

Minutes:
ATSC Technology and Standards Group (TSG)

8 February 2007, 9:30 a.m. until 11:00 p.m. EST
NAB, 1771 N Street, N.W., Washington, D.C.

1. WELCOME, INTRODUCTIONS, AND DETERMINATION OF QUORUM

Chairman William Miller (SMPTE) called the meeting to order at 9:30 a.m. at the headquarters of the National Association of Broadcasters in Washington, D.C. He welcomed those in attendance and asked each person to identify him or herself. He reminded all participants of the confidentiality requirements of this meeting and the ATSC Patent Policy. The attendance list is given in **ATTACHMENT 1**. Secretary Jerry Whitaker (ATSC) reported that a quorum was present.

2. APPROVAL OF PROPOSED AGENDA

Chair Miller asked for consideration of the draft agenda, distributed to the TSG reflector on January 24 (**Attachment 2**). No changes were requested and the draft agenda was approved as submitted.

3. APPROVAL OF THE DRAFT MINUTES OF THE LAST MEETING

Chair Miller called members' attention to the draft Minutes of the December 13 TSG meeting, distributed to the TSG reflector on February 3 (**Attachment 3**). Mr. Whitaker reported that editorial corrections had been identified by three members, as noted in the redline TSG-714r3 posted to the TSG reflector on February 6. No further changes were requested and the document was approved as amended.

4. OPENING REMARKS

Chair Miller noted that TSG is working on a compressed time schedule, with the ATSC Planning Committee meeting following this meeting at 11:00 a.m.

5. COMMENTS BY THE PRESIDENT (MARK RICHER)

Mark Richer (ATSC) reported on current activities within the ATSC.

5.1 Status of Ballots

The status of ballots is detailed in **Attachment 4**. Mr. Richer noted that TSG-799, "Corrigendum No. 1 to A/54A, Guide to the Use of the ATSC Digital Television Standard," has been published and that final publication is pending on:

- TSG-720, "Corrigendum No. 1 to A/78, Transport Stream Verification"
- TSG-717, "System Renewability Message Transport"
- TSG-800-1 through TSG-800-6, "Partitioning of ATSC Digital Television Standard (A/53), Revision E, Parts 1 through 6"

In addition, comment resolution is still underway on TSG-716, "ATSC Parameterized Services Standard."

5.2 Other

Other items included in Mr. Richer's report included the following:

- The Planning Committee has begun work on key elements of the ATSC Strategic Plan, in particular mobile and non-real-time applications. He encouraged interested persons to participate in this work.
- Monique Seguy has joined the ATSC as our new Office Manager. She is currently a graduate student at George Washington University, and planning to go to law school next year. Mr. Richer said he is hopeful she will attend law school here in Washington so she will be able stay with the organization for a few years.
- ATSC is organizing the "DTV HotSpot" for the 2007 NAB Convention. Mr. Richer encouraged organizations interested in participating in the event to contact ATSC headquarters.
- The ATSC Annual Meeting is set for May 17 in the Washington D.C. area. The program is expected to focus on the Strategic Plan.

6. BRIEF REPORTS ON ACTIONS FROM THE PREVIOUS MEETING

The following action items were developed at the December 13 meeting of the Technology and Standards Group.

- 1) Jerry Whitaker to update CS/TSG-696r1, as posted on the ATSC Web site, to show a Candidate Standard period ending 20 May 2007.
Completed.
- 2) Pat Waddell to work with Mike Dolan and Jerry Whitaker to develop appropriate explanatory text for the ATSC web site posting of CS/TSG-674r1.
Carried forward. On agenda.
- 3) Jerry Whitaker to post S6-434r3 as a Candidate Standard for a period of time ending 20 September 2007.
Carried forward. On agenda.
- 4) Jerry Whitaker to update CS/TSG-658r1, as posted on the ATSC Web site, to show a Candidate Standard period ending 31 December 2007.
Completed.
- 5) Jerry Whitaker to update CS/TSG-659r2, as posted on the ATSC Web site, to show a Candidate Standard period ending 31 December 2007.
Completed.
- 6) Jerry Whitaker to update CS/TSG-674r1, as posted on the ATSC Web site, to show a Candidate Standard period ending 31 December 2007.
Completed.
- 7) Jerry Whitaker to update the published version of CS/TSG-660r1 to show a Candidate Standard period ending 31 December 2007.
Completed.
- 8) Rich Chernock to work with Jerry Whitaker to develop text for the ATSC web site posting of A/78 indicating that certain changes to the document will be forthcoming.
Completed.

