

Technical Report No. 64.164.19.00486.01
Dated 2019-08-19

Client: ZhongShan Mesa Lighting CO., LTD

Address: No.2-4 Huasheng Dong Road, CaoSan Business Incubator Park,
Guzhen Town,Zhongshan City,Guangdong,China

Sample Description: Led wall light

Model No.: MB1250B/M/8W, MB1168/S/8W, MB1280B/3.6W, MB1279S-6W

Ref Model No.: See Appendix 02

Sample Received Date: 2019-06-17, 2019-07-25, 2019-08-09

Test Period: From 2019-06-17 to 2019-08-19

Purpose of examination: Verification of RoHS (Restriction of Hazardous Substances) directive 2011/65/EU and its amendment (EU) 2015/863 on submitted samples

Test Result: Refer to following page(s)

Remark: The result relates only to the items tested.

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

Prepared by:

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Project Handler



Reviewed by:

Kevin Zhang

Kevin Zhang
Designated Reviewer

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SUMMARY OF TEST RESULTS

No.	Test Requested	Conclusion	Remarks
1.	Heavy Metal (Pb, Cd, Hg and Cr VI)	PASS	/
2.	Polybrominated Biphenyls (PBBs) and Polybrominated Diphenyl Ethers (PBDEs)	PASS	/
3.	Phthalates (DEHP, BBP, DBP and DIBP)	PASS	/

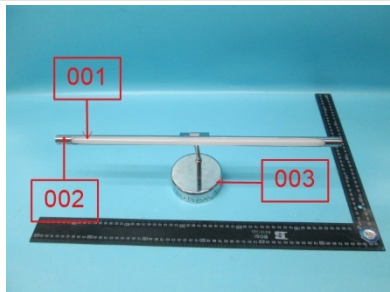
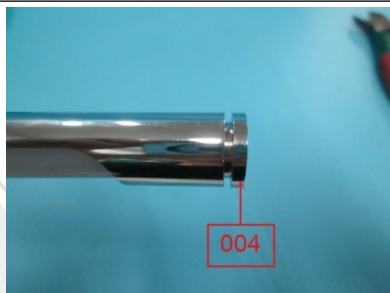
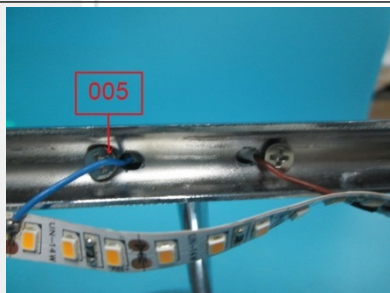
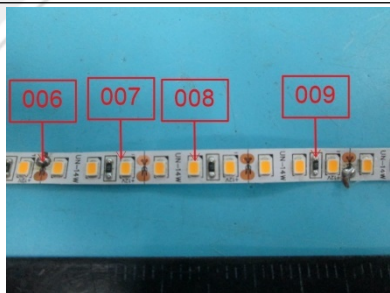
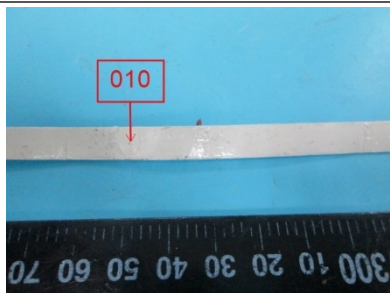


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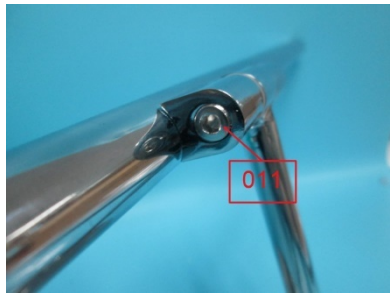
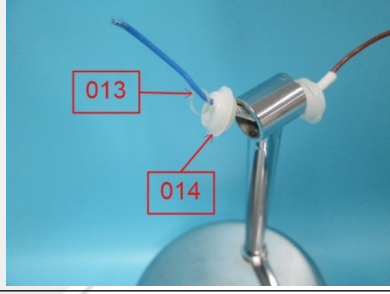
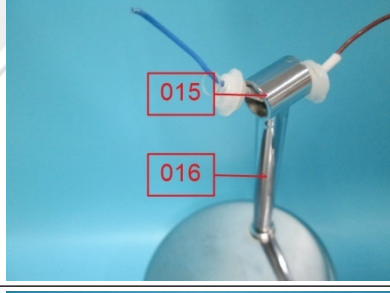
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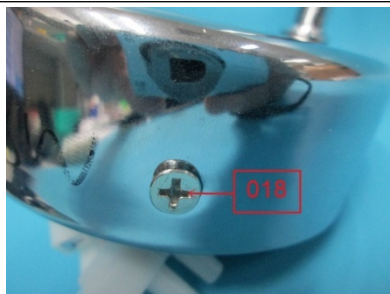
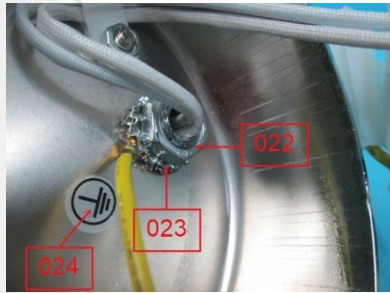
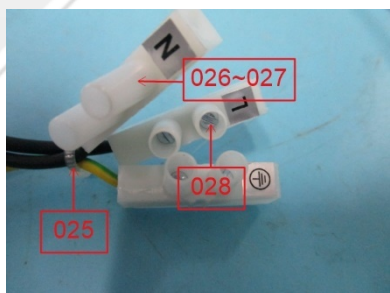
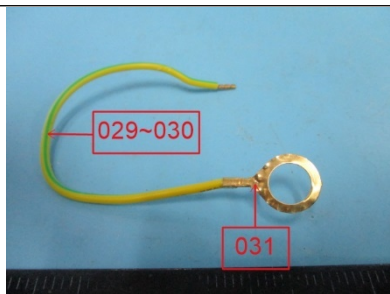
1. TESTED SUBJECT DESCRIPTION

Sample Number	Model No.	Tested Material Description	Photo
001	MB1250B M/8W	White plastic shade	
002		Grey metal tube	
003		Grey metal lamp base	
004	MB1250B M/8W	Grey metal screw	
005	MB1250B M/8W	Silvery metal screw	
**006	MB1250B M/8W	Silvery metal solder	
007		White PCB	
008		Orange LED	
009		Black body	
010	MB1250B M/8W	White double-side adhesive sheet	

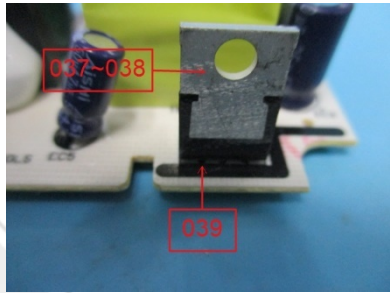
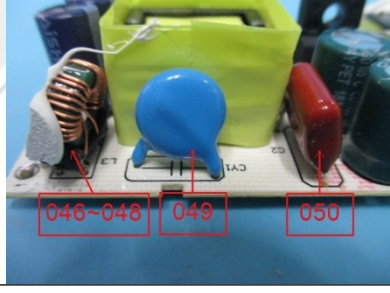
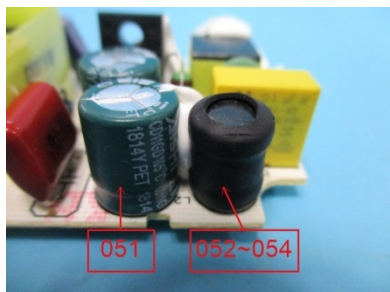
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Sample Number	Model No.	Tested Material Description	Photo
011	MB1250B M/8W	Silvery metal screw	
**012	MB1250B M/8W	Grey metal part	
013	MB1250B M/8W	Transparent plastic ring	
014		White plastic washer	
015	MB1250B M/8W	Grey metal part	
016		Grey metal tube	
017	MB1250B M/8W	Silvery metal sheet	

