



ENERGY STAR®

Version 7.0 Draft 1 Televisions Stakeholder Webinar

June 17, 2014

Verena Radulovic, U.S. Environmental Protection Agency
Jeremy Domm, U.S. Department of Energy

ENERGY STAR Products Labelling Program

  Learn more at energystar.gov

Webinar Details



- Webinar slides and related materials will be available on the Televisions Web page:
 - www.energystar.gov/revisedspecs
 - Follow link to "Version 7.0 is in Development" under "Televisions"
- Audio provided via teleconference:
 - Call in:** +1 (877) 423-6338 (U.S.)
+1 (571) 281-2578 (International)
 - Code:** 456417#
 - Phone lines will remain open during discussion
 - Please mute line unless speaking
 - Press *6 to mute and *6 to un-mute your line

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Webinar Agenda



Time	Topic
1:00 - 1:30	Introduction, Sales & Marketing Update
1:30 - 2:15	Definitions, Scope, General Requirements
2:15 - 3:00	Dataset Overview, On Mode Power
3:00 - 3:30	Download Acquisition Mode, Standby Mode
3:30 - 4:00	Open Discussion, Next Steps



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Introductions



- **Verena Radulovic**
U.S. Environmental Protection Agency
- **Jeremy Domm**
U.S. Department of Energy
- **Matt Malinowski**
ICF International
- **Rachel Unger**
ICF International
- **Allen Tsao**
Navigant Consulting
- **Tom Bolioli**
Terra Novum



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Activities to Date



- **December 2, 2013:** Specification Revision Launch Memo Released
 - December to March: data sharing and assembly
- **June 2, 2014:** Draft 1 Specification and Draft Test Method released to stakeholders
- **Today, June 17: Overview of Draft 1 Specification and Draft Test Method**



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Written Comments



In addition to making verbal comments during today's call, stakeholders are encouraged to submit written comments to televisions@energystar.gov.

Comment Deadline

Monday, June 30, 2014



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ENERGY STAR is a Successful Brand



- ENERGY STAR is an influential brand recognized by over 85% of Americans.
- Consumers prefer ENERGY STAR consumer electronics:
 - 64% of adults look for energy-efficient electronics when shopping.
 - 69% of consumers consider the environment when making purchasing decisions.
 - 71% of consumers are likely to recommend ENERGY STAR certified products to a friend.
- There is no sacrifice in quality or performance with ENERGY STAR:
 - Product specifications include latest features including Bluetooth and Internet-connectivity.
 - New product categories, including Smart TVs qualify for certification.



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Key Resources and Events



- Resources:
 - TV & AV Buyer's Guides
 - Partner opportunities document
 - CE Program Utility Guide
 - Social media messaging
 - CE holiday messaging (in development)
- Events & Campaigns:
 - ENERGY STAR Products Partner Meeting (October 27th–29th) in Phoenix, AZ
 - Community Service Tour (September/October)



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ENERGY STAR Social Media



- Partner with ENERGY STAR to highlight your certified consumer electronics
 - Holiday twitter party (October)
 - CES (January 2015)
- ENERGY STAR will provide Facebook posts and tweets that can be revamped for easy use on social channels
 - Like ENERGY STAR on Facebook, follow @ENERGYSTAR on Twitter and YouTube.
 - If you use @ENERGYSTAR with your social media accounts, ENERGY STAR has the opportunity to repost your tweets.



Definitions, Scope, General Requirements



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Definitions: General



- EPA removed the following definitions:

Definitions	Rationale
Rear-projection TV Direct-view TV	All V6 TVs are direct-view
Analog TV Digital TV	<10 V6 TVs are Analog
Component Television	Not widely available on consumer market
TV Combination Unit	This type of product is a Television offering Additional Functions as defined below and does not require a separate product classification.



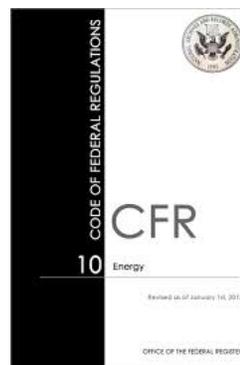
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Definitions: General



- EPA included the following from the Code of Federal Regulations harmonizing with the Final Rule test procedure

10 CFR 430, Subpart A	
Television (TV)	Section 430.2
Basic Model	Section 430.2
10 CFR 430, Subpart B, Appendix H	
On Mode	Section 2.14
Standby-Passive Mode	Section 2.18
Standby-Active, Low Mode	Section 2.20
Standby-Active, High Mode	Section 2.19
Off Mode	Section 2.13
Additional Functions	Section 2.10
Special Functions	Section 2.17
Preset Picture Setting	Section 2.15
Default Picture Setting	Section 2.40
Brightest Selectable Preset Picture Setting	Section 2.16
Home Configuration	Section 2.60
Retail configuration	Section 2.16
Forced Menu	Section 2.50
Main Battery	Section 2.12



