TEST REPORT

Report No.:	BCTC2206295422R
Applicant:	Ningbo Jiangbei Runleader Electronics Co., Ltd.
Product Name:	Battery indicator & Hour meter
Product Type:	RL-HM027BT
Tested Date:	2022-06-21 to 2022-06-27
Issued Date:	2022-07-14

Shenzhen BCTC Testing Co., Ltd.

Product Name	Battery indicator & Hour meter
Product Type	RL-HM027BT
Additional Type	RL-HM032BT, RL-HM058BT, RL-HM068BT, RL-HM086BT, RL-HM088BT, RL-HM098BT, RL-HM210BT, RL-HM400BT, RL-HM410BT, RL-HM420BT, RL-HM430BT, RL-SM002BT, RL-SM005BT, RL-BI025A-BT, RL-BI025B-BT, RL-BI609BT, RL-BI032BT, RL-BI036BT, RL-BI620BT etc
Applicant	Ningbo Jiangbei Runleader Electronics Co., Ltd.
Address	1-2, Sixth Xinheng Road, Cicheng, Jiangbei District, Ningbo City, Zhejiang Province
Manufacturer	Ningbo Jiangbei Runleader Electronics Co., Ltd.
Address	1-2, Sixth Xinheng Road, Cicheng, Jiangbei District, Ningbo City, Zhejiang Province
Trademark	Runleader®
Sample Received Date	2022-06-21
Test Type	Entrustment Test
Test Method	See page 3 for details.
Test Requested	1. As specified by client, to screen Lead(Pb), Cadmium(Cd), Mercury(Hg), Chromium(Cr) and Bromine(Br) in the submitted sample(s) by XRF. 2. As specified by client, when screening results exceed the XRF screening limit in IEC 62321-3-1:2013, further use of chemical methods are required to test the Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers(PBDEs) in the submitted samples. 3. As specified by client, to test the Diisobutyl phthalate(DIBP), Dibutyl phthalate(DBP), Butyl benzyl phthalate(BBP), Bis(2-ethylhexyl) phthalate(DEHP) in the submitted sample(s).
Test Standard	RoHS Directive 2011/65/EU and amendment Commission Delegated Directive (EU) 2015/863
Test Result	The samples were tested according to the entrusted requirements and test standard, and the test items of the test samples were qualified.

Prepared by: Rose

Rose

Approved by: Saher Chen

Saher Chen

Test Method:

A. Screening test by XRF spectroscopy

XRF screening limits in mg/kg for regulated elements according to IEC 62321-3-1:2013.

Element	Screening limits of IEC 62321-3-1:2013 Unit (mg/kg)		MDL	
	Polymers and metals	Composite material	Polymers	Other material
Pb	BL≤(700-3σ)<X<(1300+3σ)≤OL	BL≤(500-3σ)<X<(1500+3σ)≤OL	10 mg/kg	50 mg/kg
Cd	BL≤(70-3σ)<X<(130+3σ)≤OL	LOD<X<(150+3σ)≤OL	10 mg/kg	50 mg/kg
Hg	BL≤(700-3σ)<X<(1300+3σ)≤OL	BL≤(500-3σ)<X<(1500+3σ)≤OL	10 mg/kg	50 mg/kg
Cr	BL≤(700-3σ)<X	BL≤(500-3σ)<X	10 mg/kg	50 mg/kg
Br	BL≤(300-3σ)<X	BL≤(250-3σ)<X	10 mg/kg	50 mg/kg

Note:

-BL = Under the XRF screening limit

-OL = Further chemical test will be conducted while result is above the screening limit

-X= The symbol “X” marks the region where further investigation is necessary

-3σ= The reproducibility of analytical instruments

-LOD= Detection limit

-“--” = Not regulated.

