

Test Report Page 1 of 18 No. C211014044001-1 Date: Oct 22, 2021

Applicant: Sharkoon Technologies GmbH

Applicant address: Grüninger Weg 48,35415 Pohlheim, Germany

The following samples were submitted and identified on behalf of the clients as

Sample Name: DC cooling fan

Model: SHARK Blades RGB PWM

Model/Type reference: SilentStorm 120 RGB PWM、SilentStorm 140 RGB PWM、SHARK Disc RGB

PWM、TC1220P、TC8015P

C211014044 CPST Internal Reference No.:

Sample Received Date: Oct 14, 2021

Sample Quantity: 01 pcs

Test Period: Oct 14, 2021 to Oct 22, 2021 Test Method: Please refer to next page(s).

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

> be alf of Eurones (Dongguan) Consumer Products Testing Service Co., Ltd STIN

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CONCLUSION:	************************************	**********	******
TESTED SAMPLES	TEST ITEM		RESULT
	1.RoHS Directive 2011/65/EU Annex II a	mending Annex (EU)2015/863	3
DC cooling fan	 Lead, Cadmium, Mercury, Hexavale and PBDEs Content 	ent Chromium, PBBs	PASS
*****	—Di-(2-ethylhexyl) phthalate(DEHP), E Dibutyl phthalate (DBP), Diisobutyl p		PASS





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2. Test Item Description And Photo List

Sample No.	Description	Photograph
001	Black soft plastic	
002	Black soft plastic	
003	Golden metal	
004	Black plastic	45
005	Silvery solder	
006	Black soft plastic with white printing (wire jacket)	7 6
007	Silvery metal (wire core)	





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Sample No.	Description	Photograph
008	Black soft plastic	
009	Black plastic	9
010		10
011	Silvery solder	
012	Black plastic	12
013	Silvery metal	
014	White plastic with gray plating	14 15
015	White translucent plastic (fan blade)	600
016	Black plastic	
017	Black soft plastic	





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Sample No.	Description	Photograph
018	White double-sided tape	18
019	Silvery plastic with black plating (label)	19 INDIVISION IN THE STORY IN
020	Gray plastic	20
021	White plastic	Anadam An
022	Silvery metal (shaft)	
023	Silvery metal	
024	Gray magnet	27
025	Silvery metal	26
026	Black plastic	25
027	Coppery metal with red plating	





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Sample No.	Description	Photograph
028	Coppery metal	28
029	White body (LED7)	29 30
030	Black body (U1)	
031	Silvery metal (pin)	i (3)
032	Black body with white printing (R5)	ia ()
033	Dark brown body (C3)	34 3
034	Brown body (C1)	3 B
035	Black body (D1)	
036	Black body (U2)	36 37
037	Silvery metal (pin)	
038	Green PCB	31
039	Silvery solder	
040	Silvery plastic with black plating (label)	Manual St of Manua





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Sample No.	Description	Photograph
041	Coppery metal	41
042	Green PCB	42 43 44
043	Silvery solder	
044	Black body	
045	White soft plastic	45,46 47
046	Transparent plastic	Charles Park
047	White translucent plastic (fan blade)	
048	Green PCB	48 49
049	Silvery solder	





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Sample No.	Description	Photograph
050	Black soft plastic	50 51 52
051	White translucent plastic	
052	Gray translucent plastic (fan blade)	
053	Green PCB	53 54
054	Silvery solder	
055	White body (LED)	57 55 56
056	Black PCB	57 - 55 56
057	Silvery solder	
058	Black plastic	58 59
059	Black plastic (fan blade)	





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Sample No.	Description	Photograph
S S S S		60
060 Si	lvery plastic with black plating (label)	
251 015		





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3. Test Results

3.1 Screening test for the specified hazardous substances of RoHS for the selected materials of the submitted sample:

- Heavy Metal (Cadmium, Chromium, Mercury, Lead) Content Test
- Bromine Content Test

According to IEC 62321-3-1:2013, and Quantification analyzed with Energy Dispersive X-ray Fluorescence Spectrometers.

