

EN

**ANNEX**

EU ECOLABEL CRITERIA AND ASSESSMENT AND VERIFICATION  
REQUIREMENTS

Criteria for awarding the EU Ecolabel to electronic displays:

1. Energy Consumption
  - (a) Energy savings
  - (b) Power management
2. Restriction and substitution of hazardous substances in the product and its sub-assemblies and component parts
  - (a) Restriction on Substances of Very High Concern (SVHC's)
  - (b) Restriction of CLP hazard classifications and Article 57 criteria
3. Lifetime extension
  - (a) Repairability
4. Design, material selection and end-of-life management
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6. Further criteria
  - (a) Activities to reduce supply chain fluorinated greenhouse gas (GHG) emissions
7. Information
  - (a) User instructions
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***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.

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## 1. Energy consumption

Electronic displays shall fulfil the following criteria

### *Criterion 1(a) Energy savings*

#### **(a) Energy efficiency performance in on mode**

The electronic display's energy efficiency performance in on mode shall meet the following energy efficiency requirements set out in *Commission Regulation (EU) No. ## of ## supplementing Directive 2010/30/EC of the European Parliament and of the Council with regard to energy labelling of electronic displays*<sup>1</sup>:

#### Computer monitors

For computer monitors: Energy Efficiency class  $\geq$  A++

#### Televisions

1. Energy efficiency class  $\geq$  A for appliances with a visible screen diagonal  $\leq$  70cm (or 28.5 inches);
2. Energy efficiency class  $\geq$  A+ for appliances with a visible screen diagonal  $70\text{cm} < d < 139\text{cm}$
3. Energy efficiency class  $\geq$  A++ for appliances with a visible screen diagonal  $\geq$  139 cm (or 45.7 inches).

**Assessment and verification:** The applicant shall submit a test report for the electronic display model(s) carried out according to the measurement methods indicated in Annex IX of the Commission Regulation (EU) No. ## of ## supplementing Directive 2010/30/EC of the European Parliament and of the Council with regard to energy labelling of electronic displays<sup>1</sup>.

#### **Proposed accompanying text proposed in to appear in the Commission statement**

**'No later than 2 years after the criteria for EU Ecolabel for electronic displays have entered into force, the Commission shall evaluate the market penetration of displays meeting the criterion on "Energy efficiency performance in on mode" and, if justified, present to the EUEB and Regulatory Committee an amendment of this criterion'**.

#### **(b) On Mode power requirements**

- (i) Televisions shall have maximum power consumption in on mode of  $\leq$  64 W.
- (ii) Computer monitors shall meet the appropriate on mode power requirements set out in the Energy Star v6.0 standard for displays.

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<sup>1</sup> Not yet published.

**Assessment and verification:** The applicant shall submit a test report for the television model(s) carried out according to the measurement indicated in Annex III of the Commission Regulation (EU) No. ## of ## implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for electronic displays<sup>2</sup>. The applicant shall submit a test report for the computer monitors model(s) carried out according to the Energy Star v6.0 test methods for displays which are specified in the Eligibility Criteria.

**(c) Sleep mode and off mode power requirements for computer monitors**

- (i) Computer monitors shall meet the appropriate sleep mode and off mode power requirements set out in the Energy Star v6.0 standard for displays.

**Assessment and verification:** The applicant shall submit a test report for the computer monitor model(s) carried out according to the Energy Star v6.0 test methods for displays which are specified in the Eligibility Criteria.

**(d) Networked Standby power requirements for televisions**

- (i) The power demand of televisions without HiNA functionality in a condition providing networked standby shall not exceed 3 W.

**Assessment and verification:** The applicant shall submit a test report for the television model(s) carried out according to the measurement indicated in Annex III of the Commission Regulation (EU) No. ## of ## implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for electronic displays<sup>3</sup>.

***Criterion 1(b) Power management for Televisions***

- (a) Manual Brightness Control:** The Television shall allow the user to manually adjust the backlight intensity.

**Assessment and verification:** The applicant shall provide the competent body with a declaration to certify that the appliance has been shipped in the power management settings stated above.

- (b) Automatic Brightness Control:** The Television shall automatically adjust the picture brightness to the ambient light conditions. This Automatic Brightness Control (ABC) function shall be installed as the default setting. The ABC shall be validated according to the following test procedure:

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<sup>2</sup> Not yet published

<sup>3</sup> Not yet published

$$\text{Test i) } \left(\frac{P_{50}-P_{10}}{P_{10}}\right) \geq 5 \quad \text{Test ii) } \left(\frac{P_{100}-P_{50}}{P_{50}}\right) \geq 5 \quad \text{Test iii) } P_{300} \geq P_{100}$$

Where  $P_n$  is the Power consumed for On Mode with ABC enabled at  $n$  lux with a direct light source.

**Assessment and verification:** The applicant shall submit a test report for the appliance showing compliance with the specified validation procedure.

