

XRF Screening and chemical confirmation test report

Number: 2405B0098SHA-001

Applicant: MORDIO ELECTRICAL CO., LTD.
Building 2, No.388, Binhai 13th Road, Longwan District, Wenzhou City,
Zhejiang Province, China

Date: May. 30, 2024

Sample description:

One (1) submitted sample said to be:

Item Name : Fixed socket-outlet (flush-type)
Tested Model : F300-009

Tests conducted:

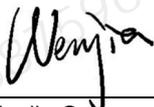
As requested by the applicant, for details refer to attached page(s).

Conclusion:

<u>Tested sample</u>	<u>Standard</u>	<u>Result</u>
Submitted sample	Screening by XRF spectroscopy and chemical confirmation test for RoHS Directive 2011/65/EU and (EU)2015/863	Pass

To be continued

Authorized by:
For Intertek testing services Ltd., Shanghai



Wenjia Gu
Senior Manager



Tests Conducted

Cadmium (Cd), Lead (Pb), Mercury (Hg), Chromium (Cr) and Bromine (Br) content were measured with reference to IEC 62321-3-1 Edition 1.0: 2013 by XRF spectroscopy and chemical confirmation test for RoHS restricted substances. And Phthalates content were determined by Gas Chromatographic-Mass Spectrometric (GC-MS).

(A) Results:

Part No.	Tested Components	Refer information	Restricted Substance	XRF Result	Screened Results (BLphthalates)	Chemical Confirmation Result	Conclusion on RoHS
1	SHEEL (WHITE PLASTIC)	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	X		PBBs=ND PBDEs=ND	
			DEHP	NA	BL	/	
			BBP	NA	BL	/	
			DBP	NA	BL	/	
			DIBP	NA	BL	/	
2	SCREW (SILVER METAL)	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	NA		/	
			DEHP	NA	NA	/	
			BBP	NA	NA	/	
			DBP	NA	NA	/	
			DIBP	NA	NA	/	
3	SCREW (SILVER METAL)	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	NA		/	
			DEHP	NA	NA	/	
			BBP	NA	NA	/	
			DBP	NA	NA	/	
			DIBP	NA	NA	/	

To be continued



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Part No.	Tested Components	Refer information	Restricted Substance	XRF Result	Screened Results (BLphthalates)	Chemical Confirmation Result	Conclusion on RoHS	
4	SUPPORT (SILVER METAL)	/	Cd	P	NA	/	PASS	
			Pb	P		/		
			Hg	P		/		
			Cr	P		/		
			Br	NA		/		
			DEHP	NA		NA		/
			BBP	NA		NA		/
			DBP	NA		NA		/
			DIBP	NA		NA		/
5	FRAME (WHITE PLASTIC)	/	Cd	P	NA	/	PASS	
			Pb	P		/		
			Hg	P		/		
			Cr	P		/		
			Br	X		PBBs=ND PBDEs=ND		
			DEHP	NA		BL		/
			BBP	NA		BL		/
			DBP	NA		BL		/
			DIBP	NA		BL		/
6	CONNECTING SHEET (SILVER METAL)	/	Cd	P	NA	/	PASS	
			Pb	P		/		
			Hg	P		/		
			Cr	P		/		
			Br	NA		/		
			DEHP	NA		NA		/
			BBP	NA		NA		/
			DBP	NA		NA		/
			DIBP	NA		NA		/

To be continued



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Part No.	Tested Components	Refer information	Restricted Substance	XRF Result	Screened Results (BLphthalates)	Chemical Confirmation Result	Conclusion on RoHS	
7	CONNECTING SHEET (SILVER METAL)	/	Cd	P	NA	/	PASS	
			Pb	P		/		
			Hg	P		/		
			Cr	P		/		
			Br	NA		/		
			DEHP	NA		NA		/
			BBP	NA		NA		/
			DBP	NA		NA		/
8	CONNECTING SHEET (COPPER METAL)	/	Cd	P	NA	/	PASS	
			Pb	P		/		
			Hg	P		/		
			Cr	P		/		
			Br	NA		/		
			DEHP	NA		NA		/
			BBP	NA		NA		/
			DBP	NA		NA		/
9	BAFFLE (WHITE PLASTIC)	/	Cd	P	NA	/	PASS	
			Pb	P		/		
			Hg	P		/		
			Cr	P		/		
			Br	X		PBBs=ND PBDEs=ND		
			DEHP	NA		BL		/
			BBP	NA		BL		/
			DBP	NA		BL		/
			DIBP	NA		BL		/

