Test Report

Report No.: A001R20170801029 Date: Aug.04, 2017 Page 1 of 10

Applicant:
Address:

Report on the submitted sample(s) said to be:

Sample Name:	USB line
Sample Model:	XO-9277，XO-9319，XO-9290，XO-9222 -2，XO-9331
Sample Received Date:	Aug.01, 2017
Testing Period:	Aug.01, 2017 to Aug.04, 2017

Test Requested:	Please refer to following page(s).
Test Method:	Please refer to following page(s).
Test Result:	Please refer to following page(s).

Tested by: Huisu Luo	Reviewed by: Leon	Approved by: Jason
Luohuisu	Suhongliang, Leon	Jiangyuncheng, Jason
Test Engineer	Test Team Leader	Laboratory Manager

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Test Requested: **Conclusion**

As specified by client, to determine the Pb, Cd, Hg, Cr^{6+}, PBBs, PBDEs content in the submitted sample in accordance with EU RoHS Directive 2011/65/EU(RoHS) and its amendment directives on XRF and Chemical Method. **Pass**

Test Methods:

A: Screening by X-ray Fluorescence Spectrometry (XRF) :With reference to IEC 62321-3-1:2013 Ed 1.0 Screening – Lead, mercury, cadmium, total chromium and total bromine by X-ray fluorescence spectrometry

B: Chemical test:

Test Item	Test Method	Measuring Instrument	MDL
Cadmium (Cd)	IEC 62321-5:2013 Ed 1.0 Section 7	ICP-OES	2 mg/kg
Lead (Pb)	IEC 62321-5:2013 Ed 1.0 Section 7	ICP-OES	2 mg/kg
Mercury (Hg)	IEC 62321-4:2013 Ed 1.0 Section 7	ICP-OES	2 mg/kg
Non-metal Hexavalent Chromium (Cr^{6+})	IEC 62321-7-2:2017 Ed 1.0	UV-Vis	1 mg/kg
Metal Hexavalent Chromium (Cr^{6+})	IEC 62321-7-1:2015 Ed 1.0	UV-Vis	/
PBBs/PBDEs	IEC 62321-6:2015 Ed 1.0	GC-MS	5 mg/kg

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Test Results:

A、EU RoHS Directive 2011/65/EU and its amendment directives on XRF

Seq. No.	Tested Part(s)	Results(mg/kg)				
		Cd	Pb	Hg	Cr	Br
1	Black handle (audio plug)	BL	BL	BL	BL	BL
2	Tin solder (audio plug)	BL	BL	BL	X*	-
3	Metal ring (audio plug)	BL	BL	BL	BL	-
4	Metal head (audio plug)	BL	BL	BL	BL	-
5	Black inner rubber (audio plug)	BL	BL	BL	BL	BL
6	Black exterior cable (wire rod)	BL	BL	BL	BL	BL
7	Red cable (wire rod)	BL	BL	BL	BL	BL
8	White cable (wire rod)	BL	BL	BL	BL	BL
9	Wire core (wire rod)	BL	BL	BL	BL	-
10	Green cable (wire rod)	BL	BL	BL	BL	BL
Charging USB line						
11	Black handle (USB plug)	BL	BL	BL	BL	BL
12	Tin solder (USB plug)	BL	BL	BL	BL	-
13	White plastic plug (USB plug)	BL	BL	BL	X*	BL
14	Pin (USB plug)	BL	BL	BL	BL	-
15	Metal shell (USB plug)	BL	BL	BL	BL	-
16	Black handle (Android plug)	BL	BL	BL	BL	BL
17	Tin solder (Android plug)	BL	BL	BL	X*	-
18	Plastic plug (Android plug)	BL	BL	BL	BL	X*
19	Pin (Android plug)	BL	BL	BL	BL	-
20	Metal needle (Android plug)	BL	BL	BL	X*	-
21	Pink cable (wire rod)	BL	BL	BL	BL	BL
22	White cable (wire rod)	BL	BL	BL	BL	BL
23	Black exterior cable (wire rod)	BL	BL	BL	X*	BL
24	Wire core (wire rod)	BL	BL	BL	BL	-