7. NEW WORK ITEMS

Mr. Richer reported there are two new TSG work items from the Board of Directors, both of which come out of the ATSC Strategic Plan:

- Audio implementation, focusing on synchronization and levels (see page 7 of the Plan)
- Consider enhancements that relate to fixed indoor reception performance (see page 12 of the Plan)

Chair Miller assigned the audio work to TSG/S6 and the indoor reception work to TSG/S9. He asked the chairs of TSG/S6 and TSG/S9 to review the new work items and to report back to TSG.

8. ARCHITECTURAL TEAM

Chair Miller noted recent specialist group discussions relating to the impact of A-VSB's use of adaptation fields on the ATSC DTV system, both as it is now and what it might evolve into (new codecs, etc.). He said that because of the ripple effects of constraining the transport layer based on the needs of the RF layer below it, there is a need to examine this issue in an overall context beyond the individual scopes of TSG/S3, TSG/S6, TSG/S8, TSG/S9, and TSG/S13. To coordinate this work, Chair Miller said he has established a new TSG ad-hoc-group led by Rich Chernock (Triveni), to examine the following issues:

- Identify all packet types that can not have adaptation fields, and their potential frequency.
- Identify packet types that can or must have adaptation fields.
- Determine if it is technically feasible to pre-format packets that must have adaptation field data so a downstream turbo data inserter will not overwrite the adaptation field data.

Chair Miller asked Mr. Chernock to bring back a preliminary report at the next meeting. He encouraged persons interested in contributing to this effort to participate in the new AHG.

Pat Waddell (Harmonic) noted the need for liaison with DVB on certain issues relating to adaptation fields. Chair Miller asked Mr. Waddell to follow-up with Mr. Richer and Mr. Chernock.

9. REPORT OF THE TSG-1 AD-HOC GROUP (RICH CHERNOCK)

Mr. Chernock reported that additional issues have been identified in A/78, "Transport Stream Verification," and that he has worked up a revision of the Recommended Practice to address them. That document is currently out for comments in TSG-1.

Chair Miller proposed that, following resolution of any comments on the revision from TSG-1, the Working Draft will be distributed to TSG for comment for a period of two weeks, after which (assuming no further changes are identified), he will authorize a letter ballot as a Proposed Standard. The committee agreed to this approach.

10. REPORT OF THE SPECIALIST GROUP ON PSIP METADATA COMMUNICATION, TSG/S1 (ART ALLISON)

Art Allison (NAB), chair of TSG/S1, noted that the specialist group has not met in some time. He said there may be certain issues to deal with after SMPTE S22-10 has completed its work.

10.1 TSG/S1 Action Items

No action items relating to TSG/S1 were developed at this meeting.

11. REPORT OF THE SPECIALIST GROUP ON DIGITAL ENG, TSG/S3 (DANE ERICKSEN)

Dane Ericksen (Hammett & Edison, representing SBE), Chair of TSG/S3, briefed the committee on current activities within the specialist group (**Attachment 5**).

11.1 Status Report

Mr. Ericksen reported that an updated version (revision 2) of CS/TSG-696, "Candidate Standard: ATSC Automatic Transmitter Power Control Data Return Link Standard," has been approved by TSG/S3 and published on the ATSC web site. He said editorial changes were made to Section 6.2.3 to clarify units (dBc versus dB).

Mr. Ericksen noted that progress is being made on the ATSC Field Communications System Working Draft (S3-061r13), although at a slower pace than expected. He said TSG/S3 hopes to have a document ready for formal consideration by TSG in time for the May 16 meeting.

Mr. Ericksen said that an in-person meeting of TSG/S3 has been scheduled for Tuesday April 17 in Las Vegas. The meeting will be held in the Las Vegas Hilton Board Room, from 3:00 p.m. until 4:00 p.m. PST.

