

TEST REPORT

Applicant: Flashbay Electronics
Address: Building2 ,Jixun Industrial Park ,Xinjiao ,Dong'ao Village ,Shatian Town ,Huiyang District ,Huizhou City , Guangdong Province,P.R.China

The following sample(s) was/were submitted and identified on behalf of the client as:

Sample name: USB Cable
Model: Motion/MT
Manufacturer & Factory: Flashbay Electronics
Address: Building2 ,Jixun Industrial Park ,Xinjiao ,Dong'ao Village ,Shatian Town ,Huiyang District ,Huizhou City , Guangdong Province,P.R.China

Sample No.: S241022030055
Sample Received Date: 2024-10-24
Testing Period: 2024-10-24~ 2024-12-04

Test Requirement:

As specified by client, to determine the Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium (Cr(VI)), Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers(PBDEs), Bis-(2-ethylhexyl) Phthalate (DEHP), Benzyl butyl Phthalate (BBP), Dibutyl Phthalate (DBP) and Diisobutyl Phthalate(DIBP)contents in the submitted sample(s) in accordance with RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Conclusion

Pass

Test Result(s): Please refer to the following page(s);

Test Method: Please refer to the following page(s);

Compiled by: Nina Car Reviewed by: Luetta Mo

Approved by: May Li Date: 2024-12-05

Sample Description:

No.	Sample name	Description
1	Shell	Transparent plastic shell
2		White label paper with glue
3		Transparent plastic
4		Silver metal
5		Silver metal screw
6	USB interface	White encapsulation
7		Silver metal shell
8		Black plastic
9		Metal plug pin
10	Type-C interface	White encapsulation
11		Silver metal shell
12		Black plastic
13		Metal plug pin
14		Green PCB
15		Tin solder
16	Adapter	White encapsulation
17		Silver metal shell of wire
18		Gray plastic of wire
19		Green PCB
20		Tin solder
21		Silver metal spring
22		Metal plug pin of contact switch
23		Silver metal shell of contact switch
24		White plastic of contact switch
25		Black plastic
26		Tin solder
27	Metal pin	
28	Wiring harness	Black casing tube
29		Red metal wire core
30		Green metal core of interface
31		Blue metal core of interface
32		Core of wire
33		Black plastic

Test Result(s):
Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium (Cr(VI)), Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers(PBDEs)

Part No.	Test Items	XRF Screening Result(mg/kg)	Chemical Test Result(mg/kg)	Conclusion	
1	Pb	BL	/	Pass	
	Cd	BL	/		
	Hg	BL	/		
	Cr	Cr(VI)	BL		/
	Br	PBBs	BL		/
		PBDEs			/
2	Pb	BL	/	Pass	
	Cd	BL	/		
	Hg	BL	/		
	Cr	Cr(VI)	BL		/
	Br	PBBs	BL		/
		PBDEs			/
3	Pb	BL	/	Pass	
	Cd	BL	/		
	Hg	BL	/		
	Cr	Cr(VI)	BL		/
	Br	PBBs	BL		/
		PBDEs			/
4	Pb	BL	/	Pass	
	Cd	BL	/		
	Hg	BL	/		
	Cr	Cr(VI)	IN		N.D.
	Br	PBBs	/		/
		PBDEs			/
5	Pb	BL	/	Pass	
	Cd	BL	/		
	Hg	BL	/		
	Cr	Cr(VI)	IN		N.D.
	Br	PBBs	/		/
		PBDEs			/
6	Pb	BL	/	Pass	
	Cd	BL	/		
	Hg	BL	/		
	Cr	Cr(VI)	BL		/
	Br	PBBs	BL		/
		PBDEs			/