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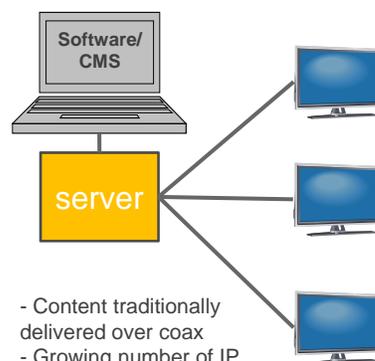
Definitions: Product Types



- EPA is requesting feedback on the relevance of the Hospitality TV definition to today's products

2) **Hospitality Television:** A TV product which includes the following features:

- A control port for bi-directional communication (DB-9, RJ11, RJ12, RJ45, coaxial cable, or HDMI-CEC); and
- Activated hospitality protocol software (e.g., SmartPort, Meeting Professionals International (MPI), Multiple Television Interface (MTI), Serial Protocol) to provide direct access to Video-On-Demand (VOD) systems or a digital media player designed for hospitality-specific applications.



- Content traditionally delivered over coax
- Growing number of IP implementations



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Definitions: Modes



- EPA introduced **Power Overhang State** in 2010 primarily to:
 - Allow projection lamps to cool-down; and
 - Capture quick-start and instant-on functionality

On Mode: The power mode in which the product is connected to a mains power source, has been activated, and is providing one or more of its principal functions.

Power Overhang State: A limited-duration power state within On Mode that is intended to facilitate a product's rapid return to full On Mode functionality or provide time for the product to perform functions required for safe shutdown (e.g., operation of cooling fans) after being switched into a low power state by the user.

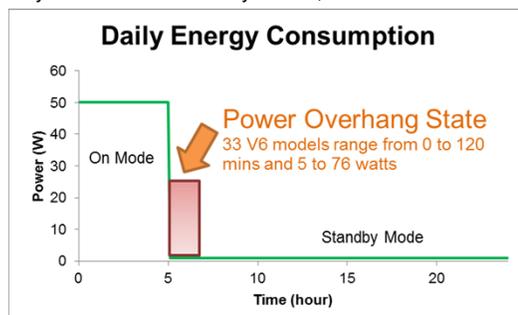


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Definitions: Modes



- EPA is proposing to remove to **Power Overhang State** in V7 because:
 - This state does not “provide one or more principle functions” of On Mode
 - No specific test procedures specifying how to perform this measurement
 - Most functions of Power Overhang State should be captured in the tested Standby-Passive and Standby-Active, Low modes



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Definitions: Additional Functions



- EPA is proposing new definitions to capture functions that allow the TV to operate as thin client/set-top box:

Thin Client Capability: The ability of the TV to receive, decrypt, and display encrypted content provided by a Multichannel Video Programming Distributor (MVPD) over the Local Area Network via a server device co-located on the customer premises without the need for a client device at the TV.

High Efficiency Video Processing: Video decoding providing compression efficiency significantly higher than H.264/AVC, for example HEVC (H.265).

Multichannel Video Programming Distributor (MVPD): A person such as, but not limited to, a cable operator, a multichannel multipoint distribution service, a direct broadcast satellite service, or a TV receive-only satellite program distributor, who makes available for purchase, by subscribers or customers, multiple channels of video programming.



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Definitions: Additional Functions



- To better classify the functionality available in Standby-Active, Low Mode, EPA is proposing the following definition for network presence:

Full Network Connectivity: The ability of the TV to maintain network presence while in Standby-Active, Low mode. Presence of the TV, its network services, and its applications, is maintained even if some components of the TV are powered down. The TV can elect to change power states based on receipt of network data from remote network devices, but should otherwise stay in Standby-Active, Low mode absent a demand for services from a remote network device. Full network connectivity is not limited to a specific set of protocols. Also referred to as “network proxy” functionality and described in the Ecma-393 standard.

Definitions: Additional Functions



- EPA has also included a more specific definition for Wake On Lan and seeks to understand the following:
 - Will this feature be widely available?
 - Does it differ significantly in function and power use from maintaining a network presence as defined in Full Network Connectivity?

Wake On LAN (WOL): Functionality which allows a TV to transition from Standby-Active, Low Mode to an active state of operation (Standby-Active, High or On Mode) when directed by a network wake event via Ethernet or Wi-Fi.

Definitions: Additional Functions



- EPA is proposing definitions to capture human interface capabilities as these features are becoming more common on the market

Gesture Recognition: Ability to recognize non-verbal communication through a movement of the body, head, or limbs to express or emphasize an idea, sentiment, or command.

Voice Recognition: Ability to recognize spoken words or phrases and to convert said communication into text or commands to which meaning has been assigned.

- Are there additional interfaces that should be defined?

Definitions: Resolution



- EPA is considering approaches for characterizing resolution to:
 - Account for the expected increase in Ultra High Definition market share in the coming years, and
 - Accommodate a diversity of products while remaining technology neutral.

