



Environment and Spatial Planning
*Ministry of Housing, Spatial Planning and
the Environment*

Criteria for the sustainable public procurement of **Reproduction Equipment**

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1 Introduction

The Dutch government wants to take concrete steps towards a sustainable society, and to set a good example. Each year, government organisations spend more than EUR 50 billion on the purchase of supplies, services and public works. By purchasing sustainably, the government can significantly boost the market for sustainable products. Governmental authorities have set clear objectives to achieve this: the central government is aiming for 100% sustainable public procurement in 2010, while the municipalities aspire towards 75% in 2010 and 100% in 2015. Provincial governments and water boards have set themselves the target of at least 50% in 2010. 100% sustainable public procurement is understood to mean that all purchases meet the minimum requirements that have been set for the relevant product groups at the time of purchase. More information on this topic is available from the website Sustainable Procurement (www.agentschapnl.nl/sustainableprocurement).

NL Agency supports government authorities in various ways to help reach these objectives. These include developing criteria for supplies, services and public works procured by these authorities. This document focuses on the criteria for the Reproduction Equipment, the elaboration of the criteria in specification texts and a more detailed assessment of the criteria, as well as a number of points for attention in the pre- and post-procurement stages. Additional background information and considerations regarding the content of the criteria can be found in the criteria document on the website Sustainable Procurement www.agentschapnl.nl/duurzaaminkopen/criteria, available in Dutch only.

1.1 Definition of the product group

The Reproduction Equipment product group comprises equipment for use in an office environment. This product group comprises printers (black and white, and colour equipment), photocopiers, faxes and multifunctional equipment, including electronic equipment that combines at least 2 functions (printing, copying, faxing or scanning).

This document excludes: franking machines and scanners.

For the benefit of the contracting authority, a number of CPV codes that might be of relevance to this product group have been included in this document. This selection is by no means exhaustive or complete. The contracting authority retains responsibility for compiling the correct set of CPV codes that matches the relevant tender.

The following CPV codes apply to this product group:

30121000-3 Photocopiers and Thermal Copying Machines

30125000-1 Parts and accessories of photocopying apparatus

2 Sustainability in the procurement process

The criteria in this document have been classified in the various steps of the public procurement process. More information about these steps and how to combine them with sustainability can be found in the Sustainable Public Procurement Manual. This manual can be downloaded from the website Sustainable Procurement www.agentschapnl.nl/sustainableprocurement.

2.1 Preparatory stage (points for consideration)

Every purchase or call for tender starts with drawing up the inventory of the needs of the internal or external customer. Sustainability can be incorporated into this stage by considering whether the purchase is truly necessary and whether a more sustainable alternative might be available. Specific points for consideration regarding procurement for the Reproduction Equipment product group are:

- Analyse the printing and copying requirements. Complete a thorough analysis of the organisation's printing and copying needs ahead of time. This requires insight into the relevant figures, such as the use of paper and toner over a specific period of time. These figures can be collected within the context of internal environmental practices, for example, or collection can be outsourced to the supplier as part of maintenance.
- Choose a machine that best meets the copying and/or printing requirements. The choice of the type of copier/printer in general is determined on the basis of the number of copies/prints made (the copy volume). Heavy equipment uses considerably more energy than a medium-volume machine. The installation of heavy equipment in areas with a relatively low copy volume therefore wastes energy. Equipment that is too light is not appropriate either. Using a machine to make more copies than it was designed for can result in greater wear and tear, increased repairs and premature replacement.
- Choose printers with different trays for different types of paper. Printers with more than one tray make it possible to match the choice of paper to the purpose of the printed document (filing or not, thicker paper or not, etc). This makes it possible to always make the most environmentally friendly choice.
- Opt for centralised copying/printing. By choosing a central copying/printing location, it is possible to reduce the number of machines. This reduces the raw materials and waste (including toner cartridges). A large machine that is used by various users in general uses less energy than many smaller machines combined.
- Choose printers, copiers and multifunctional equipment that are equipped for automatic double-sided copying and/or printing. Switching from single-sided to double-sided copying/printing results in approximately 30% savings in terms of paper use (this does not apply to fax machines).

