

验证报告 编号: SHAEC24000472202 日期: 2024年01月30日 第1页,共16页

客户名称: 伊振達(香港)電子有限公司

客户地址: 香港,灣仔,莊士敦道 181 號大有大廈 21 樓

样品名称: 空心杯振动马达

以上样品及信息由客户提供。

SGS 工作编号: SHP24-000152

样品接收时间: 2024年01月08日

2024年01月08日~2024年01月23日 验证周期:

验证要求: 参考欧盟 RoHS 指令 2011/65/EU 的修正指令(EU) 2015/863。

验证方法: 见后续页。 验证程序和结果: 见后续页。

检测结果总结:

检测项目	结论
欧盟 RoHS 指令 2011/65/EU 附录 II 修正指令(EU) 2015/863- 铅, 汞, 镉, 六价铬,	
多溴联苯(PBBs), 多溴二苯醚(PBDEs), 邻苯二甲酸二丁酯 (DBP), 邻苯二甲酸丁	符合
苄酯(BBP), 邻苯二甲酸二(2-乙基己基)酯(DEHP)和邻苯二甲酸二异丁酯(DIBP)	

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陈告欢

Jessica Chen 陈皆欢 批准签署人





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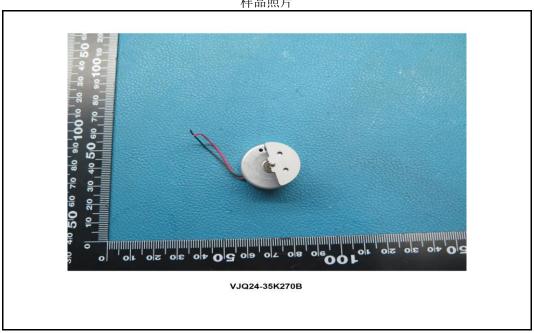


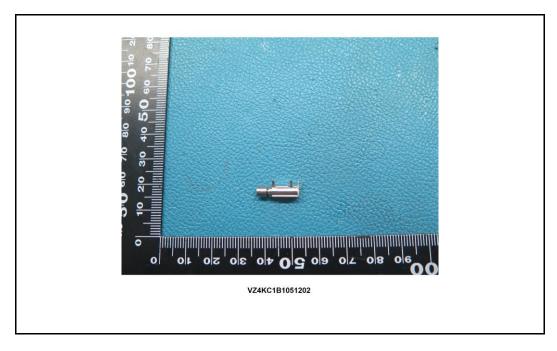
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日期: 2024年01月30日

第2页,共16页









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编号: SHAEC24000472202

日期: 2024年01月30日

第3页,共16页







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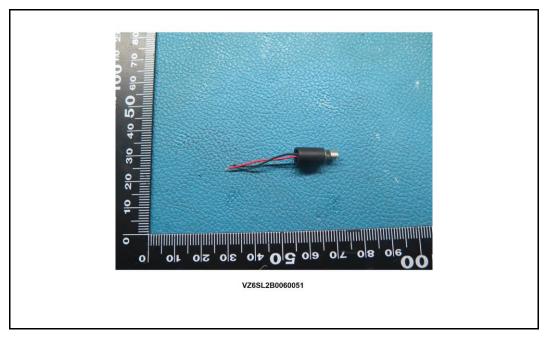


编号: SHAEC24000472202

日期: 2024年01月30日

第4页,共16页







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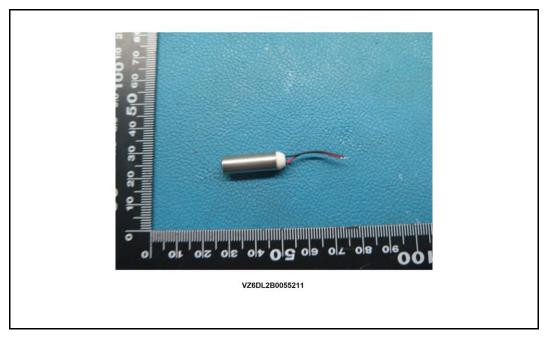


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日期: 2024年01月30日

第5页,共16页







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编号: SHAEC24000472202

日期: 2024年01月30日

第6页,共16页



验证方法:

1. 参考 IEC 62321-2:2021, 拆分申请者提供的成品。

- 2. 参考 IEC 62321-1:2013. 仅对本报告照片中标识的样品进行了下列测试分析。
- (1) 参考 IEC 62321-3-1: 2013, 用能量色散型 X 射线荧光分析仪器进行筛选。
- (2) 湿法化学检测方法:参考 IEC 62321-4:2013+A1:2017, IEC 62321-5:2013, IEC 62321-7-1:2015, IEC 62321-7-2:2017, ISO 17075-1:2017, IEC 62321-12:2023, IEC 62321-6:2015 和 IEC 62321-8:2017, 采用 ICP-OES,UV-Vis 和 GC- MS 进行分析。



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编号: SHAEC24000472202

日期: 2024年01月30日

第7页,共16页

验证部件外观描述:

样品序号	样品编号	SGS 样品 ID	样品描述
SN1	A1	SHA24-0004722-0001.C001	银蓝色金属底板
SN2	A2	SHA24-0004722-0001.C002	金色金属衬套
SN3	А3	SHA24-0004722-0001.C003	银蓝色金属底板
SN4	A4	SHA24-0004722-0001.C004	银蓝色金属外壳
SN5	A5	SHA24-0004722-0001.C005	米色塑料支架
SN6	A6	SHA24-0004722-0001.C006	银色金属插针
SN7	A7	SHA24-0004722-0001.C007	红色塑料外被
SN8	A8	SHA24-0004722-0001.C008	黑色塑料外被
SN9	A9	SHA24-0004722-0001.C009	换向器上银色金属焊锡
SN10	A10	SHA24-0004722-0001.C010	换向器上铜色金属
SN11	A11	SHA24-0004722-0001.C011	米色塑料衬套
SN12	A12	SHA24-0004722-0001.C012	白色塑料垫片
SN13	A13	SHA24-0004722-0001.C013	银色金属轴
SN14	B1	SHA24-0004722-0002.C001	银色金属
SN15	B2	SHA24-0004722-0002.C002	银色金属外壳
SN16	ВЗ	SHA24-0004722-0002.C003	银色金属外壳
SN17	C1	SHA24-0004722-0003.C001	黑色橡胶护套
SN18	C2	SHA24-0004722-0003.C002	黑色塑料底座
SN19	C3	SHA24-0004722-0003.C003	银色金属插针
SN20	D1	SHA24-0004722-0004.C001	蓝色塑料护套
SN21	D2	SHA24-0004722-0004.C002	黑色塑料底座
SN22	E1	SHA24-0004722-0005.C001	黑色塑料底座
SN23	F1	SHA24-0004722-0006.C001	黑色橡胶护套
SN24	F2	SHA24-0004722-0006.C002	银色金属外壳
SN25	F3	SHA24-0004722-0006.C003	黑色塑料底座



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编号: SHAEC24000472202

日期: 2024年01月30日

第8页,共16页

样品序号	样品编号	SGS 样品 ID	样品描述
SN26	G1	SHA24-0004722-0007.C001	黑色橡胶护套
SN27	G2	SHA24-0004722-0007.C002	白色塑料底座
SN28	H1	SHA24-0004722-0008.C001	底座上白色塑料
SN29	H2	SHA24-0004722-0008.C002	底座上黑色塑料
SN30	I1	SHA24-0004722-0009.C001	蓝色橡胶护套
SN31	12	SHA24-0004722-0009.C002	米色塑料底座



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编号: SHAEC24000472202

日期: 2024年01月30日

第9页,共16页

验证结果:

根据物料风险评估的结果,验证送测样品中的以下材料。(除特别标注,单位均为: mg/kg)

检测项目	A1	A2	A3	A4	A5	A6	A7	A8
Cd	BL							
Pb	BL							
Hg	BL							
Cr(VI)▼	BL							
PBBs					BL		BL	BL
PBDEs					BL		BL	BL
DBP					BL		BL	BL
BBP					BL		BL	BL
DEHP					BL		BL	BL
DIBP					BL		BL	BL
结论	符合							

检测项目	A9	A10	A11	A12	A13	B1	B2	B3
Cd	BL	BL	BL	BL	BL	BL	BL	BL
Pb	BL	BL	BL	BL	BL	BL	BL	BL
Hg	BL	BL	BL	BL	BL	BL	BL	BL
Cr(VI)▼	BL	BL	BL	BL	ND	BL	BL	BL
PBBs			BL	BL				
PBDEs			BL	BL				
DBP			BL	BL				
BBP			BL	BL				
DEHP			BL	BL				
DIBP			BL	BL				
结论	符合	符合	符合	符合	符合	符合	符合	符合

