

Eco Mark Product Category No.117

“Copier Version2.14” Certification Criteria

- Applicable Scope -

Electrophotographic copier. Includes multifunctional devices of which main function is to copy.

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Japan Environment Association
Eco Mark Office

Eco Mark Product Category No.117

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1. Purpose of Establishing Certification Criteria

Copiers are widely used in offices. Certification Criteria were established for this Product Category with the intent of reducing environmental impacts by promoting:

- The use of design for recycling, reused and resource reductions (“3R design”) or devices and consumables
- Collection and recycling of used consumables (recycling of resources)
- Energy conservation during device use to reduce global warming emissions
- Reductions in auditory noise and lower volatile organic compound (VOC) emissions (, for a comfortable and healthy environment during device use)
- Limits on and reductions in the use of harmful substances

For establishing the Certification Criteria, since a copier is the subject for Law Regarding the Rationalization of Use Energy (Energy Conservation Law), Law Concerning the Promotion of Procurement of Eco-Friendly Goods and Services by the State and Other Entities (Green Purchasing Law), and Law for the Promotion of Effective Utilization of Resources, the Eco Mark Office took into account these laws. In addition, since a copier is an international distribution product, and we have conducted mutual recognition with Nordic Swan-the ecolabelling program in North Europe. The number of eco labels to participate in the mutual recognition is expected for increasing, the Eco Mark Office also took into account international harmony with foreign eco labels.

2. Applicable Scope

Electrophotographic copier. Includes multifunctional devices of which main is to copy.

3. Terminology

Off mode:	The condition in which a power supply was cut by the
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	automatic blocking-off function after some time passed.
UDC (Upgradeable Digital Copier):	Machine equipped with the standard-function of copier, which can be offered the upgrade of more than one of the following functions; printer, scanner or fax.
Mechanical parts:	Parts which are not included in electrical / electronics sub-assemblies and perform mechanical or optical functions (except casing, casing parts and chassis).
Casing:	External cover
Casing parts:	Parts which protect the equipments from environmental impact, and the users from contact with moving, radiating, or electrically charged components.
Copolymer:	Polymers consisting of two or more types of monomers.
Recycled part :	Part for which forms or characteristics are changed by application of some kind of energy.
Recovery rate:	Among mass of toner cartridges or toner containers which have been used, disposed of, and collected, the mass rate of equipment or consumables that are reused, material recycled, energy recovered, converted to oil, gasified, or subject to blast furnace reduction or conversion to chemical materials by coke oven. However, cartridges, which are released as being not subject to collection on the web site or in the catalog, etc., are excluded from those "collected toner cartridges". Note that for the recovery rate of products or photoreceptors, they are replaced by the toner cartridges or toner containers mentioned above.
Reused parts:	Parts that have previously been used.
Reuse/material recycling rate:	Among mass of toner cartridges which have been used, disposed of, and collected, the mass rate of all parts that are reused or material recycled. However, cartridges, which are released as being not subject to collection on the web site or in the catalog, etc., are excluded from those "collected toner cartridges".
Recycled plastic:	Plastic material made from pre-consumer materials or post-consumer materials.
Pre-consumer material:	Materials or defective products generated from the disposal route of manufacturing process. However, this excludes those recycled within the same process as the raw material (same plant).
Post-consumer material:	Materials or products disposed after used as a product.
Recycled plastic part:	Plastic part which contains recycled plastics.
Sub-assembly:	Assembly consisting of at least two components that are joined together in a force- or positive-fit manner.
Chassis:	Parts with functions serving as a frame to support the main parts of machines.
Prescription constituents:	Components intentionally added with the purpose of providing specific characteristics to the product. Impurities that inevitably enter during the manufacturing process are excluded.

Serial:	Marking technology using multiple light sources and photoconductor drums to enhance the maximum speed of color printing.
Parallel:	Marking technology using one photoconductor drum by serial method, and using one or multiple light sources to realize multi-color hard copy output.
Sleep mode:	When output operation isn't done continuously after the switchover into the low power mode, the secondary low power consuming condition which is continuously realized automatically without switching off the power supply.
Product Speed	<p>In general, for Standard-size products, a single A4 or 8.5" x 11" sheet printed/copied/scanned on one side in a minute is equal to one image-per-minute (ipm). If the maximum claimed speeds differ when producing images on A4 or 8.5" x 11" paper, the higher of the two shall be used.</p> <ul style="list-style-type: none"> - For Small-format products, a single A6 or 4" x 6" sheet printed/copied/scanned on one side in a minute is equal to 0.25 ipm. - For Large-format products, a single A2 sheet is equivalent to 4 ipm and one A0 sheet is equivalent to 16 ipm. - For continuous-form products categorized as Small-format, Large-format, or Standard-size, print speed in ipm should be obtained from the product's maximum marketed imaging speed in meters per minute according to the conversion below: $X \text{ ipm} = 16 \times [\text{Maximum media width (meters)} \times \text{Maximum imaging speed (length-meters/minute)}]$ <p>In all cases, the converted speed in ipm should be rounded to the nearest integer (e.g., 14.4 ipm rounds to 14.0 ipm; 14.5 ipm rounds to 15 ipm).</p> <p>For qualification purposes, manufacturers should report the speed of the product according to the prioritization of functions outlined below:</p> <ul style="list-style-type: none"> - Print Speed, unless the product cannot perform the print function, in which case, - Copy Speed, unless the product cannot perform the print or copy functions, in which case, and - Scan Speed.
Low power mode:	The low power consuming condition which is realized automatically after some non-operate time.
Electrical/electronic sub-assembly:	Assembly which include at least one electronic or electric part.
Toner cartridge:	Cartridge for printing composed of more than two of the following; toner container filled with toner, drum, or development unit.
Toner container:	Container filled with toner.
MFD (Multifunctional Device):	Machine equipped with the standard-function of copier as well as the functions of more than one of the followings; printer, scanner, or fax.
Copier:	Machine which has a sole function to make copies of

	documents and drawings.
Copy speed:	Copy (number of sheets) per minute (CPM), a both side copy is counted with two sheets. For the copy machine which excludes a Large-Format copy machine, the form with A4 size makes copy speed. Also, as for the Large-Format copy machine, copy speed is computed, converting the copy number per minute for the maximum size form of the concerned equipment to the copy number of A4 size form as follows. (1) 4 times the number of copy for the form of A2 size (2) 8 times the number of copy for the form of A1 size (3) 16 times the number of copy for the form of A0 size
Plastic:	Material composed of single or multiple polymers, plus additives, fillers, etc. which are added to the polymer(s) to give specific characteristics.
Spare part:	Part for maintenance and repair to keep the functions/performance of a product.
Homopolymer:	Single polymer. Polymers consisting of one type of monomer.
Polymer:	High molecular material which is the main constituent of plastic.
Polymer alloy (Polymer blend):	General name of multi component polymers obtained by the chemical binding of the polymers of more than two components. Polymer blend is the physical blending of different types of polymers.
Material recycling:	Recycling of material, excluding the recovery of energy, conversion to oil, gasification, blast furnace reduction, conversion to chemical materials by coke oven.
Double-sided copy function:	The function to copy or image-output both sides automatically
Reuse-conscious copier (copying machine), etc.	The system for reusing at the time of manufacturing has been built/maintained. Reuse-conscious copiers refer to those to be manufactured from the system, and refer to "Reproduction type machines" and "Part reuse type machines" described below.
Reproduction type machines	Products manufactured by partially disassembling/cleaning/repairing used products, replacing any parts that cannot satisfy quality equivalent to that of a new product or certain quality, and assembling them on a dedicated line.
Part reuse type machines	Products manufactured by wholly disassembling/cleaning/repairing used products and assembling parts that can assure same quality as newly built machines, on a manufacturing line equivalent to a newly built machine.
3R design check list:	The checklist to require the design to take the concept of 3R (Reuse, Reduce, Recycle) into consideration. The checklist consists of three requirement groups such as "Structure and joining technique", "Selection and marking of materials" and "longevity" and the items are grouped by M-requirement and S-requirement.
M-requirement:	In the 3R design checklist, the requirement which must all be met, as same as the criterion in the criteria document.

S-requirement:	In the 3R design checklist, the requirement which should be met, however, do not influence the outcome of the certification even if it is not realized. S-requirement is positioned as item, which needs to be discussed at the time of criteria revision, and has the role to convey environmental targets to consumers and applicants.
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4. Certification Criteria and Certification Procedure

The corresponding boxes in the Attached Certificates shall be checked/ filled in, stamped with the applicant company seal and submitted.

General rule: analysis and testing bodies shall be run in accordance with ISO/IEC 17025 (not essential to be certified) (corresponding JIS Q17025). Applicants shall bear the expenses for preparing documents and for the analyses.

Special requirements, if performed at the laboratories of manufacturers: if competent authorities are monitoring the sampling and analysis process, if the analyses and tests are authorized, or if the manufacturer has developed a quality system for sampling and analysis and has received the ISO 9001 (corresponding JIS Q9001) certification, or if the manufacturer has ISO 9001-compliant internal regulations concerning its quality system for sampling and analysis and performs measurements in line with those internal regulations, the laboratory of the manufacturer is authorized to perform analysis and tests.

For copiers installing the toner cartridge with Eco Mark Product Category No. 132 “Toner Cartridge Version 1”, regarding the common items in the Attached Table 2, it can be substituted by certification of conformance to criteria, by indicating the “certification number” of the concerned toner cartridge in the Attached Certificates.

[Partial mutual recognition with the Blue Angel and the Nordic Swan]

There are many common items in the Certification Criteria of the Eco Mark, the Blue Angel (RAL-UZ 122 Office Equipment with Printing Function: June 2006), and the Nordic Swan (Imaging equipment Version 5, June 2007). For the product certified by the Blue Angel or the Nordic Swan can be considered as conforming to the Eco Mark Certification Criteria, regarding to the common items in the Attached Table 1 “Corresponding Table to the Certification Criteria of the Blue Angel and the Nordic Swan”.

