

## Test Report 測試報告

Applicant 申請廠商: Sharkoon Technologies GmbH  
Siemensstrasse 38,  
35440 Linden, Germany.

Number : TWNC00761956  
報告號碼

Date 日期 : Jan 28, 2019

### Sample Description 樣品敘述:

One (1) group of submitted samples said to be :  
以下測試樣品乃供應商所提供及確認:  
Sample Description : SHARKOON SKILLER SGM3  
樣品名稱  
Date Sample Received : Jan 16, 2019  
收件日期  
Date Test Started : Jan 16, 2019  
開始測試日期

### Test Conducted 測試執行:

As requested by the applicant, for details please refer to attached pages.  
依申請商之要求, 細節請參考附頁.

### Conclusion 結論:

Tested Samples 測試樣品	Standard 標準	Result 結果
Tested Components of Submitted Samples 測試部位	Restriction of Hazardous Substances (RoHS) 危害物質限制 - As per applicant's request with reference to 2011/65/EU 依據客戶要求參考歐盟指令 2011/65/EU	Pass 合格
	Heavy Metal Content in Batteries 電池重金屬含量 - As Per Directive 2006/66/EC and Amendment 2013/56/EU of the European Parliament And of The Council 依據 2006/66/EC 及其更新指令 2013/56/EU	Pass 合格

### Remark 備註:

As requested by the applicant, only components shown in this report were tested for 2011/65/EU.  
依據客戶要求, 只有表列於報告中的部位有依照 2011/65/EU 作測試。

Authorized By:  
On behalf of Intertek Testing Services  
Taiwan Limited

Matt Wang  
Sr. Manager



Signed by:

Thomas Chou

Thomas Chou  
Manager



Test Conducted 測試內容 :

1. XRF Screening Test X 射線螢光光譜法篩檢測試

With reference to IEC 62321-3-1:2013, cadmium (Cd), lead (Pb), mercury (Hg), chromium (Cr) and bromine (Br) were measured by XRF spectroscopy. The further wet chemical tests will be conducted if necessary.

參考 IEC 62321-3-1:2013，以 X 射線螢光光譜法進行鎘(Cd), 鉛(Pb), 汞(Hg), 鉻(Cr)與溴(Br) 的含量篩檢測試。必要時會以化學測試進行確認。

Test Result Summary 測試結果:

	Tested Component 測試部位	XRF screening X 射線螢光光譜法篩檢測試 (ppm)		Chemical testing 化學測試 (ppm)		
		Element 元素	Result 結果	Cr <sup>6+</sup> 六價鉻	Pb/Cd/Hg 鉛/鎘/汞	PBBs/PBDEs 多溴聯苯/多 溴聯苯醚
1	Transparent/olive plastic top cover	Cd	ND	--	--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND			
		Br	ND		--	
2	Black plastic button	Cd	ND	--	--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND			
		Br	ND		--	
3	Black plastic base	Cd	ND	--	--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND			
		Br	ND		--	
4	Black plastic pad	Cd	ND	--	--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND			
		Br	ND		--	
5	Black/red/green plastic switch	Cd	ND	--	--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND			
		Br	ND		--	



Test Conducted 測試內容 :

	Tested Component 測試部位	XRF screening X 射線螢光光譜法篩檢測試 (ppm)		Chemical testing 化學測試 (ppm)		
		Element 元素	Result 結果	Cr <sup>6+</sup> 六價鉻	Pb/Cd/Hg 鉛/鎘/汞	PBBs/PBDEs 多溴聯苯/多 溴聯苯醚
6	Black plastic button	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND		--	
7	Black plastic frame	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	117	--		
		Br	352		PBBs: ND PBDEs: ND	
8	Silvery metal screw	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	NA		--	
9	Transparent plastic sensor cover	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND		--	
10	Silvery metal sheet	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	178100	Negative		
		Br	NA		--	
11	Wheel - black rubber tire	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND		--	



Test Conducted 測試內容 :

