

Carbon Footprint of Products – Product Category Rules (CFP-PCR)

(Approved CFP-PCR: PA-CI-04)

IT equipment

Approved date: August 23, 2013

The Carbon Footprint of Products Calculation and Labeling Pilot Program

- * This approved CFP-PCR shall be valid for 5 years from the approved date.
- * The contents provided in this CFP-PCR can be changed and revised as needed, through CFP-PCR revision procedures, as a result of discussions with relevant stakeholders under the Carbon Footprint Communication Program.

Carbon Footprint of Products- Product Category Rule of
“IT equipment”

This document prescribes the rules on CFP quantification and declaration for “IT equipment” under the “CFP Communication Program” (hereinafter called “the CFP Program”) operated and managed by JEMAI (Japan Environmental Management Association for Industry).

The businesses shall conduct CFP quantification and declaration based on this document and “Requirements for CFP quantification and declaration”.

No.	Items	Contents
1	Scope	<p>This CFP-PCR prescribes rules, requirements, and instructions for CFP quantification and declaration applicable to “ICT equipment” under the CFP Program. Input-output units having a function of pattern recognition are covered by this CFP-PCR.</p> <p>For the contents which possibly violate laws/regulations related to a target product, compliance of the laws/regulations shall take precedence.</p>
2	Definitions of product category	
2-1	Product category	<ul style="list-style-type: none"> - “IT equipment” covered by this PCR is machinery and equipment categorized into “Electronic computers and related equipment (52)” and “Communication and related equipment (54)” by JSCC (Japan standard commodity classification). - In this version, only products listed below are covered by this PCR (as of Aug. 23, 2013): <ul style="list-style-type: none"> > Electronic computers (server computers excluding blade system) > Magnetic disk units (subsystem) > File storage unit > Tape array unit > Optical character reader (OCR) > Automatic teller machines (ATM) > Switching equipment (L2 switch) > PON equipment (ONU) > Electronic switching equipment <p>(See annex A (informative) for classification.)</p> <p>Note: This CFP-PCR prescribes calculation methods and communication methods of the “use and maintenance stage,” for each machinery/equipment. The coverage of this PCR can be expanded by adding rules for the “use and maintenance stage” of the new machinery/equipment.</p>
2-2	Functions	<ol style="list-style-type: none"> (1) Electronic computers (server computers excluding blade system) Function to perform processing (e.g. calculation) by following a program in memory. (2) Magnetic disk units (subsystem) Function to retain and to input/output electronic data. (3) File storage unit Function to process, retain, and input/output electronic data in a file unit. (4) Tape array unit Function that electronic data is retained in, input into, and output from magnetic tape. (5) Optical character reader (OCR) Function that optically reads handwritten characters and printing characters,

		<p>and then converts those characters into character data.</p> <p>(6) Automatic teller machines (ATM) Function to make a withdrawal and a deposit of cash by using a card.</p> <p>(7) Switching equipment (L2 switch) Function that electronic data is transferred via the data link layer of a OSI7 layer.</p> <p>(8) PON equipment (ONU) Function to make a conversion between optical signal and electric signal, and to multiple/separate optical signal, which is set at the termination of optical communication network.</p> <p>(9) Electronic switching equipment Function to interconnect and relay telephone lines.</p>
2-3	Calculation unit (functional unit)	Sales unit (per machinery or per equipment)
2-4	Components of products	<p>The following components shall be included.</p> <ul style="list-style-type: none"> - IT equipment (product itself and containers/packaging), and accessories “Containers/packaging” shall refer to the one to be reached to a provider that will use them, regardless of individual, inner, or outer packaging. “Accessories” shall refer to the one to be reached to a provider that will use them, and generally being attached to or being supplied with a product. - Transport materials and indirect materials, which will be used in each life cycle stage.
3	Referenced standards and CFP-PCR	<p>Referenced standards and CFP-PCRs are,</p> <p>(1) <u>Standards</u> (Use the latest version for reference.)</p> <ul style="list-style-type: none"> - “The Act on the Rational Use of Energy; Standards of judgment for manufacturers with regard to the improvement of the performance for electronic computers” (hereinafter simply referred to as “the Act (electronic computers)”) - “The Act on the Rational Use of Energy; Standards of judgment for manufacturers with regard to the improvement of the performance for magnetic disk units” (hereinafter simply referred to as “the Act (magnetic disk units)”) - Detailed regulations of International ENERGY STAR Program; “Measurement method for target products covered by International ENERGY STAR Program” (Printer, Facsimile (FAX) Machine, Copier, Scanner, Multifunction Device (MFD), and Digital Duplicator) (hereinafter simply referred to as “the Energy Star (imaging equipment)” - “The Act on the Rational Use of Energy; Standards of judgment for manufacturers with regard to the improvement of the performance for switching equipment” (hereinafter simply referred to as “the Act (switching equipment)”) - “Ecology Guideline for the ICT Industry” (hereinafter simply referred to as “the Ecology Guideline”) - EcoLeaf environmental labels; Product Category Rule of “PBX system” (PCR ID: BS-01) (hereinafter simply referred to as “the EcoLeaf (PBX system)” <p>Note: This CFP-PCR will inherit contents to be revised in the standards above (without any revisions of this PCR). This CFP-PCR, however, will be discussed for revision of its contents according to the revised contents of the standards.</p>

		<p>(2) CFP-PCRs (Use the latest version on the CFP-PCR website.)</p> <ul style="list-style-type: none"> - “PA-BB, <i>Paper containers, packaging and wrapping (intermediate goods)</i>” - “PA-BC, <i>Plastic containers and packaging</i>” <p>Hereinafter, these two CFP-PCRs can be simply referred to as “the reference CFP-PCRs (containers/packaging)”.</p>
4	Terms and definitions	<p>The following terms are used in this PCR.</p> <p>(1) Electronic computers (server computers excluding blade system)</p> <p>Of “electronic computers” prescribed in “the Act (electronic computers),” refers to machinery/equipment categorized into “server computers” prescribed in [server computers of “the Act (electronic computers)],” excluding “blade system” prescribed in [blade system of “ENERGY STAR® Program Requirements for Computer Servers (draft 1, version 2.0)”].</p> <p>In this CFP-PCR, considering that some products have different product/performance characteristic even if among “electronic computers (server computers excluding blade system),” product category is set as described in Annex B (normative).</p> <p>(2) Magnetic disk units (subsystem)</p> <p>Of “magnetic disk units” prescribed in “the Act (magnetic disk units),” refers to machinery/equipment categorized into “subsystem” prescribed in [subsystem of “the Act (magnetic disk units)”].</p> <p>In this CFP-PCR, considering that some products have different product/performance characteristic even if among “magnetic disk units (subsystem),” product category is set as described in Annex B (normative).</p> <p>(3) File storage unit</p> <p>Refers to machinery/equipment that includes magnetic disk or magnetic disk unit (subsystem), and that provides a file service via network (file-sharing service using a protocol of NFS or CIFS).</p> <p>In this CFP-PCR, considering that some products have different product/performance characteristic even if among “file storage unit,” product category is set as described in Annex B (normative).</p> <p>(4) Tape array unit</p> <p>Refers to machinery/equipment having functions to input/output data (e.g. multiple-generation data) that have to be stored as archive, for the purpose of protecting data safely in a long-term or for responding to a legal claim, etc..</p> <p>(5) Optical character reader (OCR)</p> <p>Refers to machinery/equipment having a function that optically reads character information written in a form, makes processing of character recognition, and outputs the processed data.</p> <p>In this CFP-PCR, considering that some products have different product/performance characteristic even if among “optical character reader,” product category is set as described in Annex B (normative).</p> <p>(6) Automatic teller machines (ATM)</p> <p>Refers to machinery/equipment which has function to make a withdrawal and a deposit by using a card.</p>

		<p>In this CFP-PCR, considering that some products have different product/performance characteristic even if among “automatic teller machines,” product category is set as described in Annex B (normative).</p> <p>(7) Switching equipment (L2 switch) Of “switching equipment” prescribed in “the Act (switching equipment),” refers to machinery/equipment categorized into “L2 switch” prescribed in [L2 switch of “the Act (switching equipment)”]. In this CFP-PCR, considering that some products have different product/performance characteristic even if among “switching equipment (L2 switch),” product category is set as described in Annex B (normative).</p> <p>(8) PON equipment (ONU) Of “PON equipment” prescribed in the Ecology Guideline, refers to machinery/equipment categorized into “ONU” prescribed in [ONU of the Ecology Guideline]. In this CFP-PCR, considering that some products have different product/performance characteristic even if among “PON equipment (ONU),” product category is set as described in Annex B (normative).</p> <p>(9) Electronic switching equipment Refers to machinery/equipment having microprocessor-based control, and consisting of various interfaces, multiple trunk circuits and extensions, to communicate by voice or data. In this CFP-PCR, considering that some products have different product/performance characteristic even if among “electronic switching equipment,” product category is set as described in Annex B (normative).</p> <p>(10) Printed circuit boards [JIS C5603] Refers to boards which has a circuit composed of printed wiring, printed parts, and (or) mounted parts.</p> <p>(11) LCD (liquid crystal display) device [JEITA ED-2511B] Refers to parts which display images by controlling lights with liquid crystal molecules.</p> <p>(12) Accessories Refers to items that are supplied with product (e.g., cable, instruction manual).</p> <p>(13) Consumables Refers to parts (battery, etc.) which will be gradually deteriorated and eventually replaced due to use.</p> <p>(14) Per function Refers to “life cycle GHG emissions in a unit of function amount” calculated by dividing “life cycle GHG emissions in a sales unit” by “function amount of applicable product” specified by performance (or performance characteristic) and/or use period.</p>
--	--	---

		<p>(15) Use period</p> <p>Refers to a time period to be quantified for the impact in the use and maintenance stage, for the purpose of quantification of GHG emissions in a life cycle of a product.</p> <p>It shall be set by referring to product catalogue, product specifications, product lifetime or warranty/replacement period stipulated by applicable laws/regulations, or statutory durable period of depreciation, etc.</p>
5	Product system (data collection range)	
5-1	Product system (data collection range)	<p>Following life cycle stages shall be covered.</p> <ul style="list-style-type: none"> - Raw material acquisition stage - Production stage - Distribution stage - Use and maintenance stage - Disposal and recycling stage <p>For a process whose data is difficult to be collected respectively from the raw material stage and the production stage, it may be integrated into either of the stage for quantification.</p>
5-2	Cut-off criteria and cut-off target	<p>[Stage, process, and flow, to be covered as cut-off target]</p> <ul style="list-style-type: none"> - Impact other than when using capital goods such as facility for production of product - Impact of construction (e.g., construction of production plant, etc.) - Impact of durable goods used for multiple years - Impact of containers/packaging and transport materials which are used for procuring inputs from outside - Of indirect materials, impact of versatile items (e.g., masks, work gloves) - Impact of indirect departments such as clerical division and research division, etc. - Impact on the use and maintenance stage when not be able to model a valid scenario - Impact of land use change <p>[Exceptions of cut-off criteria] Not stipulated.</p>
5-3	Life cycle flow chart	Life cycle flow charts are shown in Annex C (normative). When quantifying CFP, specific life cycle flow chart detailed for each target product shall be created, within a scope which is not deviating from the life cycle flow chart.
6	CFP quantification method applied to all stages	
6-1	Range of primary data collection	<p>Data collection range of primary data shall be described in No.7-2, No.8-2, No.9-2, No.10-2, and No.11-2.</p> <p>For data collection items outside of the range of primary data collection, primary data may be collected as appropriate.</p>
6-2	Quality of primary data	Not stipulated.
6-3	Primary data collection method	Not stipulated.
6-4	Quality of secondary data	Not stipulated.
6-5	Secondary data collection method	Not stipulated.