Native Vertical Resolution: The physical pixel count for the vertical axis of the TV (e.g., a TV with a screen resolution of 1920 x 1080 (horizontal x vertical) would have a native vertical resolution of 1080).

Effective Vertical Resolution: The number of pixels (or lines) that can be separately controlled into adequately distinguished lines across the screen. The measure of the ability to distinguish the lines/pixels is based on an objective contrast measurement standard.

Definitions: Resolution



- Effective Resolution:
 - provides a means for determining effective resolution which does not rely on physical structure
 - focuses on objective measurements of performance which relate to human visual perception
 - uses an alternating high contrast band (>50% Michelson contrast (“contrast modulation”) in both vertical and horizontal)

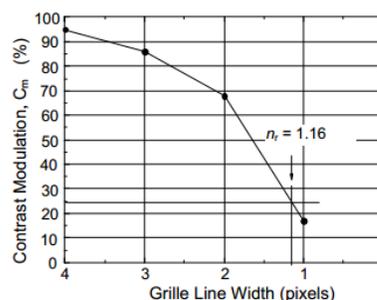


Fig. 1. Use linear interpolation to determine the value of n_r from contrast modulation measurements. An example of $n_r = 1.16$ is shown.

Reference: *The Society for Information Displays (SID) Information Displays Measurement Standard Version 1.03, Section 7.8.*
<http://www.sid.org/Portals/sid/20120627%20IDMSv1p03b.pdf>

$$\text{Resolution} = \frac{\text{\# of Addressable Lines}}{n_r}$$

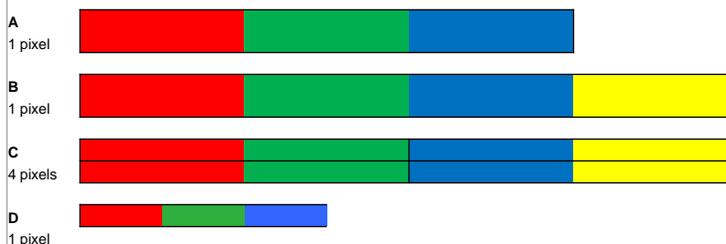


Definitions: Resolution



- Example pixel arrangements comparing Native Resolution and Effective Resolution

Example	Display Type	Native Resolution	Effective Resolution	SubPixel Composite
A	RGB	8mp FullHD	8mp FullHD	3 wide
B	RGBY	8mp FullHD	8mp FullHD	4 wide/2 high
C	RGBY/RGBW	16mp FullHD	16mp UltraHD	2 wide/1 high
D	RGB	24mp UltraHD	24mp UltraHD	3 wide



Scope: Exclusions



- EPA proposes removing the following exclusion:

Products that do not have a power state meeting the definition of Standby-Passive Mode (e.g., Public Alert CEA-2009-A certified models which offer 24/7/365 active public alert features)



- EPA is unaware of TVs with this certification
- The functionalities of always-on active public alert could be captured under Standby-Active, Low rather than excluding these types of products entirely



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Scope: Exclusions



- EPA is proposing to exclude battery-powered TVs:
 - There are currently no ENERGY STAR certified battery-powered TVs
 - Represents small portion of overall market and components optimized to extend battery life
 - TVs with a Main Battery are tested with the ENERGY STAR Test Method for Televisions, Rev. Aug-2010; however, the procedures of this test method are not aligned well with the parameters and reporting requirements under Appendix H, leading to results that cannot be compared across products

Section 2.2 Excluded Products:
i. Televisions with a Main Battery that enables operation without connected mains power.



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Gen. Requirements: Settings



- EPA is proposing that TVs display on-screen information if Standby setting are altered from the default or as-tested state similar to the existing Preset Picture Setting Menu requirement

3.2.5 Standby-Passive Mode and Standby-Active, Low Mode Settings: If users can select and enable Standby-Passive Mode or Standby-Active Low Mode functions from a display prompt in On Mode or a settings menu other than a Forced Menu that may differ in power consumption from the default, as-tested Home Configuration, the product shall:

- Display on-screen information that enabling certain optional features and functionalities (e.g., instant-on) in Standby-Active, Low Mode other than those included in the Home Configuration or default as-tested settings may increase energy consumption beyond the limits required for ENERGY STAR certification.
- EPA is considering requiring a menu selection for a discrete time period within a 24-hour cycle for the feature to be enabled
 - i.e. only 5 PM to 10 PM during peak user time
 - features such as gesture recognition or network presence may not be beneficial in off-peak hours
 - tailor any features to their schedules and reduce energy usage.



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Gen. Requirements: Thin Clients



- EPA is proposing the following requirement promoting Thin Client and Set-top Box features on the:
 - ENERGY STAR certified products list
 - And in via manufacturer informational materials
- Report relevant certifications, standards, and protocols
- Encourage consumers to connect TV directly to media server to save energy and reduce material resources



3.2.6 Thin Client Capability and MVPD Ready Information: Products that meet with Thin Client Capability and/or Point-of-Deployment (POD) Modules shall:

- Report the specifications, certifications, and relevant features including but not limited to interoperability protocols, decryption, and decoding for display on the ENERGY STAR certified products list; and
- Inform the consumer in the user manual and/or on-screen prompt that the TV may be capable of operating without a set-top box from a MVPD.



