

Shenzhen Center for Analysis and Measurement of Material Surface

Test Report

Report No.: SAC2017-07917E

Date: Dec.8, 2017

Page 1 of 10

Customer :

Address :

Sample Information:

Sample Name : Bluetooth Neckband Earphone
Sample Description : Please refer to the following page(s).
Model/Style : BTH-30
Lot No. : /
Material : /
Buyer : /
Supplier : /
Manufacturer : /
Received Date : Dec.4, 2017
Test Period : Dec.4, 2017~Dec.8, 2017
Test Requested : As specified by customer, to screen Pb, Cd, Hg, Cr, Br content by XRF and test its accurate content with Chemical method.

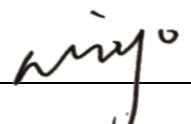
Test Method:

Test Item(s)	Test Method	Equipment	MDL
Pb, Cd, Hg, Cr, Br	IEC 62321-3-1:2013	XRF	5mg/kg
Pb, Cd	IEC 62321-5:2013	ICP-OES	2mg/kg
Hg	IEC 62321-4:2013	ICP-OES	2mg/kg
Cr ⁶⁺	IEC 62321-7-2:2017	UV-Vis	2mg/kg
	IEC 62321-7-1:2015		0.10 µg/cm ²
PBBs, PBDEs	IEC 62321-6:2015	GC-MS	5mg/kg

Note: /

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

Test Conclusion: To test according to the requirements of the customer, the test results of the sample shown in this report do not exceed the required limit of EU RoHS 2011/65/EU.

Edited by: Audited by: Approved by: 

Shenzhen Center for Analysis and Measurement of Material Surface

Test Report

Report No.: SAC2017-07917E

Date: Dec.8, 2017

Page 2 of 10

Test Result(s):

No.	Sample Description	Test Items	Results of XRF (P/F/D)	Results of testing (mg/kg)	Limit (mg/kg)	Unit	Conclusion (P/F)
No.1	Black silicone (earplug sleeve)	Pb	P	/	≤1000	mg/kg	P
		Cd	P	/	≤100	mg/kg	P
		Hg	P	/	≤1000	mg/kg	P
		Cr ⁶⁺	P	/	≤1000	mg/kg	P
		PBBs	P	/	≤1000	mg/kg	P
		PBDEs	P	/	≤1000	mg/kg	P
No.2	Black plastic chamber	Pb	P	/	≤1000	mg/kg	P
		Cd	P	/	≤100	mg/kg	P
		Hg	P	/	≤1000	mg/kg	P
		Cr ⁶⁺	P	/	≤1000	mg/kg	P
		PBBs	P	/	≤1000	mg/kg	P
		PBDEs	P	/	≤1000	mg/kg	P
No.3	Silvery metal (horn)	Pb	P	/	≤1000	mg/kg	P
		Cd	P	/	≤100	mg/kg	P
		Hg	P	/	≤1000	mg/kg	P
		Cr ^{6+*}	D	N.D.	—	μg/cm ²	/
		PBBs	/	/	≤1000	mg/kg	/
		PBDEs	/	/	≤1000	mg/kg	/
No.4	Gray metal (magnet)	Pb	P	/	≤1000	mg/kg	P
		Cd	P	/	≤100	mg/kg	P
		Hg	P	/	≤1000	mg/kg	P
		Cr ^{6+*}	P	/	—	μg/cm ²	/
		PBBs	/	/	≤1000	mg/kg	/
		PBDEs	/	/	≤1000	mg/kg	/
No.5	Flat black plastic wire jacket	Pb	P	/	≤1000	mg/kg	P
		Cd	P	/	≤100	mg/kg	P
		Hg	P	/	≤1000	mg/kg	P
		Cr ⁶⁺	P	/	≤1000	mg/kg	P
		PBBs	P	/	≤1000	mg/kg	P
		PBDEs	P	/	≤1000	mg/kg	P
No.6	Copper metal ring	Pb	P	/	≤1000	mg/kg	P
		Cd	P	/	≤100	mg/kg	P
		Hg	P	/	≤1000	mg/kg	P
		Cr ^{6+*}	P	/	—	μg/cm ²	/
		PBBs	/	/	≤1000	mg/kg	/
		PBDEs	/	/	≤1000	mg/kg	/

