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Applicant : UNI-TREND TECHNOLOGY (CHINA) CO.,LTD

Address : NO.6, GONG YE BEI 1ST ROAD, SONGSHAN LAKE NATIONAL HIGH-TECH

INDUSTRIAL DEVELOPMENT ZONE, DONGGUAN CITY, GUANGDONG

PROVINCE, CHINA

Sample Name : Tone and Probe

Style/Item No. : UT682D

Factory/Manufacturer : Uni-Trend Technology (China) Co.,Ltd

Address : No.6, Gong Ye Bei 1st Road, Songshan Lake National High-Tech Industrial

Development Zone, Dongguan City, Guangdong Province, China

Trade Mark : UNI-T

Sample Received Date : May 09, 2018

Testing Completed Date : June 29, 2018

**Test Requested**: As requested by client, to evaluate the compliance of the submitted sample

with the Directive 2011/65/EU and amendment directive 2015/863/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of

the use of certain hazardous substances in electrical and electronic

equipment.

**Test Method** : 1. Review was performed for the sample and the related Bill of Material

submitted by the Applicant.

2. a) To refer to the standard IEC 62321-3-1:2013: Screening by XRF

Spectroscopy.

b) Wet chemical test

1) to refer to IEC 62321-5: 2013, determine the Cadmium, Lead

content by ICP-OES.

2) to refer to IEC 62321-4: 2013, determine the Mercury content by

ICP-OES.

3) to refer to IEC 62321-7-1:2015 & IEC 62321-7-2:2017, determine

the Hexavalent Chromium content by UV-VIS.

4) to refer to IEC 62321-6:2015, determine the Polybrominated Biphenyls and Polybrominated Diphenyl Ethers by GC-MS.

5) to refer to IEC 62321-8:2017, the analysis was performed by Gas

Chromatography Mass Spectrometry (GC / MS).

**Test Results** : Please refer to next page (s).





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#### Conclusion:

Basing on the test results obtained from the homogenous materials, the submitted sample COMPLIES with the requirements stated in the Annex II of RoHS Directive 2011/65/EU and amendment directive 2015/863/EU.

> Signed for and on behalf of EMTEK (Dongguan) Co., Ltd.

Prepared by:

Kira Fu

Report Engineer

Reviewed by:

Carrie Zhang

Supervisor

Approved by:

Lainey Qin

Manager





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#### **Test Results:**

No.	Sample description	Restricted substances	Results of EDXRF <sup>(1)</sup>	Results of Chemical Testing <sup>(2)</sup> (mg/kg)	Conclusion	Remark
		Pb	BL			
		Cd	BL			
1	Red hard plastic	Hg	BL	NA NA	Pass	Non comment
		Cr	BL			
		Br	BL			
		Pb	BL			
	Black hard plastic	Cd	BL			
2	with white and red	Hg	BL	NA	Pass	Non comment
	printing Cr BL					
		Br	BL			
		Pb	BL			
	3 Transparent hard plastic	Cd	BL	NA		
3		Hg	BL		Pass	Non comment
		Cr	BL			
		Br	BL			
		Pb	BL			
		Cd	BL			Non comment
4	Silver metal	Hg	BL	NA	Pass	
		Cr	BL			
		Br	NA			
		Pb	BL			
		Cd	BL			
5	Black soft plastic	Hg	BL	NA	Pass	Non comment
		Cr	BL			
		Br	BL			
		Pb	BL			The XRF
		Cd	BL	NA		screening results for Pb,
6	Solder-silver metal	Hg	BL		Pass	Cd, Hg, Cr were obtained for the
		Cr	BL			resubmitted
THE WILL		Br	NA			sample on June 06, 2018.





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No.	Sample description	Restricted substances	Results of EDXRF <sup>(1)</sup>	Results of Chemical Testing <sup>(2)</sup> (mg/kg)	Conclusion	Remark
		Pb	BL			
		Cd	BL			
7	Silver metal	Hg	BL	NA -	Pass	Non comment
		Cr	BL			
		Br	NA			
A CONTRACTOR		Pb	BL			
		Cd	BL			
8	Brown paper board	Hg	BL	NA	Pass	Non comment
	Cr BL					
		Br	BL			
		Pb	BL			
		Cd	BL			
9	Green PCB	Hg	BL	PBBs:ND PBDEs:ND	Pass	Non comment
		Cr	BL	1 5520.115		
		Br	Χ			
ALLE ELA		Pb	BL			
		Cd	BL			
10	SMD diode	Hg	BL	NA	Pass	Non comment
		Cr	BL			
		Br	BL			
		Pb	BL			
		Cd	BL			
11	SMD IC	Hg	BL	NA	Pass	Non comment
		Cr	BL			
KIELE EN K		Br	BL			
		Pb	BL			
		Cd	BL	NA		
12	SMD diode	Hg	BL		Pass	Non comment
		Cr	BL			
		Br	BL			





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No.	Sample description	Restricted substances	Results of EDXRF <sup>(1)</sup>	Results of Chemical Testing <sup>(2)</sup> (mg/kg)	Conclusion	Remark
		Pb	BL			
		Cd	BL			
13	SMD resister	Hg	BL	NA	Pass	Non comment
		Cr	BL			
		Br	BL			
		Pb	BL			
		Cd	BL			
14	SMD triode	Hg	BL	NA	Pass	Non comment
		Cr	BL			
		Br	BL			
		Pb	BL			Non comment
		Cd	BL			
15	SMD capacitor	Hg	BL	NA	Pass	
		Cr	BL			
		Br	BL			
ALLE TE ST.		Pb	BL			Non comment
		Cd	BL			
16	SMD resister	Hg	BL	NA	Pass	
		Cr	BL			
		Br	BL			
		Pb	BL			
		Cd	BL			
17	Brown PCB	Hg	BL	PBBs:ND PBDEs:ND	Pass	Non comment
		Cr	BL	1 DDES.IND		
		Br	Χ			
ELY TELE		Pb	BL			
		Cd	BL	NA NA		
18	Copper metal	Hg	BL		Pass	Non comment
		Cr	BL			
		Br	NA			





