

App	licant:
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Address:

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

Sample Name : TWS Airbuds

Sample Model :

Trademark : N/A

Manufacturer :

Address :

Sample Received Date : Sep. 03, 2019

Testing Period : Sep. 03, 2019 to Sep. 11, 2019

Test Method : 1.Screening test method: IEC62321-3-1:2013/XRF

2.Wet chemical test method

Lead(Pb): IEC62321-5:2013/ICP-OES

Cadmium(Cd): IEC62321-5:2013/ICP-OES

Mercury(Hg): IEC62321-4:2013+A1: 2017/ICP-OES

Hexavalent Chromium(CrVI): IEC62321-7-1:2015/UV-VIS and

IEC62321-7-2:2017/UV-VIS

Polybrominated Biphenyls (PBBs):IEC62321-6:2015 /GC-MS

Polybrominated Biphenyl Ethers(PBDEs): IEC62321-6:2015 /GC-MS

3. Phthalates: IEC62321-8:2017 /GC-MS

Test Results : Refer to the next page(s).

Test Requested	Conclusion
{1}RoHS Directive 2011/65/EU Annex II – Lead(Pb), Cadmium(Cd),	PASS
Mercury(Hg), Hexavalent Chromium(CrVI), Polybrominated Biphenyls (PBBs),	<sup>(4)</sup>
Polybrominated Biphenyl Ethers(PBDEs)	
{2} RoHS Directive (EU)2015/863 amending Annex II - Dibutyl phthalate (DBP), Butyl	PASS
benzyl phthalate(BBP), Bis-(2-ethylhexyl)phthalate(DEHP), Di-iso-butyl	
ortho-phthalate(DIBP)	

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Test by:

Inspected by:

May Chen

Approved by:

Date: Sep. 23, 2019

{1} Pb 、Cd、Hg、CrVI、PBBs、PBDEs Test Results:

Part No.	Results	Cd	Pb	Hg	Cr <sup>6+</sup>	PBBs	PBDE s	Conclusion on RoHS
	EDXRF	BL	BL	BL	BL	BL	BL	<b></b>
1	Wet Chemical Testing	-		4	-	20	1	Comply
	EDXRF	BL	BL	BL	BL	BL	BL	-
2	Wet Chemical Testing	0/4		7.3	<u> 270</u>	( )	0	Comply
	EDXRF	BL	BL	BL	BL	BL	BL	
3	Wet Chemical Testing		/	-		1	1	Comply
	EDXRF	BL	BL	BL	BL	BL	BL	7 1-1
4	Wet Chemical Testing	(	\	1			4	Comply
	EDXRF	BL	BL	BL	BL	BL	BL	
5	Wet Chemical Testing	72			A	12/22	7-1	Comply
	EDXRF	BL	BL	BL	BL	BL	BL	
6	Wet Chemical Testing	1	20	08	-	-	Q	Comply
_ ^	EDXRF	BL	BL	BL	BL	BL	BL	/ //-
7	Wet Chemical Testing					1	//	Comply
	EDXRF	BL	BL	BL	BL	BL	BL	
8	Wet Chemical Testing						<u> </u>	Comply
	EDXRF	BL	BL	BL	BL	BL	BL	
9	Wet Chemical Testing							Comply
40	EDXRF	BL	BL	BL	BL	BL	BL	
10	Wet Chemical Testing							Comply
4.4	EDXRF	BL	BL	BL	BL	BL	BL	
11	Wet Chemical Testing							Comply