- Choose multifunctional (electronic) equipment. A multifunctional device (MFD) or an 'all-in-one device' uses approximately 50% less energy than a separate printer, scanner, fax machine and copier. This can also result in cost savings. An example on www.eu-energystar.org: a 100-person department can save approximately USD 2,000 per year in electricity costs (assuming a rate of USD 0.18/kWh) by replacing 8 departmental and 24 workstation printers, and 12 fax machines by 8 combined electronic copying/printing devices.
- Check to see if it is possible to procure refurbished equipment (provided it meets the specified energy criteria). Actual practice shows that this type of equipment is not inferior in terms of quality and does not require more maintenance than new equipment.

2.2 Specification stage (criteria)

During the specification stage, the needs of the internal or external customer are translated into a tender document. This stage entails the formulation of:

- Criteria for supplier qualification. These could include grounds for exclusion, suitability requirements, i.e. requirements with regard to suppliers, and, in the case of restricted procedures, any selection criteria, i.e. wishes with regard to suppliers.
- A description of the minimum requirements pertaining to supply, service or task (the Schedule of Requirements).
- Award criteria, i.e. wishes regarding supplies, services and public works. These are only applicable when the tendering process is based on the principle of the Most Economically Advantageous Offer ('Economisch Meest Voordelige Inschrijving' or EMVI).
- The contract stipulating the contract provisions.

More information on the various types of criteria and the various tender options can be found in the *Sustainable Public Procurement Manual*. Innovation is also included in the award criteria, where relevant. Innovation is oriented towards the development and introduction of new ideas and products.

The criteria in this document have been formulated to support the purchaser in the Sustainable Public Procurement of Reproduction Equipment. The criteria have been subjected to legal review. However, every procurement and tender process is unique. For that reason, the drafting of a tender document remains the responsibility of the purchaser.

2.2.1 Supplier qualifications

No criteria have been formulated for this specific product group with regard to supplier qualification. More information on the possibilities of incorporating sustainability at this stage of the process can be found in the *Sustainable Public Procurement Manual*.

2.2.2 Schedule of requirements

Minimum requirements

<p>Minimum requirement no. 1</p>	<p>The reproduction equipment to be supplied must meet the Energy Star criteria for office equipment (imaging equipment), version 1.0, dated 1 April 2007, Chapter 3 and 4, as contained in Appendix 1.</p> <p>If the reproduction equipment comes with the Energy Star label, version 1.0, 1 April 2007, it is considered to meet this minimum requirement.</p> <p><u>Means of proof</u></p> <ol style="list-style-type: none"> 1. Self declaration to be included in this tender by the tenderer to confirm compliance with this minimum requirement; 2. A specification of the Reproduction Equipment to be supplied; 3. A certificate or another document for the Reproduction Equipment to be supplied, to be included in the tender as evidence that the tenderer complies with this minimum requirement. If the reproduction equipment comes with the Energy Star label, version 1.0, dated 1 April 2007, it is considered to meet this minimum requirement.
<p>Notes for purchaser</p>	<p>Energy Star is an international programme for the voluntary labelling of energy-efficient appliances established by the US Environmental Protection Agency (EPA) in 1992. The European Union participates in the Energy Star Programme in terms of office equipment on the basis of an Agreement with the American Government. The Energy Star criteria for different office machines were consolidated in 2006 into the 'ENERGY STAR® Program Requirements for Imaging Equipment' document and went into effect on 1 April 2007.</p> <p><u>Verification of means of proof</u></p> <ol style="list-style-type: none"> 1. Product certificates that confirm the equipment's compliance with the specified criteria. If a certificate is lacking, the equipment must be subjected to measurements in accordance with the test method described in Section 4 of the Appendix. 2. Equipment with an Energy Star label is included in the Energy Star database (www.eu-energystar.org). This database can be used to verify that the equipment has an Energy Star label and that it therefore meets the specified criteria. 3. No further verification.

