

Client Name: Jiangsu DINGS' Intelligent Control Technology Co., LTD
Client Address: No. 2850 Luheng Road, Economic Development Zone, Changzhou, Jiangsu, 213025 China

Sample Name: Voice Coil Motor
Tested Basic Model No.: L11E2110R4-144SSSN-100SZ
Client Ref. Information: E/K/N

The above sample(s) and information were provided by the client.

SGS Job No.: SHP25-001627
Sample Receiving Date: Jan 20, 2025
Verification Period: Jan 20, 2025 ~ Feb 20, 2025
Verification Requested: With reference to RoHS Directive (EU) 2015/863 amending 2011/65/EU.
Verification Method(s): Please refer to next page(s).
Verification Result(s): Please refer to next page(s).

Test Result Summary:

Test Items	Conclusion
EU RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU - Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE), Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP)	Pass

Signed for and on behalf of
SGS-CSTC Standards Technical Services (Qingdao) Co., Ltd.

Justin Zhang

Justin Zhang
Approved Signatory

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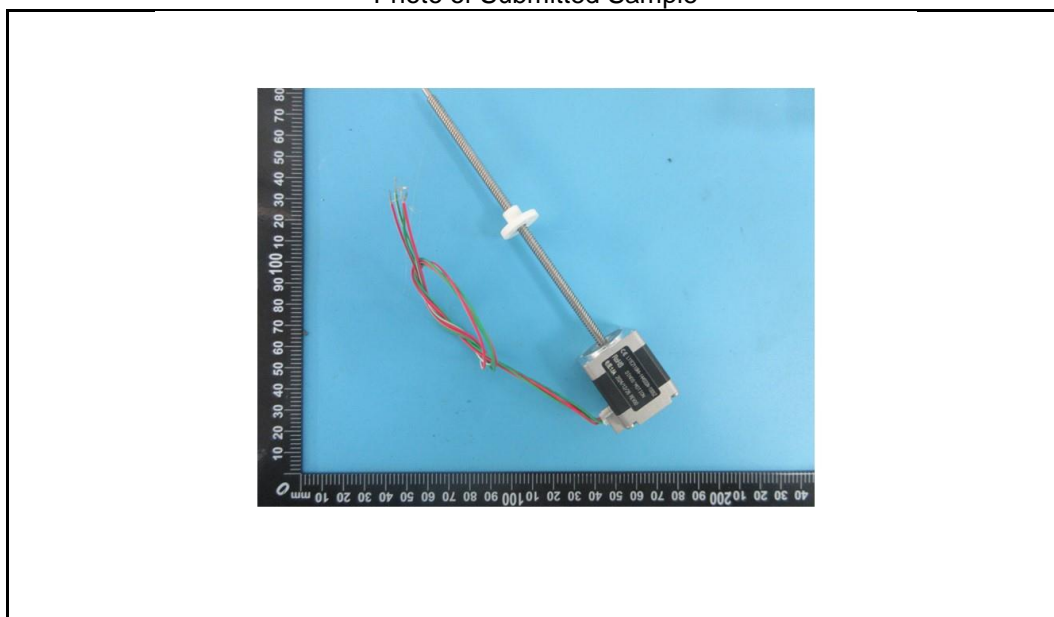
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Photo of Submitted Sample



Verification Method(s):

1. With reference to IEC 62321-2:2021, disassembly and disjointment were performed for the submitted samples.
2. With reference to IEC 62321-1:2013, tests were performed for the samples indicated by the photos in this report.
 - (1) With reference to IEC 62321-3-1:2013, screening by EDXRF spectroscopy.
 - (2) Wet chemical test method: With reference to IEC 62321-4:2013+A1:2017, IEC62321-5:2013, IEC 62321-7-1:2015, IEC 62321-7-2:2017, IEC 62321-12:2023, IEC 62321-6:2015 and IEC62321-8:2017 , analyzed by ICP-OES,UV-Vis and GC-MS.