**(c) Quick Start functionality:** If the appliance supports the Quick Start feature:

- (i) The quick start feature shall not increase the appliance's power consumption more than **5%** of the on mode power consumption.
- (ii) The quick start feature shall be disabled by default.
- (iii) After enabling the Quick Start feature the appliance shall automatically switch back to standby or Off mode as a default setting 4 hours after the last user activity at the latest.
- (iv) When enabling the Quick Start feature a clear written warning shall appear to inform the user that this feature will increase the appliance's power consumption (e.g. warning appears on the menu when activating the Quick Start feature).
- (v) The Quick Start feature and the warning of additional power consumption shall be explained in the product documentation.

**Assessment and verification:** The applicant shall provide the competent body with a declaration to certify that the appliance has been shipped in the power management settings stated above.

The applicant shall submit the relevant pages of the product documentation as well as a screen photo documenting the warning.

## **2. Restriction and substitution of hazardous substances in the product and its sub-assemblies and component parts**

Electronic displays shall fulfil the following criteria

### ***Criterion 2(a) Restriction on Substances of Very High Concern (SVHC's)***

The product and its associated sub-assemblies and components as defined below shall not contain substances that have been identified according to the procedure described in Article 59(1) of Regulation (EC) No 1907/2006 (the 'REACH Regulation') which establishes the candidate list for substances of very high concern in concentrations of greater than 0.10% (weight by weight).

The absence of the above referred to substances shall be declared for the product and, as a minimum, the following sub-assemblies:

- Printed Wiring Boards
- Internal electrical wiring
- External cables
- External plastic housing of the display
- External plastic housing of the remote control
- Liquid Crystal Display panel
- LED backlighting
- Metallic housing parts

In communicating this requirement to suppliers of the listed sub-assemblies applicants may pre-screen the candidate list based on the relevance of substances to the product using the IEC 62474 declarable substance list.

No derogation shall be given to the above referred to substances if they are present in an article ('the product') or in any homogeneous part of a complex article ('associated sub-assemblies') in concentrations greater than 0,10 % (weight by weight).

**Assessment and verification:** The applicant shall compile declarations of the non-presence of candidate list substances for the product and, as a minimum, the listed sub-assemblies. Where declarations are made based on a pre-screening of the candidate list using IEC 62474 the screened list given to sub-assembly suppliers shall also be provided by the applicant. Where a derogation has been granted then the applicant shall show that use of the substance is in compliance with the stated derogation conditions and verification requirements.

### ***Criterion 2(b) Restriction of CLP hazard classifications and Article 57 criteria***

#### *Hazard classifications and criteria that shall apply*

The product and its associated sub-assemblies and components shall not contain substances that meet the criteria for classification as toxic, hazardous to the environment, carcinogenic, mutagenic or toxic for reproduction (CMR), in accordance with Regulation (EC) No 1272/2008 ('the CLP Regulation') and Council Directive 67/548/EC ('the DSD Directive').

Substances that meet the aforementioned criteria shall not be present in the product and its associated sub-assemblies and components at concentrations greater than 0.10%. Specific concentration limits identified in Annex VI of the CLP Regulation or in sub-criterion 2(b)(ii) shall take precedence over this generic concentration limit.

The CLP hazard classifications and REACH Article 57 criteria that shall apply are listed in Table 1. For the purpose of this product group the hazard classifications and Article 57 criteria are grouped based on their hazardous properties. Derogations shall be granted for individual hazard classifications or groups of hazards according to the requirements in *Appendix 1*.

**Table 1. CLP hazard classifications and REACH Article 57 criteria that apply to the product**

<b>Group 1 hazards</b>	
<b>The following hazards, or combinations of hazards, identify a substance as being within group 1:</b>	
<ul style="list-style-type: none"> <li>○ CMR Category 1A or 1B</li> <li>○ PBT and vPvB substances</li> <li>○ Endocrine disruptors, neurotoxins or sensitisers of equivalent concern.</li> <li>○ vP or vB (REACH definitions) <i>in combination with</i> Category 1 hazards to the aquatic environment, Category 1 and 2 acute toxins or Category 1 STOT</li> </ul>	
<b>Carcinogenic, mutagenic or toxic for reproduction (CMR)</b>	
<b>CLP Category 1A and 1B</b>	
H340 May cause genetic defects (R46)	
H350 May cause cancer (R45)	
H350i May cause cancer by inhalation (R49)	
H360F May damage fertility (R60)	
H360D May damage the unborn child (R61)	
H360FD May damage fertility. May damage the unborn child (R60, R60/61)	
H360Fd May damage fertility. Suspected of damaging the unborn child (R60/63)	
H360Df May damage the unborn child. Suspected of damaging fertility (R61/62)	
<b>Hazardous to the aquatic environment</b>	
<b>CLP Category 1 and 2</b>	
H400 Very toxic to aquatic life (R50)	
H410 Very toxic to aquatic life with long-lasting effects (R50/53)	
<b>Acute toxicity</b>	
<b>CLP Category 1 and 2</b>	
H300 Fatal if swallowed (R28)	
H310 Fatal in contact with skin (R27)	
H330 Fatal if inhaled (R23/26)	
H304 May be fatal if swallowed and enters airways (R65)	
<b>Specific target organ toxicity (STOT)</b>	
<b>CLP Category 1</b>	<b>CLP Category 2</b>
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)