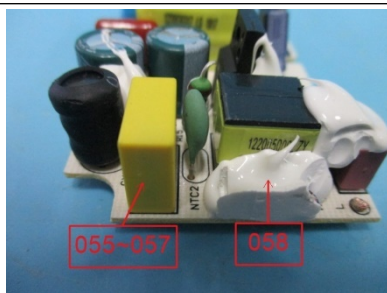
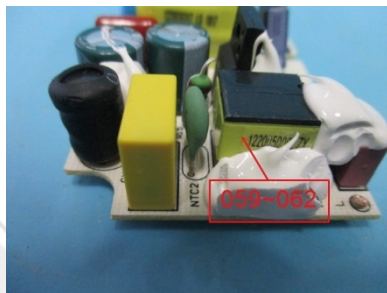
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Sample Number	Model No.	Tested Material Description	Photo
018	MB1250B M/8W	Silvery metal screw	
019	MB1250B M/8W	White plastic cable	
020		Silvery metal nut	
021		Silvery metal screw	
022	MB1250B M/8W	Silvery metal nut	
023		Silvery metal washer	
024		White plastic label with black printing	
025	MB1250B M/8W	Transparent plastic tape	
026		White plastic block	
027		Silvery metal part inner	
028		Blue metal screw	
029	MB1250B M/8W	Yellow/green soft plastic wire jacket(Gu zhen)	
030		Copper-colored metal wire	
031		Copper-colored metal terminal	

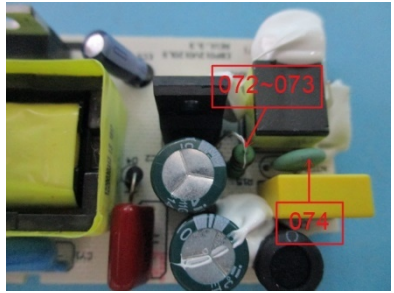
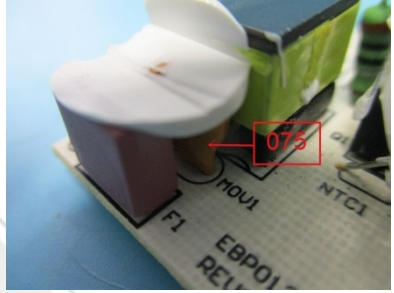
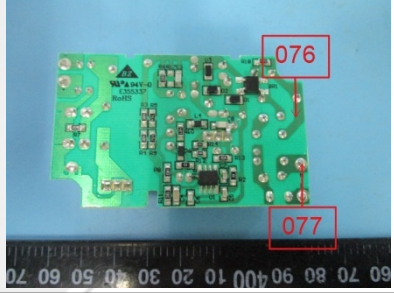
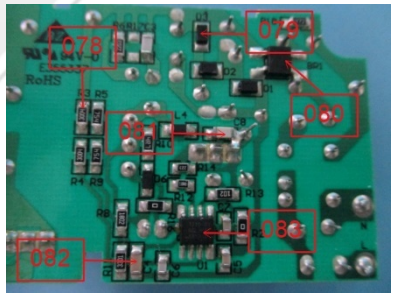
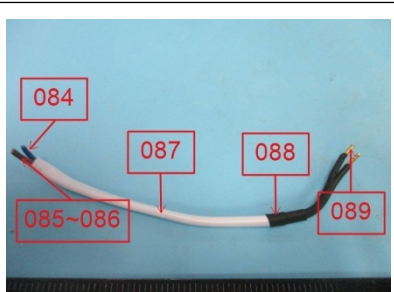
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Sample Number	Model No.	Tested Material Description	Photo
032	MB1250B M/8W	Yellow adhesive plastic tape	
033		Black plastic bobbin	
034		Copper-colored metal wire	
035		Grey metal core	
036		Transparent plastic tube	
037	MB1250B M/8W	Silvery metal sheet	
038		Silvery metal solder	
039		Black body(D5)	
040	MB1250B M/8W	Blue plastic shell with golden printing	
041		Black rubber part	
042		Silvery metal shell	
043		Brown paper foil	
044		Grey metal foil	
045		Silvery metal pin	
046	MB1250B M/8W	Green core	
047		Copper-colored metal wire	
048		Black plastic base	
049		Blue body(CY1)	
050		Red body(C2)	
051	MB1250B M/8W	Green plastic shell with golden printing	
052		Black soft plastic tube	
053		Grey metal core	
054		Copper-colored metal wire	

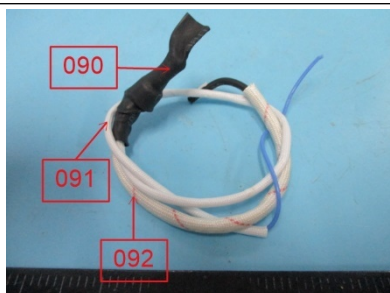
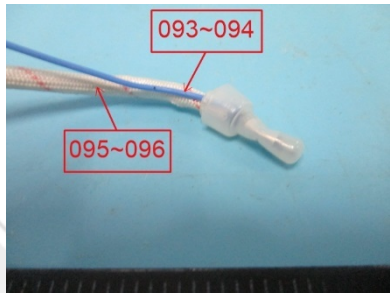
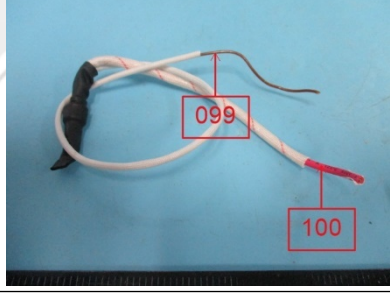
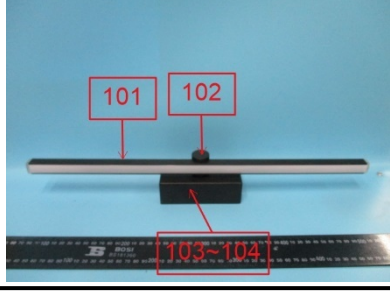
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Sample Number	Model No.	Tested Material Description	Photo
055	MB1250B M/8W	Yellow plastic shell	
056		Yellow filling	
057		Silvery foil inner	
058		White glue	
059	MB1250B M/8W	Yellow adhesive plastic tape	
060		Black plastic bobbin	
061		Copper-colored metal wire	
062		Grey metal core	
063	MB1250B M/8W	Red plastic shell	
064		Black plastic base	
065		Silvery metal filament	
066	MB1250B M/8W	Black body	
067		Silvery metal pin	
068		Silvery metal solder	
069	MB1250B M/8W	Black body	
070		Copper-colored metal sheet	
071		Silvery metal solder	