B. Chemical Test

Test Item(s)	Test Method	Measured Equipment(s)	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	--	1000 mg/kg
	IEC 62321-7-2:2017 Ed.1.0		8 mg/kg	1000 mg/kg
Polybrominated Biphenyls (PBBs)	IEC 62321-6:2015 Ed.1.0	HPLC-UV	5 mg/kg	1000 mg/kg
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015 Ed.1.0	HPLC-UV	5 mg/kg	1000 mg/kg
Phthalates	IEC 62321-8:2017 Ed.1.0	GC-MS	50 mg/kg	1000 mg/kg

Test Result(s):

Sample No.	Sample Description	Tested Items	XRF Screening Test Unit (mg/kg)	Chemical Test Unit (mg/kg)	Conclusion
1	Black plastic	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI))	BL	/	
		Br(PBBs&PBDEs)	BL	/	
2	Transparent plastic	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI))	BL	/	
		Br(PBBs&PBDEs)	BL	/	
3	Red rubber	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI))	BL	/	
		Br(PBBs&PBDEs)	BL	/	
4	Blue sticker	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI))	BL	/	
		Br(PBBs&PBDEs)	BL	/	
5	Black wire jacket	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI))	BL	/	
		Br(PBBs&PBDEs)	BL	/	
6	White plastic (terminal)	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI))	BL	/	
		Br(PBBs&PBDEs)	BL	/	
7	Black PCB	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI))	BL	/	
		Br(PBBs&PBDEs)	10228	N.D.	

8	Tin solder	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI))	BL	/	
		Br(PBBs&PBDEs)	/	/	
9	Brown plastic	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI))	BL	/	
		Br(PBBs&PBDEs)	BL	/	
10	Gold metal contact sheet	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI))	BL	/	
		Br(PBBs&PBDEs)	/	/	
11	Display glass	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI))	BL	/	
		Br(PBBs&PBDEs)	BL	/	
12	Blue PCB	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI))	BL	/	
		Br(PBBs&PBDEs)	3119	N.D.	
13	Crystal	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI))	BL	/	
		Br(PBBs&PBDEs)	/	/	
14	Black plastic (button)	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI))	BL	/	
		Br(PBBs&PBDEs)	618	N.D.	
15	Silver metal	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(VI))	BL	/	
		Br(PBBs&PBDEs)	/	/	

Tested Item(s)	Results Unit (mg/kg)					
	1	2	3	4	5	6
Diisobutyl phthalate(DIBP) CAS #:84-69-5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Dibutyl phthalate(DBP) CAS #:84-74-2	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Butyl benzyl phthalate(BBP) CAS #:85-68-7	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Bis(2-ethylhexyl) phthalate(DEHP) CAS #:117-81-7	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.

Tested Item(s)	Results Unit (mg/kg)				
	7	9	11	12	14
Diisobutyl phthalate(DIBP) CAS #:84-69-5	N.D.	N.D.	N.D.	N.D.	N.D.
Dibutyl phthalate(DBP) CAS #:84-74-2	N.D.	N.D.	N.D.	N.D.	N.D.
Butyl benzyl phthalate(BBP) CAS #:85-68-7	N.D.	N.D.	N.D.	N.D.	N.D.
Bis(2-ethylhexyl) phthalate(DEHP) CAS #:117-81-7	N.D.	N.D.	N.D.	N.D.	N.D.

Note:

-MDL = Method Detection Limit

-N.D. = Not Detected (<MDL)

-mg/kg = ppm = parts per million

-" / "= Not conducted.

-Negative = Absence of Cr(VI), the detected Cr(VI) concentration in the boiling water extraction solution is less than 0.1μg/cm^2 with 50cm^2 sample surface area used.

-Positive = Presence of Cr(VI), the detected Cr(VI) concentration in the boiling water extraction solution is equal to or greater than 0.13μg/cm^2 with 50cm^2 sample surface area used.

Remark:

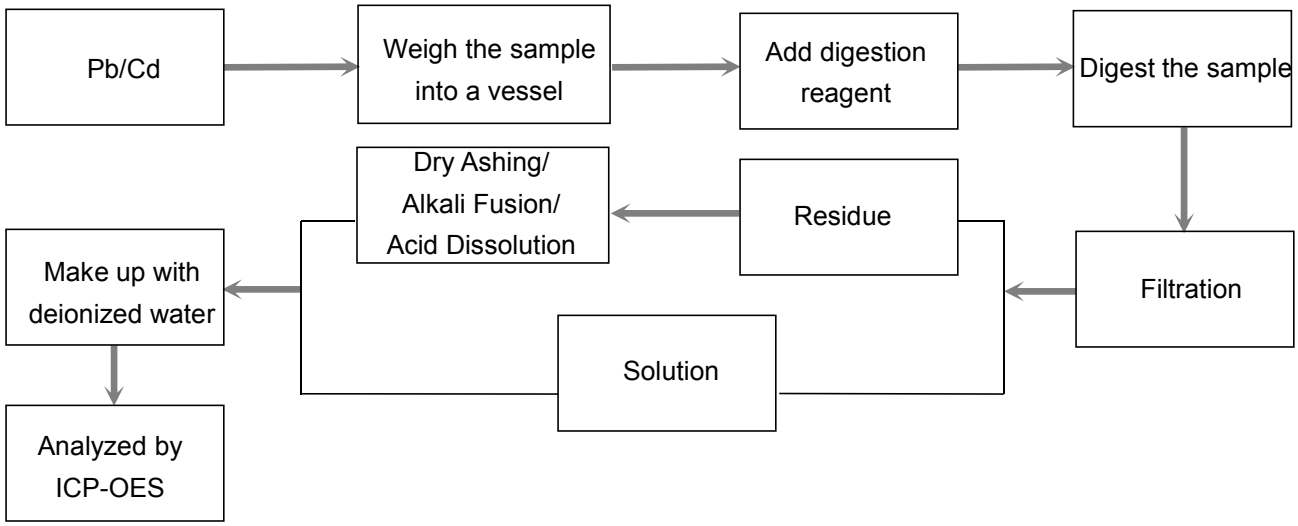
-The screening results are only used for reference.

-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.

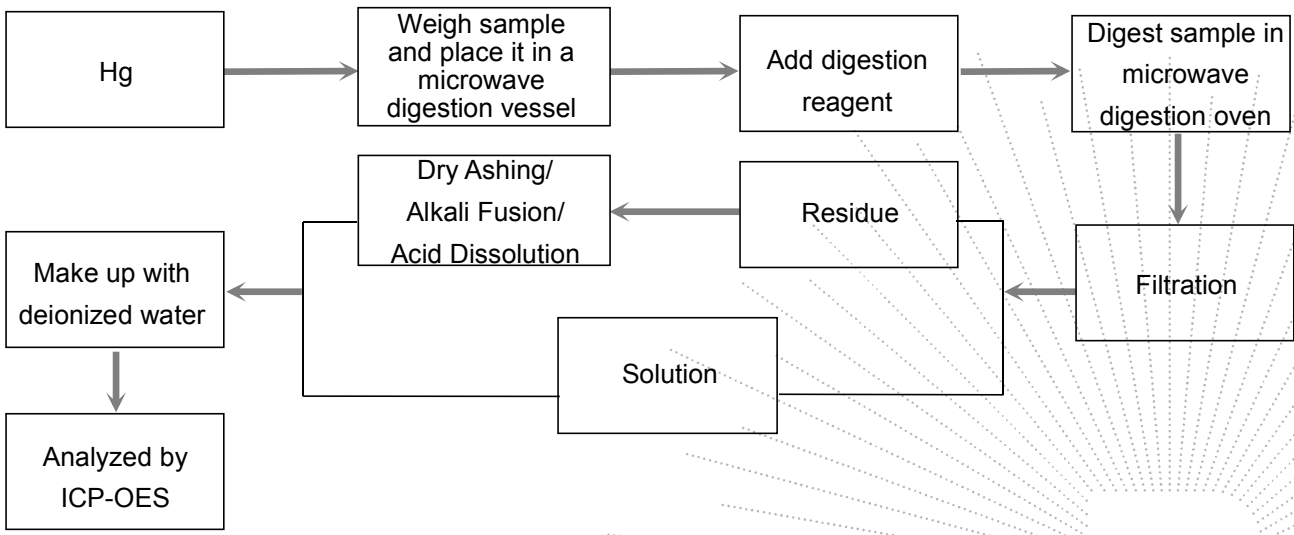
Test Process:

The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury.

