

ANNEX

EU ECOLABEL CRITERIA AND ASSESSMENT AND VERIFICATION
REQUIREMENTS

Criteria for awarding the EU Ecolabel to desktop, notebook and tablet computers:

1. Energy Consumption
 - (a) Energy savings
 - (b) Power management
 - (c) Internal power supplies
2. Hazardous substances
3. Lifetime extension
 - (a) Durability testing for notebook computers
 - (b) Expansion facilities
 - (c) Battery quality and lifetime
 - (d) Data storage drive reliability and protection
 - (e) Upgradeability and Repairability
4. End-of-life management: Design and material selection
 - (a) Material selection and information to improve recyclability
 - (b) Design for dismantling and recycling
 - (c) Packaging
5. Corporate social responsibility
 - (a) Labour conditions during manufacturing
 - (b) Conflict-free minerals' in electronics
6. Further criteria
 - (a) Noise
7. Information
 - (a) User instructions
 - (b) Information appearing on the EU Ecolabel

Assessment and verification

(a) Requirements

The specific assessment and verification requirements are indicated within each criterion.

Where the applicant is required to provide declarations, documentation, analyses, test reports, or other evidence to show compliance with the criteria, these may originate from the applicant and/or his supplier(s) and/or their supplier(s), as appropriate.

Where appropriate, test methods other than those indicated for each criterion may be used if these are described in the user manual of the Ecolabel criteria application and the competent body assessing the application accepts their equivalence.

Competent bodies shall preferentially recognise tests which are accredited according to ISO 17025 and verifications performed by bodies which are accredited under the EN 45011 standard or an equivalent international standard.

Where appropriate, competent bodies may require supporting documentation and may carry out independent verifications.

Draft document

Criterion 1. Energy consumption

1(a) Energy savings

The energy efficiency performance of computers shall meet the appropriate energy-efficiency requirements set out in the Agreement as amended by Energy Star v6.0.

Capability adjustments allowed under the Agreement as amended by Energy Star v6.0 may be applied at the same level, except in the case of discrete graphics processing units (GPUs) where maximum additional allowance shall be given to:

- (a) Desktop Computers: 90 W;
- (b) Notebook Computers: 33 W.

Tablet computers shall be exempted from energy savings requirements.

Assessment and verification: The computer must be tested according to the Energy Star v6.0 test methods for computers and the test report shall be submitted to the competent body with the application.

Note: No later than 2 years after the criteria for EU Ecolabel for Computers have entered into force, the Commission shall evaluate the market penetration of Computers meeting the criterion on "energy efficiency requirement of Energy Star v6.0" and, if justified, present to the EUEB and Regulatory Committee an amendment of this criterion.

1(b) Power management

Computers shall comply with power management requirements as defined in Energy Star v6.0.

Tablet computers shall be exempted from power management requirements.

Assessment and verification: The computer must be tested according to the Energy Star v6.0 test methods for computers and the test report shall be submitted to the competent body with the application.

1(c) Internal power supplies

Internal power supplies shall meet at least the energy efficiency requirements for internal power supplies set out by Energy Star v6.0.

Assessment and verification: The applicant shall declare the compliance of the product with these requirements to the competent body. Additionally, a test protocol on the basis of the document "Generalized Test Protocol for Calculating the Energy Efficiency of Internal Ac-Dc and Dc-Dc Power Supplies, Revision 6.6" shall be provided to the competent body.

Criterion 2. Substitution of hazardous substances used in the main computer components

2(a) Substances of Very High Concern (SVHC's)

The product shall not, unless specifically derogated, contain substances that:

- (i) Meet the criteria in Article 57 of Regulation (EC) No 1907/2006,
- (ii) Have been identified according to the procedure described in Article 59(1) of Regulation (EC) No 1907/2006 which establishes the candidate list for substances of very high concern.

These conditions apply to substances that carry out a function to the final product and to substances that may be present as impurities or contaminants. No derogation shall be given concerning substances that meet either of these two conditions, and which are present in an article or in any homogeneous part of a complex article in concentrations greater than 0,1 % (weight by weight).

Assessment and verification: Substances that are present in the final product shall be screened against the latest version of the candidate list published by ECHA. The applicant shall compile declarations of compliance from, as a minimum, tier 2 suppliers. Where a derogation has been granted then the applicant shall show that use of the substance is in compliance with the relevant concentration limits and derogation conditions.

2(b) Restrictions based on hazard classifications

Hazardous substances that may be present in main components of the computer that, in accordance with Regulation (EC) No 1272/2008 of the European Parliament and of the Council or Council Directive 67/548/EC, meet the criteria for classification with the hazard classes or risk phrases listed in table 2.1 shall not be used unless they have been specifically derogated. The main components of a computer are defined as comprising:

- Printed Circuit Boards
- Central Processing Units and Graphics Processing Units (including cooling units)
- Electrical solder and metal contacts
- Electrical and data connections (internal and external)
- Data storage drives
- External cables and power packs
- External housing and enclosure materials
- External casing and surfaces of peripheral devices
- Notebook or tablet batteries
- Display screen glass
- Liquid Crystal Display unit
- Screen LED backlights

Homogeneous parts with a weight of below 25 g and the metal chassis of the product are excluded from the scope of this criterion.