<b>Group 2 hazards</b>	
<b>The following hazards or combinations of hazards identify a substance as being within group 2:</b>	
<ul style="list-style-type: none"> <li>○ Category 1 aquatic toxins</li> <li>○ Category 2 CMR, Category 1 and 2 acute toxins or Category 1 STOT</li> <li>○ P and B (REACH definitions)</li> <li>○ P or B (REACH definitions) <i>in combination with</i> Category 2 CMR, Category 2 and 3 hazards to the aquatic environment, Category 3 acute toxins or Category 2 STOT</li> <li>○ B and non-rapidly degradable (CLP definitions) <i>in combination with</i> Category 2 CMR, Category 3 acute toxins or Category 2 STOT</li> </ul>	
<b>Carcinogenic, mutagenic or toxic for reproduction</b>	
	<b>CLP Category 2</b>
	H341 Suspected of causing genetic defects (R68)
	H351 Suspected of causing cancer (R49)
	H361f Suspected of damaging fertility (R62)
	H361d Suspected of damaging the unborn child (R63)
	H361fd Suspected of damaging fertility. Suspected of damaging the unborn child (R62/63)
	H362 May cause harm to breast fed children (R64)
<b>Hazardous to the aquatic environment</b>	
<b>CLP Category 2</b>	<b>CLP Category 3 and 4</b>
H411 Toxic to aquatic life with long-lasting effects (R51/53)	H412 Harmful to aquatic life with long-lasting effects (R52/53)
	H413 May cause long-lasting effects to aquatic life (R53)
<b>Acute toxicity</b>	
	<b>CLP Category 3</b>
	H301 Toxic if swallowed (R25)
	H311 Toxic in contact with skin (R24)
	H331 Toxic if inhaled (R23)
	EUH070 Toxic by eye contact (R39/41)
<b>Specific target organ toxicity (STOT)</b>	
	<b>CLP Category 2</b>
	H371 May cause damage to organs (R68/20, R68/21, R68/22)
	H373 May cause damage to organs (R48/20, R48/21, R48/22)

<b>Group 3 hazards</b>	
<b>Hazardous to the aquatic environment</b>	
<b>CLP Category 2</b>	<b>CLP Category 3 and 4</b>
H411 Toxic to aquatic life with long-lasting effects (R51/53)	H412 Harmful to aquatic life with long-lasting effects (R52/53)
	H413 May cause long-lasting effects to aquatic life (R53)

<b>Acute toxicity</b>	
	<b>CLP Category 3</b>
	H301 Toxic if swallowed (R25)
	H311 Toxic in contact with skin (R24)
	H331 Toxic if inhaled (R23)
	EUH070 Toxic by eye contact (R39/41)
<b>Specific target organ toxicity (STOT)</b>	
	<b>CLP Category 2</b>
	H371 May cause damage to organs (R68/20, R68/21, R68/22)
	H373 May cause damage to organs (R48/20, R48/21, R48/22)

The hazard classifications in Table 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 as Adaptations to Technical Progress (ATPs) shall take precedence when determining hazard classifications.

2(b)(i) The scope of restrictions that shall apply to the product

In accordance with the provision within Article 6(7) of Regulation (EC) No 66/2010 application of 2(b)(i) to the product as a whole shall be derogated and instead the scope of substance groups to which 2(b)(ii) shall apply, and the associated sub-assemblies and components for which verification shall be provided, shall be defined as those in Table 2.

The restrictions and derogations applying to the sub-assemblies and components identified in Table 2 are listed in *Appendix 1*. The sub-assemblies and components of product shall not contain the hazardous substances listed in *Appendix 1*. at or above the specified concentration limits or according to the restrictions stipulated.

The restrictions contained in *Appendix 1*. shall be communicated to suppliers and agents responsible for the manufacturing of the specified sub-assemblies and components. Verification and testing requirements are specified for sub-assemblies, components and production stages.

