



Test Report

Report No.: DSP24070076-1

Date: Jul 03, 2024

Page 1 of 14

Applicant : SHENZHEN HANGPIN INDUSTRIAL LIMITED COMPANY
Address : Room 303, Ju de Building, No 15, zhengfeng south road, huaide community, fu yong street, BAOAN DISTRICT, SHENZHEN, CHINA

Manufacturer : SHENZHEN HANGPIN INDUSTRIAL LIMITED COMPANY
Address : Room 303, Ju de Building, No 15, zhengfeng south road, huaide community, fu yong street, BAOAN DISTRICT, SHENZHEN, CHINA

Sample Name : Wired Mouse
Sample Model : D99
Series Models : SROPSHARK1, MSHARKWH, D22, D97, D37, D51, D66, D60, D61, D62, D63, D64, D65, D66, D67, D68

Receiving Date : Jul 02, 2024
Testing Period : Jul 02, 2024 to Jul 03, 2024
Test Requested : 1. According to the requirement of the applicant, Lead (Pb), Cadmium (Cd), Mercury (Hg), Chromium (Cr) and Bromine (Br) in submitted sample were screened by XRF.
2. According to the requirement of the applicant, when the screening results exceed the XRF screening limit of IEC 62321-3-1:2013, Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent chromium [Cr(VI)], Polybrominated biphenyls (PBBs) and Polybrominated diphenyl ethers (PBDEs) in the submitted sample are further tested by chemical methods according to IEC 62321-4:2013/AMD 1:2017, IEC 62321-5:2013, IEC 62321-6:2015, IEC 62321-7-1:2015, IEC 62321-7-2:2017.
3. According to the requirement of the applicant, Diisobutyl phthalate (DIBP), Dibutyl Phthalate (DBP), Benzyl butyl phthalate (BBP) and Bis(2-ethylhexyl) phthalate (DEHP) in the submitted sample are tested by chemical method according to IEC 62321-8:2017.
4. The test points selected in this report are designated by the applicant.

Test Methods : Please refer to next page(s)
Test Results : Please refer to next page(s)
Conclusion :

The limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.	PASS
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Edited by: Eric Long Reviewed by: Camile Li Approved by: Terry Cao

Dongguan ZRLK Testing Technology Co., Ltd.

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Test Report

Report No.: DSP24070076-1

Date: Jul 03, 2024

Page 2 of 14

Test Methods

a) XRF scanning testing

Test method: IEC 62321-3-1:2013.

Element	Screening limits in mg/kg for regulated elements in various matrices			MDL (mg/kg)	
	Polymers	Metals	Composite material	Polymers	Other materials
Pb	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$	10	50
Cd	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$BL \leq LOD < X < (150+3\sigma) \leq OL$	10	50
Hg	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$	10	50
Cr	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X$	$BL \leq (500-3\sigma) < X$	10	50
Br	$BL \leq (300-3\sigma) < X$	---	$BL \leq (250-3\sigma) < X$	10	50
Remark: 1. BL — Below limit, 2. OL — Over limit, need to chemical test, 3. X — Inconclusive, need to chemical test, 4. 3σ — The repeatability of the XRF, 5. MDL — Method detection limit, 6. LOD = MDL.					

b) Chemical testing

Test items	Test methods	Instruments	MDL	Limit
Pb	IEC 62321-5:2013	ICP-OES	2 mg/kg	1000 mg/kg
Cd	IEC 62321-5:2013	ICP-OES	2 mg/kg	100 mg/kg
Hg	IEC 62321-4:2013/AMD 1:2017	ICP-OES	2 mg/kg	1000 mg/kg
Cr(VI)	IEC 62321-7-1:2015	UV-Vis	0.10 μ g/cm ²	1000 mg/kg
	IEC 62321-7-2:2017	UV-Vis	8 mg/kg	1000 mg/kg
PBBs	IEC 62321-6:2015	GC-MS	30 mg/kg	1000 mg/kg
PBDEs	IEC 62321-6:2015	GC-MS	30 mg/kg	1000 mg/kg
DIBP	IEC 62321-8:2017	GC-MS	30 mg/kg	1000 mg/kg
DBP	IEC 62321-8:2017	GC-MS	30 mg/kg	1000 mg/kg
BBP	IEC 62321-8:2017	GC-MS	30 mg/kg	1000 mg/kg
DEHP	IEC 62321-8:2017	GC-MS	30 mg/kg	1000 mg/kg