The hazard classifications in Table 2.1 generally refer to substances. However, if information on substances cannot be obtained, the classification rules for mixtures apply. The most recent classification rules adopted by the European Union shall take precedence over the listed hazard classifications or risk phrases.

The use of substances or mixtures which change their properties upon processing (e.g., become no longer bioavailable, undergo chemical modification) so that the identified hazard

no longer applies are exempted from the above requirements. This shall include polymers that have been modified to incorporate a function and additives which become covalently bonded with polymers.

Table 2.1: Restricted hazard classifications and risk phrases and their CLP categorisation

Acute toxicity	
Category 1 and 2	Category 3
H300 Fatal if swallowed (R28)	H301 Toxic if swallowed (R25)
H310 Fatal in contact with skin (R27)	H311 Toxic in contact with skin (R24)
H330 Fatal if inhaled (R23/26)	H331 Toxic if inhaled (R23)
H304 May be fatal if swallowed and enters airways (R65)	EUH070 Toxic by eye contact (R39/41)

Specific target organ toxicity	
Category 1	Category 2
H370 Causes damage to organs (R39/23, R39/24, R39/25, R39/26, R39/27, R39/28)	H371 May cause damage to organs (R68/20, R68/21, R68/22)
H372 Causes damage to organs (R48/25, R48/24, R48/23)	H373 May cause damage to organs (R48/20, R48/21, R48/22)

Carcinogenic, mutagenic or toxic for reproduction	
Category 1A and 1B	Category 2
H340 May cause genetic defects (R46)	H341 Suspected of causing genetic defects (R68)
H350 May cause cancer (R45)	H351 Suspected of causing cancer (R40)
H350i May cause cancer by inhalation (R49)	
H360F May damage fertility (R60)	H361f Suspected of damaging fertility (R62)
H360D May damage the unborn child (R61)	H361d Suspected of damaging the unborn child (R63)
H360FD May damage fertility. May damage the unborn child (R60, R60/61)	H361fd Suspected of damaging fertility. Suspected of damaging the unborn child (R62/63)
H360Fd May damage fertility. Suspected of damaging the unborn child (R60/63)	H362 May cause harm to breast fed children (R64)
H360Df May damage the unborn child. Suspected of damaging fertility (R61/62)	

Hazardous to the aquatic environment	
Category 1 and 2	Category 3 and 4
H400 Very toxic to aquatic life	H412 Harmful to aquatic life with long-lasting

(R50)	effects (R52/53)
H410 Very toxic to aquatic life with long-lasting effects (R50/53)	H413 May cause long-lasting effects to aquatic life (R53)
H411 Toxic to aquatic life with long-lasting effects (R51/53)	
Hazardous to the ozone layer	
EUH059 Hazardous to the ozone layer (R59)	

Assessment and verification: The applicant shall obtain declarations of compliance from, as a minimum tier 2 suppliers. This shall declare that, where used in the listed components, the following substances do not meet the criteria for classification with one or more of the hazard classifications or risk phrases listed in table 2.1:

- Flame retardants
- Plasticisers
- Plastic stabilisers
- Plastic colorants
- Biocides in plastic and rubber
- Plastic contaminants
- Solders and metal contacts
- Thermal conductors
- Coolants
- Battery electrolytes
- External metals and coatings
- Screen glass fining agents
- Liquid crystals in displays
- LED doping and luminescence

Where substances are derogated in 2(c) or 2(d) then the declaration shall specifically identify those derogated substances and provide supporting evidence showing how the derogation conditions are to be met.

The following technical information shall be provided to support the declaration of classification or non-classification for each substance:

- (i) For substances that have not been registered under Regulation (EC) No 1907/2006 or which do not yet have a harmonised CLP classification: Information meeting the requirements listed in Annex VII to that Regulation;
- (ii) For substances that have been registered under Regulation (EC) No 1907/2006 and which do not meet the requirements for CLP classification: Information based on the REACH registration dossier confirming the non-classified status of the substance;
- (iii) For substances that have a harmonised classification or are self-classified: SDS where available. If these are not available or the substance is self-classified

then information shall be provided relevant to the substances hazard classification according to Annex II to Regulation (EC) No 1907/2006;

- (iv) In the case of mixtures: safety data sheets where available. If these are not available then calculation of the mixture classification shall be provided according to the rules under Regulation (EC) No 1272/2008 together with information relevant to the mixtures hazard classification according to Annex II to Regulation (EC) No 1907/2006.

SDS shall be completed in accordance with the guidance in Section 2,3,9,10, 11 and 12 of Annex II to Regulation (EC) 1907/2006 (requirements for the compilation of SDS).

