

**INTERNATIONAL ORGANISATION FOR STANDARDISATION  
ORGANISATION INTERNATIONALE DE NORMALISATION  
ISO/IEC JTC 1/SC 29/WG 11  
CODING OF MOVING PICTURES AND AUDIO**

ISO/IEC JTC 1/SC 29/WG 11 **N2905**

**October 1999**

**Source:** Leonardo Chiariglione – Convenor  
**Title:** Report of 49th WG 11 meeting  
**Status:**

## **1 Opening**

The 49<sup>th</sup> MPEG meeting was held in Melbourne 99/10/04-08 at the kind invitation of Standards Australia, the Australian National Body. Mr. David Bruce-Steer welcomed the delegates on behalf of the hosting organisation.

## **2 Roll call of participants**

Annex 1 gives the list of participants.

## **3 Approval of agenda**

The approved agenda is given in Annex 2.

## **4 Allocation of contributions**

The list of contributions is given in Annex 3

## **5 Communications from Convenor**

There was no specific communication made

## **6 Report of previous meetings**

No report was approved. The Convenor did not receive the report from one Subgroup Chair.

## **7 Processing of NB Position Papers**

Papers from the NBs of BE, CH, FR, JP, KR, NL, US were received and processed.

## **8 MPEG Phase 2**

### **8.1 MPEG-2 parts**

No work was done on MPEG-2 parts

### **8.2 Verification of MPEG-2**

No further information was received on MPEG-2 verification test results

### **8.3 Amendments**

The following amendments were processed: 13818-2 FDAM 6 (N2911), 13818-4 FDAM 2 (N2915), 13818-4/FDAM 3 (N2913), 13818-6 FPDAM 1.2 (N2917)

### **8.4 Corrigenda**

No corrigenda were dealt with

## **8.5 Workplan**

This was approved.

## **9 MPEG Phase 4**

### **9.1 Version 1**

#### **9.1.1 Final Draft International Standard**

Work to fine tune the reference software was made.

#### **9.1.2 Verification Tests**

No results were brought to the meeting

#### **9.1.3 Quality of service**

Results on SNHC QoS were considered.

#### **9.1.4 Conformance Testing**

Studies of the current FCD under ballot were made

### **9.2 Version 2**

#### **9.2.1 Patent statements**

A new call for statements was issued

#### **9.2.2 Requirements**

Requirements were reviewed

#### **9.2.3 Tools**

#### **9.2.4 Verification Models**

Verification models were updated

#### **9.2.5 Amendments**

No new amendments were produced

#### **9.2.6 Conformance Testing**

A WD was produced

### **9.3 Workplan**

This was approved

## **10 MPEG Phase 7**

### **10.1 Requirements**

A new version of the requirements was produced

### **10.2 Tools**

#### **10.2.1 Description Definition Language**

The DDL draft was revised and a new version produced.

#### **10.2.2 Description Schemes**

Several core experimentes were reviewed

### 10.2.3 Visual descriptors

Several core experimentes were reviewed

### 10.2.4 Audio descriptors

Several core experimentes were reviewed

### 10.2.5 Systems issues

The activity was started

## 10.3 Experimentation Model

A new version of the XM was produced

## 10.4 Workplan

This was approved

## 11 Overall WG11 workplan

This was approved

## 12 Explorations

Exploratory work was done in the following areas:

- Study of Applications for Animated 3D Model Coding
- Multi-user applications
- Possible new MPEG-2/MPEG-4 profiles

## 13 Liaison matters

Liaison letters were received and responses produced.

## 14 Administrative matters

### 14.1 Schedule of future MPEG meetings

The following schedule was approved:

No.	yy	mm	Dd	City	Country
50	99	12	06-10	Maui, HI	US
51	00	03	20-24	Noordwijkerhout	NL
52	00	07	17-21	Beijing	CN
53	00	10	23-27		FR
54	01	01	15-19	Eilat	IL
55	01	03	05-09	(Singapore)	(SG)

### 14.2 Promotion of MPEG

No specific activity took place on this subject

## 15 Organisation of this meeting

### 15.1 Tasks for subgroups

The following tasks were assigned to the subgroups:

Requirements	<ul style="list-style-type: none"> <li>• MPEG-4 <ul style="list-style-type: none"> <li>• MPEG-4 profiles</li> </ul> </li> <li>• MPEG-7 <ul style="list-style-type: none"> <li>• MPEG-7 Requirements</li> <li>• MPEG-7 DDL</li> <li>• IPMP</li> <li>• MPEG-7 Foundations</li> </ul> </li> <li>• Explorations <ul style="list-style-type: none"> <li>• Multimedia Framework</li> </ul> </li> <li>• Press release</li> </ul>
Systems	<ul style="list-style-type: none"> <li>• MPEG-2 <ul style="list-style-type: none"> <li>• DSM-CC amendment</li> <li>• 4on2</li> </ul> </li> <li>• MPEG-4 <ul style="list-style-type: none"> <li>• Version 1 <ul style="list-style-type: none"> <li>• Editorial review of FDIS</li> <li>• conformance</li> </ul> </li> <li>• Version 2 <ul style="list-style-type: none"> <li>• 4onIP</li> <li>• reference software</li> <li>• Backchannel</li> <li>• conformance</li> <li>• Java conformance policy</li> </ul> </li> <li>• Version 3? <ul style="list-style-type: none"> <li>• IPMP issues</li> <li>• Multiuser</li> <li>• BIFS sensors</li> <li>• Authoring format</li> <li>• DMIF?</li> </ul> </li> </ul> </li> <li>• MPEG-7 <ul style="list-style-type: none"> <li>• Systems part</li> </ul> </li> <li>• Contribution to press release</li> </ul>
MDS	<ul style="list-style-type: none"> <li>• MPEG-7 <ul style="list-style-type: none"> <li>• DS</li> <li>• Contribution to XM</li> </ul> </li> </ul>

Video	<ul style="list-style-type: none"> <li>• MPEG-2 <ul style="list-style-type: none"> <li>• Progressive display</li> </ul> </li> <li>• MPEG-4 <ul style="list-style-type: none"> <li>• Version 1 <ul style="list-style-type: none"> <li>• Encoder optimisation</li> <li>• conformance</li> <li>• corrigendum</li> </ul> </li> <li>• Version 2 <ul style="list-style-type: none"> <li>• Study of FCD</li> <li>• reference software</li> <li>• Version 2 conformance</li> </ul> </li> <li>• Version 3 <ul style="list-style-type: none"> <li>• Studio profile</li> </ul> </li> <li>• Version 4 <ul style="list-style-type: none"> <li>• FGS</li> </ul> </li> </ul> </li> <li>• MPEG-7 <ul style="list-style-type: none"> <li>• CEs</li> <li>• contribution to XM</li> </ul> </li> <li>• Explorations <ul style="list-style-type: none"> <li>• Call for inputs</li> </ul> </li> <li>• Contribution to press release</li> </ul>
Audio	<ul style="list-style-type: none"> <li>• MPEG-4 <ul style="list-style-type: none"> <li>• Version 1 <ul style="list-style-type: none"> <li>• Conformance</li> </ul> </li> <li>• Version 2 <ul style="list-style-type: none"> <li>• Study of FCD</li> <li>• Verification test</li> <li>• reference software</li> <li>• Conformance</li> </ul> </li> </ul> </li> <li>• MPEG-7 <ul style="list-style-type: none"> <li>• Core experiments</li> <li>• contribution to XM</li> </ul> </li> <li>• Explorations <ul style="list-style-type: none"> <li>• Call for inputs</li> </ul> </li> <li>• Contribution to press release</li> </ul>
SNHC	<ul style="list-style-type: none"> <li>• MPEG-4 <ul style="list-style-type: none"> <li>• Version 1 <ul style="list-style-type: none"> <li>• conformance</li> </ul> </li> <li>• Version 2 <ul style="list-style-type: none"> <li>• Study of FCD</li> <li>• reference software</li> <li>• conformance</li> </ul> </li> <li>• Version 3?</li> </ul> </li> <li>• Contribution to press release</li> </ul>
Test	<ul style="list-style-type: none"> <li>• (suspended)</li> </ul>

ISG	<ul style="list-style-type: none"> <li>• MPEG-4 <ul style="list-style-type: none"> <li>• VCV, VBV, VMV</li> </ul> </li> <li>• MPEG-7 <ul style="list-style-type: none"> <li>• XM</li> </ul> </li> <li>• Contribution to press release</li> </ul>
Liaisons	<ul style="list-style-type: none"> <li>• Study of incoming liaison statements</li> <li>• Produce output liaison statements</li> <li>• Produce response to NB documents</li> </ul>

## 15.2 Joint meetings

The following joint meetings were held

Group	With	What	Day	Time	Where
Requirements	Audio	Audio Profiles	Mon	5-6	Audio
Systems	SNHC, Req	3D Animation	Tue	1:30-3	Systems
Multimedia Framework			Tue	3-6	Req
M4IF			Tue	9-11	Req
MDS	Requir.	Concept. Model, IPMP	Wed	11:30-12:30	State 3
MDS	Audio	Audio issues in generic DS	Wed	4-5	Audio
Systems	Audio, ISG, SNHC	Backchannel	Thu	10:30-12:30	Systems
Systems	Requirements, MDS	MPEG-7 Systems & requirements	Thu	9:00-10:30	Systems
Systems	Requirements	P&L, WM	Thu	3-4	Systems
MDS	ISG et al.	Descriptors	Thu	2-3	Video
Audio	Systems	P&L, scene description	Thu	9-10	Audio
Audio	Requirements	P&L	Thu	10:30-11:00	Audio
SNHC	Requirements	P&L	Thu	1:30-2:30	Requirements
M4IF			Thu	4-6	Requirements
Video	MDS	Video D	Fri	9-9:30	Video
MM Framework			Fri	9-10	Requirements

## 16 Planning of future activities

The following ad hoc groups were established to continue work un til the next meeting:

AHG for Study on potential new MPEG-2 Levels and Progressive Profile(s)	3003
AHG on Advanced BIFS	3031
AHG on Audio part of MPEG-4 Version 1 and Version 2 Conformance	2959
AHG on Back Channel and ESM	3038
AHG on Conceptual Model for MPEG-7	2979
AHG on conformance in MPEG-4 video	2935
AHG on core experiments for Color/Texture descriptors in MPEG-7	2939
AHG on core experiments for Shape/Motion descriptors in MPEG-7	2940

AHG on DDL development	3004
AHG on editing the document of the MPEG-7 Visual part of XM	2942
AHG on editing the documents of the MPEG-4 Visual FDAM and the MPEG-4 video verification model	2941
AHG on FBA	2989
AHG on Fine Granularity Scalability in MPEG-4 video	2937
AHG on Generic DS Development	2976
AHG on IM 1	3035
AHG on Intellectual Property Management & Protection within MPEG-4	3034
AHG on MPEG-4 Audio Version 2 Reference Software Editing	2958
AHG on MPEG-4 Audio Version 2 Study on FPDAM Editing	2960
AHG on MPEG-4 Audio Version 2 Technical Matters	2963
AHG on MPEG-4 Audio Version 2 Verification Test	2962
AHG on MPEG-4 Content on MPEG-2 Systems and on the Internet	3036
AHG on MPEG-4 File Format	3033
AHG on MPEG-4 video encoder optimization	2944
AHG on MPEG-7 Audio Core Experiments	2961
AHG on MPEG-7 DS Validation and Core Experiments	2978
AHG on MPEG-7 Intellectual Property Management & Protection	3006
AHG on MPEG-7 Linking	3040
AHG on MPEG-7 Media/Meta DSs and Harmonization with Other Schemes	2977
AHG on MPEG-7 Semantic DS	2980
AHG on MPEG-7 Systems	3039
AHG on MPEG-7 XM Development	2965
AHG on MPEG-J	3032
AHG on Multimedia Framework	3007
AHG on Multiple DII messages in download protocol	3041
AHG on Multi-user applications	3037
AHG on Object-based content creation for MPEG-7	2936
AHG on organizing the software integration of MPEG-7 Visual part of XM tools	2943
AHG on SNHC conformance	2983
AHG on software integration and verification in MPEG-4 video	2934
AHG on study of generic 3D animation	2982
AHG on Systems Conformance	3030
AHG on the Studio Profile in MPEG-4 video	2938
AHG on the study of MPEG-2 Video production processes for supplemental information	2933
AHG on User Preferences in MPEG-7	2981

## **17 Resolutions of this meeting**

These were approved

## **18 A.O.B**

There was no other business

## **19 Closing**

The meeting was closed with thanks to the hosting organisation

*Annex 1*  
**Attendance list**

	Given_Name	Surname	Organisation	Country
1.	Francis	Bogsanyi	Acsys Crc	AU
2.	Spencer	Lieng	Australian Broadcasting Corporation	AU
3.	John	Arnold	Australian Defence Force Academy	AU
4.	Michael	Frater	Australian Defence Force Academy	AU
5.	James	MacNicol	Australian Defence Force Academy	AU
6.	Mark	Pickering	Australian Defence Force Academy	AU
7.	Adrian	Whichello	Australian Defence Force Academy	AU
8.	Ernest	Wan	Canon Research Australia	AU
9.	Sylvia	Pfeiffer	CSIRO Mathematical & Information Sciences	AU
10.	Uma	Srinivasan	CSIRO Mathematical & Information Sciences	AU
11.	Kevin	Smith	CSIRO Mathematical And Information	AU
12.	Pete	Williams	Eurofin Technologies	AU
13.	Ruben	Gonzalez	Griffith University	AU
14.	John R	Smith	Ibm Tj Watson Research Centre	AU
15.	Michael	Lee	Mediaware Solutions	AU
16.	Wanging	Li	Motorola Australian Research Centre	AU
17.	Mathew	Reji	Motorola Australian Research Centre	AU
18.	Lei	Ye	Motorola Australian Research Centre	AU
19.	Jian	Zhang	Motorola Australian Research Centre	AU
20.	Luisa	Conte	Telstra Research Laboratories	AU
21.	Russell	Lang	Telstra Research Laboratories	AU
22.	Clare	Pascoe	Telstra Research Laboratories	AU
23.	Mikhail	Shnaider	Telstra Research Laboratories	AU
24.	Steve	Spicer	Telstra Research Laboratories	AU
25.	Paulius	Stepanas	Telstra Research Laboratories	AU
26.	Jane	Hunter	University Of Queensland	AU
27.	Jose A	Lay	University Of Sydney	AU
28.	Joe	Chicharo	University of Wollongong	AU
29.	Clement	Leung	Victoria University Of Technology	AU
30.	Gauthier	Lafruit	IMEC	BE
31.	Adam	Lindsay	Starlab NV	BE
32.	Caterina	Saraceno	Starlab NV	BE
33.	Jean Pierre	Evain	Ebu	CH
34.	Yousri	Abdeljaoued	EPFL	CH
35.	Frank Jan	Bossen	Epfl	CH
36.	Shiqiang	Yang	Tsinghua University	CN
37.	Frank	Feige	DeTeBerkom	DE
38.	Andreas	Aust	Deutsche Thomson-Brandt	DE
39.	Carstten	Herpel	Deutsche Thomson-Brandt	DE
40.	Ralph	Sperschneider	Fhg Iis-A	DE
41.	Jurgen	Herre	Fraunhofer-IIS	DE
42.	Daniel	Homm	Fraunhofer-IIS	DE
43.	Frank	Nack	GMD-IPSI	DE
44.	Guido	Heising	Heinrich Hertz Institute	DE
45.	Thomas	Sikora	Heinrich Hertz Institute	DE
46.	Jens-Rainer	Ohm	Heinrich-Hertz-Institute	DE



	Given_Name	Surname	Organisation	Country
47.	Sven	Bauer	Robert Bosch	DE
48.	Andreas	Engelsberg	Robert Bosch	DE
49.	Torsten	Mlasko	Robert Bosch	DE
50.	Joerg	Heuer	Siemens Ag	DE
51.	Andreas	Austa	Thomson Multimedia	DE
52.	Stephan	Herrmann	TU-Munich/Institute Of Integrated Circuits	DE
53.	Heiko	Purnhagen	University Of Hannover	DE
54.	Philippe	Salembier	Universitat Politecnica De Catalunya	ES
55.	Roberto	Castagno	Nokia Research Center	FI
56.	Mauri	Vaananen	Nokia Research Center	FI
57.	Viktor	Varsa	Nokia Research Centre	FI
58.	Mikael	Bourges- Sevenier		FR
59.	Renaud	Cazoulat		FR
60.	Cecile	Dufour		FR
61.	Francois	Edouard		FR
62.	Laurent	Hermann		FR
63.	Stephane	Pefferkorn		FR
64.	Claude	Seyrat		FR
65.	Titus	Zaharia		FR
66.	Eric	Nguyen	Canon Research France	FR
67.	Jean-Claude	Dufourd	Enst	FR
68.	Didier	Mary	Fiapf	FR
69.	Jean-Bernard	Rault	France - Telecom	FR
70.	Pierrick	Philippe	France – Telecom	FR
71.	Julien	Signes	France – Telecom	FR
72.	Bertrand	Thebaut	France – Telecom	FR
73.	Dominique	Curet	France Telecom	FR
74.	Alain	De Cheveigne	IRCAM	FR
75.	Geoffroy	Peeters	IRCAM	FR
76.	Sylvain	Devillers	Laboratories D'Electronique Philips	FR
77.	Claude	Rollin	Sacd	FR
78.	Marc	Guez-Vucher	Scpp/ifpi	FR
79.	Francois	Le Clerc	Thomson Multimedia	FR
80.	Oscar	Au	Hong Kong University Of Science	HK
81.	Zki	Lifhitz	Optbase	IL
82.	Leonardo	Chiariglione	CSELT	IT
83.	Gianluca	De Petris	CSELT	IT
84.	Guido	Franceschini	CSELT	IT
85.	Marco	Gandini	CSELT	IT
86.	Varesio	Varesio	CSELT	IT
87.	Riccardo	Leonardi	University Of Brescia	IT
88.	Masato	Kurokawa		JP
89.	Toshiro	Kawahara	Ao Co Mo	JP
90.	Hiroataka	Shiiyama	Canon Inc	JP
91.	Hiroshi	Inoue	Canon Inc	JP
92.	Juichi	Takeda	Canon Inc	JP
93.	Yoichi	Takashima	Cyber Space Labs	JP
94.	Yosinori	Sugihara	Eiaj	JP

	Given_Name	Surname	Organisation	Country
95.	Kimihiko	Kazui	Fujitsu Laboratories Ltd	JP
96.	Eishi	Morimatsu	Fujitsu Laboratories Ltd	JP
97.	Takehiro	Fujita	Hitachi Ltd	JP
98.	Kazumasa	Iwasaki	Hitachi Ltd	JP
99.	Eriko	Koda	Hitachi Ltd	JP
100.	Yuichiro	Nakaya	Hitachi Ltd	JP
101.	Yishihisa	Gonno	Iblabs	JP
102.	Narumi	Hirose	ITSCJ (SC 29 Secretariat)	JP
103.	Tomohiro	Asami	JVC (Victor Company Of Japan)	JP
104.	Masahito	Tsutsumi	JVC (Victor Company Of Japan)	JP
105.	Koji	Imura	Matsushita	JP
106.	Takuyo	Kogure	Matsushita	JP
107.	Takanori	Senoh	Matsushita	JP
108.	Matsui	Yoshinori	Matsushita Electric Industrial	JP
109.	Koichi	Emura	Matsushita Electric Industrial Co Ltd	JP
110.	Shun Ichi	Sekiguchi	Mitsubishi Electric Corp	JP
111.	Kohtaro	Asai	Mitsubishi Electric Corporation	JP
112.	Hirofumi	Nishikawa	Mitsubishi Electric Corporation	JP
113.	Shun-Ichi	Sekiguchi	Mitsubishi Electric Corporation	JP
114.	Masahiro	Iwadare	NEC	JP
115.	Yoshihiro	Miyamoto	Nec	JP
116.	Toshiyuki	Nomura	Nec	JP
117.	Akio	Yamada	Nec	JP
118.	Hitoshi	Koyama	Nec Corp	JP
119.	Hiroyuki	Imaizumi	NHK	JP
120.	Masahiro	Shibata	NHK	JP
121.	Yoshiaki	Shishikui	NHK	JP
122.	Hideaki	Kimata	NTT	JP
123.	Takehiro	Moriya	NTT	JP
124.	Norio	Nakamura	NTT Do Co Mo	JP
125.	Shigeru	Fukunaga	OKI Electric Industry	JP
126.	Hon-Wen	Pon	Panasonic Taiwan Laboratories	JP
127.	Takeshi	Nakamara	Pioneer Corporation	JP
128.	Neil	Day	Ricoh	JP
129.	Masajiro	Iwasaki	Ricoh	JP
130.	Norio	Ito	Sharp Corporation	JP
131.	Yoshiaki	Tomioka	Sharp Corporation	JP
132.	Shuichi	Watanabe	Sharp Corporation	JP
133.	Kohei	Yoshikawa	Sharp Corporation	JP
134.	Masayuki	Nishiguchi	Sony	JP
135.	Yoshiaki	Shibata	Sony	JP
136.	Katsumi	Tahara	Sony	JP
137.	Toby	Walker	Sony	JP
138.	Akira	Inoue	Sony Corporation	JP
139.	Osamu	Sunohara	Sony Corporation	JP
140.	Teruhiko	Suzuki	Sony Corporation	JP
141.	Yasuhiro	Toguri	Sony Corporation	JP
142.	Yoichi	Yagasaki	Sony Corporation	JP
143.	Peter	Kuhn	Sony Japan	JP
144.	Yoshinori	Suzuki	Suzuki	JP

	Given_Name	Surname	Organisation	Country
145.	Maki	Sugiura	Telecommunication Advancement Organization Of Japan	JP
146.	Katsunao	Takahashi	Telecommunication Advancement Organization Of Japan	JP
147.	Osamu	Hori	Toshiba	JP
148.	Yoshihiro	Kikuchi	Toshiba	JP
149.	Toshimitsu	Kaneko	Toshiba Corp	JP
150.	Terumasa	Aoki	University Of Japan	JP
151.	Sung Hee	Park		KR
152.	Chee Sun	Won	Dingduk University	KR
153.	Jinwoong	Kim	Etri	KR
154.	Kyuheon	Kim	Etri	KR
155.	Munchurl	Kim	Etri	KR
156.	Han Kyu	Lee	Etri	KR
157.	Young Kwon	Lim	Etri	KR
158.	Soo Jun	Park	Etri	KR
159.		Kim	Hanyang UNIVERSITY	KR
160.	Jae-Won	Chung	Hyundai Electronics	KR
161.	Hae-Kwang	Kim	Hyundai Electronics	KR
162.	Dong-Gyu	Sim	Hyundai Electronics	KR
163.	Yong Man	Ro	Icu	KR
164.	Sangmu	Lee	Korea Electronics	KR
165.	Youg	Huh	Korea Electrotechnology	KR
166.	Sanghoon	Sull	Korea University	KR
167.	Jae Jeong	Hwang	Kunsan National University	KR
168.	Seoung-Jun	Oh	Kwangwoon University	KR
169.	Heon Jun	Kim	Lg Cit	KR
170.	Jin Soo	Lee	Lg Cit	KR
171.	Kyoungro	Yoon	Lg Cit	KR
172.	Sang-Wook	Kim	Samsung	KR
173.	Yoon Soo	Kim	Samsung	KR
174.	HYUNDO	Shin	Samsung	KR
175.	Yang Seock	Sed	Samsung (Sait)	KR
176.	Seung Yong	Park	Samsung Adv. Inst. Of Tech	KR
177.	Dae-Sung	Cho	Samsung AIT	KR
178.	Mahnjin	Han	Samsung AIT	KR
179.	Euee	Jang	Samsung Ait	KR
180.	James Do Kyoon	Kim	Samsung AIT	KR
181.	Yeon-Bae	Kim	Samsung AIT	KR
182.	Sung-Hee	Park	Samsung AIT	KR
183.	Jae-Seob	Shin	Samsung AIT	KR
184.	Sehoon	Son	Samsung AIT	KR
185.	Yanglim	Choi	Samsung Electronics	KR
186.	Yung Lyul	Lee	Samsung Electronics	KR
187.	Byeungwoo	Jeon	Skku	KR
188.	Joo-Hee	Moon	UniversitySejong	KR
189.	Peter	Mulder	Dutch Broadcast Company	NL
190.	Rob	Koenen	KPN Research	NL
191.	Jan	Van Der Meer	Philips	NL

