



ENERGY STAR® TV Stakeholder Webinar: Draft 2 Versions 4.0 and 5.0 Specifications

June 24, 2009

Katharine Kaplan, U.S. EPA
kaplan.katharine@epa.gov

Bijit Kundu, ICF International
bkundu@icfi.com



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Overview



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Introductions

Agenda Review

- Draft 2 Discussion
 - Nomenclature
 - ON Mode Requirements
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 - Additional Modifications
- Next Steps and Questions



Draft 2 Discussion

Specification Nomenclature

Nomenclature



- Draft 2 Proposal: Modify terminology from
 - “Version 3.1 Tier 2” to “Version 4.0” and
 - “Version 3.1 Tier 3” to “Version 5.0”
- Rationale: To simplify the specification nomenclature based on stakeholder input.

ON Mode

ON Mode Draft 2 Proposals



- Version 4.0 requirement unchanged from Draft 1
- Version 5.0
 - ON Mode up to 50" unchanged from Draft 1
 - Greater than 50", same requirement as a 50" unit

Table 1: ON Mode Power Level Requirements for TV Products

Version 4.0: Effective May 1, 2010		
Screen Area	Maximum ON Mode Power Consumption (A expressed in square inches)	Maximum ON Mode Power Consumption (A expressed in square centimeters)
All Screen Areas and Native Vertical Resolutions	$P_{Max} = 0.120 \cdot A + 25$	$P_{Max} = 0.019 \cdot A + 25$
Version 5.0: Effective May 1, 2012		
Screen Area	Maximum ON Mode Power Consumption (A expressed in square inches)	Maximum ON Mode Power Consumption (A expressed in square centimeters)
$A < 1088$ square inches (6890 square centimeters)	$P_{Max} = 0.084 \cdot A + 18$	$P_{Max} = 0.013 \cdot A + 18$
$A \geq 1088$ square inches (6890 square centimeters)	$P_{Max} = 108$	

Sample On Mode Power Limits



Table 2: 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)	45	32
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



- Rationale: Currently available models from multiple manufacturers meet EPA's proposed Version 4.0 ON Mode requirements across all size categories.
 - 155, or 24%, of the 637 models in the dataset currently meet
 - 21 manufacturers represented
 - Top-performing products across all size categories represented
 - Dataset: 637 total models from ENERGY STAR database and from additional sources representing all screen sizes and various display technologies

Version 4.0 ON Mode (*cont.*)



- Industry counterproposal not incorporated because EPA proposal meets goal of top 25%.
- Additionally, EPA expects industry counterproposal to result in high levels of qualification immediately upon the Version 4.0 specification going into effect, similar to what happened with Version 3.0.

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 for 2010 models; and
 - Trends toward energy efficiency projected by manufacturers and market research firms to continue into the Version 5.0 timeframe.
- Version 5.0 approach accommodates consumer choice across a wide spectrum of sizes, including large sizes, while recognizing that there is a limit to what ENERGY STAR can credibly classify as an energy efficient TV.

Stakeholder Draft 1 Comments



- **Comment:** ON Mode too strict for mid- and large-sized units, favoring small, lower-performing, and less expensive products.
- **EPA response:** Mid and large sets from 32 to 55 inches on market today, or forthcoming later in 2009 or 2010, will meet proposed V4.0 requirement.
 - Products include feature-rich sets at a variety of price points
 - Features include: 240Hz, Ethernet and USB jacks, 4 HDMI inputs, super slim speakers, touch sensor panels

Stakeholder Draft 1 Comments



- **Comment:** Mid- and large-sized TVs do not have more room for proposed efficiency improvements and only more modest efficiency gains are achievable with existing technologies.
- **EPA response:** Based on input directly from several TV manufacturers, manufacturer Web sites, and roadmaps for top panel manufacturers and top tier TV manufacturers, EPA expects many more mid- and large-sized models available by May 2010 to reflect significant energy efficiency gains.

Stakeholder Draft 1 Comments



- **Comment:** Only sets which employ LED-backlighting will be able to meet the proposed On Mode requirements making qualified TVs prohibitively expensive.
- **EPA response:** CCFL and LED models on the market now meet the proposed 4.0 levels. Shipments of LEDs are projected to rise significantly and the cost gap between more efficient backlight technology (e.g., LED) and CCFL will likely disappear for small screen sizes this year, will be significantly reduced for mid- and large-screen models by the end of this year, and will continue to trend down.

