

the ADVANCED TELEVISION SYSTEMS COMMITTEE

the STANDARD

NEWS FROM THE ATSC
VOLUME TEN, ISSUE ONE
MARCH 2009

feature: ATSC MOBILE DTV PAVILION



David K. Rehr,
NAB President & CEO

The Advanced Television Systems Committee (ATSC) will host the Mobile DTV Pavilion featuring new technologies, products and systems for implementation of the ATSC Mobile DTV Candidate Standard. The Pavilion will be showcased at the world's largest electronic media show; NAB2009, April 20-23 in Las Vegas, Nevada.

The ATSC Mobile DTV Standard will enable broadcast television delivery of digital television transmissions to mobile and handheld devices. A range of products and services utilizing the emerging ATSC Mobile DTV Standard will be show in the Pavillion. "NAB is thrilled to support the ATSC's development of the Mobile DTV Standard," said NAB President and CEO David Rehr. "Mobile DTV will be an important building block in the future of broadcasting, allowing TV stations additional revenue opportunities along with the chance to to better serve their local communities. We encourage all television broadcasters to visit the ATSC Mobile DTV Pavilion at the NAB Show."

Participating companies include Axcera, DTV Innovations, ETRI, Expway, Linear Acoustic, Pixtree, Rohde & Schwarz, RRD USA, Sarnoff, Sencore, Sinclair, Triveni Digital, UpdteLogic, and Zenith/LG Electronics. Visteon is generously providing a vehicle for a mobile demonsration inside the booth. "ATSC Mobile DTV will be one of the highlights of NAB2009 and the Pavilion will be the place to see the latest technologies that will enable broadcast services to mobile and handheld receivers" said ATSC President Mark Richer.

The Pavilion will be located in the Las Vegas Convention Center's Central Hall and will be open Monday through Wednesday, April 20 – 22, from 9 a.m. to 6:00 p.m. and Thursday, April 23 from 9 a.m. to 4:00 p.m. NAB2009 covers the development, delivery and management of professional video and audio content across all mediums. Complete show details are available at www.nabshow.com ♦



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STERLING DAVIS WINS NAB AWARD

*Member wins National Association
of Broadcasters Television
Engineering Achievement Award*

STERLING DAVIS, VICE PRESIDENT OF ENGINEERING FOR COX BROADCASTING AND ATSC BOARD MEMBER, WAS NAMED THE RECIPIENT OF THE 2009 NATIONAL ASSOCIATION OF BROADCASTER'S TELEVISION ENGINEERING ACHIEVEMENT AWARD..

BESIDES HIS ATSC ACTIVITIES, DAVIS HAS RECENTLY BEEN CHAIRING THE TECHNICAL ACTIVITIES GROUP OF THE OPEN MOBILE VIDEO COALITION (OMVC) AND IS CURRENTLY THE CHAIR OF THE ASSOCIATION FOR MAXIMUM SERVICE TELEVISION'S (MSTV) ENGINEERING COMMITTEE. HAS BEEN A PRIME FORCE IN HELPING TO MOVE THE TELEVISION AND RADIO INDUSTRY INTO THE DIGITAL AGE. CONGRATULATIONS!



update: FROM THE PRESIDENT

It's 2009, and change is in the air in Washington, DC. Actually, change is literally in the air everywhere with the advancement of ATSC digital television technology.

Our organization has been hard at work on several new and exciting projects, most importantly, finalizing the ATSC Mobile DTV Standard.

The TSG/S4 Specialist Group on Mobile DTV has committed an amazing amount of resources to develop this standard rapidly in response to industry requirements. On November 25th, the Technology and Standards Group (TSG) elevated the specification to Candidate Standard. During this stage in the process, TSG/S4 is receiving input regarding proposed changes or clarifications to the documents. Our goal is to complete the first version of the ATSC Mobile DTV Standard in the third quarter of this year.

You can read more mobile updates from ATSC in this newsletter, and also from the Open Mobile Video Coalition on page 4.