2(c) Derogation of substances with a favourable hazard profile

In accordance with Article 6(7) of Regulation (EC) No 66/2010 the substance groups in table 2.2 are specifically derogated from the requirements set out in Article 2(b) and in accordance with the associated derogation conditions.

Table 2.2. Derogation of substitutes with a favourable hazard profile

Substance group	Sub-components	Hazard derogations	Derogation conditions
Flame retardants	Printed Circuit Boards	<i>Not required</i>	Control of associated hazardous reaction products.
	Internal connectors and switches	H413	-
	External power cables	<i>Not required</i>	-
	Plastic enclosures and casings	H412, H413	Control of PFOA emissions from PTFE production
	Recycled plastic in enclosures and casings	FR's and their synergists that are not restricted or identified as SVHC's	Declaration of FR and synergist present obtained from the component supplier.
Plasticisers	External cables	H411	-
	Recycled content (all components)	Substances present in recycle that are not SVHC's.	-

2(d) Restriction of substances in specified components

The final product and, where stipulated, specified components shall not contain the hazardous substances listed in table 2.3 at or above the specified concentration limits or according to the specified restrictions. The restrictions in the RSL take precedence over any derogations listed in Criterion 2(C).

Verification and testing requirements are specified in table 2.3. Laboratory testing, where required, shall be carried out for each production model. Testing shall be carried out annually during the license period in order to demonstrate ongoing compliance.

Table 2.3. Restriction of substances within components

Substance group	Restriction	Concentration limit
Plasticisers	DEHP, BBP, DBP, DIBP, DMEP, DIPP, DPP, DnPP and DnHP shall not be present in external cables and power packs.	A sum total concentration limit of 0.1% is proposed.
	Medium Chained Chlorinated Paraffins (MCCP's) Alkanes C14-17 shall not be present in external cables and power packs.	A sum total concentration limit of 0.1% is proposed.
Plastic stabilisers	Lead shall not be present in external cables, wires and connecting cords.	Concentrations at or greater than 300 ppm. <i>A test method is proposed to be specified.</i>
Plastic colourants	Colourants containing lead, chromium VI and cadmium, including those included in the Candidate List, shall not be used.	<i>The potential to specify testing is to be discussed.</i>
	Pigments and dyes used to colour ABS shall be colour fast.	<i>A migration test is to be identified.</i>
Biocides	Biocides intended to provide a hygiene (anti-bacterial) function shall not be added to keyboards and peripherals.	Self-declaration obtained from component suppliers.

Plastic contaminants	The 18 listed Polycyclic Aromatic Hydrocarbons (PAHs) shall not be present above individual and sum total concentration limits in the external surfaces of notebooks and tablets; peripheral keyboards, mice, stylus and trackpads; external power cables.	The following concentrations shall apply: <ul style="list-style-type: none"> - Individual concentrations for the eight REACH restricted PAHs shall be 1 ppm - The sum total concentration of the 18 listed PAHs shall not be greater than 18 ppm
Metal solder	RoHS exemption 7b for solder in small-scale servers shall not be granted to ecolabelled computers	Declaration by the manufacture detailing the alternative solder specified.
	The following RoHS exemptions shall be granted for ecolabelled computers: <ul style="list-style-type: none"> - 6a-c: An alloying agent in steel, aluminium and copper (expires July 2016); - 7cii: In dielectric ceramic materials in capacitors (expires July 2016). 	-
Electrical contacts	RoHS exemption 8b shall not be granted to ecolabelled computers	Declaration by the manufacture detailing the alternative solder specified.
Ceramic heat conductors	Beryllium and its compounds shall not be used in parts at concentrations greater than 0.1%	Self-declaration obtained from component suppliers.
Coolants	Refrigerants in cooling systems shall not be classified as Ozone Depleting Substances (H420) or Controlled substances under the Montreal Protocol.	-

External metal parts	Nickel in stainless steel shall be restricted in-line with REACH where any external part will be in close and prolonged contact with the skin.	<i>Verification shall be by analytical testing for migration.</i>
External metallic coatings	Hexavalent chromium shall not be present in metallic coatings applied to parts of a computer.	<i>Verification shall be by analytical testing of coated parts.</i>
Screen glass	Arsenic and its compounds shall not be used in the manufacturing of screen glass and shall not be present at a concentration greater than 10 ppm.	<i>It is proposed that verification is obtained from the glass manufacturer.</i>

Assessment and verification: The applicant shall provide a declaration of compliance with the restriction list in table 2.3 supported by evidence as applicable to the substances used to manufacture components within the final product. Testing, where required, shall be carried out upon application for each production model licensed and once a year thereafter, with results then communicated to the relevant competent body.

Failure of a test result during a license period shall result in retesting for the specific product line. If the second test fails then the license shall be suspended for the specific product line. Remedial action will then be required in order to re-instate the license.

