



ENERGY STAR® Set-top Boxes Version 4.1 Specification Review

Stakeholder Webinar
April 5th, 2012

U.S. Environmental Protection Agency

Agenda



- 1 Introduction
- 2 Program Overview
- 3 Issues for Consideration in Revision
- 4 Next Steps & Open Comment

Introduction



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Webinar Details

- Audio provided via conference call in:

Call in: +1.877.423.6338 (in the US)
 +1.571.281.2578 (international)
Code: 934840

- Please keep phone lines on mute unless speaking
 - Press ***6** to mute and un-mute your line
- Webinar materials will be available online shortly
 - Go to: www.energystar.gov/revisedspecs
 - Click on: Set-top Boxes

Introductions

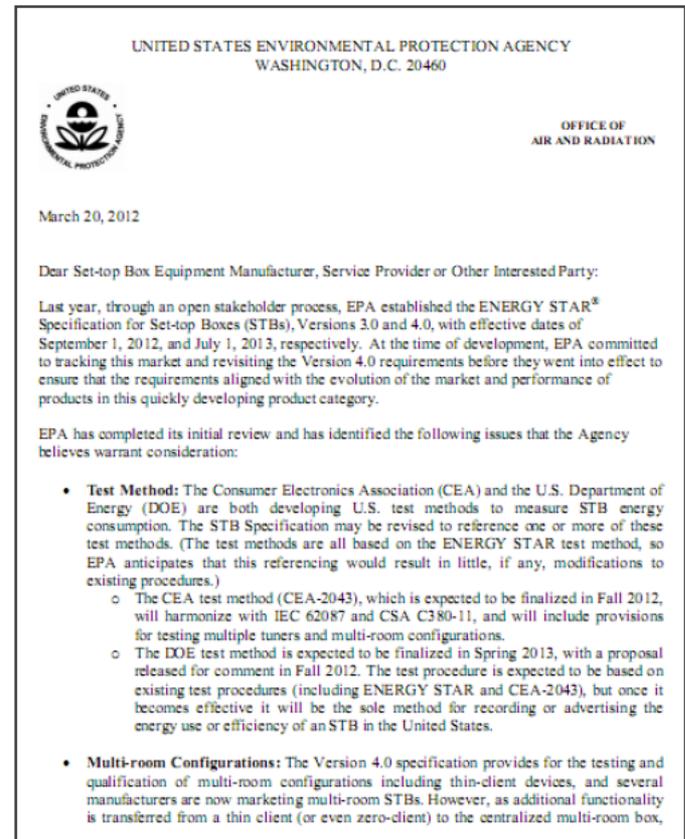


- **Katharine Kaplan**
EPA Team Lead, ENERGY STAR Product Development
Project Manager, Set-top Box Specification Development
- **Matt Malinowski**
ICF International
- **Rachel Unger**
ICF International
- **Tom Bolioli**
Terra Novum

Webinar Objectives



- Limited review of the Version 4.0 specification
- Discuss issues identified in March 20 letter
- Looking forward to stakeholder comments on best way to proceed to continue success of the program in 2013



Program Overview



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ENERGY STAR Program Overview



- ENERGY STAR is a public-private partnership program dedicated to helping individuals and businesses protect the environment through superior energy efficiency