While we move forward at high speed with ATSC Mobile DTV, our Specialist Group on Data broadcasting (TSG/S13) is also making good progress on the development of a standard for non-real-time (NRT) delivery of TV content. The NRT Standard will allow broadcasters to deliver programs and data to receiving devices with storage capabilities and allow the consumer to access that content when and where they require it. NRT capability coupled with mobile DTV delivery will be a powerful combination.

As we look forward to 2009, I thank all members of the ATSC for their continued support. Your enthusiasm continues to make ATSC a the Advanced Television -vital and vibrant organization for our country and the world.

An additional reminder - the Standard newsletter is a member publication. We welcome article and column submissions from all members, and look forward to your contributions.

See you at NAB!

upcoming: INDUSTRY EVENTS & SEMINARS

- ♦ ATSC Mobile DTV Pavilion at NAB 2009, April 20 - 23, Las Vegas, NV
- ♦ ATSC Annual Meeting, May 14, 2009 in St. Louis, MO



upcoming: 2009 ATSC ANNUAL MEETING

KEYNOTE SPEAKERS 2009 ATSC ANNUAL MEETING

Mr. John Eck is president of NBC TV Network and Media Works. He is responsible for executive oversight of NBC Affiliate Relations and NBC Network Operations, and information technology and studio operations across NBC Universal's extensive television networks, owned stations, and digital media properties. In addition, Eck oversees the areas of sourcing, environmental health and safety, crisis management, and a multimillion-square-foot real estate and facilities portfolio, which includes Rockefeller Center, and Burbank and Universal City, California.

Mr. Brendan Traw is an Intel Fellow and chief technology officer for Intel's Digital Home Group. He is responsible for the technology roadmap, industry standards, strategic initiatives and architecture for Intel's consumer electronics platforms. A recognized leader across the computer, consumer electronics and content industries, he has published numerous papers and holds 19 patents in the areas of content protection, system architecture, and network security. ♦

Don't forget - critically important TSG & PC meetings will take place on Wednesday, May 13th, in St. Louis. RSVP online at the ATSC Enterprise (www.members.atsc.org)

Plans are underway for the 2009 Advanced Television Systems Committee's Annual Meeting. Unlike most years, when we'd hold this event in the Washington, D.C. metro area, we're headed to the "Gateway to the West" this May - St. Louis, Missouri.

The Annual Meeting will coincide with the Consumer Electronics Association's Spring Technology & Industry Forum, which commences earlier in the week on Monday, May 11th.

"The 2009 Annual Meeting will provide an overview of the strategic vision behind the development of new ATSC based services as well as the practical challenges of implementing these new technologies," said Mark Richer, ATSC President. "A highlight of the meeting will be the presentation of this year's Lechner Award recognizing the recipients outstanding contributions to the work of ATSC. Of course, it's also likely that the staff will present at least one rubber chicken award!"

Several invitations to speak have been extended to industry leaders. **Mr. John Eck** of NBC Universal will be the morning keynote speaker. **Mr. Brendan Traw**, chief technology officer at Intel's Digital Home Group, will be featured as the keynote luncheon speaker.

ATSC Members can register now online for the meeting - simply visit the ATSC Enterprise (<http://members.atsc.org>) and go to Calendar - all events are listed under the week of May 11-15. Please RSVP today!

If you know of an individual who would like to attend but is not an ATSC member,

please have them contact Lindsay Shelton-Gross directly at lseltongross@atsc.org. Hotel rooms at the Four Seasons are also available now on a first-come, first-serve basis. Room rates are available only until **APRIL 17th**. Contact the Four Seasons at **314-881-5800**. When making a reservation, please tell them you are attending the CEA/ATSC event. ♦

PROGRAM HIGHLIGHTS

Opening Keynote Speech
"Broadcasting, the Road Ahead"
John Eck- President, NBC Network and Media Works

Moving Forward with ATSC
Mobile DTV

Executive Roundtable

Now We Have to Build it
Strategies for starting
Mobile DTV Service

Prospects for
Consumer Products
Potential products for Mobile DTV

Special Guest Speaker
Brendan Traw - CTO INTEL Digital Home Group

Awards Presentations

3D Television

Broadcast Delivery to the Consumer

19.39, What's a Broadcaster to Do?



omvc update: **MOBILE DTV BECOMES REALITY**

by *Anne Schelle, OMVC*

There is no greater example of the cooperation between ATSC and the Open Mobile Video Coalition (OMVC) than the November 25th ATSC Technology & Standards Group approval of the Mobile DTV Candidate Standard. The OMVC has supported the ATSC standards development process and contributed resources for industry testing and evaluation of prototype equipment. OMVC has been pleased to work with other ATSC members to achieve the significant milestone of a Mobile DTV Candidate Standard..