6-6	Allocation	<p>[Rules on allocation criteria] Not stipulated.</p> <p>[Rules on avoidance of allocation] Not stipulated.</p> <p>[Rules on subject to be allocated] Not stipulated.</p>									
6-7	Scenario	<p>[Collection of data on transport] When it is difficult to collect primary data on transport volume (or on fuel consumption amount), and when no scenario is set for each stage, the scenario in Annex D (normative) shall be used.</p> <p>[Wastes] For treatment method, when it is difficult to collect primary data or when it is not set a scenario for each stage, the following assumptions shall be used for quantification: the materials which can be incinerated (e.g., paper, plastics) are assumed to be treated by incineration; the materials which cannot be incinerated (e.g., metals) are assumed to be treated by landfill. For the items covered by “the CFP-PCR of containers/packaging,” the scenario of wastes treatment prescribed in “the reference CFP-PCRs (containers/packaging)” may be applied.</p>									
6-8	Other	<p><Rules on wastes></p> <ul style="list-style-type: none"> - As for items to be recycled after disposing of, from “transport for recycling” up to and including “recycling preparation process” shall be included. - Indirect impact by recycling shall not be included. 									
7	Requirements for the raw material acquisition stage										
7-1	Range of the processes	<p>(1) Process related to production and transport of “parts/accessories”</p> <p>(2) Process related to production and transport of “containers/packaging”</p>									
7-2	Data collection items	<p>The data items listed in the following table shall be collected.</p> <p>(1) Process related to production and transport of “parts/accessories”</p> <table border="1"> <thead> <tr> <th>Activity</th> <th>Category of activity</th> <th>Emission factor to be multiplied by activity</th> </tr> </thead> <tbody> <tr> <td>“Parts/accessories” Mass by each material which is input to product production site</td> <td>Primary</td> <td>“Each parts/accessories” Emission factor of production of each material. Emission factor of each material, and emission factor of assembly of each part.</td> </tr> <tr> <td>“Parts/accessories” Transport volume (or fuel consumption amount) of parts/accessories to product production site</td> <td>*1</td> <td>“Each transport mean” Emission factor of transport</td> </tr> </tbody> </table>	Activity	Category of activity	Emission factor to be multiplied by activity	“Parts/accessories” Mass by each material which is input to product production site	Primary	“Each parts/accessories” Emission factor of production of each material. Emission factor of each material, and emission factor of assembly of each part.	“Parts/accessories” Transport volume (or fuel consumption amount) of parts/accessories to product production site	*1	“Each transport mean” Emission factor of transport
Activity	Category of activity	Emission factor to be multiplied by activity									
“Parts/accessories” Mass by each material which is input to product production site	Primary	“Each parts/accessories” Emission factor of production of each material. Emission factor of each material, and emission factor of assembly of each part.									
“Parts/accessories” Transport volume (or fuel consumption amount) of parts/accessories to product production site	*1	“Each transport mean” Emission factor of transport									

<Rules on data collection of production process of parts/accessories>

As for this processes, data on mass of each parts/accessories should be collected based on configuration of each part/accessory, and should add them up. If this is difficult, life cycle GHG emissions from resource mining to production of the parts/accessories may be calculated by collecting the following data:

- Mass of parts/accessories
- Emission factor of production for parts/accessories

In this case, data on the following items shall be collected:

<Target items to be collected>

- > Magnetic disk units
- > Printed circuit board
- > Cable
- > Battery
- > LCD device
- > Motor
- > Other parts

Note: Bundled battery shall be included. However, battery to be used in the use and maintenance stage" shall not be included.

(2)Process related to production and transport of "containers/packaging"

- The data collection items prescribed in ["containers/packaging (wrapping)" raw material acquisition stage] and ["containers/packaging (wrapping)" production stage] of "the reference CFP-PCRs (containers/packaging) shall be collected.
- When it is difficult to collect data prescribed in [the raw material acquisition stage of "containers/packaging (wrapping)"] and [the production stage of "containers/packaging (wrapping)"] of "the reference CFP-PCRs (containers/packaging)," or when covering a packing material which is out of the scope of "the reference PCRs (containers/packaging)," it shall follow the following table.

Activity	Category of activity	Emission factor to be multiplied by activity
"Containers/packaging" Input amount of containers/packaging to product production site	Primary	"Containers/packaging" Emission factor of production
"Containers/packaging" Transport volume (or fuel consumption amount) of containers/packaging to product production site	*1	"Each transport mean" Emission factor of transport

*1. The following items shall be collected as primary data.

[The fuel consumption method]

- "Fuel consumption" for each transport mean

[The fuel cost method]

- "Fuel cost" for each transport mean
- "Transport distance" for each transport mean

[The ton-kilometer method]

		- "Transport load" for each transport mean						
7-3	Primary data collection method and requirements	<Rules on data collection of mass by material or by part> - The sum of mass by material for each part/accessory or the sum of mass by part shall be confirmed whether it is not much deviated from the total mass (= body + accessories).						
7-4	Scenario	Not stipulated.						
7-5	Other	<Rules on transport scenario of packing materials> - As for transport of a packing material which is out of the scope of "the reference CFP-PCRs (containers/packaging)," the scenario in Annex D (normative) may be used. < Rules on overseas procurement of raw materials> - As for collection method of primary data from resource mining to production of raw materials, the same method of domestic procurement shall be used. - As for secondary data for using calculation of GHG emissions, the overseas country where the raw materials were procured from shall be used. If there is no secondary data of the overseas country, domestic secondary data may be used. When domestic data is applied instead of overseas data, however, its reason shall be clearly reported.						
8	Requirements for the use and maintenance stage							
8-1	Range of the processes	(1) Process related to assembly (incl. inspection and packing) of IT equipment (body/accessories)						
8-2	Data collection items	The data items listed in the following table shall be collected. (1) Process related to assembly (incl. inspection and packing) of IT equipment (body/accessories) <table border="1" data-bbox="564 1126 1434 1402"> <thead> <tr> <th>Activity</th> <th>Category of activity</th> <th>Emission factor to be multiplied by activity</th> </tr> </thead> <tbody> <tr> <td>"Energy" Input amount of energy to product production process</td> <td>Primary</td> <td>"Energy" Emission factor of production, supply, and use</td> </tr> </tbody> </table> [Primary data collection item for allocation] - Production volume of "contents in the body"	Activity	Category of activity	Emission factor to be multiplied by activity	"Energy" Input amount of energy to product production process	Primary	"Energy" Emission factor of production, supply, and use
Activity	Category of activity	Emission factor to be multiplied by activity						
"Energy" Input amount of energy to product production process	Primary	"Energy" Emission factor of production, supply, and use						
8-3	Primary data collection method and requirements	Not stipulated.						
8-4	Scenario	Not stipulated.						
8-5	Other	<Exceptions when data is collected from multiple production sites> Not stipulated.						
9	Requirements for the distribution stage							
9-1	Range of the processes	(1)Transport process of "shipped item" from production site to user						
9-2	Data collection items	The data items listed in the following table shall be collected. (1)Transport process of "shipped item" from production site to user <table border="1" data-bbox="564 1984 1434 2020"> <thead> <tr> <th>Activity</th> <th>Category</th> <th>Emission factor</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Activity	Category	Emission factor			
Activity	Category	Emission factor						

			of activity	to be multiplied by activity															
		“IT equipment (body/accessories), packing materials” Transport volume (or fuel consumption amount)	*1	“Transport mean” Emission factor of transport															
		*1 Requirements for transport volume (or fuel consumption amount) shall conform to No.7-2.																	
9-3	Primary data collection method and requirements	Not stipulated.																	
9-4	Scenario	<p>- As for transport, if primary data collection is difficult, the scenario in Annex D (normative) may be used. However, when GHG emissions associated with transport from domestic/overseas production site are weighted by other factor (e.g., amount of money) other than a number of machinery/equipment, then its validity shall be verified.</p> <p>- If a ratio of domestic production to overseas production is unknown, it shall be assumed that all transports are done from overseas country to the domestic country.</p>																	
9-5	Other	Not stipulated.																	
10	Requirements for the use and maintenance stage																		
10-1	Range of the processes	(1) Process related to use of IT equipment																	
10-2	Data collection items	<p>The data items listed in the following table shall be collected.</p> <p>(1) Process related to use of IT equipment</p> <table border="1"> <thead> <tr> <th>Activity</th> <th>Category of activity</th> <th>Emission factor to be multiplied by activity</th> </tr> </thead> <tbody> <tr> <td>“Electricity” Input amount of electricity to the use period</td> <td>Primary or scenario</td> <td>“Electricity” Emission factor of production, supply, and use</td> </tr> <tr> <td>“Consumables” Input amount of consumables to the use period</td> <td>Primary or scenario</td> <td>“Consumables” Emission factor of production</td> </tr> <tr> <td>“Consumables” Transport volume (or fuel consumption amount) from production site to user</td> <td>*1</td> <td>“Transport mean” Emission factor of transport</td> </tr> <tr> <td colspan="3">“Wastes (consumables)” “Waste water” *2</td> </tr> </tbody> </table> <p>Electricity during usage [kW] means that a product characteristic to calculate electricity consumption amount [kWh] in the use and maintenance stage by multiplying the scenario of No.10-4 (Operating time [h]).</p> <p>Process related to production, transport, and disposal of “electronic computers</p>			Activity	Category of activity	Emission factor to be multiplied by activity	“Electricity” Input amount of electricity to the use period	Primary or scenario	“Electricity” Emission factor of production, supply, and use	“Consumables” Input amount of consumables to the use period	Primary or scenario	“Consumables” Emission factor of production	“Consumables” Transport volume (or fuel consumption amount) from production site to user	*1	“Transport mean” Emission factor of transport	“Wastes (consumables)” “Waste water” *2		
Activity	Category of activity	Emission factor to be multiplied by activity																	
“Electricity” Input amount of electricity to the use period	Primary or scenario	“Electricity” Emission factor of production, supply, and use																	
“Consumables” Input amount of consumables to the use period	Primary or scenario	“Consumables” Emission factor of production																	
“Consumables” Transport volume (or fuel consumption amount) from production site to user	*1	“Transport mean” Emission factor of transport																	
“Wastes (consumables)” “Waste water” *2																			