11.2 TSG/S3 Action Items

No action items relating to TSG/S3 were developed at this meeting:

12. REPORT OF THE SPECIALIST GROUP ON VIDEO AND AUDIO CODING, TSG/S6 (PAT WADDELL)

Pat Waddell (Harmonic), Chair of TSG/S6, provided a status report on the work of the specialist group (**Attachment 6**).

12.1 Draft Amendment #1 to A/53 Part 4

Mr. Waddell called attention to S6-434r3, "Working Draft Amendment No. 1 to ATSC Digital Television Standard, Doc. A/53, Part 4:2007, MPEG-2 Video System Characteristics, Userdata," which was elevated to Candidate Standard status by TSG on December 13. This document facilitates movement of the `cc_data()` structure into CEA 708, and facilitates the use of a common `cc_data()` structure in other codecs and transports. He noted that during the TSG discussion at the last meeting, issues were raised that TSG/S6 was asked to address. These were discussed and largely resolved during the specialist group's January 8 meeting. Mr. Waddell reported that TSG/S6 plans to review a new version of the Working Draft at its next meeting. Upon resolution of these issues, the Candidate Standard will be published.

12.2 Document Structure and Updates for Other TSG/S6 Candidate Standards

Mr. Waddell called attention to the two Candidate Standards relating to advanced codecs, specifically:

- CS/TSG-658r1, "Candidate Standard: Amendment to ATSC Digital Television Standard, Doc. A/53D, to define Video System Characteristics of VC-1 as new Annex F"
- CS/TSG-659r2, "Candidate Standard: Amendment to ATSC Digital Television Standard, Doc. A/53D, to define Video System Characteristics of AVC as new Annex F"

He reminded the committee that on December 13 TSG extended the Candidate Standard status of both these documents until 31 December 2007. He also noted that updates are required to both documents, which TSG/S6 intends to address.

Mr. Waddell questioned whether TSG/S6 should change the current document structure—cast as a new Annex of the old A/53—into standalone Standards (one for AVC and another for VC-1). He said TSG/S6 had tentatively concluded that standalone Standards would be a better approach. This structure would include both coding and transport constraints, which would require coordination with TSG/S8.

Mr. Waddell also noted that CS/TSG-674r1, “Candidate Standard: Draft Amendment to ATSC Digital Television Standard, Doc. A/53D Annex A,” also must be updated to reflect recent changes, including the partitioned A/53 and the new closed captioning structure described in S6-434 (see above). He said the caption-related information will be removed from CS/TSG-674r1, leaving format changes to Table 3 as a Proposed Amendment to A/53, Part 4:2007.

Discussion focused on the proposal to redraft CS/TSG-658r1 and CS/TSG-659r2 into standalone Standards. Craig Tanner (Sharp) noted that coding and transport Candidate Standards have been approved for AVC, but for VC-1 only a coding Candidate Standard has been approved. He inquired, then, whether TSG/S6 intended to proceed to develop standalone documents for both AVC and VC-1. Mr. Waddell said he expected to move forward with both.

Mr. Tanner reminded the committee that the Candidate Standard for VC-1 transport had been defeated twice at previous meetings, and said that document restructuring does not allow TSG to resurrect it. Chairman Miller interrupted Mr. Tanner, saying that he felt he was out of order. Mr. Tanner questioned the Chairman’s determination that he was out of order. Support for Mr. Tanner’s position was voiced by Mark Eyer (Sony) and John Henderson (Hitachi). Chair Miller explained that this specific discussion was narrowly scoped to the structure issue.

Discussion followed on how the proposed revisions should move forward. Mr. Eyer suggested that this question, since it involves multiple specialist groups, should be addressed by the Architecture Team. Chair Miller agreed.

Chair Miller acknowledged Mr. Tanner’s point with regard to the VC-1 transport specification, saying he had raised a valid concern. That being the case, Chair Miller said the work priority should be focused on the AVC documentation. He said that until a VC-1 transport specification is approved by TSG—either as a Candidate Standard or a Proposed Standard—the combined VC-1 standalone specification could not move forward. In the meantime, he said TSG/S6 should proceed to update CS/TSG-658r1 as appropriate.

