



ENERGY STAR

Imaging Equipment Stakeholder Webinar

August 4, 2011

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ENERGY STAR Program



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Webinar Details



- Webinar and related materials will be available on the UPS Web page:
 - www.energystar.gov/revisedspecs
 - *Follow link to “Imaging Equipment”*
- Audio provided via teleconference:
 - Call in: +1 (877) 423-6338 (U.S.)
+1 (571) 281-2578 (International)
 - Code: 707-775
 - Phone lines will remain open during discussion
 - Please keep phone lines on mute unless speaking
 - Press *6 to mute or un-mute your line
 - Refer to the agenda for approximate discussion timing

Agenda



- Introduction
- Test Method Validation Testing
- Changes to Test Method /
Comment Review
- Functional Adders
- Next Steps

Version 2.0 Revision Timeline



<i>March 11, 2011</i>	<i>Revision Announced Discussion Document Published</i>
<i>April 13, 2011</i>	<i>Kickoff Webinar</i>
<i>July 8, 2011</i>	<i>Draft Test Method Published</i>
<i>July 29, 2011</i>	<i>Draft Test Method Comments Due</i>
August 4, 2011	Test Method Webinar
August 2011	Test Method Finalized
September 2011	Draft 1 Specification Published
December 2011	Version 2.0 Specification Finalized
September 2012	Version 2.0 Specification Effective

Webinar Goals



- Update stakeholders on the specification revision process
- Describe validation of the Draft Test Method
- Respond to comments on the Draft Test Method and resolve any outstanding concerns prior to finalization
- Discuss Functional Adders, kicking off Draft 1 Specification development

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EPA–DOE Memorandum of Understanding (MOU)



- On September 30, 2009, EPA and DOE signed a memorandum of understanding (MOU) designed to enhance and strengthen the ENERGY STAR program

EPA: Brand Manager	DOE: Technical Support
<ul style="list-style-type: none">• New Products• Performance levels• Marketing & Outreach• Monitoring & Verification• Product Database	<ul style="list-style-type: none">• Federal Test Procedures• Metrics• Monitoring & Verification

EPA-DOE ENERGY STAR Team



- As part of the MOU, DOE is the lead for writing and updating ENERGY STAR test procedures
- Navigant is contracted by DOE to write new test procedures and validate and/or update existing test procedures
- DOE team will provide overview of support and findings related to the test method

Test Method Validation Testing



- Navigant conducted testing to validate ENERGY STAR Program Requirements V1.2 (“test method”)
- Testing conducted on 2 fax machines and 2 MFDs using:
 - ENERGY STAR test method
 - ASTM F2494-05
- ENERGY STAR test method was determined to be the most appropriate approach

Test Method Validation Testing

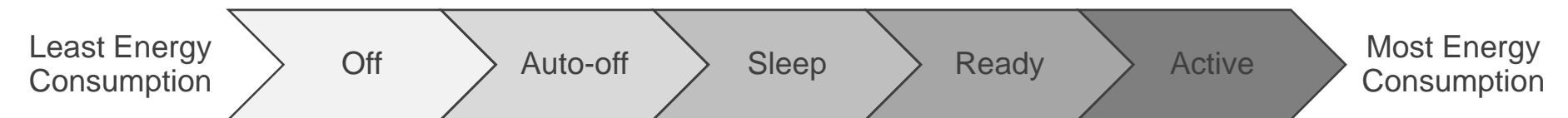


- ENERGY STAR test method includes two procedures:
 - Total Energy Consumption (TEC): typical weekly energy consumption (in kWh)
 - Operational Mode (OM): product energy performance in various operating states (in watts)

Test Method Validation Testing



- Navigant tested energy consumption for each of the following modes:



- Issues that arose during testing were evaluated
- Resolutions were incorporated into *ENERGY STAR Imaging Equipment Version 2.0 Draft Test Method*

Validation Testing Results



- Identified three primary areas for improvement in the ENERGY STAR test method:
 - Confirmed the need for network connection consistency;
 - Investigated more clearly defined and universal mode definitions; and
 - Backed an approach for simplex vs. duplex printing.

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Review of Comments on Test Method Changes



- EPA received feedback from 17 stakeholders on the proposed test method
- Although some of the comments were positive, stakeholders were concerned with all aspects of the test method:
 - Test Setup
 - UUT Configuration
 - UUT Initialization
 - TEC Measurement
 - OM Measurement
 - DFE Measurement
- EPA wishes to discuss and resolve issues identified to finalize the test method

Positive Comments



- EPA received mostly positive comments in support of the following changes to the test method:
 - Reporting final time to Sleep Mode in the TEC test procedure
 - Decreasing ambiguity
- At this time EPA wishes to provide stakeholders with another opportunity to discuss these issues.

