



TEST REPORT

Report No.: STSGZ2302203041E

Date: 6-Mar-2023

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Applicant : Mid Ocean Brands B.V.

Address: 7/F., Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong

The following sample(s) and sample information was/were submitted and identified by client as:

Sample Name: USB fan

Model/Style/Item #: MO8763

Receiving Date: 20-Feb-2023, 24-Feb-2023

Test Period: From 20-Feb-2023 to 24-Feb-2023

Add Information: -

Test Summary:

#	Test Item(s)	Reference Standard/Method	Result
1	Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs, PBDEs, DBP, BBP, DEHP and DIBP EU RoHS Directive 2011/65/EU and its amendment directives (EU) 2015/863 (RoHS)	IEC 62321-3-1:2013 IEC 62321-4:2013+A1:2017 IEC 62321-5:2013 IEC 62321-6:2015 IEC 62321-7-1:2015 IEC 62321-7-2:2017 IEC 62321-8:2017	PASS

Signed for and on behalf of STS

Mark Mai
(Technical Director)



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Result:

1.1 EU RoHS Directive 2011/65/EU and its amendment directives on XRF IEC 62321-3-1:2013, Screening by X-ray Fluorescence Spectroscopy (XRF)

Seq. No.	Tested Part(s)	Results				
		Pb	Cd	Hg	Cr	Br
1	Black plastic, shell	BL	BL	BL	BL	BL
2	White printed black plastic, switch	BL	BL	BL	BL	BL
3	Silvery metal, spring	BL	BL	BL	X	NA
4	Silvery metal, base	BL	BL	BL	BL	NA
5	Silvery metal, contact plate	BL	BL	BL	BL	NA
6	Black plated silvery metal, screw	BL	BL	BL	X	NA
7	Black soft plastic, holder	BL	BL	BL	BL	BL
8	Silvery metal, solder	X	BL	BL	BL	NA
9	Translucent plastic, flabellum	BL	BL	BL	BL	BL
10	Black soft plastic, wire jacket	BL	BL	BL	BL	BL
11	Red soft plastic, wire jacket	BL	BL	BL	BL	BL
12	Silvery metal, wire core	BL	BL	BL	BL	NA
13	Silvery metal, shell	BL	BL	BL	BL	NA
14	Black magnet, ring	BL	BL	BL	BL	NA
15	Copperty enamelled wire	BL	BL	BL	BL	BL
16	Silvery metal, plate	BL	BL	BL	BL	NA
17	Silvery metal, axis	BL	BL	BL	BL	NA
18	White plastic, cushion	BL	BL	BL	BL	BL
19	Copperty metal, washer	BL	BL	BL	BL	NA
20	Black plastic, shell	BL	BL	BL	BL	BL
21	Silvery metal, lead	BL	BL	BL	BL	NA
22	Green PCB	BL	BL	BL	BL	X
23	Silvery metal, solder	BL	BL	BL	BL	NA
24	Silvery metal, cover	BL	BL	BL	BL	NA

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25	Silvery metal, contact pin	BL	BL	BL	BL	NA
26	White plastic, holder	BL	BL	BL	BL	BL
27	Black soft plastic, cover	BL	BL	BL	BL	BL
28	Black soft plastic, wire cover	BL	BL	BL	BL	BL
29	Grey soft plastic, wire jacket	BL	BL	BL	BL	BL
30	White soft plastic, wire jacket	BL	BL	BL	BL	BL

Remark:

- (1) Results were obtained by XRF for primary screening, 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 below warning value according to IEC 62321-3-1:2013.

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 Limit
- X = Inconclusive
- NA = Not Applicable

- (2) The XRF screening test for RoHS elements – The reading may be different to the actual content in the sample because of non-uniformity composition.
- (3) The maximum permissible limit is quoted from the document 2011/65/EU and its amendment directives (EU) 2015/863 :

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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 diphenyl ethers (PBDEs)	1000

(4) Disclaimers:

This XRF Screening 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 screening 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.

(5) The selection of test portions was recommended by the client and the conclusion of chemical test is only for the selected portions.

