#  INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

# 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 N14813**

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# Compact descriptors for visual search enables rapid search for images

Strasbourg, FR − The 110th MPEG meeting was held in Strasbourg, FR, from 20 – 24 October, 2014**.**

**MPEG develops Compact Descriptors for Visual Search**

Part 13 of ISO/IEC 15938 MPEG-7, Compact Descriptors for Visual Search (CDVS) has been approved during the 110th MPEG meeting. CDVS defines a compact image description that facilitates the comparison and search of pictures that include similar content, e.g. when showing the same objects in different scenes from different viewpoints. The compression of key point descriptors not only increases compactness, but also significantly speeds up, when compared to a raw representation of the same underlying features, the search and classification of images within large image databases. Application of CDVS for real-time object identification, e.g. in computer vision and other applications, is envisaged as well.

**MPEG launches a new study for future video coding standardization**

As previously planned and announced at its 109th meeting, MPEG (together with ITU-T SG 16's VCEG) hosted a panel discussion at the 110th MPEG meeting to explore use cases, requirements, and potential timelines for the development of future video coding standards. Guest speakers included Roger Bolton of Ericsson, Harald Alvestrand of Google, Zhong Luo of Huawei, Anne Aaron of Netflix, Stéphane Pateux of Orange, Paul Torres of Qualcomm, and JeongHoon Park of Samsung, who each provided excellent presentations discussing the needs of applications in their industry segments.

In this brainstorming session, several opinions were offered from the panelists, and other participants as well, who collectively represented a variety of industry, academia, and research institutions. Aside from confirming that maximizing compression efficiency remains a fundamental need, the expressed views were diverse and it is evident that the needs among applications and industry segments vary. MPEG has therefore recognized a need to further study future application requirements, and the availability of technology developments to fulfill these requirements. Toward establishing a roadmap for future video coding standardization, MPEG has established two ad hoc groups to conduct this study. MPEG welcomes the input of all experts to exchange views, help map the video compression needs of the industry to future standardization activities, and discuss potential technologies that could be employed in such a video coding standard. [A list of the ad hoc groups](http://mpeg.chiariglione.org/docs/list-ahgs-established-110th-meeting-strasbourg-fr), and instructions to subscribe to their corresponding reflectors is available on the MPEG website.

**MPEG hosts Media Synchronization and Hybrid Delivery workshop**

 MPEG has initiated a new exploration, called *MPEG Timeline Alignment,*to consider use cases and requirements for potentially new standards to enable advanced media synchronization capabilities.  At the 110th meeting in Strasbourg, the Media Synchronization and Hybrid Delivery workshop was hosted by MPEG to better understand the current state-of-the-art for media synchronization and identify further needs of the industry.  Six presentations, that can be accessed at the [MPEG website](http://mpeg.chiariglione.org/meetings/110), were delivered at the workshop from both MPEG experts and external guests.  Presentations included an overview of existing MPEG technologies, and private extensions, that can already be used to implement hybrid services and synchronize media between different delivery methods, e.g. Broadcast and broadband delivery of media, and an analysis of new approaches for media synchronization.  In addition, workshop participants showcased six demonstrations.

Having achieved additional clarity of new aspects and requirements for media synchronization through the workshop, MPEG has decided to more closely study the use cases and requirements that can potentially be addressed in new standards.  An example of one such requirement that was identified is the ability to conditionally synchronize media or events using a programmatic description of the media rather than the widely used MPEG mechanism that restricts the designation of presentation time to an underlying reference clock.

**Green metadata for energy utilization reaches FDIS milestone**

ISO/IEC 23001-11 Green Metadata has reached the FDIS milestone at the 110th MPEG meeting. This standard specifies the format of metadata that can be used to reduce energy consumption from the encoding, decoding, and presentation of media content, while simultaneously controlling or avoiding degradation in the Quality of Experience (QoE). Moreover, the metadata specified in this standard can facilitate a trade-off between energy consumption and QoE. MPEG is also working on amendments to the ubiquitous MPEG-2 TS ISO/IEC 13818-1 and ISOBMFF ISO/IEC 14496-12 so that green metadata can be delivered by these formats.