To be continued



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Tests Conducted

Part No.	Tested Components	Refer information	Restricted Substance	XRF Result	Screened Results (BLphthalates)	Chemical Confirmation Result	Conclusion on RoHS	
10	CONTACT SHEET (COPPER METAL)	/	Cd	P	NA	/	PASS	
			Pb	P		/		
			Hg	P		/		
			Cr	P		/		
			Br	NA		/		
			DEHP	NA		NA		/
			BBP	NA		NA		/
			DBP	NA		NA		/
11	SCREW (COPPER METAL)	/	Cd	P	NA	/	PASS	
			Pb	P		/		
			Hg	P		/		
			Cr	P		/		
			Br	NA		/		
			DEHP	NA		NA		/
			BBP	NA		NA		/
			DBP	NA		NA		/
12	CLIP (BLACK METAL)	/	Cd	P	NA	/	PASS	
			Pb	P		/		
			Hg	P		/		
			Cr	P		/		
			Br	NA		/		
			DEHP	NA		NA		/
			BBP	NA		NA		/
			DBP	NA		NA		/
DIBP	NA	NA	/					

To be continued



Tests Conducted

Part No.	Tested Components	Refer information	Restricted Substance	XRF Result	Screened Results (BLphthalates)	Chemical Confirmation Result	Conclusion on RoHS
13	CONTACT SHEET (COPPER METAL)	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	NA	/		
			DEHP	NA	NA	/	
			BBP	NA	NA	/	
			DBP	NA	NA	/	
14	SHEEL (WHITE PLASTIC)	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	X	PBBs=ND PBDEs=ND		
			DEHP	NA	BL	/	
			BBP	NA	BL	/	
			DBP	NA	BL	/	
DIBP	NA	BL	/				
DIFFERENT PARTS							
D1	PLUG (SILVER METAL)	/	Cd	P	NA	/	PASS
			Pb	P		/	
			Hg	P		/	
			Cr	P		/	
			Br	NA	/		
			DEHP	NA	NA	/	
			BBP	NA	NA	/	
			DBP	NA	NA	/	
DIBP	NA	NA	/				

To be continued



Tests Conducted

Part No.	Tested Components	Refer information	Restricted Substance	XRF Result	Screened Results (BLphthalates)	Chemical Confirmation Result	Conclusion on RoHS	
D2	SPRING (BLACK METAL)	/	Cd	P	NA	/	PASS	
			Pb	P		/		
			Hg	P		/		
			Cr	P		/		
			Br	NA		/		
			DEHP	NA		/		
			BBP	NA		/		
			DBP	NA		/		
			DIBP	NA		/		
D3	SUPPORT (BLACK PLASTIC)	/	Cd	P	NA	/	PASS	
			Pb	P		/		
			Hg	P		/		
			Cr	P		/		
			Br	P		/		
			DEHP	NA		BL		/
			BBP	NA		BL		/
			DBP	NA		BL		/
			DIBP	NA		BL		/
D4	CONNECTING SHEET (COPPER METAL)	/	Cd	P	NA	/	PASS	
			Pb	P		/		
			Hg	P		/		
			Cr	P		/		
			Br	NA		/		
			DEHP	NA		NA		/
			BBP	NA		NA		/
			DBP	NA		NA		/
			DIBP	NA		NA		/

Remark: P = pass (Below the lower screening limit of table (B))

X = inconclusive result (Further chemical test was suggested (see table (B).))

NA = not applicable

ND = not detected

ppm = Parts per million = mg/kg

Negative = A negative test result indicated the absorbance value of testing sample solution for Cr(VI) testing is less than the absorbance value of the 0.10µg/cm² equivalent comparison standard solution, the Cr(VI) concentration is below the limit of quantification, then the sample is considered to be negative for Cr(VI).

To be continued



Tests Conducted

- (B)
(B1) XRF Screening Limits in mg/kg for Regulated Elements in Various Matrices.

