,072,824	57	0
91	302	16:23:52.733	117JE	CSMOS	GS	***** GROUP START CSMOS	461	00		1,072,824	83	0
91	302	16:23:58.066	175JJ422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	461	00		1,072,825	00	0
91	302	16:23:58.066		DMS:	*RUNUP	R28, TRACK 1, FWD, TIC 1363 +/- 13;	461	00		1,072,825	00	0
91	302	16:23:58.066	176JJ6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + N	461	00		1,072,825	00	0
91	302	16:24:02.066	117JE105A106A4A	7STRP	0.00597,0.0,0,0,	Slew =,0.03	461	00		1,072,825	06	0
91	302	16:24:02.066		DMS:	*RECORD	R28, TRACK 1, FWD, TIC *1365 +/- 13;	461	00		1,072,825	06	0
91	302	16:27:31.400	GAPNGASPEC02		-----STOP-------		461	00			:	:
91	302	16:27:31.400	175JJ422A6B	6DMSC	RDY,0	DMS Control Tape stop	461	00		1,072,828	47	0
91	302	16:27:31.400		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *1549 +/- 13;	461	00		1,072,828	47	0
91	302	16:27:31.400	117JE11A	CSMOS	GE	***** GROUP END CSMOS	461	00		1,072,828	47	0
91	302	16:27:32.600		DMS:	*READY	RDY, TRACK 1, FWD, TIC *1550 +/- 13;	461	00		1,072,828	48	8
91	302	16:36:08.733	GAPNGASPER04		-----START------		461	00			:	:
91	302	16:36:08.733	165JF4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	461	00		1,072,837	04	0
91	302	16:36:09.400	165JF4B	7SCAN	NORM,246.734999,	Check S/P Position	461	00		1,072,837	05	0
91	302	16:38:02.066	117JF	CSMOS	GS	***** GROUP START CSMOS	461	00		1,072,838	83	0
91	302	16:38:02.733	128JF149A131A4A	37IOP	7,6	Fixed Map, Grating Start Position =6	467	06		1,072,838	84	0
91	302	16:38:07.400		DMS:	*RUNUP	R28, TRACK 1, FWD, TIC 1550 +/- 13;	467	06		1,072,839	00	0
91	302	16:38:07.400	175JT422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	467	06		1,072,839	00	0
91	302	16:38:07.400	176JT6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + N	467	06		1,072,839	00	0
91	302	16:38:11.400		DMS:	*RECORD	R28, TRACK 1, FWD, TIC *1551 +/- 14;	467	06		1,072,839	06	0
91	302	16:38:11.400	117JF105A106A4A	7STRP	0.007,0.0,0,0,0,	Slew =,0.76	467	06		1,072,839	06	0
91	302	16:38:23.400	175JT422A6B	6DMSC	RDY,0	DMS Control Tape stop	467	06		1,072,839	24	0
91	302	16:38:23.400	117JF11A	CSMOS	GE	***** GROUP END CSMOS	467	06		1,072,839	24	0
91	302	16:38:23.400		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *1562 +/- 14;	467	06		1,072,839	24	0
91	302	16:38:24.600		DMS:	*READY	RDY, TRACK 1, FWD, TIC *1563 +/- 14;	467	06		1,072,839	25	8
91	302	16:39:04.733	GAPNGASPER04		-----STOP-------		467	06			:	:
91	302	16:53:16.066	165EC4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	467	06		1,072,853	89	0
91	302	16:53:16.066	GAPNGASCUR03		-----START------		467	06			:	:
91	302	16:53:16.733	165EC4B	7SCAN	NORM,246.917,-21	Check S/P Position	467	06		1,072,853	90	0
91	302	16:55:09.400	117EC	CSMOS	GS	***** GROUP START CSMOS	467	06		1,072,855	77	0

YR	DOY	Time	PSID	Command	Parameters	Description	GCM	O	S	RIM	MF	I
91	302	16:55:14.066	128EC149A131A4A	37IOP	5,2	Short Map, Grating Start Position =2	465	02		1,072,855:84:0		
91	302	16:55:18.066	175IM422A6A	6DMSC	R115,0	DMS Control Tape runup 115.2kb	465	02		1,072,855:90:0		
91	302	16:55:18.066		DMS:	*RUNUP	R115, TRACK 1, FWD, TIC 1563 +/- 14;	465	02		1,072,855:90:0		
91	302	16:55:18.733	176IM6A	6TMCHG	NCGHCM	NO CHANGE / 115.2 comp image + NIMS + PW	465	02		1,072,856:00:0		
91	302	16:55:18.733	117EC105A106A4A	7STRP	0.00001,0.0,0,0,	Slew =,0.12	465	02		1,072,856:00:0		
91	302	16:55:22.066		DMS:	*RECORD	R115, TRACK 1, FWD, TIC *1569 +/- 14;	465	02		1,072,856:05:0		
91	302	16:55:24.066	117EC105A106B4A	7STRP	-0.0035,0.0,0,0,	Slew =,4.87	465	02		1,072,856:08:0		
91	302	16:55:28.733	117EC105A106B4B	7STRP	0.00227,0.0,0,0,	Slew =,0.12	465	02		1,072,856:15:0		
91	302	16:55:49.400		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *1666 +/- 14;	465	02		1,072,856:46:0		
91	302	16:55:49.400	175IM422A6B	6DMSC	RDY,0	DMS Control Tape stop	465	02		1,072,856:46:0		
91	302	16:55:50.066	117EC105A106C4A	7STRP	-0.0005,0.0,0,0,	Slew =,4.87	465	02		1,072,856:47:0		
91	302	16:55:50.600		DMS:	*READY	RDY, TRACK 1, FWD, TIC *1667 +/- 14;	465	02		1,072,856:47:8		
91	302	16:55:53.400		DMS:	*RUNUP	R28, TRACK 1, FWD, TIC 1667 +/- 14;	465	02		1,072,856:52:0		
91	302	16:55:53.400	175IU422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	465	02		1,072,856:52:0		
91	302	16:55:53.400	176IT6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + N	465	02		1,072,856:52:0		
91	302	16:55:57.400		DMS:	*RECORD	R28, TRACK 1, FWD, TIC *1668 +/- 15;	465	02		1,072,856:58:0		
91	302	16:55:58.066	117EC105A106C4B	7STRP	0.005,0.0,0,0,0,	Slew =,0.12	465	02		1,072,856:59:0		
91	302	16:56:42.733	GAPNGASCUR03		-----STOP-------		465	02		:	:	
91	302	16:56:42.733		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *1708 +/- 15;	465	02		1,072,857:35:0		
91	302	16:56:42.733	117EC11A	CSMOS	GE	***** GROUP END CSMOS	465	02		1,072,857:35:0		
91	302	16:56:42.733	175IU422A6B	6DMSC	RDY,0	DMS Control Tape stop	465	02		1,072,857:35:0		
91	302	16:56:43.933		DMS:	*READY	RDY, TRACK 1, FWD, TIC *1709 +/- 15;	465	02		1,072,857:36:8		
91	302	17:11:32.066	165JG4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	465	02		1,072,872:04:0		
91	302	17:11:32.066	GAPNGASPER05		-----START------		465	02		:	:	
91	302	17:11:32.733	165JG4B	7SCAN	NORM,246.672998,	Check S/P Position	465	02		1,072,872:05:0		
91	302	17:13:25.400	117JG	CSMOS	GS	***** GROUP START CSMOS	465	02		1,072,873:83:0		
91	302	17:13:26.066	128JG149A131A4A	37IOP	7,6	Fixed Map, Grating Start Position =6	467	06		1,072,873:84:0		
91	302	17:13:30.733		DMS:	*RUNUP	R28, TRACK 1, FWD, TIC 1709 +/- 15;	467	06		1,072,874:00:0		
91	302	17:13:30.733	175JS422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	467	06		1,072,874:00:0		
91	302	17:13:30.733	176JS6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + N	467	06		1,072,874:00:0		
91	302	17:13:34.733	117JG105A106A4A	7STRP	0.007,0.0,0,0,0,	Slew =,0.76	467	06		1,072,874:06:0		
91	302	17:13:34.733		DMS:	*RECORD	R28, TRACK 1, FWD, TIC *1710 +/- 15;	467	06		1,072,874:06:0		
91	302	17:13:46.733		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *1721 +/- 15;	467	06		1,072,874:24:0		
91	302	17:13:46.733	117JG11A	CSMOS	GE	***** GROUP END CSMOS	467	06		1,072,874:24:0		
91	302	17:13:46.733	175JS422A6B	6DMSC	RDY,0	DMS Control Tape stop	467	06		1,072,874:24:0		
91	302	17:13:47.933		DMS:	*READY	RDY, TRACK 1, FWD, TIC *1722 +/- 16;	467	06		1,072,874:25:8		
91	302	17:14:28.066	GAPNGASPER05		-----STOP-------		467	06		:	:	
91	302	17:28:39.400	GAPNGASCUR04		-----START------		467	06		:	:	
91	302	17:28:39.400	165ED4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	467	06		1,072,888:89:0		
91	302	17:28:40.066	165ED4B	7SCAN	NORM,246.848,-21	Check S/P Position	467	06		1,072,888:90:0		
91	302	17:30:32.733	117ED	CSMOS	GS	***** GROUP START CSMOS	467	06		1,072,890:77:0		
91	302	17:30:37.400	128ED149A131A4A	37IOP	5,2	Short Map, Grating Start Position =2	465	02		1,072,890:84:0		

YR	DOY	Time	PSID	Command	Parameters	Description	GCM	O	S	RIM	MF	I
91	302	17:30:41.400		DMS:	*RUNUP	R115, TRACK 1, FWD, TIC 1722 +/- 16;	465	02		1,072,890	:90	:0
91	302	17:30:41.400	175IL422A6A	6DMSC	R115,0	DMS Control Tape runup 115.2kb	465	02		1,072,890	:90	:0
91	302	17:30:42.066	117ED105A106A4A	7STRP	0.00001,0.0,0,0,	Slew =,0.12	465	02		1,072,891	:00	:0
91	302	17:30:42.066	176IL6A	6TMCHG	NCGHCM	NO CHANGE / 115.2 comp image + NIMS + PW	465	02		1,072,891	:00	:0
91	302	17:30:45.400		DMS:	*RECORD	R115, TRACK 1, FWD, TIC *1728 +/- 16;	465	02		1,072,891	:05	:0
91	302	17:30:47.400	117ED105A106B4A	7STRP	-0.0035,0.0,0,0,	Slew =,4.87	465	02		1,072,891	:08	:0
91	302	17:30:52.066	117ED105A106B4B	7STRP	0.00227,0.0,0,0,	Slew =,0.12	465	02		1,072,891	:15	:0
91	302	17:31:12.733		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *1824 +/- 16;	465	02		1,072,891	:46	:0
91	302	17:31:12.733	175IL422A6B	6DMSC	RDY,0	DMS Control Tape stop	465	02		1,072,891	:46	:0
91	302	17:31:13.400	117ED105A106C4A	7STRP	-0.0005,0.0,0,0,	Slew =,4.87	465	02		1,072,891	:47	:0
91	302	17:31:13.933		DMS:	*READY	RDY, TRACK 1, FWD, TIC *1825 +/- 16;	465	02		1,072,891	:47	:8
91	302	17:31:16.733		DMS:	*RUNUP	R28, TRACK 1, FWD, TIC 1825 +/- 16;	465	02		1,072,891	:52	:0
91	302	17:31:16.733	175IV422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	465	02		1,072,891	:52	:0
91	302	17:31:16.733	176IU6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + N	465	02		1,072,891	:52	:0
91	302	17:31:20.733		DMS:	*RECORD	R28, TRACK 1, FWD, TIC *1827 +/- 17;	465	02		1,072,891	:58	:0
91	302	17:31:21.400	117ED105A106C4B	7STRP	0.005,0.0,0,0,0,	Slew =,0.12	465	02		1,072,891	:59	:0
91	302	17:32:06.066	175IV422A6B	6DMSC	RDY,0	DMS Control Tape stop	465	02		1,072,892	:35	:0
91	302	17:32:06.066	GAPNGASCUR04		-----STOP-------		465	02			:	:
91	302	17:32:06.066	117ED11A	CSMOS	GE	***** GROUP END CSMOS	465	02		1,072,892	:35	:0
91	302	17:32:06.066		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *1867 +/- 17;	465	02		1,072,892	:35	:0
91	302	17:32:07.266		DMS:	*READY	RDY, TRACK 1, FWD, TIC *1868 +/- 17;	465	02		1,072,892	:36	:8
91	302	17:46:55.400	165JH4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	465	02		1,072,907	:04	:0
91	302	17:46:55.400	GAPNGASPER06		-----START------		465	02			:	:
91	302	17:46:56.066	165JH4B	7SCAN	NORM,246.594999,	Check S/P Position	465	02		1,072,907	:05	:0
91	302	17:48:48.733	117JH	CSMOS	GS	***** GROUP START CSMOS	465	02		1,072,908	:83	:0
91	302	17:48:49.400	128JH149A131A4A	37IOP	7,6	Fixed Map, Grating Start Position =6	467	06		1,072,908	:84	:0
91	302	17:48:54.066		DMS:	*RUNUP	R28, TRACK 1, FWD, TIC 1868 +/- 17;	467	06		1,072,909	:00	:0
91	302	17:48:54.066	175JR422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	467	06		1,072,909	:00	:0
91	302	17:48:54.066	176JR6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + N	467	06		1,072,909	:00	:0
91	302	17:48:58.066		DMS:	*RECORD	R28, TRACK 1, FWD, TIC *1869 +/- 17;	467	06		1,072,909	:06	:0
91	302	17:48:58.066	117JH105A106A4A	7STRP	0.007,0.0,0,0,0,	Slew =,0.76	467	06		1,072,909	:06	:0
91	302	17:49:10.066	175JR422A6B	6DMSC	RDY,0	DMS Control Tape stop	467	06		1,072,909	:24	:0
91	302	17:49:10.066	117JH11A	CSMOS	GE	***** GROUP END CSMOS	467	06		1,072,909	:24	:0
91	302	17:49:10.066		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *1880 +/- 17;	467	06		1,072,909	:24	:0
91	302	17:49:11.266		DMS:	*READY	RDY, TRACK 1, FWD, TIC *1881 +/- 17;	467	06		1,072,909	:25	:8
91	302	17:49:51.400	GAPNGASPER06		-----STOP-------		467	06			:	:
91	302	18:02:01.400	165IE4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	467	06		1,072,921	:89	:0
91	302	18:02:02.066	165IE4B	7SCAN	NORM,246.761,-21	Check S/P Position	467	06		1,072,921	:90	:0
91	302	18:06:04.733		DMS:	*RUNUP	R115, TRACK 1, FWD, TIC 1881 +/- 17;	467	06		1,072,925	:90	:0
91	302	18:06:04.733	175IK422A6A	6DMSC	R115,0	DMS Control Tape runup 115.2kb	467	06		1,072,925	:90	:0
91	302	18:06:05.400	176IK6A	6TMCHG	NCGHCM	NO CHANGE / 115.2 comp image + NIMS + PW	467	06		1,072,926	:00	:0
91	302	18:06:08.733		DMS:	*RECORD	R115, TRACK 1, FWD, TIC *1887 +/- 18;	467	06		1,072,926	:05	:0

YR	DOY	Time	PSID	Command	Parameters	Description	GCM	O S	RIM	MF I
91	302	18:08:06.733		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *2302 +/- 18;	467	06	1,072,928:00:0	
91	302	18:08:06.733	175IK422A6B	6DMSC	RDY,0	DMS Control Tape stop	467	06	1,072,928:00:0	
91	302	18:08:07.933		DMS:	*READY	RDY, TRACK 1, FWD, TIC *2303 +/- 18;	467	06	1,072,928:01:8	
91	302	18:09:44.733	GAPNGASPEC03		-----START------		467	06	: :	
91	302	18:09:44.733	165JI4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	467	06	1,072,929:56:0	
91	302	18:09:45.400	165JI4B	7SCAN	NORM,246.539,-21	Check S/P Position	467	06	1,072,929:57:0	
91	302	18:10:02.733	117JI	CSMOS	GS	***** GROUP START CSMOS	467	06	1,072,929:83:0	
91	302	18:10:03.400	128JI149A131A4A	37IOP	1,0	Full Map, Grating Start Position =0	461	00	1,072,929:84:0	
91	302	18:10:08.066	175JI422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	461	00	1,072,930:00:0	
91	302	18:10:08.066		DMS:	*RUNUP	R28, TRACK 1, FWD, TIC 2303 +/- 18;	461	00	1,072,930:00:0	
91	302	18:10:08.066	176JI6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + N	461	00	1,072,930:00:0	
91	302	18:10:12.066		DMS:	*RECORD	R28, TRACK 1, FWD, TIC *2305 +/- 18;	461	00	1,072,930:06:0	
91	302	18:10:12.066	117JI105A106A4A	7STRP	0.007,0.0,0,0,0,	Slew =,0.03	461	00	1,072,930:06:0	
91	302	18:14:18.066	GAPNGASPEC03		-----STOP-------		461	00	: :	
91	302	18:14:18.066		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *2521 +/- 18;	461	00	1,072,934:11:0	
91	302	18:14:18.066	117JI11A	CSMOS	GE	***** GROUP END CSMOS	461	00	1,072,934:11:0	
91	302	18:14:18.066	175JI422A6B	6DMSC	RDY,0	DMS Control Tape stop	461	00	1,072,934:11:0	
91	302	18:14:19.266		DMS:	*READY	RDY, TRACK 1, FWD, TIC *2522 +/- 19;	461	00	1,072,934:12:8	
91	302	18:22:18.733	165JJ4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	461	00	1,072,942:04:0	
91	302	18:22:18.733	GAPNGASPER07		-----START------		461	00	: :	
91	302	18:22:19.400	165JJ4B	7SCAN	NORM,246.466,-20	Check S/P Position	461	00	1,072,942:05:0	
91	302	18:24:12.066	117JJ	CSMOS	GS	***** GROUP START CSMOS	461	00	1,072,943:83:0	
91	302	18:24:12.733	128JJ149A131A4A	37IOP	7,6	Fixed Map, Grating Start Position =6	467	06	1,072,943:84:0	
91	302	18:24:17.400		DMS:	*RUNUP	R28, TRACK 1, FWD, TIC 2522 +/- 19;	467	06	1,072,944:00:0	
91	302	18:24:17.400	176JQ6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + N	467	06	1,072,944:00:0	
91	302	18:24:17.400	175JQ422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	467	06	1,072,944:00:0	
91	302	18:24:21.400	117JJ105A106A4A	7STRP	0.008,0.0,0,0,0,	Slew =,0.76	467	06	1,072,944:06:0	
91	302	18:24:21.400		DMS:	*RECORD	R28, TRACK 1, FWD, TIC *2523 +/- 19;	467	06	1,072,944:06:0	
91	302	18:24:34.733	175JQ422A6B	6DMSC	RDY,0	DMS Control Tape stop	467	06	1,072,944:26:0	
91	302	18:24:34.733		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *2535 +/- 19;	467	06	1,072,944:26:0	
91	302	18:24:34.733	117JJ11A	CSMOS	GE	***** GROUP END CSMOS	467	06	1,072,944:26:0	
91	302	18:24:35.933		DMS:	*READY	RDY, TRACK 1, FWD, TIC *2536 +/- 19;	467	06	1,072,944:27:8	
91	302	18:25:14.733	GAPNGASPER07		-----STOP-------		467	06	: :	
91	302	18:39:26.066	165EE4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	467	06	1,072,958:89:0	
91	302	18:39:26.066	GAPNGASCUR05		-----START------		467	06	: :	
91	302	18:39:26.733	165EE4B	7SCAN	NORM,246.647999,	Check S/P Position	467	06	1,072,958:90:0	
91	302	18:41:19.400	117EE	CSMOS	GS	***** GROUP START CSMOS	467	06	1,072,960:77:0	
91	302	18:41:24.066	128EE149A131A4A	37IOP	5,2	Short Map, Grating Start Position =2	465	02	1,072,960:84:0	
91	302	18:41:28.066		DMS:	*RUNUP	R115, TRACK 1, FWD, TIC 2536 +/- 19;	465	02	1,072,960:90:0	
91	302	18:41:28.066	175II422A6A	6DMSC	R115,0	DMS Control Tape runup 115.2kb	465	02	1,072,960:90:0	
91	302	18:41:28.733	176II6A	6TMCHG	NCGHCM	NO CHANGE / 115.2 comp image + NIMS + PW	465	02	1,072,961:00:0	
91	302	18:41:28.733	117EE105A106A4A	7STRP	0.00001,0.0,0,0,	Slew =,0.12	465	02	1,072,961:00:0	

YR	DOY	Time	PSID	Command	Parameters	Description	GCM	O S	RIM	MF I
91	302	18:41:32.066		DMS:	*RECORD	R115, TRACK 1, FWD, TIC *2543 +/- 20;	465	02	1,072,961:05:0	
91	302	18:41:34.066	117EE105A106B4A	7STRP	-0.00325,0.0,0,0	Slew =,4.87	465	02	1,072,961:08:0	
91	302	18:41:38.733	117EE105A106B4B	7STRP	0.00227,0.0,0,0,	Slew =,0.12	465	02	1,072,961:15:0	
91	302	18:41:59.400		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *2639 +/- 20;	465	02	1,072,961:46:0	
91	302	18:41:59.400	175II422A6B	6DMSC	RDY,0	DMS Control Tape stop	465	02	1,072,961:46:0	
91	302	18:42:00.066	117EE105A106C4A	7STRP	-0.0005,0.0,0,0,	Slew =,4.87	465	02	1,072,961:47:0	
91	302	18:42:00.600		DMS:	*READY	RDY, TRACK 1, FWD, TIC *2640 +/- 20;	465	02	1,072,961:47:8	
91	302	18:42:03.400		DMS:	*RUNUP	R28, TRACK 1, FWD, TIC 2640 +/- 20;	465	02	1,072,961:52:0	
91	302	18:42:03.400	176IV6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + N	465	02	1,072,961:52:0	
91	302	18:42:03.400	175IW422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	465	02	1,072,961:52:0	
91	302	18:42:07.400		DMS:	*RECORD	R28, TRACK 1, FWD, TIC *2641 +/- 20;	465	02	1,072,961:58:0	
91	302	18:42:08.066	117EE105A106C4B	7STRP	0.00475,0.0,0,0,	Slew =,0.12	465	02	1,072,961:59:0	
91	302	18:42:50.733	GAPNGASCUR05		-----STOP-------		465	02	: :	
91	302	18:42:50.733	117EE11A	CSMOS	GE	***** GROUP END CSMOS	465	02	1,072,962:32:0	
91	302	18:42:50.733	175IW422A6B	6DMSC	RDY,0	DMS Control Tape stop	465	02	1,072,962:32:0	
91	302	18:42:50.733		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *2679 +/- 20;	465	02	1,072,962:32:0	
91	302	18:42:51.933		DMS:	*READY	RDY, TRACK 1, FWD, TIC *2680 +/- 20;	465	02	1,072,962:33:8	
91	302	18:57:42.066	GAPNGASPER08		-----START------		465	02	: :	
91	302	18:57:42.066	165JK4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	465	02	1,072,977:04:0	
91	302	18:57:42.733	165JK4B	7SCAN	NORM,246.358999,	Check S/P Position	465	02	1,072,977:05:0	
91	302	18:59:35.400	117JK	CSMOS	GS	***** GROUP START CSMOS	465	02	1,072,978:83:0	
91	302	18:59:36.066	128JK149A131A4A	37IOP	7,6	Fixed Map, Grating Start Position =6	467	06	1,072,978:84:0	
91	302	18:59:40.733		DMS:	*RUNUP	R28, TRACK 1, FWD, TIC 2680 +/- 20;	467	06	1,072,979:00:0	
91	302	18:59:40.733	176JP6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + N	467	06	1,072,979:00:0	
91	302	18:59:40.733	175JP422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	467	06	1,072,979:00:0	
91	302	18:59:44.733	117JK105A106A4A	7STRP	0.007,0.0,0,0,0,	Slew =,0.76	467	06	1,072,979:06:0	
91	302	18:59:44.733		DMS:	*RECORD	R28, TRACK 1, FWD, TIC *2682 +/- 21;	467	06	1,072,979:06:0	
91	302	18:59:56.733	117JK11A	CSMOS	GE	***** GROUP END CSMOS	467	06	1,072,979:24:0	
91	302	18:59:58.066		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *2693 +/- 21;	467	06	1,072,979:26:0	
91	302	18:59:58.066	175JP422A6B	6DMSC	RDY,0	DMS Control Tape stop	467	06	1,072,979:26:0	
91	302	18:59:59.266		DMS:	*READY	RDY, TRACK 1, FWD, TIC *2694 +/- 21;	467	06	1,072,979:27:8	
91	302	19:00:38.066	GAPNGASPER08		-----STOP-------		467	06	: :	
91	302	19:14:49.400	GAPNGASCUR06		-----START------		467	06	: :	
91	302	19:14:49.400	165EF4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	467	06	1,072,993:89:0	
91	302	19:14:50.066	165EF4B	7SCAN	NORM,246.494999,	Check S/P Position	467	06	1,072,993:90:0	
91	302	19:16:42.733	117EF	CSMOS	GS	***** GROUP START CSMOS	467	06	1,072,995:77:0	
91	302	19:16:47.400	128EF149A131A4A	37IOP	5,2	Short Map, Grating Start Position =2	465	02	1,072,995:84:0	
91	302	19:16:51.400	175IH422A6A	6DMSC	R115,0	DMS Control Tape runup 115.2kb	465	02	1,072,995:90:0	
91	302	19:16:51.400		DMS:	*RUNUP	R115, TRACK 1, FWD, TIC 2694 +/- 21;	465	02	1,072,995:90:0	
91	302	19:16:52.066	176IH6A	6TMCHG	NCGHCM	NO CHANGE / 115.2 comp image + NIMS + PW	465	02	1,072,996:00:0	
91	302	19:16:52.066	117EF105A106A4A	7STRP	0.00001,0.0,0,0,	Slew =,0.12	465	02	1,072,996:00:0	
91	302	19:16:55.400		DMS:	*RECORD	R115, TRACK 1, FWD, TIC *2701 +/- 21;	465	02	1,072,996:05:0	

YR	DOY	Time	PSID	Command	Parameters	Description	GCM	O S	RIM	MF	I
91	302	19:16:57.400	117EF105A106B4A	7STRP	-0.0035,0.0,0,0,	Slew =,4.87	465	02	1,072,996	08	0
91	302	19:17:02.066	117EF105A106B4B	7STRP	0.00227,0.0,0,0,	Slew =,0.12	465	02	1,072,996	15	0
91	302	19:17:22.733		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *2797 +/- 21;	465	02	1,072,996	46	0
91	302	19:17:22.733	175IH422A6B	6DMSC	RDY,0	DMS Control Tape stop	465	02	1,072,996	46	0
91	302	19:17:23.400	117EF105A106C4A	7STRP	-0.0005,0.0,0,0,	Slew =,4.87	465	02	1,072,996	47	0
91	302	19:17:23.933		DMS:	*READY	RDY, TRACK 1, FWD, TIC *2798 +/- 22;	465	02	1,072,996	47	8
91	302	19:17:26.733		DMS:	*RUNUP	R28, TRACK 1, FWD, TIC 2798 +/- 22;	465	02	1,072,996	52	0
91	302	19:17:26.733	175IX422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	465	02	1,072,996	52	0
91	302	19:17:26.733	176IW6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + N	465	02	1,072,996	52	0
91	302	19:17:30.733		DMS:	*RECORD	R28, TRACK 1, FWD, TIC *2800 +/- 22;	465	02	1,072,996	58	0
91	302	19:17:31.400	117EF105A106C4B	7STRP	0.005,0.0,0,0,0,	Slew =,0.12	465	02	1,072,996	59	0
91	302	19:18:16.066	175IX422A6B	6DMSC	RDY,0	DMS Control Tape stop	465	02	1,072,997	35	0
91	302	19:18:16.066		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *2839 +/- 22;	465	02	1,072,997	35	0
91	302	19:18:16.066	GAPNGASCUR06		-----STOP-------		465	02		:	:
91	302	19:18:16.066	117EF11A	CSMOS	GE	***** GROUP END CSMOS	465	02	1,072,997	35	0
91	302	19:18:17.266		DMS:	*READY	RDY, TRACK 1, FWD, TIC *2840 +/- 22;	465	02	1,072,997	36	8
91	302	19:23:56.733	GAPUOUTGAS01		-----START------		465	02		:	:
91	302	19:24:30.066	165KB4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	465	02	1,073,003	50	0
91	302	19:24:30.733	165KB4B	7SCAN	NORM,245.575998,	Check S/P Position	465	02	1,073,003	51	0
91	302	19:24:48.066	117KB	CSMOS	GS	***** GROUP START CSMOS	465	02	1,073,003	77	0
91	302	19:24:56.066	175KA422A6A	6DMSC	R7,0	DMS Control Tape runup 7.68kps	465	02	1,073,003	89	0
91	302	19:24:56.066		DMS:	*RUNUP	R7, TRACK 1, FWD, TIC 2840 +/- 22;	465	02	1,073,003	89	0
91	302	19:24:57.400	117KB105A106A4A	7STRP	0.027207,0.0,0,0	Slew =,0.02	465	02	1,073,004	00	0
91	302	19:24:57.400	176KA6A	6TMCHG	ELSLRS	10 BPS TDM / LRS Rec 7.68kb/s	465	02	1,073,004	00	0
91	302	19:24:57.533		DMS:	*RECORD	R7, TRACK 1, FWD, TIC *2841 +/- 22;	465	02	1,073,004	00	2
91	302	19:48:47.400	117KB11A	CSMOS	GE	***** GROUP END CSMOS	465	02	1,073,027	52	0
91	302	19:49:07.400	175KA422A6B	6DMSC	RDY,0	DMS Control Tape stop	465	02	1,073,027	82	0
91	302	19:49:07.400		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *3181 +/- 22;	465	02	1,073,027	82	0
91	302	19:49:08.666		DMS:	*READY	RDY, TRACK 1, FWD, TIC *3182 +/- 22;	465	02	1,073,027	83	9
91	302	19:49:12.066	165ID4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	465	02	1,073,027	89	0
91	302	19:49:12.733	165ID4B	7SCAN	NORM,246.275999,	Check S/P Position	465	02	1,073,027	90	0
91	302	19:49:48.066	GAPUOUTGAS01		-----STOP-------		465	02		:	:
91	302	19:52:14.733	175IG422A6A	6DMSC	R115,0	DMS Control Tape runup 115.2kb	465	02	1,073,030	90	0
91	302	19:52:14.733		DMS:	*RUNUP	R115, TRACK 1, FWD, TIC 3182 +/- 22;	465	02	1,073,030	90	0
91	302	19:52:15.400	176IG6A	6TMCHG	NCGHCM	NO CHANGE / 115.2 comp image + NIMS + PW	465	02	1,073,031	00	0
91	302	19:52:18.733		DMS:	*RECORD	R115, TRACK 1, FWD, TIC *3189 +/- 23;	465	02	1,073,031	05	0
91	302	19:54:16.733		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *3603 +/- 23;	465	02	1,073,033	00	0
91	302	19:54:16.733	175IG422A6B	6DMSC	RDY,0	DMS Control Tape stop	465	02	1,073,033	00	0
91	302	19:54:17.933		DMS:	*READY	RDY, TRACK 1, FWD, TIC *3604 +/- 23;	465	02	1,073,033	01	8
91	302	19:55:54.733	165JM4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	465	02	1,073,034	56	0
91	302	19:55:54.733	GAPNGASPEC04		-----START------		465	02		:	:
91	302	19:55:55.400	165JM4B	7SCAN	NORM,246.018999,	Check S/P Position	465	02	1,073,034	57	0

YR	DOY	Time	PSID	Command	Parameters	Description	GCM	O	S	RIM	MF	I
91	302	19:56:12.733	117JM	CSMOS	GS	***** GROUP START CSMOS	465	02		1,073,034:83:0		
91	302	19:56:13.400	128JM149A131A4A	37IOP	1,0	Full Map, Grating Start Position =0	461	00		1,073,034:84:0		
91	302	19:56:18.066		DMS:	*RUNUP	R28, TRACK 1, FWD, TIC 3604 +/- 23;	461	00		1,073,035:00:0		
91	302	19:56:18.066	175JH422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	461	00		1,073,035:00:0		
91	302	19:56:18.066	176JH6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + N	461	00		1,073,035:00:0		
91	302	19:56:22.066		DMS:	*RECORD	R28, TRACK 1, FWD, TIC *3606 +/- 23;	461	00		1,073,035:06:0		
91	302	19:56:22.066	117JM105A106A4A	7STRP	0.0073,0.0,0,0,0	Slew =,0.03	461	00		1,073,035:06:0		
91	302	20:00:38.066		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *3831 +/- 23;	461	00		1,073,039:26:0		
91	302	20:00:38.066	GAPNGASPEC04		-----STOP-------		461	00		:	:	
91	302	20:00:38.066	117JM11A	CSMOS	GE	***** GROUP END CSMOS	461	00		1,073,039:26:0		
91	302	20:00:38.066	175JH422A6B	6DMSC	RDY,0	DMS Control Tape stop	461	00		1,073,039:26:0		
91	302	20:00:39.266		DMS:	*READY	RDY, TRACK 1, FWD, TIC *3832 +/- 24;	461	00		1,073,039:27:8		
91	302	20:08:28.733	165JN4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	461	00		1,073,047:04:0		
91	302	20:08:28.733	GAPNGASPER10		-----START------		461	00		:	:	
91	302	20:08:29.400	165JN4B	7SCAN	NORM,245.865999,	Check S/P Position	461	00		1,073,047:05:0		
91	302	20:10:22.066	117JN	CSMOS	GS	***** GROUP START CSMOS	461	00		1,073,048:83:0		
91	302	20:10:22.733	128JN149A131A4A	37IOP	7,6	Fixed Map, Grating Start Position =6	467	06		1,073,048:84:0		
91	302	20:10:27.400	175JN422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	467	06		1,073,049:00:0		
91	302	20:10:27.400	176JN6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + N	467	06		1,073,049:00:0		
91	302	20:10:27.400		DMS:	*RUNUP	R28, TRACK 1, FWD, TIC 3832 +/- 24;	467	06		1,073,049:00:0		
91	302	20:10:31.400	117JN105A106A4A	7STRP	0.0083,0.0,0,0,0	Slew =,0.76	467	06		1,073,049:06:0		
91	302	20:10:31.400		DMS:	*RECORD	R28, TRACK 1, FWD, TIC *3833 +/- 24;	467	06		1,073,049:06:0		
91	302	20:10:44.733	117JN11A	CSMOS	GE	***** GROUP END CSMOS	467	06		1,073,049:26:0		
91	302	20:10:47.400	175JN422A6B	6DMSC	RDY,0	DMS Control Tape stop	467	06		1,073,049:30:0		
91	302	20:10:47.400		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *3848 +/- 24;	467	06		1,073,049:30:0		
91	302	20:10:48.600		DMS:	*READY	RDY, TRACK 1, FWD, TIC *3849 +/- 24;	467	06		1,073,049:31:8		
91	302	20:11:24.733	GAPNGASPER10		-----STOP-------		467	06		:	:	
91	302	20:25:36.066	GAPNGASCUR07		-----START------		467	06		:	:	
91	302	20:25:36.066	165EG4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	467	06		1,073,063:89:0		
91	302	20:25:36.733	165EG4B	7SCAN	NORM,245.938,-20	Check S/P Position	467	06		1,073,063:90:0		
91	302	20:27:29.400	117EG	CSMOS	GS	***** GROUP START CSMOS	467	06		1,073,065:77:0		
91	302	20:27:34.066	128EG149A131A4A	37IOP	5,2	Short Map, Grating Start Position =2	465	02		1,073,065:84:0		
91	302	20:27:38.066		DMS:	*RUNUP	R115, TRACK 1, FWD, TIC 3849 +/- 24;	465	02		1,073,065:90:0		
91	302	20:27:38.066	175IF422A6A	6DMSC	R115,0	DMS Control Tape runup 115.2kb	465	02		1,073,065:90:0		
91	302	20:27:38.733	176IF6A	6TMCHG	NCGHCM	NO CHANGE / 115.2 comp image + NIMS + PW	465	02		1,073,066:00:0		
91	302	20:27:38.733	117EG105A106A4A	7STRP	0.00001,0.0,0,0,	Slew =,0.12	465	02		1,073,066:00:0		
91	302	20:27:42.066		DMS:	*RECORD	R115, TRACK 1, FWD, TIC *3855 +/- 25;	465	02		1,073,066:05:0		
91	302	20:27:44.066	117EG105A106B4A	7STRP	-0.0046,0.0,0,0,	Slew =,4.87	465	02		1,073,066:08:0		
91	302	20:27:48.733	117EG105A106B4B	7STRP	0.00227,0.0,0,0,	Slew =,0.12	465	02		1,073,066:15:0		
91	302	20:28:09.400		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *3951 +/- 25;	465	02		1,073,066:46:0		
91	302	20:28:09.400	175IF422A6B	6DMSC	RDY,0	DMS Control Tape stop	465	02		1,073,066:46:0		
91	302	20:28:10.066	117EG105A106C4A	7STRP	-0.0005,0.0,0,0,	Slew =,4.87	465	02		1,073,066:47:0		

YR	DOY	Time	PSID	Command	Parameters	Description	GCM	O S	RIM	MF	I
91	302	20:28:10.600		DMS:	*READY	RDY, TRACK 1, FWD, TIC *3952 +/- 25;	465	02	1,073,066:47:8		
91	302	20:28:13.400		DMS:	*RUNUP	R28, TRACK 1, FWD, TIC 3952 +/- 25;	465	02	1,073,066:52:0		
91	302	20:28:13.400	175IY422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	465	02	1,073,066:52:0		
91	302	20:28:13.400	176IX6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + N	465	02	1,073,066:52:0		
91	302	20:28:17.400		DMS:	*RECORD	R28, TRACK 1, FWD, TIC *3954 +/- 25;	465	02	1,073,066:58:0		
91	302	20:28:18.066	117EG105A106C4B	7STRP	0.007,0.0,0,0,0,	Slew =,0.12	465	02	1,073,066:59:0		
91	302	20:29:21.400	117EG11A	CSMOS	GE	***** GROUP END CSMOS	465	02	1,073,067:63:0		
91	302	20:29:21.400	GAPNGASCUR07		-----STOP-------		465	02	: :		
91	302	20:29:21.400		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *4010 +/- 25;	465	02	1,073,067:63:0		
91	302	20:29:21.400	175IY422A6B	6DMSC	RDY,0	DMS Control Tape stop	465	02	1,073,067:63:0		
91	302	20:29:22.600		DMS:	*READY	RDY, TRACK 1, FWD, TIC *4011 +/- 25;	465	02	1,073,067:64:8		
91	302	20:43:52.066	165JO4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	465	02	1,073,082:04:0		
91	302	20:43:52.066	GAPNGASPER11		-----START------		465	02	: :		
91	302	20:43:52.733	165JO4B	7SCAN	NORM,245.372,-20	Check S/P Position	465	02	1,073,082:05:0		
91	302	20:45:45.400	117JO	CSMOS	GS	***** GROUP START CSMOS	465	02	1,073,083:83:0		
91	302	20:45:46.066	128JO149A131A4A	37IOP	7,6	Fixed Map, Grating Start Position =6	467	06	1,073,083:84:0		
91	302	20:45:46.733	175JM422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	467	06	1,073,083:85:0		
91	302	20:45:46.733		DMS:	*RUNUP	R28, TRACK 1, FWD, TIC 4011 +/- 25;	467	06	1,073,083:85:0		
91	302	20:45:50.733	176JM6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + N	467	06	1,073,084:00:0		
91	302	20:45:50.733		DMS:	*RECORD	R28, TRACK 1, FWD, TIC *4012 +/- 26;	467	06	1,073,084:00:0		
91	302	20:45:54.733	117JO105A106A4A	7STRP	0.01,0.0,0,0,0,0	Slew =,0.76	467	06	1,073,084:06:0		
91	302	20:46:10.733	117JO11A	CSMOS	GE	***** GROUP END CSMOS	467	06	1,073,084:30:0		
91	302	20:46:10.733	175JM422A6B	6DMSC	RDY,0	DMS Control Tape stop	467	06	1,073,084:30:0		
91	302	20:46:10.733		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *4030 +/- 26;	467	06	1,073,084:30:0		
91	302	20:46:11.933		DMS:	*READY	RDY, TRACK 1, FWD, TIC *4031 +/- 26;	467	06	1,073,084:31:8		
91	302	20:46:48.066	GAPNGASPER11		-----STOP-------		467	06	: :		
91	302	21:00:59.400	GAPNGASCUR08		-----START------		467	06	: :		
91	302	21:00:59.400	165EH4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	467	06	1,073,098:89:0		
91	302	21:01:00.066	165EH4B	7SCAN	NORM,245.344999,	Check S/P Position	467	06	1,073,098:90:0		
91	302	21:01:56.733	128EH149A131A4A	37IST	0,0,0,OFF,0,1,2	Gain State 3	367	06	1,073,099:84:0		
91	302	21:02:52.733	117EH	CSMOS	GS	***** GROUP START CSMOS	367	06	1,073,100:77:0		
91	302	21:02:57.400	128EH149A131B4A	37IOP	5,2	Short Map, Grating Start Position =2	365	02	1,073,100:84:0		
91	302	21:03:01.400		DMS:	*RUNUP	R115, TRACK 1, FWD, TIC 4031 +/- 26;	365	02	1,073,100:90:0		
91	302	21:03:01.400	175IE422A6A	6DMSC	R115,0	DMS Control Tape runup 115.2kb	365	02	1,073,100:90:0		
91	302	21:03:02.066	176IE6A	6TMCHG	NCGHCM	NO CHANGE / 115.2 comp image + NIMS + PW	365	02	1,073,101:00:0		
91	302	21:03:02.066	117EH105A106A4A	7STRP	0.00001,0.0,0,0,	Slew =,0.12	365	02	1,073,101:00:0		
91	302	21:03:05.400		DMS:	*RECORD	R115, TRACK 1, FWD, TIC *4037 +/- 26;	365	02	1,073,101:05:0		
91	302	21:03:07.400	117EH105A106B4A	7STRP	-0.0055,0.0,0,0,	Slew =,4.87	365	02	1,073,101:08:0		
91	302	21:03:12.066	117EH105A106B4B	7STRP	0.00227,0.0,0,0,	Slew =,0.12	365	02	1,073,101:15:0		
91	302	21:03:32.733		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *4134 +/- 26;	365	02	1,073,101:46:0		
91	302	21:03:32.733	175IE422A6B	6DMSC	RDY,0	DMS Control Tape stop	365	02	1,073,101:46:0		
91	302	21:03:33.400	117EH105A106C4A	7STRP	-0.0005,0.0,0,0,	Slew =,4.87	365	02	1,073,101:47:0		

YR	DOY	Time	PSID	Command	Parameters	Description	GCM	O S	RIM	MF I
91	302	21:03:33.933		DMS:	*READY	RDY, TRACK 1, FWD, TIC *4135 +/- 27;	365	02	1,073,101:47:8	
91	302	21:03:36.733		DMS:	*RUNUP	R28, TRACK 1, FWD, TIC 4135 +/- 27;	365	02	1,073,101:52:0	
91	302	21:03:36.733	176IY6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + N	365	02	1,073,101:52:0	
91	302	21:03:36.733	175IZ422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	365	02	1,073,101:52:0	
91	302	21:03:40.733		DMS:	*RECORD	R28, TRACK 1, FWD, TIC *4136 +/- 27;	365	02	1,073,101:58:0	
91	302	21:03:41.400	117EH105A106C4B	7STRP	0.0085,0.0,0,0,0	Slew =,0.12	365	02	1,073,101:59:0	
91	302	21:04:58.066	175IZ422A6B	6DMSC	RDY,0	DMS Control Tape stop	365	02	1,073,102:83:0	
91	302	21:04:58.066	117EH11A	CSMOS	GE	***** GROUP END CSMOS	365	02	1,073,102:83:0	
91	302	21:04:58.066		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *4204 +/- 27;	365	02	1,073,102:83:0	
91	302	21:04:58.066	GAPNGASCUR08		-----STOP-------		365	02	: :	
91	302	21:04:59.266		DMS:	*READY	RDY, TRACK 1, FWD, TIC *4205 +/- 27;	365	02	1,073,102:84:8	
91	302	21:13:11.400	165JP4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	365	02	1,073,111:04:0	
91	302	21:13:11.400	GAPNGASPER12		-----START------		365	02	: :	
91	302	21:13:12.066	165JP4B	7SCAN	NORM,244.691999,	Check S/P Position	365	02	1,073,111:05:0	
91	302	21:15:04.733	117JP	CSMOS	GS	***** GROUP START CSMOS	365	02	1,073,112:83:0	
91	302	21:15:05.400	128JP149A131A4A	37IOP	7,6	Fixed Map, Grating Start Position =6	367	06	1,073,112:84:0	
91	302	21:15:10.066	176JL6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + N	367	06	1,073,113:00:0	
91	302	21:15:10.066		DMS:	*RUNUP	R28, TRACK 1, FWD, TIC 4205 +/- 27;	367	06	1,073,113:00:0	
91	302	21:15:10.066	175JL422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	367	06	1,073,113:00:0	
91	302	21:15:14.066		DMS:	*RECORD	R28, TRACK 1, FWD, TIC *4206 +/- 28;	367	06	1,073,113:06:0	
91	302	21:15:14.066	117JP105A106A4A	7STRP	0.011,0.0,0,0,0,	Slew =,0.76	367	06	1,073,113:06:0	
91	302	21:15:31.400		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *4222 +/- 28;	367	06	1,073,113:32:0	
91	302	21:15:31.400	117JP11A	CSMOS	GE	***** GROUP END CSMOS	367	06	1,073,113:32:0	
91	302	21:15:31.400	175JL422A6B	6DMSC	RDY,0	DMS Control Tape stop	367	06	1,073,113:32:0	
91	302	21:15:32.600		DMS:	*READY	RDY, TRACK 1, FWD, TIC *4223 +/- 28;	367	06	1,073,113:33:8	
91	302	21:16:07.400	GAPNGASPER12		-----STOP-------		367	06	: :	
91	302	21:30:15.400	GAPNGASPEC05		-----START------		367	06	: :	
91	302	21:30:15.400	128JQ149A131A4A	37IOP	1,0	Full Map, Grating Start Position =0	361	00	1,073,127:84:0	
91	302	21:30:57.400	165JQ4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	361	00	1,073,128:56:0	
91	302	21:30:58.066	165JQ4B	7SCAN	NORM,244.106998,	Check S/P Position	361	00	1,073,128:57:0	
91	302	21:31:15.400	117JQ	CSMOS	GS	***** GROUP START CSMOS	361	00	1,073,128:83:0	
91	302	21:31:16.066	128JQ149A131B4A	37IST	0,0,0,OFF,0,1,3	Gain State 1	161	00	1,073,128:84:0	
91	302	21:31:20.733		DMS:	*RUNUP	R28, TRACK 1, FWD, TIC 4223 +/- 28;	161	00	1,073,129:00:0	
91	302	21:31:20.733	175JG422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	161	00	1,073,129:00:0	
91	302	21:31:20.733	176JG6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + N	161	00	1,073,129:00:0	
91	302	21:31:24.733		DMS:	*RECORD	R28, TRACK 1, FWD, TIC *4224 +/- 28;	161	00	1,073,129:06:0	
91	302	21:31:24.733	117JQ105A106A4A	7STRP	0.0085,0.0,0,0,0	Slew =,0.03	161	00	1,073,129:06:0	
91	302	21:35:18.733	GAPNGASVIS01		-----START------		161	00	: :	
91	302	21:35:18.733	128IA149A131A4A	37SS	0,6,1,0,6,0,12	Special Sequence (loads PTABs for modes 12)	161	00	1,073,132:84:0	
91	302	21:36:19.400	128IA149A131B4A	37SS	1,3,1,0,0,1,24	Special Sequence (loads PTABs for modes 12)	161	00	1,073,133:84:0	
91	302	21:36:22.733	GAPNGASPEC05		-----STOP-------		161	00	: :	
91	302	21:36:22.733		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *4486 +/- 28;	161	00	1,073,133:89:0	