Criterion 3. Lifetime extension

3(a) Durability testing for notebook computers

The applicant shall submit the notebook model for durability testing. The notebook shall be verified to pass the performance benchmarks and function accordingly during and after each test as specified below.

Durability test	Test conditions and performance benchmark	Reference for test method
Drop	122 cm drop height onto a 5.0 cm of plywood surface on concrete, 4-6 drops per sample to a total of 26 drops covering each face, edge and corner. <i>The notebook is non-operational during the test but shall function following the test.</i>	MIL-STD-810G, 516.6, Procedure IV
Shock	40g for 18 tests each applied to Bottom, Left and Back side. <i>The notebook is non-operational during the test but shall function following the test</i>	MIL-STD-810G, 516.5, Procedure I <i>For further review of equivalence: IEC 60068</i>
Vibration	20-2000 Hz, 1.04 Grms, 1 hour applied to Bottom, Left and Back side. <i>The notebook is to be operational during and after the test.</i>	MIL-STD-810G, 514.6, Category 24 <i>For further review of equivalence: IEC 60068</i>
Temperature	Three 24 hour exposure cycles for each extreme in a test chamber -29°C and 63°C <i>The test to be repeated for an operational and non-operational notebook. The notebook shall be checked that it functions following each routine.</i>	MIL-STD-810G, 501.5, Procedure II <i>For further review of equivalence: IEC 60068</i>
Water ingress	0.2 litres of water is to be poured evenly over the main body of the open keyboard face of the notebook, drained after 3 seconds, inverted on its side for 45 seconds and then tested after 2 minutes. <i>The notebook is to be operational during and after the test.</i>	MIL-STD-810G, 506.5, Procedure III <i>For further review of equivalence: IEC 60529</i>
Screen pressure	25kg loading to be applied to the centre of the screen lid with the notebook placed on a flat surface. <i>The screen to then be inspected for lines, spots and cracks.</i>	<i>No formal reference: stakeholder input required.</i> <i>Potential to refer to panel pressure test methods.</i>
Keyboard accelerated life	10 million random keystrokes simulation for <i>(to be specified)</i> product samples. <i>The keys to then be inspected for their integrity.</i>	<i>No formal reference: stakeholder input required.</i>

Assessment and verification: The applicant shall provide test reports showing that the model has been tested and has met the benchmarks for durability. Testing and verification shall be carried out by a third party.

3(b) Expansion facilities

- (i) Desktop PCs and Thin Clients:
 - Presence of at least 4 USB interfaces, of which at least one USB 3.0.
- (ii) Notebook PCs and Mobile Thin Clients:
 - Presence of at least 3 USB interfaces, of which at least one USB 3.0.
 - One additional interface for an external monitor
- (iii) Tablet PCs:
 - Presence of at least 1 USB interface.
 - Support for external monitor, keyboard and mouse.

Assessment and verification: The applicant shall declare the compliance of the product with these requirements to the competent body.

3(c) Battery quality and lifetime

- a) Notebooks shall provide the user with a minimum of 7 hours of battery life after the first full charge. This shall be benchmarked using Mobilemark software or equivalent.
- b) Notebook and tablet batteries shall meet the following cycle requirements:
 - (i) Models in which batteries can be readily changed by consumers shall maintain 80% of their original capacity after 750 charging cycles;
 - (ii) Models in which batteries cannot be readily changed by consumers shall maintain 80% of their original capacity after 1000 charging cycles.

This performance shall be verified according to the IEC EN 61960 ‘endurance in cycles’ test carried out at 25°C and at a rate of either 0.2 I_t A or 0.5 I_t A (accelerated test procedure).
- c) The cycle performance requirement described in (b) may be achieved using pre-loaded software which partially charges the battery up to 80% of capacity. In this case the applicant shall pre-install the software in such a way that it is the default charging routine and they shall verify the charging cycle performance according to the requirements in (b). The maximum partial charge shall also provide a battery life that complies with sub-criterion (a).
- d) Information about known factors influencing the lifetime of batteries as well as instructions on how the user can prolong battery life should be included in pre-loaded energy management software, written user instructions and posted on the manufacturer’s website.

Assessment and verification: The applicant shall provide a test method showing that the battery packs or cell types used in the product meet the specified battery life and charging cycles. Partial charging and the accelerated test method specified within IEC 61960 may be used to comply.

A demonstration version of the energy management software and text content of user instructions and website articles shall additionally be provided.

3(d) Data storage drive reliability and protection

i. Stationary computers

The data storage drive or drives used in desktops, workstations and thin clients shall have an Annual Failure Rate (AFR) of less than 0.9%.