2.2.3 Award criteria

No award criteria have been formulated for this product group.

2.2.4 Contract

No contract provisions have been formulated for this product group.

2.3 Utilisation stage (points for consideration)

Once the procurement stage has been concluded and a product or service has been purchased, there are opportunities for using the product in a sustainable manner. Specific points for consideration for this product group are:

Adjust the equipment's settings properly

Make sure that during installation the supplier adjusts the power management function to be as energy efficient as possible (including the sleep settings and the standby mode). Also make sure that, provided the equipment is outfitted with this capability, the default is set to double-sided printing/copying.

Encourage employees to make energy efficient use of the reproduction equipment

Encourage employees to turn off the reproduction equipment, particularly at night and during weekends. Switching off large photocopiers and printers at the end of the day can save a reasonable amount of energy per unit. Particularly the larger photocopiers (90-100 black and white pages per minute) also use energy in the off mode. This is however 95-97% lower than the energy used during the low-power status.

Provide for proper maintenance

Proper and regular maintenance prevents malfunctions and the emission of harmful substances.

Ensure the equipment is properly discarded

The manufacturer/supplier is legally obliged to guarantee the free-of-charge removal of the equipment and to provide information concerning the environmentally responsible processing of discarded machines. Follow the manufacturer/supplier's directions.

Make users aware of wasteful paper use

Process information as much as possible electronically. This can be accomplished by educating employees in terms of the alternatives to using paper, such as using Outlook for telephone messages, viewing printouts first using the Print Review feature, and the possibility of printing more than one page per sheet.

Use the double printing and copying trays (in relation to the proper paper selection)

Use a separate tray for filing paper, so that the user can, for example, decide whether the relevant document should be printed on filing paper or not. Or, by using multiple printer or copying trays, the paper with the right properties or dimensions for the task can be selected.

Use electronic faxing

If it is not possible to use e-mail, paper can be saved this way (on the transmitting side).

Appendix 1 Energy Star Program Requirements

Energy Star Program Requirements for Imaging Equipment (version 1.0), Eligibility Criteria, section 3 and 4

- 3) **Energy-Efficiency Specifications for Qualifying Products:** Only those products listed in Section 2 above that meet the following criteria may qualify as ENERGY STAR. Effective dates are provided in Section 6 of this specification.

Products Sold with an External Power Adapter: To qualify, imaging equipment products using a single-voltage external ac-dc or ac-ac power adapter must use an ENERGY STAR qualified adapter, or one that meets the ENERGY STAR External Power Supply (EPS) specification when tested to the ENERGY STAR test method on the date the imaging product is qualified as ENERGY STAR. The ENERGY STAR specification and test method for single voltage external ac-dc and ac-ac power supplies may be found at www.energystar.gov/products.

Products Designed to Operate with an External DFE: To qualify, an imaging equipment product that is sold with a DFE that uses its own ac power source must use an ENERGY STAR qualified DFE, or one that meets the ENERGY STAR Computer specification when tested to the ENERGY STAR test method on the date the imaging product is qualified as ENERGY STAR. The ENERGY STAR specification and test method for computers may be found at www.energystar.gov/products.

Products Sold with an Additional Cordless Handset: To qualify, fax machines or MFDs with fax capability that are sold with additional cordless handsets must use an ENERGY STAR qualified handset, or one that meets the ENERGY STAR Telephony specification when tested to the ENERGY STAR test method on the date the imaging product is qualified as ENERGY STAR. The ENERGY STAR specification and test method for telephony products may be found at www.energystar.gov/products.

