



## Information Technology Industry Council

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### Information Technology Industry Council (ITI) Comments on ENERGY STAR Eligibility Criteria and Test Methods for Imaging Equipment Draft V1.2

October 15, 2010

ITI is supportive of EPA's need to modify the partnership commitments because of the new qualification and verification testing requirements and appreciates EPA's willingness to extend the deadline for providing comments on the eligibility criteria and test methods to October 15, 2010. However, the proposed changes to the general eligibility and testing rules for Imaging Equipment (IE) present difficulties. The proposed changes to definition, rules, and testing requirement and the proposed testing, such as those related to Digital Front-ends (DFEs), are substantial, have left stakeholders with little time to properly consider and evaluate the changes, and are more appropriate for a formal update of the imaging rules. ITI does not think any fundamental changes in test procedures, limits, or other vital criteria are warranted at this time and requests that the exact V1.1 eligibility and testing rules be retained until the next formal revision.

We request that EPA include a note in the new rules that clearly states the EPA does not intend limit the scope of products or change the basic interpretation and use of the eligibility and testing requirements as defined in V1.1. If V1.2 interpretation questions arise, EPA will use the actual practices of V1.1 to judge the outcome for V1.2.

ITI is also concerned that the outside parties, like certification bodies (CBs) and accreditation bodies (ABs), are required to make judgments based on the language included in the Eligibility Criteria and Test Method. Therefore, ENERGY STAR should be very careful with the wording used as the ABs and CBs do not have the practical and historical understanding of the ENERGY STAR Imaging Equipment Program.

As a result, ITI strongly recommends an additional round of reviews for changes made by ENERGY STAR to the specifications.

#### **COMMENTS ON ELIGIBILITY CRITERIA**

Based on the dramatic changes proposed by the EPA for the ENERGY STAR Imaging Equipment Draft V1.2 eligibility criteria, ITI offers the following line by line comments and proposed edits to the language.

Line 12 – Copier and Digital Duplicator need to have clear differentiating definitions

Line 20 – What is the difference between MFD (line 20) and “distributed MFD” (line223)? We recommend that you either combine the definitions or remove the distributed MFD definition.

Line 34 – Recommend simplifying the definition of EP and add definitions for Color and Monochrome products. The Color EP statement is confusing and unclear.

Electro-photographic (EP): A marking technology characterized by the illumination of a photoconductor in a pattern representing the desired hard copy image via a light source, development of the image with particles of toner using the latent image on the photoconductor to define the presence or absence of toner at a given location, transfer of the toner to the final print media, and fusing to cause the hard copy to become durable. ~~For purposes of this specification, Color EP products simultaneously offer three or more unique toner, while Monochrome EP products simultaneously offer one or two unique toner colors.~~ This definition includes Laser, Light Emitting Diode (LED), and Liquid Crystal Display (LCD) illumination technologies.

**Color Product**: A Product whose Marking Technology offers 2 or more unique colorants when generating hard copy output.

**Monochrome Product**: A Product whose Marking Technology offers only 1 unique colorant when generating hard copy output.

Line 79 – Sleep Mode needs to be updated to clarify what is active and what is not active when in sleep mode.

Sleep Mode: A reduced power state that a product enters either automatically after a period of inactivity (i.e., Default Delay Time), in response to user manual action (e.g., at a user-set time of day, in response to a user activation of a physical switch or button), or in response to external electrical stimulus (e.g., network stimulus, fax call, remote control). For Products evaluated under the Typical Electricity Consumption, Sleep Mode permits operation of all product features (including maintenance of network connectivity), albeit with a possible delay to transition into Active State. For Products evaluated under the Operational Mode, Sleep Mode permits operation of all product features considered Primary Function adders, albeit with a possible delay to transition into Active State. Monochrome print speed (s) is used but not defined and is not adequately defined in the Testing Method document. This needs to be defined as the highest claimed marketing speed of the product in either A4 or Letter Speed.

Line 102 – V1.2 now moves Continuous form to a product size rather than a product feature. This size is NOT assigned criteria in Table 1, indicating that Continuous Form products have no criteria. We recommend that continuous form be returned to a feature rather than a product size.

