ENERGY STAR Telephony Test Method Stakeholder Webinar

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ENERGY STAR Program

Webinar Details

- Webinar slides and related materials will be available on the Telephony Web page:
  - www.energystar.gov/revisedspecs
  - *Follow link to "Telephony"*

- 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 or un-mute your line

Webinar Goals

- Review changes from Preliminary Draft to Draft 1 Test Method and receive feedback from stakeholders
- Provide an update on the Draft 1 Specification

EPA-DOE ENERGY STAR Team

- EPA and DOE operating under Memorandum of Understanding (MOU) signed in 2009
- DOE is the lead for writing and updating ENERGY STAR test methods
- Navigant is contracted by DOE to write new test methods and validate and/or update existing test methods
- DOE team will provide overview and support of findings related to the test method

Agenda

1. Draft 1 Test Method Overview
2. Draft 1 Specification Update
3. Next Steps

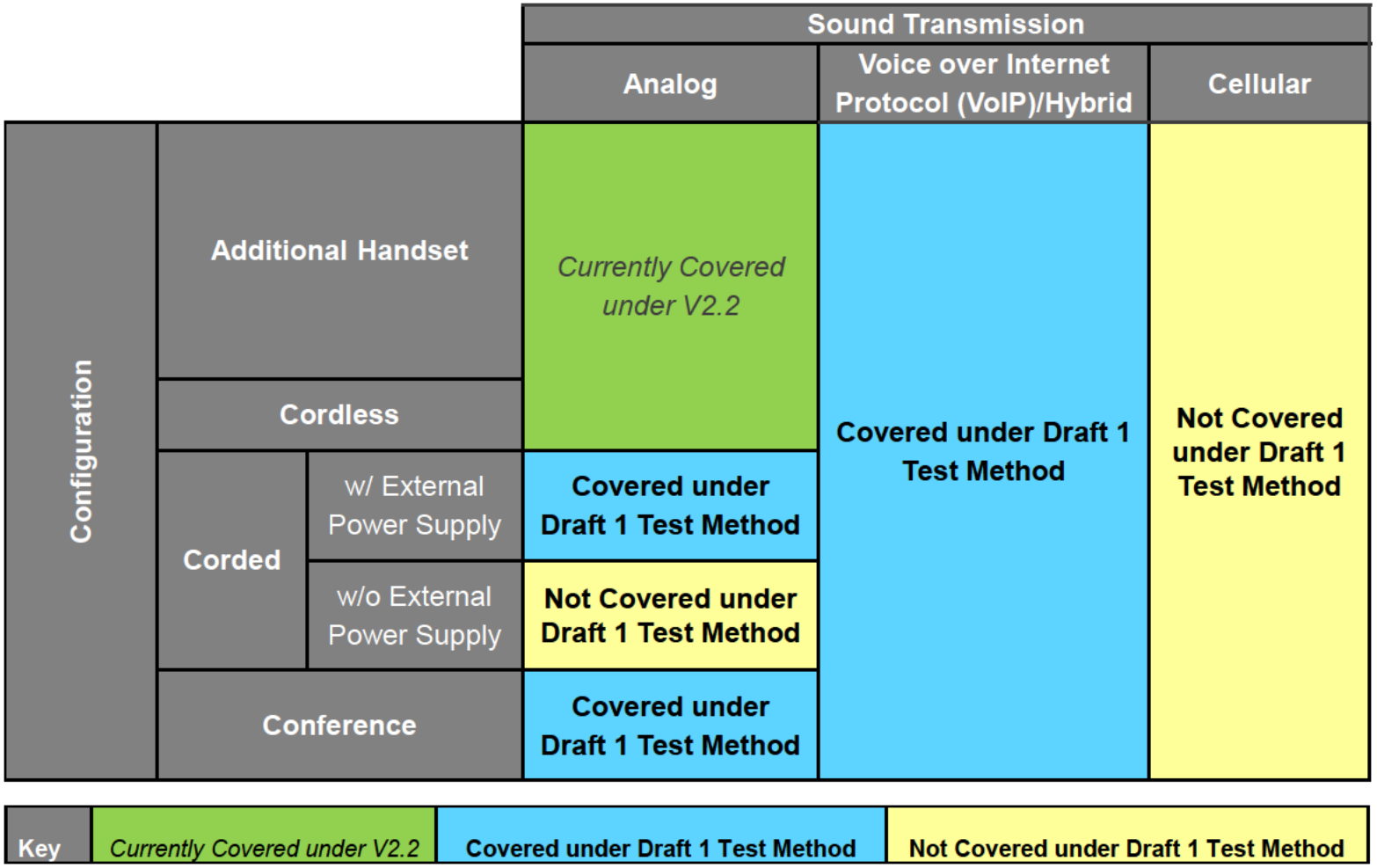
Test Method Development

- Version 3.0 Preliminary Draft Test Method published on Sept. 21, 2011
  - Webinar held on Oct. 4, 2011
  - Developed prior to validation testing
  - Intended to generate stakeholder feedback
- V3.0 Draft 1 Test Method published on June 8, 2012
  - Comments due by June 29, 2012
- V3.0 Draft 1 contains updates based on
  - Discussion during previous webinar
  - Stakeholder feedback
  - DOE validation testing

Draft 1 Test Method: Scope

- Scope expanded from Version 2.2
- Each unit categorized by two characteristics
  - Phone Configuration
  - Sound Transmission Mechanism

Draft 1 Test Method: Scope



Validation Testing

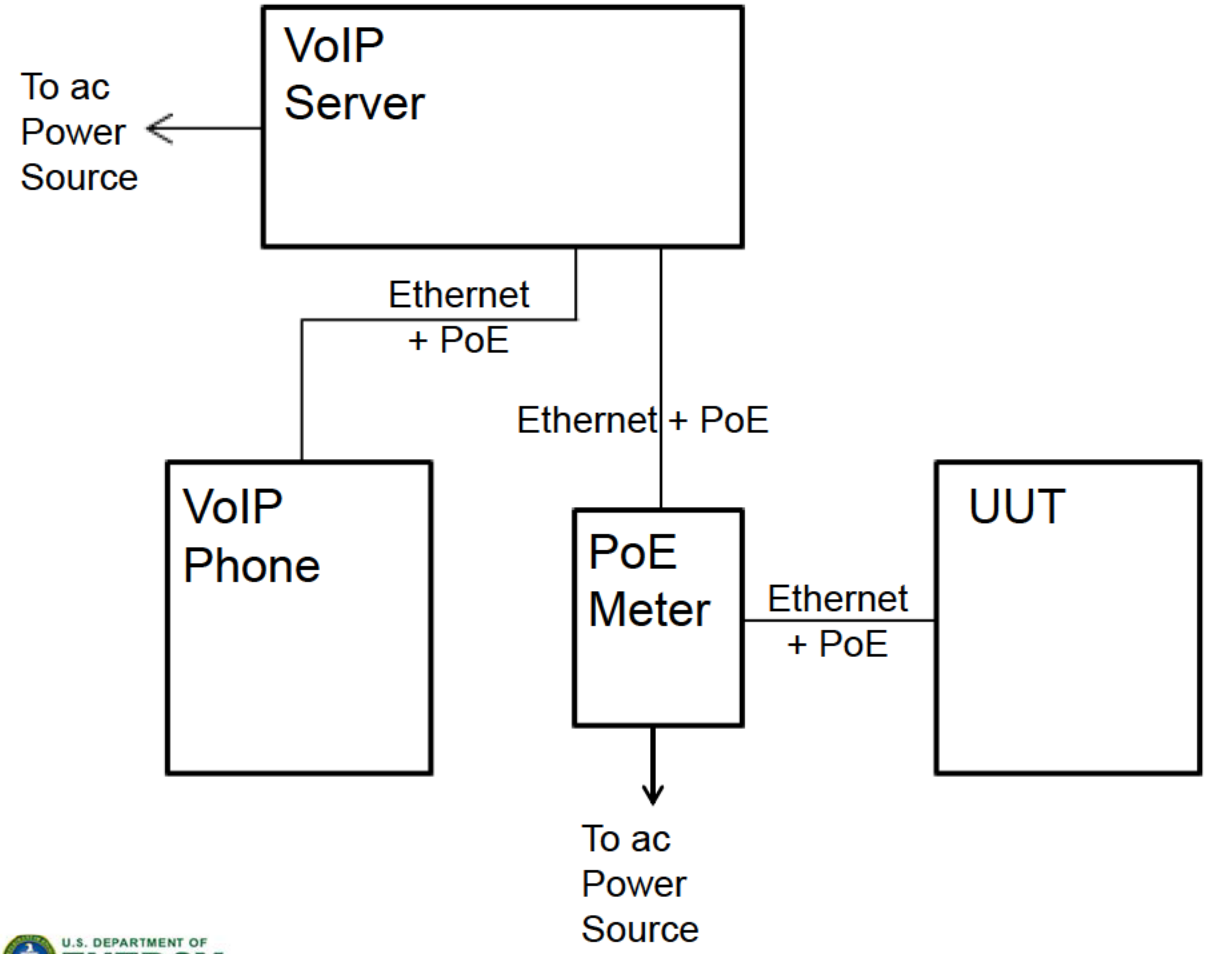
- Testing purpose
  - Validate draft test method
  - Identify gaps
- Testing scope
  - 9 different phone models