Duplexing: Standard-size copiers, MFDs, and printers that use EP, SI, and heat-intensive IJ marking technologies addressed by the TEC approach in Section 3.A. must meet the following duplexing requirements, based on product speed:

Color Copiers, MFDs, and Printers

Product Speed	Duplexing Requirement
≤ 19 ipm	N/A
20 – 39 ipm	Automatic duplexing must be offered as a standard feature or optional accessory at the time of purchase.
≥ 40 ipm	Automatic duplexing is required as a standard feature at the time of purchase.

Monochrome Copiers, MFDs, and Printers

Product Speed	Duplexing Requirement
≤ 24 ipm	N/A
25 – 44 ipm	Automatic duplexing must be offered as a standard feature or optional accessory at the time of purchase.
≥ 45 ipm	Automatic duplexing is required as a standard feature at the time of purchase.

- A. **ENERGY STAR Eligibility Criteria – TEC.** To qualify as ENERGY STAR, the TEC value obtained for imaging equipment outlined in Section 2, Table 1 above must not exceed the corresponding criteria below.

For imaging products with a functionally-integrated DFE that relies on the imaging product for its power, manufacturers should subtract the DFE's energy consumption in Ready mode from the product's total TEC result before comparing the product's TEC to the criteria limits below. In order to take advantage of this allowance, the DFE must meet the definition in Section 1.CC. and be a separate processing unit that is capable of initiating activity over the network.

Example: A printer's total TEC result is 24.5 kWh/week and its internal DFE consumes 50W in Ready mode. 50W x 168 hours/week = 8.4 kWh/week, which is then subtracted from the tested TEC value: 24.5 kWh/week – 8.4 kWh/week = 16.1 kWh/week. 16.1 kWh/week is then compared to the following criteria.

Note: In all of the following equations, x = Product speed (ipm).

TEC Table 1

Product(s): Copiers, Digital Duplicators, Fax Machines, Printers		
Size Format(s): Standard-size		
Marking Technologies: DT, Mono DS, Mono EP, Mono Stencil, Mono TT		
	Tier I	Tier II
Product Speed (ipm)	Maximum TEC (kWh/week)	Maximum TEC (kWh/week)
≤ 12	1.5 kWh	TBD
$12 < ipm \leq 50$	$(0.20 \text{ kWh/ipm})x - 1 \text{ kWh}$	TBD
$> 50 \text{ ipm}$	$(0.80 \text{ kWh/ipm})x - 31 \text{ kWh}$	TBD

TEC Table 2

Product(s): Copiers, Digital Duplicators, Fax Machines, Printers		
Size Format(s): Standard-size		
Marking Technologies: Color DS, Color Stencil, Color TT, Color EP, SI		
	Tier I	Tier II
Product Speed (ipm)	Maximum TEC (kWh/week)	Maximum TEC (kWh/week)
≤ 50	$(0.20 \text{ kWh/ipm})x + 2 \text{ kWh}$	TBD
> 50	$(0.80 \text{ kWh/ipm})x - 28 \text{ kWh}$	TBD

TEC Table 3

Product(s): MFDs		
Size Format(s): Standard-size		
Marking Technologies: DT, Mono DS, Mono EP, Mono TT		
	Tier I	Tier II
Product Speed (ipm)	Maximum TEC (kWh/week)	Maximum TEC (kWh/week)
≤ 20	$(0.20 \text{ kWh/ipm})x + 2 \text{ kWh}$	TBD
$20 < ipm \leq 69$	$(0.44 \text{ kWh/ipm})x - 2.8 \text{ kWh}$	TBD
> 69	$(0.80 \text{ kWh/ipm})x - 28 \text{ kWh}$	TBD

TEC Table 4

Product(s): MFDs		
Size Format(s): Standard-size		
Marking Technologies: Color DS, Color TT, Color EP, SI		
	Tier I	Tier II
Product Speed (ipm)	Maximum TEC (kWh/week)	Maximum TEC (kWh/week)
≤ 32	$(0.20 \text{ kWh/ipm})x + 5 \text{ kWh}$	TBD
$32 < ipm \leq 61$	$(0.44 \text{ kWh/ipm})x - 2.8 \text{ kWh}$	TBD
> 61	$(0.80 \text{ kWh/ipm})x - 25 \text{ kWh}$	TBD

