TEST REPORT

Report No.: SHE23050062-01BE **Date:** 2023-07-11

Applicant : Beijing Hipnuc Electronic Technology Co.,Ltd

Address : 121, 1st Floor, Block B, No. 23 Chaoqian Road, Science and Technology Park, Changping District, Beijing

Sample Information

Sample Name	:	IMU/VRU/AHRS Module
Sample Type/Specification	:	HI13R4T-USB-000
Sample Qty.	:	1
Sample acquisition method	:	Sent by client
Sample description	:	Solid
Manufactory	:	Beijing Hipnuc Electronic Technology Co.,Ltd
Address	:	121, 1st Floor, Block B, No. 23 Chaoqian Road, Science and Technology Park, Changping District, Beijing

Above information and sample(s) was/were submitted and certified by/on behalf of the applicant. ICAS was not responsible for the authenticity of the sample,and quoted the information with no responsibility as to the accuracy,adequacy and/or completeness.

Sample No.	:	E23050062-01
Date of Sample Received	:	2023-05-19
Sample Test Period	:	2023-05-19~2023-07-11

Test content:

Test Address	:	155 Pingbei Rd, Minhang District, Shanghai
Test Items	:	Please refer to next page(s).
Test Methods	:	IEC 61249-2-21:2003;IEC 62321-3-1:2013; IEC 62321-4:2013+AMD1:2017;IEC 62321-5:2013; IEC 62321-7-1:2015;
Test Results	:	Please refer to next page(s).

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Prepared by: 翁茜茜 (Xixi Weng) Reviewed by: 赵丹尊 (Daniel Zhao) Approved by: 王涛 (Authorized signatory:Rachel Wang)

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一、Halogen#*

Test Requested and Conclusion(s):

No.	Standard and Requirement	Conclusion(s)
1	IEC 61249-2-21:2003-- Halogen	PASS

Test Material List

Material No.	Sample Description	Location
1*	Green plastic with white printing with printing with glue	Tags
3	Green plastic with white printing with metal foil	PCB
4*	Dark gray plastic	Plug lining(S)

Note: The testing material(s) marked"*"is (are) taken from components/raw material(s).

Test Results

No.	Substances Name	CAS No.	Limit (mg/kg)	Reporting Limit (mg/kg)	Result(mg/kg)
					1※1
1	Fluorine(F)#*	7782-41-4	--	50	N.D.
2	chlorine(Cl)#*	7782-50-5	900	50	N.D.
3	Bromine(Br)#*	7726-95-6	900	50	N.D.
4	Iodine(I)#*	12190-71-5	--	50	N.D.
5	Sum (Cl+Br)#*	--	1500	50	N.D.
Conclusion					PASS

No.	Substances Name	CAS No.	Limit (mg/kg)	Reporting Limit (mg/kg)	Result(mg/kg)	
					3	4※1
1	Fluorine(F)#*	7782-41-4	--	50	N.D.	N.D.
2	chlorine(Cl)#*	7782-50-5	900	50	N.D.	N.D.
3	Bromine(Br)#*	7726-95-6	900	50	N.D.	N.D.
4	Iodine(I)#*	12190-71-5	--	50	N.D.	N.D.
5	Sum (Cl+Br)#*	--	1500	50	N.D.	N.D.
Conclusion					PASS	PASS

NOTE:

1. mg/kg = milligram per kilogram (ppm).
2. N.D. = Not Detected (Less than Reporting Limit).
3. Insoluble halides present in the original sample or produced during the combustion step arenot completely determined by these methods.
4. Except for special requirements of clients, halogen contents are calculated and reported ondry matter.
5. ※1 = This sample was received on Jun.12, 2023.