Configuration	Sound Transmission Type
• Corded • Cordless • Conference	• Analog • Voice over Internet Protocol (VoIP)

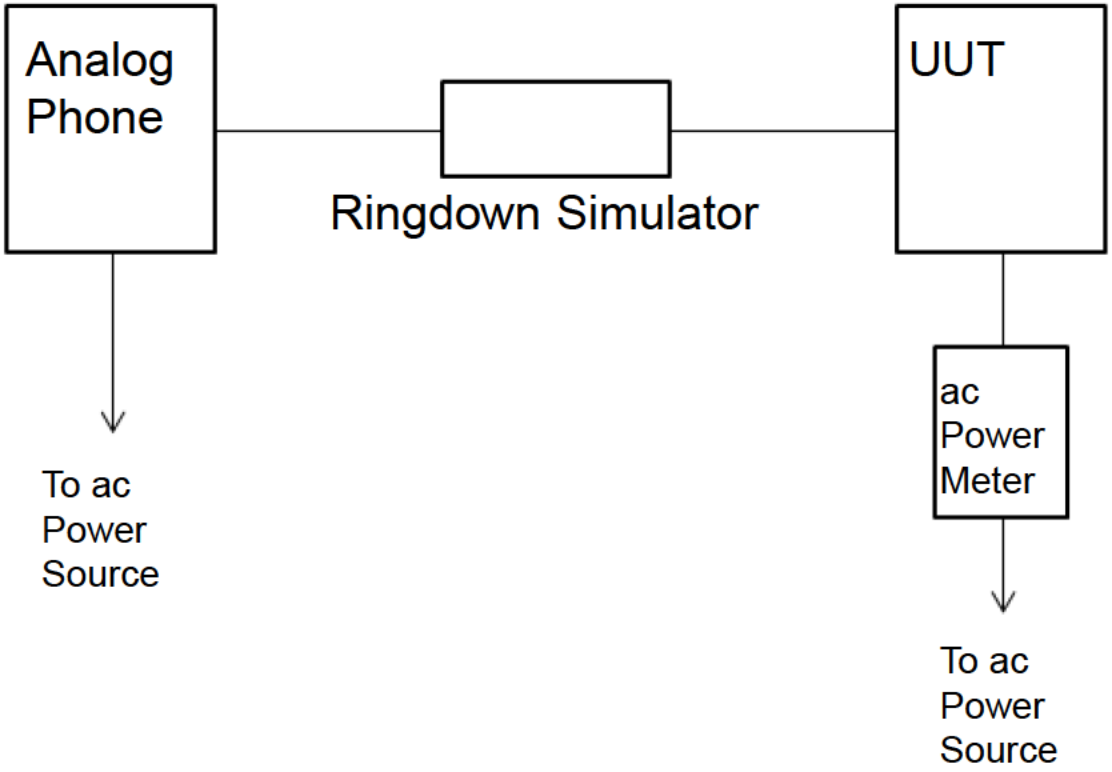
Validation Test Setup

- All Telephones set up in accordance with IEC 62301 Ed. 2.0
- VoIP Telephone
  - Tested using Power over Ethernet (PoE)
  - Calls made to another VoIP phone on the local server
- Analog calls made using a Ringdown Simulator

Validation Testing – VoIP Test Setup



Validation Testing – Analog Test Setup



Draft 1 Test Method: Test Measurements

- 4 modes tested

	Partial On (Sleep) Mode	Idle Mode	Operation Mode	Partial On with Data Switch Port

Definition	• Capable of receiving calls
	• Not transmitting sound
	• Not charging a battery
	• Handset "on the hook"
		• Handset is "off the hook"
		• Dial tone is playing but no number has been dialed
			• Telephone is either:
			  • Receiving /transmitting sound
			  • Playing/recording a message
				• Telephone is in Partial On Mode
				• Computer is connected to the data switch port
				• Data switch port connection is computer's only Internet connection

Validation Testing

- Results:

Phone (Type)	Power Consumption (W)			
	Partial On	Idle Mode	Operation	Switch Port
1 (VoIP)	3.80	3.85	4.30	N/A
2 (Analog)	0.61	0.65	0.80	N/A
3 (Analog)	0.59	0.65	0.65	N/A
4 (Analog)	0.70	0.79	0.79	N/A
5 (Analog)	1.02	1.02	1.19	N/A
6 (VoIP)	2.90	2.90	2.97	3.10
7 (VoIP)	2.37	2.38	2.38	3.29
8 (VoIP)	4.21	4.22	4.26	4.45
9 (VoIP)	4.75	4.75	4.80	5.61

