



Avoid TV Brightness Limits

Limits on TV brightness would be
ineffective and counter to the goals of
Energy Star

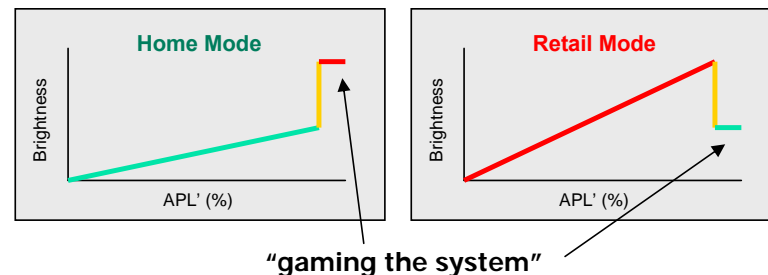
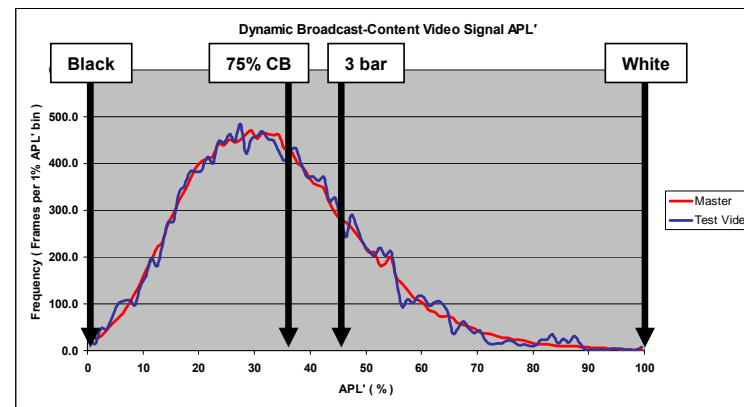
Proposed luminance measurement



- The home or standard mode luminance level shall not be less than 80% of the luminance level of the manufacturer's selectable mode with the highest luminance level.
- Measured with the JEITA test signals (black, white, colorbar & 3-bar)
- Measured in the middle of the screen
- Measured on axis

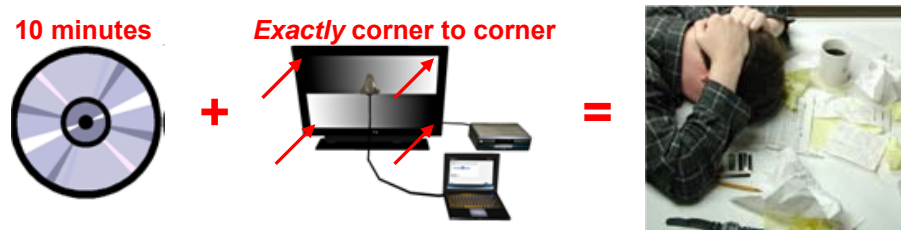
Proposed measure would be ineffective

- The brightness of the JEITA signals (black, white, colorbar, 3-bar) does not correlate with IEC power
- Static test signals can be "gamed."



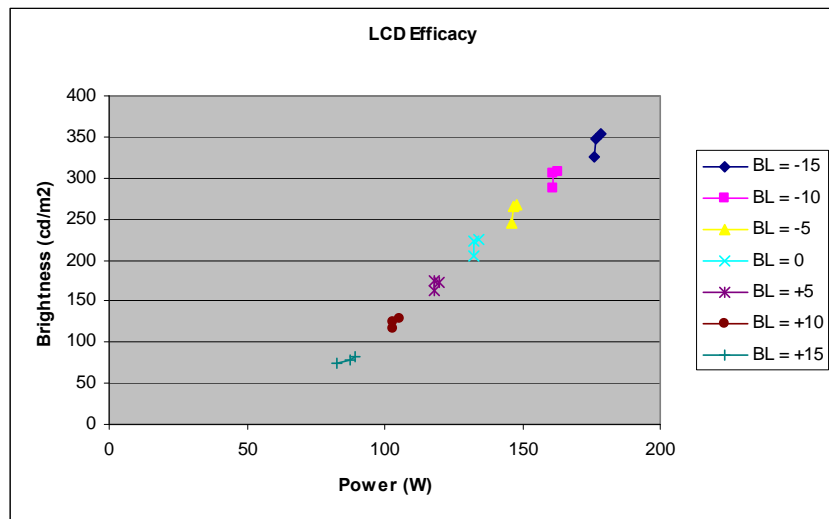
A correlated brightness measure is impractical

What about measuring the brightness of the IEC loop?



