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Page 1 of 7

# TEST REPORT

**Test Report No.** : **4384689.50** Version 1  
**Project No.** : **4384689.00**  
**Test Report Date** : **2022-01-13**

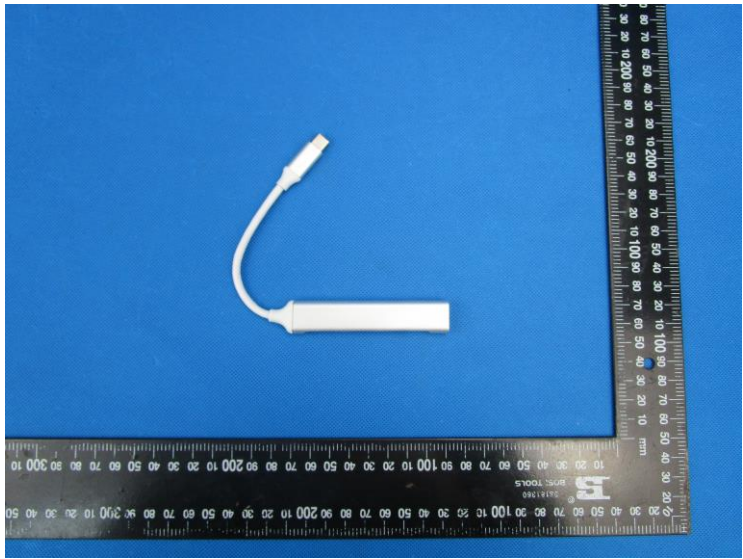
Job No. : 22-00006  
Applicant : Flashbay Electronics  
Building2,Jixun Industrial Park ,Xinjiao ,Dong'ao Village ,Shatian  
Town ,Huiyang  
District ,Huizhou City , Guangdong Province,P.R.China

Product Name : USB hub  
Model No. : Expand/XN  
Test Requested : RoHS Directive 2011/65/EU & Amendment Directive 2015/863/EU  
- Lead, Mercury, Cadmium, Hexavalent chromium,  
- Polybrominated biphenyls (PBB),  
- Polybrominated diphenyl ethers (PBDE),  
- Bis(2-ethylhexyl) phthalate (DEHP),  
- Butyl benzyl phthalate (BBP),  
- Dibutyl phthalate (DBP),  
- Diisobutyl phthalate (DIBP)

Test Method : Please refer to next pages  
Sample Received : 2022-01-04  
Testing Period : 2022-01-04 to 2022-01-12

Test Results  
- following pages -

**Resume:**

<b>Parameter</b>	<b>Product Name: USB hub</b>
	<b>Model No.: Expand/XN</b>
	
RoHS Directive 2011/65/EU & Amendment Directive 2015/863/EU	PASS

Guangzhou, January 13, 2022

Signed for and on behalf of

**DEKRA Testing and Certification (Shanghai) Ltd., Guangzhou branch**

Chemical & Mechanical




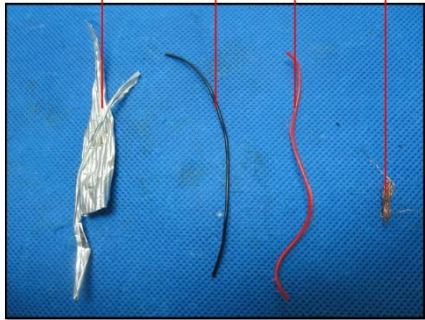
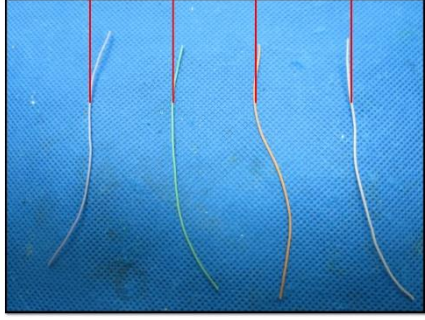

Devin Ai  
Assistant Manager

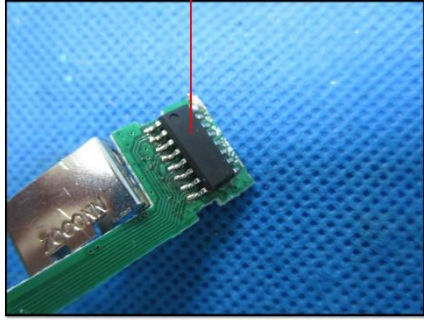
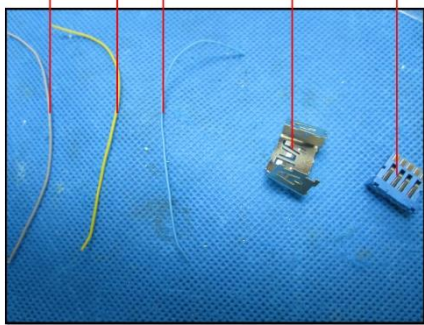
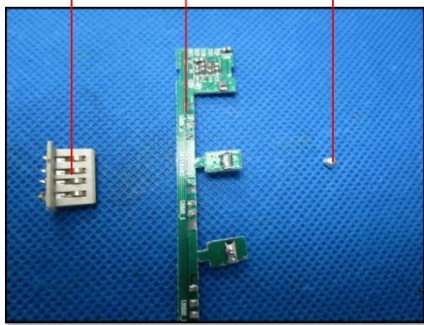
Attention: Please note that every statement made in this report is only valid for the samples tested and reported herein. This report shall not be reproduced except in full, without the written approval of the testing laboratory.