12.3 A-VSB

Mr. Waddell reminded the committee that TSG/S6 was requested to examine potential issues due to A-VSB’s use of the adaptation field. He said the subject was discussed within the specialist group and a potential collision with a possible use for MPEG-4 AVC was identified. He noted that A-VSB proponents have proposed a solution for the MPEG-4 AVC situation.

12.4 Low Bitrate Coding

Mr. Waddell and Chair Miller discussed the status of this item, which began as an inquiry from the Planning Committee. Chair Miller summarized the scope of the work that TSG/S6 was asked to undertake. Namely, to do a calculation to determine the minimum bit rate possible to encode an MPEG-2 image based on the existing constraints of A/53, Part 4:2007. Discussion followed on the need for this information on the part of broadcasters. Sam Narasimhan (Motorola) called attention to calculations he has made in this regard. Mr. Waddell said he would post Mr. Narasimhan’s calculations to the TSG/S6 reflector.

12.5 Other Items

Walt Husak (Dolby) reported that his company has undertaken a study on DTV audio implementation issues, which he offered to share with TSG/S6. Mr. Waddell said this would be a valuable first step in addressing the new work item from the Board.

12.6 TSG/S6 Action Items

The following action items relating to TSG/S6 were developed at this meeting:

- Pat Waddell to work with Mike Dolan and Jerry Whitaker to develop appropriate explanatory text for the ATSC web site posting of CS/TSG-674r1.
- Jerry Whitaker to post S6-434 as a Candidate Standard for a period of time ending 20 September 2007 upon completion of work on the document by TSG/S6.
- Pat Waddell and TSG/S6 to review the new work assigned by the Board relating to audio implementation issues, specifically levels and time sync with video, and report back to TSG at the next meeting on a plan for moving forward.

13. REPORT OF SPECIALIST GROUP ON DATA MULTIPLEX/TRANSPORT, TSG/S8 (MARK EYER)

Mark Eyer (Sony), Chair of TSG/S8, briefed the committee on activities within TSG/S8 (**Attachment 8**).

13.1 S8-6 – Content Identification ad-hoc group

Mr. Eyer reminded the committee that the task of S8-6 was to update A/57A to document ISAN via the MPEG content labeling descriptor; in addition, a “house numbering” scheme based on TSID was included. He said work on the draft document continues in S8-6.

13.2 A-VSB Transport Questions and Issues

Mr. Eyer reported that a questionnaire was sent to multiplexer manufacturers to determine the implementation challenge expected in building a “transmission adapter” that would produce the proposed A-VSB multiplex with one-in-52 cadence for PSI and PSIP packets. He said some respondents indicated it was feasible.

13.3 Other Business

Other items covered in Mr. Eyer’s report included:

- The TSG ballot on Parameterized Services (TSG-716r0) resulted in several comments, which will be reviewed by TSG/S8 at its next meeting.
- TSG/S8 is seeking volunteers to work on an update of A/69, “PSIP Implementation Guidelines for Broadcasters.”
- TSG/S8 is seeking volunteers to help update the AVC transport Candidate Standard (CS/TSG-660r1).

13.4 TSG/S8 Action Items

No new action items relating to TSG/S8 were developed at this meeting.

14. REPORT OF THE SPECIALIST GROUP ON RF TRANSMISSION, TSG/S9 (CHARLES EINOLF)

Charles Einolf (MSTV/CBS), Chair of TSG/S9, reported on current work within the specialist group (**Attachment 9**).

14.1 Status Report

Mr. Einolf updated the committee on the A-VSB testing program. He said the laboratory tests have been completed and that the S9-5 ad-hoc group has analyzed the results and produced a report, which was reviewed by TSG/S9 yesterday. He added that the field test plan is currently being developed by S9-5.

Mr. Einolf noted that A-VSB evaluation criteria were discussed at some length at yesterday's meeting, with further work planned for future meetings.

14.2 TSG/S9 Action Items

The following action items relating to TSG/S9 were developed at this meeting.

- Charles Einolf and TSG/S9 to review the new work assigned by the Board relating to possible enhancements to fixed indoor reception and to report back to TSG at the next meeting on a plan for moving forward.

