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
9-12 July 2012
Hosted by ESPN,
Bristol, Connecticut, 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.

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 used in this report, jump to the Annex.

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

Essence Technology Committee (10E)
Digital Cinema Technology Committee (21 DC)
Television and Broadband Media Committee (24TB)
Metadata and Registers Committee (30MR)
File Formats and Systems Committee (31FS)
Network and Facilities Architecture Committee (32NF)
Time Labeling and Synchronization Committee (33TS)
Media Systems, Control and Services Committee (34CS)
Media Packaging and Interchange Committee (35PM)

It 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 SMPTE Standards program, please contact Peter Symes, Director of Engineering and Standards, at psymes@smpte.org.

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

Detailed Account of July 2012 Meetings

Essence Technology Committee (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

AHG Project: Reference Display and Environment for Critical Viewing of Television Pictures

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: There is a Reference Display characteristics WD document which was developed further in this quarter's AHG meeting. The other 3 documents have not been started. It was identified that the four document editors now need to work together to get the document suite moving so to facilitate this, a two-day face-to-face session plus three Webex sessions have been scheduled in August.

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 Academy Density Exchange Encoding (ADX).

Status: All three standards have been published as Parts of document ST 2065. The project group will be disbanded. Note that there is also work in the TC-31FS committee on file formats for IIF.

Topic: Video compression standards in SMPTE

AHG Project: Revision of SMPTE 2042 VC-2 Video Compression Standard

This revision of the SMPTE mezzanine video compression standard (based on BBC's DIRAC pro) adds a new high quality profile to support Archiving and Production applications.

Status: The document is now at ST Audit, closing 2012-07-31.

AHG Project: Revision of SMPTE ST 2019 VC-3 Video Compression Documents

This project extends the functionality of VC-3 (based on AVID's DNxHD technology) by adding 5 new Compression IDs to support 4:4:4 and RGB color space. Two documents are covered by this work - Part 1: VC-3 Picture Compression and Data Stream Format and Part 2: VC-3 Decoder and Bitstream Conformance.

Status: The revised Picture Compression and Data Stream Format document passed FCD ballot on 2012-06-11. All 31 comments have been addressed, 12 have been accepted and 19 are awaiting a response (from one commenter).
The AHG has not yet started the Decoder and Bitstream document.

AHG Project: Draft VC-5 video compression
This project standardizes the Cineform video compression algorithm. The documents will comprise:

- Part 1 - Elementary Bitstream
- Part 2 - Advanced Bitstream
- Reference Codec

Status: In the last quarter, the AHG has implemented a number of improvements to the specification. The Elementary Bitstream document is close to completion and the Advanced Syntax document is expected by the September meeting round.

Topic: Stereoscopic 3D Essence Projects

AHG 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: The document passed FCD ballot on 2012-03-01, with 79 comments. It was reported that all comments have been resolved and that the document is being revised accordingly.
The official ballot record needs to be updated to show acceptance by commenters of the resolution agreed.

AHG Project: Draft ST 2066 Stereoscopic 3D Disparity Map
This work standardizes a data representation of disparity maps in 3D production and mastering systems (excluding Digital Cinema applications)

Status: The draft document passed FCD ballot on 2012-03-27 with 10 comments. It was reported that all comments have been resolved. A DP elevation vote was held in the TC-10E meeting and DP elevation was approved.

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

Status: This revision has now been published and the AHG will be disbanded.

AHG Project: Revision of RP 157 Key and Alpha Signals
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: The AHG met and completed comment resolution. A new draft has been produced and will be posted for 2-week post-ballot review.

AHG 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 passed FCD ballot on 2012-02-07 with 63 comments to resolve.
The AHG Chair reported that about 6 comments remain to be resolved.

New TC-10E Business
Potential New Project: RGB Full Range coding
A presentation was given describing a proposal to standardize the encoding of video using the full range of available code values; no values reserved for overshoots or sync signals. The intention is to standardize a practise that is common in the industry when using DPX files rather than HD-SDI.
There was discussion about potential for error during conversions between DPX files and HD-SDI streams; careful labeling is required.
It was agreed that the TC chairs and the proponents will discuss launching the project and develop a project plan for the next meeting round. Meanwhile, the proponents will document use-cases.