Line 115-136 – DFE Definitions were the subject of great debate in 2006. These definitions should not be changed and must be kept word for word in order to keep continuity with the earlier standards.

Line 131 – Item 4 should be changed to: “Machine management (e.g., waking the imaging equipment from a reduced power state).”

Line 137 – EPA should reference the DOE Class A EPS’s instead of creating your own definition. . The V1.0 and V1.1 criteria limit EPS criteria only to DOE Class A units. As written, V1.2 does not limit the scope to Class A, which is not acceptable.

Line 124 – Change the DFE language to: ...”Type 2 DFEs can be physically removed, isolated, or disabled using common engineering practices to allow power measurements to be made.”

Line 142 – Change definition of Network Connection from “two” to “one” external device. The connection between a printer and one PC would be a typical, reasonable and minimum one. Therefore, we consider that "network connection" should be defined as a connection between the imaging product and one or more external powered devices.

Line 149 – Change Term in Secondary Adder from “disabled” to “can be inactive”. Disabled would REQUIRE that the product actively disable secondary functional adders. The original language allowed the secondary adders to go inactive or stay active.

Line 170 - It is important the Product Family definition remain flexible so as to not inadvertently restrict its scope from current usage. To do this, the EPA should provide a general definition that is accurate, but allows options for product manufacturers with existing features (such as paper trays and output devices) as well as potential new features to not be excluded. The proposed language “(1) have no impact on product performance with regard to ENERGY STAR qualification criteria” must be removed. The current practice (V1.0) of using the highest featured/powered unit for testing clearly indicates other models in the family would have different performance characteristics (lower power use). ITI asks the EPA to retain the practice of allowing the highest featured/power consuming model to be used for testing as a surrogate for the entire product family. ITI recommends the following language for Product Family:

Product Family: As defined by the product manufacturer, a group of product models that:

1. Are made by the same manufacturer; and
2. Subject to the same ENERGY STAR qualification criteria, and
3. Of a common basic design.

Product models within a family typically differ from each other according to one or more characteristics or features that either

1. Have little impact on product performance; or
2. Are specified herein as acceptable variations within a product family. For Imaging Equipment, acceptable variations include:
  - a. Color; or
  - b. Housing; or
  - c. Any of the functional adders specified in Table 9; or
  - d. Different input/output devices.

Line 189 – Table 1 should extend to cover all potential product categories and sizes. For instance small format copiers appear to not be covered. Limiting this table will limit the

scope of ENERGY STAR to future product types. In addition, continuous form is now a product type, but is not included in this table.

Line 200 – Significant digits and rounding - The nearest significant digit for TEC should be defined. The "corresponding specification limit" is shown as a numerical formula for TEC, therefore the nearest significant digit for TEC is vague.

Line 207 – External Power Supply Definition needs to be clarified to align with DOE Class A EPS. As such, the testing protocols in Line 230 should also align with DOE Class Test procedures.

Line 227 – Section 3.2.5 – We recommend that EPA insert the following language, taken from pages 10-11 in V1.1:

“Products Designated to Operate with a Type 1 DFE: To qualify as ENERGY STAR under Imaging Equipment Version 1.2 specification, an imaging equipment product manufactured on or after [the effective date of version 1.2] that is sold with a Type 1 DFE must use a DFE that meets the ENERGY STAR Imaging Equipment Digital Front End Power Supply Efficiency Requirements listed in this section.

Products Designated to Operate with a Type 2 DFE: For an imaging equipment product, sold with a Type 2 DFE, manufactured on or after [the effective date of version 1.2] to qualify as ENERGY STAR under the Imaging Equipment Version 1.2 specification, manufacturers should subtract the DFE's energy consumption in Ready mode for TEC products or exclude when measuring Sleep and Standby for OM products. Section 3.3 provides further detail on adjusting TEC values for DFEs for TEC products and Section 3.4 provides further detail for excluding DFEs from OM Sleep and Standby levels. It is EPA's intent that, whenever possible, the power associated with the DFE (Type 1 or Type 2) should be excluded or subtracted from the TEC energy and OM power measurements.”