Shenzhen Center for Analysis and Measurement of Material Surface

Test Report

Report No.: SAC2017-07917E

Date: Dec.8, 2017

Page 3 of 10

No.	Sample Description	Test Items	Results of XRF (P/F/D)	Results of testing (mg/kg)	Limit (mg/kg)	Unit	Conclusion (P/F)
No.7	Copper metal wire	Pb	P	/	≤1000	mg/kg	P
		Cd	P	/	≤100	mg/kg	P
		Hg	P	/	≤1000	mg/kg	P
		Cr ⁶⁺ *	P	/	—	μg/cm ²	/
		PBBs	/	/	≤1000	mg/kg	/
		PBDEs	/	/	≤1000	mg/kg	/
No.8	Golden metal wire	Pb	P	/	≤1000	mg/kg	P
		Cd	P	/	≤100	mg/kg	P
		Hg	P	/	≤1000	mg/kg	P
		Cr ⁶⁺ *	P	/	—	μg/cm ²	/
		PBBs	/	/	≤1000	mg/kg	/
		PBDEs	/	/	≤1000	mg/kg	/
No.9	Black soft plastic	Pb	P	/	≤1000	mg/kg	P
		Cd	P	/	≤100	mg/kg	P
		Hg	P	/	≤1000	mg/kg	P
		Cr ⁶⁺	P	/	≤1000	mg/kg	P
		PBBs	P	/	≤1000	mg/kg	P
		PBDEs	P	/	≤1000	mg/kg	P
No.10	Battery	Pb	P	/	≤1000	mg/kg	P
		Cd	P	/	≤100	mg/kg	P
		Hg	P	/	≤1000	mg/kg	P
		Cr ⁶⁺	P	/	≤1000	mg/kg	P
		PBBs	P	/	≤1000	mg/kg	P
		PBDEs	P	/	≤1000	mg/kg	P
No.11	Yellow plastic tape	Pb	P	/	≤1000	mg/kg	P
		Cd	P	/	≤100	mg/kg	P
		Hg	P	/	≤1000	mg/kg	P
		Cr ⁶⁺	P	/	≤1000	mg/kg	P
		PBBs	P	/	≤1000	mg/kg	P
		PBDEs	P	/	≤1000	mg/kg	P
No.12	Red plastic wire jacket	Pb	P	/	≤1000	mg/kg	P
		Cd	P	/	≤100	mg/kg	P
		Hg	P	/	≤1000	mg/kg	P
		Cr ⁶⁺	P	/	≤1000	mg/kg	P
		PBBs	P	/	≤1000	mg/kg	P
		PBDEs	P	/	≤1000	mg/kg	P

