

Test Report

Report No.: AGC01978190501-001

Date: May 17, 2019

Page 1 of 10

Applicant:

Address:

Test site:

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

Sample Name: Air Mousepad with 5W wireless charging, black

Sample Model: P308.251

Country of Origin: CHINA

Country of Destination: EUROPE

Sample Received Date: May 10, 2019

Testing Period: May 10, 2019 to May 17, 2019

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

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

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

Approved by: 
Liulinwen, Lewis
Technical Director



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Test Report

Report No.: AGC01978190501-001

Date: May 17, 2019

Page 2 of 10

Test Requested:

1. As specified by client, to determine the Pb, Cd, Hg, Cr⁶⁺, 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.
2. As specified by client, to determine the DBP, BBP, DEHP, DIBP content in the submitted sample in accordance with Directive 2011/65/EU (RoHS) and its amendment directive (EU) 2015/863.

Conclusion

Pass

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	ICP-OES	2 mg/kg
Lead (Pb)	IEC 62321-5:2013 Ed 1.0	ICP-OES	2 mg/kg
Mercury (Hg)	IEC 62321-4: 2013+A1:2017 Ed 1.1	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 Report

Report No.: AGC01978190501-001

Date: May 17, 2019

Page 3 of 10

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 cloth(mouse pad)	BL	BL	BL	BL	X*
2	Gray washer(mouse pad)	BL	BL	BL	BL	BL
3	Black plastic mat(mouse pad)	BL	BL	BL	BL	BL
4	Paper board(mouse pad)	BL	BL	BL	BL	BL
5	Black wire(mouse pad)	BL	BL	BL	BL	BL
6	Gray EVA board(mouse pad)	BL	BL	BL	BL	BL
7	Black leather(mouse pad)	BL	BL	BL	BL	BL
8	Glue (mouse pad)	BL	BL	BL	BL	BL
9	Black EVA foam(mouse pad)	BL	BL	BL	BL	BL
10	Tin solder	BL	BL	BL	BL	-
11	PCB board	BL	BL	BL	BL	BL
12	IC body	BL	BL	BL	BL	BL
13	Tin plating	BL	BL	BL	BL	-
14	Chip capacitor	BL	BL	BL	BL	BL
15	Chip diode	BL	BL	BL	BL	BL
16	Chip resistor	BL	BL	BL	BL	BL
17	USB metal joint(USB joint)	BL	BL	BL	BL	-
18	Black plastic joint(USB joint)	BL	BL	BL	BL	BL
19	Pin(USB joint)	BL	BL	BL	BL	-
20	Black plastic cover	BL	BL	BL	BL	BL
21	Micro metal joint(Micro joint)	BL	BL	BL	BL	-
22	Black plastic joint(Micro joint)	BL	BL	BL	BL	BL
23	Pin(Micro joint)	BL	BL	BL	BL	-
24	Chip LED	BL	BL	BL	BL	BL

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Test Report

Report No.: AGC01978190501-001
Date: May 17, 2019
Page 4 of 10

Seq. No.	Tested Part(s)	Results(mg/kg)				
		Cd	Pb	Hg	Cr	Br
25	Metal film capacitor	BL	BL	BL	BL	BL
26	Pin	BL	BL	BL	BL	-
27	Gray ceramic sheet(Induction coil)	BL	BL	BL	BL	BL
28	Blue transparent tape(Induction coil)	BL	BL	BL	BL	BL
29	Wire ring wire jacket(Induction coil)	BL	BL	BL	BL	BL
30	Enameled wire(Induction coil)	BL	BL	BL	BL	-

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

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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Test Report

Report No.: AGC01978190501-001

Date: May 17, 2019

Page 5 of 10

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 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

Report No.: AGC01978190501-001

Date: May 17, 2019

Page 6 of 10

B、The Test Results of Chemical Method:

1) The Test Results of PBBs & PBDEs

Unit: mg/kg

Item(s)	MDL	Result(s)	Limit
		1	
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
 mg/kg = parts per million
 MDL = Method Detection Limit

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Test Report

Report No.: AGC01978190501-001

Date: May 17, 2019

Page 7 of 10

2.Test result of DBP, BBP, DEHP, DIBP content

Unit: mg/kg

Test Item(s)	Test Method/ Equipment	MDL	Result(s)				Limit
			1	2	3	4	
Di-(2-ethylhexyl) Phthalate (DEHP)	Refer to IEC 62321-8:2017 GC-MS	50	N.D.	N.D.	N.D.	N.D.	1000
Dibutyl phthalate (DBP)		50	N.D.	N.D.	N.D.	N.D.	1000
Butylbenzyl phthalate (BBP)		50	N.D.	N.D.	N.D.	N.D.	1000
Di-iso-butyl phthalate (DIBP)		50	N.D.	N.D.	N.D.	N.D.	1000
Conclusion		/	Pass	Pass	Pass	Pass	/

