



Verification Report

Applicant : ZBL (SZ) TECHNOLOGY COMPANY LTD
Address : Forth Industrial Zone Gong Ming Town Guangming New Area Shenzhen
Guangdong 518106 CHINA

Report on the submitted samples said to be:

Sample Name(s) : LED STRIP
Trade Mark : N/A
Part No. : No.:2835, 3014, 5050, 3528, 2216, 2110, 5730, 3838, 3030, 3535 and COB (5V/12/24V)
Sample Received Date : March 26, 2022
Testing Period : March 26, 2022 ~ April 01, 2022
Date of Report : April 01, 2022
Results : Please refer to next page(s).

TEST REQUEST	CONCLUSION
As specified by client, based on the performed tests on submitted sample, the result of Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), PBBs, PBDEs, Dibutyl Phthalate(DBP), Butylbenzyl Phthalate(BBP), Di-2-ethylhexyl Phthalate(DEHP) and Diisobutyl phthalate(DIBP) content comply with the limits set by RoHS Directive 2011/65/EU.	PASS

Signed for and on behalf of LCS

Young/Laboratory Manager



**Results:****A. EU RoHS Directive 2011/65/EU**

Test method: With reference to IEC 62321-3-1:2013, Screening by X-ray Fluorescence Spectroscopy (XRF)

Sample No.	Sample Description	Results						Date of sample submission/ Resubmission
		Cd	Pb	Hg	Cr [▼]	Br [▼]		
						PBBs	PBDEs	
1	Black plastic frame	BL	BL	BL	BL	X	X	2022-03-26
2	Black thread skin	BL	BL	BL	BL	BL	BL	2022-03-26
3	Red thread skin	BL	BL	BL	BL	BL	BL	2022-03-26
4	Copper wire	OL	BL	BL	BL	/	/	2022-03-26
5	White plastic trough	BL	BL	BL	BL	BL	BL	2022-03-26
6	Led yellow	BL	BL	BL	BL	BL	BL	2022-03-26
7	Black plastic diode	BL	BL	BL	BL	BL	BL	2022-03-26
8	White plastic tape	BL	BL	BL	BL	BL	BL	2022-03-26
9	Transparent plastic fixing glue	BL	BL	BL	BL	BL	BL	2022-03-26

Note:

- Results were obtained by XRF for primary screening, and further chemical testing by ICP(for Cd, Pb, Hg), UV-Vis(for Cr(VI)) and GC-MS(for PBBs, PBDEs) are recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321-3-1:2013(Unit: mg/kg).

Element	Polymers	Metals	Composite material
Cd	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$LOD < X < (150+3\sigma) \leq OL$
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	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Cr	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X$	$BL \leq (500-3\sigma) < X$
Br	$BL \leq (300-3\sigma) < X$	N/A	$BL \leq (250-3\sigma) < X$

Remark:

- BL= Below Limit
 - OL= Over Limit
 - X= The range of needing to do further testing
 - 3σ= The reproducibility of analytical instruments
 - N/A= Not applicable
 - LOD= Detection limit
- The XRF screening test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.
 - The maximum permissible limit is quoted from the document RoHS Directive 2011/65/EU.
 - ▼=For restricted substances PBBs and PBDEs, the results show the total Br content, the restricted substance was Cr(VI), and the results showed the total Cr content.





RoHS Restricted Substances	Maximum Concentration Value (mg/kg) (by weight in homogenous materials)
Cadmium(Cd)	100
Lead(Pb)	1000
Mercury(Hg)	1000
Hexavalent Chromium(Cr(VI))	1000
Polybrominated biphenyls(PBBs)	1000
Polybrominated diphenylethers(PBDEs)	1000
Dibutyl Phthalate(DBP)	1000
Butylbenzyl Phthalate(BBP)	1000
Di-(2-ethylhexyl) Phthalate(DEHP)	1000
Diisobutyl phthalate(DIBP)	1000

Disclaimers:

This XRF Screening report is for reference purposes only. The applicant shall make its/his/her own judgment as to whether the information provided in this XRF screening report is sufficient for its/his/her purposes. The result shown in this XRF screening report will differ based on various factors, including but not limited to, the sample size, thickness, area, surface flatness, equipment parameters and matrix effect (e.g. plastic, rubber, metal, glass, ceramic etc.). Further wet chemical pre-treatment with relevant chemical equipment analysis are required to obtain quantitative data.



