

验证报告

No. CKGEC1701091002

日期: 2018年01月18日 第1页,共13页

湖北天瑞电子股份有限公司
中国湖北省天门市侨乡开发区创业大道8#

样品名称: 直流传感器
SGS工作编号: 18572562 - CQ
测试基本型号: TR0215LX
客户参考信息: TR2215LB TR0218LX TR1234YBS1C TR1275YBS1C TR2201~13LB
样品接收日期: 2017年11月20日
验证周期: 2017年11月20日 - 2018年01月08日
验证要求: 参考欧盟RoHS指令2011/65/EU的修正指令2015/863/EU。
验证方法: 请参见后续页。
验证结果: 请参见后续页。
验证结论: 依据对所提供样品的相关验证, 铅、汞、镉、六价铬、多溴联苯(PBBs)、多溴二苯醚(PBDEs) 和邻苯二甲酸酯(如邻苯二甲酸二丁酯 (DBP)、邻苯二甲酸丁苯酯(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))的测试结果符合欧盟RoHS指令2011/65/EU附录II修正指令2015/863/EU的限值要求。
备注: 本报告测试数据仅代表所测试样品的结果, 未经实验室书面授权, 不得部分复制本报告。

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Chongqing Branch Chemical Laboratory.

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验证方法:

1. 参考IEC 62321-2:2013, 拆分申请者提供的成品, 并评估样品。
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X射线荧光分析仪器进行筛选。
 - (2) 湿法化学测试方法:
 - a. 参考IEC62321-5:2013, 用ICP-OES测定镉的含量。
 - b. 参考IEC62321-5:2013, 用ICP-OES测定铅的含量。
 - c. 参考IEC 62321-4:2013+A1:2017, 用ICP-OES测定汞的含量。
 - d. 参考IEC 62321-7-1:2015, IEC 62321-7-2:2017和ISO17075-1:2017, 用紫外-可见分光光度计比色法测定六价格的含量。
 - e. 参考IEC62321-6:2015, 用GC-MS测定PBBs(多溴联苯)和PBDEs(多溴二苯醚)的含量。
3. 参考IEC 62321-8:2017, 用GC-MS测定邻苯二甲酸酯的含量。



样品编号	样品描述	限用物质	EDXRF 测试结果(1)	PHTH筛分结果(2)	化学测试结果(3) (mg/kg)	EU RoHS 结论	样品提交/再次提交日期
1 -C	蓝色塑料壳	Pb Cd Hg Cr(VI)▼ PBBs PBDEs DBP BBP DEHP DIBP	BL BL BL BL IN IN --- --- --- ---	--- --- --- --- --- --- BL BL BL BL	--- --- --- --- ND ND --- --- --- ---	符合 符合 符合 符合 符合 符合 符合 符合 符合 符合	20 Nov 2017 29 Dec 2017
2	金色金属件	Pb Cd Hg Cr(VI)▼ PBBs PBDEs DBP BBP DEHP DIBP	OL BL BL BL --- --- --- --- --- ---	--- --- --- --- --- --- --- --- --- ---	26876▲ --- --- --- --- --- --- --- --- ---	符合 符合 符合 符合 --- --- --- --- --- ---	20 Nov 2017
3	黑色物料	Pb Cd Hg Cr(VI)▼ PBBs PBDEs DBP	BL BL BL BL BL BL ---	--- --- --- --- --- --- BL	--- --- --- --- --- --- ---	符合 符合 符合 符合 符合 符合 符合	20 Nov 2017