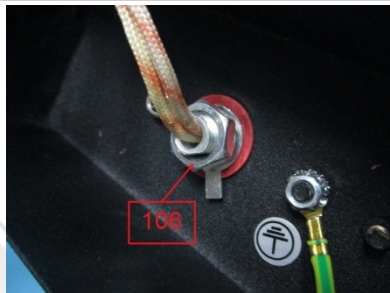
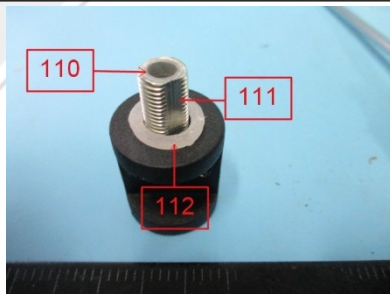
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Sample Number	Model No.	Tested Material Description	Photo
072	MB1250B M/8W	Green body with colored printing(R15)	
073		Silvery metal pin	
074		Green body(NTC2)	
075	MB1250B M/8W	Orange body(MOV1)	
076	MB1250B M/8W	Green PCB	
077		Silvery metal solder	
078	MB1250B M/8W	Black body(R6)	
079		Black body(D3)	
080		Black body(BR1)	
081		White body(C8)	
082		Brown body(C4)	
083		Black body(U1)	
084	MB1250B M/8W	Blue soft plastic wire jacket	
085		Brown soft plastic jacket	
086		Copper-colored metal wire	
087		White soft plastic cable(XINHAILIN)	
088		Black plastic heating shrinkable tube	
089		Golden metal terminal	

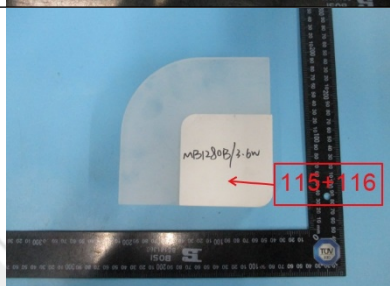
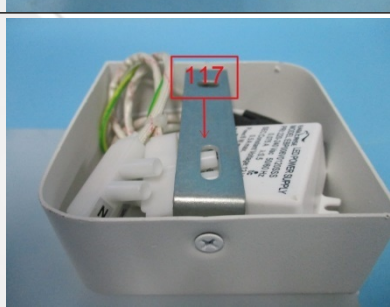
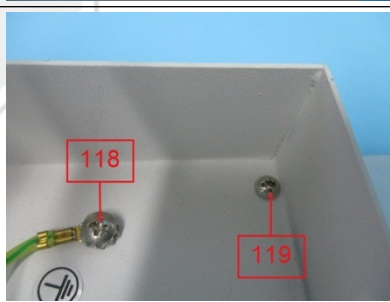
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Sample Number	Model No.	Tested Material Description	Photo
090	MB1250B M/8W	Black plastic heating shrinkable tube	
091		White glass fabric cable	
092		White/red glass fabric cable	
093	MB1250B M/8W	Blue soft plastic wire jacket	
094		Silvery metal wire	
095		Black soft plastic jacket	
096		Silvery metal wire	
097	MB1250B M/8W	Transparent plastic shell	
098		Silvery metal solder	
099	MB1250B M/8W	Brown soft plastic wire jacket	
100		Red soft plastic jacket	
101	MB1168S /8W	Silvery metal tube	
**102		Silvery metal part	
103		Silvery metal lamp base	
104		Black coating	

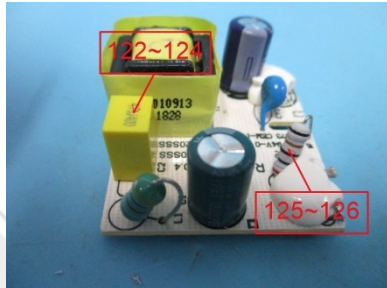
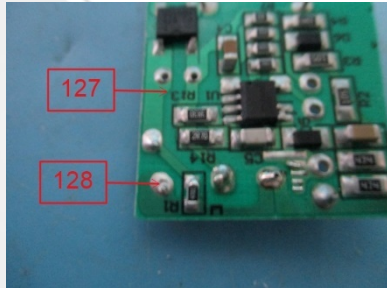
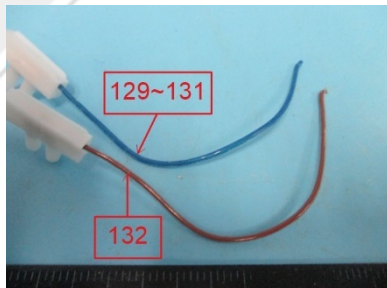
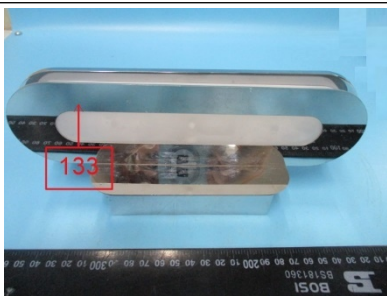
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Sample Number	Model No.	Tested Material Description	Photo
105	MB1168S /8W	Transparent glue	
106	MB1168S /8W	Silvery metal nut	
107	MB1168S /8W	Silvery metal part	
108		Red paper washer	
109		Silvery metal washer	
110	MB1168S /8W	Transparent plastic tube	
111		Silvery metal part	
112		White plastic ring	
*113	MB1168S /8W	White glass fabric cable	

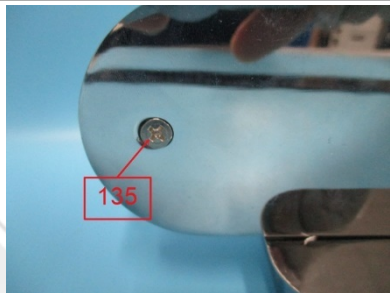
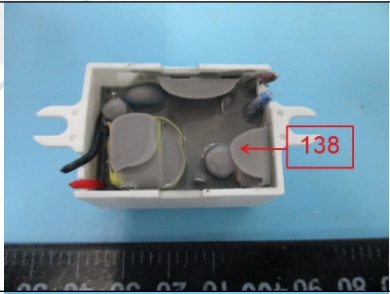
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Sample Number	Model No.	Tested Material Description	Photo
*114	MB1280B /3.6W	Transparent plastic part	
115	MB1280B /3.6W	White coating	
116		Silvery metal sheet	
117	MB1280B /3.6W	Silvery metal part	
118	MB1280B /3.6W	Silvery metal screw	
119		Silvery metal screw	
120	MB1280B /3.6W	White plastic shell with black printing	

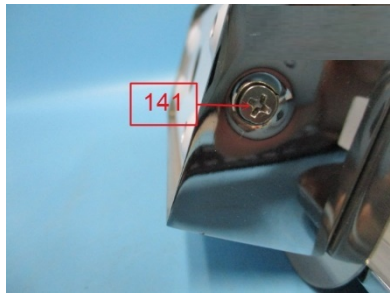
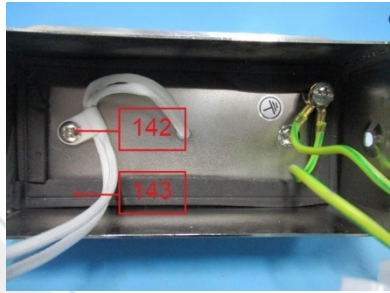
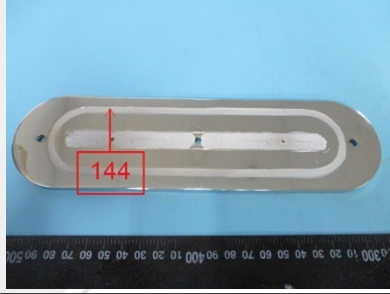
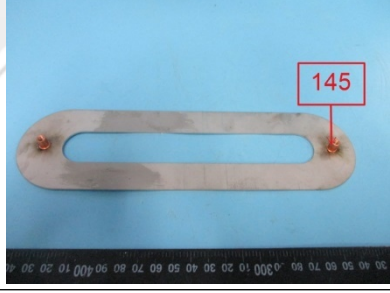
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Sample Number	Model No.	Tested Material Description	Photo
121	MB1280B /3.6W	Black adhesive foam	
122	MB1280B /3.6W	Yellow plastic shell	
123		Yellow filling	
124		Silvery foil inner	
125		Grey body with colored printing	
126		Silvery metal pin	
127	MB1280B /3.6W	Green PCB	
128		Silvery metal solder	
129	MB1280B /3.6W	Transparent soft plastic cable	
130		Blue soft plastic wire jacket(TANG YAO)	
131		Silvery metal wire	
132		Brown soft wire jacket	
133	MB1279/ S-6W	Grey metal sheet	