	Given_Name	Surname	Organisation	Country
192.	Ralf	Funken	Philips Consumer Electronics	NL
193.	Jean	Gelissen	Philips Research Netherlands	NL
194.	Paul	Porskamp	Telematica Institute	NL
195.	Andrew	Perkis	Norwegian University Of Science (Ntnu)	NO
196.	Andrew	Bangham	University Of East Anglia	NO
197.	Charil	Christopoulos	Ericsson Research	SE
198.	Morgan	Lindqvist	Ericsson Research	SE
199.	Anna	Cognell	Tekia Research	SE
200.	Gerald	Powell	Infineon Technologies	SG
201.	Yasuhiro	Yamada	Jvc Asia	SG
202.	Vasudeuan	Vinod	Krdl	SG
203.	Thiow Keng	Tan	Panasonic Singapore	SG
204.	Chee Yong	Law	Panasonic Singapore Laboratones Pty Ltd	SG
205.	Chong Soon	Lim	Panasonic Singapore Laboratones Pty Ltd	SG
206.	Kai-Kuang	Ma	School Of EEE Nanyang	SG
207.	Geoff	Morrison	BT	UK
208.	Philip	Garner	Canon Research Centre Europe Ltd	UK
209.	Panos	Kudamakias	CRL	UK
210.	Niels	Rump	Intertrust Technologies International	UK
211.	Keith	Hill	MCOS	UK
212.	Miroslaw	Bober	Mitsubishi Electric ITE-VIL	UK
213.	Leszek	Cieplinski	Mitsubishi Electric ITE-VIL	UK
214.	Kate	Grant	NWE Tiles / Baxall	UK
215.	A	Bray	University Of Bristol	UK
216.	Ed	Hartley	University of Lancaster	UK
217.	Charles	Foshee	Adobe	US
218.	Peter	Hoddie	Apple Computer	US
219.	David	Singer	Apple Computer	US
220.	Atul	Puri	At&T	US
221.	Schuyler	Quackenbush	At&T	US
222.	Oliver	Morgan	Avid	US
223.	Michel	Rynderman	Avid Technology	US
224.	Ana	Benitez	Columbia University	US
225.	Mark	Dolson	Creative Technology Ltd	US
226.	Lee	Ray	Creative Technology Ltd	US
227.	Allan	Peach	Demografx	US
228.	Robert	Douglass	Diamond Back Systems	US
229.	Mathew	Goldman	Divicom	US
230.	Rajiv	Mehrotra	Eastaman Kodak	US
231.	Ajay	Luthra	General Instruments	US
232.	Sam	Narasimhan	General Instruments	US
233.	Wendy	Fong	Hewlett-Packard	US
234.	Ronnie	Burns	Hughes Electronics	US
235.	Chao-Kung	Yang	Hughes Electronics	US
236.	William R	Belknap	Ibm	US
237.	Michelle	Kim	Ibm	US
238.	Peter	Schirling	Ibm	US
239.	Gabriel	Taubin	Ibm	US

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240.	Peter	Westerink	Ibm	US
241.	Yen-Kuang	Chen	Intel Corporation	US
242.	Patricia	Gray	Intel Corporation	US
243.	Hong	Jiang	Intel Corporation	US
244.	Andrew	Tescher	Lockheed	US
245.	Anders	Klemets	Microsoft Corporation	US
246.	Gary	Sullivan	Microsoft Corporation	US
247.	Barry	Vercoe	MIT Media Laboratory	US
248.	Huifang	Sun	Mitsubishi Electric	US
249.	Michael	Casey	Mitsubishi Electric Corporation	US
250.	Ajay	Divakaran	Mitsubishi Electric ITA	US
251.	David	Thom	Mitsubishi Electronics	US
252.	Jian-Jun	Fang	Motorola USA	US
253.	Gerry	Melnikov	Motorola USA	US
254.	MANish	Singhal	Motorola USA	US
255.	Ti-Hao	Chiang	National Chiau Tung University	US
256.	Wo	Chang	NIST	US
257.	Weiping	Li	Optivision Inc	US
258.	Ming	Lee	Oracle	US
259.	Yingwei	Chen	Philips Research	US
260.	Sylvie	Jeannin	Philips Research	US
261.	Santhana	Krishnamachari	Philips Research	US
262.	Regis	Crinon	Sharp Laboratories	US
263.	Ibrahim	Sezan	Sharp Labs Of America	US
264.	Peter	Van Beek	Sharp Labs Of America	US
265.	Peter	Dare	SMPTE	US
266.	Hawley	Rising	Sony	US
267.	Ali	Tabatabai	Sony	US
268.	Gerard	Fernando	Sun Microsystems	US
269.	Viswanathan	Swaminathan	Sun Microsystems	US
270.	Michael	Vetter	TASC	US
271.	Alexander	Macaulay	Thinkone Inc	US
272.	B	Manjunath	University Of California	US
273.	Javier	Zamora	XBIND Incorporated	US

*Annex 2*  
**Agenda**

1.	Opening
2.	Roll call of participants
3.	Approval of agenda
4.	Allocation of contributions
5.	Communications from Convenor
6.	Report of previous meeting
7.	Processing of NB Position Papers
8.	MPEG Phase 2
8.1	MPEG-2 parts
8.2	Verification of MPEG-2
8.3	Amendments
8.4	Corrigenda
8.5	Workplan
9.	MPEG Phase 4
9.1	Version 1
9.1.1	Final Draft International Standard
9.1.1.1	Reference software
9.1.2	Verification Tests
9.1.2.1	Systems
9.1.2.2	Video
9.1.2.3	Audio
9.1.3	Quality of service
9.1.4	Conformance Testing
9.1.4.1	System
9.1.4.2	Visual
9.1.4.3	Audio
9.1.4.4	DMIF
9.2	Version 2
9.2.1	Patent statements
9.2.2	Requirements
9.2.3	Tools
9.2.3.1	DMIF
9.2.3.2	Systems
9.2.3.3	Natural Visual
9.2.3.4	Synthetic Visual
9.2.3.5	Natural Audio
9.2.3.6	Synthetic Audio
9.2.4	Verification Models
9.2.4.1	System
9.2.4.2	Video
9.2.4.3	Audio

9.2.4.4	SNHC
9.2.5	Amendment
9.2.5.1	Systems
9.2.5.2	Video
9.2.5.3	Audio
9.2.5.4	Reference software
9.2.5.5	DMIF
9.1.4	Conformance Testing
9.1.4.1	System
9.1.4.2	Visual
9.1.4.3	Audio
9.1.4.4	DMIF
9.3	Workplan
10.	MPEG Phase 7
10.1	Requirements
10.2	Tools
10.2.1	Description Definition Language
10.2.2	Description Schemes
10.2.3	Visual descriptors
10.2.4	Audio descriptors
10.2.5	Systems issues
10.3	Experimentation Model
10.4	Workplan
11.	Overall WG11 workplan
12.	Explorations
13.	Liaison matters
14.	Administrative matters
14.1	Schedule of future MPEG meetings
14.2	Promotion of MPEG
15.	Organisation of this meeting
15.1	Tasks for subgroups
15.2	Finalisation of meeting allocation
15.3	Joint meetings
16.	Planning of future activities
17.	Resolutions of this meeting
18.	A.O.B
19.	Closing

*Annex 3*

**List of submitted documents**

<b>No.</b>	<b>Source</b>	<b>Title</b>
4957	Pete Schirling	Document Register for 49th Meeting in Melbourne, VI(AU)
4958	O. Avaro	Systems July 1999 (Vancouver) Meeting Report
4959	Y.-K. Chen, M. Holliman, S. Macy, and M. Yeung	Standard Support for Content Protection
4960	S. Fukunaga, Y. Nakaya, S. H. Son, T. Nagumo	MPEG-4 Video Verification Model version 13.3
4961	SC 29 Secretariat	Summary of Voting on ISO/IEC 13818-1/FPDAM 7
4962	SC 29 Secretariat	Summary of Voting on ISO/IEC 13818-2/FPDAM 6
4963	SC 29 Secretariat	Summary of Voting on ISO/IEC 13818-4/FPDAM 3
4964	SC 29 Secretariat	Summary of Voting on ISO/IEC FDIS 14496-2
4965	SC 29 Secretariat	Summary of Voting on ISO/IEC 13818-6/FDAM 1
4966	SC 29 Secretariat	Summary of Voting on ISO/IEC 13818-1/FDAM 5
4967	SC 29 Secretariat	Summary of Voting on ISO/IEC 13818-1/FDAM 6
4968	F. Pereira (editor)	Proposal for MPEG-7 Requirements Document V.10
4969	F. Pereira and J. Martinez (chairmen)	Report of Ad Hoc Group on MPEG-7 Requirements
4970	Mikio Sasaki	A Proposal for In-Vehicle Profiles
4971	ITU-R WP 11A via the SC 29 Secretariat	Liaison Statement from ITU-R WP 11A on Quality Measures for EHRI Video Signals (SC29N3241)
4972	Hiroshi Yasuda, Takuyo Kogure, Hiroshi Inoue	Proposal of IPMPS_type for an extended IPMP descriptor
4973	H.Yasuda, T.Kogure, Y.Nakaya, T.Senoh, K.Asai, M.Iwadare, M.Tsutsumi, S.Ishibashi, T.Tabata, S.Suzuki, I.Iwai	MPEG-4 Visual Core Profile Verification Bitstream Specifications Draft
4974	H.Yasuda, T.Kogure, Y.Nakaya, T.Senoh, K.Asai, M.Iwadare, M.Tsutsumi, S.Ishibashi, T.Tabata, S.Suzuki, I.Iwai	MPEG-4 Visual Simple Profile Verification Bitstream Specifications Draft
4975	H.Yasuda, T.Kogure, Y.Nakaya, T.Senoh, K.Asai, M.Iwadare, M.Tsutsumi, S.Ishibashi, T.Tabata, S.Suzuki, I.Iwai	MPEG-4 Audio Scalable Profile(TwinVQ Object) Verification Bitstream Specifications Draft
4976	H.Yasuda, T.Kogure, Y.Nakaya, T.Senoh, K.Asai, M.Iwadare, M.Tsutsumi, S.Ishibashi, T.Tabata, S.Suzuki, I.Iwai	MPEG-4 Audio Speech Profile(CELP Object) Verification Bitstream Specifications Draft
4977	Chee Sun Won, Dong Kwon Park, Seong-Joon Yoo, Soo-Jun Park	Core Experiments on MPEG-7 spatial image intensity distribution descriptors(CT4)
4978	Torsten Mlasko	Support Statement for the High Quality Audio Profile
4979	Torsten Mlasko	Support Statement for the Error Resilience Speech Profile
4980	Alexis M. Tourapis, Oscar C. Au, Ming L. Liou, Guobin Shen	Core Experiment Results on Fast Block Based Motion Estimation using ADZS-ER
4981	Guido Francheschini, Jean-	Unified MuxHint file format



No.	Source	Title
	Claude Dufourd	
4982	Jean-Claude Dufourd	Report of AHG on Systems Conformance
4983	Jean-Claude Dufourd, Stepan Ahyan, Souhila Boughoufalah, Frederic Bouilhaguet, Pascale Pessin, Nathalie Coudre	MPEG-4 PC content and demos
4984	Jean-Claude Dufourd, Souhila Boughoufalah, Frederic Bouilhaguet	MPEG-4 PC tools for content creation: update
4985	Jean-Claude Dufourd	Preliminary Draft of ISO/IEC 14496-5 PDAM 1
4986	Manish Singhal, Gerry Melnikov, Jian-Jun Fang	Effect of Number of Objects on the Compositor Complexity
4987	Chao Yang, David Shu, Ronnie Burns	Syntax change to enable combination of all sprites and grayscale shape coding
4988	Hung-Ju Lee, Iraj Sodagar	Proposal for clarification on MPEG-4 Visual Texture Coding version 1
4989	US National Body	Proposed Text for Draft Corrigendum of Amendment 1 to ISO/IEC 13818-6
4990	Weiping Li, Xuemin Chen, Fan Ling, Ajay Luthra, Anthony Vetro, Huifang Sun, Caspar Horne, Iraj Sodagar, Shigeru Fukunaga, Zhixiong Wu, Hong Jiang, Chao-Kung Yang, Minhua Zhou, Chengwei Gao, Bradley W. Hoffert, Jame	
4991	USNB	USNB contribution on MPEG-7 XM Source code
4992	Masahiro Shibata	Verification Experiment of the MPEG-7 DS from the viewpoint of video production
4993	Jose M. Martinez (editor)	Overview of MPEG-7 description tools: Descriptors and Description Schemes
4994	Jose M. Martinez on behalf of the AHG on MPEG-7 Media/Meta, DS and Harmonization with other Schemes	MPEG-7 Media/Meta DS upgrade
4995	Jose M. Martinez	Report of the AHG on MPEG-7 Media/Meta DS and Harmonization
4996	Jane Hunter	Proposal for a New MPEG-7 Description Definition Language Proposal
4997	Frank Nack, Wolfgang Putz	Proposal for an EBNF of the new MPEG-7 DDL
4998	Juergen Herre, Ralf Geiger	Coder Configurations Used For MPEG-4 v2 Verification Testing
4999	Juergen Herre	Conformance Criteria For PNS Tool of MPEG-4 GA Coder
5000	John R. Smith on behalf of MPEG-7 Conceptual Modeling AHG	MPEG-7 Description Schemes Principle Concept List (V0.3)
5001	John R. Smith, Hawley Rising	Report of the Ad-hoc Group on a Generic MPEG-7 DS

No.	Source	Title
		Conceptual Model
5002	Masajiro Iwasaki, Neil Day	Core Experiment Results for Spatial Intensity Descriptor (CT4)
5003	Shun-ichi Sekiguchi, Yoshimi Isu, Kohtaro Asai	Proposal of the Descriptor Usage DS
5004	Heon Jun Kim	Result on CT1: HMMD Color Space and Histogram Quantization
5005	Jin-Soo Lee, Jung-Min Song, Heon-Jun Kim, Kyoungro Yoon, Hee-Yeon Lee	Weight DS in Generic AV DS
5006	Jin-Soo Lee, Heon-Jun Kim, Jung-Min Song, Hee-Yeon Lee	Work Plan of an MPEG-7 Core/Validation Experiment on Weight DS
5007	Kyoungro Yoon	Semantic Segment Relational Graph DS
5008	Mahnjin Han, Sungjin Kim, Do-Kyoon Kim, Mun-Sup Song, Euee S. Jang	Proposal for Backward Channel syntax on 3D mesh
5009	Euee S. Jang, Mun-Sup Song, Do-Kyoon Kim, Sungjin Kim, Mahnjin Han, Seokyeon Jung	Proposal for Requirements of Generic 3D Model Animation Coding
5010	Hae-Kwang Kim, Jong-Deuk Kim, Dong-Gyu Sim	Modified Zernike Shape Descriptor in XM for Enhancing Retrieval Accuracy and Adding New Functionality
5011	Dong-Gyu Sim, Hae-Kwang Kim	Translation, Scale, and Rotation Invariant Texture Descriptor of Zernike Moments on DFT image
5012	Schuyler Quackenbush	Report on A3 pre-selection, MPEG-4 V2 verification test
5013	Joerg Heuer, Ulrich Eckhardt, Longin Jan Latecki, Andre Kaup	Proposal of a Region Locator D
5014	Joerg Heuer, Andre Kaup	Proposal of a TimeDS
5015	Sang-Wook Kim	Report of AHG on MPEG-4 Audio version 2 FPDAM Editing
5016	Koichi Ejiri, Takayuki Kunieda, Neil Day	Universal Geometry DS and relevant DSs
5017	Kyuheon Kim	Results of CE on parametric colour distribution
5020	Panos Kudumakis, Andrea Varesio, Didier Nicholson, Jean-Francois Delaigle	A watermarking example using the MPEG-4 IPMP framework.
5021	Takaaki Murao, Eric Paquet	A Report of Results in 3D Shape Descriptor Core Experiment Stage 1
5022	Munchurl Kim, Jae Gon Kim, Hyun Sung Chang, So-Yeon Kim, and Jinwoong Kim	An Extended Summary DS for Navigation and Browsing
5023	Leszek Cieplinski	Results of MPEG-7 Core Experiment CT6
5024	Leszek Cieplinski	Cross-Verification Results of MPEG-7 Core Experiment CT5
5025	M. Holliman, W. Macy, Y.-K. Chen, and M. Yeung	Standard Test Conditions and Methodology for Robust Video Watermarking (Part I) and Some Preliminary Results (Part II)
5026	U. Benzler, N. Ito, E. Morimatsu	Report on the Ad Hoc Group on Software Integration

No.	Source	Title
		and
5027	A. Basso, S. Varakliotis, A. Puri, R.L.Schmidt, J. Osterman, M.R. Civanlar, R. Castagno, G. Franceschini	Streaming of MPEG-4 over IP/RTP
5028	Ajay Divakaran, I-Jong Lin, Anthony Vetro, Sun-Yuan Kung, Huifang Sun	The Directed Acyclic Graph Composed Description Scheme - A composition and comparison framework for MPEG-7 description schemes
5029	Ajay Divakaran, I-Jong Lin, Ana Benitez, Anthony Vetro, Sun-Yuan Kung, Huifang Sun	A Directed Acyclic Graph (DAG) based application of Entity-Relationship Graphs
5030	Ajay Divakaran, Huifang Sun, V.V. Vinod, D. Manoranjan, Ganesh Rattinasababady, B.S. Manjunath, Xinding Sun, Hyundoo Shin, Haekwang Kim, Cheol-Soo Park	Report on Activity CE - Ground Truth and Recommendations
5031	Giorgio ZOIA	Complexity measurement tool for level definitions of Algorithmic synthesis and AudioFX object type
5032	Giorgio ZOIA	Level definitions of Algorithmic synthesis and AudioFX object type
5033	Giorgio ZOIA	Level definitions for Systems Audio Scene Graph Profile
5034	Ralf Funken	Support statement for the MPEG-4 Version 2 High Quality Audio Profile
5035	Ralf Funken, Frans de Bont	Revised proposal for a procedure to test MPEG-4 CELP decoder conformance
5036	J.H Wilkinson	Overview of The SMPTE Metadata Coding Protocol and Dictionary
5037	J.H Wilkinson	SMPTE Standard for Unique Material Identifiers (UMIDs)
5038	Michael F. Vetter	SMPTE Key-Length-Value (KLV) Protocol for Data Encoding
5039	Michael F. Vetter	SMPTE Metadata Dictionary Structure and Contents
5040	Philippe Salembier (on behalf of the DS AHG)	MPEG-7 Generic AV DS (V0.6)
5041	Philippe Salembier, Joerg Heuer, Vincent Puig, Toby Walker	AHG Report on MPEG-7 Generic AV DS Development
5042	Heiko Purnhagen, Bodo Teichmann	Report of AHG on MPEG-4 Audio Version 1 and 2 Reference Software editing
5043	Heiko Purnhagen, Nikolaus Meine, Bernd Edler	Study of HILN in MPEG-4 Audio Version 2 FPDAM
5044	Manish Singhal	Some discrepancies between MPEG-4 Video Specification and Reference Software
5045	Heiko Purnhagen, Nikolaus Meine	Information on HILN bitstreams for MPEG-4 V2 verification test
5046	S. R. Quackenbush, N. Nishiguchi, T. Miki	Report of AHG on MPEG-4 V2 Audio Verification Tests
5047	B. S. Manjunath, H. D. Shin	Texture core experiment results: browsing

<b>No.</b>	<b>Source</b>	<b>Title</b>
5048	Akio Yamada, Eiji Kasutani, Mutsumi Ohta	Results of core experiment CT2/A (Compact Color Layout D)
5049	Akio Yamada, Eiji Kasutani, Mutsumi Ohta	Results of core experiment CT2/B (Cross checked)
5050	Takehiro Moriya, Torsten Mlasko	Report of the Ad-hoc Group on MPEG-4 Audio Version 1 and Version 2 Conformance
5051	Takehiro Moriya, Takeshi Mori	Configuration of the ER-TwinVQ Objects Submitted to the MPEG-4 Version 2 Audio Verification test
5052	Takehiro Moriya	Proposal of additional criteria for the Scalable Profile of MPEG-4 Audio
5053	Patricia L. Gray	AHG Report on the study of MPEG-2 Video on progressive displays
5054	AP Tan, Takanori Senoh	Feedback on the MPEG-4 Video Software Implementation
5055	TK Tan	Report of the Ad Hoc Group on Conformance in MPEG-4 Video
5056	Jens-Rainer Ohm	Report of AHG on Fine Granularity Scalability
5057	Jens-Rainer Ohm, Bela Makai, Detlef Zier	Results of MPEG-7 Core Experiment CT1
5058	Jens-Rainer Ohm, Ferry Bunjamin, Detlef Zier	Results of MPEG-7 Core Experiment CT4
5059	Jens-Rainer Ohm, Ferry Bunjamin	Results of MPEG-7 Core Experiment CT5
5060	Jens-Rainer Ohm, Detlef Zier	Common Datasets and Queries in MPEG-7 Color Core Experiments
5061	Hiroyuki Imaizumi, Shinichi Sakaida, Yoshiaki Shishikui	Comments for Studio Profile Amendment WD 1.0
5062	Hiroyuki Imaizumi, Yoshiaki Shishikui, Shinichi Sakaida	Draft description of MPEG-4 Core Studio Profile
5063	Hiroyuki Imaizumi, Yoshiaki Shishikui, Shinichi Sakaida	Syntax correspondence of MPEG-2 4:2:2 Profile to MPEG-4 Simple Studio Profile for transcoding implementation
5064	Yoshiaki Shishikui, Hiroyuki Imaizumi, Kazuhisa Iguchi, Yutaka Kaneko	Requirement of BIFS for studio applications.
5065	Yoshiaki Shishikui, Hiroyuki Imaizumi, Kazuhisa Iguchi, Yutaka Kaneko	Requirement for descriptor of video effect information.
5066	Frank Nack, Wolfgang Putz	Proposal for a MPEG-7 news environment
5067	Frank Nack, Jane Hunter	Report of the MPEG-7 DDL Ad Hoc Group
5068	Akio Yamada, Takehiro Fujita, Katsunao Takahashi	Core Experiment Description on Compact Color Descriptors
5069	Osamu Hori, Toshimitsu Kaneko	MediaTimeManagement DS and Improved Time DS in the Generic AV DS
5070	Osamu Hori, Toshimitsu Kaneko	Results on Object Motion Core Experiment (Moving Region)
5071	Osamu Hori, Toshimitsu Kaneko	Improved MovingRegion DS in the Generic Audio Visual DS
5072	Guido Franceschini	Report on "AHG on Support of file transfer inside