Unit: mg/kg

Test Item(s)	Test Method/ Equipment	MDL	Result(s)				Limit
			5	6	7	8	
Di-(2-ethylhexyl) Phthalate (DEHP)	Refer to IEC 62321-8:2017 GC-MS	50	N.D.	N.D.	N.D.	N.D.	1000
Dibutyl phthalate (DBP)		50	N.D.	N.D.	N.D.	N.D.	1000
Butylbenzyl phthalate (BBP)		50	N.D.	N.D.	N.D.	N.D.	1000
Di-iso-butyl phthalate (DIBP)		50	N.D.	N.D.	N.D.	N.D.	1000
Conclusion		/	Pass	Pass	Pass	Pass	/

Unit: mg/kg

Test Item(s)	Test Method/ Equipment	MDL	Result(s)				Limit
			9	11	12	14	
Di-(2-ethylhexyl) Phthalate (DEHP)	Refer to IEC 62321-8:2017 GC-MS	50	N.D.	N.D.	N.D.	N.D.	1000
Dibutyl phthalate (DBP)		50	N.D.	N.D.	N.D.	N.D.	1000
Butylbenzyl phthalate (BBP)		50	N.D.	N.D.	N.D.	N.D.	1000
Di-iso-butyl phthalate (DIBP)		50	N.D.	N.D.	N.D.	N.D.	1000
Conclusion		/	Pass	Pass	Pass	Pass	/

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Test Report

Report No.: AGC01978190501-001
Date: May 17, 2019
Page 8 of 10

Unit: mg/kg

Test Item(s)	Test Method/ Equipment	MDL	Result(s)				Limit
			15	16	18	20	
Di-(2-ethylhexyl) Phthalate (DEHP)	Refer to IEC 62321-8:2017 GC-MS	50	N.D.	N.D.	N.D.	N.D.	1000
Dibutyl phthalate (DBP)		50	N.D.	N.D.	N.D.	N.D.	1000
Butylbenzyl phthalate (BBP)		50	N.D.	N.D.	N.D.	N.D.	1000
Di-iso-butyl phthalate (DIBP)		50	N.D.	N.D.	N.D.	N.D.	1000
Conclusion		/	Pass	Pass	Pass	Pass	/

Unit: mg/kg

Test Item(s)	Test Method/ Equipment	MDL	Result(s)				Limit
			22	24	25	27	
Di-(2-ethylhexyl) Phthalate (DEHP)	Refer to IEC 62321-8:2017 GC-MS	50	N.D.	N.D.	N.D.	N.D.	1000
Dibutyl phthalate (DBP)		50	N.D.	N.D.	N.D.	N.D.	1000
Butylbenzyl phthalate (BBP)		50	N.D.	N.D.	N.D.	N.D.	1000
Di-iso-butyl phthalate (DIBP)		50	N.D.	N.D.	N.D.	N.D.	1000
Conclusion		/	Pass	Pass	Pass	Pass	/

Unit: mg/kg

Test Item(s)	Test Method/ Equipment	MDL	Result(s)		Limit
			28	29	
Di-(2-ethylhexyl) Phthalate (DEHP)	Refer to IEC 62321-8:2017 GC-MS	50	N.D.	N.D.	1000
Dibutyl phthalate (DBP)		50	N.D.	N.D.	1000
Butylbenzyl phthalate (BBP)		50	N.D.	N.D.	1000
Di-iso-butyl phthalate (DIBP)		50	N.D.	N.D.	1000
Conclusion		/	Pass	Pass	/

- Note:**
1. MDL = Method Detection Limit
 2. N.D. = Not Detected (less than method detection limit)

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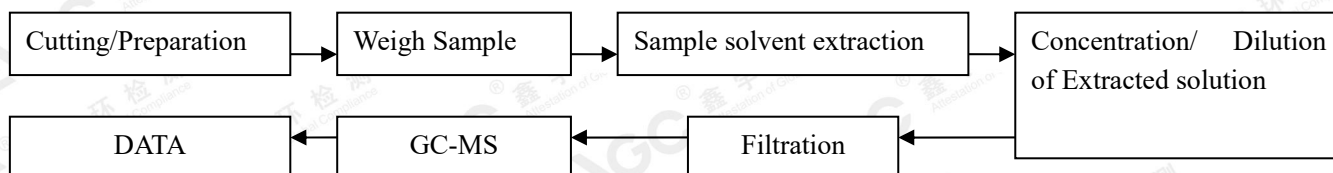
Report No.: AGC01978190501-001

