# Product End-of-Life Disassembly Instructions

**Product Category:** Monitors and Displays

**Marketing Name / Model**
[List multiple models if applicable.]

- HP S2231a 21.5-inch Widescreen LCD Monitor
- Name / Model #2
- Name / Model #3
- Name / Model #4
- Name / Model #5

**Purpose:** The document is intended for use by end-of-life recyclers or treatment facilities. It provides the basic instructions for the disassembly of HP products to remove components and materials requiring selective treatment, as defined by EU directive 2002/96/EC, Waste Electrical and Electronic Equipment (WEEE).

## 1.0 Items Requiring Selective Treatment

1.1 Items listed below are classified as requiring selective treatment.

1.2 Enter the quantity of items contained within the product which require selective treatment in the right column, as applicable.

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Notes</th>
<th>Quantity of items included in product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Printed Circuit Boards (PCB) or Printed Circuit Assemblies (PCA)</td>
<td>With a surface greater than 10 sq cm</td>
<td>3</td>
</tr>
<tr>
<td>Batteries</td>
<td>All types including standard alkaline and lithium coin or button style batteries</td>
<td>0</td>
</tr>
<tr>
<td>Mercury-containing components</td>
<td>For example, mercury in lamps, display backlights, scanner lamps, switches, batteries</td>
<td>4 {Backlight Assembly(CCFL)}</td>
</tr>
<tr>
<td>Liquid Crystal Displays (LCD) with a surface greater than 100 sq cm</td>
<td>Includes background illuminated displays with gas discharge lamps</td>
<td>1</td>
</tr>
<tr>
<td>Cathode Ray Tubes (CRT)</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Capacitors / condensers (Containing PCB/PCT)</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Electrolytic Capacitors / Condensers measuring greater than 2.5 cm in diameter or height</td>
<td>1 (C854 location)</td>
<td></td>
</tr>
<tr>
<td>External electrical cables and cords</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Gas Discharge Lamps</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Plastics containing Brominated Flame Retardants</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Components and parts containing toner and ink, including liquids, semi-liquids (gel/paste) and toner</td>
<td>Include the cartridges, print heads, tubes, vent chambers, and service stations.</td>
<td>0</td>
</tr>
<tr>
<td>Components and waste containing asbestos</td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>
Components, parts and materials containing refractory ceramic fibers | 0
---|---
Components, parts and materials containing radioactive substances | 0

### 2.0 Tools Required

List the type and size of the tools that would typically be used to disassemble the product to a point where components and materials requiring selective treatment can be removed.

<table>
<thead>
<tr>
<th>Tool Description</th>
<th>Tool Size (if applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description #1: Crossing Screwdriver</td>
<td>#1 &amp; #2</td>
</tr>
<tr>
<td>Description #2: Bushing Screwdriver</td>
<td>(HEX5.5MM)</td>
</tr>
<tr>
<td>Description #3</td>
<td></td>
</tr>
<tr>
<td>Description #4</td>
<td></td>
</tr>
<tr>
<td>Description #5</td>
<td></td>
</tr>
</tbody>
</table>

### 3.0 Product Disassembly Process

#### 3.1 List the basic steps that should typically be followed to remove components and materials requiring selective treatment:

1. Lay the Monitor on the desk, remove the VGA cable, base, arm down.
2. Take out the bezel with hands.
3. Remove the LVDA cable, lamp line with hands, then take out the panel.
4. Unlock the screws which fix the back cover and hinge, then take out the key-pad PCBA from groove.
5. Release chassis from backcover, then get backcover and assembly chassis.
6. Unlock the left 5 screws which fix hinge and backcover, then take out the hinge.
7. Unlock the screws which fix I/F board and chassis, then get the I/F board.
8. Unlock the screws which fix P/I board and chassis, then get the P/I board.