*Table 2. Substance groups to which hazard restrictions shall apply*

<b>Substance group</b>	<b>Sub-assemblies or components for which verification shall be provided</b>
Flame retardants	Printed Wiring Boards External cables External plastic housing of the display
Plasticisers	External cables

	Internal electrical wiring External plastic housing of the display
Polymer stabilisers	External cables Internal electrical wiring
Polymer colourants	External plastic housing of the display External cables
Polymer contaminants	External plastic housing of the remote control Rubber parts of the remote control External cables
Biocides	External plastic housing of the remote control Rubber parts of the remote control
Metal solder and contacts	Printed Wiring Boards Contacts between internal components
Metallic coatings	Metallic housing parts
Vapour discharge	LCD screen backlight units
Cleaning agents and degreasers	All internal components subject to treatment in the final assembly plant
Doping and luminescence	LED backlighting

***Assessment and verification:*** The applicant shall provide declarations of compliance with the requirements in *Appendix 1*. These shall be supported, where stipulated, by valid test reports and toxicological data confirming the hazard classification or the concentration of substances that are present in the specified sub-assemblies or component parts of the product.

Test reports, where required, shall be valid at the time of application for a production model. Applicants shall additionally identify where derogated substances are present in the product and provide supporting evidence showing how the derogation conditions have been met.

The following information shall be provided to support declarations of the hazard classification or non-classification for each substance identified as being used:

- (i) The substance's CAS, EC or list number;
- (ii) Harmonised CLP hazard classifications;
- (iii) Self-classification entries in ECHA's REACH register.

Where a classification is recorded as 'data lacking' or 'inconclusive' according to ECHA's REACH register database, or where the substance has not yet been registered under the

REACH system, toxicological data shall be provided that is sufficient to support conclusive self-classifications in accordance with Annex II of the CLP Regulation and ECHA's supporting guidance. In the above mentioned cases self-classifications shall be verified, with the following information sources being accepted:

- (i) A Safety Data Sheet fully completed in accordance with Section 2,3,9,10, 11 and 12 of Annex II of the CLP Regulation;
- (ii) Toxicological studies by ECHA Peer Agencies, Governmental regulatory bodies or Intergovernmental bodies;
- (iii) An expert review of scientific literature and existing testing data, where necessary supported by results from new testing carried out by independent laboratories using methods approved by ECHA;
- (iv) A report prepared by a toxicologist accredited to an independent hazard assessment scheme in accordance with the guidelines in Annexes I and II of ISO 17065. Schemes shall be based on the GHS or CLP hazard classification system.

Information on the hazardous properties of substances may be generated by means other than tests, for instance through the use of alternative methods such as in vitro methods, by quantitative structure activity models or by the use of grouping or read-across in accordance with Annex XI to Regulation (EC) No 1907/2006.

2(b)(ii) Substance declarations for sub-assemblies and components

Applicants shall request substance declarations for the associated sub-assemblies and components identified in Table 3. For each identified substance group the supplier, or suppliers, shall declare the CAS numbers for the substances used to fulfil the function.

*Table 3. Substance groups for which CAS number declarations are required*

<b>Substance group</b>	<b>Sub-assemblies or components requiring declarations</b>
Colourants	External plastic housing of the display
Stabilisers	External cables Internal electrical wiring

**Assessment and verification:** The applicant shall compile supplier declarations listing the CAS numbers of the substances used in the specified sub-assemblies and components.

### **3. Lifetime extension**

Electronic displays shall fulfil the following criteria

***Criterion 3. Repairability***

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

- (a) Design for repair: The following components of electronic displays 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) Screen assembly and LCD backlight,
  - (ii) stands, and
  - (iii) power and control circuit boards.
- (b) Repair manual: The applicant shall provide clear disassembly and repair instructions (e.g. hard or soft copy, video) and make them 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 electronic display, including contact details as appropriate. During the guarantee period referred to in (e) this may be limited to the applicant's Authorized Service Providers.
- (d) Availability of spare parts: The applicant shall ensure that original or backwardly compatible spare parts are publicly available for a certain time following the end of the model production:
  - (i) Televisions: at least seven years
  - (ii) Computer monitors: at least five years.
- (e) Guarantee: The applicant shall provide at no additional cost a minimum of a three year guarantee during which time they shall ensure the goods are in conformity with the contract of sale. This guarantee shall include a service agreement with pick-up and return.

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

- (i) A copy of the guarantee or service agreement.
- (ii) A copy of the repair manual
- (iii) A copy of the user instructions

#### **4. Design, material selection and end-of-life management:**

Electronic displays shall fulfil the following criteria

##### ***Criterion 4(a) Material selection and information to improve recyclability***

###### **a) Recyclability of plastics:**

- (i) Parts with a weight greater than 25 grams shall consist of a single polymer or a polymer blend or alloy compatible with recycling;
- (ii) Casings, enclosures and bezels incorporating flame retardants shall be compatible with recycling.
- (iii) Part with a weight greater than 25 grams shall not be painted or coated in a form that makes them incompatible with recycling;

- (iv) Casings, enclosures and bezels shall not contain molded-in or glued on metal unless they are easy to remove with commonly available tools;
  - (v) Casings, enclosures and bezels incorporating flame retardants shall be compatible with recycling.
  - (vi) Printed Wiring Boards greater than 10 cm<sup>2</sup> shall not contain aluminium based flame retardants or additives.
- b) 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. Plastic parts incorporating flame retardants may additionally be marked with the CAS number. For plastic parts > 100 grams, the markings should be large enough and located in a visible position in order to be easily identified.

