TEST REPORT

Applicant: ShenZhen Doctors of Intelligence & Technology Co.,Ltd.
Address: 4F, Building 2, Science & Technology Industrial Park, Pingshan Xili, Nanshan District, Shenzhen

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

Product name:	ESP-F WiFi Module
Model:	ESP-F, ESP
Trade mark:	DOIT.AM
Sample Received Date:	Apr. 14, 2017
Testing Period	Apr. 14, 2017~ Apr. 21, 2017

Test Requirement:

As specified by client, to screen Lead(Pb), Cadmium(Cd), Mercury(Hg), Chromium(Cr) and Bromine(Br) in the submitted sample(s) by XRF. When screening results exceed the XRF screening limit in IEC62321-3-1: 2013, further use of chemical methods are required to test the Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls(PBBs) and Polybrominated Diphenyl Ethers(PBDEs) in the submitted samples in accordance with ROHS 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);

Tested by: _____ Reviewed by: _____

Approved by: _____ Date: 2017-04-22

Shenzhen NTEK Testing Technology Co., Ltd.
Address: 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao' an District, Shenzhen 518126 P.R.China
Tel: +86-755-6115 6588 Fax: +86-755-6115 6599 http://www.ntek.org.cn

Test Result(s):

Sample No.	Sample Description	Tested Items	XRF Screening Test	Chemical Test (mg/kg)	Conclusion
1	IC metal protective shell	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(Ⅵ))	BL	/	
		Br(PBBs&PBDEs)	/	/	
2	White lettering of IC metal protective shell	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(Ⅵ))	BL	/	
		Br(PBBs&PBDEs)	BL	/	
3	PCB	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(Ⅵ))	BL	/	
		Br(PBBs&PBDEs)	IN	N.D.	
4	Chip 1	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(Ⅵ))	BL	/	
		Br(PBBs&PBDEs)	BL	/	
5	Chip 2	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(Ⅵ))	BL	/	
		Br(PBBs&PBDEs)	BL	/	
6	SMD resistor	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(Ⅵ))	BL	/	
		Br(PBBs&PBDEs)	BL	/	
7	SMD capacitor	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(Ⅵ))	BL	/	
		Br(PBBs&PBDEs)	BL	/	

8	LED light of SMD	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(Ⅵ))	BL	/	
		Br(PBBs&PBDEs)	BL	/	
9	Metal crystal oscillator	Pb	BL	/	PASS
		Cd	BL	/	
		Hg	BL	/	
		Cr(Cr(Ⅵ))	BL	/	
		Br(PBBs&PBDEs)	/	/	

Note: -N.D. = Not Detected (<MDL)
-MDL = Method Detection Limit
-mg/kg = ppm = parts per million
-/=Not Regulated or Not Applicable
-BL = Under 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.
-Negative = Absence of Cr(VI) , the detected Cr(VI) concentration in the boiling water extraction solution is less than 0.10 μg/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 0.13 μg/cm^2 with 50cm^2 sample surface area used.

Remark: 1.The screening results are only used for reference.
2.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.Screening test by XRF spectroscopy

