# 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 N16738**

**April 2017 - Hobart, Australia**

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**MPEG starts work on the MPEG-I new work item
targeting future immersive applications**

Hobart, Australia – The 118th MPEG meeting was held in Hobart, Australia, from 03 – 07 April 2017

**New MPEG-I Work Item approved**

MPEG started to work on the new work item called MPEG-I, targeting future immersive applications. In particular, this new standard will enable various forms of audio-visual immersion including panoramic video with 2D and 3D audio with various degrees of true 3D visual perception. While the standard for panoramic video will be ready by the end of the year, other parts including a new video codec targeted at supporting regular TV as well as the extremely high resolutions of immersive video for domes and head mounted displays is expected to become ready at the end of 2020. In addition to audio and video, 3D representations based on 3D point clouds will also be part of the new suite of standards.

**Common Media Application Format for Dynamic Adaptive Streaming Applications**

At its 118th meeting, MPEG completed the development of the Common Media Application Format (CMAF) standard. CMAF will set a clear standard for a format optimized for large scale delivery of a single encrypted, adaptable multimedia presentation to a wide range of devices. The format is compatible with a variety of adaptive streaming, broadcast, download, and storage delivery methods including MPEG-DASH and MMT.

The segmented media format, which has been widely adopted for Internet content delivery using MPEG-DASH, Web browsers, and commercial video streaming services, is derived from the ISO Base Media File Format, and uses MPEG codecs, Common Encryption, etc. The same components have already been widely adopted and specified by many other standards developing organizations and industry consortia, but the absence of a common media format, or minor differences in practice, has meant that slightly different media files must often be prepared for the same content. The industry will greatly benefit from a common format, embodied in an MPEG standard, to improve interoperability and distribution efficiency.

CMAF is a standard for encoding and decoding of segmented media. While CMAF defines only the media format, CMAF segments can be used in environments that support adaptive bit-rate streaming using HTTP(S) and any presentation description, such as the MPEG-DASH Media Presentation Description (MPD) and the HTTP Live Streaming (HLS) manifest. MPEG’s CMAF specification is addressing the most common use cases including over-the-top (OTT) adaptive bit-rate streaming, broadcast/multicast streaming, hybrid network streaming of live content, download of streaming files for local playback, and server-side and client-side ad insertion. The agreed selection of a few CMAF profiles will help industry and consortia to avoid fragmentation of media formats.

**Call for Evidence on video compression with capability beyond HEVC**

A “Call for Evidence on video compression with capability beyond HEVC” was issued at the 118th MPEG meeting as MPEG document N16886. This call has been made jointly with ITU-T SG16/Q6 (VCEG). It is addressed to interested parties that have technology providing better compression capability than the existing standard, either for conventional video material, or for other domains such as HDR/WCG or 360-degree (“VR”) video. As test cases, the call defines bit rate points and materials in all of three of these categories. Reference encodings using HEVC – the High Efficiency Video Coding standard – and the recently-developed Joint Exploration Model (JEM) algorithm are also provided for comparisons. The JEM is being developed by the Joint Video Exploration Team (JVET) of MPEG and VCEG, and is already known to provide bit rate reductions in the range of 20-30% for relevant test cases, as well as subjective quality benefits. Submissions are expected for the July 2017 meeting, where assessments will be made based on subjective quality evaluation (using expert viewing panels) in addition to objective criteria (such as bit rate savings for equivalent objective quality). Based on the outcome of the call and promising evidence that potential technology exists, MPEG and VCEG may produce a formal Call for Proposals later in the year, with the intent to enter a formal standardization phase for the next generation of video compression standards beyond HEVC. A preliminary target date for completion of a new standard on the subject is late 2020.

**MPEG calls for Immersive Test Data**

Pursuant to the establishment of the new project supporting new highly immersive next-generation visual experiences, MPEG is calling for video test material to assess algorithm performance for multimedia services in which information is combined from different cameras to generate virtual views that the user observes when virtually moving while experiencing a scene. Different levels of experience are achieved by the user who may freely move their head around three rotational axes, aka Three Degrees-of-Freedom (3DoF), and along three translational directions (including stepping forward and backward into/from the scene), aka Six Degrees-of-Freedom (6-DoF). In order to optimize the standard for the intended applications, MPEG requests interested parties to submit test material to MPEG. Details are specified in N16766 Call for Immersive Test Material.

**Exceptional Performance Verified for Screen Content Coding Extensions of HEVC**

Tests performed by the Joint Collaborative Team on Video Coding (JCT-VC) of MPEG and VCEG have verified the exceptional performance of the Screen Content Coding (SCC) extensions to HEVC. This powerful set of tools augments the compression capabilities of HEVC to make it the flexible standard for virtually any type of video source content that is commonly encountered in our daily lives. Screen content is video containing a significant proportion of rendered (moving or static) graphics, text, or animation rather than, or in addition to, camera-captured video scenes. The new SCC extensions of HEVC greatly improve the compression of such content. Example applications include wireless displays, news and other television content with text and graphics overlays, remote computer desktop access, and real-time screen sharing for video chat and video conferencing. The tests were performed using formal subjective testing and rigorous statistical analysis for video content in the RGB, Y'CbCr 4:4:4, and Y'CbCr 4:2:0 colour sampling formats. For scenes containing a substantial amount of text and graphics, the tests showed a major benefit in compression capability for the new extensions over both the Advanced Video Coding standard and the previous version of the newer HEVC standard without the new SCC features.

**How to contact MPEG, learn more, and find other MPEG facts**

To learn about [MPEG basics](http://mpeg.chiariglione.org/mpeg-basics), discover [how to participate](http://mpeg.chiariglione.org/who-we-are) in the committee, or find out more about the array of technologies developed or currently under development by MPEG, visit MPEG’s home page at <http://mpeg.chiariglione.org/>. There you will find information publicly available from MPEG experts past and present including tutorials, white papers, vision documents, and requirements under consideration for new standards efforts. You can also find useful information in many public documents by using the search window including publicly available output documents of each meeting (note: some may have editing periods and in case of questions please contact Dr. Christian Timmerer).

Examples of tutorials that can be found there include tutorials for: High Efficiency Video Coding, Advanced Audio Coding, Universal Speech and Audio Coding, and DASH to name a few. A rich repository of white papers can also be found and continues to grow. You can find these papers and tutorials for many of [MPEG’s standards](http://mpeg.chiariglione.org/standards) freely available. Press releases from previous MPEG meetings are also available. Journalists that wish to receive MPEG Press Releases by email should contact Dr. Christian Timmerer at christian.timmerer@itec.uni-klu.ac.at or christian.timmerer@bitmovin.com.

**Further Information**

Future MPEG meetings are planned as follows:

No. 119, Torino, IT, 17 – 21 July 2017

No. 120, Macau, CN, 23 – 27 October 2017

No. 121, Gwangju, KR, 22 – 26 January 2018

No. 122, San Diego, US, 16 – 20 April 2018

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