Industry Proposal

ENERGY STAR® Eligibility Criteria for Imaging Technology Products

March 2003

This document contains the ENERGY STAR specifications for Imaging Technology products. A product must meet all of the relevant criteria contained herein to be considered "ENERGY STAR-qualified."

I. Definitions:

The following definitions clarify the elements of applicability, timing and scope of these criteria.

A. Standard Model: Power Consumption of a given Manufacturer's product is measured in the configuration(s) sold as Standard Models. Standard Models are distinguished by the ability of the purchaser to specify the configuration by a single Manufacturer part or model designation. Accessories that can be added to the product's configuration optionally are not included in the power measurement. Standard Models that differ in characteristics that do not effect power consumption (Color, bundled software and the like) may be included in the Manufacturer's submission without unique testing. If the product is not a single integrated unit but rather a set of functionally integrated components, then the manufacturer must indicate that, when installed correctly in the field, the sum of all power use for all components comprising the Standard Model will achieve the power levels listed below and thereby qualify for the ENERGY STAR program.

B. Date of Announce: A given Manufacturer's Product is subject to these criteria based upon its Date of Announce. This time is the earliest open public disclosure of the product. Private disclosure of the product under non-disclosure agreement to suppliers, analysts, the press, potential customers and the like do not constitute open public disclosure. It is agreed that the pressures of the competitive marketplace will assure that the general availability of a product will be within a period of time after its Date of Announce appropriate to the specific product's customers.

C. Mains Powered: These criteria refer only to products that draw power from "Mains". Battery powered products that include mains-powered recharging capability are covered by this criteria. Products purely powered by batteries or other self-contained power sources (fuel cells, generators etc) that do not include mains-powered recharging capabilities are not covered by this criteria. Since the absolute maximum power draw from a single USB connection is 2.625 Watts, all devices that are completely powered via a single USB connection are ENERGY STAR qualified.

The following definitions cover the power saving modes for Imaging Technology Products.

D. Power Saving Modes: The following table specifies the characteristics for the four power saving modes that are defined for the purpose of these criteria.

TABLE 1: POWER SAVING MODE DEFINITIONS

Mode	**Machine Dependent Modes**			**User Dependent Mode**
Sub-Mode	**Sleep 1**	**Sleep 2**	**Automatic Off**	**Plug-in Off**
General Definition	Device is not performing (any of) its primary function(s), but is capable of doing so after a minimal delay	Device is not performing (any of) its primary function(s), but is capable of doing so after a significant delay	Device is at the lowest possible power available automatically. This mode applies only to Copiers.	Lowest possible power while connected to power "Mains"
Conditions that cause the product to enter the Power Saving Mode	Delay Time or User Action	Delay Time or User Action	Delay Time or User Action	User Action
Physical manipulation to which the product is responsive	All specified by Manufacturer	All specified by Manufacturer	All specified by Manufacturer	Limited. May be limited to a single specific manipulation
Electronic stimulus to which the product is responsive	All specified by manufacturer without unusual delay	All specified by manufacturer without unusual delay	Not Applicable	None Required
Recovery time to performing the product's function(s)	Specified as a function of products speed, size and marking technology	Not specified	Not specified	Not specified

Notes:

1. If a product is able to meet the power draw requirements for a given Power Saving Mode while maintaining the responsiveness to electrical stimulus and physical manipulation of a higher level Power Saving Mode, it is considered to meet the requirements of the lower power draw mode. For example, if a product is capable of meeting the power draw requirements for Plug-in Off mode while maintaining the responsiveness required by Sleep 2 mode, then the product need not implement a separate Plug-in Off mode.
2. Within these criteria, Plug-In Off Mode is considered to be the same as the "Standby Power Mode" defined by the Federal Energy Management Program standards developed in order to implement Executive Order 13221.
3. Products utilizing "Brick Technology" (typically an external power supply) are allowed an additional 1.5 Watts of Automatic Off or Plug-in Off (as applicable) power above the values included in the tables in section3 below.
4. Note that Sleep 1 mode defined in these criteria is equivalent to Low Power Mode defined in the Copier MOU Version 2 and Multifunction MOU Version 1.0. Sleep 2 mode defined in this criteria is equivalent to Sleep Mode defined in the ENERGY STAR Multifunction MOU Version 1.0.

E. Delay Time: The period of time from when the last hard copy, scan physical manipulation or electronic processing to memory/storage is completed until the product enters a Sleep or Automatic Off mode

F. Recovery Time: The period of time from when a product, being in Sleep 1 mode, recognizes an Electronic Stimulus or Physical Manipulation until it is ready to begin performing the appropriate primary function. For a product capable of color operation the recovery time must include the time required to begin performing the appropriate primary function with color support.

