



Society of Motion Picture and Television Engineers  
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## SMPTE Standards Quarterly Report

As a result of SMPTE Standards Committee Meetings  
March 5-9, 2012  
Hosted by Turner Broadcasting System  
Atlanta, GA USA

*The Society of Motion Picture and Television Engineers is the world leader in motion-imaging standards for the communications, media, and entertainment industries – and the only organization to connect the areas of motion-imaging research, standardization, education, and business success.*

In 2011, SMPTE completed 41 standards and has more than 100 standards-related efforts underway. We encourage interested parties to contact Standards Committees to learn more about specific activities. Go to [www.smpte.org/standards](http://www.smpte.org/standards) for more information.

The SMPTE Standards Quarterly Report provides highlights of activities and decisions that took place at the March 2012 series of SMPTE Standards Committee meetings. It is a snapshot in time and should not be considered as formal minutes or as a positioning statement or analysis piece.

The [Executive Snapshot](#) provides highlights of just a few activities and decisions. For further details of work at the specific Standards Committee level, refer to the sections in [Detailed Summary](#), which includes details as well as the business impact of those decisions.

We look forward to establishing this regular report following each quarterly standards meetings as a method by which we can effectively communicate recent activities. Provide your comments or suggestions at [standards@smpte.org](mailto:standards@smpte.org)

If you are interested in learning more about SMPTE Standards program, please contact Peter Symes, Director of Engineering and Standards, at [psymes@smpte.org](mailto:psymes@smpte.org).

Thanks to Dr. Hans Hoffmann, SMPTE Engineering VP, the Technology Committee Chairs, and Paul Treleaven for their input in this report.



## Executive Snapshot

### *Broadcast*

- **Broadcast eXchange Format BXF 2.0**--These documents have completed all approval steps and are now being prepared for publication as the SMPTE 2021-2012 family of documents. The BXF community is already collecting ideas for BXF 3.0—BXF has proved to be such a solid and popular platform that many manufacturers and users are keen to extend its capabilities into new areas.
- **Captioning.** Work continues to coordinate work among various standards bodies. SMPTE will assist MPEG in mapping SMPTE Timed Text into MPEG streams and files.
- **Synchronization.** SMPTE and AES are both working on new synchronization and timing systems for their respective areas, and both are planning to make use of IEEE1588 precision timing. The organizations are working together to ensure the maximum possible degree of compatibility and equipment commonality.

### *Cinema*

- **ISO TC-36 Cinematography.** SMPTE and ANSI will host the 23rd Plenary of TC-36 in Hollywood, CA in October, immediately prior to the SMPTE Annual Technical Conference and Exhibition.
- **High Frame Rates for 3D and 2D D-Cinema Applications.** Work continues in the committee with ever-increasing participation by representatives of both artistic and technical communities. The work of this group and advances in this area of technology were highlighted at the Technology Summit on Cinema at NAB in Las Vegas, April 14-15.

### *Media information management*

- Metadata play a significant role in future digital workflows. A presentation from Movielabs and by the EBU (EBU core) was received for potential follow up standards work. The Committee on Metadata is also undergoing a strategic exercise on future industry needs for Metadata related standards.



## Detailed Summary of March 2012 Meetings

### Essence Technology Committee (10E):

The application of the general scope as it applies to electronic capture, generation, editing, mastering, archiving, and reproduction of image, audio, subtitles, captions, and any other master elements required for distribution across multiple applications

#### *Topic: Fixed pixel matrix reference display*

Users have requested standardization work in SMPTE on new fixed pixel matrix reference displays since CRT-based reference monitors have practically disappeared from the market.

Four documents are planned:

- Reference Display characteristics

- Reference Viewing Environment characteristics

- Measurement Techniques for Reference Display and Reference Viewing characteristics

- Engineering Guideline to provide context and background

Status: The Reference Display document is at WD stage and is fairly well-developed. The other 3 documents needed the framework of the Reference Display document to be established first, and it should now be possible to start on the Reference Viewing Environment and the Measurement Techniques documents.