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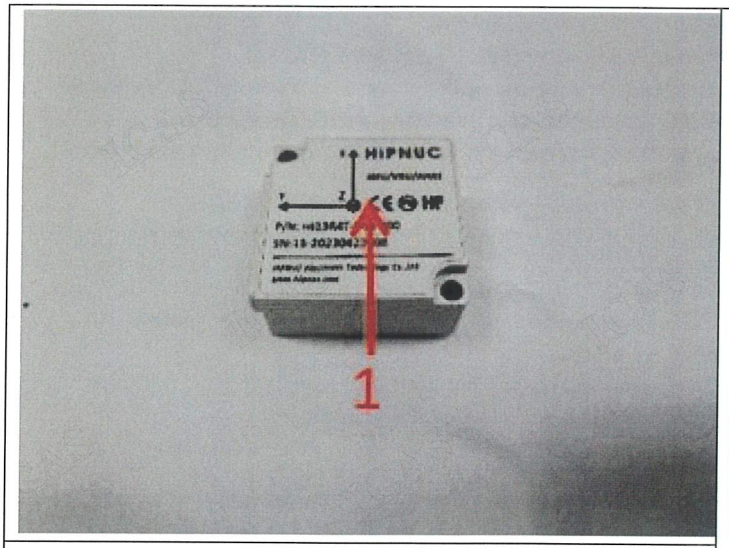
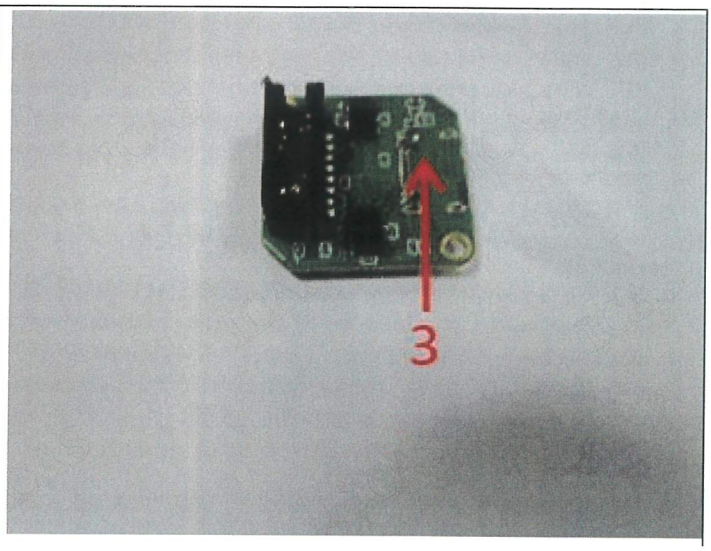
Location indication





TEST REPORT

二、RoHS

Test Conclusion(s):

The results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls(PBBs), Polybrominated diphenyl ethers(PBDEs)and Phthalates such as Di-(2-ethylhexyl)Phthalate (DEHP), Benzylbutyl Phthalate (BBP),Dibutyl Phthalate (DBP), and Diisobutyl phthalate(DIBP) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Test part ID	Test part description
1	White label with black printing
2	Metal case
3	Screws
4	Metal wire
5	Black plastic
6	Electronic components
7	Metal sheet
8	Black plastic
9	Metal wire
10	Metal sheet
11	Electronic components
12	Electronic components
13	Electronic components
14	PCB board
15	Electronic components
16	Electronic components
17	Electronic components

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Test Results:

Test part ID	Test Items	Unit	Chemical test method	XRF Screening	Limit	Conclusion
1	Pb	mg/kg	NT	P	≤1000	Pass
	Cd	mg/kg	NT	P	≤100	Pass
	Hg	mg/kg	NT	P	≤1000	Pass
	Total Chromium（Cr）	mg/kg	NT	P	≤1000	Pass
	Total Bromine（Br）	mg/kg	NT	P	≤1000	Pass
2	Pb	mg/kg	27	X	≤1000	Pass
	Cd	mg/kg	NT	P	≤100	Pass
	Hg	mg/kg	NT	P	≤1000	Pass
	Cr VI	μg/cm²	Negative	X	/	/
3	Pb	mg/kg	NT	P	≤1000	Pass
	Cd	mg/kg	NT	P	≤100	Pass
	Hg	mg/kg	NT	P	≤1000	Pass
	Cr VI	μg/cm²	Negative	X	/	/
4	Pb	mg/kg	NT	P	≤1000	Pass
	Cd	mg/kg	NT	P	≤100	Pass
	Hg	mg/kg	NT	P	≤1000	Pass
	Total Chromium（Cr）	mg/kg	NT	P	≤1000	Pass
5	Pb	mg/kg	NT	P	≤1000	Pass
	Cd	mg/kg	NT	P	≤100	Pass
	Hg	mg/kg	NT	P	≤1000	Pass
	Total Chromium（Cr）	mg/kg	NT	P	≤1000	Pass
	Total PBBs	mg/kg	ND	X	≤1000	Pass
	Total PBDEs	mg/kg	ND		≤1000	Pass
6	Pb	mg/kg	NT	P	≤1000	Pass
	Cd	mg/kg	NT	P	≤100	Pass
	Hg	mg/kg	NT	P	≤1000	Pass
	Total Chromium（Cr）	mg/kg	NT	P	≤1000	Pass
	Total Bromine（Br）	mg/kg	NT	P	≤1000	Pass
7	Pb	mg/kg	NT	P	≤1000	Pass
	Cd	mg/kg	NT	P	≤100	Pass
	Hg	mg/kg	NT	P	≤1000	Pass
	Cr VI	μg/cm²	Negative	X	/	/