7	Pb		BL	/	Pass
	Cd		BL	/	
	Hg		BL	/	
	Cr	Cr(VI)	BL	/	
	Br	PBBs	/	/	
		PBDEs		/	
8	Pb		BL	/	Pass
	Cd		BL	/	
	Hg		BL	/	
	Cr	Cr(VI)	BL	/	
	Br	PBBs	BL	/	
		PBDEs		/	
9	Pb		BL	/	Pass
	Cd		BL	/	
	Hg		BL	/	
	Cr	Cr(VI)	BL	/	
	Br	PBBs	/	/	
		PBDEs		/	
10	Pb		BL	/	Pass
	Cd		BL	/	
	Hg		BL	/	
	Cr	Cr(VI)	BL	/	
	Br	PBBs	BL	/	
		PBDEs		/	
11	Pb		BL	/	Pass
	Cd		BL	/	
	Hg		BL	/	
	Cr	Cr(VI)	IN	N.D.	
	Br	PBBs	/	/	
		PBDEs		/	
12	Pb		BL	/	Pass
	Cd		BL	/	
	Hg		BL	/	
	Cr	Cr(VI)	BL	/	
	Br	PBBs	BL	/	
		PBDEs		/	
13	Pb		BL	/	Pass
	Cd		BL	/	
	Hg		BL	/	
	Cr	Cr(VI)	BL	/	
	Br	PBBs	/	/	
		PBDEs		/	

14	Pb		BL	/	Pass
	Cd		BL	/	
	Hg		BL	/	
	Cr	Cr(VI)	BL	/	
	Br	PBBs	BL	/	
PBDEs		/			
15	Pb		BL	/	Pass
	Cd		BL	/	
	Hg		BL	/	
	Cr	Cr(VI)	BL	/	
	Br	PBBs	/	/	
PBDEs		/	/		
16	Pb		BL	/	Pass
	Cd		BL	/	
	Hg		BL	/	
	Cr	Cr(VI)	BL	/	
	Br	PBBs	BL	/	
PBDEs		/			
17	Pb		BL	/	Pass
	Cd		BL	/	
	Hg		BL	/	
	Cr	Cr(VI)	IN	N.D.	
	Br	PBBs	/	/	
PBDEs		/			
18	Pb		BL	/	Pass
	Cd		BL	/	
	Hg		BL	/	
	Cr	Cr(VI)	BL	/	
	Br	PBBs	BL	/	
PBDEs		/			
19	Pb		BL	/	Pass
	Cd		BL	/	
	Hg		BL	/	
	Cr	Cr(VI)	BL	/	
	Br	PBBs	/	/	
PBDEs		/			
20	Pb		BL	/	Pass
	Cd		BL	/	
	Hg		BL	/	
	Cr	Cr(VI)	IN	N.D.	
	Br	PBBs	/	/	
PBDEs		/			

21	Pb		BL	/	Pass
	Cd		BL	/	
	Hg		BL	/	
	Cr	Cr(VI)	BL	/	
	Br	PBBs	BL	/	
PBDEs		/			
22	Pb		BL	/	Pass
	Cd		BL	/	
	Hg		BL	/	
	Cr	Cr(VI)	BL	/	
	Br	PBBs	/	/	
PBDEs		/	/		
23	Pb		BL	/	Pass
	Cd		BL	/	
	Hg		BL	/	
	Cr	Cr(VI)	BL	/	
	Br	PBBs	/	/	
PBDEs		/	/		
24	Pb		BL	/	Pass
	Cd		BL	/	
	Hg		BL	/	
	Cr	Cr(VI)	BL	/	
	Br	PBBs	IN	N.D.	
PBDEs		N.D.			
25	Pb		BL	/	Pass
	Cd		BL	/	
	Hg		BL	/	
	Cr	Cr(VI)	BL	/	
	Br	PBBs	IN	N.D.	
PBDEs		N.D.			
26	Pb		OL	219	Pass
	Cd		BL	/	
	Hg		BL	/	
	Cr	Cr(VI)	BL	/	
	Br	PBBs	/	/	
PBDEs		/			
27	Pb		BL	/	Pass
	Cd		BL	/	
	Hg		BL	/	
	Cr	Cr(VI)	BL	/	
	Br	PBBs	BL	/	
PBDEs		/			

