



TEST REPORT

Reference No	:	WTF18F08121598A1C
Applicant	-	Mid Ocean Brands B.V

Address 7/F., Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon,

Hong Kong

Manufacturer 114276

Sample Name..... Small COB light

Model No.: MO8996

Test Requested..... In accordance with the RoHS Directive 2011/65/EU

Test Method: 1) With Reference to IEC 62321-2:2013, disassembly, disjointment

and mechanical sample preparation

2) With Reference to IEC 62321-3-1:2013, screening - Lead, mercury, cadmium, total chromium and total bromine by X-ray fluorescence

spectrometry

3) With reference to IEC 62321-4:2013, determination of Mercury by

ICP-OES

4) With reference to IEC 62321-5:2013, determination of Lead and

Cadmium by ICP-OES

5) With reference to IEC 62321-7-2:2017 and IEC 62321-7-1:2015,

determination of Hexavalent Chromium by UV-Vis

6) With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS

Test Conclusion..... Based on the performed tests on the submitted samples, the results

comply with the RoHS Directive 2011/65/EU

Date of Receipt sample.... 2018-08-20 & 2018-08-30 Date of Test 2018-08-20 to 2018-09-01

Date of Issue 2018-09-01

Test Result Please refer to next page (s)

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

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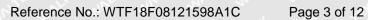






Test Results:

Part No.	Part Description Result of		of XRF	Result of Wet Chemical Testing (mg/kg)	cal Conclusion on RoHS
<u>,</u>	et tet ite iii ii	Cd	BL	70 x	ct
	write mur mur my m	Pb	BL	F LIEX SLIER WILL	WITE WE
1	Silvery metal rivet	Hg	BL	NA	Comply
	LIEN WILL MULL MULL MULL	Cr	BL	EX TEX TEX	LIE OLI
		Br	BL	While were a	1. 12.
	EX LIFE NITE MILL WALL	Cd Cd	BL	a state	Et JE
	Mr. M. M.	Pb	BL	rier write while and	. Mr.
2	Silvery metal buckle	Hg	BL W	NA	Comply
	mil me me m	Cr	BL	E LIER RLIER WITE	WILL A
	t at let let o	Br	BLV.	21/2 211 20	
TEL	WILL WILL MUST MUST AND	Cd	BL	- LET JET JET	alie an
		Pb	BL	auty mur my	211. 22.
3	Silvery metal sheet	Hg	BL	NA NA	Comply
	Me M M	Cr	BL	CITE WITE WALL W	r m
	t let tet it stille	Br W	BL	200	at let
المارا	"MUT, MUT, MILE AND	Cd	BL	THE LIE SLIE ONLY	WILL
7,	AL AL AL	Pb	BL W	Mr. M. M.	
4	Silvery metal spring	Hg	BL	NA NA	Comply
	in in	Cr	BL	While Mur Mur	211. 21.
	TEX LIEX ALTER NA	Br	BL	L A LET	TEX S
<i>'</i>	c. W. M. 1	Cd	BL	LIFE WITE WALL	ne m
	at let tex tex	Pb	BL	20. 20.	et et
5	Silvery metal ring with red coating	Hg	BL	NA NA	Comply
	the set set	Cr	BL	L. My M. M. M.	
TE	The state of the state of	Br	BL	to the set of	LIE LIE
	20, 30, 1	Cd	BL	in Mur Mur	11, 1
	THE VIEW NO.	Pb	BL	at let	EX
6	Red plastic frame	Hg	BL	NA	Comply
	at let tet tet out	Cr	BL		x 1
	Lite will and any	Br	BL	TEX TEX STEEL	Life Will.
	the state of the s	Cd	BL	my my m	, , , ,
	it offer with mail and	Pb	BL	at let text of	EX CLIER
7	Black plastic sheet	Hg	BL	NA W	Comply
	TEX LIFE OLIVER MITE.	Cr	BL		TEX
W.	me me m m	→ Br	TEX J	El CITE WITE WALL	war. W
.1_	At Att Att Att	Cd	BL	70, 72,	*
	will man man and	Pb	→ BL →	TEX JEX LIER	Inlie Wi
8	Red rubber cap of switch	Hg	BL	NA WA	Comply
	THE STIFE WITH WHITH WAR	Cr	BL	at at let	TEK LITE
	20, 20,	Br	BL	a The water with	211



