```xml
<?xml version="1.0" encoding="UTF-8"?>
<?xml-model href="https://pds.nasa.gov/pds4/pds/v1/PDS4_PDS_1F00.sch"?>

<Ingest_LDD
 xmlns="http://pds.nasa.gov/pds4/pds/v1"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xsi:schemaLocation="http://pds.nasa.gov/pds4/pds/v1
                     https://pds.nasa.gov/pds4/pds/v1/PDS4_PDS_1F00.xsd">

    <name>Hubble Space Telescope Dictionary Full</name>
    <ldd_version_id>1.0</ldd_version_id>
    <dictionary_type>Discipline</dictionary_type>
    <full_name>Mark R. Showalter</full_name>
    <steward_id>rings</steward_id>
    <namespace_id>hst</namespace_id>
    <comment>
        version 1.0  2022-10-06
        - Initial version
    </comment>
    <last_modification_date_time>2022-10-06T202:00:00</last_modification_date_time>

<!--     Observing program attributes     -->

<!-- Attribute mast_observation_id -->
    <DD_Attribute>
        <name>mast_observation_id</name>
        <version_id>1.0</version_id>
        <local_identifier>mast_observation_id</local_identifier>
        <nillable_flag>false</nillable_flag>
        <submitter_name>Mark R. Showalter</submitter_name>
        <definition>
            A 9-character identifier used to specify data products, or sometimes sets of
            associated data products, in MAST (the Mikulski Archive for Space Telescopes).
            In HST data files, this is the value of FITS keyword ROOTNAME. The name ASN_ID,
            for "association identifier" is also sometimes used. Values are always converted
            to lower case, if necessary.

            In MAST, you can find these products by entering this ID into the search box on
            this page:
                archive.stsci.edu/cgi-bin/dataset_lookup/

            The nine characters can generally be interpreted as follows:
            - the first letter indicates the instrument, 'u' for WFPC2, 'j', for ACS, etc.;
            - the next three characters are unique to each HST program;
            - the next two characters indicate the HST visit within the program;
            - two characters generally increment for successive observations during the
            visit, using "base 36" where the characters used are digits 0-9 plus letters
            a-z;
            - the last character indicates a transmission method, and is generally not
            important for scientific purposes. However, if it is a digit, this indicates
            that this particular file is the result of merging two or more other HST
            observations from this visit.
        </definition>
        <DD_Value_Domain>
            <enumeration_flag>false</enumeration_flag>
            <value_data_type>ASCII_Short_String_Collapsed</value_data_type>
        </DD_Value_Domain>
    </DD_Attribute>

<!-- Attribute hst_proposal_id -->
    <DD_Attribute>
        <name>hst_proposal_id</name>
        <version_id>1.0</version_id>
        <local_identifier>hst_proposal_id</local_identifier>
        <nillable_flag>false</nillable_flag>
        <submitter_name>Mark R. Showalter</submitter_name>
        <definition>
            The numeric identifier of the proposal or observing program, as assigned by
            the Space Telescope Science Institute. In HST data files, this is the value of
            FITS keyword PROPOSID.
        </definition>
        <DD_Value_Domain>
            <enumeration_flag>false</enumeration_flag>
            <value_data_type>ASCII_Integer</value_data_type>
        </DD_Value_Domain>
    </DD_Attribute>

<!-- Attribute hst_pi_name -->
    <DD_Attribute>
        <name>hst_pi_name</name>
        <version_id>1.0</version_id>
        <local_identifier>hst_pi_name</local_identifier>
        <nillable_flag>false</nillable_flag>
        <submitter_name>Mark R. Showalter</submitter_name>
```

```xml
            <definition>
                The name of the principal investigator for this HST program, in the form "last,
                name, first name, optional middle initial".
            </definition>
            <DD_Value_Domain>
                <enumeration_flag>false</enumeration_flag>
                <value_data_type>UTF8_Text_Preserved</value_data_type>
            </DD_Value_Domain>
        </DD_Attribute>

<!-- Attribute visit_id -->
        <DD_Attribute>
            <name>visit_id</name>
            <version_id>1.0</version_id>
            <local_identifier>visit_id</local_identifier>
            <nillable_flag>false</nillable_flag>
            <submitter_name>Mark R. Showalter</submitter_name>
            <definition>
                The two-digit "base 36" code identifying the visit number for this observations.
                An individual visit can comprise one or more orbits of HST around the Earth.
            </definition>
            <DD_Value_Domain>
                <enumeration_flag>false</enumeration_flag>
                <value_data_type>ASCII_Short_String_Collapsed</value_data_type>
            </DD_Value_Domain>
        </DD_Attribute>

<!--      Instrument attributes      -->

<!-- Attribute instrument_id -->
        <DD_Attribute>
            <name>instrument_id</name>
            <version_id>1.0</version_id>
            <local_identifier>instrument_id</local_identifier>
            <nillable_flag>false</nillable_flag>
            <submitter_name>Mark R. Showalter</submitter_name>
            <definition>
                An acronym for the HST instrument. This is the value of FITS keyword INSTRUME.
            </definition>
            <DD_Value_Domain>
                <enumeration_flag>true</enumeration_flag>
                <value_data_type>ASCII_Short_String_Collapsed</value_data_type>
                <DD_Permissible_Value>
                    <value>ACS</value>
                    <value_meaning>Advanced Camera for Surveys</value_meaning>
                </DD_Permissible_Value>
                <DD_Permissible_Value>
                    <value>COS</value>
                    <value_meaning>Cosmic Origins Spectrograph</value_meaning>
                </DD_Permissible_Value>
                <DD_Permissible_Value>
                    <value>FGS</value>
                    <value_meaning>Fine Guidance Sensors</value_meaning>
                </DD_Permissible_Value>
                <DD_Permissible_Value>
                    <value>FOC</value>
                    <value_meaning>Faint Object Camera</value_meaning>
                </DD_Permissible_Value>
                <DD_Permissible_Value>
                    <value>FOS</value>
                    <value_meaning>Faint Object Spectrograph</value_meaning>
                </DD_Permissible_Value>
                <DD_Permissible_Value>
                    <value>GHRS</value>
                    <value_meaning>Goddard High Resolution Spectrograph</value_meaning>
                </DD_Permissible_Value>
                <DD_Permissible_Value>
                    <value>HSP</value>
                    <value_meaning>High Speed Photometer</value_meaning>
                </DD_Permissible_Value>
                <DD_Permissible_Value>
                    <value>NICMOS</value>
                    <value_meaning>Near Infrared Camera and Multi-Object Spectrometer</value_meaning>
                </DD_Permissible_Value>
                <DD_Permissible_Value>
                    <value>STIS</value>
                    <value_meaning>Space Telescope Imaging Spectrograph</value_meaning>
                </DD_Permissible_Value>
                <DD_Permissible_Value>
                    <value>WFC3</value>
                    <value_meaning>Wide Field Camera 3</value_meaning>
                </DD_Permissible_Value>
                <DD_Permissible_Value>
                    <value>WFPC</value>
```

```xml
                <value_meaning>Wide Field/Planetary Camera</value_meaning>
            </DD_Permissible_Value>
            <DD_Permissible_Value>
                <value>WFPC2</value>
                <value_meaning>Wide Field/Planetary Camera 2</value_meaning>
            </DD_Permissible_Value>
        </DD_Value_Domain>
    </DD_Attribute>

<!-- Attribute channel_id -->
    <DD_Attribute>
        <name>channel_id</name>
        <version_id>1.0</version_id>
        <local_identifier>channel_id</local_identifier>
        <nillable_flag>false</nillable_flag>
        <submitter_name>Mark R. Showalter</submitter_name>
        <definition>
            An abbreviated name or acronym for the specific channel of the HST instrument
            used for this observation. Here, "channel" refers to a distinct optical path
            used by one or more of the instrument's detectors.

            For HST instruments, such as WFPC2, that do not have multiple channels, this
            attribute has the same value as the instrument_id attribute.
        </definition>
        <DD_Value_Domain>
            <enumeration_flag>true</enumeration_flag>
            <value_data_type>ASCII_Short_String_Collapsed</value_data_type>

            <!-- ACS -->
            <DD_Permissible_Value>
                <value>HRC</value>
                <value_meaning>High Resolution Channel of ACS</value_meaning>
            </DD_Permissible_Value>
            <DD_Permissible_Value>
                <value>SBC</value>
                <value_meaning>Solar Blind Channel of ACS</value_meaning>
            </DD_Permissible_Value>
            <DD_Permissible_Value>
                <value>WFC</value>
                <value_meaning>Wide Field Channel of either ACS</value_meaning>
            </DD_Permissible_Value>

            <!-- COS -->
            <DD_Permissible_Value>
                <value>FUV</value>
                <value_meaning>
                    The far-ultraviolet channel on COS.
                </value_meaning>
            </DD_Permissible_Value>
            <DD_Permissible_Value>
                <value>NUV</value>
                <value_meaning>
                    The near-ultraviolet channel on COS.
                </value_meaning>
            </DD_Permissible_Value>

            <!-- FGS -->
            <DD_Permissible_Value>
                <value>FGS</value>
                <value_meaning>Fine Guidance Sensor</value_meaning>
            </DD_Permissible_Value>

            <!-- FOC -->
            <DD_Permissible_Value>
                <value>FOC</value>
                <value_meaning>Faint Object Camera</value_meaning>
            </DD_Permissible_Value>

            <!-- FOS -->
            <DD_Permissible_Value>
                <value>AMBER</value>
                <value_meaning>The red or "amber" detector channel of FOS</value_meaning>
            </DD_Permissible_Value>
            <DD_Permissible_Value>
                <value>BLUE</value>
                <value_meaning>The blue detector channel of FOS</value_meaning>
            </DD_Permissible_Value>

            <!-- GHRS -->
            <DD_Permissible_Value>
                <value>D1</value>
                <value_meaning>Detector 1, the short-wavelength channel of GHRS</value_meaning>
            </DD_Permissible_Value>
            <DD_Permissible_Value>
```

```
        <value>D2</value>
        <value_meaning>Detector 2, the longer-wavelength channel of GHRS</value_meaning>
    </DD_Permissible_Value>

    <!-- HSP -->
    <DD_Permissible_Value>
        <value>HSP</value>
        <value_meaning>High Speed Photometer</value_meaning>
    </DD_Permissible_Value>

    <!-- NICMOS -->
    <DD_Permissible_Value>
        <value>NIC1</value>
        <value_meaning>
            The highest spatial resolution camera of NICMOS, with an 11 x 11 arcsec
            field of view and 43 mas pixels. It covers the spectral range 0.8 to 1.8
            microns.
        </value_meaning>
    </DD_Permissible_Value>
    <DD_Permissible_Value>
        <value>NIC2</value>
        <value_meaning>
            The intermediate spatial resolution camera of NICMOS, with a 19.2 x 19.2
            arcsec field of view and 75 mas pixels. It covers the spectral range 0.8
            to 2.45 microns.
        </value_meaning>
    </DD_Permissible_Value>
    <DD_Permissible_Value>
        <value>NIC3</value>
        <value_meaning>
            The lowest spatial resolution camera of NICMOS, with a large 51.2 x 51.2
            arcsec field of view and 200 mas pixels. It covers the spectral range
            0.8 to 2.5 microns.
        </value_meaning>
    </DD_Permissible_Value>

    <!-- STIS -->
    <DD_Permissible_Value>
