ENERGY STAR® TV Stakeholder Webinar: Final Draft Versions 4.0 and 5.0 Specifications

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Overview

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- Final Draft Discussion
- Next Steps and Questions

Introductions

Agenda Review

- Final Draft Discussion
  - ON Mode Requirements
  - Luminance
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  - Additional Modifications
- Next Steps and Questions

Final Draft Discussion

ON Mode

ON Mode Final Draft Proposals

- Final Draft proposal: For TVs < 275 sq in, EPA is proposing more stringent Version 4.0 and 5.0 ON Mode requirements to represent fewer small screen size models (diagonal less than 25 in) than in Draft 2
  - ON Mode Requirements for A < 275 square inches:

Version 4.0	**P_{Max} = 0.190*A + 5**
Version 5.0	**P_{Max} = 0.130*A + 5**

ON Mode Final Draft Proposals (*cont.*)

- For TVs ≥ 275 sq in, Version 4.0 and 5.0 ON Mode requirements unchanged from Draft 2
  - ON Mode Requirements for A ≥ 275 square inches:

Version 4.0	**P_{Max} = 0.120*A + 25**
Version 5.0 **275 <= A <= 1068 in²**	**P_{Max} = 0.084*A + 18**
Version 5.0 **A > 1068 in²**	**P_{Max} = 108**

Sample On Mode Power Limits

Table 2: Sample Version 4.0 and 5.0 ON Mode Power Level Requirements for Example TV Screen Sizes

Viewable Diagonal Screen Size (Inches)	Aspect Ratio	Viewable Screen Size in Inches	Screen Area in Inches^2 (cm^2)	Version 4.0 Maximum ON Mode Power in watts	Version 5.0 Maximum ON Mode Power in watts
20	16:9	17.4 x 9.8	170.5 (1,100)	37	27
32	16:9	27.9 x 15.7	438.0 (2,826)	78	55
42	16:9	36.6 x 20.6	754.0 (4,865)	115	81
50	16:9	43.6 x 24.5	1068.2 (6,892)	153	108
60	16:9	52.3 x 29.4	1537.6 (9,920)	210	108

Version 4.0 ON Mode

- Based on EPA's current dataset, models that can meet the proposed ON Mode requirements today include
  - Feature-rich models from 22 different manufacturers
  - Models utilizing conventional backlight technology (e.g., CCFL) and some models utilizing emerging, more efficient backlight technologies (e.g., HCFL, LED)
    - Not including recently released lines of LED-backlit TVs that are available in mid- and large screen sizes at a variety of price points (i.e., Sharp Aquos LE700 series, Vizio XVT series)

Version 4.0 ON Mode (*cont.*)

- Variety of price points and mid- and large-screen sizes
  - Range of retail prices* for best-selling 32-, 40, and 46-inch models comparable to range of MSRP listed for models that currently meet requirements

	32-inch	40-inch	46-inch
Most Popular Selling Models	**$380 - $1000**	**$750 - $1800**	**$1200 - $3200**
MSRP of V4.0 Models	**$400 - $1100**	**$1100 - $1900**	**$1400 - $3000**

*Retail price range acquired from major consumer electronics retailer's Web site. Range includes prices listed for top 15 selling models listed in size category.

Version 4.0 ON Mode (*cont.*)

- Even more models that are within 5 to 15% of the proposed requirement for each size category.
- EPA expects that manufacturers will make relatively small modifications to these units in order to meet the Version 4.0 requirements by the effective date of May 2010.
  - For example, for 32 and 37 inch models (137 total models):
    - 12% of models (16 models) in size bin currently meet requirements
    - Additional 14% of models (19 models) in size bin are currently within 5% of requirements

Version 4.0 ON Mode (*cont.*)