At the 2009 International CES Show in January, the OMVC proudly announced that 63 of its member stations in 22 markets throughout the U.S. plan to launch mobile DTV service in 2009. To help make that goal a reality, last August the OMVC committed to providing funding, member station participation and manpower to assist the ATSC to complete its testing and verification of the Mobile DTV Candidate Standard. The OMVC plans to help provide complete system validation, including physical layer and interoperability testing (layers 3-8), supported by on-air facilities and Model Stations. These Model Stations will be launched in several cities by late spring.

The OMVC's Technical Advisory Group (OTAG) has developed a comprehensive plan for physical layer testing in 6 to 8 cities this spring and monitoring the development of exciters by various manufacturers. OTAG will also coordinate the development of test suite and test beds for interoperability testing, working closely with ATSC and the CEA SIG (Consumer Electronics Association's ATSC Mobile Handheld special interest group).

Launching Model Stations will enable the OMVC to support end-to-end testing for consumer devices and transmission equipment. Broadcasting over Model Stations is essential to permit device, chip and system manufacturers to test the candidate M/H standard in real-world conditions. It will also enable broadcasters to bring services to the public in the shortest amount of time.

Finally, the OMVC is developing use cases and profiles for consumer devices that it will share with consumer electronics manufacturers and others in the mobile DTV ecosystem. These profiles will enable device manufacturers to develop product roadmaps that meet broadcaster, consumer, and CE manufacturer requirements for the projected 2009 launches and future services.

In addition to system testing, the Model Stations project, and device profile development, the OMVC is also continuing its efforts to create public and market awareness of the commercial and consumer benefits of mobile DTV. Following the announcement of widespread station roll-out at this year's CES, the OMVC will keep the momentum building during the NAB Show in Las Vegas this April. The coalition plans to continue demonstrating broadcaster commitment to the service by showcasing content and receivers and spreading the idea that mobile DTV will succeed.

Among other activities at NAB, the OMVC will host a SuperSession entitled "Mobile DTV: The Power of Broadcast on the Go!" The session will be open to all attendees, and is expected to repeat the Standing Room Only status at the OMVC- sponsored event at the NAB Show in 2008. This year's version is scheduled for April 20, from 7:30 to 8:30 a.m. in Ballroom A of the Las Vegas Hilton.

It's going to be a busy year for mobile DTV in the U.S.! ♦

article: ATSC AT CES 2009

The Consumer Electronics Show (CES), held January 8 – 11 in Las Vegas, was the site of a major announcement regarding the planned roll-out of ATSC Mobile DTV services in the U.S. The Open Mobile Video Coalition (OMVC), an alliance of U.S. broadcasters dedicated to accelerating the development of mobile digital television, announced the first wave of broadcasters that have committed to launching mobile DTV services later this year. Major broadcasters declared their intention to launch services across 63 stations in 22 markets, covering 35 percent of U.S. television households. The 63 stations break down as follows:

- * Fourteen NBC affiliates
- * Nine ABC affiliates
- * Nine CBS affiliates
- * Five FOX affiliates
- * Nine ION Television affiliates
- * Four CW affiliates
- * Four MyNetworkTV affiliates

In addition, nine PBS stations are in discussions with the OMVC to join the 2009 launch.

