

Report No.: HA0119091461CHEM	Date: September 20, 2019	Page 1 of 15
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**Applicant** 

Address

Manufacture

Address

The following samples were submitted and identified by/on behalf of the client as:

Sample Description Flash light

Model No. LP-8705, LP-8381-COB, LP-7043B

Date of Sample Received September 12, 2019

Sample Testing Date September 12, 2019 to September 20, 2019

Test Requested	In accordance with the RoHS Directive 2011/65/EU and amend Directive (EU) 2015/863.
Test Method	<ul> <li>With reference to IEC 62321-2:2013, disassembly, disjointment and sample preparation were performed.</li> <li>With reference to IEC 62321-3-1:2013, screening by EDXRF Spectroscopy.</li> <li>With reference to IEC 62321-5:2013, determination of Lead, Cadmium by ICP-OES.</li> <li>With reference to IEC 62321-4:2013, determination of Mercury by ICP-OES.</li> <li>With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS.</li> <li>With reference to IEC 62321-7-2:2017 &amp; IEC 62321-7-1:2015, determination of Hexavalent Chromium by spot test/Colorimetric using UV-Vis.</li> <li>With reference to IEC 62321-8:2017, determination of Diisobutyl phthalate(DIBP), Dibutyl phthalate(DBP), Benzylbutyl phthalate(BBP) and Bis(2-ethylhexyl) phthalate (DEHP) by GC-MS.</li> </ul>
Test Result	Please refer to next pages.
Test Conclusion	Based on the performed tests on the submitted samples, the results <b>comply with</b> the RoHS Directive 2011/65/EU and amend Directive (EU) 2015/863.

For Further Details, Please Refer to

Compiled by:

Kevin Cheng / Project Engineer

Laboratory Superviser



Report No.: HA0119091461CHEM Date: September 20, 2019 Page 2 of 15

The main instrument and equipment									
No.	Equipment Name	Model No.	Calibration date	The use $()$					
HA03018-01	EDXRF Spectroscopy	EDX1800BS	2019.02.22-2020.02.22	V					
HA03003-01	ICP-OES	ICP-710ES	2019.02.22-2020.02.22	V					
HA03004-01	UV-Vis	TU-1810DPC	2019.02.22-2020.02.22	$\sqrt{}$					
HA03006-02	GC-MS	TRACE GC/ISQ	2019.02.22-2020.02.22	$\sqrt{}$					
HA03009-01	MDS	MDS-10	2019.02.22-2020.02.22	1					



Report No.: HA0119091461CHEM Date: September 20, 2019 Page 3 of 15

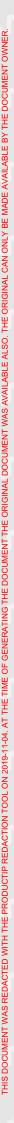
	Sampl	e Disassembly List
David Nie		Parts/Raw material name
Part No.	Component Name	Part Description
1		Black metal parts
2		Silver metal shell
3		Black rubber button
4		White plastic parts
5		Black rubber seal
6	Casing parts	Yellow metal spring
7		Brown metal parts
8		White plastic wafer
9		Transparent plastic lamp shade
10		White rubber switch
11	L 21L	Yellow metal switch
12	JA75	White plastic plug case
13		Silver metal core
14		White plastic leather
15		Pink plastic leather
16	Wire nerte	White plastic leather
17	Wire parts	Blue rubber leather
18		Red rubber leather
19		Silver metal plug housing
20		Black plastic plug inner core
21	E.	White plastic plug inner core
22	t et	Silver metal PCB board
23	DCR hoard narta	SMD LED
24	PCB board parts	Black plastic switch
25		Silver metal square





Report No.: HA0119091461CHEM Date: September 20, 2019 Page 4 of 15

	Sample Dis	sassembly List
Part No.	Pa	rts/Raw material name
Part No.	Component Name	Part Description
26	H	Silver foil
27	41/14	Soldering
28		Silver metal spring
29	t set	Silver metal plug housing
30	HILL	Black plastic plug inner core
31	PCB board parts	SMT triode
32	T INTER	Patch diode
33	HI.	SMD resistor
34	h eth	IC/
35	الد المالات	Patch capacitance
36	100	Green PCB board
37	H SEL	Blue plastic battery case
38	41,	Silver metal shell
39		Ferrous metal shell
40	Other parts	Transparent plastic lamp shade
41	HI. YI	Black plastic rope
42	L VL	Black plastic rope buckle
43	" ITE"	Black plastic rope