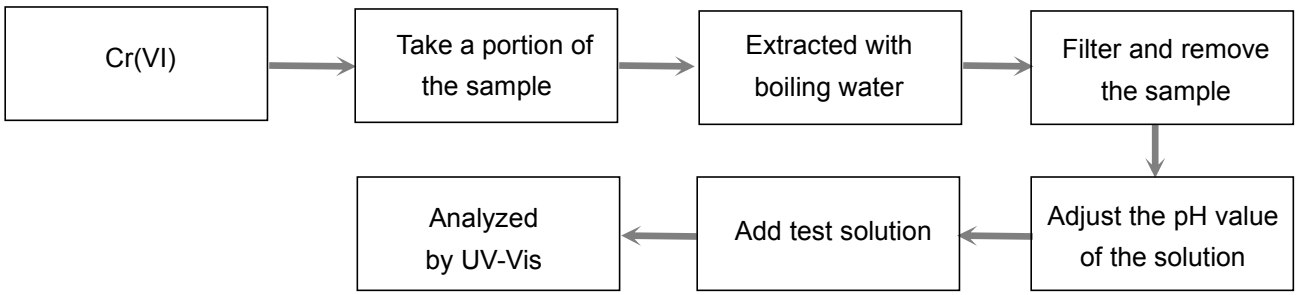
◆IEC 62321-5:2013 Ed.1.0



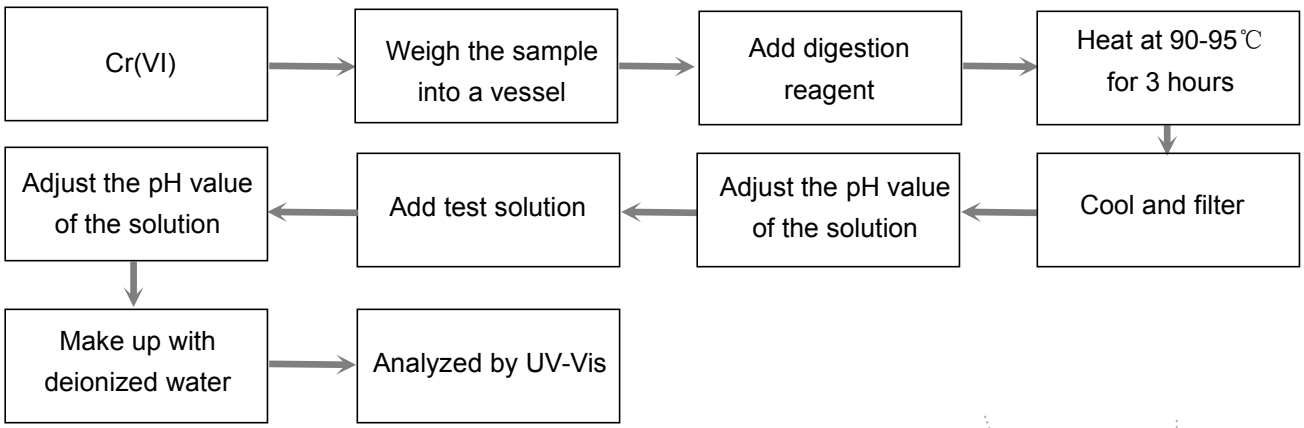
◆IEC 62321-4:2013+AMD1:2017



◆IEC 62321-7-1:2015 Ed.1.0



◆IEC 62321-7-2:2017 Ed.1.0



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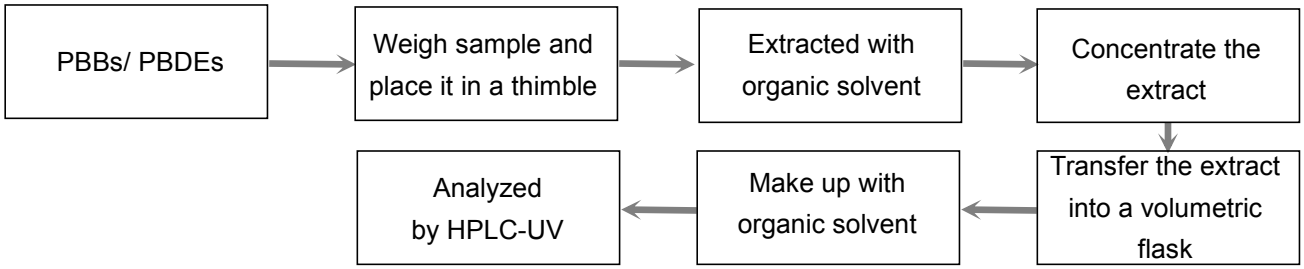
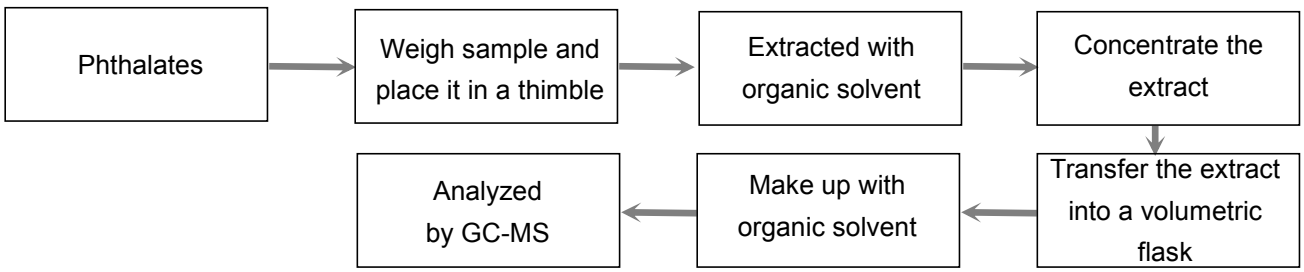