For small-scale servers the Annual Failure Rate shall be less than 0.6% and a Bit Error Rate of >1 in 10^{16} bits.

ii. Portable computers

The primary data storage drive used in notebooks shall be designed to protect the drive and data from shock and vibration. The drive shall comply with one of the following:

- (i) The HDD drive head should retract within a maximum of 300 milliseconds upon detection of the notebook having been dropped.
- (ii) The HDD drive shall be designed to withstand a shock of 300 G (operating) and 900 G (non-operating)
- (iii) A Solid State Drive is installed.

Assessment and verification: The applicant shall provide a specification for the drive or drives integrated into the product. This shall be obtained from the drive manufacturer and shall be supported by a technical report verifying that the drive complies with the specified performance requirements.

3(e) Upgradeability and Repairability

For the purpose of upgrading older components or undertaking repairs and replacements of worn out components or parts, the following criteria shall be fulfilled:

- (a) **Design for upgrades and repair:** The following components of computers, if applicable, shall be easily accessible and exchangeable by the use of universal tools (i.e. widely used commercially available tools as screwdriver, spatula, plier, or tweezers):
 - (i) HDD/SSD,
 - (ii) Memory,
 - (iii) Rechargeable battery,
 - (iv) Screen assembly and LCD backlight,
 - (v) Keyboard and mouse pad, and
 - (vi) Cooling fan.

Indicatively, the following should be used: simple access panels provided for key components and screw numbers minimised (e.g. by lugs and slots). Screw heads standardised with no more than three head sizes. Detachable electrical connectors (e.g. clip or screw) should be used rather than soldered or crimped joints where access is required. The following should not be used: self-tapping screws, irreversible snap-fits or adhesives where access is required. Tamper-proofing (such as plastic covers or labels) should only be used to ensure authorised repair under warranty and should not inhibit other repairs outside of the warranty period. Special tools include e.g. screwdrivers with special heads (e.g. torx), heat gun, thermal pad, soldering iron.

- (b) **Repair manual:** The applicant shall provide clear disassembly and repair instructions (e.g. hard or soft copy, video) being publicly available, to enable a non-destructive disassembly of products for the purpose of replacing key components or parts for upgrades or repairs.
- (c) **Repair Service / Information:** Information should be included in the user instructions or the manufacturer's website to let the user know where to go to obtain professional repairs

and servicing of the computer, including contact details as appropriate. Service should not be limited exclusively to applicant's Authorized Service Providers.

- (d) Availability of spare parts: The applicant shall ensure that original or backwardly compatible spare parts, including rechargeable batteries (if applicable), are publicly available for at least five years following the end of the computer model production.
- (e) Warranty: The applicant shall provide an additional three year warranty or service agreement for the computer product; for rechargeable batteries, if applicable, the period should be at least one year.

Assessment and verification: The applicant shall declare the compliance of the product with these requirements to the competent body. Additionally, the applicant shall provide

- A copy of the warranty or service agreement.
- A copy of the repair manual
- A copy of the user instructions

Criterion 4. End-of-life management: Design and material selection

4(a) Material selection and information to improve recyclability

- a) Variety of plastics:
 - (i) Plastic parts with a mass greater than 25 grams may consist of a single polymer or a polymer blend compatible for the recycling.
 - (ii) Overall in the product of the plastic parts with a mass greater than 25 grams there shall be a maximum of 4 types of plastic used.
 - (iii) Plastic used for housings and enclosures shall consist of a maximum of two polymers in a form that is compatible with recycling. The compatibility for recycling shall be verified.
- b) Surface coating / metal inlays: Plastic materials used for housings and enclosures shall have no surface coatings or metal inlays.
- c) Material information to facilitate recycling: Plastic parts with a mass greater than 25 grams shall be marked in accordance with ISO 11469 and ISO 1043, sections 1-4. The CAS number of flame retardants shall additionally be marked *FR (ISO 1043-4 code)*-CAS. For plastic parts > 200 grams, the marking should be large enough and located in a visible position in order to be easily identified by workers of specialised recycling firms.

Exemptions are made in the following cases:

- (i) *Where the marking would impact on performance or functionality of the plastic part including screen light guides;*
- (ii) *Where parts cannot be marked because there is not enough available appropriate surface area for the marking to be of a legible size to be identified by a recycling operator;*
- (iii) *Where marking is technically not possible due to the moulding method; or*
- (iv) *Where the addition or location of marking causes unacceptable defect rates under quality inspection, leading to unnecessary wastage of materials*

- d) Recycled content: Plastic parts of the housings and enclosures as well as of structural elements with a mass > 25 grams shall have a total content of post-consumer recyclates material of not less than 10% by mass.

Where the post-consumer recyclate content is higher than 25% a declaration may be made in the text box accompanying the Ecolabel (see Criterion 7.2). Recycled content shall be demonstrated according to the requirements of ISO 15343. Recyclates may contain flame retardants that are specifically derogated in Criterion 2.x.

Printed circuit boards as well as transparent plastics that form part of display units are exempted from this requirement.