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## **Test Report**

Part No.	Results	Cd	Pb	Hg	Cr <sup>6+</sup>	PBBs	PBDE s	Conclusion on RoHS	
	EDXRF	BL	BL	BL	BL	BL	BL		
12	Wet Chemical Testing			1				Comply	
	EDXRF	BL	BL	BL	BL	BL	BL	-	
13	Wet Chemical Testing			1				Comply	
	EDXRF	BL	BL	BL	BL	BL	BL		
14	Wet Chemical Testing							Comply	
. =	EDXRF	BL	BL	BL	BL	BL	BL	<u></u>	
15	Wet Chemical Testing	_				1/2		Comply	
4.0	EDXRF	BL	BL	BL	BL	BL	BL	-	
16	Wet Chemical Testing				<u></u> //	7	(a)	Comply	
/	EDXRF	BL	BL	BL	BL	BL	BL	111-	
17	Wet Chemical Testing	7		-	1.		1.4	Comply	
	EDXRF	BL	BL	BL	BL	BL	BL		
18	Wet Chemical Testing	<b>8</b>	\		)	Tip.	7 - 0	Comply	
	EDXRF	BL	BL	BL	BL	BL	BL		
19	Wet Chemical Testing				<i>[</i>	1	1-1	Comply	
	EDXRF	BL	BL	BL	BL	BL	BL	//	
20	Wet Chemical Testing		20	08	3		.2	Comply	
0.4	EDXRF	BL	BL	BL	BL	BL	BL	/ ///	
21	Wet Chemical Testing	-				1	-//	Comply	
	EDXRF	BL	BL	BL	BL	BL	BL	<u></u>	
22	Wet Chemical Testing					-		Comply	
00	EDXRF	BL	BL	BL	BL	BL	BL		
23	Wet Chemical Testing							Comply	
0.4	EDXRF	BL	BL	BL	BL	BL	BL		
24	Wet Chemical Testing							Comply	
	EDXRF	BL	BL	BL	BL	BL	BL		
25	Wet Chemical Testing							Comply	

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Part No.	Results	Cd	Pb	Hg	Cr <sup>6+</sup>	PBBs	PBDE s	Conclusion on RoHS
	EDXRF	BL	BL	BL	BL	BL	BL	
26	Wet Chemical Testing			1		-1		Comply
	EDXRF	BL	BL	BL	BL	BL	BL	-
27	Wet Chemical Testing			1	-	ŀ	-	Comply
	EDXRF	BL	BL	BL	BL	BL	BL	-
28	Wet Chemical Testing							Comply
	EDXRF	BL	BL	BL	BL	BL	BL	
29	Wet Chemical Testing			1	1	1/2	-	Comply
	EDXRF	BL	BL	BL	BL	BL	BL	
30	Wet Chemical Testing						0	Comply
	EDXRF	BL	BL	BL	BL	BL	BL	
31	Wet Chemical Testing	<u> </u>	/	1			7	Comply
	EDXRF	BL	BL	BL	BL	BL	BL	-
32	Wet Chemical Testing	<i>N</i>	\		]	Tab	7-0	Comply
	EDXRF	BL	BL	BL	BL	BL	BL	1-1
33	Wet Chemical Testing		Y				1-1	Comply

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#### Remark:

- (a) It is the result on total Br while test item on restricted substances is PBBs/PBDEs. It is the result on total Cr while test item on restricted substances is Cr6+.
- (b) Results are obtained by EDXRF for primary screening, and further chemical testing by ICP (for Cd, Pb,Hg), UV-VIS (for CrVI) 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) <x<(130+30σ)≤ol< td=""><td>BL≤(70-3σ)<x<(130+30σ)≤ol< td=""><td colspan="3">LOD<x<(150+30σ)≤ol< td=""></x<(150+30σ)≤ol<></td></x<(130+30σ)≤ol<></td></x<(130+30σ)≤ol<>	BL≤(70-3σ) <x<(130+30σ)≤ol< td=""><td colspan="3">LOD<x<(150+30σ)≤ol< td=""></x<(150+30σ)≤ol<></td></x<(130+30σ)≤ol<>	LOD <x<(150+30σ)≤ol< td=""></x<(150+30σ)≤ol<>		
Pb	BL≤(700-3σ) <x<(1300+30σ)≤ol< td=""><td>BL≤(700-3σ)<x<(1300+30σ)≤ol< td=""><td>BL≤(500-3σ)<x<(1300+30σ)≤ol< td=""></x<(1300+30σ)≤ol<></td></x<(1300+30σ)≤ol<></td></x<(1300+30σ)≤ol<>	BL≤(700-3σ) <x<(1300+30σ)≤ol< td=""><td>BL≤(500-3σ)<x<(1300+30σ)≤ol< td=""></x<(1300+30σ)≤ol<></td></x<(1300+30σ)≤ol<>	BL≤(500-3σ) <x<(1300+30σ)≤ol< td=""></x<(1300+30σ)≤ol<>		
Hg	BL≤(700-3σ) <x<(1300+30σ)≤ol< td=""><td>BL≤(700-3σ)<x<(1300+30σ)≤ol< td=""><td colspan="3">BL≤(500-3σ)<x<(1300+30σ)≤ol< td=""></x<(1300+30σ)≤ol<></td></x<(1300+30σ)≤ol<></td></x<(1300+30σ)≤ol<>	BL≤(700-3σ) <x<(1300+30σ)≤ol< td=""><td colspan="3">BL≤(500-3σ)<x<(1300+30σ)≤ol< td=""></x<(1300+30σ)≤ol<></td></x<(1300+30σ)≤ol<>	BL≤(500-3σ) <x<(1300+30σ)≤ol< td=""></x<(1300+30σ)≤ol<>		
Br	BL≤(300-3σ) <x< td=""><td></td><td>BL≤(250-3σ)<x< td=""></x<></td></x<>		BL≤(250-3σ) <x< td=""></x<>		
Cr	BL≤(700-3σ) <x< td=""><td>BL≤(700-3σ)<x< td=""><td>BL≤(500-3σ)<x< td=""></x<></td></x<></td></x<>	BL≤(700-3σ) <x< td=""><td>BL≤(500-3σ)<x< td=""></x<></td></x<>	BL≤(500-3σ) <x< td=""></x<>		