#### 3.2 Optional Graphic. If the disassembly process is complex, insert a graphic illustration below to identify the items contained in the product that require selective treatment (with descriptions and arrows identifying locations).
<table>
<thead>
<tr>
<th>Action</th>
<th>Tool</th>
<th>Photo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remove the VGA Cable</td>
<td>#2 Crossing Screw Driver</td>
<td><img src="Image" alt="Photo" /></td>
</tr>
<tr>
<td>Remove the base</td>
<td>N/A</td>
<td><img src="Image" alt="Photo" /></td>
</tr>
<tr>
<td>Remove the Arm Down</td>
<td>N/A</td>
<td><img src="Image" alt="Photo" /></td>
</tr>
<tr>
<td>Remove the Front Bezel with hand.</td>
<td>N/A</td>
<td><img src="Image" alt="Photo" /></td>
</tr>
<tr>
<td>Remove the LVDS Cable with Hand.</td>
<td>N/A</td>
<td><img src="Image" alt="Photo" /></td>
</tr>
</tbody>
</table>

**Disassembly Flowchart for HP S2231 Model**

*Issue Date: Feb. 2nd, 2010*

*Initiator: Action Tool*
<table>
<thead>
<tr>
<th>Step</th>
<th>Tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remove the Lamp Line with Hand.</td>
<td>N/A</td>
</tr>
<tr>
<td>Unlock the screw fixed the Hinge and Back Cover.</td>
<td>#2 Crossing Screw Driver</td>
</tr>
<tr>
<td>Take out the OSD PCB from the groove with hand.</td>
<td>N/A</td>
</tr>
<tr>
<td>Step</td>
<td>Tool(s)</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>Release the Chassis from Back Cover, then get the Back Cover and Assembly Chassis</td>
<td>N/A</td>
</tr>
<tr>
<td>Unlock the 2 screws which fix the Arm Up and Hinge and get the Arm Up.</td>
<td>#2 Crossing Screw Driver</td>
</tr>
<tr>
<td>Unlock the 5 fixed Back Cover and Hinge and Get the Hinge.</td>
<td>#2 Crossing Screw Driver</td>
</tr>
<tr>
<td>Unlock the 5 screw fixed the I/F Board and Chassis</td>
<td>#2 Crossing Screw Driver and Hexagon recess screw driver (HEX5.5MM)</td>
</tr>
</tbody>
</table>
Unlock 4 screws fixed the Power Board and Chassis then get the Chassis.

#2 Crossing Screw Driver

Delivered all the parts with Hand

Power board

I/F Board

N/A

N/A

N/A
A.6 Ecology of TCO 5.0

Model Name: MT21.5DW01 V.0

Product Number: AM2150001001

<table>
<thead>
<tr>
<th>Approval</th>
<th>Check</th>
<th>Preparation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Williamch Lin</td>
<td>Liven Xiao</td>
<td>AD40 Liao</td>
</tr>
</tbody>
</table>
A.6.4 Environmentally hazardous substances

A.6.4.1 Cadmium (Cd), mercury (Hg), lead (Pb) and hexavalent chromium (CrVI)

Background

The effects of the listed substances are well documented as environmental hazardous substances. EU regulated these substances in the RoHS directive (2002/95/EC).

Applicability

All FPDs.

Clarification

B.6.4.1 Cadmium (Cd), mercury (Hg), lead (Pb) and hexavalent chromium (CrVI)

Exemptions are according to EU Directive 2002/95/EC (RoHS) and the documents supporting the directive.

Limit values for cadmium, lead and hexavalent chromium are according to EU Directive 2002/95/EC (RoHS) and the documents supporting the directive. Limit value for mercury in lamps is maximum 3.5 mg Hg/lamp.

Note that 3.5 mg Hg/lamp is the maximum level allowed per lamp and not an average level calculated on a batch of lamps.

Regarding the use of e.g. U- or S-shaped lamps, please contact the eco-verifier at the test laboratory for further instructions on mercury limit values.

The limit value for batteries are according to the is 0.0005 % for mercury and 0.002 % for cadmium per listed part, according to EU Directive 2006/66/EG.

TCO Development supports the use of recycled plastic. To avoid making it more difficult to use recycled plastic, exceptions to this requirement can be accepted. If recycled plastic is used in the product please contact TCO Development for further instructions.

References


64. Proposal for an EU Directive 2003/0282 (COD) on batteries and accumulators and spent batteries and accumulators,
Mandate:

1. The FPD shall not contain cadmium, mercury, lead and hexavalent chromium. The requirement applies to components, parts, and raw materials in all assemblies and subassemblies of the product e.g. paint, surface treatment, plastics and electronic components.

