Society of Motion Picture and Television Engineers
3 Barker Avenue
White Plains, NY 10601 USA
www.smpte.org

Thank You To Our Sponsors For Making the September Standards Committee Meetings Possible:

SMPTE Standards Quarterly Report
Executive Summary

As a result of SMPTE Standards Committee Meetings
18-22 September 2013
Hosted by IRT,
Munich, Germany

Ten SMPTE Technology Committees, and numerous subgroups, were hosted by IRT 18-22 September; some 50 members attended in person, and a similar number participated in the web meetings. Good progress was made on a number of fronts. This Executive Summary captures just a few of the more notable projects and their current status.

A long-standing item is the project on "Reference Display and Environment for Critical Viewing of Television Pictures" seeking to define the use of fixed pixel matrix displays when replacing CRTs as reference displays. The first of four documents is expected to ballot before the next meeting cycle in June.

An enhanced version of color bar signal is being developed, incorporating "tent" signals above white and below black.

The Study Group on High Frame Rates for 3D and 2D D-Cinema Applications is preparing a test material shoot to allow compression bitrate testing.

In television, the work on defining a fingerprint mechanism for audio/video synchronization measurement, intended to permit automatic correction of A/V sync errors.

The Study Group on the UHDTV Ecosystem has been meeting regularly and is working on a report that will include an assessment of the need for new standards. The report should be available in September.

Society of Motion Picture and Television Engineers
3 Barker Avenue
White Plains, NY 10601 USA
www.smpte.org

The new Technology Committee on Cinema Sound Systems has a number of projects aimed at improving the consistency of sound in cinema environments, and is also studying immersive audio systems.

A new group was formed to create a SMPTE Core Metadata set.

The Technology Committee on File Formats and Systems is working on numerous updates and extensions to the MXF file format. The proposals for an Archive Exchange Format (AXF) is nearing ballot on the core document.

The Technology Committee on Network and Facilities Architecture continues to work on high-speed interfaces, and the mapping of many television formats. Following publication of the first five documents on video over IP, the committee is now addressing high-availability delivery, permitting the use of multiple lossy streams.

The Time labeling and Synchronization Committee is about to ballot the first document defining an new universal synchronizing system, and is nearing completion of updates to several documents to support 48fps workflows.

The Media Systems, Control and Services Committee is finalizing work on the third generation of the Broadcast Exchange Format (BXF) and is considering proposals for further extensions of functionality in a fourth generation. The committee is also working actively on device control over IP, and a Framework for Interoperable Media Services.

The Committee on Media Packaging and Interchange is working intensively on the Interoperable Master Format (IMF). The first documents of the ST 2067 series are published, and work on many extensions and applications in well under way.

A proposal was made by representatives of the Coalition for Innovative Media Measurement (CIMM), 4As, and Ad-ID to create a standard for binding of media content identifiers to essence throughout the media delivery chain.

Society of Motion Picture and Television Engineers
3 Barker Avenue
White Plains, NY 10601 USA
www.smpte.org

SMPTE Standards Quarterly Report
Detailed Account

As a result of SMPTE Standards Committee Meetings
18-22 September 2013
Hosted by IRT,
Munich, Germany

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.

We encourage interested parties to contact Standards Committees to learn more about specific activities. Go to www.smpte.org/standards for more information.

If you need help getting started with the SMPTE Standards process and some of the conventions / acronyms used in this report, jump to the Annex. These details have been updated to conform to the latest SMPTE Standards Operations manual; this was the first meeting round held under this new version. A change was introduced in this version to call the groups developing documents "Drafting Groups" (DGs) rather than "Ad-Hoc Groups". If you follow any Drafting Group links in this report, they will mostly show up as AHGs; existing projects will not be renamed.

This Quarterly Report provides a detailed account of the meetings of the following Technology Committees and their sub-groups:

Society of Motion Picture and Television Engineers
3 Barker Avenue
White Plains, NY 10601 USA
www.smpte.org

The report is a snapshot in time and should not be considered formal minutes or a positioning statement or analysis piece. Provide your comments or suggestions at standards@smpte.org

If you are interested in learning more about the SMPTE Standards program, please contact Peter Symes, Director of Standards and Engineering, at psymes@smpte.org.

The next round of Standards meetings will be held 9-13 December 2013 in Atlanta. This meeting round will be hosted by Turner and will include a "Users Have Their Say" session on 11 December.

Further upcoming Standards meetings are planned for:
March 2014 - Venue not fixed, but will be in the USA
June 2014 - It is hoped that this meeting round can be held in Tokyo after the NHK-STRL "open days".
September 2014 - EBU, Geneva, Switzerland

Details from each Technology Committee meeting

Essence Technology Committee (TC-10E) chaired by John Hudson and Paul Gardiner

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: Video compression standards in SMPTE

DG Project: Revision of SMPTE ST 2019 VC-3 Video Compression Documents
This project extends the functionality of SMPTE VC-3 compression (based on AVID's DNxHD technology) by adding 5 new Compression IDs to support 4:4:4 sampling and RGB color space. This work affects two documents - ST 2019-1: VC-3 Picture Compression and Data Stream Format and RP 2019-2: VC-3 Decoder and Bitstream Conformance. In addition, ST 2019-4 is being revised in TC-31FS.

Status: ST 2019-1 passed DP ballot on 2012-10-23. RP 2019-2 has been held up by delays in generating the bitstreams and there was no further report this time. The project Chair will be contacted. Part 1 will be held until Part 2 is ready.

Business Impact: Interoperability between systems

DG Project: Draft ST 2073: VC-5 Video Essence
This project standardizes the Cineform / GoPro video compression system. The document suite plan has been further rearranged in the last quarter and currently comprises:

- Part 1 - Elementary Bitstream
- Part 2 - Conformance Specification (includes Reference Decoder, Sample Encoder)
- Part 3 - Image Formats

- Part 4 - Color Difference Component Sub-sampling
- Part 5 - Layers
- Part 6 - Sections (this refers to a mechanism for implementing special functions without disturbing standard decoders)
- Part 7- Metadata

Status: Part 1 passed ST Audit on 2013-07-29. It will be held until Part 2 is ready.
Part 2 includes sample bitstreams and the group plans to submit a set of test materials to a temporary location to assist with evaluation of Part 2.
Note: proposals to set up a permanent test materials repository are also underway, see below).
The Part 3 draft is nearly ready for submission to TC-10E; it is on hold until Part 2 & test materials are done.
Parts 4, 5, 6 & 7 will follow.

There is also VC-5 work planned for an MXF Wrapper (TC-31FS) and a VC-5 IMF Application (WG 35PM50).