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

Element	Limit 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

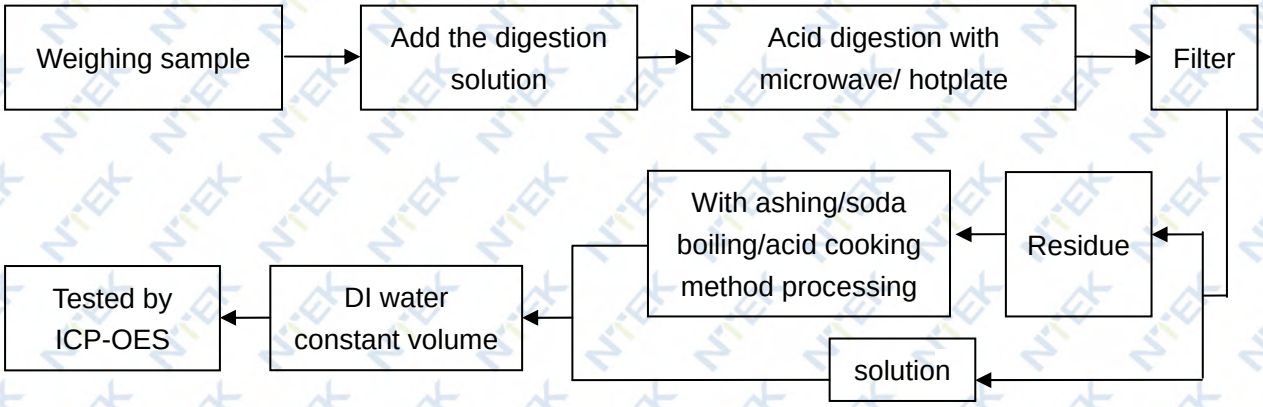
-LOD= Detection limit

2.Chemical Test

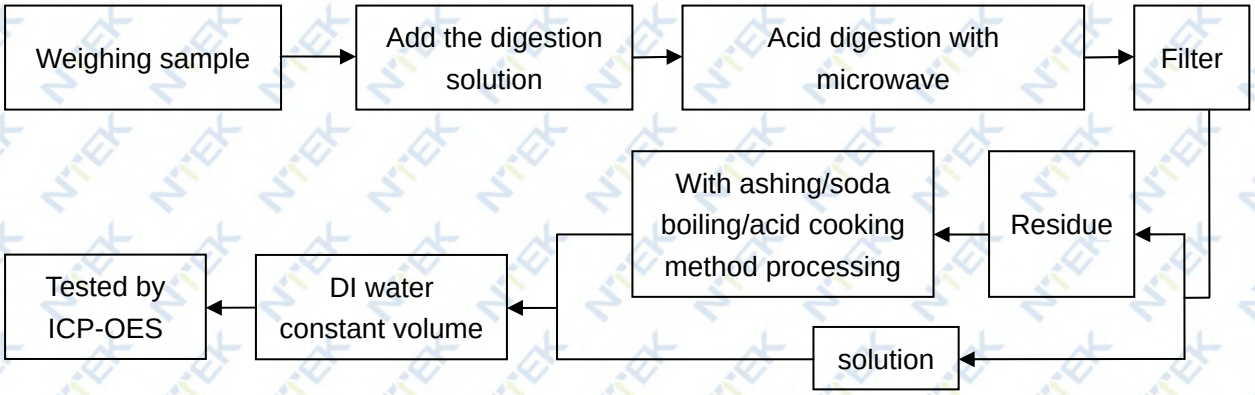
Test item	Pretreatment method	Test instrument	MDL	Limit
Lead(Pb)	IEC 62321-5:2013 Ed.1.0	ICP-OES	2 mg/kg	1000 mg/kg
Cadmium(Cd)	IEC 62321-5:2013 Ed.1.0	ICP-OES	2 mg/kg	100 mg/kg
Mercury(Hg)	IEC 62321-4:2013 Ed.1.0	ICP-OES	2 mg/kg	1000 mg/kg
Chromium VI (Cr VI)	IEC 62321:2008 Ed.1.0 & IEC 62321-7-1:2015 Ed.1.0	UV-Vis	2 mg/kg	1000 mg/kg
PBBs/ PBDEs	IEC 62321-6:2015 Ed.1.0	GC-MS	5 mg/kg	1000 mg/kg

Test Flow:

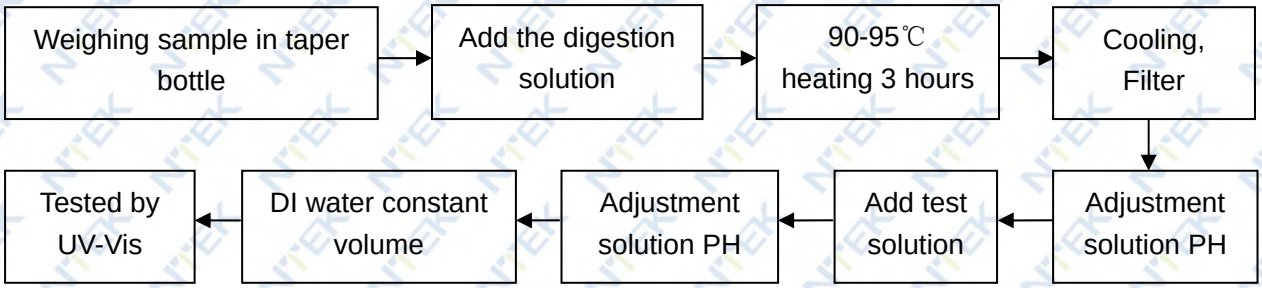
1. Lead(Pb), Cadmium(Cd)



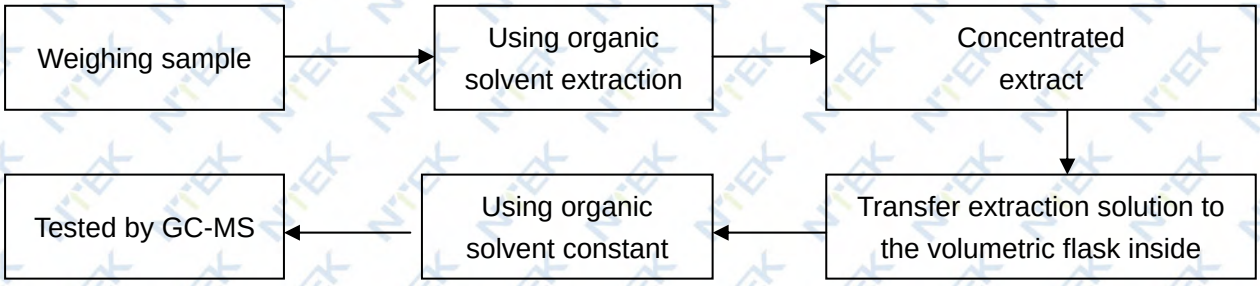
2. Mercury (Hg)



3. Chromium VI (Cr VI)



4. PBBs/ PBDEs



Sample photo(s):