2. The maximum level of mercury in background lighting systems allowed is 3.5 mgHg/lamp.

3. The total amount of mercury in the lamps shall be declared in the “Mercury declaration template” below.

The following information shall be submitted to an approved eco-verifier:

1. A written guarantee that the above mandate is fulfilled. The guarantee shall be signed by the responsible person at the applicant company.

2. A declared “Mercury declaration template” below.

The following information shall be submitted with the application to TCO Development:

A copy of a verification report from an eco-verifier approved by TCO Development.

We hereby guarantee that the above mandate is fulfilled.

Johnson Wu
Signature (X)

Date 2009/12/08

Williamch Liu
Director, MOD OU-Quality Management Division

InnoLux Display Corp.

Company
### Mercury declaration template

Display brand name: MNT  
Display type/model name: 21.5"TFT-LCD Module  
FPD size: 21.5" inches  
Panel manufacturer: Innolux Display Corp  
Panel identification code: MT215DW01 V.0 (P/N: AM215000101)  
Panel technology: TFT Mode  
Number of lamps: 4 Lamps

<table>
<thead>
<tr>
<th>Mercury lamp supplier:</th>
<th>Lamp ID code:</th>
<th>Average mg Hg/lamp:</th>
<th>Max. mg Hg/lamp (&gt;3.5 mg Hg/lamp not allowed):</th>
<th>Min. mg Hg/lamp:</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPL</td>
<td>K-CN484-N-C-T</td>
<td>2.0</td>
<td>3.0</td>
<td>1.6</td>
</tr>
</tbody>
</table>

We hereby guarantee that the above mandate is fulfilled.

Johnson Wu  
Signature

Williamch Lin  
Director, MOD OU Quality Management Division

Innolux Display Corp.

Date: 2008/12/18  
Company

### A.6.4.2 Halogenated substances

**Background**  
Brominated and chlorinated flame retardants and other halogenated substances are
often persistent, *can bioaccumulate in living organisms and have been detected* in flora and fauna.

A series of international elimination activities in respect to brominated and chlorinated flame retardants is currently in progress within several national and international bodies, e.g. EU, OECD, North Sea Conference.

**Definitions**

*Plastic parts* are parts made mainly of plastics, e.g. the housing. Parts containing other materials in any significant amounts, e.g. cables with metal conductors, are not included in the definition.

*Printed wiring board laminate* is a printed board that provides point-to-point connections but not printed components in a predetermined configuration on a common base.

**Applicability**

All FPDs.

**Clarification**

**B.6.4.2 Halogenated substances**

1. Plastic components weighing more than 25 g shall not contain flame retardants or plasticizers that contain organically bound chlorine or bromine.

   LCD panels are included in the requirements.

2. The whole FPD (for definition see above) shall not contain PBB and PBDE.

   Printed Wiring Boards are included.

   The limit value will be according to EU Directive 2002/95/EC (RoHS), the following amendments to the Directive and other documents supporting the Directive. The limit value for PBB and PBDE, including decaBDE (see list below) is 0.1 % by weight in homogeneous materials.

- **Monobromodiphenyl ether** (monoBDE) CAS no 101-55-3
- **Dibromodiphenyl ether** (diBDE) CAS no 2050-47-7
- **Tribromodiphenyl ether** (triBDE) CAS no 49690-94-0
- **Tetrabromodiphenyl ether** (tetaBDE) CAS no 40088-47-9
- **Pentabromodiphenyl ether** (mentaBBDE) CAS no 32534-81-9
- **Hexabromodiphenyl ether** (hexaBDE) CAS no 56483-60-6
- **Heptabromodiphenyl ether** (heptaBDE) CAS no 68928-80-3
- **Octabromodiphenyl ether** (octaBDE) CAS no 32536-52-0
- **Nonabromodiphenyl ether** (nonaBDE) CAS no 63936-56-1
Decabromodiphenyl ether (decaBDE) CAS no 1163-19-5
Decabromobiphenyl (DeBB) CAS nr 13654-09-6

References

65. Regulation concerning Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), EC 1907/2006

Mandate:
1. Plastic parts weighing more than 25 grams shall not contain flame retardants or plasticizers that contain organically bound bromine or chlorine. The requirement applies to plastic parts in all assemblies and sub-assemblies. Exempted are printed wiring board laminates, electronic components and all kinds of cable insulation.

2. The FPD shall not contain PBB and PBDE. The requirements apply to components, parts and raw materials in all assemblies and sub-assemblies of the product e.g. batteries, paint, surface treatment, plastics and electronic components.