- Industry counterproposal not incorporated
  - Market trends suggest qualification rates would be unacceptably high when the specification goes into effect
  - Estimates indicate that the counterproposal would result in significant lost financial and environmental savings between 42 – 60 inch sets
    - 250 – 780 m lbs of lost annual CO2 emissions
    - $19 – $58 m in lost annual consumer savings

Version 5.0 ON Mode

- Rationale: EPA based Version 5.0 requirements on
  - Rapid improvements in energy efficiency realized between Version 3.0 development and the present;
  - Expected additional energy efficiency projected across a wide range of sizes for 2010 models; and
  - Trends toward energy efficiency projected by manufacturers and market research firms to continue into the Version 5.0 timeframe.
- Supporting such trends is significant consumer interest in energy efficient TVs and consumers' willingness in many cases to pay more for such products

Version 5.0 ON Mode (*cont.*)

- EPA recognizes that there is a limit to what ENERGY STAR can credibly classify as a TV that delivers both consumer savings and benefit for the climate
- EPA proposes an approach whereby TVs greater than 50 inches can earn the ENERGY STAR label as long as their consumption does not exceed that specified for the 50-inch models
- By setting a future tier (May 2012), EPA is providing advance notice, ensuring that ENERGY STAR specifications are revised in a timely manner and that the ENERGY STAR is a mark of superior performance despite the rapid evolution of this product category
- EPA is committed to revisiting requirements before they go into effect and will revise the requirements as needed

Luminance

Luminance Approach

- Final Draft proposal remains unchanged from Draft 2
  - Peak luminance of a product in the “home” mode, or in the default mode as shipped, shall not be less than 65% of the peak luminance of the “retail” mode, or the brightest selectable preset mode, of a product.
- Rationale:
  - Addresses concerns about increased risk of dimming TVs as the ENERGY STAR requirements increase in stringency brought forth by TV manufacturers and other stakeholders
  - Harmonizes with the European Union
  - Gives manufacturers some flexibility when setting luminance specifications for home and retails modes

Luminance Approach (*cont.*)

- Rationale (cont.):
  - Proposal does not prevent or make it more difficult for users to adjust the brightness settings of their particular set to their lighting conditions
  - The proposed luminance requirement only applies to the home and retail preset modes

Luminance Approach: Moving Forward

- EPA anticipates collecting and posting luminance and power levels for ENERGY STAR qualification
- EPA will review data received and adjust this approach, as needed, prior to the effective date for Version 5.0

Luminance Testing

- EPA is seeking feedback on the proposed test pattern and method for measuring luminance
  - VESA pattern that provides a full white (0.7 volts) box that occupies 30% of the image
  - Measurements shall be made with the Automatic Brightness Control function made inactive
  - Some parameters need to be outlined for consistent and accurate measurements
    - Distance
    - View Angle
    - Number of pixels measured

- Conference Call: July 29 from 1:00 to 2:30pm Eastern to further discuss luminance testing issues with stakeholders

Download Acquisition Mode (DAM)

Download Acquisition Mode (DAM) Approach

- Final Draft proposal has been modified from Draft 2 proposal
  - If a TV has a DAM function the maximum allowable level of a product when in DAM is 0.08 kilowatt-hours (kWh), or 80 watt-hours, per 24-hour period for Version 4.0 (V5.0: 0.02 kWh/d)
  - DAM must be disabled upon shipping and can only be enabled by a user activating this feature
    - Upon activation, additional prompt to confirm a user's choice, noting that enabling this feature may increase the power consumption of the television

DAM Comment Clarification

- Comment: In the case that a television is shipped with On-Screen Guide functionality disabled, a commentor stated that the device should be tested and qualified for ENERGY STAR in this state, regardless of DAM mode power utilization if the On-Screen Guide is enabled.
- EPA response *clarification*: EPA would like to clarify the response when it responded "EPA agrees with this comment." EPA meant to state that it believes that ON Mode and Standby Mode testing should be done with DAM disabled. EPA does not agree with the portion of the statement "regardless of DAM mode power utilization if the On-Screen Guide is enabled." Any TV with DAM must meet the energy requirement listed when in DAM, even though DAM is disabled upon shipping.