        <value>FUV-MAMA</value>
        <value_meaning>
            The Far-Ultraviolet Multi-Anode Microchannel Array detector channel on STIS,
            which covers the wavelength range 1150 to 1700 Angstroms.
        </value_meaning>
    </DD_Permissible_Value>
    <DD_Permissible_Value>
        <value>NUV-MAMA</value>
        <value_meaning>
            The Near-Ultraviolet Multi-Anode Microchannel Array detector channel on STIS,
            which covers the wavelength range 1600 to 3100 Angstroms.
        </value_meaning>
    </DD_Permissible_Value>
    <DD_Permissible_Value>
        <value>CCD</value>
        <value_meaning>
            The Charge Coupled Device imager on STIS.
        </value_meaning>
    </DD_Permissible_Value>

    <!-- WFC3 -->
    <DD_Permissible_Value>
        <value>UVIS</value>
        <value_meaning>Ultraviolet and Visual channel of WFC3</value_meaning>
    </DD_Permissible_Value>
    <DD_Permissible_Value>
        <value>IR</value>
        <value_meaning>Infrared channel of WFC3</value_meaning>
    </DD_Permissible_Value>

    <!-- WFPC -->
    <DD_Permissible_Value>
        <value>PC</value>
        <value_meaning>Planetary Camera channel of WFPC</value_meaning>
    </DD_Permissible_Value>
    <DD_Permissible_Value>
        <value>WF</value>
        <value_meaning>Wide Field channel of WFPC</value_meaning>
    </DD_Permissible_Value>

    <!-- WFPC2 -->
    <DD_Permissible_Value>
        <value>WFPC2</value>
        <value_meaning>Wide Field/Planetary Camera 2</value_meaning>
    </DD_Permissible_Value>
</DD_Value_Domain>
```

```
        </DD_Attribute>

<!-- Attribute detector_id -->
    <DD_Attribute>
        <name>detector_id</name>
        <version_id>1.0</version_id>
        <local_identifier>detector_id</local_identifier>
        <nillable_flag>false</nillable_flag>
        <submitter_name>Mark R. Showalter</submitter_name>
        <definition>
            This identifier specifies which of the detectors of this instrument and channel
            obtained the data found in this HST product. This parameter is repeated if
            multiple detectors were used.

            For instruments that do not have multiple detectors, this attribute occurs just
            once and has the same value as the channel_id attribute.
        </definition>
        <DD_Value_Domain>
            <enumeration_flag>true</enumeration_flag>
            <value_data_type>ASCII_Short_String_Collapsed</value_data_type>

            <!-- ACS -->
            <DD_Permissible_Value>
                <value>HRC</value>
                <value_meaning>Detector for ACS/HRC</value_meaning>
            </DD_Permissible_Value>
            <DD_Permissible_Value>
                <value>SBC</value>
                <value_meaning>Detector for ACS/SBC</value_meaning>
            </DD_Permissible_Value>
            <DD_Permissible_Value>
                <value>WFC1</value>
                <value_meaning>Dectector 1 of ACS/WFC</value_meaning>
            </DD_Permissible_Value>
            <DD_Permissible_Value>
                <value>WFC2</value>
                <value_meaning>Dectector 2 of ACS/WFC</value_meaning>
            </DD_Permissible_Value>

            <!-- COS -->
            <DD_Permissible_Value>
                <value>FUVA</value>
                <value_meaning>Detector A of COS/FUV</value_meaning>
            </DD_Permissible_Value>
            <DD_Permissible_Value>
                <value>FUVB</value>
                <value_meaning>Detector B of COS/FUV</value_meaning>
            </DD_Permissible_Value>
            <DD_Permissible_Value>
                <value>NUV</value>
                <value_meaning>Detector for COS/NUV</value_meaning>
            </DD_Permissible_Value>

            <!-- FGS -->
            <DD_Permissible_Value>
                <value>FGS1</value>
                <value_meaning>Find Guidance Sensor 1</value_meaning>
            </DD_Permissible_Value>
            <DD_Permissible_Value>
                <value>FGS1R</value>
                <value_meaning>Find Guidance Sensor 1R, which replaced FGS1 in February 1997.</value_meaning>
            </DD_Permissible_Value>
            <DD_Permissible_Value>
                <value>FGS2</value>
                <value_meaning>Find Guidance Sensor 2</value_meaning>
            </DD_Permissible_Value>
            <DD_Permissible_Value>
                <value>FGS2R</value>
                <value_meaning>Find Guidance Sensor 2R, which replaced FGS2 in December 1999.</value_meaning>
            </DD_Permissible_Value>
            <DD_Permissible_Value>
                <value>FGS3</value>
                <value_meaning>Find Guidance Sensor 3</value_meaning>
            </DD_Permissible_Value>

            <!-- FOC -->
            <DD_Permissible_Value>
                <value>FOC</value>
                <value_meaning>Detector for the Faint Object Camera</value_meaning>
            </DD_Permissible_Value>

            <!-- FOS -->
            <DD_Permissible_Value>
                <value>AMBER</value>
```

```xml
        <value_meaning>Red or "amber" detector of FOS</value_meaning>
    </DD_Permissible_Value>
    <DD_Permissible_Value>
        <value>BLUE</value>
        <value_meaning>Blue detector of FOS</value_meaning>
    </DD_Permissible_Value>

    <!-- GHRS -->
    <DD_Permissible_Value>
        <value>D1</value>
        <value_meaning>GHRS detector side 1</value_meaning>
    </DD_Permissible_Value>
    <DD_Permissible_Value>
        <value>D2</value>
        <value_meaning>GHRS detector side 2</value_meaning>
    </DD_Permissible_Value>

    <!-- HSP -->
    <DD_Permissible_Value>
        <value>UV1</value>
        <value_meaning>Ultraviolet detector 1 for HSP</value_meaning>
    </DD_Permissible_Value>
    <DD_Permissible_Value>
        <value>UV2</value>
        <value_meaning>Ultraviolet detector 2 for HSP</value_meaning>
    </DD_Permissible_Value>
    <DD_Permissible_Value>
        <value>VIS</value>
        <value_meaning>Visual detector for HSP</value_meaning>
    </DD_Permissible_Value>
    <DD_Permissible_Value>
        <value>POL</value>
        <value_meaning>Polarimeter for HSP</value_meaning>
    </DD_Permissible_Value>
    <DD_Permissible_Value>
        <value>PMT</value>
        <value_meaning>Photomultiplier for HSP</value_meaning>
    </DD_Permissible_Value>

    <!-- NICMOS -->
    <DD_Permissible_Value>
        <value>NIC1</value>
        <value_meaning>Detector for the NICMOS/NIC1</value_meaning>
    </DD_Permissible_Value>
    <DD_Permissible_Value>
        <value>NIC2</value>
        <value_meaning>Detector for the NICMOS/NIC2</value_meaning>
    </DD_Permissible_Value>
    <DD_Permissible_Value>
        <value>NIC3</value>
        <value_meaning>Detector for the NICMOS/NIC3</value_meaning>
    </DD_Permissible_Value>

    <!-- STIS -->
    <DD_Permissible_Value>
        <value>FUV-MAMA</value>
        <value_meaning>Detector for the STIS/FUV-MAMA</value_meaning>
    </DD_Permissible_Value>
    <DD_Permissible_Value>
        <value>NUV-MAMA</value>
        <value_meaning>Detector for the STIS/NUV-MAMA</value_meaning>
    </DD_Permissible_Value>
    <DD_Permissible_Value>
        <value>CCD</value>
        <value_meaning>Detector for the STIS/CCD</value_meaning>
    </DD_Permissible_Value>

    <!-- WFC3 -->
    <DD_Permissible_Value>
        <value>UVIS1</value>
        <value_meaning>Detector 1 of WFC3/UVIS</value_meaning>
    </DD_Permissible_Value>
    <DD_Permissible_Value>
        <value>UVIS2</value>
        <value_meaning>Detector 2 of WFC3/UVIS</value_meaning>
    </DD_Permissible_Value>
    <DD_Permissible_Value>
        <value>IR</value>
        <value_meaning>Detector for the WFC3/IR</value_meaning>
    </DD_Permissible_Value>

    <!-- WFPC and WFPC2 -->
    <DD_Permissible_Value>
        <value>PC1</value>
```

```xml
                    <value_meaning>Detector PC1 of WFPC2</value_meaning>
                </DD_Permissible_Value>
                <DD_Permissible_Value>
                    <value>PC5</value>
                    <value_meaning>Detector PC5 of WFPC</value_meaning>
                </DD_Permissible_Value>
                <DD_Permissible_Value>
                    <value>PC6</value>
                    <value_meaning>Detector PC6 of WFPC</value_meaning>
                </DD_Permissible_Value>
                <DD_Permissible_Value>
                    <value>PC7</value>
                    <value_meaning>Detector PC7 of WFPC</value_meaning>
                </DD_Permissible_Value>
                <DD_Permissible_Value>
                    <value>PC8</value>
                    <value_meaning>Detector PC8 of WFPC</value_meaning>
                </DD_Permissible_Value>

                <DD_Permissible_Value>
                    <value>WF1</value>
                    <value_meaning>Detector WF1 of WFPC</value_meaning>
                </DD_Permissible_Value>
                <DD_Permissible_Value>
                    <value>WF2</value>
                    <value_meaning>Detector WF2 of either WFPC or WFPC2</value_meaning>
                </DD_Permissible_Value>
                <DD_Permissible_Value>
                    <value>WF3</value>
                    <value_meaning>Detector WF3 of either WFPC or WFPC2</value_meaning>
                </DD_Permissible_Value>
                <DD_Permissible_Value>
                    <value>WF4</value>
                    <value_meaning>Detector WF4 of either WFPC or WFPC2</value_meaning>
                </DD_Permissible_Value>
            </DD_Value_Domain>
        </DD_Attribute>

<!-- Attribute observation_type -->
        <DD_Attribute>
            <name>observation_type</name>
            <version_id>1.0</version_id>
            <local_identifier>observation_type</local_identifier>
            <nillable_flag>false</nillable_flag>
            <submitter_name>Mark R. Showalter</submitter_name>
            <definition>
                The type of the observation. For most HST data files, this is the value of FITS
                keyword OBSTYPE, either IMAGING or SPECTROSCOPIC. IMAGING indicates that a 2-D
                image with two spatial axes was obtained. SPECTROSCOPIC indicates that one of
                the axes of the data array is related to wavelength. TIME-SERIES indicates a data
                array in which the primary axis sampling is by time.

                The FITS keyword OBSTYPE does not appear in some data products. However, several
                instruments produce only one type of observation. Observations from ACS, NICMOS,
                WFC3, WFPC, and WFPC2 are always IMAGES; observations from COS, FOS, and GHRS
                are always SPECTROSCOPIC.

                For ACS/HRC, the FITS keyword OBSTYPE can have a value of CORONAGRAPHIC.
                However, the value of this attribute is IMAGING; the coronagraph_flag attribute
                indicates whether the coronagraph was used.
            </definition>
            <DD_Value_Domain>
                <enumeration_flag>true</enumeration_flag>
                <value_data_type>ASCII_Short_String_Collapsed</value_data_type>
                <DD_Permissible_Value>
                    <value>IMAGING</value>
                    <value_meaning>
                        This product contains 2-D image with two spatial axes.
                    </value_meaning>
                </DD_Permissible_Value>
                <DD_Permissible_Value>
                    <value>SPECTROSCOPIC</value>
                    <value_meaning>
                        One of the axes of the data array is related to wavelength.
                    </value_meaning>
                </DD_Permissible_Value>
                <DD_Permissible_Value>
                    <value>TIME-SERIES</value>
                    <value_meaning>
                        One of the axes of the data array is related to time.
                    </value_meaning>
                </DD_Permissible_Value>
            </DD_Value_Domain>
        </DD_Attribute>
```

```
<!--     Pointing attributes    -->

<!-- Attribute hst_target_name -->
    <DD_Attribute>
        <name>hst_target_name</name>
        <version_id>1.0</version_id>
        <local_identifier>hst_target_name</local_identifier>
        <nillable_flag>false</nillable_flag>
        <submitter_name>Mark R. Showalter</submitter_name>
        <definition>