Other AHG Activities: A presentation was given describing an international project that carried out a large number of measurements on reference displays to establish values for 'gamma' that are actually obtained.

*Impact: Professional displays that comply with the final SMPTE documents will allow consistent assessment of image quality.*

#### *Topic: Image Interchange Format (IIF)*

The Academy of Motion Pictures Arts and Sciences (AMPAS) produced advances in image exchange work, known as Image Interchange Format (IIF). This work has been brought to SMPTE for due process standardization to facilitate interoperable industry solutions. It comprises standards documents for Academy Color Encoding (ACES), Academy Printing Density (APD), and Academic Density Exchange Encoding (ADX).

Status: all three documents have successfully completed Standards Committee (ST) audit and will now be prepared for publication.

*Impact: This work will enable interoperability between systems and facilities, particularly in the post-production environment.*



**Topic: Video compression standards in SMPTE**

**VC-2 video compression:** revision of the SMPTE mezzanine video compression standard (based on BBC's DIRAC pro) has started; a new Profile will be added to address Archiving and Production applications.

Status: A new FCD revision ballot had been issued just before of the TC meeting. The ballot had previously been presented in the form of an amendment, but this proved difficult to follow the changes.

*Impact: Standardized compression formats with clear Intellectual Property Rights (IPR) will allow enhanced interoperability among multiple vendors and enable educated business decisions.*

**VC-5 video compression:** standardization of the Cineform video compression algorithm.

Status: In the last quarter, the AHG has split the draft into two documents

A Core Codec Standard. This WD has been issued.

An Advanced Syntax Standard. Expected to be posted in either May or June 2012.

*Impact: Standardized compression formats with clear IPR will allow enhanced interoperability among multiple vendors and educated business decisions.*

**VC-3 video compression:** revision of SMPTE ST 2019 VC-3 (based on AVID's DNxHD technology), to include support for 4:4:4 processing.

Status: The revised Picture Compression and Data Stream Format document has been submitted by the AHG to the TC for 2-week review prior to FCD ballot. The AHG has not yet started work on the Decoder and Bitstream documents.

*Impact: Standardizing enhanced capabilities ensures that SMPTE standards remain relevant to the industry.*

**Topic: Stereoscopic 3D**

**3D Frame Compatible Packaging and Signaling (ST 2068):** this document is important to ensure 3D interoperability between equipment and software products from multiple suppliers.

Status: The document passed FCD ballot on 1st March; comments to be addressed.

**Disparity Map Representation (ST 2066):** provides a standardized representation of Left eye and Right eye disparity in 3D images. Disparity information can be used to make 3D depth adjustments in real-time live streaming or file-based 3D production & post production applications.

Status: This draft document was at FCD ballot at the time of the meetings, closing 27<sup>th</sup> March.

*Impact: Supports the market acceptance of 3DTV and development of interoperable systems with new features.*

**Further Topics for the Essence Technology Committee:**

**Revision of Key Video signal- SMPTE RP 157:** this project adds the 'Alpha Channel' nomenclature that exists in other SMPTE standards. The text has also been improved to be more relevant to digital production.

Status: A new draft has been produced which resolves all AHG comments.



**Revision of 720p Image Formats - SMPTE ST 296:** This project adds support for YCrCb and RGB 4:4:4 image formats

Status: Draft Publication vote was held during the TC meeting and the vote passed.

**Revision of SDTV component video coding - SMPTE ST 125:** This is a revision of ST 125:1995 that also incorporates Standard ST 267 for 16x9 and Recommended Practice RP175 for 4:4:4:4 dual link.

Status: This document passed FCD ballot on 7th February 2012; comments to be addressed.

### Film Technology Committee (20F):

The application of the general scope as it applies to application of mastered essence to theatrical film distribution, including, media and component creation, marking, laboratory methods, reproduction, packaging, projection, and related topics. Additionally film capture, editing and recording.

This group did not meet during this session.

### Digital Cinema Technology Committee (21 DC):

The application of the general scope as it applies to application of mastered essence to theatrical digital distribution, including compression, encryption, wrapping, marking, packaging, media, logging, playout, projection, reproduction, and related topics.