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Test Report

Report No.: DSP24070076-1

Date: Jul 03, 2024

Page 3 of 14

Test Results

Part No.	Part description	Restricted substances	Results of XRF (mg/kg)	Results of chemical testing (mg/kg)	Conclusion
1	Black plastic shell	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	X	ND	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	
2	Silvery metal shell (USB)	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	---	---	
		DIBP	---	---	
		DBP	---	---	
		BBP	---	---	
		DEHP	---	---	
3	White plastic (USB)	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	BL	---	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	
4	Silvery metal pin (USB)	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	---	---	
		DIBP	---	---	
		DBP	---	---	
		BBP	---	---	
		DEHP	---	---	

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Test Report

Report No.: DSP24070076-1

Date: Jul 03, 2024

Page 4 of 14

Part No.	Part description	Restricted substances	Results of XRF (mg/kg)	Results of chemical testing (mg/kg)	Conclusion
5	Tin solder	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	---	---	
		DIBP	---	---	
		DBP	---	---	
		BBP	---	---	
		DEHP	---	---	
6	Black plastic outer model	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	BL	---	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	
7	Black plastic electric wire	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	BL	---	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	
8	White plastic electric wire	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	BL	---	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	

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Test Report

Report No.: DSP24070076-1

Date: Jul 03, 2024

Page 5 of 14

Part No.	Part description	Restricted substances	Results of XRF (mg/kg)	Results of chemical testing (mg/kg)	Conclusion
9	Red plastic electric wire	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	BL	---	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	
10	Green plastic electric wire	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	BL	---	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	
11	Silvery metal wire	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	---	---	
		DIBP	---	---	
		DBP	---	---	
		BBP	---	---	
		DEHP	---	---	
12	Black cable coating	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	BL	---	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	

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Test Report

Report No.: DSP24070076-1

Date: Jul 03, 2024

Page 6 of 14

Part No.	Part description	Restricted substances	Results of XRF (mg/kg)	Results of chemical testing (mg/kg)	Conclusion
13	Transparent plastic	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	BL	---	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	
14	Transparent LED	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	X	ND	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	
15	Brown resistor	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	BL	---	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	
16	Black plastic film (Capacitor)	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	BL	---	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	

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Test Report

Report No.: DSP24070076-1

Date: Jul 03, 2024

Page 7 of 14

Part No.	Part description	Restricted substances	Results of XRF (mg/kg)	Results of chemical testing (mg/kg)	Conclusion
17	Silvery metal shell (Capacitor)	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	---	---	
		DIBP	---	---	
		DBP	---	---	
		BBP	---	---	
		DEHP	---	---	
18	Black soft plastic (Capacitor)	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	BL	---	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	
19	Yellow paper (Capacitor)	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	BL	---	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	
20	Aluminum foil (Capacitor)	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	---	---	
		DIBP	---	---	
		DBP	---	---	
		BBP	---	---	
		DEHP	---	---	

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Test Report

Report No.: DSP24070076-1

Date: Jul 03, 2024

Page 8 of 14

Part No.	Part description	Restricted substances	Results of XRF (mg/kg)	Results of chemical testing (mg/kg)	Conclusion
21	Silvery metal pin (Capacitor)	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	---	---	
		DIBP	---	---	
		DBP	---	---	
		BBP	---	---	
		DEHP	---	---	
22	Grey material	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	BL	---	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	
23	Silvery metal pin	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	---	---	
		DIBP	---	---	
		DBP	---	---	
		BBP	---	---	
		DEHP	---	---	
24	Black plastic	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	BL	---	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	

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Test Report

Report No.: DSP24070076-1

Date: Jul 03, 2024

Page 9 of 14

Part No.	Part description	Restricted substances	Results of XRF (mg/kg)	Results of chemical testing (mg/kg)	Conclusion
25	Silvery metal	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	---	---	
		DIBP	---	---	
		DBP	---	---	
		BBP	---	---	
		DEHP	---	---	
26	Red plastic	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	X	ND	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	
27	Black plastic	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	X	ND	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	
28	Grey plastic	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	BL	---	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	