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No.	Sample description	Restricted substances	Results of EDXRF <sup>(1)</sup>	Results of Chemical Testing <sup>(2)</sup> (mg/kg)	Conclusion	Remark
		Pb	BL			
		Cd	BL			
19	Green solid	Hg	BL	NA	Pass	Non comment
		Cr	BL			
		Br	BL			
		Pb	BL			
		Cd	BL			
20	SMD LED	SMD LED Hg BL NA Cr BL	Pass	Non comment		
		Br	BL			
		Pb	BL			Non comment
	Dark grey hard plastic	Cd	BL			
21		Hg	BL	NA	Pass	
		Cr	BL			
		Br	BL			
		Pb	BL			
		Cd	BL			
22	Black hard plastic	Hg	BL	NA	Pass	Non comment
		Cr	BL			
		Br	BL			
		Pb	BL			
		Cd	BL			
23	Silver metal	Hg	BL	NA	Pass	Non comment
		Cr	BL			
		Br	NA			
		Pb	BL			
		Cd	BL	NA		
24	Silver metal	Hg	BL		Pass	Non comment
		Cr	BL			
		Br	NA			





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No.	Sample description	Restricted substances	Results of EDXRF <sup>(1)</sup>	Results of Chemical Testing <sup>(2)</sup> (mg/kg)	Conclusion	Remark
		Pb	BL			
		Cd	BL			
25	Silver metal	Hg	BL	NA	Pass	Non comment
		Cr	BL			
		Br	NA			
TO VIEW		Pb	BL			
		Cd	BL			
26	Silver metal	Hg	BL	NA	Pass	Non comment
		Cr	BL	BL NA		
		Br	NA			
		Pb	BL			
		Cd	BL			
27	Silver metal with black coating	Hg	BL	NA	Pass	Non comment
		Cr	BL			
		Br	NA			
VILLE ENVI		Pb	BL			
		Cd	BL			Non comment
28	Silver metal	Hg	BL	NA	Pass	
		Cr	BL			
		Br	NA			
		Pb	BL			
		Cd	BL			
29	Black soft plastic	Hg	BL	NA	Pass	Non comment
		Cr	BL			
		Br	BL			
		Pb	BL			
ALLE EN ALLE		Cd	BL	NA	Pass	
30	Black soft plastic	Hg	BL			Non comment
Mark and	Diagn don placing	Cr	BL			
te aviet &		Br	BL			





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No.	Sample description	Restricted substances	Results of EDXRF <sup>(1)</sup>	Results of Chemical Testing <sup>(2)</sup> (mg/kg)	Conclusion	Remark
		Pb	BL			
		Cd	BL			
31	White soft plastic	Hg	BL	NA	Pass	Non comment
		Cr	BL			
		Br	BL			
		Pb	BL			
		Cd	BL			
32	Red soft plastic	Red soft plastic Hg BL NA	Pass	Non comment		
		Cr	Cr BL			
		Br	BL			
		Pb	BL			
		Cd	BL	NA NA		
33	Silver metal	Hg	BL		Pass	Non comment
		Cr	BL			
		Br	NA			
		Pb	BL	NA NA		Non comment
		Cd	BL		Pass	
34	White soft plastic	Hg	BL			
		Cr	BL			
		Br	BL			
ALER OF A		Pb	BL			
		Cd	BL			
35	Silver metal	Hg	BL	NA	Pass	Non comment
		Cr	BL			
		Br	NA			
		Pb	BL			
		Cd	BL	NA		
36	Black soft plastic	Hg	BL		Pass	Non comment
		Cr	BL			
		Br	BL			





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No.	Sample description	Restricted substances	Results of EDXRF <sup>(1)</sup>	Results of Chemical Testing <sup>(2)</sup> (mg/kg)	Conclusion	Remark
Martin Call		Pb	BL			
		Cd	BL			Non comment
37	Blue soft plastic	Hg	BL	NA	Pass	
		Cr	BL			
		Br	BL			
A CONTRACTOR		Pb	BL			
		Cd	BL			
38	Black soft plastic	Hg	BL	NA	Pass	Non comment
		Cr	BL			
		Br	BL			
		Pb	BL			
		Cd BL				
39	Solder-silver metal	Hg	BL	NA	Pass	Non comment
		Cr	BL			
		Br	NA			
		Pb	BL			
		Cd	BL			
40	Silver metal	Hg	BL	NA	Pass	Non comment
		Cr	BL			
		Br	NA			
		Pb	BL			
		Cd	BL			
41	Red soft plastic	Hg	BL	NA	Pass	Non comment
		Cr	BL			
		Br	BL			
		Pb	BL			
		Cd	BL	NA NA		
42	Black soft plastic	Hg	BL		Pass	Non comment
		Cr	BL			
		Br	BL			





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No.	Sample description	Restricted substances	Results of EDXRF <sup>(1)</sup>	Results of Chemical Testing <sup>(2)</sup> (mg/kg)	Conclusion	Remark
		Pb	BL			
		Cd	BL			
43	Transparent hard plastic	Hg	BL	NA	Pass	Non comment
	plactic	Cr	BL			
		Br	BL			
THE STATE OF		Pb	BL			
		Cd	BL			
44	White soft plastic	Hg	BL	NA	Pass	Non comment
		Cr	BL			
		Br	BL			
		Pb	BL			
		Cd BL				
45	Copper metal	Hg	BL	NA	Pass	Non comment
		Cr	BL			
		Br	NA			
A THE BEAT		Pb	BL			Non comment
		Cd	BL			
46	Red hard plastic	Hg	BL	NA	Pass	
		Cr	BL			
		Br	BL			
		Pb	BL			
	Black hard plastic	Cd	BL			
47	with white and red	Hg	BL	NA	Pass	Non comment
	printing	Cr	BL			
		Br	BL			
		Pb	BL			
		Cd	BL	NA NA		
48	Dark grey hard plastic	Hg	BL		Pass	Non comment
	Pidolio	Cr	BL			
		Br	BL			