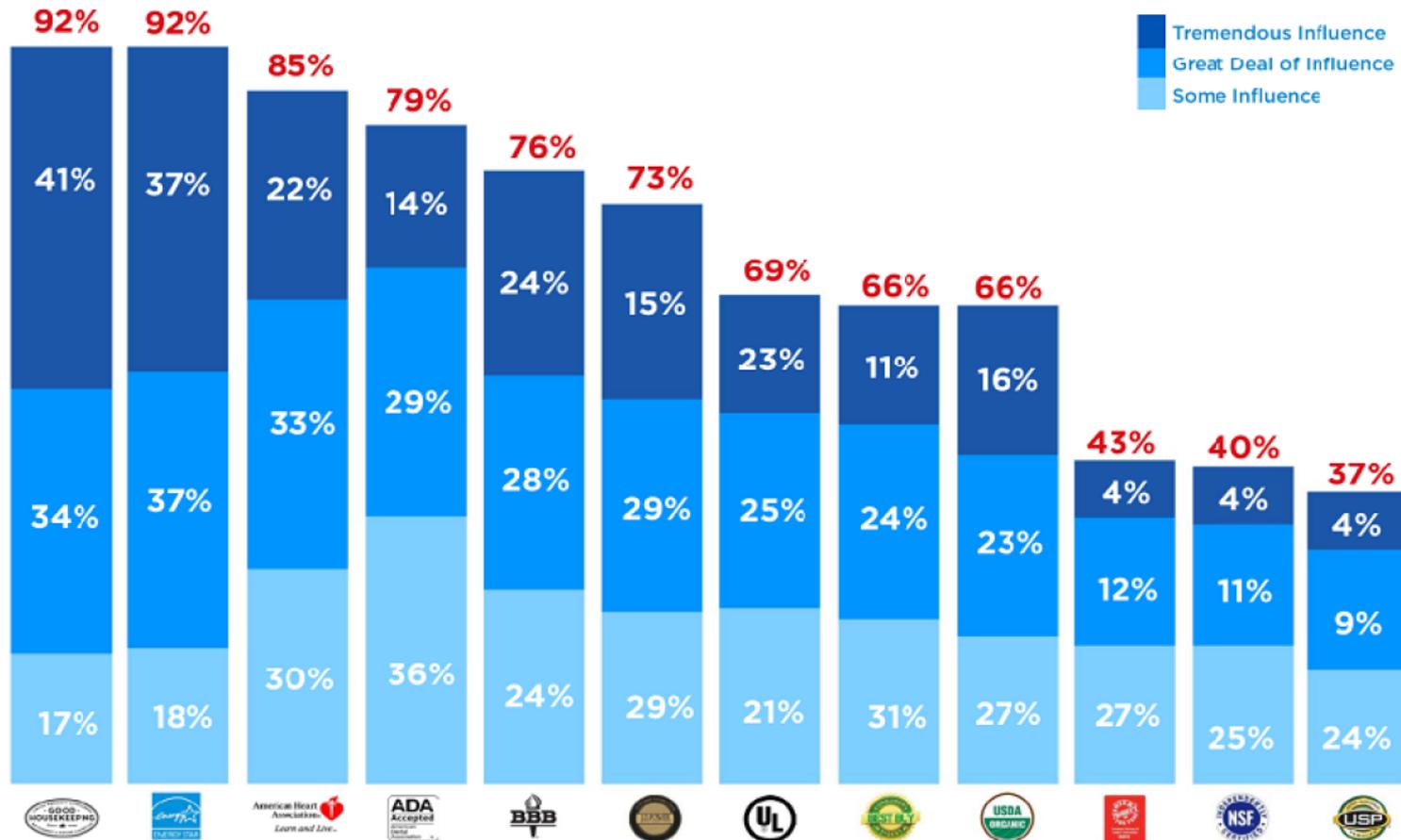


CELEBRATING
20 YEARS OF
ENERGY STAR



- More than 60 ENERGY STAR product categories are available in over 40,000 retail storefronts in the US and Puerto Rico and are actively promoted by over 700 utilities programs
- The brand is internationally recognized and implemented