YR	DOY	Time	PSID	Command	Parameters	Description	GCM	O S	RIM	MF	I
91	302	21:36:22.733	117JQ11A	CSMOS	GE	***** GROUP END CSMOS	161	00	1,073,133	89	0
91	302	21:36:22.733	175JG422A6B	6DMSC	RDY,0	DMS Control Tape stop	161	00	1,073,133	89	0
91	302	21:36:23.933		DMS:	*READY	RDY, TRACK 1, FWD, TIC *4487 +/- 28;	161	00	1,073,133	90	8
91	302	21:36:36.733	165EJ4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	161	00	1,073,134	19	0
91	302	21:36:37.400	165EJ4B	7SCAN	NORM,244.509998,	Check S/P Position	161	00	1,073,134	20	0
91	302	21:37:20.066	128IA149A131C4A	37IOP	12,0	Special Sequence 1, Grating Start Position	16C	00	1,073,134	84	0
91	302	21:37:23.400	165IA4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	16C	00	1,073,134	89	0
91	302	21:37:24.066	165IA4B	7SCAN	NORM,243.827,-20	Check S/P Position	16C	00	1,073,134	90	0
91	302	21:37:48.733		DMS:	*RUNUP	R403, TRACK 1, FWD, TIC 4487 +/- 28;	16C	00	1,073,135	36	0
91	302	21:37:48.733	175ID422A6A	6DMSC	R403,0	DMS Control Tape runup 403.2kb	16C	00	1,073,135	36	0
91	302	21:37:49.400	165IA4C	7VECT		Inert vect update UTC	16C	00	1,073,135	37	0
91	302	21:37:50.066	165IA4D	7TMOT	ENA,TMC	Enable IVP - Target Motion	16C	00	1,073,135	38	0
91	302	21:37:50.733	176ID6A	6TMCHG	NCGIM4	NO CHANGE / 403.2 KBPS IMAGE + 1/8 NIMS RE	16C	00	1,073,135	39	0
91	302	21:37:52.533		DMS:	*RECORD	R403, TRACK 1, FWD, TIC *4509 +/- 31;	16C	00	1,073,135	41	7
91	302	21:38:36.066	118IA110A111A4A	7STRP	0.0069,0.0,156,0	Slew =,1.21	16C	00	1,073,136	16	0
91	302	21:39:28.066	118IA110A111A4B	7STRP	0.0,0.0069,0,0,0	Slew =0,5.0	16C	00	1,073,137	03	0
91	302	21:40:20.066	118IA110A111A4C	7STRP	0.0069,0.0,156,0	Slew =,1.21	16C	00	1,073,137	81	0
91	302	21:41:18.733		DMS:	*RUNDOWN	RDY, TRACK 1, FWD, TIC *7046 +/- 31;	16C	00	1,073,138	78	0
91	302	21:41:18.733	175ID422A6B	6DMSC	RDY,0	DMS Control Tape stop	16C	00	1,073,138	78	0
91	302	21:41:18.733	GAPNGASVIS01		-----STOP-------		16C	00		:	:
91	302	21:41:21.533		DMS:	*READY	RDY, TRACK 1, FWD, TIC *7050 +/- 32;	16C	00	1,073,138	82	2
91	302	21:43:24.066	128JR149A131A4A	37IOP	1,0	Full Map, Grating Start Position =0	161	00	1,073,140	84	0
91	302	21:43:24.066	GAPNGASPEC06		-----START------		161	00		:	:
91	302	21:43:42.733	165JR4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	161	00	1,073,141	21	0
91	302	21:43:43.400	165JR4B	7SCAN	NORM,243.126999,	Check S/P Position	161	00	1,073,141	22	0
91	302	21:44:00.733	117JR	CSMOS	GS	***** GROUP START CSMOS	161	00	1,073,141	48	0
91	302	21:44:03.400	176JF6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + N	161	00	1,073,141	52	0
91	302	21:44:06.066		DMS:	*RUNUP	R28, TRACK 1, FWD, TIC 7050 +/- 32;	161	00	1,073,141	56	0
91	302	21:44:06.066	175JF422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	161	00	1,073,141	56	0
91	302	21:44:08.733	165JR4C	7VECT		Inert vect update UTC	161	00	1,073,141	60	0
91	302	21:44:09.400	165JR4D	7TMOT	ENA,TMC	Enable IVP - Target Motion	161	00	1,073,141	61	0
91	302	21:44:10.066	117JR105A106A4A	7STRP	0.0091,0.0,0,0,0	Slew =,0.06	161	00	1,073,141	62	0
91	302	21:44:10.066		DMS:	*RECORD	R28, TRACK 1, FWD, TIC *7052 +/- 33;	161	00	1,073,141	62	0
91	302	21:45:32.733	165JR4E	7VECT		Inert vect update UTC	161	00	1,073,143	04	0
91	302	21:46:31.800		DMS:	*REVERSE	R28, TRACK 1, FWD, TIC *7177 +/- 33;	161	00	1,073,144	01	6
91	302	21:46:37.000		DMS:	*RESUME	R28, TRACK *2, *REV, TIC *7176 +/- 33;	161	00	1,073,144	09	4
91	302	21:46:56.733	165JR4F	7VECT		Inert vect update UTC	161	00	1,073,144	39	0
91	302	21:47:11.400	117JR105A106B4A	7STRP	-0.004,0.0,0,0,0	Slew =,10.0	161	00	1,073,144	61	0
91	302	21:47:16.066	117JR105A106B4B	7STRP	0.013101,0.0,0,0	Slew =,0.06	161	00	1,073,144	68	0
91	302	21:48:20.733	165JR4G	7VECT		Inert vect update UTC	161	00	1,073,145	74	0
91	302	21:49:44.733	165JR4H	7VECT		Inert vect update UTC	161	00	1,073,147	18	0
91	302	21:50:32.733	GAPNGASVIS02		-----START------		161	00		:	:

YR	DOY	Time	PSID	Command	Parameters	Description	GCM	O S	RIM	MF	I
91	302	21:51:06.066	GAPNGASPEC06		-----STOP-------		161	00		:	:
91	302	21:51:06.066		DMS:	*RUNDOWN	RDY, TRACK 2, REV, TIC *6940 +/- 33;	161	00	1,073,148:49:0		
91	302	21:51:06.066	117JR11A	CSMOS	GE	***** GROUP END CSMOS	161	00	1,073,148:49:0		
91	302	21:51:06.066	175JF422A6B	6DMSC	RDY,0	DMS Control Tape stop	161	00	1,073,148:49:0		
91	302	21:51:06.733	165IB4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	161	00	1,073,148:50:0		
91	302	21:51:07.266		DMS:	*READY	RDY, TRACK 2, REV, TIC *6939 +/- 34;	161	00	1,073,148:50:8		
91	302	21:51:07.400	165IB4B	7SCAN	NORM,242.296999,	Check S/P Position	161	00	1,073,148:51:0		
91	302	21:51:24.733	117IA	CSMOS	GS	***** GROUP START CSMOS	161	00	1,073,148:77:0		
91	302	21:51:29.400	128IB149A131A4A	37IOP	7,6	Fixed Map, Grating Start Position =6	167	06	1,073,148:84:0		
91	302	21:51:32.066		DMS:	*RUNUP	R403, TRACK 2, REV, TIC 6939 +/- 34;	167	06	1,073,148:88:0		
91	302	21:51:32.066	175IC422A6A	6DMSC	R403,0	DMS Control Tape runup 403.2kb	167	06	1,073,148:88:0		
91	302	21:51:32.733	165IB4C	7VECT		Inert vect update UTC	167	06	1,073,148:89:0		
91	302	21:51:33.400	165IB4D	7TMOT	ENA,TMC	Enable IVP - Target Motion	167	06	1,073,148:90:0		
91	302	21:51:34.066	117IA105A106A4A	7STRP	0.019603,0.0,0,0	Slew =,0.86	167	06	1,073,149:00:0		
91	302	21:51:34.066	176IC6A	6TMCHG	NCGIM4	NO CHANGE / 403.2 KBPS IMAGE + 1/8 NIMS RE	167	06	1,073,149:00:0		
91	302	21:51:35.866		DMS:	*RECORD	R403, TRACK 2, REV, TIC *6917 +/- 37;	167	06	1,073,149:02:7		
91	302	21:52:02.066	117IA105A106B4A	7STRP	0.0028,0.0065,0,	Slew =0,4.7	167	06	1,073,149:42:0		
91	302	21:52:06.733	117IA105A106B4B	7STRP	-0.024505,0.0,0,	Slew =,0.86	167	06	1,073,149:49:0		
91	302	21:52:39.400	117IA105A106C4A	7STRP	0.0006,0.0065,0,	Slew =0,4.7	167	06	1,073,150:07:0		
91	302	21:52:44.066	117IA105A106C4B	7STRP	0.023404,0.0,0,0	Slew =,0.86	167	06	1,073,150:14:0		
91	302	21:53:14.733	117IA105A106D4A	7STRP	-0.0028,0.0065,0	Slew =0,4.7	167	06	1,073,150:60:0		
91	302	21:53:19.400	117IA105A106D4B	7STRP	-0.017702,0.0,0,	Slew =,0.86	167	06	1,073,150:67:0		
91	302	21:53:30.733	128JS149A131A4A	37IOP	5,2	Short Map, Grating Start Position =2	165	02	1,073,150:84:0		
91	302	21:53:30.733	GAPNGSCHEM02		-----START------		165	02		:	:
91	302	21:53:44.066	GAPNGASVIS02		-----STOP-------		165	02		:	:
91	302	21:53:44.066	175IC422A6B	6DMSC	RDY,0	DMS Control Tape stop	165	02	1,073,151:13:0		
91	302	21:53:44.066		DMS:	*RUNDOWN	RDY, TRACK 2, REV, TIC *5339 +/- 37;	165	02	1,073,151:13:0		
91	302	21:53:44.066	117IA11A	CSMOS	GE	***** GROUP END CSMOS	165	02	1,073,151:13:0		
91	302	21:53:46.866		DMS:	*READY	RDY, TRACK 2, REV, TIC *5335 +/- 38;	165	02	1,073,151:17:2		
91	302	21:54:01.400	165JS4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	165	02	1,073,151:39:0		
91	302	21:54:02.066	165JS4B	7SCAN	NORM,243.330999,	Check S/P Position	165	02	1,073,151:40:0		
91	302	21:54:18.733	176JE6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + N	165	02	1,073,151:65:0		
91	302	21:54:19.400	117JS	CSMOS	GS	***** GROUP START CSMOS	165	02	1,073,151:66:0		
91	302	21:54:24.733		DMS:	*RUNUP	R28, TRACK 2, REV, TIC 5335 +/- 38;	165	02	1,073,151:74:0		
91	302	21:54:24.733	175JE422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	165	02	1,073,151:74:0		
91	302	21:54:27.400	165JS4C	7VECT		Inert vect update UTC	165	02	1,073,151:78:0		
91	302	21:54:28.066	165JS4D	7TMOT	ENA,TMC	Enable IVP - Target Motion	165	02	1,073,151:79:0		
91	302	21:54:28.733	117JS105A106A4A	7STRP	-0.018502,0.0,0,	Slew =,0.12	165	02	1,073,151:80:0		
91	302	21:54:28.733		DMS:	*RECORD	R28, TRACK 2, REV, TIC *5334 +/- 38;	165	02	1,073,151:80:0		
91	302	21:55:40.066	165JS4E	7VECT		Inert vect update UTC	165	02	1,073,153:05:0		
91	302	21:56:52.066	165JS4F	7VECT		Inert vect update UTC	165	02	1,073,154:22:0		
91	302	21:57:18.066	117JS105A106B4A	7STRP	0.019502,-0.0095	Slew =0,7.9	165	02	1,073,154:61:0		

YR	DOY	Time	PSID	Command	Parameters	Description	GCM	O S	RIM	MF I
91	302	21:57:23.400	117JS105A106B4B	7STRP	-0.020003,0.0,0,	Slew =,0.12	165	02	1,073,154:69:0	
91	302	21:58:04.733	165JS4G	7VECT		Inert vect update UTC	165	02	1,073,155:40:0	
91	302	21:58:34.066	GAPNGASNAP01		-----START------		165	02	: :	
91	302	21:58:34.066	128IC149A131A4A	37SS	2,2,1,0,0,1,24	Special Sequence (loads PTABs for modes 12)	165	02	1,073,155:84:0	
91	302	21:59:16.733	165JS4H	7VECT		Inert vect update UTC	165	02	1,073,156:57:0	
91	302	21:59:34.733	128IC149A131B4A	37SS	3,4,1,0,6,0,12	Special Sequence (loads PTABs for modes 12)	165	02	1,073,156:84:0	
91	302	22:00:26.733		DMS:	*RUNDOWN	RDY, TRACK 2, REV, TIC *5019 +/- 38;	165	02	1,073,157:71:0	
91	302	22:00:26.733	117JS11A	CSMOS	GE	***** GROUP END CSMOS	165	02	1,073,157:71:0	
91	302	22:00:26.733	175JE422A6B	6DMSC	RDY,0	DMS Control Tape stop	165	02	1,073,157:71:0	
91	302	22:00:26.733	GAPNGSCHEM02		-----STOP-------		165	02	: :	
91	302	22:00:27.933		DMS:	*READY	RDY, TRACK 2, REV, TIC *5018 +/- 38;	165	02	1,073,157:72:8	
91	302	22:00:35.400	128IC149A131C4A	37IOP	13,0	Special Sequence 2, Grating Start Position	16D	00	1,073,157:84:0	
91	302	22:00:38.733	165IC4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	16D	00	1,073,157:89:0	
91	302	22:00:39.400	165IC4B	7SCAN	NORM,241.348,-20	Check S/P Position	16D	00	1,073,157:90:0	
91	302	22:01:04.066		DMS:	*RUNUP	R403, TRACK 2, REV, TIC 5018 +/- 38;	16D	00	1,073,158:36:0	
91	302	22:01:04.066	175IB422A6A	6DMSC	R403,0	DMS Control Tape runup 403.2kb	16D	00	1,073,158:36:0	
91	302	22:01:04.733	165IC4C	7VECT		Inert vect update UTC	16D	00	1,073,158:37:0	
91	302	22:01:05.400	165IC4D	7TMOT	ENA,TMC	Enable IVP - Target Motion	16D	00	1,073,158:38:0	
91	302	22:01:06.066	176IB6A	6TMCHG	NCGIM4	NO CHANGE / 403.2 KBPS IMAGE + 1/8 NIMS RE	16D	00	1,073,158:39:0	
91	302	22:01:07.866		DMS:	*RECORD	R403, TRACK 2, REV, TIC *4996 +/- 41;	16D	00	1,073,158:41:7	
91	302	22:01:34.066	118IB110A111A4A	7STRP	0.007,0.0,104,0,	Slew =,1.21	16D	00	1,073,158:81:0	
91	302	22:02:41.400	165IC4E	7VECT		Inert vect update UTC	16D	00	1,073,160:00:0	
91	302	22:02:43.400	118IB110A111A4B	7STRP	0.0,0.007,0,0,0,	Slew =0,5.0	16D	00	1,073,160:03:0	
91	302	22:03:18.066	118IB110A111A4C	7STRP	0.007,0.0,104,0,	Slew =,1.21	16D	00	1,073,160:55:0	
91	302	22:04:25.400	165IC4F	7VECT		Inert vect update UTC	16D	00	1,073,161:65:0	
91	302	22:04:27.400	118IB110A111A4D	7STRP	0.0,0.007,0,0,0,	Slew =0,5.0	16D	00	1,073,161:68:0	
91	302	22:05:02.066	118IB110A111A4E	7STRP	0.007,0.0,104,0,	Slew =,1.21	16D	00	1,073,162:29:0	
91	302	22:06:18.066	175IB422A6B	6DMSC	RDY,0	DMS Control Tape stop	16D	00	1,073,163:52:0	
91	302	22:06:18.066		DMS:	*RUNDOWN	RDY, TRACK 2, REV, TIC *1179 +/- 41;	16D	00	1,073,163:52:0	
91	302	22:06:18.066	GAPNGASNAP01		-----STOP-------		16D	00	: :	
91	302	22:06:20.866		DMS:	*READY	RDY, TRACK 2, REV, TIC *1175 +/- 42;	16D	00	1,073,163:56:2	
91	302	22:06:39.400	128JT149A131A4A	37IOP	5,2	Short Map, Grating Start Position =2	165	02	1,073,163:84:0	
91	302	22:06:39.400	GAPNGSCHEM04		-----START------		165	02	: :	
91	302	22:06:44.733	165JT4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	165	02	1,073,164:01:0	
91	302	22:06:45.400	165JT4B	7SCAN	NORM,241.518999,	Check S/P Position	165	02	1,073,164:02:0	
91	302	22:07:01.400	176JD6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + N	165	02	1,073,164:26:0	
91	302	22:07:02.733	117JT	CSMOS	GS	***** GROUP START CSMOS	165	02	1,073,164:28:0	
91	302	22:07:08.066	175JD422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	165	02	1,073,164:36:0	
91	302	22:07:08.066		DMS:	*RUNUP	R28, TRACK 2, REV, TIC 1175 +/- 42;	165	02	1,073,164:36:0	
91	302	22:07:10.733	165JT4C	7VECT		Inert vect update UTC	165	02	1,073,164:40:0	
91	302	22:07:11.400	165JT4D	7TMOT	ENA,TMC	Enable IVP - Target Motion	165	02	1,073,164:41:0	
91	302	22:07:12.066		DMS:	*RECORD	R28, TRACK 2, REV, TIC *1173 +/- 43;	165	02	1,073,164:42:0	

YR	DOY	Time	PSID	Command	Parameters	Description	GCM	O	S	RIM	MF	I
91	302	22:07:12.066	117JT105A106A4A	7STRP	-0.026006,0.0,0,	Slew =,0.12	165	02		1,073,164:42:0		
91	302	22:08:51.400	165JT4E	7VECT		Inert vect update UTC	165	02		1,073,166:09:0		
91	302	22:10:31.400	165JT4F	7VECT		Inert vect update UTC	165	02		1,073,167:68:0		
91	302	22:11:08.733	117JT105A106B4A	7STRP	0.027007,-0.008,	Slew =0,9.1	165	02		1,073,168:33:0		
91	302	22:11:14.066	117JT105A106B4B	7STRP	-0.029509,0.0,0,	Slew =,0.12	165	02		1,073,168:41:0		
91	302	22:12:12.066	165JT4G	7VECT		Inert vect update UTC	165	02		1,073,169:37:0		
91	302	22:13:52.066	165JT4H	7VECT		Inert vect update UTC	165	02		1,073,171:05:0		
91	302	22:15:36.733	GAPNGSCHEM04		-----STOP-------		165	02		:	:	
91	302	22:15:36.733	175JD422A6B	6DMSC	RDY,0	DMS Control Tape stop	165	02		1,073,172:71:0		
91	302	22:15:36.733		DMS:	*RUNDOWN	RDY, TRACK 2, REV, TIC * 730 +/- 43;	165	02		1,073,172:71:0		
91	302	22:15:36.733	117JT11A	CSMOS	GE	***** GROUP END CSMOS	165	02		1,073,172:71:0		
91	302	22:15:37.933		DMS:	*READY	RDY, TRACK 2, REV, TIC * 729 +/- 43;	165	02		1,073,172:72:8		
91	302	22:15:45.400	GAPNGASMAP01		-----START------		165	02		:	:	
91	302	22:15:45.400	128JU149A131A4A	37IOP	7,6	Fixed Map, Grating Start Position =6	167	06		1,073,172:84:0		
91	302	22:16:02.733	165JU4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	167	06		1,073,173:19:0		
91	302	22:16:03.400	165JU4B	7SCAN	NORM,238.775,-19	Check S/P Position	167	06		1,073,173:20:0		
91	302	22:16:20.733	117JU	CSMOS	GS	***** GROUP START CSMOS	167	06		1,073,173:46:0		
91	302	22:16:24.733	176JC6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + N	167	06		1,073,173:52:0		
91	302	22:16:26.066	175JC422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	167	06		1,073,173:54:0		
91	302	22:16:26.066		DMS:	*RUNUP	R28, TRACK 2, REV, TIC 729 +/- 43;	167	06		1,073,173:54:0		
91	302	22:16:28.733	165JU4C	7VECT		Inert vect update UTC	167	06		1,073,173:58:0		
91	302	22:16:29.400	165JU4D	7TMOT	ENA,TMC	Enable IVP - Target Motion	167	06		1,073,173:59:0		
91	302	22:16:30.066		DMS:	*RECORD	R28, TRACK 2, REV, TIC * 727 +/- 43;	167	06		1,073,173:60:0		
91	302	22:16:30.066	117JU105A106A4A	7STRP	-0.030509,0.0,0,	Slew =,0.76	167	06		1,073,173:60:0		
91	302	22:17:13.400	165JU4E	7VECT		Inert vect update UTC	167	06		1,073,174:34:0		
91	302	22:17:14.733	117JU105A106B4A	7STRP	0.033012,-0.0088	Slew =,9.32	167	06		1,073,174:36:0		
91	302	22:17:22.733	117JU105A106B4B	7STRP	-0.036016,0.0,0,	Slew =,0.76	167	06		1,073,174:48:0		
91	302	22:17:57.400	165JU4F	7VECT		Inert vect update UTC	167	06		1,073,175:09:0		
91	302	22:18:14.733	117JU105A106C4A	7STRP	0.037017,-0.0085	Slew =,9.32	167	06		1,073,175:35:0		
91	302	22:18:24.066	117JU105A106C4B	7STRP	-0.037518,0.0,0,	Slew =,0.76	167	06		1,073,175:49:0		
91	302	22:18:42.066	165JU4G	7VECT		Inert vect update UTC	167	06		1,073,175:76:0		
91	302	22:19:18.066	117JU105A106D4A	7STRP	0.035515,-0.0092	Slew =,9.32	167	06		1,073,176:39:0		
91	302	22:19:26.066	165JU4H	7VECT		Inert vect update UTC	167	06		1,073,176:51:0		
91	302	22:19:26.733	117JU105A106D4B	7STRP	-0.034514,0.0,0,	Slew =,0.76	167	06		1,073,176:52:0		
91	302	22:20:16.733	117JU11A	CSMOS	GE	***** GROUP END CSMOS	167	06		1,073,177:36:0		
91	302	22:20:16.733		DMS:	*RUNDOWN	RDY, TRACK 2, REV, TIC * 528 +/- 43;	167	06		1,073,177:36:0		
91	302	22:20:16.733	175JC422A6B	6DMSC	RDY,0	DMS Control Tape stop	167	06		1,073,177:36:0		
91	302	22:20:16.733	GAPNGASMAP01		-----STOP-------		167	06		:	:	
91	302	22:20:17.933		DMS:	*READY	RDY, TRACK 2, REV, TIC * 527 +/- 43;	167	06		1,073,177:37:8		
91	302	22:20:26.066	165EI4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	167	06		1,073,177:50:0		
91	302	22:20:26.066	GAPNGASPAT01		-----START------		167	06		:	:	
91	302	22:20:26.733	165EI4B	7SCAN	NORM,234.219999,	Check S/P Position	167	06		1,073,177:51:0		

YR	DOY	Time	PSID	Command	Parameters	Description	GCM	O S	RIM	MF	I
91	302	22:20:44.066	117EI	CSMOS	GS	***** GROUP START CSMOS	167	06	1,073,177:77:0		
91	302	22:20:51.400		DMS:	*RUNUP	R403, TRACK 2, REV, TIC 527 +/- 43;	167	06	1,073,177:88:0		
91	302	22:20:51.400	175IA422A6A	6DMSC	R403,0	DMS Control Tape runup 403.2kb	167	06	1,073,177:88:0		
91	302	22:20:52.066	165EI4C	7VECT		Inert vect update UTC	167	06	1,073,177:89:0		
91	302	22:20:52.733	165EI4D	7TMOT	ENA,TMC	Enable IVP - Target Motion	167	06	1,073,177:90:0		
91	302	22:20:53.400	176IA6A	6TMCHG	NCGIM4	NO CHANGE / 403.2 KBPS IMAGE + 1/8 NIMS RE	167	06	1,073,178:00:0		
91	302	22:20:53.400	117EI105A106A4A	7STRP	0.016001,0.0,0,0	Slew =,0.84	167	06	1,073,178:00:0		
91	302	22:20:55.200		DMS:	*RECORD	R403, TRACK 2, REV, TIC * 505 +/- 46;	167	06	1,073,178:02:7		
91	302	22:21:20.000		DMS:	*REVERSE	R403, TRACK 2, REV, TIC * 200 +/- 46;	167	06	1,073,178:39:9		
91	302	22:21:20.733	117EI105A106B4A	7STRP	0.008,0.0045,0,0	Slew =,4.73	167	06	1,073,178:41:0		
91	302	22:21:26.600		DMS:	*RESUME	R403, TRACK *3, *FWD, TIC * 218 +/- 50;	167	06	1,073,178:49:8		
91	302	22:21:36.733	165EI4E	7VECT		Inert vect update UTC	167	06	1,073,178:65:0		
91	302	22:21:38.066	117EI105A106B4B	7STRP	-0.029408,-0.001	Slew =,0.84	167	06	1,073,178:67:0		
91	302	22:22:17.400	117EI105A106C4A	7STRP	0.0085,0.033924,	Slew =,4.73	167	06	1,073,179:35:0		
91	302	22:22:28.733	165EI4F	7VECT		Inert vect update UTC	167	06	1,073,179:52:0		
91	302	22:22:30.066	117EI105A106C4B	7STRP	0.022004,0.0,0,0	Slew =,0.84	167	06	1,073,179:54:0		
91	302	22:23:00.066	117EI105A106D4A	7STRP	0.0025,-0.0068,0	Slew =,4.73	167	06	1,073,180:08:0		
91	302	22:23:04.733	117EI105A106D4B	7STRP	-0.029408,0.0013	Slew =,0.84	167	06	1,073,180:15:0		
91	302	22:23:20.733	165EI4G	7VECT		Inert vect update UTC	167	06	1,073,180:39:0		
91	302	22:23:44.066	117EI105A106E4A	7STRP	-0.005,-0.0068,0	Slew =,4.73	167	06	1,073,180:74:0		
91	302	22:23:48.733	117EI105A106E4B	7STRP	0.040722,-0.0005	Slew =,0.84	167	06	1,073,180:81:0		
91	302	22:24:12.733	165EI4H	7VECT		Inert vect update UTC	167	06	1,073,181:26:0		
91	302	22:24:42.066	117EI105A106F4A	7STRP	-0.0032,-0.01510	Slew =,4.73	167	06	1,073,181:70:0		
91	302	22:24:49.400	117EI105A106F4B	7STRP	-0.042325,-0.001	Slew =,0.84	167	06	1,073,181:81:0		
91	302	22:25:04.733	165EI4I	7VECT		Inert vect update UTC	167	06	1,073,182:13:0		
91	302	22:25:45.400	117EI105A106G4A	7STRP	-0.001,0.011001,	Slew =,4.73	167	06	1,073,182:74:0		
91	302	22:25:50.733	117EI105A106G4B	7STRP	0.050543,-0.0005	Slew =,0.84	167	06	1,073,182:82:0		
91	302	22:25:56.733	165EI4J	7VECT		Inert vect update UTC	167	06	1,073,183:00:0		
91	302	22:26:48.733	165EI4K	7VECT		Inert vect update UTC	167	06	1,073,183:78:0		
91	302	22:26:56.733	117EI105A106H4A	7STRP	-0.0005,-0.0035,	Slew =,4.73	167	06	1,073,183:90:0		
91	302	22:27:01.400	117EI105A106H4B	7STRP	-0.059269,-0.002	Slew =,0.84	167	06	1,073,184:06:0		
91	302	22:27:40.733	165EI4L	7VECT		Inert vect update UTC	167	06	1,073,184:65:0		
91	302	22:28:15.400	175IA422A6B	6DMSC	RDY,0	DMS Control Tape stop	167	06	1,073,185:26:0		
91	302	22:28:15.400		DMS:	*RUNDOWN	RDY, TRACK 3, FWD, TIC *5248 +/- 50;	167	06	1,073,185:26:0		
91	302	22:28:18.066	117EI11A	CSMOS	GE	***** GROUP END CSMOS	167	06	1,073,185:30:0		
91	302	22:28:18.200		DMS:	*READY	RDY, TRACK 3, FWD, TIC *5252 +/- 51;	167	06	1,073,185:30:2		
91	302	22:28:50.066	176MA6A	6TMCHG	ELSMPP	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS REC	167	06	1,073,185:78:0		
91	302	22:28:51.400	175MA422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	167	06	1,073,185:80:0		
91	302	22:28:51.400		DMS:	*RUNUP	R28, TRACK 3, FWD, TIC 5252 +/- 51;	167	06	1,073,185:80:0		
91	302	22:28:55.400		DMS:	*RECORD	R28, TRACK 3, FWD, TIC *5253 +/- 52;	167	06	1,073,185:86:0		
91	302	22:28:57.400	165LA4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	167	06	1,073,185:89:0		
91	302	22:28:58.066	165LA4B	7SCAN	NORM,221.198999,	Check S/P Position	167	06	1,073,185:90:0		

YR	DOY	Time	PSID	Command	Parameters	Description	GCM	O	S	RIM	MF	I
91	302	22:29:00.733	117LA	CSMOS	GS	***** GROUP START CSMOS	167	06		1,073,186:03:0		
91	302	22:29:23.400	165LA4C	7VECT		Inert vect update UTC	167	06		1,073,186:37:0		
91	302	22:29:24.066	165LA4D	7TMOT	ENA,TMC	Enable IVP - Target Motion	167	06		1,073,186:38:0		
91	302	22:29:24.733	117LA105A106A4A	7STRP	0.044329,0.0,0,0	Slew =,2.55	167	06		1,073,186:39:0		
91	302	22:29:46.733	117LA105A106A4B	7STRP	-0.044028,0.0013	Slew =,12.0	167	06		1,073,186:72:0		
91	302	22:29:54.066	117LA105A106A4C	7STRP	0.044329,0.0,0,0	Slew =,2.55	167	06		1,073,186:83:0		
91	302	22:30:15.400	165LA4E	7VECT		Inert vect update UTC	167	06		1,073,187:24:0		
91	302	22:30:16.066	117LA105A106A4D	7STRP	-0.044028,0.0013	Slew =,12.0	167	06		1,073,187:25:0		
91	302	22:30:23.400	117LA105A106A4E	7STRP	0.044329,0.0,0,0	Slew =,2.55	167	06		1,073,187:36:0		
91	302	22:30:45.400	117LA105A106A4F	7STRP	-0.044028,0.0013	Slew =,12.0	167	06		1,073,187:69:0		
91	302	22:30:52.733	117LA105A106A4G	7STRP	0.044329,0.0,0,0	Slew =,2.55	167	06		1,073,187:80:0		
91	302	22:30:55.400	157JC156A121A4A	37IOP	0,0	Safe, Grating Start Position =0	160	00		1,073,187:84:0		
91	302	22:31:07.400	165LA4F	7VECT		Inert vect update UTC	160	00		1,073,188:11:0		
91	302	22:31:14.733	117LA105A106A4H	7STRP	-0.044028,0.0013	Slew =,12.0	160	00		1,073,188:22:0		
91	302	22:31:22.066	117LA105A106A4I	7STRP	0.044329,0.0,0,0	Slew =,2.55	160	00		1,073,188:33:0		
91	302	22:31:44.066	117LA105A106A4J	7STRP	-0.044028,0.0013	Slew =,12.0	160	00		1,073,188:66:0		
91	302	22:31:51.400	117LA105A106A4K	7STRP	0.044329,0.0,0,0	Slew =,2.55	160	00		1,073,188:77:0		
91	302	22:31:59.400	165LA4G	7VECT		Inert vect update UTC	160	00		1,073,188:89:0		
91	302	22:32:00.733	GAPNGASPAT01		-----STOP-------		160	00		: :		
91	302	22:32:13.400	117LA105A106A4L	7STRP	-0.044028,0.0013	Slew =,12.0	160	00		1,073,189:19:0		
91	302	22:32:20.733	117LA105A106A4M	7STRP	0.044329,0.0,0,0	Slew =,2.55	160	00		1,073,189:30:0		
91	302	22:32:42.733	117LA105A106A4N	7STRP	-0.044028,0.0013	Slew =,12.0	160	00		1,073,189:63:0		
91	302	22:32:50.066	117LA105A106A4O	7STRP	0.044329,0.0,0,0	Slew =,2.55	160	00		1,073,189:74:0		
91	302	22:32:51.400	165LA4H	7VECT		Inert vect update UTC	160	00		1,073,189:76:0		
91	302	22:33:12.066	117LA105A106A4P	7STRP	-0.044028,0.0013	Slew =,12.0	160	00		1,073,190:16:0		
91	302	22:33:19.400	117LA105A106A4Q	7STRP	0.044329,0.0,0,0	Slew =,2.55	160	00		1,073,190:27:0		
91	302	22:33:41.400	117LA105A106A4R	7STRP	-0.044028,0.0013	Slew =,12.0	160	00		1,073,190:60:0		
91	302	22:33:43.400	165LA4I	7VECT		Inert vect update UTC	160	00		1,073,190:63:0		
91	302	22:33:48.733	117LA105A106A4S	7STRP	0.044329,0.0,0,0	Slew =,2.55	160	00		1,073,190:71:0		
91	302	22:34:10.733	117LA105A106A4T	7STRP	-0.044028,0.0013	Slew =,12.0	160	00		1,073,191:13:0		
91	302	22:34:18.066	117LA105A106A4U	7STRP	0.044329,0.0,0,0	Slew =,2.55	160	00		1,073,191:24:0		
91	302	22:34:35.400	165LA4J	7VECT		Inert vect update UTC	160	00		1,073,191:50:0		
91	302	22:34:40.066	117LA105A106A4V	7STRP	-0.044028,0.0013	Slew =,12.0	160	00		1,073,191:57:0		
91	302	22:34:47.400	117LA105A106A4W	7STRP	0.044329,0.0,0,0	Slew =,2.55	160	00		1,073,191:68:0		
91	302	22:35:09.400	117LA105A106B4A	7STRP	-0.044529,0.0025	Slew =,12.0	160	00		1,073,192:10:0		
91	302	22:35:16.733	117LA105A106B4B	7STRP	0.044329,0.0,0,0	Slew =,2.55	160	00		1,073,192:21:0		
91	302	22:35:27.400	165LA4K	7VECT		Inert vect update UTC	160	00		1,073,192:37:0		
91	302	22:35:38.733	117LA105A106B4C	7STRP	-0.044529,0.0025	Slew =,12.0	160	00		1,073,192:54:0		
91	302	22:35:46.066	117LA105A106B4D	7STRP	0.044329,0.0,0,0	Slew =,2.55	160	00		1,073,192:65:0		
91	302	22:36:08.066	117LA105A106B4E	7STRP	-0.044529,0.0025	Slew =,12.0	160	00		1,073,193:07:0		
91	302	22:36:15.400	117LA105A106B4F	7STRP	0.044329,0.0,0,0	Slew =,2.55	160	00		1,073,193:18:0		
91	302	22:36:19.400	165LA4L	7VECT		Inert vect update UTC	160	00		1,073,193:24:0		

YR	DOY	Time	PSID	Command	Parameters	Description	GCM	O S	RIM	MF	I
91	302	22:36:37.400	117LA105A106C4A	7STRP	-0.04503,0.00345	Slew =,12.0	160	00	1,073,193:51:0		
91	302	22:36:44.733	117LA105A106C4B	7STRP	0.044329,0.0005,	Slew =,2.55	160	00	1,073,193:62:0		
91	302	22:37:06.733	117LA105A106C4C	7STRP	-0.04503,0.00345	Slew =,12.0	160	00	1,073,194:04:0		
91	302	22:37:11.400	165LA4M	7VECT		Inert vect update UTC	160	00	1,073,194:11:0		
91	302	22:37:14.066	117LA105A106C4D	7STRP	0.044329,0.0005,	Slew =,2.55	160	00	1,073,194:15:0		
91	302	22:37:36.066	117LA105A106D4A	7STRP	-0.046032,0.0047	Slew =,12.0	160	00	1,073,194:48:0		
91	302	22:37:43.400	117LA105A106D4B	7STRP	0.044329,0.001,0	Slew =,2.55	160	00	1,073,194:59:0		
91	302	22:38:05.400	117LA105A106E4A	7STRP	-0.046032,0.0031	Slew =,12.0	160	00	1,073,195:01:0		
91	302	22:38:12.733	117LA105A106E4B	7STRP	0.044329,0.00725	Slew =,2.55	160	00	1,073,195:12:0		
91	302	22:38:34.733	117LA105A106F4A	7STRP	-0.046032,0.0035	Slew =,12.0	160	00	1,073,195:45:0		
91	302	22:38:42.066	117LA105A106F4B	7STRP	0.044329,0.0055,	Slew =,2.55	160	00	1,073,195:56:0		
91	302	22:39:04.066	117LA11A	CSMOS	GE	***** GROUP END CSMOS	160	00	1,073,195:89:0		
91	302	22:45:06.066		DMS:	*RUNDOWN	RDY, TRACK 3, FWD, TIC *6106 +/- 52;	160	00	1,073,201:86:0		
91	302	22:45:06.066	175MA422A6B	6DMSC	RDY,0	DMS Control Tape stop	160	00	1,073,201:86:0		
91	302	22:45:07.266		DMS:	*READY	RDY, TRACK 3, FWD, TIC *6107 +/- 52;	160	00	1,073,201:87:8		
91	302	22:45:08.066	175MB422A6A	6DMSC	R7,0	DMS Control Tape runup 7.68kps	160	00	1,073,201:89:0		
91	302	22:45:08.066		DMS:	*RUNUP	R7, TRACK 3, FWD, TIC 6107 +/- 52;	160	00	1,073,201:89:0		
91	302	22:45:09.400	176MB6A	6TMCHG	ELSLRS	10 BPS TDM / LRS Rec 7.68kb/s	160	00	1,073,202:00:0		
91	302	22:45:09.533		DMS:	*RECORD	R7, TRACK 3, FWD, TIC *6108 +/- 52;	160	00	1,073,202:00:2		
91	302	22:57:16.066	165LB4A	7TMOT	DIS,TMC	Disable IVP - Target Motion	160	00	1,073,213:89:0		
91	302	22:57:16.733	165LB4B	7SCAN	NORM,75.438999,2	Check S/P Position	160	00	1,073,213:90:0		
91	302	23:00:23.400	117LB	CSMOS	GS	***** GROUP START CSMOS	160	00	1,073,217:06:0		
91	302	23:00:32.733	117LB105A106A4A	7STRP	-0.024505,0.0,0,	Slew =,1.01	160	00	1,073,217:20:0		
91	302	23:01:00.066	117LB105A106A4B	7STRP	0.026806,-0.0016	Slew =17.31	160	00	1,073,217:61:0		
91	302	23:01:05.400	117LB105A106A4C	7STRP	-0.024505,0.0,0,	Slew =,1.01	160	00	1,073,217:69:0		
91	302	23:01:32.733	117LB105A106A4D	7STRP	0.026806,-0.0016	Slew =17.31	160	00	1,073,218:19:0		
91	302	23:01:38.066	117LB105A106A4E	7STRP	-0.024505,0.0,0,	Slew =,1.01	160	00	1,073,218:27:0		
91	302	23:02:05.400	117LB105A106A4F	7STRP	0.026806,-0.0016	Slew =17.31	160	00	1,073,218:68:0		
91	302	23:02:10.733	117LB105A106A4G	7STRP	-0.024505,0.0,0,	Slew =,1.01	160	00	1,073,218:76:0		
91	302	23:02:38.066	117LB105A106A4H	7STRP	0.026806,-0.0016	Slew =17.31	160	00	1,073,219:26:0		
91	302	23:02:43.400	117LB105A106A4I	7STRP	-0.024505,0.0,0,	Slew =,1.01	160	00	1,073,219:34:0		
91	302	23:03:10.733	117LB105A106A4J	7STRP	0.026806,-0.0016	Slew =17.31	160	00	1,073,219:75:0		
91	302	23:03:16.066	117LB105A106A4K	7STRP	-0.024505,0.0,0,	Slew =,1.01	160	00	1,073,219:83:0		
91	302	23:03:43.400	117LB105A106A4L	7STRP	0.026806,-0.0016	Slew =17.31	160	00	1,073,220:33:0		
91	302	23:03:48.733	117LB105A106A4M	7STRP	-0.024505,0.0,0,	Slew =,1.01	160	00	1,073,220:41:0		
91	302	23:04:16.066	117LB105A106A4N	7STRP	0.026806,-0.0016	Slew =17.31	160	00	1,073,220:82:0		
91	302	23:04:21.400	117LB105A106A4O	7STRP	-0.024505,0.0,0,	Slew =,1.01	160	00	1,073,220:90:0		
91	302	23:04:48.733	117LB105A106A4P	7STRP	0.026806,-0.0016	Slew =17.31	160	00	1,073,221:40:0		
91	302	23:04:54.066	117LB105A106A4Q	7STRP	-0.024505,0.0,0,	Slew =,1.01	160	00	1,073,221:48:0		
91	302	23:05:21.400	117LB105A106A4R	7STRP	0.026806,-0.0016	Slew =17.31	160	00	1,073,221:89:0		
91	302	23:05:26.733	117LB105A106A4S	7STRP	-0.024505,0.0,0,	Slew =,1.01	160	00	1,073,222:06:0		
91	302	23:05:54.066	117LB105A106A4T	7STRP	0.026806,-0.0016	Slew =17.31	160	00	1,073,222:47:0		

YR	DOY	Time	PSID	Command	Parameters	Description	GCM	O S	RIM	MF I
91	302	23:05:59.400	117LB105A106A4U	7STRP	-0.024505,0.0,0,	Slew =,1.01	160	00	1,073,222:55:0	
91	302	23:06:26.733	117LB105A106A4V	7STRP	0.026806,-0.0016	Slew =17.31	160	00	1,073,223:05:0	
91	302	23:06:32.066	117LB105A106A4W	7STRP	-0.024505,0.0,0,	Slew =,1.01	160	00	1,073,223:13:0	
91	302	23:06:59.400	117LB105A106A4X	7STRP	0.026806,-0.0016	Slew =17.31	160	00	1,073,223:54:0	
91	302	23:07:04.733	117LB105A106A4Y	7STRP	-0.024505,0.0,0,	Slew =,1.01	160	00	1,073,223:62:0	
91	302	23:07:32.066	117LB105A106A4Z	7STRP	0.026806,-0.0016	Slew =17.31	160	00	1,073,224:12:0	
91	302	23:07:37.400	117LB105A106A4AA	7STRP	-0.024505,0.0,0,	Slew =,1.01	160	00	1,073,224:20:0	
91	302	23:08:04.733	117LB105A106A4AB	7STRP	0.026806,-0.0016	Slew =17.31	160	00	1,073,224:61:0	
91	302	23:08:10.066	117LB105A106A4AC	7STRP	-0.024505,0.0,0,	Slew =,1.01	160	00	1,073,224:69:0	
91	302	23:08:37.400	117LB105A106A4AD	7STRP	0.026806,-0.0016	Slew =17.31	160	00	1,073,225:19:0	
91	302	23:08:42.733	117LB105A106A4AE	7STRP	-0.024505,0.0,0,	Slew =,1.01	160	00	1,073,225:27:0	
91	302	23:09:10.066	117LB105A106A4AF	7STRP	0.026806,-0.0016	Slew =17.31	160	00	1,073,225:68:0	
91	302	23:09:15.400	117LB105A106A4AG	7STRP	-0.024505,0.0,0,	Slew =,1.01	160	00	1,073,225:76:0	
91	302	23:09:42.733	117LB105A106A4AH	7STRP	0.026806,-0.0016	Slew =17.31	160	00	1,073,226:26:0	
91	302	23:09:48.066	117LB105A106A4AI	7STRP	-0.024505,0.0,0,	Slew =,1.01	160	00	1,073,226:34:0	
91	302	23:10:15.400	117LB105A106A4AJ	7STRP	0.026806,-0.0016	Slew =17.31	160	00	1,073,226:75:0	
91	302	23:10:20.733	117LB105A106A4AK	7STRP	-0.024505,0.0,0,	Slew =,1.01	160	00	1,073,226:83:0	
91	302	23:10:48.066	117LB105A106A4AL	7STRP	0.026806,-0.0016	Slew =17.31	160	00	1,073,227:33:0	
91	302	23:10:53.400	117LB105A106A4AM	7STRP	-0.024505,0.0,0,	Slew =,1.01	160	00	1,073,227:41:0	
91	302	23:11:20.733	117LB105A106A4AN	7STRP	0.026806,-0.0016	Slew =17.31	160	00	1,073,227:82:0	
91	302	23:11:26.066	117LB105A106A4AO	7STRP	-0.024505,0.0,0,	Slew =,1.01	160	00	1,073,227:90:0	
91	302	23:11:53.400	117LB105A106A4AP	7STRP	0.026806,-0.0016	Slew =17.31	160	00	1,073,228:40:0	
91	302	23:11:58.733	117LB105A106A4AQ	7STRP	-0.024505,0.0,0,	Slew =,1.01	160	00	1,073,228:48:0	
91	302	23:12:26.066	117LB105A106A4AR	7STRP	0.026806,-0.0016	Slew =17.31	160	00	1,073,228:89:0	
91	302	23:12:31.400	117LB105A106A4AS	7STRP	-0.024505,0.0,0,	Slew =,1.01	160	00	1,073,229:06:0	
91	302	23:12:58.733	117LB11A	CSMOS	GE	***** GROUP END CSMOS	160	00	1,073,229:47:0	
91	302	23:14:28.066	20LA4A	7SAFE	UNSTOW	S/P TO 153 deg cone	160	00	1,073,230:90:0	
91	302	23:29:38.733	175MB422A6B	6DMSC	RDY,0	DMS Control Tape stop	160	00	1,073,246:00:0	
91	302	23:29:38.733		DMS:	*RUNDOWN	RDY, TRACK 3, FWD, TIC *6734 +/- 52;	160	00	1,073,246:00:0	
91	302	23:29:40.000		DMS:	*READY	RDY, TRACK 3, FWD, TIC *6735 +/- 52;	160	00	1,073,246:01:9	
91	303	01:18:03.400	20F4A	7MODE	CRU	AACS CRUISE MODE	160	00	1,073,353:20:0	
91	303	01:28:56.733	190JA4B	7MODE	CRU	AACS CRUISE MODE	160	00	1,073,363:90:0	
91	303	01:28:57.400	190JA4C	7SAFE	UNSTOW	S/P TO 153 deg cone	160	00	1,073,364:00:0	
91	303	01:32:54.066	190JA4D	7MODE	SPNL	AACS ALL-SPIN LOW	160	00	1,073,367:82:0	
91	303	01:34:56.733	GANNPCTCAL01		-----START------		160	00	: :	
91	303	01:34:56.733	128JV149A131A4A	37IOP	3,0	Long Map, Grating Start Position =0	163	00	1,073,369:84:0	
91	303	01:35:01.400	176JA6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + N	163	00	1,073,370:00:0	
91	303	01:40:59.400	190JA4E	7SAFE	UNSTOW	S/P TO 153 deg cone	163	00	1,073,375:82:0	
91	303	01:58:16.666	192JA4A	7CONE	17.4,54.88	Check S/P Position	163	00	1,073,393:00:0	
91	303	01:58:17.333	192JA4B	7CLK	17.4,244.07	Check S/P Position	163	00	1,073,393:01:0	
91	303	02:04:16.666		DMS:	*RUNUP	R28, TRACK 3, FWD, TIC 6735 +/- 52;	163	00	1,073,398:85:0	
91	303	02:04:16.666	175JA422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	163	00	1,073,398:85:0	

