

SHARP LABORATORIES OF AMERICA

*Via e-mail:
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July 7, 2014

United States Environmental Protection Agency
Office of Air and Radiation
Washington, D.C. 20460

Subject: **ENERGY STAR[®] Draft 1 Version 7.0 Specification for Televisions**

COMMENTS OF SHARP LABS OF AMERICA

SHARP is an enthusiastic ENERGY STAR Partner and is committed to building high-efficiency, environmentally advanced products that deliver top performance to our customers. The ENERGY STAR program continues to be the most effective approach for SHARP to communicate the low power consumption of our products to retailers and consumers.

On June 2nd, EPA released ENERGY STAR Draft 1 Version 7.0 Specification for Televisions.

SHARP offers the following comments:

SHARP supports updating the definitions

Definitions for Rear-projection, Direct-view, and Analog TVs as well as TV combination unit are no longer needed. A definition for Component Televisions is likely not needed either; however, given that the product category existed at the dawn of digital tuners, it is possible that they would make a brief return when ATSC 3.0 is launched. SHARP also supports harmonization of the Television (TV) definition with Appendix H.

SHARP does not currently produce televisions designed specifically for the hospitality market, so we have no opinion on the definition of Hospitality TV. Still, we question the value of DAM, which can be impossible to test with a black-box approach and may require specialized equipment to simulate real-world operation.

SHARP agrees with removing the definition of Power Overhang State.

Regarding mode definitions, SHARP notes that CEA-2037-A and the upcoming IEC 62087 have slightly different wording than the current draft, but the meaning is harmonized.

SHARP supports the addition of a definition for Thin Client Capability and we note that an additional power allocation would be a clear incentive for manufacturers to add this power-saving feature.

A definition for Point of Deployment Module (POD) is no longer needed. In SHARP's experience, the market did not support the additional hardware cost of adding POD support to TVs. If MVPD client support in televisions is to succeed, SHARP believes that the conditional access feature must be provided by downloadable software rather than modular, removable hardware. Also, note that the CableCARD specification requires significant power to be made available to the CableCARD slot which can force the selection of a larger power supply than otherwise needed and that this might affect energy efficiency negatively.

SHARP questions the need for an HEVC definition as we believe that HEVC decoders do not consume significant power compared to other decoder technology, such as MPEG-2 and AVC.

SHARP supports adding a definition and test procedure for Full Network Connectivity given that power control with an external signal is done over IP for modern TVs and that the DOE test method does not confirm this condition. In short, the test for Full Network Connectivity is needed to validate that the television is in Standby-active, low. Similarly, SHARP supports adding a definition for Wake on LAN (WOL). EPA might consider a related definition for Wake on Wireless LAN (WoWLAN).

Regarding human interface capabilities including Gesture and Voice Recognition, SHARP questions whether these features require significant additional power when in the On mode.

Regarding the configuration definitions, SHARP notes that the Default Picture Setting definition in the current draft differs from the definition in CEA-2037-A and in the upcoming IEC 62087-3 standard. In these standards, the default picture setting for TVs with a forced menu requires selection of the home configuration. If the retail configuration is chosen, that is known as the retail picture setting. As currently defined in the v7.0 draft, there are two different default picture settings for TVs with forced menus, which could be confusing. From the point of view of the home consumer, the default picture setting should be based on operation in the home configuration. The conceptual framework figure in CEA-2037-A and the upcoming IEC 62087-3 standards show the setting relationships clearly.

SHARP agrees that area measurement of curved screens is necessary and agrees with the definition.

SHARP agrees with the reference to The Society for Information Displays (SID) Information Displays Measurement Standard Version 1.03 when considering resolution and notes that “addressability” is a term that can be used rather than “native resolution” (e.g. 3840 x 2160 pixel or higher addressability). Similarly, SHARP agrees that the definition of Ultra HD must be clear and unambiguous, noting that some points for Ultra HD TVs in EPA’s data set are anomalous and that those TVs might not in-fact be Ultra HD addressable televisions.

SHARP agrees with the definition and approach with the term “Basic Model.” SHARP also agrees with the definition for MVPD.

SHARP supports updating the scope

SHARP agrees with the changes presented in lines 285 to 292, 299 to 307 and 320.