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.

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

Digital Cinema Technology Committee (21 DC) chaired by John Hurst and Nelson Meacham

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.

SG Project: FIPS Revision
This project was set up to assess the impact of revisions that have been made to some US Federal Information Processing Standards on 21DC documents that reference them.

Status: The group has completed its report and is now dormant. It is proposed that an AHG is set up Q1 2013 to monitor NIST progress.

AHG Project: Audio Channel Labeling – D-Cinema Application
This work defines constraints to the Multichannel Audio Framework, ST 377-4 for application in D-Cinema. The group has developed these documents:

- ST 428 Part 12: D-Cinema Distribution Master-Common Audio Channels and Soundfield Groups
- An amendment to ST 429-2 D-Cinema Packaging - DCP Operational Constraints document to add requirements to accommodate MCA labels.

Status: The AHG reported that the group's 'parent' standard, ST 377-4, has been published. The group's two documents (see above) passed FCD ballot 2012-04-04. Resolution of the ballot comments was completed at the TC meeting and votes for elevation of both documents to DP passed.

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: An interim internal report has been issued and it was reviewed in the TC meeting. It contains some proprietary / confidential information and the group was requested to bring the report into a form where it can be published, then think about standardization.

AHG Project: Stereoscopic Subtitle and Timed Text Rendering
This AHG will revise SMPTE standards in compliance with "Stereoscopic On-Screen Text – Study Group Report" version 1.2. Documents affected:
ST 429-12 - D-Cinema Packaging - Caption and Closed Subtitle
ST 428-7 - D-Cinema Distribution Master - Subtitle

Status: Since the last meeting, the group has studied the results of the 2012 ISDCF plug fest and has held a number of meetings to identify changes needed to the documents above. Revision of ST 428-7 and amendment of ST 429-12 are almost ready to be issued for FCD ballot. Changes and additions to ST 429-2 - DCP Operational Constraints have also been proposed.

AHG Project: Amendment to ST 430-3 D-Cinema Operations – Generic Extra-Theater Message Format
This project tightens up the encryption requirements in the standard to improve interoperability.

Status: This amendment passed FCD ballot on 2012-05-01. Comment resolution is complete and a DP elevation ballot will be held on Kavi.

New TC-21DC Business

Proposed New Project to add new High Frame Rates to DCDM document
This project will be set up for approval.

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.

AHG 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 a 2 Part 'Audio to Video Synchronization Measurements' document based on audio and video fingerprints:

- Part 1: Fingerprint Specification
- Part 2: Fingerprint Transport (includes VANC in SDI/HD-SDI, IP, MPEG)

Status: The draft of Part 1 continues to advance and the first edit pass is near completion. The draft of Part 2 still needs a lot of work. Work to test the system in 50Hz environments is underway. The test kit has been checked out in Australia and is on its way to three broadcasters for evaluation under real workflow conditions; another set will go to the IRT in Europe after IBC.

AHG 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).

Already published:	Part 1: Timed Text Format (SMPTE-TT)
	Part 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: Improved XML Schemas for ST 2052-1, RP 2052-10 and RP 2052-11 have been published on the SMPTE-RA site.

Parts 11 and 12 have been drafted and are being reviewed.
The group is developing a Requirements Document to ensure FCC rules for IP-Closed Captioning are accommodated by SMPTE-TT; this work may result in a "profile" of SMPTE-TT with an explicit (reduced) feature set.

Topic: TV and Broadband Media TC document maintenance
SMPTE TC's are required to review their documents one year after initial publication and thereafter every five years.
Documents currently affected:

AHG Project: Revision EG 32: Emphasis of AES/EBU Audio in Television Systems and Preferred Audio Sampling Rate

Status: An FCD ballot was held. Comments were made that the document does not meet the criteria for an EG, and that it should be an RP. It will be reballoted with the new number RP 2072.

AHG Project: Revision of ST 96: 35- and 16-mm Motion-Picture Film — Scanned Image Area Revision under way.

AHG Project: Amendment ST 2035-2009: Audio Channel Assignments for Digital Television Recorders
This work brings ST 2035 into conformance with ITU-R BS. 1384-1 by adding a further two 12 track channel assignments.