DAM Approach for Hospitality TVs

- Final Draft proposal defined Hospitality TV as a television with RJ-45 port AND installed SmartPort software
- One stakeholder offered following recommendation for defining hospitality TV
  - TV or monitor with a control port for bi-directional communication (DB-9, RJ11, RJ12, RJ45, HDMI-CEC) AND activated hospitality protocol software (SmartPort, MPI, MTI, Serial Protocol, or similar control) for the purpose of direct access to Video-On-Demand (VOD) systems or a digital media player designed for hospitality specific applications.

DAM Approach for Hospitality TVs

- Final Draft proposes a Typical Electricity Consumption (TEC) approach where the TEC for hospitality TV must be less than or equal to the TEC limits
  - TEC_{hosptv} = (P_{ON} [in watts]*5 hours)+(P_{Sleep} [in watts]*19 hours)+(E_{DAM} [in watt-hours])

Screen Area	TEC_{hosptv} Limits
A < 275 square inches	**(([0.19*A]+5)*5 hours)+(1 watt*19 hours)+(80 watt-hours)**
A ≥ 275 square inches	**(([0.12*A]+25)*5 hours)+(1 watt*19 hours)+(80 watt-hours)**

- EPA is seeking feedback from stakeholders on definition and approach

DAM Testing

- EPA is seeking feedback from stakeholders on the proposed approach to measure DAM based on several discussions held with stakeholders
  - Connect the television to an active RF terminal and set the television to Standby Mode.
  - Using an approved power meter, collect the power consumed over a 24 hour period. Determine the total energy consumed in watt-hours.
  - Multiply the Standby Mode power consumption (in watts) of the television, measured according to IEC 62087, by the difference of 24 hours subtracted by the amount of time (in hours) indicated by the content provider that the product is in DAM per 24-hour period. For example, if the content provider indicated that the television would be in DAM for 3 hours per day, multiply the Sleep mode power consumption by 21 hours, or 24 minus 3.
  - Subtract the value calculated in Step 3, in watt-hours, from the total watt-hours measured in Step 2. This value (E_{DAM}) must be less than 80 watt-hours under the Version 4.0 requirements.
- Conference Call: July 30 from 1:00 to 2:30pm Eastern to further discuss testing issues with stakeholders

