National Aeronautics
and Space Administration
Goddard Space Flight Center
Code 699 - Atmospheric Experiments Laboratory

Huygens-Gas Chromatograph Mass Spectrometer

To NASA Planetary Data System and ESA Planetary Science Archive Interface Control Document

HUYGENS TITAN GAS CHROMATOGRAPH MASS SPEC 3 DESCENT V1.0

[HP-SSA-GCMS-3-FCO/DESCENT-V1.0]

Final

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Distribution List

Date	Organization	Recipient
2006-03-24	PDS/PSA notified of the availability of this dataset and documentation.	PDS & PSA
2006-06-22	Revised Dataset and documentation delivered electronically	PDS & PSA

Change Log

Date	Sections Changed	Reasons for Change
Beginning 3/1/2006	Massive Edits & Changes to earlier versions	Edits for Final Submission
June 7, 2006 – June 19, 2006	Multiple	Incorporating initial dataset review suggestions.

Table Of Contents

1 INTRODUCTION

1.1 PURPOSE AND SCOPE

The purpose of this EAICD (Experimenter to (Science) Archive Interface Control Document) is two fold. First it provides users of the Gas Chromatograph Mass Spectrometer (GCMS) instrument with a detailed description of the product and a description of how it was generated, including data sources and destinations. Secondly, it is the official interface between the GCMS team, the NASA Planetary Data System (PDS), and the ESA Planetary Science Archive (PSA) archiving authorities.

1.2 CONTENTS

This document describes the data flow of the GCMS instrument on the Cassini-Huygens Probe from the spacecraft (s/c) until insertion into the PSA and PDS. It includes information on how data were processed, formatted, labeled and uniquely identified. The document discusses naming schemes for data volumes, sets and label files. Standards used to generate the product are explained. Software that may be used to access the products are explained. The goal is to archive all of the data, including all ground and flight testing, from the GCMS instrument flown to Titan. The design of the data set structure and the data product is given. Examples of these are given in Appendix 3.

1.3 INTENDED READERSHIP

The staff of Planetary Data System and Planetary Science Archive archiving authority design teams and any potential user of the GCMS data.

1.4 APPLICABLE DOCUMENTS

- Planetary Data System Preparation Workbook, February 1, 1995, Version 3.1, JPL, D-7669, Part 1
- Planetary Data System Standards Reference, August 1, 2003, Version 3.6, JPL, D-7669, Part 2
- Huygens Data Archive Generation, Validation and Transfer Plan, September 1, 2004, Version 1.0, HUY-RSSD-PL-001

1.5 RELATIONSHIPS TO OTHER INTERFACES

This EAICD will be affected by changes to the archiving structure of GCMS results**.** Likewise, changes to this EAICD could affect the internal processes necessary to archive this data.

1.6 ACRONYMS AND ABBREVIATIONS

A_Stream	Data telemetry channel "A" yielded this data
ACK	GCMS "Acknowledge" data packet (confirmation of receipt of an instrument command)
ACP	Aerosol Collector Pyrolyzer Instrument
ASCII	A(merican) S(tandard) C(ode for) I(nformation) I(nterchange)
B_Stream	Data telemetry channel "B" yielded this data
c/ip	Counts per integration period (counts per sample)
c/s	Counts per second
DAWG	Data Archiving Working Group
DESCENT	Nominal Mission Titan Encounter (Atmosphere Entry on 14 January 2005)
DDB	Descent Data Broadcast (probe "master" clock data broadcast to the instruments)
*.DOC	Microsoft Word Document
EAICD	Experimenter to (Science) Archive Interface Control Document
EM	GCMS Engineering Model (Darmstadt, Germany)
ESA	European Space Agency
ESW	Experiment Status Word
ESOC	European Space Operations Centre (Darmstadt, Germany)
ESTEC	European Space Research and Technology Centre (Noordwijk, The Netherlands)
eV	electron Volt (mass spectrometer's ionization energy)
F1,… ,F16	In-Flight Checkout Number (1, 2, …, 16)
FCO	In-Flight Checkout Test (any type)
FCO1	In-Flight Checkout Test, Type 1
FCO1B	In-Flight Checkout Test, Type 1 B
FCO2	In-Flight Checkout Test, Type 2
FM	GCMS Flight Model Unit (original definition.) This is the unit now at GSFC with which instrument performance "calibration" will be done.

FS	GCMS Flight Spare Unit (original definition.) This is the unit actually flown to Titan. Now referred to as the "Flown Sensor"
FU	FCMS Flown Unit (as of 14 January 2005 - on surface of Titan)
GC	Gas Chromatograph
GC1	Gas Chromatograph Column #1 (interfaced with Ion Source #3)
GC2	Gas Chromatograph Column #2 (interfaced with Ion Source #4)
GC3	Gas Chromatograph Column #3 (interfaced with Ion Source #5)
GCMS	Gas Chromatograph Mass Spectrometer
GCMS GMT	UTC time stamp when a GCMS packet was handed to the probe's data handling system
GCO	Ground Check Out Test (Lab versions of the Flight Check Outs)
*.GIF	Image file in GIF format (Graphics Interchange Format)
GSE	Ground Support Equipment
GSFC	NASA Goddard Space Flight Center (Greenbelt, MD USA)
HK	House Keeping Data
HPOC	Huygens Probe Operations Centre (at ESOC in Darmstadt, Germany)
_HS_	GCMS "High Speed" data packet
IDLE	GCMS "Idle" data packet
ip	Integration Period (Sampling time or counter window)
KSC	Kennedy Space Center
mergem.dat	file containing 'raw' MS sweeps data from the SUN (Unix) workstation's initial processing of the raw GCMS telemetry data file
MET	Mission Elapsed Time
MS	Mass Spectrometer
_MS_	GCMS "medium speed" data packet
m/z	mass per unit charge
NACK	GCMS "Not-Acknowledge" data packet (see ACK)
NASA	National Aeronautics and Space Administration
*.PDF	Document in (Portable Document Format)
PHD	Pulse Height Distribution
*.PNG	Portable Network Graphics formatted file
PDS	Planetary Data System (NASA)
PSA	Planetary Science Archive (ESA)
s/c	Spacecraft
Spare	GCMS Flight Spare Sensor, GSFC, Greenbelt, MD
STG1	Stage 1 Processed Data File
STG2	Stage 2 Processed Data File
STG3	Stage 3 Processed Data File
T_0 (T0)	Gravity or Software switch activated Start Time of Huygens Descent Phase Mission
TYPE1	GCMS "Type 1" housekeeping data packet

TYPE2	GCMS “Type 2” housekeeping data packet
UTC	Coordinated Universal Time

1.7 CONTACT NAMES AND ADDRESSES

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2 OVERVIEW OF PROCESS AND PRODUCT GENERATION

GCMS Instrument Description

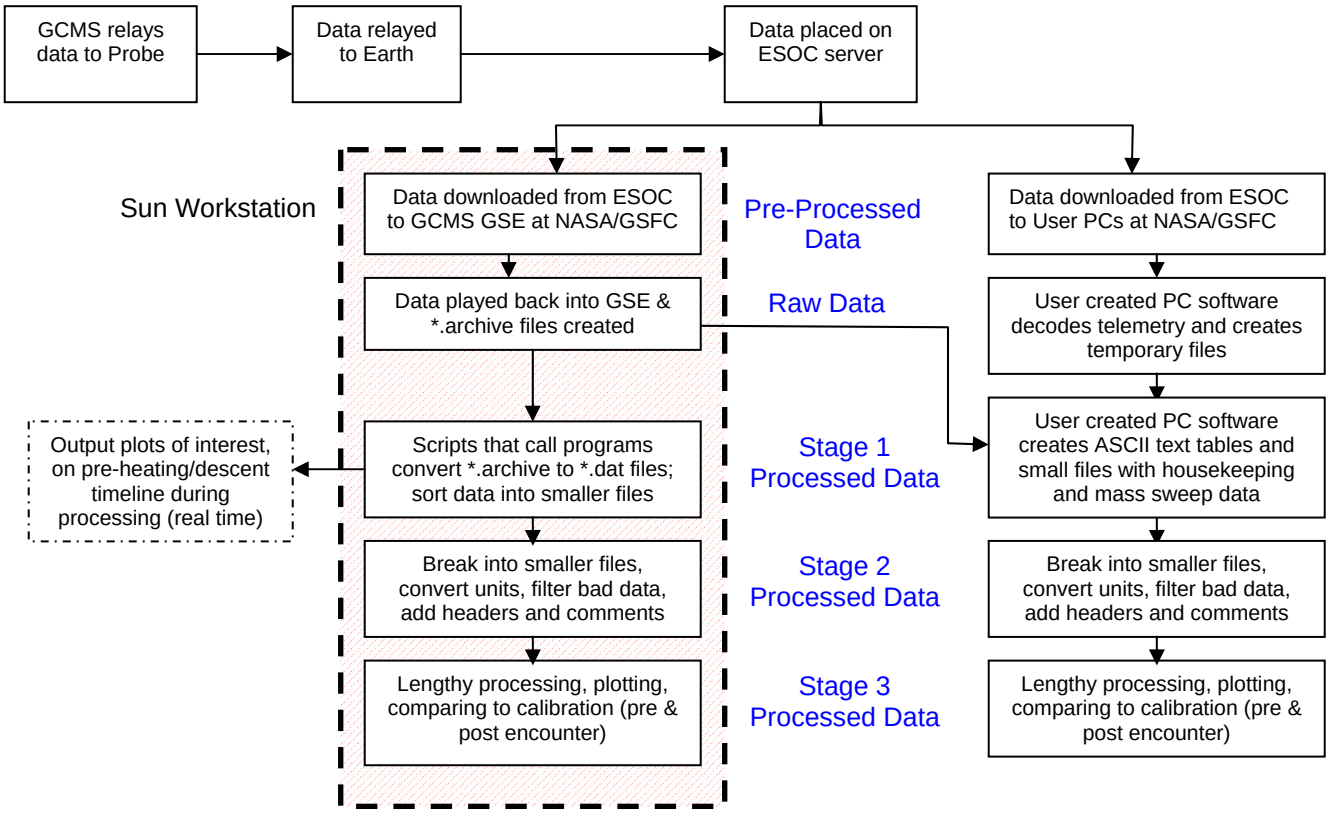
The GCMS Instrument is described in detail in the INSTRUMENT.CAT file and in the published papers. Additional information about the instrument and about the resulting data is contained in the DATASET.CAT file.

GCMS Instrument Data

The GCMS data is relayed from the Huygens Probe to the Cassini Spacecraft, and then down linked to the European Space Agency (ESA) European Space Operations Centre (ESOC) in Darmstadt, Germany. The GCMS Team at NASA/GSFC then retrieves the data from the ESOC server. The data is then played back into the GCMS GSE (workstation) located at NASA/GSFC, and "archive" files are created. This Sun workstation and the associated software have been the primary method for data processing. These archive files are processed by subprograms called in scripts to create pre-defined data files in text format. Diagram 1 illustrates this procedure. The GCMS Team members then analyze these text files and the associated graphic representations. The data processing team members are all located at the NASA/GSFC, and all data processing occurs on site. Near the end of the mission's cruise phase powerful personal computers and software became available that allow supplemental (and secondary) methods for data processing and evaluation.

Diagram 1. GCMS Data Flow Path

Diagram 1 illustrates the data flow and data levels.



The chief team members responsible for processing the data are:

-*John Haberman* Scientist
NASA Goddard Space Flight Center, Code 699

-*Michael Paulkovich* Software Engineer
Jackson & Tull
NASA Goddard Space Flight Center, Code 699

-*Eric Raaen* Software Engineer
Science Systems and Applications, Inc.
NASA Goddard Space Flight Center, Code 699

-*Jaime Demick-Montelara* Scientist/Engineer
Science Systems and Applications, Inc.
NASA Goddard Space Flight Center, Code 699

The data levels for GCMS data are defined as:

Pre-processed data*:* Data directly relayed from Cassini to ESOC that have not been processed at all by the GCMS GSE. The original file for each GCMS instrument operation is named oNNNsg__.1h_ where NNN is a number.

Raw data*:* Data that have been processed through the GCMS-GSE (workstation), to the extent that archive files are produced. These files use the extension ".archive" with the base names: gcmsack?, gcmsbin?, gcmsdump?, gcmshkhs?, gcmshkI?, gcmshkII?, gcmshkms?, gcmshks?, gcmsidle?, gcmsnack? and gcmsswp? where "?" is either A or B, to indicate the file 'source' as either the A or B data channel. Refer to Table 7 in section 4.1.9 for additional information.

Stage 1 Processed Data*:* Raw Data *.archive files are further processed in the GCMS-GSE by scripts that call subprograms that convert the *.archive files into text files named *.dat or *.tab. These programs can also break the large data set into separate files for housekeeping data, or a group of files for the science data. These *.archive files are also converted to comma-delimited integer (*.CSV) or integer table (*.TAB) files for archiving with only the decoded GCMS_GMT and instrument 'Absolute' times added. Refer to section 4.1.9 (Stage 1 Processed Data) of this document for a table (Table 7) correlating the original *.archive file name with the archived GCMS_*_STG1.TAB file name.

The text files produced in this process are manipulated by a series of IDL batch files that then plot selected Stage 2 data on a pre-T0/ post-T0 timeline. This will output plots for analysis as soon as the data are available. A' book' of these plots for each of the FU instrument operations is available in the **/EXTRAS/** folder of this archive as a PDF document.

The archived Stage 1 Processed (raw) Data on the PSA/PDS can be difficult to use because of the lack of units and comments. This Stage 1 data is archived to allow users to reprocess the telemetry and raw data if they so wish. All data is archived internally for all tests at GSFC.

Stage 2 Processed Data*:* These files include the UTC time corresponding to the initiation of each mass sweep or housekeeping record, a mission time (seconds referenced to T_0) plus the MET, counts per integration period converted to counts per second, selected instrumental parameters extracted from the instrument's housekeeping data and comments and column headers. Identified data 'noise', originating from the instrument's operation, has been removed from the dataset. In addition, the science data has been evaluated and adjusted to account for digital bit-counter over flow where this overflow is obvious. For reference purposes, Table 1 has been included to indicate the documented counter behavior.

Table 1. Sample Conversions Made to convert Stage 1 to Stage 2 Processed Data

Science Data Reported in "mergem.dat"	**Actual counts/ip**	**Conversion to counts/s** Valid Count Rate
0-127	Number reported	(actual counts/ip ÷ .004592 s/ip) 0 – 27,656
139 - 255	(number reported – 128)^2	(actual counts/ip ÷ .004592 s/ip) 27,657 – 3,549,651
128 - 255	1st over flow: (number reported)^2	(actual counts/ip ÷ .004592 s/ip) 3,549,652 – 14,263,937
	2nd overflow: (number reported + 128)^2	(actual counts/ip ÷ .004592 s/ip) 14,263,938 – 56,620,209

In addition, there is a settling time inherent in the instrument's electronics of 0.416 ms, making the total individual operation window 5.008 ms.

The Stage 2 Processed Data will be available in the GCMS Database and submitted to the PDS/PSA for archiving as text files in comma delimited table format. This format can be imported into spreadsheet and graphic software for manipulation. The first row of all of the Stage 2 files will contain column labels making these files more user-friendly. End users will be able to quickly identify data of interest by the column headers, and will be able to plot specific data of interest during specific time intervals. Where used, the comment column will explain abnormalities, highlight items of interest, and explain how the data was handled to that point. The purpose of Stage 2 Processed Data is to have data available for the end users that they may readily analyze and manipulate according to their interest, without having to convert raw data from unsuitable units.

***Stage 3 Processed Data**:* This will consist of Stage 2 Processed Data that has been corrected, analyzed, compared to calibration data, plotted, and verified by GCMS personnel. Data correction will include all counter over-flow corrections as well as counting system 'dead time' and 'pulse pile-up' corrections. The files processed to the Stage 2 level will also be processed to the Stage 3 level.

The Stage 3 Processed Data will represent the most processed level of data for the GCMS. Stage 3 Processing will take a long period of time, and will include correlation with the post-encounter calibration test results. Stage 3 Processed Data will be submitted to the PSA/PDS for archiving.

The file **/EXTRAS/DATASET_RELATED/DATA_PROCESSING.PDF** contains additional details relative to the data and how it is processed from Stages 0 to 1 to 2 to 3.

Table 2. GCMS Data Processing and Programs Used

Table 2 lists the data process, level, the programs used to process the data at that level, the person(s) responsible for the software, and the institution the person is located at.

Data Process	**Data Level**	**Program(s) Utilized**	**Software Author/Institution**
Data downloaded from ESOC to GCMS GSE at NASA/GSFC or Darmstadt	Pre-Processed	Via Web server or Secure Shell-FTP	
Data played back & *.archive files created	Raw	Chex-gse software	Ryan Miller-Univ. of Michigan
Scripts that call programs convert *.archive to *.dat, *.tab and *.txt files	Stage 1 Processed	Mergem1, gcms-dap, gcmshkII programs	Ryan Miller-Univ. of Michigan, Eric Raaen-NASA/GSFC, John Haberman- NASA/GSFC
Break the large *.archive and *.dat files into smaller files, grouped by ion source, type of spectra, etc.	Stage 1 Processed	Batch file calling small subprograms written in house at NASA GSFC.	John Haberman, Eric Raaen- NASA/GSFC
Convert MET to entry time line, convert raw c/ip to c/s, add comments & titles; *.xls or *.txt	Stage 2 Processed	Excel or similar program; save as *.xls, *.csv, *.txt or *.tab	In-house software and Microsoft or others
Detailed data adjustments including counter overflow and dead time corrections. Analysis and plotting by GSFC Team	Stage 3 Processed	1. Excel or similar program AND/OR 2. Import Stage 2 to Graphing program and use column titles and time tags to plot automatically	In-house software and Microsoft or others

2.1 PRE-FLIGHT DATA PRODUCTS

All data from the ground testing conducted with the flown GCMS is archived. These tests include, but are not limited to, the simulation of the entry mission and the 5 integeration verification GCO testing done at KSC after the delivery of the instrument and during the Huygens spacecraft integraton. The GCMS Team may elect to add pre-heating validation tests on the EM and/or Flight Spare as additional post-launch data products. For the first data submission, no data products from the engineering unit and backup (spare) sensors are being submitted.

2.2 SUB-SYSTEM TESTS

The GCMS Team tested many flight components before installing them into the Flight Unit. These components are listed in Table 3.

Table 3. GCMS Flight Components Tested Before Installation into the Flight Unit

Break-off cap	GC columns
Hydrogen reservoir	Capillary Leaks
Hydrogen regulator	Heaters
Burst diaphragm	Ion Sources
Valves	Multipliers
Pressure transducers	Getter pumps
Flow restrictors	Ion pumps

It is conceivable that should anomalous data occur, GCMS Team members might consult sub-system test data to back out a solution. This data is archived on GCMS Lab Computers at NASA/GSFC. Certain sub-system data may be archived on the PSA/PDS as reference material in the **/EXTRAS/** directory, such as the hydrogen reservoir metal hydride vapor pressure curve, capillary leak response data, and GC column data. However, the more recent calibration data would be of most use, and that data will all be archived.

2.3 INSTRUMENT CALIBRATIONS

The GCMS was calibrated at NASA/GSFC prior to delivery. GCMS calibration data consists of spectra taken in the various ion sources with calibration gases or gas mixtures at various instrument settings. In addition, lens voltage scan data, filament and valve lifetime data, tuning data, and gas chromatograph data are included for reference as to the condition of the instrument during calibration. These files are archived in the GCMS database at GSFC, and selected calibration runs, reference data, and documentation, useful as comparison material for analysis of GCMS encounter data, will be archived in the PDS.

There are various internal documents describing the pre-launch calibration phase and results for the GCMS. These mainly consist of presentation text given at various Huygens meetings. Table 4 lists these documents, their content, and authors. These documents are available in the **/DOCUMENT/PRELAUNCH_CALIBRATION/** folder of this archive.

The GCMS Team plans to conduct post-launch calibration activities prior to the nominal mission entry at Titan. These data will be archived.

Table 4. GCMS Calibration Documents. See also Section 3.4.3.10 for the availability of these files in other formats.

Document Name	Content	Author
CALPRES.doc	Ion source, multiplier, leak, enrichment cell, descent sequence, and GC column characterization; gas mixtures used in calibration descriptions	Christina Carlson
CALPRES2.doc	Ion source, multiplier, switching lens, and GC column characterization; gas mixtures used in calibration, sub-systems tested descriptions	Christina Carlson
CALPRES3.doc	Ion source, multiplier, switching lens, and GC column characterization; gas mixtures used in calibration, sub-systems tested descriptions	Christina Carlson
CALPRNT2.doc	Sample calibration mass scan and GC trace descriptions	Christina Carlson
CALPRNTS.doc	Sample calibration mass scan, PHD, and GC traces descriptions	Christina Carlson

2.4 IN-FLIGHT DATA PRODUCTS

Between the launch of Cassini-Huygens on October 15, 1997 and the orbiter-probe separation on December 25, 2004, sixteen (F1-F16) in-flight tests were conducted, called Flight Check Out (FCO) Tests. These consisted of either a type 1 test (FCO1 or FCO1B) or a type 2 test (FCO2). Several other tests were also performed with the spacecraft. A data set is available for every test. Most importantly, there is the Titan encounter data set (data referenced as DESCENT) from the Flight Unit. All of this data will be handled in the same manner, so as to be able to compare the data sets. The data flow path is shown in Diagram 1, the data processing levels are shown in Table 2 and the Data Products are shown in Table 5. For each data set, the data products produced will include Stage 1 and 2 Processed data. All files processed to the Stage 2 level will later be processed to the Stage 3 level. These will be archived in separate folders in the GCMS Database: refer to Table 8 for a listing of the folders (subdirectories). Table 5 lists all possible data products, gives a description, and the file name indicates the data level for each product. All of the files listed in Table 5 are not produced during every instrument operation. All of the Data Products from a given test will be included in one folder, and the headers in the Data Product files will describe the Data Source by date, time and name. All data files, with only the exception of the 'raw telemetry' file, are in comma delimited ASCII text 'TABLE' format: i.e., spaces are used to force the column alignments of data thus allowing users on any system to review the data.

Table 5. Data Products for the GCMS Titan Data – Ground Check-Out (GCO), Flight Check-Out (FCO) and Encounter (DESCENT). Refer to Section 3.1.4 for a description of the file naming conventions.

Data Product and Type	Data Source	Description
		Stage 1 - Telemetry File
GCMS_TELEMETRY_STG1	Descent FCO GCO	The GCMS telemetry data file (o###sg__.1h_) converted to 8-bit ASCII text and formatted as a comma delimited (CSV) file. **Because of size this file is in SPREADSHEET format.**
		Stage 1 - Data from Telemetry Stream
GCMS_ALL_A _STG1	Descent FCO GCO	All GCMS A Stream data as 8-bit ASCII text.
GCMS_ALL_B _STG1	Descent FCO GCO	All GCMS B Stream data as 8-bit ASCII text.
		Stage 1 - Mass Sweeps Files from Telemetry Stream
GCMS_SWEEPS_A _STG1	Descent FCO GCO	All GCMS A Stream sweep data in 8-bit ASCII text format.
GCMS_SWEEPS_B _STG1	Descent FCO GCO	All GCMS B Stream sweep data in 8-bit ASCII text format.
		Stage 1 - Mass Sweeps Files sorted by Ion Source
GCMS_1FA_STG1	Descent FCO GCO	All ion source 1 (MS) - 25 eV ionization energy and fractional mass resolution in ASCII text data format.
GCMS_1FA_X_STG1	FCO GCO	All ion source 1 (MS) - 25 eV ionization energy and fractional mass resolution covering a non-standard mass range done during GCMS instrument testing. These data are in ASCII text format.
GCMS_1FS_STG1	Descent FCO GCO	All ion source 1 (MS) - 75 eV ionization energy and fractional mass resolution in ASCII text data format.
GCMS_1FS_X_STG1	FCO GCO	All ion source 1 (MS) - 75 eV ionization energy and fractional mass resolution covering a non-standard mass range done during GCMS instrument testing. These data are in ASCII text format.

Data Product and Type	Data Source	Description
GCMS_1UA_STG1	Descent FCO GCO	All ion source 1 (MS) - 25 eV ionization energy and unit mass resolution in ASCII text data format.
GCMS_1UA_X_STG1	FCO GCO	All ion source 1 (MS) - 25 eV ionization energy and unit mass resolution covering a non-standard mass range done during GCMS instrument testing. These data are in ASCII text format.
GCMS_1US_STG1	Descent FCO GCO	All ion source 1 (MS) - 75 eV ionization energy and unit mass resolution in ASCII text data format.
GCMS_1US_X_STG1	FCO GCO	All ion source 1 (MS) - 75 eV ionization energy and unit mass resolution covering a non-standard mass range done during GCMS instrument testing. These data are in ASCII text format.
GCMS_2UA_STG1	Descent FCO GCO	All ion source 2 (ACP) - 25 eV ionization energy and unit mass resolution in ASCII text format.
GCMS_2UA_X_STG1	FCO GCO	All ion source 2 (ACP) - 25 eV ionization energy and unit mass resolution covering a non-standard mass range done during GCMS instrument testing. These data are in ASCII text format.
GCMS_2US_STG1	Descent FCO GCO	All ion source 2 (ACP) - 75 eV ionization energy and unit mass resolution in ASCII text format.
GCMS_2US_X_STG1	FCO GCO	All ion source 2 (ACP) - 75 eV ionization energy and unit mass resolution covering a non-standard mass range done during GCMS instrument testing. These data are in ASCII text format.
GCMS_3UA_STG1	Descent FCO GCO	All ion source 3 (GC1) - 25 eV ionization energy and unit mass resolution in ASCII text format.
GCMS_3UA_X_STG1	FCO GCO	All ion source 3 (GC1) - 25 eV ionization energy and unit mass resolution covering a non-standard mass range done during GCMS instrument testing. These data are in ASCII text format.
GCMS_3US_STG1	Descent FCO GCO	All ion source 3 (GC1) - 75 eV ionization energy and unit mass resolution in ASCII text format.
GCMS_3US_X_STG1	FCO GCO	All ion source 3 (GC1) - 75 eV ionization energy and unit mass resolution covering a non-standard mass range done during GCMS instrument testing. These data are in ASCII text format.
GCMS_4UA_STG1	Descent FCO GCO	All ion source 4 (GC2) - 25 eV ionization energy and unit mass resolution in ASCII text format.
GCMS_4UA_X_STG1	FCO GCO	All ion source 4 (GC2) - 25 eV ionization energy and unit mass resolution covering a non-standard mass range done during GCMS instrument testing. These data are in ASCII text format.
GCMS_4US_STG1	Descent FCO GCO	All ion source 4 (GC2) - 75 eV ionization energy and unit mass resolution in ASCII text format.
GCMS_4US_X_STG1	FCO GCO	All ion source 4 (GC2) - 75 eV ionization energy and unit mass resolution covering a non-standard mass range done during GCMS instrument testing. These data are in ASCII text format.
GCMS_5UA_STG1	Descent FCO GCO	All ion source 5 (GC3) - 25 eV ionization energy and unit mass resolution in ASCII text format.
GCMS_5UA_X_STG1	FCO GCO	All ion source 5 (GC3) - 25 eV ionization energy and unit mass resolution covering a non-standard mass range done during GCMS instrument testing. These data are in ASCII text format.

Data Product and Type	Data Source	Description
GCMS_5UA_Z_STG1	FCO GCO	All ion source 5 (GC3) - 25 eV ionization energy and low power mode done only during GCMS instrument testing. These data are in ASCII text format.
GCMS_5US_STG1	Descent FCO GCO	All ion source 5 (GC3) - 75 eV ionization energy and unit mass resolution in ASCII text format.
GCMS_5US_X_STG1	FCO GCO	All ion source 5 (GC3) - 75 eV ionization energy and unit mass resolution covering a non-standard mass range done during GCMS instrument testing. These data are in ASCII text format.
GCMS_5US_Z_STG1	FCO GCO	All ion source 5 (GC3) - 75 eV ionization energy and low power mode done only during GCMS instrument testing. These data are in ASCII text format.
Stage 1 - Housekeeping Data Files from Telemetry Stream		
GCMS_HK_A_ACK_STG1	Descent FCO GCO	GCMS HouseKeeping ACKnowledge data from the A data stream in 8-bit ASCII text format.
GCMS_HK_A_HS_STG1	Descent FCO GCO	GCMS HouseKeeping High Speed data from the A data stream in 8-bit ASCII text format.
GCMS_HK_A_IDLE_STG1	Descent FCO GCO	GCMS HouseKeeping IDLE packet data from the A data stream in 8-bit ASCII text format.
GCMS_HK_A_MS_STG1	Descent FCO GCO	GCMS HouseKeeping Medium Speed status data from the A data stream in 8-bit ASCII text format.
GCMS_HK_A_NACK_STG1	Descent FCO GCO	GCMS HouseKeeping Not ACKnowledge data from the A data stream in 8-bit ASCII text format.
GCMS_HK_A_SOFTWARE_STG1	Descent FCO GCO	GCMS HouseKeeping SOFTWARE status data from the A data stream in 8-bit ASCII text format.
GCMS_HK_A_TYPE1_STG1	Descent FCO GCO	GCMS HouseKeeping TYPE 1 data from the A data stream in 8-bit ASCII text format.
GCMS_HK_A_TYPE2_STG1	Descent FCO GCO	GCMS HouseKeeping TYPE 2 data from the A data stream in 8-bit ASCII text format.
GCMS_HK_B_ACK_STG1	Descent FCO GCO	GCMS HouseKeeping ACKnowledge data from the B data stream in 8-bit ASCII text format.
GCMS_HK_B_HS_STG1	Descent FCO GCO	GCMS HouseKeeping High Speed data from the B data stream in 8-bit ASCII text format.
GCMS_HK_B_IDLE_STG1	Descent FCO GCO	GCMS HouseKeeping IDLE packet data from the B data stream in 8-bit ASCII text format.
GCMS_HK_B_MS_STG1	Descent FCO GCO	GCMS HouseKeeping Medium Speed status data from the B data stream in 8-bit ASCII text format.
GCMS_HK_B_NACK_STG1	Descent FCO GCO	GCMS HouseKeeping Not ACKnowledge data from the B data stream in 8-bit ASCII text format.
GCMS_HK_B_SOFTWARE_STG1	Descent FCO GCO	GCMS HouseKeeping SOFTWARE status data from the B data stream in 8-bit ASCII text format.

Data Product and Type	Data Source	Description
GCMS_HK_B_TYPE1_STG1	Descent FCO GCO	GCMS HouseKeeping TYPE 1 data from the A data stream in 8-bit ASCII text format.
GCMS_HK_B_TYPE2_STG1	Descent FCO GCO	GCMS HouseKeeping TYPE 2 data from the B data stream in 8-bit ASCII text format.
Stage 2 - Mass Sweeps - Ion Source 1 (MS)		
GCMS_1FA_STG2	Descent FCO GCO	All Ion Source 1 - 25 eV ionization energy and fractional mass resolution converted to counts per second format. Voyager Model Entry timeline data is included for user convenience.
GCMS_1FA_X_STG2	FCO GCO	All Ion Source 1 - 25 eV ionization energy and fractional mass resolution covering a non-standard mass range done during GCMS instrument testing. These data are converted to counts per second.
GCMS_1FS_STG2	Descent FCO GCO	All Ion Source 1 - 75 eV ionization energy and fractional mass resolution converted to counts per second format. Voyager Model Entry timeline data is included for user convenience.
GCMS_1FS_X_STG2	FCO GCO	All Ion Source 1 - 75 eV ionization energy and fractional mass resolution covering a non-standard mass range done during GCMS instrument testing. These data are converted to counts per second.
GCMS_1UA_STG2	Descent FCO GCO	All Ion Source 1 - 25 eV ionization energy and unit mass resolution converted to counts per second format. Voyager Model Entry timeline data is included for user convenience.
GCMS_1UA_X_STG2	FCO GCO	All Ion Source 1 - 25 eV ionization energy and unit mass resolution covering a non-standard mass range done during GCMS instrument testing. These data are converted to counts per second.
GCMS_1US_STG2	Descent FCO GCO	All Ion Source 1 - 75 eV ionization energy and unit mass resolution converted to counts per second format. Voyager Model Entry timeline data is included for user convenience.
GCMS_1US_X_STG2	FCO GCO	All Ion Source 1 - 75 eV ionization energy and unit mass resolution covering a non-standard mass range done during GCMS instrument testing. These data are converted to counts per second.
Stage 2 - Mass Sweeps - Ion Source 1 (MS) Direct Atmosphere & Enrichment Cell Samples		
GCMS_1FA_B1_STG2	Descent	Ion Source 1 - 25 eV ionization energy fractional mass resolution residual background data done prior to direct atmosphere sampling. Data as counts per second.
GCMS_1FA_B2_STG2	Descent	Ion Source 1 - 25 eV ionization energy fractional mass resolution instrument background data obtained after closing inlet 1 and before the rare gas cell analysis. Data as counts per second.
GCMS_1FA_B3_STG2	Descent	Ion Source 1 - 25 eV ionization energy fractional mass resolution instrument background data obtained after closing inlet 3 and before opening inlet 2. Data as counts per second.
GCMS_1FA_L1_STG2	Descent	Ion Source 1 - 25 eV ionization energy fractional mass resolution direct atmosphere sampling data via Leak 1. Data as counts per second.
GCMS_1FA_L2_STG2	Descent	Ion Source 1 - 25 eV ionization energy fractional mass resolution direct atmosphere sampling data via Leak 2. Data as counts per second.
GCMS_1FS_B1_STG2	Descent	Ion Source 1 - 75 eV ionization energy fractional mass resolution residual background data done prior to direct atmosphere sampling. Data as counts per second.
GCMS_1FS_B2_STG2	Descent	Ion Source 1 - 75 eV ionization energy fractional mass resolution instrument background data obtained after closing inlet 1 and before the rare gas cell analysis. Data as counts per second.

Data Product and Type	Data Source	Description
GCMS_1FS_B3_STG2	Descent	Ion Source 1 - 75 eV ionization energy fractional mass resolution instrument background data obtained after closing inlet 3 and before opening inlet 2. Data as counts per second.
GCMS_1FS_L1_STG2	Descent	Ion Source 1 - 75 eV ionization energy fractional mass resolution direct atmosphere sampling data via Leak 1. Data as counts per second.
GCMS_1FS_L2_STG2	Descent	Ion Source 1 - 75 eV ionization energy fractional mass resolution direct atmosphere sampling data via Leak 2. Data as counts per second.
GCMS_1UA_B1_STG2	Descent	Ion Source 1 - 25 eV ionization energy unit mass resolution residual background data done prior to direct atmosphere sampling. Data as counts per second.
GCMS_1UA_B2_STG2	Descent	Ion Source 1 - 25 eV ionization energy unit mass resolution instrument background data obtained after closing inlet 1 and before the rare gas cell analysis. Data as counts per second.
GCMS_1UA_B3_STG2	Descent	Ion Source 1 - 25 eV ionization energy unit mass resolution instrument background data obtained after closing inlet 3 and before opening inlet 2. Data as counts per second.
GCMS_1UA_L1_GRABEC_STG2	Descent	Ion Source 1 - L1 25eV MS data between UTC times 9:35:22-9:36:06 during the Rare Gas Enrichment Cell Sample collection. Data as counts per second.
GCMS_1UA_L1_STG2	Descent	Ion Source 1 - 25 eV ionization energy unit mass resolution direct atmosphere sampling data via Leak 1. Data as counts per second.
GCMS_1UA_L2_GRABGC1_STG2	Descent	Ion Source 1 - L2 25eV MS data when the ‘grab sample’ collection for GC analysis #1 was collected. Data as counts per second.
GCMS_1UA_L2_GRABGC2_STG2	Descent	Ion Source 1 - L2 25eV MS data between UTC times 10:02:54-10:03:18 when the ‘grab sample’ collection for GC analysis #2. Data as counts per second.
GCMS_1UA_L2_GRABGC4_STG2	Descent	Ion Source 1 - L2 25eV MS data between UTC times 10:35:58-10:36:14 when the ‘grab sample’ collection for GC analysis #3. Data as counts per second.
GCMS_1UA_L2_STG2	Descent	Ion Source 1 - 25 eV ionization energy unit mass resolution direct atmosphere sampling data via Leak 2. Data as counts per second.
GCMS_1UA_L3_RG_STG2	Descent	Ion Source 1 - 25 eV ionization energy unit mass resolution Rare Gas Cell sampling data via Leak 3. Data as counts per second. UTC times 9:41:51-9:43:20.
GCMS_1UA_L3_RGEC_STG2	Descent	Ion Source 1 - 25 eV ionization energy unit mass resolution Rare Gas plus Enrichment Cell sampling data via Leak 3. Data as counts per second.
GCMS_1US_B1_STG2	Descent	Ion Source 1 - 75 eV ionization energy unit mass resolution residual background data done prior to direct atmosphere sampling. Data as counts per second.
GCMS_1US_B2_STG2	Descent	Ion Source 1 - 75 eV ionization energy unit mass resolution instrument background data obtained after closing inlet 1 and before the rare gas cell analysis. Data as counts per second.
GCMS_1US_B3_STG2	Descent	Ion Source 1 - 75 eV ionization energy unit mass resolution instrument background data obtained after closing inlet 3 and before opening inlet 2. Data as counts per second.
GCMS_1US_L1_GRABEC_STG2	Descent	Ion Source 1 - L1 75eV MS data between UTC times 9:35:22-9:36:06 during the Rare Gas Enrichment Cell Sample collection. Data as counts per second.
GCMS_1US_L1_STG2	Descent	Ion Source 1 - 75 eV ionization energy unit mass resolution direct atmosphere sampling data via Leak 1. Data as counts per second. UTC times 9:11:17–9:39:28.

Data Product and Type	Data Source	Description
GCMS_1US_L2_GRABGC1_STG2	Descent	Ion Source 1 - L2 75eV MS data between UTC times 9:49:22-9:49:49 when the 'grab sample' collection for GC analysis #1. Data as counts per second.
GCMS_1US_L2_GRABGC2_STG2	Descent	Ion Source 1 - L2 75eV MS data between UTC times 10:02:54-10:03:18 when the 'grab sample' collection for GC analysis #2. Data as counts per second.
GCMS_1US_L2_GRABGC4_STG2	Descent	Ion Source 1 - L2 75eV MS data between UTC times 10:35:58-10:36:14 when the 'grab sample' collection for GC analysis #3. Data as counts per second.
GCMS_1US_L2_STG2	Descent	Ion Source 1 - 75 eV ionization energy unit mass resolution direct atmosphere sampling data via Leak 2. Data as counts per second. UTC times 9:46:22-12:47:27..
GCMS_1US_L3_RG_STG2	Descent	Ion Source 1 - 75 eV ionization energy unit mass resolution Rare Gas Cell sampling data via Leak 3. Data as counts per second. UTC times 9:41:51-9:43:20.
GCMS_1US_L3_RGEC_STG2	Descent	Ion Source 1 - 75 eV ionization energy unit mass resolution Rare Gas plus Enrichment Cell sampling data via Leak 3. Data as counts per second. UTC times 9:43:21-9:44:51.
Stage 2 - Mass Sweeps - Ion Source 2 (ACP)		
GCMS_2UA_STG2	Descent FCO GCO	All ion source 2 (ACP) - 25 eV ionization energy and unit mass resolution converted to counts per second format.
GCMS_2UA_X_STG2	FCO GCO	All ion source 2 (ACP) - 25 eV ionization energy and unit mass resolution covering a non-standard mass range done during GCMS instrument testing. These data are converted to counts per second.
GCMS_2US_STG2	Descent FCO GCO	All ion source 2 (ACP) - 75 eV ionization energy and unit mass resolution converted to counts per second format.
GCMS_2US_X_STG2	FCO GCO	All ion source 2 (ACP) - 75 eV ionization energy and unit mass resolution covering a non-standard mass range done during GCMS instrument testing. These data are converted to counts per second.
Stage 2 - Mass Sweeps - Ion Source 2 (ACP) Individual Samples		
GCMS_2UA_S1_STG2	Descent	Ion source 2 (ACP) - 25 eV ionization energy and unit mass resolution for ACP sample #1 in counts per second.
GCMS_2UA_S2_STG2	Descent	Ion source 2 (ACP) - 25 eV ionization energy and unit mass resolution for ACP sample #2 in counts per second.
GCMS_2UA_S3_STG2	Descent	Ion source 2 (ACP) - 25 eV ionization energy and unit mass resolution for ACP sample #3 in counts per second.
GCMS_2UA_S4_STG2	Descent	Ion source 2 (ACP) - 25 eV ionization energy and unit mass resolution for ACP sample #4 in counts per second.
GCMS_2UA_S5_STG2	Descent	Ion source 2 (ACP) - 25 eV ionization energy and unit mass resolution for ACP sample #5 in counts per second.
GCMS_2UA_S6_STG2	Descent	Ion source 2 (ACP) - 25 eV ionization energy and unit mass resolution for ACP sample #6 in counts per second.
GCMS_2US_S1_STG2	Descent	Ion source 2 (ACP) - 75 eV ionization energy and unit mass resolution for ACP sample #1 in counts per second.
GCMS_2US_S2_STG2	Descent	Ion source 2 (ACP) - 75 eV ionization energy and unit mass resolution for ACP sample #2 in counts per second. Note – Programmed low IE data is present in this block of data and not marked between times 10:18:49 – 10:19:01.
GCMS_2US_S3_STG2	Descent	Ion source 2 (ACP) - 75 eV ionization energy and unit mass resolution for ACP sample #3 in counts per second.
GCMS_2US_S4_STG2	Descent	Ion source 2 (ACP) - 75 eV ionization energy and unit mass resolution for ACP sample #4 in counts per second.

Data Product and Type	Data Source	Description
GCMS_2US_S5_STG2	Descent	Ion source 2 (ACP) - 75 eV ionization energy and unit mass resolution for ACP sample #5 in counts per second**. Note – Programmed low IE data is present in this block of data and not marked between times 10:52:48 – 10:52:55.**
GCMS_2US_S6_STG2	Descent	Ion source 2 (ACP) - 75 eV ionization energy and unit mass resolution for ACP sample #6 in counts per second.
Stage 2 - Mass Sweeps - Ion Source 3 (GC1)		
GCMS_3UA_STG2	Descent FCO GCO	All ion Source 3 (GC1) - 75 eV ionization energy and unit mass resolution converted to counts per second format.
GCMS_3UA_X_STG2	FCO GCO	All ion Source 3 - 25 eV ionization energy and unit mass resolution covering a non-standard mass range done during GCMS instrument testing. These data are converted to counts per second.
GCMS_3US_STG2	Descent FCO GCO	All ion Source 3 (GC1) - 75 eV ionization energy and unit mass resolution converted to counts per second format.
GCMS_3US_X_STG2	FCO GCO	All ion Source 3 - 75 eV ionization energy and unit mass resolution covering a non-standard mass range done during GCMS instrument testing. These data are converted to counts per second.
Stage 2 - Mass Sweeps - Ion Source 3 (GC1) Individual Samples		
GCMS_3UA_GC1_S1_STG2	Descent	Ion Source 3 (Column 1) data at 25 eV ionization energy and unit mass resolution for GC 'Grab' Sample #1 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_3UA_GC1_S2_STG2	Descent	Ion Source 3 (Column 1) data at 25 eV ionization energy and unit mass resolution for GC 'Grab' Sample #2 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_3UA_GC1_S3_STG2	Descent	Ion Source 3 (Column 1) data at 25 eV ionization energy and unit mass resolution for ACP Sample #3 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_3UA_GC1_S4_STG2	Descent	Ion Source 3 (Column 1) data at 25 eV ionization energy and unit mass resolution for GC 'Grab' Sample #3 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_3UA_GC1_S5_STG2	Descent	Ion Source 3 (Column 1) data at 25 eV ionization energy and unit mass resolution for direct atmosphere Sample #1 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_3UA_GC1_S6_STG2	Descent	Ion Source 3 (Column 1) data at 25 eV ionization energy and unit mass resolution for direct atmosphere Sample #2 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_3UA_GC1_S7_STG2	Descent	Ion Source 3 (Column 1) data at 25 eV ionization energy and unit mass resolution for direct atmosphere Sample #3 as counts per second. Time relative to the injection has been determined and added to the file. Post-landing measurement.
GCMS_3UA_GC1_S8_STG2	Descent	Ion Source 3 (Column 1) data at 25 eV ionization energy and unit mass resolution for direct atmosphere Sample #4 as counts per second. Time relative to the injection has been determined and added to the file. Post-landing measurement.
GCMS_3UA_GC1_S9_STG2	Descent	Ion Source 3 (Column 1) data at 25 eV ionization energy and unit mass resolution for direct atmosphere Sample #5 as counts per second. Time relative to the injection has been determined and added to the file. Post-landing measurement.

Data Product and Type	Data Source	Description
GCMS_3UA_GC1_S10_STG2	Descent	Ion Source 3 (Column 1) data at 25 eV ionization energy and unit mass resolution for direct atmosphere Sample #6 as counts per second. Time relative to the injection has been determined and added to the file. Post-landing measurement.
GCMS_3US_GC1_S1_STG2	Descent	Ion Source 3 (Column 1) data at 75 eV ionization energy and unit mass resolution for GC 'Grab' Sample #1 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_3US_GC1_S2_STG2	Descent	Ion Source 3 (Column 1) data at 75 eV ionization energy and unit mass resolution for GC 'Grab' Sample #2 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_3US_GC1_S3_STG2	Descent	Ion Source 3 (Column 1) data at 75 eV ionization energy and unit mass resolution for ACP Sample #3 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_3US_GC1_S4_STG2	Descent	Ion Source 3 (Column 1) data at 75 eV ionization energy and unit mass resolution for GC 'Grab' Sample #3 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_3US_GC1_S5_STG2	Descent	Ion Source 3 (Column 1) data at 75 eV ionization energy and unit mass resolution for direct atmosphere Sample #1 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_3US_GC1_S6_STG2	Descent	Ion Source 3 (Column 1) data at 75 eV ionization energy and unit mass resolution for direct atmosphere Sample #2 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_3US_GC1_S7_STG2	Descent	Ion Source 3 (Column 1) data at 75 eV ionization energy and unit mass resolution for direct atmosphere Sample #3 as counts per second. Time relative to the injection has been determined and added to the file. Post-landing measurement.
GCMS_3US_GC1_S8_STG2	Descent	Ion Source 3 (Column 1) data at 75 eV ionization energy and unit mass resolution for direct atmosphere Sample #4 as counts per second. Time relative to the injection has been determined and added to the file. Post-landing measurement.
GCMS_3US_GC1_S9_STG2	Descent	Ion Source 3 (Column 1) data at 75 eV ionization energy and unit mass resolution for direct atmosphere Sample #5 as counts per second. Time relative to the injection has been determined and added to the file. Post-landing measurement.
GCMS_3US_GC1_S10_STG2	Descent	Ion Source 3 (Column 1) data at 75 eV ionization energy and unit mass resolution for direct atmosphere Sample #6 as counts per second. Time relative to the injection has been determined and added to the file. Post-landing measurement.
	Stage 2 - Mass Sweeps - Ion Source 4 (GC2)	
GCMS_4UA_STG2	Descent FCO GCO	All ion Source 4 (GC2) - 75 eV ionization energy and unit mass resolution converted to counts per second format.
GCMS_4UA_X_STG2	FCO GCO	All ion Source 4 (GC2) - 25 eV ionization energy and unit mass resolution covering a non-standard mass range done during GCMS instrument testing. These data are converted to counts per second.
GCMS_4US_STG2	Descent FCO GCO	All ion Source 4 (GC2) - 75 eV ionization energy and unit mass resolution converted to counts per second format.

