

## **Summary of Changes**

### ENERGY STAR<sup>®</sup> for Imaging Equipment Draft 2 – Version 1.0 Specification *December 21, 2005*

Since early in 2003, EPA has been working with industry stakeholders to develop a new ENERGY STAR specification for imaging equipment that addresses energy and power consumption for four previously-separate product categories:

- copiers;
- multifunction devices (MFDs);
- printers, fax machines, and mailing machines; and
- scanners.

Draft 2 embodies many of industry's comments on the Partner Commitments and product categorization proposed in Draft 1. This draft also incorporates energy-efficiency specifications for products addressed by the Typical Electricity Consumption (TEC) approach and a proposed framework for the Operational Mode (OM) "functional adder" approach. The former were developed based on TEC test data collected by manufacturers beginning in July 2005 over a period of more than four months.

While notes and clarifications are found throughout the draft, this summary is intended to aid stakeholders in their review by outlining the major changes made to format and performance requirements. For additional documentation of comments received and responses, please visit the Imaging Equipment section of the ENERGY STAR Product Development Web site at [www.energystar.gov/productdevelopment](http://www.energystar.gov/productdevelopment). Further rationale for revisions and data used to develop the proposed levels included in the draft specification will be posted in the near future.

The changes and clarifications described below are reflected in Draft 2 and are presented with their corresponding section numbers for easy reference.

### **Partner Commitments**

A forthcoming partner document, Web-Based Tools for Partners, has been referenced as a resource for specific information on requirements for using the ENERGY STAR mark on Internet sites. Detailed information on labeling requirements can be found in the Draft 2 specification beginning at line # 36.

Product updates are now required, at a minimum, on an annual basis rather than a quarterly basis.

### **1) Definitions**

Line edits, designed to clarify terms while not substantively changing meaning, have been made to the following definitions in Section 1:

#### A. Copier – G. Scanner

These seven product definitions have been clarified to include units capable of being powered from a data or network connection.

#### J. Electrophotography (EP)

The definition for this marking technology has been clarified where it refers to the distinguishing characteristic of color EP. The description of number of toners available has been revised from two to three.

#### M. Solid Ink (SI)

This definition has been revised to specify the methods by which the ink may be transferred to the print media.

#### N. Stencil

This definition has been newly added to the specification in Draft 2, and describes the type of marking technology used by digital duplicators.

#### P. Active

The second sentence of this definition, which specified that Active consumes more power than other modes, was removed.

#### Q. Automatic Duplexing

This term was renamed “duplexing” rather than “duplex mode” to prevent confusion between the product’s capability and operational modes the product may enter.

#### S. Disconnect

The term “ac mains” was replaced with “power source” in this definition to cover products that may be powered by a data or network connection.

#### Hard Off

The definition included for Hard Off in Draft 1 was removed from Draft 2 since this term is not referenced in any part of the specification.

#### T. Off

Additional clarification was added to this definition to cover both methods of entering this mode: manually and automatically.

#### V. Sleep

This definition was clarified to include two additional ways by which the imaging product may enter this mode.

#### Y. Large Format

Additional clarification was added to this definition to address Large Format machines that are capable of printing on Standard-size or Small-format media.

#### AA. Standard

Additional clarification was added to this definition to address Standard-size machines that may be capable of printing on Small-format media. Additionally, B4 was added as a specific type of Standard-size media.

#### CC. Base Product

This definition was added to Draft 2 to define the model configuration that a manufacturer should test and report to ENERGY STAR.

#### Duplex Speed

The definition for Duplex Speed included in Draft 1 was removed from Draft 2 since this term is not used in the specification.

#### DD. Digital Front-end (DFE)

This definition was revised to clarify that a DFE is not necessarily externally-powered and may draw power from the imaging equipment product with which it operates.

#### EE. Functional Adder

This definition was incorporated to explain features/functionality beyond a standard marking engine, which are given additional power allowances under the OM portion of the specification.

#### GG. Marking Engine

This definition was added to Draft 2 to define a product model prior to the consideration of any functional adders, and which constitutes the eligibility-criteria foundation that a model must meet prior to affixing functional-adder allowances under the OM approach.

#### Print Controller

The definition for Print Controller included in Draft 1 was removed from Draft 2 since this term is not used in the specification.

