



Technical Report No. 64.164.15.00188.01A

Rev. 00

Dated 2015-03-19


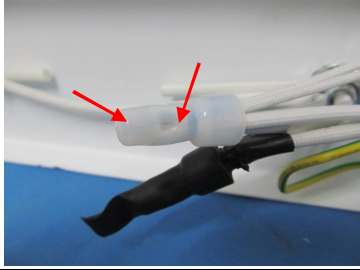
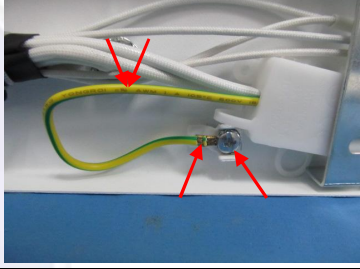
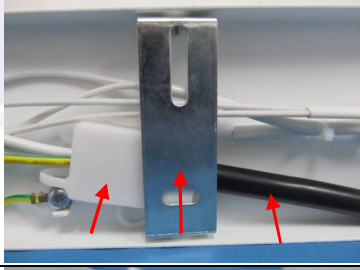
Client:	ZhongShan LiangYi Lighting CO.,LTD BeiHai Industrial Zone,GuZhen Town,ZhongShan,GuangDong,P.R.China
Test Subject:	The submitted sample was identified and described by client as: Ceiling Lamp, Spot Lamp
Client reference Information:	According to declaration from client, The tested materials covered by the report were declared by the manufacturer to be used on Model: Ceiling Lamp: CL139A-D25(D),CL139A-D25(E),CL139A-D25(F), CL139A-D25(G),CL139A-D25(H),CL139A-D25(I), CL139A-D25(J),CL139A-D25(K). Spot Lamp: GU10162C-1R,GU10162C-2B,GU10162C-3B, GU10162C-4B,GU10162C-4R
Test Method:	Tests were performed for the samples with test methods reference to EN 62321:2009: Procedures for the Determination of Level of Six Regu- lated Substances in Electrotechnical Products
Test Result:	Refer to the following page(s)
Test Requested and Conclusion:	Test according to RoHS (Restriction of Hazardous Substances) directive 2011/65/EU Annex II on submitted samples
	- Heavy Metal (Pb, Cd, Hg and CrVI) Content PASS
	- Polybrominated Biphenyls (PBBs) and PASS Polybrominated Diphenyl Ethers (PBDEs) Content

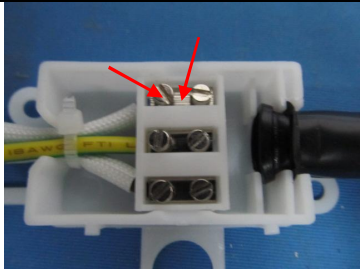

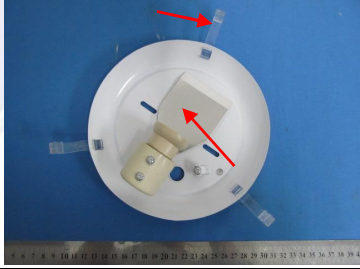
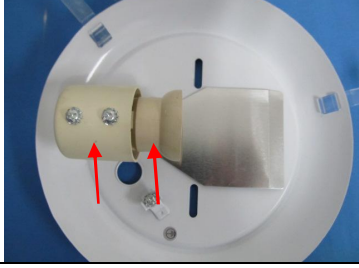
This technical report may only be quoted in full. Any use for advertising purposes must be granted in writing. This report is the result of a single examination of the object in question and is not generally applicable evaluation of the quality of other products in regular production.

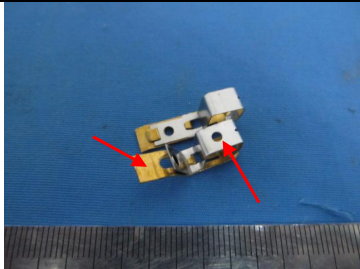



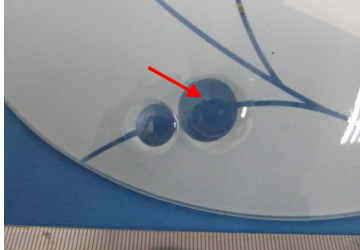
1. Description of the test subject

Sample No.	Model No.	Description	Photograph
001	GU10162 C-4B	White coating on part	
002		Silvery metal part	
003		White plastic part	
004		Silvery metal screw	
005		Silvery metal part	
006		Silvery metal part	
007		Silvery metal spring	
008		Silvery metal bead	
009		Silvery metal ring	
010		Beige ceramic shell	

