

# **Minutes, Technology Group on Distribution 10 September 2003**

**Advanced Television Systems Committee**  
1750 K Street, N.W.  
Suite 1200  
Washington, D.C. 20006  
[www.atsc.org](http://www.atsc.org)

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 ATSC Technology Group on Distribution (T3)

9:30 a.m. – 3:00 p.m., NAB, 1771 N Street, N.W., Washington, D.C.  
10 September 2003

### 1. WELCOME, INTRODUCTIONS, AND DETERMINATION OF QUORUM

Chairman Ralph Justus (CEA) called the meeting to order at 9:00 a.m. at the headquarters of the National Association of Broadcasters in Washington, D.C. He thanked NAB for hosting the meeting and welcomed those in attendance.

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**). He offered several changes, as noted in redline form in Attachment 2. No further modifications were requested and the agenda was accepted as amended.

### 3. APPROVAL OF THE DRAFT MINUTES OF 24 JUNE 2003 MEETING

Chairman Justus called member's attention to the draft Minutes of the 24 June 2003 T3 meeting, which were distributed to the T3 reflector on August 19 (**Attachment 3**). Mr. Whitaker stated that three editorial corrections had been identified prior to today's meeting. 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 over the summer in moving important documents forward; he thanked all participants for their hard work. He also noted that today's agenda was quite full and suggested that all committee members 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:

- **Direct-To-Home Satellite Broadcast Standard:** This ballot was issued to the membership on 2 July 2003 and closed on 30 July 2003. The document was approved: 27 yes, 0 no, 8 abstained; editorial privileges 29 yes, 0 no, 6 abstained.
- **Content Identification and Labeling for ATSC Transport:** This ballot was issued to the membership on 3 June 2003 and closed on 1 July 2003. The document was approved: 28 yes, 1 no; editorial privileges 30 yes, 0 no.

For T3 ballots:

- **DTV Signal Reception and Processing Considerations** (Informational Document): This T3 ballot was issued on 22 July 2003 and closed on 19 August 2003. The document was approved: 15 yes, 0 no, 3 abstain; editorial privilege 17 yes, 0 no, 1 abstain.
- **Proposed Recommended Practice—Revision of A/54**, "Guide to the Use of the ATSC Digital Television Standard." This T3 ballot was issued on 14 July 2003 and closed on 11

August 2003. The document was approved: 17 yes, 0 no, 2 abstain; editorial privilege 19 yes, 0 no, 0 abstain.

## 5.2 Other

Other items covered in Mr. Richer's report included that ATSC will present a two-day seminar on PSIP and closed captioning on October 22–23 in Alexandria, VA. He said that additional information, including registration forms, can be found on the ATSC Web site.

## 6. BRIEF REPORTS ON ACTIONS FROM THE PREVIOUS MEETING

The following action items resulted from the T3 meeting of June 24:

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. *Completed*
2. Whitaker and ATSC staff to issue a membership ballot of T3-593r2, the "Direct-to-Home Satellite Broadcast Proposed Standard." *Completed*
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. *Completed*
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. *Completed*
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. *On agenda*
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." *Completed*
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. *Completed*
8. Chernock to place on the T3 agenda for the September 10 meeting the following item: "Consideration of T3 Goals for 2004." *Completed*

## 7. NEW WORK ITEMS FOR DISCUSSION

### 7.1 Assigned by Board of Directors

Mr. Richer reported that the Board, at its June 26 meeting, approved the following motion:

“...the Board directs T3 to set, as its highest priority, completing its work on audio/video coding and transport stream issues associated with the E-VSB Proposed Standard, as approved by T3, no later than 30 September 2003.”

He reminded the committee that the text of the motion was posted to the T3 reflector on June 27.

### 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. REVIEW AND STATUS OF T3 GOALS FOR 2003 (MARK RICHER)

Mr. Richer reminded the committee of the background on this agenda item. Each year the Board sets goals for ATSC subcommittees and staff. He said it was appropriate at this time to review how well T3 has addressed the goals established for 2003 (**Attachment 4**).

The specific T3 goals, as approved by the Board on 29 January 2003, are:

- **Standards and Recommended Practices**—complete T3/S9 technical work on VSB enhancements (advance specifications to Candidate or Proposed Standard by 1 May 2003), support FCC action as required, and complete associated transport, video and audio coding, and data specifications by 30 September 2003.

*Status:* The E-VSB Annex D Amendment to A/53B was approved by T3 on 27 May 2003. The associated transport and video/audio coding work is underway in T3/S8(1) and T3/S6, respectively, with the goal of meeting the September 30 deadline for completion of E-VSB work at the specialists group level. Regarding supporting FCC action, E-VSB was described in ATSC Comments to the Periodic Review.

- **Harmonize DASE and OCAP**—complete “DCAP” by 1 July 2003.

*Status:* A draft DCAP (or ACAP, as it is now known) specification will be presented to T3 at this meeting for consideration as a Candidate Standard.

- **Revise A/54** (Guidelines to ATSC DTV Standard A/53) by 1 July 2003.

*Status:* The revision of A/54 was approved by T3 on 11 August 2003. Comments were received and a comment resolution ad-hoc group has been formed to address those issues.

- **DTH Satellite Standard**—complete by 15 April 2003.

*Status:* This Standard was approved by the ATSC membership on 30 July 2003. The document is now published on the ATSC Web site.

- **PSIP Metadata Standard**—complete by 30 September 2003.