	Tested Component 測試部位	XRF screening X 射線螢光光譜法篩檢測試 (ppm)		Chemical testing 化學測試 (ppm)		
		Element 元素	Result 結果	Cr <sup>6+</sup> 六價鉻	Pb/Cd/Hg 鉛/鎘/汞	PBBs/PBDEs 多溴聯苯/多 溴聯苯醚
12	Wheel - silvery metal part	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	229	--		
		Br	NA			-- --
13	Wheel - black plastic rim	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND			-- --
14	Connector - white plastic socket	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND			-- --
15	Connector- silvery metal pin	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	NA			-- --
16	LED - transparent molding part	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	1146			PBBs: ND PBDEs: ND
17	LED - silvery metal pin	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	NA			-- --



Test Conducted 測試內容 :

	Tested Component 測試部位	XRF screening X 射線螢光光譜法篩檢測試 (ppm)		Chemical testing 化學測試 (ppm)		
		Element 元素	Result 結果	Cr <sup>6+</sup> 六價鉻	Pb/Cd/Hg 鉛/鎘/汞	PBBs/PBDEs 多溴聯苯/多 溴聯苯醚
18	Black plastic part	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND		--	
19	LED - translucent molding part	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	2034		PBBs: ND PBDEs: ND	
20	LED - silvery metal pin	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	NA		--	
21	Black cable jacket	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND		--	
22	Silvery metal frame	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	NA		--	
23	Black plastic socket	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND		--	



Test Conducted 測試內容 :

	Tested Component 測試部位	XRF screening X 射線螢光光譜法篩檢測試 (ppm)		Chemical testing 化學測試 (ppm)		
		Element 元素	Result 結果	Cr <sup>6+</sup> 六價鉻	Pb/Cd/Hg 鉛/鎘/汞	PBBs/PBDEs 多溴聯苯/多 溴聯苯醚
24	Grey plastic gear	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND		--	
25	Switch - white plastic button	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND		--	
26	Switch - black plastic housing	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND		--	
27	Switch - grey plastic base	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND		--	
28	Chip - black molding part	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND		--	
29	Micro USB jack - silvery metal frame	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	NA		--	



Test Conducted 測試內容 :

	Tested Component 測試部位	XRF screening X 射線螢光光譜法篩檢測試 (ppm)		Chemical testing 化學測試 (ppm)		
		Element 元素	Result 結果	Cr <sup>6+</sup> 六價鉻	Pb/Cd/Hg 鉛/鎘/汞	PBBs/PBDEs 多溴聯苯/多 溴聯苯醚
30	Micro USB jack - blackish grey plastic socket	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	222		--	--
31	Micro USB jack - silvery/golden metal pin	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	NA		--	--
32	Sensor - blackish grey plastic casing	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND		--	--
33	Sensor - black plastic casing	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND		--	--
34	Sensor - silvery metal pin	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	NA		--	--
35	Switch - silvery metal frame	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	159700	Negative		
		Br	NA		--	--



Test Conducted 測試內容 :

	Tested Component 測試部位	XRF screening X 射線螢光光譜法篩檢測試 (ppm)		Chemical testing 化學測試 (ppm)		
		Element 元素	Result 結果	Cr <sup>6+</sup> 六價鉻	Pb/Cd/Hg 鉛/鎘/汞	PBBs/PBDEs 多溴聯苯/多 溴聯苯醚
36	Switch - black plastic casing	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND		--	
37	Switch - black plastic trigger	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND		--	
38	PCBA[The all tested components were excluded]	Cd	--		ND	PBBs: ND PBDEs: ND
		Pb	--		11	
		Hg	--		ND	
		Cr	--	ND		
		Br	--			
39	PCBA[The all tested components were excluded]	Cd	--		ND	PBBs: ND PBDEs: ND
		Pb	--		2	
		Hg	--		ND	
		Cr	--	ND		
		Br	--			
40	Switch - red plastic button	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND		--	
41	Switch - black plastic button	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND		--	





Test Conducted 測試內容 :

