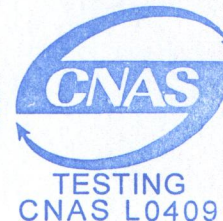




TEST REPORT



Epstar Optoelectronics (HK) Co., LTD

Report No.: SCC(11)-1203-1-R

Applicant: Epstar Optoelectronics (HK) Co., LTD

Address: Unit A, (Rm26) 3/F, Cheong Sun Tower, 116-118 Wing Lok Street, Sheung Wan, HK

The following sample was submitted and identified on behalf of the client as below :

Specimen(s) : Car LED Light (Auto LED Lamps)
Trade name : HSUN, Epstar
Model No. : HSUN-T10 5LED SMD5050, HSUN-T10 5LED SMD5050 Canbus, HSUN-T10 8LED SMD1210 Canbus, HSUN-BA9S 5LED SMD5050 Canbus, HSUN-C5W 3LED SMD5050 Canbus(36MM), HSUN-C5W 6LED SMD5050 Sink Canbus(36MM), HSUN-BA15S 19LED SMD5050 Canbus, HSUN-PCB 12LED SMD5050, HSUN-9005 18LED SMD5050 T10 Series, BA9S BAX9S BAY9S Series, C5W festoon Series, BA15S/BAU15S/BAY15D/7440/7443/3156/317 Series, G4 Series, PCB Series, H1/H3/H4/H7/9004/9005/9006/9007/H8/H10/H11/H13/H16/P13W/PY24W Series

Date of sample(s) received : November 29, 2011

Testing period : November 29, 2011 to December 8, 2011

Test requested : With reference to RoHS Directive 2002/95/EC, and its amendment directives

Test method : Tests were performed for the samples indicated by the photos in the report with test methods reference to IEC 62321:2008 – Procedures for the Determination of Levels of Six Regulated Substances in Electrotechnical Products
(1) Screening by XRF Spectroscopy
(2) Wet Chemical Test Method
a. Determination of Cadmium by ICP.
b. Determination of Lead by ICP.
c. Determination of Mercury by ICP.
d. Determination of Hexavalent Chromium by Spot test / Colorimetric Method.
e. Determination of PBBs and PBDEs by GC/MS.

Test result : Please refer to next pages.

Conclusion : Based on the performed tests on submitted samples, the results comply with the RoHS Directive 2002/95/EC and its subsequent amendments.

Signed for and on behalf of
CTC Compliance Service Co., Ltd.

Richard Chow
Assistant Manager



December 8, 2011

Issued date

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TEST REPORT

Epstar Optoelectronics (HK) Co., LTD

Report No.: SCC(11)-1203-1-R

Test results by XRF screening test (Unit: mg/kg)

Test Point	Description	Analysis Element				
		Lead	Cadmium	Mercury	Chromium	Bromine
001	Silvery metal lamp cap	BL	BL	BL	BL	---
002	White body of LED	BL	BL	BL	BL	BL
003	Metal pin of LED	BL	BL	BL	BL	---
004	LED board	BL	BL	BL	BL	4512
005	Soldering tin	BL	BL	BL	BL	---
006	Black plastic lamp cap	BL	BL	BL	BL	BL
007	Chip resistor	BL	BL	BL	BL	BL
008	Chip transistor	BL	BL	BL	BL	BL
009	Heating panel	BL	BL	BL	BL	---
010	Red wire	BL	BL	BL	BL	3327
011	Black wire	BL	BL	BL	BL	3149
012	Black plastic connector	BL	BL	BL	BL	2376
013	Silvery metal pin	BL	BL	BL	BL	---
014	White plastic body of lamp	BL	BL	BL	BL	BL
015	Silvery metal wire	BL	BL	BL	BL	---
016	Metal sheet for connecting	BL	BL	BL	BL	---
017	Chip capacitor	BL	BL	BL	BL	BL

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TEST REPORT

Epstar Optoelectronics (HK) Co., LTD

Report No.: SCC(11)-1203-1-R

Test results by wet chemical test (Unit: mg/kg)

Heavy metal(s)	Test result				MDL	RoHS limit
	---	---	---	---		
Cd	---	---	---	---	2	100
Pb	---	---	---	---	2	1000
Hg	---	---	---	---	2	1000
Cr ⁶⁺	---	---	---	---	2	1000