Element	Polymer materials	Metallic materials	Composite materials
Cd	$P \leq 70 < X < 130 \leq F$	$P \leq 70 < X < 130 \leq F$	$P \leq 70 < X < 150 \leq F$
Pb	$P \leq 700 < X < 1300 \leq F$	$P \leq 700 < X < 1300 \leq F$	$P \leq 500 < X < 1500 \leq F$
Hg	$P \leq 700 < X < 1300 \leq F$	$P \leq 700 < X < 1300 \leq F$	$P \leq 500 < X < 1500 \leq F$
Cr	$P \leq 700 < X$	$P \leq 700 < F$	$P \leq 500 < X$
Br	$P \leq 300 < X$	Not applicable	$P \leq 250 < X$

(B2) Preliminary screening test will be used for phthalates, if the results exceed the warning area in the following table, further chemical methods will be conducted to confirm the exact content by GC/MS.

Phthalates	Polymer
Bis(2-ethylhexyl)phthalate(DEHP)	$BL \leq 600 < X$
Butyl benzyl phthalate(BBP)	$BL \leq 600 < X$
Dibutyl phthalate(DBP)	$BL \leq 600 < X$
Diisobutyl phthalate(DIBP)	$BL \leq 600 < X$

(C) Estimated detection limits in mg/kg for regulated elements in various matrices.

Element	Polymer materials	Metallic materials	Composite materials
Cd	50	70	70
Pb	100	200	200
Hg	100	200	200
Cr	100	200	200
Br	200	Not applicable	200

Disclaimers:

This XRF screening report is for reference purposes only. The applicant shall make its/his/her own judgment as to whether the information provided in this XRF screening report is sufficient for its/his/her purposes.

The results shown in this XRF screening report will differ based on various factors, including but not limited to, the sample size, thickness, area, surface flatness, equipment parameters and matrix effect (e.g. plastic, rubber, metal, glass, ceramic etc.). Further wet chemical pre-treatment with relevant chemical equipment analysis is required to obtain quantitative data.

To be continued



Tests Conducted

(D) Chemical confirmation test methods:

Testing Item	Testing Method	Reporting Limit
Cadmium (Cd) Content	With reference to IEC 62321-5 Edition 1.0:2013, by acid digestion until the tested sample was totally dissolved and determined by ICP - OES	2 mg/kg
Lead (Pb) Content	With reference to IEC 62321-5 Edition 1.0:2013, by acid digestion until the tested sample was totally dissolved and determined by ICP - OES	2 mg/kg
Mercury (Hg) Content	With reference to IEC 62321-4 Edition 1.1:2017, by acid digestion until the tested sample was totally dissolved and determined by ICP - OES	2 mg/kg
Chromium (VI)(Cr ⁶⁺) Content	With reference to IEC 62321-7-2 Edition 1.0:2017, by alkaline digestion and determined by UV-VIS Spectrophotometer	10 mg/kg
Chromium (VI) (Cr ⁶⁺) content (for metal)	With reference to IEC 62321-7-1 Edition 1.0: 2015, by boiling water extraction and determined by UV-VIS Spectrophotometer.	Positive(>0.13 µg/m ²)/ Negative(<0.10 µg/m ²) Inconclusive(0.10--0.13 µg/m ²)
Polybrominated Biphenyls (PBBs) & Polybrominated Diphenyl Ethers (PBDEs) Content	With reference to IEC 62321-6 edition 1.0:2015, by solvent extraction and determined by GC/MS and further HPLC confirmation when necessary	5 mg/kg
Phthalates(DEHP,BBP,DBP, DIBP) Content	With reference to IEC62321-8: 2017, by solvent extraction and determined by GC/MS	100mg/kg

(E) RoHS requirement

Restricted Substances	Limits
Cadmium (Cd)	0.01% (100 mg/kg)
Lead (Pb)	0.1% (1000 mg/kg)
Mercury (Hg)	0.1% (1000 mg/kg)
Chromium (VI) (Cr ⁶⁺)	0.1% (1000 mg/kg)
Polybrominated Biphenyls (PBBs)	0.1% (1000 mg/kg)
Polybrominated Diphenyl Ethers (PBDEs)	0.1% (1000 mg/kg)
Phthalates (DEHP, BBP, DBP, DIBP)	0.1% (1000 mg/kg)

The above limits were quoted from 2011/65/EU and (EU) 2015/863 for homogeneous material.

