



ENERGY STAR[®] Product Specification for Telephony

Eligibility Criteria Draft 1 Version 3.0

1 Following is the Version 3.0 ENERGY STAR product specification for Telephony. A product shall meet all
2 of the identified criteria if it is to earn the ENERGY STAR.

3 **1 DEFINITIONS**

4 A) Product Types:

5 1) Telephone: A commercially available electronic product whose primary purpose is to transmit and
6 receive sound over a distance using a voice or data network.

7 a. Sound Transmission Mechanism:

8 i. Analog Telephone: A Telephone or component of a Telephone system that
9 ultimately converts sound into analog waveforms for transmission through the
10 Public Switched Telephone Network (PSTN).

11 ii. Voice over Internet Protocol (VoIP) Telephone: A Telephone or component of a
12 Telephone system that converts sound into Internet Protocol data packets for
13 transmission through an Ethernet connection.

14 iii. Hybrid Telephone: A Telephone or component of a Telephone system that has
15 the ability to ultimately convert sound into both analog waveforms for
16 transmission through the PSTN and Internet Protocol data packets for
17 transmission through an Ethernet connection.

18 iv. Cellular Telephone: A Telephone that converts sound into multiple-access (e.g.,
19 Code-Division Multiple Access (CDMA), Global System for Mobile
20 Communications (GSM), and fourth generation long term evolution (4G LTE))
21 packets for transmission through a cellular network.

22 **Note:** Stakeholders commented that, if CDMA was included as an example in the definition for Cellular
23 Telephone, other currently used multiple-access packet types should be included as well. The definition
24 now includes other packet types that are currently in use on the market.

25 References to a specific physical connection type in the definitions for Analog and Hybrid Telephone have
26 been removed, as multiple connection types can be used to transmit sound over the PSTN.

27 b. Configuration:

28 i. Cordless Telephone: A Telephone with a base station and a handset. The cradle
29 of a Cordless Telephone or its External Power Supply is designed to plug into a
30 wall outlet. Although the Cordless Telephone base has a permanent physical
31 connection to the network, there is no physical connection between the portable
32 handset and the network.

33 ii. Corded Telephone: A Telephone with a permanent physical connection between
34 the handset and the network.

35 iii. Conference Telephone: A Telephone without a handset that utilizes a
36 speakerphone for all communications and is primarily used for conference calls.

- 37 iv. Additional Handset: A Telephone consisting of a handset, cradle, and battery,
38 designed for use with a multi-handset Telephone system.
- 39 v. Wireless (Wi-Fi) Telephone: A Telephone consisting of a handset, cradle, and
40 battery that connects to a network via an Institute of Electrical and Electronic
41 Engineers Standard 802.11-2012 (IEEE 802.11-2012) (Wi-Fi) connection.

42 **Note:** The term “charging base” for Cordless Handsets has been updated to “cradle” to align with the
43 terms used in the DOE Uniform Test Method for Measuring the Energy Consumption of Battery Chargers,
44 as specified in 10 CFR Part 430, Subpart B, Appendix Y.

45 B) Operational Modes:

- 46 1) Partial On (Sleep) Mode: A mode that may persist for an indefinite time when a Telephone is
47 connected to a power source and a telephone line or other physical or wireless network
48 connection and is capable of receiving a call. The Telephone is not receiving or transmitting
49 sound, and the handset is “on the hook” and the speakerphone is not engaged.
- 50 2) On Mode: Comprises the Call Origination and Active Modes.
- 51 a. Call Origination Mode: The mode in which the Telephone is connected to a power source
52 and the handset is “off the hook” or the speakerphone is engaged. Though not
53 necessarily transmitting and receiving data, a dial tone is present.

54 **Note:** The definition for Call Origination Mode has been updated to align more closely with the other
55 mode definitions and to account for Telephones that do not have a handset.

