

Minutes, Technology Group on Distribution 24 June 2003

Advanced Television Systems Committee

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The Advanced Television Systems Committee, Inc., is an international, non-profit organization developing voluntary standards for digital television. The ATSC member organizations represent the broadcast, broadcast equipment, motion picture, consumer electronics, computer, cable, satellite, and semiconductor industries.

Specifically, ATSC is working to coordinate television standards among different communications media focusing on digital television, interactive systems, and broadband multimedia communications. ATSC is also developing digital television implementation strategies and presenting educational seminars on the ATSC standards.

ATSC was formed in 1982 by the member organizations of the Joint Council on InterSociety Coordination (JCIC): the Electronic Industries Association (EIA), the Institute of Electrical and Electronic Engineers (IEEE), the National Association of Broadcasters (NAB), the National Cable Television Association (NCTA), and the Society of Motion Picture and Television Engineers (SMPTE). Currently, there are approximately 140 members representing the broadcast, broadcast equipment, motion picture, consumer electronics, computer, cable, satellite, and semiconductor industries.

ATSC Digital TV Standards include digital high definition television (HDTV), standard definition television (SDTV), data broadcasting, multichannel surround-sound audio, and satellite direct-to-home broadcasting.

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Minutes (draft)
ATSC Technology Group on Distribution (T3)

Harris Corporation, Mason, OH
June 24, 2003

1. WELCOME, INTRODUCTIONS, AND DETERMINATION OF QUORUM

Chairman Ralph Justus (CEA) called the meeting to order at 10:00 a.m. at the headquarters of Harris Corporation in Mason, OH. He thanked Harris for hosting the meeting and welcomed those in attendance. Jay Adrick (Harris) added his welcome to the group and acknowledged the excellent turnout.

Chairman Justus asked each person to identify him or herself. The attendance list is given in **Attachment 1**. Secretary Jerry Whitaker (ATSC) reported that a quorum was present.

2. APPROVAL OF PROPOSED AGENDA

Chairman Justus asked for consideration of the draft agenda (**Attachment 2**). Jill Boyce (Thomson) requested the addition of a discussion item "Thomson/Sarnoff Robust Mode Enhancement Proposal". Chairman Justus suggested making this agenda item 18.2; the committee accepted this change. Sung Hoon Kim (ETRI) requested the addition of an agenda item "ETRI SFN Project." Chairman Justus suggested making this agenda item 18.1.1; the committee accepted this change. No further changes were suggested and the agenda was accepted as amended.

3. APPROVAL OF THE DRAFT MINUTES OF MARCH 12, 2003 MEETING

Chairman Justus called member's attention to the draft Minutes of the March 12, 2003, T3 meeting, which were distributed to the T3 reflector on May 25 (**Attachment 3**). Mr. Whitaker stated that two editorial corrections had been identified prior to today's meeting. Wendy Aylsworth (Warner Bros.) requested that the number of abstentions recorded during the Agenda Item 9.1 (EVSB ballot) vote be noted in the Minutes. This suggestion was accepted by the committee. No further changes were requested and the draft Minutes were accepted as amended.

4. OPENING REMARKS

Chairman Justus observed that T3 has made considerable progress in moving important documents forward since the last meeting, and he thanked all participants for their hard work. He reminded the group that today's agenda was quite full, with important decisions to be made. He urged all committee members to keep time constraints in mind as the meeting progressed.

5. COMMENTS BY THE PRESIDENT (MARK RICHER)

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

5.1 Status of Ballots

Mr. Richer briefed the committee on the status of current ballots. For ATSC Membership ballots:

- **PS/65B**: approved 18 March 2003, 21 yes, 0 no; editorial privilege approved 21 yes, 0 no.
- **A/53B Amendment 2**: approved 19 May 2003; 27 yes, 1 no; editorial privilege approved 30 yes, 2 no.
- **Content Identification and Labeling for Transport**: closes 1 July 2003.

For T3-related ballots:

- **E-VSB A/53B Annex D Revision:** approved 27 May 2003; 16 yes, 14 no; editorial privilege approved 20 yes, 9 no.
- **Content Identification and Labeling for Transport:** approved 12 March 2003; 13 yes, 0 no; editorial privilege approved 13 yes, 0 no.

5.2 Other

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

- Work continues on DASE/OCAP harmonization. He said two in-place meetings have been held since the March 12 T3 meeting and that considerable progress has been made.
- ATSC staff is working to organize a two-day seminar on PSIP, tentatively set for October 22-23 in the Washington area. He urged interested persons to contact Mr. Whitaker for additional information.
- ATSC staff is exploring the logistics of operating a bulletin board for the professional community as a way to promote the organization and its work. He said staff is also considering expanding the computer capacity of the ATSC office in the interest of providing back-up for the email reflectors and possibly hosting the website in-house.
- The Ballot Page in the Members Only area of the ATSC Web site has been expanded to include additional information, including an archive of ballot comments. The direct link is http://www.atsc.org/sg/Ballot/ballot_status.html.

6. BRIEF REPORTS ON ACTIONS FROM THE PREVIOUS MEETING

The following action items resulted from the T3 meeting of March 12, 2003.