W			
	A	$\overline{}$	K.
		V	1
7		3	

Part No.	Part Description	Result	of XRF	Result of Wet Chemical Testing (mg/kg)	Conclusion on RoHS
- t	et tet tet tiet	Cd	BL	4, 4	et.
Lite		Pb	BL	F LIET SLIET WITE	
9	Transparent plastic cover	Hg	BL	NA	Comply
	TER WILL WALL MULT AND	Cr	BL	EX TEX TEX	ALTER OLI
7)		Br	BL	Write Aug. Aug. 2	
- (6	LIE NITE MILL MILL	Cd	BL	1 1 1	EK JE
MUL		Pb	BL	View Wife While My	
10	Black plastic frame	Hg	All BL	NA	Comply
ماران		Cr	BL	E LIER SLIER MIT	
		Br	on BLV	Mr. Mr. M.	
TER	The wife war and an	Cd	BL	- LEY TEX TEX	ALTE: IN
471		Pb	BL	Writ MUT, MUT	
11	Black plastic shell	Hg	BL	NA NA	Comply
M		Cr	BL	olien with white w	
		Br	BL	20 Th	
W.	MUT, MUT, MILL AND	Cd	BL	THE LIFE WIFE WI	Comply
20.		Pb	BL W	NA NA	
12	Silvery magnetic sheet	Hg	BL		
1		Cr	BL	whi, mr. mu	
EX	TEX LIFE SLIFE MI	Br	BL	at at at	LET .
, 71,	The ship of	Cd	BL	alter with wall	We an
_ 0		Pb	BL	2, 2,	
13	Silvery metal sheet	Hg	BL	NA CONTRACTOR	Comply
7,		Cr	BL	V. My. M. M. M.	
TE	Will will will	Br	BL	the set of	LIER
in.	20 20	Cd	BL	The Mar Mar	
TEX	TEC V S V S	Pb	BL	at at	
14	Red plastic wire covering	Hg	BL	NA	Comply
4		Cr	BL	10 10	
	it with the the	Br	BL	TEX TEX LIER	nite unit
		Cd	BL	Wer The The s	
		Pb	BL	et let let is	
15	Coppery metal wire	Hg	BL	NA NA	Comply
TEX		Cr	BL	x x x	
	he me me	→ Br →	BL	El SITE WITE WITE	W.F. 1
.4	CH TEX TEX LIER W	Cd	BL	21, 2,	at-
16.		Pb	BL	TEX LIER SLIER	
16	Solder	Hg	BL	NA NA	Comply
+		Cr	BL	et et et	
" VIL		Br	BL	WILL WILL WILL WIL	







Part No.	Part Description	Result of XRF		Result of Wet Chemical Testing (mg/kg)	Conclusion on RoHS
.+	LEX TEX TEX SITES IN	Cd	AL BL		at the
NITE	ancie more and a	Pb	BL	LIER STEEL WILL	White wh
17	Chip LED	Hg	BL	NA	Comply
EX	THE WILL MULL MALL MA	Cr	BL	LET LET LET	ALTER MITE
41		Br	BL	MILL MILL MILL A	1, 2,
	EX SLIED WILL MILL WALL	Cd	BL	at at at	EX JES
MIL	Cilvany mastal about with white	Pb	BL	alite ancie ancie anni	in.
18	Silvery metal sheet with white	Hg	BL 3	NA	Comply
MILL	coating	Cr	BL	er alter alter ancia	WILL W
	at the set set	Br	n BL	20, 20, 20,	
TEL	write white white white with	Cd	BL	t let tex tex	WITE WI
	t at	Pb	BL	PBBs :ND	20, 20,
19	Chip IC	Hg	BL	PBDEs :ND	Comply
n,	My My My	Cr	BL	PDDES .ND	
d.	t let tet it little	Br wh	IN	20. 70.	
MILL	when her his an	Cd	BL	risk stiff with wi	MALI
	at at a	Pb	BL W	1 m m 2 m	
20	Solder	Hg	BL	NA NA	Comply
	In the state of	Cr	BL	wer were	10, 20,
EX	TEX LIER NITER WAY	Br	BL	L X LET	TEX S
, 77	24 24 3	Cd	BL	aller antity wall a	ur mu
L	ex rex rex life	Pb	BL	PBBs :ND	et et
21	Yellow PCB with green coating	Hg	BL	PBDEs :ND	Comply
	- Tet Will Will willer	Cr	BL	P DDL3 .ND	
TE		Br	IN	to the text of	
11/2	20 2	Cd	BL	The Mar Mar	70, 7
TEX	TEC 1	Pb	BL	- A CH CEN	TEX
22	Silvery metal shell of switch	Hg	BL	NA	Comply
*	LEX LEX LIEX LIEX ON S	Cr	BL	- 'n' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '	at di
-10	it with must my	Br	BL	TEX TEX TIES	
7.	and the set set	Cd	BL	The Mr. M. M.	
	write white white with	Pb	BL	PBBs :ND	Er CLIE
23	Black plastic button of switch	Hg	BL	PBDEs :ND	Comply
TEX	TEX STEX STEEL WITE I	Cr	BL		- TEX
	Me Me Me	Br 🖈	IN	E ALTE MIT NALL	الل المال
×	EX TEX TEX LIEX W	Cd	BL	100 00	it.
	ur, mur, mur, my	Pb	BL	- TEX STEE STEE	Comply
24	White plastic base of switch	Hg	BL	NA	
*	TER WITE MUTT MUTT MILL	Cr	BL	et let let	
11/1	70, 7	Br	BL	was my my	