Sample No.	Model No.	Description	Photograph
011	GU10162 C-4B	Silvery metal ring	
012		Silvery metal screw	
013		Black metal spring	
014		Silvery metal tube	
015		Silvery paper foil	
016		White plastic/fiber glass tube	
017		White fiber glass tube	
018		Brown plastic wire jacket	
019		Blue plastic wire jacket	
020		Silvery metal wire	
021		Silver metal terminal	
022		Silvery metal washer	
023		Silvery metal nut	
024		Transparent plastic tube	

Sample No.	Model No.	Description	Photograph
025	GU10162 C-4B	Black plastic heating-shrinkable tube	
026		Translucent plastic tie	
027		Transparent plastic cover	
028		Silvery metal joint inner	
029		Green/yellow plastic wire jacket	
030		Silvery metal wire	
031		Golden metal terminal	
032		Silvery metal screw	
033		White plastic box	
034		Silvery metal sheet	
035		Black plastic tube	
036			Silvery metal screw

Sample No.	Model No.	Description	Photograph
037	GU10162 C-4B	Silvery metal screw	
038		Silvery metal block	
039		Blue plastic wire jacket	
040		Brown plastic wire jacket	
041		Silvery metal wire	
042	CL139A- D25(D)	Translucent glass with black printing	
043		Transparent plastic clip	
044		Silvery metal sheet	
045		Beige plastic part	
046		Beige plastic part	

Sample No.	Model No.	Description	Photograph	
047	CL139A-D25(D)	Golden metal sheet		
048		Silvery metal sheet		
049		Silvery metal sheet		
050		Silvery metal screw		
051		Silvery metal washer		
052			Silvery plastic label	
053			White coating on part	
054		Silvery metal part		
055	CL139A-D25(K)	Transparent glass		



2. Order

2.1 Date of Purchase Order

2015-03-10

2.2 Receipt of Test Sample, Location

2015-03-10, Guangzhou

2.3 Date of Testing

2015-03-10 to 2015-03-19.

2.4 Location of Testing

The chemical testing was performed in TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch Chemical lab and the XRF testing was performed at TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch. The test results were reviewed at TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch.





3. Test Results

3.1 Screening test for the specified hazardous substances of RoHS for the selected materials of the submitted sample:

- Heavy Metal (Cadmium, Chromium, Mercury, Lead) Content Test
- Bromine Content Test

According to EN 62321: 2009, and Quantification analyzed with Energy Dispersive X-ray Fluorescence Spectrometers.

Sample No.	Total Cadmium	Total Lead	Total Mercury	Total Chromium	Total Bromine
Sample 001	BL	BL	BL	BL	BL
Sample 002	BL	BL	BL	BL	N.A.
Sample 003	BL	BL	BL	BL	BL
Sample 004	BL	BL	BL	BL	N.A.
Sample 005	BL	BL	BL	BL	N.A.
Sample 006	BL	BL	BL	BL	N.A.
Sample 007	BL	BL	BL	BL	N.A.
Sample 008	BL	BL	BL	BL	N.A.
Sample 009	BL	BL	BL	BL	N.A.
Sample 010	BL	BL	BL	BL	BL
Sample 011	BL	BL	BL	BL	N.A.
Sample 012	BL	BL	BL	BL	N.A.
Sample 013	BL	BL	BL	BL	N.A.
Sample 014	BL	BL	BL	Inconclusive ^	N.A.
Sample 015	BL	BL	BL	BL	BL
Sample 016	BL	BL	BL	BL	BL
Sample 017	BL	BL	BL	BL	BL
Sample 018	BL	BL	BL	BL	BL
Sample 019	BL	BL	BL	BL	BL
Sample 020	BL	BL	BL	BL	N.A.
Sample 021	BL	BL	BL	Inconclusive ^	N.A.
Sample 022	BL	BL	BL	BL	N.A.
Sample 023	BL	BL	BL	BL	N.A.
Sample 024	BL	BL	BL	BL	BL
Sample 025	BL	BL	BL	BL	BL