Additional Comments



- The following issues were either not mentioned in the comments or did not result in changes to the proposed test method:
 - Service/Maintenance Modes
 - Power buffer
- At this time EPA wishes to provide stakeholders with another opportunity to discuss these issues.

Comments and Questions on the Draft Test Method



- The remainder of the section discusses the questions and comments made by stakeholders and EPA responses.
- Changes are ordered by Test Method section:
 - Test Setup
 - UUT Configuration
 - UUT Initialization
 - TEC Measurement
 - OM Measurement
 - DFE Measurement

Test Setup: IEC 62301 Ed. 2



Stakeholder Comment	ENERGY STAR Response
<p>One commenter supported:</p> <ul style="list-style-type: none">• Reduction in ambiguity• Harmonization with Edition 2 of IEC 62301. <p>However, others commented that:</p> <ul style="list-style-type: none">• IEC 62301 should only be used for test and instrumentation setup• IEC 62301 should not be used for<ul style="list-style-type: none">• Specifying uncertainty or measuring non-standby modes• Non-household appliances.• IEC 62301 Ed. 2 "is overly complex" and "could lead to increased test time"	<p>Although IEC 62301 was specifically designed for the measurement of low-power modes, some parts of it may nonetheless be applicable to the measurement of power in active mode or other measurement.</p> <p>EPA seeks specific examples where IEC 62301 Ed. 2 would be harmful as referenced in the draft test method.</p> <p>Are there reasons beyond the IEC scope which indicate that this is not the right approach?</p>

Test Setup: Dc-powered Products



3.C) Low-voltage Dc Input Power:

- 1) [. . .]
- 2) Products powered by low-voltage dc shall be configured with an ac source of the dc power for testing (e.g., an ac-powered universal serial bus (USB) hub).
- 3) The power reported for units under test (UUT) requiring low-voltage dc input power shall be equal to the ac power drawn by the dc power source during normal testing minus the ac power drawn by the dc power source with no load applied.



Test Setup: Dc-powered Products (Cont.)



Stakeholder Comment	ENERGY STAR Response
<p>Request for additional guidance on selecting the USB hub or other device that functions as an ac-dc converter for use with dc-powered products.</p> <p>Question whether allowing manufacturers to select the ac-dc converter may not lead to gaming.</p>	<p>A dc-powered product in sleep or off mode will not present a significant load on the USB hub or other source. EPA therefore expects that the USB hub will be operating near its no-load condition (subtracted out per section 3.C.3)), such that the choice of USB hub will have little impact on test results.</p>



Test Setup: Input Voltage

Table 2: Input Power Requirements for Products with Nameplate Rated Power Less Than or Equal to 1500 W

Market	Voltage	Voltage Tolerance	Maximum Total Harmonic Distortion	Frequency	Frequency Tolerance
North America, Taiwan	115 V ac	+/- 1.0 %	2.0 %	60 Hz	+/- 1.0 %
Europe, Australia, New Zealand	230 V ac	+/- 1.0 %	2.0 %	50 Hz	+/- 1.0 %
Japan	100 V ac	+/- 1.0 %	2.0 %	50 Hz/60 Hz	+/- 1.0 %

Stakeholder Comment

Stakeholders requested that products be tested at the specific voltage and frequency combinations at which they were rated, rather than the closest regional combination—in particular where there may be safety concerns.

ENERGY STAR Response

EPA intends to maintain the current practice of testing products at the closest regional combination; however, as currently written this requirement is not binding (i.e., "the manufacturer should test the product at the regional combination"), such that manufacturers may test at other combinations for safety reasons.

UUT Configuration: Print Speed



4.1.A) Product Speed for Calculations and Reporting: The product speed for all calculations and reporting shall be the highest speed as claimed by the manufacturer per the following criteria, expressed in images per minute (ipm) and rounded to the nearest integer:

Stakeholder Comment	ENERGY STAR Response
<p>Stakeholders commented that the requirement to take the higher of the 8.5"x11" or A4 product speeds in case of disagreement was unnecessary or awkward and recommended deletion.</p> <p>One stakeholder suggested using the as-shipped product speed instead of the highest speed as claimed by the manufacturer.</p>	<p>EPA intends to keep the requirement to report the higher product speed in case of disagreement; however, will move it elsewhere in the section to reduce ambiguity.</p>

UUT Configuration: Color Testing



ENERGY STAR has decided not to include color testing in the Test Method due to the limited apparent prevalence of color printing in typical use and its limited impact on energy consumption.

