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Information technology — Coding of audio-visual objects —

Part 4: Conformance testing

AMENDMENT 5: Conformance extensions for error-resilient simple scalable profile

Technologies de l'information — Codage des objets audiovisuels —
Partie 4: Essai de conformité
AMENDEMENT 5: Extensions de conformité pour profil «error-resilient simple scalable»

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Foreword

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The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

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Amendment 5 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*.

Introduction

In ISO/IEC 14496-2:2004, the bitstream syntax of the Simple Scalable Profile does not allow the use of the error resilience tools. As the enhancement layer can only be decoded if it is received error-free this limits the use of scalable video to error-free communication environments. This would exclude mobile communications, a significant future market for MPEG-4 SSP.

Scalable video can be quite useful in many other applications. For instance, matching different or varying network bandwidths, video multicast to heterogeneous end systems and more importantly, providing different subjective quality of video content to subscribers of a given video service depending on their network tariffs and viewing preferences.

As such a set of bitstreams which should be used for conformance testing of MPEG-4 Error Resilient Simple Scalable Profile is proposed.

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Part 4:
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AMENDMENT 5: Conformance extensions for error-resilient simple scalable profile

Add the following to 5.5.3.1:

5.5.3.1.36 Test bitstream #L0bGE-1

Specification: This bitstream tests dynamic performance of the decoder. It puts stress on a decoder at Level L0b of the Simple Profile. It has a bitrate close to the maximum allowed at Level L0b. It utilizes extensively the maximum allowed VBV buffer size. The default values are used for the VBV parameters vbv_buffer_size and vbv_occupancy, as defined in Annex D of ISO/IEC 14496-2 "Video buffering verifier".

Functional stage: Prediction bandwidth

Add the following subclauses after 5.5.3.3, and change the subclause numbers after those subclauses accordingly:

5.5.3.4 Conformance test conditions for Error Resilient Simple Scalable Profile

For the ERSSP object the following functional tests have to be applied for testing of decoder conformance.

Test Bitstreams

5.5.3.4.1 Test bitstream #A6-GE13

Specification: Temporal scalability with P-VOP in the enhancement layer. Base layer is CIF, 10 FPS, 10 P frames between I frames, quantizer value is 8, and resync marker every 24000 bits. The enhancement layer is CIF, 10 FPS, P frames only, quantizer value is 8, and resync marker is every 24000 bits. Total number of frames is 295.

Functional stage: temporal scalability with P-VOP

5.5.3.4.2 Test bitstream #A6-GE14

Specification: Temporal scalability with P-VOP in the enhancement layer and data partitioning. Base layer is CIF, 10 FPS, 10 P frames between I frames, quantizer value is 8, and resync marker every 24000 bits. The enhancement layer is CIF, 10 FPS, P frames only, quantizer value is 8, and resync marker is every 24000 bits. Total number of frames is 295.

Functional stage: temporal scalability with P-VOP and data partitioning

5.5.3.4.3 Test bitstream #A6-GE15

Specification: Temporal scalability with B-VOP in the enhancement layer. Base layer is CIF, 10 FPS, 10 P frames between I frames, quantizer value is 8, and resync marker every 17000 bits. The enhancement layer is CIF, 10 FPS, P frames only, quantizer value is 8, and resync marker is every 10000 bits. Total number of frames is 159 frames.

Functional stage: temporal scalability with B-VOP

5.5.3.4.4 Test bitstream #A6-GE16

Specification: Spatial scalability with P-VOP in the enhancement layer. Base layer is QCIF, 10 FPS, 10 P frames between I frames, quantizer value is 8, and resync marker every 500 bits. The enhancement layer is CIF, 10 FPS, P frames only, quantizer value is 8, and resync marker is every 1500 bits. Total number of frames is 60 frames.

Functional stage: spatial scalability with P-VOP

5.5.3.4.5 Test bitstream #A6-GE17

Specification: Spatial scalability with P-VOP in the enhancement layer and data partitioning. Base layer is QCIF, 10 FPS, 10 P frames between I frames, quantizer value is 8, and resync marker every 500 bits. The enhancement layer is CIF, 10 FPS, P frames only, quantizer value is 8, and resync marker is every 1500 bits. Total number of frames is 60 frames.