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Verification Part Description:

SN ID	Sample No.	SGS Sample ID	Description
SN1	A1	TAO25-0005458-0001.C001	Black/white plastic(label)
SN2	A2	TAO25-0005458-0001.C002	White plastic
SN3	A3	TAO25-0005458-0001.C003	Silvery metal
SN4	A4	TAO25-0005458-0001.C004	White plastic
SN5	A5	TAO25-0005458-0001.C005	Green PCB
SN6	A6	TAO25-0005458-0001.C006	Beige plastic
SN7	A7	TAO25-0005458-0001.C007	Silvery metal
SN8	A8	TAO25-0005458-0001.C008	Silvery metal
SN9	A9	TAO25-0005458-0001.C009	Silvery metal
SN10	A10	TAO25-0005458-0001.C010	Silvery metal(soldering tin)
SN11	A11	TAO25-0005458-0001.C011	Silvery metal(steel ball)
SN12	A12	TAO25-0005458-0001.C012	Silvery metal
SN13	A13	TAO25-0005458-0001.C013	Silvery magnet
SN14	A14	TAO25-0005458-0001.C014	Silvery metal
SN15	A15	TAO25-0005458-0001.C015	Silvery metal
SN16	A16	TAO25-0005458-0001.C016	Copper-colored metal
SN17	A17	TAO25-0005458-0001.C017	Black metal
SN18	A18	TAO25-0005458-0001.C018	White plastic
SN19	A19	TAO25-0005458-0001.C019	Copper enamelled wire
SN20	A20	TAO25-0005458-0001.C020	Pink plastic(jacket)
SN21	A21	TAO25-0005458-0001.C021	Pink plastic(jacket)
SN22	A22	TAO25-0005458-0001.C022	White plastic
SN23	A23	TAO25-0005458-0001.C023	Green plastic(jacket)
SN24	A24	TAO25-0005458-0001.C024	Green plastic(jacket)
SN25	A25	TAO25-0005458-0001.C025	Silvery metal
SN26	A26	TAO25-0005458-0001.C026	Silvery metal(inner core)
SN27	B1	TAO25-0005458-0002.C001	Yellow plastic
SN28	B2	TAO25-0005458-0002.C002	Silvery metal



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Verification Result(s):

(Unless otherwise specified, the unit is mg/kg).

Test Item(s)	A1	A2	A3	A4	A5	A6	A7	A8
Pb	BL	BL	BL	BL	BL	BL	BL	BL
Hg	BL	BL	BL	BL	BL	BL	BL	BL
Cd	BL	BL	BL	BL	BL	BL	BL	BL
Cr(VI)▼	BL	BL	ND	BL	BL	BL	ND	ND
PBBs	BL	BL	---	BL	BL	ND	---	---
PBDEs	BL	BL	---	BL	BL	ND	---	---
DEHP	BL	BL	---	BL	BL	ND	---	---
BBP	BL	BL	---	BL	BL	ND	---	---
DBP	BL	BL	---	BL	BL	ND	---	---
DIBP	BL	BL	---	BL	BL	ND	---	---
Conclusion	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Test Item(s)	A9	A10	A11	A12	A13	A14	A15	A16
Pb	BL	BL	BL	BL	BL	BL	BL	15044▲
Hg	BL	BL	BL	BL	BL	BL	BL	BL
Cd	BL	BL	BL	BL	BL	BL	BL	BL
Cr(VI)▼	ND	BL	ND	ND	ND	ND	ND	BL
PBBs	---	---	---	---	---	---	---	---
PBDEs	---	---	---	---	---	---	---	---
DEHP	---	---	---	---	---	---	---	---
BBP	---	---	---	---	---	---	---	---
DBP	---	---	---	---	---	---	---	---
DIBP	---	---	---	---	---	---	---	---
Conclusion	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Test Item(s)	A17	A18	A19	A20	A21	A22	A23	A24
Pb	BL	BL	BL	BL	BL	BL	BL	BL
Hg	BL	BL	BL	BL	BL	BL	BL	BL
Cd	BL	BL	BL	BL	BL	BL	BL	BL
Cr(VI)▼	ND	BL	BL	BL	BL	BL	BL	BL
PBBs	---	BL	BL	BL	BL	BL	BL	BL
PBDEs	---	BL	BL	BL	BL	BL	BL	BL
DEHP	---	BL	BL	BL	BL	BL	BL	BL
BBP	---	BL	BL	BL	BL	BL	BL	BL
DBP	---	BL	BL	BL	BL	BL	BL	BL
DIBP	---	BL	BL	BL	BL	BL	BL	BL
Conclusion	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Test Item(s)	A25	A26	B1	B2
Pb	BL	BL	BL	BL
Hg	BL	BL	BL	BL
Cd	BL	BL	BL	BL
Cr(VI)▼	ND	BL	BL	ND
PBBs	---	---	BL	---