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Part No.	Part Description	Result of XRF		Result of Wet Chemical Testing (mg/kg)	Conclusion on RoHS
.	et tet itet ite	Cd	ALL BL	7, 1	et
		Pb	BL	LIEX SLIER WITE	White W
25	Silvery metal sheet of switch	Hg	BL	NA	Comply
		Cr	BL	TEX TEX TEX	
11		Br	BL	Arr Aug Aug a	
		Cd	BL	at at let .	LEK LIFER
MUT		Pb BL	rit wat was		
26	Silvery metal pin of switch	Hg	BL	NA	Comply
الماري.		Cr	BL	LIER WILL MILL	WILL A
	a state set	Br	BL.	m m	4
TEN		Cd	BL	TEX TEX TEX	WILL WA
		Pb	BL	Wr. Mr. Mr.	3
27	Chip capacitor	Hg	BL	NA NA	Comply
21/2		Cr	BL	ette unti wat. W	701
, d	t et set is alle	Br	BL		at at
. NALT		Cd	BL	Cit alier wife wal	WALL
		Pb	BL	111, 121,	*
28	Solder	Hg	BL	NA NA	Comply
		Cr	BL	Mer. Mer. My	
		Br	BL	4 4 6	



Reference No.: WTF18F08121598A1C

Remark:

(1) Results are obtained by EDXRF for primary screening, and further chemical testing by ICP (for Cd, Pb, Hg), UV-VIS (for Cr⁶⁺) 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)

Element	Polymer	Metal	Composite Materials
Cd	BL ≤ (70-3σ) < IN < (130+3σ) ≤ OL	BL ≤ (70-3σ) < IN < (130+3σ) ≤ OL	LOD < IN < (150+3σ) ≤ OL
Pb	BL \leq (700-3 σ) $<$ IN $<$ (1300+3 σ) \leq OL	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (500-3σ) < IN < (1500+3σ) ≤ OL
Hg	$BL \le (700-3\sigma) < IN < (1300+3\sigma) \le OL$	$BL \le (700-3\sigma) < IN < (1300+3\sigma) \le OL$	BL ≤ (500-3σ) < IN < (1500+3σ) ≤ OL
Cr	BL ≤ (700-3σ) < IN	BL ≤ (700-3σ) <in< td=""><td>BL ≤ (500-3σ) < IN</td></in<>	BL ≤ (500-3σ) < IN
Br	BL ≤ (300-3σ) < IN	24 WILL MULTER MULTER AND	BL ≤ (250-3σ) < IN

BL= Below Limit

OL= Over Limit

LOD = Limit of Detection

-- = Not Regulated

- (2) "IN" expresses the inconclusive region, and further chemical testing to confirm whether it complies with the requirement of RoHS Directive.
- (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.
- (4) ppm = mg / kg, based on the dry weight of tested sample.
- (5) ND = Not Detected, less than the value of Method Detection Limit.
- (6) NA = Not Applicable, as the XRF screening test result was below the limit, it was not need to conduct the wet chemical testing.
- (7) MDL= Method Detection Limit in wet chemical test.

Test Items	Pb	Cd	Hg	Cr ⁶⁺		PBB	PBDE
Units	mg/kg	mg/kg	mg/kg	mg/kg	μg/cm ²	mg/kg	mg/kg
MDL	2	2	2	2	0.1	5	5 +

The MDL for single compound of PBBs and PBDEs is 5mg/kg, MDL of Cr⁶⁺ for polymer and composite sample is 2mg/kg and MDL of Cr⁶⁺ for metal sample is 0.1µg/cm².

(8) According to IEC 62321-7-1:2015, determined of Cr⁶⁺ on metal sample by boiling water extraction test method, and result is shown as Positive/Negative.

Boiling water extraction:

Negative = Absence of Cr⁶⁺ coating, the detected concentration in boiling water extraction solution is less than 0.10ug/cm².

Positive = Presence of Cr⁶⁺ coating, the detected concentration in boiling water extraction solution is greater than 0.13ug/cm².

Information on storage conditions and production date of the tested sample is unavailable and thus Cr⁶⁺ results represent status of the sample at the time of testing.