Flame retardants	Test result				MDL	RoHS limit
	004	010	011	012		
PBBs	---	---	---	---	---	---
Monobromobiphenyl	N.D.	N.D.	N.D.	N.D.	5	1000
Dibromobiphenyl	N.D.	N.D.	N.D.	N.D.	5	
Tribromobiphenyl	N.D.	N.D.	N.D.	N.D.	5	
Tetrabromobiphenyl	N.D.	N.D.	N.D.	N.D.	5	
Pentabromobiphenyl	N.D.	N.D.	N.D.	N.D.	5	
Hexabromobiphenyl	N.D.	N.D.	N.D.	N.D.	5	
Heptabromobiphenyl	N.D.	N.D.	N.D.	N.D.	5	
Octabromobiphenyl	N.D.	N.D.	N.D.	N.D.	5	
Nonabromobiphenyl	N.D.	N.D.	N.D.	N.D.	5	
Decabromobiphenyl	N.D.	N.D.	N.D.	N.D.	5	
PBDEs	---	---	---	---	---	---
Monobromobiphenyl	N.D.	N.D.	N.D.	N.D.	5	1000
Dibromobiphenyl	N.D.	N.D.	N.D.	N.D.	5	
Tribromobiphenyl	N.D.	N.D.	N.D.	N.D.	5	
Tetrabromobiphenyl	N.D.	N.D.	N.D.	N.D.	5	
Pentabromobiphenyl	N.D.	N.D.	N.D.	N.D.	5	
Hexabromobiphenyl	N.D.	N.D.	N.D.	N.D.	5	
Heptabromobiphenyl	N.D.	N.D.	N.D.	N.D.	5	
Octabromobiphenyl	N.D.	N.D.	N.D.	N.D.	5	
Nonabromobiphenyl	N.D.	N.D.	N.D.	N.D.	5	
Decabromobiphenyl	N.D.	N.D.	N.D.	N.D.	5	

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TEST REPORT

Epstar Optoelectronics (HK) Co., LTD

Report No.: SCC(11)-1203-1-R

Remark

- (1) (a) It is the result on total Br while test item on restricted substances is PBBs/PBDEs. It is the result on total Cr while test item on restricted substances is Cr⁶⁺.
- (b) Results are obtained by EDXRF for primary screening, and further chemical testing by ICP (for Cd, Pb, Hg), UV-VIS (for CrVI) and GCMSD (for PBBs, PBDEs) is recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321:2008 (unit: mg/kg).

Element	Polymer	Metal	Composite Materials
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	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Br	$BL \leq (300-3\sigma) < X$	---	$BL \leq (250-3\sigma) < X$
Cr	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X$	$BL \leq (500-3\sigma) < X$

- (c) OL = Over Limit, BL = Below Limit, IN = Inconclusive, LOD = Limit of Detection
- (d) The XRF screening test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.
- (2) (a) mg/kg = ppm=0.0001%, N.D. = not detected (<MDL), --- = not conducted, \ = not available.
- (b) Unit and Method Detection Limit (MDL) in wet chemical test

Test Items	Pb	Cd	Hg	Cr ⁶⁺	PBBs/PBDEs
Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
MDL	2	2	2	2	5

The MDL for single compound of PBBs & PBDEs is 5 mg/kg and MDL of Cr⁶⁺ for polymer & composite sample is 2 mg/kg.

- (c) According to IEC 62321:2008, result on Cr⁶⁺ for metal sample is shown as Positive/Negative. Negative = Absence of Cr⁶⁺ coating, Positive = Presence of Cr⁶⁺ coating. Storage conditions and production date of the tested sample are unavailable and thus results of Cr(VI) represent status of the sample at the time of testing.
- (d) The exemption of DecaBDE in polymeric application according 2005/717/EC was overruled by the European Court of Justice by its decision of 01.04.2008. Subsequently DecaBDE is included in the sum of PBDE after 01.07.2008.