Sample No.	Total Cadmium	Total Lead	Total Mercury	Total Chromium	Total Bromine
Sample 001	BL	BL	BL	BL	O BL
Sample 002	BL O	BL	BL	BL	BL
Sample 003	BL	BL S	BL	BL	N.A.
Sample 004	BL	BL	9 BL	BL	9 BL
Sample 005	BL	BL	BL	BL	N.A.
Sample 006	BL	BL	BL	BL	BL
Sample 007	BL	BL	BL	BL	N.A.
Sample 008	BL	BL	BL	BL	BL
Sample 009	BL	BL	BL S	BL	BL
Sample 010	BL	OL^	BL	9 BL	N.A.
Sample 011	BL	OL^	BL	BL	N.A.
Sample 012	BL	BL	BL	BL	BL
Sample 013	BL	BL S	BL	BL	N.A.
Sample 014	BL	BL	BL	BL	BL
Sample 015	BL O	BL	BL	BL BL	BL
Sample 016	BL	BL	BL	BL	S BL
Sample 017	BL	BL	G BL	BL	BL
Sample 018	BL	BL	BL	BLG	BL
Sample 019	BL	BL	BL	BL	BL
Sample 020	S BL	BL	BLO	BL O	BL
Sample 021	BL	BL O	BL	BL	BL C
Sample 022	BL	BL	BL	Inconclusive^	N.A.
Sample 023	BL	BL	BL	G BL	N.A.
Sample 024	BL	BL	OBL A	BL	BL
Sample 025	BL	BL	BL	BL S	N.A.
Sample 026	BL	S BL	BL	BL	BL





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Sample No.	Total Cadmium	Total Lead	Total Mercury	Total Chromium	Total Bromine
Sample 027	BL C	BL	BLO	BL S	N.A.
Sample 028	BL	BL	BL	BL	S N.A. €
Sample 029	BL	BL	BL	BL	BL
Sample 030	BL	BL	BL	BL	BL
Sample 031	BL	BL	BL S	BL	N.A.
Sample 032	BL BL	BL	BL	BL	BL
Sample 033	BL	BL O	BL	BL	BL
Sample 034	BL	BL	BL	BL	BL
Sample 035	BL	BL	BL	BL	BL
Sample 036	BL	BL	BL	BL	BL
Sample 037	BL	BL	BL	BL S	N.A.
Sample 038	BL	G BL	BL	BL	Inconclusive^
Sample 039	BL	BL	9 BL O	BL	N.A.
Sample 040	BL	BL	BL	BL	BL
Sample 041	BL	BL	BL	BL	N.A.
Sample 042	BL S	BL	BL	BL	Inconclusive^
Sample 043	BL	BL	BL	BL	N.A.
Sample 044	BL	BL	G BL	BL	BL
Sample 045	BL	BL	BL	BL O	BL
Sample 046	BL	BL	BL	BL	BL
Sample 047	BL	BL	BL	BL	BL
Sample 048	BL	BL	BL	BL	Inconclusive^
Sample 049	BL	BL	BL	BL	N.A.
Sample 050	BL O	BL	BL	BL C	BL
Sample 051	BL	BL	BL	BL	BL
Sample 052	BL	BL	BL	BL	BL
Sample 053	BL	BL	BL	BL	Inconclusive^
Sample 054	BL	BL	BL	BL	N.A.
Sample 055	S BL	BL	BL	BL	BL
Sample 056	BL	BL O	BL	BL	Inconclusive^
Sample 057	BL	BL	BL	BL (N.A.
Sample 058	BL	BL	BL	BL	BL
Sample 059	BL	BL	BL	BL	BLS
Sample 060	BL	BL	BL	BL 9	BL





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Note:

- 1. All Concentrations express in "mg/kg" (milligram per kilogram), mg/kg ~ ppm
- 2. "OL" denotes "over limit"
- 3. "BL" denotes "below limit"
- 4. "N.A." denotes "Not Applicable"
- 5. "Inconclusive" denotes result is intermediate between "OL" and "BL"
- 6. "^"denotes the screening result was inconclusive(X) or over limit (OL), thus further confirmation test was conducted, results are listed in 3.2 and 3.3.

