Prüfbericht - Nr.: *Test Report No.:*	**50033068 001**	**Auftrags-Nr.:** *Order No.:*	133042629	**Seite 1 von 14** *Page 1 of 14*
Kunden-Referenz-Nr.: *Client Reference No.:*	N/A	**Auftragsdatum:** *Order date:*	07.08.2015	
Auftraggeber: *Client:*	Suprema.Inc 11F Parkview Tower, 248, Jeongjail-ro, Bundang-gu, Seongnam-si, Gyeonggi-do Rep.of Korea			
Prüfgegenstand: *Test Item:*	BioMini ComboDual			
Bezeichnung / Typ-Nr.: *Identification / Type No.:*	S20			
Auftrags-Inhalt: *Order content:*	Product Testing			
Prüfgrundlage: *Test Specification:*	WEEE Directive 2012/19/EU Article 11 – Recovery target			

Wareneingangsdatum: *Date of receipt:*	07.08.2015
Prüfmuster-Nr.: *Test sample No.:*	**133042629**
Prüfzeitraum: *Testing period:*	10.08.2015 - 25.08.2015
Ort der Prüfung: *Place of testing:*	Seoul
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland Korea Ltd.
Prüfergebnis*: *Test result*:*	Pass



geprüft von / *tested by:*

27.08.2015 SeungYeop Lee / Project Engineer

Datum *Date*	**Name/Stellung** *Name/Position*	**Unterschrift** *Signature*

kontrolliert von / *reviewed by::*

27.08.2015 Jung-Hee Yoo / Reviewer

Datum *Date*	**Name/Stellung** *Name/Position*	**Unterschrift** *Signature*

Sonstiges / *Other.*

The assessment describes the theoretical recyclability

The assessment cannot predict the actual material output by the recycler as the recovery process may vary between recyclers.

Zustand des Prüfgegenstandes bei Anlieferung: **Prüfmuster vollständig und unbeschädigt**
Condition of the test item at delivery: *Test item complete and undamaged*

* Legende:	1 = sehr gut	2 = gut	3 = befriedigend	4 = ausreichend	5 = mangelhaft
	P(ass)=entspricht o.g. Prüfgrundlage(n)		F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getested
** Legend:*	*1 = very good*	*2 = good*	*3 = satisfactory*	*4 = sufficient*	*5 = poor*
	P(ass) = passed a.m.test specification(s)		*F(ail) = failed a.m. test specification(s)*	*N/A = not applicable*	*N/T = not tested*

Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.
This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark

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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: Photo of tested sample



Overall View

2. General Product Information

2.1 Product Description

The product is Suprema. It is classified as Category 3 under Annex I of Directive 2012/19/EU

2.2 Submitted Documents

Information of product provided by Suprema. Co. Ltd

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 annex VII, followed by the current state of the art recycling and recovery technology available in Europe. 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 Regular

Reuse, Recycling and Recovery Rate: Applying commonly used recycling technology.

3.3.2 Ideal

Recycling Rate: Applying highest recycling technology.

3.3.3 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.	BioMini ComboDual / S20



Description	Content	Value
Total Weight, g		324.0
Connection Technique, ea	Screw Connection Wire Connection Snap Joint Glued Joint Distort Combination	33 17 21 10 5 21
Disassembly Time, sec		960
Disassembly Tools	Philip Screwdriver Slotted Screwdriver Knife	
Recommended Disassembly Sequence	See 4.6 Recommend Disassembly Sequence	
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	