            The target of the observation as defined by the principal investigator. In HST
            data files, this is the value of FITS keyword TARGNAME. Note that targets can be
            named arbitrarily in HST observing programs, so the meaning of this character
            string might not be obvious to the user.
        </definition>
        <DD_Value_Domain>
            <enumeration_flag>false</enumeration_flag>
            <value_data_type>ASCII_Short_String_Collapsed</value_data_type>
        </DD_Value_Domain>
    </DD_Attribute>

<!-- Attribute moving_target_flag -->
    <DD_Attribute>
        <name>moving_target_flag</name>
        <version_id>1.0</version_id>
        <local_identifier>moving_target_flag</local_identifier>
        <nillable_flag>true</nillable_flag>
        <submitter_name>Mark R. Showalter</submitter_name>
        <definition>
            A Boolean flag (true, false) indicating whether or not the telescope pointing
            was based on tracking a moving target. For HST data files, this is derived from
            the value of FITS keyword MTFLAG, which can have values of 1 or "T" for true or
            0, "F", or "" for false.
        </definition>
        <DD_Value_Domain>
            <enumeration_flag>false</enumeration_flag>
            <value_data_type>ASCII_Boolean</value_data_type>
        </DD_Value_Domain>
    </DD_Attribute>

<!-- Attribute moving_target_keyword -->
    <DD_Attribute>
        <name>moving_target_keyword</name>
        <version_id>1.0</version_id>
        <local_identifier>moving_target_keyword</local_identifier>
        <nillable_flag>true</nillable_flag>
        <submitter_name>Mark R. Showalter</submitter_name>
        <definition>
            Keyword values used in the HST planning software to define a moving target. These
            often provide easier-to-interpret information about a solar system target.
            Examples are "PLANET JUPITER", "TORUS JUPITER", "SATELLITE EUROPA", and
            "ASTEROID 216".

            These values are obtained from the FITS header of the _shf.fits or _spt.fits
            file, given as values of keywords TARKEY1, TARKEY2, etc.

            If no TARKEY keywords appear in the FITS header, this attribute has a single
            value of "Not applicable".
        </definition>
        <DD_Value_Domain>
            <enumeration_flag>false</enumeration_flag>
            <value_data_type>ASCII_Short_String_Collapsed</value_data_type>
        </DD_Value_Domain>
    </DD_Attribute>

<!-- Attribute moving_target_description -->
    <DD_Attribute>
        <name>moving_target_description</name>
        <version_id>1.0</version_id>
        <local_identifier>moving_target_description</local_identifier>
        <nillable_flag>true</nillable_flag>
        <submitter_name>Mark R. Showalter</submitter_name>
        <definition>
            The detailed information used for targeting HST. This includes information about
            standard targets such as planets, satellites, and larger asteroids. It can also
            include information used to determine offsets from the center of these bodies.

            Here are some sample values of this attribute:
                STD = JUPITER
                STD = EUROPA
                TYPE=TORUS, LONG=90, LAT=0, RAD-3.98E05
            They are obtained from the FITS header of an observation's associated _shf.fits
            or _spt.fits file. They are the values of FITS keywords MT_LV_1, MT_LV_2, etc.
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              Consult with HST documentation for detailed interpretations.

              If no MT_LV keywords appear in the FITS header, this attribute has a single
              value of "Not applicable".
        </definition>
        <DD_Value_Domain>
            <enumeration_flag>false</enumeration_flag>
            <value_data_type>ASCII_Short_String_Collapsed</value_data_type>
        </DD_Value_Domain>
    </DD_Attribute>

<!-- Attribute aperture_name -->
    <DD_Attribute>
        <name>aperture_name</name>
        <version_id>1.0</version_id>
        <local_identifier>aperture_name</local_identifier>
        <nillable_flag>true</nillable_flag>
        <submitter_name>Mark R. Showalter</submitter_name>
        <definition>
              The name of the aperture used for the observation. For HST data files, this is
              generally the value of FITS keyword APERTURE. Note that these values are
              instrument-specific; see the relevant HST Instrument Handbooks and Data
              Handbooks for further details.

              This attribute is not applicable to FOC data.
        </definition>
        <DD_Value_Domain>
            <enumeration_flag>false</enumeration_flag>
            <value_data_type>ASCII_Short_String_Collapsed</value_data_type>
        </DD_Value_Domain>
    </DD_Attribute>

<!-- Attribute proposed_aperture_name -->
    <DD_Attribute>
        <name>proposed_aperture_name</name>
        <version_id>1.0</version_id>
        <local_identifier>proposed_aperture_name</local_identifier>
        <nillable_flag>true</nillable_flag>
        <submitter_name>Mark R. Showalter</submitter_name>
        <definition>
              The name of the proposed aperture used for the observation. For some data files,
              this is the value of FITS keyword PROPAPER. It is needed because the proposed
              aperture need not be the same as the aperture actually used. If the FITS keyword
              PROPAPER is missing or has a blank value, the value of FITS keyword APERTURE is
              used instead.

              This attribute is not applicable to FOC data.
        </definition>
        <DD_Value_Domain>
            <enumeration_flag>false</enumeration_flag>
            <value_data_type>ASCII_Short_String_Collapsed</value_data_type>
        </DD_Value_Domain>
    </DD_Attribute>

<!-- Attribute targeted_detector_id -->
    <DD_Attribute>
        <name>targeted_detector_id</name>
        <version_id>1.0</version_id>
        <local_identifier>targeted_detector_id</local_identifier>
        <nillable_flag>false</nillable_flag>
        <submitter_name>Mark R. Showalter</submitter_name>
        <definition>
              The identifier of the detector(s) used to define the targeting of this
              observation. For instruments with multiple detectors, this attribute
              indicates the one that is most likely to contain the intended target. When
              an observation was planned to employ more than one detector to encompass the
              target, this attribute will have multiple values. For instruments that do not
              have multiple detectors, this attribute will have a single value equal to that
              of channel_id and detector_id.

              For WFPC2, this attribute is derived from the value of the aperture:
              - PC1 for apertures PC1, PC1-FIX, POLQP15P, FQCH4P15;
              - WF2 for apertures WF2, WF2-FIX, FQUVN33, POLQN33, POLQN18, POLQP15W, FQCH4NW2,
                FQCH4N33;
              - WF3 for apertures WF3, WF3-FIX, FQCH4NW3, F160BN15;
              - WF4 for apertures WF4, WF4-FIX, FQCH4NW4;
              - All four for apertures WFALL, WFALL-FIX;
              - PC1 and WF3 for aperture FQCH4N15.**
              These are found in in Table 3.14 of the WFPC2 Instrument Handbook, Version 10.0.
              Note that they often appear in FITS lab
              (**Note: aperture FQCH4N15 was targeted relative to PC1, but was often used to
              position the methane 0.89 micron quad filter atop the WF3 chip as well.)

              For ACS/WFC, most aperture values begin with either "WFC1" or "WFC2", which
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                    indicates which of the detectors was used for targeting. Apertures WFCM, WFC,
                    WFC-FIX, and WFCENTER are associated with both.

                    For WFC3/UVIS, most aperture values begin with either "UVIS1" or "UVIS2", which
                    indicates  which of the detectors was used for targeting. Apertures UVIS,
                    UVIS-CENTER, UVIS-FIX, UVIS-IR-FIX, G280, and G280-REF are associated with both
                    detectors. The targeting of the UVIS-QUAD, UVIS-QUAD-FIX, and UVIS-QUAD-SUB
                    apertures is are determined based on the value of the selected quad filter:
                    UVIS1 for filters FQ378N, FQ387N, FQ437N, FQ492N, FQ508N, FQ619N, FQ674N, FQ750N,
                    FQ889N, and FQ937N; UVIS2 for filters FQ232N, FQ243N, FQ422M, FQ436N, FQ575N,
                    FQ634N, FQ672N, FQ727N, FQ906N, and FQ924N. (See Table 6.4 of the WFC3
                    Instrument Handbook.)

                    For WFPC, this is derived from the aperture value:
                    - WF1 for aperture W1; WF2 for aperture W2, etc.
                    - PC5 for aperture P5; PC6 for aperture P6, etc.

                    For COS/FUV, this attribute will always match the value(s) of detector_id.
                </definition>
                <DD_Value_Domain>
                    <enumeration_flag>false</enumeration_flag>
                    <value_data_type>ASCII_Short_String_Collapsed</value_data_type>
                </DD_Value_Domain>
            </DD_Attribute>

<!--      Tracking attributes      -->

<!-- Attribute fine_guidance_sensor_lock_type -->
        <DD_Attribute>
            <name>fine_guidance_sensor_lock_type</name>
            <version_id>1.0</version_id>
            <local_identifier>fine_guidance_sensor_lock_type</local_identifier>
            <nillable_flag>false</nillable_flag>
            <submitter_name>Mark R. Showalter</submitter_name>
            <definition>
                The commanded lock of the Fine Guidance Sensor during the observation. For HST
                data files, this is the value of FITS keyword FGSLOCK.

                Common values are:
                - FINE: Fine lock on guide stars using two Fine Guidance Sensors. This is the
                  most accurate pointing option, within 0.2 to 1 arcsec.
                - COARSE: Until new flight software (version 9.6) came online in September 1995,
                  if the guide star acquisition failed, the guiding dropped to COARSE track.
                - GYRO: This mode produces the least accurate absolute and relative pointing.
                  Absolute pointing accuracy is about 2-50 arcsec and drift is 1-5 mas/sec.
                - FINE/GYRO: Fine lock on a guide star using one FGS to control the pitch/yaw of
                  the spacecraft, while roll control is handled by the gyros. Absolute
                  accuracies can range from 0.5-5 arcseconds, while error due to roll drift
                  about the guide star would be ~ 1-2 mas/sec.
                - UNKNOWN: Check the jitter files to find out what happened during the
                  observation.
            </definition>
            <DD_Value_Domain>
                <enumeration_flag>false</enumeration_flag>
                <value_data_type>ASCII_Short_String_Collapsed</value_data_type>
            </DD_Value_Domain>
        </DD_Attribute>

<!-- Attribute gyroscope_mode -->
        <DD_Attribute>
            <name>gyroscope_mode</name>
            <version_id>1.0</version_id>
            <local_identifier>gyroscope_mode</local_identifier>
            <nillable_flag>false</nillable_flag>
            <submitter_name>Mark R. Showalter</submitter_name>
            <definition>
                The number of gyros scheduled for the observation, 2 or 3. For HST data files,
                this is derived from the value of FITS keyword GYROMODE. A value of "3" or "T"
                indicates that three gyroscopes were used; a value of "2" indicates that two
                gyroscopes were used. However, some earlier HST products do not contain the
                keyword GYROMODE; these observations were all obtained using three gyroscopes.
            </definition>
            <DD_Value_Domain>
                <enumeration_flag>false</enumeration_flag>
                <value_data_type>ASCII_Integer</value_data_type>
                <minimum_value>2</minimum_value>
                <maximum_value>3</maximum_value>
            </DD_Value_Domain>
        </DD_Attribute>

<!--      Exposure attributes      -->

<!-- Attribute exposure_duration -->
        <DD_Attribute>
```