Stakeholder Draft 1 Comments



- **Comment:** It would be more appropriate to review the available data at a later date, perhaps 12 months before the proposed Version 5.0 effective date (May 2012), and set a limit at that time.
- **EPA response:** EPA is committed to reviewing through an open stakeholder process the appropriateness of the Version 5.0 requirements well in advance of that Version's effective date and will make revisions to the requirements as needed.

Luminance

Luminance Approach

- Draft 2 Proposal: Luminance of a product in the “home” mode, or in the default mode as shipped, shall not be less than 65% of the luminance of the “retail” mode, or the brightest selectable preset mode, of a product.
- Rationale:
 - Prevents unsatisfactory viewing experiences driving consumers to choose a more energy consumptive mode
 - Gives manufacturers some flexibility when setting luminance specifications for home and retails modes
 - Harmonizes with international partners

Luminance Approach: Moving Forward



- EPA anticipates collecting luminance and power levels for ENERGY STAR qualification and adjusting this approach, as needed, prior to the effective date for Version 5.0

Luminance Testing



- EPA is seeking feedback on a consensus test pattern and test method for luminance to minimize any potential gaming.
- Europe
 - Full white image that does not exceed the average picture level (APL) point where any power limiting occurs in the display luminance drive system.
- Australia
 - Three bar image
 - Considering using an alternative pattern where less of the screen is white (e.g., pluge pattern)
- EPA would like to work with interested stakeholders to finalize the test pattern and method by **August 3**.
 - Absent consensus, EPA may adopt test procedures from international counterparts

Stakeholder Draft 1 Comments



- **Comment:** Some stakeholders indicated the initial luminance proposal was too restrictive or too closely coupled home and retail modes and that manufacturers may opt to use the maximum amount of power allowed to qualify for ENERGY STAR in order to achieve the brightest possible preset setting at retail.
- **EPA response:** The approach in Draft 2 gives manufacturers some flexibility when setting luminance specifications for home and retail modes (i.e., does not closely couple the modes).

Stakeholder Draft 1 Comments



- **Comment:** One stakeholder noted their strong opposition to a luminance requirements based on power. They indicated that different TV technologies have unique characteristics tied to luminance, which should be recognized and considered by the EPA in its effort to be “technology neutral.”
- **EPA response:** Based on data on several sets employing different display technologies, EPA agrees that a luminance approach based on power could possibly create an uneven playing field. In Draft 2 EPA proposed an approach based on product luminance.

Download Acquisition Mode (DAM)

Download Acquisition Mode (DAM) Approach



- Draft 2 Proposal: Maximum allowable level of a product when in DAM is 0.02 kilowatt-hours (kWh), or 20 watt-hours, per 24-hour period.
- Rationale:
 - Watt-hour requirement will allow manufacturers more flexibility to innovate to provide new data and service offerings.
 - Based on an expected power of 5 watts while in DAM for a duration of 4 hours a day.
 - Technologically feasible: current models from a manufacturer with TV Guide and UpdateTV features are expected to meet this DAM requirement

DAM Approach (*cont.*)



- EPA is seeking proposals from TV manufacturers and guide suppliers on how to provide easy opt-out features to consumers
- Consideration for hospitality TVs based on Monday's conference call
 - Use of RJ-45 connection (port and software) to differentiate hospitality sets
 - Additional modes (e.g., "semi-standby") for hospitality sets when waiting for communication with server
 - Need additional information on power requirements and duty cycle of hospitality sets from manufacturers and LodgeNet, a major service provider
 - Possible TEC approach
 - EPA proposal to stakeholders on June 30 for comment

Stakeholder Draft 1 Comments



- **Comment:** Several stakeholders noted that any requirement for DAM should not be set on specific time and power requirements. They suggested that EPA adopt a DAM model based on total energy consumption while in DAM mode, citing that an equivalent energy budget in watt-hours will allow TV manufacturers more flexibility for innovation.
- **EPA response:** The proposed DAM requirement in Draft 2 incorporates this concept.

