



Consumer Electronics Association
1919 South Eads Street
Arlington, VA
22202 USA
(866) 858-1555 toll free
(703) 907-7600 main
(703) 907-7601 fax
www.CE.org

July 29, 2013

Ms. Katharine Kaplan
U.S. Environmental Protection Agency
Office of Air and Radiation
1310 L Street, NW
Washington, DC 20005

Subject: Draft 2 ENERGY STAR Version 4.1 Specification for Set-top Boxes (STBs)
This letter revises and supersedes the CEA letter dated July 10, 2013.

Dear Ms. Kaplan,

Thank you for the opportunity to comment on the Draft 2 Version 4.1 ENERGY STAR specification for Set-top Boxes (STBs). The draft proposals are outlined in a memo from the EPA dated May 30, 2013.

The Consumer Electronics Association (CEA) is the preeminent trade association promoting growth in the \$209 billion U.S. consumer electronics industry. More than 2,000 companies enjoy the benefits of CEA membership, including legislative advocacy, market research, technical training and education, industry promotion, standards development and the fostering of business and strategic relationships. CEA also sponsors and manages the International CES – The Global Stage for Innovation. Among their numerous lines of business, CEA members design, develop, manufacture, and distribute set-top boxes (STB) with a variety of basic and advanced features.

As a long-time partner in energy efficiency, the consumer electronics industry is committed to the further success of the ENERGY STAR program. In particular, the STB specifications cover devices with a wide range of features and is therefore well suited for comment and input from CEA. We offer the following comments to guide the ENERGY STAR set-top box specification revision as its development proceeds.

As noted in previous CEA comments, set-top boxes continue to evolve quickly in response to changes in consumer demands and behaviors, and evolving market trends in video and other entertainment distribution. New architectures, features and functions are being deployed and considered. This dynamic transformation from simple set-top boxes to more complex and robust devices, integrating more functionality, continues at a rapid pace. Industry actions have already led to a significant energy-saving initiative for set-top boxes. In December 2012, CEA, the National Cable & Telecommunications Association, and 15 industry-leading video providers and device manufacturers signed an unprecedented Set-Top Box Energy Conservation Agreement that will result in annual residential electricity savings of \$1.5 billion or more.



Our specific comments follow.

Base Allowances Analysis:

CEA members have reviewed the analysis and spreadsheet circulated by EPA on June 21, 2013 and have identified the following issues with the EPA analysis:

- The Qualified Product List (QPL) has errors and must be carefully reviewed and corrected before being used as a basis for further analysis. Some STBs are listed with features incorrectly added or omitted.
- It is incorrect to include Standard Definition (SD) boxes in the EPA analysis, as they aren't relevant to an analysis intended to determine the base allowance for products having HD and AVP capability. Including SD boxes, skews the results downward.
- There aren't enough data points from High Definition (HD) STBs in the QPL to make an informed decision about where to draw a "25% compliance" base allowance. This is especially true after SD boxes are eliminated from the analysis.
- It is improper to derive a specification value from measured data without adding a margin to account for manufacturing variations. The ENERGY STAR verification testing program for STBs has zero tolerance for error.
- The analysis method used for Cable, Satellite and IP base energy consumption is not used as the analysis method for thin clients. If this analysis method were carefully corrected (e.g. QPL errors eliminated, margin added for manufacturing variations) and used for thin clients as well, CEA believes that EPA would arrive at a base allowance much higher than the proposed value of 15 kWh/year (which was based on premature assumptions about thin client deep sleep capabilities).

Elimination of the Allowances for Advanced Video Processing (AVP) and High Definition (HD)

Resolution:

Draft 1 of the specification included allowances of 8 kWh/year for AVP and 16 kWh/year for HD. Those Draft 1 allowances represented a 30% reduction from the AVP and HD allowances provided in version 3.0 of the STB specification. CEA is unaware of any stakeholder that submitted comments suggested the complete elimination of the allowances for AVP and HD. While it is true that these features are commonplace in STBs, that is no basis for eliminating the allowances from the specification since these features still result in additional power consumption. 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 allowances proposed in Draft 1 are appropriate. Accordingly, 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.

