ENERGY STAR® Imaging Equipment
Draft 1 (Version 1.0) Specification
Summary of Stakeholder Comments and/or Concerns

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), organized by specification topic. These comments have been summarized and aggregated without reference to the specific individuals or organizations that provided them. In cases where stakeholders submitted supplemental materials to further support their comments, EPA has attempted to describe the general content of these materials as much as possible.

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 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.

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.

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.

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.

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

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.

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.

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.

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

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

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."

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).

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.

Operational Modes and Activities

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.

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: 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.

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

Comment: EPA should delete the definition for Hard Off, since this term is 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: 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."

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."

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

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.

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.

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

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.

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.

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.

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.

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

Comment: The definition for Standby used in Draft 1 should be consistent with FEMP, which is below:

- Standby power – refers to the electricity used by electrical products when they are switched off or not performing their primary functions.

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.

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).

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

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."

Additional Terms

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

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 should only appear once.

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.

Qualifying Products

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

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.

Energy-Efficiency Specifications for Qualifying Products

General

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

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

Digital Front-ends (DFEs)

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.

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 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.

Duplexing Requirements

Comment: EPA should incorporate the following requirement within a new section on duplexing:

- Duplex Requirement: 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.

External Power Adapters

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.

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

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.

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

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.

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

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.

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.

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

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

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

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.

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.

Functional Adder Approach

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

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.

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.

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

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.

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).

Test Procedures

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

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: 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.

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.

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

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."

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: 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."

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.

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.

Effective Date

Remanufacturing and Grandfathering

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

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.

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.