样品编号	样品描述	限用物质	EDXRF 测试结果(1)	PHTH筛分结果(2)	化学测试结果(3) (mg/kg)	EU RoHS 结论	样品提交/再次提交日期
		BBP	---	BL	---	符合	
		DEHP	---	BL	---	符合	
		DIBP	---	BL	---	符合	
4	绿色塑料插槽	Pb	BL	---	---	符合	20 Nov 2017
		Cd	BL	---	---	符合	
		Hg	BL	---	---	符合	
		Cr(VI)▼	BL	---	---	符合	
		PBBs	BL	---	---	符合	
		PBDEs	BL	---	---	符合	
		DBP	---	BL	---	符合	
		BBP	---	BL	---	符合	
		DEHP	---	BL	---	符合	
		DIBP	---	BL	---	符合	
5	绿色"PCB"(在No.3里)	Pb	BL	---	---	符合	20 Nov 2017
		Cd	BL	---	---	符合	
		Hg	BL	---	---	符合	
		Cr(VI)▼	BL	---	---	符合	
		PBBs	IN	---	ND	符合	
		PBDEs	IN	---	ND	符合	
		DBP	---	BL	---	符合	
		BBP	---	BL	---	符合	
		DEHP	---	BL	---	符合	
		DIBP	---	BL	---	符合	



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样品编号	样品描述	限用物质	EDXRF 测试结果(1)	PHTH筛分结果(2)	化学测试结果(3) (mg/kg)	EU RoHS 结论	样品提交/再次提交日期
6	银色金属脚(在No.4里)	Pb	BL	---	---	符合	20 Nov 2017
		Cd	BL	---	---	符合	
		Hg	BL	---	---	符合	
		Cr(VI)▼	BL	---	---	符合	
		PBBs	---	---	---	---	
		PBDEs	---	---	---	---	
		DBP	---	---	---	---	
		BBP	---	---	---	---	
		DEHP	---	---	---	---	
		DIBP	---	---	---	---	
7	银色金属壳	Pb	BL	---	---	符合	20 Nov 2017
		Cd	BL	---	---	符合	
		Hg	BL	---	---	符合	
		Cr(VI)▼	IN	---	ND	符合	
		PBBs	---	---	---	---	
		PBDEs	---	---	---	---	
		DBP	---	---	---	---	
		BBP	---	---	---	---	
		DEHP	---	---	---	---	
		DIBP	---	---	---	---	
8 -C	黑色本体(在No.5上)	Pb	BL	---	---	符合	20 Nov 2017 11 Dec 2017
		Cd	BL	---	---	符合	
		Hg	BL	---	---	符合	
		Cr(VI)▼	BL	---	---	符合	
		PBBs	IN	---	ND	符合	
		PBDEs	IN	---	ND	符合	
		DBP	---	BL	---	符合	



样品编号	样品描述	限用物质	EDXRF 测试结果(1)	PHTH筛分结果(2)	化学测试结果(3) (mg/kg)	EU RoHS 结论	样品提交/再次提交日期
		BBP	---	BL	---	符合	
		DEHP	---	BL	---	符合	
		DIBP	---	BL	---	符合	
9 -C	黑色本体(在No.5上)	Pb	BL	---	---	符合	20 Nov 2017 11 Dec 2017
		Cd	BL	---	---	符合	
		Hg	BL	---	---	符合	
		Cr(VI)▼	BL	---	---	符合	
		PBBs	BL	---	---	符合	
		PBDEs	BL	---	---	符合	
		DBP	---	BL	---	符合	
		BBP	---	BL	---	符合	
		DEHP	---	BL	---	符合	
		DIBP	---	BL	---	符合	
10	黑色本体(在No.5上)	Pb	BL	---	---	符合	20 Nov 2017
		Cd	BL	---	---	符合	
		Hg	BL	---	---	符合	
		Cr(VI)▼	BL	---	---	符合	
		PBBs	BL	---	---	符合	
		PBDEs	BL	---	---	符合	
		DBP	---	BL	---	符合	
		BBP	---	BL	---	符合	
		DEHP	---	BL	---	符合	
		DIBP	---	BL	---	符合	