- 1) Justus to fill the chair position for the newly-formed Ad-Hoc Group on Implementation Guidelines for the Robust Mode. *Carried forward*
- 2) Specialists groups T3/S6, T3/S9, and T3/S10 are directed to review their respective annexes to A/53B to identify whether any revisions and/or updates are necessary to bring the document into conformance with changes approved in Amendments 1 and 2 and current practice, and to report back to T3 at the next meeting with suggestions for moving forward. *On agenda*
- 3) Tollefson to forward to ATSC staff T3/S9-091r4, "Working Draft Revision of A/53B Annex D," for the purpose of issuing a T3 ballot as a Proposed Standard. Prior to distribution of the letter ballot, Whitaker to assign a T3 number. *Completed*
- 4) Weiss to draft suggested wording for an informational document to accompany the T3 ballot on "Working Draft Revision of A/53B Annex D" and forward it to the Architecture Team, which will then produce the final document. Dolan and Architecture Team to resolve any differences and, upon completion, forward said document to ATSC staff for distribution with the A/53B Annex D Amendment ballot. *Completed*
- 5) Adams to report the consensus of T3 that every effort should be made by T3/S17 to complete the specified work relating to DCAP in the timeframes outlined by the Board. *Completed*
- 6) Eyer to forward to ATSC staff Amendment 2 to A/53B, as documented in T3-580r2 with the modifications relating to PID values approved at the March 12 meeting, for the purpose of issuing a membership ballot. *Completed*

- 7) Eyer to form a ballot reconciliation group to address ballot comments (if any) received during the T3 ballot of T3-581r1 and to report back to the ATSC President and Chair of T3 with recommendations for moving forward. *Completed*
- 8) Shah to form a ballot reconciliation group to address comments received during the T3 ballot on T3-593r2 and report back to the ATSC President and Chair of T3 with recommendations for moving forward. *Completed*

7. NEW WORK ITEMS FOR DISCUSSION

7.1 Assigned by Board of Directors

Mr. Richer reported that the Board approved a motion at its May 8 meeting directing T3 to ask T3/S10 to report whether they plan to produce an output document, and if so, what type of document (Standard, Recommended Practice, Engineering Guide, etc.) it would be. The motion also asked for an estimate of when this draft document would be ready for consideration by T3. The Board motion required a response by its June 26 meeting.

7.2 Implementation Subcommittee

Art Allison (NAB), chair of the Implementation Subcommittee, said there were no new work items to report to T3.

7.3 Other

No other work items were identified.

8. ARCHITECTURAL TEAM (MIKE DOLAN)

Mike Dolan (TBT) reported that the Architecture Team continues to serve as a valuable forum for inter-specialists group coordination. He said the A-Team's only specific work from the last meeting was to address Action Item 4 (above), which was completed.

9. REPORT OF THE SPECIALISTS GROUP ON DATA BROADCAST, T3/S13 (MIKE DOLAN)

Mike Dolan, Chair of T3/S13, briefed the committee on the recent work of the specialist group.

9.1 Status Report

Mr. Dolan reported that preliminary work has been completed to develop a full revision of A/90, the Data Broadcast Standard. T3 was reminded that it had previously suspended this work of T3/S13 pending completion of a draft DCAP specification.

Mr. Dolan went on to ask for additional feedback from committee members on the plan to delay work on A/90A. Comments were offered from several members including Jeff Krauss (NCTA) and Mark Eyer (Sony). Mr. Krauss suggested that T3 assign an action item to the ATSC Registrar to address certain outstanding `table_type` issues. Specifically, he said there is a conflict in the assigned value for the MGT `table_type` identifying the Long Term Service Table. ANSI/SCTE 65 2002 assigned MGT `table_type` values for the Aggregate Extended Text Table (AETT) to the range 0x1100 through 0x11FF, while the current version of A/90 indicates the MGT `table_type` for the LTST is value 0x1180. Mr. Dolan acknowledged this problem and said that the `table_type` value would be addressed in the planned revision of A/90.

Mr. Allison suggested that a note be added to the ATSC Standards Page calling attention to this problem. Support for Mr. Allison's proposal was voiced by Mr. Eyer and Adam Goldberg (Sharp). This proposal was accepted by the committee.

10. REPORT OF THE SPECIALISTS GROUP ON SATELLITE BROADCAST, T3/S14-A (DIPAK SHAH)

Dipak Shah (DirecTV), Chair of T3/S14A, reported on current activities in the specialists group.

10.1 Review T3 Ballot Comment Resolution

Mr. Shah stated that comments received during the T3 ballot on the Direct-to-Home Satellite Broadcast specification were addressed in a series of teleconferences last month. He reminded the committee that during March 13 T3 meeting, Chairman Justice tasked him with forming an ad-hoc group to resolve comments submitted by Motorola, Sharp, Thales, and Zenith. This Comment Resolution AHG teleconferenced twice to review and resolve all submitted comments. All commenters were invited to participate in the AHG. Document T3-593r2 (**Attachment 4**) incorporates resolution of these comments.

The majority of the comments fell into two categories:

- Changes required to be consistent with other referenced standards, such as A/53B and A/65B
- Clarifications and other editorial changes for better readability

In addition, Mr. Shah said that based on a comment from Motorola relating to future extensions (some of the work being done in DVB-S2), the number of bits allocated to two syntax elements in the satellite VCT were swapped (the modulation_mode and fec_inner were set to 6 and 8 bits instead of 8 and 6 bits, respectively). He said the ballot resolution AHG felt this could be considered a substantive change, but added there are no systems that have been currently deployed using this VCT structure. Moreover, he said, this change will enable inclusion of new modulation schemes being specified in other standards bodies, such as DVB and ITU.

Mr. Shah **moved** that T3 accept the changes made to T3-593 by the comment resolution ad hoc group, as documented in T3-593r2, and elevate T3-593r2 to Proposed Standard. **Second** by San Narasimhan (Motorola). The motion was approved without opposition by a voice vote.

11. REPORT OF THE SPECIALISTS GROUP ON RF TRANSMISSION, T3/S9 (JOHN TOLLEFSON)

John Tollefson (PBS), Chair of T3/S9, provided an overview of the work underway in the specialist group (**Attachment 5**).