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No.	Sample description	Restricted substances	Results of EDXRF <sup>(1)</sup>	Results of Chemical Testing <sup>(2)</sup> (mg/kg)	Conclusion	Remark
		Pb	BL			
		Cd	BL			
49	Black foam	Hg	BL	NA NA	Pass	Non comment
		Cr	BL			
		Br	BL			
		Pb	BL			
		Cd	BL			
50	Black fabric	Black fabric Hg BL NA	Pass	Non comment		
		Cr	BL			
		Br	BL			
		Pb	BL	NA		
	Dark grey soft plastic	Cd	BL			
51		Hg	BL		Pass	Non comment
	piastic	Cr	BL			
		Br	BL			
KIEREN K		Pb	BL			Non comment
		Cd	BL			
52	Transparent hard plastic	Hg	BL	NA	Pass	
	piastio	Cr	BL			
		Br	BL			
		Pb	BL			
		Cd	BL			
53	SMD triode	Hg	BL	NA	Pass	Non comment
		Cr	BL			
		Br	BL			
		Pb	BL			
		Cd	BL	PBBs:ND PBDEs:ND		
54	Green PCB	Hg	BL		Pass	Non comment
		Cr	BL	I DDES.ND		
		Br	X			
2 . W A . W. W.	THE STATE OF THE S	and the second s	OT KILLY OF KY AT A	AT OF THE POST OF THE PARTY OF THE	TO I Y W AV AV A LAV A	THE ACTOR ACTOR ACT





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No.	Sample description	Restricted substances	Results of EDXRF <sup>(1)</sup>	Results of Chemical Testing <sup>(2)</sup> (mg/kg)	Conclusion	Remark
		Pb	BL			
		Cd	BL			
55	SMD resister	Hg	BL	NA	Pass	Non comment
		Cr	BL			
		Br	BL			
		Pb	BL			
		Cd	BL			
56	SMD capacitor	Hg	BL	NA	Pass	Non comment
		Cr	BL			
		Br	BL			
STATE OF		Pb	BL			
		Cd	BL			
57	SMD IC	Hg	BL	NA	Pass	Non comment
		Cr	BL			
		Br	BL			
		Pb	BL			
		Cd	BL			Non comment
58	SMD LED	Hg	BL	NA	Pass	
		Cr	BL			
		Br	BL			
		Pb	BL			
		Cd	BL			
59	SMD diode	Hg	BL	NA	Pass	Non comment
		Cr	BL			
		Br	BL			
		Pb	BL			The XRF screening
		Cd	BL	NA		results for Pb,
60	Solder-silver metal	Hg	BL		Pass	Cd, Hg, Cr were obtained for the
		Cr	BL			resubmitted
		Br	NA			sample on June 06, 2018.





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No.	Sample description	Restricted substances	Results of EDXRF <sup>(1)</sup>	Results of Chemical Testing <sup>(2)</sup> (mg/kg)	Conclusion	Remark
		Pb	BL			
		Cd	BL			Non comment
61	Silver metal	Hg	BL	NA	Pass	
		Cr	BL			
		Br	NA			
		Pb	BL			
		Cd	BL			
62	Black hard plastic	Hg	BL	NA	Pass	Non comment
		Cr BL				
		Br	BL			
		Pb	BL			Non comment
		Cd	BL	NA NA		
63	Silver metal with black printing	Hg	BL		Pass	
		Cr	BL			
		Br	NA			
		Pb	BL			
		Cd	BL			Non comment
64	Dark silver metal	Hg	BL	NA	Pass	
		Cr	BL			
		Br	NA			
		Pb	BL			
		Cd	BL			
65	Brown paper	Hg	BL	NA	Pass	Non comment
		Cr	BL			
		Br	BL			
		Pb	BL			
		Cd	BL	NA NA		
66	Black soft plastic	Hg	BL		Pass	Non comment
		Cr	BL			
		Br	BL			





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No.	Sample description	Restricted substances	Results of EDXRF <sup>(1)</sup>	Results of Chemical Testing <sup>(2)</sup> (mg/kg)	Conclusion	Remark
ALTER BY YE		Pb	BL			
		Cd	BL			
67	Silver metal	Hg	BL	NA	Pass	Non comment
		Cr	BL			
		Br	NA			
A CONTRACTOR		Pb	BL			
		Cd	BL			
68	Black hard plastic	Hg	BL	NA	Pass	Non comment
		Cr	BL			
		Br	BL			
		Pb	BL			
		Cd	BL			
69	Silver metal	Hg	BL	NA	Pass	Non comment
		Cr	BL			
		Br	NA			
		Pb	BL			
		Cd	BL			Non comment
70	Silver metal	Hg	BL	NA	Pass	
		Cr	BL			
		Br	NA			
		Pb	BL			
		Cd	BL			
71	Black solid	Hg	BL	NĀ	Pass	Non comment
ta Vist to		Cr	BL			
Che Carrie		Br	BL			
E A VER		Pb	BL			
ALLE EN VIE		Cd	BL	NA		
72	Yellow hard plastic	Hg	BL		Pass	Non comment
ALEA BAY		Cr	BL			
er and kind		Br	BL			





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No.	Sample description	Restricted substances	Results of EDXRF <sup>(1)</sup>	Results of Chemical Testing <sup>(2)</sup> (mg/kg)	Conclusion	Remark	
		Pb	BL				
		Cd	BL				
73	White hard plastic	Hg	BL	NA	Pass	Non comment	
		Cr	BL				
		Br	BL				
		Pb	OL			As declared by client, the	
		Cd	BL			material should be exempted for	
74	Copper metal	Hg	BL	Pb:26654	Pass	lead content	
		Cr	BL			requirement according to	
		Br	NA			Annex clause 6(c).	
		Pb	BL		Pass	Non comment	
	Silver metal	Cd	BL	NA			
75		Hg	BL				
		Cr	BL				
		Br	NA				
		Pb	BL	NA	Pass	Non comment	
		Cd	BL				
76	Black solid	Hg	BL				
		Cr	BL				
		Br	BL				
		Pb	BL				
		Cd	BL				
77	Silver metal	Hg	BL	NA	Pass	Non comment	
		Cr	BL				
		Br	NA				
		Pb	BL	NA	Pass		
		Cd	BL				
78	Silver metal	Hg	BL			Non comment	
		Cr	BL				
		Br	NA				