4.2 Product Derivative Table

Product Name / Type		BioMini ComboDual / S20						
Derivative		Weight (g)	Weight (%)		Reuse (%)	Recycling (%)	Incineration (%)	Disposal (%)
Cover Top Assembly	Metal	4.8	1.5			**v**		
	Mixed Metal	4.0	1.2			**v**		
	Plastic, PC	48.7	15.0			**v**		
	Mixed Plastic	13.0	4.0				**v**	
	Fibreglass	8.0	2.5	Ideal		**v** (2.5)		
				Regular				**v** (2.5)
PCB Assembly	Metal	1.0	0.3			**v**		
	Copper	0.6	0.2			**v**		
	Mixed Metal	10.8	3.3			**v**		
	Plastic, PBT	5.0	1.5			**v**		
	Plastic, PVC	1.0	0.3				**v**	
	Mixed Plastic	0.5	0.2				**v**	
	Fibreglass	25.0	7.7	Ideal		**v** (7.7)		
				Regular				**v** (7.7)
	Waste	0.3	0.1					**v**
Cover Bottom Assembly	Mixed Metal	53.9	16.7			**v**		
	Plastic, PC	69.7	21.5			**v**		
	Rubber	1.2	0.4				**v**	
USB Cable Assembly	Metal	2.3	0.7			**v**		
	Copper	15.8	4.9			**v**		
	Aluminium	1.0	0.3			**v**		
	Mixed Metal	20.0	6.2			**v**		
	Plastic, PVC	30.2	9.3				**v**	

Product Name / Type		BioMini ComboDual / S20						
Derivative		Weight (g)	Weight (%)		Reuse (%)	Recycling (%)	Incineration (%)	Disposal (%)
USB Cable Assembly	Mixed Plastic	3.6	1.1				**v**	
	Waste	3.6	1.1					**v**
Total		**324.0**	**100**	Ideal	**0.0**	**83.5**	**15.3**	**1.2**
				Regular		**73.3**	**15.3**	**11.4**

4.3 Product Derivative Summary

	BioMini ComboDual / S20	
	Percentage of Weight (%)	
	Ideal	Regular
Reuse Weight	0.0	
Recycling Weight	83.5	73.3
Incineration Weight	15.3	15.3
Disposal Weight	1.2	11.4
Product Sample Weight	**100.0**	

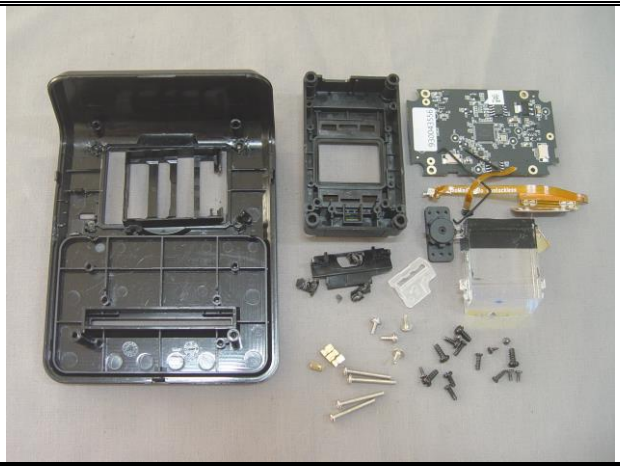
4.4 Test Result

PASSED

	BioMini ComboDual / S20
Required Reuse / Recycling Rate (%)	Testing Reuse / Recycling Rate (%)
70	**73.3**
Required Recovery Rate (%)	Testing Recovery Rate (%)
80	**88.6**

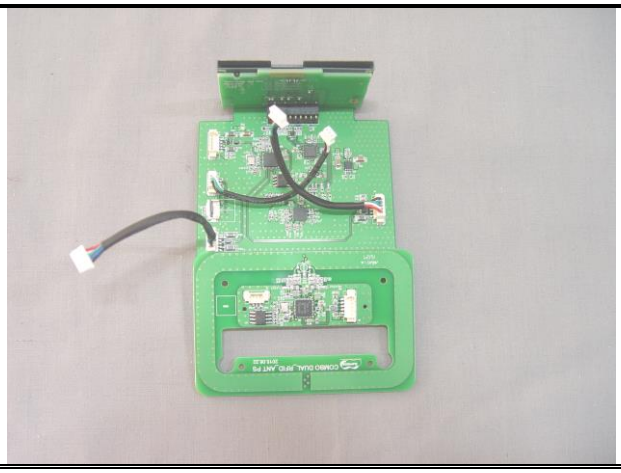
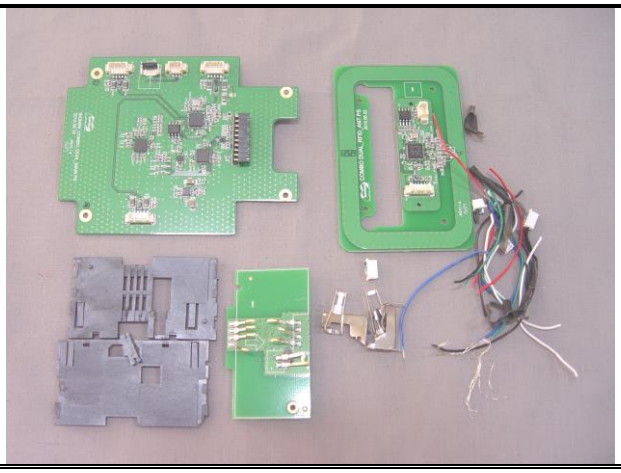
4.5 Product Component Disassembly Assessment Summary