Validation Testing

- All Telephones also tested with the microphones and speakers both muted and unmuted
- No sound intentionally transmitted over call during unmuted test

Validation Testing

- Results

Phone (Type)	Power Consumption (W)		% Change
	Muted	Unmuted	
1 (VoIP)	4.3	4.8	11%
2 (Analog)	0.8	0.68	-16%
3 (Analog)	0.65	0.85	27%
4 (Analog)	0.79	0.79	0%
5 (Analog)	1.02	1.19	15%
6 (VoIP)	2.97	2.97	0%
7 (VoIP)	2.38	2.51	5%
8 (VoIP)	4.26	4.33	2%
9 (VoIP)	4.8	4.8	0%

Draft 1 Test Method: Test Setup

- General
  - Set up all units according to IEC 62301 Ed. 2.0
  - Test units in as-shipped condition
  - Unit Under Test (UUT) must be capable of making and receiving phone calls
  - UUTs are tested both **with** and **without** all Additional Handsets and accessories set up and connected
- What percentage of Telephones are shipped with Additional Handsets and accessories?
  - What types of accessories?

Draft 1 Test Method: Test Setup

- Analog Telephones
  - May use a Ringdown Simulator instead of connecting to the Public Switched Telephone Network (PSTN)
- VoIP Telephones
  - Calls made to local VoIP network
  - All VoIP server equipment must support and be set to UUT's highest network speed
  - Test with ac External Power Supply (EPS) if unit is shipped with intended to be powered by, otherwise use PoE
- Hybrid Telephones
  - Test using VoIP capability
  - Test with ac External Power Supply (EPS) if shipped with unit, otherwise use PoE