No.	Source	Title
		SYSTEMS"
5073	Guido Franceschini	Scenario 1 for HTTP support with DMIF
5074	Guido Franceschini	Scenario 2 for HTTP support with DMIF
5075	Guido Franceschini	Overhead reduction in MP4
5076	Alain de Cheveigne, Geoffroy Peeters	A Scale Tree
5077	Geoffroy Peeters, Steve McAdams, Perfecto Herrera	Report of progress on Audio CE for Instrument Description
5078	Aljoscha Smolic, Jens-Rainer Ohm	Use of the Parametric Motion Descriptor in the Context of Mosaicing and Global Motion Classification
5079	Claude Seyrat, Cedric Thienot, Pascal Faudemay	A DDL version for the AVIR Project
5080	Mark Buxton, Stephan Herrmann	Report of AHG on XM Development
5081	Mark Buxton, Pete Schirling	Acceptability of Binary Source for Non-Normative Tools
5082	Weiping Li, Hong Jiang	Complexity Analysis of Two Residue Computation Methods for FGS
5083	Weiping Li, Fan Ling, Xuemin Chen,	Comparison of FGS with Simulcast
5084	Weiping Li	Result on Drift Prediction for FGS
5085	Weiping Li	Verification Results on ADZS Fast Motion Estimation Method
5086	John R. Smith, Chung-Sheng Li, Ana B. Benitez, Paul Bocheck, Shih-Fu Chang, Charilaos Christopoulos, Sanghoon Sull	Validation Experiment for MPEG-7 Description Schemes related to Universal Multimedia Access (UMA)
5087	John R. Smith, Chung-Sheng Li, Toby Walker	Validation Experiment for MPEG-7 Model-DS on Visual Data
5088	Adam Lindsay, Phil Garner, Perfecto Hererra	Report of AHG on MPEG-7 Audio Core Experiments
5089	Adam Lindsay, Jane Hunter	Analysis of ID3, an Audio Description Scheme
5092	B. S. Manjunath, H. D. Shin	Texture core experiment results: similarity retrieval
5093	Frank Nack	MPEG-7 Description Definition Language Document V 2.0
5094	FNB	Intellectual property of software sources delivered for non-normative components of the MPEG-7 XM
5095	Javier Zamora, Joe Caldarola, Todd Carter, Jean-Francois Huard, Koon-Seng Lim	Comments on the new DAI syntax proposal
5096	Wendy Fong, Dave Rivas and Jim Mitchell	Revised Text for WG 11 N2873
5097	The National Body of Japan	JNB comment on MPEG-4 RTP payload format
5098	Philippe Salembier	Supporting information for the Generic AV Description Schemes (V0.6)
5099	Lee Ray, Dave Sparks, Dominic Lau	Materials for MPEG-4 "Structured Audio Sample bank Format" (14496-3 Subpart 5) Compliance Testing
5100	AFNOR	French NB comments on 14496-1 & 14496-

No.	Source	Title
		1/FPDAM1
5101	Sanghoon Sull, Jung-Rim Kim, Yunam Kim	Efficient and effective search and browsing using fidelity
5102	Rajiv Mahrotra, Masato Kurokawa, A.M.Tekalp	Generic Event Modeling by Action and Interaction DS
5103	Sanghoon Sull, Sang Wook Oh	General Reference Description Scheme
5104	Ernest Wan, Alison Lennon	On the DDL issues of Links, Constraints and 'Data Inheritance'
5105	Y. Abdeljaoued, T. Ebrahimi, Ch. Christopoulos, I. Mas Ivars	Video Summarization for Universal Multimedia Access Applications
5106	Philip N. Garner, Jason P. A. Charlesworth, Savitha Srinivasan	Result of MPEG-7 Audio Core Experiment on Speech Annotation Description
5107	A. G. Tescher	USNB Contribution: Response to resolutions 3.3.5/3.3.6/3.6.4/3.6.5/3.6.6
5108	A. G. Tescher	USNB Contribution: Response to resolutions 3.6.7/3.7.4
5109	A. G. Tescher	USNB Contribution: Initiation of a corrigenda on ISO/IEC 13818-6
5110	A. G. Tescher	USNB Contribution: Proposed editorial changes to the description of still texture coding
5111	A. G. Tescher	USNB Contribution: Proposed syntax change
5112	A. G. Tescher	USNB Contribution: Concern about the maximum number of objects
5113	A. G. Tescher	USNB Contribution: Advanced Coding Efficiency Profile clarification
5114	A. G. Tescher	USNB Contribution: Distribution of reference software for the Studio Profile
5115	A. G. Tescher	USNB Contribution: Request for Streaming Video Profile
5116	Gabriel Tsechpenakis, Yannis Avrithis, Stefanos Kollias	Verification Report of Core Experiment on Fast Block-Matching Motion Estimation using Advanced Diamond Zonal Search with Embedded Radar
5117	B.Thebault, D.Curet	Video Decoder specific information
5118	D.Curet, K.Renout	Logical Structures in ES
5120	Toshiro Kawahara, Sanae Hotani, Norio Nakamura	Summary of clarifications to EP tool part of MPEG-4 Audio Version 2 FPDAM
5121	Toshiro Kawahara, Sanae Hotani, Norio Nakamura	Support for Mobile Communication Audio Profile
5122	James Macnicol, Michael Frater, John Arnold	Results on Fine Granularity Scalability
5123	Michael Frater	VCV and VMV in MPEG-4 Visual
5124	A. Mufit Ferman, Santhana Krishnamachari, M. Abdel-Mottaleb, A. Murat Tekalp, Rajiv Mehrotra	Core Experiment on Group-of-Frames/Pictures Histogram Descriptors (CT7)
5125	Young-Kwon LIM, Carsten Herpel	Report of AHG on MPEG-4 backchannel and ESM
5126	Young-Kwon LIM	Walkthrough of MPEG-4 backchannel

<b>No.</b>	<b>Source</b>	<b>Title</b>
5127	Teruhiko Suzuki	Proposal of the visual descriptors for universal access
5128	Y.Toguri, N.Fujita, M.Nishiguchi	Description of the complexity scalable AAC decoder for the informative part of the 14496-3 AMD1
5129	Y.Toguri, N.Fujita, M.Nishiguchi	Report of the listening test results of AAC SSR with EP tool
5130	Takuyo Kogure, Itaru Kaneko, Aoki	Report of discussions on MPEG-4/IPMP requirements and applications in MPEG-PF(in Japan) System WG
5131	Takuyo Kogure, Itaru Kaneko, Aoki	Reservation of IPMPS_Type
5132	Ana B. Benitez, Neil Day, Sylvain Devillers	Report of the AHG on MPEG-7 DS Validation and Core Experiment Planning
5133	Ana B. Benitez (on behalf of the AHG on MPEG-7 DS Validation and Core Experiment Planning)	MPEG-7 DS Core Experiment (CE) Methodology
5134	Ana B. Benitez, Di Zhong, Shih-Fu Chang, Caterina Saraceno, Markus Kangas, B. J. Brown (Starlab)	MPEG-7 DS Validation Experiment on the Syntactic DS, the Semantic DS, and the Syntactic/Semantic Link D
5135	Osamu Sunohara, Yoichi Yagasaki	The draft of MPEG-4 Studio Profile Amendment Working Draft 2.0
5136	Osamu Sunohara, Yoichi Yagasaki, Hiroyuki Imaizumi, Shinichi Sakaida, Yoshiaki Shishikui	The report of bitstream exchange for MPEG-4 Simple Studio Profile
5137	The National Body of Japan	MPEG-4 Visual Version 2 Profiles Supported by JNB
5138	Osamu Sunohara, Yoichi Yagasaki	The proposal of uncompressed block coding mode for MPEG-4 Studio Profile
5139	Osamu Sunohara, Yoichi Yagasaki	The requirement for the definition of I-DCT implementation for MPEG-4 Studio Profile
5140	The National Body of Japan	Comments on ISO/IEC 14496-2 FPDAM1 (MPEG-4 Visual Version 2 FPDAM)
5141	Y.Toguri, M.Nishiguchi	Comments on MPEG-4 Audio Version 2 Profile
5142	The National Body of Japan	JNB Comments on MPEG-4 Version 2 Audio
5143	Masahiro Iwaware, Toshiyuki Nomura	A proposal for MPEG-4 Version 2 Audio Profile
5144	Masahiro Serizawa, Masahiro Iwaware, Toshiyuki Nomura	Editorial Comments on MPEG-4 Version 2 Audio FPDAM
5145	Ming Lee, Dave Pawson	MPEG-2 Transport Hint Track Format
5146	V V Vinod, B S Manjunath	Report of AHG on MPEG7 Color & Texture CEs
5147	Chee Sun Won, Dong Kwon Park, Yoon Seok Jeon, Seong-Joon Yoo, Soo-Jun Park	Composite Histogram Descriptor
5148	Dong-Gyu Sim, Hae-Kwang Kim	Cross Check Results of Texture Descriptor using Radon Transform
5149	Tihao Chiang, Huifang Sun	Report of Ad Hoc Group on Encoder Optimization
5150	Takefumi Nagumo, Yoichi Yagasaki	Coding efficiency with new functionality on Core Scalable Profile
5151	Sang-Wook Kim	MPEG Audio Web page related matters

No.	Source	Title
5152	Yong-man Ro, Ki-Won You, Munchurl Kim, and Jinwoong Kim	ÖCT-5þ Experimental results of a texture descriptor using Radon transform
5153	KNB	Support on Advanced Core Profile
5154	KNB	Comments on still texture coding part of MPEG-4 visual FPDAM 1
5155	KNB	Comments on video part of MPEG-4 visual FPDAM
5156	KNB	Comments on Audio part of MPEG-4 FPDAM
5157	The National Body of Japan	JNB Comment on ISO/IEC 14496-2
5158	The National Body of Japan	The Additional MPEG-4 Visual Version 2 Profiles Supported by JNB
5159	Shuichi Watanabe	A descriptor on the spatial activity of motions in a scene: CE results and suggestions on moiton activity
5160	Roberto Castagno	Minutes of the MPEG/IETF Phone Conference on MPEG-4 over IP, Vancouver/Oslo, 15.7.99
5161	Gauthier Lafruit on behalf of BIN/IBN	BNB Comment on MPEG-4 Visual FPDAM1
5162	Gauthier Lafruit on behalf of BIN/IBN	BNB Comment on MPEG-4 Systems FPDAM1
5163	Gauthier Lafruit	Report AHG on Video Decoder Quality of Service
5164	Gauthier Lafruit	Single backchannel for SNHC decoder's performances
5165	Cecile Dufour, Jacques Paulin	Proposal for Full-scale adaptive Macroblock Quantization in MPEG-4 Video V2: further work
5166	Mirosław Bober	Further Improvements to Retrieval Performance of the CSS-Based Contour Shape Descriptor
5167	Mirosław Bober, Jim Atkinson	New Functionalities: Retrieval Performance of the XM Shape Descriptors under Partial Occlusion
5168	Paulo Nunes, Fernando Pereira	Implementing the MPEG-4 Video Buffering Verifier for the Core Profile- Some Results
5169	Munchurl Kim, and Jinwoong Kim	CT-5: cross-check results of the texture descriptor proposed by Huyndai Electronics
5170	Jinwoong Kim	Report of the ad-hoc group on Object-based content creation for MPEG-7
5171	Jae-Seob Shin	Support Statement for the Profiles under consideration
5172	S. Herrmann	Ad-hoc Group Report: AHG on organizing the software integration of MPEG-7 Visual XM Tools
5173	Se Hoon Son, Jae-Seob Shin	Proposal for 14496-4/Amd1 WD, Visual - OBSS
5174	Dae-Sung Cho, Jae-Seob Shin	Proposal for 14496-4/Amd1 WD, Visual - SSST
5175	The National Body of Japan	Request for workplan of the revision of Video Reference Software
5176	H.Nishikawa, S.Sekiguchi, Y.Yamada, Y.Isu and K.Asai	Specification of the generated MPEG-4 visual conformance bitstreams
5177	Jean H.A. Gelissen,, Ralf F.M. Funken	Comments to the MPEG-4 Version 1& 2 Audio parts.
5178	Han-kyu Lee,, Munchurl Kim,, Jinwoong Kim,, Nam-Kyu Kim,, Hae-Kwang Kim	A Human Body Model based 2-D/3-D Pose and Action Descriptors and Description Scheme
5179	Thomas Sporer, Ralph Sperschneider	Listening Test Procedure for Intermediate Audio Quality



<b>No.</b>	<b>Source</b>	<b>Title</b>
5180	Ralph Sperschneider	A New Listening Test Method Proposed to Test Error Robustness Capabilities
5181	Ralph Sperschneider, Daniel Homm	FhG Comments on MPEG-4 Audio Version 2 FPDAM
5182	Bernhard Grill	Support Statement for MPEG-4 Version 2 Profiles
5183	How-Lung Eng	A Motion Trajectory Analysis Tool for MPEG Video
5184	How-Lung Eng	A Motion Trajectory Analysis Tool for MPEG Video
5185	B. Grill, M. Iwadare	Report of the ad-hoc group on MPEG-4 audio version
5186	Yuichiro Nakaya, Yoshinori Suzuki	VBV, VCV, and VMV specifications for sprite sequences
5187	A. Puri, R. L. Schmidt, L. T. Cheok	BIFS node for integration of MPEG-4 with other applications including the web
5188	Fabrice Vergnenegre, Tolga K. Capin	Status of integration of body animation in im1/3DPlayer
5189	A. Puri, Q. Huang	Towards the specification of synthetic Model DS for MPEG-7
5190	Hawley K. Rising III	Axiomatization of Description Scheme Objects
5191	Ana B. Benitez, Shih-Fu Chang, John R. Smith, Chung-Sheng Li, Caterina Saraceno	Multimedia Archive Description Scheme
5192	Santhana Krishnamachari, Mohamed Abdel-Mottaleb	Results of the compact color descriptor core experiment (CT2)
5193	Yuji Maeda, Masayuki Nishiguchi	Revised description of HVXC variable bit-rate mode for version2
5194	The National Body of Japan	JNB comments on Studio Profile
5195	Andreas Graffunder, Stefan Rauthenberg	Update of document M4776: Fast MPEG-4 Video Decoder Demonstrating Realtime Operation
5196	Mark Pawlewski, Daniel Baum	Cross-Verification Results for MPEG-7 Core Experiment CT6
5197	Giorgio ZOIA	Update of N2790 for SA and AudioBIFS conformance
5198	Alain de Cheveigni, Bennett Smith	A "sound transparency" descriptor
5199	Alain de Cheveigni, Geoffroy Peeters, Perfecto Herrera	Issues on Audio CE for Melody Description
5200	Koichi Emura, Toshihiko Munetsugu	Proposal of Pointofview DS
5201	Ed Hartley, Jim Wilkinson	Tutorial on the SMPTE Metadata Dictionary
5202	Ed Hartley	DDL Parser Development Status Notes
5203	Jeff McVeigh	Proposed procedure for testing the extensibility mechanisms within 13818-2
5204	Carsten Herpel, Jan van der Meer	Report of AHG on MPEG-4 Content on MPEG-2 Systems and on the Internet
5205	Carsten Herpel, Jan van der Meer	Strictly timed FlexMux streams
5206	Chitra Dorai, Ruud Bolle, Lalitha Agnihotri, Nevenka Dimitrova	MPEG-7 VIDEOTEXT DESCRIPTOR SYNTAX
5207	Mohamed Abdel-Mottaleb, Jonathan Connell, Ruud M.	Face Descriptor Syntax

No.	Source	Title
	Bolle, Rama Chellappa	
5208	Martin Dietz, Torsten Mlasko	Profile Considerations for of Digital Narrowband Broadcasting
5209	D.Curet, K.Renout	SL & the AU number
5210	D.Curet, K.Renout	FlexMux & RTP & RTCP
5212	Riitta Vddndnen, Jyri Huopaniemi	Advanced AudioBIFS parameter harmonization
5213	Riitta Vaananen	Study on Systems version 2 BIFS (14496-1 FPDAM, part 2)
5214	Kyuheon Kim, Won-Ha Lee	Cross-checked results for CE on parametric color distribution by ETRI
5215	Eric Petajan, Tolga Capin	FBA adhoc Report
5216	Gary Sullivan	Proposed MPEG-2 Video Draft Informative Annex on Progressive-Scan Display Issues
5217	Andreas Graffunder, Stefan Rauthenberg	Update of document M4776: Fast MPEG-4 Video Decoder Demonstrating Realtime Operation
5219	Heiko Purnhagen	Comments on MPEG-4 Audio Version 2 Profiles
5221	Oliver Morgan	On representation of MPEG-7 DDL, DSs, Ds in the SMPTE Metadata Dictionary
5222	Ibrahim Sezan, Peter van Beek, Yoshiaki Tomioka, Kyoungro Yoon, Jungmin Song, Hee-Youn Lee	A Proposal for User Preference Descriptions in MPEG-7
5223	Peter van Beek, Ibrahim Sezan	Core Experiment CT3 on Spatial Information Embedding Color Descriptors
5224	Peter van Beek, Ibrahim Sezan	Results of CE CT3 on Spatial Information Embedding Color Descriptors
5225	Ajay Divakaran, I-Jong Lin, Anthony Vetro, Sun-Yuan Kung	The Directed Acyclic Graph Composed Description Scheme - A composition and comparison framework for MPEG-7 description schemes
5226	Ajay Divakaran, I-Jong Lin, Ana Belen Benitez, Anthony Vetro, Sun-Yuan Kung	A Directed Acyclic Graph (DAG) based application of Entity-Relationship Graphs.
5227	Caterina Saraceno, Ana B. Benitez, Shih-Fu Chang	Integration of the Semantic DS and the Syntactic DS in the Generic AV DS
5228	Michael Casey	Sound Effects Core Experiment (CE)
5229	Gary Sullivan	JTC1 directives and the MPEG-J° Java normative references
5230	Frank Bossen Ed.	Swiss NB comment on Audio conformance
5231	Frank Bossen Ed.	Swiss NB comments on 14496-2 FPDAM 1 and 14496-1 FPDAM 1
5232	Peter K. Doenges, Euee S. Jang	Report of Ad Hoc Group on Study of Applications for Animated 3D Model Coding
5233	ITU-R WP 11A	QUALITY MEASURES FOR EXTREMELY HIGH-RESOLUTION
5234	ISO/TC 46/SC 9	Additional Revision to ISO/CD 15706, ISAN
5235	Bing-Bing Chai, Iraj Sodagar, Hung-ju Lee	Propose minor syntax changes for supporting the combinations of wavelet new tools in MPEG-4 version 2

<b>No.</b>	<b>Source</b>	<b>Title</b>
5236	Weiping Li, Iole Moccagatta, Iraj Sodagar, Ibrahim Sezan	Support for Advanced Scalable Texture Profile and Advanced Core Profile
5237	Titus Zaharia, Francoise Preteux	Results of Core Experiment on Object Motion: Similarity Measures for Parametric Motion Models
5238	Viswanathan Swaminathan, Gerard Fernando	Text (and Edit List) for Study of MPEG-J subpart of Systems FPDAM-1
5239	Gerard Fernando	MPEG-J AHG Report
5240	Francoise Preteux, Titus Zaharia, Marius Preda	Results of Core Experiment on 3D Shape: The Cord Histogram Descriptor Related Performances
5241	Zvi Lifshitz	IM1 AHG Report
5242	Titus Zaharia, Francoise Preteux, Marius Preda	3D Shape Spectrum Descriptor
5243	Sylvie Jeannin	MPEG-7 Visual part of eXperimentation Model Version 2.1
5244	A. Aydin Alatan, Ajay Divakaran, Mufit Ferman and, A. Murat Tekalp	A proposal for Probability Model DS
5245	Zvi Lifshitz	IM1 Core Code and Authoring Tools
5246	Sylvie Jeannin	Report of the AHG on editing the MPEG-7 Visual XM
5247	Mirosław Bober, Sylvie Jeannin	Report of the AHG on Motion and Shape Descriptors
5248	Zvi Lifshitz	Study of Systems Version 2 VM (PROTOS)
5249	Zvi Lifshitz	Accessing stand-alone elementary stream files
5250	Krit Panusopone, Xuemin Chen	Results of diamond search motion estimation for interlaced video
5251	Alejandro Jaimes, Corinne Jorgensen, Ana B. Benitez, Shih-Fu Chang	Multiple Level Classification of Visual Descrip
5252	Alejandro Jaimes	Multiple Level Classification of Visual Descriptors in the Generic AV DS
5253	Francoise Preteux, Titus Zaharia, Marius Preda	Core Experiment on Motion Trajectories: New Data Set and Preliminary Results
5254	Julien Signes	Report of the BIFS AHG
5255	Julien Signes	Report of the Web3D liaison
5256	Rob Koenen	MPEG-7 Requirement - metadata on coding parameters
5257	Gary Sullivan	Syntax for Supporting Video Instantaneous Frame Rate and Scene Framing Indications
5259	Mihaela van der Schaar, Yingwei Chen, Hayder Radha	Proposal for experiment on coefficient prediction for FGS enhancement layer coding
5260	Sung-Hee Park, Yeon-Bae Kim, Sang-Wook Kim	Backward Channel for Fine Granule Audio (BSAC)
5261	A. K. Huber, K. Liang, and C.-M. Huang	Low-complexity lossless video coding requirement
5262	Sang-Wook Kim	Short analysis of MPEG-4 New Profiles under consideration: Audio part
5263	Jang, Nakaya, Son, Nagumo, Shin, Fukunaga	AHG report on editing the documents of the MPEG-4 Visual PDAM and the MPEG-4 video verification model
5264	Jang	A proposal for 3D graphics broadcast profile

<b>No.</b>	<b>Source</b>	<b>Title</b>
5265	Kadir A. Peker, Aydin Alatan, Ali N. Akansu	Motion Activity Core Experiment Report
5266	Riccardo Leonardi, Giovanni Paltenghi, Lorenzo Rossi	Limitations of the MPEG-7 DS: Reorganizing the Syntactic/Semantic DS's
5267	Riccardo Leonardi, Giovanni Paltenghi, Lorenzo Rossi	Limitations of the MPEG-7 Generic DS: Reorganizing the Syntactic/Semantic DS's
5268	Guido Franceschini	Proposed text for DMIF corrigendum
5269	Yoichi Yagasaki	Ad hoc Group Report on the Studio Profile in MPEG- 4 Video
5270	Ahmet Ekin, J. Yue Fu, Rajiv Mehrotra, A. Murat Tekalp	Video EMU Retrieval Using Parametric Object Motion Descriptor
5271	Craig Birkmaier	Requirements for a new MPEG-2 Level and Progressive Profiles
5272	SMPTE via the SC 29 Secretariat	Liaison Statement from the SMPTE on Draft SMPTE Metadata-related Standards and Recommended Practices (SC29N3255)
5273	Thomas Buchholz, Miikka Vilermo, Claus Kupferschmidt, Wiebke Johannsen	Annex to the Report on the Selection Process for the MPEG-4 Version 2
5274	Toshiyuki Nomura, Masahiro Iwadare	A proposal for RTP packetization of MPEG-4 Audio bitstream
5275	Matthew Goldman	AHG Report on DSM-CC support to data broadcasting
5276	DW Singer	AHG Report on File Format
5277	DW Singer	Proposed MP4 Hint track format for RTP
5278	MMA via the SC 29 Secretariat	Liaison Statement from MMA on DLS2/SASBF (29N3261)
5279	Takehiro Moriya	Support Statement of MPEG-4 Audio Version 2 Profile
5280	Shigeru Fukunaga,, Hideaki Kimata	RTCP payload format for MPEG-4 backward channel messages
5281	Michelle Kim, Peter Westerink	FlexTime (Advanced Synchronization Model)
5282	Michelle Kim, Peter Westerink, Will Belknap	Study of FlexTime realizaton in MPEG-4

*Annex 4*  
**Requirements Group Report**

**Source: Rob Koenen**

## **MPEG-4 Version 2 Profiles**

Version 2 Profiles were discussed for the Systems, Visual and Audio parts of the standard.