Shenzhen Center for Analysis and Measurement of Material Surface

Test Report

Report No.: SAC2017-07917E

Date: Dec.8, 2017

Page 4 of 10

No.	Sample Description	Test Items	Results of XRF (P/F/D)	Results of testing (mg/kg)	Limit (mg/kg)	Unit	Conclusion (P/F)
No.13	Black plastic wire jacket	Pb	P	/	≤1000	mg/kg	P
		Cd	P	/	≤100	mg/kg	P
		Hg	P	/	≤1000	mg/kg	P
		Cr ⁶⁺	P	/	≤1000	mg/kg	P
		PBBs	P	/	≤1000	mg/kg	P
		PBDEs	P	/	≤1000	mg/kg	P
No.14	Beige plastic tape	Pb	P	/	≤1000	mg/kg	P
		Cd	P	/	≤100	mg/kg	P
		Hg	P	/	≤1000	mg/kg	P
		Cr ⁶⁺	P	/	≤1000	mg/kg	P
		PBBs	P	/	≤1000	mg/kg	P
		PBDEs	P	/	≤1000	mg/kg	P
No.15	PCB	Pb	P	/	≤1000	mg/kg	P
		Cd	P	/	≤100	mg/kg	P
		Hg	P	/	≤1000	mg/kg	P
		Cr ⁶⁺	P	/	≤1000	mg/kg	P
		PBBs	D	N.D.	≤1000	mg/kg	P
		PBDEs	D	N.D.	≤1000	mg/kg	P
No.16	Silvery metal (USB connector)	Pb	P	/	≤1000	mg/kg	P
		Cd	P	/	≤100	mg/kg	P
		Hg	P	/	≤1000	mg/kg	P
		Cr ^{6+*}	P	/	—	μg/cm ²	/
		PBBs	/	/	≤1000	mg/kg	/
		PBDEs	/	/	≤1000	mg/kg	/
No.17	Tin solder	Pb	D	N.D.	≤1000	mg/kg	P
		Cd	P	/	≤100	mg/kg	P
		Hg	P	/	≤1000	mg/kg	P
		Cr ^{6+*}	P	/	—	μg/cm ²	/
		PBBs	/	/	≤1000	mg/kg	/
		PBDEs	/	/	≤1000	mg/kg	/
No.18	SMD capacitor	Pb	P	/	≤1000	mg/kg	P
		Cd	P	/	≤100	mg/kg	P
		Hg	P	/	≤1000	mg/kg	P
		Cr ⁶⁺	P	/	≤1000	mg/kg	P
		PBBs	P	/	≤1000	mg/kg	P
		PBDEs	P	/	≤1000	mg/kg	P

Shenzhen Center for Analysis and Measurement of Material Surface

Test Report

Report No.: SAC2017-07917E

Date: Dec.8, 2017

Page 5 of 10

No.	Sample Description	Test Items	Results of XRF (P/F/D)	Results of testing (mg/kg)	Limit (mg/kg)	Unit	Conclusion (P/F)
No.19	SMD resistor	Pb	P	/	≤1000	mg/kg	P
		Cd	P	/	≤100	mg/kg	P
		Hg	P	/	≤1000	mg/kg	P
		Cr ⁶⁺	P	/	≤1000	mg/kg	P
		PBBs	P	/	≤1000	mg/kg	P
		PBDEs	P	/	≤1000	mg/kg	P
No.20	Copper metal (button)	Pb	P	/	≤1000	mg/kg	P
		Cd	P	/	≤100	mg/kg	P
		Hg	P	/	≤1000	mg/kg	P
		Cr ^{6+*}	P	/	—	μg/cm ²	/
		PBBs	/	/	≤1000	mg/kg	/
		PBDEs	/	/	≤1000	mg/kg	/
No.21	Gray coating	Pb	P	/	≤1000	mg/kg	P
		Cd	P	/	≤100	mg/kg	P
		Hg	P	/	≤1000	mg/kg	P
		Cr ⁶⁺	P	/	≤1000	mg/kg	P
		PBBs	P	/	≤1000	mg/kg	P
		PBDEs	P	/	≤1000	mg/kg	P
No.22	Black coating	Pb	P	/	≤1000	mg/kg	P
		Cd	P	/	≤100	mg/kg	P
		Hg	P	/	≤1000	mg/kg	P
		Cr ⁶⁺	P	/	≤1000	mg/kg	P
		PBBs	P	/	≤1000	mg/kg	P
		PBDEs	P	/	≤1000	mg/kg	P
No.23	White plastic	Pb	P	/	≤1000	mg/kg	P
		Cd	P	/	≤100	mg/kg	P
		Hg	P	/	≤1000	mg/kg	P
		Cr ⁶⁺	P	/	≤1000	mg/kg	P
		PBBs	P	/	≤1000	mg/kg	P
		PBDEs	P	/	≤1000	mg/kg	P
No.24	Black plastic (button)	Pb	P	/	≤1000	mg/kg	P
		Cd	P	/	≤100	mg/kg	P
		Hg	P	/	≤1000	mg/kg	P
		Cr ⁶⁺	P	/	≤1000	mg/kg	P
		PBBs	P	/	≤1000	mg/kg	P
		PBDEs	P	/	≤1000	mg/kg	P

