

验证报告

编号: SHAEC23020723402

日期: 2024 年 01 月 15 日

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客户名称: 江苏鼎智智能控制科技股份有限公司
客户地址: 江苏省常州经济开发区潞城街道龙锦路 355 号

样品名称: 驱动器
测试基本型号: DS-CLS9-FETC
客户参考信息: DS-OLS22-FPD/DS-OLS3-FPD/DS-CLS9-FCAO/DS-OLS2-FPD-B/DS-OLS8-FPD-01/DS-CLS9-FETC-2I/DS-CLS9-FETC-2A/DS-CLS10-FRS4/DS-OLS4-FPD-B/DS-CLS6-FRS4/DS-CLS3-FETC-4I/DS-OLBS2-FRS4/DS-OLBS4-FRS4/DS-OLBS6-FSC/DS-OLBS8-FRS4/DS-CLBS8-FRS4/DS-OLBS10-FRS4/DS-OLBS11-FRS4/DS-OLBS6-FCAO/DS-OLBS12-FRS4/DS-BVM-FETC (FCAO) /DS-BVS-FCAO/2MSD505B-01/2MSD403X-1/2MSD4015-2/DS-CLS9-FRS4-01/DS-OLS10-FSC/DS-BVS-FETC

以上样品及信息由客户提供。

SGS 工作编号: SHP23-021369
样品接收时间: 2023 年 12 月 08 日
验证周期: 2023 年 12 月 08 日 ~ 2024 年 01 月 12 日
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)	符合

通标标准技术服务(上海)有限公司
授权签名

陈皆欢

Jessica Chen 陈皆欢
批准签署人

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样品照片



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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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	SHA23-0207234-0001.C001	黑色粘性塑料标签
SN2	A2	SHA23-0207234-0001.C002	黑色金属外壳
SN3	A3	SHA23-0207234-0001.C003	黑色金属螺丝
SN4	A4	SHA23-0207234-0001.C004	银色金属螺丝
SN5	A5	SHA23-0207234-0001.C005	银色金属垫片
SN6	A6	SHA23-0207234-0001.C006	银色金属垫片
SN7	A7	SHA23-0207234-0001.C007	银蓝色金属螺母
SN8	A8	SHA23-0207234-0001.C008	银蓝色金属垫片
SN9	A9	SHA23-0207234-0001.C009	黑色金属垫片
SN10	A10	SHA23-0207234-0001.C010	PCB 接口上银色金属
SN11	A11	SHA23-0207234-0001.C011	PCB 接口上银色金属
SN12	A12	SHA23-0207234-0001.C012	PCB 接口上白色塑料
SN13	A13	SHA23-0207234-0001.C013	PCB 上银色金属插针
SN14	A14	SHA23-0207234-0001.C014	PCB 接口上绿色塑料
SN15	A15	SHA23-0207234-0001.C015	PCB 接口上绿色塑料
SN16	A16	SHA23-0207234-0001.C016	PCB 接口上绿色塑料
SN17	A17	SHA23-0207234-0001.C017	PCB 接口上橙色塑料
SN18	A18	SHA23-0207234-0001.C018	PCB 上银色金属插针
SN19	A19	SHA23-0207234-0001.C019	PCB 上银色金属插针
SN20	A20	SHA23-0207234-0001.C020	PCB 上银色金属插针
SN21	A21	SHA23-0207234-0001.C021	PCB 接口上黑色塑料
SN22	A22	SHA23-0207234-0001.C022	PCB 接口上黑色塑料
SN23	A23	SHA23-0207234-0001.C023	PCB 接口上米色塑料
SN24	A24	SHA23-0207234-0001.C024	PCB 上米色塑料插针
SN25	A25	SHA23-0207234-0001.C025	PCB 上金色金属插针



