# 2005 Cassini/MIMI
# Magnetospheric Imaging Instrument


# MIMI STANDARD DATA PRODUCTS
# AND ARCHIVE VOLUME
# SOFTWARE INTERFACE SPECIFICATION

# (MIMI Archive Volumes SIS)
# SIS ID: IO-AR-006

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**2004 Cassini/MIMI**

**Magnetospheric Imaging Instrument**


**MIMI STANDARD DATA PRODUCTS**

**ARCHIVE VOLUMES**

**SOFTWARE INTERFACE SPECIFICATION**

**(MIMI Archive Volumes SIS)**


Version 2.2

rev. May 4, 2005


Approved:

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Principal Investigator


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Cassini Archive Data Engineer


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**List Of Tables:**

# 1. Preface

This document describes the contents and types of volumes belonging to all of the three MIMI data sets.

## 1.1. Distribution List

| Table 1: Distribution List | |
|---|---|
| **Name** | **Email** |
| S. Joy | sjoy@igpp.ucla.edu |
| Tom Armstrong | armstrong@ftecs.com |
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## 1.2. Document Change Log

| Table 2: Document Change History | | |
|---|---|---|
| **Change** | **Date** | **Affected Portions** |
| Initial Draft | 03/12/2002 | All |
| Major Revision, Added Data Product Formats | 05/28/2002 | All |
| Removed Coordinate System Column in Data Product Formats, Revised Data Product Fields and Limits, Allowed for Different LEMMS Priority Counters, Finalized Number of Data Products, Removed Many Items from TBD List | 06/26/2002 | |
| Added Format and Data Versions to Data Product Naming Convention<br><br>Filled in TBD Items in Data Product Contents and Structure | 8/9/2002 | File Naming Conventions<br><br>Data Product Contents and Structure |

| Table 2: Document Change History | | |
|---|---|---|
| **Change** | **Date** | **Affected Portions** |
| Added Exposure Factors to INCA Image Data Product Contents and Structure | | INCA Image Data Product Contents and Structure |
| Added CHEMS Science Rates Data Product | | All |
| Added Document ID: IO-AR-006 | 8/15/2002 | Cover Page |
| Changed Signature Page | | Changed Signature Page |
| Referenced Cassini Archive Plan Document | | Applicable Documents |
| Changed – before UNCALIBRATED in data set id to _ | | Labeling and Identification |
| Removed Messed up Album Structure Diagram | | Appendix A |
| Miscellaneous Clarifications | 9/5/2002 | All |
| Filled In Geometry Directory Contents | 9/5./2002 | GEOMETRY Directory Contents |
| Added stuff about the creation of the reference volume | | Volume Creation and Validation |
| Added Section: Reference Volume Contents | 9/5/2002 | Reference Volume Contents |
| Filled In Reference Volume Contents Section | 9/25/2002 | Reference Volume Contents |
| Changed section about data transfer to PDS | 10/1/02 | Data production and transfer methods |
| Changed everything to present tense | 10/2/02 | All |
| TBD Items | 10/2/02 | TBD items |
| Changed data product formats to have header | 10/11/02 | |
| Changed Validation Section | 10/16/02 | |
| Changed LEMMS record formats to have three look angles instead of one | 1/6/03 | LEMMS Data Product |
| Filled in CHEMS Science Rates Data Product | 1/13/03 | CHEMMS Data Products |
| Fixed inconsistencies | 1/17/03 | All |
| Added Sample PDS Labels | 1/17/03 | Section 6 |
| Removed references to special values such as NA and TOL | 1/17/03 | All |
| Added Phi and Theta offsets to Inca Image formats | 3/24/2003 | INCA Image format |
| Clarified INCA image format | 4/9/2003 | NCA Image Format |
| Added PDF format for documents | 4/9/2003 | Reference Volume |
| Changed Duration for INCA images in record header | 07/21/2003 | Header Format |
| Changed geometry directory contents, changed LEMMS look angle fields in LEMMS data product formats, separated microsectors in LEMMS fine rates into separate records | 08/12/2003 | Geometry directory section |
| Fixed Grammatical Errors, Reviewed | 01/19/2004 | All |
| Inserted MIMI Calibration descriptions, fixed grammatical errors, reviewed and modified content descriptions as necessary | 01/28/2004 | All |
| Modified Calibration description to include a separate passband calibration file which includes the passbands for all three instruments | 3/11/04 | Calibration Section |

| Table 2: Document Change History | | |
|---|---|---|
| **Change** | **Date** | **Affected Portions** |
| Reorganizaton of INCA IMAGE file structure | | |
| Correction of errors identified by S. Joy and other specific format changes with some major revision of label format and file organization | 5/6/04 | All |
| Reformat of Calibration products.<br><br>Final cleanup of SIS | 12/25/04 | Calibration Section<br><br>All |
| Minor spelling corrections<br>Addition of Key Parameter data details<br>Addition of Browse Plot information | 2/10/05 | All<br>BROWSE<br>BROWSE |
| Corrects to adjust to current PDS standards and references. Adjustments to current PDS PPI naming conventions. | 3/15/05 | 1.1, 2.4, 3.2, 3.3, 3.5, 3.5.1, 3.5.2,<br><br>3.5.2.1 thru 3, 3.5.3, 4.2, 4.3, 4,3.1 thru 4<br><br>4.3.2, 4.5, 5, 5.2.1 |
| Correction of various minor issues and preparation for final signatures | 4/19/05 | Cover Page, 1.1, 1.6, 2.4(Table 6) |
| Modification of Label examples to match production values | 4/26/05 | 7 |
| Modification of Data Set ID's | 5/4/05 | 2.4 |
| Modification of KP Label | 5/13/05 | 7.4.1 |
| Final list of changes for the SIS | 6/6/05 | |
|     Update Standard Data Product ID's | | Section 2.4:Table 6 |
|     Change names for<br>       CO_INSTHOST.CAT -> INSTHOST.CAT | | Section 3.3:Table 9, Section 4.2: Table 24<br>Section 3.3:Table 9, Section 4.2: Table 24 |
|        CASSINI_MISSION.CAT -> MISSION.CAT | | Section 3.3:Table 9, Section 4.2: Table 24 |
|        CO_MIMI_PERS.CAT -> PERSON.CAT | | Section 3.3:Table 9, Section 4.2: Table 24 |
|     Added PROJREF.CAT and description | | Section 3.3:Table 9, Section 4.2: Table 24 |
|     Drop MIMI_COMMANDS document | | Section 4.3: Table 25 |
|     Footnote regarding Instrument Paper | | Section 4.3.1 |
|     Delete 4.3.2 – MIMI_COMMANDS director | | Section 4.3.2 (4.3.3 becomes 4.3.2) |
|     Delete DOCSUBDIRINFO.TXT | | Section 4.3.2 (previously 4.3.3) |
|     Update field names in data record header | | Sections 5.2.2: Table 29 |
|     Change 4E5 to 4.E5 | | Section 5.2.3: Table 30 |
|     Update CHEMS PHA field names | | Section 5.2.4: Table 35 |
|     Update INCA PHA field names | | Section 5.2.5: Table 37 |
|     Show lines in BROWSE fields table | | Section 5.2.6: Table 39 |
|     Update Calibration table fields | | Section 6.2.4: Table 40 |
|     Update all sample labels | | Section 7 all tables |
|     Appendix A Changes (letter case, directory) | | Appendix A |

## 1.3. TBD Items

Items that are currently TBD or not finalized, but need to be defined in the next few months:

| Table 3: TBD Items | | |
|---|---|---|
| Item | Section | Pages |
|  |  |  |

## 1.4. Acronyms and Abbreviations

| Table 4: Acronyms and Abbreviations | |
|---|---|
| Acronym | Definition |
| ASCII | American Standard Code for Information Interchange |
| CD-R | Compact Disc - Recordable Media |
| CD-ROM | Compact Disc - Read-Only Memory |
| DVD | Digital Versatile Disc |
| GB | Gigabyte(s) |
| GSFC | Goddard Space Flight Center |
| ISO | International Standards Organization |
| JHU/APL | Johns Hopkins University / Applied Physics Laboratory |
| JPL | Jet Propulsion Laboratory |
| MB | Megabyte(s) |
| MIMI | Magnetospheric Imaging Instrument |
| NSSDC | National Space Science Data Center |
| PDB | Project Database |
| PDS | Planetary Data System |
| PHS | Product Handling Software |
| PPI | Planetary Data System, Planetary Plasma Interactions Node |
| SDVT | Science Data Validation Team |
| SIS | Software Interface Specification |
| TBD | To Be Determined |
| PHA | Pulse Height Analysis |
| UCLA | University of California, Los Angeles |

## 1.5. Glossary

**Archive** – An archive consists of one or more Data Sets along with all the documentation and ancillary information needed to understand and use the data. An archive is a logical construct independent of the medium on which it is stored.

**Archive Volume** - An Archive Volume is a single physical media (CDROM, DVD, 9-track tape, etc.) used to permanently store files within the PDS archive. Archive Volumes may only be created on media approved by the PDS as meeting archive quality standards.

**Archive Volume Set** – A collection of one or more Archive Volumes used to store a single Data Set or collection of related Data Sets.

**Catalog Information** – High-level descriptive information about a Data Set (e.g., mission description, spacecraft description, instrument description), expressed in Object Description Language (ODL), which is suitable for loading into a PDS catalog.

**Data Product** – A labeled grouping of data resulting from a scientific observation, usually stored in one file. A product label identifies, describes, and defines the structure of the data. An example of a Data Product is a planetary image, a spectral table, or a time series table.

**Data Set** – A Data Set is a collection of Data Products from a single instrument that have a common data processing level, together with supporting documentation and ancillary files.

**Standard Data Product** – A Data Product generated in a predefined way using well-understood procedures, processed in "pipeline" fashion. Data Products that are generated in a non-standard way are sometimes called *special Data Products* .

## 1.6. Content Overview

The Magnetospheric Imaging Instrument (MIMI) aboard the Cassini spacecraft is an instrument comprised of three different sensors: the Low Energy Magnetospheric Measurement System (LEMMS), the Charge/Energy Mass Spectrometer (CHEMS), and the Imaging Neutral Camera (INCA). The primary focus of MIMI's mission is to study Saturn's magnetosphere, but measurements will also be taken at Earth, Jupiter, and Titan.

MIMI is a complex instrument that produces comparatively large amounts of data. The combination of these factors presents many challenges in distributing, archiving and using the data. Because of the complexity of the instrument, calibration data and calibration techniques will be highly dynamic. Together these factors make it impractical to distribute new data when calibration improves. The solution to this problem is to provide tables of decommutated data in the instrument's units as spacecraft science data products and calibration data and algorithms as ancillary data products. Thus, as the calibration improves only the calibration needs to be redistributed. This methodology holds true for all data products except for the images produced by the INCA instrument. The calculation of flux from the raw counts contained in the image is a highly complex problem requiring knowledge of instrument characteristics, geometry, and spacecraft orientation that prevents the general use of the above outlined methodology for the distribution of data. Instead for the INCA images, there are two sets of data products produced: the raw counts contained within the images and the fluxes generated from the images. No specific calibration data is provided except that calibration data which is wholly independent of geometry and spacecraft orientation and is fairly static in nature. In addition, programs that work with the raw counts in the INCA images will be archived to allow the final users an understanding of the algorithms used in the production of the final flux matrices.

The complexity of MIMI also means that a large body of documentation including detailed diagrams and other non-text elements is required to understand and use the spacecraft science data products. Once again, redistributing all of this documentation with each volume is impractical, so this body of documentation is available on a single volume, called a reference volume, and only redistributed when documents are updated, added or removed. However, each volume contains metadata to locate and utilize the data products in the volume and pointers to other resources that the user may find helpful.

Each one of the three sensors produces two types of data, accumulator rates (RATE) and pulse height analysis (PHA) data. The LEMMS sensor produces two types of RATE data, low time resolution data for all detectors and high time resolution data for a set of priority counters. The low time resolution data is accumulated over subsectors and the high time resolution data is accumulated over microsectors. These two time resolutions of LEMMS data are contained in separate data products. The low time resolution data is referred to simply as rate data while the high time resolution data is referred to as fine rate data. CHEMS also produces two different types of rate data, accumulator rates and science rates. Accumulator rates differ from science rates in that the accumulator rates are an indicator for the overall health of the instrument allowing for specific time ordered, mass ordered, and other instrument specific studies to be undertaken. The science rates are generated from calculations from the onboard MIMI DPU. The science rates are already categorized in terms of mass and level of coincidence. The science rates provide the most direct measurement of the chemical composition and energy spectra measured by the CHEMS instrument. In addition to RATE and PHA data, INCA also produces images. The INCA images are represented as two dimensional arrays of values. Thus, there are nine easily identified data products grouped into PDS data sets by sensor. Table 5 shows the maximum amount of data per day per data product. Table 5 also shows the total maximum size of data products per day for each data set.

| Table 5: Spacecraft Science Data Products in MIMI Data Sets | | | |
|---|---|---|---|
| **Sensor** | **Data Type** | **Maximum (MB / Day)** | **Sensor Total (MB / Day)** |
| LEMMS | Accumulator Rates | 15 | 70 |
| | Fine Accumulator Rates | 25 | |
| | PHA | 30 | |
| CHEMS | Accumulator Rates | 7 | 459 |
| | Science Rates | 2 | |
| | PHA | 450 | |
| INCA | Accumulator Rates | 4 | 414 |
| | PHA | 300 | |
| | Images | 110 | |

## 1.7. Scope

This specification applies to all archive volumes containing MIMI data products for the duration of its mission.

## 1.8. Applicable Documents

*Planetary Science Data Dictionary Document*, August 28, 2002, Planetary Data System, JPL D-7116, Rev. E

*Planetary Data System Standards Reference*, August 1, 2003, Version 3.6. JPL D-7669, Part 2.

Cassini/MIMI Data Analysis Center, *Level 1A File Layouts,* December 2 2003, Revision 18, SRS-98-203.

*Magnetosphere Imaging Instrument (MIMI) on the Cassini Mission to Saturn/Titan*, In press Space Science Review, S.M Krimigis et al.

*Cassini/Huygens Program Archive Plan for Science Data*, PD 699-068, JPL D-159576

*Planetary Data Systems Archive Preparation Guide,* January 20, 2005, JPL D-31225, Version 0.05012

## 1.9. Audience

This specification is useful to those who wish to understand the format and content of the MIMI PDS data product archive collection. Typically, these individuals would be scientists, data analysts, or software engineers.

# 2. Volume Generation

## 2.1. Data Production and Transfer Methods

The MIMI standard product archive collection is produced by the MIMI instrument team in cooperation with the PDS Planetary Plasma Interactions (PPI) Node at the University of California, Los Angeles (UCLA). The MIMI team is funded by NASA through the Cassini Project office and the PPI activities are funded by the NASA Planetary Data System.

The MIMI team produces the individual data files and the associated detached PDS labels for each of the standard data products defined in section 1.6 above. Data files are all comma-separated variable, ASCII files containing all data of the appropriate type for the time interval contained in the data product. Data products are individually compressed (gzipped) and placed on an FTP server at **Fundamental Technologies, LLC. Fundamental Technologies** will at regular intervals:

1.) Submit the gzipped version of the PDS data to the PDS data reception site via FTP protocols.

2.) Checks the size of the gzipped version of the data product against the size of the gzipped product on the **Fundamental Technologies** FTP site

3.) Sends a notification to at least one person at the PPI node and at least one person at **Fundamental Technologies** that includes the name and version of the file, when it was downloaded and its unzipped size.

4.) **Fundamental Technologies** creates an entry into the Cassini Archive and Tracking System (CATS) based upon the completion of a submission which might contain multiple transfers of products.

## 2.2. Volume Creation

PPI collects the data files and labels provided by the MIMI team onto archive volumes. Each archive volume contains all MIMI data available for the time interval covered by the archive volume. Once all of the data files, labels, and ancillary data files are organized onto an archive volume, PPI adds all of the PDS required files (AAREADME, INDEX, ERRATA, etc.) and produces the physical media. The MIMI team maintains an internet accessible version of the reference volume which is cloned automatically at the PPI node and burned to media when needed.

## 2.3. Volume Validation

The MIMI team and PPI node validate volumes in two ways. Before any volumes are produced a peer review panel validates the structure and content of the archive and reference volumes. Once volume production begins, automated software validates each volume and the peer review panel spot checks volumes as desired.

The peer review panel consists of members of the instrument team, the PPI and Central Nodes of the PDS, and at least two outside scientists actively working in the field of energetic particles research. The PDS personnel are responsible for validating that the volume(s) are fully compliant with PDS standards. The instrument team and outside science reviewers are responsible for verifying the content of the data set, the completeness of the documentation, and the usability of the data in its archive format. The peer review process is a two part process. First, the panel reviews this document and verifies that a volume produced to this specification will be useful. Next, the panel reviews a specimen volume to verify that the volume meets this specification and is indeed acceptable.

Once automated production begins, software provided by the MIMI team produces a summary of each data product and software provided by the PPI node verifies that the all files required by PDS are present and that the files themselves conform to PDS standards. If an error is detected by either of the above programs, the error is corrected, if possible, before the volume is produced. If an error in a data file is uncorrectable, (i.e., an error in the downlink data file) the error is described in the cumulative errata file that is included on each volume in the volume set.

## 2.4. Labeling and Identification

Each MIMI standard data product archive volume bears a unique volume identifier (volume_id) of the form COMIMI_nnnn where CO identifies the spacecraft (Cassini Orbiter), MIMI identifies the instrument, and nnnn is a sequential number assigned to each volume. The volume_id is used as the label for the physical medium on which the data are stored.

PDS data set names conform to the following format: CASSINI E/J/S/SW MIMI <sensor name> SENSOR UNCALIBRATED DATA V<major version>.<minor version>. For example, version one of the LEMMS data set is named CASSINI E/J/S/SW MIMI LEMMS SENSOR UNCALIBRATED DATA V1.0.

PDS data set identifiers (dsid) are abbreviated versions of the data set names formed according to the PDS formation rule for the DATA_SET_ID keyword (Section 6.4, PDS Standards Reference Version 3.6, dated August 1, 2003, http://pds.jpl.nasa.gov/stdrefnew/). For example, the dsid for the data set above is CO-E/J/S/SW-MIMI-2-LEMMS-UNCALIB-V1.0.

| Table 6: Relationship Between Data Sets, Standard Data Product ID, and Archive Volumes | | | |
|---|---|---|---|
| **Data Set ID** | **Standard Data Product ID** | **Single Product Volume Files** | **Multi-Product Volume Files** |
| CO-E/J/S/SW-MIMI-2-LEMMS-UNCALIB-V1.0 | MIMI_LEMMS_PHA | LPHA0_199925300_0000.CSV | LPHA0_199925300_0000.CSV, LPHA0_199925400_0000.CSV, LPHA0_199925500_0000.CSV, LPHA0_199925600_0000.CSV, LPHA0_199925700_0000CSV |
| | MIMI_LEMMS_ACC | LACC0_199925300_0000.CSV | LACC0_199925300_0000.CSV, LACC0_199925400_0000.CSV, LACC0_199925500_0000CSV, LACC0_199925600_0000CSV, LACC0_199925700_0000CSV |
| | MIMI_LEMMS_FRT | LFRT0_199925300_0000.CSV | LFRT0_199925300_0000.CSV, LFRT0_199925400_0000..CSV, LFRT0_199925500_0000..CSV, LFRT0_199925600_0000..CSV, LFRT0_199925700_0000..CSV |
| CO-E/J/S/SW-MIMI-2-CHEMS-UNCALIB-V1.0 | MIMI_CHEMS_PHA | CPHA0_199925300_0000.CSV | CPHA0_199925300_0000.CSV, CPHA0_199925400_0000.CSV, CPHA0_199925500_0000CSV, CPHA0_199925600_0000CSV, CPHA0_199925700_0000.CSV |
| | MIMI_CHEMS_ACC | CACC0_199925300_0000.CSV | CACC0_199925300_0000.CSV, CACC0_199925400_0000.CSV, CACC0_199925500_0000.CSV, CACC0_199925600_0000.CSV, CACC0_199925700_0000.CSV |
| | MIMI_CHEMS_SCI | CSCI0_199925300_0000.CSV | CSCI0_199925300_0000.CSV, CSCI0_199925400_0000.CSV, CSCI0_199925500_0000.CSV, CSCI0_199925600_0000.CSV, CSCI0_199925700_0000.CSV |
| CO-E/J/S/SW-MIMI-2-INCA-UNCALIB-V1.0 | MIMI_INCA_PHA | IPHA0_199925300_0000.CSV | IPHA0_199925300_0000.CSV, IPHA0_199925400_0000.CSV, IPHA0_199925500_0000.CSV, IPHA0_199925600_0000.CSV, IPHA0_199925700_0000.CSV |
| | MIMI_INCA_ACC | IACC0_199925300_0000.CSV | IACC0_199925300_0000.CSV, IACC0_199925400_0000.CSV, IACC0_199925500_0000.CSV, IACC0_199925600_0000.CSV, IACC0_199925700_0000.CSV |

| | MIMI_INCA_IMG | IIMG0_199925300_0000.CSV | IIMG0_199925300_0000.CSV, IIMG0_199925400_0000.CSV, IIMG0_199925500_0000.CSV, IIMG0_199925600_0000.CSV, IIMG0_199925700_0000.CSV |
|---|---|---|---|

# 3. Archive Volume Contents

This section describes the contents of the MIMI standard product archive collection volumes, including the file names, file contents, file types, and organizations responsible for providing the files.  The complete directory structure is shown in Appendix A.  All the ancillary files described herein appear on each MIMI archive volume, except where noted.

## 3.1. Root Directory Contents

The following files are contained in the root directory, and are produced by the PPI Node at UCLA. With the exception of the hypertext file and its label, all of these files are required by the PDS Archive Volume organization standards.

| *Table 7: Root Directory Contents* | | |
|---|---|---|
| **File Name** | **File Contents** | **File Provided By** |
| AAREADME.TXT | This file completely describes the Volume organization and contents (PDS label attached). | PPI Node |
| AAREADME.HTM | Hypertext version of AAREADME.TXT (top level of HTML interface to the Archive Volume). | PPI Node |
| AAREADME.LBL | A PDS detached label that describes AAREADME.HTM. | PPI Node |
| ERRATA.TXT | A cumulative listing of comments and updates concerning all MIMI Standard Data Products on all MIMI Volumes in the Volume set published to date. | PPI Node |
| VOLDESC.CAT | A description of the contents of this Volume in a PDS format readable by both humans and computers. | PPI Node |

## 3.2. INDEX Directory Contents

The following files are contained in the INDEX directory and are produced by the PDS PPI Node. The INDEX.TAB file contains a listing of all data products on the archive volume. In addition, there is a cumulative index file (CUMINDEX.TAB) file that lists all data products in the MIMI archive volume set to date. The index and index information (INDXINFO.TXT) files are required by the PDS volume standards. The index tables include both required and optional columns. The cumulative index file is also a PDS requirement; however, this file is not reproduced on each data volume. An online and web accessible cumulative index file is maintained at the PPI Node while archive volumes are being produced. Only the last archive volume in the volume series will contain a cumulative index file.

| *Table 8: Index Directory Contents* | | |
|---|---|---|
| **File Name** | **File Contents** | **File Provided By** |

| File Name | File Contents | File Provided By |
|---|---|---|
| CUMINDEX.TAB | A table listing all MIMI Data Products in the MIMI Archive volume | PPI Node |
| CUMINDEX.LBL | A PDS detached label that describes CUMINDEX.TAB | PPI Node |
| INDXINFO.TXT | A description of the contents of this directory | PPI Node |
| INDEX.TAB | A table listing all MIMI Data Products on this Volume | PPI Node |
| INDEX.LBL | A PDS detached label that describes INDEX.TAB | PPI Node |

## 3.3. CATALOG Directory Contents

The completed PDS templates in the CATALOG directory provide a top-level understanding of the Cassini/MIMI mission and its data products. The information necessary to create the files is provided by the MIMI team and formatted into standard template formats by the PPI Node. The files in this directory are coordinated with PDS data engineers at both the PPI and the PDS Central Nodes.

*Table 9: Catalog Directory Contents*

| File Name | File Contents | File Provided By |
|---|---|---|
| CATINFO.TXT | A description of the contents of this directory | PPI Node |
| CO_MIMI_CHEMS_DS.CAT | PDS Data Set catalog description of the data for the CHEMS sensor | MIMI Team |
| CO_MIMI_INCA_DS.CAT | PDS Data Set catalog description of the data for the INCA sensor | MIMI Team |
| CO_MIMI_LEMMS_DS.CAT | PDS Data Set catalog description of the data for the LEMMS sensor | MIMI Team |
| CO_MIMI_REF.CAT | MIMI-related references mentioned in other *.CAT files | MIMI Team |
| INST.CAT | PDS instrument catalog description of the MIMI instrument | MIMI Team |
| INSTHOST.CAT | PDS instrument host (spacecraft) catalog description of the Cassini spacecraft | Cassini Project |
| MISSION.CAT | PDS mission catalog description of the Cassini mission | Cassini Project |
| PERSON.CAT | PDS personnel catalog description of MIMI Team members and other persons involved with generation of MIMI Data Products | MIMI Team |
| PROJREF.CAT | Cassini Project related references | Project/PPI Node |

## 3.4. DATA (Standard Products) Directory Contents and Naming Conventions

The DATA directory contains the actual Data Products produced by the MIMI team. All Archive Volumes will have the following subdirectories:
LEMMS_ACCUMULATION_RATES,

LEMMS_FINE_ACCUMULATION_RATES,
LEMMS_PULSE_HEIGHT_ANALYSIS,
CHEMS_ACCUMULATION_RATES,
CHEMS_PULSE_HEIGHT_ANALYSIS,
CHEMS_SCIENCE_RATES,
INCA_ACCUMULATION_RATES,
INCA_PULSE_HEIGHT_ANALYSIS
INCA_IMAGES.

### 3.4.1. *Required Files*

In the top level of the DATA directory there is a file called DATAINFO.TXT that is an ASCII text description describing the data organization. In the subdirectories beneath the DATA directory there is a file named INFO.TXT that is an ASCII text description of the directory contents. Every file in the DATA path of an Archive Volume is described by a PDS label.  Text documentation files have internal (attached) PDS labels and data files have external (detached) labels.  Detached PDS label files have the same root name as the file they describe but have the suffix ".LBL".

The file SPICE_FURNISH.TXT is included at the top level of the DATA directory to provide the user a SPICE Furnish Kernel file that can be loaded. This file identifies the best understood list of those SPICE kernels that should be loaded as of the submission of the volume in order to fully process and understand the data received from the instrument.

### 3.4.2. *DATA / LEMMS_ACCUMULATION RATES  Directory Contents*

LEMMS Accumulation Rates data contains the counts of the particles measured by the detector broken into channels.  Channels are defined based upon the underlying detectors and logic as described in Krimigis, et al, 2004. The highest time resolution of this data is based upon the definition of a spin whether an actual spacecraft spin or a virtualized spacecraft spin.  The highest time resolution of the data is then derived by the total amount of time of a spin dived by 256. Each spin is comprised of 16 sectors and each sector is comprised of 16 subsectors.  The highest time resolution of LEMMS Accumulation Rates data products then is the total time allocated to a single subsector.

| Table 10: LEMMS_ACCUMULATION_RATES Data Directory Contents | | |
|---|---|---|
| **File Name** | **File Contents** | **File(s) Provided By** |
| LACC*.CSV | LEMMS accumulation rate data file. | MIMI |
| LACC*.LBL | PDS label for rate data file of same base name. | MIMI |

### 3.4.3. *DATA / LEMMS_FINE_ACCUMULATION_RATES  Directory Contents*

LEMMS Fine Accumulation Rates data contains the counts of the particles measured by a subset of channels. The list of channels included in the Fine Accumluation Rates data product is programmable and does vary over the life of the mission. The highest time resolution of the fine rate data is based upon dividing a subsector into 16 additional bins called microsectors.  Hence for

any of these channels the highest accumulation time resolution is 1/4096 of a spacecraft spin. In general, the accumulation time resolution for fine rates is 1/2048 of a spacecraft spin – collecting data over two microsectors.

| Table 11: LEMMS_FINE_ACCUMULATION_RATES Data Directory Contents | | |
|---|---|---|
| **File Name** | **File Contents** | **File(s) Provided By** |
| LFRT*.CSV | LEMMS fine accumulation rate data file. | MIMI |
| LFRT*.LBL | PDS label for fine rate data file of same base name. | MIMI |

### 3.4.4. *DATA / LEMMS_PULSE_HEIGHT_ANALYSIS Directory Contents*

LEMMS Pulse Height Analysis data contains a subset of the total data set describing the particles observed for each of the A, E1, and F1 detectors. The counts for each detector are broken into 256 bins. The bins are then combined into a subset of 128 channels where the logarithmic energy passbands are evenly divided.

| Table 12: LEMMS_PULSE_HEIGHT_ANALYSIS Data Directory Contents | | |
|---|---|---|
| **File Name** | **File Contents** | **File(s) Provided By** |
| LPHA*.CSV | LEMMS pulse height analysis data file. | MIMI |
| LPHA*.LBL | PDS label for PHA data file of same base name. | MIMI |

### 3.4.5. *DATA / CHEMS_ACCUMULATION_RATES Directory Contents*

CHEMS Accumulation Rates data contains the counts detected by the CHEMS telescopes. The counts are divided into DPPS steps which are energy dependent. The CHEMS Accumulation Rates data is to be used for the purposes of calibration and to determine the health of the CHEMS instrument.

| Table 13: CHEMS_ACCUMULATION_RATES Data Directory Contents | | |
|---|---|---|
| **File Name** | **File Contents** | **File(s) Provided By** |
| CACC*.CSV | CHEMS accumulation rate data file. | MIMI |
| CACC*.LBL | PDS label for accumulator rate data file of same base name. | MIMI |

### 3.4.6. *DATA / CHEMS_PULSE_HEIGHT_ANALYSIS Directory Contents*

CHEMS Pulse Height Analysis data contains the counts of the particles measured over a subset of the total data collected by the CHEMS instrument. This data set is used primarily for calibration and to determine the health of the instrument.

| Table 14: CHEMS_PULSE_HEIGHT_ANALYSIS Data Directory Contents | | |
|---|---|---|
| **File Name** | **File Contents** | **File(s) Provided By** |
| CPHA*.CSV | CHEMS pulse height analysis data file. | MIMI |
| CPHA*.LBL | PDS label for PHA data file of same base name. | MIMI |

### 3.4.7. *DATA / CHEMS_SCIENCE_RATES  Directory Contents*

CHEMS Science Rates data is the main data product of the CHEMS instrument.  This data product characterizes the mass and mass/charge of the species counted based upon a predefined range value and whether a measurement has single, double, or triple coincidence.  All calculations are performed in real time by the MIMI DPU aboard the spacecraft. The maximum time resolution of this data is a subsector per DPPS step with all 16 DPPS steps occurring over a single sector.

| Table 15: CHEMS_SCIENCE_RATES Data Directory Contents | | |
|---|---|---|
| **File Name** | **File Contents** | **File(s) Provided By** |
| CSCI*.CSV | CHEMS science rate data file. | MIMI |
| CSCI*.LBL | PDS label for science rate data file of same base name. | MIMI |

### 3.4.8. *DATA / INCA_ACCUMULATION_RATES Directory Contents*

INCA Accumulation Rates data contains the counts of particles measured by the detector.  The instrument can either be used to count all particles (charged or neutral) or else the detectors plates can have a potential applied and count neutral particles or else highly energetic charged particles.  The maximum time resolution of accumulation of counts is a sector.  In general this data is used to determine the health of the instrument.

| Table 16: INCA_ACCUMULATION_RATES Data Directory Contents | | |
|---|---|---|
| **File Name** | **File Contents** | **File(s) Provided By** |
| IACC*.CSV | INCA accumulation rate data file. | MIMI |
| IACC*.LBL | PDS label for rate data file of same base name. | MIMI |

### 3.4.9. *DATA / INCA_IMAGES Directory Contents*

INCA Images are the main data product of the instrument showing the flux of particles either charged and neutral or just neutral.  The images are presented as a table of counts which are multiplied by the appropriate flux factor matrix taken from the calibration volume to produce the flux of particles seen by the instrument during the observation time.

| Table 17: INCA_IMAGES Data Directory Contents | | |
|---|---|---|
| **File Name** | **File Contents** | **File(s) Provided By** |
| IIMG*.CSV | INCA image data file. | MIMI |
| IIMG*.LBL | PDS label for the image data file of same base name. | MIMI |

### 3.4.10. *DATA / INCA_PULSE_HEIGHT_ANALYSIS Directory Contents*

INCA Pulse Height Analysis data contains the counts of the particles measured over a subset of the total data collected by the INCA instrument. This data set is used primarily for calibration and to determine the health of the instrument.

| Table 18: INCA_PULSE_HEIGHT_ANALYSIS Data Directory Contents | | |
|---|---|---|
| **File Name** | **File Contents** | **File(s) Provided By** |
| IPHA*.CSV | INCA pulse height analysis data file. | MIMI |
| IPHA*.LBL | PDS label for PHA data file of same base name. | MIMI |

### 3.4.11. *File Naming Conventions*

Data products have names of the following form:

STTTF_YYYYDDD_VVVV.CSV

where

S is for sensor (L for LEMMS, C for CHEMS, or I for INCA),

TTT is for data type (ACC or SCI for rates, FRT for fine rates, PHA for pulse height analysis, or IMG for images),

F is an index, starting with 0-9 and continuing to A-Z, that represents the format version of the file.

YYYYDDDHH is the start year and day of the data product,

VVVV is a numerical index, starting with 0000, that represents the data version of the file. Data used for testing purposes will set VVVV = 'TEST'.

The format and data versions of the file name allow for data formats to change with different phases of the mission and for data to be changed within a specific format. For example the LEMMS instrument has different numbers of priority counters during different phases of the mission. When this type of change is made the format version number will be incremented and the data version index will be reset to zero. When data is updated within a specific LEMMS format the data version number will be incremented. TEST data versions are used to represent test data. Therefore, files with TEST for the data version should not be used except in testing.

## 3.5. BROWSE Directory Contents and Naming Conventions

The BROWSE directory contains daily summary of the data in the form of Key Parameter data stored as a table file and daily browse plots of the Key Parameter summary data. The BROWSE plots are in the JPG format. Each plot shows sensor specific data derived from the Key Parameter summary data tables. The plots are stored in the subdirectories labeled with the sensors name. The BROWSE directory contains the following instrument data product subdirectories: LEMMS_PLOT, CHEMS_PLOT, and INCA_PLOT.

### 3.5.1. *Required Files*

In the top level of the BROWSE directory there is a file called BRWSINFO.TXT that is an ASCII text description describing BROWSE directory files and subdirectory structure. In the subdirectories beneath the BROWSE directory there is a file named INFO.TXT that is an ASCII text description of the directory contents. Every file in the BROWSE path of an Archive Volume is described by a PDS label. Text documentation files have internal (attached) PDS labels and data files have external (detached) labels. Detached PDS label files have the same root name as the file they describe but have the suffix ".LBL".

### 3.5.2. *BROWSE Directory Contents*

The BROWSE directory contains the summary Key Parameter (KP) data for the MIMI instrument. The KP data is an interpolated data set calculated at a 60 second cadence (at each minute boundary). The data is calculated from the PDS volume data products and converted into flux with units of 1/(cm^2*sr*sec*KeV). This data provides a basic measurement of the overall inputs received from each sensor on the instrument. The channels included in the data set are based upon those channels which are expected to provide useful and comparative measurements within the overall channel sets for each sensor and between each sensor.

The KP data generated is calculated as a "first look" data product that does not include significant reduction of the data for effects such as instrument efficiencies, background elimination, high data rates due to non particle related effects (such as glint off of the antenna boom), obscuration, etc. This data is not considered to be at a high enough quality to be archived as it's own data product nor is acceptable to be used in publications. Instead, the KP data is there to guide the researcher into particular areas of the observations that are of interest.

| Table 19: BROWSE Directory Contents | | |
|---|---|---|
| **File Name** | **File Contents** | **File(s) Provided By** |
| MIMI_KP_*.TAB | MIMI Key Parameter data | MIMI |
| MIMI_KP_*.LBL | PDS label for KP data file of same base name. | MIMI |

### 3.5.2.1. *CHEMS Browse Plots Directory Contents*

Four daily browse plots are provided for the CHEMS sensor showing the detection of specific ions for specified ionization states. Each plot has four curves representing the observed flux groups by Data Processing Steps: Curve 1 – DPPS 0-7, Curve 2 – DPPS 8-15, Curve 3 – DPPS 15-23, Curve 4 – DPPS 24-31.

| Table 20: CHEMS Browse Plots Contents | | |
|---|---|---|
| **File Name** | **File Contents** | **File(s) Provided By** |
| CHEMS_KP_HEP*.JPG | Daily plot of Singly Ionized Helium flux | MIMI |
| CHEMS_KP_HEPP*.JPG | Daily plot of Doubly Ionized Helium flux | MIMI |
| CHEMS_KP_HP*. JPG | Daily plot of Singly Ionized Hydrogen flux | MIMI |
| CHEMS_KP_OP*. JPG | Daily plot of Singly Ionized Oxygen flux | MIMI |
| CHEMS_KP_HEP*.LBL | PDS Label for CHEMS flux plot | MIMI |
| CHEMS_KP_HEPP*.LBL | PDS Label for CHEMS flux plot | MIMI |
| CHEMS_KP_HP*.LBL | PDS Label for CHEMS flux plot | MIMI |
| CHEMS_KP_OP*.LBL | PDS Label for CHEMS flux plot | MIMI |

### 3.5.2.2. *INCA Browse Plots Directory Contents*

A single daily browse plot is provided for the INCA sensor showing the summation of the Hydrogen flux observed by all pixels of the sensor for specific Time Of Flight (TOF) values. Each plot has eight curves one for each TOF value. A secondary curve is provided at the lower portion of the plot identifying whether the INCA instrument is in ION or NEUTRAL mode.

| Table 21: INCA Browse Plots Contents | | |
|---|---|---|
| **File Name** | **File Contents** | **File(s) Provided By** |
| INCA_KP_ *. JPG | Daily plot of Hydrogen flux | MIMI |
| INCA_KP_*.LBL | PDS Label for INCA flux plot | MIMI |

### 3.5.2.3. *LEMMS Browse Plots Directory Contents*

Two daily browse plots are provided for the LEMMS sensor showing the detection of electrons and ions. The electron plots show thirteen curves of various energy measurements for both types of electron detection methods: eight C channels representing magnetically deflected electrons and five E channels measuring electron flux into the sensor. A secondary set of curves is provided in the lower portion of the graph plotting the anisotropy measurement of the C5 channel (1.0 – C5_Min/C5_Max) and a plot of the scanning mode of the LEMMS table (either scanning (1) or not scanning (0)). The ion plots show fourteen curves of various energy measurements ions detected from the low energy and high energy telescopes: nine A channels and five P channels. A secondary set of curves is provided in the lower portion of the graph plotting the anisotropy measurement of the A5 channel (1.0 – A5_Min/A5_Max) and a plot of the scanning mode of the LEMMS table (either scanning (1) or not scanning (0)).

| Table 22: LEMMS Browse Plots Contents | | |
|---|---|---|
| **File Name** | **File Contents** | **File(s) Provided By** |
| LEMMS_KP_ELEC*. JPG | Daily plot of electron flux | MIMI |

| LEMMS_KP_ION*. JPG | Daily plot of ion flux | MIMI |
|---|---|---|
| LEMMS_KP_ELEC*.LBL | PDS Label for LEMMS flux plot | MIMI |
| LEMMS_KP_ION*.LBL | PDS Label for LEMMS flux plot | MIMI |

### 3.5.3. *File Naming Conventions*

Browse Key Parameter data products names have the following form:

> MIMI_KP_YYYYDDD_VVVV.TAB

where

> YYYYDDD is the start year and day of the data product,

> VVVV is a numerical index, starting with 0000, that represents the data version of the file. Data used for testing purposes will set VVVV = 'TEST'.

The data versions of the file name allow for data to be reprocessed during the mission. When data is updated the data version number will be incremented. TEST data versions are used to represent test data. Therefore, files with TEST for the data version should not be used except in testing.

The BROWSE data plots of the Key Parameter data are stored in the subdirectories for each instrument. Graphical files stored within these subdirectories have the following file name convention:

CHEMS_PLOT:     CHEMS_KP_HEP_YYYYDDD_VVVV.JPG
                CHEMS_KP_HEPP_YYYYDDD_VVVV.JPG
                CHEMS_KP_HP_YYYYDDD_VVVV.JPG
                CHEMS_KP_OP_YYYYDDD_VVVV.JPG

INCA_PLOT:      INCA_KP_YYYYDDD_VVVV.JPG

LEMMS_PLOT:     LEMMS_KP_ION_YYYYDDD_VVVV.JPG
                LEMMS_KP_ELEC_YYYYDDD_VVVV.JPG

## 3.6. EXTRAS Directory Contents and Naming Conventions

The EXTRAS directory contains useful files that are helpful in using the Archive volume but they are not specifically required for use with the Archive volume.

# 4. Reference Volume

The reference volume contains documents and data used to interpret the data products on the archive volumes. **Fundamental Technologies, LLC** maintains an online, FTP accessible, master version of the reference volume which is mirrored by the PPI node of PDS. **Fundamental Technologies, LLC** updates the master version as needed and software at the PPI node automatically updates the mirror at the PPI node within one week of changes to the master. The following sections describe the contents of each of the top level directories of the reference volume.