YR	DOY	Time	PSID	Command	Parameters	Description	GCM	O S	RIM	MF	I
91	303	02:04:20.666		DMS:	*RECORD	R28, TRACK 3, FWD, TIC *6737 +/- 53;	163	00	1,073,399:00:0		
91	303	02:05:16.666	157JA156A121A4A	37IST	1,2,0,OFF,0,0,3	Chopper ON, Sync, Chopper (Ref)	1R3	00	1,073,399:84:0		
91	303	02:05:20.666		DMS:	*RUNDOWN	RDY, TRACK 3, FWD, TIC *6789 +/- 53;	1R3	00	1,073,399:90:0		
91	303	02:05:20.666	175JA422A6B	6DMSC	RDY,0	DMS Control Tape stop	1R3	00	1,073,399:90:0		
91	303	02:05:21.866		DMS:	*READY	RDY, TRACK 3, FWD, TIC *6790 +/- 53;	1R3	00	1,073,400:00:8		
91	303	02:07:18.666		DMS:	*RUNUP	R28, TRACK 3, FWD, TIC 6790 +/- 53;	1R3	00	1,073,401:85:0		
91	303	02:07:18.666	175JX422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	1R3	00	1,073,401:85:0		
91	303	02:07:22.666		DMS:	*RECORD	R28, TRACK 3, FWD, TIC *6792 +/- 53;	1R3	00	1,073,402:00:0		
91	303	02:08:22.666		DMS:	*RUNDOWN	RDY, TRACK 3, FWD, TIC *6845 +/- 53;	1R3	00	1,073,402:90:0		
91	303	02:08:22.666	175JX422A6B	6DMSC	RDY,0	DMS Control Tape stop	1R3	00	1,073,402:90:0		
91	303	02:08:23.866		DMS:	*READY	RDY, TRACK 3, FWD, TIC *6846 +/- 53;	1R3	00	1,073,403:00:8		
91	303	02:09:19.333	157JA156A121B4A	37IOP	0,0	Safe, Grating Start Position =0	1R0	00	1,073,403:84:0		
91	303	02:09:24.000	191JA4A	7SAFE	UNSTOW	S/P TO 153 deg cone	1R0	00	1,073,404:00:0		
91	303	02:11:25.333	185JA10A3A	40HRP	1	RCT Heater ON (primary relay)	1R0	00	1,073,406:00:0		
91	303	02:11:25.333	GANNPCTCAL01		-----STOP-------		1R0	00	:	:	
91	303	02:13:26.666	191JA4B	7MODE	CRU	AACS CRUISE MODE	1R0	00	1,073,408:00:0		
91	303	08:39:36.666	128JW149A131A4A	37IOP	3,0	Long Map, Grating Start Position =0	1R3	00	1,073,789:84:0		
91	303	08:39:36.666	GANNRCTCAL01		-----START------		1R3	00	:	:	
91	303	08:39:41.333	192JB4A	7CONE	17.4,0.0	Check S/P Position	1R3	00	1,073,790:00:0		
91	303	08:39:41.333	176JB6A	6TMCHG	ELSMPW	10 BPS TDM-NO NIMS R/T / 28.8 KBPS PWS + N	1R3	00	1,073,790:00:0		
91	303	08:42:39.333		DMS:	*RUNUP	R28, TRACK 3, FWD, TIC 6846 +/- 53;	1R3	00	1,073,792:85:0		
91	303	08:42:39.333	175JB422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	1R3	00	1,073,792:85:0		
91	303	08:42:43.333		DMS:	*RECORD	R28, TRACK 3, FWD, TIC *6847 +/- 54;	1R3	00	1,073,793:00:0		
91	303	08:43:39.333	157JB156A121A4A	37IST	1,0,0,OFF,0,1,3	Chopper ON, Sync, 63Hz (Ref)Gain State 1	163	00	1,073,793:84:0		
91	303	08:43:43.333		DMS:	*RUNDOWN	RDY, TRACK 3, FWD, TIC *6900 +/- 54;	163	00	1,073,793:90:0		
91	303	08:43:43.333	175JB422A6B	6DMSC	RDY,0	DMS Control Tape stop	163	00	1,073,793:90:0		
91	303	08:43:44.533		DMS:	*READY	RDY, TRACK 3, FWD, TIC *6901 +/- 54;	163	00	1,073,794:00:8		
91	303	08:45:41.333		DMS:	*RUNUP	R28, TRACK 3, FWD, TIC 6901 +/- 54;	163	00	1,073,795:85:0		
91	303	08:45:41.333	175JY422A6A	6DMSC	R28,0	DMS Control Tape runup 28.8kbp	163	00	1,073,795:85:0		
91	303	08:45:45.333		DMS:	*RECORD	R28, TRACK 3, FWD, TIC *6902 +/- 54;	163	00	1,073,796:00:0		
91	303	08:46:45.333		DMS:	*RUNDOWN	RDY, TRACK 3, FWD, TIC *6955 +/- 54;	163	00	1,073,796:90:0		
91	303	08:46:45.333	175JY422A6B	6DMSC	RDY,0	DMS Control Tape stop	163	00	1,073,796:90:0		
91	303	08:46:46.533		DMS:	*READY	RDY, TRACK 3, FWD, TIC *6956 +/- 55;	163	00	1,073,797:00:8		
91	303	08:52:45.333	157JB156A121B4A	37IOP	0,0	Safe, Grating Start Position =0	160	00	1,073,802:84:0		
91	303	08:55:51.333	20JA4A	7SAFE	UNSTOW	S/P TO 153 deg cone	160	00	1,073,805:90:0		
91	303	08:55:52.000	185JA10B3A	40HRPR	1	RCT Heater OFF (primary relay)	160	00	1,073,806:00:0		
91	303	08:58:50.666	20YU4A	37IOP	CMD,37IOP,20YU4A	, Grating Start Position =37	160	00	1,073,808:86:0		
91	303	08:58:54.000	GANNRCTCAL01		-----STOP-------		160	00	:	:	
91	303	08:59:51.333	20YU3A	37AR	CMD,37AR,20YU3A,	NIMS Power OFF			1,073,809:86:0		
91	303	09:00:11.333	20YU3B	37H	CMD,37H,20YU3B,,	Replacement Heaters ON			1,073,810:25:0		
91	303	09:03:06.000	20D3A	37F2P	CMD,37F2P,20D3A,	Shield Flash Heater ON (primary relay)			1,073,813:14:0		
91	303	09:03:10.666	20D3B	37F2P	CMD,37F2P,20D3B,	Shield Flash Heater ON (primary relay)			1,073,813:21:0		

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YR DOY    Time            PSID         Command     Parameters                  Description                 GCM  O S    RIM     MF I
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91 303 09:08:06.000 20E3A            40T1P    CMD,40T1P,20E3A, PCT Heater 1 ON (primary relay)                    1,073,818:09:0
91 303 09:08:10.666 20E3B            40T1P    CMD,40T1P,20E3B, PCT Heater 1 ON (primary relay)                    1,073,818:16:0
91 303 09:11:06.000 20E3C            40T2     CMD,40T2,20E3C,P PCT Heater 2 ON                                    1,073,821:06:0
91 303 09:11:10.666 20E3D            40T2     CMD,40T2,20E3D,S PCT Heater 2 ON                                    1,073,821:13:0
91 308 22:09:59.733                   DMS:      READY           RDY,  TRACK  3,  FWD, TIC  6956 +/-  55;          1,081,712:26:0
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PA Summary Table

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

INPUT FILE: GASPRA_911008.SEF

OAPEL	PA	PSID	SCLK1	SCLK2	SCET1	TARGET
GAPSLTCRVC01	TARGET	165IG	01072711:89	01072716:14	91-302/14:29:41	GASPRA
GAPSLTCRVC01	INITRS	128IE	01072714:84	01072716:86	91-302/14:32:40	GASPRA
GAPSLTCRVC01	SSI	147IG	01072715:76	01072716:86	91-302/14:33:35	GASPRA
GAPSLTCRVC01	SCIREC	175IQ	01072715:84	01072716:18	91-302/14:33:40	GASPRA
GAPSLTCRVC01	SCITLM	176IQ	01072716:00	01072716:13	91-302/14:33:45	GASPRA
GAPNGASPEC01	TARGET	165JA	01072719:56	01072720:06	91-302/14:37:24	GASPRA
GAPNGASPEC01	CSMOS	117JA	01072719:83	01072723:23	91-302/14:37:42	GASPRA
GAPNGASPEC01	SCIREC	175JK	01072719:85	01072723:25	91-302/14:37:44	GASPRA
GAPNGASPEC01	SCITLM	176JK	01072720:00	01072720:13	91-302/14:37:48	GASPRA
GAPNGASPER01	TARGET	165JB	01072732:04	01072734:06	91-302/14:49:58	GASPRA
GAPNGASPER01	CSMOS	117JB	01072733:83	01072734:22	91-302/14:51:52	GASPRA
GAPNGASPER01	INITRS	128JB	01072733:84	01072734:86	91-302/14:51:52	GASPRA
GAPNGASPER01	SCIREC	175JW	01072734:00	01072734:24	91-302/14:51:57	GASPRA
GAPNGASPER01	SCITLM	176JW	01072734:00	01072734:13	91-302/14:51:57	GASPRA
GAPSLTCRVB01	TARGET	165EA	01072748:89	01072751:00	91-302/15:07:06	GASPRA
GAPSLTCRVB01	INITRS	128EA	01072749:89	01072751:86	91-302/15:08:06	GASPRA
GAPSLTCRVB01	SSI	147EA	01072750:76	01072751:44	91-302/15:08:58	GASPRA
GAPSLTCRVB01	CSMOS	117EA	01072750:77	01072752:29	91-302/15:08:59	GASPRA
GAPSLTCRVB01	SCIREC	175IP	01072750:90	01072751:48	91-302/15:09:08	GASPRA
GAPSLTCRVB01	SCITLM	176IP	01072751:00	01072751:13	91-302/15:09:08	GASPRA
GAPSLTCRVB01	SCIREC	175IS	01072751:52	01072752:31	91-302/15:09:43	GASPRA
GAPSLTCRVB01	SCITLM	176IR	01072751:52	01072751:65	91-302/15:09:43	GASPRA
GAPNGASPER02	TARGET	165JC	01072767:04	01072769:06	91-302/15:25:22	GASPRA
GAPNGASPER02	CSMOS	117JC	01072768:83	01072769:22	91-302/15:27:15	GASPRA
GAPNGASPER02	INITRS	128JC	01072768:84	01072769:86	91-302/15:27:16	GASPRA
GAPNGASPER02	SCIREC	175JV	01072769:00	01072769:24	91-302/15:27:20	GASPRA
GAPNGASPER02	SCITLM	176JV	01072769:00	01072769:13	91-302/15:27:20	GASPRA
GAPSLTCRVB02	TARGET	165EB	01072783:89	01072786:00	91-302/15:42:29	GASPRA
GAPSLTCRVB02	INITRS	128EB	01072784:89	01072786:86	91-302/15:43:30	GASPRA
GAPSLTCRVB02	SSI	147EB	01072785:76	01072786:44	91-302/15:44:22	GASPRA
GAPSLTCRVB02	CSMOS	117EB	01072785:77	01072787:36	91-302/15:44:22	GASPRA
GAPSLTCRVB02	SCIREC	175IO	01072785:90	01072786:48	91-302/15:44:31	GASPRA
GAPSLTCRVB02	SCITLM	176IO	01072786:00	01072786:13	91-302/15:44:32	GASPRA
GAPSLTCRVB02	SCIREC	175IT	01072786:52	01072787:38	91-302/15:45:06	GASPRA
GAPSLTCRVB02	SCITLM	176IS	01072786:52	01072786:65	91-302/15:45:06	GASPRA
GAPNGASPER03	TARGET	165JD	01072802:04	01072804:06	91-302/16:00:45	GASPRA
GAPNGASPER03	CSMOS	117JD	01072803:83	01072804:22	91-302/16:02:38	GASPRA
GAPNGASPER03	INITRS	128JD	01072803:84	01072804:86	91-302/16:02:39	GASPRA
GAPNGASPER03	SCIREC	175JU	01072804:00	01072804:24	91-302/16:02:44	GASPRA
GAPNGASPER03	SCITLM	176JU	01072804:00	01072804:13	91-302/16:02:44	GASPRA

OAPEL	PA	PSID	SCLK1	SCLK2	SCET1	TARGET
GAPSLTCRVC02	TARGET	165IF	01072816:89	01072834:77	91-302/16:15:51	GASPRA
GAPSLTCRVC02	INITRS	128ID	01072819:90	01072821:86	91-302/16:18:54	GASPRA
GAPSLTCRVC02	SSI	147IF	01072820:76	01072821:86	91-302/16:19:45	GASPRA
GAPSLTCRVC02	SCIREC	175IN	01072820:84	01072821:18	91-302/16:19:50	GASPRA
GAPSLTCRVC02	SCITLM	176IN	01072821:00	01072821:13	91-302/16:19:55	GASPRA
GAPNGASPEC02	TARGET	165JE	01072824:56	01072825:06	91-302/16:23:34	GASPRA
GAPNGASPEC02	CSMOS	117JE	01072824:83	01072828:47	91-302/16:23:52	GASPRA
GAPNGASPEC02	SCIREC	175JJ	01072825:00	01072828:49	91-302/16:23:58	GASPRA
GAPNGASPEC02	SCITLM	176JJ	01072825:00	01072825:13	91-302/16:23:58	GASPRA
GAPNGASPER04	TARGET	165JF	01072837:04	01072839:06	91-302/16:36:08	GASPRA
GAPNGASPER04	CSMOS	117JF	01072838:83	01072839:24	91-302/16:38:02	GASPRA
GAPNGASPER04	INITRS	128JF	01072838:84	01072839:86	91-302/16:38:02	GASPRA
GAPNGASPER04	SCIREC	175JT	01072839:00	01072839:26	91-302/16:38:07	GASPRA
GAPNGASPER04	SCITLM	176JT	01072839:00	01072839:13	91-302/16:38:07	GASPRA
GAPSLTCRVB03	TARGET	165EC	01072853:89	01072856:00	91-302/16:53:16	GASPRA
GAPSLTCRVB03	INITRS	128EC	01072854:89	01072856:86	91-302/16:54:16	GASPRA
GAPSLTCRVB03	SSI	147EC	01072855:76	01072856:44	91-302/16:55:08	GASPRA
GAPSLTCRVB03	CSMOS	117EC	01072855:77	01072857:35	91-302/16:55:09	GASPRA
GAPSLTCRVB03	SCIREC	175IM	01072855:90	01072856:48	91-302/16:55:18	GASPRA
GAPSLTCRVB03	SCITLM	176IM	01072856:00	01072856:13	91-302/16:55:18	GASPRA
GAPSLTCRVB03	SCIREC	175IU	01072856:52	01072857:37	91-302/16:55:53	GASPRA
GAPSLTCRVB03	SCITLM	176IT	01072856:52	01072856:65	91-302/16:55:53	GASPRA
GAPNGASPER05	TARGET	165JG	01072872:04	01072874:06	91-302/17:11:32	GASPRA
GAPNGASPER05	CSMOS	117JG	01072873:83	01072874:24	91-302/17:13:25	GASPRA
GAPNGASPER05	INITRS	128JG	01072873:84	01072874:86	91-302/17:13:26	GASPRA
GAPNGASPER05	SCIREC	175JS	01072874:00	01072874:26	91-302/17:13:30	GASPRA
GAPNGASPER05	SCITLM	176JS	01072874:00	01072874:13	91-302/17:13:30	GASPRA
GAPSLTCRVB04	TARGET	165ED	01072888:89	01072891:00	91-302/17:28:39	GASPRA
GAPSLTCRVB04	INITRS	128ED	01072889:89	01072891:86	91-302/17:29:40	GASPRA
GAPSLTCRVB04	SSI	147ED	01072890:76	01072891:44	91-302/17:30:32	GASPRA
GAPSLTCRVB04	CSMOS	117ED	01072890:77	01072892:35	91-302/17:30:32	GASPRA
GAPSLTCRVB04	SCIREC	175IL	01072890:90	01072891:48	91-302/17:30:41	GASPRA
GAPSLTCRVB04	SCITLM	176IL	01072891:00	01072891:13	91-302/17:30:42	GASPRA
GAPSLTCRVB04	SCIREC	175IV	01072891:52	01072892:37	91-302/17:31:16	GASPRA
GAPSLTCRVB04	SCITLM	176IU	01072891:52	01072891:65	91-302/17:31:16	GASPRA
GAPNGASPER06	TARGET	165JH	01072907:04	01072909:06	91-302/17:46:55	GASPRA
GAPNGASPER06	CSMOS	117JH	01072908:83	01072909:24	91-302/17:48:48	GASPRA
GAPNGASPER06	INITRS	128JH	01072908:84	01072909:86	91-302/17:48:49	GASPRA
GAPNGASPER06	SCIREC	175JR	01072909:00	01072909:26	91-302/17:48:54	GASPRA
GAPNGASPER06	SCITLM	176JR	01072909:00	01072909:13	91-302/17:48:54	GASPRA
GAPSLTCRVC03	TARGET	165IE	01072921:89	01072928:00	91-302/18:02:01	GASPRA
GAPSLTCRVC03	SSI	147IE	01072925:76	01072927:89	91-302/18:05:55	GASPRA
GAPSLTCRVC03	SCIREC	175IK	01072925:90	01072928:02	91-302/18:06:04	GASPRA
GAPSLTCRVC03	SCITLM	176IK	01072926:00	01072926:13	91-302/18:06:05	GASPRA

OAPEL	PA	PSID	SCLK1	SCLK2	SCET1	TARGET
GAPNGASPEC03	TARGET	165JI	01072929:56	01072930:06	91-302/18:09:44	GASPRA
GAPNGASPEC03	CSMOS	117JI	01072929:83	01072934:11	91-302/18:10:02	GASPRA
GAPNGASPEC03	INITRS	128JI	01072929:84	01072930:86	91-302/18:10:03	GASPRA
GAPNGASPEC03	SCIREC	175JI	01072930:00	01072934:13	91-302/18:10:08	GASPRA
GAPNGASPEC03	SCITLM	176JI	01072930:00	01072930:13	91-302/18:10:08	GASPRA
GAPNGASPER07	TARGET	165JJ	01072942:04	01072944:06	91-302/18:22:18	GASPRA
GAPNGASPER07	CSMOS	117JJ	01072943:83	01072944:26	91-302/18:24:12	GASPRA
GAPNGASPER07	INITRS	128JJ	01072943:84	01072944:86	91-302/18:24:12	GASPRA
GAPNGASPER07	SCIREC	175JQ	01072944:00	01072944:28	91-302/18:24:17	GASPRA
GAPNGASPER07	SCITLM	176JQ	01072944:00	01072944:13	91-302/18:24:17	GASPRA
GAPSLTCRVB05	TARGET	165EE	01072958:89	01072961:00	91-302/18:39:26	GASPRA
GAPSLTCRVB05	INITRS	128EE	01072959:89	01072961:86	91-302/18:40:26	GASPRA
GAPSLTCRVB05	SSI	147EE	01072960:76	01072961:44	91-302/18:41:18	GASPRA
GAPSLTCRVB05	CSMOS	117EE	01072960:77	01072962:32	91-302/18:41:19	GASPRA
GAPSLTCRVB05	SCIREC	175II	01072960:90	01072961:48	91-302/18:41:28	GASPRA
GAPSLTCRVB05	SCITLM	176II	01072961:00	01072961:13	91-302/18:41:28	GASPRA
GAPSLTCRVB05	SCIREC	175IW	01072961:52	01072962:34	91-302/18:42:03	GASPRA
GAPSLTCRVB05	SCITLM	176IV	01072961:52	01072961:65	91-302/18:42:03	GASPRA
GAPNGASPER08	TARGET	165JK	01072977:04	01072979:06	91-302/18:57:42	GASPRA
GAPNGASPER08	CSMOS	117JK	01072978:83	01072979:24	91-302/18:59:35	GASPRA
GAPNGASPER08	INITRS	128JK	01072978:84	01072979:86	91-302/18:59:36	GASPRA
GAPNGASPER08	SCIREC	175JP	01072979:00	01072979:28	91-302/18:59:40	GASPRA
GAPNGASPER08	SCITLM	176JP	01072979:00	01072979:13	91-302/18:59:40	GASPRA
GAPSLTCRVB06	TARGET	165EF	01072993:89	01072996:00	91-302/19:14:49	GASPRA
GAPSLTCRVB06	INITRS	128EF	01072994:89	01072996:86	91-302/19:15:50	GASPRA
GAPSLTCRVB06	SSI	147EF	01072995:76	01072996:44	91-302/19:16:42	GASPRA
GAPSLTCRVB06	CSMOS	117EF	01072995:77	01072997:35	91-302/19:16:42	GASPRA
GAPSLTCRVB06	SCIREC	175IH	01072995:90	01072996:48	91-302/19:16:51	GASPRA
GAPSLTCRVB06	SCITLM	176IH	01072996:00	01072996:13	91-302/19:16:52	GASPRA
GAPSLTCRVB06	SCIREC	175IX	01072996:52	01072997:37	91-302/19:17:26	GASPRA
GAPSLTCRVB06	SCITLM	176IW	01072996:52	01072996:65	91-302/19:17:26	GASPRA
GAPUOUTGAS01	CMDRS	157KC	01073003:00	01073028:52	91-302/19:23:56	GASPRA
GAPUOUTGAS01	TARGET	165KB	01073003:50	01073005:89	91-302/19:24:30	GASPRA
GAPUOUTGAS01	CSMOS	117KB	01073003:77	01073027:52	91-302/19:24:48	GASPRA
GAPUOUTGAS01	SCIREC	175KA	01073003:89	01073027:84	91-302/19:24:56	GASPRA
GAPUOUTGAS01	SCITLM	176KA	01073004:00	01073004:13	91-302/19:24:57	GASPRA
GAPSLTCRVC04	TARGET	165ID	01073027:89	01073033:00	91-302/19:49:12	GASPRA
GAPSLTCRVC04	SSI	147ID	01073030:76	01073032:89	91-302/19:52:05	GASPRA
GAPSLTCRVC04	SCIREC	175IG	01073030:90	01073033:02	91-302/19:52:14	GASPRA
GAPSLTCRVC04	SCITLM	176IG	01073031:00	01073031:13	91-302/19:52:15	GASPRA
GAPNGASPEC04	TARGET	165JM	01073034:56	01073035:06	91-302/19:55:54	GASPRA
GAPNGASPEC04	CSMOS	117JM	01073034:83	01073039:26	91-302/19:56:12	GASPRA
GAPNGASPEC04	INITRS	128JM	01073034:84	01073035:86	91-302/19:56:13	GASPRA
GAPNGASPEC04	SCIREC	175JH	01073035:00	01073039:28	91-302/19:56:18	GASPRA
GAPNGASPEC04	SCITLM	176JH	01073035:00	01073035:13	91-302/19:56:18	GASPRA

OAPEL	PA	PSID	SCLK1	SCLK2	SCET1	TARGET
GAPNGASPER10	TARGET	165JN	01073047:04	01073049:06	91-302/20:08:28	GASPRA
GAPNGASPER10	CSMOS	117JN	01073048:83	01073049:26	91-302/20:10:22	GASPRA
GAPNGASPER10	INITRS	128JN	01073048:84	01073049:86	91-302/20:10:22	GASPRA
GAPNGASPER10	SCIREC	175JN	01073049:00	01073049:32	91-302/20:10:27	GASPRA
GAPNGASPER10	SCITLM	176JN	01073049:00	01073049:13	91-302/20:10:27	GASPRA
GAPSLTCRVB07	TARGET	165EG	01073063:89	01073066:00	91-302/20:25:36	GASPRA
GAPSLTCRVB07	INITRS	128EG	01073064:89	01073066:86	91-302/20:26:36	GASPRA
GAPSLTCRVB07	SSI	147EG	01073065:76	01073066:44	91-302/20:27:28	GASPRA
GAPSLTCRVB07	CSMOS	117EG	01073065:77	01073067:63	91-302/20:27:29	GASPRA
GAPSLTCRVB07	SCIREC	175IF	01073065:90	01073066:48	91-302/20:27:38	GASPRA
GAPSLTCRVB07	SCITLM	176IF	01073066:00	01073066:13	91-302/20:27:38	GASPRA
GAPSLTCRVB07	SCIREC	175IY	01073066:52	01073067:65	91-302/20:28:13	GASPRA
GAPSLTCRVB07	SCITLM	176IX	01073066:52	01073066:65	91-302/20:28:13	GASPRA
GAPNGASPER11	TARGET	165JO	01073082:04	01073084:06	91-302/20:43:52	GASPRA
GAPNGASPER11	CSMOS	117JO	01073083:83	01073084:30	91-302/20:45:45	GASPRA
GAPNGASPER11	INITRS	128JO	01073083:84	01073084:86	91-302/20:45:46	GASPRA
GAPNGASPER11	SCIREC	175JM	01073083:85	01073084:32	91-302/20:45:46	GASPRA
GAPNGASPER11	SCITLM	176JM	01073084:00	01073084:13	91-302/20:45:50	GASPRA
GAPSLTCRVB08	TARGET	165EH	01073098:89	01073101:00	91-302/21:00:59	GASPRA
GAPSLTCRVB08	INITRS	128EH	01073099:84	01073101:86	91-302/21:01:56	GASPRA
GAPSLTCRVB08	SSI	147EH	01073100:76	01073101:44	91-302/21:02:52	GASPRA
GAPSLTCRVB08	CSMOS	117EH	01073100:77	01073102:83	91-302/21:02:52	GASPRA
GAPSLTCRVB08	SCIREC	175IE	01073100:90	01073101:48	91-302/21:03:01	GASPRA
GAPSLTCRVB08	SCITLM	176IE	01073101:00	01073101:13	91-302/21:03:02	GASPRA
GAPSLTCRVB08	SCIREC	175IZ	01073101:52	01073102:85	91-302/21:03:36	GASPRA
GAPSLTCRVB08	SCITLM	176IY	01073101:52	01073101:65	91-302/21:03:36	GASPRA
GAPNGASPER12	TARGET	165JP	01073111:04	01073113:06	91-302/21:13:11	GASPRA
GAPNGASPER12	CSMOS	117JP	01073112:83	01073113:32	91-302/21:15:04	GASPRA
GAPNGASPER12	INITRS	128JP	01073112:84	01073113:86	91-302/21:15:05	GASPRA
GAPNGASPER12	SCIREC	175JL	01073113:00	01073113:34	91-302/21:15:10	GASPRA
GAPNGASPER12	SCITLM	176JL	01073113:00	01073113:13	91-302/21:15:10	GASPRA
GAPNGASPEC05	INITRS	128JQ	01073127:84	01073129:86	91-302/21:30:15	GASPRA
GAPNGASPEC05	TARGET	165JQ	01073128:56	01073129:06	91-302/21:30:57	GASPRA
GAPNGASPEC05	CSMOS	117JQ	01073128:83	01073133:89	91-302/21:31:15	GASPRA
GAPNGASPEC05	SCIREC	175JG	01073129:00	01073134:00	91-302/21:31:20	GASPRA
GAPNGASPEC05	SCITLM	176JG	01073129:00	01073129:13	91-302/21:31:20	GASPRA
GAPS6FILTR01	INITRS	128IA	01073132:84	01073135:86	91-302/21:35:18	GASPRA
GAPS6FILTR01	TARGET	165IA	01073134:89	01073138:78	91-302/21:37:23	GASPRA
GAPS6FILTR01	SSI	147IA	01073135:24	01073138:76	91-302/21:37:40	GASPRA
GAPS6FILTR01	SCIREC	175ID	01073135:36	01073138:82	91-302/21:37:48	GASPRA
GAPS6FILTR01	SCITLM	176ID	01073135:39	01073135:52	91-302/21:37:50	GASPRA
GAPS6FILTR01	SMOS	118IA	01073136:01	01073138:68	91-302/21:38:26	GASPRA
GAPNGASPEC06	INITRS	128JR	01073140:84	01073141:86	91-302/21:43:24	GASPRA
GAPNGASPEC06	TARGET	165JR	01073141:21	01073148:49	91-302/21:43:42	GASPRA
GAPNGASPEC06	CSMOS	117JR	01073141:48	01073148:49	91-302/21:44:00	GASPRA
GAPNGASPEC06	SCITLM	176JF	01073141:52	01073141:65	91-302/21:44:03	GASPRA
GAPNGASPEC06	SCIREC	175JF	01073141:56	01073148:51	91-302/21:44:06	GASPRA

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OAPEL        PA        PSID    SCLK1       SCLK2         SCET1       TARGET
-------------------------------------------------------------------------
GAPSTWKINS01 INITRS    128IB 01073147:90 01073149:86 91-302/21:50:32 GASPRA
GAPSTWKINS01 TARGET    165IB 01073148:50 01073151:13 91-302/21:51:06 GASPRA
GAPSTWKINS01 SSI       147IB 01073148:76 01073151:11 91-302/21:51:24 GASPRA
GAPSTWKINS01 CSMOS     117IA 01073148:77 01073151:13 91-302/21:51:24 GASPRA
GAPSTWKINS01 SCIREC    175IC 01073148:88 01073151:17 91-302/21:51:32 GASPRA
GAPSTWKINS01 SCITLM    176IC 01073149:00 01073149:13 91-302/21:51:34 GASPRA

GAPNGSCHEM02 INITRS    128JS 01073150:84 01073151:86 91-302/21:53:30 GASPRA
GAPNGSCHEM02 TARGET    165JS 01073151:39 01073157:71 91-302/21:54:01 GASPRA
GAPNGSCHEM02 SCITLM    176JE 01073151:65 01073151:78 91-302/21:54:18 GASPRA
GAPNGSCHEM02 CSMOS     117JS 01073151:66 01073157:71 91-302/21:54:19 GASPRA
GAPNGSCHEM02 SCIREC    175JE 01073151:74 01073157:73 91-302/21:54:24 GASPRA

GAPS4FILTR01 INITRS    128IC 01073155:84 01073158:86 91-302/21:58:34 GASPRA
GAPS4FILTR01 TARGET    165IC 01073157:89 01073163:52 91-302/22:00:38 GASPRA
GAPS4FILTR01 SSI       147IC 01073158:24 01073163:50 91-302/22:00:56 GASPRA
GAPS4FILTR01 SCIREC    175IB 01073158:36 01073163:56 91-302/22:01:04 GASPRA
GAPS4FILTR01 SCITLM    176IB 01073158:39 01073158:52 91-302/22:01:06 GASPRA
GAPS4FILTR01 SMOS      118IB 01073158:66 01073163:42 91-302/22:01:24 GASPRA

GAPNGSCHEM04 INITRS    128JT 01073163:84 01073164:86 91-302/22:06:39 GASPRA
GAPNGSCHEM04 TARGET    165JT 01073164:01 01073172:71 91-302/22:06:44 GASPRA
GAPNGSCHEM04 SCITLM    176JD 01073164:26 01073164:39 91-302/22:07:01 GASPRA
GAPNGSCHEM04 CSMOS     117JT 01073164:28 01073172:71 91-302/22:07:02 GASPRA
GAPNGSCHEM04 SCIREC    175JD 01073164:36 01073172:73 91-302/22:07:08 GASPRA

GAPNGASMAP01 INITRS    128JU 01073172:84 01073173:86 91-302/22:15:45 GASPRA
GAPNGASMAP01 TARGET    165JU 01073173:19 01073177:36 91-302/22:16:02 GASPRA
GAPNGASMAP01 CSMOS     117JU 01073173:46 01073177:36 91-302/22:16:20 GASPRA
GAPNGASMAP01 SCITLM    176JC 01073173:52 01073173:65 91-302/22:16:24 GASPRA
GAPNGASMAP01 SCIREC    175JC 01073173:54 01073177:38 91-302/22:16:26 GASPRA

GAPSHIPHAS01 TARGET    165EI 01073177:50 01073185:52 91-302/22:20:26 GASPRA
GAPSHIPHAS01 SSI       147EI 01073177:76 01073185:24 91-302/22:20:43 GASPRA
GAPSHIPHAS01 CSMOS     117EI 01073177:77 01073185:30 91-302/22:20:44 GASPRA
GAPSHIPHAS01 SCIREC    175IA 01073177:88 01073185:30 91-302/22:20:51 GASPRA
GAPSHIPHAS01 SCITLM    176IA 01073178:00 01073178:13 91-302/22:20:53 GASPRA

             PCINIT    190JA 01073363:88 01073379:00 91-303/01:28:55 PCT
GANNPCTCAL01 INITRS    128JV 01073369:84 01073370:86 91-303/01:34:56 PCT
GANNPCTCAL01 CMDRS     157JA 01073370:00 01073406:00 91-303/01:35:01 PCT
GANNPCTCAL01 SCITLM    176JA 01073370:00 01073370:13 91-303/01:35:01 PCT
             ALSPINSP  192JA 01073393:00 01073399:00 91-303/01:58:16 PCT
GANNPCTCAL01 SCIREC    175JA 01073398:85 01073400:01 91-303/02:04:16 PCT
GANNPCTCAL01 SCIREC    175JX 01073401:85 01073403:01 91-303/02:07:18 PCT
             PCREST    191JA 01073404:00 01073409:00 91-303/02:09:24 PCT

             RADHTR    185JA 01073406:00 01073806:01 91-303/02:11:25 RCT
GANNRCTCAL01 INITRS    128JW 01073789:84 01073790:86 91-303/08:39:36 RCT
GANNRCTCAL01 CMDRS     157JB 01073790:00 01073809:00 91-303/08:39:41 RCT
GANNRCTCAL01 SCITLM    176JB 01073790:00 01073790:13 91-303/08:39:41 RCT
             ALSPINSP  192JB 01073790:00 01073798:00 91-303/08:39:41 RCT
GANNRCTCAL01 SCIREC    175JB 01073792:85 01073794:01 91-303/08:42:39 RCT
GANNRCTCAL01 SCIREC    175JY 01073795:85 01073797:01 91-303/08:45:41 RCT
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Heading	NIMS Obstab (Planned) Columns	Comments
OAPEL	1 - 12	.Oapel Name from SEF (no aliases yet)
EXT	14 - 14	.Extension (allow for split OAPELs)
PSID	16 - 17	.2 Letter ID for the OAPEL
SCLK1	19 - 29	.Start time of OBS in SCLK
SCLK2	31 - 41	.STOP time of OBS in SCLK
MODE	43 - 44	.NIMS Instrument MODE
GAIN	46 - 47	.Gain State (true value)
CHOP	49 - 50	.Chopper State (1=Ref,2=63Hz,3=FreeRun,4=Off)
GRAT_OFF	52 - 53	.Grating Offset
PTAB_A(6)	55 - 71	.First PTAB (repeat count,mirror op,autobias...
PTAB_B(6)	73 - 89	.Second PTAB (...grating start, grating delta...
		. (...number of grating postions)
ECAL	92 - 92	.Electronics Calibration Active (1=yes)
OPCAL	94 - 94	.Optics Calibration active (1=yes)
UTC1	96 - 112	.Start time of OBS in UTC (from SEF - ISO STANDARD)
REAL_TIME	115 - 115	.NIMS in Real-Time Telemetry (1=yes)
RECORD	117 - 117	.NIMS in Record Telemetry(1=yes)
TARGET	120 - 127	.Primary Target of OBS
		GASPRA - P - Gaspra
		CALIBRATION - N - Non-Science

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

INPUT SEF FILE: EE11_921118.SEF

OAPEL, EXT, PSID, SCLK1, SCLK2, MODE, GAIN, CHOP, GRAT_OFF, PTAB_A(6), PTAB_B(6), ECAL, OPCAL, UTC1, REAL_TIME, RECORD, TARGET

OAPEL	EXT	PSID	SCLK1	SCLK2	M	G	C	O	PTAB A						PTAB B						E	O	UTC1	R	T	TARGET
GAPSLTCRVC01	A	IG	01072716:00	01072716:14	1	4	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1991-302T14:33:45	0	1	GASPRA
GAPNGASPEC01	A	JA	01072720:00	01072723:23	1	4	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1991-302T14:37:48	0	1	GASPRA
GAPNGASPER01	A	JB	01072734:06	01072734:22	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T14:52:01	0	1	GASPRA
GAPSLTCRVB01	A	EA	01072751:05	01072751:46	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T15:09:12	0	1	GASPRA
GAPSLTCRVB01	B	EA	01072751:58	01072752:29	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T15:09:47	0	1	GASPRA
GAPNGASPER02	A	JC	01072769:06	01072769:22	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T15:27:24	0	1	GASPRA
GAPSLTCRVB02	A	EB	01072786:05	01072786:46	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T15:44:35	0	1	GASPRA
GAPSLTCRVB02	B	EB	01072786:58	01072787:36	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T15:45:10	0	1	GASPRA
GAPNGASPER03	A	JD	01072804:06	01072804:22	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T16:02:48	0	1	GASPRA
GAPSLTCRVC02	A	IF	01072821:00	01072821:14	1	4	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1991-302T16:19:55	0	1	GASPRA
GAPNGASPEC02	A	JE	01072825:06	01072828:47	1	4	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1991-302T16:24:02	0	1	GASPRA
GAPNGASPER04	A	JF	01072839:06	01072839:24	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T16:38:11	0	1	GASPRA
GAPSLTCRVB03	A	EC	01072856:05	01072856:46	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T16:55:22	0	1	GASPRA
GAPSLTCRVB03	B	EC	01072856:58	01072857:35	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T16:55:57	0	1	GASPRA

OAPEL	EXT	PSID	SCLK1	SCLK2	M	G	C	O	PTAB A						PTAB B						E	O	UTC1	R	T	TARGET
GAPNGASPER05	A	JG	01072874:06	01072874:24	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T17:13:34	0	1	GASPRA
GAPSLTCRVB04	A	ED	01072891:05	01072891:46	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T17:30:45	0	1	GASPRA
GAPSLTCRVB04	B	ED	01072891:58	01072892:35	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T17:31:20	0	1	GASPRA
GAPNGASPER06	A	JH	01072909:06	01072909:24	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T17:48:58	0	1	GASPRA
GAPSLTCRVC03	A	IE	01072926:05	01072928:00	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T18:06:08	0	1	GASPRA
GAPNGASPEC03	A	JI	01072930:06	01072934:11	1	4	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1991-302T18:10:12	0	1	GASPRA
GAPNGASPER07	A	JJ	01072944:06	01072944:26	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T18:24:21	0	1	GASPRA
GAPSLTCRVB05	A	EE	01072961:05	01072961:46	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T18:41:32	0	1	GASPRA
GAPSLTCRVB05	B	EE	01072961:58	01072962:32	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T18:42:07	0	1	GASPRA
GAPNGASPER08	A	JK	01072979:06	01072979:26	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T18:59:44	0	1	GASPRA
GAPSLTCRVB06	A	EF	01072996:05	01072996:46	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T19:16:55	0	1	GASPRA
GAPSLTCRVB06	B	EF	01072996:58	01072997:35	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T19:17:30	0	1	GASPRA
GAPSLTCRVC04	A	ID	01073031:05	01073033:00	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T19:52:18	0	1	GASPRA
GAPNGASPEC04	A	JM	01073035:06	01073039:26	1	4	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1991-302T19:56:22	0	1	GASPRA
GAPNGASPER10	A	JN	01073049:06	01073049:30	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T20:10:31	0	1	GASPRA
GAPSLTCRVB07	A	EG	01073066:05	01073066:46	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T20:27:42	0	1	GASPRA
GAPSLTCRVB07	B	EG	01073066:58	01073067:63	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T20:28:17	0	1	GASPRA
GAPNGASPER11	A	JO	01073084:00	01073084:30	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T20:45:50	0	1	GASPRA
GAPSLTCRVB08	A	EH	01073101:05	01073101:46	5	3	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T21:03:05	0	1	GASPRA
GAPSLTCRVB08	B	EH	01073101:58	01073102:83	5	3	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T21:03:40	0	1	GASPRA
GAPNGASPER12	A	JP	01073113:06	01073113:32	7	3	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T21:15:14	0	1	GASPRA
GAPNGASPEC05	A	JQ	01073129:06	01073133:89	1	1	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1991-302T21:31:24	0	1	GASPRA
GAPS6FILTR01	A	IA	01073135:41	01073138:78	12	1	2	4	6	1	0	6	0	12	3	1	0	0	1	24	0	0	1991-302T21:37:52	0	1	GASPRA
GAPNGASPEC06	A	JR	01073141:62	01073144:01	1	1	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1991-302T21:44:10	0	1	GASPRA
GAPNGASPEC06	B	JR	01073144:09	01073148:49	1	1	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1991-302T21:46:37	0	1	GASPRA
GAPSTWKINS01	A	IB	01073149:02	01073150:90	7	1	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T21:51:35	0	1	GASPRA
GAPNGSCHEM02	A	JS	01073151:00	01073151:13	5	1	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T21:53:30	0	1	GASPRA
GAPNGSCHEM02	B	JS	01073151:80	01073157:71	5	1	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T21:54:28	0	1	GASPRA
GAPS4FILTR01	A	IC	01073158:41	01073163:52	13	1	2	4	2	1	0	0	1	24	4	1	0	6	0	12	0	0	1991-302T22:01:07	0	1	GASPRA
GAPNGSCHEM04	A	JT	01073164:42	01073172:71	5	1	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T22:07:12	0	1	GASPRA
GAPNGASMAP01	A	JU	01073173:60	01073177:36	7	1	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T22:16:30	0	1	GASPRA
GAPSHIPHAS01	A	EI	01073178:02	01073178:39	7	1	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T22:20:55	0	1	GASPRA
GAPSHIPHAS01	B	EI	01073178:49	01073185:26	7	1	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T22:21:26	0	1	GASPRA
GANNPCTCAL01	A	JV	01073399:00	01073399:90	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1991-303T02:04:20	0	1	PCT
GANNPCTCAL01	B	JV	01073402:00	01073402:90	3	1	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1991-303T02:07:22	0	1	PCT
GANNRCTCAL01	A	JW	01073793:00	01073793:90	3	1	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1991-303T08:42:43	0	1	RCT
GANNRCTCAL01	B	JW	01073796:00	01073796:90	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1991-303T08:45:45	0	1	RCT

Chapter 5 - Detailed Observation Designs

Contents

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.

The GASPEC, GASCUR and GASPER observations together provide a meridional albedo map of Gaspra with samples every 15 degrees of Gaspra's rotation (corresponding to about 18 minutes between observations). The frequency of samples in each of the 3 types of observations is given below:

1) GASPEC - Full Map mode observations at Long Map Nyquist sampling rates (0.03 mrad/sec) every 90 degrees of Gaspra's rotation.

2) GASCUR - Short Map mode observations every 30 degrees of Gaspra's rotation when GASPEC observations are not planned.

3) GASPER - Fixed Map mopde observations every 15 degrees of Gaspra's rotation except when GASPEC or GASCUR observations are not planned.

Some additional observations have been added to the original Gaspra Nimsguide. These are observations where NIMS is riding along behind SSI: GAPSLTCRVC01, GAPSLTCRVC02, GAPSLTCRVC03, GAPSLTCRVC04. Since these observations were not considered as NIMS observations during the Gaspra planning stage, the pointer plots show the footprint of SSI and not NIMS.

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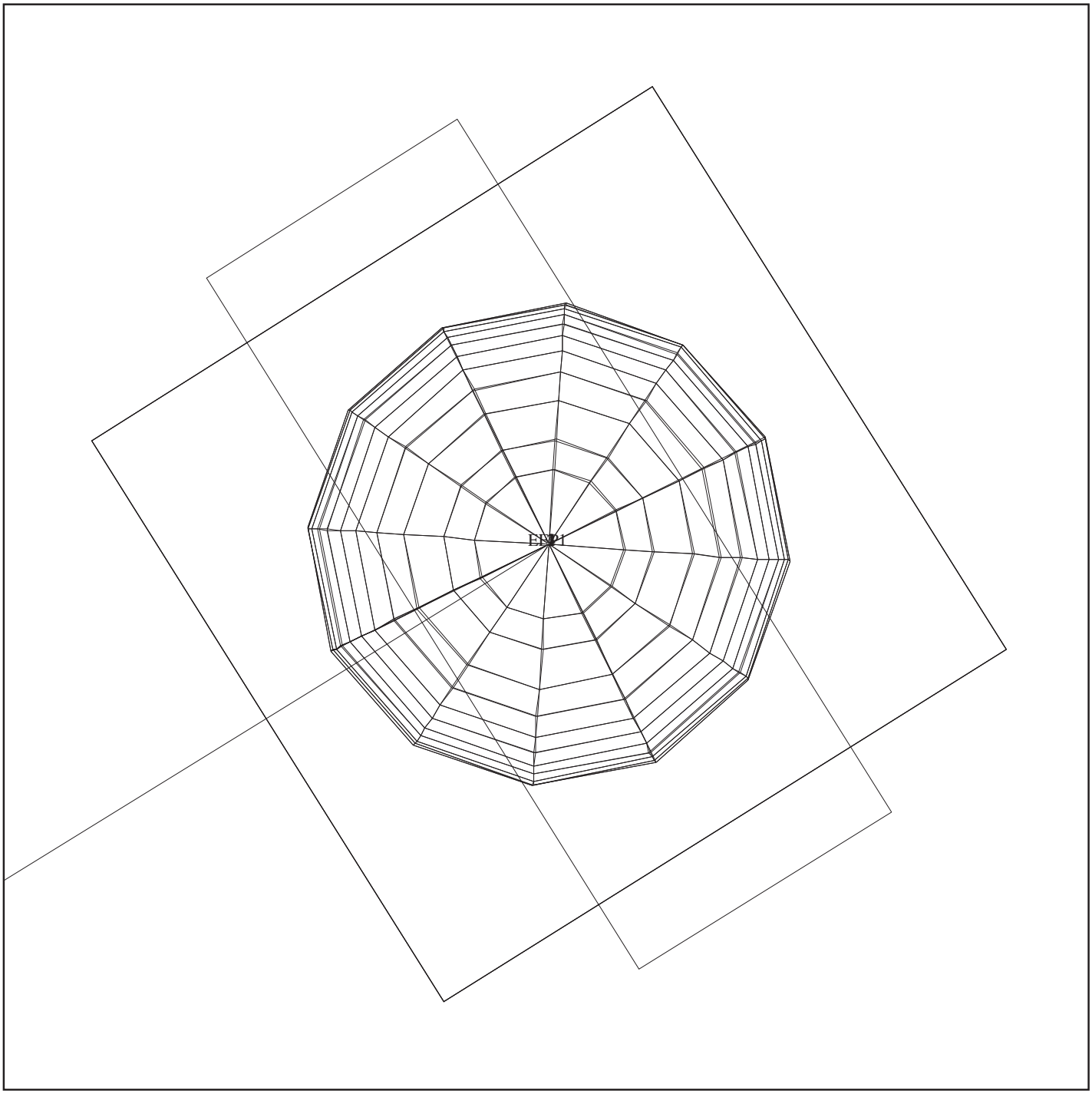


GAPSLTCRVC01

POINTER C4.1Wsusan: 9/23/1991 13:37:48

FILE:P.GAPSLTCRVC01

CENTRAL BODY:PLUTO

MINI:m.GAPSLTCRVC01

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 477:00:0

ACTIVITY:GAPSLTCRVC01 **DESCRIP:4-COLOR LIGHTCURVE**

Gaspra Distant Light Curve

ACTIVITY ID: GAPSLTCRVC01*
START TIME: 91-302/14:45:50

Activity ID: Orbit GA Target P Inst S OAPEL LTCRVC SeqNo 01 Multi *

Title Gaspra Distant Light Curve Instrument NIMS

Requestor C. Byrnes Team NIMS Working Group AWG

Time System CDS Load ID EE3 Calendar Date 10/29/91 Week 44

Start	GCA-CDS 00000468:00:0	91-302/14:45:50	GCA-000/07:53:12
End	GCA-CDS 00000465:00:0	91-302/14:48:52	GCA-000/07:50:10
Duration	00000003:00:0	000/00:03:02	000/00:03:02

Top Label GAPSLTCRVC01*
Bottom Label

Plot Key NIMS Riding Plot Key Conflict Yes
CDS Bytes 216 Report Options Real Time Activity No

Observation Objective

This observation is part of SSI's final rotation Gaspra 'movie' and lightcurve Each segment of the total lightcurve covers 30 degrees of rotation of Gaspra. Every third segment is through four filters to give data on the color of Gaspra. The remaining segments are through a single filter.