Data Product and Type	Data Source	Description
GCMS_4US_X_STG2	FCO GCO	All ion Source 4 (GC2) - 75 eV ionization energy and unit mass resolution covering a non-standard mass range done during GCMS instrument testing. These data are converted to counts per second.
Stage 2 - Mass Sweeps - Ion Source 4 (GC2) Individual Samples		
GCMS_4UA_GC2_S1_STG2	Descent	Ion Source 4 (Column 2) data at 25 eV ionization energy and unit mass resolution for GC 'Grab' Sample #1 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_4UA_GC2_S2_STG2	Descent	Ion Source 4 (Column 2) data at 25 eV ionization energy and unit mass resolution for GC 'Grab' Sample #2 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_4UA_GC2_S3_STG2	Descent	Ion Source 4 (Column 2) data at 25 eV ionization energy and unit mass resolution for ACP Sample #3 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_4UA_GC2_S4_STG2	Descent	Ion Source 4 (Column 2) data at 25 eV ionization energy and unit mass resolution for GC 'Grab' Sample #3 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_4UA_GC2_S5_STG2	Descent	Ion Source 4 (Column 2) data at 25 eV ionization energy and unit mass resolution for direct atmosphere Sample #1 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_4UA_GC2_S6_STG2	Descent	Ion Source 4 (Column 2) data at 25 eV ionization energy and unit mass resolution for direct atmosphere Sample #2 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_4UA_GC2_S7_STG2	Descent	Ion Source 4 (Column 2) data at 25 eV ionization energy and unit mass resolution for direct atmosphere Sample #3 as counts per second. Time relative to the injection has been determined and added to the file. Post-landing measurement.
GCMS_4UA_GC2_S8_STG2	Descent	Ion Source 4 (Column 2) data at 25 eV ionization energy and unit mass resolution for direct atmosphere Sample #4 as counts per second. Time relative to the injection has been determined and added to the file. Post-landing measurement.
GCMS_4UA_GC2_S9_STG2	Descent	Ion Source 4 (Column 2) data at 25 eV ionization energy and unit mass resolution for direct atmosphere Sample #5 as counts per second. Time relative to the injection has been determined and added to the file. Post-landing measurement.
GCMS_4UA_GC2_S10_STG2	Descent	Ion Source 4 (Column 2) data at 25 eV ionization energy and unit mass resolution for direct atmosphere Sample #6 as counts per second. Time relative to the injection has been determined and added to the file. Post-landing measurement.
GCMS_4US_GC2_S1_STG2	Descent	Ion Source 4 (Column 2) data at 75 eV ionization energy and unit mass resolution for GC 'Grab' Sample #1 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_4US_GC2_S2_STG2	Descent	Ion Source 4 (Column 2) data at 75 eV ionization energy and unit mass resolution for GC 'Grab' Sample #2 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_4US_GC2_S3_STG2	Descent	Ion Source 4 (Column 2) data at 75 eV ionization energy and unit mass resolution for ACP Sample #3 as counts per second. Time relative to the injection has been determined and added to the file.

Data Product and Type	Data Source	Description
GCMS_4US_GC2_S4_STG2	Descent	Ion Source 4 (Column 2) data at 75 eV ionization energy and unit mass resolution for GC 'Grab' Sample #3 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_4US_GC2_S5_STG2	Descent	Ion Source 4 (Column 2) data at 75 eV ionization energy and unit mass resolution for direct atmosphere Sample #1 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_4US_GC2_S6_STG2	Descent	Ion Source 4 (Column 2) data at 75 eV ionization energy and unit mass resolution for direct atmosphere Sample #2 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_4US_GC2_S7_STG2	Descent	Ion Source 4 (Column 2) data at 75 eV ionization energy and unit mass resolution for direct atmosphere Sample #3 as counts per second. Time relative to the injection has been determined and added to the file. Post-landing measurement.
GCMS_4US_GC2_S8_STG2	Descent	Ion Source 4 (Column 2) data at 75 eV ionization energy and unit mass resolution for direct atmosphere Sample #4 as counts per second. Time relative to the injection has been determined and added to the file. Post-landing measurement.
GCMS_4US_GC2_S9_STG2	Descent	Ion Source 4 (Column 2) data at 75 eV ionization energy and unit mass resolution for direct atmosphere Sample #5 as counts per second. Time relative to the injection has been determined and added to the file. Post-landing measurement.
GCMS_4US_GC2_S10_STG2	Descent	Ion Source 4 (Column 2) data at 75 eV ionization energy and unit mass resolution for direct atmosphere Sample #6 as counts per second. Time relative to the injection has been determined and added to the file. Post-landing measurement.
Stage 2 - Mass Sweeps - Ion Source 5 (GC3)		
GCMS_5UA_STG2	Descent FCO GCO	All ion source 5 (GC3) - 75 eV ionization energy and unit mass resolution converted to counts per second format.
GCMS_5US_STG2	Descent FCO GCO	All ion source 5 (GC3) - 75 eV ionization energy and unit mass resolution converted to counts per second format.
GCMS_5UA_X_STG2	FCO GCO	All ion source 5 (GC3) - 25 eV ionization energy and unit mass resolution covering a non-standard mass range done during GCMS instrument testing. These data are converted to counts per second.
GCMS_5UA_Z_STG2	FCO GCO	Unit mass resolution 25 eV ionization energy for Ion Source 5 data during checkout testing only when the GCMS is operating in low power mode where selected electronics are powered down to preserve instrument life. This data has been converted to counts per second.
GCMS_5US_X_STG2	FCO GCO	All ion source 5 (GC3) - 75 eV ionization energy and unit mass resolution covering a non-standard mass range done during GCMS instrument testing. These data are converted to counts per second.
GCMS_5US_Z_STG2	FCO GCO	Unit mass resolution 75 eV ionization energy for Ion Source 5 data during checkout testing only when the GCMS is operating in low power mode where selected electronics are powered down to preserve instrument life. This data has been converted to counts per second.
Stage 2 - Mass Sweeps - Ion source 5 (GC3) Individual Samples		

Data Product and Type	Data Source	Description
GCMS_5UA_GC3_S1_STG2	Descent	Ion Source 5 (Column 3) data at 25 eV ionization energy and unit mass resolution for GC ‘Grab’ Sample #1 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_5UA_GC3_S2_STG2	Descent	Ion Source 5 (Column 3) data at 25 eV ionization energy and unit mass resolution for GC ‘Grab’ Sample #2 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_5UA_GC3_S3_STG2	Descent	Ion Source 5 (Column 3) data at 25 eV ionization energy and unit mass resolution for ACP Sample #3 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_5UA_GC3_S4_STG2	Descent	Ion Source 5 (Column 3) data at 25 eV ionization energy and unit mass resolution for GC ‘Grab’ Sample #3 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_5UA_GC3_S5_STG2	Descent	Ion Source 5 (Column 3) data at 25 eV ionization energy and unit mass resolution for direct atmosphere Sample #1 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_5UA_GC3_S6_STG2	Descent	Ion Source 5 (Column 3) data at 25 eV ionization energy and unit mass resolution for direct atmosphere Sample #2 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_5UA_GC3_S7_STG2	Descent	Ion Source 5 (Column 3) data at 25 eV ionization energy and unit mass resolution for direct atmosphere Sample #3 as counts per second. Time relative to the injection has been determined and added to the file. Post-landing measurement.
GCMS_5UA_GC3_S8_STG2	Descent	Ion Source 5 (Column 3) data at 25 eV ionization energy and unit mass resolution for direct atmosphere Sample #4 as counts per second. Time relative to the injection has been determined and added to the file. Post-landing measurement.
GCMS_5UA_GC3_S9_STG2	Descent	Ion Source 5 (Column 3) data at 25 eV ionization energy and unit mass resolution for direct atmosphere Sample #5 as counts per second. Time relative to the injection has been determined and added to the file. Post-landing measurement.
GCMS_5UA_GC3_S10_STG2	Descent	Ion Source 5 (Column 3) data at 25 eV ionization energy and unit mass resolution for direct atmosphere Sample #6 as counts per second. Time relative to the injection has been determined and added to the file. Post-landing measurement.
GCMS_5US_GC3_S1_STG2	Descent	Ion Source 5 (Column 3) data at 75 eV ionization energy and unit mass resolution for GC ‘Grab’ Sample #1 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_5US_GC3_S2_STG2	Descent	Ion Source 5 (Column 3) data at 75 eV ionization energy and unit mass resolution for GC ‘Grab’ Sample #2 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_5US_GC3_S3_STG2	Descent	Ion Source 5 (Column 3) data at 75 eV ionization energy and unit mass resolution for ACP Sample #3 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_5US_GC3_S4_STG2	Descent	Ion Source 5 (Column 3) data at 75 eV ionization energy and unit mass resolution for GC ‘Grab’ Sample #3 as counts per second. Time relative to the injection has been determined and added to the file.

Data Product and Type	Data Source	Description
GCMS_5US_GC3_S5_STG2	Descent	Ion Source 5 (Column 3) data at 75 eV ionization energy and unit mass resolution for direct atmosphere Sample #1 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_5US_GC3_S6_STG2	Descent	Ion Source 5 (Column 3) data at 75 eV ionization energy and unit mass resolution for direct atmosphere Sample #2 as counts per second. Time relative to the injection has been determined and added to the file.
GCMS_5US_GC3_S7_STG2	Descent	Ion Source 5 (Column 3) data at 75 eV ionization energy and unit mass resolution for direct atmosphere Sample #3 as counts per second. Time relative to the injection has been determined and added to the file. Post-landing measurement.
GCMS_5US_GC3_S8_STG2	Descent	Ion Source 5 (Column 3) data at 75 eV ionization energy and unit mass resolution for direct atmosphere Sample #4 as counts per second. Time relative to the injection has been determined and added to the file. Post-landing measurement.
GCMS_5US_GC3_S9_STG2	Descent	Ion Source 5 (Column 3) data at 75 eV ionization energy and unit mass resolution for direct atmosphere Sample #5 as counts per second. Time relative to the injection has been determined and added to the file. Post-landing measurement.
GCMS_5US_GC3_S10_STG2	Descent	Ion Source 5 (Column 3) data at 75 eV ionization energy and unit mass resolution for direct atmosphere Sample #6 as counts per second. Time relative to the injection has been determined and added to the file. Post-landing measurement.
		Stage 2 - HouseKeeping Data
GCMS_HK_HS_STG2	Descent FCO GCO	Time tagged high speed housekeeping parameters
GCMS_HK_IDLE_STG2	Descent FCO GCO	Time tagged idle data packet housekeeping parameters
GCMS_HK_MS_STG2	Descent FCO GCO	Time tagged medium speed housekeeping parameters
GCMS_HK_TYPE2_STG2	Descent FCO GCO	Time tagged housekeeping type 2 parameters
		Stage 2 - Ion Source TOTALS Extracted Data
GCMS_SWEEPS_ALL_TOTALS_STG2	Descent FCO GCO	Each scan monitors the total signal for all enabled ion source. This file contains these totals converted to counts per second.
		Stage 2 - Mole Fraction Data derived from Entry Data
GCMS_MOLE_FRACTION_STG2	Descent	MS IS1 Direct Atmosphere Mixing Ratio results for the two (three) most abundant species from the Direct Leak analysis. Time Tagged.

The GCMS works with and analyzes samples from the ACP. The ACP Data Products are forwarded to the ACP Science team, and will be analyzed by them. The ACP analysts may use certain GCMS Data Products in conjunction with the GCMS team to post- calibrate and to analyze their scientific results. Other instruments to which atmospheric composition may be relevant may also utilize GCMS Data Products in the analysis of their data, or to make comparisons in data, as per guidelines in the Descent Trajectory Working Group EAICD. The ACP data will consist of one GC data product, 2 stage 1 mass scan products, and 6 stage 2 & 3 mass scan products.

These data products were selected because they represent an efficient method of archivally organizing the GCMS data. The data from GCMS are complex and voluminous, and will undergo several iterations of analysis. These data products accurately describe results of these iterations, and the breakdown of the data into manageable sets.

2.5 SOFTWARE

The GCMS software includes the instrument software, the GSE software, and the data processing software. The instrument software was developed at GSFC and is onboard the GCMS flight unit, on the flight spare unit at NASA/GSFC, the Engineering Model (EM), and all simulator test beds at NASA/GSFC. The GSE software is the interface to the instrument as well as the processing software for the real-time data from the flight unit, flight spare, EM, and test beds. The original hardware and software limitations meant that the only way to process the telemetry data downloaded from ESA and to replay (and reprocess) archived data was to feed these data files through the interface hardware system. Near the end of the cruise mission, personal computers became powerful enough to allow the development of software at GSFC to process raw GCMS data without using the GSE workstations and software. These software programs allow the GCMS Team to parse files and retrieve data of interest. The (workstation) GSE processing software uses IDL subroutines to plot GCMS data for specified timelines. If these timelines are not sufficient, the newly developed software is used to parse the data and then commercial plotting routines or spreadsheet software can be used to plot the data. To calibrate or post-calibrate, instrument software is used if flight-like electronics are operating the sensor, or specially written laboratory software is used if laboratory electronics are operating the sensor.

There is no specialized software required to view the GCMS data products, and no software will be provided or archived to do so.

2.6 DOCUMENTATION

The GCMS Team will provide documents describing the operational timeline of the GCMS instrument during the descent into Titan's atmosphere. Selected instrument housekeeping parameters corresponding to the start time of each mass scan have been added to the table containing the mass scan data. We had hoped to integrate the mission descent profile information (altitude, pressure, temperature) with the GCMS dataset. This dataset is not yet available for distribution. Users must look elsewhere in the data archives to determine the availability of the atmosphere entry (descent trajectory) parameters. The data TABLE file columns intended for this use have been assigned the value zero (0.) Documents relative to the interpretation of the calibration data are provided. An overview of the GCMS instrument is also provided. These documents and any associated image files will be provided as ASCII (ASC) and Portable Network Graphics (PNG) files and may also be included in additional formats: e.g., DOC, PDF, HTML, GIF. These documents are archived in the **/DOCUMENT/** and the **/EXTRAS/** folders. Refer to Section 3.4.3.10 for a listing of archived documents and images.

2.7 DERIVED AND OTHER DATA PRODUCTS

The dataset user must refer to the Descent Trajectory Working Group and to the Huygens Atmospheric Structure Instrument data, elsewhere in the archive, to obtain the actual descent trajectory entry parameters. Data related to the composition of the atmosphere was provided to the Descent Trajectory Working Group and these files are archived.

3 ARCHIVE FORMAT AND CONTENT

3.1 FORMAT AND CONVENTIONS

3.1.1 DELIVERIES AND ARCHIVE VOLUME FORMAT

The GCMS Team will deliver the data set(s) to the PSA and PDS archives by electronic methods or CD or DVD. The data set will contain the relevent files for a specific test sequence or calibration activity and associated documents. Each data set will contain a subset of the data products listed in Sections 2.4, Table 5. Each data volume will be named according to the requirements of the PDS/PSA systems: only capital letters, numbers and

the underscore character. A copy of all data including each CD or DVD will remain at NASA GSFC. The name of the GCMS Data Set is: "**HUYGENS TITAN GAS CHROMATOGRAPH MASS SPEC 3 DESCENT V1.0**.

3.1.2 DATA SET ID FORMATION

The data set ID for GCMS will be: "**HP-SSA-GCMS-3-FCO/DESCENT-V1.0**". Refer to Appendix 3 and Table 5 and Table 8 for additional information about the content of the GCMS Data Set.

3.1.3 DATA DIRECTORY NAMING CONVENTION

The directories below the root are **/CATALOG/, /DATA/, /DOCUMENT/, /INDEX/** and **/EXTRAS/.**

The **/DATA/** directory consists of one volume, with subdirectories named by data content: refer to Table 8. Each subdirectory will contain the GCMS data products for that data set.

Certain calibration data, in-flight, EM or Flight Spare data may not be available in all processing stages.

3.1.4 FILE NAMING CONVENTION

File Names will be composed of only UPPER CASE letters, numbers, and the characters "." and "_". File names for data products are constructed as follows:
<**INSTRUMENT**>_<**DATATYPE**>_<**DESCRIPTOR**>_<**STAGE OF DATA PROCESSING**>.<**EXT**>

The <**INSTRUMENT**> field will always be "GCMS". The <**DATATYPE**> field refers to the source of the data or the scan type plus the instrument's operating mode and the field name will contain "#FA","#FS", "#UA", "#US", "ALL", "ALL_?", "HK", "HK_?", "MOLE_FRACTION", "SWEEPS", "SWEEPS_?", "SWEEPS_ALL", "TELEMETRY" or "TOTALS" where "#" refers to the Ion Source Number (1 – 5) and "?" refers to the data source telemetry channel (A or B). For MS data sweep files, the <**DESCRIPTOR**> field will contain "B?" (1 – 3), "GC#" (1 – 3), "GRABEC", "GRABGC?" (1 – 3), "L#" (1 – 4), "RG", "RGEC", "S?" (1 – 10), "X" or "Z" where "?" refers to a sample number and "#" refers to a GC-column or leak number. For housekeeping data files, the **<DESCRIPTOR>** field will contain "ACK", "HS", "IDLE", "MS", "NACK", "SOFTWARE", "TYPE1" or "TYPE2". The (translation) details for the <**DATATYPE**> and <**DESCRIPTOR**> fields can be seen in the information in Table 5. The <**STAGE OF DATA PROCESSING**> field refers to the level of data processing, as described in Table 2, and will be "STG1", "STG2" or "STG3".

3.2 STANDARDS USED IN DATA PRODUCT GENERATION

3.2.1 PDS STANDARDS

The PDS reference standards v3.6 will be used.

3.2.2 TIME STANDARDS

The Huygens Probe provides a timing signal to the instruments, referred to as the DDB pulse, every 2 seconds. This DDB signal is set to 0 (zero) twice: when the probe is initially powered on and again when T_0 is declared. The mission later provided the teams with the UTC time of the T_0 event (2005-01-14T09:10:20.760). Elsewhere in the instrument's housekeeping data is the information whether the probe operating phase is pre-T_0 or post-T_0. Many of the data files contain a time identified as MET (Mission Elapsed Time). The MET is related to the DDB time and is expressed in seconds. The T_0 event is assigned a 'MET time' of 86400 seconds so when you see a MET time less than this value it referrs to a pre-T_0 time and times greater than this value refer to post-T_0 times.

The GCMS instrument contains an independent clock that runs with a temporal resolution of 15.625 milliseconds and is synchronized with the DDB pulses. We refer to this combined DDB plus GCMS clock value as the "Absolute Time". Each GCMS housekeeping and science data packet contains information referencing the instrument "Absolute

Time." This Absolute Time value is combined with the defined UTC at T_0 time value to yield the UTC time of each GCMS science and housekeeping data packet.

Users will also find a time referenced as the "GCMS GMT Time" and will note that this time lags the "Absolute Time" from the GCMS Instrument. The GCMS GMT Time is the time stamp from the probe data system's acceptance of the data packet from the GCMS data buffer. This time is added to the GCMS data packet, along with other probe generated data, to create the probe data packet for transmission to the orbiter.

3.2.3 REFERENCE SYSTEMS

N/A

3.2.4 OTHER APPLICABLE STANDARDS

N/A

3.3 DATA VALIDATION

All data that is processed by the GCMS Team is reviewed before release to ensure that the content is complete and that no errors occurred in the processing of the data. Data volumes produced for PSA/PDS will be verified before they are sent. As mentioned above, there are multiple and independent processing software schemes available, and these have been used to process GCMS data to ensure that the processing is done correctly. After the data is processed, it is analyzed from test specific and trend history perspectives, and reviewed by the GCMS PI and Team. Only then will the data be released for public usage.

3.4 CONTENT

3.4.1 VOLUME SET

The GCMS Team will deliver one data "volume", electronically or on CD or DVD, containing the data. All the data will also be archived at GSFC.

3.4.2 DATA SET

See Appendix 3.

3.4.3 DIRECTORIES

3.4.3.1 ROOT DIRECTORY

The root directory will contain the following subdirectories (folders) and files:
/CATALOG/
/DATA/
/DOCUMENT/
/EXTRAS/
/INDEX/
AAREADME.TXT
ERRATA.TXT
VOLDESC.CAT

3.4.3.2 CALIBRATION DIRECTORY

N/A

3.4.3.3 CATALOG DIRECTORY

The catalog directory will contain the files:
DATASET.CAT
INSTRUMENT.CAT
INSTRUMENT_HOST.CAT
MISSION.CAT
PERSONNEL.CAT
REFERENCE.CAT
SOFTWARE.CAT
TARGET.CAT

3.4.3.4 INDEX DIRECTORY

The index directory will contain the files:
INDEX.LBL
INDEX.TAB
INDEXINFO.TXT

3.4.3.5 BROWSE DIRECTORY AND BROWSE FILES

N/A

3.4.3.6 GEOMETRY DIRECTORY

N/A

3.4.3.7 SOFTWARE DIRECTORY

N/A

3.4.3.8 GAZETTER DIRECTORY

N/A

3.4.3.9 LABEL DIRECTORY

N/A

3.4.3.10 DOCUMENT DIRECTORY

All documents will be included as ASCII TEXT (*.ASC) files. Additional formats, such as (DOC) MS Word, PDF (Acrobat) and (TXT) Text formats may be included. All images will be included as Portable Network Graphics (PNG) files. These images may also be included using other formats.

DOCINFO.TXT	
BLOCK_DIAGRAM.PNG	Simple diagram of GCMS components
DESC_FM_08F.ASC	File used to program GCMS sampling sequence
EAICD_GCMS.ASC	This document
HUYGENS_GCMS.ASC	Space Science Reviews Article (2002)
HUYGENS_GCMS_SP1177.ASC	GCMS Article from ESA Special Publication 1177
HUYGENS_GCMS_NATURE.ASC	GCMS Results published in Nature (December 8, 2005)
WORKING_SEQUENCE.ASC	File used to develop GCMS sampling sequence
WORKING_TIMELINE.PNG	Graphic of GCMS operation timeline

/PRELAUNCH_CALIBRATION/

CALPRES.ASC	See Table 4 for a description of this file's content
CALPRES2.ASC	See Table 4 for a description of this file's content
CALPRES3.ASC	See Table 4 for a description of this file's content
CALPRNT2.ASC	See Table 4 for a description of this file's content
CALPRNTS.ASC	See Table 4 for a description of this file's content

3.4.3.11 EXTRAS DIRECTORY

EXTRASINFO.TXT

/ANIMATED_GIF/

GCMS_A2.GIF	Cartoon showing gas flows, valve and heater operations.
GCMS_P2.GIF	Cartoon showing gas flows, valve and heater operations.

/DATASET_RELATED/

DATA_PROCESSING.PDF	Details of data processing, Stage 0 to Stage 3 (and beyond.)
GCMS_OVERFLOW_EXAMPLE_STG1.PNG	Stage 1 example of identifying GCMS counter overflow
GCMS_OVERFLOW_EXAMPLE_STG2.PNG	Stage 2 example of identifying GCMS counter overflow
SAMPLE_TABLE_FILES_STG1.PNG	Stage 1 processing example of selected data files
SAMPLE_TABLE_FILES_STG2.PNG	Stage 2 processing example of selected data files.

/DOCUMENTS/

EIDB_A1.PDF
EIDB_A2.PDF
FS_CRUISE_OPS.PDF
GCMS_FS_USER_MANUAL.PDF

/FLIGHT_CHECKOUT/

F01-CO2.PDF	In-flight Checkout 1
F02_CO1.PDF	In-flight Checkout 2
F03_CO2.PDF	In-flight Checkout 3
F04_CO1.PDF	In-flight Checkout 4
F05_CO2.PDF	In-flight Checkout 5
F06_CO1.PDF	In-flight Checkout 6
F07_CO2.PDF	In-flight Checkout 7
F08_CO1.PDF	In-flight Checkout 8
F09_CO2.PDF	In-flight Checkout 9
F10_CO1.PDF	In-flight Checkout 10
F11_CO2.PDF	In-flight Checkout 11
F12_CO1.PDF	In-flight Checkout 12
NO_PRE-HEATING.PDF	In-flight No pre-heating Checkout
PRE-HEATING.PDF	In-flight pre-heating Checkout
F13_CO1B.PDF	In-flight Checkout 13
F14_CO2.PDF	In-flight Checkout 14
F15_CO1B.PDF	In-flight Checkout 15
BATTERY_DEPASSIVATION_1.PDF	In-flight Battery DePassivation #1
F16_CO1B.PDF	In-flight Checkout 16
BATTERY_DEPASSIVATION_2.PDF	In-flight Battery DePassivation #2
DESCENT_AS_CO1.PDF	Atmospheric Entry (plotted as FCO1)
ENTRY_PLOT_DESCENT.PDF	Atmospheric Entry (plotted as DESCENT Mission)

3.4.3.12 DATA DIRECTORY

All file folders below this initial directory will be given a name related to their content as a way to group the data sets. All of the data products for that data set will be located in the associated folder. Refer to Table 8 for a listing of the GCMS Flight Data Product Folders.

Certain calibration data, in-flight, EM or Flight Spare data may not be available in all processing stages.

4. DETAILED INTERFACE SPECIFICATIONS

4.1 SAMPLE LABELS

4.1.1 DATA LABEL – STAGE 2 PROCESSED SWEEP FILES

All Stage 2 processed GCMS Mass Sweep data files share the same file format. Every file is n rows by 177 columns: where n indicates the number of MS scans in the file and each column represents one parameter. Columns 1 – 3 indicate the starting time for each scan, each column using a differing time scale. The parameters recorded in columns 4 – 10 will vary dependant on the data (ion) source: refer to Table 6. Columns 13 – 154 contain the 142 measurements, converted to counts per second, acquired during each mass sweep.

This information applies to the files with names such as: **GCMS_1FS_STG2.TAB, GCMS_1FA_STG2.TAB, GCMS_#US[_X_Z]_STG2.TAB** and **GCMS_#UA[_X_Z]_STG2.TAB** where # identifies the data (ion) source (1 to 5), F or U indicate a Fractional or Unit mass scan, S or A indicate a Standard (75) or Alternate (25) ionization energy scan and the [optional] X and Z parameters indicate scans other than 2 – 141 and low power instrument operations mode respectively. The label file for the data table **GCMS_1US_STG2.TAB** is presented as an example. In the label file, we reference a format file containing the data table's formatting details. The format files utilize names structured as: **GCMS_#U_STG2.FMT** and **GCMS_1F_STG2.FMT**. The example included here is **GCMS_1U_STG2.FMT.**

The data in columns 4 – 10 is chosen for its relationship to the ion source that generated the data and is extracted from the instrument's housekeeping data and an entry profile**.** As a convenience to the dataset user, we had planned to integrate the information related to the descent profile (altitude, pressure and temperature) with our GCMS data. At the time of the GCMS dataset release, these data are not available for public release. We have chosen to retain these columns in the data table and set all values to zero (0.). This table presents the column labels being used. The data labels are fully defined in the format file associated with the individual ion source's data table.

Table 6. Identification of the Supplemental Data Added to the Archived Stage 2 & 3 Mass Sweeps Data Files for the Convenience of the User.

↓	← Column Label relationship to Ion Source →				
Column	**IS1**	**IS2**	**IS3**	**IS4**	**IS5**
4	ATM_ALT	UNK1	GC_TIME	GC_TIME	GC_TIME
5	ATM_PRSR	UNK2	UNK2	UNK2	UNK2
6	ATM_TMPR	UNK3	UNK3	UNK3	UNK3
7	INLETT	ACPT	GC1_TMPR	GC2_TMPR	GC3_TMPR
8	LINEP	ACPP	H2RESP	H2RESP	H2RESP
9	SHELLP	UN1	H2COLP	H2COLP	H2COLP
10	EC1T	UN2	H2TMPR	H2TMPR	H2TMPR

A normal scan uses a mass resolution of 1 per step. Periodically the scans using ion source 1 (IS1) are done at fractional resolution (0.125 per step). The quadrupole mass filter used in this instrument uses 2 RF sources: a 'high-frequency' oscillator for masses less than 20 and a 'low-frequency' oscillator for those masses 20 and above. When the oscillator's frequency is set for each scan and when it is changed, one sample period is necessary before the circuitry stabilizes. Thus the first sample of each scan and the first sample following a frequency change are not considered to be valid and mass stepping is momentarily halted permitting a valid measurement is obtained.

For all unit resolution full scan (mass range 2 – 141) files (GCMS_#U_*), columns 13 – 154 are labeled (in row 1) with X1, M2, M3, … M19, X20, M20, M21, … M141) where the label X# is used to indicate a column containing questionable/invalid data and M# indicates a column containing unit mass resolution data for mass '#'.

For the fractional resolution files (GCMS_1F_*), columns 13 – 154 are labeled (row 1) with X1, FR2, FR3, … FR141, FR142 where the label X# is used to indicate a column containing invalid data and FR# indicates a column containing

fractional resolution data for integration period '#'. The mass scan range for each sample (row) is obtained from columns 11 and 12. The mass resolution (increment) is 0.125 per sample. As noted, previously, care must be observed for the scan where mass 20 is sampled since the first sample at mass 20 is considered to be invalid and is repeated.

File GCMS_1US_STG2.LBL

```
PDS_VERSION_ID                = PDS3

/* FILE CHARACTERISTICS DATA ELEMENTS */

RECORD_TYPE                   = FIXED_LENGTH
RECORD_BYTES                  = 2100
FILE_RECORDS                  = 1251

/* DATA OBJECT POINTER IDENTIFICATION ELEMENTS */

^TABLE                        = ("GCMS_1US_STG2.TAB",2)

/* INSTRUMENT AND DETECTOR DESCRIPTIVE DATA ELEMENTS */

FILE_NAME                     = "GCMS_1US_STG2.TAB"
DATA_SET_ID                   = "HP-SSA-GCMS-3-FCO/DESCENT-V1.0"
DATA_SET_NAME                 = "HUYGENS TITAN GAS CHROMATOGRAPH
                                MASS SPEC 3 DESCENT V1.0"
PRODUCT_ID                    = "F11_GCMS_1US_STG2"
PRODUCT_NAME                  = "F11_GCMS_IS1_UNIT_STDIE_STG2"
MISSION_NAME                  = "CASSINI-HUYGENS"
INSTRUMENT_HOST_NAME          = "HUYGENS PROBE"
INSTRUMENT_HOST_ID            = HP
MISSION_PHASE_NAME            = "CRUISE"
                                /* FU_FCO2 */
PRODUCT_TYPE                  = RDR
                                /* EDR for RAW & RDR for Calibrated Data */
START_TIME                    = 2003-05-03T17:17:33.722
STOP_TIME                     = 2003-05-03T20:05:02.282
                                /* UTC e.g. 2005-01-14T00:00:00.000 */
                                /*     or 2005-014T00:00:00.000 */
                                /* Derived by combining the T0 and */
                                /* the instrument absolute times */
                                /*      or  */
                                /* when these data are not available */
                                /* the GCMS_GMT (telemetry packet) */
                                /* time is used. */
SPACECRAFT_CLOCK_START_COUNT  = 32355
SPACECRAFT_CLOCK_STOP_COUNT   = 8925985
                                /* (DDB + GCMS) clock time */
                                /* 1/64 second resolution. */
                                /* DDB clock is set to 0 at power on */
                                /* and reset to 0 at T0 (begin entry */
                                /* sequence). Post-T0 is indicated */
                                /* by adding 2^23 to the DDB clock value. */
NATIVE_START_TIME             = -1646.312
NATIVE_STOP_TIME              = 8396.516
                                /* Elapsed Time in seconds. */
                                /* a.k.a. Mission Elapsed Time (MET) */
                                /* Negative values indicate pre-T0 */
                                /*   No data is available immediately */
                                /*   prior to T0 so pre-T0 times may */
                                /*   be in error by 5-7 seconds. */
                                /* Positive values indicate post-T0 */
```

```
PRODUCT_CREATION_TIME          = 2006-06-16T12:47:43
PRODUCER_ID                    = "GCMS_TEAM"
PRODUCER_FULL_NAME             = "JOHN HABERMAN"
                                 /* & Jaime Demick-Montelara */
                                 /* & Eric Raaen */
PRODUCER_INSTITUTION_NAME      = "NASA GSFC"
TARGET_NAME                    = "TITAN"

/* INSTRUMENT DESCRIPTION */

INSTRUMENT_ID                  = "GCMS"
INSTRUMENT_NAME                = "GAS CHROMATOGRAPH MASS SPECTROMETER"
INSTRUMENT_TYPE                = "MASS SPECTROMETER"
DATA_QUALITY_ID                = 1
                                 /* DATA_QUALITY_DESC              = "1 = High
Quality ... 5 = Low Quality"
                                 /* Stage 1 Data must be converted to c/s */
                                 /* Stage 2 Data has been converted to c/s */
                                 /*  but MAY NOT be fully corrected for */
                                 /*  the counter overflow condition. This */
                                 /*  data has NOT yet been fully corrected */
                                 /*  for pulse counting system effects */
                                 /*  including pulse coincidence effects */
                                 /*  and system (electronics) effects. */
                                 /* Stage 3 Data has been converted to c/s */
                                 /*  and fully corrected by the team using */
                                 /*  pre- and post-launch instrument */
                                 /*  calibration data. */
INSTRUMENT_MODE_ID             = "FU_FCO2"
                                 /*   F11   */
                                 /* FU = Flown Unit, EU = Engineering Unit */
                                 /* FS = Flight Spare (Lab, Backup) Unit */
                                 /* SU = Spare Unit (Lab, Backup) */
                                 /* DESCENT indicates Entry Mission */
                                 /* FCO indicates Flight Check Out */
                                 /* GCO indicates Ground Check Out */
                                 /*  FCO1/GCO1 = Checkout Type 1 */
                                 /*  FCO1B/GCO1B = Checkout Type 1B */
                                 /*  FCO2/GCO2 = Checkout Type 2 */
                                 /* e.g., FU_DESCENT = 2005-01-14 Mission */

/* DATA OBJECT DEFINITION */

OBJECT                         = TABLE
   INTERCHANGE_FORMAT          = ASCII
   ROWS                        = 1251
   COLUMNS                     = 177
   ROW_BYTES                   = 2100
   DESCRIPTION                 = "Ion source 1 (MS) full scans (mass range: 2
                                 - 141 (MS)) at unit resolution and 75 eV
                                 ionization energy."

   ^STRUCTURE                  = "GCMS_1U_STG2.FMT"

END_OBJECT                     = TABLE
END
```

File GCMS_1U_STG2.FMT

```
OBJECT                         = COLUMN
       COLUMN_NUMBER            = 1
       NAME                     = "UTC_GCMS_TIME"
       UNIT                     = "TIME"
       DATA_TYPE                = CHARACTER
       START_BYTE               = 1
       BYTES                    = 23
       FORMAT                   = "A23"
       DESCRIPTION              = "UTC Reference time or GCMS_GMT time for this
                                  data record."
 END_OBJECT                     = COLUMN

 OBJECT                         = COLUMN
       COLUMN_NUMBER            = 2
       NAME                     = "ABS_TIME"
       UNIT                     = "N/A"
       DATA_TYPE                = ASCII_INTEGER
       START_BYTE               = 25
       BYTES                    = 10
       FORMAT                   = "I10"
       DESCRIPTION              = "(Spacecraft DDB + GCMS clock) time. Value
                                  set to zero at power on and at sequence
                                  start (T0). 2^23 is added to the value to
                                  indicate post T0 times. Each 'tic'
                                  represents 1/64 second."
 END_OBJECT                     = COLUMN

 OBJECT                         = COLUMN
       COLUMN_NUMBER            = 3
       NAME                     = "ABS_SEC"
       UNIT                     = "SECONDS"
       DATA_TYPE                = ASCII_REAL
       START_BYTE               = 36
       BYTES                    = 9
       FORMAT                   = "F9.3"
       DESCRIPTION              = "Time relative to spacecraft T0 event.
                                  Negative times indicate pre-T0. (aka MET)"
 END_OBJECT                     = COLUMN

 OBJECT                         = COLUMN
       COLUMN_NUMBER            = 4
       NAME                     = "ATM_ALT"
       UNIT                     = "KILOMETERS"
       DATA_TYPE                = ASCII_INTEGER
       START_BYTE               = 46
       BYTES                    = 9
       FORMAT                   = "I9"
       DESCRIPTION              = "Ambient Altitude from the mission planning
                                  model. Refer to the DTWG & HASI data sets
                                  for the correct value."
 END_OBJECT                     = COLUMN

 OBJECT                         = COLUMN
       COLUMN_NUMBER            = 5
       NAME                     = "ATM_PRSR"
       UNIT                     = "MILLIBARS"
       DATA_TYPE                = ASCII_INTEGER
       START_BYTE               = 56
       BYTES                    = 10
       FORMAT                   = "I10"
       DESCRIPTION              = "Ambient Pressure from the mission planning
                                  model. Refer to the DTWG & HASI data sets
                                  for the correct value."
```

```
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 6
      NAME                    = "ATM_TMPR"
      UNIT                    = "KELVIN"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 67
      BYTES                   = 10
      FORMAT                  = "I10"
      DESCRIPTION             = "Ambient Temperature from the mission
                                planning model. Refer to the DTWG & HASI
                                data sets for the correct value."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 7
      NAME                    = "INLETT"
      UNIT                    = "DEG. C"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 78
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "GCMS sample inlet line temperature from
                                instrument housekeeping."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 8
      NAME                    = "LINEP"
      UNIT                    = "BARS"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 87
      BYTES                   = 7
      FORMAT                  = "F7.3"
      DESCRIPTION             = "GCMS sample inlet line pressure from
                                instrument housekeeping."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 9
      NAME                    = "SHELLP"
      UNIT                    = "BARS"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 95
      BYTES                   = 8
      FORMAT                  = "F8.4"
      DESCRIPTION             = "GCMS shell pressure from instrument
                                housekeeping."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 10
      NAME                    = "EC1T"
      UNIT                    = "DEG. C"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 104
      BYTES                   = 6
      FORMAT                  = "F6.1"
      DESCRIPTION             = "GCMS enrichment cell 1 temperature from
                                instrument housekeeping."
END_OBJECT                    = COLUMN
```

```
OBJECT                          = COLUMN
      COLUMN_NUMBER             = 11
      NAME                      = "START"
      UNIT                      = "DALTONS"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 111
      BYTES                     = 7
      FORMAT                    = "I7"
      DESCRIPTION               = "MS scan start mass, typ. 2"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 12
      NAME                      = "END"
      UNIT                      = "DALTONS"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 119
      BYTES                     = 5
      FORMAT                    = "I5"
      DESCRIPTION               = "MS scan end mass, typ. 141"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 13
      NAME                      = "X1"
      UNIT                      = "COUNTS PER SECOND"
      DATA_TYPE                 = ASCII_REAL
      START_BYTE                = 125
      BYTES                     = 11
      FORMAT                    = "F11.1"
      DESCRIPTION               = "Initial MS sample at Start mass noted in
                                  column 11 (START).  ALWAYS INVALID!"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 14
      NAME                      = "SH2"
      UNIT                      = "COUNTS PER SECOND"
      DATA_TYPE                 = ASCII_REAL
      START_BYTE                = 137
      BYTES                     = 11
      FORMAT                    = "F11.1"
      DESCRIPTION               = "Repeat sample at Start mass noted in column
                                  11: typ. mass 2"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 15
      NAME                      = "SH3"
      UNIT                      = "COUNTS PER SECOND"
      DATA_TYPE                 = ASCII_REAL
      START_BYTE                = 149
      BYTES                     = 11
      FORMAT                    = "F11.1"
      DESCRIPTION               = "Sample at previous mass plus 1: typ. mass 3"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 16
      NAME                      = "SH4"
      UNIT                      = "COUNTS PER SECOND"
      DATA_TYPE                 = ASCII_REAL
      START_BYTE                = 161
```

```
      BYTES                  = 11
      FORMAT                 = "F11.1"
      DESCRIPTION            = "Sample at previous mass plus 1: typ. mass 4"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 17
      NAME                   = "SH5"
      UNIT                   = "COUNTS PER SECOND"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 173
      BYTES                  = 11
      FORMAT                 = "F11.1"
      DESCRIPTION            = "Sample at previous mass plus 1: typ. mass 5"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 18
      NAME                   = "SH6"
      UNIT                   = "COUNTS PER SECOND"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 185
      BYTES                  = 11
      FORMAT                 = "F11.1"
      DESCRIPTION            = "Sample at previous mass plus 1: typ. mass 6"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 19
      NAME                   = "SH7"
      UNIT                   = "COUNTS PER SECOND"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 197
      BYTES                  = 11
      FORMAT                 = "F11.1"
      DESCRIPTION            = "Sample at previous mass plus 1: typ. mass 7"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 20
      NAME                   = "SH8"
      UNIT                   = "COUNTS PER SECOND"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 209
      BYTES                  = 11
      FORMAT                 = "F11.1"
      DESCRIPTION            = "Sample at previous mass plus 1: typ. mass 8"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 21
      NAME                   = "SH9"
      UNIT                   = "COUNTS PER SECOND"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 221
      BYTES                  = 11
      FORMAT                 = "F11.1"
      DESCRIPTION            = "Sample at previous mass plus 1: typ. mass 9"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 22
      NAME                   = "SH10"
```

```
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 233
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 10"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 23
      NAME                    = "SH11"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 245
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 11"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 24
      NAME                    = "SH12"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 257
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 12"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 25
      NAME                    = "SH13"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 269
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 13"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 26
      NAME                    = "SH14"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 281
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 14"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 27
      NAME                    = "SH15"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 293
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 15"
END_OBJECT                    = COLUMN
```

```
OBJECT                          = COLUMN
      COLUMN_NUMBER             = 28
      NAME                      = "SH16"
      UNIT                      = "COUNTS PER SECOND"
      DATA_TYPE                 = ASCII_REAL
      START_BYTE                = 305
      BYTES                     = 11
      FORMAT                    = "F11.1"
      DESCRIPTION               = "Sample at previous mass plus 1: typ. mass 16"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 29
      NAME                      = "SH17"
      UNIT                      = "COUNTS PER SECOND"
      DATA_TYPE                 = ASCII_REAL
      START_BYTE                = 317
      BYTES                     = 11
      FORMAT                    = "F11.1"
      DESCRIPTION               = "Sample at previous mass plus 1: typ. mass 17"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 30
      NAME                      = "SH18"
      UNIT                      = "COUNTS PER SECOND"
      DATA_TYPE                 = ASCII_REAL
      START_BYTE                = 329
      BYTES                     = 11
      FORMAT                    = "F11.1"
      DESCRIPTION               = "Sample at previous mass plus 1: typ. mass 18"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 31
      NAME                      = "SH19"
      UNIT                      = "COUNTS PER SECOND"
      DATA_TYPE                 = ASCII_REAL
      START_BYTE                = 341
      BYTES                     = 11
      FORMAT                    = "F11.1"
      DESCRIPTION               = "Sample at previous mass plus 1: typ. mass 19"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 32
      NAME                      = "SH20"
      UNIT                      = "COUNTS PER SECOND"
      DATA_TYPE                 = ASCII_REAL
      START_BYTE                = 353
      BYTES                     = 11
      FORMAT                    = "F11.1"
      DESCRIPTION               = "Sample at previous mass plus 1: typ. mass 20
                                  - The first measurement at mass 2 or 20 is
                                  ALWAYS INVALID."
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 33
      NAME                      = "SH21"
      UNIT                      = "COUNTS PER SECOND"
      DATA_TYPE                 = ASCII_REAL
      START_BYTE                = 365
```

```
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "If previous sample mass was 20, repeat the
                                measurement elxe sample at previous mass
                                plus 1: typ. mass 20"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 34
      NAME                    = "SH22"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 377
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 21"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 35
      NAME                    = "SH23"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 389
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 22"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 36
      NAME                    = "SH24"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 401
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 23"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 37
      NAME                    = "SH25"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 413
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 24"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 38
      NAME                    = "SH26"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 425
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 25"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
```

```
      COLUMN_NUMBER           = 39
      NAME                    = "SH27"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 437
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 26"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 40
      NAME                    = "SH28"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 449
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 27"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 41
      NAME                    = "SH29"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 461
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 28"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 42
      NAME                    = "SH30"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 473
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 29"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 43
      NAME                    = "SH31"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 485
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 30"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 44
      NAME                    = "SH32"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 497
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 31"
```

```
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 45
      NAME                    = "SH33"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 509
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 32"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 46
      NAME                    = "SH34"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 521
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 33"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 47
      NAME                    = "SH35"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 533
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 34"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 48
      NAME                    = "SH36"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 545
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 35"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 49
      NAME                    = "SH37"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 557
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 36"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 50
      NAME                    = "SH38"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 569
```

```
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 37"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 51
      NAME                    = "SH39"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 581
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 38"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 52
      NAME                    = "SH40"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 593
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 39"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 53
      NAME                    = "SH41"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 605
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 40"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 54
      NAME                    = "SH42"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 617
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 41"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 55
      NAME                    = "SH43"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 629
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 42"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 56
      NAME                    = "SH44"
```

```
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 641
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 43"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 57
      NAME                    = "SH45"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 653
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 44"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 58
      NAME                    = "SH46"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 665
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 45"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 59
      NAME                    = "SH47"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 677
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 46"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 60
      NAME                    = "SH48"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 689
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 47"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 61
      NAME                    = "SH49"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 701
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 48"
END_OBJECT                    = COLUMN
```

```
OBJECT                         = COLUMN
      COLUMN_NUMBER            = 62
      NAME                     = "SH50"
      UNIT                     = "COUNTS PER SECOND"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 713
      BYTES                    = 11
      FORMAT                   = "F11.1"
      DESCRIPTION              = "Sample at previous mass plus 1: typ. mass 49"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 63
      NAME                     = "SH51"
      UNIT                     = "COUNTS PER SECOND"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 725
      BYTES                    = 11
      FORMAT                   = "F11.1"
      DESCRIPTION              = "Sample at previous mass plus 1: typ. mass 50"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 64
      NAME                     = "SH52"
      UNIT                     = "COUNTS PER SECOND"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 737
      BYTES                    = 11
      FORMAT                   = "F11.1"
      DESCRIPTION              = "Sample at previous mass plus 1: typ. mass 51"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 65
      NAME                     = "SH53"
      UNIT                     = "COUNTS PER SECOND"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 749
      BYTES                    = 11
      FORMAT                   = "F11.1"
      DESCRIPTION              = "Sample at previous mass plus 1: typ. mass 52"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 66
      NAME                     = "SH54"
      UNIT                     = "COUNTS PER SECOND"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 761
      BYTES                    = 11
      FORMAT                   = "F11.1"
      DESCRIPTION              = "Sample at previous mass plus 1: typ. mass 53"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 67
      NAME                     = "SH55"
      UNIT                     = "COUNTS PER SECOND"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 773
      BYTES                    = 11
      FORMAT                   = "F11.1"
```

```
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 54"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 68
      NAME                    = "SH56"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 785
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 55"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 69
      NAME                    = "SH57"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 797
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 56"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 70
      NAME                    = "SH58"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 809
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 57"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 71
      NAME                    = "SH59"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 821
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 58"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 72
      NAME                    = "SH60"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 833
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 59"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 73
      NAME                    = "SH61"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
```

```
      START_BYTE              = 845
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 60"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 74
      NAME                    = "SH62"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 857
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 61"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 75
      NAME                    = "SH63"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 869
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 62"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 76
      NAME                    = "SH64"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 881
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 63"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 77
      NAME                    = "SH65"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 893
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 64"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 78
      NAME                    = "SH66"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 905
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 65"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 79
```

```
      NAME                    = "SH67"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 917
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 66"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 80
      NAME                    = "SH68"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 929
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 67"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 81
      NAME                    = "SH69"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 941
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 68"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 82
      NAME                    = "SH70"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 953
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 69"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 83
      NAME                    = "SH71"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 965
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 70"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 84
      NAME                    = "SH72"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 977
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 71"
END_OBJECT                    = COLUMN
```

```
OBJECT                          = COLUMN
      COLUMN_NUMBER             = 85
      NAME                      = "SH73"
      UNIT                      = "COUNTS PER SECOND"
      DATA_TYPE                 = ASCII_REAL
      START_BYTE                = 989
      BYTES                     = 11
      FORMAT                    = "F11.1"
      DESCRIPTION               = "Sample at previous mass plus 1: typ. mass 72"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 86
      NAME                      = "SH74"
      UNIT                      = "COUNTS PER SECOND"
      DATA_TYPE                 = ASCII_REAL
      START_BYTE                = 1001
      BYTES                     = 11
      FORMAT                    = "F11.1"
      DESCRIPTION               = "Sample at previous mass plus 1: typ. mass 73"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 87
      NAME                      = "SH75"
      UNIT                      = "COUNTS PER SECOND"
      DATA_TYPE                 = ASCII_REAL
      START_BYTE                = 1013
      BYTES                     = 11
      FORMAT                    = "F11.1"
      DESCRIPTION               = "Sample at previous mass plus 1: typ. mass 74"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 88
      NAME                      = "SH76"
      UNIT                      = "COUNTS PER SECOND"
      DATA_TYPE                 = ASCII_REAL
      START_BYTE                = 1025
      BYTES                     = 11
      FORMAT                    = "F11.1"
      DESCRIPTION               = "Sample at previous mass plus 1: typ. mass 75"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 89
      NAME                      = "SH77"
      UNIT                      = "COUNTS PER SECOND"
      DATA_TYPE                 = ASCII_REAL
      START_BYTE                = 1037
      BYTES                     = 11
      FORMAT                    = "F11.1"
      DESCRIPTION               = "Sample at previous mass plus 1: typ. mass 76"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 90
      NAME                      = "SH78"
      UNIT                      = "COUNTS PER SECOND"
      DATA_TYPE                 = ASCII_REAL
      START_BYTE                = 1049
      BYTES                     = 11
```

```
      FORMAT                 = "F11.1"
      DESCRIPTION            = "Sample at previous mass plus 1: typ. mass 77"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 91
      NAME                   = "SH79"
      UNIT                   = "COUNTS PER SECOND"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 1061
      BYTES                  = 11
      FORMAT                 = "F11.1"
      DESCRIPTION            = "Sample at previous mass plus 1: typ. mass 78"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 92
      NAME                   = "SH80"
      UNIT                   = "COUNTS PER SECOND"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 1073
      BYTES                  = 11
      FORMAT                 = "F11.1"
      DESCRIPTION            = "Sample at previous mass plus 1: typ. mass 79"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 93
      NAME                   = "SH81"
      UNIT                   = "COUNTS PER SECOND"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 1085
      BYTES                  = 11
      FORMAT                 = "F11.1"
      DESCRIPTION            = "Sample at previous mass plus 1: typ. mass 80"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 94
      NAME                   = "SH82"
      UNIT                   = "COUNTS PER SECOND"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 1097
      BYTES                  = 11
      FORMAT                 = "F11.1"
      DESCRIPTION            = "Sample at previous mass plus 1: typ. mass 81"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 95
      NAME                   = "SH83"
      UNIT                   = "COUNTS PER SECOND"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 1109
      BYTES                  = 11
      FORMAT                 = "F11.1"
      DESCRIPTION            = "Sample at previous mass plus 1: typ. mass 82"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 96
      NAME                   = "SH84"
      UNIT                   = "COUNTS PER SECOND"
```

```
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1121
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 83"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 97
      NAME                    = "SH85"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1133
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 84"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 98
      NAME                    = "SH86"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1145
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 85"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 99
      NAME                    = "SH87"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1157
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 86"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 100
      NAME                    = "SH88"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1169
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 87"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 101
      NAME                    = "SH89"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1181
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 88"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
```

```
      COLUMN_NUMBER           = 102
      NAME                    = "SH90"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1193
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 89"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 103
      NAME                    = "SH91"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1205
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 90"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 104
      NAME                    = "SH92"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1217
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 91"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 105
      NAME                    = "SH93"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1229
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 92"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 106
      NAME                    = "SH94"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1241
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 93"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 107
      NAME                    = "SH95"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1253
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 94"
```

```
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 108
      NAME                    = "SH96"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1265
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 95"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 109
      NAME                    = "SH97"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1277
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 96"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 110
      NAME                    = "SH98"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1289
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 97"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 111
      NAME                    = "SH99"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1301
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 98"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 112
      NAME                    = "SH100"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1313
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 99"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 113
      NAME                    = "SH101"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1325
```

```
      BYTES                  = 11
      FORMAT                 = "F11.1"
      DESCRIPTION            = "Sample at previous mass plus 1: typ. mass 100"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 114
      NAME                   = "SH102"
      UNIT                   = "COUNTS PER SECOND"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 1337
      BYTES                  = 11
      FORMAT                 = "F11.1"
      DESCRIPTION            = "Sample at previous mass plus 1: typ. mass 101"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 115
      NAME                   = "SH103"
      UNIT                   = "COUNTS PER SECOND"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 1349
      BYTES                  = 11
      FORMAT                 = "F11.1"
      DESCRIPTION            = "Sample at previous mass plus 1: typ. mass 102"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 116
      NAME                   = "SH104"
      UNIT                   = "COUNTS PER SECOND"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 1361
      BYTES                  = 11
      FORMAT                 = "F11.1"
      DESCRIPTION            = "Sample at previous mass plus 1: typ. mass 103"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 117
      NAME                   = "SH105"
      UNIT                   = "COUNTS PER SECOND"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 1373
      BYTES                  = 11
      FORMAT                 = "F11.1"
      DESCRIPTION            = "Sample at previous mass plus 1: typ. mass 104"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 118
      NAME                   = "SH106"
      UNIT                   = "COUNTS PER SECOND"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 1385
      BYTES                  = 11
      FORMAT                 = "F11.1"
      DESCRIPTION            = "Sample at previous mass plus 1: typ. mass 105"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 119
      NAME                   = "SH107"
```

```
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1397
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 106"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 120
      NAME                    = "SH108"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1409
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 107"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 121
      NAME                    = "SH109"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1421
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 108"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 122
      NAME                    = "SH110"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1433
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 109"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 123
      NAME                    = "SH111"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1445
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 110"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 124
      NAME                    = "SH112"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1457
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 111"
END_OBJECT                    = COLUMN
```

```
OBJECT                         = COLUMN
      COLUMN_NUMBER            = 125
      NAME                     = "SH113"
      UNIT                     = "COUNTS PER SECOND"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 1469
      BYTES                    = 11
      FORMAT                   = "F11.1"
      DESCRIPTION              = "Sample at previous mass plus 1: typ. mass 112"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 126
      NAME                     = "SH114"
      UNIT                     = "COUNTS PER SECOND"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 1481
      BYTES                    = 11
      FORMAT                   = "F11.1"
      DESCRIPTION              = "Sample at previous mass plus 1: typ. mass 113"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 127
      NAME                     = "SH115"
      UNIT                     = "COUNTS PER SECOND"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 1493
      BYTES                    = 11
      FORMAT                   = "F11.1"
      DESCRIPTION              = "Sample at previous mass plus 1: typ. mass 114"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 128
      NAME                     = "SH116"
      UNIT                     = "COUNTS PER SECOND"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 1505
      BYTES                    = 11
      FORMAT                   = "F11.1"
      DESCRIPTION              = "Sample at previous mass plus 1: typ. mass 115"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 129
      NAME                     = "SH117"
      UNIT                     = "COUNTS PER SECOND"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 1517
      BYTES                    = 11
      FORMAT                   = "F11.1"
      DESCRIPTION              = "Sample at previous mass plus 1: typ. mass 116"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 130
      NAME                     = "SH118"
      UNIT                     = "COUNTS PER SECOND"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 1529
      BYTES                    = 11
      FORMAT                   = "F11.1"
```

```
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 117"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 131
      NAME                    = "SH119"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1541
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 118"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 132
      NAME                    = "SH120"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1553
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 119"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 133
      NAME                    = "SH121"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1565
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 120"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 134
      NAME                    = "SH122"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1577
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 121"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 135
      NAME                    = "SH123"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1589
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 122"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 136
      NAME                    = "SH124"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
```

```
      START_BYTE              = 1601
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 123"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 137
      NAME                    = "SH125"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1613
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 124"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 138
      NAME                    = "SH126"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1625
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 125"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 139
      NAME                    = "SH127"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1637
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 126"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 140
      NAME                    = "SH128"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1649
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 127"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 141
      NAME                    = "SH129"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1661
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 128"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 142
```

```
      NAME                    = "SH130"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1673
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 129"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 143
      NAME                    = "SH131"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1685
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 130"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 144
      NAME                    = "SH132"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1697
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 131"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 145
      NAME                    = "SH133"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1709
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 132"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 146
      NAME                    = "SH134"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1721
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 133"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 147
      NAME                    = "SH135"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1733
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Sample at previous mass plus 1: typ. mass 134"
END_OBJECT                    = COLUMN
```

```
OBJECT                         = COLUMN
      COLUMN_NUMBER            = 148
      NAME                     = "SH136"
      UNIT                     = "COUNTS PER SECOND"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 1745
      BYTES                    = 11
      FORMAT                   = "F11.1"
      DESCRIPTION              = "Sample at previous mass plus 1: typ. mass 135"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 149
      NAME                     = "SH137"
      UNIT                     = "COUNTS PER SECOND"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 1757
      BYTES                    = 11
      FORMAT                   = "F11.1"
      DESCRIPTION              = "Sample at previous mass plus 1: typ. mass 136"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 150
      NAME                     = "SH138"
      UNIT                     = "COUNTS PER SECOND"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 1769
      BYTES                    = 11
      FORMAT                   = "F11.1"
      DESCRIPTION              = "Sample at previous mass plus 1: typ. mass 137"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 151
      NAME                     = "SH139"
      UNIT                     = "COUNTS PER SECOND"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 1781
      BYTES                    = 11
      FORMAT                   = "F11.1"
      DESCRIPTION              = "Sample at previous mass plus 1: typ. mass 138"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 152
      NAME                     = "SH140"
      UNIT                     = "COUNTS PER SECOND"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 1793
      BYTES                    = 11
      FORMAT                   = "F11.1"
      DESCRIPTION              = "Sample at previous mass plus 1: typ. mass 139"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 153
      NAME                     = "SH141"
      UNIT                     = "COUNTS PER SECOND"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 1805
      BYTES                    = 11
```

```
      FORMAT                 = "F11.1"
      DESCRIPTION            = "Sample at previous mass plus 1: typ. mass 140"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 154
      NAME                   = "SH142"
      UNIT                   = "COUNTS PER SECOND"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 1817
      BYTES                  = 11
      FORMAT                 = "F11.1"
      DESCRIPTION            = "Sample at previous mass plus 1: typ. mass
                               141. Last sample (END) as noted in column 12."
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 155
      NAME                   = "T1A"
      UNIT                   = "COUNTS PER SECOND"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 1829
      BYTES                  = 11
      FORMAT                 = "F11.1"
      DESCRIPTION            = "Total ion count, ion source 1, sample 1"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 156
      NAME                   = "T1B"
      UNIT                   = "COUNTS PER SECOND"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 1841
      BYTES                  = 11
      FORMAT                 = "F11.1"
      DESCRIPTION            = "Total ion count, ion source 1, sample 2"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 157
      NAME                   = "T1C"
      UNIT                   = "COUNTS PER SECOND"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 1853
      BYTES                  = 11
      FORMAT                 = "F11.1"
      DESCRIPTION            = "Total ion count, ion source 1, sample 3"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 158
      NAME                   = "T2A"
      UNIT                   = "COUNTS PER SECOND"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 1865
      BYTES                  = 11
      FORMAT                 = "F11.1"
      DESCRIPTION            = "Total ion count, ion source 2, sample 1"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 159
      NAME                   = "T2B"
```

```
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1877
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Total ion count, ion source 2, sample 2"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 160
      NAME                    = "T2C"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1889
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Total ion count, ion source 2, sample 3"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 161
      NAME                    = "T3A"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1901
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Total ion count, ion source 3, sample 1"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 162
      NAME                    = "T3B"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1913
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Total ion count, ion source 3, sample 2"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 163
      NAME                    = "T3C"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1925
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Total ion count, ion source 3, sample 3"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 164
      NAME                    = "T4A"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1937
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Total ion count, ion source 4, sample 1"
END_OBJECT                    = COLUMN
```

```
OBJECT                         = COLUMN
      COLUMN_NUMBER            = 165
      NAME                     = "T4B"
      UNIT                     = "COUNTS PER SECOND"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 1949
      BYTES                    = 11
      FORMAT                   = "F11.1"
      DESCRIPTION              = "Total ion count, ion source 4, sample 2"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 166
      NAME                     = "T4C"
      UNIT                     = "COUNTS PER SECOND"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 1961
      BYTES                    = 11
      FORMAT                   = "F11.1"
      DESCRIPTION              = "Total ion count, ion source 4, sample 3"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 167
      NAME                     = "T5A"
      UNIT                     = "COUNTS PER SECOND"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 1973
      BYTES                    = 11
      FORMAT                   = "F11.1"
      DESCRIPTION              = "Total ion count, ion source 5, sample 1"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 168
      NAME                     = "T5B"
      UNIT                     = "COUNTS PER SECOND"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 1985
      BYTES                    = 11
      FORMAT                   = "F11.1"
      DESCRIPTION              = "Total ion count, ion source 5, sample 2"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 169
      NAME                     = "T5C"
      UNIT                     = "COUNTS PER SECOND"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 1997
      BYTES                    = 11
      FORMAT                   = "F11.1"
      DESCRIPTION              = "Total ion count, ion source 5, sample 3"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 170
      NAME                     = "SEQ_CNTR"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 2009
      BYTES                    = 10
      FORMAT                   = "I10"
```

```
      DESCRIPTION             = "GCMS counter. Refer to the GCMS Software
                                User's Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 171
      NAME                    = "GCMS_GMT"
      UNIT                    = "TIME"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 2020
      BYTES                   = 13
      FORMAT                  = "F13.3"
      DESCRIPTION             = "Spacecraft Event Time (SCET) corresponding
                                with this data record."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 172
      NAME                    = "GCMS_DATE"
      UNIT                    = "TIME"
      DATA_TYPE               = CHARACTER
      START_BYTE              = 2034
      BYTES                   = 11
      FORMAT                  = "A11"
      DESCRIPTION             = "SCET Date (2005-01-14)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 173
      NAME                    = "GCMS_TIME"
      UNIT                    = "TIME"
      DATA_TYPE               = CHARACTER
      START_BYTE              = 2046
      BYTES                   = 14
      FORMAT                  = "A14"
      DESCRIPTION             = "SCET Time (hh:mm:ss.000)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 174
      NAME                    = "AB"
      UNIT                    = "N/A"
      DATA_TYPE               = CHARACTER
      START_BYTE              = 2061
      BYTES                   = 4
      FORMAT                  = "A4"
      DESCRIPTION             = "Telemetry stream for this data record.
                                Always B."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 175
      NAME                    = "SUBSWP"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 2066
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "GCMS subsweep. Indicates instrument's
                                operating mode. Refer to GCMS Software
                                User's Manual for bit definitions."
END_OBJECT                    = COLUMN
```

```
OBJECT                          = COLUMN
      COLUMN_NUMBER             = 176
      NAME                      = "SCN_CNT"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 2075
      BYTES                     = 9
      FORMAT                    = "I9"
      DESCRIPTION               = "GCMS scan counter. Refer to the GCMS
                                  Software User's Manual for information."
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 177
      NAME                      = "MET_TIME"
      UNIT                      = "SECONDS"
      DATA_TYPE                 = ASCII_REAL
      START_BYTE                = 2085
      BYTES                     = 13
      FORMAT                    = "F13.6"
      DESCRIPTION               = "Mission Elapsed Time. 86400 is added to the
                                  real time to indicate post-T0 data."
END_OBJECT                      = COLUMN
```