## 4.1. Root Directory Contents

The following files are contained in the root directory, and are produced by the PPI Node at UCLA. With the exception of the hypertext file and its label, all of these files are required by the PDS Archive Volume organization standards.

| File Name | File Contents | File Provided By |
|---|---|---|
| *Table 23: Root Directory Contents* | | |
| **File Name** | **File Contents** | **File Provided By** |
| AAREADME.TXT | This file completely describes the Volume organization and contents (PDS label attached). | PPI Node |
| AAREADME.HTM | Hypertext version of AAREADME.TXT (top level of HTML interface to the Archive Volume). | PPI Node |
| AAREADME.LBL | A PDS detached label that describes AAREADME.HTM. | PPI Node |
| ERRATA.TXT | A cumulative listing of comments and updates concerning all MIMI Standard Data Products on all MIMI Volumes in the Volume set published to date. | PPI Node |
| VOLDESC.CAT | A description of the contents of this Volume in a PDS format readable by both humans and computers. | PPI Node |

## 4.2. CATALOG Directory Contents

The completed PDS templates in the CATALOG directory provide a top-level understanding of the Cassini/MIMI mission and its data products.  The information necessary to create the files is provided by the MIMI team and formatted into standard template formats by the PPI Node.  The files in this directory are coordinated with PDS data engineers at both the PPI and the PDS Central Nodes.

| File Name | File Contents | File Provided By |
|---|---|---|
| *Table 24: Catalog Directory Contents* | | |
| **File Name** | **File Contents** | **File Provided By** |
| CATINFO.TXT | A description of the contents of this directory | PPI Node |
| CO_MIMI_CHEMS_DS.CAT | PDS Data Set catalog description of the data for the CHEMS  sensor | MIMI Team |
| CO_MIMI_INCA_DS.CAT | PDS Data Set catalog description of the data for the INCA  sensor | MIMI Team |
| CO_MIMI_LEMMS_DS.CAT | PDS Data Set catalog description of the data for the LEMMS  sensor | MIMI Team |
| CO_MIMI_REF.CAT | MIMI-related references mentioned in other *.CAT files | MIMI Team |
| INST.CAT | PDS instrument catalog description of the MIMI instrument | MIMI Team |
| INSTHOST.CAT | PDS instrument host (spacecraft) catalog description of the Cassini spacecraft | Cassini Project |
| MISSION.CAT | PDS mission catalog description of the Cassini mission | Cassini Project |

| Table 24: Catalog Directory Contents | | |
|---|---|---|
| **File Name** | **File Contents** | **File Provided By** |
| PERSON.CAT | PDS personnel catalog description of MIMI Team members and other persons involved with generation of MIMI Data Products | MIMI Team |
| PROJREF.CAT | Cassini Project related references | Project/PPI Node |

## 4.3. DOCUMENT Directory Contents

The document directory contains documentation that is considered to be either necessary or simply useful for users to understand the archive data set. These documents are not necessarily appropriate for inclusion in the PDS catalog. Documents may be included in multiple forms (ASCII, PDF, MS Word, HTML with image file pointers, etc.). PDS standards require that any documentation deemed required for use of the data be available in some ASCII format. HTML with a minimal amount of Mark Up is acceptable as an ASCII format in addition to plain text. The following files are contained in the DOCUMENT directory and are produced or collected by the PPI Node.

| Table 25: Document Directory Contents | | |
|---|---|---|
| **File Name** | **File Contents** | **File Provided By** |
| DOCINFO.TXT | A description of the contents of this directory | PPI |
| INSTRUMENT_PAPER | A directory containing a copy of KRIMIGISETAL2004 (To be included upon receipt of permission from the publisher) | MIMI Team |
| MIMI_VOLUME_DESCRIPTION | A directory containing this document. | MIMI Team |
| Other Document Directories | Any additional documents that are deemed useful in understanding the MIMI instrument. | MIMI Team, PPI |

### 4.3.1. *INSTRUMENT_PAPER subdirectory*

This directory contains multiple copies of the Instrument paper (KRIMIGISETAL2004) in a variety of formats: Microsoft Word (.doc extension), Adobe Acrobat Reader (.pdf extention), HyperText Layout (.html extension). (This document is to be included upon receipt of permission from the publisher)

### 4.3.2. *MIMI_VOLUME_DESCRIPTION subdirectory*

This directory contains multiple copies of the MIMI volume description (this file) in a variety of formats: Microsoft Word (.doc extension), Adobe Acrobat Reader (.pdf extention), HyperText Layout (.html extension).

| Table 26: MIMI_VOLUME_DESCRIPTION_FILES Subdirectory Contents | | |
|---|---|---|
| **File Name** | **File Contents** | **File Provided By** |

| | | |
|---|---|---|
| MIMI_VOLUME_DESCRIPTION.DOC | MIMI Volume Description (MIMI SIS MS Word format) | MIMI Team |
| MIMI_VOLUME_DESCRIPTION.HTM | MIMI Volume Description (MIMI SIS HTML format) | MIMI Team |
| MIMI_VOLUME_DESCRIPTION.PDF | MIMI Volume Description (MIMI SIS ADOBE Acrobat Reader PDS format) | MIMI Team |
| HEADER.HTM | MIMI_VOLUME_DESCRIPTION.HTM header and style definition file | MIMI Team |
| DIRSTRUCT.JPG | Graphical representation of Reference and Data directories in alternative image format | MIMI Team |
| LEMMSLOOK.JPG | Graphical representation of LEMMS look direction geometry | MIMI Team |
| Other Document labels | Detached PDS labels for any additional documents/files | PPI |

## 4.4. GEOMETRY Directory Contents

This directory contains three ancillary data products, one for each sensor. These ancillary data products are CSV files with one line containing column headers. Each CSV file contains one or more vector (Cartesian spacecraft coordinates) and scalar values. The vectors represent specific aspects of the sensor such as the center of the field of view of the sensor. The scalars represent specific single value items such as the half angle of the conical aperture of the low energy end of the LEMMS sensor. Each vector or scalar value has its own line in the CSV file. The first column in the line is a description of the value. In the case of vectors, the next three columns are the X, Y and Z values respectively. In the case of a scalar values the second column is simply the value. For the sake of easy parsing lines containing scalar values are padded to four columns. The geometry data for CHEMS and INCA are constant, but, the geometry data for LEMMS contains a variable called "look_angle" representing the turn table position which is contained within the data products. All values in the tables are contained within double quotation marks except for those values that are empty (NULL). For those values that are derived from trigonometric functions, the function names are used instead of a specific numeric value so that the user can specify the desired precision.

| *Table 27: Geometry Directory Contents* | | |
|---|---|---|
| **File Name** | **File Contents** | **File Provided By** |
| GEOMINFO.TXT | A description of the contents of this directory | PPI |
| CHEMS_GEOMETRY.CSV | CHEMS Instrument geometry description | MIMI Team, PPI |
| INCA_GEOMETRY.CSV | INCA Instrument geometry description | MIMI Team, PPI |
| LEMMS_GEOMETRY.CSV | LEMMS Instrument geometry description | MIMI Team, PPI |
| CHEMS_GEOMETRY.LBL | PDS Label for CHEMS instrument geometry description | MIMI Team, PPI |
| INCA_GEOMETRY.LBL | PDS Label for INCA instrument geometry description | MIMI Team, PPI |
| LEMMS_GEOMETRY.LBL | PDS Labor for LEMMS instrument geometry description | MIMI Team, PPI |

## 4.5. Calibration Directory Contents

The calibration directory has two types of files Algorithms (*_ALG_*.TXT) and Calibration Data (*.CSV). Algorithm files contain brief descriptions of how to obtain useful, physical quantities from the data products. The Calibration Data file is formatted as a CSV file with the quantities required to execute the algorithms in the Algorithms subdirectory. Included with each text file are attached PDS labels.

| | Table 28: Calibration Directory Contents | |
|---|---|---|
| **File Name** | **File Contents** | **File Provided By** |
| CALINFO.TXT | A description of the contents of this directory | PPI Node |
| CACC*_ALGO_*.TXT | CHEMS accumulation algorithm file | MIMI |
| CPHA*_ ALGO _*. TXT | CHEMS pulse height analysis algorithm file | MIMI |
| CSCI*_ ALGO _*. TXT | CHEMS science rates algorithm file | MIMI |
| IACC*_ ALGO _*. TXT | INCA accumulation algorithm file | MIMI |
| IIMG*_ ALGO _*. TXT | INCA image rates algorithm file | MIMI |
| IPHA*_ ALGO _*. TXT | INCA pulse height analysis algorithm file | MIMI |
| LACC*_ ALGO _*. TXT | LEMMS Accumulation algorithm file | MIMI |
| LFRT*_ ALGO _*. TXT | LEMMS fine rates accumulation algorithm file | MIMI |
| LPHA*_ ALGO _*. TXT | LEMMS pulse height analysis algorithm file | MIMI |
| MIMI_CALIBRATION_VVVV.CSV | Calibration data for all instruments | MIMI |
| MIMI_CALIBRATION_VVVV.LBL | PDS Label for MIMI calibration file | MIMI |
| IIMG_FACTOR_SEGMENTS_VVVV.CSV | Time segment information for INCA image calibration files | MIMI |
| IIMG_FACTOR_SEGMENTS_VVVV.LBL | PDS Label for INCA segment file | MIMI |

### 4.5.1. *Algorithm File*

A single algorithm file is provided to enable the conversion of the Level 1A data products into Level 2 data products. In general, the highest version numbered file should be used. Older versions are present for completeness and validation. The algorithm file contains an ASCII text only description of how to calculate useful, physical values from each column of a data product type. The algorithm file contains brief descriptions with step by step instructions on how to produce higher level data products. The algorithms are not intended to fully explain the physical meaning of the calibration, but, to provide a handy reference for people who already have a working understanding of the science and the instrument. Algorithm file names obey the following format:

      MIMI_ALGO_VVVV.TXT

where

      VVVV is a numerical index, starting with 0000, that represents the data version of the file. Data used for testing will have VVVV = 'TEST'.

The algorithm file contains references into the both the data calibration file and instrument data files to specific fields using a shorthand notation.  The shorthand notation is:

&lt;purpose&gt;:&lt;data_type&gt;:&lt;sensor&gt;:&lt;channel:channelID&gt;:&lt;mpv&gt; or

&lt;purpose&gt;:&lt;data_type&gt;:&lt;sensor&gt;:&lt;channel:channelID&gt;:&lt;delta&gt;

where:

&lt;purpose&gt; is given by the type of calculation

&lt;data_type&gt; is based upon the original source of data

&lt;Sensor&gt; identifies the sensor whose data we are working with

&lt;channel:channelID&gt; identifies the specific or general set of channels and channel ID's to use

&lt;mpv&gt; is the Midpoint Value

&lt;delta&gt; is the Passband delta value.

An example algorithm for the calculation of flux using the LEMMS accumulation rates:

FLUX EQUATION:

flux = (count-background)/(duration*geom_fact*passband *factor)

RESULT VARIABLES:

flux: the result of the calibration in nucleon/(cm^2*sec*sr*KeV)

INPUT VARIABLES FROM A DATA PRODUCT:

Count = LACC:dp:sci:(detector_channel), a count from a LEMMS accumulation data product

duration = Endtime – Starttime, Duration is a calculated value from two data product columns

Endtime = LACC:dp:sci:End_Ephemeris_s, the ending time of the measurement in seconds

Starttime = LACC:dp:sci:Start_Ephemeris_s, the starting time of the measurement in seconds

INPUT VARIABLES FROM A CALIBRATION FILE:

Passband = Energy: ACC:LEMMS:(Channel:ID):(Particle):Delta, Passband is the derived energy passband delta for the specific channel of the LEMMS sensor in KeV

geom_fact = GEOM_FACTOR:ACC:LEMMS:(Channel:ID):(Particle):Midpoint_Value, the geometrical factor is in cm^2*sr

VARIBLES TO BE PROVIDED BY DATA USERS:

factor: a catch all scaling factor used to account for obscuration by parts of the spacecraft and other phenomenon that cause count rates to be lower than they should be based on geometrical factors and pass bands. Factor will vary with turntable position and with spacecraft position/attitude. Using a factor of 1.0 will produces fluxes not corrected for obscuration and other factors of this nature.

background: a catch all offset used to account for glint off the magnetometer boom, background and other sources of events that should not be considered. Using a background of 0.0 will produce fluxes not corrected for this phenomenon.

## 4.5.2. *Data Calibration File*

The calibration data for each sensor of the MIMI instrument have been compiled into a single file. Each calibration data file for the instrument represents a revision.  In general, the highest version

numbered file should be used.  Older versions are present for completeness and validation.  The calibration data file is a CSV file, see section 6 for details.

> MIMI_CALIBRATION_VVVV.CSV

where

> VVVV is an index, starting with 0000, that represents the data version of the file. Data used for testing will have VVVV = 'TEST'.

### 4.5.3. *INCA_IMAGES subdirectory*

The calibration data for the conversion of the INCA image count rate data into flux images is contained with in the INCA_IMAGES subdirectories.  For each segment of operations a subdirectory is created that contains the INCA_IMAGES flux conversion matrices.  As of this writing there are three operations segments of the INCA mission: postFlightv34, postJupiter, and preJupiter.  The REAME.TXT file contains the current list of segments along with the starting and ending times of each segment in the form of a standard ASCII date/time string, e.g. 1997-244T00:00:00.000.  This file also contains the revision history of the flux factor matrix subdirectories and associated data values.

### 4.5.3.4. *INCA_IMAGES_(SEGMENT) subdirectory structure and files*

The various subdirectories for each segment contain two subdirectories of flux factor matrices for when the spacecraft is in spinning mode and when the spacecraft is in staring mode.  The files contained within these subdirectories are the flux factor matrices that are used to convert the raw image data contained in the INCA_IMAGES data product into fluxes. The file naming convention used for these files is as follows:

XXxXX_tofY.csv where XX is the matrix size (8, 16, 32, or 64) and Y is the time of flight (0-7).

# 5. Archive Volume Format

This section describes the format of MIMI standard product archive volumes.  Data that comprise the MIMI standard product archives will be formatted in accordance with Planetary Data System specifications [Planetary Science Data Dictionary, 2002; PDS Archive Preparation Guide, 2005; PDS Standards Reference, 2005].

## 5.1. Disk Format

Disk formats for the archive volumes will conform to the PDS standard for the applicable media. At present, the plan is to archive MIMI data on DVD-R media. The PDS standard for DVD-R media disk format is ISO-UDF Bridge.

## 5.2. File Formats

The following section describes file formats for the kinds of files contained on Archive Volumes.

### 5.2.1. *Delimited Field File Formats*

Delimited field, ASCII data files (.CSV suffix) exist in the DATA and INDEX directories.   These files are formatted for direct reading into many database management systems on various computers. In the MIMI application of the delimited field format, fields are separated by commas.

Records vary in length in bytes but will have a fixed number of fields. Missing data are represented by empty fields. All delimited field files are described by detached PDS labels

All data files in the MIMI Standard Product Archive Collection have PDS labels [Planetary Science Data Dictionary, 2002; PDS Standards Reference, 2005. These labels are all detached from the data files (same file name prefix, .LBL suffix).

A PDS label, whether embedded or detached from its associated file, provides descriptive information about the associated file. The PDS label is an object-oriented structure consisting of sets of 'keyword = value' declarations. The object that the label refers to (e.g., IMAGE, TABLE, etc.) is denoted by a statement of the form:

      ^object = location

in which the carat character (^, also called a pointer in this context) indicates where to find the object. In a PDS label, the location denotes the name of the file containing the object, along with the starting record or byte number, if there is more than one object in the file. For example:

      ^HEADER = ("98118.TAB",1)

      ^TABLE = ("98118.TAB",1025 <BYTES>)

indicates that the HEADER object begins at record 1 and that the TABLE object begins at byte 1025 of the file 98118.TAB. The file 98118.TAB must be located in the same directory as the detached label file.

Below is a list of the possible formats for the ^object definition in labels in this product.

      ^object  = n

      ^object  = n <BYTES>

      ^object  = "filename.ext"

      ^object  = ("filename.ext", n)

      ^object  = ("filename.ext", n <BYTES>)

where

      **n** is the starting record or byte offset of the object, counting from the beginning of the file (record 1, byte 1),

      **<BYTES>** indicates that the number given is in units of bytes (the default is records),

      **filename** is the up-to-27-character, alphanumeric upper-case file name,

      **ext** is the up-to-3-character upper-case file extension.

All detached labels contain 80-byte fixed-length records, with a carriage return character (ASCII 13) in the 79th byte and a line feed character (ASCII 10) in the 80th byte. This allows the files to be read by the MacOS, DOS, Windows, UNIX, OS2, and VMS operating systems.

## 5.2.2. *General Data Product Format*

All MIMI data products are CSV files that contain a series of homogenous records. Records consist of a record header followed by data. Each file contains one line of column headers. Column headers apply to the first line in a record and are the same as the field name in the tables below. Blank fields indicate that the field is not applicable in the context of the record, the data is not available, is out of tolerance, or is otherwise not suitable for archiving. The record header format is as follows. The Purpose field usually contains SCI, meaning the record contains data intended for use as science data. For a partial list of possible values for the Purpose field, see Appendix B. It should be noted that purpose codes can be added as specific needs are identified without fully reprocessing earlier data files.

| Table 29: MIMI Data Product Record Header Format | | | |
|---|---|---|---|
| **Field Name** | **Type** | **Units** | **Range** |
| PURPOSE | string | n/a | [scivalid, minvalid, max, min, mean, …] |
| START_EPHEMERIS_S | float | seconds | [-7.0E7-1.5E9] |
| END_EPHEMERIS_S | float | seconds | [-7.0E7-1.5E9] |
| SPIN_COUNTER | integer | n/a | [0-16383] |
| SECTOR | integer | n/a | [0-15] |
| START_SECTOR_SCLOCK_MAJOR | integer | n/a | [0- 4000000000] |
| SUBSECTOR | Integer | n/a | [0-15] |
| MICROSECTORS_COVERED | integer | n/a | [0-1024] |
| SPIN_PERIOD_S | float | seconds | [680-3072] |
| STARING | integer | n/a | [0-1] |

## 5.2.3. *MIMI LEMMS Data Product Formats*

There are three data products covering any given time in the LEMMS data set: One contains subsector accumulations for all of the LEMMS detectors, one contains microsector accumulations for the LEMMS priority detectors and one contains PHA data. The microsector accumulations are referred to as fine rates to indicate their high time resolution. The three tables below show the formats of the records for each of the three data products. The number of priority counters in the rates and fine rates data products and which channels are used as priority counters can vary based upon the mission needs. Each set of priority counters is reflected in a new format version of the data product.

| Table 30: LEMMS Rates Data File Contents and Structure | | | |
|---|---|---|---|
| **Field Name** | **Type** | **Units** | **Range** |
| **Header** | **See** Table 29: MIMI Data Product Record Header Format | | |
| Channel_A0 | integer | n/a | [0-4E5] |

| Table 30: LEMMS Rates Data File Contents and Structure | | | |
|---|---|---|---|
| **Field Name** | **Type** | **Units** | **Range** |
| Channel_A1 | integer | n/a | [0-4.E5] |
| Channel_A2 | integer | n/a | [0-4.E5] |
| Channel_A3 | integer | n/a | [0-4.E5] |
| Channel_A4 | integer | n/a | [0-4.E5] |
| Channel_A5 | integer | n/a | [0-4.E5] |
| Channel_A6 | integer | n/a | [0-4.E5] |
| Channel_A7 | integer | n/a | [0-4.E5] |
| Channel_A8 | integer | n/a | [0-4.E5] |
| Channel_B0 | integer | n/a | [0-4.E5] |
| Channel_B1 | integer | n/a | [0-4.E5] |
| Channel_B2 | integer | n/a | [0-4.E5] |
| Channel_B3 | integer | n/a | [0-4.E5] |
| Channel_BE | integer | n/a | [0-4.E5] |
| Channel_C0 | integer | n/a | [0-4.E5] |
| Channel_C1 | integer | n/a | [0-4.E5] |
| Channel_C2 | integer | n/a | [0-4.E5] |
| Channel_C3 | integer | n/a | [0-4.E5] |
| Channel_C4 | integer | n/a | [0-4.E5] |
| Channel_C5 | integer | n/a | [0-4.E5] |
| Channel_C6 | integer | n/a | [0-4.E5] |
| Channel_C7 | integer | n/a | [0-4.E5] |
| Channel_AS | integer | n/a | [0-4.E5] |
| Channel_BS | integer | n/a | [0-4.E5] |
| Channel_ES | integer | n/a | [0-4.E5] |
| Channel_E2_F2S | integer | n/a | [0-4.E5] |
| Channel_FS | integer | n/a | [0-4.E5] |
| Channel_E0 | integer | n/a | [0-4.E5] |
| Channel_E1 | integer | n/a | [0-4.E5] |
| Channel_E2 | integer | n/a | [0-4.E5] |
| Channel_E3 | integer | n/a | [0-4.E5] |
| Channel_E4 | integer | n/a | [0-4.E5] |
| Channel_E5 | integer | n/a | [0-4.E5] |

| Table 30: LEMMS Rates Data File Contents and Structure | | | |
|---|---|---|---|
| **Field Name** | **Type** | **Units** | **Range** |
| Channel_E6 | integer | n/a | [0-4.E5] |
| Channel_E7 | integer | n/a | [0-4.E5] |
| Channel_G1 | integer | n/a | [0-4.E5] |
| Channel_P1 | integer | n/a | [0-4.E5] |
| Channel_P2 | integer | n/a | [0-4.E5] |
| Channel_P3 | integer | n/a | [0-4.E5] |
| Channel_P4 | integer | n/a | [0-4.E5] |
| Channel_P5 | integer | n/a | [0-4.E5] |
| Channel_P6 | integer | n/a | [0-4.E5] |
| Channel_P7 | integer | n/a | [0-4.E5] |
| Channel_P8 | integer | n/a | [0-4.E5] |
| Channel_P9 | integer | n/a | [0-4.E5] |
| Channel_H1 | integer | n/a | [0-4.E5] |
| Channel_H2 | integer | n/a | [0-4.E5] |
| Channel_H3 | integer | n/a | [0-4.E5] |
| Channel_H4 | integer | n/a | [0-4.E5] |
| Channel_H5 | integer | n/a | [0-4.E5] |
| Channel_Z1 | integer | n/a | [0-4.E5] |
| Channel_Z2 | integer | n/a | [0-4.E5] |
| Channel_Z3 | integer | n/a | [0-4.E5] |
| Channel_D1 | integer | n/a | [0-4.E5] |
| Channel_D2 | integer | n/a | [0-4.E5] |
| Channel_D3 | integer | n/a | [0-4.E5] |
| Channel_D41 | integer | n/a | [0-4.E5] |
| Priority_Counter_0_XX_Sum | integer | n/a | [0-4.E5] |
| Priority_Counter_1_YY_Sum | integer | n/a | [0-4.E5] |
| Priority_Counter_..._... _Sum | integer | n/a | [0-4.E5] |
| Priority_Counter_N_ZZ_Sum | integer | n/a | [0-4.E5] |
| Center_Look_Angle_degrees | float | degrees | [0.000000-360.000000] |
| **<CR><LF>** | | | |

| Table 31: LEMMS Fine Rate Data File Contents and Structure | | | |
|---|---|---|---|
| **Field Name** | **Type** | **Units** | **Range** |
| **Header** | See Table 29: MIMI Data Product Record Header Format | | |
| Microsector | integer | n/a | [0-15] |
| XX | integer | n/a | [0-40000] |
| YY | integer | n/a | [0-40000] |
| … | integer | n/a | [0-40000] |
| ZZ (nth priority counter) | integer | n/a | [0-40000] |
| Center_Look_Angle_degrees | float | degrees | [0.000000-360.000000] |
| **<CR><LF>** | | | |

| Table 32: LEMMS PHA Data File Contents and Structure | | | |
|---|---|---|---|
| **Field Name** | **Type** | **Units** | **Range** |
| **Header** | See Table 29: MIMI Data Product Record Header Format | | |
| Detector_A_Bin_0 | integer | n/a | [0-65534] |
| **…** | **…** | **…** | **…** |
| Detector_A_Bin_63 | integer | n/a | [0-65534] |
| Detector_E_Bin_0 | integer | n/a | [0-65534] |
| **…** | **…** | **…** | **…** |
| Detector_E_Bin_63 | integer | n/a | [0-65534] |
| Detector_F1_Bin_0 | integer | n/a | [0-65534] |
| **…** | **…** | **…** | **…** |
| Detector_F1_Bin_63 | integer | n/a | [0-65534] |
| Center_Look_Angle_degrees | float | degrees | [0.000000-360.000000] |
| **<CR><LF>** | | | |

### 5.2.4. *MIMI CHEMS Data Product Formats*

There are three data products covering any given time in the CHEMS data set: two containing RATE data for the CHEMS detectors and one containing PHA data. Each of these files is homogeneous with respect to record format. The three tables below show the formats of the records for each of the data products.

| Table 33: CHEMS Accumulator Rates Data File Contents and Structure | | | |
|---|---|---|---|
| **Field Name** | **Type** | **Units** | **Range** |
| **Header** | **See** Table 29: MIMI Data Product Record Header Format | | |
| DPPS_Level | integer | n/a | [0-2147483646] |
| Start_Head_1 | integer | n/a | [0-2147483646] |
| Start_Head_2 | integer | n/a | [0-2147483646] |
| Start_Head_3 | integer | n/a | [0-2147483646] |
| Start_Sum | integer | n/a | [0-2147483646] |
| Stop_Head_1 | integer | n/a | [0-2147483646] |
| Stop_Head_2 | integer | n/a | [0-2147483646] |
| Stop_Head_3 | integer | n/a | [0-2147483646] |
| Stop_Sum | integer | n/a | [0-2147483646] |
| Energy_Head_1 | integer | n/a | [0-2147483646] |
| Energy_Head_2 | integer | n/a | [0-2147483646] |
| Energy_Head_3 | integer | n/a | [0-2147483646] |
| Energy_Sum | integer | n/a | [0-2147483646] |
| DCR_Head_1 | integer | n/a | [0-2147483646] |
| DCR_Head_2 | integer | n/a | [0-2147483646] |
| DCR_Head_3 | integer | n/a | [0-2147483646] |
| DCR_Sum | integer | n/a | [0-2147483646] |
| TCR_Head_1 | integer | n/a | [0-2147483646] |
| TCR_Head_2 | integer | n/a | [0-2147483646] |
| TCR_Head_3 | integer | n/a | [0-2147483646] |
| TCR_Sum | integer | n/a | [0-2147483646] |
| UFSR | integer | n/a | [0-2147483646] |
| URSR | integer | n/a | [0-2147483646] |
| **<CR><LF>** | | | |

| Table 34: CHEMS Science Rates Data File Contents and Structure | | | |
|---|---|---|---|
| **Field Name** | **Type** | **Units** | **Range** |
| **Header** | **See** Table 29: MIMI Data Product Record Header Format | | |
| DPPS_Level | integer | n/a | [0-31] |
| Range_0_Tele_1 | integer | n/a | [0-65534] |
| Range_0_Tele_2 | integer | n/a | [0-65534] |
| Range_0_Tele_3 | integer | n/a | [0-65534] |
| Range_0_Sum | integer | n/a | [0-196602] |
| Range_1_Tele_1 | integer | n/a | [0-65534] |
| Range_1_Tele_2 | integer | n/a | [0-65534] |
| Range_1_Tele_3 | integer | n/a | [0-65534] |
| Range_1_Sum | integer | n/a | [0-196602] |
| Range_2_Tele_1 | integer | n/a | [0-65534] |
| Range_2_Tele_2 | integer | n/a | [0-65534] |
| Range_2_Tele_3 | integer | n/a | [0-65534] |
| Range_2_Sum | integer | n/a | [0-196602] |
| Range_3_Tele_1 | integer | n/a | [0-65534] |
| Range_3_Tele_2 | integer | n/a | [0-65534] |
| Range_3_Tele_3 | integer | n/a | [0-65534] |
| Range_3_Sum | integer | n/a | [0-196602] |
| Range_4_Tele_1 | integer | n/a | [0-65534] |
| Range_4_Tele_2 | integer | n/a | [0-65534] |
| Range_4_Tele_3 | integer | n/a | [0-65534] |
| Range_4_Sum | integer | n/a | [0-196602] |
| Range_5_Tele_1 | integer | n/a | [0-65534] |
| Range_5_Tele_2 | integer | n/a | [0-65534] |
| Range_5_Tele_3 | integer | n/a | [0-65534] |
| Range_5_Sum | integer | n/a | [0-196602] |
| Range_6_Tele_1 | integer | n/a | [0-65534] |
| Range_6_Tele_2 | integer | n/a | [0-65534] |
| Range_6_Tele_3 | integer | n/a | [0-65534] |
| Range_6_Sum | integer | n/a | [0-196602] |
| He_Plus_Doubles | integer | n/a | [0-65534] |
| He_Plus_Triples | integer | n/a | [0-65534] |
| He_Plus_2_Doubles | integer | n/a | [0-65534] |
| He_Plus_2_Triples | integer | n/a | [0-65534] |
| O_Plus_Doubles_Tele_1 | integer | n/a | [0-65534] |
| O_Plus_Doubles_Tele_2 | integer | n/a | [0-65534] |
| O_Plus_Doubles_Tele_3 | integer | n/a | [0-65534] |
| O_Plus_Triples_Tele_1 | integer | n/a | [0-65534] |

| Table 34: CHEMS Science Rates Data File Contents and Structure | | | |
|---|---|---|---|
| **Field Name** | **Type** | **Units** | **Range** |
| O_Plus_Triples_Tele_2 | integer | n/a | [0-65534] |
| O_Plus_Triples_Tele_3 | integer | n/a | [0-65534] |
| O_Plus_2_Doubles | integer | n/a | [0-65534] |
| O_Plus_2_Triples | integer | n/a | [0-65534] |
| CNO_over_4_and_T | integer | n/a | [0-65534] |
| Energy_Underflow | integer | n/a | [0-65534] |
| Energy_Overflow | integer | n/a | [0-65534] |
| TOF_Underflow | integer | n/a | [0-65534] |
| TOF_Overflow | integer | n/a | [0-65534] |
| Mass_Overflow | integer | n/a | [0-65534] |
| M_Over_Q_Underflow | integer | n/a | [0-65534] |
| M_Over_Q_Overflow | integer | n/a | [0-65534] |
| O_Plus_Doubles_Sum | integer | n/a | [0-196602] |
| O_Plus_Triples_Sum | integer | n/a | [0-196602] |
| **<CR><LF>** | | | |

| Table 35: CHEMS PHA Data File Contents and Structure | | | |
|---|---|---|---|
| **Field** | **Type** | **Units** | **Range** |
| **Header** | **See** Table 29: MIMI Data Product Record Header Format | | |
| Index_in_Sector | integer | n/a | [0-30000] |
| DPPS_Level | integer | n/a | [0-31] |
| Energy | integer | n/a | [0-1023] |
| Time_of_Flight | integer | n/a | [0-1023] |
| Solid_State_Detector | integer | n/a | [0-3] |
| Start_Micro_Channel_Plate | integer | n/a | [0-3] |
| Range | integer | n/a | [0-6] |
| **<CR><LF>** | | | |

## 5.2.5. *MIMI INCA Data Product Formats*

There are three data product types for the INCA sensor. Two of these types, the RATE and PHA data have records on one line but the format of IMAGE data products is more complicated. The three tables below show the format of the records for the RATE, PHA and IMAGE data products respectively.

| Table 36: INCA Rates Data File Contents and Structure | | | |
|---|---|---|---|
| **Field Name** | **Type** | **Units** | **Range** |
| **Header** | **See** Table 29: MIMI Data Product Record Header Format | | |
| Start_Fast | integer | n/a | [0-1E7] |
| Start_Pulse | integer | n/a | [0-1E7] |
| Start_Coincidence | integer | n/a | [0-1E7] |
| Stop_Fast | integer | n/a | [0-1E7] |
| Stop_Pulse | integer | n/a | [0-1E7] |
| Full | integer | n/a | [0-1E7] |
| Coincidence | integer | n/a | [0-1E7] |
| Time | integer | n/a | [0-1E7] |
| Stop_Coincidence | integer | n/a | [0-1E7] |
| Events_Received | integer | n/a | [0-1E7] |
| Events_Processed | integer | n/a | [0-1E7] |
| **<CR><LF>** | | | |

| Table 37: INCA PHA Data File Contents and Structure | | | |
|---|---|---|---|
| **Field Name** | **Type** | **Units** | **Range** |
| **Header** | **See** Table 29: MIMI Data Product Record Header Format | | |
| Index_in_Four_Subsectors | Integer | n/a | [0-500] |
| Coincidence | integer | n/a | [0-1] |
| Start_Stop | integer | n/a | [0-1] |
| Pulse_Height_Front | integer | n/a | [0-255] |
| Pulse_Height_Rear | integer | n/a | [0-255] |
| Time_of_Flight | integer | n/a | [0-65535] |
| Azimuth | integer | n/a | [0-63] |
| Elevation | integer | n/a | [0-47] |
| Mass_Range | integer | n/a | [0-31] |
| **<CR><LF>** | | | |

The INCA image files consist of a line of column headers then alternating image descriptions and image data. One line of image data consists of 64 counts followed by 64 exposure factors. The data for one image consists of 64 lines. Thus when, viewed in a spreadsheet, there will be a 64 by 64 region representing the counts next to a 64 by 64 region representing exposure factors. If images are smaller than 64 by 64 the right most columns are padded with empty fields and only those rows that apply are included within the file.

| | | | |
|---|---|---|---|
| | | Table 38: MIMI/INCA Image Description Format | |
| **Field Name** | **Type** | **Units** | **Range** |
| **Header** | **See** Table 29: MIMI Data Product Record Header Format | | |
| Type_ID | integer | n/a | [0-65535] |
| Row_ID | integer | n/a | [0-63] |
| Num_Rows | integer | n/a | [8-64] |
| Num_Cols | integer | n/a | [8-64] |
| Compression_Bits | integer | n/a | [0-65535] |
| Compression_Method | string | n/a | [None, Fast, Rice] |
| Log_Compressed | integer | n/a | [0-1] |
| Theta_Offset | integer | n/a | [0-31] |
| Phi_Offset | integer | n/a | [0-61] |
| High_Resolution | string | n/a | [Spatial, Time, m-TOF] |
| Charged | integer | n/a | [0-1] |
| Species | string | n/a | [H, He, CNO, Heavy, Other, All] |
| TOF | integer | n/a | [0-7] |
| Col_0 | integer | n/a | [0-65535] |
| Col_1 | integer | n/a | [0-65535] |
| Col_2 | integer | n/a | [0-65535] |
| Col_3 | integer | n/a | [0-65535] |
| Col_4 | integer | n/a | [0-65535] |
| Col_5 | integer | n/a | [0-65535] |
| Col_6 | integer | n/a | [0-65535] |
| Col_7 | integer | n/a | [0-65535] |
| Col_8 | integer | n/a | [0-65535] |
| Col_9 | integer | n/a | [0-65535] |
| Col_10 | integer | n/a | [0-65535] |
| Col_11 | integer | n/a | [0-65535] |
| Col_12 | integer | n/a | [0-65535] |
| Col_13 | integer | n/a | [0-65535] |
| Col_14 | integer | n/a | [0-65535] |
| Col_15 | integer | n/a | [0-65535] |
| Col_16 | integer | n/a | [0-65535] |
| Col_17 | integer | n/a | [0-65535] |
| Col_18 | integer | n/a | [0-65535] |
| Col_19 | integer | n/a | [0-65535] |

<table>
<tr><th colspan="4"><em>Table 38: MIMI/INCA Image Description Format</em></th></tr>
<tr><th>Field Name</th><th>Type</th><th>Units</th><th>Range</th></tr>
<tr><td>Col_20</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_21</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_22</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_23</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_24</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_25</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_26</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_27</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_28</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_29</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_30</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_31</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_32</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_33</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_34</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_35</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_36</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_37</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_38</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_39</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_40</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_41</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_42</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_43</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_44</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_45</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_46</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_47</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_48</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_49</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_50</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_51</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_52</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
<tr><td>Col_53</td><td>integer</td><td>n/a</td><td>[0-65535]</td></tr>
</table>

| Table 38: MIMI/INCA Image Description Format | | | |
|---|---|---|---|
| **Field Name** | **Type** | **Units** | **Range** |
| Col_54 | integer | n/a | [0-65535] |
| Col_55 | integer | n/a | [0-65535] |
| Col_56 | integer | n/a | [0-65535] |
| Col_57 | integer | n/a | [0-65535] |
| Col_58 | integer | n/a | [0-65535] |
| Col_59 | integer | n/a | [0-65535] |
| Col_60 | integer | n/a | [0-65535] |
| Col_61 | integer | n/a | [0-65535] |
| Col_62 | integer | n/a | [0-65535] |
| Col_63 | integer | n/a | [0-65535] |
| **<CR><LF>** | | | |

## 5.2.6. *MIMI BROWSE Data Product Formats*

There is a single data product covering any given time in the BROWSE data set. The product contains the values of each channel interpolated to the sixty second cadence of the KP data. The channel sets included within the KP data set are provided to show as best a relative comparison between the products produced by each sensor as possible. The data set identifies fill or missing data by the value of -9999. The following table identifies the characteristics of each included channel within the KP data.

| Table 39: BROWSE Data File Contents and Structure | | | |
|---|---|---|---|
| **Field Name** | **Type** | **Units** | **Range** |
| UTC | character | time | n/a |
| LEMMS_A0 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| LEMMS_A1 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| LEMMS_A2 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| LEMMS_A3 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| LEMMS_A4 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| LEMMS_A5 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| LEMMS_A6 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| LEMMS_A7 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| LEMMS_A8 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| LEMMS_C0 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| LEMMS_C1 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |

| Table 39: BROWSE Data File Contents and Structure | | | |
|---|---|---|---|
| **Field Name** | **Type** | **Units** | **Range** |
| LEMMS_C2 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| LEMMS_C3 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| LEMMS_C4 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| LEMMS_C5 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| LEMMS_C6 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| LEMMS_C7 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| LEMMS_P1 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| LEMMS_P2 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| LEMMS_P3 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| LEMMS_P4 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| LEMMS_P5 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| LEMMS_E0 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| LEMMS_E1 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| LEMMS_E2 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| LEMMS_E3 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| LEMMS_E4 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| LEMMS_C5_Anisotropy | real | n/a | [-9999, 0.0-1.0] |
| LEMMS_A5_Anisotropy | real | n/a | [-9999, 0.0-1.0] |
| LEMMS_Scanning | character | n/a | [yes, no] |
| CHEMS_H_Plus_DPPS_0_7 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| CHEMS_H_Plus_DPPS_8_15 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| CHEMS_H_Plus_DPPS_16_23 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| CHEMS_H_Plus_DPPS_24_31 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| CHEMS_He_Plus_DPPS_0_7 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| CHEMS_He_Plus_DPPS_8_15 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| CHEMS_He_Plus_DPPS_16_23 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| CHEMS_He_Plus_DPPS_24_31 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| CHEMS_He_Plus_2_DPPS_0_7 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| CHEMS_He_Plus_2_DPPS_8_15 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| CHEMS_He_Plus_2_DPPS_16_23 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| CHEMS_He_Plus_2_DPPS_24_31 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| CHEMS_O_Plus_DPPS_0_7 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |

| Table 39: BROWSE Data File Contents and Structure | | | |
|---|---|---|---|
| **Field Name** | **Type** | **Units** | **Range** |
| CHEMS_O_Plus_DPPS_8_15 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| CHEMS_O_Plus_DPPS_16_23 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| CHEMS_O_Plus_DPPS_24_31 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| INCA_H_TOF_0 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| INCA_H_TOF_1 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| INCA_H_TOF_2 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| INCA_H_TOF_3 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| INCA_H_TOF_4 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| INCA_H_TOF_5 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| INCA_H_TOF_6 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| INCA_H_TOF_7 | real | 1/(cm^2*sr*sec*KeV) | [-9999, 0.0-1.0e8] |
| INCA_Mode | character | n/a | [neutral, ion] |

### 5.2.6.5. *CHEMS/INCA/LEMMS Daily BROWSE Plots format*

All CHEMS/INCA/LEMMS daily plots are stored in the JPEG bit-mapped graphics format as specified in the JPEG specifications and W3C white papers at the following locations: www.jpeg.org/ and www.w3.org/Graphics/JPEG/jfif.txt.

# 6. Reference Volume Format

This section describes the format of MIMI standard product archive volumes. Data that comprise the MIMI standard product archives will be formatted in accordance with Planetary Data System specifications [Planetary Science Data Dictionary, 2002; PDS Standards Reference, 2003].

## 6.1. Disk Format

Disk formats for the archive volumes will conform to the PDS standard for the applicable media. At present, the plan is to archive MIMI data on DVD-R media. The PDS standard for DVD-R media disk format is ISO-UDF Bridge.

## 6.2. File Formats

The following section describes file formats for the kinds of files contained on reference Volume.

### 6.2.1. *Document File Formats*

Document files with the .TXT suffix exist throughout the archive volume. These files are ASCII files with embedded PDS labels. All document files contain variable-length, 80-byte maximum records; with a carriage return character (ASCII 13) in the 79th byte and a line feed character (ASCII 10) in the 80th byte. This allows the files to be read by the MacOS, DOS, Windows, UNIX, OS2, and VMS operating systems. All documents that do not include the .TXT extension are described by detached PDS labels.

However, the documents in the reference volume contain formatting and figures that cannot be rendered as pure ASCII text. These documents will be provided in formats that support graphics, such as HTML, MS Word, PDF, etc. The PDS requirement that all documentation critical to the understanding of the data set be provided in ASCII text form will be met by the inclusion of HTML formatted documents.

### 6.2.2. *Catalog File Formats*

Catalog files (suffix .CAT) exist in the Root and Catalog directories. They are formatted in an object-oriented structure consisting of sets of 'keyword = value' declarations. All files are ASCII and conform to the same structure standards (line length, line terminator) as the PDS label files described in the previous section.

### 6.2.3. *Delimited Field File Formats*

Delimited field, ASCII data files (.CSV suffix) exist in the CALIBRATION directory. These files are formatted for direct reading into many database management systems on various computers. In the MIMI application of the delimited field format, fields are separated by commas. Records vary in length in bytes but will have a fixed number of fields. Missing data are represented by empty fields. All delimited field files are described by detached PDS labels

All data files in the MIMI Standard Product Archive Collection have PDS labels [Planetary Science Data Dictionary, 2002; PDS Archive Preparation Guide, 2005; PDS Standards Reference, 2005]. These labels are all detached from the data files (same file name prefix, .LBL suffix).

A PDS label, whether embedded or detached from its associated file, provides descriptive information about the associated file. The PDS label is an object-oriented structure consisting of sets of 'keyword = value' declarations. The object that the label refers to (e.g., IMAGE, TABLE, etc.) is denoted by a statement of the form:

    ^object = location

in which the carat character (^, also called a pointer in this context) indicates where to find the object. In a PDS label, the location denotes the name of the file containing the object, along with the starting record or byte number, if there is more than one object in the file. For example:

    ^HEADER = ("98118.TAB",1)

    ^TABLE = ("98118.TAB",1025 <BYTES>)

indicates that the HEADER object begins at record 1 and that the TABLE object begins at byte 1025 of the file 98118.TAB. The file 98118.TAB must be located in the same directory as the detached label file.

Below is a list of the possible formats for the ^object definition in labels in this product.

    ^object  = n

    ^object  = n <BYTES>

    ^object  = "filename.ext"

    ^object  = ("filename.ext", n)

    ^object  = ("filename.ext", n <BYTES>)

where

    **n** is the starting record or byte offset of the object, counting from the beginning of the file (record 1, byte 1),

    **<BYTES>** indicates that the number given is in units of bytes (the default is records),

    **filename** is the up-to-8-character, alphanumeric upper-case file name,

    **ext** is the up-to-3-character upper-case file extension.

All detached labels contain 80-byte fixed-length records, with a carriage return character (ASCII 13) in the 79th byte and a line feed character (ASCII 10) in the 80th byte. This allows the files to be read by the MacOS, DOS, Windows, UNIX, OS2, and VMS operating systems.

### 6.2.4. *General Calibration Product Format*

All MIMI calibration products are either text files with embedded PDS labels that contain algorithms or else CSV files with detached PDS labels that contain a series of homogenous records. CSV Records consist of one line of column headers. Column headers apply to the first line in a record and are the same as the field name in the tables below. Blank fields indicate that the field is not applicable in the context of the record, the data is not available, is out of tolerance,

or is otherwise not suitable for archiving. The record header format is as follows. The Purpose field identifies the type of calibration data. For a partial list of possible values for the Purpose field, see Appendix B.  It should be noted that purpose codes can be added as specific needs are identified without fully reprocessing earlier data files. The Start Ephemeris Time and Duration identify the starting and ending times that this calibration file is applicable.

