# WEEE Directive Compliance Report

**Report No. : HS2210050218A** **Date: 2024/6/24**

**Client**：Ubiqconn Technology, Inc.

4F., No. 300, Yangguang St., Neihu Dist., Taipei City 11491, Taiwan

**Test Item**： Luna3

**Model No.**：Luna3

**Test Specification**：WEEE Directive 2012/19/EU Article 11-Recovery Targets

**Test Result**：All disassembling parts were fitted the requirements of WEEE Directive.

**Test Laboratory**：Integrated Service Technology Ltd.

**Testing Location**：No.10-1, Lixing 1st Rd., Hsinchu City 300, Taiwan (R.O.C.)

Name of Analysis Institution

Report Review
On behalf of Integrated Service Technology

# 1、General Product Remark

## 1.1 Complementary Materials

This report applies especially to **Luna3** of Ubiqconn Technology, Inc.. The testing sample is classified as **Category 6** under Annex IA of Directive 2012/19/EU.The photos of the testing sample are shown as follows.

| Equipment Name / Model No. | Luna3 |
|---|---|
|  |  |
| Front View | Side View |

| | | |
|---|---|---|
| Total Weight(g) | 881.26g | |
| Connection Technique | ◆ Snap<br>◆ Glue | ◆ Screw<br>◆ Connector |
| Connection Tools | ◆ Hand<br>◆ Knife<br>◆ Tweezers | ◆ Philip Screwdriver<br>◆ Screwdriver |
| Disassembly Time(sec) | 245sec | |
| Recommended Disassembly Sequence | See 4.1 Disassembly Sequence | |
| Derivative Summary | See 5.2 Product 3R Calculation (Table 6) | |
| Derivative Rate | See 5.3 Product Derivative Summary | |
| Reuse/Recycling Rate | See 5.4 Test Result | |
| Recovery Rate | See 5.4 Test Result | |
| Estimated Treatment Value* | High | |
| *Note | The estimated treatment value is evaluated by the breaking even dismantling weight | |

## 2、Background

**2.1 RoHS 2.0, 2011/65 /EU & 2015/863/EU**：See Table 1

**Table 1: The Limit of Restraint Item**

| RoHS | Restraint Item | Value (ppm) |
|---|---|---|
| 2011/65/EU | Lead (Pb) | 1,000 |
| | Cadmium (Cd) | 100 |
| | Mercury (Hg) | 1,000 |
| | Chromium VI ($Cr^{6+}$) | 1,000 |
| | Polybrominated Biphenyls (PBB) | 1,000 |
| | Polybrominated Diphenylethers (PBDE) | 1,000 |
| 2015/863/EU | Bis (2-ethylhexyl) phthalate | 1,000 |
| | Butyl benzyl phthalate | 1,000 |
| | Dibutyl phthalate | 1,000 |
| | Disobutyl phthalate | 1,000 |

**2.2 WEEE, 2012/19/EU**：See Table 2

**Table 2: Reuse & Recovery Rate**

| No | Classification | Recycling | Recovery |
|---|---|---|---|
| VI | IT and telecommunications related equipment (Small) | 55% | 75% |

# 3、Disassembly Principle

The product was disassembled into different parts which were major based on the treatment requirements as a set out in the WEEE Directive Annex VII. Material substances, of which a recycling technology is not available or the recycling is not economy and feasible at present, are an assumed to be shredded, incinerated or disposed for landfill without further usage.

## 3.1 Selectively Treatment

As a minimum the following substances, preparations and components have to be removed from any separately collected WEEE：

- Polychlorinated biphenyls (PCBs) containing capacitors in accordance with Council Directive 96/59/EC of 16 September 1996 on the disposal of polychlorinated biphenyls and polychlorinated terphenyls (PCBs/PCTs)
- Mercury containing components, such as switches or backlighting lamps
- Batteries
- Printed circuit boards of mobile phones generally, and of other devices if the surface of the printed circuit board is greater than 10 square centimeters
- Toner cartridges, liquid and pasty, as well as colour toner
- Plastic containing brominated flame retardants
- Asbestos waste and components which contain asbestos
- Cathode ray tubes
- Chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs) or hydrocarbons (HCs)
- Gas discharge lamps
- Liquid crystal displays (together with their casing where appropriate) of a surface greater than 100 square centimetres and all those back-lighted with gas discharge lamps
- External electric cables
- Components containing refractory ceramic fibres as described in Commission Directive 97/69/EC of 5 December 1997 adapting to technical progress Council Directive 67/548/EEC relating to the classification, packaging and labeling of dangerous substances
- Components containing radioactive substances with the exception.