Sample No.	Total Cadmium	Total Lead	Total Mercury	Total Chromium	Total Bromine
Sample 026	BL	BL	BL	BL	BL
Sample 027	BL	BL	BL	BL	BL
Sample 028	BL	BL	BL	BL	N.A.
Sample 029	BL	BL	BL	BL	BL
Sample 030	BL	BL	BL	BL	N.A.
Sample 031	BL	BL	BL	BL	N.A.
Sample 032	BL	BL	BL	BL	N.A.
Sample 033	BL	BL	BL	BL	Inconclusive ^
Sample 034	BL	BL	BL	BL	N.A.
Sample 035	BL	BL	BL	BL	BL
Sample 036	BL	BL	BL	BL	N.A.
Sample 037	BL	BL	BL	BL	N.A.
Sample 038	BL	OL^	BL	BL	N.A.
Sample 039	BL	BL	BL	BL	BL
Sample 040	BL	BL	BL	BL	BL
Sample 041	BL	BL	BL	BL	N.A.
Sample 042	BL	BL	BL	BL	BL
Sample 043	BL	BL	BL	BL	BL
Sample 044	BL	BL	BL	BL	N.A.
Sample 045	BL	BL	BL	BL	Inconclusive ^
Sample 046	BL	BL	BL	BL	Inconclusive ^
Sample 047	BL	BL	BL	BL	N.A.
Sample 048	BL	BL	BL	Inconclusive ^	N.A.
Sample 049	BL	BL	BL	BL	N.A.
Sample 050	BL	BL	BL	BL	N.A.
Sample 051	BL	BL	BL	BL	N.A.
Sample 052	BL	BL	BL	BL	BL
Sample 053	BL	BL	BL	BL	N.A.
Sample 054	BL	BL	BL	BL	BL
Sample 055	BL	BL	BL	BL	BL

Note:

1. All Concentrations express in “mg/kg” (milligram per kilogram), mg/kg ~ ppm
2. “OL” denotes “over limit”
3. “BL” denotes “below limit”
4. “N.A.” denotes “Not Applicable”
5. “Inconclusive” denotes result is intermediate between “OL” and “BL”
6. “^”denotes the screening result was inconclusive(X) or over limit (OL), thus further confirmation test was conducted, results are listed in 3.2 and 3.3.

XRF screening limits for different materials:

Materials	Concentration (mg/kg)				
	Cd	Cr	Pb	Hg	Br
Metal	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	N.A.
Polymers	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (300-3\sigma) < X$
Composite material	$BL \leq (50-3\sigma) < X < (150+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$	$BL \leq (250-3\sigma) < X$

3.2 Test for Heavy Metals

– Lead, Cadmium, Hexavalent Chromium and Mercury Tests according to EN 62321: 2009.

Element	Total Cadmium [mg/kg]	Total Lead [mg/kg]	Total Mercury [mg/kg]	Hexavalent Chromium [-]	Hexavalent Chromium [mg/kg]
Reporting Limit	5	5	5	Δ	5
RoHS Limit	100	1000	1000	#	1000
Sample 014	/	/	/	Negative	/
Sample 021	/	/	/	Negative	/
Sample 038	/	28240 Φ	/	/	/
Sample 048	/	/	/	Negative	/

Note:

- All Concentrations express in “mg/kg”(milligram per kilogram), mg/kg ~ ppm.
- “N.D.” = “Not Detected”.
- Δ =Spot-Test:
 Negative = Absence of CrVI coating, Positive = Presence of CrVI coating;
 (The tested sample should be further verified by boiling-water-extraction method if the spot test result is negative or cannot be confirmed.)
 Boiling-water-extraction:
 Negative = Absence of CrVI coating
 Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02mg/kg with 50 cm² sample surface area.
 Storage conditions and production date of the tested sample are unavailable and thus results of Cr(VI) represent status of the sample at the time of testing
- # = Positive indicates the presence of CrVI on the tested areas.
 Negative indicates the absence of CrVI on the tested areas.
- “-” = Not regulated
- Φ means as the information (the main source of lead could be copper alloy base) provided by the client, when Lead as an alloying element in copper alloy containing up to 4% Lead by weight is exempted from RoHS Directive 2011/65/EU Annex III.