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Gen. Requirements: Standby-Active, High Mode



- In V7, EPA does not anticipate including power or time limits for Standby-Active, High Mode:
 - as stated in the Final Rule, DOE determined that the DAM test procedure does not accurately assess the power consumption of network-enabled consumer TVs
 - DOE is not aware of any workloads to simulate network traffic that would be comparable across all manufacturer platforms and usage scenarios



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Gen. Requirements: Standby-Active, High Mode



- EPA is, however, proposing that the TV return to the default Standby-Active, Low Mode following a firmware or maintenance update
- This ensures:
 - the TV returns to low power state when not providing a useful function; and
 - the default as-tested state is reflective of the TV's operation even after updates are made during the product's lifetime

3.2.7 Standby-Active, High Mode Capability: TVs with Standby-Active, Low Mode shall automatically return to the default as-tested Standby-Active, Low Mode following a manufacturer firmware update or other maintenance operation in Standby Active, High Mode within a time period **no greater than 15 minutes** from the completion of said update/maintenance operation.



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Dataset Overview, On Mode Power



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Market Overview



- Indicators that a revision to the On Mode criteria is warranted give high update of ENERGY STAR
 - Rough estimate of V6 market penetration today based on the Certified Products List: $(1372/1622) * 84\% = 71\%$
 - 2012 USD Report Version 5.3 ENERGY STAR specification Sales Market Penetration 84%
 - 1622 V5.3 certified models in May 2012
 - 1372 V6.0/V6.1 certified models in June 2014
 - **66%** of models California Energy Commission database added since 2013 meet the V6.0 On Mode Power limit

Dataset Overview

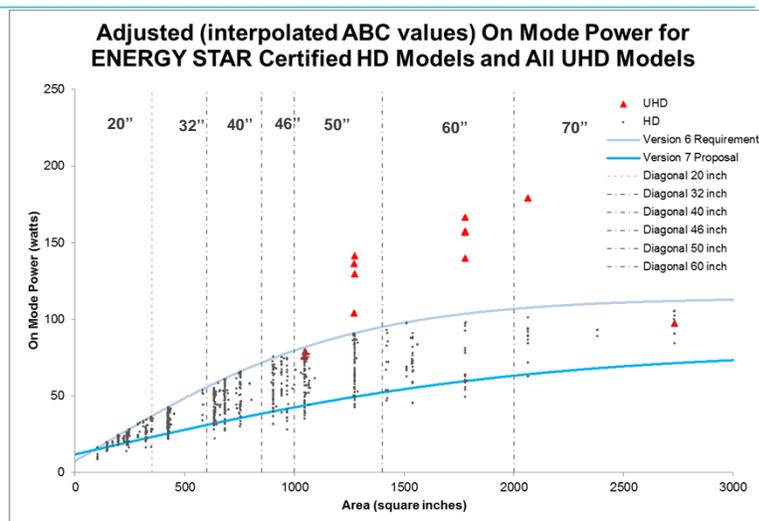


- A total of **933 unique models** from the following sources:
 - Data submitted by 4 manufacturers to EPA from January to April 2014
 - The Version 6 ENERGY STAR certified products database as of May 29, 2014
- **60 Final Rule** (Oct 2013) tested models and **873 NOPR** (Jan 2012) tested models
- **14 UHD** models and **919 HD** models
- **432 Direct-lit LED** models and **436 Edge-lit LED** models
- **345 ABC-enabled** models and **154 Standby-Active, Low mode tested models**



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Dataset Overview



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On Mode Power Overview



- For Version 7.0, EPA is proposing a similar power requirement structure to the Version 6 specification
- ENERGY STAR maximum On Mode limits are applied only to one measurement or calculation:

Models without ABC	Models with ABC Enabled
Measured On Mode Power is at the as-shipped, default luminance (cd/m^2)	Calculated On Mode Power weighted average based on the at illuminance levels of 100, 35, 12, and 3 lux per 10 CFR § 430

Luminance Requirement



- As On Mode Power is closely tied to screen luminance, EPA welcomes feedback on the following requirement
 - Representative for the necessary screen brightness in typical conditions in retail and home environments?
 - How does this requirement impact a television's (without ABC) ability to meet the On Mode Power limit?

3.6 Luminance Requirements

3.6.1 Measured peak luminance in the Default Picture Setting ($L_{\text{DEFAULT_HOME}}$) shall be **greater than or equal to 65%** of measured peak luminance in the Brightest Selectable Preset Picture Setting (the greater value of $L_{\text{DEFAULT_RETAIL}}$ or $L_{\text{BRIGHTEST_HOME}}$).