28	Pb		BL	/	Pass
	Cd		BL	/	
	Hg		BL	/	
	Cr	Cr(VI)	BL	/	
	Br	PBBs	BL	/	
		PBDEs		/	
29	Pb		BL	/	Pass
	Cd		BL	/	
	Hg		BL	/	
	Cr	Cr(VI)	BL	/	
	Br	PBBs	/	/	
		PBDEs	/	/	
30	Pb		BL	/	Pass
	Cd		BL	/	
	Hg		BL	/	
	Cr	Cr(VI)	BL	/	
	Br	PBBs	/	/	
		PBDEs	/	/	
31	Pb		BL	/	Pass
	Cd		BL	/	
	Hg		BL	/	
	Cr	Cr(VI)	BL	/	
	Br	PBBs	/	/	
		PBDEs	/	/	
32	Pb		BL	/	Pass
	Cd		BL	/	
	Hg		BL	/	
	Cr	Cr(VI)	BL	/	
	Br	PBBs	/	/	
		PBDEs	/	/	
33	Pb		BL	/	Pass
	Cd		BL	/	
	Hg		BL	/	
	Cr	Cr(VI)	BL	/	
	Br	PBBs	BL	/	
		PBDEs		/	

Bis-(2-ethylhexyl) Phthalate (DEHP), Benzyl butyl Phthalate (BBP), Dibutyl Phthalate (DBP) and Diisobutyl Phthalate(DIBP)

Test Items	Result(mg/kg)			
	1+3+8+12	2	6+10+16	14+25
Bis-(2-ethylhexyl) Phthalate (DEHP)	N.D.	N.D.	N.D.	N.D.
Benzyl butyl Phthalate (BBP)	N.D.	N.D.	N.D.	N.D.
Dibutyl Phthalate (DBP)	N.D.	N.D.	N.D.	N.D.
Diisobutyl Phthalate(DIBP)	N.D.	N.D.	N.D.	N.D.
Conclusion	Pass	Pass	Pass	Pass

Test Items	Result(mg/kg)			
	18+21	24	28	33
Bis-(2-ethylhexyl) Phthalate (DEHP)	N.D.	N.D.	N.D.	N.D.
Benzyl butyl Phthalate (BBP)	N.D.	N.D.	N.D.	N.D.
Dibutyl Phthalate (DBP)	N.D.	N.D.	N.D.	N.D.
Diisobutyl Phthalate(DIBP)	N.D.	N.D.	N.D.	N.D.
Conclusion	Pass	Pass	Pass	Pass

- Note:
1. N.D. = Not Detected (<MDL)
MDL = Method Detection Limit
1 mg/kg = 1 ppm = 0.0001%
/=Not Regulated or Not Applicable
 2. BL = Below the XRF screening limit
IN = Further chemical test will be conducted when the screening result inconclusive
OL = Further chemical test will be conducted while the result is above the screening limit.
 3. For metal samples, the sample is negative for Cr(VI), if the Cr(VI) concentration is less than 0.10 $\mu\text{g}/\text{cm}^2$, the coating is considered a non- Cr(VI) based coating;
The sample is positive for Cr(VI), if the Cr(VI) concentration is greater than 0.13 $\mu\text{g}/\text{cm}^2$,
The sample coating is considered to contain Cr(VI);
The result is considered to be inconclusive, the Cr(VI) concentration is between the 0.10 $\mu\text{g}/\text{cm}^2$ and 0.13 $\mu\text{g}/\text{cm}^2$, unavoidable coating variations may influence the determination.
Because the storage condition and production date of the sample are not known, the test results of the sample of hexavalent chromium can only represent the state of hexavalent chromium in the samples tested.
- Remark:
1. When conducting the test for PBBs&PBDEs, XRF was introduced to screen Br Exclusively; When conducting the test for Hexavalent Chromium, XRF was introduced to screen Chromium exclusively.

Test Method:

1. With reference to IEC 62321-1: 2013 Ed.1.0, IEC 62321-2:2021 Ed.2.0, IEC 62321-3-1:2013 Ed.1.0. XRF screening limits in mg/kg for regulated elements in various matrices.