### **Visual**

m4637 *SC 29 Secretariat* - Summary of Voting on ISO/IEC 14496-2/PDAM 1

m4647 *Swedish National Body* - Support for the Main-Plus Profile

m4656 *A. G. Tescher* - USNB: Main Plus ARTS profiles (as superseded by 4953)

m4662 *A. G. Tescher* - USNB Contribution: Request for additional profile

m4727 *Andre Kaup* - Response to Resolution 3.1.6 of the 47th WG11 meeting

m4760 *N. Ito, D.-S. Cho* - The Detail Definition of Advance Scalable Texture Profile

m4778 *UK National Body* - UK NB Comments on Main-Plus profile

m4795 *Weiping Li* - Application of Advanced Scalable Texture Coding Profile

m4862 *Jae-Seob Shin, Norio Ito, Yoichi Yagasaki* - Requirement improvement of the Core Scalable Profile document

m4910 *Rob Koenen* - Dutch NB votes to MPEG-4 V.2 ballots

m4912 *Iraj Sodagar, Hung-Ju Lee* - Support for advanced scalable texture profile

In a joint meeting with the Test and Video Groups, it was established that evidence exist of superior performance of the following two new profiles: ‘Main plus’ and Advanced Real-Time Simple (ARTS). Combined with the support received from companies, and the national body support expressed in the votes, there was enough basis to adopt the new profile in the FPDAM. The discussion was on the exact form it should take.

The US supported the profile in a different form than the other NB’s; in fact it was supported in one of the following two incarnations:

- a) as Main + three new tools Main+ with sprite and wavelet added), or
- b) as a subset of Studio Profile

Option b) was ruled out, because the Studio Profile under consideration only uses I-VOPs (‘Simple Studio’) and I, P VOPs (for Core Studio Profile). So it will be very difficult to make Main plus a subset of that. Furthermore, the Studio Profiles are still under development, and moreover they involve syntax changes.

So the choice was between Main+ as defined in N2726 (MPEG-4 Profiles under consideration and Main+ as a superset of Main. Because the supporting companies and other NB’s did not want to add tools, it was decided to define Main+ as in N2726.

The name was changed to Advanced Coding Efficiency, as proposed by the German NB.

No requests were put forward for the Core Scalable profile, but the discussions made clear that this was because of a misunderstanding, related to the fact that no test were needed for Core Scalable. After the Japanese and Korean NB’s came with resolutions to support the profile, it was also adopted in the standard.

There were two different profiles proposed with Advanced Scalable Texture, one with the Core Video object type and one with just the Advanced Scalable Texture object type. The first was supported by the Japanese NB, the second by the US NB. Because the profiles had not been present in the Profiles under development document, the other NB’s had not had the chance to look at them and consider them for adoption in the standard. Therefore, it was decided to include the proposals in this document, and the postpone further discussions until also other NB’s have had the chance to

express their opinions. There was some concern about the Advanced Scalable Texture profile as proposed by the US, because it contains only still images.

The topic of a joint meeting with SNHC was also ‘profiling’. After some discussions and explanations on how profiling works in MPEG-4, the SNHC group has come forward with 5 new proposals:

- Face/Body Animation profile
- hybrid (FBA + Core object type + 3D Mesh) profile
- Three 3D Mesh profiles

The requirements group is of the opinion that 3 3D mesh profiles is too much, and further concludes that it is unthinkable to have bitrates going up to 650 Mbit as currently - probably mistakenly - described in the document.

## **Audio**

In three joint sessions with the Audio Group, V.2 Profiles were discussed. Two of these meetings were spent on explaining the principles, while the third was used to discuss proposals coming from the Audio group. It was decided to remove the current three, very preliminary profiles from the draft standard, and to include 6 proposed profiles in the ‘Profiles under development document (N2858):

- Mobile communication audio
- High quality audio
- Low delay audio
- Scalable streaming audio
- Error resilient speech
- Error resilient scalable audio

The Requirements Group thinks that adding 6 new profiles to the standard (bringing the total to 10) is too much, and that such an amount will work against the adoption of the MPEG-4 (Audio) Standard.

## **Systems**

The systems group proposed a set of new Profiles that include the new V.2 nodes. They were briefly discussed in a joint meeting. The profiles follow below.

## **Scene graph**

There is a proposed *Version 2 Complete* Scene Graph Profile, that includes new audio nodes. Furthermore, from the Audio and Systems group there is are Level proposals for the Audio and Simple 2D Profile

## **Graphics**

There are proposals for two new Graphics Profiles: *Version 2 Complete* and *Version 2 Complete 2D*. Both are V.2 Versions of existing V.1 Profiles: V.1+ Body nodes + MaterialKey + Acoustic Material.

## **MPEG-J**

Two MPEG-J profiles are under consideration: *Personal* and *Interactive*.

## **File format**

Discussions about the file format have made clear that it may be desirable that standardise two profiles, one for *Interchange*, and one for *Streaming*.

## **MPEG-4 Requirements**

## **IPMP**

m4802 *Itaru Kaneko* - The IPMP interface for the design level portability

m4805 *H.Inoue, et. al.* - Proposal for an advanced IPMP Descriptor

m4803 *Itaru Kaneko/MPEG-PF* - A proposal for the further work on MPEG-4 IPMP

m4804 *JNB/Itaru Kaneko* - Japanese National Body Contribution on MPEG-4 IPMP

Studies conducted in the Japanese MPEG-4 PF have revealed several issues about the MPEG-4 IPMP. A good discussion was held in the requirements group, and it was made clear that there is some ambiguity in the IPMP descriptor as defined in 14496-1. This will be corrected in the corrigendum. Furthermore, it is clear that MPEG-4 IPMP is not yet done, and the activity will continue. The contributions asked for extended descriptors, but it was not entirely clear whether these are indeed needed, or whether the existing specification already provides the hooks to implement the desired functionality. The matter will be further studied in an AHG. The same applies to the need for additional interfaces between the IPMP system and the Audio and Visual decoders. Furthermore, it is highly desirable to provide examples in IM1 of a working IPMP implementation.

## **Watermarking**

A late contribution on watermarking did not lead to a change of conclusions of the Stockholm meeting still holds, and the requirements group still is of the opinion that standardising watermarking techniques is not necessary. However, the group would like to be informed by parties that hold a different opinion, and invites input contributions on the matter. A resolution to this end was adopted.

## **Studio Profile**

m4877 *Osamu Sunohara, Yoichi Yagasaki* - Proposals for MPEG-4 Studio Profile from Application Study.

A short update on the Studio Profiles was given to the Requirements Group; the work now is in full swing in the Video group. The most interesting technical requirements are the introduction of a slice structure to support trick modes and the possibility to store different alpha masks for a single image.

## **MPEG-7 DDL**

**m4851** E. Hartley - UK National Body Comments on DDL Development

**m4780** Faudemay et al Basic semantic for description

**m4940** Kazumasa et al Video contents Markup Language (VCML) Specification for MPEG-7

About m4780 and m4940: The presented ideas in both cases were considered interesting. The group decided that the proposed techniques were already covered by existing DDL elements, and hence, the proposals were taken as example applications which could be expressed by the DDL.

Further work items:

- representation of video D of the XM in XML-Schema
- discussion on links - it was understood that the discussion with the DS group on this topic needs to be intensified
- discussion on parser issues -mainly needed for the development of our language
- design of a template for descriptions to be used by the DS group
- design of an introduction to XML - Schema
- DDL document V 1.0

The DDL group was confronted with a difficult decision in Vancouver. Most people agree that the XML Schema language is the best starting point for the DDL, technically, and also from the perspective of acceptance of the MPEG-7 standard. There are, however, some serious risks. Will the XML schema spec be stable when we need it? Will we get the needed support from the W3C? How to deal with a normative reference to a document managed by a private organization? To avoid unacceptable risks, MPEG needs to work on a fallback solution: an independent development of a description definition language (DDL). Ed Hartley considers working on a parser, and UPMC is working on one. Also IBM seems to have a parser, but it is unclear what it does and whether/how it could be made available.

The development of the DDL will be initiated by further refinement of the schema language identified as the basis for DDL development at the Lancaster proposal review meeting. Following this a Backus Naur Form (BNF) representation of the language will be created. A parser will then be developed for this language with a view to integrating this parser into future versions of the MPEG-7 eXperimentation Model (XM).

In parallel with these activities a liaison relationship with the W3C will be pursued. This liaison will have the objective of ensuring that the MPEG-7 DDL requirements are considered by the W3C XML Schema working group and that W3C XML Schema working documents are made available to members of MPEG. The following people will act as liaisons:

- Jane Hunter: XML Schema
- Frank Nack: Xlink/Xpointer/Xpath

It is anticipated that a translation mechanism between the DDL and the XML Schema will be developed. This should enable XML to be used to leverage the MPEG-7 standard.

The UK NB also expressed concerns about the compactness of the descriptions. The answer is that we need a binary version of Descriptions and the DDL, something that has always been in the plan. Also, we will need the Systems group's experience.

## **MPEG-7 Requirements**

### **General Issues**

**m4649** F. Pereira (on behalf of the AHG) - Report of AHG on MPEG-7 Requirements

**m4650** Fernando Pereira (editor) - Proposal for MPEG-7 Requirements Document V.9

**m4839** *Adam Lindsay* - MPEG-7 Applications Document

**m4909** *Rob Koenen* - Suggested revisions to MPEG-7 C,O & TR

The revised requirements document as resulting from the work of the AHG was taken as the basis of a new version. It has a completely revised structure now. A few further modifications were made during the meeting, see below. The input on the MPEG-7 Applications, m4839 document was also adopted as basis for output. Notably the Universal MM Access application was added.

A new C,O & TR document was output based on the changes proposed in m4909. The proposed section on technical details was deleted for the time being, and should be re-included and filled in the next meeting. The temporarily deleted figure should be included in that section.

**m4902** *Neil Day, Takayuki Kunieda* - Ideas for Application Description Scheme

An interesting contribution that proposed to test the work against real applications. It was decided to indeed do this, in an AHG. (The DS group initiated this AHG)

**m4746** *G. Vaithilingam, M. Abdel-Mottaleb* - Meta-descriptor for multimedia data

Contribution on associating weight to features, close to the weight DS. Considered useful, and further discussed in the DS group. Requirements note: of course queries can always override these weights.



**m4775** *John R. Smith, et. al.* - Conceptual Modeling of MPEG-7 Description Schemes  
Proposes to use a formal design method (Object-oriented or Entity-relation) model as a sanity check for the DS design activities. Although there was concern with some people (would it not eat too many resources, would it work?) it was decided that it is very worthwhile giving this a try. In any case, it should not replace but rather complement the current way of working. An AHG (spawned by the DS group) was tasked with this work.

**m4680** *EBU via the SC 29 Secretariat* - Liaison Statement from EBU on P/FTA and P/META (29N3124)

Giorgio Dimino presented P/FTA and P/META, two work items of the EBU. FTA stands for future TV archives, and is about core metadata to go with the media, and about tools and using them. On P/META: EBU thinks about using SMEF, and seeks to extend this to a European SMEF, use this in emerging SMPTE frameworks. The work has just started, and the EBU is interested in preparing user requirements. MPEG is eager to work with the EBU, and we are interested to learn the requirements, and then in trying to meet them in MPEG-7. A liaison was sent back explaining this.

**m4701** *M.F. Vetter* - KLV Encoding of Metadata with Compressed (Bit-efficient) Option

**m4654** *Michael F. Vetter* - Draft SMPTE Metadata Dictionary (Version 1.0)

**m4936** *Michael Vetter* - Recommendations on Harmonization of MPEG-7 and SMPTE Metadata  
Some potential customers of metadata standards are concerned about competition between MPEG-7 and SMPTE. They shouldn't (need to) be, as both parties see the benefits of co-operation. MPEG and SMPTE complement each other in background and expertise; SMPTE has defined many 'traditional' Metadata items, and MPEG seeks to standardize descriptors based on signal analysis in addition. MPEG-7 can provide a structure to complex metadata expressions, and also SMPTE wants to look into XML as a way to express structure. There are a few differences:

- the time schedules are two years apart (SMPTE being the earliest)
- SMPTE only addresses high level metadata for broadcast and consumer stuff
- SMPTE does not have a structure, while MPEG works on the DDL and DS's
- SMPTE is very concerned about bit-level interoperability (but so is MPEG)
- SMPTE addresses transport, while MPEG-7 may very well not touch this - only the interface
- SMPTE is dynamic, while MPEG standards so far have a more static nature

The Requirements Group sees benefit in working closely together, as follows:

- using common, SMPTE defined high level descriptors, linking to single Global Dictionary
- Common view on usage of DDL and XML Schema language
- Provide a common systems-level exchange
- Doing joint core experiments?
- Use of SMPTE registration authority for extensions can be considered. (SMPTE already registers MPEG-2 elements).

A joint AHG has been set up by the DS group.

Question: Would all MPEG-7 need to be encoded through KLV? Answer: A single Key/length pair could precede a very long block of (encoded or text based) MPEG-7 data.

**m4771** *Jose M. Martinez* - MPEG-7 metadata taxonomy

The contribution proposes an overview of DS's. It is thought very useful to have such an overview, for two purposes:

- 1) as a management tool, to see what is on the table and where the gaps are;
- 2) as a PR instrument, to use in a similar fashion as the MPEG-4 overview and in combination with the MPEG-7 C,O & TR

It was decided to have this contribution as a first draft of such an overview document, to change its title from *Metadata Taxonomy* to *Overview of D's and DS's* and to work on improvement in the

Requirements AHG. While it will not be made publicly available this time, it should be possible to do so at the next meeting.

**m4770** *The National Body of Japan* - user preferences for an MPEG-7 description

**m4857** *Korean NB* - KNB Comment on Supporting for MPEG-7 Description of Users

The responses to resolution 3.1.12 of the Seoul meeting do show support for the user preferences requirement, but also ask for caution. The Korean NB is a stronger supporter than the Japanese NB. The requirements group shares the concerns, and decided to change the originally proposed requirements to express these concerns. Moreover, no requirement for describing demographical data was added to the MPEG-7 Requirements Document. The requirements now read:

*14. User preferences - MPEG-7 shall support a means to specify a user's preferences in browsing, filtering and searching multimedia material, respecting the user's privacy.*

*15. User usage history - MPEG-7 shall support a means to specify a user's usage history in browsing, filtering and searching multimedia material, respecting the user's privacy.*

The requirements group believes that this satisfies the desire to work with user preferences pertaining to audiovisual content - when this is in the interest of the user-, while preserving user privacy.

The JNB further recommended to consider P3P as a framework for privacy and user preferences. The Requirements group agrees that this is worth studying.

**m4751** *I.-J. Lin, A. Vetro, A. Divakaran, H.-f. Sun, S.-Y. Kung* - A New Shape Representation With Added Functionality Based on DAG Ordered Trees.

It was decided to add an note to the Requirements document, see section 4.1.1, bullet 1.

**m4813** *L. Rossi, R. Leonardi* - MPEG-7 Requirements to Highlight and Order Description Items

Based on the discussion it was decided to add a requirement for pointing at key items and a requirement for pointing at key characteristics that can be used to index key items.

**m4702** *E. Wan, A. Lennon* - Associating Procedures with Descriptors and Scenarios of Use.

A discussion on linking to procedural code. It is not quite the same as expressing procedural code, something which was put as a second priority. The applications described in the document make sense, but it is difficult to completely understand implications. The authors were asked to study the implications, and we should further discuss the issue.

**m4684** *SC 24 via the SC 29 Secretariat* - Liaison Statement from SC 24 on Metadata (SC 29 N 3126)

The liaison speaks about the co-operation between JPEG and MPEG, and about still picture metadata requirements. SC24 has also defined still picture metadata.

**m4644** *JTC 1/SC 34 via the SC 29 Secretariat* - Liaison Statement from SC 34 on Development of Multimedia Information Retrieval System Architecture with Integrated Image Information Retrieval Technique

The liaison explains SC34's plan to develop a retrieval architecture. A liaison was sent back to state that MPEG-7 will define descriptions that SC34 may want to make use of. MPEG has no intention to develop any retrieval architecture itself.

### **Joint meeting with JPEG and DIG representatives**

A joint meeting with representatives from the JPEG2000 work item was held. JPEG takes backseat with respect to metadata. The philosophy is to take metadata definitions from other bodies, and encapsulate them.

JPEG2000 part 2 is ahead of MPEG-7 by only a few months. It comes in two parts. Part 1 (to go to CD in Maui) one has minimal wrapper:

- Color space
- Version number
- Spatial resolution
- Placeholder for IP metadata

Part one has also architecture for storage. This includes a directory.

- where (in file or remote)
- Metadata about the metadata (when created, when edited, can it -copyright- be remotely updated, etc.)

Part two - extensions (CD in July 2000; IS July 2001) has hotspots in image with metadata associated. Options, still open, are to reference MPEG-7, and to include other metadata.

It is believed that MPEG-7 should and will be able to fulfill JPEG's metadata requirements. To start the joint work going, relevant documents will be exchanged. MPEG has a *Requirements Document*, an *Applications Document*, the *MPEG-7 Context, Objectives and Technical Roadmap*, and will have as from the next meeting an *Overview of Descriptors and Descriptions Schemes*. JPEG has one document with all this information.

The following actions are agreed upon:

- The relevant documents will be exchanged between the two groups through links to publicly available web sites.
- MPEG studies JPEG2000 requirements document
- JPEG people can give input to MPEG-7

Touradj Ebrahimi will make JPEG people aware of MPEG-4's IPMP framework, and the IPMP activity in MPEG-7.

DIG35 is the metadata activity in Digital Imaging Group. Version 1 of that work will complete this year. DIG will come to Melbourne to further work on still image metadata in MPEG-7 (They already had proposal in Lancaster). It is agreed that MPEG-7 will send a liaison to DIG; MPEG

### **MPEG-7 IPMP**

m4924 *Keith Hill, G. Rust, M. Bide* - Introduction to the INDECS Metadata Schema

m4926 *Keith Hill, Godfrey Rust, Mark Bide* - INDECS Metadata Model

m4928 *Keith Hill, Mark Bide* - INDECS Directory of Persons: Outline Specification

m4929 *Keith Hill, Godfrey Rust* - INDECS Data Dictionary: Outline Specification

Keith Hill gave an overview of the work of INDECS. The conclusion was that an IPMP activity is needed in MPEG-7 as well, and that INDECS has done much work (and is doing more) to build upon. It was decided to start an IPMP activity in MPEG-7, with two aims:

1. seeing how IP-related issues can be described in terms of descriptors and description schemes
2. Defining the requirements for protection of descriptions.

A break-out group formed to further discuss the issues.

During this work the MPEG-7 Requirements Document was updated. The MPEG-7 IPMP work will be continued by an MPEG-7 IPMP Ad-hoc group by firstly examining business models that relate to IPMP issues and by working on the IPMP parts of the MPEG-7 Requirements Document.

## Multimedia Description Schemes report

**Source: Philippe Salembier**

### Overview:

The main activity during the week has been to define and launch a set of Validation / Core experiments. The DSs included in the Generic AV DS document need to be validated before being included in the XM (and the WD). The list of experiments includes:

- Validation Experiment on the Syntactic DS, the Semantic DS, and the Syntactic/Semantic Links DS
- Validation of the MPEG-7 Summary DS
- Validation Experiments for MPEG-7 model DSs on Visual Data
- Validation Experiments for Universal Multimedia Access
- Validation Experiment for Ordered Relation Graphs
- MPEG-7 Core/Validation Experiment on the Weight DS
- Validation Experiment on MPEG-7 DS from the Viewpoint of Video Editing and Production
- Validation Experiment for Digital Patient Record
- Core Experiments for MPEG-7 Shape/Motion descriptors (*with the video group*)

The generic AV DS itself has been slightly updated but no major modifications were introduced.

### Structure of the Generic AV DS

Num.	Contributions
5007	Semantic Segment Relational Graph DS
5040	MPEG-7 Generic AV DS (V0.6)
5041	AHG Report on MPEG-7 Generic AV DS Development
5098	Supporting information for the Generic AV Description Schemes (V0.6)
5225	The Directed Acyclic Graph Composed Description Scheme - A composition and comparison framework for MPEG-7 description schemes
5226	A Directed Acyclic Graph (DAG) based application of Entity-Relationship Graphs.
5227	Integration of the Semantic DS and the Syntactic DS in the Generic AV DS
5267	Limitations of the MPEG-7 Generic DS: Reorganizing the Syntactic/Semantic DS's

**5040** MPEG-7 Generic AV DS (V0.6)  
*Philippe Salembier (on behalf of the DS AHG)*

**5041** AHG Report on MPEG-7 Generic AV DS Development  
Philippe Salembier, Joerg Heuer, Vincent Puig, Toby Walker

**Outcome** : Those documents were reviewed and discussed during the AHG meeting held on the Sunday before the meeting. Document M5040 was used as reference for the MDS work during the week.

**5098** Supporting information for the Generic AV Description Schemes (V0.6)  
Philippe Salembier

**Outcome** : The document describing the Generic AV DS (M5040) mainly concentrates on the syntax and semantic of the DS. As a result, it is rather abstract and it was found useful to develop a supporting information document. The goal of this document will be to illustrate the use of the DSs, to describe practical examples and also to give some information about

non-normative tools. This document should be synchronized with the main Generic AV DS document. An editor (Caterina Saraceno) was identified to take charge of this document.

**5225** The Directed Acyclic Graph Composed Description Scheme - A composition and comparison framework for MPEG-7 description schemes

Ajay Divakaran, I-Jong Lin, Anthony Vetro, Sun-Yuan Kung

Proposal of extension of the tree structures by a DAG. What are the consequences in the structure of the DS?

**5226** A Directed Acyclic Graph (DAG) based application of Entity-Relationship Graphs.

Ajay Divakaran, I-Jong Lin, Ana Belen Benitez, Anthony Vetro, Sun-Yuan Kung

**Outcome:** Both papers were jointly presented. The functionality provided by Directed Acyclic Graphs (DAS) was illustrated in particular for multiple interpretations. It was also shown how DAGs could be viewed as an application of entity-relation graphs. The functionality seemed to be attractive. However, the necessity to modify the DS syntax raised some concerns. The proposers were encouraged to develop a validation experiment. At the end of the meeting, a validation work indeed proposed (N2975).

**5007** Semantic Segment Relational Graph DS

Kyoungro Yoon

**Outcome:** The contribution proposes to define semantic relations between segments and in particular defines relations such as “abstract/detail” and “Cause/Effect”. The contribution clearly supports the merging of the various relation graphs into a single one. Moreover, the issue is related to the unresolved discussion about the lack of description of semantic instances in the current DSs. This discussion will continue under the framework of the AHG on Generic AV DS development (N2976).

**5267** Limitations of the MPEG-7 Generic DS: Reorganizing the Syntactic/Semantic DS’s

*Riccardo Leonardi, Giovanni Paltenghi, Lorenzo Rossi.*

**Outcome:** This contribution was addressing two different issues:

- 1 Issues of description of semantic instances or of semantic types. It was proposed to include a semantic description of the segment, for example a type of segment DS. However, it was noted that this feature is already included in the Generic AV DS.
- 2 Ordering key DS and key items: The overlap with the notions of weight, summarization and some features of the Model DS was discussed. As a result, an experiment on Weight DS (N2972) was planned during the week and the results will be reviewed at the Maui meeting.