Component Assessment - 1

Component Name	Cover Top Assembly
	

Description	Content	Value
Weight, g		78.5
Connection Technique, ea	Screw Connection Snap Joint Glued Joint Distort Combination	24 10 5 2 10
Disassembly Time, sec		414
Disassembly Tools	Philip Screwdriver Slotted Screwdriver Nipper Knife	
Material, g	Metal Mixed Metal Plastic, PC Mixed Plastic Fibreglass	4.8 4.0 48.7 13.0 8.0
Recycling Evaluation, g	Reuse weight Recycling weight Incineration weight Disposal weight	- 57.5 13.0 8.0
Recycling Potential*	Metal	A
	Mixed Metal	B
	Plastic, PC	A
	Mixed Plastic	-
	Fibreglass	-

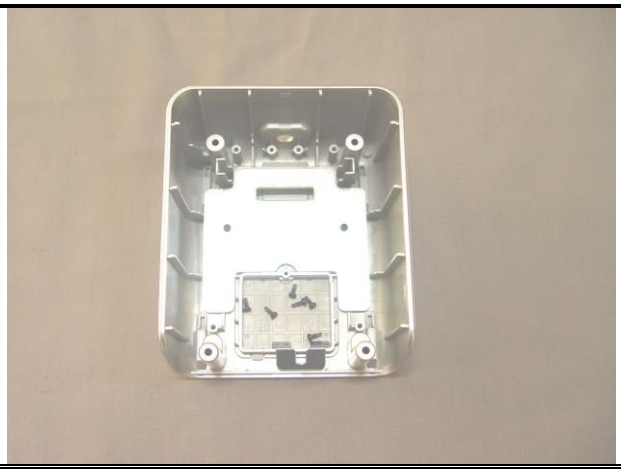
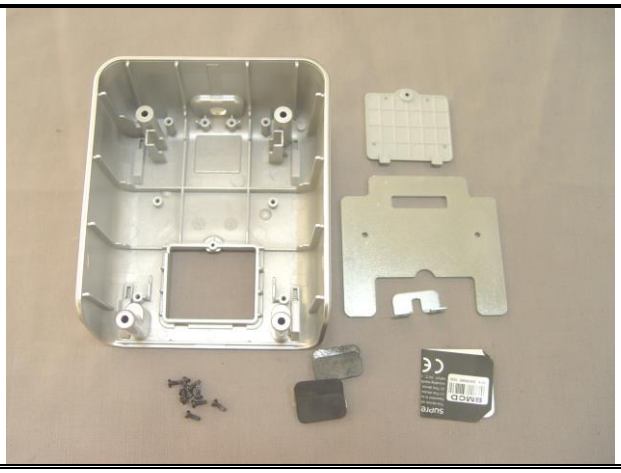
Component Assessment - 2

Component Name	PCB Assembly
	

Description	Content	Value
Weight, g		44.2
Connection Technique, ea	Wire Connection Snap Joint Combination	13 5 5
Disassembly Time, sec		170
Disassembly Tools	Philip Screwdriver Slotted Screwdriver Nipper Knife	
Material, g	Metal Copper Mixed Metal Plastic, PBT Plastic, PVC Mixed Plastic Fibreglass Waste	1.0 0.6 10.8 5.0 1.0 0.5 25.0 0.3
Recycling Evaluation, g	Reuse weight Recycling weight Incineration weight Disposal weight	- 17.4 1.5 25.3
Recycling Potential*	Metal	A
	Copper	A
	Mxied Metal	B
	Plastic, PBT	A
	Plastic, PVC	-
	Mxied Plastic	-

