



ENERGY STAR Televisions Draft 2 Version 6.0 Webinar

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Agenda



Topic	Time
Introduction	1:00-1:05
Overview: Gains in efficiency and where we are today	1:05-1:15
On Mode Power in Draft 2	1:15-1:25
Test Method and the DOE NOPR	1:25-1:55
Automatic Brightness Control	1:55-2:05
ENERGY STAR Dataset	2:05-2:20
Additional Draft 2 Proposals	2:20-2:30
Non Energy Requirements	2:30-2:55
Additional Questions	2:55-3:00

Webinar Details



- Webinar and related materials will be available on the ENERGY STAR Televisions PD page:
 - www.energystar.gov/productdevelopment
 - *Revisions to Existing Specifications*
- Audio provided via conference call in:
 - Call in:** +1.877.423.6338 (inside US)
 - Code:** 424891
- Please keep phone lines on mute while not speaking.
- Please refer to the agenda for approximate discussion timing

Draft 2 Version 6.0 Televisions Specification



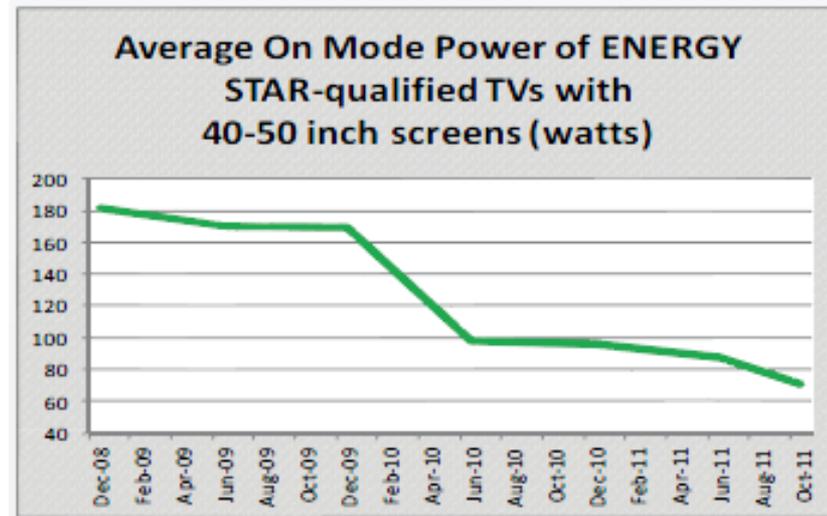
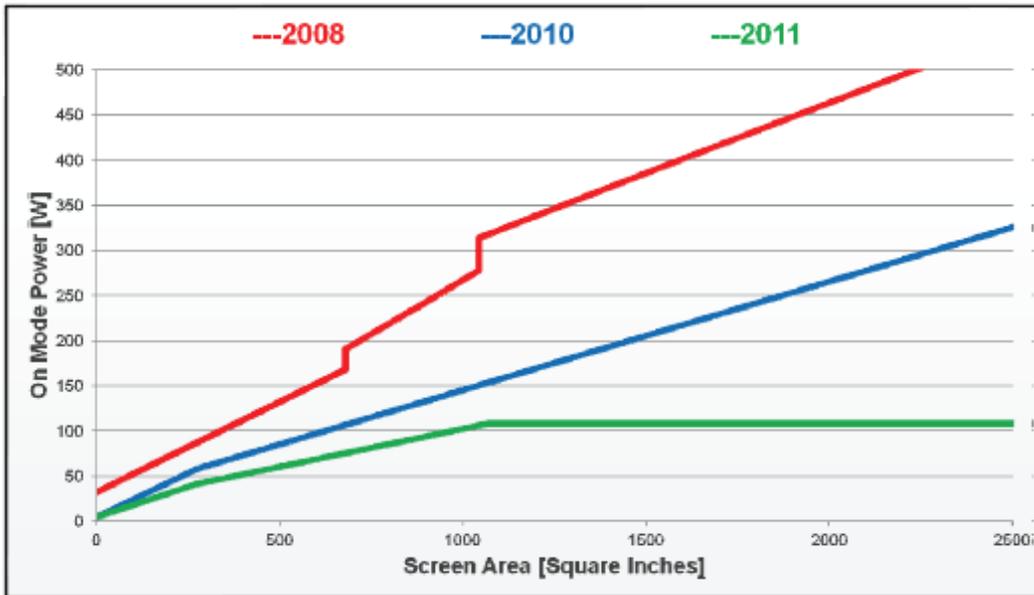
- The Draft 2 Version 6.0 Televisions specification and related documents were distributed on February 3, 2012.
- All materials related to the specification revision process can be found on the ENERGY STAR Televisions Product Development Page:
 - [Energystar.gov/productdevelopment](http://energystar.gov/productdevelopment)
 - Revisions to Existing Specifications
 - Televisions
- Or here:
 - http://www.energystar.gov/index.cfm?c=revisions.television_spec