Luminance of Non-ABC Models



Average Luminance in Default Picture Mode (cd/m ²)		
Size Bin	Direct-lit LED	Edge-lit LED
20	173	172
32	204	200
40	210	216
46	208	206
50	234	225
60	234	220
Total	204	194

Average Luminance in Brightest Selectable Setting (cd/m ²)		
Size Bin	Direct-lit LED	Edge-lit LED
20	211	207
32	256	244
40	260	267
46	261	263
50	294	299
60	303	300
Total	255	241

Models are on average well above the luminance ratio requirement of 65%

Luminance Ratio Default/Brightest		
Size Bin	Direct-lit LED	Edge-lit LED
20	83%	84%
32	80%	83%
40	81%	81%
46	80%	79%
50	79%	76%
60	77%	73%
Total	81%	82%



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Luminance of ABC Models



Average Luminance in Default Picture Mode (cd/m ²)		
Size Bin	Direct-lit LED	Edge-lit LED
20	-	200
32	247	190
40	242	218
46	291	265
50	281	260
60	263	265
70	247	260
Total	264	243

Average Luminance in Brightest Selectable Setting (cd/m ²)		
Size Bin	Direct-lit LED	Edge-lit LED
20	-	239
32	278	239
40	298	279
46	365	351
50	360	334
60	351	353
70	342	353
Total	335	316

When ABC is disabled, these models have on average brighter than the models shipped without ABC

Luminance Ratio Default/Brightest		
Size Bin	Direct-lit LED	Edge-lit LED
20	-	85%
32	90%	79%
40	83%	78%
46	84%	76%
50	80%	78%
60	76%	76%
70	72%	74%
Total	81%	77%

Note: There are 6 plasma ABC models with luminance ranging from 51 to 81 cd/m².



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On Mode Power: ABC



- Version 6 On Mode Power Calculations for ABC

Version 6.0 referencing Notice of Proposed Rulemaking (January 2012)

$$P_{ON_ABC} = (0.55 \times P_{300}) + (0.45 \times P_0)$$

Where:

- P_{300} is the measured On Mode power with ABC enabled when tested at 300 lux per Section 5.5 of the NOPR,
- P_0 is the measured On Mode power with ABC enabled when tested per Section 5.5 of the NOPR, but with 0 lux entering the sensor.

Version 6.1 referencing the Final Rule (October 2013)

$$P_{ON_ABC} = (0.25 \times P_{100}) + (0.25 \times P_{35}) + (0.25 \times P_{12}) + (0.25 \times P_3)$$

Where:

- P_{100} , P_{35} , P_{12} , and P_3 are the measured On Mode power values at 100, 35, 12, and 3 lux, respectively, with ABC enabled when tested per the Final Rule.



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On Mode Power: ABC



- In Version 7.0, EPA has removed the following sensor validation test included under Version 6.0 (NOPR test)
 - No longer necessary with the Final Rule weighted average calculation

Equation 5: ABC Sensor Validation Conditions

$$\frac{P_{50} - P_{10}}{P_{10}} \geq 5\%, \quad \frac{P_{100} - P_{50}}{P_{50}} \geq 5\%, \quad P_{300} \geq P_{100}$$

Where:

P_n is the Power consumed for On Mode with ABC enabled at n lux, with a direct light source



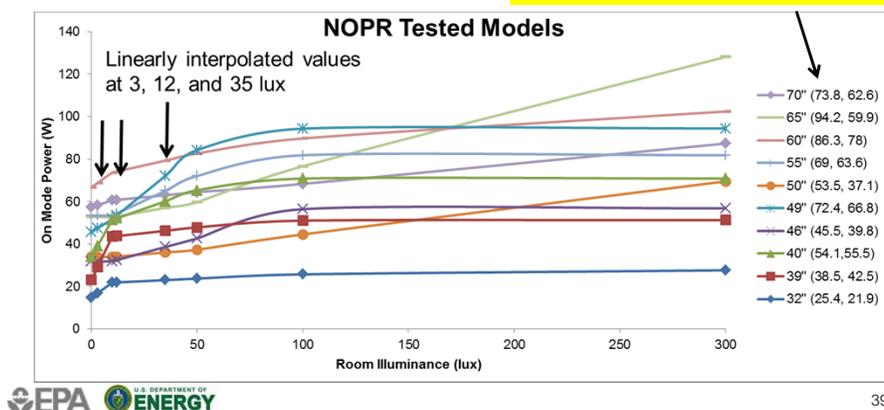
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On Mode: ABC



- Randomly selected V6.0 models from 10 manufacturers

Size (V6.0 On Mode 0, 300 lux; Avg. On Mode 3,12,35,100 lux)