The following information shall be submitted to an approved eco-verifier:
A written guarantee that the above mandate is fulfilled. The guarantee shall be signed by the responsible person at the applicant company.

The following information shall be submitted with the application to TCO Development:
A copy of a verification report from an eco-verifier approved by TCO Development.

We hereby guarantee that the above mandate is fulfilled.

Johnson Wu
Signature

Williamch Lin
Director, MOD OU Quality Management Division

InnoLux Display Corp.

Date: 2009/12/08

A.6.4.3 Non-halogenated substances

Background
Recently it has been common practice to replace hazardous substances with new
substances with unknown effects. This is one important focus of the new European chemical legislation, REACH. This mandate focuses on ensuring that the phase out of halogenated flame retardants doesn't risk a shift towards substances with unknown effects.

Definitions

Plastic parts are parts made mainly of plastics, e.g. the housing. Parts containing other materials in any significant amounts, e.g. cables with metal conductors, are not included in the definition.

Printed wiring board laminate is a printed board that provides point-to-point connections but not printed components in a predetermined configuration on a common base.

Applicability

All FPDs and external power supplies.

Clarification

B.6.4.3 Non-halogenated substances

There are currently two EU directives describing classification of chemicals. Classification, Labelling and Packaging of Substances and Mixtures, known as the CLP Regulation, EC 1272/2008 will replace directives 67/548/EEG and 1999/45/EG.

See below for a restricted substances list matching:

<table>
<thead>
<tr>
<th>R-phrase (according to 67/548/EEG)</th>
<th>Phrase</th>
<th>H-statement (according to EC 1272/2008)</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>R40</td>
<td>Limited evidence of a carcinogenic effect</td>
<td>H351</td>
<td>Suspected of causing cancer</td>
</tr>
<tr>
<td>R45</td>
<td>May cause cancer</td>
<td>H350</td>
<td>May cause cancer</td>
</tr>
<tr>
<td>R46</td>
<td>May cause heritable genetic damage</td>
<td>H340</td>
<td>May cause genetic defects</td>
</tr>
<tr>
<td>R48/23</td>
<td>Danger of serious damage to health by prolonged exposure</td>
<td>H372</td>
<td>Causes damage to organs through prolonged or repeated exposure</td>
</tr>
<tr>
<td>R48/24</td>
<td>Damage to health by prolonged exposure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R48/25</td>
<td>Prolonged exposure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R60</td>
<td>May impair fertility</td>
<td>H360F</td>
<td>May damage fertility</td>
</tr>
<tr>
<td>R61</td>
<td>May cause harm to the unborn child</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>----------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H360D</td>
<td>May damage the unborn child</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Environmental hazards</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R51/53</td>
<td>Toxic to aquatic organisms/may cause long-term adverse effects in the aquatic environment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H4f1</td>
<td>Toxic to aquatic life with long lasting effects</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TCO Development supports the use of recycled plastic. To avoid making it more difficult to use recycled plastic, exceptions to this requirement can be accepted. If recycled plastic is used in the product please contact TCO Development for further instructions.

**References**

66. EU Directive 67/548/EEC on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances

67. EU Directive EC 1272/2008 on classification, labelling and packaging of substances and mixtures
Mandate:

Flame retardants used in plastic parts weighing more than 25 grams shall not have been assigned one or more of the following risk phrases at the time of application (according to EU Directive 67/548/EEC (EU Directive 1272/2008)):

- R40/(H351) (limited evidence of a carcinogenic effect)
- R45/(H350) (may cause cancer)
- R46/(H340) (may cause heritable genetic damage)
- R48/(H372) (danger of serious damage to health by prolonged exposure)
- R50/53/(H400 and H410) (very toxic to aquatic organisms / may cause long-term adverse effects in the aquatic environment)
- R60/(H360F) (may impair fertility)
- R61/(H360D) (may cause harm to the unborn child)

The following information shall be submitted to an approved eco-verifier:

A written guarantee that the above mandate is fulfilled. The guarantee shall be signed by the responsible person at the applicant company.