VoIP/Hybrid Telephones– Feedback

- Are there any other VoIP server settings that affect power consumption?
- DOE and EPA are interested in receiving data regarding
  - The usage of data switch ports during typical operation
  - The use of analog vs. VoIP for Hybrid Telephones

Draft 1 Test Method: PoE Requirements

- Input voltage: 48 ± 2 volts (V)
  - Are there any products that won't operate at this voltage?
- PoE power meter
  - Measure power directly from Category 5 or 6 (CAT 5/6) cables
  - Compatible with all PoE modes (A, B, and Gigabit PoE)
  - Same resolution as ac power meter
  - Accuracy of ± (2% + 0.1 W)
- Do labs already have PoE measuring equipment?
  - If not, are there any obstacles to obtaining it?

Draft 1 Test Method: PoE Requirements

- Units tested using different cable lengths

	Power Consumption (Watts, W)		Variation
Cable Length	2 m	30 m	(% of mean)
UUT #1	2.85	2.95	1.6%
UUT #2	2.37	2.42	1.9%
UUT #3	4.21	4.36	3.5%
UUT #4	4.75	4.92	3.6%

- Test method specifies 1 meter CAT 5/6 cable
  - Minimizes impact of cable losses on testing results
  - Minimum practical length for testing
  - Is this length reasonable? Should a range be specified?

Draft 1 Test Method: Modes for Testing

- Draft 1 proposes testing 3 modes

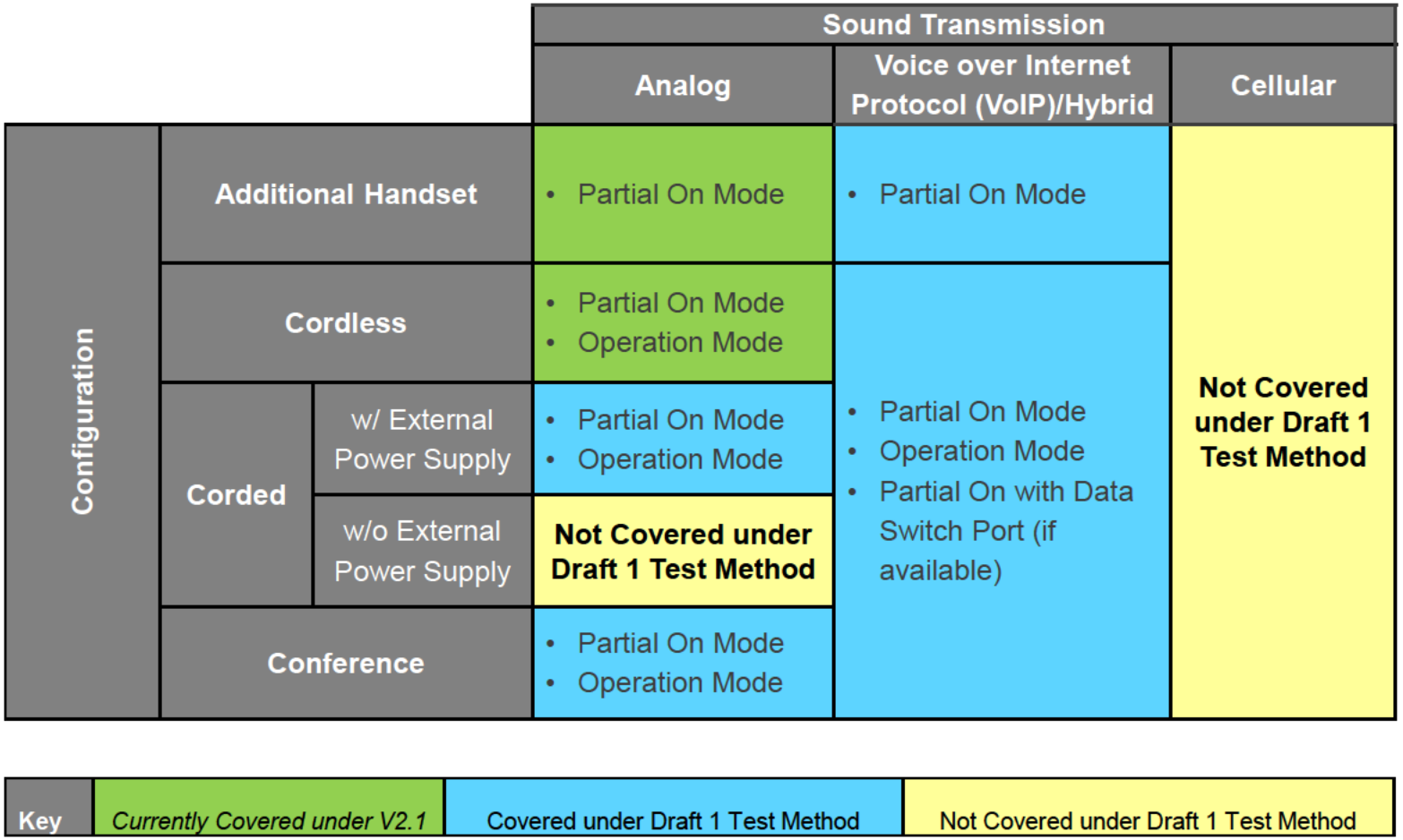
	Partial On (Sleep) Mode	Operation Mode	Partial On with Data Switch Port
Test Method	1. Verify dial tone 2. Return handset to "on the hook" 3. Wait 5 minutes 4. Measure power for 5 minutes	1. Verify dial tone 2. Mute microphone and speakers 3. Make a voice-only call 4. Wait 5 minutes 5. Measure power for 5 minutes	1. Plug computer into data switch port 2. Ensure computer recognizes connection 3. Perform Partial On Mode test