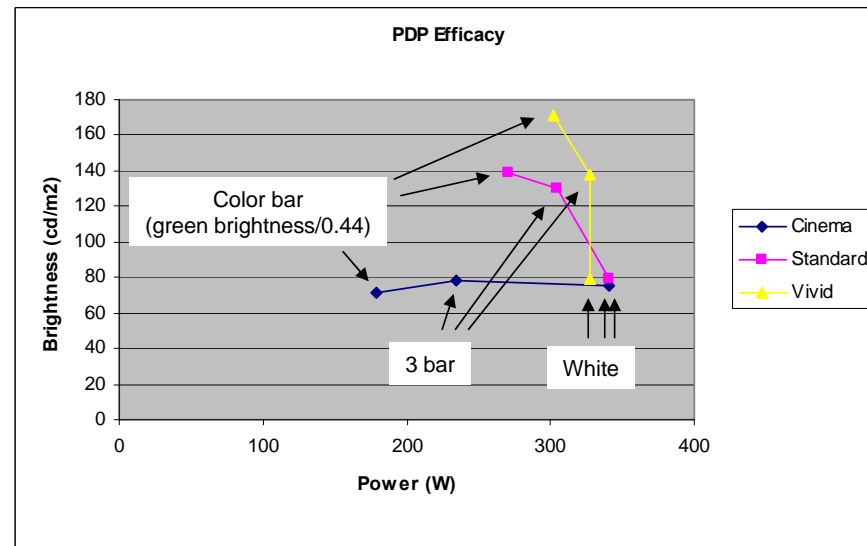
- Requires a dark environment
- Requires expensive test equipment
- Requires exact calibration
- What about off-axis luminance?
- Does not consider *perceived* brightness

Different technologies – are very different!



- LCD brightness is naturally linear with respect to the backlight power.

* 37-inch, pre-3.0 LCD TV



- Power-limited Plasma TVs are non-linear at high-brightness settings.

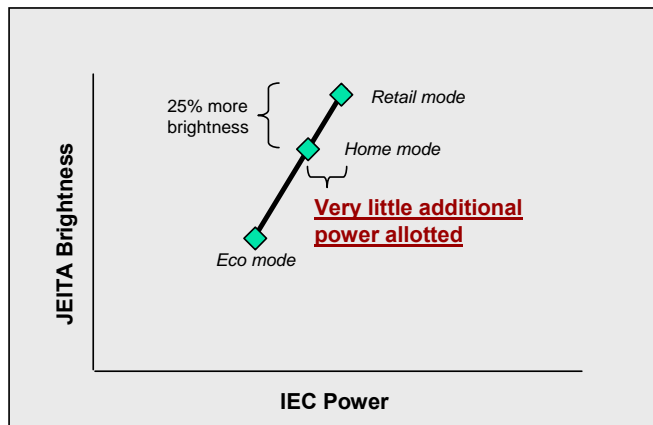
* 42-inch, pre-3.0 Plasma TV

We convert watts to light

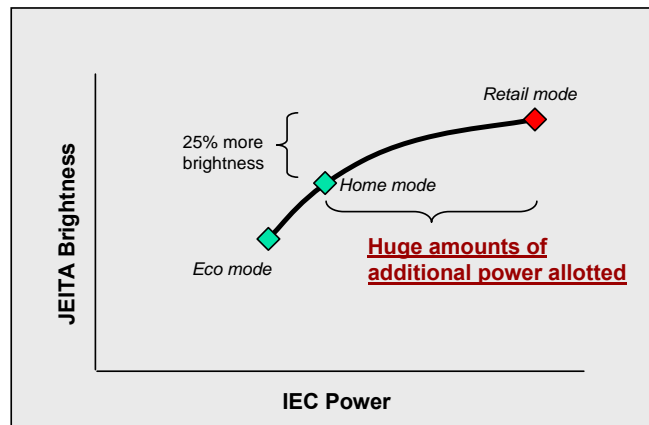
- TV Manufacturers are working hard to improve efficiency
 - Reduce TV Power consumption
 - Increase *perceived* brightness
- TV technologies turn watts into light. More watts mean...
 - LCD: brighter peak levels
 - Plasma: brighter levels during mid/high APL conditions

