

An Important Stage in the Development of **ATSC-M/H IDOV: Independent Demonstration of Viability**

Development of the ATSC-M/H Standard for mobile and handheld applications is moving forward at a rapid pace. A critical element of that effort is the Independent Demonstration of Viability (IDOV). The goal of IDOV is to ensure that the technical proposals under consideration can meet the goal of enabling mobile and handheld services in early 2009.

"The ATSC-M/H standard will facilitate broadcasters' use of their DTV broadcaster channels to provide new services directly to small hand-held receivers, laptop computers, and vehicles moving at a high rate of speed," said Mark Richer, ATSC President. The ATSC TSG/S4 Specialist Group developing the M/H Standard has called for the IDOV process to take place by February 2008.

The Open Mobile Video Coalition (OMVC) has agreed to support the IDOV effort. The mission of OMVC is "To accelerate the development of mobile digital broadcast television, and capture the full potential of the digital television spectrum in the United States. The coalition will help identify and encourage broad adoption of technologies that enable mobile reception of digital broadcast television signals, so that consumers can watch television wherever and whenever they want, not just in the home."

In an October 2007 letter to Mark Aitken of Sinclair Broadcasting and Chairman of ATSC TSG S/4 on

Mobile/Handheld, the OMVC president Brandon Burgess noted his group's support for the IDOV process for the ATSC-M/H proposed standard. Mr. Burgess also wrote that the OMVC had formed a Technology Advisory Working Group (TAWG), to be led by Sterling Davis, VP of Engineering at Cox Communications and ATSC board member. Mr. Davis will lead the planning and coordination of IDOV activities with the support of approximately 800 TV stations that have become members of the OMVC since its April 2007 creation.

TAWG activities include the development of a plan for implementing the IDOV, "including testing activities, timing, locations, requirements for participation from candidate technologies and lab verification of certain requirements, measurement criteria, expectations for performance and other relevant items." An initial draft plan for IDOV implementation as been drafted; the group expects IDOV process to be completed by March of 2008.

The TAWG will also collaborate with other broadcast technology groups, including the MSTV and the Canadian Research Centre Canada (CRC), to clarify testing procedures for independent implementation of the IDOV.

"TV broadcasters are under a very tight timeline from the U.S. government for the migration of technology from analog to digital mandated for February of 2009," says Mr. Burgess. "One of the

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IDOV... (continued from Page 1)

benefits broadcasters can offer consumers in this transition is the ability to receive their favorite TV shows on a mobile basis on a multitude of devices. We very much appreciate the attention and support from the ATSC leadership, and look forward to working with all ATSC members to create hardware and content for mobile television, based on a unified ATSC standard that enables us to meet the tight market timing of the DTV transition.”

Mr. Richer expressed his appreciation of the high level of support from the OMVC for the development of ATSC-M/H. Richer said “The industry is very excited about the prospects for mobile and handheld services offered by local broadcasters.”

The ATSC launched the process to develop a mobile television standard shortly before the formation of the OMVC. ATSC-

M/H will be backward compatible, allowing operation of existing ATSC services in the same RF channel without an adverse impact on existing receiving equipment. It will allow broadcasters to allocate a portion of their 19.39Mb/s/8-VSB signal to mobile and handheld services, while continuing to transmit services like HDTV.

In May 2007, the ATSC issued a Request for Proposals (RFP) to identify potential specifications to be used for the ATSC-M/H standard. ATSC initially received 10 proposals from various member companies, some of whom have since combined efforts.

For more information on IDOV and the Open Mobile Video Coalition, please visit www.openmobilevideo.com. For more information on the ATSC M/H, please visit www.atsc.org ■

DTV Transition Update

Some recent notable updates from the DTV Transition Coalition:

DTV television spots on the air: Broadcasters and cable operators are both airing spots to educate viewers about the DTV transition in markets across the country. Spots produced by NAB can be viewed at www.dtvanswers.com/dtv_30spots.html. The National Cable and Telecommunications Association (NCTA) has produced a variety of spots that are airing across the country, the newest of which can be viewed at www.ncta.com/dtvspots.

Additionally, ABC, CBS, NBC and Fox affiliates in Washington, DC produced 60 second spots which ran simultaneously on air in November.

Coalition Web site redesign: If you have not recently visited the coalition's website, www.dtvtransition.org, click on the link and visit it now.

Coalition membership growing: The DTV Transition Coalition has grown to 179 organizations and businesses supportive of a smooth transition to digital television broadcasting. If you know of any organizations that might be interested in joining, please let the Coalition know.