		<p>(server computers excluding blade system),” “magnetic disk units (subsystem),” “file storage unit,” “tape array unit,” “optical character reader,” “automatic teller machines,” “switching equipment (L2 switch),” “PON equipment (ONU),” and “electronic switching equipment” shall be excluded from the assessment since they make small contributions to the entire life cycle of a product.</p> <p>GHG emissions from maintaining IT equipment shall be excluded from the assessment since they make small contributions to the entire life cycle of a product. The maintenance includes responding to unexpected failures, and annual periodic inspection (checking of logs, simple cleaning of equipment, updating of programs, etc.).</p> <p>*1 Requirements for transport volume (or fuel consumption amount) shall conform to No.7-2.</p> <p>*2. Data collection items related to wastes and waste water.</p> <table border="1" data-bbox="560 741 1433 1603"> <thead> <tr> <th data-bbox="560 741 1034 860">Activity</th> <th data-bbox="1034 741 1187 860">Category of activity</th> <th data-bbox="1187 741 1433 860">Emission factor to be multiplied by activity</th> </tr> </thead> <tbody> <tr> <td data-bbox="560 860 1034 1016">“Wastes” “Waste water” Emissions for each treatment method</td> <td data-bbox="1034 860 1187 1016">Primary or scenario</td> <td data-bbox="1187 860 1433 1016">“Each treatment method” Emission factor of treatment</td> </tr> <tr> <td data-bbox="560 1016 1034 1173">“Wastes” Transport volume (or fuel consumption amount) to each treatment facility</td> <td data-bbox="1034 1016 1187 1173">*1</td> <td data-bbox="1187 1016 1433 1173">“Each transport mean” Emission factor of transport</td> </tr> <tr> <td data-bbox="560 1173 1034 1406">“Of wastes, component derived from fossil resource” Incineration volume of the component</td> <td data-bbox="1034 1173 1187 1406">Primary or scenario</td> <td data-bbox="1187 1173 1433 1406">“Incineration of each component derived from fossil resource” Emission factor of incineration</td> </tr> <tr> <td data-bbox="560 1406 1034 1603">“Of wastes, organic component” Landfill volume of the component</td> <td data-bbox="1034 1406 1187 1603">Primary or scenario</td> <td data-bbox="1187 1406 1433 1603">“Each organic component” Emission factor of anaerobic decomposition</td> </tr> </tbody> </table> <p>Impact of electricity consumption during usage of air-conditioning facility in the use and maintenance stage shall be excluded from the calculation.</p>	Activity	Category of activity	Emission factor to be multiplied by activity	“Wastes” “Waste water” Emissions for each treatment method	Primary or scenario	“Each treatment method” Emission factor of treatment	“Wastes” Transport volume (or fuel consumption amount) to each treatment facility	*1	“Each transport mean” Emission factor of transport	“Of wastes, component derived from fossil resource” Incineration volume of the component	Primary or scenario	“Incineration of each component derived from fossil resource” Emission factor of incineration	“Of wastes, organic component” Landfill volume of the component	Primary or scenario	“Each organic component” Emission factor of anaerobic decomposition
Activity	Category of activity	Emission factor to be multiplied by activity															
“Wastes” “Waste water” Emissions for each treatment method	Primary or scenario	“Each treatment method” Emission factor of treatment															
“Wastes” Transport volume (or fuel consumption amount) to each treatment facility	*1	“Each transport mean” Emission factor of transport															
“Of wastes, component derived from fossil resource” Incineration volume of the component	Primary or scenario	“Incineration of each component derived from fossil resource” Emission factor of incineration															
“Of wastes, organic component” Landfill volume of the component	Primary or scenario	“Each organic component” Emission factor of anaerobic decomposition															
10-3	Primary data collection method and requirements	<p>(1) Process related to electricity consumption when using IT equipment</p> <p>Data on “electricity consumption amount when using IT equipment” shall be collected in accordance with the measurement method prescribed in the “standards of judgment for manufacturers with regard to the improvement of the performance for the respective specified equipment” of the Act.</p> <p>However, as for machinery/equipment which has not been established any applicable measuring method yet, the measuring method prescribed in this PCR to collect data shall be used.</p>															

Standards and measuring methods applicable to respective machinery/equipment is described in the following a) - g):

a) Electronic computers (server computers excluding blade system)

Collect data on energy consumption amount by using the measurement method prescribed in the ["measurement method of energy efficiency" of "the Act (electronic computers)"].

b) Magnetic disk units (subsystem)

Collect data on energy consumption amount by using the measurement method prescribed in the ["measurement method of energy efficiency" of "the Act (magnetic disk units)"].

c) File storage unit

Collect data on electricity consumption amount by using the measurement method prescribed in the ["measurement method of energy efficiency" of "the Act (magnetic disk units)"].

If electricity consumption amount of a file storage unit can be measured by separating the "electronic computer (server computers excluding blade system)" part and "magnetic disk units (subsystem)" part, the sum total of the electricity consumption amounts of the two parts, i.e., calculation results of the part of "electronic computers (server computers excluding blade system)" by using the [measurement method prescribed in the energy efficiency of "the Act (electronic computers)"] and the part of "magnetic disk units (subsystem)" by using the [measurement method prescribed in the "energy efficiency" of "the Act (magnetic disk units)"], can be collected as the data of the electricity consumption amount of the file storage unit.

d) Tape array unit

Collect data on electricity consumption amount during backup active time and during backup inactive time.

The numerical value to be used for the measurement is "the maximum value of electricity consumption amounts during backup active time and inactive time, with the single-phase power supply voltage: AC100V-240V±10% and the frequency: 50/60Hz, which is obtained by using a power meter.

For the measurement, use the maximum configuration model of a tape array unit.

e) Optical character reader (OCR)

Collect data on each electricity consumption amount during sleep mode and standby mode by using the measurement method prescribed in the ["measurement method of energy efficiency" of the Energy Star (imaging equipment)], and data on "electricity consumption amount for reading operation for one minute" prescribed in industry-standard conditions of OCR.

The numerical value to be used for the measurement is "the maximum value of an electricity consumption amount during a continuous reading operation for one minute," with given electricity (combination of 100V, 50/60Hz) supplied by a power-supply device, which is obtained by using a power meter.

(*1) Processing speed of OCR is generally represented with the number of processing sheet for one minute.

Processing time is defined as the time from a starting time of reading information by using OCR, to a finishing time of completing output of the recognized result to its upper computer or to a file. For a form for measurement, numerical characters are printed with 30 digits x 10 lines in A4 size. Resolution is 200 dpi with black image.

f) Automatic teller machines (ATM)

For equipment/machinery in the category A and B of Annex B (normative), collect data on electricity consumption amounts of operating mode, standby mode, and energy-saving mode defined by the following conditions in the table below (*2), with the conditions of the single-phase power supply voltage of AC100V±10% and frequency of 50/60 Hz±1Hz.

(*2) For operating mode, the electricity consumption amount for the following transactions shall be measured. However, if the machine does not install a coin unit, "withdrawal/deposit of coins" is excluded from the measurement.

Transaction per day:

Transaction		Number of transaction (number of transaction/day)	Details of 1 transaction
Withdrawal	Notes	90	10 notes
	Coins	20	6 coins
Deposit	Motes	40	10 notes
	Coins	15	15 coins
Updating of passbook		25	3-line printing

g) Switching equipment (L2 switch)

Collect data on energy consumption amount by using the measurement method prescribed in the ["measurement method of energy efficiency" of "the Act (switching equipment)"].

h) PON equipment (ONU)

"Average electricity consumption amount" prescribed in [ONU of "No.5.2.4.1.: GE-PON equipment" of the Ecology Guideline].

Note that equipment which has a function of image receiver shall be measured under the conditions that the function is in active use.

i) Electronic switching equipment

Collect data on electricity consumption amount by using the measurement method prescribed in the ["measurement method in the use conditions of EcoLeaf (PBX system) product"]. The excerpts are shown below, but for details refer to "EcoLeaf (PBX system)":

'Connect the number of phones/extensions specified for the configuration for measurement, then measure the electricity consumption amount with the following conditions.

** If it is difficult to make configurations of electronic switching equipment for measurement, it may calculate electricity consumption amount by assuming*

that the configuration can be made, based on base measurement results (e.g., electricity consumption amount per phone).

(1) Standby hours (defined in the scenario of No.10-4)

- All extensions and all phones: idle status
- The wiring distance to phones: adopt the median value of the distances in the specifications.

(2) Operating hours (defined in the scenario of No.10-4)

- The operating conditions during operating hours (8h/day) shall be applied the following conditions according to a product rank.

> Small capacity type:

Idle status: 75%, Operating status: 25% (incoming call: 5%, during call: 20%)

> Medium capacity type:

Idle status: 80%, Operating status: 20% (incoming call: 5%, during call: 15%)

> Large capacity type:

Idle status: 85%, Operating status: 15% (incoming call: 5%, during call: 10%)

- Idle status is assumed as the same measurement conditions as those of "(1) Standby hours".

- Operating statuses (incoming call, during call) are assumed as each of the averaged use conditions.

e.g., the wiring distance to phone: the medium value of the specifications, ring volume: medium volume, speech volume: medium volume, etc.

* For measurement results, measure "electricity consumption amount of the system"; and for its breakdown, each electricity consumption amount of "body" and "terminal," respectively.'

When calculating electricity consumption amount during usage of the product, investigate a general component ratio of analog telephone, multifunctional phone, and IP phone, and then conduct calculation based on the ratio. The validity of the component ratio of them shall be verified.

When displaying reduction ratio, measure with the following conditions.

- Redundancy circuit is not considered.
- The ratio of terminal types to be connected (analog telephone, multifunctional phone, IP phone, etc.) shall be set as the same ratio.