	Tested Component 測試部位	XRF screening X 射線螢光光譜法篩檢測試 (ppm)		Chemical testing 化學測試 (ppm)		
		Element 元素	Result 結果	Cr <sup>6+</sup> 六價鉻	Pb/Cd/Hg 鉛/鎘/汞	PBBs/PBDEs 多溴聯苯/多 溴聯苯醚
42	Switch - silvery metal sheet	Cd	ND	Negative	--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	161000			
		Br	NA		--	
43	Switch - black plastic frame	Cd	ND	--	--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND			
		Br	ND		--	
44	Connector - white plastic plug	Cd	ND	--	--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND			
		Br	ND		--	
45	Connector - silvery metal contact sheet	Cd	ND	--	--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND			
		Br	NA		--	
46	Purple cable jacket	Cd	ND	--	--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND			
		Br	ND		--	
47	Silvery metal wire	Cd	ND	--	--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND			
		Br	NA		--	



Test Conducted 測試內容 :

	Tested Component 測試部位	XRF screening X 射線螢光光譜法篩檢測試 (ppm)		Chemical testing 化學測試 (ppm)		
		Element 元素	Result 結果	Cr <sup>6+</sup> 六價鉻	Pb/Cd/Hg 鉛/鎘/汞	PBBs/PBDEs 多溴聯苯/多 溴聯苯醚
48	Coppery metal coil	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	NA		--	
49	Clear yellow plastic tape	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND		--	
50	Dim silvery plastic sheet with adhesive	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	705	ND		
		Br	ND		--	
51	Black fabric sheath	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND		--	
52	Black core ring	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND		--	
53	Black cable strain relief hood	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND		--	



Test Conducted 測試內容 :

	Tested Component 測試部位	XRF screening X 射線螢光光譜法篩檢測試 (ppm)		Chemical testing 化學測試 (ppm)		
		Element 元素	Result 結果	Cr <sup>6+</sup> 六價鉻	Pb/Cd/Hg 鉛/鎘/汞	PBBs/PBDEs 多溴聯苯/多 溴聯苯醚
54	USB plug - golden metal frame	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	NA		--	
55	USB plug - white plastic socket	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	670		PBBs: ND PBDEs: ND	
56	USB plug - silvery/golden metal pin	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	NA		--	
57	Micro USB plug - golden metal frame	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	86800	Negative		
		Br	NA		--	
58	Micro USB plug - blackish grey plastic socket	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND		--	
59	Micro USB plug - silvery/golden metal pin	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	NA		--	



Test Conducted 測試內容 :

	Tested Component 測試部位	XRF screening X 射線螢光光譜法篩檢測試 (ppm)		Chemical testing 化學測試 (ppm)		
		Element 元素	Result 結果	Cr <sup>6+</sup> 六價鉻	Pb/Cd/Hg 鉛/鎘/汞	PBBs/PBDEs 多溴聯苯/多 溴聯苯醚
60	Black cable insulator	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND		--	
61	Silvery metal wire shell	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	2855	Negative		
		Br	NA		--	
62	White cable jacket	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND		--	
63	Green cable jacket	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND		--	
64	Black cable jacket	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND		--	
65	Red cable jacket	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND		--	



Test Conducted 測試內容 :

	Tested Component 測試部位	XRF screening X 射線螢光光譜法篩檢測試 (ppm)		Chemical testing 化學測試 (ppm)		
		Element 元素	Result 結果	Cr <sup>6+</sup> 六價鉻	Pb/Cd/Hg 鉛/鎘/汞	PBBs/PBDEs 多溴聯苯/多 溴聯苯醚
66	Silvery metal wire	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	NA		--	
67	Coppery metal wire	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	NA		--	
68	PCBA[Mixed all parts]	Cd	--		ND	
		Pb	--		11	
		Hg	--		ND	
		Cr	--	ND		
		Br	--		PBBs: ND	
			PBDEs: ND			
69	Black plastic sheet	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND		--	
70	Golden metal frame	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	NA		--	
71	Black plastic frame	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND		--	



Test Conducted 測試內容 :