ENERGY STAR Influence



SOURCE: Fairfield Research, July 2011

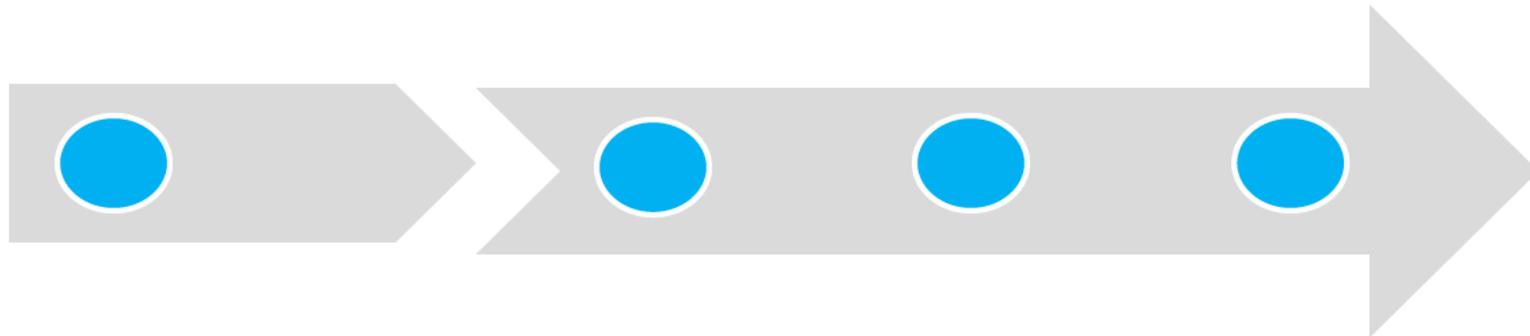
The ENERGY STAR mark ranks among the highest level of influence on product purchase among all consumer emblems, similar in ranking to the *Good Housekeeping Seal*.

ENERGY STAR Set-top Boxes Program History



Version 2.0
Effective 2009-2011

Version 4.0
Effective on July 1, 2013



Version 1.0
Effective 2001-2005

Version 3.0
Effective September 1, 2011

Specification Goals Recap

- Drive the greatest practical energy savings
- Maintain a performance-based and technology-neutral specification that recognizes market leaders
- Harmonize with existing and future test procedures and requirements
- Develop a specification that
 - Is simple, but
 - Recognizes products with diverse functionalities

STB Landscape



STB Manufacturers

Need:

- A program that allows for reliable, easy-to-operate, feature-rich products today, and
- Innovation for tomorrow's products

Service providers

Need:

- Easy-to-understand products and services,
- Ability to provide programming and features,
- Ability to maintain security, and
- Low cost options for efficiency

Utilities

Need significant, verifiable energy savings

End users

Need:

- Engaging programs and features,
- Affordable products and services, and
- Energy savings

ENERGY STAR Service Provider Partners



Requirements:

- At least 50% of all new set-top box purchases in a calendar year are ENERGY STAR qualified

- OR -

- At least 25% of all set-top boxes deployed to subscribers at the end of the calendar year are ENERGY STAR qualified



at&t



Cable Industry Efficiency Initiative



- Led by the NCTA and CableLabs®
- Involves operators providing service to approximately 85% of U.S. cable customers
- At least 90% of all new set-top boxes purchased and deployed will meet ENERGY STAR V3.0 by the end of 2013

Version 3.0 Specification Update



- 10 ENERGY STAR Manufacturer Partners
- In 2010, ENERGY STAR market penetration was estimated to be 54% under Version 2.0
- No more recent data, but market penetration likely to be lower due to more stringent Version 3.0 requirements:

V2.0: 91 models qualified (Aug 2011)