4.1.2 DATA LABEL – STAGE 1 RAW DATA SWEEP FILES

One format has been used for all of the Stage 1 processed GCMS mass sweep data files. Each file is n rows by 235 columns: where n indicates the number of MS scans in the file and each column represents one parameter. The entries in columns 1 – 20 and 235 contain information extracted from the original "raw" data stream and converted to meaningful values. Columns 1 – 3 indicate the starting time for a scan, using different time scales. Columns 4 – 20 contain date, time and scan mode information extracted from this telemetry or the selected values extracted from the housekeeping telemetry relevant to the specific scan (row). The values in columns 21 – 234 are the 'raw' values extracted from the original telemetry and converted from binary to their corresponding 8-bit numbers.

The label file for the data table **GCMS_1US_STG1.TAB** is presented below. All of these data tables use the same format and the format file **GCMS_ISALL_STG1.FMT** is also included.

File GCMS_1US_STG1.LBL

```
PDS_VERSION_ID                  = PDS3

/* FILE CHARACTERISTICS DATA ELEMENTS */

RECORD_TYPE                     = FIXED_LENGTH
RECORD_BYTES                    = 1656
FILE_RECORDS                    = 2394

/* DATA OBJECT POINTER IDENTIFICATION ELEMENTS */

^TABLE                          = ("GCMS_1US_STG1.TAB",2)

/* INSTRUMENT AND DETECTOR DESCRIPTIVE DATA ELEMENTS */

FILE_NAME                       = "GCMS_1US_STG1.TAB"
DATA_SET_ID                     = "HP-SSA-GCMS-3-FCO/DESCENT-V1.0"
DATA_SET_NAME                   = "HUYGENS TITAN GAS CHROMATOGRAPH
                                  MASS SPEC 3 DESCENT V1.0"
```

```
PRODUCT_ID                      = "F12_GCMS_1US_STG1"
PRODUCT_NAME                    = "F12_GCMS_IS1_UNIT_STDIE_STG1"
MISSION_NAME                    = "CASSINI-HUYGENS"
INSTRUMENT_HOST_NAME            = "HUYGENS PROBE"
INSTRUMENT_HOST_ID              = HP
MISSION_PHASE_NAME              = "CRUISE"
                                  /* FU_FCO1 */
PRODUCT_TYPE                    = RDR
                                  /* EDR for RAW & RDR for Calibrated Data */
START_TIME                      = 2003-09-18T02:55:45.595
STOP_TIME                       = 2003-09-18T05:41:12.154
                                  /* UTC e.g. 2005-01-14T00:00:00.000 */
                                  /*     or 2005-014T00:00:00.000 */
                                  /* Derived by combining the T0 and */
                                  /* the instrument absolute times */
                                  /*      or  */
                                  /* when these data are not available */
                                  /* the GCMS_GMT (telemetry packet) */
                                  /* time is used. */
SPACECRAFT_CLOCK_START_COUNT    = 34941
SPACECRAFT_CLOCK_STOP_COUNT     = 8925889
                                  /* (DDB + GCMS) clock time */
                                  /* 1/64 second resolution. */
                                  /* DDB clock is set to 0 at power on */
                                  /* and reset to 0 at T0 (begin entry */
                                  /* sequence). Post-T0 is indicated */
                                  /* by adding 2^23 to the DDB clock value. */
NATIVE_START_TIME               = -1525.906
NATIVE_STOP_TIME                = 8395.016
                                  /* Elapsed Time in seconds. */
                                  /* a.k.a. Mission Elapsed Time (MET) */
                                  /* Negative values indicate pre-T0 */
                                  /*   No data is available immediately */
                                  /*   prior to T0 so pre-T0 times may */
                                  /*   be in error by 5-7 seconds. */
                                  /* Positive values indicate post-T0 */
PRODUCT_CREATION_TIME           = 2006-06-15T16:53:22
PRODUCER_ID                     = "GCMS_TEAM"
PRODUCER_FULL_NAME              = "JOHN HABERMAN"
                                  /* & Jaime Demick-Montelara */
                                  /* & Eric Raaen */
PRODUCER_INSTITUTION_NAME       = "NASA GSFC"
TARGET_NAME                     = "TITAN"

/* INSTRUMENT DESCRIPTION */

INSTRUMENT_ID                   = "GCMS"
INSTRUMENT_NAME                 = "GAS CHROMATOGRAPH MASS SPECTROMETER"
INSTRUMENT_TYPE                 = "MASS SPECTROMETER"
DATA_QUALITY_ID                 = 1
                                  /* DATA_QUALITY_DESC              = "1 = High
Quality ... 5 = Low Quality"
                                  /* Stage 1 Data must be converted to c/s */
                                  /* Stage 2 Data has been converted to c/s */
                                  /*  but MAY NOT be fully corrected for */
                                  /*  the counter overflow condition. This */
                                  /*  data has NOT yet been fully corrected */
                                  /*  for pulse counting system effects */
                                  /*  including pulse coincidence effects */
                                  /*  and system (electronics) effects. */
                                  /* Stage 3 Data has been converted to c/s */
                                  /*  and fully corrected by the team using */
                                  /*  pre- and post-launch instrument */
```

```
                                  /*  calibration data. */
INSTRUMENT_MODE_ID              = "FU_FCO1"
                                  /*   F12   */
                                  /* FU = Flown Unit, EU = Engineering Unit */
                                  /* FS = Flight Spare (Lab, Backup) Unit */
                                  /* SU = Spare Unit (Lab, Backup) */
                                  /* DESCENT indicates Entry Mission */
                                  /* FCO indicates Flight Check Out */
                                  /* GCO indicates Ground Check Out */
                                  /*  FCO1/GCO1 = Checkout Type 1 */
                                  /*  FCO1B/GCO1B = Checkout Type 1B */
                                  /*  FCO2/GCO2 = Checkout Type 2 */
                                  /* e.g., FU_DESCENT = 2005-01-14 Mission */

/* DATA OBJECT DEFINITION */

OBJECT                          = TABLE
   INTERCHANGE_FORMAT           = ASCII
   ROWS                         = 2394
   COLUMNS                      = 235
   ROW_BYTES                    = 1656
   DESCRIPTION                  = "Ion source 1 (MS) full scans (mass range: 2
                                  - 141 (MS)) at unit resolution and 75 eV
                                  ionization energy."

   ^STRUCTURE                   = "GCMS_ISALL_STG1.FMT"

END_OBJECT                      = TABLE
END
```

GCMS_ISALL_STG1.FMT

```
OBJECT                         = COLUMN
       COLUMN_NUMBER            = 1
       NAME                     = "UTC_GCMS_TIME"
       UNIT                     = "TIME"
       DATA_TYPE                = CHARACTER
       START_BYTE               = 1
       BYTES                    = 23
       FORMAT                   = "A23"
       DESCRIPTION              = "UTC Reference time or GCMS_GMT time for this
                                  data record."
 END_OBJECT                     = COLUMN

 OBJECT                         = COLUMN
       COLUMN_NUMBER            = 2
       NAME                     = "ABS_T"
       UNIT                     = "N/A"
       DATA_TYPE                = ASCII_INTEGER
       START_BYTE               = 25
       BYTES                    = 7
       FORMAT                   = "I7"
       DESCRIPTION              = "(Spacecraft DDB + GCMS clock) time. Value
                                  starts at zero at power on and is reset to
                                  zero at sequence start (T0). 2^23 is added
                                  to the value to indicate post T0 times. Each
                                  'tic' represents 1/64 second."
 END_OBJECT                     = COLUMN

 OBJECT                         = COLUMN
```

```
      COLUMN_NUMBER           = 3
      NAME                    = "SCNDS"
      UNIT                    = "SECONDS"
      DATA_TYPE               = CHARACTER
      START_BYTE              = 33
      BYTES                   = 9
      FORMAT                  = "A9"
      DESCRIPTION             = "Time relative to spacecraft T0 event.
                                Negative times indicate pre-T0."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 4
      NAME                    = "GCMS_GMT"
      UNIT                    = "TIME"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 43
      BYTES                   = 13
      FORMAT                  = "F13.3"
      DESCRIPTION             = "Spacecraft Event Time (SCET) corresponding
                                with this data record (calculated from
                                columns 21 - 28.)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 5
      NAME                    = "DATE"
      UNIT                    = "TIME"
      DATA_TYPE               = CHARACTER
      START_BYTE              = 57
      BYTES                   = 11
      FORMAT                  = "A11"
      DESCRIPTION             = "SCET Date (2005-01-14)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 6
      NAME                    = "TIME"
      UNIT                    = "TIME"
      DATA_TYPE               = CHARACTER
      START_BYTE              = 69
      BYTES                   = 14
      FORMAT                  = "A14"
      DESCRIPTION             = "SCET Time (hh:mm:ss.000)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 7
      NAME                    = "STREAM"
      UNIT                    = "N/A"
      DATA_TYPE               = CHARACTER
      START_BYTE              = 84
      BYTES                   = 8
      FORMAT                  = "A8"
      DESCRIPTION             = "Telemetry stream for this data record. A or
                                B."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 8
      NAME                    = "SEQ_CNTR"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
```

```
      START_BYTE              = 93
      BYTES                   = 10
      FORMAT                  = "I10"
      DESCRIPTION             = "GCMS counter. Refer to the GCMS Software
                                User's Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 9
      NAME                    = "TYPE"
      UNIT                    = "N/A"
      DATA_TYPE               = CHARACTER
      START_BYTE              = 104
      BYTES                   = 6
      FORMAT                  = "A6"
      DESCRIPTION             = "Processing program index identifying data
                                stream type: swp, hk, idle, … (Refer to GCMS
                                Software User's Manual)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 10
      NAME                    = "SHELL_P"
      UNIT                    = "BARS"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 111
      BYTES                   = 9
      FORMAT                  = "F9.4"
      DESCRIPTION             = "GCMS shell pressure from instrument
                                housekeeping."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 11
      NAME                    = "INLET_T"
      UNIT                    = "DEG. C"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 121
      BYTES                   = 9
      FORMAT                  = "F9.3"
      DESCRIPTION             = "GCMS sample inlet line temperature from
                                instrument housekeeping."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 12
      NAME                    = "H2COL_P"
      UNIT                    = "BARS"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 131
      BYTES                   = 9
      FORMAT                  = "F9.4"
      DESCRIPTION             = "GCMS hydrogen column pressure from
                                instrument housekeeping"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 13
      NAME                    = "H2RES_P"
      UNIT                    = "BARS"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 141
      BYTES                   = 9
```

```
      FORMAT                 = "F9.4"
      DESCRIPTION            = "GCMS hydrogen storage reservoir pressure
                               from instrument housekeeping."
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 14
      NAME                   = "H2_T"
      UNIT                   = "DEG. C"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 151
      BYTES                  = 6
      FORMAT                 = "F6.2"
      DESCRIPTION            = "GCMS hydrogen storage reservoir temperature
                               from instrument housekeeping."
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 15
      NAME                   = "GC1_T"
      UNIT                   = "DEG. C"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 158
      BYTES                  = 7
      FORMAT                 = "F7.2"
      DESCRIPTION            = "GC column 1 temperature from GCMS instrument
                               housekeeping."
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 16
      NAME                   = "GC2_T"
      UNIT                   = "DEG. C"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 166
      BYTES                  = 7
      FORMAT                 = "F7.2"
      DESCRIPTION            = "GC column 2 temperature from GCMS instrument
                               housekeeping."
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 17
      NAME                   = "GC3_T"
      UNIT                   = "DEG. C"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 174
      BYTES                  = 7
      FORMAT                 = "F7.2"
      DESCRIPTION            = "GC column 3 temperature from GCMS instrument
                               housekeeping."
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 18
      NAME                   = "EC1_T"
      UNIT                   = "DEG. C"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 182
      BYTES                  = 7
      FORMAT                 = "F7.2"
      DESCRIPTION            = "GCMS enrichment cell 1 temperature from
                               instrument housekeeping."
```

```
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 19
      NAME                    = "ACP_P"
      UNIT                    = "BARS"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 190
      BYTES                   = 7
      FORMAT                  = "F7.4"
      DESCRIPTION             = "ACP sample transfer line pressure from GCMS
                                instrument housekeeping."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 20
      NAME                    = "ACP_T"
      UNIT                    = "DEG. C"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 198
      BYTES                   = 7
      FORMAT                  = "F7.2"
      DESCRIPTION             = "ACP sample transfer line temperature from
                                GCMS instrument housekeeping."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 21
      NAME                    = "GMT_S"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 206
      BYTES                   = 7
      FORMAT                  = "I7"
      DESCRIPTION             = "Huygens spacecraft event time (SCET) for
                                this record, (seconds), MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 22
      NAME                    = "GMT2"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 214
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Huygens spacecraft event time (SCET) for
                                this record, (seconds)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 23
      NAME                    = "GMT3"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 221
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Huygens spacecraft event time (SCET) for
                                this record, (seconds)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
```

```
      COLUMN_NUMBER           = 24
      NAME                    = "GMT4"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 228
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Huygens spacecraft event time (SCET) for
                                this record, (seconds), LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 25
      NAME                    = "GMT_US"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 235
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Huygens spacecraft event time (SCET) for
                                this record, (microseconds), MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 26
      NAME                    = "GMT5"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 244
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Huygens spacecraft event time (SCET) for
                                this record, (microseconds)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 27
      NAME                    = "GMT6"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 251
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Huygens spacecraft event time (SCET) for
                                this record, (microseconds)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 28
      NAME                    = "GMT7"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 258
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Huygens spacecraft event time (SCET) for
                                this record, (microseconds), LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 29
      NAME                    = "VALID1"
      UNIT                    = "N/A"
```

```
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 265
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Valid data byte: 0 if valid, refer to GCMS
                                Software User's Manual"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 30
      NAME                    = "VALID2"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 274
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Valid data byte: 1 if valid, refer to GCMS
                                Software User's Manual"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 31
      NAME                    = "TYPE"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 283
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Data source for this measurement: typ. 16 *
                                (ion source number)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 32
      NAME                    = "SUBSWP"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 290
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Instrument operating mode indicator. Refer
                                to the GCMS Software User's Manual for
                                details."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 33
      NAME                    = "ABS_TIM2"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 299
      BYTES                   = 10
      FORMAT                  = "I10"
      DESCRIPTION             = "(Spacecraft DDB + GCMS clock) time - byte 2."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 34
      NAME                    = "ABS_TIM3"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 310
      BYTES                   = 10
```

```
      FORMAT                 = "I10"
      DESCRIPTION            = "(Spacecraft DDB + GCMS clock) time - byte 3."
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 35
      NAME                   = "ABS_TIM1"
      UNIT                   = "N/A"
      DATA_TYPE              = ASCII_INTEGER
      START_BYTE             = 321
      BYTES                  = 10
      FORMAT                 = "I10"
      DESCRIPTION            = "(Spacecraft DDB + GCMS clock) time - byte 1."
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 36
      NAME                   = "SCN_CNT"
      UNIT                   = "N/A"
      DATA_TYPE              = ASCII_INTEGER
      START_BYTE             = 332
      BYTES                  = 9
      FORMAT                 = "I9"
      DESCRIPTION            = "GCMS scan counter. Refer to the GCMS
                               Software User's Manual for information."
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 37
      NAME                   = "START"
      UNIT                   = "DALTONS"
      DATA_TYPE              = ASCII_INTEGER
      START_BYTE             = 342
      BYTES                  = 7
      FORMAT                 = "I7"
      DESCRIPTION            = "Sweep START mass for this scan."
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 38
      NAME                   = "END"
      UNIT                   = "DALTONS"
      DATA_TYPE              = ASCII_INTEGER
      START_BYTE             = 350
      BYTES                  = 5
      FORMAT                 = "I5"
      DESCRIPTION            = "Sweep END mass for this scan."
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 39
      NAME                   = "S1"
      UNIT                   = "N/A"
      DATA_TYPE              = ASCII_INTEGER
      START_BYTE             = 356
      BYTES                  = 4
      FORMAT                 = "I4"
      DESCRIPTION            = "Sample 1. Raw count at (START) mass noted in
                               column 37. ALWAYS INVALID."
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 40
```

```
      NAME                    = "S2"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 361
      BYTES                   = 4
      FORMAT                  = "I4"
      DESCRIPTION             = "Sample 2. Repeat of sample 1 measurement at
                                START mass."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 41
      NAME                    = "S3"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 366
      BYTES                   = 4
      FORMAT                  = "I4"
      DESCRIPTION             = "Sample 3. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 42
      NAME                    = "S4"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 371
      BYTES                   = 4
      FORMAT                  = "I4"
      DESCRIPTION             = "Sample 4. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 43
      NAME                    = "S5"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 376
      BYTES                   = 4
      FORMAT                  = "I4"
      DESCRIPTION             = "Sample 5. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 44
      NAME                    = "S6"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 381
      BYTES                   = 4
      FORMAT                  = "I4"
      DESCRIPTION             = "Sample 6. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
```

```
      COLUMN_NUMBER           = 45
      NAME                    = "S7"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 386
      BYTES                   = 4
      FORMAT                  = "I4"
      DESCRIPTION             = "Sample 7. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 46
      NAME                    = "S8"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 391
      BYTES                   = 4
      FORMAT                  = "I4"
      DESCRIPTION             = "Sample 8. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 47
      NAME                    = "S9"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 396
      BYTES                   = 4
      FORMAT                  = "I4"
      DESCRIPTION             = "Sample 9. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 48
      NAME                    = "S10"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 401
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 10. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 49
      NAME                    = "S11"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 407
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 11. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN
```

```
OBJECT                          = COLUMN
      COLUMN_NUMBER             = 50
      NAME                      = "S12"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 413
      BYTES                     = 5
      FORMAT                    = "I5"
      DESCRIPTION               = "Sample 12. Raw count at previous mass +1 (or
                                  +.125). Refer to GCMS Software User's Manual
                                  for information."
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 51
      NAME                      = "S13"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 419
      BYTES                     = 5
      FORMAT                    = "I5"
      DESCRIPTION               = "Sample 13. Raw count at previous mass +1 (or
                                  +.125). Refer to GCMS Software User's Manual
                                  for information."
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 52
      NAME                      = "S14"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 425
      BYTES                     = 5
      FORMAT                    = "I5"
      DESCRIPTION               = "Sample 14. Raw count at previous mass +1 (or
                                  +.125). Refer to GCMS Software User's Manual
                                  for information."
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 53
      NAME                      = "S15"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 431
      BYTES                     = 5
      FORMAT                    = "I5"
      DESCRIPTION               = "Sample 15. Raw count at previous mass +1 (or
                                  +.125). Refer to GCMS Software User's Manual
                                  for information."
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 54
      NAME                      = "S16"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 437
      BYTES                     = 5
      FORMAT                    = "I5"
      DESCRIPTION               = "Sample 16. Raw count at previous mass +1 (or
                                  +.125). Refer to GCMS Software User's Manual
```

```
                              for information."
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 55
      NAME                  = "S17"
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      START_BYTE            = 443
      BYTES                 = 5
      FORMAT                = "I5"
      DESCRIPTION           = "Sample 17. Raw count at previous mass +1 (or
                              +.125). Refer to GCMS Software User's Manual
                              for information."
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 56
      NAME                  = "S18"
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      START_BYTE            = 449
      BYTES                 = 5
      FORMAT                = "I5"
      DESCRIPTION           = "Sample 18. Raw count at previous mass +1 (or
                              +.125). Refer to GCMS Software User's Manual
                              for information."
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 57
      NAME                  = "S19"
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      START_BYTE            = 455
      BYTES                 = 5
      FORMAT                = "I5"
      DESCRIPTION           = "Sample 19. Raw count at previous mass +1 (or
                              +.125). Refer to GCMS Software User's Manual
                              for information."
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 58
      NAME                  = "S20"
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      START_BYTE            = 461
      BYTES                 = 5
      FORMAT                = "I5"
      DESCRIPTION           = "Sample 20. Raw count at previous mass +1 (or
                              +.125). Refer to GCMS Software User's Manual
                              for information."
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 59
      NAME                  = "S21"
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      START_BYTE            = 467
      BYTES                 = 5
      FORMAT                = "I5"
```

```
      DESCRIPTION             = "Sample 21. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 60
      NAME                    = "S22"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 473
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 22. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 61
      NAME                    = "S23"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 479
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 23. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 62
      NAME                    = "S24"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 485
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 24. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 63
      NAME                    = "S25"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 491
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 25. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 64
      NAME                    = "S26"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 497
```

```
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 26. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 65
      NAME                    = "S27"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 503
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 27. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 66
      NAME                    = "S28"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 509
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 28. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 67
      NAME                    = "S29"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 515
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 29. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 68
      NAME                    = "S30"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 521
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 30. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 69
      NAME                    = "S31"
      UNIT                    = "N/A"
```

```
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 527
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 31. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 70
      NAME                    = "S32"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 533
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 32. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 71
      NAME                    = "S33"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 539
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 33. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 72
      NAME                    = "S34"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 545
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 34. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 73
      NAME                    = "S35"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 551
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 35. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 74
```

```
      NAME                    = "S36"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 557
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 36. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 75
      NAME                    = "S37"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 563
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 37. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 76
      NAME                    = "S38"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 569
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 38. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 77
      NAME                    = "S39"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 575
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 39. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 78
      NAME                    = "S40"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 581
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 40. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN
```

```
OBJECT                         = COLUMN
      COLUMN_NUMBER            = 79
      NAME                     = "S41"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 587
      BYTES                    = 5
      FORMAT                   = "I5"
      DESCRIPTION              = "Sample 41. Raw count at previous mass +1 (or
                                 +.125). Refer to GCMS Software User's Manual
                                 for information."
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 80
      NAME                     = "S42"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 593
      BYTES                    = 5
      FORMAT                   = "I5"
      DESCRIPTION              = "Sample 42. Raw count at previous mass +1 (or
                                 +.125). Refer to GCMS Software User's Manual
                                 for information."
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 81
      NAME                     = "S43"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 599
      BYTES                    = 5
      FORMAT                   = "I5"
      DESCRIPTION              = "Sample 43. Raw count at previous mass +1 (or
                                 +.125). Refer to GCMS Software User's Manual
                                 for information."
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 82
      NAME                     = "S44"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 605
      BYTES                    = 5
      FORMAT                   = "I5"
      DESCRIPTION              = "Sample 44. Raw count at previous mass +1 (or
                                 +.125). Refer to GCMS Software User's Manual
                                 for information."
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 83
      NAME                     = "S45"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 611
      BYTES                    = 5
      FORMAT                   = "I5"
      DESCRIPTION              = "Sample 45. Raw count at previous mass +1 (or
                                 +.125). Refer to GCMS Software User's Manual
                                 for information."
```

```
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 84
      NAME                    = "S46"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 617
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 46. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 85
      NAME                    = "S47"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 623
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 47. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 86
      NAME                    = "S48"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 629
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 48. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 87
      NAME                    = "S49"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 635
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 49. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 88
      NAME                    = "S50"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 641
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 50. Raw count at previous mass +1 (or
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                              +.125). Refer to GCMS Software User's Manual
                              for information."
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 89
      NAME                  = "S51"
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      START_BYTE            = 647
      BYTES                 = 5
      FORMAT                = "I5"
      DESCRIPTION           = "Sample 51. Raw count at previous mass +1 (or
                              +.125). Refer to GCMS Software User's Manual
                              for information."
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 90
      NAME                  = "S52"
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      START_BYTE            = 653
      BYTES                 = 5
      FORMAT                = "I5"
      DESCRIPTION           = "Sample 52. Raw count at previous mass +1 (or
                              +.125). Refer to GCMS Software User's Manual
                              for information."
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 91
      NAME                  = "S53"
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      START_BYTE            = 659
      BYTES                 = 5
      FORMAT                = "I5"
      DESCRIPTION           = "Sample 53. Raw count at previous mass +1 (or
                              +.125). Refer to GCMS Software User's Manual
                              for information."
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 92
      NAME                  = "S54"
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      START_BYTE            = 665
      BYTES                 = 5
      FORMAT                = "I5"
      DESCRIPTION           = "Sample 54. Raw count at previous mass +1 (or
                              +.125). Refer to GCMS Software User's Manual
                              for information."
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 93
      NAME                  = "S55"
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      START_BYTE            = 671
      BYTES                 = 5
```

```
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 55. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 94
      NAME                    = "S56"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 677
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 56. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 95
      NAME                    = "S57"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 683
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 57. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 96
      NAME                    = "S58"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 689
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 58. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 97
      NAME                    = "S59"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 695
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 59. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 98
      NAME                    = "S60"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
```

```
      START_BYTE              = 701
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 60. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 99
      NAME                    = "S61"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 707
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 61. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 100
      NAME                    = "S62"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 713
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 62. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 101
      NAME                    = "S63"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 719
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 63. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 102
      NAME                    = "S64"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 725
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 64. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 103
      NAME                    = "S65"
```

```
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 731
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 65. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 104
      NAME                    = "S66"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 737
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 66. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 105
      NAME                    = "S67"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 743
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 67. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 106
      NAME                    = "S68"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 749
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 68. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 107
      NAME                    = "S69"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 755
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 69. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
```

```
      COLUMN_NUMBER           = 108
      NAME                    = "S70"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 761
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 70. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 109
      NAME                    = "S71"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 767
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 71. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 110
      NAME                    = "S72"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 773
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 72. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 111
      NAME                    = "S73"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 779
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 73. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 112
      NAME                    = "S74"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 785
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 74. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN
```

```
OBJECT                         = COLUMN
      COLUMN_NUMBER            = 113
      NAME                     = "S75"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 791
      BYTES                    = 5
      FORMAT                   = "I5"
      DESCRIPTION              = "Sample 75. Raw count at previous mass +1 (or
                                 +.125). Refer to GCMS Software User's Manual
                                 for information."
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 114
      NAME                     = "S76"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 797
      BYTES                    = 5
      FORMAT                   = "I5"
      DESCRIPTION              = "Sample 76. Raw count at previous mass +1 (or
                                 +.125). Refer to GCMS Software User's Manual
                                 for information."
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 115
      NAME                     = "S77"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 803
      BYTES                    = 5
      FORMAT                   = "I5"
      DESCRIPTION              = "Sample 77. Raw count at previous mass +1 (or
                                 +.125). Refer to GCMS Software User's Manual
                                 for information."
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 116
      NAME                     = "S78"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 809
      BYTES                    = 5
      FORMAT                   = "I5"
      DESCRIPTION              = "Sample 78. Raw count at previous mass +1 (or
                                 +.125). Refer to GCMS Software User's Manual
                                 for information."
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 117
      NAME                     = "S79"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 815
      BYTES                    = 5
      FORMAT                   = "I5"
      DESCRIPTION              = "Sample 79. Raw count at previous mass +1 (or
                                 +.125). Refer to GCMS Software User's Manual
```

```
                              for information."
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 118
      NAME                  = "S80"
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      START_BYTE            = 821
      BYTES                 = 5
      FORMAT                = "I5"
      DESCRIPTION           = "Sample 80. Raw count at previous mass +1 (or
                              +.125). Refer to GCMS Software User's Manual
                              for information."
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 119
      NAME                  = "S81"
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      START_BYTE            = 827
      BYTES                 = 5
      FORMAT                = "I5"
      DESCRIPTION           = "Sample 81. Raw count at previous mass +1 (or
                              +.125). Refer to GCMS Software User's Manual
                              for information."
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 120
      NAME                  = "S82"
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      START_BYTE            = 833
      BYTES                 = 5
      FORMAT                = "I5"
      DESCRIPTION           = "Sample 82. Raw count at previous mass +1 (or
                              +.125). Refer to GCMS Software User's Manual
                              for information."
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 121
      NAME                  = "S83"
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      START_BYTE            = 839
      BYTES                 = 5
      FORMAT                = "I5"
      DESCRIPTION           = "Sample 83. Raw count at previous mass +1 (or
                              +.125). Refer to GCMS Software User's Manual
                              for information."
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 122
      NAME                  = "S84"
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      START_BYTE            = 845
      BYTES                 = 5
      FORMAT                = "I5"
```

```
      DESCRIPTION             = "Sample 84. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 123
      NAME                    = "S85"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 851
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 85. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 124
      NAME                    = "S86"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 857
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 86. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 125
      NAME                    = "S87"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 863
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 87. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 126
      NAME                    = "S88"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 869
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 88. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 127
      NAME                    = "S89"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 875
```

```
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 89. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 128
      NAME                    = "S90"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 881
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 90. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 129
      NAME                    = "S91"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 887
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 91. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 130
      NAME                    = "S92"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 893
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 92. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 131
      NAME                    = "S93"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 899
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 93. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 132
      NAME                    = "S94"
      UNIT                    = "N/A"
```

```
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 905
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 94. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 133
      NAME                    = "S95"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 911
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 95. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 134
      NAME                    = "S96"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 917
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 96. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 135
      NAME                    = "S97"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 923
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 97. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 136
      NAME                    = "S98"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 929
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 98. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 137
```

```
      NAME                    = "S99"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 935
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Sample 99. Raw count at previous mass +1 (or
                                +.125). Refer to GCMS Software User's Manual
                                for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 138
      NAME                    = "S100"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 941
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Sample 100. Raw count at previous mass +1
                                (or +.125). Refer to GCMS Software User's
                                Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 139
      NAME                    = "S101"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 948
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Sample 101. Raw count at previous mass +1
                                (or +.125). Refer to GCMS Software User's
                                Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 140
      NAME                    = "S102"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 955
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Sample 102. Raw count at previous mass +1
                                (or +.125). Refer to GCMS Software User's
                                Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 141
      NAME                    = "S103"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 962
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Sample 103. Raw count at previous mass +1
                                (or +.125). Refer to GCMS Software User's
                                Manual for information."
END_OBJECT                    = COLUMN
```

```
OBJECT                         = COLUMN
      COLUMN_NUMBER            = 142
      NAME                     = "S104"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 969
      BYTES                    = 6
      FORMAT                   = "I6"
      DESCRIPTION              = "Sample 104. Raw count at previous mass +1
                                 (or +.125). Refer to GCMS Software User's
                                 Manual for information."
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 143
      NAME                     = "S105"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 976
      BYTES                    = 6
      FORMAT                   = "I6"
      DESCRIPTION              = "Sample 105. Raw count at previous mass +1
                                 (or +.125). Refer to GCMS Software User's
                                 Manual for information."
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 144
      NAME                     = "S106"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 983
      BYTES                    = 6
      FORMAT                   = "I6"
      DESCRIPTION              = "Sample 106. Raw count at previous mass +1
                                 (or +.125). Refer to GCMS Software User's
                                 Manual for information."
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 145
      NAME                     = "S107"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 990
      BYTES                    = 6
      FORMAT                   = "I6"
      DESCRIPTION              = "Sample 107. Raw count at previous mass +1
                                 (or +.125). Refer to GCMS Software User's
                                 Manual for information."
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 146
      NAME                     = "S108"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 997
      BYTES                    = 6
      FORMAT                   = "I6"
      DESCRIPTION              = "Sample 108. Raw count at previous mass +1
                                 (or +.125). Refer to GCMS Software User's
                                 Manual for information."
```

```
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 147
      NAME                    = "S109"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1004
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Sample 109. Raw count at previous mass +1
                                (or +.125). Refer to GCMS Software User's
                                Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 148
      NAME                    = "S110"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1011
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Sample 110. Raw count at previous mass +1
                                (or +.125). Refer to GCMS Software User's
                                Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 149
      NAME                    = "S111"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1018
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Sample 111. Raw count at previous mass +1
                                (or +.125). Refer to GCMS Software User's
                                Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 150
      NAME                    = "S112"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1025
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Sample 112. Raw count at previous mass +1
                                (or +.125). Refer to GCMS Software User's
                                Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 151
      NAME                    = "S113"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1032
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Sample 113. Raw count at previous mass +1
```

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                              (or +.125). Refer to GCMS Software User's
                              Manual for information."
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 152
      NAME                  = "S114"
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      START_BYTE            = 1039
      BYTES                 = 6
      FORMAT                = "I6"
      DESCRIPTION           = "Sample 114. Raw count at previous mass +1
                              (or +.125). Refer to GCMS Software User's
                              Manual for information."
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 153
      NAME                  = "S115"
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      START_BYTE            = 1046
      BYTES                 = 6
      FORMAT                = "I6"
      DESCRIPTION           = "Sample 115. Raw count at previous mass +1
                              (or +.125). Refer to GCMS Software User's
                              Manual for information."
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 154
      NAME                  = "S116"
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      START_BYTE            = 1053
      BYTES                 = 6
      FORMAT                = "I6"
      DESCRIPTION           = "Sample 116. Raw count at previous mass +1
                              (or +.125). Refer to GCMS Software User's
                              Manual for information."
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 155
      NAME                  = "S117"
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      START_BYTE            = 1060
      BYTES                 = 6
      FORMAT                = "I6"
      DESCRIPTION           = "Sample 117. Raw count at previous mass +1
                              (or +.125). Refer to GCMS Software User's
                              Manual for information."
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 156
      NAME                  = "S118"
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      START_BYTE            = 1067
      BYTES                 = 6
```

```
      FORMAT                  = "I6"
      DESCRIPTION             = "Sample 118. Raw count at previous mass +1
                                (or +.125). Refer to GCMS Software User's
                                Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 157
      NAME                    = "S119"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1074
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Sample 119. Raw count at previous mass +1
                                (or +.125). Refer to GCMS Software User's
                                Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 158
      NAME                    = "S120"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1081
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Sample 120. Raw count at previous mass +1
                                (or +.125). Refer to GCMS Software User's
                                Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 159
      NAME                    = "S121"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1088
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Sample 121. Raw count at previous mass +1
                                (or +.125). Refer to GCMS Software User's
                                Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 160
      NAME                    = "S122"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1095
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Sample 122. Raw count at previous mass +1
                                (or +.125). Refer to GCMS Software User's
                                Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 161
      NAME                    = "S123"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
```

```
      START_BYTE              = 1102
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Sample 123. Raw count at previous mass +1
                                (or +.125). Refer to GCMS Software User's
                                Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 162
      NAME                    = "S124"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1109
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Sample 124. Raw count at previous mass +1
                                (or +.125). Refer to GCMS Software User's
                                Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 163
      NAME                    = "S125"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1116
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Sample 125. Raw count at previous mass +1
                                (or +.125). Refer to GCMS Software User's
                                Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 164
      NAME                    = "S126"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1123
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Sample 126. Raw count at previous mass +1
                                (or +.125). Refer to GCMS Software User's
                                Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 165
      NAME                    = "S127"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1130
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Sample 127. Raw count at previous mass +1
                                (or +.125). Refer to GCMS Software User's
                                Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 166
      NAME                    = "S128"
```