样品编号	样品描述	限用物质	EDXRF 测试结果(1)	PHTH筛分结果(2)	化学测试结果(3) (mg/kg)	EU RoHS 结论	样品提交/再次提交日期
11 -C	银色金属焊锡(在No.5上)	Pb	BL	---	---	符合	20 Nov 2017 11 Dec 2017
		Cd	BL	---	---	符合	
		Hg	BL	---	---	符合	
		Cr(VI)▼	BL	---	---	符合	
		PBBs	---	---	---	---	
		PBDEs	---	---	---	---	
		DBP	---	---	---	---	
		BBP	---	---	---	---	
		DEHP	---	---	---	---	
		DIBP	---	---	---	---	
12	铜色金属线(在No.7里)	Pb	BL	---	---	符合	20 Nov 2017
		Cd	BL	---	---	符合	
		Hg	BL	---	---	符合	
		Cr(VI)▼	BL	---	---	符合	
		PBBs	---	---	---	---	
		PBDEs	---	---	---	---	
		DBP	---	---	---	---	
		BBP	---	---	---	---	
		DEHP	---	---	---	---	
		DIBP	---	---	---	---	
13	白色塑料壳(在No.7里)	Pb	BL	---	---	符合	20 Nov 2017
		Cd	BL	---	---	符合	
		Hg	BL	---	---	符合	
		Cr(VI)▼	BL	---	---	符合	
		PBBs	IN	---	ND	符合	
		PBDEs	IN	---	ND	符合	
		DBP	---	BL	---	符合	



样品编号	样品描述	限用物质	EDXRF 测试结果(1)	PHTH筛分结果(2)	化学测试结果(3) (mg/kg)	EU RoHS 结论	样品提交/再次提交日期
		BBP	---	BL	---	符合	
		DEHP	---	BL	---	符合	
		DIBP	---	BL	---	符合	
14	灰色磁铁(在No.13里)	Pb	BL	---	---	符合	20 Nov 2017
		Cd	BL	---	---	符合	
		Hg	BL	---	---	符合	
		Cr(VI)▼	BL	---	---	符合	
		PBBs	P	---	---	符合	
		PBDEs	P	---	---	符合	
		DBP	---	BL	---	符合	
		BBP	---	BL	---	符合	
		DEHP	---	BL	---	符合	
		DIBP	---	BL	---	符合	



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备注:

(1) (a) 对于限用物质是PBBs和PBDEs, 其结果显示的是总Br含量; 限用物质是Cr(VI), 其结果显示的是总Cr含量。

(b) EDXRF所得的测试结果只作初步筛选, 如果EDXRF结果超出IEC62321-3-1:2013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Cr(VI); 用GC-MS测试PBBs和PBDEs(单位: mg/kg)。

元素	聚合物	金属	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	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X$	$BL \leq (500-3\sigma) < X$

(c) BL = 低于限度, OL = 超出限度, IN = 不确定, LOD = 检测限, -- = 未规定。

(d) 对于复合材料, XRF筛选测试RoHS元素所得数据可能与样品中实际含量不同。

(2) PHTH筛分结果只作初步筛选, 如果测试结果超出下表所规定的警戒范围, 我们采用更精确的化学测试方法测试样品, 用GC-MS测试DBP、BBP、DEHP和DIBP (单位: mg/kg)。

化合物	聚合物
DBP	$BL \leq 600 < X$
BBP	$BL \leq 600 < X$
DEHP	$BL \leq 600 < X$
DIBP	$BL \leq 600 < X$

(3) (a) mg/kg = 0.0001%, MDL=方法检测限, ND =未检出(低于MDL), --- =未检测, - = 无清单编号。

(b) 化学测试方法的表达单位和方法检测限

测试项目	Pb	Cd	Hg	DBP	BBP	DEHP	DIBP
单位	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	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0.10µg/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, 样品的六价铬测试结果仅能代表测试时样品含六价铬的状态。