Date: May 17, 2019

Page 9 of 10

Test Flow Chart

1. For PBBs, PBDEs, DBP, BBP, DEHP, DIBP



The photo of the sample



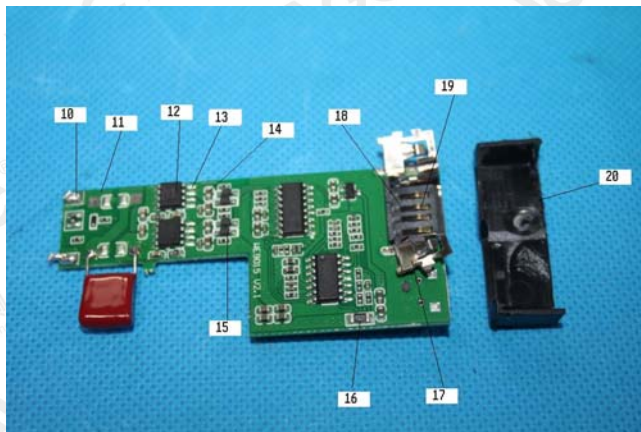
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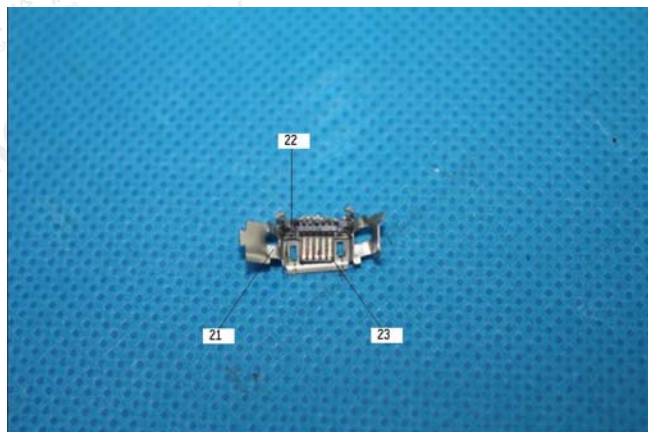
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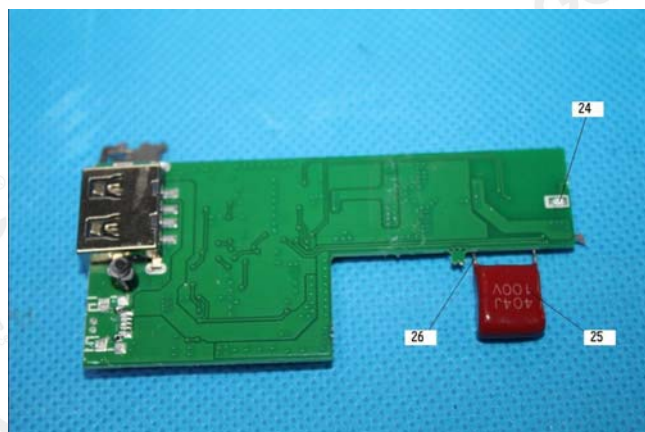
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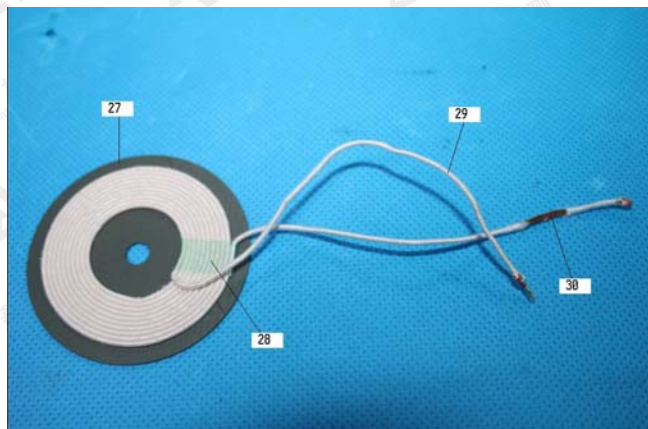
Page 10 of 10



5



6



7



8

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