

Comments on
the ENERGY STAR Program Requirement
Product Specification for Audio/Video Product
Eligibility Criteria Draft Version 2.1

Oct.1.2010

JEITA

Audio Networks Committee

AV Storage Networks Committee

DEFINITIONS

- Question, Line 113 N) Product Family
-Who what time decides the products family?

On Mode requirements

- Line 221, Table 2: On mode Power Allowance.
“In –use Networking/Control” on Product Function.
We propose to amend to “Each In –use Networking/Control”
(Same as “Table 1” Line 196,)
- Line 221, Table 2: “Optical Disc Player; Record“ on “Product function”
Our understanding of this meaning is “Optical Disc Player/Recorder’s Recording mode”.
Because Version 2.0 mentioned followings expression on Tabel4.
Please confirm it. We think it is better to use more clearer expression.

<Version 2.0>

Table 4: On Mode Power Consumption Limits

Product Function	On Mode Power Consumption Limits (W)			
	Tier 1 Consumer AV Products	Tier 1 All Other Products	Tier 2 All Products	Tier 3 All Products
High Resolution Display (> 480x234 pixel resolution and 5 inches diagonal screen size)	N/A	$P = 6*(R) + 0.05*(A) + 3$ Where: <i>R</i> = Display resolution (x * y) in megapixels <i>A</i> = Viewable screen area in square inches		
In-use Networking / Control Protocol	N/A	2.0		1.0
Standard Definition (SD) Source Optical Disc Player/Recorder	N/A	6.0 (Playback) 16 (Recording)		TBD

3. -Line 221, The limits of “Table 2”.

[“Optical disc player on mode power consumption” at HTiB.]

-The optical disc player power consumption of audio product is difficult to meet the limits on technically.

[Cause]

-This limit is already very tight for the Blu-ray disc (or DVD) player. (Fig.1)

-Idle state power consumption is prepared as the additional power consumption for audio amplification products. The requirements for optical disc player power consumption should be the same condition. (Fig.2)

-Audio amplification products necessitate more power consumption on current technology. If EPA feel necessity of our latest data, we will send the data from each company. (Fig.3)

4. -Line247, Equation4: Calculation Audio Amplifier Efficiency

-We have felt the doubt in the calculation on technically.

[Cause] (Fig.4,5,6,)

-We found some cases that the power consumption does not meet the ratio on the calculation.