*Status:* T3/S1 chair Graham Jones reports that this document will be ready for consideration by T3 at the December 10 meeting. (Additional details can be found in agenda item 10.)

- **A/90** (Data Broadcast Standard)—revise by 1 July 2003.

*Status:* This project has been delayed pending completion of the draft ACAP specification. With the recommended advancement of the draft document to Candidate Standard status (see agenda item 15), this T3/S13 work is expected to resume shortly. (See agenda item 16.)

- **A/63** (Coding for 25/50 Hz Video)—conduct 5-year review by the end of 2003.

*Status:* This work, assigned to T3/S6, has been delayed pending completion by the specialists group of video/audio coding evaluation related to E-VSB.

The committee went on to discuss the various goals and issues outlined above in greater detail.

## 9. ARCHITECTURAL TEAM (MIKE DOLAN)

Mike Dolan (TBT) briefed the committee on current work within the Architecture Team (**Attachment 5**).

### 9.1 A/53 Documentation Recommendation

Mr. Dolan called attention to action item 4 from the last T3 meeting (see agenda item 6 above). He reported that the Architecture Team had discussed the issues involved extensively, and had arrived at the following consensus recommendation:

- The A/53B Amendment to Annex D (T3-596), already approved by T3, should be incorporated into WD/53C, which incorporates the existing Amendments 1 and 2. Note that WD/53C—an editorial roll-up of Amendments 1 and 2—was posted to the T3 reflector on August 25 (**Attachment 6**) for informational purposes. A revision of WD/53C incorporating the T3-approved Annex D is given in **Attachment 7**.
- WD/53C (with the new Annex D) will be the document that is sent to membership ballot once the necessary steps have been completed<sup>1</sup>.
- A53C would become the base document for the current work of T3/S6 and T3/S8. The specifications forthcoming from T3/S6 on codecs and from T3/S8 on transport would be added to become WD/53D. That Working Draft could be elevated to Candidate Standard or directly to Proposed Standard, as determined by T3. In the mean time, A/53C could be approved by the membership and published.
- At the appropriate time, T3 should revise A/54 to reflect the addition of E-VSB and related specifications to A/53. T3 should also consider the development of a new Recommend Practice or Engineering Guideline for E-VSB.

In response to questions from committee members, Mr. Dolan clarified specific elements of the A-Team recommendations.

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

Graham Jones (NAB) was unable to attend today's meeting, but he did provide a written report (**Attachment 8**). Major points included in the report are summarized below:

- Since the last T3 meeting there have been four teleconference meetings of T3/S1 plus at least one ad hoc group meeting.
- The draft Assumptions and Requirements document was finalized and posted to the T3 reflector and Web site for review by T3 members as requested at the last T3 meeting (**Attachment 9**).
- System issues that have been resolved in the draft specification include: 1) provision made for content identification in accordance with A/57A; 2) services confirmed as identified by Major-Minor channel numbers and TSID; 3) capability included for updates of metadata during a current PSIP event if required to maintain consistency of PSIP settings with the actual transport stream being transmitted; and 4) addition of frame accuracy timing parameters.
- Issues and text still under review in the draft document include: 1) labeling of events; 2) system configuration setup and signaling device start-up; 3) arrangements and timing for message acknowledgment and error reporting; and 4) consistency of audio service identifiers with A/53 and A/65.

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<sup>1</sup> The following motion was approved at the 24 June 2003 meeting of T3: "...moved that the ballot to the ATSC membership of the E-VSB 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 1 June 2004, whichever is sooner."



In his written report, Mr. Jones stated that due to vacations and other commitments of group members, there has been some slippage in the estimated completion schedule for the Working Draft document. He said a revised Work Plan and Schedule was posted to the T3 reflector, aiming to complete the working draft document in November, with the expectation to request that T3 elevate the specification to Candidate Standard at the December 10 T3 meeting (**Attachment 10**).

Chairman Justus noted the draft T3/S1 Assumptions and Requirements document that was before T3 for consideration. He observed the consensus of the committee to accept the document as submitted.

In response to specific questions, Mr. Dolan provided additional details on the current work of T3/S1.

#### **11. 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 11**). He pointed out that considerable work has been completed since the last T3 meeting, conducted during 5 teleconference calls.

##### **11.1 Advanced Codec Progress Report**

Mr. Miller reported that of the five candidate video systems proposed to T3/S6, two remain:

- **AVC** (AVC, or H.264/MPEG-4 Part 10, has wide support, but licensing is not fixed).
- **WMV9** (Windows Media 9 was proprietary but was submitted to SMPTE for standardization this week; T3/S6 has not had an opportunity to discuss the submitted documents yet).

Mr. Miller said that of the six candidate audio systems proposed to T3/S6, two remain:

- **HE AAC** (has different framing than AC-3, but is claimed to work better at rates below 96 kb/s stereo).
- **Enhanced AC-3** (10 percent additional decoder complexity above existing AC-3; uses the same framing and transport adaptation as AC-3, but is not recommended for use below 96 kb/s stereo or 56 kb/s mono).

Mr. Miller reported that Windows Media 9 audio was withdrawn from consideration in August.