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            <name>exposure_duration</name>
            <version_id>1.0</version_id>
            <local_identifier>exposure_duration</local_identifier>
            <nillable_flag>false</nillable_flag>
            <submitter_name>Mark R. Showalter</submitter_name>
            <definition>
                The total duration of the instrument's light integration time, in seconds. For
                most HST data files, this is the value of FITS keyword EXPTIME; however, for
                some data files, it is the value of keyword TEXPTIME.

                Note that, for HST products that are the result of merging multiple exposures,
                this is the sum of the exposure times of the individual source products.
            </definition>
            <DD_Value_Domain>
                <enumeration_flag>false</enumeration_flag>
                <value_data_type>ASCII_Real</value_data_type>
                <unit_of_measure_type>Units_of_Time</unit_of_measure_type>
            </DD_Value_Domain>
        </DD_Attribute>

<!-- Attribute exposure_type -->
        <DD_Attribute>
            <name>exposure_type</name>
            <version_id>1.0</version_id>
            <local_identifier>exposure_type</local_identifier>
            <nillable_flag>false</nillable_flag>
            <submitter_name>Mark R. Showalter</submitter_name>
            <definition>
                This keyword indicates how exposure time was calculated and whether it was
                interrupted. For HST data files, this is the value of FITS keyword EXPFLAG.
                Common values are NORMAL (the observation completed as requested), INTERRUPTED,
                INCOMPLETE, EXTENDED, UNCERTAIN, INDETERMINATE, and PREDICTED.
            </definition>
            <DD_Value_Domain>
                <enumeration_flag>false</enumeration_flag>
                <value_data_type>ASCII_Short_String_Collapsed</value_data_type>
            </DD_Value_Domain>
        </DD_Attribute>