IEC 62321系列等同于 EN 62321系列

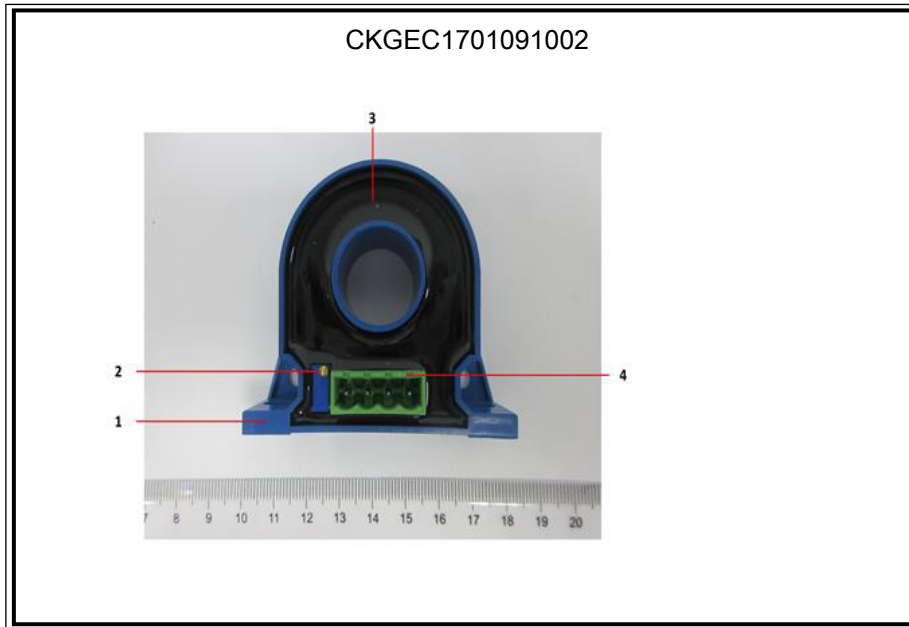
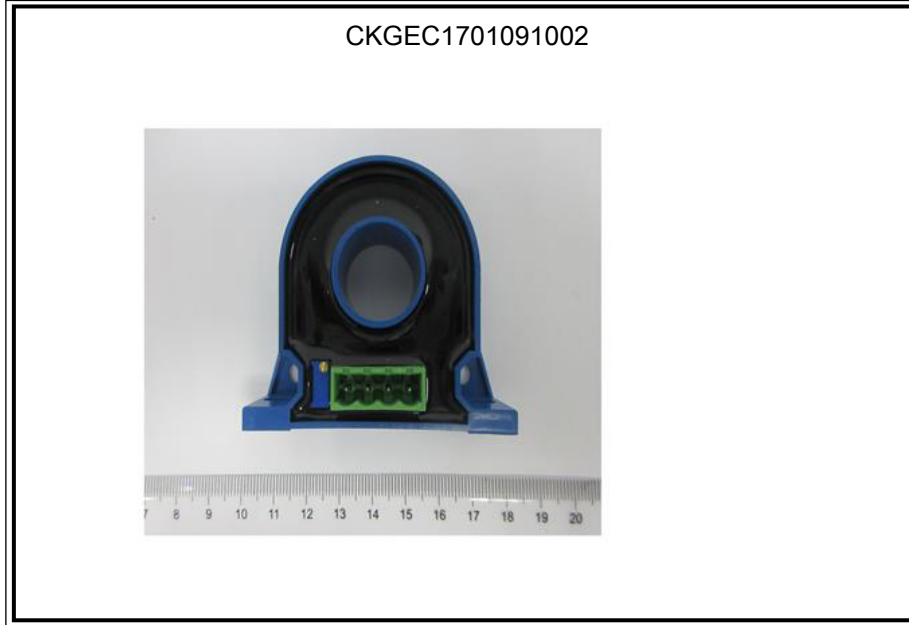
http://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25

(d)▲=根据客户提供的声明, 编号2中的铅(Pb)被欧盟RoHS指令2011/65/EU豁免, 相应豁免条文(请以英文原文为准) |ANNEX III 6(c)|: 铜合金中的铅含量不得超过4%。