Exemptions are made in the following cases:

- (i) *Where the marking would impact on performance or functionality of the plastic part including optical plastics;*
  - (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*
- c) Recycled content: The product shall contain on average a minimum 10% post-consumer recycled plastic, measured as a percentage of total plastic (by weight) in the product excluding Printed Wiring Boards. Where the recycled content is greater than 25% a declaration may be made in the text box accompanying the Ecolabel (see Criterion 7(a)). *Products with a metal casing are exempt from this sub-criterion.*

**Assessment and verification:**

The applicant shall provide the Competent Body with an exploded diagram of the electronic display in written or audio-visual format. This shall identify the plastic parts greater than 25 grams by their weight, their polymer composition, and their ISO 11469 and 1043 markings. The dimensions and positions of the marking shall be illustrated and, where exemptions apply, technical justifications provided.

The applicant shall verify compatibility with recycling by providing evidence that the plastics either individually or combined do not impact the technical properties of the resulting recycled plastics in such a way that they cannot be used again in electronic products. This could include:

- A declaration from an experienced plastics recycler or permitted treatment operation in accordance with Article 23 of Directive 2008/98/EC ('the Waste Framework Directive');
- Test results from an independent laboratory or an experienced plastics recycler;
- Peer and industry reviewed technical literature applicable to Europe.

The applicant shall provide third party verification and traceability for post-consumer recycled content.

#### **4(b) Design for dismantling and recycling**

For recycling purposes electronic displays shall be designed so that the identified sub-assemblies and components are easily extracted from the product. A disassembly test shall be carried out according to the test procedure *Appendix 2*. The test shall record the time required to extract those components identified from sub-criterion (a), the number of steps required and the associated tools and actions required to extract those components identified from sub-criterion (a) and (c).

- (a) For the following components, as relevant to the product, a manual disassembly shall be carried out by one person using widely used commercially available tools (i.e. pliers, screw-drivers, cutters and hammers as defined by ISO 5742, ISO 1174, ISO 15601):
- (i) Printed Wiring Boards >10 cm<sup>2</sup>
  - (ii) Thin Film Transistor (TFT) unit >100 cm<sup>2</sup> and film conductors
  - (iii) Polymethyl Methacrylate (PMMA) board light guide
- (b) The time required for extract these components shall not exceed the following:
- (i) 260 seconds for display with a size smaller than 25 inches (diagonal screen size);
  - (ii) 340 seconds for displays with a size greater than or equal to 25 inches and smaller than 40 inches (diagonal screen size);
  - (iii) 480 seconds for displays with a size greater than or equal to 40 inches and smaller than 55 inches (diagonal screen size).
- (c) At least *one* of the following optional components shall also be possible to manually disassemble using common commercially available tools:
- (i) LED backlight units
  - (ii) Speaker unit magnets (for display sizes greater than or equal to 25 inches)
  - (iii) HDD drive (if applicable in the case of smart devices)

#### **Assessment and verification:**

The applicant shall provide a 'test disassembly report' to the competent body detailing the adopted disassembly sequence, including a detailed description of the specific steps and

procedures, for the components listed in (a) and the optional components selected from (c),  
The tools used for the disassembly of each component shall additionally be specified

The disassembly shall be carried out by either by:

- (i) The applicant, or a nominated supplier, in their own laboratory, or;
- (ii) An independent third party testing body, or;
- (iii) A specialised recycling firm that is a permitted treatment operation in accordance with Article 23 of the Waste Framework Directive.

## **5. Corporate social responsibility**

Electronic displays shall fulfil the following criteria

### ***Criterion 5 (a) Labour conditions during manufacturing***

The applicant shall obtain third party certification that the fundamental principles and rights at work as described in the International Labour Organisation's (ILO) Core Labour Standards, the UN Global Compact and the OECD Guidelines for Multi-National Enterprises are respected by final assembly plants for the product. For the purpose of verification the following ILO Core Labour Standards and supplementary provisions shall be referred to:

#### **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

The audit process shall include consultation with external stakeholders in local areas around sites, including trade unions, community organisations, NGO's and labour experts. The applicant shall publish the audit reports online to provide evidence to interested consumers.

**Assessment and verification:** the applicant shall certify compliance with these requirements by providing copies of certificates of compliance and supporting audit reports for each final product assembly plant for the model(s) to be ecolabelled.

Certificates shall be issued by certification bodies accredited by Social Accountability Accreditation Services (SAAS) or approved auditors for the Electronics Industry Citizenship Coalition's (EICC) Validated Audit Process. Valid certifications from schemes or processes that audit compliance with the listed Core ILO Conventions, together with the additional provisions on working hours and remuneration, shall be accepted.