#### II. Product Speed

The following two changes were applied to the definition for Product Speed: 1) A conversion method for obtaining product speed in images per minute (ipm) for Continuous Form products has been added; and 2) Clarification regarding prioritization of functions and rounding product speed figures was added.

### **2) Qualifying Products**

The following marking technologies were added for fax machines to address possible future development in this product area: Solid Ink and Parallel Color EP.

The various TEC and OM criteria-table references in Qualifying Products Tables 1 and 2 have been updated to reflect consolidation of tables in these two sections of the specification. Details regarding the consolidation are included in Section 4 of this summary.

### **3) Energy-Efficiency Specifications for Qualifying Products**

The criteria addressing imaging equipment with external power adapters, DFEs, and/or cordless telephony components have been updated to require that these product accessories must be either ENERGY STAR qualified models or meet the relevant ENERGY STAR specifications when tested to the appropriate ENERGY STAR test method.

Duplexing requirements have been added to the specification in Draft 2, specifying that Standard-size EP products of certain speeds must have duplexing capability either as an optional accessory or as a standard capability offered at the time of shipment.

#### A. ENERGY STAR Eligibility Criteria – TEC

The eleven separate TEC product specification tables provided in Draft 1 have been condensed into four specification tables in Draft 2, addressing the following Standard-size product categories:

- a.) Monochrome Copiers, Digital Duplicators, Fax Machines, and MFDs;
- b.) Color Copiers, Digital Duplicators, Fax Machines, and MFDs;
- c.) Monochrome Printers; and
- d.) Color Printers.

The test data that EPA considered in preparing Draft 2 did not support separate energy-efficiency criteria for copiers, MFDs, or printers based on their specific color technology (Parallel Color EP, color Thermal Transfer, Solid Ink, or Color Dye Sublimation).

- a.) The data for Serial and Parallel EP products did not show a correlation between the products' TEC and the type of EP technology employed by the product; therefore these two types of color processes were consolidated.
- b.) Little to no data was submitted (or clearly identified) for color Thermal Transfer, Solid Ink, or Color Dye Sublimation, thus, EPA was unable to support a separate specification line to differentiate these products from color EP products.

Fax machines, copiers, and MFDs, which had been categorized in separate tables in Draft 1, were combined in Draft 2. Similar test data among copiers and MFDs and a lack of fax machine data supported this combination.

EPA has also clarified that partners manufacturing products using a functionally-integrated DFE will be allowed to subtract the DFE's Ready-mode energy consumption from the product's total TEC number.

#### B. ENERGY STAR Eligibility Criteria – OM

Clarification is provided in Section B. that allows for products to meet the applicable OM energy-efficiency criteria for Sleep or Standby in Ready mode.

The functional-adder approach has been further expanded in Draft 2 since its initial proposal in Draft 1. Distinct functional-adder elements that have been added to this Draft include the following:

- a.) Explanation regarding how the functional-adder approach is applied to product models for ENERGY STAR qualification;
- b.) An example illustrating how the functional-adder approach is applied; and
- c.) A table providing twelve types of functional-adders and the corresponding power allowances.

The nine OM energy-efficiency specification criteria tables provided in Draft 1 have been condensed into seven tables in Draft 2. The previously-separate tables for Continuous Form, Large Format, and Small Format printers that use high-heat marking technologies now reside in Table 5.

Standby power requirements for Mailing Machines have been waived in Draft 2.

#### **4) Test Procedures**

In Section 4.A., specific unit-to-unit accuracy details have been provided for products addressed both by the TEC and the OM approaches. These details were first proposed by EPA at the October 14, 2005 stakeholder meeting but were newly added to the specification in Draft 2.

#### **6) Effective Date**

In this draft, EPA is proposing a two-tiered specification. Tier 1 becomes effective for digital duplicators on March 1, 2006, and on March 1, 2007 for all other products. Tier II becomes effective on March 1, 2009, and applies only to products addressed by the TEC approach with speeds greater than 55 ipm. A more lenient Tier 1 is provided to address higher-speed products, where the practice of remanufacturing is common, to reduce possible disincentives associated with the ENERGY STAR program to this government-supported, environmentally-beneficial practice.