4-1. Environmental Criteria and Certification Procedure

4-1-1 3R Design of Equipment

(1) Equipment shall conform to Attachment 2 “3R Design of Equipment and Consumables”.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate. Requirements shall be included in Attachment 2 “3R Design of Equipment and Consumables” and submitted.

(2) Plastic casing parts over 25g shall be made of one homopolymer or copolymer.

Polymer blends (polymer alloy) are permitted.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate. The applicant shall submit a document and list (Example A) of plastic materials used.

(3) Plastic casing parts over 25g shall be made of four or fewer types of mutually separable polymers or polymer blends. If labels, markings, stickers, etc. are difficult to separate, they must be made of the same material with the plastic parts on which they are put, or must not be the obstacle for recycle of the plastic parts on which they are put. .

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate. The applicant shall submit a document and list (Example A) of plastic materials used, and a document describing whether labels, markings, stickers etc. are easy to separate in case that labels, markings, stickers, etc. are put on the corresponding plastic casing parts.

4-1-2 Requirements for plastic materials

(4) Polybrominated biphenyl (PBB), polybrominated diphenyl ether (PBDE) or short-chain chlorinated paraffin (having a chain of 10 to 13 carbon atoms and a chlorine concentration of 50% or more) are not added to plastic casing parts and printed circuit boards as prescription constituents.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate.

(5) Any one of parts weighing more than 25 g shall be recycled plastic parts or reused plastic parts at the least. If recycled plastic parts are used, the specifications for the following items a. to c. shall be reported.

a. Name of the recycled plastic parts

b. Weight of the recycled plastic parts

c. Ratio of the recycled plastic (It shall be the value in design; for example, X%, X-X%, X% or more.)

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate. If recycled plastic parts are used, the specifications for the items “a.” to “c.” shall be reported.

Upon request of the Eco Mark Office, the applicant shall comply with a hearing regarding the percentage of recycled plastic parts used in the product, the type of recycled plastic (one's-product-recovery post-consumer material, open post-consumer material, pre-consumer material), etc..

(6) Polymer containing halogen shall not be used for casing plastic parts weighing over 25g. In addition, organohalogen compounds as flame retardants shall not be added as prescription constituents.

However, this criterion shall not apply to the following a. and b.:

a. When any one of the following four is applicable:

*Fluoroorganic additives used for improving the physical properties of plastics, provided they are not present in concentrations greater than 0.5 weight percent.

*Fluorinated plastics like for example PTFE, etc.

*Special plastic parts which are installed in the direct vicinity of heating and fusing units

*Large plastic casing parts made of plastic which are demonstrably reused and marked in accordance with (9).

b. This criterion shall not apply to products meeting requirements 1 and 2 in the following Attached Table1 (Criteria).

Attached Table 1 (Criteria)

1	<p>The collection rate^{*1} shall be above 80%. Here, the collection rate is the rate of the same product group^{*2} for the most recent period of one year.</p> <p>Among the plastic casing parts obtained from the collected products, which contain brominated flame retardants, 95% or more of the total mass shall be material recycled.</p> <p>The result for the most recent one-year period should be calculated as follows:</p> <p>*Duration : the most recent one-year period</p> <p>*Denominator: the total mass of all casing the plastic parts containing the brominated flame retardant, which are collected during above period.at the time of collection.</p> <p>*Numerator: the total mass of each material which is recovered in-house or by collectors or the total mass of each material which is material recycled.In the calculation of the material recycling rate, the consolidated figure for all product groups applying for Eco Mark certification can be used instead of the figures for each same product group.</p>
2	<p>Among the total mass of plastic casing parts which contain brominated flame retardants in each product, 15% or more collected plastics in the closed-loop^{*3} shall be used. The inputs of collected plastics to the product are acceptable as for the both reused plastic parts and recycled plastic parts.</p>

*1 Collection rate	<p>Denominator: the number of products in each same product group shipped for the most recent one year period.</p> <p>Numerator: the number of products in each same product group</p>
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	collected for the most recent one year period, which must be the same period as the denominator calculation.
<i>*2 Same product group</i>	Group of products classified as a single category according to indices such as copy speed.
<i>*3 Collected material</i>	Plastic casing parts which contain brominated flame retardant used in collected used in-house copiers. The product groups are not necessarily required to be distinguished, however, printers and MFD whose main function is printing are excluded here.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate. In addition, the list of plastic materials used (Example A) shall be submitted indicating the manufacturer of the raw material, and whether polymers containing halogens, organohalogen compounds, substances indicated in 4-1(8) and the CAS number of the flame retardants used are added. If the CAS Numbers cannot be submitted, information may be included according to the ISO1043-4 (JIS6899-4) code number system. For products excluded from requirements in Table 1 (Criteria) in 4-1(6) and (8), certification documents prescribed in 1 and 2 in Attached Table 1 (Certification Procedure) shall be submitted.

Attached Table 1 (Certification Procedure)

1	<p>Certification documents indicating A to D below shall be submitted.</p> <p>A. Outline of collection and material recycling mechanisms (required items are A-1 to -6 as follows)</p> <p>A-1: Description of collection flow (Diagrams, etc. should be used)</p> <p>A-2: Description of treatment flow (Diagrams, etc. should be used)</p> <p>A-3: Applicable collection and recycling districts</p> <p>A-4: List of collectors and companies handling material recycling (including intermediate disposal companies)</p> <p>A-5: Provision of information to users (to certify that adequate information is provided to users through instruction manuals/ labeling on products)</p> <ul style="list-style-type: none"> • Whether users (persons requesting collection) are charged collection and treatment fees • Contact number to request collection • Indication that used products are collected/recycled after use <p>A-6: Management system</p> <ul style="list-style-type: none"> • Tracking method of collection and treatment results • If introducing the collection/disposal company, notifying these companies • Explanation of how instructions are given • Management of collection and disposal status (storage of records, etc.) <p>B. Description how to determine whether products are of the same product group, and list of products belonging to the same product group</p> <p>C. Results of calculating the collection rate (indicate denominator and numerator values) and applicable period</p> <p>D. Results of calculating material recycling (indicate denominator and</p>
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numerator values), applicable period, products included in calculation (categorize by product group)

For successive products without collection history, in addition to A and B, C and D shall be submitted concerning the *same product group* to which the original product belongs. For new products released less than a year ago, in addition to A and B, C and D shall be submitted concerning the product group considered as the *same product group*.

*Applicants may be asked to submit reports on the collection and material recycling rates after the agreement on use has been entered (or an audit may be conducted) and applicants are required to give full cooperation.

- 2 Calculation sheets indicating the following shall be submitted.
- Total mass of plastic casing parts containing brominated flame retardants, mass of each part including those *collected materials*, and breakdown and total of the content percentage of the respective *collected materials*
(Example of indication of figures)
 Out of the 10 kg total mass of the corresponding plastic casing parts, parts containing *collected materials* are the following three (A to C). Among these, the amount of *collected materials* used totals 300 g from calculation. The product being applied for is certified to contain 3% *collected materials*.
 Part A: 1kg (the content of *collected materials* is 10%)
 =>the amount of *collected materials* :100g(*a)
 Part B: 500g (the content of *collected materials* is 30%)
 => the amount of *collected materials* :150g(*b)
 Part C: 500g (the content of *collected materials* is 10%)
 => the amount of *collected materials* : 50g(*c)

(7) For flame retardants used as prescription components in casing plastic parts weighing above 25g, report their names and CAS numbers. However, instead of reporting their names and CAS numbers, description conforming to the description method of “ISO1043-4 (equivalent JIS standard JIS6899-4)” code number may be submitted.

Also, report the research status (or CAS No., if used) on the use or no-use of relevant flame retardant classified as SVHC (Substances of Very High Concern) by the REACH regulation.

In addition, this criterion shall not apply to the following;

*Large plastic casing parts made of plastic which are demonstrably reused and marked in accordance with (9).

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate. In addition, documents described in 4-1-2(6) [Certification Procedure] shall be submitted.

In addition, the research status (or CAS No., if used) on the use or no-use of relevant flame retardant classified as SVHC (Substances of Very High Concern) by the REACH regulation shall be entered in the description example A

- (8) Plastic casing parts weighing over 25g shall not contain, as prescription constituents, substances classified as category 1-3 of Carcinogens, Mutagens or Toxic for reproduction in accordance with Annex 1 of the EC Council Directive 67/548/EEC on the approximation of laws, regulations, and administrative provisions relating to the classifications, packaging and labeling of dangerous substances in EU or substances classified as carcinogens, mutagens or toxic for reproduction in TRGS905.

However, this criteria shall not apply to the following:

- *Fluoroorganic additives used for improving the physical properties of plastics, provided they are not present in concentrations greater than 0.5 weight percent.
- *Fluorinated plastics such as PTFE, etc.
- *Plastic parts which are installed in the direct vicinity of heating and fusing units.
- *Large plastic casing parts made of plastic which are demonstrably reused and marked in accordance with (9).

Furthermore, for products meeting requirements 1 and 2 of Attached Table 1 (Criteria) in 4-1-2 (6), the use of antimony trioxide (equivalent to carcinogenic substance category 3) is approved.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate. In addition, documents described in 4-1-2 (6) [Certification Procedure] shall be submitted.

- (9) Plastic parts shall be marked according to ISO11469 (corresponding JIS standard JIS K 6999) and in compliance with ISO1043/Parts 1 to 4. (corresponding to JIS standard JISK6899 1-4). However, this need not apply to the parts with weight less than 25g or flat area less than 200mm², or using reused plastics.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate. The applicant shall submit the marked parts list for the plastic (Example 1) upon request of the Eco Mark Office.

4-1-3 Battery

- (10) Batteries used shall not contain cadmium, mercury, lead, and their compounds as prescription constituents.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate.

- (11) Batteries installed in an equipment shall be able to be replaced or removed, without removing a printed circuit board, etc. on which the batteries are mounted, when

they reach the end of their life or at repair.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate.

4-1-4 Toners

(12) Toners shall not include the following heavy metals as prescription constituents: cadmium, lead, mercury, chromium (VI), nickel or compounds of any of these heavy metals. However, this excludes complex compounds of high molecular weight nickel that are included as a colouring agent.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate, and lists issued by toner suppliers on whether the corresponding substances are added (Example 2) shall be submitted.