Stakeholder Comment	ENERGY STAR Response
One commenter suggested informing purchasers of color-capable products that ENERGY STAR requires only monochrome testing.	<p>EPA has received no data to support a change and received comments from stakeholders noting that color printing has little impact on the energy consumption of products.</p> <p>EPA therefore does not intend to change its approach.</p>

UUT Configuration: Table of Network Connections



4.1.C) Network Connections:

Products that are capable of being network-connected as-shipped shall be connected to a network.

- 1) Products shall be connected to only one network or data connection for the duration of the test.
- 2) The type of network connection shall be the topmost available connection in the appropriate column of Table 6, with the exception of products with 10 Gigabits per second (Gb/s) Ethernet, which shall be tested at 1 Gb/s.

Connections for Standard-format Ink Jet and Impact Printers and MFDs	Connections for all TEC Products and OM Products Except for Standard-format Ink Jet and Impact Printers and MFDs
Ethernet – 1 Gb/s	Ethernet – 1 Gb/s
Ethernet – 100 Mb/s	Ethernet – 100 Mb/s
Wi-Fi	USB 3.x
USB 3.x	USB 2.x
USB 2.x	USB 1.x
USB 1.x	RS232
RS232	IEEE 1284 ¹
IEEE 1284	Wi-Fi
Other Wired – in order of preference from highest to lowest speed	Other Wired – in order of preference from highest to lowest speed
Other Wireless – in order of preference from highest to lowest speed	Other Wireless – in order of preference from highest to lowest speed
If none of the above, test with whatever connection is provided by the device (or none)	If none of the above, test with whatever connection is provided by the device (or none)

UUT Configuration: Table of Network Connections (cont.)



Stakeholder Comment

- Stakeholders agreed that specifying the order of network connections would improve the clarity and repeatability of the test method.
- Stakeholders also suggested prioritizing USB, over Wi-Fi, and finally Ethernet in the first column of Table 6.1 (consumer products).
- EPA would like to hear industry feedback on the prevalence of each type of network connection.

Connections for Standard-format Ink Jet and Impact Printers and MFDs	Connections for all TEC Products and OM Products Except for Standard-format Ink Jet and Impact Printers and MFDs
Ethernet – 1 Gb/s	Ethernet – 1 Gb/s
Ethernet – 100 Mb/s	Ethernet – 100 Mb/s
Wi-Fi	USB 3.x
USB 3.x	USB 2.x
USB 2.x	USB 1.x
USB 1.x	RS232
RS232	IEEE 1284 ¹
IEEE 1284	Wi-Fi
Other Wired – in order of preference from highest to lowest speed	Other Wired – in order of preference from highest to lowest speed
Other Wireless – in order of preference from highest to lowest speed	Other Wireless – in order of preference from highest to lowest speed
If none of the above, test with whatever connection is provided by the device (or none)	If none of the above, test with whatever connection is provided by the device (or none)

UUT Configuration: Table of Network Connections (cont.)



Stakeholder Comment	ENERGY STAR Response
<ul style="list-style-type: none">• Network interfaces may not be disabled individually, and even if it were possible, doing so could impact usability (by disabling cable detection).• The difference between "connected" and "active" should be clarified.	<ul style="list-style-type: none">• Specifying that only one interface be connected and further specifying the interface, was intended to increase the repeatability of the test method in light of the Third-party Certification revisions to the ENERGY STAR program.• EPA is aware that interfaces that are not connected may nonetheless remain "active" and consume power. On average, the base allowance will increase on account of the power used by these interfaces.