- e) Closed loop recyclability rate of plastic containing flame retardants: The potential for closed loop recycling in a new electronic product of plastic required to meet fire protection standards shall be greater than 10%.
- f) Recyclability of metal enclosures: The recyclability of metals and alloys used for casings shall be verified.

Assessment and verification:

The applicant shall provide the Competent Body with an exploded diagram of the computer in written or audio-visual format. This shall identify the plastic parts greater than 25 grams in mass, their polymer composition and compatibility for the recycling, as well as associated markings and identifications of flame retardants.

The information shall be supplemented by documentation to showing conformity to the above mentioned ISO standards, specifications of the marking (dimension and position) and, where applicable, exemptions. A technical justification shall be provided where an exemption applies.

The applicant shall provide the Competent Body with documentation verifying traceability for the post-consumer recycled content according to the above mentioned ISO standard.

The recyclability of the housing and enclosures shall be verified by a declaration from a permitted treatment operation in accordance with Article 23 of Directive 2008/98/EC (the WEEE Directive) that there is an end-market for the materials.

4(b) Design for dismantling and recycling

For recycling purposes computers shall be designed so that:

- (a) For the following components an efficient manual disassembly by one person in a specialised company shall be possible to carry out using widely used commercially available tools (i.e. pliers, screw-drivers, cutters and hammers as defined by ISO 5742, ISO 1174, ISO 15601):

All products

- (i) Printed Circuit Boards relating to computing functions >10 cm²

Stationary computer products

- (i) Internal Power Supply Unit
- (ii) HDD drives

Portable computer products

- (i) Rechargeable battery

Displays (where a display is integrated into the product enclosure)

- (i) Printed Circuit Boards $>10 \text{ cm}^2$
- (ii) Thin Film Transistor unit and film conductors in display unit $>100 \text{ cm}^2$
- (iii) LED backlight units

The applicant shall measure and specify the required manual dismantling time for those components relevant to the product.

- (b) At least *two* of the following components shall also be efficiently manually disassembled with reporting of the additional time requirement based on the fastest identified sequence following on from (b):

- (i) Printed circuit boards $\leq 10 \text{ cm}^2$ and $> 5 \text{ cm}^2$
- (ii) Tantalum-capacitors $\geq 2 \text{ mm} \times 2\text{mm} \times 3 \text{ mm}$ from printed circuit boards in (a) and (b)
- (iii) HDD drive (portable products)
- (iv) Speaker units (notebooks and integrated desktops)
- (v) Optical drives (where applicable)
- (vi) Polymethyl Methacrylate (PMMA) film light guide (where the screen size is >15 inches)

Assessment and verification:

The applicant shall provide a 'test disassembly report' to the competent body including the adopted disassembly sequence (steps and procedures), identification of the optional components selected, the reported timings and the tools needed for the disassembly. *Reference shall be made to the extraction timing method outlined in the user manual.*

The reported timings for disassembly and the related disassembly sequence shall be provided for verification by either:

- (i) A third party, testing body.
- (ii) A specialised recycling firm that is a permitted treatment operation in accordance with Article 23 of Directive 2008/98/EC.

The report may be submitted either in writing or in digital format, supported by photos, drawings and/or videos.

4(c) Packaging

Where cardboard boxes are used, they shall be made of at least 80 % recycled material.

Plastics used for protectively covering the product within the outer packaging are exempted from this requirement.

Assessment and verification: a sample of the product packaging shall be provided on application, together with a corresponding declaration of compliance with this criterion. Only

primary packaging, as defined in European Parliament and Council Directive 94/62/EC, is subject to the criterion.

Criterion 5. Corporate social responsibility

5(a) Labour conditions during manufacturing

Option A (as a required criterion)

The applicant shall demonstrate that the product is manufactured under working practices that promote good labour relations and working conditions by proving that more than 90% of the first-tier suppliers (final product assembly) comply with the following ILO Conventions:

- a) Child Labour:
 - i. ILO Core Convention “Minimum Age” (No. 138)
 - ii. ILO Core Convention “Worst Forms of Child Labour” (No. 182)
- b) Forced and Compulsory Labour:
 - i. ILO Core Convention “Forced Labour” (No. 29)
 - ii. ILO Core Convention “Abolition of Forced Labour” (No. 105)
- c) Freedom of Association and Right to Collective Bargaining:
 - i. ILO Core Convention “Freedom of Association and Protection of the Right to Organise” (No. 87)
 - ii. ILO Core Convention “Right to Organise and Collective Bargaining” (No. 98)
- d) Discrimination:
 - i. ILO Core Convention “Discrimination (Employment and Occupation)” (No. 111)
 - ii. ILO Core Convention “Equal Remuneration” (No. 100)
- e) Working Hours:
 - i. ILO Convention “Hours of Work (Industry)” (No. 1)
- f) Remuneration:
 - i. ILO Convention “Minimum Wage Fixing” (No. 131)
 - ii. Living wage: The applicant shall ensure that wages paid for a normal work week shall always meet at least legal or industry minimum standards and shall be sufficient to meet the basic needs of personnel and to provide some discretionary income; with reference to SA8000 Consolidated Guidance “Remuneration” regarding definition, implementation, auditing and evidence of compliance.