- B. **ENERGY STAR Eligibility Criteria – OM.** To qualify as ENERGY STAR, the power consumption values for imaging equipment outlined in Section 2, Table 2 above must not exceed the corresponding criteria below. For products that meet the Sleep-mode power requirement in Ready mode, no further automatic power reductions are required to meet the Sleep criterion. Additionally, for products that meet the Standby-power requirements in Ready or Sleep mode, no further power reductions are required to earn the ENERGY STAR.

For imaging products with a functionally-integrated DFE that relies on the imaging product for its power, the power consumption of the DFE should be excluded when comparing the product's measured Sleep to the combined marking-engine and functional-adder criteria limits below. The DFE must not interfere with the ability of the imaging product to enter or exit its lower-power modes. In order to take advantage of this exclusion, the DFE must meet the definition in Section 1.CC. and be a separate processing unit that is capable of initiating activity over the network.

Default Delay Time Requirements: To qualify for ENERGY STAR, OM products must meet the default-delay time settings provided in Tables A through C below for each product type, enabled upon product shipment. In addition, all OM products must be shipped with a maximum machine delay time not in excess of four hours, which is only adjustable by the manufacturer. This maximum machine delay time cannot be influenced by the user and typically cannot be modified without internal, invasive product manipulation. The default-delay-time settings provided in Tables A through C may be user adjustable.

Table A: Maximum Default Delay Times to Sleep for Small-format and Standard-size OM Products, Excluding Mailing Machines, in Minutes

Product Speed (ipm)	Fax Machines	MFDs	Printers	Scanners
0 - 10	5	15	5	15
11 - 20	5	30	15	15
21 - 30	5	60	30	15
31 - 50	5	60	60	15
51 +	5	60	60	15

Table B: Maximum Default Delay Times to Sleep for Large-format OM Products, Excluding Mailing Machines, in Minutes

Product Speed (ipm)	Copiers	MFDs	Printers	Scanners
0 - 10	30	30	30	15
11 - 20	30	30	30	15
21 - 30	30	30	30	15
31 - 50	30	60	60	15
51 +	60	60	60	15

Table C: Maximum Default Delay Times to Sleep for Mailing Machines in Minutes

Product Speed (mppm)	Mailing Machines
0 – 50	20
51 – 100	30
101 – 150	40
151 +	60

Standby Requirements: To qualify for ENERGY STAR, OM products must meet the Standby power criteria provided in Table D below for each product type.

Table D: Maximum Standby Power Levels for OM Products in Watts

Product Type & Size Format	Standby (W) – Tier 1	Standby (W) – Tier 2
All Small Format and Standard-size OM Products without Fax Capability	1	<i>Tier 1 levels remain unchanged</i>
All Small Format and Standard-size OM Products with Fax Capability	2	<i>Tier 1 levels remain unchanged</i>
All Large Format OM Products and Mailing Machines	N/A	TBD

The eligibility criteria in OM Tables 1 through 8 below address the marking engine of the product. Since products are expected to be shipped with one or more functions beyond a basic marking engine, the corresponding allowances below should be added to the marking engine criteria for Sleep. The total value for the base product with applicable "functional adders" should be used to determine eligibility. Manufacturers may apply no more than three Primary functional adders to each product model, but may apply as many Secondary adders as present (with Primary adders in excess of three included as Secondary adders). An example of this approach is provided below:

Example: Consider a Standard-size IJ printer with a USB 2.0 connection and a memory card connection. Assuming the USB connection is the Primary interface used during the test, the printer model would receive a functional-adder allowance of 0.5 W for USB and 0.1 for the memory card reader, for a total of 0.6 W of total functional-adder allowances. Since OM Table 2 provides a Sleep mode marking-engine criterion of 3 W, to determine qualification under ENERGY STAR, the manufacturer would sum the Sleep mode marking-engine criterion with the applicable functional-adder allowances to determine the maximum power consumption permitted for qualification of the base product: 3 W + 0.6 W. If the power consumption of the printer in Sleep mode measures at or below 3.6 W, then the printer would meet the ENERGY STAR Sleep criterion.