Design Detail

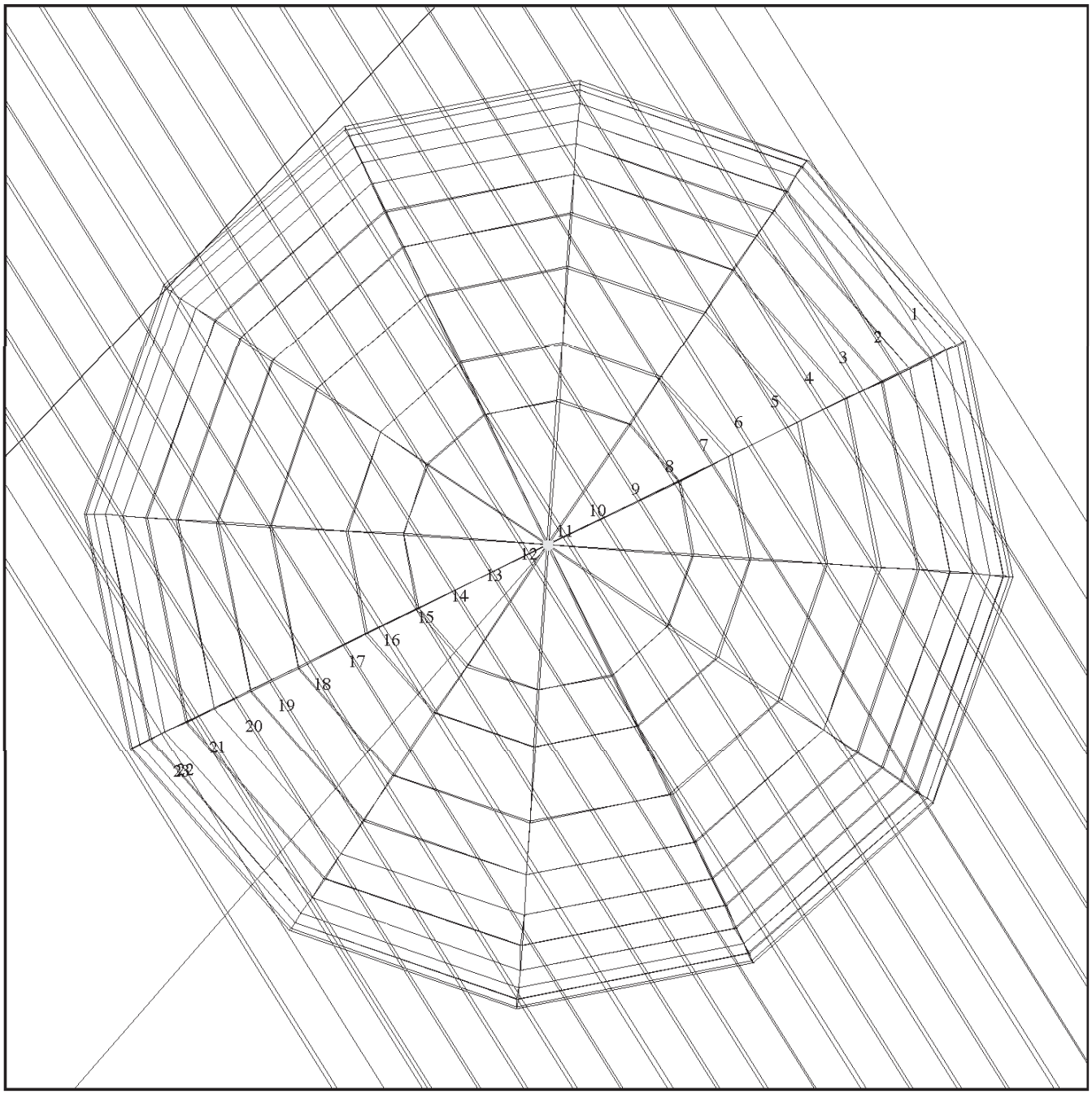
Alias

NIMS will ride-along behind SSI in various modes.
Here, NIMS is in Full Map mode

Full Map (FM), Gain 4, Grating Start 0, Chopper 63Hz, AI8

Last Changed 05/03/95 Changed By FEL 10/08/91 13:58:04

Galileo Activity Plan Form rev 5/95



GAPNGASPEC01

POINTER C4.1Wsusan: 9/23/1991 13:39:38

FILE:P.GAPNGASPEC01

CENTRAL BODY:PLUTO

MINI:m.GAPNGASPEC01

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 473:00:0

ACTIVITY:GAPNGASPEC01 **DESCRIP:NIMS 1ST 204 WVLNGHT LM NYQ RATE**

Gaspra Highest Spectral Resolution Map ACTIVITY ID: GAPNGASPEC01+
START TIME: 91-302/14:38:45

Activity ID: Orbit GA Target P Inst N OAPEL GASPEC SeqNo 01 Multi +

Title Gaspra Highest Spectral Resolution Map Instrument NIMS

Requestor C. Byrnes Team NIMS Working Group AWG

Time System CDS Load ID EE3 Calendar Date 10/29/91 Week 44

Start	GCA-CDS 00000473:00:0	91-302/14:38:45	GCA-000/07:58:15
End	GCA-CDS 00000469:66:0	91-302/14:42:04	GCA-000/07:54:56
Duration	00000003:25:0	000/00:03:19	000/00:03:19

Top Label GAPNGASPEC01+
Bottom Label

Plot Key	NIMS	Riding Plot Key	Conflict Yes
CDS Bytes	181	Report Options	Real Time Activity No

Observation Objective

NIMS will perform a disk spectral integration of Gaspra which, when combined with other observations, will provide 15 degree rotational samples. Rotationally resolved data will help determine the nature of spectral differences on Gaspra, suspected to have originated from a differentiated parent body.

Design Detail

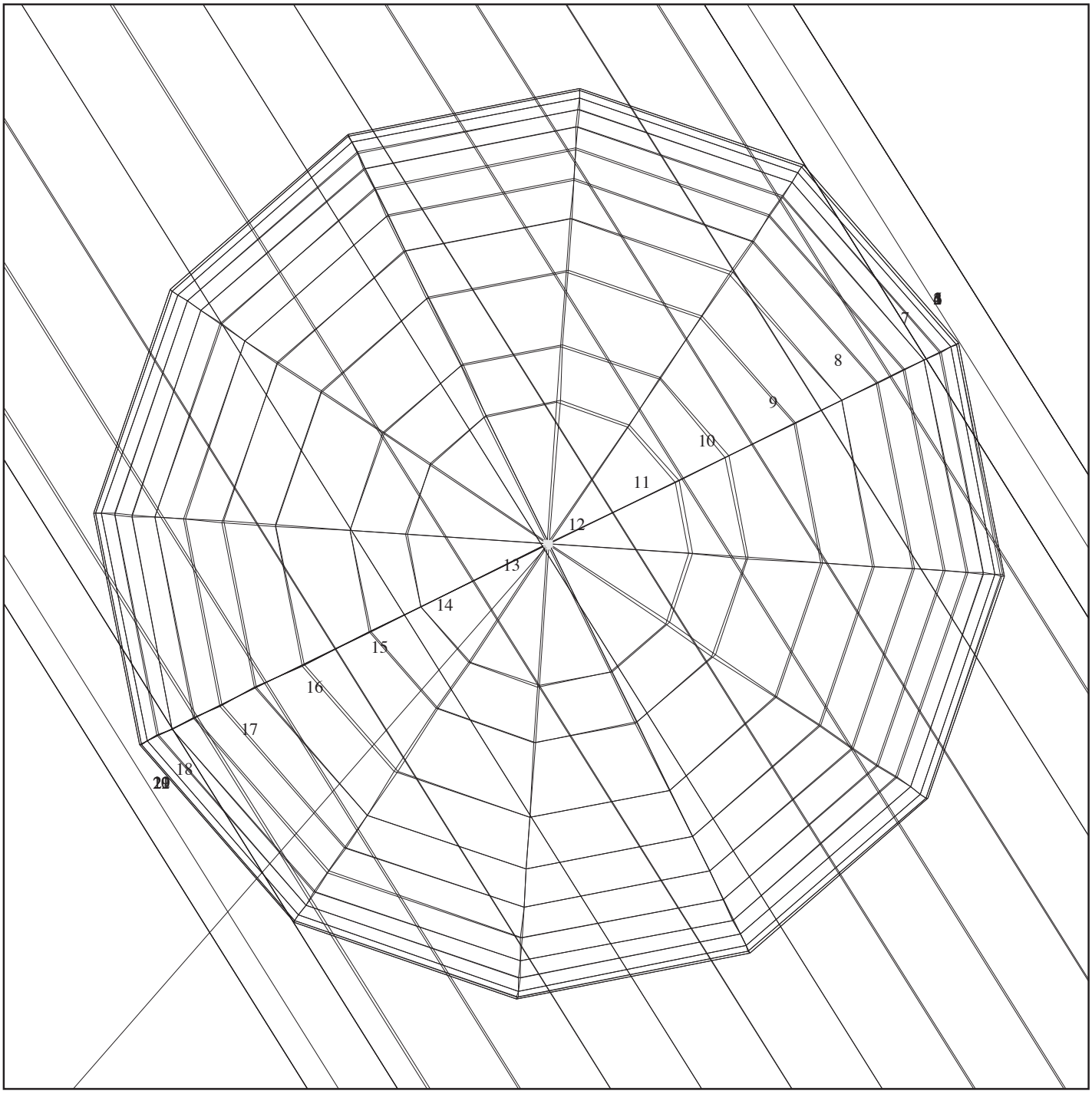
Alias

NIMS will map the error ellipse plus scan platform error with a single swath in Full Map mode at Long Map Nyquist sampling rate (0.03 mrad/sec). This is one of five Full Map observations in the Gaspra Far Encounter, the fifth of which verifies the observation in Full Map mode of the first quadrant.

Full Map (FM), Gain 4, Grating Start 0, Chopper 63Hz, MPW

Last Changed 05/03/95 Changed By FEL 10/08/91 13:58:04

Galileo Activity Plan Form rev 5/95



GAPNGASPER01

POINTER C4.1Wsusan: 9/23/1991 13:41:47

FILE:P.GAPNGASPER01

CENTRAL BODY:PLUTO

MINI:m.GAPNGASPER01

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 459:00:0

ACTIVITY:GAPNGASPER01 **DESCRIP:NIMS 17 WVLNGTH NYQ RATE**

Gaspra 15 Degree Periodic Rotation Sam ACTIVITY ID: GAPNGASPER01-
START TIME: 91-302/14:52:54

Activity ID: Orbit GA Target P Inst N OAPEL GASPER SeqNo 01 Multi -

Title Gaspra 15 Degree Periodic Rotation Sam Instrument NIMS

Requestor C. Byrnes Team NIMS Working Group AWG

Time System CDS Load ID EE3 Calendar Date 10/29/91 Week 44

Start	GCA-CDS 00000459:00:0	91-302/14:52:54	GCA-000/07:44:06
End	GCA-CDS 00000458:67:0	91-302/14:53:10	GCA-000/07:43:50
Duration	00000000:24:0	000/00:00:16	000/00:00:16

Top Label GAPNGASPER01-
Bottom Label

Plot Key	NIMS	Riding Plot Key		Conflict	Yes
CDS Bytes	181	Report Options		Real Time Activity	No

Observation Objective

NIMS will perform a disk spectral integration of Gaspra which, when combined with other observations, will provide 15 degree rotational samples. Rotationally resolved data will help determine the nature of spectral differences on Gaspra, suspected to have originated from a differentiated parent body.

Design Detail

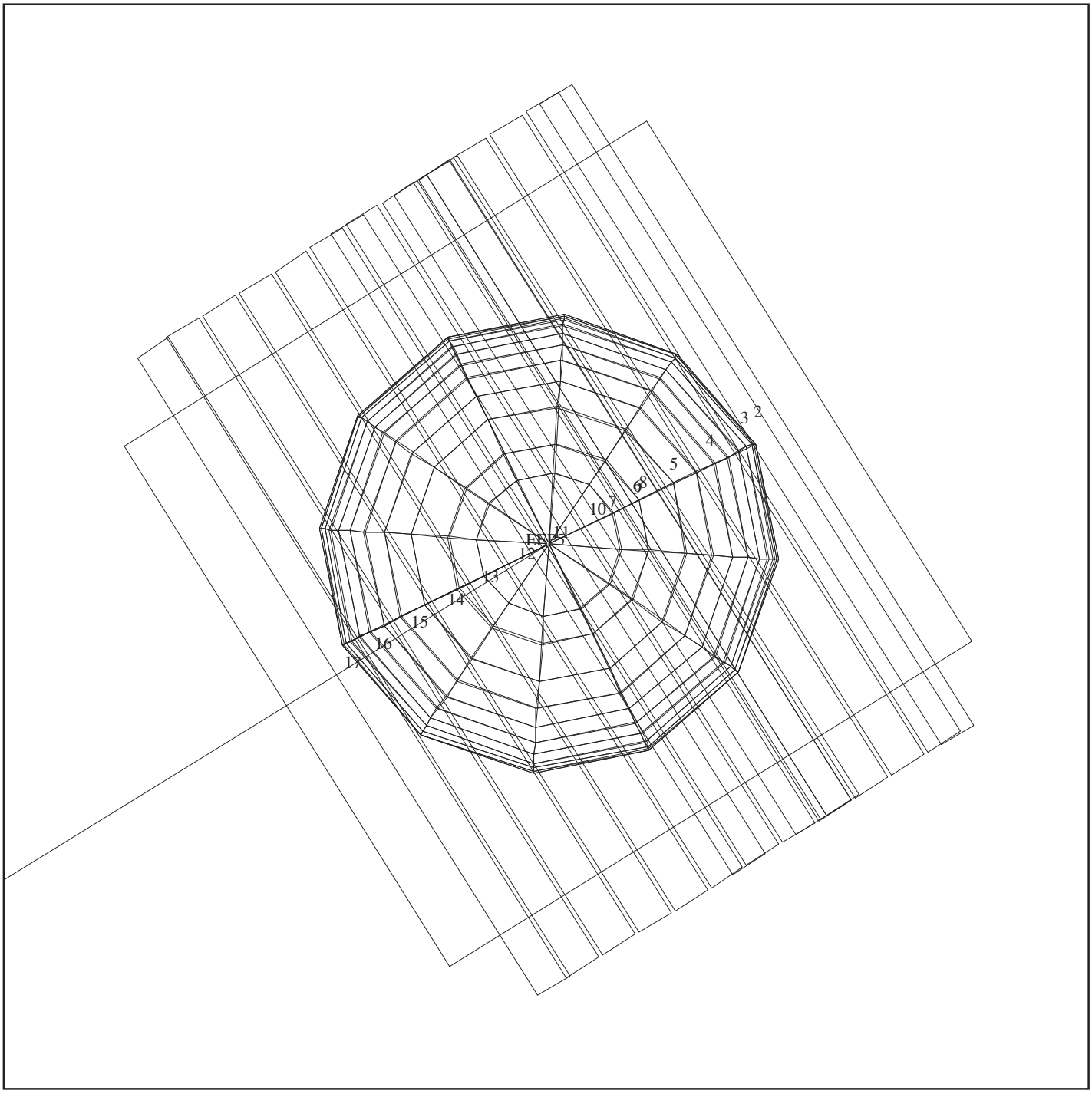
Alias

NIMS will map the error ellipse plus scan platform error with a single swath in Fixed Map mode at Nyquist sampling rate (0.75 mrad/sec). This is one of 11 Fixed Map observations in the Gaspra Far Encounter, The Fixed Map observation planned for GEE-CDS 179:00:0 is missing due to negotiations with UVS.

Fixed Map (XM), Gain 4, Grating Start 6, Chopper 63Hz, MPW

Last Changed 05/03/95 Changed By FEL 10/08/91 13:58:04

Galileo Activity Plan Form rev 5/95



GAPNGASCUR01

POINTER C4.1Wsusan: 9/23/1991 13:45:43

FILE:P.GAPSLTCRVB01

CENTRAL BODY:PLUTO

MINI:m.GAPSLTCRVB01

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 442:00:0

ACTIVITY:GAPSLTCRVB01 **DESCRIP:SSI LTCRVB01/NIMS GASCUR01**

Gaspra Spectral Light Curve — ACTIVITY ID: GAPNGASCUR01+ — START TIME: 91-302/15:10:06

Activity ID: Orbit GA Target P Inst N OAPEL GASCUR SeqNo 01 Multi +

Title Gaspra Spectral Light Curve — Instrument NIMS

Requestor C. Byrnes — Team NIMS — Working Group AWG

Time System CDS — Load ID EE3 — Calendar Date 10/29/91 — Week 44

Start	GCA-CDS 00000442:00:0	91-302/15:10:06	GCA-000/07:26:54
End	GCA-CDS 00000440:61:0	91-302/15:11:26	GCA-000/07:25:34
Duration	00000001:30:0	000/00:01:20	000/00:01:20

Top Label GAPNGASCUR01+
Bottom Label

Plot Key NIMS — Riding Plot Key — Conflict Yes
CDS Bytes 181 — Report Options — Real Time Activity No

Observation Objective

NIMS will observe the spectral light curve of Gaspra periodically throughout a full rotation of Gaspra (7.04 hours). This observation, combined with others, give 15 degree samples of Gaspra's rotation. Rotationally resolved data will aid in determining the nature of spectral differences on the surface of Gaspra, an asteroid suspected to have originated from a differentiated parent body.

Design Detail

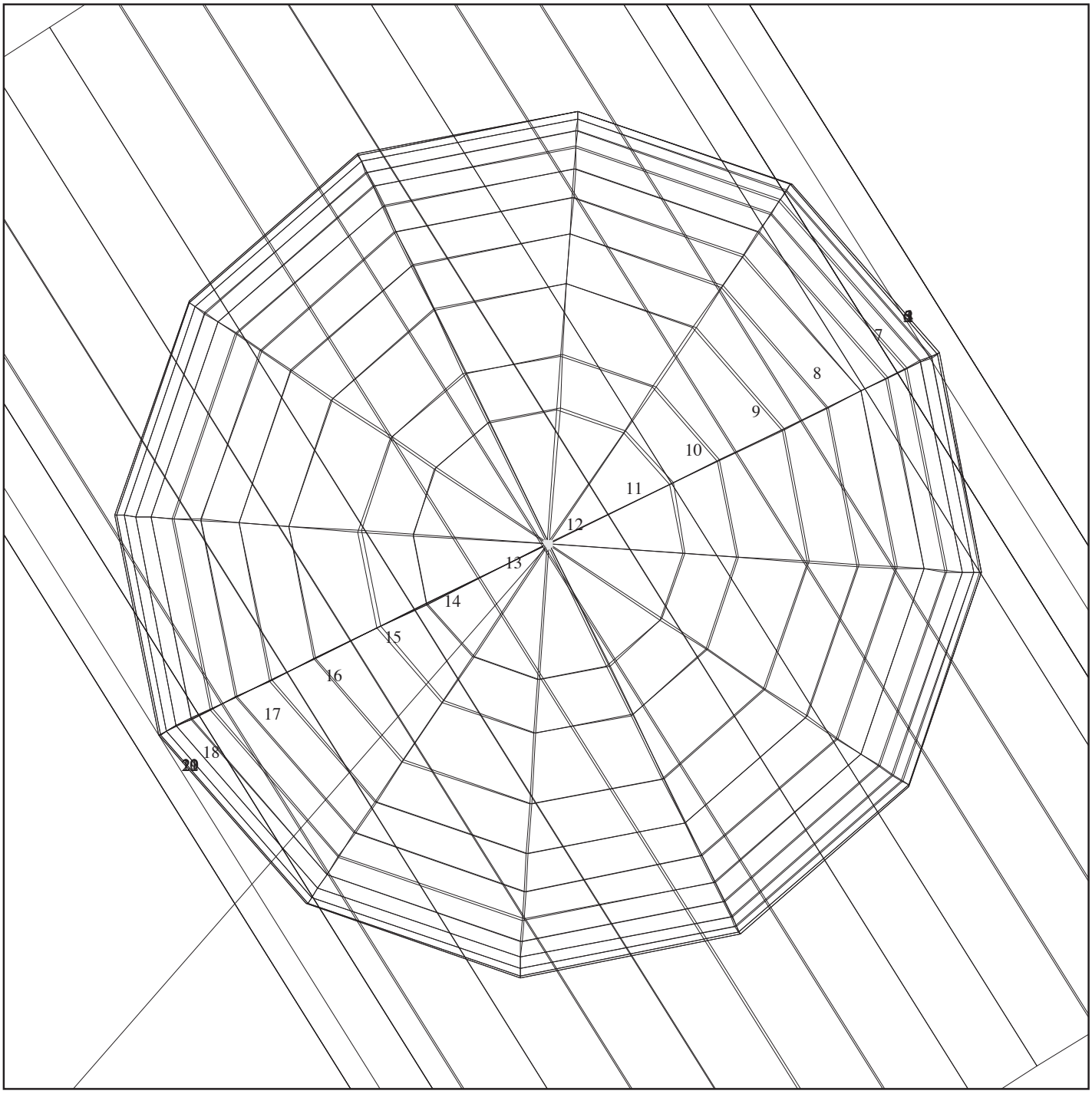
Alias GAPSLTCRVB01

SSI will cover the error ellipse in 4 colors every 90 degrees (before GASPECs) and 1 color every 30 degrees (during GASCURs). NIMS utilizes the SSI readout time (26.667 sec) to scan as much as is possible, repositions -0.5 mrad while the recorder winds down from SSI rates and up to NIMS rates, then finishes the single swath.

Short Map (SM), Gain 4, Grating Start 2, Chopper 63Hz, HCM,MPW

Last Changed 05/03/95 Changed By FEL — 10/08/91 13:58:04

Galileo Activity Plan Form — rev 5/95



GAPNGASPER02

POINTER C4.1Wsusan: 9/23/1991 13:48:15

FILE:P.GAPNGASPER02

CENTRAL BODY:PLUTO

MINI:m.GAPNGASPER02

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 424:00:0

ACTIVITY:GAPNGASPER02 **DESCRIP:NIMS 17 WVLNGTH NYQ RATE**

Gaspra 15 Degree Periodic Rotation Sam ACTIVITY ID: GAPNGASPER02-
START TIME: 91-302/15:28:18

Activity ID: Orbit GA Target P Inst N OAPEL GASPER SeqNo 02 Multi -

Title Gaspra 15 Degree Periodic Rotation Sam Instrument NIMS

Requestor C. Byrnes Team NIMS Working Group AWG

Time System CDS Load ID EE3 Calendar Date 10/29/91 Week 44

Start	GCA-CDS 00000424:00:0	91-302/15:28:18	GCA-000/07:08:42
End	GCA-CDS 00000423:67:0	91-302/15:28:34	GCA-000/07:08:26
Duration	00000000:24:0	000/00:00:16	000/00:00:16

Top Label GAPNGASPER02-
Bottom Label

Plot Key	NIMS	Riding Plot Key	Conflict Yes
CDS Bytes	181	Report Options	Real Time Activity No

Observation Objective

NIMS will perform a disk spectral integration of Gaspra which, when combined with other observations, will provide 15 degree rotational samples. Rotationally resolved data will help determine the nature of spectral differences on Gaspra, suspected to have originated from a differentiated parent body.

Design Detail

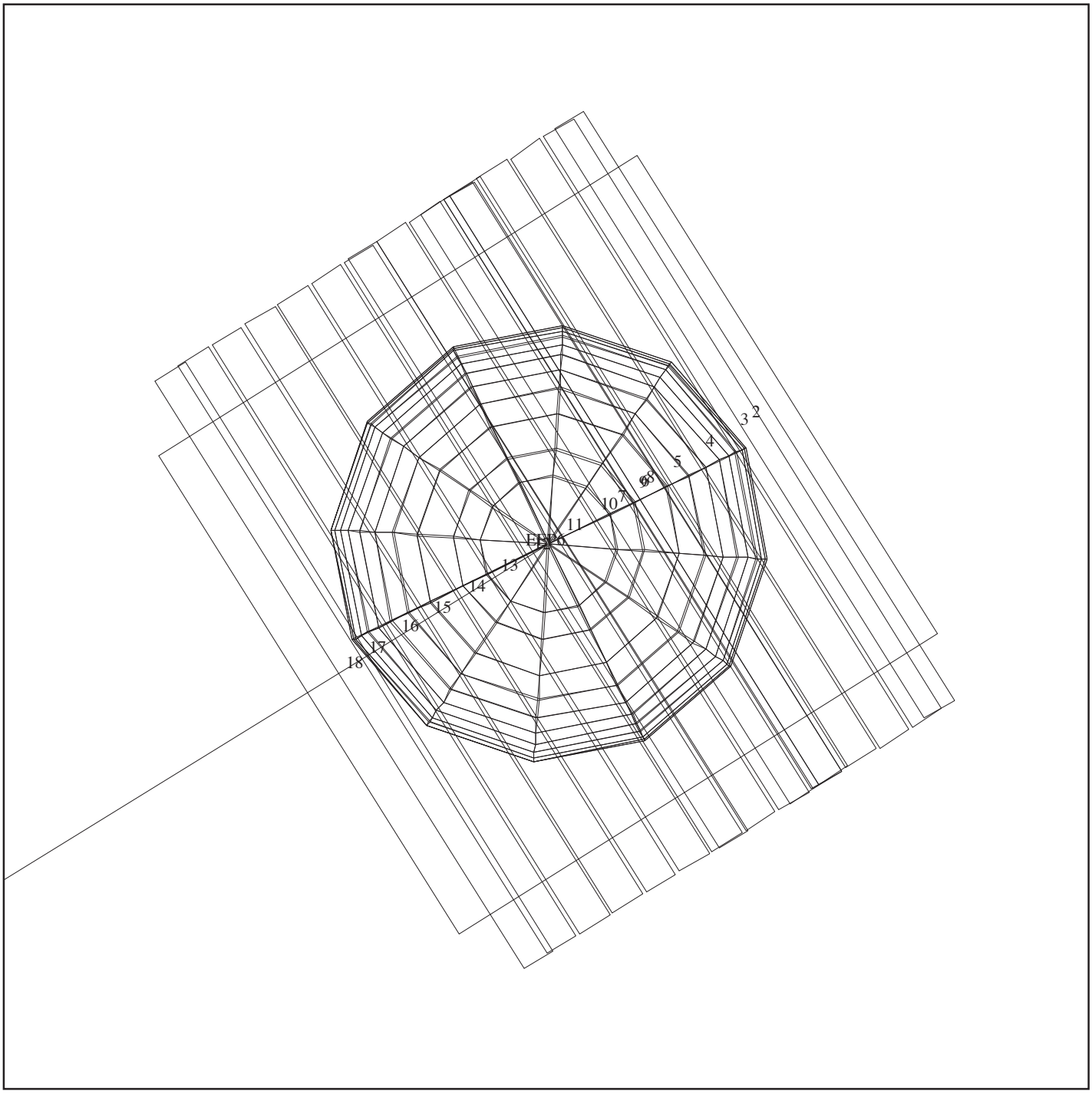
Alias

NIMS will map the error ellipse plus scan platform error with a single swath in Fixed Map mode at Nyquist sampling rate (0.75 mrad/sec). This is one of 11 Fixed Map observations in the Gaspra Far Encounter, The Fixed Map observation planned for GEE-CDS 179:00:0 is missing due to negotiations with UVS.

Fixed Map (XM), Gain 4, Grating Start 6, Chopper 63Hz, MPW

Last Changed 05/03/95 Changed By FEL 10/08/91 13:58:04

Galileo Activity Plan Form rev 5/95



GAPNGASCUR02

POINTER C4.1Wsusan: 9/23/1991 13:50:40

FILE:P.GAPSLTCRVB02

CENTRAL BODY:PLUTO

MINI:m.GAPSLTCRVB02

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 407:00:0

ACTIVITY:GAPSLTCRVB02 **DESCRIP:SSI LTCRVB02/NIMS GASCUR02**

Gaspra Spectral Light Curve — ACTIVITY ID: GAPNGASCUR02+ — START TIME: 91-302/15:45:29

Activity ID: Orbit GA Target P Inst N OAPEL GASCUR SeqNo 02 Multi +

Title Gaspra Spectral Light Curve — Instrument NIMS

Requestor C. Byrnes — Team NIMS — Working Group AWG

Time System CDS — Load ID EE3 — Calendar Date 10/29/91 — Week 44

Start	GCA-CDS 00000407:00:0	91-302/15:45:29	GCA-000/06:51:31
End	GCA-CDS 00000405:47:0	91-302/15:46:59	GCA-000/06:50:01
Duration	00000001:44:0	000/00:01:30	000/00:01:30

Top Label GAPNGASCUR02+
Bottom Label

Plot Key NIMS — Riding Plot Key — Conflict Yes
CDS Bytes 181 — Report Options — Real Time Activity No

Observation Objective

NIMS will observe the spectral light curve of Gaspra periodically throughout a full rotation of Gaspra (7.04 hours). This observation, combined with others, give 15 degree samples of Gaspra's rotation. Rotationally resolved data will aid in determining the nature of spectral differences on the surface of Gaspra, an asteroid suspected to have originated from a differentiated parent body.

Design Detail

Alias GAPSLTCRVB02

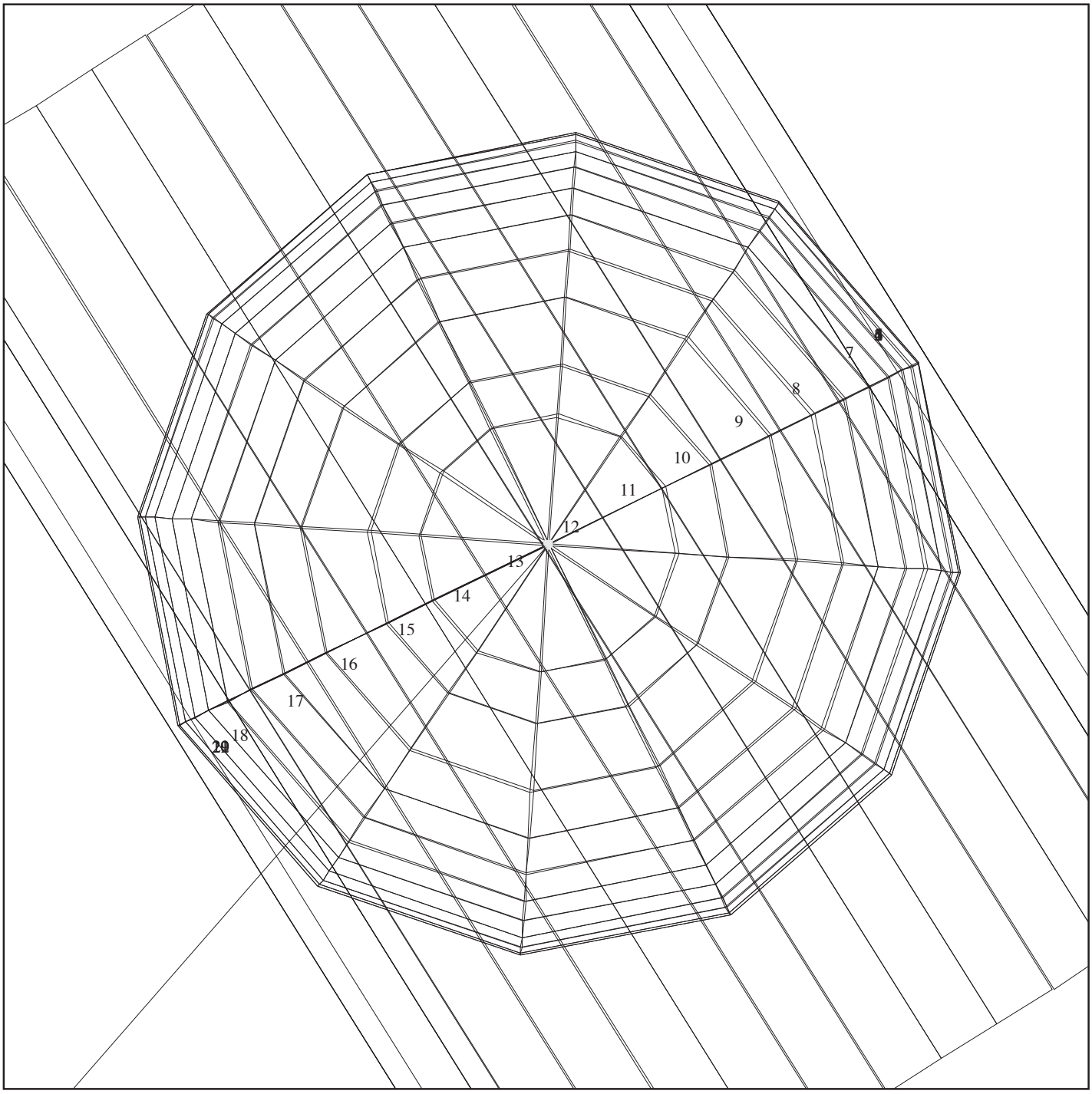
SSI will cover the error ellipse in 4 colors every 90 degrees (before

the SSI readout time (26.667 sec) to scan as much as is possible, repositions -0.5 mrad while the recorder winds down from SSI rates and up to NIMS rates, then finishes the single swath.

Short Map (SM), Gain 4, Grating Start 2, Chopper 63Hz, HCM,MPW

Last Changed 05/03/95 Changed By FEL — 10/08/91 13:58:04

Galileo Activity Plan Form — rev 5/95



GAPNGASPER03

POINTER C4.1Wsusan: 9/23/1991 13:53:15

FILE:P.GAPNGASPER03

CENTRAL BODY:PLUTO

MINI:m.GAPNGASPER03

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 389:00:0

ACTIVITY:GAPNGASPER03 **DESCRIP:NIMS 17 WVLNGTH NYQ RATE**

Gaspra 15 Degree Periodic Rotation Sam ACTIVITY ID: GAPNGASPER03-
START TIME: 91-302/16:03:41

Activity ID: Orbit GA Target P Inst N OAPEL GASPER SeqNo 03 Multi -

Title Gaspra 15 Degree Periodic Rotation Sam Instrument NIMS

Requestor C. Byrnes Team NIMS Working Group AWG

Time System CDS Load ID EE3 Calendar Date 10/29/91 Week 44

Start	GCA-CDS 00000389:00:0	91-302/16:03:41	GCA-000/06:33:19
End	GCA-CDS 00000388:67:0	91-302/16:03:57	GCA-000/06:33:03
Duration	00000000:24:0	000/00:00:16	000/00:00:16

Top Label GAPNGASPER03-
Bottom Label

Plot Key	NIMS	Riding Plot Key	Conflict Yes
CDS Bytes	181	Report Options	Real Time Activity No

Observation Objective

NIMS will perform a disk spectral integration of Gaspra which, when combined with other observations, will provide 15 degree rotational samples. Rotationally resolved data will help determine the nature of spectral differences on Gaspra, suspected to have originated from a differentiated parent body.

Design Detail

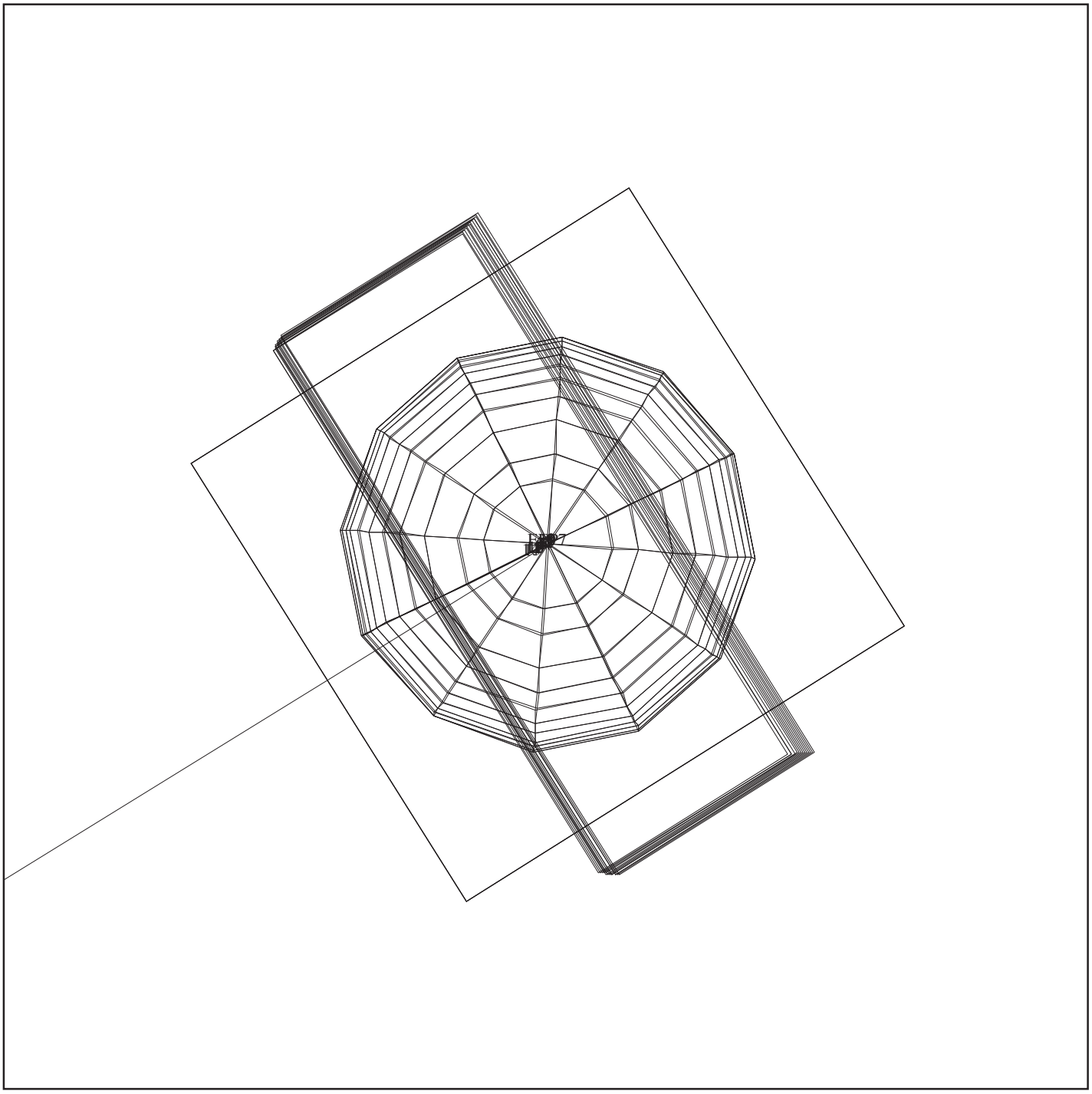
Alias

NIMS will map the error ellipse plus scan platform error with a single swath in Fixed Map mode at Nyquist sampling rate (0.75 mrad/sec). This is one of 11 Fixed Map observations in the Gaspra Far Encounter, The Fixed Map observation planned for GEE-CDS 179:00:0 is missing due to negotiations with UVS.

Fixed Map (XM), Gain 4, Grating Start 6, Chopper 63Hz, MPW

Last Changed 05/03/95 Changed By FEL 10/08/91 13:58:04

Galileo Activity Plan Form rev 5/95



GAPSLTCRVC02

POINTER C4.1Wsusan: 9/23/1991 13:56:24

FILE:P.GAPSLTCRVC02

CENTRAL BODY:PLUTO

MINI:m.GAPSLTCRVC02

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 372:00:0

ACTIVITY:GAPSLTCRVC02 **DESCRIP:4-FILTER LIGHTCURVE**

Gaspra Distant Light Curve

ACTIVITY ID: GAPSLTCRVC02*
START TIME: 91-302/16:35:02

Activity ID: Orbit GA Target P Inst S OAPEL LTCRVC SeqNo 02 Multi *

Title Gaspra Distant Light Curve Instrument NIMS

Requestor C. Byrnes Team NIMS Working Group AWG

Time System CDS Load ID EE3 Calendar Date 10/29/91 Week 44

Start	GCA-CDS 00000360:00:0	91-302/16:35:02	GCA-000/06:04:00
End	GCA-CDS 00000357:00:0	91-302/16:38:04	GCA-000/06:00:58
Duration	00000003:00:0	000/00:03:02	000/00:03:02

Top Label GAPSLTCRVC02*
Bottom Label

Plot Key	NIMS	Riding Plot Key	Conflict Yes
CDS Bytes	216	Report Options	Real Time Activity No

Observation Objective

This observation is part of SSI's final rotation Gaspra 'movie' and lightcurve Each segment of the total lightcurve covers 30 degrees of rotation of Gaspra. Every third segment is through four filters to give data on the color of Gaspra. The remaining segments are through a single filter.

Design Detail

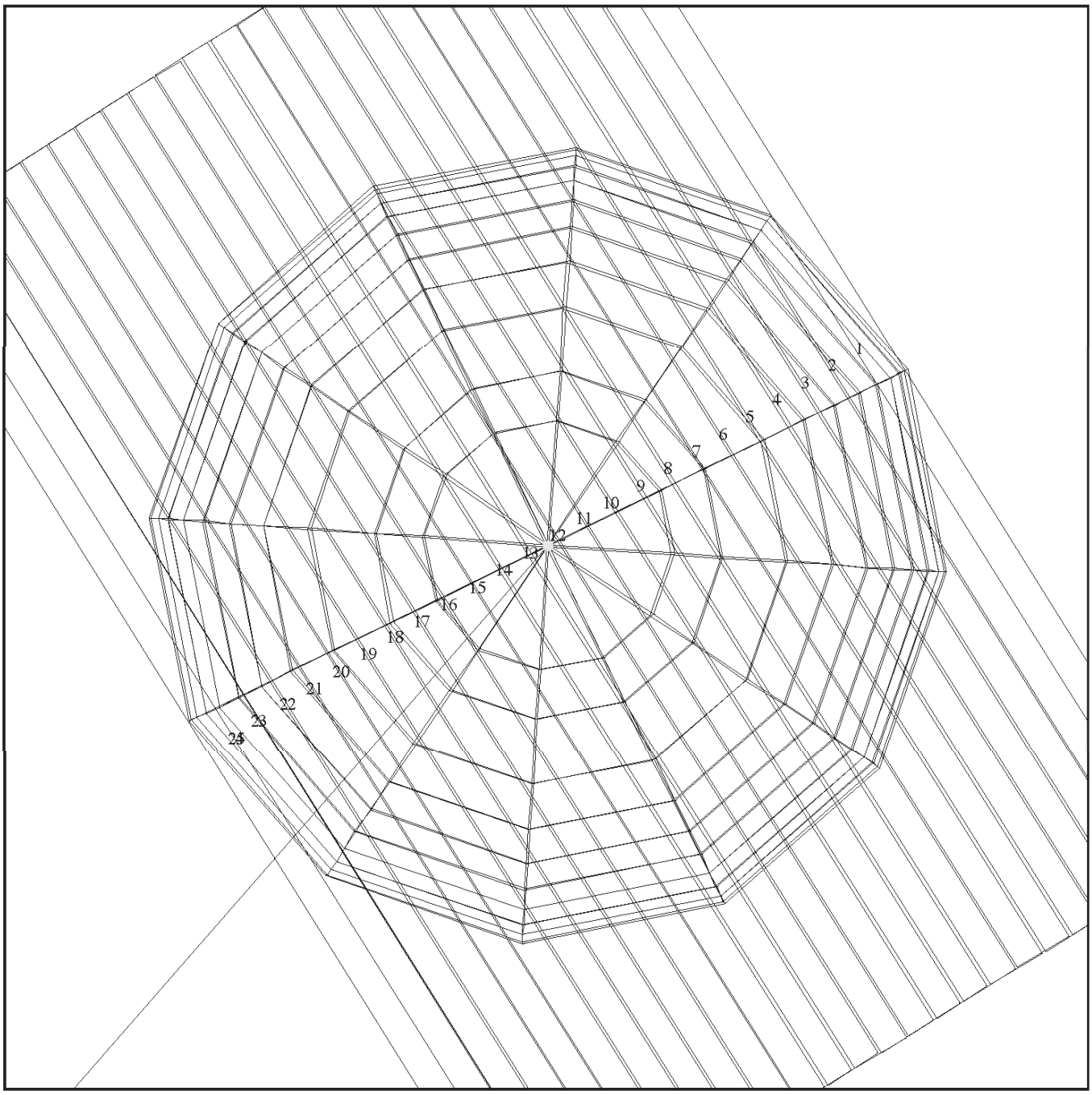
Alias

NIMS will ride-along behind SSI in various modes.
Here, NIMS is in Full Map mode

Full Map (FM), Gain 4, Grating Start 0, Chopper 63Hz, AI8

Last Changed 05/03/95 Changed By FEL 10/08/91 13:58:04

Galileo Activity Plan Form rev 5/95



GAPNGASPEC02

POINTER C4.1Wsusan: 9/23/1991 14:37:58

FILE:P.GAPNGASPEC02

CENTRAL BODY:PLUTO

MINI:m.GAPNGASPEC02

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 368:00:0

ACTIVITY:GAPNGASPEC02 **DESCRIP:2ND NIMS 204 WVLNGTH LM NYQ RATE**

Gaspra Highest Spectral Resolution Map ACTIVITY ID: GAPNGASPEC02+
START TIME: 91-302/16:24:55

Activity ID: Orbit GA Target P Inst N OAPEL GASPEC SeqNo 02 Multi +

Title Gaspra Highest Spectral Resolution Map Instrument NIMS

Requestor C. Byrnes Team NIMS Working Group AWG

Time System CDS Load ID EE3 Calendar Date 10/29/91 Week 44

Start	GCA-CDS 00000368:00:0	91-302/16:24:55	GCA-000/06:12:05
End	GCA-CDS 00000364:42:0	91-302/16:28:30	GCA-000/06:08:30
Duration	00000003:49:0	000/00:03:35	000/00:03:35

Top Label GAPNGASPEC02+
Bottom Label

Plot Key NIMS Riding Plot Key Conflict Yes
CDS Bytes 181 Report Options Real Time Activity No

Observation Objective

NIMS will perform a disk spectral integration of Gaspra which, when combined with other observations, will provide 15 degree rotational samples. Rotationally resolved data will help determine the nature of spectral differences on Gaspra, suspected to have originated from a differentiated parent body.

Design Detail

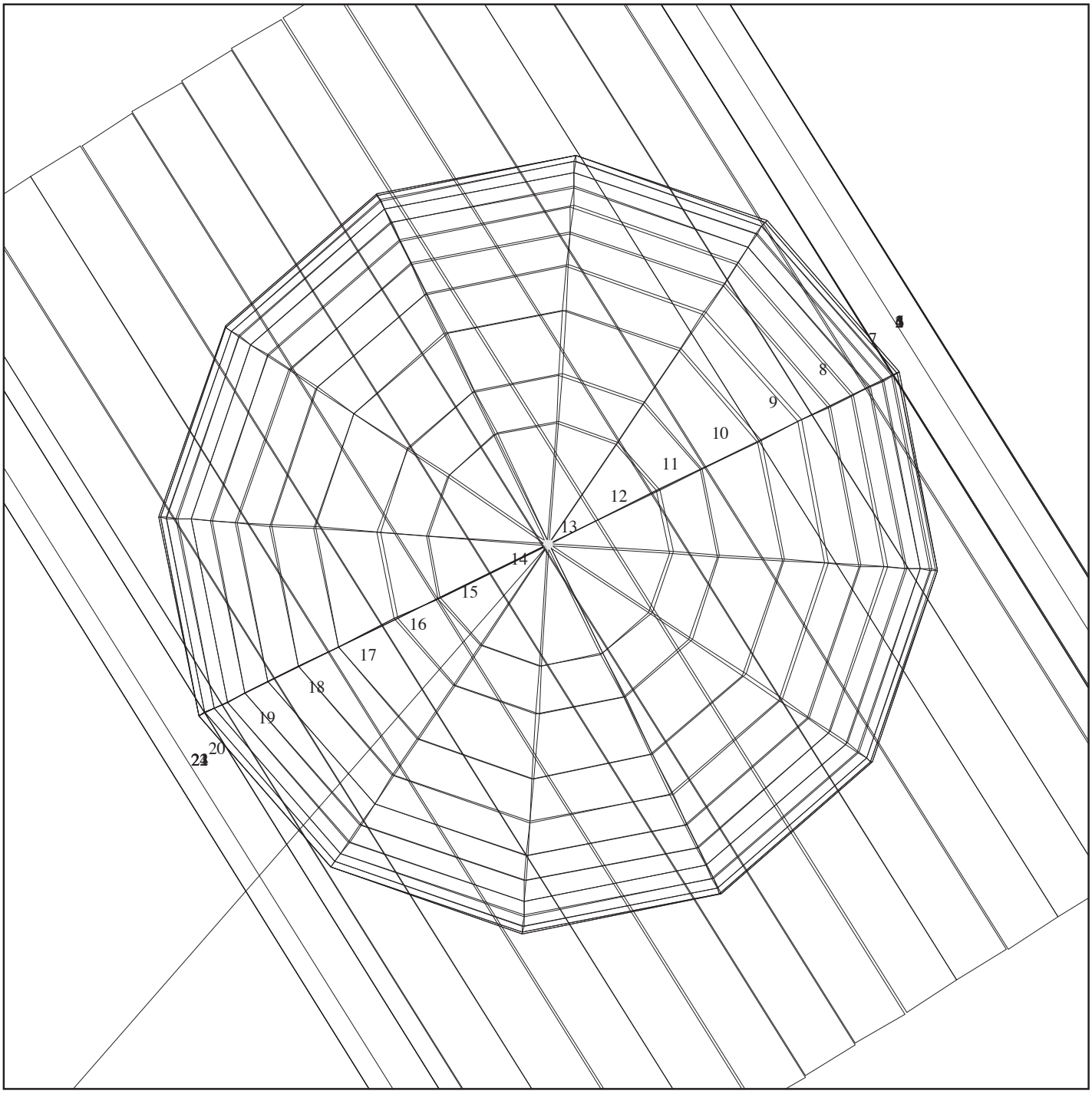
Alias

NIMS will map the error ellipse plus scan platform error with a single swath in Full Map mode at Long Map Nyquist sampling rate (0.03 mrad/sec). This is one of five Full Map observations in the Gaspra Far Encounter, the fifth of which verifies the observation in Full Map mode of the first quadrant.