Business Impact: Interoperability between systems

DG Project: Revision of ST 2042-1: VC-2 Video Compression Standard and ST 2042-3: VC-2 Conformance Specification
This revision of the SMPTE mezzanine video compression standard (based on BBC's DIRAC pro) adds a high quality profile to support Archiving and Production applications.

Status: The Part 1 revision was published 2012-08-30 (the TC Chair has noted that this probably should not have been done, because it is normal to wait until the reference decoder/bitstream files are available). The DG Chair reported that the bitstreams to complete Part 3 are being worked on "right now".

Business Impact: Interoperability between systems

DG Project: RDD: JPEG 2000 Mezzanine Profile for HD Applications
This project will create a JPEG2000 profile with consistent visual qualities so that in a multi-vendor environment, insert edits, assemble edits and concatenation can take place without significant visual artifacts. This profile is currently deployed by a number of users and the RDD is proposed to aid interoperability.

Status: There was no report on this work at the September meeting round.

Business Impact: Interoperability between systems

DG Project: Draft ST 2068: Stereoscopic 3D Frame Compatible Packing and Signaling
This work documents the various ways an image pair is sampled and packed into a single image frame and a method of signaling the packing method.

Status: This document has completed ST Audit and should appear in the SMPTE Digital Library shortly.

Business Impact: Interoperability between systems and signaling in digital workflows

DG Project: Draft SMPTE 2080 suite: Reference Display and Environment for Critical Viewing of Television Pictures
The task of this project is to draft the following suite of documents dealing with the use of fixed pixel matrix reference displays:
ST 2080-1: Reference White Luminance Level and Chromaticity
RP 2080-2: Daily Measurements
ST 2080-x: Reference Display Characteristics
ST 2080-x: Reference Viewing Environment Characteristics
RP 2080-x: Full Measurement / Calibration
EG 2080-x: Engineering Guideline to provide context and background

Status: The main activity this quarter has been ballot comment resolution on the Part 1 document which passed FCD ballot on 2013-06-21 with 27 comments. A WD of the Part 2 document has been submitted to the group; it is needed as a reference for Part 1. The remaining documents are expected to follow in the order shown above.

Business Impact: Users and industry have common standards to assess image quality on a reference display.

DG Project: Revision of ST 125: SDTV Component Video Signal Coding 4:4:4 and 4:2:2, for 13.5MHz and 18MHz Systems
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 was in ST Audit at the time of the meeting.

Business Impact: Interoperability between systems

DG Project: Revision ST 2036-1: Ultra High Definition Television - Image Parameter Values for Program Production

This is a revision of SMPTE ST 2036-1 to add support for an additional frame rate and a wider color gamut.

Status: This revised document is on the verge of publication.

Business Impact: Alignment with ITU-R documents and baseline interoperability for UHDTV

DG Project: Revision of RP 219: High-Definition, Standard-Definition Compatible Color Bar Signal
The proposal is to add optional components to part of the signal to exercise levels in the white overshoot region above level 940 and in the sub-black region below level 64 (10bit samples).

Status: This draft document passed FCD-ballot on 2013-08-26 with 61 comments to resolve. Comment resolution is in progress.

Business Impact: Improved interoperability between HD and SD color bar

DG Project: Full-Scale RGB
This project defines the full-range method of image coding in bit depths of 10 and 12 bits - i.e. no reserved code values. It recommends methods of conversion between full-range image coding and the corresponding conventional image formats. This method is currently in use for some file-based applications such as DPX.

Status: This draft document passed FCD-ballot on 2013-08-08 with 22 comments to resolve. All comments have been resolved and the document was sent for comment resolution review. A comment submitted during that review was withdrawn during the Munich meetings, so the document can progress to DP ballot.

Business Impact: Addresses a long known issue and enhances interoperability

Topic: New TC-10E Project Proposals

Proposed Project: Color Differencing for High Luminance and Wide Color Gamut Images
A presentation was given to the TC. The proposal is analogous to the transform from RGB to YUV, but in XYZ color space. This project is related to the next two proposed projects.

Proposed Project: Color Gamut Metadata
A presentation was given to the TC. The metadata would convey both the color gamut and the dynamic range of the display used for mastering.

Proposed Project: Perceptually-based EOTF

A presentation was given to the TC. The scope of the proposed project is to define an expanded luminance range for next generation entertainment content and to define a new Electro-Optical Transfer Function (EOTF) based on a human perceptual model.

Proposed Project: Depth Map Representation
This project is about the interchange of depth information in production and post production processes and defining essence for distribution of depth information.

Proposed Project: Television Lighting Consistency Index
A presentation was given to the TC. The scope of the proposal is to document the "Television Lighting Consistency Index (TLCI)" and the "Television Lighting Matching Factor (TLMF)".
At the meeting, there was a request that the project should go beyond the needs of television production, to address the needs of cinematographers.

Other TC-10E Business

Test Material Repository
The VC-5 project proponents gave a presentation on the need for a SMPTE Test Material Repository. SMPTE codec standards require the submission of conformance documents and associated materials and the presentation identified a need to formalize this process. The need also exists outside TC-10E and the subject was considered later in the Standards Committee.

1-year and 5-year document reviews
A large number of TC-10E document reviews were carried out at the last meeting round and action was taken on most of them. Three documents had to be held over until this meeting:

ST 370:2006, Television - Data Structure for DV-Based Audio, Data and Compressed Video at 100 Mb/s 1080/60i, 1080/50i, 720/60p, 720/50p (consolidation of Amt1: 2009)
- the amendment was rolled-in to the document and the meeting held a vote for the consolidated document to be made stable. The vote passed.

ST 421:2006, Television - Television - VC-1 Compressed Video Bitstream Format and Decoding Process (consolidating Amt1:2006 and Amt2:2011)
- the amendments were rolled-in to the document and the meeting held a vote for the consolidated document to be reaffirmed. The vote passed.

RP 173:2002, Loudspeaker Placements for Audio Monitoring in High-Definition Electronic Production
- the meeting reviewed the recommendation to re-affirm this document in the light of a presentation outlining some shortcomings in the document. It was agreed that a DG project would be launched to revise the document.

Film Technology Committee (20F) chaired by David Schnuelle

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 does not meet during the quarterly sessions.

Digital Cinema Technology Committee (21 DC) chaired by John Hurst and Mike Radford

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.

Project: Digital Cinema Distribution Master Metadata
This activity has been looking for experts to assist with the work for some time. There was discussion in the TC meeting about whether the work is needed any longer. It was agreed that the group will be disbanded if the call for assistance is not successful.

