
**Information technology — Multimedia
content description interface —**

**Part 11:
MPEG-7 profile schemas**

**AMENDMENT 1: Audiovisual description
profile (AVDP) schema**

*Technologies de l'information — Interface de description du contenu
multimédia —*

Partie 11: Schémas du profil MPEG-7

*AMENDEMENT 1: Schéma du profil de description audiovisuelle
(ADVP)*



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Foreword

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In exceptional circumstances, when the joint technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example), it may decide to publish a Technical Report. A Technical Report is entirely informative in nature and shall be subject to review every five years in the same manner as an International Standard.

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Amendment 1 to ISO/IEC TR 15938-11:2005 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

Information technology — Multimedia content description interface —

Part 11: MPEG-7 profile schemas

AMENDMENT 1: Audiovisual description profile (AVDP) schema

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After 3.4, add the following subclause:

3.5 AVDP Profile Schema

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- #####
      MPEG-7 Audiovisual Description Profile (AVDP)
      based on MPEG-7 Version 2
      ##### -->

<schema xmlns="http://www.w3.org/2001/XMLSchema" xmlns:mpeg7="urn:mpeg:mpeg7:schema:2004"
xmlns:xml="http://www.w3.org/XML/1998/namespace"
targetNamespace="urn:mpeg:mpeg7:schema:2004" elementFormDefault="qualified"
attributeFormDefault="unqualified">
  <annotation>
    <documentation>
      The following schema definition corresponds to the description tools of:
        ISO/IEC 15938-1 + ISO/IEC 15938-1 COR/1 /1 + ISO/IEC 15938-1 AMD/1 (Systems)
        ISO/IEC 15938-2 (DDL)
        ISO/IEC 15938-3 + ISO/IEC 15938-3 COR/1 + ISO/IEC 15938-3 AMD/1 (Visual)
        ISO/IEC 15938-4 + ISO/IEC 15938-4 AMD/1 (Audio)
        ISO/IEC 15938-5 + ISO/IEC 15938-5 COR/1 + ISO/IEC 15938-5 AMD/1 + ISO/IEC
15938-5 AMD/2 (MDS)
    </documentation>
  </annotation>
  <!-- ##### -->
  <!-- import xml components -->
  <!-- ##### -->
  <import namespace="http://www.w3.org/XML/1998/namespace"
schemaLocation="http://www.w3.org/2001/03/xml.xsd"/>
  <annotation>
    <documentation>
      This document contains tools defined as MPEG-7 specific extention of
      XML Schema in ISO/IEC 15938-2
    </documentation>
  </annotation>
  <!-- *****-->
  <!-- ***** ISO/IEC 15938-2 DDL *****-->
```

```

<!-- *****-->
<annotation>
  <documentation>
    The following section contains tools defined in ISO/IEC 15938-2
  </documentation>
</annotation>
<!-- ##### -->
<!-- Definition of 'mpeg7:dim' for Matrix Datatype -->
<!-- ##### -->
<!-- definition of listOfPositiveIntegerForDim datatype -->
<simpleType name="listOfPositiveIntegerForDim">
  <list itemType="positiveInteger"/>
</simpleType>
<!-- definition of mpeg7:dim attribute -->
<attribute name="dim">
  <simpleType>
    <restriction base="mpeg7:listOfPositiveIntegerForDim">
      <minLength value="1"/>
    </restriction>
  </simpleType>
</attribute>
<!-- ##### -->
<!-- Definition of MPEG-7 Datatype Extensions -->
<!-- ##### -->
<!-- definition of basicTimePoint datatype -->
<simpleType name="basicTimePointType">
  <restriction base="string">
    <pattern value="\-?(\d+(\-\d{2}(\-\d{2})?)?(T\d{2}(:\d{2}(:\d{2}(:\d+(\.\d{2})?)?)?)?(F\d+)((\-|+)\d{2}:\d{2})?)?"/>
  </restriction>
</simpleType>
<!-- definition of basicDuration datatype -->
<simpleType name="basicDurationType">
  <restriction base="string">
    <pattern value="\-?P(\d+D)?(T(\d+H)?(\d+M)?(\d+S)?(\d+N)?(\d{2}f)?)?(\d+F)?((\-|+)\d{2}:\d{2}Z)?"/>
  </restriction>
</simpleType>
<!-- *****-->
<!-- ***** ISO/IEC 15938-3 Visual*****-->
<!-- *****-->
<annotation>
  <documentation>
    The following section contains visual tools defined in:
    ISO/IEC 15938-3 + ISO/IEC 15938-3 AMD/1 (Visual)
  </documentation>
</annotation>
<!-- ##### -->
<!-- Definition of GridLayout Datatype -->
<!-- ##### -->
<complexType name="GridLayoutType" final="#all">
  <sequence>
    <element name="Descriptor" type="mpeg7:VisualDType" maxOccurs="65025"/>
  </sequence>
  <attribute name="numOfPartX" type="mpeg7:unsigned8" use="required"/>
  <attribute name="numOfPartY" type="mpeg7:unsigned8" use="required"/>
  <attribute name="descriptorMask" use="optional">
    <simpleType>
      <restriction base="string">
        <pattern value="(0|1)*"/>
      </restriction>
    </simpleType>
  </attribute>
</complexType>

```

```

        </restriction>
    </simpleType>
</attribute>
</complexType>
<!-- ##### -->
<!-- Definition of VisualTimeSeries Datatypes -->
<!-- ##### -->
<!-- Definition of VisualTimeSeries Datatype -->
<complexType name="VisualTimeSeriesType" abstract="true">
    <sequence>
        <element name="TimeIncr" type="mpeg7:mediaDurationType"/>
    </sequence>
    <attribute name="offset" type="mpeg7:mediaDurationType" use="optional"
default="PT0S"/>
</complexType>
<!-- Definition of RegularVisualTimeSeries Datatype -->
<complexType name="RegularVisualTimeSeriesType" final="#all">
    <complexContent>
        <extension base="mpeg7:VisualTimeSeriesType">
            <sequence>
                <element name="Descriptor" type="mpeg7:VisualDType"
maxOccurs="unbounded"/>
            </sequence>
        </extension>
    </complexContent>
</complexType>
<!-- Definition of IrregularVisualTimeSeries Datatype -->
<complexType name="IrregularVisualTimeSeriesType" final="#all">
    <complexContent>
        <extension base="mpeg7:VisualTimeSeriesType">
            <sequence maxOccurs="unbounded">
                <element name="Descriptor" type="mpeg7:VisualDType"/>
                <element name="Interval" type="mpeg7:unsigned32"/>
            </sequence>
        </extension>
    </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of Spatial2DCoordinateSystem Header -->
<!-- ##### -->
<complexType name="Spatial2DCoordinateSystemType" final="#all">
    <complexContent>
        <extension base="mpeg7:HeaderType">
            <sequence>
                <element name="Unit" minOccurs="0">
                    <simpleType>
                        <restriction base="string">
                            <enumeration value="pixel"/>
                            <enumeration value="meter"/>
                            <enumeration value="pictureHeight"/>
                            <enumeration value="pictureWidth"/>
                            <enumeration value="pictureWidthAndHeight"/>
                        </restriction>
                    </simpleType>
                </element>
                <element name="LocalCoordinateSystem" minOccurs="0">
                    <complexType>
                        <sequence>
                            <choice>
                                <sequence maxOccurs="3">

```

```

        <element name="Pixel">
            <simpleType>
                <restriction base="mpeg7:integerVector">
                    <length value="2"/>
                </restriction>
            </simpleType>
        </element>
        <element name="CoordPoint">
            <simpleType>
                <restriction base="mpeg7:floatVector">
                    <length value="2"/>
                </restriction>
            </simpleType>
        </element>
    </sequence>
    <sequence maxOccurs="3">
        <element name="CurrPixel">
            <simpleType>
                <restriction base="mpeg7:integerVector">
                    <length value="2"/>
                </restriction>
            </simpleType>
        </element>
        <element name="SrcPixel">
            <simpleType>
                <restriction base="mpeg7:integerVector">
                    <length value="2"/>
                </restriction>
            </simpleType>
        </element>
    </sequence>
</choice>
    <element name="MappingFuncnt" type="string" minOccurs="0"
maxOccurs="2"/>

    </sequence>
    <attribute name="name" type="string" use="required"/>
    <attribute name="dataSet" type="anyURI" use="optional"/>
</complexType>
</element>
<element name="IntegratedCoordinateSystem" minOccurs="0">
    <complexType>
        <sequence minOccurs="0" maxOccurs="65535">
            <element name="TimeIncr"
type="mpeg7:MediaIncrDurationType"/>
            <element name="MotionParams" type="float" minOccurs="2"
maxOccurs="12"/>
        </sequence>
        <attribute name="modelType" use="required">
            <simpleType>
                <restriction base="string">
                    <enumeration value="translational"/>
                    <enumeration value="rotationAndScaling"/>
                    <enumeration value="affine"/>
                    <enumeration value="perspective"/>
                    <enumeration value="quadratic"/>
                </restriction>
            </simpleType>
        </attribute>
        <attribute name="xOrigin" type="float" use="required"/>
        <attribute name="yOrigin" type="float" use="required"/>
    </complexType>
</element>

```

```

        </complexType>
      </element>
    </sequence>
    <attribute name="xRepr" type="mpeg7:unsigned8" use="required"/>
    <attribute name="yRepr" type="mpeg7:unsigned8" use="required"/>
    <attribute name="xSrcSize" type="positiveInteger" use="optional"/>
    <attribute name="ySrcSize" type="positiveInteger" use="optional"/>
  </extension>
</complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of TemporalInterpolation Datatype -->
<!-- ##### -->
<complexType name="TemporalInterpolationType" final="#all">
  <sequence>
    <choice>
      <element name="WholeInterval">
        <complexType>
          <sequence>
            <element name="MediaIncrDuration"
type="mpeg7:MediaIncrDurationType"/>
          </sequence>
        </complexType>
      </element>
      <element name="KeyTimePoint">
        <complexType>
          <sequence>
            <element name="MediaRelIncrTimePoint"
type="mpeg7:MediaRelIncrTimePointType" minOccurs="2" maxOccurs="65535"/>
          </sequence>
        </complexType>
      </element>
    </choice>
    <element name="InterpolationFunctions" maxOccurs="15">
      <complexType>
        <sequence>
          <element name="KeyValue" minOccurs="2" maxOccurs="65535">
            <complexType>
              <simpleContent>
                <extension base="float">
                  <attribute name="type" use="optional"
default="firstOrder">
                    <simpleType>
                      <restriction base="string">
                        <enumeration value="startPoint"/>
                        <enumeration value="firstOrder"/>
                        <enumeration value="secondOrder"/>
                        <enumeration value="notDetermined"/>
                      </restriction>
                    </simpleType>
                  </attribute>
                  <attribute name="param" type="float" use="optional"
default="0.0"/>
                </extension>
              </simpleContent>
            </complexType>
          </element>
        </sequence>
      </complexType>
    </element>
  </sequence>
</complexType>
</element>

```