```
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1137
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Sample 128. Raw count at previous mass +1
                                (or +.125). Refer to GCMS Software User's
                                Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 167
      NAME                    = "S129"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1144
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Sample 129. Raw count at previous mass +1
                                (or +.125). Refer to GCMS Software User's
                                Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 168
      NAME                    = "S130"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1151
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Sample 130. Raw count at previous mass +1
                                (or +.125). Refer to GCMS Software User's
                                Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 169
      NAME                    = "S131"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1158
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Sample 131. Raw count at previous mass +1
                                (or +.125). Refer to GCMS Software User's
                                Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 170
      NAME                    = "S132"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1165
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Sample 132. Raw count at previous mass +1
                                (or +.125). Refer to GCMS Software User's
                                Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
```

```
      COLUMN_NUMBER           = 171
      NAME                    = "S133"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1172
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Sample 133. Raw count at previous mass +1
                                (or +.125). Refer to GCMS Software User's
                                Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 172
      NAME                    = "S134"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1179
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Sample 134. Raw count at previous mass +1
                                (or +.125). Refer to GCMS Software User's
                                Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 173
      NAME                    = "S135"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1186
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Sample 135. Raw count at previous mass +1
                                (or +.125). Refer to GCMS Software User's
                                Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 174
      NAME                    = "S136"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1193
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Sample 136. Raw count at previous mass +1
                                (or +.125). Refer to GCMS Software User's
                                Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 175
      NAME                    = "S137"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1200
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Sample 137. Raw count at previous mass +1
                                (or +.125). Refer to GCMS Software User's
                                Manual for information."
END_OBJECT                    = COLUMN
```

```
OBJECT                          = COLUMN
      COLUMN_NUMBER             = 176
      NAME                      = "S138"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 1207
      BYTES                     = 6
      FORMAT                    = "I6"
      DESCRIPTION               = "Sample 138. Raw count at previous mass +1
                                  (or +.125). Refer to GCMS Software User's
                                  Manual for information."
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 177
      NAME                      = "S139"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 1214
      BYTES                     = 6
      FORMAT                    = "I6"
      DESCRIPTION               = "Sample 139. Raw count at previous mass +1
                                  (or +.125). Refer to GCMS Software User's
                                  Manual for information."
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 178
      NAME                      = "S140"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 1221
      BYTES                     = 6
      FORMAT                    = "I6"
      DESCRIPTION               = "Sample 140. Raw count at previous mass +1
                                  (or +.125). Refer to GCMS Software User's
                                  Manual for information."
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 179
      NAME                      = "S141"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 1228
      BYTES                     = 6
      FORMAT                    = "I6"
      DESCRIPTION               = "Sample 141. Raw count at previous mass +1
                                  (or +.125). Refer to GCMS Software User's
                                  Manual for information."
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 180
      NAME                      = "S142"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 1235
      BYTES                     = 6
      FORMAT                    = "I6"
      DESCRIPTION               = "Sample 142. Raw count at previous mass +1
                                  (or +.125). Refer to GCMS Software User's
```

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                                Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 181
      NAME                    = "T1A"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1242
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Total count, ion source 1, sample 1"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 182
      NAME                    = "T1B"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1248
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Total count, ion source 1, sample 2"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 183
      NAME                    = "T1C"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1254
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Total count, ion source 1, sample 3"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 184
      NAME                    = "T2A"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1260
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Total count, ion source 2, sample 1"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 185
      NAME                    = "T2B"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1266
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Total count, ion source 2, sample 2"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 186
      NAME                    = "T2C"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
```

```
      START_BYTE              = 1272
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Total count, ion source 2, sample 3"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 187
      NAME                    = "T3A"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1278
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Total count, ion source 3, sample 1"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 188
      NAME                    = "T3B"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1284
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Total count, ion source 3, sample 2"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 189
      NAME                    = "T3C"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1290
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Total count, ion source 3, sample 3"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 190
      NAME                    = "T4A"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1296
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Total count, ion source 4, sample 1"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 191
      NAME                    = "T4B"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1302
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Total count, ion source 4, sample 2"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 192
```

```
      NAME                    = "T4C"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1308
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Total count, ion source 4, sample 3"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 193
      NAME                    = "T5A"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1314
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Total count, ion source 5, sample 1"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 194
      NAME                    = "T5B"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1320
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Total count, ion source 5, sample 2"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 195
      NAME                    = "T5C"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1326
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Total count, ion source 5, sample 3"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 196
      NAME                    = "SP1"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1332
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Unused"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 197
      NAME                    = "SENS0A"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1338
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Sample Sensitivity bits. Refer to GCMS
                                Software User's Manual for information."
```

```
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 198
      NAME                    = "SENS0B"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1347
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Sample Sensitivity bits. Refer to GCMS
                                Software User's Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 199
      NAME                    = "SENS1A"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1356
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Sample Sensitivity bits. Refer to GCMS
                                Software User's Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 200
      NAME                    = "SENS1B"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1365
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Sample Sensitivity bits. Refer to GCMS
                                Software User's Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 201
      NAME                    = "SENS2A"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1374
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Sample Sensitivity bits. Refer to GCMS
                                Software User's Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 202
      NAME                    = "SENS2B"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1383
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Sample Sensitivity bits. Refer to GCMS
                                Software User's Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
```

```
      COLUMN_NUMBER           = 203
      NAME                    = "SENS3A"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1392
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Sample Sensitivity bits. Refer to GCMS
                                Software User's Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 204
      NAME                    = "SENS3B"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1401
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Sample Sensitivity bits. Refer to GCMS
                                Software User's Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 205
      NAME                    = "SENS4A"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1410
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Sample Sensitivity bits. Refer to GCMS
                                Software User's Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 206
      NAME                    = "SENS4B"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1419
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Sample Sensitivity bits. Refer to GCMS
                                Software User's Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 207
      NAME                    = "SENS5A"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1428
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Sample Sensitivity bits. Refer to GCMS
                                Software User's Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 208
      NAME                    = "SENS5B"
      UNIT                    = "N/A"
```

```
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1437
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Sample Sensitivity bits. Refer to GCMS
                                Software User's Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 209
      NAME                    = "SENS6A"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1446
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Sample Sensitivity bits. Refer to GCMS
                                Software User's Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 210
      NAME                    = "SENS6B"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1455
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Sample Sensitivity bits. Refer to GCMS
                                Software User's Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 211
      NAME                    = "SENS7A"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1464
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Sample Sensitivity bits. Refer to GCMS
                                Software User's Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 212
      NAME                    = "SENS7B"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1473
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Sample Sensitivity bits. Refer to GCMS
                                Software User's Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 213
      NAME                    = "SENS8A"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1482
      BYTES                   = 8
```

```
      FORMAT                  = "I8"
      DESCRIPTION             = "Sample Sensitivity bits. Refer to GCMS
                                Software User's Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 214
      NAME                    = "SENS8B"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1491
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Sample Sensitivity bits. Refer to GCMS
                                Software User's Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 215
      NAME                    = "SENSTTL1"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1500
      BYTES                   = 10
      FORMAT                  = "I10"
      DESCRIPTION             = "Sample Sensitivity bits for totals. Refer to
                                GCMS Software User's Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 216
      NAME                    = "SENSTTL2"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1511
      BYTES                   = 10
      FORMAT                  = "I10"
      DESCRIPTION             = "Sample Sensitivity bits for totals. Refer to
                                GCMS Software User's Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 217
      NAME                    = "METS"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1522
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Mission Elapsed Time (seconds) MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 218
      NAME                    = "MET2"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1529
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Mission Elapsed Time (seconds)"
END_OBJECT                    = COLUMN
```

```
OBJECT                          = COLUMN
      COLUMN_NUMBER             = 219
      NAME                      = "MET3"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 1536
      BYTES                     = 6
      FORMAT                    = "I6"
      DESCRIPTION               = "Mission Elapsed Time (seconds)"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 220
      NAME                      = "MET4"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 1543
      BYTES                     = 6
      FORMAT                    = "I6"
      DESCRIPTION               = "Mission Elapsed Time (seconds) LSB"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 221
      NAME                      = "METUS"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 1550
      BYTES                     = 7
      FORMAT                    = "I7"
      DESCRIPTION               = "Mission Elapsed Time (microseconds) MSB"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 222
      NAME                      = "MET6"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 1558
      BYTES                     = 6
      FORMAT                    = "I6"
      DESCRIPTION               = "Mission Elapsed Time (microseconds)"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 223
      NAME                      = "MET7"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 1565
      BYTES                     = 6
      FORMAT                    = "I6"
      DESCRIPTION               = "Mission Elapsed Time (microseconds)"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 224
      NAME                      = "MET8"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 1572
      BYTES                     = 6
      FORMAT                    = "I6"
```

```
      DESCRIPTION             = "Mission Elapsed Time (microseconds) LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 225
      NAME                    = "SEQCNTR1"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1579
      BYTES                   = 10
      FORMAT                  = "I10"
      DESCRIPTION             = "GCMS instrument sequence counter MSB. Refer
                                to GCMS Software User's Manual."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 226
      NAME                    = "SEQCNTR2"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1590
      BYTES                   = 10
      FORMAT                  = "I10"
      DESCRIPTION             = "GCMS instrument sequence counter LSB. Refer
                                to GCMS Software User's Manual."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 227
      NAME                    = "SP2"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1601
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Unused"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 228
      NAME                    = "SP3"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1607
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Unused"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 229
      NAME                    = "SP4"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1613
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Unused"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 230
      NAME                    = "SP5"
```

```
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1619
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Unused"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 231
      NAME                    = "SP6"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1625
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Unused"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 232
      NAME                    = "SP7"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1631
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Unused"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 233
      NAME                    = "SP8"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1637
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Unused"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 234
      NAME                    = "SP9"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1643
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Unused"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 235
      NAME                    = "ID"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1649
      BYTES                   = 4
      FORMAT                  = "I4"
      DESCRIPTION             = "Processing program index indicating data
                                type and stream."
```

```
END_OBJECT                      = COLUMN
```

4.1.3 DATA LABEL – TOTAL ION COUNTS, STAGE 2 PROCESSING

Each scan by the GCMS includes 3 measurements for each ion source (for a total of 15 samples) that represent the total signal for all masses. These totals have been extracted from the data stream, converted to counts/second and organized in this file. The data table **GCMS_TOTALS_STG2.TAB** contains n rows by 24 columns where n represents the number of scans and the 24 columns contain the data. The entries in columns 1 – 9 contain information extracted from the original "raw" data stream and converted to meaningful values. Columns 1 – 3 indicate the starting time for a scan, using different time scales. Columns 10 – 24 contain the total counts data converted to counts per second.

File GCMS_TOTALS_STG2.LBL

```
PDS_VERSION_ID                  = PDS3

/* FILE CHARACTERISTICS DATA ELEMENTS */

RECORD_TYPE                     = FIXED_LENGTH
RECORD_BYTES                    = 293
FILE_RECORDS                    = 6806

/* DATA OBJECT POINTER IDENTIFICATION ELEMENTS */

^TABLE                          = ("GCMS_TOTALS_STG2.TAB",2)

/* INSTRUMENT AND DETECTOR DESCRIPTIVE DATA ELEMENTS */

FILE_NAME                       = "GCMS_TOTALS_STG2.TAB"
DATA_SET_ID                     = "HP-SSA-GCMS-3-FCO/DESCENT-V1.0"
DATA_SET_NAME                   = "HUYGENS TITAN GAS CHROMATOGRAPH
                                  MASS SPEC 3 DESCENT V1.0"
PRODUCT_ID                      = "DESCENT_GCMS_TOTALS_STG2"
PRODUCT_NAME                    = "DESCENT_GCMS_ALL_SWEEP_TOTALS_STG2"
MISSION_NAME                    = "CASSINI-HUYGENS"
INSTRUMENT_HOST_NAME            = "HUYGENS PROBE"
INSTRUMENT_HOST_ID              = HP
MISSION_PHASE_NAME              = "DESCENT"
                                  /* FU_DESCENT */
PRODUCT_TYPE                    = RDR
                                  /* EDR for RAW & RDR for Calibrated Data */
START_TIME                      = 2005-01-14T09:10:58.572
STOP_TIME                       = 2005-01-14T12:47:47.884
                                  /* UTC e.g. 2005-01-14T00:00:00.000 */
                                  /*     or 2005-014T00:00:00.000 */
                                  /* Derived by combining the T0 and */
                                  /* the instrument's absolute times */
SPACECRAFT_CLOCK_START_COUNT    = 8391028
SPACECRAFT_CLOCK_STOP_COUNT     = 9223624
                                  /* (DDB + GCMS) clock time */
                                  /* 1/64 second resolution. */
                                  /* DDB clock is set to 0 at power on */
                                  /* and reset to 0 at T0 (begin entry */
                                  /* sequence). Post-T0 is indicated */
                                  /* by adding 2^23 to the DDB clock value. */
NATIVE_START_TIME               = 37.813
NATIVE_STOP_TIME                = 13047.130
                                  /* Elapsed Time in seconds. */
                                  /* a.k.a. Mission Elapsed Time (MET) */
                                  /* Negative values indicate pre-T0 */
                                  /*   No data is available immediately */
```

```
                                /*   prior to T0 so pre-T0 times may */
                                /*   be in error by 5-7 seconds. */
                                /* Positive values indicate post-T0 */
PRODUCT_CREATION_TIME          = 2006-06-15T14:14:40
PRODUCER_ID                    = "GCMS_TEAM"
PRODUCER_FULL_NAME             = "JOHN HABERMAN"
                                /* & Jaime Demick-Montelara */
                                /* & Eric Raaen */
PRODUCER_INSTITUTION_NAME      = "NASA GSFC"
TARGET_NAME                    = "TITAN"

/* INSTRUMENT DESCRIPTION */

INSTRUMENT_ID                  = "GCMS"
INSTRUMENT_NAME                = "GAS CHROMATOGRAPH MASS SPECTROMETER"
INSTRUMENT_TYPE                = "MASS SPECTROMETER"
DATA_QUALITY_ID                = 1
DATA_QUALITY_DESC              = "1 = High Quality ... 5 = Low Quality"
                                /* Stage 1 Data must be converted to c/s */
                                /* Stage 2 Data has been converted to c/s */
                                /*  but MAY NOT be fully corrected for */
                                /*  the counter overflow condition. This */
                                /*  data has NOT yet been fully corrected */
                                /*  for pulse counting system effects */
                                /*  including pulse coincidence effects */
                                /*  and system (electronics) effects. */
                                /* Stage 3 Data has been converted to c/s */
                                /*  and fully corrected by the team using */
                                /*  pre- and post-launch instrument */
                                /*  calibration data. */
INSTRUMENT_MODE_ID             = "FU_DESCENT"
                                /*   DESCENT   */
                                /* FU = Flown Unit, EU = Engineering Unit */
                                /* FS or SU = Spare (Lab, Backup) Unit */
                                /* DESCENT indicates Entry Condition */
                                /* FCO indicates Flight Check Out */
                                /* GCO indicates Ground Check Out */
                                /*  FCO1/GCO1 = Checkout Type 1 */
                                /*  FCO1B/GCO1B = Checkout Type 1B */
                                /*  FCO2/GCO2 = Checkout Type 2 */
                                /* e.g., FU_DESCENT = 2005-01-14 Mission */

/* DATA OBJECT DEFINITION */

OBJECT                         = TABLE
   INTERCHANGE_FORMAT          = ASCII
   ROWS                        = 6806
   COLUMNS                     = 24
   ROW_BYTES                   = 293
   DESCRIPTION                 = "Total counts monitored during mass sweeps
                                 for each active ion sources."

 OBJECT                        = COLUMN
       COLUMN_NUMBER           = 1
       NAME                    = "UTC_ABS_TIME"
       UNIT                    = "TIME"
       DATA_TYPE               = CHARACTER
       START_BYTE              = 1
       BYTES                   = 23
       FORMAT                  = "A23"
       DESCRIPTION             = "UTC Reference time or GCMS_GMT time for this
                                 data record."
 END_OBJECT                    = COLUMN
```

```
OBJECT                         = COLUMN
      COLUMN_NUMBER            = 2
      NAME                     = "ABS_TIME"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 25
      BYTES                    = 10
      FORMAT                   = "I10"
      DESCRIPTION              = "(Spacecraft DDB + GCMS clock) time. Value
                                 starts at zero at power on and is reset to
                                 zero at sequence start (T0). 2^23 is added
                                 to the value to indicate post T0 times. Each
                                 'tic' represents 1/64 second."
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 3
      NAME                     = "ABS_SEC"
      UNIT                     = "SECONDS"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 36
      BYTES                    = 9
      FORMAT                   = "F9.3"
      DESCRIPTION              = "Time relative to spacecraft T0 event.
                                 Negative times indicate pre-T0."
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 4
      NAME                     = "GCMS_GMT"
      UNIT                     = "TIME"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 46
      BYTES                    = 12
      FORMAT                   = "F12.3"
      DESCRIPTION              = "Spacecraft Event Time (SCET) corresponding
                                 with this data record."
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 5
      NAME                     = "DATE"
      UNIT                     = "TIME"
      DATA_TYPE                = CHARACTER
      START_BYTE               = 59
      BYTES                    = 11
      FORMAT                   = "A11"
      DESCRIPTION              = "SCET Date (2005-01-14)"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 6
      NAME                     = "TIME"
      UNIT                     = "TIME"
      DATA_TYPE                = CHARACTER
      START_BYTE               = 71
      BYTES                    = 14
      FORMAT                   = "A14"
      DESCRIPTION              = "SCET Time (hh:mm:ss.000)"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
```

```
      COLUMN_NUMBER           = 7
      NAME                    = "STREAM"
      UNIT                    = "N/A"
      DATA_TYPE               = CHARACTER
      START_BYTE              = 86
      BYTES                   = 8
      FORMAT                  = "A8"
      DESCRIPTION             = "Indicates the telemetry stream (A or B) for
                                this scan.  ALWAYS B during descent."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 8
      NAME                    = "SEQ_CNTR"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 95
      BYTES                   = 10
      FORMAT                  = "I10"
      DESCRIPTION             = "GCMS counter. Refer to the GCMS Software
                                User's Manual for information."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 9
      NAME                    = "TYPE"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 106
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Identifies GCMS sweep conditions for each
                                sweep. Refer to the GCMS Software User's
                                Manual."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 10
      NAME                    = "T1A"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 113
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Total ion count, ion source 1, sample 1"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 11
      NAME                    = "T1B"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 125
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Total ion count, ion source 1, sample 2"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 12
      NAME                    = "T1C"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
```

```
      START_BYTE              = 137
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Total ion count, ion source 1, sample 3"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 13
      NAME                    = "T2A"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 149
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Total ion count, ion source 2, sample 1"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 14
      NAME                    = "T2B"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 161
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Total ion count, ion source 2, sample 2"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 15
      NAME                    = "T2C"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 173
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Total ion count, ion source 2, sample 3"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 16
      NAME                    = "T3A"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 185
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Total ion count, ion source 3, sample 1"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 17
      NAME                    = "T3B"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 197
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Total ion count, ion source 3, sample 2"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 18
```

```
      NAME                    = "T3C"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 209
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Total ion count, ion source 3, sample 3"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 19
      NAME                    = "T4A"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 221
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Total ion count, ion source 4, sample 1"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 20
      NAME                    = "T4B"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 233
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Total ion count, ion source 4, sample 2"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 21
      NAME                    = "T4C"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 245
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Total ion count, ion source 4, sample 3"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 22
      NAME                    = "T5A"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 257
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Total ion count, ion source 5, sample 1"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 23
      NAME                    = "T5B"
      UNIT                    = "COUNTS PER SECOND"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 269
      BYTES                   = 11
      FORMAT                  = "F11.1"
      DESCRIPTION             = "Total ion count, ion source 5, sample 2"
END_OBJECT                    = COLUMN
```

```
 OBJECT                         = COLUMN
       COLUMN_NUMBER            = 24
       NAME                     = "T5C"
       UNIT                     = "COUNTS PER SECOND"
       DATA_TYPE                = ASCII_REAL
       START_BYTE               = 281
       BYTES                    = 11
       FORMAT                   = "F11.1"
       DESCRIPTION              = "Total ion count, ion source 5, sample 3"
 END_OBJECT                     = COLUMN

END_OBJECT                      = TABLE
END
```

4.1.4 DATA LABEL – MEDIUM SPEED HOUSEKEEPING DATA, STAGE 2

The GCMS instrument's data system periodically updates and sends a "Medium Speed Housekeeping" data packet to the spacecraft's telemetry system. This data table, **GCMS_HK_MS_STG2.TAB**, consists of n rows by 39 columns. Where relevant the values are converted to 'real' measurement units in this file. Column 1 contains the time of the packet measurements in the standard 'UTC format'.

File GCMS_HK_MS_STG2.LBL

```
PDS_VERSION_ID                  = PDS3

/* FILE CHARACTERISTICS DATA ELEMENTS */

RECORD_TYPE                     = FIXED_LENGTH
RECORD_BYTES                    = 397
FILE_RECORDS                    = 680

/* DATA OBJECT POINTER IDENTIFICATION ELEMENTS */

^TABLE                          = ("GCMS_HK_MS_STG2.TAB",2)

/* INSTRUMENT AND DETECTOR DESCRIPTIVE DATA ELEMENTS */

FILE_NAME                       = "GCMS_HK_MS_STG2.TAB"
DATA_SET_ID                     = "HP-SSA-GCMS-3-DESCENT-V1.0"
DATA_SET_NAME                   = "HUYGENS TITAN GAS CHROMATOGRAPH
                                  MASS SPEC 3 DESCENT V1.0"
PRODUCT_ID                      = "GCMS_HK_MS_STG2.TAB"
PRODUCT_NAME                    = "GCMS_HK_MS_STG2.TAB"
MISSION_NAME                    = "CASSINI-HUYGENS"
INSTRUMENT_HOST_NAME            = "HUYGENS PROBE"
INSTRUMENT_HOST_ID              = HP
MISSION_PHASE_NAME              = "DESCENT"
                                  /* DESCENT */
PRODUCT_TYPE                    = RDR
                                  /* EDR for RAW & RDR for Calibrated Data */
START_TIME                      = 2005-01-14T09:11:08.125
STOP_TIME                       = 2005-01-14T12:46:48.203
                                  /* UTC e.g. 2005-01-14T00:00:00.000 */
                                  /*     or 2005-014T00:00:00.000 */
                                  /* Derived by combining the T0 and */
                                  /* the instrument's absolute times */
SPACECRAFT_CLOCK_START_COUNT    = "N/A"
SPACECRAFT_CLOCK_STOP_COUNT     = "N/A"
```

```
NATIVE_START_TIME              = "N/A"
NATIVE_STOP_TIME               = "N/A"
PRODUCT_CREATION_TIME          = 2006-01-31T15:26:20
PRODUCER_ID                    ="GCMS_TEAM"
PRODUCER_FULL_NAME             = "ERIC RAAEN"
                                 /* & Jaime Demick-Montelara */
                                 /* & John Haberman */
PRODUCER_INSTITUTION_NAME      = "NASA GSFC"
TARGET_NAME                    = "TITAN"

/* INSTRUMENT DESCRIPTION */

INSTRUMENT_ID                  = "GCMS"
INSTRUMENT_NAME                = "GAS CHROMATOGRAPH MASS SPECTROMETER"
INSTRUMENT_TYPE                = "MASS SPECTROMETER"
DATA_QUALITY_ID                = 1
DATA_QUALITY_DESC              = "1 = High Quality ... 5 = Low Quality"
INSTRUMENT_MODE_ID             = "FU-DESCENT"

/* DATA OBJECT DEFINITION */

OBJECT                         = TABLE
   INTERCHANGE_FORMAT          = ASCII
   ROWS                        = 680
   COLUMNS                     = 39
   ROW_BYTES                   = 397
   DESCRIPTION                 = "Medium Speed Stage 2 processed Housekeeping
                                 extracted from the Data Stream"

 OBJECT                        = COLUMN
       COLUMN_NUMBER           = 1
       NAME                    = "UTC_STD"
       UNIT                    = "UNK"
       DATA_TYPE               = "CHARACTER"
       START_BYTE              = 1
       BYTES                   = 23
       FORMAT                  = "A23"
       DESCRIPTION             = "UNK"
 END_OBJECT                    = COLUMN

 OBJECT                        = COLUMN
       COLUMN_NUMBER           = 2
       NAME                    = "ABS_TIME"
       UNIT                    = "UNK"
       DATA_TYPE               = "ASCII_INTEGER"
       START_BYTE              = 25
       BYTES                   = 9
       FORMAT                  = "I9"
       DESCRIPTION             = "UNK"
 END_OBJECT                    = COLUMN

 OBJECT                        = COLUMN
       COLUMN_NUMBER           = 3
       NAME                    = "UTC_DATE"
       UNIT                    = "UNK"
       DATA_TYPE               = "CHARACTER"
       START_BYTE              = 35
       BYTES                   = 11
       FORMAT                  = "A11"
       DESCRIPTION             = "UNK"
 END_OBJECT                    = COLUMN

 OBJECT                        = COLUMN
```

```
      COLUMN_NUMBER           = 4
      NAME                    = "UTC_TIME"
      UNIT                    = "UNK"
      DATA_TYPE               = "CHARACTER"
      START_BYTE              = 47
      BYTES                   = 9
      FORMAT                  = "A9"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 5
      NAME                    = "UTC_EPH_T"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 57
      BYTES                   = 12
      FORMAT                  = "F12.1"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 6
      NAME                    = "UTC_HOUR"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 70
      BYTES                   = 9
      FORMAT                  = "I9"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 7
      NAME                    = "UTC_MIN"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 80
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 8
      NAME                    = "UTC_SEC"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 89
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 9
      NAME                    = "UTC_MSEC"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 98
      BYTES                   = 9
      FORMAT                  = "I9"
      DESCRIPTION             = "UNK"
```

```
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 10
      NAME                    = "RECORD_SIZE"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 108
      BYTES                   = 12
      FORMAT                  = "I12"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 11
      NAME                    = "PKT_VALID"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 121
      BYTES                   = 10
      FORMAT                  = "I10"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 12
      NAME                    = "SEQCNT"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 132
      BYTES                   = 7
      FORMAT                  = "I7"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 13
      NAME                    = "TIME_SECS"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 140
      BYTES                   = 11
      FORMAT                  = "I11"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 14
      NAME                    = "TIME_USECS"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 152
      BYTES                   = 11
      FORMAT                  = "I11"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 15
      NAME                    = "BEST_SECS"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 164
```

```
      BYTES                   = 11
      FORMAT                  = "I11"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 16
      NAME                    = "BEST_MSEC"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 176
      BYTES                   = 10
      FORMAT                  = "I10"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 17
      NAME                    = "APID"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 187
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 18
      NAME                    = "DESC_STAT"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 193
      BYTES                   = 10
      FORMAT                  = "I10"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 19
      NAME                    = "ACTIVE_ICC"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 204
      BYTES                   = 11
      FORMAT                  = "I11"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 20
      NAME                    = "ICC_IDX"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 216
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 21
      NAME                    = "SUB_SYS"
```

```
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 225
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 22
      NAME                    = "TYPE_HEADER"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 234
      BYTES                   = 12
      FORMAT                  = "I12"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 23
      NAME                    = "INDEX"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 247
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 24
      NAME                    = "IPMON6"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 254
      BYTES                   = 7
      FORMAT                  = "F7.4"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 25
      NAME                    = "IPMON5"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 262
      BYTES                   = 7
      FORMAT                  = "F7.4"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 26
      NAME                    = "IPMON2"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 270
      BYTES                   = 7
      FORMAT                  = "F7.4"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN
```

```
OBJECT                          = COLUMN
      COLUMN_NUMBER             = 27
      NAME                      = "IPMON1"
      UNIT                      = "UNK"
      DATA_TYPE                 = "ASCII_REAL"
      START_BYTE                = 278
      BYTES                     = 7
      FORMAT                    = "F7.4"
      DESCRIPTION               = "UNK"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 28
      NAME                      = "IPMON3"
      UNIT                      = "UNK"
      DATA_TYPE                 = "ASCII_REAL"
      START_BYTE                = 286
      BYTES                     = 7
      FORMAT                    = "F7.4"
      DESCRIPTION               = "UNK"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 29
      NAME                      = "IPMON4"
      UNIT                      = "UNK"
      DATA_TYPE                 = "ASCII_REAL"
      START_BYTE                = 294
      BYTES                     = 7
      FORMAT                    = "F7.4"
      DESCRIPTION               = "UNK"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 30
      NAME                      = "BAMON"
      UNIT                      = "UNK"
      DATA_TYPE                 = "ASCII_REAL"
      START_BYTE                = 302
      BYTES                     = 7
      FORMAT                    = "F7.4"
      DESCRIPTION               = "UNK"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 31
      NAME                      = "BAM_I"
      UNIT                      = "UNK"
      DATA_TYPE                 = "ASCII_REAL"
      START_BYTE                = 310
      BYTES                     = 7
      FORMAT                    = "F7.4"
      DESCRIPTION               = "UNK"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 32
      NAME                      = "IPXLOSENS"
      UNIT                      = "UNK"
      DATA_TYPE                 = "CHARACTER"
      START_BYTE                = 318
      BYTES                     = 10
      FORMAT                    = "A10"
```

```
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 33
      NAME                    = "SQ_IPXHI"
      UNIT                    = "UNK"
      DATA_TYPE               = "CHARACTER"
      START_BYTE              = 329
      BYTES                   = 9
      FORMAT                  = "A9"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 34
      NAME                    = "IPYLOSENS"
      UNIT                    = "UNK"
      DATA_TYPE               = "CHARACTER"
      START_BYTE              = 339
      BYTES                   = 10
      FORMAT                  = "A10"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 35
      NAME                    = "SQ_IPYHI"
      UNIT                    = "UNK"
      DATA_TYPE               = "CHARACTER"
      START_BYTE              = 350
      BYTES                   = 9
      FORMAT                  = "A9"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 36
      NAME                    = "OVLPLO"
      UNIT                    = "UNK"
      DATA_TYPE               = "CHARACTER"
      START_BYTE              = 360
      BYTES                   = 7
      FORMAT                  = "A7"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 37
      NAME                    = "SQ_OVLPHI"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 368
      BYTES                   = 10
      FORMAT                  = "F10.4"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 38
      NAME                    = "SPARE"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
```

```
       START_BYTE              = 379
       BYTES                   = 8
       FORMAT                  = "F8.4"
       DESCRIPTION             = "UNK"
 END_OBJECT                    = COLUMN

 OBJECT                        = COLUMN
       COLUMN_NUMBER           = 39
       NAME                    = "OVLPIP"
       UNIT                    = "UNK"
       DATA_TYPE               = "ASCII_REAL"
       START_BYTE              = 388
       BYTES                   = 8
       FORMAT                  = "F8.4"
       DESCRIPTION             = "UNK"
 END_OBJECT                    = COLUMN

END_OBJECT                     = TABLE
END
```

4.1.5 DATA LABEL – HIGH SPEED HOUSEKEEPING DATA, STAGE 2

The GCMS instrument's data system periodically updates and sends a "High Speed Housekeeping" data packet to the spacecraft's telemetry system. This data table, **GCMS_HK_HS_STG2.TAB**, consists of n rows by 103 columns. Where relevant the values are converted to 'real' measurement units in this file. Column 1 contains the time of the packet measurements in the standard 'UTC format'.

File GCMS_HK_HS_STG2.LBL

```
PDS_VERSION_ID                 = PDS3

/* FILE CHARACTERISTICS DATA ELEMENTS */

RECORD_TYPE                    = FIXED_LENGTH
RECORD_BYTES                   = 1129
FILE_RECORDS                   = 683

/* DATA OBJECT POINTER IDENTIFICATION ELEMENTS */

^TABLE                         = ("GCMS_HK_HS_STG2.TAB",2)

/* INSTRUMENT AND DETECTOR DESCRIPTIVE DATA ELEMENTS */

FILE_NAME                      = "GCMS_HK_HS_STG2.TAB"
DATA_SET_ID                    = "HP-SSA-GCMS-3-DESCENT-V1.0"
DATA_SET_NAME                  = "HUYGENS TITAN GAS CHROMATOGRAPH
                                 MASS SPEC 3 DESCENT V1.0"
PRODUCT_ID                     = "GCMS_HK_HS_STG2.TAB"
PRODUCT_NAME                   = "GCMS_HK_HS_STG2.TAB"
MISSION_NAME                   = "CASSINI-HUYGENS"
INSTRUMENT_HOST_NAME           = "HUYGENS PROBE"
INSTRUMENT_HOST_ID             = HP
MISSION_PHASE_NAME             = "DESCENT"
                                 /* DESCENT */
PRODUCT_TYPE                   = RDR
                                 /* EDR for RAW & RDR for Calibrated Data */
START_TIME                     = 2005-01-14T04:41:33.000
STOP_TIME                      = 2005-01-14T12:46:48.203
```

```
                                /* UTC e.g. 2005-01-14T00:00:00.000 */
                                /*     or 2005-014T00:00:00.000 */
                                /* Derived by combining the T0 and */
                                /* the instrument's absolute times */
SPACECRAFT_CLOCK_START_COUNT   = "N/A"
SPACECRAFT_CLOCK_STOP_COUNT    = "N/A"
NATIVE_START_TIME              = "N/A"
NATIVE_STOP_TIME               = "N/A"
PRODUCT_CREATION_TIME          = 2006-01-31T15:26:20
PRODUCER_ID                    ="GCMS_TEAM"
PRODUCER_FULL_NAME             = "ERIC RAAEN"
                                /* & Jaime Demick-Montelara */
                                /* & John Haberman */
PRODUCER_INSTITUTION_NAME      = "NASA GSFC"
TARGET_NAME                    = "TITAN"

/* INSTRUMENT DESCRIPTION */

INSTRUMENT_ID                  = "GCMS"
INSTRUMENT_NAME                = "GAS CHROMATOGRAPH MASS SPECTROMETER"
INSTRUMENT_TYPE                = "MASS SPECTROMETER"
DATA_QUALITY_ID                = 1
DATA_QUALITY_DESC              = "1 = High Quality ... 5 = Low Quality"
INSTRUMENT_MODE_ID             = "FU-DESCENT"

/* DATA OBJECT DEFINITION */

OBJECT                         = TABLE
   INTERCHANGE_FORMAT          = ASCII
   ROWS                        = 683
   COLUMNS                     = 103
   ROW_BYTES                   = 1129
   DESCRIPTION                 = "High Speed Stage 2 processed Housekeeping
                                 extracted from the Data Stream"

 OBJECT                        = COLUMN
       COLUMN_NUMBER           = 1
       NAME                    = "UTC_STD"
       UNIT                    = "UNK"
       DATA_TYPE               = "CHARACTER"
       START_BYTE              = 1
       BYTES                   = 23
       FORMAT                  = "A23"
       DESCRIPTION             = "UNK"
 END_OBJECT                    = COLUMN

 OBJECT                        = COLUMN
       COLUMN_NUMBER           = 2
       NAME                    = "ABS_TIME"
       UNIT                    = "UNK"
       DATA_TYPE               = "ASCII_INTEGER"
       START_BYTE              = 25
       BYTES                   = 9
       FORMAT                  = "I9"
       DESCRIPTION             = "UNK"
 END_OBJECT                    = COLUMN

 OBJECT                        = COLUMN
       COLUMN_NUMBER           = 3
       NAME                    = "UTC_DATE"
       UNIT                    = "UNK"
       DATA_TYPE               = "CHARACTER"
       START_BYTE              = 35
```

```
      BYTES                   = 11
      FORMAT                  = "A11"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 4
      NAME                    = "UTC_TIME"
      UNIT                    = "UNK"
      DATA_TYPE               = "CHARACTER"
      START_BYTE              = 47
      BYTES                   = 9
      FORMAT                  = "A9"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 5
      NAME                    = "UTC_EPH_T"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 57
      BYTES                   = 12
      FORMAT                  = "F12.1"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 6
      NAME                    = "BEST_SECS"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 70
      BYTES                   = 11
      FORMAT                  = "I11"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 7
      NAME                    = "BEST_MSEC"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 82
      BYTES                   = 10
      FORMAT                  = "I10"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 8
      NAME                    = "APID"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 93
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 9
      NAME                    = "INDEX"
```

```
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 99
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 10
      NAME                    = "UTC_HOUR"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 106
      BYTES                   = 9
      FORMAT                  = "I9"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 11
      NAME                    = "UTC_MIN"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 116
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 12
      NAME                    = "UTC_SEC"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 125
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 13
      NAME                    = "UTC_MSEC"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 134
      BYTES                   = 9
      FORMAT                  = "I9"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 14
      NAME                    = "RECORD_SIZE"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 144
      BYTES                   = 12
      FORMAT                  = "I12"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN
```

```
OBJECT                         = COLUMN
      COLUMN_NUMBER            = 15
      NAME                     = "PKT_VALID"
      UNIT                     = "UNK"
      DATA_TYPE                = "ASCII_INTEGER"
      START_BYTE               = 157
      BYTES                    = 10
      FORMAT                   = "I10"
      DESCRIPTION              = "UNK"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 16
      NAME                     = "SEQCNT"
      UNIT                     = "UNK"
      DATA_TYPE                = "ASCII_INTEGER"
      START_BYTE               = 168
      BYTES                    = 7
      FORMAT                   = "I7"
      DESCRIPTION              = "UNK"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 17
      NAME                     = "TIME_SECS"
      UNIT                     = "UNK"
      DATA_TYPE                = "ASCII_INTEGER"
      START_BYTE               = 176
      BYTES                    = 11
      FORMAT                   = "I11"
      DESCRIPTION              = "UNK"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 18
      NAME                     = "TIME_USECS"
      UNIT                     = "UNK"
      DATA_TYPE                = "ASCII_INTEGER"
      START_BYTE               = 188
      BYTES                    = 11
      FORMAT                   = "I11"
      DESCRIPTION              = "UNK"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 19
      NAME                     = "BEST_SECS"
      UNIT                     = "UNK"
      DATA_TYPE                = "ASCII_INTEGER"
      START_BYTE               = 200
      BYTES                    = 11
      FORMAT                   = "I11"
      DESCRIPTION              = "UNK"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 20
      NAME                     = "BEST_MSEC"
      UNIT                     = "UNK"
      DATA_TYPE                = "ASCII_INTEGER"
      START_BYTE               = 212
      BYTES                    = 10
      FORMAT                   = "I10"
```

```
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 21
      NAME                    = "DESC_STAT"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 223
      BYTES                   = 10
      FORMAT                  = "I10"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 22
      NAME                    = "ACTIVE_ICC"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 234
      BYTES                   = 11
      FORMAT                  = "I11"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 23
      NAME                    = "ICC_IDX"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 246
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 24
      NAME                    = "SUB_SYS"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 255
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 25
      NAME                    = "TYPE_HEADER"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_INTEGER"
      START_BYTE              = 264
      BYTES                   = 12
      FORMAT                  = "I12"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 26
      NAME                    = "NEGVL_1"
      UNIT                    = "UNK"
      DATA_TYPE               = "CHARACTER"
```

```
      START_BYTE              = 277
      BYTES                   = 11
      FORMAT                  = "A11"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 27
      NAME                    = "POSVL_1"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 289
      BYTES                   = 10
      FORMAT                  = "F10.6"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 28
      NAME                    = "IMON1_1"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 300
      BYTES                   = 9
      FORMAT                  = "F9.6"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 29
      NAME                    = "IMON2_1"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 310
      BYTES                   = 9
      FORMAT                  = "F9.6"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 30
      NAME                    = "MULTANA1_1"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 320
      BYTES                   = 11
      FORMAT                  = "F11.4"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 31
      NAME                    = "MULT1_1A"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 332
      BYTES                   = 9
      FORMAT                  = "F9.4"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 32
```

```
      NAME                    = "NEGVL_2"
      UNIT                    = "UNK"
      DATA_TYPE               = "CHARACTER"
      START_BYTE              = 342
      BYTES                   = 11
      FORMAT                  = "A11"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 33
      NAME                    = "POSVL_2"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 354
      BYTES                   = 10
      FORMAT                  = "F10.6"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 34
      NAME                    = "IMON1_2"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 365
      BYTES                   = 9
      FORMAT                  = "F9.6"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 35
      NAME                    = "IMON2_2"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 375
      BYTES                   = 9
      FORMAT                  = "F9.6"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 36
      NAME                    = "MULTANA1_2"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 385
      BYTES                   = 11
      FORMAT                  = "F11.4"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 37
      NAME                    = "MULT1_2A"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 397
      BYTES                   = 9
      FORMAT                  = "F9.4"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN
```

```
OBJECT                          = COLUMN
      COLUMN_NUMBER             = 38
      NAME                      = "MULTANA2_2"
      UNIT                      = "UNK"
      DATA_TYPE                 = "ASCII_REAL"
      START_BYTE                = 407
      BYTES                     = 11
      FORMAT                    = "F11.4"
      DESCRIPTION               = "UNK"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 39
      NAME                      = "MULT2_2A"
      UNIT                      = "UNK"
      DATA_TYPE                 = "ASCII_REAL"
      START_BYTE                = 419
      BYTES                     = 9
      FORMAT                    = "F9.5"
      DESCRIPTION               = "UNK"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 40
      NAME                      = "NEGVL_3"
      UNIT                      = "UNK"
      DATA_TYPE                 = "CHARACTER"
      START_BYTE                = 429
      BYTES                     = 11
      FORMAT                    = "A11"
      DESCRIPTION               = "UNK"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 41
      NAME                      = "POSVL_3"
      UNIT                      = "UNK"
      DATA_TYPE                 = "ASCII_REAL"
      START_BYTE                = 441
      BYTES                     = 10
      FORMAT                    = "F10.6"
      DESCRIPTION               = "UNK"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 42
      NAME                      = "IMON1_3"
      UNIT                      = "UNK"
      DATA_TYPE                 = "ASCII_REAL"
      START_BYTE                = 452
      BYTES                     = 9
      FORMAT                    = "F9.6"
      DESCRIPTION               = "UNK"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 43
      NAME                      = "IMON2_3"
      UNIT                      = "UNK"
      DATA_TYPE                 = "ASCII_REAL"
      START_BYTE                = 462
      BYTES                     = 9
```

```
      FORMAT                = "F9.6"
      DESCRIPTION           = "UNK"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 44
      NAME                  = "MULTANA1_3"
      UNIT                  = "UNK"
      DATA_TYPE             = "ASCII_REAL"
      START_BYTE            = 472
      BYTES                 = 11
      FORMAT                = "F11.4"
      DESCRIPTION           = "UNK"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 45
      NAME                  = "MULT1_3A"
      UNIT                  = "UNK"
      DATA_TYPE             = "ASCII_REAL"
      START_BYTE            = 484
      BYTES                 = 9
      FORMAT                = "F9.4"
      DESCRIPTION           = "UNK"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 46
      NAME                  = "MULTANA2_3"
      UNIT                  = "UNK"
      DATA_TYPE             = "ASCII_REAL"
      START_BYTE            = 494
      BYTES                 = 11
      FORMAT                = "F11.4"
      DESCRIPTION           = "UNK"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 47
      NAME                  = "MULT2_3A"
      UNIT                  = "UNK"
      DATA_TYPE             = "ASCII_REAL"
      START_BYTE            = 506
      BYTES                 = 9
      FORMAT                = "F9.5"
      DESCRIPTION           = "UNK"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 48
      NAME                  = "NEGVL_4"
      UNIT                  = "UNK"
      DATA_TYPE             = "CHARACTER"
      START_BYTE            = 516
      BYTES                 = 11
      FORMAT                = "A11"
      DESCRIPTION           = "UNK"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 49
      NAME                  = "POSVL_4"
      UNIT                  = "UNK"
```

```
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 528
      BYTES                   = 10
      FORMAT                  = "F10.6"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 50
      NAME                    = "IMON1_4"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 539
      BYTES                   = 9
      FORMAT                  = "F9.6"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 51
      NAME                    = "IMON2_4"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 549
      BYTES                   = 9
      FORMAT                  = "F9.6"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 52
      NAME                    = "MULTANA1_4"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 559
      BYTES                   = 11
      FORMAT                  = "F11.4"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 53
      NAME                    = "MULT1_4A"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 571
      BYTES                   = 9
      FORMAT                  = "F9.4"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 54
      NAME                    = "MULTANA2_4"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 581
      BYTES                   = 11
      FORMAT                  = "F11.4"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
```

```
      COLUMN_NUMBER           = 55
      NAME                    = "MULT2_4A"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 593
      BYTES                   = 9
      FORMAT                  = "F9.5"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 56
      NAME                    = "NEGVL_5"
      UNIT                    = "UNK"
      DATA_TYPE               = "CHARACTER"
      START_BYTE              = 603
      BYTES                   = 11
      FORMAT                  = "A11"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 57
      NAME                    = "POSVL_5"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 615
      BYTES                   = 10
      FORMAT                  = "F10.6"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 58
      NAME                    = "IMON1_5"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 626
      BYTES                   = 9
      FORMAT                  = "F9.6"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 59
      NAME                    = "IMON2_5"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 636
      BYTES                   = 9
      FORMAT                  = "F9.6"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 60
      NAME                    = "MULTANA1_5"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 646
      BYTES                   = 11
      FORMAT                  = "F11.4"
      DESCRIPTION             = "UNK"
```

```
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 61
      NAME                    = "MULT1_5A"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 658
      BYTES                   = 9
      FORMAT                  = "F9.4"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 62
      NAME                    = "MULTANA2_5"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 668
      BYTES                   = 11
      FORMAT                  = "F11.4"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 63
      NAME                    = "MULT2_5A"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 680
      BYTES                   = 9
      FORMAT                  = "F9.5"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 64
      NAME                    = "NEGVL_6"
      UNIT                    = "UNK"
      DATA_TYPE               = "CHARACTER"
      START_BYTE              = 690
      BYTES                   = 11
      FORMAT                  = "A11"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 65
      NAME                    = "POSVL_6"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 702
      BYTES                   = 10
      FORMAT                  = "F10.6"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 66
      NAME                    = "IMON1_6"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 713
```

```
      BYTES                   = 9
      FORMAT                  = "F9.6"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 67
      NAME                    = "IMON2_6"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 723
      BYTES                   = 9
      FORMAT                  = "F9.6"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 68
      NAME                    = "MULTANA1_6"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 733
      BYTES                   = 11
      FORMAT                  = "F11.4"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 69
      NAME                    = "MULT1_6A"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 745
      BYTES                   = 9
      FORMAT                  = "F9.4"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 70
      NAME                    = "MULTANA2_6"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 755
      BYTES                   = 11
      FORMAT                  = "F11.4"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 71
      NAME                    = "MULT2_6A"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 767
      BYTES                   = 9
      FORMAT                  = "F9.5"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 72
      NAME                    = "NEGVL_7"
```

```
      UNIT                    = "UNK"
      DATA_TYPE               = "CHARACTER"
      START_BYTE              = 777
      BYTES                   = 11
      FORMAT                  = "A11"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 73
      NAME                    = "POSVL_7"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 789
      BYTES                   = 10
      FORMAT                  = "F10.6"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 74
      NAME                    = "IMON1_7"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 800
      BYTES                   = 9
      FORMAT                  = "F9.6"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 75
      NAME                    = "IMON2_7"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 810
      BYTES                   = 9
      FORMAT                  = "F9.6"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 76
      NAME                    = "MULTANA1_7"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 820
      BYTES                   = 11
      FORMAT                  = "F11.4"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 77
      NAME                    = "MULT1_7A"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 832
      BYTES                   = 9
      FORMAT                  = "F9.4"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN
```

```
OBJECT                          = COLUMN
      COLUMN_NUMBER             = 78
      NAME                      = "MULTANA2_7"
      UNIT                      = "UNK"
      DATA_TYPE                 = "ASCII_REAL"
      START_BYTE                = 842
      BYTES                     = 11
      FORMAT                    = "F11.4"
      DESCRIPTION               = "UNK"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 79
      NAME                      = "MULT2_7A"
      UNIT                      = "UNK"
      DATA_TYPE                 = "ASCII_REAL"
      START_BYTE                = 854
      BYTES                     = 9
      FORMAT                    = "F9.5"
      DESCRIPTION               = "UNK"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 80
      NAME                      = "NEGVL_8"
      UNIT                      = "UNK"
      DATA_TYPE                 = "CHARACTER"
      START_BYTE                = 864
      BYTES                     = 11
      FORMAT                    = "A11"
      DESCRIPTION               = "UNK"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 81
      NAME                      = "POSVL_8"
      UNIT                      = "UNK"
      DATA_TYPE                 = "ASCII_REAL"
      START_BYTE                = 876
      BYTES                     = 10
      FORMAT                    = "F10.6"
      DESCRIPTION               = "UNK"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 82
      NAME                      = "IMON1_8"
      UNIT                      = "UNK"
      DATA_TYPE                 = "ASCII_REAL"
      START_BYTE                = 887
      BYTES                     = 9
      FORMAT                    = "F9.6"
      DESCRIPTION               = "UNK"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 83
      NAME                      = "IMON2_8"
      UNIT                      = "UNK"
      DATA_TYPE                 = "ASCII_REAL"
      START_BYTE                = 897
      BYTES                     = 9
      FORMAT                    = "F9.6"
```

```
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 84
      NAME                    = "MULTANA1_8"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 907
      BYTES                   = 11
      FORMAT                  = "F11.4"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 85
      NAME                    = "MULT1_8A"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 919
      BYTES                   = 9
      FORMAT                  = "F9.4"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 86
      NAME                    = "MULTANA2_8"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 929
      BYTES                   = 11
      FORMAT                  = "F11.4"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 87
      NAME                    = "MULT2_8A"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 941
      BYTES                   = 9
      FORMAT                  = "F9.5"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 88
      NAME                    = "NEGVL_9"
      UNIT                    = "UNK"
      DATA_TYPE               = "CHARACTER"
      START_BYTE              = 951
      BYTES                   = 11
      FORMAT                  = "A11"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 89
      NAME                    = "POSVL_9"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
```

```
      START_BYTE              = 963
      BYTES                   = 10
      FORMAT                  = "F10.6"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 90
      NAME                    = "IMON1_9"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 974
      BYTES                   = 9
      FORMAT                  = "F9.6"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 91
      NAME                    = "IMON2_9"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 984
      BYTES                   = 9
      FORMAT                  = "F9.6"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 92
      NAME                    = "MULTANA1_9"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 994
      BYTES                   = 11
      FORMAT                  = "F11.4"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 93
      NAME                    = "MULT1_9A"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 1006
      BYTES                   = 9
      FORMAT                  = "F9.4"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 94
      NAME                    = "MULTANA2_9"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 1016
      BYTES                   = 11
      FORMAT                  = "F11.4"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 95
```

```
      NAME                    = "MULT2_9A"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 1028
      BYTES                   = 9
      FORMAT                  = "F9.5"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 96
      NAME                    = "NEGVL_10"
      UNIT                    = "UNK"
      DATA_TYPE               = "CHARACTER"
      START_BYTE              = 1038
      BYTES                   = 11
      FORMAT                  = "A11"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 97
      NAME                    = "POSVL_10"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 1050
      BYTES                   = 10
      FORMAT                  = "F10.6"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 98
      NAME                    = "IMON1_10"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 1061
      BYTES                   = 9
      FORMAT                  = "F9.6"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 99
      NAME                    = "IMON2_10"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 1071
      BYTES                   = 9
      FORMAT                  = "F9.6"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 100
      NAME                    = "MULTANA1_10"
      UNIT                    = "UNK"
      DATA_TYPE               = "ASCII_REAL"
      START_BYTE              = 1081
      BYTES                   = 12
      FORMAT                  = "F12.4"
      DESCRIPTION             = "UNK"
END_OBJECT                    = COLUMN
```

```
 OBJECT                         = COLUMN
       COLUMN_NUMBER            = 101
       NAME                     = "MULT1_10A"
       UNIT                     = "UNK"
       DATA_TYPE                = "ASCII_REAL"
       START_BYTE               = 1094
       BYTES                    = 10
       FORMAT                   = "F10.4"
       DESCRIPTION              = "UNK"
 END_OBJECT                     = COLUMN

 OBJECT                         = COLUMN
       COLUMN_NUMBER            = 102
       NAME                     = "MULTANA2_10"
       UNIT                     = "UNK"
       DATA_TYPE                = "ASCII_REAL"
       START_BYTE               = 1105
       BYTES                    = 12
       FORMAT                   = "F12.4"
       DESCRIPTION              = "UNK"
 END_OBJECT                     = COLUMN

 OBJECT                         = COLUMN
       COLUMN_NUMBER            = 103
       NAME                     = "MULT2_10A"
       UNIT                     = "UNK"
       DATA_TYPE                = "ASCII_REAL"
       START_BYTE               = 1118
       BYTES                    = 10
       FORMAT                   = "F10.5"
       DESCRIPTION              = "UNK"
 END_OBJECT                     = COLUMN

END_OBJECT                      = TABLE
END
```

4.1.6 DATA LABEL – HOUSEKEEPING TYPE 2 DATA, STAGE 2

The GCMS instrument's data system periodically updates and sends, nominally every ~42 seconds, a "Housekeeping Type 2" data packet to the spacecraft's telemetry system. This data table, **GCMS_HK_TYPE2_STG2.TAB**, consists of n rows by 149 columns where columns 4 – 149 contain the data from the telemetry data packet. Where relevant the values are converted to 'real' measurement units in this file. Columns 1 – 3 contain the time of the packet measurements where each column expresses that time in a differing format.