To showcase the consumer experience of ATSC Mobile DTV and the technical feasibility of the A/153 Candidate Standard, the OMVC conducted a live demonstration on the opening day of CES 2009. The demo involved multiple Las Vegas-based television stations broadcasting local and national TV programs, music videos, local sports, and public affairs programming to compliant devices produced by LG Electronics, Samsung Electronics, and Kenwood. Transmission equipment was provided by Harris Corporation. ♦

AWARDS & RECOGNITIONS

2007-2008 Technology & Engineering Emmy Award Recipients: ATSC, Harris, Panasonic, Rohde & Schwarz, Tektronix, Thomson, & Sony



ATSC WINS EMMY

The Advanced Television Systems Committee (ATSC), the FCC Advisory Committee on Advanced Television Service, the Advanced Television Test Center and the Advanced Television Evaluation Laboratory (CRC) received Emmy Awards for standardization of the ATSC DTV Standard at the National Academy of Arts & Sciences annual Technology & Engineering Awards, held January 7th at CES 2009 in Las Vegas, NV.

“It’s a great honor to be recognized by the Academy” said ATSC President Mark Richer as he accepted the award on behalf of the organization’s members. “The ATSC Standard was a ground breaking technology with a highly flexible architecture that has enabled it to evolve to meet industry requirements such as mobile television.”

Richer was accompanied by former ATSC chairman James McKinney and Executive Director Robert Hopkins, who led the ATSC during the initial development of the DTV Standard. ♦



profile: MICHAEL BERGMAN, KENWOOD



What is your educational background?

I did my undergraduate at the University of California at Berkeley. This was at a time when Silicon Valley was really all about silicon.

So my focus in the engineering program was semiconductor design, as was my first job. Berkeley seems rather more tame now, but it was every bit the radical campus its reputation gave it to be in the early 80's. There was a torch lit protest parade the evening Reagan won the 1980 election—picture the villagers storming Dr. Frankenstein's castle in Birkenstocks, and you have the idea.

I studied Communications Engineering in the graduate program at the University of California at Irvine in the late 80's. I was working full-time as well, and two classes a semester seemed a lot. But I've used what I learned in every job since, so it was well worth the time.

Where was your first job in the broadcast industry?

For the first half of the life of Sirius Radio and more, Rob Briskman was the head of engineering. Rob brought me in to oversee receiver development right about at the time they had the first complete system architecture draft done. This wasn't a broadcast job; I'm strictly a terminal-side guy. But it was early in the technology development, and we were all involved in the whole system, from the music studios to the satellites and uplink, the ground repeaters and the receivers. Rob was an excellent boss and I learned a lot from him and from others on the project. At that time, Sirius was just solidifying the over-the-air protocol and general system architecture, and we took it to just before service launch.

How long have you been at your current position?

Kenwood had one of the first Sirius-compatible receivers, and I joined them to help vet the technology and launch the product category.

When Sirius was just launching, things were a bit more hairy behind the curtain than is commonly known. The first product almost didn't make it to market due to a performance problem that was finally tracked down to a mis-labeled repeater setting—at 3AM the day of their retail launch! I was in a test van when that happened, with the other engineers, driving around verifying the solution. We called in to report the excellent reception, and got a screaming room of engineers on the other side of the call.

Sometime after the product launch, I told Kenwood that I had some interest from another company and that I would appreciate a letter of reference. They offered a full-time position instead. Come to think of it, they never did give me that letter of reference.

What projects/specialist groups within ATSC are you involved with? What about other organizations in the industry?

I'm involved with ATSC TSG/S4, which is the Mobile DTV effort. At this point, we're in the Candidate Standard phase for A/153, so we're reviewing comments from the industry about the set of documents. This has been an amazingly fast and efficient process, all told—really an example for the rest of the industry, and the chairs of S4 and its subgroups are to be commended for managing this effort.

Outside ATSC, the CEA has a Special Interest Group (SIG) for ATSC-M/H. I'm currently chairing this SIG, which is a group of companies working to get ATSC Mobile DTV launched into the market. One of the biggest tasks within this effort is the organization of the first testfest, which is a joint test activity to ensure interoperability. Imagine bringing a TV tuner around to half-a-dozen rooms at a hotel in, say, Chicago, to test with the transmitters and encoders there, and rotating time with a few dozen of your competitors, suppliers, and prospective suppliers, and you have the right idea.

On the radio side, I co-chair—with Andy Laird of Journal Broadcasting—the Digital Radio Subcommittee (DRB) of the National Radio Systems Committee (NRSC). (I always seem to get the jobs with the long names.) The NRSC sets radio standards for the US AM/FM broadcast industry. The DRB deals with IBOC digital radio, meaning HD Radio. So we've been building and maintaining the IBOC standard suite,

NRSC-5, from iBiquity Digital's submissions.