XRF screening limits for different materials:

Materials -	Concentration (mg/kg)					
	Cd	Cr	Pb	Hg	Br	
5 Motol	BL≤(70-3σ) <x<< td=""><td>DI <!--700 2~)<V</td--><td>BL≤(700-3σ)<x<< td=""><td>BL≤(700-3σ)<x<< td=""><td>NA</td></x<<></td></x<<></td></td></x<<>	DI 700 2~)<V</td <td>BL≤(700-3σ)<x<< td=""><td>BL≤(700-3σ)<x<< td=""><td>NA</td></x<<></td></x<<></td>	BL≤(700-3σ) <x<< td=""><td>BL≤(700-3σ)<x<< td=""><td>NA</td></x<<></td></x<<>	BL≤(700-3σ) <x<< td=""><td>NA</td></x<<>	NA	
Metal	(130+3σ)≤OL	BL≤(700-3σ) <x< td=""><td>(1300+3σ)≤OL</td><td>(1300+3σ)≤OL</td><td>N.A.</td></x<>	(1300+3σ)≤OL	(1300+3σ)≤OL	N.A.	
Polymers	BL≤(70-3σ) <x<< td=""><td>DI <!--700 2~\<</td--><td>BL≤(700-3σ)<x<< td=""><td>BL≤(700-3σ)<x<< td=""><td>BL≤(300-3σ)<</td></x<<></td></x<<></td></td></x<<>	DI 700 2~\<</td <td>BL≤(700-3σ)<x<< td=""><td>BL≤(700-3σ)<x<< td=""><td>BL≤(300-3σ)<</td></x<<></td></x<<></td>	BL≤(700-3σ) <x<< td=""><td>BL≤(700-3σ)<x<< td=""><td>BL≤(300-3σ)<</td></x<<></td></x<<>	BL≤(700-3σ) <x<< td=""><td>BL≤(300-3σ)<</td></x<<>	BL≤(300-3σ)<	
	(130+3σ)≤OL	BL≤(700-3σ) <x< td=""><td>(1300+3σ)≤OL</td><td>(1300+3σ)≤OL</td><td>X</td></x<>	(1300+3σ)≤OL	(1300+3σ)≤OL	X	
Composite	BL≤(50-3σ) <x<< td=""><td>DI <!--500 2~)<</td--><td>BL≤(500-3σ)<x<< td=""><td>BL≤(500-3σ)<x<< td=""><td>BL≤(250-3σ)<</td></x<<></td></x<<></td></td></x<<>	DI 500 2~)<</td <td>BL≤(500-3σ)<x<< td=""><td>BL≤(500-3σ)<x<< td=""><td>BL≤(250-3σ)<</td></x<<></td></x<<></td>	BL≤(500-3σ) <x<< td=""><td>BL≤(500-3σ)<x<< td=""><td>BL≤(250-3σ)<</td></x<<></td></x<<>	BL≤(500-3σ) <x<< td=""><td>BL≤(250-3σ)<</td></x<<>	BL≤(250-3σ)<	
material	(150+3σ)≤OL	BL≤(500-3σ) <x< td=""><td>(1500+3σ)≤OL</td><td>(1500+3σ)≤OL</td><td>X</td></x<>	(1500+3σ)≤OL	(1500+3σ)≤OL	X	





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3. 2 Test for Heavy Metals

Lead, Cadmium, Hexavalent Chromium and Mercury Tests according to IEC 62321-4:2013+A1:2017
 &IEC 62321-5:2013 & IEC 62321-7-1:2015& IEC 62321-7-2:2017, Analysis was conducted by ICP-OES, UV-VIS.

Element	Total Cadmium [mg/kg]	Total Lead [mg/kg]	Total Mercury [mg/kg]	Hexavalent Chromium [µg/cm²]	Hexavalent Chromium [mg/kg]
Detection Limit	5	5	5	0.10	5 . ?
Limit	100	1000	1000	0.10	1000
Sample 010	1,00	21587Ф	616	R	291
Sample 011	×1	N.D.*	1	09	0 15
Sample 022	91 C	L	OP	N.D.	-7

Note:

- 1. All Concentrations express in "mg/kg" (milligram per kilogram), mg/kg ~ ppm.
- 2. "N.D." = "Not Detected".
- 3. Boiling-water-extraction:

Negative = Absence of Cr(VI) coating / surface layer: the detected concentration in boiling-water-extraction solution is less than 0.10μg with 1cm² sample surface area. Positive = Presence of Cr(VI) coating / surface layer: the detected concentration in boiling-water-extraction solution is greater than 0.13μg with 1cm² sample surface area. Inconclusive = the detected concentration in boiling-water-extraction solution is greater than 0.10μg and less than 0.13μg with 1cm² sample surface area.