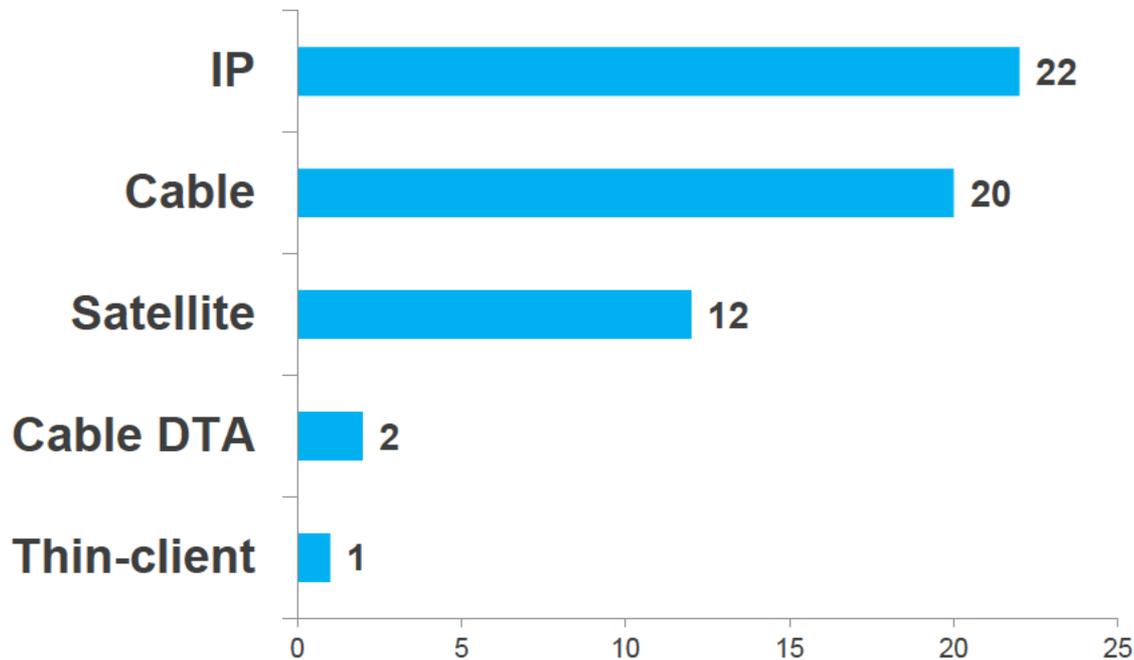
V3.0: 57 models currently qualified (April 2012)



V3.0 Qualified Products



ENERGY STAR Qualified STBs - 4/4/2012



- 10 STBs qualified for multi-room operation
- 10 STBs with APD
- 2 STBs with deep sleep capability

57 qualified models total

Version 4.0 Overview



- Finalized in April 2010 → Effective July 2013
- Similar to Version 3.0, with more stringent Typical Energy Consumption (TEC) Allowances
 - 32% Average Decrease in Base Allowances (50% Decrease for IP Boxes)
 - 21% Average Decrease in Adder Allowances
- Some currently qualified models already meet Version 4.0 levels

V3.0 and V4.0 Energy Use Allowances



	<u>Functionality</u>	<u>V3.0 TEC</u> <u>(kWh/yr)</u>	<u>V4.0 TEC</u> <u>(kWh/yr)</u>
Base	Cable	60	45
	Satellite	70	50
	Cable DTA	35	25
	Internet Protocol (IP)	50	25
	Terrestrial	22	18
	Thin-client / Remote	35	20
Additional	Advanced Video Processing	12	8
	CableCARD	15	15
	Digital Video Recorder (DVR)	45	36
	DOCSIS®	20	15
	High Definition (HD)	25	16
	Home Network Interface	10	8
	Multi-room	40	30
	Multi-stream – Cable/Satellite	16	8
	Multi-stream – Terrestrial/IP	8	6
	Removable Media Player	8	8
Removable Media Player / Recorder	10	10	

Issues for Consideration in Revision



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Summary of Issues for Consideration



- Test Method
- Multi-room Configurations
- Customer-premises Equipment (LNBS, ONTs)