Status: The document passed FCD ballot but has been held from DP elevation to investigate whether the EBU has additional assignments for the document.

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.

Topic: 30MR Publications in Last Quarter
Revision of RDD18: Acquisition Metadata Sets for Video Camera Parameters
RP 210 Version 13: Metadata Element Register
RP 224 Version 12: Metadata Labels Register

Topic: TC-30MR Strategic Direction
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 discussion was 'thrown open' to the whole Standards Community to take part in two telecons that identified some possible new areas of metadata work.
A one-day face-to-face meeting will be held at the BBC, London on 5th September and then a half-day is proposed at the end of the quarterly block meetings at the EBU, Geneva for final review.

At the TC meeting it was decided that this work should be transformed into a TC-30MR Study Group.

SG Project: HQ implementation of On-line Registers

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

AHG Project: Revision of RDD18 - Acquisition Metadata Sets for Video Camera Parameters

Status: This document is now published and the group will be disbanded.

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. Two of these updates are now published:

- ST 335:2012 Metadata Element Dictionary Structure
- ST 2003:2012 Types Dictionary Structure

AHG Project: Revision ST 400: Labels Register Structure

Status: The TC held a DP elevation vote. DP elevation was approved.

AHG Project: Revision ST 395: Groups Register Structure

Status: This AHG met during the meeting round and reviewed an initial WD that had been adapted from the newly-published revised structure documents. It is hoped that the document will be at CD status by the next quarterly meetings in Geneva.

AHG Project: Draft Essence Register Structure
This project creates a controlling standard for SMPTE ULs used as essence keys in MXF standards.

Status: An initial draft document has been developed.

AHG 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: This draft document went to ballot some while ago. Since then, significant changes have been made to the register structure documents, requiring changes to the ST 2024 draft. The work will resume after the ST 395 revision is completed.

WG Project: Metadata Definition

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

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

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

Status: RP 210v13 has been published.
There was a last call for additions for RP 210v14. This version will be converted to conform to the recently-published ST 335 document.

AHG Project: Update Metadata Labels Register Contents (RP224)

Status: RP224v12 has been published.
Some items for RP 224v13 have been received and this version will conform to the requirements of draft ST 400, currently at DP.

AHG Project: Create and Update Types Register Contents

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

Status: The informal Types register will be checked for conformance with the recently-published ST 2003 document. It can then be balloted.

AHG Project: Create and Update Groups Register Contents

Status: A draft Groups register is being maintained with all requested entries, awaiting publication of the ST 395 revision, rather than constructing it with the limited features of the existing published version.

AHG Project: Draft Metadata Naming Guidelines

This document aims to improve the consistency of names given to metadata items

Status: Since the last meeting, 2 telecons were held and pre-ballot review comments were resolved. The TC agreed that this document should go to FCD ballot.

Topic: New TC-30MR Business

Glossary of Stereoscopic 3D Terms

This new project has been assigned to TC-30MR by the EVP. It takes as its starting point the glossary developed by the 3D Home Master project in TC-35PM.

Process Issues arising from RP 2057 / AMWA AS-03 conflict.

An issue has arisen because the same Group key UL value has been used in RP 2057 and in AMWA AS-03. Solving this problem will be done in TC-31FS (see below) but the discussion in TC-30MR focused on how the duplication happened and how it can be prevented in future.

It was agreed that a small group would work on drafting a solution that prevents this reoccurring.

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

ST 377-1, AMD1: MXF
ST 382, AMD1: Mapping AES3 and Broadcast Wave Audio into the MXF Generic Container
ST 2049: Low Latency Streaming MXF OP 1a
ST 268, AMD1: File Format for Digital Moving-Picture Exchange (DPX)
ST 377-4: MXF Multichannel Audio Labeling Framework
ST 385: Mapping SDTI-CP Essence and Metadata into the MXF Generic Container

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, introducing new MXF features / applications and revising existing documents for better interoperability.

AHG Project: Amendments to ST 377-1:2011 and Bitstream Exchange

When ST 377-1:2009 was published, certain topics were omitted because they needed more work or testing before consensus could be achieved. This project took on these topics for amendments to ST 377-1. One amendment was published and also rolled-up into the Standard published as ST 377-1:2011.