**New MPEG 2 Systems amendment synchronizes MPEG media presentation with external timelines**

At its 110th meeting, MPEG has completed an amendment to MPEG-2 Systems, ISO/IEC 13818-1:2014 AMD 2 Delivery of Timeline for External Data, or TEMI, as it called in MPEG. This amendment enables the synchronization of media available externally, for example, via a URL, to the media provided in an MPEG-2 transport stream (MPEG-2 TS). Prior to the availability of this amendment, media that was synchronized to a presentation clock, e.g. a wall clock and was different from the clock architecture used in an MPEG-2 transport stream, was subject to discontinuities in the MPEG-2 TS clock. TEMI provides the technologies to fully synchronize the presentation of media both internally and externally to an MPEG-2 TS. One use case scenario that benefits from the TEMI technologies is the synchronization of broadcast content with interactive services and media provided over a broadband network.

**2nd Edition of Augmented Reality Application Format reaches CD status**

The 2nd Edition of MPEG’s Augmented Reality Application Format (ARAF), ISO/IEC 23000-13 has reached CD status at the 110th MPEG meeting, and is anticipated to be published in its final form at the end of 2015. ARAF is a format that enables augmentation of content representing the real world with synthetic media objects. Target applications for ARAF include geo-location based services, image-based object detection and tracking, mixed and augmented reality games, and real/virtual interactive scenarios.

**Report shows excellence of MPEG-H 3D Audio Performance**

At the 110th MPEG meeting, WG11 has published N14931, Report on MPEG-H 3D Audio Performance, available at <http://mpeg.chiariglione.org/standards/mpeg-h/3d-audio>. This report shows that 3D Audio achieved a subjective score in the range of Excellent for presentation over loudspeakers in the coded bit rate range of 384 kb/s to 1.2 Mb/s. When presenting a binauralized version of these signals over headphones, performance was far into the Excellent range. The test items consisted of a mix of multichannel (9.0 to 22.2) material, sound objects, and Higher Order Ambisonics (HOA) sound scenes.

MPEG-H 3D Audio supports a highly immersive audio experience for loudspeakers placed in a 3-dimensional configuration (e.g. high, mid and low for front, side and surround). Key functionalities are a compact and bit-efficient representation of multi-channel audio programs, and the ability to flexibly render audio content to an arbitrary number of loudspeakers with an arbitrary configuration, as well as to provide an immersive binaural experience over headphones. The technology supports content in multiple formats: channel-based, channels and objects (CO), and Higher Order Ambisonics (HOA) scene-based.

MPEG-H 3D Audio progressed to Draft International Standard at the July 2014 MPEG meeting and is expected to progress to International Standard in early 2015.

**Digging Deeper – How to Contact MPEG**

Communicating the large and sometimes complex array of technology that the MPEG Committee has developed is not a simple task. Experts, past and present, have contributed a series of tutorials and vision documents that explain each of these standards individually. The repository is growing with each meeting, so if something you are interested is not yet there, it may appear shortly – but you should also not hesitate to request it. You can start your MPEG adventure at <http://mpeg.chiariglione.org/>

**Further Information**

Future MPEG meetings are planned as follows:

No. 111, Geneva, CH, 16 – 20 February 2015

No. 112, Warsaw, PL, 22 – 26 June 2015

No. 113, Lucca, IT, 19 – 23 October 2015

No. 114, San Diego, CA, USA, 22 – 26 February 2016

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The MPEG homepage also has links to other MPEG pages that are maintained by the MPEG subgroups. It also contains links to public documents that are freely available for download by those who are not MPEG members. Journalists that wish to receive MPEG Press Releases by email should contact Dr. Arianne T. Hinds at a.hinds@cablelabs.com