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TEST REPORT

Epstar Optoelectronics (HK) Co., LTD

Report No.: SCC(11)-1203-1-R

Sample Photos



HSUN-BA15S 19LED SMD5050 canbus



HSUN-9005 18LED SMD5050

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TEST REPORT

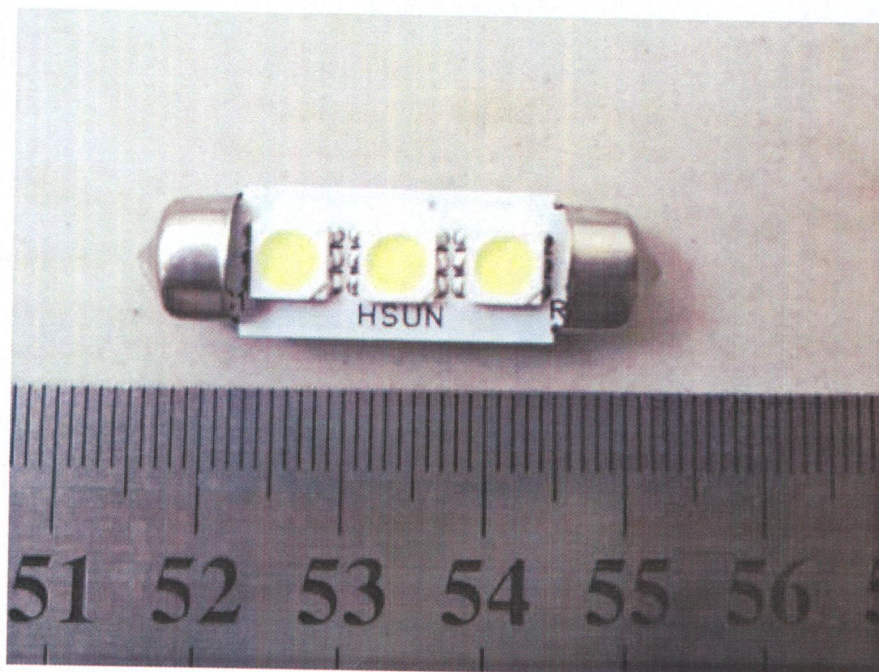
Epstar Optoelectronics (HK) Co., LTD

Report No.: SCC(11)-1203-1-R

Sample Photos



HSUN-BA9S 5LED SMD5050 canbus



HSUN-C5W 3LED SMD5050 canbus(36MM)

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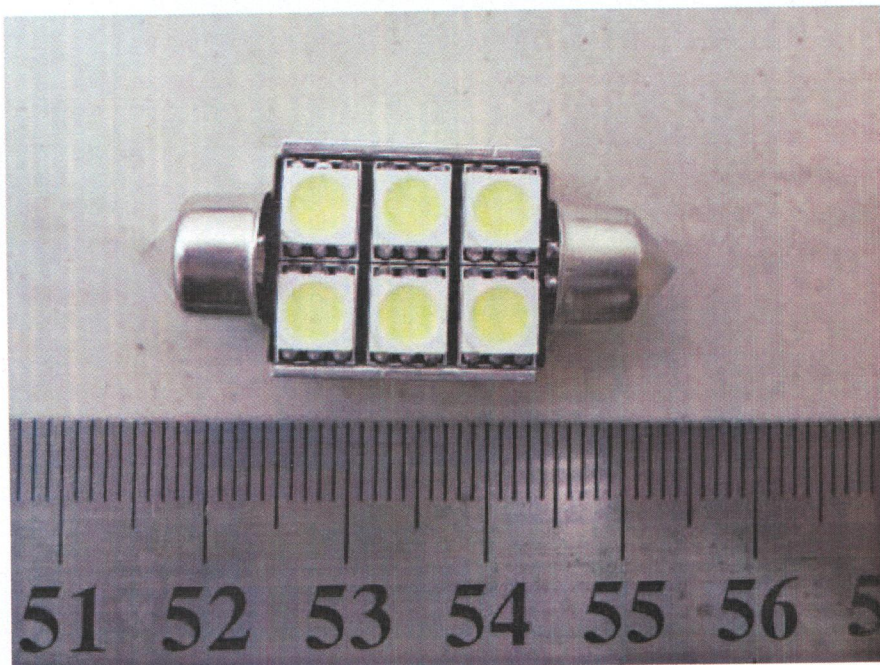