In the case of displaying reduction ratio, and if component ratio of terminal types (analog telephone, multifunctional phone, and IP phone, etc.) differ for the products before/after GHG emission reductions, data for the products before reduction shall be re-collected by using the component ratio after reduction. However, if it is difficult to make configurations for measurement, it may calculate electricity consumption amount by assuming that the configuration can be made based on the base measurement results of the products before reduction (e.g., electricity consumption amount of individual port in electronic switching equipment of analog telephone, multifunctional phone, or IP phone, etc.).

In case of displaying reduction ratio, and if primary data is collected, the number of ports connected of the applicable product may differ before/after the reduction. However, the validity of the difference of the number of ports

		connected shall be verified.
10-4	Scenario	<p>(1) Process related to electricity consumption when using IT equipment The following “operating time [h]” shall be used for each machinery/equipment.</p> <p>a) Electronic computers (server computers excluding blade system) Operating time [h] = 24 [h/d] × 365 [d/y] × Use period [y]</p> <p>b) Magnetic disk units (subsystem) Operating time [h] = 24 [h/d] × 365 [day/year] × Use period [y]</p> <p>c) File storage unit Operating time [h]=24 [h/d] × 365 [d/y] × Use period [y]</p> <p>d) Tape array unit Operating time [h] = (Backup active hours per day [h/d] + Backup inactive hours per day [h/d]) × 365 [d/y] × Use period [y] Backup active hours per day is set as 10 hours, and backup inactive hours are set as 14 hours.</p> <p>e) Optical character reader (OCR) Operating time [h]=(Operating hours per day [h/d] + Non-operating hours per day [h/d]) × 264 [d/y] × Use period [y] Operating hours per day [h/d] = (Defined number of sheets processed [sheet/y] / 264 [d/y]) / (Processing speed [sheet/min] × 60 [min/h]) Non-operating hours per day [h/d] = 8 [h/d] - Operating hours per day [h/d] * For calculation of non-operating time, use a bigger value as a result of comparison of electricity consumption amount of standby mode to that of sleep mode.</p> <p>Referring to man-machine interface device, it is assumed as “8 [h/d], 22 [d/month], 264 [d/y] (=22 [d/month] × 12 months)”. “Defined number of sheets processed” is a number of sheets being read per year, calculated by dividing “the guaranteed number of reading sheets” by “estimated durable years”. The validity of the defined number of sheets processed shall be verified.</p> <p>f) Automatic teller machines (ATM) Operating time [h] = (“Operating mode hours per day” + “Standby mode hours per day” + “Energy-saving mode hours per day”) × 365 [d/y] × Use period [y] “For Category A described in Annex B (normative), operating hours per day are set as 14 hours, and if it has energy-saving mode, energy-saving hours per day are set as 6 hours. Use period is set as 7 years.”</p> <p>g) Switching equipment (L2 switch) Operating time [h] = 24 [h/d] × 365 [d/y] × Use period [y]</p> <p>h) PON equipment (ONU) Operating time [h] = 24 [h/d] × 365 [d/y] × Use period [y]</p>

		<p>i) Electronic switching equipment</p> <p>Operating time [h] = (“Operating hours per year” + “Standby hours per year”) x Use period [y]</p> <p>“Operating hours per year” and “Standby hours per year” are used by referring to the definition of [the use conditions of “EcoLeaf (PBX system) product”] BX system).</p> <p>The exceptions are shown below, but for details refer to “EcoLeaf (PBX system)”:</p> <p><i>‘One year is set as 365 days (not incl. intercalary year). Of which, operating days are set as the following: “5 days a week” x “4 weeks” x “12 months” = 240 days. Of the operating days, operating hours are set as 8 hours out of 24 hours (= a day), and standby hours are set as the remaining hours, i.e. 16 hours. The non-operating hours, i.e. the remaining 125 days (365 days - 240 days), are set as standby hours for a whole day (= 24 hours).’</i></p> <p>Use period of machinery/equipment shall be set based on statutory durable period of depreciation (hereinafter referred to as “statutory durable period”).</p> <p>However, only as for life cycle GHG emissions (including “per function”) displayed in additional information part, product warranty period by business may be set as use period (hereinafter referred to as “use period (product warranty period”), provided that the year period is longer than the statutory durable period. The validity of this “use period (product warranty period)” shall be verified.</p> <p>(2) Process related to transport of consumables (wastes) to be disposed of</p> <p>- As for transport scenario of consumables (wastes), if primary data collection is difficult, the scenario in Annex D (normative) may be used.</p> <p>As for recycling ratio set by business, however, its validity shall be verified.</p>						
10-5	Other	Not stipulated.						
11	Requirements for the disposal and recycling stage							
11-1	Range of the processes	<p>(1) Process related to transport of “used IT equipment (body/accessories)” from user to each treatment facility</p> <p>(2) Process related to recycling preparation (disassembly) of “used IT equipment (body/accessories)”</p> <p>(3) Process related to recycling preparation (crushing) of “used IT equipment (body/accessories)”</p> <p>(4) Process related to landfill of materials not to be recycled</p> <p>(5) Process related to incineration of materials not to be recycled</p> <p>(6) Process related to disposal/recycling of “waste containers/packaging”</p>						
11-2	Data collection items	<p>The data items listed in the following table shall be collected.</p> <p>(1) Process related to transport of “used IT equipment (body/accessories)” from user to each treatment facility</p> <table border="1"> <thead> <tr> <th>Activity</th> <th>Category of activity</th> <th>Emission factor to be multiplied by activity</th> </tr> </thead> <tbody> <tr> <td>“Used IT equipment (body/accessories)”</td> <td>*1</td> <td>“Each transport mean”</td> </tr> </tbody> </table>	Activity	Category of activity	Emission factor to be multiplied by activity	“Used IT equipment (body/accessories)”	*1	“Each transport mean”
Activity	Category of activity	Emission factor to be multiplied by activity						
“Used IT equipment (body/accessories)”	*1	“Each transport mean”						

Transport volume (or fuel consumption amount) of items from user to each treatment facility		Emission factor
*1 Requirements for transport volume (or fuel consumption amount) shall conform to No.7-2.		
(2) Process related to recycling preparation (disassembly) of “used IT equipment (body/accessories)”		
Activity	Category of activity	Emission factor to be multiplied by activity
“Used IT equipment (body/accessories)” Mass of items to be disassembled	Primary or scenario	“Disassembly” Emission factor
(3) Process related to recycling preparation (crushing) of “used IT equipment (body/accessories)”		
Activity	Category of activity	Emission factor to be multiplied by activity
“Used IT equipment (body/accessories)” Mass of items to be crushed	Primary or scenario	“Crushing” Emission factor
(4) Process related to landfill of materials not to be recycled		
Activity	Category of activity	Emission factor to be multiplied by activity
“Used IT equipment (body/accessories)” Landfill volume of the material not to be recycled	Primary or scenario	“Landfill” Emission factor
Of “used IT equipment (body/accessories),” biodegradable organic component” Landfill volume of the component	Primary or scenario	“Each organic resource” Emission factor of anaerobic decomposition
(5) Process related to incineration of materials not to be recycled		
Activity	Category of activity	Emission factor to be multiplied by activity
“Used IT equipment (body/accessories)” Incineration volume of the material not to be recycled	Primary or scenario	“Incineration” Emission factor
Of “used IT equipment (body/accessories),” each component derived from fossil resource”	Primary or scenario	“Incineration of each component derived from fossil resource”

		Incineration volume of the component	Emission factor
		(6) Process related to disposal/recycling of “waste containers/packaging” - Follow the data collection items prescribed in the disposal and recycling stage of “the reference PCRs (containers/packaging)”	
11-3	Primary data collection method and requirements	Weight of packing materials at the time of shipping may be used by assuming that all the packing materials are disposed of and/or recycled.	
11-4	Scenario	<p><Rules on transport scenarios of used IT equipment (body/accessories)> - As for transport of used IT equipment (body/accessories), if primary data collection is difficult, the scenario in Annex D (normative) may be used.</p> <p><Rules on transport scenario of used packing materials> - As for packing materials which are not included in “the reference CFP-PCRs (containers/packaging),” the scenario in Annex D (normative) may be used.</p> <p><Rules on disposal and recycling scenario for used IT equipment (body/accessories)> - Primary data shall be collected for each treatment amount of “recycling preparation (disassembly, crushing) of used IT equipment (body/accessories),” “landfill of materials not to be recycled,” and “incineration of materials not to be recycled”. If it is difficult to collect those primary data, however, the scenario in Annex E (normative) may be used by assuming that the product itself is disposed of without any treatment.</p> <p><Rules on disposal and recycling scenario of used packing materials> - As for packing materials which are not included in “the reference CFP-PCRs (containers/packaging),” it may be assumed that 100% of wastes are incinerated, and for item not to be incinerated (e.g., metal), it may be assumed to be incinerated.</p>	
11-5	Other	Not stipulated.	
12	CFP declaration method		
12-1	Additional information	<p>[Rules on required contents] The items listed below shall be displayed. However, when not displaying numerical value, the items below do not need to be additionally displayed.</p> <p>The information described in [Rules on required contents] in No.12-2 shall be described. However, when applicable information has already stated clearly in the place where a CFP mark will be labeled, applicable description may be omitted from the CFP mark.</p> <p>When reduction ratio is displayed, the information on the products before/after reduced CO₂ emissions shall be displayed. Note: “Display of reduction ratio” are applied to the following cases: > Display of GHG emissions per function: when reduction ratio is displayed in additional information part of a CFP mark > Display of reduction ratio: when reduction ratio is displayed in a scale plate of a CFP mark</p>	

In addition, as for information on product specifications, the following information shall be described for each machinery/equipment:

a) Electronic computers (server computers excluding blade system)

- 1) CTP
- 2) Use period
- 3) Number of I/O slots
- 4) Number of CPU sockets
- 5) CPU name

Instead of displaying “3) number of I/O slot” and “4) number of CPU socket,” the category of server computers in “the Act (electronic computers)” may be displayed.

b) Magnetic disk units (subsystem)

- 1) Storage capacity
- 2) Use period
- 3) Application (for mainframe server / for other application)
- 4) Disk rotation speed (number of rotations)
- 5) Disk size, and number of disk drives

Instead of displaying “3) application,” category of subsystem prescribed in “the Act (magnetic disk units)” may be displayed.

