

中国认可 国际互认 检测 TESTING CNAS L6478



TEST REPORT

Reference No.	WTF16F1064136A1C
Applicant	Mid Ocean Brands B.V.
Address	Unit 201 2/F., Laford Centre, 838 Lai Chi Kok Road, Cheung Sha Wan,
	Kowloon, Hong Kong.
Manufacturer	103221
Sample Name	USB type A to C connector
Model No.	MO8987
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 IEC62321-4:2013, determination of Mercury by ICP-OES
	 With reference to IEC62321-5:2013, determination of Lead and Cadmium by ICP-OES
	5) With reference to IEC 62321: 2008 and IEC 62321-7-1:2015,
	determination of Hexavalent Chromium by UV-Vis
	6) With reference to IEC62321-6:2015, 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	2016-10-31 & 2016-11-12
Date of Test	2016-10-31 to 2016-11-14
Date of Issue	2016-11-23
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.

Prepared By:

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d by: TON ackson.Zhou / Lab Manager

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Test	Results:
1000	neouno.

Part No.	Part Description	Result of XRF		Result of Wet Chemical Testing (mg/kg)	Conclusion on RoHS
Jet .	THE THE WITH WAT A	Cd BL		at at at	At .
	at we we we a	Pb	BL	et intres intre indite	white wi
_1	White plastic jacket	Hg	BL	NA	Comply
	ist which which when which	Cr	, BL, ∕r	THE JEEK STREET	INLIE MAL
20.	· · · · · · ·	Br	BL	when we we a	
	white white white white	Cd	BL	at at at	It Ite
m	NI NI A	Pb 5	BL	NA MALI WAL WA	211-
2	Semi-transparent glue	Hg	BL	NA	Comply
n ^L	white when when the	Cr 👉	BL	IE SUER MUTE MAL	with
4	at at set set of	Br	M BLM	- 111 - 111 - 1	,t-
	net when when when when	Cd	, BL ,	t let set set	INLIE IN
-3		Pb	BL	alt whe we	Comply
3	Silvery metal shell of plug	Hg	BL	A NA A	
- nn	Mr. M. St.	Cr	BL	alite solite white w	
.0	t set set is alle	Br w	BL		at at
JULT	when when when so	Cd	BL	THE STREE NUTE IN	MAL
	to the second	Pb	BL	NA	4
4	Silvery metal pin of plug	Hg	BL		Comply
	sur sur st	Cr	BL		
et	TEX JEX STER SINT	Br	BL	L A A	
N	and the second	Cd	BL	still only which we	n m
	at at all the	Pb	BL	PBBs : ND	+ 0
5	Dark grey plastic sheet of plug	Hg	BL		Comply
201	a at at at	Cr Cr	BL	PBDEs : ND	
JEX	and with apply with a	Br	IN	t at the st	A JIER
11-	-20°	Cd	BL	it is write write	- no -
.et		Pb	BL		Comply
6	Chip capacitor	Hg	BL	NA	
	at at at at as	Cr	BL	111. 20. 1.	
t offer antite and	ite white white where we	Br	BL	THE SHE STREET	
2	the state of the	Cd	BL	Nr. Mr. Mr. 1	
7 Chip res	the street out to solution would	Pb	*OL	NA	
	Chip resistor		BL		Comply
	the test state with a	Cr	N BL		
	when when when you	Br	BL	IE STEE STEE STEE	white y
	to the set of a	Cd	IN BLIN	m. m. s.	A.
	NITE WALL WALL WALL W	Pb	BL		NUTERIN
8 🔊	Blue PCB	Hg	BL	PBBs : ND	Comply
-	et the with white white	Cr	BL	PBDEs : ND	
with	an an an	Br	in In	TEN MITE MALTE M	



