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Information technology — Coding of audio-visual objects —

Part 4: Conformance testing

AMENDMENT 2: MPEG-4 conformance extensions for XMT and media nodes

Technologies de l'information — Codage des objets audiovisuels —

Partie 4: Essai de conformité

AMENDEMENT 2: Extensions de conformité pour XMT et nœuds médias

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Foreword

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Information technology — Coding of audio-visual objects —

Part 4: Conformance testing

AMENDMENT 2: MPEG-4 conformance extensions for XMT and media nodes

Add the following text at the end of Clause 4.

4.9 Extensible MPEG-4 Textual Format (XMT)

4.9.1 Conformance Points

XMT-A conformance points are:

- The XMT language: XMT-A ,
- SDSM and ODSM in mp4 produced from the XMT-A to mp4.

XMT-O conformance points are:

- The XMT language : XMT-O,
- SDSM and ODSM in mp4 produced from the XMT-O to mp4,
- Consumer behavior.

4.9.2 Measurement Procedure

XMT-A conformance can be measured by the following procedure:

1. Conformance on the format :
   - Validate the syntax by the XML Schema parser against the XMT-A Schema
   - Encode the format with a conforming encoder to mp4 and check its conformance.
2. Conformance on encoders: (A conforming encoder, respecting encoding hints, can produce a deterministically coded binary stream for streams defined in MPEG-4 systems).
   - Maintain a set of test cases and their corresponding bit streams (mp4 files) generated by the conforming encoder.
   - Test encoder generates mp4 files from the test cases.
   - Run smart diff tool in mp4 space against mp4 files pair-wise. SDSM and ODSM in mp4 are conformance points. Note: it's not necessarily the same mp4 file.

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XMT-O conformance can be verified by the following procedure:

1. Conformance on the format:
   - Validate the syntax by the XML Schema parser against the XMT-A Schema
   - Encode the format with a conforming encoder to mp4 and check its conformance.
2. Conformance on encoders: (consumer behavior is verified).
   - Maintain a set of test cases and their corresponding bit streams (mp4 files) generated by the conforming encoder.
   - Test encoder generates mp4 files from the test cases.
   - Play mp4 files pair-wise by the conforming player and check visual differences.
     - there should be no frame difference ideally
     - there should be no visual difference practically

4.10 MediaSensor

4.10.1 Bitstream conformance

4.10.1.1 Conformance Requirements

BIFS streams shall comply with the specifications in Clause 9 of ISO/IEC 14496-1:2001.

4.10.1.2 Measurement procedure

Syntax of the BIFS stream shall meet the requirements of Clause 9 of ISO/IEC 14496-1:2001.

4.10.1.3 Tolerance

There is no tolerance for bitstream syntax checking. The diagnosis is pass or fail.

4.10.2 Terminal conformance

4.10.2.1 Conformance Points

MediaSensor conformance points are defined in the **MediaSensor** node by its fields. The **mediaCurrentTime**, **streamObjectStartTime**, **mediaDuration**, and **info** fields may not contain any valid information if the media time of the media in the **url** field is not known.

4.10.2.2 Measurement Procedure

The terminal shall produce formatted output each time a media node that references the same stream as a MediaSensor node become active. The output is to include:

- The stream object.
- The mediaCurrentTime, streamObjectStartTime, mediaDuration, and info. The times are given in seconds.

Further, the terminal shall then output the mediaCurrentTime for each AU in the stream object.

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4.10.2.3 Output Format

The output format is in XML. An example is:

```
<MediaSensor url="od:4" mediaCurrentTime="0"
                        streamObjectStartTime="1021"
                mediaDuration="1200"
                        info="MPEG News Segment"/>
<mediaCurrentTime time="0.016"/ >
<mediaCurrentTime time="0.032"/ >
<mediaCurrentTime time="0.048"/ > . . . . .
```

4.10.2.4 Tolerance

The conformance is passed when the time values reflect the correct media Time, as defined in ISO/IEC 14496-1:2001.

4.11 MediaControl

4.11.1 Bitstream conformance

4.11.1.1 Conformance Requirements

BIFS streams shall comply with the specifications in Clause 9 of ISO/IEC 14496-1:2001.

4.11.1.2 Measurement procedure

Syntax of the BIFS stream shall meet the requirements of Clause 9 of ISO/IEC 14496-1:2001.

4.11.1.3 Tolerance

There is no tolerance for bitstream syntax checking. The diagnosis is pass or fail.

4.11.2 Terminal conformance

4.11.2.1 Conformance Points

MediaControl conformance points the following:

- The **mediaStartTime** and **mediaStopTime** of the delivered stream object shall conform to the definition of these fields in the node.
- The **enabled** flag shall be set to true in the last set node and false in all others refering to the same stream.
- The **mute** field shall cause the rendering to stop.

It is important to note that **preRoll** and **mediaSpeed** are ‘best effort’ mechanisms that do not constitute conformance points.

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4.11.2.2 Measurement Procedure

The terminal shall produce formatted output each time a media node that references the same stream as a MediaSensor node become active. The output is to include:

- The stream object.
- The mediaCurrentTime for the stream for each AU in the stream object.
- The state of the enabled field.
- The state of the mute field.

4.11.2.3 Output Format

The output format is in XML. An example is:

<mediaCurrentTime time="0.016" enabled= " TRUE" mute=" FALSE"/ >
<mediaCurrentTime time="0.032" enabled= " TRUE" mute=" FALSE"/ >
<mediaCurrentTime time="0.048" enabled= " TRUE" mute=" TRUE"/ > . . . . .

4.11.2.4 Tolerance

The conformance is passed when the time values reflect the correct media Time, as defined in ISO/IEC 14496-1:2001. The rendering functionality must be observed visually.

4.12 MediaBuffer

4.12.1 Bitstream conformance

4.12.1.1 Conformance Requirements

BIFS streams shall comply with the specifications in Clause 9 of ISO/IEC 14496-1:2001

4.12.1.2 Measurement procedure

Syntax of the BIFS stream shall meet the requirements of Clause 9 of ISO/IEC 14496-1:2001.

4.12.1.3 Tolerance

There is no tolerance for bitstream syntax checking. The diagnosis is pass or fail.

4.12.2 Terminal conformance

4.12.2.1 Conformance Points

MediaBuffer conformance points the following:

- The buffer size used to store incoming media samples.
- The ability to substitute media samples from the buffer rather than from the server, when appropriate.

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4.12.2.2 Measurement Procedure

The terminal shall produce formatted output giving the buffer size for stream objects. The terminal shall produce the same output as for MediaControl, but indicate that the source is from the local buffer when this is the case.

4.12.2.3 Output Format

The output format is in XML. An example is:

```
<mediaBuffer  bufferSize="65535"/ >
<bufferedData>
        <mediaCurrentTime time="0.016" enabled= " TRUE"  mute=" FALSE"/ >
        <mediaCurrentTime time="0.032" enabled= " TRUE"  mute=" FALSE"/ >
        <mediaCurrentTime time="0.048" enabled= " TRUE"  mute=" TRUE"/ > . . . . .
</bufferedData>
```

4.12.2.4 Tolerance

The conformance is passed when the buffer can provide media samples as needed and is sufficiently large to hold all the media object requested.

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