Full Map (FM), Gain 4, Grating Start 0, Chopper 63Hz, MPW

Last Changed 05/03/95 Changed By FEL 10/08/91 13:58:04

Galileo Activity Plan Form rev 5/95



GAPNGASPER04

POINTER C4.1Wsusan: 9/23/1991 14:41:40

FILE:P.GAPNGASPER04

CENTRAL BODY:PLUTO

MINI:m.GAPNGASPER04

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 354:00:0

ACTIVITY:GAPNGASPER04 **DESCRIP:NIMS 17 WVLNGTH NYQ RATE**

Gaspra 15 Degree Periodic Rotation Sam ACTIVITY ID: GAPNGASPER04-
START TIME: 91-302/16:39:04

Activity ID: Orbit GA Target P Inst N OAPEL GASPER SeqNo 04 Multi -

Title Gaspra 15 Degree Periodic Rotation Sam Instrument NIMS

Requestor C. Byrnes Team NIMS Working Group AWG

Time System CDS Load ID EE3 Calendar Date 10/29/91 Week 44

Start	GCA-CDS 00000354:00:0	91-302/16:39:04	GCA-000/05:57:56
End	GCA-CDS 00000353:65:0	91-302/16:39:22	GCA-000/05:57:38
Duration	00000000:26:0	000/00:00:18	000/00:00:18

Top Label GAPNGASPER04-
Bottom Label

Plot Key	NIMS	Riding Plot Key	Conflict Yes
CDS Bytes	181	Report Options	Real Time Activity No

Observation Objective

NIMS will perform a disk spectral integration of Gaspra which, when combined with other observations, will provide 15 degree rotational samples. Rotationally resolved data will help determine the nature of spectral differences on Gaspra, suspected to have originated from a differentiated parent body.

Design Detail

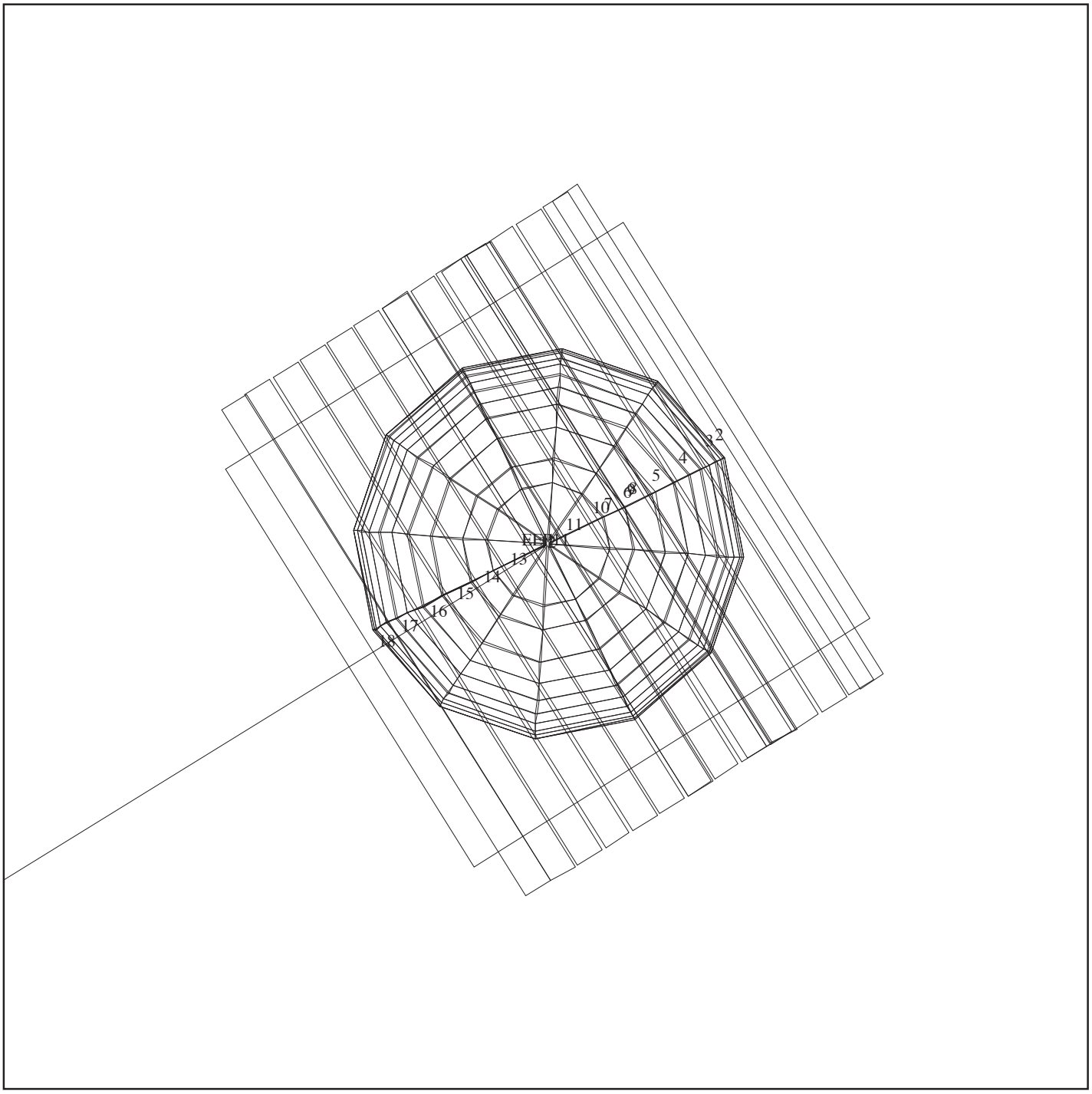
Alias

NIMS will map the error ellipse plus scan platform error with a single swath in Fixed Map mode at Nyquist sampling rate (0.75 mrad/sec). This is one of 11 Fixed Map observations in the Gaspra Far Encounter, The Fixed Map observation planned for GEE-CDS 179:00:0 is missing due to negotiations with UVS.

Fixed Map (XM), Gain 4, Grating Start 6, Chopper 63Hz, MPW

Last Changed 05/03/95 Changed By FEL 10/08/91 13:58:04

Galileo Activity Plan Form rev 5/95



GAPNGASCUR03

POINTER C4.1Wsusan: 9/23/1991 14:46:16

FILE:P.GAPSLTCRVB03

CENTRAL BODY:PLUTO

MINI:m.GAPSLTCRVB03

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 337:00:0

ACTIVITY:GAPSLTCRVB03 **DESCRIP:SSI LTCRVB03/NIMS GASCUR03**

Gaspra Spectral Light Curve — ACTIVITY ID: GAPNGASCUR03+ — START TIME: 91-302/16:56:16

Activity ID: Orbit GA Target P Inst N OAPEL GASCUR SeqNo 03 Multi +

Title Gaspra Spectral Light Curve — Instrument NIMS

Requestor C. Byrnes — Team NIMS — Working Group AWG

Time System CDS — Load ID EE3 — Calendar Date 10/29/91 — Week 44

Start	GCA-CDS 00000337:00:0	91-302/16:56:16	GCA-000/05:40:44
End	GCA-CDS 00000335:56:0	91-302/16:57:40	GCA-000/05:39:20
Duration	00000001:35:0	000/00:01:24	000/00:01:24

Top Label GAPNGASCUR03+
Bottom Label

Plot Key NIMS — Riding Plot Key — Conflict Yes
CDS Bytes 181 — Report Options — Real Time Activity No

Observation Objective

NIMS will observe the spectral light curve of Gaspra periodically throughout a full rotation of Gaspra (7.04 hours). This observation, combined with others, give 15 degree samples of Gaspra's rotation. Rotationally resolved data will aid in determining the nature of spectral differences on the surface of Gaspra, an asteroid suspected to have originated from a differentiated parent body.

Design Detail

Alias GAPSLTCRVB03

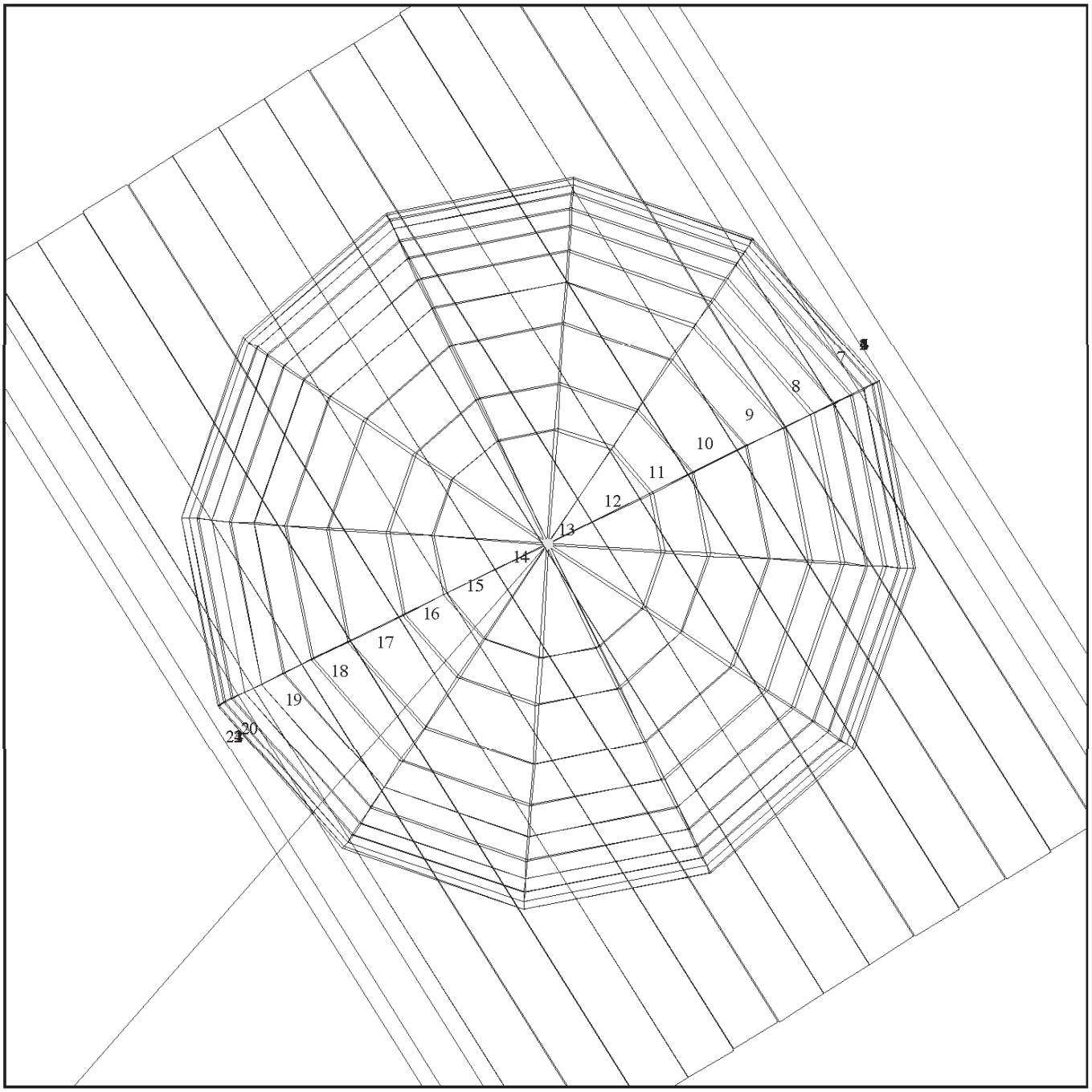
SSI will cover the error ellipse in 4 colors every 90 degrees (before

the SSI readout time (26.667 sec) to scan as much as is possible, repositions -0.5 mrad while the recorder winds down from SSI rates and up to NIMS rates, then finishes the single swath.

Short Map (SM), Gain 4, Grating Start 2, Chopper 63Hz, HCM,MPW

Last Changed 05/03/95 Changed By FEL — 10/08/91 13:58:04

Galileo Activity Plan Form — rev 5/95



GAPNGASPER05

POINTER C4.1Wsusan: 9/23/1991 14:52:13

FILE:P.GAPNGASPER05

CENTRAL BODY:PLUTO

MINI:m.GAPNGASPER05

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 319:00:0

ACTIVITY:GAPNGASPER05 **DESCRIP:NIMS 17 WVLNGTH NYQ RATE**

Gaspra 15 Degree Periodic Rotation Sam ACTIVITY ID: GAPNGASPER05-
START TIME: 91-302/17:14:28

Activity ID: Orbit GA Target P Inst N OAPEL GASPER SeqNo 05 Multi -

Title Gaspra 15 Degree Periodic Rotation Sam Instrument NIMS

Requestor C. Byrnes Team NIMS Working Group AWG

Time System CDS Load ID EE3 Calendar Date 10/29/91 Week 44

Start	GCA-CDS 00000319:00:0	91-302/17:14:28	GCA-000/05:22:32
End	GCA-CDS 00000318:65:0	91-302/17:14:45	GCA-000/05:22:15
Duration	00000000:26:0	000/00:00:17	000/00:00:17

Top Label GAPNGASPER05-
Bottom Label

Plot Key	NIMS	Riding Plot Key	Conflict Yes
CDS Bytes	181	Report Options	Real Time Activity No

Observation Objective

NIMS will perform a disk spectral integration of Gaspra which, when combined with other observations, will provide 15 degree rotational samples. Rotationally resolved data will help determine the nature of spectral differences on Gaspra, suspected to have originated from a differentiated parent body.

Design Detail

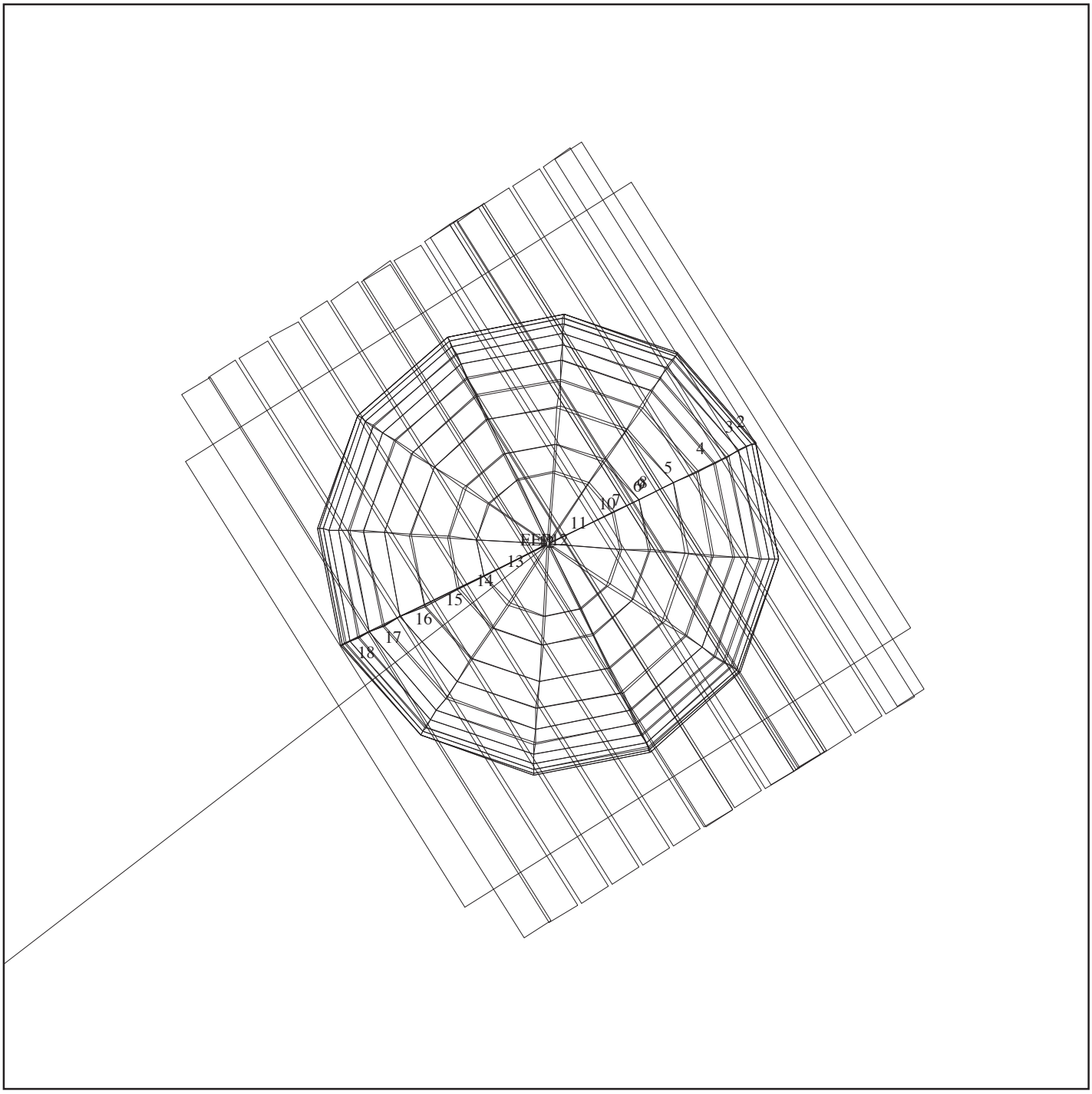
Alias

NIMS will map the error ellipse plus scan platform error with a single swath in Fixed Map mode at Nyquist sampling rate (0.75 mrad/sec). This is one of 11 Fixed Map observations in the Gaspra Far Encounter, The Fixed Map observation planned for GEE-CDS 179:00:0 is missing due to negotiations with UVS.

Fixed Map (XM), Gain 4, Grating Start 6, Chopper 63Hz, MPW

Last Changed 05/03/95 Changed By FEL 10/08/91 13:58:04

Galileo Activity Plan Form rev 5/95



GAPNGASCUR04

POINTER C4.1Wsusan: 9/23/1991 14:54:30

FILE:P.GAPSLTCRVB04

CENTRAL BODY:PLUTO

MINI:m.GAPSLTCRVB04

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 302:00:0

ACTIVITY:GAPSLTCRVB04 **DESCRIP:SSI LTCRVB04/NIMS GASCUR04**

Gaspra Spectral Light Curve — ACTIVITY ID: GAPNGASCUR04+ — START TIME: 91-302/17:31:39

Activity ID: Orbit GA Target P Inst N OAPEL GASCUR SeqNo 04 Multi +

Title Gaspra Spectral Light Curve — Instrument NIMS

Requestor C. Byrnes — Team NIMS — Working Group AWG

Time System CDS — Load ID EE3 — Calendar Date 10/29/91 — Week 44

Start	GCA-CDS 00000302:00:0	91-302/17:31:39	GCA-000/05:05:21
End	GCA-CDS 00000300:56:0	91-302/17:33:03	GCA-000/05:03:57
Duration	00000001:35:0	000/00:01:24	000/00:01:24

Top Label GAPNGASCUR04+
Bottom Label

Plot Key NIMS — Riding Plot Key — Conflict Yes
CDS Bytes 181 — Report Options — Real Time Activity No

Observation Objective

NIMS will observe the spectral light curve of Gaspra periodically throughout a full rotation of Gaspra (7.04 hours). This observation, combined with others, give 15 degree samples of Gaspra's rotation. Rotationally resolved data will aid in determining the nature of spectral differences on the surface of Gaspra, an asteroid suspected to have originated from a differentiated parent body.

Design Detail

Alias GAPSLTCRVB04

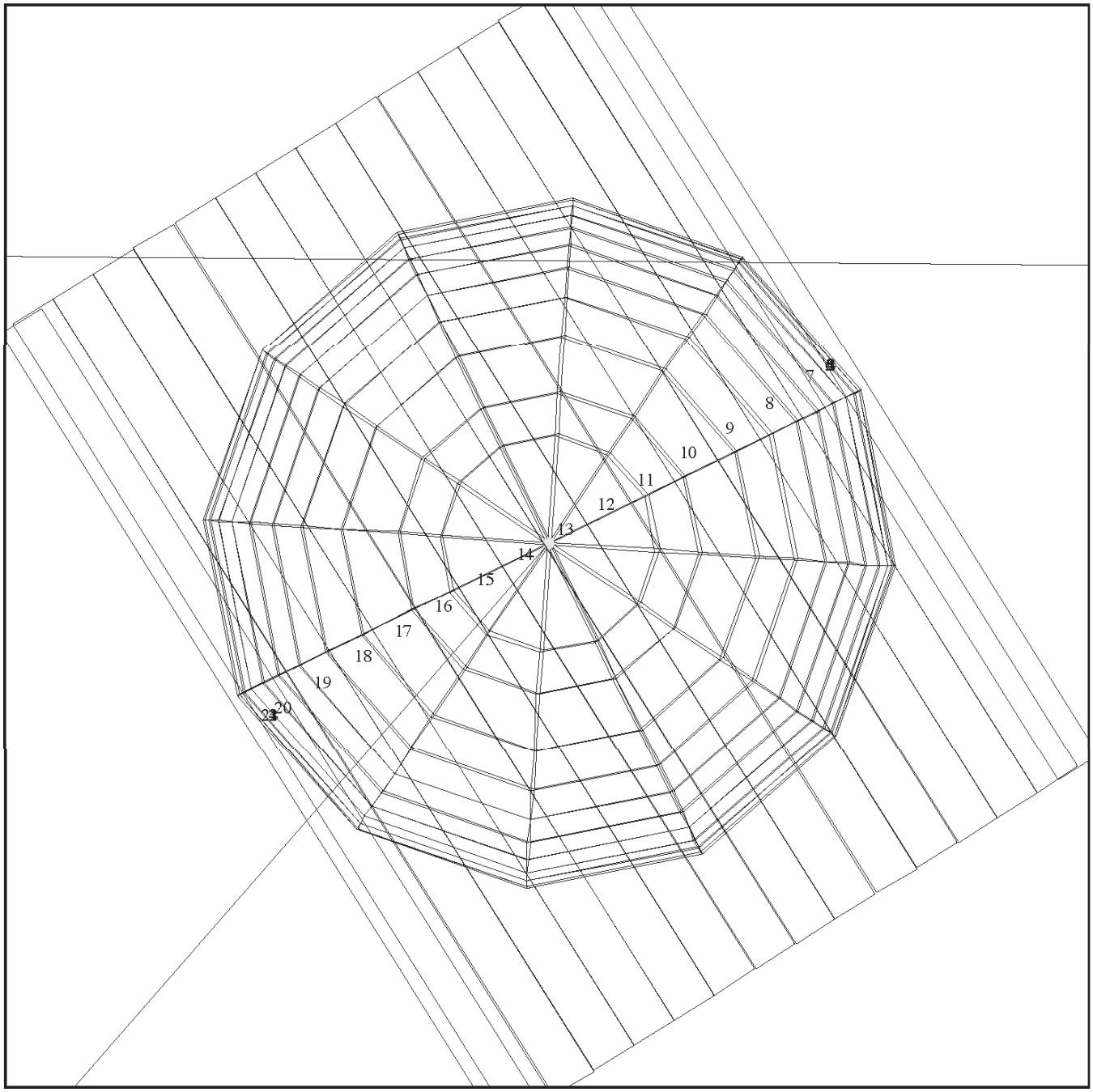
SSI will cover the error ellipse in 4 colors every 90 degrees (before

the SSI readout time (26.667 sec) to scan as much as is possible, repositions -0.5 mrad while the recorder winds down from SSI rates and up to NIMS rates, then finishes the single swath.

Short Map (SM), Gain 4, Grating Start 2, Chopper 63Hz, HCM,MPW

Last Changed 05/03/95 Changed By FEL — 10/08/91 13:58:04

Galileo Activity Plan Form — rev 5/95



GAPNGASPER06

POINTER C4.1Wsusan: 9/23/1991 14:56:53

FILE:P.GAPNGASPER06

CENTRAL BODY:PLUTO

MINI:m.GAPNGASPER06

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 284:00:0

ACTIVITY:GAPNGASPER06 **DESCRIP:NIMS 17 WVLNGTH NYQ RATE**

Gaspra 15 Degree Periodic Rotation Sam ACTIVITY ID: GAPNGASPER06-
START TIME: 91-302/17:49:51

Activity ID: Orbit GA Target P Inst N OAPEL GASPER SeqNo 06 Multi -

Title Gaspra 15 Degree Periodic Rotation Sam Instrument NIMS

Requestor C. Byrnes Team NIMS Working Group AWG

Time System CDS Load ID EE3 Calendar Date 10/29/91 Week 44

Start	GCA-CDS 00000284:00:0	91-302/17:49:51	GCA-000/04:47:09
End	GCA-CDS 00000283:65:0	91-302/17:50:08	GCA-000/04:46:52
Duration	00000000:26:0	000/00:00:17	000/00:00:17

Top Label GAPNGASPER06-
Bottom Label

Plot Key	NIMS	Riding Plot Key	Conflict Yes
CDS Bytes	181	Report Options	Real Time Activity No

Observation Objective

NIMS will perform a disk spectral integration of Gaspra which, when combined with other observations, will provide 15 degree rotational samples. Rotationally resolved data will help determine the nature of spectral differences on Gaspra, suspected to have originated from a differentiated parent body.

Design Detail

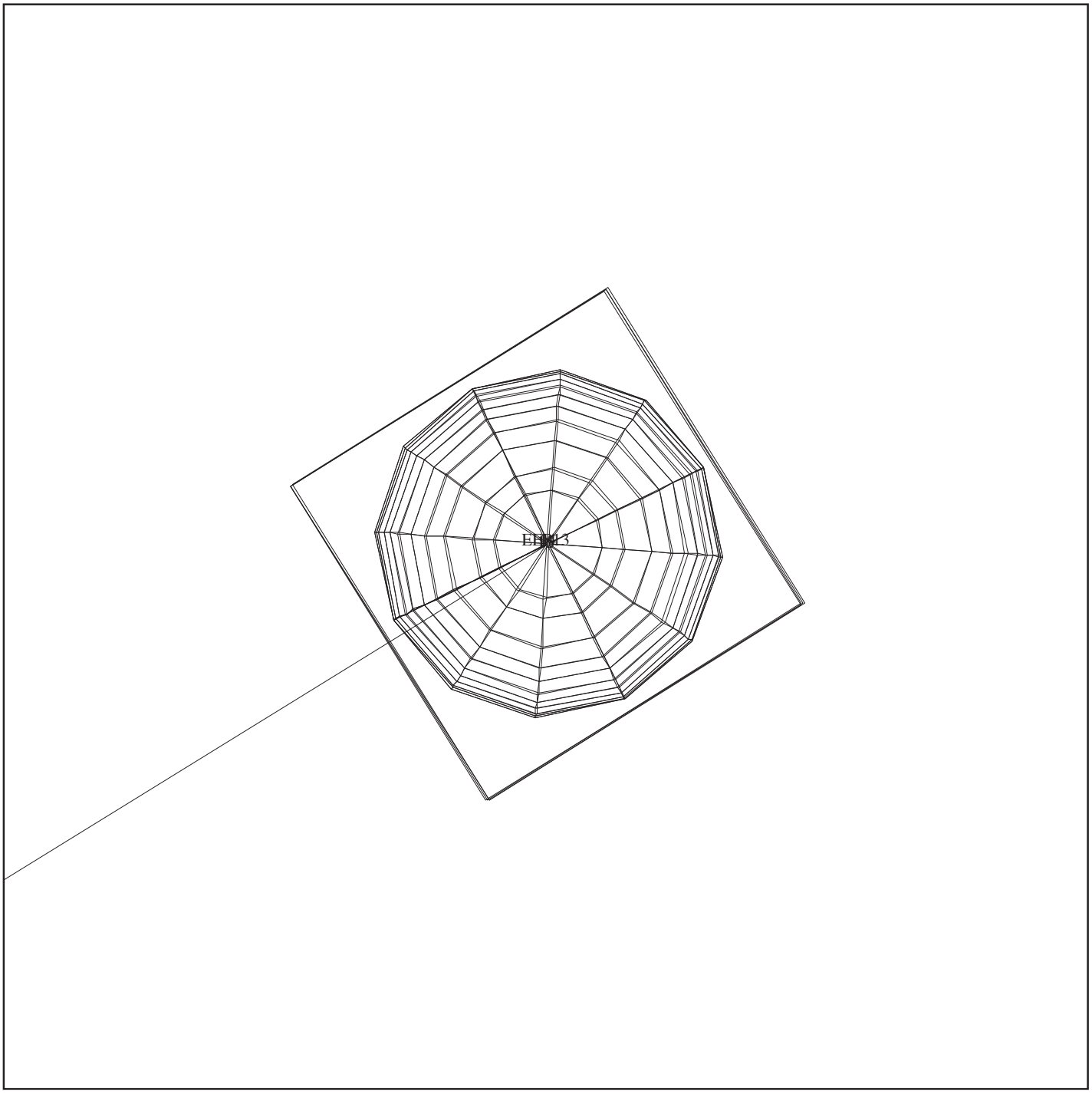
Alias

NIMS will map the error ellipse plus scan platform error with a single swath in Fixed Map mode at Nyquist sampling rate (0.75 mrad/sec). This is one of 11 Fixed Map observations in the Gaspra Far Encounter, The Fixed Map observation planned for GEE-CDS 179:00:0 is missing due to negotiations with UVS.

Fixed Map (XM), Gain 4, Grating Start 6, Chopper 63Hz, MPW

Last Changed 05/03/95 Changed By FEL 10/08/91 13:58:04

Galileo Activity Plan Form rev 5/95



GAPSLTCRVC03

POINTER C4.1Wsusan: 9/23/1991 14:58:53

FILE:P.GAPSLTCRVC03

CENTRAL BODY:PLUTO

MINI:m.GAPSLTCRVC03

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 267:00:0

ACTIVITY:GAPSLTCRVC03 **DESCRIP:4-FILTER LIGHTCURVE**

Gaspra Distant Light Curve

ACTIVITY ID: GAPSLTCRVC03*
START TIME: 91-302/18:24:14

Activity ID: Orbit GA Target P Inst S OAPEL LTCRVC SeqNo 03 Multi *

Title Gaspra Distant Light Curve Instrument NIMS

Requestor C. Byrnes Team NIMS Working Group AWG

Time System CDS Load ID EE3 Calendar Date 10/29/91 Week 44

Start	GCA-CDS 00000252:00:0	91-302/18:24:14	GCA-000/04:14:48
End	GCA-CDS 00000249:00:0	91-302/18:27:16	GCA-000/04:11:46
Duration	00000003:00:0	000/00:03:02	000/00:03:02

Top Label GAPSLTCRVC03*
Bottom Label

Plot Key NIMS Riding Plot Key Conflict Yes
CDS Bytes 128 Report Options Real Time Activity No

Observation Objective

This observation is part of SSI's final rotation Gaspra 'movie' and lightcurve Each segment of the total lightcurve covers 30 degrees of rotation of Gaspra. Every third segment is through four filters to give data on the color of Gaspra. The remaining segments are through a single filter.

Design Detail

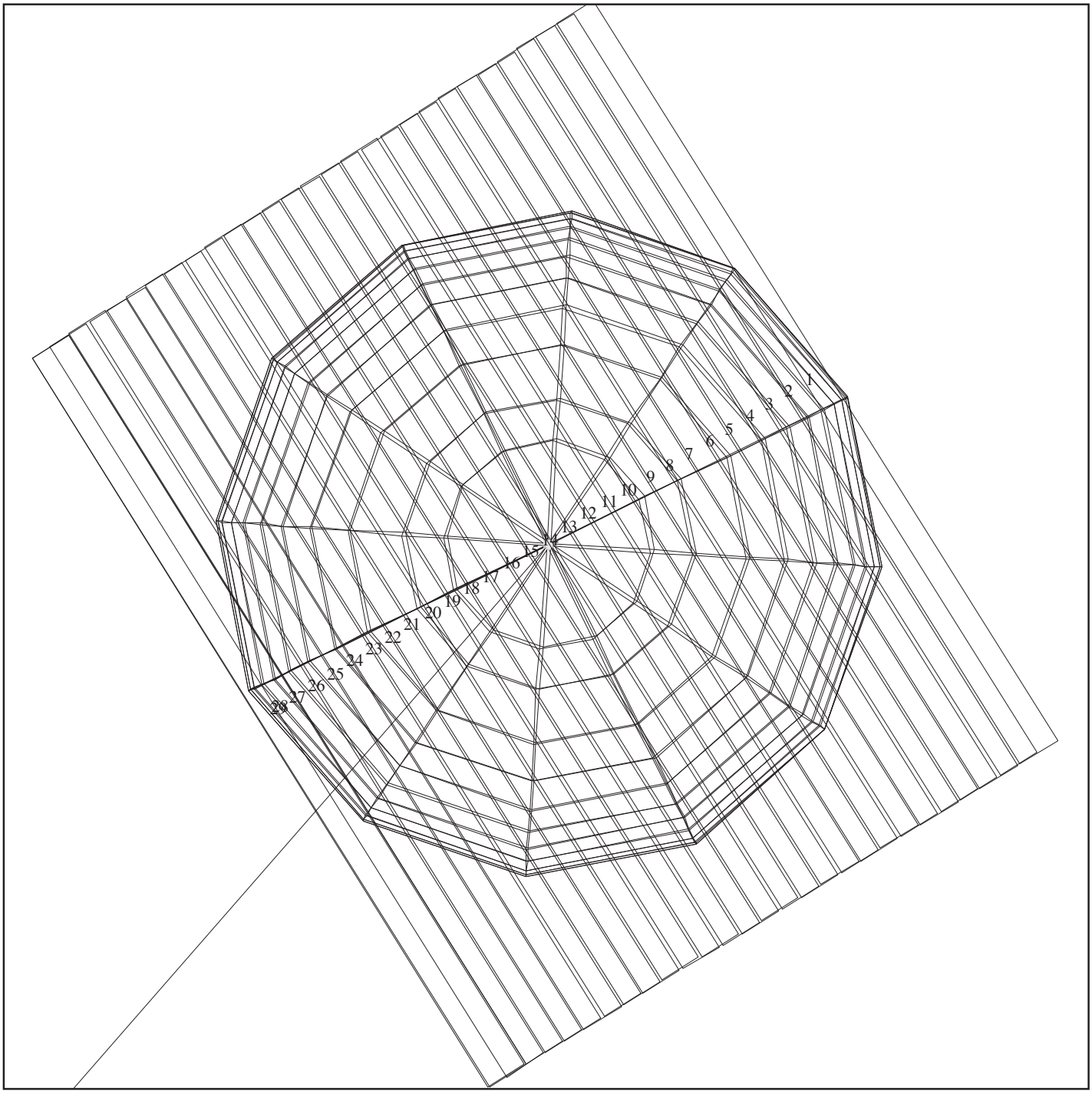
Alias

NIMS will ride-along behind SSI in various modes.
Here, NIMS is in Fixed Map mode

Fixed Map (XM), Gain 4, Grating Start 6, Chopper 63Hz, HCM

Last Changed 05/03/95 Changed By FEL 10/08/91 13:58:04

Galileo Activity Plan Form rev 5/95



GAPNGASPEC03

POINTER C4.1Wsusan: 9/23/1991 15: 8:51

FILE:P.GAPNGASPEC03

CENTRAL BODY:PLUTO

MINI:m.GAPNGASPEC03

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 263:00:0

ACTIVITY:GAPNGASPEC03 **DESCRIP:3RD NIMS 204 WVLNGTH LM NYQ**

Gaspra Highest Spectral Resolution Map ACTIVITY ID: GAPNGASPEC03-
START TIME: 91-302/18:11:05

Activity ID: Orbit GA Target P Inst N OAPEL GASPEC SeqNo 03 Multi -

Title Gaspra Highest Spectral Resolution Map Instrument NIMS

Requestor C. Byrnes Team NIMS Working Group AWG

Time System CDS Load ID EE3 Calendar Date 10/29/91 Week 44

Start	GCA-CDS 00000263:00:0	91-302/18:11:05	GCA-000/04:25:55
End	GCA-CDS 00000258:78:0	91-302/18:15:16	GCA-000/04:21:44
Duration	00000004:13:0	000/00:04:11	000/00:04:11

Top Label GAPNGASPEC03-
Bottom Label

Plot Key	NIMS	Riding Plot Key		Conflict	Yes
CDS Bytes	181	Report Options		Real Time Activity	No

Observation Objective

NIMS will perform a disk spectral integration of Gaspra which, when combined with other observations, will provide 15 degree rotational samples. Rotationally resolved data will help determine the nature of spectral differences on Gaspra, suspected to have originated from a differentiated parent body.

Design Detail

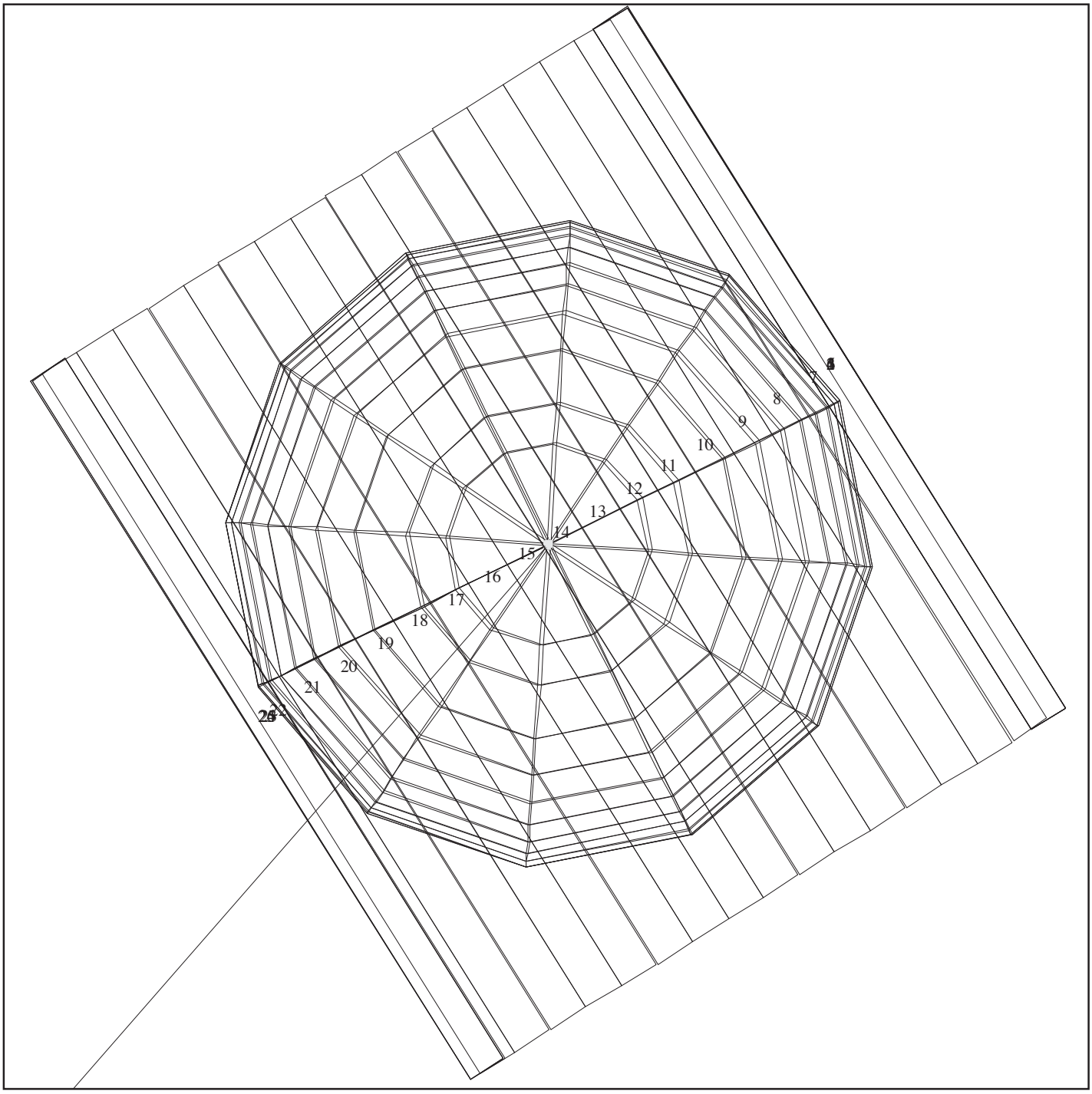
Alias

NIMS will map the error ellipse plus scan platform error with a single swath in Full Map mode at Long Map Nyquist sampling rate (0.03 mrad/sec). This is one of five Full Map observations in the Gaspra Far Encounter, the fifth of which verifies the observation in Full Map mode of the first quadrant.

Full Map (FM), Gain 4, Grating Start 0, Chopper 63Hz, MPW

Last Changed 05/03/95 Changed By FEL 10/08/91 13:58:04

Galileo Activity Plan Form rev 5/95



GAPNGASPER07

POINTER C4.1Wsusan: 9/23/1991 15:11:34

FILE:P.GAPNGASPER07

CENTRAL BODY:PLUTO

MINI:m.GAPNGASPER07

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 249:00:0

ACTIVITY:GAPNGASPER07 **DESCRIP:NIMS 17 WVLNGTH NYQ RATE**

Gaspra 15 Degree Periodic Rotation Sam ACTIVITY ID: GAPNGASPER07-
START TIME: 91-302/18:25:14

Activity ID: Orbit GA Target P Inst N OAPEL GASPER SeqNo 07 Multi -

Title Gaspra 15 Degree Periodic Rotation Sam Instrument NIMS

Requestor C. Byrnes Team NIMS Working Group AWG

Time System CDS Load ID EE3 Calendar Date 10/29/91 Week 44

Start	GCA-CDS 00000249:00:0	91-302/18:25:14	GCA-000/04:11:46
End	GCA-CDS 00000424:63:0	91-302/18:25:33	GCA-000/04:11:27
Duration	00000000:28:0	000/00:00:19	000/00:00:19

Top Label GAPNGASPER07-
Bottom Label

Plot Key	NIMS	Riding Plot Key	Conflict Yes
CDS Bytes	181	Report Options	Real Time Activity No

Observation Objective

NIMS will perform a disk spectral integration of Gaspra which, when combined with other observations, will provide 15 degree rotational samples. Rotationally resolved data will help determine the nature of spectral differences on Gaspra, suspected to have originated from a differentiated parent body.

Design Detail

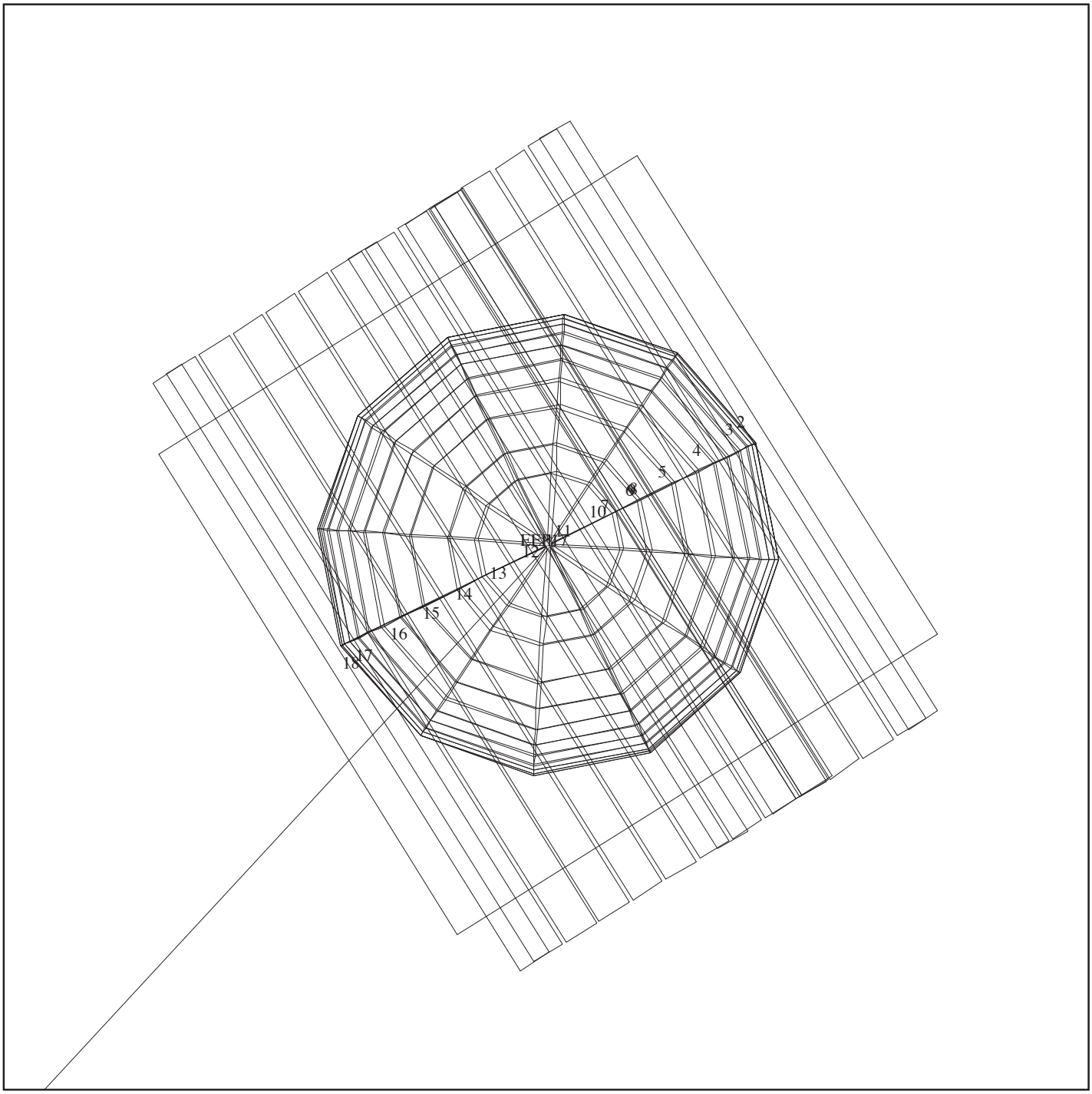
Alias

NIMS will map the error ellipse plus scan platform error with a single swath in Fixed Map mode at Nyquist sampling rate (0.75 mrad/sec). This is one of 11 Fixed Map observations in the Gaspra Far Encounter, The Fixed Map observation planned for GEE-CDS 179:00:0 is missing due to negotiations with UVS.

Fixed Map (XM), Gain 4, Grating Start 6, Chopper 63Hz, MPW

Last Changed 05/03/95 Changed By FEL 10/08/91 13:58:04

Galileo Activity Plan Form rev 5/95



GAPNGASCUR05

POINTER C4.1Wsusan: 9/23/1991 15:17:20

FILE:P.GAPSLTCRVB05

CENTRAL BODY:PLUTO

MINI:m.GAPSLTCRVB05

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 232:00:0

ACTIVITY:GAPSLTCRVB05 **DESCRIP:SSI LTCRVB05/NIMS GASCUR05**

Gaspra Spectral Light Curve — ACTIVITY ID: GAPNGASCUR05+ — START TIME: 91-302/18:42:26

Activity ID: Orbit GA Target P Inst N OAPEL GASCUR SeqNo 05 Multi +

Title Gaspra Spectral Light Curve — Instrument NIMS

Requestor C. Byrnes — Team NIMS — Working Group AWG

Time System CDS — Load ID EE3 — Calendar Date 10/29/91 — Week 44

Start	GCA-CDS 00000232:00:0	91-302/18:42:26	GCA-000/03:54:34
End	GCA-CDS 00000230:59:0	91-302/18:25:33	GCA-000/03:53:12
Duration	00000001:32:0	000/00:01:22	000/00:01:22

Top Label GAPNGASCUR05+
Bottom Label

Plot Key NIMS — Riding Plot Key — Conflict Yes
CDS Bytes 181 — Report Options — Real Time Activity No

Observation Objective

NIMS will observe the spectral light curve of Gaspra periodically throughout a full rotation of Gaspra (7.04 hours). This observation, combined with others, give 15 degree samples of Gaspra's rotation. Rotationally resolved data will aid in determining the nature of spectral differences on the surface of Gaspra, an asteroid suspected to have originated from a differentiated parent body.