	Tested Component 測試部位	XRF screening X 射線螢光光譜法篩檢測試 (ppm)		Chemical testing 化學測試 (ppm)		
		Element 元素	Result 結果	Cr <sup>6+</sup> 六價鉻	Pb/Cd/Hg 鉛/鎘/汞	PBBs/PBDEs 多溴聯苯/多 溴聯苯醚
72	Black plastic frame	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND		--	
73	Black foam tape	Cd	ND		--	
		Pb	ND		--	
		Hg	ND		--	
		Cr	ND	--		
		Br	ND		--	

- Remarks: ppm = Parts per million = mg/kg  
備註 百萬分之一 = 毫克/公斤
- ND = Not detected and pass, the screened sample is found to be under detection limit of table II.  
未檢測出且合格, 測試部位的結果低於表格 II 中的偵測極限
- NA = Not applicable  
不適用
- = Not tested 未檢測
- Negative = A negative test result indicated positive observation was not found at the time of test.  
When the spot test showed a negative result, the boiling water extraction procedure shall be used to verify the result.  
A negative test result indicated positive observation was not found at the time of test.  
此陰性結果顯示樣品在分析過程中無發現任何陽性現象的存在。若點測試的結果為陰性，應以沸水萃取法查證結果。
- As per applicant's request, the Chromium VI (Cr<sup>6+</sup>) content of metal material was conducted spot test only.  
依據客戶要求，金屬材質的部位僅以點測試測量六價鉻含量。
  - PCB assembly was ground and randomly selected for test.  
印刷電路板經粉碎及隨機均勻取樣後進行測試。

Responsibility of Chemist 分析人員 : Pelny Hsiao/ Vita Fu

Date Sample Received 樣品收件日期 : Jan 16, 2019

Test Period 樣品測試期間 : Jan 16, 2019 to Jan 25, 2019



Test Conducted 測試內容 :

Table I: XRF screening limits in mg/kg for regulated elements in various materials.

表格 I: X 射線螢光光譜法在不同材質中對不同元素的篩檢極限(mg/kg)

Element 元素	Polymer Materials 聚合物材質	Metallic Materials 金屬材質	Composite Materials 複合性材質
鎘 (Cd)	BL ≤ 70 < X < 130 ≤ OL	BL ≤ 70 < X < 130 ≤ OL	BL ≤ 70 < X < 150 ≤ OL
鉛 (Pb)	BL ≤ 700 < X < 1300 ≤ OL	BL ≤ 700 < X < 1300 ≤ OL	BL ≤ 500 < X < 1500 ≤ OL
汞 (Hg)	BL ≤ 700 < X < 1300 ≤ OL	BL ≤ 700 < X < 1300 ≤ OL	BL ≤ 500 < X < 1500 ≤ OL
鉻 (Cr)	BL ≤ 700 < X	BL ≤ 700 < X	BL ≤ 500 < X
溴 (Br)	BL ≤ 300 < X	Not Applicable 不適用	BL ≤ 250 < X

Remarks: mg/kg = Milligram per kilogram = ppm  
備註 百萬分之一 = 毫克/公斤

BL = Below Limit  
低於極限

X = Inconclusive result  
不確定的結果

OL = Over Limit  
高於極限

Table II: Estimated detection limits in mg/kg for regulated elements in various matrices.

表格 II: 不同元素在不同材質中的偵測極限(mg/kg)

Element 元素	Polymer Materials 聚合物材質	Metallic Materials 金屬材質	Composite Materials 複合性材質
鎘 (Cd)	50	70	70
鉛 (Pb)	100	200	200
汞 (Hg)	100	200	200
鉻 (Cr)	100	200	200
溴 (Br)	200	Not Applicable 不適用	200

Disclaimers 聲明:

The numerical test data of this XRF screening report is for reference purposes only due to the data variation incurred from various factors as described in next paragraph. The applicant shall make its/his/her own judgment as to whether the information provided in this XRF screening report is sufficient for its/his/her purposes.