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Test Report

Report No.: DSP24070076-1

Date: Jul 03, 2024

Page 10 of 14

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29	Coppery metal	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	---	---	
		DIBP	---	---	
		DBP	---	---	
		BBP	---	---	
		DEHP	---	---	
30	Brown PCB	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	X	ND	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	
31	Tin solder	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	---	---	
		DIBP	---	---	
		DBP	---	---	
		BBP	---	---	
		DEHP	---	---	
32	Black plastic	Pb	BL	---	Pass
		Cd	BL	---	
		Hg	BL	---	
		Cr [Cr(VI)]	BL	---	
		Br (PBBs&PBDEs)	X	ND	
		DIBP	---	ND	
		DBP	---	ND	
		BBP	---	ND	
		DEHP	---	ND	

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Test Report

Report No.: DSP24070076-1

Date: Jul 03, 2024

Page 11 of 14

Remark:

1. There are the results on total Br while test items on restricted substances are PBBs and PBDEs. There is the result on total Cr while test item on restricted substances is Cr(VI).
2. Results are obtained by XRF for primary screening, and chemical testing by ICP-OES (for Pb, Cd, Hg), UV-VIS (for Cr(VI)) 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.
3. ND = Not detected ($<MDL$), $mg/kg = ppm = 0.0001\%$.
4. "---" = Not conducted.
5. The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than $0.13 \mu g/cm^2$, the sample coating is considered to contain Cr(VI). The sample is negative for Cr(VI) if the Cr(VI) concentration is less than $0.10 \mu g/cm^2$, the sample is considered a non-Cr(VI) based coating. The result between $0.10 \mu g/cm^2$ and $0.13 \mu g/cm^2$ is considered to be inconclusive, unavoidable coating variations may influence the determination.

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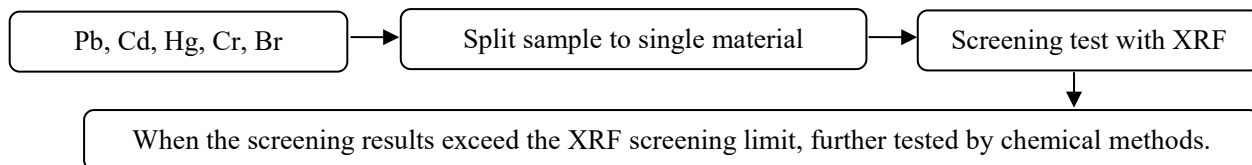
Report No.: DSP24070076-1

Date: Jul 03, 2024

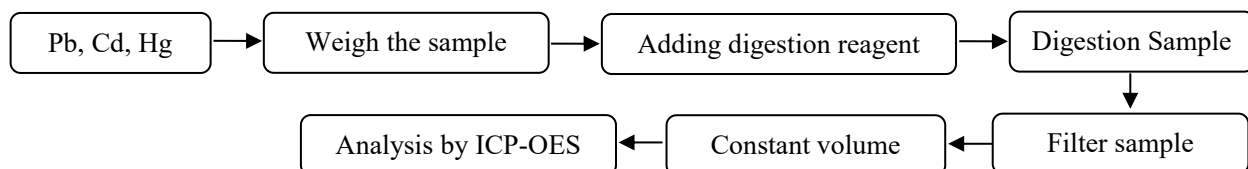
Page 12 of 14

Test Flow Chart

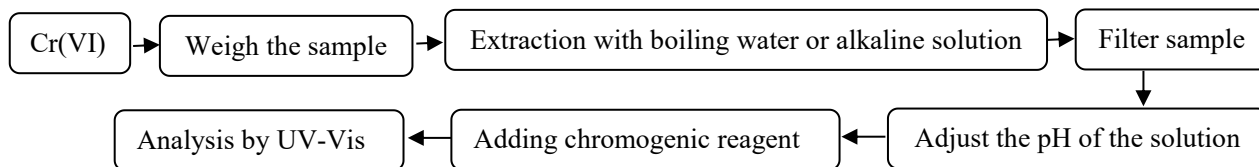
1. Pb, Cd, Hg, Cr, Br (XRF test method)