c) File storage unit

- 1) Performance of SPECsfs
- 2) Storage capacity
- 3) Disk rotation speed (number of rotation)
- 4) Disk size, and number of disk drives
- 5) Use period
- 6) Number of nodes

d) Tape array unit

- 1) Data transfer rate (total performance)
- 2) Use period
- 3) Tape format
- 4) Number of tape libraries, and number of tapes (max.)
- 5) Storage capacity without compression (max.)

e) Optical character reader (OCR)

- 1) Processing speed
- 2) Use period
- 3) Defined number of sheets processed

f) Automatic teller machines (ATM)

- 1) Use period

g) Switching equipment (L2 switch)

- 1) Maximal throughput
- 2) Use period
- 3) Line speed, and number of ports
- 4) Management function: Yes/No

		<p>5) IP filtering function: Yes/No 6) PoE function: Yes/No Instead of displaying existence/non-existence of “4) management function” and “5) IP filtering function,” category of L2 switch prescribed in “the Act (switching equipment)” may be displayed.</p> <p>h) PON equipment (ONU) 1) Use period</p> <p>i) Electronic switching equipment 1) Number of ports connected 2) Use period</p> <p>- When displaying GHG emissions per function, the method to calculate life cycle GHG emissions in a sales unit of applicable product shall be displayed in the additional information part of a CFP mark. The following information may be included in the additional information part of a CFP mark: > The reduction ratio prescribed in “No. 12-3: Rules on displaying numerical value as reduction ratio per function” > Life cycle GHG emissions in a calculation unit</p> <p>- When displaying reduction ratio, the following shall be displayed in the additional information part of a CFP mark: > Unit of “reduction ratio of GHG emissions per function” to be displayed (e.g., “per TB/y”) > Method to calculate life cycle GHG emissions in a sales unit of applicable product > The GHG emissions per function prescribed in “No. 12-3: Rules on displaying numerical value as reduction ratio per function” Life cycle GHG emissions in a calculation unit may be displayed on the additional information part of a CFP mark.</p> <p>“Display of GHG emissions per function” calculated by using “use period (product warranty period)” in the “No.10-4: Scenario” may also be displayed in the additional information part.</p>
12-2	Registration information	<p>[Rules on required contents] The following items shall be displayed. - The following information shall be described in “detailed information of CFP calculation result and communication method”: > Product name and model name > Information related to product specifications > How to set use period (e.g., statutory durable period: “Electronic computers; Other: 5 years”) > Measurement conditions (Information which can be identified the edition of standards for measuring consumed electricity shall be included.)</p>
12-3	Others	<p>[Rules on displaying numerical value as reduction ratio per function] When displaying “GHG emissions per function,” follow the following “a) - g): the communication method of displaying GHG emissions per function” for each machinery/equipment.</p>

(Examples of CFP mark (per function) are shown in Annex F (informative).)

When displaying “reduction ratio,” to fulfill the conditions that products to be compared have the same or the equivalent functions, applicable machineries/equipment shall be compared its GHG emissions per function by using the following “a) - g): the communication method of displaying GHG emissions per function,” and the products before/after reduced CO₂ emissions for comparison shall belong to the same product category (the product category is shown in Annex B (normative)).

As for “electronic computers (server computers excluding blade system),” “magnetic disk units (subsystem),” “file storage unit,” “tape array unit,” “optical character reader,” “automatic teller machines,” “switching equipment (L2 switch),” “PON equipment (ONU),” and “electronic switching equipment,” “display of GHG emissions per function” or “display of reduction ratio” shall be made.

a) Displaying method of GHG emissions per function of “electronic computers (server computers excluding blade system)”

Display numerical value calculated by dividing “life cycle GHG emissions in a sales unit” by [CTP (composite theoretical performance) prescribed by the measurement method of energy efficiency in “the Act (electronic computers)”] and the “use period defined in No.10-4: Scenario”. (The unit is [kg-CO₂e/TOPS/y].) The scale of CTP can be selected by each business (e.g., [GTOPS]).

b) Displaying method of GHG emissions per function of “magnetic disk units (subsystem)”

Display numerical value calculated by dividing “life cycle GHG emissions in a sales unit” by [storage capacity prescribed by the measurement method of energy efficiency in “the Act (magnetic disk units)”] and the “use period defined in No.10-4: Scenario”. (The unit is [kg-CO₂e/B/y].)

The physical unit of storage capacity shall be “byte”. Its scale can be selected by each business (e.g., [TB]).

c) Displaying method of GHG emissions per function of “file storage unit”

Firstly, A and B are defined as below:

A = Storage capacity prescribed by [the measurement method of energy efficiency in “the Act (magnetic disk units)”]

B = Performance value of SPECsfs

Then, display numerical value calculated by dividing “life cycle GHG emissions in a sales unit” by “the multiplied value of A and B” and the “use period defined in No.10-4: Scenario” (the unit is [kg-CO₂e / B ops/y]); and the numerical values of A and B are described as additional information.

The version of SPECsfs (e.g., SPECsfs2008, etc.) and its protocol (NFS or CIFS) can be selected by each business. However, its validity shall be verified.

The physical unit of storage capacity shall be “byte,” and its scale can be selected by each business (e.g., [TB]). The scale of performance value of SPECsfs can be selected by each business (e.g., [Mops]).

		<p>d) Displaying method of GHG emissions per function of “tape array unit” Display numerical value calculated by dividing “life cycle GHG emissions in a sales unit” by the “data transfer rate” and the “use period defined in No.10-4: Scenario” (The unit is [kg-CO₂e / B/s /y]). For the data transfer rate, use the value under the conditions that the “total performance by a tape array unit configuration when data is not compressed”. The physical unit of data transfer rate shall be transfer speed. Its scale can be selected by each business (e.g., [MB/s]).</p> <p>e) Displaying method of GHG emissions per function of “optical character reader (OCR)” Display numerical value calculated by dividing “life cycle GHG emissions in a sales unit” by the “defined number of sheets processed [sheet/y]” and the “use period defined in No.10-4: Scenario” (The unit is [g-CO₂e /sheet]).</p> <p>f) Displaying method of GHG emissions per function of “automatic teller machines (ATM)” Display numerical value calculated by dividing “life cycle GHG emissions in a sales unit” by the “use period defined in No.10-4: Scenario”. (The unit is [kg-CO₂e/y])</p> <p>g) Displaying method of GHG emissions per function of “switching equipment (L2 switch)” Display numerical value calculated by dividing “life cycle GHG emissions in a sales unit” by the [maximal throughput prescribed by the measurement method of energy efficiency in “the Act (switching equipment)”] and the “use period defined in No.10-4: Scenario”. (The unit is [kg-CO₂e/ bit/s /y].) The physical unit of the maximal throughput shall be “transmission speed”. Its scale can be selected by each business (e.g., [Gbit/s]).</p> <p>h) Displaying method of GHG emissions per function of “PON equipment (ONU)” Display numerical value calculated by dividing “life cycle GHG emissions in a sales unit” by the “use period defined in No.10-4: Scenario”. (The unit is [kg-CO₂e/y])</p> <p>Note: As for PON equipment (ONU), performance (or performance characteristic) is not included as function. The reason is described below: As of now (Aug. 23, 2013), performance (or performance characteristic) of PON equipment (ONU) products (incl. conventional model) within the same product category are considered as almost the same level, and thereby any quantitative index to quantitatively compare product performance (or performance characteristic) has not been developed yet.</p> <p>i) Displaying method of GHG emissions per function of “electronic switching equipment” Display numerical value calculated by dividing “life cycle GHG emissions in a sales unit” by the [“number of the nodes connected” prescribed in the “measurement method in the use conditions of EcoLeaf (PBX system) product”] and the [“use period defined in No.10-4: Scenario”].</p>
--	--	---

		(The unit is [kg-CO ₂ e /port /y].)
--	--	--

Annex A (informative): Classification system of IT equipment

To offer additional information for “No.2-1: Descriptions of Product Category,” classification system (scope of machinery/equipment, and hierarchical relation) of “IT equipment” covered by this CFP-PCR is provided in Chart A-1.

In this CFP-PCR, scope of IT equipment and hierarchical relation are consolidated based on JSCC. As for classification scale and scope for respective machinery/equipment (related to calculation/communication method in the use and maintenance stage), the definitions in “the Act (electronic computers),” “the Act (magnetic disk units),” “the Act (switching equipment),” ENERGY STAR[®] Program Requirements for Computer Servers (draft 1, version 2.0),” “the Ecology Guideline,” and JEITA (Japan Electronics and Information Technology Industries Association) are quoted and used for setting applicable scale and scope.

Table A-1: Classification system of IT equipment

No.	Product category	Descriptions	Scope
1	IT equipment	Refers to machinery/equipment categorized into “Electronic computers and related equipment (52)” and “Communication and related equipment (54)” in JSCC. (Of “Information and communication equipment (5)” in JSCC, refers to machinery/equipment excluding “Computer program (53)” and “Electronic components (55)”.)	-
1.1	Electronic computers and related equipment	Refers to machinery/equipment categorized into “Electronic computers and related equipment (52)” in JSCC.	-
1.1.1	Electronic computers	Of “electronic computers and related equipment,” refers to machinery/equipment categorized into “electronic computers” prescribed in “the Act (electronic computers)”. Note: “Electronic computers” prescribed in “the Act (electronic computers)”: Refers to items categorized into “Central processing units (CPU) (5211)” and “Personal-computers (5212)” in JSCC.	-
1.1.1.1	Electronic computers (server computers)	Of “electronic computers,” refers to machinery/equipment categorized into “server computers” prescribed in “the Act (electronic computers)”. Note: “Server computers” prescribed in “the Act (electronic computers)”: Refers to electronic computers designed for providing service, etc. via the network	-
1.1.1.1.1	Electronic computers (server computers excluding blade system)	Of electronic computers (server computers), refers to machinery/appliance excluding “blade system” prescribed in “the ENERGY STAR [®] Program Requirements for Computer Servers (draft 1, version 2.0)”. Note: Blade system prescribed in the ENERGY STAR [®] Program Requirements for Computer Servers (draft 1, version 2.0): Refers to a system composed of an enclosure for blade, one or more removable blade server, and/or other equipment (e.g., blade storage, blade network equipment).	Covered

