

TEST REPORT



Report No.: A2206159-C01-R10

Date: August 02, 2022

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Applicant: SHENZHEN WALE GROUP CO., LTD
Address: 5/F, BLDG2, NO.5, TIANHUA ROAD, XINXIA AVENUE
PINGHU, LONGGANG, SHENZHEN

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

Sample Name	WiFi Temperature Humidity Sensor
Model No.	TH02
Manufacturer	SHENZHEN WALE GROUP CO., LTD
Sample Received Date	July 13, 2022
Testing Period	July 15 – 19, 2022
Test Method & Test Result	Please refer to following pages.

Test Requested

As specified by client, according to RoHS Directive 2011/65/EU with amendment (EU) 2015/863, to test Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers(PBDEs), Phthalates(DBP, BBP, DEHP, DIBP) in the tested materials of the submitted sample(s).

Result

Pass

Tested by:

Anne Zhao

Approved by:

Dyde

Reviewed by:

Tony Gmy

Date of issue: August 02, 2022



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Shenzhen Alpha Product Testing Co., Ltd.
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Test Method

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

Element	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	$BL \leq (250-3\sigma) < X$

(2) Chemical screening limits for PBBs, PBDEs

Test Item(s)	Screening limits(Unit: mg/kg)
Polybrominated Biphenyls (PBBs)	$BL^* \leq 200 < IN$
Polybrominated Diphenyl Ethers (PBDEs)	$BL^* \leq 200 < IN$

(3) Chemical screening limits for Phthalates

Test Item(s)	Screening limits(Unit: mg/kg)
Dibutyl phthalate(DBP)	$BL \leq 600 < IN$
Benzylbutyl phthalate(BBP)	$BL \leq 600 < IN$
Di-2-ethylhexyl phthalate(DEHP)	$BL \leq 600 < IN$
Diisobutyl phthalate(DIBP)	$BL \leq 600 < IN$

(4) Chemical Test

Test Item	Test Method	Test Instrument	MDL (mg/kg)	EU RoHS Limit (mg/kg)
Lead (Pb)	IEC 62321-5:2013	ICP-OES	2	1000
Cadmium (Cd)	IEC 62321-5:2013	ICP-OES	2	100
Mercury (Hg)	IEC 62321-4:2013 +AMD1:2017	ICP-OES	2	1000
Hexavalent Chromium (Cr(VI))	IEC 62321-7-2:2017 (non-metal)	UV-Vis	8	1000
	IEC 62321-7-1:2015 (metal)	UV-Vis	0.1($\mu\text{g}/\text{cm}^2$)	1000
Polybrominated Biphenyls (PBBs)	IEC 62321-6:2015	GC-MS	5	1000
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS	5	1000
Phthalates(DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS	50	1000



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Tested Material Description

No.	Description	No.	Description
1.	White plastic case	15.	Chip capacitor
2.	White plastic back cover	16.	Chip capacitor
3.	White plastic battery compartment	17.	Chip resistor
4.	Silvery metal electrode sheet	18.	Chip resistor
5.	Silvery metal spring of electrode sheet	19.	Chip triode
6.	White label sticker	20.	Chip triode
7.	Silvery metal shield cover	21.	Chip LED
8.	Black button of key-press	22.	IC
9.	Silvery metal frame of key-press	23.	IC
10.	Brass metal sheet for key-press	24.	IC
11.	Black plastic base of key-press	25.	Soldering tin on PCB
12.	Chip integrated inductor	26.	Dark blue PCB
13.	Chip crystal oscillator	27.	Dark blue PCB
14.	Chip capacitor		

Tested Result

(1) Screening Result

Tested Item(s)	Screening Result									
	1	2	3	4	5	6	7	8	9	10
Lead (Pb)	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL
Cadmium (Cd)	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL
Mercury (Hg)	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL
Total Chromium (Cr(VI))	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL
Total Bromine (PBBs & PBDEs)	BL	BL	BL	N/A	N/A	BL	N/A	BL	N/A	N/A
Dibutyl phthalate(DBP)	BL	BL	BL	N/A	N/A	BL	N/A	BL	N/A	N/A
Benzylbutyl phthalate(BBP)	BL	BL	BL	N/A	N/A	BL	N/A	BL	N/A	N/A
Di-2-ethylhexyl phthalate(DEHP)	BL	BL	BL	N/A	N/A	BL	N/A	BL	N/A	N/A
Diisobutyl phthalate(DIBP)	BL	BL	BL	N/A	N/A	BL	N/A	BL	N/A	N/A