11.1 Update on Enhanced VSB Proposed Standard

Mr. Tollefson reported that a large number of comments were received during the T3 ballot on the E-VSB amendment to A/53B Annex D. He said a comment resolution ad hoc group was formed within T3/S9 to analyze and address the comments; this work was conducted in a series of teleconferences held over the past four weeks. Comments received during the E-VSB T3 ballot can be found at: http://www.atsc.org/sg/T3/evsb_ballot_comments/. The completed Ballot Comment Resolution Matrix is given in **Attachment 6**.

Mr. Tollefson explained that while some of the comments pertained to specific technical aspects of the proposed EVSB standard and could be resolved; other comments stated positions and opinions regarding the advisability of moving the Proposed Standard forward. Accordingly, the Ballot Comment Resolution Group resolved those comments it could, addressed all comments, and drafted recommendations for actions in response to concerns expressed in some of the comments. The recommendations are contained in the matrix, and are repeated below:

- 1) Comment resolution group recommends to T3 that the final EVSB ballot (to the membership) be held no later than January 9, 2004, so that other ATSC specialist groups can have a chance to advance their work on audio/video coding and transport for the robust stream.
- 2) Comment resolution group recommends that T3 urge the industry to rapidly construct advanced EVSB hardware consistent with advances in receiver design, including substantial exploitation of potential normal mode improvements.

- 3) Comment resolution group recommends that T3 ask the ATSC Board of Directors to carefully consider the best way to communicate the capabilities of this new technology.
- 4) Comment resolution group encourages T3 to move forward with development of a "Recommended Practice" to advise broadcasters of various options available (and potential pitfalls) when using robust mode.
- 5) Documentation will be clarified to distinguish between "MPEG packet streams" and "MPEG streams."
- 6) Comment resolution group recommends that T3 instruct T3/S8 to develop and document the necessary additional processing for the correct and timely delivery of packets to the EVSB system inputs.
- 7) Comment resolution group recommends that T3 continue evaluating other potential improvements to the DTV standard.

Recommendations 8 and 9 deal with editorial comments and were generally accepted by the ballot comment resolution group (see **Attachment 6**).

Mr. Tollefson went on to thank the contributors for their time and efforts to work through the ballot comments and draft the foregoing recommendations. He stated his desire to place a motion on the floor, but Chairman Justus suggested that the committee first engage in discussion on the comment resolution group's recommendations.

Questions were offered by committee members regarding specific items documented by the ballot resolution group. A number of comments focused on Recommendation 1 (above). Mr. Tollefson offered additional detail as appropriate. Mr. Richer pointed out that if T3 takes no action today on the ballot comment resolution recommendations, this Proposed Standard would go forward to a vote of the full ATSC membership.

Mr. Krauss suggested that the EVSB Amendment to A/53B should move forward as a single package that includes the current work of T3/S8 (transport) and T3/S6 (audio/video coding). Support for this approach was voiced by Mr. Eyer, Mr. Goldberg, Patrick Waddell (Harmonic), Sam Narasimhan (Motorola), Ren McMann (CBS), and others. Robert Seidel (CBS) said that the A/53B Amendment should be held until all of the system elements are defined. Craig Tanner (Sharp) argued that potential applications should also be defined before moving forward.

Mr. Allison argued against this approach, saying that the A/53B Annex D amendment should go forward, since it essentially specifies a modem, which can be considered on its own. Wayne Bretl (Zenith) agreed, saying there was no need to further delay this specification. Support for this position was offered by Tom Hankinson (ABC), Wayne Luplow (Zenith), and Merrill Weiss (Tribune).

Mark Aitkin (Sinclair) suggested that accepting Recommendation 1 (above) might be more acceptable if a strong emphasis is placed on Recommendation 2. Robert Rast (LINX), called attention to the close T3 votes on this subject, and suggested that delaying a membership vote, which would provide an opportunity for differing views to be reconciled, could be important to moving this specification forward.

Ms. Aylsworth questioned whether any FCC action on the proposed robust mode was anticipated or required. Mr. Richer said it was unclear whether formal FCC action was needed, and in any event, he added, the ATSC Board of Directors would determine what position to take with the Commission, if any. Glenn Reitmeier (NBC) suggested that the robust mode system would need to receive FCC approval to be broadcast, and that in order receive such approval, a strong, compelling application would need to be identified.

Mr. Richer cautioned against T3 considering action that would essentially modify a decision previously approved by T3. He voiced support for the general approach outlined by the comment reconciliation group report, and urged T3 to find a common ground among the various viewpoints expressed. Mr. Richer went on to thank Mr. Tollefson and David Layer (NAB) for their outstanding work in the comment resolution process.

Mr. Tollefson concluded the discussion by urging that T3 accept the recommendations of the comment resolution group and define a path forward for the robust transmission mode.

Mr. Eyer **moved** that the ballot to the ATSC membership of the EBSV amendment to A/53B Annex D be delayed until the other specialists groups involved (T3/S6 and T3/S8) are ready to ballot their amendments. **Second** by Mr. Tanner.

Mr. Allison called a *point of order*, saying that Mr. Tollefson had already indicated his intention to make a motion, and furthermore he said that taking action to delay a Proposed Standard is not permitted by the ATSC Bylaws. Mr. Richer expressed procedural concerns about the motion because it would make membership ballot of the T3-approved Annex D (E-VSB) contingent upon further deliberations of Specialist Groups. He strongly urged T3 to not go down this road. Mr. Richer said that he thought that it would be procedurally incorrect, and subject to challenge. He also said that he thought that the recommendation of the comment resolution group was both responsive to the comments and was procedurally justifiable because it had a date certain to move the membership ballot forward.