### 3.2 Material Classification

**Table 3: Material Classification**

| Worksheets | The material definition | Recovery Attribute |
|---|---|---|
| Module Parts | Contained complex Material but with reused value through simple repair process | Reuse |
| Metal | Including metal of iron department , valuable alloy ,etc. | Recycling |
| Plastics | (1)Include pure plastics , mixed plastics ,etc. | Recycling & Recovery |
| | (2)Second surface Treatment (Without Hazardous Substance) or weight<25 g | Energy Recovery |
| Glass | (1)General glass | Recycling |
| | (2)Special-purpose processing glass (such as the leaded oxide glass) | Disposal |

### 3.3 Directive 2012/19/EU Compliance Evaluation Flow

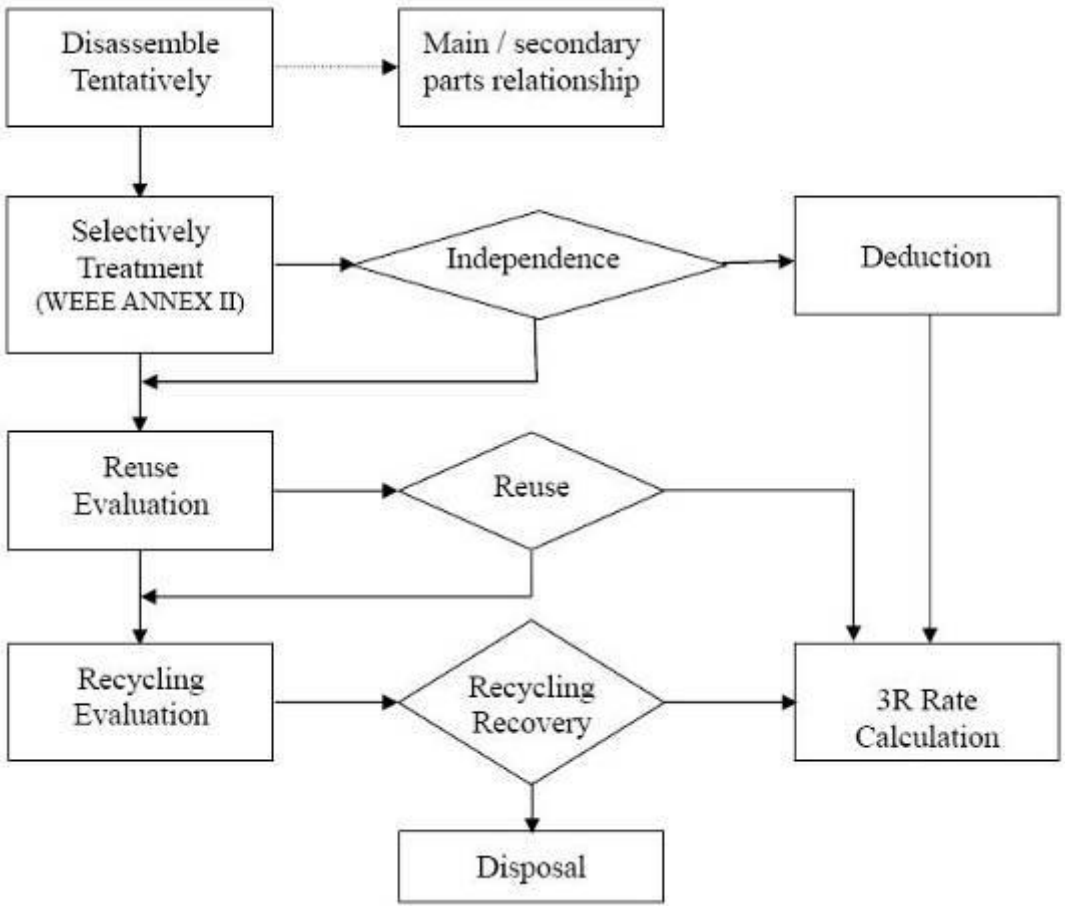
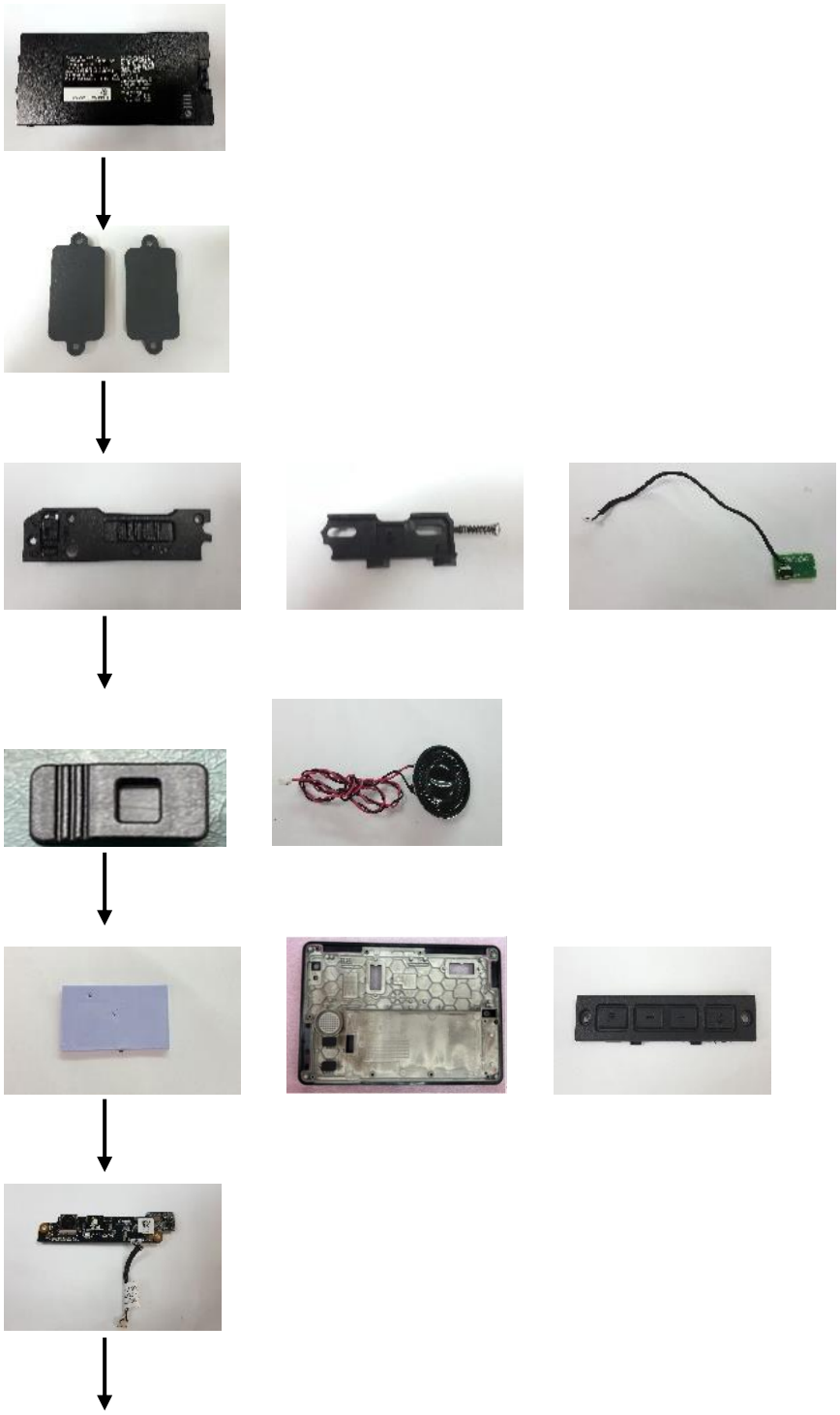
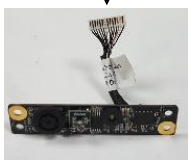



**Figure 1: Directive 2012/19/EU Compliance Evaluation Flow**

# 4、Product Component Disassembly Assessment

## 4.1 Disassembly Sequences





### 4.2 Disassembly summaries and selective treatment component

The disassembly description is shown as Table 4.

