National Association of NAB BROADCASTERS TV TechCheck
THE WEEKLY NEWSLETTER FOR TV BROADCAST ENGINEERS

May 21, 2007

ATSC ISSUES REQUEST FOR PROPOSALS FOR MOBILE AND HANDHELD STANDARD

On Monday May 21, the Advanced Television Systems Committee's (ATSC) Technology & Standards Group (TSG) is issuing a Request for Proposal (RFP) for technology to enable development of a Mobile and Handheld Standard that operates within the same 6MHz spectrum as 8-VSB transmissions. Overviews of proposals are due on June 21 2007 and detailed system descriptions are due on July 6 2007. This formal RFP step follows the April 9 ATSC press release (see http://www.atsc.org/news_information/press/2007/Mobile_07.html) announcing the initiation of the process to develop an ATSC M/H (mobile/handheld) standard that will enable broadcasters to deliver television content and data to mobile and handheld devices via their DTV broadcast signal. This schedule is designed to enable mobile and handheld services to be at least announced if not begun by February 2009.

This *TechCheck* contains excerpts of the Request for Proposal. The entire RFP will be posted at http://www.atsc.org. The RFP provides some background and summarizes the potential services by saying:

"ATSC mobile and handheld reception technology can be utilized for a variety of services to mobile and handheld devices, which may include but are not limited to:

- Free (advertiser supported) television content and other services delivered in real-time
- Mobile and handheld subscription-based TV, video-on-demand (VOD), pay-per-view (PPV) and electronic sell-through (EST) services
- Non-real-time content download, to playback later
- Datacasting
- Interactive television
- Real-time navigation data for in-vehicle use

The new services may transmit various types and quantities of content that may be versions of regular TV programming optimized for handheld and/or mobile reception (i.e., simulcasting) or specific audio-visual content and/or data produced for mobile reception—for example, local news, weather, traffic info, GPS info (local map), music services, and sports highlights."

A few excerpts from the comprehensive scope of work follow:

"The project includes an assessment of technical requirements, research of possible solutions, and development of documentation to provide a complete specification for mobile and handheld services using DTV broadcast signals. Wherever practical, the standard shall utilize and reference existing ATSC standards and may also utilize and reference other standards that are found to be effective solutions to meet the requirements."

"It is highly desirable that service to pedestrian and handheld devices should be accomplished within the same broadcast service stream that is intended to reach mobile receivers."

"This request for proposal (RFP) applies to Backwards Compatible enhancements. Proposals that are not Backwards Compatible are out of scope. This RFP does, however, invite proposals covering a wide range of technologies including modulation and FEC, transport and signaling mechanisms, and advanced video and audio coding intended to facilitate mobile and handheld services."

The RFP goes on to say: "It is ATSC's intent to create a comprehensive and complete solution to enable compelling mobile and handheld services and products. As indicated in APPENDIX 1, the new standard must specify the Physical layer (modulation and FEC), Transport, signaling and announcement (including EPG) optimized for mobile and handheld services, and other parameters as necessary for carriage of video, audio, and data essence and metadata. APPENDIX 1 also lists a number of other areas that might be specified such as data broadcasting, interactive and conditional access."

The RFP has several appendices, one of which is APPENDIX 1 (Requirements), the text of which follows:

"General:

- ATSC-M/H services shall be carried in DTV broadcast channels. The presence of these services shall not preclude or prevent operation of current ATSC services in the same RF channel or have any adverse impact on legacy receiving equipment.
- Current ATSC receivers are not expected to be able to decode or display ATSC-M/H services.
- Any H/M solution should have sufficient flexibility to offer a viable service with bit-rates that do not devalue existing DTV services, inclusive of HDTV. No specific bit-rate allocation restriction exists except that U.S. broadcasters are to provide a service that continues to conform to FCC requirements.
- Service area for mobile and handheld services shall, at a minimum, correspond as closely as possible to the service area for DTV using 8-VSB. Larger service areas are desirable.
- Reliability of service for devices operating within the ATSC M/H service area should be comparable to or exceed that of cell phone and other handheld devices enabling similar services.
- Service area, reliability of service, and other technical considerations shall take account of practical antennas for mobile and handheld devices, which differ significantly from traditional 30-foot antenna assumptions.