The main calibration file (MIMI_CALIBRATION_XXXX.CSV) is used to contain all the calibration information represented by the three MIMI detectors and are collected within a single file for ease of understanding the various dynamics ranges available from the instrument.

| Table 40: MIMI Calibration Product Record Format | | | |
|---|---|---|---|
| **Field Name** | **Type** | **Units** | **Range** |
| Purpose | String | n/a | [ENERGY, ENERGY/CHARGE, MASS, MASS/CHARGE, GEOM_FACTOR, EFFICIENCY, FOV, E/NUC_A, E/NUC_B] |
| Data_Type | String | n/a | [ACC, FRT, PHA, IMG, SCI] |
| Sensor | String | n/a | [LEMMS, CHEMS, INCA] |
| Channel | String | n/a | Alphabetical values |
| Channel_Index | Integer | n/a | [0-63] |
| Particle | String | n/a | [e,P,He,C,O,Fe,Xray,ALL, He+, He++, O+, O++, H, O] |
| Start_Year | Integer | n/a | [1997-2030] |
| Start_DDOY | Integer | n/a | [0.000 – 365.99999999] |
| Stop_Year | Integer | n/a | [1997-2030] |
| Stop_DDOY | Integer | n/a | [0.000 – 365.99999999] |
| Units | String | n/a | [KeV, KeV/e, amu, amu/e, cm^2*sr, NA, degrees] |
| Low | Float | n/varied | [0-1E5] |
| Hi | Float | varied | [0-1E5] |
| Delta | Float | varied | [0-1E5] |
| Midpoint_Value | Float | varied | [0-1E3] |

## 6.2.5. *INCA Image Segment Calibration File*

The INCA image segment calibration file identifies the time segments for which the INCA flux factor matrices cover.

| Table 41: INCA Image Segment File Record Format | | | |
|---|---|---|---|
| **Field Name** | **Type** | **Units** | **Range** |
| Start_Year | Integer | n/a | [1997 – 2030] |

| Table 41: INCA Image Segment File Record Format | | | |
|---|---|---|---|
| **Field Name** | **Type** | **Units** | **Range** |
| Start_DDOY | Float | n/a | [0.000 – 365.99999999] |
| End_Year | Integer | n/a | [1997 – 2030] |
| End_DDOY | Float | n/a | [0.000 – 365.99999999] |
| Segment_Name | String | n/a | [postFlightv34, postJupiter] |

## 6.2.6. *INCA Flux Factor Matrix Calibration Files*

There are three flux factor calibration files for the INCA Images. Each of the files is based upon the spatial resolution used at the time of observation as well as the programmed TOF (time of flight) value used during the observation. The flux factor calibration files do not contain headers.

| Table 42: INCA 8x8 Flux Factor Matrix File Field Descriptions | | | |
|---|---|---|---|
| **Field Name** | **Type** | **Units** | **Range** |
| col 0 | Integer | NA | [0 – 1E8] |
| col_1 | Integer | NA | [0 – 1E8] |
| … | Integer | NA | [0 – 1E8] |
| col_7 | Integer | NA | [0 – 1E8] |

| Table 43: INCA 16x16 Flux Factor Matrix File Field Descriptions | | | |
|---|---|---|---|
| **Field Name** | **Type** | **Units** | **Range** |
| col 0 | Integer | NA | [0 – 1E8] |
| col_1 | Integer | NA | [0 – 1E8] |
| … | Integer | NA | [0 – 1E8] |
| col_15 | Integer | NA | [0 – 1E8] |

| Table 44: INCA 32x32 Flux Factor Matrix File Field Descriptions | | | |
|---|---|---|---|
| **Field Name** | **Type** | **Units** | **Range** |
| col 0 | Integer | NA | [0 – 1E8] |
| col_1 | Integer | NA | [0 – 1E8] |
| … | Integer | NA | [0 – 1E8] |
| col_31 | Integer | NA | [0 – 1E8] |

| Table 45: INCA 64x64 Flux Factor Matrix File Field Descriptions | | | |
|---|---|---|---|
| **Field Name** | **Type** | **Units** | **Range** |
| col 0 | Integer | NA | [0 – 1E8] |
| col_1 | Integer | NA | [0 – 1E8] |
| … | Integer | NA | [0 – 1E8] |
| col_63 | Integer | NA | [0 – 1E8] |

# 7. Sample Data Product Labels

## 7.1. MIMI LEMMS

### 7.1.1. *MIMI LEMMS Rates*

<div style="border:1px solid">

**Sample File 1: LACC0_2000340_0000.LBL**

```
PDS_VERSION_ID                  = PDS3
DATA_SET_ID                     = "CO-E/J/S/SW-MIMI-2-LEMMS-UNCALIB-V1.0"
PRODUCT_ID                      = "LACC0_2000340_0000"
STANDARD_DATA_PRODUCT_ID        = "MIMI_LEMMS_ACC"
PRODUCT_TYPE                    = "DATA"
PRODUCT_VERSION                 = 0
PRODUCT_CREATION_TIME           = 2005-123T16:28:05.000

RECORD_TYPE                     = STREAM
INTERCHANGE_FORMAT              = ASCII
FILE_RECORDS                    = 14992

START_TIME                      = "2000-340T00:00:00"
STOP_TIME                       = "2000-340T23:59:59"
NATIVE_START_TIME               = "29246464.183189"
NATIVE_STOP_TIME                = "29332863.183214"
SPACECRAFT_CLOCK_START_COUNT    = "1/1354666282.146"
SPACECRAFT_CLOCK_STOP_COUNT     = "1/1354752682.043"

INSTRUMENT_HOST_NAME            = "CASSINI ORBITER"
INSTRUMENT_HOST_ID              = "CO"
MISSION_PHASE_NAME              = "$PHASE_NAME"
ORBIT_NUMBER                    = $ORBIT_NUM
TARGET_NAME                     = "SOLAR WIND"
INSTRUMENT_NAME                 = "MAGNETOSPHERIC IMAGING INSTRUMENT"
INSTRUMENT_ID                   = "MIMI"
DESCRIPTION                     = "
    1-2 subsector accumulations for the LEMMS sensor of the MIMI instrument
    on the Cassini spacecraft"

^HEADER          = ("LACC0_2000340_0000.CSV",  1 <BYTES>)
^SPREADSHEET     = ("LACC0_2000340_0000.CSV",  1049 <BYTES>)

OBJECT                          = HEADER
  RECORDS                       = 1
  BYTES                         = 1048
  HEADER_TYPE                   = SPREADSHEET
  DESCRIPTION                   = "
    This file contains a single row of column headings (text strings enclosed
    within double quotes) separated by commas."
END_OBJECT                      = HEADER

OBJECT                          = SPREADSHEET
  ROWS                          = 14997
  FIELDS                        = 72
  ROW_BYTES                     = 857
  FIELD_DELIMITER               = COMMA

  OBJECT                        = FIELD
    NAME                        = "PURPOSE"
    FIELD_NUMBER                = 1
    DATA_TYPE                   = CHARACTER
    BYTES                       = 32
    DESCRIPTION                 = "
      The PURPOSE field identifies the purpose or function of the data
      contained in current row. Valid entries include:
      SCI - normal science data values
      VALID_MIN - the inclusive or exclusive minimum value allowed for this
      column
      VALID_MAX - the inclusive or exclusive maximum value allowed for this
      column
      MIN - the minimum value for this column present in this product
      MAX - the maximum value for this column present in this product
```

</div>

```
                 MEAN - the mean of the values in this column in this product, this
            value will be rounded for integer columns
            STDEV - the standard deviation of the values in this column in this
          product, this value will be rounded for integer columns"
END_OBJECT                      = FIELD
OBJECT                          = FIELD
  NAME                          = "START_EPHEMERIS_S"
  FIELD_NUMBER                  = 2
  UNIT                          = SECOND
  DATA_TYPE                     = ASCII_REAL
  BYTES                         = 20
  VALID_MINIMUM                 = -71063936
  VALID_MAXIMUM                 = 757339265
  DESCRIPTION                   = "
    The J2000 ephemeris time in seconds at the beginning of the time period
    for this record."
END_OBJECT                      = FIELD
OBJECT                          = FIELD
  NAME                          = "END_EPHEMERIS_S"
  FIELD_NUMBER                  = 3
  UNIT                          = SECOND
  DATA_TYPE                     = ASCII_REAL
  BYTES                         = 20
  VALID_MINIMUM                 = -71063936
  VALID_MAXIMUM                 = 757339265
  DESCRIPTION                   = "
    The J2000 ephemeris time in seconds at the end of the time period for
    this record."
END_OBJECT                      = FIELD
OBJECT                          = FIELD
  NAME                          = "SPIN_COUNTER"
  FIELD_NUMBER                  = 4
  DATA_TYPE                     = ASCII_INTEGER
  BYTES                         = 10
  VALID_MINIMUM                 = 0
  VALID_MAXIMUM                 = 16383
  DESCRIPTION                   = "
    MIMI always organizes time by Spins, when Cassini is not in spin mode,
    MIMI uses a commanded virtual spin period. This column is a counter
    that increments with each spin or virtual spin. This counter resets
    when MIMI undergoes certain operations like shutdown, and is not
    sufficiently large that it will not roll over."
END_OBJECT                      = FIELD
OBJECT                          = FIELD
  NAME                          = "SECTOR"
  FIELD_NUMBER                  = 5
  DATA_TYPE                     = ASCII_INTEGER
  BYTES                         = 10
  VALID_MINIMUM                 = 0
  VALID_MAXIMUM                 = 15
  DESCRIPTION                   = "
     Each spin is divided into 16 sectors. Sectors have no meaning with
     regard to pointing. They are nothing more or less than segments of
     time. This column contains the zero based index of the sector.
     Sectors have special significance in that the beginning of a sector is
     the only time that MIMI records the SCLOCK. All other times must be
     calculated based on the subsector, and, where appropriate, microsector
     values provided below. Times in this product were calculated in this
     manner."
END_OBJECT                      = FIELD
OBJECT                          = FIELD
  NAME                          = "START_SECTOR_SCLOCK_MAJOR"
  FIELD_NUMBER                  = 6
  UNIT                          = COUNT
  DATA_TYPE                     = ASCII_INTEGER
  BYTES                         = 10
  VALID_MINIMUM                 = 0
  VALID_MAXIMUM                 = 4000000000
  DESCRIPTION                   = "
    The value of the Spacecraft clock at the beginning of Sector during
    which this record occurred. This, combined with subsector, and
    microsector where appropriate, is the monotonic timestamp for the each
    record. All other times are calculated from this time representation."
END_OBJECT                      = FIELD
OBJECT                          = FIELD
```

```
   NAME                       = "SUBSECTOR"
   FIELD_NUMBER               = 7
   DATA_TYPE                  = ASCII_INTEGER
   BYTES                      = 10
   VALID_MINIMUM              = 0
   VALID_MAXIMUM              = 15
   DESCRIPTION                = "
     Each sector is divided into 16 subsectors. Subsectors have no meaning
     as far as pointing. They are nothing more or less than segments of
     time."
 END_OBJECT                   = FIELD
 OBJECT                       = FIELD
   NAME                       = "MICROSECTORS_COVERED"
   FIELD_NUMBER               = 8
   DATA_TYPE                  = ASCII_INTEGER
   BYTES                      = 10
   VALID_MINIMUM              = 2
   VALID_MAXIMUM              = 1024
   DESCRIPTION                = "
     Each subsector is divided into 16 microsectors. Microsectors have no
     meaning as far as pointing. They are nothing more or less than segments
     of time. This column is the number of microsectors over which this
     record was recorded, i.e. 16 for one subsector, 32 for two subsectors,
     256 for one sector, etc."
 END_OBJECT                   = FIELD
 OBJECT                       = FIELD
   NAME                       = "SPIN_PERIOD_S"
   FIELD_NUMBER               = 9
   UNIT                       = SECOND
   DATA_TYPE                  = ASCII_REAL
   BYTES                      = 20
   VALID_MINIMUM              = 680
   VALID_MAXIMUM              = 3072
   DESCRIPTION                = "
     The spacecraft spin period in seconds. If the spacecraft is not in spin
     mode, this is the virtual spin period used by the MIMI sensor to
     determine the timing of data colection. This value is not very
     reliable. It represents the 'nominal' spin period. When the spin period
     is changing, it will not be very accurate."
 END_OBJECT                   = FIELD
 OBJECT                       = FIELD
   NAME                       = "STARING"
   FIELD_NUMBER               = 10
   DATA_TYPE                  = ASCII_INTEGER
   BYTES                      = 10
   VALID_MINIMUM              = 0
   VALID_MAXIMUM              = 1
   DESCRIPTION                = "
     0 if the spacecraft is in spin mode, 1 if the not in spin mode."
 END_OBJECT                   = FIELD
 OBJECT                       = FIELD
   NAME                       = "CHANNEL_A0"
   FIELD_NUMBER               = 11
   DATA_TYPE                  = ASCII_INTEGER
   BYTES                      = 10
   VALID_MINIMUM              = 0
   VALID_MAXIMUM              = 4E5
   DESCRIPTION                = "
     This field contains the counts sampled by the indicated LEMMS channel
     over the duration derived from either the END_EPHEMERIS_S -
     START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
     record) - START_EPHEMERIS_S (of this record)."
 END_OBJECT                   = FIELD
 OBJECT                       = FIELD
   NAME                       = "CHANNEL_A1"
   FIELD_NUMBER               = 12
   DATA_TYPE                  = ASCII_INTEGER
   BYTES                      = 10
   VALID_MINIMUM              = 0
   VALID_MAXIMUM              = 4E5
   DESCRIPTION                = "
     This field contains the counts sampled by the indicated LEMMS channel
     over the duration derived from either the END_EPHEMERIS_S -
     START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
     record) - START_EPHEMERIS_S (of this record)."
```

```
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "CHANNEL_A2"
  FIELD_NUMBER            = 13
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 4E5
  DESCRIPTION             = "
    This field contains the counts sampled by the indicated LEMMS channel
    over the duration derived from either the END_EPHEMERIS_S -
    START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
    record) - START_EPHEMERIS_S (of this record)."
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "CHANNEL_A3"
  FIELD_NUMBER            = 14
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 4E5
  DESCRIPTION             = "
    This field contains the counts sampled by the indicated LEMMS channel
    over the duration derived from either the END_EPHEMERIS_S -
    START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
    record) - START_EPHEMERIS_S (of this record)."
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "CHANNEL_A4"
  FIELD_NUMBER            = 15
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 4E5
  DESCRIPTION             = "
    This field contains the counts sampled by the indicated LEMMS channel
    over the duration derived from either the END_EPHEMERIS_S -
    START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
    record) - START_EPHEMERIS_S (of this record)."
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "CHANNEL_A5"
  FIELD_NUMBER            = 16
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 4E5
  DESCRIPTION             = "
    This field contains the counts sampled by the indicated LEMMS channel
    over the duration derived from either the END_EPHEMERIS_S -
    START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
    record) - START_EPHEMERIS_S (of this record)."
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "CHANNEL_A6"
  FIELD_NUMBER            = 17
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 4E5
  DESCRIPTION             = "
    This field contains the counts sampled by the indicated LEMMS channel
    over the duration derived from either the END_EPHEMERIS_S -
    START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
    record) - START_EPHEMERIS_S (of this record)."
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "CHANNEL_A7"
  FIELD_NUMBER            = 18
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 4E5
  DESCRIPTION             = "
    This field contains the counts sampled by the indicated LEMMS channel
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               over the duration derived from either the END_EPHEMERIS_S -
               START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
               record) - START_EPHEMERIS_S (of this record)."
  END_OBJECT                   = FIELD
  OBJECT                       = FIELD
    NAME                       = "CHANNEL_A8"
    FIELD_NUMBER               = 19
    DATA_TYPE                  = ASCII_INTEGER
    BYTES                      = 10
    VALID_MINIMUM              = 0
    VALID_MAXIMUM              = 4E5
    DESCRIPTION                = "
      This field contains the counts sampled by the indicated LEMMS channel
      over the duration derived from either the END_EPHEMERIS_S -
      START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
      record) - START_EPHEMERIS_S (of this record)."
  END_OBJECT                   = FIELD
  OBJECT                       = FIELD
    NAME                       = "CHANNEL_B0"
    FIELD_NUMBER               = 20
    DATA_TYPE                  = ASCII_INTEGER
    BYTES                      = 10
    VALID_MINIMUM              = 0
    VALID_MAXIMUM              = 4E5
    DESCRIPTION                = "
      This field contains the counts sampled by the indicated LEMMS channel
      over the duration derived from either the END_EPHEMERIS_S -
      START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
      record) - START_EPHEMERIS_S (of this record)."
  END_OBJECT                   = FIELD
  OBJECT                       = FIELD
    NAME                       = "CHANNEL_B1"
    FIELD_NUMBER               = 21
    DATA_TYPE                  = ASCII_INTEGER
    BYTES                      = 10
    VALID_MINIMUM              = 0
    VALID_MAXIMUM              = 4E5
    DESCRIPTION                = "
      This field contains the counts sampled by the indicated LEMMS channel
      over the duration derived from either the END_EPHEMERIS_S -
      START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
      record) - START_EPHEMERIS_S (of this record)."
  END_OBJECT                   = FIELD
  OBJECT                       = FIELD
    NAME                       = "CHANNEL_B2"
    FIELD_NUMBER               = 22
    DATA_TYPE                  = ASCII_INTEGER
    BYTES                      = 10
    VALID_MINIMUM              = 0
    VALID_MAXIMUM              = 4E5
    DESCRIPTION                = "
      This field contains the counts sampled by the indicated LEMMS channel
      over the duration derived from either the END_EPHEMERIS_S -
      START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
      record) - START_EPHEMERIS_S (of this record)."
  END_OBJECT                   = FIELD
  OBJECT                       = FIELD
    NAME                       = "CHANNEL_B3"
    FIELD_NUMBER               = 23
    DATA_TYPE                  = ASCII_INTEGER
    BYTES                      = 10
    VALID_MINIMUM              = 0
    VALID_MAXIMUM              = 4E5
    DESCRIPTION                = "
      This field contains the counts sampled by the indicated LEMMS channel
      over the duration derived from either the END_EPHEMERIS_S -
      START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
      record) - START_EPHEMERIS_S (of this record)."
  END_OBJECT                   = FIELD
  OBJECT                       = FIELD
    NAME                       = "CHANNEL_BE"
    FIELD_NUMBER               = 24
    DATA_TYPE                  = ASCII_INTEGER
    BYTES                      = 10
    VALID_MINIMUM              = 0
```

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    VALID_MAXIMUM              = 4E5
    DESCRIPTION                = "
     This field contains the counts sampled by the indicated LEMMS channel
     over the duration derived from either the END_EPHEMERIS_S -
     START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
     record) – START_EPHEMERIS_S (of this record)."
  END_OBJECT                   = FIELD
  OBJECT                       = FIELD
    NAME                       = "CHANNEL_C0"
    FIELD_NUMBER               = 25
    DATA_TYPE                  = ASCII_INTEGER
    BYTES                      = 10
    VALID_MINIMUM              = 0
    VALID_MAXIMUM              = 4E5
    DESCRIPTION                = "
     This field contains the counts sampled by the indicated LEMMS channel
     over the duration derived from either the END_EPHEMERIS_S -
     START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
     record) – START_EPHEMERIS_S (of this record)."
  END_OBJECT                   = FIELD
  OBJECT                       = FIELD
    NAME                       = "CHANNEL_C1"
    FIELD_NUMBER               = 26
    DATA_TYPE                  = ASCII_INTEGER
    BYTES                      = 10
    VALID_MINIMUM              = 0
    VALID_MAXIMUM              = 4E5
    DESCRIPTION                = "
     This field contains the counts sampled by the indicated LEMMS channel
     over the duration derived from either the END_EPHEMERIS_S -
     START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
     record) – START_EPHEMERIS_S (of this record)."
  END_OBJECT                   = FIELD
  OBJECT                       = FIELD
    NAME                       = "CHANNEL_C2"
    FIELD_NUMBER               = 27
    DATA_TYPE                  = ASCII_INTEGER
    BYTES                      = 10
    VALID_MINIMUM              = 0
    VALID_MAXIMUM              = 4E5
    DESCRIPTION                = "
     This field contains the counts sampled by the indicated LEMMS channel
     over the duration derived from either the END_EPHEMERIS_S -
     START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
     record) – START_EPHEMERIS_S (of this record)."
  END_OBJECT                   = FIELD
  OBJECT                       = FIELD
    NAME                       = "CHANNEL_C3"
    FIELD_NUMBER               = 28
    DATA_TYPE                  = ASCII_INTEGER
    BYTES                      = 10
    VALID_MINIMUM              = 0
    VALID_MAXIMUM              = 4E5
    DESCRIPTION                = "
     This field contains the counts sampled by the indicated LEMMS channel
     over the duration derived from either the END_EPHEMERIS_S -
     START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
     record) – START_EPHEMERIS_S (of this record)."
  END_OBJECT                   = FIELD
  OBJECT                       = FIELD
    NAME                       = "CHANNEL_C4"
    FIELD_NUMBER               = 29
    DATA_TYPE                  = ASCII_INTEGER
    BYTES                      = 10
    VALID_MINIMUM              = 0
    VALID_MAXIMUM              = 4E5
    DESCRIPTION                = "
     This field contains the counts sampled by the indicated LEMMS channel
     over the duration derived from either the END_EPHEMERIS_S -
     START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
     record) – START_EPHEMERIS_S (of this record)."
  END_OBJECT                   = FIELD
  OBJECT                       = FIELD
    NAME                       = "CHANNEL_C5"
    FIELD_NUMBER               = 30
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   DATA_TYPE                = ASCII_INTEGER
   BYTES                    = 10
   VALID_MINIMUM            = 0
   VALID_MAXIMUM            = 4E5
   DESCRIPTION              = "
    This field contains the counts sampled by the indicated LEMMS channel
    over the duration derived from either the END_EPHEMERIS_S -
    START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
    record) - START_EPHEMERIS_S (of this record)."
END_OBJECT                  = FIELD
OBJECT                      = FIELD
   NAME                     = "CHANNEL_C6"
   FIELD_NUMBER             = 31
   DATA_TYPE                = ASCII_INTEGER
   BYTES                    = 10
   VALID_MINIMUM            = 0
   VALID_MAXIMUM            = 4E5
   DESCRIPTION              = "
    This field contains the counts sampled by the indicated LEMMS channel
    over the duration derived from either the END_EPHEMERIS_S -
    START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
    record) - START_EPHEMERIS_S (of this record)."
END_OBJECT                  = FIELD
OBJECT                      = FIELD
   NAME                     = "CHANNEL_C7"
   FIELD_NUMBER             = 32
   DATA_TYPE                = ASCII_INTEGER
   BYTES                    = 10
   VALID_MINIMUM            = 0
   VALID_MAXIMUM            = 4E5
   DESCRIPTION              = "
    This field contains the counts sampled by the indicated LEMMS channel
    over the duration derived from either the END_EPHEMERIS_S -
    START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
    record) - START_EPHEMERIS_S (of this record)."
END_OBJECT                  = FIELD
OBJECT                      = FIELD
   NAME                     = "CHANNEL_AS"
   FIELD_NUMBER             = 33
   DATA_TYPE                = ASCII_INTEGER
   BYTES                    = 10
   VALID_MINIMUM            = 0
   VALID_MAXIMUM            = 4E5
   DESCRIPTION              = "
    This field contains the counts sampled by the indicated LEMMS channel
    over the duration derived from either the END_EPHEMERIS_S -
    START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
    record) - START_EPHEMERIS_S (of this record)."
END_OBJECT                  = FIELD
OBJECT                      = FIELD
   NAME                     = "CHANNEL_BS"
   FIELD_NUMBER             = 34
   DATA_TYPE                = ASCII_INTEGER
   BYTES                    = 10
   VALID_MINIMUM            = 0
   VALID_MAXIMUM            = 4E5
   DESCRIPTION              = "
    This field contains the counts sampled by the indicated LEMMS channel
    over the duration derived from either the END_EPHEMERIS_S -
    START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
    record) - START_EPHEMERIS_S (of this record)."
END_OBJECT                  = FIELD
OBJECT                      = FIELD
   NAME                     = "CHANNEL_ES"
   FIELD_NUMBER             = 35
   DATA_TYPE                = ASCII_INTEGER
   BYTES                    = 10
   VALID_MINIMUM            = 0
   VALID_MAXIMUM            = 4E5
   DESCRIPTION              = "
    This field contains the counts sampled by the indicated LEMMS channel
    over the duration derived from either the END_EPHEMERIS_S -
    START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
    record) - START_EPHEMERIS_S (of this record)."
END_OBJECT                  = FIELD
```

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OBJECT                    = FIELD
  NAME                    = "CHANNEL_E2_F2S"
  FIELD_NUMBER            = 36
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 4E5
  DESCRIPTION             = "
    This field contains the counts sampled by the indicated LEMMS channel
    over the duration derived from either the END_EPHEMERIS_S -
    START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
    record) - START_EPHEMERIS_S (of this record)."
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "CHANNEL_FS"
  FIELD_NUMBER            = 37
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 4E5
  DESCRIPTION             = "
    This field contains the counts sampled by the indicated LEMMS channel
    over the duration derived from either the END_EPHEMERIS_S -
    START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
    record) - START_EPHEMERIS_S (of this record)."
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "CHANNEL_E0"
  FIELD_NUMBER            = 38
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 4E5
  DESCRIPTION             = "
    This field contains the counts sampled by the indicated LEMMS channel
    over the duration derived from either the END_EPHEMERIS_S -
    START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
    record) - START_EPHEMERIS_S (of this record)."
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "CHANNEL_E1"
  FIELD_NUMBER            = 39
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 4E5
  DESCRIPTION             = "
    This field contains the counts sampled by the indicated LEMMS channel
    over the duration derived from either the END_EPHEMERIS_S -
    START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
    record) - START_EPHEMERIS_S (of this record)."
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "CHANNEL_E2"
  FIELD_NUMBER            = 40
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 4E5
  DESCRIPTION             = "
    This field contains the counts sampled by the indicated LEMMS channel
    over the duration derived from either the END_EPHEMERIS_S -
    START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
    record) - START_EPHEMERIS_S (of this record)."
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "CHANNEL_E3"
  FIELD_NUMBER            = 41
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 4E5
  DESCRIPTION             = "
    This field contains the counts sampled by the indicated LEMMS channel
    over the duration derived from either the END_EPHEMERIS_S -
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         START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
         record) - START_EPHEMERIS_S (of this record)."
   END_OBJECT                     = FIELD
   OBJECT                         = FIELD
     NAME                         = "CHANNEL_E4"
     FIELD_NUMBER                 = 42
     DATA_TYPE                    = ASCII_INTEGER
     BYTES                        = 10
     VALID_MINIMUM                = 0
     VALID_MAXIMUM                = 4E5
     DESCRIPTION                  = "
       This field contains the counts sampled by the indicated LEMMS channel
       over the duration derived from either the END_EPHEMERIS_S -
       START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
       record) - START_EPHEMERIS_S (of this record)."
   END_OBJECT                     = FIELD
   OBJECT                         = FIELD
     NAME                         = "CHANNEL_E5"
     FIELD_NUMBER                 = 43
     DATA_TYPE                    = ASCII_INTEGER
     BYTES                        = 10
     VALID_MINIMUM                = 0
     VALID_MAXIMUM                = 4E5
     DESCRIPTION                  = "
       This field contains the counts sampled by the indicated LEMMS channel
       over the duration derived from either the END_EPHEMERIS_S -
       START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
       record) - START_EPHEMERIS_S (of this record)."
   END_OBJECT                     = FIELD
   OBJECT                         = FIELD
     NAME                         = "CHANNEL_E6"
     FIELD_NUMBER                 = 44
     DATA_TYPE                    = ASCII_INTEGER
     BYTES                        = 10
     VALID_MINIMUM                = 0
     VALID_MAXIMUM                = 4E5
     DESCRIPTION                  = "
       This field contains the counts sampled by the indicated LEMMS channel
       over the duration derived from either the END_EPHEMERIS_S -
       START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
       record) - START_EPHEMERIS_S (of this record)."
   END_OBJECT                     = FIELD
   OBJECT                         = FIELD
     NAME                         = "CHANNEL_E7"
     FIELD_NUMBER                 = 45
     DATA_TYPE                    = ASCII_INTEGER
     BYTES                        = 10
     VALID_MINIMUM                = 0
     VALID_MAXIMUM                = 4E5
     DESCRIPTION                  = "
       This field contains the counts sampled by the indicated LEMMS channel
       over the duration derived from either the END_EPHEMERIS_S -
       START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
       record) - START_EPHEMERIS_S (of this record)."
   END_OBJECT                     = FIELD
   OBJECT                         = FIELD
     NAME                         = "CHANNEL_G1"
     FIELD_NUMBER                 = 46
     DATA_TYPE                    = ASCII_INTEGER
     BYTES                        = 10
     VALID_MINIMUM                = 0
     VALID_MAXIMUM                = 4E5
     DESCRIPTION                  = "
       This field contains the counts sampled by the indicated LEMMS channel
       over the duration derived from either the END_EPHEMERIS_S -
       START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
       record) - START_EPHEMERIS_S (of this record)."
   END_OBJECT                     = FIELD
   OBJECT                         = FIELD
     NAME                         = "CHANNEL_P1"
     FIELD_NUMBER                 = 47
     DATA_TYPE                    = ASCII_INTEGER
     BYTES                        = 10
     VALID_MINIMUM                = 0
     VALID_MAXIMUM                = 4E5
```

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          DESCRIPTION                 = "
       This field contains the counts sampled by the indicated LEMMS channel
       over the duration derived from either the END_EPHEMERIS_S -
       START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
       record) - START_EPHEMERIS_S (of this record)."
  END_OBJECT                      = FIELD
  OBJECT                          = FIELD
    NAME                          = "CHANNEL_P2"
    FIELD_NUMBER                  = 48
    DATA_TYPE                     = ASCII_INTEGER
    BYTES                         = 10
    VALID_MINIMUM                 = 0
    VALID_MAXIMUM                 = 4E5
    DESCRIPTION                   = "
       This field contains the counts sampled by the indicated LEMMS channel
       over the duration derived from either the END_EPHEMERIS_S -
       START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
       record) - START_EPHEMERIS_S (of this record)."
  END_OBJECT                      = FIELD
  OBJECT                          = FIELD
    NAME                          = "CHANNEL_P3"
    FIELD_NUMBER                  = 49
    DATA_TYPE                     = ASCII_INTEGER
    BYTES                         = 10
    VALID_MINIMUM                 = 0
    VALID_MAXIMUM                 = 4E5
    DESCRIPTION                   = "
       This field contains the counts sampled by the indicated LEMMS channel
       over the duration derived from either the END_EPHEMERIS_S -
       START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
       record) - START_EPHEMERIS_S (of this record)."
  END_OBJECT                      = FIELD
  OBJECT                          = FIELD
    NAME                          = "CHANNEL_P4"
    FIELD_NUMBER                  = 50
    DATA_TYPE                     = ASCII_INTEGER
    BYTES                         = 10
    VALID_MINIMUM                 = 0
    VALID_MAXIMUM                 = 4E5
    DESCRIPTION                   = "
       This field contains the counts sampled by the indicated LEMMS channel
       over the duration derived from either the END_EPHEMERIS_S -
       START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
       record) - START_EPHEMERIS_S (of this record)."
  END_OBJECT                      = FIELD
  OBJECT                          = FIELD
    NAME                          = "CHANNEL_P5"
    FIELD_NUMBER                  = 51
    DATA_TYPE                     = ASCII_INTEGER
    BYTES                         = 10
    VALID_MINIMUM                 = 0
    VALID_MAXIMUM                 = 4E5
    DESCRIPTION                   = "
       This field contains the counts sampled by the indicated LEMMS channel
       over the duration derived from either the END_EPHEMERIS_S -
       START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
       record) - START_EPHEMERIS_S (of this record)."
  END_OBJECT                      = FIELD
  OBJECT                          = FIELD
    NAME                          = "CHANNEL_P6"
    FIELD_NUMBER                  = 52
    DATA_TYPE                     = ASCII_INTEGER
    BYTES                         = 10
    VALID_MINIMUM                 = 0
    VALID_MAXIMUM                 = 4E5
    DESCRIPTION                   = "
       This field contains the counts sampled by the indicated LEMMS channel
       over the duration derived from either the END_EPHEMERIS_S -
       START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
       record) - START_EPHEMERIS_S (of this record)."
  END_OBJECT                      = FIELD
  OBJECT                          = FIELD
    NAME                          = "CHANNEL_P7"
    FIELD_NUMBER                  = 53
    DATA_TYPE                     = ASCII_INTEGER
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     BYTES                     = 10
     VALID_MINIMUM             = 0
     VALID_MAXIMUM             = 4E5
     DESCRIPTION               = "
       This field contains the counts sampled by the indicated LEMMS channel
       over the duration derived from either the END_EPHEMERIS_S -
       START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
       record) - START_EPHEMERIS_S (of this record)."
   END_OBJECT                  = FIELD
   OBJECT                      = FIELD
     NAME                      = "CHANNEL_P8"
     FIELD_NUMBER              = 54
     DATA_TYPE                 = ASCII_INTEGER
     BYTES                     = 10
     VALID_MINIMUM             = 0
     VALID_MAXIMUM             = 4E5
     DESCRIPTION               = "
       This field contains the counts sampled by the indicated LEMMS channel
       over the duration derived from either the END_EPHEMERIS_S -
       START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
       record) - START_EPHEMERIS_S (of this record)."
   END_OBJECT                  = FIELD
   OBJECT                      = FIELD
     NAME                      = "CHANNEL_P9"
     FIELD_NUMBER              = 55
     DATA_TYPE                 = ASCII_INTEGER
     BYTES                     = 10
     VALID_MINIMUM             = 0
     VALID_MAXIMUM             = 4E5
     DESCRIPTION               = "
       This field contains the counts sampled by the indicated LEMMS channel
       over the duration derived from either the END_EPHEMERIS_S -
       START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
       record) - START_EPHEMERIS_S (of this record)."
   END_OBJECT                  = FIELD
   OBJECT                      = FIELD
     NAME                      = "CHANNEL_H1"
     FIELD_NUMBER              = 56
     DATA_TYPE                 = ASCII_INTEGER
     BYTES                     = 10
     VALID_MINIMUM             = 0
     VALID_MAXIMUM             = 4E5
     DESCRIPTION               = "
       This field contains the counts sampled by the indicated LEMMS channel
       over the duration derived from either the END_EPHEMERIS_S -
       START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
       record) - START_EPHEMERIS_S (of this record)."
   END_OBJECT                  = FIELD
   OBJECT                      = FIELD
     NAME                      = "CHANNEL_H2"
     FIELD_NUMBER              = 57
     DATA_TYPE                 = ASCII_INTEGER
     BYTES                     = 10
     VALID_MINIMUM             = 0
     VALID_MAXIMUM             = 4E5
     DESCRIPTION               = "
       This field contains the counts sampled by the indicated LEMMS channel
       over the duration derived from either the END_EPHEMERIS_S -
       START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
       record) - START_EPHEMERIS_S (of this record)."
   END_OBJECT                  = FIELD
   OBJECT                      = FIELD
     NAME                      = "CHANNEL_H3"
     FIELD_NUMBER              = 58
     DATA_TYPE                 = ASCII_INTEGER
     BYTES                     = 10
     VALID_MINIMUM             = 0
     VALID_MAXIMUM             = 4E5
     DESCRIPTION               = "
       This field contains the counts sampled by the indicated LEMMS channel
       over the duration derived from either the END_EPHEMERIS_S -
       START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
       record) - START_EPHEMERIS_S (of this record)."
   END_OBJECT                  = FIELD
   OBJECT                      = FIELD
```

```
  NAME                       = "CHANNEL_H4"
  FIELD_NUMBER               = 59
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 4E5
  DESCRIPTION                = "
    This field contains the counts sampled by the indicated LEMMS channel
    over the duration derived from either the END_EPHEMERIS_S -
    START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
    record) - START_EPHEMERIS_S (of this record)."
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "CHANNEL_H5"
  FIELD_NUMBER               = 60
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 4E5
  DESCRIPTION                = "
    This field contains the counts sampled by the indicated LEMMS channel
    over the duration derived from either the END_EPHEMERIS_S -
    START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
    record) - START_EPHEMERIS_S (of this record)."
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "CHANNEL_Z1"
  FIELD_NUMBER               = 61
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 4E5
  DESCRIPTION                = "
    This field contains the counts sampled by the indicated LEMMS channel
    over the duration derived from either the END_EPHEMERIS_S -
    START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
    record) - START_EPHEMERIS_S (of this record)."
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "CHANNEL_Z2"
  FIELD_NUMBER               = 62
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 4E5
  DESCRIPTION                = "
    This field contains the counts sampled by the indicated LEMMS channel
    over the duration derived from either the END_EPHEMERIS_S -
    START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
    record) - START_EPHEMERIS_S (of this record)."
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "CHANNEL_Z3"
  FIELD_NUMBER               = 63
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 4E5
  DESCRIPTION                = "
    This field contains the counts sampled by the indicated LEMMS channel
    over the duration derived from either the END_EPHEMERIS_S -
    START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
    record) - START_EPHEMERIS_S (of this record)."
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "CHANNEL_D1"
  FIELD_NUMBER               = 64
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 4E5
  DESCRIPTION                = "
    This field contains the counts sampled by the indicated LEMMS channel
    over the duration derived from either the END_EPHEMERIS_S -
    START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
```

```
             record) - START_EPHEMERIS_S (of this record)."
END_OBJECT                     = FIELD
OBJECT                         = FIELD
  NAME                         = "CHANNEL_D2"
  FIELD_NUMBER                 = 65
  DATA_TYPE                    = ASCII_INTEGER
  BYTES                        = 10
  VALID_MINIMUM                = 0
  VALID_MAXIMUM                = 4E5
  DESCRIPTION                  = "
    This field contains the counts sampled by the indicated LEMMS channel
    over the duration derived from either the END_EPHEMERIS_S -
    START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
    record) - START_EPHEMERIS_S (of this record)."
END_OBJECT                     = FIELD
OBJECT                         = FIELD
  NAME                         = "CHANNEL_D3"
  FIELD_NUMBER                 = 66
  DATA_TYPE                    = ASCII_INTEGER
  BYTES                        = 10
  VALID_MINIMUM                = 0
  VALID_MAXIMUM                = 4E5
  DESCRIPTION                  = "
    This field contains the counts sampled by the indicated LEMMS channel
    over the duration derived from either the END_EPHEMERIS_S -
    START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
    record) - START_EPHEMERIS_S (of this record)."
END_OBJECT                     = FIELD
OBJECT                         = FIELD
  NAME                         = "CHANNEL_D41"
  FIELD_NUMBER                 = 67
  DATA_TYPE                    = ASCII_INTEGER
  BYTES                        = 10
  VALID_MINIMUM                = 0
  VALID_MAXIMUM                = 4E5
  DESCRIPTION                  = "
    This field contains the counts sampled by the indicated LEMMS channel
    over the duration derived from either the END_EPHEMERIS_S -
    START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
    record) - START_EPHEMERIS_S (of this record)."
END_OBJECT                     = FIELD
OBJECT                         = FIELD
  NAME                         = "PRIORITY_COUNTER_0_A0_SUM"
  FIELD_NUMBER                 = 68
  DATA_TYPE                    = ASCII_INTEGER
  BYTES                        = 10
  VALID_MINIMUM                = 0
  VALID_MAXIMUM                = 4E5
  DESCRIPTION                  = "
    This field contains a summation of the counts sampled by the indicated
    LEMMS channel over the duration indicated by the DURATION column."
END_OBJECT                     = FIELD
OBJECT                         = FIELD
  NAME                         = "PRIORITY_COUNTER_1_A1_SUM"
  FIELD_NUMBER                 = 69
  DATA_TYPE                    = ASCII_INTEGER
  BYTES                        = 10
  VALID_MINIMUM                = 0
  VALID_MAXIMUM                = 4E5
  DESCRIPTION                  = "
    This field contains a summation of the counts sampled by the indicated
    LEMMS channel over the duration indicated by the DURATION column."
END_OBJECT                     = FIELD
OBJECT                         = FIELD
  NAME                         = "PRIORITY_COUNTER_2_C0_SUM"
  FIELD_NUMBER                 = 70
  DATA_TYPE                    = ASCII_INTEGER
  BYTES                        = 10
  VALID_MINIMUM                = 0
  VALID_MAXIMUM                = 4E5
  DESCRIPTION                  = "
    This field contains a summation of the counts sampled by the indicated
    LEMMS channel over the duration indicated by the DURATION column."
END_OBJECT                     = FIELD
OBJECT                         = FIELD
```

```
      NAME                    = "PRIORITY_COUNTER_3_C1_SUM"
      FIELD_NUMBER            = 71
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 10
      VALID_MINIMUM           = 0
      VALID_MAXIMUM           = 4E5
      DESCRIPTION             = "
        This field contains a summation of the counts sampled by the indicated
        LEMMS channel over the duration indicated by the DURATION column."
    END_OBJECT                = FIELD
    OBJECT                    = FIELD
      NAME                    = "CENTER_LOOK_ANGLE_DEGREES"
      FIELD_NUMBER            = 72
      UNIT                    = DEGREE
      DATA_TYPE               = ASCII_REAL
      BYTES                   = 20
      VALID_MINIMUM           = 0
      VALID_MAXIMUM           = 360
      DESCRIPTION             = "
        The angle in degrees of the LEMMS detector with the -z axis of the
        spacecraft, measured counter-clockwise about the y axis of the
        spacecraft."
    END_OBJECT                = FIELD
END_OBJECT                    = SPREADSHEET
END
```

|                    Sample File 2: LFRT0_2000340_0000.LBL                    |
```
PDS_VERSION_ID                = PDS3
DATA_SET_ID                   = "CO-E/J/S/SW-MIMI-2-LEMMS-UNCALIB-V1.0"
PRODUCT_ID                    = "LFRT0_2000340_0000"
STANDARD_DATA_PRODUCT_ID      = "MIMI_LEMMS_FRT"
PRODUCT_TYPE                  = "DATA"
PRODUCT_VERSION               = 0
PRODUCT_CREATION_TIME         = 2005-123T16:30:06.000

RECORD_TYPE                   = STREAM
INTERCHANGE_FORMAT            = ASCII
FILE_RECORDS                  = 119929

START_TIME                    = "2000-340T00:00:00"
STOP_TIME                     = "2000-340T23:59:59"
NATIVE_START_TIME             = "29246464.183189"
NATIVE_STOP_TIME              = "29332863.183214"
SPACECRAFT_CLOCK_START_COUNT  = "1/1354666282.146"
SPACECRAFT_CLOCK_STOP_COUNT   = "1/1354752682.043"

INSTRUMENT_HOST_NAME          = "CASSINI ORBITER"
INSTRUMENT_HOST_ID            = "CO"
MISSION_PHASE_NAME            = "$PHASE_NAME"
ORBIT_NUMBER                  = $ORBIT_NUM
TARGET_NAME                   = "SOLAR WIND"
INSTRUMENT_NAME               = "MAGNETOSPHERIC IMAGING INSTRUMENT"
INSTRUMENT_ID                 = "MIMI"
DESCRIPTION                   = "
    Microsector accumulations for the LEMMS sensor of the MIMI instrument on
    the Cassini spacecraft"

^HEADER         = ("LFRT0_2000340_0000.CSV",  1 <BYTES>)
^SPREADSHEET    = ("LFRT0_2000340_0000.CSV",  225 <BYTES>)

OBJECT                        = HEADER
  RECORDS                     = 1
  BYTES                       = 224
  HEADER_TYPE                 = SPREADSHEET
  DESCRIPTION                 = "
    This file contains a single row of column headings (text strings enclosed
    within double quotes) separated by commas."
END_OBJECT                    = HEADER

OBJECT                        = SPREADSHEET
  ROWS                        = 119934
```

```
FIELDS                   = 16
ROW_BYTES                = 241
FIELD_DELIMITER          = COMMA

OBJECT                   = FIELD
  NAME                   = "PURPOSE"
  FIELD_NUMBER           = 1
  DATA_TYPE              = CHARACTER
  BYTES                  = 32
  DESCRIPTION            = "
     The PURPOSE field identifies the purpose or function of the data
     contained in current row. Valid entries include:
     SCI - normal science data values
     VALID_MIN - the inclusive or exclusive minimum value allowed for this
     column
     VALID_MAX - the inclusive or exclusive maximum value allowed for this
     column
     MIN - the minimum value for this column present in this product
     MAX - the maximum value for this column present in this product
     MEAN - the mean of the values in this column in this product, this
     value will be rounded for integer columns
     STDEV - the standard deviation of the values in this column in this
  product, this value will be rounded for integer columns"
END_OBJECT               = FIELD
OBJECT                   = FIELD
  NAME                   = "START_EPHEMERIS_S"
  FIELD_NUMBER           = 2
  UNIT                   = SECOND
  DATA_TYPE              = ASCII_REAL
  BYTES                  = 20
  VALID_MINIMUM          = -71063936
  VALID_MAXIMUM          = 757339265
  DESCRIPTION            = "
   The J2000 ephemeris time in seconds at the beginning of the time period
   for this record."
END_OBJECT               = FIELD
OBJECT                   = FIELD
  NAME                   = "END_EPHEMERIS_S"
  FIELD_NUMBER           = 3
  UNIT                   = SECOND
  DATA_TYPE              = ASCII_REAL
  BYTES                  = 20
  VALID_MINIMUM          = -71063936
  VALID_MAXIMUM          = 757339265
  DESCRIPTION            = "
   The J2000 ephemeris time in seconds at the end of the time period for
   this record."
END_OBJECT               = FIELD
OBJECT                   = FIELD
  NAME                   = "SPIN_COUNTER"
  FIELD_NUMBER           = 4
  DATA_TYPE              = ASCII_INTEGER
  BYTES                  = 10
  VALID_MINIMUM          = 0
  VALID_MAXIMUM          = 16383
  DESCRIPTION            = "
   MIMI always organizes time by Spins, when Cassini is not in spin mode,
   MIMI uses a commanded virtual spin period. This column is a counter
   that increments with each spin or virtual spin. This counter resets
   when MIMI undergoes certain operations like shutdown, and is not
   sufficiently large that it will not roll over."
END_OBJECT               = FIELD
OBJECT                   = FIELD
  NAME                   = "SECTOR"
  FIELD_NUMBER           = 5
  DATA_TYPE              = ASCII_INTEGER
  BYTES                  = 10
  VALID_MINIMUM          = 0
  VALID_MAXIMUM          = 15
  DESCRIPTION            = "
     Each spin is divided into 16 sectors. Sectors have no meaning with
     regard to pointing. They are nothing more or less than segments of
     time. This column contains the zero based index of the sector.
     Sectors have special significance in that the beginning of a sector is
     the only time that MIMI records the SCLOCK. All other times must be
```

```
              calculated based on the subsector, and, where appropriate, microsector
              values provided below. Times in this product were calculated in this
              manner."
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "START_SECTOR_SCLOCK_MAJOR"
  FIELD_NUMBER                = 6
  UNIT                        = COUNT
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 4000000000
  DESCRIPTION                 = "
     The value of the Spacecraft clock at the beginning of Sector during
     which this record occurred. This, combined with subsector, and
     microsector where appropriate, is the monotonic timestamp for the each
     record. All other times are calculated from this time representation."
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "SUBSECTOR"
  FIELD_NUMBER                = 7
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 15
  DESCRIPTION                 = "
     Each sector is divided into 16 subsectors. Subsectors have no meaning
     as far as pointing. They are nothing more or less than segments of
     time."
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "MICROSECTORS_COVERED"
  FIELD_NUMBER                = 8
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 2
  VALID_MAXIMUM               = 1024
  DESCRIPTION                 = "
     Each subsector is divided into 16 microsectors. Microsectors have no
     meaning as far as pointing. They are nothing more or less than segments
     of time. This column is the number of microsectors over which this
     record was recorded, i.e. 16 for one subsector, 32 for two subsectors,
     256 for one sector, etc."
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "SPIN_PERIOD_S"
  FIELD_NUMBER                = 9
  UNIT                        = SECOND
  DATA_TYPE                   = ASCII_REAL
  BYTES                       = 20
  VALID_MINIMUM               = 680
  VALID_MAXIMUM               = 3072
  DESCRIPTION                 = "
     The spacecraft spin period in seconds. If the spacecraft is not in spin
     mode, this is the virtual spin period used by the MIMI sensor to
     determine the timing of data colection. This value is not very
     reliable. It represents the 'nominal' spin period. When the spin period
     is changing, it will not be very accurate."
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "STARING"
  FIELD_NUMBER                = 10
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 1
  DESCRIPTION                 = "
     0 if the spacecraft is in spin mode, 1 if the not in spin mode."
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "MICROSECTOR"
  FIELD_NUMBER                = 11
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
```