G. Default Delay Times: The delay time set by the Manufacturer prior to shipping that determines when the product will enter its Sleep or Automatic Off mode.

H. Clarifications concerning Sleep and Automatic Off Modes:

1. Allowance for Intervention, error recovery and maintenance: It is noted that a product may prohibit entry to the Sleep or Automatic Off modes if it requires operator intervention for error recovery, maintenance or service. Examples of these conditions are clearing a paper jam, the need to complete a phone call to a central servicer or maintaining an error condition that could be lost by entering a lower power state prior to the condition being logged or noted.
2. Temporary suspension of Sleep or Automatic Off Mode: It is noted that a product may temporally exit the Sleep or Automatic Off modes to perform periodic maintenance, management or service tasks. Examples of these tasks are rotating mechanical components so as to avoid them taking a “set” and degrading print quality, calling a central management phone number to transmit call log or cycling the product so as to prevent excess humidity build-up.
3. Adjusting Sleep or Automatic Off Delay Times: After shipping, the Manufacturer, designated service representative, or customer may change the default times for either the Sleep or Automatic Off modes, but only up to a factory-set maximum of 240 minutes (i.e., the combined total of the times shall not exceed 240 minutes.
4. Disabling Sleep or Automatic Off Mode(s): In an individual case where the Sleep or Automatic Off Modes cause a customer sizable inconvenience due to his/her particular usage patterns, the Manufacturer, designated service representative, or customer may disable the product from automatically entering these modes. If the Manufacturer chooses to design its standard models to allow the customer to disable these lower power modes, then the disable option shall be accessed in a manner different from the time settings (e.g., If a software menu provides Sleep mode delay times of 15, 30, 60, 90, 120, and 240 minutes, then “disable” or “off” shall not be a choice in this menu. It shall be a hidden (or less obvious) choice or included in a different menu.).
5. Weekly Timers: Weekly timers may be incorporated, but shall not adversely affect or interfere with the normal operation of the Sleep or Automatic Off modes. It is EPA’s intention that any added features complement the reduced power modes and not negate their effects.
6. Anti-humidity Devices: In some cases, the Manufacturer may need to ship a product with the anti-humidity device disconnected in order to meet Sleep or Automatic Off Mode power specifications. If this situation leads to sizable inconvenience for a specific customer, the Manufacturer (or the designated service representative) may connect the anti-humidity device. If a

Manufacturer determines that in a certain geographical area there are chronic reliability problems associated with high humidity levels, the Manufacturer may contact the EPA Program Manager (as named in Attachment A) and discuss alternative solutions. For example, EPA may allow a Manufacturer to connect the anti-humidity devices in multifunction device models that are shipped to a very humid geographical area.

For purposes of determining appropriate power consumptions levels, Imaging Technology Products are categorized by their function, marking technology, speed and size.

The following definitions are used to categorize the product by function.

I. Printer: A product whose sole function is the production of Hard Copy Output. A Printer is capable of receiving information from single-user or networked computers or network server via either direct connection or data network.

J. Fax Machine: A product whose primary function is to scan hard copy originals for electronic transmission, and receive similar electronic transmissions to produce hard copy output. Electronic transmission is primarily over a public telephone system, but may also be via computer network or the Internet. The product may also be capable of producing hard copy duplicates

K. Network Scanner: A product whose sole function is to scan hard copy originals for electronic transmission (files, email, etc.) over computer network or the Internet.

L. Combination Printer/Fax Machine: Products previously categorized as Combination Printer/Fax machines are now defined to be a Fax Machine for the purpose of categorization by this criteria.

M. Mailing Machine: A product that serves to print postage onto mail pieces and that is advertised and sold as a mailing machine.

N. Multifunction Device (MFD): A product providing two or more of the core Imaging Technology functions of Print, Copy, Fax and Scan.

O. Copy Machines: A product whose sole function is to produce hard copy duplicates based upon hard copy originals.

P. Scanner: An electro-optical device whose sole function is converting color or black-and-white hard copy images into digital images that can be stored, edited, converted or transmitted. A scanner is distinguished from a Network Scanner product in that a scanner product does not include the capability to electronically transmit files or e-mail over computer networks or the Internet.

The following definitions are used to perform product categorization by Marking Technology.

Q. Monochrome Electrophotography (Mono EP): A marking technology characterized by illumination of a photoconductor in a pattern representing the desired hard copy image via a light source, development of the image using 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 hard copy medium and fusing to cause the desired hard copy to become durable. Monochrome EP is distinguished from color EP in that toner with a single color is

available in a product at any one time. Products using this technology are commonly called Laser Printers, LED printers, Laser Fax Machines and Copy Machines.

