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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460



OFFICE OF AIR AND
RADIATION

July 21, 2021

Dear ENERGY STAR® Audio/Video Partner or Other Interested Stakeholder,

Over the past few years, the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy (DOE) have worked alongside industry as part of the Consumer Technology Association's (CTA) R3 Working Group 3 to develop an updated test procedure for audio/video products for use by the ENERGY STAR program. This newly completed test provides results better representing how products are likely to be used by consumers. EPA is pleased to call for the use of this test in association with the ENERGY STAR Audio/Video Version 4.0 specification. With this letter, EPA re-launches the Version 4.0 specification revision and announces its effort to assemble data using *CTA-2084A: Test Methods for Determining Audio/Video Products Energy Efficiency* for the purpose of developing the Draft 1 specification. EPA will consider all energy performance data received by September 2, 2021.

Data Assembly

The Agency is not proposing performance levels for Version 4.0 at this time but is assembling data to inform doing so. Using the enclosed [Data Assembly Form](#), stakeholders are invited to submit test data for their current models taken per the *CTA-2084A: Test Methods for Determining Audio/Video Products Energy Efficiency* test procedure for inclusion in the dataset by September 2, 2021. After analysis of submitted data, the Agency anticipates releasing draft requirements for stakeholder review and comment in early October 2021. **Please note that for data assembly purposes, data submitted to EPA is not required to undergo third party certification.**

An Updated Test Procedure

Several of the more significant updates to historic testing approach as presented by the *CTA-2084A* test procedure are outlined below:

- **Input Signal:** EPA and industry have researched various input signals and tested the 1 kHz signal used for Version 3.0 against several noise signal types to determine which type is most useful for characterizing a device's power consumption across typical listening volumes. This research has indicated that pink noise signals, such as the CTA-2034 noise signal with a 12dB crest factor as defined in ANSI/CTA-2034 Section 8.1.1, would better simulate practical audio amplifier performance because they present a more realistic

workload with a wide spectrum of frequencies. As such, the CTA-2034 pink noise signal is prescribed for use in CTA-2084A.

- **Maximum Undistorted Power (MUP) Measurement:** EPA received feedback from stakeholders that the previous approach to electrically testing products with at 1/8th of the product's MUP will not fully exercise each channel in a multi-channel system. Furthermore, if one or more of the channels is not fully exercised, then the total measured input power may be below 20 W and the Version 3.0 specification states that there are no efficiency requirements for products with an input power below 20 W. The CTA-2084A test procedure addresses these issues by requiring that all channels be connected and tested simultaneously. Similarly, for multi-component systems, all components that are shipped together as part of the product are considered to be part of a single product and tested together.
- **Efficiency Measurements:** To better understand how products perform throughout the range of volume settings that consumers may decide to employ and again address the issue that a 1/8th MUP signal may not fully exercise all channels, CTA-2084A instructs that:
 - For products that ship with a speaker, products shall be tested at 10 equally spaced volume levels throughout its entire volume range. Furthermore, testing is to be completed with a sound pressure level meter to determine the decibel output of a product and enable the creation of efficiency metrics based on projected sound; and
 - For products that do not ship with speakers, recording of electrical efficiency measurements (output power versus input power) is to take place at up to 20 equally spaced intervals throughout the products entire volume range.
- **Idle State:** Two distinct Idle States are understood to be commonplace for audio products. This updated test procedure accounts for both:
 - Where there is no input signal, but the volume is set to a nonzero volume; and
 - Where there is an active input signal, but the volume is set to zero.

Scope Expansion

In recent years, audio products with integrated displays, commonly referred to as Smart Displays, have rapidly increased in popularity. CTA-2084A includes provisions for testing both the audio and display features of these products so that their energy consumption characteristics may be better understood and compared to similar products without a display. As these new products are intended to be covered by the scope of the Audio/Video product category, EPA invites manufacturers to also submit data on such.

Again, stakeholders are encouraged to provide completed [Data Assembly Forms](#) for use in determining the Draft 1 performance levels no later than September 2, 2021. Please send completed forms via e-mail to audiovideo@energystar.gov. The exchange of ideas and information between EPA, industry, and other interested parties is critical to the success of ENERGY STAR. To track EPA's progress in revising the ENERGY STAR Audio/Video product specification and, please visit the [Audio/Video Version 4.0 product development webpage](#), which also hosts the previously published stakeholder comments regarding a Version 4.0 specification that formed the starting point for development of the CTA-2084A test procedure.

Thank you for taking the time to review this data assembly invitation and pre-draft overview of the CTA-2084A test procedure, which EPA was proud to develop alongside CTA's industry members. Please contact me at Kwon.James@epa.gov or (202) 564-8538, or Cody Niblett at ICF at Cody.Niblett@icf.com or (443) 944-4149, with any questions or concerns. For any audio/video

related questions, please contact audiovideo@energystar.gov. Thank you for your continued support of the ENERGY STAR program.

Best Regards,



James Kwon, EPA Product Manager
ENERGY STAR for Consumer Electronics

For more information, visit: www.energystar.gov

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