		Blade system provides an extensible way to combine multiple blade servers or storage equipment within an enclosure, and is designed to allow maintenance technician to easily add or replace blade(s) (= hot-swap) in a place where the blade system is used.	
1.1.1.1.2	Electronic computers (server computers using blade system)	Of electronic computers (server computers), refers to machinery/appliance categorized into “blade system” prescribed in the “ENERGY STAR® Program Requirements for Computer Servers (draft 1, version 2.0)”.	-
1.1.1.2	Electronic computers (client computers)	Of electronic computers, refers to machinery/equipment categorized into “client computers” prescribed in “the Act (electronic computers)”. Note: “Client computers” prescribed in “the Act (electronic computers)”: Refers to electronic computers other than server computers	-
1.1.2	Auxiliary storages	Of electronic computers and related equipment, refers to machinery/equipment categorized into “Auxiliary storages (5213)” in JSCC.	-
1.1.2.1	Magnetic disk units	Of auxiliary storages, refers to machinery/equipment categorized into “magnetic disk units” prescribed in “the Act (magnetic disk units)”. Note: “Magnetic disk units” prescribed in “the Act (magnetic disk units)”: Refers to machinery/equipment categorized into “Magnetic disk units (52131)” in JSCC.	-
1.1.2.1.1	Magnetic disk units (single disk)	Of magnetic disk units, machinery/equipment categorized into “single disk” prescribed in “the Act (magnetic disk units)”. Note: “Single disk” prescribed in “the Act (magnetic disk units)”: Refers to items which have single disk drive.	-
1.1.2.1.2	Magnetic disk units (subsystem)	Of magnetic disk units, refers to machinery/equipment categorized into “subsystem” prescribed in “the Act (magnetic disk units)”. Note: “Subsystem” prescribed in “the Act (magnetic disk units)”: Refers to items which have multiple disk drives.	Covered
1.1.2.2	File storage unit	Refers to machinery/equipment which includes magnetic disk or magnetic disk unit (subsystem), and which provides a file service via network (a file-sharing service using a NFS or CIFS protocol). Note 1: NFS (Network File System) refers to a distributed file system and its protocol to be used in UNIX, which is defined by RFC 1094, RFC 1813, and RFC 3530, etc.	Covered

		Note 2: CIFS (Common Internet File System) refers to an expanded protocol, "SMB," which is used in file-sharing service of Windows (Microsoft Corporation), and its specifications are disclosed to enable being used also for OS and applications other than Windows.	
1.1.2.3	Magnet tape units	Of magnetic disk units, refers to machinery/equipment categorized into "Magnet tape units (52134)" in JSCC.	-
1.1.2.3.1	Cartridge type	Of magnetic disk units, refers to machinery/equipment categorized into "Cartridge type (521343)" in JSCC.	-
1.1.2.3.1.1	Tape array units	Refers to machinery/equipment that backup server, backup software, and magnetic tape library are installed into one unit.	Covered
1.1.2.4	Other auxiliary storages	Of auxiliary storages, refers to machinery/equipment other than magnetic disk units, file storage unit, and tape array unit.	-
1.1.3	Input-output units	Of electronic computers and related equipment, refers to machinery/equipment categorized into "Input-output units (5214)" in JSCC.	-
1.1.3.1	Pattern recognition units	Of electronic computers and related equipment, refers to machinery/equipment categorized into "Pattern recognition units (52144)" in JSCC.	-
1.1.3.1.1	Optical character reader and related equipment	Of OCR systems, refers to machinery/equipment categorized into "form OCR" in "OCR catalog glossary" by JEITA. It does not include accessories of PC and network equipment.	Covered
1.1.4	Terminal units	Of electronic computers and related equipment, refers to machinery/equipment categorized into "Terminal units (5215)" in JSCC.	-
1.1.4.1	Special purpose terminal units	Of electronic computers and related equipment, refers to machinery/equipment categorized into "Special purpose terminal units (52152)" in JSCC.	-
1.1.4.1.1	Banking terminals	Of electronic computers and related equipment, refers to machinery/equipment categorized into "Banking terminals (521523)" in JSCC.	-
1.1.4.1.1.1	Automatic teller machines	Of electronic computers and related equipment, refers to machinery/equipment categorized into "Automatic teller machines (5215232)" in JSCC.	Covered
1.1.5	Other electronic computers and related equipment	Of electronic computers and related equipment, refers to machinery/equipment other than electronic computers, auxiliary storages, input-output units, and terminal units.	-
1.2	Communication and related equipment	Refers to machinery/equipment categorized into "Communication and related equipment (54)" in JSCC.	-
1.2.1	Wire communications equipment	Of electronic computers and related equipment, refers to machinery/equipment categorized into "Wire communications equipment (541)" in JSCC.	-
1.2.1.1	Switching equipment	Of wire communications equipment, refers to machinery/equipment categorized into "switching equipment" prescribed in "the Act (switching equipment)".	-
1.2.1.1.1	Switching equipment (L2 switch)	Of switching equipment, refers to machinery/equipment categorized into "L2 switch" prescribed in "the Act (switching equipment)".	Covered

		<p>Note1: “L2 switch” prescribed in “the Act (switching equipment)”: Refers to equipment which send/receive telecommunication signals, and in sending telecommunication signals, which has a function to send telecommunication signals to a route specified for each destination by automatically selecting among two or more available routes to which the equipment can send the signals. (Limited to only the L2 switch for using internet. Both L2 switch which has a function of wireless communications and the one which is prescribed in the Ordinance of METI (Ministry of Economy, Trade and Industry), are excluded.)</p> <p>Note2: - Definition of “L2 switch” is set as follows: Of the product models whose communication functions are hierarchically-divided structures based on OSI (Open System Interconnection) established by ISO (International Organization for Standardization), refers to box-type products which have 3 or more communication ports, mainly aiming at relaying data on the network by using its second layer (data link layer). Concretely, refers to products which refer to MAC address and perform relaying operations. - Definition of “box-type” is set as follows: Refers to L2 switching equipment which has an enclosure, and can relay data on the network by using the 2nd layer (data link layer) of a circuit mounted on the equipment. “Box-type” includes equipment which only has slots where optical module for photoelectricity conversion can be removed from.</p>	
1.2.1.1.2	Other switching equipment	Of switching equipment, machinery/equipment other than “L2 switch”.	-
1.2.1.2	PON equipment	Of wire communications equipment, refers to machinery/equipment categorized into “PON equipment” prescribed in the Ecology Guideline.	-
1.2.1.2.1	PON equipment (OLT)	Of PON equipment, refers to machinery/equipment categorized in “OLT” prescribed in the Ecology Guideline.	-
1.2.1.2.2	PON equipment (ONU)	Of PON equipment, refers to machinery/equipment categorized into “ONU” prescribed in the Ecology Guideline.	Covered
1.2.1.3	Switching equipment	Of wire communications equipment, refers to machinery/equipment categorized into “Switching equipment (5415)” in JSCC.	-
1.2.1.3.1	Electronic switching equipment	Refers to machinery/equipment having microprocessor-based control, and consisting of various interfaces, multiple trunk circuits and extensions, to communicate by voice or data.	Covered
1.2.1.4	Other wire communication	Of wire communication equipment, refers to machinery/equipment other than switching equipment and PON equipment.	-

	equipment		
1.2.2	Other communication and related equipment	Of communication and related equipment, refers to machinery/equipment other than wire communications equipment.	-
<p>Note: At this point, some product categories (1.1.2.4 Other auxiliary storages, 1.1.5 Other electronic computers and related equipment, 1.2.1.1.2 Other switching equipment, 1.2.1.4 Other wire communications equipment, and 1.2.2 Other communication and related equipment) are set for convenience to categorize the classification system of IT equipment. When respective rules on each machinery/equipment of IT equipment are added and this CFP-PCR is revised, these product categories will be modified and added by adopting the name of the newly covered machinery/equipment.</p>			

Annex B (normative): Product category

In this CFP-PCR, product categories are set by considering that there are products which have different product characteristic and/or performance characteristic even if among the same product category.

The product category shall follow the latest product category for each machinery/equipment prescribed in “the Act (respective specified equipment)”.

As for machinery/equipment whose category has not been established yet, data shall be collected in accordance with the product category prescribed in this CFP-PCR.

Note: As for each product category of “electronic computers (server computers excluding blade system),” “magnetic disk units (subsystem),” and “switching equipment (L2 switch),” the latest product categories prescribed in “the Act (respective specified equipment)” are shown in Table B-1, Table B-2, and Table B-3 (informative).

For electronic switching equipment, Table B-7 (informative) shows the latest product category as of now (Aug. 23, 2013), which is prescribed in PCR of [“PBX system” product of EcoLeaf environmental label (PCR ID: BS-01)].

At this point, file storage unit, optical character reader, and PON equipment (ONU) shall follow the product category in Table B-3, B-4, and B-6, since no applicable category is established.

Table B-1 (informative): Product category of electronic computers (server computers excluding blade system)

Machinery/equipment	CPU type	Number of I/O slots	Number of CPU sockets	Category
Electronic computers (server computers excluding blade system)	Dedicated	Less than 32 slots	-	A
		32 or more slots	-	B
	RISC	Less than 8 slots	-	C
		8 or more slots to less than 40 slots	-	D
		40 or more slots	-	E
	IA64	Less than 10 slots	-	F
		10 or more slots	-	G
	IA32	0	-	H
		1 or more slot to less than 7 slots	Less than 2 CPU sockets	I
			2 CPU or more sockets to less than 4 CPU sockets	J
			4 or more CPU sockets	K
			7 or more slots	-
The product categories by “CPU type,” “I/O slots,” and “number of CPU sockets” are created based on the category of “server computers” prescribed in “the Act (electronic computers)”.				

Table B-2 (informative): Product category of magnetic disk units (subsystem)

Machinery/equipment	Application	Category
Magnetic disk units (subsystem)	For mainframe server	M
	For other application	N
The product categories by “application” are created based on the category of “subsystem” prescribed in “the Act (magnetic disk units)”.		

Table B-3 (normative): Product category of file storage unit

Machinery/equipment	Number of nodes	Category
File storage unit	1	A
	2 or more	B
"Number of nodes" means the number of unit(s) in a system (cluster system) combining multiple units to provide a file service, for the purpose of improving scalability or availability.		

Table B-4: Product category of tape array unit
Not specified.

Table B-5 (informative): Product category of optical character reader (OCR)

Machinery/equipment	Reading speed of OCR	Category
Optical character reader (OCR)	Lower than 100 sheet/min	A
	100 sheet/min or higher	B
The categories above are classified by reading speed of OCR.		

Table B-6 (informative): Product category of automatic teller machines (ATM)

Machinery/equipment	Function to process notes	Function to process coins	Function to update passbook	Function to read magnetic card	Function to issue receipt	Input part	Category
Automatic teller machines (ATM)	Yes (self-service terminals)	Yes (Self-service terminals)	Yes	Yes	Yes	Yes (horizontally-mounted)	A
	Yes (self-service terminals)	No	Yes	Yes	Yes	Yes (horizontally-mounted)	B
	Yes (self-service terminals)	No	No	Yes	Yes	Yes (vertically-mounted)	C
The categories above are classified by functions/parts which determine processing functions of ATM.							