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Test part ID	Test Items	Unit	Chemical test method	XRF Screening	Limit	Conclusion
8	Pb	mg/kg	ND	X	≤1000	Pass
	Cd	mg/kg	ND	X	≤100	Pass
	Hg	mg/kg	NT	P	≤1000	Pass
	Cr VI	mg/kg	ND	X	≤1000	Pass
	Total Bromine（Br）	mg/kg	NT	P	≤1000	Pass
9	Pb	mg/kg	NT	P	≤1000	Pass
	Cd	mg/kg	ND	X	≤100	Pass
	Hg	mg/kg	NT	P	≤1000	Pass
	Total Chromium（Cr）	mg/kg	NT	P	≤1000	Pass
10	Pb	mg/kg	NT	P	≤1000	Pass
	Cd	mg/kg	10	X	≤100	Pass
	Hg	mg/kg	NT	P	≤1000	Pass
	Cr VI	$\mu g/cm^2$	Negative	X	/	/
11	Pb	mg/kg	NT	P	≤1000	Pass
	Cd	mg/kg	NT	P	≤100	Pass
	Hg	mg/kg	NT	P	≤1000	Pass
	Total Chromium（Cr）	mg/kg	NT	P	≤1000	Pass
12	Pb	mg/kg	NT	P	≤1000	Pass
	Cd	mg/kg	NT	P	≤100	Pass
	Hg	mg/kg	NT	P	≤1000	Pass
	Total Chromium（Cr）	mg/kg	NT	P	≤1000	Pass
	Total Bromine（Br）	mg/kg	NT	P	≤1000	Pass
13	Pb	mg/kg	NT	P	≤1000	Pass
	Cd	mg/kg	NT	P	≤100	Pass
	Hg	mg/kg	NT	P	≤1000	Pass
	Total Chromium（Cr）	mg/kg	NT	P	≤1000	Pass
	Total Bromine（Br）	mg/kg	NT	P	≤1000	Pass
14	Pb	mg/kg	NT	P	≤1000	Pass
	Cd	mg/kg	NT	P	≤100	Pass
	Hg	mg/kg	NT	P	≤1000	Pass
	Total Chromium（Cr）	mg/kg	NT	P	≤1000	Pass
	Total Bromine（Br）	mg/kg	NT	P	≤1000	Pass
15	Pb	mg/kg	NT	P	≤1000	Pass
	Cd	mg/kg	NT	P	≤100	Pass
	Hg	mg/kg	NT	P	≤1000	Pass
	Total Chromium（Cr）	mg/kg	NT	P	≤1000	Pass
	Total Bromine（Br）	mg/kg	NT	P	≤1000	Pass

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Test part ID	Test Items	Unit	Chemical test method	XRF Screening	Limit	Conclusion
16	Pb	mg/kg	NT	P	≤1000	Pass
	Cd	mg/kg	ND	X	≤100	Pass
	Hg	mg/kg	NT	P	≤1000	Pass
	Cr VI	$\mu g/cm^2$	Negative	X	/	/
17	Pb	mg/kg	NT	P	≤1000	Pass
	Cd	mg/kg	NT	P	≤100	Pass
	Hg	mg/kg	NT	P	≤1000	Pass
	Total Chromium（Cr）	mg/kg	NT	P	≤1000	Pass
	Total Bromine（Br）	mg/kg	NT	P	≤1000	Pass

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Test part ID		Test part description
S1	1	White label with black printing
	5	Black plastic
	6	Electronic components
	8	Black plastic
	12	Electronic components
	14	PCB board
	13	Electronic components
	15	Electronic components
	17	Electronic components