Assessment and verification: the applicant shall declare compliance with these requirements to the Competent Body providing the copies of the certificates of Accredited Certification Bodies (CBs) accredited by Social Accountability Accreditation Services (SAAS) showing the compliance with the above requirements in more than 90% of the first-tier suppliers (final product assembly).

Additionally, the applicant shall provide to the Competent Body

- A list of first-tier suppliers representing at least 90% of procurement expenditure for final product assembly of computers.
- The independent social audit reports to verify that he is fulfilling its obligations according to this mandate.

The applicant shall publish the independent social audit reports of the first-tier suppliers online to provide evidence to interested consumers.

Option B (as an optional criterion)

The applicant shall demonstrate that the product is manufactured under working practices that promote good labour relations and working conditions by proving that more than 90% of the first-tier suppliers (final product assembly) comply with the following principles (derived from SA8000, including ILO all fundamental as well as further relevant labour conventions):

- a) Child Labour: No use or support of child labour; policies and written procedures for remediation of children found to be working in situation; provide adequate financial and other support to enable such children to attend school; and employment of young workers conditional.
- b) Forced and Compulsory Labour: No use or support for forced or compulsory labour; no required 'deposits' - financial or otherwise; no withholding salary, benefits, property or documents to force personnel to continue work; personnel right to leave premises after workday; personnel free to terminate their employment; and no use nor support for human trafficking.
- c) Health and Safety: Provide a safe and healthy workplace; prevent potential occupational accidents; appoint senior manager to ensure OSH; instruction on OSH for all personnel; system to detect, avoid, respond to risks; record all accidents; provide personal protection equipment and medical attention in event of work-related injury; remove, reduce risks to new and expectant mothers; hygiene- toilet, potable water, sanitary food storage; decent dormitories- clean, safe, meet basic needs; and worker right to remove from imminent danger.
- d) Freedom of Association and Right to Collective Bargaining: Respect the right to form and join trade unions and bargain collectively. All personnel are free to: organize trade unions of their choice; and bargain collectively with their employer. A company shall: respect right to organize unions & bargain collectively; not interfere in workers' organizations or collective bargaining; inform personnel of these rights & freedom from retaliation; where law restricts rights, allow workers freely elect representatives; ensure no discrimination against personnel engaged in worker organizations; and ensure representatives access to workers at the workplace.
- e) Discrimination: No discrimination based on race, national or social origin, caste, birth, religion, disability, gender, sexual orientation, union membership, political opinions and age. No discrimination in hiring, remuneration, access to training, promotion, termination, and retirement. No interference with exercise of personnel tenets or practices; prohibition of threatening, abusive, exploitative, coercive behaviour at workplace or company facilities; no pregnancy or virginity tests under any circumstances.
- f) Disciplinary Practices: Treat all personnel with dignity and respect; zero tolerance of corporal punishment, mental or physical abuse of personnel; no harsh or inhumane treatment.
- g) Working Hours: Compliance with laws & industry standards; normal work-week, not including overtime, shall not exceed 48 hours; 1 day off following every 6 consecutive work days, with some exceptions; overtime voluntary, not regular, not > 12 h/w; required overtime only if negotiated in CBA.
- h) Remuneration: Respect right of personnel to living wage; all workers paid at least legal minimum wage; wages sufficient to meet basic needs & provide discretionary

income; deductions not for disciplinary purposes, with some exceptions; wages and benefits clearly communicated to workers; paid in convenient manner – cash or check form; overtime paid at premium rate; prohibited use of labour-only contracting, short-term contracts, false apprenticeship schemes to avoid legal obligations to personnel.

- i) Management Systems: Facilities seeking to gain and maintain certification must go beyond simple compliance to integrate the standard into their management systems & practices.

Assessment and verification: the applicant shall declare compliance with these requirements to the Competent Body providing the copies of the certificates of Accredited Certification Bodies (CBs) accredited by Social Accountability Accreditation Services (SAAS) showing the compliance with the above requirements in more than 90% of the first-tier suppliers (final product assembly).

Additionally, the applicant shall provide to the Competent Body:

- A list of first-tier suppliers representing at least 90% of procurement expenditure for final product assembly of computers.
- The independent social audit reports to verify that he is fulfilling its obligations according to this mandate.

Additionally, the applicant shall publish the independent social audit reports of the first-tier suppliers online to provide evidence to interested consumers.

5(b) Conflict-free minerals' in electronics

The applicant shall support the responsible sourcing of “conflict-free minerals” from the African Great Lakes Region. In this context, the material scope encompasses tin, tantalum, tungsten and their ores and gold.