If you have any comments or suggestions, please do not hesitate to contact Jonathan Collegio at jcollegio@nab.org. ■

ATSC Elections; New to SMPTE



Adam Goldberg, Pioneer; and Wendy Aylsworth, SMPTE

The ballot for the ATSC Board of Directors election of four members and chairman of the Board of Directors closed on November 20, 2007. Ed Barrett, Sony; Joe Flaherty, CBS; and Wayne Luplow, Zenith/LG; were all reelected to the Board.

Adam Goldberg of Pioneer was elected to his first term on the Board. Glenn Reitmeier of NBC Universal was reelected as Chairman. Congratulations to Ed, Joe, Wayne, Adam and Glenn..

SMPTE has elected Wendy Aylsworth of Warner Bros. to Engineering Vice President and appointed her to serve on the ATSC Board. Keeping with its tradition of rotating between the Consumer Electronics Society and Broadcast Technology Society, IEEE has appointed Michael Isnardi to serve on the ATSC Board for 2008.

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ATSC Audio Summit Details

The Advanced Television Systems Committee (ATSC) has organized a one-half day seminar on audio issues. The ATSC Audio Summit will be an opportunity for interested members of the media production and broadcasting communities to attend informative presentations, discussions and demonstrations on AC-3 audio, particularly loudness and lip-sync. Presenters are all audio professionals that are active in the industry and very familiar with the work the ATSC has accomplished for digital broadcast sound. The Audio Summit will begin at 1:00 p.m. and run until 6:00 p.m. on February 19, 2008; and include discussions of broadcast audio challenges in the real-world, mix room monitoring, and measurement techniques.

In the ATSC Strategic Plan, adopted last year, it was observed that audio implementation issues continue to dog digital television, with widespread problems that tend to involve levels and time sync with video. Noting that these issues can only be addressed through a cross-industry effort, the ATSC began a study of audio implementation problems, initially by two groups set up within the Specialist Group on Video and Audio Coding (TSG/S6) - the Audio Loudness Group (S6-3), led by Jim Starzynski of NBC Universal; and the Audio Synchronization Group (S6-4), led by John Henderson of CEA.

The first order of business for each group was to attempt to get a handle on the scope of the problem and—if possible—identify where the problem is made worse along the program chain from the production studio to the receiver in the consumer's home.

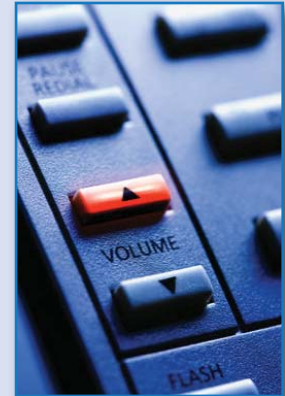
It is also important for the digital television system to provide uniform subjective loudness for all audio programs. Consumers often find it annoying when audio levels fluctuate between channels—observed when channel hopping—or between program segments on a particular channel—such as commercials being much louder than entertainment programs. One element found in most audio programming is the human voice. Achieving an approximate level match for dialogue—spoken in a normal voice, without shouting or whispering—in all audio programming is a desirable goal. While the AC-3 audio specifications in ATSC Standard A/52 provide syntactical elements that make this goal achievable, system implementation in the real world has proved more difficult than expected.

ATSC Audio Summit

February 19, 2008

Rancho Las Palmas
Resort and Spa
41000 Bob Hope Drive,
Rancho Mirage, CA 92270.

Registration information
can be found on the
HPA web site:
www.hpaonline.com



The digital audio-coding system can provide more than 100 dB of dynamic range; therefore, there is no technical reason for dialogue to be encoded anywhere near 100 percent, as is common practice in NTSC television. However, there is no assurance that all program channels—or all programs or program segments on a given channel—will have dialogue encoded at the same (or even a similar) level. Without a uniform coding level for dialogue, there will be inevitable audio-level fluctuations between program channels or even between program segments.

Addressing the loudness issue encompasses a number of elements, including local programs, network programs, local commercials, national commercials, and promos and interstitials. The S6-3 study group continues to explore the loudness problem and discuss how it might be addressed.