Shenzhen Center for Analysis and Measurement of Material Surface

Test Report

Report No.: SAC2017-07917E

Date: Dec.8, 2017

Page 6 of 10

No.	Sample Description	Test Items	Results of XRF (P/F/D)	Results of testing (mg/kg)	Limit (mg/kg)	Unit	Conclusion (P/F)
No.25	Black screws	Pb	P	/	≤1000	mg/kg	P
		Cd	P	/	≤100	mg/kg	P
		Hg	P	/	≤1000	mg/kg	P
		Cr ⁶⁺ *	P	/	—	μg/cm ²	/
		PBBs	/	/	≤1000	mg/kg	/
		PBDEs	/	/	≤1000	mg/kg	/
No.26	Black plastic wire jacket	Pb	P	/	≤1000	mg/kg	P
		Cd	P	/	≤100	mg/kg	P
		Hg	P	/	≤1000	mg/kg	P
		Cr ⁶⁺	P	/	≤1000	mg/kg	P
		PBBs	P	/	≤1000	mg/kg	P
		PBDEs	P	/	≤1000	mg/kg	P
No.27	Silvery metal (cable)	Pb	P	/	≤1000	mg/kg	P
		Cd	P	/	≤100	mg/kg	P
		Hg	P	/	≤1000	mg/kg	P
		Cr ⁶⁺ *	P	/	—	μg/cm ²	/
		PBBs	/	/	≤1000	mg/kg	/
		PBDEs	/	/	≤1000	mg/kg	/
No.28	Black plastic (cable)	Pb	P	/	≤1000	mg/kg	P
		Cd	P	/	≤100	mg/kg	P
		Hg	P	/	≤1000	mg/kg	P
		Cr ⁶⁺	P	/	≤1000	mg/kg	P
		PBBs	P	/	≤1000	mg/kg	P
		PBDEs	P	/	≤1000	mg/kg	P
No.29	Black plastic wire jacket (cable)	Pb	P	/	≤1000	mg/kg	P
		Cd	P	/	≤100	mg/kg	P
		Hg	P	/	≤1000	mg/kg	P
		Cr ⁶⁺	P	/	≤1000	mg/kg	P
		PBBs	P	/	≤1000	mg/kg	P
		PBDEs	P	/	≤1000	mg/kg	P

Remark:

- (1) It is the result on total Br while test PBBs and PBDEs by XRF. It is the result on total Cr while test Hexavalent Chromium by XRF.
- (2) Results are obtained by XRF for primary screening, and chemical testing by ICP-OES (for Pb, Cd, Hg), UV-Vis (for Cr⁶⁺) and GC-MS (for PBBs, PBDEs) is recommended to be performed, if the concentration

Shenzhen Center for Analysis and Measurement of Material Surface

Test Report

Report No.: SAC2017-07917E

Date: Dec.8, 2017

Page 7 of 10

exceeds the below warning value according to IEC 62321:2008 (unit: mg/kg).

Element	Polymer	Metal	Composite Materials
Pb	$P \leq 700 - 3\sigma < D < 1300 + 3\sigma \leq F$	$P \leq 700 - 3\sigma < D < 1300 + 3\sigma \leq F$	$P \leq 500 - 3\sigma < D < 1500 + 3\sigma \leq F$
Cd	$P \leq 70 - 3\sigma < D < 130 + 3\sigma \leq F$	$P \leq 70 - 3\sigma < D < 130 + 3\sigma \leq F$	$P \leq 50 - 3\sigma < D < 150 + 3\sigma \leq F$
Hg	$P \leq 700 - 3\sigma < D < 1300 + 3\sigma \leq F$	$P \leq 700 - 3\sigma < D < 1300 + 3\sigma \leq F$	$P \leq 500 - 3\sigma < D < 1500 + 3\sigma \leq F$
Cr	$P \leq 700 - 3\sigma < D$	$P \leq 700 - 3\sigma < D$	$P \leq 500 - 3\sigma < D$
Br	$P \leq 300 - 3\sigma < D$	----	$P \leq 250 - 3\sigma < D$

