



ENERGY STAR[®] Telephony Webinar

August 26, 2013

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ENERGY STAR Program

  Learn more at energystar.gov

Webinar Details



- Webinar slides and related materials will be available on the Telephony Web page:
 - www.energystar.gov/revisedspecs
 - Follow link to "Version 3.0 is in Development" under "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 and *6 to un-mute your line

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Introductions



- **Paul Karaffa**
U.S. Environmental Protection Agency
- **Bryan Berringer**
U.S. Department of Energy
- **Rachel Unger**
ICF International
- **Kurt Klinke**
Navigant Consulting
- **Tom Bolioli**
Terra Novum



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Activities to Date



- Late 2011: Specification Revision Launch
- June 2012: Release of Draft 1 Test Method
- December 2012: Draft 2 Test Method
- Early 2013: Data Assembly
- June 2013: Draft 1 Specification & Draft 3 Test Method
- August 14th: Draft 2 Specification & Final Draft Test Method Released
- **Today, August 26: Overview of Draft 2 Specification and Final 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 telephony@energystar.gov.

Comment Deadline

Friday, September 13, 2013



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Webinar Objectives



- Review changes from Draft 3 to Final Draft Test Method
- Review Draft 2 Specification
- Receive feedback from stakeholders



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Final Draft Test Method Overview



- 1 Final Draft Test Method Overview
- 2 Draft 2 Specification Overview
- 3 Next Steps



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Final Draft Test Method Overview



- DOE received no comments on the Draft 3 Test Method
- No changes made to Final Draft Test Method

Additional Comments?



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Draft 2 Specification Overview



- 1 Final Draft Test Method Overview
- 2 **Draft 2 Specification Overview**
- 3 Next Steps



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Draft 2 Summary



- EPA made the following major revisions in the Draft 2 Specification:
 - Revised Off Mode Definition
 - Revised Off Mode Incentive Power Management Criteria
 - Revised test configuration for Analog Telephones operating with Additional Handsets
 - Revised Cordless Telephone Base Allowance
 - Included new Coded Analog Telephone Base Allowance



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Version 3.0 Scope Summary



The following products **are not eligible** for qualification under this specification as illustrated in Figure 1:

- i. Cellular Telephones;
- ii. Telephones that transmit both sound and video;
- iii. Corded Analog Telephones without External Power Supplies; and
- iv. Standalone answering machines.

| | | Sound-only Transmission | | | Sound and Video Transmission |
|---------------|--------------------|---------------------------|-------------------|----------|------------------------------|
| | | Analog | VoIP/Hybrid | Cellular | |
| Configuration | Additional Handset | Included Products | Included Products | X | X |
| | Cordless | | | | |
| | Corded | w/ External Power Supply | | | |
| | | w/o External Power Supply | | | |
| | Conference | Included Products | | | |
| Wireless | X | | | | |



Definitions: Off Mode



- One stakeholder commented that the phrase “absent external stimulus” could ambiguously imply that the phone must respond to external stimulus in a particular manner
- ↓
- Draft 2 proposed definition eliminates that phrase - power management and implementation requirements are instead addressed in Section 3.4

Off Mode: A mode that may persist for an indefinite time when a Telephone is connected to a power source and a telephone line or other physical or wireless network connection and is **NOT** capable of receiving a call ~~absent external stimulus such as network initiation, physical interaction with the receiver or other part of the Telephone.~~



Power Management Requirements



- EPA revised the requirements for receiving the Off Mode Incentive

To receive the Off Mode Incentive in Section 3.3.4, Cordless, Corded, and Conference VoIP and Hybrid Telephones shall be capable of **three or more** of the following actions:

- Device initiated automatic power down to Off Mode after a scheduled time or predetermined period of time has elapsed following the cessation of primary and secondary functions, user input, or connected device activity.
- Network activated automatic power down of the device to Off Mode per programmable or default settings.

iii. Manual activation of Off Mode from Partial On Mode by the end-user via a clearly marked button or electronic menu option on the Telephone.

iv. Manual activation of Partial On Mode from Off Mode by the end-user via a clearly marked button, electronic menu option, or lifting the receiver on the Telephone.