(13) With regard to azo colorants (dyes and color pigments) in the toner, those which may release amines listed in Table 1 due to the reduction of one or more azo groups (according to analysis methods regulated by the official test method corpus based on the German Law on Foods and Sundries Article 35:Amitliche Sammlung Von Untersuchungsverfahren nach 35 LMBG) shall not be used.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate. In addition, certifying documents (Example 2) shall be submitted.

Table 1 Amines list (according to EU Assembly/Council Directive 2002/61/EC)

	Substances	CAS No.
1	4-aminobiphenyl	92-67-1
2	Benzedrine	92-87-5
3	4-chloro- <i>o</i> -toluidine	95-69-2
4	2-naphthylamine	91-59-8
5	<i>o</i> -aminoazotoluene	97-56-3
6	2-amino-4-nitrotoluene	99-55-8
7	<i>p</i> -chloroaniline	106-47-8
8	2,4-diaminoanisole	615-05-4
9	4,4'-diaminodiphenylmethane	101-77-9
10	3,3'-dichlorbenzidine	91-94-1
11	3,3'-dimethoxybenzidine	119-90-4
12	3,3'-dimethylbenzidine	119-93-7
13	4,4'-diamino-3,3'-dimethyldiphenylmethane	838-88-0
14	<i>p</i> -cresidine	120-71-8
15	4,4'-Methylene-bis – (2-Chloroaniline)	101-14-4
16	4,4'-oxydianiline	101-80-4
17	4,4'-4-Aminophenyl Sulfide Bis	139-65-1

18	<i>o</i> -toluidine	95-53-4
19	2,4-diaminotoluene	95-80-7
20	2,4,5-trimethylaniline	137-17-7
21	<i>o</i> -anisidine	90-04-0
22	4-amino- azo- benzen	60-09-3

(14) Other hazardous substances related to toners shall not contain the following (“a.” to “d.”) substances as prescription constituents:

a. The following substances which need to be labeled as “R” in accordance with Annex I of the EC Commission Directive 67/548/EEC, which deals with the comparison of laws, regulations and administrative rules on hazardous substances classifications, packaging, and labeling in the EU.

*R40 (Limited evidence of a carcinogenic effect)

*R45 (May cause cancer)

*R46 (May cause heritable genetic damage)

*R49 (May cause cancer by inhalation)

*R60 (May impair fertility)

*R61 (May cause harm to the unborn child)

*R62 (Possible risk of impaired fertility)

*R63 (Possible risk of harm to the unborn child)

*R68 (Possible risk of irreversible effects)

b. Substances classified as carcinogenic, mutagenic, and toxic to reproduction by TRGS905

c. Substances required to be marked by a specified hazard symbol as a whole product pursuant to Annex II, in Directive 67/548/EEC on the approximation of the laws, regulations and administrative provisions relating to the classification, packaging and labeling of dangerous substances; and pursuant to Directive 1999/45/EC on the approximation of the laws, regulations and administrative provisions relating to the classification, packaging and labeling of dangerous preparations.

d. Substances required to be marked by R43 (May cause sensitization by skin contact) as a whole product pursuant to Annex III, in Directive 67/548/EEC on the approximation of the laws, regulations and administrative provisions relating to the classification, packaging and labeling of dangerous substances.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate. In addition, certifying documents (Example 2) shall be submitted.

(15) Toner shall give a negative result in the Ames test.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate. According to the Law concerning the Examination and Regulation of Manufacture, etc. of Chemical Substances, a report of the results of the Ames test shall be submitted.

The report shall include the following items:

- Name of the testing institute
- Name of the tested substances
- Testing period
- Used strain
- Test result

(16) Products shall be equipped with the toner MSDS (Material Safety Data Sheet).

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate and MSDS issued by the toner supplier shall be submitted.

4-1-5 Toner cartridges and toner containers

(17) Toner cartridges and toner containers shall comply with “3R Design of Equipment and Consumables” of Attachment 2.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate. Furthermore, the information on which type of the applied product is, “toner cartridge equipped type” or “toner container equipped type” and each serial number of toner cartridge or toner container shall be reported. Required particulars shall be indicated in Attachment 2 “3R Design of Equipment and Consumables” and submitted.

(18) Polybrominated biphenyl (PBB), polybrominated diphenyl ether (PBDE) or short-chain chlorinated paraffin (having a chain of 10 to 13 carbon atoms and a chlorine concentration of 50% or more) are not added to plastic parts of toner cartridges and toner containers as prescription constituents.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate.

(19) Collection systems shall be available for toner cartridges and toner containers.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate. Certificates describing the toner container and toner cartridge collection system shall be submitted.

- (20) Systems shall be available for the material recycling of toner cartridges. Reuse /material recycling rate of collected toner cartridge parts shall be 50% or more of the entire collected used product weight (excluding toner).

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificates and documents describing the total weight of toner cartridges (excluding the toner), reuse and material recycling rate of toner cartridge parts and the use of reuse and material recycling, etc. shall be submitted.

- (21) The recovery rate of collected toner cartridges or toner containers shall be 95% or more of the entire weight of collected used products (excluding toner). Parts of collected toner cartridges or toner containers which cannot be recovered shall not be simply landfilled but be appropriately processed after the weight reduction.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate Documents explaining the recovery rate and demonstrating that the system for processing/disposing of any part that cannot be recovered has been established (capacity of processing, content of processing, etc.) shall be submitted.

- (22) The toner cartridge shall be labeled in accordance with the Guideline for Labeling Office Machines for Securing Safety, revised in December 2000 by the Japan Business Machine Industry Association (currently the Japan Business Machine and Information System Industries Association).

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate.

- (23) The product documentation shall indicate the following information on the use of toner cartridges or toner containers (“a.” to “e.”) clearly:

- a. Proper use
- b. The toner modules should not be forced to open.
- c. If toner dust leak out as a result of inappropriate handling, inhalation and skin contact of dust should be avoided
- d. Measures in case the toner adhere to clothing or hand, or enter eyes or mouth accidentally
- e. The toner modules must be kept out of the reach of children. Measures in case children swallow the toner accidentally

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate. Copies of

the corresponding portions of product documentation shall also be submitted.

- (24) Plastic parts of toner cartridges and toner containers must be made of one monomer or copolymer. Polymer blends (polymer alloys) are permitted. If labels, markings, stickers, etc. are difficult to separate, they must be made of the same material with the plastic parts on which they are put, or must not be the obstacle for recycle of the plastic parts on which they are put.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate. The applicant shall submit a document and list (Example 3) of plastic materials used, and a document describing whether labels, markings, stickers etc are easy to separate in case that labels, markings, stickers, etc. are put on the corresponding plastic parts.

- (25) Toner cartridges and toner containers shall be sealed to prevent leakage of toner during storage and use.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate.

4-1-6 Powder dust, ozone, volatile organic compound (VOC)

- (26) The emission of powder dusts during the copying phase of monochrome equipment and during the monochrome copying phase and the color copying phase of color equipment shall conform to Table 2. This item is not applied to copiers exceeding 60 ipm that prints continuous forms.

For large format copiers or copiers exceeding 70 ipm, measure by the method set forth in Table 2 and submit the measurements as reference values. The large format equipment shall be measured in accordance with Table 2-1..

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate and the applicant shall submit a certificate to show conformance to the measuring method defined by the Blue Angel (Example 4-1) and the actual result of the measurement. If the emissions levels of the fastest model in a series satisfy the criteria, equivalent or slower models in the same series do not require testing..

If submission is difficult at the time of application, a signed consent form indicating that “a certification indicating actual measured values should be submitted by the time the Eco Mark agreement on use is entered, and if criteria are not met, the agreement should not be entered” shall be submitted.

The name and address of the analysis test center as well as registration of ISO 9001(corresponding criteria JIS Q9001) or ISO/IEC17025 certification (corresponding

criteria JIS Q17025) shall also be indicated in the Attached Certificate.

- (27) The emission of ozone during the copying phase of monochrome equipment and during the monochrome copying phase and the color copying phase of color equipment shall conform to Table 2.

This item is not applied to copiers exceeding 60 ipm that prints continuous forms.

For large format copiers or copiers exceeding 70 ipm, measure by the method set forth in Table 2 and submit the measurements as reference values. Large format copiers shall be measured in conformity to Table 2-1.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate and the applicant shall submit a certificate to show conformance to 4-1-6(26)[Certification Procedure].

- (28) The emission of total volatile organic compound (TVOC), styrene, and benzene during the operation shall conform to Table 2.

This item is not applied to copiers exceeding 60 ipm that prints continuous forms.

For large format copiers or copiers exceeding 70 ipm, measure by the method set forth in Table 2 and submit the measurements as reference values on and after June 1, 2008. Measure large format copiers in conformity to Table 2-1.

Here, TVOC is the total of concentrations of identified and unidentified volatile organic compounds, which elute between n-hexane to n-hexadecane, inclusive of these compounds during gas chromatographic separation on a nonpolar column measured by gas chromatograph analysis based on RAL-UZ122 or RAL-UZ171.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate and the applicant shall submit a certificate to show conformance to 4-1-6(26)[Certification Procedure].

Table 2 Criteria for emission of powder dust, ozone and volatile organic compound (VOC)

Target substance		Emission rate(mg/h)		Measuring method	
		Monochrome	Color		
(26)	Powder dust	≤ 4.0	≤ 4.0	The method described in Appendix 2 of Blue Angel (RAL-UZ122) or RAL-UZ171 Appendix S-M	
(27)	Ozone	≤ 1.5	≤ 3.0		
(28)	TVOC	Print phase			
		Ready phase	Floor-mounted	≤ 2.0	≤ 2.0
			Tabletop	≤ 1.0	≤ 1.0

	Styrene	≤ 1.0	≤ 1.8	
	Benzene	< 0.05	< 0.05	

Note: If the emission rate during the color operation phase of color equipment satisfies the criteria for the target substances listed in (26) - (28) during the monochrome operation phase, emissions tests during the monochrome operation phase are not required.