Overview:

Recognizing Gains in Energy Efficiency



ENERGY STAR TV Specification
Comparison of On Mode Power limits



ENERGY STAR TVs:

Where we are today



- Over 1200 ENERGY STAR qualified products. Significant jump in models qualified to Version 5.3 since Draft 1 released in June 2011; high market penetration.
- Significant gains in energy efficiency, especially among larger sizes.
- Timeline: Given high market share, EPA intends to finalize Version 6.0 April 2012; specification to take effect early 2013.

Market Trends and Efficiency Gains



- ENERGY STAR anticipates further gains in the efficiency of Televisions
- 2012 CES included many displays about energy use
- Great gains in dynamic backlight dimming



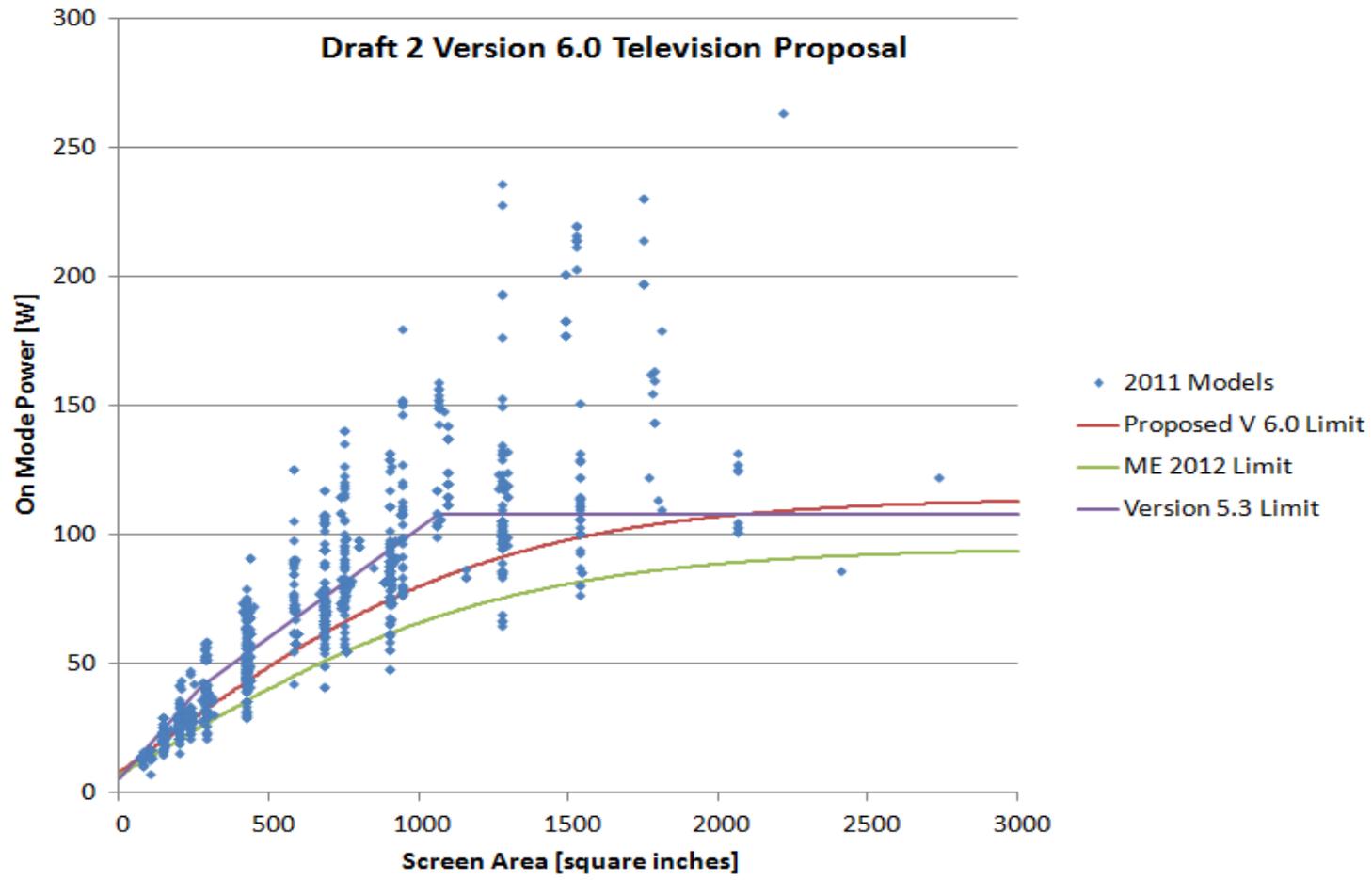
On Mode Power:

New Approach for Draft 2



- New proposed levels taking into account gains in efficiency made by larger sizes. Proposed On Mode power allowances for very large sizes approach efficiency levels in Version 5.3. Includes 70 inch models that continue to qualify.
- Reflects top performers in all sizes that remain cost effective.
- Includes CCFL, LED and DLP technologies.
- **251** of 1697 models in dataset meet the requirements, representing nearly 15% of the models in the dataset. Proposed On Mode power levels reflect anticipated greater market share when specification goes into effect in early 2013.

On Mode Power: Proposed Draft 2 Limits



Equation for Proposed V6.0: $P = 100 * \tanh(0.00085*(A - 140) + 0.052) + 14.1$

On Mode Power:

How we got there



- Test Method and DOE NOPR
- Automatic Brightness Control
- ENERGY STAR Dataset

Test Method: Harmonizing with DOE



- January 2012 DOE published NOPR.
- In an effort to provide partners with certainty now and honor the Agency's intention to harmonize with the final DOE Test Method, this Draft 2 Version 6.0 proposes the use of the DOE TV Test Procedure NOPR
- Harmonizing with NOPR intended to smooth transition to final Test Procedure: many similarities to previous ES test method.

Test Method: Harmonizing with DOE



- Test Method/DOE NOPR Overview:
 - Similarities to Version 5.3: references IEC 62087, CEA DAM test method, ENERGY STAR Version 5.1
 - Changes from Version 5.3 test method:
 - Definitions: Standby (active-high, passive, active-low) vs. Sleep mode.
 - Scope: does not include battery-powered TVs (EPA seeks to include them still in specification)
 - ABC: 10, 50, 100, 300 lux (equal weighting)
 - Tolerances for measuring room illuminance, more information on measuring luminance
 - CLASP and CEA/CDIA studies confirm that TV viewing often occurs at lower lighting levels. Some at very bright light levels, none at 0 lux.

Test Method:

Looking ahead for timing and qualification



- Depending on the timing of publication and the extent of any changes made in the final DOE Test Procedure, if the publication of the final DOE Test Procedure does not impact qualification of products under Version 6.0, EPA will issue a modification (i.e. Version 6.1), referencing the final test procedure.
- Should DOE's final test method differ significantly from its TV TP NOPR, wherein the qualification of products under Version 6.0 is impacted, EPA will accelerate the development of a Version 7.0 such that manufacturers adhere to DOE's final test method.

