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Interested committees:

Title: Draft BS ISO/IEC 23009-1/Amendment 1 - Information technology — Dynamic adaptive streaming over HTTP (DASH). Part 1: Media presentation description and segment formats.

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Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/Figure/ Table/Note	Type of comment	Commend (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	

DRAFT AMENDMENT

ISO/IEC 23009-1:2019/DAM 1

ISO/IEC JTC 1/SC 29

Secretariat: JISC

Voting begins on:
2020-07-10

Voting terminates on:
2020-10-02

Information technology — Dynamic adaptive streaming over HTTP (DASH) —

Part 1:

Media presentation description and segment formats

AMENDMENT 1: CMAF support, events processing model and other extensions

Partie 1: Description de la présentation et formats de remise des médias

AMENDEMENT 1: Titre manque

ICS: 35.040.40

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Reference number
ISO/IEC 23009-1:2019/DAM 1:2020(E)

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1 Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

A list of all parts in the ISO/IEC 23009 series can be found on the ISO website.

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Information technology — Dynamic adaptive streaming over HTTP (DASH) — Part 1: Media presentation description and segment formats, Amendment 1: CMAF support, events processing model and other extensions

2 General Updates

Replace Foreword

This fifth edition cancels and replaces the fourth edition (ISO/IEC 23009-1:2020), which has been technically revised. It also incorporates the Amendment ISO 23009-1:2020/Amd.1:2020. The main changes compared to the previous edition are as follows:

- a DASH Profile for using Common Media Application Format (CMAF) is added;
- the concept Resynchronization is added in order to address early resynchronization in Segments;
- MPD Patching is updated to support explicit MPD updates of smaller size, not only as inband messages;
- a client processing model for Event Streams and Timed Metadata tracks is introduced;
- the ability to add a static content as a preroll to a dynamic Media Presentation;
- Extensions to Content Protection for efficient signalling and to support robustness levels.
- A descriptor in order to describe the minimum required device output protection security.

Add to 2

- Digital Content Protection LLC, "HDCP Interface Independent Adaptation Specification Revision 2.3", March 02, 2018, https://www.digital-cp.com/sites/default/files/HDCP%20Interface%20Independent%20Adaptation%20Specification%20Rev2_3.pdf

Add to 3.1 Terms and definitions

3.1.X

Resynchronization Point

a point within a Representation to start processing the Representation within a Segment

Add to 3.2 Symbols and abbreviated terms

AEMS	application event or metadata streams
API	application programming interface
CMAF	common media application format

DOM	document object model
EMIO	event/metadata internal object
HDCP	high-bandwidth digital content protection
IDL	Interactive Data Language
LAT	Latest Arrival Time

Add to 4.6, Table 1

rpis	Error! Reference source not found.	Resynchronization Point Index Segment
------	------------------------------------	---------------------------------------

Add to 4.7, Table 2

urn:mpeg:dash:output-protection:hdc:2020	5.8.X.2	Scheme to indicate the HDCP output protection
--	---------	---

Replace in clause 5.2.2

Implementors are supported by files available at: <https://standards.iso.org/iso-iec/23009/-1/ed-4/en>. These files include the schema as well as all examples provided in **Error! Reference source not found.**

With

Implementors are supported by files available at: <https://standards.iso.org/iso-iec/23009/-1/ed-5/en>. These files include the schema as well as all examples provided in **Error! Reference source not found.**

Add new clause 5.2.3.4

5.2.3.5 Elements and Attributes added in the fifth edition of this document (ISO/IEC 23009-1:20xx)

This revision adds the following elements and attributes to the schema defined in Annex B compared to the 2020 revision (ISO/IEC 23009-1:2020) of this document:

- **MPD.PatchLocation**
- **MPD.Preroll**
- **RepresentationBase.Resync**
- **ContentProtection@ref**
- **ContentProtection@refId**

- `ContentProtection@robustness`
- `CommonAttributesAndElements.OutputProtection`

Replace in Annex B

The schema of the MPD for this document is provided at <https://standards.iso.org/iso-iec/23009/-1/ed-4/en> (DASH-MPD.xsd).

NOTE For the FDIS ballot, the accompanied zip archive contains the schema in the file DASH-MPD.xsd. The schema will eventually be made available at the above URL.

with

The schema of the MPD for this document is provided at <https://standards.iso.org/iso-iec/23009/-1/ed-5/en> (DASH-MPD.xsd).