```

    </sequence>
</complexType>
<!-- ##### -->
<!-- Definition of ColorSpace Datatype -->
<!-- ##### -->
<complexType name="ColorSpaceType" final="#all">
    <sequence>
        <element name="ColorTransMat" minOccurs="0">
            <simpleType>
                <restriction>
                    <simpleType>
                        <list itemType="mpeg7:unsigned16"/>
                    </simpleType>
                    <length value="9"/>
                </restriction>
            </simpleType>
        </element>
    </sequence>
    <attribute name="colorReferenceFlag" type="boolean" use="optional"
default="false"/>
    <attribute name="type" use="required">
        <simpleType>
            <restriction base="string">
                <enumeration value="RGB"/>
                <enumeration value="YCbCr"/>
                <enumeration value="HSV"/>
                <enumeration value="HMD"/>
                <enumeration value="LinearMatrix"/>
                <enumeration value="Monochrome"/>
            </restriction>
        </simpleType>
    </attribute>
</complexType>
<!-- ##### -->
<!-- Definition of ColorQuantization Datatype -->
<!-- ##### -->
<complexType name="ColorQuantizationType" final="#all">
    <sequence maxOccurs="3">
        <element name="Component">
            <simpleType>
                <restriction base="string">
                    <enumeration value="R"/>
                    <enumeration value="G"/>
                    <enumeration value="B"/>
                    <enumeration value="Y"/>
                    <enumeration value="Cb"/>
                    <enumeration value="Cr"/>
                    <enumeration value="H"/>
                    <enumeration value="S"/>
                    <enumeration value="V"/>
                    <enumeration value="Max"/>
                    <enumeration value="Min"/>
                    <enumeration value="Diff"/>
                    <enumeration value="Sum"/>
                </restriction>
            </simpleType>
        </element>
        <element name="NumOfBins" type="mpeg7:unsigned12"/>
    </sequence>
</complexType>

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<!-- ##### -->
<!-- Definition of DominantColor D
-->
<!-- ##### -->
<complexType name="DominantColorType" final="#all">
  <complexContent>
    <extension base="mpeg7:VisualDType">
      <sequence>
        <element name="ColorSpace" type="mpeg7:ColorSpaceType" minOccurs="0"/>
        <element name="ColorQuantization" type="mpeg7:ColorQuantizationType"
minOccurs="0"/>
        <element name="SpatialCoherency" type="mpeg7:unsigned5"/>
        <element name="Value" maxOccurs="8">
          <complexType>
            <sequence>
              <element name="Percentage" type="mpeg7:unsigned5"/>
              <element name="Index">
                <simpleType>
                  <restriction>
                    <simpleType>
                      <list itemType="mpeg7:unsigned12"/>
                    </simpleType>
                    <length value="3"/>
                  </restriction>
                </simpleType>
              </element>
              <element name="ColorVariance" minOccurs="0">
                <simpleType>
                  <restriction>
                    <simpleType>
                      <list itemType="mpeg7:unsigned1"/>
                    </simpleType>
                    <length value="3"/>
                  </restriction>
                </simpleType>
              </element>
            </sequence>
          </complexType>
        </element>
      </sequence>
    </extension>
  </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of ScalableColor D
-->
<!-- ##### -->
<complexType name="ScalableColorType" final="#all">
  <complexContent>
    <extension base="mpeg7:VisualDType">
      <sequence>
        <element name="Coeff" type="mpeg7:integerVector"/>
      </sequence>
      <attribute name="numOfCoeff" use="required">
        <simpleType>
          <restriction base="integer">
            <enumeration value="16"/>
            <enumeration value="32"/>
            <enumeration value="64"/>
            <enumeration value="128"/>
          </restriction>
        </simpleType>
      </attribute>
    </extension>
  </complexContent>
</complexType>

```

```

        <enumeration value="256"/>
      </restriction>
    </simpleType>
  </attribute>
  <attribute name="numOfBitplanesDiscarded" use="required">
    <simpleType>
      <restriction base="integer">
        <enumeration value="0"/>
        <enumeration value="1"/>
        <enumeration value="2"/>
        <enumeration value="3"/>
        <enumeration value="4"/>
        <enumeration value="6"/>
        <enumeration value="8"/>
      </restriction>
    </simpleType>
  </attribute>
</extension>
</complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of ColorLayout D
-->
<!-- ##### -->
<complexType name="ColorLayoutType" final="#all">
  <complexContent>
    <extension base="mpeg7:VisualDType">
      <sequence>
        <element name="YDCCoeff" type="mpeg7:unsigned6"/>
        <element name="CbDCCoeff" type="mpeg7:unsigned6"/>
        <element name="CrDCCoeff" type="mpeg7:unsigned6"/>
        <choice>
          <element name="YACCoeff2">
            <simpleType>
              <restriction>
                <simpleType>
                  <list itemType="mpeg7:unsigned5"/>
                </simpleType>
                <length value="2"/>
              </restriction>
            </simpleType>
          </element>
          <element name="YACCoeff5">
            <simpleType>
              <restriction>
                <simpleType>
                  <list itemType="mpeg7:unsigned5"/>
                </simpleType>
                <length value="5"/>
              </restriction>
            </simpleType>
          </element>
          <element name="YACCoeff9">
            <simpleType>
              <restriction>
                <simpleType>
                  <list itemType="mpeg7:unsigned5"/>
                </simpleType>
                <length value="9"/>
              </restriction>
            </simpleType>
          </element>
        </choice>
      </sequence>
    </extension>
  </complexContent>
</complexType>

```

```

        </simpleType>
      </element>
      <element name="YACCoeff14">
        <simpleType>
          <restriction>
            <simpleType>
              <list itemType="mpeg7:unsigned5"/>
            </simpleType>
            <length value="14"/>
          </restriction>
        </simpleType>
      </element>
      <element name="YACCoeff20">
        <simpleType>
          <restriction>
            <simpleType>
              <list itemType="mpeg7:unsigned5"/>
            </simpleType>
            <length value="20"/>
          </restriction>
        </simpleType>
      </element>
      <element name="YACCoeff27">
        <simpleType>
          <restriction>
            <simpleType>
              <list itemType="mpeg7:unsigned5"/>
            </simpleType>
            <length value="27"/>
          </restriction>
        </simpleType>
      </element>
      <element name="YACCoeff63">
        <simpleType>
          <restriction>
            <simpleType>
              <list itemType="mpeg7:unsigned5"/>
            </simpleType>
            <length value="63"/>
          </restriction>
        </simpleType>
      </element>
    </choice>
  </choice>
  <sequence>
    <element name="CbACCoeff2">
      <simpleType>
        <restriction>
          <simpleType>
            <list itemType="mpeg7:unsigned5"/>
          </simpleType>
          <length value="2"/>
        </restriction>
      </simpleType>
    </element>
    <element name="CrACCoeff2">
      <simpleType>
        <restriction>
          <simpleType>
            <list itemType="mpeg7:unsigned5"/>
          </simpleType>
          <length value="2"/>
        </restriction>
      </simpleType>
    </element>
  </sequence>

```

```

        </simpleType>
        <length value="2"/>
    </restriction>
</simpleType>
</element>
</sequence>
<sequence>
    <element name="CbACCoeff5">
        <simpleType>
            <restriction>
                <simpleType>
                    <list itemType="mpeg7:unsigned5"/>
                </simpleType>
                <length value="5"/>
            </restriction>
        </simpleType>
    </element>
    <element name="CrACCoeff5">
        <simpleType>
            <restriction>
                <simpleType>
                    <list itemType="mpeg7:unsigned5"/>
                </simpleType>
                <length value="5"/>
            </restriction>
        </simpleType>
    </element>
</sequence>
<sequence>
    <element name="CbACCoeff9">
        <simpleType>
            <restriction>
                <simpleType>
                    <list itemType="mpeg7:unsigned5"/>
                </simpleType>
                <length value="9"/>
            </restriction>
        </simpleType>
    </element>
    <element name="CrACCoeff9">
        <simpleType>
            <restriction>
                <simpleType>
                    <list itemType="mpeg7:unsigned5"/>
                </simpleType>
                <length value="9"/>
            </restriction>
        </simpleType>
    </element>
</sequence>
<sequence>
    <element name="CbACCoeff14">
        <simpleType>
            <restriction>
                <simpleType>
                    <list itemType="mpeg7:unsigned5"/>
                </simpleType>
                <length value="14"/>
            </restriction>
        </simpleType>
    </element>

```

```

        </element>
        <element name="CrACCoeff14">
            <simpleType>
                <restriction>
                    <simpleType>
                        <list itemType="mpeg7:unsigned5"/>
                    </simpleType>
                    <length value="14"/>
                </restriction>
            </simpleType>
        </element>
    </sequence>
    <sequence>
        <element name="CbACCoeff20">
            <simpleType>
                <restriction>
                    <simpleType>
                        <list itemType="mpeg7:unsigned5"/>
                    </simpleType>
                    <length value="20"/>
                </restriction>
            </simpleType>
        </element>
        <element name="CrACCoeff20">
            <simpleType>
                <restriction>
                    <simpleType>
                        <list itemType="mpeg7:unsigned5"/>
                    </simpleType>
                    <length value="20"/>
                </restriction>
            </simpleType>
        </element>
    </sequence>
    <sequence>
        <element name="CbACCoeff27">
            <simpleType>
                <restriction>
                    <simpleType>
                        <list itemType="mpeg7:unsigned5"/>
                    </simpleType>
                    <length value="27"/>
                </restriction>
            </simpleType>
        </element>
        <element name="CrACCoeff27">
            <simpleType>
                <restriction>
                    <simpleType>
                        <list itemType="mpeg7:unsigned5"/>
                    </simpleType>
                    <length value="27"/>
                </restriction>
            </simpleType>
        </element>
    </sequence>
    <sequence>
        <element name="CbACCoeff63">
            <simpleType>
                <restriction>

```