- Idle Mode not included because
  - Power consumption always between Partial On and Operation
  - DOE assumes Idle Mode represents a small portion of typical usage profile
- Not all units tested in all 3 modes

Draft 1 Test Method: Operation Mode Test

- Draft 1 Test Method proposes muting speaker and microphone volumes during testing
  - Increases repeatability
  - Reduces test burden
  - Speaker volume significantly affects power consumption

Draft 1 Test Method: Test Measurements



Configuration			Sound Transmission: Analog	Sound Transmission: Voice over Internet Protocol (VoIP)/Hybrid	Sound Transmission: Cellular
Configuration	Additional Handset		• Partial On Mode	• Partial On Mode	**Not Covered under Draft 1 Test Method**
Configuration	Cordless		• Partial On Mode • Operation Mode	• Partial On Mode • Operation Mode • Partial On with Data Switch Port (if available)	
Configuration	Corded	w/ External Power Supply	• Partial On Mode • Operation Mode		
Configuration	Corded	w/o External Power Supply	**Not Covered under Draft 1 Test Method**		
Configuration	Conference		• Partial On Mode • Operation Mode		

Key	*Currently Covered under V2.1*	Covered under Draft 1 Test Method	Not Covered under Draft 1 Test Method

Test Measurements – Feedback

- Does network speed affect power consumption in Partial On (Sleep) Mode?
- Are there any products that are capable of multiple Partial On (Sleep) Modes?
  - If so, what are the functionalities of each?
  - Is the proposed 5 minute test long enough to measure all available Partial On (Sleep) Modes?

Test Measurements – Feedback

- Does Idle Mode have any unique functionalities that should be considered for testing?
  - If so, how?
- DOE and EPA are interested in receiving data regarding the typical usage profile for all types of Telephones

Operation Mode Test – Feedback

- Should sound/data transfer be included during Operation Mode tests?