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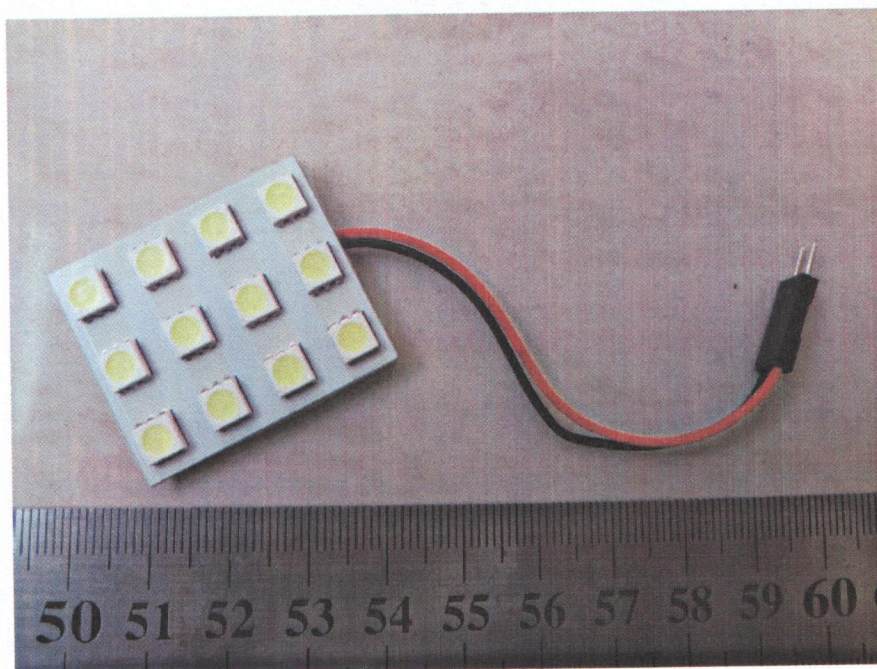
Epstar Optoelectronics (HK) Co., LTD

Report No.: SCC(11)-1203-1-R

Sample Photos



HSUN-C5W 6LED SMD5050 Sink canbus(36MM)



HSUN-PCB 12LED SMD5050

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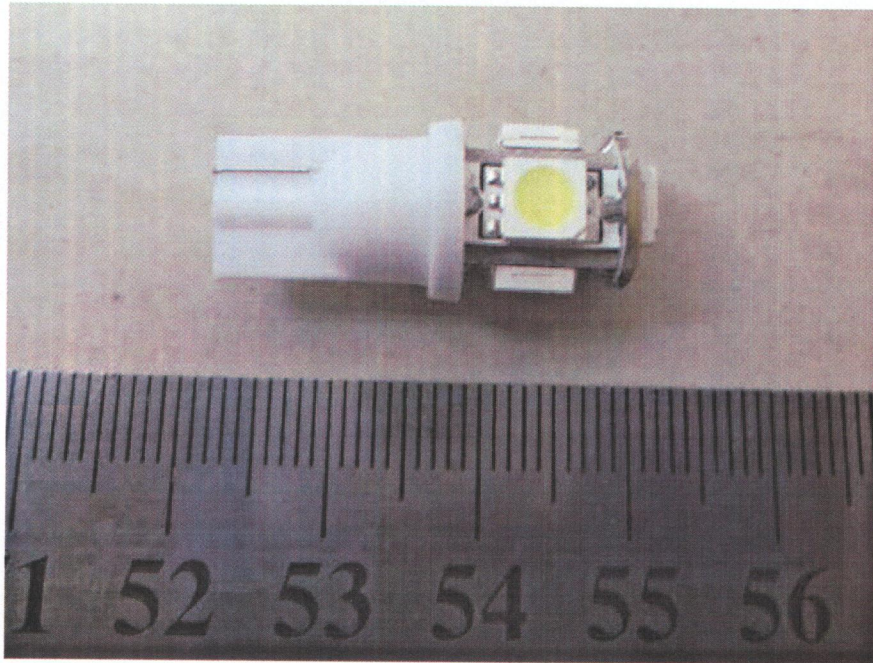