```
    VALID_MAXIMUM             = 15
    DESCRIPTION               = "
    Each subsector is divided into 16 microsectors. microsectors have no
    meaning as far as pointing. They are nothing more or less than segments
    of time."
  END_OBJECT                  = FIELD
  OBJECT                      = FIELD
    NAME                      = "A0"
    FIELD_NUMBER              = 12
    DATA_TYPE                 = ASCII_INTEGER
    BYTES                     = 10
    VALID_MINIMUM             = 0
    VALID_MAXIMUM             = 40000
    DESCRIPTION               = "
    This field contains the counts sampled by the indicated LEMMS channel
    over the duration derived from either the END_EPHEMERIS_S -
    START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
    record) - START_EPHEMERIS_S (of this record)."
  END_OBJECT                  = FIELD
  OBJECT                      = FIELD
    NAME                      = "A1"
    FIELD_NUMBER              = 13
    DATA_TYPE                 = ASCII_INTEGER
    BYTES                     = 10
    VALID_MINIMUM             = 0
    VALID_MAXIMUM             = 40000
    DESCRIPTION               = "
    This field contains the counts sampled by the indicated LEMMS channel
    over the duration derived from either the END_EPHEMERIS_S -
    START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
    record) - START_EPHEMERIS_S (of this record)."
  END_OBJECT                  = FIELD
  OBJECT                      = FIELD
    NAME                      = "C0"
    FIELD_NUMBER              = 14
    DATA_TYPE                 = ASCII_INTEGER
    BYTES                     = 10
    VALID_MINIMUM             = 0
    VALID_MAXIMUM             = 40000
    DESCRIPTION               = "
    This field contains the counts sampled by the indicated LEMMS channel
    over the duration derived from either the END_EPHEMERIS_S -
    START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
    record) - START_EPHEMERIS_S (of this record)."
  END_OBJECT                  = FIELD
  OBJECT                      = FIELD
    NAME                      = "C1"
    FIELD_NUMBER              = 15
    DATA_TYPE                 = ASCII_INTEGER
    BYTES                     = 10
    VALID_MINIMUM             = 0
    VALID_MAXIMUM             = 40000
    DESCRIPTION               = "
    This field contains the counts sampled by the indicated LEMMS channel
    over the duration derived from either the END_EPHEMERIS_S -
    START_EPHEMERIS_S or else START_EPHEMERIS_S (of the next contiguous
    record) - START_EPHEMERIS_S (of this record)."
  END_OBJECT                  = FIELD
  OBJECT                      = FIELD
    NAME                      = "CENTER_LOOK_ANGLE_DEGREES"
    FIELD_NUMBER              = 16
    UNIT                      = DEGREE
    DATA_TYPE                 = ASCII_REAL
    BYTES                     = 20
    VALID_MINIMUM             = 0
    VALID_MAXIMUM             = 360
    DESCRIPTION               = "
    The angle in degrees of the LEMMS detector with the -z axis of the
    spacecraft, measured counter-clockwise about the y axis of the
    spacecraft."
  END_OBJECT                  = FIELD
END_OBJECT                    = SPREADSHEET
END
```

```
PDS_VERSION_ID                   = PDS3
DATA_SET_ID                      = "CO-E/J/S/SW-MIMI-2-LEMMS-UNCALIB-V1.0"
PRODUCT_ID                       = "LPHA0_2000340_0000"
STANDARD_DATA_PRODUCT_ID         = "MIMI_LEMMS_PHA"
PRODUCT_TYPE                     = "DATA"
PRODUCT_VERSION                  = 0
PRODUCT_CREATION_TIME            = 2005-123T16:27:38.000

RECORD_TYPE                      = STREAM
INTERCHANGE_FORMAT               = ASCII
FILE_RECORDS                     = 7045

START_TIME                       = "2000-340T00:00:00"
STOP_TIME                        = "2000-340T23:59:59"
NATIVE_START_TIME                = "29246464.183189"
NATIVE_STOP_TIME                 = "29332863.183214"
SPACECRAFT_CLOCK_START_COUNT     = "1/1354666282.146"
SPACECRAFT_CLOCK_STOP_COUNT      = "1/1354752682.043"

INSTRUMENT_HOST_NAME             = "CASSINI ORBITER"
INSTRUMENT_HOST_ID               = "CO"
MISSION_PHASE_NAME               = "$PHASE_NAME"
ORBIT_NUMBER                     = $ORBIT_NUM
TARGET_NAME                      = "SOLAR WIND"
INSTRUMENT_NAME                  = "MAGNETOSPHERIC IMAGING INSTRUMENT"
INSTRUMENT_ID                    = "MIMI"
DESCRIPTION                      = "
    (P)ulse (H)eight (A)nalysis data for the LEMMS sensor of the MIMI
    instrument on the Cassini spacecraft"

^HEADER         = ("LPHA0_2000340_0000.CSV",  1 <BYTES>)
^SPREADSHEET    = ("LPHA0_2000340_0000.CSV",  4065 <BYTES>)

OBJECT                           = HEADER
  RECORDS                        = 1
  BYTES                          = 4064
  HEADER_TYPE                    = SPREADSHEET
  DESCRIPTION                    = "
    This file contains a single row of column headings (text strings enclosed
    within double quotes) separated by commas."
END_OBJECT                       = HEADER

OBJECT                           = SPREADSHEET
  ROWS                           = 7050
  FIELDS                         = 203
  ROW_BYTES                      = 2298
  FIELD_DELIMITER                = COMMA

  OBJECT                         = FIELD
    NAME                         = "PURPOSE"
    FIELD_NUMBER                 = 1
    DATA_TYPE                    = CHARACTER
    BYTES                        = 32
    DESCRIPTION                  = "
      The PURPOSE field identifies the purpose or function of the data
      contained in current row. Valid entries include:
      SCI - normal science data values
      VALID_MIN - the inclusive or exclusive minimum value allowed for this
      column
      VALID_MAX - the inclusive or exclusive maximum value allowed for this
      column
      MIN - the minimum value for this column present in this product
      MAX - the maximum value for this column present in this product
      MEAN - the mean of the values in this column in this product, this
      value will be rounded for integer columns
      STDEV - the standard deviation of the values in this column in this
      product, this value will be rounded for integer columns"
  END_OBJECT                     = FIELD
  OBJECT                         = FIELD
    NAME                         = "START_EPHEMERIS_S"
    FIELD_NUMBER                 = 2
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```
  UNIT                      = SECOND
  DATA_TYPE                 = ASCII_REAL
  BYTES                     = 20
  VALID_MINIMUM             = -71063936
  VALID_MAXIMUM             = 757339265
  DESCRIPTION               = "
    The J2000 ephemeris time in seconds at the beginning of the time period
    for this record."
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "END_EPHEMERIS_S"
  FIELD_NUMBER              = 3
  UNIT                      = SECOND
  DATA_TYPE                 = ASCII_REAL
  BYTES                     = 20
  VALID_MINIMUM             = -71063936
  VALID_MAXIMUM             = 757339265
  DESCRIPTION               = "
    The J2000 ephemeris time in seconds at the end of the time period for
    this record."
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "SPIN_COUNTER"
  FIELD_NUMBER              = 4
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 16383
  DESCRIPTION               = "
    MIMI always organizes time by Spins, when Cassini is not in spin mode,
    MIMI uses a commanded virtual spin period. This column is a counter
    that increments with each spin or virtual spin. This counter resets
    when MIMI undergoes certain operations like shutdown, and is not
    sufficiently large that it will not roll over."
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "SECTOR"
  FIELD_NUMBER              = 5
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 15
  DESCRIPTION               = "
     Each spin is divided into 16 sectors. Sectors have no meaning with
     regard to pointing. They are nothing more or less than segments of
     time. This column contains the zero based index of the sector.
     Sectors have special significance in that the beginning of a sector is
     the only time that MIMI records the SCLOCK. All other times must be
     calculated based on the subsector, and, where appropriate, microsector
     values provided below. Times in this product were calculated in this
     manner."
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "START_SECTOR_SCLOCK_MAJOR"
  FIELD_NUMBER              = 6
  UNIT                      = COUNT
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 4000000000
  DESCRIPTION               = "
    The value of the Spacecraft clock at the beginning of Sector during
    which this record occurred. This, combined with subsector, and
    microsector where appropriate, is the monotonic timestamp for the each
    record. All other times are calculated from this time representation."
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "SUBSECTOR"
  FIELD_NUMBER              = 7
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 15
  DESCRIPTION               = "
    Each sector is divided into 16 subsectors. Subsectors have no meaning
```

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                    as far as pointing. They are nothing more or less than segments of
                    time."
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "MICROSECTORS_COVERED"
  FIELD_NUMBER             = 8
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 2
  VALID_MAXIMUM            = 1024
  DESCRIPTION              = "
    Each subsector is divided into 16 microsectors. Microsectors have no
    meaning as far as pointing. They are nothing more or less than segments
    of time. This column is the number of microsectors over which this
    record was recorded, i.e. 16 for one subsector, 32 for two subsectors,
    256 for one sector, etc."
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "SPIN_PERIOD_S"
  FIELD_NUMBER             = 9
  UNIT                     = SECOND
  DATA_TYPE                = ASCII_REAL
  BYTES                    = 20
  VALID_MINIMUM            = 680
  VALID_MAXIMUM            = 3072
  DESCRIPTION              = "
    The spacecraft spin period in seconds. If the spacecraft is not in spin
    mode, this is the virtual spin period used by the MIMI sensor to
    determine the timing of data colection. This value is not very
    reliable. It represents the 'nominal' spin period. When the spin period
    is changing, it will not be very accurate."
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "STARING"
  FIELD_NUMBER             = 10
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 1
  DESCRIPTION              = "
    0 if the spacecraft is in spin mode, 1 if the not in spin mode."
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_A_BIN_0"
  FIELD_NUMBER             = 11
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector A,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector A
     energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_A_BIN_1"
  FIELD_NUMBER             = 12
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector A,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector A
     energy bins are logarithmically spaced.
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       See the MIMI_PASSBANDS calibration file for spacing deltas and min and
       max energies"
END_OBJECT                     = FIELD
OBJECT                         = FIELD
  NAME                         = "DETECTOR_A_BIN_2"
  FIELD_NUMBER                 = 13
  DATA_TYPE                    = ASCII_INTEGER
  BYTES                        = 10
  VALID_MINIMUM                = 0
  VALID_MAXIMUM                = 65534
  DESCRIPTION                  = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector A,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector A
     energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
END_OBJECT                     = FIELD
OBJECT                         = FIELD
  NAME                         = "DETECTOR_A_BIN_3"
  FIELD_NUMBER                 = 14
  DATA_TYPE                    = ASCII_INTEGER
  BYTES                        = 10
  VALID_MINIMUM                = 0
  VALID_MAXIMUM                = 65534
  DESCRIPTION                  = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector A,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector A
     energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
END_OBJECT                     = FIELD
OBJECT                         = FIELD
  NAME                         = "DETECTOR_A_BIN_4"
  FIELD_NUMBER                 = 15
  DATA_TYPE                    = ASCII_INTEGER
  BYTES                        = 10
  VALID_MINIMUM                = 0
  VALID_MAXIMUM                = 65534
  DESCRIPTION                  = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector A,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector A
     energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
END_OBJECT                     = FIELD
OBJECT                         = FIELD
  NAME                         = "DETECTOR_A_BIN_5"
  FIELD_NUMBER                 = 16
  DATA_TYPE                    = ASCII_INTEGER
  BYTES                        = 10
  VALID_MINIMUM                = 0
  VALID_MAXIMUM                = 65534
  DESCRIPTION                  = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector A,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector A
     energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
  END_OBJECT                   = FIELD
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OBJECT                    = FIELD
  NAME                    = "DETECTOR_A_BIN_6"
  FIELD_NUMBER            = 17
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector A,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector A
    energy bins are logarithmically spaced.
   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_A_BIN_7"
  FIELD_NUMBER            = 18
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector A,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector A
    energy bins are logarithmically spaced.
   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_A_BIN_8"
  FIELD_NUMBER            = 19
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector A,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector A
    energy bins are logarithmically spaced.
   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_A_BIN_9"
  FIELD_NUMBER            = 20
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector A,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector A
    energy bins are logarithmically spaced.
   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_A_BIN_10"
  FIELD_NUMBER            = 21
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              DATA_TYPE               = ASCII_INTEGER
              BYTES                   = 10
              VALID_MINIMUM           = 0
              VALID_MAXIMUM           = 65534
              DESCRIPTION             = "
                This field contains an array of counts observed within each of the 64
                energy bins for detector A,
                accumulated over the time interval derived from either the
                END_EPHEMERIS_S - START_EPHEMERIS_S or else
                START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
                (of this record). Detector A
                energy bins are logarithmically spaced.
                See the MIMI_PASSBANDS calibration file for spacing deltas and min and
                max energies"
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "DETECTOR_A_BIN_11"
  FIELD_NUMBER              = 22
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 65534
  DESCRIPTION               = "
                This field contains an array of counts observed within each of the 64
                energy bins for detector A,
                accumulated over the time interval derived from either the
                END_EPHEMERIS_S - START_EPHEMERIS_S or else
                START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
                (of this record). Detector A
                energy bins are logarithmically spaced.
                See the MIMI_PASSBANDS calibration file for spacing deltas and min and
                max energies"
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "DETECTOR_A_BIN_12"
  FIELD_NUMBER              = 23
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 65534
  DESCRIPTION               = "
                This field contains an array of counts observed within each of the 64
                energy bins for detector A,
                accumulated over the time interval derived from either the
                END_EPHEMERIS_S - START_EPHEMERIS_S or else
                START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
                (of this record). Detector A
                energy bins are logarithmically spaced.
                See the MIMI_PASSBANDS calibration file for spacing deltas and min and
                max energies"
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "DETECTOR_A_BIN_13"
  FIELD_NUMBER              = 24
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 65534
  DESCRIPTION               = "
                This field contains an array of counts observed within each of the 64
                energy bins for detector A,
                accumulated over the time interval derived from either the
                END_EPHEMERIS_S - START_EPHEMERIS_S or else
                START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
                (of this record). Detector A
                energy bins are logarithmically spaced.
                See the MIMI_PASSBANDS calibration file for spacing deltas and min and
                max energies"
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "DETECTOR_A_BIN_14"
  FIELD_NUMBER              = 25
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
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  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector A,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector A
     energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_A_BIN_15"
  FIELD_NUMBER             = 26
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector A,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector A
     energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_A_BIN_16"
  FIELD_NUMBER             = 27
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector A,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector A
     energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_A_BIN_17"
  FIELD_NUMBER             = 28
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector A,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector A
     energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_A_BIN_18"
  FIELD_NUMBER             = 29
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
     This field contains an array of counts observed within each of the 64
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            energy bins for detector A,
            accumulated over the time interval derived from either the
            END_EPHEMERIS_S - START_EPHEMERIS_S or else
            START_EPHEMERIS_S (of the next contiguous record) - START_EPHEMERIS_S
            (of this record). Detector A
            energy bins are logarithmically spaced.
          See the MIMI_PASSBANDS calibration file for spacing deltas and min and
          max energies"
END_OBJECT              = FIELD
OBJECT                  = FIELD
  NAME                  = "DETECTOR_A_BIN_19"
  FIELD_NUMBER          = 30
  DATA_TYPE             = ASCII_INTEGER
  BYTES                 = 10
  VALID_MINIMUM         = 0
  VALID_MAXIMUM         = 65534
  DESCRIPTION           = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector A,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) - START_EPHEMERIS_S
    (of this record). Detector A
    energy bins are logarithmically spaced.
  See the MIMI_PASSBANDS calibration file for spacing deltas and min and
  max energies"
END_OBJECT              = FIELD
OBJECT                  = FIELD
  NAME                  = "DETECTOR_A_BIN_20"
  FIELD_NUMBER          = 31
  DATA_TYPE             = ASCII_INTEGER
  BYTES                 = 10
  VALID_MINIMUM         = 0
  VALID_MAXIMUM         = 65534
  DESCRIPTION           = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector A,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) - START_EPHEMERIS_S
    (of this record). Detector A
    energy bins are logarithmically spaced.
  See the MIMI_PASSBANDS calibration file for spacing deltas and min and
  max energies"
END_OBJECT              = FIELD
OBJECT                  = FIELD
  NAME                  = "DETECTOR_A_BIN_21"
  FIELD_NUMBER          = 32
  DATA_TYPE             = ASCII_INTEGER
  BYTES                 = 10
  VALID_MINIMUM         = 0
  VALID_MAXIMUM         = 65534
  DESCRIPTION           = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector A,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) - START_EPHEMERIS_S
    (of this record). Detector A
    energy bins are logarithmically spaced.
  See the MIMI_PASSBANDS calibration file for spacing deltas and min and
  max energies"
END_OBJECT              = FIELD
OBJECT                  = FIELD
  NAME                  = "DETECTOR_A_BIN_22"
  FIELD_NUMBER          = 33
  DATA_TYPE             = ASCII_INTEGER
  BYTES                 = 10
  VALID_MINIMUM         = 0
  VALID_MAXIMUM         = 65534
  DESCRIPTION           = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector A,
    accumulated over the time interval derived from either the
    END EPHEMERIS S - START EPHEMERIS S or else
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                  START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
                  (of this record). Detector A
                  energy bins are logarithmically spaced.
                See the MIMI_PASSBANDS calibration file for spacing deltas and min and
                max energies"
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "DETECTOR_A_BIN_23"
  FIELD_NUMBER                = 34
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 65534
  DESCRIPTION                 = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector A,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector A
    energy bins are logarithmically spaced.
  See the MIMI_PASSBANDS calibration file for spacing deltas and min and
  max energies"
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "DETECTOR_A_BIN_24"
  FIELD_NUMBER                = 35
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 65534
  DESCRIPTION                 = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector A,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector A
    energy bins are logarithmically spaced.
  See the MIMI_PASSBANDS calibration file for spacing deltas and min and
  max energies"
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "DETECTOR_A_BIN_25"
  FIELD_NUMBER                = 36
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 65534
  DESCRIPTION                 = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector A,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector A
    energy bins are logarithmically spaced.
  See the MIMI_PASSBANDS calibration file for spacing deltas and min and
  max energies"
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "DETECTOR_A_BIN_26"
  FIELD_NUMBER                = 37
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 65534
  DESCRIPTION                 = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector A,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector A
    energy bins are logarithmically spaced.
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             See the MIMI_PASSBANDS calibration file for spacing deltas and min and
             max energies"
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "DETECTOR_A_BIN_27"
  FIELD_NUMBER                = 38
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 65534
  DESCRIPTION                 = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector A,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector A
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "DETECTOR_A_BIN_28"
  FIELD_NUMBER                = 39
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 65534
  DESCRIPTION                 = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector A,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector A
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "DETECTOR_A_BIN_29"
  FIELD_NUMBER                = 40
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 65534
  DESCRIPTION                 = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector A,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector A
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "DETECTOR_A_BIN_30"
  FIELD_NUMBER                = 41
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 65534
  DESCRIPTION                 = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector A,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector A
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
  END_OBJECT                  = FIELD
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OBJECT                       = FIELD
  NAME                       = "DETECTOR_A_BIN_31"
  FIELD_NUMBER               = 42
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 65534
  DESCRIPTION                = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector A,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector A
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "DETECTOR_A_BIN_32"
  FIELD_NUMBER               = 43
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 65534
  DESCRIPTION                = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector A,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector A
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "DETECTOR_A_BIN_33"
  FIELD_NUMBER               = 44
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 65534
  DESCRIPTION                = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector A,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector A
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "DETECTOR_A_BIN_34"
  FIELD_NUMBER               = 45
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 65534
  DESCRIPTION                = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector A,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector A
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "DETECTOR_A_BIN_35"
  FIELD_NUMBER               = 46
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                      DATA_TYPE              = ASCII_INTEGER
                      BYTES                  = 10
                      VALID_MINIMUM          = 0
                      VALID_MAXIMUM          = 65534
                      DESCRIPTION            = "
                        This field contains an array of counts observed within each of the 64
                        energy bins for detector A,
                        accumulated over the time interval derived from either the
                        END_EPHEMERIS_S - START_EPHEMERIS_S or else
                        START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
                        (of this record). Detector A
                        energy bins are logarithmically spaced.
                       See the MIMI_PASSBANDS calibration file for spacing deltas and min and
                        max energies"
   END_OBJECT            = FIELD
   OBJECT                = FIELD
     NAME                   = "DETECTOR_A_BIN_36"
     FIELD_NUMBER           = 47
     DATA_TYPE              = ASCII_INTEGER
     BYTES                  = 10
     VALID_MINIMUM          = 0
     VALID_MAXIMUM          = 65534
     DESCRIPTION            = "
        This field contains an array of counts observed within each of the 64
        energy bins for detector A,
        accumulated over the time interval derived from either the
        END_EPHEMERIS_S - START_EPHEMERIS_S or else
        START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
        (of this record). Detector A
        energy bins are logarithmically spaced.
       See the MIMI_PASSBANDS calibration file for spacing deltas and min and
        max energies"
   END_OBJECT            = FIELD
   OBJECT                = FIELD
     NAME                   = "DETECTOR_A_BIN_37"
     FIELD_NUMBER           = 48
     DATA_TYPE              = ASCII_INTEGER
     BYTES                  = 10
     VALID_MINIMUM          = 0
     VALID_MAXIMUM          = 65534
     DESCRIPTION            = "
        This field contains an array of counts observed within each of the 64
        energy bins for detector A,
        accumulated over the time interval derived from either the
        END_EPHEMERIS_S - START_EPHEMERIS_S or else
        START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
        (of this record). Detector A
        energy bins are logarithmically spaced.
       See the MIMI_PASSBANDS calibration file for spacing deltas and min and
        max energies"
   END_OBJECT            = FIELD
   OBJECT                = FIELD
     NAME                   = "DETECTOR_A_BIN_38"
     FIELD_NUMBER           = 49
     DATA_TYPE              = ASCII_INTEGER
     BYTES                  = 10
     VALID_MINIMUM          = 0
     VALID_MAXIMUM          = 65534
     DESCRIPTION            = "
        This field contains an array of counts observed within each of the 64
        energy bins for detector A,
        accumulated over the time interval derived from either the
        END_EPHEMERIS_S - START_EPHEMERIS_S or else
        START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
        (of this record). Detector A
        energy bins are logarithmically spaced.
       See the MIMI_PASSBANDS calibration file for spacing deltas and min and
        max energies"
   END_OBJECT            = FIELD
   OBJECT                = FIELD
     NAME                   = "DETECTOR_A_BIN_39"
     FIELD_NUMBER           = 50
     DATA_TYPE              = ASCII_INTEGER
     BYTES                  = 10
     VALID_MINIMUM          = 0
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   VALID_MAXIMUM           = 65534
   DESCRIPTION             = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector A,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector A
     energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_A_BIN_40"
  FIELD_NUMBER             = 51
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector A,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector A
     energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_A_BIN_41"
  FIELD_NUMBER             = 52
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector A,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector A
     energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_A_BIN_42"
  FIELD_NUMBER             = 53
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector A,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector A
     energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_A_BIN_43"
  FIELD_NUMBER             = 54
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
     This field contains an array of counts observed within each of the 64
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      energy bins for detector A,
      accumulated over the time interval derived from either the
      END_EPHEMERIS_S - START_EPHEMERIS_S or else
      START_EPHEMERIS_S (of the next contiguous record) - START_EPHEMERIS_S
      (of this record). Detector A
      energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "DETECTOR_A_BIN_44"
  FIELD_NUMBER              = 55
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 65534
  DESCRIPTION               = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector A,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) - START_EPHEMERIS_S
     (of this record). Detector A
     energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "DETECTOR_A_BIN_45"
  FIELD_NUMBER              = 56
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 65534
  DESCRIPTION               = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector A,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) - START_EPHEMERIS_S
     (of this record). Detector A
     energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "DETECTOR_A_BIN_46"
  FIELD_NUMBER              = 57
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 65534
  DESCRIPTION               = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector A,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) - START_EPHEMERIS_S
     (of this record). Detector A
     energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "DETECTOR_A_BIN_47"
  FIELD_NUMBER              = 58
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 65534
  DESCRIPTION               = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector A,
     accumulated over the time interval derived from either the
     END EPHEMERIS S - START EPHEMERIS S or else
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        START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
        (of this record). Detector A
        energy bins are logarithmically spaced.
      See the MIMI_PASSBANDS calibration file for spacing deltas and min and
      max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_A_BIN_48"
  FIELD_NUMBER            = 59
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector A,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector A
    energy bins are logarithmically spaced.
  See the MIMI_PASSBANDS calibration file for spacing deltas and min and
  max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_A_BIN_49"
  FIELD_NUMBER            = 60
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector A,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector A
    energy bins are logarithmically spaced.
  See the MIMI_PASSBANDS calibration file for spacing deltas and min and
  max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_A_BIN_50"
  FIELD_NUMBER            = 61
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector A,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector A
    energy bins are logarithmically spaced.
  See the MIMI_PASSBANDS calibration file for spacing deltas and min and
  max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_A_BIN_51"
  FIELD_NUMBER            = 62
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector A,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector A
    energy bins are logarithmically spaced.
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                           See the MIMI_PASSBANDS calibration file for spacing deltas and min and
                           max energies"
END_OBJECT                      = FIELD
OBJECT                          = FIELD
  NAME                          = "DETECTOR_A_BIN_52"
  FIELD_NUMBER                  = 63
  DATA_TYPE                     = ASCII_INTEGER
  BYTES                         = 10
  VALID_MINIMUM                 = 0
  VALID_MAXIMUM                 = 65534
  DESCRIPTION                   = "
      This field contains an array of counts observed within each of the 64
      energy bins for detector A,
      accumulated over the time interval derived from either the
      END_EPHEMERIS_S - START_EPHEMERIS_S or else
      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
      (of this record). Detector A
      energy bins are logarithmically spaced.
      See the MIMI_PASSBANDS calibration file for spacing deltas and min and
      max energies"
END_OBJECT                      = FIELD
OBJECT                          = FIELD
  NAME                          = "DETECTOR_A_BIN_53"
  FIELD_NUMBER                  = 64
  DATA_TYPE                     = ASCII_INTEGER
  BYTES                         = 10
  VALID_MINIMUM                 = 0
  VALID_MAXIMUM                 = 65534
  DESCRIPTION                   = "
      This field contains an array of counts observed within each of the 64
      energy bins for detector A,
      accumulated over the time interval derived from either the
      END_EPHEMERIS_S - START_EPHEMERIS_S or else
      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
      (of this record). Detector A
      energy bins are logarithmically spaced.
      See the MIMI_PASSBANDS calibration file for spacing deltas and min and
      max energies"
END_OBJECT                      = FIELD
OBJECT                          = FIELD
  NAME                          = "DETECTOR_A_BIN_54"
  FIELD_NUMBER                  = 65
  DATA_TYPE                     = ASCII_INTEGER
  BYTES                         = 10
  VALID_MINIMUM                 = 0
  VALID_MAXIMUM                 = 65534
  DESCRIPTION                   = "
      This field contains an array of counts observed within each of the 64
      energy bins for detector A,
      accumulated over the time interval derived from either the
      END_EPHEMERIS_S - START_EPHEMERIS_S or else
      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
      (of this record). Detector A
      energy bins are logarithmically spaced.
      See the MIMI_PASSBANDS calibration file for spacing deltas and min and
      max energies"
END_OBJECT                      = FIELD
OBJECT                          = FIELD
  NAME                          = "DETECTOR_A_BIN_55"
  FIELD_NUMBER                  = 66
  DATA_TYPE                     = ASCII_INTEGER
  BYTES                         = 10
  VALID_MINIMUM                 = 0
  VALID_MAXIMUM                 = 65534
  DESCRIPTION                   = "
      This field contains an array of counts observed within each of the 64
      energy bins for detector A,
      accumulated over the time interval derived from either the
      END_EPHEMERIS_S - START_EPHEMERIS_S or else
      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
      (of this record). Detector A
      energy bins are logarithmically spaced.
      See the MIMI_PASSBANDS calibration file for spacing deltas and min and
      max energies"
  END_OBJECT                    = FIELD
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OBJECT                  = FIELD
  NAME                  = "DETECTOR_A_BIN_56"
  FIELD_NUMBER          = 67
  DATA_TYPE             = ASCII_INTEGER
  BYTES                 = 10
  VALID_MINIMUM         = 0
  VALID_MAXIMUM         = 65534
  DESCRIPTION           = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector A,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector A
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT              = FIELD
OBJECT                  = FIELD
  NAME                  = "DETECTOR_A_BIN_57"
  FIELD_NUMBER          = 68
  DATA_TYPE             = ASCII_INTEGER
  BYTES                 = 10
  VALID_MINIMUM         = 0
  VALID_MAXIMUM         = 65534
  DESCRIPTION           = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector A,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector A
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT              = FIELD
OBJECT                  = FIELD
  NAME                  = "DETECTOR_A_BIN_58"
  FIELD_NUMBER          = 69
  DATA_TYPE             = ASCII_INTEGER
  BYTES                 = 10
  VALID_MINIMUM         = 0
  VALID_MAXIMUM         = 65534
  DESCRIPTION           = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector A,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector A
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT              = FIELD
OBJECT                  = FIELD
  NAME                  = "DETECTOR_A_BIN_59"
  FIELD_NUMBER          = 70
  DATA_TYPE             = ASCII_INTEGER
  BYTES                 = 10
  VALID_MINIMUM         = 0
  VALID_MAXIMUM         = 65534
  DESCRIPTION           = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector A,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector A
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT              = FIELD
OBJECT                  = FIELD
  NAME                  = "DETECTOR_A_BIN_60"
  FIELD_NUMBER          = 71
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                    DATA_TYPE              = ASCII_INTEGER
                    BYTES                  = 10
                    VALID_MINIMUM          = 0
                    VALID_MAXIMUM          = 65534
                    DESCRIPTION            = "
                      This field contains an array of counts observed within each of the 64
                      energy bins for detector A,
                      accumulated over the time interval derived from either the
                      END_EPHEMERIS_S - START_EPHEMERIS_S or else
                      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
                      (of this record). Detector A
                      energy bins are logarithmically spaced.
                      See the MIMI_PASSBANDS calibration file for spacing deltas and min and
                      max energies"
  END_OBJECT              = FIELD
  OBJECT                  = FIELD
    NAME                   = "DETECTOR_A_BIN_61"
    FIELD_NUMBER           = 72
    DATA_TYPE              = ASCII_INTEGER
    BYTES                  = 10
    VALID_MINIMUM          = 0
    VALID_MAXIMUM          = 65534
    DESCRIPTION            = "
                      This field contains an array of counts observed within each of the 64
                      energy bins for detector A,
                      accumulated over the time interval derived from either the
                      END_EPHEMERIS_S - START_EPHEMERIS_S or else
                      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
                      (of this record). Detector A
                      energy bins are logarithmically spaced.
                      See the MIMI_PASSBANDS calibration file for spacing deltas and min and
                      max energies"
  END_OBJECT              = FIELD
  OBJECT                  = FIELD
    NAME                   = "DETECTOR_A_BIN_62"
    FIELD_NUMBER           = 73
    DATA_TYPE              = ASCII_INTEGER
    BYTES                  = 10
    VALID_MINIMUM          = 0
    VALID_MAXIMUM          = 65534
    DESCRIPTION            = "
                      This field contains an array of counts observed within each of the 64
                      energy bins for detector A,
                      accumulated over the time interval derived from either the
                      END_EPHEMERIS_S - START_EPHEMERIS_S or else
                      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
                      (of this record). Detector A
                      energy bins are logarithmically spaced.
                      See the MIMI_PASSBANDS calibration file for spacing deltas and min and
                      max energies"
  END_OBJECT              = FIELD
  OBJECT                  = FIELD
    NAME                   = "DETECTOR_A_BIN_63"
    FIELD_NUMBER           = 74
    DATA_TYPE              = ASCII_INTEGER
    BYTES                  = 10
    VALID_MINIMUM          = 0
    VALID_MAXIMUM          = 65534
    DESCRIPTION            = "
                      This field contains an array of counts observed within each of the 64
                      energy bins for detector A,
                      accumulated over the time interval derived from either the
                      END_EPHEMERIS_S - START_EPHEMERIS_S or else
                      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
                      (of this record). Detector A
                      energy bins are logarithmically spaced.
                      See the MIMI_PASSBANDS calibration file for spacing deltas and min and
                      max energies"
  END_OBJECT              = FIELD
  OBJECT                  = FIELD
    NAME                   = "DETECTOR_E_BIN_0"
    FIELD_NUMBER           = 75
    DATA_TYPE              = ASCII_INTEGER
    BYTES                  = 10
    VALID_MINIMUM          = 0
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    VALID_MAXIMUM            = 65534
    DESCRIPTION              = "
      This field contains an array of counts observed within each of the 64
      energy bins for detector E,
      accumulated over the time interval derived from either the
      END_EPHEMERIS_S - START_EPHEMERIS_S or else
      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
      (of this record). Detector E
      energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_E_BIN_1"
  FIELD_NUMBER             = 76
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
      This field contains an array of counts observed within each of the 64
      energy bins for detector E,
      accumulated over the time interval derived from either the
      END_EPHEMERIS_S - START_EPHEMERIS_S or else
      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
      (of this record). Detector E
      energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_E_BIN_2"
  FIELD_NUMBER             = 77
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
      This field contains an array of counts observed within each of the 64
      energy bins for detector E,
      accumulated over the time interval derived from either the
      END_EPHEMERIS_S - START_EPHEMERIS_S or else
      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
      (of this record). Detector E
      energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_E_BIN_3"
  FIELD_NUMBER             = 78
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
      This field contains an array of counts observed within each of the 64
      energy bins for detector E,
      accumulated over the time interval derived from either the
      END_EPHEMERIS_S - START_EPHEMERIS_S or else
      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
      (of this record). Detector E
      energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_E_BIN_4"
  FIELD_NUMBER             = 79
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
      This field contains an array of counts observed within each of the 64
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              energy bins for detector E,
              accumulated over the time interval derived from either the
              END_EPHEMERIS_S - START_EPHEMERIS_S or else
              START_EPHEMERIS_S (of the next contiguous record) - START_EPHEMERIS_S
              (of this record). Detector E
              energy bins are logarithmically spaced.
            See the MIMI_PASSBANDS calibration file for spacing deltas and min and
            max energies"
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "DETECTOR_E_BIN_5"
  FIELD_NUMBER              = 80
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 65534
  DESCRIPTION               = "
            This field contains an array of counts observed within each of the 64
            energy bins for detector E,
            accumulated over the time interval derived from either the
            END_EPHEMERIS_S - START_EPHEMERIS_S or else
            START_EPHEMERIS_S (of the next contiguous record) - START_EPHEMERIS_S
            (of this record). Detector E
            energy bins are logarithmically spaced.
          See the MIMI_PASSBANDS calibration file for spacing deltas and min and
          max energies"
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "DETECTOR_E_BIN_6"
  FIELD_NUMBER              = 81
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 65534
  DESCRIPTION               = "
            This field contains an array of counts observed within each of the 64
            energy bins for detector E,
            accumulated over the time interval derived from either the
            END_EPHEMERIS_S - START_EPHEMERIS_S or else
            START_EPHEMERIS_S (of the next contiguous record) - START_EPHEMERIS_S
            (of this record). Detector E
            energy bins are logarithmically spaced.
          See the MIMI_PASSBANDS calibration file for spacing deltas and min and
          max energies"
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "DETECTOR_E_BIN_7"
  FIELD_NUMBER              = 82
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 65534
  DESCRIPTION               = "
            This field contains an array of counts observed within each of the 64
            energy bins for detector E,
            accumulated over the time interval derived from either the
            END_EPHEMERIS_S - START_EPHEMERIS_S or else
            START_EPHEMERIS_S (of the next contiguous record) - START_EPHEMERIS_S
            (of this record). Detector E
            energy bins are logarithmically spaced.
          See the MIMI_PASSBANDS calibration file for spacing deltas and min and
          max energies"
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "DETECTOR_E_BIN_8"
  FIELD_NUMBER              = 83
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 65534
  DESCRIPTION               = "
            This field contains an array of counts observed within each of the 64
            energy bins for detector E,
            accumulated over the time interval derived from either the
            END EPHEMERIS S - START EPHEMERIS S or else
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                 START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
                 (of this record). Detector E
                 energy bins are logarithmically spaced.
               See the MIMI_PASSBANDS calibration file for spacing deltas and min and
               max energies"
  END_OBJECT                    = FIELD
  OBJECT                        = FIELD
    NAME                        = "DETECTOR_E_BIN_9"
    FIELD_NUMBER                = 84
    DATA_TYPE                   = ASCII_INTEGER
    BYTES                       = 10
    VALID_MINIMUM               = 0
    VALID_MAXIMUM               = 65534
    DESCRIPTION                 = "
       This field contains an array of counts observed within each of the 64
       energy bins for detector E,
       accumulated over the time interval derived from either the
       END_EPHEMERIS_S - START_EPHEMERIS_S or else
       START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
       (of this record). Detector E
       energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
  END_OBJECT                    = FIELD
  OBJECT                        = FIELD
    NAME                        = "DETECTOR_E_BIN_10"
    FIELD_NUMBER                = 85
    DATA_TYPE                   = ASCII_INTEGER
    BYTES                       = 10
    VALID_MINIMUM               = 0
    VALID_MAXIMUM               = 65534
    DESCRIPTION                 = "
       This field contains an array of counts observed within each of the 64
       energy bins for detector E,
       accumulated over the time interval derived from either the
       END_EPHEMERIS_S - START_EPHEMERIS_S or else
       START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
       (of this record). Detector E
       energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
  END_OBJECT                    = FIELD
  OBJECT                        = FIELD
    NAME                        = "DETECTOR_E_BIN_11"
    FIELD_NUMBER                = 86
    DATA_TYPE                   = ASCII_INTEGER
    BYTES                       = 10
    VALID_MINIMUM               = 0
    VALID_MAXIMUM               = 65534
    DESCRIPTION                 = "
       This field contains an array of counts observed within each of the 64
       energy bins for detector E,
       accumulated over the time interval derived from either the
       END_EPHEMERIS_S - START_EPHEMERIS_S or else
       START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
       (of this record). Detector E
       energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
  END_OBJECT                    = FIELD
  OBJECT                        = FIELD
    NAME                        = "DETECTOR_E_BIN_12"
    FIELD_NUMBER                = 87
    DATA_TYPE                   = ASCII_INTEGER
    BYTES                       = 10
    VALID_MINIMUM               = 0
    VALID_MAXIMUM               = 65534
    DESCRIPTION                 = "
       This field contains an array of counts observed within each of the 64
       energy bins for detector E,
       accumulated over the time interval derived from either the
       END_EPHEMERIS_S - START_EPHEMERIS_S or else
       START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
       (of this record). Detector E
       energy bins are logarithmically spaced.
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        See the MIMI_PASSBANDS calibration file for spacing deltas and min and
        max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_E_BIN_13"
  FIELD_NUMBER             = 88
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector E,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector E
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_E_BIN_14"
  FIELD_NUMBER             = 89
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector E,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector E
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_E_BIN_15"
  FIELD_NUMBER             = 90
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector E,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector E
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_E_BIN_16"
  FIELD_NUMBER             = 91
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector E,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector E
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
  END_OBJECT               = FIELD
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OBJECT                   = FIELD
  NAME                   = "DETECTOR_E_BIN_17"
  FIELD_NUMBER           = 92
  DATA_TYPE              = ASCII_INTEGER
  BYTES                  = 10
  VALID_MINIMUM          = 0
  VALID_MAXIMUM          = 65534
  DESCRIPTION            = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector E,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector E
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT               = FIELD
OBJECT                   = FIELD
  NAME                   = "DETECTOR_E_BIN_18"
  FIELD_NUMBER           = 93
  DATA_TYPE              = ASCII_INTEGER
  BYTES                  = 10
  VALID_MINIMUM          = 0
  VALID_MAXIMUM          = 65534
  DESCRIPTION            = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector E,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector E
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT               = FIELD
OBJECT                   = FIELD
  NAME                   = "DETECTOR_E_BIN_19"
  FIELD_NUMBER           = 94
  DATA_TYPE              = ASCII_INTEGER
  BYTES                  = 10
  VALID_MINIMUM          = 0
  VALID_MAXIMUM          = 65534
  DESCRIPTION            = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector E,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector E
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT               = FIELD
OBJECT                   = FIELD
  NAME                   = "DETECTOR_E_BIN_20"
  FIELD_NUMBER           = 95
  DATA_TYPE              = ASCII_INTEGER
  BYTES                  = 10
  VALID_MINIMUM          = 0
  VALID_MAXIMUM          = 65534
  DESCRIPTION            = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector E,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector E
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT               = FIELD
OBJECT                   = FIELD
  NAME                   = "DETECTOR_E_BIN_21"
  FIELD_NUMBER           = 96
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                     DATA_TYPE                = ASCII_INTEGER
                     BYTES                    = 10
                     VALID_MINIMUM            = 0
                     VALID_MAXIMUM            = 65534
                     DESCRIPTION              = "
                       This field contains an array of counts observed within each of the 64
                       energy bins for detector E,
                       accumulated over the time interval derived from either the
                       END_EPHEMERIS_S - START_EPHEMERIS_S or else
                       START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
                       (of this record). Detector E
                       energy bins are logarithmically spaced.
                       See the MIMI_PASSBANDS calibration file for spacing deltas and min and
                       max energies"
   END_OBJECT                = FIELD
   OBJECT                    = FIELD
     NAME                     = "DETECTOR_E_BIN_22"
     FIELD_NUMBER             = 97
     DATA_TYPE                = ASCII_INTEGER
     BYTES                    = 10
     VALID_MINIMUM            = 0
     VALID_MAXIMUM            = 65534
     DESCRIPTION              = "
                       This field contains an array of counts observed within each of the 64
                       energy bins for detector E,
                       accumulated over the time interval derived from either the
                       END_EPHEMERIS_S - START_EPHEMERIS_S or else
                       START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
                       (of this record). Detector E
                       energy bins are logarithmically spaced.
                       See the MIMI_PASSBANDS calibration file for spacing deltas and min and
                       max energies"
   END_OBJECT                = FIELD
   OBJECT                    = FIELD
     NAME                     = "DETECTOR_E_BIN_23"
     FIELD_NUMBER             = 98
     DATA_TYPE                = ASCII_INTEGER
     BYTES                    = 10
     VALID_MINIMUM            = 0
     VALID_MAXIMUM            = 65534
     DESCRIPTION              = "
                       This field contains an array of counts observed within each of the 64
                       energy bins for detector E,
                       accumulated over the time interval derived from either the
                       END_EPHEMERIS_S - START_EPHEMERIS_S or else
                       START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
                       (of this record). Detector E
                       energy bins are logarithmically spaced.
                       See the MIMI_PASSBANDS calibration file for spacing deltas and min and
                       max energies"
   END_OBJECT                = FIELD
   OBJECT                    = FIELD
     NAME                     = "DETECTOR_E_BIN_24"
     FIELD_NUMBER             = 99
     DATA_TYPE                = ASCII_INTEGER
     BYTES                    = 10
     VALID_MINIMUM            = 0
     VALID_MAXIMUM            = 65534
     DESCRIPTION              = "
                       This field contains an array of counts observed within each of the 64
                       energy bins for detector E,
                       accumulated over the time interval derived from either the
                       END_EPHEMERIS_S - START_EPHEMERIS_S or else
                       START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
                       (of this record). Detector E
                       energy bins are logarithmically spaced.
                       See the MIMI_PASSBANDS calibration file for spacing deltas and min and
                       max energies"
   END_OBJECT                = FIELD
   OBJECT                    = FIELD
     NAME                     = "DETECTOR_E_BIN_25"
     FIELD_NUMBER             = 100
     DATA_TYPE                = ASCII_INTEGER
     BYTES                    = 10
     VALID_MINIMUM            = 0
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    VALID_MAXIMUM           = 65534
    DESCRIPTION             = "
      This field contains an array of counts observed within each of the 64
      energy bins for detector E,
      accumulated over the time interval derived from either the
      END_EPHEMERIS_S - START_EPHEMERIS_S or else
      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
      (of this record). Detector E
      energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "DETECTOR_E_BIN_26"
  FIELD_NUMBER              = 101
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 65534
  DESCRIPTION               = "
      This field contains an array of counts observed within each of the 64
      energy bins for detector E,
      accumulated over the time interval derived from either the
      END_EPHEMERIS_S - START_EPHEMERIS_S or else
      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
      (of this record). Detector E
      energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "DETECTOR_E_BIN_27"
  FIELD_NUMBER              = 102
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 65534
  DESCRIPTION               = "
      This field contains an array of counts observed within each of the 64
      energy bins for detector E,
      accumulated over the time interval derived from either the
      END_EPHEMERIS_S - START_EPHEMERIS_S or else
      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
      (of this record). Detector E
      energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "DETECTOR_E_BIN_28"
  FIELD_NUMBER              = 103
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 65534
  DESCRIPTION               = "
      This field contains an array of counts observed within each of the 64
      energy bins for detector E,
      accumulated over the time interval derived from either the
      END_EPHEMERIS_S - START_EPHEMERIS_S or else
      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
      (of this record). Detector E
      energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "DETECTOR_E_BIN_29"
  FIELD_NUMBER              = 104
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 65534
  DESCRIPTION               = "
      This field contains an array of counts observed within each of the 64
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              energy bins for detector E,
              accumulated over the time interval derived from either the
              END_EPHEMERIS_S - START_EPHEMERIS_S or else
              START_EPHEMERIS_S (of the next contiguous record) - START_EPHEMERIS_S
              (of this record). Detector E
              energy bins are logarithmically spaced.
           See the MIMI_PASSBANDS calibration file for spacing deltas and min and
           max energies"
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "DETECTOR_E_BIN_30"
  FIELD_NUMBER              = 105
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 65534
  DESCRIPTION               = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector E,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) - START_EPHEMERIS_S
     (of this record). Detector E
     energy bins are logarithmically spaced.
   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
   max energies"
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "DETECTOR_E_BIN_31"
  FIELD_NUMBER              = 106
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 65534
  DESCRIPTION               = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector E,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) - START_EPHEMERIS_S
     (of this record). Detector E
     energy bins are logarithmically spaced.
   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
   max energies"
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "DETECTOR_E_BIN_32"
  FIELD_NUMBER              = 107
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 65534
  DESCRIPTION               = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector E,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) - START_EPHEMERIS_S
     (of this record). Detector E
     energy bins are logarithmically spaced.
   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
   max energies"
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "DETECTOR_E_BIN_33"
  FIELD_NUMBER              = 108
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 65534
  DESCRIPTION               = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector E,
     accumulated over the time interval derived from either the
     END EPHEMERIS S - START EPHEMERIS S or else
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         START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
         (of this record). Detector E
         energy bins are logarithmically spaced.
       See the MIMI_PASSBANDS calibration file for spacing deltas and min and
       max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_E_BIN_34"
  FIELD_NUMBER            = 109
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector E,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector E
     energy bins are logarithmically spaced.
   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
   max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_E_BIN_35"
  FIELD_NUMBER            = 110
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector E,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector E
     energy bins are logarithmically spaced.
   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
   max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_E_BIN_36"
  FIELD_NUMBER            = 111
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector E,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector E
     energy bins are logarithmically spaced.
   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
   max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_E_BIN_37"
  FIELD_NUMBER            = 112
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector E,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector E
     energy bins are logarithmically spaced.
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          See the MIMI_PASSBANDS calibration file for spacing deltas and min and
        max energies"
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "DETECTOR_E_BIN_38"
  FIELD_NUMBER              = 113
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 65534
  DESCRIPTION               = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector E,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector E
     energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "DETECTOR_E_BIN_39"
  FIELD_NUMBER              = 114
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 65534
  DESCRIPTION               = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector E,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector E
     energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "DETECTOR_E_BIN_40"
  FIELD_NUMBER              = 115
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 65534
  DESCRIPTION               = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector E,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector E
     energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "DETECTOR_E_BIN_41"
  FIELD_NUMBER              = 116
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 65534
  DESCRIPTION               = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector E,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector E
     energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
  END_OBJECT                = FIELD
```