Design Detail

Alias GAPSLTCRVB05

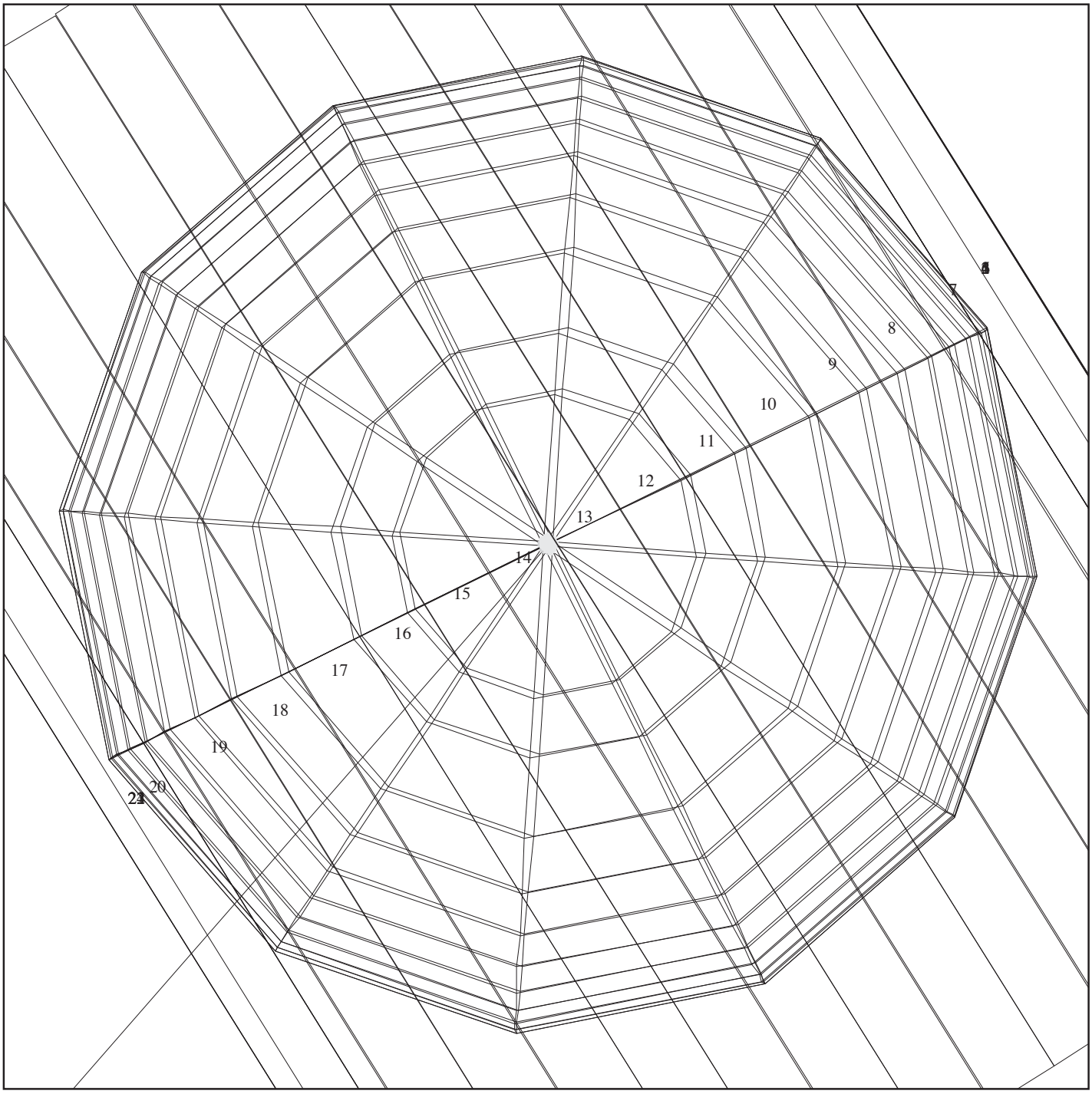
SSI will cover the error ellipse in 4 colors every 90 degrees (before

the SSI readout time (26.667 sec) to scan as much as is possible, repositions -0.5 mrad while the recorder winds down from SSI rates and up to NIMS rates, then finishes the single swath.

Short Map (SM), Gain 4, Grating Start 2, Chopper 63Hz, HCM,MPW

Last Changed 05/03/95 Changed By FEL — 10/08/91 13:58:04

Galileo Activity Plan Form — rev 5/95



GAPNGASPER08

POINTER C4.1Wsusan: 9/23/1991 15:20:31

FILE:P.GAPNGASPER08

CENTRAL BODY:PLUTO

MINI:m.GAPNGASPER08

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 214:00:0

ACTIVITY:GAPNGASPER08 **DESCRIP:NIMS 17 WVLNGTH NYQ RATE**

Gaspra 15 Degree Periodic Rotation Sam ACTIVITY ID: GAPNGASPER08-
START TIME: 91-302/19:00:38

Activity ID: Orbit GA Target P Inst N OAPEL GASPER SeqNo 08 Multi -

Title Gaspra 15 Degree Periodic Rotation Sam Instrument NIMS

Requestor C. Byrnes Team NIMS Working Group AWG

Time System CDS Load ID EE3 Calendar Date 10/29/91 Week 44

Start	GCA-CDS	00000214:00:0	91-302/19:00:38	GCA-000/03:36:22
End	GCA-CDS	00000213:63:0	91-302/19:00:56	GCA-000/03:36:04
Duration		00000000:28:0	000/00:00:18	000/00:00:18

Top Label GAPNGASPER08-
Bottom Label

Plot Key	NIMS	Riding Plot Key	Conflict Yes
CDS Bytes	181	Report Options	Real Time Activity No

Observation Objective

NIMS will perform a disk spectral integration of Gaspra which, when combined with other observations, will provide 15 degree rotational samples. Rotationally resolved data will help determine the nature of spectral differences on Gaspra, suspected to have originated from a differentiated parent body.

Design Detail

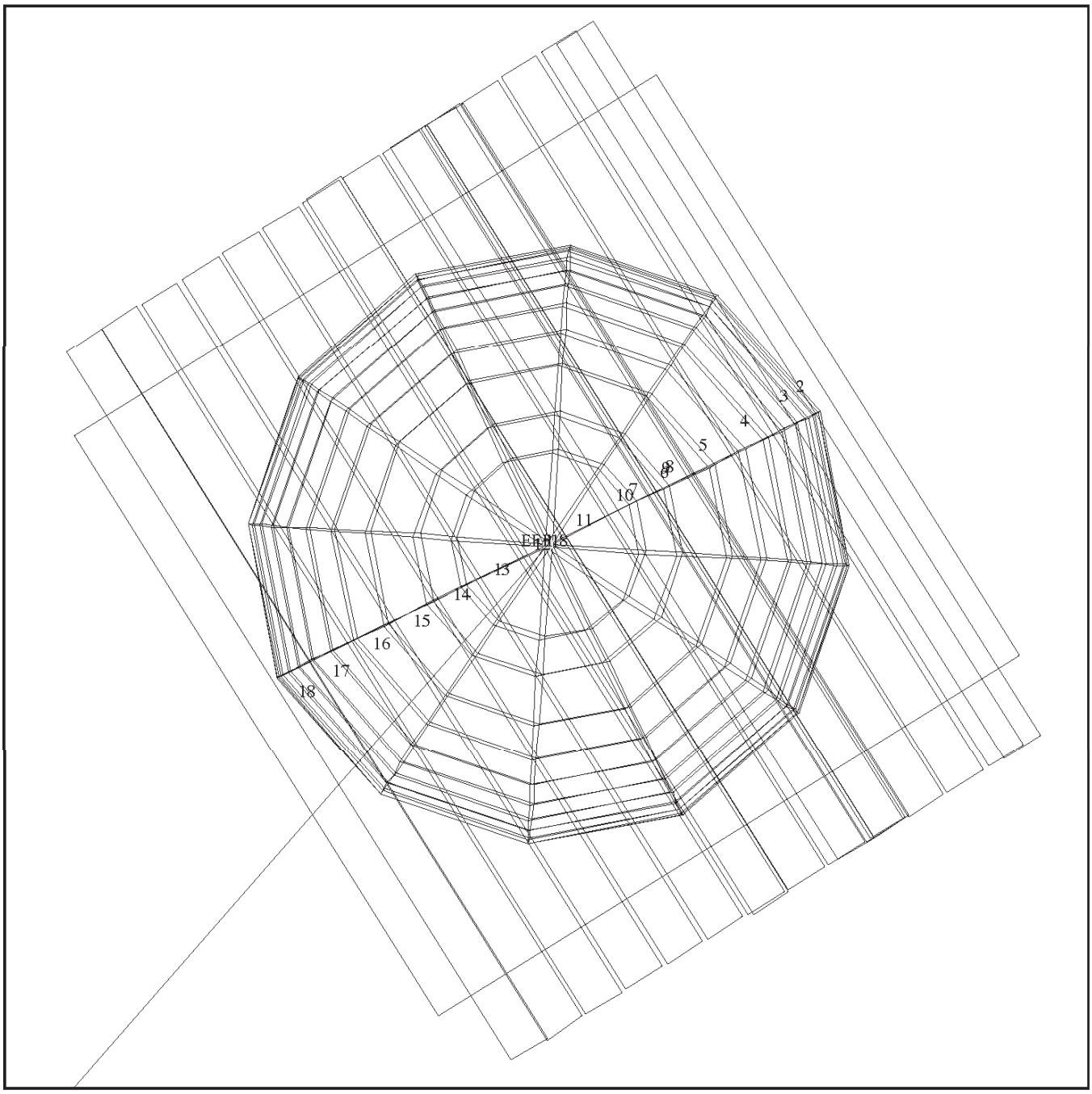
Alias

NIMS will map the error ellipse plus scan platform error with a single swath in Fixed Map mode at Nyquist sampling rate (0.75 mrad/sec). This is one of 11 Fixed Map observations in the Gaspra Far Encounter, The Fixed Map observation planned for GEE-CDS 179:00:0 is missing due to negotiations with UVS.

Fixed Map (XM), Gain 4, Grating Start 6, Chopper 63Hz, MPW

Last Changed 05/03/95 Changed By FEL 10/08/91 13:58:04

Galileo Activity Plan Form rev 5/95



GAPNGASCUR06

POINTER C4.1Wsusan: 9/23/1991 15:25:31

FILE:P.GAPSLTCRVB06

CENTRAL BODY:PLUTO

MINI:m.GAPSLTCRVB06

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 197:00:0

ACTIVITY:GAPSLTCRVB06 **DESCRIP:SSI LTCRVB06/NIMS GASCUR06**

Gaspra Spectral Light Curve — ACTIVITY ID: GAPNGASCUR06+ — START TIME: 91-302/19:17:49

Activity ID: Orbit GA Target P Inst N OAPEL GASCUR SeqNo 06 Multi +

Title Gaspra Spectral Light Curve — Instrument NIMS

Requestor C. Byrnes — Team NIMS — Working Group AWG

Time System CDS — Load ID EE3 — Calendar Date 10/29/91 — Week 44

Start	GCA-CDS 00000197:00:0	91-302/19:17:49	GCA-000/03:19:11
End	GCA-CDS 00000195:77:0	91-302/19:18:59	GCA-000/03:18:01
Duration	00000001:14:0	000/00:01:10	000/00:01:10

Top Label GAPNGASCUR06+
Bottom Label

Plot Key NIMS — Riding Plot Key — Conflict Yes
CDS Bytes 181 — Report Options — Real Time Activity No

Observation Objective

NIMS will observe the spectral light curve of Gaspra periodically throughout a full rotation of Gaspra (7.04 hours). This observation, combined with others, give 15 degree samples of Gaspra's rotation. Rotationally resolved data will aid in determining the nature of spectral differences on the surface of Gaspra, an asteroid suspected to have originated from a differentiated parent body.

Design Detail

Alias GAPSLTCRVB06

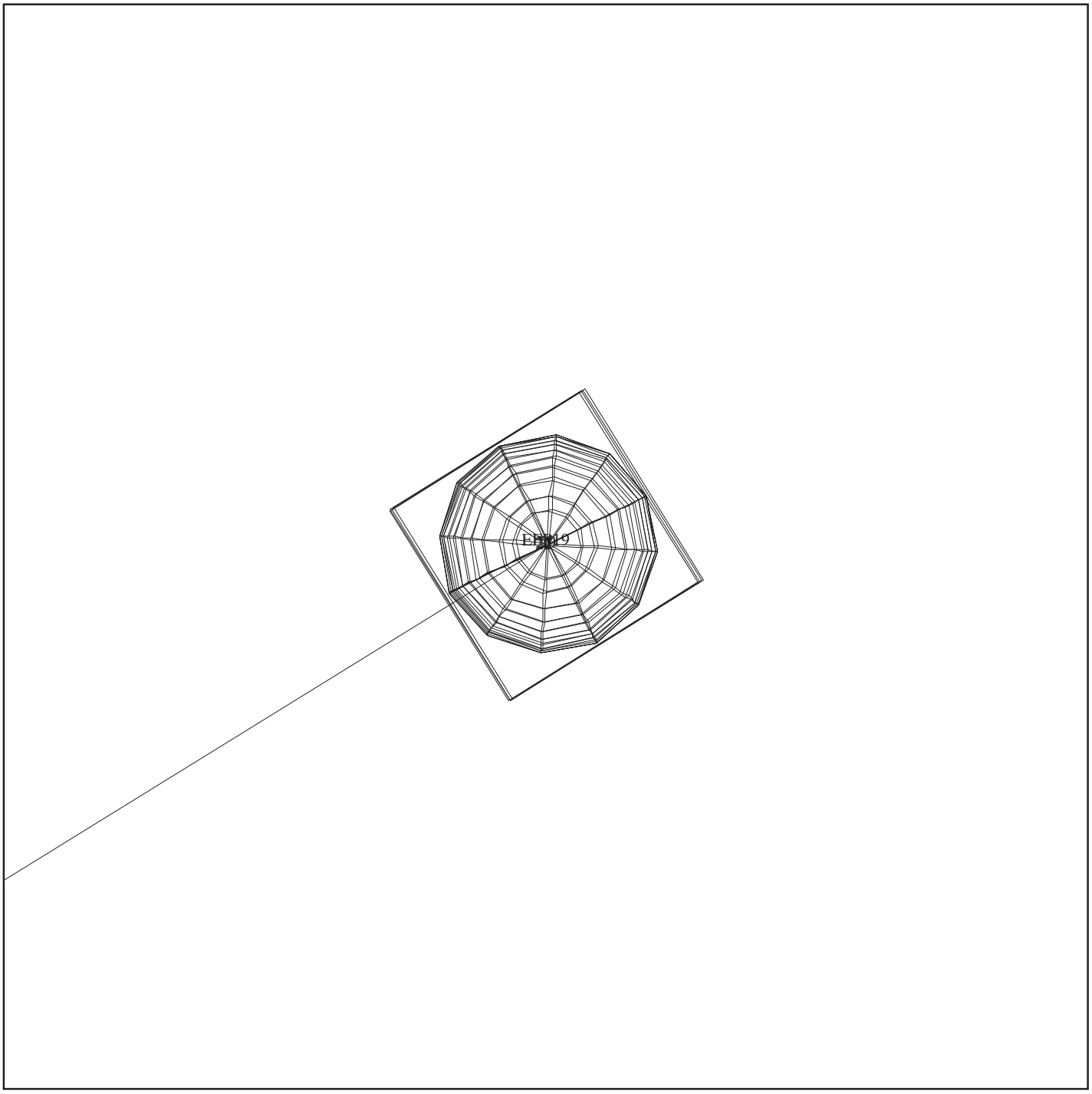
SSI will cover the error ellipse in 4 colors every 90 degrees (before

the SSI readout time (26.667 sec) to scan as much as is possible, repositions -0.5 mrad while the recorder winds down from SSI rates and up to NIMS rates, then finishes the single swath.

Short Map (SM), Gain 4, Grating Start 2, Chopper 63Hz, HCM,MPW

Last Changed 05/03/95 Changed By FEL — 10/08/91 13:58:04

Galileo Activity Plan Form — rev 5/95



GAPSLTCRVC04

POINTER C4.1Wsusan: 9/25/1991 8:13: 5

FILE:P.GAPSLTCRVC04

CENTRAL BODY:PLUTO

MINI:m.GAPSLTCRVC04

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 162:00:0

ACTIVITY:GAPSLTCRVC04 **DESCRIP:4-FILTER LIGHTCURVE**

Gaspra Distant Light Curve

ACTIVITY ID: GAPSLTCRVC04*
START TIME: 91-302/20:13:26

Activity ID: Orbit GA Target P Inst S OAPEL LTCRVC SeqNo 04 Multi *

Title Gaspra Distant Light Curve Instrument NIMS

Requestor C. Byrnes Team NIMS Working Group AWG

Time System CDS Load ID EE3 Calendar Date 10/29/91 Week 44

Start	GCA-CDS 00000144:00:0	91-302/20:13:26	GCA-000/02:25:36
End	GCA-CDS 00000141:00:0	91-302/20:16:28	GCA-000/02:22:34
Duration	00000003:00:0	000/00:03:02	000/00:03:02

Top Label GAPSLTCRVC04*
Bottom Label

Plot Key NIMS Riding Plot Key Conflict Yes
CDS Bytes 128 Report Options Real Time Activity No

Observation Objective

This observation is part of SSI's final rotation Gaspra 'movie' and lightcurve Each segment of the total lightcurve covers 30 degrees of rotation of Gaspra. Every third segment is through four filters to give data on the color of Gaspra. The remaining segments are through a single filter.

Design Detail

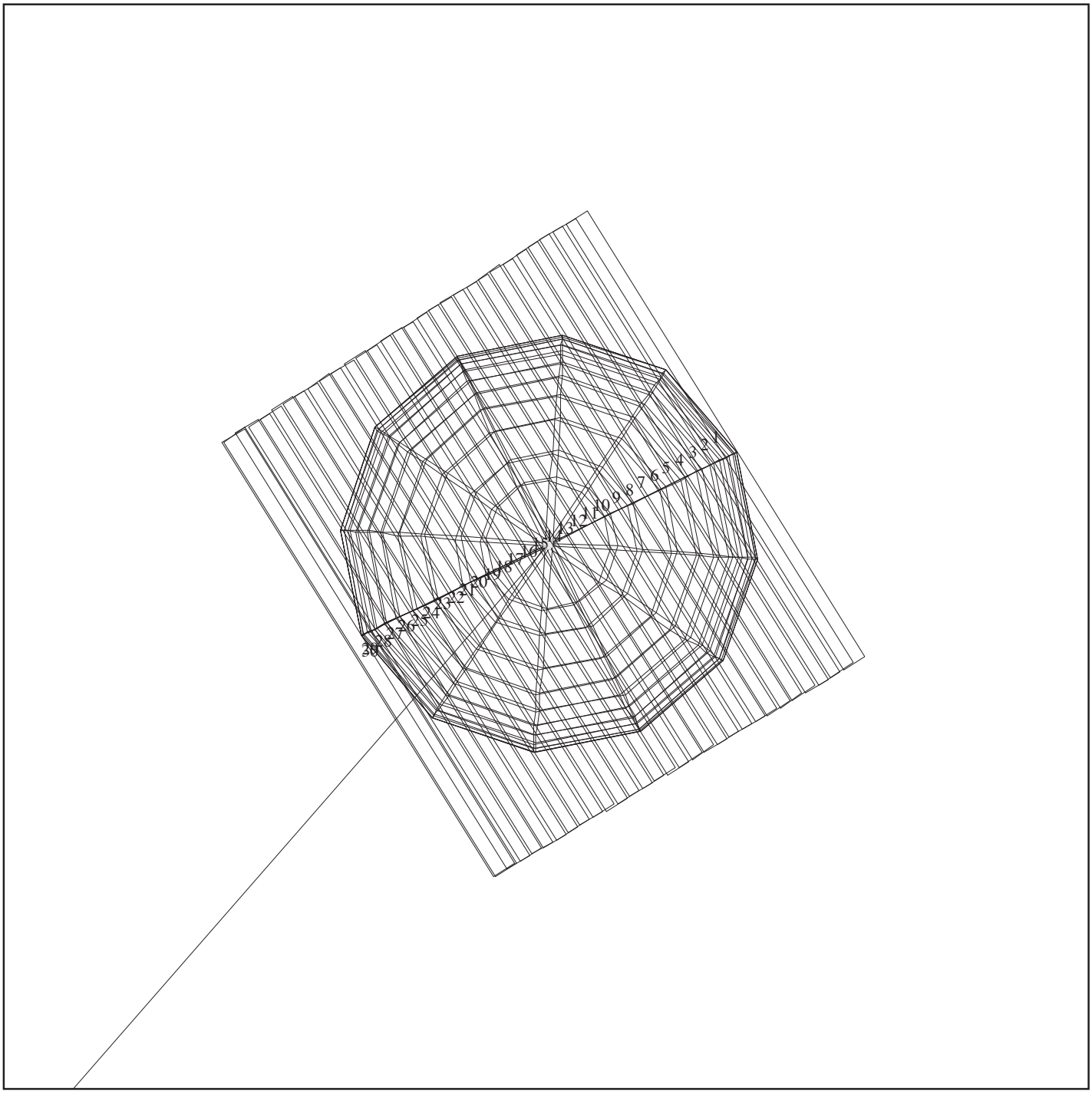
Alias

NIMS will ride-along behind SSI in various modes.
Here, NIMS is in Short Map mode

Short Map (SM), Gain 4, Grating Start 2, Chopper 63Hz, HCM

Last Changed 05/03/95 Changed By FEL 10/08/91 13:58:04

Galileo Activity Plan Form rev 5/95



GAPNGASPEC04

POINTER C4.1Wsusan: 9/25/1991 8:14:41

FILE:P.GAPNGASPEC04

CENTRAL BODY:PLUTO

MINI:m.GAPNGASPEC04

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 158:00:0

ACTIVITY:GAPNGASPEC04 **DESCRIP:4TH NIMS 204 WVLGTHS LM NYQ RATE**

Gaspra Highest Spectral Resolution Map ACTIVITY ID: GAPNGASPEC04-
START TIME: 91-302/19:57:15

Activity ID: Orbit GA Target P Inst N OAPEL GASPEC SeqNo 04 Multi -

Title Gaspra Highest Spectral Resolution Map Instrument NIMS

Requestor C. Byrnes Team NIMS Working Group AWG

Time System CDS Load ID EE3 Calendar Date 10/29/91 Week 44

Start	GCA-CDS 00000158:00:0	91-302/19:57:15	GCA-000/02:39:45
End	GCA-CDS 00000153:61:0	91-302/20:01:38	GCA-000/02:35:22
Duration	00000004:30:0	000/00:04:23	000/00:04:23

Top Label GAPNGASPEC04-
Bottom Label

Plot Key	NIMS	Riding Plot Key	Conflict Yes
CDS Bytes	181	Report Options	Real Time Activity No

Observation Objective

NIMS will perform a disk spectral integration of Gaspra which, when combined with other observations, will provide 15 degree rotational samples. Rotationally resolved data will help determine the nature of spectral differences on Gaspra, suspected to have originated from a differentiated parent body.

Design Detail

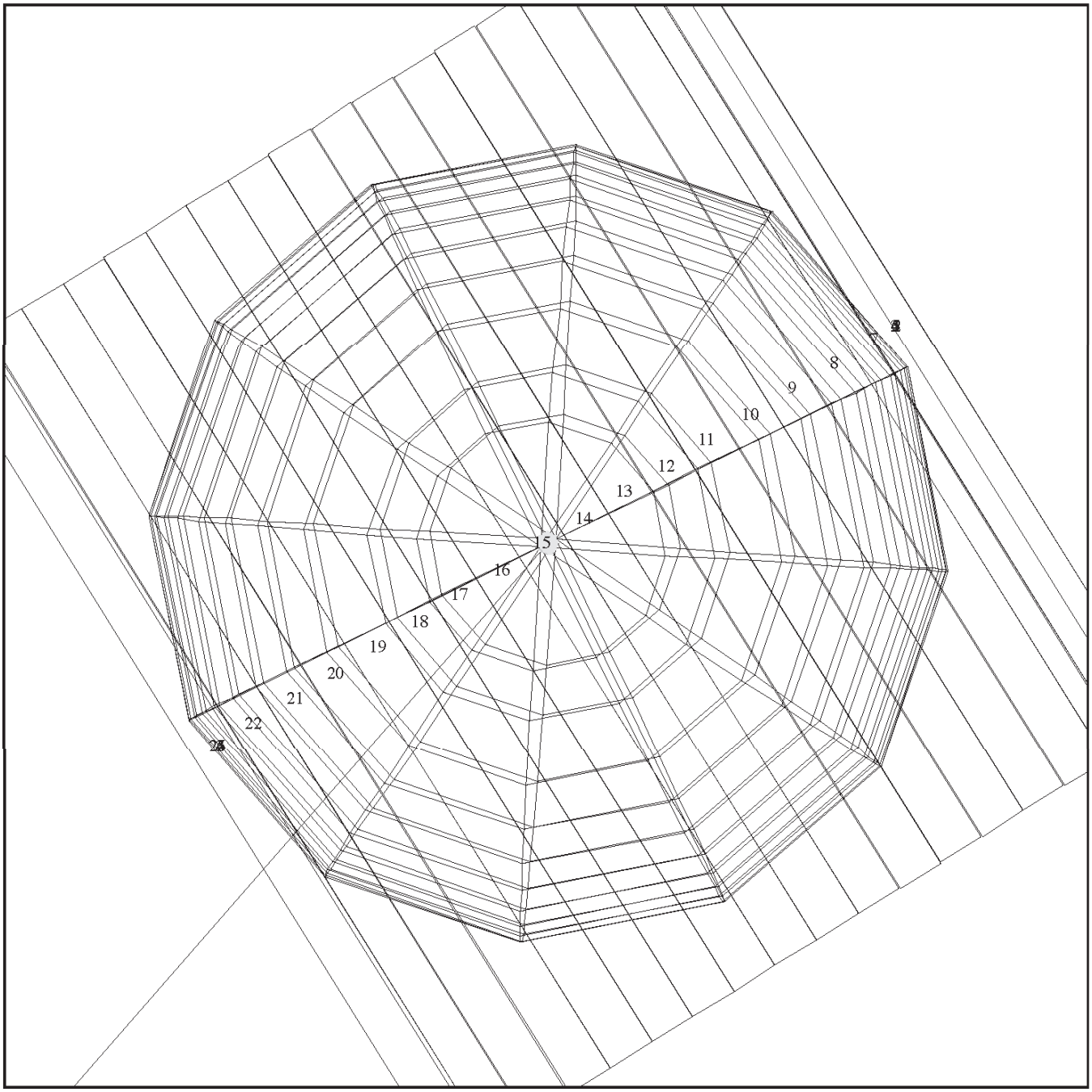
Alias

NIMS will map the error ellipse plus scan platform error with a single swath in Full Map mode at Long Map Nyquist sampling rate (0.03 mrad/sec). This is one of five Full Map observations in the Gaspra Far Encounter, the fifth of which verifies the observation in Full Map mode of the first quadrant.

Full Map (FM), Gain 4, Grating Start 0, Chopper 63Hz, MPW

Last Changed 05/03/95 Changed By FEL 10/08/91 13:58:04

Galileo Activity Plan Form rev 5/95



GAPNGASPER10

POINTER C4.1Wsusan: 9/25/1991 9: 8:36

FILE:P.GAPNGASPER10

CENTRAL BODY:PLUTO

MINI:m.GAPNGASPER10

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 144:00:0

ACTIVITY:GAPNGASPER10 **DESCRIP:NIMS 17 WVLNGTH NYQ RATE**

Gaspra 15 Degree Periodic Rotation Sam ACTIVITY ID: GAPNGASPER10-
START TIME: 91-302/20:11:24

Activity ID: Orbit GA Target P Inst N OAPEL GASPER SeqNo 10 Multi -

Title Gaspra 15 Degree Periodic Rotation Sam Instrument NIMS

Requestor C. Byrnes Team NIMS Working Group AWG

Time System CDS Load ID EE3 Calendar Date 10/29/91 Week 44

Start	GCA-CDS 00000144:00:0	91-302/20:11:24	GCA-000/02:25:36
End	GCA-CDS 00000143:59:0	91-302/20:11:46	GCA-000/02:25:14
Duration	00000000:32:0	000/00:00:22	000/00:00:22

Top Label GAPNGASPER10-
Bottom Label

Plot Key NIMS Riding Plot Key Conflict Yes
CDS Bytes 181 Report Options Real Time Activity No

Observation Objective

NIMS will perform a disk spectral integration of Gaspra which, when combined with other observations, will provide 15 degree rotational samples. Rotationally resolved data will help determine the nature of spectral differences on Gaspra, suspected to have originated from a differentiated parent body.

Design Detail

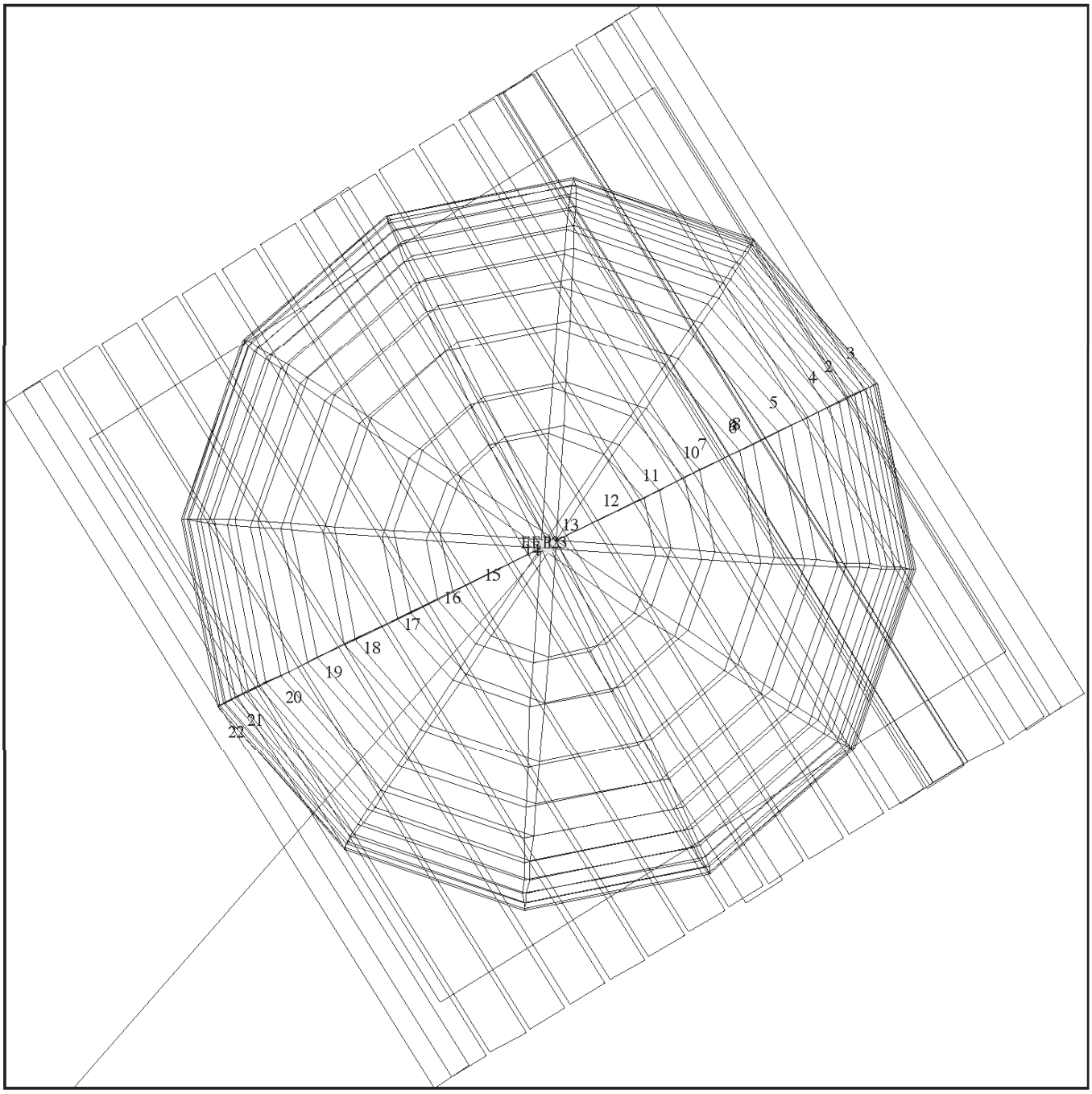
Alias

NIMS will map the error ellipse plus scan platform error with a single swath in Fixed Map mode at Nyquist sampling rate (0.75 mrad/sec). This is one of 11 Fixed Map observations in the Gaspra Far Encounter, The Fixed Map observation planned for GEE-CDS 179:00:0 is missing due to negotiations with UVS.

Fixed Map (XM), Gain 4, Grating Start 6, Chopper 63Hz, MPW

Last Changed 05/03/95 Changed By FEL 10/08/91 13:58:04

Galileo Activity Plan Form rev 5/95



GAPNGASCUR07

POINTER C4.1Wsusan: 9/25/1991 9:10:38

FILE:P.GAPSLTCRVB07

CENTRAL BODY:PLUTO

MINI:m.GAPSLTCRVB07

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 127:00:0

ACTIVITY:GAPSLTCRVB07 **DESCRIP:SSI LTCRV07/NIMS GASCUR07**

Gaspra Spectral Light Curve — ACTIVITY ID: GAPNGASCUR07+ — START TIME: 91-302/20:28:36

Activity ID: Orbit GA Target P Inst N OAPEL GASCUR SeqNo 07 Multi +

Title Gaspra Spectral Light Curve — Instrument NIMS

Requestor C. Byrnes — Team NIMS — Working Group AWG

Time System CDS — Load ID EE3 — Calendar Date 10/29/91 — Week 44

Start	GCA-CDS 00000127:00:0	91-302/20:28:36	GCA-000/02:08:24
End	GCA-CDS 00000126:28:0	91-302/20:29:18	GCA-000/02:07:42
Duration	00000000:63:0	000/00:00:42	000/00:00:42

Top Label GAPNGASCUR07+
Bottom Label

Plot Key NIMS — Riding Plot Key — Conflict Yes
CDS Bytes 181 — Report Options — Real Time Activity No

Observation Objective

NIMS will observe the spectral light curve of Gaspra periodically throughout a full rotation of Gaspra (7.04 hours). This observation, combined with others, give 15 degree samples of Gaspra's rotation. Rotationally resolved data will aid in determining the nature of spectral differences on the surface of Gaspra, an asteroid suspected to have originated from a differentiated parent body.

Design Detail

Alias GAPSLTCRVB07

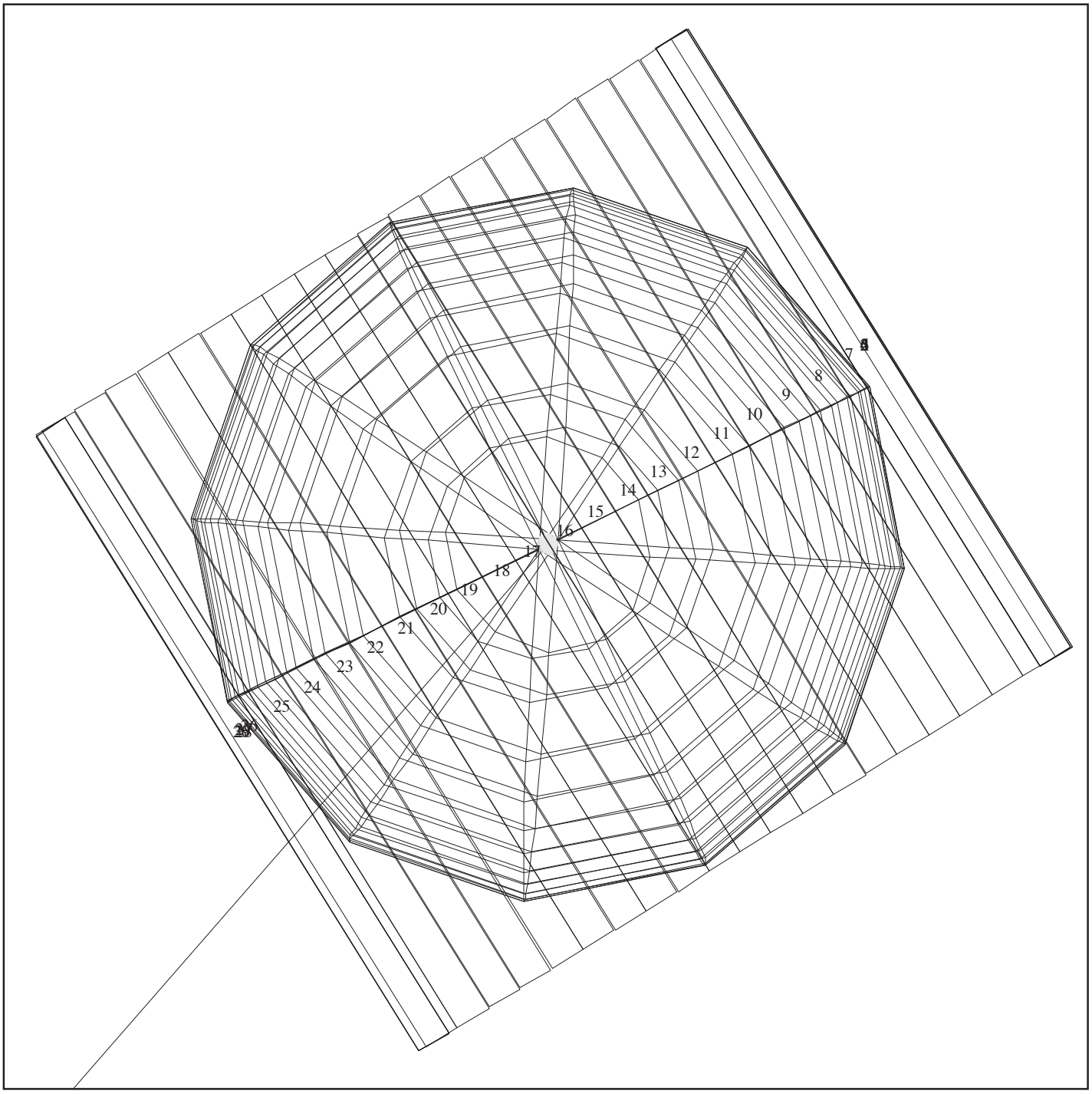
SSI will cover the error ellipse in 4 colors every 90 degrees (before

the SSI readout time (26.667 sec) to scan as much as is possible, repositions -0.5 mrad while the recorder winds down from SSI rates and up to NIMS rates, then finishes the single swath.

Short Map (SM), Gain 4, Grating Start 2, Chopper 63Hz, HCM,MPW

Last Changed 05/03/95 Changed By FEL — 10/08/91 13:58:04

Galileo Activity Plan Form — rev 5/95



GAPNGASPER11

POINTER C4.1Wsusan: 9/25/1991 9:12:30

FILE:P.GAPNGASPER11

CENTRAL BODY:PLUTO

MINI:m.GAPNGASPER11

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 109:00:0

ACTIVITY:GAPNGASPER11 **DESCRIP:NIMS 17 WVLNGTH NYQ RATE**

Gaspra 15 Degree Periodic Rotation Sam ACTIVITY ID: GAPNGASPER11-
START TIME: 91-302/20:46:48

Activity ID: Orbit GA Target P Inst N OAPEL GASPER SeqNo 11 Multi -

Title Gaspra 15 Degree Periodic Rotation Sam Instrument NIMS

Requestor C. Byrnes Team NIMS Working Group AWG

Time System CDS Load ID EE3 Calendar Date 10/29/91 Week 44

Start	GCA-CDS 00000109:00:0	91-302/20:46:48	GCA-000/01:50:12
End	GCA-CDS 00000108:61:0	91-302/20:47:08	GCA-000/01:49:52
Duration	00000000:30:0	000/00:00:20	000/00:00:20

Top Label GAPNGASPER11-
Bottom Label

Plot Key	NIMS	Riding Plot Key	Conflict Yes
CDS Bytes	181	Report Options	Real Time Activity No

Observation Objective

NIMS will perform a disk spectral integration of Gaspra which, when combined with other observations, will provide 15 degree rotational samples. Rotationally resolved data will help determine the nature of spectral differences on Gaspra, suspected to have originated from a differentiated parent body.

Design Detail

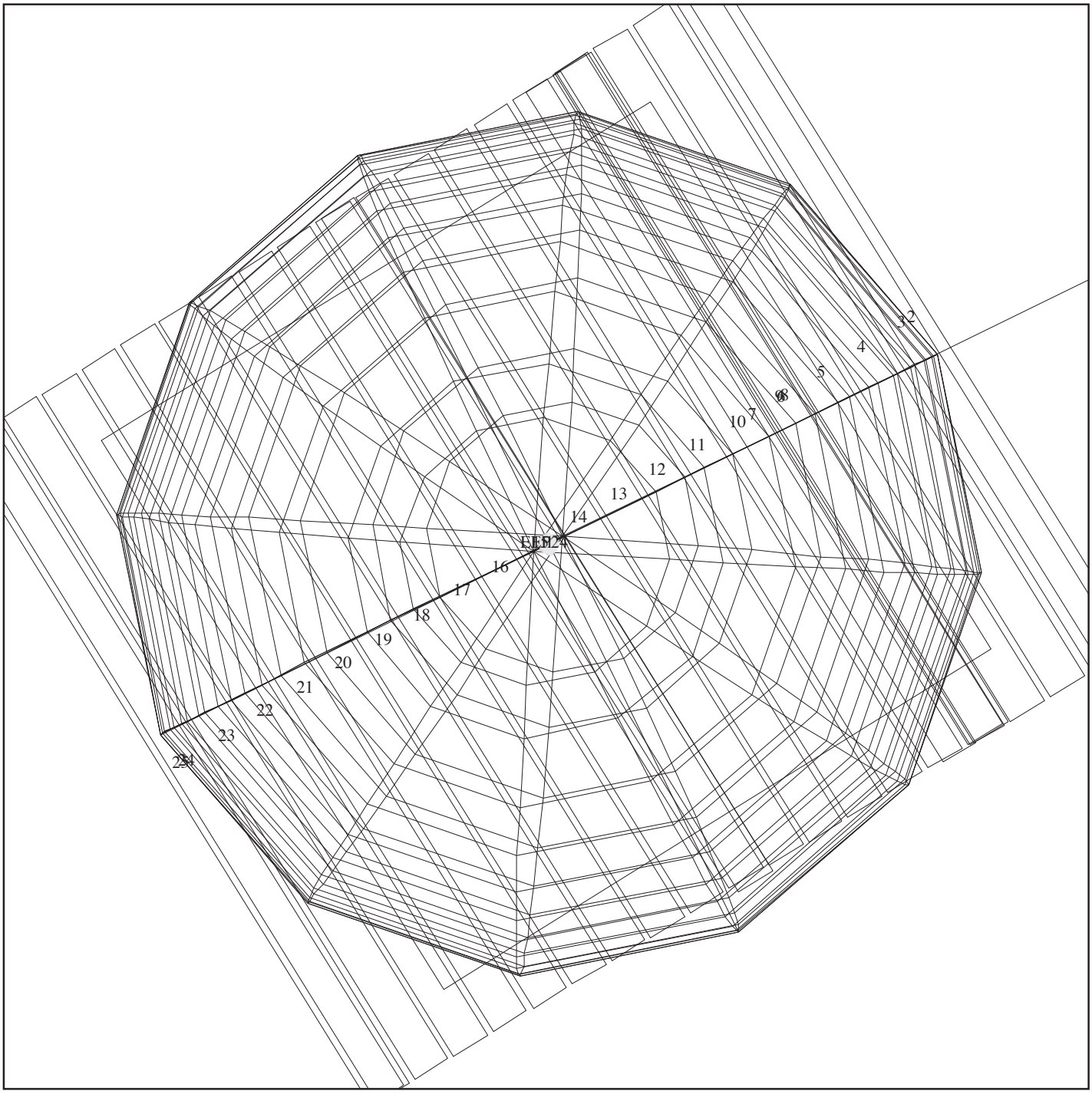
Alias

NIMS will map the error ellipse plus scan platform error with a single swath in Fixed Map mode at Nyquist sampling rate (0.75 mrad/sec). This is one of 11 Fixed Map observations in the Gaspra Far Encounter, The Fixed Map observation planned for GEE-CDS 179:00:0 is missing due to negotiations with UVS.

Fixed Map (XM), Gain 4, Grating Start 6, Chopper 63Hz, MPW

Last Changed 05/03/95 Changed By FEL 10/08/91 13:58:04

Galileo Activity Plan Form rev 5/95



GAPNGASCUR08

POINTER C4.1Wsusan: 9/25/1991 9:29:35

FILE:P.GAPSLTCRVB08

CENTRAL BODY:PLUTO

MINI:m.GAPSLTCRVB08

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 92:00:0

ACTIVITY:GAPSLTCRVB08 **DESCRIP:SSI LTCRVB08/NIMS GASCUR08**

Gaspra Spectral Light Curve — ACTIVITY ID: GAPNGASCUR08+ — START TIME: 91-302/21:03:59

Activity ID: Orbit GA Target P Inst N OAPEL GASCUR SeqNo 08 Multi +

Title Gaspra Spectral Light Curve — Instrument NIMS

Requestor C. Byrnes — Team NIMS — Working Group AWG

Time System CDS — Load ID EE3 — Calendar Date 10/29/91 — Week 44

Start	GCA-CDS 00000092:00:0	91-302/21:03:59	GCA-000/01:33:01
End	GCA-CDS 00000090:08:0	91-302/21:05:55	GCA-000/01:31:05
Duration	00000001:83:0	000/00:01:56	000/00:01:56

Top Label GAPNGASCUR08+
Bottom Label

Plot Key NIMS — Riding Plot Key — Conflict Yes
CDS Bytes 181 — Report Options — Real Time Activity No

Observation Objective

NIMS will observe the spectral light curve of Gaspra periodically throughout a full rotation of Gaspra (7.04 hours). This observation, combined with others, give 15 degree samples of Gaspra's rotation. Rotationally resolved data will aid in determining the nature of spectral differences on the surface of Gaspra, an asteroid suspected to have originated from a differentiated parent body.

Design Detail

Alias GAPSLTCRVB08

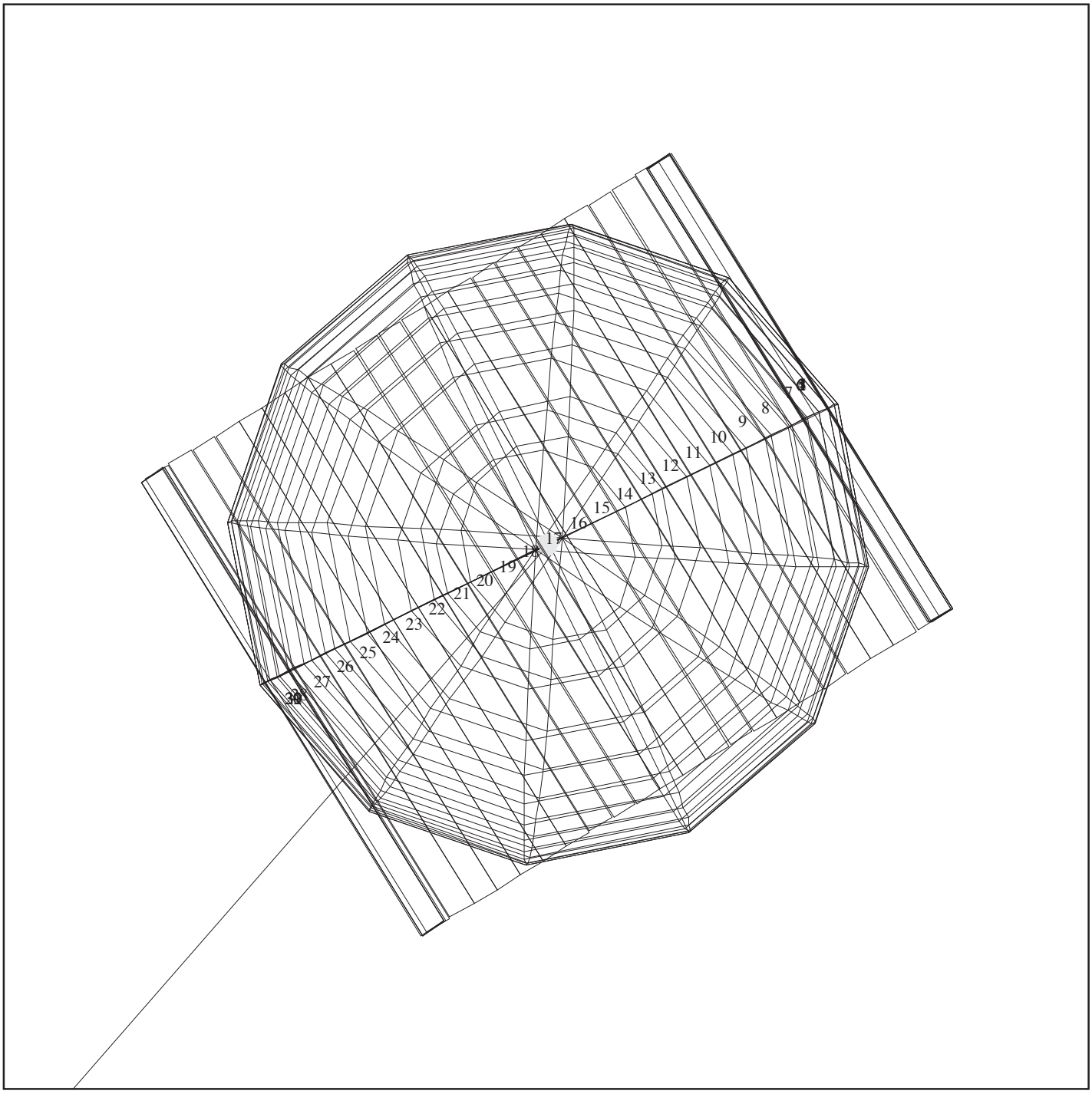
SSI will cover the error ellipse in 4 colors every 90 degrees (before

the SSI readout time (26.667 sec) to scan as much as is possible, repositions -0.5 mrad while the recorder winds down from SSI rates and up to NIMS rates, then finishes the single swath.