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No.	Sample description	Restricted substances	Results of EDXRF <sup>(1)</sup>	Results of Chemical Testing <sup>(2)</sup> (mg/kg)	Conclusion	Remark
		Pb	BL			
		Cd	BL			
79	Black soft plastic	Hg	BL	NA	Pass	Non comment
		Cr	BL			
		Br	BL			
		Pb	BL			The XRF screening
		Cd	BL			results for Pb,
80	Solder-silver metal	Hg	BL	NA	Pass	Cd, Hg, Cr were obtained for the
		Cr	BL			resubmitted
		Br	NA			sample on June 06, 2018.
		Pb	BL	NA NA	Pass	Non comment
	Silver metal	Cd	BL			
81		Hg	BL			
		Cr	BL			
		Br	NA			
		Pb	BL	NA		Non comment
		Cd	BL		Pass	
82	Brown paper board	Hg	BL			
		Cr	BL			
		Br	BL			
		Pb	BL			
		Cd	BL			
83	Black hard plastic	Hg	BL	NA	Pass	Non comment
		Cr	BL			
		Br	BL			
		Pb	BL			
		Cd	BL	NA	Pass	
84	Black soft plastic	Hg	BL			Non comment
		Cr	BL			
		Br	BL			





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No.	Sample description	Restricted substances	Results of EDXRF <sup>(1)</sup>	Results of Chemical Testing <sup>(2)</sup> (mg/kg)	Conclusion	Remark
With the Will		Pb	BL			
		Cd	BL			
85	Copper metal	Hg	BL	NA	Pass	Non comment
		Cr	BL			
		Br	NA			
		Pb	BL			The XRF screening
		Cd	BL			results for Pb,
86	Silver metal	Hg	BL	NA	Pass	Cd, Hg, Cr were obtained for the
		Cr	BL			resubmitted
		Br	NA			sample on June 22, 2018.
T BY VIEW	Silver metal	Pb	BL			
		Cd	BL	NA		
87		Hg	BL		Pass	Non comment
		Cr	BL			
		Br	NA			
		Pb	BL	NA	Pass	Non comment
		Cd	BL			
88	Green PCB	Hg	BL			
A CALLED THE		Cr	BL			
		Br	BL			
		Pb	BL			
A BAYLER		Cd	BL			
89	Black glue	Hg	BL	NA	Pass	Non comment
		Cr	BL			
STATE OF STATE		Br	BL			
KERANKE KERNIKET		Pb	BL	NA		
		Cd	BL			
90	Solders-silver metal	Hg	BL		Pass	Non comment
A VIET A		Cr	BL			
		Br	NA			





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No.	Sample description	Restricted substances	Results of EDXRF <sup>(1)</sup>	Results of Chemical Testing <sup>(2)</sup> (mg/kg)	Conclusion	Remark
		Pb	BL			
		Cd	BL			
91	Silver metal with black coating	Hg	BL	NA	Pass	Non comment
	black coating	Cr	BL			
		Br	NA			
		Pb	BL	NA	Pass	Non comment
		Cd	BL			
92	Silver metal	Hg	BL			
		Cr	BL			
		Br	NA			
		Pb	BL			
		Cd	BL	NA	Pass	
93	Silver metal	Hg	BL			Non comment
		Cr	BL			
		Br	NA			





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- Remark: (1) ① Results are obtained by XRF for primary screening, and further wet chemical testing by ICP-OES / AAS (for Cd, Pb, Hg), UV-VIS (for Cr(VI)) and GC/MS (for PBBs, PBDEs) is recommended to be performed, if an inconclusive result was found (as "X" in below table) (unit: mg/kg).
  - ② OL = Over Limit, BL = Below Limit, X = Inconclusive, NA= Not Applicable.
  - ③ The XRF screening test for RoHS elements The reading may be different to the actual content in the sample be of non-uniformity composition.

Element	Polymer	Metal	Composite Materials
Cd	$BL \leq (70\text{-}3\sigma) < X < (130\text{+}3\sigma) \\ \leq OL$	$BL \leq (70\text{-}3\sigma) < X < (130\text{+}3\sigma)$ $\leq OL$	LOD < X <(150+3 σ )≤ 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 ≤ (300-3 <i>σ</i> )< X	NA	BL ≤ (250-3 <i>σ</i> )< X
Cr	BL ≤ (700-3 <i>σ</i> )< X	BL ≤ (700-3 <i>σ</i> )< X	BL ≤ (500-3 <i>σ</i> )< X

- (2) ① mg/kg = ppm = 0.0001%, ND = Not Detected (Less than reporting limit value.).
  - 2 Unit, Reporting Limit (RL) and Requirement limit in wet chemical test.

Test items	Pb	Cd	Hg	Cr6+(Non-metal)	Cr6+(metal)	PBBs(single)	PBDEs(single)
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
RL	2	2	2	2	2	5	5
Requirement Limit	1000	100	1000	1000	Negative	1000	1000

- 3 According to IEC 62321-7-1:2015 & IEC 62321-7-2:2017, result on Cr<sup>6+</sup> for metal sample is shown as Positive/Negative.
  - Negative = Absence of Cr<sup>6+</sup> coating, Positive = Presence of Cr<sup>6+</sup> coating. Storage condition and production date of the tested sample are unavailable and thus results of Cr<sup>6+</sup> represent status of the sample at the time of testing.
- 4 According to IEC 62321-3-1:2013, this column represents the results of wet chem test. And "NA" means no need to perform wet chem test, when the XRF screening results are qualified.