#### *Topic: Revision to ST 428-7 "DCDM Subtitle"*

Development of support for stereoscopic positioning of timed text and sub-pictures is complete and stable. Revision of the standard, to improve descriptions as needed for comparable results among the various implementations, is ongoing. The group has adopted an accelerated schedule with the intent of having a consensus draft ready for the July 2012 technology committee meeting.

*Impact: This work will result in improved fidelity of subtitle rendering between systems and run-time rendering of subtitles for stereoscopic programs, as is currently available for 2D systems.*

#### *Topic: High frame rates for 3D and 2D D-cinema applications*

The study group has met eight times and is making good progress. Efforts have been split to manage both a quick response on the feasibility of high frame rate (HFR) playback on existing hardware and a longer-term effort to characterize promising technologies for best-case HFR on current and future platforms.

*Impact: Enables HFR presentation in currently deployed hardware and provides guidance and standards to be used by the designers of next-generation HFR-capable systems.*

#### *Topic: User-definable channel labeling for DCP audio*

TC 31FS has completed work on the data structures needed to complete this project. The channel labeling ad-hoc group has submitted CD documents needed to implement this feature in the DCP. These documents are now posted for FCD ballot.



*Impact: New audio channel arrangements can be precisely labeled in a DCP without the need for additional standards development for each proposed arrangement.*

**Topic: Alignment of DCP encryption with NIST standards**

The group has recommended a single change, the implementation of a new NIST-approved random number generator for DCP Track Files (ST 429-6). A study report has been submitted to the TC and was accepted in March. NIST recommendations remain fluid, so action on standards is being delayed, awaiting final documentation from NIST.

*Impact: Maintains the security of the D-cinema system by providing approved alternatives to older algorithms.*

**Topic FIPS Revision**

This study group was set up to assess the impact of revisions that have been made to some Federal Information Processing Standards on 21DC documents that reference them.

Status: The group has completed its report. The changes to the NIST algorithms only affect document ST 429-6: MXF Track File Essence Encryption; it was originally feared that 5 or 6 Digital Cinema documents would be impacted. No immediate action is required as the NIST changes do not take effect until 2015, and the transition period needs clarification. It is proposed that an AHG is set up Q1 2013 to monitor the situation.

## Television and Broadband Media (24TB):

The General Scope as applied to mastered essence for television and broadband distribution (both separately and for hybrid television/broadband environments), including compression, encryption, wrapping, marking, packaging, media, tracking/control, presentation, reproduction, and related topics.

**Topic: SMPTE Timed Text applications**

Already published:

Part 1: 2052 -1 Timed Text Format (SMPTE-TT)

Part 10: RP 2052-10 Conversion from CEA-608 Data to SMPTE-TT

Ongoing work:

Part 11: Conversion from CEA-708 Caption Data to SMPTE-TT

Part 12: Conversion from ST 428-7 Digital Cinema Subtitles to SMPTE-TT

Status: Parts 11 and 12 have been drafted and are being reviewed. Improved XML schemas have been developed for all four Parts - the schemas have been simplified following some improvements to the W3C TTML recommendation. The group is collecting comments and errata for the 1-year review of Parts 1 and 10.

*Impact: Ensures the availability of closed captions when television content is delivered over the Internet.*



### **Topic: Lip sync**

Lip sync problems are the source of many customer complaints, thus important for broadcasters. SMPTE is addressing lip-sync issues by defining standards documents for audio and video synchronization measurements using fingerprinting. SMPTE is liaising with many other organizations around the globe (i.e., ATSC, DVB, ARIB) and helping to achieve an end-to-end solution. Documents underdevelopment:

Part 1: Fingerprint Specification

Part 2: Fingerprint Transport (includes VANC in SDI/HD-SDI, IP, MPEG)

Status: The draft of Part 1 has advanced significantly in the last quarter. The draft of Part 2 still needs a lot of work. Investigations into fingerprints surviving frame rate conversion are starting. The group is keen to have more implementations to allow interoperability testing to take place.