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Test part ID	Test Items	Unit	Test Results	Limit	Conclusion
S1	Dibutyl Phthalate (DBP)*	mg/kg	ND	≤1000	Pass
	Benzylbutyl Phthalate (BBP)*	mg/kg	ND	≤1000	Pass
	Di-(2-ethylhexyl)Phthalate (DEHP)*	mg/kg	ND	≤1000	Pass
	Diisobutyl phthalate(DIBP)*	mg/kg	ND	≤1000	Pass

Remarks:

1.P = Pass (Below Limit,See Table A)

2.X= Inconclusive(need further chemical analysis,See Table A)

3.F=Fail(Over Limit, ,See Table A)

4.NA=Not Applicable

5.MDL=Method Detection Limit（See Table B)

6.N.D.=Not detected (<MDL)

7.--- = Not regulated

8.NT=Not Tested

9.mg/kg=1ppm= 0.0001%

10.PBBs include Monobromobiphenyl (MonoBB)、Dibromobiphenyl (DiBB)、Tribromobiphenyl (TriBB)、Tetrabromobiphenyl (TetraBB)、Pentabromobiphenyl (PentaBB)、Hexabromobiphenyl (HexaBB)、Heptabromobiphenyl (HeptaBB)、Octabromobiphenyl (OctaBB)、Nonabromobiphenyl (NonaBB) and Decabromobiphenyl (DecaBB).

PBDEs include Monobromodiphenyl ether (MonoBDE)、Dibromodiphenyl ether (DiBDE)、Tribromodiphenyl ether (TriBDE)、Tetrabromodiphenyl ether (TetraBDE)、Pentabromodiphenyl ether (PentaBDE)、Hexabromodiphenyl ether (HexaBDE)、Heptabromodiphenyl ether (HeptaBDE)、Octabromodiphenyl ether (OctaBDE)、Nonabromodiphenyl ether (NonaBDE) and Decabromodiphenyl ether (DecaBDE)

11.Boiling-water-extraction:

Negative = Absence of CrVI coating,the detected concentration in boiling -water-extraction solution is less than 0.10μg/cm² equivalent comparison standard solution.

Positive = Presence of CrVI coating,the detected concentration in boiling -water-extraction solution is greater than 0.13μg/cm² equivalent comparison standard solution.

Information on storage conditions and production date of the tested sample is unavailable and thus results of Cr(VI) represent status of the sample at the time of testing.

12.▲Applications exempted from the restriction in Article 4(1) according to ANNEX III of EU DIRECTIVE 2011/65/EU (amended by (EU) 2018/741):

6c)Copper alloy containing up to 4 % lead by weight

Table A:Screening limits in mg/kg for regulated elements in various matrices

Element	Polymer	Metal	Composite Materials
Cd	P ≤(70-3σ)< X <(130+3σ)≤F	P ≤(70-3σ)< X <(130+3σ)≤F	LOD < X <(150+3σ)≤ F
Pb	P ≤(700-3σ)< X<(1300+3σ)≤ F	P ≤(700-3σ)< X <(1300+3σ)≤ F	P ≤(500-3σ)< X<(1500+3σ)≤F
Hg	P ≤(700-3σ)< X <(1300+3σ)≤ F	P ≤(700-3σ)< X <(1300+3σ)≤ F	P ≤(500-3σ)< X <(1500+3σ)≤F
Br	P ≤ (300-3σ)< X	--	P ≤ (250-3σ)< X
Cr	P ≤ (700-3σ)< X	P ≤ (700-3σ)< X	P ≤ (500-3σ)< X

TEST REPORT

Remark:

1.XRF Screening

These are the results on total Br while test items on hazardous substances are PBBs and PBDEs.

This is the result on total Cr while test item on hazardous substances is Cr(VI).

Results are obtained by XRF for primary screening, and further chemical testing by ICP-OES (for Cd, Pb, Hg), UV-Vis (for Cr(VI)) and GC-MS (for PBBs, PBDEs) is recommended to be performed if the concentration exceeds the below warning value according to IEC 62321-3-1:2013

2.The reading may be different to the actual content in the sample due to non-uniformity composition.

