ENERGY STAR® Imaging Equipment
Draft 1 (Version 1.0) Specification
Stakeholder Comment Response Summary

Following is a summary of the feedback EPA has received from stakeholders regarding the ENERGY STAR Draft 1 (Version 1.0) specification for imaging equipment (IE). Comments are organized by specification topic, and are followed by EPA's response to each statement. These comments have been summarized and aggregated without reference to the specific individual or organization providing the feedback. In cases where stakeholders submitted supplemental materials to further support their comments, EPA has attempted to describe the general content of the materials here in a succinct manner.

On as many topics as possible, this document relays EPA decisions related to stakeholder comments/requests. There are cases where EPA is still assessing data or considering requests and is not yet able to relay a decision. It is EPA's intention to address all remaining questions/requests in Draft 2 of the Imaging Equipment Specification, due out in December 2005. EPA also plans to share data related to this specification at this time. For further information on the development of this draft specification and feedback received to date, please visit the ENERGY STAR Product Development Web site at www.energystar.gov/productdevelopment.

Partner Commitments

Labeling

Comment: The labeling requirements should be revised to the following:
"Manufacturers shall choose at least two of the following options for labeling as ENERGY STAR:

1.) Top/front of the product
2.) Product packaging
3.) Product literature
4.) Manufacturer's Web site."

Comment: EPA should provide the following labeling options for imaging equipment manufacturers:

1.) As a permanent feature of the product's exterior, visible from normal operating position.
2.) As a removable label affixed to the product's exterior, visible from normal operating position.
3.) Displayed via the product operator panel during device power up.
4.) Via an alternate technique, proposed by a manufacturer and approved by ENERGY STAR.

Comment: EPA should not mandate labeling on the product, packaging, literature, or Web site, since this is burdensome and costly. Manufacturers should determine the most effective means for leveraging the value of the label.

Comment: EPA should not require labeling on the product or the packaging, since labeling these components poses problems with re-use or recycling. The labels would need to be removed manually and would require the use of solvents. EPA should allow manufacturers to incorporate the ENERGY STAR mark in the user-interface software at start-up and in the product literature instead as a replacement.

> EPA Response: EPA considers use of the ENERGY STAR mark in association with qualified products as a very important means to educate the consumer about ENERGY STAR and energy efficiency. As part of the Partnership Agreement, labeling is now

required. Although EPA supports the proposed requirements to label the product, the Web site, product literature, and packaging, EPA is prepared to allow manufacturers greater flexibility in meeting these requirements:

- For the product labeling requirement, EPA will propose in the Draft 2 specification that manufacturers choose either to apply a physical label to the top or front of a qualified model, or alternately, use electronic messaging that is **pre-approved** by EPA.
- For the literature labeling requirement, EPA will propose in Draft 2 that manufacturers choose either to apply the ENERGY STAR mark to the product literature (e.g., user manual), or alternately, to apply the mark to a separate box insert that provides educational language about the product's ENERGY STAR settings.
- In Draft 2, EPA will propose labeling of packaging/box as a possible recommendation rather than a requirement.
- EPA will continue to support the requirement to use the ENERGY STAR mark on partners' Web sites where individual qualified products are described. EPA is in the process of developing specific guidance on using ENERGY STAR Web-Based Tools, such as the certification mark. This guidance will be distributed with, or shortly following, the Draft 2 IE specification.

Comment: EPA should remove any definition of the ENERGY STAR certification mark from the Partner Commitments, since this mark is already defined on the ENERGY STAR Web site at www.energystar.gov/logos. Either remove the definition, or replace with a link to this URL.

EPA Response: The Partner Commitments for Imaging Equipment reference the ENERGY STAR Identity Guidelines when specifying how the partner should use the ENERGY STAR mark in association with their qualifying products; however, the Guidelines themselves are not reproduced in the Partner Commitments. Because proper use of the ENERGY STAR mark is required of all partners, this reference must be included in the Partner Commitments.

Performance for Special Distinction

Comment: The effort described on line 143 regarding the provision of written updates on efforts undertaken by Partner to increase availability of qualified products should be changed to an "annual" basis, not a quarterly basis.

EPA Response: Because this section of the Partner Commitments provides various voluntary activities that manufacturers may undertake to receive additional recognition of their partnership efforts rather than additional requirements of said partnership, EPA does not intend to revise this language.

Comment: To what does the term "special measures" refer?

EPA Response: Partners may undertake a variety of activities that go above and beyond the stated requirements of the partnership to achieve additional recognition of efforts. Some of these "special measures" are listed in this section as suggestions; however, activities for recognition are not limited to these.