此 XRF 篩檢報告僅作為參考之用，因測試結果會受到多種因素的影響，細節於下個段落中說明。申請者應自行評估本報告中所提供的資訊是否符合其申請目的。

The results shown in this XRF screening report will differ based on various factors, including but not limited to, the sample size, thickness, area, surface flatness, equipment parameters and matrix effect (e.g. plastic, rubber, metal, glass, ceramic etc.). Further wet chemical pre-treatment with relevant chemical equipment analysis are required to obtain quantitative data.

X 射線螢光光譜法篩檢的結果會受到很多因素影響，包含但不限於樣品的大小，厚度，面積，表面平整度，設備參數，與基質效應（舉例：塑膠，橡膠，金屬，陶瓷等），需要進一步的化學前處理及相對應的化學分析設備以得到定量的數據。



Test Conducted 測試內容 :

Chemical Test Method 化學測試方法

<u>Test Item</u> 測試項目	<u>Test Method</u> 測試方法	<u>Reporting Limit</u> 報告極限
Cadmium (Cd) Content 鎘含量	With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES. 參考 IEC 62321-5: 2013, 以微波或酸液消化法消化樣品並用感應耦合電漿原子發射光譜儀分析。	2 ppm
Lead (Pb) Content 鉛含量	With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES. 參考 IEC 62321-5: 2013, 以微波或酸液消化法消化樣品並用感應耦合電漿原子發射光譜儀分析。	2 ppm
Mercury (Hg) Content 汞含量	With reference to IEC 62321-4:2013+AMD1:2017, by microwave or acid digestion and determined by ICP-OES. 參考 IEC 62321-4:2013+AMD1:2017, 以微波或酸液消化法消化樣品並用感應耦合電漿原子發射光譜儀分析。	2 ppm
Chromium VI (Cr <sup>6+</sup> ) Content 六價鉻含量 (for non-metal)	With reference to IEC 62321-7-2: 2017, organic solvent was used to dissolve or swell sample matrix, followed by alkaline digestion and determined by UV-Vis Spectrophotometer. 參考 IEC 62321-7-2:2017, 以有機溶劑溶解或使樣品基質膨脹, 再進行鹼液消化, 用紫外光-可見光分光光度計分析。	8 ppm
Chromium VI (Cr <sup>6+</sup> ) Content 六價鉻含量 (for metal)	With reference to IEC 62321: 2008, by spot test. 參考 IEC 62321:2008 第一版附錄 B, 以點測試法分析。	1 ppm
Polybrominated Biphenyls (PBBs) 多溴聯苯	With reference to IEC 62321-6: 2015, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary. 參考 IEC 62321-6: 2015, 以溶劑萃取並用氣相層析質譜儀分析, 必要時會以高效液相層析儀光二極體陣列偵測儀進行確認。	5 ppm
Polybrominated Diphenyl Ethers (PBDEs) 多溴聯苯醚	With reference to IEC 62321-6: 2015, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary. 參考 IEC 62321-6: 2015, 以溶劑萃取並用氣相層析質譜儀分析, 必要時會以高效液相層析儀光二極體陣列偵測儀進行確認。	5 ppm

Remark : Reporting Limit = Quantitation limit of analyte in sample 測試樣品之定量偵測極限備註





Test Conducted 測試內容 :

RoHS Limit RoHS 限值

Restricted Substances 限用物質	Limits 限值
Cadmium (Cd) content 鎘含量	0.01% (100ppm)
Lead (Pb) content 鉛含量	0.1% (1000ppm)
Mercury (Hg) content 汞含量	0.1% (1000ppm)
Chromium VI (Cr <sup>6+</sup> ) content 六價鉻含量	0.1% (1000ppm)
Polybrominated Biphenyls (PBBs) 多溴聯苯	0.1% (1000ppm)
Polybrominated Diphenyl Ethers (PBDEs) 多溴聯苯醚	0.1% (1000ppm)

The limits were quoted from Annex II of 2011/65/EU for homogeneous material.

本限值是依據歐盟指令 2011/65/EU 附錄二針對均質材質所訂定。



Test Conducted 測試內容 :

### 3. Heavy Metal Content In Batteries 電池重金屬含量

#### Test Result Summary 測試結果

As per directive 2006/66/EC and Amendment 2013/56/EU of the European Parliament and of the Council, submitted sample was digested with appropriate acid and determined by inductively coupled plasma-optical emission spectrometer (ICP-OES).