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OBJECT                    = FIELD
  NAME                    = "DETECTOR_E_BIN_42"
  FIELD_NUMBER            = 117
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector E,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector E
    energy bins are logarithmically spaced.
   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_E_BIN_43"
  FIELD_NUMBER            = 118
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector E,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector E
    energy bins are logarithmically spaced.
   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_E_BIN_44"
  FIELD_NUMBER            = 119
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector E,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector E
    energy bins are logarithmically spaced.
   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_E_BIN_45"
  FIELD_NUMBER            = 120
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector E,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector E
    energy bins are logarithmically spaced.
   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_E_BIN_46"
  FIELD_NUMBER            = 121
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                    DATA_TYPE              = ASCII_INTEGER
                    BYTES                  = 10
                    VALID_MINIMUM          = 0
                    VALID_MAXIMUM          = 65534
                    DESCRIPTION            = "
                      This field contains an array of counts observed within each of the 64
                      energy bins for detector E,
                      accumulated over the time interval derived from either the
                      END_EPHEMERIS_S - START_EPHEMERIS_S or else
                      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
                      (of this record). Detector E
                      energy bins are logarithmically spaced.
                      See the MIMI_PASSBANDS calibration file for spacing deltas and min and
                      max energies"
  END_OBJECT               = FIELD
  OBJECT                   = FIELD
    NAME                   = "DETECTOR_E_BIN_47"
    FIELD_NUMBER           = 122
    DATA_TYPE              = ASCII_INTEGER
    BYTES                  = 10
    VALID_MINIMUM          = 0
    VALID_MAXIMUM          = 65534
    DESCRIPTION            = "
      This field contains an array of counts observed within each of the 64
      energy bins for detector E,
      accumulated over the time interval derived from either the
      END_EPHEMERIS_S - START_EPHEMERIS_S or else
      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
      (of this record). Detector E
      energy bins are logarithmically spaced.
      See the MIMI_PASSBANDS calibration file for spacing deltas and min and
      max energies"
  END_OBJECT               = FIELD
  OBJECT                   = FIELD
    NAME                   = "DETECTOR_E_BIN_48"
    FIELD_NUMBER           = 123
    DATA_TYPE              = ASCII_INTEGER
    BYTES                  = 10
    VALID_MINIMUM          = 0
    VALID_MAXIMUM          = 65534
    DESCRIPTION            = "
      This field contains an array of counts observed within each of the 64
      energy bins for detector E,
      accumulated over the time interval derived from either the
      END_EPHEMERIS_S - START_EPHEMERIS_S or else
      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
      (of this record). Detector E
      energy bins are logarithmically spaced.
      See the MIMI_PASSBANDS calibration file for spacing deltas and min and
      max energies"
  END_OBJECT               = FIELD
  OBJECT                   = FIELD
    NAME                   = "DETECTOR_E_BIN_49"
    FIELD_NUMBER           = 124
    DATA_TYPE              = ASCII_INTEGER
    BYTES                  = 10
    VALID_MINIMUM          = 0
    VALID_MAXIMUM          = 65534
    DESCRIPTION            = "
      This field contains an array of counts observed within each of the 64
      energy bins for detector E,
      accumulated over the time interval derived from either the
      END_EPHEMERIS_S - START_EPHEMERIS_S or else
      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
      (of this record). Detector E
      energy bins are logarithmically spaced.
      See the MIMI_PASSBANDS calibration file for spacing deltas and min and
      max energies"
  END_OBJECT               = FIELD
  OBJECT                   = FIELD
    NAME                   = "DETECTOR_E_BIN_50"
    FIELD_NUMBER           = 125
    DATA_TYPE              = ASCII_INTEGER
    BYTES                  = 10
    VALID_MINIMUM          = 0
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    VALID_MAXIMUM            = 65534
    DESCRIPTION              = "
      This field contains an array of counts observed within each of the 64
      energy bins for detector E,
      accumulated over the time interval derived from either the
      END_EPHEMERIS_S - START_EPHEMERIS_S or else
      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
      (of this record). Detector E
      energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "DETECTOR_E_BIN_51"
  FIELD_NUMBER               = 126
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 65534
  DESCRIPTION                = "
      This field contains an array of counts observed within each of the 64
      energy bins for detector E,
      accumulated over the time interval derived from either the
      END_EPHEMERIS_S - START_EPHEMERIS_S or else
      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
      (of this record). Detector E
      energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "DETECTOR_E_BIN_52"
  FIELD_NUMBER               = 127
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 65534
  DESCRIPTION                = "
      This field contains an array of counts observed within each of the 64
      energy bins for detector E,
      accumulated over the time interval derived from either the
      END_EPHEMERIS_S - START_EPHEMERIS_S or else
      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
      (of this record). Detector E
      energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "DETECTOR_E_BIN_53"
  FIELD_NUMBER               = 128
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 65534
  DESCRIPTION                = "
      This field contains an array of counts observed within each of the 64
      energy bins for detector E,
      accumulated over the time interval derived from either the
      END_EPHEMERIS_S - START_EPHEMERIS_S or else
      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
      (of this record). Detector E
      energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "DETECTOR_E_BIN_54"
  FIELD_NUMBER               = 129
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 65534
  DESCRIPTION                = "
      This field contains an array of counts observed within each of the 64
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    energy bins for detector E,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector E
    energy bins are logarithmically spaced.
   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
   max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_E_BIN_55"
  FIELD_NUMBER            = 130
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector E,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector E
    energy bins are logarithmically spaced.
   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
   max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_E_BIN_56"
  FIELD_NUMBER            = 131
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector E,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector E
    energy bins are logarithmically spaced.
   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
   max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_E_BIN_57"
  FIELD_NUMBER            = 132
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector E,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector E
    energy bins are logarithmically spaced.
   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
   max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_E_BIN_58"
  FIELD_NUMBER            = 133
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector E,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
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        START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
        (of this record). Detector E
        energy bins are logarithmically spaced.
      See the MIMI_PASSBANDS calibration file for spacing deltas and min and
      max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_E_BIN_59"
  FIELD_NUMBER             = 134
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector E,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector E
    energy bins are logarithmically spaced.
      See the MIMI_PASSBANDS calibration file for spacing deltas and min and
      max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_E_BIN_60"
  FIELD_NUMBER             = 135
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector E,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector E
    energy bins are logarithmically spaced.
      See the MIMI_PASSBANDS calibration file for spacing deltas and min and
      max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_E_BIN_61"
  FIELD_NUMBER             = 136
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector E,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector E
    energy bins are logarithmically spaced.
      See the MIMI_PASSBANDS calibration file for spacing deltas and min and
      max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_E_BIN_62"
  FIELD_NUMBER             = 137
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector E,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector E
    energy bins are logarithmically spaced.
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        See the MIMI_PASSBANDS calibration file for spacing deltas and min and
        max energies"
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "DETECTOR_E_BIN_63"
  FIELD_NUMBER                = 138
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 65534
  DESCRIPTION                 = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector E,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector E
     energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "DETECTOR_F1_BIN_0"
  FIELD_NUMBER                = 139
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 65534
  DESCRIPTION                 = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector E,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector E
     energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "DETECTOR_F1_BIN_1"
  FIELD_NUMBER                = 140
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 65534
  DESCRIPTION                 = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector F,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector F
     energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "DETECTOR_F1_BIN_2"
  FIELD_NUMBER                = 141
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 65534
  DESCRIPTION                 = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector F,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector F
     energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
  END_OBJECT                  = FIELD
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OBJECT                        = FIELD
  NAME                        = "DETECTOR_F1_BIN_3"
  FIELD_NUMBER                = 142
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 65534
  DESCRIPTION                 = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector F,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector F
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "DETECTOR_F1_BIN_4"
  FIELD_NUMBER                = 143
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 65534
  DESCRIPTION                 = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector F,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector F
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "DETECTOR_F1_BIN_5"
  FIELD_NUMBER                = 144
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 65534
  DESCRIPTION                 = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector F,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector F
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "DETECTOR_F1_BIN_6"
  FIELD_NUMBER                = 145
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 65534
  DESCRIPTION                 = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector F,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector F
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "DETECTOR_F1_BIN_7"
  FIELD_NUMBER                = 146
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                 DATA_TYPE              = ASCII_INTEGER
                 BYTES                  = 10
                 VALID_MINIMUM          = 0
                 VALID_MAXIMUM          = 65534
                 DESCRIPTION            = "
                   This field contains an array of counts observed within each of the 64
                   energy bins for detector F,
                   accumulated over the time interval derived from either the
                   END_EPHEMERIS_S - START_EPHEMERIS_S or else
                   START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
                   (of this record). Detector F
                   energy bins are logarithmically spaced.
                   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
                   max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_F1_BIN_8"
  FIELD_NUMBER             = 147
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
                   This field contains an array of counts observed within each of the 64
                   energy bins for detector F,
                   accumulated over the time interval derived from either the
                   END_EPHEMERIS_S - START_EPHEMERIS_S or else
                   START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
                   (of this record). Detector F
                   energy bins are logarithmically spaced.
                   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
                   max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_F1_BIN_9"
  FIELD_NUMBER             = 148
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
                   This field contains an array of counts observed within each of the 64
                   energy bins for detector F,
                   accumulated over the time interval derived from either the
                   END_EPHEMERIS_S - START_EPHEMERIS_S or else
                   START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
                   (of this record). Detector F
                   energy bins are logarithmically spaced.
                   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
                   max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_F1_BIN_10"
  FIELD_NUMBER             = 149
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
                   This field contains an array of counts observed within each of the 64
                   energy bins for detector F,
                   accumulated over the time interval derived from either the
                   END_EPHEMERIS_S - START_EPHEMERIS_S or else
                   START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
                   (of this record). Detector F
                   energy bins are logarithmically spaced.
                   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
                   max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_F1_BIN_11"
  FIELD_NUMBER             = 150
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
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       VALID_MAXIMUM          = 65534
       DESCRIPTION            = "
         This field contains an array of counts observed within each of the 64
         energy bins for detector F,
         accumulated over the time interval derived from either the
         END_EPHEMERIS_S - START_EPHEMERIS_S or else
         START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
         (of this record). Detector F
         energy bins are logarithmically spaced.
       See the MIMI_PASSBANDS calibration file for spacing deltas and min and
       max energies"
END_OBJECT              = FIELD
OBJECT                  = FIELD
  NAME                    = "DETECTOR_F1_BIN_12"
  FIELD_NUMBER            = 151
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector F,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector F
     energy bins are logarithmically spaced.
   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
   max energies"
END_OBJECT              = FIELD
OBJECT                  = FIELD
  NAME                    = "DETECTOR_F1_BIN_13"
  FIELD_NUMBER            = 152
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector F,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector F
     energy bins are logarithmically spaced.
   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
   max energies"
END_OBJECT              = FIELD
OBJECT                  = FIELD
  NAME                    = "DETECTOR_F1_BIN_14"
  FIELD_NUMBER            = 153
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector F,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector F
     energy bins are logarithmically spaced.
   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
   max energies"
END_OBJECT              = FIELD
OBJECT                  = FIELD
  NAME                    = "DETECTOR_F1_BIN_15"
  FIELD_NUMBER            = 154
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
     This field contains an array of counts observed within each of the 64
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      energy bins for detector F,
      accumulated over the time interval derived from either the
      END_EPHEMERIS_S - START_EPHEMERIS_S or else
      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
      (of this record). Detector F
      energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_F1_BIN_16"
  FIELD_NUMBER            = 155
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector F,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector F
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_F1_BIN_17"
  FIELD_NUMBER            = 156
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector F,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector F
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_F1_BIN_18"
  FIELD_NUMBER            = 157
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector F,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector F
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_F1_BIN_19"
  FIELD_NUMBER            = 158
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector F,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
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      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
      (of this record). Detector F
      energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_F1_BIN_20"
  FIELD_NUMBER            = 159
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector F,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector F
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_F1_BIN_21"
  FIELD_NUMBER            = 160
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector F,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector F
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_F1_BIN_22"
  FIELD_NUMBER            = 161
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector F,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector F
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_F1_BIN_23"
  FIELD_NUMBER            = 162
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector F,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector F
    energy bins are logarithmically spaced.
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                       See the MIMI_PASSBANDS calibration file for spacing deltas and min and
                       max energies"
END_OBJECT                      = FIELD
OBJECT                          = FIELD
  NAME                          = "DETECTOR_F1_BIN_24"
  FIELD_NUMBER                  = 163
  DATA_TYPE                     = ASCII_INTEGER
  BYTES                         = 10
  VALID_MINIMUM                 = 0
  VALID_MAXIMUM                 = 65534
  DESCRIPTION                   = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector F,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector F
     energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
END_OBJECT                      = FIELD
OBJECT                          = FIELD
  NAME                          = "DETECTOR_F1_BIN_25"
  FIELD_NUMBER                  = 164
  DATA_TYPE                     = ASCII_INTEGER
  BYTES                         = 10
  VALID_MINIMUM                 = 0
  VALID_MAXIMUM                 = 65534
  DESCRIPTION                   = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector F,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector F
     energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
END_OBJECT                      = FIELD
OBJECT                          = FIELD
  NAME                          = "DETECTOR_F1_BIN_26"
  FIELD_NUMBER                  = 165
  DATA_TYPE                     = ASCII_INTEGER
  BYTES                         = 10
  VALID_MINIMUM                 = 0
  VALID_MAXIMUM                 = 65534
  DESCRIPTION                   = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector F,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector F
     energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
END_OBJECT                      = FIELD
OBJECT                          = FIELD
  NAME                          = "DETECTOR_F1_BIN_27"
  FIELD_NUMBER                  = 166
  DATA_TYPE                     = ASCII_INTEGER
  BYTES                         = 10
  VALID_MINIMUM                 = 0
  VALID_MAXIMUM                 = 65534
  DESCRIPTION                   = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector F,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector F
     energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
  END_OBJECT                    = FIELD
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OBJECT                     = FIELD
  NAME                     = "DETECTOR_F1_BIN_28"
  FIELD_NUMBER             = 167
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector F,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) - START_EPHEMERIS_S
    (of this record). Detector F
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_F1_BIN_29"
  FIELD_NUMBER             = 168
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector F,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) - START_EPHEMERIS_S
    (of this record). Detector F
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_F1_BIN_30"
  FIELD_NUMBER             = 169
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector F,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) - START_EPHEMERIS_S
    (of this record). Detector F
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_F1_BIN_31"
  FIELD_NUMBER             = 170
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector F,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) - START_EPHEMERIS_S
    (of this record). Detector F
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_F1_BIN_32"
  FIELD_NUMBER             = 171
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    DATA_TYPE              = ASCII_INTEGER
    BYTES                  = 10
    VALID_MINIMUM          = 0
    VALID_MAXIMUM          = 65534
    DESCRIPTION            = "
      This field contains an array of counts observed within each of the 64
      energy bins for detector F,
      accumulated over the time interval derived from either the
      END_EPHEMERIS_S - START_EPHEMERIS_S or else
      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
      (of this record). Detector F
      energy bins are logarithmically spaced.
      See the MIMI_PASSBANDS calibration file for spacing deltas and min and
      max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_F1_BIN_33"
  FIELD_NUMBER             = 172
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
      This field contains an array of counts observed within each of the 64
      energy bins for detector F,
      accumulated over the time interval derived from either the
      END_EPHEMERIS_S - START_EPHEMERIS_S or else
      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
      (of this record). Detector F
      energy bins are logarithmically spaced.
      See the MIMI_PASSBANDS calibration file for spacing deltas and min and
      max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_F1_BIN_34"
  FIELD_NUMBER             = 173
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
      This field contains an array of counts observed within each of the 64
      energy bins for detector F,
      accumulated over the time interval derived from either the
      END_EPHEMERIS_S - START_EPHEMERIS_S or else
      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
      (of this record). Detector F
      energy bins are logarithmically spaced.
      See the MIMI_PASSBANDS calibration file for spacing deltas and min and
      max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_F1_BIN_35"
  FIELD_NUMBER             = 174
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
      This field contains an array of counts observed within each of the 64
      energy bins for detector F,
      accumulated over the time interval derived from either the
      END_EPHEMERIS_S - START_EPHEMERIS_S or else
      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
      (of this record). Detector F
      energy bins are logarithmically spaced.
      See the MIMI_PASSBANDS calibration file for spacing deltas and min and
      max energies"
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "DETECTOR_F1_BIN_36"
  FIELD_NUMBER             = 175
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
```

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    VALID_MAXIMUM           = 65534
    DESCRIPTION             = "
      This field contains an array of counts observed within each of the 64
      energy bins for detector F,
      accumulated over the time interval derived from either the
      END_EPHEMERIS_S - START_EPHEMERIS_S or else
      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
      (of this record). Detector F
      energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_F1_BIN_37"
  FIELD_NUMBER            = 176
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector F,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector F
    energy bins are logarithmically spaced.
  See the MIMI_PASSBANDS calibration file for spacing deltas and min and
  max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_F1_BIN_38"
  FIELD_NUMBER            = 177
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector F,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector F
    energy bins are logarithmically spaced.
  See the MIMI_PASSBANDS calibration file for spacing deltas and min and
  max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_F1_BIN_39"
  FIELD_NUMBER            = 178
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector F,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector F
    energy bins are logarithmically spaced.
  See the MIMI_PASSBANDS calibration file for spacing deltas and min and
  max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_F1_BIN_40"
  FIELD_NUMBER            = 179
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
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         energy bins for detector F,
         accumulated over the time interval derived from either the
         END_EPHEMERIS_S - START_EPHEMERIS_S or else
         START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
         (of this record). Detector F
         energy bins are logarithmically spaced.
       See the MIMI_PASSBANDS calibration file for spacing deltas and min and
       max energies"
END_OBJECT              = FIELD
OBJECT                  = FIELD
  NAME                  = "DETECTOR_F1_BIN_41"
  FIELD_NUMBER          = 180
  DATA_TYPE             = ASCII_INTEGER
  BYTES                 = 10
  VALID_MINIMUM         = 0
  VALID_MAXIMUM         = 65534
  DESCRIPTION           = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector F,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector F
     energy bins are logarithmically spaced.
   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
   max energies"
END_OBJECT              = FIELD
OBJECT                  = FIELD
  NAME                  = "DETECTOR_F1_BIN_42"
  FIELD_NUMBER          = 181
  DATA_TYPE             = ASCII_INTEGER
  BYTES                 = 10
  VALID_MINIMUM         = 0
  VALID_MAXIMUM         = 65534
  DESCRIPTION           = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector F,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector F
     energy bins are logarithmically spaced.
   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
   max energies"
END_OBJECT              = FIELD
OBJECT                  = FIELD
  NAME                  = "DETECTOR_F1_BIN_43"
  FIELD_NUMBER          = 182
  DATA_TYPE             = ASCII_INTEGER
  BYTES                 = 10
  VALID_MINIMUM         = 0
  VALID_MAXIMUM         = 65534
  DESCRIPTION           = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector F,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector F
     energy bins are logarithmically spaced.
   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
   max energies"
END_OBJECT              = FIELD
OBJECT                  = FIELD
  NAME                  = "DETECTOR_F1_BIN_44"
  FIELD_NUMBER          = 183
  DATA_TYPE             = ASCII_INTEGER
  BYTES                 = 10
  VALID_MINIMUM         = 0
  VALID_MAXIMUM         = 65534
  DESCRIPTION           = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector F,
     accumulated over the time interval derived from either the
     END EPHEMERIS S - START EPHEMERIS S or else
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        START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
        (of this record). Detector F
        energy bins are logarithmically spaced.
      See the MIMI_PASSBANDS calibration file for spacing deltas and min and
      max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_F1_BIN_45"
  FIELD_NUMBER            = 184
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector F,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector F
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_F1_BIN_46"
  FIELD_NUMBER            = 185
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector F,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector F
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_F1_BIN_47"
  FIELD_NUMBER            = 186
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector F,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector F
    energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "DETECTOR_F1_BIN_48"
  FIELD_NUMBER            = 187
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 65534
  DESCRIPTION             = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector F,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector F
    energy bins are logarithmically spaced.
```

```
                         See the MIMI_PASSBANDS calibration file for spacing deltas and min and
                         max energies"
END_OBJECT                      = FIELD
OBJECT                          = FIELD
  NAME                          = "DETECTOR_F1_BIN_49"
  FIELD_NUMBER                  = 188
  DATA_TYPE                     = ASCII_INTEGER
  BYTES                         = 10
  VALID_MINIMUM                 = 0
  VALID_MAXIMUM                 = 65534
  DESCRIPTION                   = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector F,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector F
     energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
END_OBJECT                      = FIELD
OBJECT                          = FIELD
  NAME                          = "DETECTOR_F1_BIN_50"
  FIELD_NUMBER                  = 189
  DATA_TYPE                     = ASCII_INTEGER
  BYTES                         = 10
  VALID_MINIMUM                 = 0
  VALID_MAXIMUM                 = 65534
  DESCRIPTION                   = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector F,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector F
     energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
END_OBJECT                      = FIELD
OBJECT                          = FIELD
  NAME                          = "DETECTOR_F1_BIN_51"
  FIELD_NUMBER                  = 190
  DATA_TYPE                     = ASCII_INTEGER
  BYTES                         = 10
  VALID_MINIMUM                 = 0
  VALID_MAXIMUM                 = 65534
  DESCRIPTION                   = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector F,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector F
     energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
END_OBJECT                      = FIELD
OBJECT                          = FIELD
  NAME                          = "DETECTOR_F1_BIN_52"
  FIELD_NUMBER                  = 191
  DATA_TYPE                     = ASCII_INTEGER
  BYTES                         = 10
  VALID_MINIMUM                 = 0
  VALID_MAXIMUM                 = 65534
  DESCRIPTION                   = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector F,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
     (of this record). Detector F
     energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
  END_OBJECT                    = FIELD
```

```
OBJECT                   = FIELD
  NAME                   = "DETECTOR_F1_BIN_53"
  FIELD_NUMBER           = 192
  DATA_TYPE              = ASCII_INTEGER
  BYTES                  = 10
  VALID_MINIMUM          = 0
  VALID_MAXIMUM          = 65534
  DESCRIPTION            = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector F,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector F
    energy bins are logarithmically spaced.
   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT               = FIELD
OBJECT                   = FIELD
  NAME                   = "DETECTOR_F1_BIN_54"
  FIELD_NUMBER           = 193
  DATA_TYPE              = ASCII_INTEGER
  BYTES                  = 10
  VALID_MINIMUM          = 0
  VALID_MAXIMUM          = 65534
  DESCRIPTION            = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector F,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector F
    energy bins are logarithmically spaced.
   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT               = FIELD
OBJECT                   = FIELD
  NAME                   = "DETECTOR_F1_BIN_55"
  FIELD_NUMBER           = 194
  DATA_TYPE              = ASCII_INTEGER
  BYTES                  = 10
  VALID_MINIMUM          = 0
  VALID_MAXIMUM          = 65534
  DESCRIPTION            = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector F,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector F
    energy bins are logarithmically spaced.
   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT               = FIELD
OBJECT                   = FIELD
  NAME                   = "DETECTOR_F1_BIN_56"
  FIELD_NUMBER           = 195
  DATA_TYPE              = ASCII_INTEGER
  BYTES                  = 10
  VALID_MINIMUM          = 0
  VALID_MAXIMUM          = 65534
  DESCRIPTION            = "
    This field contains an array of counts observed within each of the 64
    energy bins for detector F,
    accumulated over the time interval derived from either the
    END_EPHEMERIS_S - START_EPHEMERIS_S or else
    START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
    (of this record). Detector F
    energy bins are logarithmically spaced.
   See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
END_OBJECT               = FIELD
OBJECT                   = FIELD
  NAME                   = "DETECTOR_F1_BIN_57"
  FIELD_NUMBER           = 196
```

```
   DATA_TYPE             = ASCII_INTEGER
   BYTES                 = 10
   VALID_MINIMUM         = 0
   VALID_MAXIMUM         = 65534
   DESCRIPTION           = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector F,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) - START_EPHEMERIS_S
     (of this record). Detector F
     energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
END_OBJECT              = FIELD
OBJECT                  = FIELD
   NAME                  = "DETECTOR_F1_BIN_58"
   FIELD_NUMBER          = 197
   DATA_TYPE             = ASCII_INTEGER
   BYTES                 = 10
   VALID_MINIMUM         = 0
   VALID_MAXIMUM         = 65534
   DESCRIPTION           = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector F,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) - START_EPHEMERIS_S
     (of this record). Detector F
     energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
END_OBJECT              = FIELD
OBJECT                  = FIELD
   NAME                  = "DETECTOR_F1_BIN_59"
   FIELD_NUMBER          = 198
   DATA_TYPE             = ASCII_INTEGER
   BYTES                 = 10
   VALID_MINIMUM         = 0
   VALID_MAXIMUM         = 65534
   DESCRIPTION           = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector F,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) - START_EPHEMERIS_S
     (of this record). Detector F
     energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
END_OBJECT              = FIELD
OBJECT                  = FIELD
   NAME                  = "DETECTOR_F1_BIN_60"
   FIELD_NUMBER          = 199
   DATA_TYPE             = ASCII_INTEGER
   BYTES                 = 10
   VALID_MINIMUM         = 0
   VALID_MAXIMUM         = 65534
   DESCRIPTION           = "
     This field contains an array of counts observed within each of the 64
     energy bins for detector F,
     accumulated over the time interval derived from either the
     END_EPHEMERIS_S - START_EPHEMERIS_S or else
     START_EPHEMERIS_S (of the next contiguous record) - START_EPHEMERIS_S
     (of this record). Detector F
     energy bins are logarithmically spaced.
     See the MIMI_PASSBANDS calibration file for spacing deltas and min and
     max energies"
END_OBJECT              = FIELD
OBJECT                  = FIELD
   NAME                  = "DETECTOR_F1_BIN_61"
   FIELD_NUMBER          = 200
   DATA_TYPE             = ASCII_INTEGER
   BYTES                 = 10
   VALID_MINIMUM         = 0
```

```
    VALID_MAXIMUM             = 65534
    DESCRIPTION               = "
      This field contains an array of counts observed within each of the 64
      energy bins for detector F,
      accumulated over the time interval derived from either the
      END_EPHEMERIS_S - START_EPHEMERIS_S or else
      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
      (of this record). Detector F
      energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
  END_OBJECT                  = FIELD
  OBJECT                      = FIELD
    NAME                      = "DETECTOR_F1_BIN_62"
    FIELD_NUMBER              = 201
    DATA_TYPE                 = ASCII_INTEGER
    BYTES                     = 10
    VALID_MINIMUM             = 0
    VALID_MAXIMUM             = 65534
    DESCRIPTION               = "
      This field contains an array of counts observed within each of the 64
      energy bins for detector F,
      accumulated over the time interval derived from either the
      END_EPHEMERIS_S - START_EPHEMERIS_S or else
      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
      (of this record). Detector F
      energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
  END_OBJECT                  = FIELD
  OBJECT                      = FIELD
    NAME                      = "DETECTOR_F1_BIN_63"
    FIELD_NUMBER              = 202
    DATA_TYPE                 = ASCII_INTEGER
    BYTES                     = 10
    VALID_MINIMUM             = 0
    VALID_MAXIMUM             = 65534
    DESCRIPTION               = "
      This field contains an array of counts observed within each of the 64
      energy bins for detector F,
      accumulated over the time interval derived from either the
      END_EPHEMERIS_S - START_EPHEMERIS_S or else
      START_EPHEMERIS_S (of the next contiguous record) – START_EPHEMERIS_S
      (of this record). Detector F
      energy bins are logarithmically spaced.
    See the MIMI_PASSBANDS calibration file for spacing deltas and min and
    max energies"
  END_OBJECT                  = FIELD
  OBJECT                      = FIELD
    NAME                      = "CENTER_LOOK_ANGLE_DEGREES"
    FIELD_NUMBER              = 203
    UNIT                      = DEGREE
    DATA_TYPE                 = ASCII_REAL
    BYTES                     = 20
    VALID_MINIMUM             = 0
    VALID_MAXIMUM             = 360
    DESCRIPTION               = "
    The angle in degrees of the LEMMS detector with the -z axis of the
    spacecraft, measured counter-clockwise about the y axis of the
    spacecraft."
  END_OBJECT                  = FIELD
END_OBJECT                    = SPREADSHEET
END
```

## 7.1.2. *MIMI CHEMS*

| Sample File 4: CPHA0_2000340_0000.LBL |
|---|
| PDS_VERSION_ID              = PDS3 |
| DATA_SET_ID                 = "CO-E/J/S/SW-MIMI-2-CHEMS-UNCALIB-V1.0" |
| PRODUCT_ID                  = "CPHA0_2000340_0000" |
| STANDARD_DATA_PRODUCT_ID    = "MIMI_CHEMS_PHA" |

```
PRODUCT_TYPE                   = "DATA"
PRODUCT_VERSION                = 0
PRODUCT_CREATION_TIME          = 2005-123T16:25:03.000

RECORD_TYPE                    = STREAM
INTERCHANGE_FORMAT             = ASCII
FILE_RECORDS                   = 1905

START_TIME                     = "2000-340T00:00:00"
STOP_TIME                      = "2000-340T23:59:59"
NATIVE_START_TIME              = "29246464.183189"
NATIVE_STOP_TIME               = "29332863.183214"
SPACECRAFT_CLOCK_START_COUNT   = "1/1354666282.146"
SPACECRAFT_CLOCK_STOP_COUNT    = "1/1354752682.043"

INSTRUMENT_HOST_NAME           = "CASSINI ORBITER"
INSTRUMENT_HOST_ID             = "CO"
MISSION_PHASE_NAME             = "$PHASE_NAME"
ORBIT_NUMBER                   = $ORBIT_NUM
TARGET_NAME                    = "SOLAR WIND"
INSTRUMENT_NAME                = "MAGNETOSPHERIC IMAGING INSTRUMENT"
INSTRUMENT_ID                  = "MIMI"
DESCRIPTION                    = "
    (P)ulse (H)eight (A)nalysis data for the CHEMMS sensor of the MIMI
    instrument on the Cassini spacecraft"

^HEADER        = ("CPHA0_2000340_0000.CSV",  1 <BYTES>)
^SPREADSHEET   = ("CPHA0_2000340_0000.CSV",  279 <BYTES>)

OBJECT                         = HEADER
  RECORDS                      = 1
  BYTES                        = 278
  HEADER_TYPE                  = SPREADSHEET
  DESCRIPTION                  = "
    This file contains a single row of column headings (text strings enclosed
    within double quotes) separated by commas."
END_OBJECT                     = HEADER

OBJECT                         = SPREADSHEET
  ROWS                         = 1910
  FIELDS                       = 17
  ROW_BYTES                    = 242
  FIELD_DELIMITER              = COMMA

  OBJECT                       = FIELD
    NAME                       = "PURPOSE"
    FIELD_NUMBER               = 1
    DATA_TYPE                  = CHARACTER
    BYTES                      = 32
    DESCRIPTION                = "
       The PURPOSE field identifies the purpose or function of the data
       contained in current row. Valid entries include:
       SCI - normal science data values
       VALID_MIN - the inclusive or exclusive minimum value allowed for this
       column
       VALID_MAX - the inclusive or exclusive maximum value allowed for this
       column
       MIN - the minimum value for this column present in this product
       MAX - the maximum value for this column present in this product
       MEAN - the mean of the values in this column in this product, this
       value will be rounded for integer columns
       STDEV - the standard deviation of the values in this column in this
    product, this value will be rounded for integer columns"
  END_OBJECT                   = FIELD
  OBJECT                       = FIELD
    NAME                       = "START_EPHEMERIS_S"
    FIELD_NUMBER               = 2
    UNIT                       = SECOND
    DATA_TYPE                  = ASCII_REAL
    BYTES                      = 20
    VALID_MINIMUM              = -71063936
    VALID_MAXIMUM              = 757339265
    DESCRIPTION                = "
      The J2000 ephemeris time in seconds at the beginning of the time period
      for this record."
```

```
END_OBJECT               = FIELD
OBJECT                   = FIELD
  NAME                   = "END_EPHEMERIS_S"
  FIELD_NUMBER           = 3
  UNIT                   = SECOND
  DATA_TYPE              = ASCII_REAL
  BYTES                  = 20
  VALID_MINIMUM          = -71063936
  VALID_MAXIMUM          = 757339265
  DESCRIPTION            = "
    The J2000 ephemeris time in seconds at the end of the time period for
    this record."
END_OBJECT               = FIELD
OBJECT                   = FIELD
  NAME                   = "SPIN_COUNTER"
  FIELD_NUMBER           = 4
  DATA_TYPE              = ASCII_INTEGER
  BYTES                  = 10
  VALID_MINIMUM          = 0
  VALID_MAXIMUM          = 16383
  DESCRIPTION            = "
    MIMI always organizes time by Spins, when Cassini is not in spin mode,
    MIMI uses a commanded virtual spin period. This column is a counter
    that increments with each spin or virtual spin. This counter resets
    when MIMI undergoes certain operations like shutdown, and is not
    sufficiently large that it will not roll over."
END_OBJECT               = FIELD
OBJECT                   = FIELD
  NAME                   = "SECTOR"
  FIELD_NUMBER           = 5
  DATA_TYPE              = ASCII_INTEGER
  BYTES                  = 10
  VALID_MINIMUM          = 0
  VALID_MAXIMUM          = 15
  DESCRIPTION            = "
     Each spin is divided into 16 sectors. Sectors have no meaning with
     regard to pointing. They are nothing more or less than segments of
     time. This column contains the zero based index of the sector.
     Sectors have special significance in that the beginning of a sector is
     the only time that MIMI records the SCLOCK. All other times must be
     calculated based on the subsector, and, where appropriate, microsector
     values provided below. Times in this product were calculated in this
     manner."
END_OBJECT               = FIELD
OBJECT                   = FIELD
  NAME                   = "START_SECTOR_SCLOCK_MAJOR"
  FIELD_NUMBER           = 6
  UNIT                   = COUNT
  DATA_TYPE              = ASCII_INTEGER
  BYTES                  = 10
  VALID_MINIMUM          = 0
  VALID_MAXIMUM          = 4000000000
  DESCRIPTION            = "
    The value of the Spacecraft clock at the beginning of Sector during
    which this record occurred. This, combined with subsector, and
    microsector where appropriate, is the monotonic timestamp for the each
    record. All other times are calculated from this time representation."
END_OBJECT               = FIELD
OBJECT                   = FIELD
  NAME                   = "SUBSECTOR"
  FIELD_NUMBER           = 7
  DATA_TYPE              = ASCII_INTEGER
  BYTES                  = 10
  VALID_MINIMUM          = 0
  VALID_MAXIMUM          = 15
  DESCRIPTION            = "
    Each sector is divided into 16 subsectors. Subsectors have no meaning
    as far as pointing. They are nothing more or less than segments of
    time."
END_OBJECT               = FIELD
OBJECT                   = FIELD
  NAME                   = "MICROSECTORS_COVERED"
  FIELD_NUMBER           = 8
  DATA_TYPE              = ASCII_INTEGER
  BYTES                  = 10
```

```
    VALID_MINIMUM            = 2
    VALID_MAXIMUM            = 1024
    DESCRIPTION              = "
      Each subsector is divided into 16 microsectors. Microsectors have no
      meaning as far as pointing. They are nothing more or less than segments
      of time. This column is the number of microsectors over which this
      record was recorded, i.e. 16 for one subsector, 32 for two subsectors,
      256 for one sector, etc."
  END_OBJECT                 = FIELD
  OBJECT                     = FIELD
    NAME                     = "SPIN_PERIOD_S"
    FIELD_NUMBER             = 9
    UNIT                     = SECOND
    DATA_TYPE                = ASCII_REAL
    BYTES                    = 20
    VALID_MINIMUM            = 680
    VALID_MAXIMUM            = 3072
    DESCRIPTION              = "
      The spacecraft spin period in seconds. If the spacecraft is not in spin
      mode, this is the virtual spin period used by the MIMI sensor to
      determine the timing of data colection. This value is not very
      reliable. It represents the 'nominal' spin period. When the spin period
      is changing, it will not be very accurate."
  END_OBJECT                 = FIELD
  OBJECT                     = FIELD
    NAME                     = "STARING"
    FIELD_NUMBER             = 10
    DATA_TYPE                = ASCII_INTEGER
    BYTES                    = 10
    VALID_MINIMUM            = 0
    VALID_MAXIMUM            = 1
    DESCRIPTION              = "
      0 if the spacecraft is in spin mode, 1 if the not in spin mode."
  END_OBJECT                 = FIELD
  OBJECT                     = FIELD
    NAME                     = "INDEX_IN_SECTOR"
    FIELD_NUMBER             = 11
    DATA_TYPE                = ASCII_INTEGER
    BYTES                    = 10
    VALID_MINIMUM            = 0
    VALID_MAXIMUM            = 30000
    DESCRIPTION              = "
      Automatically generated number to guarantee uniqueness in conjunction
      with SCLOCK_S."
  END_OBJECT                 = FIELD
  OBJECT                     = FIELD
    NAME                     = "DPPS_LEVEL"
    FIELD_NUMBER             = 12
    DATA_TYPE                = ASCII_INTEGER
    BYTES                    = 10
    VALID_MINIMUM            = 0
    VALID_MAXIMUM            = 31
    DESCRIPTION              = "
      This field represents the step level for the calculation of E/Q for the
      given duration."
  END_OBJECT                 = FIELD
  OBJECT                     = FIELD
    NAME                     = "ENERGY"
    FIELD_NUMBER             = 13
    DATA_TYPE                = ASCII_INTEGER
    BYTES                    = 10
    VALID_MINIMUM            = 0
    VALID_MAXIMUM            = 1023
    DESCRIPTION              = "
      This field represents an integerized or calibrated measurement of the
      energy deposited into the SSD during the measurement of the current PHA
      event."
  END_OBJECT                 = FIELD
  OBJECT                     = FIELD
    NAME                     = "TIME_OF_FLIGHT"
    FIELD_NUMBER             = 14
    DATA_TYPE                = ASCII_INTEGER
    BYTES                    = 10
    VALID_MINIMUM            = 0
    VALID_MAXIMUM            = 1023
```

```
         DESCRIPTION                = "
           This field represents an integerized or calibrated measurement of the
           time of flight for the particle between the microplates for the current
           PHA event."
       END_OBJECT                  = FIELD
       OBJECT                      = FIELD
         NAME                       = "SOLID_STATE_DETECTOR"
         FIELD_NUMBER               = 15
         DATA_TYPE                  = ASCII_INTEGER
         BYTES                      = 10
         VALID_MINIMUM              = 0
         VALID_MAXIMUM              = 3
         DESCRIPTION                = "
            This field indicates which of the three SSD were used in the
            identification of the energy for this particular PHA event.
           A value of zero indicates that none of the SSD's where triggered in
           this event."
       END_OBJECT                  = FIELD
       OBJECT                      = FIELD
         NAME                       = "START_MICRO_CHANNEL_PLATE"
         FIELD_NUMBER               = 16
         DATA_TYPE                  = ASCII_INTEGER
         BYTES                      = 10
         VALID_MINIMUM              = 0
         VALID_MAXIMUM              = 3
         DESCRIPTION                = "
           This field indicates which of the three microchannel plates were used
           in the identification of the time of flight for this particular PHA
           event."
       END_OBJECT                  = FIELD
       OBJECT                      = FIELD
         NAME                       = "RANGE"
         FIELD_NUMBER               = 17
         DATA_TYPE                  = ASCII_INTEGER
         BYTES                      = 10
         VALID_MINIMUM              = 0
         VALID_MAXIMUM              = 6
         DESCRIPTION                = "
            This field indicates which PHA range was identified by the CHEMS DPU
            for this PHA event.
           See the Calibration data for interpretation of the values of this
           field."
       END_OBJECT                  = FIELD
     END_OBJECT                  = SPREADSHEET
     END
```

| Sample File 5: CACC0_2000340_0000.LBL |
|---|

```
PDS_VERSION_ID                = PDS3
DATA_SET_ID                   = "CO-E/J/S/SW-MIMI-2-CHEMS-UNCALIB-V1.0"
PRODUCT_ID                    = "CACC0_2000340_0000"
STANDARD_DATA_PRODUCT_ID      = "MIMI_CHEMS_ACC"
PRODUCT_TYPE                  = "DATA"
PRODUCT_VERSION               = 0
PRODUCT_CREATION_TIME         = 2005-123T16:25:57.000

RECORD_TYPE                   = STREAM
INTERCHANGE_FORMAT            = ASCII
FILE_RECORDS                  = 14993

START_TIME                    = "2000-340T00:00:00"
STOP_TIME                     = "2000-340T23:59:59"
NATIVE_START_TIME             = "29246464.183189"
NATIVE_STOP_TIME              = "29332863.183214"
SPACECRAFT_CLOCK_START_COUNT  = "1/1354666282.146"
SPACECRAFT_CLOCK_STOP_COUNT   = "1/1354752682.043"

INSTRUMENT_HOST_NAME          = "CASSINI ORBITER"
INSTRUMENT_HOST_ID            = "CO"
```