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样品序号	样品编号	SGS 样品 ID	样品描述
SN26	A26	SHA23-0207234-0001.C026	绿色 PCB 本体
SN27	A27	SHA23-0207234-0001.C027	PCB 上黑色塑料显示屏
SN28	A28	SHA23-0207234-0001.C028	PCB 显示屏上黑色 PCB 本体
SN29	A29	SHA23-0207234-0001.C029	PCB 显示屏上白色胶
SN30	A30	SHA23-0207234-0001.C030	PCB 接口上银色金属
SN31	A31	SHA23-0207234-0001.C031	PCB 接口上黑色塑料
SN32	A32	SHA23-0207234-0001.C032	PCB 上银色金属插针
SN33	A33	SHA23-0207234-0001.C033	PCB 接口上银色金属
SN34	A34	SHA23-0207234-0001.C034	PCB 接口上黑色塑料
SN35	A35	SHA23-0207234-0001.C035	PCB 接口上黑色塑料
SN36	A36	SHA23-0207234-0001.C036	PCB 上银色金属插针
SN37	A37	SHA23-0207234-0001.C037	PCB 上银色金属插针
SN38	A38	SHA23-0207234-0001.C038	PCB 接口上橙色塑料
SN39	A39	SHA23-0207234-0001.C039	PCB 接口上橙色塑料
SN40	A40	SHA23-0207234-0001.C040	PCB 接口上橙色塑料
SN41	A41	SHA23-0207234-0001.C041	PCB 上银色金属插针
SN42	A42	SHA23-0207234-0001.C042	PCB 上银色金属插针
SN43	A43	SHA23-0207234-0001.C043	PCB 接口上白色塑料
SN44	A44	SHA23-0207234-0001.C044	PCB 接口上白色塑料
SN45	A45	SHA23-0207234-0001.C045	PCB 上银色金属插针
SN46	A46	SHA23-0207234-0001.C046	PCB 电解电容上黑色橡胶
SN47	A47	SHA23-0207234-0001.C047	PCB 电解电容上黑色塑料
SN48	A48	SHA23-0207234-0001.C048	PCB 上黑色塑料护套
SN49	A49	SHA23-0207234-0001.C049	PCB 上黑色塑料
SN50	A50	SHA23-0207234-0001.C050	PCB 上红色粘性塑料胶带



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样品序号	样品编号	SGS 样品 ID	样品描述
SN51	A51	SHA23-0207234-0001.C051	PCB 上黄色粘性塑料胶带
SN52	A52	SHA23-0207234-0001.C052	PCB 上黄色粘性塑料胶带
SN53	A53	SHA23-0207234-0001.C053	PCB 上黑色 IC 本体
SN54	A54	SHA23-0207234-0001.C054	PCB 上棕色固体电容
SN55	A55	SHA23-0207234-0001.C055	PCB 上黑色 IC 本体
SN56	A56	SHA23-0207234-0001.C056.C001	PCB 上银色金属焊锡
SN57	A57	SHA23-0207234-0001.C057	绿色 PCB 本体
SN58	A58	SHA23-0207234-0001.C058	灰色胶
SN59	A59	SHA23-0207234-0001.C059	金色金属螺柱
SN60	A60	SHA23-0207234-0001.C060	金色金属螺柱
SN61	A61	SHA23-0207234-0001.C061	银色金属外壳



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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	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	ND	ND	BL	ND	BL	BL
PBBs	BL	---	---	---	---	---	---	---
PBDEs	BL	---	---	---	---	---	---	---
DBP	BL	---	---	---	---	---	---	---
BBP	BL	---	---	---	---	---	---	---
DEHP	BL	---	---	---	---	---	---	---
DIBP	BL	---	---	---	---	---	---	---
结论	符合	符合	符合	符合	符合	符合	符合	符合

检测项目	A9	A10	A11	A12	A13	A14	A15	A16
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	BL	BL	BL	BL
PBBs	---	---	---	ND	---	BL	BL	BL
PBDEs	---	---	---	ND	---	BL	BL	BL
DBP	---	---	---	BL	---	BL	BL	BL
BBP	---	---	---	BL	---	BL	BL	BL
DEHP	---	---	---	BL	---	BL	BL	BL
DIBP	---	---	---	BL	---	BL	BL	BL
结论	符合	符合	符合	符合	符合	符合	符合	符合

检测项目	A17	A18	A19	A20	A21	A22	A23	A24
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	ND	BL	BL	BL	BL	BL
PBBs	BL	---	---	---	BL	BL	ND	ND
PBDEs	BL	---	---	---	BL	BL	ND	ND
DBP	BL	---	---	---	BL	BL	BL	BL
BBP	BL	---	---	---	BL	BL	BL	BL
DEHP	BL	---	---	---	BL	BL	BL	BL
DIBP	BL	---	---	---	BL	BL	BL	BL
结论	符合	符合	符合	符合	符合	符合	符合	符合

检测项目	A25	A26	A27	A28	A29	A30	A31	A32
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



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检测项目	A25	A26	A27	A28	A29	A30	A31	A32
Cr(VI)▼	BL	BL	BL	BL	BL	BL	BL	BL
PBBs	---	ND	ND	ND	ND	---	ND	---
PBDEs	---	ND	ND	ND	ND	---	ND	---
DBP	---	BL	BL	BL	BL	---	BL	---
BBP	---	BL	BL	BL	BL	---	BL	---
DEHP	---	BL	BL	BL	BL	---	BL	---
DIBP	---	BL	BL	BL	BL	---	BL	---
结论	符合	符合	符合	符合	符合	符合	符合	符合