Line 306 – Table 5 is incomplete. Please complete the table to align with V1.1.

Line 319 –the monochrome product speed needs to be defined in the Eligibility criteria and it needs to be consistent with V1.1. The Monochrome print speed is a product claim, not a measurement. This is a critical definition to maintain. If the monochrome print speed was to be measured, then a specific test procedure would need to be developed to measure this value.

Line 352 – The DFE Allowance appears to be new. ITI does not support additional requirements or changes to the specification during this revision.

Line 367 – The Bluetooth/802.11 connection point given is a computer. For 802.11, the common connection point is a Wireless Access Point, not a computer. Also, the wired data connection lists “computer or other powered non-camera device.” This should also include

network connection or data connections. The entire table should be consistent with earlier definitions.

Line 380 – Recommend remove reference to IEC 62301. The ENERGY STAR Test Method references the other IEC 62301, so this is already included.

Line 382 – ITI is confused about the changes to the units required for testing

- Any family model is accepted rather than the highest power consuming model
- The reduction in units required for additional margin testing is helpful, but inconsistent with V1.1

Line 410 – the effective must be in the future and not overlap V1.1

### **COMMENTS ON THE TEST METHOD SECTION**

Line 7 – Table 1 should be referenced rather than explicitly copied. Copying Table 1 in both documents will lead to errors. Line 13 – IEC 62301 is sufficient and appropriate for measuring standby power or sleep power of products. It is inappropriate for measurements under the Typical Electricity Consumption Test. Recommend returning language to V1.1 where only sections 3.2 and 3.3 are referenced.

Line 21 – Table 2:

AC Power from China shall be removed as China is not an ENERGY STAR partner. Frequency for Japan shall be “50 Hz or 60 Hz”. The current language (50Hz and 60 Hz) would required the testing at both 100V / 50 Hz AND 100V / 60 Hz to qualify for Japan.

Line 28 – UUT is not defined, nor is it found in IEC 62301

Line 35 – The current waveform for Imaging Equipment can vary substantially in On Modes.

Line 44 – Section 5 is only appropriate for OM products and should be moved or referenced as such. TEC measurements are ALL watt-hour measurements, not power.

Line 55 – Time measurements for OM products are typically automated and the default time to sleep is usually not recorded to the second. Request that this value be recorded +/- 30 seconds by a device with a resolution of at least 1 second. The time measurement definition is also insufficient for time measurements in the TEC test. This test should require at least 0.1 second resolution.

Line 57 – Depending on where continuous products are evaluated (OM vs. TEC), continuous form products may be required to align with a cut sheet paper size.

Line 75 and 77 – the definition does not fit the term. The term is not defined, but details are given about the term. Recommend moving this line under the next section. Also, the product speed is NOT measured in V1.0 or V1.1; it is recorded as a manufacturer claim.

Deviating from using the manufacturers claim is a major change to the Imaging Specification. We recommend that the following section be rewritten as follows.

~~A) Product Speed for Testing: The product shall be tested with speed settings in their default as-shipped 76 configuration.~~

AB) Product Speed for Calculations and Reporting: The product speed, AS DECLARED BY THE MANUFACTUTER in images-per-minute (ipm) and rounded to the nearest integer, shall be the highest speed calculated per the following criteria for all calculations performed in this test method:

1) For all products, the product speed is the larger of either A4 or Letter Images per minute based on ~~shall be equal to:~~

- i) The print speed, unless the product cannot print, in which case,
- ii) The copy speed, unless the product cannot print or copy, in which case,
- iii) The scan speed.

2) For standard, small, and large format products, with the exception of mailing machines, the product speed shall be calculated per Table 4.

{Table 4 not included}

3) For continuous-form products, product speed shall be calculated per Equation 1

**Equation 1: Calculation of Product Speed**  $s = 16ws_L$

*Where:*

- *s is the product speed, in images per minute (ipm),*
- *w is the width of the media, in meters (m),*
- *sL is the maximum claimed monochrome simplex speed, in length-meters-per-minute.*

4) For Mailing Machines, product speed shall be reported in units of mail-pieces-per-minute (mppm).