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Power Management Requirements



- EPA would like to encourage manufacturers to design and market Off Modes that are easy to use from both the user and network end
- EPA has specified that manufacturers choose 3 of the 4 options to provide flexibility
- EPA expects power in this mode to be <1 W



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Off Mode Incentive Maintained



- The power savings from Off Mode are multiplied by 0.25 and subtracted from the measured Partial On Mode power when applied against the ENERGY STAR Maximum Average Power requirement

$$P_{OFF_INCENTIVE} = 0.25 * (P_{P_ON} - P_{OFF})$$

Where:

$P_{OFF_INCENTIVE}$ is the value subtracted from measured Partial On Mode power in Equation 1;

P_{P_ON} is the measured Partial On Mode power (W); and

P_{OFF} is the measured Off Mode power (W).



Equation 1: Power Requirement

$$(P_{P_ON} - P_{OFF_INCENTIVE}) \leq P_{MAX}$$



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Draft 2 Test Method Data Assembly Recap



- EPA received V3.0 test data from manufacturers



Anonymized dataset located on the ENERGY STAR website at www.energystar.gov/revisedspecs

| Manufacturer | Analog | | | VoIP | | | Total |
|--------------|--------------------|----------|-----------|--------------|------------|-----------|-----------|
| | Additional Handset | Corded | Cordless | Cell Station | Conference | Corded | |
| A | - | - | - | 2 | 2 | 8 | 12 |
| B | 2 | 2 | 21 | - | - | - | 25 |
| C | - | - | - | - | 1 | 13 | 14 |
| Total | 2 | 2 | 21 | 2 | 3 | 21 | 51 |



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Supplemental VoIP Data Update



- EPA supplemented the Version 3.0 VoIP dataset with model data from specification sheets on the Web
- EPA received additional data for 10 models in July 2013

| Manufacturer | VoIP | |
|--------------|------------|-----------|
| | Conference | Corded |
| D | - | 10 |
| E | - | 8 |
| F | 4 | 17 |
| G | - | 6 |
| H | - | 10 |
| Total | 4 | 51 |



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V2.2 Analog Data Revision



- EPA supplemented the Analog dataset with ENERGY STAR Version 2.2 certified models
 - EPA reviewed the data and identified a set of legacy (pre-2011) Corded Telephones labeled as Cordless Telephones

| Product Type | # of Models |
|--|-------------|
| Cordless Telephone without Answering Machine | 180 |
| Cordless Telephone with Answering Machine | 487 |
| Additional Handset Only | 144 |
| Corded Telephone* | 35 |
| Total | 846 |



*Sample of those Corded Telephones in the dataset



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Qualification Criteria Overview



- EPA is proposing the following power requirement structure:
 1. Base functionality allowances based on phone configuration and sound transmission mechanism;
 2. Additional functionality allowances where needed to account for performance differences; and
 3. Incentives to encourage the adoption of energy saving features
- Similar to other related ENERGY STAR products (STBs, Small Network Equipment)

Draft 2 Power Requirements



Equation 1: Power Requirement

$$(P_{P_ON} - P_{OFF_INCENTIVE}) \leq P_{MAX}$$

Equation 2: Maximum Average Power

$$P_{MAX} = P_{BASE} + \sum_{i=1}^n P_{ADDi} + P_{PROXY}$$

Equation 3: Off Mode Incentive

$$P_{OFF_INCENTIVE} = 0.25 * (P_{P_ON} - P_{OFF})$$

Draft 2 Base Allowances



$$P_{MAX} = P_{BASE} + \sum_{i=1}^n P_{ADDi} + P_{PROXY}$$

| Product Type | Draft 1 P _{BASE} (watts) | Draft 2 P _{BASE} (watts) |
|--|-----------------------------------|-----------------------------------|
| Tested VoIP and Hybrid Cordless, Wireless, and Corded Telephones | 2.0 | 2.0 |
| Tested VoIP and Hybrid Conference Telephones | 2.5 | 2.5 |
| Analog Corded and Conference Telephones | - | 1.1 |
| Analog Cordless Telephones | 0.9 | 1.3 |
| Additional Handsets Analog and VoIP | 0.3 | 0.3 |



Draft 2 Additional Functional Adders



$$P_{MAX} = P_{BASE} + \sum_{i=1}^n P_{ADDi} + P_{PROXY}$$

| Feature | Power Allowance P _{ADD} (watts) | Notes |
|---|--|---|
| Gigabit Ethernet (1000Base-T) | 1.0 | Applies if the Telephone has one or more Gigabit Ethernet ports. |
| IEEE 802.3az compliant Gigabit Ethernet | 0.2 | Telephony products that ship with IEEE 802.3az compliant Gigabit Ethernet ports may claim a 0.2 watt additional incentive |