Report No.: HA0119091461CHEM Date: September 20, 2019 Page 5 of 15

Screening Test by XRF Spectroscopy											
	Screer	ning 1	Test by	y XRF	Spec	trosc	ору				
Part					F	Result	(mg/kg	)			
No.	Part Description	Pb	scree ning	Cd	scree ning	Hg	scree ning	Cr	scree ning	Br	scree ning
1	Black metal parts	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL		\
2	Silver metal shell	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL		
3	Black rubber button	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
4	White plastic parts	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
5	Black rubber seal	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
6	Yellow metal spring	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL		
7	Brown metal parts	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL		
8	White plastic wafer	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
9	Transparent plastic lamp shade	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
10	White rubber switch	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
11	Yellow metal switch	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL		
12	White plastic plug case	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
13	Silver metal core	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL		
14	White plastic leather	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
15	Pink plastic leather	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
16	White plastic leather	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
17	Blue rubber leather	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
18	Red rubber leather	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
19	Silver metal plug housing	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	E.	
20	Black plastic plug inner core	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
21	White plastic plug inner core	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
22	Silver metal PCB board	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL		
23	SMD LED	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL		
24	Black plastic switch	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL

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Date: September 20, 2019 Page 6 of 15

		_	7077					<u> </u>			300
	Screen	ning 1	Test by	y XRF	Spec	trosc	ору				
Part		Result (mg/kg)									
No.	Part Description	Pb	scree ning	Cd	scree ning	Hg	scree ning	Cr	scree ning	Br	scree ning
25	Silver metal square	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL		
26	Silver foil	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL		\
27	Soldering	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	- <del>1</del> 7/L	
28	Silver metal spring	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL		
29	Silver metal plug housing	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL		\
30	Black plastic plug inner core	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
31	SMT triode	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	-	
32	Patch diode	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL		
33	SMD resistor	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	C/A	
34	IC	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL		\
35	Patch capacitance	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL		
36	Green PCB board	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
37	Blue plastic battery case	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
38	Silver metal shell	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	476	
39	Ferrous metal shell	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL		
40	Transparent plastic lamp shade	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
41	Black plastic rope	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
42	Black plastic rope buckle	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL
43	Black plastic rope	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL	N.D.	BL

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Report No.: HA0119091461CHEM Date: September 20, 2019 Page 7 of 15

#### Remark:

- 1. BL= Below Limit, OL= Over Limit, LOD = Limit of Detection, --- = Not Regulated, / = Not Tested
- "IN" expresses the inconclusive region, and further chemical testing to confirm whether it complies with the requirement of RoHS Directive.
- 3. mg/kg= milligram per kilogram.
- 4. The XRF screening test for RoHS elements the reading may be different to the actual content in the sample be of non-uniformity composition.
- 5. N.D. = Not Detected, less than the value of Method Detection Limit.
- Results are obtained by EDXRF for primary screening, and further chemical testing by ICP (for Cd, Pb, Hg), UV-VIS (for Cr(VI)) and GC-MS (for PBBs, PBDEs) is recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321-3-1:2013 (unit: mg/kg)

	THE CHARLEST CONCOURS THE CONTROL OF		o ::= o : o (•:::::: ::::g; .::g)
Element	Polymer	Metal	Composite Materials
Cd	BL $\leq$ (70-3 $\sigma$ ) $<$ IN $<$ (130+3 $\sigma$ ) $\leq$ OL	$BL \le (70-3\sigma) < IN < (30+3\sigma)$ $\le OL$	LOD < IN < (150+3σ) ≤ OL
Pb	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (500-3 $\sigma$ ) < IN < (1500+3 $\sigma$ ) ≤ OL
Hg	BL ≤ (700-3σ) < IN < (1300+3σ) OL	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (500-3 $\sigma$ ) < IN < (1500+3 $\sigma$ ) ≤ L
Cr	BL ≤ (700-3σ) < IN	BL ≤ (700-3σ) <in< td=""><td>BL ≤ (500-3σ) &lt; IN</td></in<>	BL ≤ (500-3σ) < IN
Br	BL ≤ (300-3σ) < IN	ey-	BL ≤ (250 3σ) < IN