```

        <simpleType>
            <list itemType="mpeg7:unsigned5"/>
        </simpleType>
        <length value="63"/>
    </restriction>
</simpleType>
</element>
<element name="CrACCoeff63">
    <simpleType>
        <restriction>
            <simpleType>
                <list itemType="mpeg7:unsigned5"/>
            </simpleType>
            <length value="63"/>
        </restriction>
    </simpleType>
</element>
</sequence>
</choice>
</sequence>
</extension>
</complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of ColorStructure D
-->
<!-- ##### -->
<complexType name="ColorStructureType" final="#all">
    <complexContent>
        <extension base="mpeg7:VisualDType">
            <sequence>
                <element name="Values">
                    <simpleType>
                        <restriction>
                            <simpleType>
                                <list itemType="mpeg7:unsigned8"/>
                            </simpleType>
                            <minLength value="1"/>
                            <maxLength value="256"/>
                        </restriction>
                    </simpleType>
                </element>
            </sequence>
            <attribute name="colorQuant" type="mpeg7:unsigned3" use="required"/>
        </extension>
    </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of GoFGoPColor D
-->
>
<!-- ##### -->
<complexType name="GoFGoPColorType" final="#all">
    <complexContent>
        <extension base="mpeg7:VisualDType">
            <sequence>
                <element name="ScalableColor" type="mpeg7:ScalableColorType"/>
            </sequence>
            <attribute name="aggregation" use="required">
                <simpleType>
                    <restriction base="string">

```

```

        <enumeration value="Average"/>
        <enumeration value="Median"/>
        <enumeration value="Intersection"/>
    </restriction>
</simpleType>
</attribute>
</extension>
</complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of HomogeneousTexture D -->
<!-- ##### -->
<!-- Definition of HomogeneousTexture D -->
<complexType name="HomogeneousTextureType" final="#all">
    <complexContent>
        <extension base="mpeg7:VisualDType">
            <sequence>
                <element name="Average" type="mpeg7:unsigned8"/>
                <element name="StandardDeviation" type="mpeg7:unsigned8"/>
                <element name="Energy" type="mpeg7:textureListType"/>
                <element name="EnergyDeviation" type="mpeg7:textureListType"
minOccurs="0"/>
            </sequence>
        </extension>
    </complexContent>
</complexType>
<!-- Definition of textureList datatype -->
<simpleType name="textureListType">
    <restriction>
        <simpleType>
            <list itemType="mpeg7:unsigned8"/>
        </simpleType>
        <length value="30"/>
    </restriction>
</simpleType>
<!-- ##### -->
<!-- Definition of TextureBrowsing D -->
>
<!-- ##### -->
<complexType name="TextureBrowsingType" final="#all">
    <complexContent>
        <extension base="mpeg7:VisualDType">
            <sequence>
                <element name="Regularity">
                    <simpleType>
                        <restriction base="string">
                            <enumeration value="irregular"/>
                            <enumeration value="slightlyRegular"/>
                            <enumeration value="regular"/>
                            <enumeration value="highlyRegular"/>
                        </restriction>
                    </simpleType>
                </element>
                <sequence maxOccurs="2">
                    <element name="Direction">
                        <simpleType>
                            <restriction base="string">
                                <enumeration value="noDirectionality"/>
                                <enumeration value="0Degree"/>
                                <enumeration value="30Degree"/>

```

```

        <enumeration value="60Degree"/>
        <enumeration value="90Degree"/>
        <enumeration value="120Degree"/>
        <enumeration value="150Degree"/>
    </restriction>
</simpleType>
</element>
<element name="Scale">
    <simpleType>
        <restriction base="string">
            <enumeration value="fine"/>
            <enumeration value="medium"/>
            <enumeration value="coarse"/>
            <enumeration value="veryCoarse"/>
        </restriction>
    </simpleType>
</element>
</sequence>
</sequence>
</extension>
</complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of EdgeHistogram D -->
>
<!-- ##### -->
<complexType name="EdgeHistogramType" final="#all">
    <complexContent>
        <extension base="mpeg7:VisualDType">
            <sequence>
                <element name="BinCounts">
                    <simpleType>
                        <restriction>
                            <simpleType>
                                <list itemType="mpeg7:unsigned3"/>
                            </simpleType>
                                <length value="80"/>
                        </restriction>
                    </simpleType>
                </element>
            </sequence>
        </extension>
    </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of RegionShape D -->
->
<!-- ##### -->
<complexType name="RegionShapeType" final="#all">
    <complexContent>
        <extension base="mpeg7:VisualDType">
            <sequence>
                <element name="MagnitudeOfART">
                    <simpleType>
                        <restriction>
                            <simpleType>
                                <list itemType="mpeg7:unsigned4"/>
                            </simpleType>
                                <length value="35"/>
                        </restriction>
                    </simpleType>
                </element>
            </sequence>
        </extension>
    </complexContent>
</complexType>

```

```

        </simpleType>
      </element>
    </sequence>
  </extension>
</complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of ContourShape D -->
-
->
<!-- ##### -->
<!-- Definition of ContourShape D -->
<complexType name="ContourShapeType" final="#all">
  <complexContent>
    <extension base="mpeg7:VisualDType">
      <sequence>
        <element name="GlobalCurvature" type="mpeg7:curvatureType"/>
        <element name="PrototypeCurvature" type="mpeg7:curvatureType"
minOccurs="0"/>
        <element name="HighestPeakY" type="mpeg7:unsigned7"/>
        <!-- VIDEO COR/1 -->
        <element name="Peak" minOccurs="0" maxOccurs="62">
          <complexType>
            <attribute name="peakX" type="mpeg7:unsigned6" use="required"/>
            <attribute name="peakY" type="mpeg7:unsigned3" use="required"/>
          </complexType>
        </element>
      </sequence>
    </extension>
  </complexContent>
</complexType>
<!-- Definition of curvature datatype -->
<simpleType name="curvatureType">
  <restriction>
    <simpleType>
      <list itemType="mpeg7:unsigned6"/>
    </simpleType>
    <length value="2"/>
  </restriction>
</simpleType>
<!-- ##### -->
<!-- Definition of Shape3D D -->
-->
<!-- ##### -->
<complexType name="Shape3DType" final="#all">
  <complexContent>
    <extension base="mpeg7:VisualDType">
      <sequence>
        <element name="Spectrum">
          <simpleType>
            <restriction>
              <simpleType>
                <list itemType="mpeg7:unsigned12"/>
              </simpleType>
              <maxLength value="255"/>
            </restriction>
          </simpleType>
        </element>
        <element name="PlanarSurfaces" type="mpeg7:unsigned12"/>
        <element name="SingularSurfaces" type="mpeg7:unsigned12"/>
      </sequence>
    </extension>
  </complexContent>
</complexType>

```

```

        <attribute name="bitsPerBin" type="mpeg7:unsigned4" use="optional"
default="12"/>
    </extension>
</complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of CameraMotion D -
->
<!-- ##### -->
<!-- Definition of CameraMotion D -->
<complexType name="CameraMotionType" final="#all">
    <complexContent>
        <extension base="mpeg7:VisualDType">
            <sequence>
                <element name="Segment" type="mpeg7:CameraMotionSegmentType"
minOccurs="0" maxOccurs="unbounded"/>
            </sequence>
        </extension>
    </complexContent>
</complexType>
<!-- Definition of CameraMotionSegment Datatype -->
<complexType name="CameraMotionSegmentType" abstract="true">
    <sequence>
        <element name="MediaTime" type="mpeg7:MediaTimeType"/>
        <element name="FocusOfExpansion" type="mpeg7:FocusOfExpansionType"
minOccurs="0"/>
    </sequence>
</complexType>
<!-- Definition of MixtureCameraMotionSegment Datatype -->
<complexType name="MixtureCameraMotionSegmentType" final="#all">
    <complexContent>
        <extension base="mpeg7:CameraMotionSegmentType">
            <sequence>
                <element name="FractionalPresence"
type="mpeg7:FractionalPresenceType"/>
                <element name="AmountOfMotion" type="mpeg7:MixtureAmountOfMotionType"/>
            </sequence>
        </extension>
    </complexContent>
</complexType>
<!-- Definition of NonMixtureCameraMotionSegment Datatype -->
<complexType name="NonMixtureCameraMotionSegmentType">
    <complexContent>
        <extension base="mpeg7:CameraMotionSegmentType">
            <sequence>
                <element name="AmountOfMotion"
type="mpeg7:NonMixtureAmountOfMotionType"/>
            </sequence>
        </extension>
    </complexContent>
</complexType>
<!-- Definition of FocusOfExpansion Datatype -->
<complexType name="FocusOfExpansionType">
    <sequence>
        <element name="HorizontalPosition" type="float"/>
        <element name="VerticalPosition" type="float"/>
    </sequence>
</complexType>
<!-- Definition of FractionalPresence Datatype -->
<complexType name="FractionalPresenceType" final="#all">

```

```

<sequence>
  <element name="TrackLeft" type="mpeg7:unsigned7" minOccurs="0"/>
  <element name="TrackRight" type="mpeg7:unsigned7" minOccurs="0"/>
  <element name="BoomDown" type="mpeg7:unsigned7" minOccurs="0"/>
  <element name="BoomUp" type="mpeg7:unsigned7" minOccurs="0"/>
  <element name="DollyForward" type="mpeg7:unsigned7" minOccurs="0"/>
  <element name="DollyBackward" type="mpeg7:unsigned7" minOccurs="0"/>
  <element name="PanLeft" type="mpeg7:unsigned7" minOccurs="0"/>
  <element name="PanRight" type="mpeg7:unsigned7" minOccurs="0"/>
  <element name="TiltDown" type="mpeg7:unsigned7" minOccurs="0"/>
  <element name="TiltUp" type="mpeg7:unsigned7" minOccurs="0"/>
  <element name="RollClockwise" type="mpeg7:unsigned7" minOccurs="0"/>
  <element name="RollAnticlockwise" type="mpeg7:unsigned7" minOccurs="0"/>
  <element name="ZoomIn" type="mpeg7:unsigned7" minOccurs="0"/>
  <element name="ZoomOut" type="mpeg7:unsigned7" minOccurs="0"/>
  <element name="Fixed" type="mpeg7:unsigned7" minOccurs="0"/>
</sequence>
</complexType>
<!-- Definition of MixtureAmountOfMotion Datatype -->
<complexType name="MixtureAmountOfMotionType" final="#all">
  <sequence>
    <element name="TrackLeft" type="mpeg7:unsigned11" minOccurs="0"/>
    <element name="TrackRight" type="mpeg7:unsigned11" minOccurs="0"/>
    <element name="BoomDown" type="mpeg7:unsigned11" minOccurs="0"/>
    <element name="BoomUp" type="mpeg7:unsigned11" minOccurs="0"/>
    <element name="DollyForward" type="mpeg7:unsigned11" minOccurs="0"/>
    <element name="DollyBackward" type="mpeg7:unsigned11" minOccurs="0"/>
    <element name="PanLeft" type="mpeg7:unsigned11" minOccurs="0"/>
    <element name="PanRight" type="mpeg7:unsigned11" minOccurs="0"/>
    <element name="TiltDown" type="mpeg7:unsigned11" minOccurs="0"/>
    <element name="TiltUp" type="mpeg7:unsigned11" minOccurs="0"/>
    <element name="RollClockwise" type="mpeg7:unsigned11" minOccurs="0"/>
    <element name="RollAnticlockwise" type="mpeg7:unsigned11" minOccurs="0"/>
    <element name="ZoomIn" type="mpeg7:unsigned11" minOccurs="0"/>
    <element name="ZoomOut" type="mpeg7:unsigned11" minOccurs="0"/>
  </sequence>
</complexType>
<!-- Definition of NonMixtureAmountOfMotion Datatype -->
<complexType name="NonMixtureAmountOfMotionType">
  <choice>
    <element name="TrackLeft" type="mpeg7:unsigned11"/>
    <element name="TrackRight" type="mpeg7:unsigned11"/>
    <element name="BoomDown" type="mpeg7:unsigned11"/>
    <element name="BoomUp" type="mpeg7:unsigned11"/>
    <element name="DollyForward" type="mpeg7:unsigned11"/>
    <element name="DollyBackward" type="mpeg7:unsigned11"/>
    <element name="PanLeft" type="mpeg7:unsigned11"/>
    <element name="PanRight" type="mpeg7:unsigned11"/>
    <element name="TiltDown" type="mpeg7:unsigned11"/>
    <element name="TiltUp" type="mpeg7:unsigned11"/>
    <element name="RollClockwise" type="mpeg7:unsigned11"/>
    <element name="RollAnticlockwise" type="mpeg7:unsigned11"/>
    <element name="ZoomIn" type="mpeg7:unsigned11"/>
    <element name="ZoomOut" type="mpeg7:unsigned11"/>
    <element name="Fixed">
      <complexType/>
    </element>
  </choice>
</complexType>
<!-- ##### -->

```