#### ***Criterion 5 (b) Sourcing of 'conflict-free' minerals***

The applicant shall support the responsible sourcing of tin, tantalum, tungsten and their ores and gold from conflict-affected and high-risk area by:

- (i) Conducting due diligence in line with the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas, and
- (ii) by actively supporting at least one on-the-ground-project promoting responsible mineral production and trade in accordance with OECD and EU guidance within conflict-affected and high-risk areas.

**Assessment and verification:** The applicant shall declare the compliance with these requirements together with the following supporting information:

- A report describing their due diligence activities along the supply chain for the four minerals identified, and
- Descriptions of the project(s) they are engaged with, which of the four minerals are addressed and how they contribute to responsible sourcing.

## **6. Further criteria**

Electronic displays shall fulfil the following criteria

### ***Criterion 6. Activities to reduce supply chain fluorinated greenhouse gas (GHG) emissions***

The applicant shall gather the information detailed in *Appendix 3*. from their LCD display suppliers by which they shall demonstrate their activities to reduce GHG emissions from the production process, including the performance of abatement systems they have installed.

**Assessment and verification:** The applicant shall provide the information sheets of their display suppliers to the Competent Body.

## 7. Information appearing on the EU Ecolabel

Electronic displays shall fulfil the following criteria

### *Criterion 7(a) User instructions*

The electronic display 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:
  - (i) The maximum power demand in each operating mode, expressed in Watts.
  - (ii) Instructions must be provided on how to use the device's energy saving mode (e.g. Automatic Power Down).
  - (iii) The annual energy consumption in kWh per year, based on the power demand of the electronic display operating 4 hours per day for 365 days. Additional note that the actual energy consumption will depend on how the display is used.
- (b) Information that energy efficiency cuts energy consumption and thus saves money by reducing electricity bills;
- (c) The following indications on how to reduce power consumption:
  - (i) Turning the product off at its mains supply, un-plugging it, or using the hard off-switch (where one is fitted) will cut energy use to (near) zero;
  - (ii) Putting the product into standby mode will reduce energy consumption, but will still draw some power;
  - (iii) Computer monitors: Note that screen savers can stop displays from powering down into a lower power mode when not in use. Ensuring that screen savers are not activated on displays can therefore reduce energy use;
  - (iv) Televisions:
    - Note that a Quick Start Function might cause increased power consumption;
    - Note that integrated functions, such as a receiver for digital signals (e.g. DVB-T) or hard disk recorders may help reducing power consumption if, as a result, an external device becomes redundant.
- (d) Network connectivity (if applicable): Information on how to deactivate networking functions
- (e) The position of the hard off-switch (where one is fitted).
- (f) Information that extension of the product's lifetime reduces the overall environmental impacts.
- (g) The following indications on how to prolong the lifetime of the product:
  - (i) Clear disassembly and repair to enable a non-destructive disassembly of products for the purpose of replacing key components or parts for repairs.
  - (ii) Information to let the user know where to go to obtain professional repairs and servicing of the product, including contact details as appropriate.

- (h) End-of-life instructions for the proper disposal of the product 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.
- (i) 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>
- (j) 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.

***Criterion 7(b). Information appearing on the EU Ecolabel***

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

- High energy efficiency
- Designed to have a longer lifetime
- Avoidance of hazardous chemicals
- Designed to be easy to recycle
- Contains xy% post-consumer recycled plastic (*only when greater 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](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.*

**Appendix 1.**

**The scope of restrictions on hazardous substances that shall apply to the product.**

*1(a) Hazard derogations that reflect substitutions made by manufacturers*

Substance group	Scope of restriction	Concentration limits (where applicable)	Assessment and verification
(i) Flame retardants	<p>Flame retardants that are classified with Group 3 hazards are derogated for use in <i>Printed Wiring Board</i>.</p> <p><i>Derogation condition:</i></p> <p>-Test results shall demonstrate that the motherboard laminate material does not emit carcinogenic PAHs at &gt; 5.0 g/kg, when burnt in conditions simulating improper WEEE disposal. The PAHs to be quantified are listed in Appendix 1(c)(v).</p> <p>-Printed Wiring boards shall be compatible with recycling (see criterion 4(a))</p>	n/a	<p>Declaration by the sub-assembly supplier supported by classification data for the substances used and test reports for the derogation conditions.</p> <p><i>Test method:</i> ISO 19700 or IEC 60695-7-50 using fire type 1b with a heat flux of 50 kW/m<sup>2</sup> as specified by the US EPA. Quantification according to ISO 11338.</p>
	<p>Flame retardants and their synergists classified with Group 3 hazards are derogated for use in <i>external cables</i>.</p> <p><i>Derogation condition:</i></p> <p>-Test results shall demonstrate that the motherboard laminate material does not emit carcinogenic PAHs at &gt; x.x g/kg, when burnt in conditions simulating improper WEEE disposal. The PAHs to be quantified are listed in Appendix 1(c)(v).</p>	n/a	<p>Declaration by the sub-assembly supplier supported by classification data for the substances used.</p> <p><i>Test method:</i> ISO 19700 or IEC 60695-7-50 using fire type 1b with a heat flux of 50 kW/m<sup>2</sup> as specified by the US EPA. Quantification according to ISO 11338.</p>
	Flame retardants and their synergists	n/a	Declaration by the sub-assembly