*Impact: A standardized approach enhances the end-user experiences by avoiding lip-sync issues.*

### **Topic: Miscellaneous document maintenance**

In response to industry input, several television-related documents are undergoing revision:

ST 096, “for Television — 35- and 16-mm Motion-Picture Film — Scanned Image Area

ST 2035, “Audio Channel Assignments for Digital Television Recorders

EG 32, “Emphasis of AES/EBU Audio in Television Systems and Preferred Audio Sampling Rate”

Status: ST 2035 and EG 32 are expected to go to ballot shortly. RP 2027, “AVC Intra-Frame Coding Specification for SSM Card Applications”, has been revised to include support for 1080/59.94p and 1080/50p compression modes (Class 200) and to correct typographical errors. The document has completed final process auditing and is on its way to publication.

*Impact: Manufacturers and users of these documents will have improved and enhanced information for better interoperability.*

## **Metadata/Registries (30MR):**

The application of the general scope as it applies to definition and implementation of the SMPTE Registration Authority, used to identify digital assets and associated metadata. Additionally, the common definition of metadata semantic meaning across multiple committees.

Note: The 30MR committee is at the moment discussing its strategic direction on Metadata and future standardization tasks (i.e., schema, XML, semantic WEB)

### **Publications in Last Quarter**

ST 335:2012 Metadata Element Dictionary Structure

ST 2003:2012 Types Dictionary Structure

### **Topic: HQ implementation of On-line Registers**

Status: The group’s report is almost complete. One more telcon will be held to finalize the report and get it submitted to the TC.



### ***Topic: Revision of RDD18 - Acquisition Metadata Sets for Video Camera Parameters***

Status: The RDD18 revision passed FCD ballot on 19th January. There were some comments that are all resolved, and the updated draft is in ST Audit (the Audit has since passed).

### ***Topic: Metadata registers***

The revised Metadata Elements and Metadata Types structure documents have been published on the SMPTE store – adding the facility to register items identified by text symbols as well as SMPTE universal labels, allowing the registers to support XML-based applications. Updated versions of the Metadata register contents (RP210 v13 and RP224 v12) have progressed to draft publication, incorporating recently assigned metadata from a number of SMPTE standards.

### ***New potential areas of work***

Presentation: TC-30MR Strategic Direction

This presentation was given by TC-30MR Chair Phil Tudor and it examines how the focus of the TC should move away from the registration of metadata and towards standardizing metadata schemes and XML projects.

### ***Presentation: EBU Metadata and SMPTE***

This presentation was given by Jean-Pierre Evain, EBU. It is in two Parts. The first Part describes the EBU's experiences with populating its Class 13 metadata node and makes recommendations for improving SMPTE's methods for registering new metadata. The second Part describes other EBU metadata activities.

### ***Presentation: Internet Distribution Metadata***

This presentation was given by Craig Seidel, MovieLabs. It describes MovieLabs Common Metadata and proposes it for standardization in SMPTE.

### ***Presentation: UMID Application***

This presentation supports a new project proposal.

*Impact: Metadata is essential to automated workflows and a pre-requisite to achieving the potential efficiencies and cost savings of these workflows.*

## **File Formats and Systems (31FS):**

The application of the General Scope as it applies to definition of common wrappers, file formats and file systems for storage, transmission, and use in the carriage of all forms of digital content components.

### ***Topic: Material Exchange Format (MXF)***

The following document(s) in the MXF document suite have been approved and are now on their way to final process auditing and publication:

The amendment 1 to the MXF SMPTE Standard 377-1:2011.

The amendment 1 to Standard 382M:2007 (mapping AES3 and Broadcast Wave Audio to MXF).

Low Latency Streaming of MXF in real-time applications to be published as SMPTE ST 2049-12:2012.

Other MXF related documents making good progress as well:





Questionnaire on the industry practices of wrapping interlaced JPEG 2000 essence in MXF to be issued for input to ongoing revision work of ST 422:2006 Mapping JPEG 2000 Codestreams into the MXF Generic Container

Pre-FCD ballot review of XML Representation of SMPTE Registered Data (Reg-XML) — Mapping Rules to be initiated.