ATSC Standard A/52 describes the AC-3 audio system. ATSC Standard A/53 describes how the AC-3 system is used in the digital television system. ATSC Recommended Practice A/54 provides implementation guidance on the DTV system, including audio issues. These documents are available from the ATSC Standards Page (www.atsc.org/standards.html) on the ATSC Web site. ■

Active Format Description

Contributions from Graham Jones, NAB & Jerry Whitaker, ATSC

In television technology, Active Format Description (AFD) is metadata that broadcasters can transmit with a DTV signal to enable both 4:3 and 16:9 television sets to optimally present pictures produced and/or transmitted in either format. Essentially, AFD is a standard set of codes sent in the MPEG video stream that provides information on the aspect ratio of the active image area within the coded frame. Bar data may be included with AFD to provide specific information on the size of the bars when the AFD code alone is not sufficient, for example with Cinemascope movies having an aspect ratio greater than 16:9.

Televisions or set-top-box decoders can use the AFD and Bar Data, together with knowledge of the display shape and user preferences, to intelligently adjust the displayed image for different programs or segments. If the codes are used correctly, they can eliminate the "postage stamp" display, cropped pictures, and stretched or squashed images that can occur when a program source and displayed aspect ratio do not match. They also indicate when an alternative center part of the active image may be used without losing essential parts of the picture, which can help eliminate or reduce the width of black bars at the top or bottom or sides of the screen.

Two standards, SMPTE 2016-1 Format for Active Format Description and Bar Data and SMPTE 2016-3 Vertical Ancillary Data Mapping of Active Format Description and Bar Data, were published on May 17, 2007. These two documents define the carriage of the metadata with video in the professional studio domain. They complement the standards for carriage of AFD and Bar Data as defined for DTV transmission in ATSC standard A/53 Part 4 and the guide for use by consumer receivers set out in CEA-CEB-16 Active Format Description (AFD) & Bar Data Recommended Practice. This completes the chain from production, through encoding and emission to the receiver.

At this time AFD capability is not yet supported by all encoders, so has limited implementation in transmissions by broadcasters and few, if any, home receivers support the capability. However, ATSC encoders that can read AFD from the VANC data space of video and automatically insert it into the video user bits of the transmitted bitstream are now becoming available. DTV receivers using AFD are also expected soon. Professional equipment is already available that enables the carriage and use of the data through production and distribution chains and some broadcasters have implemented this for format conversion management within their facilities. Broadcasters may use AFD in this way to help eliminate redundant black bars but never to crop active picture area; it is also not a substitute for good production and encoding practices.

If AFD is transmitted by broadcasters, it will improve images displayed on AFD-enabled DTV receivers. Equally significant, as the 2009 analog cut off approaches, is that provision of AFD would enable cable and satellite MVPD providers to optimize the content received from broadcasters, on a program or element-specific basis. This would avoid degradations such as postage stamp pictures or center cut images that exclude essential action if the original content is not 4:3 safe. Such optimization would take place at the head-end, independently of whether a subscriber's television or set top box is AFD/Bar Data enabled.

It is desirable to move towards universal use of AFD. The FCC's Third Periodic on Digital Television, adopted December 26, 2007, recognizes this and says:

"We agree with commenters that it would be premature to require mandatory broadcaster use of AFD, given that the standard is relatively new and has not yet been required through the ATSC standard. We do, however, encourage television manufacturers to implement the SMPTE standard and CEA-CEB16 into their TV sets, which will better allow broadcasters to take advantage of tools such as AFD to ensure that viewers receive a signal that is optimized for their TV set. We find that these voluntary, industry driven efforts are sufficient and, thus, will not require broadcasters to use AFD until such time that AFD data can be consistently deployed by manufacturers and content providers, and received by the public. For example, we recognize that not all content providers now uniformly provide AFD data to broadcasters. Moreover, not all consumers are equipped to obtain the benefits of AFD. We will monitor and may revisit it when more content providers provide AFD data to broadcasters and when more consumers obtain DTV receiving equipment that could pass through the AFD data to them. We expect that broadcasters will have an incentive to use AFD to make their programming attractive to viewers when they are ready and able to do so." For more information on AFD and bar data, consult the following references:

ATSC Standard A/53 Dec. 27 2005
www.atsc.org/standards/a_53-Part-4-2007.pdf

ATSC Recommended Practice A/54A, "Guide to the Use of the Digital Television Standard," Dec. 4, 2003"
www.atsc.org/standards/a_54a.pdf

All ATSC Standards and Recommended Practices can be downloaded at no charge from the ATSC Web site, www.atsc.org.