DG Project: Stereoscopic Subtitle and Timed Text Rendering
This DG will revise SMPTE standards in compliance with "Stereoscopic On-Screen Text – Study Group Report" version 1.2.
Documents affected:
- Revise ST 428-7 - D-Cinema Distribution Master - Subtitle
- Revise / Amend ST 429-2: DCP Operational Constraints
- Revise / Amend ST 429-5: Timed Text Track File

> **Status:** The revised draft ST 428-7 passed FCD ballot on 2012-12-21 with 6 comments, which are all resolved. At the last meeting round, decisions were made about cross-compatibility requirements between this version and earlier versions of ST 428-7. The draft has been further revised to add clarity on the compatibility issues and it is being reviewed in the DG prior to submitting for TC pre-DP review.
>
> Review of proposed topics for amendment / revision of ST 429-2 continues. Amendment or revision of ST 429-5 is also planned.

Business Impact: Compatibility and Interoperability

Topic: Digital Cinema High Frame Rate Projects

SG Project: Study Group on High Frame Rates for 3D and 2D D-Cinema Applications
This project identifies the impact of increasing 3D content frame rate to 48, 50, or 60 fps per eye or increasing 2D content frame rate to 96, 100, or 120 fps. The group is investigating the capabilities of

deployed and about-to-be deployed equipment, playback on legacy equipment, mastering and workflow impacts and compression requirements.

Status: The group held a meeting 2013-08-15. Topics discussed were:
- Picture Essence Compression Label. The group is polling manufacturers to determine a maximum bit rate for current 2K HFR-capable application; the label will be used to ensure interoperability for these rates.
- Sound synchronization errors caused by different projector latencies for HFR and non-HFR material.
- Test material for the study of visible artifacts. A plan has been submitted to AMPAS for its review.

Business Impact: proposals for high frame rate technology standards

DG Project: Revise ST 428-11:2009 to include High Frame Rates
This work adds the use of additional high frame rates as specified in the Study Group work statement: 48, 50, 60 fps per eye 3D (2K only) and 96, 100, 120 fps 2D (2K only).

> **Status:** This revised document closed FCD ballot on 2013-07-11 with no comments and has progressed through subsequent stages, with publication expected imminently.

Business Impact: Interoperability between systems

DG Project: Auxiliary Data Track File
This DG will specify a method to carry data that does not fall into the existing Sound, Picture, and Subtitle track files in a SMPTE Digital Cinema Package. Examples are object-oriented sound, motion control, and effects programming (wind, fog, etc.). Draft documents are:
ST 429-14: DCP - Auxiliary Data Track File
ST 429-15: DCP - Auxiliary Data Composition Asset

> **Status:** The draft documents are at FCD-ballot, closing 2013-10-15. At the TC meeting there was discussion about which version of the MXF standard to reference; the rest of the Digital Cinema suite of documents references an old version and there were fears that referencing the current version in these new documents might lead to incompatibilities. The issue would be discussed later at the Standards Committee meeting.

Business Impact: Interoperability between systems

DG Project: Synchronization Signal for External Processor
This project will define the modulation and protocol for a signal using a digital audio link that can be played back from a server and used to carry timing and identification information to accurately synchronize an external processor. The draft document is:
ST 430-12: DCO - Auxiliary Data Synchronization Signal.

Status: Some additional comments from a DG meeting on 2013-08-15 will be addressed (possibly in additional projects) and the document will be prepared for FCD ballot. Some comments at the TC meeting proposed suspending the work until the requirements of work to harmonize immersive audio projects was understood. However, the TC Chair concluded that there was no justification to delay this project.

Business Impact: Interoperability and quality improvements

DG Project: Draft EG 429-1: DCP Packaging Guideline
There was a call for more participation in this group at the last meeting and more people have signed up. The project page estimates that the EG is 2/3 complete and the new participation may enable completion of the document.

DG Project: CPL Metadata Enhancements
The DG will develop DCP CPL Metadata Asset item as a new Standard.
Additional Composition Play List metadata items are needed. As a work-around, these items are encoded in the title of the composition, whose structure cannot accommodate the full range of desired metadata. As a result, metadata contained in the Composition Playlist is inconsistent and seldom utilized by exhibition equipment.

Status: Project approval was completed 2013-08-01. The group reported that it is moving along well, and it came in with fully fleshed-out proposal.

SG: FIPS Revisions
This Study Group was set up some time ago to assess the impact of revisions to reference cryptographic algorithms, methods and/or standards which are recommended or endorsed by the U.S. National Institute of Standards and Technology (NIST) or the U.S. Federal Information Processing Standards (FIPS). The SG issued its final report 2012-02-17 and has been latent since.
Some actions are required to plan a transition timeline between 2013 and 2015 and the group will be revived. In particular, the TC Chair asked the group to consider whether changes are required in the light of recent press reports concerning cryptography.

DG Project Proposal: Revision to ST 431: Reference Projector
This document is due for 5-year review and a proposal to revise this document to accommodate improved side and corner performance was discussed. A project will be initiated.

Television and Broadband Media Committee (24TB) chaired by Ann Marie Rohaly

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.

DG Project: ST 2052 document suite on Captions
This group is developing / maintaining this multipart standard. The work builds on W3C Timed Text Markup Language (TTML).
Ongoing work: **Project: Revision of Part 1: Timed Text Format (SMPTE-TT)**
Project: Revision of Part 10: Conversion from CEA-608 Data to SMPTE-TT
Project: 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: The revisions of Parts 1, 10, 11 are all on the point of publication.
New document RP 2052-12 is awaiting work in W3C before it can be completed.

Business Impact: Interoperability between systems in the full eco-chain

DG Project: Draft ST 2064 documents on A-V Sync Measurement and Assessment
This group studies A-V sync problems and liaises with other bodies that have interests in this field. Currently, its main work is to standardize an 'Audio to Video Synchronization Measurements' document suite based on audio and video fingerprints:

- Part 1: Fingerprint Generation
- Part 2: Fingerprint Stream Transport (includes VANC in SDI/HD-SDI, IP, MPEG)
- Part 3: Fingerprint File Binding

Status: Part 1 has completed 2-week pre-FCD-ballot review. FCD ballot is being held awaiting Part 2 completing pre-FCD-ballot review; Part 2 is now ready for pre-FCD-ballot review.
Two approaches for Part 3 are being considered:
- Use of IDs for binding to files
- Use of ST 436 for VANC binding

Business Impact: Improved quality of experience and interoperability between systems

DG Project: Draft RP 2072: Emphasis of AES/EBU Audio in Television Systems and Preferred Audio Sampling Rate This project started as a Revision of EG 32, but as that document contains conformance language it was thought better to issue it as a new RP. EG 32 will be withdrawn when RP 2072 publishes.

Status: The draft RP 2072 passed FCD ballot on 2012-11-27 with 11 comments to resolve. The DG has responded to all commenters and believes that comment resolution is almost complete.