Table 2-1 Measurement conditions of emissions test

Type	Form	Test copy
Electrophotographic large format copier	A4 or full-size which can be printed with the product	A4 copy or A4 test enlarged to the full-size that can be printed with the product.

(29) Product documentation shall indicate that products satisfy criteria 4-1-6(26) to (28) related to chemical emission. This description shall also indicate that the test was performed under the condition of copying phase, using the consumables (toner types) recommended by the manufacturer. In case to satisfy the criteria for monochrome copying only, indicate the fact. The expression may differ from the example given as long as the meaning is the same.

(Description Example 1) Appendix 2 to the RAL-UZ122

“Emissions of dusts, ozone, styrene, benzene, and TVOC conform to Eco Mark No117 “Copier Version2” Certification Criteria on chemical emission. (The test was performed according to the method provided in Appendix 2 to the RAL-UZ122, under the condition of monochrome copying phase, using the toner type XXX recommended by the manufacturer.)”

(Description Example 2) Appendix S-M to the RAL-UZ171

“Emissions of dusts, ozone and styrene, benzene, and TVOC conform to Eco Mark No117 “Copier Version2” certification criteria on chemical emission. (The test was performed according to the method provided in Appendix S-M to the RAL-UZ171, under the condition of monochrome copying phase, using the toner type XXX recommended by the manufacturer.)”

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate. Copies of the corresponding portions of product attachments shall also be submitted. If submission is difficult at the time of application, a signed consent form indicating that “a copy of the corresponding part of the documents attached with the product should be submitted by the time the Eco Mark agreement on use is entered, and if

criteria are not met, the agreement should not be entered” shall be submitted.

- (30) Information encouraging users to provide proper ventilation in long term use in poorly ventilated rooms or for mass copying shall be indicated. This indication should be written in the product documentation. The expression may differ from the example given as long as the meaning is the same.

(Description Example)

“Extended use in poorly ventilated rooms or mass copying increases the odor of ozone, etc., which may cause discomfort in the office environment. Furthermore, proper ventilation should be ensured during mass copying, because chemical substances are emitted.”

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate. Copies of the corresponding portions of product attachments shall also be submitted. If submission is difficult at the time of application, a signed consent form indicating that “a copy of the corresponding part of the documents attached with the product should be submitted by the time the Eco Mark agreement on use is entered, and if criteria are not met, the agreement should not be entered” shall be submitted.

4-1-7 Paper

- (31) If paper to be used falls under a. to c. listed below, based on the provisions on quality control of each company, use of at least one or more type of paper shall be possible:

- a. Applicable scope “PPC paper, business forms and coated paper for color printers (paper for ink jet printing)” of Eco Mark No. 106 “Paper for Communication Version 3”
- b. Applicable scope “Printing paper (Excluding drawing papers included in the “writing and art papers” category designated in the “Paper and Pulp Statistics Annual Report” by the Ministry of Economy, Trade and Industry.) of Eco Mark No. 107 “Printing Paper Version 3”
- c. [Information Paper] “Copier paper, forms, coated inkjet color printer paper”, and [Printing Paper] “Non coated printing paper, coated printing paper” of “2. Paper” of the Law Concerning the Promotion of Procurement of Eco-Friendly Goods and Services by the State and Other Entities

However, this item is not applied to equipment which uses only continuous forms or large format forms.

[Certification Procedure]

Compliance with this item and the names of the paper manufacturer and product brand shall be indicated in the Attached Certificate.

4-1-8 System for repair, supply of maintenance parts

(32) Repair subcontract systems shall be available, and repairs shall be carried out as requested by the users (repair system). The following information on the repair systems shall be provided:

- a. repair services are available;
- b. Scope of repair (details of services), repair time, costs, how services are provided to users, etc.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate. In addition, copies of product documentation showing that the proper system is available (processing ability, information service details indicated in criteria, etc.) shall be copied and submitted.

(33) Maintenance of equipment shall be operated only by persons who have undergone training and persons with the required technical expertise.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate.

(34) Supply of the spare parts shall be continued for five years after production of the copier stops.

[Certification Procedure]

Compliance with this item shall be indicated in the attached certificate, and the applicant shall submit copies of product documentation indicating the matters related to this item.

4-1-9 Collection and recycling of machine

(35) Systems for collecting used products, reusing parts, and recycling materials shall be available. Parts that cannot be recovered shall not be simply landfilled but be appropriately processed after the weight reduction

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate. Explanatory documents indicating the collection, reuse, material recycle, recovery of the products and the system for processing/disposing of any part that cannot be recovered has been established (details of the collection system, reuse, material recycle, recovery, capacity of processing, content of processing, etc.) shall be submitted.

4-1-10 Photoconductor drums

(36) Selenium, cadmium, lead, mercury and their compounds shall not be added as prescription constituents to photoconductor drums used in the product.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate.

(37) Systems for collecting and material-recycling of photoconductor drums shall be available. Parts that cannot be recovered shall not be simply landfilled but be appropriately processed after the weight reduction.

[Certification Criteria]

Compliance with this item shall be indicated in the Attached Certificate. Explanatory documents indicating the collection, material recycle, recovery of photoconductor drums and the system for processing/disposing of any part that cannot be recovered has been established (details of the collection system, reuse, material recycle, recovery, capacity of processing, content of processing, etc.) shall be submitted

4-1-11 Packaging materials

(38) Plastic materials used for packaging products shall not use the specific chlorofluorocarbons (5 CFCs), other CFCs, carbon tetrachloride, trichloroethane, and HCFCs described in Table 4.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate.

Table 3 Substances prescribed in (38)

CFC5s	Trichlorofluoromethane	Dichlorotetrafluoroethane
	Dichlorodifluoromethane	Chloropentafluoroethane
	Trichlorotrifluoroethane	
Other CFCs	Chlorotrifluoromethane	Pentachlorotrifluoropropane
	Pentachlorofluoromethane	Tetrachlorotetrafluoropropane
	Tetrachlorodifluoroethane	Trichloropentafluoropropane
	Heptachlorofluoropropane	Dichlorohexafluoropropane
	Hexachlorodifluoropropane	Chloroheptafluoropropane
	Carbon Tetrachloride	
	1,1,1-Trichloroethane	
HCFC	Dichlorofluoromethane	Dichloropentafluoropropane
	Chlorodifluoromethane	Chlorohexafluoropropane
	Chlorofluoroethane	Pentachlorofluoropropane
	Tetrachlorofluoroethane	Tetrachlorodifluoropropane
	Trichlorodifluoroethane	Trichlorotrifluoropropane
	Dichlorotrifluoroethane	Dichlorotetrafluoropropane

Chlorotetrafluoroethane	Chloropentafluoropropane
Trichlorofluoroethane	Tetrachlorofluoropropane
Dichlorodifluoroethane	Trichlorodifluoropropane
Chlorotrifluoroethane	Dichlorotrifluoropropane
Dichlorofluoroethane	Chlorotetrafluoropropane
Chlorodifluoroethane	Trichlorofluoropropane
Chlorofluoroethane	Dichlorodifluoropropane
Hexachlorofluoropropane	Chlorotrifluoropropane
Pentachlorodifluoropropane	Dichlorofluoropropane
Tetrachlorotrifluoropropane	Chlorodifluoropropane
Trichlorotetrafluoropropane	Chlorofluoropropane

(39) Plastic materials used for packaging of products shall not be composed of halogen containing polymers and organohalogen compound as prescription constituents.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate.

(40) The packaging of products shall give consideration to ease of resource conservation, reuse, and recycling.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate. In addition, the packaged state of products, packaging materials, raw materials used for these packaging, details for realizing resource saving, reuse, and recycling easily shall be indicated specifically (drawings and photographs can be used).

4-1-12. Energy consumption

(41) The energy consumption of each equipment shall comply with the Attachment 3. Definitions, criteria, test procedures, notes and so forth are as stipulated in ENERGY STAR Program Requirements for Imaging Equipment / ENERGY STAR Program Requirements for Imaging Equipment Version 1.1.

However, reuse-conscious copiers, etc. may alternatively satisfy a. and b. described below.

- a. Reuse-conscious copiers shall satisfy the criteria concerning energy consumption shown in Attachment 4 or Attachment 5.
- b. A system for reusing at the time of manufacturing shall be built/maintained and reuse-conscious copiers shall be manufactured from the system.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate and the applicant shall submit a certificate (Example 5) by each applying equipment

complying with Attachment 3. If submission is difficult at the time of application, a signed consent form indicating that “a certification indicating conformance to Attachment 3 should be submitted for each equipment applying for certification by the time the Eco Mark agreement on use is entered, and if criteria are not met, the agreement should not be entered” shall be submitted.

The name and address of the analysis test center as well as conformance to ISO 9001 registration (corresponding JIS Q9001) or ISO/IEC17025 certification (corresponding JIS Q17025) shall also be indicated in the Attached Certificate.

In addition, for reuse-conscious copiers, etc. that satisfy a. and b. above (that are exempted), the following 1), 2), and 3) shall be submitted:

- 1) A certificate indicating compliance with Attachment 4 or Attachment 5 (Example 5)
- 2) Description of a reuse process (as a description of the manufacturing line, whether the process corresponds with a “dedicated line” or “manufacturing line equivalent to a newly built machine”)
- 3) Part reuse ratio (mass ratio)

For a “reproduction type machine”, the part reuse ratio shall be an average use ratio of reused parts to one product.

For a “part reuse type machine”, the part reuse ratio shall be a use ratio of all reused parts used in equivalent models to all products manufactured on an equivalent manufacturing line for a certain period of time.

If there is no track record, “Reuse production plans” when production starts, the part reuse ratio (track record) of other equivalent products, and planned part reuse ratio (possible ratio) shall be submitted. In addition, the applicant shall respond to a request from the Eco Mark Office for track records of product recovery that will serve as a basis of reuse, amount of recovered products that can be used as reuse parts, and hearings regarding the reuse track records or part reuse ratio, etc.