R. Serial Color Electrophotography (Serial Color EP): A marking technology similar to Mono EP except that toners of at least 2 different colors are available in a given product at a one time. Serial Color EP is distinguished from Parallel Color EP in that a single light source and photoconductor are used in a serial fashion to achieve the multi-color hard copy output. Products with this marking technology are commonly called Color Laser Printers, Color LED Printers or Color Copiers.

S. Parallel Color Electrophotography (Parallel Color EP): A marking technology similar to Serial Color EP except that multiple light sources and multiple photoconductors are used to increase the maximum color printing speed. Products with this marking technology are commonly called Color Laser Printers, Color LED Printers or Color Copiers.

T. Color Thermal Transfer: A marking technology where the desired hard copy image is formed by depositing small drops of solid colorant (usually colored waxes) in a melted/fluid state directly to the print media in a matrix manner. Color Thermal Transfer is distinguished from Monochrome and Color Ink Jet in that the ink is solid at room temperature and is made fluid by heat.

U. Monochrome Thermal Transfer: A marking technology where the desired hard copy image is produced by means of changing the color of the hard copy media or by transferring material to the hard copy media based on selective localized heating. Thermal Ink Jet technology is not included in this definition.

V. Dot Formed Impact: A marking technology characterized by the formation of the desired hard copy image by transferring colorant from a “ribbon” to the media via an impact process. The image is formed in a matrix arrangement by small dots that can be addressed uniformly are selectively transferred. This technology is commonly called wire matrix, dot matrix and dot band technology.

W. Fully-formed Impact: A marking technology characterized by the formation of the desired hard copy image by transferring colorant from a “ribbon” to the media via an impact process. The image is formed by transferring fully formed shapes (characters) to the media. This technology is commonly called Wheel, Ball or type-bar printing.

X. Monochrome Ink Jet (Mono IJ): A marking technology where images are formed by depositing colorant in small drops directly to the print media in a matrix manner. Monochrome Ink Jet is distinguished from Color Ink Jet in that only one colorant is available in a product at any one time.

Y. Color Ink Jet (Color IJ): A marking technology where images are formed by depositing colorant in small drops directly to the print media in a matrix manner. Color Ink Jet is distinguished from Monochrome Ink Jet in that more than one colorant is available in a product at any one time.

Z. Dye Sublimation: A marking technology where images are formed by depositing (subliming) dye onto the print media based upon the amount of energy delivered by heating elements.

The following defines a product's category by speed.

AA. Claimed Speed (IPM): Product speed is used to categorize Imaging Technology products for appropriate power consumption. The following defines how a product's speed is determined. In the tables below this speed is termed "Images-per-Minute" (IPM). A single sheet printed/copied/scanned on one side in a minute is equal to 1 IPM. A single sheet printed/copied/scanned on both sides in a minute is equal to 2 IPM. Imaging Technology products capable of both color output and/or color image capture and monochrome output and/or image capture should use their monochrome output or image capture speed. Imaging technology Products capable of image capture and/or image output at varying speeds based upon resolution, image quality, printing modes or the like should use the maximum speed claimed in the products specifications. In the case where the methods described below result in a single product being able to use more than one speed value, the product shall use the fastest of these speeds to determine its appropriate power consumption.

1. If a product claims an output or scan speed in Pages-per-Minute, Copies-per-Minute or Images-per-Minute for letter sized (8.5x11 inch) media then the maximum claimed speed for this media size is used to determine its category.
2. If the product claims an output or scan speed in Pages-per-Minute, Copies-per-Minute or Images-per-Minute for A4 sized media but not for letter sized, the maximum claimed speed for this sized media is used to determine its category.
3. If a product only claims a speed in Pages-per-Minute, Copies-per-Minute or Images-per-Minute at a size different than letter or A4, the following calculation is made to determine its speed in letter or A4 sized equivalents.
    i. One A3 sized print/copy/scan per minute is equivalent to two letter or A4 sized print/copy/scans per minute.
    ii. One A2 sized print/copy/scan per minute is equivalent to four letter or A4 sized print/copy/scans per minute.
    iii. One A0 sized print/copy/scan per minute is equivalent to sixteen letter or A4 sized print/copy/scans per minute.
    iv. One A5 sized print/copy/scan per minute is equivalent to one-half letter or A4 sized print/copy/scans per minute.
    v. One A6 sized print/copy/scan per minute is equivalent to one-quarter letter or A4 sized print/copy/scans per minute.
4. Mailing machines are categorized by their speed, i.e., in mail-pieces-per-minute.
5. If a product does not claim a speed measured in Pages-per-Minute, Copies-per-Minute or Images-per-Minute (characters per second or lines-per-minute for example) print speed is based on the method established in ISO 10561 determine its classification.

The following definitions are used to categorize a product by its size.