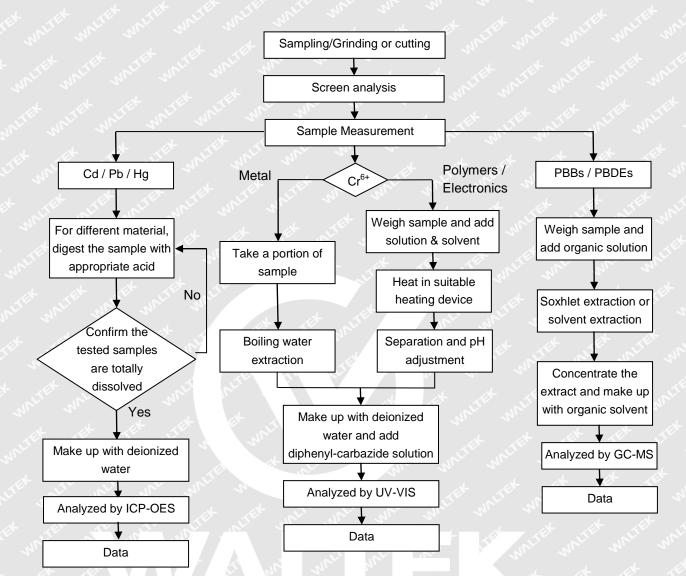
(9) The testing standard "IEC 62321-7-2:2017" does not been accredited by CNAS.

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Measurement Flowchart:



Sample Photo:



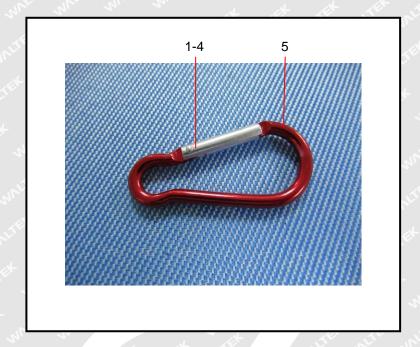


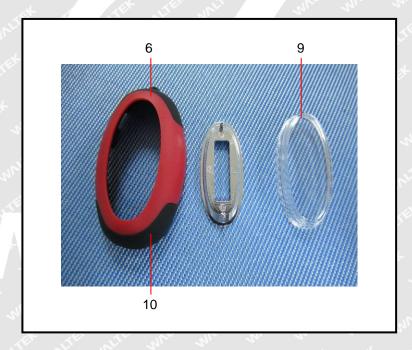
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Reference No.: WTF18F08121598A1C

Photograph of parts tested:

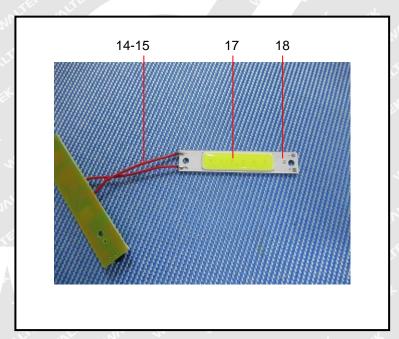




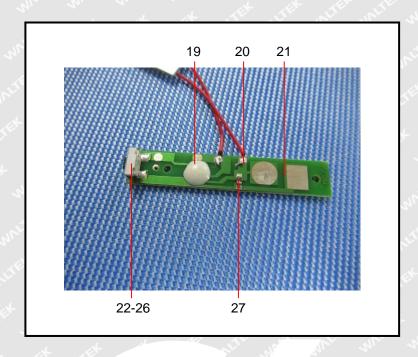


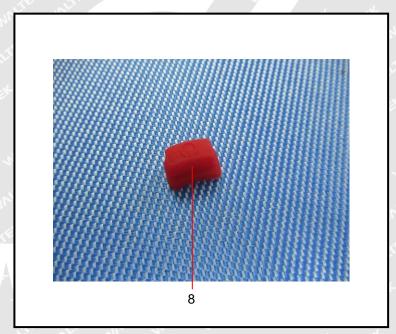




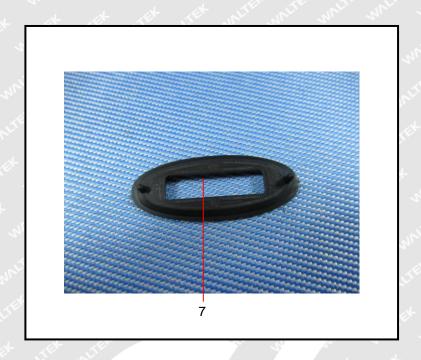


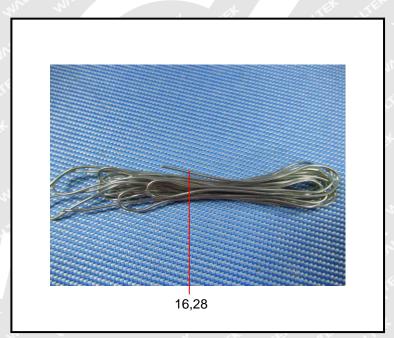












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