Current work:

Amendment 1: ST 377-1:2011 This focused on one topic "Channel ID and Mono Source track properties" to move the contents from ST 382 into ST 377-1. It went to FCD ballot and the resolution of comments This required the concurrent addition of material extracted from ST 382.

Status: Amendment published

Amendment 1: ST 382:2007

Status: Amendment published

Amendment 2: ST 377-1:2011 This amendment tackles 12 topics

Status: This amendment passed FCD ballot on 2012-03-02 with 13 comments to resolve. At the TC meeting, there was a vote to override the one unresolved comment. The vote passed so the document will proceed to DP ballot. Requests for metadata element and label UL's will be sent to TC-30MR.

Bitstream Exchange

Status: Additional bitstreams containing picture, sound and subtitle material are planned to be uploaded for member use in testing.

AHG 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: Work on this document has languished for some time due to the resignation of the chair. It is needed by the US Motion Imagery Standards Board (MISB). Candidates for a new chair are being evaluated.

AHG Project: Draft EG 377-3: MXF Engineering Guideline
This project expands the scope of an earlier MXF EG to include new MXF documents

Status: This document has been sent to FCD reballot, closing 27th March 2012. This version has been substantially shortened to resolve some comments on the previous FCD ballot.

AHG Project: Draft ST 2055: Mapping TIFF/EP Profile 2 Essence into MXF Generic Container

Status: This document has been held from publication for a long time awaiting publication of one of its Normative References (in ISO). The project will be closed down and the document's publication process will resume when the ISO document is published.

AHG Project: Revision ST 385: Mapping SDTI-CP Essence and Metadata into the MXF Generic Container

Status: Document published; group will be disbanded.

AHG Project: Revision ST 392: MXF Operational Pattern 2a

Status: This document is held, dependent on EG 377-3 (2 comments on this from the FCD reballot that closed 2012-02-16).

AHG Project: Draft Mapping of EBU Tech 3264 Subtitle List to MXF Generic Streams

Status: The document has completed 2-week pre-ballot review and it can be submitted for FCD ballot after some more refinement and UL's have been assigned; a request will be made to TC-30MR.

AHG Project: Draft ST 2049: Low Latency Streaming MXF OP 1a
This project creates an MXF mapping for real-time low-latency applications

Status: Document published; group will be disbanded.

AHG Project: 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: Ongoing. Drafts of Parts 1, 2, 3 are being revised to address 2-week pre-ballot review comments. Part 4 has not yet been started.

AHG Project: Revision RP 2008 – Mapping AVC streams into the MXF Generic Container

Status: A draft document is nearing completion and will go to ballot under the new number ST 381-3.

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

Status: The group sent out a questionnaire on a number of issues, mostly related to the handling of interlaced JPEG 2000. The results were analysed and presented to the AHG. They will be used to guide the revision work.

AHG 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: Activity on this project has resumed and there has been development of the draft revision, including its schema.

Proposed new AHG Project: MXF Multi-Channel Essence Labeling

Status: This project was not formed because proponent actions to agree on the scope of the work were not carried out.

Other MXF Projects

ST 377-4 MXF Multichannel Audio Labelling Framework - This WG was disbanded as its work is complete.

MXF Descriptive Metadata Revision EG 42 - Awaiting MXF EG completion

MXF – Descriptive Metadata Scheme-1 Amendment ST 380 - No progress in last quarter

Draft VC-2 mapping to MXF Generic Container - No progress or report this quarter. A new proponent may pick it up by the next meeting, else; the project will be disbanded at that time.

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.

Status: Development of Part 1 of the document 'Structure and Semantics' is well-advanced.

AHG 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: An early draft document was presented to the AHG, together with the draft schema. The TC has asked the group to clarify the tasks and deliverables for the project.

Topic: File formats for the Image Interchange Format (IIF)

AHG Project: Constrained DPX for APD_ADX Data

Status: This group's amendment to ST 268: File Format for Digital Moving-Picture Exchange (DPX), Version 2.0 has been published.
The group will be disbanded.

