Standards Change Request

Change STANDARD_VALUE_TYPE and MAXIMUM_LENGTH for SPACECRAFT_POINTING_MODE to SUGGESTED and 25 respectively SCR3-1158.v1

Provenance:

Date: 2009-08-28
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Working Group: Betty Sword, Patty Garcia

Date: 2009-06-22
Author(s): Betty Sword and Patty Garcia
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Title: Change STANDARD_VALUE_TYPE and MAXIMUM_LENGTH for SPACECRAFT_POINTING_MODE to SUGGESTED and 25 respectively (SCR3-1152.v1)

Problem:

SPACECRAFT_POINTING_MODE has a standard value type (STANDARD_VALUE_TYPE) of DYNAMIC which requires PDS approval for adding new standard value. Values are limited to twelve (12) characters.

The Odyssey THEMIS team would like to use this keyword with several new values including some that will be devised in the future and aren't currently known. An example of a new value is "HGA_MITIGATION_R-10". There would appear to be little merit in requiring formal approval for values of this type.

The currently proposed addition, HGA_MITIGATION_R_10 at 19 characters exceeds the allowed length of twelve (12) characters.

Current Urgency:

Medium. ODY Themis would like to use this now. *(Note from Standards Coordinator: urgency may be higher now due to lack of resolution by PDS for over two months.)*

Proposed Solution:

Change the standard value type of this keyword to SUGGESTED. This keyword requires the accompanying keyword SPACECRAFT_POINTING_MODE_DESC that also lists and defines the standard values being used by a specific mission.

Increase the MAXIMUM_LENGTH to 25 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 change the STANDARD_VALUE_TYPE value for this keyword to SUGGESTED and MAXIMUM_LENGTH to 25 characters.

PDS tools -- no impact

Existing archives -- no impact

Additional Information:

(none)

Requested Changes:

Update the Planetary Science Data Dictionary as follows:

```
PDS_VERSION_ID                    = PDS3
LABEL_REVISION_NOTE               = "2003-12-16 CN:BJS;
                                     2009-08-28 IMG:PG"

OBJECT                            = ELEMENT_DEFINITION
  ELEMENT_NAME                    = "spacecraft_pointing_mode"
  BL_NAME                         = "scpntngmode"
  DESCRIPTION                     = "

The spacecraft_pointing_mode element provides the pointing mode of the
spacecraft.  The definition of the modes and the standard values are given
via the SPACECRAFT_POINTING_MODE_DESC element, which shall always accompany
this keyword"

  GENERAL_DATA_TYPE               = "CHARACTER"
  MAXIMUM                         = "N/A"
  MINIMUM                         = "N/A"
  MAXIMUM_LENGTH                  = "~~12~~ 25"
  MINIMUM_LENGTH                  = "N/A"
  STANDARD_VALUE_TYPE             = "~~DYNAMIC~~SUGGESTED"
  STANDARD_VALUE_SET_DESC         = "

NADIR - This pointing mode is used to define a pointing to the center of
the target body defined by TARGET_NAME element.

ALONGTRACK - This pointing mode is a derivative of the NADIR pointing
mode but with an offset to the target body center point using an offset in
the flight direction of a spacecraft.  The  SPACECRAFT_POINTING_MODE_DESC
shall contain either information on the angle in respect to the spacecraft
to target body center line (POSITION_ANGLE, OFFSET_ANGLE) or in respect to
the center of the body (OFFSET_X/Y/Z). In the latter case the reference
frame and the epoch need to be specified.

ACROSSTRACK - This pointing mode is a derivative of the NADIR pointing mode
but with an offset to the target body center point using an offset
perpendicular to the flight direction of the spacecraft.  The
SPACECRAFT_POINTING_MODE_DESC shall contain either information on the angle
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in respect to the spacecraft to target body center line (POSITION_ANGLE, OFFSET_ANGLE) or in respect to the center of the body (OFFSET_X/Y/Z). In the latter case the reference frame and the epoch needs to be specified.

INERT - This pointing mode is used to define a pointing in an inertial reference frame. In principle the pointing may be considered constant during the observation. It is either possible to define an explicit pointing direction or a celestial object. The SPACECRAFT_POINTING_MODE_DESC shall contain information either on the object that is pointed to or the position (RA,DEC). In the latter case the reference frame and epoch of the celestial direction shall be given, e.g. Earth Mean Equatorial (EME) at J2000.

LIMB - This pointing mode is used to specify a point on the limb of the target body. The limb is defined as the contour of the target body as seen from the spacecraft. To specify a position on the limb two methods may be used. The first method computes the two limb points of a target object using the rotation of the target body. To specify a single point it is necessary to define if the ascending node or the descending node should be used. The second method defines a point on the limb using a position angle. One of these methods shall be described in the SPACECRAFT_POINTING_MODE_DESC element."