BB. Maximum "smaller dimension"(MSD): This term is defined as the smaller dimension of the largest media supported by the product. This dimension is usually the width of its paper path. As an example, if a product supports a

maximum media size of Ledger (11 x 17 inches) then its MSD is 11 inches. If a continuous form printer supports 15-inch paper, then its MSD is 15 inches.

CC. Small Format: Products categorized as small format have a MSD less than 8.27 inches (210 mm).

DD. Letter/A4 Format: Products categorized as Letter/A4 format have a MSD greater-than or equal to 8.27 inches (210 mm) and less than11.69 inches (297 mm).

EE. Ledger/A3 Format: Products categorized as Ledger/A3 format have a MSD greater-than or equal to 11.69 inches (297 mm) and less than 16.54 inches (420 mm).

FF. Large Format: Products categorized as large format have a MSD greater-than or equal to 16.54 inches (420 mm).

GG. Specified Power Saving Modes: In the table below an X indicates modes that are required by this criteria for each product function.

TABLE 2: REQUIRED POWER SAVING MODES

Mode		Sleep 1	Sleep 2	Automatic Off	Plug-In Off
Function	**Printer**		X		X
	Fax Machine or Combination Printer/Fax		X		
	Copier	X		X	X
	MFD	X	X		X
	Mailing Machine		X		X
	Network Scanner		X		X
	Scanner		X		X

Note: a product may implement more modes than those indicated in the above table, but only those indicated by an 'X' are required by this criteria.

II. Qualifying Products:

Any Imaging Technology product that is marketed to the consumer as such and meets the respective product type definitions in Section 1 is eligible for ENERGY STAR qualification.

III. Energy-Efficiency Specifications for Qualifying Products:

The tables below specify the power use limits for Imaging Technology products as defined by their speed, size, function and marking technology**.**

TABLE 3: PRINTER GROUP 1

Applicable Function(s): Printer								
Applicable Size(s): Small Format, Letter/A4 Format, Ledger/A3 Format								
Applicable Marking Technologies : Mono EP, Monochrome Thermal Transfer, Mono IJ, Color IJ, Dye Sublimation								
	Sleep 1			**Sleep 2**		**Automatic Off**		**Plug-in Off**
Claimed Speed	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Recovery Time (Seconds)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**
IPM ≤10	Not applicable	Not applicable	Not applicable	≤ minimum (40, (0.6 X IPM) + 3)	≤ 5	Not applicable	Not applicable	≤ 1
10 < IPM ≤ 20	Not applicable	Not applicable	Not applicable	≤ minimum (40, (0.6X IPM) + 3)	≤ 15	Not applicable	Not applicable	≤ 1
20 < IPM ≤ 30	Not applicable	Not applicable	Not applicable	≤ minimum (40, (0.6 X IPM) + 3)	≤ 30	Not applicable	Not applicable	≤ 1
30 < IPM ≤ 44	Not applicable	Not applicable	Not applicable	≤ minimum (40, (0.6 X IPM) + 3)	≤ 60	Not applicable	Not applicable	≤ 1
44 < IPM	Not applicable	Not applicable	Not applicable	≤ minimum (40, (0.6 X IPM) + 3)	≤ 60	Not applicable	Not applicable	≤ 1

TABLE 4: PRINTER GROUP 2

Applicable Function(s): Printer								
Applicable Size(s): Small Format, Letter/A4 Format, Ledger/A3 Format								
Applicable Marking Technologies: Serial Color EP								
	Sleep 1			**Sleep 2**		**Automatic Off**		**Plug-in Off**
Claimed Speed	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Recovery Time (Seconds)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**
IPM ≤10	Not applicable	Not applicable	Not applicable	≤ minimum(45,(0.6 X IPM) + 15)	≤ 30	Not applicable	Not applicable	≤ 1
10 < IPM ≤ 20	Not applicable	Not applicable	Not applicable	≤ minimum(45,(0.6 X IPM) + 15)	≤ 30	Not applicable	Not applicable	≤ 1
20 < IPM ≤ 30	Not applicable	Not applicable	Not applicable	≤ minimum(45,(0.6 X IPM) + 15)	≤ 30	Not applicable	Not applicable	≤ 1
30 < IPM ≤ 44	Not applicable	Not applicable	Not applicable	≤ minimum(45,(0.6 X IPM) + 15)	≤ 30	Not applicable	Not applicable	≤ 1
44 < IPM	Not applicable	Not applicable	Not applicable	≤ minimum(45,(0.6 X IPM) + 15)	≤ 60	Not applicable	Not applicable	≤ 1