NOTE For the DAM ballot, the accompanied zip archive contains the schema in the file DASH-MPD.xsd. The schema will eventually be made available at the above URL.

Editor's Note: Several pull requests have been created to add the changes in this Amendment. Please check here and comment <https://github.com/MPEGGroup/DASHSchema/pulls>

Replace in Annex G

All examples documented in this annex are provided at <https://standards.iso.org/iso-iec/23009/-1/ed-4/en> with the following file naming convention:

example-G<subsection>[<order in subsection>].mpd

with

All examples documented in this annex are provided at <https://standards.iso.org/iso-iec/23009/-1/ed-5/en> with the following file naming convention:

example-G<subsection>[<order in subsection>].mpd

Replace in Annex G.11

NOTE: The example code is accessible here: <https://standards.iso.org/iso-iec/23009/-1/ed-4/en> (example_G11_remote.period.xml)

With

NOTE: The example code is accessible here: <https://standards.iso.org/iso-iec/23009/-1/ed-5/en> (example_G11_remote.period.xml)

Replace in Annex H.3

All examples documented in this Annex are provided at <https://standards.iso.org/iso-iec/23009/-1/ed-4/en> with the following file naming convention referring to H.3.

<subsection>: example-H<subsection>.mpd

With

All examples documented in this Annex are provided at <https://standards.iso.org/iso-iec/23009/-1/ed-5/en> with the following file naming convention referring to H.3.

<subsection>: example-H<subsection>.mpd

Replace in Annex I.2.1

The initial part of the XML schema of the URL Query Information is provided below, including namespace and other definitions. Specific types, elements and attributes are introduced in the remainder of this subclause. The complete normative URL Query Information schema is provided at <https://standards.iso.org/iso-iec/23009/-1/ed-4/en> (DASH-MPD-UP.xsd). In case of inconsistencies, this schema takes precedence both over the XML syntax snippets provided in this clause and all prose text in this document.

Implementors are supported by additional files available at: <https://standards.iso.org/iso-iec/23009/-1/ed-4/en>. These files include the schema as well as all examples provided in this annex.

with

The initial part of the XML schema of the URL Query Information is provided below, including namespace and other definitions. Specific types, elements and attributes are introduced in the remainder of this subclause. The complete normative URL Query Information schema is provided at <https://standards.iso.org/iso-iec/23009/-1/ed-5/en> (DASH-MPD-UP.xsd). In case of inconsistencies, this schema takes precedence both over the XML syntax snippets provided in this clause and all prose text in this document.

Implementors are supported by additional files available at: <https://standards.iso.org/iso-iec/23009/-1/ed-5/en>. These files include the schema as well as all examples provided in this annex.

3 Change 1: DASH Profile for CMAF

Add to 2 Normative References

ISO/IEC 23000-19, *Information technology — Multimedia application format (MPEG-A) — Part 19: Common media application format (CMAF) for segmented media*

Add to 4.7, Table 2

urn:mpeg:dash:profile:cmaf:2019	Error! Reference source not found.	Identifier for DASH Profile for CMAF content
---------------------------------	---------------------------------------	--

Replace in 5.3.3.3**Replace**

```
<xs:attribute name="segmentAlignment" type="xs:boolean" default="false"/>
<xs:attribute name="subsegmentAlignment" type="xs:boolean" default="false"/>
```

With

```
<xs:attribute name="segmentAlignment" type="ConditionalUintType" default="false"/>
<xs:attribute name="subsegmentAlignment" type="ConditionalUintType" default="false"/>
```

```
<!-- Conditional Unsigned Integer (unsignedInt or boolean) -->
<xs:simpleType name="ConditionalUintType">
  <xs:union memberTypes="xs:unsignedInt xs:boolean"/>
</xs:simpleType>
```

Add the following after clause 8.11:**8.X DASH Profile for CMAF content****8.X.1 General**

ISO/IEC 23000-19 defines a common media application format for segment media. The CMAF addressable media objects, also known as resources, may be delivered in a DASH Media Presentation.

Common Media Application Format (CMAF) content is generated independently of a manifest format and defines the structural format of CMAF tracks and relationships between these tracks. CMAF is built on the ISO BMFF file format and its Segments follow the ISO BMFF Segment constraints as defined in clause 6.2. In order to distribute CMAF content in DASH, this profile defines a normative mapping of CMAF structures to DASH structures. Using this mapping enables content to conform to both CMAF constraints and DASH requirements.