- 56 b. Active Mode: The mode in which the Telephone is connected to a power source and a
57 telephone line or other physical or wireless network connection and is receiving and/or
58 transmitting sound and/or playing/recording a message and the handset is “off the hook”
59 or the speakerphone is engaged.
- 60 3) Off Mode: A mode that may persist for an indefinite time when a Telephone is connected to a
61 power source and a telephone line or other physical or wireless network connection and is NOT
62 capable of receiving a call absent external stimulus such as network initiation, physical interaction
63 with the receiver or other part of the Telephone.

64 **Note:** The definition of Off Mode has been included to correspond with the proposed addition of an
65 Off Mode test in the Draft 3 Test Method.

66 C) Functionalities:

- 67 1) Video Calling: The capability of a Telephone to convert both full-motion video and sound into
68 Internet Protocol data packets for transmission through an Ethernet connection.
- 69 2) Data Switch Port: The capability to provide data connectivity to a computer Ethernet network
70 interface controller (NIC).

71 D) Telecommunications and Test Equipment:

- 72 1) Switch: A network device that filters, forwards, and floods frames based on the destination
73 address of each frame as its primary function. The Switch operates at the data link layer of the
74 Open Systems Interconnection (OSI) model.
- 75 2) Power Sourcing Equipment (PSE): An electronic device, such as a Switch or a Midspan that
76 sources (supplies) the power on the Ethernet cable for Power over Ethernet (PoE) devices. PoE
77 Switches supply power and terminate the data link. PoE Midspans inject power and are placed
78 between a non-PoE switch and the device being powered but provide no additional network
79 functionality.

80 3) Ringdown Simulator: A piece of testing equipment which simulates a two-way telephone line.

81 E) Additional Terms:

82 1) External Power Supply (EPS): A component contained in a separate physical enclosure external
83 to the Telephone product casing and designed to convert line voltage ac input from the mains to
84 lower ac or dc voltage(s) for the purpose of powering the Telephone. An External Power Supply
85 shall connect to the Telephone product via a removable or hard-wired male/female electrical
86 connection, cable, cord or other wiring.

87 2) Internet Protocol (IP): The communications protocol used for the transmission of data packets
88 across multiple networks (e.g., the Internet) as defined by the Internet Engineering Task Force¹
89 (IETF).

90 3) Voice over Internet Protocol (VoIP): The transmission of voice and other sound and/or full-motion
91 video over a network using the Internet Protocol where sound is converted into IP data packets
92 by the device for transmission over a network that uses IP. This network may be local or the
93 Internet. Devices using VoIP do not plug into a traditional telephone jack but connect to a network
94 through an access point, Ethernet or Wi-Fi.

95 4) Energy Efficient Ethernet (EEE): A technology which enables reduced power consumption of
96 Ethernet interfaces during times of low data throughput. Specified by *IEEE 802.3az*.

97 5) Power over Ethernet (PoE): A technology which enables transfer of electrical power, along with
98 data, to network end point devices through an Ethernet cable. Currently specified by *IEEE 802.3-*
99 *2012*.

100 6) Full Network Connectivity: The ability of an End Point Device to maintain network presence while
101 in a low power mode (LPM) of equal or lower power consumption and intelligently wake when
102 further processing is required (including occasional processing required to maintain network
103 presence). Presence of the End Point Device, its network services and applications is maintained
104 even though the End Point Device is in a LPM. From the vantage point of the network, an End
105 Point Device with full network connectivity that is in LPM is functionally equivalent to an idle End
106 Point Device with respect to common applications and usage models. Full network connectivity in
107 LPM is not limited to a specific set of protocols but can cover applications installed after initial
108 installation. Also referred to as “network proxy” functionality and as described in the Ecma-393
109 standard.

110 a. Network Proxy - Base Capability: To maintain addresses and presence on the network
111 while in LPM, the system handles IPv4 ARP and IPv6 NS/ND.

112 b. Network Proxy - Remote Wake: While in LPM, the system is capable of remotely waking
113 upon request from outside the local network. Includes Base Capability.

114 7) External Proxy Capability: The ability of a Telephone to maintain Full Network Connectivity on
115 behalf of an End Point Device. Must include an implementation of a standard protocol for
116 communicating between the End Point Device and the Telephone device. Note: A known such
117 protocol is mDNS. Waking the sleeping host is typically accomplished by Wake-On-LAN or a
118 wireless equivalent.

