SONY

Sony Electronics Inc.
16530 Via Esprillo, 7135, San Diego, California 92127 Telephone (858) 942-4700 Fax (858) 942-9231

August 5, 2011

Ms. Verena Radulovic
ENERGY STAR for Consumer Electronics
U.S. Environmental Protection Agency
Washington, DC
televisions@energystar.gov

cc: Mr. Owen Sanford - ICF

Dear Ms. Radulovic:

Sony would like to thank the ENERGY STAR for coordinating the stakeholder webinar on July 19th 2011to discuss and review Draft 1 v3.0 ENERGY STAR Audio Video Specifications. We, therefore, take this opportunity to submit comments on the various topics discussed during the webinar.

Auto Power Down (APD)

Presentation materials and explanations during the webinar indicate that the intention of APD (Auto Power Down) is not to take down the entire system and force the product to switch from On Mode to Sleep Mode. Instead, the intention is for products to switch to lower power consuming modes. Sony finds this information favorable and we appreciate the clarifications. We request the EPA to modify the definition of APD to reflect the clarifications made during the webinar.

CEC Implementation

Draft 1 v3.0 states that the EPA is considering requiring CEC implementation for all devices supporting HDMI. Sony opposes such consideration for several reasons. First, HDMI-CEC implementation was designed for ease of communication between compatible devices. Not to save energy. While energy use may be reduced as of result of the use of this technology in compatible devices, the contrary may occur as well as HDMI-CEC has the capability to turn on and turn off devices.

Second, this function is not widely implemented among all manufacturers, and most important, across all AV product categories. In the audio-video category, Sony audio receivers with amplification and some DVD and Blu-Ray players are equipped with CEC capabilities. Such devices communicate with all Sony Televisions equipped with CEC implementation. Our architecture has been designed so that communication is established between our own products, and possibly with other brands. As extensive as the HDMI-CEC specification is, it makes no recommendation regarding architecture for implementing a CEC device in a product. Device architecture will depend on, if any, off the shelf intellectual property availability. There are hundreds of products with CEC implementation on the market today, each with its own specific architecture. Requiring CEC implementation on all AV products with HDMI ports will necessitate compatibility testing with every product on the market today.

Last, considering the comments made above, and considering CEC implementation is a premium feature for performance for some manufacturers, we request the ENERGY STAR to abstain from requiring CEC implementation as a requisite to qualify products under the energy efficiency programs. Sony believes that the EPA's intentions are aimed to save energy, but in the absence of data to support that HDMI-CEC compatible products save energy, the consideration to require CEC implementation for all devices supporting HDMI should be removed from version 3.

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On Mode Requirements (Equation 2)

Sony believes Equation 2 accurately describes the *intent* to capture the Maximum On Mode Power Requirement. Equation 2 takes in account two on mode power function adders, the High Resolution Display adder and the In-Use Network or Control Protocol adder. However, it fails to account for Idle State Power that should be accounted for to accurately capture true P_{ON_MAX}.

For a Home Theater in a Box unit with audio amplification and other similar products, idle power is an inevitable state that must be accounted for when calculating Maximum On Mode Power. Idle mode is considered a source of energy use in the On Mode even while the product is on but not providing audio amplification. Even at zero volume, the amplifying section needs idle power while the receiver is on to immediately respond to volume adjustments. Sony recommends amending Table 3 as follows:

Table 3. On Mode Power Function Adders

Product Function		On Mode Power Allowance, $P_{ADD\ i}$ (watts)
High Resolution Display		$P_{ON} = (6.0 \times R) + (0.05 \times A) + 3.0$ *Where:* *R is the display resolution (x *y) in megapixels* *A is the viewable screen area in square inches*
In-use Networking / Control Protocol		1.0
Audio Amplification *Where:* *P_{OUT} is the output power at 1/8 MUP with 1kHz sinusoidal input*	$P_{OUT} \leq 50.0$ watts	5.0
	$P_{OUT} > 50.0$ watts	$(0.10 \times P_{OUT})$

Amplifier Efficiency Calculation

Efficiency is a measure of how much of the amplifier's input power is usefully applied to the amplifier's output. Equation 4 *attempts* to capture the amplifier's efficiency and rightfully describes that if the amplifier is tested with via optical player, the power consumption of the optical disc player may be subtracted from the total input measured power. Evidently, the power consumption of the optical drive has no relation to amplifier efficiency. Equally so, there are other section in a AV product that should not be considered while calculating efficiency. To accurately determine the efficiency of the amplifier, all other power use, unrelated to the amplifier must be removed. Equation 4 fails to do that. Instead, it utilizes the total input power of the device and measures it against the amplifier's output power.