Agenda

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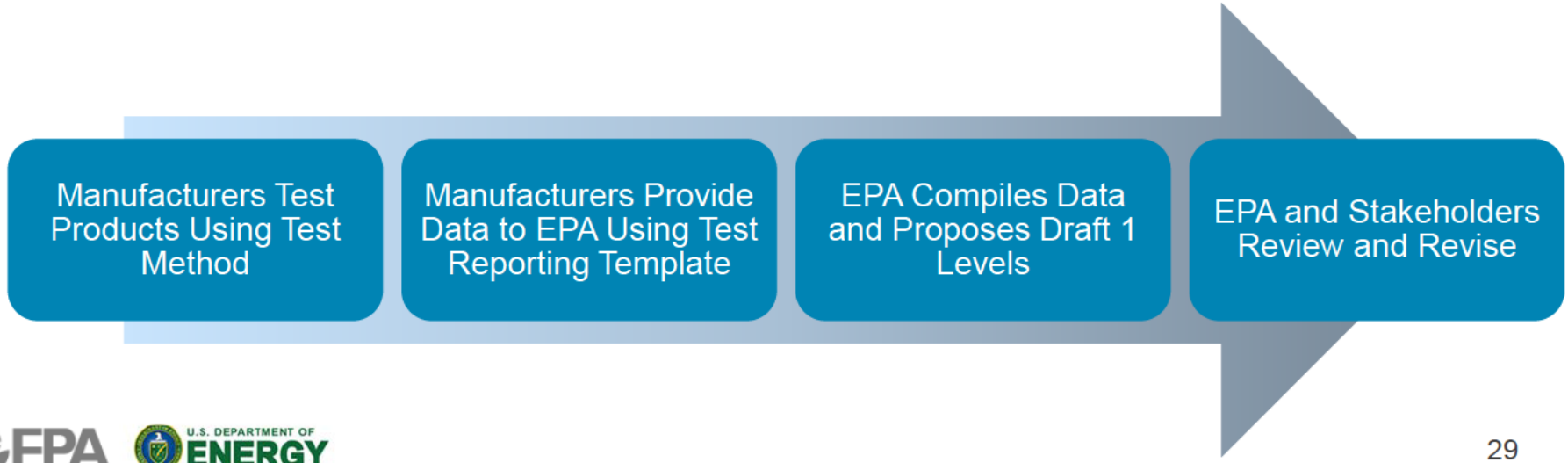
Telephony Version 3.0 Development Overview

- EPA plans to begin development of Version 3.0 in July
  - Looking forward to stakeholder comments on the test method
  - Dataset assembly to begin with the next draft of the test method
- EPA relies on manufacturers to provide energy consumption data
  - Manufacturer-provided data underlies ENERGY STAR levels



Telephony Test Reporting Template

- Provided to stakeholders on ***June 8, 2012***
  - Comments due ***June 29, 2012***, to telephony@energystar.gov

General Information	Unit Under Test and Setup Information	Test Measurements	Additional Test Setup
1. Laboratory information	1. UUT general information 2. UUT description 3. Unit additional features 4. Voice over Internet Protocol (VoIP) test setup information	1. Partial on mode measurements 2. Operation mode measurement 3. Switch port connectivity measurement	1. Additional handsets and accessories (if necessary) 2. Additional VoIP system equipment (if necessary)

Telephony Test Reporting Template: UUT and Setup Information

ENERGY STAR® Telephony Test Reporting Template - UUT and Setup Information

Unit Under Test General Information		
Manufacturer		
Model Name		
Model Number		
Serial Number		
Production Date		
Rated Voltage		V
Rated Frequency		Hz
Rated Amps		

Unit Under Test Description		
Sound Transmission Mechanism (Analog, VoIP, Hybrid)		
Phone Configuration (Cordless, corded, additional handset, conference)		

Telephony Test Reporting Template: UUT and Setup Information (cont.)