Product Submittal

Comment: EPA should require product data updates on an annual basis, not quarterly, per the monitor specification, since product lists will not change dramatically within each quarter.

EPA Response: Depending on the type of product, EPA is agreeable to changing this language to require annual product data updates rather than quarterly. This language will be updated in Draft 2.

Unit Shipment Data

Comment: Providing unit shipment data is far too sensitive, and collecting this data is costly. EPA should consider other alternatives or make this collection optional.

> EPA Response: As addressed in the October 14th Imaging Equipment stakeholder meeting, EPA considers the collection of unit shipment data to be key in determining the effect of ENERGY STAR on energy consumption. This data is crucial in quantifying the impact of ENERGY STAR and the program's success in meeting its stated goals. EPA would be pleased to accept this data in an aggregated form from industry associations or other third parties. In addition, to further preserve the anonymity of the source of the data, EPA is open to collapsing this data within more general categories where feasible. EPA intends to retain the requirement to submit annual unit shipment data in Draft 2.

Comment: EPA should change the sentence on line 90 from "unit shipment data must be segmented by meaningful product characteristics…(non-US)" to "Partner is encouraged to provide unit shipment data segmented by meaningful product characteristics…(non-US)," since the monitor partner commitments are written in this manner.

> EPA Response: EPA is agreeable to making this change. This change will be included in the Draft 2 specification.

Definitions

Products

Comment: USB-powered products should be defined and qualified separately from mains-powered products. EPA should not necessarily give blanket qualification for these products just because they are powered by a USB connection. EPA should first investigate whether there are relatively different levels of power used within a product segment.

Comment: Currently, there are no USB-powered products on the market beyond scanners.

> EPA Response: EPA intends to hold all types of eligible imaging products to the ENERGY STAR Eligibility Requirements independent of how power is supplied to the device. The definitions for each product type were amended in the Terminology and Definitions distributed to stakeholders on October 28th to account for products powered by USB or other data or network connections. EPA will determine the appropriate specification limits for these products when it reviews submitted data prior to the release of Draft 2.

Comment: EPA should define upgradeable digital copiers (UDCs) expressly within the definition for Copiers.

> EPA Response: This suggestion was incorporated in the revised Terminology and Definitions, distributed to stakeholders for review on October 28th.

Marking Technologies

Comment: EPA should revise the definition of Color Electrophotographic (EP) to the following: "Color EP is distinguished from monochrome EP in that toners of at least three different colors (normally, four colors) are available in a given product at one time."

EPA Response: This suggestion was incorporated in the revised Terminology and Definitions, distributed to stakeholders for review on October 28th.

Comment: Some of the marking-technology definitions, such as those for Solid Ink and Thermal Transfer are inaccurate or incomplete, or not directly relevant in terms of energy consumption (e.g., EP).

EPA Response: A suggestion for refining the Solid Ink definition was incorporated in the revised Terminology and Definitions, distributed to stakeholders for review on October 28th.

Comment: EPA should consider the following revised definition for Solid Ink:
Solid Ink – A marking technology where typically the ink is solid at room temperature and liquid when heated to the jetting temperature. Transfer to the media can be direct, but is most often made to an intermediate drum or belt and then offset printed to the media.

EPA Response: This suggestion was incorporated in the revised Terminology and Definitions, distributed to stakeholders for review on October 28th.

Operational Modes and Activities

Comment: The current definition of Standby does not seem to have the same meaning as the definition FEMP uses, though it should. FEMP's definition allows products to enter Standby through a manual switch-off; this clarification should be included in the ENERGY STAR definition as well.

Comment: EPA should delete the current definition for Standby and replace it with the following: "Alternate term for Plug-in Off."

Comment: The definition of Standby as provided by IEC and used in Draft 1 is appropriate for household appliances such as TVs and air-conditioners, but is not appropriate for IT equipment. For IT equipment, Standby mode means "Manual Off." Therefore, EPA should use the definition currently used for Hard Off as the definition for Standby.

EPA Response: The definition for Standby used in the Draft 1 specification is the definition provided in IEC standard 62301. EPA continues to support the use of this term and definition. Clarification following this IEC reference in the specification states that "Standby usually occurs in Off mode, however, may occur in Ready or Sleep."

Comment: EPA should use the term Off instead of Standby.

EPA Response: EPA defines both Off and Standby in the definitions and terminology since these terms can refer to different power conditions, depending on the product's capabilities.