Regarding TVs with main batteries, SHARP notes that CEA-2037-A and the upcoming IEC 62087-3 standard allow testing of TVs with main batteries if those main batteries can be removed. By performing all measurements with the main batteries removed, the televisions can be tested in the same manner as normal televisions. SHARP recommends limiting the exclusion to televisions with non-removable main batteries.

SHARP supports updating the general requirements

Clearly, for TVs with external power supplies, those supplies must meet federal regulations (lines 337-340).

SHARP is opposed to expansive user interface (UI) requirements to comply with ENERGY STAR. One concern is for products that could lose their ENERGY STAR rating when an updated specification comes into effect. It is costly to redesign firmware, so no UI requirements should be imposed that would not be proper on non- ENERGY STAR qualified products. Another concern is complexity. Consumers are easily overwhelmed by excess or

inefficient information in user interfaces. SHARP is concerned that each item added to the UI by ENERGY STAR adds complexity that could result in a negative consumer experience.

Similarly, a clock requirement could have a negative effect. Few, if any, TVs have accurate clocks that remain active in Standby-passive. If the TV is not able to synchronize the clock via the Internet, the clock could become improperly set and would not provide the intended function. (Many of us recall the “flashing 12:00” on the displays of our VCRs.) In addition, the current DOE standard does not reward TVs that go into Standby-passive, low for less than 19 hours. The presence of a clock and scheduling of energy consumptive features will not improve a television set’s DOE AEC score.

SHARP supports an additional energy allowance for TVs with STB Thin Client features. This feature would reduce the overall energy footprint of the typical home and should be incentivized in able to help ensure solid initial success in the market.

SHARP supports removing DAM.

SHARP agrees that TVs should return to Standby-active, low or Standby-passive after the download of a firmware update or other data transfer has been completed; however, this is not easily testable by 3rd parties so it is not an appropriate requirement. EPA should suggest the behavior, but not make any requirement related to this operation.

SHARP believes that the On mode requirements are overly aggressive

SHARP believes that the interpolation used by ENERGY STAR is overly optimistic with regards to energy efficiency. SHARP recommends a new analysis, based on actual DOE-based data.

SHARP also notes that the line is set such that many televisions in the small and medium size categories meet the new target, but only a single TV over 70-inches qualifies – and if this

TV's power is estimated through interpolation, then potentially no 70-inch-plus TVs qualify.

SHARP urges EPA to not only perform the analysis with only real DOE-based data, but to set a line that does not penalize TVs in the 70-, 80-, and 90-inch categories.

SHARP believes that Ultra HD addressable TVs require significantly more power

SHARP's data shows that Ultra HD addressable TVs can typically take twice as much power as an HD TV. Some of the TVs in EPA's data set consume significantly less power, but SHARP wonders if these TVs were truly Ultra HD and notes that these TVs are not sold in the US and therefore are not required to pass FCC tests. SHARP recommends a new analysis that would skip the anomalous data.

As stated earlier, SHARP agrees with removing the power overhang state.

Standby-passive mode

SHARP supports reducing Standby-passive mode from 1W to 0.5W.

Standby-active, low mode

SHARP is confident that some manufacturers have reported Standby-passive values and Standby-active, low numbers for products that do not support true Standby-active, low. This has corrupted the data set. SHARP believes that TVs that do not support Full Network Connectivity do not have a true Standby-active low mode and are in Standby-passive mode, therefore a 0.5W requirement for such TVs (the same as Standby-passive) is appropriate.

For TVs with Full Network Connectivity, 1W is not adequate. The data set that led to the 1W proposal is likely corrupted by TVs that do not have Full Network Connectivity. EPA should adjust their data set and potentially gather additional data and should then propose a new, higher value that would be appropriate.

Luminance measurement

SHARP believes that the current luminance ratio requirement of 65% is unnecessarily restrictive. For televisions with a low peak luminance level, such a ratio might be reasonable given that if the TV has poor efficiency and is relatively dark at retail, the ratio requirement ensures that the TV will not be surprisingly dimmer in the home in order to meet power requirements.

But what of high-efficiency televisions that have exceptionally bright capabilities at retail? As we know, bright televisions sell well, so the manufacturer will be motivated to show the TV at or near its brightest setting when shown for sale. Unfortunately for such a television, it can only be 35% less bright in the default setting in the home configuration, which might be much brighter than needed in the home and would consume more power than needed.

This situation is also unfair. The dim television at retail is able to measure power with a very dim setting yet the efficient television must set its brightness much higher (and possibly much brighter than needed for home use) for the same, competitive measurement.

