


| WEEE 3R REPORT EU Directive 2012/19/EU Waste Electrical and Electronic Equipment WEEE program – Evaluation of Recyclability and Recoverability rate | |
|--|---|
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| Manufacturer's name | Zhuhai Youde Technology Co., Ltd. |
| Address | No.2, ShengLi Road, Sanzao Town, Jinwan District, Zhuhai City, Guangdong Province, China |
| Test specification | |
| Standard | WEEE program is based on following: Directive 2012/19/EU (WEEE Recast) |
| Test procedure | Type approved |
| Test item description | Electronic cigarette host |
| Trade Mark | ud |
| Model/type reference | BALROG, BALROG EX, BALROG NX, STARLING, VESTA, TIDUS, UAKSO, SIFU B-TAB, MISSION T, CASTIEL, CASTOR 22, CASTOR 25, C&P 22, C&P 25 |
| Ratings | 1.5V |
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1. General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix 1: Photos of tested sample



1.2 Remark Definition

Models: BALROG carried out and the results comply with the requirement.

2. General Product Information

2.1 Product Description

The product is Electronic cigarette host. It is classified as Category 3 under Annex IB of Directive 2012/19/EU.

2.2 Submitted Documents

Client's email dated on 2016/05/25.

3. Assessment Description

3.1 Disassembly, Recovery and Recycling Flow

The product is disassembled into different parts (clumps) and grouped by the type of material sharing common characteristic or physical relationship (waste fractions) primarily based on the treatment requirements as set out in the WEEE directive annexe II, followed by the current state of the art recycling and recovery technology available in Europe and Taiwan. Materials for which currently no recycling technology is available or where the recycling is economically not feasible, or which contain hazardous substances, are assumed to be shredded, incinerated or disposed of to landfill with out further use. Only bigger clumps that can be easily separated and that share a common characteristics or physical relationships are included in the recycling and reuse calculation. Other parts, respectively materials that cannot be separated by e.g. standard tools are classified as either unspecified materials or distributed to the relative waste fraction with highest content of waste is expected with reduced recovery rate.

3.2 Parameters

The calculation is based on waste fractions consisting of a typical material or substance composition for typical materials. (e.g. a power cord consists of copper wire and PVC, where as the PVC consists of a PVC, polyamide and polyester blend). For every waste fraction a theoretical recovery share for recycling and for incineration respectively waste disposal is assumed based on information provide by recycling companies. The recovery share may change over time as the recycling technology advances. The current recovery shares are available upon request.


3.3 Definition

3.3.1 Recycling Classification

- A class Common recycling technology and high market need
- B class Recycling technology not popular and high market need
- C class Common recycling technology and low market need
- D class Recycling technology not popular and low market need

4. Assessment Results

4.1 Assessment Summary

| | |
|--|---|
| Product Name/No. | |
|  | |
| Total Weight (g) | 140 |
| Connection Technique | Combination×14 Screw×2 Cable×3 Glued×18 Welding×3 Press In×2 |
| Disassembly Tools | Slotted Screwdriver Hand |
| Disassembly Time, sec | 226 |
| Derivative Summary | See 4.2 Product Derivative Table |
| Derivative Rate | See 4.3 Product Derivative Summary |
| Reuse/Recycling Rate | See 4.4 Test Result |
| Recovery Rate | See 4.4 Test Result |
| Estimated Treatment Cost, NTD/Set* | -12.6 |
| Note | Estimated Treatment Cost = Disassembly manpower cost+ Equipment/Utility expenses+ Waste disposal cost - Income from selling derivative The selling price is floating and variable with raw material. |

4.2 Product Derivative Table

| Product Name/Type | | Mass(g) | Incineration mass(g) | Disposal mass(g) | Recyclability mass(g) | Recoverability mass (g) |
|---------------------------------|--------------------|---|----------------------|------------------|--------------------------------------|--------------------------------------|
| Derivative | | | | | | |
| Cover Assembly | Metal | 100g | | | √ | √ |
| | Plastic, enclosure | 5.0g | | | √ | √ |
| | Synthetic rubber | 0.4g | | | √ | √ |
| | Loss plastic: | 0.6g | | √ | | |
| PCB / Protection Cover assembly | Metal | 1.0g | | | √ | √ |
| | PVC, PE | 1.1 | √ | | √ | |
| | Fiberglass | 2.5g | | √ | | √ |
| | Loss, Plastic | 0.8g | | √ | | |
| USB Cable | Mixed Metal | 1.8 | | | √ | √ |
| | PVC, PE | 3.2 | √ | | | |
| Sum | | | | | $\Sigma(m(i) \times RCR(i)) = 109.0$ | $\Sigma(m(i) \times RVR(i)) = 110.7$ |
| Recyclability rate | | $\frac{\Sigma(m(i) \times RCR(i))}{m_{EEE}} \times 100\% = 77.86\%$ | | | | |
| Recoverability rate | | $\frac{\Sigma(m(i) \times RVR(i))}{m_{EEE}} \times 100\% = 79.08\%$ | | | | |