```
  KEYWORD_DEFAULT_VALUE           = "N/A"
  UNIT_ID                         = "N/A"
  SOURCE_NAME                     = "Joe Zender, ESA"
  FORMATION_RULE_DESC             = "N/A"
  OBJECT                          = ELEMENT_STANDARD_VALUE
    COLUMN_VALUE                  = "ACROSSTRACK"
    COLUMN_VALUE_TYPE             = "A"
    COLUMN_VALUE_NODE_ID          = "U"
    OUTPUT_FLAG                   = "Y"
  END_OBJECT                      = ELEMENT_STANDARD_VALUE

  OBJECT                          = ELEMENT_STANDARD_VALUE
    COLUMN_VALUE                  = "ALONGTRACK"
    COLUMN_VALUE_TYPE             = "A"
    COLUMN_VALUE_NODE_ID          = "U"
    OUTPUT_FLAG                   = "Y"
  END_OBJECT                      = ELEMENT_STANDARD_VALUE

  OBJECT                          = ELEMENT_STANDARD_VALUE
    COLUMN_VALUE                  = "INERT"
    COLUMN_VALUE_TYPE             = "A"
    COLUMN_VALUE_NODE_ID          = "U"
    OUTPUT_FLAG                   = "Y"
  END_OBJECT                      = ELEMENT_STANDARD_VALUE

  OBJECT                          = ELEMENT_STANDARD_VALUE
    COLUMN_VALUE                  = "LIMB"
    COLUMN_VALUE_TYPE             = "A"
    COLUMN_VALUE_NODE_ID          = "U"
    OUTPUT_FLAG                   = "Y"
  END_OBJECT                      = ELEMENT_STANDARD_VALUE

  OBJECT                          = ELEMENT_STANDARD_VALUE
    COLUMN_VALUE                  = "NADIR"
```

```
    COLUMN_VALUE_TYPE             = "A"
    COLUMN_VALUE_NODE_ID          = "U"
    OUTPUT_FLAG                   = "Y"
  END_OBJECT                      = ELEMENT_STANDARD_VALUE

  OBJECT                          = ELEMENT_STANDARD_VALUE
    COLUMN_VALUE                  = "TRACKING"
    COLUMN_VALUE_TYPE             = "A"
    COLUMN_VALUE_NODE_ID          = "U"
    OUTPUT_FLAG                   = "Y"
  END_OBJECT                      = ELEMENT_STANDARD_VALUE

  SYSTEM_CLASSIFICATION_ID        = "COMMON"
  GENERAL_CLASSIFICATION_TYPE     = "GEOMETRY"
  CHANGE_DATE                     = "2009-08-28"
  STATUS_TYPE                     = "APPROVED"
  STANDARD_VALUE_OUTPUT_FLAG      = "Y"
  TEXT_FLAG                       = "N"
  TERSE_NAME                      = "scpntngmode"
  SQL_FORMAT                      = "CHAR(25)"
  BL_SQL_FORMAT                   = "char(25)"
  DISPLAY_FORMAT                  = "JUSTLEFT"
  AVAILABLE_VALUE_TYPE            = "N"
END_OBJECT                        = ELEMENT_DEFINITION
END
```