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**ISO/IEC JTC 1/SC 29/WG 03 MPEG SYSTEMS**

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Compressed boxes conformance

A set of new conformance test vectors for ISOBMFF Compressed Boxes were provided by Telecom Paris during MPEG#134 meeting [1]. The conformance files were created using latest GPAC version available at <http://gpac.io>, with source code available at <https://github.com/gpac/gpac>. All sequences show a 2 seconds long video counter at 25fps. Note that due to the sequence being very short, the ‘sidx’ and ‘ssix’ boxes are being forced to their compressed versions, although their original sizes are smaller than their compressed sizes.

All 7 conformance files with compressed boxes are located in “./isobmff\_conformance/comp” directory.

comp\_moov\_isoc.mp4:

The file contains a compressed moov and ‘isoC’ brand.

comp\_moov\_otyp.mp4:

The file contains a compressed moov, a ‘ftyp’ with major brand ‘comp’ and a ‘otyp’ wrapping the original ‘ftyp’ with various brand info.

comp\_moof\_nobrand.mp4:

The file contains an empty ‘moov’, no changes in brand info and compressed ‘moof’. A player not understanding compressed boxes could see this file as an init segment (empty ‘moov’ only).

comp\_moof\_otyp.mp4:

The file contains ‘ftyp’=comp, ‘otyp’, an uncompressed empty ‘moov’ and compressed ‘moof’.

comp\_moof\_sidx\_otyp.mp4:

The file contains ‘ftyp’=comp, ‘otyp’, an uncompressed empty ‘moov’ and compressed ‘moof’ and ‘sidx’.

comp\_moof\_sidx\_ssix\_otyp.mp4:

The file contains ‘ftyp’=comp, ‘otyp’, an uncompressed empty ‘moov’ and compressed ‘moof’, ‘sidx’ and ‘ssix’.

comp\_all\_otyp.mp4:

The file contains ‘ftyp’=comp, ‘otyp’ and compressed empty ‘moov’, ‘moof’, ‘sidx’ and ‘ssix’.

Common encryption conformance

A set of new conformance test vectors for Common Encryption (CENC) were provided by Telecom Paris during MPEG#134 meeting [1]. The conformance files include common encryption technologies such as: CENC, CBC1, CENS, CBCS, sample group description for keys, Item encryption and Multi-Key per sample. The CENC conformance files were created using latest GPAC version available at <http://gpac.io>, with code source available at <https://github.com/gpac/gpac>.

All CENC conformance files are located in “./isobmff\_conformance/cenc” directory. Whereby

all DRM configuration files are located in the “./isobmff\_conformance/drm\_cfg” folder, each file containing the KID and key value for each key used. Each protected ISOBMF file also contains a PSSH box using GPAC test system ID, which contains the key values in the PSSH for simple decryption without KMS.

All video sequences show a 2s video counter at 25fps, 1280x720, 420 8 bit HEVC 3x3 motion constrained tile-set. All audio sequences play a 2s audio bip/bop at 44100Hz, mono, AAC. All image sequences show a single HEVC picture of size 1280x720, 420 8 bit, 3x3 tiled.

Basic CENC Conformance

The added sequences are covering most of 23001-7. The only feature not present in these proposed sequences is the presence of non-protected samples in a protected track, as this is under revision in 23001-7:2016 CDAM 2.

The files “**\*\_frag1s.mp4**“ test ‘seig’ sample to group mapping in movie fragments.

Item Encryption and Multi-Key Conformance

The proposed files are “**image\_\***” and “**video\_cenc\_mkey\_\***”. Both CENC-128 and CBCS with constant IV are tested.

Files “**\*\_cenc\_mkey\_subs\*”** and “**\*\_cbcs\_mkey\_const\_iv\_subs\***” only perform partial encryption of the tiles in the source frames.

When playing the content with GPAC, keys can be disabled using the option drop\_keys.

For example:

gpac -play video\_cbcs\_mkey\_const\_iv\_subs.mp4 –drop\_keys=1

This will decrypt the VCL NALUs associated with key 2 but will not decrypt NALUs associated with key 1.

VVC conformance

A set of new conformance test vectors for carriage of VVC in ISOBMFF were contributed by Nokia during MPEG#134 meeting [2] and updated during MPEG#135 [3] and MPEG#136 [4]. All the VVC encoded bitstreams which were used for packaging are conforming to v12.0 and/or v13.0 of the VTM reference software. The packaging was done using the software from Nokia located at: <https://github.com/nokiatech/heif/tree/VVC_MP4>

All VVC conformance files are located in “./isobmff\_conformance/VVC” directory and also at the MPEG FS server at:

https://mpegfs.int-evry.fr/mpegcontent/ under

/MPEG-04/Part15-VVC\_File\_Format/ConformanceTestVectors/Nokia/

Table

Description automatically generated

References

1. Jean Le Feuvre, "Input on ISOBMFF conformance", Telecom ParisTech, MPEG#134 [m56755](https://dms.mpeg.expert/doc_end_user/current_document.php?id=78658)
2. Kashyap Kammachi-Sreedhar, Miska M. Hannuksela, Emre B. Aksu (Nokia), Lasse Heikkilä (Vincit), "VVC in 14496-15 conformance test vectors", Nokia, MPEG#134 [m56817](https://dms.mpeg.expert/doc_end_user/current_document.php?id=78720)
3. Kashyap Kammachi-Sreedhar, Miska M. Hannuksela, Emre B. Aksu (Nokia), Lasse Heikkilä (Vincit), "VVC in 14496-15 conformance test vectors update”, Nokia, MPEG#135 [m57436](https://dms.mpeg.expert/doc_end_user/current_document.php?id=79628)
4. Kashyap Kammachi-Sreedhar, Miska M. Hannuksela, Emre B. Aksu (Nokia), Lasse Heikkilä (Kodan), “VVC in 14496-15 conformance test vectors update”, [m58142](https://dms.mpeg.expert/doc_end_user/current_document.php?id=80602)