Part No.	Part Description	Result of XRF		Result of Wet Chemical Testing (mg/kg)	Conclusion on RoHS
ret ret aller out whit whit an		Cd	BL	i it it it	. Lit
	Net Me M. M.	Pb	BL	et intres intre months	wint wi
9	Solder	Hg	BL	NA	Comply
	LITE WALT WALL WALL WALL	Cr	, BL ∕	THE JEEK STREET	
20.	s to the the	Br	BL	Were all a	
5	a nut inthe wat wat	√ ⁰ Cd	BL	at at at	TER TIER
m	-10 - 10 - 1 - A	Pb	BL	IN IE WALL WALL WA	2Mr
10	White plastic jacket	Hg	BL	NA	Comply
n ^L	when when when the	Cr	BL	It stree white white	with v
L	at at set set of	Br	M BLM	211. 24. 4.	
	petre white white white white	Cd	, BL ,	t let set set	Intite In
-1	i i at at "	Pb	BL	ant whe with	20. 20.
11	Silvery metal shell of plug	Hg	BL	A NA A	Comply
m	WIT IN ST.	Cr	BL	white white white w	r. Mar
<i>l</i> i	- it fit is after	Br 🔊	BL		at at
JN4	Mrs. Mrs. M. On	Cd	BL	THE STREE STREET	NN
	a at a st	Pb	BL	NA	4
12	Black glue of plug	Hg	BL		Comply
	an sur st	Cr	BL		
et	TEX ITEX NITER INT	Br	BL	s at the	
Jul -	- In In	Cd	BL	BL BL BL NA	ne m
	at left fet ste	Pb	BL		A
13	Solder of plug	Hg	BL		Comply
20.	s s at at	Cr N	BL	1 Mr. Mr. m.	
J.F.*	A THE MARK MALL AND A	Br	BL	t at the st	
le.	-20	Cd	BL	it is write with	Comply
1t		Pb	BL		
14	Blue plastic sheet of plug	Hg	BL	PBBs : ND	
	at at at all a	Cr	BL	PBDEs : ND	
A DIE WITE WITE	ster inite white white white	Br	, IN ,-	Let JEX JER	
20		Cd	BL	Mr. Mr. M. A	
15 Silvery-golden metal pin of pl	A STILLER WITH WALL WALL	Pb	BL	t at let	CEN JEN
	Silvery-golden metal pin of plug		BL	NAN SI	Comply
	THE THE THE NUTE .	Cr	N BL		
L'IL	white white white sol	Br	BL	IE STEE STEE STEE	
i it it it	t at let let a	Cd	IN BLAN	211. 211. 22	4
E.	still wait wat wat a	Pb	BL	t set set set	NITE IN
16	White plastic wire jacket	Hg	BL	NA NA	Comply
-	et the with white	Cr	BL	1 A At	
with	in m	Br	BL	TEN NUTE WITTE N	

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Part No.	Part Description	Part Description Result of XRF		Result of Wet Chemical Testing (mg/kg)	Conclusion on RoHS
.et	TER SLIFER ALTE MALL M	Cd	BL	A A A	11th
	he me me	Pb	BL	nite white white	wer w
17	Green plastic wire covering	Hg	BL	NA	Comply
11	and the super supe	Cr	, BL ∕	THE STREE MITE	Intit whit
	the state of the	Br	BL	Were all all and	
	a numer white white white	Cd	BL	at at at	THE NUTE
-201	su at at	Pb	BL	strants when wh	Comply
18	Black plastic wire covering	M Hg M	BL	NA	
nt.	mer mer in in	Cr 👉	BL S	NUTER INTE MALL	
	at at the set	Br	M BLM	In In	
	his was was way w	Cd	J BL	NA	Comply
	i it at at	Pb	BL		
19	Red plastic wire covering	Hg	BL		
-2m	w w	Cr	BL		
	- THE THE ALL MAILE	Br w	BL	and the state	
MILL	where where where we	Cd	BL	NA	Comply
4	at at a set	Pb	BL		
20	White plastic wire covering	Hg	BL		
et ret uret wret	the state	Cr	BL		
	TEL SITE OUT ANY	Br	BL	at at at	
with the state state	211 20 2	Cd	BL	NUT WALL WAL	Comply
	at the the the	Pb	BL		
21	Coppery metal wire	Hg	BL	NA S	
	at at all all	Cr N	JUBL 1	W. W. Z.	
JEX		Br	BL	- A A A	



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	$LOD < IN < (150+3\sigma) \le OL$
Pb	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (500-3σ) < IN < (1500+3σ) ≤ OL
Hg	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (500-3σ) < IN < (1500+3σ) ≤ OL
Cr	BL ≤ (700-3σ) < IN	BL ≤ (700-3σ) <in< td=""><td>$BL \leq (500\text{-}3\sigma) < IN$</td></in<>	$BL \leq (500\text{-}3\sigma) < IN$
Br	BL ≤ (300-3σ) < IN	and white white white w	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.

Test Items	V 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 /

(7) MDL= Method Detection Limit in wet chemical test

The MDL for single compound of PBBs and PBDEs is 5mg/kg, MDL of Cr^{6+} for polymer and composite sample is 2mg/kg and MDL of Cr^{6+} for metal sample is $0.1\mu g/cm^2$.

(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 Cr^{6+} coating, the detected concentration in boiling water extraction solution is less than 0.10 ug/cm².

