

TEST REPORT
检测报告

CheckCode 校验码: 848706

Report No. 报告编号:

C202405304241-4

Company Name:

单位名称:

Shanghai MXCHIP Information Technology Co., Ltd

上海庆科信息技术有限公司

Address:

单位地址:

Floor 9, Building B, Lane 2145, Jinsha Jiang Road, Putuo District, Shanghai

上海市普陀区金沙江路 2145 弄 B 幢 9 楼

The following sample information is provided by the client and responsible for its authenticity

以下样品信息由委托方提供并负责其真实性

Sample Name 样品名称: Embedded BLE Module 嵌入式 BLE 模组

Type/Model 规格/型号: EMB1082-P

Reference Type/Model 参考规格/型号: EMB1082-E

Material 材料:

PCB Circuit Board PCB 电路板

Supplier 供应商:

MXCHIP

Sample State 样品状态:

Normal 正常

Date of Receipt

接收日期:

2024-05-31

Test Period

检测周期:

2024-06-04-2024-06-20

Test Request:

检测要求:

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), Butyl benzyl phthalate (BBP),

Dibutyl phthalate (DBP), Diisobutyl phthalate (DIBP) content in the submitted

sample(s). 根据客户要求, 检测样品中铅 (Pb)、镉 (Cd)、汞 (Hg)、六

价铬 [Cr (VI)]、多溴联苯 (PBBs)、多溴二苯醚 (PBDEs)、邻苯二甲酸二

(2-乙基己基) 酯 (DEHP)、邻苯二甲酸丁苄酯 (BBP)、邻苯二甲酸二丁

酯 (DBP)、邻苯二甲酸二异丁酯 (DIBP) 的含量。

Judge Standard:

判定标准:

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

RoHS 指令 2011/65/EU 附录 II 的修正指令 (EU) 2015/863。

Test Result:

检测结果:

Please refer to following page(s).

见后续页。

Conclusion:

检测结论:

Based on the performed test on submitted sample, the result(s) **comply with**

the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to

Directive 2011/65/EU. 基于对送检样品进行的检测, 所检测项目的检测结果符合

RoHS 指令 2011/65/EU 附录 II 的修正指令 (EU) 2015/863 的限值要求。

Edited by

编制

徐有琴

Reviewed by

审核

李宇宁

Approved by

批准

王晓艳



Issue date 签发日期: 2024-06-20

The result(s) shown in this report refer(s) only to the sample(s) tested. This report is considered invalid without approved signature, special seal for inspection and testing and the seal on the perforation. This report cannot be reproduced except in full, without prior written approval of the Company. Any disagreements of the test report should be fed back to us within 15 workdays upon receiving the report.

本报告检测结果仅对受检样品负责, 报告无批准人签字、检验检测专用章及报告骑缝章无效, 未经本公司书面同意, 不得部分复制本报告。对报告若有异议, 应于收到报告之日起十五天内向检测单位提出。注: 检测报告中的数据仅用于科研、教学、内部质量控制等目的。

GRG METROLOGY & TEST GROUP CO., LTD.

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Test Result 检测结果:

Test Methods 检测方法:

Test Item(s) 检测项目	Test Method 检测方法	Measuring Instrument 检测仪器	MDL 方法检出限	Limit 限值
Pb, Cd, Hg, Total Cr, Total Br 铅, 镉, 汞, 总铬, 总溴	IEC 62321-3-1:2013	XRF	20mg/kg	/
Lead (Pb) 铅 (Pb)	IEC 62321-5:2013	ICP-OES	2mg/kg	1000mg/kg
Cadmium (Cd) 镉 (Cd)	IEC 62321-5:2013	ICP-OES	2mg/kg	100mg/kg
Mercury (Hg) 汞 (Hg)	IEC 62321-4:2013 +AMD1:2017	ICP-OES	2mg/kg	1000mg/kg
Hexavalent Chromium [Cr(VI)] 六价铬 [Cr(VI)]	IEC 62321-7-2:2017	UV-Vis	8mg/kg	1000mg/kg
	IEC 62321-7-1:2015	UV-Vis	0.10µg/cm ²	/
Polybrominated biphenyls (PBBs) 多溴联苯 (PBBs)	IEC 62321-6:2015	GC-MS	50mg/kg	1000mg/kg
Polybrominated diphenyl ethers (PBDEs) 多溴二苯醚 (PBDEs)	IEC 62321-6:2015	GC-MS	50mg/kg	1000mg/kg
Bis(2-ethylhexyl) phthalate (DEHP) 邻苯二甲酸二(2-乙 基己基)酯 (DEHP)	IEC 62321-8:2017	GC-MS	50mg/kg	1000mg/kg
Butyl benzyl phthalate (BBP) 邻苯二甲酸丁苄酯 (BBP)	IEC 62321-8:2017	GC-MS	50mg/kg	1000mg/kg
Dibutyl phthalate (DBP) 邻苯 二甲酸二丁酯 (DBP)	IEC 62321-8:2017	GC-MS	50mg/kg	1000mg/kg
Diisobutyl phthalate (DIBP) 邻苯二甲酸二异丁酯 (DIBP)	IEC 62321-8:2017	GC-MS	50mg/kg	1000mg/kg