<!--      Wavelength/filter/grating attributes      -->

<!-- Attribute filter_name -->
        <DD_Attribute>
            <name>filter_name</name>
            <version_id>1.0</version_id>
            <local_identifier>filter_name</local_identifier>
            <nillable_flag>false</nillable_flag>
            <submitter_name>Mark R. Showalter</submitter_name>
            <definition>
                The name of the filter(s), grating(s), polarizer(s), or other optical elements
                used for the observation. If two or more are combined, then both names are
                given, separated by a plus sign "+".

                For WFPC2 products, this is the name of either FITS keyword FILTNAM1 or FILTNAM2,
                whichever is not blank. If neither is blank, the two values are combined using
                "+", with the shorter-wavelength filter (the filter name containing the smaller
                three-digit number) appearing first.

                For ACS products:
                - if FILTER1 is CLEAR1S or CLEAR1L and FILTER2 is CLEAR2S or CLEAR2L, the value
                  is "CLEAR";
                - otherwise, if FILTER1 is CLEAR1S or CLEAR1L, the value of FILTER2 is used;
                - otherwise, if FILTER2 is CLEAR2S or CLEAR2L, the value of FILTER1 is used;
                - otherwise, the values of the two filters are combined with "+". If a polarizer
                  is used (FILTER1 or FILTER2 starts with "POL"), the name of the polarizer
                  appears second; otherwise, the filter with the shorter center wavelength (the
                  three-digit number inside the filter name) appears first.

                For STIS products, wavelength response is defined by a grating (FITS keyword
                OPT_ELEM) and the filter (FITS keyword FILTER). If the FILTER name is "Clear", the
                grating name appears alone; otherwise, the two values are appended, separated by a
                "+".

                For FOC products, this is constructed from the values of the FITS keywords FILTNAM1,
                FILTNAM2, FILTNAM3, and FILTNAM4. After omitting "CLEAR" values, the remaining
                values are sorted and concatenated with "+".

                For FOS products, this is the value of FITS keyword SPEC_1, which is found in the
                _shf.fits file.

                For GHRS products, this is the value of FITS keyword GRATING.