检测项目	C1	C2	C3	D1	D2	E1	F1	F2
Cd	BL							
Pb	BL							
Hg	BL							
Cr(VI)▼	BL							
PBBs	BL	BL		BL	BL	BL	BL	
PBDEs	BL	BL		BL	BL	BL	BL	
DBP	BL	BL		BL	BL	BL	BL	
BBP	BL	BL		BL	BL	BL	BL	
DEHP	BL	BL		BL	BL	BL	BL	
DIBP	BL	BL		BL	BL	BL	BL	
结论	符合							

检测项目	F3	G1	G2	H1	H2	I1	12
Cd	BL						
Pb	BL						
Hg	BL						



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编号: SHAEC24000472202

日期: 2024年01月30日

第10页,共16页

检测项目	F3	G1	G2	H1	H2	I1	I2
Cr(VI)▼	BL						
PBBs	BL						
PBDEs	BL						
DBP	BL						
BBP	BL						
DEHP	BL						
DIBP	BL						
结论	符合						



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编号: SHAEC24000472202

日期: 2024年01月30日

第11页,共16页

备注:

(1) X 射线荧光光谱法(XRF)筛选结果说明:

(a)下表为 IEC62321-3-1: 2013 附录 A 不同基体材料中以 mg/kg 表示的筛选元素限值:

()	(n) 1 100 4 1 = 1 = 1 = 1 = 1 11 11 1 1 1 1 1 1 1							
元素	聚合物	金属	复合材料					
Cd	BL≤(70-3σ) <x<(130+3σ)≤ol< td=""><td>BL≤(70-3σ)<x<(130+3σ)≤ol< td=""><td>LOD<x<(150+3σ)≤ol< td=""></x<(150+3σ)≤ol<></td></x<(130+3σ)≤ol<></td></x<(130+3σ)≤ol<>	BL≤(70-3σ) <x<(130+3σ)≤ol< td=""><td>LOD<x<(150+3σ)≤ol< td=""></x<(150+3σ)≤ol<></td></x<(130+3σ)≤ol<>	LOD <x<(150+3σ)≤ol< td=""></x<(150+3σ)≤ol<>					
Pb	BL≤(700-3σ) <x<(1300+3σ)≤ol< td=""><td>BL≤(700-3σ)<x<(1300+3σ)≤ol< td=""><td>BL≤(500-3σ)<x<(1500+3σ)≤ol< td=""></x<(1500+3σ)≤ol<></td></x<(1300+3σ)≤ol<></td></x<(1300+3σ)≤ol<>	BL≤(700-3σ) <x<(1300+3σ)≤ol< td=""><td>BL≤(500-3σ)<x<(1500+3σ)≤ol< td=""></x<(1500+3σ)≤ol<></td></x<(1300+3σ)≤ol<>	BL≤(500-3σ) <x<(1500+3σ)≤ol< td=""></x<(1500+3σ)≤ol<>					
Hg	BL≤(700-3σ) <x<(1300+3σ)≤ol< td=""><td>BL≤(700-3σ)<x<(1300+3σ)≤ol< td=""><td>BL≤(500-3σ)<x<(1500+3σ)≤ol< td=""></x<(1500+3σ)≤ol<></td></x<(1300+3σ)≤ol<></td></x<(1300+3σ)≤ol<>	BL≤(700-3σ) <x<(1300+3σ)≤ol< td=""><td>BL≤(500-3σ)<x<(1500+3σ)≤ol< td=""></x<(1500+3σ)≤ol<></td></x<(1300+3σ)≤ol<>	BL≤(500-3σ) <x<(1500+3σ)≤ol< td=""></x<(1500+3σ)≤ol<>					
Br	BL ≤ (300-3σ)< X	不适用	BL ≤ (250-3σ)< X					
Cr	BL ≤ (700-3σ)< X	BL ≤ (700-3σ)< X	BL ≤ (500-3σ)< X					