Note:

M(i) : Mass of ith part (ref.: IEC/TR 62635:2012)

RCR(i) : Recycling rate of the ith part in the corresponding end-of-life treatment scenario (ref.: IEC/TR 62635:2012)

RVR(i): Recovery rate of the ith part in the corresponding end-of-life treatment scenario (ref.: IEC/TR 62635:2012)

m_{EEE}: Total product mass (ref.: IEC/TR 62635:2012)

Recyclability :Ability of waste product to be recycled, based on actual practices

Recoverability rate :Ability of a waste product to be recovered, based on actual practices

4.3 Test Result

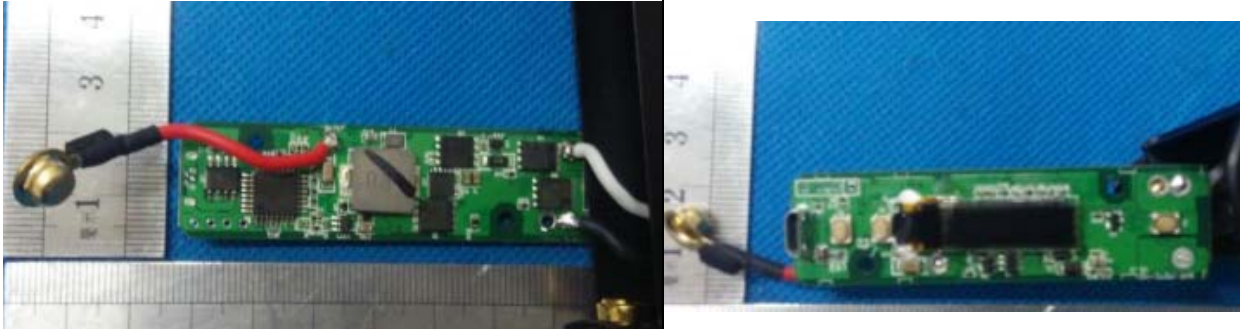
| | Electronic cigarette host /BALROG |
|----------------------------------|--------------------------------------|
| Required Reuse/Recycling Rate | Testing Reuse/Recycling Rate |
| 55% | 77.86% |
| Required Recovery Rate | Testing Recovery Rate |
| 75% | 79.08% |

4.4 Product Component Disassembly Assessment Summary

Component Assessment -1

| | | | |
|---|------------------------|---|--|
| Component Name | | Cover Assembly | |
|  | |  | |
| Weight, g | | 106 | |
| Disassembly Tools | | Hand, Slotted Screwdriver | |
| Connection Technique | | Screw×2 Snap×4 | |
| Disassembly Time, Sec | | 60 | |
| Material | | Metal:100g Plastic, enclosure:5.0g Synthetic rubber:0.4g Loss plastic:0.6g | |
| Recycling Evaluation | Reuse Weight, g | - | |
| | Recycling Weight, g | 105.4 | |
| | Incineration Weight, g | - | |
| | Disposal Weight, g | 0.6 | |
| Recycling Potential* | Metal | A class | |
| | Plastic, enclosure | A class | |
| | Synthetic rubber | D class | |
| | Loss metal | | |

Component Assessment -2

| | | | |
|--|------------------------|---|---------|
| Component Name | | PCB / Protection Cover assembly | |
|  | | | |
| Weight, g | | 5 | |
| Disassembly Tools | | Hand | |
| Connection Technique | | Snap×1 | |
| Disassembly Time, Sec | | 30 | |
| Material | | Metal:1.0g Fibreglass:2.5g PVC, PE:1.1g Loss, Plastic:0.8g | |
| Recycling Evaluation | Reuse Weight, g | - | |
| | Recycling Weight, g | 2.1 | |
| | Incineration Weight, g | 1.1 | |
| | Disposal Weight, g | 3.3 | |
| Recycling Potential* | | Metal | A class |
| | | PVC, PE | D class |
| | | Fiberglass | - |
| | | Loss, Plastic | - |

Component Assessment -3

| | | | |
|--|------------------------|-------------------------------------|---------|
| Component Name | | USB cable | |
|  | | | |
| Weight, g | | 5 | |
| Disassembly Tools | | -- | |
| Connection Technique | | -- | |
| Disassembly Time, Sec | | -- | |
| Material | | Mixed Metal: 60.5g PVC, PE: 3.2g | |
| Recycling Evaluation | Reuse Weight, g | - | |
| | Recycling Weight, g | 1.8 | |
| | Incineration Weight, g | 3.2 | |
| | Disposal Weight, g | - | |
| Recycling Potential* | | Mixed Metal | B class |
| | | PVC, PE | D class |

***** End of Test Report *****