UUT Configuration: Energy Efficient Ethernet (EEE)



Stakeholder Comment	ENERGY STAR Response
<p>Some stakeholders commented the use of EEE (if supported by the product) would improve the representativeness of the test method.</p> <p>However, other stated that test labs may not have 1 Gb/s Ethernet or EEE, increasing testing burden.</p> <p>Also, others raised concerns about how EEE should be categorized.</p>	<p>EPA requests further comment on the burden of requiring 1 Gb/s Ethernet and EEE on the test equipment.</p> <p>EPA will clarify the table to indicate that the listed speed (e.g., 1 Gb/s, 100 Mb/s) are the rated speeds, and do not vary due to EEE.</p>

UUT Configuration: Network Activity



Stakeholder Comment	ENERGY STAR Response
The number of other computers connected to the network would impact the number of network requests that the product under test would have to respond to, and therefore its energy consumption.	<p>EPA will modify the test method to specify that one computer shall be connected to the network to which the product is connected (if capable of being network-connected).</p> <p>EPA seeks comment on further specifying the network activity, including any issues that may arise from network polling activity and how best to address them.</p>

UUT Configuration: Available Interfaces



4.1.C) 2) The type of network connection depends on the characteristics of the UUT and shall be the topmost available connection in the appropriate column of Table 6, with the exception of products with 10 Gigabits per second (Gb/s) Ethernet, which shall be tested at 1 Gb/s.

Stakeholder Comment	ENERGY STAR Response
Stakeholders requested clarification on how to treat products when the interface specified for test is either "off" or available only through "optional expandability".	<p>EPA proposes that products be connected to the topmost interface in Table 6 to which they are capable of being connected as-shipped:</p> <ul style="list-style-type: none">• Even if that may require turning on or enabling the interface,• But not if it requires purchasing any add-on components.

UUT Configuration: Fax Telephone Line



4.2 Configuration for Fax Machines

A) All fax machines and products incorporating fax machines that connect to a telephone line shall be connected to a telephone line during the test.

Stakeholder Comment

- Stakeholders were confused by this requirement and stated that testing fax capability could pose a significant burden without significantly impacting the apparent energy consumption of products.
 - Stakeholders suggested clarifying how jobs should be sent to fax machines capable only of receiving jobs via phone line and specifying that these requirements apply to embedded fax capability, not just standalone fax machines.
-
- EPA wishes to provide stakeholders with another opportunity to discuss this issue.

UUT Initialization: Driver Settings



5.A)1)i) If the product is connected to a computer during the test, the computer shall be running the manufacturer's default driver using settings corresponding to the default settings upon shipment.

Stakeholder Comment	ENERGY STAR Response
Printer drivers are not typically shipped with the product, but are instead offered for download on the manufacturers' websites.	EPA intended "upon shipment" to refer to the product rather than the driver and will clarify that in the final version.

UUT Initialization: Driver Settings (Cont.)



Stakeholder Comment	ENERGY STAR Response
<p>Since the driver itself can vary between initial testing and product use, so can the settings. Furthermore, there can be multiple default drivers available at any time, which could further complicate testing, although ambiguity could be eliminated by reporting the driver version used for the test.</p> <p>The default driver setting requirements are redundant with other product configuration instructions in the test method.</p>	<p>EPA acknowledges that some settings available may change between driver versions, but anticipates that the basic settings—those with the greatest impact on product energy consumption, such as quality and rasterization—will remain unchanged.</p>

UUT Initialization: Auto-off Mode



5.A)3)ii) Auto-off for TEC Products: If a printer, digital duplicator, fax machine or MFD with print-capability has Auto-off capability and it is enabled as-shipped, it shall be disabled prior to the test.

Stakeholder Comment	ENERGY STAR Response
Stakeholders inquired why are auto-off modes for products with print capability disabled and requested that other settings also be configured as-shipped.	The intention of the TEC test for products with print capability is to measure the long-term sleep power level of the product, since it is assumed that TEC printers will be configured to be responsive to incoming data—i.e., in Sleep Mode, not Off Mode.

UUT Initialization: Batteries



- 5.A)6) For products designed to operate on battery power when not connected to the mains power source, the battery shall be either:
- i) Removed from the product; or
 - ii) Fully charged for at least 24 hours before beginning the test and left in place for the duration of the test.

Stakeholder Comment	ENERGY STAR Response
Is the treatment of batteries at the tester's discretion?	The treatment of batteries remains unchanged from the Dec-2010 test method, and whether to remove the battery or charge for 24 hours remains at the discretion of the tester.

UUT Initialization: Pre-conditioning Time



5.A) 5) Let the UUT sit for at least 15 minutes, or until it has completed initialization and is ready for use.

ENERGY STAR is considering extending initial pre-conditioning time to 2 hours prior to any testing to ensure that all products begin testing with their internal temperature equal to that of the ambient air.

