INTERNATIONAL STANDARD

ISO/IEC 14496-4

Second edition
2004-12-15

AMENDMENT 32
2009-04-01

Information technology — Coding of audio-visual objects —

Part 4: Conformance testing

AMENDMENT 32: Frame-based Animated Mesh Compression conformance

Technologies de l'information — Codage des objets audiovisuels —

Partie 4: Essai de conformité

AMENDEMENT 32: Conformité de compression de maille animée basée sur un cadre

Reference number
ISO/IEC 14496-4:2004/Amd.32:2009(E)

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Foreword

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Amendment 32 to ISO/IEC 14496-4:2004 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

ISO/IEC 14496-16 introduced several animation models as methods of deforming a mesh. This Amendment deals with conformance of the FAMC (Frame-based Animated Mesh Compression) tool.

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Information technology — Coding of audio-visual objects —

Part 4: Conformance testing

AMENDMENT 32: Frame-based Animated Mesh Compression conformance

After 8.5.16, add the following new subclause:

8.5.17 Frame-based Animated Mesh Compression (FAMC)

8.5.17.1 Conformance Points

8.5.17.1.1 Covered functionalities

The conformance points for FAMC cover

- The compression of different attributes per vertex,
- Different compression configurations (DCT, Lift, Layer-based Decomposition) and possible combinations between,
- CABAC-based arithmetic encoding,
- Temporal, spatial and SNR scalability.

The following subclauses specify the normative tests for verifying conformance of FAMC. Those normative tests make use of test data (bitstream test suites).

FAMC is using the BitWrapper node in a separate bitstream referred by a url.

The following subclauses specify the normative tests for verifying conformance of FAMC compressed bitstreams and FAMC decoder. Those normative tests make use of test data (bitstream test suites).

8.5.17.2 Bitstream conformance

8.5.17.2.1 Conformance Requirements

BIFS streams shall comply with the specifications in 4.3.6 of ISO/IEC 14496-16:2004/Amd.2 and BitWrapper in ISO/IEC 14496-11.Measurement procedure.

8.5.17.2.2 Tolerance

BIFS streams shall comply with the specifications in 4.3.6 of ISO/IEC 14496-16:2004/Amd.2 and BitWrapper in ISO/IEC 14496-11.

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8.5.17.3 Terminal conformance

8.5.17.3.1 Conformance Requirements

A compliant decoder shall implement a decoding process that is equivalent to the one specified in ISO/IEC 14496-16:2004/Amd.2 and meets all the general requirements, defined in the document, which apply for the functionalities considered. The decoder shall decode bitstreams with any options or parameters with values permitted for the functionalities. In the case of using BIFS for scene representation, the decoding process specified in ISO/IEC 14496-1:2004 shall also be implemented.

8.5.17.3.2 Test Bitstreams

Files:

Test Name	Attribute	Bitstream (.mp4)	Reference file (.wrl)
DCT_Troll	DCT-based decoding of an animation with time varying geometry and normals Encoding parameters described in "\MPEG-4\Test\AFX\FAMC\Troll\DCT\NoScalability\troll_Encoding_log.txt"	\MPEG-4\Test\AFX\FAMC\Troll\DCT\NoScalability\troll-url.mp4	\MPEG-4\Test\AFX\FAMC\Troll\OriginalAnimation\troll_#.wrl
DCT_Quality_Scalability_Troll	Quality scalable DCT-based decoding of an animation with time varying geometry and normals Encoding parameters described in "\MPEG-4\Test\AFX\FAMC\Troll\DCT\QualityScalability\troll_Encoding_log.txt"	\MPEG-4\Test\AFX\FAMC\Troll\DCT\QualityScalability\troll-url.mp4	\MPEG-4\Test\AFX\FAMC\Troll\OriginalAnimation\troll_#.wrl
LIFT_Troll	LIFT-based decoding of an animation with time varying geometry and normals Encoding parameters described in "\MPEG-4\Test\AFX\FAMC\Troll\LIFT\NoScalability\troll_Encoding_log.txt"	\MPEG-4\Test\AFX\FAMC\Troll\LIFT\NoScalability\troll-url.mp4	\MPEG-4\Test\AFX\FAMC\Troll\OriginalAnimation\troll_#.wrl
LIFT_Quality_Scalability_Troll	Quality scalable LIFT-based decoding of an animation with time varying geometry and normals Encoding parameters described in "\MPEG-4\Test\AFX\FAMC\Troll\LIFT\QualityScalability\troll_Encoding_log.txt"	\MPEG-4\Test\AFX\FAMC\Troll\LIFT\QualityScalability\troll-url.mp4	\MPEG-4\Test\AFX\FAMC\Troll\OriginalAnimation\troll_#.wrl
LD_NoScalability_Troll	Non-scalable decoding of an animation with time varying geometry and normals using LD LD-based encoded bit stream without scalability (one spatial layer, I and P-frames). Encoding parameters described in	MPEG-4\Test\AFX\FAMC\Troll\LD\NoScalability\troll-url.mp4	\MPEG-4\Test\AFX\FAMC\Troll\OriginalAnimation\troll_#.wrl