The DASH Profile for CMAF Content is identified by the URN "urn:mpeg:dash:profile:cmcf:2019". The profiles parameter may be present on different levels in the MPD.

The restrictions and requirements for this profile are documented in the remainder of this clause based on the CMAF content model defined in clause 8.X.2.

Note that this mapping is not the only possible mapping of CMAF content to DASH, but it is intended to enable the distribution of CMAF generated content in DASH in a consistent manner. The profile

may also be used to provide a manifest format for DASH content.

Such an MPD may also be used to store CMAF Resources and describe the relationship of the Resources.

8.X.2 CMAF Content Model for this Profile

8.X.2.1 Overview (Informative)

This clause introduces the main features of CMAF defines the relevant terms in order to map CMAF content to DASH Segments and provide the relevant MPD information.

The CMAF content model is shown in Figure 8.X-1. The following terms, which are defined in ISO/IEC 23000-19, are used in this clause:

- CMAF Presentation
- CMAF Selection Set
- CMAF Switching Set
- CMAF Track
- CMAF Header, CMAF Chunk, CMAF Fragment, CMAF Segment
- Decode times of samples
- Presentation times of samples

A sample is media data in a CMAF track associated with a single decode time and duration.

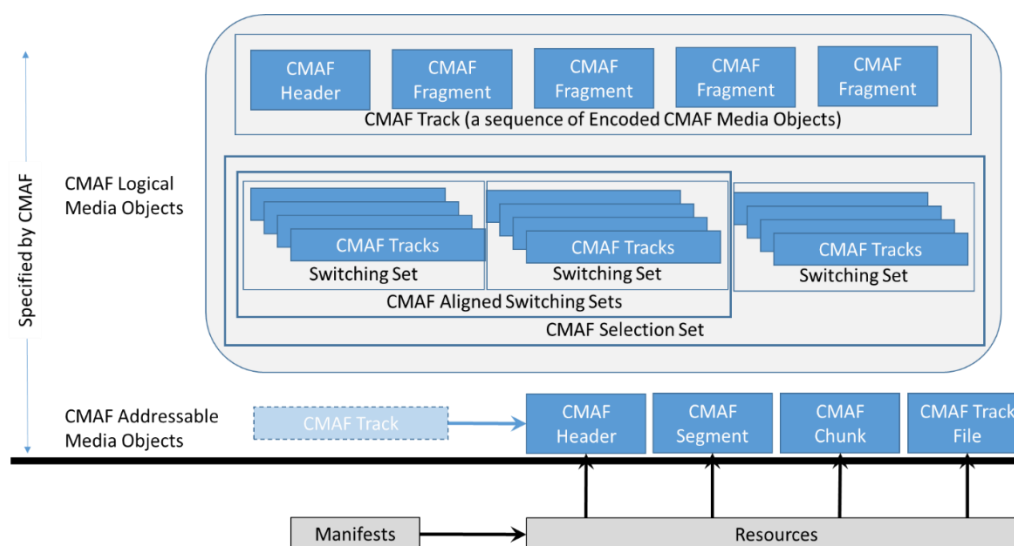


Figure 8.X-1 CMAF Content Model

8.X.2.2 CMAF Addressable Objects (Informative)

CMAF, as defined in ISO/IEC 23000-19, provides the following addressable objects:

- CMAF Track File
- CMAF Chunk
- CMAF Segment

CMAF Fragments and CMAF Chunks may be embedded in Segments. In the context of this standard,

Segments are the only addressable units, i.e. units with an assigned URL.

Note: In practical applications, CMAF Fragments and CMAF Chunks may be embedded in DASH Segments. In the context of this document, i.e. DASH, Segments are the addressable units, i.e. units with an assigned URL.

8.X.2.3 CMAF presentation timing model (Informative)

There are multiple timelines involved in the authoring, playout, and rendering CMAF tracks within a presentation.

- Each track is a sequence of timed samples. Each sample has a decode time and may also have a composition (display) time offset. Edit lists may be used to override the implicit direct mapping of the media timeline, into the timeline of the overall movie. The movie timeline is used to synchronize CMAF Tracks in a CMAF presentation and also serves as the synchronization source for playback in an HTML 5 media element and the media source.
- In addition, each CMAF Track may have assigned an anchor wall-clock time – e.g., UTC time. The wall clock time may be used to relate a presentation time of the track to wall-clock time, for example expressing the time when the corresponding sample was captured, encoded, or packaged.