Table B-7 (informative): Product category of switching equipment (L2 switch)

Machinery/equipment	Management function		IP address processing	Category
Switching equipment (L2 switch)	Management function	SNMP function	IP filtering function	A
			No IP filtering function	B
	No management function	Web management function, etc.	-	C
			-	D
This product category according to existence/non-existence of management function and IP address processing is created based on the category prescribed in "the Act (switching equipment)".				

Table B-8 (normative): Product category of PON equipment (ONU)

Machinery/equipment	UNI specifications	Existence of image receiver function	Category
PON equipment (ONU)	100 Mbps	No	A
		Yes	B
	1 Gbps	No	C
		Yes	D

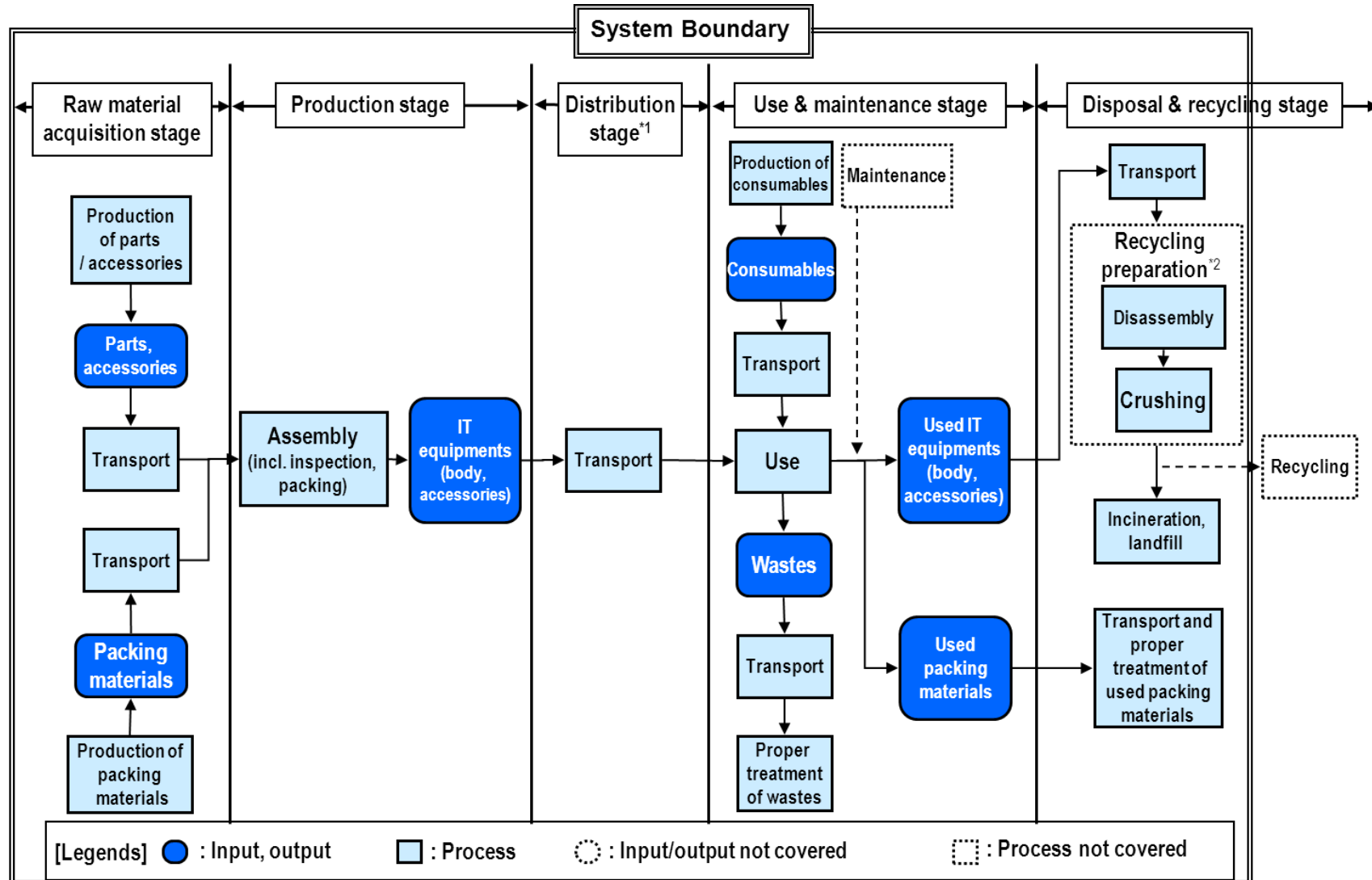
This product category according to UNI specifications is created based on the category by the reference value of ONU described in “No.5.2.4: PON equipment of the Ecology Guideline”.

Table B-9 (informative): Product category of electronic switching equipment

Machinery/equipment	Type	Number of ports connected	Category
Electronic switching equipment	Small capacity type	Less than 100 ports	A
	Medium capacity type	100 or more ports to less than 1,000 ports	B
	Large capacity type	1,000 or more ports	C

“Type” and “Product category” which are classified by number of ports are based on the product rank defined by EcoLeaf (PBX system).

Annex C (normative): Life cycle flow chart

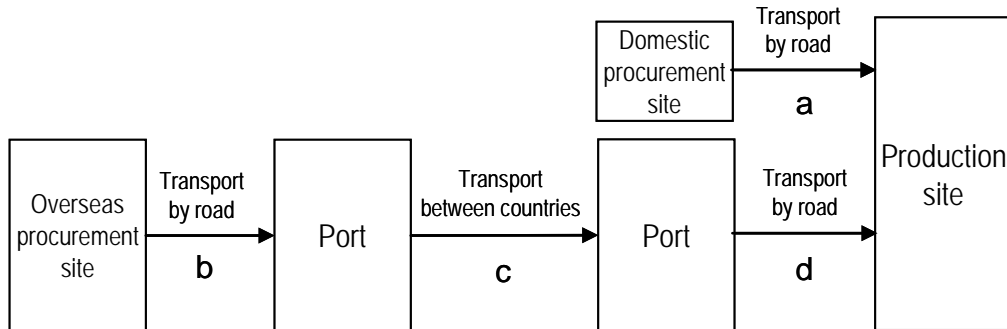


*2: As for recycling, up to and including recycling processes shall be calculated. In this PCR, “disassembly” and “crushing” processes are applied.

Annex D (normative): Transport scenario

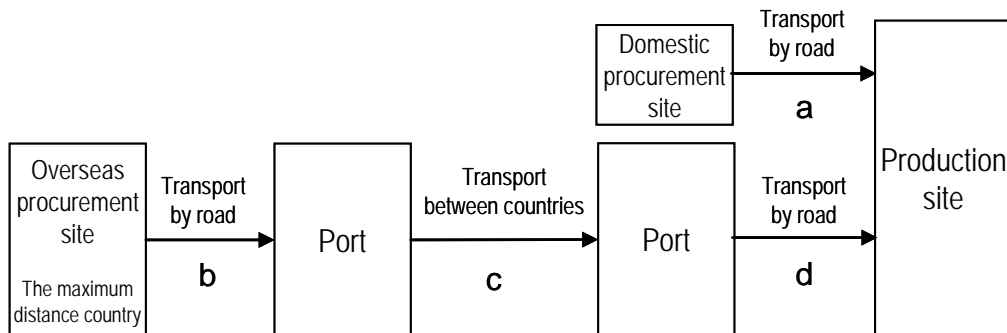
1) Raw material acquisition stage

Transport amount is specified for the following product transport routes: a (transport by road), b (transport by road), c (transport between countries), and d (transport by road). Each scenario, A (A-1, A-2) and B (B-1, B-2) shown below, shall be used according to whether overseas procurement site is known or unknown.



A: When overseas procurement site (country) is known

A-1: When ratio of domestic procurement to overseas procurement is known



- Section a

<Mass transported> Domestic procurement amount of parts, accessories, and packing materials (kg) (primary data)

<Distance> 500 km

<Means> 10-ton truck, loading ratio: 50 %

- Section b and d

<Mass transported> Overseas procurement amount of parts, accessories, and packing materials (kg) (primary data)

<Distance> 500 km

<Means> 10-ton truck, loading ratio: 50 %

- Section c

<Mass transported> Overseas procurement amount of parts, accessories, and packing materials (kg) (primary data)

<Distance> Transport distance from “a country whose transport distance is the maximum among all the countries of raw materials procured” to the domestic country (Database between countries/regions)

<Means> Container ship (4,000 TEU or less)

- Domestic procurement amount and overseas procurement amount may be calculated by using the following equation. In this case, overseas procurement ratio shall be mass-based ratio. If this data collection is difficult, however, it may be calculated based on a ratio of monetary values. (Overseas procurement ratio of applicable product should be collected. If data collection is difficult, however, overseas procurement ratio of a product department may be collected.)

Domestic procurement amount (kg)

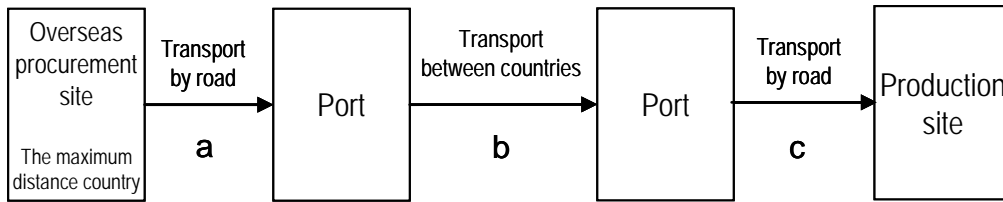
= Mass of either IT equipment or Packaging materials (kg) x (1 - Overseas procurement ratio)

Overseas procurement amount (kg)

= Mass of either IT equipment or Packaging materials (kg) x Overseas procurement ratio

A-2: When ratio of domestic procurement to overseas procurement is unknown

It is assumed that all raw materials are procured from abroad as below.