**5227** Integration of the Semantic DS and the Syntactic DS in the Generic AV DS

Caterina Saraceno, Ana B. Benitez, Shih-Fu Chang

**Outcome:** The proposal was to attach semantic information to the Segment to support the description of semantic instances (the current semantic DS is oriented towards the description of semantic types). Since the proposal was not very precise on the new entities to be introduced in the DSs, the work continued in a breakout group. However, the breakout group did not reach consensus on this issue during the week. Some of the discussion results (with a disclaimer that there is no consensus!) are documented in an annex of the generic AV DS document. The work will be carried on in the AHG on Generic AV DS development (N2976).

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## Segment DS

Num.	Contributions
5016	Universal Geometry DS and relevant DSs
5071	Improved Moving Region DS in the Generic Audio Visual DS
5200	Proposal of Pointofview DS

**5016:** Universal Geometry DS and relevant DSs

Koichi Ejiri, Takayuki Kunieda, Neil Day

**Outcome:** The proposal involved several different aspects: Global Positioning System DS, Camera Information DS and Universal Geometry DS. It was found that this proposal had many relations with various areas including camera motion descriptor, hardware description DS, model DS, mosaic DS and summarization DS. The proposers are encouraged to break the proposal in various elementary pieces and perform validation / CE work in relevant areas.

**5071** Improved MovingRegion DS in the Generic Audio Visual DS

*Osamu Hori, Toshimitsu Kaneko*

**Outcome:** This proposal addressed the issue of description of space and motion. It combines low level shape and motion descriptors with some of the functionalities provided by the Segment DS. After discussion within the MDS group and also the Video group, it was decided to start a validation work within the framework of the Shape/Motion group (N2928). The experiment results will be of interest for both the video and MDS groups. These results will be jointly analyzed at the Maui meeting.

**5200** Proposal of Point of view DS

Koichi Emura, Toshihiko Munetsugu

**Outcome:** Proposal of semantic attribute to be assigned at the segment level. The relation with respect to the Weight DS, the Summarization DS and the SegmentHints was discussed. As a result, the proposers joined a validation activity on weight DS (N2972).

**New DSs**

Num.	Contributions
5003	Proposal of the Descriptor Usage DS
5005	Weight DS in Generic AV DS
5102	Generic Event Modeling by Action and Interaction DS
5119	Ideas for an Office Communication DS
5191	Multimedia Archive Description Scheme
5222	A Proposal for User Preference Descriptions in MPEG-7

**5222** A Proposal for User Preference Descriptions in MPEG-7

*Ibrahim Sezan, Peter van Beek, Yoshiaki Tomioka, Kyoungro Yoon, Jungmin Song, Hee-Youn Lee*

**Outcome:** This proposal was submitted as a result of new requirements introduced in the Requirements document at the Vancouver meeting. The goal of the proposal is to describe user preferences and is partially based on DSs derived from existing components of the Generic AV DS (for example the Creation Meta information DS). It was decided to continue the specification and design work within the framework of an AHG (N2981). A discussion was raised on the interest of studying related activities outside MPEG (W3C, OPS). This issue will be studied by the AHG.

**5102** Generic Event Modeling by Action and Interaction DS

R. Mehrotra, M. Kurokawa, A. M. Tekalp

**Outcome:** This proposal discussed Action / Interaction specification. It involved modifications of the event definition and proposed DDL specification. During the discussion, concerns were raised about the various ways of defining and implementing this functionality. This proposal and related issues were further discussed in a breakout group. It was however not possible to reach a clear conclusion and the work will be pursued in the framework of an AHG on semantic notions (N2980).

**5003** Proposal of the Descriptor Usage DS

*Shun-ichi Sekiguchi, Yoshimi Isu, Kohtaro Asai*

**Outcome:** This proposal dealing with the definition of usage of descriptors. The proposers were encouraged to join the validation work on weightDS. This suggestion was followed and the proposers are involved in the validation work described in N2972.

**5005** Weight DS in Generic AV DS

Jin-Soo Lee, Jung-Min Song, Heon-Jun Kim, Kyoungro Yoon, Hee-Yeon Lee

**Outcome:** This proposal on the weight DS was found useful. It has however a significant overlap with proposals dealing with descriptor usage and key-ordering. A validation work described in N2972 is to be carried out before the Maui meeting. The goal of this experiment will be see how a common set of DSs can support the entire set of related functionalities.

**5191** Multimedia Archive Description Scheme

Ana B. Benitez, Shih-Fu Chang, John R. Smith, Chung-Sheng Li, Caterina Saraceno

**Outcome:** The contribution proposed two different strategies to extend the current Generic AV DS to handle collection of documents. After discussion, it was agreed that it was not possible to fully study this proposal. The proposed solution was therefore included in an annex of the Generic AV DS document. Its full integration will be discussed in the AHG on Generic AV DS development (N2976).

**5119** Ideas for an Office Communication DS

Neil Day

**Outcome:** This proposal analyzed the set of documents that are present in an office and showed the interest of having a standard way to describe them. The proposers were encouraged to check whether this application was relying on requirements that are currently not taken into account by MPEG-7 and take appropriate actions in the requirements group.

**Core Experiments Methodology**

Num.	Contributions
4992	Verification of the MPEG-7 DS from the viewpoint of video production
5133	MPEG-7 DS Core Experiment (CE) Methodology

**5133** MPEG-7 DS Core Experiment (CE) Methodology

*Ana B. Benitez (on behalf of the AHG on MPEG-7 DS Validation and Core Experiment Planning)*

**Outcome:** This document was one of the output of the AHG on validation and core experiment. It served as a reference for the validation experiments created during the week. It also served as a basis for the MDS contribution for the document “MPEG-7 development process” N2999.

**4992** Verification of the MPEG-7 DS from the viewpoint of video production

*Masahiro Shibata*

**Outcome:** This document was the first one reporting DS validation work. The validation was performed in the context of video editing and production. Its recommendations highlight the fact the most useful part of the Generic AV DS is the syntactic DS. However, some semantic description

should be easily associated with the segments. For example the Annotation DS is suggested. The application used DSs as building pieces and new ones were created with the DDL. This work focussed primarily on the description creation and will be continued to also cover the usage of the description.

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## Summarization DS

Num.	Contributions
5022	An Extended Summary DS for Navigation and Browsing
5101	Efficient and effective search and browsing using fidelity

### 5022 An Extended Summary DS for Navigation and Browsing

Munchurl Kim, Jae Gon Kim, Hyun Sung Chang, So-Yeon Kim, and Jinwoong Kim

**Outcome:** This proposal suggested several extensions of the summarization DS: Key-sound, audio segment locator, introduction of locators and key segments in the highlightlevel DS. The proposal content was further discussed in a breakout group and the summarization DS of the Generic AV DS was updated at the end of the week (N2966).

### 5101 Efficient and effective search and browsing using fidelity

Sanghoon Sull, Jung-Rim Kim, Yunam Kim

**Outcome:** This document proposed the introduction of a fidelity descriptor in the highlight DS and segment DS. This proposal had significant overlap with contributions dealing with the notion of weight. As a result, it was introduced in the validation work on weight (N2972).

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## Model DS

Num.	Contributions
5178	A Human Body Model based 2-D/3-D Pose and Action Ds and DS
5189	Towards the specification of synthetic Model DS for MPEG-7
5244	A proposal for Probability Model DS

### 5178 A Human Body Model based 2-D/3-D Pose and Action Ds and DS

Han-kyu Lee, Munchurl Kim, Jinwoong Kim, Nam-Kyu Kim, Hae-Kwang Kim

**Outcome:** This contribution proposed a DS for Human Body. It targeted the Synthetic Model DS and proposed not only the DS but also three new descriptors. Several demos illustrating the usefulness of proposed DS were shown. Some concerns were raised about the new Descriptor aspect of the proposal. The recommendation of the group was to propose the new Descriptors to video group and to work with author of proposal m5189 to better define and integrate the two proposals for human body synthetic model DSs.

### 5189 Towards the specification of synthetic Model DS for MPEG-7

A. Puri, Q. Huang

**Outcome:** The proposal was a rather high level definition of the first layer of sub-DSs. It is closely related the MPEG-4 SNHC model. The proposers were encouraged to work jointly with authors of proposal m5178 to proposed a unified DS.

### 5244 A proposal for Probability Model DS

A. Aydin Alatan, Ajay Divakaran, Mufit Ferman and, A. Murat Tekalp

**Outcome:** This document proposed a hierarchical organization of the Probability Model DS. After discussion, it seemed that the authors were not fully aware of the latest version of the Generic AV DS. The proposers will check and compare their proposal with this latest version.

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## Meta/Media DS

Num.	Contributions
5039	SMPTE Metadata Dictionary Structure and Contents
5201	Tutorial on the SMPTE Metadata Dictionary

### 5039 SMPTE Metadata Dictionary Structure and Contents

Michael F. Vetter

### 5201 *Tutorial on the SMPTE Metadata Dictionary*

*Ed Hartley (Contact), Jim Wilkinson (Author)*

Review of the SMPTE status: Very good: What is the next step?

**Outcome :** These two proposals were presented as a single document by Michael Vetter. The SMPTE metadata dictionary has strong and important relations with the Meta and Media information DS. Initial harmonization work started in the Met/Med breakout group but should be continued in the Met/Med AHG (N2977).

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## UMA

Num.	Contributions
5105	Video Summarization for Universal Multimedia Access Applications
5127	Proposal of the visual descriptors for universal access

### 5127 Proposal of the visual descriptors for universal access

Teruhiko Suzuki

**Outcome :** This proposal suggested DSs for transcoding hints for MPEG-2 video. During the discussion, concerns were raised about whether this information was readily available in MPEG-2 header, about the proposal specificity to MPEG-2 video and about where the proposed DS fits within the Generic DS. The recommendation was made to propose a specific place within the Generic DS, e.g., Media Coding-DS or Media Transcoding-DS. Moreover, it was suggested to form an experiment to show the usefulness of the proposed DS.

### 5105 Video Summarization for Universal Multimedia Access Applications

*Y. Abdeljaoued , T. Ebrahimi, C. Christopoulos, I. Mas Ivars.*

**Outcome :** This document proposed a tracking of feature points in video across frames and showed a demo of feature point tracking and object tracking. The proposers did not know whether the functionality could be accomplished using present Generic-DS structure. They agreed to examine the Generic AV DS and consider making a new proposal in the future.

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## New applications (Joint meeting with Requirements)

Num.	Contributions
5066	Proposal for a MPEG-7 news environment

### 5066 Proposal for a MPEG-7 news environment

*Frank Nack, Wolfgang Putz*

**Outcome :** The proposers discussed a news environment. From the MDS viewpoint, it was felt that most the required functionalities are already in the Generic AV DS and that this

kind of application could be a very good basis to perform a validation work of the DS. However, the proposer could not commit in this respect and will check whether this kind of work can be carried out.

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**Conceptual Model (Joint meeting with Requirements):**

Num.	Contributions
5000	MPEG-7 Description Schemes Principle Concept List (V0.3)
5001	Report of the Ad-hoc Group on a Generic MPEG-7 DS Conceptual Model
5190	Axiomatization of Description Scheme Objects
5251	Multiple Level Classification of Visual Descrip

**5001** Report of the Ad-hoc Group on a Generic MPEG-7 DS Conceptual Model

John R. Smith, Hawley Rising

**5000** MPEG-7 Description Schemes Principle Concept List (V0.3)

John R. Smith on behalf of MPEG-7 Conceptual Modeling AHG

Reviewed during the AHG meeting. First recommendation for the AHG on Meta/Media DS

**Outcome:** Both contributions were jointly presented. It highlighted the used methodology for conceptual modeling and the main recommendations. Some concerns were raised about the modeling approach used (is it better to use an object model or an Extended Entity Relation model. Will they both need extensions?). Most people agreed on the usefulness of having this kind of conceptual modeling and monitoring work. It was felt however that it would be difficult to force MPEG member to get really involved in this work. A recommendation, suggesting to MPEG member proposing Ds or DSs to follow the guidelines of the conceptual modeling approach, was introduced in the MPEG-7 foundation document (N2999).

**5251** Multiple Level Classification of Visual Description Schemes

*Alejandro Jaimes, Corinne Jorgensen, Ana B. Benitez, Shih-Fu Chang*

**Outcome:** This contribution proposed a classification of attributes. The goal of this classification is to improve the power of expression. The discussion focussed around the limitations of the approach (still images, no temporal aspect, context dependency, etc.) It was agreed that this work will be pursued within the framework of the Conceptual Modeling AHG (N2979).

**5190** Axiomatization of Description Scheme Objects

*Hawley K. Rising III*

**Outcome:** This contribution reviewed definition of concepts involved in the Generic AV DS and also discuss formal ways to test and compare DSs. It was proposed to keep on working on this approach within the framework of the AHG on conceptual modeling (N2979). The ultimate goal will be to provide recommendation on how to test and evaluate DSs and how to organize them in a more efficient way.

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**IPMP Issues (Joint meeting with requirements):**

Discussion about various issues related to IPMP: A workplan proposal was made to develop IPMP requirements. The outline of this workplan is: to produce a business model to analyze and define rights information flow, to harmonize with other related rights metadata standards activities, to develop Ds and DSs to describe right metadata. This workplan was found appropriate and will be developed within the framework of the IPMP AHG (N3066).

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**Time DS:**

Num.	Contributions
5014	Proposal of a TimeDS
5069	MediaTimeManagement DS and Improved Time DS in the Generic AV DS

**5014:** Proposal of a TimeDS,

*Joerg Heuer, Andre Kaup*

**Outcome:** This document described a slight modification of the TimeDS that is in the Generic AV DS. The modification addresses the way to define the scope since the original proposal was difficult to handle in DDL. During the discussion it was suggested that the Media time should not been limited to sampled media. A breakout group was created to discuss the time DS and a modified version has been introduced in the Generic AV DS document (N2966).

**5069** MediaTimeManagement DS and Improved Time DS in the Generic AV DS,

*Osamu Hori, Toshimitsu Kaneko*

**Outcome:** The document proposed a MediaTimeDS that specifies the relation between frames and the Media time DS. It was mentioned that part of the DS needed for this kind of functionality may already be in the model DS (in particular the time correspondence DS). This point was further discussed in the breakout group that updated the time DS.

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**Joint meeting with audio:**

The joint meeting with audio was an informal discussion about the Generic AV DS and its relation with audio activities. A few concrete issues were discussed: Annotation DS, Mathematical structures and the Segment DS. This activity should be continued within the framework of the AHG for Generic AV DS development (N2976).

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**DDL related****5103** General Reference Description Scheme

*Sanghoon Sull, Sang Wook Oh*

**Outcome:** This contribution proposed a Reference DS with the ability to check the validity of the link. It basically involves the inclusion of time stamps and version in ID, URI and ID\_URI. This proposal was felt interesting and the recommendation is to further discuss these issues in the AHG about Linking (N3040).

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**Audio:**

Num	Contributions
5076	A Scale Tree
5089	Analysis of ID3, an Audio Description Scheme

**5089:** Analysis of ID3, an Audio Description Scheme

*Adam Lindsay, Jane Hunter*

**Outcome:** This contribution was a review of the ID3, which is an informal standard developed by users in conjunction with industry. ID3 was designed to annotate and be transported with so-called MP3 files (MPEG-1/2 Layer II & III). This document should be further analyzed by the Met/Med AHG (N2977).

**5076: A Scale Tree***Alain de Cheveigne, Geoffroy Peeters*

**Outcome :** Proposal of a binary tree and a set of descriptors such that the value of the father can be derived from the value of the 2 children. This proposal is closely related to the descriptor since it is basically a proposal of datatype. The proposer is encouraged to study the applicability of the Scale trees to descriptors included in the XM.

**Joint meeting with system:**

During this joint meeting, System and MDS members reviewed and discussed the system requirements. Concerning the interaction between System and MDS, the following issues were discussed:

- For some applications (live broadcasting of data and metadata) streaming and synchronization of MPEG-7 is useful. As a result, individual groups (MDS, Video, and Audio) should think about how to define elementary streams and tools allowing the update/modification of the description to be done.
- Linking should be a joint effort between system (DDL) and MDS. An AHG on linking was created (N3040).
- Some parts of the description are more sensitive than others: The MDS group should organize the information in such a way that the sensitivity of description is easily handled by the System group.
- Schedule for the Maui meeting between file format (system) and the MDS group for cross education: file format need to understand the mpeg-7 structure, also some of the linking issues may be handled by the file format.

**Core Experiments**

Num	Contributions
5006	Work Plan of an MPEG-7 Core/Validation Experiment on Weight DS
5086	Validation Experiment for MPEG-7 Description Schemes related to UMA
5087	Validation Experiment for MPEG-7 Model-DS on Visual Data
5134	MPEG-7 DS Validation Experiment on the Syntactic DS, the Semantic DS, and the Syntactic/Semantic Link D

**5006** Work Plan of an MPEG-7 Core/Validation Experiment on Weight DS

Jin-Soo Lee, Heon-Jun Kim, Jung-Min Song, Hee-Yeon Lee

**5086** Validation Experiment for MPEG-7 Description Schemes related to UMA

John R. Smith, Chung-Sheng Li, Ana B. Benitez, Paul Bocheck, Shih-Fu Chang, Charilaos Christopoulos, Sanghoon Sull

**5087** Validation Experiment for MPEG-7 Model-DS on Visual Data

John R. Smith, Chung-Sheng Li, Toby Walker

**5134** MPEG-7 DS Validation Experiment on the Syntactic DS, the Semantic DS, and the Syntactic/Semantic Link D

*Ana B. Benitez, Di Zhong, Shih-Fu Chang, Caterina Saraceno, Markus Kangas, B. J. Brown*

**Outcome :** These validation / Core experiment were discussed together with new proposals created during the week (core experiment for spatio-temporal description, validation of the Summarization DS, of the Relation graph, study of the use of the Generic AV DS for production and biomedical applications). The goal of the review was to prepare the final documents approved at the end of the week:

N2968 MPEG-7 DS Validation Experiment on the Syntactic DS, the Semantic DS, and

- the Syntactic/Semantic Links DS  
 N2969 Validation of the MPEG-7 Summary DS  
 N2970 Validation Experiments for MPEG-7 DSs on Visual Data  
 N2971 Validation Experiments for Universal Multimedia Access  
 N2972 MPEG-7 Core/Validation Experiment on the Weight DS  
 N2973 Validation Experiment on MPEG-7 DS from the Viewpoint of Video Editing and Production Multimedia DS  
 N2974 Digital Patient Record Validation Experiment for MPEG-7 DSs  
 N2975 Validation Experiment for Ordered Relation Graphs  
 N2928 Description of Core Experiments for MPEG-7 Shape/Motion descriptors

### Joint meeting with XM, DDL, Video and MDS

The goal of this joint meeting was to discuss the relation between Ds and DSs and how they could be combined and integrated in the XM. The availability of a parser in November will facilitate greatly the software integration. Moreover, one of the mandates of the AHG about Generic AV DS development (N2976) will target the problem of Ds and DSs integration.

### 5206 MPEG-7 Videotext descriptor syntax

*Chitra Dorai, Ruud Bolle, Lalitha Agnihotri et al*

**Outcome:** This proposal described a possible description of the text written in the video. The approach was to create a sub-class of the moving region DS. It was suggested that the authors should improve their proposal by taking into account the recommendations of the conceptual modeling group (in particular, do not define as attribute some thing that can be used in various places) and define all necessary sub-DSs and descriptors. This work will be continued within the context of the Generic AV DS AHG (N2976).

### List of Output documents:

Number	TITLE
2966	MPEG-7 Generic AV DS (V. 0.7)
2967	Supporting Information for MPEG-7 Generic AV DS
2968	MPEG-7 DS Validation Experiment on the Syntactic DS, the Semantic DS, and the Syntactic/Semantic Links DS
2969	Validation of the MPEG-7 Summary DS
2970	Validation Experiments for MPEG-7 model DSs on Visual Data
2971	Validation Experiments for Universal Multimedia Access
2972	MPEG-7 Core/Validation Experiment on the Weight DS
2973	Validation Experiment on MPEG-7 DS from the Viewpoint of Video Editing and Production Multimedia DS
2974	Digital Patient Record Validation Experiment for MPEG-7 DSs
2975	Validation Experiment for Ordered Relation Graphs
2928	Description of Core Experiments for MPEG-7 Shape/Motion descriptors ( <i>with the video group</i> )

### List of AHG related to the MDS activities:

Number	TITLE
2976	AHG on Generic DS Development
2977	AHG on MPEG-7 Media/Meta DSs and Harmonization with Other Schemes

<b>2978</b>	AHG on MPEG-7 DS Validation and Core Experiments
<b>2979</b>	AHG on Conceptual Model for MPEG-7
<b>2980</b>	AHG on MPEG-7 Semantic DS
<b>2981</b>	AHG on User Preferences in MPEG-7
<b>3040</b>	AHG on MPEG-7 Linking ( <i>with the system group</i> )
<b>3006</b>	AHG on MPEG-7 Intellectual Property Management & Protection ( <i>with the requirements group</i> )

**Next targets for the Maui meeting:**

- Resolve major open issues contained in the Generic AV DS document
- Review the Validation / CE results
- Promote some of the validated DSs to XM and WD
- Edit the XM and the WD
- Define workplan for software integration in the XM
- Define and plan new core experiments

## Systems report

**Source:** Systems Chair and Break-out group Chairs

**Editor:** Olivier Avaro (Deutsche Telekom – Berkom)

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### Overview

The main results of the MPEG meeting in Melbourne from the Systems Sub-group perspective are:

1. MPEG-2 DSM-CC:
  1. Production of disposition of comment on FDAM 1 V1 after the negative ballot on this document. Production of a new version : FPDAM 1 V2 for DSM-CC.
2. MPEG-2 Systems:
  1. Production of disposition of comments on FPDAM 7 of MPEG-2 Systems (Carriage of MPEG-4 content on MPEG-2 Systems). Production of a study of this document. The final text will be approved next meeting in Maui.
3. MPEG-4 Systems :
  2. Production of a draft corrigendum for MPEG-4 Version 1 part 1 (Systems) and part 6 (DMIF). The final text will be approved in Maui.
  3. Production of a study of the Version conformance CD. A workplan has been agreed in order to produce Systems conformant bitstream. The following companies : FT R&D, IBM, ENST, Optibase, HUT, Sun Microsystems inc., Valley Consultants, and CSELT have committed to produce test streams. Other companies are encouraged to join this effort.
  4. Study of FPDAM 1 of 14496-1 (MPEG-4 Systems Version 2) and 14496-6 (MPEG-4 DMIF Version 2). The Version 2 specification will go to FDAM in Maui.
  5. Study on Internet draft for the carriage of MPEG-4 on IP. This document will be forwarded to IETF for further review and introduction in IETF specifications for the transport of MPEG-4 content over IP networks.
  6. IPMPS\_Type will be reserved for ISO specific use and further studies will be conducted within the IPMP AHG to evaluate if IPMP descriptor extensions are needed to be included within the normative part of the MPEG-4 standard.
  7. The design within MPEG of a textual language for MPEG-4 content authoring has been proposed. Depending on NB comments in Maui, this activity will be initiated within MPEG.
  8. Implementation : A software implementation work plan, covering Version 1 (Corrigendum), Version 2 reference software as well as Im1 MPEG-4 integration and demonstration project has been produced. In the process of further verifying its reference software, the Systems sub-group has discovered errors in the code related to the script node. In case the proponents of this technology or another company interested in the technology do not help fixing these errors, this technology will be removed from the 14496-1 through a corrigendum.
4. MPEG-7 Systems : The Systems activity has started with a first focus on MPEG-7 detailed architecture design and specific issues such as : streaming, transport and compression of description.