```

<!-- Definition of MotionTrajectory D
-->
<!-- ##### -->
<complexType name="MotionTrajectoryType" final="#all">
  <complexContent>
    <extension base="mpeg7:VisualDType">
      <sequence>
        <choice>
          <element name="CoordRef">
            <complexType>
              <attribute name="ref" type="IDREF" use="required"/>
              <attribute name="spatialRef" type="boolean" use="required"/>
            </complexType>
          </element>
          <element name="CoordDef">
            <complexType>
              <sequence>
                <element name="Repr" minOccurs="0">
                  <complexType>
                    <attribute name="x" type="mpeg7:unsigned8"
use="required"/>
                    <attribute name="y" type="mpeg7:unsigned8"
use="required"/>
                  </complexType>
                </element>
              </sequence>
              <attribute name="units" use="required">
                <simpleType>
                  <restriction base="string">
                    <enumeration value="pictureHeight"/>
                    <enumeration value="pictureWidth"/>
                    <enumeration value="pictureWidthAndHeight"/>
                    <enumeration value="meter"/>
                  </restriction>
                </simpleType>
              </attribute>
            </complexType>
          </element>
        </choice>
        <element name="Params" type="mpeg7:TemporalInterpolationType"/>
      </sequence>
      <attribute name="cameraFollows" type="boolean" use="optional"/>
    </extension>
  </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of ParametricMotion D
-->
<!-- ##### -->
<complexType name="ParametricMotionType" final="#all">
  <complexContent>
    <extension base="mpeg7:VisualDType">
      <sequence>
        <choice>
          <element name="CoordRef">
            <complexType>
              <attribute name="ref" type="IDREF" use="required"/>
              <attribute name="spatialRef" type="boolean" use="required"/>
            </complexType>
          </element>

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        <element name="CoordDef">
            <complexType>
                <attribute name="originX" type="float" use="required"/>
                <attribute name="originY" type="float" use="required"/>
            </complexType>
        </element>
    </choice>
    <element name="MediaDuration" type="mpeg7:MediaIncrDurationType"/>
    <element name="Parameters">
        <simpleType>
            <restriction base="mpeg7:floatVector">
                <maxLength value="12"/>
            </restriction>
        </simpleType>
    </element>
</sequence>
<attribute name="motionModel" use="required">
    <simpleType>
        <restriction base="string">
            <enumeration value="translational"/>
            <enumeration value="rotationOrScaling"/>
            <enumeration value="affine"/>
            <enumeration value="perspective"/>
            <enumeration value="quadratic"/>
        </restriction>
    </simpleType>
</attribute>
</extension>
</complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of MotionActivity D -->
-->
<!-- ##### -->
<complexType name="MotionActivityType" final="#all">
    <complexContent>
        <extension base="mpeg7:VisualDType">
            <sequence>
                <element name="Intensity">
                    <simpleType>
                        <restriction base="mpeg7:unsigned3">
                            <minInclusive value="1"/>
                            <maxInclusive value="5"/>
                        </restriction>
                    </simpleType>
                </element>
                <element name="DominantDirection" type="mpeg7:unsigned3"
minOccurs="0"/>
                <element name="SpatialDistributionParams" minOccurs="0">
                    <complexType>
                        <attribute name="numOfShortRuns" type="mpeg7:unsigned6"
use="required"/>
                        <attribute name="numOfMediumRuns" type="mpeg7:unsigned5"
use="required"/>
                        <attribute name="numOfLongRuns" type="mpeg7:unsigned5"
use="required"/>
                    </complexType>
                </element>
                <element name="SpatialLocalizationParams" minOccurs="0">
                    <complexType>

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        <choice>
          <element name="Vector4">
            <simpleType>
              <restriction>
                <simpleType>
                  <list itemType="mpeg7:unsigned3"/>
                </simpleType>
                <length value="4"/>
              </restriction>
            </simpleType>
          </element>
          <element name="Vector16">
            <simpleType>
              <restriction>
                <simpleType>
                  <list itemType="mpeg7:unsigned3"/>
                </simpleType>
                <length value="16"/>
              </restriction>
            </simpleType>
          </element>
          <element name="Vector64">
            <simpleType>
              <restriction>
                <simpleType>
                  <list itemType="mpeg7:unsigned3"/>
                </simpleType>
                <length value="64"/>
              </restriction>
            </simpleType>
          </element>
          <element name="Vector256">
            <simpleType>
              <restriction>
                <simpleType>
                  <list itemType="mpeg7:unsigned3"/>
                </simpleType>
                <length value="256"/>
              </restriction>
            </simpleType>
          </element>
        </choice>
      </complexType>
    </element>
    <element name="TemporalParams" minOccurs="0">
      <simpleType>
        <restriction>
          <simpleType>
            <list itemType="mpeg7:unsigned6"/>
          </simpleType>
          <length value="5"/>
        </restriction>
      </simpleType>
    </element>
  </sequence>
</extension>
</complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of RegionLocator Datatype -->

```

```

<!-- ##### -->
<!-- Definition of RegionLocator Datatype -->
<complexType name="RegionLocatorType" final="#all">
  <sequence>
    <element name="CoordRef" minOccurs="0">
      <complexType>
        <attribute name="ref" type="IDREF" use="required"/>
        <attribute name="spatialRef" type="boolean" use="optional"
default="false"/>
      </complexType>
    </element>
    <element name="Box" minOccurs="0" maxOccurs="unbounded">
      <complexType>
        <complexContent>
          <extension base="mpeg7:BoxListType">
            <attribute name="unlocatedRegion" type="boolean" use="optional"
default="false"/>
          </extension>
        </complexContent>
      </complexType>
    </element>
    <element name="Polygon" minOccurs="0" maxOccurs="unbounded">
      <complexType>
        <sequence>
          <element name="Coords" type="mpeg7:IntegerMatrixType"/>
        </sequence>
        <attribute name="unlocatedRegion" type="boolean" use="optional"
default="false"/>
      </complexType>
    </element>
  </sequence>
</complexType>
<!-- Definition of BoxList Datatype -->
<complexType name="BoxListType">
  <complexContent>
    <restriction base="mpeg7:IntegerMatrixType"/>
  </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of SpatioTemporalLocator Datatype -->
<!-- ##### -->
<!-- Definition of SpatioTemporalLocator Datatype -->
<complexType name="SpatioTemporalLocatorType" final="#all">
  <sequence>
    <element name="CoordRef" minOccurs="0">
      <complexType>
        <attribute name="ref" type="IDREF" use="required"/>
        <attribute name="spatialRef" type="boolean" use="required"/>
      </complexType>
    </element>
    <choice maxOccurs="unbounded">
      <element name="FigureTrajectory" type="mpeg7:FigureTrajectoryType"/>
      <element name="ParameterTrajectory" type="mpeg7:ParameterTrajectoryType"/>
      <element name="MediaTime" type="mpeg7:MediaTimeType"/>
    </choice>
  </sequence>
</complexType>
<!-- Definition of FigureTrajectory Datatype -->
<complexType name="FigureTrajectoryType" final="#all">
  <sequence>

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```

        <element name="MediaTime" type="mpeg7:MediaTimeType"/>
        <element name="Vertex" type="mpeg7:TemporalInterpolationType" minOccurs="3"
maxOccurs="unbounded"/>
        <element name="Depth" type="mpeg7:TemporalInterpolationType" minOccurs="0"/>
    </sequence>
    <attribute name="type" use="required">
        <simpleType>
            <restriction base="string">
                <enumeration value="rectangle"/>
                <enumeration value="ellipse"/>
                <enumeration value="polygon"/>
            </restriction>
        </simpleType>
    </attribute>
</complexType>
<!-- Definition of ParameterTrajectory Datatype -->
<complexType name="ParameterTrajectoryType" final="#all">
    <sequence>
        <element name="MediaTime" type="mpeg7:MediaTimeType"/>
        <element name="InitialRegion" type="mpeg7:RegionLocatorType"/>
        <element name="Params" type="mpeg7:TemporalInterpolationType" minOccurs="0"/>
        <element name="Depth" type="mpeg7:TemporalInterpolationType" minOccurs="0"/>
    </sequence>
    <attribute name="motionModel" use="required">
        <simpleType>
            <restriction base="string">
                <enumeration value="still"/>
                <enumeration value="translation"/>
                <enumeration value="rotationAndScaling"/>
                <enumeration value="affine"/>
                <enumeration value="perspective"/>
                <enumeration value="parabolic"/>
            </restriction>
        </simpleType>
    </attribute>
    <attribute name="ellipseFlag" type="boolean" use="optional" default="false"/>
</complexType>
<!-- ##### -->
<!-- Definition of FaceRecognition D --
>
<!-- ##### -->
<complexType name="FaceRecognitionType" final="#all">
    <complexContent>
        <extension base="mpeg7:VisualDType">
            <sequence>
                <element name="Feature">
                    <simpleType>
                        <restriction>
                            <simpleType>
                                <list itemType="mpeg7:unsigned5"/>
                            </simpleType>
                                <length value="48"/>
                        </restriction>
                    </simpleType>
                </element>
            </sequence>
        </extension>
    </complexContent>
</complexType>
<!-- *****-->

```