- (c) BL=Below Limit, OL=Over Limit, IN=Inconclusive, LOD=Limit of Detection,
- (d)The XRF screening test for RoHS elements The reading may be different to the actual content in the sample be of non-uniformity composition
- (e) mg/kg = ppm = 0.0001%, N.D. = not detected (<MDL), --- = not conducted
- (f) Unit and Method Detection Limit (MDL) in wet chemical test:

Test Items	Pb	Cd	Hg
Units	mg/kg	mg/kg	mg/kg
MDL	2	2	2

The MDL for single compound of PBBs & PBDEs is 5 mg/kg and MDL of Cr6+ for polymer & composite sample is 2 mg/kg.

(g) According to IEC 62321:2008, result on Cr6+ for metal sample is shown as Positive/Negative. Positive = Presence of Cr6+ coating, Negative = Absence of Cr6+ coating.

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### {2} Phthalates Test Results

Test Method: Refer to EN14372:2004 and use GC-MS to perform the test

Test Item	CAS No.	Test Method / Instrument	<b>MDL</b> (%)	Limit (%)
Dibutyl phthalate (DBP)	84-74-2	IEC 62321-8:2017 / GC-MS	0.005	0.1
Butyl benzyl phthalate (BBP)	85-68-7	IEC 62321-8:2017 / GC-MS	0.005	0.1
Bis-(2-ethylhexyl)phthal ate (DEHP)	117-81-7	IEC 62321-8:2017 / GC-MS	0.005	0.1
Di-iso-butyl ortho-phthalate (DIBP)	84-69-5	IEC 62321-8:2017 / GC-MS	0.005	0.1

Test Item	CAS No.		Result (%)					
		1	2	4	5	8	10	12
Dibutyl phthalate (DBP)	84-74-2	N.D	N.D	N.D	N.D	N.D	N.D	N.D
Butyl benzyl phthalate(BBP)	85-68-7	N.D	N.D	N.D	N.D	N.D	N.D	N.D
Bi(s-(2-ethylhexyl) phthalate (DEHP)	117-81-7	N.D	N.D	N.D	N.D	N.D	N.D	N.D
Di-iso-butyl ortho-phthalate (DIBP)	84-69-5	N.D	N.D	N.D	N.D	N.D	N.D	N.D