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No. 编号	Sample Description 样品描述	Restricted Substances 限用物质	Results of XRF XRF 扫描结果(mg/kg)	Result of Wet Chemical Testing 化学检测结果(mg/kg)	Conclusion on RoHS 结论
1	White PCB 白色 PCB	Pb	BL	/	Comply 符合
		Cd	BL	/	Comply 符合
		Hg	BL	/	Comply 符合
		Cr(VI)	BL	/	Comply 符合
		PBBs	IN	N.D.	Comply 符合
		PBDEs		N.D.	Comply 符合
		DEHP	/	N.D.	Comply 符合
		BBP	/	N.D.	Comply 符合
		DBP	/	N.D.	Comply 符合
		DIBP	/	N.D.	Comply 符合
2	White label with black lettering 带黑色印字的白色标签	Pb	BL	/	Comply 符合
		Cd	BL	/	Comply 符合
		Hg	BL	/	Comply 符合
		Cr(VI)	BL	/	Comply 符合
		PBBs	BL	/	Comply 符合
		PBDEs		/	Comply 符合
		DEHP	/	N.D.	Comply 符合
		BBP	/	N.D.	Comply 符合
		DBP	/	N.D.	Comply 符合
		DIBP	/	N.D.	Comply 符合
3	Silver metal shell 银色金属壳	Pb	BL	/	Comply 符合
		Cd	BL	/	Comply 符合
		Hg	BL	/	Comply 符合
		Cr(VI)	BL	/	Comply 符合
		PBBs	/	/	/
		PBDEs		/	/
		DEHP	/	/	/
		BBP	/	/	/
		DBP	/	/	/
		DIBP	/	/	/

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4	Silver crystal oscillator 银色晶振	Pb	BL	/	Comply 符合
		Cd	BL	/	Comply 符合
		Hg	BL	/	Comply 符合
		Cr(VI)	BL	/	Comply 符合
		PBBs	BL	/	Comply 符合
		PBDEs		/	Comply 符合
		DEHP	/	N.D.	Comply 符合
		BBP	/	N.D.	Comply 符合
		DBP	/	N.D.	Comply 符合
		DIBP	/	N.D.	Comply 符合
5	Black body 黑色本体	Pb	BL	/	Comply 符合
		Cd	BL	/	Comply 符合
		Hg	BL	/	Comply 符合
		Cr(VI)	BL	/	Comply 符合
		PBBs	BL	/	Comply 符合
		PBDEs		/	Comply 符合
		DEHP	/	N.D.	Comply 符合
		BBP	/	N.D.	Comply 符合
		DBP	/	N.D.	Comply 符合
		DIBP	/	N.D.	Comply 符合
6	Black body 黑色本体	Pb	BL	/	Comply 符合
		Cd	BL	/	Comply 符合
		Hg	BL	/	Comply 符合
		Cr(VI)	IN	N.D.	Comply 符合
		PBBs	BL	/	Comply 符合
		PBDEs		/	Comply 符合
		DEHP	/	N.D.	Comply 符合
		BBP	/	N.D.	Comply 符合
		DBP	/	N.D.	Comply 符合
		DIBP	/	N.D.	Comply 符合

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Remark 说明:

- (1) XRF result is on total Br while test item on restricted substances is PBBs/PBDEs. XRF result is on total Cr while test item on restricted substances is Cr(VI).
XRF 结果显示的是总 Br 含量, 而限用物质是 PBBs/PBDEs; XRF 结果显示的是总 Cr 含量, 而限用物质是六价铬 [Cr(VI)].
- (2) The XRF result is 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. (unit: mg/kg)
XRF 所得的测试结果只作初步筛选, 如果 XRF 结果超出 IEC 62321-3-1: 2013 所规定的警戒范围, 我们建议客户用更精确的化学测试方法测试样品, 如用 ICP-OES 测试 Cd, Pb, Hg; 用 UV-Vis 测试六价铬 [Cr(VI)], 用 GC/MS 测试多溴联苯和多溴二苯醚。(单位: mg/kg)