- 4. Positive = result be regarded as not comply with RoHS requirement Negative = result be regarded as comply with RoHS requirement
- 5. "-" =Not regulated
- 6. "Φ"=the sample 010 is copper alloy. The lead content which is under 4% is exempted from the requirement of directive 2011/65/EU(RoHS)Annex III 6(c).
- 7. "*"=The sample of test item was resubmitted by the customer on Oct 22, 2021.





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3. 3 Test for Flame retardants

- Test Method: With reference to IEC 62321-6:2015, extracted by toluene and analyzed by Gas Chromatography and Mass Spectrometry (GC-MS). [Reporting Limit: 5mg/kg]

	3 4 55	Result [mg/kg]			RoHS
Test Item		Sample 038	Sample 042	Sample 048	Requirement [mg/kg]
PBBs	Monobromobiphenyl	< 5	< 5	< 5	Sum of PBBs < 1000
	Dibromobiphenyl	< 5	< 5	< 5	
	Tribromobiphenyl	< 5	< 5	< 5	
	Tetrabromobiphenyl	< 5	< 5	< 5	
	Pentabromobiphenyl	< 5	< 5	< 5	
	Hexabromobiphenyl	< 5	< 5	< 5	
	Heptabromobiphenyl	< 5	< 5	< 5	
	Octabromobiphenyl	< 5	< 5	< 5	
	Nonabromobiphenyl	< 5	< 5	< 5	
	Decabromobiphenyl	< 5	< 5	< 5	
	Sum of PBBs	< 5	< 5	< 5	
PBDEs	Monobromodiphenyl Ether	< 5	S <5	< 5	3, 2, 0,
	Dibromodiphenyl Ether	9<5 C	< 5	< 5	
	Tribromodiphenyl Ether	< 5	< 5	< 5	
	Tetrabromodiphenyl Ether	< 5	< 5	< 5	C83
	Pentabromodiphenyl Ether	< 5	< 5	< 5	Sum of PBDEs
	Hexabromodiphenyl Ether	< 5	< 5	< 5	
	Heptabromodiphenyl Ether	< 5	< 5	< 5	
	Octabromodiphenyl Ether	< 5	< 5	< 5	
	Nonabromodiphenyl Ether	< 5	< 5	< 5	
	Decabromodiphenyl Ether	< 5	< 5	< 5	
	Sum of PBDEs	< 5	< 5	< 5	





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62	· · · · · · · · · · · · · · · · · · ·	Result	Result [mg/kg]		
	Test Item	Sample 053	Sample 056	056 Requirement [mg/kg]	
, C,	Monobromobiphenyl	< 5	< 5	Sum of PBBs < 1000	
	Dibromobiphenyl	< 5	< 5		
	Tribromobiphenyl	< 5	S < 5		
	Tetrabromobiphenyl	< 5	< 5		
PBBs	Pentabromobiphenyl	< 5	< 5		
	Hexabromobiphenyl	< 5	< 5		
	Heptabromobiphenyl	< 5	< 5		
	Octabromobiphenyl	< 5	< 5		
	Nonabromobiphenyl	< 5	< 5		
	Decabromobiphenyl	< 5	< 5		
	Sum of PBBs	< 5	< 5		
PBDEs	Monobromodiphenyl Ether	< 5	< 5	Sum of PBDEs < 1000	
	Dibromodiphenyl Ether	< 5	< 5		
	Tribromodiphenyl Ether	< 5	< 5		
	Tetrabromodiphenyl Ether	< 5	< 5		
	Pentabromodiphenyl Ether	< 5	< 5		
	Hexabromodiphenyl Ether	< 5	< 5		
	Heptabromodiphenyl Ether	< 5	< 5		
	Octabromodiphenyl Ether	< 5	< 5		
	Nonabromodiphenyl Ether	< 5	< 5		
	Decabromodiphenyl Ether	< 5	< 5		
	X	1 00			

Note:

- 1. All Concentrations express in "mg/kg" (milligram per kilogram), mg/kg ~ ppm.
- 2. "<" denotes less than

Sum of PBDEs





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3.4 Di-(2-ethylhexyl) phthalate(DEHP), Benzylbutyl phthalate(BBP), Dibutyl phthalate (DBP), Diisobutyl phthalate (DIBP) Content—RoHS Directive 2011/65/EU Annex II amending Annex (EU)2017/2102

Test method: With reference to IEC 62321-8:2017; Analysis was conducted by GC-MS.