```

<!-- ***** ISO/IEC 15938-4 Visual AMD/1
*****-->
<!-- *****-->
<!-- ##### -->
<!-- Definition of MPEG-7 GofGopFeatureType -->
<!-- ##### -->
<complexType name="GofGopFeatureType">
  <sequence>
    <element name="Descriptor" type="mpeg7:VisualDType"/>
  </sequence>
  <attribute name="aggregation" use="optional">
    <simpleType>
      <restriction base="string">
        <enumeration value="Average"/>
        <enumeration value="Median"/>
        <enumeration value="SplitMerge"/>
      </restriction>
    </simpleType>
  </attribute>
</complexType>
<!-- #####-->
<!-- Definition of MPEG-7 ColorTemperatureType -->
<!-- #####-->
<complexType name="ColorTemperatureType" final="#all">
  <complexContent>
    <extension base="mpeg7:VisualDType">
      <sequence>
        <element name="BrowsingCategory">
          <simpleType>
            <restriction base="string">
              <enumeration value="hot"/>
              <enumeration value="warm"/>
              <enumeration value="moderate"/>
              <enumeration value="cool"/>
            </restriction>
          </simpleType>
        </element>
        <element name="SubRangeIndex" type="mpeg7:unsigned6"/>
      </sequence>
    </extension>
  </complexContent>
</complexType>
<!-- #####-->
<!-- Definition of MPEG-7 IlluminationInvariantColorType -->
<!-- #####-->
<complexType name="IlluminationInvariantColorType">
  <choice>
    <element name="DominantColor" type="mpeg7:DominantColorType"/>
    <element name="ScalableColor" type="mpeg7:ScalableColorType"/>
    <element name="ColorLayout" type="mpeg7:ColorLayoutType"/>
    <element name="ColorStructure" type="mpeg7:ColorStructureType"/>
  </choice>
</complexType>
<!-- #####-->
<!-- Definition of MPEG-7 ShapeVariationType -->
<!-- #####-->
<complexType name="ShapeVariationType" final="#all">
  <complexContent>
    <extension base="mpeg7:VisualDType">
      <sequence>

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        <element name="StaticShapeVariation">
            <simpleType>
                <restriction>
                    <simpleType>
                        <list itemType="mpeg7:unsigned4"/>
                    </simpleType>
                    <length value="35"/>
                </restriction>
            </simpleType>
        </element>
        <element name="DynamicShapeVariation">
            <simpleType>
                <restriction>
                    <simpleType>
                        <list itemType="mpeg7:unsigned4"/>
                    </simpleType>
                    <length value="35"/>
                </restriction>
            </simpleType>
        </element>
        <element name="StatisticalVariation">
            <simpleType>
                <restriction>
                    <simpleType>
                        <list itemType="mpeg7:unsigned4"/>
                    </simpleType>
                    <length value="35"/>
                </restriction>
            </simpleType>
        </element>
    </sequence>
</extension>
</complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of MPEG-7 "AdvancedFaceRecognitionType" -->
<!-- ##### -->
<complexType name="AdvancedFaceRecognitionType" final="#all">
    <complexContent>
        <extension base="mpeg7:VisualDType">
            <sequence>
                <element name="FourierFeature">
                    <simpleType>
                        <restriction>
                            <simpleType>
                                <list itemType="mpeg7:unsigned5"/>
                            </simpleType>
                            <minLength value="24"/>
                            <maxLength value="63"/>
                        </restriction>
                    </simpleType>
                </element>
                <element name="CentralFourierFeature">
                    <simpleType>
                        <restriction>
                            <simpleType>
                                <list itemType="mpeg7:unsigned5"/>
                            </simpleType>
                            <minLength value="24"/>
                            <maxLength value="63"/>
                        </restriction>
                    </simpleType>
                </element>
            </sequence>
        </extension>
    </complexContent>
</complexType>

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        </restriction>
      </simpleType>
    </element>
    <sequence minOccurs="0">
      <element name="CompositeFeature">
        <simpleType>
          <restriction>
            <simpleType>
              <list itemType="mpeg7:unsigned5"/>
            </simpleType>
            <minLength value="0"/>
            <maxLength value="63"/>
          </restriction>
        </simpleType>
      </element>
      <element name="SubregionCompositeFeature">
        <simpleType>
          <restriction>
            <simpleType>
              <list itemType="mpeg7:unsigned5"/>
            </simpleType>
            <minLength value="0"/>
            <maxLength value="63"/>
          </restriction>
        </simpleType>
      </element>
    </sequence>
  </extension>
</complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of media-centric visual DSs -->
<!-- ##### -->
<!-- Definition of MPEG-7 Still Region Feature Type -->
<!-- ##### -->
<complexType name="StillRegionFeatureType">
  <complexContent>
    <extension base="mpeg7:VisualDSType">
      <sequence>
        <!-- List of features available -->
        <!-- Color Distribution -->
        <!-- for the region with limited number of colors -->
        <element name="DominantColor" type="mpeg7:DominantColorType"
minOccurs="0"/>
        <!-- for generic applications -->
        <element name="ScalableColor" type="mpeg7:ScalableColorType"
minOccurs="0"/>
        <!-- for high-level applications requesting precise retrieval -->
        <element name="ColorStructure" type="mpeg7:ColorStructureType"
minOccurs="0"/>
        <!-- Spatial Distribution of Color -->
        <element name="ColorLayout" type="mpeg7:ColorLayoutType"
minOccurs="0"/>
        <!-- Color Temperature -->
        <element name="ColorTemperature" type="mpeg7:ColorTemperatureType"
minOccurs="0"/>
        <!-- Illumination Independent Color -->
        <element name="IlluminationCompensatedColor"
type="mpeg7:IlluminationInvariantColorType" minOccurs="0"/>

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```

        <!-- Spatial Distribution of edges -->
        <element name="Edge" type="mpeg7:EdgeHistogramType" minOccurs="0"/>
        <!-- Homogeneous Patterns -->
        <!-- It is applicable only to the picture with homogeneous pattern -->
        <element name="HomogeneousPattern" type="mpeg7:HomogeneousTextureType"
minOccurs="0"/>

        <!-- In case only rough browsing is requested -->
        <element name="TextureBrowsing" type="mpeg7:TextureBrowsingType"
minOccurs="0"/>

        <!-- Shape -->
        <!-- for shape mask-->
        <element name="ShapeMask" type="mpeg7:RegionShapeType" minOccurs="0"/>
        <!-- for contour -->
        <element name="Contour" type="mpeg7:ContourShapeType" minOccurs="0"/>
    </sequence>
</extension>
</complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of MPEG-7 VideoSegmentFeatureType -->
<!-- ##### -->
<complexType name="VideoSegmentFeatureType">
    <complexContent>
        <extension base="mpeg7:VisualDSType">
            <sequence>
                <!-- List of features available -->
                <!-- Temporal transition of frame feature -->
                <element name="TemporalTransition" type="mpeg7:VisualTimeSeriesType"
minOccurs="0" maxOccurs="unbounded"/>
                <!-- Representative feature over all frame in the sequence -->
                <element name="RepresentativeFeature" type="mpeg7:GofGopFeatureType"
minOccurs="0" maxOccurs="unbounded"/>
                <!-- motion activity -->
                <element name="MotionActivity" type="mpeg7:MotionActivityType"
minOccurs="0"/>
            </sequence>
        </extension>
    </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of MPEG-7 MovingRegionFeatureType -->
<!-- ##### -->
<complexType name="MovingRegionFeatureType">
    <complexContent>
        <extension base="mpeg7:VideoSegmentFeatureType">
            <sequence>
                <!-- List of features available -->
                <!-- description of statistical characteristics of shape changes -->
                <element name="ShapeVariation" type="mpeg7:ShapeVariationType"
minOccurs="0"/>

                <!-- description of motion characteristics -->
                <choice minOccurs="0">
                    <element name="ParametricMotion" type="mpeg7:ParametricMotionType"/>
                    <element name="MotionTrajectory" type="mpeg7:MotionTrajectoryType"/>
                </choice>
            </sequence>
        </extension>
    </complexContent>
</complexType>
<!-- ***** -->

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<!-- ***** ISO/IEC 15938-4 AUDIO *****-->
<!-- *****-->
<annotation>
  <documentation>
    This section contains tools defined in:
      ISO/IEC 15938-4 + ISO/IEC 15938-4 AMD/1 (Audio)
  </documentation>
</annotation>
<!-- ##### -->
<!-- Definition of AudioLLDScalar D -->
<!-- ##### -->
<complexType name="AudioLLDScalarType" abstract="true">
  <complexContent>
    <extension base="mpeg7:AudioDType">
      <choice>
        <element name="Scalar" type="float"/>
        <element name="SeriesOfScalar" maxOccurs="unbounded">
          <complexType>
            <complexContent>
              <extension base="mpeg7:SeriesOfScalarType">
                <attribute name="hopSize" type="mpeg7:mediaDurationType"
default="PT10N1000F"/>
              </extension>
            </complexContent>
          </complexType>
        </element>
      </choice>
      <attribute name="confidence" type="mpeg7:zeroToOneType" use="optional"/>
    </extension>
  </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of AudioLLDVector D -->
<!-- ##### -->
<complexType name="AudioLLDVectorType" abstract="true">
  <complexContent>
    <extension base="mpeg7:AudioDType">
      <choice>
        <element name="Vector" type="mpeg7:floatVector"/>
        <element name="SeriesOfVector" maxOccurs="unbounded">
          <complexType>
            <complexContent>
              <extension base="mpeg7:SeriesOfVectorType">
                <attribute name="hopSize" type="mpeg7:mediaDurationType"
default="PT10N1000F"/>
              </extension>
            </complexContent>
          </complexType>
        </element>
      </choice>
    </extension>
  </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of AudioWaveform D -->
<!-- ##### -->
<complexType name="AudioWaveformType">
  <complexContent>
    <extension base="mpeg7:AudioLLDScalarType">
      <attribute name="minRange" type="float" use="optional"/>
    </extension>
  </complexContent>
</complexType>