**B. EU RoHS Directive 2011/65/EU on Cadmium(Cd), PBBs, PBDEs, DBP, BBP, DEHP & DIBP content**Test method:**Cadmium(Cd) Content:**

With reference to IEC 62321-5:2013, by acid digestion and analysis was performed by inductively coupled plasma atomic emission spectrometer (ICP-OES) or Atomic absorption spectrometer (AAS).

PBBs & PBDEs Content:

With reference to IEC 62321-6:2015, by solvent extraction and analysis was performed by gas chromatographic-mass spectrometer (GC-MS).

Phthalates(DBP, BBP, DEHP & DIBP) Content:

With reference to IEC 62321-8:2017, by solvent extraction and analysis was performed by gas chromatographic-mass spectrometer (GC-MS).

1) The test results of Cadmium(Cd)

Tested Items	MDL (mg/kg)	Results (mg/kg)	Limit (mg/kg)
		(4)	
Cadmium(Cd) Content	5	N.D.	100

2) The test results of Phthalates(DBP, BBP, DEHP & DIBP)

Tested Items	MDL (mg/kg)	Results (mg/kg)	Limit (mg/kg)
		(1+2+3+5+6+7)	
Dibutyl Phthalate(DBP) Content	600	N.D.	1000
Butylbenzyl Phthalate(BBP) Content	600	N.D.	1000
Di-(2-ethylhexyl) Phthalate(DEHP) Content	600	N.D.	1000
Diisobutyl phthalate(DIBP) Content	600	N.D.	1000

Tested Items	MDL (mg/kg)	Results (mg/kg)	Limit (mg/kg)
		(8+9)	
Dibutyl Phthalate(DBP) Content	600	N.D.	1000
Butylbenzyl Phthalate(BBP) Content	600	N.D.	1000
Di-(2-ethylhexyl) Phthalate(DEHP) Content	600	N.D.	1000
Diisobutyl phthalate(DIBP) Content	600	N.D.	1000



**3) The test results of PBBs & PBDEs**

Tested Items	MDL (mg/kg)	Results (mg/kg)	Limit (mg/kg)
		(1)	
Polybrominated Biphenyls(PBBs) Content			
Monobromobiphenyl	5	N.D.	/
Dibromobiphenyl	5	N.D.	/
Tribromobiphenyl	5	N.D.	/
Tetrabromobiphenyl	5	N.D.	/
Pentabromobiphenyl	5	N.D.	/
Hexabromobiphenyl	5	N.D.	/
Heptabromobiphenyl	5	N.D.	/
Octabromobiphenyl	5	N.D.	/
Nonabromodiphenyl	5	N.D.	/
Decabromodiphenyl	5	N.D.	/
Total content	/	N.D.	1000
Polybrominated Diphenylethers(PBDEs) Content			
Monobromodiphenyl ether	5	N.D.	/
Dibromodiphenyl ether	5	N.D.	/
Tribromodiphenyl ether	5	N.D.	/
Tetrabromodiphenyl ether	5	N.D.	/
Pentabromodiphenyl ether	5	N.D.	/
Hexabromodiphenyl ether	5	N.D.	/
Heptabromodiphenyl ether	5	N.D.	/
Octabromodiphenyl ether	5	N.D.	/
Nonabromodiphenyl ether	5	N.D.	/
Decabromodiphenyl ether	5	N.D.	/
Total content	/	N.D.	1000

Note:

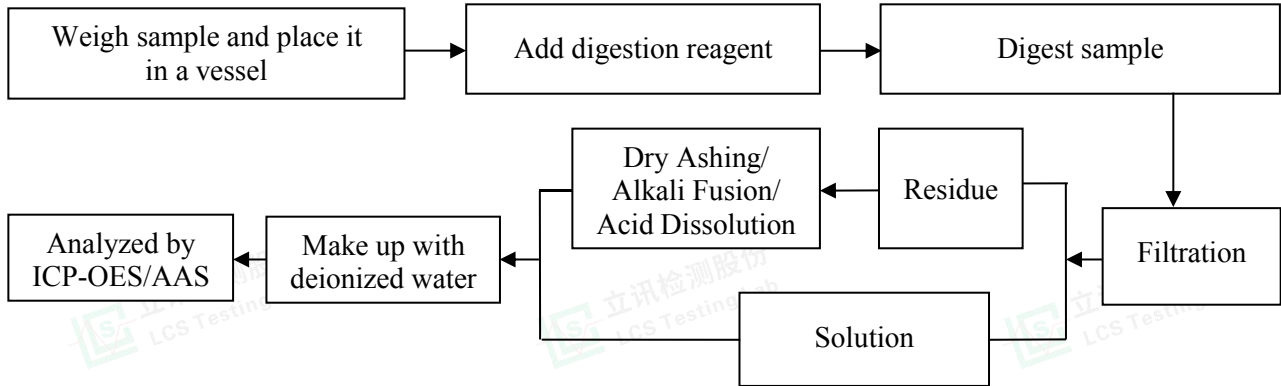
- MDL = Method Detection Limit
- N.D.=Not Detected(<MDL)
- mg/kg = ppm=parts per million
- According to customer's requirement, only the appointed materials have been tested.