119 **Note:** EPA has proposed new definitions for Full Network Connectivity and External Proxy Capability in
120 order to define the requirements for applying the proposed External Proxy Incentive in Section 3.3.3. EPA
121 has included the same definition and incentives in the Draft Version 1.0 ENERGY STAR Small Network
122 Equipment specification. EPA welcomes stakeholder feedback on these definitions.

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¹ IETF, *RFC 791: Internet Protocol – Defense Advanced Research Projects Agency (DARPA) Internet Program Protocol Specification* <<http://tools.ietf.org/html/rfc791>>

124 8) Unit Under Test (UUT): The specific sample of a representative model undergoing measurement
125 which includes only the base product (the Telephone) and not any Additional Handsets and
126 accessories packaged with it, or an Additional Handset, not including any accessories packaged
127 with it, depending on the product type being tested for qualification.

128 **Note:** The definition for UUT has been updated to state that the UUT includes only the base product (the
129 Telephone) being tested for qualification to reduce confusion when referring to Telephones that are sold
130 with Additional Handsets as part of a multi-handset system.

131 9) Product Family: A group of product models that are (1) made by the same manufacturer, (2)
132 subject to the same ENERGY STAR qualification criteria, and (3) of a common basic design.
133 Product models within a family differ from each other according to one or more characteristics or
134 features that either (1) have no impact on product performance with regard to ENERGY STAR
135 qualification criteria, or (2) are specified herein as acceptable variations within a Product Family.
136 For Telephones, acceptable variations within a Product Family include:
137 1) Color,
138 2) Housing,
139 3) Number of Additional Handsets.

140 F) Acronyms:

- 141 1) ac: Alternating Current
- 142 2) C: Celsius
- 143 3) CAT 5e/6: Category 5 (enhanced) or 6 cable, the standard cables used for Ethernet connections
- 144 4) dc: Direct Current
- 145 5) EPS: External Power Supply
- 146 6) Hz: Hertz
- 147 7) kHz: Kilohertz
- 148 8) IEC: International Electrotechnical Commission
- 149 9) IP: Internet Protocol
- 150 10) PoE: Power over Ethernet
- 151 11) PSE: Power Sourcing Equipment
- 152 12) PSTN: Public Switched Telephone Network
- 153 13) SST: Spread Spectrum Technology
- 154 14) UUT: Unit Under Test
- 155 15) V: Volts
- 156 16) VoIP: Voice over Internet Protocol
- 157 17) W: Watts

158

159 **2 SCOPE**

160 **2.1 Included Products**

161 2.1.1 Telephony products are categorized by two non-mutually exclusive characteristics: Sound
 162 Transmission Mechanism and Configuration. Products that meet the definition of Telephone
 163 as specified herein and transmit sound via Analog, VoIP, or a Hybrid of Analog and VoIP are
 164 eligible for ENERGY STAR qualification, with the exception of products listed in Section 2.2.

165 **Note:** EPA proposes removing stand alone answering machines from the scope of the Telephony
 166 specification. At this time, only one answering machine is qualified as ENERGY STAR, and this model
 167 was qualified over a year ago. EPA believes the market for answering machines may no longer justify
 168 inclusion of the product type in the Telephony specification. EPA proposes to maintain Telephones with
 169 integrated answering machines, however, of which 100 are currently qualified.

170 EPA also proposes to combine categories for Telephones with and without integrated answering machine
 171 functionality as analysis of the EPA dataset shows no significant power difference between the two.
 172 Stakeholder feedback on these proposed changes in scope is requested.

173 **2.2 Excluded Products**

174 2.2.1 Products that are covered under other ENERGY STAR product specifications are not eligible
 175 for qualification under this specification. The list of specifications currently in effect can be
 176 found at www.energystar.gov/specifications.