Element 元素	Polymer 聚合物	Metal 金属	Composite Materials 复合材料
Cd	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$LOD < X < (150+3\sigma) \leq OL$
Pb	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Hg	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Br	$BL \leq (300-3\sigma) < X$	/	$BL \leq (250-3\sigma) < X$
Cr	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X$	$BL \leq (500-3\sigma) < X$

- (3) BL=Below limit, IN = Inconclusive, OL=Over limit, LOD=Limit of Detection;
BL=低于限度, IN = 不确定, OL=超出限度, LOD=检测限;
- (4) 1mg/kg = 1ppm = 0.0001%; 毫克每千克 = 百万分之一 = 0.0001%;
- (5) “/” = Not Conducted or Not Applicable;
“/” = 未进行测试或不适用;
- (6) MDL = Method Detection Limit;
- (7) “N.D.” = Not Detected (Below Method Detection Limit);
“N.D.” = 未检出 (小于方法检出限);
- (8) For metal sample
在金属样品中
- The sample is negative for Cr(VI) if Cr(VI) is N.D. (concentration less than $0.10 \mu\text{g}/\text{cm}^2$). The sample coating is considered a non-Cr(VI) based coating.
a. 当六价铬的浓度为 N.D. (低于 $0.10 \mu\text{g}/\text{cm}^2$ 时), 样品为阴性, 即不含有六价铬;
 - 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).
b. 当六价铬的浓度高于 $0.13 \mu\text{g}/\text{cm}^2$ 时, 样品为阳性, 即含有六价铬;

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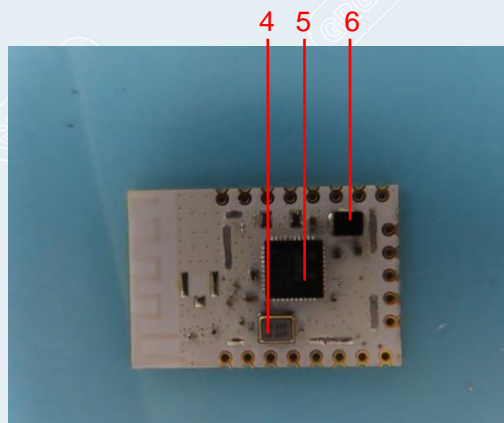
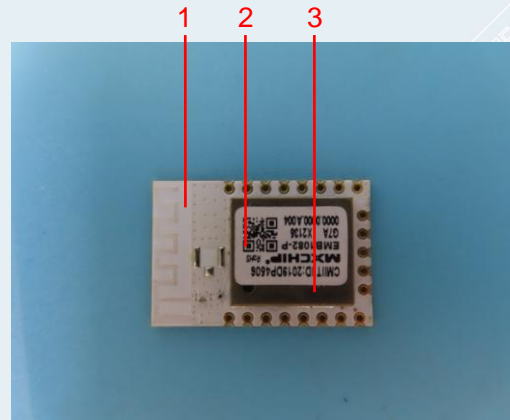
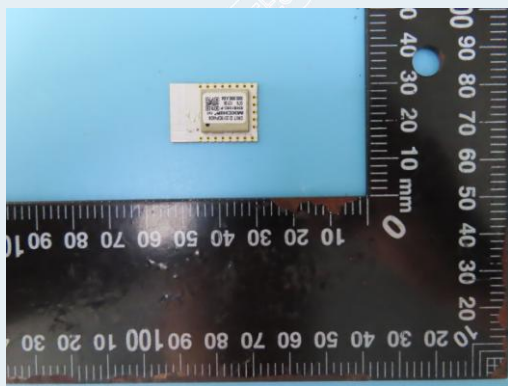
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c. The result between $0.10 \mu\text{g}/\text{cm}^2$ and $0.13 \mu\text{g}/\text{cm}^2$ is considered to be inconclusive. unavoidable coating variations may influence the determination.

c. 当六价铬的浓度介于 $0.10 \mu\text{g}/\text{cm}^2$ 与 $0.13 \mu\text{g}/\text{cm}^2$ 之间时, 无法直接判定是否含有六价铬, 因不同个体的样品表面差异可能会影响到测定结果。

(9) Based on the performed test on client requirements, the conclusion(s) shown is/are based on the tested sample in the report. 基于客户要求检测, 结论仅针对本报告所测试材料。

Photo of Sample 样品图片



-----End of Report 报告结束-----

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