William Miller (SMPTE)—speaking in his capacity as Chair of T3/S6—argued against the motion, saying that it imposes unfair pressures on the specialists group involved, specifically T3/S6 and T3/S8. This position was supported by Rich Chernock (Triveni/Zenith) and Mr. Weiss. Mr. Allison said the motion was inappropriate and seriously flawed. Mr. Miller reviewed the ATSC Procedures and, speaking on behalf of SMPTE, supported Mr. Allison's assertion that the motion was out of order because it proposed action not allowed under Clause 10.4.2 of the ATSC Bylaws.

Speaking in favor of the motion, Ms. Aylsworth said that the motion simply replaces the date specified in Recommendation 1 with a specific requirement for completion of work. Mr. Eyer said the proposed approach reflects good engineering practice—that being to fully define a system before approving it.

Mr. Eyer suggested that the motion on the floor could be amended to add a date certain where the document would go forward; he suggested June 1, 2004. Subsequent discussion focused on possible modifications to the Eyer motion. Mr. Eyer formally revised his motion to read “**moved** that the ballot to the ATSC membership of the EVSB amendment to A/53B Annex D be delayed until the other specialists groups involved (T3/S6 and T3/S8) are ready to report out consensus on their related work to T3, or June 1, 2004, whichever is sooner.” This amended motion was accepted by Mr. Tanner, who seconded the original motion.

Chairman Justus attempted to find a common ground among the viewpoints, and he urged that members consider the issues involved and find a compromise position. He offered suggestions on possible routes to move forward. Mr. Richer urged that T3 try to reach an agreement that would be strongly supported rather than one approved by a slim majority. Following additional discussion, Chairman Justus called the question. The motion was **approved** by a roll call vote of 15 yes, 14 no (the voting record is given in **Annex A**).

The remaining eight recommendations of the ballot resolution AHG were not discussed.

11.2 Update on Distributed Transmission Candidate Standard

Mr. Tollefson updated the committee on the status of the Distributed Transmission Candidate Standard (the current version is CS-110A). He said the Candidate Standard status for this specification is due to expire on July 31, 2003, and that further action is needed by T3. Options include:

- Elevating the document to Proposed Standard, which would send it to the ATSC membership for a letter ballot
- Extending the Candidate Standard status for a specified period of time
- Returning the document to Working Draft status and referring it back to T3/S9 for additional work

Mr. Tollefson said he felt the document should be advanced to Proposed Standard status, since it has fulfilled all of the requirements of the Candidate Standard process, with at least one field implementation already underway. He also called attention to correspondence from Axcera supporting the advancement of CS/110A to Proposed Standard (**Attachment 7**).

Mr. Tollefson recommended elevating the Distributed Transmission Candidate Standard to Proposed Standard status, pending final approval from T3/S9. He said the specialists group has been focused on EVSB and needs to revisit CS/110A (T3/S9 plans to meet by telephone in several weeks to reconsider the Distributed Transmission Candidate Standard). Mr. Tollefson requested that T3 act today to elevate CS/110A to Proposed Standard, but make it contingent on positive action from T3/S9. In this way, he explained, the specification can go forward without waiting until September for T3 to meet again.

Comments were offered on CS/110A from several members, including Mr. Weiss, Mr. Allison, C. B. Patel (Samsung), Mr. Goldberg, Steve Smith (Liberty), Mr. Siedel, and Mr. McMann. Mr. Weiss said there is considerable interest on the part of broadcasters to move forward with distributed transmission systems as a way of solving certain coverage problems. He said that CS/110A has met all of the requirements for the Candidate Standard process.

Mr. Richer commented it was important for committee members to separate the various issues involved in the implementation of a distributed transmission system. Specifically, he said, CS/110A defines only a method of transmitter synchronization. He pointed out that interference issues and backward compatibility—while very important—are separate questions.

Chairman Justus suggested that, based on the discussion today, the Candidate Standard status for CS/110A should be extended until the September 10 T3 meeting so that T3/S9 can finish its review of the distributed transmission synchronization system.

Mr. Siedel **moved** that Candidate Standard status for CS/110A be extended until September 10, 2003, so that T3/S9 can complete work on the document. **Second** by Mr. Patel. Following additional discussion, the motion was **approved** on a show of hands.

12. REPORT OF THE SPECIALISTS GROUP ON PSIP METADATA COMMUNICATION, T3/S1 (GRAHAM JONES)

Graham Jones (NAB), Chair of T3/S1, outlined the recent work of the specialists group (**Attachment 8**).

12.1 Status Report

Mr. Jones reviewed the current T3/S1 work item, specifically the development of a standard for exchange of PSIP-related metadata between systems and equipment that affect production of the transport stream and PSIP tables. He said this work is on a fast track because of feedback from

vendors and end-users that such a standard is needed in the market to solve a number of pressing problems. There are six active ad hoc groups:

- Glossary
- System
- Content ID
- Transport
- XML Schema
- Metadata Dictionary

In addition, coordination and liaison efforts involve T3/S8, T3/S13, IS-CCWG, and SMPTE.

Mr. Jones went on to provide a progress report on the T3/S1 work, including a list of outstanding issues. He pointed out that the group has decided to not address metadata for data broadcast at this point, pending further developments in the carriage of data in ATSC transport streams.

Mr. Jones outlined the current T3/S1 work plan; specific dates include:

- First version of working draft, 7/04/2003
- Complete working draft standard, August 2003
- T3 ballot request, 9/10/2003

Regarding possible future work of T3/S1, Mr. Jones identified two areas of interest: 1) extensions for non-PSIP metadata, and 2) data broadcasting.

12.2 Assumptions and Requirements

Mr. Jones reported that T3/S1 has produced a draft Assumptions and Requirements document, which he offered to T3 for consideration (**Attachment 9**). He noted that Requirement 7 is still under review by the specialists group, and that the wording is subject to further revision.