AHG Project: Draft ST 2065-4: ACES Image Container File Layout

Status: The group has decided to proceed to FCD ballot with the existing draft document, because specifying optional metadata components will take too long. A separate document will be drafted to specify the optional metadata components. A new AHG chair has been appointed.

AHG 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
ST 2001-2: AAF and MXF data

Status: At the TC meeting, Part 1 was still at FCD ballot. The ballot passed on 2012-07-16 with 10 comments to resolve.
The AHG requested the TC to send Part 2 for 2-week pre-ballot review.

Topic: New TC-31FS Project Proposals

Proposed AHG Project: Amendment ST 382: BWF in MXF to add Constant Duration Wrapping

Status: This project was approved.

Proposed AHG Project: 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: Approval in process.

Proposed AHG Project: Revision RDD 9:2009 Sony MPEG Long GOP Products
The revision will clarify the descriptions of system and essence items; add further constraints of codec and mapping implementation; add examples of Index Table application.

Status: Approval in process.

Proposed AHG Project: Amendment RP 2057 to change Table 4 UL
An issue has been identified in SMPTE RP 2057 (Text-Based Metadata Carriage in MXF), in which the Universal Label (UL) defined in several tables (byte 13 = 03h), used to identify text-based descriptive metadata, also has been used in deployed equipment to identify a different descriptive metadata scheme (AMWA AS-03).
It is currently believed that there has been no deployment of RP 2057 and so it would be the easiest to change.

Status: Approval in process.

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

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.

Topic: 32NF Publications in Last Quarter

ST 266:2012 SD Digital Component Systems – Digital Vertical Interval Time Code
ST 425-4:2012 Dual 3 Gb/s Serial Digital Interface for Stereoscopic Image Transport
RDD 22:2012 Film Transfer - 2048 x 1556 Image Container and Signal Interface

***WG Project*: Mappings**

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

AHG 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.
Current 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)
ST 425-4 (3D images that fit in two 3 Gb/s links), now published

Status: The draft ST 425-3 document is under development and is expected to go to 2-week pre-ballot review before the September meeting round. It comprises:
- Single 1920 / 2048 12-bit and/or 4:4:4 images that fit on two 3G SDI links
- Single 3840 / 4096 images that fit on two 3G SDI links

The group will then start work on formats that require 4 3Gb/s links.

AHG Project: Draft RDD22: Film Transfer- 2048x1556 Image Container and Signal Interface

Status: Document published. AHG will be disbanded.

AHG Project: 3D Production Timing & Sync

This group is developing a document suite on 3D timing and sync for:
Part1: Acquisition Systems
Part2: Live Production Systems
Part3: Physical Layer / Transmission System.

Status: The draft documents need further development and the chair is looking for document editors. It has been recognized that the provisions in this document suite will have application in Digital Cinema, so TV-centric terminology will be avoided.

WG Project: Interfaces

This Working Group (32NF50) co-ordinates projects that specify electrical and optical interfaces.

AHG 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 have undergone considerable change to resolve FCD ballot comments and it was decided that they should be reballoted at FCD.

AHG Project: Draft EG 2069: Optimizing Optical SDI Interfaces

This substantial guideline document provides comprehensive advice to avoid problems with optical interfaces.

Status: This document is in the queue for ST audit, which is expected to start a few days after the meeting.

AHG Project: Revision ST 435: 10 Gb/s Serial Signal/Data Interface

Documents: Part 1: Basic Stream Distribution
Part 2: 10.6921 Gb/s Stream — Basic Stream Data Mapping
Part 3: 10.6921 Gb/s Optical Fiber Interface

Status: Parts 1 and 2 have reached DP status, awaiting ST audit. Part 3 has passed ST Audit. The three Parts will be published together.

Topic: Video Jitter / Pathological Documents

Status of 3 projects below: These projects are interrelated and thre will be discussions between the interested parties on the best way forward. A new chair for the EG34 / RP 198 project has been appointed.