Restrictions on Multi-room Allowance:

EPA proposes that the multi-room allowance only apply to STBs that can provide live content and head-end interaction for thin client STBs, and that it no longer apply to STBs that only serve as whole-home DVRs. This restriction on the multi-room architecture does not recognize significant energy efficiency benefits of a multi-room DVR compared to deploying multiple, full-capability DVRs throughout a home. It is important that EPA continue to recognize the advantages of this architecture, perhaps by providing for a multi-room DVR allowance that applies specifically to whole-home DVRs scenario.

Home Network Interface (HNI) Allowance:

Home Network Interfaces allow the transmission of video content with external devices over a local area network. These interfaces include Wi-Fi, MoCA, HPNA, and HomePlug. The proposed HNI allowance of 10 kWh/year is too low and inadequate for current STB configurations.

Application of Router and Access Point allowances:

Draft 2 states that the Router and Access point allowances can only be used in combination with the HNI allowance on a STB. This implies that these allowances are not usable for a multi-room server. We believe this restriction is an inadvertent error, and propose that EPA provide suitable clarification in the final draft.

Wi-Fi Allowance:

The draft specification contains an allowance for Wi-Fi connectivity for video transport, regardless of the Wi-Fi standard employed.

The calculation of the Wi-Fi HNI allowance is based on the Small Network Equipment (SNE) specification. EPA has indicated its desire to make the MIMO Wi-Fi HNI allowance consistent with the SNE specification. However, while Draft 2 adopts the same allowance for 2.4 GHz streams, without limitation on the Wi-Fi standard employed, the allowance for the 5GHz stream is reduced from 11 kWh/year to 7 kWh/year. Furthermore, the draft STB specification does not adopt the fixed component of the Wi-Fi interface contained in the SNE specification.

The Wi-Fi interface allowance is burdened by an HNI allowance that is undervalued and lower than the actual consumption. The shortfall in the HNI allowance is further compounded by ENERGY STAR's desire for consistency between the Wi-Fi HNI allowance for STBs and the Wi-Fi allowance in the SNE specification. Yet the usage pattern and energy consumption for a home Wi-Fi access point is vastly different than for a STB Wi-Fi interface dedicated exclusively to video transport. Streaming video over Wi-Fi connectivity must be designed to operate under extreme conditions of distance and noise. A high bandwidth continuous stream must be supported while accounting for high interference conditions. An energy consumption allowance based on ideal conditions and low interference is simply unsupported.

CEA urges that the Wi-Fi HNI allowance be increased. In addition, EPA should add a fixed component to the Wi-Fi HNI so that, in combination with the existing HNI adder and the proposed per channel allowance yield, a reasonable Wi-Fi allowance is achieved.

Next Generation Features:

EPA has added definitions for Ultra HD, High Efficiency Video Processing, and 3D Capability. However, EPA is not proposing any allowances for these functionalities at this time due to lack of data on their energy consumption. EPA has stated that they may consider allowances in a future STB specification once performance data for these functionalities become available.

Given the strong presence of these new generation features in demonstrations at this year's International CES, CEA urges EPA to waste no time in launching a special STB specification revision process narrowly focused on identifying appropriate allowances. If EPA waits until the next general revision round, STB products that are very deserving of ENERGY STAR recognition could be precluded from qualifying, as EPA offers no mechanism in the STB program for subtracting out from measured results the effect of features for which no allowance exists.



In conclusion, CEA reiterates its strong support for the ENERGY STAR program and urges EPA to favorably consider the above requests and suggested changes to the latest draft STB specification in order to maintain the program's relevancy in the STB category.

As always, please do not hesitate to contact us if you have any questions or need more information.

Sincerely,

_____/s/
Bill Belt
Senior Director, Technology & Standards

_____/s/
Douglas Johnson
Vice President, Technology Policy

cc: Matt Malinowski, ICF International