Comment: EPA should delete the definitions for Hard Off and Low-power, since these terms are not referenced in the rest of the Draft. Further "0" watts for Hard Off does not take into account safety and regulatory mandates, such as the inclusion of an EMC circuit.

Comment: The definition for Hard Off is incorrect. A product will never measure 0-watts with AC power supplies because of current leaks. EPA should delete this sentence.

EPA Response: This suggestion was incorporated in the revised Terminology and Definitions, distributed to stakeholders for review on October 28th. The distinct definition for Hard Off has been removed.

Comment: The current definition for Off should be separated into two definitions for Manual-off and Auto-off. Manual-off is equivalent to the definition for Standby.

> EPA Response: Clarification is included in the definition for Off to provide for the fact that this mode may be entered either manually or automatically. Standby usually occurs in Off, but may also occur in Ready or Sleep, therefore Standby is defined separately.

Comment: The terminology for Off/Standby as used in the OM test procedure and the terminology for Standby, as defined in the Draft 1 specification, conflict. The former term has not been defined anywhere. Further clarity is needed.

> EPA Response: The specification provides Standby requirements for OM products; however, since Standby may often occur in Off, but not always, EPA has provided this flexibility in the OM test procedure. EPA will consider incorporating further clarification for this mode in the final OM test procedure

Comment: EPA should replace the definition for "Off" with the terminology and definition used for "Plug-in Off" from the work done by EICTA in support of the EU Energy Using Products discussion. The basic definition, which would be supported by additional clarification, is below:

- Plug-in Off – the lowest power consumption condition when the "equipment under test" (EUT) is connected to the mains electricity supply and used in accordance with manufacturer's instructions."

> EPA Response: For greater consistency among product categories within the ENERGY STAR program, EPA continues to support the term Off for describing this power state.

Comment: EPA should replace the following language in the definition for Sleep, "the product must maintain all network connections while in Sleep" with the following, "the product must be able to connect to all networks, however, does not have to maintain all network connections at the same time." There are some cases where a product cannot connect to all networks at the same time, (e.g., when a product is connected to a cable LAN and cannot be connected to a wireless LAN at the same time).

> EPA Response: This suggestion was incorporated in the revised Terminology and Definitions, distributed to stakeholders for review on October 28th. The phrase "all network connections" was revised to "network connectivity." This definition may be amended further in Draft 2 based on additional comments from stakeholders.

Comment: EPA should replace the following text from the definition of Sleep, "automatically enters without actually turning off, after a period of inactivity," with the following, "enters automatically after a period of inactivity, at a user set time-of-day, or immediately in response to user manual action, without actually turning off."

> EPA Response: This suggestion was incorporated in the revised Terminology and Definitions, distributed to stakeholders for review on October 28th.

Comment: EPA should remove the phrase "without actually turning off" from the definition of "Sleep."

> EPA Response: EPA prefers to retain this clarification to prevent possible confusion between this mode and Off mode.

Comment: The term low-power mode appears in several places, such as in the definition for Default Delay Time, so this term should also be defined.

EPA Response: The use of the word “low-power” was in reference to any lower-power mode. Additional clarification was incorporated in the revised Terminology and Definitions, distributed to stakeholders for review on October 28th.

Comment: EPA should remove the second sentence in the definition for “Active”: “the power requirement…all other modes.” In some instances, the power drawn at start-up is larger than when the product is active. This is particularly true with EP printers.

EPA Response: This suggestion was incorporated in the revised Terminology and Definitions, distributed to stakeholders for review on October 28th.

Comment: To be consistent with FEMP, the requirement for Hard Off should be less than or equal to 1-watt.

EPA Response: EPA has not provided requirements for Hard Off mode in the specification, but is striving to harmonize with FEMP requirements for Standby in the Draft 1 specification wherever possible.

Comment: Better examples are available to use in the definition for Automatic Duplex Mode other than automatic document feeder (ADF), since these units are not available on printers.

EPA Response: The ADF is only an example of what a possible accessory would be; this reference is not a finite list of possible accessories. Absent other suggestions, EPA plans to retain this example in Draft 2.

Product Size Formats

Comment: EPA should add “B4” size to the definition of Standard in the section for Product Size Formats, since B4 is very popular in Japan for fax machines.

EPA Response: This suggestion was incorporated in the revised Terminology and Definitions, distributed to stakeholders for review on October 28th.

Comment: EPA should provide examples when defining Product Speed, and include clarification that speed should be rounded to the nearest integer (e.g., 14.4 rounds to 14; 14.5 rounds to 15).

EPA Response: This suggestion was incorporated in the revised Terminology and Definitions, distributed to stakeholders for review on October 28th.

