February 12, 2014

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ENERGY STAR Set-Top Box Program
U.S. Environmental Protection Agency
1310 L Street, NW
Washington, DC

Subject: Joint Satellite Industry Comments on ENERGY STAR® Version 4.1 STB Final Draft dated 1/23/14

Dear Katharine:

DIRECTV, DISH Network and EchoStar thank you for the opportunity to provide joint comments regarding the Final Draft of the ENERGY STAR Version 4.1 Set-top Box Specification. The revision process has taken longer than originally envisaged, as a result of parallel related activities such as the creation by the set-top box manufacturing and service provider communities of a STB Energy Conservation Agreement (STB ECA), DOE actions to establish a STB energy consumption test procedure and related standards, and most recently the incorporation of the energy efficiency advocacy organizations into an amended STB ECA.

The satellite industry was deeply involved in all of these activities, providing leadership in the development of key technology tools such as the CEA-2043 standard for measuring energy use of a STB and by delivering to market significantly more energy efficient STB architectures featuring whole-home HD DVR servers and thin clients. Similarly, the EPA, the ENERGY STAR STB Version 3 program and Version 4.1 revision process has played an integral role. Not only does EPA deserve credit for bringing all of these fierce competitors, their trade representatives and the advocate community together for the first time starting back in 2007, but the results of those early engagements became the basis for the commitments used by both ENERGY STAR Partners and non-partners alike for their product purchases beginning in 2013.

This spirit of cooperation and desire for alignment continues with the Version 4.1 Final Draft. EchoStar, DISH Network and DIRECTV appreciate and acknowledge the steps taken by EPA towards that alignment, and with this Final Draft can visualize how STB ECA participants will be able to leverage the product design and testing work performed as ENERGY STAR Partners to help them meet their STB ECA commitments in later years. While the Final Draft is in very good shape, our joint comments that follow focus on a few specification paragraphs where clarification will be helpful and one key specification requiring correction.

Correction required: applicability of new adders to Thin Clients

A number of new adders have been introduced in Version 4.1 as a result of newly anticipated product features related to picture quality and in-home connectivity. These adders should be applicable whether the relevant functionality is integrated with any device covered by the set-top box specification, including thin clients.

Availability of thin clients having Access Point (AP) functionality is a strong probability in the timeframe that Version 4.1 is in effect. A likely use case would be where a thin client deployed in a remote part of a

home relies on MoCA connectivity to communicate with the multi-room set-top box and simultaneously extends how effectively the home is covered through its MIMO Wi-Fi coverage. In this example, the single thin client serves a business need by eliminating the need for a second box in that portion of the home by delivering the service provider's video service and extending the reach of data connectivity through a MoCA "backbone".

It is a certainty in the Version 4.1 time frame that thin clients having HEVP and UHD functionality will be available in the US market. This is best exemplified by the demonstration in the Samsung booth at International CES 2014 in which a current generation DIRECTV Genie® multi-room server was shown streaming UltraHD Video-On-Demand content directly to a Samsung RVU-enabled UltraHD television. The video service was decoded in the Samsung television which was acting as a client to the Genie server. Thin client devices that receive UHD streams from servers, decode them using HEVP and deliver the result to UHD televisions (e.g. via an HDMI 2.0 connection) will be required in installations where the available UltraHD television cannot act as a client itself.

However, the Final Draft Version 4.1 specification at Paragraph 3.3.3.ii (lines 274-276) hasn't been updated to allow Thin Clients to take these newly introduced adders. In the preceding rounds of the specification revision process, proposed changes took the form of PowerPoint slides and memorandum. Stakeholders did not raise this concern simply because it wasn't apparent until the Final Draft came out that this paragraph needed updating so that these adders would be available to thin clients. It hadn't been evident to stakeholders until now that there would even be any question about it!