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        <attribute name="maxRange" type="float" use="optional"/>
    </extension>
</complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of audioSpectrumAttributeGrp -->
<!-- ##### -->
<attributeGroup name="audioSpectrumAttributeGrp">
    <attribute name="loEdge" type="float" default="62.5"/>
    <attribute name="hiEdge" type="float" default="16000"/>
    <attribute name="octaveResolution" use="optional">
        <simpleType>
            <restriction base="string">
                <enumeration value="1/16"/>
                <enumeration value="1/8"/>
                <enumeration value="1/4"/>
                <enumeration value="1/2"/>
                <enumeration value="1"/>
                <enumeration value="2"/>
                <enumeration value="4"/>
                <enumeration value="8"/>
            </restriction>
        </simpleType>
    </attribute>
    <!-- Edge values are in Hertz -->
</attributeGroup>
<!-- ##### -->
<!-- Definition of AudioSpectrumEnvelope D -->
<!-- ##### -->
<complexType name="AudioSpectrumEnvelopeType">
    <complexContent>
        <extension base="mpeg7:AudioLLDVectorType">
            <attributeGroup ref="mpeg7:audioSpectrumAttributeGrp"/>
        </extension>
    </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of AudioPower D -->
<!-- ##### -->
<complexType name="AudioPowerType">
    <complexContent>
        <extension base="mpeg7:AudioLLDScalarType"/>
    </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of AudioSpectrumCentroid D -->
<!-- ##### -->
<complexType name="AudioSpectrumCentroidType">
    <complexContent>
        <extension base="mpeg7:AudioLLDScalarType"/>
    </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of AudioSpectrumSpread D -->
<!-- ##### -->
<complexType name="AudioSpectrumSpreadType">
    <complexContent>
        <extension base="mpeg7:AudioLLDScalarType"/>
    </complexContent>
</complexType>

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<!-- ##### -->
<!-- Definition of AudioFundamentalFrequency D -->
<!-- ##### -->
<complexType name="AudioFundamentalFrequencyType">
  <complexContent>
    <extension base="mpeg7:AudioLLDScalarType">
      <attribute name="loLimit" type="float" default="25"/>
      <attribute name="hiLimit" type="float" use="optional"/>
    </extension>
  </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of AudioHarmonicity D -->
<!-- ##### -->
<complexType name="AudioHarmonicityType">
  <complexContent>
    <extension base="mpeg7:AudioDType">
      <sequence>
        <element name="HarmonicRatio" type="mpeg7:AudioLLDScalarType"/>
        <element name="UpperLimitOfHarmonicity"
type="mpeg7:AudioLLDScalarType"/>
      </sequence>
    </extension>
  </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of AudioSpectrumFlatness D -->
<!-- ##### -->
<complexType name="AudioSpectrumFlatnessType">
  <complexContent>
    <extension base="mpeg7:AudioLLDVectorType">
      <attribute name="loEdge" type="float" default="250"/>
      <attribute name="hiEdge" type="float" default="16000"/>
    </extension>
  </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of AudioSpectrumBasis D -->
<!-- ##### -->
<complexType name="AudioSpectrumBasisType">
  <complexContent>
    <extension base="mpeg7:AudioLLDVectorType">
      <attributeGroup ref="mpeg7:audioSpectrumAttributeGrp"/>
    </extension>
  </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of AudioSpectrumProjection D -->
<!-- ##### -->
<complexType name="AudioSpectrumProjectionType">
  <complexContent>
    <extension base="mpeg7:AudioLLDVectorType"/>
  </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of LogAttackTime D -->
<!-- ##### -->
<complexType name="LogAttackTimeType">
  <complexContent>
    <extension base="mpeg7:AudioLLDScalarType"/>

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    </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of HarmonicSpectralCentroid D -->
<!-- ##### -->
<complexType name="HarmonicSpectralCentroidType">
    <complexContent>
        <extension base="mpeg7:AudioLLDScalarType"/>
    </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of HarmonicSpectralDeviation D -->
<!-- ##### -->
<complexType name="HarmonicSpectralDeviationType">
    <complexContent>
        <extension base="mpeg7:AudioLLDScalarType"/>
    </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of HarmonicSpectralSpread D -->
<!-- ##### -->
<complexType name="HarmonicSpectralSpreadType">
    <complexContent>
        <extension base="mpeg7:AudioLLDScalarType"/>
    </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of HarmonicSpectralVariation D -->
<!-- ##### -->
<complexType name="HarmonicSpectralVariationType">
    <complexContent>
        <extension base="mpeg7:AudioLLDScalarType"/>
    </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of SpectralCentroid D -->
<!-- ##### -->
<complexType name="SpectralCentroidType">
    <complexContent>
        <extension base="mpeg7:AudioLLDScalarType"/>
    </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of TemporalCentroid D -->
<!-- ##### -->
<complexType name="TemporalCentroidType">
    <complexContent>
        <extension base="mpeg7:AudioLLDScalarType"/>
    </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of ScalableSeries datatype -->
<!-- ##### -->
<complexType name="ScalableSeriesType" abstract="true">
    <sequence>
        <element name="Scaling" minOccurs="0" maxOccurs="unbounded">
            <complexType>
                <attribute name="ratio" type="positiveInteger" use="required"/>
                <attribute name="numOfElements" type="positiveInteger" use="required"/>
            </complexType>

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        </element>
    </sequence>
    <attribute name="totalNumOfSamples" type="positiveInteger" use="required"/>
</complexType>
<!-- ##### -->
<!-- Definition of SeriesOfScalar datatype -->
<!-- ##### -->
<complexType name="SeriesOfScalarType">
    <complexContent>
        <extension base="mpeg7:ScalableSeriesType">
            <sequence>
                <element name="Raw" type="mpeg7:floatVector" minOccurs="0"/>
                <element name="Min" type="mpeg7:floatVector" minOccurs="0"/>
                <element name="Max" type="mpeg7:floatVector" minOccurs="0"/>
                <element name="Mean" type="mpeg7:floatVector" minOccurs="0"/>
                <element name="Random" type="mpeg7:floatVector" minOccurs="0"/>
                <element name="First" type="mpeg7:floatVector" minOccurs="0"/>
                <element name="Last" type="mpeg7:floatVector" minOccurs="0"/>
                <element name="Variance" type="mpeg7:floatVector" minOccurs="0"/>
                <element name="Weight" type="mpeg7:floatVector" minOccurs="0"/>
            </sequence>
        </extension>
    </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of SeriesOfScalarBinary datatype -->
<!-- ##### -->
<complexType name="SeriesOfScalarBinaryType">
    <complexContent>
        <extension base="mpeg7:SeriesOfScalarType">
            <sequence>
                <element name="VarianceScalewise" type="mpeg7:FloatMatrixType"
minOccurs="0"/>
            </sequence>
        </extension>
    </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of SeriesOfVector datatype -->
<!-- ##### -->
<complexType name="SeriesOfVectorType">
    <complexContent>
        <extension base="mpeg7:ScalableSeriesType">
            <sequence>
                <element name="Raw" type="mpeg7:FloatMatrixType" minOccurs="0"/>
                <element name="Min" type="mpeg7:FloatMatrixType" minOccurs="0"/>
                <element name="Max" type="mpeg7:FloatMatrixType" minOccurs="0"/>
                <element name="Mean" type="mpeg7:FloatMatrixType" minOccurs="0"/>
                <element name="Random" type="mpeg7:FloatMatrixType" minOccurs="0"/>
                <element name="First" type="mpeg7:FloatMatrixType" minOccurs="0"/>
                <element name="Last" type="mpeg7:FloatMatrixType" minOccurs="0"/>
                <element name="Variance" type="mpeg7:FloatMatrixType" minOccurs="0"/>
                <element name="Covariance" type="mpeg7:FloatMatrixType" minOccurs="0"/>
                <element name="VarianceSummed" type="mpeg7:floatVector" minOccurs="0"/>
                <element name="MaxSqDist" type="mpeg7:floatVector" minOccurs="0"/>
                <element name="Weight" type="mpeg7:floatVector" minOccurs="0"/>
            </sequence>
            <attribute name="vectorSize" type="positiveInteger" default="1"/>
        </extension>
    </complexContent>

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</complexType>
<!-- ##### -->
<!-- Definition of SeriesOfVectorBinary datatype -->
<!-- ##### -->
<complexType name="SeriesOfVectorBinaryType">
  <complexContent>
    <extension base="mpeg7:SeriesOfVectorType">
      <sequence>
        <element name="VarianceScalewise" type="mpeg7:FloatMatrixType"
minOccurs="0"/>
      </sequence>
    </extension>
  </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of SilenceHeader header -->
<!-- ##### -->
<complexType name="SilenceHeaderType">
  <complexContent>
    <extension base="mpeg7:HeaderType">
      <attribute name="minDuration" type="mpeg7:mediaDurationType"
use="required"/>
    </extension>
  </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of Silence D -->
<!-- ##### -->
<complexType name="SilenceType">
  <complexContent>
    <extension base="mpeg7:AudioDType">
      <attribute name="confidence" type="mpeg7:zeroToOneType" default="1.0"/>
      <attribute name="minDurationRef" type="anyURI" use="optional"/>
    </extension>
  </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of AudioSignature DS -->
<!-- ##### -->
<complexType name="AudioSignatureType">
  <complexContent>
    <extension base="mpeg7:AudioDSType">
      <sequence>
        <element name="Flatness" type="mpeg7:AudioSpectrumFlatnessType"/>
      </sequence>
    </extension>
  </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of InstrumentTimbre DS -->
<!-- ##### -->
<complexType name="InstrumentTimbreType">
  <complexContent>
    <extension base="mpeg7:AudioDSType">
      <sequence>
        <element name="LogAttackTime" type="mpeg7:LogAttackTimeType"
minOccurs="0"/>
        <element name="HarmonicSpectralCentroid"
type="mpeg7:HarmonicSpectralCentroidType" minOccurs="0"/>
      </sequence>
    </extension>
  </complexContent>
</complexType>