## TEST RESULTS

### RoHS Directive 2011/65/EU & Amendment Directive 2015/863/EU

**Test Components:**

Test No.	Name of material	Photograph
1	Silvery metal	 <p>A photograph showing six small components labeled 1 through 6. Component 1 is a small cylindrical metal piece. Component 2 is a small rectangular metal piece. Component 3 is a small white plastic piece. Component 4 is a small black plastic piece. Component 5 is a small silvery metal piece. Component 6 is a small green PCB board.</p>
2	Silvery metal	
3	White plastic	
4	Black plastic	
5	Silvery metal	
6	Green PCB board	
7	Silvery plastic	 <p>A photograph showing four components labeled 7 through 10. Component 7 is a silvery plastic piece. Component 8 is a black plastic piece. Component 9 is a red plastic piece. Component 10 is a copper metal wire.</p>
8	Black plastic	
9	Red plastic	
10	Copper metal wire	
11	Purple plastic	 <p>A photograph showing four components labeled 11 through 14. Component 11 is a purple plastic piece. Component 12 is a green plastic piece. Component 13 is an orange plastic piece. Component 14 is a pink plastic piece.</p>
12	Green plastic	
13	Orange plastic	
14	Pink plastic	

Test No.	Name of material	Photograph
15	Black body	
16	Grey plastic	
17	Yellow plastic	
18	Blue plastic	
19	Silvery metal	
20	Blue plastic	
21	Beige plastic	
22	Green PCB board	
23	Silvery metal solder	

### A. Screening Test

Test No.	Result (mg/kg)				
	Pb	Cd	Hg	Cr	Br
1	BL	BL	BL	BL	N.A.
2	BL	BL	BL	IC	N.A.
3	BL	BL	BL	BL	BL
4	BL	BL	BL	BL	BL
5	BL	BL	BL	IC	N.A.
6	BL	BL	BL	BL	IC

Test No.	Result (mg/kg)				
	Pb	Cd	Hg	Cr	Br
7	BL	BL	BL	BL	BL
8	BL	BL	BL	BL	BL
9	BL	BL	BL	BL	BL
10	BL	BL	BL	BL	N.A.
11	BL	BL	BL	BL	BL
12	BL	BL	BL	BL	BL
13	BL	BL	BL	BL	BL
14	BL	BL	BL	BL	BL
15	BL	BL	BL	BL	BL
16	BL	BL	BL	BL	BL
17	BL	BL	BL	BL	BL
18	BL	BL	BL	BL	BL
19	BL	BL	BL	BL	N.A.
20	BL	BL	BL	BL	BL
21	BL	BL	BL	BL	BL
22	BL	BL	BL	BL	BL
23	BL	BL	BL	BL	N.A.

## Remark:

1. mg/kg = Milligram per kilogram
2. BL = Below Limit
3. **OL** = **Over Limit, represents test item needs further confirmation.**
4. **IC** = **Inconclusive, represents test item needs further confirmation.**
5. N.A. = Not Applicable
6. There are the results on total Br while test items on restricted substances are PBBs and PBDEs.  
There are the results on total Cr while test item on restricted substance is Cr(VI).

## Disclaimers:

This XRF screening result 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 results 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.).

**B. Chemical Test**

Test Item	Result	
	(2)	(5)
Hexavalent Chromium Cr(VI)	Negative	Negative

Test Item	Result (mg/kg)
	(6)
PBBs	N.D.
PBDEs	N.D.

## Remark:

1. N.D. = Not Detected, less than MDL
2. mg/kg = Milligram per kilogram
3. According to IEC 62321-7-1:2015 Ed.1.0, result on Cr(VI) for metal sample is shown as Positive/Negative.

Negative = Absence of Cr(VI) in coating layer, Positive = Presence of Cr(VI) in coating layer.

## Note:

Results were obtained by EDXRF for primary screening, and further chemical testing by ICP-OES (for Cd, Pb, Hg), UV-Vis (for Cr(VI)) and GC-MS (for PBBs, PBDEs) were recommended to be performed, if the concentration exceeded the warning value according to IEC 62321-3-1:2013 Ed. 1.0 (unit: mg/kg).