Short Map (SM), Gain 3, Grating Start 2, Chopper 63Hz, HCM,MPW

Last Changed 05/03/95 Changed By FEL — 10/08/91 13:58:04

Galileo Activity Plan Form — rev 5/95



GAPNGASPER12

POINTER C4.1Wsusan: 9/25/1991 9:31:52

FILE:P.GAPNGASPER12

CENTRAL BODY:PLUTO

MINI:m.GAPNGASPER12

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 80:00:0

ACTIVITY:GAPNGASPER12 **DESCRIP:NIMS 17 WVLNGTH NYQ RATE**

Gaspra 15 Degree Periodic Rotation Sam ACTIVITY ID: GAPNGASPER12-
START TIME: 91-302/21:16:07

Activity ID: Orbit GA Target P Inst N OAPEL GASPER SeqNo 12 Multi -

Title Gaspra 15 Degree Periodic Rotation Sam Instrument NIMS

Requestor C. Byrnes Team NIMS Working Group AWG

Time System CDS Load ID EE3 Calendar Date 10/29/91 Week 44

Start	GCA-CDS 00000080:00:0	91-302/21:16:07	GCA-000/01:20:53
End	GCA-CDS 00000079:65:0	91-302/21:16:24	GCA-000/01:20:36
Duration	00000000:26:0	000/00:00:17	000/00:00:17

Top Label GAPNGASPER12-
Bottom Label

Plot Key	NIMS	Riding Plot Key	Conflict Yes
CDS Bytes	181	Report Options	Real Time Activity No

Observation Objective

NIMS will perform a disk spectral integration of Gaspra which, when combined with other observations, will provide 15 degree rotational samples. Rotationally resolved data will help determine the nature of spectral differences on Gaspra, suspected to have originated from a differentiated parent body.

Design Detail

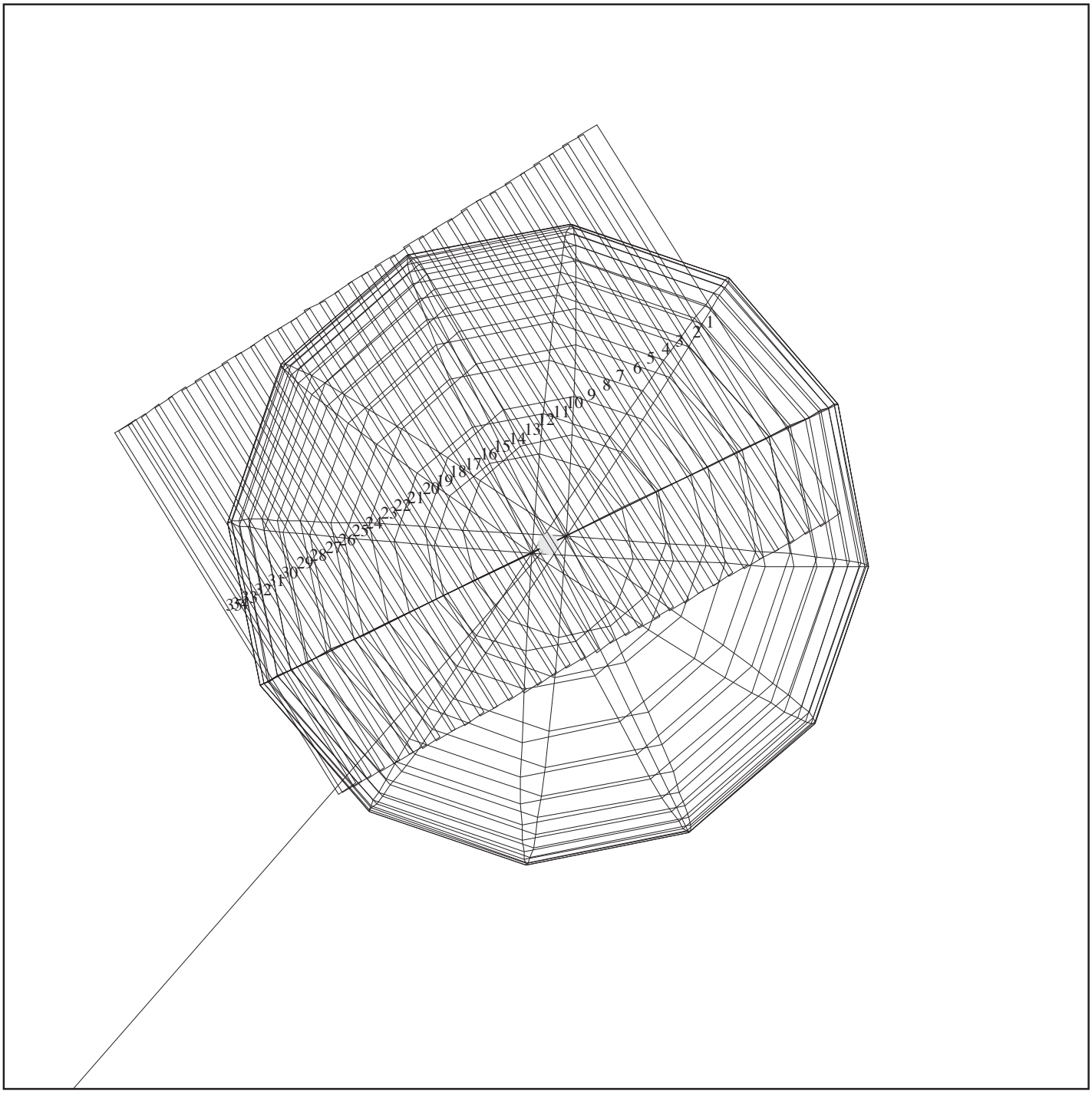
Alias

NIMS will map the error ellipse plus scan platform error with a single swath in Fixed Map mode at Nyquist sampling rate (0.75 mrad/sec). This is one of 11 Fixed Map observations in the Gaspra Far Encounter, The Fixed Map observation planned for GEE-CDS 179:00:0 is missing due to negotiations with UVS.

Fixed Map (XM), Gain 3, Grating Start 6, Chopper 63Hz, MPW

Last Changed 05/03/95 Changed By FEL 10/08/91 13:58:04

Galileo Activity Plan Form rev 5/95



GAPNGASPEC05

POINTER C4.1Wsusan: 9/25/1991 9:34:24

FILE:P.GAPNGASPEC05

CENTRAL BODY:PLUTO

MINI:m.GAPNGASPEC05

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 64:00:0

ACTIVITY:GAPNGASPEC05 **DESCRIP:NIMS 204 WVLGTHS@LM NYQUIST RATE**

Gaspra Highest Spectral Resolution Map ACTIVITY ID: GAPNGASPEC05-
START TIME: 91-302/21:32:18

Activity ID: Orbit GA Target P Inst N OAPEL GASPEC SeqNo 05 Multi -

Title Gaspra Highest Spectral Resolution Map Instrument NIMS

Requestor C. Byrnes Team NIMS Working Group AWG

Time System CDS Load ID EE3 Calendar Date 10/29/91 Week 44

Start	GCA-CDS 00000064:00:0	91-302/21:32:18	GCA-000/01:04:42
End	GCA-CDS 00000058:89:0	91-302/21:37:22	GCA-000/00:59:38
Duration	00000005:02:0	000/00:05:04	000/00:05:04

Top Label GAPNGASPEC05-
Bottom Label

Plot Key	NIMS	Riding Plot Key	Conflict Yes
CDS Bytes	181	Report Options	Real Time Activity No

Observation Objective

NIMS will perform a disk spectral integration of Gaspra which, when combined with other observations, will provide 15 degree rotational samples. Rotationally resolved data will help determine the nature of spectral differences on Gaspra, suspected to have originated from a differentiated parent body.

Design Detail

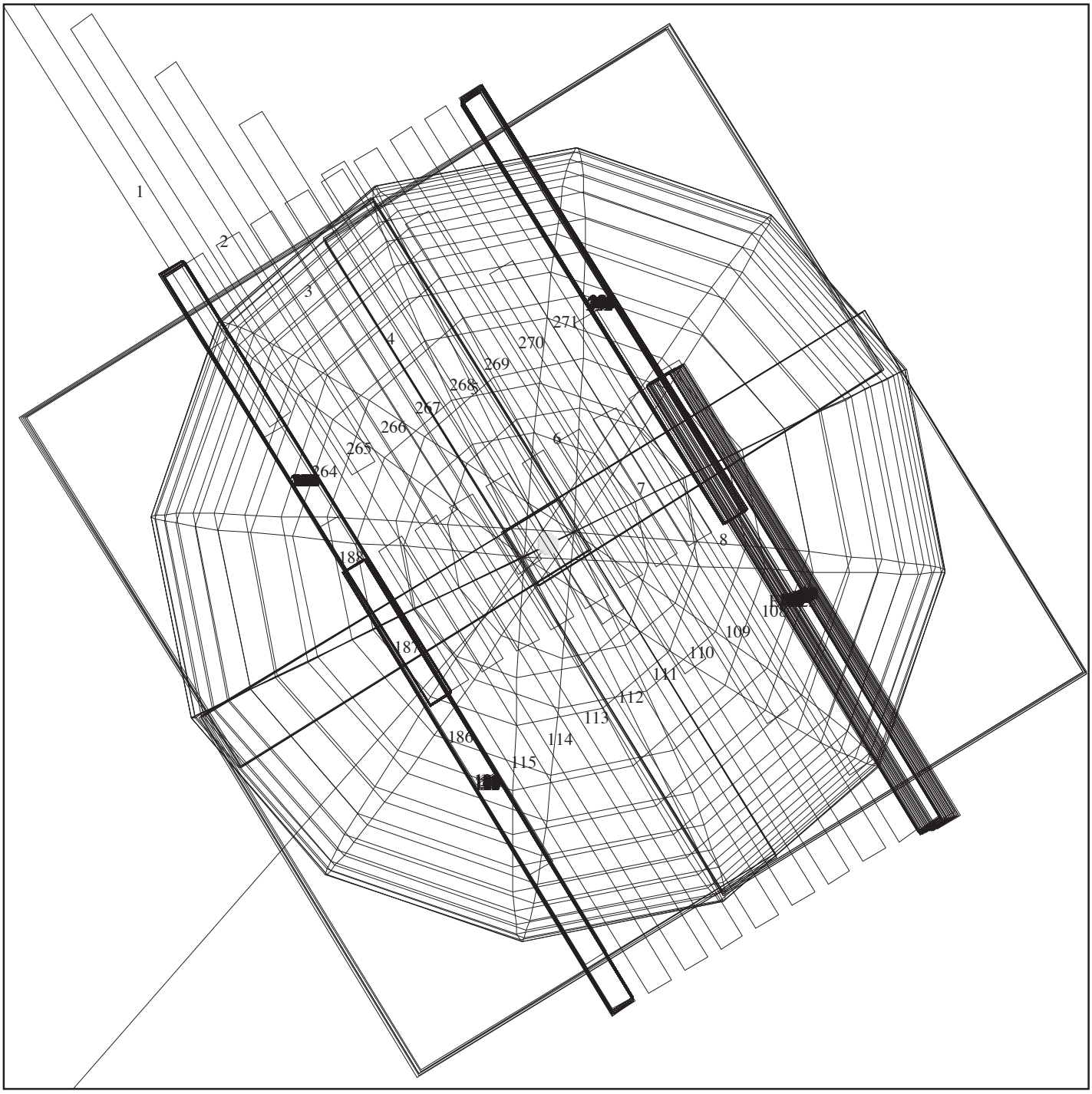
Alias

NIMS will map the error ellipse plus scan platform error with a single swath in Full Map mode at Long Map Nyquist sampling rate (0.03 mrad/sec). This is one of five Full Map observations in the Gaspra Far Encounter, the fifth of which verifies the observation in Full Map mode of the first quadrant.

Full Map (FM), Gain 1, Grating Start 0, Chopper 63Hz, MPW

Last Changed 05/03/95 Changed By FEL 10/08/91 13:58:04

Galileo Activity Plan Form rev 5/95



GAPNGASVIS01

POINTER C4.1Wsusan: 9/25/1991 9:50:30

FILE:P.GAPS6FILTR01

CENTRAL BODY:PLUTO

MINI:m.GAPS6FILTR01

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 58:00:0

ACTIVITY:GAPS6FILTR01 **DESCRIP:6-FILT 2X2 MOS**

Gaspra Lower Phase Vista — ACTIVITY ID: GAPNGASVIS01* — START TIME: 91-302/21:38:22

Activity ID: Orbit GA Target P Inst N OAPEL GASVIS SeqNo 01 Multi *

Title Gaspra Lower Phase Vista — Instrument NIMS

Requestor C. Byrnes — Team NIMS — Working Group AWG

Time System CDS — Load ID EE3 — Calendar Date 10/29/91 — Week 44

Start	GCA-CDS 00000058:00:0	91-302/21:38:22	GCA-000/00:58:38
End	GCA-CDS 00000054:52:0	91-302/21:41:50	GCA-000/00:55:10
Duration	00000003:39:0	000/00:03:28	000/00:03:28

Top Label GAPNGASVIS01*
Bottom Label

Plot Key	NIMS	Riding Plot Key	Conflict Yes
CDS Bytes	89	Report Options	Real Time Activity No

Observation Objective

This observation will be done in two modes. If Gaspra is captured while in the first, Gaspra will be analyzed in 408 wavelengths. If Gaspra is sampled while NIMS is in the second mode, 17 wavelength samples will be made.

Design Detail

Alias GAPS6FILTR01

This observation is a ride-along with a 6 filter, 2x2 SSI mosaic in IM4 (8.667 sec shutter cycle). It will be the first opportunity to use the special sequence capability of the NIMS instrument.

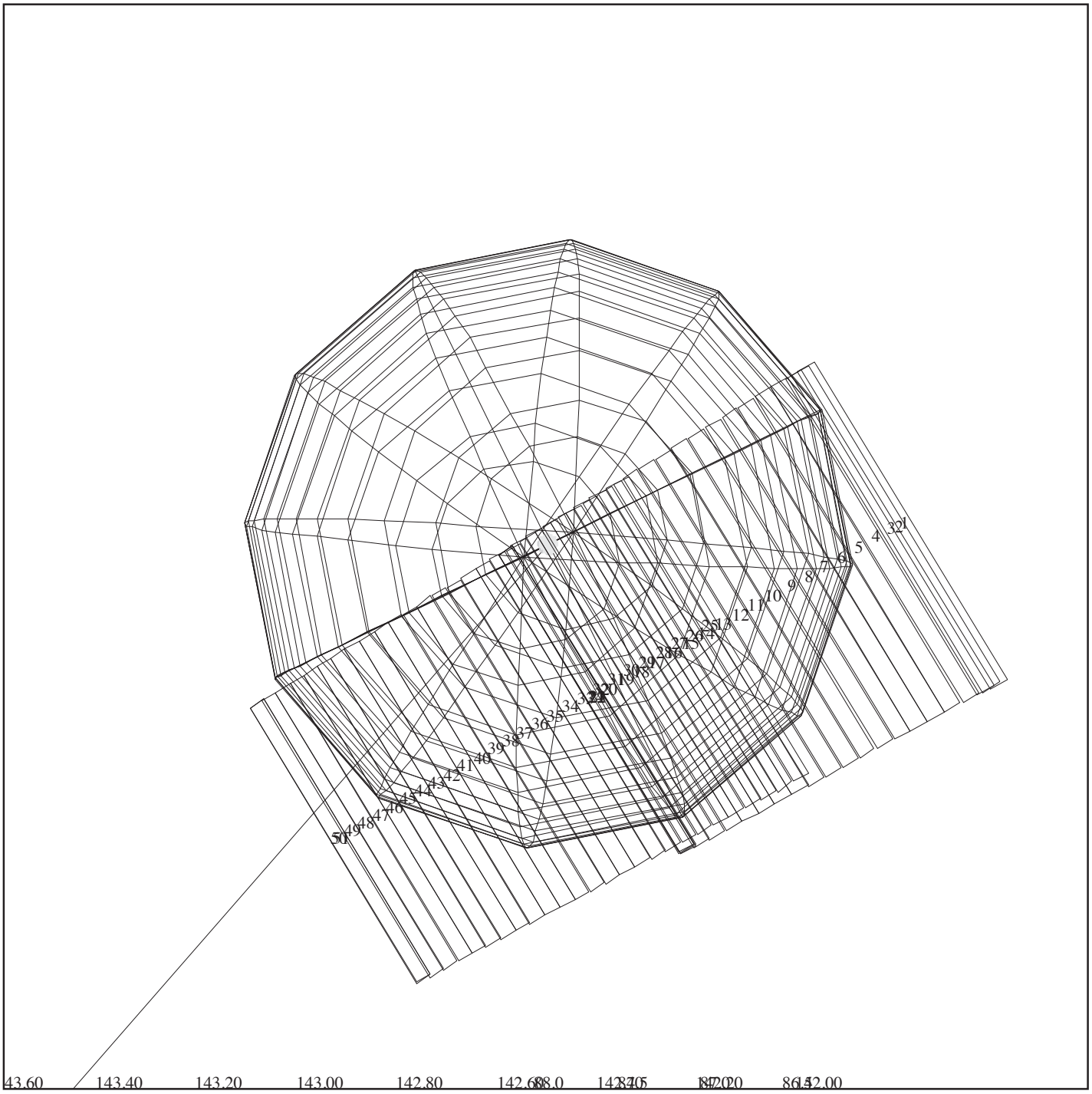
NIMS will be commanded to Long Map mode while SSI shutters with 6 filters, and then will be commanded into Fixed Map mode while the scan platform slews at 1.2 mrad/sec to the next position of the 2x2 mosiac. This NIMS mode is a variation of the NIMS Stop-and-Slide mode.

Special Sequence 12: Stop-and-Slide using Fixed Map and Long Map

Fixed Map (XM), Gain 1, Grating Start 6, Chopper 63Hz, IM4, Repeat 6
Long Map (LM), Gain 1, Grating Start 0, Chopper 63Hz, IM4, Repeat 3

Last Changed 05/03/95 Changed By FEL — 10/08/91 13:58:04

Galileo Activity Plan Form — rev 5/95



GAPNGASPEC06

POINTER C4.1Wsusan: 9/25/1991 10: 3:18

FILE:P.GAPNGASPEC06

CENTRAL BODY:PLUTO

MINI:m.GAPNGASPEC06

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 52:00:0

ACTIVITY:GAPNGASPEC06 **DESCRIP:NIMS 204 WVLGTHS@LM NYQUIST RATE**

Gaspra Highest Spectral Resolution Map ACTIVITY ID: GAPNGASPEC06-
START TIME: 91-302/21:44:26

Activity ID: Orbit GA Target P Inst N OAPEL GASPEC SeqNo 06 Multi -

Title Gaspra Highest Spectral Resolution Map Instrument NIMS

Requestor C. Byrnes Team NIMS Working Group AWG

Time System CDS Load ID EE3 Calendar Date 10/29/91 Week 44

Start	GCA-CDS 00000052:00:0	91-302/21:44:26	GCA-000/00:52:34
End	GCA-CDS 00000045:13:0	91-302/21:51:22	GCA-000/00:45:38
Duration	00000006:78:0	000/00:06:56	000/00:06:56

Top Label GAPNGASPEC06-
Bottom Label

Plot Key NIMS Riding Plot Key Conflict Yes
CDS Bytes 181 Report Options Real Time Activity No

Observation Objective

NIMS will perform a disk spectral integration of Gaspra which, when combined with other observations, will provide 15 degree rotational samples. Rotationally resolved data will help determine the nature of spectral differences on Gaspra, suspected to have originated from a differentiated parent body.

Design Detail

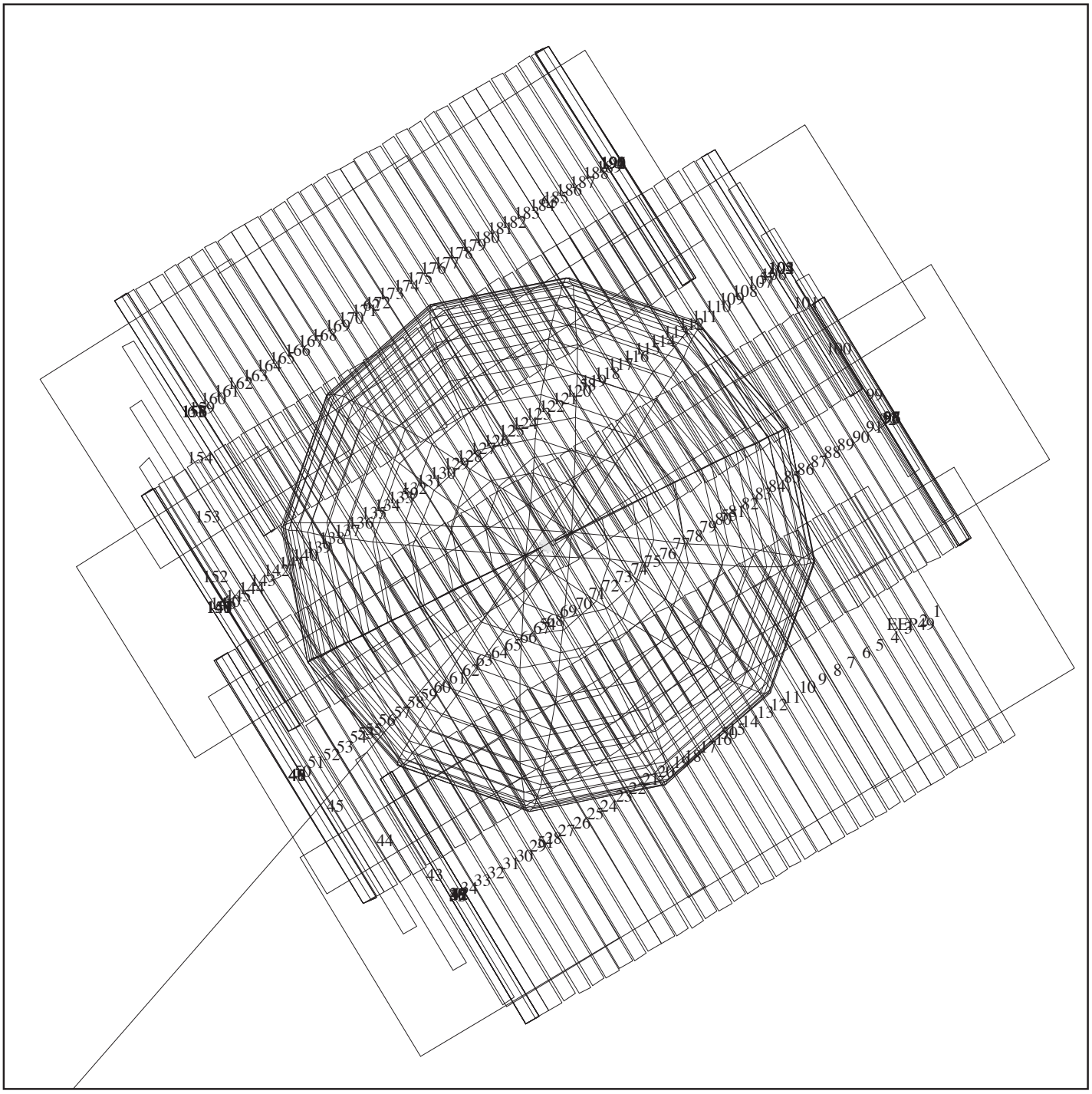
Alias

NIMS will map the error ellipse plus scan platform error with a single swath in Full Map mode at Long Map Nyquist sampling rate (0.03 mrad/sec). This is one of five Full Map observations in the Gaspra Far Encounter, the fifth of which verifies the observation in Full Map mode of the first quadrant.

Full Map (FM), Gain 1, Grating Start 0, Chopper 63Hz, MPW

Last Changed 05/03/95 Changed By FEL 10/08/91 13:58:04

Galileo Activity Plan Form rev 5/95



GAPNGASVIS02

POINTER C4.1Wsusan: 9/25/1991 10:11:10

FILE:P.GAPSTWKINS01

CENTRAL BODY:PLUTO

MINI:m.GAPSTWKINS01

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 44:00:0

ACTIVITY:GAPSTWKINS01 **DESCRIP:4X4X1 TWEAK INSURANCE**

Gaspra Lower Phase Vista — ACTIVITY ID: GAPNGASVIS02* — START TIME: 91-302/21:52:31

Activity ID: Orbit GA Target P Inst N OAPEL GASVIS SeqNo 02 Multi *

Title Gaspra Lower Phase Vista — Instrument NIMS

Requestor C. Byrnes — Team NIMS — Working Group AWG

Time System CDS — Load ID EE3 — Calendar Date 10/29/91 — Week 44

Start	GCA-CDS 00000044:00:0	91-302/21:52:31	GCA-000/00:44:29
End	GCA-CDS 00000041:78:0	91-302/21:54:41	GCA-000/00:42:19
Duration	00000002:13:0	000/00:02:10	000/00:02:10

Top Label GAPNGASVIS02*
Bottom Label

Plot Key	NIMS	Riding Plot Key	Conflict Yes
CDS Bytes	37	Report Options	Real Time Activity No

Observation Objective

This observation provides an insurance against a tweak failure by covering the untweaked error ellipse.

Design Detail

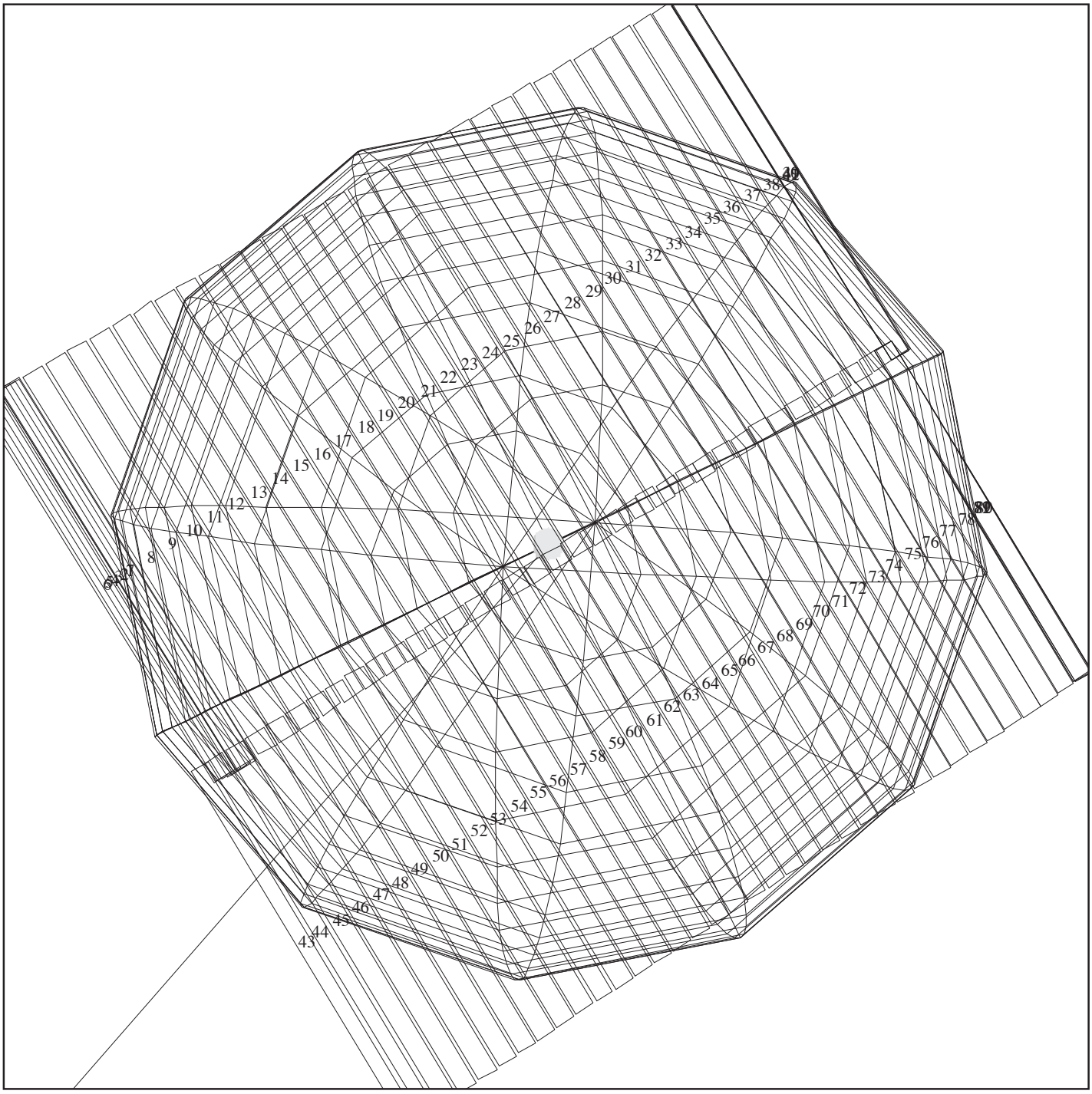
Alias GAPSTWKINS01

This observation is a ride-along with a 1 filter, 4x4 SSI mosaic in IM4 (8.667 sec shutter cycle). NIMS will use the Fixed Map mode while the scan platform slews at 0.85 mrad/sec.

Fixed Map (XM), Gain 1, Grating Start 6, Chopper 63Hz, IM4

Last Changed 05/03/95 Changed By FEL — 10/08/91 13:58:04

Galileo Activity Plan Form — rev 5/95



GAPNGSCHEM02

POINTER C4.1Wsusan: 9/25/1991 10:15: 5

FILE:P.GAPNGSCHEM02

CENTRAL BODY:PLUTO

MINI:m.GAPNGSCHEM02

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 42:00:0

ACTIVITY:GAPNGSCHEM02 **DESCRIP:NIMS 102 WVLNGTH HEMISPHERES**

Gaspra Chemical Study

ACTIVITY ID: GAPNGSCHEM02+
START TIME: 91-302/21:55:26

Activity ID: Orbit GA Target P Inst N OAPEL GSCHEM SeqNo 02 Multi +

Title Gaspra Chemical Study Instrument NIMS

Requestor C. Byrnes Team NIMS Working Group AWG

Time System CDS Load ID EE3 Calendar Date 10/29/91 Week 44

Start	GCA-CDS 00000041:11:0	91-302/21:55:26	GCA-000/00:41:34
End	GCA-CDS 00000035:20:0	91-302/22:01:24	GCA-000/00:35:36
Duration	00000005:82:0	000/00:05:58	000/00:05:58

Top Label GAPNGSCHEM02+
Bottom Label

Plot Key	NIMS	Riding Plot Key	Conflict Yes
CDS Bytes	386	Report Options	Real Time Activity No

Observation Objective

Study chemical heterogeneity of Gaspra usiong 102 wavelengths.

Design Detail

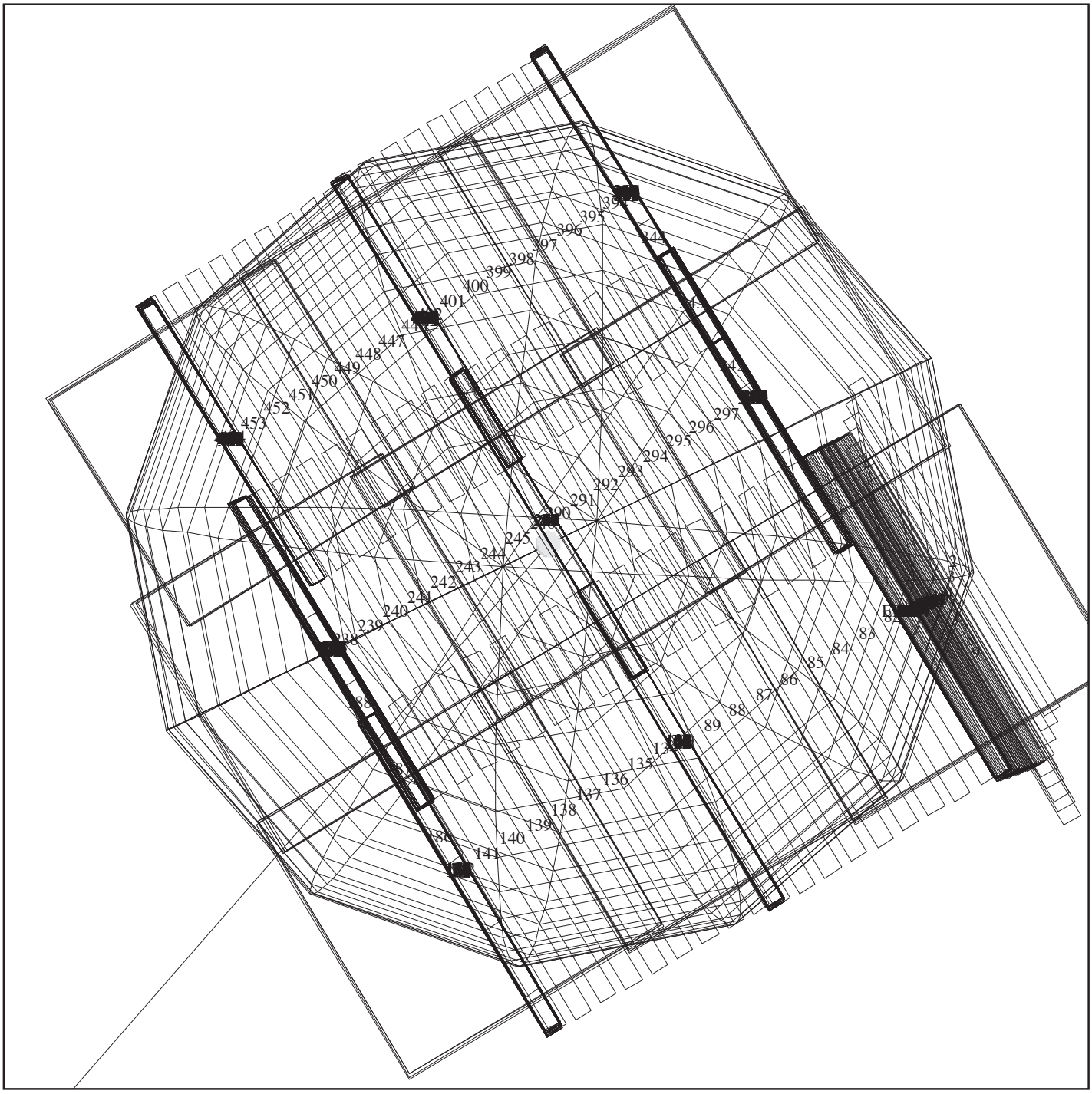
Alias

This OAPEL was originally the 2nd of 4 separate scans of the error ellipse in Short Map mode at Nyquist sampling rate (0.11 mrad/sec). The first of those scans, GSCHEM01, was replaced with GASPEC06 after growth in the OPNAV-reported 1 sigma error ellipse size late in sequencing. Therefore, GSCHEM02 now marks the first of 3 separate error ellipse scans. In the actual sequence, the GSCHEM03 OAPEL has been incorporated into the GSCHEM02 activity. That is, the NIMS observation GSCHEM02 actually includes both GSCHEM02 and GSCHEM03 OAPELS to agree with their definitions: that each would cover each hemisphere of the error ellipse without attention to the amount of overlap between the two strips. GSCHEM04 will then scan the center of the error ellipse which has minimal coverage in GSCHEM02.

Short Map (SM), Gain 1, Grating Start 2, Chopper 63Hz, MPW

Last Changed 05/03/95 Changed By FEL 10/08/91 13:58:04

Galileo Activity Plan Form rev 5/95



GAPNGASNAP01

POINTER C4.1Wsusan: 9/25/1991 10:17:29

FILE:P.GAPS4FILTR01

CENTRAL BODY:PLUTO

MINI:m.GAPS4FILTR01

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.662 -CDS 35:00:0

ACTIVITY:GAPS4FILTR01 **DESCRIP:3X3 4-FILTER MOSAIC**

Gaspra Snapshot at Lower Phase Angles ACTIVITY ID: GAPNGASNAP01*
START TIME: 91-302/22:01:44

Activity ID: Orbit GA Target P Inst N OAPEL GASNAP SeqNo 01 Multi *

Title Gaspra Snapshot at Lower Phase Angles Instrument NIMS

Requestor C. Byrnes Team NIMS Working Group AWG

Time System CDS Load ID EE3 Calendar Date 10/29/91 Week 44

Start	GCA-CDS	00000034:81:0	91-302/22:01:44	GCA-000/00:35:16
End	GCA-CDS	00000030:19:0	91-302/22:06:28	GCA-000/00:30:32
Duration		00000004:62:0	000/00:04:44	000/00:04:44

Top Label GAPNGASNAP01*
Bottom Label

Plot Key NIMS Riding Plot Key Conflict Yes
CDS Bytes 112 Report Options Real Time Activity No

Observation Objective

NIMS will acquire the highest spectral resolution data of Gaspra (408 wavelengths) if captured in the NIMS field of view while SSI takes their highest resolution, four color observation of Gaspra. Otherwise, NIMS will acquire a Fixed Map spectrum of Gaspra as the scan platform slews into position for the next SSI frame.

Design Detail

Alias GAPS4FILTR01

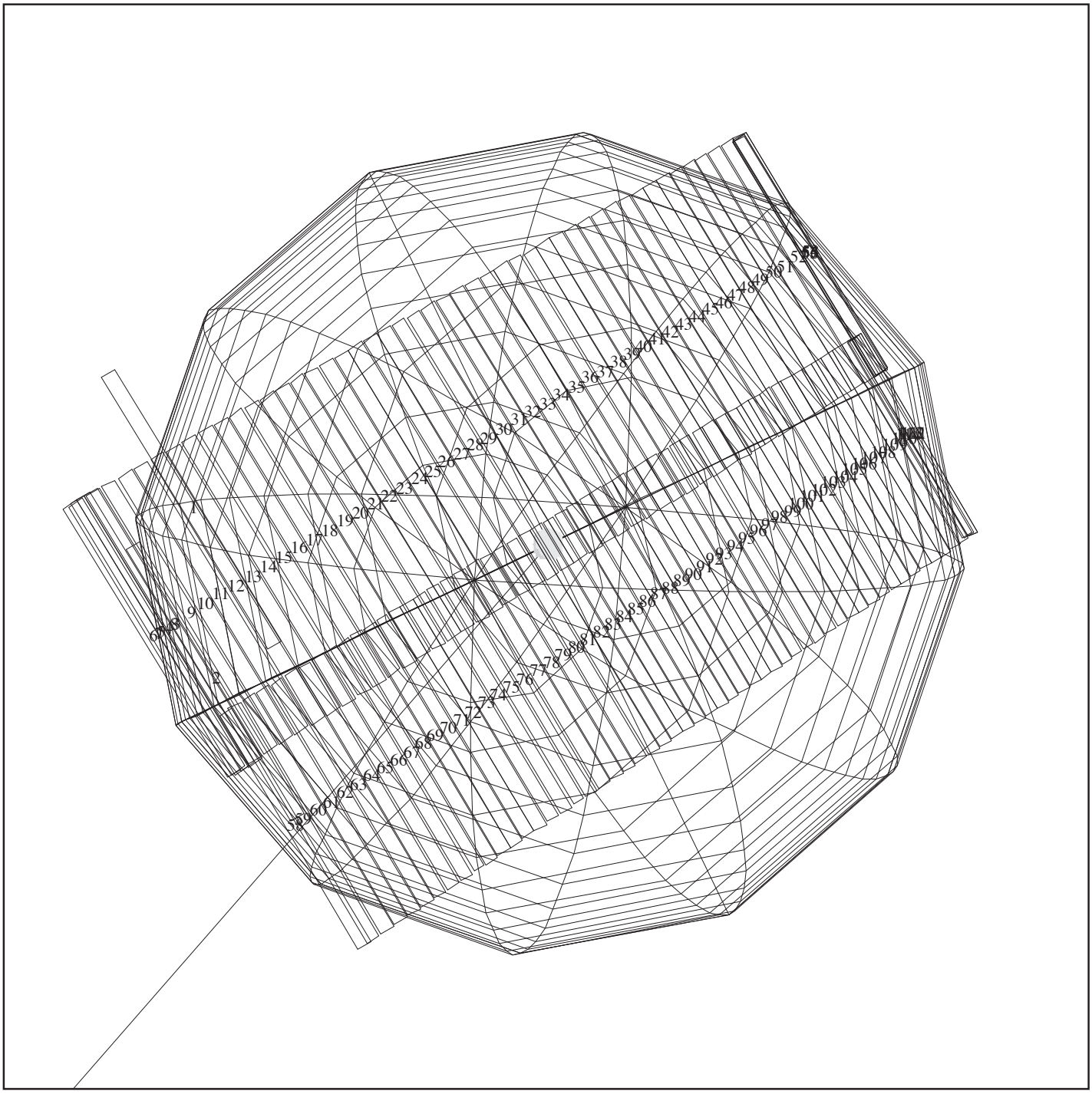
SSI will shutter a 3x3 mosaic with 4 filters. As the scan platform slews between the 4 filter sets, NIMS will be commanded through a Special Sequence to Fixed Map mode. When the scan platform is stationary for shuttering of the 4 filter sets, NIMS will be commanded to Long Map mode. This NIMS mode is a variation of the NIMS Stop and Slide Mode.

Special Sequence 13: Stop-and-Slide using Long Map and Fixed Map

Long Map (LM), Gain 1, Grating Start 0, Chopper 63Hz, IM4, Repeat 2
Fixed Map (XM), Gain 1, Grating Start 6, Chopper 63Hz, IM4, Repeat 4

Last Changed 05/03/95 Changed By FEL 10/08/91 13:58:04

Galileo Activity Plan Form rev 5/95



GAPNGSCHEM04

POINTER C4.1Wsusan: 9/25/1991 10:26:14

FILE:P.GAPNGSCHEM04

CENTRAL BODY:PLUTO

MINI:m.GAPNGSCHEM04

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 29:00:0

ACTIVITY:GAPNGSCHEM04 **DESCRIP:NIMS 102 WVLNGTH CTR ELLIPSE**

Gaspra Chemical Study

ACTIVITY ID: GAPNGSCHEM04+
START TIME: 91-302/22:08:09

Activity ID: Orbit GA Target P Inst N OAPEL GSCHEM SeqNo 04 Multi +

Title Gaspra Chemical Study Instrument NIMS

Requestor C. Byrnes Team NIMS Working Group AWG

Time System CDS Load ID EE3 Calendar Date 10/29/91 Week 44

Start	GCA-CDS 00000028:49:0	91-302/22:08:09	GCA-000/00:28:51
End	GCA-CDS 00000020:20:0	91-302/22:16:34	GCA-000/00:20:26
Duration	00000008:29:0	000/00:08:25	000/00:08:25

Top Label GAPNGSCHEM04+
Bottom Label

Plot Key NIMS Riding Plot Key Conflict Yes
CDS Bytes 401 Report Options Real Time Activity No

Observation Objective

Study chemical heterogeneity of Gaspra usiong 102 wavelengths.

Design Detail

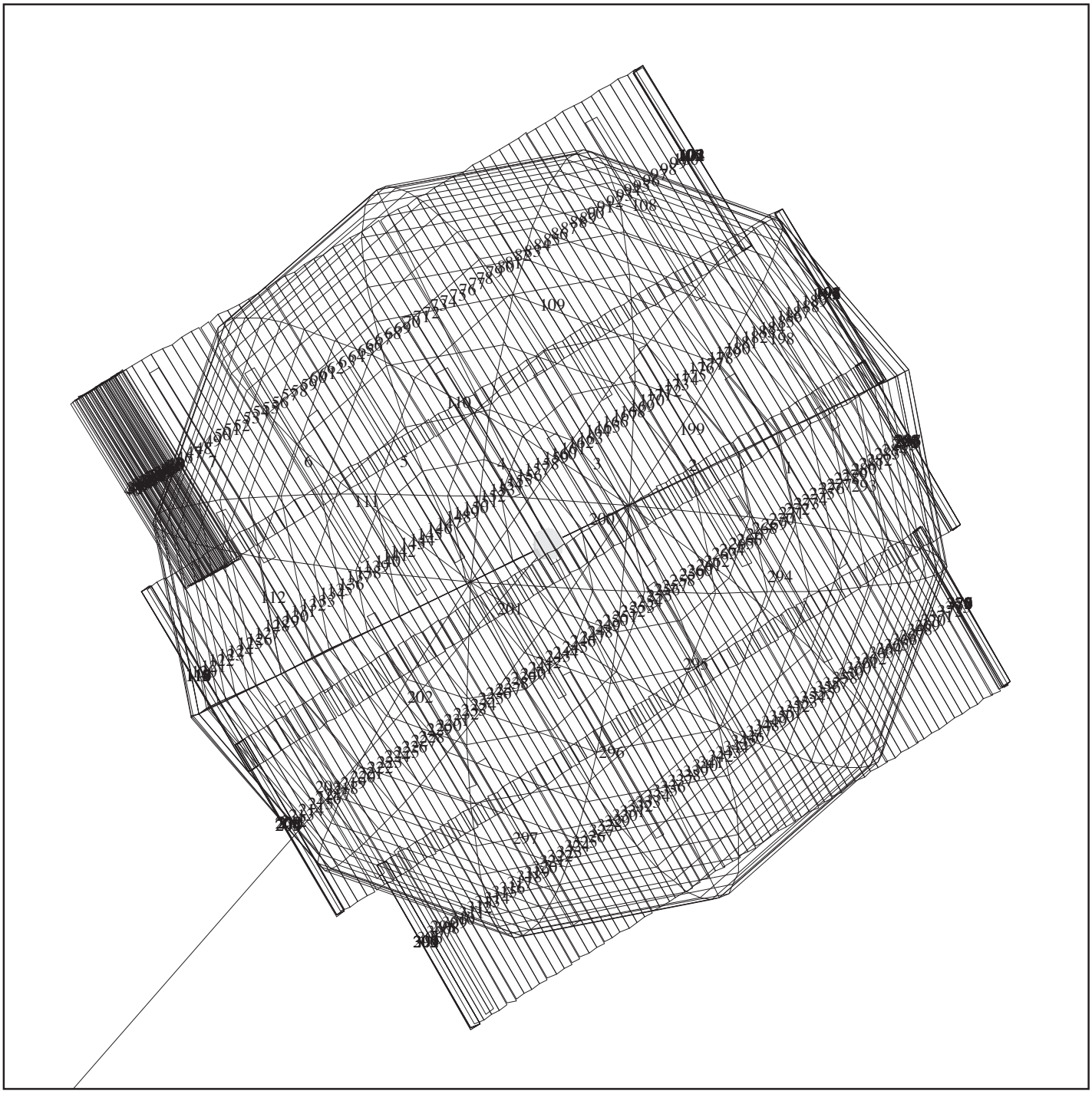
Alias

This is the last of 3 separate scans of the error ellipse in Short Map mode. This scan will cover the most probable position of Gaspra in the error ellipse (center of ellipse). Scans will be done at Nyquist rate (0.11 mrad/sec).

Short Map (SM), Gain 1, Grating Start 2, Chopper 63Hz, MPW

Last Changed 05/03/95 Changed By FEL 10/08/91 13:58:04

Galileo Activity Plan Form rev 5/95



GAPNGASMAP01

POINTER C4.1Wsusan: 9/25/1991 10:30:25

FILE:P.GAPNGASMAP01

CENTRAL BODY:PLUTO

MINI:m.GAPNGASMAP01

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 20:00:0

ACTIVITY:GAPNGASMAP01 **DESCRIP:NIMS 17 WVLNGTHS FULL ELLIPSE**

Gaspra Chemical Heterogeneity Map — ACTIVITY ID: GAPNGASMAP01- / START TIME: 91-302/22:17:27

Activity ID: Orbit GA Target P Inst N OAPEL GASMAP SeqNo 01 Multi -

Title Gaspra Chemical Heterogeneity Map Instrument NIMS

Requestor C. Byrnes Team NIMS Working Group AWG

Time System CDS Load ID EE3 Calendar Date 10/29/91 Week 44

Start	GCA-CDS 00000019:31:0	91-302/22:17:27	GCA-000/00:19:33
End	GCA-CDS 00000015:55:0	91-302/22:21:14	GCA-000/00:15:46
Duration	00000003:67:0	000/00:03:47	000/00:03:47

Top Label GAPNGASMAP01-
Bottom Label

Plot Key NIMS — Riding Plot Key — Conflict Yes
CDS Bytes 753 — Report Options — Real Time Activity No

Observation Objective

Observe the distribution of composition at a compromise between phase angle (affects spectral sensitivity) and spatial resolution.