Comment: A test pattern and conversion table is needed for conversion of continuous-form speeds to standard-size cut-sheet speeds.

EPA Response: Because EPA removed the ENERGY STAR Speed Test from the OM test procedure in the final draft, EPA does not believe it is necessary to use a standard test pattern to compare the speeds of Continuous Form products and Standard-size products.

Comment: EPA should specify the following surface area conversion method for Continuous Form products: (maximum width in meters) x (maximum length-meters per minute) x 16 = images per minute in A4. This same conversion method should also be used for Large-format printers (e.g., OM Table 7) or any other product capable of printing from roll-form media.

Comment: Converting continuous-form print speeds for thermal label printers into standard-size speeds is like comparing “apples and oranges.”

EPA Response: EPA will continue considering this approach carefully when preparing Draft 2. In addition to a conversion method to use in comparing Continuous Form products with other cut-sheet products, EPA will need actual data on these products in order to provide eligibility criteria and thus qualify these types of products. Without this data, EPA will not be able to draw specification lines.

Additional Terms

Comment: EPA should delete the term for Duplex Speed since this term is not referenced anywhere else in Draft 1.

EPA Response: This suggestion was incorporated in the revised Terminology and Definitions, distributed to stakeholders for review on October 28th.

Comment: EPA's definition for Product Speed as included in the TEC test procedure is agreeable. While it does not matter whether the definition appears in the test procedure or the specification, it is important that the term only appear once.

EPA Response: This suggestion was incorporated in the revised Terminology and Definitions, distributed to stakeholders for review on October 28th. Although the definition for Product Speed references additional clarification that resides in the test procedures, the definition itself appears only in the specification.

Comment: EPA should include the following language to prioritize the appropriate function for determining Product Speed:

1.) Print Speed, unless the product cannot perform the print function, in which case
2.) Copy Speed, unless the product cannot perform the print or copy function, in which case
3.) Scan Speed, unless the product cannot perform the print, copy, or scan function, in which case
4.) A function or operation specifically agreed to by the ENERGY STAR program director.

EPA Response: This suggestion was incorporated in the revised Terminology and Definitions, distributed to stakeholders for review on October 28th.

Qualifying Products

Comment: The TEC approach should not be used for any products other than those using EP technology.

EPA Response: The TEC approach applies to all products that use a heat-intensive imaging process, including EP, among others. More details are provided in the TEC test procedure. Rationale for why these products are addressed by the TEC approach are provided to stakeholders in each successive draft, which are available for review at www.energystar.gov/productdevelopment.

Comment: The Marking Technologies listed/addressed for MFDs under Table 1 for the TEC approach should also be applied to Fax Machines. There is no reason to limit the printing technologies for these products considering future advancement. Such technologies that are missing are parallel EP and Solid Ink.

EPA Response: EPA will incorporate this suggestion in the Draft 2 specification.

Energy-Efficiency Specifications for Qualifying Products

General

Comment: The number of criteria tables is too large and should be condensed.

> EPA Response: As stated in the October 14th Imaging Equipment stakeholder meeting, EPA will strive to reduce the number of specification tables wherever feasible. EPA attempted to ensure that the wide breadth of products addressed by these program requirements was accounted for in Draft 1; however, how products are categorized and how this categorization is reflected in tables will be determined by the data.

Comment: Technologies that are more efficient than others after basic functionality requirements have been taken into account should be favored unless it is proprietary.

> EPA Response: The product data that EPA uses to create the specification limits for each product category will determine what product technologies are grouped together. If data does not support separating a particular marking technology (e.g., parallel color EP), then EPA will consider grouping these products with other marketing technologies (e.g., serial color EP).

Digital Front-ends (DFEs)

Comment: EPA is correct to exclude the power consumption of externally powered DFEs from the overall consumption of an imaging equipment product when considering eligibility. However, EPA should also consider the power consumption of integrated controllers separately, which are not separately powered, especially in the case where the integrated controller provides the same functionality as an externally-powered DFE.

Comment: EPA should outline four different cases for how a DFE and accompanying imaging equipment product might be qualified, which follow:

1.) Externally-powered DFE available independent of the imaging product: In the case where the DFE is externally powered, the computer must meet the Computer specification and the imaging product must meet the Imaging specification;
2.) Externally-powered DFE sold only with the imaging product: In the case where an externally-powered DFE is sold only with the imaging product, if either the DFE or the imaging product does not meet one of their respective specifications, neither product can qualify.
3.) Externally-powered DFE without which the imaging product cannot function: In the case where an externally-powered DFE is sold independently from the imaging product, but the imaging product cannot function without the DFE, the combined imaging product and computer product must meet the Imaging specification, regardless of whether the DFE meets the Computer specification.
4.) Fully integrated DFE: In the case where neither the imaging product nor the DFE can function without one another, the combined product must meet the Imaging specification.