Proxy Incentive Values



$$P_{MAX} = P_{BASE} + \sum_{i=1}^n P_{ADD} + P_{PROXY}$$

| Capability | Pproxy (watts) |
|-----------------|----------------|
| Base Capability | 0.3 |
| Remote Wake | 0.5 |



- **Base Capability:** To maintain addresses and presence on the network while in LPM, the system handles IPv4 ARP and IPv6 NS/ND.
- **Remote Wake:** While in LPM, the system is capable of remotely waking upon request from outside the local network. Includes Base Capability.



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Analog Telephones Test Configuration



- In Draft 1, EPA proposed that the maximum configuration of n Additional Handsets be tested with the base station for the certification of a Product Family consisting of any number of fewer than n Additional Handsets of the same model number
 - maximum configuration of Analog Telephones sold at retail (base station plus 1-5 Additional Handsets) varies from the maximum feasible configuration (8-12 Additional Handsets)
 - could lead to ambiguity and variation



- EPA proposes that a base station Corded/Cordless Analog Telephone be tested with **two Additional Handsets**



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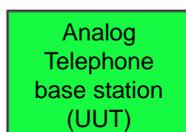
Analog Telephones Test Configuration (Cont'd)



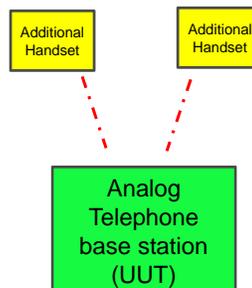
- Analog Telephone Draft 2 Base Allowances revised to take into account Version 2.2 and Version 3.0 ENERGY STAR Test Method differences

Version 2.2

Not tested with active communication to Additional Handsets



Version 3.0



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Receive/Transmit Power



- Cordless Analog Telephone V3.0 Data from 1 manufacturer
- For configurations, two Partial On Mode tests conducted:
 - 1) Active Additional Handsets and Accessories – **Required for Version 3.0**
 - 2) No Active Additional Handsets – **similar to Version 2.2 Test Method set-up**

Average difference between these tests is 0.44 W



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of Additional Handsets Data



- Table below shows power difference for each unique base station depending on number of active handsets when the base station is actively transmitting/receiving communication to/from handsets

| Version 3.0 Partial On Mode Power (W) | # of Additional Handsets Active During Testing | | | | |
|--|---|------|------|------|------|
| | 0 | 1 | 2 | 3 | 4 |
| Base Station 1 | 1.99 | 2.02 | | | |
| Base Station 2 | | 1.97 | 1.99 | 2.00 | 2.02 |
| Base Station 3 | 1.54 | 1.56 | 1.57 | | |
| Base Station 4 | 2.00 | 2.02 | 2.03 | 2.06 | 2.08 |
| Base Station 5 | | | 2.60 | 2.62 | |
| Base Station 6 | 1.37 | 1.39 | | | |



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Revised Cordless Base Allowance



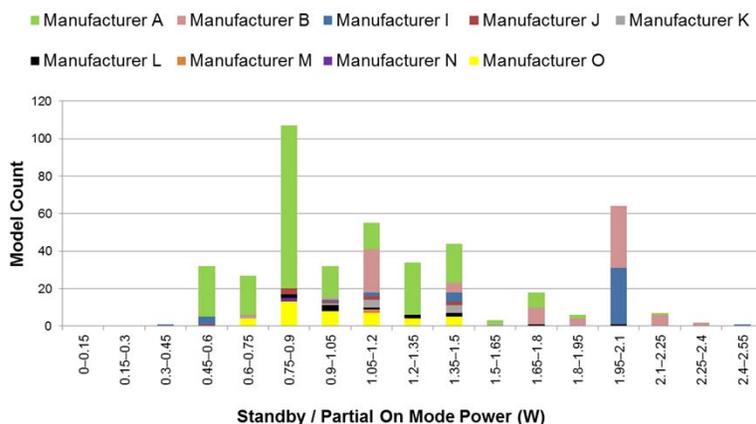
- To account for two Active Handsets tested with each base station, EPA has revised the proposed Analog Cordless Telephone Base Allowance
 - Base station is placed 3 meters from the Additional Handsets during V3.0 test
 - Encourage base stations to reduce transmission power at this short range

| Product Type | Draft 1 P _{BASE} (watts) | Draft 2 P _{BASE} (watts) |
|----------------------------|--------------------------------------|--------------------------------------|
| Analog Cordless Telephones | 0.9 + 0.4 | 1.3 |