Pre-FCD ballot review of Mapping of EBU t3264 Subtitle into MXF Generic Streams to be initiated.

Comment resolution on FCD ballot of Amendment 2 to ST 377-1:2011 Material Exchange Format (MXF) — File Format Specification is underway.

Comment resolution on pre-FCD ballot review of the Stereoscopic 3D in interleaved MXF for TV document suite is underway. The document suite comprises:

ST 2070-1 Common Provisions document

ST 2070-2 OP1a mapping

ST 2070-3 OP-ATOM mapping

xx 2070-4 Applications and Usage Rules

Comment resolution on FCD ballot on revision to ST 392:2004 *MXF OP2a* underway

Technical details are being worked out on the revision of RP 2008 *AVC in MXF GC*.

*Impact: The various efforts on MXF are key enablers for interoperability and cross-vendor support of content exchange and processing in file-based workflows and in all media-related applications.*

#### **Topic: Archive Exchange Format (AXF)**

The group has been in an 'analysis' phase, which is almost complete. It has now started a drafting AHG.

*Impact: The work on an Archive Exchange format will provide the basis for standards that facilitate interoperable content exchange between archives, independent of physical media or archive system vendor.*

#### **Topic: Image Interchange Format (IIF)**

The Academy of Motion Pictures Arts and Sciences (AMPAS) produced advances in image exchange work, known as Image Interchange Format (IIF). This is the work related to the file formats.

The following document(s) have been approved and are now on their way to final process auditing and publication:

The amendment 1 to SMPTE ST 268:2003 File Format for Digital Moving-Picture Exchange (DPX), Version 2.0 Image Container File Layout: strawman document planned for 2012 Q1.

#### **New work proposal: Revision of ST 268 - DPX**

The proposal identifies that the data ordering for YCbCr is ambiguous. Additionally, a field should be added to accommodate UMIDs. The revision proposal is under TC review.



## Network/Facilities Infrastructure 32NF:

The application of the general scope as it applies to definition and control of elements supporting the infrastructures of content production and distribution facilities, including file management, transfer protocols, switching mechanisms, and physical networks that are both internal and external to the facility excluding unique final distribution methods.

### *Publications in last quarter*

ST 425-2:2012 Source Image Format and Ancillary Data Mapping for Stereoscopic Image Formats on a Single-Link 3 Gb/s Serial Interface

ST 2063:2012 Stereoscopic 3D Full Resolution Contribution Link Based on MPEG-2 TS

RP 2050-1:2012 4:2:2 / 4:2:0 Format Conversion Minimizing Color Difference Signal Degradation in Concatenated Operations - Filtering

EG 2050-2:2012 4:2:2 / 4:2:0 Format Conversion Minimizing Color Difference Signal Degradation in Concatenated Operations - Application

ST 292-1:2012 1.5 Gb/s Signal / Data Serial Interface (rolled-up amendment)

### *Topic: 3 Gbit/s studio interfaces*

Various new and existing (e.g., SMPTE ST 425 series) 3 Gbit/s interface standards enable the interchange of real-time uncompressed image formats for HD and beyond (including cinema formats) as well as stereoscopic 3DTV. ST 425-2, which standardizes serial digital interface for stereoscopic images that can fit on one 3 Gbit/s interface, was elevated to draft publication.

*Impact: This work is relevant to all areas of real-time and uncompressed content- exchange applications in the professional domain. With these standardized interfaces, the industry can build interoperable products and users can define real-time production systems with functioning workflows.*

### *Topic: 10 Gbit/s interfaces and mapping of Ultra High Definition*

Revision is underway to standards for this optical interface, which is used for the interchange of real-time uncompressed image formats for 4K cinema and 4K and 8K UHDTV formats.