◆IEC 62321-8:2017 Ed.1.0



Photograph of Sample



Fig.1



Fig.2

Photo(s) of the tested component(s)

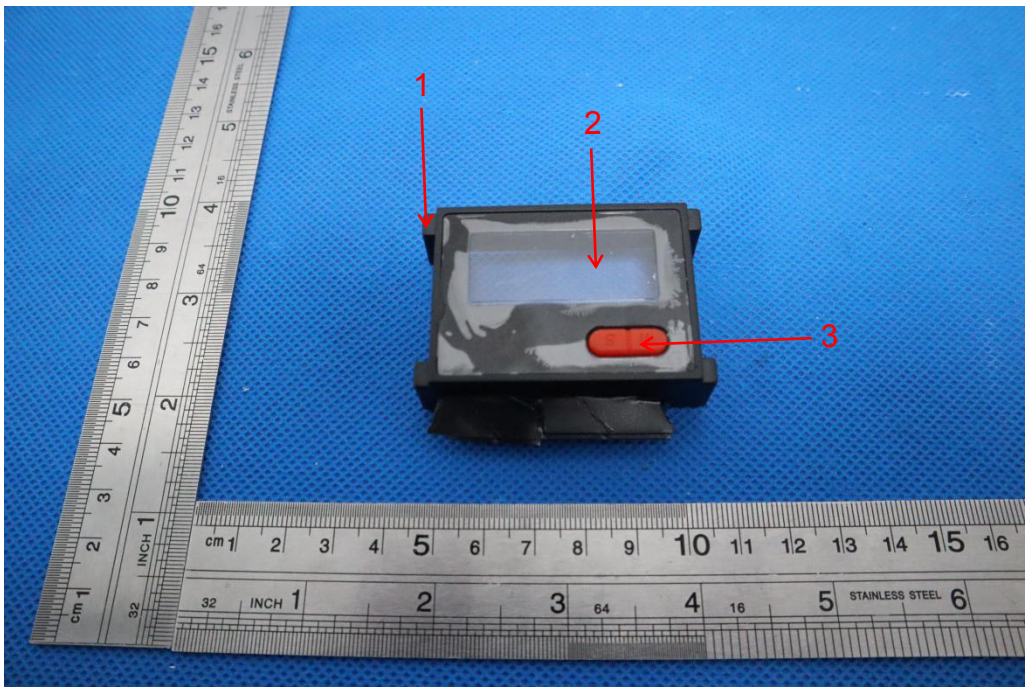


Fig.3

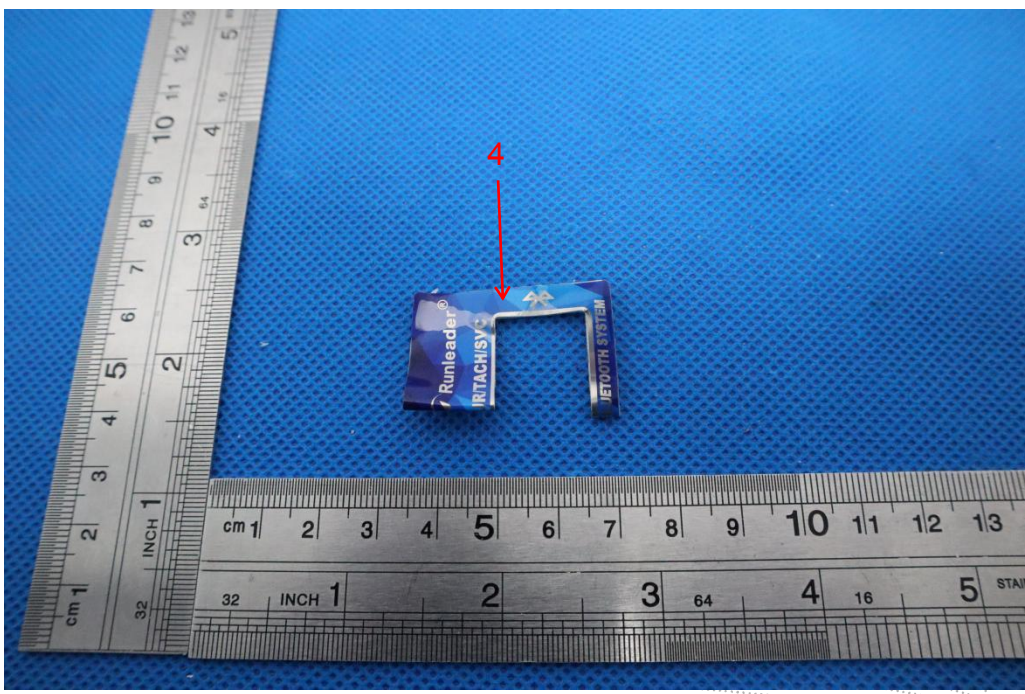


Fig.4

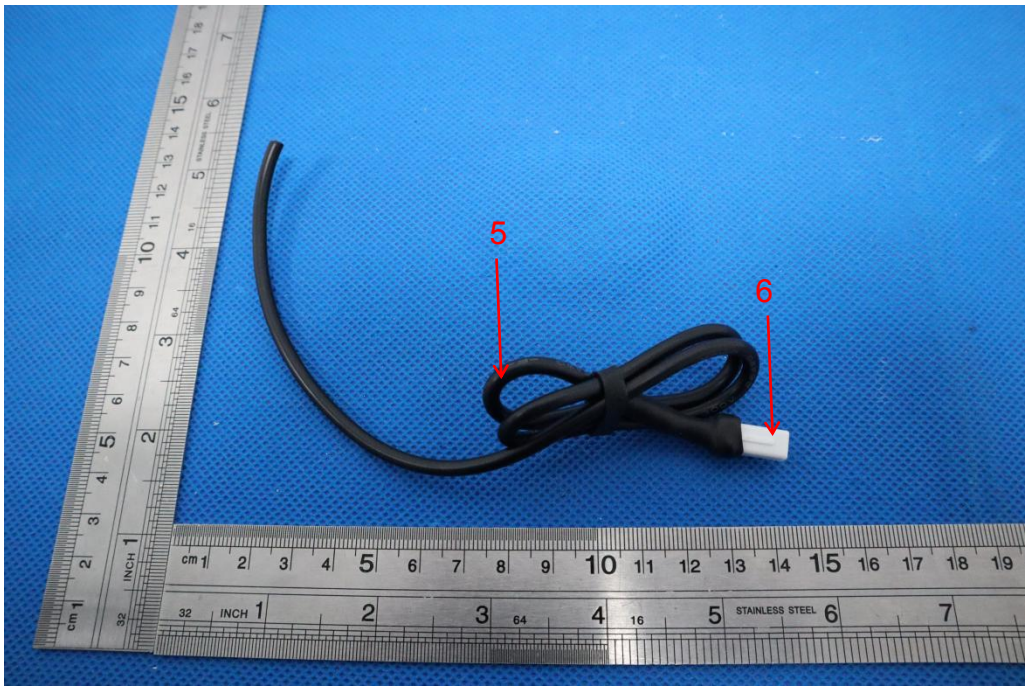


Fig.5

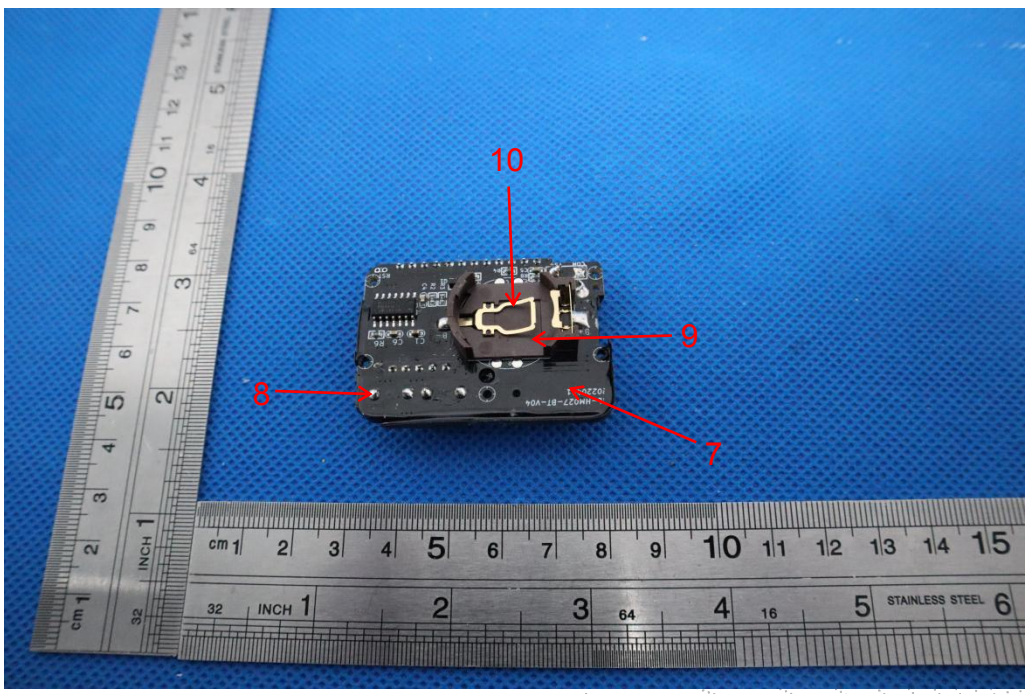


Fig.6

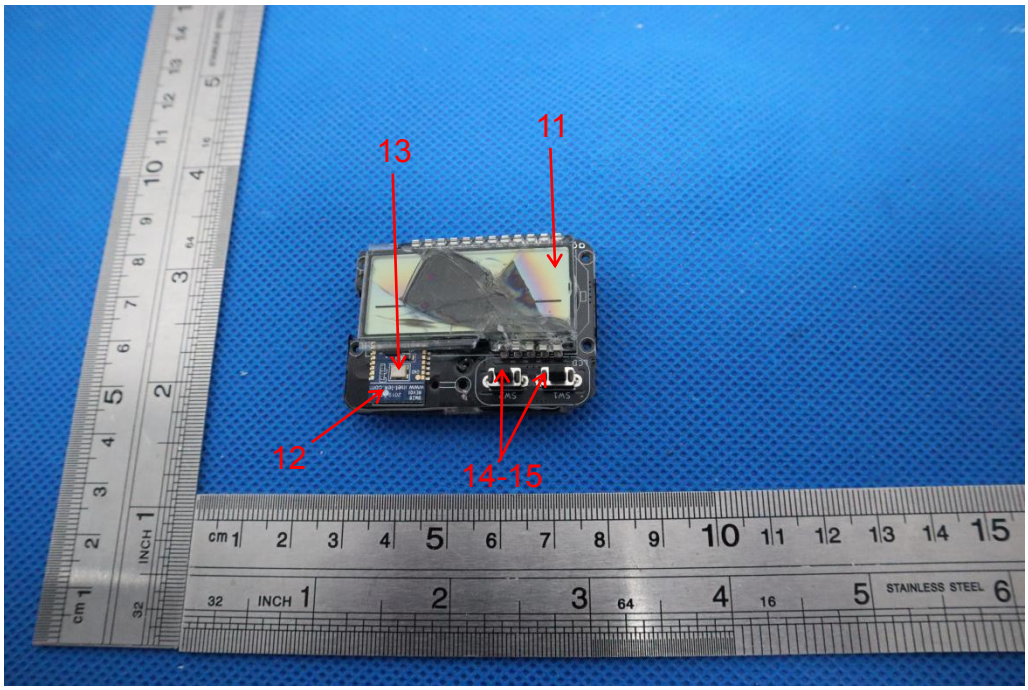


Fig.7

STATEMENT

1. The equipment lists are traceable to the national reference standards.

2. The test report can not be partially copied unless prior written approval is issued from our lab.

3. The test report is invalid without stamp of laboratory.

4. The test report is invalid without signature of person(s) testing and authorizing.

5. The test process and test result is only related to the Unit Under Test.

6. The quality system of our laboratory is in accordance with ISO/IEC17025.

7. If there is any objection to report, the client should inform issuing laboratory within 15 days from the date of receiving test report.

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