177 2.2.2 The following products are not eligible for qualification under this specification as illustrated in
 178 Figure 1:

- 179 i. Cellular Telephones;
- 180 ii. Telephones that transmit both sound and video;
- 181 iii. Corded Analog Telephones without External Power Supplies; and
- 182 iv. Stand alone 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				X
		w/o External Power Supply				
	Conference	Included Products				
	Wireless	X				

183 **Figure 1: Telephony Product Type Assignment**

184 **3 QUALIFICATION CRITERIA**

185 **3.1 Significant Digits and Rounding**

186 3.1.1 All calculations shall be carried out with directly measured (unrounded) values.

187 3.1.2 Unless otherwise specified, compliance with specification limits shall be evaluated using
188 directly measured or calculated values without any benefit from rounding.

189 3.1.3 Directly measured or calculated values that are submitted for reporting on the ENERGY STAR
190 website shall be rounded to the nearest significant digit as expressed in the corresponding
191 specification limit.

192 **3.2 Power Supply Requirements**

193 3.2.1 Power supply test data and test reports from testing entities recognized by EPA to perform
194 power supply testing shall be accepted for the purpose of qualifying the ENERGY STAR
195 product.

196 3.2.2 External Power Supplies (EPSs): Single- and Multiple-voltage EPSs shall meet the level V
197 performance requirements under the International Efficiency Marking Protocol when tested
198 according to the Uniform Test Method for Measuring the Energy Consumption of External
199 Power Supplies, Appendix Z to 10 CFR Part 430.

200 i. Single-voltage EPSs shall include the level V marking.

201 ii. Additional information on the Marking Protocol is available
202 at www.energystar.gov/powersupplies.

203 **3.3 Power Requirements**

204 3.3.1 Measured Partial On Mode power, P_{P_ON} , as tested per the Section 6.2 of the Test Method
205 minus the calculated Off Mode incentive, $P_{OFF_INCENTIVE}$, in Section 3.3.4 as applicable, shall be
206 less than or equal to the Maximum Average Power, P_{MAX} , as stated in Equation 1.

207 **Equation 1: Power Requirement**

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

209 3.3.2 Maximum Average Power, P_{MAX} , shall be calculated as stated in Equation 2.

210 **Equation 2: Maximum Average Power**

211
$$P_{MAX} = P_{BASE} + \sum_{i=1}^n P_{ADDi} + P_{PROXY}$$

212 *Where:*

- 213 ▪ P_{BASE} is the base power allowance (W) from Table 1;
 - 214 ▪ P_{ADD} is the power allowance (W) as specified in Table 2 for each feature
215 present in the device, for a total of n such allowances; and
 - 216 ▪ P_{PROXY} is an additional proxy incentive (W) as specified in Table 3.
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Table 1: Base Power Allowances

Product Type	P _{BASE} (watts)
Tested VoIP and Hybrid Cordless, Wireless, and Corded Telephones	2.0
Tested VoIP and Hybrid Conference Telephones	2.5
Analog Cordless, Corded, and Conference Telephones	0.9
Additional Handsets Analog and VoIP	0.3

219 **Note:** EPA is proposing a Partial On base power allowance of 2.0 W for Corded and Cordless VoIP
 220 Telephones (Corded, Cordless). Two manufacturers shared VoIP phone data based on the Draft 2
 221 ENERGY STAR Test Method totaling 29 unique models, so EPA supplemented the dataset with
 222 published specification sheet information pulled from manufacturer websites. Of these data,
 223 approximately 20% of the models meet the proposed Draft 1 levels without the application of the EEE,
 224 proxy, and Off Mode incentives as none of these features were present or tested. The Test Data
 225 Template included features such as color display, Bluetooth, and number of voice lines though the Test
 226 Method does not call for their testing. In analyzing the limited Version 3.0 dataset, EPA did not find that
 227 features such as color display, Bluetooth, and number of voice lines were a significant contributor to
 228 power usage in Partial On Mode. Given these results, EPA expects that any associated power could be
 229 mitigated through power-saving strategies such as EEE, display dimming, and Off Mode. EPA welcomes
 230 comments on power savings strategies that are enabled by default or, alternatively, that must be enabled
 231 by the user or network operator.