Assessment and verification: The applicant shall declare the compliance with these requirements and shall provide additionally a description of the way he engages in responsible sourcing projects in the African Great Lakes Region for at least one of the above listed conflict minerals to the Competent Body.

As responsible sourcing projects, all activities carried out within the Democratic Republic of the Congo that aim to source minerals in accordance with the *OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas* are eligible (e.g. the Public Private Alliance for Responsible Minerals Trade, the Conflict-Free Tin Initiative, and the Solutions for Hope Project).

Criterion 6. Further criteria

6(a) Noise

The ‘Declared A weighted Sound Power Level’ (re 1 pW) of the computer, in accordance with paragraph 3.2.5 of ISO 9296, shall not exceed

- (a) For desktop computers including integrated desktop computers and workstations
 - i. Idle Mode: 3.8 bel (the measurement can be dropped if no fans are installed, e.g. CPU fans, power supply fans, computer system fans)
 - ii. Operation mode: 4.2 bel (the measurement can be dropped if no mechanical hard disk drive is installed)

- (b) For notebook computers including tablet computers and mobile workstations
 - i. Idle mode: 3.2 bel (the measurement can be dropped if no fans are installed, e.g. CPU fans, power supply fans, computer system fans)
 - ii. Operating mode: 3.6 bel (the measurement can be dropped if no mechanical hard disk drive is installed)

Assessment and verification: The applicant shall provide the competent body with a test report, certifying that the levels of noise emissions have been measured in accordance with ISO 7779. The report shall state the measured sound power levels in idle and operating mode, which shall be declared in accordance with paragraph 3.2.5 of ISO 9296. In case of different configurations of identically constructed units the measurements have to be performed on the loudest individual components.

Criterion 7. Information appearing on the EU Ecolabel

7(a) User instructions

The computer shall be sold with relevant user information that provides advice on its proper environmental use. The information shall be located in a single, easy-to-find place in the user instructions as well as on the manufacturer's website. The information shall include in particular:

- (a) Energy consumption: TEC value in accordance with Energy Star v6.0, as well as the maximum power demand in each operating mode. In addition, instructions must be provided on how to use the device's energy-saving mode;
- (b) Information that energy efficiency cuts energy consumption and thus saves money by reducing electricity bills and that unplugging your computer reduces energy consumption to zero;
- (c) The following indications on how to reduce power consumption when the computer is not being used:
 - (i) Putting the computer into off mode will reduce energy consumption but will still draw some power;
 - (ii) Reducing the brightness of the screen will reduce energy use;
 - (iii) Screen savers can stop computer displays from powering down into a lower power mode when not in use. Ensuring that screen savers are not activated on computer displays can therefore reduce energy use;
 - (iv) Charging tablet computers via USB-interface by another desktop or notebook computer might increase the energy consumption in case of leaving the desktop or notebook computer in an energy-consuming idle-mode for the sole reason of charging the tablet computer.
- (d) Information that extension of the computer's lifetime reduces the overall environmental impacts.
- (e) The following indications on how to prolong the lifetime of the computer:
 - (i) Information to let the user know the factors influencing the lifetime of batteries as well as instructions for the user facilitating its prolongation (only applicable to mobile computers powered with rechargeable batteries).
 - (ii) Clear disassembly and repair instructions to enable a non-destructive disassembly of products for the purpose of replacing key components or parts for upgrades or repairs.

- (iii) Information to let the user know where to go to obtain professional repairs and servicing of the computer, including contact details as appropriate. Service should not be limited exclusively to applicant's Authorized Service Providers.
- (f) End-of-life instructions for the proper disposal of computers, including separate instructions for the proper disposal of rechargeable batteries, at civic amenity sites or through retailer take-back schemes as applicable, which shall comply with Directive 2012/19/EU of the European Parliament and of the Council.
- (g) Information that the product has been awarded the EU Ecolabel with a brief explanation as to what this means together with an indication that more information on the Ecolabel can be found at the website address <http://www.ecolabel.eu>
- (h) Any print-versions of instruction/repair manual(s) should contain recycled content and should not contain chlorine bleached paper. To save resources, online versions should be preferred.

Assessment and verification: The applicants shall declare the compliance of the product with these requirements to the competent body and shall provide a link to the online-version or a copy of the user instructions / repair manual to the Competent Body.

7(a) Criterion 7. Information appearing on the EU Ecolabel

The optional label with text box shall contain the following texts:

- High energy efficiency
- Mercury-free backlights (*if the product has an LED display*)
- Designed to have a longer lifetime
- Designed to be easy to recycle
- Contains xy% post-consumer recycled plastic (*only when higher than 25%*)

The guidelines for the use of the optional label with text box can be found in the "Guidelines for use of the Ecolabel logo" on the website:

http://ec.europa.eu/environment/ecolabel/documents/logo_guidelines.pdf

Assessment and verification: *the applicant shall provide a sample of the product label or an artwork of the packaging where the EU Ecolabel is placed, together with a declaration of compliance with this criterion.*