



July 10, 2013

Ms. Katharine Kaplan
U.S. Environmental Protection Agency
1200 Pennsylvania Ave., N.W.
Washington, DC 20460

Re: ENERGY STAR Version 4.1 Set-Top Box Specification – Draft 2

Dear Ms. Kaplan:

ARRIS Group, Inc. (“ARRIS”)¹ welcomes the opportunity to comment on Draft 2 of the ENERGY STAR Version 4.1 Set-Top Box (“STB”) specification (“Draft 2”).² Draft 2 includes a number of important improvements to the specification based on stakeholders’ comments on Draft 1, including some of the recommendations ARRIS made in its initial comments.³ However, there are several new, unexpected additions and deletions to Draft 2 that are unhelpful. Most notably, EPA’s proposed elimination of the allowances for Advanced Video Processing (“AVP”) and High Definition (“HD”) Resolution, along with the lack of an allowance for transcoding and a handful of other problems discussed below, likely would hamper ENERGY STAR partners’ continued ability to meet consumer demand for innovative products. The ENERGY STAR program for STBs has thus far been very successful in improving STB energy efficiency while still supporting continued innovation. ARRIS strongly believes that the revisions set forth below are necessary to advance these twin goals and encourage continued and robust industry participation in the ENERGY STAR program.

1) AVP and HD Resolution (Note 56-58)

In Draft 2, EPA eliminates the allowances for AVP and HD functionality “[d]ue to [their] widespread adoption.”⁴ This proposal stands in stark contrast to Draft 1 of the specification, which included allowances of 8 kWh/year for AVP and 16 kWh/year for HD – numbers that were already a 30 percent reduction from the AVP and HD allowances provided in version 3.0 of the specification.

No stakeholder that submitted comments in response to Draft 1 suggested eliminating entirely the allowances for AVP and HD, and for good reason. While it is true that these features

¹ On April 17, 2013, ARRIS acquired the Motorola Home business from Motorola Mobility LLC, a subsidiary of Google.

² See Letter from Katharine Kaplan, Manager, ENERGY STAR Product Development and Program Administration (May 30, 2013); ENERGY STAR Product Specification for Set-top Boxes, Eligibility Criteria, Draft 2 Version 4.1 (“Draft 2”).

³ See Letter from Jason E. Friedrich, Motorola Mobility LLC, to Katharine Kaplan, EPA (Apr. 15, 2013) (“ARRIS/Motorola Draft 1 Comments”).

⁴ See Draft 2 at 2 (note 56-58).

are commonplace in STBs, that is no basis for eliminating the allowances from the specification unless EPA concurrently increases the base allowances for STBs. AVP and HD features still result in power consumption, and such consumption must be reflected in the allowances. By not accommodating the energy consumption associated with these features anywhere in the specification, EPA essentially suggests that it expects STBs to support these two common features without any net addition to the energy consumption of the device. This is entirely unreasonable. ARRIS is not aware of EPA ever taking a similar approach with respect to common device features, and it would not be technically feasible to conform with EPA's proposed approach here. Ultimately, the lack of AVP and HD allowances could impact ENERGY STAR participants' ability to continue to meet the STB specification.

EPA should either maintain separate allowances for the AVP and HD features, or, alternatively, incorporate the required power consumption for these features into the base allowances for all devices. The proposed figures in Draft 1 – 8 kWh/year for AVP and 16 kWh/year for HD – are reasonable estimates. In other words, if EPA wants to eliminate the specific allowances for AVP and HD, the base allowances for each Product Type must increase by 24 kWh/year.

2) Transcoding

As ARRIS explained in its initial comments, transcoding is a critical component for many multi-room devices, and ensuring a sufficient allowance for transcoding capabilities is crucial to facilitating the deployment of such devices and realizing the energy savings that would result from widespread adoption of whole-home approaches.⁵ However, Draft 2 provides no allowance for transcoding whatsoever, apparently based on EPA's assumption that if a feature is not tested, it does not consume power.⁶ This assumption is incorrect. Whether integrated into a device's system-on-a-chip ("SoC") or supported as an independent feature, transcoding adds to the power consumption of the device. A lack of *any* transcoding allowance would discourage the continued deployment of a feature that has great potential for whole-home savings, and thereby decrease support for provision of service provider video content on third-party devices like tablets, game consoles, DVD players, and smartphones. Therefore, to avoid such harmful effects, ARRIS recommends that EPA adopt a transcoding allowance of 13 kWh/year for the presence of transcoding, plus an additional 5 kWh/year for each active transcoding function during testing.

3) MIMO Wi-Fi HNI Restriction (Lines 329-333)

ARRIS appreciates EPA's revisions to the proposed allowance for MIMO Wi-Fi HNI. However, Draft 2 still contains a restriction on this allowance, stating that it can only be used in conjunction with the HNI or Multi-room allowance, and "only when the device is tested with Wi-Fi as the Home Network Interface providing the *primary* video transport for the device."⁷

⁵ See ARRIS/Motorola Draft 1 Comments at 2-3.

⁶ See Draft 1 Version 4.1 Set-top Box Comment Summary & Response, at 1 ("Comment/Response Chart") ("Since transcoding for output to mobile devices or picture-in-picture is not being tested, EPA is not proposing to provide a specific allowance for this capability.").

⁷ See Draft 2 at 8 (lines 329-333) (emphasis added).

ARRIS recommends that EPA remove the word “primary” from this restriction. As an initial matter, it is difficult to determine what is the “primary” interface on a given device. Many STBs are equipped with multiple network interfaces, and the interface ultimately used to transport video will depend on the service provider and on different user scenarios and settings. And, in any event, limiting the allowance as proposed in Draft 2 would discourage the deployment of innovative Wi-Fi solutions in the home.