Mr. Allison suggested that, given the timeline planned for the work of T3/S1, a final Assumptions and Requirements document is appropriate. Mr. Jones agreed in concept, however, he pointed out that a number of issues are involved and that the specialists group is continuing to work through the remaining points. Mr. Jones said he welcomed input from T3 members, and that he would post updated wording to the T3 reflector once agreement has been reached within the specialists group.

13. REPORT OF THE SPECIALISTS GROUP ON VIDEO AND AUDIO CODING, T3/S6 (BILL MILLER

William Miller (ABC), Chair of T3/S6, reported on current activities within the specialist group (**Attachment 10**). He pointed out that considerable work has been completed since the last T3 meeting, conducted during 9 teleconference calls.

13.1 Advanced Audio/Video Coding

Mr. Miller reported that work continues to evaluate responses to the Request for Information (RFI) released by the specialists group relating to advanced audio/video coding for the robust transmission mode. T3/S6 has held a series of meetings to analyze the proposals, with the goal of identifying common points and promising technologies.

Mr. Miller reported that of the five candidate video systems, two remain under consideration; of the six candidate audio systems, three remain under consideration. He said the evaluation criteria are focused on the *fallback mode*, which is likely to be a common application and is also likely to be the most demanding in terms of synchronization requirements.

Specifically, Mr. Miller reported that, for video coding:

- MPEG-4 part 2 has been set aside (insufficient coding gain over MPEG-2).
- The Philips and On2 proposals have been withdrawn (they were supported only by their original proponents).
- AVC (H.264 or MPEG-4 part 10) has wide support in the specialists group.
- Windows Media 9 has some additional support in the specialists group.

For audio coding:

- Atrac-X, iBiquity iPAC, and MP3/MP3Pro have been withdrawn (they were supported only by their original proponents).
- AAC w/SBR, Enhanced AC-3, and Windows Media 9 have about equal amounts of support in the specialists group.

Mr. Miller went on to give a detailed description of key issues being considered by T3/S6 in its examination of the remaining proponent systems. These issues include transport, synchronization, and metadata. The extent of documentation and availability of proponent specifications have also received attention in the specialists group.

Mr. Miller outlined the plans of T3/S6 for moving forward with this work. He said the specialists group would continue on an aggressive meeting schedule during the summer months.

13.2 Document Maintenance

Mr. Miller reported that T3/S6 has completed its work on the revision of A/54 Section 5 (Video Coding). He said the group decided to delete most of the MPEG tutorial, since this information is available elsewhere in a number of documents and publications. Other changes include:

- Updated references as appropriate
- Updated format table; added informative reference to SCTE 43
- Removed default colorimetry, as in A/53B
- Added sections on Active Format Description and Bar Data

Mr. Miller acknowledged that work by T3/S6 to update parts of A/53B and A/63 needs to be addressed, however, he said both of these projects are currently on hold in order to deal with the more pressing issue of audio/video coding.

14. REPORT OF SPECIALISTS GROUP ON DATA MULTIPLEX/TRANSPORT, T3/S8 (MARK EYER)

Mark Eyer (Sony), Chair of T3/S8, reported on current activities in the specialist group (**Attachment 11**).

14.1 Robust Transport Ad Hoc Group

Mr. Eyer said that progress continues to be made in the Robust Transport AHG regarding SI/PSI service structure signaling and announcements. Work completed includes:

- Detailed protocol for robust/non-robust linkage
- First cut of draft Amendment to A/53

He said current work is focusing on:

- Buffer modeling and analysis
- Buffer memory requirements
- Possible need for changes in the rules for buffer management

Mr. Eyer said his expectation was that by the September 10 T3 meeting, T3/S8 should have the fundamental principles and concepts identified and a solid draft document prepared. He

stopped short, however, of predicting that a robust transport stream document would be ready for formal consideration by T3 at the next meeting.

14.2 MPEG-2 Still Pictures

Mr. Eyer described the MPEG-2 still picture concept, essentially “hold last decoded picture on underflow,” signaled by the `video_stream_descriptor()`. He said this technique is allowed by SCTE 54 and that cable-ready sets will already support it. Mr. Eyer went on to explain the usefulness of this technique, specifically that it is a convenient method of conveying low-bit-rate video. He offered that it could be considered for terrestrial broadcast applications.

Mr. Krauss noted that the Application Subcommittee might have an interest in this concept. Chairman Justus suggested that T3 defer to AS on the matter; this was accepted by the committee.

14.3 A/53B Amendment 2

Mr. Eyer said that comments received during the ATSC membership ballot of Amendment 2 to A/53B have been resolved and the document will be published on the ATSC Web site shortly.

14.4 Evolution of A/53

Mr. Eyer pointed out that A/53B currently has two approved amendments and that a third is in progress. He added that the robust transport system would be Amendment 4, and advanced audio/video coding for the robust mode would be Amendment 5. At this point, he suggested, the document is rapidly becoming unwieldy. In particular, Amendment 4 would amend Amendment 2. He suggested that T3 consider producing A/53C to document the state of the standard before the robust mode is added (assuming final approval from the membership of the robust mode). Or, he suggested, the Architecture Team could be asked to examine the issue.

Chairman Justus offered that this would be an appropriate project for the Architecture Team. Mr. Dolan, on behalf of the A-Team, accepted the project and committed to providing a report to T3 prior to the next meeting.

14.5 Content Identification and Labeling

Mr. Eyer reported that comments received during the T3 ballot on the Content Identification and Labeling Proposed Standard have been resolved and that the document is currently at membership ballot. This document is the replacement for A/57 (to be known as A/57A) upon approval of the ATSC membership.

15. REPORT OF THE SPECIALISTS GROUP ON RECEIVERS, T3/S10 (JOHN HENDERSON)

John Henderson (Hitachi), Chair of T3/S10, reported on current work of the specialists group (**Attachment 12**).