File GCMS_HK_TYPE2_STG2.LBL

```
PDS_VERSION_ID                  = PDS3

/* FILE CHARACTERISTICS DATA ELEMENTS */

RECORD_TYPE                     = FIXED_LENGTH
RECORD_BYTES                    = 1407
FILE_RECORDS                    = 820

/* DATA OBJECT POINTER IDENTIFICATION ELEMENTS */

^TABLE                          = ("GCMS_HK_TYPE2_STG2.TAB",2)
```

```
/* INSTRUMENT AND DETECTOR DESCRIPTIVE DATA ELEMENTS */

FILE_NAME                       = "GCMS_HK_TYPE2_STG2.TAB"
DATA_SET_ID                     = "HP-SSA-GCMS-3-FCO/DESCENT-V1.0"
DATA_SET_NAME                   = "HUYGENS TITAN GAS CHROMATOGRAPH
                                  MASS SPEC 3 DESCENT V1.0"
PRODUCT_ID                      = "F13_GCMS_HK_TYPE2_STG2"
PRODUCT_NAME                    = "F13_GCMS_HK_TYPE2_STG2"
MISSION_NAME                    = "CASSINI-HUYGENS"
INSTRUMENT_HOST_NAME            = "HUYGENS PROBE"
INSTRUMENT_HOST_ID              = HP
MISSION_PHASE_NAME              = "CRUISE"
                                  /* FU_FCO1B */
PRODUCT_TYPE                    = RDR
                                  /* EDR for RAW & RDR for Calibrated Data */
START_TIME                      = 2004-03-20T19:26:02.125
STOP_TIME                       = 2004-03-20T22:20:02.433
                                  /* UTC e.g. 2005-01-14T00:00:00.000 */
                                  /*     or 2005-014T00:00:00.000 */
                                  /* Derived by combining the T0 and */
                                  /* the instrument absolute times */
                                  /*      or  */
                                  /* when these data are not available */
                                  /* the GCMS_GMT (telemetry packet) */
                                  /* time is used. */
SPACECRAFT_CLOCK_START_COUNT    = 0
SPACECRAFT_CLOCK_STOP_COUNT     = 8925646
                                  /* (DDB + GCMS) clock time */
                                  /* 1/64 second resolution. */
                                  /* DDB clock is set to 0 at power on */
                                  /* and reset to 0 at T0 (begin entry */
                                  /* sequence). Post-T0 is indicated */
                                  /* by adding 2^23 to the DDB clock value. */
NATIVE_START_TIME               = -2071.859
NATIVE_STOP_TIME                = 8391.219
                                  /* Elapsed Time in seconds. */
                                  /* a.k.a. Mission Elapsed Time (MET) */
                                  /* Negative values indicate pre-T0 */
                                  /*   No data is available immediately */
                                  /*   prior to T0 so pre-T0 times may */
                                  /*   be in error by 5-7 seconds. */
                                  /* Positive values indicate post-T0 */
PRODUCT_CREATION_TIME           = 2006-06-15T16:23:03
PRODUCER_ID                     = "GCMS_TEAM"
PRODUCER_FULL_NAME              = "JOHN HABERMAN"
                                  /* & Jaime Demick-Montelara */
                                  /* & Eric Raaen */
PRODUCER_INSTITUTION_NAME       = "NASA GSFC"
TARGET_NAME                     = "TITAN"

/* INSTRUMENT DESCRIPTION */

INSTRUMENT_ID                   = "GCMS"
INSTRUMENT_NAME                 = "GAS CHROMATOGRAPH MASS SPECTROMETER"
INSTRUMENT_TYPE                 = "MASS SPECTROMETER"
DATA_QUALITY_ID                 = 1
                                  /* DATA_QUALITY_DESC               = "1 = High
Quality ... 5 = Low Quality"
                                  /* Stage 1 Data must be converted to c/s */
                                  /* Stage 2 Data has been converted to c/s */
                                  /*  but MAY NOT be fully corrected for */
                                  /*  the counter overflow condition. This */
```

```
                                /*  data has NOT yet been fully corrected */
                                /*  for pulse counting system effects */
                                /*  including pulse coincidence effects */
                                /*  and system (electronics) effects. */
                                /* Stage 3 Data has been converted to c/s */
                                /*  and fully corrected by the team using */
                                /*  pre- and post-launch instrument */
                                /*  calibration data. */
INSTRUMENT_MODE_ID            = "FU_FCO1B"
                                /*   F13   */
                                /* FU = Flown Unit, EU = Engineering Unit */
                                /* FS = Flight Spare (Lab, Backup) Unit */
                                /* SU = Spare Unit (Lab, Backup) */
                                /* DESCENT indicates Entry Mission */
                                /* FCO indicates Flight Check Out */
                                /* GCO indicates Ground Check Out */
                                /*  FCO1/GCO1 = Checkout Type 1 */
                                /*  FCO1B/GCO1B = Checkout Type 1B */
                                /*  FCO2/GCO2 = Checkout Type 2 */
                                /* e.g., FU_DESCENT = 2005-01-14 Mission */

/* DATA OBJECT DEFINITION */

OBJECT                        = TABLE
   INTERCHANGE_FORMAT         = ASCII
   ROWS                       = 820
   COLUMNS                    = 156
   ROW_BYTES                  = 1407
   DESCRIPTION                = "GCMS housekeeping type 2 values extracted
                                from the data stream."

 OBJECT                       = COLUMN
       COLUMN_NUMBER          = 1
       NAME                   = "UTC_GCMS_TIME"
       UNIT                   = "TIME"
       DATA_TYPE              = CHARACTER
       START_BYTE             = 1
       BYTES                  = 23
       FORMAT                 = "A23"
       DESCRIPTION            = "UTC Reference time or GCMS_GMT time for this
                                data record."
 END_OBJECT                   = COLUMN

 OBJECT                       = COLUMN
       COLUMN_NUMBER          = 2
       NAME                   = "ABS_T"
       UNIT                   = "N/A"
       DATA_TYPE              = ASCII_INTEGER
       START_BYTE             = 25
       BYTES                  = 8
       FORMAT                 = "I8"
       DESCRIPTION            = "(Spacecraft DDB + GCMS clock) time. Value
                                starts at zero at power on and is reset to
                                zero at sequence start (T0). 2^23 is added
                                to the value to indicate post T0 times. Each
                                'tic' represents 1/64 second."
 END_OBJECT                   = COLUMN

 OBJECT                       = COLUMN
       COLUMN_NUMBER          = 3
       NAME                   = "SCNDS"
       UNIT                   = "SECONDS"
       DATA_TYPE              = ASCII_REAL
```

```
      START_BYTE              = 34
      BYTES                   = 10
      FORMAT                  = "F10.3"
      DESCRIPTION             = "Time relative to spacecraft T0 event.
                                Negative times indicate pre-T0."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 4
      NAME                    = "GCMS_GMT"
      UNIT                    = "SECONDS"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 45
      BYTES                   = 12
      FORMAT                  = "F12.3"
      DESCRIPTION             = "Time stamp added when data packet is
                                processed by spacecraft"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 5
      NAME                    = "DATE"
      UNIT                    = "DATE"
      DATA_TYPE               = CHARACTER
      START_BYTE              = 58
      BYTES                   = 11
      FORMAT                  = "A11"
      DESCRIPTION             = "Data (yyyy-doy) part of GCMS_GMT"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 6
      NAME                    = "TIME"
      UNIT                    = "TIME"
      DATA_TYPE               = CHARACTER
      START_BYTE              = 70
      BYTES                   = 14
      FORMAT                  = "A14"
      DESCRIPTION             = "Time (hh:mm:ss.000) part of GCMS_GMT"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 7
      NAME                    = "STREAM"
      UNIT                    = "N/A"
      DATA_TYPE               = CHARACTER
      START_BYTE              = 85
      BYTES                   = 8
      FORMAT                  = "A8"
      DESCRIPTION             = "Data Stream ID (A or B) extracted from
                                telemetry data"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 8
      NAME                    = "SEQ_CNTR"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 94
      BYTES                   = 10
      FORMAT                  = "I10"
      DESCRIPTION             = "Sequence Counter Value extracted from
                                telemetry data"
```

```
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 9
      NAME                    = "TYPE"
      UNIT                    = "N/A"
      DATA_TYPE               = CHARACTER
      START_BYTE              = 105
      BYTES                   = 6
      FORMAT                  = "A6"
      DESCRIPTION             = "Data Packet type (added by processing
                                software)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 10
      NAME                    = "GMT_S"
      UNIT                    = "SECONDS"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 112
      BYTES                   = 7
      FORMAT                  = "I7"
      DESCRIPTION             = "Telemetry Byte 0 - GCMS GMT Seconds MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 11
      NAME                    = "GMT2"
      UNIT                    = "SECONDS"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 120
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 1 - GCMS GMT Seconds - byte 2"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 12
      NAME                    = "GMT3"
      UNIT                    = "SECONDS"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 127
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 2 - GCMS GMT Seconds - byte 3"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 13
      NAME                    = "GMT4"
      UNIT                    = "SECONDS"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 134
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 3 - GCMS GMT Seconds LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 14
      NAME                    = "GMT_US"
      UNIT                    = "MICROSECONDS"
      DATA_TYPE               = ASCII_INTEGER
```

```
      START_BYTE              = 141
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Telemetry Byte 4 - GCMS GMT microseconds MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 15
      NAME                    = "GMT5"
      UNIT                    = "MICROSECONDS"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 150
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 5 - GCMS GMT microseconds -
                                byte 2"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 16
      NAME                    = "GMT6"
      UNIT                    = "MICROSECONDS"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 157
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 6 - GCMS GMT microseconds -
                                byte 3"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 17
      NAME                    = "GMT7"
      UNIT                    = "MICROSECONDS"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 164
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 7 - GCMS GMT microseconds LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 18
      NAME                    = "VALID1"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 171
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Telemetry Byte 008 - Packet Valid MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 19
      NAME                    = "VALID2"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 180
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Telemetry Byte 009 - Packet Valid LSB"
END_OBJECT                    = COLUMN
```

```
OBJECT                          = COLUMN
      COLUMN_NUMBER             = 20
      NAME                      = "INDEX"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 189
      BYTES                     = 7
      FORMAT                    = "I7"
      DESCRIPTION               = "Telemetry Byte 010 - Commutator Index"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 21
      NAME                      = "SP1"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 197
      BYTES                     = 5
      FORMAT                    = "I5"
      DESCRIPTION               = "Telemetry Byte 011 - Spare"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 22
      NAME                      = "LOCALTIM1"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 203
      BYTES                     = 11
      FORMAT                    = "I11"
      DESCRIPTION               = "Telemetry Byte 012 - Local Time MSB"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 23
      NAME                      = "LOCALTIM2"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 215
      BYTES                     = 11
      FORMAT                    = "I11"
      DESCRIPTION               = "Telemetry Byte 013 - Local Time LSB"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 24
      NAME                      = "ANODE1A"
      UNIT                      = "MICROAMP"
      DATA_TYPE                 = CHARACTER
      START_BYTE                = 227
      BYTES                     = 9
      FORMAT                    = "A9"
      DESCRIPTION               = "Telemetry Byte 014 - Anode 1 current"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 25
      NAME                      = "ANODE2A"
      UNIT                      = "MICROAMP"
      DATA_TYPE                 = ASCII_REAL
      START_BYTE                = 237
      BYTES                     = 9
      FORMAT                    = "F9.3"
```

```
      DESCRIPTION             = "Telemetry Byte 015 - Anode 2 current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 26
      NAME                    = "EB4_2"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 247
      BYTES                   = 7
      FORMAT                  = "F7.3"
      DESCRIPTION             = "Telemetry Byte 016 - EB4_2"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 27
      NAME                    = "EB4_1"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 255
      BYTES                   = 7
      FORMAT                  = "F7.3"
      DESCRIPTION             = "Telemetry Byte 017 - EB4_1"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 28
      NAME                    = "FILI1A"
      UNIT                    = "AMP"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 263
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 018 - Filament 1 current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 29
      NAME                    = "FILI2A"
      UNIT                    = "AMP"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 272
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 019 - Filament 2 current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 30
      NAME                    = "EMIS2A"
      UNIT                    = "MICROAMP"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 281
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 020 - Filament 2 emission
                                current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 31
      NAME                    = "EMIS1A"
      UNIT                    = "MICROAMP"
```

```
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 290
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 021 - Filament 1 emission
                                current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 32
      NAME                    = "BIAS_A"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 299
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 022 - BIAS_A"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 33
      NAME                    = "BIAS1"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 308
      BYTES                   = 7
      FORMAT                  = "F7.3"
      DESCRIPTION             = "Telemetry Byte 023 - BIAS1"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 34
      NAME                    = "BIAS2"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 316
      BYTES                   = 7
      FORMAT                  = "F7.3"
      DESCRIPTION             = "Telemetry Byte 024 - BIAS2"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 35
      NAME                    = "H2CYPPRS"
      UNIT                    = "BARS"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 324
      BYTES                   = 10
      FORMAT                  = "F10.3"
      DESCRIPTION             = "Telemetry Byte 025 - Hydrogen head pressure
                                at GC columns"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 36
      NAME                    = "BIASM3"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 335
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 026 - BIASM3"
END_OBJECT                    = COLUMN
```

```
OBJECT                       = COLUMN
      COLUMN_NUMBER          = 37
      NAME                   = "FBSTRING"
      UNIT                   = "VOLT"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 344
      BYTES                  = 10
      FORMAT                 = "F10.3"
      DESCRIPTION            = "Telemetry Byte 027 - BIASM2 (FB String
                               Voltage)"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 38
      NAME                   = "SP2"
      UNIT                   = "N/A"
      DATA_TYPE              = ASCII_INTEGER
      START_BYTE             = 355
      BYTES                  = 5
      FORMAT                 = "I5"
      DESCRIPTION            = "Telemetry Byte 028 - Spare"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 39
      NAME                   = "BIASM1"
      UNIT                   = "VOLT"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 361
      BYTES                  = 8
      FORMAT                 = "F8.3"
      DESCRIPTION            = "Telemetry Byte 029 - BIASM1"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 40
      NAME                   = "ANODE3A"
      UNIT                   = "MICROAMP"
      DATA_TYPE              = CHARACTER
      START_BYTE             = 370
      BYTES                  = 9
      FORMAT                 = "A9"
      DESCRIPTION            = "Telemetry Byte 030 - Anode 3 current"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 41
      NAME                   = "ANODE4A"
      UNIT                   = "MICROAMP"
      DATA_TYPE              = CHARACTER
      START_BYTE             = 380
      BYTES                  = 9
      FORMAT                 = "A9"
      DESCRIPTION            = "Telemetry Byte 031 - Anode 4 current"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 42
      NAME                   = "EB4_4"
      UNIT                   = "VOLT"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 390
```

```
      BYTES                 = 7
      FORMAT                = "F7.3"
      DESCRIPTION           = "Telemetry Byte 032 - EB4_4"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 43
      NAME                  = "EB4_3"
      UNIT                  = "VOLT"
      DATA_TYPE             = ASCII_REAL
      START_BYTE            = 398
      BYTES                 = 7
      FORMAT                = "F7.3"
      DESCRIPTION           = "Telemetry Byte 033 - EB4_3"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 44
      NAME                  = "FILI3A"
      UNIT                  = "AMP"
      DATA_TYPE             = ASCII_REAL
      START_BYTE            = 406
      BYTES                 = 8
      FORMAT                = "F8.3"
      DESCRIPTION           = "Telemetry Byte 034 - Filament 3 current"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 45
      NAME                  = "FILI4A"
      UNIT                  = "AMP"
      DATA_TYPE             = ASCII_REAL
      START_BYTE            = 415
      BYTES                 = 8
      FORMAT                = "F8.3"
      DESCRIPTION           = "Telemetry Byte 035 - Filament 4 current"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 46
      NAME                  = "EMIS4A"
      UNIT                  = "MICROAMP"
      DATA_TYPE             = ASCII_REAL
      START_BYTE            = 424
      BYTES                 = 8
      FORMAT                = "F8.3"
      DESCRIPTION           = "Telemetry Byte 036 - Filament 4 emission
                              current"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 47
      NAME                  = "EMIS3A"
      UNIT                  = "MICROAMP"
      DATA_TYPE             = ASCII_REAL
      START_BYTE            = 433
      BYTES                 = 8
      FORMAT                = "F8.3"
      DESCRIPTION           = "Telemetry Byte 037 - Filament 3 emission
                              current"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
```

```
      COLUMN_NUMBER           = 48
      NAME                    = "BIAS_B"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 442
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 038 - BIAS_B"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 49
      NAME                    = "BIAS3"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 451
      BYTES                   = 7
      FORMAT                  = "F7.3"
      DESCRIPTION             = "Telemetry Byte 039 - BIAS3"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 50
      NAME                    = "BIAS4"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 459
      BYTES                   = 7
      FORMAT                  = "F7.3"
      DESCRIPTION             = "Telemetry Byte 040 - BIAS4"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 51
      NAME                    = "H2RESPRS"
      UNIT                    = "BARS"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 467
      BYTES                   = 10
      FORMAT                  = "F10.3"
      DESCRIPTION             = "Telemetry Byte 041 - Hydrogen storage
                                reservoir pressure"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 52
      NAME                    = "EMTEMP"
      UNIT                    = "DEGREE C"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 478
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 042 - Electron Multiplier
                                temperature"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 53
      NAME                    = "BIAST"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 487
      BYTES                   = 8
```

```
      FORMAT                = "F8.3"
      DESCRIPTION           = "Telemetry Byte 043 - BIAST"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 54
      NAME                  = "RFTMPR"
      UNIT                  = "DEGREE C"
      DATA_TYPE             = ASCII_REAL
      START_BYTE            = 496
      BYTES                 = 8
      FORMAT                = "F8.3"
      DESCRIPTION           = "Telemetry Byte 044 - RF Temperature"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 55
      NAME                  = "REFV"
      UNIT                  = "VOLT"
      DATA_TYPE             = ASCII_REAL
      START_BYTE            = 505
      BYTES                 = 7
      FORMAT                = "F7.3"
      DESCRIPTION           = "Telemetry Byte 045 - Reference Voltage"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 56
      NAME                  = "ANODE5A"
      UNIT                  = "MICROAMP"
      DATA_TYPE             = ASCII_REAL
      START_BYTE            = 513
      BYTES                 = 9
      FORMAT                = "F9.3"
      DESCRIPTION           = "Telemetry Byte 046 - Anode 5 current"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 57
      NAME                  = "ANODE6A"
      UNIT                  = "MICROAMP"
      DATA_TYPE             = ASCII_REAL
      START_BYTE            = 523
      BYTES                 = 9
      FORMAT                = "F9.3"
      DESCRIPTION           = "Telemetry Byte 047 - Anode 6 current"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 58
      NAME                  = "EB4_6"
      UNIT                  = "VOLT"
      DATA_TYPE             = ASCII_REAL
      START_BYTE            = 533
      BYTES                 = 7
      FORMAT                = "F7.3"
      DESCRIPTION           = "Telemetry Byte 048 - EB4_6"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 59
      NAME                  = "EB4_5"
      UNIT                  = "VOLT"
```

```
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 541
      BYTES                   = 7
      FORMAT                  = "F7.3"
      DESCRIPTION             = "Telemetry Byte 049 - EB4_5"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 60
      NAME                    = "FILI5A"
      UNIT                    = "AMP"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 549
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 050 - Filament 5 current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 61
      NAME                    = "BACURNT"
      UNIT                    = "AMP"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 558
      BYTES                   = 9
      FORMAT                  = "F9.3"
      DESCRIPTION             = "Telemetry Byte 051 - Filament 6 (BA Gauge)
                                current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 62
      NAME                    = "BAEMIS"
      UNIT                    = "MICROAMP"
      DATA_TYPE               = CHARACTER
      START_BYTE              = 568
      BYTES                   = 8
      FORMAT                  = "A8"
      DESCRIPTION             = "Telemetry Byte 052 - BA gauge emission
                                current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 63
      NAME                    = "EMIS5A"
      UNIT                    = "MICROAMP"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 577
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 053 - Filament 5 emission
                                current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 64
      NAME                    = "BIAS_C"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 586
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 054 - BIAS_C"
```

```
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 65
      NAME                    = "BIAS5"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 595
      BYTES                   = 7
      FORMAT                  = "F7.3"
      DESCRIPTION             = "Telemetry Byte 055 - BIAS5"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 66
      NAME                    = "BIAS6"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 603
      BYTES                   = 7
      FORMAT                  = "F7.3"
      DESCRIPTION             = "Telemetry Byte 056 - BIAS6"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 67
      NAME                    = "SHELLP"
      UNIT                    = "BARS"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 611
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 057 - GCMS Instrument Shell
                                Pressure"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 68
      NAME                    = "DDBT1"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 620
      BYTES                   = 7
      FORMAT                  = "I7"
      DESCRIPTION             = "Telemetry Byte 058 - DDB Time MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 69
      NAME                    = "DDBT2"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 628
      BYTES                   = 7
      FORMAT                  = "I7"
      DESCRIPTION             = "Telemetry Byte 059 - DDB Time LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 70
      NAME                    = "DDBA1"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
```

```
      START_BYTE              = 636
      BYTES                   = 7
      FORMAT                  = "I7"
      DESCRIPTION             = "Telemetry Byte 060 - DDB Altitude MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 71
      NAME                    = "DDBA2"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 644
      BYTES                   = 7
      FORMAT                  = "I7"
      DESCRIPTION             = "Telemetry Byte 061 - DDB Altitude LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 72
      NAME                    = "DECKT"
      UNIT                    = "DEGREE C"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 652
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 062 - Instrument Deck
                                Temperature"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 73
      NAME                    = "TRANST"
      UNIT                    = "DEGREE C"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 661
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 063 - Transistor Temperature"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 74
      NAME                    = "THERMP"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 670
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 064 - THERMP"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 75
      NAME                    = "THREFP"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 679
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 065 - THREFP"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
```

```
      COLUMN_NUMBER           = 76
      NAME                    = "TIS3INT"
      UNIT                    = "DEGREE C"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 688
      BYTES                   = 9
      FORMAT                  = "F9.3"
      DESCRIPTION             = "Telemetry Byte 066 - TIS3INT"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 77
      NAME                    = "TEMPH2"
      UNIT                    = "DEGREE C"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 698
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 067 - Hydrogen reservoir
                                temperature"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 78
      NAME                    = "TSMPL"
      UNIT                    = "DEGREE C"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 707
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 068 - Tsample"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 79
      NAME                    = "T_LVPS1"
      UNIT                    = "DEGREE C"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 716
      BYTES                   = 9
      FORMAT                  = "F9.3"
      DESCRIPTION             = "Telemetry Byte 069 - T_LVPS1"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 80
      NAME                    = "T_LVPS2"
      UNIT                    = "DEGREE C"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 726
      BYTES                   = 9
      FORMAT                  = "F9.3"
      DESCRIPTION             = "Telemetry Byte 070 - T_LVPS2"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 81
      NAME                    = "T_LVPS3"
      UNIT                    = "DEGREE C"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 736
      BYTES                   = 9
      FORMAT                  = "F9.3"
```

```
      DESCRIPTION             = "Telemetry Byte 071 - T_LVPS3"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 82
      NAME                    = "POS13_MON"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 746
      BYTES                   = 11
      FORMAT                  = "F11.3"
      DESCRIPTION             = "Telemetry Byte 072 - Positive 13 volt monitor"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 83
      NAME                    = "5R_MON"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 758
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 073 - 5R_Mon"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 84
      NAME                    = "5REF"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 767
      BYTES                   = 7
      FORMAT                  = "F7.3"
      DESCRIPTION             = "Telemetry Byte 074 - 5Ref"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 85
      NAME                    = "NEG5_7MON"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 775
      BYTES                   = 11
      FORMAT                  = "F11.3"
      DESCRIPTION             = "Telemetry Byte 075 - Negative 57 volt monitor"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 86
      NAME                    = "CALMON"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 787
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 076 - CALMON"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 87
      NAME                    = "VH_INH"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
```

```
      START_BYTE              = 796
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 077 - Valves Inhibit (high =
                                inhibit)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 88
      NAME                    = "T_GC1"
      UNIT                    = "DEGREE C"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 805
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 078 - GC column 1 temperature"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 89
      NAME                    = "T_EC1"
      UNIT                    = "DEGREE C"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 814
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 079 - Enrichment cell
                                temperature"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 90
      NAME                    = "T_EC2"
      UNIT                    = "DEGREE C"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 823
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 080 - T_EC2"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 91
      NAME                    = "T_ACP"
      UNIT                    = "DEGREE C"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 832
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 081 - ACP sample transfer
                                line tempreature"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 92
      NAME                    = "T_GC2"
      UNIT                    = "DEGREE C"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 841
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 082 - GC column 2 temperature"
END_OBJECT                    = COLUMN
```

```
OBJECT                          = COLUMN
      COLUMN_NUMBER             = 93
      NAME                      = "T_GC3"
      UNIT                      = "DEGREE C"
      DATA_TYPE                 = ASCII_REAL
      START_BYTE                = 850
      BYTES                     = 8
      FORMAT                    = "F8.3"
      DESCRIPTION               = "Telemetry Byte 083 - GC column 3 temperature"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 94
      NAME                      = "T_INLT"
      UNIT                      = "DEGREE C"
      DATA_TYPE                 = ASCII_REAL
      START_BYTE                = 859
      BYTES                     = 8
      FORMAT                    = "F8.3"
      DESCRIPTION               = "Telemetry Byte 084 - Atmosphere sample inlet
                                  line temperature"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 95
      NAME                      = "ACP_PRS1"
      UNIT                      = "BARS"
      DATA_TYPE                 = ASCII_REAL
      START_BYTE                = 868
      BYTES                     = 10
      FORMAT                    = "F10.3"
      DESCRIPTION               = "Telemetry Byte 085 - ACP sample transfer
                                  line pressure monitor 1"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 96
      NAME                      = "ACP_PRS2"
      UNIT                      = "BARS"
      DATA_TYPE                 = CHARACTER
      START_BYTE                = 879
      BYTES                     = 10
      FORMAT                    = "A10"
      DESCRIPTION               = "Telemetry Byte 086 - ACP Pressure Monitor 2"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 97
      NAME                      = "TEMP_FC"
      UNIT                      = "DEGREE C"
      DATA_TYPE                 = ASCII_REAL
      START_BYTE                = 890
      BYTES                     = 9
      FORMAT                    = "F9.3"
      DESCRIPTION               = "Telemetry Byte 087 - Flight Computer
                                  Temperature"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 98
      NAME                      = "5R_FC_MON"
      UNIT                      = "VOLT"
```

```
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 900
      BYTES                   = 11
      FORMAT                  = "F11.3"
      DESCRIPTION             = "Telemetry Byte 088 - 5R_FC_MON"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 99
      NAME                    = "RF_MON"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 912
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 089 - RF Monitor"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 100
      NAME                    = "EM1HV"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 921
      BYTES                   = 7
      FORMAT                  = "F7.3"
      DESCRIPTION             = "Telemetry Byte 090 - Electron Multiplier 1
                                high voltage monitor"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 101
      NAME                    = "EM2HV"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 929
      BYTES                   = 7
      FORMAT                  = "F7.3"
      DESCRIPTION             = "Telemetry Byte 091 - Electron Multiplier 2
                                high voltage monitor"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 102
      NAME                    = "VLVWD1"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 937
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Telemetry Byte 092 - Valve Status MSB -
                                (N/A, N/A, VL1, VD1, VAA, VS6, IVA, IV): Bit
                                assignments indicated (MSB, …, LSB)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 103
      NAME                    = "VLVWD2"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 946
      BYTES                   = 8
      FORMAT                  = "I8"
```

```
      DESCRIPTION             = "Telemetry Byte 093 - Valve Status byte 2
                                (VC3, VS3, VE, VS2, VS7, VD2, VL3, VS1): Bit
                                assignments indicated (MSB, …, LSB)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 104
      NAME                    = "VLVWD3"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 955
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Telemetry Byte 094 - Valve Status Byte 3
                                (VAB, VG3, VL2, VD4, VZ, VD3, VL4, VS5): Bit
                                assignments indicated (MSB, …, LSB)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 105
      NAME                    = "VLVWD4"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 964
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Telemetry Byte 095 - Valve Status LSB (VG,
                                N/A, VC1, VD6, VC2, VG1, VV, VG2): Bit
                                assignments indicated (MSB, …, LSB)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 106
      NAME                    = "VLVSST1"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 973
      BYTES                   = 9
      FORMAT                  = "I9"
      DESCRIPTION             = "Telemetry Byte 096 - Valve Status Word MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 107
      NAME                    = "VLVSST2"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 983
      BYTES                   = 9
      FORMAT                  = "I9"
      DESCRIPTION             = "Telemetry Byte 097 - Valve Status Word"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 108
      NAME                    = "VLVSST3"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 993
      BYTES                   = 9
      FORMAT                  = "I9"
      DESCRIPTION             = "Telemetry Byte 098 - Valve Status Word"
END_OBJECT                    = COLUMN
```

```
OBJECT                        = COLUMN
      COLUMN_NUMBER           = 109
      NAME                    = "VLVSST4"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1003
      BYTES                   = 9
      FORMAT                  = "I9"
      DESCRIPTION             = "Telemetry Byte 099 - Valve Status Word LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 110
      NAME                    = "FILIPS"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1013
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Telemetry Byte 100 - Filament and Ion Pump
                                Status Word (IS1, IS2, IS3, IS4, IS5, BA,
                                IP1, IP2): Bit assignments indicated (MSB,
                                …, LSB)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 111
      NAME                    = "HTRS"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1022
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 101 - Heater Status Word
                                (INLET, EC1, EC2, ACP, N/A, GC1, GC2, GC3):
                                Bit assignments indicated (MSB, …, LSB)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 112
      NAME                    = "STATUS1"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1029
      BYTES                   = 9
      FORMAT                  = "I9"
      DESCRIPTION             = "Telemetry Byte 102 - General Status Word MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 113
      NAME                    = "STATUS2"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1039
      BYTES                   = 9
      FORMAT                  = "I9"
      DESCRIPTION             = "Telemetry Byte 103 - General Status Word LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 114
```

```
      NAME                    = "ERR_STAT1"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1049
      BYTES                   = 11
      FORMAT                  = "I11"
      DESCRIPTION             = "Telemetry Byte 104 - General Error Status
                                Word MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 115
      NAME                    = "ERR_STAT2"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1061
      BYTES                   = 11
      FORMAT                  = "I11"
      DESCRIPTION             = "Telemetry Byte 105 - General Error Status
                                Word LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 116
      NAME                    = "SUBMODE"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1073
      BYTES                   = 9
      FORMAT                  = "I9"
      DESCRIPTION             = "Telemetry Byte 106 - Latched Submode"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 117
      NAME                    = "ABS_TIM1"
      UNIT                    = "TIME"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1083
      BYTES                   = 10
      FORMAT                  = "I10"
      DESCRIPTION             = "Telemetry Byte 107 - Absolute Time MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 118
      NAME                    = "ABS_TIM2"
      UNIT                    = "TIME"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1094
      BYTES                   = 10
      FORMAT                  = "I10"
      DESCRIPTION             = "Telemetry Byte 108 - Absolute Time (mid byte)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 119
      NAME                    = "ABS_TIM3"
      UNIT                    = "TIME"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1105
      BYTES                   = 10
      FORMAT                  = "I10"
```

```
      DESCRIPTION             = "Telemetry Byte 109 - Absolute Time LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 120
      NAME                    = "BA_EMIS1"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1116
      BYTES                   = 10
      FORMAT                  = "I10"
      DESCRIPTION             = "Telemetry Byte 110 - BA Filament Emission MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 121
      NAME                    = "BA_EMIS2"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1127
      BYTES                   = 10
      FORMAT                  = "I10"
      DESCRIPTION             = "Telemetry Byte 111 - BA Filament Emission LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 122
      NAME                    = "RF_MON1"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1138
      BYTES                   = 9
      FORMAT                  = "I9"
      DESCRIPTION             = "Telemetry Byte 112 - RF Frequency Monitor MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 123
      NAME                    = "RF_MON2"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1148
      BYTES                   = 9
      FORMAT                  = "I9"
      DESCRIPTION             = "Telemetry Byte 113 - RF Frequency Monitor LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 124
      NAME                    = "U_SEQ1"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1158
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Telemetry Byte 114 - Microsequencer Status
                                Word MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 125
      NAME                    = "U_SEQ2"
      UNIT                    = "N/A"
```

```
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1167
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Telemetry Byte 115 - Microsequencer Status
                                Word LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 126
      NAME                    = "SP3"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1176
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Telemetry Byte 116 - Spare"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 127
      NAME                    = "SP4"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1182
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Telemetry Byte 117 - Spare"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 128
      NAME                    = "U_SEQC1"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1188
      BYTES                   = 9
      FORMAT                  = "I9"
      DESCRIPTION             = "Telemetry Byte 118 - Microsequencer Scan
                                Counter MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 129
      NAME                    = "U_SEQC2"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1198
      BYTES                   = 9
      FORMAT                  = "I9"
      DESCRIPTION             = "Telemetry Byte 119 - Microsequencer Scan
                                Counter LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 130
      NAME                    = "SP5"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1208
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Telemetry Byte 120 - Spare"
```

```
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 131
      NAME                    = "SP6"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1214
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Telemetry Byte 121 - Spare"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 132
      NAME                    = "MPHASE"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1220
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Telemetry Byte 122 - Mission Phase: 03=GCO,
                                F3=FCO, 00=Descent"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 133
      NAME                    = "MPHASEL"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1229
      BYTES                   = 9
      FORMAT                  = "I9"
      DESCRIPTION             = "Telemetry Byte 123 - Latched Mission Phase:
                                F=Deactivate, C=Suspend"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 134
      NAME                    = "ESW1"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1239
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 124 - Experiment Status Word
                                MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 135
      NAME                    = "ESW2"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1246
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 125 - Experiment Status Word
                                LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 136
```

```
      NAME                    = "SP7"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1253
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Telemetry Byte 126 - Spare"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 137
      NAME                    = "SP8"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1259
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Telemetry Byte 127 - Spare"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 138
      NAME                    = "MET_S"
      UNIT                    = "SECONDS"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1265
      BYTES                   = 7
      FORMAT                  = "I7"
      DESCRIPTION             = "Telemetry Byte 128 - GCMS MET Seconds MSB (
                                MET = Mission Elapsed Time)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 139
      NAME                    = "MET2"
      UNIT                    = "SECONDS"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1273
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 129 - GCMS MET Seconds - byte
                                2"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 140
      NAME                    = "MET3"
      UNIT                    = "SECONDS"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1280
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 130 - GCMS MET Seconds - byte
                                3"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 141
      NAME                    = "MET4"
      UNIT                    = "SECONDS"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1287
      BYTES                   = 6
```

```
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 131 - GCMS MET Seconds LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 142
      NAME                    = "MET_US"
      UNIT                    = "MICROSECONDS"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1294
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Telemetry Byte 132 - GCMS MET microSeconds
                                MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 143
      NAME                    = "MET6"
      UNIT                    = "MICROSECONDS"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1303
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 133 - GCMS MET microSeconds -
                                byte 2"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 144
      NAME                    = "MET7"
      UNIT                    = "MICROSECONDS"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1310
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 134 - GCMS MET microSeconds -
                                byte 3"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 145
      NAME                    = "MET8"
      UNIT                    = "MICROSECONDS"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1317
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 135 - GCMS MET microSeconds
                                LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 146
      NAME                    = "SEQCNTR1"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1324
      BYTES                   = 10
      FORMAT                  = "I10"
      DESCRIPTION             = "Telemetry Byte 136 - Packet Sequence Count
                                MSB"
END_OBJECT                    = COLUMN
```

```
OBJECT                         = COLUMN
      COLUMN_NUMBER            = 147
      NAME                     = "SEQCNTR2"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 1335
      BYTES                    = 10
      FORMAT                   = "I10"
      DESCRIPTION              = "Telemetry Byte 137 - Packet Sequence Count
                                 LSB"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 148
      NAME                     = "SP9"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 1346
      BYTES                    = 5
      FORMAT                   = "I5"
      DESCRIPTION              = "Telemetry Byte 138 - Spare"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 149
      NAME                     = "SP10"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 1352
      BYTES                    = 6
      FORMAT                   = "I6"
      DESCRIPTION              = "Telemetry Byte 139 - Spare"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 150
      NAME                     = "SP11"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 1359
      BYTES                    = 6
      FORMAT                   = "I6"
      DESCRIPTION              = "Telemetry Byte 140 - Spare"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 151
      NAME                     = "SP12"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 1366
      BYTES                    = 6
      FORMAT                   = "I6"
      DESCRIPTION              = "Telemetry Byte 141 - Spare"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 152
      NAME                     = "SP13"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 1373
```

```
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 142 - Spare"
 END_OBJECT                   = COLUMN

 OBJECT                       = COLUMN
      COLUMN_NUMBER           = 153
      NAME                    = "SP14"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1380
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 143 - Spare"
 END_OBJECT                   = COLUMN

 OBJECT                       = COLUMN
      COLUMN_NUMBER           = 154
      NAME                    = "SP15"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1387
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 144 - Spare"
 END_OBJECT                   = COLUMN

 OBJECT                       = COLUMN
      COLUMN_NUMBER           = 155
      NAME                    = "SP16"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1394
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 145 - Spare"
 END_OBJECT                   = COLUMN

 OBJECT                       = COLUMN
      COLUMN_NUMBER           = 156
      NAME                    = "HK2"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1401
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Telemetry Channel Tracking Index (added by
                                the processing software.)"
 END_OBJECT                   = COLUMN

END_OBJECT                    = TABLE
END
```

4.1.7 DATA LABEL – IDLE PACKET HOUSEKEEPING DATA, STAGE 2

The GCMS instrument's data system updates and maintains a special high speed housekeeping data, referred to as an "idle packet" that it inserts into the data system each time the spacecraft checks for data and none of the instrument's standard data packets (Type 1, Type 2, High Speed, Medium Speed, … data packets) are available. This data table, **GCMS_HK_IDLE_STG2.TAB**, consists of n rows by 157 columns where columns 4 – 157 contain the data from the telemetry idle data packet. Where relevant the values are converted to 'real' measurement units in this file. Columns 1 – 3 contain the time of the idle packet measurements where each column expresses that time in a differing format.