Mr. Miller said that the evaluation criteria are focused on the fallback mode, which is likely to be most common application and the most demanding in terms of synchronization. He went on to outline the status of the T3/S6 evaluation process, specifically:

- **Video coding documentation:** For AVC, documentation is from ITU-T H.264; ISO/IEC 14496-10. WMV9 will be documented by SMPTE; a draft document was received on September 8. He pointed out that additional information on WMV9 has been requested by some members, specifically: 1) reference model details (encoder/decoder and reference implementation), 2) evaluation and test results for system comparison, and 3) simulation details relating to the anchor sequence.
- **Audio coding documentation.** For HE AAC, documentation is from ISO/IEC 14496-3:2001 with Amendment 1. For E-AC-3, a new annex to A/52A would be produced; a draft document has been submitted to T3/S6.
- **Coding constraint documentation.** Video constraints would be documented in a new annex to A/53—Annex F; T3/S6 is awaiting drafts from both proponents. Audio constraints would be documented in a new annex to A/53—Annex G; drafts have been submitted by both proponents and are being reviewed. Amendments would also be developed to A/53 Annex A and Annex B.

Mr. Miller reminded the committee that in June, T3/S6 was requested by T3 not to make a final decision until certain business issues were clarified, specifically licensing. For video, AVC licensing would be from MPEG-LA or VIA (license terms have not been settled); WMV9 licensing would be from Microsoft. For audio, HE AAC licensing would be from VIA, SBR from Coding Technologies; E-AC-3 licensing would be from Dolby. Mr. Miller clarified that this information represents what T3/S6 has been provided to date; he cautioned that the list may not be exhaustive.

Mr. Miller reminded the committee that T3/S6 was asked to provide a “Plan A” and “Plan B” each for audio and video coding. He went on to offer an assessment of where the selection process now stands, based on stated positions of members of the specialists group. Specifically,

- For video, Plan A is AVC and Plan B is WMV9.
- For audio, there is nearly equal support for both candidates.

Mr. Miller noted that concern has been expressed by several members of the specialists group, including Warner Bros., who believe that the T3/S6 schedule is rushed and has no plan for comparison testing of proposed systems. He pointed out that T3/S6 is working toward a schedule set by the ATSC Board of Directors, and that with regard to testing, resources are limited. Should the specialists group undertake proponent system testing, he said, T3 would need to redefine the schedule and scope of the T3/S6 work. Comments were invited from T3 members.

Mark Eyer (Sony) expressed concern over the possibility of allowing two coding systems for audio and/or video, saying that it would raise cost and implementation issues for receiver manufacturers.

Richard Streeter (CBS) questioned the licensing issues involved in the T3/S6 review process. Mr. Richer addressed the question, indicating that specialist groups do not address intellectual property issues. He said that the Board is reviewing the ATSC patent policy; however, he pointed out that the existing patent policy is quite clear.

Wendy Aylsworth (Warner Bros.) **moved** to direct T3/S6 to undertake comparison testing of the proposed codec systems now under consideration within the specialists group. **Second** by Scott Hamilton (Fox). Comments were offered both in favor of and in opposition to the motion. Issues focused on the need for careful consideration of proponent systems and the effect that any testing would have on the T3/S6 schedule. Should testing be undertaken, it was pointed out that a clear definition would be needed of the testing parameters.

Mr. Miller, speaking as chair of T3/S6, said he could not accept a charge from T3 to do testing unless a means of accomplishing that testing is identified. He said those supporting this motion are responsible for providing the necessary support for such work, or for identifying those resources.

Mr. Richer observed that a testing program is a considerable undertaking and that should T3 want to go down this road, a Request for Testing Proposals could be issued, as was done in the earlier work of T3/S9. As an alternative, he suggested that T3/S6 could document one or more coding schemes and offer a consensus recommendation to T3 that the draft specification be elevated to Candidate Standard for a period of time, during which testing by individual organizations could be undertaken.

Lynn Claudy (NAB) said it is very easy to suggest testing, but can be quite difficult to accomplish in practice. He observed that a considerable amount of testing on the proponent systems has already been undertaken by other organizations, or will be undertaken soon. He suggested an amendment to the motion on the table to direct T3/S6 to *investigate whether comparison testing is necessary*. This amendment was declined by Ms. Aylsworth.

Chairman Justus called the motion. It was **approved** on a show of hands.

Ms. Aylsworth **moved** to direct T3/S6 to provide a report to T3 that would consider the ramifications of including multiple video codecs in the consensus recommendation of the specialists group. **Second** by Edwin Heredia (Microsoft).

Mr. Eyer suggested that this request is more appropriately directed to T3/S8. Robert Seidel (CBS) suggested that the request should include both audio and video codecs, and be directed to T3/S6 and T3/S8. Ms. Aylsworth accepted the suggested changes. Restating the motion, then, Ms. Aylsworth **moved** to direct T3/S6 and T3/S8 to provide a report to T3 that would consider the ramifications of including multiple audio and video codecs in the consensus recommendations of the specialists groups.

Chairman Justus called the question. It was **approved** on a show of hands.

Chairman Justus asked for feedback from Mr. Miller on the impact of the motions just approved on the schedule of T3/S6. Mr. Miller said clearly the September 30 deadline was wholly unattainable.

Chairman Justus asked T3/S6 and T3/S8 to consider the motions approved today and to come back with a revised work plan and schedule at their earliest convenience; September 30 was suggested as a reasonable due date. Chairman Justus asked Mr. Miller and Mr. Eyer to report back to him and Mr. Richer so the revised work schedules can be communicated to T3 and to the Board.