Table B:Chemical test method

Item	Test Method	MDL
Pb	With reference to IEC 62321-5:2013,by acid digestion and determined by ICP-OES	10mg/kg
Cd	With reference to IEC 62321-5:2013,by acid digestion and determined by ICP-OES	2mg/kg
Hg	With reference to IEC 62321-4:2013,by acid digestion and determined by ICP-OES	10mg/kg
Cr(VI)(For non-metal)	With reference to IEC 62321-7-2:2017 ,by alkaline digestion and determined by UV-VIS spectrophotometer	20mg/kg
Cr(VI)(For metal)	With reference to IEC 62321-7-1:2015 ,determined by UV-VIS spectrophotometer	0.10μg/cm^2
PBBs	With reference to IEC 62321-6:2015,determined by GC-MS	5mg/kg
PBDEs	With reference to IEC 62321-6:2015,determined by GC-MS	5mg/kg
DBP	With reference to IEC 62321-8:2017,determined by GC-MS	50mg/kg
BBP	With reference to IEC 62321-8:2017,determined by GC-MS	50mg/kg
DEHP	With reference to IEC 62321-8:2017,determined by GC-MS	50mg/kg
DIBP	With reference to IEC 62321-8:2017,determined by GC-MS	50mg/kg

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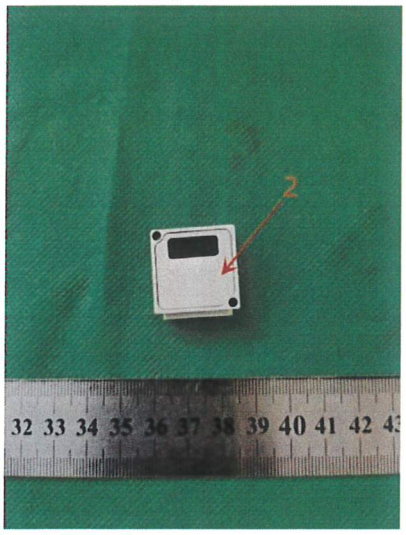
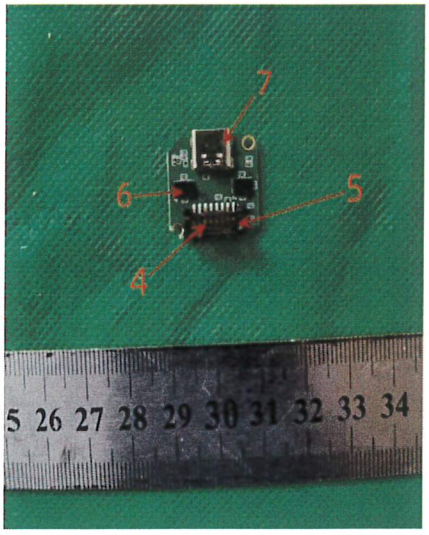
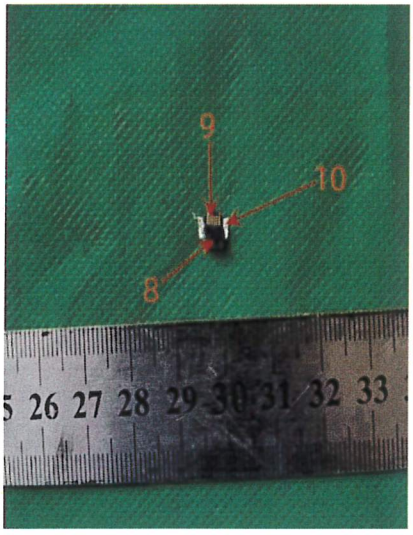
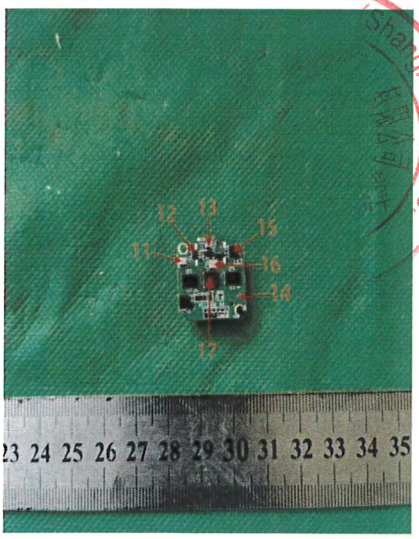
Sample Photos









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2. “#”号代表数据来源于指定的签约实验室

“#” indicated that data comes from designated contracted lab:

CMA 资质认定证书编号 CMA Certificate No:

广东省中鼎检测技术有限公司

CNAS 注册号 CNAS Registration No:

ICAS英格尔检测中心 ICAS Testing Center
Tel:0086 21-51682918 E-mail:info@icas.org.cn
Add:上海市闵行区瓶北路155号/瓶安路1298号/徐汇区中山西路2368号18F
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