

Standards Change Request

Increase DATA_QUALITY_ID to 16 characters

SCR3-1141.v2

Provenance:

Date: 2008-12-05

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Date: 2008-07-09

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Title: Increase DATA_QUALITY_ID to 16 characters (SCR3-1141.v1)

Problem:

Keyword data_quality_id is currently 3 chars max with values -1, 0, ... 4, N/A. The labels for the EDR and CDR products for MDIS (Mercury Dual Imaging System) on Messenger treat it as a 16-byte flag:

- byte 0: image source is CCD
- byte 1: non-zero exposure time
- byte 2: excessive number of pixels at or approaching saturation
- byte 3: valid pivot position
- byte 4: filter wheel in position
- byte 5: quality of spacecraft attitude knowledge
- byte 6: CCD temperature range
- byte 7: completeness of data within the commanded selection
- bytes 8-15: spare

(from the MDIS EDR SIS v2G at

<http://pdsimg.jpl.nasa.gov/data/messenger/MDIS/DOCUMENT/MDISEDRSIS.PDF>
and the "MDIS CDR/RDR Software Interface Specification, v1.2")

Current Urgency:

High. The Messenger Release 3 is on July 15, and the MDIS instrument uses this keyword in many if not all labels for their data files.

Proposed Solution:

Change the general data type of the data_quality_id keyword to "CHARACTER" and increase the length from 3 to 16 characters.

Impact Assessment:

PDS Standards Reference -- no impact

Archive Preparation Guide -- no impact

Proposer's Archive Guide -- no impact

Planetary Science Data Dictionary -- will need to update the attributes for the data_quality_id keyword

PDS tools -- no impact

Existing archives --

As far as we've been able to determine, the node (PPI) which originally added this keyword to the PSDD has never used it. The only other data set we've found which employs this keyword is the Clementine EDR set "CLEM-1-L/E/Y-A/B/U/H/L/N-w-EDR-V1.0". It appears that every product in this data set has the value "N/A" for this keyword, plus the SIS for that data set says:

```
DATA_QUALITY_ID = "N/A"
```

```
Data Quality indicator. This keyword is reserved for future use.
As processing of Clementine data proceeds, this keyword may
be used to describe data quality information. No data quality
parameters have currently been defined.
```

We therefore see no impact on this keyword by making the proposed changes.

Additional Information:

(none)

Requested Changes:

In addition to increasing the maximum length for values of this keyword, this SCR proposes to fix a number of other problems with the keyword. It originally had a

general data type of IDENTIFIER, which is invalid for strictly numeric values. Therefore the following list of changes is proposed:

- change the MAXIMUM_LENGTH from 3 to 16
- change the GENERAL_DATA_TYPE from IDENTIFIER to CHARACTER
- change the STANDARD_VALUE_TYPE from DEFINITION to TEXT
- remove the existing standard values
- change the SQL_FORMAT and BL_SQL_FORMAT from char(3) to char(16)
- change the GENERAL_CLASSIFICATION_TYPE from PLASMA to DATASET
- populate the NOTE field with explanations for the values used
- populate the SOURCE_NAME with "PPI"

```
PDS_VERSION_ID           = PDS3
LABEL_REVISION_NOTE      = "2008-07-09: RLC/EN Increased
length to 16, changed data type"
```

```
OBJECT                   = ELEMENT_DEFINITION
  ELEMENT_NAME           = "data_quality_id"
  BL_NAME                = "dataqualid"
  DESCRIPTION            = ""
```

The data_quality_id element provides a numeric key which identifies the quality of data available for a particular time period.

The data_quality_id scheme is unique to a given instrument and is described by the associated data_quality_desc element."

```
GENERAL_DATA_TYPE       = "CHARACTER"
MAXIMUM                 = "N/A"
MINIMUM                 = "N/A"
MAXIMUM_LENGTH          = "16"
MINIMUM_LENGTH          = "N/A"
STANDARD_VALUE_TYPE     = "TEXT"
STANDARD_VALUE_SET_DESC = ""
KEYWORD_DEFAULT_VALUE   = ""
UNIT_ID                 = "none"
SOURCE_NAME             = "PPI"
FORMATION_RULE_DESC     = ""
NOTE                    = ""
```

As originally proposed for Plasma data sets, the values for this keyword ranged from "-1" to "4", indicating worst to best quality.

Huygens similarly used a range of values from "1" to "5" to

indicate data quality.

For the Mercury Dual Imaging System, the values have the following meanings:

- byte 0: image source is CCD
- byte 1: non-zero exposure time
- byte 2: excessive number of pixels at or approaching saturation
- byte 3: valid pivot position
- byte 4: filter wheel in position
- byte 5: quality of spacecraft attitude knowledge
- byte 6: CCD temperature range
- byte 7: completeness of data within the commanded selection
- bytes 8-15: spare "

```
SYSTEM_CLASSIFICATION_ID      = "COMMON"
GENERAL_CLASSIFICATION_TYPE    = "DATASET"
CHANGE_DATE                    = "2008-07-09"
STATUS_TYPE                    = "APPROVED"
STANDARD_VALUE_OUTPUT_FLAG     = "N"
TEXT_FLAG                      = "N"
TERSE_NAME                     = "dataqualid"
SQL_FORMAT                     = "CHAR(16)"
BL_SQL_FORMAT                  = "char(16)"
DISPLAY_FORMAT                 = "JUSTLEFT"
AVAILABLE_VALUE_TYPE          = ""
END_OBJECT                     = ELEMENT_DEFINITION
END
```