



**August 23, 2018**

**To:** " Ryan Fogle, EPA Manager, ENERGY STAR for IT and Data Center Products;  
Matt Malinowski, ICF International

**Re: ITI Comments on ENERGY STAR Imaging Equipment Version 3.0 Draft 2**

Thank you for the opportunity to comment on the ENERGY STAR® Imaging Equipment Version 3.0 Draft 2 Specification. Please see the attached PowerPoint summary for an outline of our comments on the following topics:

- Wi-Fi adder for TEC products
- A3 adder for TEC products
- Re-testing concerns
- USB clause in the Test Procedure
- Recovery time; and
- Verification testing

We would be pleased to discuss any aspect in greater detail.

Sincerely,

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## Wi-Fi Adder for TEC Products -

**Issue Statement:** Historically discussion of wi-fi and wi-fi adders - has only considered wi-fi stations (radio). Today wireless - technology includes a broader range of capabilities including wi-fi access points (continuous beaconing) and Bluetooth - (continuous beaconing) in addition to wi-fi stations. It is now - common for these capabilities to be present in one component, which represents additive energy in Sleep mode. -

Note again, the recent revision of Blue Angel allows for an extra 1W for Sleep with wi-fi. -

**Recommendation:** Include a wi-fi adder for TEC products - equivalent to 1W. -

## A3 Adder for TEC Products %

**Issue Statement:** In addition to EPA statistical analysis, it may be useful to consider the real-life energy consumption differences between A4 and A3 fusers. See following slides.

**Recommendation:** Consider actual energy consumption when determining an appropriate A3 adder.

# A3 vs A4 TEC Adder Study #

## A4 fuser study

- 110 Joules/page load until fuser stable
- Comparison A3 fuser - > **4X more metal**
- 440 Joules/page A3 parasitic load for TEC test
- A3 adder = 440J/pg – 110J/pg = 330J/pg

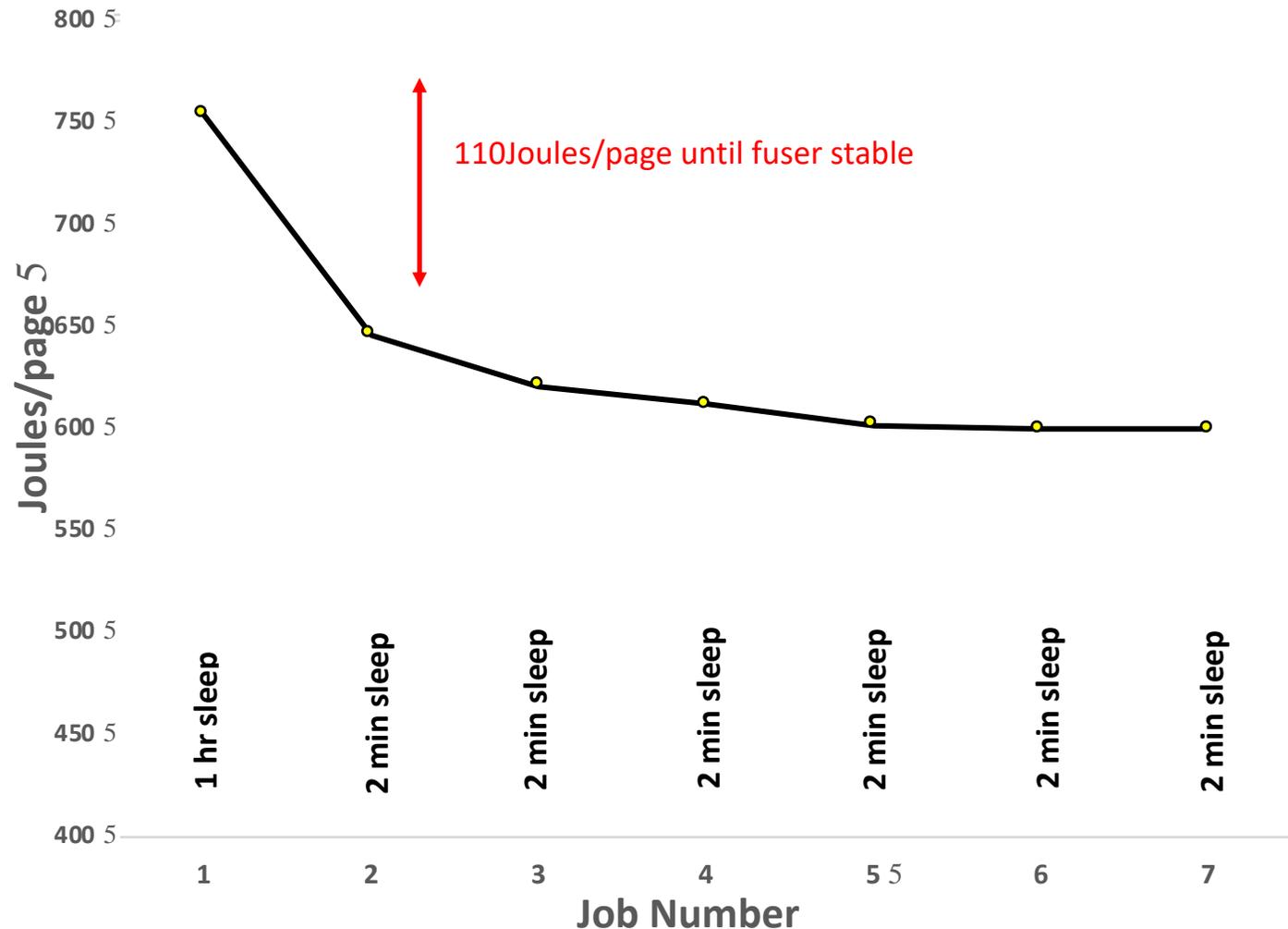
Compute Job energy adder for a 45ppm A3 printer #  
 $330\text{J/pg} * 31\text{pg/job} / 3600\text{J/Wh} = 2.84\text{Wh/Job} \#$