AHG Project: Revision EG34: Pathological Conditions in Serial Digital Video Systems and Revision RP 198: Bit-Serial Digital Checkfield for Use in High-Definition Interfaces

AHG Project: Revision RP184: Specification of Jitter in Bit-Serial Digital Systems and Revision RP192: Jitter Measurement Procedures in Bit-Serial Digital Interfaces

SG Project: Jitter definition, measurement and specification

AHG Project: Revision ST 424: 3 Gb/s Signal/Data Serial Interface

Revision is primarily to tighten the jitter requirements to improve interoperability.

Status: There was a change of direction from the group; a submission from a manufacturer indicated that measurement of performance at the new proposed jitter specification was difficult or unreliable. It was decided to retain the original wording of ST 424 in this respect.

WG Project: Video Over IP

This Working Group (32NF60) was established to handle all projects related to IP transport of media. See below for a new project proposal from this WG.

AHG Project: 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 revised to address comments from the first FCD ballot and have been reballoted at FCD, closing 2012-07-23.

AHG Project: ST 2022 on SONET/SDH

Status: The proponents no longer see a need for this work and 32NF-60 requested that TC-32NF disband the group.

AHG Project: Draft RP 291-2: Ancillary Data Space use – SDTV and HDTV component systems

There have been a number of issues with Ancillary space implementations and this document has been introduced to make some additional provisions and explanations.

Status: This document will go to FCD reballot, as the AHG determined that the comment resolution changes were extensive. The document now includes 3Gb/s interfaces.

AHG Project: Revision of ST 352:2011: Payload Identification Codes for Serial Digital Interfaces

The project tasks are to revise ST 352:2011 to address the issues of Payload ID assignment for external SDOs, and to clarify ambiguities in the existing ST352:2011.

Status: Agreement was reached at this meeting round on a final draft to be submitted for 2-week review prior to FCD ballot. The review has started.

AHG Project: Revision ST 266:2002: 4:2:2 Digital Component Systems – Digital Vertical Interval Time Code

Status: This document is published. The group will be disbanded.

AHG Project: Revision: ST 2036-3: Ultra High Definition Television -Mapping into Single-link or Multi-link 10 Gb/s Serial Signal/Data Interface

Status: This document passed both DP elevation and ST audit since the last meeting round and will be published.

Topic: Other TC-32NF Business

Liaison with IEC TC100 over Data Types for Non-PCM audio and Data in AES 3
SMPTE sent two TC-32NF members 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. TC100 has defined an extension mechanism for consumer interfaces and the SMPTE representatives will submit a document describing the TC100 system and assessing whether it could work for professional interfaces per AES3.

Proposed AHG Project - High-Availability delivery of SMPTE 2022 streams through Fully Redundant Transmission

Status: This project is proposed by WG 32NF-60 (see above). Project approval is in progress.

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.

The two working groups below held face-to-face meetings over 4 days from 2012-05-29 to 2012-06-01, including a 'lab day' where hands-on testing was carried out on IEEE1588 systems.

WG Project: TL (Time Label - occasionally called Time Related Label or Temporally Related Label in the WG)
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; Off-speed acquisition

Status: The group continues to research use-case requirements. A few strawman label proposals were being reviewed at the WG's last meeting round. There is a realization that 'one size won't fit all' and thoughts are turning to defining individual components of TLs.

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

Status: The group organized a lab day where key aspects of the synchronization standard were successfully tested. Documents for 'SMPTE PTP Epoch' and 'SMPTE PTP Profile' are quite well-

developed and target dates for ballot should be clearer after the next meeting round (2012-07-23 to 26).

AHG Project: Revision of Date and Timezone documents

ST 309 needs a correction for a Daylight Saving Time Problem. EG35 needs revision to procedures for maintaining sync between ST 12 timecode and clock time.

Documents: Revision of ST 309: 1999 Transmission of Date and Time Zone Information in Binary Groups of Time and Control Code
Revision EG 35: 1999 Time and Control Code Time Address Clock Precision for Television, Audio and Film

Status: Draft EG 35 and draft ST 309 both passed FCD ballot on 2012-03-27. The documents are in 2-week ballot comment resolution review.

AHG Project: Revision of EG 40:2002: Conversion of Time Values Between SMPTE 12M Time Code, MPEG-2 PCR Time Base and Absolute Time

Status: The draft document passed FCD ballot on 2012-01-18. Ballot comments have been addressed but a late comment remains to be addressed.