                For other HST instruments, this is the value of FITS keyword FILTER. For instruments
                that do not use filters, the value is "Not applicable".
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            </definition>
            <DD_Value_Domain>
                <enumeration_flag>false</enumeration_flag>
                <value_data_type>ASCII_Short_String_Collapsed</value_data_type>
            </DD_Value_Domain>
        </DD_Attribute>

<!-- Attribute center_filter_wavelength -->
        <DD_Attribute>
            <name>center_filter_wavelength</name>
            <version_id>1.0</version_id>
            <local_identifier>center_filter_wavelength</local_identifier>
            <nillable_flag>true</nillable_flag>
            <submitter_name>Mark R. Showalter</submitter_name>
            <definition>
                The approximate central wavelength of the filter bandpass, in microns. For WFPC2
                and STIS data files, this is the value of FITS keyword CENTRWV, divided by
                10,000 to convert units from Angstroms to microns. The value is not provided for
                other HST instruments.

                For other HST instruments, this attribute is not applicable.
            </definition>
            <DD_Value_Domain>
                <enumeration_flag>false</enumeration_flag>
                <value_data_type>ASCII_Real</value_data_type>
                <unit_of_measure_type>Units_of_Length</unit_of_measure_type>
            </DD_Value_Domain>
        </DD_Attribute>

<!-- Attribute bandwidth -->
        <DD_Attribute>
            <name>bandwidth</name>
            <version_id>1.0</version_id>
            <local_identifier>bandwidth</local_identifier>
            <nillable_flag>true</nillable_flag>
            <submitter_name>Mark R. Showalter</submitter_name>
            <definition>
                The approximate full width of the spectral bandpass, in microns. For WFPC2 and
                STIS data files, this is the value of FITS keyword BANDWID, divided by 10,000 to
                convert units from Angstroms to microns. The value is not provided for other HST
                instruments.

                For other HST instruments, this attribute is not applicable.
            </definition>
            <DD_Value_Domain>
                <enumeration_flag>false</enumeration_flag>
                <value_data_type>ASCII_Real</value_data_type>
                <unit_of_measure_type>Units_of_Length</unit_of_measure_type>
            </DD_Value_Domain>
        </DD_Attribute>

<!-- Attribute spectral_resolution -->
        <DD_Attribute>
            <name>spectral_resolution</name>
            <version_id>1.0</version_id>
            <local_identifier>spectral_resolution</local_identifier>
            <nillable_flag>true</nillable_flag>
            <submitter_name>Mark R. Showalter</submitter_name>
            <definition>
                The approximate spectral resolution of this data product, in microns. For STIS
                data files, this is the value of FITS keyword SPECRES, divided by 10,000 to
                convert units from Angstroms to microns.

                For other HST instruments, this attribute is not applicable.
            </definition>
            <DD_Value_Domain>
                <enumeration_flag>false</enumeration_flag>
                <value_data_type>ASCII_Real</value_data_type>
                <unit_of_measure_type>Units_of_Length</unit_of_measure_type>
            </DD_Value_Domain>
        </DD_Attribute>

<!--      Operational attributes     -->

<!-- Attribute instrument_mode_id -->
        <DD_Attribute>
            <name>instrument_mode_id</name>
            <version_id>1.0</version_id>
            <local_identifier>instrument_mode_id</local_identifier>
            <nillable_flag>true</nillable_flag>
            <submitter_name>Mark R. Showalter</submitter_name>
            <definition>
                The operating mode of the instrument. For most HST data products, this is the
                value of FITS keyword OBSMODE. Consult the relevant HST handbooks for details
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                    about each mode.

                    This attribute is not applicable to FGS data files.
                </definition>
                <DD_Value_Domain>
                    <enumeration_flag>false</enumeration_flag>
                    <value_data_type>ASCII_Short_String_Collapsed</value_data_type>
                </DD_Value_Domain>
            </DD_Attribute>

<!-- Attribute gain_setting -->
            <DD_Attribute>
                <name>gain_setting</name>
                <version_id>1.0</version_id>
                <local_identifier>gain_setting</local_identifier>
                <nillable_flag>true</nillable_flag>
                <submitter_name>Mark R. Showalter</submitter_name>
                <definition>
                    The commanded gain of the CCD, typically in units of electrons per DN.

                    For WFPC2 data products, this is the value of FITS keyword ATODGAIN, either
                    7 or 15.

                    For ACS, STIS, and WFC3, it is the value of FITS keyword CCDGAIN.

                    This attribute is not applicable to HST instruments that do not have gain
                    settings.
                </definition>
                <DD_Value_Domain>
                    <enumeration_flag>false</enumeration_flag>
                    <value_data_type>ASCII_Real</value_data_type>
                </DD_Value_Domain>
            </DD_Attribute>

<!-- Attribute coronagraph_flag -->
            <DD_Attribute>
                <name>coronagraph_flag</name>
                <version_id>1.0</version_id>
                <local_identifier>coronagraph_flag</local_identifier>
                <nillable_flag>false</nillable_flag>
                <submitter_name>Mark R. Showalter</submitter_name>
                <definition>
                    A Boolean flag (true, false) indicating whether a coronagraph was used for this
                    observation. For HST products, this attribute is generally derived from the value
                    of the FITS keyword APERTURE.

                    For ACS/HRC products, the coronagraph is in use if APERTURE is HRC-CORON1.8,
                    HRC-CORON3.0, or HRC-OCCULT0.8.

                    For STIS products, a coronagraph is in use if APERTURE is 52X0.2F1, 52X0.2F1-R,
                    50CORON, or begins with either "BAR" or "WEDGE".

                    For NICMOS/NIC2 products, a coronagraph is in use if APERTURE is NIC2-CORON.

                    This attribute is always false for HST instruments that do not have a
                    coronagraph.
                </definition>
                <DD_Value_Domain>
                    <enumeration_flag>false</enumeration_flag>
                    <value_data_type>ASCII_Boolean</value_data_type>
                </DD_Value_Domain>
            </DD_Attribute>

<!-- Attribute cr_split_count -->
            <DD_Attribute>
                <name>cosmic_ray_split_count</name>
                <version_id>1.0</version_id>
                <local_identifier>cosmic_ray_split_count</local_identifier>
                <nillable_flag>false</nillable_flag>
                <submitter_name>Mark R. Showalter</submitter_name>
                <definition>
                    This is the number of "cosmic ray split" or "CR-split" exposures. CR-split
                    exposures are used because otherwise identical images can be used to filter out
                    the frequent but random bright spots in images associated with cosmic rays
                    hitting the detector. In HST products, this is the value of FITS keyword
                    CRSPLIT.

                    For HST products that do not have a value of CRSPLIT, then the value of this
                    attribute is 1.
                </definition>
                <DD_Value_Domain>
                    <enumeration_flag>false</enumeration_flag>
                    <value_data_type>ASCII_Integer</value_data_type>
                </DD_Value_Domain>
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        </DD_Attribute>

<!-- Attribute repeat_exposure_count -->
    <DD_Attribute>
        <name>repeat_exposure_count</name>
        <version_id>1.0</version_id>
        <local_identifier>repeat_exposure_count</local_identifier>
        <nillable_flag>false</nillable_flag>
        <submitter_name>Mark R. Showalter</submitter_name>
        <definition>
            This is the number of repeated exposures as commanded for the HST instrument. For
            HST products, this is the value of FITS keyword NRPTEXP. For instruments that do not
            support repeated exposures, this attribute has a value of 1.
        </definition>
        <DD_Value_Domain>
            <enumeration_flag>false</enumeration_flag>
            <value_data_type>ASCII_Integer</value_data_type>
            <minimum_value>1</minimum_value>
        </DD_Value_Domain>
    </DD_Attribute>

<!-- Attribute subarray_flag -->
    <DD_Attribute>
        <name>subarray_flag</name>
        <version_id>1.0</version_id>
        <local_identifier>subarray_flag</local_identifier>
        <nillable_flag>false</nillable_flag>
        <submitter_name>Mark R. Showalter</submitter_name>
        <definition>
            A Boolean flag (true, false) indicating whether or not this data product was
            obtained using a subarray of the detector. For HST data files, this is derived
            from the value of FITS keyword SUBARRAY, which can have values of "T" or 1 for
            true or "F" or 0 for false.