- Section a and c

<Mass transported> Mass of parts, accessories, and packing materials (kg) (primary data)

<Distance> 500 km

<Means> 10-ton truck, loading ratio: 50 %

- Section b

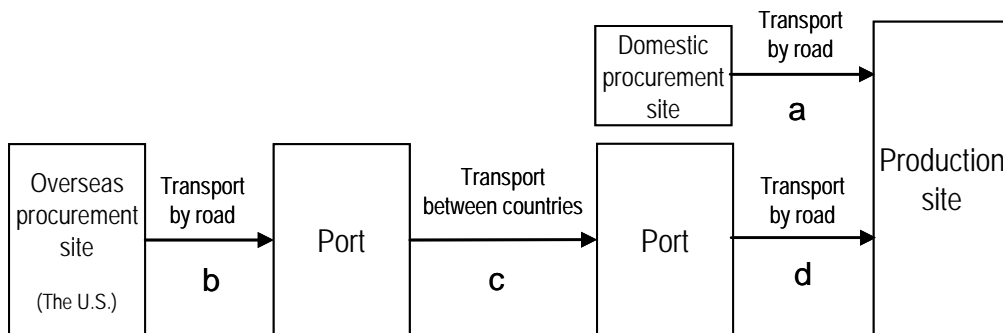
<Mass transported> Mass of parts, accessories, and packing materials (kg) (primary data)

<Distance> Transport distance from “a country whose transport distance is the maximum among all the countries of raw materials procured” to the domestic country (Database between countries/regions)

<Means> Container ship (4,000 TEU or less)

B: When overseas procurement site (country) is unknown

B-1: When ratio of domestic procurement to overseas procurement is known



- Section a

<Mass transported> Mass of parts, accessories, and packing materials (kg) (primary data)

<Distance> 500 km

<Means> 10-ton truck, loading ratio: 50 %

- Section b and d

<Mass transported> Mass of parts, accessories, and packing materials (kg) (primary data)

<Distance> 500 km

<Means> 10-ton truck, loading ratio: 50 %

- Section c

<Mass transported> Mass of parts, accessories, and packing materials (kg) (primary data)

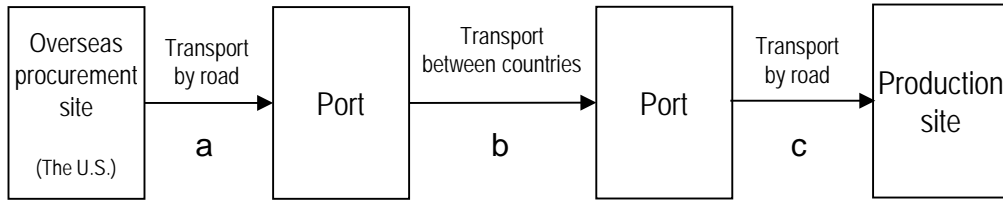
<Distance> 28,275 km (from U.S. east coast to Japan, not via canal)

<Means> Container ship (4,000 TEU or less)

- Calculation method of domestic procurement amount and overseas procurement amount shall be the same as A-1.

B-2: When ratio of domestic procurement to overseas procurement is unknown

It is assumed that all raw materials are procured from abroad as below.



- Section a and c

<Mass transported> Mass of parts, accessories, and packing materials (kg) (primary data)

<Distance> 500 km

<Means> 10-ton truck, loading ratio 50 %

- Section b

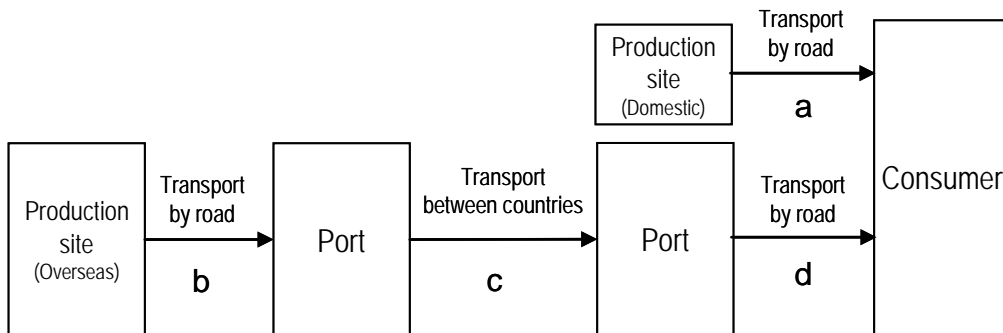
<Mass transported> Mass of parts, accessories, and packing materials (kg) (primary data)

<Distance> 28,275 km (from U.S. east coast to Japan, not via canal)

<Means> Container ship (4,000 TEU or less)

2) Distribution stage

Transport amount is specified for the following product transport routes: a (transport by road), b (transport by road), c (transport between countries), and d (transport by road).



- Section a and d

<Mass transported> Mass of IT equipment (body, accessories) and packing materials (primary data)

<Distance> 1,000 km

<Means> 10-ton truck, loading ratio 50 %

- Section b

<Mass transported> Mass of IT equipment (body, accessories) and packing materials (primary data)

<Distance> 500 km

<Means> 10-ton truck, loading ratio 50 %

- Section c

<Mass transported> Mass of IT equipment (body, accessories) and packing materials (primary data)

<Distance> Navigation distance between ports (Database between countries/regions)

<Means> Container ship (4,000 TEU or less)

- When products are produced in domestic site and overseas site, “GHG emissions from the domestic site” and “GHG emissions from the overseas site” shall be weighted by “ratio of domestic production site to overseas production site,” respectively, and then the respective weighted GHG emissions shall be summed. In this case, number of machineries/equipment shall be used for production ratio, and if other value (e.g., amount of money) is used, its validity shall be verified.

- When ratio of domestic production to overseas production is unknown, it shall be assumed that all transports are done from overseas country to the domestic country.

3) Use and distribution stage

For transport of consumables, use the following scenarios.

1. Domestic transport

<Mass transported> Mass of consumables (kg) (primary data)

<Distance> 500 km

<Means> 10-ton truck, loading ratio 50 %

2. International transport

In addition to domestic transport, life cycle GHG emissions associated with international transport described in a) and b) shall be included.

a) Transport between countries

<Mass transported> Mass of consumables (kg) (primary data)

<Distance> 28,275 km (from U.S. east coast to Japan, not via canal)

<Means> Container ship (4,000 TEU or less)

b) Overseas transport by road

<Mass transported> Mass of consumables (kg) (primary data)

<Distance> 500 km

<Means> 10-ton truck, loading ratio 50 %

4) Disposal and recycling stage

<Mass transported> Mass of either used IT equipment (body, accessories) or packing materials (kg) (primary data)

<Distance> 100 km

<Means> 2-ton truck, loading ratio 50 %

Annex E (normative): Disposal and recycling scenario

Scenario for disposal and recycling is shown below.

- Used IT equipment (body/accessories) are disassembled and crushed for recycling preparation.
 In this case, mass of used IT equipment to be disassembled/crushed are set as follows, respectively.
 - > Mass of used IT equipment to be disassembled is assumed as mass of used IT equipment (body/accessories)
 - > Mass of used IT equipment to be crushed is assumed as mass of used IT equipment (body/accessories)
- Materials disassembled and crushed will be then recycled (e.g., refining, etc.) or landfilled.
 In this case, recycling process (refining, etc.) shall be excluded from the assessment, and mass of landfilled materials not to be recycled shall be specified by using the following equation:
 - > Mass of landfilled materials not to be recycled =
 Mass of used IT equipment (body, accessories) x (1 - Recycling ratio)
 Recycling ratio here shall be specified by business by quoting from literature or statistical data, etc. (its validity shall be verified). If it is difficult to set a recycling ratio, recycling ratio may be set as 0 % (= assumed that all materials are landfilled).

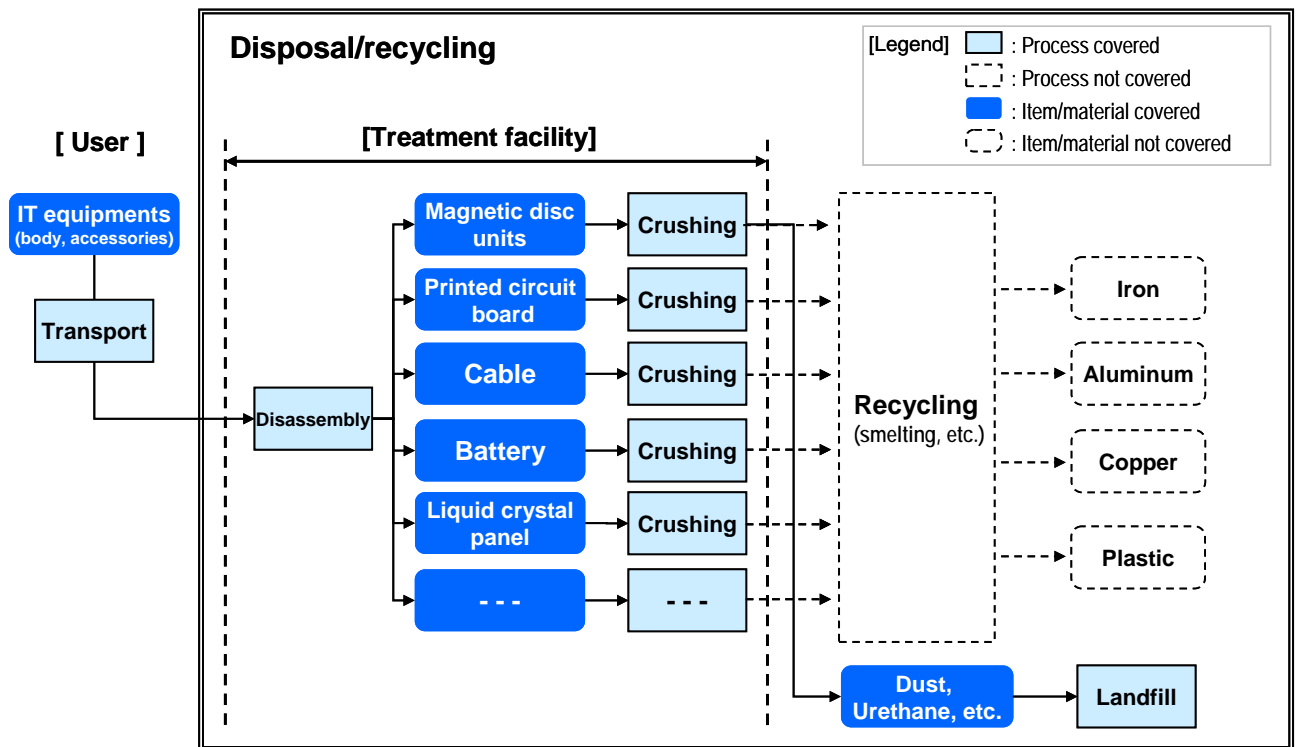


Chart E.1: Processing flow of disposal and recycling