**Table 4: Sub-assembly Assessments- Luna3**

| Name | Luna3 | Characteristics |
|---|---|---|
|  | | • Component Numbers： 31<br>• Total Disassembly Time：245 sec<br>• Disassembly Sequence：From Step 1 to 22<br>• Connection Technique：<br>Screw Connector<br>Snap Glue<br>• Disassembly Tools：<br>Hand knife<br>knife<br>knife<br>Philips Screwdriver Tweezers<br>Screwdriver |

| Dismantling Sequence / Part No. | | Component Name & Photo | | Weight (g) | Connection Technique | Disassembly Time (Sec) | Disassembly Tools |
|---|---|---|---|---|---|---|---|
| 1 | 1 | Battery Hard-Pack |  | 179 | Connector | 4 | Hand |
| 2 | 2 | Battery Latch Cover |  | 2 | Screw | 23 | Hand & Philips Screwdriver |
| 3 | 3 | Latch |  | 3 | Screw | 15 | Screwdriver |
| | 4 | Pen Holder Assy |  | 3 | | 10 | Screwdriver |
| | 5 | Battery Latch Board PCBA and Cable |  | 1 | | 4 | Tweezers |

**Table 4: Sub-assembly Assessments-Luna3**

| Component detailed information | | | | | | | |
|---|---|---|---|---|---|---|---|
| Dismantling Sequence / Part No. | | Component Name & Photo | | Weight (g) | Connection Technique | Disassembly Time (Sec) | Disassembly Tools |
| 4 | 6 | Battery Latch Lock |  | 1 | Snap | 8 | Tweezers |
| | 7 | Speaker,Φ28, H5.4mm,2W4 |  | 12.1 | | | |
| 5 | 8 | Thermal Pad |  | 1 | Glue | 16 | Tweezers |
| | 9 | Back Cover |  | 117 | Glue | | Hand & Philips Screwdriver |
| | 10 | Button |  | 2 | Snap | | Hand & Philips Screwdriver |
| 6 | 11 | PCBA Camera board _rear PCBA and Cable |  | 3 | Screw | 8 | Hand & Philips Screwdriver |
| 7 | 12 | LVDS cable |  | 1.5 | Snap | 5 | Tweezers |
| 8 | 13 | Coin battery |  | 1.3 | Snap | 3 | Tweezers |
| 9 | 14 | PCBA Right MIC BOARD and Wire |  | 2 | Snap | 7 | Tweezers |

## 1Table 4: Sub-assembly Assessments-Luna3

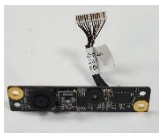
| Component detailed information | | | | | | | |
|---|---|---|---|---|---|---|---|
| Dismantling Sequence / Part No. | | Component Name & Photo | | Weight (g) | Connection Technique | Disassembly Time (Sec) | Disassembly Tools |
| 10 | 15 | Camera board _front PCBA and Wire |  | 2 | Snap | 23 | Screwdriver |
| 11 | 16 | PCBA USBC Docking Board |  | 2 | Snap | 6 | Screwdriver |
| 12 | 17 | PCBA Dual SIM/Sensors Board |  | 3 | Snap | 7 | Screwdriver |
| 13 | 18 | PCBA Mainboard |  | 109 | Snap | 12 | Screwdriver |
| 14 | 19 | PCBA button board |  | 3 | Snap | 8 | Screwdriver |
| 15 | 20 | PCBA Battery charge board |  | 5 | Snap | 15 | Screwdriver |
| 16 | 21 | PCBA Antenna board and Wire |  | 1 | Snap | 5 | Tweezers |
| 17 | 22 | GPS module |  | 8 | Snap | 8 | Tweezers |

**Table 4: Sub-assembly Assessments-Luna3**

| Component detailed information | | | | | | | |
|---|---|---|---|---|---|---|---|
| Dismantling Sequence / Part No. | | Component Name & Photo | | Weight (g) | Connection Technique | Disassembly Time (Sec) | Disassembly Tools |
| 18 | 23 | Metal sheets |  | 16 | Snap | 22 | Screwdriver |
| | 24 | Protection Film |  | 6 | | | |
| 19 | 25 | FRONT CASE |  | 148 | Snap | 30 | knife |
| | 26 | Mylar_B2010001_LCM BTB CON_Sunny-Tek |  | 0.02 | | | |
| | 27 | Mylar_B2010001_LCM BTB CON A_Sunny-Tek |  | 0.02 | | | |
| 20 | 28 | Adapter |  | 103.6 | Snap | 5 | Hand & knife |
| 21 | 29 | Power Cord |  | 55.72 | Snap | 0 | Hand |
| 22 | 30 | PCBA of adaptor |  | 90 | Snap | 1 | Hand |