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        <element name="HarmonicSpectralDeviation"
type="mpeg7:HarmonicSpectralDeviationType" minOccurs="0"/>
        <element name="HarmonicSpectralSpread"
type="mpeg7:HarmonicSpectralSpreadType" minOccurs="0"/>
        <element name="HarmonicSpectralVariation"
type="mpeg7:HarmonicSpectralVariationType" minOccurs="0"/>
        <element name="SpectralCentroid" type="mpeg7:SpectralCentroidType"
minOccurs="0"/>
        <element name="TemporalCentroid" type="mpeg7:TemporalCentroidType"
minOccurs="0"/>
    </sequence>
</extension>
</complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of HarmonicInstrumentTimbre DS -->
<!-- ##### -->
<complexType name="HarmonicInstrumentTimbreType">
    <complexContent>
        <extension base="mpeg7:AudioDSType">
            <sequence>
                <element name="LogAttackTime" type="mpeg7:LogAttackTimeType"/>
                <element name="HarmonicSpectralCentroid"
type="mpeg7:HarmonicSpectralCentroidType"/>
                <element name="HarmonicSpectralDeviation"
type="mpeg7:HarmonicSpectralDeviationType"/>
                <element name="HarmonicSpectralSpread"
type="mpeg7:HarmonicSpectralSpreadType"/>
                <element name="HarmonicSpectralVariation"
type="mpeg7:HarmonicSpectralVariationType"/>
            </sequence>
        </extension>
    </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of PercussiveInstrumentTimbre DS -->
<!-- ##### -->
<complexType name="PercussiveInstrumentTimbreType">
    <complexContent>
        <extension base="mpeg7:AudioDSType">
            <sequence>
                <element name="LogAttackTime" type="mpeg7:LogAttackTimeType"/>
                <element name="SpectralCentroid" type="mpeg7:SpectralCentroidType"/>
                <element name="TemporalCentroid" type="mpeg7:TemporalCentroidType"/>
            </sequence>
        </extension>
    </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of SpokenContentHeader header -->
<!-- ##### -->
<complexType name="SpokenContentHeaderType">
    <complexContent>
        <extension base="mpeg7:HeaderType">
            <sequence>
                <choice maxOccurs="unbounded">
                    <element name="WordLexicon" type="mpeg7:WordLexiconType"/>
                    <element name="PhoneLexicon" type="mpeg7:PhoneLexiconType"/>
                </choice>
                <!-- Information about the word and phone lexicons used to -->
                <!-- represent the speech -->
            </sequence>
        </extension>
    </complexContent>
</complexType>

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        </choice>
        <element name="ConfusionInfo" type="mpeg7:ConfusionCountType"
minOccurs="0" maxOccurs="unbounded"/>
        <element name="DescriptionMetadata"
type="mpeg7:DescriptionMetadataType" minOccurs="0"/>
        <element name="SpeakerInfo" type="mpeg7:SpeakerInfoType"
maxOccurs="unbounded"/>
        <!-- Information about the speakers in the audio -->
    </sequence>
</extension>
</complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of SpeakerInfo header -->
<!-- ##### -->
<complexType name="SpeakerInfoType">
    <complexContent>
        <extension base="mpeg7:HeaderType">
            <sequence>
                <element name="SpokenLanguage" type="language"/>
                <element name="Person" type="mpeg7:PersonType" minOccurs="0"/>
                <element name="WordIndex" minOccurs="0">
                    <complexType>
                        <sequence>
                            <element name="WordIndexEntry" maxOccurs="unbounded">
                                <complexType>
                                    <sequence>
                                        <element name="IndexEntry"
type="mpeg7:SpokenContentIndexEntryType" maxOccurs="unbounded"/>
                                    </sequence>
                                    <attribute name="key" use="required">
                                        <simpleType>
                                            <list itemType="mpeg7:WordLexiconIndexType"/>
                                        </simpleType>
                                    </attribute>
                                </complexType>
                            </element>
                        </sequence>
                        <attribute name="defaultLattice" type="anyURI" use="required"/>
                    </complexType>
                </element>
                <element name="PhoneIndex" minOccurs="0">
                    <complexType>
                        <sequence>
                            <element name="PhoneIndexEntry" maxOccurs="unbounded">
                                <complexType>
                                    <sequence>
                                        <element name="IndexEntry"
type="mpeg7:SpokenContentIndexEntryType" maxOccurs="unbounded"/>
                                    </sequence>
                                    <attribute name="key" use="required">
                                        <simpleType>
                                            <list
itemType="mpeg7:PhoneLexiconIndexType"/>
                                        </simpleType>
                                    </attribute>
                                </complexType>
                            </element>
                        </sequence>
                        <attribute name="defaultLattice" type="anyURI" use="required"/>
                    </complexType>
                </element>
            </sequence>
        </extension>
    </complexContent>
</complexType>

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        </complexType>
      </element>
    </sequence>
    <attribute name="phoneLexiconRef" type="anyURI" use="optional"/>
    <attribute name="wordLexiconRef" type="anyURI" use="optional"/>
    <attribute name="confusionInfoRef" type="anyURI" use="optional"/>
    <attribute name="descriptionMetadataRef" type="anyURI" use="optional"/>
    <attribute name="provenance" use="required">
      <simpleType>
        <restriction base="NMTOKEN">
          <enumeration value="unknown"/>
          <enumeration value="ASR"/>
          <enumeration value="manual"/>
          <enumeration value="keyword"/>
          <enumeration value="parsing"/>
        </restriction>
      </simpleType>
    </attribute>
  </extension>
</complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of SpokenContentIndexEntry datatype -->
<!-- ##### -->
<complexType name="SpokenContentIndexEntryType">
  <attribute name="node" type="mpeg7:unsigned16" use="required"/>
  <attribute name="block" type="mpeg7:unsigned16" use="required"/>
  <attribute name="lattice" type="anyURI" use="optional"/>
</complexType>
<!-- ##### -->
<!-- Definitions of SpokenContent Word and Phone datatypes -->
<!-- ##### -->
<simpleType name="WordType">
  <restriction base="string"/>
</simpleType>
<simpleType name="PhoneType">
  <restriction base="string"/>
</simpleType>
<simpleType name="WordLexiconIndexType">
  <restriction base="mpeg7:unsigned32"/>
</simpleType>
<simpleType name="PhoneLexiconIndexType">
  <restriction base="mpeg7:unsigned16"/>
</simpleType>
<!-- ##### -->
<!-- Definition of Lexicon header -->
<!-- ##### -->
<complexType name="LexiconType" abstract="true">
  <complexContent>
    <extension base="mpeg7:HeaderType">
      <attribute name="numOfOriginalEntries" type="positiveInteger"
use="optional"/>
    </extension>
  </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of WordLexiconType (Audio AMD/1) -->
-->
<!-- ##### -->
<!-- ##### -->

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<!-- Definition of WordLexiconType -->
<!-- ##### -->
<complexType name="WordLexiconType">
  <complexContent>
    <extension base="mpeg7:LexiconType">
      <sequence>
        <element name="Token">
          <complexType>
            <simpleContent>
              <extension base="mpeg7:WordType">
                <attribute name="linguisticUnit" use="optional"
default="word">
                  <simpleType>
                    <union>
                      <simpleType>
                        <restriction base="NMTOKEN">
                          <enumeration value="word"/>
                          <enumeration value="syllable"/>
                          <enumeration value="morpheme"/>
                          <enumeration value="phrase"/>
                          <enumeration value="component"/>
                          <enumeration value="stem"/>
                          <enumeration value="affix"/>
                          <enumeration value="nonspeech"/>
                          <enumeration value="other"/>
                        </restriction>
                      </simpleType>
                      <simpleType>
                        <restriction
base="mpeg7:termAliasReferenceType"/>
                        </simpleType>
                      <simpleType>
                        <restriction
base="mpeg7:termURIReferenceType"/>
                        </simpleType>
                      </union>
                    </simpleType>
                  </attribute>
                  <attribute name="representation" use="optional"
default="orthographic">
                    <simpleType>
                      <restriction base="NMTOKEN">
                        <enumeration value="orthographic"/>
                        <enumeration value="nonorthographic"/>
                      </restriction>
                    </simpleType>
                  </attribute>
                </extension>
              </simpleContent>
              <!-- New attribute V2 -->
            </complexType>
          </element>
        </sequence>
        <attribute name="phoneticAlphabet" type="mpeg7:phoneticAlphabetType"
use="optional"/>
      </extension>
      <!-- New attribute V2 -->
    </complexContent>
  </complexType>
<!-- ##### -->

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<!-- Definition of phoneticAlphabet datatype -->
<!-- ##### -->
<simpleType name="phoneticAlphabetType">
  <restriction base="NMTOKEN">
    <enumeration value="sampa"/>
    <enumeration value="ipaSymbol"/>
    <enumeration value="ipaNumber"/>
    <enumeration value="other"/>
  </restriction>
  <!-- This defines an [enumerated] type covering the phone sets. It -->
  <!-- essentially distinguishes between IPA based systems and everything -->
  <!-- else. -->
</simpleType>
<!-- ##### -->
<!-- Definition of PhoneLexicon header -->
<!-- ##### -->
<complexType name="PhoneLexiconType">
  <complexContent>
    <extension base="mpeg7:LexiconType">
      <sequence>
        <element name="Token" type="mpeg7:PhoneType" maxOccurs="65536"/>
        <!-- The maxOccurs is the upper limit of WordLexiconIndexType -->
      </sequence>
      <attribute name="phoneticAlphabet" type="mpeg7:phoneticAlphabetType"
default="sampa"/>
    </extension>
  </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of ConfusionCount header -->
<!-- ##### -->
<complexType name="ConfusionCountType">
  <complexContent>
    <extension base="mpeg7:HeaderType">
      <sequence>
        <element name="Insertion" type="mpeg7:integerVector"/>
        <element name="Deletion" type="mpeg7:integerVector"/>
        <element name="Substitution" type="mpeg7:IntegerMatrixType"/>
      </sequence>
      <attribute name="numOfDimensions" type="positiveInteger" use="required"/>
    </extension>
  </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of the SpokenContentLattice DS -->
<!-- ##### -->
<complexType name="SpokenContentLatticeType">
  <complexContent>
    <extension base="mpeg7:AudioDSType">
      <sequence>
        <element name="Block" maxOccurs="65536">
          <complexType>
            <sequence>
              <element name="MediaTime" type="mpeg7:MediaTimeType"/>
              <element name="Node" maxOccurs="65536">
                <complexType>
                  <sequence>
                    <element name="WordLink" minOccurs="0"
maxOccurs="127">

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          </complexType>

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                                <complexContent>
                                    <extension
base="mpeg7:SpokenContentLinkType">
                                <attribute name="word"
type="mpeg7:WordLexiconIndexType" use="required"/>
                                </extension>
                                </complexContent>
                                </complexType>
                                </element>
                                <element name="PhoneLink" minOccurs="0"
maxOccurs="127">
                                <complexType>
                                    <complexContent>
                                        <extension
base="mpeg7:SpokenContentLinkType">
                                <attribute name="phone"
type="mpeg7:PhoneLexiconIndexType" use="required"/>
                                </extension>
                                </complexContent>
                                </complexType>
                                </element>
                                </sequence>
                                <attribute name="num" type="mpeg7:unsigned16"
use="required"/>
                                <attribute name="timeOffset" type="mpeg7:unsigned16"
use="required"/>
                                <attribute name="speakerInfoRef" type="anyURI"
use="optional"/>
                                </complexType>
                                </element>
                                </sequence>
                                <attribute name="defaultSpeakerInfoRef" type="anyURI"
use="required"/>
                                <attribute name="num" type="mpeg7:unsigned16" use="required"/>
                                <attribute name="audio" default="speech">
                                    <simpleType>
                                        <restriction base="NMTOKEN">
                                            <enumeration value="unknown"/>
                                            <enumeration value="speech"/>
                                            <enumeration value="noise"/>
                                            <enumeration value="noisySpeech"/>
                                        </restriction>
                                <!-- This gives an approximate measure of how noisy the
-->
                                <!-- speech signal is with respect to the speech
-->
                                    </simpleType>
                                </attribute>
                                </complexType>
                                </element>
                                </sequence>
                                </extension>
                                </complexContent>
                                </complexType>
                                <!-- ##### -->
                                <!-- Definition of SpokenContentLink datatype (Audio AMD/1)
-->
                                <!-- ##### -->
                                <complexType name="SpokenContentLinkType">
                                    <attribute name="probability" type="mpeg7:zeroToOneType" default="1.0"/>

```