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Cordless Telephones Analog V2.2 Data



New Corded Analog Telephone Base Allowance

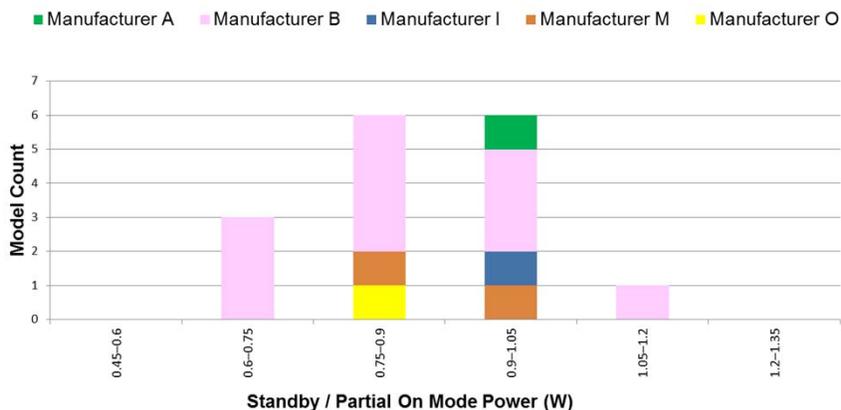


- EPA is proposing a new separate category for Base Allowance for Corded Analog Telephones since they do not provide a battery charging function
 - Data indicate an efficient Cordless Analog Telephone may use 0.2 W - 0.3 W more power on average than a Corded Analog Telephone for charging the handset

| Product Type | Draft 1 P _{BASE} (watts) | Draft 2 P _{BASE} (watts) |
|---|-----------------------------------|-----------------------------------|
| Analog Corded and Conference Telephones | - | 1.1 |

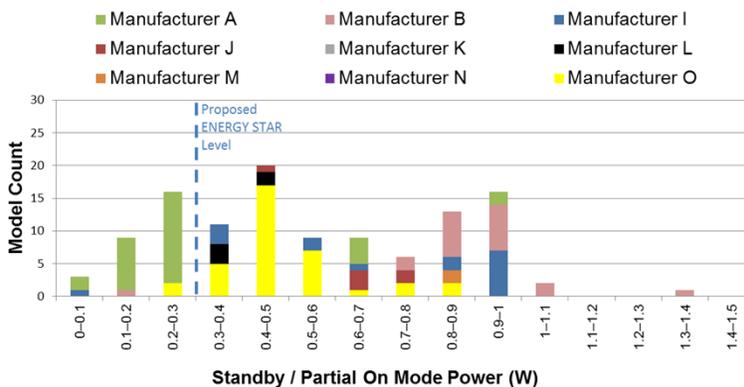


Corded Analog Telephone Data



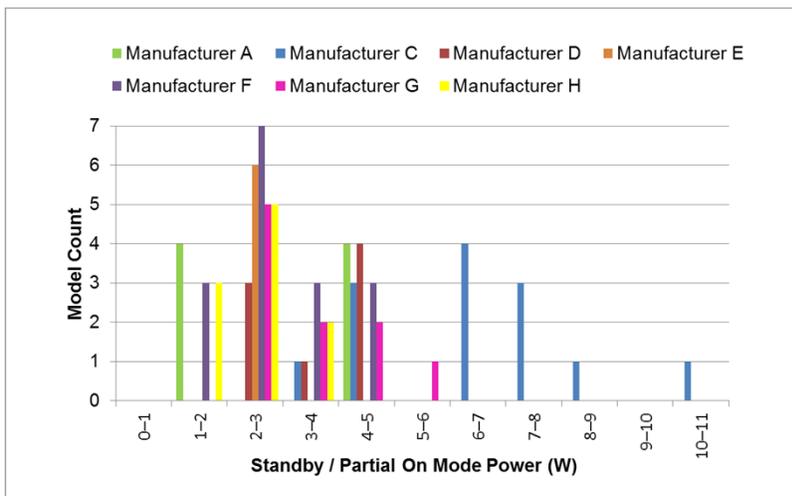
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Additional Handsets Analog V2.2 Data