> EPA Response: EPA will consider how to treat products with physically-integrated DFEs and print controllers to avoid indirectly penalizing these products when comparing them against those that use externally-powered DFEs. EPA will be working closely with industry regarding this topic in preparation of Draft 2. To date, EPA does not have data to help with this analysis. Absent data related to DFE energy use, EPA will not be in a position to provide an allowance for these integrated devices in the specification.

Comment: EPA should further clarify whether the externally-powered DFE has to be an ENERGY STAR qualified computer, or whether it just needs to meet the computer specification requirements.

> EPA Response: EPA will clarify in Draft 2 that an externally-powered DFE, an external power supply, or a cordless handset, will need to meet the respective ENERGY STAR eligibility criteria for that product category, although not necessarily be an ENERGY STAR qualified model for the overall imaging equipment product to qualify.

Duplexing Requirements

- Comment: EPA should incorporate the following requirement within a new section on duplexing: for non Ink-jet Standard-size products capable of producing hard-copy output with a Product Speed of 30 ipm or greater, automatic (mechanical) duplexing capability for this hard copy must be available either as an optional capability or as a standard capability.

> EPA Response: EPA is carefully considering the appropriate duplexing requirements for products within the Imaging Equipment specification. Based upon initial data analysis as well as existing Blue Angel requirements, EPA is considering an approach that would require EP products to have automatic duplexing capability at or above 30 ipm and offered as an optional capability between 20 ipm and 29 ipm. Additional detail and rationale will be included in the Draft 2 specification.

External Power Adapters

Comment: EPA should not require that external power adapters meet a separate specification.

Comment: METI does not administer the ENERGY STAR product categories for power adapters and telephony, therefore EPA needs to consider how manufacturers in Japan will apply for and place the ENERGY STAR mark on these adapters and additional cordless handsets if they are not partners in the US.

> EPA Response: As mentioned above, EPA intends to clarify in Draft 2 that power adapters and telephony products must be capable of meeting the respective ENERGY STAR specification if they are sold with ENERGY STAR qualified imaging equipment. The power adapters and telephony products do not need to be explicitly ENERGY STAR qualified.

Operational Mode (OM)

Comment: EPA should not use criteria that address the conversion efficiency of USB bus-power for scanners. This is because scanners are not capable of converting AC power into the type of power supplied by the USB.

> EPA Response: EPA does not intend to specify conversion efficiencies for imaging products, beyond requiring that external power adapters meet the ENERGY STAR specification for these products.

Comment: EPA should not specify a 1-watt Standby criterion for Ink Jet fax machines.

> EPA Response: EPA may raise the Standby level for fax machines and products with fax capability in Draft 2 based on the feedback received from industry. In the process of further developing the functional-adder approach for Draft 2, EPA is considering providing a power allowance for fax capability as a functional-adder. Data and suggestions from stakeholders are undergoing careful consideration at this time.

Comment: EPA should only consider Sleep mode data when determining qualification limits, and consider Ready mode data for general understanding of product performance.

Comment: EPA should consider specification requirements for Ready mode for products addressed by the OM approach. If not, then rationale is needed to clarify why Ready is being measured.

> EPA Response: As explained in the October 14th Imaging Equipment stakeholder meeting, EPA is only specifying modes such as Sleep and Standby because EPA understands that it is in these modes that these products spend the most amount of time. There is no data to support specifying Ready mode at this time. However, collecting data on this mode will allow EPA to ensure that this reasoning is correct and help EPA determine whether Ready should be included in future specifications.

Comment: The requirements for power consumption should be set based on the product not being connected to the network, but an allowance should be provided for products that have a network card connected.

> EPA Response: EPA is considering a functional-adder approach that might incorporate network capability as an "adder," as mentioned above. EPA would like the test conditions to reflect typical usage and hence energy consumption. EPA recognizes that in some product categories, network connectivity is commonly utilized, while in others, it is rarely or never used. EPA will continue to investigate the power needs of the network interface hardware, as well as data and suggestions from stakeholders, when further developing the functional-adder approach for Draft 2.

Comment: Regarding the note on line 492, network connectivity does not make a difference to a product's power consumption, regardless of whether the product is connected or disconnected.