File GCMS_HK_IDLE_STG2.LBL

```
PDS_VERSION_ID                 = PDS3

/* FILE CHARACTERISTICS DATA ELEMENTS */

RECORD_TYPE                    = FIXED_LENGTH
RECORD_BYTES                   = 1502
FILE_RECORDS                   = 29175

/* DATA OBJECT POINTER IDENTIFICATION ELEMENTS */

^TABLE                         = ("GCMS_HK_IDLE_STG2.TAB",2)

/* INSTRUMENT AND DETECTOR DESCRIPTIVE DATA ELEMENTS */

FILE_NAME                      = "GCMS_HK_IDLE_STG2.TAB"
DATA_SET_ID                    = "HP-SSA-GCMS-3-FCO/DESCENT-V1.0"
DATA_SET_NAME                  = "HUYGENS TITAN GAS CHROMATOGRAPH
                                 MASS SPEC 3 DESCENT V1.0"
PRODUCT_ID                     = "F14_GCMS_HK_IDLE_STG2"
PRODUCT_NAME                   = "F14_GCMS_HK_IDLE_STG2"
MISSION_NAME                   = "CASSINI-HUYGENS"
INSTRUMENT_HOST_NAME           = "HUYGENS PROBE"
INSTRUMENT_HOST_ID             = HP
MISSION_PHASE_NAME             = "CRUISE"
                                 /* FU_FCO2 */
PRODUCT_TYPE                   = RDR
                                 /* EDR for RAW & RDR for Calibrated Data */
START_TIME                     = 2004-07-14T15:44:42.222
STOP_TIME                      = 2004-07-14T18:40:14.529
                                 /* UTC e.g. 2005-01-14T00:00:00.000 */
                                 /*     or 2005-014T00:00:00.000 */
                                 /* Derived by combining the T0 and */
                                 /* the instrument absolute times */
                                 /*      or  */
                                 /* when these data are not available */
                                 /* the GCMS_GMT (telemetry packet) */
                                 /* time is used. */
SPACECRAFT_CLOCK_START_COUNT   = 1159
SPACECRAFT_CLOCK_STOP_COUNT    = 8926239
                                 /* (DDB + GCMS) clock time */
                                 /* 1/64 second resolution. */
                                 /* DDB clock is set to 0 at power on */
                                 /* and reset to 0 at T0 (begin entry */
                                 /* sequence). Post-T0 is indicated */
                                 /* by adding 2^23 to the DDB clock value. */
NATIVE_START_TIME              = -2133.641
NATIVE_STOP_TIME               = 8400.484
                                 /* Elapsed Time in seconds. */
                                 /* a.k.a. Mission Elapsed Time (MET) */
                                 /* Negative values indicate pre-T0 */
                                 /*   No data is available immediately */
                                 /*   prior to T0 so pre-T0 times may */
                                 /*   be in error by 5-7 seconds. */
                                 /* Positive values indicate post-T0 */
PRODUCT_CREATION_TIME          = 2006-06-15T16:05:54
PRODUCER_ID                    = "GCMS_TEAM"
PRODUCER_FULL_NAME             = "JOHN HABERMAN"
                                 /* & Jaime Demick-Montelara */
                                 /* & Eric Raaen */
PRODUCER_INSTITUTION_NAME      = "NASA GSFC"
```

```
TARGET_NAME                    = "TITAN"

/* INSTRUMENT DESCRIPTION */

INSTRUMENT_ID                  = "GCMS"
INSTRUMENT_NAME                = "GAS CHROMATOGRAPH MASS SPECTROMETER"
INSTRUMENT_TYPE                = "MASS SPECTROMETER"
DATA_QUALITY_ID                = 1
                                 /* DATA_QUALITY_DESC             = "1 = High
Quality ... 5 = Low Quality"
                                 /* Stage 1 Data must be converted to c/s */
                                 /* Stage 2 Data has been converted to c/s */
                                 /*  but MAY NOT be fully corrected for */
                                 /*  the counter overflow condition. This */
                                 /*  data has NOT yet been fully corrected */
                                 /*  for pulse counting system effects */
                                 /*  including pulse coincidence effects */
                                 /*  and system (electronics) effects. */
                                 /* Stage 3 Data has been converted to c/s */
                                 /*  and fully corrected by the team using */
                                 /*  pre- and post-launch instrument */
                                 /*  calibration data. */
INSTRUMENT_MODE_ID             = "FU_FCO2"
                                 /*   F14   */
                                 /* FU = Flown Unit, EU = Engineering Unit */
                                 /* FS = Flight Spare (Lab, Backup) Unit */
                                 /* SU = Spare Unit (Lab, Backup) */
                                 /* DESCENT indicates Entry Mission */
                                 /* FCO indicates Flight Check Out */
                                 /* GCO indicates Ground Check Out */
                                 /*  FCO1/GCO1 = Checkout Type 1 */
                                 /*  FCO1B/GCO1B = Checkout Type 1B */
                                 /*  FCO2/GCO2 = Checkout Type 2 */
                                 /* e.g., FU_DESCENT = 2005-01-14 Mission */

/* DATA OBJECT DEFINITION */

OBJECT                         = TABLE
   INTERCHANGE_FORMAT          = ASCII
   ROWS                        = 29175
   COLUMNS                     = 164
   ROW_BYTES                   = 1502
   DESCRIPTION                 = "GCMS idle packet housekeeping values
                                 extracted from the data stream."

 OBJECT                        = COLUMN
       COLUMN_NUMBER           = 1
       NAME                    = "UTC_GCMS_TIME"
       UNIT                    = "TIME"
       DATA_TYPE               = CHARACTER
       START_BYTE              = 1
       BYTES                   = 23
       FORMAT                  = "A23"
       DESCRIPTION             = "UTC Reference time or GCMS_GMT time for this
                                 data record."
 END_OBJECT                    = COLUMN

 OBJECT                        = COLUMN
       COLUMN_NUMBER           = 2
       NAME                    = "ABS_T"
       UNIT                    = "N/A"
       DATA_TYPE               = ASCII_INTEGER
       START_BYTE              = 25
```

```
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "(Spacecraft DDB + GCMS clock) time. Value
                                starts at zero at power on and is reset to
                                zero at sequence start (T0). 2^23 is added
                                to the value to indicate post T0 times. Each
                                'tic' represents 1/64 second."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 3
      NAME                    = "SCNDS"
      UNIT                    = "SECONDS"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 34
      BYTES                   = 10
      FORMAT                  = "F10.3"
      DESCRIPTION             = "Time relative to spacecraft T0 event.
                                Negative times indicate pre-T0."
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 4
      NAME                    = "GCMS_GMT"
      UNIT                    = "SECONDS"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 45
      BYTES                   = 13
      FORMAT                  = "F13.3"
      DESCRIPTION             = "Time stamp added when data packet is
                                processed by spacecraft"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 5
      NAME                    = "DATE"
      UNIT                    = "SECONDS"
      DATA_TYPE               = CHARACTER
      START_BYTE              = 59
      BYTES                   = 11
      FORMAT                  = "A11"
      DESCRIPTION             = "Data (yyyy-doy) part of GCMS_GMT"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 6
      NAME                    = "TIME"
      UNIT                    = "DATE"
      DATA_TYPE               = CHARACTER
      START_BYTE              = 71
      BYTES                   = 14
      FORMAT                  = "A14"
      DESCRIPTION             = "Time (hh:mm:ss.000) part of GCMS_GMT"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 7
      NAME                    = "STREAM"
      UNIT                    = "TIME"
      DATA_TYPE               = CHARACTER
      START_BYTE              = 86
      BYTES                   = 8
      FORMAT                  = "A8"
```

```
      DESCRIPTION             = "Data Stream ID (A or B) extracted from
                                telemetry data"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 8
      NAME                    = "SEQ_CNTR"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 95
      BYTES                   = 10
      FORMAT                  = "I10"
      DESCRIPTION             = "Sequence Counter Value extracted from
                                telemetry data"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 9
      NAME                    = "TYPE"
      UNIT                    = "N/A"
      DATA_TYPE               = CHARACTER
      START_BYTE              = 106
      BYTES                   = 6
      FORMAT                  = "A6"
      DESCRIPTION             = "Data Packet type (added by processing
                                software)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 10
      NAME                    = "GMT_S"
      UNIT                    = "SECONDS"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 113
      BYTES                   = 7
      FORMAT                  = "I7"
      DESCRIPTION             = "Telemetry Byte 0 - GCMS GMT Seconds MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 11
      NAME                    = "GMT2"
      UNIT                    = "SECONDS"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 121
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 1 - GCMS GMT Seconds - byte 2"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 12
      NAME                    = "GMT3"
      UNIT                    = "SECONDS"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 128
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 2 - GCMS GMT Seconds - byte 3"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 13
```

```
      NAME                    = "GMT4"
      UNIT                    = "SECONDS"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 135
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 3 - GCMS GMT Seconds LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 14
      NAME                    = "GMT_US"
      UNIT                    = "MICORSECONDS"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 142
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Telemetry Byte 4 - GCMS GMT microseconds MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 15
      NAME                    = "GMT5"
      UNIT                    = "MICORSECONDS"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 151
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 5 - GCMS GMT microseconds -
                                byte 2"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 16
      NAME                    = "GMT6"
      UNIT                    = "MICORSECONDS"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 158
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 6 - GCMS GMT microseconds -
                                byte 3"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 17
      NAME                    = "GMT7"
      UNIT                    = "MICORSECONDS"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 165
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 7 - GCMS GMT microseconds LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 18
      NAME                    = "VALID1"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 172
      BYTES                   = 8
      FORMAT                  = "I8"
```

```
      DESCRIPTION             = "Telemetry Byte 008 - Packet Valid MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 19
      NAME                    = "VALID2"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 181
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Telemetry Byte 009 - Packet Valid LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 20
      NAME                    = "HDR"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 190
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Telemetry Byte 010 - Idle Packet Header"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 21
      NAME                    = "SP1"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 196
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Telemetry Byte 011 - Spare"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 22
      NAME                    = "LNGTH1"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 202
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Telemetry Byte 012 - Idle Packet Length MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 23
      NAME                    = "LNGTH2"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 211
      BYTES                   = 8
      FORMAT                  = "I8"
      DESCRIPTION             = "Telemetry Byte 013 - Idle Packet Length LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 24
      NAME                    = "SP2"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
```

```
      START_BYTE              = 220
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Telemetry Byte 014 - Spare"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 25
      NAME                    = "ABS_TIM1"
      UNIT                    = "TIME"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 226
      BYTES                   = 10
      FORMAT                  = "I10"
      DESCRIPTION             = "Telemetry Byte 015 - Absolute Time MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 26
      NAME                    = "ABS_TIM2"
      UNIT                    = "TIME"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 237
      BYTES                   = 10
      FORMAT                  = "I10"
      DESCRIPTION             = "Telemetry Byte 016 - Absolute Time (mid byte)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 27
      NAME                    = "ABS_TIM3"
      UNIT                    = "TIME"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 248
      BYTES                   = 10
      FORMAT                  = "I10"
      DESCRIPTION             = "Telemetry Byte 017 - Absolute Time LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 28
      NAME                    = "ANODE1A"
      UNIT                    = "MICROAMP"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 259
      BYTES                   = 9
      FORMAT                  = "F9.3"
      DESCRIPTION             = "Telemetry Byte 018 - Anode 1 current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 29
      NAME                    = "ANODE2A"
      UNIT                    = "MICROAMP"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 269
      BYTES                   = 9
      FORMAT                  = "F9.3"
      DESCRIPTION             = "Telemetry Byte 019 - Anode 2 current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 30
```

```
      NAME                    = "EB4_2"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 279
      BYTES                   = 7
      FORMAT                  = "F7.3"
      DESCRIPTION             = "Telemetry Byte 020 - EB4_2"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 31
      NAME                    = "EB4_1"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 287
      BYTES                   = 7
      FORMAT                  = "F7.3"
      DESCRIPTION             = "Telemetry Byte 021 - EB4_1"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 32
      NAME                    = "FILI1A"
      UNIT                    = "AMP"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 295
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 022 - Filament 1 current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 33
      NAME                    = "FILI2A"
      UNIT                    = "AMP"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 304
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 023 - Filament 2 current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 34
      NAME                    = "EMIS2A"
      UNIT                    = "MICROAMP"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 313
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 024 - Filament 2 Emission"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 35
      NAME                    = "EMIS1A"
      UNIT                    = "MICROAMP"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 322
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 025 - Filament 1 Emission"
END_OBJECT                    = COLUMN
```

```
OBJECT                         = COLUMN
      COLUMN_NUMBER            = 36
      NAME                     = "BIAS_A"
      UNIT                     = "VOLT"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 331
      BYTES                    = 8
      FORMAT                   = "F8.3"
      DESCRIPTION              = "Telemetry Byte 026 - Bias_A"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 37
      NAME                     = "BIAS1"
      UNIT                     = "VOLT"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 340
      BYTES                    = 7
      FORMAT                   = "F7.3"
      DESCRIPTION              = "Telemetry Byte 027 - Bias1"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 38
      NAME                     = "BIAS2"
      UNIT                     = "VOLT"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 348
      BYTES                    = 7
      FORMAT                   = "F7.3"
      DESCRIPTION              = "Telemetry Byte 028 - Bias2"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 39
      NAME                     = "H2CYPPRS"
      UNIT                     = "BARS"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 356
      BYTES                    = 10
      FORMAT                   = "F10.3"
      DESCRIPTION              = "Telemetry Byte 029 - Hydrogen 'head
                                 pressure' at GC columns"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 40
      NAME                     = "BIASM3"
      UNIT                     = "VOLT"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 367
      BYTES                    = 8
      FORMAT                   = "F8.3"
      DESCRIPTION              = "Telemetry Byte 030 - BiasM3"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 41
      NAME                     = "FBSTRING"
      UNIT                     = "VOLT"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 376
```

```
      BYTES                   = 10
      FORMAT                  = "F10.3"
      DESCRIPTION             = "Telemetry Byte 031 - BiasM2"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 42
      NAME                    = "SP3"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 387
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Telemetry Byte 032 - SpareMon"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 43
      NAME                    = "BIASM1"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 393
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 033 - BiasM1"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 44
      NAME                    = "ANODE3A"
      UNIT                    = "MICROAMP"
      DATA_TYPE               = CHARACTER
      START_BYTE              = 402
      BYTES                   = 9
      FORMAT                  = "A9"
      DESCRIPTION             = "Telemetry Byte 034 - Anode 3 current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 45
      NAME                    = "ANODE4A"
      UNIT                    = "MICROAMP"
      DATA_TYPE               = CHARACTER
      START_BYTE              = 412
      BYTES                   = 9
      FORMAT                  = "A9"
      DESCRIPTION             = "Telemetry Byte 035 - Anode 4 current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 46
      NAME                    = "EB4_4"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 422
      BYTES                   = 7
      FORMAT                  = "F7.3"
      DESCRIPTION             = "Telemetry Byte 036 - EB4_4"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 47
      NAME                    = "EB4_3"
```

```
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 430
      BYTES                   = 7
      FORMAT                  = "F7.3"
      DESCRIPTION             = "Telemetry Byte 037 - EB4_3"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 48
      NAME                    = "FILI3A"
      UNIT                    = "AMP"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 438
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 038 - Filament 3 current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 49
      NAME                    = "FILI4A"
      UNIT                    = "AMP"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 447
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 039 - Filament 4 current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 50
      NAME                    = "EMIS4A"
      UNIT                    = "MICROAMP"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 456
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 040 - Emission 4 current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 51
      NAME                    = "EMIS3A"
      UNIT                    = "MICROAMP"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 465
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 041 - Emission 3 current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 52
      NAME                    = "BIAS_B"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 474
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 042 - Bias_B"
END_OBJECT                    = COLUMN
```

```
OBJECT                         = COLUMN
      COLUMN_NUMBER            = 53
      NAME                     = "BIAS3"
      UNIT                     = "VOLT"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 483
      BYTES                    = 7
      FORMAT                   = "F7.3"
      DESCRIPTION              = "Telemetry Byte 043 - Bias3"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 54
      NAME                     = "BIAS4"
      UNIT                     = "VOLT"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 491
      BYTES                    = 7
      FORMAT                   = "F7.3"
      DESCRIPTION              = "Telemetry Byte 044 - Bias4"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 55
      NAME                     = "H2RESPRS"
      UNIT                     = "BARS"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 499
      BYTES                    = 10
      FORMAT                   = "F10.3"
      DESCRIPTION              = "Telemetry Byte 045 - Hydrogen Storage
                                 Reservoir Pressure"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 56
      NAME                     = "EMTEMP"
      UNIT                     = "DEG C"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 510
      BYTES                    = 8
      FORMAT                   = "F8.3"
      DESCRIPTION              = "Telemetry Byte 046 - Electron Multiplier
                                 Temperature"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 57
      NAME                     = "BIAST"
      UNIT                     = "DEG C"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 519
      BYTES                    = 8
      FORMAT                   = "F8.3"
      DESCRIPTION              = "Telemetry Byte 047 - BiasT"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 58
      NAME                     = "RFTMPR"
      UNIT                     = "DEG C"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 528
```

```
      BYTES                  = 8
      FORMAT                 = "F8.3"
      DESCRIPTION            = "Telemetry Byte 048 - Temperature at RF
                               circuit"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 59
      NAME                   = "REFV"
      UNIT                   = "VOLT"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 537
      BYTES                  = 7
      FORMAT                 = "F7.3"
      DESCRIPTION            = "Telemetry Byte 049 - Reference Voltage"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 60
      NAME                   = "ANODE5A"
      UNIT                   = "MICROAMP"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 545
      BYTES                  = 9
      FORMAT                 = "F9.3"
      DESCRIPTION            = "Telemetry Byte 050 - Anode 5 current"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 61
      NAME                   = "ANODE6A"
      UNIT                   = "MICROAMP"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 555
      BYTES                  = 9
      FORMAT                 = "F9.3"
      DESCRIPTION            = "Telemetry Byte 051 - Anode 6 current"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 62
      NAME                   = "EB4_6"
      UNIT                   = "VOLT"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 565
      BYTES                  = 7
      FORMAT                 = "F7.3"
      DESCRIPTION            = "Telemetry Byte 052 - EB4_6"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 63
      NAME                   = "EB4_5"
      UNIT                   = "VOLT"
      DATA_TYPE              = ASCII_REAL
      START_BYTE             = 573
      BYTES                  = 7
      FORMAT                 = "F7.3"
      DESCRIPTION            = "Telemetry Byte 053 - EB4_5"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 64
```

```
      NAME                    = "FILI5A"
      UNIT                    = "AMP"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 581
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 054 - Filament 5 current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 65
      NAME                    = "BACURNT"
      UNIT                    = "AMP"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 590
      BYTES                   = 9
      FORMAT                  = "F9.3"
      DESCRIPTION             = "Telemetry Byte 055 - BA Gauge current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 66
      NAME                    = "BAEMIS"
      UNIT                    = "MICROAMP"
      DATA_TYPE               = CHARACTER
      START_BYTE              = 600
      BYTES                   = 8
      FORMAT                  = "A8"
      DESCRIPTION             = "Telemetry Byte 056 - BA gauge emission
                                current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 67
      NAME                    = "EMIS5A"
      UNIT                    = "MICROAMP"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 609
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 057 - Emission 5 current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 68
      NAME                    = "BIAS_C"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 618
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 058 - Bias_C"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 69
      NAME                    = "BIAS5"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 627
      BYTES                   = 7
      FORMAT                  = "F7.3"
      DESCRIPTION             = "Telemetry Byte 059 - Bias_5"
```

```
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 70
      NAME                    = "BIAS6"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 635
      BYTES                   = 7
      FORMAT                  = "F7.3"
      DESCRIPTION             = "Telemetry Byte 060 - Bias_6"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 71
      NAME                    = "SHELLP"
      UNIT                    = "BARS"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 643
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 061 - Shell Pressure"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 72
      NAME                    = "UNUSED1"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 652
      BYTES                   = 9
      FORMAT                  = "I9"
      DESCRIPTION             = "Telemetry Byte 062 - Spare"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 73
      NAME                    = "UNUSED2"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 662
      BYTES                   = 9
      FORMAT                  = "I9"
      DESCRIPTION             = "Telemetry Byte 063 - Spare"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 74
      NAME                    = "UNUSED3"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 672
      BYTES                   = 9
      FORMAT                  = "I9"
      DESCRIPTION             = "Telemetry Byte 064 - Unused3"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 75
      NAME                    = "UNUSED4"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 682
```

```
      BYTES                   = 9
      FORMAT                  = "I9"
      DESCRIPTION             = "Telemetry Byte 065 - Unused4"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 76
      NAME                    = "NEG_30VL"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 692
      BYTES                   = 10
      FORMAT                  = "F10.3"
      DESCRIPTION             = "Telemetry Byte 066 - Negative 30 voltage
                                monitor"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 77
      NAME                    = "POS_30VL"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 703
      BYTES                   = 10
      FORMAT                  = "F10.3"
      DESCRIPTION             = "Telemetry Byte 067 - Positive 30 voltage
                                monitor"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 78
      NAME                    = "PMP6SWL"
      UNIT                    = "MICROAMP"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 714
      BYTES                   = 9
      FORMAT                  = "F9.3"
      DESCRIPTION             = "Telemetry Byte 068 - Ion Pump 6 monitor"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 79
      NAME                    = "PMP5IS5"
      UNIT                    = "MICROAMP"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 724
      BYTES                   = 9
      FORMAT                  = "F9.3"
      DESCRIPTION             = "Telemetry Byte 069 - Ion Pump 5 monitor"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 80
      NAME                    = "PMP2IS4"
      UNIT                    = "MICROAMP"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 734
      BYTES                   = 9
      FORMAT                  = "F9.3"
      DESCRIPTION             = "Telemetry Byte 070 - Ion Pump 2 monitor"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
```

```
      COLUMN_NUMBER           = 81
      NAME                    = "PMP1IS3"
      UNIT                    = "MICROAMP"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 744
      BYTES                   = 9
      FORMAT                  = "F9.3"
      DESCRIPTION             = "Telemetry Byte 071 - Ion Pump 1 monitor"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 82
      NAME                    = "PMP3IS1"
      UNIT                    = "MICROAMP"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 754
      BYTES                   = 9
      FORMAT                  = "F9.3"
      DESCRIPTION             = "Telemetry Byte 072 - Ion Pump 3 monitor"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 83
      NAME                    = "PMP4IS2"
      UNIT                    = "MICROAMP"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 764
      BYTES                   = 9
      FORMAT                  = "F9.3"
      DESCRIPTION             = "Telemetry Byte 073 - Ion Pump 4 monitor"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 84
      NAME                    = "BAMON"
      UNIT                    = "N/A"
      DATA_TYPE               = CHARACTER
      START_BYTE              = 774
      BYTES                   = 8
      FORMAT                  = "A8"
      DESCRIPTION             = "Telemetry Byte 074 - BA gauge monitor"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 85
      NAME                    = "DECKT"
      UNIT                    = "DEG C"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 783
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 075 - Instrument deck
                                temperature"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 86
      NAME                    = "TRANST"
      UNIT                    = "DEG C"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 792
      BYTES                   = 8
      FORMAT                  = "F8.3"
```

```
      DESCRIPTION             = "Telemetry Byte 076 - TransT"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 87
      NAME                    = "THERMP"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 801
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 077 - ThermP"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 88
      NAME                    = "THREFP"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 810
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 078 - ThrefP"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 89
      NAME                    = "TIS3INT"
      UNIT                    = "DEG C"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 819
      BYTES                   = 9
      FORMAT                  = "F9.3"
      DESCRIPTION             = "Telemetry Byte 079 - Tis3Int"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 90
      NAME                    = "TEMPH2"
      UNIT                    = "DEG C"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 829
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 080 - Hydrogen storage
                                reservoir temperature"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 91
      NAME                    = "TSMPL"
      UNIT                    = "DEG C"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 838
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 081 - Tsample"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 92
      NAME                    = "T_LVPS1"
      UNIT                    = "DEG C"
```

```
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 847
      BYTES                   = 9
      FORMAT                  = "F9.3"
      DESCRIPTION             = "Telemetry Byte 082 - T_LVPS1"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 93
      NAME                    = "T_LVPS2"
      UNIT                    = "DEG C"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 857
      BYTES                   = 9
      FORMAT                  = "F9.3"
      DESCRIPTION             = "Telemetry Byte 083 - T_LVPS2"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 94
      NAME                    = "T_LVPS3"
      UNIT                    = "DEG C"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 867
      BYTES                   = 9
      FORMAT                  = "F9.3"
      DESCRIPTION             = "Telemetry Byte 084 - T_LVPS3"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 95
      NAME                    = "POS13_MON"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 877
      BYTES                   = 11
      FORMAT                  = "F11.3"
      DESCRIPTION             = "Telemetry Byte 085 - Positive 13 voltage
                                monitor"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 96
      NAME                    = "5R_MON"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 889
      BYTES                   = 8
      FORMAT                  = "F8.3"
      DESCRIPTION             = "Telemetry Byte 086 - 5R_Mon"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 97
      NAME                    = "5REF"
      UNIT                    = "VOLT"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 898
      BYTES                   = 7
      FORMAT                  = "F7.3"
      DESCRIPTION             = "Telemetry Byte 087 - 5Ref"
END_OBJECT                    = COLUMN
```

```
OBJECT                          = COLUMN
      COLUMN_NUMBER             = 98
      NAME                      = "NEG5_7MON"
      UNIT                      = "VOLT"
      DATA_TYPE                 = ASCII_REAL
      START_BYTE                = 906
      BYTES                     = 11
      FORMAT                    = "F11.3"
      DESCRIPTION               = "Telemetry Byte 088 - Negative 57 volt monitor"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 99
      NAME                      = "CALMON"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_REAL
      START_BYTE                = 918
      BYTES                     = 8
      FORMAT                    = "F8.3"
      DESCRIPTION               = "Telemetry Byte 089 - CalMon"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 100
      NAME                      = "VH_INH"
      UNIT                      = "VOLT"
      DATA_TYPE                 = ASCII_REAL
      START_BYTE                = 927
      BYTES                     = 8
      FORMAT                    = "F8.3"
      DESCRIPTION               = "Telemetry Byte 090 - Valves inhibit (if
                                  voltage is high)"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 101
      NAME                      = "T_GC1"
      UNIT                      = "DEG C"
      DATA_TYPE                 = ASCII_REAL
      START_BYTE                = 936
      BYTES                     = 8
      FORMAT                    = "F8.3"
      DESCRIPTION               = "Telemetry Byte 091 - GC column 1 temperature"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 102
      NAME                      = "T_EC1"
      UNIT                      = "DEG C"
      DATA_TYPE                 = ASCII_REAL
      START_BYTE                = 945
      BYTES                     = 8
      FORMAT                    = "F8.3"
      DESCRIPTION               = "Telemetry Byte 092 - Enrichment Cell
                                  temperature"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 103
      NAME                      = "T_EC2"
      UNIT                      = "DEG C"
      DATA_TYPE                 = ASCII_REAL
      START_BYTE                = 954
```

```
      BYTES                 = 8
      FORMAT                = "F8.3"
      DESCRIPTION           = "Telemetry Byte 093 - T_EC2"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 104
      NAME                  = "T_ACP"
      UNIT                  = "DEG C"
      DATA_TYPE             = ASCII_REAL
      START_BYTE            = 963
      BYTES                 = 8
      FORMAT                = "F8.3"
      DESCRIPTION           = "Telemetry Byte 094 - ACP sample transfer
                              line temperature"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 105
      NAME                  = "T_GC2"
      UNIT                  = "DEG C"
      DATA_TYPE             = ASCII_REAL
      START_BYTE            = 972
      BYTES                 = 8
      FORMAT                = "F8.3"
      DESCRIPTION           = "Telemetry Byte 095 - GC column 2 temperature"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 106
      NAME                  = "T_GC3"
      UNIT                  = "DEG C"
      DATA_TYPE             = ASCII_REAL
      START_BYTE            = 981
      BYTES                 = 8
      FORMAT                = "F8.3"
      DESCRIPTION           = "Telemetry Byte 096 - GC column 3 temperature"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 107
      NAME                  = "T_INLT"
      UNIT                  = "DEG C"
      DATA_TYPE             = ASCII_REAL
      START_BYTE            = 990
      BYTES                 = 8
      FORMAT                = "F8.3"
      DESCRIPTION           = "Telemetry Byte 097 - Sample Inlet Line
                              Temperature"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 108
      NAME                  = "ACP_PRS1"
      UNIT                  = "BARS"
      DATA_TYPE             = ASCII_REAL
      START_BYTE            = 999
      BYTES                 = 10
      FORMAT                = "F10.3"
      DESCRIPTION           = "Telemetry Byte 098 - ACP sample transfer
                              line pressure gauge 1"
END_OBJECT                  = COLUMN
```

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OBJECT                         = COLUMN
      COLUMN_NUMBER            = 109
      NAME                     = "ACP_PRS2"
      UNIT                     = "BARS"
      DATA_TYPE                = CHARACTER
      START_BYTE               = 1010
      BYTES                    = 10
      FORMAT                   = "A10"
      DESCRIPTION              = "Telemetry Byte 099 - ACP sample transfer
                                 line pressure gauge 2"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 110
      NAME                     = "TEMP_FC"
      UNIT                     = "DEG C"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 1021
      BYTES                    = 9
      FORMAT                   = "F9.3"
      DESCRIPTION              = "Telemetry Byte 100 - Flight Computer
                                 temperature"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 111
      NAME                     = "IMON1"
      UNIT                     = "AMP"
      DATA_TYPE                = CHARACTER
      START_BYTE               = 1031
      BYTES                    = 7
      FORMAT                   = "A7"
      DESCRIPTION              = "Telemetry Byte 101 - IMON1"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 112
      NAME                     = "IMON2"
      UNIT                     = "AMP"
      DATA_TYPE                = CHARACTER
      START_BYTE               = 1039
      BYTES                    = 7
      FORMAT                   = "A7"
      DESCRIPTION              = "Telemetry Byte 102 - IMON2"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 113
      NAME                     = "MULTANA1A"
      UNIT                     = "MICROAMP"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 1047
      BYTES                    = 11
      FORMAT                   = "F11.3"
      DESCRIPTION              = "Telemetry Byte 103 - Multana1"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 114
      NAME                     = "MULTANA2A"
      UNIT                     = "MICROAMP"
      DATA_TYPE                = ASCII_REAL
      START_BYTE               = 1059
```

```
      BYTES                 = 11
      FORMAT                = "F11.3"
      DESCRIPTION           = "Telemetry Byte 104 - Multana2"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 115
      NAME                  = "5R_FC_MON"
      UNIT                  = "VOLT"
      DATA_TYPE             = ASCII_REAL
      START_BYTE            = 1071
      BYTES                 = 11
      FORMAT                = "F11.3"
      DESCRIPTION           = "Telemetry Byte 105 - 5R_FC_Mon"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 116
      NAME                  = "RF_MON"
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_REAL
      START_BYTE            = 1083
      BYTES                 = 8
      FORMAT                = "F8.3"
      DESCRIPTION           = "Telemetry Byte 106 - RF_Mon"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 117
      NAME                  = "EM1HV"
      UNIT                  = "MICROAMP"
      DATA_TYPE             = ASCII_REAL
      START_BYTE            = 1092
      BYTES                 = 7
      FORMAT                = "F7.3"
      DESCRIPTION           = "Telemetry Byte 107 - EM1_Mon (Multiplier 1
                              high voltage)"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 118
      NAME                  = "EM2HV"
      UNIT                  = "MICROAMP"
      DATA_TYPE             = ASCII_REAL
      START_BYTE            = 1100
      BYTES                 = 7
      FORMAT                = "F7.3"
      DESCRIPTION           = "Telemetry Byte 108 - EM2_Mon (Multiplier 2
                              high voltage)"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 119
      NAME                  = "SP4"
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_REAL
      START_BYTE            = 1108
      BYTES                 = 8
      FORMAT                = "F8.3"
      DESCRIPTION           = "Telemetry Byte 109 - ?"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
```

```
      COLUMN_NUMBER           = 120
      NAME                    = "PRSR1_103"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1117
      BYTES                   = 11
      FORMAT                  = "F11.3"
      DESCRIPTION             = "Telemetry Byte 110 - Pres1_103"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 121
      NAME                    = "PRSR2_119"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1129
      BYTES                   = 11
      FORMAT                  = "F11.3"
      DESCRIPTION             = "Telemetry Byte 111 - Pres2_119"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 122
      NAME                    = "FILSTAT"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1141
      BYTES                   = 9
      FORMAT                  = "I9"
      DESCRIPTION             = "Telemetry Byte 112 - Filaments Status (IS1,
                                IS2, IS3, IS4,IS5, BA, IP1, IP2): Bit
                                assignments indicated (MSB, …, LSB)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 123
      NAME                    = "HTRSTAT"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1151
      BYTES                   = 9
      FORMAT                  = "I9"
      DESCRIPTION             = "Telemetry Byte 113 - Heaters Status (INLET,
                                EC1, EC2, ACP, N/A, GC1, GC2, GC3): Bit
                                assignments indicated (MSB, …, LSB)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 124
      NAME                    = "LATCHSM1"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1161
      BYTES                   = 10
      FORMAT                  = "I10"
      DESCRIPTION             = "Telemetry Byte 114 - LATSUBM (Latched
                                Submodes MSB)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 125
      NAME                    = "LATCHSM2"
      UNIT                    = "N/A"
```

```
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1172
      BYTES                   = 10
      FORMAT                  = "I10"
      DESCRIPTION             = "Telemetry Byte 115 - LATSUBM (Latched
                                Submodes LSB)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 126
      NAME                    = "ESW1"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1183
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 116 - ESW MSB (Experiment
                                Status Word)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 127
      NAME                    = "ESW2"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1190
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 117 - ESW LSB (Experiment
                                Status Word)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 128
      NAME                    = "COMINDX1"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1197
      BYTES                   = 10
      FORMAT                  = "I10"
      DESCRIPTION             = "Telemetry Byte 118 - Index MSB (Commutator
                                Index)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 129
      NAME                    = "COMINDX2"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1208
      BYTES                   = 10
      FORMAT                  = "I10"
      DESCRIPTION             = "Telemetry Byte 119 - Index LSB (Commutator
                                Index)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 130
      NAME                    = "DAC07"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1219
      BYTES                   = 7
```

```
      FORMAT                 = "I7"
      DESCRIPTION            = "Telemetry Byte 120 - DAC07"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 131
      NAME                   = "DAC08"
      UNIT                   = "N/A"
      DATA_TYPE              = ASCII_INTEGER
      START_BYTE             = 1227
      BYTES                  = 7
      FORMAT                 = "I7"
      DESCRIPTION            = "Telemetry Byte 121 - DAC08"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 132
      NAME                   = "DAC15"
      UNIT                   = "N/A"
      DATA_TYPE              = ASCII_INTEGER
      START_BYTE             = 1235
      BYTES                  = 7
      FORMAT                 = "I7"
      DESCRIPTION            = "Telemetry Byte 122 - DAC15"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 133
      NAME                   = "DAC16"
      UNIT                   = "N/A"
      DATA_TYPE              = ASCII_INTEGER
      START_BYTE             = 1243
      BYTES                  = 7
      FORMAT                 = "I7"
      DESCRIPTION            = "Telemetry Byte 123 - DAC16"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 134
      NAME                   = "EM1DAC"
      UNIT                   = "N/A"
      DATA_TYPE              = ASCII_INTEGER
      START_BYTE             = 1251
      BYTES                  = 8
      FORMAT                 = "I8"
      DESCRIPTION            = "Telemetry Byte 124 - DAC17 (EM1DAC)"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 135
      NAME                   = "EM2DAC"
      UNIT                   = "N/A"
      DATA_TYPE              = ASCII_INTEGER
      START_BYTE             = 1260
      BYTES                  = 8
      FORMAT                 = "I8"
      DESCRIPTION            = "Telemetry Byte 125 - DAC18 (EM2DAC)"
END_OBJECT                   = COLUMN

OBJECT                       = COLUMN
      COLUMN_NUMBER          = 136
      NAME                   = "DAC19"
      UNIT                   = "N/A"
```

```
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1269
      BYTES                   = 7
      FORMAT                  = "I7"
      DESCRIPTION             = "Telemetry Byte 126 - DAC19"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 137
      NAME                    = "DAC20"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1277
      BYTES                   = 7
      FORMAT                  = "I7"
      DESCRIPTION             = "Telemetry Byte 127 - DAC20"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 138
      NAME                    = "DAC21"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1285
      BYTES                   = 7
      FORMAT                  = "I7"
      DESCRIPTION             = "Telemetry Byte 128 - DAC21"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 139
      NAME                    = "DAC22"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1293
      BYTES                   = 7
      FORMAT                  = "I7"
      DESCRIPTION             = "Telemetry Byte 129 - DAC22"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 140
      NAME                    = "DAC23"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1301
      BYTES                   = 7
      FORMAT                  = "I7"
      DESCRIPTION             = "Telemetry Byte 130 - DAC23"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 141
      NAME                    = "DAC24"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1309
      BYTES                   = 7
      FORMAT                  = "I7"
      DESCRIPTION             = "Telemetry Byte 131 - DAC24"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
```

```
      COLUMN_NUMBER           = 142
      NAME                    = "TGC1_10-2"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1317
      BYTES                   = 11
      FORMAT                  = "F11.3"
      DESCRIPTION             = "Telemetry Byte 132 - TGC1_10 (10-bit GC1
                                Temperature)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 143
      NAME                    = "TGC1_10-2"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1329
      BYTES                   = 11
      FORMAT                  = "F11.3"
      DESCRIPTION             = "Telemetry Byte 133 - TGC1_10 (10-bit GC1
                                Temperature)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 144
      NAME                    = "TGC2_10-1"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1341
      BYTES                   = 11
      FORMAT                  = "F11.3"
      DESCRIPTION             = "Telemetry Byte 134 - TGC2 _10(10-bit GC2
                                Temperature)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 145
      NAME                    = "TGC2_10-2"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_REAL
      START_BYTE              = 1353
      BYTES                   = 11
      FORMAT                  = "F11.3"
      DESCRIPTION             = "Telemetry Byte 135 - TGC2 _10(10-bit GC2
                                Temperature)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 146
      NAME                    = "METS"
      UNIT                    = "SECONDS"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1365
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 136 - GCMS MET Seconds MSB
                                (MET is Mission Elapsed Time)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 147
      NAME                    = "MET2"
      UNIT                    = "SECONDS"
```

```
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1372
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 137 - GCMS MET Seconds - byte
                                2"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 148
      NAME                    = "MET3"
      UNIT                    = "SECONDS"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1379
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 138 - GCMS MET Seconds - byte
                                3"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 149
      NAME                    = "MET4"
      UNIT                    = "SECONDS"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1386
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 139 - GCMS MET Seconds LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 150
      NAME                    = "METUS"
      UNIT                    = "MICROSECONDS"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1393
      BYTES                   = 7
      FORMAT                  = "I7"
      DESCRIPTION             = "Telemetry Byte 140 - GCMS MET microSeconds
                                MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 151
      NAME                    = "MET6"
      UNIT                    = "MICROSECONDS"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1401
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 141 - GCMS MET microSeconds -
                                byte 2"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 152
      NAME                    = "MET7"
      UNIT                    = "MICROSECONDS"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1408
      BYTES                   = 6
      FORMAT                  = "I6"
```

```
      DESCRIPTION             = "Telemetry Byte 142 - GCMS MET microSeconds -
                                byte 3"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 153
      NAME                    = "MET8"
      UNIT                    = "MICROSECONDS"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1415
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 143 - GCMS MET microSeconds
                                LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 154
      NAME                    = "SEQCNTR1"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1422
      BYTES                   = 10
      FORMAT                  = "I10"
      DESCRIPTION             = "Telemetry Byte 144 - Sequence Counter MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 155
      NAME                    = "SEQCNTR2"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1433
      BYTES                   = 10
      FORMAT                  = "I10"
      DESCRIPTION             = "Telemetry Byte 145 - Sequence Counter LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 156
      NAME                    = "SP5"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1444
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Telemetry Byte 146 - Spare"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 157
      NAME                    = "SP6"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1450
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Telemetry Byte 147 - Spare"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 158
      NAME                    = "SP7"
```

```
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1456
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Telemetry Byte 148 - Spare"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 159
      NAME                    = "SP8"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1462
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Telemetry Byte 149 - Spare"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 160
      NAME                    = "SP9"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1468
      BYTES                   = 5
      FORMAT                  = "I5"
      DESCRIPTION             = "Telemetry Byte 150 - Spare"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 161
      NAME                    = "SP10"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1474
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 151 - Spare"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 162
      NAME                    = "SP11"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1481
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 152 - Spare"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 163
      NAME                    = "SP12"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1488
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 153 - Spare"
END_OBJECT                    = COLUMN
```

```
 OBJECT                         = COLUMN
       COLUMN_NUMBER            = 164
       NAME                     = "LDLE"
       UNIT                     = "N/A"
       DATA_TYPE                = ASCII_INTEGER
       START_BYTE               = 1495
       BYTES                    = 6
       FORMAT                   = "I6"
       DESCRIPTION              = "Idle Packet Flag added by processing software"
 END_OBJECT                     = COLUMN

END_OBJECT                      = TABLE
END
```

4.1.8 DATA LABEL – RAW TELEMETRY FILE

Each time the GCMS instrument is used with flight electronics a data file named o###sg__.1h_is created, where ### indicates a 3-digit number. The file available to us contains data relevant only to our (GCMS) instrument. The original files are in 'binary' (spacecraft telemetry) format using 138 (8-bit) byte records. The GCMS instrument's housekeeping and data records are of differing sizes and frequently span multiple spacecraft data records. This telemetry file has been converted to a comma delimited ASCII text file and renamed **GCMS_TELEMETRY_STG1.CSV**. The time recorded in telemetry bytes 1 – 6 has been converted to UTC format and added as column 1. The file is 139 columns by n rows. Row 1 contains the column labels (B0, B1, B2,…) where the numerical part of the label refers to the byte offset value within the data record for each of the 8-bit data bytes. With the information available from the Huygens Mission Interface Control Documentation and the GCMS Instrument Software User's Manual the user can use this file and reprocess the data as desired.

File: GCMS_TELEMETRY_STG1.LBL

```
PDS_VERSION_ID                  = PDS3

/* FILE CHARACTERISTICS DATA ELEMENTS */

RECORD_TYPE                     = STREAM
RECORD_BYTES                    = 863
                                  /* Longest Record in the File */
FILE_RECORDS                    = 33350

/* DATA OBJECT POINTER IDENTIFICATION ELEMENTS */

^SPREADSHEET                    = ("GCMS_TELEMETRY_STG1.CSV",2)

/* INSTRUMENT AND DETECTOR DESCRIPTIVE DATA ELEMENTS */

FILE_NAME                       = "GCMS_TELEMETRY_STG1.CSV"
DATA_SET_ID                     = "HP-SSA-GCMS-3-FCO/DESCENT-V1.0"
DATA_SET_NAME                   = "HUYGENS TITAN GAS CHROMATOGRAPH
                                  MASS SPEC 3 DESCENT V1.0"
PRODUCT_ID                      = "F15_GCMS_TELEMETRY_STG1"
PRODUCT_NAME                    = "F15_GCMS_TELEMETRY_STG1"
MISSION_NAME                    = "CASSINI-HUYGENS"
INSTRUMENT_HOST_NAME            = "HUYGENS PROBE"
INSTRUMENT_HOST_ID              = HP
MISSION_PHASE_NAME              = "CRUISE"
                                  /* FU-FCO */
PRODUCT_TYPE                    = EDR
                                  /* EDR for RAW & RDR for Calibrated Data */
START_TIME                      = 2004-09-14T10:55:54.546
```

```
STOP_TIME                       = 2004-09-14T13:50:07.752
                                  /* UTC e.g. 2005-01-14T00:00:00.000 */
                                  /*     or 2005-014T00:00:00.000 */
                                  /* These values are obtained from the */
                                  /* first six data bytes in this file. */
                                  /* These are the time values associated */
                                  /* with the raw telemetry data packets. */
SPACECRAFT_CLOCK_START_COUNT    = "N/A"
SPACECRAFT_CLOCK_STOP_COUNT     = "N/A"
NATIVE_START_TIME               = "N/A"
NATIVE_STOP_TIME                = "N/A"
PRODUCT_CREATION_TIME           = 2006-06-15T15:09:33
PRODUCER_ID                     = "GCMS_TEAM"
PRODUCER_FULL_NAME              = "JOHN HABERMAN"
                                  /* & Jaime Demick Montelara */
                                  /* & Eric Raaen */
PRODUCER_INSTITUTION_NAME       = "NASA GSFC"
TARGET_NAME                     = "TITAN"

/* INSTRUMENT DESCRIPTION */

INSTRUMENT_ID                   = "GCMS"
INSTRUMENT_NAME                 = "GAS CHROMATOGRAPH MASS SPECTROMETER"
INSTRUMENT_TYPE                 = "MASS SPECTROMETER"
DATA_QUALITY_ID                 = 1
DATA_QUALITY_DESC               = "1 = High Quality ... 5 = Low Quality"
                                  /* Stage 1 Data must be converted to c/s */
                                  /* Stage 2 Data has been converted to c/s */
                                  /*  but MAY NOT be fully corrected for */
                                  /*  the counter overflow condition. This */
                                  /*  data has NOT yet been fully corrected */
                                  /*  for pulse counting system effects */
                                  /*  including pulse coincidence effects */
                                  /*  and system (electronics) effects. */
                                  /* Stage 3 Data has been converted to c/s */
                                  /*  and fully corrected by the team using */
                                  /*  pre- and post-launch instrument */
                                  /*  calibration data. */
INSTRUMENT_MODE_ID              = "FU-FCO"
                                  /* F15 */
                                  /* FU-FCO */
                                  /* FU = Flown Unit, EU = Enigneering Unit */
                                  /* FS or SU = Spare (Lab, Backup) Unit */
                                  /* DESCENT indicates Entry Mission */
                                  /* FCO indicates Flight Check Out */
                                  /* GCO indicates Ground Check Out */
                                  /*  FCO1/GCO1 = Checkout Type 1 */
                                  /*  FCO1B/GCO1B = Checkout Type 1B */
                                  /*  FCO2/GCO2 = Checkout Type 2 */
                                  /* e.g., FU_DESCENT = 2005-01-14 Mission */

/* DATA OBJECT DEFINITION */

OBJECT                          = SPREADSHEET
   INTERCHANGE_FORMAT           = ASCII
   ROWS                         = 33350
   ROW_BYTES                    = 991
                                  /* Size of LONGEST possible row. */
   FIELDS                       = 139
   FIELD_DELIMITER              = "COMMA"
   DESCRIPTION                  = "This file contains the raw telemetry data as
                                  delivered to us and before being processed.
                                  This data has been converted from binary to
```

```
                              8-bit ASCII TEXT values. The telemetry and
                              GCMS data packet sizes are NOT the same. The
                              time stamp on the telemetry packets is not
                              the same as the time stamp on the GCMS data
                              packets."