Element	Limit of IEC 62321-3-1:2013 Ed.1.0 (mg/kg)		
	Polymers	Metals	Composite material
Pb	$BL \leq (700-3\sigma) < X$ $< (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X$ $< (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X$ $< (1500+3\sigma) \leq OL$
Cd	$BL \leq (70-3\sigma) < X <$ $(130+3\sigma) \leq OL$	$BL \leq (70-3\sigma) < X <$ $(130+3\sigma) \leq OL$	$LOD < X < (150+3\sigma)$ $\leq OL$
Hg	$BL \leq (700-3\sigma) < X$ $< (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X$ $< (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X$ $< (1500+3\sigma) \leq OL$
Cr	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X$	$BL \leq (500-3\sigma) < X$
Br	$BL \leq (300-3\sigma) < X$	/	$BL \leq (250-3\sigma) < X$

Note: BL= Below the XRF screening limit
 OL=Over the XRF screening limit
 X=The symbol "X" marks the region where further investigation is necessary.
 3σ =The reproducibility of analytical instruments
 LOD= Detection limit

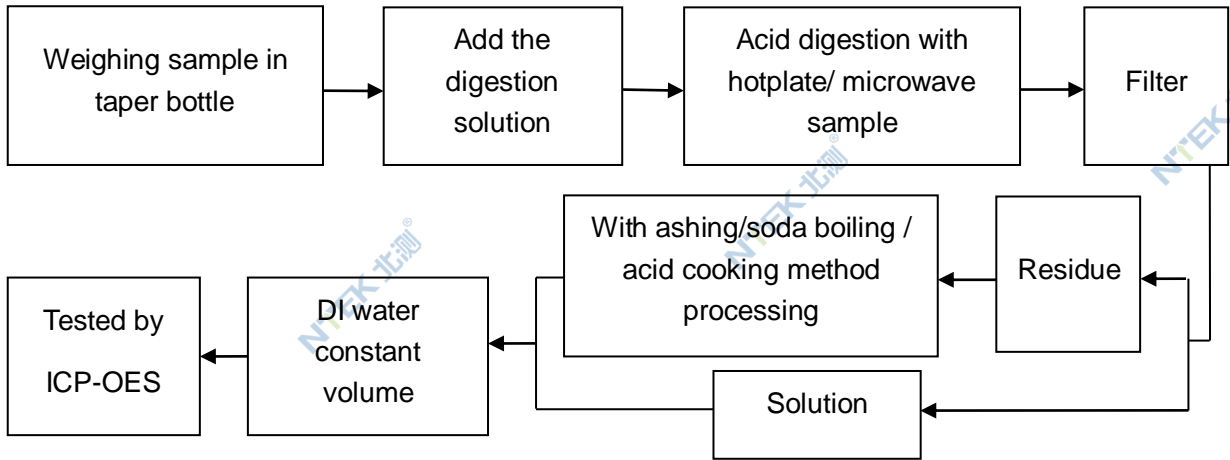
2. Chemical Test

Test item	Test method	Test instrument	MDL	Limit [△]
Lead (Pb)	IEC 62321-5:2013 Ed.1.0	ICP-OES	2 mg/kg	1000 mg/kg
Cadmium (Cd)	IEC 62321-5:2013 Ed.1.0	ICP-OES	2 mg/kg	100 mg/kg
Mercury (Hg)	IEC 62321-4:2013+AMD1:2017	ICP-OES	2 mg/kg	1000 mg/kg
Hexavalent Chromium(Cr(VI))	IEC 62321-7-1:2015 Ed.1.0	UV-Vis	0.10 µg/cm ²	1000 mg/kg
	IEC 62321-7-2:2017 Ed.1.0		8 mg/kg	
Polybrominated Biphenyls(PBBs)	IEC 62321-6:2015 Ed.1.0	GC-MS	5 mg/kg	1000 mg/kg
Polybrominated, Diphenyl Ethers(PBDEs)	IEC 62321-6:2015 Ed.1.0	GC-MS	5 mg/kg	1000 mg/kg
Bis-(2-ethylhexyl) Phthalate (DEHP)	IEC 62321-8:2017 Ed.1.0	GC-MS	30 mg/kg	1000 mg/kg
Benzyl butyl Phthalate (BBP)	IEC 62321-8:2017 Ed.1.0	GC-MS	30 mg/kg	1000 mg/kg
Dibutyl Phthalate (DBP)	IEC 62321-8:2017 Ed.1.0	GC-MS	30 mg/kg	1000 mg/kg
Diisobutyl Phthalate (DIBP)	IEC 62321-8:2017 Ed.1.0	GC-MS	30 mg/kg	1000 mg/kg