### *Topic: 25 Gb/s Serial Signal/Data Interface*

Documents: Part 1: Image Format Mapping Part 2: Optical Fiber Interface

Status: These documents passed FCD ballot in July 2011 but have been stuck in ballot comment resolution since then. At this meeting, the WG Chair and the TC Chair undertook to assist in the resolution process, but the expectation is that the resulting documents will have changed so much that reballot at FCD will be needed.

*Impact: Ultra High Definition is defined in two levels – as 4k and 8k formats for TV frame rates. This work is required for the exchange of real-time and uncompressed UHDTV images between systems in the professional domain, thus it will directly impact equipment manufacturers.*



**Topic: ST 2063-3D stereoscopic 3DTV real-time contribution link constraints**

ST 2063 is a new standard that defines constraints for contribution links for Stereoscopic 3D carried over compressed links utilizing MPEG-2 transport streams. This standard was elevated to draft publication.

*Impact: This standard is relevant for all industries developing 3DTV contribution equipment.*

**Topic: 3D Production timing & synchronization**

A new project to document timing and synchronization requirements for both live production equipment and for when that equipment is linked into production systems. It specifies permissible variations in inter-eye timing for imagers as well as electrical interfaces.

*Impact: This document (when complete) will be relevant for all facilities doing Stereoscopic 3DTV production.*

**Topic: Ancillary packet insertion rules and handling**

A new project to provide practical guidelines on the use of ancillary data packets.

*Impact: This document will help to improve interoperability of devices inserting, transporting, processing, and using ancillary data packets.*

**Topic: Optical interfaces engineering guideline**

This document is under development.

*Impact: This tutorial document will help to improve knowledge needed in utilizing optical interfaces.*

**Topic: SDI on IP**

Documents:

Draft ST2022-5: FEC for High Bit Rate Media Transport on IP

Draft ST2022-6: High Bit Rate Media Transport on IP

Status: Both documents have been in ballot comment resolution for some time, and external liaison has expressed concern at the time this is taking. Two new drafts, with all comments addressed, were posted during the meeting week. The TC urged swift resolution of the comments.

*Impact: These documents will facilitate interoperability of uncompressed video over IP.*

**Other work:**

Liaison with IEC TC100 over Data Types for Non-PCM audio and Data in AES 3

SMPTE will send a delegation to the AES convention in Budapest, April 2012 to discuss with TC 100 representatives ways to overcome the limited data type space that is shared between IEC 61937-2 and ST 338.

Liaison from DVB on Audio track identification: this incoming liaison includes a proposed audio track mapping metadata scheme and requests SMPTE to undertake standardization work.



## Time Labeling and Synchronization 33TS:

The application of the general scope as it applies to the definition of time labeling of essence and the synchronization of systems and essence in both digital and analog forms over networked and streaming transports.

### *Topic: Development of a new synchronizing system for video and other time-dependent equipment.*

Development of a draft SMPTE IEEE 1588 “profile” continues and the user requirements are being more closely defined. 33TS is working with AES and possibly some other organizations with the aim that an industry-wide model can be standardized. The details of using 1588 time to generate video and other synchronization signals will be considered at the next working group meetings.

### *Topic: Development of a time-related labeling system as a future-looking alternative to SMPTE time code.*

The working group has reviewed several fundamental design topics and made decisions on some of these. Work on the remaining open issues will continue between meetings. The group also noted that a definition of “image acquisition time” is needed and plans to seek input from camera experts.

### *Topic: Updates to existing standards*

The following standard and engineering guidelines are being updated. EG40 passed FCD ballot with some comments which the document editor will address in the near future. The FCD ballots for EG 35 and ST 309 close March 27, 2012.

EG 35 - Time and Control Code Time Address Clock Precision for Television, Audio and Film

EG 40 - Conversion of Time Values Between SMPTE 12M Time Code, MPEG-2 PCR Time Base and Absolute Time

ST 309 - Transmission of Date and Time Zone Information in Binary Groups of Time and Control Code

*Impact: These standards should provide substantial business savings when implementing new production infrastructures.*

## Media Systems, Control and Services 34CS:

The General Scope as applied to the implementation of media services, methods of managing and controlling hardware devices and software systems, and the management of media workflow processes, including associated signaling and control mechanisms.