Comment: Products with network connectivity should be able to meet a 1-watt Standby requirement, such as fax machines.

> EPA Response: As mentioned above, data and suggestions from stakeholders addressing the power needs of various types of network connectivity as well as fax capability are undergoing careful consideration in preparation for the release of Draft 2.

Comment: EPA should include language to clarify that a product may qualify based on Ready mode consumption if the product does not have a distinct Sleep mode.

> EPA Response: EPA will incorporate this suggestion in the Draft 2 specification.

Comment: A 1-watt Standby criterion for large-format products is very stringent, depending on the definition of Standby.

> EPA Response: The definition of Standby as proposed in the revised Terminology and Definitions distributed to stakeholders on October 28th is taken from IEC 62301. Because Standby usually occurs in Off mode, EPA continues to support a 1-watt Standby level for large-format products. However, data and suggestions from stakeholders are undergoing careful consideration at this time.

Comment: EPA should allow an additional five watts in OM Table 2 to account for camera-direct functionality.

> EPA Response: EPA is considering a functional-adder approach for Ink Jet products, which might incorporate this specific functionality. Data and suggestions from stakeholders are undergoing careful consideration at this time.

Comment: While color Standard-size products addressed by TEC are separated into categories, (e.g., serial color EP, parallel color EP, Solid Ink, Thermal Transfer) Large-format and Small-format machines addressed by OM are not. The same categorization should apply for OM products as is currently used for TEC products.

> EPA Response: EPA categorized products in the Draft 1 specification based on feedback from industry and initial data analysis. Categorization in Draft 2 will be based on careful consideration of the data to ensure that like products are grouped with one another.

Comment: EPA should clarify whether the 1-watt Standby requirement for OM products is meant to include the power consumed by the print controller or DFE, given that for desktops the proposed allowance is 2-watts, for integrated computers, the proposed allowance is 3-watts, and for desktop-derived servers there is no limit at all.

> EPA Response: As mentioned above, EPA will consider how to treat products with physically-integrated DFEs and print controllers to avoid indirectly penalizing these products when comparing against those that use externally-powered DFEs. EPA will be working closely with industry regarding this topic in preparation of Draft 2.

Functional Adder Approach

Comment: EPA should include a method of consideration or language to address new product functionality that may be developed after the Version 1.0 specification goes into effect. The specifications should have the ability to be quickly amended to allow new features if this situation arises.

> EPA Response: As EPA works to further develop the functional-adder approach for OM products, as was first proposed in Draft 1, EPA's intent will be to develop the specification in anticipation of newer functionalities on the horizon wherever possible. Additionally, EPA will aim to group functionalities where it makes sense to avoid unnecessary specificity and better preserve the longevity of the criteria.

Comment: The proposed functional-adder approach is inconsistent with the rest of the specification, and should be reconsidered alongside the decision to drop the Ink Jet speed test. Additional rationale behind these decisions is needed.

> EPA Response: As explained in the October 14th Imaging Equipment stakeholder meeting, EPA did not find a direct correlation between power consumption and print speed among Ink Jet products, thus prompting the decision to drop the Ink Jet speed test from the OM test procedure. As EPA continues to investigate the functional-adder approach for these products in preparation for Draft 2, EPA will also consider whether it is appropriate to apply the same approach to non-Ink Jet products.

Comment: EPA needs to recognize the differences between machines that include embedded controllers that perform additional functionality and machines that rely on the host computer for all functionality. These machines that rely on the host are less expensive and consume less power but they can slow the product performance of the host computer. Many users prefer having the functionality on the device itself to free up the host computer for other tasks, so it is important that the machines with embedded controllers are not penalized.

Comment: EPA should carefully consider the extra power needs of products that have additional input/output (I/O) performance requirements, which use more complex processors. For example, a high speed eight-color Ink Jet printer will use more power than a slower monochrome Ink Jet printer, since the latter's computing requirements are minimized.

EPA Response: As mentioned above, EPA will consider how to treat products with physically-integrated DFEs and print controllers to avoid indirectly penalizing these products when comparing against those that use externally-powered DFEs. To better address the difference between stand-alone products and those that rely on a host computer, EPA will investigate the possibility of providing allowances for these integrated devices within the functional-adder approach in preparation for Draft 2.