**Table 5: Selective treatment component**

| Materials/ Components | Part No. |
|---|---|
| Battery | **1,13** |
| printed circuit boards of mobile phones generally, and of other devices if the surface of the printed circuit board is greater than 10 square centimeters | **11,15,16, 17,18.19, 20,21,22, 30** |
| polychlorinated biphenyls (PCB) containing capacitors in accordance with Council Directive 96/59/EC of 16 September 1996 on the disposal of polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT) ( 1 ), | **NA** |
| mercury containing components, such as switches or backlighting lamps, | **NA** |
| toner cartridges, liquid and paste, as well as colour toner, | **NA** |
| plastic containing brominated flame retardants, | **NA** |
| asbestos waste and components which contain asbestos, | **NA** |
| cathode ray tubes, | **NA** |
| chlorofluorocarbons (CFC), hydrochlorofluorocarbons (HCFC) or hydrofluorocarbons (HFC), hydrocarbons (HC), | **NA** |
| gas discharge lamps, | **NA** |
| liquid crystal displays (together with their casing where appropriate) of a surface greater than 100 square centimetres and all those back-lighted with gas discharge lamps, | **25** |
| external electric cables, | **28,29** |
| components containing refractory ceramic fibres as described in Commission Directive 97/69/EC of 5 December 1997 adapting to technical progress for the 23rd time Council Directive 67/548/EEC on the approximation of the laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances ( 2 ), | **NA** |
| components containing radioactive substances with the exception of components that are below the exemption thresholds set in Article 3 of and Annex I to Council Directive 96/29/Euratom of 13 May 1996 laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiation ( 3 ), | **NA** |
| electrolyte capacitors containing substances of concern (height > 25 mm, diameter > 25 mm or proportionately similar volume). | **NA** |
| cathode ray tubes: the fluorescent coating has to be removed, | **NA** |

**Table 5: Selective treatment component(2)**

| Materials/ Components | Part No. |
|---|---|
| equipment containing gases that are ozone depleting or have a global warming potential (GWP) above 15, such as those contained in foams and refrigeration circuits: the gases must be properly extracted and properly treated. Ozone-depleting gases must be treated in accordance with Regulation (EC) No 1005/2009, | **NA** |
| gas discharge lamps: the mercury shall be removed. | **NA** |
| Note: For details of derivative of numbers indicated above please refer to Table 4 | |

# 5、3R Calculation

## 5.1 Calculation Formula

The criteria calculation of WEEE 3R (Reuse, Recycling & Recovery) is adopted from the Department of Trade and Industry (DTI, UK.), as shown in Table 5.

**Table 5: 3R Calculation Formula**

| Calculator to help companies assess compliance with WEEE target levels | | |
|---|---|---|
| Weight of WEEE collected | A | .....kg |
| Weight of whole appliances re-used for original purpose | B | .....kg |
| Weight of components, sub-assemblies and consumables which are re-used for their original purpose or recycled | C | .....kg |
| Target level of WEEE re-use and recycling | $\frac{C}{A-B}$ | .....% |
| Weight of WEEE where energy is recovered in a power plant | D | .....kg |
| Target level of WEEE recovery | $\frac{D+C}{A-B}$ | .....% |

Reference：(A guide to marketing, product development and manufacturing actions you need to take)-- GG416 (DTI)

Recycling Rate = (Reuse + Recyclable)/(Products Weight)×100%..... (1)

Recovery Rate = (Reuse + Recyclable +Energy recovery)/(Products Weight)×100%..... (2)

### 5.2 Product 3R Calculation

As a 3R calculating result, it is shown in Table 6.

**Table 6: Luna3 Calculation Result**

| Equipment Name/Type | | | Luna3 | | | |
|---|---|---|---|---|---|---|
| Description | Derivative | Weight (g) | Recycle | Energy Recovery | Disposal | Selectively Treatment (WEEE Annex II) |
| Luna3 | Metal | 16 | ✓ | | | |
| | Plastic &Complex Material | 865.26 | ✓ | ✓ | | ✓ |

### 5.3 Product Derivative Summary

| Product Name | Luna3 |
|---|---|
| **WEEE Evaluation** | **Calculation Weight ( g )** |
| Recycling Weight | 740.26 |
| Energy Recovery Weight | 8.0 |
| Disposal Weight | 131 |
| Selectively Treatment Weight (WEEE Annex VII) | 2 |
| **Product Sample Weight ( g )** | 881.26 |

### 5.4 Test Result

PASSED

| Product Name | Luna3 |
|---|---|
| **Recycling Rate %** | **Testing Recycling Rate %** |
| 55% | 84.2% |
| **Required Recovery Rate %** | **Testing Recovery Rate %** |
| 75% | 85.1% |