[△]The limit is quoted from RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

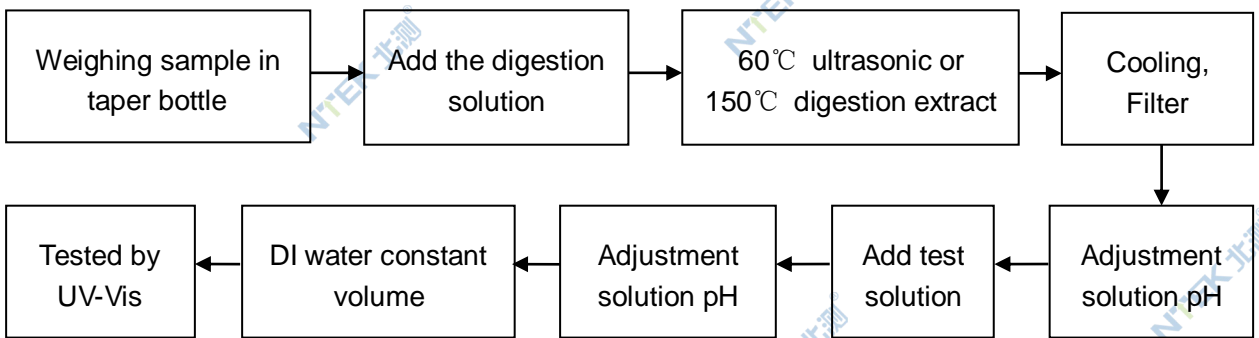
Test Flow:

1. Lead(Pb), Cadmium(Cd) , Mercury (Hg)

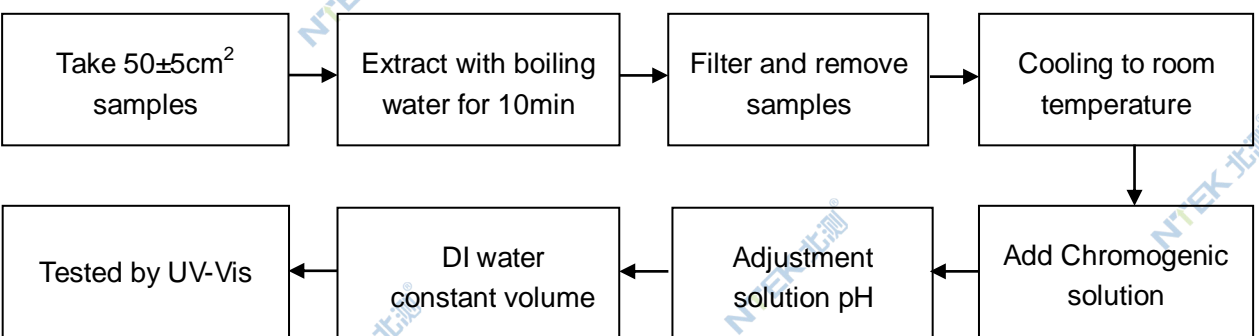


2. Hexavalent Chromium(Cr(VI))

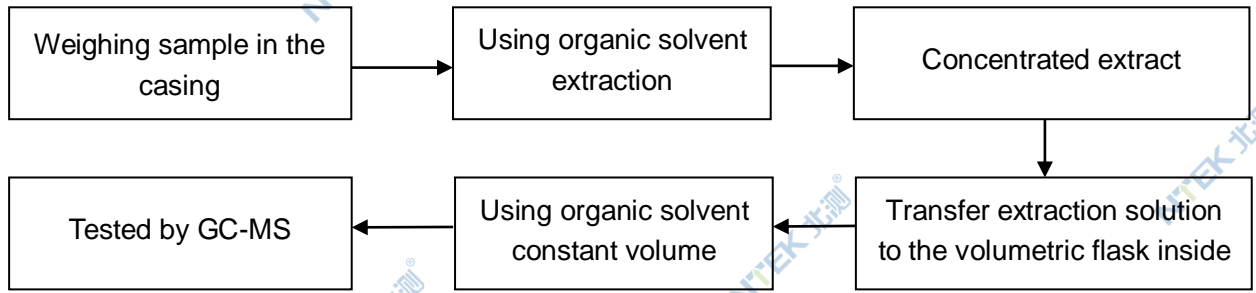
2.1 Non- metal sample(s)