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(1) Screening Result

Tested Item(s)	Screening Result									
	11	12	13	14	15	16	17	18	19	20
Lead (Pb)	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL
Cadmium (Cd)	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL
Mercury (Hg)	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL
Total Chromium (Cr(VI))	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL
Total Bromine (PBBs & PBDEs)	BL	BL	N/A	BL	BL	BL	BL	BL	BL	BL
Dibutyl phthalate(DBP)	BL	BL	N/A	BL	BL	BL	BL	BL	BL	BL
Benzylbutyl phthalate(BBP)	BL	BL	N/A	BL	BL	BL	BL	BL	BL	BL
Di-2-ethylhexyl phthalate(DEHP)	BL	BL	N/A	BL	BL	BL	BL	BL	BL	BL
Diisobutyl phthalate(DIBP)	BL	BL	N/A	BL	BL	BL	BL	BL	BL	BL

Tested Item(s)	Screening Result						
	21	22	23	24	25	26	27
Lead (Pb)	BL	BL	BL	BL	BL	BL	BL
Cadmium (Cd)	BL	BL	BL	BL	BL	BL	BL
Mercury (Hg)	BL	BL	BL	BL	BL	BL	BL
Total Chromium (Cr(VI))	BL	BL	BL	BL	BL	BL	BL
Total Bromine (PBBs & PBDEs)	BL	BL	BL	BL	N/A	BL*	BL*
Dibutyl phthalate(DBP)	BL	BL	BL	BL	N/A	BL	BL
Benzylbutyl phthalate(BBP)	BL	BL	BL	BL	N/A	BL	BL
Di-2-ethylhexyl phthalate(DEHP)	BL	BL	BL	BL	N/A	BL	BL
Diisobutyl phthalate(DIBP)	BL	BL	BL	BL	N/A	BL	BL

Remark: N.D = Not Detected (<MDL or LOQ), MDL = Method Detection Limit.
 IN= Inconclusive, Further chemical test, X = The range of needing to do further testing.
 BL = Below the screening limit, OL = Over the screening limit.
 N/A= Not applicable.
 3σ= The reproducibility of analytical instruments.
 * = The screened result was found and further chemical test.
 When conducting the test for PBBs&PBDEs, XRF was introduced to screen Br exclusively, and then chemical screening was conducted if the XRF result is X.
 When conducting the test for Hexavalent Chromium, XRF was introduced to screen Chromium exclusively.
 LOQ = Limit of Quantification, The LOQ of Hexavalent chromium is 0.10 µg/cm².
 LOD= Detection limit.
 mg/kg = ppm = parts per million, 1000 mg/kg = 0.1%.