Qualifying Products: Table 3 – OM Functional Adders

Type	Details	Functional Adder Allowances (W)	
		Primary	Secondary
Interfaces	A. Wired < 20 MHz	0.3	0.2
	A physical data- or network-connection port present on the imaging product that is capable of a transfer rate < 20 MHz. Includes USB 1.x, IEEE488, IEEE 1284/Parallel/Centronics and RS232.		
	B. Wired ≥ 20 MHz and < 500 MHz	0.5	0.2
	A physical data- or network-connection port present on the imaging product that is capable of a transfer rate ≥ 20 MHz and < 500 MHz. Includes USB 2.x, IEEE 1394/FireWire/i.LINK, and 100Mb Ethernet.		
	C. Wired ≥ 500 MHz	1.5	0.5
	A physical data- or network-connection port present on the imaging product that is capable of a transfer rate ≥ 500 MHz. Includes 1G Ethernet.		
	D. Wireless	3.0	0.7
	A data- or network-connection interface present on the imaging product that is designed to transfer data via radio-frequency wireless means. Includes Bluetooth and 802.11.		
	E. Wired card/camera/storage	0.5	0.1
A physical data- or network-connection port present on the imaging product that is designed to allow the connection of an external device, such as flash memory-card/smart-card readers and camera interfaces (including PictBridge).			
G. Infrared	0.2	0.2	

Type	Details	Functional Adder Allowances (W)	
		Primary	Secondary
	A data- or network-connection interface present on the imaging product that is designed to transfer data via infrared technology. Includes IrDA.		
Other	Storage	-	0.2
	Internal storage drives present on the imaging product. Includes internal drives only (e.g., disk drives, DVD drives, Zip drives), and applies to each separate drive. This adder does not cover interfaces to external drives (e.g., SCSI) or internal memory.		
	Scanners with CCFL lamps	-	2.0
	The presence of a scanner that uses Cold Cathode Fluorescent Lamp (CCFL) technology. This adder is applied only once, regardless of the lamp size or the number of lamps/bulbs employed.		
	Scanners with non-CCFL lamps	-	0.5
	The presence of a scanner that uses a lamp technology other than CCFL. This adder is applied only once, regardless of the lamp size or the number of lamps/bulbs employed. This adder addresses scanners using Light-Emitting Diode (LED), Halogen, Hot-Cathode Fluorescent Tube (HCFT), Xenon, or Tubular Fluorescent (TL) technologies.		
	PC-based system (cannot print/copy/scan without use of significant PC resources)	-	-0.5
	This adder applies to imaging products that rely on an external computer for significant resources, such as memory and data processing, to perform basic functions commonly performed by imaging products independently, such as page rendering. This adder does not apply to products that simply use a computer as a source or destination for image data.		
	Cordless handset	-	0.8
	The capability of the imaging product to communicate with a cordless handset. This adder is applied only once, regardless of the number of cordless handsets the product is designed to handle. This adder does not address the power requirements of the cordless handset itself.		
	Memory	-	1.0 W per 1 GB
	The internal capacity available in the imaging product for storing data. This adder applies to all volumes of internal memory and should be scaled accordingly. For example, a unit with 2.5 GB of memory would receive an allowance of 2.5 W while a unit with 0.5 GB would receive an allowance of 0.5 W.		
	Power-supply (PS) size, based on PS output rating (OR) [Note: this adder does not apply to scanners]	-	For PSOR > 10 W, 0.05 x (PSOR – 10 W)
	This adder applies to all imaging products except for scanners. The allowance is calculated from the internal or external power supply's rated DC output as specified by the power supply manufacturer. (It is not a measured quantity). For example, a unit that is rated to provide up to 3 A at 12 V has a PSOR of 36 W and would receive an allowance of $0.05 \times (36-10) = 0.05 \times 26 = 1.3$ W of power supply allowance. For supplies that provide more than one voltage, the sum of power from all voltages is used unless the specifications note that there is a rated limit lower than this. For example, a supply which can supply 3A of 24 V and 1.5 A of 5 V output has a total PSOR of $(3 \times 24) + (1.5 \times 5) = 79.5$ W, and an allowance of 3.475 W.		