            For instruments that do not support subarrays, the value of this attribute is
            always false.
        </definition>
        <DD_Value_Domain>
            <enumeration_flag>false</enumeration_flag>
            <value_data_type>ASCII_Boolean</value_data_type>
        </DD_Value_Domain>
    </DD_Attribute>

<!-- Attribute binning_mode -->
    <DD_Attribute>
        <name>binning_mode</name>
        <version_id>1.0</version_id>
        <local_identifier>binning_mode</local_identifier>
        <nillable_flag>false</nillable_flag>
        <submitter_name>Mark R. Showalter</submitter_name>
        <definition>
            This attribute indicates how pixels have been combined on the detector during
            readout. A value of 2 indicates that pixels have been combined in 2x2 squares;
            A value of 1 indicates that the detector was read out at full resolution.

            For many HST products this is the value of BINAXIS1 or BINAXIS2, whichever is
            larger. (HST binning modes need not be square, so this attribute cannot fully
            capture all the possibilities. Nevertheless, in practice, BINAXIS1 and BINAXIS2
            are almost always equal.) Note that, for some HST products, the values of
            BINAXIS1 and BINAXIS2 can be found in the global FITS header; for others, it is
            found in the second header, which is the first data header.

            For WFPC and WFPC2, this attribute is derived from the value of MODE:
            - MODE = FULL -> binning_mode = 1
            - MODE = AREA -> binning_mode = 2

            For instruments that do not support binning options, the value of this attribute
            is always 1.
        </definition>
        <DD_Value_Domain>
            <enumeration_flag>false</enumeration_flag>
            <value_data_type>ASCII_Integer</value_data_type>
            <minimum_value>1</minimum_value>
            <maximum_value>4</maximum_value>
        </DD_Value_Domain>
    </DD_Attribute>

<!-- Attribute plate_scale -->
    <DD_Attribute>
        <name>plate_scale</name>
        <version_id>1.0</version_id>
        <local_identifier>plate_scale</local_identifier>
        <nillable_flag>true</nillable_flag>
        <submitter_name>Mark R. Showalter</submitter_name>
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            <definition>
                This attribute indicates approximate spatial size of one pixel in the data
                product, in units of arcseconds per pixel. For a few HST data products, this is
                the value of FITS keyword PLATESC. For other HST instruments, we provide the
                value if it can be readily determined. In cases where a product contains data
                from detectors with different plate scales, it is the smallest value. For
                non-imaging instruments, this attribute is not applicable.
            </definition>
            <DD_Value_Domain>
                <enumeration_flag>false</enumeration_flag>
                <value_data_type>ASCII_Real</value_data_type>
            </DD_Value_Domain>
        </DD_Attribute>

<!-- Attribute mast_pipeline_version_id -->
        <DD_Attribute>
            <name>mast_pipeline_version_id</name>
            <version_id>1.0</version_id>
            <local_identifier>mast_pipeline_version_id</local_identifier>
            <nillable_flag>true</nillable_flag>
            <submitter_name>Mark R. Showalter</submitter_name>
            <definition>
                The value of keyword "OPUS_VER" found in the FITS header, if any. It is updated
                when data files are re-calibrated. This attribute is often missing from older
                data products.
            </definition>
            <DD_Value_Domain>
                <enumeration_flag>false</enumeration_flag>
                <value_data_type>ASCII_Short_String_Collapsed</value_data_type>
            </DD_Value_Domain>
        </DD_Attribute>

<!-- Attribute hst_quality_id -->
        <DD_Attribute>
            <name>hst_quality_id</name>
            <version_id>1.0</version_id>
            <local_identifier>hst_quality_id</local_identifier>
            <nillable_flag>true</nillable_flag>
            <submitter_name>Mark R. Showalter</submitter_name>
            <definition>
                Data quality summary found in the FITS header of the data product, which can
                be populated by the HST pipeline if there are problems with the exposure.
                Possible values include "OK", "GSFAIL", "EXPSHORT", and "TDF-DOWN". If multiple
                values are provided, they are separated by semicolons.
            </definition>
            <DD_Value_Domain>
                <enumeration_flag>false</enumeration_flag>
                <value_data_type>ASCII_Short_String_Collapsed</value_data_type>
            </DD_Value_Domain>
        </DD_Attribute>

<!-- Attribute hst_quality_comment -->
        <DD_Attribute>
            <name>hst_quality_comment</name>
            <version_id>1.0</version_id>
            <local_identifier>hst_quality_comment</local_identifier>
            <nillable_flag>true</nillable_flag>
            <submitter_name>Mark R. Showalter</submitter_name>
            <definition>
                Data quality comments found in the FITS header of the data product. This
                attribute is filled in by the HST pipeline is populated if there are problems
                with the exposure.
            </definition>
            <DD_Value_Domain>
                <enumeration_flag>false</enumeration_flag>
                <value_data_type>ASCII_Short_String_Collapsed</value_data_type>
            </DD_Value_Domain>
        </DD_Attribute>

<!--      Observing program attributes      -->

        <DD_Class>
            <name>Program_Parameters</name>
            <version_id>1.0</version_id>
            <local_identifier>Program_Parameters</local_identifier>
            <submitter_name>Mitchell K. Gordon</submitter_name>
            <definition>
                Contains attributes describing the HST observing program.
            </definition>
            <abstract_flag>false</abstract_flag>

            <DD_Association>
                <identifier_reference>mast_observation_id</identifier_reference>
                <reference_type>attribute_of</reference_type>
```

```
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>

        <DD_Association>
            <identifier_reference>hst_proposal_id</identifier_reference>
            <reference_type>attribute_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>

        <DD_Association>
            <identifier_reference>hst_pi_name</identifier_reference>
            <reference_type>attribute_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>

        <DD_Association>
            <identifier_reference>visit_id</identifier_reference>
            <reference_type>attribute_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>
    </DD_Class>

<!--      Instrument attributes      -->

    <DD_Class>
        <name>Instrument_Parameters</name>
        <version_id>1.0</version_id>
        <local_identifier>Instrument_Parameters</local_identifier>
        <submitter_name>Mitchell K. Gordon</submitter_name>
        <definition>
            Contains attributes related to the HST instrument(s) used.
        </definition>
        <abstract_flag>false</abstract_flag>

        <DD_Association>
            <identifier_reference>instrument_id</identifier_reference>
            <reference_type>attribute_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>

        <DD_Association>
            <identifier_reference>channel_id</identifier_reference>
            <reference_type>attribute_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>

        <DD_Association>
            <identifier_reference>detector_id</identifier_reference>
            <reference_type>attribute_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>4</maximum_occurrences>
        </DD_Association>

        <DD_Association>
            <identifier_reference>observation_type</identifier_reference>
            <reference_type>attribute_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>
    </DD_Class>

<!--      Pointing attributes      -->

    <DD_Class>
        <name>Pointing_Parameters</name>
        <version_id>1.0</version_id>
        <local_identifier>Pointing_Parameters</local_identifier>
        <submitter_name>Mark R. Showalter</submitter_name>
        <definition>
            Contains attributes related to pointing and the observation target.
        </definition>
        <abstract_flag>false</abstract_flag>

        <DD_Association>
            <identifier_reference>hst_target_name</identifier_reference>
            <reference_type>attribute_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
```