Additional Modifications

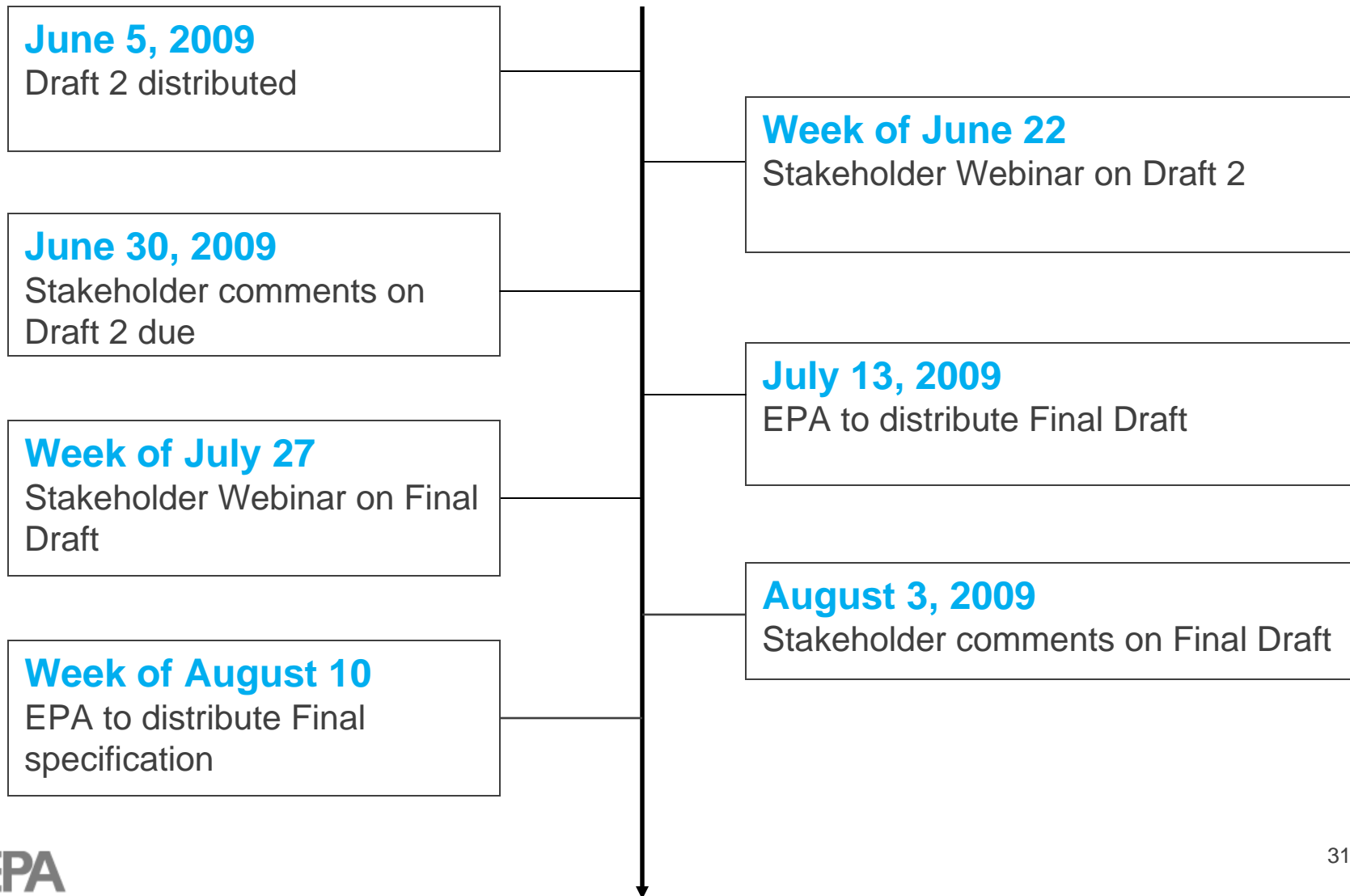
Additional Modifications



- Exclusion of Television Monitors or equipment intended to display a video signal from an external tuner or other video source.
- Replace “Standby” with “Sleep” for harmonization with other ENERGY STAR consumer electronic specifications.
- No modification of Automatic Brightness Control (ABC) requirements. EPA will track feature to assess appropriateness of requirements in advance of the Version 5.0 effective date.
- Testing of products with network connectivity disabled, when applicable.

Next Steps

Proposed Timeline for Versions 4.0 and 5.0 Development



Outstanding questions?

Contact Information



Katharine Kaplan
ENERGY STAR Program
202-343-9120
kaplan.katharine@epa.gov

Bijit Kundu
ICF International
202-862-1157
bkundu@icfi.com



Thank you!