232 This proposed allowance is applicable to all VoIP and Hybrid Telephones regardless of whether they are
 233 PoE capable or not. EPA proposes that all phones with PoE capability be tested with PoE. The EPA
 234 dataset is made up of all PoE capable products. EPA seeks information on the prevalence of PoE
 235 capability in the market and trends regarding this functionality. Stakeholders are invited to share data
 236 specific to consumer needs that would direct them to seek a non-PoE capable phone.

237 EPA did not receive data for Wireless (Wi-Fi) Telephones and encourages stakeholders to share
 238 additional data for these models and to comment on their availability in the market and inclusion under
 239 the ENERGY STAR Telephony Test Method and Version 3.0 Specification.

240 **Conference VoIP & Hybrid Telephones:** EPA is proposing a Partial On base power allowance of 2.5 W
 241 for Conference Telephones. EPA received data for 3 Conference Telephones during the data assembly
 242 and supplemented the dataset with data for 4 additional models based on information available on
 243 manufacturer websites. EPA's review of manufacturer websites indicates that it is typical to offer a more
 244 limited set of conference phones than non-conference phones, explaining EPA's more limited dataset for
 245 this product type. At the proposed level, one of the models in the EPA dataset meets the proposed Partial
 246 On mode limit without any incentives applied. EPA would like to encourage the inclusion of an Off Mode
 247 for these models given that Conference Telephones are installed in rooms that are frequently unoccupied
 248 and do not usually need to receive calls. EPA requests data on the feasibility of such functionality.

249 Lastly, EPA did not receive any data for Conference Telephones with Gigabit Ethernet and would like to
 250 know whether these phones are expected to include Gigabit or if only Fast Ethernet will be included.

251 When developing ENERGY STAR levels, EPA evaluates the cost effectiveness of the proposed levels.
 252 More specifically, EPA gathers any incremental cost difference between a conventional product and one
 253 that would meet the proposed ENERGY STAR levels compared to the savings associated with reduced
 254 energy use to ensure that any incremental cost will be recouped in no more than 3-5 years. With very few
 255 exceptions, EPA has found for electronics that the incremental cost, if there is one at all, is typically small.
 256 EPA understands that many of the products proposed for coverage under this specification may be sold
 257 as a bundle to commercial customers, making parsing the incremental cost of a single device over a less
 258 efficient alternative very difficult. As such, EPA seeks stakeholder feedback on any incremental cost
 259 associated with meeting the efficiency requirements proposed in Draft 1.

260 **Analog Cordless Telephones:** EPA added Version 3.0 Draft Test Method Analog Cordless Telephone
 261 data from one manufacturer to the data associated with products on the Version 2.0 Qualified Products
 262 List for purposes of developing proposed ENERGY STAR levels for this product type. Approximately 26%
 263 of models listed meet the proposed Draft 1 limit of 0.9 W.

264 **Additional Handsets:** EPA is proposing a limit of 0.3 W for Additional Handsets operating with both VoIP
 265 and Analog Telephone systems. In establishing this proposed level, EPA considered a combined dataset
 266 of the ENERGY STAR Qualified Products List and additional manufacturer data shared during the data
 267 assembly effort. Of this combined dataset, approximately 20% of the Additional Handsets meet the
 268 proposed Draft 1 limit.

269 **EPA did not find any incremental cost associated with proposed requirements for Analog**
 270 **Cordless Telephones or Additional Handsets.**

271 Under this revised specification, all products must be tested with the ENERGY STAR Telephony Test
 272 Method, now in Draft 3. This test procedure requires that models be tested in Partial On and Off Modes,
 273 with all shipped accessories installed, and all available Data Switch Ports connected to an inactive PC.

274 **Table 2: Additional Functional Adders**

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

275 **Note:** As with the Draft ENERGY STAR Small Network Equipment specification, EPA is proposing an
 276 EEE incentive to encourage the adoption of EEE in enterprise products. EPA believes there is a savings
 277 potential in reducing the power consumption of Ethernet ports between the Small Network Equipment
 278 product and End Point Devices with EEE functionality. If all the 4 port Gigabit Ethernet switches sold in
 279 2012 had EEE functionality, EPA estimates savings of close to \$3M annually. EPA welcomes stakeholder
 280 feedback on the proposed incentive.