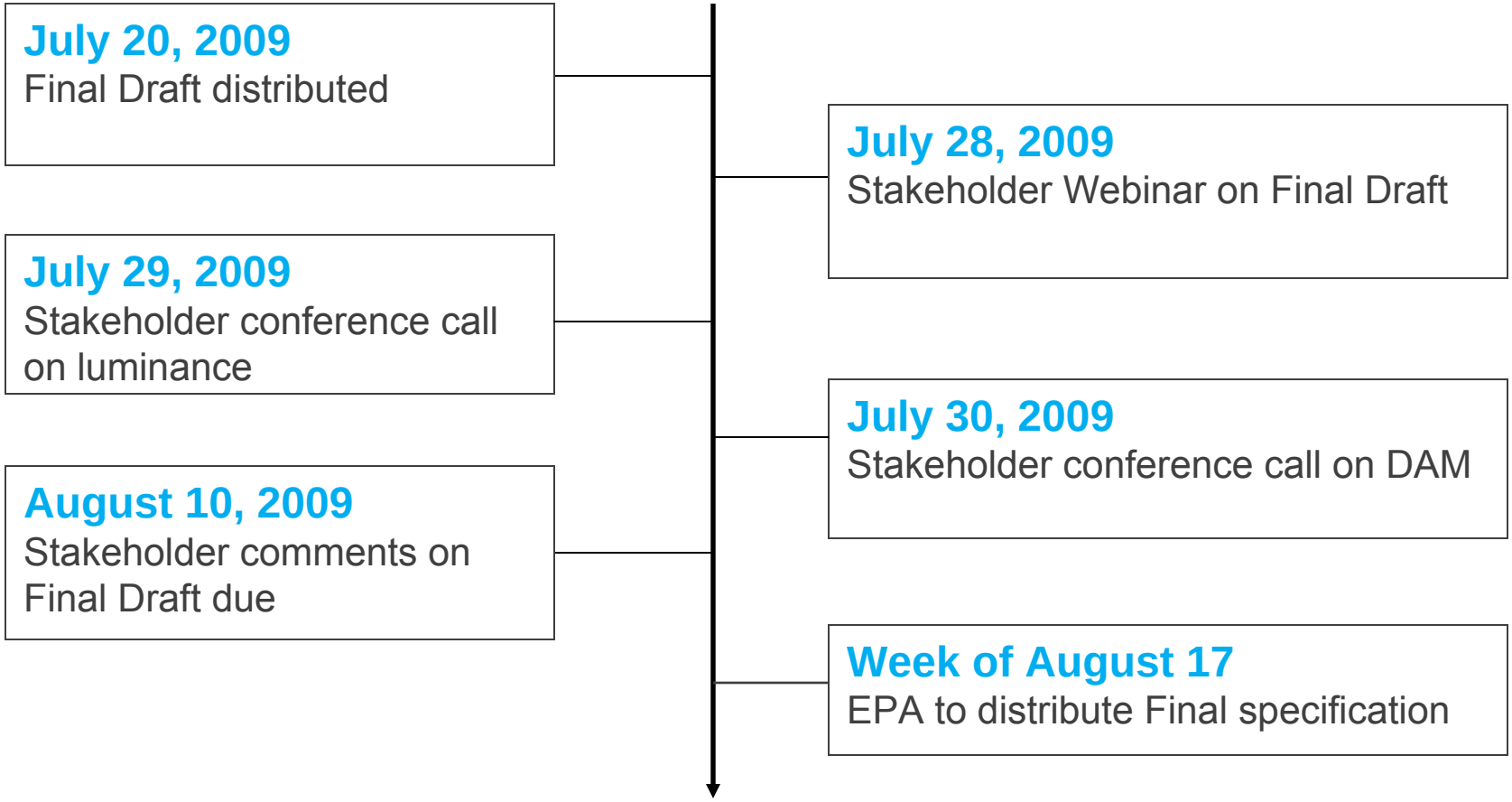
Additional Modifications

Additional Modifications

- Under Version 4.0, EPA is proposing to remove the reference to the Display Power Management Signaling (DPMS) requirement for televisions in the Final Draft
  - EPA intends to include a requirement that televisions with computer capability must offer Display Power Management for VGA and DVI connectors under Version 5.0
- EPA is considering inclusion of CEA-2037 to replace some of the measurement language in the specification to help all policymaking bodies harmonize on measurement of ON Mode. EPA is seeking feedback on this approach.
  - One commentor asked EPA and CEA to add language to the specification that broadens its application. Rather than limit testing, as currently written in IEC, to home mode when a forced menu is selected, the test method should be expanded to allow for testing and reporting of any selectable mode in the forced menu. This way this test method will have maximum utility by policy makers interested in setting performance requirements, rebates, developing energy use labels, etc.
  - The commentor also asked that CEA-2037 be distributed to all stakeholders for proper review.

Next Steps

Proposed Timeline for Versions 4.0 and 5.0 Development



Conference Calls: Information

Luminance Testing

- July 29, 2009
- 1:00 – 2:30pm Eastern Time

DAM Testing

- July 30, 2009
- 1:00 – 2:30pm, Eastern Time

Call-in number*: **1-800-747-5150**
(*If calling from outside the U.S., please call +1 303-248-1290)

Access Code: **8621157**

Outstanding questions?

Contact Information

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Thank you!