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Element	Unit	Non-metal	Metal	Composite Material
Cd	mg/kg	BL≤70-3σ<X <130+3σ≤OL	BL≤70-3σ<X <130+3σ≤OL	BL≤50-3σ<X <150+3σ≤OL
Pb	mg/kg	BL≤700-3σ<X <1300+3σ≤OL	BL≤700-3σ<X <1300+3σ≤OL	BL≤500-3σ<X <1500+3σ≤OL
Hg	mg/kg	BL≤700-3σ<X <1300+3σ≤OL	BL≤700-3σ<X <1300+3σ≤OL	BL≤500-3σ<X <1500+3σ≤OL
Cr	mg/kg	BL≤700-3σ<X	BL≤700-3σ<X	BL≤500-3σ<X
Br	mg/kg	BL≤300-3σ<X	-	BL≤250-3σ<X

Note: BL= Below Limit
OL= Over limited
X= Inconclusive
"-"= Not regulated
*= Scanning by XRF and detected by chemical method. The test results of chemical method please refer to next pages.

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Remark:

i Results were obtained by XRF for primary scanning, 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 above warning value according to IEC 62321-3-1:2013 Ed 1.0.

ii The XRF scanning test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.

iii The maximum permissible limit is quoted from the document 2005/618/EC amending RoHS directive 2011/65/EU:

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

Disclaimers:

This XRF Scanning 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 scanning 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.

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Test Report

B、The Test Results of Chemical Method:

1）The Test Results of non-metal Cr^{6+}

Test Item(s)	Unit	Result(s)		Limit
		13	23	
Hexavalent Chromium(Cr^{6+})	mg/kg	N.D.	N.D.	1000

Note: N.D. = Not Detected or less than MDL
MDL = Method Detection Limit

2)The Test Results of metal Cr^{6+}

Test Item(s)	MDL	Result(s)			Limit
		2	17	20	
Hexavalent Chromium (Cr^{6+})	See note	Negative	Negative	Negative	#

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Note:

- Negative = Absence of Cr(Ⅵ) on the tested areas
- MDL = Method Detection Limit
- Boiling-water-extraction:

Number	Colorimetric result (Cr(VI) concentration)	**Qualitative result**
1	The sample solution is<the 0,10 μg/cm^2 equivalent comparison standard solution	The sample is negative for Cr(VI) − The Cr(VI) concentration is below the limit of quantification. The coating is considered a non-Cr(VI) based coating.
2	The sample solution is ≥ the 0,10 μg/cm^2 and ≤ the0,13 μg/cm^2 equivalent comparison standard solutions	The result is considered to be inconclusive – Unavoidable coating variations may influence the determination.
3	The sample solution is > the 0,13 μg/cm^2 equivalent comparison standard solution	The sample is positive for Cr(VI) − The Cr(VI) concentration is above the limit of quantification and the statistical margin of error. The sample coating is considered to contain Cr(VI).

- # =Negative indicates the absence of Cr(Ⅵ) on the tested areas concentration is below the limit of quantification. The coating is considered a non-Cr(VI) based coating.

Uncertainty indicates the absence of Cr(Ⅵ) on the tested areas unavoidable coating variations may influence the determination.

Positive indicates the presence of Cr(Ⅵ) on the tested areas concentration is above the limit of quantification and the statistical margin of error. The sample coating is considered to contain Cr(VI).

Storage conditions and production date of the tested sample are unavailable and thus result of Cr(VI) represent status of the sample at the time of testing.

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3）The Test Results of PBBs & PBDEs

Unit: mg/kg

Item(s)	MDL	Result(s)	Limit
		18	
Polybrominated Biphenyls (PBBs)			
Monobromobiphenyl	5	N.D.	Total PBBs Content <1000
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.	
Polybrominated Diphenylethers (PBDEs)			
Monobromodiphenyl ether	5	N.D.	Total PBDEs Content <1000
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.	
Conclusion	/	**Pass**	/

