EU Ecolabel criteria for ‘Personal, notebook and tablet computers’

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Joint Research Centre
the European Commission's in-house science service
Overview of the EU Ecolabel criteria

Commission Decision (EU) 2016/1371 of 10 August 2016 'establishing the ecological criteria for the award of the EU Ecolabel for personal, notebook and tablet computers'

1. Energy Consumption
2. Hazardous substances and mixtures in the product, sub-assemblies and component parts
3. Lifetime extension
4. Design, material selection and end-of-life management
5. Corporate Social Responsibility
6. User information
Scope of the criteria

Stationary computers
- Desktop Computers (*incl. Thin Clients*)
- Small-scale servers
- Workstations

Portable computers
- Portable All-In-One computers
- Notebook Computers (*including 'subnotebooks'*)
- Two-In-One notebooks
- Tablet Computers
- Mobile Thin Clients
Synergies with EU product policy

- EU Ecolabel products meet the EU GPP requirements
- EU Ecolabel products meet the EU GPP requirements
- EU Ecolabel products should meet future Ecodesign requirements
- EU Ecolabel products are energy efficient
EU Green Public Procurement (GPP) criteria

Making the link

An EU Ecolabelled product automatically meets the EU GPP criteria and therefore ticks the box for procurers:

'Products holding the EU Ecolabel for personal, notebook and tablet computers or another relevant Type 1 Eco-label fulfilling the specified requirements will be deemed to comply.'

DG Environment GPP website
http://ec.europa.eu/environment/gpp/eu_gpp_criteria_en.htm
1. Energy consumption

(a) Total energy consumption of the computer

**Rationale:** Reduction in use phase (sleep + idle) electricity consumption by 47 – 64% compared to Energy Star v5.0 (desktops)

**Requirement:** Meet or exceed $E_{TEC_{MAX}}$ value

**Reference or equivalent standards:** Energy Star v6.1 EU or USA (= EU input power requirements or EU test report); IEC 62623; ECMA 383

**Verification documentation:** Energy Star v6.1 test report
(b) Power management

**Rationale:** Sensitise users to the disabling of power management functions

**Requirement:** Show that warning messages communicate when default functions will be disabled.

**Reference or equivalent standards:** *not applicable*

**Verification documentation:** Description from product user manual; Screen shots of warning messages
(c) Graphics capabilities

Rationale: Stricter cap on additional power consumption of models with discrete graphics cards (dGfx)

Requirement:
- Use of stricter ‘functional adder’ allowances ($\text{TEC}_{\text{graphics}}$) when calculating the Energy Star v6.1 $E_{\text{TEC}_{\text{MAX}}}$
- Power management to shut down GPU in long idle state

Reference of equivalent standards: same as for criterion 1(a)
IEC 62623; ECMA 383

Verification documentation: Energy Star v6.1 test report
(d) Internal power supplies

**Rationale:** Reduce use phase electricity consumption in active as well as sleep and short/long idle modes

**Requirement:**
- Qualify for Energy Star v6.1 TEC\textsubscript{PSU} allowance
- Minimum stipulated efficiencies at 10%, 20%, 50% and 100% of rated power output.

**Reference or equivalent standards:** same as for criterion 1(a); see also 80Plus ‘Gold’ standard.

**Verification documentation:** Energy Star v6.1 test report; independent power supply performance certifications.
(e) Enhance performance displays

**Rationale:** Minimise increased electricity consumption associated with enhanced performance displays (up to 30%)

**Requirement:** Displays qualifying for TEC\textsubscript{INT\_DISPLAY} shall have Automatic Brightness Control (ABC) installed as a default setting

**Reference or equivalent standards:** Validation procedure in Energy Star v5.0 Displays

**Verification documentation:** Test report
(a) Restrictions on Substances of Very High Concern (SVHCs)

**Rationale:** Control the presence of those hazardous substances of very high concern in the EU

**Requirement:** Ensure that REACH Candidate List substances are not present in EU Ecolabelled computers at concentrations >1.0%

**Reference or equivalent standards:** Green Screen (Benchmark 1 substances)

**Verification documentation:** REACH Article 33 notifications for the whole product and for the listed sub-assemblies and component parts. May be based on pre-screening using IEC 62474 ‘declarable substance list’
(b) Restrictions on the presence of specific hazardous substances

**Rationale:** Control the presence of specific hazardous substances of concern in sub-assemblies and component parts

**Requirement:** Specific restrictions applying to:
- i) lead and cadmium solder and contacts;
- ii) organotin stabiliser compounds, colourants and Polycyclic Aromatic Hydrocarbons (PAHs) in polymers;
- iii) the use of biocides to provide an anti-bacterial function;
- iv) mercury in backlights, and;
- v) arsenic and its compounds in display and track pad glass.

**Reference or equivalent standards:** IEC 62321-5 (RoHS); AfPS GS 2014:01 PAK; TCO

**Verification documentation:** Test reports and sub-assembly/component part supplier declarations
(c) Restrictions based on CLP hazard classifications

Rationale:
- Support the use of safer alternatives for fire protection and plasticising agents.
- Identify hazards associated with steel additives and coatings, and rechargeable battery cathode materials, solvents and salts.