In summary, three timelines exist and the signaling of the timeline in CMAF is summarized as follows:

- Decode time: The decode time of each CMAF chunk is provided as the `baseMediaDecodeTime` in a `TrackFragmentBaseMediaDecodeTimeBox`. This provides the decode time of the first sample in the CMAF chunk and the remaining decode times are derived from the sample durations in the `'traf'` box.
- Presentation time: The presentation time of each sample in a fragment is determined by the decode time of the sample and, if present, the composition offset and the track edit list (in the track header). The earliest presentation time in a CMAF Fragment maps the samples in the fragment to the movie timeline and is important for synchronization and switching. Note that the earliest presentation time of a CMAF Fragment may not be the presentation time of the first sample of the CMAF Fragment.
- Wall-clock time: By the use of a `ProducerReferenceTimeBox ('prtf')`, a sample with a specific decode time can be mapped to wall-clock time.

8.X.2.4 CMAF Track Data Model

In the context of this profile definition, the following definitions are relevant for CMAF Tracks. For each CMAF Track k ($k=1,\dots,K$) in a CMAF Switching Set, the following features are defined:

- CMAF Header $CH[k]$, $k=1,\dots,K$
- CMAF Fragments $CF[k,i]$, $i = 1, 2, 3, \dots N$, with
 - The position in the CMAF track: i
 - The earliest presentation time: $tf[k,i]$
 - The CMAF Fragment duration: $df[k,i] = tf[k,i+1] - tf[k,i]$
 - Wall-clock time assigned to the earliest presentation time of CMAF Fragment: $twc[k,i]$
 - CMAF Chunks $CC[k,i,j]$, $j = 1, 2, 3, \dots, C[i]$
 - Number of chunks in a fragment: C
 - Position in the fragment: j
 - Earliest decode time: $tc[k,i,j]$
 - CMAF chunk duration in decode times: $dc[k,i,j]$

- An edit list $EL[k]$ that may be present in the CMAF header describing the difference between the composition time and the presentation time (movie timeline) for this track in the CMAF Presentation.
- The earliest presentation time of the first fragment, i.e. $tf[k, i=1]$
- The duration of the CMAF Track is defined as $td[k]$ with $td[k]$ identical for each CMAF Track in one CMAF Switching Set.
- The CMAF Track has an assigned media profile, which includes:
 - CMAF media profile brand
 - Suitable MIME Type string providing
 - Media type
 - Codecs parameter
 - Profiles parameter
- The CMAF Track has samples $sample[k, s]$ with $s=1, \dots, S$, each with nominal presentation time $T[k, s]$.

8.X.2.5 CMAF Switching Set Model for this Specification

In the context of this profile definition, the following defines a CMAF Switching Set:

- A set of CMAF Tracks conforming to the conditions in clause 8.X.2.4.
- The CMAF Switching Set may contain a single CMAF Header for all CMAF Tracks or an individual CMAF Header for each CMAF Track.
- A Master CMAF Header CH^* . Either the single header or a Master CMAF Header assigned to the Switching Set CH^* .

From the definition of a CMAF Switching Set in ISO/IEC 23000-19, the following holds:

- All CMAF Tracks in a Switching Set conform to one media profile.
- One CMAF header is identified to be the “CMAF Master Header” which has the highest decoding requirements and as such can initialize a media pipeline for decoding any other track in the Switching Set. This header is referred as Master CMAF Header CH^* .
- The CMAF Header for each CMAF Track in a Switching Set is defined such that appending it to the track buffer does not result in a complete reinitialization of the decoding and rendering pipeline on common playback platforms.
- Each CMAF Track in a CMAF Switching Set has the same number of CMAF Fragments.
- The earliest decoding time of each CMAF Fragment at the same position i in different CMAF Tracks of a CMAF Switching Set are identical.
- The earliest presentation time of each CMAF Fragment at the same position i in different CMAF Tracks of a CMAF Switching Set are identical.
- The fragment duration of each CMAF Fragment at the same position in different CMAF Tracks or a CMAF Switching Set is identical.
- The duration of each CMAF track is identical $td[k]$ and defines the duration of the CMAF switching set as td

Note that the equalities above only hold for CMAF Fragments, not necessarily for CMAF Chunks.

8.X.3 Segment and Representation Constraints

If this profile applies to a Representation, then the following holds for this Representation:

- Each Media Segment of the Representation shall conform to a CMAF Addressable Media Object as defined in ISO/IEC 23000-19, clause 7.3.3 as well as to a Delivery Unit Media Segment as defined in clause 6.3.4.2.