Apply ES3.0 weekly TEC computation:

$2.84\text{Wh/Job} * 5\text{days/week} * 32\text{Jobs/day} / 4 = \#$   
**113Wh/week**

Factoring in increased motor torque on fuser, paper path and photoconductive drum we believe an A3 adder equivalent to **125Wh/week** is realistic

Energy/Page vs. 100 page jobs



# Support Information #

To maintain uniform fuser pressure from end to center to end the A3 Fuser heater support has > 4x metal of A4 fuser to maintain required “stiffness” against bending

Length: 370mm vs 265mm	1.4X multiplier #
Thickness: 2mm vs 1mm	2.0X multiplier #
‘U’ shape Pattern 40mm vs 28mm:	1.4X multiplier #

Overall metal multiplier: 4X

Fuser pressure roller has similar metal increase to maintain required stiffness across fuser nip.

# Limit Re-testing \*

**Issue Statement:** Revision of the ENERGY STAR spec/test method for imaging equipment has resulted in significant re-testing in the past. Industry is interested in limiting re-testing (for v3.0 certification) when it is not necessary.

**Recommendation:** Consider explicit direction to labs/CBs outlining how v2.0 test results can be recalculated to demonstrate conformance to v3.0 requirements, when applicable. (Similar to how EPA converted v2.0 test results for the v3.0 TEC analysis).

# Test Procedure -USB Clause &

**Issue Statement:** The clause in section 5.1.D, number 1.b, "The UUT shall be connected using a port with the full specifications recommended for the UUT", is unclear.

**Recommendation:** Clarification is needed. The example given is for USB. Is the requirement focused on USB, or are other ports intended as well?

## Recovery Time +

**Problem Statement:** Industry appreciates the intent to harmonize recovery time requirements with Blue Angel, but questions if this has been accomplished. Also, industry is concerned the test method may not be precise enough to ensure repeatable testing. This is a particular concern for annual verification testing conducted by CBs.

**Recommendation:** Consider accepting BA recovery time test results. Address verification test concerns with CBs.

# Verification Testing '

**Problem Statement:** With the addition of limits for recovery time and the substantial lowering of limits for TEC, it is reasonable to assume that those products maintaining Energy Star compliance and those that will achieve it in the future are likely to yield results much closer to the limits than is the case today. It is likely that typical variation that is not an indication of an actual problem could trigger the disqualification process as it is employed today.

**Recommendation:** With this decreased margin between measured values and limits, more consideration should be given to standard variability in testing, due to normal unit to unit variability and also test method and equipment variability. Identifying a reasonable “buffer” margin for verification testing to be considered acceptable will likely save a substantial amount of work for partners, CB’s, and the EPA.