ASSESSMENT REPORT

LAB NO. : (6623)326-0794
DATE : December 5, 2023

Applicant:
FOXESS CO., LTD.
NO.939, JINHAI THIRD ROAD, NEW AIRPORT INDUSTRY AREA, LONGWAN DISTRICT, WENZHOU, ZHEJIANG, CHINA

Date of Submission: 2023-11-22
Test Period: 2023-11-22 to 2023-12-5
Sample Mode: Sample Presentation
BV EE Ref. No.: CMMC-ESH-Q23112201-A0

Sample Description:	Sample(s) received is(are) stated to be: MICRO INVERTER SERIES		
Manufacturer:	FOXESS CO., LTD	Buyer:	/
Style No(s):	M1-1200	PO No.:	/
Country of Origin:	China	Country of Destination:	Oversea Country

SUMMARY OF THE ASSESSMENT

ASSESSMENT Specification – WEEE Directive 2012/19/EU	
Product Category	**Small equipment**
Test reuse and recycling rate (%) / Test recovery rate (%)	**60 / 80**
Minimum reuse and recycling rate (%) / Minimum recovery rate (%)	**55 / 75**
Conclusion: The submitted sample complies with the WEEE directive 2012/19/EU.	

REMARK
If there are questions or concerns on this report, please contact the following persons:

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Photo of the Submitted Sample

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1. General Information:

1.1 Assessment Method:

The sample was disassembled into small parts by using appropriate tools, similar materials of each part were grouped and weighed.
The recovery rate and recycling rate were calculated by the principle of best available technique for recovery, recycling and treatment provided by Cleanaway Dienstleistungs GmbH & Co KG. The disposal percentage is determined based on the European directive 2012/19/EU and 75/442/EEC.
The material types of the parts are reference to the Bill of Material (BOM) provided by the client.
The uncertainty is introduced as to eliminate possible weighting error, rounding up error and other errors. It is computed by the summation of all weighted parts subtracted from the total weight.

1.2 Disposal and Recovery stated in Waste 75/442/EEC Annex IIA & Annex IIB:

1.2.1 Disposal Operations

1.2.1.1	Deposit into or onto land (e.g. landfill, etc.)
1.2.1.2	Land treatment (e.g. biodegradation of liquid or sludgy discards in soils, etc.)
1.2.1.3	Deep injection (e.g. injection of pumpable discards into wells, salt domes or naturally occurring repositories, etc.)
1.2.1.4	Surface impoundment (e.g. placement of liquid or sludgy discards into pits, ponds or lagoons, etc.)
1.2.1.5	Specially engineered landfill (e.g. placement into lined discrete cells which are capped and isolated from one another and the environment, etc.)
1.2.1.6	Release into a water body except seas/oceans
1.2.1.7	Release into seas/oceans including sea-bed insertion
1.2.1.8	Biological treatment not specified elsewhere in the Annex which results in final compounds or mixtures which are discarded by means of any of the operations numbered 1.2.1.1 to D 1.2.1.12
1.2.1.9	Physico-chemical treatment not specified elsewhere in the Annex which results in final compounds or mixtures which are discarded by means of any of the operations numbered 1.2.1.1 to 1.2.1.12 (e.g. evaporation, drying, calcination, etc.)
1.2.1.10	Incineration on land
1.2.1.11	Incineration at sea
1.2.1.12	Permanent storage (e.g. emplacement of containers in a mine, etc.)
1.2.1.13	Blending or mixing prior to submission to any of the operations numbered 1.2.1.1 to 1.2.1.12
1.2.1.14	Repackaging prior to submission to any of the operations numbered 1.2.1.1 to 1.2.1.13
1.2.1.15	Storage pending any of the operations numbered 1.2.1.1 to 1.2.1.14 (excluding temporary storage, pending collection, on the site where it is produced)

1.2.2 Recovery Operations

1.2.2.1. Use principally as a fuel or other means to generate energy
1.2.2.2. Solvent reclamation/regeneration

1.2.2.3. Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes)
1.2.2.4. Recycling/reclamation of metals and metal compounds
1.2.2.5. Recycling/reclamation of other inorganic materials
1.2.2.6. Regeneration of acids or bases
1.2.2.7. Recovery of components used for pollution abatement
1.2.2.8. Recovery of components from catalysts
1.2.2.9. Oil re-refining or other reuses of oil
1.2.2.10. Land treatment resulting in benefit to agriculture or ecological improvement
1.2.2.11. Use of wastes obtained from any of the operations numbered 1.2.2.1 to 1.2.2.10
1.2.2.12. Exchange of wastes for submission to any of the operations numbered 1.2.2.1 to 1.2.2.11
1.2.2.13. Storage of wastes pending any of the operations numbered 1.2.2.1 to 1.2.2.12 (excluding temporary storage, pending collection, on the site where it is produced)

1.3 Recycling and Reuse stated in WEEE, Article 3

1.3.1 Recycling Operation

"Recycling" means the reprocessing in a production process of the waste materials for the original purpose or for other purposes, but excluding energy recovery which means the use of combustible waste as a means of generating energy through direct incineration with or without other waste but with recovery of the heat.