15. REPORT OF THE SPECIALIST GROUP ON DATA BROADCAST, TSG/S13 (MIKE DOLAN)

Mike Dolan, Chair of TSG/S13, updated the committee on work within the specialist group (**Attachment 10**).

15.1 SRM

Mr. Dolan noted that the ATSC ballot on TSG-717r1, "Proposed Standard: System Renewability Message Transport," resulted in several comments that are being addressed by ATSC staff and the TSG chair. Publication is expected shortly.

15.2 EAS

Mr. Dolan reported that work has begun on the EAS transport New Work Item. He said that standing teleconferences have been set for every other week. He said the scope of the work is being refined, with requirements to be documented soon.

15.3 TSG/S13 Action Items

No action items relating to TSG/S13 were developed at this meeting.

16. OTHER BUSINESS

16.1 Liaison Reports

Mr. Narasimhan reported on current MPEG activities, including:

- Work continues on 1080 60P transmission using scalable video coding, which is an extension to AVC. He said there appears to be considerable interest on the part of broadcasters and equipment vendors in moving in this direction.
- A new version of MPEG-2 Systems (2007) will be published soon as the third edition.

16.2 Planning Committee

Chair Miller noted that the Planning Committee will meet today beginning at 11:00 a.m. Graham Jones (NAB, PC Chair) highlighted items that are currently underway within the PC, in particular the ACAP field trial project. He said this work has identified certain issues that may need to be addressed by TSG/S2 relating to A/101.

17. SCHEDULE OF NEXT TSG MEETINGS

The 2007 schedule of meetings is as follows: May 16, September 20, and November 29.

18. ADJOURNMENT

There being no further business before the committee, the meeting was adjourned at 11:07 a.m. EST.

Action Item Summary

The following action items were developed at today's meeting of TSG.

- 1) Pat Waddell and TSG/S6 to review the new work assigned by the Board relating to audio implementation issues, specifically levels and time sync with video, and report back to TSG at the next meeting on a plan for moving forward.
- 2) Charles Einolf and TSG/S9 to review the new work assigned by the Board relating to possible enhancements to fixed indoor reception and report back to TSG at the next meeting on a plan for moving forward.
- 3) Rich Chernock to lead an ad-hoc-group (TSG-3) consisting of specialist group chairs and other interested members to examine the implications of using adaptation fields as proposed for A-VSB and to bring back a preliminary report at the next meeting.
- 4) Jerry Whitaker to set up the necessary reflector and other resources for the TSG AHG on adaptation field usage.
- 5) Pat Waddell to draft liaison to DVB to request appropriate documents relating to adaptation fields and forward it to Mark Richer and Rich Chernock.
- 6) Rich Chernock to resolve comments relating to the working draft revision of A/78 within TSG-1 and then to post the document to the TSG reflector for comment. After a two week comment period, if no further items are raised, ATSC staff will issue a letter ballot on the document as a Proposed Standard.
- 7) The ATSC Architecture Team to discuss possible documentation avenues for the AVC and VC-1 candidate standard documents.
- 8) Pat Waddell to work with Mike Dolan and Jerry Whitaker to develop appropriate explanatory text for the ATSC web site posting of CS/TSG-674r1.
- 9) Jerry Whitaker to post S6-434 as a Candidate Standard for a period of time ending 20 September 2007 upon completion of work on the document by TSG/S6.

ATTACHMENTS

ATTACHMENT 1. Attendance List

ABC/SMPTE	William Miller
Alticast	Thomas Jung
ATSC	Jerry Whitaker
ATSC	Mark Richer
Broadcast Technology Consultants	Steve Smith
CEA	Brian Markwalter
Coherent Logix	Michael Doerr
Conexant	Shlomo Boxerman
Conexant	Tim Kirstein
Consultant/NCTA	Jeff Krauss
Cox Broadcasting	Sterling Davis
Dolby	Walt Husak
ETRI	Heung Mook Kim
ETRI	Yong-Tae Lee
Gannett Broadcasting	Jeff Johnson
Harris	Chris Lennon
Harris	Joe Seccia
Hitachi	John Henderson
Ion Media Networks	Dan Borowicz
MPAA	Krishnan Rajagopalan
Motorola	Sam Narasimhan
MWG/Tribune	S. Merrill Weiss
NAB	Art Allison
NAB	Graham Jones
NBC	Glenn Reitmeier
NCTA	Andy Scott
PBS	James Kutzner
Philips	Mark Laramie
Rohde & Schwarz	Mike Simon
Rosum	Scott Furman
Samsung	John Godfrey