Element	Di-(2-ethylhexyl) phthalate (DEHP) [mg/kg]	Benzylbutyl phthalate (BBP) [mg/kg]	Dibutyl phthalate (DBP) [mg/kg] 50	Diisobutyl phthalate(DIBP) [mg/kg] 50
Detection Limit	50	50		
Limit	1000	1000	1000	1000
Sample 001	N.D.	N.D.	N.D.	N.D.
Sample 002	N.D.	N.D.	N.D.	N.D.
Sample 004	N.D.	N.D.	N.D.	N.D.
Sample 006	N.D.	N.D.	N.D.	N.D.
Sample 008	N.D.	N.D.	N.D.	N.D.
Sample 009	N.D.	N.D.	N.D.	N.D.
Sample 012	N.D.	N.D.	N.D.	N.D.
Sample 014	N.D.	N.D.	N.D.	N.D.
Sample 015	N.D.	N.D.	N.D.	N.D.
Sample 016	N.D.	N.D.	N.D.	N.D.
Sample 017	N.D.	N.D.	N.D.	N.D.
Sample 018	130	N.D.	N.D.	N.D.
Sample 019	N.D.	N.D.	N.D.	N.D.
Sample 020	N.D.	N.D.	N.D.	N.D.
Sample 021	N.D.	N.D.	N.D.	N.D.
Sample 024	N.D.	N.D.	N.D.	N.D.
Sample 026	N.D.	N.D.	N.D.	N.D.
Sample 029	N.D.	N.D.	N.D.	N.D.
Sample 030	N.D.	N.D.	N.D.	N.D.
Sample 032	N.D.	N.D.	N.D.	N.D.
Sample 033	N.D.	N.D.	N.D.	N.D.
Sample 034	N.D.	N.D.	N.D.	N.D.
Sample 035	N.D.	N.D.	S N.D.	N.D.
Sample 036	N.D.	N.D.	N.D.	N.D.
Sample 038	N.D.	N.D.	N.D.	N.D.
Sample 040	N.D.	N.D.	N.D.	N.D.
Sample 042	N.D.	N.D.	N.D.	N.D.
Sample 044	N.D.	N.D.	N.D.	N.D.
Sample 045	N.D.	N.D.	N.D.	N.D.

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Element	Di-(2-ethylhexyl) phthalate (DEHP) [mg/kg]	Benzylbutyl phthalate (BBP) [mg/kg]	Dibutyl phthalate (DBP) [mg/kg]	Diisobutyl phthalate(DIBP) [mg/kg]
Detection Limit	50	50	50	50
Limit	1000	1000	1000	1000
Sample 046	N.D.	N.D.	N.D.	N.D.
Sample 047	N.D.	N.D.	N.D.	N.D.
Sample 048	N.D.	N.D.	N.D.	N.D.
Sample 050	N.D.	N.D.	N.D.	N.D.
Sample 051	N.D.	N.D.	N.D.	N.D.
Sample 052	N.D.	N.D.	N.D.	N.D.
Sample 053	N.D.	N.D.	N.D.	N.D.
Sample 055	N.D.	N.D.	N.D.	N.D.
Sample 056	N.D.	N.D.	N.D.	N.D.
Sample 058	N.D.	N.D.	N.D.	N.D.
Sample 059	N.D.	N.D.	N.D.	N.D.
Sample 060	N.D.	N.D.	N.D.	N.D.

Note:

- 1. All Concentrations express in "mg/kg" (milligram per kilogram), mg/kg ~ ppm.
- 2. "N.D." = "Not Detected".





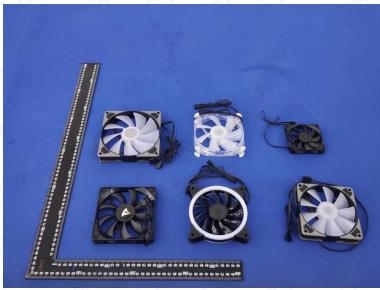
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Photo of the Submitted Sample





End of Report ***