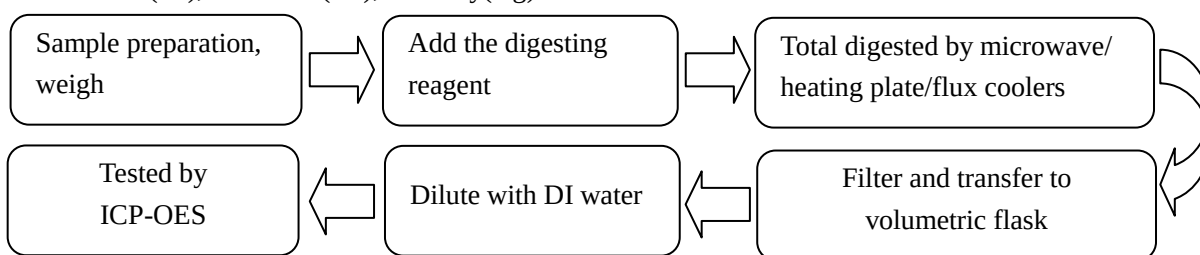
P = PASS, F = FAIL, D = DETECTED

(3) mg/kg = ppm, N.D. = Not Detected (<MDL), MDL=method detection limit

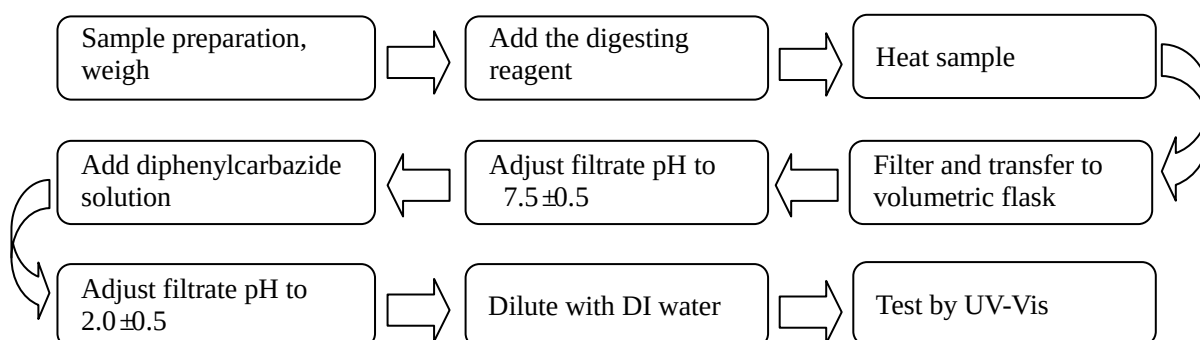
- (4) *a. The sample is positive for Cr^{6+} if the Cr^{6+} concentration is greater than $0.13 \mu\text{g}/\text{cm}^2$, The sample coating is considered to contain Cr^{6+} .
- b. The sample is negative for Cr^{6+} if the Cr^{6+} is N.D. (concentration less than $0.10 \mu\text{g}/\text{cm}^2$), The coating is considered a non- Cr^{6+} based coating.
- c. The result between $0.10 \mu\text{g}/\text{cm}^2$ and $0.13 \mu\text{g}/\text{cm}^2$ is considered to be inconclusive-unavoidable coating variations may influence the determination information on storage conditions and production date of the tested sample is unavailable and thus Cr^{6+} results represent status of the sample at the time of testing.

Test Process:

1. Test Lead(Pb), Cadmium(Cd), Mercury(Hg) concentration:



2. Test Hexavalent Chromium(Cr^{6+}) concentration for non-metallic samples:



Shenzhen Center for Analysis and Measurement of Material Surface

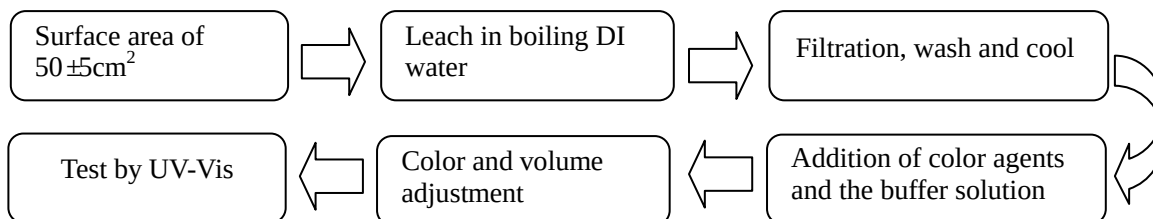
Test Report

Report No.: SAC2017-07917E

Date: Dec.8, 2017

Page 8 of 10

3. Test Hexavalent Chromium(Cr^{6+}) concentration for metallic samples:



4. Test PBBs, PBDEs concentration:

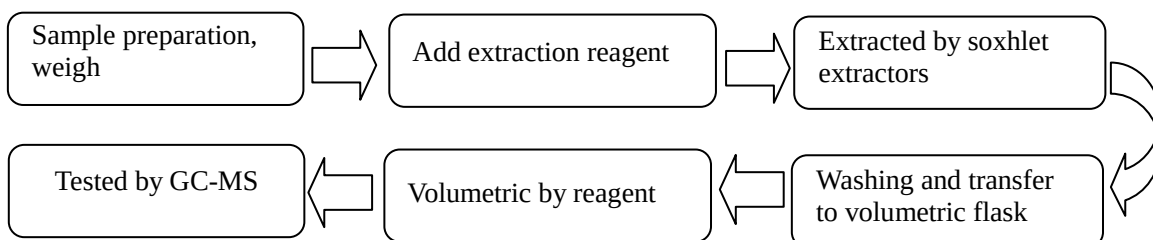


Photo of the sample



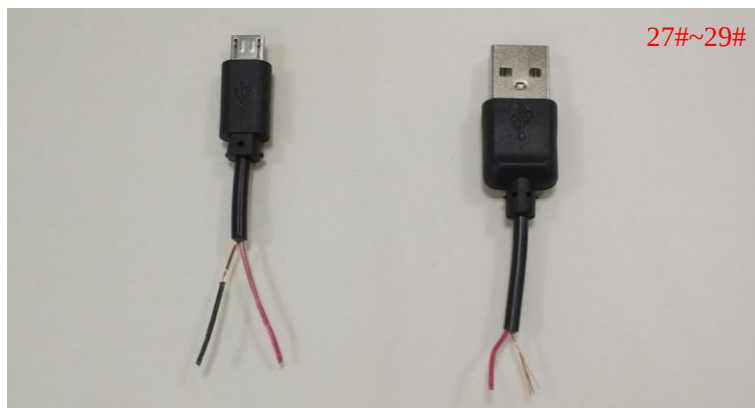
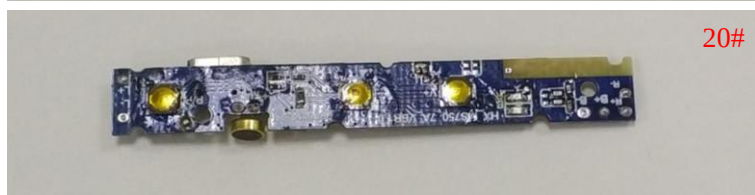
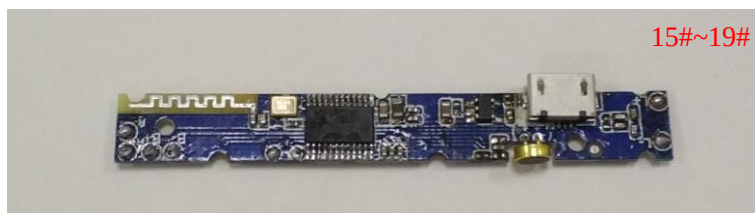
Shenzhen Center for Analysis and Measurement of Material Surface

Test Report

Report No.: SAC2017-07917E

Date: Dec.8, 2017

Page 9 of 10



Shenzhen Center for Analysis and Measurement of Material Surface

Test Report

Report No.: SAC2017-07917E

Date: Dec.8, 2017

Page 10 of 10



*** End of report ***

This report is invalid without the Special Seal of our Center. This report shall not be altered, increased or deleted. The results shown in this report refer only to the sample(s) tested.

Authenticity query URL of report : www.szsac.com Anti-counterfeiting code : AA527F