TABLE 5: PRINTER GROUP 3

Applicable Function(s): Printer								
Applicable Size(s): Small Format, Letter/A4 Format, Ledger/A3 Format								
Applicable Marking Technologies : Parallel Color EP, Color Thermal Transfer								
	Sleep 1			**Sleep 2**		**Automatic Off**		**Plug-in Off**
Claimed Speed	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Recovery Time (Seconds)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**
IPM ≤10	Not applicable	Not applicable	Not applicable	≤ minimum(65, (0.7 X IPM) + 25)	≤ 15	Not applicable	Not applicable	≤ 1
10 < IPM ≤ 20	Not applicable	Not applicable	Not applicable	≤ minimum(65, (0.7 X IPM) + 25)	≤ 30	Not applicable	Not applicable	≤ 1
20 < IPM ≤ 30	Not applicable	Not applicable	Not applicable	≤ minimum(65, (0.7 X IPM) + 25)	≤ 60	Not applicable	Not applicable	≤ 1
30 < IPM ≤ 44	Not applicable	Not applicable	Not applicable	≤ minimum(65, (0.7 X IPM) + 25)	≤ 60	Not applicable	Not applicable	≤ 1
44 < IPM	Not applicable	Not applicable	Not applicable	≤ minimum(65, (0.7 X IPM) + 25)	≤ 90	Not applicable	Not applicable	≤ 1

TABLE 6: PRINTER GROUP 4

Applicable Function(s): Printer								
Applicable Size(s):: Small Format, Letter/A4 Format, Ledger/A3 Format, Large Format								
Applicable Marking Technologies: Dot Formed Impact, Fully Formed Impact								
	Sleep 1			**Sleep 2**		**Automatic Off**		**Plug-in Off**
Claimed Speed	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Recovery Time (Seconds)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**
0 < IPM	Not applicable	Not applicable	Not applicable	≤28	≤ 30	Not applicable	Not applicable	≤ 1

TABLE 7: FAX MACHINES

Applicable Function(s) : Fax Machine								
Applicable Size(s): Small Format, Letter/A4 Format, Ledger/A3 Format								
Applicable Marking Technologies : Mono EP, Monochrome Thermal Transfer, Mono IJ, Color IJ, Dye Sublimation								
	Sleep 1			**Sleep 2**		**Automatic Off**		**Plug-in Off**
Claimed Speed	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Recovery Time (Seconds)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**
IPM ≤10	Not applicable	Not applicable	Not applicable	≤8	≤ 5	Not applicable	Not applicable	Not applicable
10 < IPM ≤ 20	Not applicable	Not applicable	Not applicable	≤12	≤ 15	Not applicable	Not applicable	Not applicable
20 < IPM	Not applicable	Not applicable	Not applicable	≤ 16	≤ 30	Not applicable	Not applicable	Not applicable

TABLE 8: COPIER GROUP 1

Applicable Function(s): Copier								
Applicable Size(s): Small Format, Letter/A4 Format, Ledger/A3 Format								
Applicable Marking Technologies : Mono EP, Monochrome Thermal Transfer								
	Sleep 1			**Sleep 2**		**Automatic Off**		**Plug-in Off**
Claimed Speed	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Recovery Time (Seconds)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**
IPM ≤10	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	≤5	≤15	≤ 2
10 < IPM ≤ 20	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	≤ 5	≤ 30	≤ 2
20 < IPM ≤ 30	≤ (3.85 x IPM)	≤ 15	≤ 30	Not applicable	Not applicable	≤ 10	≤ 60	≤ 2
30 < IPM ≤ 44	≤ (3.85 x IPM)	≤ 15	≤ 30	Not applicable	Not applicable	≤ 10	≤ 60	≤ 2
44 < IPM	≤ (3.85 x IPM)	≤ 15	≤ 30 recommended	Not applicable	Not applicable	≤ 15	≤ 90	≤ 2

TABLE 9: COPIER GROUP 2

Applicable Function(s): Copier								
Applicable Size(s): Small Format, Letter/A4 Format, Ledger/A3 Format								
Applicable Marking Technologies : Parallel Color EP, Color Thermal Transfer, Serial Color EP								
	Sleep 1			**Sleep 2**		**Automatic Off**		**Plug-in Off**
Claimed Speed	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Recovery Time (Seconds)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**
IPM ≤10	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	≤5	≤15	≤ 2
10 < IPM ≤ 20	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	≤ 5	≤ 30	≤ 2
20 < IPM ≤ 30	≤ (6 x IPM) + 70	≤ 15	≤ 30	Not applicable	Not applicable	≤ 15	≤ 60	≤ 2
30 < IPM ≤ 44	≤ (6 x IPM) + 70	≤ 15	≤ 30	Not applicable	Not applicable	≤ 15	≤ 60	≤ 2
44 < IPM	≤ (6 x IPM) + 70	≤ 15	≤ 30 recommended	Not applicable	Not applicable	≤ 20	≤ 90	≤ 2