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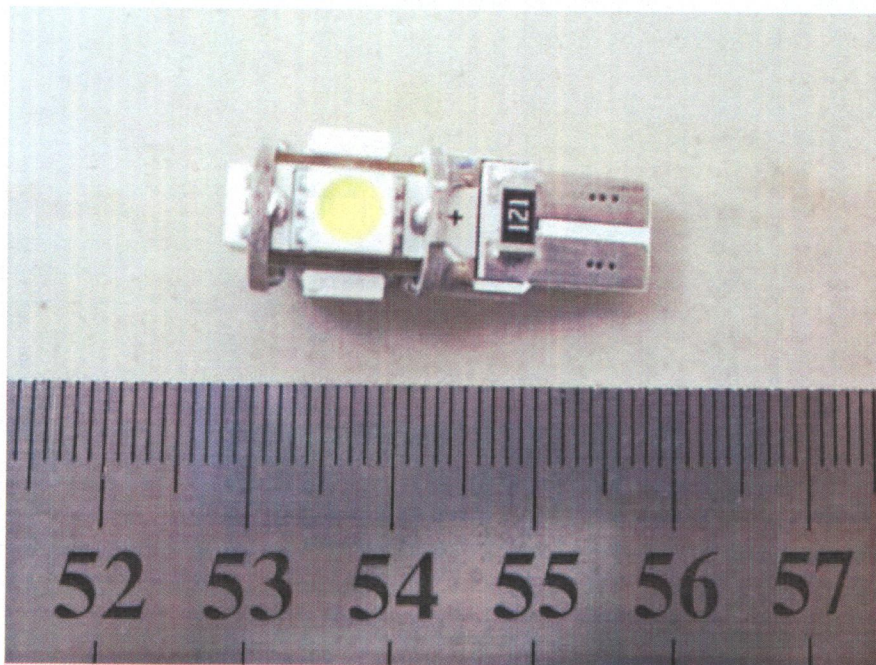
Epstar Optoelectronics (HK) Co., LTD

Report No.: SCC(11)-1203-1-R

Sample Photos



HSUN-T10 5LED SMD5050



HSUN-T10 5LED SMD5050 Canbus

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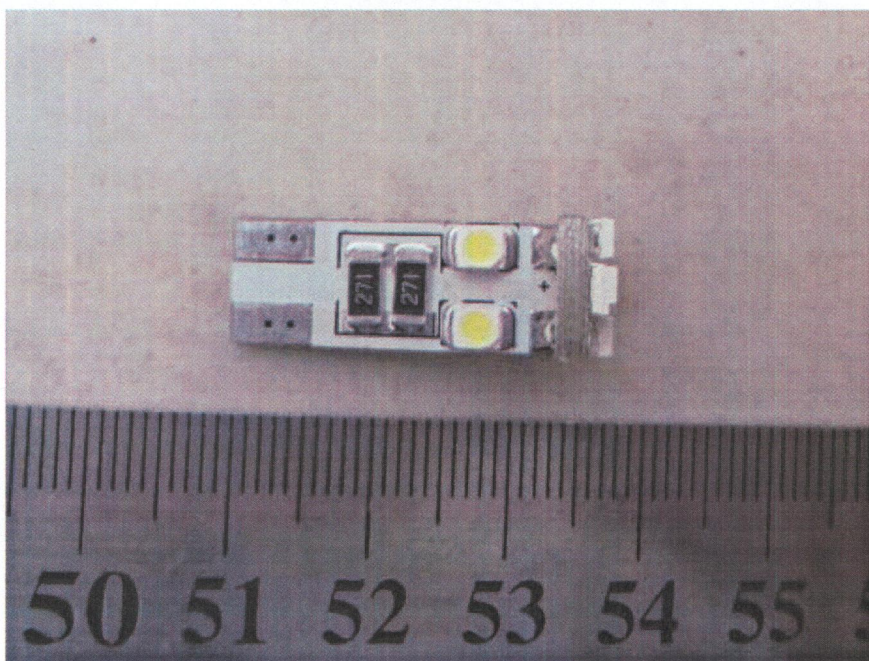


TEST REPORT

Epstar Optoelectronics (HK) Co., LTD

Report No.: SCC(11)-1203-1-R

Sample Photos



HSUN-T10 8LED SMD1210 canbus

== END OF THE REPORT ==

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