The following information shall be submitted with the application to TCO Development:

We hereby guarantee that the above mandate is fulfilled.

\[ Johnson \text{ Wu} \quad \text{William Lin} \]

Signature .......................................................... Director, MOD OU Quality Management Division

\[ 2009/12/08 \quad \text{InnoLux Display Corp.} \]

Date .......................................................... Company

A. 6.4.4 Plastics with chlorine and bromine as part of the polymer

Background

PVC is by far the most common halogen containing plastic. There are however other plastics that contain chlorine or bromine in the plastic itself. As the requirement concerning permissible flame retardants tightens, the risk increases that halogenated plastics will become more common. TCO Development sees a future environmental risk with such a development.

PVC is a much-debated plastic that can pose environmental problems in most parts of
its life cycle. The magnitude of the environmental problems relating to PVC differs depending on the environmental status of a particular manufacturing facility and the uses of additives. At present there are very limited possibilities to distinguish between harmful and less harmful production facilities for PVC.

**Definitions**

*Plastic parts* are parts made mainly of plastics, e.g. the housing. Parts containing other materials in any significant amounts, e.g. cables with metal conductors, are not included in the definition.

*Printed wiring board laminate* is a printed board that provides point-to-point connections but not printed components in a predetermined configuration on a common base.

**Applicability**

All FPDs.

**References**

63. EU Directive 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment

68. The EU Green Paper “Environmental questions concerning PVC” KOM (2000) 469

Mandate:

*Plastic parts* in the FPD weighing more than 25 grams shall not contain chlorine or bromine as a part of the polymer.

Note that *printed wiring board laminates*, and all kinds of internal and external cable insulation are not considered to be part of plastic parts and are therefore not included in the mandate.

The following information shall be submitted to an approved eco-verifier:

A written guarantee that the above mandate is fulfilled. The guarantee shall be signed by the responsible person at the applicant company.

The following information shall be submitted with the application to TCO Development:

A copy of a verification report from an eco-verifier approved by TCO Development.

We hereby guarantee that the above mandate is fulfilled.

![Signature](attachment:image)

**Williamch Lin**

Director, MOD OU Quality Management Division

InnoLux Display Corp.

Date

Company

10
.A.6.4.5 Information regarding plastics and flame retarding agents

Background
This requirement is intended to give information about the plastics and flame retarding agents in the product to be reviewed for compliance with the environment requirements in this standard.

Definitions
Plastic parts are parts made mainly of plastics, e.g. the housing. Parts containing other materials in any significant amounts, e.g. cables with metal conductors, are not included in the definition.
Printed wiring board laminate is a printed board that provides point-to-point connections but not printed components in a predetermined configuration on a common base.

Applicability
All FPDs.

References
65. Regulation concerning Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), EC 1907/2006
69. EU Directive 91/155/EEC and amendments defining and laying down the detailed arrangements for the system of specific information relating to dangerous preparations
70. EU Directive 93/79/EEC on the evaluation and control of the risks of existing substances
71. ISO 11469 Plastics - Generic identification and marking of plastics products
Mandate:
The material specifications shall be provided for plastic parts and printed wiring board laminates weighing more than 25 grams and which have flame retardant concentrations above 1% by weight, in line with ISO 1043-4.

The following information shall be submitted to an approved eco-verifier:
The table below shall be completed and the guarantee signed by the responsible person at the applicant company.

Manufacturers of plastic materials who consider such information confidential may submit the information to an eco-verifier approved by TCO Development.

The following information shall be submitted with the application to TCO Development:
A copy of a verification report from an eco-verifier approved by TCO Development.

<table>
<thead>
<tr>
<th>Plastic part name</th>
<th>Weight in grams</th>
<th>Type of plastic</th>
<th>Plastic brand name</th>
<th>Plastic model name</th>
<th>Flame retardant type</th>
<th>Flame retardant CAS#</th>
<th>Plastic label code</th>
</tr>
</thead>
<tbody>
<tr>
<td>LGP</td>
<td>950</td>
<td>PMMA</td>
<td>CHI-MEI</td>
<td>CM250X</td>
<td>NONE</td>
<td>NONE</td>
<td>&gt;PMMA&lt;</td>
</tr>
<tr>
<td>Plastic Frame</td>
<td>30.62</td>
<td>PC</td>
<td>Samyang</td>
<td>TRIREX 3025N1</td>
<td>KSS</td>
<td>63336-43-8</td>
<td>&gt;PC&lt;MI</td>
</tr>
<tr>
<td>PCBA</td>
<td>26.3</td>
<td>FR-4</td>
<td>ITEQ</td>
<td>IT-140GTC</td>
<td>Phosphorous epoxy</td>
<td>35948-25-5</td>
<td>28064-14-4</td>
</tr>
</tbody>
</table>

*) Chemical Abstract Service number www.cas.org
**) Labelling according to ISO 11469

We hereby guarantee that the above mandate is fulfilled.