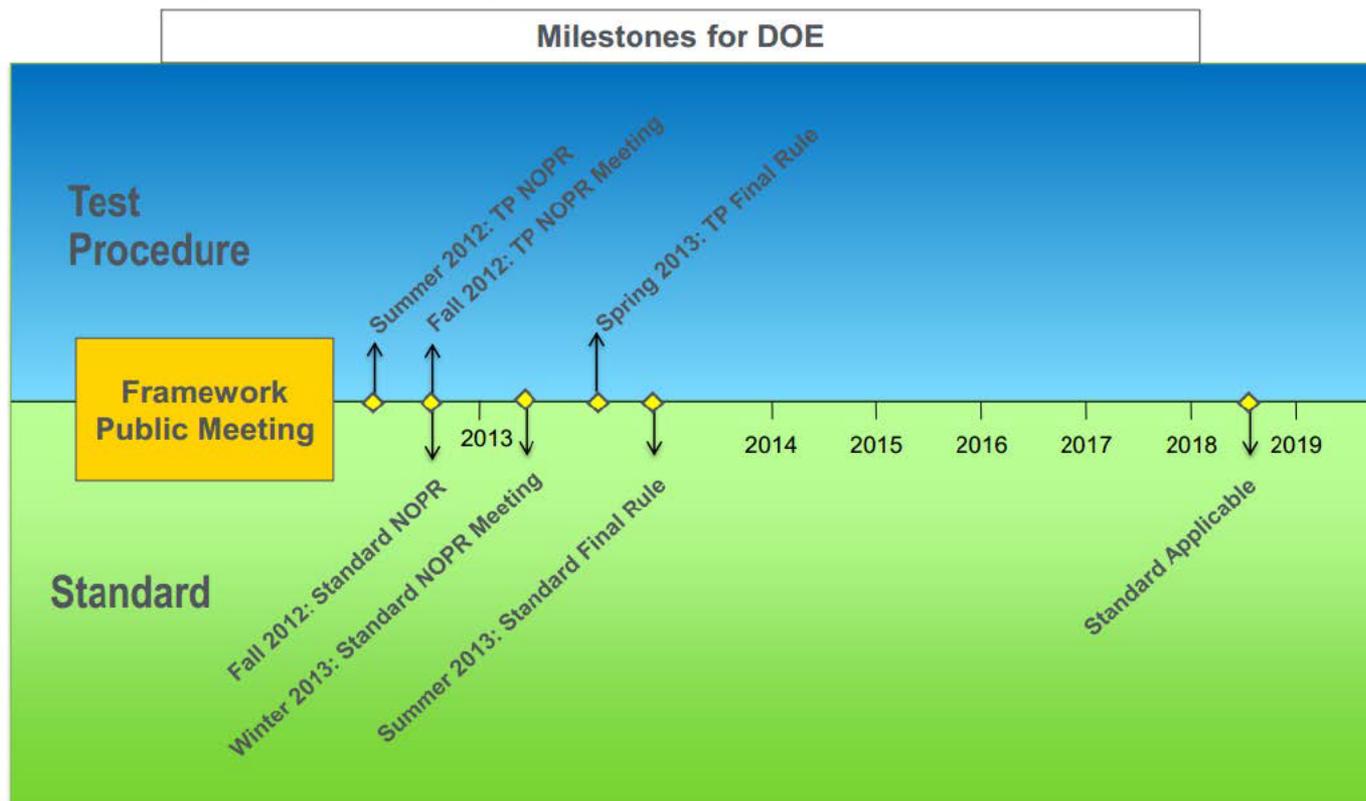
ENERGY STAR Test Method



- Source signals: SD network TV, HD sports, SD news
- Accredited labs must be able to access or simulate the service provider's head-end and environment, including periodic downloads
- Test Method Includes Multiple STB Modes:
 - Live TV Viewing
 - DVR Recording and Playback
 - Removable Media Recording and Playback
 - Sleep, Auto Power Down, and Deep Sleep
- Test Method Includes Multi-room STBs

Test Method

- CEA and DOE are both developing test methods for set-top boxes (CEA's is based on IEC 62087)



Test Method (cont.)

- EPA may revise the Version 4 specification to reference the new DOE test method (to be finalized by Spring 2013)
 - DOE test method is expected to be based on existing test methods, including ENERGY STAR
 - No major changes to testing and qualification are expected
 - Hopefully will be based on IEC 62087



Test Method Questions

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

Multi-room Configuration



- Encourage whole home efficient solutions
 - Home networking
 - Whole home DVR
 - Network and cloud-based delivery
 - Low-power thin clients or zero clients
 - Deep sleep with short wake time
 - Idle data connections operate at lower power
- Balance functionality/features with efficiency

Industry and Market Drivers



- Average U.S. home has three televisions
- RVU Alliance
- New CE Products that are over-the-top