依據 2006/66/EC 及其更新指令 2013/56/EU，樣品以酸液進行消化並利用 ICP-OES 進行分析。

<u>Elements 元素</u>	<u>Result 結果 # (%)</u> (74)	<u>Limit 限值(%)</u>
Lead (Pb) Content 鉛含量	ND	--
Cadmium (Cd) Content 鎘含量	ND	0.002
Mercury (Hg) Content 汞含量	ND	0.0005

Remarks : % = Percentage based on weight of submitted sample  
備註 根據送檢樣品的重量百分比

ND = Not Detected = 未檢測出

# = Results were calculated by contents of tested components.  
結果是根據測試元件的含量計算

Detection Limit = Pb = 0.0005 %  
偵測極限 Cd = 0.0002 %  
Hg = 0.00002 %

Tested Components: (74) Battery  
送檢樣品



Test Conducted 測試內容 :

## Labeling Requirement For Separate Collection 分類回收標示規範

According to 2006/66/EC, all batteries, accumulators and battery packs are appropriately marked with the separate symbol shown in below.

根據 2006/66/EC 規定，所有電池、蓄電池與電池模組均需要標示如下的分類回收標示



### Symbol Labeling Size 標示圖案大小:

- Accumulator or Battery Pack: at least 3 % of the area of the largest side of the battery. (up to a maximum size of 5 × 5 cm).  
蓄電池或電池模組：至少須佔電池最大表面積的 3% (標示面積最大為 5 × 5 cm)。
- Cylindrical Cells: at least 1.5 % of the surface area of the battery or accumulator. (up to a maximum size of 5 × 5 cm).  
筒狀電池：至少須佔電池最大表面積的 1.5% (標示面積最大為 5 × 5 cm)。
- If size of the battery, accumulator or battery pack is such that the symbol will be smaller than 0.5 × 0.5 cm, The battery, accumulator or battery pack need not be marked but a symbol measuring at least 1 × 1 cm shall be printed on the packaging.  
如果電池連 0.5 × 0.5 cm 的最小面積都無法標示時，此圖案必須以 1 × 1 cm 的方式標示在外包裝上。
- Symbols shall be printed visibly, legibly and indelibly.  
標示圖案應具有清晰、易讀與不易去除。

### Chemical Symbols For Specific Heavy Metal 特定重金屬化學符號標示

When batteries, accumulators and button cells contain more than 0,0005 % mercury, more than 0,002 % cadmium or more than 0,004 % lead, shall be marked with requirement as below.