检测项目	A33	A34	A35	A36	A37	A38	A39	A40
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	BL	BL	BL	BL
PBBs	---	ND	ND	---	---	BL	ND	BL
PBDEs	---	ND	ND	---	---	BL	ND	BL
DBP	---	BL	BL	---	---	BL	BL	BL
BBP	---	BL	BL	---	---	BL	BL	BL
DEHP	---	BL	BL	---	---	BL	BL	BL
DIBP	---	BL	BL	---	---	BL	BL	BL
结论	符合	符合	符合	符合	符合	符合	符合	符合

检测项目	A41	A42	A43	A44	A45	A46	A47	A48
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	ND	BL	BL	BL	BL	BL	BL
PBBs	---	---	BL	BL	---	BL	BL	BL
PBDEs	---	---	BL	BL	---	BL	BL	BL
DBP	---	---	BL	BL	---	BL	BL	BL
BBP	---	---	BL	BL	---	BL	BL	BL
DEHP	---	---	BL	BL	---	BL	BL	BL
DIBP	---	---	BL	BL	---	BL	BL	BL
结论	符合	符合	符合	符合	符合	符合	符合	符合

检测项目	A49	A50	A51	A52	A53	A54	A55	A56
Cd	BL	BL	BL	BL	BL	BL	BL	BL
Pb	BL	BL	BL	BL	OL▲	BL	OL▲	BL
Hg	BL	BL	BL	BL	BL	BL	BL	BL
Cr(VI)▼	BL	BL	BL	BL	BL	BL	BL	BL
PBBs	BL	BL	BL	BL	BL	BL	BL	---
PBDEs	BL	BL	BL	BL	BL	BL	BL	---
DBP	BL	BL	BL	BL	BL	BL	BL	---
BBP	BL	BL	BL	BL	BL	BL	BL	---
DEHP	BL	BL	BL	BL	BL	BL	BL	---



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验证报告

编号: SHAEC23020723402

日期: 2024年01月15日

第8页, 共16页

检测项目	A49	A50	A51	A52	A53	A54	A55	A56
DIBP	BL	BL	BL	BL	BL	BL	BL	---
结论	符合	符合	符合	符合	符合	符合	符合	符合

检测项目	A57	A58	A59	A60	A61
Cd	BL	BL	BL	BL	BL
Pb	BL	BL	OL▲	OL▲	BL
Hg	BL	BL	BL	BL	BL
Cr(VI)▼	BL	BL	BL	BL	BL
PBBs	ND	BL	---	---	---
PBDEs	ND	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



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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:

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	$BL \leq (300-3\sigma) < X$	不适用	$BL \leq (250-3\sigma) < X$
Cr	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X$	$BL \leq (500-3\sigma) < X$

(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	$BL \leq 600 < X$
邻苯二甲酸丁苄酯 (BBP)	85-68-7	$BL \leq 600 < X$
邻苯二甲酸二(2-乙基己基)酯 (DEHP)	117-81-7	$BL \leq 600 < X$
邻苯二甲酸二异丁酯 (DIBP)	84-69-5	$BL \leq 600 < X$

(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	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 0.10 $\mu g/cm^2$ 。

(c) ▼ = 金属样品中

a. 当六价格的浓度高于 0.13 $\mu g/cm^2$ 时, 样品为阳性, 即含有六价格;

b. 当六价格的浓度为 ND(低于 0.10 $\mu g/cm^2$)时, 样品为阴性, 即未检测到六价格;

c. 当六价格的浓度介于 0.10 $\mu g/cm^2$ 与 0.13 $\mu g/cm^2$ 之间时, 无法直接判定是否检测到六价格, 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, 样品的六价格检测结果仅能代表检测时样品含六价格的状态。

(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。



(5) IEC 62321 系列等同于 EN 62321 系列。

(6) ▲=根据客户提供的声明,

编号 A59, A60 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%。

编号 A53, A55 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 7(c)-II|: 电子电气元件中玻璃或陶瓷材料(电容中陶瓷介质除外)所含的铅, 如压电设备、玻璃或陶瓷基复合元件。

更多豁免相关信息, 可以从以下链接获取:

<https://rohs.sgsonline.com.cn/PDFLinks/zh-cn/RSTS-TP-037%20RoHS%20Exemption%20%28CN%29.pdf>