If it is difficult to submit 1) Certificate (Example 5) at the time of application, a signed consent form similar to that described above shall be submitted. The name and address of the analysis test center as well as conformance to ISO 9001 registration (corresponding JIS Q9001) or ISO/IEC 17025 certification (corresponding JIS Q17025) shall also be indicated in the Attached Certificate.

4-1-13 Noise

- (42) The noise emission shall be measured in accordance with the method specified in ISO 7779 (corresponding JIS X7779), and the declared A-weighted sound power level

“ L_{Wad} ” shall be determined in accordance with ISO 9296 (corresponding JIS X 7778). The declared A-weighted sound power level “ L_{Wad} ” during monochrome copying and color copying by color equipment shall satisfy Table 4. However, the mode of operation shall be flat bed copying (single-sided copying).

This requirement is not applicable to products whose CPM >70. However, as a reference value, “the declared A-weighted sound power level L_{Wad} ” based on the same method shall be submitted.

For the Large-Format equipment (A2 or larger), the CPM may be counted on an A4 basis (by Energy Star).

Color patterns prescribed in JBMS-74-1 may be used for color printing.

For the products equivalent to the Blue Angel certified items, the measurement method described in 3.5 of RAL-UZ122 or 3.5.1 of RAL-UZ171 is approved.

[Certification Procedure]

The applicant shall submit a certificate (Example 4-1 and 4-2) including the declared A-weighted sound power level “ L_{Wad} ” determined in accordance with ISO 9296 (corresponding JIS X 7778) after being measured in accordance with the method specified in ISO 7779 (corresponding JIS X 7779). However, the mode of operation shall be flat bed copying (single-sided copying). For the Blue Angel certified products, the applicant shall submit a certificate (Examples 4-1/4-2) including the declared A-weighted sound power level “ L_{Wad} ” determined in accordance with ISO 9296 (corresponding JIS X 7778) based on the actual measured values obtained using the method described in 3.5 of RAL-UZ122 or 3.5.1 of RAL-UZ171.

If submission is difficult at the time of application, a signed consent form indicating that “a certification indicating the declared A-weighted sound power level “ L_{Wad} ” determined in accordance with ISO 9296 (corresponding JIS X 7778) based on the actual measured values should be submitted by the time the Eco Mark agreement on use is entered, and if criteria are not met, the agreement should not be entered” shall be submitted.

The name and address of the analysis test center as well as conformance to ISO 9001 registration (corresponding criteria JIS Q9001) or ISO/IEC 17025 certification (corresponding criteria JIS Q17025) shall also be indicated in the Attached Certificate.

Table 4 Criteria for noise of copier and MFD

Declared A-weighted sound power level “ L_{Wad} ” (B)	
Monochrome	Color
$\leq 0.035 \cdot S_{bw} + 5.9$ and ≤ 7.5	Parallel equipment: $\leq 0.03 \cdot S_{co} + 6.1$ and ≤ 7.5

	Serial equipment : Submit reference values for the equipment of $S_{co} < 0.5 S_{bw}$
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S_{bw} : Operating speed in pages per minute for monochrome copying

S_{co} : Operating speed in pages per minute during color copying

4-1-14 Double-side copying

(43) As shown in Table 5 for monochrome equipment and Table 6 for color equipment, automatic double-side copying (so-called Duplex unit) corresponding to the operating speed shall be equipped as a standard function, or it can be equipped as an optional function. However, this requirement shall not apply to any Large-Format equipment.

[Certification Criteria]

Compliance with this item shall be indicated in the Attached Certificate. In addition, certificates (Example 5) indicating that Duplex unit is equipped or be able to be upgraded shall be submitted for each equipment.

Table 5 Criteria for double-side copying function of monochrome equipment

Product speed ipm	Double-side copying
$0 < ipm \leq 24$	Not applicable
$25 \leq ipm \leq 44$	Standard function at purchasing, or optional function
$45 \leq ipm$	Standard function at purchasing

Table 6 Requirement for double-side copying function of color equipment

Product speed ipm	Double-side copying
$ipm \leq 19$	Not applicable
$20 \leq ipm \leq 39$	Standard function at purchasing, or optional function
$40 \leq ipm$	Standard function at purchasing

4-1-15 Product Documentation

(44) User information on the following: “a.” to “h.” shall be provided in the product documentation.

- a. Installation conditions for machinery
- b. Recycling information of used products
- c. Places accepting used products
- d. Information on collection, reuse, material recycling, recovery or disposal of used OPC kit / photoconductor drums, toner containers (including toner cartridges), etc.
- e. Information on collection, reuse, material recycling, recovery or disposal as the waste of secondary batteries after use.

- f. Provision of information on paper that can be used
- g. Equipment is equipped with double-side copying or is available to be upgraded later.
- h. Detailed product information other than product documentation (electronic media, etc.) is available.

[Certification Procedure]

Compliance with this item (information on the use of secondary batteries for each equipment type) shall be indicated in the Attached Certificate. Copies of appropriate portions of product documentation including user information shall be submitted. If submission is difficult at the time of application, a signed consent form indicating that “a copy of documents attached with the product should be submitted for each corresponding part by the time the Eco Mark agreement on use is entered, and if criteria are not met, the agreement should not be entered” shall be submitted.

4-1-16 Manufacturing criteria

- (45) Specific chlorofluorocarbons (5 CFCs), other CFCs, carbon tetrachloride, trichloroethane, and HCFCs listed in Table 3 shall not be used in the final manufacturing stage, final supply stage of products and circuit boards, and during cleaning of parts for reuse.

[Certification Procedure]

Compliance with this item shall be indicated in the Attached Certificate.

- (46) In manufacturing the applied product, related environmental laws and regulations and pollution control agreement (hereinafter referred to as the “Environmental Laws, etc.”) must be followed with respect to air pollution, water contamination, noise, offensive odor, and emission of hazardous materials in the area where the plant performing the final manufacturing process is located.

In addition, the state of compliance with the Environmental Laws, etc. for the last five years from the date of application (whether there is any violation) must be reported. If there is any violation, it is necessary that proper remedies and preventive measures have been already taken, and the related Environmental Laws, etc. must thereafter be followed appropriately.

[Certification Procedure]

With respect to the compliance with the Environmental Laws, etc. in the area where the plant performing the final manufacturing process is located, a certificate issued by the representative of the business of manufacturing the applied product or the manager of the relevant plant (entry or attachment of the list of names of the Environmental Laws, etc.) must be submitted. (Example 6)

In addition, it is necessary to report whether there is any violation during the last

five years, including a violation subject to administrative punishment or administrative guidance, and if there is, the following documents in a and b must be submitted:

- a. With respect to the fact of violation, guidance documents from administrative agencies (including order of correction and warning) and copies of written answers (including those reporting causes and results of correction) to such documents (making a series of progress clear);
- b. Following materials (copies of recording documents, and so on) concerning the management system for compliance with the Environmental Laws, etc. in 1)-5):
 - 1) List of the Environmental Laws, etc. related to the area where the plant is located;
 - 2) Implementation system (organizational chart with entry of roles, etc.);
 - 3) Document stipulating retention of recording documents;
 - 4) Recurrence prevention measures (future preventive measures);
 - 5) State of implementation based on recurrence prevention measures (result of checking of the state of compliance, including the result of onsite inspection).

4-1-17 Chemical substance management

(47) The content rate of lead, mercury, cadmium and these compounds, hexavalent chromium compounds, Polybrominated biphenyl (PBB) or Polybrominated diphenylether (PBDE) in the product shall comply with ANNEX II (Table 7) of the amended RoHS Directive (2011/65/EU). However, this does not apply to those substances specified in ANNEX III.

This item does not apply to any recycled or reused components.

[Certification Procedure]

The Applicant shall state in the Attached Certificate the conformity or not of the product to this criteria and confirmation method.

Table 7 Content rate

material	Content rate[wt%]
Lead and its compounds	≤ 0.1
Mercury and its compounds	≤ 0.1
Cadmium and its compounds	≤ 0.01
Hexavalent chromium compounds	≤ 0.1
Polybrominated biphenyl (PBB)	≤ 0.1
Polybrominated diphenylether (PBDE)	≤ 0.1

* The content rate refers to the content proportion in a homogeneous substance (minimum unit that can be separated by rule with totally uniform composition).

4-2 Quality Criteria and Certification Procedure

None.

5. Considerations

In manufacturing products, it is desirable to consider the following, although they are not requirements for certification. The conformance to the individual criteria item shall be indicated in Attached Certificates.

- (1) Instruction manuals (user manuals) provided to users shall conform to the following “a.” to “c.” and d
 - a. The binding method shall not impede waste paper recycling. However, use of hot melt adhesive is approved.
 - b. Chlorine gas shall not be used in the bleaching process of waste paper pulp.
 - c. The percentage of waste paper in the pulp mixture shall be over 70%.
However, for the documentation printed overseas, “a” and either “b” or “d” below shall be considered.
 - d. The percentage of waste paper in the pulp mixture shall be over 30%.

6. Product Category, Indication and Others

- (1) The product classification shall be identified for each model or each series of models.
When it is identified for each series of models, the application may be made only once on condition that each model of the product in a series satisfies the criteria.
- (2) The environmental information shown below shall be indicated below the mark.
However, the indication of Eco Mark and certification information (Type B indication) can be allowed by following “Guide to Eco Mark usage” (enforced on March 1, 2011).
The location and details of the Eco Mark to be indicated shall be submitted when applying for Eco Mark product certification and use.
The environmental information shall be indicated as “3R & energy-saving design” enclosed in a rectangular box.
However, for only stocks produced within the current contract period of the existing certified products, the past description below the Eco Mark and certification number can be indicated for a period of one year from the new date of contract. The following shows an example.



