



Verena Radulovic
U.S. Environmental Protection Agency
William Jefferson Clinton Building
1200 Pennsylvania Avenue, NW
Washington, DC 20460

July 26, 2017

Subject: ENERGY STAR® Audio/Video Version 4.0 Discussion Document

Dear Ms. Radulovic:

This letter comprises the comments of the Pacific Gas and Electric Company (PG&E), Southern California Gas Company (SoCalGas®), San Diego Gas and Electric (SDG&E), and Southern California Edison (SCE) in response to the ENERGY STAR® Audio/Video Version 4.0 Specification and Test Method Discussion Document released on June 26, 2017.

The signatories of this letter, collectively referred to herein as the California Investor-Owned Utilities (CA IOUs), represent some of the largest utility companies in the Western United States, serving over 35 million customers. As energy companies, we understand the potential of the ENERGY STAR program to cut costs and reduce energy consumption while maintaining or increasing consumer utility of the products. We have a responsibility to our customers to advocate for sensible test procedures, specifications, and standards that accurately reflect the climate and conditions of our respective service areas to maximize the positive effects of these efforts.

We believe that a voluntary ENERGY STAR Audio/Video Specification is an integral part of facilitating widespread energy efficiency. We encourage the U.S. Environmental Protection Agency (EPA) to continue developing an ENERGY STAR specification that differentiates the most efficient products while delivering reliable performance, and conveying information to consumers about the product that is accurate and representative. The requirements arising from the specification are helpful for consumers seeking the most efficient products, and the utility-sponsored programs that leverage the ENERGY STAR distinction to identify and incentivize efficient products. Specifically, “Soundbars” is a product in the ENERGY STAR Retail Products Platform, of which PG&E is a sponsor.¹ In support of EPA’s revision efforts, we offer the following comments for consideration.

I. REPRESENTATIVE TESTING OF AUDIO PRODUCTS

In general, we commend EPA for seeking to establish test procedures and metrics that best represent actual use. However, in the case of audio products, the testing and reporting of metrics in active-mode have not been shown to be representative or of any use to consumers. For example, several manufacturers have suggested that the measured condition of 1/8 the maximum undistorted power (MUP) does not accurately delineate amplifier efficiency for all products. In addition, the power measurements at 1/8 MUP may mislead consumers into believing that a low reported wattage would lead to energy savings when in fact the value is simply an arbitrary level for comparing amplifier efficiencies. In the interest of transparency and accuracy, we support efficiency measurements being performed at more representative values. Please consider the following comments relevant to representative testing of audio products:

¹ <https://www.energystar.gov/ESRPP>

- 1) **We recommend EPA require measurement of amplifier efficiency at an input power that produces a sound pressure level that is expected during typical use of the product.** This ensures that the reported amplifier efficiency reflects the performance that consumers should expect during actual usage. EPA should determine the sound pressure level in decibels (dB) based on the product type and/or intended sector, which is an input already required of manufacturers in the current specification. For example, in the case of soundbars, the amplifier efficiency should be measured at a power that produces volume levels at typical television viewing distances, since soundbars are frequently used in conjunction with televisions. For commercial products, EPA can refer to volume safety guidelines to aid in determining the appropriate dB levels.² Lastly, the power required to achieve this volume using a reference signal should be reported along with the amplifier efficiency, so consumers can better compare power requirements of different products.
- 2) **We support the use of a representative test clip to determine an active-mode power that can be used to derive the product efficiency at the specified volume level.** In the Discussion Document Webinar hosted by EPA on July 17, 2017, herein referred to as the Pre-Draft Webinar, EPA suggested the use of a representative test clip for measuring active-mode power of audio products, particularly products that ship without speakers. We support the use of a representative test clip for measuring the active-mode power of products, because it will best convey to consumers the energy consumption of the product. This value will be beneficial for consumers interested in both energy efficiency and energy conservation. Moreover, a measured active-mode power would likely include ancillary sources of power, such as lights, controls, and networking, which are not currently conveyed through product testing. A test clip would also account for the increased power draw due to the playing of high resolution audio. Measurements of active-mode power should be performed at the settings used to achieve the representative volume level determined based on the comments above.
- 3) **We recommend that products designed and marketed as a wireless product be tested in the wireless configuration.** As EPA noted in the Pre-Draft Webinar, the current specification requires products to be tested with wired connections if the option is available, regardless of the products' intended primary configuration. We commend EPA for acknowledging that most products advertised as wireless also have the capability of a wired connection, and would thus be tested in a configuration not representative of actual use, i.e., with wired connections. We support a test procedure that prioritizes testing in the wireless configuration if the product is designed and marketed as a wireless product.