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#### **Test Results:**

#### Test results of Phthalates (DEHP, DBP, BBP, DIBP)

T-2112		Test Resi	Reporting	Requirement		
Test Item	1/3/21	2/47/83	5/79/84	22/43/46	Limit (mg/kg)	limit (mg/kg)
Dibutyl phthalate(DBP)	ND	ND	ND	ND	30	1000
Benzylbutyl phthalate(BBP)	ND	ND	ND	ND	30	1000
Di-2-ethylhexyl phthalate(DEHP)	ND	ND	132	ND	30	1000
Diisobutyl phthalate(DIBP)	ND	ND	ND	ND	30	1000

±		Test Res	Reporting	Requirement		
Test Item	29/30	31/32/34	36/37/38	41/42/44	Limit (mg/kg)	limit (mg/kg)
Dibutyl phthalate(DBP)	ND	ND	ND	ND	30	1000
Benzylbutyl phthalate(BBP)	ND	ND	ND	ND	30	1000
Di-2-ethylhexyl phthalate(DEHP)	ND	ND	ND	ND	30	1000
Diisobutyl phthalate(DIBP)	ND	ND	ND	ND	30	1000

T-10.		Test Res	Reporting	Requirement		
Test Item	48/52/62	49 51/66/89		68/72/73	Limit (mg/kg)	limit (mg/kg)
Dibutyl phthalate(DBP)	ND	ND	ND	ND	30	1000
Benzylbutyl phthalate(BBP)	ND	ND	ND	ND	30	1000
Di-2-ethylhexyl phthalate(DEHP)	ND	679	ND	ND	30	1000
Diisobutyl phthalate(DIBP)	ND	ND	ND	ND	30	1000

Note: mg/kg = parts per million = ppm

ND = Not Detected (less than reporting limit)





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#### **Test Material List:**

Item no.	Description
1.2	Red hard plastic
2	Black hard plastic with white and red printing
3	Transparent hard plastic
5	Black soft plastic
21	Dark grey hard plastic
22	Black hard plastic
29	Black soft plastic
30	Black soft plastic
31	White soft plastic
32	Red soft plastic
34	White soft plastic
36	Black soft plastic
37	Blue soft plastic
38	Black soft plastic
41	Red soft plastic
42	Black soft plastic
43	Transparent hard plastic
44	White soft plastic
46	Red hard plastic
47	Black hard plastic with white and red printing
48	Dark grey hard plastic
49	Black foam
51	Dark grey soft plastic
52	Transparent hard plastic
62	Black hard plastic
66	Black soft plastic
68	Black hard plastic
72	Yellow hard plastic
73	White hard plastic
79	Black soft plastic





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#### **Test Material List:**

Item no.	Description	
83	Black hard plastic	
84	Black soft plastic	
89	Black glue	

Note: As specified by client, the samples were proceeded mixed testing.