Note: N.D. = Not Detected or less than MDL
MDL = Method Detection Limit

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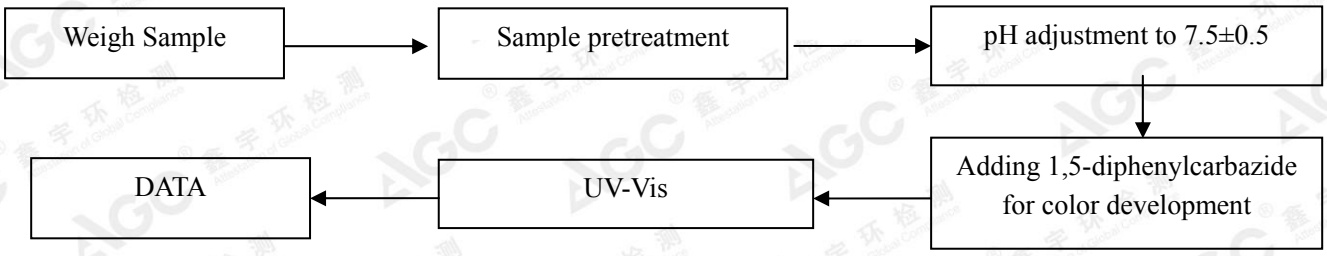
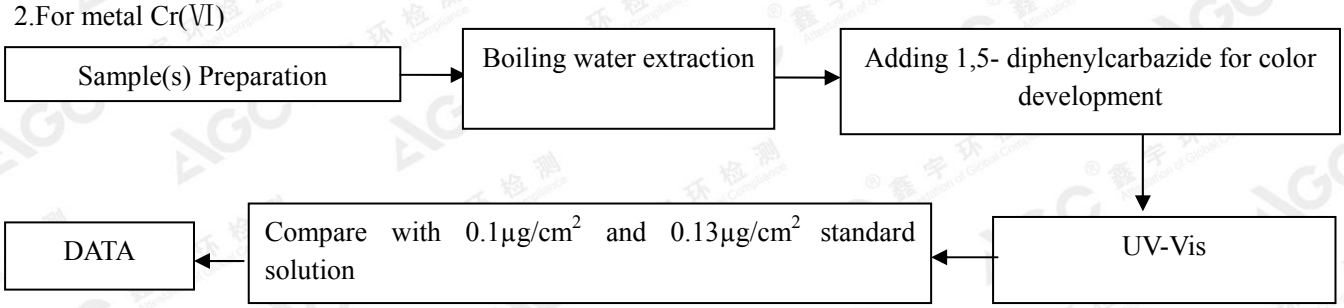
Test Flow Chart

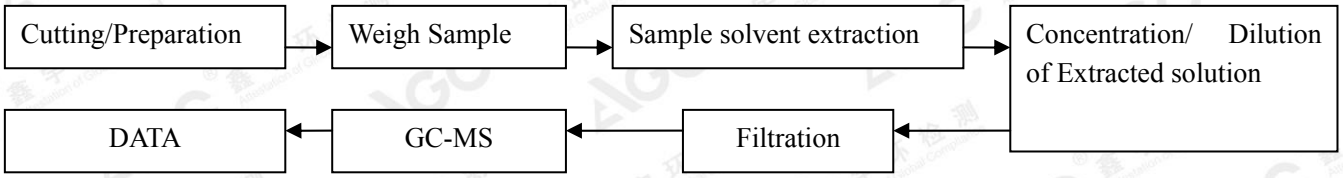
1.For non-metal Cr(Ⅵ)



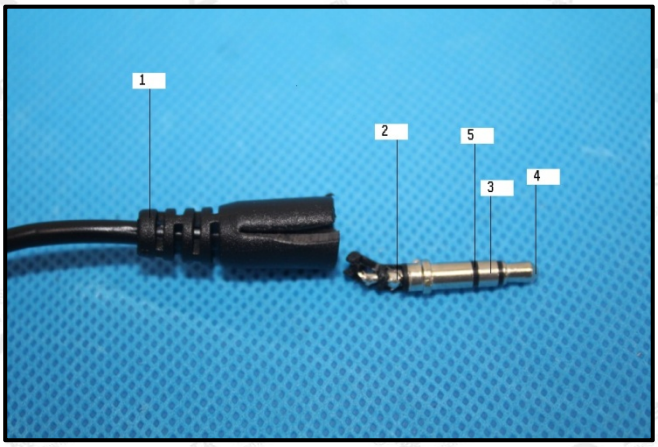
2.For metal Cr(Ⅵ)