117

```
MISSION_PHASE_NAME           = "$PHASE_NAME"
ORBIT_NUMBER                 = $ORBIT_NUM
TARGET_NAME                  = "SOLAR WIND"
INSTRUMENT_NAME              = "MAGNETOSPHERIC IMAGING INSTRUMENT"
INSTRUMENT_ID                = "MIMI"
DESCRIPTION                  = "
    Subsector accumulations for the CHEMMS sensor of the MIMI instrument on
    the Cassini spacecraft"

^HEADER          = ("CACC0_2000340_0000.CSV",  1 <BYTES>)
^SPREADSHEET     = ("CACC0_2000340_0000.CSV",  459 <BYTES>)

OBJECT                       = HEADER
  RECORDS                    = 1
  BYTES                      = 458
  HEADER_TYPE                = SPREADSHEET
  DESCRIPTION                = "
    This file contains a single row of column headings (text strings enclosed
    within double quotes) separated by commas."
END_OBJECT                   = HEADER

OBJECT                       = SPREADSHEET
  ROWS                       = 14998
  FIELDS                     = 33
  ROW_BYTES                  = 418
  FIELD_DELIMITER            = COMMA

  OBJECT                     = FIELD
    NAME                     = "PURPOSE"
    FIELD_NUMBER             = 1
    DATA_TYPE                = CHARACTER
    BYTES                    = 32
    DESCRIPTION              = "
      The PURPOSE field identifies the purpose or function of the data
      contained in current row. Valid entries include:
      SCI - normal science data values
      VALID_MIN - the inclusive or exclusive minimum value allowed for this
      column
      VALID_MAX - the inclusive or exclusive maximum value allowed for this
      column
      MIN - the minimum value for this column present in this product
      MAX - the maximum value for this column present in this product
      MEAN - the mean of the values in this column in this product, this
      value will be rounded for integer columns
      STDEV - the standard deviation of the values in this column in this
      product, this value will be rounded for integer columns"
  END_OBJECT                 = FIELD
  OBJECT                     = FIELD
    NAME                     = "START_EPHEMERIS_S"
    FIELD_NUMBER             = 2
    UNIT                     = SECOND
    DATA_TYPE                = ASCII_REAL
    BYTES                    = 20
    VALID_MINIMUM            = -71063936
    VALID_MAXIMUM            = 757339265
    DESCRIPTION              = "
      The J2000 ephemeris time in seconds at the beginning of the time period
      for this record."
  END_OBJECT                 = FIELD
  OBJECT                     = FIELD
    NAME                     = "END_EPHEMERIS_S"
    FIELD_NUMBER             = 3
    UNIT                     = SECOND
    DATA_TYPE                = ASCII_REAL
    BYTES                    = 20
    VALID_MINIMUM            = -71063936
    VALID_MAXIMUM            = 757339265
    DESCRIPTION              = "
      The J2000 ephemeris time in seconds at the end of the time period for
      this record."
  END_OBJECT                 = FIELD
  OBJECT                     = FIELD
    NAME                     = "SPIN_COUNTER"
    FIELD_NUMBER             = 4
    DATA_TYPE                = ASCII_INTEGER
```

```
    BYTES                         = 10
    VALID_MINIMUM                 = 0
    VALID_MAXIMUM                 = 16383
    DESCRIPTION                   = "
      MIMI always organizes time by Spins, when Cassini is not in spin mode,
      MIMI uses a commanded virtual spin period. This column is a counter
      that increments with each spin or virtual spin. This counter resets
      when MIMI undergoes certain operations like shutdown, and is not
      sufficiently large that it will not roll over."
  END_OBJECT                      = FIELD
  OBJECT                          = FIELD
    NAME                          = "SECTOR"
    FIELD_NUMBER                  = 5
    DATA_TYPE                     = ASCII_INTEGER
    BYTES                         = 10
    VALID_MINIMUM                 = 0
    VALID_MAXIMUM                 = 15
    DESCRIPTION                   = "
       Each spin is divided into 16 sectors. Sectors have no meaning with
       regard to pointing. They are nothing more or less than segments of
       time. This column contains the zero based index of the sector.
      Sectors have special significance in that the beginning of a sector is
      the only time that MIMI records the SCLOCK. All other times must be
      calculated based on the subsector, and, where appropriate, microsector
      values provided below. Times in this product were calculated in this
      manner."
  END_OBJECT                      = FIELD
  OBJECT                          = FIELD
    NAME                          = "START_SECTOR_SCLOCK_MAJOR"
    FIELD_NUMBER                  = 6
    UNIT                          = COUNT
    DATA_TYPE                     = ASCII_INTEGER
    BYTES                         = 10
    VALID_MINIMUM                 = 0
    VALID_MAXIMUM                 = 4000000000
    DESCRIPTION                   = "
      The value of the Spacecraft clock at the beginning of Sector during
      which this record occurred. This, combined with subsector, and
      microsector where appropriate, is the monotonic timestamp for the each
      record. All other times are calculated from this time representation."
  END_OBJECT                      = FIELD
  OBJECT                          = FIELD
    NAME                          = "SUBSECTOR"
    FIELD_NUMBER                  = 7
    DATA_TYPE                     = ASCII_INTEGER
    BYTES                         = 10
    VALID_MINIMUM                 = 0
    VALID_MAXIMUM                 = 15
    DESCRIPTION                   = "
      Each sector is divided into 16 subsectors. Subsectors have no meaning
      as far as pointing. They are nothing more or less than segments of
      time."
  END_OBJECT                      = FIELD
  OBJECT                          = FIELD
    NAME                          = "MICROSECTORS_COVERED"
    FIELD_NUMBER                  = 8
    DATA_TYPE                     = ASCII_INTEGER
    BYTES                         = 10
    VALID_MINIMUM                 = 2
    VALID_MAXIMUM                 = 1024
    DESCRIPTION                   = "
      Each subsector is divided into 16 microsectors. Microsectors have no
      meaning as far as pointing. They are nothing more or less than segments
      of time. This column is the number of microsectors over which this
      record was recorded, i.e. 16 for one subsector, 32 for two subsectors,
      256 for one sector, etc."
  END_OBJECT                      = FIELD
  OBJECT                          = FIELD
    NAME                          = "SPIN_PERIOD_S"
    FIELD_NUMBER                  = 9
    UNIT                          = SECOND
    DATA_TYPE                     = ASCII_REAL
    BYTES                         = 20
    VALID_MINIMUM                 = 680
    VALID_MAXIMUM                 = 3072
```

```
    DESCRIPTION             = "
   The spacecraft spin period in seconds. If the spacecraft is not in spin
   mode, this is the virtual spin period used by the MIMI sensor to
   determine the timing of data colection. This value is not very
   reliable. It represents the 'nominal' spin period. When the spin period
   is changing, it will not be very accurate."
 END_OBJECT               = FIELD
 OBJECT                   = FIELD
   NAME                    = "STARING"
   FIELD_NUMBER            = 10
   DATA_TYPE               = ASCII_INTEGER
   BYTES                   = 10
   VALID_MINIMUM           = 0
   VALID_MAXIMUM           = 1
   DESCRIPTION             = "
   0 if the spacecraft is in spin mode, 1 if the not in spin mode."
 END_OBJECT               = FIELD
 OBJECT                   = FIELD
   NAME                    = "DPPS_LEVEL"
   FIELD_NUMBER            = 11
   DATA_TYPE               = ASCII_INTEGER
   BYTES                   = 10
   VALID_MINIMUM           = 0
   VALID_MAXIMUM           = 2147483646
   DESCRIPTION             = "
   This field represents the step level for the calculation of E/Q for the
   given duration."
 END_OBJECT               = FIELD
 OBJECT                   = FIELD
   NAME                    = "START_HEAD_1"
   FIELD_NUMBER            = 12
   DATA_TYPE               = ASCII_INTEGER
   BYTES                   = 10
   VALID_MINIMUM           = 0
   VALID_MAXIMUM           = 2147483646
   DESCRIPTION             = "
   This field represents the total number of PHA events that triggered the
   head 1 start microplate."
 END_OBJECT               = FIELD
 OBJECT                   = FIELD
   NAME                    = "START_HEAD_2"
   FIELD_NUMBER            = 13
   DATA_TYPE               = ASCII_INTEGER
   BYTES                   = 10
   VALID_MINIMUM           = 0
   VALID_MAXIMUM           = 2147483646
   DESCRIPTION             = "
   This field represents the total number of PHA events that triggered the
   head 2 start microplate."
 END_OBJECT               = FIELD
 OBJECT                   = FIELD
   NAME                    = "START_HEAD_3"
   FIELD_NUMBER            = 14
   DATA_TYPE               = ASCII_INTEGER
   BYTES                   = 10
   VALID_MINIMUM           = 0
   VALID_MAXIMUM           = 2147483646
   DESCRIPTION             = "
   This field represents the total number of PHA events that triggered the
   head 3 start microplate."
 END_OBJECT               = FIELD
 OBJECT                   = FIELD
   NAME                    = "START_SUM"
   FIELD_NUMBER            = 15
   DATA_TYPE               = ASCII_INTEGER
   BYTES                   = 10
   VALID_MINIMUM           = 0
   VALID_MAXIMUM           = 2147483646
   DESCRIPTION             = "
   This field represents the total number of PHA events that triggered any
   of the start microplates."
 END_OBJECT               = FIELD
 OBJECT                   = FIELD
   NAME                    = "STOP_HEAD_1"
   FIELD_NUMBER            = 16
```

```
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 10
      VALID_MINIMUM           = 0
      VALID_MAXIMUM           = 2147483646
      DESCRIPTION             = "
        This field represents the total number of PHA events that triggered the
        head 1 stop microplate."
    END_OBJECT                = FIELD
    OBJECT                    = FIELD
      NAME                    = "STOP_HEAD_2"
      FIELD_NUMBER            = 17
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 10
      VALID_MINIMUM           = 0
      VALID_MAXIMUM           = 2147483646
      DESCRIPTION             = "
        This field represents the total number of PHA events that triggered the
        head 2 stop microplate."
    END_OBJECT                = FIELD
    OBJECT                    = FIELD
      NAME                    = "STOP_HEAD_3"
      FIELD_NUMBER            = 18
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 10
      VALID_MINIMUM           = 0
      VALID_MAXIMUM           = 2147483646
      DESCRIPTION             = "
        This field represents the total number of PHA events that triggered the
        head 3 stop microplate."
    END_OBJECT                = FIELD
    OBJECT                    = FIELD
      NAME                    = "STOP_SUM"
      FIELD_NUMBER            = 19
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 10
      VALID_MINIMUM           = 0
      VALID_MAXIMUM           = 2147483646
      DESCRIPTION             = "
        This field represents the total number of PHA events that triggered any
        of the stop microplates."
    END_OBJECT                = FIELD
    OBJECT                    = FIELD
      NAME                    = "ENERGY_HEAD_1"
      FIELD_NUMBER            = 20
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 10
      VALID_MINIMUM           = 0
      VALID_MAXIMUM           = 2147483646
      DESCRIPTION             = "
        This field represents the total number of PHA events that deposited
        energy in telescope 1 SSD."
    END_OBJECT                = FIELD
    OBJECT                    = FIELD
      NAME                    = "ENERGY_HEAD_2"
      FIELD_NUMBER            = 21
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 10
      VALID_MINIMUM           = 0
      VALID_MAXIMUM           = 2147483646
      DESCRIPTION             = "
        This field represents the total number of PHA events that deposited
        energy in telescope 2 SSD."
    END_OBJECT                = FIELD
    OBJECT                    = FIELD
      NAME                    = "ENERGY_HEAD_3"
      FIELD_NUMBER            = 22
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 10
      VALID_MINIMUM           = 0
      VALID_MAXIMUM           = 2147483646
      DESCRIPTION             = "
        This field represents the total number of PHA events that deposited
        energy in telescope 3 SSD."
    END_OBJECT                = FIELD
    OBJECT                    = FIELD
```

```
  NAME                        = "ENERGY_SUM"
  FIELD_NUMBER                = 23
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 2147483646
  DESCRIPTION                 = "
    This field represents the total number of PHA events that deposited
    energy all three telescopes."
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "DCR_HEAD_1"
  FIELD_NUMBER                = 24
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 2147483646
  DESCRIPTION                 = "
    This field represents the total number of PHA events that triggered two
    of the start microplates for telescope 1. Double Coincidence."
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "DCR_HEAD_2"
  FIELD_NUMBER                = 25
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 2147483646
  DESCRIPTION                 = "
    This field represents the total number of PHA events that triggered two
    of the start microplates for telescope 2. Double Coincidence."
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "DCR_HEAD_3"
  FIELD_NUMBER                = 26
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 2147483646
  DESCRIPTION                 = "
    This field represents the total number of PHA events that triggered two
    of the start microplates for telescope 3. Double Coincidence."
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "DCR_SUM"
  FIELD_NUMBER                = 27
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 2147483646
  DESCRIPTION                 = "
    This field represents the total number of PHA events that triggered two
    of the start microplates for all of the telescopes. Double
    Coincidence."
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "TCR_HEAD_1"
  FIELD_NUMBER                = 28
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 2147483646
  DESCRIPTION                 = "
    This field represents the total number of PHA events that triggered all
    three of the start microplates for telescope 1. Triple Coincidence."
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "TCR_HEAD_2"
  FIELD_NUMBER                = 29
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 2147483646
  DESCRIPTION                 = "
    This field represents the total number of PHA events that triggered all
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              three of the start microplates for telescope 2. Triple Coincidence."
   END_OBJECT                  = FIELD
   OBJECT                      = FIELD
     NAME                      = "TCR_HEAD_3"
     FIELD_NUMBER              = 30
     DATA_TYPE                 = ASCII_INTEGER
     BYTES                     = 10
     VALID_MINIMUM             = 0
     VALID_MAXIMUM             = 2147483646
     DESCRIPTION               = "
       This field represents the total number of PHA events that triggered all
       three of the start microplates for telescope 3. Triple Coincidence."
   END_OBJECT                  = FIELD
   OBJECT                      = FIELD
     NAME                      = "TCR_SUM"
     FIELD_NUMBER              = 31
     DATA_TYPE                 = ASCII_INTEGER
     BYTES                     = 10
     VALID_MINIMUM             = 0
     VALID_MAXIMUM             = 2147483646
     DESCRIPTION               = "
       This field represents the total number of PHA events that triggered all
       three of the start microplates for all telescopes. Triple Coincidence."
   END_OBJECT                  = FIELD
   OBJECT                      = FIELD
     NAME                      = "UFSR"
     FIELD_NUMBER              = 32
     DATA_TYPE                 = ASCII_INTEGER
     BYTES                     = 10
     VALID_MINIMUM             = 0
     VALID_MAXIMUM             = 2147483646
     DESCRIPTION               = "
        This field represents the total number of PHA events that any of the
        start microplates triggered for any telescope.
        (U)niversal (F)ront (S)EDA (R)ate. (S)econdary (E)lectron (D)etector
        (A)ssembly."
   END_OBJECT                  = FIELD
   OBJECT                      = FIELD
     NAME                      = "URSR"
     FIELD_NUMBER              = 33
     DATA_TYPE                 = ASCII_INTEGER
     BYTES                     = 10
     VALID_MINIMUM             = 0
     VALID_MAXIMUM             = 2147483646
     DESCRIPTION               = "
        This field represents the total number of PHA events that any of the
        stop microplates triggered for any telescope.
        (U)niversal (R)ear (S)EDA (R)ate. (S)econdary (E)lectron (D)etector
        (A)ssembly."
   END_OBJECT                  = FIELD
END_OBJECT                     = SPREADSHEET
END
```

```
PDS_VERSION_ID              = PDS3
DATA_SET_ID                 = "CO-E/J/S/SW-MIMI-2-CHEMS-UNCALIB-V1.0"
PRODUCT_ID                  = "CSCI0_2000340_0000"
STANDARD_DATA_PRODUCT_ID    = "MIMI_CHEMS_SCI"
PRODUCT_TYPE                = "DATA"
PRODUCT_VERSION             = 0
PRODUCT_CREATION_TIME       = 2005-123T16:24:43.000

RECORD_TYPE                 = STREAM
INTERCHANGE_FORMAT          = ASCII
FILE_RECORDS                = 14993

START_TIME                  = "2000-340T00:00:00"
STOP_TIME                   = "2000-340T23:59:59"
```

```
NATIVE_START_TIME            = "29246464.183189"
NATIVE_STOP_TIME             = "29332863.183214"
SPACECRAFT_CLOCK_START_COUNT = "1/1354666282.146"
SPACECRAFT_CLOCK_STOP_COUNT  = "1/1354752682.043"

INSTRUMENT_HOST_NAME         = "CASSINI ORBITER"
INSTRUMENT_HOST_ID           = "CO"
MISSION_PHASE_NAME           = "$PHASE_NAME"
ORBIT_NUMBER                 = $ORBIT_NUM
TARGET_NAME                  = "SOLAR WIND"
INSTRUMENT_NAME              = "MAGNETOSPHERIC IMAGING INSTRUMENT"
INSTRUMENT_ID                = "MIMI"
DESCRIPTION                  = "
    Simplified subsector accumulations for the CHEMMS sensor of the MIMI
    instrument on the Cassini spacecraft"

^HEADER        = ("CSCI0_2000340_0000.CSV",  1 <BYTES>)
^SPREADSHEET   = ("CSCI0_2000340_0000.CSV",  1075 <BYTES>)

OBJECT                       = HEADER
  RECORDS                    = 1
  BYTES                      = 1074
  HEADER_TYPE                = SPREADSHEET
  DESCRIPTION                = "
    This file contains a single row of column headings (text strings enclosed
    within double quotes) separated by commas."
END_OBJECT                   = HEADER

OBJECT                       = SPREADSHEET
  ROWS                       = 14998
  FIELDS                     = 61
  ROW_BYTES                  = 726
  FIELD_DELIMITER            = COMMA

  OBJECT                     = FIELD
    NAME                     = "PURPOSE"
    FIELD_NUMBER             = 1
    DATA_TYPE                = CHARACTER
    BYTES                    = 32
    DESCRIPTION              = "
      The PURPOSE field identifies the purpose or function of the data
      contained in current row. Valid entries include:
      SCI - normal science data values
      VALID_MIN - the inclusive or exclusive minimum value allowed for this
      column
      VALID_MAX - the inclusive or exclusive maximum value allowed for this
      column
      MIN - the minimum value for this column present in this product
      MAX - the maximum value for this column present in this product
      MEAN - the mean of the values in this column in this product, this
      value will be rounded for integer columns
      STDEV - the standard deviation of the values in this column in this
    product, this value will be rounded for integer columns"
  END_OBJECT                 = FIELD
  OBJECT                     = FIELD
    NAME                     = "START_EPHEMERIS_S"
    FIELD_NUMBER             = 2
    UNIT                     = SECOND
    DATA_TYPE                = ASCII_REAL
    BYTES                    = 20
    VALID_MINIMUM            = -71063936
    VALID_MAXIMUM            = 757339265
    DESCRIPTION              = "
      The J2000 ephemeris time in seconds at the beginning of the time period
      for this record."
  END_OBJECT                 = FIELD
  OBJECT                     = FIELD
    NAME                     = "END_EPHEMERIS_S"
    FIELD_NUMBER             = 3
    UNIT                     = SECOND
    DATA_TYPE                = ASCII_REAL
    BYTES                    = 20
    VALID_MINIMUM            = -71063936
    VALID_MAXIMUM            = 757339265
    DESCRIPTION              = "
```

```
      The J2000 ephemeris time in seconds at the end of the time period for
      this record."
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "SPIN_COUNTER"
  FIELD_NUMBER            = 4
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 16383
  DESCRIPTION             = "
    MIMI always organizes time by Spins, when Cassini is not in spin mode,
    MIMI uses a commanded virtual spin period. This column is a counter
    that increments with each spin or virtual spin. This counter resets
    when MIMI undergoes certain operations like shutdown, and is not
    sufficiently large that it will not roll over."
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "SECTOR"
  FIELD_NUMBER            = 5
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 15
  DESCRIPTION             = "
     Each spin is divided into 16 sectors. Sectors have no meaning with
     regard to pointing. They are nothing more or less than segments of
     time. This column contains the zero based index of the sector.
    Sectors have special significance in that the beginning of a sector is
    the only time that MIMI records the SCLOCK. All other times must be
    calculated based on the subsector, and, where appropriate, microsector
    values provided below. Times in this product were calculated in this
    manner."
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "START_SECTOR_SCLOCK_MAJOR"
  FIELD_NUMBER            = 6
  UNIT                    = COUNT
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 4000000000
  DESCRIPTION             = "
    The value of the Spacecraft clock at the beginning of Sector during
    which this record occurred. This, combined with subsector, and
    microsector where appropriate, is the monotonic timestamp for the each
    record. All other times are calculated from this time representation."
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "SUBSECTOR"
  FIELD_NUMBER            = 7
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 15
  DESCRIPTION             = "
    Each sector is divided into 16 subsectors. Subsectors have no meaning
    as far as pointing. They are nothing more or less than segments of
    time."
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "MICROSECTORS_COVERED"
  FIELD_NUMBER            = 8
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 2
  VALID_MAXIMUM           = 1024
  DESCRIPTION             = "
    Each subsector is divided into 16 microsectors. Microsectors have no
    meaning as far as pointing. They are nothing more or less than segments
    of time. This column is the number of microsectors over which this
    record was recorded, i.e. 16 for one subsector, 32 for two subsectors,
    256 for one sector, etc."
END_OBJECT                = FIELD
OBJECT                    = FIELD
```

```
  NAME                        = "SPIN_PERIOD_S"
  FIELD_NUMBER                = 9
  UNIT                        = SECOND
  DATA_TYPE                   = ASCII_REAL
  BYTES                       = 20
  VALID_MINIMUM               = 680
  VALID_MAXIMUM               = 3072
  DESCRIPTION                 = "
    The spacecraft spin period in seconds. If the spacecraft is not in spin
    mode, this is the virtual spin period used by the MIMI sensor to
    determine the timing of data colection. This value is not very
    reliable. It represents the 'nominal' spin period. When the spin period
    is changing, it will not be very accurate."
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "STARING"
  FIELD_NUMBER                = 10
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 1
  DESCRIPTION                 = "
    0 if the spacecraft is in spin mode, 1 if the not in spin mode."
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "DPPS_LEVEL"
  FIELD_NUMBER                = 11
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 31
  DESCRIPTION                 = "
    This field represents the step level for the calculation of E/Q for the
    given duration."
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "RANGE_0_TELE_1"
  FIELD_NUMBER                = 12
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 65534
  DESCRIPTION                 = "
    This field represents the total number of counts received that fit into
    the definition of range 0 for telescope 1."
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "RANGE_0_TELE_2"
  FIELD_NUMBER                = 13
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 65534
  DESCRIPTION                 = "
    This field represents the total number of counts received that fit into
    the definition of range 0 for telescope 2."
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "RANGE_0_TELE_3"
  FIELD_NUMBER                = 14
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 65534
  DESCRIPTION                 = "
    This field represents the total number of counts received that fit into
    the definition of range 0 for telescope 3."
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "RANGE_0_SUM"
  FIELD_NUMBER                = 15
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 65534
```

```
    DESCRIPTION              = "
    This field represents the total number of counts received that fit into
    the definition of range 0 for all telescopes."
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "RANGE_1_TELE_1"
  FIELD_NUMBER             = 16
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
    This field represents the total number of counts received that fit into
    the definition of range 1 for telescope 1."
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "RANGE_1_TELE_2"
  FIELD_NUMBER             = 17
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
    This field represents the total number of counts received that fit into
    the definition of range 1 for telescope 2."
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "RANGE_1_TELE_3"
  FIELD_NUMBER             = 18
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
    This field represents the total number of counts received that fit into
    the definition of range 1 for telescope 3."
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "RANGE_1_SUM"
  FIELD_NUMBER             = 19
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
    This field represents the total number of counts received that fit into
    the definition of range 1 for all telescopes."
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "RANGE_2_TELE_1"
  FIELD_NUMBER             = 20
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
    This field represents the total number of counts received that fit into
    the definition of range 2 for telescope 1."
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "RANGE_2_TELE_2"
  FIELD_NUMBER             = 21
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
    This field represents the total number of counts received that fit into
    the definition of range 2 for telescope 2."
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "RANGE_2_TELE_3"
  FIELD_NUMBER             = 22
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
```

```
    VALID_MINIMUM           = 0
    VALID_MAXIMUM           = 65534
    DESCRIPTION             = "
     This field represents the total number of counts received that fit into
     the definition of range 2 for telescope 3."
  END_OBJECT                = FIELD
  OBJECT                    = FIELD
    NAME                    = "RANGE_2_SUM"
    FIELD_NUMBER            = 23
    DATA_TYPE               = ASCII_INTEGER
    BYTES                   = 10
    VALID_MINIMUM           = 0
    VALID_MAXIMUM           = 65534
    DESCRIPTION             = "
     This field represents the total number of counts received that fit into
     the definition of range 2 for all telescopes."
  END_OBJECT                = FIELD
  OBJECT                    = FIELD
    NAME                    = "RANGE_3_TELE_1"
    FIELD_NUMBER            = 24
    DATA_TYPE               = ASCII_INTEGER
    BYTES                   = 10
    VALID_MINIMUM           = 0
    VALID_MAXIMUM           = 65534
    DESCRIPTION             = "
     This field represents the total number of counts received that fit into
     the definition of range 3 for telescope 1."
  END_OBJECT                = FIELD
  OBJECT                    = FIELD
    NAME                    = "RANGE_3_TELE_2"
    FIELD_NUMBER            = 25
    DATA_TYPE               = ASCII_INTEGER
    BYTES                   = 10
    VALID_MINIMUM           = 0
    VALID_MAXIMUM           = 65534
    DESCRIPTION             = "
     This field represents the total number of counts received that fit into
     the definition of range 3 for telescope 2."
  END_OBJECT                = FIELD
  OBJECT                    = FIELD
    NAME                    = "RANGE_3_TELE_3"
    FIELD_NUMBER            = 26
    DATA_TYPE               = ASCII_INTEGER
    BYTES                   = 10
    VALID_MINIMUM           = 0
    VALID_MAXIMUM           = 65534
    DESCRIPTION             = "
     This field represents the total number of counts received that fit into
     the definition of range 3 for telescope 3."
  END_OBJECT                = FIELD
  OBJECT                    = FIELD
    NAME                    = "RANGE_3_SUM"
    FIELD_NUMBER            = 27
    DATA_TYPE               = ASCII_INTEGER
    BYTES                   = 10
    VALID_MINIMUM           = 0
    VALID_MAXIMUM           = 65534
    DESCRIPTION             = "
     This field represents the total number of counts received that fit into
     the definition of range 3 for all telescopes."
  END_OBJECT                = FIELD
  OBJECT                    = FIELD
    NAME                    = "RANGE_4_TELE_1"
    FIELD_NUMBER            = 28
    DATA_TYPE               = ASCII_INTEGER
    BYTES                   = 10
    VALID_MINIMUM           = 0
    VALID_MAXIMUM           = 65534
    DESCRIPTION             = "
     This field represents the total number of counts received that fit into
     the definition of range 4 for telescope 1."
  END_OBJECT                = FIELD
  OBJECT                    = FIELD
    NAME                    = "RANGE_4_TELE_2"
    FIELD_NUMBER            = 29
```

```
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 10
      VALID_MINIMUM           = 0
      VALID_MAXIMUM           = 65534
      DESCRIPTION             = "
      This field represents the total number of counts received that fit into
      the definition of range 4 for telescope 2."
  END_OBJECT                  = FIELD
  OBJECT                      = FIELD
      NAME                    = "RANGE_4_TELE_3"
      FIELD_NUMBER            = 30
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 10
      VALID_MINIMUM           = 0
      VALID_MAXIMUM           = 65534
      DESCRIPTION             = "
      This field represents the total number of counts received that fit into
      the definition of range 4 for telescope 3."
  END_OBJECT                  = FIELD
  OBJECT                      = FIELD
      NAME                    = "RANGE_4_SUM"
      FIELD_NUMBER            = 31
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 10
      VALID_MINIMUM           = 0
      VALID_MAXIMUM           = 65534
      DESCRIPTION             = "
      This field represents the total number of counts received that fit into
      the definition of range 4 for all telescopes."
  END_OBJECT                  = FIELD
  OBJECT                      = FIELD
      NAME                    = "RANGE_5_TELE_1"
      FIELD_NUMBER            = 32
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 10
      VALID_MINIMUM           = 0
      VALID_MAXIMUM           = 65534
      DESCRIPTION             = "
      This field represents the total number of counts received that fit into
      the definition of range 5 for telescope 1."
  END_OBJECT                  = FIELD
  OBJECT                      = FIELD
      NAME                    = "RANGE_5_TELE_2"
      FIELD_NUMBER            = 33
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 10
      VALID_MINIMUM           = 0
      VALID_MAXIMUM           = 65534
      DESCRIPTION             = "
      This field represents the total number of counts received that fit into
      the definition of range 5 for telescope 2."
  END_OBJECT                  = FIELD
  OBJECT                      = FIELD
      NAME                    = "RANGE_5_TELE_3"
      FIELD_NUMBER            = 34
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 10
      VALID_MINIMUM           = 0
      VALID_MAXIMUM           = 65534
      DESCRIPTION             = "
      This field represents the total number of counts received that fit into
      the definition of range 5 for telescope 3."
  END_OBJECT                  = FIELD
  OBJECT                      = FIELD
      NAME                    = "RANGE_5_SUM"
      FIELD_NUMBER            = 35
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 10
      VALID_MINIMUM           = 0
      VALID_MAXIMUM           = 65534
      DESCRIPTION             = "
      This field represents the total number of counts received that fit into
      the definition of range 5 for all telescopes."
  END_OBJECT                  = FIELD
  OBJECT                      = FIELD
```

```
   NAME                        = "RANGE_6_TELE_1"
   FIELD_NUMBER                = 36
   DATA_TYPE                   = ASCII_INTEGER
   BYTES                       = 10
   VALID_MINIMUM               = 0
   VALID_MAXIMUM               = 65534
   DESCRIPTION                 = "
     This field represents the total number of counts received that fit into
     the definition of range 6 for telescope 1."
END_OBJECT                     = FIELD
OBJECT                         = FIELD
   NAME                        = "RANGE_6_TELE_2"
   FIELD_NUMBER                = 37
   DATA_TYPE                   = ASCII_INTEGER
   BYTES                       = 10
   VALID_MINIMUM               = 0
   VALID_MAXIMUM               = 65534
   DESCRIPTION                 = "
     This field represents the total number of counts received that fit into
     the definition of range 6 for telescope 2."
END_OBJECT                     = FIELD
OBJECT                         = FIELD
   NAME                        = "RANGE_6_TELE_3"
   FIELD_NUMBER                = 38
   DATA_TYPE                   = ASCII_INTEGER
   BYTES                       = 10
   VALID_MINIMUM               = 0
   VALID_MAXIMUM               = 65534
   DESCRIPTION                 = "
     This field represents the total number of counts received that fit into
     the definition of range 6 for telescope 3."
END_OBJECT                     = FIELD
OBJECT                         = FIELD
   NAME                        = "RANGE_6_SUM"
   FIELD_NUMBER                = 39
   DATA_TYPE                   = ASCII_INTEGER
   BYTES                       = 10
   VALID_MINIMUM               = 0
   VALID_MAXIMUM               = 65534
   DESCRIPTION                 = "
     This field represents the total number of counts received that fit into
     the definition of range 6 for all telescopes."
END_OBJECT                     = FIELD
OBJECT                         = FIELD
   NAME                        = "HE_PLUS_DOUBLES"
   FIELD_NUMBER                = 40
   DATA_TYPE                   = ASCII_INTEGER
   BYTES                       = 10
   VALID_MINIMUM               = 0
   VALID_MAXIMUM               = 65534
   DESCRIPTION                 = "
     This field represents the total number of counts with mass and charge
     that best is fitted as a HE+ using double coincidence."
END_OBJECT                     = FIELD
OBJECT                         = FIELD
   NAME                        = "HE_PLUS_TRIPLES"
   FIELD_NUMBER                = 41
   DATA_TYPE                   = ASCII_INTEGER
   BYTES                       = 10
   VALID_MINIMUM               = 0
   VALID_MAXIMUM               = 65534
   DESCRIPTION                 = "
     This field represents the total number of counts with mass and charge
     that best is fitted as a HE+ using triple coincidence."
END_OBJECT                     = FIELD
OBJECT                         = FIELD
   NAME                        = "HE_PLUS_2_DOUBLES"
   FIELD_NUMBER                = 42
   DATA_TYPE                   = ASCII_INTEGER
   BYTES                       = 10
   VALID_MINIMUM               = 0
   VALID_MAXIMUM               = 65534
   DESCRIPTION                 = "
     This field represents the total number of counts with mass and charge
     that best is fitted as a HE++ using double coincidence."
```

```
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "HE_PLUS_2_TRIPLES"
  FIELD_NUMBER             = 43
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
    This field represents the total number of counts with mass and charge
    that best is fitted as a HE++ using triple coincidence."
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "O_PLUS_DOUBLES_TELE_1"
  FIELD_NUMBER             = 44
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
    This field represents the total number of counts with mass and charge
    that best is fitted as a O+ using double coincidence and telescope 1."
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "O_PLUS_DOUBLES_TELE_2"
  FIELD_NUMBER             = 45
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
    This field represents the total number of counts with mass and charge
    that best is fitted as a O+ using double coincidence and telescope ."
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "O_PLUS_DOUBLES_TELE_3"
  FIELD_NUMBER             = 46
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
    This field represents the total number of counts with mass and charge
    that best is fitted as a O+ using double coincidence and telescope 3."
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "O_PLUS_TRIPLES_TELE_1"
  FIELD_NUMBER             = 47
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
    field represents the total number of counts with mass and charge that
    best is fitted as a O+ using triple coincidence and telescope 1."
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "O_PLUS_TRIPLES_TELE_2"
  FIELD_NUMBER             = 48
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
    This field represents the total number of counts with mass and charge
    that best is fitted as a O+ using triple coincidence and telescope 2."
END_OBJECT                 = FIELD
OBJECT                     = FIELD
  NAME                     = "O_PLUS_TRIPLES_TELE_3"
  FIELD_NUMBER             = 49
  DATA_TYPE                = ASCII_INTEGER
  BYTES                    = 10
  VALID_MINIMUM            = 0
  VALID_MAXIMUM            = 65534
  DESCRIPTION              = "
```

```
                   This field represents the total number of counts with mass and charge
                   that best is fitted as a O+ using triple coincidence and telescope 3."
      END_OBJECT                    = FIELD
      OBJECT                        = FIELD
        NAME                        = "O_PLUS_2_DOUBLES"
        FIELD_NUMBER                = 50
        DATA_TYPE                   = ASCII_INTEGER
        BYTES                       = 10
        VALID_MINIMUM               = 0
        VALID_MAXIMUM               = 65534
        DESCRIPTION                 = "
          This field represents the total number of counts with mass and charge
          that best is fitted as a O++ using double coincidence for all
          telescopes."
      END_OBJECT                    = FIELD
      OBJECT                        = FIELD
        NAME                        = "O_PLUS_2_TRIPLES"
        FIELD_NUMBER                = 51
        DATA_TYPE                   = ASCII_INTEGER
        BYTES                       = 10
        VALID_MINIMUM               = 0
        VALID_MAXIMUM               = 65534
        DESCRIPTION                 = "
          This field represents the total number of counts with mass and charge
          that best is fitted as a O++ using triple coincidence for all
          telescopes."
      END_OBJECT                    = FIELD
      OBJECT                        = FIELD
        NAME                        = "CNO_OVER_4_AND_T"
        FIELD_NUMBER                = 52
        DATA_TYPE                   = ASCII_INTEGER
        BYTES                       = 10
        VALID_MINIMUM               = 0
        VALID_MAXIMUM               = 65534
        DESCRIPTION                 = "
          field represents the total number of counts with mass and charge that
          best is fitted a heavy (CNO>4) and triple coincidence."
      END_OBJECT                    = FIELD
      OBJECT                        = FIELD
        NAME                        = "ENERGY_UNDERFLOW"
        FIELD_NUMBER                = 53
        DATA_TYPE                   = ASCII_INTEGER
        BYTES                       = 10
        VALID_MINIMUM               = 0
        VALID_MAXIMUM               = 65534
        DESCRIPTION                 = "
          This field represents the total number of counts with where there was
          an energy underflow condition."
      END_OBJECT                    = FIELD
      OBJECT                        = FIELD
        NAME                        = "ENERGY_OVERFLOW"
        FIELD_NUMBER                = 54
        DATA_TYPE                   = ASCII_INTEGER
        BYTES                       = 10
        VALID_MINIMUM               = 0
        VALID_MAXIMUM               = 65534
        DESCRIPTION                 = "
          This field represents the total number of counts with where there was
          an energy overflow condition."
      END_OBJECT                    = FIELD
      OBJECT                        = FIELD
        NAME                        = "TOF_UNDERFLOW"
        FIELD_NUMBER                = 55
        DATA_TYPE                   = ASCII_INTEGER
        BYTES                       = 10
        VALID_MINIMUM               = 0
        VALID_MAXIMUM               = 65534
        DESCRIPTION                 = "
          This field represents the total number of counts with where there was a
          time of flight underflow condition."
      END_OBJECT                    = FIELD
      OBJECT                        = FIELD
        NAME                        = "TOF_OVERFLOW"
        FIELD_NUMBER                = 56
        DATA_TYPE                   = ASCII_INTEGER
```

```
    BYTES                    = 10
    VALID_MINIMUM            = 0
    VALID_MAXIMUM            = 65534
    DESCRIPTION              = "
      This field represents the total number of counts with where there was a
      time of flight overflow condition."
  END_OBJECT                 = FIELD
  OBJECT                     = FIELD
    NAME                     = "MASS_OVERFLOW"
    FIELD_NUMBER             = 57
    DATA_TYPE                = ASCII_INTEGER
    BYTES                    = 10
    VALID_MINIMUM            = 0
    VALID_MAXIMUM            = 65534
    DESCRIPTION              = "
      This field represents the total number of counts with where there was a
      mass calculation overflow condition."
  END_OBJECT                 = FIELD
  OBJECT                     = FIELD
    NAME                     = "M_OVER_Q_UNDERFLOW"
    FIELD_NUMBER             = 58
    DATA_TYPE                = ASCII_INTEGER
    BYTES                    = 10
    VALID_MINIMUM            = 0
    VALID_MAXIMUM            = 65534
    DESCRIPTION              = "
      This field represents the total number of counts with where there was a
      mass/charge calculation underflow condition."
  END_OBJECT                 = FIELD
  OBJECT                     = FIELD
    NAME                     = "M_OVER_Q_OVERFLOW"
    FIELD_NUMBER             = 59
    DATA_TYPE                = ASCII_INTEGER
    BYTES                    = 10
    VALID_MINIMUM            = 0
    VALID_MAXIMUM            = 65534
    DESCRIPTION              = "
      This field represents the total number of counts with where there was a
      mass/charge calculation overflow condition."
  END_OBJECT                 = FIELD
  OBJECT                     = FIELD
    NAME                     = "O_PLUS_DOUBLES_SUM"
    FIELD_NUMBER             = 60
    DATA_TYPE                = ASCII_INTEGER
    BYTES                    = 10
    VALID_MINIMUM            = 0
    VALID_MAXIMUM            = 65534
    DESCRIPTION              = "
      This field represents the total number of counts with mass and charge
      that best is fitted as a O+ using double coincidence for all
      telescopes."
  END_OBJECT                 = FIELD
  OBJECT                     = FIELD
    NAME                     = "O_PLUS_TRIPLES_SUM"
    FIELD_NUMBER             = 61
    DATA_TYPE                = ASCII_INTEGER
    BYTES                    = 10
    VALID_MINIMUM            = 0
    VALID_MAXIMUM            = 65534
    DESCRIPTION              = "
      This field represents the total number of counts with mass and charge
      that best is fitted as a O+ using triple coincidence for all
      telescopes."
  END_OBJECT                 = FIELD
END_OBJECT                   = SPREADSHEET
END
```