281 3.3.3 External Proxy Incentive: VoIP and Hybrid Telephones that ship with External Proxy Capability may
 282 claim one of the following adders in Table 3 when calculating P_{ADD} based on the level of Proxy
 283 functionality in the product, as defined in Section 1.E.6.

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Table 3: External Proxy Incentives

Capability	P_{PROXY} (watts)
Base Capability	0.3
Remote Wake	0.5

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Note: EPA is proposing an External Proxy incentive to encourage the adoption of External Proxy Capability in VoIP Telephones. EPA has proposed a similar incentive in the Draft ENERGY STAR Small Network Equipment specification and believes there is savings potential in providing the ability for End Point Devices to maintain Full Network Connectivity while entering a sleep state. EPA also asks stakeholders to comment on a connected PC's ability to proxy with the network through the phone.

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If all the desktop computers that are left on could enter low power mode because of proxying, EPA estimates savings of over \$180M annually. EPA would like to encourage Telephones that provide network connectivity to computers to facilitate proxying and welcomes stakeholder feedback on the proposed incentive.

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3.3.4 **Off Mode Incentive:** VoIP and Hybrid Telephones that ship with an Off Mode that meets the requirements in 3.4.1 may calculate the Off Mode Incentive, $P_{Off_Incentive}$, by using Equation 3.

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Equation 3: Off Mode Incentive

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

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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).

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Note: EPA would like to encourage the capability for enterprise phones to enter Off Mode during non-peak hours or during period of user absence via network prompts and user initiation. EPA is aware of controller and microprocessor components compliant with IEEE 802.3-2012 that may be capable of enabling VoIP Telephones to enter Off Mode. A phone operating on average 8 hours a day at 4 W in Partial On Mode could save approximately 20 kWh a year by operating at 0.5 W for the other 16 hours a day (excludes savings on the network side). These savings are significant particularly when aggregated across businesses and the entire stock of enterprise telephones in the U.S.

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Since an Off Mode test was not included in prior drafts of the ENERGY STAR Telephony Test Method, EPA invites stakeholders to share data and feedback on the expected power usage in this mode and the prevalence of this mode in current and near term models. Currently, based on the performance of other electronic devices in this mode, EPA assumes that power levels of 0.5 – 1.0 W may be feasible for a phone in Off Mode. EPA invites feedback on the definition of Off Mode and whether or not the Telephone would be capable of receiving calls at these low power levels and if so, what the market demands would be regarding wake time/latency.

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3.4 Power Management Requirements

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3.4.1 All Cordless, Corded, and Conference VoIP and Hybrid Telephones tested and certified with Off Mode shall be capable of two or more of the following actions:

- 320 i. Device initiated automatic power down to Off Mode after a scheduled time or predetermined
321 period of timing has elapsed following the cessation of primary and secondary functions, user
322 input, or connected device activity.
- 323 ii. Network activated automatic power down of the device to Off Mode per programmable or
324 default settings.
- 325 iii. Manual activation of Off Mode by the end-user via a clearly marked button or electronic menu
326 option.

327 3.4.2 Color and backlit displays shall power down to the default Partial On Mode test state in less than 5
328 minutes after the cessation of user input.

329 **Note:** EPA would like to encourage the adoption of Off Mode by making activation easily accessible to
330 end users (and operators where applicable) while providing manufacturers flexibility in product design and
331 implementation. Therefore, EPA proposes that the device be capable of entering an Off Mode via two or
332 more methods as outlined above in 3.4.1. Additional Handsets and Wireless (Wi-Fi) Telephones are
333 excluded from this incentive given that many of the power management features are controlled by the
334 base station. EPA welcomes stakeholder feedback on the feasibility and prevalence of lower power states
335 meeting the definition of either Partial On or Off Mode, as well as methods for enabling them. Further,
336 EPA welcomes comment on the typical usage scenarios for Conference Phones and the opportunity for
337 the Conference Telephone to enter Off Mode when occupants are not in the room, such as occupancy
338 sensors.