For illustration purposes, please refer to the attached block diagram of a Compact Audio System (with and without an optical drive). The block diagram illustrates how two almost identical products with almost equal efficiency levels produce different efficiency levels when utilizing Equation 4. In the research we have done, no international test standard exists that describes a proper method for calculating efficiency in AV products. Although the subject has been analyzed to some degree, the complexity and variations in different products have prevented industry from arriving at a conclusion to define amplifier efficiency in a simple equation.

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Sony strongly recommends the EPA to remove amplifier efficiency from the specifications. Alternatively, we recommend the EPA to work with stakeholders to define an equation that accurately characterizes amplifier efficiency. It is a mistake to prevent product qualification in this program when the product itself is efficient but the equation itself lacks the complexity it demands to capture it accurately.

Audio Input Signal Source

ENERGY STAR proposes to use Pink Noise as the audio source for amplifier tests. Pink Noise signals inherently possess characteristics that must be taken in consideration before they are used in amplifier tests. The high peak levels, wide frequency response, and the constant varying frequency and peak levels, make this source undesirable for audio amplification testing. Pink Noise is therefore unstable and in some cases difficult to reproduce. Because of the lack of a better solution, we recommend the EPA to continue referencing sine waves for audio amplification tests.

Toxicity and Recyclability Content Requirements

The Sustainability Consortium is actively working with manufacturers and retailers to develop a comprehensive program to promote environmental attributes on a number of consumers IT products. Numerous eco-labels based on international standards and methodologies exist in the market place for IT products.

It is our belief that the toxic contents identified in the draft as prohibited substances may not apply to AV products as such list of substances proposed in Draft 1 was tailored for IT products. Many of these substances may be present in some electrical components in AV products however at a much lesser scale.

Qualification in an energy efficiency standard should not be defined by presence of toxic contents. Sony believes the ENERGY STAR should abstain from setting Toxicity and Recyclability requirements in the *energy efficiency specifications* and from referencing to existing standards for this matter. Agencies such as EPEAT have developed comprehensive requirements to collect this data. Most importantly, The ENERGY STAR has not been associated or recognized as a promoter of environmental attributes other than energy efficiency. Consumers have learned to associate ENERGY STAR with energy efficiency in different products for many years. During the webinar, the EPA indicated the ENERGY STAR logo will remain unchanged, and that the ENERGY STAR will not engage in additional activities to promote environmental attributes aside from listing toxicity and recycling data on its website. We remain uncertain about the benefits the proposed plan will introduce to the program. Redundancy and duplicity in these activities must be avoided at all cost.

Thank you in advance for your careful consideration of our comments. Should you have questions about our comments, do not hesitate to contact us.

Sincerely,

M. Alan Benedict

Alan Benedict
Director, Service Engineering

Block Diagram: Sections in Yellow require Idle power while the device is ON.