## 7.1.3. *MIMI INCA*

```
PDS_VERSION_ID                  = PDS3
DATA_SET_ID                     = "CO-E/J/S/SW-MIMI-2-INCA-UNCALIB-V1.0"
PRODUCT_ID                      = "IACC0_2000340_0000"
STANDARD_DATA_PRODUCT_ID        = "MIMI_INCA_ACC"
PRODUCT_TYPE                    = "DATA"
PRODUCT_VERSION                 = 0
PRODUCT_CREATION_TIME           = 2005-123T16:16:43.000

RECORD_TYPE                     = STREAM
INTERCHANGE_FORMAT              = ASCII
FILE_RECORDS                    = 14994

START_TIME                      = "2000-340T00:00:00"
STOP_TIME                       = "2000-340T23:59:59"
NATIVE_START_TIME               = "29246464.183189"
NATIVE_STOP_TIME                = "29332863.183214"
SPACECRAFT_CLOCK_START_COUNT    = "1/1354666282.146"
SPACECRAFT_CLOCK_STOP_COUNT     = "1/1354752682.043"

INSTRUMENT_HOST_NAME            = "CASSINI ORBITER"
INSTRUMENT_HOST_ID              = "CO"
MISSION_PHASE_NAME              = "$PHASE_NAME"
ORBIT_NUMBER                    = $ORBIT_NUM
TARGET_NAME                     = "SOLAR WIND"
INSTRUMENT_NAME                 = "MAGNETOSPHERIC IMAGING INSTRUMENT"
INSTRUMENT_ID                   = "MIMI"
DESCRIPTION                     = "
    Subsector accumulations for the INCA sensor of the MIMI instrument on the
    Cassini spacecraft"

^HEADER          = ("IACC0_2000340_0000.CSV",  1 <BYTES>)
^SPREADSHEET     = ("IACC0_2000340_0000.CSV",  319 <BYTES>)

OBJECT                          = HEADER
  RECORDS                       = 1
  BYTES                         = 318
  HEADER_TYPE                   = SPREADSHEET
  DESCRIPTION                   = "
    This file contains a single row of column headings (text strings enclosed
    within double quotes) separated by commas."
END_OBJECT                      = HEADER

OBJECT                          = SPREADSHEET
  ROWS                          = 14999
  FIELDS                        = 21
  ROW_BYTES                     = 286
  FIELD_DELIMITER               = COMMA

  OBJECT                        = FIELD
    NAME                        = "PURPOSE"
    FIELD_NUMBER                = 1
    DATA_TYPE                   = CHARACTER
    BYTES                       = 32
    DESCRIPTION                 = "
      The PURPOSE field identifies the purpose or function of the data
      contained in current row. Valid entries include:
      SCI - normal science data values
      VALID_MIN - the inclusive or exclusive minimum value allowed for this
      column
      VALID_MAX - the inclusive or exclusive maximum value allowed for this
      column
      MIN - the minimum value for this column present in this product
      MAX - the maximum value for this column present in this product
      MEAN - the mean of the values in this column in this product, this
      value will be rounded for integer columns
      STDEV - the standard deviation of the values in this column in this
     product, this value will be rounded for integer columns"
```

```
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "START_EPHEMERIS_S"
  FIELD_NUMBER              = 2
  UNIT                      = SECOND
  DATA_TYPE                 = ASCII_REAL
  BYTES                     = 20
  VALID_MINIMUM             = -71063936
  VALID_MAXIMUM             = 757339265
  DESCRIPTION               = "
    The J2000 ephemeris time in seconds at the beginning of the time period
    for this record."
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "END_EPHEMERIS_S"
  FIELD_NUMBER              = 3
  UNIT                      = SECOND
  DATA_TYPE                 = ASCII_REAL
  BYTES                     = 20
  VALID_MINIMUM             = -71063936
  VALID_MAXIMUM             = 757339265
  DESCRIPTION               = "
    The J2000 ephemeris time in seconds at the end of the time period for
    this record."
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "SPIN_COUNTER"
  FIELD_NUMBER              = 4
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 16383
  DESCRIPTION               = "
    MIMI always organizes time by Spins, when Cassini is not in spin mode,
    MIMI uses a commanded virtual spin period. This column is a counter
    that increments with each spin or virtual spin. This counter resets
    when MIMI undergoes certain operations like shutdown, and is not
    sufficiently large that it will not roll over."
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "SECTOR"
  FIELD_NUMBER              = 5
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 15
  DESCRIPTION               = "
    Each spin is divided into 16 sectors. Sectors have no meaning with
    regard to pointing. They are nothing more or less than segments of
    time. This column contains the zero based index of the sector.
    Sectors have special significance in that the beginning of a sector is
    the only time that MIMI records the SCLOCK. All other times must be
    calculated based on the subsector, and, where appropriate, microsector
    values provided below. Times in this product were calculated in this
    manner."
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "START_SECTOR_SCLOCK_MAJOR"
  FIELD_NUMBER              = 6
  UNIT                      = COUNT
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 4000000000
  DESCRIPTION               = "
    The value of the Spacecraft clock at the beginning of Sector during
    which this record occurred. This, combined with subsector, and
    microsector where appropriate, is the monotonic timestamp for the each
    record. All other times are calculated from this time representation."
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "SUBSECTOR"
  FIELD_NUMBER              = 7
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
```

```
      VALID_MINIMUM          = 0
      VALID_MAXIMUM          = 15
      DESCRIPTION            = "
        Each sector is divided into 16 subsectors. Subsectors have no meaning
        as far as pointing. They are nothing more or less than segments of
        time."
    END_OBJECT               = FIELD
    OBJECT                   = FIELD
      NAME                   = "MICROSECTORS_COVERED"
      FIELD_NUMBER           = 8
      DATA_TYPE              = ASCII_INTEGER
      BYTES                  = 10
      VALID_MINIMUM          = 2
      VALID_MAXIMUM          = 1024
      DESCRIPTION            = "
        Each subsector is divided into 16 microsectors. Microsectors have no
        meaning as far as pointing. They are nothing more or less than segments
        of time. This column is the number of microsectors over which this
        record was recorded, i.e. 16 for one subsector, 32 for two subsectors,
        256 for one sector, etc."
    END_OBJECT               = FIELD
    OBJECT                   = FIELD
      NAME                   = "SPIN_PERIOD_S"
      FIELD_NUMBER           = 9
      UNIT                   = SECOND
      DATA_TYPE              = ASCII_REAL
      BYTES                  = 20
      VALID_MINIMUM          = 680
      VALID_MAXIMUM          = 3072
      DESCRIPTION            = "
        The spacecraft spin period in seconds. If the spacecraft is not in spin
        mode, this is the virtual spin period used by the MIMI sensor to
        determine the timing of data colection. This value is not very
        reliable. It represents the 'nominal' spin period. When the spin period
        is changing, it will not be very accurate."
    END_OBJECT               = FIELD
    OBJECT                   = FIELD
      NAME                   = "STARING"
      FIELD_NUMBER           = 10
      DATA_TYPE              = ASCII_INTEGER
      BYTES                  = 10
      VALID_MINIMUM          = 0
      VALID_MAXIMUM          = 1
      DESCRIPTION            = "
        0 if the spacecraft is in spin mode, 1 if the not in spin mode."
    END_OBJECT               = FIELD
    OBJECT                   = FIELD
      NAME                   = "START_FAST"
      FIELD_NUMBER           = 11
      DATA_TYPE              = ASCII_INTEGER
      BYTES                  = 10
      VALID_MINIMUM          = 0
      VALID_MAXIMUM          = 1E7
      DESCRIPTION            = "
        This field contains the total number of start events identified as
        fast."
    END_OBJECT               = FIELD
    OBJECT                   = FIELD
      NAME                   = "START_PULSE"
      FIELD_NUMBER           = 12
      DATA_TYPE              = ASCII_INTEGER
      BYTES                  = 10
      VALID_MINIMUM          = 0
      VALID_MAXIMUM          = 1E7
      DESCRIPTION            = "
        This field contains the total number of start events identified as
        pulse."
    END_OBJECT               = FIELD
    OBJECT                   = FIELD
      NAME                   = "START_COINCIDENCE"
      FIELD_NUMBER           = 13
      DATA_TYPE              = ASCII_INTEGER
      BYTES                  = 10
      VALID_MINIMUM          = 0
      VALID_MAXIMUM          = 1E7
```

```
     DESCRIPTION            = "
       This field contains the total number of start events that are
       coincident."
     END_OBJECT              = FIELD
     OBJECT                  = FIELD
       NAME                  = "STOP_FAST"
       FIELD_NUMBER          = 14
       DATA_TYPE             = ASCII_INTEGER
       BYTES                 = 10
       VALID_MINIMUM         = 0
       VALID_MAXIMUM         = 1E7
       DESCRIPTION           = "
       This field contains the total number of stop events identified as
       fast."
     END_OBJECT              = FIELD
     OBJECT                  = FIELD
       NAME                  = "STOP_PULSE"
       FIELD_NUMBER          = 15
       DATA_TYPE             = ASCII_INTEGER
       BYTES                 = 10
       VALID_MINIMUM         = 0
       VALID_MAXIMUM         = 1E7
       DESCRIPTION           = "
       This field contains the total number of stop events identified as
       pulse."
     END_OBJECT              = FIELD
     OBJECT                  = FIELD
       NAME                  = "FULL"
       FIELD_NUMBER          = 16
       DATA_TYPE             = ASCII_INTEGER
       BYTES                 = 10
       VALID_MINIMUM         = 0
       VALID_MAXIMUM         = 1E7
       DESCRIPTION           = "
       This field contains the total number of events identified as full."
     END_OBJECT              = FIELD
     OBJECT                  = FIELD
       NAME                  = "COINCIDENCE"
       FIELD_NUMBER          = 17
       DATA_TYPE             = ASCII_INTEGER
       BYTES                 = 10
       VALID_MINIMUM         = 0
       VALID_MAXIMUM         = 1E7
       DESCRIPTION           = "
       This field contains the total number of events identified that are
       coincident."
     END_OBJECT              = FIELD
     OBJECT                  = FIELD
       NAME                  = "TIME"
       FIELD_NUMBER          = 18
       DATA_TYPE             = ASCII_INTEGER
       BYTES                 = 10
       VALID_MINIMUM         = 0
       VALID_MAXIMUM         = 1E7
       DESCRIPTION           = "
       This field contains the total number of acceptable events."
     END_OBJECT              = FIELD
     OBJECT                  = FIELD
       NAME                  = "STOP_COINCIDENCE"
       FIELD_NUMBER          = 19
       DATA_TYPE             = ASCII_INTEGER
       BYTES                 = 10
       VALID_MINIMUM         = 0
       VALID_MAXIMUM         = 1E7
       DESCRIPTION           = "
       This field contains the total number of stop events that are
       coincident."
     END_OBJECT              = FIELD
     OBJECT                  = FIELD
       NAME                  = "EVENTS_RECEIVED"
       FIELD_NUMBER          = 20
       DATA_TYPE             = ASCII_INTEGER
       BYTES                 = 10
       VALID_MINIMUM         = 0
       VALID_MAXIMUM         = 1E7
```

```
        DESCRIPTION              = "
      This field contains the total number of acceptable events."
    END_OBJECT                   = FIELD
    OBJECT                       = FIELD
      NAME                       = "EVENTS_PROCESSED"
      FIELD_NUMBER               = 21
      DATA_TYPE                  = ASCII_INTEGER
      BYTES                      = 10
      VALID_MINIMUM              = 0
      VALID_MAXIMUM              = 1E7
      DESCRIPTION                = "
      This field contains the total number of acceptable events."
    END_OBJECT                   = FIELD
END_OBJECT                       = SPREADSHEET
END
```

```
PDS_VERSION_ID                = PDS3
DATA_SET_ID                   = "CO-E/J/S/SW-MIMI-2-INCA-UNCALIB-V1.0"
PRODUCT_ID                    = "IPHA0_2000340_0000"
STANDARD_DATA_PRODUCT_ID      = "MIMI_INCA_PHA"
PRODUCT_TYPE                  = "DATA"
PRODUCT_VERSION               = 0
PRODUCT_CREATION_TIME         = 2005-123T16:21:02.000

RECORD_TYPE                   = STREAM
INTERCHANGE_FORMAT            = ASCII
FILE_RECORDS                  = 157280

START_TIME                    = "2000-340T00:00:00"
STOP_TIME                     = "2000-340T23:59:59"
NATIVE_START_TIME             = "29246464.183189"
NATIVE_STOP_TIME              = "29332863.183214"
SPACECRAFT_CLOCK_START_COUNT  = "1/1354666282.146"
SPACECRAFT_CLOCK_STOP_COUNT   = "1/1354752682.043"

INSTRUMENT_HOST_NAME          = "CASSINI ORBITER"
INSTRUMENT_HOST_ID            = "CO"
MISSION_PHASE_NAME            = "$PHASE_NAME"
ORBIT_NUMBER                  = $ORBIT_NUM
TARGET_NAME                   = "SOLAR WIND"
INSTRUMENT_NAME               = "MAGNETOSPHERIC IMAGING INSTRUMENT"
INSTRUMENT_ID                 = "MIMI"
DESCRIPTION                   = "
    (P)ulse (H)eight (A)nalysis for the INCA sensor of the MIMI instrument on
    the Cassini spacecraft"

^HEADER         = ("IPHA0_2000340_0000.CSV",  1 <BYTES>)
^SPREADSHEET    = ("IPHA0_2000340_0000.CSV",  310 <BYTES>)

OBJECT                        = HEADER
  RECORDS                     = 1
  BYTES                       = 309
  HEADER_TYPE                 = SPREADSHEET
  DESCRIPTION                 = "
    This file contains a single row of column headings (text strings enclosed
    within double quotes) separated by commas."
END_OBJECT                    = HEADER

OBJECT                        = SPREADSHEET
  ROWS                        = 157285
  FIELDS                      = 19
  ROW_BYTES                   = 264
  FIELD_DELIMITER             = COMMA

  OBJECT                      = FIELD
    NAME                      = "PURPOSE"
    FIELD_NUMBER              = 1
```

```
    DATA_TYPE               = CHARACTER
    BYTES                   = 32
    DESCRIPTION             = "
      The PURPOSE field identifies the purpose or function of the data
      contained in current row. Valid entries include:
      SCI - normal science data values
      VALID_MIN - the inclusive or exclusive minimum value allowed for this
      column
      VALID_MAX - the inclusive or exclusive maximum value allowed for this
      column
      MIN - the minimum value for this column present in this product
      MAX - the maximum value for this column present in this product
      MEAN - the mean of the values in this column in this product, this
      value will be rounded for integer columns
      STDEV - the standard deviation of the values in this column in this
    product, this value will be rounded for integer columns"
  END_OBJECT                = FIELD
  OBJECT                    = FIELD
    NAME                    = "START_EPHEMERIS_S"
    FIELD_NUMBER            = 2
    UNIT                    = SECOND
    DATA_TYPE               = ASCII_REAL
    BYTES                   = 20
    VALID_MINIMUM           = -71063936
    VALID_MAXIMUM           = 757339265
    DESCRIPTION             = "
      The J2000 ephemeris time in seconds at the beginning of the time period
      for this record."
  END_OBJECT                = FIELD
  OBJECT                    = FIELD
    NAME                    = "END_EPHEMERIS_S"
    FIELD_NUMBER            = 3
    UNIT                    = SECOND
    DATA_TYPE               = ASCII_REAL
    BYTES                   = 20
    VALID_MINIMUM           = -71063936
    VALID_MAXIMUM           = 757339265
    DESCRIPTION             = "
      The J2000 ephemeris time in seconds at the end of the time period for
      this record."
  END_OBJECT                = FIELD
  OBJECT                    = FIELD
    NAME                    = "SPIN_COUNTER"
    FIELD_NUMBER            = 4
    DATA_TYPE               = ASCII_INTEGER
    BYTES                   = 10
    VALID_MINIMUM           = 0
    VALID_MAXIMUM           = 16383
    DESCRIPTION             = "
      MIMI always organizes time by Spins, when Cassini is not in spin mode,
      MIMI uses a commanded virtual spin period. This column is a counter
      that increments with each spin or virtual spin. This counter resets
      when MIMI undergoes certain operations like shutdown, and is not
      sufficiently large that it will not roll over."
  END_OBJECT                = FIELD
  OBJECT                    = FIELD
    NAME                    = "SECTOR"
    FIELD_NUMBER            = 5
    DATA_TYPE               = ASCII_INTEGER
    BYTES                   = 10
    VALID_MINIMUM           = 0
    VALID_MAXIMUM           = 15
    DESCRIPTION             = "
      Each spin is divided into 16 sectors. Sectors have no meaning with
      regard to pointing. They are nothing more or less than segments of
      time. This column contains the zero based index of the sector.
      Sectors have special significance in that the beginning of a sector is
      the only time that MIMI records the SCLOCK. All other times must be
      calculated based on the subsector, and, where appropriate, microsector
      values provided below. Times in this product were calculated in this
      manner."
  END_OBJECT                = FIELD
  OBJECT                    = FIELD
    NAME                    = "START_SECTOR_SCLOCK_MAJOR"
    FIELD_NUMBER            = 6
```

```
  UNIT                    = COUNT
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 4000000000
  DESCRIPTION             = "
    The value of the Spacecraft clock at the beginning of Sector during
    which this record occurred. This, combined with subsector, and
    microsector where appropriate, is the monotonic timestamp for the each
    record. All other times are calculated from this time representation."
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "SUBSECTOR"
  FIELD_NUMBER            = 7
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 15
  DESCRIPTION             = "
    Each sector is divided into 16 subsectors. Subsectors have no meaning
    as far as pointing. They are nothing more or less than segments of
    time."
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "MICROSECTORS_COVERED"
  FIELD_NUMBER            = 8
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 2
  VALID_MAXIMUM           = 1024
  DESCRIPTION             = "
    Each subsector is divided into 16 microsectors. Microsectors have no
    meaning as far as pointing. They are nothing more or less than segments
    of time. This column is the number of microsectors over which this
    record was recorded, i.e. 16 for one subsector, 32 for two subsectors,
    256 for one sector, etc."
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "SPIN_PERIOD_S"
  FIELD_NUMBER            = 9
  UNIT                    = SECOND
  DATA_TYPE               = ASCII_REAL
  BYTES                   = 20
  VALID_MINIMUM           = 680
  VALID_MAXIMUM           = 3072
  DESCRIPTION             = "
    The spacecraft spin period in seconds. If the spacecraft is not in spin
    mode, this is the virtual spin period used by the MIMI sensor to
    determine the timing of data colection. This value is not very
    reliable. It represents the 'nominal' spin period. When the spin period
    is changing, it will not be very accurate."
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "STARING"
  FIELD_NUMBER            = 10
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 1
  DESCRIPTION             = "
    0 if the spacecraft is in spin mode, 1 if the not in spin mode."
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "INDEX_IN_FOUR_SUBSECTORS"
  FIELD_NUMBER            = 11
  DATA_TYPE               = ASCII_INTEGER
  BYTES                   = 10
  VALID_MINIMUM           = 0
  VALID_MAXIMUM           = 500
  DESCRIPTION             = "
    An id number that represents the zero based index of this record
    within a certain sclock value. This along with sclock is unique."
END_OBJECT                = FIELD
OBJECT                    = FIELD
  NAME                    = "COINCIDENCE"
```

```
  FIELD_NUMBER              = 12
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 1
  DESCRIPTION               = "
    This field identifies whether the PHA event is coincident (1) or not
    (0)."
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "START_STOP"
  FIELD_NUMBER              = 13
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 1
  DESCRIPTION               = "
    This field identifies whether the PHA event included both start and
    stop (1) or only one of the two (0)."
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "PULSE_HEIGHT_FRONT"
  FIELD_NUMBER              = 14
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 255
  DESCRIPTION               = "
    This field contains the encoded pulse height data for the front
    microplate."
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "PULSE_HEIGHT_REAR"
  FIELD_NUMBER              = 15
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 255
  DESCRIPTION               = "
    This field contains the encoded pulse height data for the rear
    microplate."
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "TIME_OF_FLIGHT"
  FIELD_NUMBER              = 16
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 65535
  DESCRIPTION               = "
    This field contains the PHA event time of flight in microseconds."
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "AZIMUTH"
  FIELD_NUMBER              = 17
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 63
  DESCRIPTION               = "
    This field contains the encoded value of the calculated azimuth for the
    PHA event."
END_OBJECT                  = FIELD
OBJECT                      = FIELD
  NAME                      = "ELEVATION"
  FIELD_NUMBER              = 18
  DATA_TYPE                 = ASCII_INTEGER
  BYTES                     = 10
  VALID_MINIMUM             = 0
  VALID_MAXIMUM             = 47
  DESCRIPTION               = "
    This field contains the encoded value of the calculated elevation for
    the PHA event."
END_OBJECT                  = FIELD
OBJECT                      = FIELD
```

```
      NAME                        = "MASS_RANGE"
      FIELD_NUMBER                = 19
      DATA_TYPE                   = ASCII_INTEGER
      BYTES                       = 10
      VALID_MINIMUM               = 0
      VALID_MAXIMUM               = 31
      DESCRIPTION                 = "
        This field contains the encoded value of the calculated mass."
    END_OBJECT                    = FIELD
  END_OBJECT                      = SPREADSHEET
  END
```

## *Sample File 9: IIMG0_2000340_0000.LBL*

```
PDS_VERSION_ID                = PDS3
DATA_SET_ID                   = "CO-E/J/S/SW-MIMI-2-INCA-UNCALIB-V1.0"
PRODUCT_ID                    = "IIMG0_2000340_0000"
STANDARD_DATA_PRODUCT_ID      = "MIMI_INCA_IMG"
PRODUCT_TYPE                  = "DATA"
PRODUCT_VERSION               = 0
PRODUCT_CREATION_TIME         = 2005-125T17:51:35.000

RECORD_TYPE                   = STREAM
INTERCHANGE_FORMAT            = ASCII
FILE_RECORDS                  = 194145

START_TIME                    = "2000-340T00:00:00"
STOP_TIME                     = "2000-340T23:59:59"
NATIVE_START_TIME             = "29246464.183189"
NATIVE_STOP_TIME              = "29332863.183214"
SPACECRAFT_CLOCK_START_COUNT  = "1/1354666282.146"
SPACECRAFT_CLOCK_STOP_COUNT   = "1/1354752682.043"

INSTRUMENT_HOST_NAME          = "CASSINI ORBITER"
INSTRUMENT_HOST_ID            = "CO"
MISSION_PHASE_NAME            = "$PHASE_NAME"
ORBIT_NUMBER                  = $ORBIT_NUM
TARGET_NAME                   = "SOLAR WIND"
INSTRUMENT_NAME               = "MAGNETOSPHERIC IMAGING INSTRUMENT"
INSTRUMENT_ID                 = "MIMI"
DESCRIPTION                   = "
    1-4 Sector images from the INCA sensor of the MIMI instrument on the
    Cassini spacecraft"

^HEADER        = ("IIMG0_2000340_0000.CSV",  1 <BYTES>)
^SPREADSHEET   = ("IIMG0_2000340_0000.CSV",  899 <BYTES>)

OBJECT                        = HEADER
  RECORDS                     = 1
  BYTES                       = 898
  HEADER_TYPE                 = SPREADSHEET
  DESCRIPTION                 = "
    This file contains a single row of column headings (text strings enclosed
    within double quotes) separated by commas."
END_OBJECT                    = HEADER

OBJECT                        = SPREADSHEET
  ROWS                        = 194150
  FIELDS                      = 87
  ROW_BYTES                   = 1084
  FIELD_DELIMITER             = COMMA

  OBJECT                      = FIELD
    NAME                      = "PURPOSE"
    FIELD_NUMBER              = 1
    DATA_TYPE                 = CHARACTER
    BYTES                     = 32
    DESCRIPTION               = "
      The PURPOSE field identifies the purpose or function of the data
```

```
                 contained in current row. Valid entries include:
                 SCI - normal science data values
                 VALID_MIN - the inclusive or exclusive minimum value allowed for this
                 column
                 VALID_MAX - the inclusive or exclusive maximum value allowed for this
                 column
                 MIN - the minimum value for this column present in this product
                 MAX - the maximum value for this column present in this product
                 MEAN - the mean of the values in this column in this product, this
                 value will be rounded for integer columns
                 STDEV - the standard deviation of the values in this column in this
                 product, this value will be rounded for integer columns"
 END_OBJECT               = FIELD
 OBJECT                   = FIELD
   NAME                   = "START_EPHEMERIS_S"
   FIELD_NUMBER           = 2
   UNIT                   = SECOND
   DATA_TYPE              = ASCII_REAL
   BYTES                  = 20
   VALID_MINIMUM          = -71063936
   VALID_MAXIMUM          = 757339265
   DESCRIPTION            = "
     The J2000 ephemeris time in seconds at the beginning of the time period
     for this record."
 END_OBJECT               = FIELD
 OBJECT                   = FIELD
   NAME                   = "END_EPHEMERIS_S"
   FIELD_NUMBER           = 3
   UNIT                   = SECOND
   DATA_TYPE              = ASCII_REAL
   BYTES                  = 20
   VALID_MINIMUM          = -71063936
   VALID_MAXIMUM          = 757339265
   DESCRIPTION            = "
     The J2000 ephemeris time in seconds at the end of the time period for
     this record."
 END_OBJECT               = FIELD
 OBJECT                   = FIELD
   NAME                   = "SPIN_COUNTER"
   FIELD_NUMBER           = 4
   DATA_TYPE              = ASCII_INTEGER
   BYTES                  = 10
   VALID_MINIMUM          = 0
   VALID_MAXIMUM          = 16383
   DESCRIPTION            = "
     MIMI always organizes time by Spins, when Cassini is not in spin mode,
     MIMI uses a commanded virtual spin period. This column is a counter
     that increments with each spin or virtual spin. This counter resets
     when MIMI undergoes certain operations like shutdown, and is not
     sufficiently large that it will not roll over."
 END_OBJECT               = FIELD
 OBJECT                   = FIELD
   NAME                   = "SECTOR"
   FIELD_NUMBER           = 5
   DATA_TYPE              = ASCII_INTEGER
   BYTES                  = 10
   VALID_MINIMUM          = 0
   VALID_MAXIMUM          = 15
   DESCRIPTION            = "
     Each spin is divided into 16 sectors. Sectors have no meaning with
     regard to pointing. They are nothing more or less than segments of
     time. This column contains the zero based index of the sector.
     Sectors have special significance in that the beginning of a sector is
     the only time that MIMI records the SCLOCK. All other times must be
     calculated based on the subsector, and, where appropriate, microsector
     values provided below. Times in this product were calculated in this
     manner."
 END_OBJECT               = FIELD
 OBJECT                   = FIELD
   NAME                   = "START_SECTOR_SCLOCK_MAJOR"
   FIELD_NUMBER           = 6
   UNIT                   = COUNT
   DATA_TYPE              = ASCII_INTEGER
   BYTES                  = 10
   VALID_MINIMUM          = 0
```

```
      VALID_MAXIMUM              = 4000000000
      DESCRIPTION                = "
     The value of the Spacecraft clock at the beginning of Sector during
     which this record occurred. This, combined with subsector, and
     microsector where appropriate, is the monotonic timestamp for the each
     record. All other times are calculated from this time representation."
    END_OBJECT                   = FIELD
    OBJECT                       = FIELD
      NAME                       = "SUBSECTOR"
      FIELD_NUMBER               = 7
      DATA_TYPE                  = ASCII_INTEGER
      BYTES                      = 10
      VALID_MINIMUM              = 0
      VALID_MAXIMUM              = 15
      DESCRIPTION                = "
     Each sector is divided into 16 subsectors. Subsectors have no meaning
     as far as pointing. They are nothing more or less than segments of
     time."
    END_OBJECT                   = FIELD
    OBJECT                       = FIELD
      NAME                       = "MICROSECTORS_COVERED"
      FIELD_NUMBER               = 8
      DATA_TYPE                  = ASCII_INTEGER
      BYTES                      = 10
      VALID_MINIMUM              = 2
      VALID_MAXIMUM              = 1024
      DESCRIPTION                = "
     Each subsector is divided into 16 microsectors. Microsectors have no
     meaning as far as pointing. They are nothing more or less than segments
     of time. This column is the number of microsectors over which this
     record was recorded, i.e. 16 for one subsector, 32 for two subsectors,
     256 for one sector, etc."
    END_OBJECT                   = FIELD
    OBJECT                       = FIELD
      NAME                       = "SPIN_PERIOD_S"
      FIELD_NUMBER               = 9
      UNIT                       = SECOND
      DATA_TYPE                  = ASCII_REAL
      BYTES                      = 20
      VALID_MINIMUM              = 680
      VALID_MAXIMUM              = 3072
      DESCRIPTION                = "
     The spacecraft spin period in seconds. If the spacecraft is not in spin
     mode, this is the virtual spin period used by the MIMI sensor to
     determine the timing of data colection. This value is not very
     reliable. It represents the 'nominal' spin period. When the spin period
     is changing, it will not be very accurate."
    END_OBJECT                   = FIELD
    OBJECT                       = FIELD
      NAME                       = "STARING"
      FIELD_NUMBER               = 10
      DATA_TYPE                  = ASCII_INTEGER
      BYTES                      = 10
      VALID_MINIMUM              = 0
      VALID_MAXIMUM              = 1
      DESCRIPTION                = "
     0 if the spacecraft is in spin mode, 1 if the not in spin mode."
    END_OBJECT                   = FIELD
    OBJECT                       = FIELD
      NAME                       = "TYPE_ID"
      FIELD_NUMBER               = 11
      DATA_TYPE                  = ASCII_INTEGER
      BYTES                      = 10
      VALID_MINIMUM              = 0
      VALID_MAXIMUM              = 65535
      DESCRIPTION                = "
       4 byte word describing the type of image collected.
       Byte 0 - Type: 0 = High Spatial, 1 = High Time, 2 = High m-TOF
       Byte 1 - Charge: 0 = Neutral, 1 = Ion
       Byte 2 - Species: 0 = H, 1 = He, 2 = CNO, 3 = Heavy, 4 = Other, 5 =
       All
       Byte 3 - TOF: 0 = Low, 1-6 = Medium, 7 = High"
    END_OBJECT                   = FIELD
    OBJECT                       = FIELD
      NAME                       = "ROW_ID"
```

```
  FIELD_NUMBER               = 12
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 63
  DESCRIPTION                = "
    This field identifies the row number of the image."
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "NUM_ROWS"
  FIELD_NUMBER               = 13
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 8
  VALID_MAXIMUM              = 64
  DESCRIPTION                = "
    This field identifies the number of rows in the image."
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "NUM_COLS"
  FIELD_NUMBER               = 14
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 8
  VALID_MAXIMUM              = 64
  DESCRIPTION                = "
    This field identifies the number of columns in the image."
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "COMPRESSION_BITS"
  FIELD_NUMBER               = 15
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 65535
  DESCRIPTION                = "
    This field the number of compression bits used for the image."
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "COMPRESSION_METHOD"
  FIELD_NUMBER               = 16
  DATA_TYPE                  = CHARACTER
  BYTES                      = 32
  DESCRIPTION                = "
    Identifies the compression algorithm used for the image. Options are
    None, Fast, or Rice."
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "LOG_COMPRESSED"
  FIELD_NUMBER               = 17
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 1
  DESCRIPTION                = "
    This field identifies whether the field is log compressed (1) or not
    (0)."
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "THETA_OFFSET"
  FIELD_NUMBER               = 18
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 31
  DESCRIPTION                = "
    Offset in number of pixels of the transmitted image with respect to the
    DPU image memory. Image theta is parallel to the spacecraft -Z axis."
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "PHI_OFFSET"
  FIELD_NUMBER               = 19
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
```

```
    VALID_MAXIMUM             = 61
    DESCRIPTION               = "
    Offset in number of pixels of the transmitted image with respect to the
    DPU image memory. Image phi is parallel to the spacecraft X axis."
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "HIGH_RESOLUTION"
  FIELD_NUMBER                = 20
  DATA_TYPE                   = CHARACTER
  BYTES                       = 32
  DESCRIPTION                 = "
    This field identifies the resolution means as Spatial, Time, or m-TOF."
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "CHARGED"
  FIELD_NUMBER                = 21
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 1
  DESCRIPTION                 = "
    This field identifies whether the image was taken of neutrals (0) or
    charged particles and neutrals (1)."
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "SPECIES"
  FIELD_NUMBER                = 22
  DATA_TYPE                   = CHARACTER
  BYTES                       = 32
  DESCRIPTION                 = "
    This field identifies the type of particle imaged as H - hydrogen, He -
    Helium, CNO - Carbon, Nitrogen, Oxygen, Heavy - others, All - all
    particles."
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "TOF"
  FIELD_NUMBER                = 23
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 7
  DESCRIPTION                 = "
    This field contains the encoded TOF measurement duration."
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "COL_0"
  FIELD_NUMBER                = 24
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 65535
  DESCRIPTION                 = "
    The particle count for this row and column of the image."
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "COL_1"
  FIELD_NUMBER                = 25
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 65535
  DESCRIPTION                 = "
    The particle count for this row and column of the image."
END_OBJECT                    = FIELD
OBJECT                        = FIELD
  NAME                        = "COL_2"
  FIELD_NUMBER                = 26
  DATA_TYPE                   = ASCII_INTEGER
  BYTES                       = 10
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 65535
  DESCRIPTION                 = "
    The particle count for this row and column of the image."
END_OBJECT                    = FIELD
OBJECT                        = FIELD
```

```
     NAME                      = "COL_3"
     FIELD_NUMBER              = 27
     DATA_TYPE                 = ASCII_INTEGER
     BYTES                     = 10
     VALID_MINIMUM             = 0
     VALID_MAXIMUM             = 65535
     DESCRIPTION               = "
       The particle count for this row and column of the image."
   END_OBJECT                  = FIELD
   OBJECT                      = FIELD
     NAME                      = "COL_4"
     FIELD_NUMBER              = 28
     DATA_TYPE                 = ASCII_INTEGER
     BYTES                     = 10
     VALID_MINIMUM             = 0
     VALID_MAXIMUM             = 65535
     DESCRIPTION               = "
       The particle count for this row and column of the image."
   END_OBJECT                  = FIELD
   OBJECT                      = FIELD
     NAME                      = "COL_5"
     FIELD_NUMBER              = 29
     DATA_TYPE                 = ASCII_INTEGER
     BYTES                     = 10
     VALID_MINIMUM             = 0
     VALID_MAXIMUM             = 65535
     DESCRIPTION               = "
       The particle count for this row and column of the image."
   END_OBJECT                  = FIELD
   OBJECT                      = FIELD
     NAME                      = "COL_6"
     FIELD_NUMBER              = 30
     DATA_TYPE                 = ASCII_INTEGER
     BYTES                     = 10
     VALID_MINIMUM             = 0
     VALID_MAXIMUM             = 65535
     DESCRIPTION               = "
       The particle count for this row and column of the image."
   END_OBJECT                  = FIELD
   OBJECT                      = FIELD
     NAME                      = "COL_7"
     FIELD_NUMBER              = 31
     DATA_TYPE                 = ASCII_INTEGER
     BYTES                     = 10
     VALID_MINIMUM             = 0
     VALID_MAXIMUM             = 65535
     DESCRIPTION               = "
       The particle count for this row and column of the image."
   END_OBJECT                  = FIELD
   OBJECT                      = FIELD
     NAME                      = "COL_8"
     FIELD_NUMBER              = 32
     DATA_TYPE                 = ASCII_INTEGER
     BYTES                     = 10
     VALID_MINIMUM             = 0
     VALID_MAXIMUM             = 65535
     DESCRIPTION               = "
       The particle count for this row and column of the image."
   END_OBJECT                  = FIELD
   OBJECT                      = FIELD
     NAME                      = "COL_9"
     FIELD_NUMBER              = 33
     DATA_TYPE                 = ASCII_INTEGER
     BYTES                     = 10
     VALID_MINIMUM             = 0
     VALID_MAXIMUM             = 65535
     DESCRIPTION               = "
       The particle count for this row and column of the image."
   END_OBJECT                  = FIELD
   OBJECT                      = FIELD
     NAME                      = "COL_10"
     FIELD_NUMBER              = 34
     DATA_TYPE                 = ASCII_INTEGER
     BYTES                     = 10
     VALID_MINIMUM             = 0
```

```
    VALID_MAXIMUM              = 65535
    DESCRIPTION                = "
      The particle count for this row and column of the image."
  END_OBJECT                   = FIELD
  OBJECT                       = FIELD
    NAME                       = "COL_11"
    FIELD_NUMBER               = 35
    DATA_TYPE                  = ASCII_INTEGER
    BYTES                      = 10
    VALID_MINIMUM              = 0
    VALID_MAXIMUM              = 65535
    DESCRIPTION                = "
      The particle count for this row and column of the image."
  END_OBJECT                   = FIELD
  OBJECT                       = FIELD
    NAME                       = "COL_12"
    FIELD_NUMBER               = 36
    DATA_TYPE                  = ASCII_INTEGER
    BYTES                      = 10
    VALID_MINIMUM              = 0
    VALID_MAXIMUM              = 65535
    DESCRIPTION                = "
      The particle count for this row and column of the image."
  END_OBJECT                   = FIELD
  OBJECT                       = FIELD
    NAME                       = "COL_13"
    FIELD_NUMBER               = 37
    DATA_TYPE                  = ASCII_INTEGER
    BYTES                      = 10
    VALID_MINIMUM              = 0
    VALID_MAXIMUM              = 65535
    DESCRIPTION                = "
      The particle count for this row and column of the image."
  END_OBJECT                   = FIELD
  OBJECT                       = FIELD
    NAME                       = "COL_14"
    FIELD_NUMBER               = 38
    DATA_TYPE                  = ASCII_INTEGER
    BYTES                      = 10
    VALID_MINIMUM              = 0
    VALID_MAXIMUM              = 65535
    DESCRIPTION                = "
      The particle count for this row and column of the image."
  END_OBJECT                   = FIELD
  OBJECT                       = FIELD
    NAME                       = "COL_15"
    FIELD_NUMBER               = 39
    DATA_TYPE                  = ASCII_INTEGER
    BYTES                      = 10
    VALID_MINIMUM              = 0
    VALID_MAXIMUM              = 65535
    DESCRIPTION                = "
      The particle count for this row and column of the image."
  END_OBJECT                   = FIELD
  OBJECT                       = FIELD
    NAME                       = "COL_16"
    FIELD_NUMBER               = 40
    DATA_TYPE                  = ASCII_INTEGER
    BYTES                      = 10
    VALID_MINIMUM              = 0
    VALID_MAXIMUM              = 65535
    DESCRIPTION                = "
      The particle count for this row and column of the image."
  END_OBJECT                   = FIELD
  OBJECT                       = FIELD
    NAME                       = "COL_17"
    FIELD_NUMBER               = 41
    DATA_TYPE                  = ASCII_INTEGER
    BYTES                      = 10
    VALID_MINIMUM              = 0
    VALID_MAXIMUM              = 65535
    DESCRIPTION                = "
      The particle count for this row and column of the image."
  END_OBJECT                   = FIELD
  OBJECT                       = FIELD
```

```
  NAME                       = "COL_18"
  FIELD_NUMBER               = 42
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 65535
  DESCRIPTION                = "
    The particle count for this row and column of the image."
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "COL_19"
  FIELD_NUMBER               = 43
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 65535
  DESCRIPTION                = "
    The particle count for this row and column of the image."
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "COL_20"
  FIELD_NUMBER               = 44
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 65535
  DESCRIPTION                = "
    The particle count for this row and column of the image."
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "COL_21"
  FIELD_NUMBER               = 45
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 65535
  DESCRIPTION                = "
    The particle count for this row and column of the image."
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "COL_22"
  FIELD_NUMBER               = 46
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 65535
  DESCRIPTION                = "
    The particle count for this row and column of the image."
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "COL_23"
  FIELD_NUMBER               = 47
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 65535
  DESCRIPTION                = "
    The particle count for this row and column of the image."
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "COL_24"
  FIELD_NUMBER               = 48
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 65535
  DESCRIPTION                = "
    The particle count for this row and column of the image."
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "COL_25"
  FIELD_NUMBER               = 49
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
```

```
    VALID_MAXIMUM              = 65535
    DESCRIPTION                = "
      The particle count for this row and column of the image."
  END_OBJECT                   = FIELD
  OBJECT                       = FIELD
    NAME                       = "COL_26"
    FIELD_NUMBER               = 50
    DATA_TYPE                  = ASCII_INTEGER
    BYTES                      = 10
    VALID_MINIMUM              = 0
    VALID_MAXIMUM              = 65535
    DESCRIPTION                = "
      The particle count for this row and column of the image."
  END_OBJECT                   = FIELD
  OBJECT                       = FIELD
    NAME                       = "COL_27"
    FIELD_NUMBER               = 51
    DATA_TYPE                  = ASCII_INTEGER
    BYTES                      = 10
    VALID_MINIMUM              = 0
    VALID_MAXIMUM              = 65535
    DESCRIPTION                = "
      The particle count for this row and column of the image."
  END_OBJECT                   = FIELD
  OBJECT                       = FIELD
    NAME                       = "COL_28"
    FIELD_NUMBER               = 52
    DATA_TYPE                  = ASCII_INTEGER
    BYTES                      = 10
    VALID_MINIMUM              = 0
    VALID_MAXIMUM              = 65535
    DESCRIPTION                = "
      The particle count for this row and column of the image."
  END_OBJECT                   = FIELD
  OBJECT                       = FIELD
    NAME                       = "COL_29"
    FIELD_NUMBER               = 53
    DATA_TYPE                  = ASCII_INTEGER
    BYTES                      = 10
    VALID_MINIMUM              = 0
    VALID_MAXIMUM              = 65535
    DESCRIPTION                = "
      The particle count for this row and column of the image."
  END_OBJECT                   = FIELD
  OBJECT                       = FIELD
    NAME                       = "COL_30"
    FIELD_NUMBER               = 54
    DATA_TYPE                  = ASCII_INTEGER
    BYTES                      = 10
    VALID_MINIMUM              = 0
    VALID_MAXIMUM              = 65535
    DESCRIPTION                = "
      The particle count for this row and column of the image."
  END_OBJECT                   = FIELD
  OBJECT                       = FIELD
    NAME                       = "COL_31"
    FIELD_NUMBER               = 55
    DATA_TYPE                  = ASCII_INTEGER
    BYTES                      = 10
    VALID_MINIMUM              = 0
    VALID_MAXIMUM              = 65535
    DESCRIPTION                = "
      The particle count for this row and column of the image."
  END_OBJECT                   = FIELD
  OBJECT                       = FIELD
    NAME                       = "COL_32"
    FIELD_NUMBER               = 56
    DATA_TYPE                  = ASCII_INTEGER
    BYTES                      = 10
    VALID_MINIMUM              = 0
    VALID_MAXIMUM              = 65535
    DESCRIPTION                = "
      The particle count for this row and column of the image."
  END_OBJECT                   = FIELD
  OBJECT                       = FIELD
```

```
  NAME                       = "COL_33"
  FIELD_NUMBER               = 57
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 65535
  DESCRIPTION                = "
    The particle count for this row and column of the image."
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "COL_34"
  FIELD_NUMBER               = 58
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 65535
  DESCRIPTION                = "
    The particle count for this row and column of the image."
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "COL_35"
  FIELD_NUMBER               = 59
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 65535
  DESCRIPTION                = "
    The particle count for this row and column of the image."
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "COL_36"
  FIELD_NUMBER               = 60
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 65535
  DESCRIPTION                = "
    The particle count for this row and column of the image."
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "COL_37"
  FIELD_NUMBER               = 61
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 65535
  DESCRIPTION                = "
    The particle count for this row and column of the image."
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "COL_38"
  FIELD_NUMBER               = 62
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 65535
  DESCRIPTION                = "
    The particle count for this row and column of the image."
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "COL_39"
  FIELD_NUMBER               = 63
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
  VALID_MAXIMUM              = 65535
  DESCRIPTION                = "
    The particle count for this row and column of the image."
END_OBJECT                   = FIELD
OBJECT                       = FIELD
  NAME                       = "COL_40"
  FIELD_NUMBER               = 64
  DATA_TYPE                  = ASCII_INTEGER
  BYTES                      = 10
  VALID_MINIMUM              = 0
```

```
   VALID_MAXIMUM            = 65535
   DESCRIPTION              = "
     The particle count for this row and column of the image."
END_OBJECT                 = FIELD
OBJECT                     = FIELD
   NAME                     = "COL_41"
   FIELD_NUMBER             = 65
   DATA_TYPE                = ASCII_INTEGER
   BYTES                    = 10
   VALID_MINIMUM            = 0
   VALID_MAXIMUM            = 65535
   DESCRIPTION              = "
     The particle count for this row and column of the image."
END_OBJECT                 = FIELD
OBJECT                     = FIELD
   NAME                     = "COL_42"
   FIELD_NUMBER             = 66
   DATA_TYPE                = ASCII_INTEGER
   BYTES                    = 10
   VALID_MINIMUM            = 0
   VALID_MAXIMUM            = 65535
   DESCRIPTION              = "
     The particle count for this row and column of the image."
END_OBJECT                 = FIELD
OBJECT                     = FIELD
   NAME                     = "COL_43"
   FIELD_NUMBER             = 67
   DATA_TYPE                = ASCII_INTEGER
   BYTES                    = 10
   VALID_MINIMUM            = 0
   VALID_MAXIMUM            = 65535
   DESCRIPTION              = "
     The particle count for this row and column of the image."
END_OBJECT                 = FIELD
OBJECT                     = FIELD
   NAME                     = "COL_44"
   FIELD_NUMBER             = 68
   DATA_TYPE                = ASCII_INTEGER
   BYTES                    = 10
   VALID_MINIMUM            = 0
   VALID_MAXIMUM            = 65535
   DESCRIPTION              = "
     The particle count for this row and column of the image."
END_OBJECT                 = FIELD
OBJECT                     = FIELD
   NAME                     = "COL_45"
   FIELD_NUMBER             = 69
   DATA_TYPE                = ASCII_INTEGER
   BYTES                    = 10
   VALID_MINIMUM            = 0
   VALID_MAXIMUM            = 65535
   DESCRIPTION              = "
     The particle count for this row and column of the image."
END_OBJECT                 = FIELD
OBJECT                     = FIELD
   NAME                     = "COL_46"
   FIELD_NUMBER             = 70
   DATA_TYPE                = ASCII_INTEGER
   BYTES                    = 10
   VALID_MINIMUM            = 0
   VALID_MAXIMUM            = 65535
   DESCRIPTION              = "
     The particle count for this row and column of the image."
END_OBJECT                 = FIELD
OBJECT                     = FIELD
   NAME                     = "COL_47"
   FIELD_NUMBER             = 71
   DATA_TYPE                = ASCII_INTEGER
   BYTES                    = 10
   VALID_MINIMUM            = 0
   VALID_MAXIMUM            = 65535
   DESCRIPTION              = "
     The particle count for this row and column of the image."
END_OBJECT                 = FIELD
OBJECT                     = FIELD
```

```
   NAME                  = "COL_48"
   FIELD_NUMBER          = 72
   DATA_TYPE             = ASCII_INTEGER
   BYTES                 = 10
   VALID_MINIMUM         = 0
   VALID_MAXIMUM         = 65535
   DESCRIPTION           = "
     The particle count for this row and column of the image."
 END_OBJECT              = FIELD
 OBJECT                  = FIELD
   NAME                  = "COL_49"
   FIELD_NUMBER          = 73
   DATA_TYPE             = ASCII_INTEGER
   BYTES                 = 10
   VALID_MINIMUM         = 0
   VALID_MAXIMUM         = 65535
   DESCRIPTION           = "
     The particle count for this row and column of the image."
 END_OBJECT              = FIELD
 OBJECT                  = FIELD
   NAME                  = "COL_50"
   FIELD_NUMBER          = 74
   DATA_TYPE             = ASCII_INTEGER
   BYTES                 = 10
   VALID_MINIMUM         = 0
   VALID_MAXIMUM         = 65535
   DESCRIPTION           = "
     The particle count for this row and column of the image."
 END_OBJECT              = FIELD
 OBJECT                  = FIELD
   NAME                  = "COL_51"
   FIELD_NUMBER          = 75
   DATA_TYPE             = ASCII_INTEGER
   BYTES                 = 10
   VALID_MINIMUM         = 0
   VALID_MAXIMUM         = 65535
   DESCRIPTION           = "
     The particle count for this row and column of the image."
 END_OBJECT              = FIELD
 OBJECT                  = FIELD
   NAME                  = "COL_52"
   FIELD_NUMBER          = 76
   DATA_TYPE             = ASCII_INTEGER
   BYTES                 = 10
   VALID_MINIMUM         = 0
   VALID_MAXIMUM         = 65535
   DESCRIPTION           = "
     The particle count for this row and column of the image."
 END_OBJECT              = FIELD
 OBJECT                  = FIELD
   NAME                  = "COL_53"
   FIELD_NUMBER          = 77
   DATA_TYPE             = ASCII_INTEGER
   BYTES                 = 10
   VALID_MINIMUM         = 0
   VALID_MAXIMUM         = 65535
   DESCRIPTION           = "
     The particle count for this row and column of the image."
 END_OBJECT              = FIELD
 OBJECT                  = FIELD
   NAME                  = "COL_54"
   FIELD_NUMBER          = 78
   DATA_TYPE             = ASCII_INTEGER
   BYTES                 = 10
   VALID_MINIMUM         = 0
   VALID_MAXIMUM         = 65535
   DESCRIPTION           = "
     The particle count for this row and column of the image."
 END_OBJECT              = FIELD
 OBJECT                  = FIELD
   NAME                  = "COL_55"
   FIELD_NUMBER          = 79
   DATA_TYPE             = ASCII_INTEGER
   BYTES                 = 10
   VALID_MINIMUM         = 0
```

```
      VALID_MAXIMUM           = 65535
      DESCRIPTION             = "
        The particle count for this row and column of the image."
    END_OBJECT                = FIELD
    OBJECT                    = FIELD
      NAME                    = "COL_56"
      FIELD_NUMBER            = 80
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 10
      VALID_MINIMUM           = 0
      VALID_MAXIMUM           = 65535
      DESCRIPTION             = "
        The particle count for this row and column of the image."
    END_OBJECT                = FIELD
    OBJECT                    = FIELD
      NAME                    = "COL_57"
      FIELD_NUMBER            = 81
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 10
      VALID_MINIMUM           = 0
      VALID_MAXIMUM           = 65535
      DESCRIPTION             = "
        The particle count for this row and column of the image."
    END_OBJECT                = FIELD
    OBJECT                    = FIELD
      NAME                    = "COL_58"
      FIELD_NUMBER            = 82
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 10
      VALID_MINIMUM           = 0
      VALID_MAXIMUM           = 65535
      DESCRIPTION             = "
        The particle count for this row and column of the image."
    END_OBJECT                = FIELD
    OBJECT                    = FIELD
      NAME                    = "COL_59"
      FIELD_NUMBER            = 83
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 10
      VALID_MINIMUM           = 0
      VALID_MAXIMUM           = 65535
      DESCRIPTION             = "
        The particle count for this row and column of the image."
    END_OBJECT                = FIELD
    OBJECT                    = FIELD
      NAME                    = "COL_60"
      FIELD_NUMBER            = 84
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 10
      VALID_MINIMUM           = 0
      VALID_MAXIMUM           = 65535
      DESCRIPTION             = "
        The particle count for this row and column of the image."
    END_OBJECT                = FIELD
    OBJECT                    = FIELD
      NAME                    = "COL_61"
      FIELD_NUMBER            = 85
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 10
      VALID_MINIMUM           = 0
      VALID_MAXIMUM           = 65535
      DESCRIPTION             = "
        The particle count for this row and column of the image."
    END_OBJECT                = FIELD
    OBJECT                    = FIELD
      NAME                    = "COL_62"
      FIELD_NUMBER            = 86
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 10
      VALID_MINIMUM           = 0
      VALID_MAXIMUM           = 65535
      DESCRIPTION             = "
        The particle count for this row and column of the image."
    END_OBJECT                = FIELD
    OBJECT                    = FIELD
```

```
         NAME                   = "COL_63"
         FIELD_NUMBER           = 87
         DATA_TYPE              = ASCII_INTEGER
         BYTES                  = 10
         VALID_MINIMUM          = 0
         VALID_MAXIMUM          = 65535
         DESCRIPTION            = "
           The particle count for this row and column of the image."
      END_OBJECT                = FIELD
   END_OBJECT                   = SPREADSHEET
   END
```