Business Impact: Interoperability between systems

DG Project: Revision of ST 96: 35- and 16-mm Motion-Picture Film — Scanned Image Area

> **Status**: There have been problems transferring some of the document images between systems. The prose work is completed.

SG Project: UHDTV Ecosystem
The study group will review image and audio technology standards available. It will determine the requirements and impact on interfacing/exchanging 4K and 8K in an end-to-end chain (e.g., with a reference diagram visualizing the areas where new exchange standards are needed). The work covers the needs of professional applications producing content for delivery to the home by television, broadband and Blu-ray. The group will provide recommendations for future standardization work.

> **Status:** The initial SG report was published 2013-09-15 and was available in time for IBC. At the time of the TC meeting, there had been 510 downloads.
> Next steps for the group will include consideration of UHDTV2, Non-live workflows and High Dynamic Range / Bit Depth.

Business Impact: Formulate an understanding of future standards requirements in the full UHDTV eco chain.

SG Project: Open binding technology for persistent content identification in A/V essence
This project aims to define an open binding technology standard (e.g., watermarks, fingerprints, metadata sidecars, etc.) for embedding persistent content identifiers into audio/video essence in a way that survives compression and distribution through the supply chain.

> **Status:** The group held a kick-off meeting in New York 2013-08-13. Its current focus is a Use-case document. It will develop Technical Requirements, review Binding Technologies and issue an RFI.

Other TC-24TB Business
Revision projects will be set up, following from the 1-year and 5-year document reviews at the last meeting.
- A **Proposed Drafting Group** to revise ST 2016-2: Format for Pan-Scan Information and ST 2016-4: Ancillary Data Mapping of Pan-Scan Information to ensure they are usable for UHDTV signals.
- A **Proposed Drafting Group** to revise ST 2020-1: Format of Audio Metadata and Description of the Asynchronous Serial Bitstream Transport, ST 2020-2: Vertical Ancillary Data Mapping of Audio Metadata - Method A, ST 2020-3: Vertical Ancillary Data Mapping of Audio Metadata - Method B.

It was also agreed that ST 325: Digital Television - Opportunistic Data Broadcast Flow Control should be made Stable.

Cinema Sound Systems (25CSS) chaired by Brian Vessa and Kurt Graffy

The application of the general scope as it applies to standards for theater sound and cinema B-Chain systems, including performance, measurements, setup, calibration, acoustics and related topics.

The TC is maintaining a set of diagrams that show the relationship of various parts of the TC-25CSS workflow and projects; the latest version was reviewed.

DG Project: Analysis of SMPTE B-Chain Study Group Theater Testing Data Report
This group will compile and analyze the theater testing data that was collected by the earlier B-Chain Study Group Theater Testing group and produce a report with analysis, comparisons and recommendations.

> **Status:** The analysis for all venues is now complete and the report format and outline have been determined. Graphical results from the analysis were presented to the TC meeting.

DG Project: STxxxx: SMPTE Pink-Noise Calibration and Test File
Examination of various "reference" noise files has revealed inconsistency in both RMS and Peak amplitude values. This group will create a pink-noise calibration Standard, and produce a reference pink-noise .wav file and a DCP containing the file. The pink noise defined in ST 202:2010 and RP 200-2012 will be used and the algorithm used to generate the pink-noise file will be specified.

> **Status:** The group has drafted a "strawman" standard that defines the following parameters for the pink noise signal:
> RMS value over different time intervals; Absolute Peak Value; Frequency spectral content; Sample rate(s) and bit depth(s); Minimum duration of signal before it repeats.
> A sub-group will be formed to develop code for the algorithm.

DG Project: RPxxxx: B-chain Modern Calibration Procedure
This group will create a Recommended Practice that codifies and expands currently-practiced measurement methodology using today's technology and analyzers into step-by-step procedure(s) for measuring and calibrating the frequency response and sound pressure levels of the B-chain sound system in indoor theater spaces.

> **Status:** The group conducted a testing session in Northern California in August 2013. It compared the methods in use in the field under a single set of circumstances and through a single set of equipment. A recreation of the original X-Curve experiment was also conducted. Analysis will guide the drafting of the new RP. Work for two further projects has been identified.

SG Project: Immersive Audio Systems: B-Chain and Distribution Study Group
This group will study the new cinema immersive "3D" audio systems and determine what standards and recommended practices are needed. The B-chain and distribution requirements of the various systems

will be studied. The National Association of Theater Owners (USA) and the International Union of Cinemas (Europe) have jointly submitted their Immersive Sound Requirements to the group.

Status: The characteristics of existing immersive audio systems are being studied and a comparison spreadsheet is being developed. Representatives from all systems under examination are attending and actively commenting and submitting materials. The group will identify common approaches and research solutions to the system differences. The strawman report is taking shape.

Work Proposals on Object-Based Audio
Two separate proposals "Object-based immersive sound for D-Cinema" and "Object-based Sound Mastering and Packaging" were presented. The proposals cover very similar work and there was a call from the SVP to work on unifying the proposals, as it would be a disservice to the industry to standardize two solutions. A WG will be formed (though there was some discussion about whether it should be based in TC-21DC) to work on forming a unified proposal.

Metadata and Registers Committee (30MR) chaired by Phil Tudor and Paul Treleaven

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.

DG Project: EG 2061: Glossary of Stereoscopic 3D Terms
This project takes as its starting point the glossary developed last year by the 3D Home Master project in TC-35PM.

Status: The draft document is at FCD-ballot, closing 2013-10-24.

Business Impact: Understanding and common use of terms

Topic: UMID Projects

The Chair of these two closely-related projects gave a status report.

SG Project: Application of the Unique Material Identifier (UMID)
The UMID is standardized in ST 330 and RP 205 covers application of UMIDs in Production and Broadcast Environments. This SG is studying ways to make the UMID more useful, particularly in Material location across various systems. The SG is preparing two reports:
- Study Report on UMID Applications Part 1 (UMID Application Principles, Best Practices) - now submitted to HQ.
- Study Report on UMID Applications Part 2 (Additional Technology that needs Standardization)

Status: The Part 2 report is being developed in parallel with the RP 205 project (below). It contains a detailed feasibility study report on using the Domain Name System (DNS) for UMID resolution.

DG Project: Revision of RP 205: Application of Unique Material Identifiers in Production and Broadcast Environments
This project will incorporate improvements identified in the Study Group report.

> **Status:** A draft for pre-FCD ballot review was submitted to the TC during the meeting round. A 2-week review will be initiated.