339 EPA also proposes that displays power down after less than 5 minutes of user inactivity in Partial On
340 Mode and welcomes stakeholder feedback on the specificity and feasibility of this requirement.

341 3.5 User Information Requirements

342 3.5.1 Products shall be shipped with informational materials to notify customers and operators of the
343 following:

- 344 i. A description of default power management settings.
- 345 ii. Guidance for enabling available power management features at the network and device level
346 including but not limited to Off Mode, External Network Proxy, and automatic and timed
347 power down.
- 348 iii. Information about ENERGY STAR and the benefits of power management, to be located at
349 or near the beginning of the hard copy or electronic user manual, or in a package or box
350 insert.

351 **Note:** Similar to other consumer and enterprise products such as computers, EPA proposes that
352 ENERGY STAR partners educate network operators and end-users about the power management
353 features.

354 **Note:** Products intended for sale in the U.S. market are subject to minimum toxicity and recyclability
355 requirements. Please see ENERGY STAR[®] Program Requirements for Telephony: Partner Commitments
356 for details.

357 **Note:** To ensure that product designers are aware of Partner Commitments specific to toxicity and
358 recyclability, EPA has inserted the above note.

359 **4 TESTING**

360 **4.1 Test Methods**

361 4.1.1 Test methods identified in Table 4 shall be used to determine qualification for ENERGY STAR.

362 **Table 4: Test Methods for ENERGY STAR Qualification**

Product Type	Test Method
All Telephony Products	ENERGY STAR Test Method for Telephony Rev. XXX-2013.

363 **4.2 Number of Units Required for Testing**

364 4.2.1 Representative Models shall be selected for testing per the following requirements:

- 365 i. For qualification of an individual product model, the Representative Model shall be equivalent
366 to that which is intended to be marketed and labeled as ENERGY STAR.
- 367 ii. For qualification of a Product Family, the highest energy using configuration within that
368 Product Family can be tested and serve as the Representative Model. Any subsequent
369 testing failures (e.g., as part of verification testing) of any model in the family will have
370 implications for all models in the family.
- 371 iii. For qualification of a Product Family where models vary by number of Additional Handsets
372 shipped with the base station, the base station (UUT 1) set up with the maximum number of
373 Additional Handsets and one Additional Handset (UUT 2) shall serve as Representative
374 Models. If the maximum base station configuration and Additional Handset meet the
375 ENERGY STAR qualification criteria at their respective output power levels, all other
376 configurations consisting of the base station with *n* Additional Handsets may be qualified for
377 ENERGY STAR.

378 **Note:** EPA proposes that products be tested using the maximum configuration of a base station and
379 Additional Handsets as UUT 1 and the Additional Handset as UUT 2. If both Representative Models meet
380 their respective ENERGY STAR requirements, then these configurations and all other configurations
381 consisting of *n* Additional Handsets may be qualified for ENERGY STAR under the Product Family
382 definition proposed in Section 1: Definitions.

383 4.2.2 A single unit of each Representative Model shall be selected for testing.

384 **4.3 International Market Qualification**

385 4.3.1 Products shall be tested for qualification at the relevant input voltage/frequency combination
386 for each market in which they will be sold and promoted as ENERGY STAR.

387 **5 EFFECTIVE DATE**

388 5.1.1 Effective Date: The Version 3.0 ENERGY STAR Telephony specification shall take effect on
389 **TBD**. To qualify for ENERGY STAR, a product model shall meet the ENERGY STAR
390 specification in effect on the model's date of manufacture. The date of manufacture is specific
391 to each unit and is the date on which a unit is considered to be completely assembled.

392 5.1.2 Future Specification Revisions: EPA reserves the right to change this specification should
393 technological and/or market changes affect its usefulness to consumers, industry, or the
394 environment. In keeping with current policy, revisions to the specification are arrived at
395 through stakeholder discussions. In the event of a specification revision, please note that the
396 ENERGY STAR qualification is not automatically granted for the life of a product model.