XXXX Ltd. (Authorized Eco Mark Holder)

Eco Mark Certification Number

No. XXXX (Indication of numbers only is allowed)

August 1, 2005	Established (Version2.0)
October 19, 2006	Revised, Add combined use of the latest test for emission (Version2.1)
May 5, 2007	Revision [Attachment 1 of 4-1-1(1) and 4-1-4(18), 4-1-1(3), 4-1-5(26): Restriction for attaching labels, etc. on plastics, 4-1-2(6): Report of reused rate of recycled plastic materials, etc., 4-1-4(13): Addition of controlled substances, 4-1-6(28),(29),(30): Changing of test method, addition of criterion for color equipment, 4-1-8(36): Changing the service period of spare parts, 4-1-(43): Changing criterion for energy consumption,4-1-13(44): Addition of criterion for color copying phase, 4-1-14(45): Changing requirements for double-side copy, 4-1-15(46): Changing criterion for product documentations printed overseas, 4-1-8(35),4-1-15(43),(44): Deletion Version2.2], Validity period
August 1, 2007	Revision (4-1-6. (28) (29) (30), etc. Version2.3)
February 14, 2008	Revision (Mixing of waste paper pulp, etc., 4-1-6. (28)(29)(30) Version2.4)
June 9, 2008	Revision (4-1-6 (28) (29) (30): Exempted equipment, Version2.5)
August 21, 2008	Revision (4-1-15(48) Version2.6)
April 28, 2008	Revision (4-1-11(42), 4-1-12(43), 4-1-13(44) Version 2.7)
January 1, 2010	Revision (4-1-2(5)(8), 4-1-5(20), 4-1-12(43), 4-1.16(49) Version2.8)
January 1, 2011	Revision (4-1-11(42) Version2.9)
March 1, 2011	Revision (Version2.10)
October 1, 2011	Revision (4-1-7(33), 4-1-15(46), 5, Version2.11)
July 5, 2012	Revision (4-1-6(30) (Version2.12)

October 1, 2012	Revised (6(3) and (4) deleted Version2.13)
March 1, 2013	Revised (Version2.14)
April 30, 2017	Expiration date

The certification criteria of this product category will be revised as necessary.

Attached Table 1

Corresponding Table to the Certification Criteria of the Blue Angel and the Nordic Swan

Eco Mark No.117 Copier Ver.2.2 or later	Eco Mark No.132 Toner Cartridge Ver.1	Blue Angel RAL-UZ122 Office Equipment with Printing Function	Nordic Swan Imaging equipment
4-1-1 (1)	-	3.1.1	-
4-1-1 (2)	-	3.1.1	R5
4-1-1 (3)	-	3.1.1	R6
4-1-2 (4)	-	3.1.1	R9
		3.1.2.1	
		3.1.2.2	
4-1-2 (5)	-	-	R8
4-1-2 (6)	-	3.1.2.1	R12
			R13
4-1-2 (7)	-	3.1.2.1	R13
4-1-2 (8)	-	3.1.2.1	R13
4-1-2 (9)	-	3.1.3	R9
4-1-3 (10)	-	3.1.4	R14
4-1-3 (11)	-	3.1.4	-
4-1-4 (12)	4-1-3 (20)	3.2.2.2	-
4-1-4 (13)	4-1-3 (21)	3.2.2.3	-
4-1-4 (14)	-	3.2.2.1	-
4-1-4 (15)	4-1-3 (22)	-	-
4-1-4 (16)	4-1-3 (24)	-	-
4-1-5 (17)	4-1-1 (6)	3.2.1.1	-
4-1-5 (18)	4-1-1 (14)	-	-
4-1-5 (19)	4-1-1 (7)	-	-
4-1-5 (20)	4-1-1 (7)	-	-
4-1-5 (21)	4-1-1 (8)	-	-
4-1-5 (22)	-	-	-
4-1-5 (23)	4-1-1 (9)	-	-
4-1-5 (24)	4-1-1 (12)	-	-
4-1-5 (25)	4-1-1 (16)	-	-
4-1-6 (26)	4-1-1 (3)	3.3.2	R22
4-1-6 (27)	-	3.3.2	-
4-1-6 (28)	4-1-1 (4)	3.3.2	-
4-1-6 (29)	-	-	-
4-1-6 (30)	-	-	-
4-1-7 (31)	4-1-2 (19)	-	-
4-1-8 (32)			
4-1-8 (33)	-	3.1.9	-

Eco Mark No.117 Copier Ver.2.2 or later	Eco Mark No.132 Toner Cartridge Ver.1	Blue Angel RAL-UZ122 Office Equipment with Printing Function	Nordic Swan Imaging equipment
4-1-7 (34)	-	3.1.8	R18
4-1-9 (35)	-	-	-
4-1-10 (36)	4-1-1 (5)	3.1.7	-
4-1-10 (37)	-	-	-
4-1-11 (38)	-	-	-
4-1-11 (39)	-	3.1.11	R16
4-1-11 (40)	-	-	-
4-1-12 (41)	-	-	R4
4-1-13 (42)	-	3.5	R23
4-1-14 (43)	-	-	R19
4-1-15 (44)	-	-	-
4-1-16 (45)	-	-	R15
4-1-16 (46)	-	-	-
4-1-17 (47)	-	-	-

* In case that there is a number in the column of the Blue Angel and/or Nordic Swan, a documentation for the Eco Mark can be omitted.

Attached Table 2**Checklist for 3R Design of Equipment and Consumables**

Items

The checklist consists of the following three requirement groups:

- Structure and Connection Technology
- Material Selection and Marking
- Longevity

Applicable Scope

The requirements apply to certain sub-assemblies of basic unit of equipment and consumables:

Sub-assembly	Unit consisted of at least two components linked by power or design.
Case part	Part which protects the built-in parts from environmental effects and user from getting into contact with moving, radiating, or current-carrying components.
Electronic/ Electronic sub-assembly	Assembly which includes at least one electric or electronic component.
Mechanical part	Part not contained in an electric/electronic sub-assembly with either mechanical or optical function (except for case and chassis).
Toner module	Toner cartridge and toner container

Category Classification

Any requirements are classified as either "M" or "S".

M-Requirement	Requirements which must be met
S-Requirement	Requirements which should be met

Compliance with 3R Design

It is determined that equipment and consumables comply with the 3R design requirements if they meet the items listed in the checklist.

Date:

Device type:

Consumables:

Name of company:

Name of person in charge:

Annex1 Materials, preparations and components that are to be handled selectively

At least the following materials, preparations and components must be removed from separately collected used electronic equipment.

- PCB containing (PCB: polychlorinated biphenyls) capacitors according to Directive 96/59/EC on the removal of polychlorinated biphenyl and polychlorinated terphenyl compounds (PCB/PCT)
- Mercury-containing components like lamps for background lighting;
- Batteries;
- Printed circuit boards if the surface of the printed circuit board is larger than 10 square centimeters;
- Toner modules, powdery, paste-like and liquid toners including colour toners;
- Plastic parts that contain brominated flame retardants;
- Liquid crystal displays (with the casing, where applicable) with a surface of more than 100 square centimeters;
- External electric power lines;
- Electrolyte capacitors that contain critical materials (height; >25mm; diameter: >25mm or similar proportionate volumes):

These materials, preparations and components are to be disposed of or recycled in accordance with Article 4 of Directive 75/442/EEC.

Checklist for 3R design of equipment/consumables

"M"-requirements, which must be met

Requirement group	No.	Requirement	Applies to subassembly(-ies)	Compliance?	Remarks	Purpose	
	1	Components made of materials incompatible with each other are connected separably or via separation aids.	Case parts, chassis, electric modules, toner modules	Yes / No		Promoting reuse and recycling	
	2	Electronic modules are easily traceable and removal.	Entire unit, including lumps	Yes / No		Facilitating parts search	
	3	Disassembly for recycling can be done with universal tools exclusively	Case, chassis, electric modules	Yes / No	"Universal tools" refers to widely used, commercially available tools. This requirement dose not apply to connections where legal regulations have influenced the choice of joining technique.	Facilitating disconnection	
	4	Necessary points of application and working space for disassembly tools have been taken into consideration?	Case parts, chassis electric modules	Yes / No		Facilitating disconnection	
	5	Screwed connections between modules can be separated with no more than three tools.	Case parts, chassis, electric modules	Yes / No	Tools can be distinguished by drive type (for example, cross-head slots) and drive size (for example, tool size).	Facilitating disconnection	
	6	Disassembly can be done by a single person.	Entire unit	Yes / No	For example, if an undercut angle is 90 degrees or greater, any number of snap-fit joints that snap-fit in the same direction can be fit together simultaneously, but disconnecting them is not always possible. This requirement is considered not satisfied if three or more snap-fit joints cannot be simultaneously disconnected.	Facilitating dismantling	
	7	Case parts are free from electronic modules. Control element attached to the case and case parts which simultaneously perform the functions of the chassis are not considered as case parts.	Case parts	Yes / No		Promoting reuse and recycling	
	8	The manufacturer did a trial disassembly (e.g. according to 1-7 and prepared a test report focusing on the weak-points	Entire unit	Yes / No			
	9	The variety of materials forming plastic components performing comparable functions are limited to one material. This requirement shall not apply to parts that have been reused as can be proved.	Case parts (> 25 g), chassis, machine parts	Yes / No	For instance, "similar functions" refer to impact resistance and abrasion resistance.	Promoting reuse and recycling	
	10	(a) The coating of plastic components has been limited to the minimum necessary. Laser-produced labelings shall not be considered as printings. This requirement shall not apply to parts that have been reused as can be proved.	Case parts, toner modules	Yes / No	Coating includes layers of paint, vacuum-deposited layers and print.	Promoting reuse and recycling	
		(b) The paints which shall not prevent recycling has been used. Coating works have been conducted with considerations for occupational safety and health and reducing environmental burden.	Case parts, toner modules	Yes / No	"Paints not to prevent recycling" refers to the paints that have the following characteristics: it possesses compatibility with materials of coated parts, and does not prevent high-level material recycling (horizontal recycling for in-house products). "Considerations for occupational safety and health" includes ventilation/air emission and worker' wearing protective equipment. "Considerations for reducing environmental burden" includes the measures to control VOC emission into the air, such as the removal equipment, the devices in coating process, or replacement by low-VOC paint.		
		If "Yes" in (a) or (b), it is considered to conform this requirement.					
	11	Materials can be reused as materials, and materials are assembled such that they can be separated.	Case parts, chassis, case parts of toner modules	Yes / No	"Can be reused as materials" means that recycled material identical to the starting material can be manufactured. (It can be used as if it were the original material.) This item asks the intention and purpose upon designing and does not ask whether recycling is actually conducted.	Promoting reuse and recycling	