II. REQUIREMENT CRITERIA FOR SOUNDBARS

As EPA addressed during the Pre-Draft Webinar, soundbars are typically not required to meet or report a metric relevant to active-mode, specifically the amplifier efficiency, because the current specification does not require amplifier efficiency for products with MUP less than 160 watts (1/8 MUP less than 20 watts). However, since soundbars are estimated to be operating for five hours per day with televisions, metrics relevant to active-mode are significant for recognizing the most efficient soundbars. To determine criteria that best distinguishes efficient soundbars, please consider the following comments:

- 1) **EPA should require a minimum amplifier efficiency for all products regardless of MUP.** PG&E contracted Intertek to perform product testing of top-selling soundbars (as of 2015) that do not qualify for ENERGY STAR. Table 1 shows the average tested values compared to the

² <http://www.sengpielaudio.com/TableOfSoundPressureLevels.htm>

average values of the top-selling ENERGY STAR models.³ The results show that soundbars qualifying for ENERGY STAR consume, on average, less power in sleep and idle modes, and have a higher average amplifier efficiency. EPA should require a minimum amplifier efficiency of at least 25 percent for soundbars and other audio products with MUP less than 160 watts.

Table 1: Average Tested Values Compared to the Top-Selling ENERGY STAR Soundbars

	SLEEP POWER		IDLE POWER		1/8 MUP		AMPLIFIER EFFICIENCY	
	Mean (W)	Standard error	Mean (W)	Standard error	Mean (W)	Standard error	Mean	Standard error
NON-QUALIFYING SOUNDBARS	1.7	0.44	8.5	1.2	14	1.9	25%	3.3%
ENERGY STAR SOUNDBARS	0.57	0.11	2.7	0.62	16	2.8	52%	3.3%

III. LISTING OF SOUNDBARS IN THE QUALIFIED PRODUCTS LIST (QPL)

EPA should ensure that the listing of soundbars in the QPL accurately conveys information necessary for consumers to identify the most efficient soundbars.

- 1) **We recommend that EPA should require soundbars to be listed as *soundbar product type* instead of *amplifier*.** Currently, all but two soundbar models in the QPL are listed as amplifiers. While this is technically accurate, it negates the reason for including a soundbar product type, which we believe to be important for consumers. As EPA acknowledged, soundbars consist of 5.8 million national shipments, second in the audio/video category behind only Blu-ray players. In addition, as indicated in the comment above, the soundbar product category type could serve as product classes for the audio/video product category, dictating specific volume-level requirements.
- 2) **We recommend EPA should require soundbars and subwoofers that are designed to be used together and to be reported as their own “product type”.** The specification rightfully requires testing and reporting of these components separately. However, the QPL does not clearly label whether components are designed to be used in conjunction with each other, even if they cannot be purchased separately. This creates difficulty for consumers looking to compare soundbar systems, and may also mislead consumers into believing that a “soundbar” constitutes the whole system. For purposes of clarity and transparency, EPA should consider adding one or more of the following product types: “stand-alone soundbar (subwoofer include)”, “soundbar (subwoofer not included)”, and “subwoofer for soundbar”.
- 3) **We recommend that the amplifier efficiency and active-mode power should be tested and listed for all products, regardless of whether the metric is required.** The lack of data

³ Detailed test results are confidential, but can be available upon request. Non-qualifying models were selected from the “top-sellers” list on several retailer websites. The twenty-three models that were tested were selected to include multiple brands and retailers. Top-selling qualifying models were determined by assessing soundbar sales through PG&E’s Retail Products Platform (ESRPP). The average 1/8 MUP and amplifier efficiency values for ENERGY STAR soundbars were calculated using fewer models than used for the other values due to missing data in the ENERGY STAR QPL.

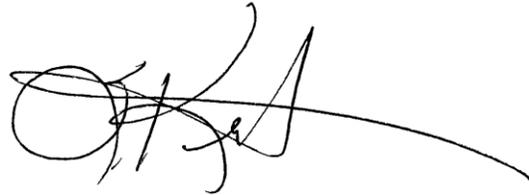
relevant to active-mode power makes it difficult for consumers to select products that yield energy savings. This is particularly important for consumers who are seeking energy-efficient options as a result of prolonged active use. Currently, since most soundbars are not required to test the amplifier efficiency, the value is not reported in the QPL. Products that qualify for ENERGY STAR should have these metrics available to the consumer since they are crucial for comparing the energy use and efficiency of audio products.

In conclusion, we wish to reiterate our support to EPA for revising the ENERGY STAR Audio/Video Specification and Test Method, and we encourage EPA to carefully consider our comments.

Sincerely,



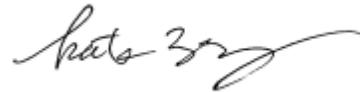
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