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。



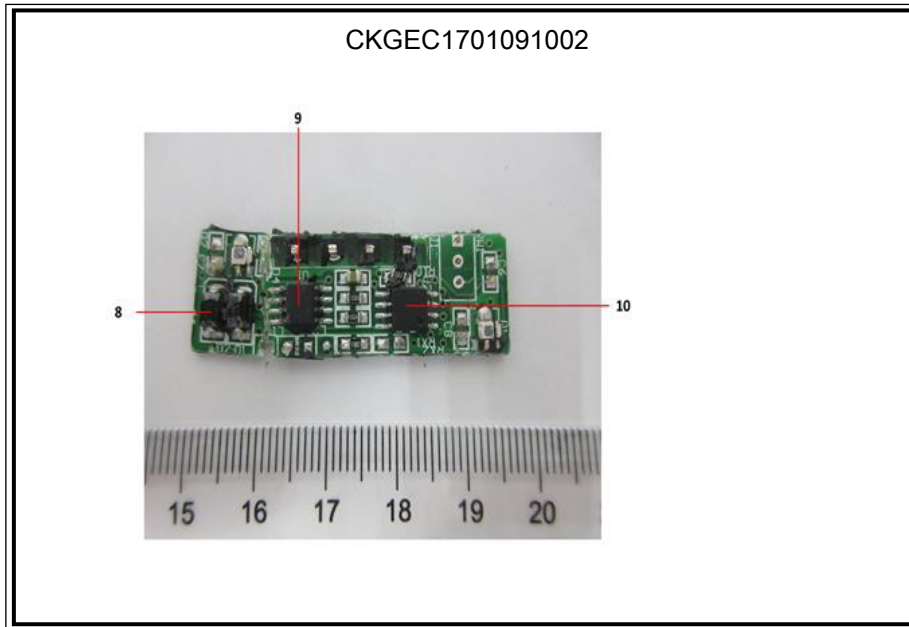
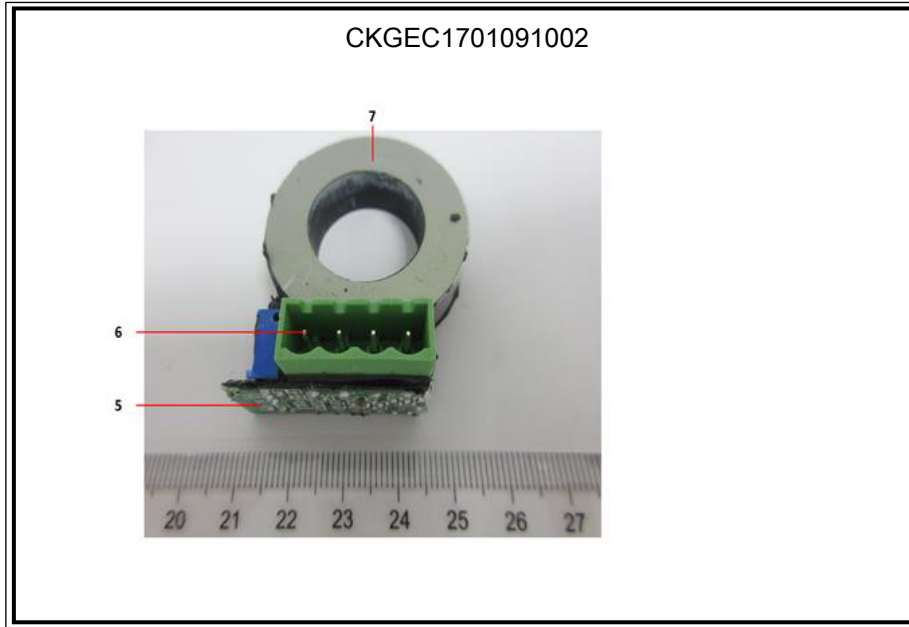