1.3.2 Reuse Operation

"Reuse" means any operation by which WEEE or components thereof are used for the same purpose for which they were conceived, including the continued use of the equipment or components thereof which are returned to collection points, distributors, recyclers or manufacturers.

1.4 Categories of EEE stated in WEEE Annex I:

1.4.1. Temperature exchange equipment
1.4.2. Screen, monitors, and equipment screens having a surface greater than 100 cm^2
1.4.3. Lamps
1.4.4. Large equipment (any external dimension more than 50 cm)
1.4.5. Small equipment (no external dimension more than 50 cm)
1.4.6. Small IT and telecommunication equipment (no external dimension more than 50 cm)

1.5 List of Abbreviations

Unless specified, the following abbreviations are used through out this assessment report:
IT: Information technology

WEEE: DIRECTIVE 2012/19/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 on waste electrical and electronic equipment (WEEE) (recast)

RoHS: DIRECTIVE 2011/65/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (recast)

EEE: Electrical and Electronic Equipment defined under 2012/19/EU, WEEE
PC: Polycarbonate
LED: Light Emitting Device
PCB: Printed Circuit Board
PES: Polyester
IC: Integrated Circuit
NA: Not Applicable

1.6 Selective treatment for materials and components of waste electrical and electronic equipment in accordance with WEEE, Article 6 (1), Treatment

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

1.6.1. 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),

1.6.2. Mercury containing components, such as switches or backlighting lamps,

1.6.3. Batteries,

1.6.4. Printed circuit boards of mobile phones generally, and of other devices if the surface of the printed circuit board is greater than 10 square centimetres,

1.6.5. Toner cartridges, liquid and pasty, as well as colour toner,

1.6.6. Plastic containing brominated flame retardants,

1.6.7. Asbestos waste and components which contain asbestos,

1.6.8. Cathode ray tubes,

1.6.9. Chlorofluorocarbons (CFC), hydrochlorofluorocarbons (HCFC) or hydrofluorocarbons (HFC), hydrocarbons (HC),

1.6.10. Gas discharge lamps,

1.6.11. Liquid crystal displays (together with their casing where appropriate) of a surface greater than 100 square centimeters and all those back-lighted with gas discharge lamps,

1.6.12. External electric cables,

1.6.13. 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 labelling of dangerous substances (2),

1.6.14. 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 ionising radiation (3),

1.6.15. Electrolyte capacitors containing substances of concern (height > 25 mm, diameter > 25 mm or proportionately similar volume)

These substances, preparations and components shall be disposed of or recovered in compliance with Article 4 of Council Directive 75/442/EEC.

1.6.2 The following components of WEEE that is separately collected have to be treated as indicated:

1.6.2.1 Cathode ray tubes: The fluorescent coating has to be removed,

1.6.2.2 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 2037/2000 of the European Parliament and of the Council of 29 June 2000 on substances that deplete the ozone layer (4).

1.6.2.3 Gas discharge lamps: The mercury shall be removed.

2. ASSESSMENT SUMMARY

2.1 Assessment Summary Table

No.	Description of the sub-assessable	Weight (g)	Weight (%)	Reuse	Recycling	Energy Recovery	Disposal
1	Silvery metal with white coating	202	7.4		X		
2	Silvery metal with grey coating	720	26.5		X		
3	PCB	535	19.7			X	
4	Black magnet	545	20.1				X
5	Silvery metal screw	22	0.8		X		
6	Black plastic	162	6.0		X		
7	Black plastic cable jacket	194	7.1		X		
8	Plastic wire jacket	264	9.7		X		
9	Coppery metal wire	72	2.7		X		
	Total	**2716.00**	**100.0**				
Total disassembly time (min)		30					
Disassembly tools		Screwdriver, Pliers					

2.2 Conclusion

Product Category Small equipment		
	Actual (%)	Request (%)
Reuse and recycling rate	60	55
Recovery rate	80	75