- (b) 现行法规限制的最大允许值是对 PBB/PBDE 和 Cr(VI) 而不是对 Br 和 Cr 的,而 XRF 测定的是 Br 和 Cr 。如果元素 Br 和或 Cr 的定量结果均高于限值(Br 计算基于在常见物质中 PBB/PBDE 的组成的理论计算),则样品的筛选结果为"不确定"。
- (c) EDXRF 的结果用于初步筛选,LOD=检出限,BL=低于限值,OL=超出限值,IN (符号"X"标记的区域) =不确定,需要进一步研究,我们建议客户用更精确的化学检测方法测试样品,如用 ICP-OES 测试 Cd/Pb/Hg; 用 UV-Vis 测试 Cr(VI); 用 GC-MS 测试 PBBs/PBDEs。
- (d) 对于复合材料, EDXRF 筛选检测 RoHS 元素所得数据可能与样品中实际含量不同。
- (2) 邻苯二甲酸酯(PHTH)筛分结果只作初步筛选,如果检测结果超出下表所规定的警戒范围,我们采用更精确的化学检测方法检测样品,用 GC-MS 检测 DBP、BBP、DEHP 和 DIBP (单位: mg/kg)。

检测项目	CAS No.	聚合物/复合材料
邻苯二甲酸二丁酯 (DBP)	84-74-2	BL ≤ 600< X
邻苯二甲酸丁苄酯 (BBP)	85-68-7	BL ≤ 600< X
邻苯二甲酸二(2-乙基己基)酯 (DEHP)	117-81-7	BL ≤ 600< X
邻苯二甲酸二异丁酯 (DIBP)	84-69-5	BL ≤ 600< X

- (3) 化学检测方法结果说明:
 - (a) mg/kg = 0.0001%, MDL=方法检测限, ND =未检出(低于 MDL), --- =不适用。
 - (b) 化学检测方法的表达单位和方法检测限

检测项目	Pb	Cd	Hg	DBP	BBP	DEHP	DIBP
单位	mg/kg						
方法检测限	10	10	10	100	100	100	100

任何一种 PBBs 和 PBDEs 的方法检测限是 100 mg/kg;

聚合物,复合材料和皮革样品中 Cr(VI)的方法检测限是 10 mg/kg。

金属样品中 Cr(VI)的方法检测限是 0.10 μg/cm²。

- (c) ▼ = 金属样品中
 - a. 当六价铬的浓度高于 0.13 μg/cm²时,样品为阳性,即含有六价铬;
 - b. 当六价铬的浓度为 ND(低于 0.10 µg/cm²)时,样品为阴性,即未检测到六价铬;
 - c. 当六价铬的浓度介于 0.10 μg/cm²与 0.13 μg/cm²之间时,无法直接判定是否检测到六价铬,因不同个体的样品表面差异可能会影响测定结果;

由于未获知样品的存储条件和生产日期,样品的六价铬检测结果仅能代表检测时样品含六价铬的状态。

(4) RoHS 指令中限制物质及均质材料中最大允许浓度值: Cd: 0.01%, Pb/Hg/Cr(VI)/PBBs/PBDEs/ DEHP /DBP/BBP/DIBP: 0.1%, 限值引用自 RoHS 指令(EU) 2015/863。



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编号: SHAEC24000472202

日期: 2024年01月30日

第 12 页,共 16 页

(5) IEC 62321 系列等同于 EN 62321 系列。

除非另有说明,参照 ILAC-G8:09/2019,使用简单接受(w=0)的二元判定规则进行符合性判定。 除非另有说明,此报告结果仅对检测的样品负责。本报告未经本公司书面许可,不可部分复制。 检测报告仅用于客户科研、教学、内部质量控制、产品研发等目的,仅供内部参考。



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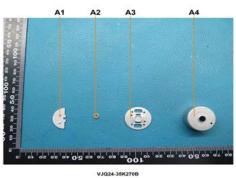
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第13页,共16页

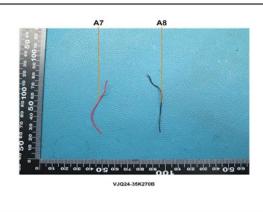
样品照片:















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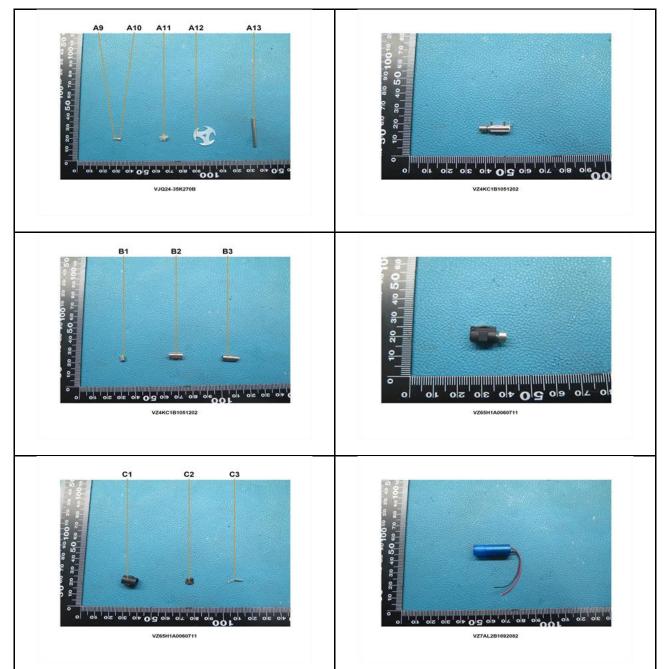
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日期: 2024年01月30日

第14页,共16页





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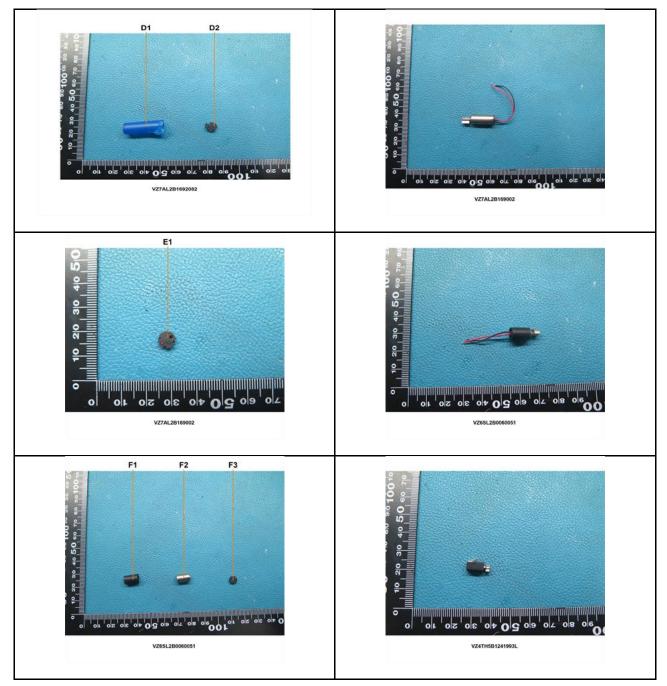
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第15页,共16页





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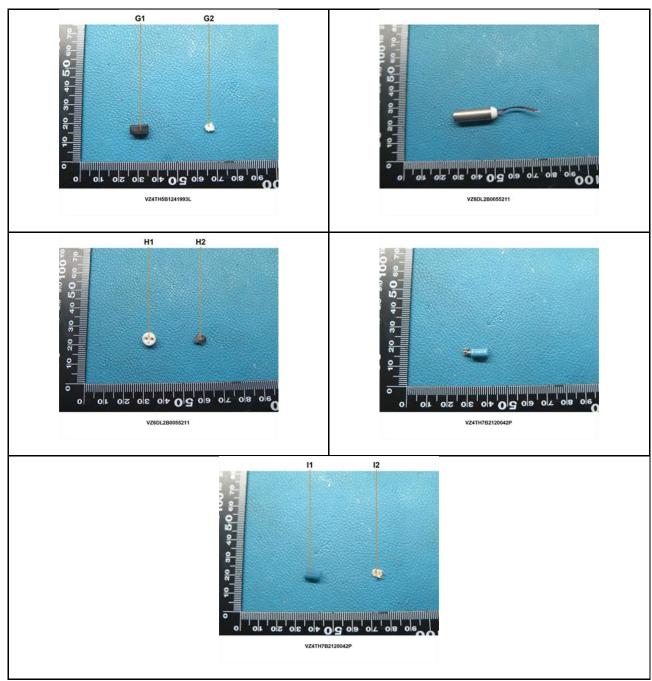
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第16页,共16页



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