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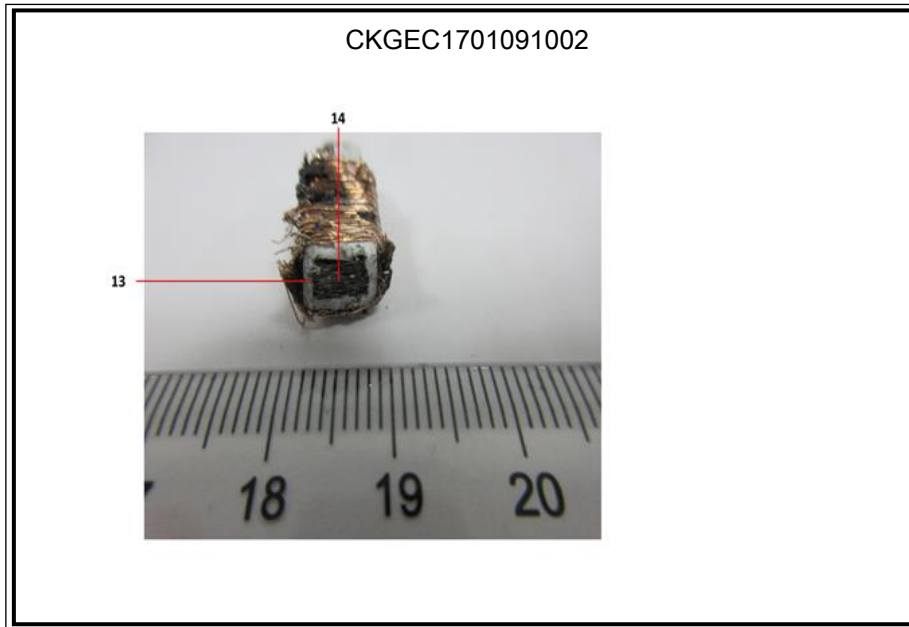
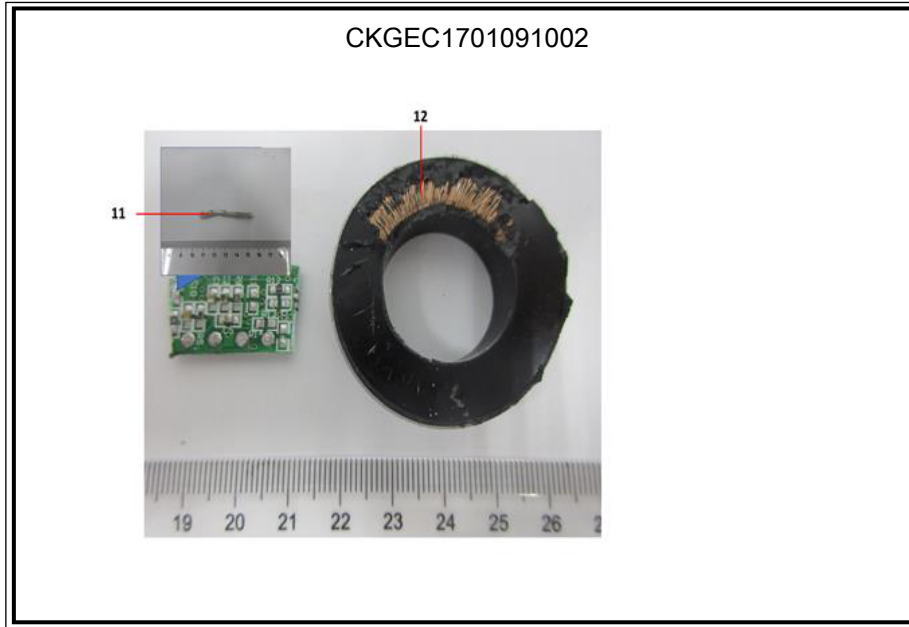


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