### Detailed Report

#### DSM-CC

Following a no vote on text of FDAM1 to ISO/IEC 13818 (WG11 document M4965), the MPEG-2 DSM-CC Ad-Hoc group established per N2842 met in Melbourne to draft a second version of text for amendment 1 to ISO/IEC 13818-6. In the process, the group members made a thorough review of the current DVB specification for data broadcasting in relation to current DSM-CC specification.

This work led the Ad-Hoc group to identify several ambiguous statements in the syntax of the DSMCC\_section structure as it appears now in ISO/IEC 13818-6. New and backward compatible text for the definition of the DSMCC section was produced to prevent any future non-compliant use of some of the DSMCC\_section fields under particular table\_id values. The fields involved are version\_number, current\_next\_indicator, section\_number and last\_section\_number. The field private\_indicator was reclaimed to capture the fact that this field is always set to be the complement of section\_syntax\_indicator. Furthermore, all these changes were made such as to accommodate current DVB practice for multiprotocol encapsulation based on the datagram section format (table\_id 0x3E).

A review of the US National Body proposal was completed (see M5109 and M4989). Based on this input document, a new section called DSMCC\_addressable\_section was introduced to support targeted transmission of datagrams. The table\_id value of such structure is 0x3F and the value of section\_syntax\_indicator is always set to 0 to align its syntax with the short format of ISO/IEC 13818-1 private sections. The field current\_next\_indicator is always set to 1 and the private\_indicator field was reclaimed to mean protection\_indicator. The protection\_indicator is used to signal the use of checksum or CRC32 in the section. Hence, the DSMCC\_addressable\_section syntax is backward compatible with DSMCC section syntax when protection\_indicator is set to 1 (checksum used). The case protection\_indicator equal to 0 corresponds to current signaling of CRC32 use in SCTE.

The Proposed Draft Amendment text including the changes mentioned above is in output document WG11 N2917.

In addition, the Ad-Hoc group also recognized the need for transmission of multiple DownloadInfoIndication messages in a single Download scenario. However, given the current semantic definition of the transaction\_id field in the DII message, and given the definition of the version\_number and section\_number fields of the section (table\_id 0x3B) conveying this message, it was concluded that none of the current solutions is compliant with ISO/IEC 13818-6. More specifically, upon review of the DVB specification, it appeared that the meaning of transactionId field has been changed to allow grouping of DII messages. The solution proposed in M4989 engages the use of the section\_number field in the DSMCC\_section and as such, is not backward compatible with current implementations of DSM-CC Download. Consequently, an Ad-Hoc group has been formed to continue the work and identify an acceptable solution (see WG 11 document N2716). As a result, the proposed draft amendment text in N2917 does not include any specification regarding DII message numbering.

## **Elementary Streams Management**

### **Consequence of the merge between DMIF and Systems**

As a consequence of the merge between Systems and DMIF, the synergies between the ESM activities and the DMIF activities have demonstrated to be helpful: immediate on-line progress has been achieved on the issue of Stream Control, which has been agreed should flow through the DAI. The semantics of Stream Control have been defined at the DAI, with the extensions of DA\_UserCommandAck().

Also a complete mapping into RTSP (Real Time Streaming Protocol) was virtually achieved which preserves the spirit of DMIF and of the DAI, and is being inserted in the VM.

Also clarified (through unofficial discussions among interested parties) the end-to-end walkthrough with RTP/RTCP: a solution has been identified to preserve the spirit of DMIF and of the DAI while providing support for RTP/RTCP (which do not fit the MPEG-4 layered architecture), and will be properly documented by the next meeting.

### **DMIF**

The following contributions on DMIF have been reviewed :

N°	Title
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5073	Scenario 1 for HTTP support with DMIF, <i>G.Franceschini (CSELT)</i>
5074	Scenario 2 for HTTP support with DMIF, <i>G.Franceschini (CSELT)</i>
5095	Comments on the new DAI syntax proposal, <i>J.Zamora (Xbind) et al</i>
5211	FlexMux & DMIF, <i>D.Curet, K.Renout(CNET)</i>
5268	Proposed text for DMIF corrigendum, <i>G.Franceschini (CSELT)</i>

1. **M5073**: the contribution describes a scenario to consume MP4 files through HTTP standard servers. It highlights a possible penalty in using MP4 files in this scenario, and introduces a companion contribution (m5075) to solve the problem.
2. **M5074**: the contribution describes a scenario to consume MPEG-4 content through HTTP, relaxing some requirement of the scenario described in the previous contribution. From one side, this solves the concern on MP4 design, but creates a new issue for Systems and DMIF (true URLs in ESD), which is not agreed yet. An AHG will further discuss the issue
3. **M5095**: this contribution anticipates USNB comments related to the C++ Syntax specification for the DAI, currently included in FPDAM1 to DMIF V1. It was agreed that the USNB proposal is far better than the current FPDAM1 text; a few details in the DAI Syntax have been discussed to fix problems and align with the DAI changes in UserCommand agreed during the meeting. The outcome will be included in the study document on FPDAM1. However the key point, over which a general agreement is not currently reached, is whether there is a need for DMIF V2 to specify a normative DAI syntax, to specify it as an informative annex, or to be silent as DMIF V1 was. Since the DAI syntax is currently included in FPDAM1 as normative, changes with respect to this status can only be implemented through NB comments.
4. **M5211**: this contribution was not distributed in due time and was not presented
5. **M5268**: the proposal included the study for DMIF V1 Corrigendum approved at the previous meeting and a few more items. It has been used as a starting point for producing the official DCOR1 to DMIF. The changes to reflect the usage of true URLs in ESD have not been included in the official DCOR1, since the discussion on this issue has not reached a stable status in Systems yet.

### Carriage of MPEG-4 on the Internet

The following contributions on the carriage of MPEG-4 on the Internet have been reviewed :

N°	Title
5027	Streaming of MPEG-4 over IP/RTP, <i>A.Basso (AT&amp;T Labs Research) et al.</i>
5097	JNB comment on MPEG-4 RTP payload format
5160	Minutes of the MPEG/IETF Phone Conference on MPEG-4 over IP, Vancouver/Oslo, 15.7.99, <i>R. Castagno</i>
5204	Report of AHG on MPEG-4 Content on MPEG-2 Systems and on the Internet, <i>C.Herpel, J.v.d.Meer</i>
5210	FlexMux & RTP & RTCP, <i>D.Curet, K.Renout</i>
5274	A proposal for RTP packetization of MPEG-4 Audio bitstream, <i>T. Nomura, M. Iwadare</i>
5277	RTP hint track for MP4, <i>D. Singer</i>
5280	RTCP payload format for MPEG-4 backward channel messages, <i>S. Fukunaga., H. Kimata</i>

6. **M5027**: the contribution describes the AT&T and NOKIA developments, which follow the "simple" MPEG-4 over RTP mapping. A small deviation was made to enable a quick implementation in IM1. It does neither affect the 4onRTP spec nor its verification. The demonstration showed that unfortunately the player stops in case of packet loss. This seems to be due to the implementation rather than the specification of the RTP payload format. The results presented on the protocol overhead showed that usage of a multiplexing mechanism at the RTP level would be beneficial. The concern was raised that if RTP multiplexing schemes fail to be

specified, the current Internet Draft imposes unacceptable overhead: thus we should either move towards the GeRM solution or add support to FlexMux in the "simple" mapping.

7. **M5097+M5274+M5280:** the contributions propose to define a set of RTP payload formats that cover the carriage of MPEG-4 visual and audio elementary streams. Furthermore an encapsulation format for backchannel messages in RTCP is proposed. The general idea of RTP payload formats for "raw" MPEG-4 streams has been agreed to, however, with the understanding that such formats would only be used if MPEG-4 Systems is not used. The documents have been forwarded to IETF, since any final decision on this issue need to be made there.
8. **M5204:** This is a protocol of the phone conference held at the last meeting. Just provided for information.
9. **M5210:** proposes to add timing information and stuffing to the definition of FlexMux, specifically to enable the delivery of strictly timed FlexMux streams over RTP. This contribution contains similar ideas to M5205, discussed in the MPEG-4 over MPEG-2 session. A synthesis of both proposals is drafted into an update of FlexMux for MPEG-4 Systems Version 2.
10. **M5277:** The RTP hint track format for MP4 presented in this contribution would allow to generate content according to the current 4onIP specification. It has been noted, though, that an extension to allow the carriage of FlexMux over RTP would probably require to store the complete RTP payload in the hint track since the hint track format does not support data from multiple streams to be multiplexed into one RTP packet. This was not considered a major drawback, since FlexMux supposedly would only be used with low-bitrate streams.

The major outcome of this session was, that it is now acknowledged by MPEG that an RTP payload format for individual ESs should be supported in cases where MPEG-4 Systems is not used. The next steps on advancing the MPEG-4 over IP specifications have to be done by the avt group in IETF. Interested MPEG members are strongly encouraged to participate.

### **Carriage of MPEG-4 on the MPEG-2 Systems**

The following contributions on MPEG-4 over MPEG-2 have been reviewed :

N°	Title
4961	Summary of Voting on ISO/IEC 13818-1/FPDAM 7
5205	Strictly timed FlexMux streams

The main focus of the activity has been to complete the specification of MPEG-4 over MPEG-2 in order to promote the FPDAM7 to ISO/IEC 13818-1 to FDAM status. The ballot comments sent by the NBs have been evaluated. The study on FPDAM7 issued at the last meeting has been supported by several NBs and will therefore be implemented in FDAM7.

The carriage of strictly timed FlexMux streams was the only contentious issue. Additionally, the question of how to align the MPEG-4 timeline with the MPEG-2 timeline was discussed. A solution based on an extended FlexMux definition as described both in m5205 and m5210 was adopted. In addition it was decided not to map MPEG-4 timestamps to MPEG-2 timestamps but rather to lock both timelines using the MPEG-2 PTS values. The DAM7 text will be drafted within three weeks after the meeting.

The decision whether ISO/IEC 13818-1/DAM7 can become part of the 2<sup>nd</sup> edition of ISO/IEC 13818-1 will depend on whether at the MPEG/Maui meeting it is decided that significant changes need to be made to this text. This is due to the fact that the text has to be delivered to ITU-T by Nov. 6<sup>th</sup>. ITU-T may accept editorial changes thereafter, however, significant changes in content are not permitted.

The extension of FlexMux to carry FlexMux clock references and permit stuffing will be documented as part of the MPEG-4 Systems VM. Its inclusion in Version 2 will be decided at the next meeting.

## Back Channel

The following contributions on MPEG-4 backchannel have been reviewed:

N°	Title
5008	Proposal for Backward Channel syntax on 3D mesh
5126	Walkthrough of MPEG-4 backchannel
5164	Single backchannel for SNHC decoder's performances
5260	Backward channel for fine granule Audio (BSAC)
5280	RTCP payload format for MPEG-4 backchannel message
5162	BNB

One session jointly with SNHC, ISG, and Audio has been held on Thursday morning. The main issue of this session was reviewing the contribution on draft walkthrough of MPEG-4 backchannel made as a result of discussion on the reflector of AHG. Since proponents of the tools requiring backchannel need more detailed description of MPEG-4 backchannel walkthrough with physical example, it is decided to have an informative annex in MPEG-4 version 2 Systems specification. Contributions on application scenarios for the proposed tools, m5008, m5164, and m5260 have been briefly reviewed in view of proposed walkthrough and no major problems were identified. RTCP payload format for video NEWPRED tool was reviewed. Consistency of the proposal with current RTCP payload format for other purpose such as sender report, receiver report, etc., and necessity of detailed payload type indication have been discussed. Since RTCP payload format is managed by IETF, it is agreed to send a liaison to IETF on this issue together with RTP payload format proposal.

## Miscellaneous

The following ESM contributions have been also reviewed :

N°	Title
5100	French NB comments on 14496-1 & 14496-1/FPDAM1
5118	Logical Structures in ES, <i>D.Curet, K.Renout</i>
5209	SL & the AU number, <i>D.Curet, K.Renout</i>
5249	Accessing stand-alone elementary stream files

11. **M5100:** The French NB pointed out a number of issues related to ESM.
  - 0 It has been resolved that the current definition of ES\_ID name scope is inconsistent with the definition of DMIF sessions. An additional constraint will therefore be added to require that ES\_IDs shall be unique within a DMIF session.
  - 1 It has been requested to send all ES descriptors at the beginning of a session. It has been concluded that an implementation guideline rather than a change in the specification may resolve the issue.
  - 2 A simple proposal to fix stream control in V1 was made. Reception of ESD, reception of node and the startTime are mapped to the delivery start, decoding start and rendering start respectively. *This proposal was accidentally not discussed, however will be taken into account in the backchannel/ESM ad hoc group.*
  - 3 Unique IDs for extension descriptors have been proposed. Several parties acknowledged the usefulness of this feature. However, a precise specification of how these IDs would be generated is requested. An opposing opinion was expressed that misinterpretations of such private descriptors due to lack of unique ID are acceptable exactly because they are private and not normative.

- 4 It was proposed to reset the BIFS timeline at the CTS of a received SceneReplace BIFS Command in order to harmonize the implementation of all BIFS node fields. Currently a delta time needs to be added to each SFTIME value decoded from the bitstream. It was noted, however, that in case of broadcast applications the reported problem would reappear, since SceneReplace would occur repeatedly to enable random access. It was therefore resolved not to change the specification, but rather to clarify the current text on timing between elementary streams and the BIFS scene description.
12. **M5118**: A proposal to add semantic meaning to degradationPriority. It was agreed that the proposed relation between logical structures and degradationPriority are only needed at the encoding side and therefore no changes to the specification are needed.
13. **M5209**: proposes to permit repeating the AUsequenceNumber in every SL packet for error resilience, i.e., in order to unambiguously detect to which AU an SL packet belongs that has been received subsequent to a packet loss. It has been resolved in the meeting that such functionality would be provided by the delivery layer mapping in a lossy environment. In the MPEG-4 over RTP specification, for example, the RTP timestamp has this functionality. The issue might be reconsidered if a delivery layer can be named that actually needs this functionality and does not provide it yet.
14. **M5249**: proposes some additional semantics for URLs in ESDs. It has been resolved that this proposal completely corresponds to the current semantics, apart from the fact that it should be stressed, that a URL in ESD cannot point to an MP4 file. It always has to point to a "raw" SL packetised stream. No change in spec needed.
15. **M5281, M5282**: These contributions could not be properly addressed due to their late delivery. A major redesign of the FlexTime syntax is proposed. Its implementation in IM1 has to be demonstrated and integrated in the public code base in order for FlexTime to become part of Version 2 of MPEG-4 Systems.

## Scene Description

The following contributions on BIFS have been reviewed :

N°	Title
5100	French NB comments on 14496-1 & 14496-1/FPDAM1
5009	Proposal for Requirements of Generic 3D Model Animation Coding
5064	Requirement of BIFS for studio applications.
5065	Requirement for descriptor of video effect information.
5213	Study on Systems version 2 BIFS (14496-1 FPDAM, part 2)
5212	Advanced AudioBIFS parameter
5248	Study of Systems Version 2 VM (PROTOS)
5187	BIFS node for integration of MPEG-4 with other applications including the web

16. **M5064** : New requirements for studio profile applications have been brought to the attention of the group as well as possible technical solutions to address them. After technical discussions on other aspects of timing in BIFS and on the Media time sensor proposal of M5100, the requirement of M5064 have been solved and the technical solutions are described in the new nodes of VM 8.0.
17. **M5065** : This proposal requested means to name part of the scene graph to identify for example visual effects. The proposal suggested several technical solutions to achieve this. The one that has been agreed upon is to define the scene graph related to the visual effect in an ExternProto and to use the name of the ExternProto to identify the visual effect. This does not request further action.
18. **M5187** : This proposal is a follow up on the discussion of Application Texture and application windows. The proposal has been discussed and adapted in order to better fit in the current

architecture of the BIFS. It will remain in the VM and decision for integration in V2 will be made in Maui.

19. **M5009** : This proposal identifies new requirements for SNHC and BIFS activities. Several technologies have been proposed for further introduction in the standard (like Nurbs, Bezier surface, FFD and animation). Evaluation of these techniques against the existing tools will be made within AHG activities.
20. **M5100, M5212, M5213** : These contributions propose evolutions and refinements of the Version 2 specification. All comments have been studied and agreed modifications have been included in the current text of the amendment.

In addition, the following items have been discussed:

21. **Timing issues** : Some clarifications have been agreed upon and will be documented in the corrigendum for version 1. Late proposal have been discussed for advanced temporal layout and transform supporting advanced synchronization at the BIFS level leading to functionality like co-occur, co-end (TemporalForm and TemporalTransform nodes). This will be documented in VM 8.0 and further action will be taken in Maui depending on specification and implementation status
22. **Script node** : Errors have been found in the implementation of the script node. None of the companies involved in the design of the technology were in a position to fix these errors. A corrigendum will be initiated in Maui in order remove the script node in case no one takes the responsibility to fix the reference software.
23. **Textual Language for MPEG-4 Content** : The FNB proposed the development within MPEG of a textual language for MPEG-4 Content. Even if it is not clear yet whether or not this language should be normative, it will certainly be a useful tool for interchange between authors. NBs have been asked to comment on this issue. Further action will be taken in Maui depending on NB comments.

## IPMP

The IPMP Break-out group reviewed all input documents:

N°	Title
5130	Report of discussions on MPEG-4/IPMP requirements and applications in MPEG-PF (in Japan) System WG
4972	Proposal of IPMPS_type for an extended IPMP descriptor
5131	Reservation of IPMPS_Type
5020	A watermarking example using the MPEG-4 IPMP framework.

24. **M5020** : This contribution is a description of a demo from the MIRADOR project of the European Commission showing the first real-time integration of watermarking into the IPMP framework.
25. **M5130, M4970, M5131** : These three documents were (i) an introduction to the MPEG-PF group, which is working on implementing the IPMP hooks in Japan, (ii) a request to reserve a certain amount of IPMP System Type IDs for future ISO use and (iii) a request to work on Advanced IPMP Descriptors. The first document required no action. On the second input, the request was implementing, reserving 8000 IPMP System Type IDs for future use. On the third issue, no decision could be taken because it was not clear if the Advanced IPMP Descriptors have any benefit. Hence this topic was relayed to the MPEG-4 IPMP ad-hoc group.

Additionally, the IPMP break-out was given a video input document requesting an informative annex on specific IPMP technologies (here: watermarking). Since it was not clear if such an annex would bring benefit to MPEG-4, no decision was taken. Hence this topic was relayed to the MPEG-4 IPMP ad-hoc group.

## MPEG-J

## Review of Contributions

The following contributions on MPEG-J have been reviewed :

N°	Title
5238	Text (and Edit List) for Study of MPEG-J subpart of Systems FPDAM-1
5100	French NB comments on 14496-1 & 14496-1/FPDAM1 (MPEG-J comments)
5229	JTC1 directives and the MPEG-J° Java normative references
5096	Revised Text for WG 11 N2873

26. **M5238** (Text (and Edit List) for Study of MPEG-J subpart of Systems FPDAM-1):

Contribution m5238 was reviewed in detail. Most of the changes requested in the document have been accepted. Most editorial comments about the text is accepted.

27. **M5100** (French NB comments on 14496-1 & 14496-1/FPDAM1-MPEG-J comments):

Contribution m5100 (MPEG-J part) was reviewed. The MPEG-J group would like to thank the French NB for the detailed review and the constructive criticism of the specification. The proposals made in the document were reviewed thoroughly. Some of the proposals will be further reviewed and will be accepted after these changes have been implemented.

- *Sending non-class data:* This was a proposal to generalize the current mechanism of sending object data to sending any non-class data and to use the `getResource()` method of the Class Loader to access it. This proposal has been accepted and will be included in the Study of FPDAM-1.
- *Getting the node type:* This proposal suggests using a `NodeType` interface to clearly identify the type of node received through the `getNode()` scene API. This also proposes a new method `getNodeType()` to be added to the `Node` interface to facilitate this. This will be further reviewed and discussed on the reflector. This will be included in the study or the VM after verification.
- *Getting the MpegTerminal:* This proposal facilitates easy implementation of limiting the name scope and the freedom of the `MPEGlets`. This will be included in the study or the VM once this is harmonized with the local application case.
- *InvalidNodeException:* This proposes a new exception for the scene API when an invalid node is used. This will be included in the study.
- *Mapping from ES\_ID to channel ID:* This proposes the use of `ES_ID` instead of `Channel ID` and `session ID` in the Net APIs. This will be included in the study after verification.
- *Callback between Rendering:* This proposes the use of a callback after rendering every frame. It was decided that this will be made optional, the frequency of this callback (after how many frames) will be settable. This will be included in the Study after integrating this with the current `Renderer` class.
- *Creating a node in the scene using MPEG-J:* This proposes a way to add a node in the scene using MPEG-J. This was reviewed. This will be further discussed in the reflector to ensure that this architecturally fits well with the current model. This will be included either in the study or the VM. The proponent also has expressed interest to implement this.

28. **M5229** (JTC1 directives and the MPEG-J Java normative references):

This document presents the JTC 1 guidelines regarding normative references to external specification documents. As the 14496-1/Amd 1 (MPEG-J) has been initiated prior to this JTC1 directive, the guidelines described in document M5229 can not be enforced to apply. Nevertheless, the Systems sub group will exert its best effort to come as close as possible to these guidelines within the current 14496-1/Amd 1 (MPEG-J) timeline.

29. **M5096** (Revised Text for WG 11 N2873):

Contribution M5096 was reviewed in detail (Agreement with Sun Microsystems). All the changes proposed in the document have been accepted. A new version of the document has been produced (N3022).

## FPDAM Editing (MPEG-J part)

**a) Normative References**

Prefix, Date and Version numbers will be added to the current references.

**b) API changes**

These will be reflected in the Study of the FPDAM (based on NB comments).

**c) API descriptions**

This primarily involves more descriptions in the API javadocs and introductions.

**MP4**

The following contributions on have been reviewed :

N°	Title
4981	The Muxhint file format for use with IM1 tools
5075	Overhead reduction in MP4
5145	MPEG-2 Transport Hint Track Format
5277	Proposed MP4 Hint track format for RTP.

The first involves a "convenience" file format for use with existing tools; it simplifies the construction of MP4 files and MPEG-4 presentations. It is not a standard format, merely one that aids use of the current tools. No further action by MPEG is needed.

The second involved optimizing the handling of progressive download ('download and play') of MPEG4 presentations from HTTP servers. The contribution expressed a concern that the current timing and size table in the file causes a delay in starting the play of a presentation arriving over HTTP. There was debate over every aspect of this contribution: whether progressive download was a target application, whether the delays were in fact too large to be acceptable, and what the best solution might be. It was agreed that for the next meeting, these questions would be clarified in two ways:

- 30. Core experiments would be done with actual MPEG4 presentations, represented in MP4 files, and the overhead measured.
- 31. Completely worked proposals for optimizing the format would also be worked. These proposals include splitting the sample table, having multiple 'moov' atoms, the approach from this contribution, and possibly others. The issue of whether this was, in fact, a target application scenario, was not addressed.

The last two contributions will be carried as informative for the time being.

The MPEG2 transport proposal needed some details to be complete (the sample description format, for example), and these will be supplied for the next meeting. To be accepted as normative, this method will need to be implemented, and it will need to follow the 4-on-2 specification. It is therefore premature to make this hint track normative.

The RTP transport proposal follows the hint track format used by the open source server for QuickTime. As such it has been used over a wide variety of stream types already, and is also implemented by other commercial servers. However, it has not yet been proven on MPEG4 content and the 4-on-RTP work has not yet finished. Though it is likely that it will work for MPEG4, this is not certain. Therefore again, it is premature to make it normative. These two annexes will be placed into the VM for Systems for the time being.