Stakeholder Comment	ENERGY STAR Response
Unclear why EPA is proposing a longer pre-conditioning time, given the burden of a longer test and the existence of a 1-hour sleep period during Step 5 of the TEC test method.	A longer pre-conditioning time would allow the fuser to cool to ambient temperature before the beginning of the test. The current TEC test method has been found to vary in some cases due to the fuser temperature being warmer than ambient prior to the start of the test.

UUT Initialization: Pre-conditioning Time (Cont.)



Stakeholder Comment	ENERGY STAR Response
Pre-conditioning will not impact OM products, as Ready Mode energy is not used for qualification and moreover some products are not affected by pre-conditioning.	EPA proposes to extend the pre-conditioning for <u>electrophotographic (EP)</u> products, including OM. All other products would continue have a pre-conditioning time of 15 minutes.
Most products do not stay in ready mode for more than 15-30 minutes. This means that the product will spend most of the 2 hours in sleep mode, which is not a thermal equilibrium.	EPA does not expect this pre-conditioning requirement to impact testing as the product need not be supervised or otherwise monitored during the pre-conditioning period. EPA will specify that products be turned off prior to the pre-conditioning period, and move the pre-conditioning prior to any initialization steps (e.g., lines 139--149).

TEC Energy Measurement: Sending Print Jobs



6.1.D) Print Jobs: Print jobs for the test may be sent over non-network connections (e.g., USB), even on those units that are network-connected.

Stakeholder Comment	ENERGY STAR Response
Stakeholders noted that despite the requirement to use a single network or data connection, line 181 permits sending print jobs over another connection.	EPA thanks stakeholders for the observation and intends to clarify that print jobs be sent over the single connected interface.

TEC Energy Measurement: Testing in Duplexing Mode



6.2.A)2) Duplexing: Products shall be tested in simplex mode, unless the speed of duplex mode output is greater than the speed of simplex mode output, in which case they shall be tested in duplex mode. Originals for copying shall be simplex images.

Stakeholder Comment	ENERGY STAR Response
One stakeholder agreed with the proposed approach, while another questioned why duplex-capable products did not receive further incentive.	EPA welcomes ideas for further incentives; however, the proposed test method incentivizes duplex-capable products by permitting testing them in duplex when doing so is faster (and therefore more energy efficient because the time in Active Mode is shorter). Furthermore, the existing specification already requires duplexing capability for some TEC products.

TEC Energy Measurement: Testing in Duplexing Mode (Cont.)



Stakeholder Comment	ENERGY STAR Response
Another stakeholder commented that section 4.1.A about simplex testing is inconsistent with later sections about duplexing.	EPA also notes that for models where duplex printing may take longer than simplex, requiring duplex testing may reflect negatively (the longer time will correspond to higher energy) such that duplex products may be put at a disadvantage relative to simplex.

OM Energy Measurement: Products Without a Sleep Mode



Table 10: Operational Mode (OM) Test Procedure

Step	Initial State	Action(s)	Record	Unit of Measure
1	Off	Plug the unit into meter. Turn on unit. Wait until unit indicates it is in Ready Mode.	–	
2	Ready	Print, copy, or scan a single image.	–	
3	Ready	Measure Ready power.	Ready power, P_{READY}	Watts (W)
4	Ready	Wait and measure default delay-time to Sleep.	Sleep default-delay time, t_{SLEEP}	Minutes (min)

Stakeholder Comment	ENERGY STAR Response
Some products (e.g., USB products) do not have an automatic sleep mode and wait for the host device to initiate sleep.	<p>EPA will amend the test method and/or specification such that products that can meet the Sleep Mode requirement in Ready Mode will be able to qualify.</p> <p>E.g., Wait a specified delay time, and if no separate Sleep Mode, report Ready Mode power</p>

DFE Energy Measurement



ENERGY STAR intends to incentivize energy efficiency of imaging products with digital front ends (DFEs) by measuring the energy consumption of the DFE in the modes that are most prevalent: Ready and Sleep. This change will require retesting of all imaging equipment units with DFEs.

Following retesting, the energy savings potential of DFE energy consumption requirements will be analyzed and DFE energy consumption requirements may be proposed for discussion during the specification development process.

ENERGY STAR is proposing to require that manufacturers directly report the dc power to the DFE without adjusting for any power supply inefficiency as such adjustments are likely to be unreliable without knowing the efficiency curve of the power supply used for the test.

DFE Energy Measurement (cont.)



Stakeholder Comment

Changes to the DFE test procedure will require re-testing of products and yield longer test time.

Due to power supply losses, dc-powered and ac-powered DFEs should have different power limits.