Another thing which radio is updating is how text is handled. David Layer at NAB and I spent some time over the past few years co-writing G200, which is the recommended practice that joins HD Radio text to RDS text. The two standards seemingly were built without concern for the poor receiver designer, who is getting artist, title and other text from two dissimilar sources. The G200 document shows how to use the two technologies in a harmonized way.

My philosophy on all these standards is that, despite the enormous number of details in the many specifications documents, the basic service consumers expect is audio, video and text. You have to get all the details correct, however, in order to deliver those three things. The G200 effort reflects that point of view. It isn't enough to deliver text according to spec. You need to deliver meaningful text in a way that the hardware maker can work with.

Besides those, I've also participated in DVB-SH and ESDR satellite standards setting activities. This activity was primarily in Europe, and for a while I was seeing a different city every month—Toulouse, Helsinki, Nice, London.

Any hobbies you'd like to share? Family information? Anything ATSC members might not know about you, or find surprising?

My wife and I have four children, ranging in age from 17 years to 17 months. Last year we went through "learning to drive" and "learning to walk" at the same time. Both have their memorable moments; although I could do without the part about clutching the dashboard and shouting, "Stop! StopstopstopstopSTOP!!!"

Travel gives you experiences you don't get at home. I've been in a car chase in Taipei, eaten some kind of sea worm from a softball-sized shell in Tokyo, jogged along the shores of Lake Geneva, and eaten at a restaurant in Madrid where the waiters sing opera around your table.

I've been fortunate enough to work with some terrific people in ATSC and I look forward to many more enlightening discussions, humorous interludes, and late-night bull sessions. ♦

The ATSC hosted a delegation from Korea at the in the new offices on February 7, 2009.



review: ATSC AUDIO SUMMIT

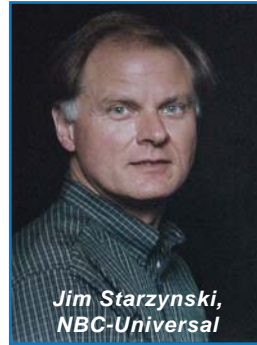
Interested parties gathered to witness industry experts speak at the ATSC Audio Summit 2.0, held February 17, 2009 in Rancho del Mar, CA.

The summit was the ATSC's 2009 contribution to the annual Hollywood Post Alliance conference.

"The work on audio loudness within the Specialist Group on Video and Audio Coding (TSG/S6) has been underway for more than two years," said Jerry Whitaker, ATSC VP of Technology. "Considerable progress is being made by on a draft Recommended Practice on loudness issues. This efforts involves acknowledged experts in audio production and transmission."

In the half-day session, panelists discussed topics such as mixing and monitoring, audio metadata, dynamic range control, the "essential elements" of the ATSC audio signal, and the sorting out of lip-sync.

"This timely seminar continued spreading awareness across the industry concerning important practices that will make ATSC audio reach it's full potential." said Jim Starzynski, Principal Engineer and Audio Architect and NBC-Universal. "Our last session on audio defined the problems; this year's well-respected experts reported on the solutions. "The audience was presented with compelling information and updates on loudness and lip-sync issues."



Jim Starzynski,
NBC-Universal

Presentations from the summit are available online at the ATSC website, <http://www.atsc.org/audio> ♦

ATSC OFFICES: NEW LOCATION

THE NEW AND IMPROVED ATSC HEADQUARTERS can be found at 1776 K Street NW, 2nd Floor Washington, DC 20006

Phone and email remains the same: 202.872.9160

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welcome wagon: **NEW MEMBERS**

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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.

The following 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.

**DVEO; PIXTREE; T-MICRO; TOSIA COMMUNICATIONS;
AXEL TECHNOLOGIES; MEINTEL, SGRIGNOLI, &
WALLACE, LLC; EIDEN CO; NXP SEMICONDUCTORS;
ENENSYS TECHNOLOGIES, RIPCODE; C&S
TECHNOLOGY, INC; GENE MILLER (OBSERVER); AND
LARCAN.**