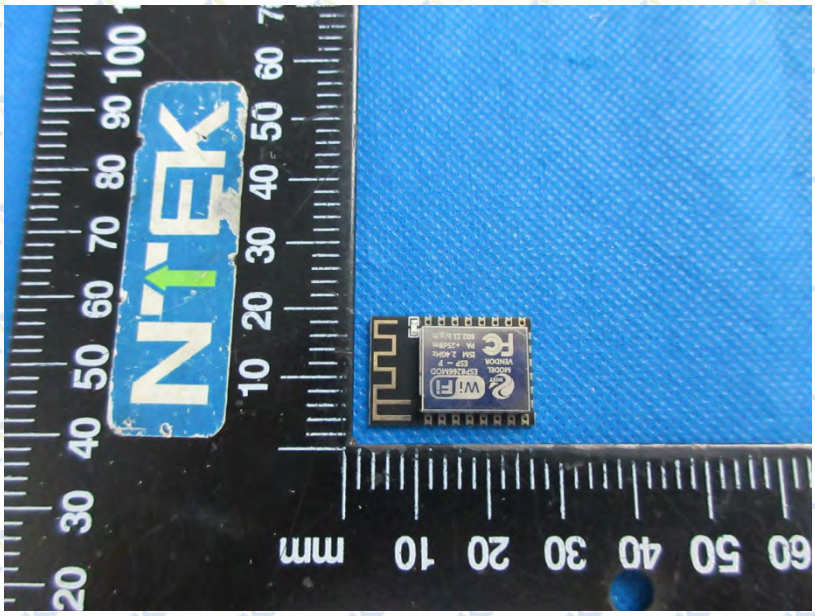


Fig.1

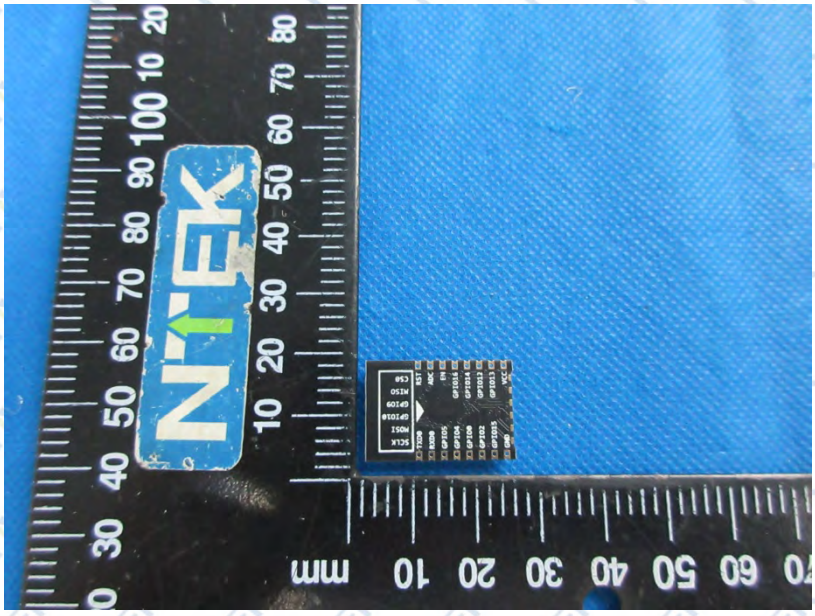


Fig.2

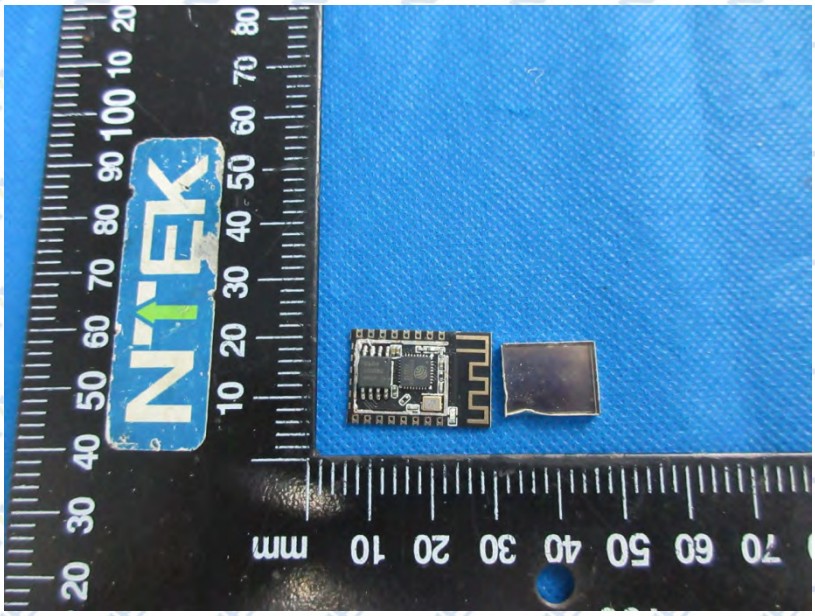


Fig.3

****End of Report****

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of NTEK, this report can't be reproduced except in full.

Shenzhen NTEK Testing Technology Co., Ltd.
Address: 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District，Shenzhen 518126 P.R.China
Tel: +86-755-6115 6588 Fax: +86-755-6115 6599 http://www.ntek.org.cn