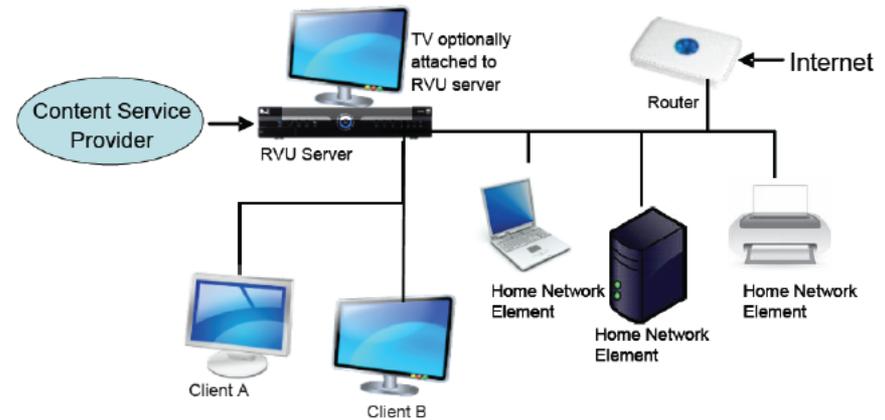


Figure 1 - The RVU Server-Client Solution

Source: www.RVUalliance.org White Paper

ENERGY STAR Multi-room Test Procedures



- If a multi-room-capable STB can qualify without a multi-room additional functionality allowance, it may be tested only in single-room configuration
- If a client STB is required, it shall be used in the set up of the multi-room test for the server STB
- Same test procedures (all modes, DVR, removable media etc.) apply for both single-room and multi-room configuration tests

ENERGY STAR Multi-room Evaluation



A model may be ENERGY STAR qualified for multi-room operation via one of the following options:

Single-room Test Only:

- 1 Combined TEC \leq Max TEC Requirement (without Multi-room allowance)

Multi-room Test:

- 2 **Second output without a Thin Client:**
Combined TEC \leq Max TEC Requirement (with Multi-room allowance and 50% of Thin Client allowance)
- 3 **Second output with a Thin Client*:**
Combined TEC \leq Max TEC Requirement (with Multi-room allowance)

* Thin Client model is tested and certified separately.

Factors Affecting Multi-room Energy Use



- Multiple tuners
- Additional functionality has been transferred from the client to the centralized multi-room box
- Multi-room box acts as gateway

Multi-room Questions



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

Customer-premises Equipment



- Version 3.0 and 4.0 specifications exclude the testing of low-noise block downconverters (LNBS) used with satellite systems
- LNBS permit operation of satellite STBs by down-converting the high frequency television signal to frequencies more suitable for cable transportation
- LNBS can be powered independently or by the STB

Customer-premises Equipment (cont.)



- Some stakeholders expressed concern that exclusion of LNBs used with Satellite models favors this base functionality
- However, other base functionality boxes (Cable, IP) also include customer-premises equipment that could contribute to TEC

Customer-premises Equipment Questions



How much power do the LNB's consume compared to the STB?

What factors impact LNB energy consumption and can they be controlled in a laboratory setting?

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

Next Steps & Open Comment



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Anticipated Specification Review Timeline



Milestone	Anticipated Date
Dataset Development	April 2012
Release Draft 1 Modifications	May 2012
Stakeholder Webinar & Comment	June 2012
Release Final Draft Modifications	July 2012
Publish Version 4.1 Specification	August 2012
Version 4.1 Specification Effective	July 1, 2013

Written Comments



- In addition to making verbal comments during today's meeting, stakeholders are strongly encouraged to submit written comments and data
- Please send all comments to: STBs@energystar.gov

Comment Deadline

Friday, April 13, 2012

Open Comment & Questions



- EPA would now like to open up the line for any additional comments and questions from stakeholders

Contact Information



Send Comments to:

STBs@energystar.gov

Other Questions:

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References and Resources

- ENERGY STAR STB specification development:
Go to www.energystar.gov/RevisedSpecs and Click on “Set-top Boxes”
- U.S. Department of Energy Set-top Box Rulemaking:
http://www1.eere.energy.gov/buildings/appliance_standards/residential/set_top_boxes.html
- CEA-2043, Set-top Box Power Measurement
http://standards.ce.org/apps/group_public/project/details.php?project_id=51

Thank you!



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