

ISO/IEC 14496-4:2004-12 (E)

Information technology - Coding of audio-visual objects - Part 4: Conformance testing

Contents		Page
Foreword		vii
Introduction		viii
1	Scope	1
2	Normative references	1
3	Terms and definitions	2
4	Systems	3
4.1	Conformance Points	3
4.1.1	FlexMux Conformance Point	4
4.1.2	Sync Layer Conformance Point	4
4.1.3	OD Conformance Point	4
4.1.4	BIFS Conformance Point	4
4.1.5	OCI Conformance Point	4
4.1.6	IPMP Conformance Point	4
4.1.7	Scene Graph Conformance Point	4
4.2	Bitstream Conformance	4
4.2.1	FlexMux Conformance	5
4.2.2	Synchronization Layer Conformance	5
4.2.3	OD Conformance	5
4.2.4	BIFS Conformance	5
4.2.5	OCI Conformance	5
4.2.6	IPMP Conformance	6
4.2.7	Miscellaneous Conformance	6
4.3	Terminal Conformance	6
4.3.1	FlexMux conformance	7
4.3.2	Synchronization Layer Conformance	7
4.3.3	OD Conformance	10
4.3.4	BIFS Conformance	13
4.3.5	OCI Conformance	14
4.3.6	IPMP Conformance	14
4.3.7	Scene Graph Conformance	14
4.3.8	Miscellaneous Conformance	15
4.4	Test material and test suites	15
4.4.1	Parsing Hint File Format	16
4.4.2	Scene Dump File Format	18
4.4.3	Test Suites	20
4.5	Advanced BIFS	27
4.5.1	Bitstream conformance	27
4.5.2	Terminal conformance	27
4.6	MPEG-J	28
4.6.1	MPEG-J Conformance Points	28
4.6.2	Bitstream Conformance	29
4.6.3	Terminal Conformance	29
4.7	MP4 File Format	30
4.7.1	Writing	30
4.7.2	Reading	31

5	Visual	31
5.1	Introduction	31
5.2	Definition of visual bitstream compliance	32
5.2.1	Requirements and restrictions related to profile-and-level	32
5.2.2	Additional restrictions on bitstream applied by the encoder	32
5.2.3	Encoder requirements and recommendations	32
5.3	Procedure for testing bitstream compliance	33
5.4	Definition of visual decoder compliance	34
5.4.1	Requirement on arithmetic accuracy in video objects (without IDCT)	34
5.4.2	Requirement on arithmetic accuracy in video objects (with IDCT)	35
5.4.3	Requirement on arithmetic accuracy in scalable still texture object (without IDWT)	35
5.4.4	Requirement on arithmetic accuracy in scalable still texture (with IDWT)	36
5.4.5	Requirement on output of the decoding process and timing	36
5.4.6	Recommendations	36
5.5	Procedure to test decoder compliance	36
5.5.1	Static tests	36
5.5.2	Dynamic tests	37
5.5.3	Specification of the test bitstreams	37
5.5.4	Implementation of the static test	51
5.5.5	Implementation of the dynamic test	52
5.5.6	Decoder conformance	52
5.5.7	Normative Test Suites for Simple, Simple Scalable, Core, Main and N-Bit profile	52
5.5.8	Bitstream Donated by MPEG-4 Platform Verification Bitstream Development Project	55
5.6	Additional Conformance Testing	63
5.6.1	Specification of the test bitstreams	63
5.6.2	Normative Test Suites for Advanced Real-Time Simple (ARTS), Core Scaleable, Advanced Coding Efficiency (ACE), Advanced Core (AC) and Advanced Scaleable Texture profiles	78
6	Audio	84
6.1	Terms and Definitions	84
6.2	Introduction	84
6.3	Audio Conformance Points	85
6.4	Audio Profiles	86
6.5	Conformance data	86
6.5.1	File name conventions	86
6.5.2	Content	88
6.6	Audio Object Types	88
6.6.1	General	88
6.6.2	Null	94
6.6.3	AAC-based scalable configurations	94
6.6.4	AAC (main, LC, ER LC, SSR, LTP, ER LTP, ER LD, scalable, ER scalable)	95
6.6.5	TwinVQ and ER_TwinVQ	112
6.6.6	ER BSAC	115
6.6.7	CELP	119
6.6.8	ER CELP	123
6.6.9	HVXC	127
6.6.10	ER HVXC	137
6.6.11	ER HILN and ER Parametric	139
6.6.12	TTSI	153
6.6.13	General MIDI	155
6.6.14	Wavetable Synthesis	155
6.6.15	Algorithmic Synthesis and AudioFX	156
6.6.16	Main Synthetic	162
6.7	Audio EP tool	163
6.7.1	Compressed data	163
6.7.2	Decoders	165
6.8	Audio Composition	170
6.8.1	Introduction	170
6.8.2	Common Audio Composition Characteristic	172
6.8.3	AudioSource and Sound2D	173
6.8.4	AudioSource and Sound	175

6.8.5	AudioSwitch	175
6.8.6	AudioMix and Sampling Rate Conversion	176
6.8.7	AudioFX	177
6.9	MPEG-4 audio transport stream	177
6.9.1	Compressed Data	178
6.9.2	Decoders	178
6.10	Upstream	179
6.10.1	Compressed data	179
6.10.2	Decoders	179
6.11	Advanced Audio BIFS nodes	179
6.11.1	Introduction	179
6.11.2	Composition Unit Inputs	180
6.11.3	Compositor Output	180
6.11.4	Physical Approach	180
6.11.5	Perceptual Approach	191
6.12	Conformance test sequence assignment to profiles and levels	202
6.12.1	Audio	203
6.12.2	Systems	210
7	DMIF	213
7.1	Introduction	213
7.2	The PICS	214
7.2.1	Global statement of conformance	214
7.2.2	DMIF-Application Interface	214
7.3	The Conformance ATS	224
7.3.2	ATS for DAI in Remote Interactive Scenarios	225
7.3.3	ATS for DAI in Local Storage Scenarios	226
7.3.4	ATS for DAI in Broadcast Scenarios	231
8	SNHC	235
8.1	Introduction	235
8.1.1	Purpose & Scope	236
8.1.2	Intended Use of Decoders	236
8.1.3	What Is To Be Tested	236
8.2	Body Animation	236
8.2.1	Simple FBA Profile	236
8.2.2	FBA Conformance Points	237
8.2.3	FBA Testing Conditions	238
8.3	3D Mesh Coding	242
8.3.1	Conformance Points	243
8.3.2	Bitstream Conformance	243
8.3.3	Decoder Conformance	244
Annex A (informative) Sample Bank Format (SASBF) compliance testing and materials		250
Annex B (informative) Complexity measurement criteria and tool for level definitions of algorithmic synthesis and AudioFX Object Type		273
Annex C (Informative) Test bitstreams for the CELP object type		292
Annex D (informative) Patent statements		295
Annex E (informative) Revised Text for Agreement with Sun Microsystems		297
Bibliography		298