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。

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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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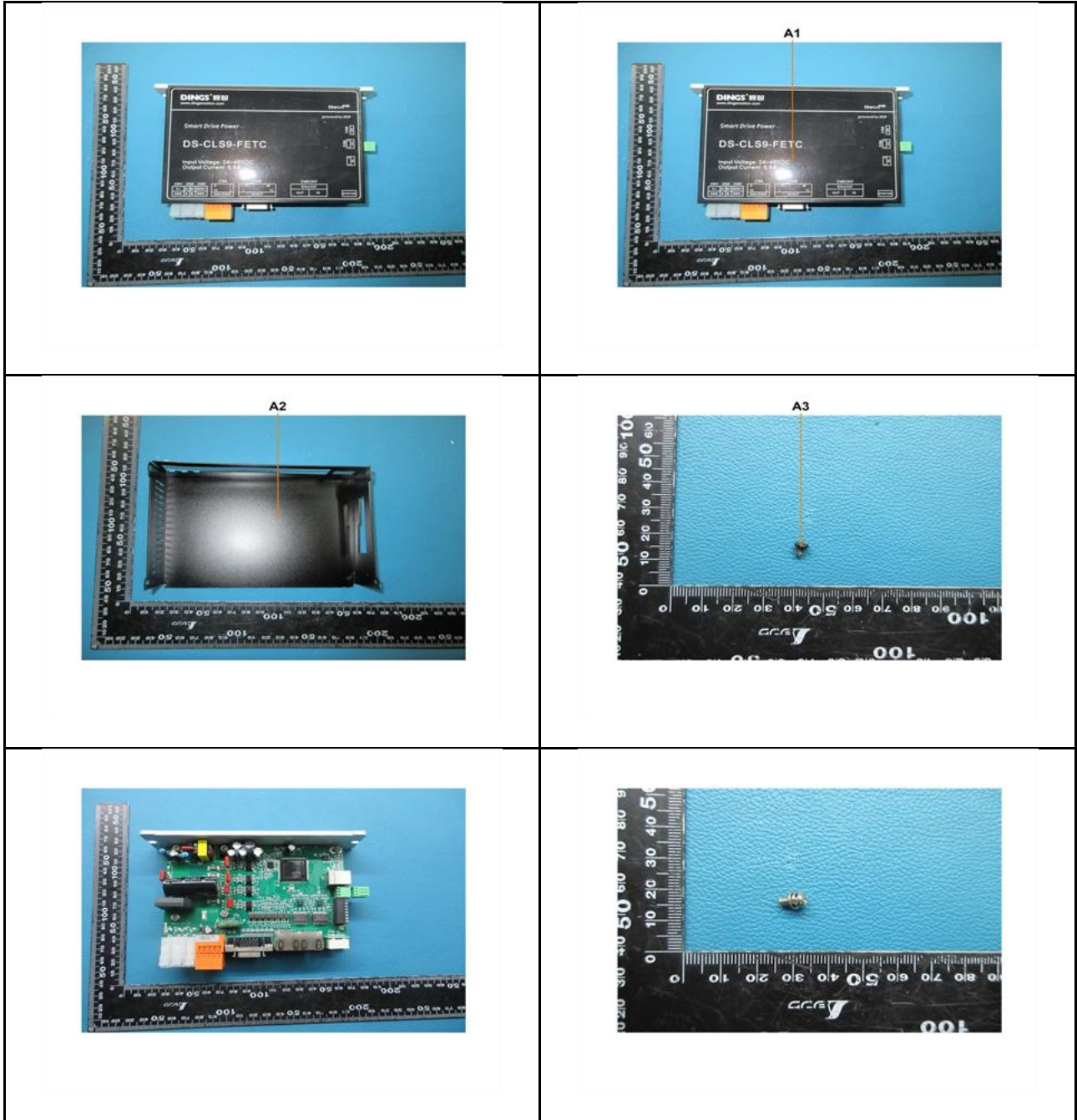
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日期: 2024年01月15日