## 7.1.4. *MIMI KP BROWSE*

```
                     Sample File 7: MIMI_KP_2000340_0000.LBL



PDS_VERSION_ID                 = PDS3
DATA_SET_ID                    = {
                                   "CO-E/J/S/SW-MIMI-2-CHEMS-UNCALIB-V1.0",
                                   "CO-E/J/S/SW-MIMI-2-INCA-UNCALIB-V1.0",
                                   "CO-E/J/S/SW-MIMI-2-LEMMS-UNCALIB-V1.0"
                                 }
PRODUCT_ID                     = "MIMI_KEY__2000340"
PRODUCT_TYPE                   = "ANCILLARY"
PRODUCT_VERSION                = "0000"
PRODUCT_CREATION_TIME          = 2005-136T17:48:30.000

RECORD_TYPE                    = STREAM
INTERCHANGE_FORMAT             = ASCII
FILE_RECORDS                   = 1440

START_TIME                     = "2000-340T00:00:00"
STOP_TIME                      = "2000-340T23:59:59"
NATIVE_START_TIME              = "29246464.183189"
NATIVE_STOP_TIME               = "29332863.183214"
SPACECRAFT_CLOCK_START_COUNT   = "1/1354666282.146"
SPACECRAFT_CLOCK_STOP_COUNT    = "1/1354752682.043"

INSTRUMENT_HOST_NAME           = "CASSINI ORBITER"
INSTRUMENT_HOST_ID             = "CO"
MISSION_PHASE_NAME             = "JUPITER CRUISE"
ORBIT_NUMBER                   = "N/A"
TARGET_NAME                    = "SOLAR WIND"
INSTRUMENT_NAME                = "MAGNETOSPHERIC IMAGING INSTRUMENT"
INSTRUMENT_ID                  = "MIMI"
DESCRIPTION                    = "
    Key Parameter Browse data for Cassini MIMI LEMMS, CHEMS, and INCA
    sensors."

^TABLE                         = "MIMI_KEY__2000340.TAB"

OBJECT                         = TABLE
  ROWS                         = 1440
  COLUMNS                      = 56
  ROW_BYTES                    = 906

  OBJECT                       = COLUMN
    NAME                       = "UTC"
    COLUMN_NUMBER              = 1
    DATA_TYPE                  = CHARACTER
    START_BYTE                 = 1
    BYTES                      = 21
    DESCRIPTION                = "
      The UTC field identifies the time of the measurment for the current
      record in UTC format:
      YYYY-DOYTHH:MM:SS.SSS   where
          YYYY = year of measurment
          DOY  = day of year of measurement
          T    = separator value between year/day and time
```

155

```
          HH    = hour of measurement
          MM    = minute of measurement
          SS    = second of measurement to milliseconds"
END_OBJECT                    = COLUMN
OBJECT                        = COLUMN
  NAME                        = "LEMMS_A0"
  COLUMN_NUMBER               = 2
  UNIT                        = COUNT
  DATA_TYPE                   = ASCII_REAL
  START_BYTE                  = 23
  BYTES                       = 15
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 4000000000
  DESCRIPTION                 = "
    LEMMS Accumulation Rate for the indicated channel.
    This rate has been interpolated for the 60 second cadence of this
    data file."
END_OBJECT                    = COLUMN
OBJECT                        = COLUMN
  NAME                        = "LEMMS_A1"
  COLUMN_NUMBER               = 3
  UNIT                        = SECOND
  DATA_TYPE                   = ASCII_REAL
  START_BYTE                  = 34
  BYTES                       = 14
  VALID_MINIMUM               = -7.0E7
  VALID_MAXIMUM               = 1.5E9
  DESCRIPTION                 = "
    LEMMS Accumulation Rate for the indicated channel.
    This rate has been interpolated for the 60 second cadence of this data
    file."
END_OBJECT                    = COLUMN
OBJECT                        = COLUMN
  NAME                        = "LEMMS_A2"
  COLUMN_NUMBER               = 4
  UNIT                        = SECOND
  DATA_TYPE                   = ASCII_REAL
  START_BYTE                  = 49
  BYTES                       = 15
  VALID_MINIMUM               = -7.0E7
  VALID_MAXIMUM               = 1.5E9
  DESCRIPTION                 = "
    LEMMS Accumulation Rate for the indicated channel.
    This rate has been interpolated for the 60 second cadence of this data
    file."
END_OBJECT                    = COLUMN
OBJECT                        = COLUMN
  NAME                        = "LEMMS_A3"
  COLUMN_NUMBER               = 5
  DATA_TYPE                   = ASCII_REAL
  START_BYTE                  = 65
  BYTES                       = 15
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 1
  DESCRIPTION                 = "
    LEMMS Accumulation Rate for the indicated channel.
    This rate has been interpolated for the 60 second cadence of this data
    file."
END_OBJECT                    = COLUMN
OBJECT                        = COLUMN
  NAME                        = "LEMMS_A4"
  COLUMN_NUMBER               = 6
  UNIT                        = SECOND
  DATA_TYPE                   = ASCII_REAL
  START_BYTE                  = 81
  BYTES                       = 15
  VALID_MINIMUM               = 680
  VALID_MAXIMUM               = 3072
  DESCRIPTION                 = "
    LEMMS Accumulation Rate for the indicated channel.
    This rate has been interpolated for the 60 second cadence of this data
    file."
END_OBJECT                    = COLUMN
OBJECT                        = COLUMN
  NAME                        = "LEMMS_A5"
```

```
  COLUMN_NUMBER          = 7
  DATA_TYPE              = ASCII_REAL
  START_BYTE             = 97
  BYTES                  = 15
  VALID_MINIMUM          = 0
  VALID_MAXIMUM          = 16383
  DESCRIPTION            = "
    LEMMS Accumulation Rate for the indicated channel.
    This rate has been interpolated for the 60 second cadence of this data
    file."
END_OBJECT               = COLUMN
OBJECT                   = COLUMN
  NAME                   = "LEMMS_A6"
  COLUMN_NUMBER          = 8
  DATA_TYPE              = ASCII_REAL
  START_BYTE             = 113
  BYTES                  = 15
  VALID_MINIMUM          = 0
  VALID_MAXIMUM          = 15
  DESCRIPTION            = "
    LEMMS Accumulation Rate for the indicated channel.
    This rate has been interpolated for the 60 second cadence of this data
    file."
END_OBJECT               = COLUMN
OBJECT                   = COLUMN
  NAME                   = "LEMMS_A7"
  COLUMN_NUMBER          = 9
  DATA_TYPE              = ASCII_REAL
  START_BYTE             = 129
  BYTES                  = 15
  VALID_MINIMUM          = 0
  VALID_MAXIMUM          = 15
  DESCRIPTION            = "
    LEMMS Accumulation Rate for the indicated channel.
    This rate has been interpolated for the 60 second cadence of this data
    file."
END_OBJECT               = COLUMN
OBJECT                   = COLUMN
  NAME                   = "LEMMS_A8"
  COLUMN_NUMBER          = 10
  DATA_TYPE              = ASCII_REAL
  START_BYTE             = 145
  BYTES                  = 15
  VALID_MINIMUM          = 0
  VALID_MAXIMUM          = 4.E5
  DESCRIPTION            = "
    LEMMS Accumulation Rate for the indicated channel.
    This rate has been interpolated for the 60 second cadence of this data
    file."
END_OBJECT               = COLUMN
OBJECT                   = COLUMN
  NAME                   = "LEMMS_C0"
  COLUMN_NUMBER          = 11
  DATA_TYPE              = ASCII_REAL
  START_BYTE             = 161
  BYTES                  = 15
  VALID_MINIMUM          = 0
  VALID_MAXIMUM          = 4.E5
  DESCRIPTION            = "
    LEMMS Accumulation Rate for the indicated channel.
    This rate has been interpolated for the 60 second cadence of this data
    file."
END_OBJECT               = COLUMN
OBJECT                   = COLUMN
  NAME                   = "LEMMS_C1"
  COLUMN_NUMBER          = 12
  DATA_TYPE              = ASCII_REAL
  START_BYTE             = 177
  BYTES                  = 15
  VALID_MINIMUM          = 0
  VALID_MAXIMUM          = 4.E5
  DESCRIPTION            = "
    LEMMS Accumulation Rate for the indicated channel.
    This rate has been interpolated for the 60 second cadence of this data
    file."
```

```
END_OBJECT                      = COLUMN
OBJECT                          = COLUMN
  NAME                          = "LEMMS_C2"
  COLUMN_NUMBER                 = 13
  DATA_TYPE                     = ASCII_REAL
  START_BYTE                    = 193
  BYTES                         = 15
  VALID_MINIMUM                 = 0
  VALID_MAXIMUM                 = 4.E5
  DESCRIPTION                   = "
    LEMMS Accumulation Rate for the indicated channel.
    This rate has been interpolated for the 60 second cadence of this data
    file."
END_OBJECT                      = COLUMN
OBJECT                          = COLUMN
  NAME                          = "LEMMS_C3"
  COLUMN_NUMBER                 = 14
  DATA_TYPE                     = ASCII_REAL
  START_BYTE                    = 209
  BYTES                         = 15
  VALID_MINIMUM                 = 0
  VALID_MAXIMUM                 = 4.E5
  DESCRIPTION                   = "
    LEMMS Accumulation Rate for the indicated channel.
    This rate has been interpolated for the 60 second cadence of this data
    file."
END_OBJECT                      = COLUMN
OBJECT                          = COLUMN
  NAME                          = "LEMMS_C4"
  COLUMN_NUMBER                 = 15
  DATA_TYPE                     = ASCII_REAL
  START_BYTE                    = 225
  BYTES                         = 15
  VALID_MINIMUM                 = 0
  VALID_MAXIMUM                 = 4.E5
  DESCRIPTION                   = "
    LEMMS Accumulation Rate for the indicated channel.
    This rate has been interpolated for the 60 second cadence of this data
    file."
END_OBJECT                      = COLUMN
OBJECT                          = COLUMN
  NAME                          = "LEMMS_C5"
  COLUMN_NUMBER                 = 16
  DATA_TYPE                     = ASCII_REAL
  START_BYTE                    = 241
  BYTES                         = 15
  VALID_MINIMUM                 = 0
  VALID_MAXIMUM                 = 4.E5
  DESCRIPTION                   = "
    LEMMS Accumulation Rate for the indicated channel.
    This rate has been interpolated for the 60 second cadence of this data
    file."
END_OBJECT                      = COLUMN
OBJECT                          = COLUMN
  NAME                          = "LEMMS_C6"
  COLUMN_NUMBER                 = 17
  DATA_TYPE                     = ASCII_REAL
  START_BYTE                    = 257
  BYTES                         = 15
  VALID_MINIMUM                 = 0
  VALID_MAXIMUM                 = 4.E5
  DESCRIPTION                   = "
    LEMMS Accumulation Rate for the indicated channel.
    This rate has been interpolated for the 60 second cadence of this data
    file."
END_OBJECT                      = COLUMN
OBJECT                          = COLUMN
  NAME                          = "LEMMS_C7"
  COLUMN_NUMBER                 = 18
  DATA_TYPE                     = ASCII_REAL
  START_BYTE                    = 273
  BYTES                         = 15
  VALID_MINIMUM                 = 0
  VALID_MAXIMUM                 = 4.E5
  DESCRIPTION                   = "
```

```
        LEMMS Accumulation Rate for the indicated channel.
        This rate has been interpolated for the 60 second cadence of this data
        file."
  END_OBJECT                    = COLUMN
  OBJECT                        = COLUMN
    NAME                        = "LEMMS_P1"
    COLUMN_NUMBER               = 19
    DATA_TYPE                   = ASCII_REAL
    START_BYTE                  = 289
    BYTES                       = 15
    VALID_MINIMUM               = 0
    VALID_MAXIMUM               = 4.E5
    DESCRIPTION                 = "
      LEMMS Accumulation Rate for the indicated channel.
      This rate has been interpolated for the 60 second cadence of this data
      file."
  END_OBJECT                    = COLUMN
  OBJECT                        = COLUMN
    NAME                        = "LEMMS_P2"
    COLUMN_NUMBER               = 20
    DATA_TYPE                   = ASCII_REAL
    START_BYTE                  = 305
    BYTES                       = 15
    VALID_MINIMUM               = 0
    VALID_MAXIMUM               = 4.E5
    DESCRIPTION                 = "
      LEMMS Accumulation Rate for the indicated channel.
      This rate has been interpolated for the 60 second cadence of this data
      file."
  END_OBJECT                    = COLUMN
  OBJECT                        = COLUMN
    NAME                        = "LEMMS_P3"
    COLUMN_NUMBER               = 21
    DATA_TYPE                   = ASCII_REAL
    START_BYTE                  = 321
    BYTES                       = 15
    VALID_MINIMUM               = 0
    VALID_MAXIMUM               = 4.E5
    DESCRIPTION                 = "
      LEMMS Accumulation Rate for the indicated channel.
      This rate has been interpolated for the 60 second cadence of this data
      file."
  END_OBJECT                    = COLUMN
  OBJECT                        = COLUMN
    NAME                        = "LEMMS_P4"
    COLUMN_NUMBER               = 22
    DATA_TYPE                   = ASCII_REAL
    START_BYTE                  = 337
    BYTES                       = 15
    VALID_MINIMUM               = 0
    VALID_MAXIMUM               = 4.E5
    DESCRIPTION                 = "
      LEMMS Accumulation Rate for the indicated channel.
      This rate has been interpolated for the 60 second cadence of this data
      file."
  END_OBJECT                    = COLUMN
  OBJECT                        = COLUMN
    NAME                        = "LEMMS_P5"
    COLUMN_NUMBER               = 23
    DATA_TYPE                   = ASCII_REAL
    START_BYTE                  = 353
    BYTES                       = 15
    VALID_MINIMUM               = 0
    VALID_MAXIMUM               = 4.E5
    DESCRIPTION                 = "
      LEMMS Accumulation Rate for the indicated channel.
      This rate has been interpolated for the 60 second cadence of this data
      file."
  END_OBJECT                    = COLUMN
  OBJECT                        = COLUMN
    NAME                        = "LEMMS_E0"
    COLUMN_NUMBER               = 24
    DATA_TYPE                   = ASCII_REAL
    START_BYTE                  = 369
    BYTES                       = 15
```

```
    VALID_MINIMUM                  = 0
    VALID_MAXIMUM                  = 4.E5
    DESCRIPTION                    = "
      LEMMS Accumulation Rate for the indicated channel.
      This rate has been interpolated for the 60 second cadence of this data
      file."
  END_OBJECT                       = COLUMN
  OBJECT                           = COLUMN
    NAME                           = "LEMMS_E1"
    COLUMN_NUMBER                  = 25
    DATA_TYPE                      = ASCII_REAL
    START_BYTE                     = 385
    BYTES                          = 15
    VALID_MINIMUM                  = 0
    VALID_MAXIMUM                  = 4.E5
    DESCRIPTION                    = "
      LEMMS Accumulation Rate for the indicated channel.
      This rate has been interpolated for the 60 second cadence of this data
      file."
  END_OBJECT                       = COLUMN
  OBJECT                           = COLUMN
    NAME                           = "LEMMS_E2"
    COLUMN_NUMBER                  = 26
    DATA_TYPE                      = ASCII_REAL
    START_BYTE                     = 401
    BYTES                          = 15
    VALID_MINIMUM                  = 0
    VALID_MAXIMUM                  = 4.E5
    DESCRIPTION                    = "
      LEMMS Accumulation Rate for the indicated channel.
      This rate has been interpolated for the 60 second cadence of this data
      file."
  END_OBJECT                       = COLUMN
  OBJECT                           = COLUMN
    NAME                           = "LEMMS_E3"
    COLUMN_NUMBER                  = 27
    DATA_TYPE                      = ASCII_REAL
    START_BYTE                     = 417
    BYTES                          = 15
    VALID_MINIMUM                  = 0
    VALID_MAXIMUM                  = 4.E5
    DESCRIPTION                    = "
      LEMMS Accumulation Rate for the indicated channel.
      This rate has been interpolated for the 60 second cadence of this data
      file."
  END_OBJECT                       = COLUMN
  OBJECT                           = COLUMN
    NAME                           = "LEMMS_E4"
    COLUMN_NUMBER                  = 28
    DATA_TYPE                      = ASCII_REAL
    START_BYTE                     = 433
    BYTES                          = 15
    VALID_MINIMUM                  = 0
    VALID_MAXIMUM                  = 4.E5
    DESCRIPTION                    = "
      LEMMS Accumulation Rate for the indicated channel.
      This rate has been interpolated for the 60 second cadence of this data
      file."
  END_OBJECT                       = COLUMN
  OBJECT                           = COLUMN
    NAME                           = "LEMMS_C5_Anisotropy"
    COLUMN_NUMBER                  = 29
    DATA_TYPE                      = ASCII_REAL
    START_BYTE                     = 449
    BYTES                          = 15
    VALID_MINIMUM                  = 0
    VALID_MAXIMUM                  = 4.E5
    DESCRIPTION                    = "
      This field contains a measure of the anisotropy between the highest
      microsector and the lowest microsector measured within a sector (1
      LEMMS turntable rotation).  The anisotropy is calculated to be 1.0 -
      (sector_minimum / sector_maximum)."
  END_OBJECT                       = COLUMN
  OBJECT                           = COLUMN
    NAME                           = "LEMMS_A5_Anisotropy"
```

```
  COLUMN_NUMBER          = 30
  DATA_TYPE              = ASCII_REAL
  START_BYTE             = 465
  BYTES                  = 15
  VALID_MINIMUM          = 0
  VALID_MAXIMUM          = 4.E5
  DESCRIPTION            = "
    This field contains a measure of the anisotropy between the highest
    microsector and the lowest microsector measured within a sector (1
    LEMMS turntable rotation).  The anisotropy is calculated to be 1.0 -
    (sector_minimum / sector_maximum)."
END_OBJECT               = COLUMN
OBJECT                   = COLUMN
  NAME                   = "LEMMS_Scanning"
  COLUMN_NUMBER          = 31
  DATA_TYPE              = CHARACTER
  START_BYTE             = 481
  BYTES                  = 15
  VALID_MINIMUM          = 0
  VALID_MAXIMUM          = 4.E5
  DESCRIPTION            = "
    This field identifies whether the LEMMS turntable is rotating (in
    scanning mode) or is fixed.
    The values are either:  yes   or no."
END_OBJECT               = COLUMN
OBJECT                   = COLUMN
  NAME                   = "CHEMS_H_Plus_DPPS_0_7"
  COLUMN_NUMBER          = 32
  DATA_TYPE              = ASCII_REAL
  START_BYTE             = 497
  BYTES                  = 15
  VALID_MINIMUM          = 0
  VALID_MAXIMUM          = 4.E5
  DESCRIPTION            = "
    CHEMS Accumulation Rate for the indicated species and data
    processing steps. This rate has been interpolated for the 60 second
    cadence of this data file."
END_OBJECT               = COLUMN
OBJECT                   = COLUMN
  NAME                   = "CHEMS_H_Plus_DPPS_8_15"
  COLUMN_NUMBER          = 33
  DATA_TYPE              = ASCII_REAL
  START_BYTE             = 513
  BYTES                  = 15
  VALID_MINIMUM          = 0
  VALID_MAXIMUM          = 4.E5
  DESCRIPTION            = "
    CHEMS Accumulation Rate for the indicated species and data
    processing steps. This rate has been interpolated for the 60 second
    cadence of this data file."
END_OBJECT               = COLUMN
OBJECT                   = COLUMN
  NAME                   = "CHEMS_H_Plus_DPPS_16_23"
  COLUMN_NUMBER          = 34
  DATA_TYPE              = ASCII_REAL
  START_BYTE             = 529
  BYTES                  = 15
  VALID_MINIMUM          = 0
  VALID_MAXIMUM          = 4.E5
  DESCRIPTION            = "
    CHEMS Accumulation Rate for the indicated species and data
    processing steps. This rate has been interpolated for the 60 second
    cadence of this data file."
END_OBJECT               = COLUMN
OBJECT                   = COLUMN
  NAME                   = "CHEMS_H_Plus_DPPS_24_31"
  COLUMN_NUMBER          = 35
  DATA_TYPE              = ASCII_REAL
  START_BYTE             = 545
  BYTES                  = 15
  VALID_MINIMUM          = 0
  VALID_MAXIMUM          = 4.E5
  DESCRIPTION            = "
    CHEMS Accumulation Rate for the indicated species and data
    processing steps. This rate has been interpolated for the 60 second
```

```
                                        cadence of this data file."
END_OBJECT                    = COLUMN
OBJECT                        = COLUMN
  NAME                        = "CHEMS_He_Plus_DPPS_0_7"
  COLUMN_NUMBER               = 36
  DATA_TYPE                   = ASCII_REAL
  START_BYTE                  = 561
  BYTES                       = 15
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 4.E5
  DESCRIPTION                 = "
    CHEMS Accumulation Rate for the indicated species and data
    processing steps. This rate has been interpolated for the 60 second
    cadence of this data file."
END_OBJECT                    = COLUMN
OBJECT                        = COLUMN
  NAME                        = "CHEMS_He_Plus_DPPS_8_15"
  COLUMN_NUMBER               = 37
  DATA_TYPE                   = ASCII_REAL
  START_BYTE                  = 577
  BYTES                       = 15
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 4.E5
  DESCRIPTION                 = "
    CHEMS Accumulation Rate for the indicated species and data
    processing steps. This rate has been interpolated for the 60 second
    cadence of this data file."
END_OBJECT                    = COLUMN
OBJECT                        = COLUMN
  NAME                        = "CHEMS_He_Plus_DPPS_16_23"
  COLUMN_NUMBER               = 38
  DATA_TYPE                   = ASCII_REAL
  START_BYTE                  = 593
  BYTES                       = 15
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 4.E5
  DESCRIPTION                 = "
    CHEMS Accumulation Rate for the indicated species and data
    processing steps. This rate has been interpolated for the 60 second
    cadence of this data file."
END_OBJECT                    = COLUMN
OBJECT                        = COLUMN
  NAME                        = "CHEMS_He_Plus_DPPS_24_31"
  COLUMN_NUMBER               = 39
  DATA_TYPE                   = ASCII_REAL
  START_BYTE                  = 609
  BYTES                       = 15
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 4.E5
  DESCRIPTION                 = "
    CHEMS Accumulation Rate for the indicated species and data
    processing steps. This rate has been interpolated for the 60 second
    cadence of this data file."
END_OBJECT                    = COLUMN
OBJECT                        = COLUMN
  NAME                        = "CHEMS_He_Plus_2_DPPS_0_7"
  COLUMN_NUMBER               = 40
  DATA_TYPE                   = ASCII_REAL
  START_BYTE                  = 625
  BYTES                       = 15
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 4.E5
  DESCRIPTION                 = "
    CHEMS Accumulation Rate for the indicated species and data
    processing steps. This rate has been interpolated for the 60 second
    cadence of this data file."
END_OBJECT                    = COLUMN
OBJECT                        = COLUMN
  NAME                        = "CHEMS_He_Plus_2_DPPS_8_15"
  COLUMN_NUMBER               = 41
  DATA_TYPE                   = ASCII_REAL
  START_BYTE                  = 641
  BYTES                       = 15
  VALID_MINIMUM               = 0
  VALID_MAXIMUM               = 4.E5
```

```
    DESCRIPTION             = "
      CHEMS Accumulation Rate for the indicated species and data
      processing steps. This rate has been interpolated for the 60 second
      cadence of this data file."
  END_OBJECT                = COLUMN
  OBJECT                    = COLUMN
    NAME                    = "CHEMS_He_Plus_2_DPPS_16_23"
    COLUMN_NUMBER           = 42
    DATA_TYPE               = ASCII_REAL
    START_BYTE              = 657
    BYTES                   = 15
    VALID_MINIMUM           = 0
    VALID_MAXIMUM           = 4.E5
    DESCRIPTION             = "
      CHEMS Accumulation Rate for the indicated species and data
      processing steps. This rate has been interpolated for the 60 second
      cadence of this data file."
  END_OBJECT                = COLUMN
  OBJECT                    = COLUMN
    NAME                    = "CHEMS_He_Plus_2_DPPS_24_31"
    COLUMN_NUMBER           = 43
    DATA_TYPE               = ASCII_REAL
    START_BYTE              = 673
    BYTES                   = 15
    VALID_MINIMUM           = 0
    VALID_MAXIMUM           = 4.E5
    DESCRIPTION             = "
      CHEMS Accumulation Rate for the indicated species and data
      processing steps. This rate has been interpolated for the 60 second
      cadence of this data file."
  END_OBJECT                = COLUMN
  OBJECT                    = COLUMN
    NAME                    = "CHEMS_O_Plus_DPPS_0_7"
    COLUMN_NUMBER           = 44
    DATA_TYPE               = ASCII_REAL
    START_BYTE              = 689
    BYTES                   = 15
    VALID_MINIMUM           = 0
    VALID_MAXIMUM           = 4.E5
    DESCRIPTION             = "
      CHEMS Accumulation Rate for the indicated species and data
      processing steps. This rate has been interpolated for the 60 second
      cadence of this data file."
  END_OBJECT                = COLUMN
  OBJECT                    = COLUMN
    NAME                    = "CHEMS_O_Plus_DPPS_8_15"
    COLUMN_NUMBER           = 45
    DATA_TYPE               = ASCII_REAL
    START_BYTE              = 705
    BYTES                   = 15
    VALID_MINIMUM           = 0
    VALID_MAXIMUM           = 4.E5
    DESCRIPTION             = "
      CHEMS Accumulation Rate for the indicated species and data
      processing steps. This rate has been interpolated for the 60 second
      cadence of this data file."
  END_OBJECT                = COLUMN
  OBJECT                    = COLUMN
    NAME                    = "CHEMS_O_Plus_DPPS_16_23"
    COLUMN_NUMBER           = 46
    DATA_TYPE               = ASCII_REAL
    START_BYTE              = 721
    BYTES                   = 15
    VALID_MINIMUM           = 0
    VALID_MAXIMUM           = 4.E5
    DESCRIPTION             = "
      CHEMS Accumulation Rate for the indicated species and data
      processing steps. This rate has been interpolated for the 60 second
      cadence of this data file."
  END_OBJECT                = COLUMN
  OBJECT                    = COLUMN
    NAME                    = "CHEMS_O_Plus_DPPS_24_31"
    COLUMN_NUMBER           = 47
    DATA_TYPE               = ASCII_REAL
    START_BYTE              = 737
```

```
    BYTES                       = 15
    VALID_MINIMUM               = 0
    VALID_MAXIMUM               = 4.E5
    DESCRIPTION                 = "
      CHEMS Accumulation Rate for the indicated species and data
      processing steps. This rate has been interpolated for the 60 second
      cadence of this data file."
  END_OBJECT                    = COLUMN
  OBJECT                        = COLUMN
    NAME                        = "INCA_H_TOF_0"
    COLUMN_NUMBER               = 48
    DATA_TYPE                   = ASCII_REAL
    START_BYTE                  = 753
    BYTES                       = 15
    VALID_MINIMUM               = 0
    VALID_MAXIMUM               = 4.E5
    DESCRIPTION                 = "
      INCA Accumulation Rate for the indicated species and time of flight.
      This rate has been interpolated for the 60 second cadence of this data
      file."
  END_OBJECT                    = COLUMN
  OBJECT                        = COLUMN
    NAME                        = "INCA_H_TOF_1"
    COLUMN_NUMBER               = 49
    DATA_TYPE                   = ASCII_REAL
    START_BYTE                  = 769
    BYTES                       = 15
    VALID_MINIMUM               = 0
    VALID_MAXIMUM               = 4.E5
    DESCRIPTION                 = "
      INCA Accumulation Rate for the indicated species and time of flight.
      This rate has been interpolated for the 60 second cadence of this data
      file."
  END_OBJECT                    = COLUMN
  OBJECT                        = COLUMN
    NAME                        = "INCA_H_TOF_2"
    COLUMN_NUMBER               = 50
    DATA_TYPE                   = ASCII_REAL
    START_BYTE                  = 785
    BYTES                       = 15
    VALID_MINIMUM               = 0
    VALID_MAXIMUM               = 4.E5
    DESCRIPTION                 = "
      INCA Accumulation Rate for the indicated species and time of flight.
      This rate has been interpolated for the 60 second cadence of this data
      file."
  END_OBJECT                    = COLUMN
  OBJECT                        = COLUMN
    NAME                        = "INCA_H_TOF_3"
    COLUMN_NUMBER               = 51
    DATA_TYPE                   = ASCII_REAL
    START_BYTE                  = 801
    BYTES                       = 15
    VALID_MINIMUM               = 0
    VALID_MAXIMUM               = 4.E5
    DESCRIPTION                 = "
      INCA Accumulation Rate for the indicated species and time of flight.
      This rate has been interpolated for the 60 second cadence of this data
      file."
  END_OBJECT                    = COLUMN
  OBJECT                        = COLUMN
    NAME                        = "INCA_H_TOF_4"
    COLUMN_NUMBER               = 52
    DATA_TYPE                   = ASCII_REAL
    START_BYTE                  = 817
    BYTES                       = 15
    VALID_MINIMUM               = 0
    VALID_MAXIMUM               = 4.E5
    DESCRIPTION                 = "
      INCA Accumulation Rate for the indicated species and time of flight.
      This rate has been interpolated for the 60 second cadence of this data
      file."
  END_OBJECT                    = COLUMN
  OBJECT                        = COLUMN
    NAME                        = "INCA_H_TOF_5"
```

```
    COLUMN_NUMBER          = 53
    DATA_TYPE              = ASCII_REAL
    START_BYTE             = 833
    BYTES                  = 15
    VALID_MINIMUM          = 0
    VALID_MAXIMUM          = 4.E5
    DESCRIPTION            = "
      INCA Accumulation Rate for the indicated species and time of flight.
      This rate has been interpolated for the 60 second cadence of this data
      file."
  END_OBJECT               = COLUMN
  OBJECT                   = COLUMN
    NAME                   = "INCA_H_TOF_6"
    COLUMN_NUMBER          = 54
    DATA_TYPE              = ASCII_REAL
    START_BYTE             = 849
    BYTES                  = 15
    VALID_MINIMUM          = 0
    VALID_MAXIMUM          = 4.E5
    DESCRIPTION            = "
      INCA Accumulation Rate for the indicated species and time of flight.
      This rate has been interpolated for the 60 second cadence of this data
      file."
  END_OBJECT               = COLUMN
  OBJECT                   = COLUMN
    NAME                   = "INCA_H_TOF_7"
    COLUMN_NUMBER          = 55
    DATA_TYPE              = ASCII_REAL
    START_BYTE             = 865
    BYTES                  = 15
    VALID_MINIMUM          = 0
    VALID_MAXIMUM          = 4.E5
    DESCRIPTION            = "
      INCA Accumulation Rate for the indicated species and time of flight.
      This rate has been interpolated for the 60 second cadence of this data
      file."
  END_OBJECT               = COLUMN
  OBJECT                   = COLUMN
    NAME                   = "INCA_Mode"
    COLUMN_NUMBER          = 56
    DATA_TYPE              = ASCII_REAL
    START_BYTE             = 881
    BYTES                  = 15
    VALID_MINIMUM          = 0
    VALID_MAXIMUM          = 4.E5
    DESCRIPTION            = "
      This field identifies whether the INCA sensor is using neutral mode or
      ion mode.
      The values are either:  neutral   or ion ."
  END_OBJECT               = COLUMN
END_OBJECT                 = TABLE
END
```
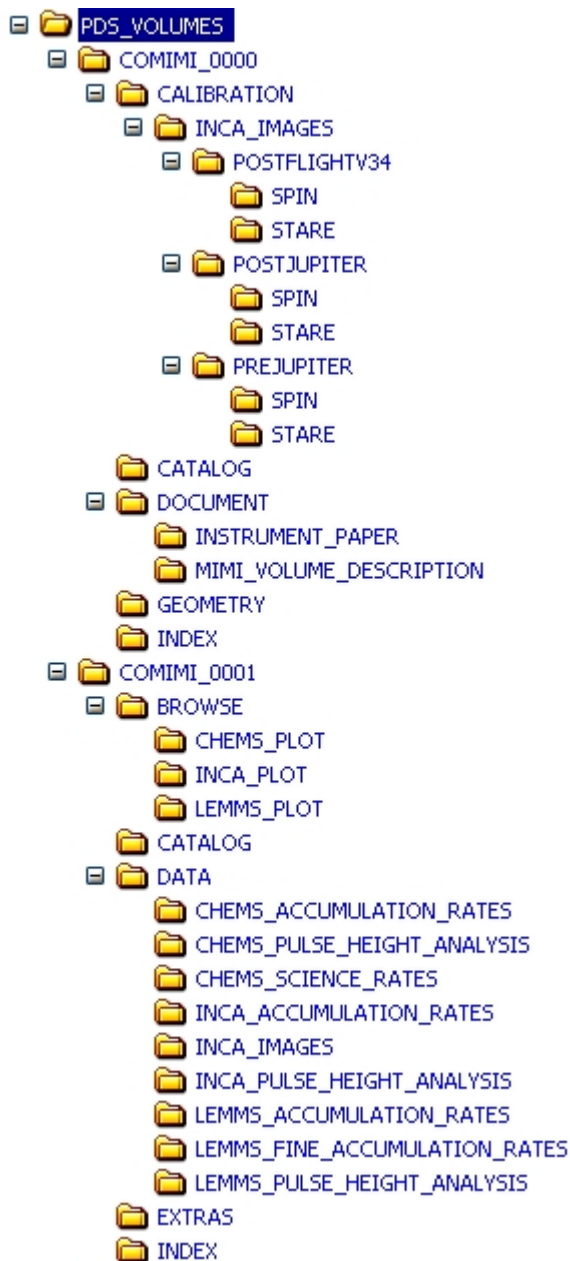
# 8. Support Staff and Cognizant Persons

| Table 46: MIMI Archive Collection Support Staff | | | |
|---|---|---|---|
| **Fundamental Technologies, LLC** | | | |
| **Dr. Thomas P. Armstrong** Co. I. | Fundamental Technologies 2411 Ponderosa, Suite A Lawrence, KS 66046 | 785-840-0800 | Armstrong@ftecs.com |
| **Dr. Jerry W. Manweiler** Assoc. Scientist | Fundamental Technologies 2411 Ponderosa, Suite A Lawrence, KS 66046 | 785-840-0800 | Manweiler@ftecs.com |
| **UCLA** | | | |
| **Mr. Steven P. Joy** PPI Operations Manager | UCLA-IGPP 405 Hilgard Ave Los Angeles, CA 90095-1567 | 310-825-3506 | sjoy@igpp.ucla.edu |
| **Mr. Joe Mafi** PPI Data Engineer | UCLA-IGPP 405 Hilgard Ave Los Angeles, CA 90095-1567 | 310-206-6073 | jmafi@igpp.ucla.edu |

# Appendix A. Directory Structure for Archive Volumes

Graphical representation of the Directory structure

```
PDS_VOLUMES
    COMIMI_0000
        CALIBRATION
            INCA_IMAGES
                POSTFLIGHTV34
                    SPIN
                    STARE
                POSTJUPITER
                    SPIN
                    STARE
                PREJUPITER
                    SPIN
                    STARE
        CATALOG
        DOCUMENT
            INSTRUMENT_PAPER
            MIMI_VOLUME_DESCRIPTION
        GEOMETRY
        INDEX
    COMIMI_0001
        BROWSE
            CHEMS_PLOT
            INCA_PLOT
            LEMMS_PLOT
        CATALOG
        DATA
            CHEMS_ACCUMULATION_RATES
            CHEMS_PULSE_HEIGHT_ANALYSIS
            CHEMS_SCIENCE_RATES
            INCA_ACCUMULATION_RATES
            INCA_IMAGES
            INCA_PULSE_HEIGHT_ANALYSIS
            LEMMS_ACCUMULATION_RATES
            LEMMS_FINE_ACCUMULATION_RATES
            LEMMS_PULSE_HEIGHT_ANALYSIS
        EXTRAS
        INDEX
```

Textual representation of the Directory structure
- MIMI SAMPLE REFERENCE VOLUME
        - CALIBRATION
                - INCA_IMAGES
                        - POSTFLIGHTV34
                                SPIN
                                STARE
                        - POSTJUPITER
                                SPIN
                                STARE
                        - PREJUPITER
                                SPIN
                                STARE
        CATALOG
        - DOCUMENT
                INSTRUMENT_PAPER
                MIMI_VOLUME_DESCRIPTION
        GEOMETRY
        INDEX
- MIMI SAMPLE VOLUME
        - BROWSE
                CHEMS
                INCA
                LEMMS
        CATALOG
        - DATA
                CHEMS_ACCUMULATION_RATES
                CHEMS_PULSE_HEIGHT_ANALYSIS
                CHEMS_SCIENCE_RATES
                INCA_ACCUMULATION_RATES
                INCA_IMAGES
                INCA_PULSE_HEIGHT_ANALYSIS
                LEMMS_ACCUMULATION_RATES
                LEMMS_FINE_ACCUMULATION_RATES
                LEMMS_PULSE_HEIGHT_ANALYSIS
        EXTRAS
        INDEX

# Appendix B. Using the Purpose Field in MIMI Data Products

The record header of the MIMI data products starts with a field called Purpose. The Purpose field is used to differentiate records of the same format intended for different purposes. Records with Purpose SCI are intended for use in scientific analysis. There are two other categories of Purposes, calibration and summary. Calibration records are in separate files distributed on the reference volume. Example Purpose fields for calibration include, AREA, EFFICIENCY, etc. Summary records are in the data products along with SCI records. Example values of Purpose fields in summary records include MIN, MAX, MEAN etc. The table below lists Purpose field values that always cover all time in a data product.

| Table 47: MIMI Data Product Record Purposes | |
|---|---|
| **Purpose** | **Description** |
| valid_min | The maximum value for each valid field in the record for the time period starting at Start_Ephemeris_s Time and ending at End_Ephemeris_s Time |
| valid_max | The minimum value for each valid field in the record for the time period starting at Start_Ephemeris_s Time and ending at End_Ephemeris_s Time |
| max | The maximum value for each field in the record for the time period starting at Start Ephemeris Time and ending at End_Ephemeris_s Time |
| MEAN | The mean value for each field in the record for the time period starting at Start Ephemeris Time and ending at End_Ephemeris_s Time |
| MIN | The minimum value for each field in the record for the time period starting at Start Ephemeris Time and ending at End_Ephemeris_s Time |
| sci | Actual science data for the time period from Start_Ephemeris_s Time to End_Ephemeris_s Time |
| stdev | The standard deviation for each field in the record for the time period starting at Start_Ephemeris_s Time and ending at End_Ephemeris_s Time |

| Table 48: MIMI Calibration Data Record Purposes | |
|---|---|
| **Purpose** | **Description** |
| ENERGY | Indicates that the record is describing energy passbands |
| ENERGY/CHARGE | Indicates that the record is describing energy/charge passbands |
| MASS | Indicates that the record is describing mass passbands |
| MASS/CHARGE | Indicates that the record is describing mass/charge passbands |
| GEOM_FACTOR | Indicates that the record is describing geometrical factors |
| EFFICIENCY | Indicates that the record is describing channel/detector efficiencies |
| FOV | Indicates that the record is describing the Field of View (FOV) |

| Table 48: MIMI Calibration Data Record Purposes | |
|---|---|
| Purpose | Description |
| E/NUC_A | Identifies the A coefficient for the CHEMS calculation. |
| E/NUC_B | Identifies the B coefficient for the CHEMS calculation |

| Table 49: MIMI Calibration Data Record Data_Types | |
|---|---|
| Data_Type | Description |
| ACC | Accumulation associated calibration record |
| PHA | Pulse Height Analysis associated calibration record |
| FRT | Fine Accumulation Rates associated calibration record |
| IMG | Science Accumulation Rates associated calibration record |

| Table 50: MIMI Calibration Data Record Sensors | |
|---|---|
| Sensor | Description |
| LEMMS | MIMI LEMMS associated record |
| CHEMS | MIMI CHEMS associated record |
| INCA | MIMI INCA associated record |

| Table 51: MIMI Calibration Data Record Particles | |
|---|---|
| Particle | Description |
| P | Proton |
| He | Helium |
| e | Electron |
| Xray | X-ray |
| C | Carbon |
| O | Oxygen |
| Fe | Iron |
| ALL | Any particle |
| He+ | Singly ionized Helium |

| Table 51: MIMI Calibration Data Record Particles ||
|---|---|
| **Particle** | **Description** |
| He++ | Doubly ionized Helium |
| O+ | Singly ionized Oxygen |
| O++ | Doubly ionized Oxygen |
| H | Hydrogen |

## Appendix C. LEMMS Look Angle Diagram

*Figure 1: LEMMS Look Angle Relative to Space Craft Coordinate System*
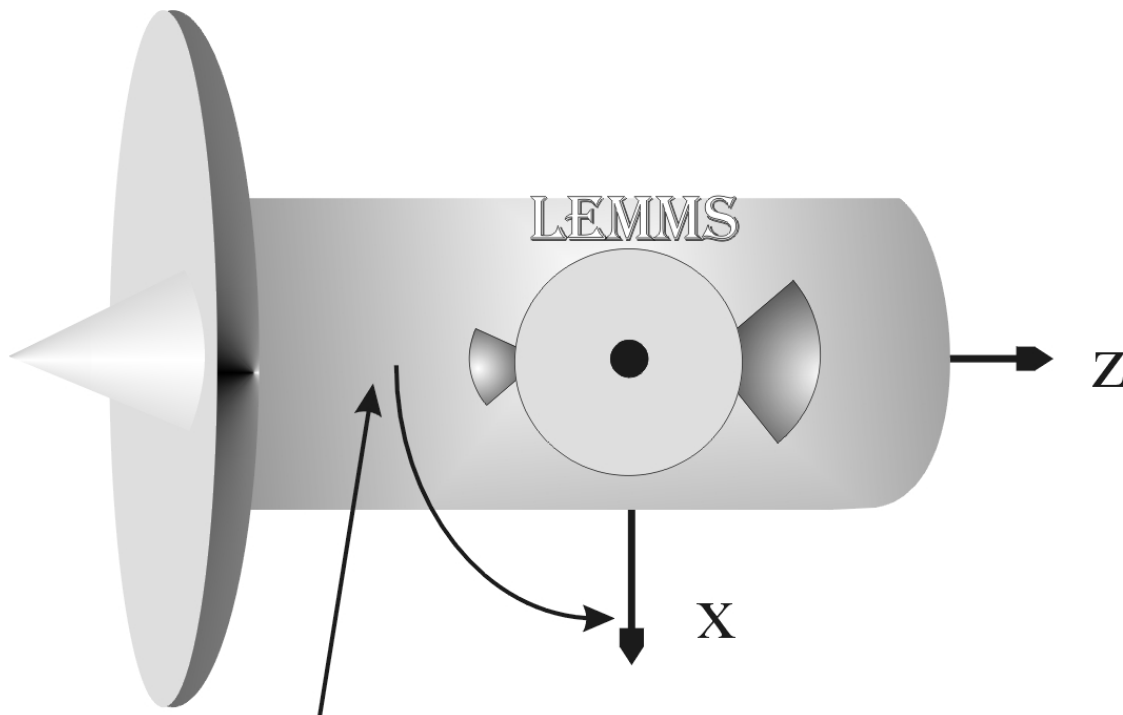


Absolute position sensor at $3.906^0$ for positive rotation and $3.789^0$ for negative rotation

Look Angle$^0$ = 1.755*lemms_pos - 139.5