Other TC-33TS Business

Proposed AHG Project RDD: Sony e-TSync Products - Transferring Synchronization Signals over an IP network

A presentation was given on this new project proposal.

Status: Project approval is in process.

AES-X192 Liaison

TC-33TS is maintaining close liaison with AES-X192 to harmonize the two groups' IEEE1588 profiles.

Status: The TC chair reported that we are seeing the X-192 and the SMPTE profiles for IEEE1588 converge.

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

Media Systems, Control and Services Committee (34CS) chaired by Chris Simons and John Footen

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: 34CS Publications in Last Quarter

Revisions of the 5 Parts of ST 2021 listed below were published, together with a Part 0 Roadmap for the 2021 document suite. This revision implements the "BXF 2.0" feature set.

WG Project: BXF

This Working Group (34CS-10) has defined the Broadcast Exchange Format. It is primarily an XML-based system that standardizes exchange of Schedule, As-run and Content-related metadata.

The document suite is:
ST 2021-1: General Information and Informative Notes
ST 2021-2: Protocol
EG 2021-3: Use Cases
EG 2021-4: Schema Documentation
RP 2021-9: Implementing BXF

Project: BXF 3.0

This project adds further feature enhancements to BXF - see project for initial list.

Status: The group is well-advanced with implementing the set of BXF 3.0 feature enhancements. It has set a one month cut-off for new BXF 3.0 feature requests.

AHG Project: Media Device Control over IP

This project will produce a suite of documents:
ST 2071 Part 1: Media Device Control Framework
ST 2071 Part 2: Wire Level Protocol
ST 2071 Part 3: Core Capability Interfaces
ST 2071 Part 4: Discovery

Status: Part 1 has passed FCD ballot with all comments resolved. Part 2 is in pre-FCD-ballot review. Part 3 needs further drafting, working with a list of device categories, types and capabilities that has just been compiled. Part 4 is not yet started.

Topic: 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. The FIMS 1.0 framework together with services for Capture, Transfer and Transform have been completed.

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

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.

WG Project: Interoperable Master Format (IMF)

The Working Group (35PM-50) co-ordinates the activities of a number of AHGs defining various aspects of IMF.

Status: The WG has defined the document set for the IMF Core and a series of IMF applications. It has set up a Sample Material Exchange project (see AHG below).

Project: IMF Application #2

This group is developing a draft ST 2067-20: IMF Application #2, JPEG2000

Status: This group has drafted a strawman document (last edit 2012-07-05), in close co-operation with IMF Application #3.

Project: IMF Application #3

This group is developing a draft ST 2067-30: IMF Application #3, MPEG-4 Visual Simple Studio Profile (SStP)

Status: This group has drafted a strawman document (last edit 2012-07-05), in close co-operation with IMF Application #2.

Project: IMF Core Constraints

This group is drafting the ST 2067-2: IMF Core Constraints document

Status: The draft Core Constraints document has been updated as a result of the development of the two application documents.

AHG Project: 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: ST 2067-3 is at DP ballot, closing 2012-07-30. Work is underway on ST 2067-4.

AHG Project: 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 expected to be at DP ballot "very soon". The group has concluded its work on Security and Packaging and has identified modifications needed to Digital Cinema documents.

AHG Project: 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.

AHG Project: IMF Audio

Status: The group has contributed audio requirements to Application #2, Application #3 and Core Constraints documents. The group has a document 'IMF Common Audio Channels and Soundfields' close to being ready for FCD ballot.

AHG Project: 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.

Status: A server has been set up and Application #2 files are being uploaded.

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

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. The TC's are set up by the Engineering Vice President (**EVP**) and are overseen by the Standards Committee (**ST**).*

The standards process operates under the SMPTE Engineering Operations Manual .

*Within Technology Committees, there may also be Working Groups (**WG's**), Study Groups (**SG's**) and Ad-Hoc Groups (**AHG's**).*
*'Standards Community' (**SC**) is a collective term that include 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*

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 new **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.*
*It is being progressively implemented for Standards projects and is expected to be made publicly available in January 2012. In this report access to the project view, where available, is via a hyperlink in the **Project** word in the title.*