Requirement: demonstrate safer CLP/GHS classifications for the flame retardants and plasticisers used in:
- main printed circuit board (Group 3)
- external AC and DC power cords (Group 3)
- external plastic casings and bezels (Group 2 or 3)
- miscellaneous subassemblies and parts (Group 3)
- compliant PCB and cable fire test results for 'halogen free' claims
(c) Restrictions based on CLP hazard classifications

**Reference or equivalent standards:**
- Substances assessed as Green Screen Benchmarks 2, 3 and 4 (*may have been carried out for TCO, EPEAT*)
- CAS No/REACH registration, SDS, Governmental or independent hazard assessments (e.g. US EPA)
- Fire test results (*if required*: ISO 5660/ IEC 60754-1/ISO 19700)

**Verification documentation:** Sub-assembly supplier declarations supported by CAS No/REACH registration; SDS; Governmental or independent hazard assessments
3. Lifetime extension

(a) Durability testing for portable computers

**Rationale:** Products are more resilient to the most common environmental stresses and accidents *'in the field'*

**Requirement:**
- Three mandatory tests for notebooks – shock, vibration and drop – two for tablets – drop and screen resilience.
- Notebooks to choose at least one additional test – temperature, screen resilience, water spill, keyboard, screen hinge.

**Reference or equivalent standards:** IEC 60068 series; IEC 60529 (IP); MIL810G (USA)

**Verification documentation:** Third party verified test report (existing or new, in-house or external)
(b) Rechargeable battery quality and lifetime

Rationale: Longer lasting and better performing batteries, especially for products where the battery is not easy to change.

Requirements:
- a minimum, benchmarked battery life of 7 hours;
- Battery or cell charging cycle performance retaining 80% of declared minimum capacity after 750 or 1000 cycles;
- two year warranty for defects

Reference or equivalent standards: PCMark (home and consumer); MobileMark (business and enterprise); for tablets see UM; IEC 61960 (standard or accelerated procedure)

Verification documentation: Third party verified test report (battery or cell)
(c) Data storage drive reliability and protection

**Rationale:** Primary data storage that is reliable and more resilient to shock and vibration *'in the field'*.  

**Requirement:**  
- Annualised Failure or Bit Error Rate thresholds (*stationary computers*)  
- Shock, retraction or solid state protection measures (*notebook computers*)

**Reference or equivalent standards:** *not specified*.  
**Verification documentation:** Drive manufacturer/supplier specification. For shock and retraction an independently verified test report.
(d) Upgradeability and Repairability

**Rationale:** Support easier repair or replacement of worn out components or parts in the future.

**Requirement:**
- Ease of access/exchange for the six listed components;
- Step thresholds for rechargeable battery extraction;
- Provision of repair manual and service information;
- Future availability of parts (5 years);
- Commercial guarantee (3 years).

**Reference or equivalent standards:** TCO; EPEAT

**Verification documentation:** Relevant manuals, instructions and guarantees; description and photographs/short video for battery extraction.
(a) Material selection and compatibility with recycling

**Rationale:** Facilitate the recycling of plastic components at the end of the service life of the product.

**Requirement:** For products with plastic casings:
- plastics marking and *either*:
  - minimum recycled plastic content (10% excluding PCB/display plastics), or;
  - recyclability of plastic casings, enclosures and bezels (metal inserts, paints/coatings, flame retardants)

**Reference or equivalent standards:** ISO 180; TCO; EPEAT

**Verification documentation:** Test reports; exploded diagram of plastic parts and markings; traceability for recycled content.
(b) Design for disassembly and recycling

**Rationale:** Easy extraction of components and parts that are critical to repairability and end of life resource recovery for recycling

**Requirement:** Disassembly test to determine how many steps it takes to extract 'target' components and parts from the product.

**Reference or equivalent standards:** EPEAT

**Verification documentation:** A ‘disassembly test report’ detailing the disassembly sequence, the number of steps and the procedures. Can be carried out in-house, by independent testing body or by permitted recycling firm.
(a) Sourcing of 'conflict-free' minerals

**Rationale:** Support the responsible sourcing of tin, tantalum, tungsten and their ores, and gold from conflict-affected and high-risk areas.

**Requirement:** Overall due diligence according to OECD guidance; Use of supply chain projects or systems for at least one component or mineral – *OEM, final assembler or sub-assembly manufacturer can be project members.*

**Reference or equivalent standards:**
- TCO; EU Conformity scheme;
- Projects - Public-Private Alliance for a responsible minerals trade, Solutions for Hope; Systems - Conflict-free tin initiative, the Tin Source Initiative, the Tantalum Initiative.

**Verification documentation:** Report/EU certifications of conformity; Details of supply chain projects/systems for at least one component or mineral.
(b) Labour conditions and human rights during manufacturing

**Rationale:** A focus on key social 'hot spots' relating to final product assembly, providing a minimum acceptable level of assurance.

**Requirement:** Third party verification based on site audits that the ILO fundamental conventions and the supplementary provisions on working hours, remuneration and health & safety have been respected at the final assembly plant(s).

**Reference or equivalent standards:** EICC; SA 8000; TCO

**Verification documentation:** Certificate of compliance and supporting site audit report carried out by:
- a qualified social auditor (EICC VAP or SAAS), or;
- labour inspectors appointed by a public authority.
In conclusion

**Using the new criteria**

- Downloadable from DG ENV website
- User Manual supports application process
- Technical report provides background to criteria development

Please visit the DG ENV website:

Thank you for your attention

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