## **12. 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 12**).

### **12.1 Report on Status of E-VSB Transport Amendments (S8-1 ad-hoc)**

Mr. Eyer reported that the Ad-Hoc Group on Transport for Robust Transmission continues its work on preparing a draft amendment for Annex C to A/53B and an amendment to A/65B that address the transport issues for robust mode operation. The document is structured assuming one new audio codec and one new video codec. This work has been carried out in two-hour teleconferences, typically held twice weekly, over the past two months. He said the E-VSB transmission requirements are specified in terms of a Reference Receiver, and went on to outline that device.

Mr. Eyer said one of the issues under consideration in the AHG is the buffer model. He explained that use of E-VSB impacts audio/video coding for “main” (non-robust) services. He said the Main+Enhanced Mux Packet Processor needs to shift positions of the main-mode packets to create the desired transmission pattern of Enhanced segments. This raises the question of how to specify consequent requirements on service encoders and/or multiplexers. He said resolution of this issue is a gating item for completion of the A/53B amendment.

Discussion followed on various technical issues relating to the work of the AHG on Transport for Robust Transmission.

Craig Todd (Dolby) suggested that the work of T3/S8(1) suffers from the lack of technical experts to verify that the solutions devised in the AHG are practical and functional. He encouraged participation from a broad range of experts in the fields covered by the work of the AHG.

Mr. Eyer questioned how to handle bracketed (unresolved) issues in the output document of T3/S8. Mr. Richer suggested that some bracketed issues are acceptable if the document is intended for Candidate Standard status for some period of time. Mr. Miller suggested that, with

the expectation of including more than one audio and/or video codecs in the T3/S6 recommendation, bracketed elements are inevitable.

Mr. Richer suggested that T3 ask Mr. Miller and Mr. Eyer discuss how their planned output documents would move forward and the schedule for that work, to offer their combined proposal to their respective specialists groups, and to report back to T3 at the next meeting with recommendations for a path forward. Chairman Justus so directed.

#### 12.2 Retransmission Control Descriptor Issue (Robert Seidel)

Mr. Eyer called attention to certain technical issues relating to the RC descriptor, specifically that some receivers cannot handle a zero-length descriptor. He asked whether ATSC should consider amending A/56B to address this issue. He noted that Robert Seidel (CBS) had posted a message on this subject to the T3 reflector on September 9 (**Attachment 13**).

Adam Goldberg (Sharp) offered that an amendment to address a non-compliant implementation is inappropriate. Mr. Hamilton agreed, and pointed out that zero-length descriptors are allowed by MPEG.

Mr. Richer commented that, while he agreed philosophically with those opposed to making any changes in the RC descriptor, there are larger issues involved. He suggested that T3/S8 be asked to study this issue and report back to T3 with recommendations on how to proceed; specifically whether a change is appropriate, and if so what that change might be and what the ramifications of that change might be. Chairman Justus observed the consensus of T3 for T3/S8 to proceed in this manner.

The meeting broke for lunch at 11:50 a.m.

The meeting resumed at 12:45 p.m.

### 13. REPORT OF THE SPECIALISTS GROUP ON RF TRANSMISSION, T3/S9 (DAVID LAYER)

Chairman Justus announced that Charles Einolf (representing UPN and MSTV) has agreed to serve as Chair of T3/S9. He thanked Mr. Einolf for leading the work of the specialists group, and recognized David Layer (NAB) for serving as acting Chair of T3/S9 over the summer months.

#### 13.1 Distributed Transmission Candidate Standard (CS/110A) Status

Mr. Layer called attention to CS/110A, "Candidate Standard: Synchronization for Distributed Transmission." At the June 24 meeting, T3 extended the CS status of this specification until September 10 to give T3/S9 an opportunity to meet and develop a recommendation on how to move forward. Accordingly, a teleconference was held last month to address this issue.

Mr. Layer said that with the Candidate Standard status for this specification due to expire today, 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. Layer reported the consensus recommendation of T3/S9 that Candidate Standard status be extended for a period of six months. At the same time, T3/S9 proposed that a companion Recommended Practice be developed to address implementation issues relating to distributed transmission systems.

Mr. Layer **moved** that T3 extend the Candidate Standard status of CS/110A for a period of six months. The motion was **approved** on a voice vote.

Mr. Layer called attention to the proposed RP and formally asked T3 to assign this work to T3/S9. Accordingly, he **moved** that T3 endorse the development of a Recommended Practice on distributed transmission and recommend that the ATSC President and/or Board of Directors inform the FCC of this work and its importance. **Second** by Sterling Davis (Cox). Subsequent discussion focused on the scope of the planned RP, with some concern expressed relating to the FCC notification element of the motion. Following discussion, Mr. Layer amended his motion to read “**moved** that T3 endorse the development of a Recommended Practice on distributed transmission”. Mr. Davis accepted the change. Chairman Justus called the question. It was **approved** on a voice vote.

#### **14. 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.

##### 14.1 Status Report

Mr. Henderson reported that good progress has been made on the Recommended Practice on Receiver Performance Guidelines. He said T3/S10 expects to complete the working draft document by the end of this year; to date, the committee has agreed on a framework and outline for the document. He said two subgroups have been meeting on a weekly basis—the Sensitivity and Selectivity AHG led by Kelly Williams (NAB) and the Multipath Issues AHG led by Samir Hulylukar and Azzedine Touzni (ATI). Mr. Henderson encouraged additional participation from interested parties.

#### **15. DCAP**

##### 15.1 DCAP Team Report (Mark Richer)

Mr. Richer said he was pleased to report excellent progress in developing a harmonized DASE/OCAP specification, now known as ACAP—Advanced Common Application Platform (**Attachment 14**). He said intensive work was conducted over the summer, leading to a well-constructed document that meets the needs of all participants.