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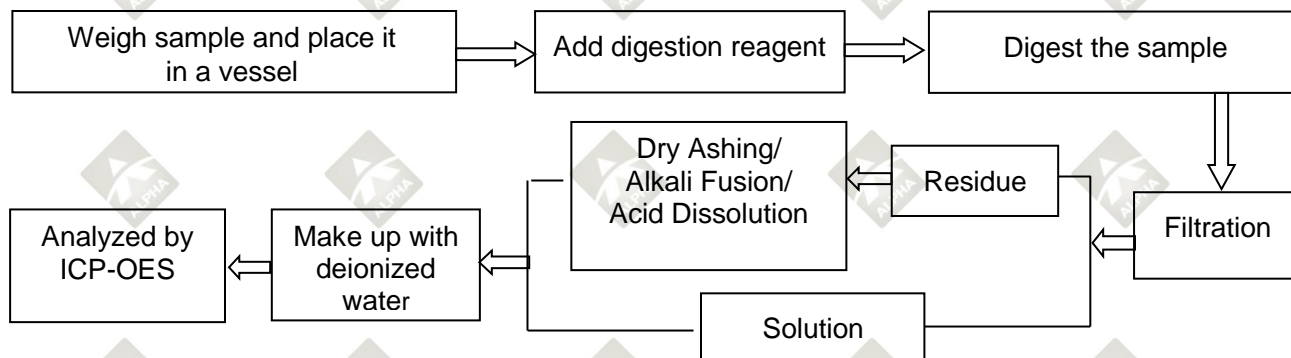
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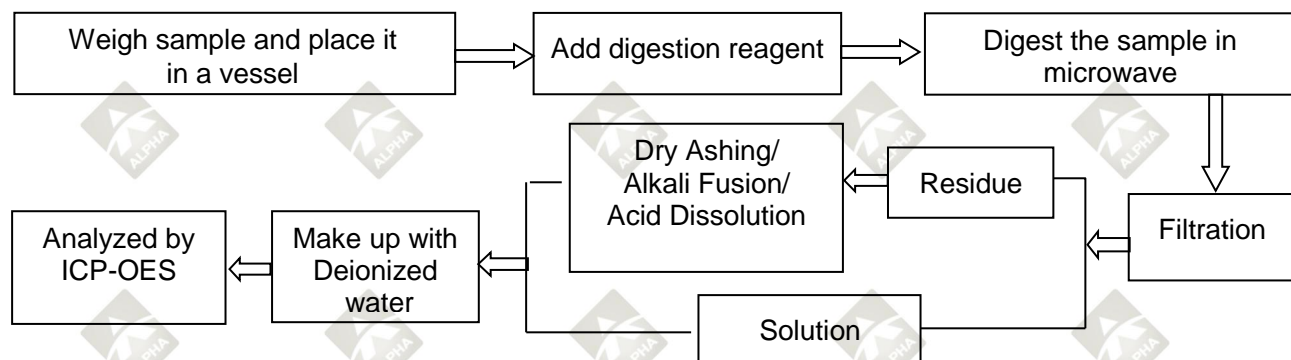
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Test Process

1. Lead(Pb), Cadmium(Cd), Chromium(Cr)

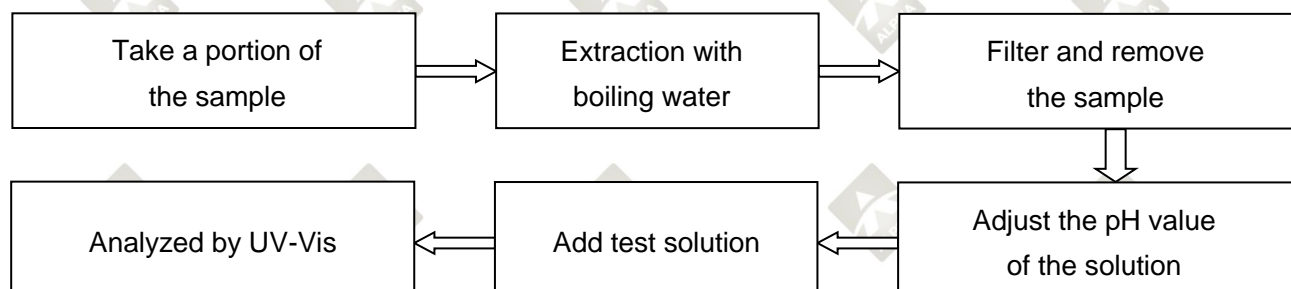


2. Mercury(Hg)



3. Hexavalent Chromium (Cr (VI))

(1) IEC 62321-7-1:2015 Plating/Metal sample(s)