15.1 Status Report

In response to the Board motion of May 8, 2003, Mr. Henderson reported that T3/S10 intends to produce a voluntary Recommended Practice on receiver performance as the output document of its current work. He said T3/S10 hopes to complete this document by the end of 2003. The working title is “Recommended Receiver Performance Guidelines.”

15.2 Documentation Issues

Mr. Henderson recommended that T3/S10’s very long contribution to the revision of A/54 be divided into a section on the basic elements of ATSC receiver design, which will be incorporated into WD/54A, and a separate document on more general design considerations—including many references to the patent literature—which he recommended could become a separate Technology Group Report. He said this arrangement provides a better match in content and length to the rest

of A/54, while preserving the useful receiver design information that was documented by the specialists group. The draft document, "Technology Group Report: DTV Receiver Design Considerations" (T3-600) is given in **Attachment 13**.

Mr. Allison suggested clarification of the document to indicate that it is the recommendation of T3 that this document be designated a Technology Group Report by the Board of Directors, as such designation is the domain of the Board. Chairman Justus noted the consensus of the committee to make this change.

Formal consideration of T3-600 was deferred to the discussion of the revision of A/54, which is addressed in Agenda Item 18.3 (of the revised agenda).

15.3 Scope Statement

Mr. Henderson reported that T3/S10 has adopted a new draft Scope to reflect its new work assignment on receiver performance. The text of the statement, distributed to the T3 reflector on June 16, is given below.

"T3/S10 (Receivers) will examine elements of DTV receiver designs, assessing the degree to which performance tradeoffs and complexity are impacted and their relation to FCC DTV planning factors. T3/S10 may also consider whether voluntary performance targets and/or design guidelines might be useful.

Mr. Henderson **moved** T3 approval of the draft Scope (given above). **Second** by Mr. Allison. The motion was approved on a voice vote without objection.

16. REPORT OF SPECIALISTS GROUP ON TRANSACTIONAL SERVICES, T3/S16 (EDWIN HEREDIA)

Edwin Heredia (Microsoft), Chair of T3/S16 provided an update on activities within the specialist group (**Attachment 14**).

16.1 Status Report

Mr. Heredia reported that T3/S16 continues to meet periodically to define a series of core protocols that will enable ATSC receivers to communicate with remote servers, establish secure channels, and exchange data for transactions. He outlined current work of the specialists group, which includes:

- Initial efforts towards harmonization of the Interaction Channel Protocol (ICP) specification with OCAP (both standards are based on TCP/IP and related protocols).
- Subsequent work towards finishing the actual specification (review of initial requirements)
- Analysis of interoperability with related standards (including CEA 2008 Home Network Specification)
- Analysis of wireless interaction channels, which would enable interactive DTV units that use either cellular telephony or wireless networks for return channels.

In response to questions from committee members, Mr. Heredia outlined some of the potential applications being considered for this work.

17. REPORT OF THE SPECIALISTS GROUP ON DASE, T3/S17 (GLENN ADAMS)

Glenn Adams (XFSI), Chair of T3/S17, provided an update on the work of the specialists group.

17.1 Status Report

Mr. Adams reported on the last face-to-face meeting of T3/S17, which was held in Philadelphia at a location shared with a series of scheduled SCTE meetings. He said the T3/S17 meeting was well attended, with representatives from 15 companies in attendance. Specific items covered in Mr. Adam's report included:

- DASE-1, which he said was essentially limited to maintenance issues (errata development)
- DASE-2, which is on hold pending completion of the DCAP process

Mr. Adams reviewed for T3 the current status of the DASE/OCAP harmonization effort, including possible document timeline scenarios. Current plans call for a draft DCAP document to be delivered to T3 for consideration at its September 10 meeting.

Mr. Adams also said that ETRI gave T3/S17 a presentation on mobile data services at the Philadelphia meeting. He said the briefing was interesting and that some DASE extensions might be needed as the ETRI work moves forward.

18. OTHER BUSINESS

18.1 Update on Philips/ETRI Work on Enhanced, Robust VSB Technologies (Sung Hoon Kim)

Sung Hoon Kim (ETRI), following up on a presentation at the March 12 T3 meeting, reported on ongoing VSB enhancement work, including measured test results of the ETRI 4-VSB system (**Attachment 15**). He said ETRI and Philips Research have jointly made backwards compatibility tests of the robust stream system, which is based on a 4-level modulation technique. The tests were conducted at Philips Research in New York using 5 receivers and a 50 percent mix ratio. Tests were performed with both white noise and multipath impairments.

Mr. Kim said the tests demonstrated that the performance of legacy receivers for both the standard stream and a 50 percent robust stream mix was almost identical. This indicated, he explained, that the ETRI 4-level system is 100 percent backwards compatible with existing receivers, confirming the theoretical expectations. **Attachment 16** contains further details of the test.

Mr. Smith outlined for the committee the scope of the joint ETRI/Philips work, and how it might progress through the ATSC process. He suggested that it could be taken up as a VSB enhancement solution independent of other systems. Additional comments on this point were offered by Mr. Tanner, Mr. Krauss, Mr. Weiss, and Mr. Narasimhan.

Chairman Justus said this work was something that should be brought to the attention of T3/S9, and he urged the system proponents to move forward in that domain.

18.1.1 ETRI SFN Project

Seung won Kim (ETRI) reported that the organization is working on a single frequency network (SFN) project based on a new digital on-channel repeater technology. He gave a detailed presentation on the system and its potential, including lab and simulated results (**Attachment 17**). Mr. Kim went on to outline a possible SFN implementation.

Chairman Justus thanked ETRI for the information and urged Mr. Kim to update T3/S9 on the organization's progress.