2.3 Recommended Disassembly Sequence

Housing

Main machine assemble

PCB

3. Assessment Results of the sub-assemble

3.1 Individual Part 1

1

2

3

4

5

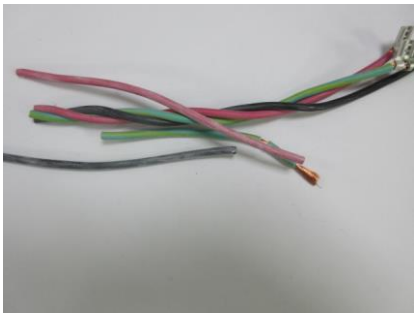
	Assessed part	Part No.	Material	Weight (g)	Weight (%)	Reuse	Recycling	Energy Recovery	Disposal
1	Silvery metal with white coating		Metal	202	7.4		X		
2	Silvery metal with grey coating		Metal	720	26.5		X		
3	PCB		PCB	535	19.7			X	
4	Black magnet		Magnet	545	20.1				X
5	Silvery metal screw		Metal	22	0.8		X		

3.1 Individual Part 1

6

7

8



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Assessed part		Part No.	Material	Weight (g)	Weight (%)	Reuse	Recycling	Energy Recovery	Disposal
6	Black plastic		Known plastic	162	6.0		X		
7	Black plastic cable jacket		Known plastic	194	7.1		X		
8	Plastic wire jacket		Known plastic	264	9.7		X		
9	Coppery metal wire		Metal	72	2.7		X		
Total				2716.00	100.0		60.2%	19.7%	20.1%

Disassembly Time (min)	30	**Disassembly Tools**	Screwdriver Pliers

4. Appendix

4.1 Bill of Material

品名	规格描述
完整 PCBA	完整 PCBA M 系列 1200W PowerBoard 基铜 2oz
压铸机壳	压铸机壳 270*221.5*33mm ADC12 RAL7016 灰+闪银效果 细砂纹 M1 系列 FOX
钣金冲压件	盖板 270*182*1.5 AL5052 RAL9016+闪银效果 微逆
钣金冲压件	接地金属 15*7*11mm SUS304 本色 M1 系列
金属螺丝	M5X16 SUS 十字槽外六角 平、弹垫 钝化
金属螺丝	螺钉 M4*8mm S20C 一字/十字共用 平、弹垫 镀蓝白锌
金属螺丝	十字槽沉头螺钉 M3x6(90°）sus304 CHEN 钝化 带耐落胶
绝缘垫片	麦拉片 240*55mm UL94 V-0 黑色
绝缘垫片	麦拉片 252*161mm UL94 V-0 黑色
导热垫片	矽胶垫 75*22*1.5mm UL94 V-0 灰色
导热垫片	矽胶垫 35*26*1.5mm UL94 V-0 灰色
线材	交流 AC 线材 TC-ER 12AWG 3C 黑色 600V PC LPE PE
线材	直流 PV 线材 12AWG 黑色 2000V PC LPE PE
天线	天线 COWIN CW-WZ-0108 2.4-2.5G ABS+PC 43.3*12MM -40℃to+80℃
防水胶	防水胶 道康宁 7091 GLUE 180℃ white 310ml/支
外购标准塑胶件	灯座 EDK-01-PCW 抗 UV
外购标准塑胶件	固定座 UW-05A-N2B
胶类	灌封胶 回天 5296U A9 硅橡胶 -40~170℃ 黑色 KG
胶类	灌封胶 回天 5296U B9 硅橡胶 -40~170℃ 白色 KG
标签	规格标签 100*35 英文 M1 系列 M1-1200 FOX
标签	SN 标签 50*25 空白标签 M1 系列 双层底纸
标贴	标贴 90*60 空白标签 M1 微逆 全型号 全品牌 飞机盒标签（纸箱用）

快速安装手册	快速安装手册 英文 M1 系列 FOXESS
纸箱	飞机盒 490*280*80 E 瓦 M1 微逆
珍珠棉	EPE 460*270*48mm M1 微逆
纸质文档	中性合格证 通用
其他辅料	附件包装袋 150*100*0.06mm PE 透明
其他辅料	干燥剂 硅胶颗粒 50g/袋
纸箱	中箱 515*365*305 M1 微逆
其他辅料	封箱胶带 60mm 宽 透明 500 米/卷
栈板	栈板 1174*1134*135mm H1 系列
栈板	栈板 1174*1134*135mm H1 系列
胶合板	胶合板 1134*1094*8mm
护角	打包护角 100x50x50x5mm 牛皮纸 黄色
护角	S 系列打包护角（850x50x50x5mm）

END

Annex

The client declared that the materials used of below Styles are same as tested style.

M1-600/M1-800/M1-1000

Remark:
Since the client was not able to provide the sample of additional Style, above additional Style(s) hasn't been tested, but only based on the guarantee letter provided by the client. Bureau Veritas-CPS takes no responsibility for any mistakes and the problems of product consistency caused by inaccurate and/or invalid information submitted by the client. The client will take the responsibility of all discrepancy and risk.