1.2 Hexavalent Chromium (Cr(VI))

Metal: IEC 62321-7-1:2015, extracted by boiling water and analyzed by UV-Vis

Non-metal: IEC 62321-7-2:2017, alkaline digested and analyzed by UV-Vis

Compound	Material		Limit	RL
	3	6		
1 Hexavalent Chromium (Cr(VI))	Negative	Negative	#	-
Conclusion	PASS	PASS	-	-

Remark(s) (a) ug/cm²: microgram per square centimeter

(b) RL: Report Limit

(c) Negative = Sample Cr(VI) concentration is less than 0.10 ug/cm²

Positive = Sample Cr(VI) concentration is greater than 0.13 ug/cm²

(d) # = Positive indicates the presence of Cr(VI) on the tested areas and result be regarded as conflict with RoHS requirement.

Negative indicates the absence of Cr(VI) on the tested areas and result be regarded as no conflict with RoHS requirement.

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1.3 Lead Content (Pb) IEC62321-5:2013, acid digested and determined by AAS

Compound		Material	Limit (mg/kg)	RL (mg/kg)
		8		
1	Lead (Pb)	191	1000	10
Conclusion		PASS	-	-

Remark(s): (a) mg/kg: milligrams per kilogram
(b) RL: Report limit
(c) N.D.: Not detected (result is less than RL)

1.4 Polybrominated Biphenyls and Polybrominated Diphenyl Ethers (PBBs and PBDEs) IEC 62321-6:2015, solvent extract and determined by GC/MS

Compound		Material	Limit (mg/kg)	RL (mg/kg)
		22		
1	Monobromo biphenyl	N.D.	-	50
2	Dibromo biphenyl	N.D.	-	50
3	Tribromo biphenyl	N.D.	-	50
4	Tetrabromo biphenyl	N.D.	-	50
5	Pentabromo biphenyl	N.D.	-	50
6	Hexabromo biphenyl	N.D.	-	50
7	Heptabromo biphenyl	N.D.	-	50
8	Octabromo biphenyl	N.D.	-	50
9	Nonabromo biphenyl	N.D.	-	50
10	Decabromo biphenyl	N.D.	-	50
11	Monobromo diphenyl ether	N.D.	-	50
12	Dibromo diphenyl ether	N.D.	-	50
13	Tribromo diphenyl ether	N.D.	-	50

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14	Tetrabromo diphenyl ether	N.D.	-	50
15	Pentabromo diphenyl ether	N.D.	-	50
16	Hexabromo diphenyl ether	N.D.	-	50
17	Heptabromo diphenyl ether	N.D.	-	50
18	Octabromo diphenyl ether	N.D.	-	50
19	Nonabromo diphenyl ether	N.D.	-	50
20	Decabromo diphenyl ether	N.D.	-	50
21	Sum of PBBs	N.D.	1000	-
22	Sum of PBDEs	N.D.	1000	-
Conclusion		PASS	-	-

Remark(s): (a) mg/kg: milligram per kilogram
 (b) RL: Report limit
 (c) N.D.: Not detected (result is less than RL)

1.5 Phthalates – (DBP, BBP, DEHP, DIBP) IEC 62321-8:2017, Solvent extract and determined by GC/MS

Compound			Material				Limit (%)	RL(%)
			1+2	7	9	10+11		
1	DBP	Dibutylphthalate CAS# 84-74-2	N.D.	N.D.	N.D.	N.D.	0.1	0.005
2	BBP	Benzylbutylphthalate CAS# 85-68-7	N.D.	N.D.	N.D.	N.D.	0.1	0.005
3	DEHP	Diethylhexylphthalate CAS# 117-81-7	N.D.	N.D.	N.D.	N.D.	0.1	0.005
4	DIBP	Diisobutyl phthalate CAS# 84-69-5	N.D.	N.D.	N.D.	N.D.	0.1	0.005
Conclusion			PASS	PASS	PASS	PASS	-	-

Compound			Material				Limit (%)	RL(%)
			15	18+20	22	26		
1	DBP	Dibutylphthalate CAS# 84-74-2	N.D.	N.D.	N.D.	N.D.	0.1	0.005

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2	BBP	Benzylbutylphthalate CAS# 85-68-7	N.D.	N.D.	N.D.	N.D.	0.1	0.005
3	DEHP	Diethylhexylphthalate CAS# 117-81-7	N.D.	N.D.	N.D.	N.D.	0.1	0.005
4	DIBP	Diisobutyl phthalate CAS# 84-69-5	N.D.	N.D.	N.D.	N.D.	0.1	0.005
Conclusion			PASS	PASS	PASS	PASS	-	-