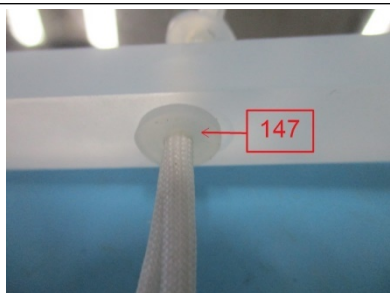
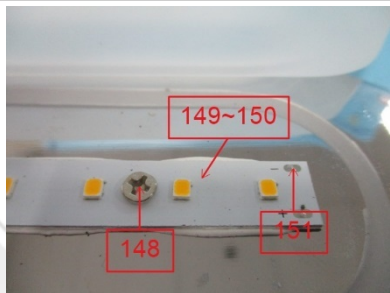
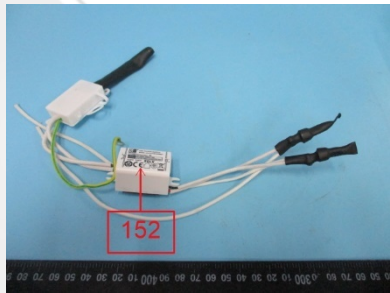
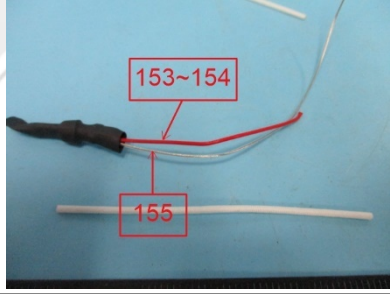
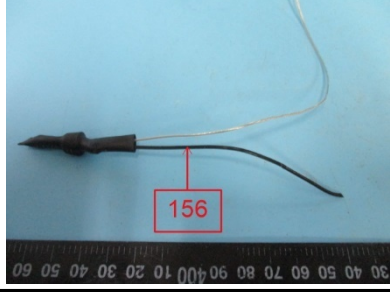
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Sample Number	Model No.	Tested Material Description	Photo
134	MB1279/ S-6W	Grey metal sheet	
135	MB1279/ S-6W	Silvery metal screw	
136	MB1279/ S-6W	Silvery metal sheet	
137		Silvery metal shell	
138	MB1279/ S-6W	Grey plastic glue	
139	MB1279/ S-6W	Silvery metal sheet(inner)	
140		Translucent rubber part	

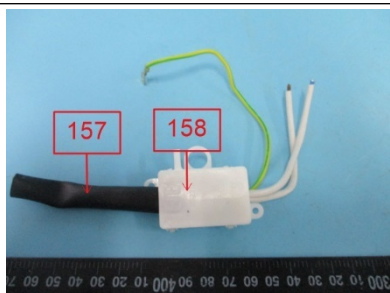
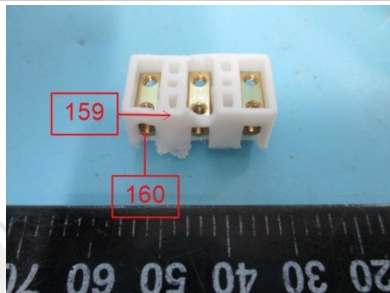
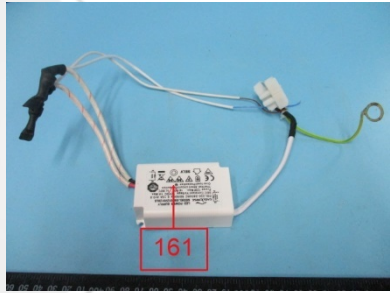
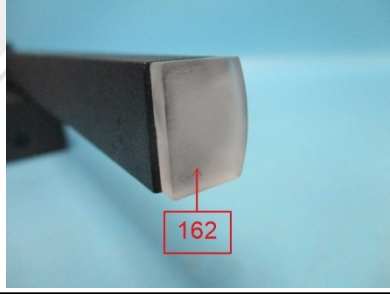
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Sample Number	Model No.	Tested Material Description	Photo
141	MB1279/ S-6W	Silvery metal screw	
142	MB1279/ S-6W	Silvery metal screw	
143		Black adhesive foam	
144	MB1279/ S-6W	Translucent soft-plastic washer	
145	MB1279/ S-6W	Copper metal nut	
146	MB1279/ S-6W	Silvery metal nut	

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Sample Number	Model No.	Tested Material Description	Photo
147	MB1279/ S-6W	Translucent soft plastic washer	
148	MB1279/ S-6W	Silvery metal screw	
149		White PCB	
150		Silvery metal sheet	
*151		Silvery metal solder	
152	MB1279/ S-6W	White plastic shell	
153	MB1279/ S-6W	Red soft plastic wire jacket	
154		Silvery metal wire	
155		Transparent soft plastic wire jacket(TANG YAO)	
156	MB1279/ S-6W	Black soft plastic wire jacket	

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Sample Number	Model No.	Tested Material Description	Photo
157	MB1279/ S-6W	Black plastic heating shrinkable tube	
158		White plastic shell	
159	MB1279/ S-6W	White plastic block	
160		Copper-colored metal part	
161	MB1250B M/8W	White plastic shell with black printing	
162	MB1168S /8W	Translucent plastic part	

* means the retest sample was provided by client on 2019-07-25.

** means the retest sample was provided by client on 2019-08-09.

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2. TEST RESULTS

2.1. SCREENING TEST

Test method: With reference to EN 62321-1:2013, EN 62321-2:2014, EN 62321-3-1:2014 and EN 62321-8:2017. For Heavy Metals and Flame Retardants, analyzed by Energy Dispersive X-ray Fluorescence Spectrometers (XRF); for phthalates, analyzed by Gas Chromatography and Mass Spectrometry (GC-MS).