	12	The proportional use of recyclable material is permitted	Case parts, chassis, toner modules	Yes / No	"Permitted" means the use of recyclable material is permitted as long as such material meets the requirements provided in the specifications and is available. "Proportional" means some available plastic components are appropriate. (This does not require all available components.)	Promoting reuse and recycling
	13	Components and materials under Annex 1 can be easily exchanged	Entire unit	Yes / No		Promoting reuse and recycling
	14	Plastic parts >25g and >200mm ² (flat area) are marked in accordance with ISO11469:2000(corresponding standard JIS K6999:2004).	Entire unit	Yes / No		Promoting reuse and recycling
	15	Material selection according to 10-14 has been done and recorded in writing.	Case parts, chassis, toner modules	Yes / No		
	16	At least 50% of the components* of the device, except for standard parts, are identical in design to those in other devices of the same manufacturer and the same performance category and generation.	Entire unit	Yes / No		Promoting commonization of parts
Longevity	17	The use of reprocessed modules or components is possible and permissible.	Entire unit	Yes / No	Referring to that spare/ETN(Equivalent to new) parts must be prepared for reuse under manufacturer's responsibility	Promoting reuse and recycling
	18	Toner modules can be reproduced	Toner modules, except containers	Yes / No	Reuse should not be prevented by constructive measures.	Promoting reuse and recycling

"S"-requirements, which should be met

Requirement group	No.	Requirement	Applies to subassembly(-ies)	Compliance?	Remarks (placed only if necessary)	Purpose
Structure and Connection Technology	1	Separable connections are easily traceable. If they are hidden the product should bear corresponding notes (e.g. laser labeling or injection moulded.)	Case parts, chassis, toner modules	Yes / No		Facilitating parts search
	2	All connection elements to be separated for recycling purposes are axially accessible	Case parts, chassis, electric modules	Yes / No		Facilitating disconnection and taking out of parts
	3	At least 50% of the separable connections between plastic components are plug/snap connections.	Case parts	Yes / No		Facilitating disconnection
Material Selection and Marking	4	The supporting surface can be maintained during the entire disassembly work	Unit to be handled	Yes / No	The supporting surface refers to the product surface for wrecking company to work on. This requirement enables to indirectly check whether or not there is hierarchical structure. Unit to be handled refers to the unit which exceeds 5 kg, or can be turned over in case of less than 5kg.	Facilitating dismantling
	5	Components made of the same sort of plastics are dyed uniformly or compatibly. Integrated control elements shall be exempt from this requirement.	Case parts, toner modules	Yes / No	"Compatible dyeing" stands for different shades of one colour(e.g. grey and anthracite).	Promoting reuse and recycling
	6	Does recycled material account for at least 5% of the total plastic weight?	Case parts, cases of toner module	Yes / No	Total plastic weight means the total weight of all applicable plastic parts." Recycled material" means recycled plastic pellets, not plastic parts that include recycled plastics. The source of recycled pellets does not matter. In other words, the recycled plastic does not have to be from recycled pellets obtained from parts used in printers or copiers; it can be from other products on the market.	Reducing environmental burden
Longevity	7	Toner modules of individual colours can be exchanged separately	Toner modules	Yes / No		Promoting reuse and recycling

Criteria concerning energy consumption

1. Copier excluding “Large-Format Copier” shall comply with each criteria shown in Table A for monochrome equipment and color equipment.
2. “Monochrome MFD” and “Color MFD” shall comply with each criteria shown in Table B. (The equipment having copying function only at shipment shall apply to the TableA)
3. “Large-Format Copier” and “Large-Format MFD” shall comply with each criteria shown in Table C.

Definitions, criteria, test procedures, notes and so forth are as stipulated in ENERGY STAR Program Requirements for Imaging Equipment / ENERGY STAR Program Requirements for Imaging Equipment Version 1.1.

Table A Criteria on Copiers

Monochrome		Color	
Monochrome Product Speed (ipm)	Maximum TEC (kWh/week)	Monochrome Product Speed (ipm)	Maximum TEC (kWh/week)
$x \leq 15$	≤ 1.0 kWh	$x \leq 32$	$\leq (0.10 \text{ kWh/ipm}) x + 2.8$ kWh
$15 < x \leq 40$	$\leq (0.10 \text{ kWh/ipm}) x - 0.5$ kWh	$32 < x \leq 58$	$\leq (0.35 \text{ kWh/ipm}) x - 5.2$ kWh
$40 < x \leq 82$	$\leq (0.35 \text{ kWh/ipm}) x - 10.3$ kWh	$58 < x$	$\leq (0.70 \text{ kWh/ipm}) x - 26.0$ kWh
$82 < x$	$\leq (0.70 \text{ kWh/ipm}) x - 39.0$ kWh		

x = Monochrome Product Speed (ipm).

Table B Criteria on MFD

Monochrome		Color	
Monochrome Product Speed (ipm)	Maximum TEC (kWh/week)	Monochrome Product Speed (ipm)	Maximum TEC (kWh/week)
$x \leq 10$	≤ 1.5 kWh	$x \leq 26$	$\leq (0.10 \text{ kWh/ipm}) x + 3.5$ kWh
$10 < x \leq 26$	$\leq (0.10 \text{ kWh/ipm}) x + 0.5$ kWh	$26 < x \leq 62$	$\leq (0.35 \text{ kWh/ipm}) x - 3.0$ kWh
$26 < x \leq 68$	$\leq (0.35 \text{ kWh/ipm}) x - 6.0$ kWh	$62 < x$	$\leq (0.70 \text{ kWh/ipm}) x - 25.0$ kWh
$68 < x$	$\leq (0.70 \text{ kWh/ipm}) x - 30.0$ kWh		

x = Monochrome Product Speed (ipm).

Table C Criteria concerning maximum default delay times to sleep mode, power consumption in sleep mode and in standby (W) for “Large-Format Copier” and “Large-Format MFD”.

Monochrome Product Speed (ipm)	Maximum Default Delay Times to Sleep(minutes)	Sleep (W)		Standby(W)
		Large format printers	Large format MFDs	

$0 < \text{ipm} \leq 30$	≤ 30	≤ 14	≤ 30	≤ 1
$31 \leq \text{ipm}$	≤ 60			

Note on Table C

- 1) 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).
- 2) Default Delay Time Requirements: Products must meet the default-delay time settings provided in Tables C - attached Table 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 C and D may be user adjustable.

Table C -Annex functional-adder allowances for the maximum power consumption of sleep mode

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, RS232, and/or fax modem.			
	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		
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 or non-CCFL lamps	—	0.5
	The presence of a scanner that uses Cold Cathode Fluorescent Lamp (CCFL) technology or a technology other than CCFL, such as Light-Emitting Diode (LED), Halogen, Hot-Cathode Fluorescent Tube (HCFT), Xenon, or Tubular Fluorescent (TL) technologies. This adder is applied only once, regardless of the lamp size or the number of lamps/bulbs employed.		
	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.		

For the adder allowances shown in Table 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 C - attached 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.

Attachment 4

Criteria concerning energy consumption

(Attachment 4 is applicable for the copiers considering the reuse.)

1. “Copier” excluding “Large-Format Copier” shall comply with each criteria shown in Table a. for monochrome equipment and color equipment.
2. “Monochrome MFD” and “Color MFD” shall comply with each criteria shown in Table b-1 and Table b-2, respectively. (The equipment having copying function only at shipment shall apply to the item “a.”).
3. “Large-Format Copier” and “Large-Format MFD” shall comply with each criteria shown in Table c.

Definitions, criteria, test procedures, notes and so forth are as stipulated in ENERGY STAR Program Requirements for Imaging Equipment / ENERGY STAR Program Requirements for Imaging Equipment Version 1.0.

Table a. Criteria concerning power consumption efficiency of copier

	kWh/week	
	Black and white equipment	Color equipment
0<ipm≤12	1.5 kWh/week	(0.2 kWh/ipm)x+2kWh
12<ipm≤50	(0.2 kWh/ipm)x-1kWh	
50<ipm	(0.8 kWh/ipm)x-31kWh	(0.8 kWh/ipm)x-28kWh

x = Product speed

Table b-1. Criteria concerning power consumption efficiency of monochrome MFPs

	kWh/week
0 < ipm ≤ 20	(0.2 kWh/ipm)x + 2kWh
20 < ipm ≤ 69	(0.44 kWh/ipm)x -2.8 kWh
69 < ipm	(0.8 kWh/ipm)x -28 kWh

x = Product speed

Table b-2. Criteria concerning power consumption efficiency of color MFPs

	kWh/week
0 < ipm ≤ 32	(0.2 kWh/ipm)x + 5 kWh
32 < ipm ≤ 61	(0.44 kWh/ipm)x -2.8 kWh
61 < ipm	(0.8 kWh/ipm)x -25 kWh

x = Product speed

Table c. Criteria for maximum default delay times to sleep mode and power consumption in sleep mode for large-format copiers and large-format MFPs

	Delay time	Power consumption in sleep mode

0 < ipm ≤ 30	30 min	58W
31 ≤ ipm	60 min	

Notes for Tables c:

- 1) For products that meet the Sleep-mode power consumption requirements 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.
- 2) All 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 may be user adjustable
- 3) For products to be shipped with functions such as network connections, the allowances corresponding to the function types listed in Table c-Annex should be added to the criteria for power consumption in Sleep, listed in Tables c. The total value for the base product with applicable "functional adders" should be used. Manufacturers may apply no more than three Primary functional adders to each product model, but may apply as many Secondary adders as are present (with Primary adders in excess of three included as Secondary adders). The interfaces on products with more than one interface are considered to be unique and separate. However, interfaces that perform more than one function count as only one interface.