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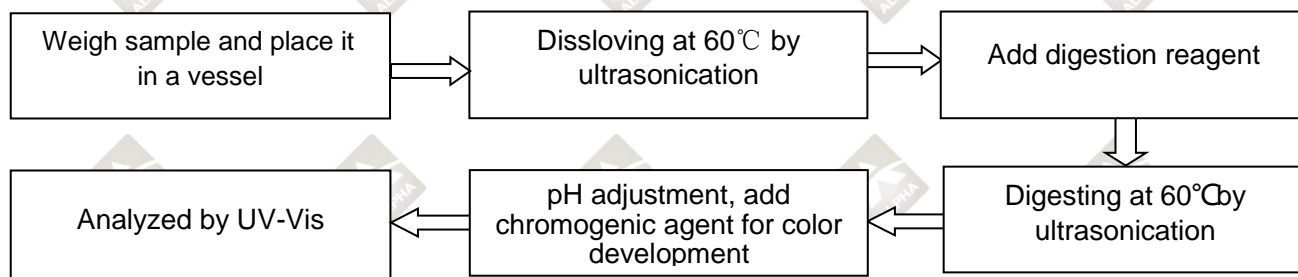
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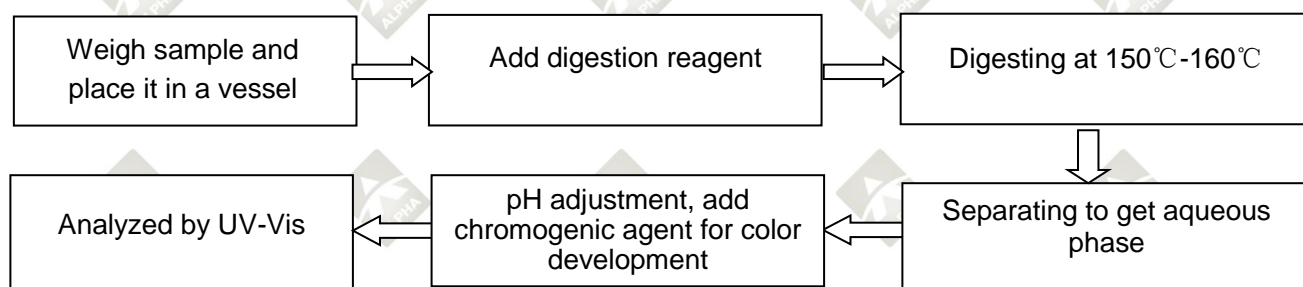
(2) IEC 62321-7-2:2017

Non-metal sample(s) (Material ABS/PC/PVC)

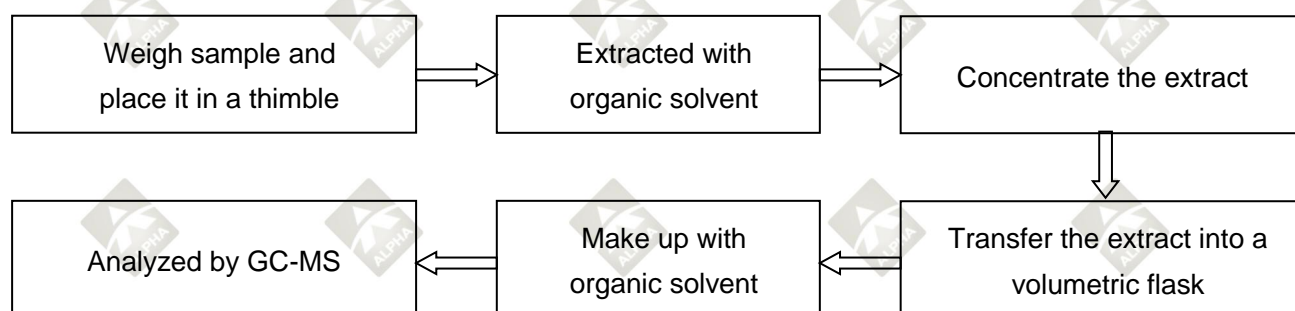


(3) IEC 62321-7-2:2017

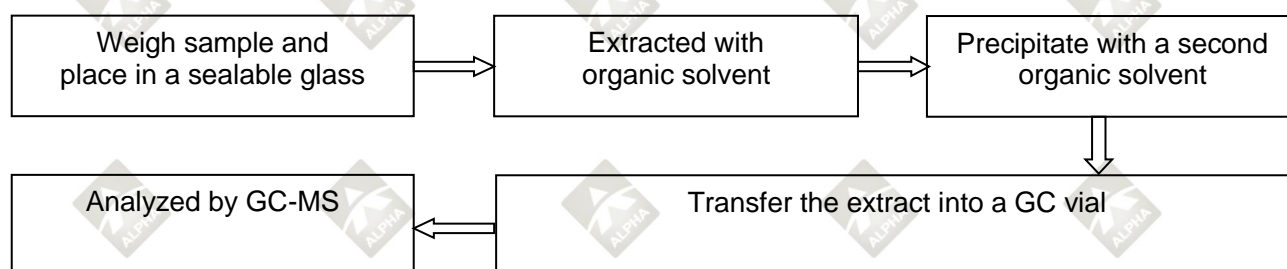
Non-metal sample(s) (Others)



4. Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs)



5. Phthalates(DBP/BBP/DEHP/DIBP)



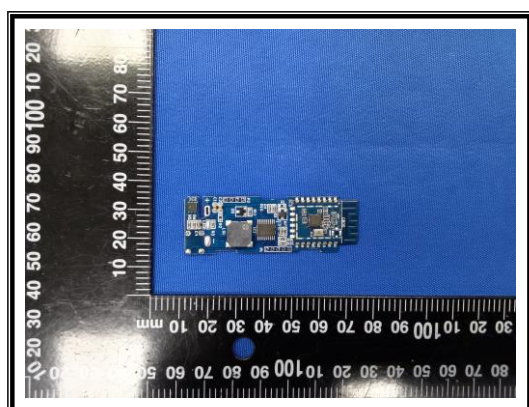
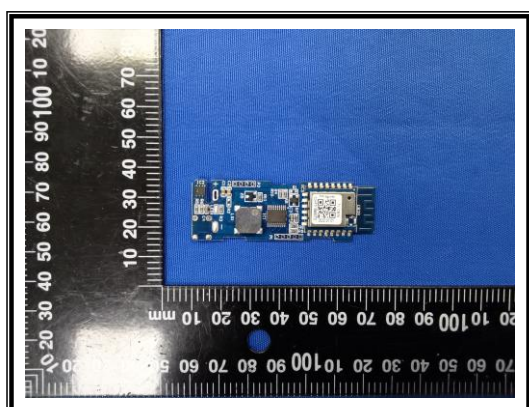
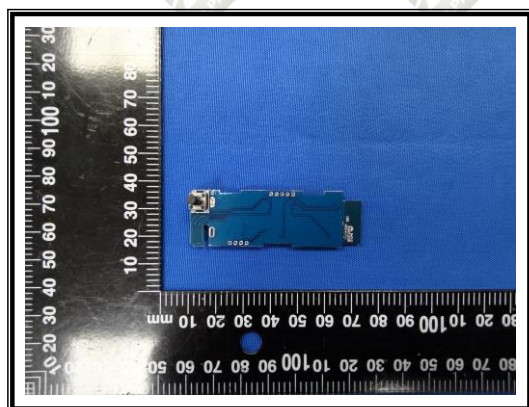
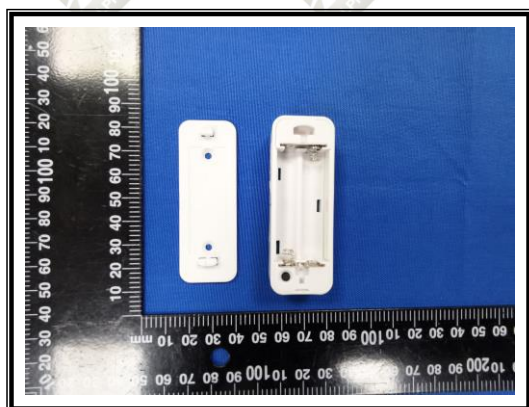
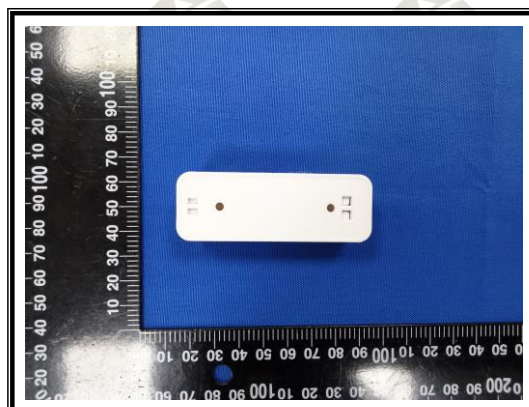
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Tested sample photo(s)



--- End of report ---

Statement:

1. The sample(s) and sample Information was/were provided by the client who should be responsible for the authenticity which ALPHA hasn't verified.
2. According to the applicant's requirement, we only test the specified material of submit sample(s).
3. Without written approval of ALPHA, this report can't be reproduced except in full.
4. Decision rules for the conclusion of this test report: decision by actual test data without considering measurement uncertainty.

Shenzhen Alpha Product Testing Co., Ltd.

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