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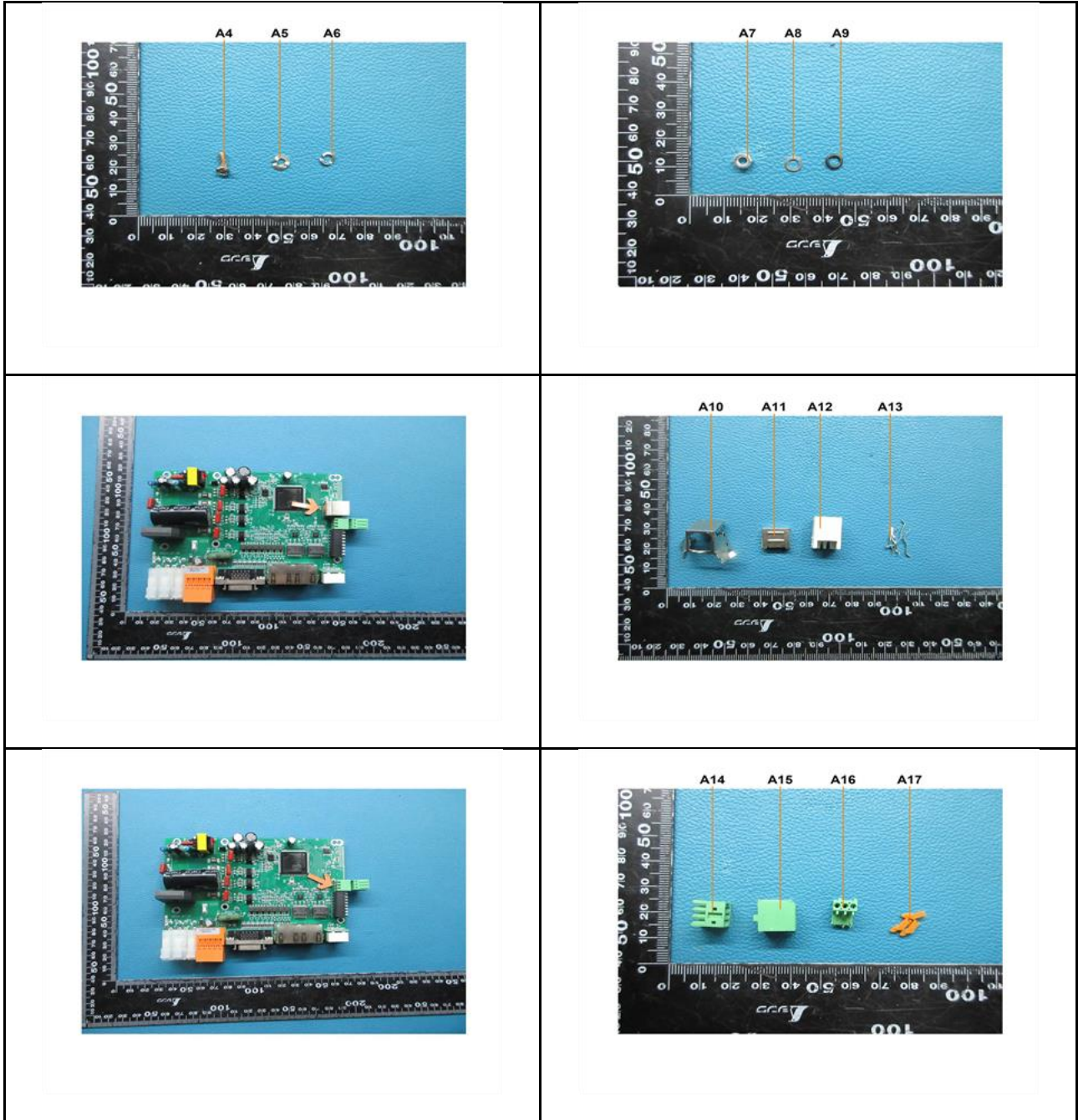
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