TABLE 10:COPIER GROUP 3

Applicable Function(s): Copier								
Applicable Size(s): Small Format, Letter/A4 Format, Ledger/A3 Format								
Applicable Marking Technologies : Mono IJ, Color IJ, Dye Sublimation								
	Sleep 1			**Sleep 2**		**Automatic Off**		**Plug-in Off**
Claimed Speed	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Recovery Time (Seconds)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**
IPM ≤10	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	≤5	≤15	≤ 2
10 < IPM ≤ 20	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	≤ 5	≤ 30	≤ 2
20 < IPM ≤ 30	≤ 40	≤ 15	≤ 30	Not applicable	Not applicable	≤ 10	≤ 60	≤ 2
30 < IPM ≤ 44	≤ 50	≤ 15	≤ 30	Not applicable	Not applicable	≤ 10	≤ 60	≤ 2
44 < IPM	≤70	≤15	≤ 30	Not applicable	Not applicable	≤ 15	≤ 90	≤ 2

TABLE 11: MFD GROUP 1

Applicable Function(s): MFD								
Applicable Size(s): Small Format, Letter/A4 Format, Ledger/A3 Format								
Applicable Marking Technologies : Mono EP, Monochrome Thermal Transfer								
	Sleep 1			**Sleep 2**		**Automatic Off**		**Plug-in Off**
Claimed Speed	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Recovery Time (Seconds)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**
IPM ≤10	Not applicable	Not applicable	Not applicable	≤ minimum(75, (0.8 X IPM) + 3)	≤ 15	Not applicable	Not applicable	≤ 2
10 < IPM ≤ 20	Not applicable	Not applicable	Not applicable	≤ minimum(75, (0.8 X IPM) + 3)	≤ 30	Not applicable	Not applicable	≤ 2
20 < IPM ≤ 30	≤ (3.85 x IPM) + 30	≤ 15	≤ 30	≤ minimum(75, (0.8 X IPM) + 3)	≤ 60	Not applicable	Not applicable	≤ 2
30 < IPM ≤ 44	≤ (3.85 x IPM) + 30	≤ 15	≤ 30	≤ minimum(75, (0.8 X IPM) + 3)	≤ 60	Not applicable	Not applicable	≤ 2
44 < IPM	≤ (3.85 x IPM) + 30	≤ 15	≤ 30 recommended	≤ minimum(75, (0.8 X IPM) + 3)	≤ 90	Not applicable	Not applicable	≤ 2

TABLE 12: MFD GROUP 2

Applicable Function(s): MFD								
Applicable Size(s): Small Format, Letter/A4 Format, Ledger/A3 Format								
Applicable Marking Technologies : Parallel Color EP, Color Thermal Transfer, Serial Color EP								
	Sleep 1			**Sleep 2**		**Automatic Off**		**Plug-in Off**
Claimed Speed	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Recovery Time (Seconds)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**
IPM ≤10	Not applicable	Not applicable	Not applicable	≤ 40	≤ 15	Not applicable	Not applicable	≤ 2
10 < IPM ≤ 20	Not applicable	Not applicable	Not applicable	≤ 53	≤ 30	Not applicable	Not applicable	≤ 2
20 < IPM ≤ 30	≤ (6 x IPM) + 100	≤ 15	≤ 30	≤ 60	≤ 60	Not applicable	Not applicable	≤ 2
30 < IPM ≤ 44	≤ (6 x IPM) + 100	≤ 15	≤ 30	≤ 70	≤ 60	Not applicable	Not applicable	≤ 2
44 < IPM	≤ (6 x IPM) + 100	≤ 15	≤ 30 recommended	≤ 105	≤ 90	Not applicable	Not applicable	≤ 2

TABLE 13: MFD GROUP 3

Applicable Function(s): MFD								
Applicable Size(s): Small Format, Letter/A4 Format, Ledger/A3 Format								
Applicable Marking Technologies : Mono IJ, Color IJ, Dye Sublimation								
	Sleep 1			**Sleep 2**		**Automatic Off**		**Plug-in Off**
Claimed Speed	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Recovery Time (Seconds)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**
IPM ≤10	Not applicable	Not applicable	Not applicable	≤ minimum(75, (0.8 X IPM) + 3)	≤15	Not applicable	Not applicable	≤ 2
10 < IPM ≤ 20	Not applicable	Not applicable	Not applicable	≤ minimum(75, (0.8 X IPM) + 3)	≤ 30	Not applicable	Not applicable	≤ 2
20 < IPM ≤ 30	≤ 40	≤ 15	≤ 30	≤ minimum(75, (0.8 X IPM) + 3)	≤ 60	Not applicable	Not applicable	≤ 2
30 < IPM ≤ 44	≤ 50	≤ 15	≤ 30	≤ minimum(75, (0.8 X IPM) + 3)	≤ 60	Not applicable	Not applicable	≤ 2
44 < IPM	≤75	≤15	≤ 30 recommended	≤ minimum(75, (0.8 X IPM) + 3)	≤ 90	Not applicable	Not applicable	≤ 2