Signature: Johnson Wu
Date: 2009/12/08

Williamch Lin
Director, MOD OU Quality Management Division

InnoLux Display Corp.

A.6.6 Preparation for Recycling
A.6.6.1 Material coding of plastics

Background
Recycling of used electronic products is an important environmental issue. Material recycling and reuse are the best options from an environmental point of view. With material coding there is a better possibility for plastics to be recycled and used in new IT equipment.

Definitions
*Plastic parts* are parts made mainly of plastics, e.g. the housing. Parts containing other materials in any significant amounts, e.g. cables with metal conductors, are not included in the definition.
*Printed wiring board laminate* is a printed board that provides point-to-point connections but not printed components in a predetermined configuration on a common base.

Applicability
All FPDs.

Clarification
B.6.6.1 Material coding of plastics
If the amount of flame retardant exceeds 1 % by weight the coding shall be complemented in accordance with ISO 1043-4.
The requirements also apply to plastics in the LCD panel, however labelling of the light guide may instead consist of the application of a label in close proximity, for example PLASTIC LIGHT GUIDE:@plastic type(s)< or >PLASTIC LIGHT GUIDE:plastic type(s)<. Labelling of Plate diffuser (not thin plastic film diffuser) shall follow the same rules as for the light guide.
The requirement does not cover other thin plastic films in the panel due to difficulties in labelling these.

References
66. EU Directive 67/548/EEC on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances
71. ISO 11469 Plastics - Generic identification and marking of plastics products
72. ISO 1043-1, -2, -3, -4 Plastics - Symbols and abbreviated terms
Mandate:
Plastic parts weighing more than 25 grams shall be material coded in accordance with ISO 11469 and ISO 1043-1, -2, -3, -4. Such parts shall be listed in the table at Section A.6.4.5.
Exempted are printed wiring board laminates.
The following information shall be submitted to an approved eco-verifier:
A written guarantee that the above mandate is fulfilled. The guarantee shall be signed by the responsible person at the applicant company.
The following information shall be submitted with the application to TCO Development:
A copy of a verification report from an eco-verifier approved by TCO Development.

We hereby guarantee that the above mandate is fulfilled.

Signature

Date

A 6.6.2 Variety of plastics

Background
Recycling of used electronic products is an important environmental issue. Material recycling and reuse are the best options from an environmental point of view. Therefore TCO Development presents requirements that facilitate material recycling.

Applicability
All FPDs.

Definitions
Types of plastic material (using the abbreviation terms, symbols and concepts for
plastics in ISO 1043 Part 1, 2, 3, and 4) are:

- Basic polymers
- Mixtures of polymers
- Basic polymers with flame retardants
- Mixtures of polymers with flame retardants

*Product units* are:

- Display case and foot
- LCD panel in FPDs
- External power supply

**References**

71. ISO 11469 Plastics - Generic identification and marking of plastics products
72. ISO 1043-1, -2, -3, -4 Plastics - Symbols and abbreviated terms

**Mandate:**

No more than two different types of *plastic materials* are accepted for parts weighing more than 100 grams in each *product unit*.

The light guide in FPD panels are exempted.

The following information shall be submitted to an approved eco-verifier:

A written guarantee that the above mandate is fulfilled. The guarantee shall be signed by a responsible person at the applicant company.

The following information shall be submitted with the application to TCO Development:

A copy of a verification report from an eco-verifier approved by TCO Development.

We hereby guarantee that the above mandate is fulfilled.

*Signature*

**Johnson Wu**
Director, MOD OU Quality Management Division

**Signature**

**William Lin**
InnoLux Display Corp.

**Date**

2009/12/08

**Company**

**A.6.6.3 Moulded-in metal parts and metallization of plastic**
housing

Background

Recycling of used electronic products is an important environmental issue. Material recycling and reuse are the best options from an environmental point of view. Therefore TCO Development presents requirements that facilitate material recycling.