### C. Phthalates Test

For plasticised material(s) in test components

Test Item	Result (mg/kg)						MDL (mg/kg)	Limit (mg/kg)
	(4)	(20)	(6)	(7)	(8)	(9)		
Bis(2-ethylhexyl) phthalate (DEHP)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	50	1000
Butyl benzyl phthalate (BBP)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	50	1000
Dibutyl phthalate (DBP)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	50	1000
Diisobutyl phthalate (DIBP)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	50	1000

Test Item	Result (mg/kg)					MDL (mg/kg)	Limit (mg/kg)
	(11)	(12)	(13)	(14)	(17)		
Bis(2-ethylhexyl) phthalate (DEHP)	N.D.	N.D.	N.D.	N.D.	N.D.	50	1000
Butyl benzyl phthalate (BBP)	N.D.	N.D.	N.D.	N.D.	N.D.	50	1000
Dibutyl phthalate (DBP)	N.D.	N.D.	N.D.	N.D.	N.D.	50	1000
Diisobutyl phthalate (DIBP)	N.D.	N.D.	N.D.	N.D.	N.D.	50	1000

Test Item	Result (mg/kg)		MDL (mg/kg)	Limit (mg/kg)
	(16)	(18)		
Bis(2-ethylhexyl) phthalate (DEHP)	N.D.	N.D.	50	1000
Butyl benzyl phthalate (BBP)	N.D.	N.D.	50	1000
Dibutyl phthalate (DBP)	N.D.	N.D.	50	1000
Diisobutyl phthalate (DIBP)	N.D.	N.D.	50	1000

Test Item	Result (mg/kg)	MDL (mg/kg)	Limit # (mg/kg)
	(3)/(21)/(22)		
Bis(2-ethylhexyl) phthalate (DEHP)	N.D.	50	1000
Butyl benzyl phthalate (BBP)	N.D.	50	1000
Dibutyl phthalate (DBP)	N.D.	50	1000
Diisobutyl phthalate (DIBP)	N.D.	50	1000

## Remark:

1. N.D. = Not Detected (below MDL)

2. MDL = Method Detection Limit
3. mg/kg = Milligram per kilogram
4. # = The limit for the test result is 1/n of the value in column (where "n" is the number of mixed samples).

## Test Method

### A. Screening test by XRF spectroscopy: With reference to IEC 62321-3-1: 2013 Ed. 1.0 Screening - Lead, mercury, cadmium, total chromium and total bromine using X-ray fluorescence spectrometry.

Screening limits in mg/kg for regulated elements in various material.

Element	Polymer Material	Metallic Material	Composite Material
Cadmium (Cd)	BL≤70<IC<130≤OL	BL≤70<IC<130≤OL	LOD<IC<150≤OL
Lead (Pb)	BL≤700<IC<1300≤OL	BL≤700<IC<1300≤OL	BL≤500<IC<1500≤OL
Mercury (Hg)	BL≤700<IC<1300≤OL	BL≤700<IC<1300≤OL	BL≤500<IC<1500≤OL
Bromine (Br)	BL≤300<IC	N.A.	BL≤250<IC
Chromium (Cr)	BL≤700<IC	BL≤700<IC	BL≤500<IC

BL = Below Limit, OL = Over Limit, IC=Inconclusive, N.A. = Not Applicable, LOD=Limit of Detection

### B. Chemical Test

Test Item	Test Method	Test Instrument	MDL	EU RoHS Limit (mg/kg)
Lead (Pb)	IEC 62321-5: 2013 Ed. 1.0 Sec.7	ICP-OES	5mg/kg	1000
Cadmium (Cd)	IEC 62321-5: 2013 Ed. 1.0 Sec.7	ICP-OES	5mg/kg	100
Mercury (Hg)	IEC 62321-4: 2013 AMD 1:2017 Ed. 1.0 Sec.7	ICP-OES	5mg/kg	1000
Hexavalent Chromium (Cr(VI))	IEC 62321-7-1:2015 Ed.1.0 Sec.7	UV-Vis	0.1µg/cm <sup>2</sup>	1000
	IEC 62321-7-2:2017 Ed.1.0 Sec.7	UV-Vis	2mg/kg	
Polybrominated Biphenyls (PBBs)	IEC 62321-6: 2015 Ed. 1.0 Sec.8	GC-MS	10mg/kg	1000
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6: 2015 Ed. 1.0 Sec.8	GC-MS	10mg/kg	1000
Bis(2-ethylhexyl) phthalate (DEHP)	IEC 62321-8: 2017 Ed. 1.0 Sec.8	GC-MS	50mg/kg	1000
Butyl benzyl phthalate (BBP)	IEC 62321-8: 2017 Ed. 1.0 Sec.8	GC-MS	50mg/kg	1000
Dibutyl phthalate (DBP)	IEC 62321-8: 2017 Ed. 1.0 Sec.8	GC-MS	50mg/kg	1000
Diisobutyl phthalate (DIBP)	IEC 62321-8: 2017 Ed. 1.0 Sec.8	GC-MS	50mg/kg	1000

---End of Report---