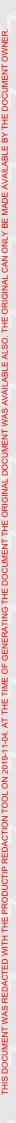
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Report No.: HA0119091461CHEM Date: September 20, 2019 Page 8 of 15

	Con	firmati	on Test	by Wet	Chemist	try		
Part				Resul	t (mg/kg)			
No.	Part Description	Pb	Cd	Hg	Cr(VI)	PBBs	PBDEs	Conclusion
MDL		2	2	2	2^	2	2	
1	Black metal parts	/	1	/	1		15	Р
2	Silver metal shell	V/J	/	1/1	/	e#		P
3	Black rubber button	/	1	1	1/2/	1	1	Р
4	White plastic parts	/	/	1	/	1	1	Р
5	Black rubber seal	1	/	2/1	1	21	1	P
6	Yellow metal spring	/	//	/	1		17/	Р
7	Brown metal parts	1	/	1	/	-1 V		Р
8	White plastic wafer	1	1	1	1	37	1	Р
9	Transparent plastic lamp shade	/	/	/	1	/	/	Р
10	White rubber switch	1/1	1	2/1	1	2/1-	1	P
11	Yellow metal switch	/	4/	/	1		17/	Р
12	White plastic plug case	1	/	1	/	1	/	Р
13	Silver metal core	1	1	1	1			P
14	White plastic leather	/	/	/	1	/	1	Р
15	Pink plastic leather	111	/	111	/	1	/	P
16	White plastic leather	1	/<	1	/	1	1	Р
17	Blue rubber leather	/	/	/	/	/	1	Р
18	Red rubber leather	1/4	/	1/1	/	2/1-	1	P
19	Silver metal plug housing	/		/	- 1/\\		40	Р
20	Black plastic plug inner core	1	/	1	/	1	1	Р
21	White plastic plug inner core	1		7	/	7	/	Р
22	Silver metal PCB board	/	/	/	/		K	Р
23	SMD LED	1/4	/	N/L	/	<u> </u>		P





Report No.: HA0119091461CHEM Date: September 20, 2019 Page 9 of 15

	Con	firmati	on Test	by Wet	Chemist	ry		
Part				Resul	t (mg/kg)			
No.	Part Description	Pb	Cd	Hg	Cr(VI)	PBBs	PBDEs	Conclusion
MDL		2	2	2	2^	2	2	
24	Black plastic switch	1		1		1	1	Р
25	Silver metal square	/	/	/	/			Р
26	Silver foil	1	1	2/1	1			P
27	Soldering	/	/	/	1		177	Р
28	Silver metal spring	1	/	1	/	ATT.		P
29	Silver metal plug housing	1	/	1	1	E		Р
30	Black plastic plug inner core	/	1	/	/	1	7	Р
31	SMT triode	V/L	/	4/1	/	~1 <del>/-</del>		P
32	Patch diode	/		1	1		Mr.	Р
33	SMD resistor	/	/	/	/			Р
34	IC	1/1	1	2/1	1			P
35	Patch capacitance	/		/			77	Р
36	Green PCB board	1	/	1	/	1	/	Р
37	Blue plastic battery case	1	1	1	1	27	1	Р
38	Silver metal shell	/	//	/	1		177	Р
39	Ferrous metal shell	111	/	1	/	N/E		P
40	Transparent plastic lamp shade	1		1		1	//	Р
41	Black plastic rope	/	/	1	/	1	1	Р
42	Black plastic rope buckle	1	1	1	1	1	1	Р
43	Black plastic rope	/	//	1	1	/	1	Р



Report No.: HA0119091461CHEM Date: September 20, 2019 Page 10 of 15

Limit requirements:						-1/L
TE'	Pb	Cd	Hg	Cr(VI)	PBBs	PBDEs
Maximum permissible Limit (mg/kg)	1000	100	1000	1000	1000	1000

