

I must say, it is rewarding to realize the potential energy savings that can be promoted through new Active Mode requirements we have been able to develop. Thank you for facilitating this process. It has been a pleasure working with you and I look forward to continuing our positive relationship.

Please consider the following comments as EPA prepares to publish the Final Draft of EnergySTAR A/V specification 2.0.

116 b) Loss of Signal (LOS):

117 1) For audio signals, LOS is defined as:

118 i) RCA audio inputs: 1 dB or less above the measured noise floor for 60 seconds.

119 ii) HDMI: Receive <Inactive Source> or <Standby> signal over the CEC channel, or [Power
120 Status] of an upstream device goes to "Standby" or "In Transition to Standby" over the CEC
121 channel.

i. "RCA audio input" should be more generic "Analog audio input". Many professional products use alternate connectors for the same function.

Microphone Inputs need special considerations. Due to ambient noise, they will never reach LOS as defined for analog audio above. Additionally, provisions for providing Phantom Power used by many microphones need to be considered.

Need to define LOS for digital signals by TosLink, Coax (RCA), etc. Many professional products use an RJ-45 Ethernet Connection to provide eight digital audio inputs.

ii. Why cannot other digital control signals (Ethernet, RS-232, etc.) have same status as HDMI with CEC to replace LOS with specific Standby Commands from other equipment? Many professional products will be connected by RS-232 to a Controller that can put the equipment to Sleep and Wake up according to an energy management schedule much the same way a set-back thermostat can lower room temperatures 1 or more times per day. This seems very similar to the functionality provided over HDMI with CEC, only there is much more potential energy to save in a large commercial application than in an individual homes media room.

255 n) MUP (Maximum Undistorted Power): A measure of amplifier output power at the point at which the

256 THD of the amplifier is 1% or greater.

As higher levels of THD are tolerated, audio output power (MUP) and efficiency values will both increase, and will also result in a higher calculated Idle Mode power budget. The same UUT that tests as 50 % efficient at 100 Watts Audio Output and 1 % THD may show results of 60 % efficient at 110 Watts Audio Output and 15 % THD.

High quality amplifiers typically are specified as having Max 0.2 to 0.5 % THD, while low cost amplifiers (PC speakers, boombox) may have 1-10 % THD.

This may be why Underwriters Laboratories uses defines highest volume just before clipping begins to occur to define MUP. Typically, % THD gradually rises with volume until clipping begins at which point it will begin to increase rapidly. Even inexpensive amplifiers with high % THD throughout their range of volume will display demonstrate the onset of clipping at a specific volume level, ref [http://en.wikipedia.org/wiki/Clipping_\(audio\)](http://en.wikipedia.org/wiki/Clipping_(audio)) for illustrations.

258 2. Qualifying Products

259 2.1. Included Products:

260 A product must meet the definitions provided in Section 1 of this document to be eligible for ENERGY

261 STAR qualification under this specification, with the exception of products identified in Section 2.2.

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272 Excluded Products:

273 Products that are covered under existing ENERGY STAR product specifications are not eligible for
274 qualification under the Audio/Video specification. . . .

The heading "Excluded Products: on line 272 appears to have lost its numbering "2.2"

305 3.1. General Qualification Criteria:

330 b) Products Sold with an External Power Supply: To qualify for ENERGY STAR, AV products that
are

331 sold with an External Power Supply must use either; (1) an EPS that is ENERGY STAR qualified,
or

332 (2) an EPS that meets the applicable no-load active mode efficiency levels and power factor
333 requirements provided in the latest version of the ENERGY STAR Program Requirements for
Single

334 Voltage External AC-AC and AC-DC Power Supplies. The EPS specification and qualified product
list

335 can be found at www.energystar.gov/powersupplies.

It is not clear if 3.1, b) is intended to bring A/V products powered by EPS into the Scope of the A/V Spec 2.0 or to alert the reader to other EnergySTAR categories for EUP powered by EPS. My preference is that A/V products powered by EPS is included in this specification, since the use of the EnergySTAR logo can be consistent between all A/V products, rather than using the special EUP powered by EPS logo which is not allowed to be placed on product except as a cord tag format.

349 b) Sleep Mode Power Consumption Requirements: The limits specified in Table 3 are additive. To
350 qualify for ENERGY STAR, the calculated Sleep mode power consumption for a product must not
351 exceed the sum of the limits for each applicable product function listed in Table 3.

352 Table 3: Sleep Mode Power Consumption Limits

Base Limit (All Products)	1.0 W
IP Networking	1.0 W

Telephone Interface Sleep Mode Budget - Need to consider adding Sleep Mode budget to Wake on Incoming analog or VoIP phone call receipt.

Confirm Sleep Mode IP Networking allowance is per Network Connection:

1.0 W base chassis,

2.0 W base chassis with IP Network,

3.0 W base chassis with dual IP Network, etc.

383 d) On Mode Audio Amplifier Efficiency Requirements: To qualify for ENERGY STAR, all products
that

384 offer Audio Amplification must meet or exceed the On mode amplifier efficiency requirements
385 specified in Table 5.

386 If no AV inputs are available and the optical disc player is used for audio signal input (per test
387 procedure Section 4.3.a), the power consumption from the optical disc player, as measured in
388 Section 6.3 of the test procedure, may be subtracted from the total measured power consumption of
389 the device for all audio amplifier efficiency calculations.

390 **Note:** EPA has added additional clarification for devices that must meet On mode amplifier
efficiency
391 requirements but do not offer external signal input terminals for purposes of testing.

As I understand the reasoning in the Note above, a combination CD Player / Amplifier or DVD Player / Amplifier provides two Basic Functions' of the Optical Disc Reader and Amplifier, and special considerations are needed to facilitate testing.

The same reasoning should be applicable to other combinations of multiple Basic Functions such as Stand Alone DSP and Amplifier.

Question about Optional Add On Amplifier Card for Stand Alone DSP

During the last Web Conference, EPA expressed willingness to looking at products on a case by case basis as needed to follow the intent of A/V Specification 2.0 in situations that could not be anticipated.

Please comment on the following, and consider if any text could be added to address this situation.

Biamp has a Stand Alone DSP product with optional Input and Output cards to add any combination of total 24 analog signal level inputs, analog telephone jack, VoIP, etc., all well within the classification of a Dedicated DSP.

One of our most recently developed option cards provides a efficient 60 Watt Medium Class D Amplifier to the Stand Alone DSP chassis. This configuration complies with the spirit of A/V specification 2.0 by sharing the same power supply with the Stand Alone DSP, thus avoiding the need for a completely separate chassis with separate losses and power budget overhead.

Assuming the Stand Alone DSP meet all EnergySTAR A/V 2.0 specifications, and then the additional load introduced by adding the Medium Amplifier independently meets the Amplifier requirements, could the combination be registered as EnergySTAR compliant following the same reasoning as outlined in the note on line 390 for application of 3.1, d) to a combination Optical Disk reader / Amplifier?

Please call me to discuss any questions you have about this proposal.

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