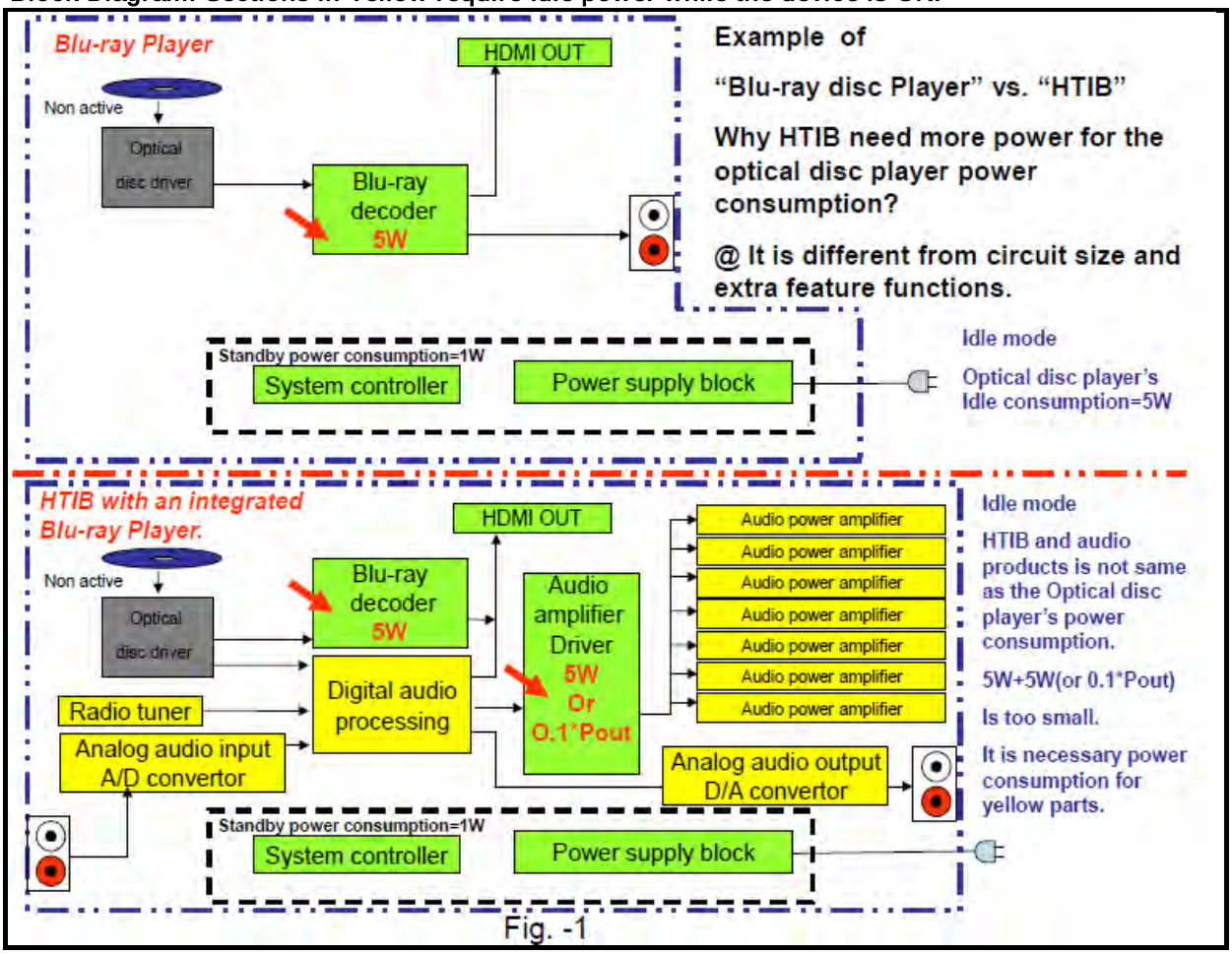
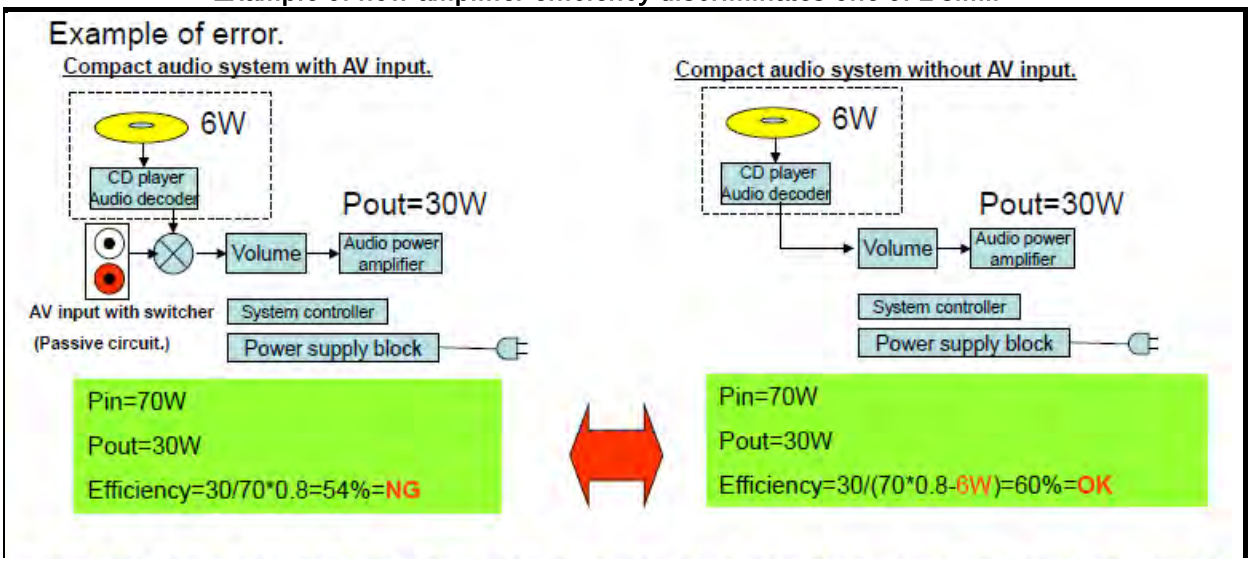


Fig. -1

Example of how amplifier efficiency discriminates one of 2 simil



Calculation

Efficiency = Pout / Pin

Product	Pin (Amplifier)	Pin (idle of player)	Total Pin	Pout	Efficiency
1:Amplifier	80W	-	80W	44W	68.75%
2;Amplifier+Blu-ray	80W	15W	95W	44W	57.9%
3;1/2Amplifier+Blu-ray	40W	15W	55W	22W	50%

The efficiency value of this calculating formula is not actually suitable.

Fig.- 2