Date sample received: May. 10, 2024

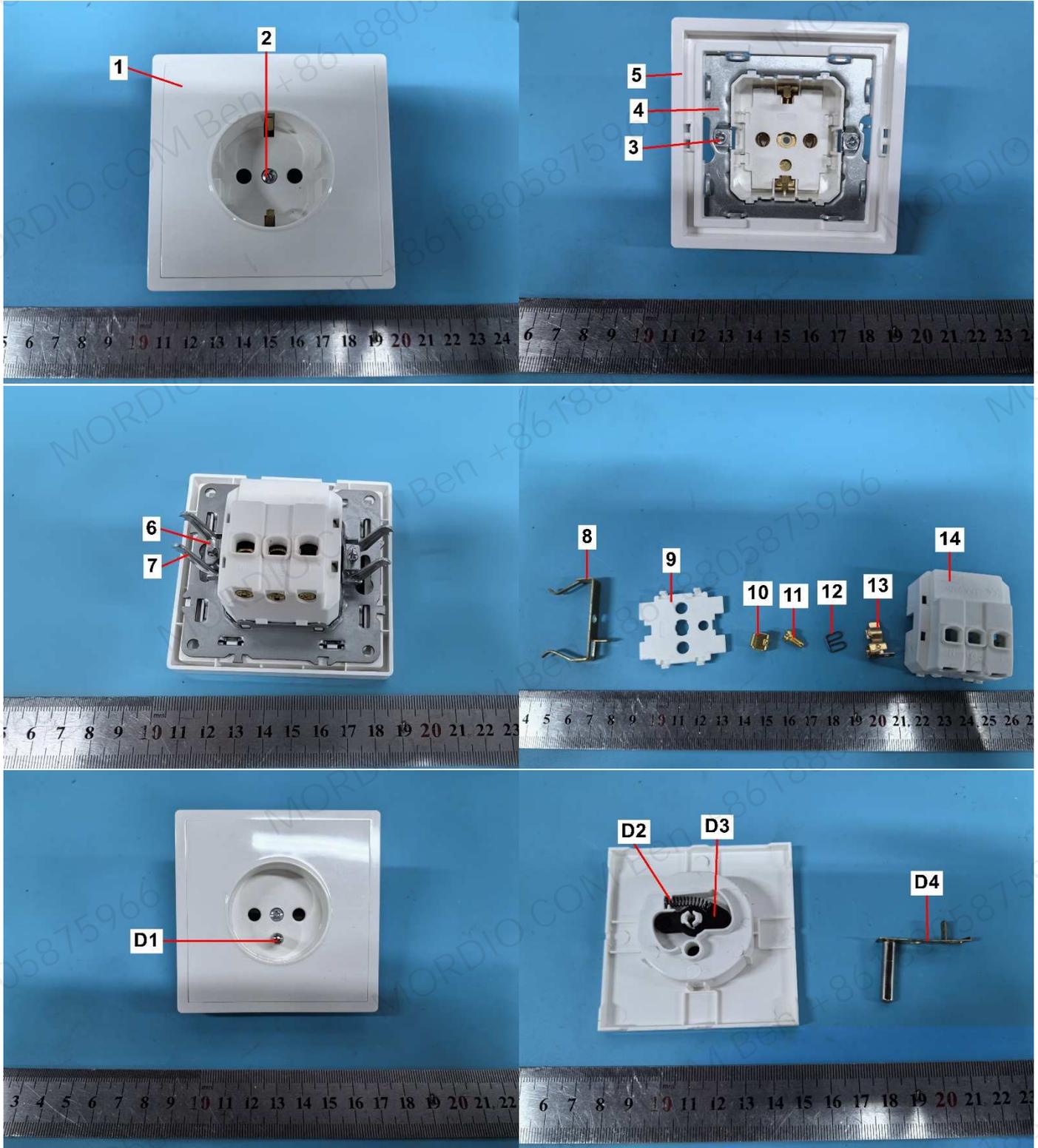
Testing period: May. 10, 2024 To May. 20, 2024

To be continued



Tests Conducted

Photo



To be continued



Tests Conducted

Photo



End of report

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