Samsung	C.B. Patel
Samsung	Gahyun Ryu
Samsung	Jungpil Yu
Samsung	Joonsoo Kim
Samsung	Hye Jeong Chun
Samsung	Jungwan Ko
Sharp	Tadashi Motoyama
Sharp	Craig Tanner
Sinclair Broadcast Group	Mark Aitken
Sony	Mark Eyer
SpectraRep	Ralph Justus
Techwell, Inc.	Paul Snopko
Triveni Digital	Rich Chernock
UPN	Charles Einolf
Zenith	Wayne Breil

Attending by telephone:

ABC	Tom Hankinson
Auvitek	Jordan Cookman
CBC Technology	Guy Bouchard
CBS	Ren McMann
Comcast Cable Communications	Bill Warga
Cox Communications	Craig Smithpeters
CRC	Yiyan Wu
DIRECTV	Kuriacose Joseph
Harmonic	Patrick Waddell
JVC	John Meehan
MSTV	Victor Tawil
News Corp/Fox	P. J. Harr
Nielsen Media Research	Michael Dolan
Panasonic Corporation	Peter Fannon
Pioneer Research Center USA	Rich Annibaldi
Sarnoff	Hans Baumgartner
SBE	Dane Ericksen

Scientific Atlanta, a Cisco Company	Arturo Rodriguez
Sinclair	Mark Aitken
Sun Microsystems	Bill Sheppard
TANDBERG Television	Richard Pearson
Thomson	Brett Jenkins
Time Warner Cable	Steve Johnson
Toshiba America	John Gawel

ATTACHMENT Links

ATTACHMENT 2. TSG-729r0, Draft Agenda

http://www.atscmembers.org/sg/T3/2007_02_08/documents/Attachment-2-TSG-729r0-Agenda-2007-02-08.doc

ATTACHMENT 3. TSG-714r2, Draft Minutes of December 13 Meeting

http://www.atscmembers.org/sg/T3/2007_02_08/documents/Attachment-3-TSG-714r2-Minutes-2006-12-13.doc

See also:

http://www.atscmembers.org/sg/T3/2007_02_08/documents/Attachment-3-TSG-714r3-Minutes-2006-12-13.doc

ATTACHMENT 4. TSG-732r0, Status of Ballots

http://www.atscmembers.org/sg/T3/2007_02_08/documents/Attachment-4-TSG-732r0-Status-of-Ballots.doc

ATTACHMENT 5. TSG/S3 Status Report

http://www.atscmembers.org/sg/T3/2007_02_08/documents/Attachment-5-S3-SEVENTH-status-report-rev2.ppt

ATTACHMENT 6. TSG/S6 Status Report

http://www.atscmembers.org/sg/T3/2007_02_08/documents/Attachment-6-S6-445r2-S6-Report-to-TSG-for-020807-final.ppt

ATTACHMENT 7. Low Bit Rate Video

http://www.atscmembers.org/sg/T3/2007_02_08/documents/Attachment-7-S6-446-low-bitrate-video.doc

ATTACHMENT 8. TSG/S8 Status Report

http://www.atscmembers.org/sg/T3/2007_02_08/documents/Attachment-8-S8-670r1-S8-Status-Report-2007-02.ppt

ATTACHMENT 9. TSG/S9 Status Report

http://www.atscmembers.org/sg/T3/2007_02_08/documents/Attachment-9-ATSC-TSG-S9-Status-February-2007.ppt

ATTACHMENT 10. TSG/S13 Status Report

http://www.atscmembers.org/sg/T3/2007_02_08/documents/Attachment-10-S13-370r0-Status-20070208.ppt

ATTACHMENT 11. TSG-728r0, TSG Voting Eligibility

http://www.atscmembers.org/sg/T3/2007_02_08/documents/Attachment-11-TSG-728r0-Voting-After-12-13-06.xls