The system shall enable:

- Modes of operation that allow mobile reception by devices permanently mounted in cars, buses, and trains, at speeds up to at least 75 mph (120 km/hr).
- Modes of operation that allow reception by handheld devices that are stationary or moving at walking speeds of about 3 mph (5 km/hr). It is highly desirable that such devices shall also operate when moving at speeds up to 75 mph (120 km/hr) when carried in a vehicle.

The system shall support:

- Real-time broadcasting.
- Non-real-time mode (by reference to NRT Standard to be developed).
- Video resolutions up to 480p at variable frame rates for screens installed in vehicles.
- Video resolutions up to 352 x 288 (CIF) at variable frame rates for screens in hand-held devices, desirably able to support up to 480p in non-real-time mode.
- Stereo audio for systems installed in vehicles, desirably with support for up to 5.1 channels.

- Audio up to two-channel stereo for hand-held devices, desirably with support for up to 5.1 channels.
- Use of bandwidth-efficient advanced codecs for video and audio to provide for scalable quality and quantity of mobile and handheld services.
- Messaging.
- Use of digital on-channel repeaters and translators and distributed transmission.

The standards documentation shall specify:

- Physical layer (modulation and FEC).
- Transport, signaling and announcement (including EPG) optimized for mobile and handheld services.
- Other parameters as necessary for carriage of video, audio, and data essence and metadata.

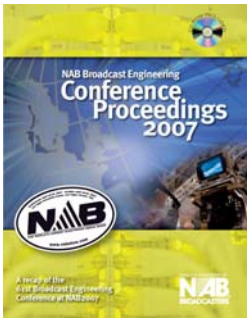
Consideration should also be given to the possible need for:

- Data broadcasting.
- Conditional access, content protection, and digital rights management. All to allow access to subscription-based programming, VOD, PPV, and EST material.
- Interactive capabilities with middleware layer optimized for handheld and mobile devices, compatible with ACAP and OCAP and/or other middleware solutions.
- Wireless return channel interface option(s) (including cellular, 3G, WiFi, Wimax, etc.) for forms of interactivity that require signaling back to the point of origination or transmission of the service (e.g., viewing metrics, location identification, transactions, etc.).
- Application layer reliability solutions (such as application layer FEC).
- Buffering size options to handle transmission related fades and errors.
- Use of metadata to describe multimedia and other content.
- Techniques to 'hand off' service from one broadcaster to another.
- Network augmentation capabilities such as 'hand off' to 802.xx and/or other wireless infrastructures.
- Power management techniques to maximize service potential.
- Layered codec(s).
- Incorporation of forthcoming inputs from the PC and TSG Specialist Groups relating to cross-layer technical approaches (e.g., the use of transport layer data fields to improve physical layer performance).

Wherever practical, the new standard should utilize and reference existing ATSC Standards, and Candidate Standards, and may utilize and reference other standards."

The other Annexes contain ATSC process and potential standardization approaches.

2007 NAB Broadcast Engineering Conference Proceedings



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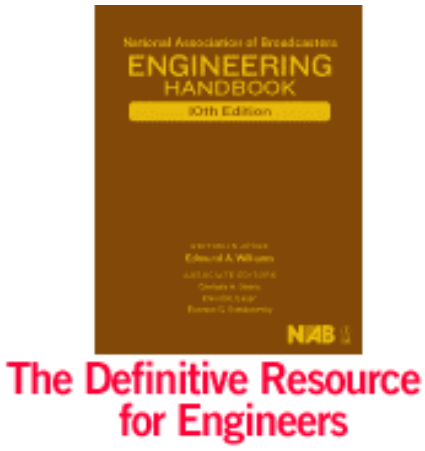

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