SHARP proposes that televisions be required to meet one of two requirements: either the television must meet the 65% luminance ratio requirement or meet an absolute luminance value minimum. SHARP notes that Hollywood masters content for the cinema to a peak white level of 50 nits and content for home viewing to a peak white level of 100 nits. Therefore, SHARP recommends that TVs be required to either meet the 65% luminance ratio or an absolute level of 100 nits in the default setting when in the home configuration. This will potentially save energy for the consumer while ensuring that televisions with higher luminance capabilities are not penalized compared to inherently dim televisions.

DAM testing

SHARP believes that DAM is not testable by a neutral 3rd party and should not be part of the ENERGY STAR specification.

Full Network Connectivity

SHARP supports a test of Full Network Connectivity based on CEA-2037-A. This will clearly separate TVs that include Standby-active, low from other models.

Effective Date

SHARP is very concerned about the timing of the effective date. If the final specification is not ready before fall 2014, it is virtually impossible to ensure that 2015 models comply with the new specification.

In fact, at the web conference on 17-June, EPA mentioned that the Final Draft might not be published until the end of the year (late fall). That would set the effective date at the end of September. Note that retailers are already actively planning their holiday shelf space allocations at that time so very few new models have first shipment dates in the 4th quarter. Typically, new model year products are introduced in the 2nd and 3rd quarters after being shown for the first time at CES at the start of the 1st quarter.

The Final Draft should be accelerated until well before fall 2014, or delayed such that 2016 model products would be the first to target the new goals.

Conclusion

SHARP strongly supports the ENERGY STAR program and supports much of the text in the draft of ENERGY STAR V7.0 for Televisions. In addition, SHARP believes that changes should be made based on these points:

- An additional power allocation for Thin Client Capability should be added as an incentive for manufacturers to add this power-saving feature.

- An HEVC definition is not needed unless it is shown that HEVC decoders consume significant power compared to other decoder technology, such as MPEG-2 and AVC.
- A definition for Wake on Wireless LAN (WoWLAN) should be added.
- SHARP questions whether human interface capabilities including Gesture and Voice Recognition require significant additional power when in the On mode.
- SHARP notes that the Default Picture Setting definition differs from the definition in CEA-2037-A and the upcoming IEC 62087-3 standard and urges harmonization.
- SHARP notes that “addressability” is a term that can be used rather than “native resolution” (e.g. 3840 x 2160 pixel or greater addressability).
- SHARP recommends limiting the main battery exclusion to televisions with non-removable main batteries.
- SHARP is opposed to expansive user interface (UI) requirements to comply with ENERGY STAR. One concern is that ongoing products that lose their ENERGY STAR rating due to version updates could require expensive redesigns.
- A clock requirement could have a negative effect. Few, if any, TVs have accurate clocks that remain active in Standby-passive.
- SHARP agrees that TVs should return to Standby-active, low or Standby-passive after the download of a firmware update or other data transfer has been completed, but this should be suggested, rather than required, behavior.
- SHARP believes that the interpolation used by ENERGY STAR is overly optimistic with regards to energy efficiency. SHARP recommends a new analysis, based on actual DOE-based data.

- SHARP urges EPA to not only perform the analysis with only real DOE-based data, but to set a line that does not penalize TVs in the 70-, 80-, and 90-inch categories.
- Some of the Ultra HD TVs in EPA's data set consume significantly less power than others. SHARP recommends a new analysis that would skip the anomalous data.
- For TVs with Full Network Connectivity, 1W is not adequate. The data set that led to the 1W proposal is likely corrupted by TVs that do not have Full Network Connectivity. EPA should adjust their data set and potentially gather additional data and should then propose a new, higher value that would be appropriate.
- SHARP proposes that televisions be required to meet one of two requirements: either the television must meet the 65% luminance ratio requirement or meet an absolute luminance value minimum, such as 100 nits.
- SHARP supports a test of Full Network Connectivity based on CEA-2037-A. This will clearly separate TVs that include Standby-active, low from other models.
- The Final Draft should be accelerated until well before fall 2014, or delayed such that 2016 model products can target the new goals.

We hope that EPA strongly considers SHARPs comments as we work together to create an effective, accurate, and efficient next version of the ENERGY STAR program for televisions.

Respectfully submitted,

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July 7, 2014