TABLE 14: MAILING MACHINES

Applicable Function(s): Mailing Machine								
Applicable Size(s): Small Format, Letter/A4 Format, Ledger/A3 Format								
Applicable Marking Technologies : All								
	Sleep 1			**Sleep 2**		**Automatic Off**		**Plug-in Off**
Claimed Speed	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Recovery Time (Seconds)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**
IPM ≤50	Not applicable	Not applicable	Not applicable	≤ 10	≤ 20	Not applicable	Not applicable	≤ 1
50 < IPM ≤ 100	Not applicable	Not applicable	Not applicable	≤ 30	≤ 30	Not applicable	Not applicable	≤ 1
100 < IPM ≤ 150	Not applicable	Not applicable	Not applicable	≤ 50	≤ 40	Not applicable	Not applicable	≤ 1
150 < IPM	Not applicable	Not applicable	Not applicable	≤ 85	≤ 60	Not applicable	Not applicable	≤ 1

TABLE 15: SCANNER PRODUCTS

Applicable Function(s): Scanner								
Applicable Size(s): Small Format, Letter/A4 Format, Ledger/A3 Format								
Applicable Marking Technologies Not Applicable								
	Sleep 1			**Sleep 2**		**Automatic Off**		**Plug-in Off**
Claimed Speed	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Recovery Time (Seconds)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**
	Not applicable	Not applicable	Not applicable	*Under Developm't*	≤ 15	Not applicable	Not applicable	*Under Developm't*

TABLE 16: NETWORK SCANNER PRODUCTS

Applicable Function(s): Network Scanner								
Applicable Size(s): Small Format, Letter/A4 Format, Ledger/A3 Format								
Applicable Marking Technologies Not Applicable								
	Sleep 1			**Sleep 2**		**Automatic Off**		**Plug-in Off**
Claimed Speed	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Recovery Time (Seconds)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**
	Not applicable	Not applicable	Not applicable	*Under Developm't*	*Under Developm't*	Not applicable	Not applicable	*Under Developm't*

TABLE 17: LARGE FORMAT PRINTER GROUP 1

Applicable Function(s): Printer								
Applicable Size(s): Large Format								
Applicable Marking Technologies: Mono EP, Serial Color EP, Parallel Color EP, Monochrome Thermal Transfer, Color Thermal Transfer, Mono IJ, Color IJ, Dye Sublimation								
	Sleep 1			**Sleep 2**		**Automatic Off**		**Plug-in Off**
Claimed Speed	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Recovery Time (Seconds)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**
IPM ≤10	Not applicable	Not applicable	Not applicable	minimum(100, (2 X IPM) + 20)	≤ 15	Not applicable	Not applicable	≤ 3
10 < IPM ≤ 20	Not applicable	Not applicable	Not applicable	minimum(100, (2 X IPM) + 20	≤ 30	Not applicable	Not applicable	≤ 3
20 < IPM ≤ 30	Not applicable	Not applicable	Not applicable	minimum(100, (2 X IPM) + 20	≤ 60	Not applicable	Not applicable	≤ 3
30 < IPM ≤ 44	Not applicable	Not applicable	Not applicable	minimum(100, (2 X IPM) + 20	≤ 60	Not applicable	Not applicable	≤ 3
44 < IPM	Not applicable	Not applicable	Not applicable	minimum(100, (2 X IPM) + 20	≤ 90	Not applicable	Not applicable	≤ 3

TABLE 18: LARGE FORMAT MFD GROUP 1

Applicable Function(s): MFD								
Applicable Size(s): Large Format								
Applicable Marking Technologies: Mono EP, Monochrome Thermal Transfer, Mono IJ, Color IJ, Dye Sublimation								
	Sleep 1			**Sleep 2**		**Automatic Off**		**Plug-in Off**
Claimed Speed	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Recovery Time (Seconds)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**
IPM ≤10	Not applicable	Not applicable	Not applicable	minimum(110, (2 X IPM) + 30)	≤ 15	Not applicable	Not applicable	≤ 3
10 < IPM ≤ 20	Not applicable	Not applicable	Not applicable	minimum(110, (2 X IPM) + 30)	≤ 30	Not applicable	Not applicable	≤ 3
20 < IPM ≤ 30	≤ (4.85 X IPM) + 30	≤ 15	≤ 30 recommended	minimum(110, (2 X IPM) + 30)	≤ 60	Not applicable	Not applicable	≤ 3
30 < IPM ≤ 44	≤ (4.85 X IPM) + 30	≤ 15	≤ 30 recommended	minimum(110, (2 X IPM) + 30)	≤ 60	Not applicable	Not applicable	≤3
44 < IPM	≤ (4.85 X IPM) + 30	≤ 15	≤ 30 recommended	minimum(110, (2 X IPM) + 30)	≤ 90	Not applicable	Not applicable	≤ 3