For the adder allowances shown in Qualifying Products Table 3 above, distinctions are made for "Primary" and "Secondary" types of adders. These designations refer to the state in which the interface is required to remain while the imaging product is in Sleep. Connections that remain active during the OM test procedure while the imaging product is in Sleep are defined as Primary, while connections that can be inactive while the imaging product is in Sleep are defined as Secondary. Most functional adders typically are Secondary types.

Manufacturers should consider only the adder types that are available on a product in its as-shipped configuration. Options available to the consumer after the product is shipped or interfaces that are present on the product's externally-powered digital front-end (DFE) should not be considered when applying allowances to the imaging product.

For products with multiple interfaces, these interfaces should be considered as unique and separate. However, interfaces that perform multiple functions should only be considered once. For example, a USB connection that operates as both 1.x and 2.x may be counted only once and given a single allowance. When a particular interface may fall under more than one interface Type according to the table, the manufacturer should choose the function that the interface is primarily designed to perform when determining the appropriate adder allowance. For example, a USB connection on the front of the imaging product that is marketed as a PictBridge or "camera interface" in product literature should be considered a Type E interface rather than a Type B interface. Similarly, a memory-card-reader slot that supports multiple formats may only be counted once. Further, a system that supports more than one type of 802.11 may count as only one wireless interface.

OM Table 1

Product(s): Copiers, MFDs	
Size Format(s): Large Format	
Marking Technologies: Color DS, Color TT, DT, Mono DS, Mono EP, Mono TT, Color EP, SI	
	Sleep (W)
Marking Engine	58

OM Table 2

Product(s): Fax Machines, MFDs, Printers	
Size Format(s): Standard-size	
Marking Technologies: Color IJ, Mono IJ	
	Sleep (W)
Marking Engine	3

OM Table 3

Product(s): MFDs, Printers	
Size Format(s): Large Format	
Marking Technologies: Color IJ, Mono IJ	
	Sleep (W)
Marking Engine	13

OM Table 4

Product(s): Mailing Machines	
Size Format(s): N/A	
Marking Technologies: DT, Mono EP, Mono IJ, Mono TT	
	Sleep (W)
Marking Engine	3

OM Table 5

Product(s): Printers	
Size Format(s): Small Format	
Marking Technologies: Color DS, DT, Color IJ, Color Impact, Color TT, Mono DS, Mono EP, Mono IJ, Mono Impact, Mono TT, Color EP, SI	
	Sleep (W)
Marking Engine	3

OM Table 6

Product(s): Printers	
Size Format(s): Standard-size	
Marking Technologies: Color Impact, Mono Impact	
	Sleep (W)
Marking Engine	6

OM Table 7

Product(s): Scanners	
Size Format(s): Large Format, Small Format, Standard-size	
Marking Technologies: N/A	
	Sleep (W)
Scanning Engine	5

OM Table 8

Product(s): Printers	
Size Format(s): Large Format	
Marking Technologies: Color DS, Color Impact, Color TT, DT, Mono DS, Mono EP, Mono Impact, Mono TT, Color EP, SI	
	Sleep (W)
Marking Engine	54

4) Test Procedures

Product Testing Set-up, Procedures, and Documentation: The specific instructions for testing the energy efficiency of imaging equipment products are outlined in three separate documents entitled:

- "ENERGY STAR Qualified Imaging Equipment Typical Electricity Consumption Test Procedure;"
- "ENERGY STAR Qualified Imaging Equipment Operational Mode Test Procedure;" and
- "Test Conditions and Equipment for ENERGY STAR Imaging Equipment Products."