In general Systems session, there was discussion of MPEG7 and the need for a file format. AAF was presented. In Maui, a joint meeting will be held in which the needs of MPEG7 will be covered as they relate to file format. Until these requirements are understood, we will neither assume that MP4 will meet the needs and proceed on that basis, nor will we assume that it won't, and proceed to ask for new proposals. Those interested in file format are urged to study both MPEG7 and MP4 for the next meeting, so an informed discussion can be held and a way ahead planned.

## Conformance

The following contribution on has been reviewed :

N°	Title
5220	Issues on MPEG-4 Profile and Level Indication

## General

There are still very few activity on the Systems Version 1 and Version 2 activity on which contributions are expected. Still, specific actions have been taken as described below on which significant progress are expected.

## Profiles and Levels

### d) Profiles and Levels signaling

32. **M5220** : This contribution raises the problem that the current profile and level signaling framework do not allow the signaling of scalable content. There is an agreement that this issue needs to be solved. There is no agreement that the solution proposed in M5220 is fully satisfactory. There is yet not clear architecture to achieve P&L signaling for scalable content. This will be discussed on the AHG reflector between Melbourne and Maui.

### e) BIFS Profiles and Levels

Starting from a contribution from Motorola, levels have been defined for the Scene Graph profiles. The measure of complexity used to define these levels is based on the number of visual pixel (natural or synthetic) to be displayed after the various BIFS transformation. Such levels definition will be included in Systems Version profile and levels definition.

### f) MPEG-J Profiles and Signaling

The current model of signaling profiles and levels was extended seamlessly to facilitate indication of MPEG-J profiles in the initial Object Descriptor. This was done generically so that this can be used for indicating any new profile. Care was also taken not to break the version 1 bit streams. Text was provided to the ESM editor for inclusion in the ESM part of the study of FPDAM-1.

### g) MP4 Profiles

Following US NB comments as well as technical discussions on the maturity of their specification, hint tracks will remain informative for the time being. It is therefore no longer needed to define profiles and levels for the file format. This means that an application compliant to the file format specification will have to be able to parse any mp4 files.

## Conformance

### h) Version 1 Conformance

The following companies have committed to provide test streams for MPEG-4 Systems conformance: FT R&D, IBM, ENST, Optibase, HUT, Sun Microsystems inc., Valley Consultants, and CSELT according to the work plan described in N3018. Other companies are encourage to join this crucial effort for the validation of the standard.

### i) MPEG-J Conformance

The issues in the MPEG-J API conformance were discussed. This included the definition of conformance points, conformance testing, and bit streams exchange. An initial draft of the proposed conformance scheme will be provided before the Maui meeting.

## Im1

The following contributions have been reviewed :



N°	Title
4985	Preliminary Draft of ISO/IEC 14496-5 PDAM 1
5195	Update of document M4776: Fast MPEG-4 Video Decoder Demonstrating Realtime Operation
5245	IM1 Core Code and Authoring Tools
4984	MPEG-4 PC tools for content creation: update
5188	Status of integration of body animation in im1/3Dplayer

The usual documents on Im1 status and implementation work plan have been produced. The importance of Im1 demonstrations have been reassessed, notably when the standard just defines interfaces with non-standardized systems like IPMP. These investigations should be pursued for further validation of the standard in the various environments that will be encountered by the MPEG-4 technology. The following demonstrations have been presented:

N	Title	Author
5027	Streaming of MPEG-4 over IP/RTP	A. Basso (AT&T), et al.
4983	MPEG-4 PC content and demos	J.C. Dufourd (ENST) et al.
5020	A watermarking example using the MPEG-4 IPMP framework.	Panos Kudumakis et al.
Xxxx	Application Windows	Atul Puri (AT&T)
Xxxx	FlexTime	Michelle Kim (IBM)
Xxxx	VOD Demonstration	Jae-Seob Shin (Samsung)
Xxxx	3D Mesh	Gabriel Taubin (IBM)
Xxxx	MDS authoring tool	J.C. Dufourd (ENST)

### MPEG-7 Systems

The following contributions have been reviewed:

N°	Title
5036	Overview of The SMPTE Metadata Coding Protocol and Dictionary
5037	SMPTE Standard for Unique Material Identifiers (UMIDs)
5038	SMPTE Key-Length-Value (KLV) Protocol for Data Encoding
5221	On representation of MPEG-7 DDL, DSs, Ds in the SMPTE Metadata Dictionary

The first MPEG-7 Systems meeting was conducted in Melbourne. Starting from a subset of the requirements document on MPEG-7, a series of issues have been discussed further, mainly :

- 0 Streaming of MPEG-7 description;
- 1 Compression of MPEG-7 description;
- 2 Transport of MPEG-7 data on file (see section on file format) and streaming over MPEG-4, MPEG-2 as well as on analogue media.

In order to make progress on these issues, it has been proposed to refine the MPEG-7 architecture driven by concrete applications and to use MPEG-2 and MPEG-4 as a test case.

The issue on linking was raised. It was not clear first whose responsibility it was (DDL, Systems, MDS), as well as what the issue was exactly. Still, there was an agreement that linking should be dealt with consistently in MPEG-7 and that the various interested people should progress on this issue in the AHG on MPEG-7 Linking.

Finally, the contributions mentioned above have been quickly discussed. They showed that some companies and organization already have lot of tools available (ex: SMPTE) to solve partly or completely some of the Systems issues. Proper process should be discussed in the MPEG-7 Systems reflector for the inclusion of these tools in the Systems part of the MPEG-7 standard.

### Next Targets

In addition/complement to the specific issues mentioned in the various AHG mandates, this section specifies next targets or key technical issues to be resolved by the various activities of MPEG Systems.

## **MPEG-2**

33. **Systems Amendment 7** : Drafting and approval of the final text.

## **MPEG-4 Version 1**

34. **Corrigendum for Part 1**

- Review the corrigendum document and contribute new bugs if any.
- Issues on start/stop, show/hide and open/close to be solved.

35. **Conformance** : Contribution to conformance, production of test streams. Execute the work plan for bit stream creation and exchange for Version 1 and Version 2 Specification.

36. **Standard Validation** : Further validation of the standard and demonstrations. Investigation of missing technology (In particular for IPMP).

## **MPEG-4 Version 2**

37. **Specification Editing**: Integration and editorial harmonization of the specification.

38. **Conformance**:

- Profile and Levels definition (Improvements of the definition of profiles and levels).
- Contribution to Version 2 conformance, production of test streams.

39. **BIFS**:

- Provide for clarifying corrigendum text for timing issue in BIFS
- Develop Version 3 BIFS requirements and specifications.
- Contribute to the definition of Systems Profiles and Levels.

40. **DMIF**

- **Study on FPDAM1 to DMIF**: Produce the text within 3 weeks.
- **HTTP transport** : Clarify the HTTP scenarios and MP4 implications, through AHGs.
- **URLs in ESDs** : Based on Systems decision regarding support for true URLs in ESD, determine appropriate corrigenda to DMIF and/or Systems (Content access procedures using DAI).
- **DAI Syntax in V2** : Discuss the implications of a DAI syntax in DMIF V2.
- **RTSP Scenario** : Refine the RTSP scenario.
- **RTP/RTCP Support in DMIF** : Document the RTP/RTCP support in DMIF (including the addition of a code point in DMIF Signaling).

41. **MPEG-J**

- **Creating a node in the scene using MPEG-J**: This should be further discussed in the reflector to ensure that this architecturally fits well with the current model.

42. **File Format**

- **HTTP Download**: handling of progressive download over HTTP.

43. **Backchannel**

- Improve the document in Version VM with concrete examples.

44. **Implementation**

- Software integration (Integrated reference software).

## **MPEG-7**

45. **MPEG-7 Architecture** : Contribution to the definition of the big picture.

46. **File Format**: File format requirements for MPEG-7.

## Video report

**Source: Thomas Sikora (Chairman MPEG Video Group)**

The video group addressed in its meeting issues related to MPEG-4 (Version 1 to Version 4), MPEG-7 and MPEG-2.

### **MPEG-2**

#### **Interlace Video on Progressive Displays**

At the meeting the display of interlace video on progressive displays was discussed. The problem arises in existing decoders which are not in the position to identify the source format in the bitstream. The solution to the problem will be provided with an amendment to MPEG-2 Video which will detail bitstream extension to identify content information. At the meeting the 1<sup>st</sup> Version of a WD for the amendment was issued. A PDAM is targeted for the next MPEG meeting in Maui, USA. A liaison letter was drafted which will be sent to various expert bodies.

### **MPEG-4 (Version 1)**

A number of minor editorial and technical issues were discussed. A corrigendum document DCOR1 was issued.

#### **Verification Tests**

At the last meeting in Vancouver some Test Group experts raised concerns about the validity of the tests conducted for coding efficiency at low bitrates. Test experts conducted new subjective tests for MPEG-1 vs MPEG-2 between the meetings. The outcome of the tests reconfirmed the superior performance of MPEG-4. The results of the tests will be reconsidered at the next meeting and formally approved by both Test and Video groups.

#### **Conformance**

Good progress was made for the specification of conformance of MPEG-4 video coding systems. Additional input will come from Japanese members over the next meetings providing some 300 test streams. A study on the FCD was released.

#### **Encoder Optimization**

The performance of the Fast Motion Estimator again improve by a factor of 2. Two competing implementations remain. For a final decision implementation aspects will need to be resolved at the next meeting. The ISG group as requested to provide guidance in the decision process at Maui meeting.

### **MPEG-4 (Version 2)**

#### **Tools to be supported**

The tools that will enhance the coding efficiency of MPEG-4 in Version 2 are:

#### **Advanced Coding Profile**

- GMC
- ¼ pel MC
- SADCT

## **Advanced Low Delay Simple Profile**

- Dynamic Resolution Conversion
- Newpred (Error Resilience)

Additional tools already agreed to be supported by version 2 are listed below. These tools provide new functionalities compared to version 1:

- Object Spatial Scalability (Scalability)
- Multiple Alpha Channel Coding (Various)
- Error Resilience for Still Texture Coding (Error Resilience)
- Scalable Arbitrary Shape for Texture Coding (Scalability)
- Wavelet Tiling (Still Texture)

## **Software Integration and Verification**

Good progress was made on the implementation of Version 2 tools. Minor bugs were found during the process.

## **Conformance**

Good progress was made on Version 2 tools. Contributions for study document were provided.

## **Combination of Gray Scale Shape and Sprites**

This combination is not supported in Version 1 or Version 2. The integration into Version 2 may still be possible. Proposers are asked to provide a clear schedule for integration in Maui.

## **MPEG-4 (Version 3)**

### Studio Applications

The need to provide MPEG-4 solutions for very high quality applications was expressed by a number of MPEG member companies. This requests the MPEG-4 video coding system to be extended to 4:2:2 and 4:4:4 formats with possible extension of the toolkit (the inclusion of simple shape coding algorithms is foreseen).

Previous results illustrated good performance also for transcoding MPEG-2 to MPEG-4. This activity reached WD 2.0 status at the meeting with a WD document issued.

## **MPEG-4 (Version 4)**

### Fine Granularity Scalability

This activity progressed to WD 2.0 at the meeting. More experimentation will be required to confirm the efficiency of the method. PDAM is scheduled for March 2000.

## **MPEG-7**

MPEG-7 was one of the major activities in MPEG video. Results of Core Experiments were reviewed and discussed in the video group. Very intensive work started on MPEG-7 descriptors and inclusion of new tools into the MPEG-7 XM version 2.

The following tools were accepted for inclusion into XM Version 2 at Melbourne meeting:

- ◆ Motion Activity Descriptor
- ◆ Group of Frames Histogram Color Descriptor

A new version of the XM document was issued (XM Version 2) and technical details of Core Experiments were revised.

Regarding the software integration of MPEG-7 visual tools the XM data structure was reviewed and a time schedule for integration of the software was developed. The integration task is likely to be very complex. It was identified that person or organization who will play the official role of an integrator is urgently required.



*Annex 8*  
**Audio Subgroup Report**

**Source:** S. Quackenbush,  
**Editor:** D. Thom

**Chair** Audio Subgroup

**Opening of the meeting**

The MPEG Audio Subgroup meeting was held during the 49th meeting of WG11 in Melbourne, Australia, October 4 to 8, 1999. The list of participants is given in Annex A-1. The Chair welcomed the delegates to the meeting and outlined the work for the five days.

**Administrative matters**

**Approval of agenda**

The agenda, as presented in Annex A-II, was discussed, edited and approved.

**Vancouver meeting report**

The Audio Subgroup Vancouver meeting report, July, 1999, had been previously distributed by email and was approved.

**Allocation of contributions**

All contributions (see Annex A-IV) were allocated to the agenda and were discussed either in the task groups or in Audio plenary. The Chair brought relevant documents from Test, Systems, and Requirements to the attention of the group.

**Communications from the Chair**

The Chair summarised the issues raised at the Sunday evening Chair's meeting and indicated the priorities for the week's work.

**Joint meetings**

Joint meetings over the course of the week are listed here and are reported on below.

Day	Time	Meeting With	Topic	Location
Monday	5-6PM	Requirements	V2 Profiles	Audio
Tuesday	3-6PM	all	Multimedia Framework	Requirements
Wednesday	4-5PM	MDS	Audio aspects of generic DS	Audio
Thursday	9-10AM	Systems	Profiles and Levels in Audio Scene Description Profile	Audio
Thursday	9-10:30AM	All	MPEG-7 systems	Systems
Thursday	10:30-11AM	Requirements	MPEG-4 Profiles and Levels	Audio
Thursday	10:30-12:30AM	Audio, ISG, SNHC	Backchannel	Systems
Friday	9-10AM	all	Multimedia	Requirements

			Framework	
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## Received National Body Comments and Liaison matters

The following National Body Comments and Liaison responses were prepared:

NB Comment	Author of Response	Title of Response
5107	S. R Quackenbush	Response to U.S.A. National Body Comments on..
5142	T. Moriya	Response to Japanese National Body Comments ..
5156	SW Kim	Response to Korean National Body Comments on..
5177	R Funken	Response to Dutch National Body Comments on..
5230	S. R. Quackenbush	Response to Swiss National Body Comment on ...

## Task Groups

Nine task groups were convened for the duration of the MPEG meeting, as shown in ANNEX-III. Results of task group activities are reported below.

## Record of Audio plenary, joint meetings and task group activities

### Joint meetings with Requirements on Profiles and Levels

The Monday meeting was primarily a report from the Requirements group, which advised the Audio group on the following points:

- Companies that make support statements for an MPEG-4 profile will have that statement made public on the MPEG home page. Companies that support each profile will commit to working on conformance for that profile.
- Adding levels to MPEG-4 Version 1 in Version 2 text is permitted. Changing existing levels in Version 1 in Version 2 text is not permitted. Both profiles and levels are defined in 14496-3 (Audio text).
- Concerning the JNB comment, it is recommended that Version 2 profiles contain the Version 1 object types that are the kernel of the Version 2 object (i.e. the audio decoder tool without the EP tool). It is permitted to use a level of profiles containing the EP tool to “turn off” the EP tool. Finally, the Requirements group does not recommend the idea of selecting MPEG-4 technology on an “audio object type” level, as this limits interoperability.

On Thursday the Requirements group approved the proposed MPEG-4 Audio profiles and levels. The Audio chair does not expect further discussion on this matter.

### Joint meeting with MDS on Audio aspects of generic DS

The current MDS generic description scheme document was reviewed in this joint session. The discussion focussed on audio-related features, some of which were found either to be inadequate or missing. Audio will contribute to improving this document as an AHG effort.

### Joint meeting with Systems on profiles and levels in audio scene description profile

The Audio and Systems group chairs met to determine how to add levels to the System audio scene graph profile. Since the profile currently does not define any levels, levels can be defined in Systems Version 2 text. Audio supplied this text to Systems.

### Joint meeting with Systems, ISG and SNHC on backchannel

S-H Park presented m5260, Backward Channel for Fine Granule Audio (BSAC). Because there was substantial discussion of this proposal on the AHG reflector, the proposal was approved with little additional discussion. This proposal is documented in N2956. Since there is no real-time implementation of the Audio VM and the System backchannel capability, further testing and verification of the proposal is not possible.

### Profiles and levels task group

This was a difficult task. The group began by describing all profiles previously proposed in the Audio group and in corporate statements of profile support. This resulted in seven profiles. This was reduced to five profiles after lengthy discussion in Audio plenary. At the Tuesday evening chairs meeting, a request was made by the Convenor to “please reduce more.” The Audio chair proposed a reduction to three profiles. The task group met again and identified three scenarios, and felt that there was consensus to support the third scenario. This scenario, consisting of four profiles, was presented in Audio plenary and was approved. Subsequently, the task group proposed level definitions for each of the profiles, and this was approved in Audio plenary. The Audio chair notes that there may be new inputs on corporate support of profiles, and in the case that all companies supporting a give profile agree, changes to this profile may be considered. Otherwise, the Audio chair sincerely hopes that there will be no further changes to the Version 2 profiles and levels.

### **Version 2 verification test task group**

This task group created a workplan that specifies the work to be done before the Maui meeting in order to finish the verification tests. This document also serves as a draft report of the verification test. The task group identified most, but not all, resources needed to carry out the test. The remaining resources were identified in Audio plenary. Particularly, since no company volunteered to host test A4, it was decided to permit two of the proponents to each carry out this test, with the hope that this duplicate test effort will serve to validate each of their results. This will be specifically addressed in the final report.

### **Version 2 text task group and conformance task group**

These two task groups progressed their respective study documents or working draft documents by incorporating relevant input documents and making other edits. The conformance task group created a very specific workplan to progress both Version 1 and Version 2 conformance by indicating who will contribute what by when. The Audio group hopes that this plan will achieve considerable progress in Audio conformance.

A common effort amongst these two task groups is responding to the Swiss NB comment on structured audio conformance. After discussion in task group and Audio plenary, especially relying on expert advice of B. Vercoe of MIT Media Lab, the Audio group decided that:

- The text of the SA complexity measurement tool description, m5031, will be included as an annex in the “Study on MPEG-4 Version 1 Audio Conformance FCD.” The Audio group is very happy to receive conformance bitstreams SY006, SY007, SY008 and their associated description, which will be incorporated into the study on conformance document.
- Table 10, m5033, will be incorporated into document “Proposed MPEG-4 Version 2 Profiles and Levels” as an indication of levels for the System audio scene graph profile.
- After extensive discussion, the Audio group declined to incorporate the changes expressed in Tables 1 and 2 in m5032. The reason is that the Audio group felt that the computational requirements expressed in these tables (in the high complexity level) were so high as to make manufacturers reluctant to build terminals at that level. Instead, the Audio group recommends that techniques of graceful degradation be permitted in the conformance specification to allow terminals with computational capabilities indicated in the original tables to decode bitstreams whose measured complexity is actually higher than the terminals capability. Text on details of graceful degradation will be added to the Audio conformance document.

### **MPEG-7 task group**

The task group split the MPEG-7 CE methodology document into two pieces, one for descriptors and the other for description schemes. The latter was presented in a joint meeting with the MDS group, revised in that discussion, and adopted by MDS. This task group edited the part on descriptors, and the result of that effort is an output document. Most of the text in this document also appears in the “MPEG-7 Foundation” document.



## **MPEG-4 Reference software task group**

There was a proposal for improving the MPEG-4 VM decoder software quality. Specifically, that the MPEG-4 Audio VM decoder framework be revised in the following ways:

- Rewrite of the VM framework to improve command line parsing, bitstream handling, calling of decoder modules, and writing of sound files.
- Rewrite of interfaces between the framework and the decoders modules so as to make the interfaces more consistent and readable.
- Rewrite decoders so as to permit multiple instantiations in a single process (e.g.. remove global and static variables).

It was suggested that an outside contractor be hired to do the actual re-write, with the fees paid by interested companies in the Audio subgroup. The following companies offering to consider supporting the proposed MPEG-4 Audio VM decoder framework revision, and will report on this support at the next MPEG meeting:

AT&T, Bosch, Ericsson, FhG, Mitsubishi, NEC, Nokia, NTT DoCoMo, NTT, Philips, Samsung, Sony

## **MPEG-4 version 2 technical issues task group**

This taskgroup produced a workplan for implementing and validating LATM prior to the next MPEG meeting.

## **MPEG Audio Web Page / FAQ / FTP site / Press Release**

The FAQ was updated with the answers to many questions. We expect that public papers on MP3 and AAC will be available in the near future for posting on, or linking to from, the Audio home page

## **Audio plenary discussions**

The Audio chair insured that all contributions were reviewed either in task groups or in Audio plenary. As indicated in the previous sections, when task group activity could not progress, those discussions were moved to Audio plenary. In this way, plenary activity was primarily that of the Audio chair sharing information with the group or getting task group status from the group, or approval of output documents, audio resolutions and ad hoc group mandates.

## **Meeting deliverables**

### **Press statement**

The Chair prepared the Audio part of the press statement with assistance from David Thom and Adam Lindsay. It was approved.

### **Dispositions of Comments**

The DoC were reviewed and approved.

### **Responses to NB comments**

Responses to the National Body comments were reviewed, approved and given to Liaison.

### **Liaison statements**

There were no liaison responses.

### **Recommendations for final plenary**

A list of Audio recommendations were reviewed and approved.

### **Establishment of new Ad-hoc Groups**

The following ad-hoc groups were established:

<b>Title</b>	<b>Chair</b>	<b>No.</b>	<b>Meeting</b>
AHG on MPEG-4 Audio Version 2 Reference Software Editing	H. Purnhagen B. Teichmann	2958	No
AHG on Audio part of MPEG-4 Version 1 and Version 2 Conformance	T. Mlasko T. Moriya	2959	Sunday before meeting
AHG on MPEG-4 Audio Version 2 Study on FPDAM Editing	S-W Kim	2960	Saturday or Sunday before meeting
AHG on MPEG-7 Audio Core Experiments	Chair: A. Lindsay Co-chair: P. Garner, M Casey, G Peeters, P. Philippe	2961	Saturday or Sunday before meeting
AHG on MPEG-4 Audio Version 2 Verification Test	R Sperschneider F. Feige	2962	Saturday or Sunday before meeting
AHG on MPEG-4 Audio Version 2 Technical Matters	B. Grill, M. Iwadare	2963	Sunday before meeting

### **Approval of output documents**

All output documents, shown in Annex-IV, were presented to Audio plenary and were approved.

### **Future activities**

#### **Schedule of future meetings**

If any ad-hoc group meeting is to occur, they will be on the weekend immediately preceding the Maui MPEG meeting.

#### **Agenda for next meeting**

The Chair presented the agenda for the Maui Audio subgroup meeting, it was approved and is in Annex A-V of this report.

#### **A.O.B.**

There was none.

#### **Closing of the meeting**

The chair thanked the Audio subgroup members for their hard work during the week, especially the task group chairs. Audio plenary was adjourned 1 PM Friday.