Further complicating the potential use of this allowance, the proposed restriction states that the MIMO Wi-Fi HNI allowance can only be used if the product is tested while providing video over a Wi-Fi connection to a device. However, Draft 2 offers no corresponding explanation as to how this might modify the test configuration for Multi-room or a Displayless Video Gateway. For example, how would a test be configured where two network interfaces simultaneously serve three clients – two via Wi-Fi and one via MoCA? ARRIS asks EPA to further clarify this point.

4) User-Initiated Deep Sleep (Lines 394-398, Note 399-403)

ARRIS reiterates its concern from its initial comments that, while consumer adoption of deep sleep functionality is important, the inclusion of a specific response time (e.g., begin responding to a user-initiated request for deep sleep within two seconds) limits manufacturers’ ability to innovate. As we previously explained, deep sleep is still being developed, and EPA should ensure that the specification does not hinder innovation by making assumptions as to what will be the best way to accomplish a particular task. ARRIS again recommends that EPA revise the specification to allow manual deep sleep initiation per the manufacturers’ instruction. This will provide manufacturers with leeway and incentive to innovate and develop functionality as a point of competitive differentiation.

5) Process for Incorporating New Features

In response to stakeholder comments about new features that are likely to become more commonplace, Draft 2 includes definitions for Ultra HD Resolution, High Efficiency Video Processing (“HEVC”) and 3D Capability. EPA states that it “may consider reasonable allowances in a future STB specification once performance data for these functionalities become available.”⁸ ARRIS agrees that it is important for the ENERGY STAR specification to recognize that innovative features that will benefit consumers are likely to be incorporated into STBs in the near future. However, it is unclear how recognition of these new features in the ENERGY STAR specification will translate into the flexibility necessary to encourage continued innovation. In light of this, ARRIS recommends that EPA clarify how manufacturers and service providers should account for power generated by HEVC, Ultra HD, or other new features that may be included on STBs until EPA has the data necessary to develop base allowances for these features.

⁸ See Draft 2 at 3 (note 87-90); see also Comment/Response Chart at 2.

6) Restrictions on Multi-room Allowance (Note 323-325)

In Draft 2, EPA states that the Multi-room allowance “will no longer apply to STBs that only serve as whole-home DVRs.” This new restriction ignores the fact that multi-room DVRs are a significant improvement from an energy efficiency standpoint over deploying multiple full-capability DVRs throughout the home. While ARRIS continues to develop newer and more efficient technology, such as gateway devices, the business model and cost to make the transition to such devices has not yet been realized. It is critical that EPA continue to allow the Multi-room allowance to apply to whole-home DVRs in Draft 2.

Similarly, EPA also limits the Multi-room allowance “to only apply to STBs that can provide live content and head-end interaction for *Thin Client* STBs.”⁹ ARRIS sees no rationale for limiting the allowance to interaction with thin clients, as opposed to interaction with other devices. This restriction will only hamper whole-home approaches, which have the potential to decrease significantly residential energy consumption.

ARRIS recommends that EPA remove both of these restrictions from Draft 2 and retain the language proposed in Draft 1.

7) Router and Access Point Allowances (Lines 338-339)

ARRIS appreciates EPA’s inclusion of new definitions and allowances for networking functionality, such as Access Point and Router, in Draft 2.¹⁰ EPA states that inclusion of these features will “permit gateways and other near-term products with home networking functionality to qualify.”¹¹ However, EPA restricts the Router and Access Point allowances, requiring that they must be combined with the HNI allowance.¹² This suggests that application of these features would be limited to HNI and *could not* be used with the Multi-room allowance. ARRIS recommends that these allowances should be available for either HNI *or* Multi-room. As discussed in response 6 above, limiting whole-home approaches by prohibiting certain features and devices from being combined with the Multi-room allowance will thwart the significant energy savings that can stem from whole-home approaches.

8) Telephony Allowance (Line 341, Table 2)

EPA proposes a Telephony allowance of 4 kWh/year. Like the other new allowances for networking functionality, EPA states that the Telephony allowance is based on Draft 3, Version 1.0 of the small network equipment specification (“SNE Specification”).¹³ However, unlike the

⁹ See Draft 2 at 8 (note 323-325) (emphasis added).

¹⁰ See Draft 2 at 3 (lines 96-101) & 9, table 2.

¹¹ See Comment/Response Chart at 2.

¹² See Draft 2 at 9 (lines 338-339).

¹³ See ENERGY STAR Product Specification for Small Network Equipment, Eligibility Criteria, Draft 3 Version 1.0, available at <http://energystar.gov/products/specs/sites/products/files/Draft%203%20Version%201%200%20SNE%20Specification.pdf>; Comment/Response Chart at 2.

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SNE Specification, under which the Telephony allowance can be applied on a per port basis, here, EPA offers no discussion as to whether the STB Telephony allowance can be applied to multiple telephone lines. ARRIS recommends that Draft 2 track the SNE Specification on which it is based, and thus permit the Telephony allowance to be applied on a per line basis.

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ARRIS is strongly committed to the ENERGY STAR program and looks forward to further discussions with EPA about the specification. For the reasons discussed above, ARRIS urges EPA to further fine-tune the specification to continue to support innovation in this dynamic marketplace. Please contact me if you have any questions regarding this matter.

Sincerely,

/s/ Jason E. Friedrich

Jason E. Friedrich

Head of U.S. Government and

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