Design Detail

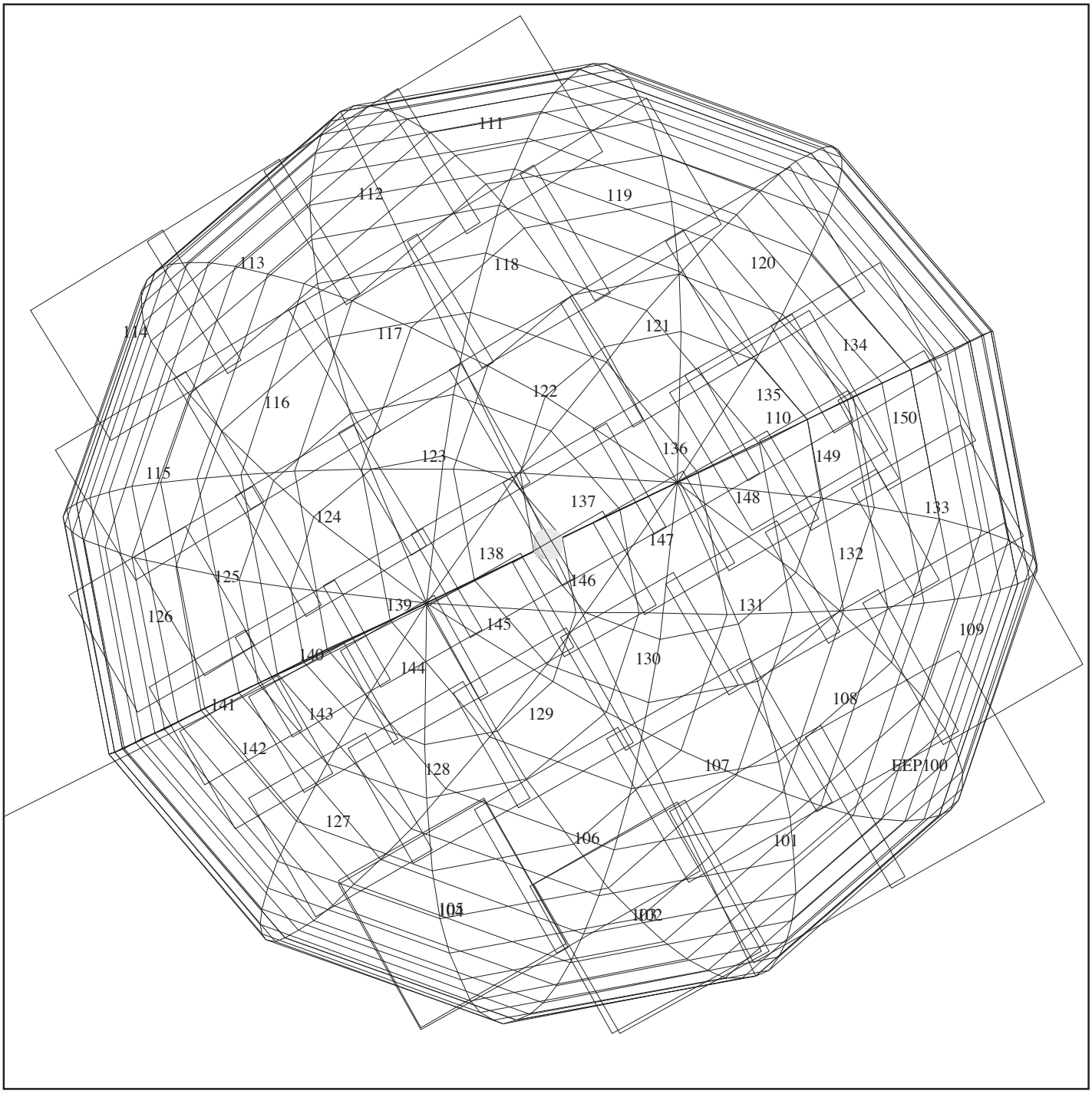
Alias

The first of 2 Fixed Map observations of Gaspra, NIMS will scan the error ellipse plus scan platform pointing errpr at 0.75 mrad/sec. The phase angle for this Fixed Map observation is lower that the observation at -16 Rims.

Fixed Map (XM), Gain 1, Grating Start 6, Chopper 63Hz, MPW

Last Changed 05/03/95 Changed By FEL — 10/08/91 13:58:04

Galileo Activity Plan Form — rev 5/95



GAPNGASPAT01

POINTER C4.1Wsusan: 9/25/1991 10:35: 5

FILE:P.GAPSHIPHAS01

CENTRAL BODY:PLUTO

MINI:m.GAPSHIPHAS01

S/C EPH:/gptr/eph/EE3P-091691.t

PERIAPSIS:91-302/22:37:59.0

START:GEE 91-302/22:37:00.666 -CDS 15:00:0

ACTIVITY:GAPSHIPHAS01 **DESCRIP:7X7 1-FILTER HIGH PHASE**

Gaspra Highest Spatial Resolution Obs ACTIVITY ID: GAPNGASPAT01*
START TIME: 91-302/22:21:50

Activity ID: Orbit GA Target P Inst N OAPEL GASPAT SeqNo 01 Multi *

Title Gaspra Highest Spatial Resolution Obs Instrument NIMS

Requestor C. Byrnes Team NIMS Working Group AWG

Time System CDS Load ID EE3 Calendar Date 10/29/91 Week 44

Start	GCA-CDS	00000015:00:0	91-302/22:21:50	GCA-000/00:15:10
End	GCA-CDS	00000007:39:0	91-302/22:29:30	GCA-000/00:07:30
Duration		00000007:52:0	000/00:07:40	000/00:07:40

Top Label GAPNGASPAT01*
Bottom Label

Plot Key	NIMS	Riding Plot Key	Conflict Yes
CDS Bytes	351	Report Options	Real Time Activity No

Observation Objective

This is the highest priority NIMS observation with the best NIMS spatial resolution of the encounter at the lowest spectral resolution (17 wavelengths). However, Gaspra will be observed at higher phase angles than desired for NIMS observations.

Design Detail

Alias GAPSHIPHAS01

This observation includes a SSI mosaic which affords plenty of overlap between swaths. The slew rate was reduced as much as possible to 0.84 mrad/sec, 0.09 mrad/sec over the NIMS Nyquist rate, while still insuring the appropriate overlap between SSI frames. Due to the priority of the SSI science, the activity name given to this observation is SSI's HIPHAS01 in the sequence products.

Fixed Map (XM), Gain 1, Grating Start 6, Chopper 63Hz, IM4

Last Changed 05/03/95 Changed By FEL 10/08/91 13:58:04

Galileo Activity Plan Form rev 5/95

Gaspra PCT Calibration

ACTIVITY ID: GANNPCTCAL01-
START TIME: 91-303/01:35:58

Activity ID: Orbit GA Target N Inst N OAPEL PCTCAL SeqNo 01 Multi -

Title Gaspra PCT Calibration Instrument NIMS

Requestor C. Byrnes Team NIMS Working Group AWG

Time System CDS Load ID EE3 Calendar Date 10/29/91 Week 44

Start	GCA+CDS 00000177:00:0	91-303/01:35:58	GCA+000/02:58:58
End	GCA+CDS 00000221:67:0	91-303/02:20:27	GCA+000/03:43:27
Duration	00000044:00:0	000/00:44:29	000/00:44:29

Top Label GANNPCTCAL01-
Bottom Label

Plot Key	NIMS	Riding Plot Key	Conflict Yes
CDS Bytes	492	Report Options	Real Time Activity No

Observation Objective

NIMS will perform a PCT Calibration for better analysis of data taken at Gaspra. This is the first full NIMS PCT Calibration that will be unsaturated for ALL NIMS detectors.

Design Detail

Alias

NIMS will calibrate by positioning the scan platform to the PCT and taking data in Long Map mode, Gain State 1. This is the gain state used during Gaspra closest approach. The spacecraft will be in Alspin. Two RIMs of the PCT Cal will be recorded: one RIM in Chopper 63Hz mode and one RIM in Chopper Reference mode. No Dark values are taken in Chopper Ref mode.

Long Map (LM), Gain 1, Grating Start 0, Chopper 63Hz, MPW
Long Map (LM), Gain 1, Grating Start 0, Chopper Ref, MPW

Last Changed 05/03/95 Changed By FEL

10/08/91
13:58:04

Galileo Activity Plan Form rev 5/95

Gaspra RCT Calibration

ACTIVITY ID: GANNRCTCAL01-
START TIME: 91-303/08:40:38

Activity ID: Orbit GA Target N Inst N OAPEL RCTCAL SeqNo 01 Multi -

Title Gaspra RCT Calibration Instrument NIMS

Requestor C. Byrnes Team NIMS Working Group AWG

Time System CDS Load ID EE3 Calendar Date 10/29/91 Week 44

Start	GCA+CDS	00000597:00:0	91-303/08:40:38	GCA+000/10:03:38
End	GCA+CDS	00000604:67:0	91-303/08:47:42	GCA+000/10:10:42
Duration		00000007:00:0	000/00:07:04	000/00:07:04

Top Label GANNRCTCAL01-
Bottom Label

Plot Key	NIMS	Riding Plot Key	Conflict Yes
CDS Bytes	259	Report Options	Real Time Activity No

Observation Objective

NIMS will perform a RCT Calibration for better analysis of data taken at Gaspra.

Design Detail

Alias

The RCT Calibration should be performed with the spacecraft -Z axis sun-pointed =/- 8 degrees in order to satisfy sun avoidance flight rules. After sufficient time (6.5 hours) for the RCT to equilibrate after the RCT Heater is turned on, NIMS will position the scan platform to the RCT and take data in Long Map mode, Gain State 1. Two RIMS of the RCT Cal will be recorded: one RIM in Chopper Reference mode and one RIM in Chopper 63Hz mode. No Dark values are taken in Chopper Ref mode.

Long Map (LM), Gain 1, Grating Start 0, Chopper Ref, MPW
Long Map (LM), Gain 1, Grating Start 0, Chopper 63Hz, MPW

Last Changed 05/03/95 Changed By FEL 10/08/91 13:58:04

Galileo Activity Plan Form rev 5/95

Gaspra NIMS Turn Off Sequence. ACTIVITY ID: GANNTURNOF01-
START TIME: 91-303/10:09:37

Activity ID: Orbit GA Target N Inst N OAPEL TURNOF SeqNo 01 Multi -

Title Gaspra NIMS Turn Off Sequence. Instrument NIMS

Requestor C. Byrnes Team NIMS Working Group AWG

Time System CDS Load ID EE3 Calendar Date 10/29/91 Week 44

Start	GCA+CDS 00000683:00:0	91-303/10:09:37	GCA+000/11:30:35
End	GCA+CDS 00000690:67:0	91-303/10:16:42	GCA+000/11:37:40
Duration	00000007:00:0	000/00:07:05	000/00:07:05

Top Label GANNTURNOF01-
Bottom Label

Plot Key	NIMS	Riding Plot Key	Conflict Yes
CDS Bytes	267	Report Options	Real Time Activity No

Observation Objective

Turn off NIMS and turn on needed heaters.

Design Detail

Alias

Turn off the NIMS instrument. Turn on the Replacement Heater and Shield Heater. Move the scan platform to the Safe, Unstow position.

Last Changed 05/03/95 Changed By FEL 10/08/91 13:58:04

Galileo Activity Plan Form rev 5/95

Chapter 6 - Data Playback

Contents

Introduction to Chapter 6

Data Playback

The Gaspra data were recorded on tape during the Gaspra Encounter and played back during the Earth 2 Encounter at a high data rate. Thus, all of the NIMS data that were recorded during the Gaspra Encounter were returned.

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

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

Along with this NIMS Guide, other files are distributed on the NIMS EDR CD to help describe the NIMS data. Among these files are the OBSCAT, OBSPLN and RIMCAT. The OBSCAT is very similar to the OBSTAB described below in this chapter and as well as in its PDS label on the CD. The OBSPLN, the planned OBSTAB, is a table similar to the planned Obstab found in Chapter 4 of this NIMS Guide. It is also described in its PDS label on the CD. The RIMCAT is a table which describes the NIMS EDR data on a RIM by RIM basis. It contains one entry (row) for each RIM of each NIMS EDR. The RIMCAT may be used to track instument mode and state changes, etc. It too is described in its PDS label on the CD.

The table on the following two pages, the NIMS Obstab (Observation Table), is a time-ordered listing of the NIMS observation parameters for the data returned from the Gaspra Encounter. It will be used for systematic processing of the EDR data into cubes and tubes. The NIMS Obstab found in Chapter 4 of this NIMS Guide is the Planned Obstab - the Observation Table for the NIMS data that was sent to the spacecraft's tape recorder. Since all of the NIMS observations were returned, these two tables are nearly identical.

The table on the following three pages gives a brief summary of the NIMS data returned for the Gaspra Encounter. Since Gaspra's

position and velocity were not well known during the planning stages of the Gaspra observations, a large amount of empty space was scanned in each mosaic to ensure that Gaspra would be observed. For each NIMS EDR the SCLK range is given along with the OAPEL names of the NIMS observations that take place during that time period. For each observation the time ranges in which data were taken along with the time ranges and mirror positions in which NIMS actually observed Gaspra are listed. Of all of the NIMS Gaspra observations, only the first observation failed to see Gaspra. The last four NIMS EDRs in this table contain NIMS PCT and RCT calibration data.

```
                    NIMS Obstab (Data Returned)
 Heading             Columns     Comments
-------------------------------------------------------------------------
  OAPEL               1 -  12     .Oapel Name from SEF
  EXT                14 -  14     .Extension (allow for split OAPELs)
  PSID               16 -  17     .2 Letter ID for the OAPEL
  SCLK1              19 -  29     .Start time of OBS in SCLK
  SCLK2              31 -  41     .STOP time of OBS in SCLK
  MODE               43 -  44     .NIMS Instrument MODE
  GAIN               46 -  47     .Gain State (true value)
  CHOP               49 -  50     .Chopper State (1=Ref,2=63Hz,3=FreeRun,4=Off)
  GRAT_OFF           52 -  53     .Grating Offset
  PTAB_A(6)          55 -  71     .First PTAB  (repeat count,mirror op,autobias...
  PTAB_B(6)          73 -  89     .Second PTAB (...grating start, grating delta...
                                  .            (...number of grating postions)
  ECAL               92 -  92     .Electronics Calibration Active (1=yes)
  OPCAL              94 -  94     .Optics Calibration active (1=yes)
  UTC1               96 - 112     .Start time of OBS in UTC (from SEF - ISO STANDARD)
  REAL_TIME         115 - 115     .NIMS in Real-Time Telemetry (1=yes)
  RECORD            117 - 117     .NIMS in Record Telemetry(1=yes)
  TARGET            120 - 127     .Primary Target of OBS
                                   GASPRA      - P - Gaspra
                                   CALIBRATION - N - Non-Science
   (the single letter abbreviation appears as the third character in the OBSNAME (OAPEL Name) ).
 INPUT SEF FILE: EE11_921118.SEF
```

6-04

OAPEL, EXT, PSID, SCLK1, SCLK2, MODE, GAIN, CHOP, GRAT_OFF, PTAB_A(6), PTAB_B(6), ECAL, OPCAL, UTC1, REAL_TIME, RECORD, TARGET

OAPEL	EXT	PSID	SCLK1	SCLK2	M	G	C	O	PTAB A						PTAB B						E	O	UTC1	R	T	TARGET
GAPSLTCRVC01	A	IG	01072716:00	01072716:13	1	4	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1991-302T14:33:45	0	1	GASPRA
GAPNGASPEC01	A	JA	01072720:00	01072723:22	1	4	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1991-302T14:37:48	0	1	GASPRA
GAPNGASPER01	A	JB	01072734:05	01072734:21	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T14:52:01	0	1	GASPRA
GAPNGASCUR01	A	EA	01072751:04	01072751:45	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T15:09:12	0	1	GASPRA
GAPNGASCUR01	B	EA	01072751:57	01072752:28	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T15:09:47	0	1	GASPRA
GAPNGASPER02	A	JC	01072769:05	01072769:21	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T15:27:24	0	1	GASPRA
GAPNGASCUR02	A	EB	01072786:04	01072786:45	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T15:44:35	0	1	GASPRA
GAPNGASCUR02	B	EB	01072786:57	01072787:35	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T15:45:10	0	1	GASPRA
GAPNGASPER03	A	JD	01072804:05	01072804:21	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T16:02:48	0	1	GASPRA
GAPSLTCRVC02	A	IF	01072821:00	01072821:13	1	4	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1991-302T16:19:55	0	1	GASPRA
GAPNGASPEC02	A	JE	01072825:05	01072828:46	1	4	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1991-302T16:24:02	0	1	GASPRA
GAPNGASPER04	A	JF	01072839:05	01072839:23	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T16:38:11	0	1	GASPRA
GAPNGASCUR03	A	EC	01072856:04	01072856:45	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T16:55:22	0	1	GASPRA
GAPNGASCUR03	B	EC	01072856:57	01072857:34	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T16:55:57	0	1	GASPRA

OAPEL	EXT	PSID	SCLK1	SCLK2	M	G	C	O	PTAB A						PTAB B						E	O	UTC1	R	T	TARGET
GAPNGASPER05	A	JG	01072874:05	01072874:23	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T17:13:34	0	1	GASPRA
GAPNGASCUR04	A	ED	01072891:04	01072891:45	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T17:30:45	0	1	GASPRA
GAPNGASCUR04	B	ED	01072891:57	01072892:34	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T17:31:20	0	1	GASPRA
GAPNGASPER06	A	JH	01072909:05	01072909:23	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T17:48:58	0	1	GASPRA
GAPSLTCRVC03	A	IE	01072926:04	01072927:90	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T18:06:08	0	1	GASPRA
GAPNGASPEC03	A	JI	01072930:05	01072934:10	1	4	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1991-302T18:10:12	0	1	GASPRA
GAPNGASPER07	A	JJ	01072944:05	01072944:25	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T18:24:21	0	1	GASPRA
GAPNGASCUR05	A	EE	01072961:04	01072961:45	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T18:41:32	0	1	GASPRA
GAPNGASCUR05	B	EE	01072961:57	01072962:31	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T18:42:07	0	1	GASPRA
GAPNGASPER08	A	JK	01072979:05	01072979:25	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T18:59:44	0	1	GASPRA
GAPNGASCUR06	A	EF	01072996:04	01072996:45	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T19:16:55	0	1	GASPRA
GAPNGASCUR06	B	EF	01072996:57	01072997:34	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T19:17:30	0	1	GASPRA
GAPSLTCRVC04	A	ID	01073031:04	01073032:90	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T19:52:18	0	1	GASPRA
GAPNGASPEC04	A	JM	01073035:05	01073039:25	1	4	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1991-302T19:56:22	0	1	GASPRA
GAPNGASPER10	A	JN	01073049:05	01073049:29	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T20:10:31	0	1	GASPRA
GAPNGASCUR07	A	EG	01073066:04	01073066:45	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T20:27:42	0	1	GASPRA
GAPNGASCUR07	B	EG	01073066:57	01073067:62	5	4	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T20:28:17	0	1	GASPRA
GAPNGASPER11	A	JO	01073083:90	01073084:29	7	4	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T20:45:50	0	1	GASPRA
GAPNGASCUR08	A	EH	01073101:04	01073101:45	5	3	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T21:03:05	0	1	GASPRA
GAPNGASCUR08	B	EH	01073101:57	01073102:82	5	3	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T21:03:40	0	1	GASPRA
GAPNGASPER12	A	JP	01073113:05	01073113:31	7	3	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T21:15:14	0	1	GASPRA
GAPNGASPEC05	A	JQ	01073129:05	01073133:88	1	1	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1991-302T21:31:24	0	1	GASPRA
GAPNGASVIS01	A	IA	01073135:40	01073138:77	12	1	2	4	6	1	0	6	0	12	3	1	0	0	1	24	0	0	1991-302T21:37:52	0	1	GASPRA
GAPNGASPEC06	A	JR	01073141:61	01073144:46	1	1	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1991-302T21:44:10	0	1	GASPRA
GAPNGASPEC06	B	JR	01073144:55	01073148:48	1	1	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1991-302T21:46:37	0	1	GASPRA
GAPNGASVIS02	A	IB	01073149:01	01073150:90	7	1	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T21:51:35	0	1	GASPRA
GAPNGSCHEM02	A	JS	01073151:00	01073151:12	5	1	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T21:53:30	0	1	GASPRA
GAPNGSCHEM02	B	JS	01073151:79	01073157:70	5	1	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T21:54:28	0	1	GASPRA
GAPNGASNAP01	A	IC	01073158:40	01073163:51	13	1	2	4	2	1	0	0	1	24	4	1	0	6	0	12	0	0	1991-302T22:01:07	0	1	GASPRA
GAPNGSCHEM04	A	JT	01073164:41	01073172:70	5	1	2	4	1	1	0	2	4	6	1	1	0	2	4	6	0	0	1991-302T22:07:12	0	1	GASPRA
GAPNGASMAP01	A	JU	01073173:59	01073177:35	7	1	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T22:16:30	0	1	GASPRA
GAPNGASMAP01	A	EI	01073178:01	01073178:43	7	1	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T22:20:55	0	1	GASPRA
GAPNGASMAP01	B	EI	01073178:52	01073185:25	7	1	2	4	1	1	0	6	0	12	1	1	0	6	0	12	0	0	1991-302T22:21:26	0	1	GASPRA
GANNPCTCAL01	A	JV	01073398:90	01073399:89	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1991-303T02:04:20	0	1	PCT
GANNPCTCAL01	B	JV	01073401:90	01073402:89	3	1	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1991-303T02:07:22	0	1	PCT
GANNRCTCAL01	A	JW	01073792:90	01073793:89	3	1	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1991-303T08:42:43	0	1	RCT
GANNRCTCAL01	B	JW	01073796:00	01073796:89	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1991-303T08:45:45	0	1	RCT

NIMS GASPRA DATA

NIMS_EDR NIMS EDR filename.
SCLK1 NIMS EDR Start SCLK (RIM.MF).
SCLK2 NIMS EDR End SCLK (RIM.MF).
NR Number of Data Records (MFs).
NF Number of 0-Fill Records (MFs).
OAPEL Observation Name.
GAS GASPRA Seen in Data: X = Yes, 0 = No
MODE NIMS Mode.
DATA_RANGE SCLK Range (RIM:MF - RIM:MF) of Data Segment.
GAS_RANGE SCLK Range (RIM:MF - RIM:MF) Where GASPRA Is Seen By NIMS Within the Data Segment.
COMMENTS Mirror Position where Gaspra seen in NIMS FOV. (Chopper Mode for Calibrations)

NOTES: 1) Any NIMS EDR may contain data from multiple Observations (OAPELs).

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NIMS_EDR	SCLK 1	SCLK2	(NR, NF)	OAPEL	GAS	MODE DATA_RANGE	GAS_RANGE	COMMENTS
N10107271600.2	1072716.00	1072716.13	(14, 0)	GAPSLTCRVC01	0	FM (16.00 - 16.13)		
N10107272000.2	1072720.00	1072723.22	(296, 0)	GAPNGASPEC01	X	FM (20.00 - 23.22)	(21.45 - 21.66)	MP 9
N10107273405.2	1072734.05	1072734.21	(17, 0)	GAPNGASPER01	X	XM (34.05 - 34.21)	(34.15 - 34.16)	MP 9
N10107275104.2	1072751.04	1072752.28	(116, 11)	GAPNGASCUR01	X	SM (51.04 - 52.28)	(51.81 - 51.85)	MP 9,10
N10107276905.2	1072769.05	1072769.21	(17, 0)	GAPNGASPER02	X	XM (69.05 - 69.21)	(69.15 - 69.15)	MP 9
N10107278604.2	1072786.04	1072787.35	(123, 11)	GAPNGASCUR02	X	SM (86.04 - 87.35)	(86.84 - 86.89)	MP 9,10
N10107280405.2	1072804.05	1072804.21	(17, 0)	GAPNGASPER03	X	XM (04.05 - 04.21)	(04.15 - 04.15)	MP 9,10
N10107282100.2	1072821.00	1072821.13	(14, 0)	GAPSLTCRVC02	X	FM (21.00 - 21.13)	(21.05 - 21.06)	MP 9
N10107282505.2	1072825.05	1072828.46	(315, 0)	GAPNGASPEC02	X	FM (25.05 - 28.46)	(26.78 - 27.09)	MP 9,10
N10107283905.2	1072839.05	1072839.23	(19, 0)	GAPNGASPER04	X	XM (39.05 - 39.23)	(39.16 - 39.16)	MP 9,10
N10107285604.2	1072856.04	1072857.34	(122, 11)	GAPNGASCUR03	X	SM (56.04 - 57.34)	(56.86 - 57.01)	MP 9,10

NIMS GASPRA DATA

NIMS_EDR	SCLK 1	SCLK2	(NR, NF)	OAPEL	GAS	MODE	DATA_RANGE	GAS_RANGE	COMMENTS
N10107287405.2	1072874.05	1072874.23	(19, 0)	GAPNGASPER05	X	XM	(74.05 - 74.23)	(74.16 - 74.16)	MP 9,10
N10107289104.2	1072891.04	1072892.34	(122, 11)	GAPNGASCUR04	X	SM	(91.04 - 92.34)	(91.84 - 92.00)	MP 9,10
N10107290905.2	1072909.05	1072909.23	(19, 0)	GAPNGASPER06	X	XM	(09.05 - 09.23)	(09.16 - 09.17)	MP 9,10
N10107292604.2	1072926.04	1072927.90	(178, 0)	GAPSLTCRVC03	X	XM	(26.04 - 27.90)	(27.48 - 27.55)	MP 9,10
N10107293005.2	1072930.05	1072934.10	(370, 0)	GAPNGASPEC03	X	FM	(30.05 - 34.10)	(32.06 - 32.30)	MP 9,10
N10107294405.2	1072944.05	1072944.25	(21, 0)	GAPNGASPER07	X	XM	(44.05 - 44.25)	(44.17 - 44.17)	MP 9,10
N10107296104.2	1072961.04	1072962.31	(119, 11)	GAPNGASCUR05	X	SM	(61.04 - 62.31)	(61.79 - 61.85)	MP 9,10
N10107297905.2	1072979.05	1072979.25	(21, 0)	GAPNGASPER08	X	XM	(79.05 - 79.25)	(79.16 - 79.16)	MP 9,10
N10107299604.2	1072996.04	1072997.34	(122, 11)	GAPNGASCUR06	X	SM	(96.04 - 97.34)	(96.09 - 96.09)	MP 9
					X	SM	(96.04 - 97.34)	(96.84 - 97.00)	MP 9,10
N10107303104.2	1073031.04	1073032.90	(178, 0)	GAPSLTCRVC04	X	SM	(31.04 - 32.90)	(31.28 - 32.90)	MP 9,10
N10107303505.2	1073035.05	1073039.25	(385, 0)	GAPNGASPEC04	X	FM	(35.05 - 39.25)	(37.02 - 37.41)	MP 9,10
N10107304905.2	1073049.05	1073049.29	(25, 0)	GAPNGASPER10	X	XM	(49.05 - 49.29)	(49.17 - 49.18)	MP 9,10
N10107306604.2	1073066.04	1073067.62	(150, 11)	GAPNGASCUR07	X	SM	(66.04 - 67.62)	(67.03 - 67.11)	MP 9,10
N10107308390.2	1073083.90	1073084.29	(31, 0)	GAPNGASPER11	X	XM	(83.90 - 84.29)	(84.19 - 84.19)	MP 9,10
N10107310104.2	1073101.04	1073102.82	(170, 11)	GAPNGASCUR08	X	SM	(01.04 - 02.82)	(01.08 - 01.09)	MP 9,10
					X	SM	(01.04 - 02.82)	(02.10 - 02.20)	MP 9,10
N10107311305.2	1073113.05	1073113.31	(27, 0)	GAPNGASPER12	X	XM	(13.05 - 13.31)	(13.19 - 13.20)	MP 9,10
N10107312905.2	1073129.05	1073138.77	(892, 133)	GAPNGASPEC05	X	FM	(29.05 - 33.88)	(31.19 - 31.46)	MP 4-6
				GAPNGASVIS01	X	XM	(35.40 - 38.77)	(36.22 - 36.23)	MP 2-4
				GAPNGASVIS01	X	XM	(35.40 - 38.77)	(37.87 - 37.87)	MP 2-4

NIMS GASPRA DATA

NIMS_EDR	SCLK 1	SCLK2	(NR, NF)	OAPEL	GAS	MODE	DATA_RANGE	GAS_RANGE	COMMENTS
N10107314161.2	1073141.61	1073185.25	(3969, 400)	GAPNGASPEC06	X	FM	(41.61 - 48.48)	(43.70 - 44.05)	MP 17-19
				GAPNGASPEC06	X	FM	(41.61 - 48.48)	(45.41 - 45.66)	MP 17-19
				GAPNGASVIS02	X	XM	(49.01 - 51.12)	(49.71 - 49.73)	MP 3-5
				GAPNGASVIS02	X	XM	(49.01 - 51.12)	(50.37 - 50.38)	MP 16-17
				GAPNGSCHEM02	X	SM	(51.78 - 57.70)	(53.02 - 53.17)	MP 1-3
				GAPNGSCHEM02	X	SM	(51.78 - 57.70)	(56.07 - 56.22)	MP 19
				GAPNGASNAP01	X	XM	(58.41 - 63.52)	(60.65 - 60.77)	MP 8-11
				GAPNGASNAP01	X	LM	(58.41 - 63.52)	(60.78 - 61.12)	MP 8-11
				GAPNGASNAP01	X	XM	(58.41 - 63.52)	(61.13 - 61.18)	MP 8-11
				GAPNGSCHEM04	X	SM	(64.42 - 72.71)	(66.15 - 66.36)	MP 2-5
				GAPNGSCHEM04	X	SM	(64.42 - 72.71)	(70.30 - 70.51)	MP 16-19
				GAPNGASMAP01	X	XM	(73.60 - 77.36)	(74.88 - 75.01)	MP 3-8
				GAPNGASPAT01	X	XM	(78.02 - 85.25)	(81.13 - 81.15)	MP 0,1
				GAPNGASPAT01	X	XM	(78.02 - 85.25)	(83.19 - 83.25)	MP 7-13
				GAPNGASPAT01	X	XM	(78.02 - 85.25)	(84.71 - 84.77)	MP 16-19
N10107339890.2	1073398.90	1073399.89	(91, 0)	GANNPCTCAL01	PCT	LM	(98.90 - 99.89)		Chopper 63 Hz
N10107340190.2	1073401.90	1073402.89	(91, 0)	GANNPCTCAL01	PCT	LM	(01.90 - 02.89)		Chopper Ref
N10107379290.2	1073792.90	1073793.89	(91, 0)	GANNRCTCAL01	RCT	LM	(92.90 - 93.89)		Chopper Ref
N10107379600.2	1073796.00	1073796.89	(90, 0)	GANNRCTCAL01	RCT	LM	(96.00 - 96.89)		Chopper 63 Hz

Appendix A

Contents

Introduction to Appendix A

This chapter contains a memo from the Galileo NAV Team regarding the processing and analysis of the Gaspra OPNAV images. This memo presents the results of the latest orbit determination analysis for the LGA Gaspra Encounter. It contains a section on the methods used to determine 'B-plane' statistics and another section describing the Orbit Determination Simulation. The memo was scanned on a document scanner into postscript image format. The original JPL Interoffice Memo is GLL-NAV-91-109 dated 22. July, 1991, To: F. T. Nicholson, From: R. M. Vaughn, Subject: "Revised Gaspra Encounter B-Plane Statistics for EE-2' OPNAV Schedule".

JET PROPULSION LABORATORY

INTEROFFICE MEMORANDUM

GLL-NAV-91-109

22 July 1991

TO: F. T. Nicholson

FROM: R. M. Vaughan RMV

SUBJECT: Revised Gaspra Encounter B-Plane Statistics For EE-2′ OPNAV Schedule

This memo presents the results of the latest orbit determination analysis for the LGA Gaspra encounter. It is intended as an update to the results presented in reference [1]. The primary change for the new analysis is the deletion of one OPNAV picture from the previous data arc of 5 pictures and changes in times for the remaining 4 pictures. Also, a new a priori estimate of the spacecraft state uncertainty based solely on radio data has been provided by Vince Pollmeier for use in the simulations. This reflected the actual data that will be available for navigation based on the EE-2′ stations allocations in effect on 6/27/91. Finally, this analysis uses the updated a priori uncertainity for the Gaspra ephemeris parameters reported in reference [2].

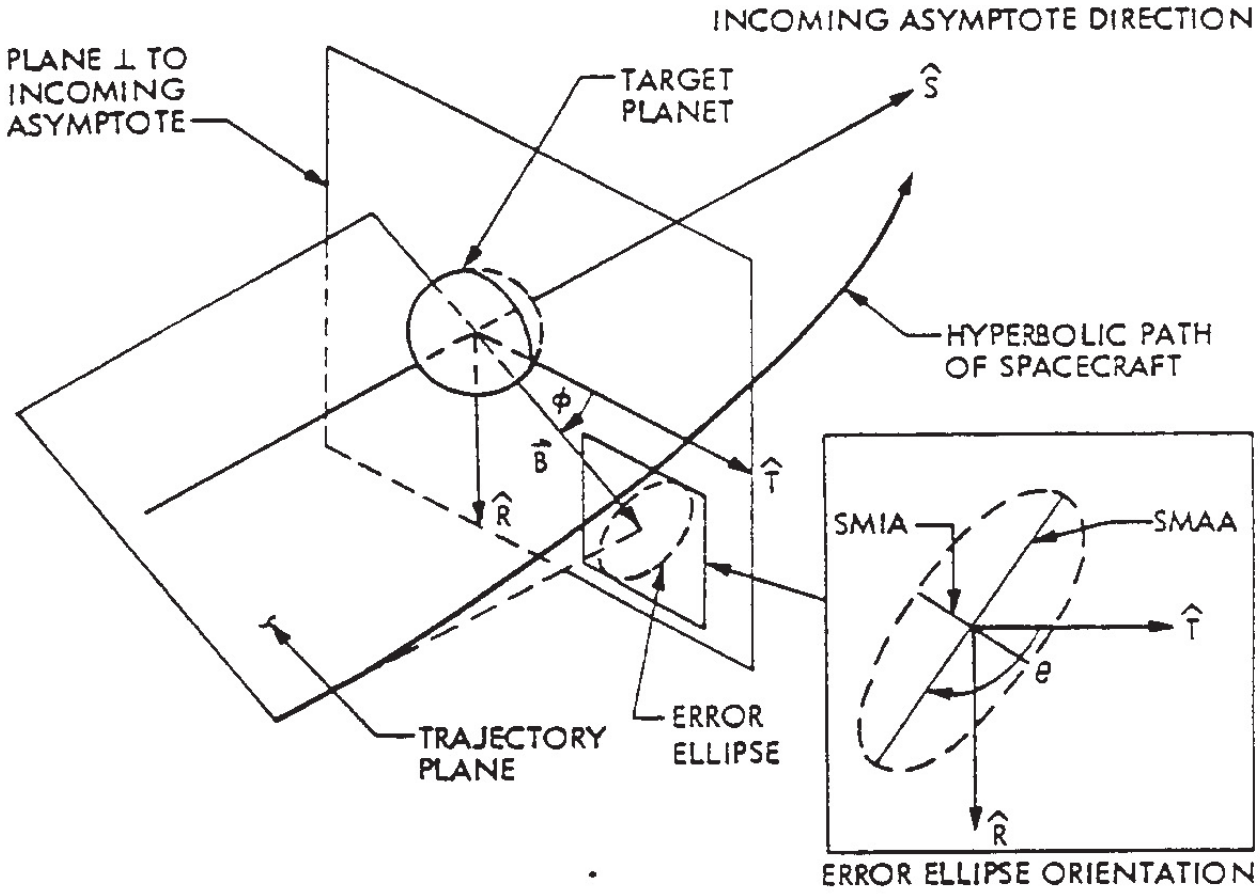
1 A Short Tutorial on B-Plane Statistics

Before presenting the details of the orbit determination simulations, a short discussion of the various methods used to quote B-plane statistics will be given. This is an attempt to clarify some misinterpretations of numbers presented in previous memos.

Figure 1 illustrates the definition of the B-plane and the navigation error ellipse. The spacecraft is assumed to flyby a target body on a hyperbolic trajectory. The B-plane is defined to be normal to the incoming assymptote of the hyperbola or, equivalently, normal to the velocity vector at "infinity" where infinity is defined to be far enough away from the vertex of the hyperbola that the trajectory essentially lies on the assymptote. The directions of the $\hat{T}$ and $\hat{R}$ axes and the $\hat{B}$ vector itself are defined in the figure.

The $\hat{B}$ vector is defined to be the vector from the origin to that point where the assymptote (or V_∞ vector) intersects the B-plane. For a typical flyby where there is significant bending of the hyperbola due to the gravitational attraction of the target body, the tip of the $\hat{B}$ vector will be farther away from the B-plane origin than the spacecraft at the time it intersects the B-plane. Also, closest approach will generally occur after the spacecraft intersects the B-plane when its position reaches the vertex of the hyperbola. The navigation team internally uses the tip of the $\hat{B}$ vector as its aimpoint. The $\hat{B}$ vector corresponding to a desired closest approach geometry is automatically computed by the navigation software. Usually the coordinates of the $\hat{B}$ vector are of interest only within the navigation team. In the case of the Gaspra flyby where there is almost no gravitational bending of the spacecraft trajectory, the tip of the $\hat{B}$ vector is virtually identical to the spacecraft position at closest approach.

The navigation error ellipse defines the uncertainty associated with hitting the aimpoint in the B-plane. The navigation estimation technique is formulated using Gaussian, or normal, probability distributions. Let the R and T components of $\hat{B}$ be denoted by $B \cdot R$ and $B \cdot T$, respectively. The statistics of these compenents are assumed to follow the two-dimensional Gaussian distribution with



$\vec{B}$ = MISS PARAMETER = $\frac{1}{V_\infty}(\hat{S} \times \vec{H})$, i.e., $\vec{B} \times (V_\infty \hat{S}) = \vec{H}$

$\vec{H}$ = ANGULAR MOMENTUM VECTOR

V_∞ = VELOCITY AT INFINITY

$\hat{T}$ = PARALLEL TO ECLIPTIC PLANE AND NORMAL TO $\hat{S}$

$\hat{R} = \hat{S} \times \hat{T}$

Figure 1: The Navigation B-plane

probability density function

$$f_{RT} = \frac{1}{2\pi\sigma_R\sigma_T\sqrt{1-\rho_{RT}^2}} \exp\left\{-\left[\left(\frac{B\cdot R}{\sigma_R}\right)^2 - 2\rho_{RT}\left(\frac{B\cdot R}{\sigma_R}\right)\left(\frac{B\cdot T}{\sigma_T}\right) + \left(\frac{B\cdot T}{\sigma_T}\right)^2\right] / 2(1-\rho_{RT}^2)\right\}$$

where σ_R and σ_T are the standard deviations for each component and ρ_{RT} is the correlation coefficient between them. The concept of an error ellipse arises naturally when dealing with this type of distribution since contours of constant value of f_{RT} are ellipses. The size and orientation of the B-plane error ellipses are determined by the values of σ_R, σ_T and ρ_{RT}. The standard deviations σ_R and σ_T are the 1σ $B\cdot R$ and $B\cdot T$ values that have been reported in previous memos such as reference [1] discussing navigation performance for the Gaspra encounter. The correlation coefficient ρ_{RT}, which would also be required to reconstruct the error ellipse, has not been reported.

A simple rotation of coordinates can be found for any two dimensional normal distribution such such that the correlation coefficient is zero in the new coordinate system. This is another of the standard ways of reporting navigation B-plane performance. Instead of giving σ_R, σ_T and ρ_{RT} values, the two standard deviations in this special rotated coordinate system are given along with the rotation angle between the original $\hat{R}$ and $\hat{T}$ axes and the new coordinate system. These numbers correspond to the semi-major and semi-minor axes lengths of the error ellipse (SMAA and SMIA in Figure 1) and the rotation angle from the $\hat{T}$ axis to the semi-major axis measured positive clockwise (θ in Figure 1). The standard deviations in $B\cdot R$ and $B\cdot T$ are related to SMAA, SMIA and θ as shown below:

$$\begin{aligned}\sigma_R &= \sqrt{(\mathtt{SMAA}\sin\theta)^2 + (\mathtt{SMIA}\cos\theta)^2} \\ \sigma_T &= \sqrt{(\mathtt{SMAA}\cos\theta)^2 + (\mathtt{SMIA}\sin\theta)^2}\end{aligned}$$

In this memo, 1σ SMAA and SMIA values and the associated θ values will be included along with the 1σ $B\cdot R$ and $B\cdot T$ values.

The probability of the aimpoint being within a certain area in the B-plane is defined to be the intergral of the probability density function f_{RT} over that area. Usually this integral is quite difficult to evaluate for an area of arbitrary shape. However, if the area of interest is defined to be an ellipse centered on the nominal aimpoint with semi-major and semi-minor axes lengths of NSMAA and NSMIA and an orientation angle θ, integrating f_{RT} gives

$$p(N\sigma) = 1 - e^{-N^2/2}$$

The fact that this integral results in an analytic formula for the probability of being inside an $N\sigma$ error ellipse is related to the fact that the contours of constant value of f_{RT} form ellipses in the B-plane. These are just two of the many special properties of the two-dimensional Gaussian probability distribution. Some probability values computed from the above equation for various values of N are given in the table below:

N	$p(N\sigma)$
1.00	39.35%
2.00	86.47%
2.24	91.86%
3.00	98.89%
4.00	99.97%

Note that these values *are not* the same as the probabilities of being within $N\sigma$ of the nominal value for a one-dimensional Gaussian distribution.

2 OD Simulation Description and Results

The trajectory used for this analysis has Gaspra flyby at 1600 km radial distance, 3.9° N ecliptic latitude on the darkside with closest approach at 22:39:02 UTC on 10/29/91 (DOY 302). This trajectory has nearly constant clock angle during approach as desired for the science observations in EE-3'. The recent change in flyby time to 22:37:00.687 UTC would have no appreciable affect on the results of the OD simulations.

Two optical data arcs were compared in this study. Both had 4 pictures in the period between 53 and 8 days before Gaspra closest approach. For convenience in the subsequent discussion, these two schedules will be referred to as ON1 and ON2. ON1 and ON2 are identical except for the placement of OPNAV #4 which occurs 2 days later for ON2. The ON1 OPNAV picture schedule matches OPNAV commands in the preliminary cruise profile package for EE-2'. SCP 005 has been approved to move OPNAV #4. The ON2 OPNAV picture schedule is to be considered the current baseline schedule. The change should be implemented in the final cruise profile package for EE-2'. The actual times and target stars for these two schedules are shown below:

Picture #	Time of Shutter		Star Content
	SCET (UTC)	Encounter Relative Time	
1	91-249/20:22	-53d 02:17	184489 (magnitude 9.0, spectral class F8)
			90141 (magnitude 10.7, spectral class K6)
3	91-271/02:45	-31d 19:54	184459 (magnitude 9.1, spectral class A2)
4 (ON1)	91-284/22:30	-18d 00:09	184459 (magnitude 9.1, spectral class A2)
4 (ON2)	91-286/21:48	-16d 00:51	
5	91-294/14:00	-8d 08:39	184459 (magnitude 9.1, spectral class A2)

Optical data was weighted at 1 pixel for Gaspra images and 0.5 pixel for star images. Gaspra center-finding errors in pixel and line were included as consider parameters with a priori uncertainties of 15% of the image diameter. EME50 camera pointing angles for each picture were estimated as stochastic parameters with a priori uncertainty of 0.1° for RA and DEC. The a priori uncertainty for TWIST was assumed to be 10.0° for OPNAV pictures #1 and 3. Three cases for the a priori uncertainty for TWIST for OPNAV pictures #4 and 5 were investigated. The TWIST uncertainty assumptions for these three cases and the resulting B-plane statistics are presented below.

Case 1 The first case assumed a TWIST uncertainty of 0.25° for both pictures 4 and 5. This is considered the baseline case and represents the best performance that can be expected if all OPNAV pictures are successfully returned and processed. This TWIST uncertainty assumes successful use of the single-frame mosaic technique to image multiple dim stars around Gaspra at the times of the last two OPNAV observations.

Table 1 shows the nominal (1σ) B-plane statistics after incorporation of each OPNAV picture for case 1 for OPNAV pictures schedules ON1 and ON2. The table also lists the a priori B-plane statistics from the radio data solution.

Case 2 The second case assumed a TWIST uncertainty of 10.0° for picture 4 and 0.25° for picture 5. This represents the case where dim stars cannot be seen in picture 4. Picture 4 is more vulnerable to loss of the dim star images required to measure TWIST since it will occur in the scan platform polar region. It should be possible to get the dim star images in picture 5 since a turn will be done to place the observation in the scan platform equatorial region.

Picture Time	1σ B-Plane Errors					
	$B \cdot R$ (km)	$B \cdot T$ (km)	SMAA (km)	SMIA (km)	θ (°)	Time-of-Flight (sec)
Radio Only	172.7	117.8	172.7	117.8	90.1	18.5
G-53[d]	167.3	113.0	167.3	113.1	89.1	18.2
G-31[d]	159.5	106.0	160.2	105.0	96.8	17.5
ON1 OPNAV Picture Schedule						
G-18[d]	113.5	91.1	113.5	91.2	91.0	16.3
G-8[d]	70.8	60.9	75.2	55.4	60.1	14.2
ON2 OPNAV Picture Schedule						
G-16[d]	107.4	87.5	107.5	87.4	85.3	16.0
G-8[d]	69.5	60.0	74.0	54.3	59.6	14.1

Table 1: Gaspra B-plane Statistics for Case 1

Table 2 shows the nominal (1σ) B-plane statistics after incorporation of OPNAV pictures 4 and 5 for case 2 for OPNAV picture schedules ON1 and ON2. The statistics prior to incorporation of OPNAV 4 are unchanged from case 1 since the new assumptions for case 2 applied only to the last two pictures. The B-plane statistics in Table 1 for $G-53d$ and $G-31d$ are the same for case 2.

Picture Time	1σ B-Plane Errors					
	$B \cdot R$ (km)	$B \cdot T$ (km)	SMAA (km)	SMIA (km)	θ (°)	Time-of-Flight (sec)
ON1 OPNAV Picture Schedule						
G-18[d]	114.4	102.8	115.3	101.8	74.8	17.3
G-8[d]	72.0	64.7	78.6	56.5	54.8	14.4
ON2 OPNAV Picture Schedule						
G-16[d]	112.2	99.9	116.6	94.8	62.3	17.1
G-8[d]	71.8	64.3	79.0	55.1	54.3	14.4

Table 2: Gaspra B-plane Statistics for Case 2

Case 3 The third case assumed a TWIST uncertainty of 10.0° for both pictures 4 and 5. This is included as a worst case scenario in which dim stars are not visible in any of the OPNAV pictures. It does, however, assume that all 4 pictures are successfully returned and processed.

Table 3 shows the nominal (1σ) B-plane statistics after incorporation of OPNAV picture 5 for case 3. The statistics prior to incorporation of OPNAV 4 are unchanged from case 1 since the new assumptions for case 3 applied only to the last two pictures. The B-plane statistics in Table 1 for $G-53d$ and $G-31d$ are the same for case 3. Furthermore, the statistics after incorporation of OPNAV 4 for this case are identical to those given for $G-18d$ and $G-16d$ in Table 2 for case 2 since the TWIST uncertainty was changed for OPNAV picture 5 only.

Picture Time	1σ B-Plane Errors $B \cdot R$ (km)	$B \cdot T$ (km)	SMAA (km)	SMIA (km)	θ (°)	Time-of-Flight (sec)
ON1 OPNAV Picture Schedule						
G-8[d]	94.5	83.3	112.5	56.7	51.0	15.9
ON2 OPNAV Picture Schedule						
G-8[d]	95.9	84.4	115.2	55.3	50.9	16.0

Table 3: Gaspra B-plane Statistics for Case 3

References

[1] Vaughan, R. M., "Gaspra Encounter B-plane Statistics for LGA EE-2' OPNAV Schedule," JPL IOM GLL-NAV-91-96, June 17, 1991.

[2] Yeomans, D. K., "Updated Uncertainty Analysis for Asteroid 951 Gaspra," JPL IOM 314.6-1289, June 21, 1991.

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