Providing Feedback on DOE's NOPR



- Public meeting: March 22, 2012; 9-5pm, Washington DC
- Deadline for public comments: April 3, 2012
- More information on NOPR available at:
http://www1.eere.energy.gov/buildings/appliance_standards/residential/tv_sets.html (see Television Test Procedure comparison chart)
- Television Set Rulemaking: **Docket Number EERE-2010-BT-TP-0026 and Regulatory Information Number (RIN) 1904-AC29.**
- **Federal e-Rulemaking Portal:** <http://www.regulations.gov/>
Follow the instructions for submitting comments.

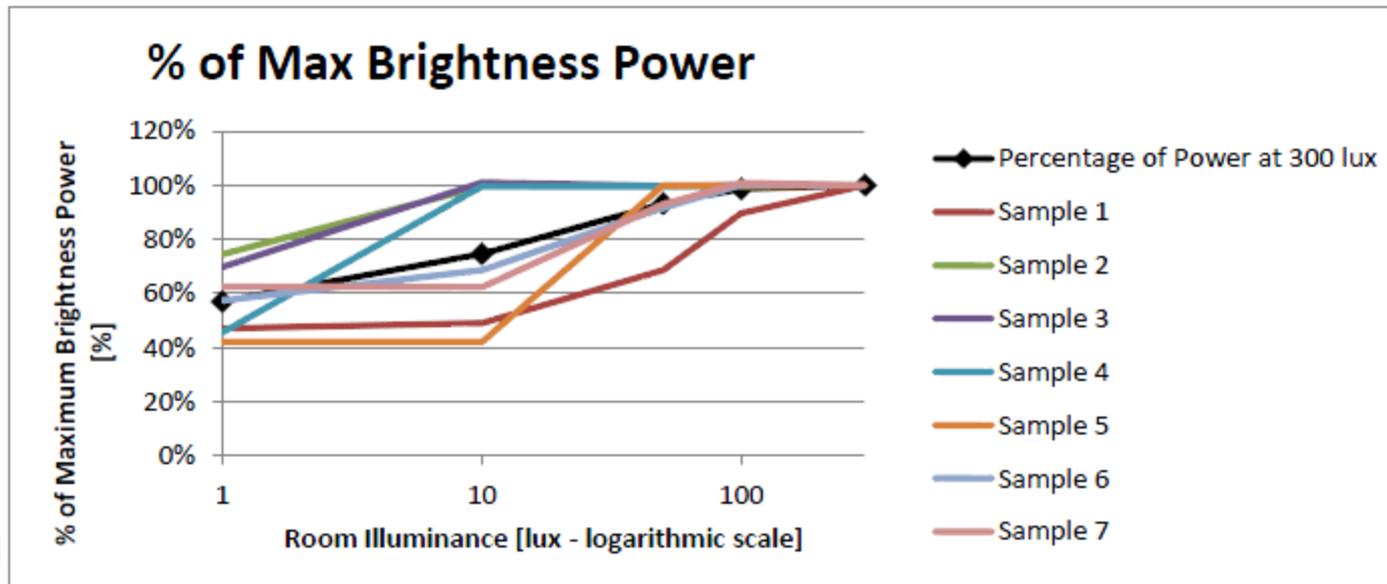
ABC and qualified products



- ABC is found in all size categories of models that meet the proposed Draft 2 Version 6.0 levels. 556 of the 1697 models in the dataset utilize ABC.
- 90 of the 251 products that meet the On Mode Power requirements proposed in Draft 2 are tested and shipped with ABC enabled.
- Developed a method of estimating the On Mode Power of products tested with ABC enabled under DOE NOPR Televisions Test Method
 - Intended to preserve utility of large dataset and avoid retesting of products.