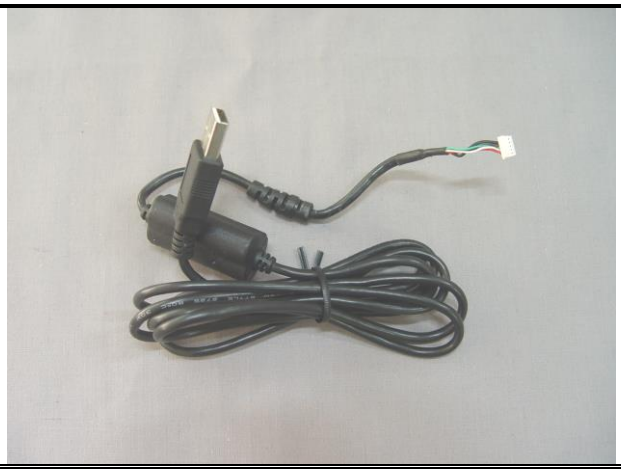
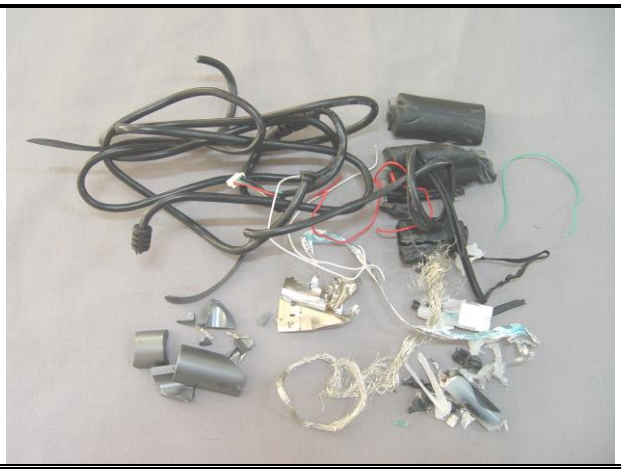
Recycling Potential*	Fibreglass	-
	Waste	-

Component Assessment - 3

Component Name	Cover Bottom Assembly
	

Description	Content	Value
Weight, g		124.8
Connection Technique, ea	Screw Connection Snap Joint Glued Joint Combination	9 3 5 3
Disassembly Time, sec		270
Disassembly Tools	Philip Screwdriver Slotted Screwdriver Nipper Knife	
Material, g	Mixed Metal Plastic, PC Rubber	53.9 69.7 1.2
Recycling Evaluation, g	Reuse weight Recycling weight Incineration weight Disposal weight	- 123.6 1.2 -
Recycling Potential*	Mixed Metal	B
	Plastic, PC	A
	Rubber	-

Component Assessment - 4

Component Name	USB Cable Assembly
	

Description	Content	Value
Weight, g		76.5
Connection Technique, ea	Wire Connection Snap Joint Distort Combination	4 3 3 3
Disassembly Time, sec		106
Disassembly Tools	Philip Screwdriver Slotted Screwdriver Nipper Knife	
Material, g	Metal Copper Aluminium Mixed Metal Plastic, PVC Mixed Plastic Waste	2.3 15.8 1.0 20.0 30.2 3.6 3.6
Recycling Evaluation, g	Reuse weight Recycling weight Incineration weight Disposal weight	- 39.1 33.8 3.6
Recycling Potential*	Metal	A
	Copper	A
	Aluminium	A
	Mixed Metal	B
	Plastic, PVC	-
	Mxied Plastic	-
	Waste	-

4.6 Recommended Disassembly Sequence

BioMini ComboDual / S20



Cover Top Assembly → PCB Assembly → Cover Bottom Assembly

→ USB Cable Assembly

- End of Test Report -