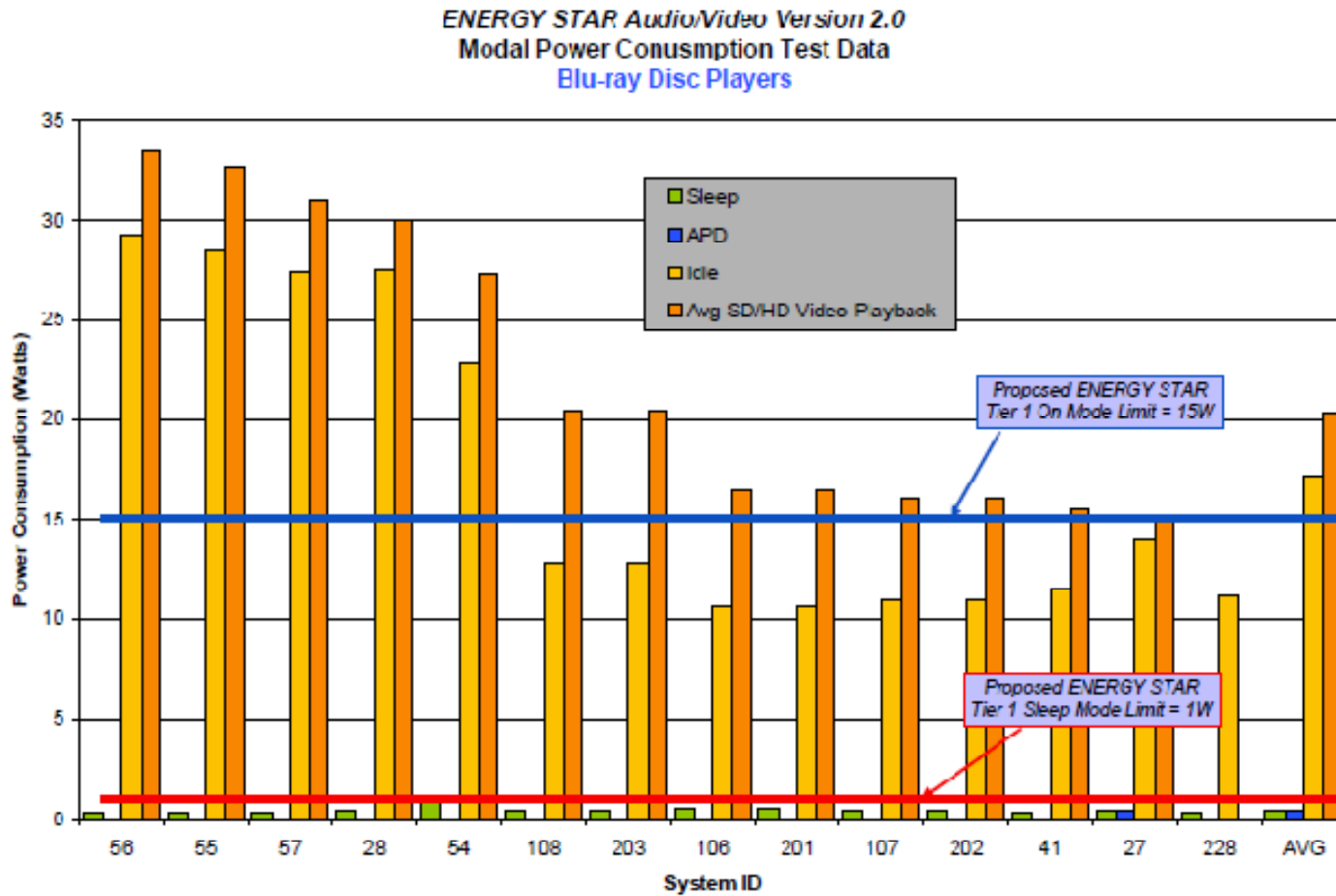
5. -Line 273,

We want you to clarify the meaning of 10%.

-It means plus / minus 10% or 10% margin?

-How to treat additional samples?

-This limit is already very tight for the DVD (or Blu-ray) player.



This limit is tight for Blu-ray disc players.

-Idle state power consumption is prepared the additional power consumption for audio amplification products. Optical disc player power consumption should be same condition.

242

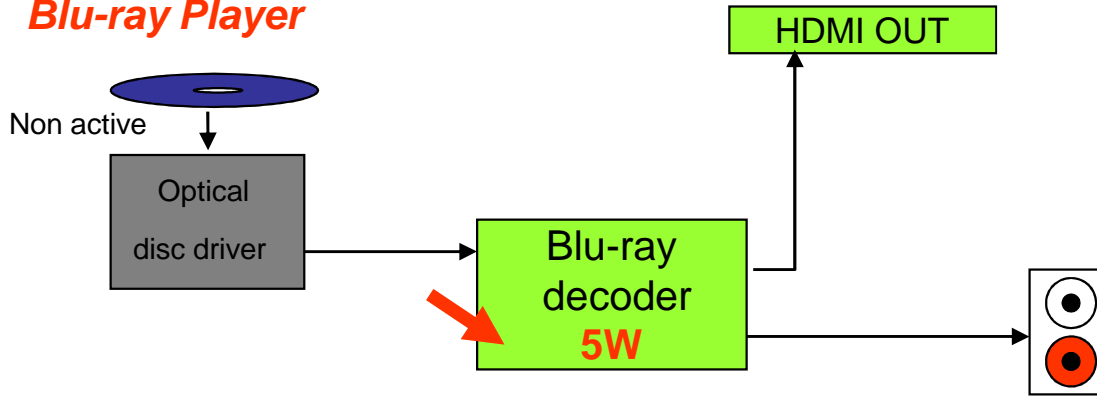
Table 3: Idle State Power Allowances

Product Function		Tier 2 Idle State Power Allowance, P_{IDLE_i} (watts)	Tier 3 Idle State Power Allowance, P_{IDLE_i} (watts)
Base (All Products)		5.0	5.0
Audio Amplification	$P_{OUT} \leq 50.0$ watts	5.0	5.0
	$P_{OUT} > 50.0$ watts	$(0.10 \times P_{OUT})$	$(0.10 \times P_{OUT})$