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#### Photo Appendix



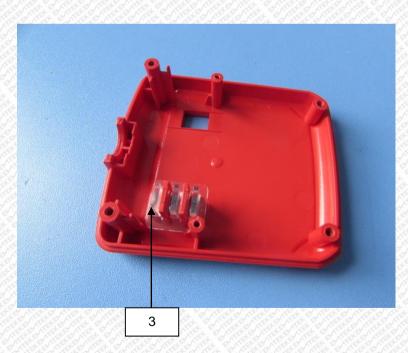




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#### Photo Appendix



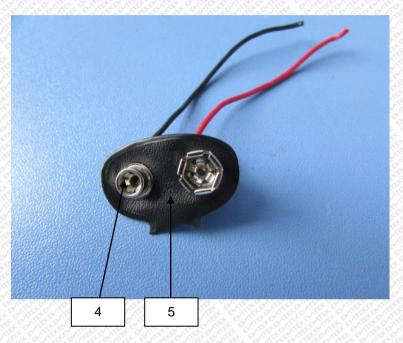


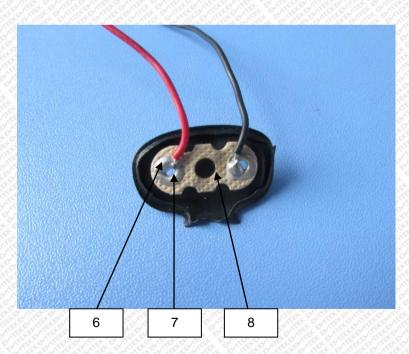




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#### Photo Appendix



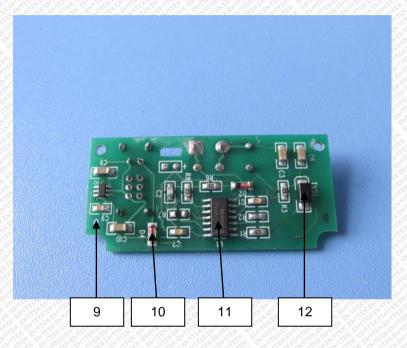


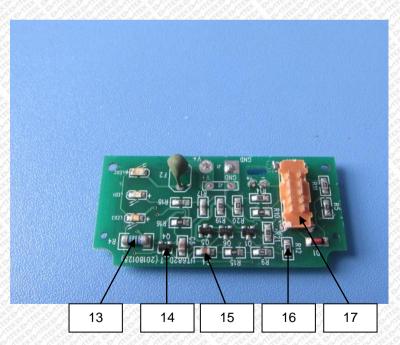




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#### Photo Appendix



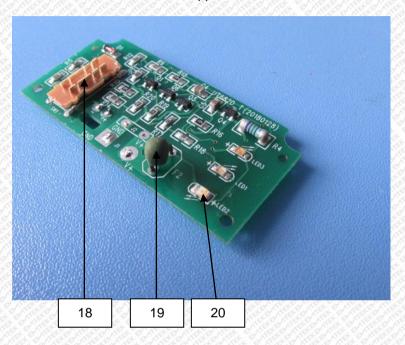


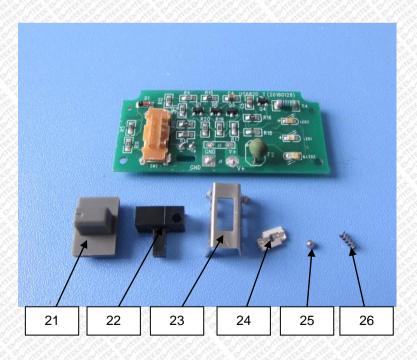




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#### Photo Appendix





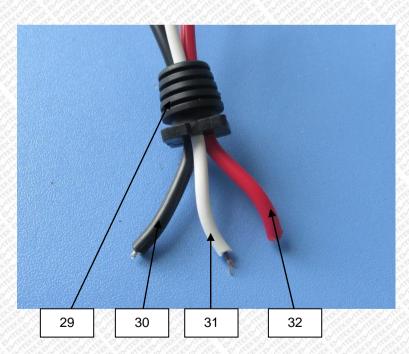




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#### Photo Appendix



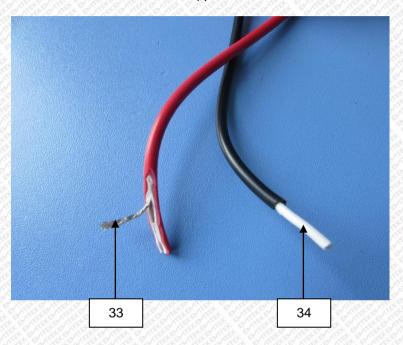


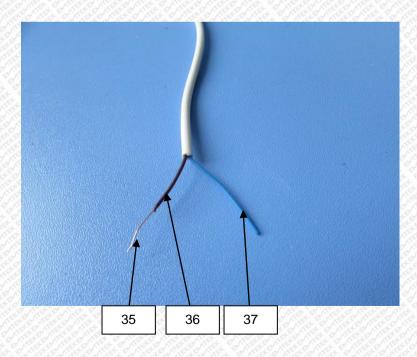




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#### Photo Appendix



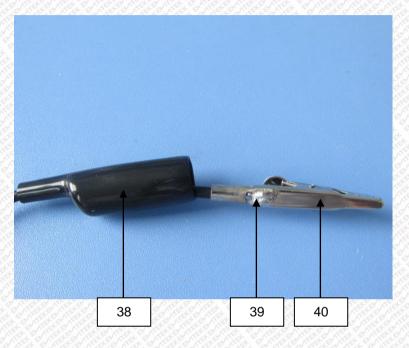


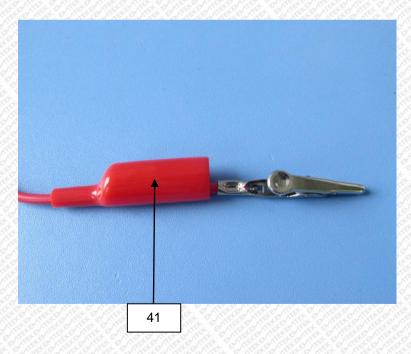




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#### Photo Appendix



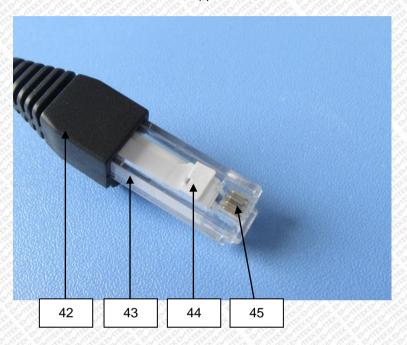






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#### Photo Appendix



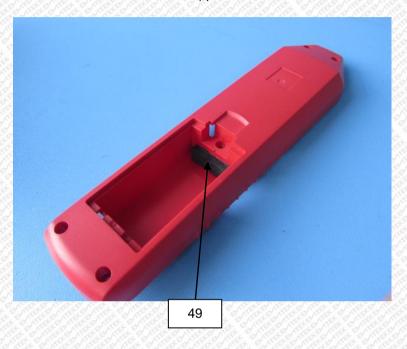


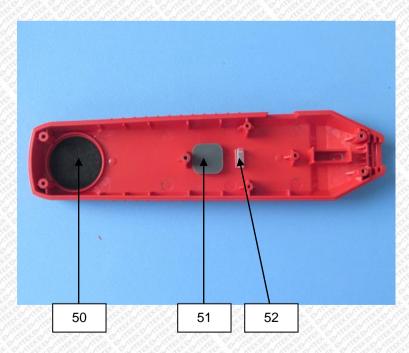




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#### Photo Appendix



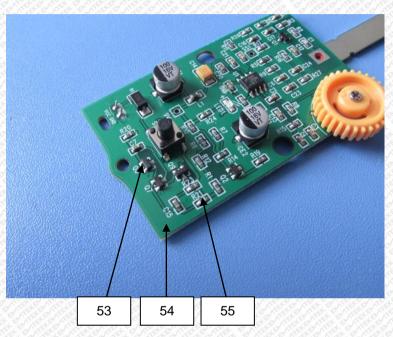


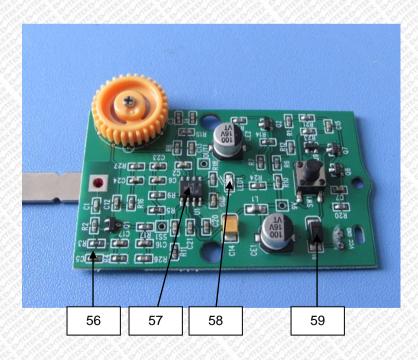




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#### Photo Appendix



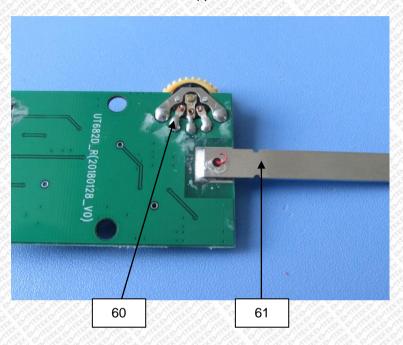


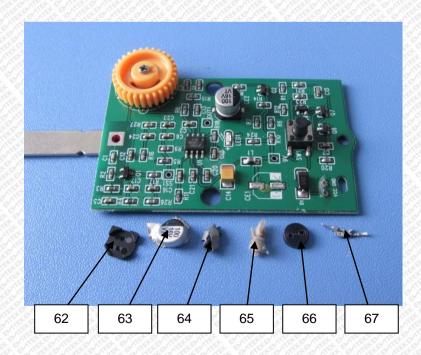




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#### Photo Appendix



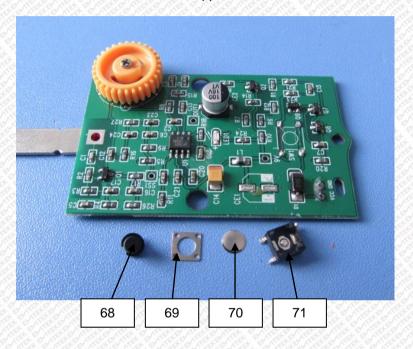


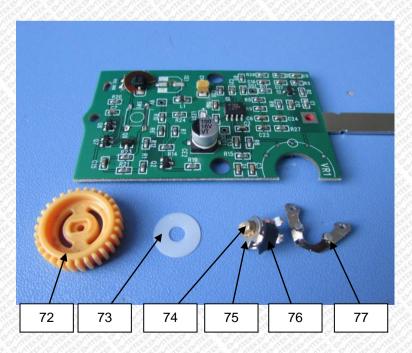




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#### Photo Appendix



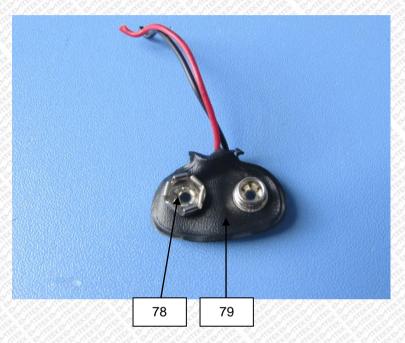


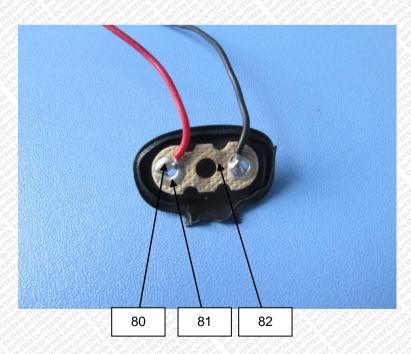




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#### Photo Appendix



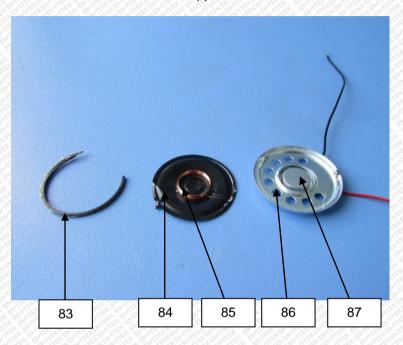






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#### Photo Appendix



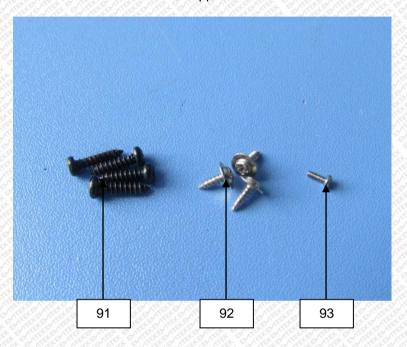






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#### Photo Appendix



\* \* \* \* \* \* The End \* \* \* \* \* \*





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#### **ANNEX**

#### **EXEMPTION LIST**

- 1 Mercury in single capped (compact) fluorescent lamps not exceeding (per burner):
- 1(a) For general lighting purposes < 30W: 5mg (expires on 31 December 2011; 3.5mg may be used per burner after 31 December 2011 until 31 December 2012; 2.5mg shall be used per burner after 31 December 2012)
- 1(b) For general lighting purposes ≥ 30W and <50W: 5mg (expires on 31 December 2011; 3.5mg may be used per burner after 31 December 2011)
- 1(c) For general lighting purposes ≥ 50W and <150W: 5mg
- 1(d) For general lighting purposes ≥ 150W: 15mg
- 1(e) For general lighting purposes with circular or square structural shape and tube diameter ≤17mm (no limitation of use until 31 December 2011; 7mg may be used per burner after 31 December 2011)
- 1(f) For special purposes: 5mg
- 1(g) For general lighting purposes < 30 W with a lifetime equal or above 20 000 h: 3,5 mg (Expires on 31 December 2017)
- 2(a) Mercury in double-capped linear fluorescent lamps for general lighting purples not exceeding (per lamp):
- 2(a)(1) Tri-band phosphor with normal lifetime and a tube diameter < 9mm (e.g. T2): 5mg (expires on 31 December 2011; 4mg may be used per lamp after 31 December 2011)