Graham Jones can be reached at gjones@nab.org. Jerry Whitaker can be reached at jwhitaker@atsc.org. ■

ATSC would like to congratulate the following members for their prestigious industry awards:

**2007
SMPTE Fellowship
Kevin Stec,
Dolby**

Profile: Jim Kutzner, PBS



The PBS Network Operations Center (NOC), where network program delivery is managed and monitored 24x7x365

Jim Kutzner, Chief Engineer at the Public Broadcasting Service (PBS), also serves as the Vice Chair of the ATSC Planning Committee.

Jim earned a Bachelor of Electrical Engineering at the University of Minnesota; and later a Masters in Engineering Management at the George Washington University.

Jim's first job in the industry was as an entry level master control technician at KTCA-TV in the Twin Cities. Unemployed, he walked into their offices one day in 1973 determined to get into broadcasting – prepared to sweep the studio floor for free if I had to. They immediately ushered him to an interview with the Chief and Assistant Chief Engineers. "About halfway through the interview I realized that I was being interviewed for a fulltime position that I didn't know about. Somehow their schedule was mixed up and they didn't realize why I was there. I kept quiet about the confusion and ended up getting the job, and they never discovered the mixup. The Chief Engineer and I quickly became and have remained friends over the years, and years later I moved up to his job when he moved on. My now former boss only recently learned of the real story about how he hired me – our paths crossed this past summer at KTCA's 50th anniversary party where over a beverage I finally revealed the truth," Jim admits.

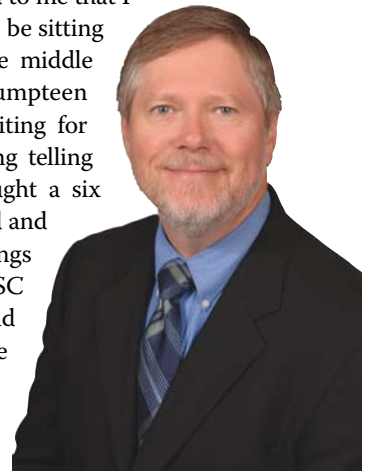
After KCTA, Kutzner headed the Interconnection Replacement Office, the group rebuilding the interconnection system for public television. There are big plans in store for the future of PBS: "In the next few

years we'll be adding non-real-time file distribution, while maintaining our traditional real-time program feeds. We'll be building a disaster recovery site and we'll be ramping up our HD distribution. We will also be modifying and refining our internal systems to allow for program file delivery to us, and also addressing multiplatform distribution," Jim reports.

Beyond PBS work, Kutzner's current focus in the ATSC Planning Committee is on ATSC 2.0 and Mobile/Handheld standardization. "The industry wants and needs the M/H service needs to be as successful as possible out of the gate, and to ensure that success we need to address the content side as part of completion of the system," says Jim. "The industry is together developing the delivery system, but we are individually developing our respective services. At PBS I am looking to focus our attention on the potential services targeted towards likely use cases that make sense for public television."

He is also intensely interested in ATSC 2.0. "How does the standard evolve to accommodate changes in the landscape of both technology development and consumer trends?" Jim questions. "Where are the consumers heading and consequently where do the ATSC standards need to go? How will the answers to these questions affect public television?"

On a personal front- Jim is originally from Minnesota, and despite what people from warmer climates may think, Jim reports most people in his home state do not ice fish. "I used to do that when I was growing up, but one day it occurred to me that I didn't really care to be sitting on a bucket in the middle of the lake in umpteen below weather waiting for the tip-up to spring telling me that I just caught a six ounce sunny. I had and still have better things to do (such as ATSC work!) Having said all that I do miss the four seasons and I love going back to the snow." ■



the standard



1750 K Street NW, Suite 1200, Washington DC 20006

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

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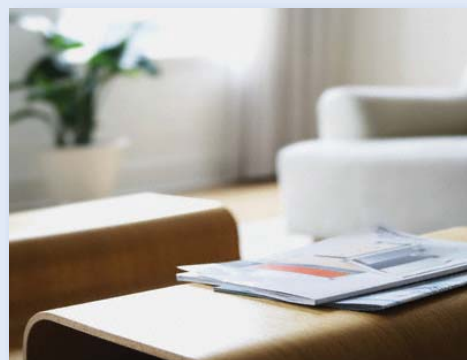
ATSC would like to welcome it's newest members:

Texas Instruments, Marvell, Qualcomm, and MediaPhy

These companies have recently become members. We eagerly anticipate their contributions to the DTV standards currently being developed in the ATSC, and we know their participation will have an immeasurable effect on the future of digital television.

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