3.3 Test for Flame retardants

Test Method: With reference to EN 62321:2009, extracted by toluene and analyzed by Gas Chromatography and Mass Spectrometry (GC-MS). [Reporting Limit: 5mg/kg]

Test Item		Result [mg/kg]		RoHS Limit [mg/kg]
		Sample 033	Sample 045	
PBBs	Monobromobiphenyl	< 5	< 5	Sum of PBBs < 1000
	Dibromobiphenyl	< 5	< 5	
	Tribromobiphenyl	< 5	< 5	
	Tetrabromobiphenyl	< 5	< 5	
	Pentabromobiphenyl	< 5	< 5	
	Hexabromobiphenyl	< 5	< 5	
	Heptabromobiphenyl	< 5	< 5	
	Octabromobiphenyl	< 5	< 5	
	Nonabromobiphenyl	< 5	< 5	
	Decabromobiphenyl	< 5	< 5	
	Sum of PBBs	< 5	< 5	
PBDEs	Monobromodiphenyl Ether	< 5	< 5	Sum of PBDEs < 1000
	Dibromodiphenyl Ether	< 5	< 5	
	Tribromodiphenyl Ether	< 5	< 5	
	Tetrabromodiphenyl Ether	< 5	< 5	
	Pentabromodiphenyl Ether	< 5	< 5	
	Hexabromodiphenyl Ether	< 5	< 5	
	Heptabromodiphenyl Ether	< 5	< 5	
	Octabromodiphenyl Ether	< 5	< 5	
	Nonabromodiphenyl Ether	< 5	< 5	
	Decabromodiphenyl Ether	< 5	< 5	
	Sum of PBDEs	< 5	< 5	

Note:

1. All Concentrations express in “mg/kg” (milligram per kilogram), mg/kg ~ ppm.
2. “<” denotes less than



Test Item		Result [mg/kg]	RoHS Limit [mg/kg]
		Sample 046	
PBBs	Monobromobiphenyl	< 5	Sum of PBBs < 1000
	Dibromobiphenyl	< 5	
	Tribromobiphenyl	< 5	
	Tetrabromobiphenyl	< 5	
	Pentabromobiphenyl	< 5	
	Hexabromobiphenyl	< 5	
	Heptabromobiphenyl	< 5	
	Octabromobiphenyl	< 5	
	Nonabromobiphenyl	< 5	
	Decabromobiphenyl	< 5	
	Sum of PBBs	< 5	
PBDEs	Monobromodiphenyl Ether	< 5	Sum of PBDEs < 1000
	Dibromodiphenyl Ether	< 5	
	Tribromodiphenyl Ether	< 5	
	Tetrabromodiphenyl Ether	< 5	
	Pentabromodiphenyl Ether	< 5	
	Hexabromodiphenyl Ether	< 5	
	Heptabromodiphenyl Ether	< 5	
	Octabromodiphenyl Ether	< 5	
	Nonabromodiphenyl Ether	< 5	
	Decabromodiphenyl Ether	< 5	
	Sum of PBDEs	< 5	

Note:

1. All Concentrations express in “mg/kg” (milligram per kilogram), mg/kg ~ ppm.
2. “<” denotes less than



4. Documentation

APPENDIX 01: Photos of submitted products

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
TÜV SÜD Group



Engineer:

Eva Yuan

Eva Yuan

Technical Report checked:

Ben Shao

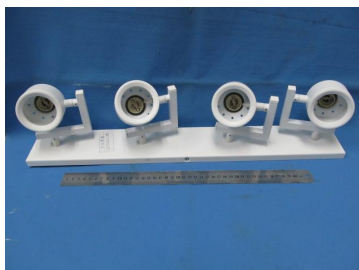
Ben Shao

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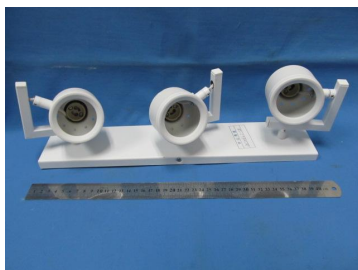


APPENDIX 01:

Photos of submitted products:



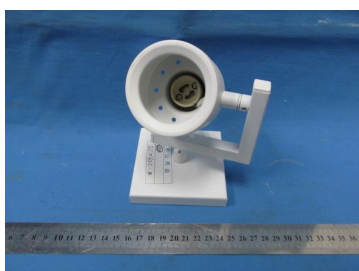
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GU10162C-3B



GU10162C-2B



GU10162C-1R



GU10162C-4R



CL139A-D25(D)



CL139A-D25(I)



CL139A-D25(H)



CL139A-D25(G)



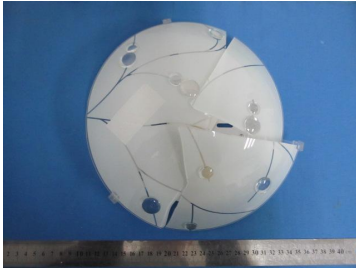
CL139A-D25(J)



CL139A-D25(E)



CL139A-D25(F)



CL139A-D25(K)