Dataset Correction for ABC

- A correction factor was developed to assess and address the effect that the new ABC Test Procedure at 10, 50, 100, 300 lux (instead of 0 and 300 lux) would have on our current data as well as our proposed Version 6.0 levels.
- Data analysis in Nov 2011 to determine how TV models perform at new ABC levels. EPA invested in product testing - 7 models tested.
- Average ABC response curve was applied to all 556 TVs in the dataset with ABC enabled by adjusting the P300 measurement by the average power reduction at each different room illuminance in terms of percent (avg TV power was shifted up 12W).



Sample ABC Correction Calculation



Average ABC Response Curve	
Room Illuminance	% of Power at 300 lux
10	75%
50	93%
100	98%
300	100%

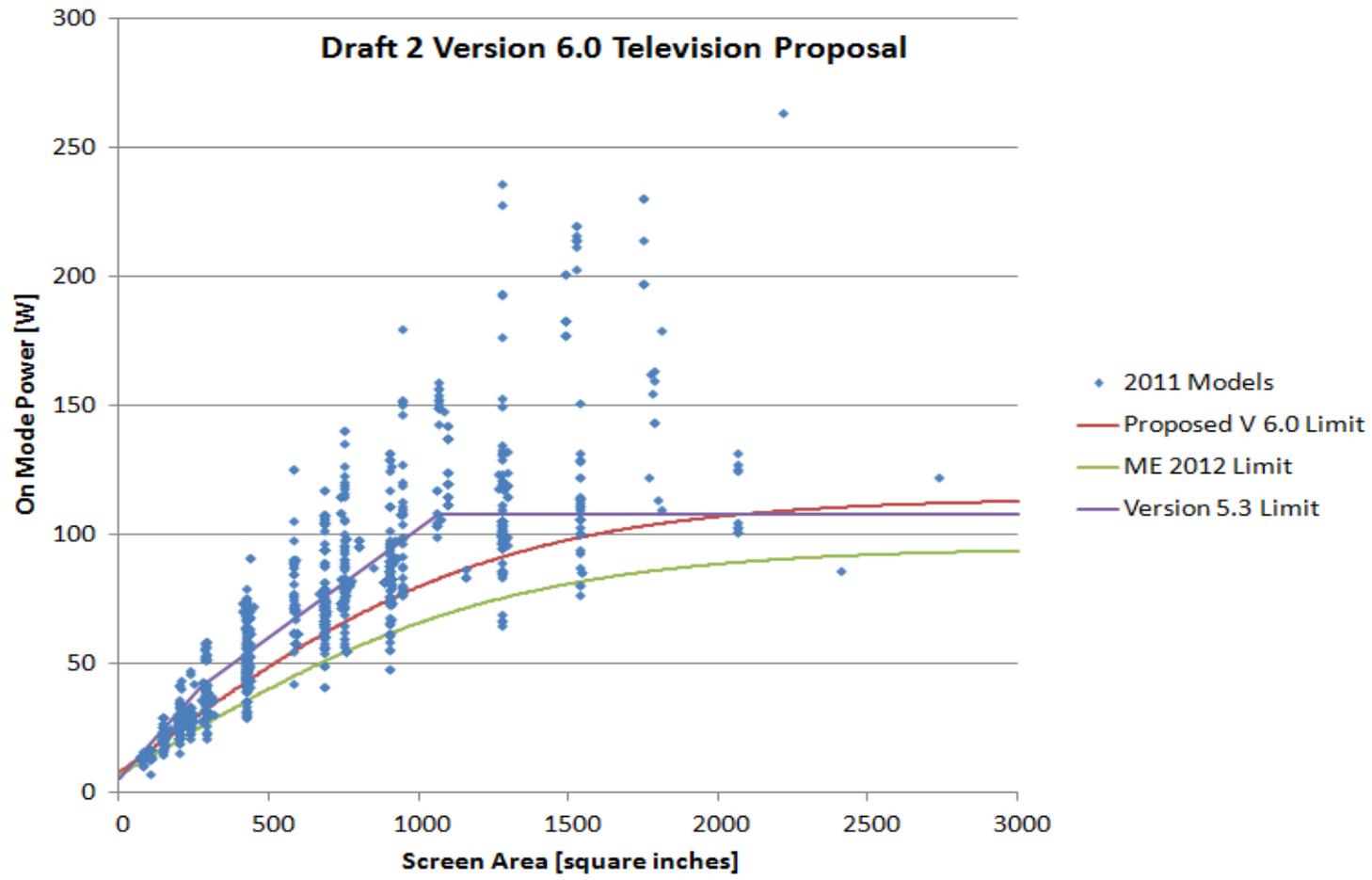
Measured Power at 0 lux	Measured Power at 300 lux (P300)	On Mode Power (Pa1_broadcast)	Calculated Power at 10 lux	Calculated Power at 50 lux	Calculated Power at 100 lux	On Mode Power (Calculated)
Measured	Measured	$= 0.55 (P300 \times 0.55 + P0 \times 0.45)$	$= 0.75 \times P300$	$= 0.93 \times P300$	$= 0.98 \times P300$	$= 1/4(P10 + P50 + P100 + P300)$
78	138	111	103.5	128.34	135.24	126.27