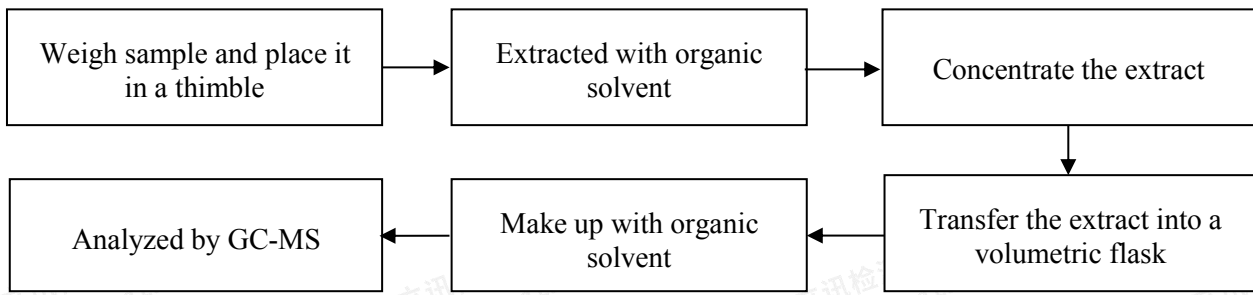


Test Process

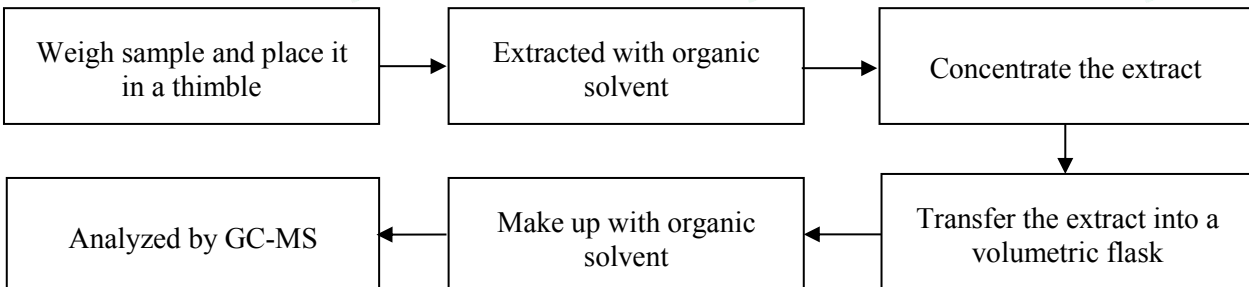
1. Cadmium(Cd): IEC 62321-5:2013



2. Polybrominated Biphenyls(PBBs) & Polybrominated Diphenyl Ethers(PBDEs) : IEC 62321-6:2015

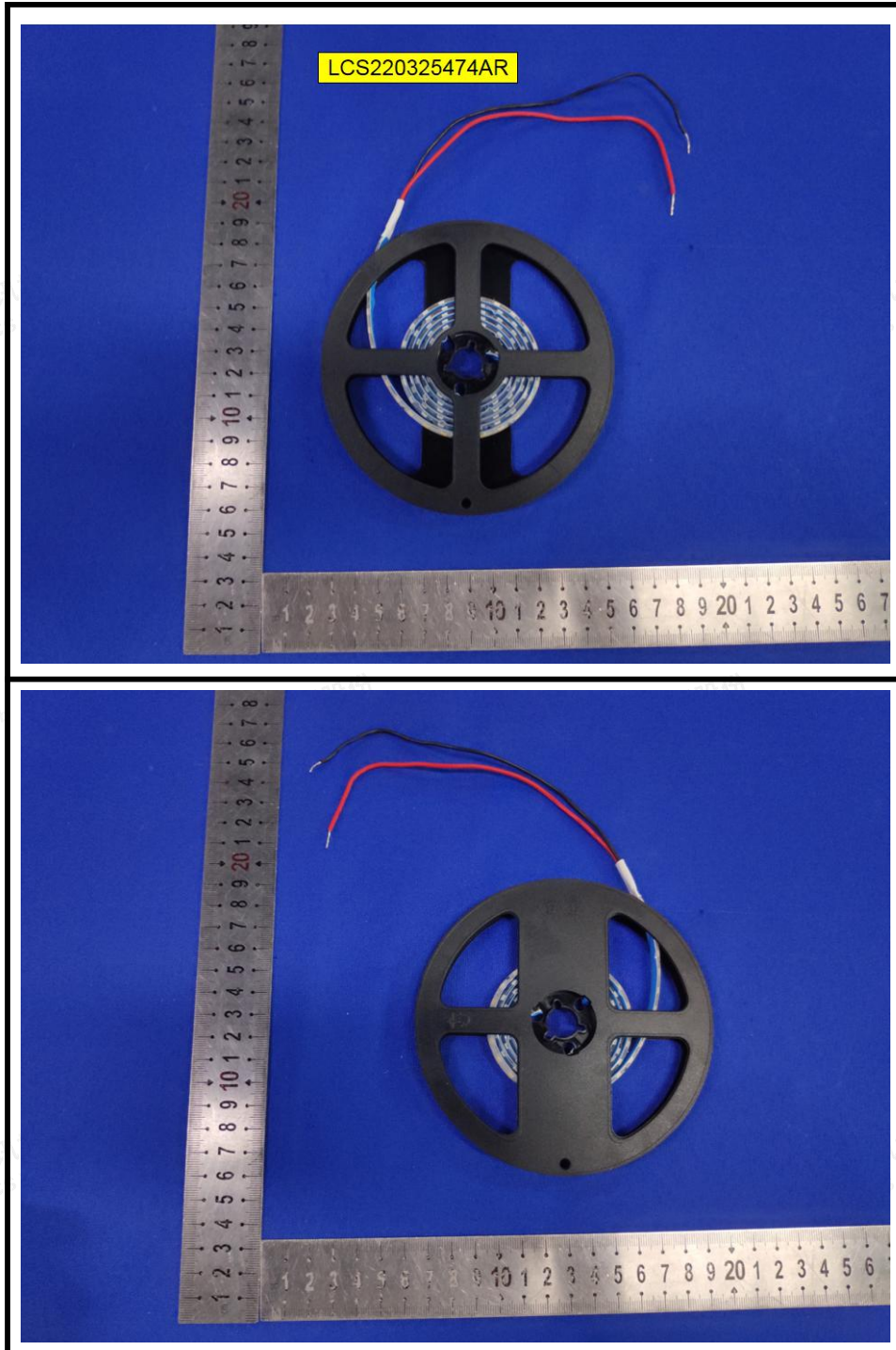


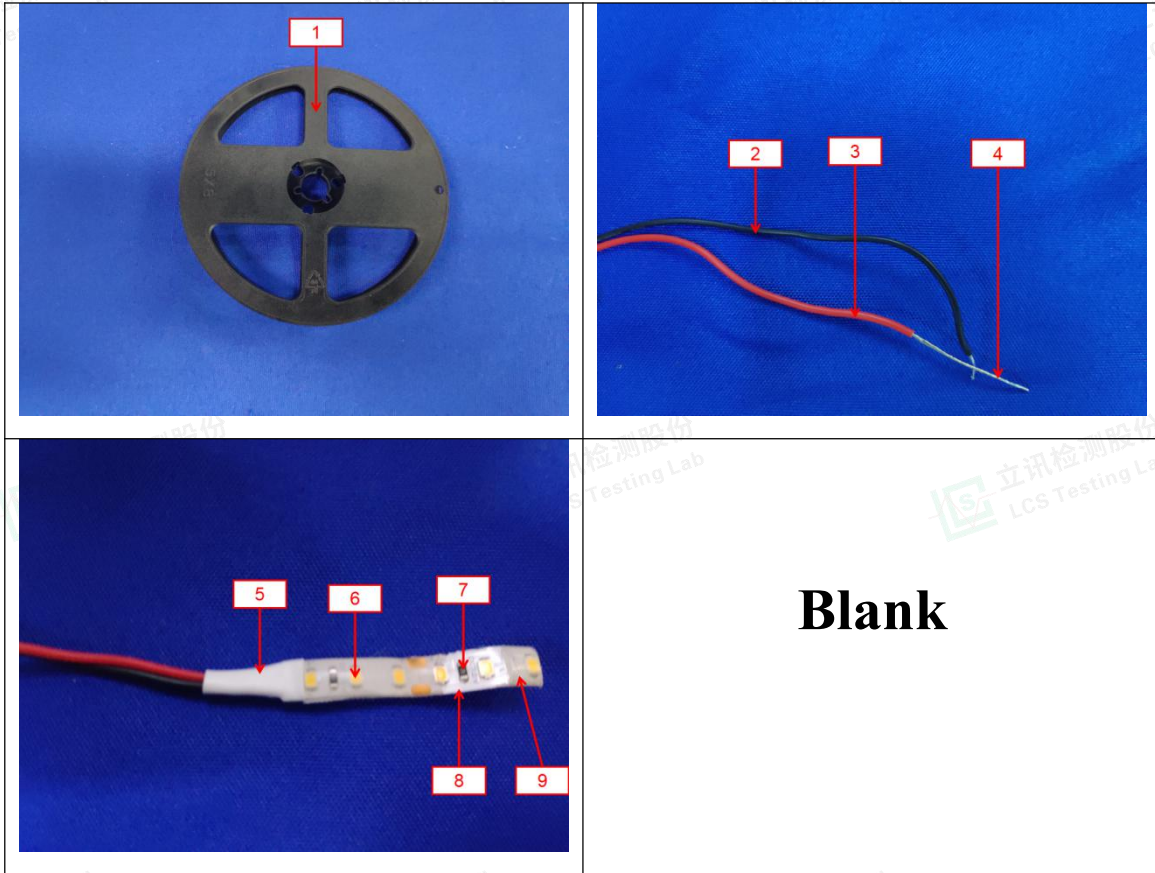
3. Phthalates(DBP, BBP, DEHP & DIBP) : IEC 62321-8:2017





The photo(s) of the sample





Statement:

1. The test report is invalid without the signature of the approver and the special seal for the company's report;
2. The company name, address and sample information shown on the report were provided by the applicant who should be responsible for the authenticity which are not verified by LCS;
3. The test results in this report are only responsible for the tested samples;
4. Without written approval of LCS, this report can't be reproduced except in full;
5. In case of any discrepancy between the corresponding Chinese and English contents in the test report, the English version shall prevail.

*** End of Report ***