Functional stage: spatial scalability with P-VOP and data partitioning

5.5.3.4.6 Test bitstream #A6-GE18

Specification: Spatial scalability with B-VOP in the enhancement layer. Base layer is QCIF, 10 FPS, 10 P frames between I frames, quantizer value is 8, and resync marker every 500 bits. The enhancement layer is CIF, 10 FPS, B frames only, quantizer value is 8, and resync marker is every 1500 bits. Total number of frames is 60 frames.

Functional stage: spatial scalability with B-VOP

In 5.5.7, add the following Table after Table 10:

Table AMD5-1 — Normative Test Suites for Error Resilient Simple Scalable profile

NOTE Each row represents a single bitstream.

Legend:

S – Bitstream is intended for functional test

D – Bitstream is intended for dynamic test

X – Bitstream is for functional and dynamic test

Categories	Bitstream	Donated by	Bitstreams Name	Simple				Error Resilient Simple Scalable		
				L0b	L1	L2	L3	L0	L1	L2
Scalability	SCS-1	Sony	vcon-scs1.bits		S	S	S			
	SCS-1_e	Sony	vcon-scs1_e.bits						S	S
	SCS-2	Sony	vcon-scs2.bits		S	S	S			
	SCS-2_e	Sony	vcon-scs2_e.bits						S	S
	SCS-3	Sony	vcon-scs3.bits		S	S	S			
	SCS-3_e	Sony	vcon-scs3_e.bits						S	S
	SCS-4	Sharp	vcon-scs4.cmp		S	S	S			
	SCS-4_e	Sharp	vcon-scs4_e.cmp						S	S
	SCS-5	Sharp	vcon-scs5.cmp		S	S	S			
	SCS-6_e	Sharp	vcon-scs5_e.cmp						S	S
	SCS-6	Sharp	vcon-scs6.cmp		S	S	S			
	SCS-6_e	Sharp	vcon-scs6_e.cmp						S	S
	SCS-7	Sharp	vcon-scs7.bits		S	S	S			
	SCS-7_e	Sharp	vcon-scs7_e.bits						S	S
	SCS-8	Sony	vcon-scs8.bits		D					
	SCS-8_e	Sony	vcon-scs8_e.bits						D	
	SCS-9	Sony	vcon-scs9.bits			D				
	SCS-9_e	Sony	vcon-scs9_e.bits							D
	SCS-10	Sharp	vcon-scs10.cmp		D					
	SCS-10_e	Sharp	vcon-scs10_e.cmp						D	
	SCS-11	Sharp	vcon-scs11.cmp			D				
	SCS-11_e	Sharp	vcon-scs11_e.cmp							D
	SCS-12	PacketVideo	pv_scs12.bits					X		
	SCS-12_e	PacketVideo	pv_scs12_e.bits					X		
	SCS-13	PacketVideo	pv_scs13.bits					X		
	SCS-13_e	PacketVideo	pv_scs13_e.bits					X		
	SCS-14	PacketVideo	pv_scs14.bits					X		
	SCS-14_e	PacketVideo	pv_scs14_e.bits					X		
	SCS-15	PacketVideo	pv_scs15.bits					X		
	SCS-15_e	PacketVideo	pv_scs15_e.bits					X		
	A6-GE13	IBM	ibm_mobile_1.cmp						X	X
	A6-GE13_e	IBM	ibm_mobile_1_e.cmp						X	X
	A6-GE14	IBM	ibm_mobile_2.cmp						X	X
	A6-GE14_e	IBM	ibm_mobile_2_e.cmp						X	X
	A6-GE15	IBM	ibm_tempete.cmp						X	X
	A6-GE15_e	IBM	ibm_tempete_e.cmp						X	X
	A6-GE16	Motorola	motorola_akiyo.cmp					X	X	X
	A6-GE16_e	Motorola	motorola_akiyo_e.cmp						X	X
	A6-GE17	Motorola	motorola_news.cmp					X	X	X
	A6-GE17_e	Motorola	motorola_news_e.cmp						X	X
	A6-GE18	Motorola	motorola_stefan.cmp					X	X	X
	A6-GE18_e	Motorola	motorola_stefan_e.cmp						X	X
General	L0bGE-1	Nokia	nokia_l0bge1.bits	X						

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