Mr. Richer outlined the history and scope of the ACAP effort, and thanked the leaders of the various teams that have worked to develop the harmonized specification. He also reviewed the original ATSC/CableLabs Framework Agreement, and discussed how certain elements of that agreement changed during the course of the ACAP process.

Mr. Richer said the plan for the combined DASE/OCAP team is to transition the ongoing work into the usual ATSC process, specifically T3 and the appropriate specialists group. He said it was important for T3 to move forward and maintain the momentum of the ACAP effort.

##### 15.2 Summary of Joint T3/S13, T3/16 and T3/17 Meeting (Glenn Adams)

Glenn Adams (XFSI) briefed the committee on the overall structure of the ACAP specification (**Attachment 15**). He went on to report on the results of two joint S13/S16/S17 teleconferences held to consider the draft ACAP specification. Mr. Adams reported that the meeting held on August 29 resulted in unanimous agreement to the following resolution:

“The joint specialist groups T3/S13, T3/S16, and T3/S17 unanimously recommend that T3 elevate the latest version of the ACAP specification to the status of ATSC Candidate Standard for a period of six months, following a 2 week comment period for final specification cleanup.”

Working Draft T3S17-360R2 was posted to the T3 reflector on September 2 (**Attachment 16**).

### 15.3 Consideration of Elevation of DCAP to Candidate Standard

Mr. Adams **moved** that T3 elevate the latest version of the ACAP specification to the status of ATSC Candidate Standard for a period of six months, following a 2 week comment period for final specification cleanup. **Second** by Brian Smith (Philips). Chairman Justus opened the floor for discussion.

Mr. Allison, while in favor of the motion, noted that this document has not gone through the usual development process of ATSC specialists groups.

Ms. Aylsworth questioned whether CE manufacturers are planning to offer products built to the ACAP specification. Mr. Richer said he has been told by a number of manufacturers that they are ready to make products to this specification as soon as ACAP is approved. Ms. Aylsworth said Warner Bros. wished to go on the record as stating that “we do not see the usefulness of this standard, and it would be a long time before we would actually be using it.”

Chairman Justus called the question. It was **approved** on a voice vote.

Mr. Goldberg requested that the current version of the ACAP document be forwarded to SCTE/CAP for their consideration, since they are meeting shortly to consider related issues. Mr. Richer said he believed that the document should be transmitted only after the two-week cleanup period, and after it has been posted on the ATSC Web site as a Candidate Standard. Additional comments were offered on this point by Mr. Allison and Andy Scott (NCTA).

Mr. Allison **moved** that T3S17-360 rev. 2 be sent to SCTE/CAP along with the appropriate cover letter from the Chairman of T3. **Second** by Mr. Goldberg. Chairman Justus offered that this motion was unnecessary and unwise. Mr. Adams also spoke against the motion, saying that substantial changes are being made in the next revision. Mr. Richer suggested that, as a courtesy, CableLabs should be informed of any proposed distribution.

Chairman Justus called the question. It was **approved** on a voice vote.

## 16. 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 (**Attachment 17**).

### 16.1 DCAP Transport Layer Recommendation

Mr. Dolan reported that T3/S13 has reviewed the current ACAP draft recently provided to T3 and, since part of the work overlaps the specialists group’s scope and the A/9x standards, has formulated a consensus finding and recommendation for consideration by T3 (**Attachment 18**). In brief, the recommendations are:

- The ACAP draft should promptly advance in T3’s due process for similar documents to support the clear business needs of the industry with respect to ITV services.
- T3 should authorize the Chair of T3/S13 to develop a working liaison relationship with the following groups, for matters within their scope, for the purpose of identifying common issues and technology, and working through the transport layer issues and arriving at a common set of transport protocols for television data services common to DVB, U.S. cable, and U.S. terrestrial transports: 1) SCTE DVS, 2) SCTE CAP, and 3) DVB TAM (also DVB GBS if necessary).
- T3 should consider whether there is sufficient business interest to consider authorizing T3/S13 to undertake the activity of revising the existing ATSC A/9x set of specifications including:
  - 1) Align them with the ACAP transport design

- 2) Propose a harmonized set of data service standards for use in both ATSC and SCTE
- 3) Define a functionally complete set of signaling for use by existing and near-term contemplated data services
- 4) Ensure a design that provides a smooth transition of terrestrial data services into the cable facility.

Mr. Dolan requested feedback from committee members on the recommendations of the specialists group. Comments were offered by Mr. Krauss, Mr. Allison, and Mr. Adams.

Chairman Justus observed the consensus of T3 that T3/S13 bring back a recommendation for going forward on updating the A/9x series of standards with consideration for the ACAP specification.

#### 16.2 Other Issues

Mr. Dolan called attention to a proposal from a consortium of Korean interests to standardize on a download protocol for firmware upgrades (**Attachment 19**). Mr. Allison said this request comes from a substantial body of implementers, and he suggested that we should proceed.

Chairman Justus observed the consensus of T3 that T3/S13 should proceed to develop the necessary specification.

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

Glenn Adams (XFSI), Chair of T3/S17, reported that current activities of the specialists group have been focused on issues relating to the ACAP draft specification. He said that beyond the progress on ACAP already reported, there were no significant issues to bring to the attention of T3.

#### 18. 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 20**).

##### 18.1 Status Report

Mr. Heredia reported that T3/S16 has completed a draft specification for Interaction Channel Protocols (**Attachment 21**). He went on to describe the different technologies detailed in the document, including those needed for ACAP, and hence subject to the harmonization process.