	classified with Group 2 and 3 hazards are derogated for use in <i>external plastic housing of the display</i> .  <i>Derogation condition:</i> Plastic components containing flame retardants shall be compatible with recycling (see sub-criterion 4.(a))		supplier supported by classification data for the substances used.
(ii) Plasticisers	Plasticisers that are classified with Group 3 hazards are derogated for use in <i>external cables, Internal electrical wiring, and External plastic housing of the display</i> .	n/a	Declaration by the sub-assembly supplier supported by classification data for the substances used.

*1(b) Restrictions applying to substances that may be present in the final product*

<b>Substance group</b>	<b>Scope of restriction</b>	<b>Concentration limits (where applicable)</b>	<b>Assessment and verification</b>
(i) Flame retardants	PTFE used as a non-dripping agent in <i>external plastic housing of the display</i> shall be manufactured without the use of PFOA or its higher homologues.	n/a	Declaration from the PTFE manufacturer to be obtained by the sub-assembly supplier.
(ii) Plasticisers	The following plasticisers that are classified with Group 1 hazards shall not be present in <i>external cables</i> :  DEHP, BBP, DBP, DIBP, DMEP, DIPP, DPP, DnPP and DnHP.	Sum total concentration limit of 0.1%	Declaration by the sub-assembly supplier supported by a test report.  <i>Test method:</i> Solvent extraction followed by GC-MS
	The following plasticisers that are classified with Group 1 hazards shall not be present in <i>external cables</i> :  Medium Chained Chlorinated Paraffins (MCCP's) Alkanes C14-17	Sum total concentration limit of 0.1%	Declaration by the sub-assembly supplier supported by a test report.  <i>Test method:</i> XRF (non-destructive) as specified by IEC 62321—3-1
(iii) Polymer stabilisers	Lead (H360, H372, H400, H410) shall not be present in <i>external cables and internal electrical wiring</i> .	0.1%	Declaration by the sub-assembly supplier supported by a test report.  Test method: IEC

			62321-3-1
	Organotin compound stabilisers that are classified with Group 1 and 2 hazards shall not be present in <i>external cables</i> .	n/a	Declaration to be obtained from the sub-assembly supplier supported by classification data for the substances used.
(iv) Polymer colourants	Colourants used in <i>external cables</i> , <i>external plastic housing of the display</i> shall not contain lead, chromium VI, cadmium, dyes that may cleave to carcinogenic aryl amines or any other colourant compound or degradation product included in the IEC 62474 declarable substances list.	Lead and chromium VI 0.1%  Cadmium 0.01%  Other compounds 0.1%	Declaration to be obtained from the sub-assembly supplier.  <i>Test method:</i> IEC 62321-3-1 for lead, chromium VI and cadmium

<p>(v) Polymer contaminants</p>	<p>The following Polycyclic Aromatic Hydrocarbons (PAHs) classified with Group 1 hazards shall not be present at concentrations greater than or equal to the individual and sum total concentration limits in:</p> <p><i>External cables</i>  <i>External plastic housing of the remote control</i>  <i>Rubber parts of the remote control</i></p> <p>The non-presence of the following PAHs shall be verified:</p> <p><i>PAH's restricted by the REACH Regulation:</i></p> <p>Benzo[a]pyrene,  Benzo[e]pyrene,  Benzo[a]anthracene,  Chrysen,  Benzo[b]fluoranthene,  Benzo[j]fluoranthene,  Benzo[k]fluoranthene  Dibenzo[a,h]anthracene,</p> <p><i>Additional PAH's subject to restriction:</i></p> <p>Acenaphthene  Acenaphthylene  Anthracene  Benzo[ghi]perylene  Fluoranthene  Fluorene  Indeno[1,2,3-cd]pyrene  Naphthalene  Phenanthrene  Pyrene</p>	<p>The individual concentrations limit for the eight REACH restricted PAHs shall be 1 ppm</p> <p>The sum total concentration limit for the 18 listed PAHs shall not be greater than 10 ppm</p>	<p>Test report to be provided by the applicant for relevant parts of the identified parts of the product.</p> <p><i>Test method: ZEK 01.4-08.</i></p>
<p>(vi) Biocides</p>	<p>Biocides intended to provide a hygiene (anti-bacterial) function shall not be</p>	<p>n/a</p>	<p>Declaration to be provided by the sub-assembly supplier.</p>