3.For PBBs & PBDEs



The photo of the sample



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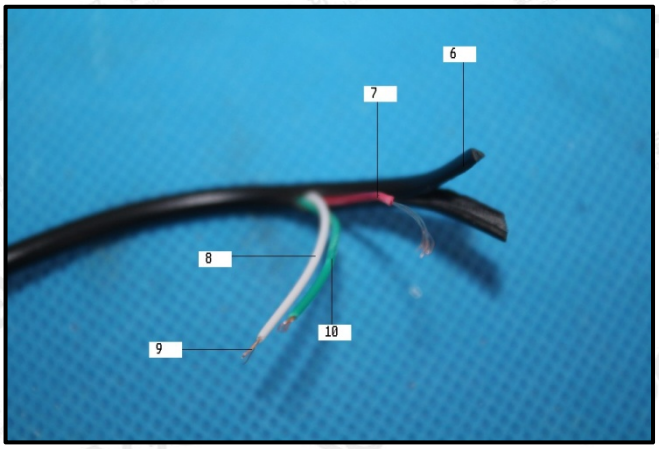

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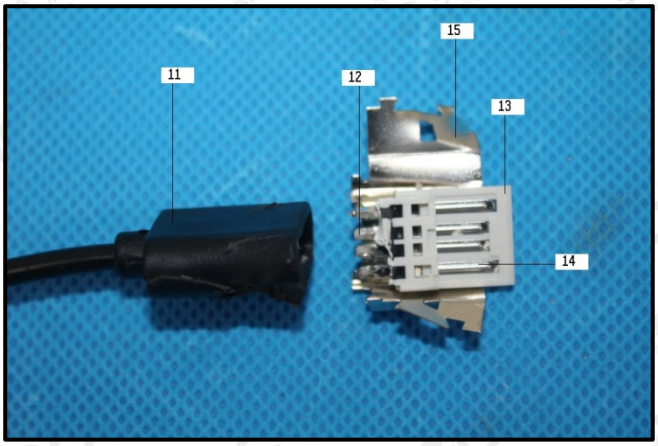

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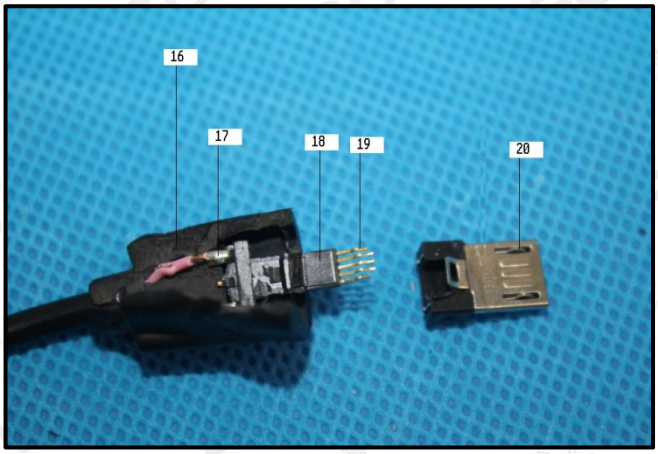

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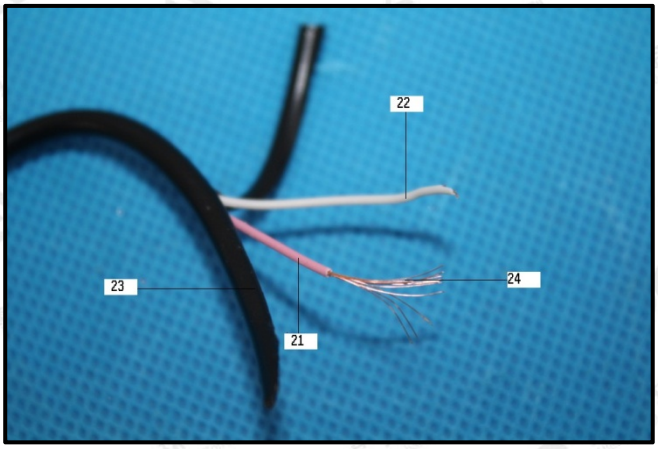

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6

AGC authenticate the photo only on original report

*** End of Report ***