Allowing these adders to be applied to thin clients does not set any new precedent in the ENERGY STAR STB program. In the current Version 3 specification, adders for HD and AVC are allowed: this represents an exactly analogous situation to the current discussion regarding UHD and HEVP. Furthermore, it should be mentioned that these adders do not result in thin clients no longer being "thin". For example, the most likely product, a MoCA based UHD client, will require a modest TEC of 67 to qualify (base allowance of 30 plus 17 for HNI, 5 for UHD and 15 for HEVP).

Clarifications requested

We believe that following minor editorial changes will help Partners, laboratories and certification bodies to uniformly interpret and apply the Final Specification's requirements:
- Paragraph 1.C.3: The definition of Cable DTA should be modified to read "Cable Digital Transport Adapter (DTA): A minimally-configured Cable STB that can receive television signals from a broadband, hybrid fiber/coaxial, or community cable distribution system." This will ensure that this definition is understood to be applicable to Cable devices.
- Paragraph 1.D.6: The Multi-Stream definition should use the word "receive" in place of "read" ("…A STB or DVG feature that allows the device to receive multiple independent streams of video content…")
- Paragraph 1.F: The Principal Function definition should replace "selecting" with "selecting (via EPG)" ("…Principal Function: Functions necessary for selecting (via EPG), receiving, decoding, decompressing, or delivering live or recorded audio/video content to a Display Device, local/remote recording device, or Client."). This change clarifies that a simple Channel Up/Down key press in testing isn't acceptable, as noted in the sentence that follows ("Monitoring for user or network requests is not considered a Principal Function for STBs or DVGs.")
- Paragraph 1.H.3: To clarify that Deep Sleep uses less energy than Sleep, this definition could read "Deep Sleep State: A power state characterized by reduced power consumption that provides additional energy savings over Sleep Mode."

- Paragraph 3.3.3.viii: Modifying this to read "…and only when the device is tested with Wi-Fi as the HOME NETWORK INTERFACE providing the primary video transport from the MULTI-ROOM STB or DVG to the device" makes it clear that this allowance is not intended to be applied to cases where the Wi-Fi capability is simply being used to connect to the household router to receive data.
- Table 3: The allowances for MIMO Wi-Fi HNI: 2.4 GHz Stream and 5 GHz Stream should be shown as "3 per spatial stream" and "10 per spatial stream" to reduce confusion.

Topics discussed during the Webinar

The satellite industry stakeholders also would like to comment on several topics that came up in the course of the January 31 Webinar hosted by EPA and DOE:
- Paragraph 3.2.4.i (Webinar Slide 13): Regarding the Final Draft not offering an incentive for products having a manual deep sleep control, we agree with the consensus arrived at during the meeting: an incentive is not warranted since significant consumer use of the feature on a proactive basis would be rare.
- Table 9 (Webinar Slide 14): A Deep Sleep Wait Time of 30 seconds may not be enough time for an STB to fully enter a Deep Sleep state. Since the test duration is a minimum of 1 hour a reasonable wait time before starting the measurement (T_{SLEEP_WAIT}) is 5 minutes.
- Paragraph 3.2.4.iv: The requirement as currently written differs from the STB Voluntary Agreement, which allows for much simpler Deep Sleep implementations while remaining very effective. To align with the VA, this requirement should be modified to simply read "Conversely, a user-scheduled DVR recording or other function shall not prevent a device from entering Deep Sleep more than 15 minutes after the time required to perform the DVR recording or other function."
- Table 2: OTT IP should be last on this list, allowing a hybrid Terrestrial/OTT IP or hybrid Thin Client/OTT IP unit to use the correct base allowance.
- Paragraph 4.2: It was suggested that Cable STB models that are configured for specific cable operators should be thought of as individual products. We agree with the consensus arrived at during the meeting: the significant increase in program complexity and consumer confusion that would result from testing and listing the myriad configurations is not warranted by the relatively minor differences in energy consumption that might be uncovered.

We thank you for this opportunity to comment and look forward to the Version 4.1 program taking effect later this year.

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