Draft 2 Dataset



- The Dataset assembled to inform the Draft 2 Version 6.0 Televisions specification contains only models with a date available in 2011 or later. Still reflects models that meet both V4 and V5.
- Dropped Q4 2010 models because these models will no longer be sold in stores in early 2013 when spec should take effect. Stores will be stocked with primarily late 2012 and 2013 television models.
- Additional ~100 models qualified since analysis was completed to propose On Mode power levels.

On Mode Power: Proposed Draft 2 Limits



Equation for Proposed V6.0: $P = 100 * \tanh(0.00085*(A - 140) + 0.052) + 14.1$

Draft 2 Specification:

User Menu requirements, network connectivity testing



- Proposed User Menu requirements: double prompt user anytime TV is taken out of “home” picture mode
 - EPA learned that many consumers are likely to change the picture settings.
 - Intended to raise awareness among consumers that any picture mode other than “home” may not deliver the same energy savings.
 - Study conducted by 3M:
http://solutions.3m.com/3MContentRetrievalAPI/BlobServlet?lmd=1323898683000&locale=en_WW&assetType=MMM_Image&assetId=1319212650268&blobAttribute=ImageFile
- Network Connectivity Testing: Growing prevalence of internet-connect TVs.
 - Proposed testing TVs in internet-connected Standby (equivalent of Sleep Mode).
 - EPA intends to propose a limit for network-connected TVs when more information is available.

Non-Energy requirements



- ENERGY STAR: differentiating products based on energy efficiency only.
- Many ENERGY STAR product specifications (e.g. lighting) incorporate non-energy requirements. Reflects longstanding practice of ensuring that ENERGY STAR products deliver on consumer expectation for quality.
- In developing these requirements, EPA seeks to avoid associating the ENERGY STAR label with poor quality or otherwise undesirable products.
- For TV Version 6.0 Drafts, EPA drew from existing standards for toxicity and design for recyclability.

Non-Energy requirements

Response to Stakeholder Feedback in Draft 2



- Clarified that non-energy requirements are exempt from third party certification process.
- Clarified that non-energy requirements are not intended for international adoption and that when products are sold in countries other than US, they are not subject to proposed non-energy requirements.
- Added exemptions for toxicity harmonized with RoHS Directive where applicable to TVs. EPA seeks feedback on if additional exemptions apply to TVs.
- F-GHGs: EPA is exploring alternative, near term approaches to address F-GHG emissions reductions outside the scope of the specification process.

Next Steps



- Stakeholder comments due to EPA
 - March 2nd, 2012
 - Submit comments to televisions@energystar.gov
- Anticipated Draft Final released in late March/early April.
- Finalize specification in April.
- Specification to take effect 9 months later in early 2013.

****Please note these dates are subject to change****

Outstanding questions?

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Thank you!