#### Remark:

- 1. N.D. = Not Detected, less than the value of Method Detection Limit.
- 2. mg/kg= milligram per kilogram.
- 3. MDL= Method Detection Limit in wet chemical test, --- = Not Regulated, / = Not Tested.
- 4. P =The result complies with the limit requirement, F =The result does not comply with the limit requirement.
- 5. "^"= MDL of Cr(VI) for non-metal sample is 2mg/kg, MDL of Cr(VI) for metal sample is 0.02mg/kg(Sample extraction solution).
- 6. Result on Cr(VI) for metal sample is shown as Positive/Negative. Positive = Presence of Cr(VI); Negative = Absence of Cr(VI). (Positive indicates the presence of Cr<sup>6+</sup> on the tested areas, the result be regarded as conflict with RoHS requirement. Negative indicates the absence of Cr<sup>6+</sup> on the tested areas, the result be regarded as no conflict with RoHS requirement.)

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Report No.: HA0119091461CHEM Date: September 20, 2019 Page 11 of 15

DIBP, DBP, BBP, DEHP										
To at Na	Result (mg/kg)									
Test No.	Part No.	DIBP	DBP	ВВР	DEHP	Conclusion				
MDL		30	30	30	30					
T01	3+5+10	N.D.	N.D.	N.D.	N.D.	Р				
T02	4+8+12	N.D.	N.D.	N.D.	N.D.	e/P				
T03	9+40	N.D.	N.D.	N.D.	N.D.	Р				
T04	14+15+16	N.D.	N.D.	N.D.	N.D.	Р				
T05	17+18	N.D.	N.D.	N.D.	N.D.	P				
T06	20+21+30	N.D.	N.D.	N.D.	N.D.	Р				
T07	24+36	N.D.	N.D.	N.D.	N.D.	Р				
T08	37	N.D.	N.D.	N.D.	N.D.	Р				
T09	41+42+43	N.D.	N.D.	N.D.	N.D.	Р				

### Limit requirements:

	DIBP	DBP	BBP	DEHP
Maximum permissible Limit (mg/kg)	1000	1000	1000	1000

#### Remark:

- 1. DIBP= Diisobutyl phthalate, DBP= Dibutyl phthalate, BBP= Benzylbutyl phthalate, DEHP= Bis(2-ethylhexyl) phthalate
- 2. N.D. = Not Detected, less than the value of Method Detection Limit.
- 3. mg/kg= milligram per kilogram.
- 4. MDL= Method Detection Limit in wet chemical test.
- 5. P =The result complies with the limit requirement, F =The result does not comply with the limit requirement.



Report No.: HA0119091461CHEM Date: September 20, 2019 Page 12 of 15

### **Sample Photo**



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Report No.: HA0119091461CHEM Date: September 20, 2019 Page 13 of 15

#### **Test Part Photo**



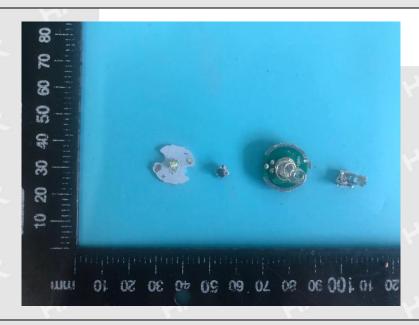


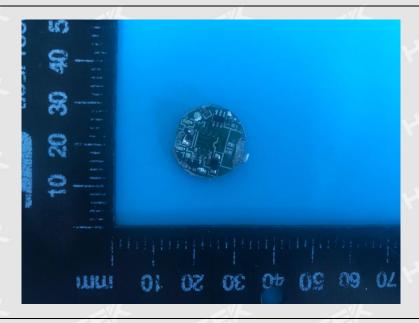




Report No.: HA0119091461CHEM Date: September 20, 2019 Page 14 of 15

### **Test Part Photo**







Date: September 20, 2019 Page 15 of 15

### **Test Part Photo**



==== End of Test Report =====

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