```

    <attribute name="acousticScore" type="mpeg7:nonNegativeReal" use="optional"/>
    <attribute name="nodeOffset" type="mpeg7:unsigned16" default="1"/>
    <!-- New attribute V2 -->
</complexType>
<!-- ##### -->
<!-- Definition of Melody DS -->
<!-- ##### -->
<complexType name="MelodyType">
  <complexContent>
    <extension base="mpeg7:AudioDSType">
      <sequence>
        <element name="Meter" type="mpeg7:MeterType" minOccurs="0"/>
        <element name="Scale" type="mpeg7:scaleType" minOccurs="0"/>
        <element name="Key" type="mpeg7:KeyType" minOccurs="0"/>
        <choice>
          <element name="MelodyContour" type="mpeg7:MelodyContourType"/>
          <element name="MelodySequence" type="mpeg7:MelodySequenceType"
maxOccurs="unbounded"/>
        </choice>
      </sequence>
    </extension>
  </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of MelodyContour DS -->
<!-- ##### -->
<complexType name="MelodyContourType">
  <complexContent>
    <extension base="mpeg7:AudioDSType">
      <sequence>
        <element name="Contour" type="mpeg7:contourType"/>
        <element name="Beat" type="mpeg7:beatType"/>
      </sequence>
    </extension>
  </complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of Meter D -->
<!-- ##### -->
<complexType name="MeterType">
  <complexContent>
    <extension base="mpeg7:AudioDType">
      <sequence>
        <element name="Numerator">
          <simpleType>
            <restriction base="integer">
              <minInclusive value="1"/>
              <maxInclusive value="128"/>
            </restriction>
          </simpleType>
        </element>
        <element name="Denominator">
          <simpleType>
            <restriction base="integer">
              <enumeration value="1"/>
              <enumeration value="2"/>
              <enumeration value="4"/>
              <enumeration value="8"/>
              <enumeration value="16"/>
              <enumeration value="32"/>
            </restriction>
          </simpleType>
        </element>
      </sequence>
    </extension>
  </complexContent>
</complexType>

```

```

        <enumeration value="64"/>
        <enumeration value="128"/>
    </restriction>
</simpleType>
</element>
</sequence>
</extension>
</complexContent>
</complexType>
<!-- ##### -->
<!-- Definition of contour datatype -->
<!-- ##### -->
<simpleType name="contourType">
    <list>
        <simpleType>
            <restriction base="integer">
                <minInclusive value="-2"/>
                <maxInclusive value="+2"/>
            </restriction>
        </simpleType>
    </list>
</simpleType>
<!-- ##### -->
<!-- Definition of beat datatype -->
<!-- ##### -->
<simpleType name="beatType">
    <list itemType="integer"/>
</simpleType>
<!-- ##### -->
<!-- Definition of Scale datatype -->
<!-- ##### -->
<!-- Information about a scale -->
<!-- array of a repeatable span of notes, in semitones from base pitch -->
<simpleType name="scaleType">
    <restriction base="mpeg7:floatVector"/>
</simpleType>
<!-- ##### -->
<!-- Definition of MelodyKey DS -->
<!-- ##### -->
<!-- Information about the key -->
<!-- ##### -->
<complexType name="KeyType">
    <complexContent>
        <extension base="mpeg7:AudioDSType">
            <sequence>
                <element name="KeyNote">
                    <complexType>
                        <simpleContent>
                            <extension base="mpeg7:degreeNoteType">
                                <attribute name="display" type="string" use="optional"/>
                            </extension>
                        </simpleContent>
                    </complexType>
                </element>
            </sequence>
            <attribute name="accidental" type="mpeg7:degreeAccidentalType"
default="natural"/>
            <attribute name="mode" type="mpeg7:termReferenceType" use="optional"/>
        </extension>
    </complexContent>
</complexType>

```

```

<simpleType name="degreeNoteType">
  <restriction base="string">
    <enumeration value="C"/>
    <enumeration value="D"/>
    <enumeration value="E"/>
    <enumeration value="F"/>
    <enumeration value="G"/>
    <enumeration value="A"/>
    <enumeration value="B"/>
  </restriction>
</simpleType>
<simpleType name="degreeAccidentalType">
  <restriction base="string">
    <enumeration value="flat"/>
    <enumeration value="natural"/>
    <enumeration value="sharp"/>
    <enumeration value="doubleSharp"/>
    <enumeration value="doubleFlat"/>
  </restriction>
</simpleType>
<!-- ##### -->
<!-- Definition of MelodySequence DS -->
<!-- ##### -->
<complexType name="MelodySequenceType">
  <complexContent>
    <extension base="mpeg7:AudioDSType">
      <sequence>
        <element name="StartingNote" minOccurs="0">
          <complexType>
            <sequence>
              <element name="StartingFrequency" type="float"
minOccurs="0"/>
              <element name="StartingPitch" minOccurs="0">
                <complexType>
                  <sequence>
                    <element name="PitchNote">
                      <complexType>
                        <simpleContent>
                          <extension
base="mpeg7:degreeNoteType">
                            <attribute name="display"
type="string" use="optional"/>
                        </extension>
                      </simpleContent>
                    </complexType>
                  </sequence>
                </element>
              </sequence>
              <attribute name="accidental"
type="mpeg7:degreeAccidentalType" default="natural"/>
              <attribute name="height" type="integer"
use="optional"/>
            </complexType>
          </element>
        </sequence>
      </complexType>
    </element>
    <element name="NoteArray" maxOccurs="unbounded">
      <complexType>
        <complexContent>
          <extension base="mpeg7:AudioDSType">

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```

        <sequence>
            <element name="Note" maxOccurs="unbounded">
                <complexType>
                    <sequence>
                        <element name="Interval" type="float"/>
                        <element name="NoteRelDuration"
type="float"/>
                        <element name="Lyric"
type="mpeg7:TextualType" minOccurs="0"/>
                    </sequence>
                </complexType>
            </element>
        </sequence>
    </extension>
</complexContent>
</complexType>
</element>
</sequence>
</extension>
</complexContent>
</complexType>
<!-- *****-->
<!-- ***** ISO/IEC 15938-3 Audio AMD/1
*****-->
<!-- *****-->
<!-- ##### -->
<!-- Definition of AudioSignalQuality DS AMD/1 -->
<!-- ##### -->
<complexType name="AudioSignalQualityType">
    <complexContent>
        <extension base="mpeg7:AudioDSType">
            <sequence>
                <!-- Summaries-->
                <element name="Operator" type="mpeg7:PersonType" minOccurs="0"/>
                <element name="UsedTool" type="mpeg7:CreationToolType" minOccurs="0"/>
                <element name="BackgroundNoiseLevel"
type="mpeg7:BackgroundNoiseLevelType"/>
                <element name="RelativeDelay" type="mpeg7:RelativeDelayType"/>
                <element name="Balance" type="mpeg7:BalanceType"/>
                <element name="DcOffset" type="mpeg7:DcOffsetType"/>
                <element name="CrossChannelCorrelation"
type="mpeg7:CrossChannelCorrelationType"/>
                <element name="Bandwidth" type="mpeg7:BandwidthType"/>
                <!-- High Level Feature-->
                <element name="TransmissionTechnology"
type="mpeg7:TransmissionTechnologyType" minOccurs="0"/>
                <!-- Events-->
                <element name="ErrorEventList" minOccurs="0">
                    <complexType>
                        <sequence>
                            <element name="ErrorEvent" type="mpeg7:ErrorEventType"
minOccurs="0" maxOccurs="unbounded"/>
                        </sequence>
                    </complexType>
                </element>
            </sequence>
            <attribute name="IsOriginalMono" type="boolean"/>
            <attribute name="BroadcastReady" type="boolean" use="optional"/>
        </extension>
    <!-- Attributes-->

```

```

    </complexContent>
  </complexType>
  <!-- ##### -->
  <!-- Definition of BackgroundNoiseLevel D -->
  <!-- ##### -->
  <complexType name="BackgroundNoiseLevelType">
    <complexContent>
      <extension base="mpeg7:AudioLLDVectorType"/>
    </complexContent>
  </complexType>
  <!-- ##### -->
  <!-- Definition of CrossChannelCorrelation D -->
  <!-- ##### -->
  <complexType name="CrossChannelCorrelationType">
    <complexContent>
      <extension base="mpeg7:AudioLLDVectorType"/>
    </complexContent>
  </complexType>
  <!-- ##### -->
  <!-- Definition of RelativeDelay D -->
  <!-- ##### -->
  <complexType name="RelativeDelayType">
    <complexContent>
      <extension base="mpeg7:AudioLLDVectorType">
        <attribute name="Reliability" type="mpeg7:zeroToOneType" use="optional"/>
      </extension>
    </complexContent>
  </complexType>
  <!-- ##### -->
  <!-- Definition of Balance D -->
  <!-- ##### -->
  <complexType name="BalanceType">
    <complexContent>
      <extension base="mpeg7:AudioLLDVectorType"/>
    </complexContent>
  </complexType>
  <!-- ##### -->
  <!-- Definition of DcOffset D -->
  <!-- ##### -->
  <complexType name="DcOffsetType">
    <complexContent>
      <extension base="mpeg7:AudioLLDVectorType"/>
    </complexContent>
  </complexType>
  <!-- ##### -->
  <!-- Definition of Bandwidth D -->
  <!-- ##### -->
  <complexType name="BandwidthType">
    <complexContent>
      <extension base="mpeg7:AudioLLDVectorType"/>
    </complexContent>
  </complexType>
  <!-- ##### -->
  <!-- Definition of Transmission Technology Type -->
  <!-- ##### -->
  <complexType name="TransmissionTechnologyType">
    <complexContent>
      <extension base="mpeg7:ControlledTermUseType"/>
    </complexContent>
  </complexType>

```