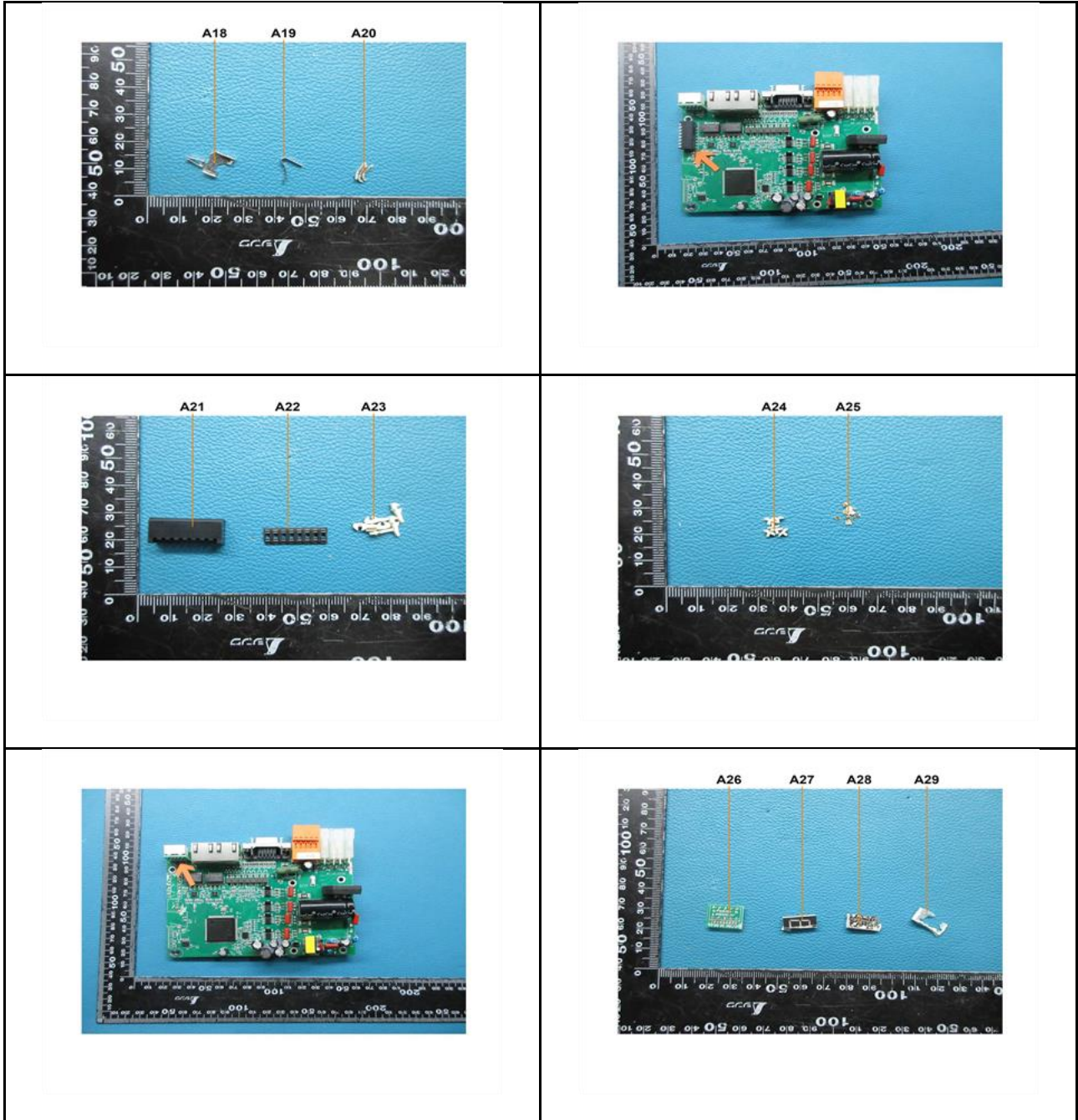
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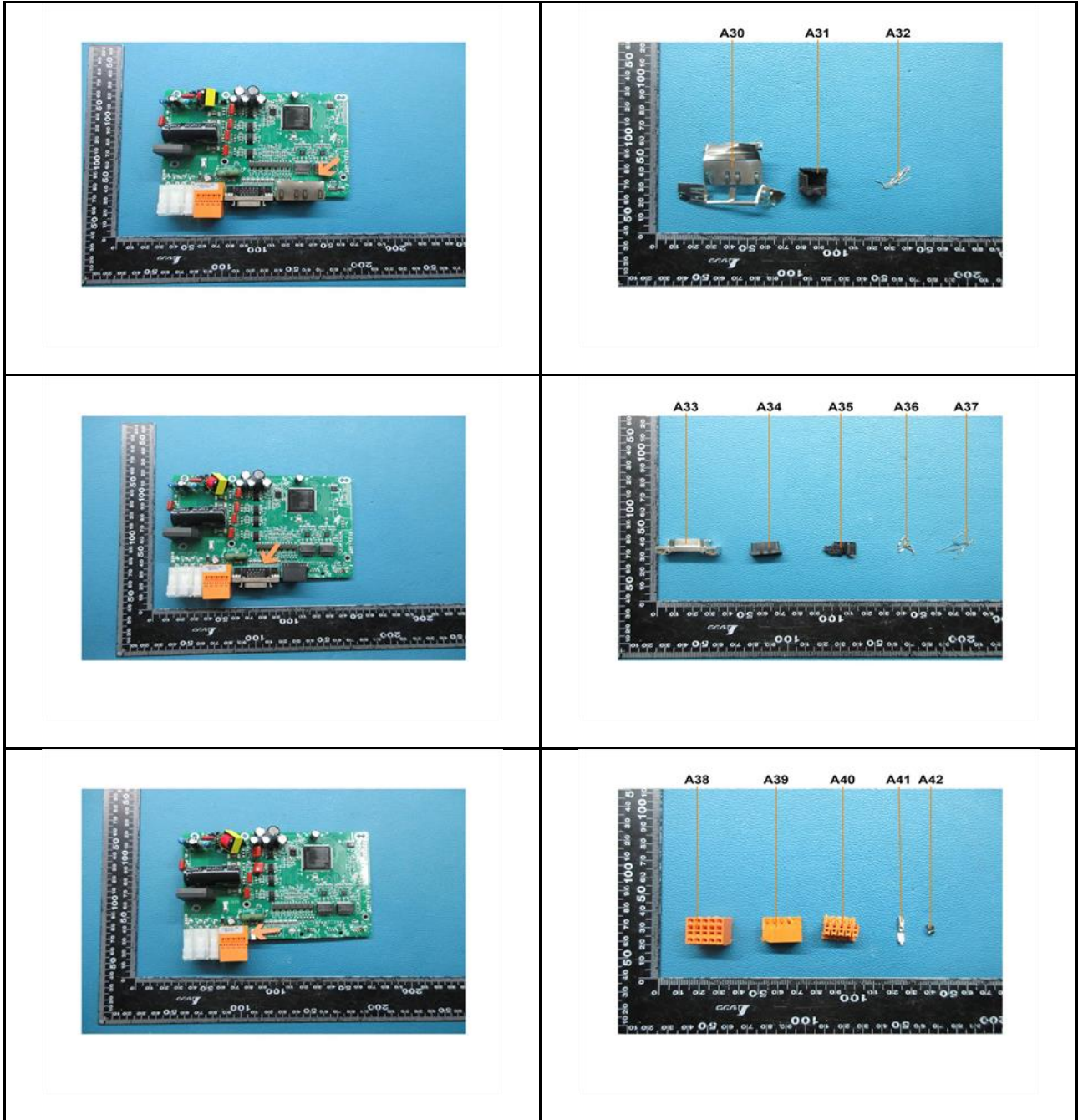