DG Project: RP 2079: DOI Name and EIDR Identifier representation
These acronyms are DOI = Digital Object Identifier EIDR = Entertainment Identifier Registry

> **Status:** The document passed DP ballot on 2013-09-17. There has been feedback from the metadata register editors and the assigned names will be updated in the document.

Business Impact: Interoperability between systems

DG Project: SMPTE-Core Metadata Set
This group's scope is to define an interoperable minimum core set of descriptive metadata for professional motion imaging applications and users.
Existing SMPTE metadata is application-specific and is not supported right through media workflows.

> **Status:** The group held a meeting during the September round. It is working though items one-by-one, using elements and extensions structured in an Excel sheet.

Business Impact: potential foundation for Metadata

SG Project: HQ implementation of On-line Registers
TC-30MR's metadata registers are currently spreadsheet-based and it has long been recognized that an online database is required. This SG has completed a report listing requirements for an online system.

> **Status:** SMPTE HQ is discussing the requirement with two potential suppliers who are familiar with SMPTE metadata. The group will remain open to respond to implementation queries and to review proposals.

Business Impact: Interoperability between systems

SG Project: Metadata Strategy
This review of the role of the TC started in the 2012-03 meeting round, examining how the focus of the TC should expand beyond the registration of metadata and towards standardizing metadata schemes and XML projects.

Status: The SG Chair has submitted the draft report to the SG for comment. When there is SG consensus, the report will be submitted to the TC.

Topic: Register Structure Document Projects

There are several SMPTE standards defining the structure of various metadata registers defined by ST 336: Data Encoding Protocol Using Key-Length-Value. They are all being updated to include new requirements such as including xml symbols. Three of these updates are now published:

- ST 335:2012 Metadata Element Dictionary Structure
- ST 400:2012 SMPTE Labels Structure
- ST 2003:2012 Types Dictionary Structure

DG Project: Revision ST 395: Groups Register Structure

Status: The revised ST 395 draft closed FCD ballot 2013-07-24 with 14 comments to resolve. All comments are resolved and the TC Chairs will send the document to DP ballot.

DG Project: Draft Essence Register Structure

This project creates a controlling standard for SMPTE ULs used as essence keys in MXF standards.

Status: A drafting telecon will be held, after which the document should be ready for pre-FCD-ballot review.

DG Project: Draft ST 2024: Registry XML Interchange Format

This work defines a format for exchanging data with the SMPTE metadata registry. It comprises a prose document and a schema.

Status: The group expects to report substantial progress by the next meeting round. This work was shelved until the ST 395 revision was completed.

WG Project: Metadata Definition

This Working Group (30MR10) co-ordinates a number of DG projects for adding or maintaining metadata items in registers. Because the registers are updated frequently, a version number identifies each revision.

The Elements and Labels contents have historically been identified with a 'RP' number. Now, register contents are specified as an *element* of the structure standard and no RP numbers will be used for new registers.

Status: During the June 2013 meeting, the TC appointed a pro-tem Chair for the WG who will see the existing register versions through their ballot process. The WG met during the Munich round and the Chair demonstrated a register auditing system that he had developed to identify editing errors and prevent them getting through to balloted registers.
The status on the following registers was also updated:

DG Project: Update Metadata Element Dictionary Contents (RP 210)

Status: The RP 210v14 draft is being quality-checked using software tools. It is expected to start pre-FCD-ballot review during October.

DG Project: Update Metadata Labels Register Contents (RP224)

Status: The RP 224v13 draft is ready for pre-FCD-ballot review.

DG Project: Create and Update Groups Register Contents
For some while, an informal Groups Register has being maintained. The register is awaiting publication of the ST 395 revision, rather than constructing it to meet the limited features of the existing published ST 395.

Status: A CD of the register is being prepared. The format will conform to the revised ST 395 when it is approved.

DG Project: Create and Update Types Register Contents
For some while, an informal Types Register has being maintained.
Now that the defining structure document, ST 2003, is published this register can be introduced formally for ballot.

Status: The TC will set up a project for this work. A draft of the register is being maintained. It will be converted to conform to its newly published controlling standard ST 2003 and should then be ready for ballot.

DG Project: Create and Update Essence Register Contents
The group will create a register of SMPTE ULs for use as essence keys and process requests for register additions, modifications and deprecations.

Status: WD in preparation

DG Project: Draft EG 2074: Metadata Naming Guidelines
This document aims to improve the consistency of names given to metadata items

Status: This document is in the queue for publication.

Other TC-30MR Business

1-Year and 5-Year Document Reviews

ST 2045: Register Interchange Format (RIF) will be reviewed for revision.
ST 336 was reviewed and a project will be set up for revision.

AAC Label Issues
A presentation was given that indicated a probable need for additional labels to use with different wrappings of AAC audio. It may be desirable to modify the description of the existing label to apply to one of the variants; this would require an advisory note to ensure the existing label has not been used for any other variants.

File Formats and Systems Committee (31FS) chaired by Mike Dolan and Pierre Lemieux

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: 31FS Publications in last quarter

SMPTE RDD 9:2013, MXF Interoperability Specification of Sony MPEG Long GOP Products
SMPTE ST 2065-4:2013, ACES Image Container File Layout
SMPTE ST 2075:2013, Mapping EBU TECH 3264 (STL) into the MXF Generic Stream Container
Amendment 2:2012 to SMPTE ST 377-1:2011, Material Exchange Format (MXF) – File Format Specification – Amendment 2
SMPTE EG 377-3:2013, Material Exchange Format (MXF) – Engineering Guideline (Informative)
Amendment 2:2013 to SMPTE ST 382:2007, Material Exchange Format – Mapping AES3 and Broadcast Wave Audio into the MXF Generic Container – Amendment 2
SMPTE ST 392:2013, Revision of SMPTE 392M-2004), Material Exchange Format (MXF) – Operational Pattern 2a (Play-List Items, Single Package)
Amendment 1:2013 to SMPTE RP 2057:2011, Text Based Metadata Carriage in MXF – Amendment 1

Topic: Material Exchange Format (MXF)

MXF defines a file format for Video, Audio and Data essence along with associated Metadata, for use in production systems (rather than final delivery).
There are several MXF projects under way. Some define new MXF features / applications, others revise existing documents for better interoperability.

Business Impact of all MXF-related work items: Interoperability between systems in file-based production

DG Project: Draft ST 377-2: KLV-encoded extension syntax (KXS)
This work specifies an alternative approach to the 'Application Metadata Plug-ins' specified in SMPTE 377-1.

Status: The document passed FCD ballot on 2010-02-28 with 61 comments to resolve. All comments are resolved and the DG plans to recommend a second FCD ballot. It was agreed that this should be a 3-week ballot.