5) The product shall be tested with speed settings in their default as-shipped configuration.

Line 104 – For TEC, fax is not required to be connected, but for OM, fax is required to be connected?

Line 113 – This line refers to copy jobs, not print jobs. Recommend creating a “Copy Jobs” section or rename the section “generating copy and print jobs” and differentiate between the two.

Line 120 – again UUT needs to be defined. Recommend: Unit Under Test (UUT) – The specific sample used in measurement, which includes the installation of the entire base product model plus all accessories included with the product model ordered.

Line 122 – Replace “Operating Manual” with “Manufacturer’s Instructions or documentation”

Line 141 – Equation 2 needs to be rounded down to the nearest integer. Please also consider reinserting Table 4 from the original TEC test procedure.

Line 153-158 – should be moved to a “copy job” section as this instruction aligns with line 113.

Line 159 – The copy job structure should be standardized due to the increased post market verification by 3<sup>rd</sup> parties. As described in the example, for a 50 ipm unit that requires 39 images per job, the results would be different between when the test is performed with four copies of 10 original and when it is done with three copies of 13 originals. Such alternatives which may affect on the result would not be appropriate.

Line 163 – The measurement is not of TEC per se, but of the necessary energy values to calculate TEC according to the formula in the Eligibility Criteria. Recommend changing title. ITI is curious as to why the EPA moved the formulae to the eligibility criteria.

Line 161 – should be moved to section 6.2

Recommend moving line 166 and 168 to section 7

Line 168 – Recommend rewording “Paper: There shall BE sufficient paper in the device TO PERFORM THE REQUIRED PRINT OR COPY JOBS”

Line 169 – Service / Maintenance Modes

In the Test Method document, maintenance and calibration modes are not supposed to be included in the measurement of either Sleep or TEC (Test Methods line 169&199). However, the test procedure currently does not allow the test operator to disable maintenance and calibration modes. Instead it requires that the test operator monitor the test progress and monitor the presence of those modes. If calibration and maintenance modes are noticed, then the test may be modified to not include those modes (line 172). It seems that an easier method would be to disable the maintenance and calibration modes prior to performing the tests. Test method language could be modified as follows:

Existing TEC Language with modified language in CAPITAL LETTERS

3) Service/Maintenance Modes: Service/maintenance modes (including color calibration) should generally not be included in TEC measurements AND MAY BE DISABLED PRIOR TO PERFORMING MEASUREMENTS IF SUCH A CAPABILITY EXISTS. IF SERVICE OR MAINTENANCE MODES ARE DISABLED PRIOR TO MEASUREMENTS THEN THIS FACT SHALL BE DECLARED IN THE TEST REPORT.

- i) Any service/maintenance modes that occur during the test shall be noted.
- ii) If a service/maintenance mode occurs during a job other than the first job, the results from the job with the service/maintenance mode may be replaced with results from a substitute job. In this case, the substitute job shall be inserted into the test procedure immediately following Job 4. The 15-minute job interval shall be maintained at all times.

Existing OM Language with modified language in CAPITAL LETTERS

2) Service/Maintenance Modes: Service/maintenance modes (including color calibration) generally should not be included in measurements. Any adaptation of the procedure OR

PRE-TEST UUT INITIALIZATION needed to exclude such modes that occur during the test shall be noted.

Line 180 – The proposal is acceptable.

Line 186 – For all active time measurements, this is not defined. Recommend the following definition:

Active time – the from the sending of a print job or the starting of a copy job to the first sheet of the print or copy job exiting the UUT

Line 190 – References should be collected and listed in 1 section at the beginning or end of the test method document.

Line 197 – While this is different than TEC values, the instructions really belong in Section 7.

Line 199 – See comments on Line 169.

Line 202 – Table 8

Asterisk next to Ready mode, but the footnote does not include the asterisk. Recommend using numerical footnotes.

V1.2 cut out the instructions how to measure the default delay times. Please reinsert instructions that this time is from the completion of the print, copy or scan job until the product enters the sleep or Auto-Off mode.

Line 215 – Section 8 should be removed and brought forward as a proposal for the next specification revision.