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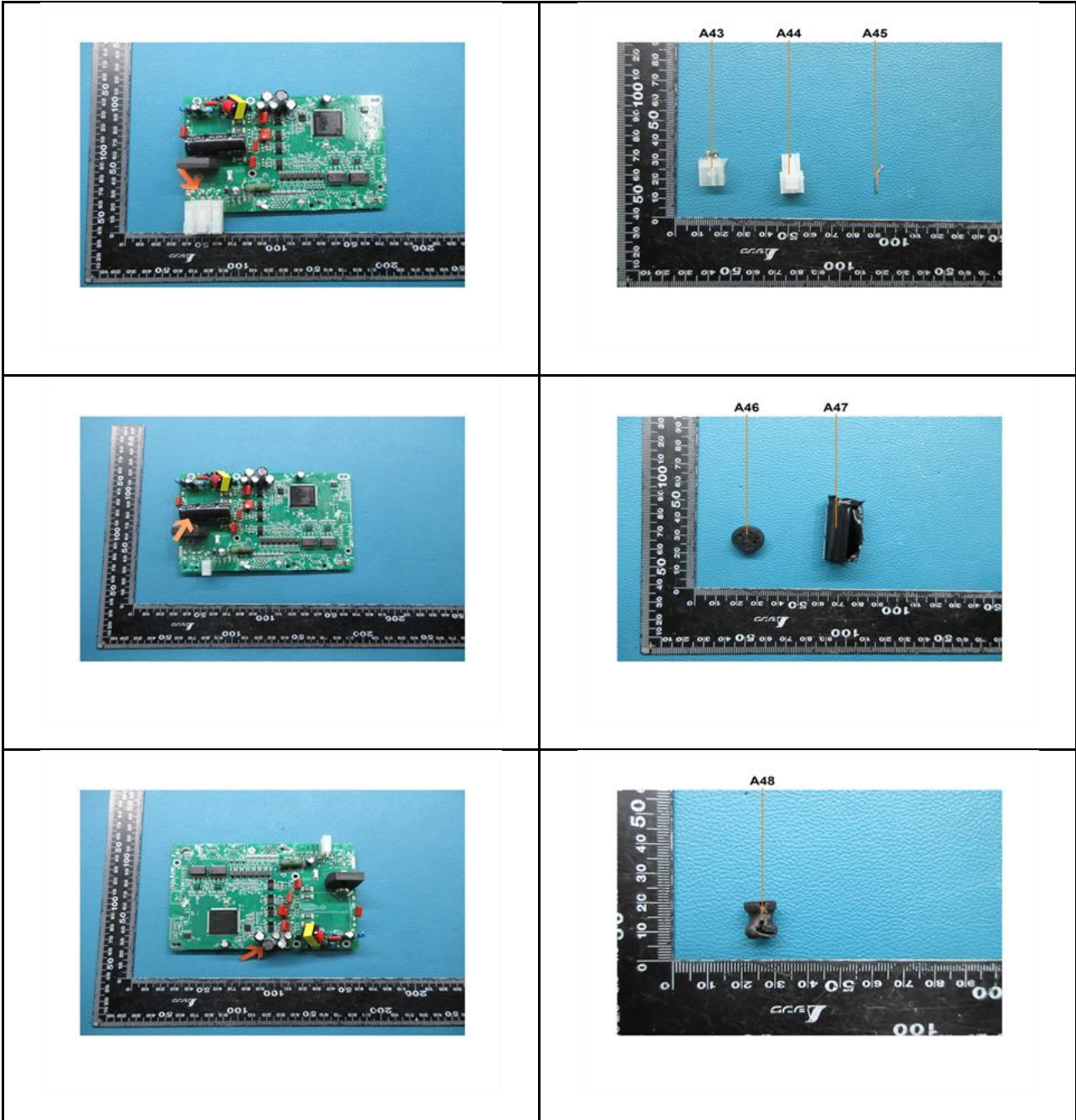