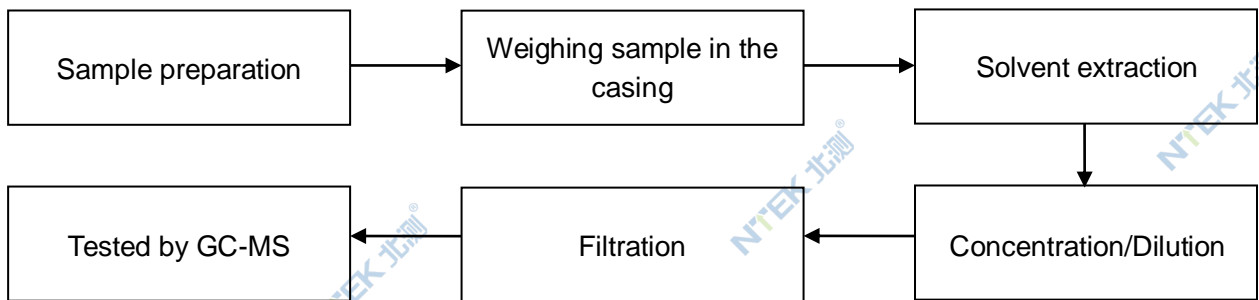
2.2 Metal sample(s)



3. PBBs/ PBDEs



4. Phthalates



Sample photo(s):



Fig.1(Finished Photo)