	<p>added to:</p> <p><i>External plastic housing of the remote control</i></p> <p><i>Rubber parts of the remote control</i></p>		
(vii) Metal solder and contacts	<p>RoHS exemption 8b relating to the use of cadmium in <i>metal contacts</i> shall not be permitted in ecolabelled products.</p>	0.01%	<p>Declaration to be obtained from the final assembler of the product identifying the alternative contact metal used.</p> <p><i>Test method: IEC 62321-3-1</i></p>
(viii)Metallic coatings	<p>Hexavalent chromium shall not be present in metallic coatings applied to <i>any parts of a display</i>.</p>	0.05%	<p>Declaration to be obtained from the final assembler of the product supported by a test report for the coating or coatings used.</p> <p><i>Test method: IEC 62321-7-1</i></p>
(ix)Vapour discharge	<p>Mercury shall not be present in the <i>backlighting</i>.</p> <p><i>Supporting requirement:</i> Products shall be externally labelled with the mercury free logo as described in Ecodesign Regulation xxxx/xxx/EU.</p>	0.1 mg per lamp	<p>A declaration to be obtained from the screen unit manufacturer.</p> <p><i>Test method:</i></p> <p>Ecodesign will not require testing</p>
(x) Fining agents	<p>Arsenic and its compounds shall not be used in the manufacturing of <i>screen glass</i>.</p>	0.0050%	<p>A declaration to be obtained from the screen glass manufacturer supported by an analytical testing report.</p>

			<i>Test method: to be specified</i>
(xi) Cleaning agents and degreasers	<p>The following substances classified with Group 1 and 2 hazards shall not be present in parts of the final product treated in the final assembly plant and, for those specified, shall be controlled in the final assembly process:</p> <p><i>Propanal, benzene, isobenzofurandione, n-hexane and chlorinated organic solvents.</i></p> <p><i>Manufacturing process restrictions:</i> The manufacturer shall verify that the following 8 hour TWA's occupational exposure limit values are respected:</p> <p>Benzene &lt;1.0 ppm (&lt;3.25 mg/m<sup>3</sup>) n-hexane 20 ppm (72 mg/m<sup>3</sup>)</p>	0.1% for each individual substance	Declaration supported by monitoring data from the final product assembly plant to be provided by the applicant.

*1(c) Derogations applying to specific substances or groups of substances*

<b>Substance group</b>	<b>Scope of restriction</b>	<b>Concentration limits (where applicable)</b>	<b>Assessment and verification</b>
Stainless steel	Stainless steel containing nickel classified with H351, H373 and H412 classified with is derogated for use in casings, bolts, nuts, screws and brackets.	Nickel 8 – 13%	Declaration to be obtained from the sub-assembly manufacturer
(ii) Flame retardants	TBBPA classified with the hazards H400 and H410 (Group 2) is derogated for its use in specific Printed Wiring Board <b>to be detailed.</b>	n/a	Declaration by the sub-assembly supplier supported by classification data for the substances used and test reports for the derogation conditions.

(iii) Doping and luminescence	Doping substances classified with H301, H331, H400, H410, H411, H412 and H413 are derogated for use in the chip and diode of LED lamps.	n/a	Declaration to be obtained from the sub-assembly manufacturer supported by classification data.
	Luminescent substances classified with H350, H351, H361f, H372 and H373 are derogated for use in OLED screen units.		

## ***Appendix 2.***

### ***Outline procedure for a product disassembly test***

#### ***Terms and definitions***

- Target parts and components: Parts and/or components that are targeted for the extraction process.
- Disassembly step: An operation that finishes with the removal of a part or with a change of tool.

#### ***Operating conditions for the extraction***

- Personnel: The test shall be carried out by one person.
- Test sample: The sample product to be used for the test shall be undamaged.
- Tools for extraction: The extraction operations shall be performed using manual or power-driven standard commercially available tools (i.e. pliers, screw-drivers, cutters and hammers as defined by ISO 5742, ISO 1174, ISO 15601).
- Extraction sequence: The extraction sequence shall be documented and, where the test is to be carried out by a third party, information provided to those carrying out the extraction.

#### ***Recording of the test conditions and steps***

- Documentation of steps: The individual steps in the extraction sequence shall be documented and the tools associated with each step shall be specified.
- Recording media: The applicant shall provide a video showing the extraction of the target components and the compliance to the time thresholds.

***Appendix 3.***

***Information to be requested from LCD suppliers***

The applicant shall gather the following information from their display suppliers:

- (a) Specification which of the F-GHGs are used and which are being reduced.
- (b) Estimated annual F-GHGs emissions intensity (in kg CO<sub>2eq</sub> per m<sup>2</sup> of flat panel displays (array glass) produced) across manufacturing fabs for the most recent year.
- (c) Indication of the destruction or removal efficiencies (DREs) of installed abatement systems for each of the F-GHGs used.