Performance limits reward inefficiency

High efficiency panel



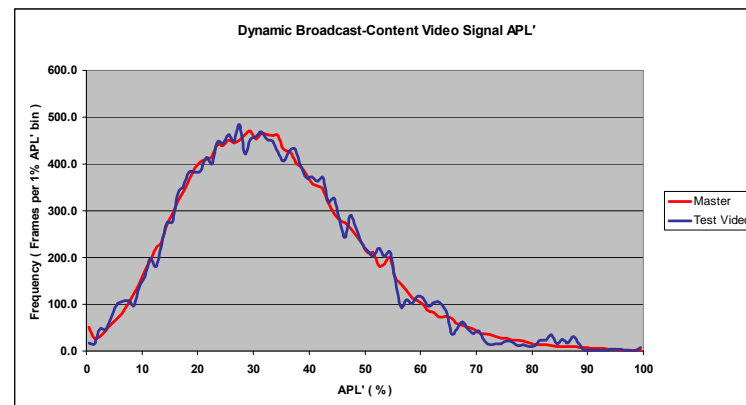
Low efficiency panel



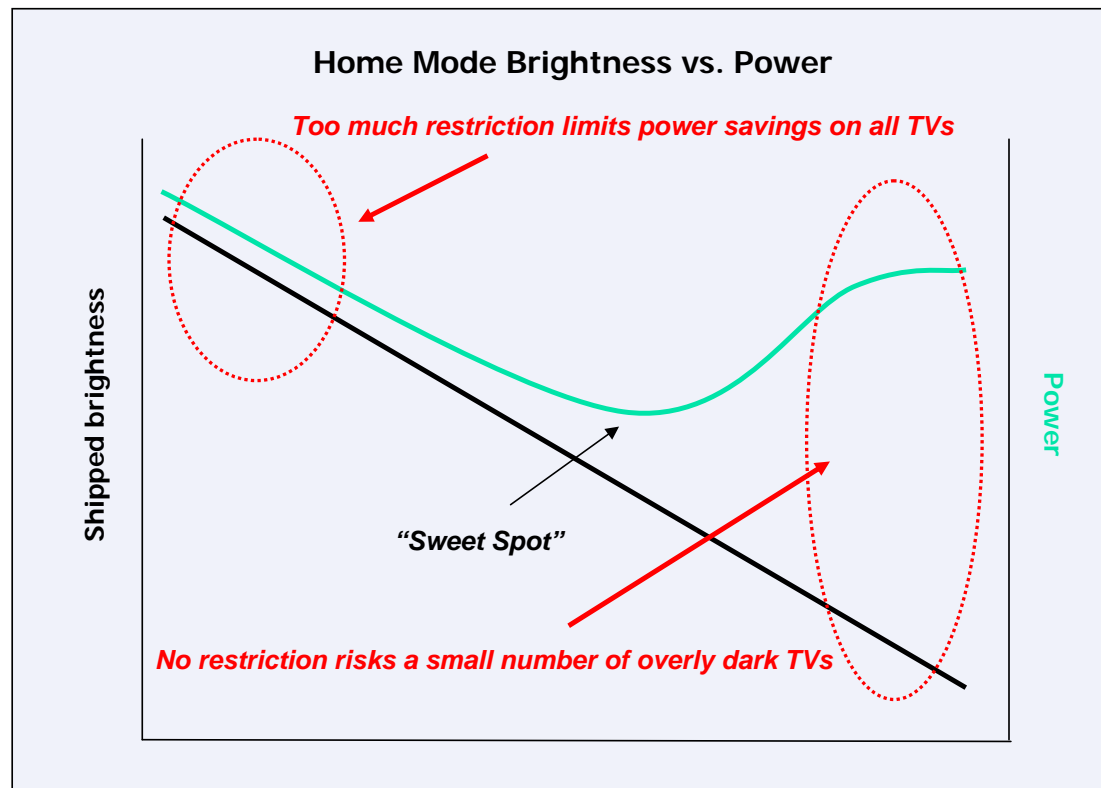
- I can slow down an automobile by
 - Installing a smaller engine
 - OR -
 - Adding lead weights!
- Energy Star should avoid performance limits

Energy Star should be 100% IEC 62087 based

- IEC 62087 should be the basis of all Energy Star measurements
 - It cannot be "gamed"
 - It correlates with real world power consumption
 - It is technology neutral
 - It rewards efficiency
 - It requires no new test equipment
 - The measurement can be performed at retail
 - The test loop has been internationally vetted
 - The test loop has been embraced by all stakeholders



The current proposal is too restrictive



Nobody knows exactly where the sweet spot is.
(Allow the manufacturers to find it.)

Energy Star should reward efficiency

- A ratio rewards inefficiency
 - With a ratio, an efficient TV gets a smaller additional allotment for retail than an inefficient TV
- An “adder” rewards efficiency
 - All TVs of a given size would get the same allotment

Leave no “holes” in the measurement

- If a TV fails to meet a home to retail relationship, what is it's rated average power consumption?
- Currently, there are no measurement “holes” in Energy Star 3.0.
- Tier 2 should also have no measurement “holes.”

Summary

- The current proposal...
 - Does not correlate with IEC 62087 levels
 - Can be “gamed”
 - Is not technology neutral
 - Rewards inefficiency (performance limit; ratio)
 - Is too restrictive – takes away the “sweet spot”
- Measuring IEC loop brightness is impractical
- Adders reward efficiency; ratios don't
- Tier 2 should avoid measurement “holes”

Thank you!