OBJECT                      = FIELD
      NAME                  = "UTC"
      FIELD_NUMBER          = 1
      UNIT                  = "N/A"
      DATA_TYPE             = TIME
      BYTES                 = 23
      DESCRIPTION           = "Telemetry Packet's UTC Time Stamp calculated
                              from bytes 1 - 6. Refer to data system
                              documentation for details."
END_OBJECT                  = FIELD

OBJECT                      = FIELD
      NAME                  = "B0"
      FIELD_NUMBER          = 2
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      BYTES                 = 5
      DESCRIPTION           = "Telemetry File Data Byte 1"
END_OBJECT                  = FIELD

OBJECT                      = FIELD
      NAME                  = "B1"
      FIELD_NUMBER          = 3
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      BYTES                 = 5
      DESCRIPTION           = "Telemetry File Data Byte 2"
END_OBJECT                  = FIELD

OBJECT                      = FIELD
      NAME                  = "B2"
      FIELD_NUMBER          = 4
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      BYTES                 = 5
      DESCRIPTION           = "Telemetry File Data Byte 3"
END_OBJECT                  = FIELD

OBJECT                      = FIELD
      NAME                  = "B3"
      FIELD_NUMBER          = 5
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      BYTES                 = 5
      DESCRIPTION           = "Telemetry File Data Byte 4"
END_OBJECT                  = FIELD

OBJECT                      = FIELD
      NAME                  = "B4"
      FIELD_NUMBER          = 6
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      BYTES                 = 5
      DESCRIPTION           = "Telemetry File Data Byte 5"
END_OBJECT                  = FIELD

OBJECT                      = FIELD
```

```
      NAME                    = "B5"
      FIELD_NUMBER            = 7
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 6"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B6"
      FIELD_NUMBER            = 8
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 7"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B7"
      FIELD_NUMBER            = 9
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 8"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B8"
      FIELD_NUMBER            = 10
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 9"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B9"
      FIELD_NUMBER            = 11
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 10"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B10"
      FIELD_NUMBER            = 12
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 11"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B11"
      FIELD_NUMBER            = 13
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 12"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
```

```
      NAME                    = "B12"
      FIELD_NUMBER            = 14
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 13"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B13"
      FIELD_NUMBER            = 15
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 14"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B14"
      FIELD_NUMBER            = 16
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 15"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B15"
      FIELD_NUMBER            = 17
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 16"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B16"
      FIELD_NUMBER            = 18
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 17"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B17"
      FIELD_NUMBER            = 19
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 18"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B18"
      FIELD_NUMBER            = 20
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 19"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
```

```
      NAME                    = "B19"
      FIELD_NUMBER            = 21
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 20"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B20"
      FIELD_NUMBER            = 22
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 21"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B21"
      FIELD_NUMBER            = 23
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 22"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B22"
      FIELD_NUMBER            = 24
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 23"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B23"
      FIELD_NUMBER            = 25
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 24"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B24"
      FIELD_NUMBER            = 26
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 25"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B25"
      FIELD_NUMBER            = 27
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 26"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
```

```
      NAME                    = "B26"
      FIELD_NUMBER            = 28
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 27"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B27"
      FIELD_NUMBER            = 29
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 28"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B28"
      FIELD_NUMBER            = 30
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 29"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B29"
      FIELD_NUMBER            = 31
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 30"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B30"
      FIELD_NUMBER            = 32
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 31"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B31"
      FIELD_NUMBER            = 33
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 32"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B32"
      FIELD_NUMBER            = 34
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 33"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
```

```
      NAME                    = "B33"
      FIELD_NUMBER            = 35
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 34"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B34"
      FIELD_NUMBER            = 36
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 35"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B35"
      FIELD_NUMBER            = 37
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 36"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B36"
      FIELD_NUMBER            = 38
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 37"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B37"
      FIELD_NUMBER            = 39
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 38"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B38"
      FIELD_NUMBER            = 40
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 39"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B39"
      FIELD_NUMBER            = 41
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 40"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
```

```
      NAME                  = "B40"
      FIELD_NUMBER          = 42
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      BYTES                 = 5
      DESCRIPTION           = "Telemetry File Data Byte 41"
END_OBJECT                  = FIELD

OBJECT                      = FIELD
      NAME                  = "B41"
      FIELD_NUMBER          = 43
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      BYTES                 = 5
      DESCRIPTION           = "Telemetry File Data Byte 42"
END_OBJECT                  = FIELD

OBJECT                      = FIELD
      NAME                  = "B42"
      FIELD_NUMBER          = 44
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      BYTES                 = 5
      DESCRIPTION           = "Telemetry File Data Byte 43"
END_OBJECT                  = FIELD

OBJECT                      = FIELD
      NAME                  = "B43"
      FIELD_NUMBER          = 45
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      BYTES                 = 5
      DESCRIPTION           = "Telemetry File Data Byte 44"
END_OBJECT                  = FIELD

OBJECT                      = FIELD
      NAME                  = "B44"
      FIELD_NUMBER          = 46
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      BYTES                 = 5
      DESCRIPTION           = "Telemetry File Data Byte 45"
END_OBJECT                  = FIELD

OBJECT                      = FIELD
      NAME                  = "B45"
      FIELD_NUMBER          = 47
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      BYTES                 = 5
      DESCRIPTION           = "Telemetry File Data Byte 46"
END_OBJECT                  = FIELD

OBJECT                      = FIELD
      NAME                  = "B46"
      FIELD_NUMBER          = 48
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      BYTES                 = 5
      DESCRIPTION           = "Telemetry File Data Byte 47"
END_OBJECT                  = FIELD

OBJECT                      = FIELD
```

```
      NAME                    = "B47"
      FIELD_NUMBER            = 49
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 48"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B48"
      FIELD_NUMBER            = 50
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 49"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B49"
      FIELD_NUMBER            = 51
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 50"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B50"
      FIELD_NUMBER            = 52
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 51"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B51"
      FIELD_NUMBER            = 53
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 52"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B52"
      FIELD_NUMBER            = 54
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 53"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B53"
      FIELD_NUMBER            = 55
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 54"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
```

```
      NAME                    = "B54"
      FIELD_NUMBER            = 56
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 55"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B55"
      FIELD_NUMBER            = 57
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 56"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B56"
      FIELD_NUMBER            = 58
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 57"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B57"
      FIELD_NUMBER            = 59
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 58"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B58"
      FIELD_NUMBER            = 60
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 59"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B59"
      FIELD_NUMBER            = 61
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 60"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B60"
      FIELD_NUMBER            = 62
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 61"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
```

```
      NAME                    = "B61"
      FIELD_NUMBER            = 63
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 62"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B62"
      FIELD_NUMBER            = 64
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 63"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B63"
      FIELD_NUMBER            = 65
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 64"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B64"
      FIELD_NUMBER            = 66
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 65"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B65"
      FIELD_NUMBER            = 67
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 66"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B66"
      FIELD_NUMBER            = 68
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 67"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B67"
      FIELD_NUMBER            = 69
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 68"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
```

```
      NAME                    = "B68"
      FIELD_NUMBER            = 70
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 69"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B69"
      FIELD_NUMBER            = 71
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 70"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B70"
      FIELD_NUMBER            = 72
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 71"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B71"
      FIELD_NUMBER            = 73
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 72"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B72"
      FIELD_NUMBER            = 74
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 73"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B73"
      FIELD_NUMBER            = 75
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 74"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B74"
      FIELD_NUMBER            = 76
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 75"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
```

```
      NAME                    = "B75"
      FIELD_NUMBER            = 77
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 76"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B76"
      FIELD_NUMBER            = 78
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 77"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B77"
      FIELD_NUMBER            = 79
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 78"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B78"
      FIELD_NUMBER            = 80
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 79"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B79"
      FIELD_NUMBER            = 81
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 80"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B80"
      FIELD_NUMBER            = 82
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 81"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B81"
      FIELD_NUMBER            = 83
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 82"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
```

```
      NAME                    = "B82"
      FIELD_NUMBER            = 84
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 83"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B83"
      FIELD_NUMBER            = 85
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 84"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B84"
      FIELD_NUMBER            = 86
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 85"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B85"
      FIELD_NUMBER            = 87
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 86"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B86"
      FIELD_NUMBER            = 88
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 87"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B87"
      FIELD_NUMBER            = 89
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 88"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B88"
      FIELD_NUMBER            = 90
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 89"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
```

```
      NAME                  = "B89"
      FIELD_NUMBER          = 91
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      BYTES                 = 5
      DESCRIPTION           = "Telemetry File Data Byte 90"
END_OBJECT                  = FIELD

OBJECT                      = FIELD
      NAME                  = "B90"
      FIELD_NUMBER          = 92
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      BYTES                 = 5
      DESCRIPTION           = "Telemetry File Data Byte 91"
END_OBJECT                  = FIELD

OBJECT                      = FIELD
      NAME                  = "B91"
      FIELD_NUMBER          = 93
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      BYTES                 = 5
      DESCRIPTION           = "Telemetry File Data Byte 92"
END_OBJECT                  = FIELD

OBJECT                      = FIELD
      NAME                  = "B92"
      FIELD_NUMBER          = 94
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      BYTES                 = 5
      DESCRIPTION           = "Telemetry File Data Byte 93"
END_OBJECT                  = FIELD

OBJECT                      = FIELD
      NAME                  = "B93"
      FIELD_NUMBER          = 95
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      BYTES                 = 5
      DESCRIPTION           = "Telemetry File Data Byte 94"
END_OBJECT                  = FIELD

OBJECT                      = FIELD
      NAME                  = "B94"
      FIELD_NUMBER          = 96
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      BYTES                 = 5
      DESCRIPTION           = "Telemetry File Data Byte 95"
END_OBJECT                  = FIELD

OBJECT                      = FIELD
      NAME                  = "B95"
      FIELD_NUMBER          = 97
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      BYTES                 = 5
      DESCRIPTION           = "Telemetry File Data Byte 96"
END_OBJECT                  = FIELD

OBJECT                      = FIELD
```

```
      NAME                    = "B96"
      FIELD_NUMBER            = 98
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 97"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B97"
      FIELD_NUMBER            = 99
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 98"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B98"
      FIELD_NUMBER            = 100
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 99"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B99"
      FIELD_NUMBER            = 101
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 100"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B100"
      FIELD_NUMBER            = 102
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 101"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B101"
      FIELD_NUMBER            = 103
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 102"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B102"
      FIELD_NUMBER            = 104
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 103"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
```

```
      NAME                    = "B103"
      FIELD_NUMBER            = 105
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 104"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B104"
      FIELD_NUMBER            = 106
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 105"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B105"
      FIELD_NUMBER            = 107
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 106"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B106"
      FIELD_NUMBER            = 108
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 107"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B107"
      FIELD_NUMBER            = 109
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 108"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B108"
      FIELD_NUMBER            = 110
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 109"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B109"
      FIELD_NUMBER            = 111
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 110"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
```

```
      NAME                    = "B110"
      FIELD_NUMBER            = 112
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 111"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B111"
      FIELD_NUMBER            = 113
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 112"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B112"
      FIELD_NUMBER            = 114
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 113"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B113"
      FIELD_NUMBER            = 115
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 114"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B114"
      FIELD_NUMBER            = 116
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 115"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B115"
      FIELD_NUMBER            = 117
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 116"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B116"
      FIELD_NUMBER            = 118
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 117"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
```

```
      NAME                    = "B117"
      FIELD_NUMBER            = 119
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 118"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B118"
      FIELD_NUMBER            = 120
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 119"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B119"
      FIELD_NUMBER            = 121
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 120"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B120"
      FIELD_NUMBER            = 122
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 121"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B121"
      FIELD_NUMBER            = 123
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 122"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B122"
      FIELD_NUMBER            = 124
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 123"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B123"
      FIELD_NUMBER            = 125
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 124"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
```

```
      NAME                    = "B124"
      FIELD_NUMBER            = 126
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 125"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B125"
      FIELD_NUMBER            = 127
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 126"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B126"
      FIELD_NUMBER            = 128
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 127"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B127"
      FIELD_NUMBER            = 129
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 128"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B128"
      FIELD_NUMBER            = 130
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 129"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B129"
      FIELD_NUMBER            = 131
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 130"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
      NAME                    = "B130"
      FIELD_NUMBER            = 132
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 131"
END_OBJECT                    = FIELD

OBJECT                        = FIELD
```

```
      NAME                    = "B131"
      FIELD_NUMBER            = 133
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 132"
 END_OBJECT                   = FIELD

 OBJECT                       = FIELD
      NAME                    = "B132"
      FIELD_NUMBER            = 134
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 133"
 END_OBJECT                   = FIELD

 OBJECT                       = FIELD
      NAME                    = "B133"
      FIELD_NUMBER            = 135
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 134"
 END_OBJECT                   = FIELD

 OBJECT                       = FIELD
      NAME                    = "B134"
      FIELD_NUMBER            = 136
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 135"
 END_OBJECT                   = FIELD

 OBJECT                       = FIELD
      NAME                    = "B135"
      FIELD_NUMBER            = 137
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 136"
 END_OBJECT                   = FIELD

 OBJECT                       = FIELD
      NAME                    = "B136"
      FIELD_NUMBER            = 138
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 137"
 END_OBJECT                   = FIELD

 OBJECT                       = FIELD
      NAME                    = "B137"
      FIELD_NUMBER            = 139
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      BYTES                   = 5
      DESCRIPTION             = "Telemetry File Data Byte 138"
 END_OBJECT                   = FIELD

END_OBJECT                    = SPREADSHEET
```

4.1.9 DATA LABEL – STAGE 1 PROCESSED DATA

The telemetry file delivered contains serially packed records with mass sweep data and up to 8 types of instrument housekeeping packets (high, medium, acknowledge, not acknowledge, idle, software, type 1 or type 2.) Each of these packets is sized differently. Note that the GCMS data packet sizes are not the same as the record sizes used with the telemetery data. The software needed to reconstruct the instrument's data records was originally developed on a SUN workstation as that was the only computer powerful enough for this task when this mission started. The workstation created a series of "meta-files" where each of these files contains the data for one type of housekeeping and for one of the data streams (the spacecraft used 2 data systems and sequential GCMS data packet were alternately sent on each telemetry channel.) Table 7 presents a listing of the "meta-files" created on the workstation with comments regarding the content of the file, the name of the data set after it's conversion to ASCII text format and the number of columns in that ASCII data set. All of the files may not be present in or relevant to any single data set. These are the files used to evaluate the GCMS instrument's health during cruise (October 1997 – December 2004). The package of standard data plots, refer to Diagram 1, generated by the workstation software and used to evaluate the GCMS instrument's health are available as PDF files and are located in the **/EXTRAS/** subdirectory of this data archive.

Table 7. Sun Workstation and Archived Stage 1 File Name Relationship

Workstation file name (*.archive)	**Columns**	**Comments**
		ASCII Text File Name (*.TAB)
gcmsbinA		Binary stream with all channel A data
	181	***GCMS_ALL_A _STG1.TAB***
gcmsbinB		Binary stream with all channel B data
	181	***GCMS_ALL_B _STG1.TAB***
gcmsackA		Command Acknowledge responses on Channel A
	36	***GCMS_HK_A_ACK _STG1.TAB***
gcmsackB		Command Acknowledge responses on Channel B
	36	***GCMS_HK_B_ACK _STG1.TAB***
gcmsnackA		Command Not-Acknowledge responses on Channel A
	36	Included in ***GCMS_HK_A_ACK _STG1.TAB***
gcmsnackB		Command Not-Acknowledge responses on Channel B
	36	Included in ***GCMS_HK_B_ACK _STG1.TAB***
gcmshkhsA		High Speed Housekeeping on Channel A
	94	***GCMS_HK_A_HS STG1.TAB***
gcmshkhsB		High Speed Housekeeping on Channel B
	94	***GCMS_HK_B_HS STG1.TAB***
gcmshkmsA		Medium Speed Housekeeping on Channel A
	50	***GCMS_HK_A_MS_STG1.TAB***
gcmshkmsB		Medium Speed Housekeeping on Channel B
	50	***GCMS_HK_B_MS_STG1.TAB***
gcmshksA		Software Status data on Channel A
	64	***GCMS_HK_A_SOFTWARE_STG1.TAB***
gcmshksB		Software Status data on Channel B
	64	***GCMS_HK_B_SOFTWARE_STG1.TAB***
gcmshkIA		Housekeeping Type 1 on Channel A
	34	***GCMS_HK_A_TYPE1_STG1.TAB***
gcmshkIB		Housekeeping Type 1 on Channel B
	34	***GCMS_HK_B_TYPE1_STG1.TAB***
gcmshkIIA		Housekeeping Type 2 on Channel A
	148	***GCMS_HK_A_TYPE2_STG1.TAB***
gcmshkIIB		Housekeeping Type 2 on Channel B
	148	***GCMS_HK_B_TYPE2_STG1.TAB***

		Comments
gcmsidleA	Idle Packet Housekeeping on Channel A	
	156	***GCMS_HK_A_IDLE_STG1.TAB***
gcmsidleB	Idle Packet Housekeeping on Channel B	
	156	***GCMS_HK_B_IDLE_STG1.TAB***
gcmsswpA	Mass Sweep data on Channel A	
	216	***GCMS_SWEEPS_A_STG1.TAB***
gcmsswpB	Mass Sweep data on Channel B	
	216	***GCMS_SWEEPS_B_STG1.TAB***

More information about each data set type follows. Except for the number of columns, all data sets are structured identically. Column 1 contains the TIME in the standard UTC format. Column 2 contains the Mission Elapsed Time. Columns 3 – nnn contain the data from the original "archive" file as 8-bit numbers in ASCII text format. The example presented in this document is the LABEL file and associated FORMAT file for the Housekeeping Type 2 data set.

Data Label - All Raw Data, Stage 1

Each table contains all of the telemetry data for the GCMS instrument from one of the (two) channels of the telemetry data system.. Each table is n rows by 181 columns. Columns 1 and 2 contain the time information for each record. These times have been extracted from the 'raw' data. Columns 3 – 181 contain the 'raw' telemetry converted from binary format to 8-bit numbers.

Data Label - Housekeeping Acknowledge and Not-Acknowledge Raw Data, Stage 1

The GCMS instrument's design allowed for the updating of it's operations using command sequences uploaded to the instrument from the Huygens spacecraft. The receipt of each command is acknowledged with either an 'acknowledge' response if the command sequence is recognized or a 'not-acknowledge' response if the command sequence is not understood. The data system allowed for the storage and return of up to 100 of each command. Each table is n rows by 36 columns. Columns 1 and 2 contain the time information for each record. These times have been extracted from the 'raw' data. Columns 3 – 36 contain the 'raw' telemetry converted from binary format to 8-bit numbers.

Data Label – Housekeeping Type 1 Raw Data, Stage 1

Every sample scan also contained selected instrument status (housekeeping) data that we refer to as Housekeeping Type 1 data. This data has been extracted from the telemetry and organized into a table file for each data stream. Each table is n rows by 34 columns. Columns 1 and 2 contain the time information for each record. These times have been extracted from the 'raw' data. Columns 3 – 34 contain the 'raw' telemetry converted from binary format to 8-bit numbers.

Data Label – Housekeeping Type 2 Raw Data, Stage 1

GCMS instrument condition and status data (voltages, currents, temperature, pressure, heater and valve position status data, etc.) is continually collected and updated and periodically, ~40 seconds, inserted into the telemetry stream as a Housekeeping Type 2 data packet. This data is considered to be so important that it is redundantly sent on both the A and B data channels. Each table file consists of n rows by 148 columns of information. Columns 1 and 2 contain the time information extracted from the data packet for the data packet. Columns 3 – 148 contain the 'raw' telemetry converted from binary format to 8-bit numbers.

Data Label – Housekeeping Idle Packet Raw Data, Stage 1

The GCMS instrument's data system updates and maintains a special housekeeping data packet, referred to as an "idle packet" that it inserts into the data system each time the spacecraft checks for data and none of the instrument's standard data packets (Type 1, Type 2, High Speed, Medium Speed, … data packets) are available. Each table file consists of n rows by 156 columns of information. Columns 1 and 2 contain the time information extracted from the data packet for the data packet. Columns 3 – 156 contain the 'raw' telemetry converted from binary format to 8-bit numbers.

Data Label – Housekeeping High Speed Raw Data, Stage 1

The GCMS instrument's data system periodically updates and sends a "High Speed Housekeeping" data packet to the spacecraft's telemetry system. Each table file consists of n rows by 94 columns of information. Columns 1 and 2 contain

the time information extracted from the data packet for the data packet. Columns 3 – 94 contain the 'raw' telemetry converted from binary format to 8-bit numbers.

Data Label – Housekeeping Medium Speed Raw Data, Stage 1

The GCMS instrument's data system periodically updates and sends a "Medium Speed Housekeeping" data packet to the spacecraft's telemetry system. Each table file consists of n rows by 50 columns of information. Columns 1 and 2 contain the time information extracted from the data packet for the data packet. Columns 3 – 50 contain the 'raw' telemetry converted from binary format to 8-bit numbers.

Data Label – Housekeeping Instrument Software Status Raw Data, Stage 1

The first data sent to the telemetry system following the application of power to the GCMS instrument is a single data packet containing the status information of the GMCS microprocessor and associated software.

File GCMS_HK_B_TYPE2_STG1.LBL

```
PDS_VERSION_ID                 = PDS3

/* FILE CHARACTERISTICS DATA ELEMENTS */

RECORD_TYPE                    = FIXED_LENGTH
RECORD_BYTES                   = 1061
FILE_RECORDS                   = 442

/* DATA OBJECT POINTER IDENTIFICATION ELEMENTS */

^TABLE                         = ("GCMS_HK_B_TYPE2_STG1.TAB",2)

/* INSTRUMENT AND DETECTOR DESCRIPTIVE DATA ELEMENTS */

FILE_NAME                      = "GCMS_HK_B_TYPE2_STG1.TAB"
DATA_SET_ID                    = "HP-SSA-GCMS-3-FCO/DESCENT-V1.0"
DATA_SET_NAME                  = "HUYGENS TITAN GAS CHROMATOGRAPH
                                 MASS SPEC 3 DESCENT V1.0"
PRODUCT_ID                     = "F16_GCMS_HK_B_TYPE2_STG1"
PRODUCT_NAME                   = "F16_GCMS_HK_TYPE2_B-STREAM_STG1"
MISSION_NAME                   = "CASSINI-HUYGENS"
INSTRUMENT_HOST_NAME           = "HUYGENS PROBE"
INSTRUMENT_HOST_ID             = HP
MISSION_PHASE_NAME             = "CRUISE"
                                 /* FU_FCO1B */
PRODUCT_TYPE                   = RDR
                                 /* EDR for RAW & RDR for Calibrated Data */
START_TIME                     = 2004-328T06:25:54.987
STOP_TIME                      = 2004-328T09:19:59.016
                                 /* UTC e.g. 2005-01-14T00:00:00.000 */
                                 /*     or 2005-014T00:00:00.000 */
                                 /* This value is referred to as the */
                                 /* GCMS_GMT time and is the timestamp */
                                 /* added to the spacecraft telemetry  */
                                 /* packet */
SPACECRAFT_CLOCK_START_COUNT   = "N/A"
SPACECRAFT_CLOCK_STOP_COUNT    = "N/A"
                                 /* The DDB clock time is not available */
                                 /* for all data streams extracted from */
                                 /* the raw telemetry. The DDB time can */
                                 /* be calculated by comparing the MET */
                                 /* time with the T0 event time. */
NATIVE_START_TIME              = -2078.062500
```

```
NATIVE_STOP_TIME                = 8391.250000
                                  /* Elapsed Time in seconds. */
                                  /* a.k.a. Mission Elapsed Time (MET) */
                                  /* Negative values indicate pre-T0 */
                                  /*  No data is available immediately */
                                  /*  prior to T0 so the error in these */
                                  /*  times may be 5-7 seconds. */
                                  /* Positive values indicate post-T0 */
PRODUCT_CREATION_TIME           = 2006-06-15T14:35:19
PRODUCER_ID                     = "GCMS_TEAM"
PRODUCER_FULL_NAME              = "JOHN HABERMAN"
                                  /* & Jaime Demick Montelara */
                                  /* & Eric Raaen */
PRODUCER_INSTITUTION_NAME       = "NASA GSFC"
TARGET_NAME                     = "TITAN"

/* INSTRUMENT DESCRIPTION */

INSTRUMENT_ID                   = "GCMS"
INSTRUMENT_NAME                 = "GAS CHROMATOGRAPH MASS SPECTROMETER"
INSTRUMENT_TYPE                 = "MASS SPECTROMETER"
DATA_QUALITY_ID                 = 1
DATA_QUALITY_DESC               = "1 = High Quality ... 5 = Low Quality"
                                  /* Stage 1 Data must be converted to c/s */
                                  /* Stage 2 Data has been converted to c/s */
                                  /*  but MAY NOT be fully corrected for */
                                  /*  the counter overflow condition. This */
                                  /*  data has NOT yet been fully corrected */
                                  /*  for pulse counting system effects */
                                  /*  including pulse coincidence effects */
                                  /*  and system (electronics) effects. */
                                  /* Stage 3 Data has been converted to c/s */
                                  /*  and fully corrected by the team using */
                                  /*  pre- and post-launch instrument */
                                  /*  calibration data. */
INSTRUMENT_MODE_ID              = "FU_FCO1B"
                                  /* F16 */
                                  /* Actually: FU_FCO1B */
                                  /* FU = Flown Unit, EU = Enigneering Unit */
                                  /* FS or SU = Spare (Lab, Backup) Unit */
                                  /* DESCENT indicates Entry Condition */
                                  /* FCO indicates Flight Check Out */
                                  /* GCO indicates Ground Check Out */
                                  /*  FCO1/GCO1 = Checkout Type 1 */
                                  /*  FCO1B/GCO1B = Checkout Type 1B */
                                  /*  FCO2/GCO2 = Checkout Type 2 */
                                  /* e.g., FU_DESCENT = 2005-01-14 Mission */

/* DATA OBJECT DEFINITION */

OBJECT                          = TABLE
   INTERCHANGE_FORMAT           = ASCII
   ROWS                         = 442
   COLUMNS                      = 148
   ROW_BYTES                    = 1061
   DESCRIPTION                  = "Binary data archive Housekeeping Type 2
                                  files from the SUN workstation converted to
                                  ASCII text values. Refer to the GCMS
                                  Instrument User's Software Manual for
                                  details."

   ^STRUCTURE                   = "GCMS_HK_TYPE2_STG1.FMT"
```

```
END_OBJECT                    = TABLE
END
```

4.1.10 DATA LABEL – MOLE FRACTION DATA, STAGE 2

Applies to file: **GCMS_MOLE_FRACTION_STG2.LBL**

The numbers in this file have been derived from the mass spec. data for the most common species in Titan's atmosphere. This is the data forwarded to the DTWG (Descent Trajectory Working Group) by the GCMS team.

File GCMS_MOLE_FRACTION_STG2.LBL

```
PDS_VERSION_ID                = PDS3

/* FILE CHARACTERISTICS DATA ELEMENTS */

RECORD_TYPE                   = FIXED_LENGTH
RECORD_BYTES                  = 43
FILE_RECORDS                  = 1303

/* DATA OBJECT POINTER IDENTIFICATION ELEMENTS */

^TABLE                        = ("GCMS_MOLE_FRACTION_STG2.TAB",2)

/* INSTRUMENT AND DETECTOR DESCRIPTIVE DATA ELEMENTS */

FILE_NAME                     = "GCMS_MOLE_FRACTION_STG2.TAB"
DATA_SET_ID                   = "HP-SSA-GCMS-3-FCO/DESCENT-V1.0"
DATA_SET_NAME                 = "HUYGENS TITAN GAS CHROMATOGRAPH
                                MASS SPEC 3 DESCENT V1.0"
PRODUCT_ID                    = "DESCENT_GCMS_MOLE_FRACTION_STG2"
PRODUCT_NAME                  = "DESCENT_GCMS_MOLE_FRACTION_STG2"
MISSION_NAME                  = "CASSINI-HUYGENS"
INSTRUMENT_HOST_NAME          = "HUYGENS PROBE"
INSTRUMENT_HOST_ID            = HP
MISSION_PHASE_NAME            = "DESCENT"
PRODUCT_TYPE                  = RDR
                                /* EDR for RAW & RDR for Calibrated Data */
START_TIME                    = 2005-01-14T09:11:23.312
STOP_TIME                     = 2005-01-14T11:38:09.953
                                /* UTC e.g. 2005-01-14T00:00:00.000 */
SPACECRAFT_CLOCK_START_COUNT  = "N/A"
SPACECRAFT_CLOCK_STOP_COUNT   = "N/A"
NATIVE_START_TIME             = "N/A"
NATIVE_STOP_TIME              = "N/A"
PRODUCT_CREATION_TIME         = 2006-06-15T10:00:00
PRODUCER_ID                   = "GCMS_TEAM"
PRODUCER_FULL_NAME            = "JAIME DEMICK-MONTELARA"
                                /* & John Haberman */
                                /* & Eric Raaen */
PRODUCER_INSTITUTION_NAME     = "NASA GSFC"
TARGET_NAME                   = "TITAN"

/* INSTRUMENT DESCRIPTION */

INSTRUMENT_ID                 = "GCMS"
```

```
INSTRUMENT_NAME                = "GAS CHROMATOGRAPH MASS SPECTROMETER"
INSTRUMENT_TYPE                = "MASS SPECTROMETER"
DATA_QUALITY_ID                = 1
DATA_QUALITY_DESC              = "1 = High Quality ... 5 = Low Quality"

INSTRUMENT_MODE_ID             = "FU_DESCENT"
                                 /* FU = Flown Unit */
                                 /* DESCENT indicates Entry Condition */

/* DATA OBJECT DEFINITION */

OBJECT                         = TABLE
   INTERCHANGE_FORMAT          = ASCII
   ROWS                        = 1303
   COLUMNS                     = 4
   ROW_BYTES                   = 43
   DESCRIPTION                 = "Mole Fraction (MF) data for Methane (CH4),
                                 Argon (Ar) and Other (XX) species of
                                 Titan's atmosphere submitted to the DTWG
                                 Team. These data are computed from the
                                 direct atmosphere GCMS sample measurement
                                 data from Ion Source #1 data.
                                 Obviously the mole fraction for Nitrogen
                                 (N2) is [1. - SUM(MF(CH4)+MF(Ar)+MF(XX))]."

 OBJECT                        = COLUMN
       COLUMN_NUMBER           = 1
       NAME                    = "UTC_ABS_TIME"
       UNIT                    = "TIME"
       DATA_TYPE               = CHARACTER
       START_BYTE              = 1
       BYTES                   = 23
       FORMAT                  = "A23"
       DESCRIPTION             = "UTC Reference time for this data record."
 END_OBJECT                    = COLUMN

 OBJECT                        = COLUMN
       COLUMN_NUMBER           = 2
       NAME                    = "CH4"
       UNIT                    = "N/A"
       DATA_TYPE               = ASCII_REAL
       START_BYTE              = 25
       BYTES                   = 7
       FORMAT                  = "F7.4"
       DESCRIPTION             = "Mole Fraction for Methane (CH4)."
 END_OBJECT                    = COLUMN

 OBJECT                        = COLUMN
       COLUMN_NUMBER           = 3
       NAME                    = "AR"
       UNIT                    = "N/A"
       DATA_TYPE               = ASCII_REAL
       START_BYTE              = 33
       BYTES                   = 4
       FORMAT                  = "F4.1"
       DESCRIPTION             = "Mole Fraction for Argon (Ar)."
 END_OBJECT                    = COLUMN

 OBJECT                        = COLUMN
       COLUMN_NUMBER           = 4
       NAME                    = "XX"
       UNIT                    = "N/A"
       DATA_TYPE               = ASCII_REAL
```

```
       START_BYTE              =38
       BYTES                   = 4
       FORMAT                  = "F4.1"
       DESCRIPTION             = "Mole Fraction for Other (XX) components."
 END_OBJECT                    = COLUMN

END_OBJECT                     = TABLE
END
```

GCMS_HK_TYPE2_STG1.FMT

```
OBJECT                        = COLUMN
       COLUMN_NUMBER           = 1
       NAME                    = "UTC_GCMS_TIME"
       UNIT                    = "TIME"
       DATA_TYPE               = CHARACTER
       START_BYTE              = 1
       BYTES                   = 23
       FORMAT                  = "A23"
       DESCRIPTION             = "Time from GCMS GMT time (Columns 3 - 10).
                                 NOT DDB TIME! DDB time is not contained in
                                 all telemetry streams. GCMS_GMT time is from
                                 SCET."
                                 /* Calculated from data in this table */
                                 /* and added during table formatting. */
 END_OBJECT                    = COLUMN

 OBJECT                        = COLUMN
       COLUMN_NUMBER           = 2
       NAME                    = "ABS_TIME"
       UNIT                    = "SECONDS"
       DATA_TYPE               = ASCII_REAL
       START_BYTE              = 25
       BYTES                   = 13
       FORMAT                  = "F13.6"
       DESCRIPTION             = "Time from Mission Elapsed Time (Columns 131
                                 - 138). Negative values indicate pre-T0
                                 (within ~6 seconds). Positive values
                                 indicate post-T0."
                                 /* Calculated from data in this table */
                                 /* and added during table formatting. */
 END_OBJECT                    = COLUMN

 OBJECT                        = COLUMN
       COLUMN_NUMBER           = 3
       NAME                    = "B000"
       UNIT                    = "N/A"
       DATA_TYPE               = ASCII_INTEGER
       START_BYTE              = 39
       BYTES                   = 6
       FORMAT                  = "I6"
       DESCRIPTION             = "Telemetry Byte 0 - GCMS GMT Seconds MSB"
 END_OBJECT                    = COLUMN

 OBJECT                        = COLUMN
       COLUMN_NUMBER           = 4
       NAME                    = "B001"
       UNIT                    = "N/A"
       DATA_TYPE               = ASCII_INTEGER
       START_BYTE              = 46
       BYTES                   = 6
       FORMAT                  = "I6"
```

```
      DESCRIPTION             = "Telemetry Byte 1 - GCMS GMT Seconds"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 5
      NAME                    = "B002"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 53
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 2 - GCMS GMT Seconds"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 6
      NAME                    = "B003"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 60
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 3 - GCMS GMT Seconds LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 7
      NAME                    = "B004"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 67
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 4 - GCMS GMT microseconds MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 8
      NAME                    = "B005"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 74
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 5 - GCMS GMT microseconds"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 9
      NAME                    = "B006"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 81
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 6 - GCMS GMT microseconds"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 10
      NAME                    = "B007"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
```

```
      START_BYTE              = 88
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 7 - GCMS GMT microseconds LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 11
      NAME                    = "B008"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 95
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 008 - Packet Valid MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 12
      NAME                    = "B009"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 102
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 009 - Packet Valid LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 13
      NAME                    = "B010"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 109
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 010 - Commutator Index"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 14
      NAME                    = "B011"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 116
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 011 - Spare"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 15
      NAME                    = "B012"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 123
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 012 - Local Time MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 16
```

```
      NAME                    = "B013"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 130
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 013 - Local Time LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 17
      NAME                    = "B014"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 137
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 014 - Anode 1 current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 18
      NAME                    = "B015"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 144
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 015 - Anode 2 current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 19
      NAME                    = "B016"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 151
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 016 - EB4_2"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 20
      NAME                    = "B017"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 158
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 017 - EB4_1"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 21
      NAME                    = "B018"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 165
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 018 - Filament 1 current"
END_OBJECT                    = COLUMN
```

```
OBJECT                         = COLUMN
      COLUMN_NUMBER            = 22
      NAME                     = "B019"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 172
      BYTES                    = 6
      FORMAT                   = "I6"
      DESCRIPTION              = "Telemetry Byte 019 - Filament 2 current"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 23
      NAME                     = "B020"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 179
      BYTES                    = 6
      FORMAT                   = "I6"
      DESCRIPTION              = "Telemetry Byte 020 - Filament 2 emission
                                 current"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 24
      NAME                     = "B021"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 186
      BYTES                    = 6
      FORMAT                   = "I6"
      DESCRIPTION              = "Telemetry Byte 021 - Filament 1 emission
                                 current"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 25
      NAME                     = "B022"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 193
      BYTES                    = 6
      FORMAT                   = "I6"
      DESCRIPTION              = "Telemetry Byte 022 - BIAS_A"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 26
      NAME                     = "B023"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 200
      BYTES                    = 6
      FORMAT                   = "I6"
      DESCRIPTION              = "Telemetry Byte 023 - BIAS1"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 27
      NAME                     = "B024"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
```

```
      START_BYTE              = 207
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 024 - BIAS2"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 28
      NAME                    = "B025"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 214
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 025 - Hydrogen head pressure
                                at GC columns"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 29
      NAME                    = "B026"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 221
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 026 - BIASM3"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 30
      NAME                    = "B027"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 228
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 027 - BIASM2 (FB String
                                Voltage)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 31
      NAME                    = "B028"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 235
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 028 - Spare"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 32
      NAME                    = "B029"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 242
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 029 - BIASM1"
END_OBJECT                    = COLUMN
```

```
OBJECT                          = COLUMN
      COLUMN_NUMBER             = 33
      NAME                      = "B030"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 249
      BYTES                     = 6
      FORMAT                    = "I6"
      DESCRIPTION               = "Telemetry Byte 030 - Anode 3 current"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 34
      NAME                      = "B031"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 256
      BYTES                     = 6
      FORMAT                    = "I6"
      DESCRIPTION               = "Telemetry Byte 031 - Anode 4 current"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 35
      NAME                      = "B032"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 263
      BYTES                     = 6
      FORMAT                    = "I6"
      DESCRIPTION               = "Telemetry Byte 032 - EB4_4"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 36
      NAME                      = "B033"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 270
      BYTES                     = 6
      FORMAT                    = "I6"
      DESCRIPTION               = "Telemetry Byte 033 - EB4_3"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 37
      NAME                      = "B034"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 277
      BYTES                     = 6
      FORMAT                    = "I6"
      DESCRIPTION               = "Telemetry Byte 034 - Filament 3 current"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 38
      NAME                      = "B035"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 284
      BYTES                     = 6
      FORMAT                    = "I6"
```

```
      DESCRIPTION             = "Telemetry Byte 035 - Filament 4 current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 39
      NAME                    = "B036"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 291
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 036 - Filament 4 emission
                                current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 40
      NAME                    = "B037"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 298
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 037 - Filament 3 emission
                                current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 41
      NAME                    = "B038"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 305
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 038 - BIAS_B"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 42
      NAME                    = "B039"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 312
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 039 - BIAS3"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 43
      NAME                    = "B040"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 319
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 040 - BIAS4"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 44
      NAME                    = "B041"
```

```
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 326
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 041 - Hydrogen storage
                                reservoir pressure"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 45
      NAME                    = "B042"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 333
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 042 - Electron Multiplier
                                temperature"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 46
      NAME                    = "B043"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 340
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 043 - BIAST"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 47
      NAME                    = "B044"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 347
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 044 - RF Temperature"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 48
      NAME                    = "B045"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 354
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 045 - Reference Voltage"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 49
      NAME                    = "B046"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 361
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 046 - Anode 5 current"
```

```
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 50
      NAME                    = "B047"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 368
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 047 - Anode 6 current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 51
      NAME                    = "B048"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 375
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 048 - EB4_6"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 52
      NAME                    = "B049"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 382
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 049 - EB4_5"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 53
      NAME                    = "B050"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 389
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 050 - Filament 5 current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 54
      NAME                    = "B051"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 396
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 051 - Filament 6 (BA Gauge)
                                current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 55
      NAME                    = "B052"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
```

```
      START_BYTE              = 403
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 052 - BA gauge emission
                                current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 56
      NAME                    = "B053"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 410
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 053 - Filament 5 emission
                                current"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 57
      NAME                    = "B054"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 417
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 054 - BIAS_C"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 58
      NAME                    = "B055"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 424
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 055 - BIAS5"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 59
      NAME                    = "B056"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 431
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 056 - BIAS6"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 60
      NAME                    = "B057"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 438
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 057 - GCMS Instrument Shell
                                Pressure"
END_OBJECT                    = COLUMN
```

```
OBJECT                         = COLUMN
      COLUMN_NUMBER            = 61
      NAME                     = "B058"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 445
      BYTES                    = 6
      FORMAT                   = "I6"
      DESCRIPTION              = "Telemetry Byte 058 - DDB Time MSB"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 62
      NAME                     = "B059"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 452
      BYTES                    = 6
      FORMAT                   = "I6"
      DESCRIPTION              = "Telemetry Byte 059 - DDB Time LSB"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 63
      NAME                     = "B060"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 459
      BYTES                    = 6
      FORMAT                   = "I6"
      DESCRIPTION              = "Telemetry Byte 060 - DDB Altitude MSB"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 64
      NAME                     = "B061"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 466
      BYTES                    = 6
      FORMAT                   = "I6"
      DESCRIPTION              = "Telemetry Byte 061 - DDB Altitude LSB"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 65
      NAME                     = "B062"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 473
      BYTES                    = 6
      FORMAT                   = "I6"
      DESCRIPTION              = "Telemetry Byte 062 - Instrument Deck
                                 Temperature"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 66
      NAME                     = "B063"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 480
```

```
      BYTES                 = 6
      FORMAT                = "I6"
      DESCRIPTION           = "Telemetry Byte 063 - Transistor Temperature"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 67
      NAME                  = "B064"
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      START_BYTE            = 487
      BYTES                 = 6
      FORMAT                = "I6"
      DESCRIPTION           = "Telemetry Byte 064 - THERMP"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 68
      NAME                  = "B065"
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      START_BYTE            = 494
      BYTES                 = 6
      FORMAT                = "I6"
      DESCRIPTION           = "Telemetry Byte 065 - THREFP"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 69
      NAME                  = "B066"
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      START_BYTE            = 501
      BYTES                 = 6
      FORMAT                = "I6"
      DESCRIPTION           = "Telemetry Byte 066 - TIS3INT"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 70
      NAME                  = "B067"
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      START_BYTE            = 508
      BYTES                 = 6
      FORMAT                = "I6"
      DESCRIPTION           = "Telemetry Byte 067 - Hydrogen reservoir
                              temperature"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 71
      NAME                  = "B068"
      UNIT                  = "N/A"
      DATA_TYPE             = ASCII_INTEGER
      START_BYTE            = 515
      BYTES                 = 6
      FORMAT                = "I6"
      DESCRIPTION           = "Telemetry Byte 068 - Tsample"
END_OBJECT                  = COLUMN

OBJECT                      = COLUMN
      COLUMN_NUMBER         = 72
```

```
      NAME                    = "B069"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 522
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 069 - T_LVPS1"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 73
      NAME                    = "B070"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 529
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 070 - T_LVPS2"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 74
      NAME                    = "B071"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 536
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 071 - T_LVPS3"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 75
      NAME                    = "B072"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 543
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 072 - Positive 13 volt monitor"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 76
      NAME                    = "B073"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 550
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 073 - 5R_Mon"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 77
      NAME                    = "B074"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 557
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 074 - 5Ref"
END_OBJECT                    = COLUMN
```

```
OBJECT                        = COLUMN
      COLUMN_NUMBER           = 78
      NAME                    = "B075"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 564
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 075 - Negative 57 volt monitor"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 79
      NAME                    = "B076"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 571
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 076 - CALMON"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 80
      NAME                    = "B077"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 578
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 077 - Valves Inhibit (high =
                                inhibit)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 81
      NAME                    = "B078"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 585
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 078 - GC column 1 temperature"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 82
      NAME                    = "B079"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 592
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 079 - Enrichment cell
                                temperature"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 83
      NAME                    = "B080"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
```

```
      START_BYTE              = 599
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 080 - T_EC2"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 84
      NAME                    = "B081"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 606
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 081 - ACP sample transfer
                                line tempreature"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 85
      NAME                    = "B082"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 613
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 082 - GC column 2 temperature"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 86
      NAME                    = "B083"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 620
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 083 - GC column 3 temperature"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 87
      NAME                    = "B084"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 627
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 084 - Atmosphere sample inlet
                                line temperature"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 88
      NAME                    = "B085"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 634
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 085 - ACP sample transfer
                                line pressure monitor 1"
END_OBJECT                    = COLUMN
```

```
OBJECT                         = COLUMN
      COLUMN_NUMBER            = 89
      NAME                     = "B086"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 641
      BYTES                    = 6
      FORMAT                   = "I6"
      DESCRIPTION              = "Telemetry Byte 086 - ACP Pressure Monitor 2"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 90
      NAME                     = "B087"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 648
      BYTES                    = 6
      FORMAT                   = "I6"
      DESCRIPTION              = "Telemetry Byte 087 - Flight Computer
                                 Temperature"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 91
      NAME                     = "B088"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 655
      BYTES                    = 6
      FORMAT                   = "I6"
      DESCRIPTION              = "Telemetry Byte 088 - 5R_FC_MON"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 92
      NAME                     = "B089"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 662
      BYTES                    = 6
      FORMAT                   = "I6"
      DESCRIPTION              = "Telemetry Byte 089 - RF Monitor"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 93
      NAME                     = "B090"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 669
      BYTES                    = 6
      FORMAT                   = "I6"
      DESCRIPTION              = "Telemetry Byte 090 - Electron Multiplier 1
                                 high voltage monitor"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 94
      NAME                     = "B091"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
```

```
      START_BYTE              = 676
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 091 - Electron Multiplier 2
                                high voltage monitor"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 95
      NAME                    = "B092"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 683
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 092 - Valve Status MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 96
      NAME                    = "B093"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 690
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 093 - Valve Status"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 97
      NAME                    = "B094"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 697
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 094 - Valve Status"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 98
      NAME                    = "B095"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 704
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 095 - Valve Status LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 99
      NAME                    = "B096"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 711
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 096 - Valve Status Word MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
```

```
      COLUMN_NUMBER           = 100
      NAME                    = "B097"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 718
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 097 - Valve Status Word"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 101
      NAME                    = "B098"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 725
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 098 - Valve Status Word"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 102
      NAME                    = "B099"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 732
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 099 - Valve Status Word LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 103
      NAME                    = "B100"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 739
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 100 - Filament and Ion Pump
                                Status Word"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 104
      NAME                    = "B101"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 746
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 101 - Heater Status Word"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 105
      NAME                    = "B102"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 753
      BYTES                   = 6
      FORMAT                  = "I6"
```

```
      DESCRIPTION             = "Telemetry Byte 102 - General Status Word MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 106
      NAME                    = "B103"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 760
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 103 - General Status Word LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 107
      NAME                    = "B104"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 767
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 104 - General Error Status
                                Word MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 108
      NAME                    = "B105"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 774
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 105 - General Error Status
                                Word LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 109
      NAME                    = "B106"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 781
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 106 - Latched Submode"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 110
      NAME                    = "B107"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 788
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 107 - Absolute Time MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 111
      NAME                    = "B108"
```

```
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 795
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 108 - Absolute Time (mid byte)"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 112
      NAME                    = "B109"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 802
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 109 - Absolute Time LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 113
      NAME                    = "B110"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 809
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 110 - BA Filament Emission MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 114
      NAME                    = "B111"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 816
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 111 - BA Filament Emission LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 115
      NAME                    = "B112"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 823
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 112 - RF Frequency Monitor MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 116
      NAME                    = "B113"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 830
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 113 - RF Frequency Monitor LSB"
END_OBJECT                    = COLUMN
```

```
OBJECT                         = COLUMN
      COLUMN_NUMBER            = 117
      NAME                     = "B114"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 837
      BYTES                    = 6
      FORMAT                   = "I6"
      DESCRIPTION              = "Telemetry Byte 114 - Microsequencer Status
                                 Word MSB"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 118
      NAME                     = "B115"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 844
      BYTES                    = 6
      FORMAT                   = "I6"
      DESCRIPTION              = "Telemetry Byte 115 - Microsequencer Status
                                 Word LSB"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 119
      NAME                     = "B116"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 851
      BYTES                    = 6
      FORMAT                   = "I6"
      DESCRIPTION              = "Telemetry Byte 116 - Spare"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 120
      NAME                     = "B117"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 858
      BYTES                    = 6
      FORMAT                   = "I6"
      DESCRIPTION              = "Telemetry Byte 117 - Spare"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 121
      NAME                     = "B118"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
      START_BYTE               = 865
      BYTES                    = 6
      FORMAT                   = "I6"
      DESCRIPTION              = "Telemetry Byte 118 - Microsequencer Scan
                                 Counter MSB"
END_OBJECT                     = COLUMN

OBJECT                         = COLUMN
      COLUMN_NUMBER            = 122
      NAME                     = "B119"
      UNIT                     = "N/A"
      DATA_TYPE                = ASCII_INTEGER
```

```
      START_BYTE              = 872
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 119 - Microsequencer Scan
                                Counter LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 123
      NAME                    = "B120"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 879
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 120 - Spare"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 124
      NAME                    = "B121"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 886
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 121 - Spare"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 125
      NAME                    = "B122"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 893
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 122 - Mission Phase: 03=GCO,
                                F3=FCO, 00=Descent"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 126
      NAME                    = "B123"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 900
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 123 - Latched Mission Phase:
                                F=Deactivate, C=Suspend"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 127
      NAME                    = "B124"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 907
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 124 - Experiment Status Word
                                MSB"
```

```
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 128
      NAME                    = "B125"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 914
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 125 - Experiment Status Word
                                LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 129
      NAME                    = "B126"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 921
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 126 - Spare"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 130
      NAME                    = "B127"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 928
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 127 - Spare"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 131
      NAME                    = "B128"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 935
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "MET Time MSB seconds. For pre-T0
                                measurements the time refers to power on.
                                For post-T0 measurements the time refers to
                                the T0 time. 86400 is added to the MET time
                                to indicate post-T0 measurements. -
                                Telemetry Byte 128"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 132
      NAME                    = "B129"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 942
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "MET Time seconds - Telemetry Byte 129"
END_OBJECT                    = COLUMN
```

```
OBJECT                          = COLUMN
      COLUMN_NUMBER             = 133
      NAME                      = "B130"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 949
      BYTES                     = 6
      FORMAT                    = "I6"
      DESCRIPTION               = "MET Time seconds - Telemetry Byte 130"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 134
      NAME                      = "B131"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 956
      BYTES                     = 6
      FORMAT                    = "I6"
      DESCRIPTION               = "MET Time LSB seconds - (MET_Seconds =
                                  byte128*256^3 + byte129*256^2 + byte130*256
                                  + byte131) - Telemetry Byte 131"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 135
      NAME                      = "B132"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 963
      BYTES                     = 6
      FORMAT                    = "I6"
      DESCRIPTION               = "MET Time MSB microseconds - Telemetry Byte
                                  132"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 136
      NAME                      = "B133"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 970
      BYTES                     = 6
      FORMAT                    = "I6"
      DESCRIPTION               = "MET Time microseconds - Telemetry Byte 133"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 137
      NAME                      = "B134"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
      START_BYTE                = 977
      BYTES                     = 6
      FORMAT                    = "I6"
      DESCRIPTION               = "MET Time microseconds - Telemetry Byte 134"
END_OBJECT                      = COLUMN

OBJECT                          = COLUMN
      COLUMN_NUMBER             = 138
      NAME                      = "B135"
      UNIT                      = "N/A"
      DATA_TYPE                 = ASCII_INTEGER
```

```
      START_BYTE              = 984
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "MET Time LSB microseconds -
                                (MET_microSeconds = byte132*256^3 +
                                byte133*256^2 + byte134*256 + byte135) -
                                Telemetry Byte 135"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 139
      NAME                    = "B136"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 991
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 136 - Packet Sequence Count
                                MSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 140
      NAME                    = "B137"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 998
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 137 - Packet Sequence Count
                                LSB"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 141
      NAME                    = "B138"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1005
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 138 - Spare"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 142
      NAME                    = "B139"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1012
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 139 - Spare"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 143
      NAME                    = "B140"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1019
      BYTES                   = 6
      FORMAT                  = "I6"
```

```
      DESCRIPTION             = "Telemetry Byte 140 - Spare"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 144
      NAME                    = "B141"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1026
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 141 - Spare"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 145
      NAME                    = "B142"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1033
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 142 - Spare"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 146
      NAME                    = "B143"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1040
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 143 - Spare"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 147
      NAME                    = "B144"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1047
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 144 - Spare"
END_OBJECT                    = COLUMN