Definition

Metallization is a surface deposition process whereby a metallic layer is applied to the surface of a completed shaped plastic part. Examples of metallization processes are chemical coating and ion vapour deposition.

Applicability

All FPDs.

Clarification

B.6.6.3 Metallization of plastic housing and metal parts

The requirement applies to the outer plastic casing and the foot of the display. housings for electronic components inside the outer casing are not included in the requirement.

When the virgin plastic already in its granulated form contains additives, consisting for example of metal oxides in the form of pigment or metal flakes, this is not considered to be metallization and is not included in the prohibitions defined in A.6.6.3.

Metallized plastic control buttons for the adjustment of screen contrast, brightness, colour, etc. are accepted.

Metal parts and metallized plastics parts such as logotype, brand name and design details are acceptable if they are of snap-fastening type or can be easily removed using standard tools. Moulded-in or glued metal parts are not accepted. Strong double-sided tape, difficult to separate is not accepted.
Mandate:
1. There shall be no internal or external metallization of the FPD outer plastic casing.
2. Moulded-in or glued metal parts are not accepted.
The following information shall be submitted to an approved eco-verifier:
A written guarantee that the above mandate is fulfilled. The guarantee shall be signed by the responsible person at the applicant company.
The following information shall be submitted with the application to TCO Development:
A copy of a verification report from an eco-verifier approved by TCO Development.

We hereby guarantee that the above mandate is fulfilled.

Johnson Wu
Signature

2009/12/08

Williamch Lin
Director, MOD OU Quality Management Division

InnoLux Display Corp.
Company

A.6.6.4 Preparation for recycling - Mercury lamps

Background
During the dismantling and recycling of flat panel displays, lamps containing mercury present one of the greatest environmental problems. By setting the requirement that the lamps must be easily detachable and dealt with separately, Mercury can be handled in an environmental secure way and the process of material recycling of the rest of the display is facilitated.

Applicability
All FPDs which contain mercury lamps for background lighting systems.
Clarification

B.6.6.4 Preparation for recycling - Mercury lamps

The panel technology shall be reported as LCD (TFT, NT, DSTN, etc.), plasma, or other (specified).

A disassembly description for every specified LCD panel shall be submitted.

Not applicable to LED technology.

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Mandate:

Connections to be separated during the disassembly of FPD must be easy to take apart in order to not damage the mercury lamps. This means that gluing and welding must not be used to bond parts of the casing and complicate removal of the lamps.

The following information shall be submitted to an approved eco-verifier:

A written guarantee that the above mandate is fulfilled together with an adequate description of the method by means of which the lamps shall be removed. The description shall be signed by the responsible person at the applicant company.

The following information shall be submitted with the application to TCO Development:

A copy of a verification report from an eco-verifier approved by TCO Development.

We hereby guarantee that the above mandate is fulfilled.

Johnson Wu

Signature

2009/2/08

Williamch Lin

Director, MOD OU Quality Management Division

InnoLux Display Corp.

Company
MT215DW01 V.0 (P/N: AM2150001001)

Sequence of Module Disassembly for Lamp Separation

1. Original condition

2. Remove the Screw & the protect cover (above PCBA)
3. Remove Top Bezel

4. Remove LCD Cell & PCBA
5. Remove Mold Frame (Plastic Frame)

6. Remove the Film
7. Remove the Bottom Bezel

8. Remove the Lamp Reflector
9. Remove CCFL from Lamp Assembly

9-1. Lamp Assembly

9-2. Remove tape & Separate wires from Lamp Reflector
9-3. Remove Lamp Reflector

9-4. Trim off the wire
9-5. Separate Rubber & CCFL
Subject: Lamps Disassembly Order
Model: M215H1-L03

1. Separate the pcb protector film from the module

2. Remove 3 pcs screws.

3. Release the hooks around the module for remove the front metal frame
4. Remove wire fixing tape from lamp wire.

5. Remove lamp wire from the housing.
5. Remove all hooks around the rear frame to separate housing.
6. Separate the Al-foil tapes from the lamp holder and rear frame.

7. Push up the side of LGP to remove LGP.

8. Separate the lamp holder and LGP.
9. Disassemble the lamp ASS’Y.

Remove lamp from the lamp holder.

Remove rubber cap from lamp