- Each Initialization Segment, if present, shall conform to a CMAF Header as defined in ISO/IEC 23000-19, clause 7.3.2.1 as well as to an Initialization Segment as defined in clause 6.3.3.
- The Representation shall conform to a CMAF Track as defined in ISO/IEC 23000-19, clause 7.3.2.2.
- If every DASH segment conforms to CMAF Fragment constraints and if `@startWithSAP` is present, it shall be set to value 1 or 2.
- The `@timescale` shall be set to the `timescale` of the Media Header Box ('`mdhd`') of the CMAF track.
- If the **SegmentTimeline** element is present for this Representation, then the following holds
 - o For every CMAF Fragment i , with $i = 1, 2, 3, \dots N$, an entry in an **S** element shall be present with
 - `@t` set to earliest presentation time: $tf[k, i]$
 - `@d` set to CMAF Fragment duration: $df[k, i]$
 - If each chunk is an addressable object, then `@k` shall be set to the number of chunks in this CMAF Fragment $C[k, i]$ according to the Segment Sequence definition in clause 5.3.9.6.4.
 - If consecutive CMAF Fragments have the same duration, their corresponding **S** element should be combined to a single **S** element. .
- If the `@duration` attribute is present for this Representation and the value of the attribute is referred to as `dur`, then the following shall hold for each CMAF Fragment i , with $i = 1, 2, 3, \dots N$, the following shall hold:
 - $((i-1)+0.5)*dur \leq (tf[k, i+1]-tf[k, 1]) \leq (i+0.5)*dur$
- Event Message Streams may be signaled with **InbandEventStream** elements. For the placement of Event Message boxes, please refer to clause 5.10.
- If the media is contained in a Self-Initializing Segment, then
 - o the Segment shall conform to a CMAF Track file;
 - o the Segment shall conform to the Indexed self-initializing Media Segment as defined in clause 6.3.5.2 and exactly one Segment Index ('`sidx`') box shall be used and shall be placed before any Movie Fragment ('`moof`') boxes.
 - o The following applies for the Segment Index ('`sidx`')
 - The `reference_ID` shall be the `trackID` of the CMAF Track
 - The `timescale` shall be identical to the `timescale` of the Media Header Box ('`mdhd`') of the CMAF track.
 - The `reference_type` shall be set to 0.
 - the `earliest_presentation_time` is set to $tf[k, 1]$.
 - `reference_count` shall be set to the number of CMAF Fragments, N , in the CMAF Track
 - `starts_with_SAP` shall be set to 1, and `SAP_type` shall be set to 1 or 2.
 - `SAP_delta_time` shall be set to 0.
 - o Each CMAF Fragment shall be mapped to exactly one Subsegment as follows
 - The `subsegment_duration` is set to $df[k, i]$.

8.X.4 Adaptation Set Constraints

If this profile applies to an Adaptation Set, then the following holds for this Adaptation Set:

- The `@contentType` shall set to the `hdlr` type of the CMAF Master Header of the Switching Set, i.e. to `vide` -> `video`, `soun` -> `audio`, `subt/text` -> `text`
- The `@mimeType` shall be compatible to "`<contentType>/mp4, profiles='cmfc'`"

- The `@codecs` parameter shall be set to the sample entry of the CMAF Master Header
- If the Content is protected, then **ContentProtection** element shall be present and set appropriately:
 - o A **ContentProtection** element with `@schemeIdUri` equal to "urn:mpeg:dash:mp4protection:2011" and `@value` equal to `cenc` or `cbcs` depending on the encryption scheme used. It may contain a `@cenc:default_KID` attribute. If present, the value of this attribute shall match the `tenc box default_KID` value.
 - o At least one **ContentProtection** element with `@schemeIdUri` equal to a UUID value that signals that content keys can be obtained with a DRM system identified by the UUID. It may contain a `@cenc:default_KID` attribute and a `cenc:pssh` element. If present, the values shall match the `tenc box default_KID` value and the `moov box pssh` value respectively.
- If the `@contentType` is `video`, then the following should apply
 - o `@maxWidth` is set to the width in the CMAF TrackHeaderBox of the CMAF Master Header
 - o `@maxHeight` is set to the height in the CMAF TrackHeaderBox of the CMAF Master Header
- If the `@contentType` is `audio`, then no additional requirements apply.
- Each CMAF Track $k=1, \dots, K$ in the Switching Set shall be mapped to exactly one Representation as defined in clause 8.X.3.
- If the `@bitstreamSwitching` is set to `true` for this Adaptation Set, then the included CMAF Switching Set shall follow the "CMAF switching set single initialization constraints" of clause 7.3.4.2 in ISO/IEC 23000-19.
- Either the `@segmentAlignment` or `@subsegmentAlignment` shall be set.
- Event Message Streams may be signaled with **InbandEventStream** elements.