### Annex A-I: Meeting Participants List

Name	First Name	Country	Affiliation	e-mail address
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## Annex A-II: Agenda for the Melbourne Audio Meeting

1. Opening of the meeting
2. Administrative matters
  - 2.1. Approval of agenda
  - 2.2. Vancouver meeting report
  - 2.3. Allocation of contributions
  - 2.4. Communications from the Chair
    - 2.4.1. Report from Sunday chairs meeting
    - 2.4.2. Promotion of MPEG-4
  - 2.5. Joint meetings
  - 2.6. Received National Body Comments and Liaison matters 5107, 5142, 5156, 5177, 5230
3. Task group activities
  - 3.1. MPEG-2 Conformance, 13818-4/Amd 3 (FDAM Oct 99) (ballot comments 4963)
  - 3.2. MPEG-4 Conformance 14496-4 (FDIS Dec 99) (ahg report 5050), 4975, 4976, 5031, 5035, 5052
  - 3.3. MPEG-4 Audio 14496-3/Amd 1 (FDAM Dec 99) (ahg report 5015), 5043, 5120, 5128, 5144, (nbc 5156), (nbc 5177), 5181, 5193
  - 3.4. MPEG-4 Conformance 14496-4/Amd 1 (PDAM Dec 99) , 4999, 5099, 5197, (nbc 5230)
  - 3.5. MPEG-4 Reference Software 14496-5/Amd 1 (FPDAM Dec 99) (ahg report 5042)
    - 3.5.1. Reference Software review and clean-up
  - 3.6. MPEG-4 Version 2 (ahg report 5185)
    - 3.6.1. Profiles and levels 4978, 4979, , 5032, 5033, 5034, 5121, 5141, (nbc 5142), 5143, 5171, 5182, 5208, 5219, 5262
    - 3.6.2. Audio Transport (nbc 5107)
    - 3.6.3. Other technical issues 5129, (sys 5260) 5274
  - 3.7. MPEG-4 Version 2 Verification Tests (ahg report 5046), 4998, 5012, 5045, 5051, 5179, 5180, 5273
    - 3.7.1. Modification of workplan
    - 3.7.2. Discussion on testing error protection
  - 3.8. MPEG-7 Audio 15938-3 (WD Dec 99)
    - 3.8.1. Core experiments (ahg report 5088) 5077, 5106, 5228,
    - 3.8.2. Unification of Generic/Audio/Visual CE methodology 5133
    - 3.8.3. Audio contribution to Generic DS (5089 MMDS)
    - 3.8.4. Contribution to Foundation of MPEG-7
      - 3.8.4.1. Audio software policy
    - 3.8.5. Other 5076, 5198, 5199
  - 3.9. MPEG Audio Web Page / FAQ / FTP site 5151
  - 3.10. MPEG Audio press statement contribution
4. Discussion of unallocated Contributions
5. Meeting deliverables
  - 5.1. Press statement
  - 5.2. Dispositions of Comments
  - 5.3. Responses to NB comments
  - 5.4. Liaison statements
  - 5.5. Recommendations for final plenary

- 5.6. Establishment of new Ad-hoc Groups
- 5.7. Approval of output documents
- 6. Future activities
  - 6.1. Schedule of future meetings
  - 6.2. Agenda for next meeting
- 7. A.O.B.
- 8. Closing of the meeting

### **Annex A-III: Task Groups at the Melbourne Audio Meeting**

1. MPEG-2 Conformance, 13818-4/Amd 3 (FDAM Oct 99)

Chair: S. R. Quackenbush

Mandate:

- Produce text of FDAM based on input documents
- Produce DoC of FPDAM

2. MPEG-4 Conformance 14496-4 (FDIS Dec 99)

MPEG-4 Conformance 14496-4/Amd 1 (PDAM Dec 99)

Co-chairs: T. Mlasko, B. Vercoe

V1 Mandate:

- Produce study on FDIS text based on input documents
- Produce study on DoC of FCD

V2 Mandate:

- Produce new WD text based on input documents
- Produce workplan to get to CD text at Maui

3. MPEG-4 Audio 14496-3/Amd 1 (FDAM Dec 99)

Chair: S-W Kim

Mandate:

- Consider incorporation of
  - G. Zoia input documents
  - backchannel text
  - UEP with Reed Solomon text

- Produce study on FDAM text based on input documents
- Produce study on DoC of FPDAM if appropriate

4. MPEG-4 Reference Software 14496-5/Amd 1 (FPDAM Dec 99)

Co-Chairs: H. Purnhagen, J. Herre

Mandate:

- Produce status report of V2 reference software
- Recommend if there is to be a V1/V2 re-write and if so, how to pay for it
- Produce work plan for reference Software review and clean-up

5. MPEG-4 Version 2 Profiles

Chair: R. Funken

Mandate:

- Profiles and levels
  - review all inputs concerning corporate endorsement of profiles
  - report recommendations to Audio plenary
  - contribute to a revised N2858 and/or put in "V2 study text" to have minimum number of profiles with maximum amount of corporate support.
  - contribute to conformance workplan to get to CD text at Maui

6. MPEG-4 Version 2 Technical Issues

Chair: M. Iwadare

Mandate:

- Audio Transport
  - incorporate into study on V2 FPDAM if NBC warrant
  - produce new audio transport description output document
  - produce workplan for testing audio transport

- Other technical issues

  - UEP with R-S tools: report on status of CE
  - MPEG-4 on RTP

7. MPEG-4 Version 2 Verification Tests

Chair: R. Sperschneider

Co-Chair F. Feige

Mandate:

Study recommendations of V2 Test AHG and report to Audio plenary  
Produce workplan indicating test locations and test report authors  
Produce draft V2 test report (possibly as Annex to workplan) having all appropriate information to date

8. MPEG-7 Audio 15938-3 (WD Dec 99)

Chair: A. Lindsay

Co-Chair: S. Quackenbush

Mandate:

Discuss recommendations from MPEG-7 CE AhG's. Report results to Audio plenary

Generate CE workplans as needed, and make them new output documents

Discuss:

Unification of Generic/Audio/Visual CE methodology

Audio contribution to Generic DS

Input documents not discussed in AHG meeting.

Prepare contributions to "Foundations of MPEG-7" document

9. MPEG Audio Web Page / FAQ / FTP site / Press Release

Chair: D. Thom

Mandate:

Answer FAQ for posting on web page

Solicit contribution of MP3 paper for web page

Publicize all public FTP sites for MPEG Audio information, conformance bitstreams or source code

Draft Audio contribution to 49<sup>th</sup> meeting press release

## Annex A-IV: Input and Output Documents

### Contributed documents

The following documents were contributed to the Audio Subgroup and were considered during this meeting:

No.	Source	Title
4963	SC 29 Secretariat	Summary of Voting on ISO/IEC 13818-4/FPDAM 3
4975	H.Yasuda, T.Kogure, Y.Nakaya, T.Senoh, K.Asai, M.Iwadare, M.Tsutsumi, S.Ishibashi, T.Tabata, S.Suzuki, I.Iwai	MPEG-4 Audio Scalable Profile(TwinVQ Object) Verification Bitstream Specifications Draft
4976	H.Yasuda, T.Kogure, Y.Nakaya, T.Senoh, K.Asai, M.Iwadare, M.Tsutsumi, S.Ishibashi, T.Tabata, S.Suzuki, I.Iwai	MPEG-4 Audio Speech Profile(CELP Object) Verification Bitstream Specifications Draft
4998	Juergen Herre, Ralf Geiger	Coder Configurations Used For MPEG-4 v2 Verification Testing
4999	Juergen Herre	Conformance Criteria For PNS Tool of MPEG-4 GA Coder
5012	Schuyler Quackenbush	Report on A3 pre-selection, MPEG-4 V2 verification test
5015	Sang-Wook Kim	Report of AHG on MPEG-4 Audio version 2 FPDAM Editing
5031	Giorgio ZOIA	Complexity measurement tool for level definitions of Algorithmic synthesis and AudioFX object type
5032	Giorgio ZOIA	Level definitions of Algorithmic synthesis and AudioFX object type
5033	Giorgio ZOIA	Level definitions for Systems Audio Scene Graph Profile
5034	Ralf Funken	Support statement for the MPEG-4 Version 2 High Quality Audio Profile
5035	Ralf Funken, Frans de Bont	Revised proposal for a procedure to test MPEG-4 CELP decoder conformance
5042	Heiko Purnhagen, Bodo Teichmann	Report of AHG on MPEG-4 Audio Version 1 and 2 Reference Software editing
5043	Heiko Purnhagen, Nikolaus Meine, Bernd Edler	Study of HILN in MPEG-4 Audio Version 2 FPDAM
5044	Manish Singhal	Some discrepancies between MPEG-4 Video Specification and Reference Software
5045	Heiko Purnhagen, Nikolaus Meine	Information on HILN bitstreams for MPEG-4 V2 verification test
5046	S. R. Quackenbush, N. Nishiguchi, T. Miki	Report of AHG on MPEG-4 V2 Audio Verification Tests
5050	Takehiro Moriya, Torsten Mlasko	Report of the Ad-hoc Group on MPEG-4 Audio Version 1 and Version 2 Conformance



<b>No.</b>	<b>Source</b>	<b>Title</b>
5051	Takehiro Moriya, Takeshi Mori	Configuration of the ER-TwinVQ Objects Submitted to the MPEG-4 Version 2 Audio Verification test
5052	Takehiro Moriya	Proposal of additional criteria for the Scalable Profile of MPEG-4 Audio
5076	Alain de Cheveigne, Geoffroy Peeters	A Scale Tree
5077	Geoffroy Peeters, Steve McAdams, Perfecto Herrera	Report of progress on Audio CE for Instrument Description
5088	Adam Lindsay, Phil Garner, Perfecto Hererra	Report of AHG on MPEG-7 Audio Core Experiments
5099	Lee Ray, Dave Sparks, Dominic Lau	Materials for MPEG-4 "Structured Audio Sample bank Format" (14496-3 Subpart 5) Compliance Testing
5106	Philip N. Garner, Jason P. A. Charlesworth, Savitha Srinivasan	Result of MPEG-7 Audio Core Experiment on Speech Annotation Description
5120	Toshiro Kawahara, Sanae Hotani, Norio Nakamura	Summary of clarifications to EP tool part of MPEG-4 Audio Version 2 FPDAM
5128	Y.Toguri, N.Fujita, M.Nishiguchi	Description of the complexity scalable AAC decoder for the informative part of the 14496-3 AMD1
5129	Y.Toguri, N.Fujita, M.Nishiguchi	Report of the listening test results of AAC SSR with EP tool
5141	Y.Toguri, M.Nishiguchi	Comments on MPEG-4 Audio Version 2 Profile
5142	The National Body of Japan	JNB Comments on MPEG-4 Version 2 Audio
5143	Masahiro Iwadare, Toshiyuki Nomura	A proposal for MPEG-4 Version 2 Audio Profile
5144	Masahiro Serizawa, Masahiro Iwadare, Toshiyuki Nomura	Editorial Comments on MPEG-4 Version 2 Audio FPDAM
5151	Sang-Wook Kim	MPEG Audio Web page related matters
5156	KNB	Comments on Audio part of MPEG-4 FPDAM
5177	Jean H.A. Gelissen,, Ralf F.M. Funken	Comments to the MPEG-4 Version 1& 2 Audio parts.
5179	Thomas Sporer, Ralph Sperschneider	Listening Test Procedure for Intermediate Audio Quality
5180	Ralph Sperschneider	A New Listening Test Method Proposed to Test Error Robustness Capabilities
5181	Ralph Sperschneider, Daniel Homm	FhG Comments on MPEG-4 Audio Version 2 FPDAM
5182	Bernhard Grill	Support Statement for MPEG-4 Version 2 Profiles
5185	B. Grill, M. Iwadare	Report of the ad-hoc group on MPEG-4 audio version
5193	Yuji Maeda, Masayuki Nishiguchi	Revised description of HVXC variable bit-rate mode for version2
5197	Giorgio ZOIA	Update of N2790 for SA and AudioBIFS conformance

No.	Source	Title
5198	Alain de Cheveigni, Bennett Smith	A "sound transparency" descriptor
5199	Alain de Cheveigni, Geoffroy Peeters, Perfecto Herrera	Issues on Audio CE for Melody Description
5208	Martin Dietz, Torsten Mlasko	Profile Considerations for of Digital Narrowband Broadcasting
5228	Michael Casey	Sound Effects Core Experiment (CE)
5230	Frank Bossen Ed.	Swiss NB comment on Audio conformance
5260	S-H Park	Backward Channel for Fine Granule Audio (BSAC)
5262	Sang-Wook Kim	Short analysis of MPEG-4 New Profiles under consideration: Audio part
5273	Thomas Buchholz/T-Nova, Miikka Vilermo/Nokia, Claus Kupferschmidt/Bosch, Wiebke Johannsen/T-Nova	Annex to the Report on the Selection Process for the MPEG-4 Version 2
5274	Toshiyuki Nomura, Masahiro Iwadare	A proposal for RTP packetization of MPEG-4 Audio bitstream

### Output Documents

The following output documents were produced in whole or part by the Audio Subgroup. Those shown in *Italics* were approved for public release.

Title	No.
DoC on ISO/IEC 13818-4 / FPDAM 3	2912
Text of ISO/IEC 13818-4 / FDAM 3	2913
Study on MPEG-4 Version 1 Audio Conformance FCD	2945
Study on MPEG-4 Version 2 Audio FPDAM	2946
MPEG-4 Version 2 Audio Conformance WD	2947
MPEG-4 Audio conformance work plan	2948
MPEG-7 Audio Core Experiment Methodology	2949
Workplan for MPEG-7 Audio Core Experiment – Sound Effects	2950
Workplan for MPEG-7 Audio Core Experiment – Musical Instruments	2951
Workplan for MPEG-7 Audio Core Experiment – Speech recognition	2952
Workplan for MPEG-4 Version 2 Audio Verification Test	2953
Status and Workplan of MPEG-4 Version 2 Audio Reference Software	2954
i).1.1.1 Audio FAQ Update	2955
Status and Workplan for MPEG-4 Version 2 Audio Technical Matters	2956
i).1.1.2 Revised Report on complexity of MPEG-2 AAC Tools	2957

## **Annex A-V: Agenda for the Maui Audio Meeting**

1. Opening of the meeting
2. Administrative matters
  - 2.1. Approval of agenda
  - 2.2. Melbourne meeting report
    - 2.2.1. Review test results
    - 2.2.2.
  - 2.3. Joint meetings
  - 2.4. Received National Body Comments and Liaison matters
3. Task group activities
  - 3.1. MPEG-4 Conformance 14496-4 (FDIS Dec 99)
  - 3.2. MPEG-4 Audio 14496-3/Amd 1 (FDAM Dec 99)
  - 3.3. MPEG-4 Conformance 14496-4/Amd 1 (PDAM Dec 99)
  - 3.4. MPEG-4 Reference Software 14496-5/Amd 1 (FPDAM Dec 99)
    - 3.4.1. Reference Software framework re-write
  - 3.5. MPEG-4 Version 2 Technical Issues
    - 3.5.1. Audio Transport
    - 3.5.2. Backchannel
  - 3.6. MPEG-4 Version 2 Verification Tests
  - 3.7. MPEG-7 Audio 15938-3 (WD Dec 99)
    - 3.7.1. Core experiments
    - 3.7.2. Contribution to MPEG-7 Development document
    - 3.7.3. Contribution to Generic DS
  - 3.8. MPEG Audio Web Page / FAQ / FTP site
  - 3.9. MPEG Audio press statement contribution
4. Discussion of unallocated Contributions
5. Meeting deliverables
  - 5.1. Press statement
  - 5.2. Dispositions of Comments
  - 5.3. Responses to NB comments
  - 5.4. Liaison statements
  - 5.5. Recommendations for final plenary
  - 5.6. Establishment of new Ad-hoc Groups
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  - 6.1. Agenda for next meeting
7. A.O.B.
8. Closing of the meeting

**ISG meeting report****Source:** ISG Chair**Editors:** Gauthier Lafruit (IMEC), Marco Mattavelli (EPFL)**Overview**

Three main subjects have been discussed in the Implementation Subgroup in Melbourne:

1. MPEG-7 XM development
2. SNHC QoS through backchannel
3. VBV, VCV and VMV models for video

Items w.r.t. audio and video (FGS) complexity have not been discussed within ISG, because of the absence of most ISG members involved in these topics:

1. audio complexity has been taken care of by the audio group
2. FGS complexity has not been analyzed.

Input contributions w.r.t. the above items are summarized according to the following table:

<b>MPEG-7 XM development</b>		
5172	Ad-hoc group report: AHG on organizing the software integration of MPEG-7 Visual XM tools	S. Herrmann
<b>VMV, VCV, VBV models</b>		
5123	VCV and VMV in MPEG-4 Visual	Michael Frater
5168	Implementing the MPEG-4 Video Buffering Verifier for the Core Profile- Some Results	Paulo Nunes, Fernando Pereira
5186	VBV, VCV, and VMV specifications for sprite sequences	Yuichiro Nakaya, Yoshinori Suzuki
<b>QoS Backchannel</b>		
5163	Report AHG on Video Decoder Quality of Service	Gauthier Lafruit
5164	Single backchannel for SNHC decoder's performances	Gauthier Lafruit
<b>Audio complexity</b>		
5031	Complexity measurement tool for level definitions of Algorithmic synthesis and AudioFX object type	Giorgio ZOIA
5032	Level definitions of Algorithmic synthesis and AudioFX object type	Giorgio ZOIA
5033	Level definitions for Systems Audio Scene Graph Profile	Giorgio ZOIA
<b>FGS complexity</b>		
5082	Complexity Analysis of Two Residue Computation Methods for FGS	Weiping Li, Hong Jiang
5090	Residual Computation for Fine Granularity Scalability: Results, Analysis, and Complexity Study	Yingwei Chen, Mihaela van der Schaar and Hayder Radha

**Detailed Report****MPEG-7 XM development**

Fruitful discussion w.r.t. the MPEG-7 XM development have been held. Stephan Herrmann has extensively given an overview of the latest developments. The XM architecture has been revised, resulting in the definition of four main parts:

- functional tools for media data extraction
- interfaces for supporting application-specific modules
- functional tools for input/output to/from MPEG-7 files
- evaluation and validation tools

Some concerns have been expressed w.r.t. the DDL integration: DDL dynamically allocates descriptors which could result in difficulties to include DDL into the static XM architecture, that has been defined so far. Making the XM architecture dynamic requires that the DDL parser is the core of the architecture, around which all other modules are settled. For logistic reasons (time pressure) it has been decided that the DDL parser would remain outside the XM architecture and that data between the DDL and XM architecture will be exchanged through a mechanism of APIs. During a joint meeting between ISG, MDS and Video (Thursday October 7<sup>th</sup> 1999), it was felt that this approach will probably introduce only minor (or possibly no) restrictions, so the most (or all future) MPEG-7 Description Schemes will be supported by the XM architecture.

A workplan for MPEG-7 XM integration has been proposed, jointly with video. Most video tools will be integrated in the XM architecture by November 15<sup>th</sup> 1999. An AHG has been set up to support these activities (N2965).

No workplan has yet been discussed w.r.t. audio.

The DDL parser from the MDS group will be available by November 15<sup>th</sup> 1999.

All details w.r.t. the current status of the XM integration and schedule are given in output document N2964. The complete XM development process has been described in output document N2999.

Some discussions have been initiated w.r.t. the complexity of Descriptor and Descriptor Schemes (e.g. required memory size, memory bandwidth, number of operations). Further discussions will be held between Video and ISG during the Hawaii meeting.

### **SNHC QoS through backchannel**

During the Vancouver meeting a syntax has been approved (jointly by ISG and SNHC) for conveying SNHC QoS information through the backchannel. At that moment it was not clear how this information could be transmitted through a unique backchannel, attached to a group of SNHC objects. During a joint meeting between Systems, Audio, SNHC and ISG on Thursday 7<sup>th</sup> October, this issue has been discussed. The conclusion was that it is possible to group SNHC objects in order to attach one unique backchannel to all SNHC objects for the purpose of QoS. Since non-Systems MPEG members have some difficulties in grasping all the details of the backchannel mechanisms, it was decided to set up a physical example that would be described into an informative annex in MPEG-4 version 2 Systems specification (which satisfies the BNB comment m5162). Further discussions through the backchannel reflector are thus required.

Systems experts also clearly stated that the precise syntax w.r.t. SNHC QoS should be included into Visual (not Systems) and that there should be some work in integrating all accepted Visual backchannel tools consistently into Visual. The SNHC QoS syntax was therefore included into the Study of ISO/IEC 14496-2 /FPDAM1.

### **VBV, VCV and VMV models for video**

During the Roma meeting ISG presented an approach using VBV, VCV and VMV models for conformance purposes in video. This approach was adopted by Video, but through successive

modifications, the Video group ended up with two separate models: one for boundary and one for non-boundary macroblocks. ISG has always expressed that a better approach would be to use a weighted function, where one model is applied on a weighted cost function including boundary and non-boundary macroblocks. Unfortunately, insufficient implementation examples could validate this approach.

In Melbourne, input document m5168 strongly suggested that using one model would put less restrictions on the conformance issues. An extensive amount of email discussions between ISG members (some of them were absent in Melbourne) has confirmed ISG's point of view. Unfortunately, insufficient validations could be undertaken, especially compared to the extensive number of validations performed by some Video members using the current two VCV, VBV & VMV model approach (these issues have been discussed during a non-official joint meeting between ISG and Video on Tuesday evening October 5<sup>th</sup> 1999). As a result ISG approves *reluctantly* the current two VCV, VBV & VMV model approach. Some minor corrigenda w.r.t. the current two VCV, VBV & VMV model approach have been confirmed by ISG during this unofficial joint meeting.

## **Miscellaneous**

### **Complexity estimation naming**

The naming convention w.r.t. complexity estimation in SNHC has been corrected (introduced into the Study of ISO/IEC 14496-2 /FPDAM1), according to the BNB comment m5161 (the BNB comment was received by Video that bounced this NB comment back to ISG).

### **Audio and FGS complexity**

Because a lot of ISG members were absent at the Melbourne meeting, a number of discussions have been postponed or reduced to their simplest form:

- Contributions w.r.t. audio complexity have mainly been analyzed by the audio group with minor intervention of ISG members (mainly informal discussions with audio chairman): most of these contributions were very well written, so that a non-expert could grasp the main ideas without difficulties.
- Contributions w.r.t. FGS complexity have not been analyzed, because of a lack of time and an insufficient critical mass of ISG members for discussing this topic.

*Annex 10*  
**Liaison meeting report**

*The Liaison Group considered the following Melbourne input documents*

Title / Subject	SC29#	MPEG#
Liaison Statement from ITU-RWP11A on Quality Measures for <i>EHRI Video Signal</i>	<i>N3241</i>	<i>M4971</i>
<i>Additional Revision to ISO/CD 15706,ISAN</i>		<i>M5234</i>
<i>Report of the Web 3D liaison</i>		<i>M5255</i>
Liaison Statement from the SMPTE on Draft SMPTE Metadata related Standards and Recommended Practices	<i>N3255</i>	<i>M5272</i>

**j) These are the action of above liaison document**

- N3241 : Send the letter to ITU-RWP11A with your cooperation
- M5234 : Send this letter to MPEG-7 DS Group and make the response.
- M5255 : No action needed
- N3255 : Need response (N2986)

The following output liaison documents were produced :

2984	Liaison to ITU-R WP 11A
2986	Liaison to SMPTE
2987	Liaison to IETF
2988	Response to National Body Comments
3008	Liaison to SMPTE
3009	Liaison to EBU
3010	Liaison to DVB
3011	Liaison to DVD consortium
3012	Liaison to ATSC
3013	Liaison to Pro-MPEG
3014	Liaison to IECTC100
3015	Liaison to SC32/WG2
3016	Liaison statement to DVB

**List of Organizations with which Liaisons Exist**

Organization	Responsible Individual
IETF	
ITU-T SG16 Q11	Yoshihiro Kikuchi

CEN	Francoise Preteux
Web3D (VRML)	Julien Signès
ITU-R WP10C	Karlheinz Brandenburg
AES	Karlheinz Brandenburg
ISO / TC 46 / SC 9	Albert Simmonds and Keith Hill
AGICOA	Didier Mary
SMPTE	Mike Vetter and Stephen Long
INTELSAT	Surendra Satija
W3C	Jane Hunter and Frank Nack
OCLC	Jane Hunter
DIG	Kats Ishii
IEC TC100	Kate Grant