The test results produced by these procedures shall be used as the primary basis for determining ENERGY STAR qualification.

Manufacturers are required to perform tests and self-certify those product models that meet the ENERGY STAR guidelines. Families of imaging equipment models that are built on the same chassis and are identical in every respect except for housing and color may be qualified through submission of test data for a single, representative model. Likewise, models that are unchanged or that differ only in finish from those sold in a previous year may remain qualified without the submission of new test data,

assuming the specification remains unchanged.

If a product model is offered in the market in multiple configurations as a product "family" or series, the partner may test and report the highest configuration available in the family, rather than each and every individual model. When submitting model families, manufacturers continue to be held accountable for any efficiency claims made about their imaging products, including those not tested or for which data was not reported.

Example: Models A and B are identical, with the exception that model A is shipped with a wired interface > 500 MHz, and model B is shipped with a wired interface < 500 MHz. If model A is tested and meets the ENERGY STAR specification, then the partner may report the test data solely for model A, to represent both models A and B.

If a product's electrical power comes from Mains, USB, IEEE1394, Power-over-Ethernet, telephone system, or any other means or combinations of means, the net AC electrical power consumed by the product (taking into account ac-to-dc conversion losses, as specified in the OM test procedure) must be used for qualification.

Additional testing and reporting requirements are provided below.

- A. **Number of Units Required for Test:** Testing shall be conducted by the manufacturer or its authorized representative on a single unit of a model.
- a. For products outlined in Section 2, Table 1 of this specification, if the initial unit tested has TEC test results that meet the eligibility criteria but fall within 10% of the criteria level, one additional unit of the same model must also be tested. Manufacturers shall report values for both units. To qualify as ENERGY STAR, both units must meet the ENERGY STAR specification.
 - b. For products outlined in Section 2, Table 2 of this specification, if the initial unit tested has OM test results that meet the eligibility criteria but fall within 15% of the criteria level in any of the specified operating modes for that product type, then two more units shall be tested. To qualify as ENERGY STAR, all three units must meet the ENERGY STAR specification.
- B. **Submission of Qualified Product Data to EPA:** Partners are required to self-certify those product models that meet the ENERGY STAR guidelines and report information to EPA. The information to be reported for products shall be outlined shortly following publication of the final specification.

In addition, partners must submit to EPA excerpts from product literature that explain to consumers the recommended default delay-times for power management settings. The intent of this requirement is to support that products are being tested as shipped and recommended for use.

- C. **Models Capable of Operating at Multiple Voltage/Frequency Combinations:** Manufacturers shall test their products based on the market(s) in which the models will be sold and promoted as ENERGY STAR qualified. EPA and its ENERGY STAR Country Partners have agreed upon a table with three voltage/frequency combinations for testing purposes. Please refer to the Imaging Equipment Test Conditions for details regarding international voltage/frequency and paper sizes for each market.

For products that are sold as ENERGY STAR in multiple international markets and therefore rated at multiple input voltages, the manufacturer must test at and report the required power consumption or efficiency values at all relevant voltage/frequency combinations. For example, a manufacturer that is shipping the same model to the United States and Europe must measure, meet the specification, and report test values at both 115 Volts/60 Hz and 230 Volts/50 Hz in order to qualify the model as ENERGY STAR in both markets. If a model qualifies as ENERGY STAR at only one voltage/frequency combination (e.g., 115 Volts/60 Hz), then it may only be qualified and promoted as ENERGY STAR in those regions that support the tested voltage/frequency combination (e.g., North America and Taiwan).