DG Project: Revision ST 380: MXF – Descriptive Metadata Scheme-1

Status: The DG plans to recommend that the document is ready for pre-FCD-ballot review.

DG Project: Revision EG 42: MXF Descriptive Metadata

Status: Changes that arose during the ST 380 revision have been incorporated in the EG 42 draft. It was agreed that there would be a final DG review followed by pre-FCD-ballot review in the TC concurrent with ST 380.

DG Project: Draft ST 2042-4: Wrapping VC-2 Video Essence in the MXF Generic Container

Status: This document failed FCD ballot that closed on 2013-05-23 with 43 comments to resolve. When comment resolution is complete, a second FCD ballot will be held. An issue about whether the document should reference ST 379-1 or ST 379-2 was discussed and this raised a general question for MXF work. An AHG was formed and will report back in December.

DG Project: Draft ST 2070: 3D in MXF Operations
The project deals with "Stereoscopic 3D in interleaved MXF for TV".
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

Status: Parts 1-3 passed FCD ballot 2013-07-26. Part 1 has 13 comments to resolve, Part 2 has 9 comments to resolve, Part 3 has 5 comments to resolve. The DG held a meeting during the Munich round to work on resolution.
Part 4 has not been started yet.

DG Project: Draft ST 381-3: – Mapping AVC streams into the MXF Generic Container
This project started as a revision of RP 2008. The group decided that the document should be a Standard.

Status: This document passed ST Audit and will be published imminently.

DG Project: Revision ST 422:2006: JPEG2000 in MXF
The main purpose of this revision is to add provisions for interlaced images.

Status: The document status was raised to DP by a vote at the TC meeting.

DG Project: Revision ST 434: XML representation of MXF metadata
Update ST 434 to take account of changes to ST 377-1 and other MXF documents

Status: The DG plans to recommend that the document is ready for pre-FCD-ballot review.

DG Project: Draft RDD: AVC MXF Proxies
This RDD defines an MXF Application Profile for AVC proxies with MPEG-2 AAC audio per Operational pattern 1A (OP1a).

Status: The document closed RDD ballot on 2013-07-26 with 21 comments. The proponent is reviewing and addressing comments.

DG Project: Revision ST 436: MXF Mappings for VBI Lines and Ancillary Data Packets
It has been decided that this project will create ST 436-1 (compatible with current ST 436) and will compile a list of topics for a separate project, ST 436-2, which will add new features or constraints that are possibly incompatible with ST 436-1.

Status: The document was raised to DP status by a vote at the TC meeting.

DG Project: Revision ST 2019-4: Mapping VC-3 Coding Units into the MXF Generic Container
Five new Compression IDs need to be added (triggered by changes to ST 2019-1 in TC-10E), plus a cleanup of normative references as necessary.

Status: This document passed FCD ballot on 2013-03-13 with 9 comments to resolve. Comment resolution is underway.

WG Project: Draft ST 2034: Archive Exchange Format (AXF)
This Working Group (31FS-30) will define an archive format that will promote interoperability between all forms of archive media. A multipart suite of documents is planned; Part 1 deals with 'AXF Structure and Semantics' and includes an XML schema. Part 2 will cover "External Uses of XML Schema". A new Part 3 is expected to be an RP on applying AXF to the various media types.

Status: The WG plans to recommend soon that Part 1 **is** ready for FCD ballot.

Business Impact: Interoperability and more cost effective handling of technology migration issues in archives

DG Project: XML Schema for Audio and Related Metadata
This project will develop an XML Schema for audio and related metadata focusing on technical aspects

Status: The group has surveyed other SMPTE work and has identified the 32NF40 SDI Audio Channel Labeling project and 35PM50 Audio project as well as some related SMPTE and EBU publications. The aim is to pull all these items together with a common data model.

DG Project: Draft ST 2001: XML Representation of SMPTE-registered Data (Reg-XML)
ST 2001 is about representing instances of SMPTE-registered data in XML.
There are two Parts: ST 2001-1: Mapping Rules (includes 2 schemas)
ST 2001-2: AAF and MXF data (includes an XML meta-dictionary and schema)

Status: The Part 1 document was raised to DP status by TC vote at the meeting.
Part 2 has completed FCD ballot comment resolution and the DG plans to recommend it go to pre-DP review.

New TC-31FS Business

Potential New Project on MXF Timecode Mapping and Labeling
At the June meeting round, there was a presentation outlining a requirement from the US Library of Congress to define a standard way of carrying 3 timecodes in an MXF file for archive purposes. The interest has firmed up and a formal project proposal is planned.

MXF Wrapping of AAC audio family of formats
A new project proposal is planned for this work. A new Essence mapping document is proposed that will cover all the variants of AAC that are used in broadcast applications.

5-Year Review of ST 268: File Format for Digital Moving-Picture Exchange (DPX)
This was re-affirmed. The TC also requested that HQ to produce a roll-up including the 2012 amendment (for ACES application) for TC review. It is planned to stabilize the rolled-up document.

Network and Facilities Architecture Committee (32NF) chaired by Alan Lambshead and John Snow

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.

WG Project: Mappings
This Working Group (32NF40) co-ordinates projects that specify how image formats are mapped onto interfaces.

The **business impact** of all WG work items concerns interoperability between systems.

DG Project: ST 425 suite of 3Gb/s Multi-Link Interfaces
To create 3G SDI interface mappings for the real time transport of image formats: 1920x1080; 1280x720; currently approved 2k and 4k; UHDTV-1; UHDTV-2, including stereoscopic images.
Document Set: ST 425-2 (3D images that fit in one 3 Gb/s link), now published
ST 425-3 (Single images that fit in two 3 Gb/s links) on the point of publication
ST 425-4 (3D images that fit in two 3 Gb/s links), now published
ST 425-5 (4K images that fit in four 3Gb/s links)
ST 425-6 (3D images that fit in four 3Gb/s links)

Status: The ST 425-5 document passed FCD ballot 2013-09-03 with 10 comments to resolve. 2 comments are unresolved as they call for solutions that are mutually exclusive; DG to consider how to resolve.
The ST 425-6 document is at FCD ballot, closing 2013-10-14.

DG Project: Document suite 2076: Stereoscopic 3D (S3D) Production Timing and Synchronization
This group is developing a document suite on 3D timing and sync for:
Part 1: (ST) Camera Systems
Part 2: (ST) Live Production Systems
Part 3: (ST) Physical Layer for Video Transport
Part 4: (EG) Physical Layer and System Guidance

Status: The four documents closed FCD ballot 2013-09-10. Comments received were: Part 1 - 38; Part 2 - 32; Part 3 - 15; Part 4 - 5. A DG meeting was held during the Munich round and a start was made on reviewing the comments.