- 2(a)(2) Tri-band phosphor with normal lifetime and a tube diameter ≥ 9mm and ≤ 17mm (e.g. T5): 5mg (expires on 31 December 2011; 3mg may be used per lamp after 31 December 2011)
- 2(a)(3) Tri-band phosphor with normal lifetime and a tube diameter > 17mm and ≤ 28mm (e.g. T8): 5mg (expires on 31 December 2011; 3.5mg may be used per lamp after 31 December 2011)
- 2(a)(4) Tri-band phosphor with normal lifetime and a tube diameter > 28mm (e.g. T12): 5mg (expires on 31 December 2012; 3.5mg may be used per lamp after 31 December 2012)
- 2(a)(5) Tri-band phosphor with long lifetime (≥ 25000h): 8mg (expires on 31 December 2011; 5mg may be used per lamp after 31 December 2011)
- 2(b) Mercury in other fluorescent lamps not exceeding (per lamp):
- 2(b)(2) Non-linear halophosphate lamps (all diameters): 15mg (expires on 13 April 2016)
- 2(b)(3) Non-linear tri-band phosphor lamps with tube diameter > 17mm (e.g. T9) (no limitation of use until 31 December 2011; 15mg may be used per lamp after 31 December 2011)
- 2(b)(4) Lamps for other general lighting and special purposes (e.g. induction lamps) (no limitation of use until 31 December 2011; 15mg may be used per lamp after 31 December 2011)
- 3 Mercury in cold cathode fluorescent lamps and external electrode fluorescent lamps (CCFL and EEFL) for special purposes not exceeding (per lamp):
- 3(a) Short length (≤ 500mm) (No limitation of use until 31 December 2011; 3.5mg may be used per lamp after 31 December 2011)
- 3(b) Medium length (> 500m and ≤ 1500mm) (No limitation of use until 31 December 2011; 5mg may be used per lamp after 31 December 2011)
- 3(c) Long length (> 1500mm) (No limitation of use until 31 December 2011; 13mg may be used per lamp after 31 December 2011)
- 4(a) Mercury in other low pressure discharge lamps (per lamp) (no limitation of use until 31 December 2011; 15mg may be used per lamp after 31 December 2011)
- 4(b) Mercury in High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner) in lamps with improved colour rendering index Ra > 60:
- 4(b)-I P ≤ 155W (no limitation of use until 31 December 2011; 40mg may be used per burner after 31 December 2011)
- 4(b)-II 155W < P ≤ 405W (no limitation of use until 31 December 2011; 40mg may be used per burner after 31 December 2011)
- 4(b)-III P > 405W (no limitation of use until 31 December 2011; 40mg may be used per burner after 31 December 2011)
- 4(c) Mercury in other High Pressure Sodium (vapour) lamps for general lighting purposes not exceeding (per burner):
- 4(c)-I P≤ 155W (no limitation of use until 31 December 2011; 25mg may be used per burner after 31 December 2011)
- 4(c)-II 155W < P ≤405W (no limitation of use until 31 December 2011; 30mg may be used per burner after 31 December 2011)
- 4(c)-III P > 405W (no limitation of use until 31 December 2011; 40mg may be used per burner after 31 December 2011)
- 4(d) Mercury in High Pressure Mercury (vapour) lamps (HPMV) (expires on 13 April 2015)
- 4(e) Mercury in metal halide lamps (MH)
- 4(f) Mercury in other discharge lamps for special purposes not specifically mentioned in this Annex
- 4(g) Mercury in hand crafted luminous discharge tubes used for signs, decorative or architectural and specialist lighting and light-artwork, where the mercury content shall be limited as follows: (Expires on 31 December 2018)
  - (a) 20 mg per electrode pair + 0,3 mg per tube length in cm, but not more than 80 mg, for outdoor applications and indoor applications exposed to temperatures below 20 ° C;
  - (b) 15 mg per electrode pair + 0,24 mg per tube length in cm, but not more than 80 mg, for all other indoor applications.