Sample No.	Heavy Metals and Flame Retardants					Phthalates			
	Cd	Cr	Hg	Pb	Br	DEHP	BBP	DBP	DIBP
001	BL	BL	BL	BL	BL	BL	BL	BL	BL
002	BL	Inc. ^(a)	BL	BL	NA	NA	NA	NA	NA
003	BL	Inc. ^(a)	BL	BL	NA	NA	NA	NA	NA
004	BL	Inc. ^(a)	BL	BL	NA	NA	NA	NA	NA
005	BL	BL	BL	BL	NA	NA	NA	NA	NA
006 δ	BL	BL	BL	BL	NA	NA	NA	NA	NA
007	BL	BL	BL	BL	BL	BL	BL	BL	BL
008	BL	BL	BL	BL	BL	BL	BL	BL	BL
009	BL	Inc. ^(a)	BL	OL ^(e)	BL	BL	BL	BL	BL
010	BL	BL	BL	BL	BL	Inc. ^(a)	Inc. ^(a)	Inc. ^(a)	Inc. ^(a)
011	BL	Inc. ^(a)	BL	BL	NA	NA	NA	NA	NA
012 δ	BL	Inc. ^(a)	BL	BL	NA	NA	NA	NA	NA
013	BL	BL	BL	BL	BL	BL	BL	BL	BL
014	BL	BL	BL	BL	BL	BL	BL	BL	BL
015	BL	Inc. ^(a)	BL	BL	NA	NA	NA	NA	NA
016	BL	Inc. ^(a)	BL	BL	NA	NA	NA	NA	NA
017	BL	BL	BL	BL	NA	NA	NA	NA	NA
018	BL	BL	BL	BL	NA	NA	NA	NA	NA
019	BL	BL	BL	BL	BL	BL	BL	BL	BL
020	BL	BL	BL	BL	NA	NA	NA	NA	NA
021	BL	BL	BL	BL	NA	NA	NA	NA	NA
022	BL	BL	BL	BL	NA	NA	NA	NA	NA
023	BL	BL	BL	BL	NA	NA	NA	NA	NA
024	BL	BL	BL	BL	BL	BL	BL	BL	BL
025	BL	BL	BL	BL	BL	BL	BL	BL	BL
026	BL	BL	BL	BL	BL	BL	BL	BL	BL
027	BL	BL	BL	BL	NA	NA	NA	NA	NA
028	BL	Inc. ^(a)	BL	BL	NA	NA	NA	NA	NA

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Sample No.	Heavy Metals and Flame Retardants					Phthalates			
	Cd	Cr	Hg	Pb	Br	DEHP	BBP	DBP	DIBP
029	BL	BL	BL	BL	BL	BL	BL	BL	BL
030	BL	BL	BL	Inc. ^(a)	NA	NA	NA	NA	NA
031	BL	BL	BL	BL	NA	NA	NA	NA	NA
032	BL	BL	BL	BL	BL	BL	BL	BL	BL
033	BL	BL	BL	BL	BL	BL	BL	BL	BL
034	BL	BL	BL	BL	NA	NA	NA	NA	NA
035	BL	BL	BL	BL	BL	BL	BL	BL	BL
036	BL	BL	BL	BL	BL	BL	BL	BL	BL
037	BL	BL	BL	BL	NA	NA	NA	NA	NA
038	BL	BL	BL	OL ^(d)	NA	NA	NA	NA	NA
039	BL	BL	BL	Inc. ^(a)	Inc. ^(a)	BL	BL	BL	BL
040	BL	BL	BL	BL	BL	BL	BL	BL	BL
041	BL	BL	BL	BL	BL	BL	BL	BL	BL
042	BL	BL	BL	BL	NA	NA	NA	NA	NA
043	BL	BL	BL	BL	BL	BL	BL	BL	BL
044	BL	BL	BL	BL	NA	NA	NA	NA	NA
045	BL	BL	BL	BL	NA	NA	NA	NA	NA
046	BL	BL	BL	BL	BL	BL	BL	BL	BL
047	BL	BL	BL	BL	NA	NA	NA	NA	NA
048	BL	BL	BL	BL	BL	BL	BL	BL	BL
049	BL	BL	BL	BL	BL	BL	BL	BL	BL
050	BL	BL	BL	BL	BL	BL	BL	BL	BL
051	BL	BL	BL	BL	BL	BL	BL	BL	BL
052	BL	BL	BL	BL	BL	BL	BL	BL	BL
053	BL	BL	BL	BL	BL	BL	BL	BL	BL
054	BL	BL	BL	BL	NA	NA	NA	NA	NA
055	BL	BL	BL	BL	Inc. ^(a)	BL	BL	BL	BL
056	BL	BL	BL	BL	Inc. ^(a)	BL	BL	BL	BL
057	BL	BL	BL	BL	BL	BL	BL	BL	BL
058	BL	BL	BL	BL	BL	Inc. ^(a)	Inc. ^(a)	Inc. ^(a)	Inc. ^(a)
059	BL	BL	BL	BL	Inc. ^(a)	BL	BL	BL	BL
060	BL	BL	BL	BL	BL	BL	BL	BL	BL

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Sample No.	Heavy Metals and Flame Retardants					Phthalates			
	Cd	Cr	Hg	Pb	Br	DEHP	BBP	DBP	DIBP
061	BL	BL	BL	BL	NA	NA	NA	NA	NA
062	BL	BL	BL	BL	BL	BL	BL	BL	BL
063	BL	BL	BL	BL	BL	BL	BL	BL	BL
064	BL	BL	BL	BL	BL	BL	BL	BL	BL
065	BL	BL	BL	BL	NA	NA	NA	NA	NA
066	BL	BL	BL	BL	Inc. ^(a)	BL	BL	BL	BL
067	BL	BL	BL	BL	NA	NA	NA	NA	NA
068	BL	BL	BL	OL ^(d)	NA	NA	NA	NA	NA
069	BL	BL	BL	BL	BL	BL	BL	BL	BL
070	BL	BL	BL	BL	NA	NA	NA	NA	NA
071	BL	BL	BL	OL ^(d)	NA	NA	NA	NA	NA
072	BL	Inc. ^(a)	BL	BL	BL	BL	BL	BL	BL
073	BL	BL	BL	BL	NA	NA	NA	NA	NA
074	BL	Inc. ^(a)	BL	BL	BL	BL	BL	BL	BL
075	BL	BL	BL	BL	BL	BL	BL	BL	BL
076	BL	BL	BL	BL	Inc. ^(a)	BL	BL	BL	BL
077	BL	BL	BL	BL	NA	NA	NA	NA	NA
078	BL	BL	BL	OL ^(e)	BL	BL	BL	BL	BL
079	BL	BL	BL	BL	BL	BL	BL	BL	BL
080	BL	BL	BL	BL	BL	BL	BL	BL	BL
081	BL	BL	BL	BL	BL	BL	BL	BL	BL
082	BL	BL	BL	BL	BL	BL	BL	BL	BL
083	BL	BL	BL	BL	BL	BL	BL	BL	BL
084	BL	BL	BL	BL	BL	BL	BL	BL	BL
085	BL	BL	BL	BL	BL	BL	BL	BL	BL
086	BL	BL	BL	BL	NA	NA	NA	NA	NA
087	BL	BL	BL	BL	BL	BL	BL	BL	BL
088	BL	BL	BL	BL	BL	BL	BL	BL	BL
089	BL	BL	BL	BL	NA	NA	NA	NA	NA
090	BL	BL	BL	BL	BL	BL	BL	BL	BL
091	BL	BL	BL	BL	BL	Inc. ^(a)	Inc. ^(a)	Inc. ^(a)	Inc. ^(a)
092	BL	BL	BL	BL	BL	Inc. ^(a)	Inc. ^(a)	Inc. ^(a)	Inc. ^(a)