Table c-Annex: Functional Adder Allowances for Maximum Power Consumption in Sleep Mode

	Type	Examples	Primary adder allowance (W)	Secondary adder allowance (W)
1	A physical data- or network-connection port (interface) that is capable of a transfer rate of < 20 MHz	USB1.x, IEEE488, IEEE 1284/Parallel/ Centronics, RS232	0.3	0.2
2	A physical data- or network-connection port (interface) capable of a transfer rate of ≥ 20 MHz and < 500 MHz	USB2.x, IEEE1394/FireWire/i.LINK, 100M Ethernet	0.5	0.2
3	A physical data- or network-connection port (interface) capable of a transfer rate of ≥ 500 MHz	1G Ethernet.	1.5	0.5
4	A data- or network-connection port (interface) designed to transfer data via radio-frequency wireless means.	Bluetooth, 802.11	3.0	0.7
5	A physical data- or network-connection port (interface) designed to allow the connection of an external device, such as a card, camera or storage device.	Flash memory reader, smart card reader, camera interface, PictBridge	0.5	0.1
6	A data- or network-connection port (interface) designed to transfer data via infrared technology	IrDA	0.2	0.2
7	Separate internal storage drives. This adder does not cover interfaces to external drives or internal memory.	Disk drive, DVD drive, Zip drive	—	0.2

8	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.	—	—	2.0
9	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.	Scanners using a light-emitting diode (LED), halogen, hot-cathode fluorescent tube (HCFT), xenon or tubular fluorescent lamp (TL) technologies	—	0.5
10	PC-based system that cannot print, copy or scan without use of significant PC resources. This adder applies to products that rely on an external computer for significant resources, such as memory and data processing, to perform basic functions commonly performed independently, such as page rendering.	—	—	-0.5
11	A system capable of communicating with a cordless handset. This adder is applied only once, regardless of the number of cordless handsets that can be handled.	—	—	0.8
12	The internal memory capacity available for storing data. This adder applies to all volumes of internal memory and should be scaled accordingly.	A unit with 2.5 GB of memory would receive an allowance of 2.5W, while a unit with 0.5 GB would receive an allowance of 0.5W.	—	1.0W per GB

13	<p>Power-supply (PS) size, based on PS output rating (OR). The allowance is calculated from the internal and external power supply's rated DC output as specified by the power supply manufacturer. (This adder does not apply to scanners.)</p>	<ul style="list-style-type: none"> • A unit rated to provide up to 3A at 12V has a PSOR of 36W and would receive an allowance of $0.05 \times (36-10) = 0.05 \times 26 = 1.3W$. • For power 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 24V and 1.5A of 5V output has a total PSOR of $(3 \times 24) + (1.5 \times 5) = 79.5W$, and an allowance of $0.05 \times (79.5-10) = 3.475W$. 	—	<p>For PSOR > 10W, $0.05 \times (\text{PSOR} - 10W)$</p>
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NOTE: A "primary adder allowance" refers to an allowance that can be added for connections that remain active while the imaging product is in Sleep. A "secondary adder allowance" refers to an allowance that can be added for connections that can be inactive while the imaging product is in Sleep.

Attachment 5

Criteria concerning energy consumption

(Attachment 5 shall apply to reuse-conscious copiers, etc.)

1. Reuse-conscious copiers shall comply with each criteria shown in Table1.
2. Reuse-conscious large-format copiers shall comply with each criteria shown in Table2.
3. Reuse-conscious multifunctional devices (including those having the color copying function)、 shall comply with each criteria shown in Table3.
4. Reuse-conscious large-format multifunctional devices、 shall comply with each criteria shown in Table4.
5. Reuse-conscious upgradable digital copiers、 shall comply with each criteria shown in Table5.
6. Reuse-conscious upgradable large-format digital copiers shall comply with each criteria shown in Table 6.

Table1 Criteria concerning power consumption in low power mode, etc. for Reuse-conscious copiers.

Copy speed (CPM: copy per minutes)	power consumption in low power mode	Time to low power mode	Recovery time from low power mode	power consumption in off mode	Time to off mode
$0 < \text{CPM} \leq 20$	—	—	—	$\leq 5\text{W}$	≤ 30 minutes
$20 < \text{CPM} \leq 44$	$\leq 3.85 \times \text{CPM} + 5\text{W}$	≤ 15 minutes	≤ 30 seconds	$\leq 15\text{W}$	≤ 60 minutes
$44 < \text{CPM}$	$\leq 3.85 \times \text{CPM} + 5\text{W}$	≤ 15 minutes	≤ 30 seconds (recommended)	$\leq 20\text{W}$	≤ 90 minutes

NOTE 1 Copy speed refers Copy (number of sheets) per minute (CPM). This also applies to the following tables 2.

A both side copy is counted with two sheets.

For the copy machine excluding a Large-Format copy machine, the form with A4 size makes copy speed. Also, as for the Large-Format copy machine, copy speed is computed, converting the copy number per minute for the maximum size form of the concerned equipment to the copy number of A4 size form as follows.

- (1) 4 times the number of copy for the form of A2 size
- (2) 8 times the number of copy for the form of A1 size
- (3) 16 times the number of copy for the form of A0 size 1

2.“Low power mode” means the low power consuming condition which is realized automatically after some non-operate time. This also applies to the following tables 2 to 6.

3.“Off mode” means the condition in which a power supply was cut by the automatic blocking-off function after some time passed. This also applies to the following tables 2, 5 and 6.

4. A method for measuring consumed power shall follow Attachment 2 of the

detailed regulations for operation of the ENERGY STAR Program system (enforced as of January 1, 2006). This also applies to the following tables 2 to 6.

5. If consumed power of low power mode always satisfies that of off mode, it is not necessary to provide off mode. This also applies to the following tables 2, 5 and 6.

Table2 Criteria concerning power consumption in low power mode, etc. for reuse-conscious large-format copiers

Copy speed (CPM: copy per minutes)	power consumption in low power mode	Time to low power mode	Recovery time from low power mode	power consumption in off mode	Time to off mode
$0 < \text{CPM} \leq 40$	—	—	—	$\leq 10\text{W}$	$\leq 30\text{minutes}$
$40 < \text{CPM}$	$\leq 3.85 \times \text{CPM} + 5\text{W}$	$\leq 15\text{minutes}$	≤ 30 seconds (recommended)	$\leq 20\text{W}$	$\leq 90\text{minutes}$

Table3 Criteria concerning power consumption in low power mode, etc. for reuse-conscious multifunctional devices (including those having the color copying function)

Image reproduction speed (ipm: number of images to be output per minute)	power consumption in low power mode	Recovery time from low power mode	Power consumption in sleep mode	Time to sleep mode
$0 < \text{ipm} \leq 10$	—	—	$\leq 25\text{W}$	$\leq 15\text{minutes}$
$10 < \text{ipm} \leq 20$	—	—	$\leq 70\text{W}$	$\leq 30\text{minutes}$
$20 < \text{ipm} \leq 44$	$\leq 3.85 \times \text{ipm} + 50\text{W}$	≤ 30 seconds	$\leq 80\text{W}$	$\leq 60\text{minutes}$
$44 < \text{ipm} \leq 100$	$\leq 3.85 \times \text{ipm} + 50\text{W}$	≤ 30 seconds (recommended)	$\leq 95\text{W}$	$\leq 90\text{minutes}$
$100 < \text{ipm}$	$\leq 3.85 \times \text{ipm} + 50\text{W}$	≤ 30 seconds (recommended)	$\leq 105\text{W}$	$\leq 120\text{minutes}$

NOTE 1 “Sleep mode” means when output operation isn't done continuously after the switchover into the low power mode, the secondary low power consuming condition which is continuously realized automatically without switching off the power supply. Same in Table 4.

2 If consumed power of low power mode always satisfies that of sleep mode, it is not necessary to provide sleep mode. This also applies to the following tables 4.

3 Time to low power mode shall be set to not more than 15 minutes before shipment. This also applies to the following tables 5 to 7.

Table4 Criteria concerning power consumption in low power mode, etc. for reuse-conscious large-format multifunctional devices

Image reproduction speed (ipm: number of images to be output per minute)	power consumption in low power mode	Recovery time from low power mode	Power consumption in sleep mode	Time to sleep mod
$0 < \text{ipm} \leq 40$	—	—	$\leq 70\text{W}$	$\leq 30\text{minutes}$
$40 < \text{ipm}$	$\leq 4.85 \times \text{ipm} + 50\text{W}$	≤ 30 seconds (recommended)	$\leq 105\text{W}$	$\leq 90\text{minutes}$

Table5 Criteria concerning power consumption in low power mode, etc. for reuse-conscious upgradable digital copiers

Image reproduction speed (ipm: number of images to be output per minute)	power consumption in low power mode	Recovery time from low power mode	power consumption in off mode	Time to off mode
$0 < \text{ipm} \leq 10$	—	—	$\leq 5\text{W}$	$\leq 15\text{minutes}$
$10 < \text{ipm} \leq 20$	—	—	$\leq 5\text{W}$	$\leq 30\text{minutes}$
$20 < \text{ipm} \leq 44$	$\leq 3.85 \times \text{ipm} + 5\text{W}$	≤ 30 seconds	$\leq 15\text{W}$	$\leq 60\text{minutes}$
$44 < \text{ipm} \leq 100$	$\leq 3.85 \times \text{ipm} + 5\text{W}$	≤ 30 seconds (recommended)	$\leq 20\text{W}$	$\leq 90\text{minutes}$
$100 < \text{ipm}$	$\leq 3.85 \times \text{ipm} + 5\text{W}$	≤ 30 seconds (recommended)	$\leq 20\text{W}$	$\leq 120\text{minutes}$

Table 6 Criteria concerning power consumption in low power mode, etc. for Reuse-conscious upgradable large-format digital copiers

Image reproduction speed (ipm: number of images to be output per minute)	power consumption in low power mode	Recovery time from low power mode	power consumption in off mode	Time to off mode
$0 < \text{ipm} \leq 40$	—	—	$\leq 65\text{W}$	$\leq 30\text{minutes}$
$40 < \text{ipm}$	$\leq 4.85 \times \text{ipm} + 45\text{W}$	—	$\leq 100\text{W}$	$\leq 90\text{minutes}$