OBJECT                        = COLUMN
      COLUMN_NUMBER           = 148
      NAME                    = "B145"
      UNIT                    = "N/A"
      DATA_TYPE               = ASCII_INTEGER
      START_BYTE              = 1054
      BYTES                   = 6
      FORMAT                  = "I6"
      DESCRIPTION             = "Telemetry Byte 145 - Spare"
END_OBJECT                    = COLUMN
```

1. APPENDIX: AVAILABLE SOFTWARE TO READ PDS FILES (N/A)

2. APPENDIX: AUXILIARY DATA USAGE (N/A)

3. APPENDIX: EXAMPLE OF DIRECTORY LISTING OF THE DATA SET

The GCMS data set named "**HUYGENS TITAN GAS CHROMATOGRAPH MASS SPEC 3 DESCENT V1.0**" (short ID "**HP-SSA-GCMS-3-FCO/DESCENT-V1.0")** contains the data beginning with the final Earth Descent Simulation, the data from all of the in-flight turn-on activities and the data from the Titan Descent mission. Shown is a summary the processed GCMS data set status as of June 12, 2006. Approximate file size totals are in Megabytes.

Table 8. Summary of Structure and Files submitted for Archiving (March 2006)

Test	Instr. Op. Sequence	PSA/PDS Folder Name	Size	Number of file types				
			MB	Files	CSV	LBL	TAB	FMT
Last Earth	DESCENT	19970506_DESCENT_BENCH	163	237	0	111	111	15
Probe mating	CO1	19970802_MATED_CO1	137	114	0	49	49	16
Probe mating	CO2	19970805_MATED_CO2	225	158	0	71	71	16
Pre-reclosure	CO1	19970910_PRECLOSE_CO1	135	114	0	49	49	16
Post-reclosure	CO1	19970913_POSTCLOSE_CO1	137	114	0	49	49	16
Contingency	CO	19970919_CONTINGENCY	16	98	0	41	41	16
F1	FCO2	19971023_F01	271	160	1	72	71	16
F2	FCO1	19980327_F02	99	114	1	49	48	16
F3	FCO2	19981221_F03	262	160	1	72	71	16
F4	FCO1	19990915_F04	170	112	1	48	47	16
F5	FCO2	20000202_F05	265	160	1	72	71	16
F6	FCO1	20000728_F06	174	112	1	48	47	16
F7	FCO2	20010322_F07	263	160	1	72	71	16
F8	FCO1	20010919_F08	169	112	1	48	47	16
F9	FCO2	20020415_F09	263	160	1	72	71	16
F10	FCO1	20020916_F10	173	112	1	48	47	16
F11	FCO2	20030503_F11	260	160	1	72	71	16
F12	FCO1	20030918_F12	170	112	1	48	47	16
patch	N/A	20031206_PATCHING	75	76	1	32	31	12
no-preheating	FCO1B	20031209_NO_PREHEATING	107	112	1	48	47	16
pre-heating	FCO1B	20031213_PREHEATING	667	124	1	54	53	16
F13	FCO1B	20040320_F13	166	116	1	50	49	16
F14	FCO2	20040714_F14	258	156	1	70	69	16
F15	FCO1B	20040914_F15	169	110	1	47	46	16
Batt.depassiv.1	N/A	20040919_BAT_DEPSV1	26	75	1	32	31	11
F16	FCO1B	20041123_F16	169	112	1	48	47	16
Batt.depassiv.2	N/A	20041205_BAT_DEPSV2	25	75	1	32	31	11
Entry	DESCENT	20050114_DESCENT	82	187	1	86	85	15
Derived Product	DESCENT	DTWG_MOLE_FRACTION	.06	2	0	1	1	0

The ROOT directory of the GCMS data set will contain the folders and files shown here.

/CATALOG/
/DATA/
/DOCUMENT/
/EXTRAS/
/INDEX/
    AAREADME.TXT
    ERRATA.TXT
    VOLDESC.CAT

The **/CATALOG/** directory for the GCMS data set will contain these folders and files.

    CATINFO.TXT
    DATASET.CAT
    INSTRUMENT.CAT
    INSTRUMENT_HOST.CAT
    MISSION.CAT
    PERSONNEL.CAT
    REFERENCE.CAT
    SOFTWARE.CAT
    TARGET.CAT

The **/DOCUMENT/** directory for the GCMS data set will contain these folders and files.

    DOCINFO.TXT
    BLOCK_DIAGRAM.PNG
    DESC_FM_08F.ASC
    HUYGENS_GCMS.ASC
    HUYGENS_GCMS_SP1177.ASC
    HUYGENS_GCMS_NATURE.ASC
    WORKING_SEQUENCE.ASC
    WORKING_TIMELINE.PNG
/PRELAUNCH_CALIBRATION/
    CALPRES.ASC
    CALPRES2.ASC
    CALPRES3.ASC
    CALPRNT2.ASC
    CALPRNTS.ASC
    EAICD_GCMS.ASC

The **/EXTRAS/** directory for the GCMS data set will contain these folders and files.

    EXTRASINFO.TXT
/ANIMATED_GIF/
    ANIMATED_GIF_SCREEN.PDF
    GCMS_A2.GIF
    GCMS_P2.GIF
/DATASET_RELATED/
    DATA_PROCESSING.PDF
    GCMS_OVERFLOW_EXAMPLE_STG1.PNG
    GCMS_OVERFLOW_EXAMPLE_STG2.PNG
    SAMPLE_TABLE_FILES_STG1.PNG
    SAMPLE_TABLE_FILES_STG2.PNG
/DOCUMENTS/

EIDB_A1.PDF
EIDB_A2.PDF
FS_CRUISE_OPS.PDF
GCMS_FS_USER_MANUAL.PDF

/FLIGHT_CHECKOUT/

F01-CO2.PDF
F02_CO1.PDF
F03_CO2.PDF
F04_CO1.PDF
F05_CO2.PDF
F06_CO1.PDF
F07_CO2.PDF
F08_CO1.PDF
F09_CO2.PDF
F10_CO1.PDF
F11_CO2.PDF
F12_CO1.PDF
NO_PRE-HEATING.PDF
PRE-HEATING.PDF
F13_CO1B.PDF
F14_CO2.PDF
F15_CO1B.PDF
BATTERY_DEPASSIVATION_1.PDF
F16_CO1B.PDF
BATTERY_DEPASSIVATION_2.PDF
DESCENT_AS_CO1.PDF
ENTRY_PLOT_DESCENT.PDF

The **/INDEX/** directory for the GCMS data set will contain these folders and files.

INDEX.TXT

The **/DATA/** directory for the GCMS data set will contain these folders and files.

/19970506_DESCENT_BENCH/
/19970802_MATED_CO1/
/19970805_MATED_CO2/
/19970910_PRECLOSE_CO1/
/19970913_POSTCLOSE_CO1/
/19970919_CONTINGENCY/
/19971023_F01/
/19980327_F02/
/19981221_F03/
/19990915_F04/
/20000202_F05/
/20000728_F06/
/20010322_F07/
/20010919_F08/
/20020415_F09/
/20020916_F10/
/20030503_F11/
/20030918_F12/
/20031206_PATCHING/
/20031209_NO_PREHEATING/
/20031213_PREHEATING/

/20040320_F13/
/20040714_F14/
/20040914_F15/
/20040919_BAT_DEPSV1/
/20041123_F16/
/20041205_BAT_DEPSV2/
/20050114_DESCENT/
/DTWG_MOLE_FRACTION/

Examples of the files contained in selected DATA subfolders are presented. The other folders will contain similar sets of files. The number of files and the size requirements for each of the folders is highly dependent on the type of the test. Flight Check-out type 2 tests are more complete instrument tests. The pre-heating check-out testing also generates a sizeable dataset.

The **19970506_DESCENT_BENCH** folder (DESCENT Sequence) will contain these files.

GCMS_1FA_STG1.LBL
GCMS_1FA_STG1.TAB
GCMS_1FA_STG2.LBL
GCMS_1FA_STG2.TAB
GCMS_1FA_X_STG1.LBL
GCMS_1FA_X_STG1.TAB
GCMS_1FA_X_STG2.LBL
GCMS_1FA_X_STG2.TAB
GCMS_1FS_STG1.LBL
GCMS_1FS_STG1.TAB
GCMS_1FS_STG2.LBL
GCMS_1FS_STG2.TAB
GCMS_1F_STG2.FMT
GCMS_1UA_STG1.LBL
GCMS_1UA_STG1.TAB
GCMS_1UA_STG2.LBL
GCMS_1UA_STG2.TAB
GCMS_1UA_X_STG1.LBL
GCMS_1UA_X_STG1.TAB
GCMS_1UA_X_STG2.LBL
GCMS_1UA_X_STG2.TAB
GCMS_1US_STG1.LBL
GCMS_1US_STG1.TAB
GCMS_1US_STG2.LBL
GCMS_1US_STG2.TAB
GCMS_1US_X_STG1.LBL
GCMS_1US_X_STG1.TAB
GCMS_1US_X_STG2.LBL
GCMS_1US_X_STG2.TAB
GCMS_1U_STG2.FMT
GCMS_2UA_STG1.LBL
GCMS_2UA_STG1.TAB
GCMS_2UA_STG2.LBL
GCMS_2UA_STG2.TAB
GCMS_2UA_X_STG1.LBL
GCMS_2UA_X_STG1.TAB
GCMS_2UA_X_STG2.LBL
GCMS_2UA_X_STG2.TAB
GCMS_2US_STG1.LBL

GCMS_2US_STG1.TAB
GCMS_2US_STG2.LBL
GCMS_2US_STG2.TAB
GCMS_2US_X_STG1.LBL
GCMS_2US_X_STG1.TAB
GCMS_2US_X_STG2.LBL
GCMS_2US_X_STG2.TAB
GCMS_2U_STG2.FMT
GCMS_3UA_STG1.LBL
GCMS_3UA_STG1.TAB
GCMS_3UA_STG2.LBL
GCMS_3UA_STG2.TAB
GCMS_3UA_X_STG1.LBL
GCMS_3UA_X_STG1.TAB
GCMS_3UA_X_STG2.LBL
GCMS_3UA_X_STG2.TAB
GCMS_3US_STG1.LBL
GCMS_3US_STG1.TAB
GCMS_3US_STG2.LBL
GCMS_3US_STG2.TAB
GCMS_3US_X_STG1.LBL
GCMS_3US_X_STG1.TAB
GCMS_3US_X_STG2.LBL
GCMS_3US_X_STG2.TAB
GCMS_3U_STG2.FMT
GCMS_4UA_STG1.LBL
GCMS_4UA_STG1.TAB
GCMS_4UA_STG2.LBL
GCMS_4UA_STG2.TAB
GCMS_4UA_X_STG1.LBL
GCMS_4UA_X_STG1.TAB
GCMS_4UA_X_STG2.LBL
GCMS_4UA_X_STG2.TAB
GCMS_4US_STG1.LBL
GCMS_4US_STG1.TAB
GCMS_4US_STG2.LBL
GCMS_4US_STG2.TAB
GCMS_4US_X_STG1.LBL
GCMS_4US_X_STG1.TAB
GCMS_4US_X_STG2.LBL
GCMS_4US_X_STG2.TAB
GCMS_4U_STG2.FMT
GCMS_5UA_STG1.LBL
GCMS_5UA_STG1.TAB
GCMS_5UA_STG2.LBL
GCMS_5UA_STG2.TAB
GCMS_5UA_X_STG1.LBL
GCMS_5UA_X_STG1.TAB
GCMS_5UA_X_STG2.LBL
GCMS_5UA_X_STG2.TAB
GCMS_5UA_Z_STG1.LBL
GCMS_5UA_Z_STG1.TAB
GCMS_5UA_Z_STG2.LBL
GCMS_5UA_Z_STG2.TAB
GCMS_5US_STG1.LBL
GCMS_5US_STG1.TAB
GCMS_5US_STG2.LBL

GCMS_5US_STG2.TAB
GCMS_5US_X_STG1.LBL
GCMS_5US_X_STG1.TAB
GCMS_5US_X_STG2.LBL
GCMS_5US_X_STG2.TAB
GCMS_5US_Z_STG1.LBL
GCMS_5US_Z_STG1.TAB
GCMS_5US_Z_STG2.LBL
GCMS_5US_Z_STG2.TAB
GCMS_5U_STG2.FMT
GCMS_ALL_A_STG1.LBL
GCMS_ALL_A_STG1.TAB
GCMS_ALL_B_STG1.LBL
GCMS_ALL_B_STG1.TAB
GCMS_ALL_STG1.FMT
GCMS_HK_ACK_STG1.FMT
GCMS_HK_A_ACK_STG1.LBL
GCMS_HK_A_ACK_STG1.TAB
GCMS_HK_A_HS_STG1.LBL
GCMS_HK_A_HS_STG1.TAB
GCMS_HK_A_IDLE_STG1.LBL
GCMS_HK_A_IDLE_STG1.TAB
GCMS_HK_A_MS_STG1.LBL
GCMS_HK_A_MS_STG1.TAB
GCMS_HK_A_SOFTWARE_STG1.LBL
GCMS_HK_A_SOFTWARE_STG1.TAB
GCMS_HK_A_TYPE1_STG1.LBL
GCMS_HK_A_TYPE1_STG1.TAB
GCMS_HK_A_TYPE2_STG1.LBL
GCMS_HK_A_TYPE2_STG1.TAB
GCMS_HK_B_ACK_STG1.LBL
GCMS_HK_B_ACK_STG1.TAB
GCMS_HK_B_HS_STG1.LBL
GCMS_HK_B_HS_STG1.TAB
GCMS_HK_B_IDLE_STG1.LBL
GCMS_HK_B_IDLE_STG1.TAB
GCMS_HK_B_MS_STG1.LBL
GCMS_HK_B_MS_STG1.TAB
GCMS_HK_B_SOFTWARE_STG1.LBL
GCMS_HK_B_SOFTWARE_STG1.TAB
GCMS_HK_B_TYPE1_STG1.LBL
GCMS_HK_B_TYPE1_STG1.TAB
GCMS_HK_B_TYPE2_STG1.LBL
GCMS_HK_B_TYPE2_STG1.TAB
GCMS_HK_HS_STG1.FMT
GCMS_HK_IDLE_STG1.FMT
GCMS_HK_IDLE_STG2.LBL
GCMS_HK_IDLE_STG2.TAB
GCMS_HK_MS_STG1.FMT
GCMS_HK_SOFTWARE_STG1.FMT
GCMS_HK_TYPE1_STG1.FMT
GCMS_HK_TYPE2_STG1.FMT
GCMS_HK_TYPE2_STG2.LBL
GCMS_HK_TYPE2_STG2.TAB
GCMS_ISALL_STG1.FMT
GCMS_SWEEPS_A_STG1.LBL
GCMS_SWEEPS_A_STG1.TAB

GCMS_SWEEPS_B_STG1.LBL
GCMS_SWEEPS_B_STG1.TAB
GCMS_SWEEPS_STG1.FMT
GCMS_TELEMETRY_STG1.CSV
GCMS_TELEMETRY_STG1.LBL
GCMS_TOTALS_STG2.LBL
GCMS_TOTALS_STG2.TAB

The **19971023_F01** folder (FCO1) will contain these files.

GCMS_1FA_STG1.LBL
GCMS_1FA_STG1.TAB
GCMS_1FA_STG2.LBL
GCMS_1FA_STG2.TAB
GCMS_1FA_X_STG1.LBL
GCMS_1FA_X_STG1.TAB
GCMS_1FA_X_STG2.LBL
GCMS_1FA_X_STG2.TAB
GCMS_1FS_STG1.LBL
GCMS_1FS_STG1.TAB
GCMS_1FS_STG2.LBL
GCMS_1FS_STG2.TAB
GCMS_1F_STG2.FMT
GCMS_1UA_STG1.LBL
GCMS_1UA_STG1.TAB
GCMS_1UA_STG2.LBL
GCMS_1UA_STG2.TAB
GCMS_1UA_X_STG1.LBL
GCMS_1UA_X_STG1.TAB
GCMS_1UA_X_STG2.LBL
GCMS_1UA_X_STG2.TAB
GCMS_1US_STG1.LBL
GCMS_1US_STG1.TAB
GCMS_1US_STG2.LBL
GCMS_1US_STG2.TAB
GCMS_1US_X_STG1.LBL
GCMS_1US_X_STG1.TAB
GCMS_1US_X_STG2.LBL
GCMS_1US_X_STG2.TAB
GCMS_1U_STG2.FMT
GCMS_2UA_STG1.LBL
GCMS_2UA_STG1.TAB
GCMS_2UA_STG2.LBL
GCMS_2UA_STG2.TAB
GCMS_2UA_X_STG1.LBL
GCMS_2UA_X_STG1.TAB
GCMS_2UA_X_STG2.LBL
GCMS_2UA_X_STG2.TAB
GCMS_2US_STG1.LBL
GCMS_2US_STG1.TAB
GCMS_2US_STG2.LBL
GCMS_2US_STG2.TAB
GCMS_2US_X_STG1.LBL
GCMS_2US_X_STG1.TAB
GCMS_2US_X_STG2.LBL
GCMS_2US_X_STG2.TAB

GCMS_2U_STG2.FMT
GCMS_3UA_STG1.LBL
GCMS_3UA_STG1.TAB
GCMS_3UA_STG2.LBL
GCMS_3UA_STG2.TAB
GCMS_3UA_X_STG1.LBL
GCMS_3UA_X_STG1.TAB
GCMS_3UA_X_STG2.LBL
GCMS_3UA_X_STG2.TAB
GCMS_3US_STG1.LBL
GCMS_3US_STG1.TAB
GCMS_3US_STG2.LBL
GCMS_3US_STG2.TAB
GCMS_3US_X_STG1.LBL
GCMS_3US_X_STG1.TAB
GCMS_3US_X_STG2.LBL
GCMS_3US_X_STG2.TAB
GCMS_3U_STG2.FMT
GCMS_4UA_STG1.LBL
GCMS_4UA_STG1.TAB
GCMS_4UA_STG2.LBL
GCMS_4UA_STG2.TAB
GCMS_4UA_X_STG1.LBL
GCMS_4UA_X_STG1.TAB
GCMS_4UA_X_STG2.LBL
GCMS_4UA_X_STG2.TAB
GCMS_4US_STG1.LBL
GCMS_4US_STG1.TAB
GCMS_4US_STG2.LBL
GCMS_4US_STG2.TAB
GCMS_4US_X_STG1.LBL
GCMS_4US_X_STG1.TAB
GCMS_4US_X_STG2.LBL
GCMS_4US_X_STG2.TAB
GCMS_4U_STG2.FMT
GCMS_5UA_STG1.LBL
GCMS_5UA_STG1.TAB
GCMS_5UA_STG2.LBL
GCMS_5UA_STG2.TAB
GCMS_5UA_X_STG1.LBL
GCMS_5UA_X_STG1.TAB
GCMS_5UA_X_STG2.LBL
GCMS_5UA_X_STG2.TAB
GCMS_5UA_Z_STG1.LBL
GCMS_5UA_Z_STG1.TAB
GCMS_5UA_Z_STG2.LBL
GCMS_5UA_Z_STG2.TAB
GCMS_5US_STG1.LBL
GCMS_5US_STG1.TAB
GCMS_5US_STG2.LBL
GCMS_5US_STG2.TAB
GCMS_5US_X_STG1.LBL
GCMS_5US_X_STG1.TAB
GCMS_5US_X_STG2.LBL
GCMS_5US_X_STG2.TAB
GCMS_5US_Z_STG1.LBL
GCMS_5US_Z_STG1.TAB

GCMS_5US_Z_STG2.LBL
GCMS_5US_Z_STG2.TAB
GCMS_5U_STG2.FMT
GCMS_ALL_A_STG1.LBL
GCMS_ALL_A_STG1.TAB
GCMS_ALL_B_STG1.LBL
GCMS_ALL_B_STG1.TAB
GCMS_ALL_STG1.FMT
GCMS_HK_ACK_STG1.FMT
GCMS_HK_A_ACK_STG1.LBL
GCMS_HK_A_ACK_STG1.TAB
GCMS_HK_A_HS_STG1.LBL
GCMS_HK_A_HS_STG1.TAB
GCMS_HK_A_IDLE_STG1.LBL
GCMS_HK_A_IDLE_STG1.TAB
GCMS_HK_A_MS_STG1.LBL
GCMS_HK_A_MS_STG1.TAB
GCMS_HK_A_SOFTWARE_STG1.LBL
GCMS_HK_A_SOFTWARE_STG1.TAB
GCMS_HK_A_TYPE1_STG1.LBL
GCMS_HK_A_TYPE1_STG1.TAB
GCMS_HK_A_TYPE2_STG1.LBL
GCMS_HK_A_TYPE2_STG1.TAB
GCMS_HK_B_ACK_STG1.LBL
GCMS_HK_B_ACK_STG1.TAB
GCMS_HK_B_HS_STG1.LBL
GCMS_HK_B_HS_STG1.TAB
GCMS_HK_B_IDLE_STG1.LBL
GCMS_HK_B_IDLE_STG1.TAB
GCMS_HK_B_MS_STG1.LBL
GCMS_HK_B_MS_STG1.TAB
GCMS_HK_B_SOFTWARE_STG1.LBL
GCMS_HK_B_SOFTWARE_STG1.TAB
GCMS_HK_B_TYPE1_STG1.LBL
GCMS_HK_B_TYPE1_STG1.TAB
GCMS_HK_B_TYPE2_STG1.LBL
GCMS_HK_B_TYPE2_STG1.TAB
GCMS_HK_HS_STG1.FMT
GCMS_HK_IDLE_STG1.FMT
GCMS_HK_IDLE_STG2.LBL
GCMS_HK_IDLE_STG2.TAB
GCMS_HK_MS_STG1.FMT
GCMS_HK_SOFTWARE_STG1.FMT
GCMS_HK_TYPE1_STG1.FMT
GCMS_HK_TYPE2_STG1.FMT
GCMS_HK_TYPE2_STG2.LBL
GCMS_HK_TYPE2_STG2.TAB
GCMS_ISALL_STG1.FMT
GCMS_SWEEPS_A_STG1.LBL
GCMS_SWEEPS_A_STG1.TAB
GCMS_SWEEPS_B_STG1.LBL
GCMS_SWEEPS_B_STG1.TAB
GCMS_SWEEPS_STG1.FMT
GCMS_TELEMETRY_STG1.CSV
GCMS_TELEMETRY_STG1.LBL
GCMS_TOTALS_STG2.LBL
GCMS_TOTALS_STG2.TAB

The **20000202_F05** folder (FCO2) will contain these files.

GCMS_1FA_STG1.LBL
GCMS_1FA_STG1.TAB
GCMS_1FA_STG2.LBL
GCMS_1FA_STG2.TAB
GCMS_1FA_X_STG1.LBL
GCMS_1FA_X_STG1.TAB
GCMS_1FA_X_STG2.LBL
GCMS_1FA_X_STG2.TAB
GCMS_1FS_STG1.LBL
GCMS_1FS_STG1.TAB
GCMS_1FS_STG2.LBL
GCMS_1FS_STG2.TAB
GCMS_1F_STG2.FMT
GCMS_1UA_STG1.LBL
GCMS_1UA_STG1.TAB
GCMS_1UA_STG2.LBL
GCMS_1UA_STG2.TAB
GCMS_1UA_X_STG1.LBL
GCMS_1UA_X_STG1.TAB
GCMS_1UA_X_STG2.LBL
GCMS_1UA_X_STG2.TAB
GCMS_1US_STG1.LBL
GCMS_1US_STG1.TAB
GCMS_1US_STG2.LBL
GCMS_1US_STG2.TAB
GCMS_1US_X_STG1.LBL
GCMS_1US_X_STG1.TAB
GCMS_1US_X_STG2.LBL
GCMS_1US_X_STG2.TAB
GCMS_1U_STG2.FMT
GCMS_2UA_STG1.LBL
GCMS_2UA_STG1.TAB
GCMS_2UA_STG2.LBL
GCMS_2UA_STG2.TAB
GCMS_2UA_X_STG1.LBL
GCMS_2UA_X_STG1.TAB
GCMS_2UA_X_STG2.LBL
GCMS_2UA_X_STG2.TAB
GCMS_2US_STG1.LBL
GCMS_2US_STG1.TAB
GCMS_2US_STG2.LBL
GCMS_2US_STG2.TAB
GCMS_2US_X_STG1.LBL
GCMS_2US_X_STG1.TAB
GCMS_2US_X_STG2.LBL
GCMS_2US_X_STG2.TAB
GCMS_2U_STG2.FMT
GCMS_3UA_STG1.LBL
GCMS_3UA_STG1.TAB
GCMS_3UA_STG2.LBL
GCMS_3UA_STG2.TAB
GCMS_3UA_X_STG1.LBL
GCMS_3UA_X_STG1.TAB

GCMS_3UA_X_STG2.LBL
GCMS_3UA_X_STG2.TAB
GCMS_3US_STG1.LBL
GCMS_3US_STG1.TAB
GCMS_3US_STG2.LBL
GCMS_3US_STG2.TAB
GCMS_3US_X_STG1.LBL
GCMS_3US_X_STG1.TAB
GCMS_3US_X_STG2.LBL
GCMS_3US_X_STG2.TAB
GCMS_3U_STG2.FMT
GCMS_4UA_STG1.LBL
GCMS_4UA_STG1.TAB
GCMS_4UA_STG2.LBL
GCMS_4UA_STG2.TAB
GCMS_4UA_X_STG1.LBL
GCMS_4UA_X_STG1.TAB
GCMS_4UA_X_STG2.LBL
GCMS_4UA_X_STG2.TAB
GCMS_4US_STG1.LBL
GCMS_4US_STG1.TAB
GCMS_4US_STG2.LBL
GCMS_4US_STG2.TAB
GCMS_4US_X_STG1.LBL
GCMS_4US_X_STG1.TAB
GCMS_4US_X_STG2.LBL
GCMS_4US_X_STG2.TAB
GCMS_4U_STG2.FMT
GCMS_5UA_STG1.LBL
GCMS_5UA_STG1.TAB
GCMS_5UA_STG2.LBL
GCMS_5UA_STG2.TAB
GCMS_5UA_X_STG1.LBL
GCMS_5UA_X_STG1.TAB
GCMS_5UA_X_STG2.LBL
GCMS_5UA_X_STG2.TAB
GCMS_5UA_Z_STG1.LBL
GCMS_5UA_Z_STG1.TAB
GCMS_5UA_Z_STG2.LBL
GCMS_5UA_Z_STG2.TAB
GCMS_5US_STG1.LBL
GCMS_5US_STG1.TAB
GCMS_5US_STG2.LBL
GCMS_5US_STG2.TAB
GCMS_5US_X_STG1.LBL
GCMS_5US_X_STG1.TAB
GCMS_5US_X_STG2.LBL
GCMS_5US_X_STG2.TAB
GCMS_5US_Z_STG1.LBL
GCMS_5US_Z_STG1.TAB
GCMS_5US_Z_STG2.LBL
GCMS_5US_Z_STG2.TAB
GCMS_5U_STG2.FMT
GCMS_ALL_A_STG1.LBL
GCMS_ALL_A_STG1.TAB
GCMS_ALL_B_STG1.LBL
GCMS_ALL_B_STG1.TAB

GCMS_ALL_STG1.FMT
GCMS_HK_ACK_STG1.FMT
GCMS_HK_A_ACK_STG1.LBL
GCMS_HK_A_ACK_STG1.TAB
GCMS_HK_A_HS_STG1.LBL
GCMS_HK_A_HS_STG1.TAB
GCMS_HK_A_IDLE_STG1.LBL
GCMS_HK_A_IDLE_STG1.TAB
GCMS_HK_A_MS_STG1.LBL
GCMS_HK_A_MS_STG1.TAB
GCMS_HK_A_SOFTWARE_STG1.LBL
GCMS_HK_A_SOFTWARE_STG1.TAB
GCMS_HK_A_TYPE1_STG1.LBL
GCMS_HK_A_TYPE1_STG1.TAB
GCMS_HK_A_TYPE2_STG1.LBL
GCMS_HK_A_TYPE2_STG1.TAB
GCMS_HK_B_ACK_STG1.LBL
GCMS_HK_B_ACK_STG1.TAB
GCMS_HK_B_HS_STG1.LBL
GCMS_HK_B_HS_STG1.TAB
GCMS_HK_B_IDLE_STG1.LBL
GCMS_HK_B_IDLE_STG1.TAB
GCMS_HK_B_MS_STG1.LBL
GCMS_HK_B_MS_STG1.TAB
GCMS_HK_B_SOFTWARE_STG1.LBL
GCMS_HK_B_SOFTWARE_STG1.TAB
GCMS_HK_B_TYPE1_STG1.LBL
GCMS_HK_B_TYPE1_STG1.TAB
GCMS_HK_B_TYPE2_STG1.LBL
GCMS_HK_B_TYPE2_STG1.TAB
GCMS_HK_HS_STG1.FMT
GCMS_HK_IDLE_STG1.FMT
GCMS_HK_IDLE_STG2.LBL
GCMS_HK_IDLE_STG2.TAB
GCMS_HK_MS_STG1.FMT
GCMS_HK_SOFTWARE_STG1.FMT
GCMS_HK_TYPE1_STG1.FMT
GCMS_HK_TYPE2_STG1.FMT
GCMS_HK_TYPE2_STG2.LBL
GCMS_HK_TYPE2_STG2.TAB
GCMS_ISALL_STG1.FMT
GCMS_SWEEPS_A_STG1.LBL
GCMS_SWEEPS_A_STG1.TAB
GCMS_SWEEPS_B_STG1.LBL
GCMS_SWEEPS_B_STG1.TAB
GCMS_SWEEPS_STG1.FMT
GCMS_TELEMETRY_STG1.CSV
GCMS_TELEMETRY_STG1.LBL
GCMS_TOTALS_STG2.LBL
GCMS_TOTALS_STG2.TAB

The **20040714_F14** folder (FCO2) will contain the files shown.

GCMS_1FS_STG1.LBL
GCMS_1FS_STG1.TAB
GCMS_1FS_STG2.LBL

GCMS_1FS_STG2.TAB
GCMS_1FS_X_STG1.LBL
GCMS_1FS_X_STG1.TAB
GCMS_1FS_X_STG2.LBL
GCMS_1FS_X_STG2.TAB
GCMS_1F_STG2.FMT
GCMS_1UA_STG1.LBL
GCMS_1UA_STG1.TAB
GCMS_1UA_STG2.LBL
GCMS_1UA_STG2.TAB
GCMS_1UA_X_STG1.LBL
GCMS_1UA_X_STG1.TAB
GCMS_1UA_X_STG2.LBL
GCMS_1UA_X_STG2.TAB
GCMS_1US_STG1.LBL
GCMS_1US_STG1.TAB
GCMS_1US_STG2.LBL
GCMS_1US_STG2.TAB
GCMS_1US_X_STG1.LBL
GCMS_1US_X_STG1.TAB
GCMS_1US_X_STG2.LBL
GCMS_1US_X_STG2.TAB
GCMS_1U_STG2.FMT
GCMS_2UA_STG1.LBL
GCMS_2UA_STG1.TAB
GCMS_2UA_STG2.LBL
GCMS_2UA_STG2.TAB
GCMS_2UA_X_STG1.LBL
GCMS_2UA_X_STG1.TAB
GCMS_2UA_X_STG2.LBL
GCMS_2UA_X_STG2.TAB
GCMS_2US_STG1.LBL
GCMS_2US_STG1.TAB
GCMS_2US_STG2.LBL
GCMS_2US_STG2.TAB
GCMS_2US_X_STG1.LBL
GCMS_2US_X_STG1.TAB
GCMS_2US_X_STG2.LBL
GCMS_2US_X_STG2.TAB
GCMS_2U_STG2.FMT
GCMS_3UA_STG1.LBL
GCMS_3UA_STG1.TAB
GCMS_3UA_STG2.LBL
GCMS_3UA_STG2.TAB
GCMS_3UA_X_STG1.LBL
GCMS_3UA_X_STG1.TAB
GCMS_3UA_X_STG2.LBL
GCMS_3UA_X_STG2.TAB
GCMS_3US_STG1.LBL
GCMS_3US_STG1.TAB
GCMS_3US_STG2.LBL
GCMS_3US_STG2.TAB
GCMS_3US_X_STG1.LBL
GCMS_3US_X_STG1.TAB
GCMS_3US_X_STG2.LBL
GCMS_3US_X_STG2.TAB
GCMS_3U_STG2.FMT

GCMS_4UA_STG1.LBL
GCMS_4UA_STG1.TAB
GCMS_4UA_STG2.LBL
GCMS_4UA_STG2.TAB
GCMS_4UA_X_STG1.LBL
GCMS_4UA_X_STG1.TAB
GCMS_4UA_X_STG2.LBL
GCMS_4UA_X_STG2.TAB
GCMS_4US_STG1.LBL
GCMS_4US_STG1.TAB
GCMS_4US_STG2.LBL
GCMS_4US_STG2.TAB
GCMS_4US_X_STG1.LBL
GCMS_4US_X_STG1.TAB
GCMS_4US_X_STG2.LBL
GCMS_4US_X_STG2.TAB
GCMS_4U_STG2.FMT
GCMS_5UA_STG1.LBL
GCMS_5UA_STG1.TAB
GCMS_5UA_STG2.LBL
GCMS_5UA_STG2.TAB
GCMS_5UA_X_STG1.LBL
GCMS_5UA_X_STG1.TAB
GCMS_5UA_X_STG2.LBL
GCMS_5UA_X_STG2.TAB
GCMS_5UA_Z_STG1.LBL
GCMS_5UA_Z_STG1.TAB
GCMS_5UA_Z_STG2.LBL
GCMS_5UA_Z_STG2.TAB
GCMS_5US_STG1.LBL
GCMS_5US_STG1.TAB
GCMS_5US_STG2.LBL
GCMS_5US_STG2.TAB
GCMS_5US_X_STG1.LBL
GCMS_5US_X_STG1.TAB
GCMS_5US_X_STG2.LBL
GCMS_5US_X_STG2.TAB
GCMS_5US_Z_STG1.LBL
GCMS_5US_Z_STG1.TAB
GCMS_5US_Z_STG2.LBL
GCMS_5US_Z_STG2.TAB
GCMS_5U_STG2.FMT
GCMS_ALL_A_STG1.LBL
GCMS_ALL_A_STG1.TAB
GCMS_ALL_B_STG1.LBL
GCMS_ALL_B_STG1.TAB
GCMS_ALL_STG1.FMT
GCMS_HK_ACK_STG1.FMT
GCMS_HK_A_ACK_STG1.LBL
GCMS_HK_A_ACK_STG1.TAB
GCMS_HK_A_HS_STG1.LBL
GCMS_HK_A_HS_STG1.TAB
GCMS_HK_A_IDLE_STG1.LBL
GCMS_HK_A_IDLE_STG1.TAB
GCMS_HK_A_MS_STG1.LBL
GCMS_HK_A_MS_STG1.TAB
GCMS_HK_A_SOFTWARE_STG1.LBL

GCMS_HK_A_SOFTWARE_STG1.TAB
GCMS_HK_A_TYPE1_STG1.LBL
GCMS_HK_A_TYPE1_STG1.TAB
GCMS_HK_A_TYPE2_STG1.LBL
GCMS_HK_A_TYPE2_STG1.TAB
GCMS_HK_B_ACK_STG1.LBL
GCMS_HK_B_ACK_STG1.TAB
GCMS_HK_B_HS_STG1.LBL
GCMS_HK_B_HS_STG1.TAB
GCMS_HK_B_IDLE_STG1.LBL
GCMS_HK_B_IDLE_STG1.TAB
GCMS_HK_B_MS_STG1.LBL
GCMS_HK_B_MS_STG1.TAB
GCMS_HK_B_SOFTWARE_STG1.LBL
GCMS_HK_B_SOFTWARE_STG1.TAB
GCMS_HK_B_TYPE1_STG1.LBL
GCMS_HK_B_TYPE1_STG1.TAB
GCMS_HK_B_TYPE2_STG1.LBL
GCMS_HK_B_TYPE2_STG1.TAB
GCMS_HK_HS_STG1.FMT
GCMS_HK_IDLE_STG1.FMT
GCMS_HK_IDLE_STG2.LBL
GCMS_HK_IDLE_STG2.TAB
GCMS_HK_MS_STG1.FMT
GCMS_HK_SOFTWARE_STG1.FMT
GCMS_HK_TYPE1_STG1.FMT
GCMS_HK_TYPE2_STG1.FMT
GCMS_HK_TYPE2_STG2.LBL
GCMS_HK_TYPE2_STG2.TAB
GCMS_ISALL_STG1.FMT
GCMS_SWEEPS_A_STG1.LBL
GCMS_SWEEPS_A_STG1.TAB
GCMS_SWEEPS_B_STG1.LBL
GCMS_SWEEPS_B_STG1.TAB
GCMS_SWEEPS_STG1.FMT
GCMS_TELEMETRY_STG1.CSV
GCMS_TELEMETRY_STG1.LBL
GCMS_TOTALS_STG2.LBL
GCMS_TOTALS_STG2.TAB

The **20041123_F16** folder (FCO1B) will contain these files.

GCMS_1FS_STG1.LBL
GCMS_1FS_STG1.TAB
GCMS_1FS_STG2.LBL
GCMS_1FS_STG2.TAB
GCMS_1F_STG2.FMT
GCMS_1UA_STG1.LBL
GCMS_1UA_STG1.TAB
GCMS_1UA_STG2.LBL
GCMS_1UA_STG2.TAB
GCMS_1US_STG1.LBL
GCMS_1US_STG1.TAB
GCMS_1US_STG2.LBL
GCMS_1US_STG2.TAB
GCMS_1U_STG2.FMT

GCMS_2UA_STG1.LBL
GCMS_2UA_STG1.TAB
GCMS_2UA_STG2.LBL
GCMS_2UA_STG2.TAB
GCMS_2US_STG1.LBL
GCMS_2US_STG1.TAB
GCMS_2US_STG2.LBL
GCMS_2US_STG2.TAB
GCMS_2U_STG2.FMT
GCMS_3UA_STG1.LBL
GCMS_3UA_STG1.TAB
GCMS_3UA_STG2.LBL
GCMS_3UA_STG2.TAB
GCMS_3US_STG1.LBL
GCMS_3US_STG1.TAB
GCMS_3US_STG2.LBL
GCMS_3US_STG2.TAB
GCMS_3U_STG2.FMT
GCMS_4UA_STG1.LBL
GCMS_4UA_STG1.TAB
GCMS_4UA_STG2.LBL
GCMS_4UA_STG2.TAB
GCMS_4US_STG1.LBL
GCMS_4US_STG1.TAB
GCMS_4US_STG2.LBL
GCMS_4US_STG2.TAB
GCMS_4U_STG2.FMT
GCMS_5UA_STG1.LBL
GCMS_5UA_STG1.TAB
GCMS_5UA_STG2.LBL
GCMS_5UA_STG2.TAB
GCMS_5UA_Z_STG1.LBL
GCMS_5UA_Z_STG1.TAB
GCMS_5UA_Z_STG2.LBL
GCMS_5UA_Z_STG2.TAB
GCMS_5US_STG1.LBL
GCMS_5US_STG1.TAB
GCMS_5US_STG2.LBL
GCMS_5US_STG2.TAB
GCMS_5US_Z_STG1.LBL
GCMS_5US_Z_STG1.TAB
GCMS_5US_Z_STG2.LBL
GCMS_5US_Z_STG2.TAB
GCMS_5U_STG2.FMT
GCMS_ALL_A_STG1.LBL
GCMS_ALL_A_STG1.TAB
GCMS_ALL_B_STG1.LBL
GCMS_ALL_B_STG1.TAB
GCMS_ALL_STG1.FMT
GCMS_HK_ACK_STG1.FMT
GCMS_HK_A_ACK_STG1.LBL
GCMS_HK_A_ACK_STG1.TAB
GCMS_HK_A_HS_STG1.LBL
GCMS_HK_A_HS_STG1.TAB
GCMS_HK_A_IDLE_STG1.LBL
GCMS_HK_A_IDLE_STG1.TAB
GCMS_HK_A_MS_STG1.LBL

GCMS_HK_A_MS_STG1.TAB
GCMS_HK_A_SOFTWARE_STG1.LBL
GCMS_HK_A_SOFTWARE_STG1.TAB
GCMS_HK_A_TYPE1_STG1.LBL
GCMS_HK_A_TYPE1_STG1.TAB
GCMS_HK_A_TYPE2_STG1.LBL
GCMS_HK_A_TYPE2_STG1.TAB
GCMS_HK_B_ACK_STG1.LBL
GCMS_HK_B_ACK_STG1.TAB
GCMS_HK_B_HS_STG1.LBL
GCMS_HK_B_HS_STG1.TAB
GCMS_HK_B_IDLE_STG1.LBL
GCMS_HK_B_IDLE_STG1.TAB
GCMS_HK_B_MS_STG1.LBL
GCMS_HK_B_MS_STG1.TAB
GCMS_HK_B_SOFTWARE_STG1.LBL
GCMS_HK_B_SOFTWARE_STG1.TAB
GCMS_HK_B_TYPE1_STG1.LBL
GCMS_HK_B_TYPE1_STG1.TAB
GCMS_HK_B_TYPE2_STG1.LBL
GCMS_HK_B_TYPE2_STG1.TAB
GCMS_HK_HS_STG1.FMT
GCMS_HK_IDLE_STG1.FMT
GCMS_HK_IDLE_STG2.LBL
GCMS_HK_IDLE_STG2.TAB
GCMS_HK_MS_STG1.FMT
GCMS_HK_SOFTWARE_STG1.FMT
GCMS_HK_TYPE1_STG1.FMT
GCMS_HK_TYPE2_STG1.FMT
GCMS_HK_TYPE2_STG2.LBL
GCMS_HK_TYPE2_STG2.TAB
GCMS_ISALL_STG1.FMT
GCMS_SWEEPS_A_STG1.LBL
GCMS_SWEEPS_A_STG1.TAB
GCMS_SWEEPS_B_STG1.LBL
GCMS_SWEEPS_B_STG1.TAB
GCMS_SWEEPS_STG1.FMT
GCMS_TELEMETRY_STG1.CSV
GCMS_TELEMETRY_STG1.LBL
GCMS_TOTALS_STG2.LBL
GCMS_TOTALS_STG2.TAB

The **2005\0114_DESCENT** folder (Titan DESCENT) will contain these files.

GCMS_1FA_B2_STG2.LBL
GCMS_1FA_B2_STG2.TAB
GCMS_1FA_L1_STG2.LBL
GCMS_1FA_L1_STG2.TAB
GCMS_1FA_L2_STG2.LBL
GCMS_1FA_L2_STG2.TAB
GCMS_1FA_STG1.LBL
GCMS_1FA_STG1.TAB
GCMS_1FA_STG2.LBL
GCMS_1FA_STG2.TAB
GCMS_1FS_L1_STG2.LBL
GCMS_1FS_L1_STG2.TAB

GCMS_1FS_L2_STG2.LBL
GCMS_1FS_L2_STG2.TAB
GCMS_1FS_STG1.LBL
GCMS_1FS_STG1.TAB
GCMS_1FS_STG2.LBL
GCMS_1FS_STG2.TAB
GCMS_1F_STG2.FMT
GCMS_1UA_B2_STG2.LBL
GCMS_1UA_B2_STG2.TAB
GCMS_1UA_B3_STG2.LBL
GCMS_1UA_B3_STG2.TAB
GCMS_1UA_L1_STG2.LBL
GCMS_1UA_L1_STG2.TAB
GCMS_1UA_L2_GRABGC1_STG2.LBL
GCMS_1UA_L2_GRABGC1_STG2.TAB
GCMS_1UA_L2_STG2.LBL
GCMS_1UA_L2_STG2.TAB
GCMS_1UA_L3_RGEC_STG2.LBL
GCMS_1UA_L3_RGEC_STG2.TAB
GCMS_1UA_STG1.LBL
GCMS_1UA_STG1.TAB
GCMS_1UA_STG2.LBL
GCMS_1UA_STG2.TAB
GCMS_1US_B1_STG2.LBL
GCMS_1US_B1_STG2.TAB
GCMS_1US_B2_STG2.LBL
GCMS_1US_B2_STG2.TAB
GCMS_1US_B3_STG2.LBL
GCMS_1US_B3_STG2.TAB
GCMS_1US_L1_GRABEC_STG2.LBL
GCMS_1US_L1_GRABEC_STG2.TAB
GCMS_1US_L1_STG2.LBL
GCMS_1US_L1_STG2.TAB
GCMS_1US_L2_GRABGC1_STG2.LBL
GCMS_1US_L2_GRABGC1_STG2.TAB
GCMS_1US_L2_GRABGC2_STG2.LBL
GCMS_1US_L2_GRABGC2_STG2.TAB
GCMS_1US_L2_GRABGC4_STG2.LBL
GCMS_1US_L2_GRABGC4_STG2.TAB
GCMS_1US_L2_STG2.LBL
GCMS_1US_L2_STG2.TAB
GCMS_1US_L3_RGEC_STG2.LBL
GCMS_1US_L3_RGEC_STG2.TAB
GCMS_1US_L3_RG_STG2.LBL
GCMS_1US_L3_RG_STG2.TAB
GCMS_1US_STG1.LBL
GCMS_1US_STG1.TAB
GCMS_1US_STG2.LBL
GCMS_1US_STG2.TAB
GCMS_1U_STG2.FMT
GCMS_2UA_S1_STG2.LBL
GCMS_2UA_S1_STG2.TAB
GCMS_2UA_S2_STG2.LBL
GCMS_2UA_S2_STG2.TAB
GCMS_2UA_S5_STG2.LBL
GCMS_2UA_S5_STG2.TAB
GCMS_2UA_STG1.LBL

GCMS_2UA_STG1.TAB
GCMS_2UA_STG2.LBL
GCMS_2UA_STG2.TAB
GCMS_2US_S1_STG2.LBL
GCMS_2US_S1_STG2.TAB
GCMS_2US_S2_STG2.LBL
GCMS_2US_S2_STG2.TAB
GCMS_2US_S3_STG2.LBL
GCMS_2US_S3_STG2.TAB
GCMS_2US_S4_STG2.LBL
GCMS_2US_S4_STG2.TAB
GCMS_2US_S5_STG2.LBL
GCMS_2US_S5_STG2.TAB
GCMS_2US_S6_STG2.LBL
GCMS_2US_S6_STG2.TAB
GCMS_2US_STG1.LBL
GCMS_2US_STG1.TAB
GCMS_2US_STG2.LBL
GCMS_2US_STG2.TAB
GCMS_2U_STG2.FMT
GCMS_3UA_S2_STG2.LBL
GCMS_3UA_S2_STG2.TAB
GCMS_3UA_STG1.LBL
GCMS_3UA_STG1.TAB
GCMS_3UA_STG2.LBL
GCMS_3UA_STG2.TAB
GCMS_3US_S10_STG2.LBL
GCMS_3US_S10_STG2.TAB
GCMS_3US_S1_STG2.LBL
GCMS_3US_S1_STG2.TAB
GCMS_3US_S2_STG2.LBL
GCMS_3US_S2_STG2.TAB
GCMS_3US_S3_STG2.LBL
GCMS_3US_S3_STG2.TAB
GCMS_3US_S4_STG2.LBL
GCMS_3US_S4_STG2.TAB
GCMS_3US_S5_STG2.LBL
GCMS_3US_S5_STG2.TAB
GCMS_3US_S6_STG2.LBL
GCMS_3US_S6_STG2.TAB
GCMS_3US_S7_STG2.LBL
GCMS_3US_S7_STG2.TAB
GCMS_3US_S8_STG2.LBL
GCMS_3US_S8_STG2.TAB
GCMS_3US_S9_STG2.LBL
GCMS_3US_S9_STG2.TAB
GCMS_3US_STG1.LBL
GCMS_3US_STG1.TAB
GCMS_3US_STG2.LBL
GCMS_3US_STG2.TAB
GCMS_3U_STG2.FMT
GCMS_4US_S10_STG2.LBL
GCMS_4US_S10_STG2.TAB
GCMS_4US_S1_STG2.LBL
GCMS_4US_S1_STG2.TAB
GCMS_4US_S2_STG2.LBL
GCMS_4US_S2_STG2.TAB

GCMS_4US_S3_STG2.LBL
GCMS_4US_S3_STG2.TAB
GCMS_4US_S4_STG2.LBL
GCMS_4US_S4_STG2.TAB
GCMS_4US_S5_STG2.LBL
GCMS_4US_S5_STG2.TAB
GCMS_4US_S6_STG2.LBL
GCMS_4US_S6_STG2.TAB
GCMS_4US_S7_STG2.LBL
GCMS_4US_S7_STG2.TAB
GCMS_4US_S8_STG2.LBL
GCMS_4US_S8_STG2.TAB
GCMS_4US_S9_STG2.LBL
GCMS_4US_S9_STG2.TAB
GCMS_4US_STG1.LBL
GCMS_4US_STG1.TAB
GCMS_4US_STG2.LBL
GCMS_4US_STG2.TAB
GCMS_4U_STG2.FMT
GCMS_5US_STG1.LBL
GCMS_5US_STG1.TAB
GCMS_5US_STG2.LBL
GCMS_5US_STG2.TAB
GCMS_5U_STG2.FMT
GCMS_ALL_B_STG1.LBL
GCMS_ALL_B_STG1.TAB
GCMS_ALL_STG1.FMT
GCMS_HK_ACK_STG1.FMT
GCMS_HK_B_ACK_STG1.LBL
GCMS_HK_B_ACK_STG1.TAB
GCMS_HK_B_HS_STG1.LBL
GCMS_HK_B_HS_STG1.TAB
GCMS_HK_B_IDLE_STG1.LBL
GCMS_HK_B_IDLE_STG1.TAB
GCMS_HK_B_MS_STG1.LBL
GCMS_HK_B_MS_STG1.TAB
GCMS_HK_B_TYPE1_STG1.LBL
GCMS_HK_B_TYPE1_STG1.TAB
GCMS_HK_B_TYPE2_STG1.LBL
GCMS_HK_B_TYPE2_STG1.TAB
GCMS_HK_HS_STG1.FMT
GCMS_HK_HS_STG2.LBL
GCMS_HK_HS_STG2.TAB
GCMS_HK_IDLE_STG1.FMT
GCMS_HK_IDLE_STG2.LBL
GCMS_HK_IDLE_STG2.TAB
GCMS_HK_MS_STG1.FMT
GCMS_HK_MS_STG2.LBL
GCMS_HK_MS_STG2.TAB
GCMS_HK_TYPE1_STG1.FMT
GCMS_HK_TYPE2_STG1.FMT
GCMS_HK_TYPE2_STG2.LBL
GCMS_HK_TYPE2_STG2.TAB
GCMS_ISALL_STG1.FMT
GCMS_SWEEPS_B_STG1.LBL
GCMS_SWEEPS_B_STG1.TAB
GCMS_SWEEPS_STG1.FMT

GCMS_TELEMETRY_STG1.CSV
GCMS_TELEMETRY_STG1.LBL
GCMS_TOTALS_STG2.LBL
GCMS_TOTALS_STG2.TAB

The **DTWG_MOLE_FRACTION** folder will contain these files.

GCMS_MOLE_FRACTION_STG2.LBL
GCMS_MOLE_FRACTION_STG2.TAB