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Sample No.	Heavy Metals and Flame Retardants					Phthalates			
	Cd	Cr	Hg	Pb	Br	DEHP	BBP	DBP	DIBP
093	BL	BL	BL	BL	BL	BL	BL	BL	BL
094	BL	BL	BL	BL	NA	NA	NA	NA	NA
095	BL	BL	BL	BL	Inc. ^(a)	BL	BL	BL	BL
096	BL	BL	BL	BL	NA	NA	NA	NA	NA
097	BL	BL	BL	BL	BL	BL	BL	BL	BL
098	BL	BL	BL	BL	NA	NA	NA	NA	NA
099	BL	BL	BL	BL	BL	BL	BL	BL	BL
100	BL	BL	BL	BL	Inc. ^(a)	BL	BL	BL	BL
101	BL	BL	BL	BL	NA	NA	NA	NA	NA
102 δ	BL	BL	BL	BL	NA	NA	NA	NA	NA
103	BL	BL	BL	BL	NA	NA	NA	NA	NA
104	BL	BL	BL	BL	BL	BL	BL	BL	BL
105	BL	BL	BL	BL	BL	Inc. ^(a)	Inc. ^(a)	Inc. ^(a)	Inc. ^(a)
106	BL	BL	BL	BL	NA	NA	NA	NA	NA
107	BL	BL	BL	BL	NA	NA	NA	NA	NA
108	BL	BL	BL	BL	BL	BL	BL	BL	BL
109	BL	BL	BL	BL	NA	NA	NA	NA	NA
110	BL	BL	BL	BL	BL	BL	BL	BL	BL
111	BL	Inc. ^(a)	BL	BL	NA	NA	NA	NA	NA
112	BL	BL	BL	BL	BL	Inc. ^(a)	Inc. ^(a)	Inc. ^(a)	Inc. ^(a)
113 δ	BL	BL	BL	BL	BL	BL	BL	BL	BL
114 δ	BL	BL	BL	BL	BL	BL	BL	BL	BL
115	BL	BL	BL	BL	BL	BL	BL	BL	BL
116	BL	BL	BL	BL	NA	NA	NA	NA	NA
117	BL	BL	BL	BL	NA	NA	NA	NA	NA
118	BL	BL	BL	BL	NA	NA	NA	NA	NA
119	BL	BL	BL	BL	NA	NA	NA	NA	NA
120	BL	BL	BL	BL	BL	BL	BL	BL	BL
121	BL	BL	BL	BL	BL	Inc. ^(a)	Inc. ^(a)	Inc. ^(a)	Inc. ^(a)
122	BL	BL	BL	BL	Inc. ^(a)	BL	BL	BL	BL
123	BL	BL	BL	BL	Inc. ^(a)	BL	BL	BL	BL
124	BL	BL	BL	BL	BL	BL	BL	BL	BL
125	BL	Inc. ^(a)	BL	BL	BL	BL	BL	BL	BL

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Sample No.	Heavy Metals and Flame Retardants					Phthalates			
	Cd	Cr	Hg	Pb	Br	DEHP	BBP	DBP	DIBP
126	BL	BL	BL	BL	NA	NA	NA	NA	NA
127	BL	BL	BL	BL	Inc. ^(a)	BL	BL	BL	BL
128	BL	BL	BL	BL	NA	NA	NA	NA	NA
129	BL	BL	BL	BL	BL	BL	BL	BL	BL
130	BL	BL	BL	BL	BL	BL	BL	BL	BL
131	BL	BL	BL	BL	NA	NA	NA	NA	NA
132	BL	BL	BL	BL	BL	BL	BL	BL	BL
133	BL	Inc. ^(a)	BL	BL	NA	NA	NA	NA	NA
134	BL	BL	BL	BL	NA	NA	NA	NA	NA
135	BL	BL	BL	BL	NA	NA	NA	NA	NA
136	BL	Inc. ^(a)	BL	BL	NA	NA	NA	NA	NA
137	BL	BL	BL	BL	NA	NA	NA	NA	NA
138	BL	BL	BL	BL	BL	Inc. ^(a)	Inc. ^(a)	Inc. ^(a)	Inc. ^(a)
139	BL	BL	BL	BL	NA	NA	NA	NA	NA
140	BL	BL	BL	BL	BL	BL	BL	BL	BL
141	BL	BL	BL	BL	NA	NA	NA	NA	NA
142	BL	BL	BL	BL	NA	NA	NA	NA	NA
143	BL	BL	BL	BL	BL	Inc. ^(a)	Inc. ^(a)	Inc. ^(a)	Inc. ^(a)
144	BL	BL	BL	BL	BL	BL	BL	BL	BL
145	BL	BL	BL	BL	NA	NA	NA	NA	NA
146	BL	BL	BL	BL	NA	NA	NA	NA	NA
147	BL	BL	BL	BL	BL	BL	BL	BL	BL
148	BL	BL	BL	BL	NA	NA	NA	NA	NA
149	BL	BL	BL	BL	BL	BL	BL	BL	BL
150	BL	BL	BL	BL	NA	NA	NA	NA	NA
151 δ	BL	BL	BL	BL	NA	NA	NA	NA	NA
152	BL	BL	BL	BL	BL	BL	BL	BL	BL
153	BL	BL	BL	BL	BL	BL	BL	BL	BL
154	BL	BL	BL	BL	NA	NA	NA	NA	NA
155	BL	BL	BL	BL	BL	BL	BL	BL	BL
156	BL	BL	BL	BL	BL	BL	BL	BL	BL
157	BL	BL	BL	BL	BL	BL	BL	BL	BL

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Sample No.	Heavy Metals and Flame Retardants					Phthalates			
	Cd	Cr	Hg	Pb	Br	DEHP	BBP	DBP	DIBP
158	BL	BL	BL	BL	Inc. ^(a)	BL	BL	BL	BL
159	BL	BL	BL	BL	Inc. ^(a)	BL	BL	BL	BL
160	BL	BL	BL	Inc. ^(a)	NA	NA	NA	NA	NA
161	BL	BL	BL	BL	BL	BL	BL	BL	BL
162	BL	BL	BL	BL	BL	BL	BL	BL	BL

Note:

- “BL” denotes below limit
- “OL” denotes over limit
- “Inc.” denotes inconclusive
- “NA” denotes not applicable
- “δ” means the retest result
- “(a)” denotes further confirmation test was conducted, results are listed in 2.2, 2.3 and 2.4.
- “(d)” denotes the exempt item according to DIRECTIVE 2011/65/EU Annex III item 7(a) *“lead in high melting temperature type solder(i. e. lead-based alloy containing 85% by weight or more lead)”*.
- “(e)” denotes the exempt item according to DIRECTIVE 2011/65/EU Annex III item 7(c)-I *“Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound”*

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— XRF screening limits in mg/kg for regulated elements in various matrices

ELEMENT	POLYMER		
	BL	INCONCLUSIVE	OL
Cd	$X < (70-3\sigma)$	$(70-3\sigma) < X < (130+3\sigma)$	$X > (130+3\sigma)$
Pb	$X < (700-3\sigma)$	$(700-3\sigma) < X < (1300+3\sigma)$	$X > (1300+3\sigma)$
Hg	$X < (700-3\sigma)$	$(700-3\sigma) < X < (1300+3\sigma)$	$X > (1300+3\sigma)$
Br	$X < (300-3\sigma)$	$X > (300-3\sigma)$	NA
Cr	$X < (700-3\sigma)$	$X > (700-3\sigma)$	NA

ELEMENT	METAL		
	BL	INCONCLUSIVE	OL
Cd	$X < (70-3\sigma)$	$(70-3\sigma) < X < (130+3\sigma)$	$X > (130+3\sigma)$
Pb	$X < (700-3\sigma)$	$(700-3\sigma) < X < (1300+3\sigma)$	$X > (1300+3\sigma)$
Hg	$X < (700-3\sigma)$	$(700-3\sigma) < X < (1300+3\sigma)$	$X > (1300+3\sigma)$
Cr	$X < (700-3\sigma)$	$X > (700-3\sigma)$	NA