DG Project: SDI Audio Track Allocation Signaling
This project will define a signaling mechanism, likely to be carried in Vertical Ancillary Data Space, that provides serial digital interfaces with a means to clearly identify the configuration parameters of any given SMPTE ST 299-1 or -2 embedded audio track.

Status: It would appear that most of the work of this DG is being addressed in other groups.
The DG Chair was tasked with drafting a "Liaison Note" to 31FS (with a CC to 35PM) advising them of the need to coordinate documentation efforts between the TCs.

DG Project: EG on SDI Interfaces

This group will draft EGs to provide an overview of the many SMPTE SDI interface standards and technologies, including how they relate to each other, what image formats are carried, performance. An initial idea is to build the existing EG 2069 document on optical networks into a family:

Part 1 – Overview of SDI interface standards
Part 2 – Copper SDI networks
Part 3 – Optical SDI networks

Status: This project has been on hold pending identification of additional / alternate resources to move the work forward. At the WG meeting, two people stepped forward to take on the work.

WG Project: Interfaces

This Working Group (32NF50) co-ordinates projects that specify electrical and optical interfaces. At the TC meeting, it was announced that the WG would be disbanded and its projects transferred to 32NF40 (above).

DG Project: Draft ST 2062: 25 Gb/s Serial Signal/Data Interface

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

Status: These documents both passed FCD reballot on 2012-08-22. Draft ST 2062-1 had 36 comments to resolve, draft ST 2062-2 had 13 comments to resolve.
The documents are still in comment resolution and the Mappings WG has provided assistance over an issue of payload identification.

DG Project: Revision EG 34: Pathological Conditions in Serial Digital Video Systems and Revision RP 198: Bit-Serial Digital Checkfield for Use in High-Definition Interfaces

Status: Work on these documents is continuing.

DG Project: Revision RP 184: Specification of Jitter in Bit-Serial Digital Systems and Revision RP 192: Jitter Measurement Procedures in Bit-Serial Digital Interfaces

Status: RP 184 revision is approaching closure. RP 184 has a reference to RP 192, and so the RP192 work needs to get started. Five telecons are scheduled before the December meeting round.

WG Project: Video Over IP

This Working Group (32NF60) was established to handle projects related to IP transport of media; this is the ST2022 family of documents currently comprising 6 published Parts.

DG Project: ST 2022-7: High-Availability delivery of SMPTE 2022 streams through Fully Redundant Transmission

This project will standardize an interoperable method for generating redundant SMPTE 2022-n streams such that a receiver can generate a single highly available output.

Status: The document is at ST Audit, closing 2013-10-10.

One-Year Review of ST 2022-6: Mapping of High Bit Rate Media Signals on IP Networks
Interoperability tests have revealed minor variations and a two-sentence amendment is proposed to improve clarity. An amendment project will be set up and activity is expected to begin in October 2013.

WG Project: Ultra HD SDI Interfaces
This Working Group (32NF70) was established to create a hierarchy of single-link, dual-link and quad-link electrical and optical SDI interfaces with nominal link rates of 6Gb/s, 12Gb/s and 24Gb/s.

Status: The group had its inaugural telecon 2013-09-03. It decided that the two DG projects below would be set up immediately. The WG telecons will be held every 4 weeks and a schedule for the DGs is being developed.

Proposed DG Project: 6Gb/s Ultra HD SDI Interfaces
This project will:
- Develop single-link and dual-link and quad-link 6G SDI as a suite of standards that includes electrical and optical physical layer, mapping and image format structures as necessary.
- Document stereoscopic image transport on single-link and dual-link and quad-link 6G SDI interfaces
- Document transport of multi-stream 1.5G and 3G links on a 6G SDI interface

Proposed DG Project: 12Gb/s Ultra HD SDI Interfaces
This project will:
- Develop a single-link, dual-link and quad-link 12G SDI standard document suite including electrical and optical physical layer, mapping and image format structures as necessary that builds on the hierarchy and mapping structures defined by the UHD SDI 6G drafting group
- Document stereoscopic image transport on single-link and dual-link and quad-link 12G SDI interfaces
- Document transport of multi-stream 1.5G, 3G and 6G links on a 12G SDI interface

SG Project: Media Production System Network Architecture
Several SMPTE TCs have projects that involve IP networks and this SG was formed to identify parameters to consider in network design for professional media production.

Status: The group has completed initial draft work on the Introduction, Scope, Use Cases, and Media Production System characteristics / user expectations. Drafting is focused on Section 5 that addresses network technologies and tools in terms of risks and benefits as they are used in Professional Media Systems. A final section will contain conclusions. SG telecons are held every 2 weeks.

DG Project: Code-point Extension Mechanism for the ST 337 family

This is an "umbrella project" to manage individual DG projects for each document. There are no free code points left in ST 338 for identifying non-linear PCM formats in AES-3.
The extension mechanism will be documented in ST 337: Format for Non-PCM Audio and Data in an AES3 Serial Digital Audio Interface and the extended data types will be documented in ST 338: Format for Non-PCM Audio and Data in AES3 — Data Types. It will revise any other documents in the family that are impacted by the change.

Status: The project has been approved in the TC and in ST. A Kavi group will be set up and the ST 337 revision DG will be initiated.

SG Project: Study Group on Embedded Audio

The group will study the support that SDI infrastructure provides for single link 3Gb/s, multi-link 3Gb/s and how much of that supports the full 32-channels of audio per link. It will recommend any standardization work that it finds necessary.

Status: A survey has been designed. The group is co-ordinating with a number of related groups.

New Project Proposal

A presentation was given, proposing the revision of ST 2036-3: Ultra High Definition Television - Mapping into Single-link or Multi-link 10 Gb/s Serial Signal/Data Interface.
Proposed changes:
- Adding indicator for colorimetry in Payload ID
- Basic container to support 120p and 12 bit/word
- Connector and cable to be specified

More details will emerge when the technology is presented in a SMPTE Conference paper in October.

Time Labeling and Synchronization Committee (33TS) chaired by John Fletcher and Bob Edge

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.

Business impact: work items concern network based synchronization schemes and new functionalities on time labeling.

Topic: Time Label and Synchronization WGs

The two WGs below held meetings over 3 days, 2013-07-10 to 2013-07-12 at Ryerson University, Toronto, Canada.
The next meetings of these WGs will be 2013-11-04 to 2013-11-06 at the EBU, Geneva.

WG Project: Time Labeling (TL)
This WG (33TS-10) will specify a Time Label to replace SMPTE Time Code and provide support for higher frame rates, time duration greater than 24 hours, and off-speed acquisition. The WG has a separate drafting DG that works by telecons. A multipart document set is planned.