8.X.5 Period Constraints

If this profile applies to a Period, then the following holds for this Period:

- All Adaptation Sets set to the same integer value for `@segmentAlignment` or `@subsegmentAlignment` shall conform to aligned CMAF Switching Set constraints as defined in clause 7.3.4.4 in ISO/IEC 23000-19.
- Each Switching Set in the CMAF Presentation shall be mapped to exactly one Adaptation Set in the Period as defined in clause 8.X.4.
- Each Selection Set shall be mapped to exactly one Group as defined in clause 5.3.3. A Group shall conform to a Selection Set.
- The value of the `@presentationTimeOffset` in DASH shall be identical to the CMAF presentation time zero.
- The duration of a Period shall be at most be the duration of the contained CMAF presentation.

8.X.6 Media Presentation Description constraints

If this profile applies to a Media Presentation, then the following holds:

- Each Period in the MPD shall conform to the Period constraints in clause 8.X.5.
- If an Adaptation Set contained in a Period P2 includes period continuity signaling as defined in clause 5.2.3.4 referring to an Adaptation Set in another Period P1, and the Adaptation Set in P2 also includes a Representation with the same `@id` value as a Representation in the Adaptation Set in P1, then the concatenation of the two Representations without the Initialization Segment of the Representation in Period P2 shall form a conforming CMAF Track.

8.X.7 Conformance Considerations

If conformance for DASH content conforming to this CMAF media profile is done, then the following applies:

- The DASH content is checked against the format requirements of for the defined DASH profile
- In addition, the DASH content is also checked against CMAF conformance using the mapping as defined in clause 8.X.

Note: A content conforming to this profile is expected to conform to both, the DASH content constraints as well as the to the CMAF constraints.

Add the following at end of Annex G:

G.19 DASH Profile for CMAF

```
<?xml version="1.0"?>
<MPD
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns="urn:mpeg:dash:schema:mpd:2011"
  xsi:schemaLocation="urn:mpeg:dash:schema:mpd:2011 DASH-MPD.xsd"
  type="static"
  mediaPresentationDuration="PT24S"
  availabilityStartTime="2014-10-17T17:17:05Z"
  minBufferTime="PT4S"
  profiles="urn:mpeg:dash:profile:cmcf:2019,urn:mpeg:dash:profile:isoff-live:2011">

  <Period id="1">
    <!-- Video -->
    <AdaptationSet
      contentType="video"
      id="1"
      mimeType="video/mp4 profiles='cmcf'"
      codecs="avc1.4D401F"
      maxWidth="1080"
      maxHeight="720"
      maxFrameRate="30"
      segmentProfiles="cmfs,cmff"
      segmentAlignment="true"
      startWithSAP="1">
      <SegmentTemplate timescale="30" initialization="$RepresentationID$/0"
media="$RepresentationID$/Number$"
        <SegmentTimeline>
          <S t="0" d="120" r="5"/>
        </SegmentTimeline>
      </SegmentTemplate>
      <Representation id="video1/1" bandwidth="250000"/>
      <Representation id="video1/2" bandwidth="500000"/>
      <Representation id="video1/3" bandwidth="1000000"/>
    </AdaptationSet>
    <!-- Audio -->
    <AdaptationSet
      contentType="audio"
      id="1"
      mimeType="audio/mp4 profiles='cmcf'"
      codecs="mp4a.40.5"
      segmentProfiles="cmfs,cmff"
      segmentAlignment="true"
      startWithSAP="1">
      <SegmentTemplate timescale="48" initialization="$RepresentationID$/0"
```

```
media="$RepresentationID$/$Number$">
    <SegmentTimeline>
        <S t="0" d="120" r="5"/>
    </SegmentTimeline>
</SegmentTemplate>
<Representation id="audio1/1" bandwidth="2500"/>
<Representation id="audio1/2" bandwidth="500000"/>
</AdaptationSet>
</Period>
</MPD>
```