```xml
            </DD_Association>

            <DD_Association>
                <identifier_reference>moving_target_flag</identifier_reference>
                <reference_type>attribute_of</reference_type>
                <minimum_occurrences>1</minimum_occurrences>
                <maximum_occurrences>1</maximum_occurrences>
            </DD_Association>

            <DD_Association>
                <identifier_reference>moving_target_keyword</identifier_reference>
                <reference_type>attribute_of</reference_type>
                <minimum_occurrences>1</minimum_occurrences>
                <maximum_occurrences>4</maximum_occurrences>
            </DD_Association>

            <DD_Association>
                <identifier_reference>moving_target_description</identifier_reference>
                <reference_type>attribute_of</reference_type>
                <minimum_occurrences>1</minimum_occurrences>
                <maximum_occurrences>4</maximum_occurrences>
            </DD_Association>

            <DD_Association>
                <identifier_reference>aperture_name</identifier_reference>
                <reference_type>attribute_of</reference_type>
                <minimum_occurrences>1</minimum_occurrences>
                <maximum_occurrences>1</maximum_occurrences>
            </DD_Association>

            <DD_Association>
                <identifier_reference>proposed_aperture_name</identifier_reference>
                <reference_type>attribute_of</reference_type>
                <minimum_occurrences>1</minimum_occurrences>
                <maximum_occurrences>1</maximum_occurrences>
            </DD_Association>

            <DD_Association>
                <identifier_reference>targeted_detector_id</identifier_reference>
                <reference_type>attribute_of</reference_type>
                <minimum_occurrences>1</minimum_occurrences>
                <maximum_occurrences>4</maximum_occurrences>
            </DD_Association>
    </DD_Class>

<!--     Tracking attributes      -->

    <DD_Class>
        <name>Tracking_Parameters</name>
        <version_id>1.0</version_id>
        <local_identifier>Tracking_Parameters</local_identifier>
        <submitter_name>Mark R. Showalter</submitter_name>
        <definition>
            Contains attributes related to the instrument tracking.
        </definition>
        <abstract_flag>false</abstract_flag>

        <DD_Association>
            <identifier_reference>fine_guidance_sensor_lock_type</identifier_reference>
            <reference_type>attribute_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>

        <DD_Association>
            <identifier_reference>gyroscope_mode</identifier_reference>
            <reference_type>attribute_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>
    </DD_Class>

<!--     Exposure attributes      -->

    <DD_Class>
        <name>Exposure_Parameters</name>
        <version_id>1.0</version_id>
        <local_identifier>Exposure_Parameters</local_identifier>
        <submitter_name>Mark R. Showalter</submitter_name>
        <definition>
            Contains attributes related to the observation exposure.
        </definition>
        <abstract_flag>false</abstract_flag>
```

```xml
            <DD_Association>
                <identifier_reference>exposure_duration</identifier_reference>
                <reference_type>attribute_of</reference_type>
                <minimum_occurrences>1</minimum_occurrences>
                <maximum_occurrences>1</maximum_occurrences>
            </DD_Association>

            <DD_Association>
                <identifier_reference>exposure_type</identifier_reference>
                <reference_type>attribute_of</reference_type>
                <minimum_occurrences>1</minimum_occurrences>
                <maximum_occurrences>1</maximum_occurrences>
            </DD_Association>
    </DD_Class>

<!--      Wavelength/filter/grating attributes      -->

    <DD_Class>
        <name>Wavelength_Filter_Grating_Parameters</name>
        <version_id>1.0</version_id>
        <local_identifier>Wavelength_Filter_Grating_Parameters</local_identifier>
        <submitter_name>Mark R. Showalter</submitter_name>
        <definition>
            Contains attributes related to wavelengths, filters, and gratings.
        </definition>
        <abstract_flag>false</abstract_flag>

        <DD_Association>
            <identifier_reference>filter_name</identifier_reference>
            <reference_type>attribute_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>

        <DD_Association>
            <identifier_reference>center_filter_wavelength</identifier_reference>
            <reference_type>attribute_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>

        <DD_Association>
            <identifier_reference>bandwidth</identifier_reference>
            <reference_type>attribute_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>

        <DD_Association>
            <identifier_reference>spectral_resolution</identifier_reference>
            <reference_type>attribute_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>
    </DD_Class>

<!--      Operational attributes      -->

    <DD_Class>
        <name>Operational_Parameters</name>
        <version_id>1.0</version_id>
        <local_identifier>Operational_Parameters</local_identifier>
        <submitter_name>Mark R. Showalter</submitter_name>
        <definition>
            Contains attributes related to the commanding and operations of an instrument.
        </definition>
        <abstract_flag>false</abstract_flag>

        <DD_Association>
            <identifier_reference>instrument_mode_id</identifier_reference>
            <reference_type>attribute_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>

        <DD_Association>
            <identifier_reference>gain_setting</identifier_reference>
            <reference_type>attribute_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>

        <DD_Association>
            <identifier_reference>coronagraph_flag</identifier_reference>
```

```xml
            <reference_type>attribute_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>

        <DD_Association>
            <identifier_reference>cosmic_ray_split_count</identifier_reference>
            <reference_type>attribute_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>

        <DD_Association>
            <identifier_reference>repeat_exposure_count</identifier_reference>
            <reference_type>attribute_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>

        <DD_Association>
            <identifier_reference>subarray_flag</identifier_reference>
            <reference_type>attribute_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>

        <DD_Association>
            <identifier_reference>binning_mode</identifier_reference>
            <reference_type>attribute_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>

        <DD_Association>
            <identifier_reference>plate_scale</identifier_reference>
            <reference_type>attribute_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>
    </DD_Class>

    <DD_Class>
        <name>Processing_Parameters</name>
        <version_id>1.0</version_id>
        <local_identifier>Processing_Parameters</local_identifier>
        <submitter_name>Mark R. Showalter</submitter_name>
        <definition>
            Contains attributes related to the processing of the data after receipt.
        </definition>
        <abstract_flag>false</abstract_flag>

        <DD_Association>
            <identifier_reference>mast_pipeline_version_id</identifier_reference>
            <reference_type>attribute_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>

        <DD_Association>
            <identifier_reference>hst_quality_id</identifier_reference>
            <reference_type>attribute_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>

        <DD_Association>
            <identifier_reference>hst_quality_comment</identifier_reference>
            <reference_type>attribute_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>

<!-- HST Parameter class -->

    <DD_Class>
        <name>HST_Parameters</name>
        <version_id>1.0</version_id>
        <local_identifier>HST_Parameters</local_identifier>
        <submitter_name>Mark R. Showalter</submitter_name>
        <definition>
            Contains all HST-specific parameters.
        </definition>
        <abstract_flag>false</abstract_flag>
        <element_flag>true</element_flag>
```

```xml
        <DD_Association>
            <identifier_reference>Program_Parameters</identifier_reference>
            <reference_type>component_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>

        <DD_Association>
            <identifier_reference>Instrument_Parameters</identifier_reference>
            <reference_type>component_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>

        <DD_Association>
            <identifier_reference>Pointing_Parameters</identifier_reference>
            <reference_type>component_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>

        <DD_Association>
            <identifier_reference>Tracking_Parameters</identifier_reference>
            <reference_type>component_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>

        <DD_Association>
            <identifier_reference>Exposure_Parameters</identifier_reference>
            <reference_type>component_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>

        <DD_Association>
            <identifier_reference>Wavelength_Filter_Grating_Parameters</identifier_reference>
            <reference_type>component_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>

        <DD_Association>
            <identifier_reference>Operational_Parameters</identifier_reference>
            <reference_type>component_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>

        <DD_Association>
            <identifier_reference>Processing_Parameters</identifier_reference>
            <reference_type>component_of</reference_type>
            <minimum_occurrences>1</minimum_occurrences>
            <maximum_occurrences>1</maximum_occurrences>
        </DD_Association>
    </DD_Class>
</Ingest_LDD>
```