Status: The preliminary list of time label component objects (the first Part of the multipart document that is planned) has been documented. A review of the currently documented workflows and use-cases is nearing completion.

WG Project: Synchronization
This WG (33TS-20) will define a media synchronization system that can be distributed over standard IP networks.

Status: In August the WG formed an AHG to work on simulation of the synchronization standard. This will include:
- Documentation on the simulation framework
- Input & output test case file formats
- Reference test case and "golden" results
- Validation of the equations in the standard

A Synchronizing System Introduction WD (EG 2059-10) has been drafted and the need for EG and RP documents is being discussed.

DG Project: Draft ST 2059-1: The SMPTE Epoch and generation and alignment of interface signals
This document contains:
Definition of epoch used for synchronization system
Alignment of video and audio signals at the epoch
Formulas for generating video, audio, ST 12 time code and ST 309 date from TAI time and additional metadata

Status: At the time of the TC meeting, the document was at FCD-ballot, closing 2013-09-26.

DG Project: Draft ST 2059-2: Precision Time Protocol SMPTE profile for time and frequency synchronization in a professional broadcast environment
This document defines the IEEE 1588 PTP profile for the SMPTE synchronization system.

Status: At the time of the TC meeting, the document was at FCD-ballot, closing 2013-09-26.

DG Project: Amend ST 12-1: Time and Control Code and Amend ST 12-2: Transmission of Time Code in the Ancillary Data Space
This amendment adds information for handling 48 frames-per-second rate in the same way as the document currently handles 50 and 60 fps (includes /1.001 rates).

Status: The amendments are ready for publication. A roll-up of the amendment into the standard is underway and it will be reviewed by the TC.

DG Project: Amend ST 2051: Two-Frame Markers for 50-Hz and 60(/1.001)-Hz Progressive Digital Video Signals on 1.5 Gb/s and 3 Gb/s Interfaces
This amendment adds information for handling the 48 frames-per-second rate in the same way as the document currently handles 50 and 60 fps (including /1.001 rates).

Status: The amendment is ready for publication. A roll-up of the amendment into the standard is underway and it will be reviewed by the TC.

DG Project: Revise ST 318: Synchronization of 59.94-Hz or 50-Hz Related Video and Audio Systems in Analog and Digital Areas – Reference Signals
A new project has been set up to add alignment information for ST 2051-1 and general editorial cleanup.

Status: Project approved and Kavi group set up. Work in progress.

Media Packaging and Interchange Committee (35PM) chaired by Howard Lukk and Thomas Bause Mason

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.

Business Impact: Interoperability between systems, cost effective exchange of master formats in file form and new functionalities.

WG Project: 2067 Document Suite: Interoperable Master Format (IMF)
This Working Group (35PM-50) co-ordinates the activities of a number of DGs defining various aspects of IMF. IMF comprises a master set of file-based elements for any downstream distribution using multiple composition playlists. The master set of files will be used as the input to subsequent processing that will create deliverables.

Published IMF documents:
ST 2067-3: Interoperable Master Format – Composition Playlist
ST 2067-5: Interoperable Master Format – Essence Component

Status: The WG held two telecons in the last quarter. Four more IMF documents have passed ST Audit (see -2, -8, -20, -30 below); however, they will be held due to dependencies on publication of TC-31FS documents ST 422 (revision) and ST 2001.

DG Project: Draft ST 2067-20: IMF Application #2, JPEG 2000

Status: Passed ST Audit 2013-08-28.

DG Project: Draft ST 2067-30: IMF Application #3, MPEG-4 Visual Simple Studio Profile (SStP)

Status: Passed ST Audit 2013-08-28.

DG Project: Draft ST 2067-2: IMF Core Constraints

Status: Passed ST Audit 2013-08-28.

DG Project: IMF CPL and OPL
This group is drafting ST 2067-4: Output Profile List (OPL)

Status: Work has started on the OPL document and the group has strawman drafts for Audio Routing, Image Fill, Scaling. Work on Overlays is underway.

DG Project: IMF Wrapping, Security & Packaging
This group has developed ST 2067-5: Interoperable Master Format – Essence Component

Status: ST 2067-5 published.

DG Project: IMF Data (Text) Essence

Status: Mapping from ST428-7: D-Cinema Subtitle to SMPTE-TT is currently under way in TC-24TB.

DG Project: IMF Audio
Project: ST 2067-8: IMF Common Audio Labels.

Status: Passed ST Audit 2013-08-28.

AHG Project: IMF Sample Material Interchange

This group has been set up to facilitate interoperability testing by making sample material available online.

Status: The TC Chair reported slow going in this group over the last quarter.

DG Project: Draft ST 2067-21: Extensions to IMF Application #2, JPEG 2000
This extension is proposed to support higher specifications including resolution, frame rates and multiple color space encodings.

Notes on this report and the SMPTE Standards Process

*SMPTE Technology Committees (**TC's**) are tasked with the development and ongoing maintenance of engineering documents relevant to Television, Broadband, Film and Digital Cinema. TC's are set up by the Standards Vice President (**SVP**) and are overseen by the Standards Committee (**ST**).*

The standards process operates under the SMPTE Standards Operations Manual .

*Within Technology Committees, there may also be Working Groups (**WGs**), Study Groups (**SGs**) Drafting Groups (**DGs**) and Ad-Hoc Groups (**AHGs**).*
*'Standards Community' (**SC**) is an "umbrella group" that includes all Technology Committees. It is used to convey information that is relevant to all TC's, such as meeting logistics and registration information. An SC meeting is held during each meeting round.*

SMPTE document development process

The document stages are:
***WD** = Working Draft* ***CD** = Committee Draft* ***FCD** = Final Committee Draft*
***DP** = Draft Publication, which initiates **ST Audit** - a due process check by the Standards Committee*

SMPTE document-type abbreviations

***ST** = Standard* ***RP** = Recommended Practice*
***EG** = Engineering Guideline* ***RDD** = Registered Disclosure Document*

SMPTE document review

The SMPTE Operations Manual calls for review of published documents:
One Year after original publication - to check whether comments have been received during initial implementations and revise as required
At Five Year intervals after original publication - to check whether the provisions need to be revised
There may be proposals to Revise or Amend documents, or they may be reaffirmed, made stable or withdrawn.

Other Notes

*This report describes each active **Project** in each TC. Occasionally, there is more than one project group working on a particular technology field. In this case, those projects are grouped under a **Topic** headline.*

*SMPTE manages its standards documentation, meetings and ballots in an online system called **Kavi**.*
*Kavi has a **Project View** feature that includes a project summary page. It is used to state the project justification at the proposal stage and to track progress through to completion.*
*In this report access to the project view is via a hyperlink in the **Project** word in the title.*