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Test Item(s)	A25	A26	B1	B2
PBDEs	---	---	BL	---
DEHP	---	---	BL	---
BBP	---	---	BL	---
DBP	---	---	BL	---
DIBP	---	---	BL	---
Conclusion	PASS	PASS	PASS	PASS



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Notes:

(1) Interpretation of screening results by X-ray fluorescence spectrometry (XRF):

(a) Screening limits in mg/kg for regulated elements in various matrices according to IEC 62321-3-1:2013 Annex A as below table.

Element	Polymers	Metals	Composite Materials
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	$BL \leq (300-3\sigma) < X$	Not applicable	$BL \leq (250-3\sigma) < X$
Cr	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X$	$BL \leq (500-3\sigma) < X$

(b) If the maximum allowed level restricts PBB/PBDE and Cr(VI) rather than Br and Cr, the exceptions are the XRF determinations of Br and Cr. If the quantitative results for the elements Br and/or Cr are higher than the limit (for Br calculated based on the stoichiometry of Br in the most common congeners of PBB/PBDE), the sample is "inconclusive".

(c) Results are obtained by EDXRF for primary screening, LOD = Limit of Detection, BL = Below Limit, OL = Over Limit, IN (The symbol X marks the region) = Inconclusive, where further investigation is necessary, and further chemical testing by ICP-OES (for Cd, Pb, Hg), UV-Vis (for Cr(VI)) and GC-MS (for PBB/PBDE) are recommended to be performed.

(d) The EDXRF screening test for elements – The reading may be different to the actual content in the sample be of non-uniformity composition.

(2) Screening results of Phthalates (PHTH) below the limits are shown as "BL". Further chemical testing by GC-MS is to be performed if the results exceed limits.

Test Items	CAS No.
Bis(2-ethylhexyl) phthalate (DEHP)	117-81-7
Butyl benzyl phthalate (BBP)	85-68-7
Dibutyl phthalate (DBP)	84-74-2
Diisobutyl phthalate (DIBP)	84-69-5

(3) Interpretation of results by chemical tests:

(a) mg/kg = 0.0001%, MDL = Method detection Limit, ND = Not Detected (<MDL), --- = Not Applicable.

(b) Unit and MDL in wet chemical test

Test Items	Pb	Hg	Cd	DEHP	BBP	DBP	DIBP
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
MDL	10	10	10	100	100	100	100

The MDL for single compound of PBB and PBDE is 100 mg/kg,

MDL of Cr(VI) for polymer, composite and leather sample is 10 mg/kg.

MDL of Cr(VI) for metal sample is 0.10 µg/cm².

(c) ▼ = Metal sample

a. The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than 0.13 µg/cm². The sample coating is considered to contain Cr(VI).

b. The sample is negative for Cr(VI) if Cr(VI) is ND (concentration less than 0.10 µg/cm²). The coating is considered a non-Cr(VI) based coating

c. The result between 0.10 µg/cm² and 0.13 µg/cm² is considered to be inconclusive-unavoidable coating variations may influence the determination