Unit Additional Features		
Does the unit have spread-spectrum technology?		*Yes/No*
Does the unit have Digital Answering Technology?		*Yes/No*
Does the unit have any low-power modes?		*Yes/No*
Does the unit have a display? *(If No, skip to line 45)*		*Yes/No*
Display Width		in
Display Height		in
Display Resolution		Width x Height (pixels)
Is the display backlit?		*Yes/No*
Does the unit have Bluetooth?		*Yes/No*
IEEE 802.3 Power Class?		
Number of Ethernet Ports?		
Number of Voice Lines?		
Is the unit Wifi capable?		*Yes/No*
Number of LED Status Indicators?		
Is the unit shipped with Additional Handsets? (*If yes, fill in lines 90-91)*		*Yes/No*
Is the unit shipped with additional accessories? (*If yes, fill in lines 92-93)*		*Yes/No*

Voice over Internet Protocol Test Setup Information		
Protocol Used		
Power Source (ac mains or Power over Ethernet (PoE))		
IP Server Model Name		
IP Server Model Number		
IP Server Manufacturer		
Network Speed Tested		Mbps
Network Speed PoE mode (A, B, Gigabit PoE)		
Additional network equipment needed between server and UUT? (*If yes, fill in lines 98-100)*		*Yes/No*
Any server setting needed to be specified by tester? (*If yes, fill in lines 101-102)*		*Yes/No*

Telephony Test Reporting Template: General Information

ENERGY STAR® Telephony Test Reporting Template - General Information

Laboratory Information		
Laboratory Name		
Contact Name		
Phone Number		
Fax Number		
Mailing Address		
Email Address		
Date of Agreement Between Laboratory and Manufacturing Partner		
Test Officer		
Date Sample Testing Began		
Date Sample Testing Completed		

Telephony Test Reporting Template: Test Measurements

ENERGY STAR® Telephony Test Reporting Template - Test Measurements		
Partial On Mode Measurements		
Partial On Mode Power Consumption (without handsets and accessories)		W
Partial On Mode Power Consumption (with handsets and accessories, if necessary)**		W
Operation Mode Measurement		
Operation Mode Power Consumption (without handsets and accessories)		W
Operation Mode Power Consumption (with handsets and accessories, if necessary)**		W
Switch Port Connectivity Measurement		
Partial On Power with Port Connected (without handsets and accessories)		W
Partial On Power with Port Connected (with handsets and accessories, if necessary)**		W
** Note: These tests shall be performed with all handsets and accessories listed in rows 38-43 set up an		

Telephony Test Reporting Template: Additional Setup Information

ENERGY STAR® Telephony Test Reporting Template - Additional Test Setup Information

Additional Handsets and Accessories (*if necessary*)		
Number of Additional Handsets shipped with UUT		
Model Name and Number of Additional Handset		
Number of additional accessories shipped with UUT		
Model Name and Number of additional accessory		

Note: If multiple handset models or accessories are shipped with UUT, additional rows should be added for each new model or accessory.

Additional VoIP System Equipment (*if necessary*)		
List of additional network equipment between VoIP server and UUT		
Type of Equipment (e.g., router, switch)		
Model Name and Number of equipment		
List of non-default/non-specified server settings		
Name and value of server setting		

Note: If multiple network equipment units or server settings are used/specified, additional rows should be added for each new unit or setting.

Telephony Data Assembly Timeline

First Draft of Test Data Template	June 8, 2012
Comments Due on Test Data Template and Test Method	June 29, 2012
Data Assembly – Testing Period Starts (with release of next draft test method)	July 2012
Data Assembly – Testing Period Ends	September/October 2012
Anonymized Test Data and Data Analysis Summary Published	October/November 2012
Draft 1 Version 3.0 Specification Published	November/December 2012

Agenda

1. Draft 1 Test Method Overview
2. Draft 1 Specification Update
3. Next Steps

Test Method Development Timeline

Telephony Launch Webinar	October 4, 2011
Deadline for Written Comments on preliminary Test Method Issues	October 13, 2012
Draft 1 Version 3.0 Test Method published	June 2012
Draft 1 Version 3.0 Test Method comments due	Late June 2012
Draft 2 Version 3.0 Test Method published	July 2012
Draft 2 Version 3.0 Test Method comments due	August 2012
Draft Final Version 3.0 Test Method published	September 2012
Draft Final Version 3.0 Test Method comments due	October 2012
Final Version 3.0 Test Method	November 2012

Contact Information

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

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