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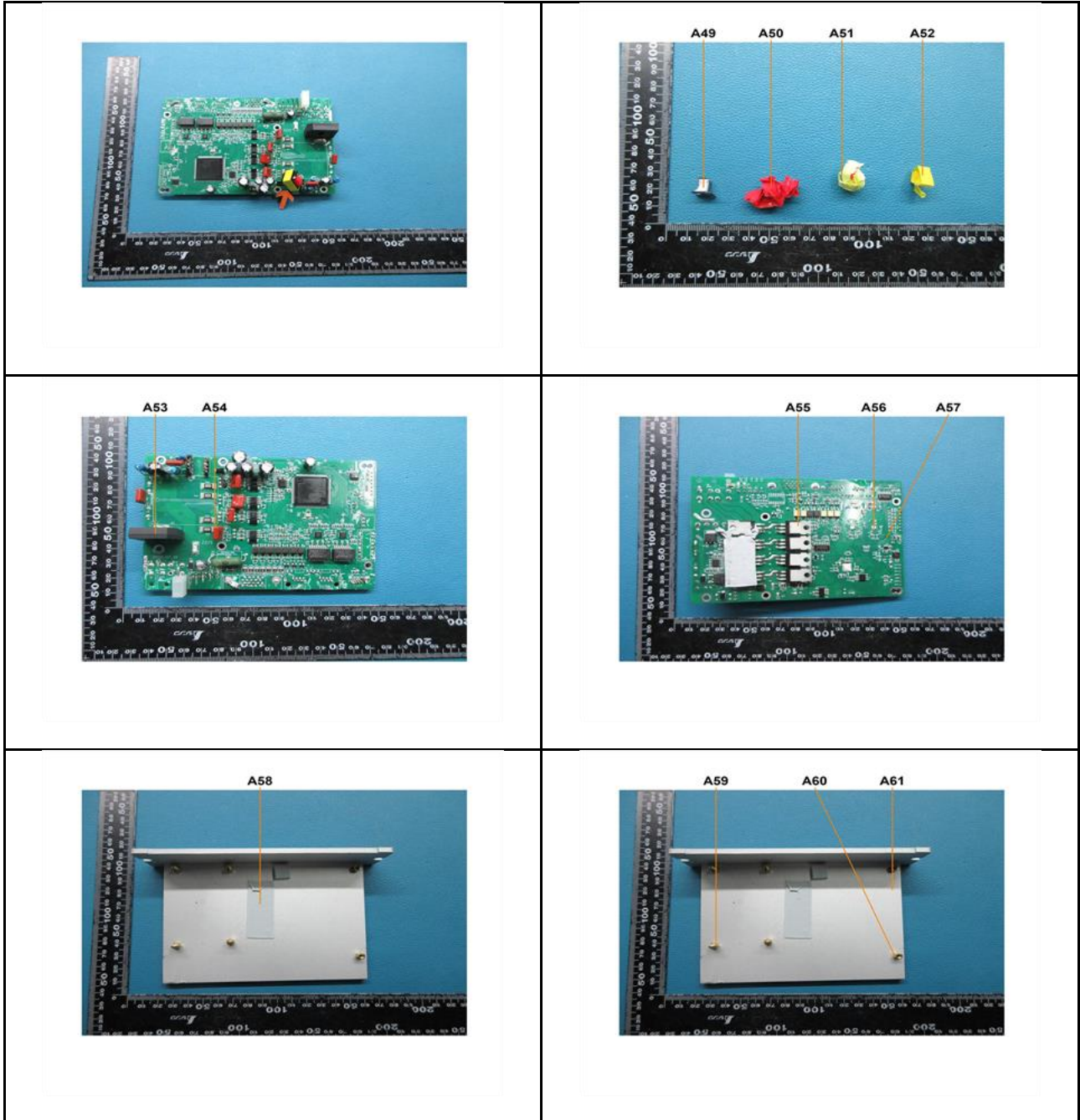
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