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

- (4) Restricted substances and maximum concentration values tolerated by weight in homogeneous materials under RoHS Directive: Cd: 0.01%, Pb/Hg/Cr(VI)/PBB/PBDE/DEHP/BBP/DBP/DIBP: 0.1%. The limit is quoted from RoHS Directive (EU) 2015/863.
- (5) IEC 62321 series is equivalent to EN 62321 series.
- (6)▲ According to the declaration from the client, Lead (Pb) in No.A16 is exempted by EU RoHS directive 2011/65/EU based on [ANNEX III 6(c)]: Copper alloy containing up to 4 % lead by weight. More information about exemption can be found via the following link:
[https://rohs.sgsonline.com.cn/PDFLinks/en/RSTS-TP-037%20RoHS%20Exemption%20\(EN\).pdf](https://rohs.sgsonline.com.cn/PDFLinks/en/RSTS-TP-037%20RoHS%20Exemption%20(EN).pdf)

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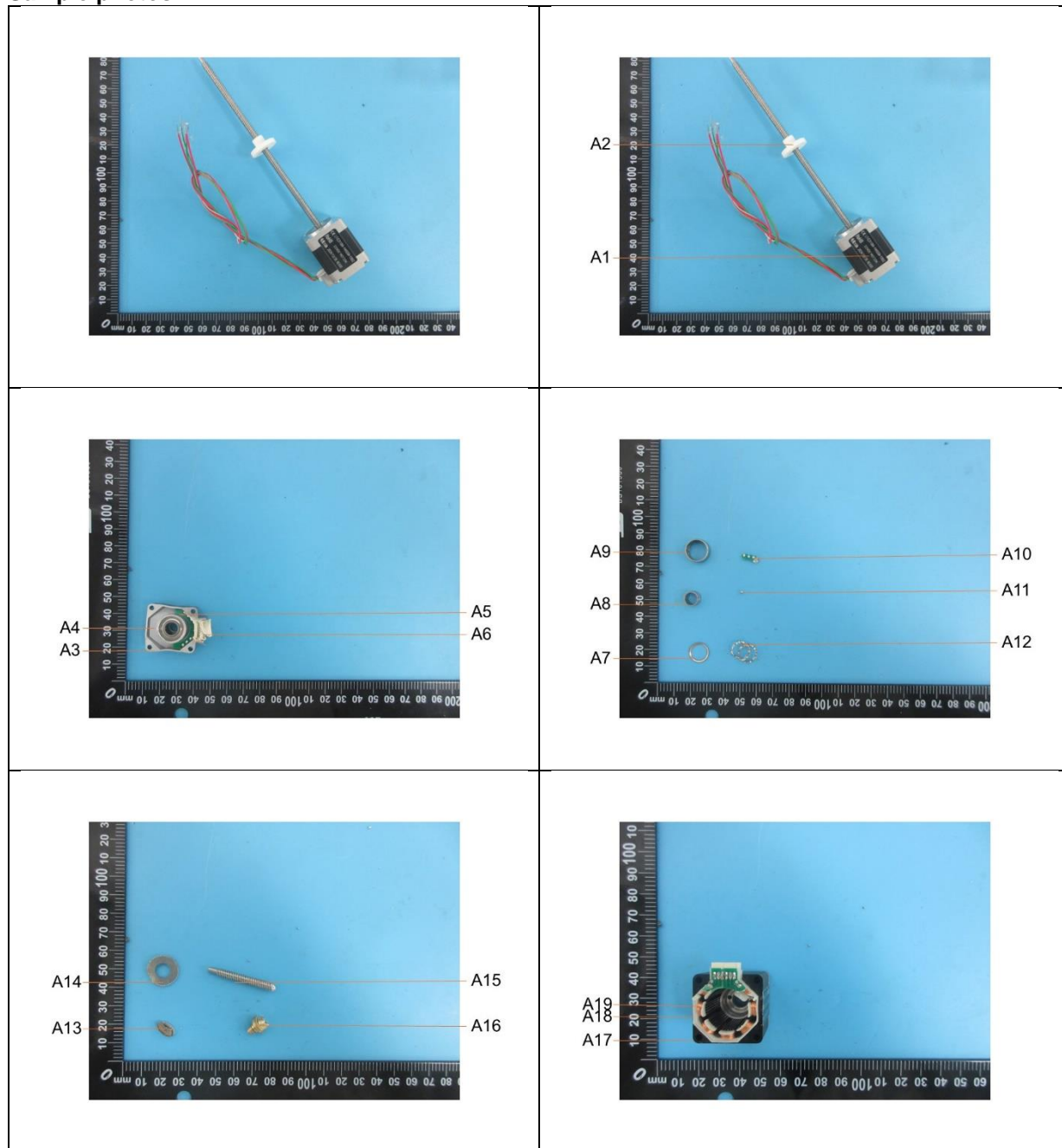
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Sample photos:



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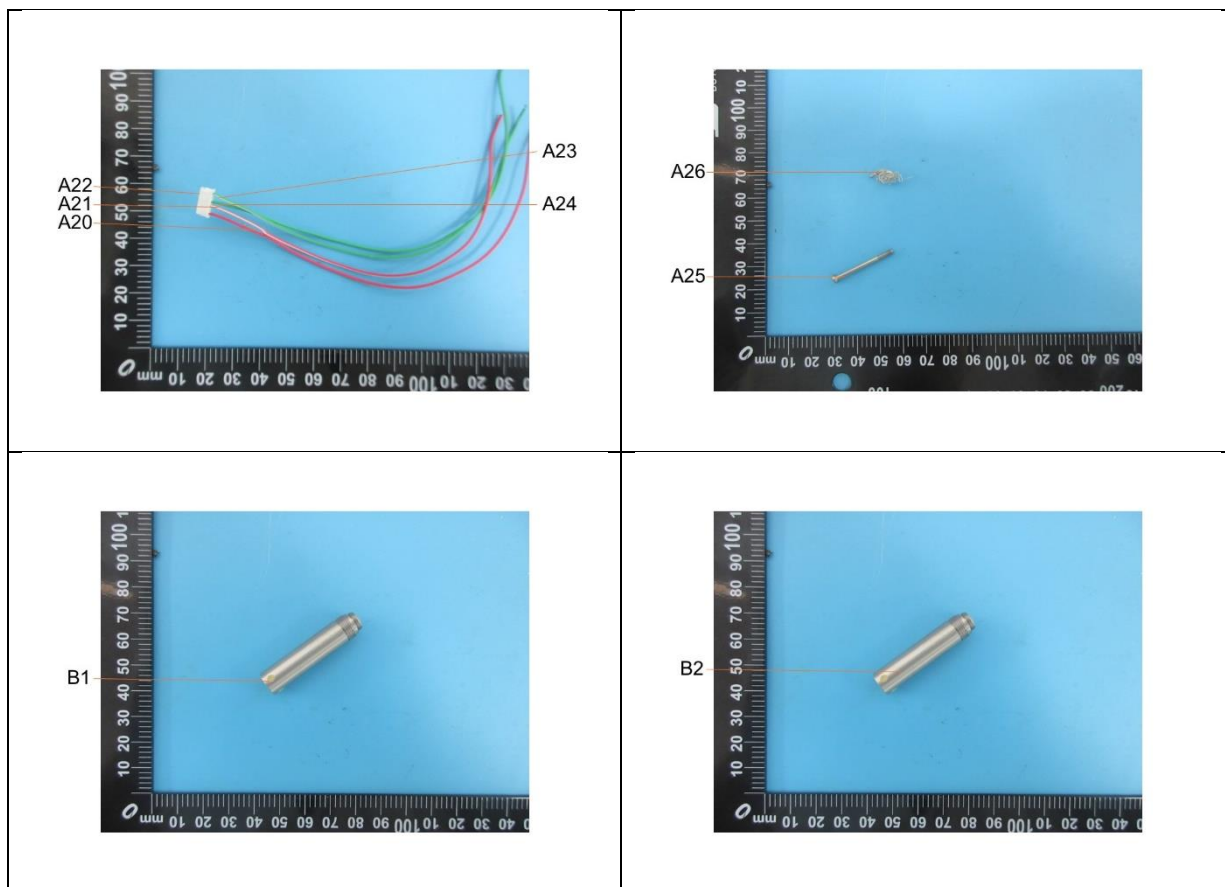
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