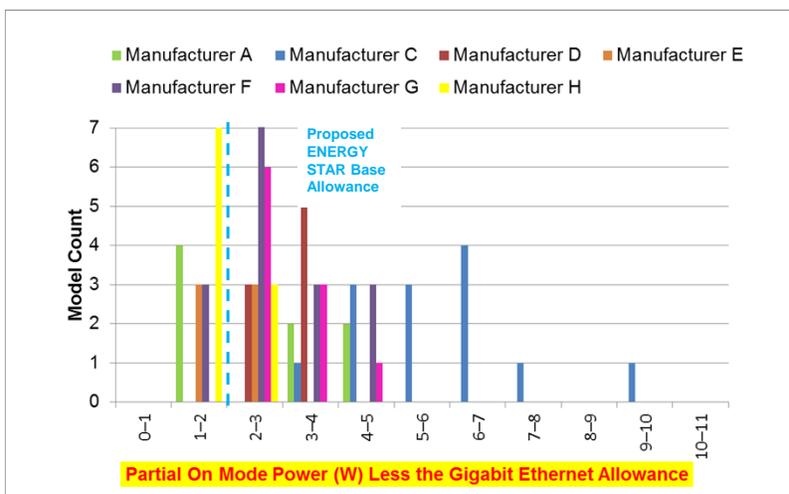
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Corded VoIP Data



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Corded VoIP Data Cont'd



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Gigabit Ethernet Allowance Review



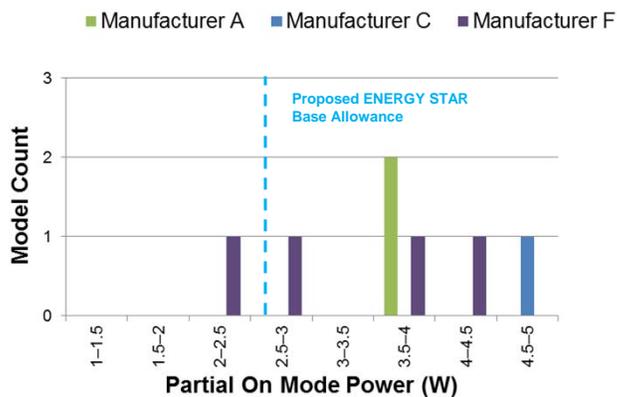
- New data from 1 manufacturer for VoIP Telephones with same feature set in Fast and Gigabit Ethernet variants
- Average difference is 1.3 W which supports a 1 W Gigabit Ethernet allowance

| | Partial On-Fast (W) | Partial On – Gigabit (W) | Difference (W) |
|---------|---------------------|---------------------------|----------------|
| Model 1 | 1.90 | 3.09 | 1.19 |
| Model 2 | 1.77 | 3.65 | 1.88 |
| Model 3 | 1.88 | 2.91 | 1.03 |
| Model 4 | 2.29 | 3.53 | 1.24 |
| | | Average Difference | 1.34 |



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Conference VoIP Data



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Draft 2 Data & Analysis Summary



- EPA updated the Version 2.2 dataset and revised the Analog Base Allowances
- EPA did not receive Version 3.0 data to support revisions to the VoIP Telephone Base Allowances so the Draft 1 levels were maintained
- EPA welcomes additional Version 3.0 VoIP and Analog data before the comment period deadline of **Friday, September 13, 2013**



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Next Steps



- 1 Final Draft Test Method Overview
- 2 Draft 2 Specification Overview
- 3 Next Steps



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Open Comment



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

Version 3.0 Development Timeline



- EPA and DOE propose the following timeline:

| Next Step | Date |
|---|----------------------|
| Stakeholder Webinar | Monday, August 26 |
| Draft 2 Specification & Final Draft Test Method Comment Period Ends | Friday, September 13 |
| Final Draft Specification & Final Test Method Published | October 2013 |
| Final Specification | November 2013 |

Written Comments



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

Comment Deadline

Friday, September 13, 2013

Today's presentation will be posted to www.energystar.gov/revisedspecs at the link "Telephony."



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Contact Information



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

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