On Mode: ABC

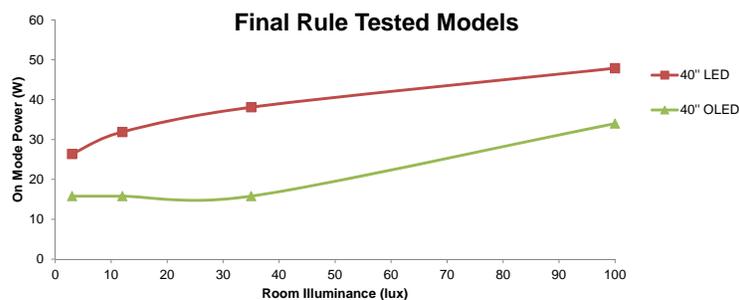


- The calculation using the interpolated values for 3, 12, and 35 lux was on average **16 percent** less than the Version 6.1 NOPR ABC calculated On Mode power
- EPA applied the Draft 1 Version 7.0 proposal to the interpolated calculation for all ABC models tested per the NOPR

On Mode: ABC



- Below are examples of the Final Rule ABC measurements at 3, 12, 35, and 100 lux
 - One LED and one OLED ENERGY STAR certified models
 - Power difference of around 20 W between the darkest (3 lux) and brightest conditions (100 lux)



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Draft 1 Version 7.0 Proposal



- EPA is proposing the following On Mode Power Requirement for all Televisions

Equation 1: Maximum On Mode Power Requirement

$$P_{ON_MAX} = (65 \times \tanh(0.0005 \times (A - 140) + 0.02) + 15)$$

Where:

- P_{ON_MAX} is the maximum allowable On Mode Power consumption in W,
- A is the viewable Screen Area of the product in square inches, and
- \tanh is the hyperbolic tangent function.



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Draft 1 Version 7.0 Proposal



- Below is the pass rate for all High Definition TVs

Size Bin	Meets Draft 1 V7?		Pass Rate
	Yes	No	
20	39	150	26%
32	14	158	9%
40	19	187	10%
46	16	81	20%
50	19	133	14%
60	11	64	17%
70	2	26	8%
Total	120	799	15%



Draft 1 Version 7.0 Proposal



- Below are the manufacturers with HD models meeting:

Size Bin	ENERGY STAR Partner (masked)										
	#7	#9	#12	#13	#15	#17	#19	#21	#24	#26	#27
20	1	2	1	4	9			4		6	
32		1			3	2		4			1
40						2	2	6			
46						1		10			
50						3		12	2		
60						1		8			
70											
Total	1	3	1	4	12	9	2	44	2	6	1
Size Bin	#28	#29	#30	#35	#36	#37	#38	#41	#42	#43	
20	1			4	1			1	3	2	
32				1			1			1	
40		2	2			1			4		
46		3	1						1		
50		1				1					
60						2					
70		2									
Total	1	8	3	5	1	4	1	1	8	3	



Draft 1 Version 7.0 Proposal



- Below is a breakdown of features represented in the model meeting the Draft 1 Version 7.0 proposal
 - Larger proportion of ABC models meeting as expected due to range of tested lux value
 - Smaller proportion of 3D TVs meeting – small subset of models and/or this feature has a slight overhead or is a proxy for other slightly more consumptive features

Feature	Meets Draft 1 V7 ?		Pass Rate
	Yes	No	
ABC Enabled by Default When Television is Shipped?			
Yes	72	272	26%
No	48	523	9%
3D television?			
Yes	8	99	8%
No	112	696	16%



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Ultra High Definition TVs



- UHD TV shipments will account for 41 percent of global flat panel TV units in 2020, up from just 4 percent in 2014.
 - By region, UHD household penetration will reach 32 per cent in North America, 22 percent in Western Europe and 18 percent in Asia Pacific by 2020.
 - Entry level prices for UHD TVs will drop below \$2,000 before the end of 2014
 - Source: <http://www.telecompetitor.com/uhd-tv-forecast-to-be-in-33-of-u-s-households-by-2020/>

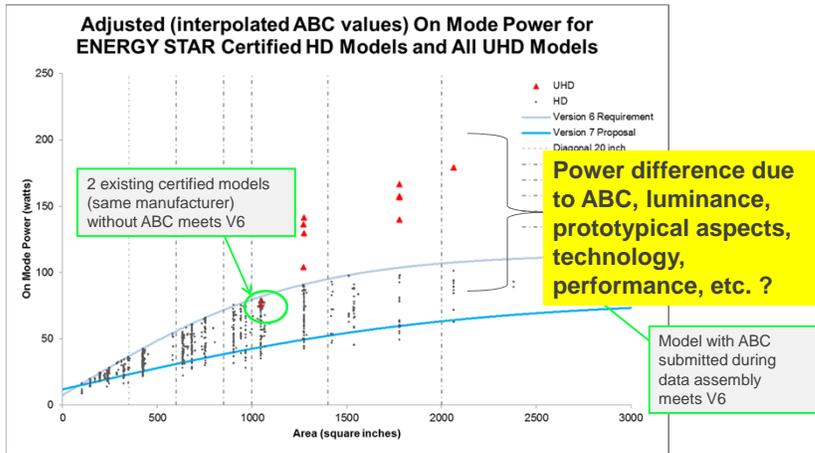


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Ultra High Definition TVs



- EPA is seeking additional UHD data and feedback in consideration of proposing a resolution allowance in Draft 2