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Test Name	Attribute	Bitstream (.mp4)	Reference file (.wrl)
	"MPEG-4\Test\AFX\FAMC\Troll\LD\NoScalability\troll_Encoding_log.txt"		
LD_SpatialScalability_Troll	Spatially scalable decoding of an animation with time varying geometry and normals using LD. LD-based encoded bit stream with spatial scalability (16 spatial layers, I and P-frames). Encoding parameters described in "\MPEG-4\Test\AFX\FAMC\Troll\LD\Spatial_Scalability\troll_Encoding_log.txt"	\MPEG-4\Test\AFX\FAMC\Troll\LD\Spatial_Scalability\troll-url.mp4	\MPEG-4\Test\AFX\FAMC\Troll\OriginalAnimation\troll_#.wrl
LD_SpatialAndTemporalScalability_Troll	Spatially and temporally scalable decoding of an animation with time varying geometry and normals using LD. LD-based encoded bit stream with spatial and temporal scalability (16 spatial layers, I, P and (hierarchical) B-frames). Encoding parameters described in "MPEG-4\Test\AFX\FAMC\Troll\LD\Spatial&Temporal_Scalability\troll_Encoding_log.txt"	MPEG-4\Test\AFX\FAMC\Troll\LD\Spatial&Temporal_Scalability\troll-url.mp4	\MPEG-4\Test\AFX\FAMC\Troll\OriginalAnimation\troll_#.wrl
DCT_LD_SpatialAndQualityScalability_Troll	Spatial and quality scalable DCT-LD-based decoding of an animation with time varying geometry and normals Encoding parameters described in "MPEG-4\Test\AFX\FAMC\Troll\DCT+LD\Spatial&QualityScalability\troll_Encoding_log.txt"	\MPEG-4\Test\AFX\FAMC\Troll\DCT+LD\Spatial&QualityScalability\troll.mp4	\MPEG-4\Test\AFX\FAMC\Troll\OriginalAnimation\troll_#.wrl
Lift_LD_SpatialAndQualityScalability_Troll	Spatial and quality scalable Lift-LD-based decoding of an animation with time varying geometry and normals Encoding parameters described in "MPEG-4\Test\AFX\FAMC\Troll\Lift+LD\Spatial&QualityScalability\troll_Encoding_log.txt"	\MPEG-4\Test\AFX\FAMC\Troll\Lift+LD\Spatial&QualityScalability\troll.mp4	\MPEG-4\Test\AFX\FAMC\Troll\OriginalAnimation\troll_#.wrl

8.5.17.3.3 Measurement Procedure

The terminal should produce a formatted output giving a temporal sequence of IndexedFaceSet structure. The decoder shall be able to decode the bitstreams provided as described in 8.5.17.4.2.

8.5.17.3.4 Tolerance

The diagnosis is to check whether the field data (vertex attributes) of the IndexedFaceSet sequence that is decoded from ".mp4" files correspond with the sequence included in the provided reference "*_#.wrl" files (e.g. "troll_0.wrl" to "troll_35.wrl").

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