NAB TV TechCheck

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FCC Releases Third Periodic Review of Conversion to DTV

The Report and Order in the *Third Periodic Review of the Commission's Rules and Policies Affecting the Conversion to Digital Television* (MB Docket No. 07-91) was released December 31, 2007.This article is focused on the adoption of the ATSC Standards and "Other Issues" that were covered in the Order, not the final allocations and interference rules.

DTV Transmission Standard (ATSC A/53)

The latest version of the DTV transmission standard A/53: ATSC Digital Television Standard, Part 1-6:2007 ("A/53:2007") was incorporated into Section 73.682(d) of the FCC rules by reference. The effective date for compliance is set at 120 days after publication of the Order in the Federal Register. The FCC noted that they will continue to encourage further improvements to the DTV standards and conduct additional rulemakings, as appropriate, to incorporate future updates of the ATSC DTV transmission standard into their rules.

This version contains the specifics for how to send Enhanced 8-VSB when a broadcaster chooses to use this option, so E8-VSB is now specifically permitted. This version of A/53 also clarified the usage and constraints on the Active Format Description ("AFD"), which while optional, when sent with the video mitigates the "postage stamp video" issue. The FCC had asked if this should be required, and all commenters asserted it should remain optional. The FCC encouraged television manufacturers to implement support for the AFD into their TV sets, which will better allow broadcasters to take advantage of this tool that allows viewers to see a signal that is dynamically optimized for the shape of their TV set.

The FCC took note of the issue raised in comments concerning requirements that certain MVPDs pass through AFD data to their subscribers. They plan to address this issue in the *Third Further Notice of Proposed Rule Making* in the *DTV Must Carry* (CS Docket No. 98-120) proceeding.

Program System and Information Protocol ("PSIP") Standard (ATSC A/65)

The FCC also decided to adopt the latest revisions to the ATSC PSIP standard since the *Second DTV Periodic Report and Order* by incorporating A/65C: *ATSC Program and System Information Protocol for Terrestrial Broadcast and Cable (Revision C) with Amendment No. 1*, (January 2, 2006) into Section 73.682(d) by reference. Compliance with the new requirements also becomes effective 120 days after publication of this Order in the Federal Register, to allow time for deployment of updated equipment.

The FCC noted the additional benefits from sending accurate Event Information Tables ("EITs"), especially accurate titles. They found that the updated ATSC PSIP standard enhances consumers' viewing experience by providing detailed information about digital channels and programs, such as how to find a program's closed captions, multiple streams and V-chip information. The FCC agreed with the commenters that the benefits of the updated ATSC PSIP standard to the broadcasting industry and consumers outweigh any additional burden placed on individual broadcasters.

The FCC emphasized in the order that it is mandatory to populate the EITs with accurate information about each event and to update the EIT when more accurate information becomes available. They stated that they expect broadcasters to fully implement PSIP to the extent that ATSC A/65C requires, once the revised Section 73.682(d) becomes effective. They reminded broadcasters of the need to be consistent at all times and locations.

They then established an announcement recommendation that is new for PSIP. They said "For example, if a broadcaster transmits a program in standard definition, the PSIP information should state that the programming is being broadcast in standard definition, as opposed to High Definition." Fortunately this is a "should" not a must, and did not show up in the text of the rule changes; as accurate implementation of this requirement is problematic. There is a metadata element in SMPTE 2010 (BXF) that contains aspect ratio and H x V resolution for a piece of video. But is a NTSC source transcoded and sent in a HD resolution raster HD or SD? The final

coding by the encoder could be sent to the PSIP generator, but no standard defines how to process it. The metadata from the traffic system would send the PSIP generator the information that the program was SD in the NTSC example above and the encoded could send the same metadata element indicating HD. There are no standards or guidelines on how to use either, much less resolve conflicting information. After some resolution process is invented; the result could be placed in one of two places in PSIP. One place would be by adding it to the end of title text. A less efficient method would be to generate an ETM to send the information. There is no PSIP equipment currently designed to do any of this.

The FCC went on to say that the Transport Stream Identifier ("TSID") information should be consistent in the Terrestrial Virtual Channel Table ("TVCT"), and the Program Association Table ("PAT"). Moreover, when a program goes overtime, the station should update the EIT. Proper implementation of the standard requires broadcasters to populate the required tables and descriptors with the correct information to help receivers assemble functioning guides. Adoption of this standard also mandates completing tables and descriptors that require one time setup to be set correctly, including TSID, Short Channel Names, Service Type, Modulation Mode Source ID and Service Location Descriptor. Also, broadcasters must accurately fill the contents of the fields and the descriptors of each event descriptor loop with the known information about each event at the time the event is created and update each field if more accurate information becomes available. The Commission asserted they will continue to monitor these issues and act accordingly.

The FCC noted that they will address the carriage or not (that some commenters pointed out) of program-related PSIP data in the *DTV Must Carry* proceeding.

The FCC also addressed the carriage of one station's programming by another station, expressly permitting such, but establishing a specific form of announcement. The announcement is required to be of the form: "Station WYYY-DT, community of license (call sign and community of license of the station whose multicast stream is transmitting the programming), bringing you WXXX, community of license (call sign and community of license of the licensee providing the programming)." For example this might read: "Station WNAB-DT, Washington, DC, bringing you WANB, Washington, DC." The placement of this message is described in Section 73.1201, and is sent as part of the encoded video or audio, not in PSIP. The FCC rule does not take advantage of the PSIP-defined announcement tools; as the FCC requires direct alteration of the content itself. The PSIP tool for announcing long channel names is the extended_channel_name_descriptor(). This was explicitly designed to enable announcement of such channel descriptions without having to post-process the source program to add the announcement when it is so carried. While that can be used, under the current rules it is not enough. The consequences of this FCC requirement may ripple into cable as when such a program is carried in digital form on cable systems, it is placed on another multiplex - not the multiplex on which is was delivered. The hard "burned-in" message will then still be present, even if the station that delivered it to the MSO is not on that cable system.

Although some additional information may be added to describe WXXX, the Order said it *should not* include the frequency of WXXX or its channel. The actual rule is different as it says *may not* include either. Unfortunately this rule therefore conflicts with the industry standard methods as it prevents use of PSIP's envisioned and permitted (Annex B, #7) method for directly labeling such multicast with the analog (major) channel of WXXX. The Standard method reflects the ability to avoid any consumer confusion as they need not be bothered with the fact that a station is delivered over another broadcasters transport stream.

The order can be obtained at: http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-07-228A1.pdf.
Most channel assignments are found at: http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-07-228A2.xls
The list of 377 stations that were granted extension requests is at:
http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-07-228A3.xls.

NAB Seeks Nominations for 2008 Engineering Achievement Awards

NAB is looking for nominees to consider for the prestigious NAB Engineering Achievement awards. Separate awards will be given for achievements in radio and television at the Technology Luncheon at the NAB Show on April 16, 2008 in Las Vegas, Nevada. The qualifications for nominating someone and the nomination form are downloadable on NAB's technology resources Webpage. You may also request a nomination form by calling NAB Science & Technology at (202) 429-5346. The deadline for nominations is January 15, 2008.