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Ultra High Definition TVs



Dataset ID	ENERGY STAR Partner	Screen Size (inches)	Screen Area (sq. inches)	Luminance			Measured On Mode Power					Reported Value (W)
				Default Picture Mode as Shipped (cd/m ²)	Brightest Selectable Preset Mode (cd/m ²)	Brightest Selectable Preset Picture Mode (W)	No ABC	at 3 lux (W)	at 12 lux (W)	at 35 lux (W)	at 100 lux (W)	
1	5	50	1047	225	320	117						75
2	5	50	1049	278	392	143						78
3	11	84	3016	281	346							222
4	11	55	1274	348	451	230						136
5	11	55	1274	348	451	144						103
6	11	65	1779	319	434	202						139
7	11	65	1779	368	477	263						157
8	11	79	2733	311	403	200	149	88	91	99	108	97
9	24	70	2065									179
10	29	55	1276									129
11	29	84	3018									287
12	29	55	1275									141
13	29	65	1780									156
14	29	65	1780									166
Average				310	409	185						147



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Ultra High Definition



- EPA is requesting additional manufacturer data for the measured On Mode power of UHD TVs including but not limited to:
 - On Mode power measurements with and without ABC enabled; and
 - Models not yet on the market or still under development.
- EPA additionally welcomes stakeholder feedback on how to account for any additional power required for greater resolution
 - Discrete allowance if product as Native/Effective UHD?
 - Scale allowance with resolution?

Power Overhang State



- Per earlier discussion, EPA is proposing to remove the Power Overhang State definition and the associated requirement:

~~Measured Power Overhang State power shall be less than or equal to the Maximum On Mode Power Requirement (P_{ON_MAX}), as calculated per Equation 1.~~

Download Acquisition Mode, Standby Mode



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Standby-Passive Mode



- The Version 6.0 specification has a Standby-Passive Mode limit of 1.0 W
 - Over 95 percent of current ENERGY STAR Version 6 certified models have measured Standby-Passive Mode power less than or equal to 0.5 W.



- For Version 7.0 , EPA is proposing that Standby-Passive Mode power shall be less than or equal to **0.5 W**

Standby-Active, Low Mode



- IHS Screen Digest expects smart TV shipments to rise to 141 million and account for 55% of global television shipments by 2015 – making up more than half the market for the first time (Source: <http://www.telecompetitor.com/report-smart-tvs-account-for-more-than-25-of-global-tv-shipments/>)
- Therefore EPA is proposing new requirements for Standby-Active, Low Mode in Version 7.0 that take into account that actual network functionality provided
 - DOE and EPA are proposing an additional test for models with Standby-Active, Low mode to assess Full Network Connectivity



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Standby-Active, Low Mode



- Draft 1 includes a reference to the following CEA test method

Table 3: Methods for TVs with Standby-Active, Low

Product Type	Method
TVs with Standby-Active, Low Mode	CEA-2037-A, Determination of Television Set Power Consumption

- Available here:
[http://www.ce.org/Standards/Standard-Listings/R4-Video-Systems-Committee/CEA-2037-\(ANSI\).aspx](http://www.ce.org/Standards/Standard-Listings/R4-Video-Systems-Committee/CEA-2037-(ANSI).aspx)



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Standby-Active, Low Mode



- The Draft 1 specification includes the following language:

4.2.2 If the TV is network enabled and tested in Standby-Active, Low per Appendix H, the following additional test, with, is required for ENERGY STAR certification:

- Perform all procedures specified in Section 6.6.5 Standby-active, Low of CEA-2037-A with the additional preconditions:
 - Place the UUT in the On Mode as tested per Appendix H and momentarily press the power button on the remote control; and
 - Wait 5 minutes after pressing the power button before beginning the Section 6.6.5 procedures.
- TVs, for which availability can be confirmed with one of the methods in Section 6.6.5.2 Availability, shall be reported as having Full Network Connectivity.

Standby-Active, Low Mode



- CEA 6.6.5.2 Availability – availability is confirmed by either of the following methods:
 1. A network scanner application or other software application confirms IP address is associated with UUT and is active during Standby-active, Low mode.
 2. Switching the UUT into On Mode with Wake-on-LAN (QOL) or Wake on Wireless LAN (WoWLAN) Network signal

Standby-Active, Low Mode



- Power in Standby-Active, Low Mode is measured using the test method specified in Section 7.3.3 of Appendix H
- This additional test would only be used to confirm the presence of Full Network Connectivity
- DOE and EPA request stakeholder feedback on the appropriateness of the CEA-2037-A Section 6.6.5 test procedures for representing network behavior and capabilities of the TV in Standby-Active, Low mode



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Standby-Active, Low Mode



- EPA is proposing the following Standby-Active, Low Mode maximum power limit:

Table 1: Maximum Standby-Active, Low Power Requirement

Product Type	Standby-Active, Low Pmax
Televisions without Full Network Connectivity	0.5 W
Televisions with Full Network Connectivity	1.0 W

- Over 70 percent of current ENERGY STAR certified TVs 0.5 W or less in Standby-Active, Low mode, so this level is appropriate for TVs without Full Network Connectivity



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Standby-Active, Low Mode



- EPA is proposing a maximum power requirement of 1.0 W for Full Network Connectivity:

Product Type	Standby-Active, Low Pmax
Televisions without Full Network Connectivity	0.5 W
Televisions with Full Network Connectivity	1.0 W

- From Sept 2013 IEA 4E Standby Power Annex report "[Power Requirements for Functions](#)":

Ethernet link without Energy Efficient Ethernet	Idle Wi-Fi transceiver
0.373 to 0.583 W of ac power	0.036 to 0.250 W of ac power

- Latest efficient networking protocols and components can achieve power consumption equal to or under 1.0 W in Standby-Active, Low Mode while maintaining a network presence
- Many TVs are already under 0.3 W in Standby-Active, Low Mode

Standby-Active, Low Mode



- EPA welcomes stakeholder feedback on the power requirements for any features or functions that may be present in Standby-Active, Low Modes as tested per Appendix H, both with and without Full Network Connectivity, including but not limited to:
 - Gesture Recognition;
 - Voice Recognition;
 - Functions that reduce boot times;
 - Thin Client Capability;
 - Hospitality TV functions; and
 - Public alert/emergency message monitoring.

Download Acquisition Mode



- Version 6 includes the following Download Acquisition Mode requirements for Hospitality TVs based on:
 - [CEA Procedure for DAM Testing: For TVs, Revision 0.3, 8 September 2010](#)

3.7.1 A product may automatically exit Standby-Passive Mode or Standby-Active, Low Mode and enter Download Acquisition Mode according to a predefined schedule, in order to:

- i. Download channel listing information for use by an electronic programming guide,
- ii. Monitor for emergency messaging/communications, or
- iii. Communicate via a network protocol.

3.7.2 Measured DAM energy consumption for all DAM states (EDAM) shall be less than or equal to 40 watt-hours per day (0.04 kWh/day).



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Download Acquisition Mode



- EPA is reviewing the separate DAM energy use requirements for Hospitality TVs because it has identified many TVs meeting the definition for Hospitality TV that were not tested in DAM for certification to V6
- For those TVs that have been tested, Download Acquisition Mode is reported to be active from **15 minutes to just over an hour a day** making the overall energy use impact relatively small as assessed by the CEA Procedure

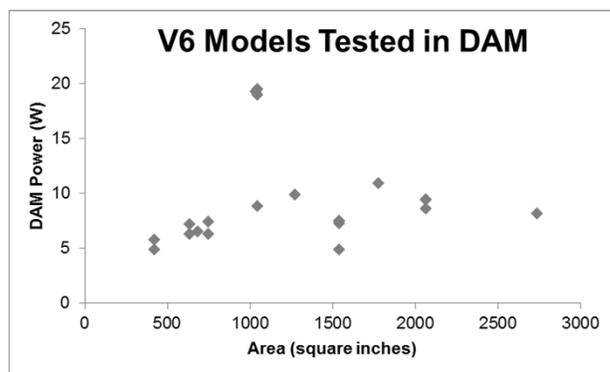


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Download Acquisition Mode



- Measured power in DAM for V6 models:



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Download Acquisition Mode



- EPA seeks feedback on the applicability of the DAM test to Hospitality TVs today



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Open Discussion, Next Steps



Time	Topic
1:00 - 1:30	Introduction, Sales & Marketing Update
1:30 - 2:30	Definitions, Scope, General Requirements
2:30 - 3:00	Dataset Overview, On Mode Power
3:00 - 3:30	Download Acquisition Mode, Standby Mode
3:30 - 4:00	Open Discussion, Next Steps

Open Discussion



- DOE and EPA would now like to open up the line for any general comments from stakeholders.

Specification Development Timeline



- EPA is proposing the following Version 7.0 specification development timeline:

Event	Date
June 30, 2014	Draft 1 Comments Due
Late Summer	Draft 2 Released
End of 2014	Final Specification Published
Summer 2015	Version 7.0 Effective



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Written Comments



In addition to making verbal comments during today's call, stakeholders are encouraged to submit written comments to televisions@energystar.gov.

Comment Deadline

Monday, June 30, 2014



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Contact Information



Please send any additional comments to televisions@energystar.gov or contact:

For questions regarding the specification, you may contact Verena Radulovic at Radulovic.Verena@epa.gov or (202) 343-9845.

For questions regarding the test procedures, you may contact Jeremy Domm at Jeremy.Domm@ee.doe.gov or (202) 586-9870.

Thank you for participating!



www.energystar.gov/productdevelopment

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