TABLE 19: LARGE FORMAT MFD GROUP 2

Applicable Function(s): MFD								
Applicable Size(s): Large Format								
Applicable Marking Technologies: Serial Color EP, Parallel Color EP, Color Thermal Transfer								
	Sleep 1			**Sleep 2**		**Automatic Off**		**Plug-in Off**
Claimed Speed	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Recovery Time (Seconds)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**
IPM ≤10	Not applicable	Not applicable	Not applicable	minimum(110, (2 X IPM) + 30)	≤ 15	Not applicable	Not applicable	≤ 3
10 < IPM ≤ 20	Not applicable	Not applicable	Not applicable	minimum(110, (2 X IPM) + 30)	≤ 30	Not applicable	Not applicable	≤ 3
20 < IPM ≤ 30	≤ (8 X IPM) + 100	≤ 15	≤ 30 recommended	minimum(110, (2 X IPM) + 30)	≤ 60	Not applicable	Not applicable	≤ 3
30 < IPM ≤ 44	≤ (8 X IPM) + 100	≤ 15	≤ 30 recommended	minimum(110, (2 X IPM) + 30)	≤ 60	Not applicable	Not applicable	≤3
44 < IPM	≤(8 X IPM) + 100	≤ 15	≤ 30 recommended	minimum(110, (2 X IPM) + 30)	≤ 90	Not applicable	Not applicable	≤ 3

TABLE 20: LARGE FORMAT COPIER

Applicable Function(s): Copier								
Applicable Size(s): Large Format								
Applicable Marking Technologies: : Mono EP, Monochrome Thermal Transfer, Mono IJ, Color IJ, Dye Sublimation								
	Sleep 1			**Sleep 2**		**Automatic Off**		**Plug-in Off**
Claimed Speed	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Recovery Time (Seconds)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**
IPM ≤10	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	≤ 30	≤ 15	≤ 3
10 < IPM ≤ 20	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	≤ 30	≤ 30	≤ 3
20 < IPM ≤ 30	≤ (4.85 X IPM) + 5	≤ 15	≤ 30 recommended	Not applicable	Not applicable	≤ 30	≤ 60	≤ 3
30 < IPM ≤ 44	≤ (4.85 X IPM) + 5	≤ 15	≤ 30 recommended	Not applicable	Not applicable	≤ 30	≤ 60	≤3
44 < IPM	≤ (4.85 X IPM) + 5	≤ 15	≤ 30 recommended	Not applicable	Not applicable	≤ 30	≤ 90	≤ 3

TABLE 21 LARGE FORMAT NETWORK SCANNER PRODUCTS

Applicable Function(s): Network Scanner								
Applicable Size(s): Large Format								
Applicable Marking Technologies: Not Applicable								
	Sleep 1			**Sleep 2**		**Automatic Off**		**Plug-in Off**
Claimed Speed	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Recovery Time (Seconds)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**	**Default Delay Time (Minutes)**	**Power Allowance (Watts)**
	Not applicable	Not applicable	Not applicable	Under Developm't	Under Developm't	Not applicable	Not applicable	*Under Developm't*

IV. Power Measurement:

Manufacturers are required to perform tests and self-certify those product models that meet the ENERGY STAR guidelines. Power for Imaging Technology Products is measured as defined in ENERGY STAR Eligibility Requirements for Imaging Technology Products – Test Procedure.

V. Effective Date:

The date that manufacturers may begin to qualify products as ENERGY STAR will be defined as the *effective date* of the agreement. Any previously executed agreement on the subject of ENERGY STAR labeled Imaging Technology product shall be terminated and the requirements specified in this criteria shall commence on **the later of 18 months after the publication of the final version of this criteria and July 1, 2005**. Models with dates of announce prior to this may be qualified under earlier applicable MOUs. Once such models are designated as ENERGY STAR–qualifed, they may continue to bear the ENERGY STAR logo until the models are phased out of the market, and as long as the Manufacturer continues its participation in the program and the product model continues to meet the specifications under which it was originally qualified (i.e., new specifications will not apply retroactively to previously qualified products).

VI. Future Specification Revisions:

ENERGY STAR reserves the right to change the specification should technological and/or market changes affect its usefulness to consumers, industry, or the environment. In keeping with current policy, revisions to the specification are arrived at through industry discussions.