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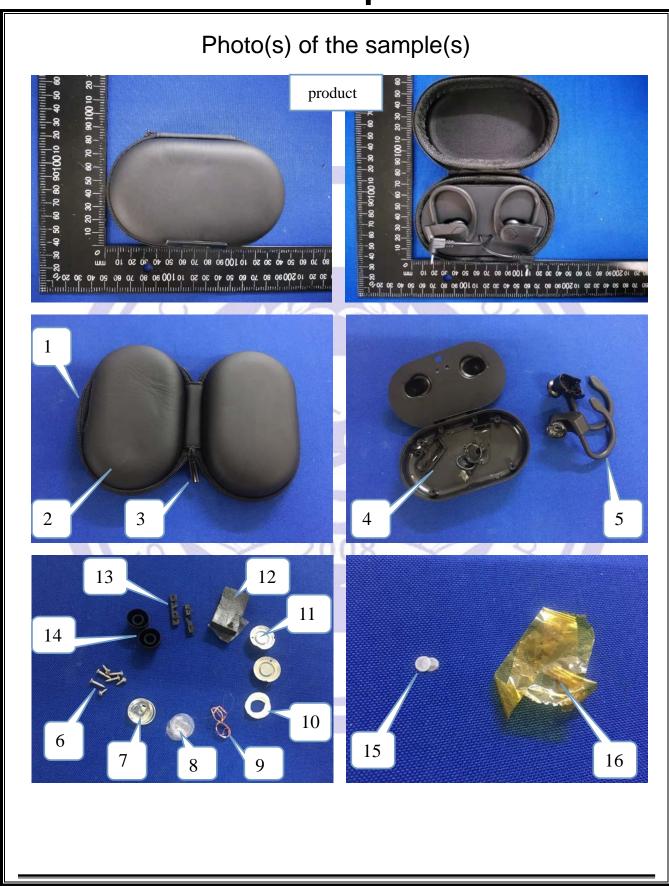
Test Item	CAS No.	Result (%)							
		12	13	14	15	16	31	32	33
Dibutyl phthalate (DBP)	84-74-2	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D
Butyl benzyl phthalate(BBP)	85-68-7	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D
Bi(s-(2-ethylhexyl) phthalate (DEHP)	117-81-7	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D
Di-iso-butyl ortho-phthalate (DIBP)	84-69-5	N.D	N.D	N.D	N.D	N.D	N.D	N.D	N.D

### Note:

- (1) 1 mg/kg = 1 ppm = 0.0001%
- (2) N.D. = Not Detected (less than MDL)
- (3) MDL = Method Detection Limit

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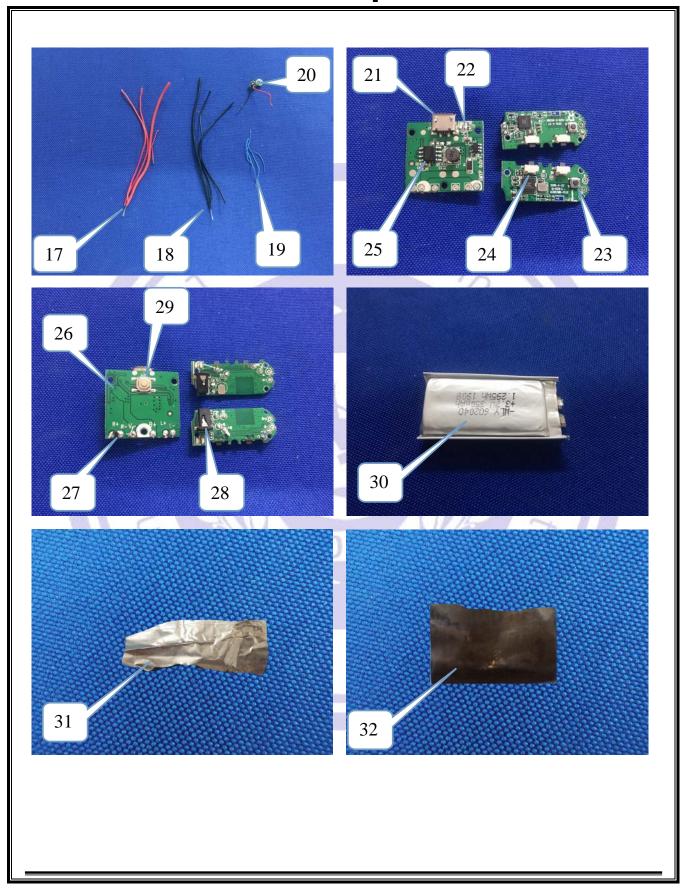


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# NCT Technology

## **Test Report**



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