Where, P_{OUT} is the output power at 1/8 MUP with 1kHz sinusoidal input

Fig.3

Blu-ray Player



Standby power consumption=1W

System controller

Power supply block

Idle mode

Optical disc player's Idle consumption=5W

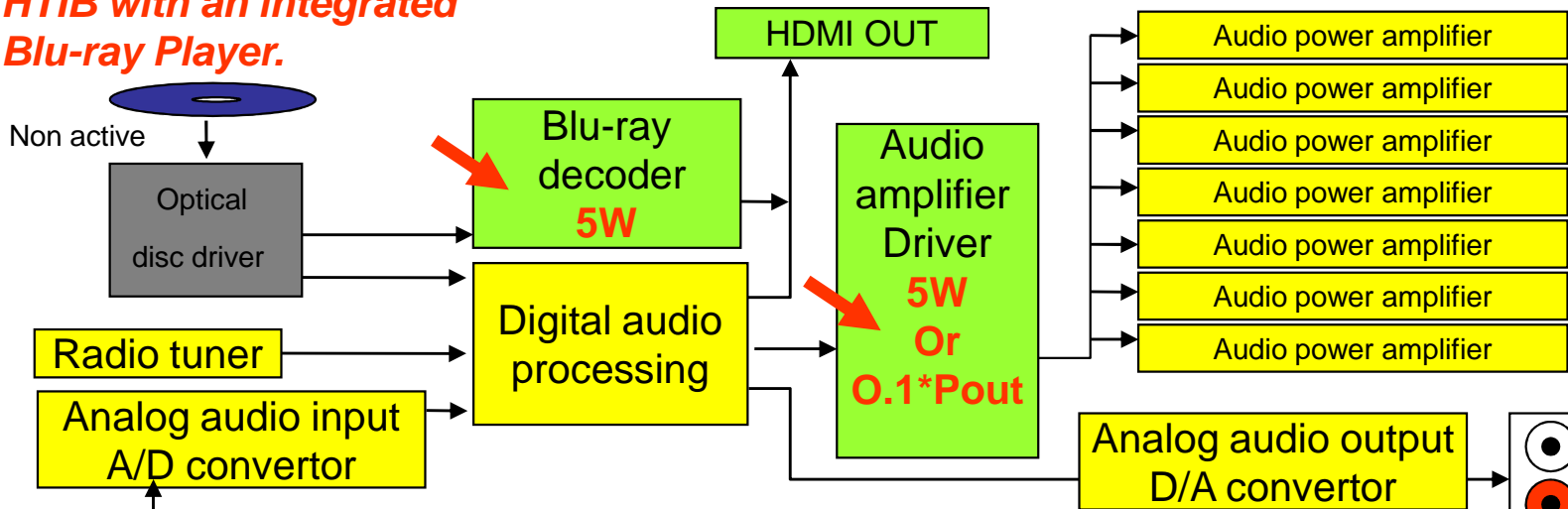
Example of

“Blu-ray disc Player” vs. “HTIB”

Why HTIB need more power for the optical disc player power consumption?

@ It is different from circuit size and extra feature functions.

HTIB with an integrated Blu-ray Player.



Standby power consumption=1W

System controller

Power supply block

Idle mode

HTIB and audio products is not same as the Optical disc player's power consumption.

5W+5W(or 0.1*Pout)

Is too small.

It is necessary power consumption for yellow parts.

On Mode Audio Amplifier Efficiency Requirements

Same comment from final draft.

247

Equation 4: Calculation of Amplifier Efficiency

248

$$\eta = \frac{P_{OUT}}{P_{IN} - P_{DISC}}$$

249

Where:

250

- η is the amplifier efficiency
- P_{OUT} is the output power at 1/8 MUP with 1 kHz sinusoidal input, in watts
- P_{IN} is the input power at 1/8 MUP with 1 kHz sinusoidal input, in watts
- P_{DISC} is the measured power during audio playback for products without AV inputs that must rely on an optical disc player for audio signal input.

251

252

253

254

255

256

257

14) This is not fair to all kind of products. The power consumption from optical disc player and or idle power consumption, as measured in Section 4.3.a) should be subtracted from the total power consumption of the device for all audio amplifier efficiency calculations.

JEITA members propose “Idle power consumption” or “All optical player power consumption with audio input and without audio input” may be subtracted from total power consumption. “Because, Section 4.3.a)” is included idle power consumption.

[20W ≤ Pin < 100W]

Efficiency= Pout/(Pin*0.8-Idle)

or

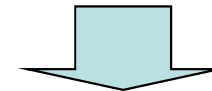
Efficiency= Pout/(Pin*0.8-Section 4.3.a))

[Pin ≤ 100W]

Efficiency= Pout/(Pin-Idle)

or

Efficiency= Pout/(Pin-Idle-Section4.3.a))

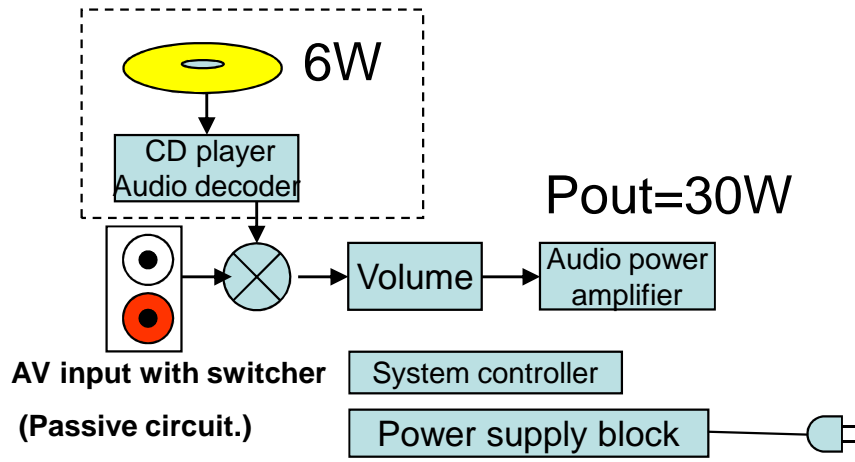


Next page

Example for explanation.