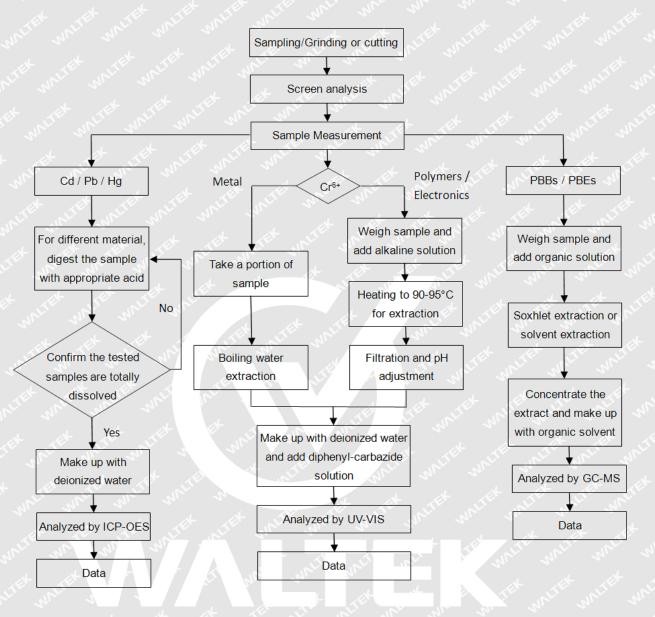
Positive = Presence of Cr^{6+} coating, the detected concentration in boiling water extraction solution is greater than 0.13ug/cm².

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) * = According to the declaration from client, the source of lead in test sample could be from the glass or ceramic material of that electronic component which is exempted by Directive 2011/65/EU.

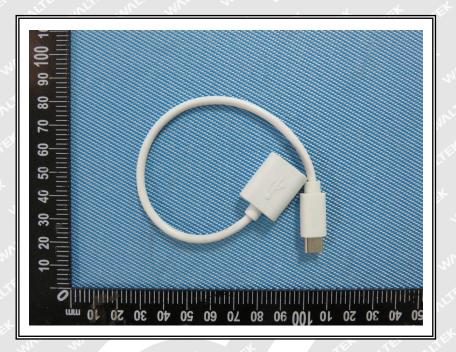


Measurement Flowchart:





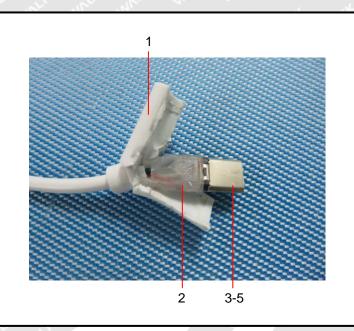
Sample Photo:

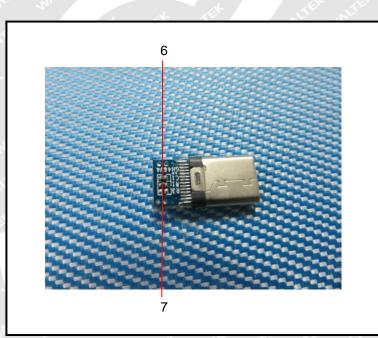


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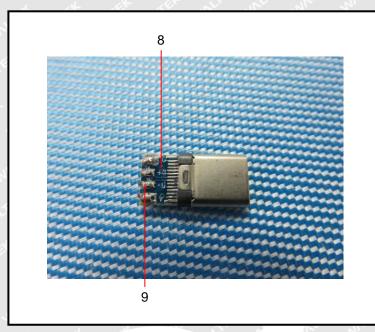


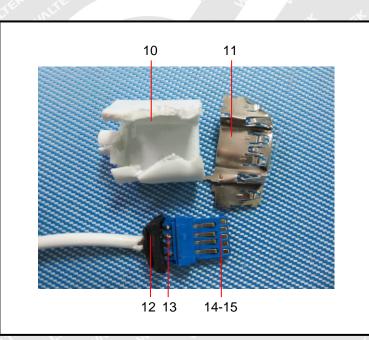
Photograph of parts tested:



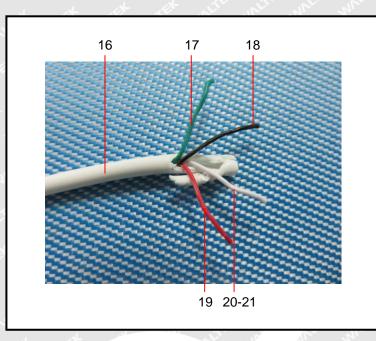












===== End of Report ======