## TEST REPORT

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#### ANNEX

#### **EXEMPTION LIST**

#### Continued

Continu	
5(a)	Lead in glass of cathode ray tubes
5(b)	Lead in glass of fluorescent tubes not exceeding 0.2% by weight
6(a)	Lead as an alloying element in steel for machining purposes and in galvanized steel containing up to 0.35% lead by weight
6(b)	Lead as an alloying element in aluminium containing up to 0.4% lead by weight
6(c)	Copper alloy containing up to 4% lead by weight.
7(a)	Lead in high melting temperature type solders (i.e. lead based alloys containing 85% by weight or more lead)
7(b)	Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signalling, transmission, and network management for telecommunications
7(c)-l	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
7(c)-II	Lead in dielectric ceramic in capacitors for a rated voltage of 125V AC or 250V DC or higher
7(c)-III	Lead in dielectric ceramic in capacitors for a rated voltage of less than 125V AC or 250V DC (expires on 1 January 2013 and

- 7(c)-IV Lead in PZT based dielectric ceramic materials for capacitors being part of integrated circuits or discrete semiconductors
- Cadmium and its compounds in one shot pellet type thermal cut-offs (expires on 1 January 2012 and after that date may be 8(a) used in spare parts for EEE placed on the market before 1 January 2012)
- 8(b) Cadmium and its compounds in electrical contacts
- Hexavalent chromium as an anti-corrosion agent of the carbon steel cooling system in absorption refrigerators up to 0.75% by weight in the cooling solution
- Lead in bearing shells and bushes for refrigerant-containing compressors for heating, ventilation, air conditioning and 9(b) refrigeration (HVACR) applications
- Lead used in other than C-press compliant pin connector systems (expires on 1 January 2013 and after that date may be used 11(b) in spare parts for EEE placed on the market before 1 January 2013)
- 13(a) Lead in white glasses used for optical applications
- 13(b) Cadmium and lead in filter glasses and glasses used for reflectance standards
- 14 Lead in solders consisting of more than two elements for the connection between the pins and the package of microprocessors with a lead content of more than 80% and less than 85% by weight (expires on 1 January 2011 and after that date may be used in spare parts for EEE placed on the market before 1 January 2011)
- Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip 15
- Lead halide as radiant agent in High Intensity Discharge (HID) lamps used for professional reprography applications
- 18(b) Lead as activator in the fluorescent powder (1% lead by weight or less) of discharge lamps when used as sun tanning lamps containing phosphors such as BSP (BaSi<sub>2</sub>O<sub>5</sub>:Pb)
- Lead and cadmium in printing inks for the application of enamels on glasses, such as borosilicate and soda lime glass 21
- 24 Lead in solders for the soldering to machined through hole discoidal and planar array ceramic multilayer capacitors
- Lead oxide in surface conduction electron emitter displays (SED) used in structural elements, notably in the seal frit and frit ring
- Lead bound in crystal glass as defined in Annex 1 (Categories 1, 2, 3 and 4) of Council Directive 69/493/EEC 29
- 30 Cadmium alloys as electrical/mechanical solder joints to electrical conductors located directly on the voice coil in transducers used in high-powered loudspeakers with sound pressure levels of 100 dB (A) and more
- Lead in soldering materials in mercury free flat fluorescent lamps (which e.g. are used for liquid crystal displays, design or 31 industrial lighting)
- Lead oxide in seal frit used for making window assemblies for Argon and Krypton laser tubes 32
- Lead in solders for the soldering of thin copper wires of 100 µm diameter and less in power transformers 33
- 34 Lead in cermet-based trimmer potentiometer elements
- Lead in the plating layer of high voltage diodes on the basis of a zinc borate glass body 37 38 Cadmium and cadmium oxide in thick film pastes used on aluminium bonded beryllium oxide
- Cadmium in colour converting II-VI LEDs (< 10 µg Cd per mm2 of light- emitting area) for use in solid state illumination or 39 display systems (expires on 1 July 2014)
- Lead in solders and termination finishes of electrical and electronic components and finishes of printed circuit boards used in 41 ignition modules and other electrical and electronic engine control systems, which for technical reasons must be mounted directly on or in the crankcase or cylinder of hand-held combustion engines (classes SH:1, SH:2, SH:3 of Directive 97/68/EC of the European Parliament and of the Council (2)) (Expires on 31 December 2018)