Since this would be a new addition to the test method, DFE power limits should be incorporated in the version 3.0 specification.

Due to customer requirements, some DFEs never enter sleep mode while others enter sleep mode only after the imaging product enters sleep mode.

DFE power consumption information should only be collected and reported for external DFEs. Internal DFEs should be measured as part of the imaging equipment's TEC (i.e., no subtraction of DFE power).

DFE Energy Measurement (cont.)



Stakeholder Comment

An internal DFE may appear more energy efficient than an external DFE due to possible exclusion of shared resources (e.g., common power supply, shared hard disk drive, cooling fans, etc.) that the internal DFE may utilize. This information is not reported in the internal DFE power consumption data.

If a DFE manufacturer were required to perform the final ENERGY STAR certification test, then the DFE manufacturer would have to acquire the target engine, ship it to an authorized test facility, and conduct the test, which could impose excessive burdens on the DFE manufacturer.

- EPA thanks stakeholders for their comments and will consider these during the development of the Draft 1 specification. In the meantime, EPA welcomes DFE test data, and intends to finalize a test method that allows for the measurement of both ac and dc DFE power.

Appendix A



10 APPENDIX A: TEST REPORTING TEMPLATE

Laboratory Information	
Laboratory Name	
Address	
Test Office	

Stakeholder Comment	ENERGY STAR Response
Stakeholders commented on the completeness and necessity of the Appendix A template appended to the test method.	EPA will remove the template from the final test method and use a template separate from the test method for reporting test data.

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New Proposed Allowances for Primary Adders



- Recognizing recent advancements in the energy efficiency of imaging products, EPA proposes revising down the allowances for primary functional adders.
- EPA received many comments raising concerns over reduction of primary functional adders

New Proposed Allowances for Primary Adders



Primary Adder Category	Current Sleep Allowance (W)	Proposed Sleep Allowance (W)	Current description
A. Wired < 20 MHz	0.3	0.1	A physical data- or network-connection port present on the imaging product that is capable of a transfer rate < 20 MHz. Includes USB 1.x, IEEE488, IEEE 1284/Parallel/Centronics, RS232, and/or fax modem.
B. Wired \geq 20 MHz and < 500 MHz	0.5	0.2	A physical data- or network-connection port present on the imaging product that is capable of a transfer rate \geq 20 MHz and < 500 MHz. Includes USB 2.x, IEEE 1394/FireWire/i.LINK, and 100Mb Ethernet.
C. Wired \geq 500 MHz	1.5	0.5	A physical data- or network-connection port present on the imaging product that is capable of a transfer rate \geq 500 MHz. Includes 1G Ethernet.
D. Wireless LAN	3.0	0.5	A data- or network-connection interface present on the imaging product that is designed to transfer data via radio-frequency wireless means. Includes Bluetooth and 802.11.
E. Wired card/camera/storage	0.5	0.1	A physical data- or network-connection port present on the imaging product that is designed to allow the connection of an external device, such as flash memory-card/smart-card readers and camera interfaces (including PictBridge).
G. Infrared	0.2	0.1	A data- or network-connection interface present on the imaging product that is designed to transfer data via infrared technology. Includes IrDA.

Proposed Elimination of Secondary Functional Adders



Since only one interface shall now be active during the test, ENERGY STAR is considering eliminating allowances for **secondary** functional adders such as data and network connections.

- When eliminating secondary functional adders, on average the base power allowance will increase according to the power consumption of the top 25% most efficient products.

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Unresolved Issues



- EPA welcomes additional data and comments from stakeholders regarding:
 - Order of preference of network connections
 - Fax telephone line connection
 - DFE power measurement
 - Primary adder allowances
- Your feedback is crucial to finalizing the test method and beginning Draft 1 spec.

Timeline Concerns



Stakeholder Comment	ENERGY STAR Response
Due to the scope of the changes in the test method and possible changes in the specification levels, commenters requested that EPA delay the effective date to 1 year following finalization.	<p>As mentioned during the kickoff webinar on April 13, ENERGY STAR imaging equipment products were found to have high market penetration (47% for MFDs up to 97% for scanners), necessitating a revision.</p> <p>It is to be expected that some models will lose qualification following a revision and may need to be redesigned to meet the new specification. The 9 month period between the finalization and effective date of the specification is not intended to accommodate the redesign of products, but rather any documentation/labeling changes.</p>

Version 2.0 Revision Timeline



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Thank you for participating!