Example for explanation.

Compact audio system with AV input.

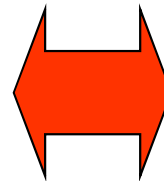


Pin=70W
Pout=30W

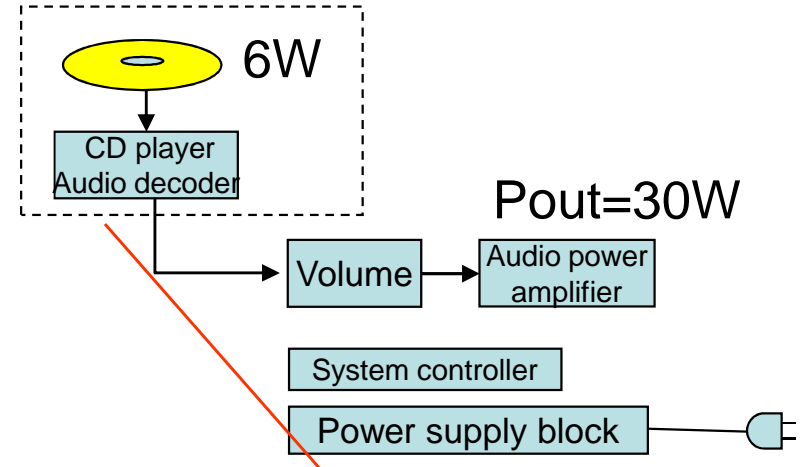
Efficiency=30/70*0.8=54%=**NG**

Idle power consumption=5W

Efficiency=30/70*0.8-5W=59%=**OK**



Compact audio system without AV input.



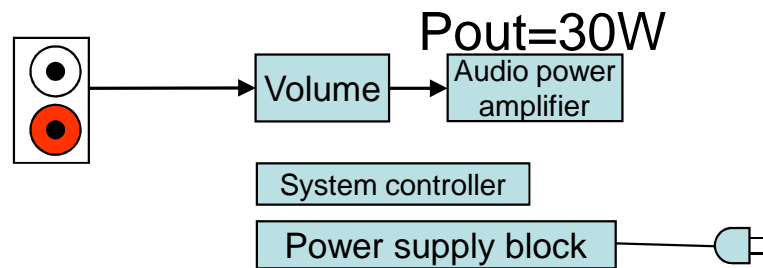
Pin=70W

Pout=30W

Efficiency=30/(70*0.8-6W)=60%=**OK**

← Proposal

Compact audio system with AV input.

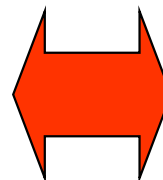


Pin=70W

Pout=30W

Efficiency=30/70*0.8=54%=**NG**

The power consumption from optical disc player and or idle power consumption, as measured in Section 2.3.a) should be subtracted from the total power consumption of the device for all audio amplifier efficiency calculations.



Pin=70W

Pout=30W

Idle power consumption=5W

Efficiency=30/70*0.8-5W=59%=**OK**

← Proposal

Down size of the audio amplifier for energy saving.

Example for explanation.

1: There is a good energy efficiency audio amplifier.

$P_{in}=80W$

$P_{out}=44W$

Efficiency= $44/80*0.8=68.75\%$ -----OK!

2: There is a good energy efficiency audio amplifier and add to Blu-ray disc player circuit. (Bru-ray disc play with Networking, the idle power consumption is 15W.)

$P_{in}=80W(\text{Amplifier})+15W(\text{Idle of Blu-ray disc player with Networking})=95W$

$P_{out}=44W$

Efficiency= $44/95*0.8=57.9\%$ -----OK!

3: When the amplifier made the half output power for energy saving, the energy efficiency does not meet the efficiency.

The amplifier changed to half output power.

$P_{in}=40W, P_{out}=22W, \text{The energy efficiency}=\frac{22}{40}*0.8=68.75\%$ (Same condition)

Add the same Blu-ray disk player circuit.

Efficiency= $\frac{22}{(40+15)}*0.8=50\%$ ----NG!?

This calculation could not save the energy of audio amplifier.

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%