Mr. Heredia reported the consensus of T3/S16 that T3S16-030R14 has reached the desired maturity level required for submission to T3 with the recommendation that it be elevated to Candidate Standard status.

Mr. Heredia **moved** that T3S16-030R14 be elevated to Candidate Standard for a period of 3 months. The motion was **approved** on a voice vote.

#### 19. PROPOSAL TO FORM A NEW SPECIALISTS GROUP ON ACAP

Chairman Justus outlined the need for creation of a new specialists group (T3/S2) to address specific issues relating to the ongoing ACAP work. Mr. Allison asked whether a draft Scope of Work existed for this proposed specialists group. Chairman Justus offered that one of the first tasks of T3/S2 would be to develop a draft Scope of Work.

Mr. Richer outlined for the committee the underlying issues related to proposal. He said the ACAP work needs to continue and with the elevation of T3S17-360 to Candidate Standard

status, that work needs to be undertaken within ATSC. He said this work should be carried out in a single specialists group focused on the ACAP specification.

Mr. Dolan pointed out the need for an ACAP specialists group to closely coordinate with other ATSC specialists group working in this general domain, specifically T3/S13, T3/S16, and T3/S17. Mr. Adams said there is a clear need for involvement of the right experts in the work of T3/S2, although he did not see an intrinsic coordination issue.

Chairman Justus suggested the following draft scope:

“The Specialists Group on the Advanced Common Application Platform (T3/S2), under the supervision and direction of the Technology Group on Distribution, shall be responsible for the ongoing development of the ACAP specification. T3/S2 will be seeded from the members of T3/S13, T3/S16, T3/S17, and other interested participants. As necessary, T3/S2 will coordinate the ACAP-related activities of these specialists groups. T3/S2 will establish a working liaison with CableLabs, DVB, SCTE, and other organizations as necessary.”

Chairman Justus observed the consensus of T3 to form T3/S2 with the working draft scope as stated above. He said that Craig Smithpeters (Cox Cable) has agreed to serve as Chair of the new specialists group. Chairman Justus said that refining the draft scope will be the first task of the specialists group.

Mr. Dolan returned to the question of T3/S13 liaison issues outlined in agenda item 16 above. He said a simplified liaison structure would facilitate the work outlined in his T3/S13 report. Mr. Richer suggested that this issue could be handled administratively, and Mr. Dolan agreed to proceed in that manner.

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

Dipak Shah (DirecTV), Chair of T3/S14-A, was unable to attend today’s meeting; however, Mr. Whitaker updated the committee on the work underway in the specialists group.

### **20.1 Status Report**

Mr. Whitaker reported that the Direct-to-Home Satellite Broadcast Standard, A/81, has been published on the ATSC Web site. Editorial comments were received during the membership ballot and reconciled prior to publication. With the completion of A/81, T3/S14-A has completed all of its work items.

## **21. OTHER BUSINESS**

### **21.1 ETRI/Philips EVSB Technology Update**

Sung Hoon Kim (ETRI), following up on a presentation at the June 24 T3 meeting, reported on ongoing VSB enhancement work, including new test results of the ETRI 4-VSB system (**Attachment 22**). He said lab tests of the E-xVSB system are scheduled for February 2004, followed by field tests in the U.S. and Korea in March 2004.

Based on the work completed so far, Mr. Kim offered the following conclusions:

- The E-xVSB robust stream supports normal stream reception performance improvement under serious ghost channel condition
- High mix ratio robust mode can provide high quality pedestrian and mobile DTV services
- E-xVSB can provide a maximum range of broadcaster’s service options



Chairman Justus thanked Mr. Kim for the status report.

#### 21.2 Samsung EVSB (TRS) Simulation Results

Joon su Kim (Digital Media Lab. Samsung, Korea) reported on work underway on Transverse RS Coding Enhanced-VSB (**Attachment 23**). The objectives this work, as explained by Mr. Kim, are:

- To meet the backward-compatibility requirement of the T3/S9 RFP; i.e., to provide for more robust DTV transmission that can be received over greater coverage area by new receivers, but which can also be received by legacy receivers in current coverage areas.
- To accommodate using other proposed methods of providing for more robust ancillary digital transmission (e.g., by reduced-alphabet 8-VSB or by increased trellis coding) and, if possible, to improve the BER of the robust ancillary digital transmission.
- To prove whether it is possible to provide rate reductions that are less severe than those imposed by reduced-alphabet 8-VSB or by increased trellis coding, thereby improving the flexibility available to broadcasters.

Mr. Kim reported that test results show an S/N gain is obtained using the TRS code, with performance improvements for both the normal and robust data. He said backward compatibility is guaranteed for legacy receivers, and that the system could be combined with any E-VSB system proposed to ATSC. Mr. Kim went on to outline their future plans, which include:

- More simulation on TRS performance in various channel environments and on combined system with other E-VSB techniques.
- Development of mobile reception performance data on the Main stream.
- Hardware testing for backward compatibility with legacy devices.

Mr. Kim said that test results will be presented at the October T3/S9 meeting.

Chairman Justus asked Mr. Einolf and T3/S9 to consider the Samsung and ETRI work and to report back to T3 as appropriate.

#### 21.3 Liaison Reports

There were no liaison reports.