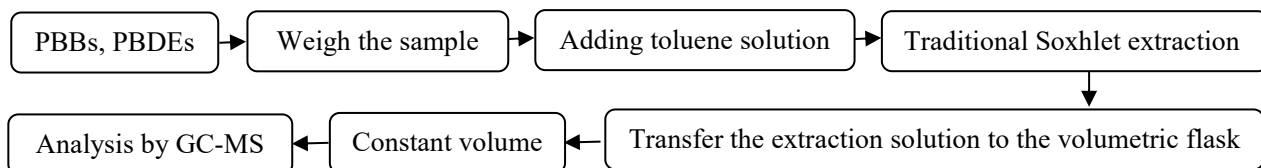
2. Pb, Cd, Hg (ICP-OES test method)



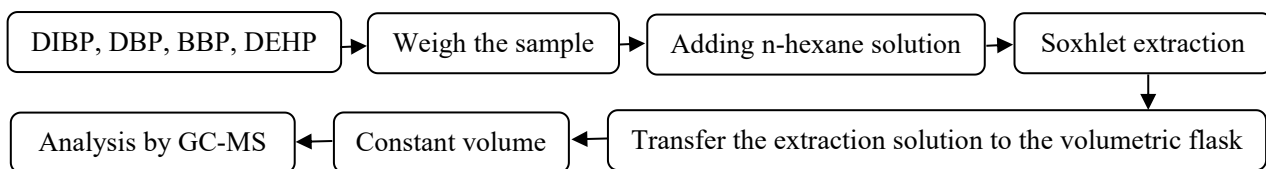
3. Cr(VI) (UV-Vis test method)



4. PBBs, PBDEs (GC-MS test method)



5. DIBP, DBP, BBP, DEHP (GC-MS test method)



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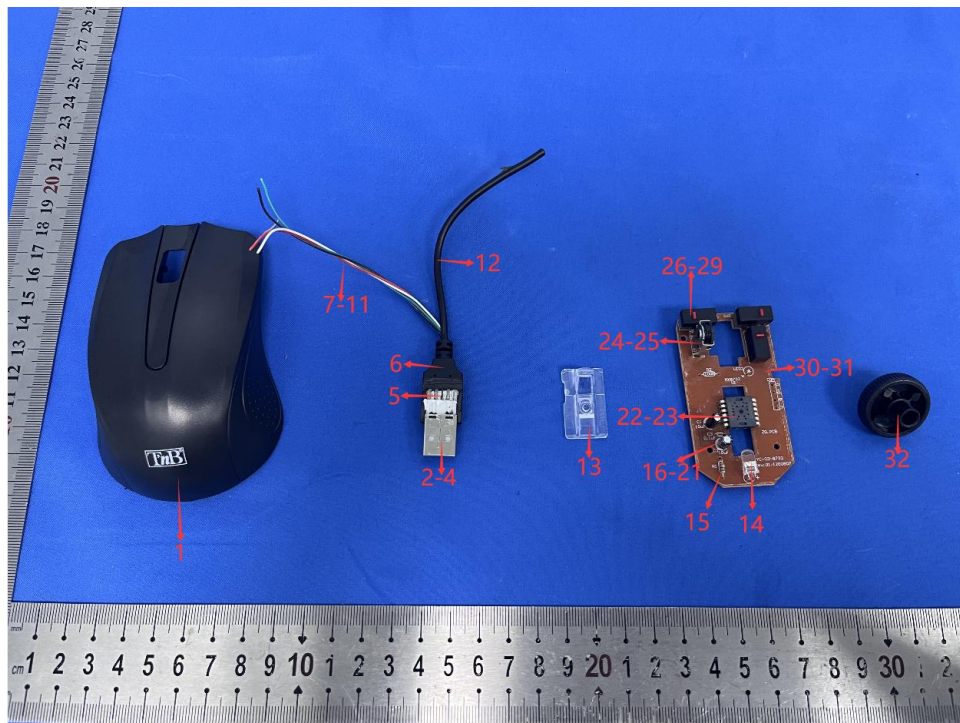
Test Report

Report No.: DSP24070076-1

Date: Jul 03, 2024

Page 13 of 14

Sample Photo(s)

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Test Report

Report No.: DSP24070076-1

Date: Jul 03, 2024

Page 14 of 14

Statement

1. Report is invalid without the editor, the reviewer or the approver signature, or altered, or additions and deletions, or not stamped with a special seal.
2. This test report is only responsible for the sample of this acceptance.
3. If the applicant does not raise any objection within 15 working days after receiving the report, it shall be deemed to approve the report result.

* * * End of report * * *

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