當電池、蓄電池或鈕扣電池重金屬汞含量超過 0.0005%、鎘超過 0.002%或是鉛超過 0.004%時，電池必須根據下列要求進行標示。

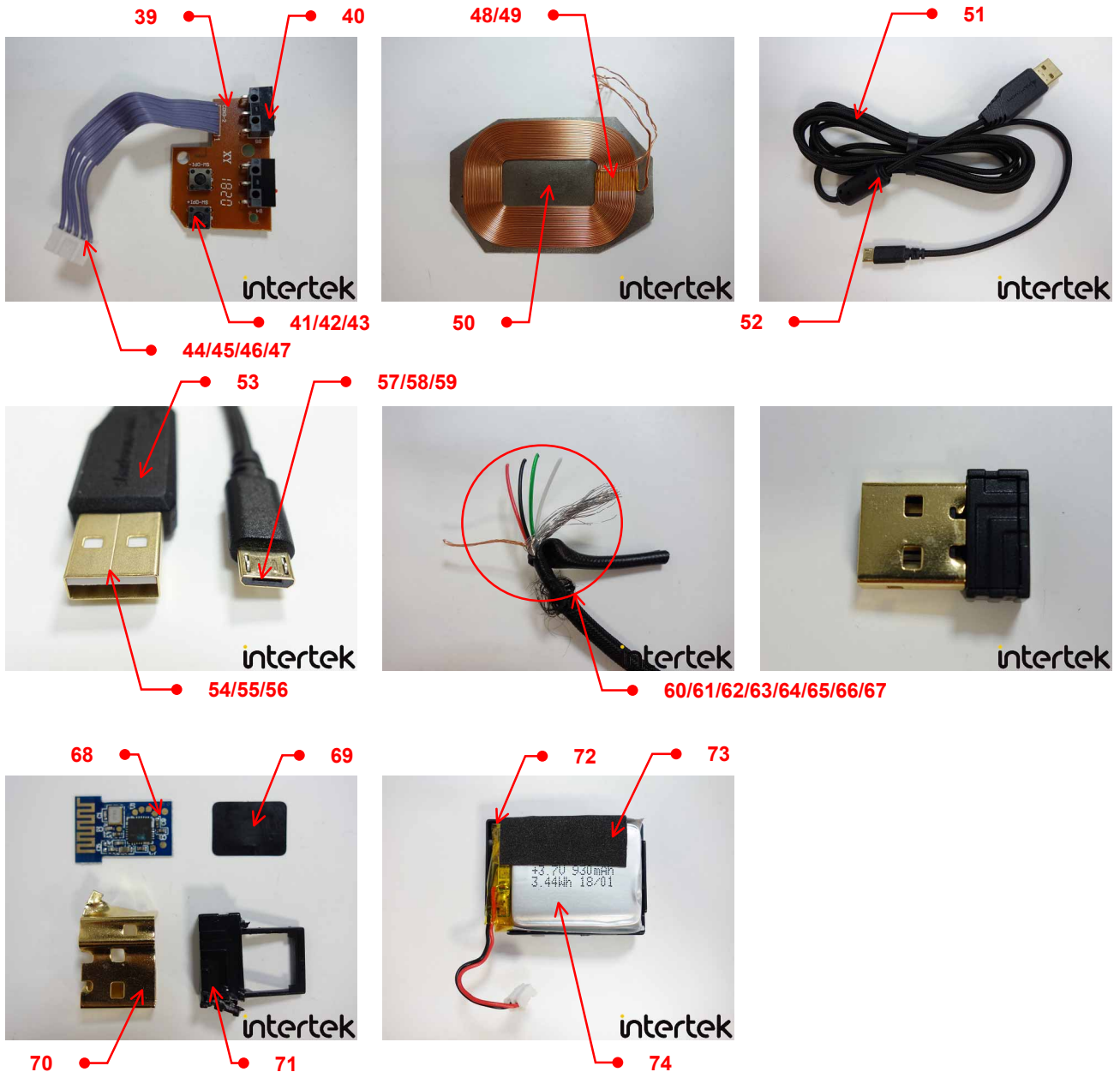
- Mark the chemical symbol for the metal concerned: Hg, Cd or Pb.  
以化學符號 Hg, Cd, Pb 進行標示
- The chemical symbol shall be printed beneath the separate symbol.  
化學符號必須標示在回收標示的下方
- The chemical symbol shall cover an area of at least one quarter the size of that separate symbol.  
化學符號所涵蓋的面積至少需達回收標示的 1/4 以上。



Sample photo 樣品照片 :



Sample photo 樣品照片 :



End of Report

Except where explicitly agreed in writing, all work and services performed by Intertek is subject to our standard Terms and Conditions which can be obtained at our website: <http://www.intertek-twn.com/terms/>. Intertek's responsibility and liability are limited to the terms and conditions of the agreement.

This report is made solely on the basis of your instructions and / or information and materials supplied by you and provide no warranty on the tested sample(s) be truly representative of the sample source. The report is not intended to be a recommendation for any particular course of action, you are responsible for acting as you see fit on the basis of the report results. Intertek is under no obligation to refer to or report upon any facts or circumstances which are outside the specific instructions received and accepts no responsibility to any parties whatsoever, following the issue of the report, for any matters arising outside the agreed scope of the works. This report does not discharge or release you from your legal obligations and duties to any other person. You are the only one authorized to permit copying or distribution of this report (and then only in its entirety). Any such third parties to whom this report may be circulated rely on the content of the report solely at their own risk.