#### 21.4 Consideration of A/49 Issues

Mr. Whitaker reminded the committee of the outstanding issues relating to A/49, the “Ghost Canceling Reference Signal Standard.” Efforts to update this standard and correct an apparent inconsistency between the equations and tables contained in the document have been unsuccessful. Mr. Whitaker asked that any committee member with suggestions on how to resolve the outstanding questions contact him.

#### 21.5 Other Issues

Mr. Seidel asked that, because of the importance of the RC descriptor issue discussed in agenda item 12.2, T3/S8 work with the greatest speed possible to address outstanding questions.

### **22. SCHEDULE OF NEXT T3 MEETINGS**

The next meeting of the Technology Group on Distribution will be held on December 10, 2003, at the headquarters of the National Association of Broadcasters in Washington, D.C.

### **23. ADJOURNMENT**

There being not further business before T3, the meeting was adjourned at 3:10 p.m. EDT.

## Action Items Developed at this Meeting

The following action items were developed at today's meeting:

1. Miller to report to T3/S6 the approval by T3 of the following motion: "...moved to direct T3/S6 to undertake comparison testing of the proposed codec systems now under consideration within the specialists group."
2. Miller and T3/S6 to report back to T3 on the ramifications of including multiple audio and video codecs in the consensus recommendation of the specialists group.
3. Eyer and T3/S8 to report back to T3 on the ramifications of including multiple audio and video codecs in the consensus recommendation of the specialists group.
4. Miller to report back to Chairman Justus and Richer with a revised work schedule for audio/video coding evaluation that takes into account the testing of proponent systems.
5. Miller and Eyer to discuss how the planned output documents of T3/S6 and T3/S8 would move forward and the schedule for that work, to offer their combined proposal to their respective specialists groups, and to report back to T3 at the next meeting with recommendations for a path forward.
6. Eyer and T3/S8 to study the retransmission control descriptor issued identified by CBS and report back to T3 with recommendations on how to proceed; specifically whether a change is appropriate, and if so what that change might be and what the ramifications of that change might be.
7. Einolf report to T3/S9 a work item to develop a Recommended Practice to address implementation issues relating to distributed transmission systems.
8. Adams to coordinate remaining work on T3S17-360r2 during the 2 week comment period approved by T3, and to provide a final document for posting on the ATSC Web site by Whitaker as a Candidate Standard.
9. Chairman Justus to transmit to SCTE/CAP T3S17-360 rev. 2 along with an appropriate cover letter.
10. Dolan to report to T3/S13 the direction of T3 to bring back a recommendation for moving forward on updating the A/9x series of standards with consideration for the ACAP specification.
11. Dolan and T3/S13 to proceed to develop the specification(s) necessary to address the request from a consortium of Korean interests detailed in Attachment 19 to standardize on a download protocol for firmware upgrades.
12. Whitaker to post T3S16-030R14 on the ATSC Web site as a Candidate Standard for a period of 3 months.
13. Smithpeters to convene T3/S2 with the working draft scope as stated in agenda item 19 above. Refining the draft scope will be the first task of the specialists group.
14. Einolf and T3/S9 to consider the ETRI work reported in agenda item 21.1 and the Samsung work reported in agenda item 21.2, and to report back to T3 as appropriate.

## Attachments

**Attachment 1** Attendance List

[http://www.atscmembers.org/sg/T3/2003\\_09\\_10/documents/Attachment\\_1\\_attendance.doc](http://www.atscmembers.org/sg/T3/2003_09_10/documents/Attachment_1_attendance.doc)

**Attachment 2** Draft Agenda

[http://www.atscmembers.org/sg/T3/2003\\_09\\_10/documents/Attachment\\_2\\_draft\\_t3\\_agenda\\_2003\\_09\\_10.doc](http://www.atscmembers.org/sg/T3/2003_09_10/documents/Attachment_2_draft_t3_agenda_2003_09_10.doc)

**Attachment 3** Draft Minutes from T3 Meeting of 24 June 2003

[http://www.atscmembers.org/sg/T3/2003\\_09\\_10/documents/Attachment\\_3\\_t3-602r4\\_draft\\_t3\\_minutes\\_06\\_24\\_03.doc](http://www.atscmembers.org/sg/T3/2003_09_10/documents/Attachment_3_t3-602r4_draft_t3_minutes_06_24_03.doc)

**Attachment 4** T3 Goals for 2003

[http://www.atscmembers.org/sg/T3/2003\\_09\\_10/documents/Attachment\\_4\\_ATSC\\_Goals\\_2003\\_t3.ppt](http://www.atscmembers.org/sg/T3/2003_09_10/documents/Attachment_4_ATSC_Goals_2003_t3.ppt)

**Attachment 5** Architecture Team Status Report

[http://www.atscmembers.org/sg/T3/2003\\_09\\_10/documents/Attachment\\_5\\_AT-004R0-Status.ppt](http://www.atscmembers.org/sg/T3/2003_09_10/documents/Attachment_5_AT-004R0-Status.ppt)

**Attachment 6** WD/53C (for informational purposes)

[http://www.atscmembers.org/sg/T3/2003\\_09\\_10/documents/Attachment\\_6\\_WD\\_53C.doc](http://www.atscmembers.org/sg/T3/2003_09_10/documents/Attachment_6_WD_53C.doc)

**Attachment 7** WD/53Cr2 (for informational purposes)

[http://www.atscmembers.org/sg/T3/2003\\_09\\_10/documents/Attachment\\_7\\_WD\\_53Cr2.doc](http://www.atscmembers.org/sg/T3/2003_09_10/documents/Attachment_7_WD_53Cr2.doc)