18.2 Thomson/Sarnoff Robust Mode Enhancement Proposal

Jill Boyce (Thomson) briefed the committee on work conducted by Thomson and Sarnoff regarding possible robust mode transport feature enhancements, which she said could be of considerable interest to both T3/S8(-1) and T3/S6. (See **Attachment 18**.)

Ms. Boyce said the specific request to T3 is that T3-S6 and T3-S8(-1) give joint consideration to the inclusion of certain feature enhancements to the robust mode transport system currently being examined. The feature enhancements proposed are:

- Time diversity (stagger-casting), which she said could serve to improve fallback and mobile service resilience
- Multiple fallback services
- Multiple description coding, including the ability to increase ATSC HD capability

Ms. Boyce went on to outline the history of the proposal as it relates to ATSC specialists group work.

Ms. Boyce said that potential features of the proposed approach include:

- Adding time diversity improves video/audio resiliency in fading channels
- Facilitates multiple fallback services
- Permits multiple description coding, which opens the opportunity to create HD enhancements for high-end products and optimized usage of bandwidth

Ms. Boyce concluded her presentation with a formal request from Thomson and Sarnoff for joint consideration of the proposed enhanced features by T3/S6 and T3/S8(-1).

Mr. Chernock said that the Thomson/Sarnoff proposal certainly has merit, however, he added that it was a complex issue which could only reasonably be addressed later in the work of T3/S8(-1). Mr. Allison—who chairs the T3/S8(1) AHG—agreed, adding that the Requirements Document of T3/S8(-1) would need to be changed to accommodate this proposal.

Mr. Richer suggested that T3/S8(-1) should take another look at the Thomson/Sarnoff proposal. He went on to suggest that the specialists groups involved in the ongoing robust mode work review the direction already given by the Board. Chairman Justus agreed, asking T3/S6, T3/S8, and T3/S13 to review the direction of the Board with regard to the robust mode and to report back at the next T3 meeting on their progress to date.

18.3 Consideration of Working Draft Revision of A/54

Mr. Whitaker, the WD/54A project editor, reported that a complete revision of A/54, the “Guide to the Digital Television Standard,” has been finished. This document, as outlined in previous specialists group reports, is given in **Attachment 19**. T3-586r5, the current version of WD/54A, includes all revisions planned to the document. Mr. Whitaker suggested that a motion to send T3-586r5 to a letter ballot of T3 as a Proposed Recommended Practice would be in order.

Mr. Miller so **moved**. **Second** by Mr. Eyer. The motion was **approved** without objection on a voice vote.

18.3.1 Consideration of T3-600 as an Informational Document

Mr. Whitaker said that formal action by T3 was required to move T3-600 forward, pursuant to Mr. Henderson’s T3/S10 report (agenda item 15). He reminded the committee that the document is an editorial split of the original T3/S10 contribution to WD/54A in which the detailed sections on receiver design were moved to a separate document that—as recommended—eventually would become a Technology Group Report.

Mr. Richer went on to outline the process for approving a Technology Group Report within ATSC. First, he said, T3 needs to approve the document (by a vote or a letter ballot) by a 2/3rds majority as an Informational Document, at which point the Board of Directors will decide whether the document will be considered a Technology Group Report or whether it will be sent to the membership for vote as an Engineering Guide or Recommended Practice.

Mr. Whitaker suggested that a motion was in order to send T3-600, with certain editorial corrections, to a ballot of T3 with the recommendation that it be considered by the Board as a Technology Group Report.

Mr. Allison **moved** to forward T3-600, after a two-week period for review and integration of editorial corrections, to a ballot of T3 as an Informational Document. **Second** by Robert Blanchard (Sony). The motion was **approved** without objection on a voice vote.

18.4 Liaison Reports

Mr. Miller reported that SMPTE has announced it will confer the Progress Medal—its highest medal award—on Stanley Baron, former Chairman of the ATSC Technology Group on Distribution. The announcement was made at the June SMPTE TV Engineering Meetings in Portland, Maine, where Mr. Baron resides.

Chairman Justus offered a resolution of congratulations to Mr. Baron for his long service to the video industry in general, and ATSC in particular. The resolution was approved unanimously, and was followed by a round of applause. The text of the resolution is as follows:

Whereas Stan Baron has been named to receive the prestigious Progress Medal of the SMPTE for “his outstanding contributions to digital television and to worldwide digital television standards”;

And whereas Mr. Baron has served the Advanced Television Systems Committee for many years as Chairman of the Technology Group on Distribution;

And whereas Mr. Baron has been a leader in the development of new technologies relating to television broadcasting for many decades;

Now Therefore Be It Resolved that the Technology Group on Distribution of the Advanced Television Systems Committee acknowledges Mr. Baron’s SMPTE Progress Medal Award with best wishes and great affection.

18.5 Other Business

Mr. Richer suggested an action item for the next T3 meeting to review goals for the coming year. He explained this is a process that the committee should go through each year in preparation for formal consideration by the Board of Directors for overall goals of the organization. Chairman Justus endorsed the suggestion and requested that Mr. Chernock, as T3 Vice Chair, add this item to the September 10 meeting agenda.

19. SCHEDULE OF NEXT T3 MEETINGS

The next meeting of the Technology Group on Distribution will be held on September 10, 2003, in Washington, D.C. The last meeting of the year will be held on December 10, 2003, in Washington.

19.1 2004 Meeting Schedule

Chairman Justus announced that a proposed schedule of 2004 ATSC subcommittee meetings will be developed over the next couple of months. He asked members to provide the dates of any set meetings or events that should be considered as the ATSC meeting dates are planned. Input should be directed to Chairman Justus.