Comment: EPA should consider the following possible functional-adders:
Wire-based interfaces (e.g., USB, parallel, Ethernet)
Wireless based interfaces (e.g., Bluetooth, 802.11, infrared)
Paper handling options (e.g., extra paper feeders, auto-duplexers, output/finishing devices)
Memory/storage (e.g., hard disk drives, memory upgrades)
External ports (e.g., memory card readers, camera interfaces, smart card readers)
Enhanced displays/control panels (e.g., larger displays)
Paper size capabilities (e.g., letter vs. 11"x17", A0 vs. A2)

Comment: EPA should consider a table of functions to include in the next draft specification to flesh out the functional-adder approach. The table should be segmented into Sleep power allowances for various types of Base Systems (e.g., PC-based printer, stand-alone copier function), various Function Power Adders (e.g., fax capability, wireless interface), and a final section outlining the Maximum Power Consumption allowed for each type of Product (e.g., Printer, MFD/Copier).

Comment: EPA's consideration of a functional-adder approach is welcome.

Comment: The functional-adder approach is welcomed as is consideration of this approach in the Draft 1 specification.

EPA Response: Data and suggestions from stakeholders regarding various possible functional-adders are undergoing careful consideration at this time. EPA plans to provide a proposed set of adders and corresponding power allowances in the Draft 2 specification.

Test Procedures

Comment: EPA should not require reporting qualifying product data to EPA, and should continue to accept self-declaration.

EPA Response: EPA considers product data for qualifying models to be important information for consumers. As part of the Partnership Agreement, submitting qualifying product data is now required and will be placed on the ENERGY STAR Web site.

Comment: A standard test pattern would be useful in the OM test procedure to avoid misunderstandings in debated conformance results. Additional rationale behind the decision to drop the ENERGY STAR Speed test for Ink Jet products would be appreciated.

Comment: The ENERGY STAR Speed test for Ink Jet devices is a good approach to assigning additional power to more capable products. As product speed increases, the basic mechanics and electronics needed for this functionality must be augmented to move paper more quickly, process larger amounts of data, spray more ink, etc., all of which use more power.

Comment: A standard test page for Ink Jet products establishes a speed benchmark which all manufacturers must use and thus can be relied upon as a consistent foundation for comparing results. Claimed speed may not be an accurate representation of how the machine is used under

typical customer conditions. EPA should consider using "claimed speed as shipped and recommended for use" as opposed to simply using "claimed speed." Using this approach may reduce the number of discrepancies and differences between products.

> EPA Response: EPA recognizes the value of a standard method to establish a speed benchmark for Ink Jet products. However, as explained in the October 14th Imaging Equipment stakeholder meeting and mentioned above, EPA did not find a direct correlation between power consumption and print speed among Ink Jet products, which prompted the decision to drop the Ink Jet speed test from the OM test procedure. EPA proposed the functional-adder approach in Draft 1 as one way to differentiate higher functionality products as an alternative to differentiating these products based on speed.

Comment: EPA should provide additional rationale as to why they are requiring a more stringent AC line supply harmonic content than the IEC 62301 standard. This harmonic content critically affects low Standby power measurements and the IEC standard exists for precisely these measurements.

Comment: The apparent difference between the IEC standard and the ENERGY STAR Test Conditions for harmonic content is "2%" and "less than or equal to 2%," which is an unnecessary distinction.

> EPA Response: IEC 62301 states that the total harmonic content "shall not exceed 2%" whereas the ENERGY STAR Test Conditions states that it shall be less than 2%. To better harmonize with IEC, EPA will update the Test Conditions to state "less than or equal to 2%."

Comment: Testing using letter or A4 should be optional at the 115V/60Hz combination.

Comment: Section 4.C. "Models Capable of Operating at Multiple Voltage/Frequency Combinations" should be deleted, since it is already included in the Test Conditions document. Additionally, manufacturers should only have to test at three voltage/frequency/paper size/paper weight combinations; the requirement to test at 115V with A4 size paper is needlessly redundant. Manufacturers should be allowed to choose the paper size when testing at this voltage.

> EPA Response: Because Section 4.C provides reporting and qualification requirements for models capable of operating at multiple voltage/frequency combinations, which are not addressed in the ENERGY STAR Test Conditions, EPA continues to support including this language in the specification. EPA is working closely with EPA's counterparts in Taiwan to confirm whether they are agreeable to specify a single paper size and weight for the 115Z/60Hz combination in preparation for Draft 2.

Comment: The Accuracy subsection in the Test Conditions document needs to be updated, since the current language seems to imply that a 5% tolerance is acceptable, but where EPA is asking for a 2% tolerance in the OM test procedure for some power modes. Also the language is confusing as to whether it applies to the combined accuracy measurement or to each individual measurement (e.g., Ready, Sleep). This stakeholder suggests the following replacement language to clarify:

- "Measurements made with these procedures shall have an overall combined accuracy of 5% or better, unless specified otherwise in individual test procedure documents. Manufacturers will usually achieve better than this."