**Attachment 8** T3/S1 Status Report

[http://www.atscmembers.org/sg/T3/2003\\_09\\_10/documents/Attachment\\_8\\_S1\\_report\\_to\\_T3\\_9-10-03.doc](http://www.atscmembers.org/sg/T3/2003_09_10/documents/Attachment_8_S1_report_to_T3_9-10-03.doc)

**Attachment 9** T3/S1 Assumptions and Requirements (draft)

[http://www.atscmembers.org/sg/T3/2003\\_09\\_10/documents/Attachment\\_9\\_T3-S1\\_assumptions\\_and\\_requirements.doc](http://www.atscmembers.org/sg/T3/2003_09_10/documents/Attachment_9_T3-S1_assumptions_and_requirements.doc)

**Attachment 10** T3/S1 Work Plan

[http://www.atscmembers.org/sg/T3/2003\\_09\\_10/documents/Attachment\\_10\\_T3-S1\\_work\\_plan.doc](http://www.atscmembers.org/sg/T3/2003_09_10/documents/Attachment_10_T3-S1_work_plan.doc)

**Attachment 11** T3/S6 Status Report

[http://www.atscmembers.org/sg/T3/2003\\_09\\_10/documents/Attachment\\_11\\_T3S6\\_status\\_2003-09-10r2.ppt](http://www.atscmembers.org/sg/T3/2003_09_10/documents/Attachment_11_T3S6_status_2003-09-10r2.ppt)

**Attachment 12** T3/S8 Status Report

[http://www.atscmembers.org/sg/T3/2003\\_09\\_10/documents/Attachment\\_12\\_S8\\_Status\\_Report.ppt](http://www.atscmembers.org/sg/T3/2003_09_10/documents/Attachment_12_S8_Status_Report.ppt)

**Attachment 13** RC Descriptor Posting from R. Seidel

[http://www.atscmembers.org/sg/T3/2003\\_09\\_10/documents/Attachment\\_13\\_RCD\\_issue.pdf](http://www.atscmembers.org/sg/T3/2003_09_10/documents/Attachment_13_RCD_issue.pdf)

**Attachment 14** ACAP Status Report

[http://www.atscmembers.org/sg/T3/2003\\_09\\_10/documents/Attachment\\_14\\_ACAP.ppt](http://www.atscmembers.org/sg/T3/2003_09_10/documents/Attachment_14_ACAP.ppt)

**Attachment 15** ACAP Joint Meeting Status Report

[http://www.atscmembers.org/sg/T3/2003\\_09\\_10/documents/Attachment\\_15\\_T3-ACAP-20030910.ppt](http://www.atscmembers.org/sg/T3/2003_09_10/documents/Attachment_15_T3-ACAP-20030910.ppt)

**Attachment 16** Working Draft ACAP Specification

[http://www.atscmembers.org/sg/T3/2003\\_09\\_10/documents/Attachment\\_16\\_T3S17-360R2.zip](http://www.atscmembers.org/sg/T3/2003_09_10/documents/Attachment_16_T3S17-360R2.zip)

**Attachment 17** T3/S13 Status Report

[http://www.atscmembers.org/sg/T3/2003\\_09\\_10/documents/Attachment\\_17\\_S13-214R0-Status.ppt](http://www.atscmembers.org/sg/T3/2003_09_10/documents/Attachment_17_S13-214R0-Status.ppt)

**Attachment 18** T3/S13 Recommendations Relating to ACAP Document

[http://www.atscmembers.org/sg/T3/2003\\_09\\_10/documents/Attachment\\_18\\_S13-213R4-DCAP-Rec.doc](http://www.atscmembers.org/sg/T3/2003_09_10/documents/Attachment_18_S13-213R4-DCAP-Rec.doc)

**Attachment 19** Correspondence Relating to Download Proposal

[http://www.atscmembers.org/sg/T3/2003\\_09\\_10/documents/Attachment\\_19\\_Letter2ATSC.doc](http://www.atscmembers.org/sg/T3/2003_09_10/documents/Attachment_19_Letter2ATSC.doc)

**Attachment 20** T3/S16 Status Report

[http://www.atscmembers.org/sg/T3/2003\\_09\\_10/documents/Attachment\\_20\\_S16\\_report\\_09-10-03.ppt](http://www.atscmembers.org/sg/T3/2003_09_10/documents/Attachment_20_S16_report_09-10-03.ppt)

**Attachment 21** Working Draft Interaction Channel Protocols

[http://www.atscmembers.org/sg/T3/2003\\_09\\_10/documents/Attachment\\_21\\_T3S16\\_030-R14.pdf](http://www.atscmembers.org/sg/T3/2003_09_10/documents/Attachment_21_T3S16_030-R14.pdf)

**Attachment 22** ETRI Status Report

[http://www.atscmembers.org/sg/T3/2003\\_09\\_10/documents/Attachment\\_22\\_E\\_xVSB\\_2003\\_9\\_10.ppt](http://www.atscmembers.org/sg/T3/2003_09_10/documents/Attachment_22_E_xVSB_2003_9_10.ppt)

**Attachment 23** Samsung TRS-EVSB Report

[http://www.atscmembers.org/sg/T3/2003\\_09\\_10/documents/Attachment\\_23\\_030910\\_TRS\(Samsung\).ppt](http://www.atscmembers.org/sg/T3/2003_09_10/documents/Attachment_23_030910_TRS(Samsung).ppt)