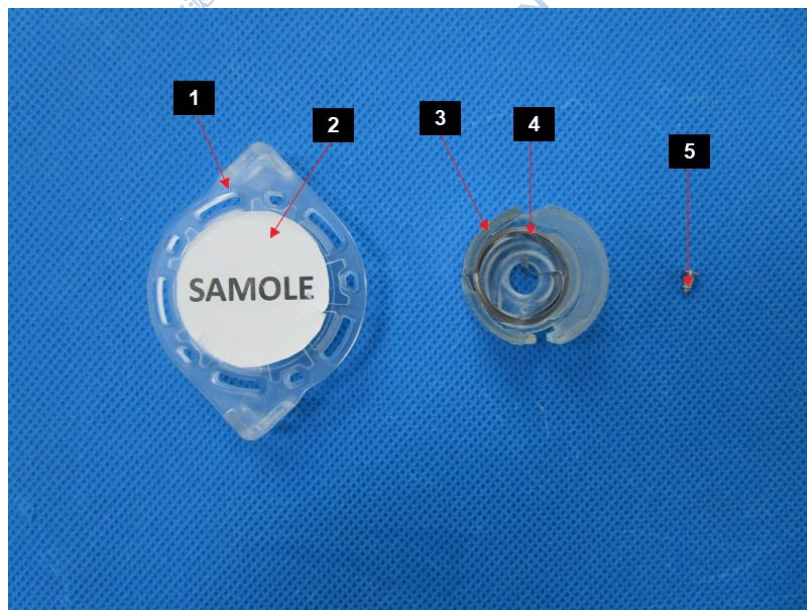


Fig.2

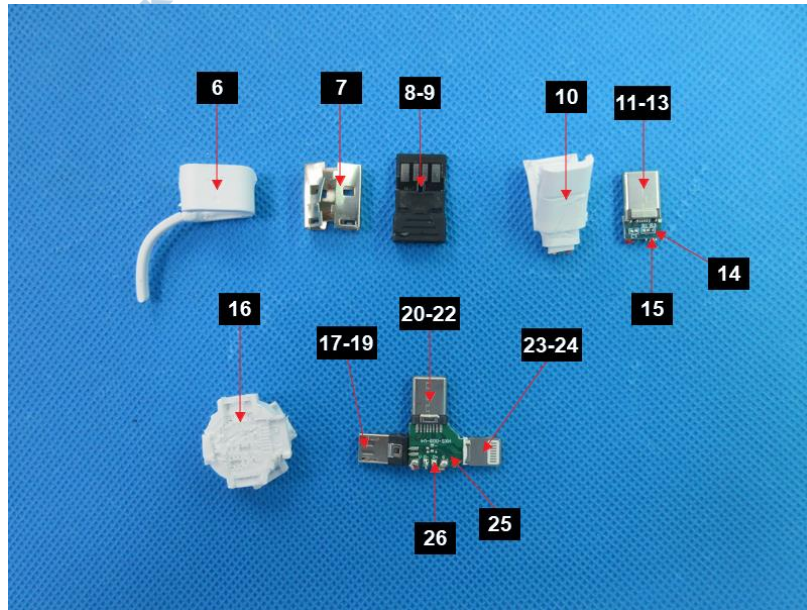


Fig.3

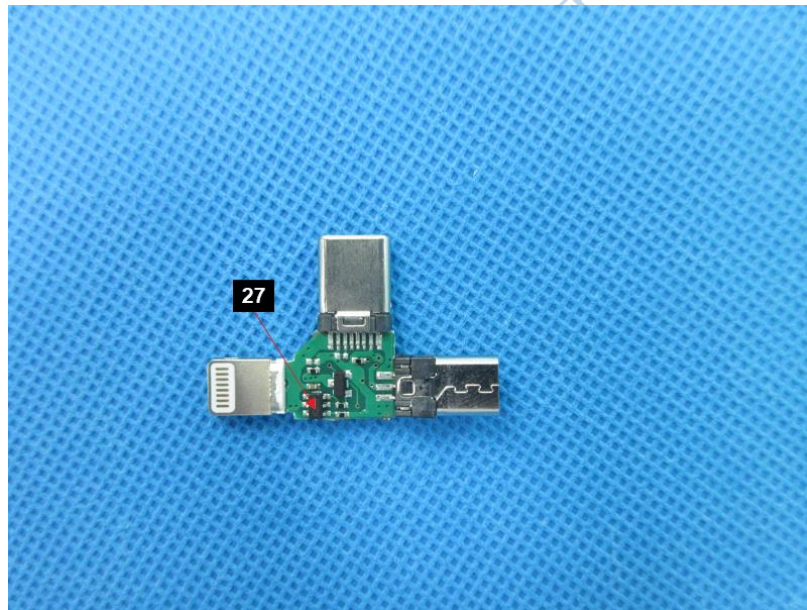


Fig.4

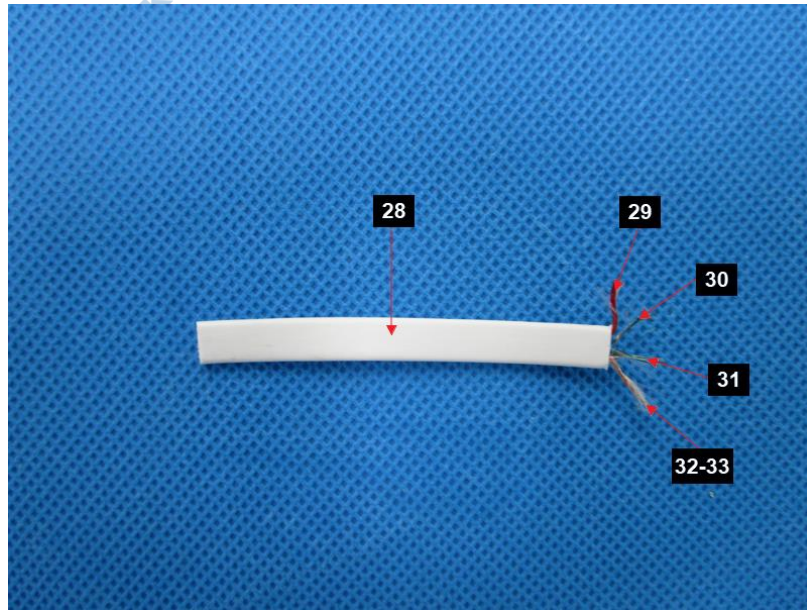


Fig.5

****End of Report****

The test results or data in this report will be used only for education, scientific research, enterprise product development and internal quality control or other purposes.

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