> EPA Response: As part of its consideration of the TEC test data submitted by stakeholders in preparation for Draft 2, EPA intends to revisit and confirm the appropriateness of the accuracy specification as outlined in the Test Conditions and in the test procedures.

Comment: EPA should replace the text "results fall within X% of" with the following: "results are between 0.9 times and 1.0 times."

Comment: EPA should not create mandatory guidelines or requirements for testing unit-to-unit accuracy. Rules on unit selection or sampling should be left up to the manufacturer.

Comment: Performing the TEC test multiple times to confirm unit-to-unit accuracy is costly and time-burdensome. EPA should verify that confirming unit-to-unit accuracy is necessary before setting a requirement.

> EPA Response: As explained in the October 14th Imaging Equipment stakeholder meeting, EPA considers some method of verifying unit-to-unit accuracy as important to helping prevent potential disputes regarding product qualification. EPA supports language that is consistent with other office equipment specifications, and therefore supports providing a range in percentage format, per the proposal in Draft 1. As suggested in the stakeholder meeting, EPA plans to propose a 10% range in the Draft 2 specification. If one unit falls within 10% of the criteria, a second unit of that same model will need to be tested.

Comment: All products should comply with the Eligibility Requirements independent of how power is supplied to the device. A new header should be created within the Test Procedures section called "Products drawing power from non-main sources," and should include the following text:

- "If a product's electrical power comes from Mains, USB, IEEE1394, Power-over-Ethernet, telephone system, or any other means or any combination of means, the net electrical power consumed by the product must be used for qualification. Note that conversion efficiencies for power conversion outside the boundaries of the product are not included."

> EPA Response: EPA intends to hold all types of eligible imaging products to the ENERGY STAR Eligibility Requirements independent of how power is supplied to the device. The definitions for each product type were amended in the Terminology and Definitions distributed to stakeholders on October 28th to account for products powered by USB or other data or network connections. EPA does not intend to specify conversion efficiencies for imaging products, beyond requiring that external power adapters meet the ENERGY STAR specification for these products.

Effective Date

Remanufacturing and Grandfathering

Comment: EPA should not eliminate grandfathering, and does not seem to have a compelling reason for doing so.

> EPA Response: As part of the Partnership Agreement, grandfathering has been eliminated for a variety of reasons, among them the reduction of consumer confusion and greater differentiation of the marketplace so that only the most energy efficient models earn the ENERGY STAR. EPA does not intend to revisit the decision to end grandfathering at this time.

Comment: Remanufacturing should not receive special allowances. If EPA is to eliminate grandfathering, it should do so in a fair and consistent manner and require all products in a group or category meet the same ENERGY STAR specifications.

Comment: A special allowance should be made for remanufacturing of high-speed and high-volume machines, which have a higher required reliability and stay with the consumer for longer than other products. Additionally, the long development times (e.g., 3-5 years) require a large investment, and major changes are not feasible for such a product. EPA should consider a delay in the effective date for these products of three to five years beginning from the date the Version 1.0 specification is finalized.

> EPA Response: EPA is working closely with industry to discuss the advantages and disadvantages of providing a special allowance for remanufactured machines, including the option of providing a delayed specification effective-date for these products. EPA will provide additional details and rationale in follow-up to ongoing discussions in the Draft 2 specification.

Future Specification Revisions

Comment: The efforts EPA plans to undertake to monitor recovery time, as described on line 688, are not enough to prevent users from setting excessively long default-delay times on products, thus in effect disabling power management. To prevent this effective disabling, EPA should include language in the TEC test procedure to require that the Job interval only allow products to enter power states from which the product can recover within 10 seconds.

> EPA Response: EPA does not intend to revise the language in the TEC test procedure to require specific recovery times since this revision could have the negative effect of invalidating the TEC test data that has already been submitted to EPA as well as promoting proprietary technologies that make such recovery times possible. As noted in the final TEC test procedure, EPA expects manufacturers to test their products to the TEC test procedure as these products are shipped and recommended for use. To support that products are being tested as shipped and recommended, Section 4.B in the Draft 1 specification stated that partners must submit to EPA excerpts from product literature that explains these recommended default-delay settings to consumers. Additionally, EPA reinstated the measurements for incremental recovery time in the final TEC test procedure to monitor these values. EPA will consider additional measures, such as possible consumer-education requirements, in future specification revisions if the aforementioned measures are insufficient to prevent consumer disabling due to unusually long recovery times.