### *Topic: Control on studio equipment at network level*

The Media Device Control Framework is the core, defining document and will be sent for 2-week pre-FCD comment period shortly. A document recording the glossary of terms used in this work is being maintained. Work on the second document of the set, defining ‘wire protocols’ is now beginning.

*Impact: This work will enable greater control flexibility and reduced costs of equipment and infrastructure.*

### *Topic: BXF update, 2.0 and 3.0*

Development of the Broadcast Exchange Format Version 2.0 is complete and the documents are being prepared for publication.



Having completed BXF 2.0, the group has defined a set of further enhancements that will be developed for the BXF document suite as BXF 3.0.

*Impact: This work, a refinement of popular traffic standard, provides facilities with higher efficiencies.*

#### **Other TC-34CS Business**

The group is maintaining a 'watching brief' on developments with FIMs - the Framework for Interoperable Media Services. When stable, this work may be standardized in SMPTE

### **Media Packaging and Interchange 35PM:**

The General Scope as applied to the packaging of media elements, to facilitate interchange and interoperability of formats within specific integrated application ecosystems in the professional fields of media creation, production, post-production archiving and related topics.

#### **Topic: Interoperable Master Format (IMF) Working Group**

The WG has carried out the groundwork for Sample Material Exchange (see new AHG below). The WG is currently the home for defining IMF Applications; two application strawman documents are being developed:

ST 2067-20: Interoperable Master Format – Application #2 (JPEG 2000, linear PCM audio)

ST 2067-30: Interoperable Master Format – Application #3 (SStP; MXF GC)

IMF CPL and OPL: this group is developing a draft ST 2067-3: Composition Play List (CPL) and draft ST 2067-4: Output Profile List (OPL)

Status: Draft ST 2067-3 passed FCD ballot on 17<sup>th</sup> January 2012 with 25 comments to resolve. At the WG meeting, only 2 comments were unresolved. Work has just started on ST 2067-4.

**IMF Wrapping, Security & Packaging:** this group is developing a draft ST 2067-5: Essence Component (this is associated with wrapping).

Status: Draft ST2067-5: Interoperable Master Format – Essence Component is at FCD ballot, closing 29th March 2012. The group has reviewed three security - related use cases and will turn its attention to developing the Security document. It is considering using D-Cinema standard ST 429-8 for Packaging.

IMF Data (Text) Essence:

Status: This group needs a mapping from D-Cinema Subtitle (ST 428-7) to SMPTE Timed Text (ST 2052). The work is under way in TC-24TB.

IMF Audio:

Status: One of the group's documents 'IMF Common Audio Channels and Soundfields' is ready for 2-week pre-FCD ballot review. Two other documents are in development.

**IMF Sample Material Interchange:** this group has been set up to facilitate interoperability testing by making sample material available online. An initial proposal for the operation of this process has been drafted. The Project View group has been set up and HQ is researching ways to resource the large file storage needed.

*Impact: The IMF format is vital for studios, broadcasters, and content owners with multiple distribution path requirements. It will help to reduce the file format diversity in media content that should help decrease operational costs.*



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***Topic: 3D Home Master Working Group***

This Working Group (35PM-40) developed a set of documents that were condensed into:

Draft EG 2061-1 – Stereoscopic Distribution Master - Glossary

Draft ST 2061-2 – Stereoscopic Distribution Master – Image Structure Constraints, Metadata, Captions/Subtitles/Graphics

Status: Following a decision at the last 35PM meeting, the 2061 drafts have been converted into a report. It was decided that the drafts of EG 2061-1 and ST 2061-2 would remain accessible within the Standards Community, to ensure they are not lost after the report is published. The group will now be disbanded.

*Impact: The resulting report will help in the understanding of interoperability issues for stereoscopic 3DTV production, exchange between professional systems, and distribution. This effort to date has had a profound impact on the industry and on the development of other SMPTE S3D standards.*

**###**



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## Notes on this report and the SMPTE Standards Process