ELEMENT	COMPLEX MATERIAL		
	BL	INCONCLUSIVE	OL
Cd	$X < (50-3\sigma)$	$(50-3\sigma) < X < (150+3\sigma)$	$X > (150+3\sigma)$
Pb	$X < (500-3\sigma)$	$(500-3\sigma) < X < (1500+3\sigma)$	$X > (1500+3\sigma)$
Hg	$X < (500-3\sigma)$	$(500-3\sigma) < X < (1500+3\sigma)$	$X > (1500+3\sigma)$
Br	$X < (250-3\sigma)$	$X > (250-3\sigma)$	NA
Cr	$X < (500-3\sigma)$	$X > (500-3\sigma)$	NA

— Screening limits in mg/kg for regulated phthalates in various matrices

PHthalATES	BL	INCONCLUSIVE
DEHP	$X < 600$	$X \geq 600$
BBP	$X < 600$	$X \geq 600$
DBP	$X < 600$	$X \geq 600$
DIBP	$X < 600$	$X \geq 600$

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2.2. HEAVY METAL CONTENT

Test method: With reference to EN 62321-4:2014 /A1:2017, EN 62321-5:2014, EN 62321-7-1:2015 and EN 62321-7-2:2017, analyzed by Inductively Coupled Plasma Optical Emission Spectrometer (ICP-OES) and UV-Vis spectrophotometer. [Reporting Limit: 2 mg/kg for Cadmium; 10 mg/kg or 0.10 µg/cm² for Hexavalent Chromium, 10 mg/kg for Lead and Mercury.]

Sample No.	Result			
	Total Cadmium	Hexavalent Chromium	Total Mercury	Total Lead
009	--	<10	--	--
039	--	--	--	260
072	--	<10	--	--
074	--	<10	--	--
125	--	<10	--	--
Unit	mg/kg	mg/kg	mg/kg	mg/kg
RoHS Requirement	100	1000	1000	1000

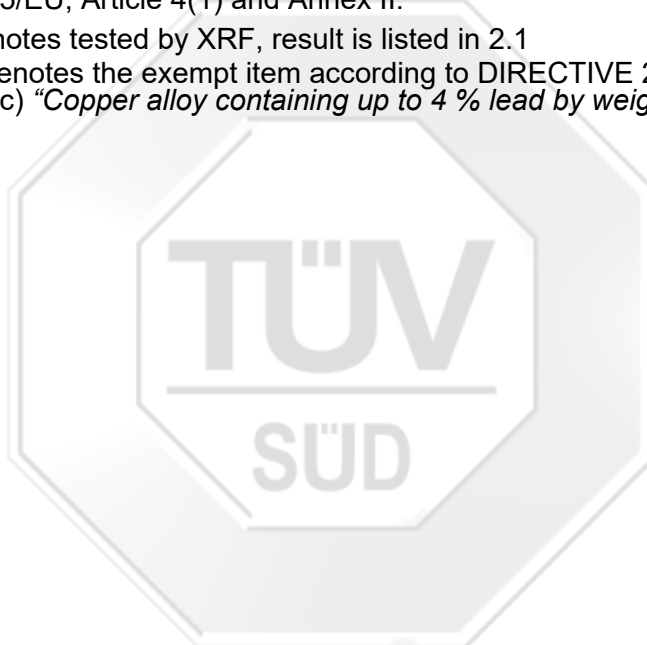
Sample No.	Result			
	Total Cadmium	Hexavalent Chromium	Total Mercury	Total Lead
002	--	Negative	--	--
003	--	Negative	--	--
004	--	Negative	--	--
011	--	Negative	--	--
012 δ	--	Negative	--	--
015	--	Negative	--	--
016	--	Negative	--	--
028	--	Negative	--	--
030	--	--	--	630
111	--	Negative	--	--
133	--	Negative	--	--
136	--	Negative	--	--
160	--	--	--	33620 ^(c)

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Unit	mg/kg	$\mu\text{g}/\text{cm}^2$	mg/kg	mg/kg
RoHS Requirement	100	Negative [#]	1000	1000

Note:

- “mg/kg” denotes milligram per kilogram
- “<” denotes less than
- “δ” means the retest result
- “ $\mu\text{g}/\text{cm}^2$ ” denotes micrograms per square centimeter
- “Negative” denotes the absorbance value of sample is less than the absorbance value of the 0.10 $\mu\text{g}/\text{cm}^2$ equivalent comparison standard solution, the sample is considered to be negative for Hexavalent Chromium.
- “#” According to DIRECTIVE 2011/65/EU Article 4(1) and Annex II. While, positive means the presence of CrVI on tested areas and the result(s) was (were) regarded as in conflict with European Parliament and Council Directive 2011/65/EU, Article 4(1) and Annex II.
- “--” denotes tested by XRF, result is listed in 2.1
- “(c)” denotes the exempt item according to DIRECTIVE 2011/65/EU Annex III item 6(c) “Copper alloy containing up to 4 % lead by weight”.



2.3. POLYBROMINATED BIPHENYLS (PBBs) AND POLYBROMINATED DIPHENYL ETHERS (PBDEs) CONTENT

Test Method: With reference to EN 62321-6:2015, extracted by toluene and analyzed by Gas Chromatography and Mass Spectrometry (GC-MS). [Reporting Limit: 5 mg/kg]

Test Item		Result [mg/kg]		RoHS Requirement [mg/kg]
		Sample 039+066	Sample 055+056+059	
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:

- “mg/kg” denotes miligram per kilogram
- “<” denotes less than

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(Continued)

Test Item		Result [mg/kg]		RoHS Requirement [mg/kg]
		Sample 076+127	Sample 095+100	
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:

- “mg/kg” denotes miligram per kilogram
- “<” denotes less than

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(Continued)

Test Item		Result [mg/kg]		RoHS Requirement [mg/kg]
		Sample 122+123	Sample 158+159	
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:

- “mg/kg” denotes miligram per kilogram
- “<” denotes less than

2.4. PHTHALATES (DEHP, BBP, DBP and DIBP) CONTENT TEST

Test method: With reference to EN 62321-8:2017, extracted by organic solvent and analyzed by Gas Chromatography and Mass Spectrometry (GC-MS). [Reporting limit: 100 mg/kg]

Test Item	Result [mg/kg]		RoHS Requirement [mg/kg]
	Sample 010+058+105+138	Sample 091+092	
Di-(2-ethyl-hexyl) Phthalate (DEHP)	< 100	< 100	1000
Butyl-benzyl Phthalate (BBP)	< 100	< 100	1000
Di-butyl Phthalate (DBP)	< 100	< 100	1000
Di-iso-butyl Phthalate (DIBP)	110	137	1000

Test Item	Result [mg/kg]		RoHS Requirement [mg/kg]
	Sample 112	Sample 121+143	
Di-(2-ethyl-hexyl) Phthalate (DEHP)	< 100	< 100	1000
Butyl-benzyl Phthalate (BBP)	< 100	< 100	1000
Di-butyl Phthalate (DBP)	< 100	< 100	1000
Di-iso-butyl Phthalate (DIBP)	293	339	1000

Note:

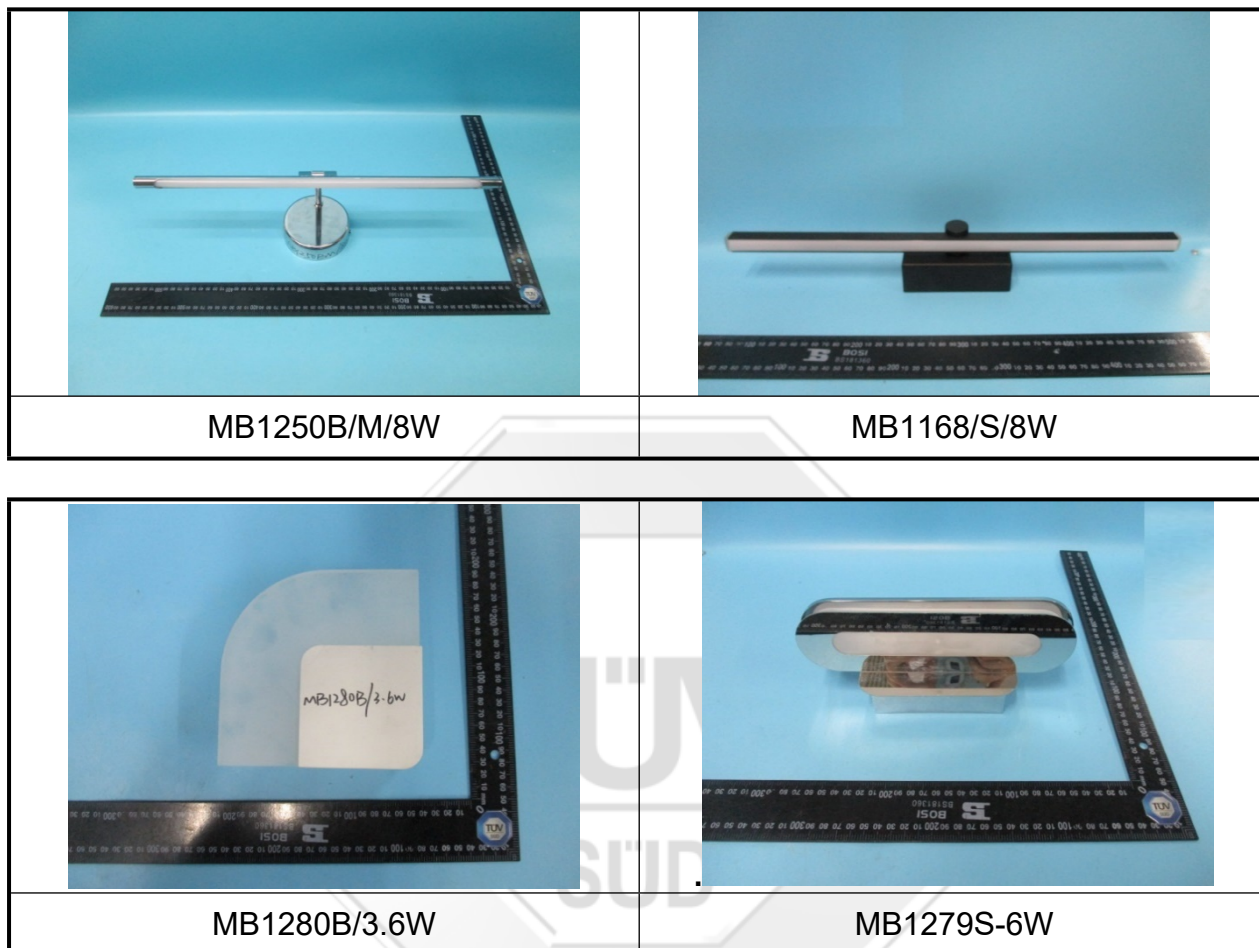
- “mg/kg” denotes miligram per kilogram
- “<” denotes less than

3. REMARK

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

APPENDIX:

01 Photos of submitted products



02 Model list:

Product	Model No.	Power
LED fixed Luminaires	MB1079A/S	6W
	MB1079A/M	8W
	MB1079A/L	13W
LED fixed Luminaires	MB1079B/S	6W
	MB1079B/M	8W
	MB1079B/L	13W
LED fixed Luminaires	MB1173A/S	12W
	MB1173A/M	16W
	MB1173A/L	20W

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Product	Model No.	Power
LED fixed Luminaires	MB1040/S	6W
	MB1040/M	12W
	MB1040/L	18W
LED fixed Luminaires	MB1103/S	6W
	MB1103/M	8W
	MB1103/L	12W
	MB1103/XL	16W
LED fixed Luminaires	MB1297/S	5W
	MB1297/M	8W
	MB1297/L	11W
LED fixed Luminaires	MB1294/S	6W
	MB1294/M	8W
	MB1294/L	11W
LED fixed Luminaires	MB1263/S	8W
	MB1263/M	10W
	MB1263/L	12W
LED fixed Luminaires	MB1250A/S	5W
	MB1250A/M	8W
	MB1250A/L	10W
LED fixed Luminaires	MB1250B/S	5W
	MB1250B/M	8W
	MB1250B/L	10W
LED fixed Luminaires	MB1168/S	8W
	MB1168/M	10W
	MB1168/L	12W
LED fixed Luminaires	MB1279/S	6W
	MB1279/M	12W
	MB1279/L	18W
LED fixed Luminaires	MB1217S	10W
	MB1217M	20W
LED fixed Luminaires	MB1247A/S	6W

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Product	Model No.	Power
	MB1247A/M	12W
	MB1247A/L	18W
LED fixed Luminaires	MB1247B/S	6W
	MB1247B/M	12W
	MB1247B/L	18W
LED fixed Luminaires	MB1248/S	8W
	MB1248/M	12W
	MB1248/L	16W
LED fixed Luminaires	MB1053/S	8W
	MB1053/M	12W
	MB1053/L	16W
LED fixed Luminaires	MB1254/S	6W
	MB1254/M	12W
	MB1254/L	18W
LED fixed Luminaires	MB1320/S	6W
LED fixed Luminaires	MB1222S	8W
	MB1222M	12W
	MB1222L	16W
LED fixed Luminaires	MB1235/S	6W
	MB1235/M	6W
	MB1235/L	12W
LED fixed Luminaires	MB1083/S	8W
	MB1083/M	12W
	MB1083/L	16W
	MB1083/XL	20W
LED fixed Luminaires	MB1187S	6W
	MB1187M	6W
	MB1187L	12W
LED fixed Luminaires	MB1290-S	12W
	MB1290-L	16W
LED fixed Luminaires	MB1368S	6W

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Product	Model No.	Power
	MB1368L	12W
LED fixed Luminaires	MB1021/S	6W
	MB1021/M	6W
	MB1021/L	12W
LED fixed Luminaires	MB1125-1	6W
	MB1125-2	12W
LED fixed Luminaires	MB1305B/M	12W
	MB1305B/L	16W
LED fixed Luminaires	MB1126/S	6W
	MB1126/L	12W
LED fixed Luminaires	MB1280A	3.6W
	MB1280B	3.6W
	MB1280C	3.6W
LED fixed Luminaires	MB1231A	6W
	MB1231B	6W
LED fixed Luminaires	MB1070S	6W
	MB1070L	12W
LED fixed Luminaires	MB1316A	12W
LED fixed Luminaires	MB1316B	12W
LED fixed Luminaires	MB1063-1	4.5W
	MB1063-2	9W
	MB1063-3	13.5W
	MB1063-4	18W
LED fixed Luminaires	MB1223-1	5W
	MB1223-2	10W
	MB1223-2B	10W
	MB1223-3	15W
	MB1223-4	20W
LED fixed Luminaires	MB1274-1	3W
	MB1274-2	6W
	MB1274-3	9W
	MB1274-4	12W

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Product	Model No.	Power
LED fixed Luminaires	MB1274-2B	6W
LED fixed Luminaires	MB1225-1	3W
	MB1225-2	6W
	MB1225-3	9W
	MB1225-4	12W
LED fixed Luminaires	MB1180R	6W
LED fixed Luminaires	MB1180S	6W
LED fixed Luminaires	MB2020/S	6W
	MB2020/L	10W