20. ADJOURNMENT

There being no further business before the committee, the meeting was adjourned at 4:00 p.m. EDT.

Action Items Developed at this Meeting

- 1) Dolan to draft text for placement on the ATSC Standards Page by Whitaker relating to certain conflicts in table_type assignments of ATSC A/90 and ANSI/SCTE 65.
- 2) Whitaker and ATSC staff to issue a membership ballot of T3-593r2, the “Direct-to-Home Satellite Broadcast Proposed Standard.”
- 3) Jones to post to the T3 reflector the Assumptions and Requirements document for the current work of T3/S1 when the language is finalized within the specialists group.
- 4) Dolan and Architecture Team to examine the evolution of A/53B documentation in light of amendments necessary for the robust transmission mode, and to report back to T3 with recommendations on moving forward.
- 5) T3/S6, T3/S8, and T3/S13 to review the direction of the Board with regard to the robust mode and to report back at the next T3 meeting on their progress to date.
- 6) Whitaker and ATSC staff to issue a T3 ballot of document T3-586r5, which is a full revision of A/54—the “Guide to the Digital Television Standard.”
- 7) Whitaker and ATSC staff to issue a T3 ballot of document T3-600 as a proposed Informational Document, following a two week comment period for identification of needed editorial corrections—if any.
- 8) Chernock to place on the T3 agenda for the September 10 meeting the following item: “Consideration of T3 Goals for 2004.”

Listing of Attachments

Attachment 1: Attendance List

http://www.atsc.org/sg/T3/2003_06_24/documents/Attachment_1_6-24-03_attendance.doc

Attachment 2: Draft Agenda

http://www.atsc.org/sg/T3/2003_06_24/documents/Attachment_2_draft_t3_agenda_06_24_03.doc

Attachment 3: Draft Minutes from March 12, 2003, T3 Meeting

http://www.atsc.org/sg/T3/2003_06_24/documents/Attachment_3_T3_595r3.doc

Attachment 4: T3-593r2 (DTH Satellite Proposed Standard)

http://www.atsc.org/sg/T3/2003_06_24/documents/Attachment_4_T3_593r2.doc

Attachment 5: T3/S9 Status Report

http://www.atsc.org/sg/T3/2003_06_24/documents/Attachment_5_T3S9_Report_03-06-24.ppt

Attachment 6: T3-601, E-VSB T3 Ballot Comments

http://www.atsc.org/sg/T3/2003_06_24/documents/Attachment_6_Comment_resolution_table_rev6.pdf

Attachment 7: Axcera Statement Regarding CS/110A

http://www.atsc.org/sg/T3/2003_06_24/documents/Attachment_7_Axcera_CS-110A_Letter.pdf

Attachment 8: T3/S1 Status Report

http://www.atsc.org/sg/T3/2003_06_24/documents/Attachment_8_S1_T3_report_6-24-03.ppt

Attachment 9: T3/S1 Draft Assumptions and Requirements

http://www.atsc.org/sg/T3/2003_06_24/documents/Attachment_9_T3-S1_a&r_r6_DRAFT_6-20-03.doc

Attachment 10: T3/S6 Status Report

http://www.atsc.org/sg/T3/2003_06_24/documents/Attachment_10_T3S6_status_2003-06-24.ppt

Attachment 11: T3/S8 Status Report

http://www.atsc.org/sg/T3/2003_06_24/documents/Attachment_11_S8_Status_Report_6-03a.ppt

Attachment 12: T3/S10 Status Report

http://www.atsc.org/sg/T3/2003_06_24/documents/Attachment_12_ATSC-T3S10_report.doc

Attachment 13: T3-600, Draft Informational Document on Receiver Design

http://www.atsc.org/sg/T3/2003_06_24/documents/Attachment_13_T3-600_receiver_design.doc

Attachment 14: T3/S16 Status Report

http://www.atsc.org/sg/T3/2003_06_24/documents/Attachment_14_T3S16_Report_06-24-03.ppt

Attachment 15: ETRI/Philips 4-VSB Presentation

http://www.atsc.org/sg/T3/2003_06_24/documents/Attachment_15_Philips_ETRI_E_xVSB.ppt

Attachment 16: ETRI/Philips 4-VSB System Tests

http://www.atsc.org/sg/T3/2003_06_24/documents/Attachment_16_Result_of_Backward_Compatibility_Test.doc

Attachment 17: ETRI SFN Report

http://www.atsc.org/sg/T3/2003_06_24/documents/Attachment_17_EDOCR_T3_6_24.pdf

Attachment 18: Thomson-Sarnoff Robust Mode Presentation

http://www.atsc.org/sg/T3/2003_06_24/documents/Attachment_18_Thomson_Sarnoff_T3_June_2003.ppt

Attachment 19: WD/54A

http://www.atsc.org/sg/T3/2003_06_24/documents/Attachment_19_T3_586r5_WD54A.doc

Annex A: E-VSB Motion Vote Talley

ABC- No
ATI - No
Broadcom - A
CBS - Yes
CEA - A
Cox - No
DirecTV - A
Dolby - Yes
Eastman Kodak - No
ETRI - Yes
Harmonic - Yes
Hitachi - No
JVC - Yes
Linx - Yes
Microsoft - A
Motorola - A
MSTV - No
NAB - No
NBC - Yes
NCTA - A
NewsCorp - A
PBS - No
Philips - Yes
Pioneer - Yes
Samsung - Yes
Sanyo - A
Sarnoff - No
Scientific Atlanta - A
Sharp - Yes
SMPTE - No
Sony - Yes
Thales - Yes
Thomson - A
Tribune - No
Universal - No
Warner Bros - Yes
XFSI - Yes
Zenith - No
Harris - No
Tandberg TV - A
Total: Yes - 15, No - 14, Abstaining - 11