Compound			Material		Limit (%)	RL(%)
			27+28	29+30		
1	DBP	Dibutylphthalate CAS# 84-74-2	N.D.	N.D.	0.1	0.005
2	BBP	Benzylbutylphthalate CAS# 85-68-7	N.D.	N.D.	0.1	0.005
3	DEHP	Diethylhexylphthalate CAS# 117-81-7	N.D.	0.0125	0.1	0.005
4	DIBP	Diisobutyl phthalate CAS# 84-69-5	N.D.	N.D.	0.1	0.005
Conclusion			PASS	PASS	-	-

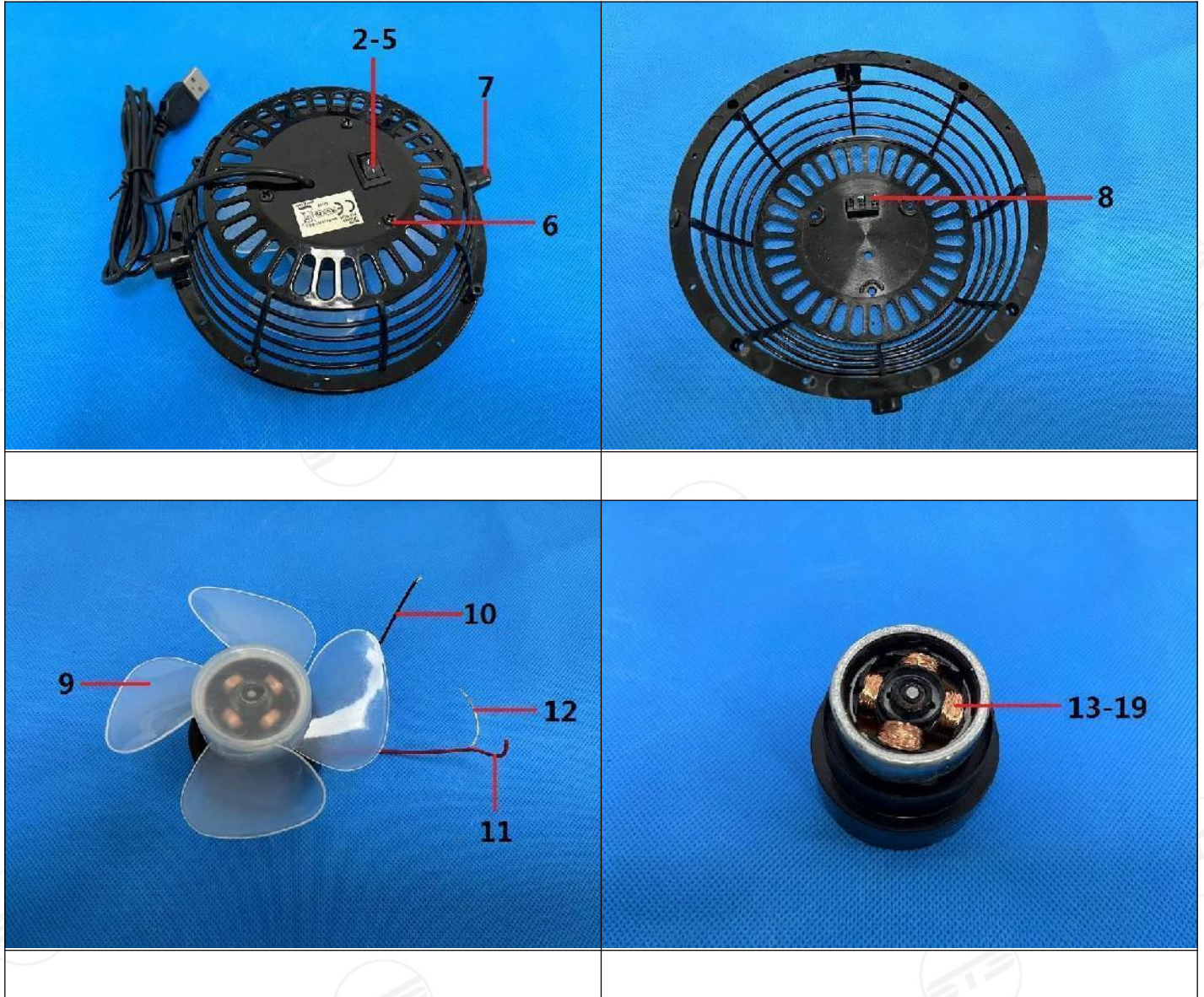
Remark(s): (a) RL: Report limit
(b) N.D.: Not detected (result is less than RL)

Photo(s):



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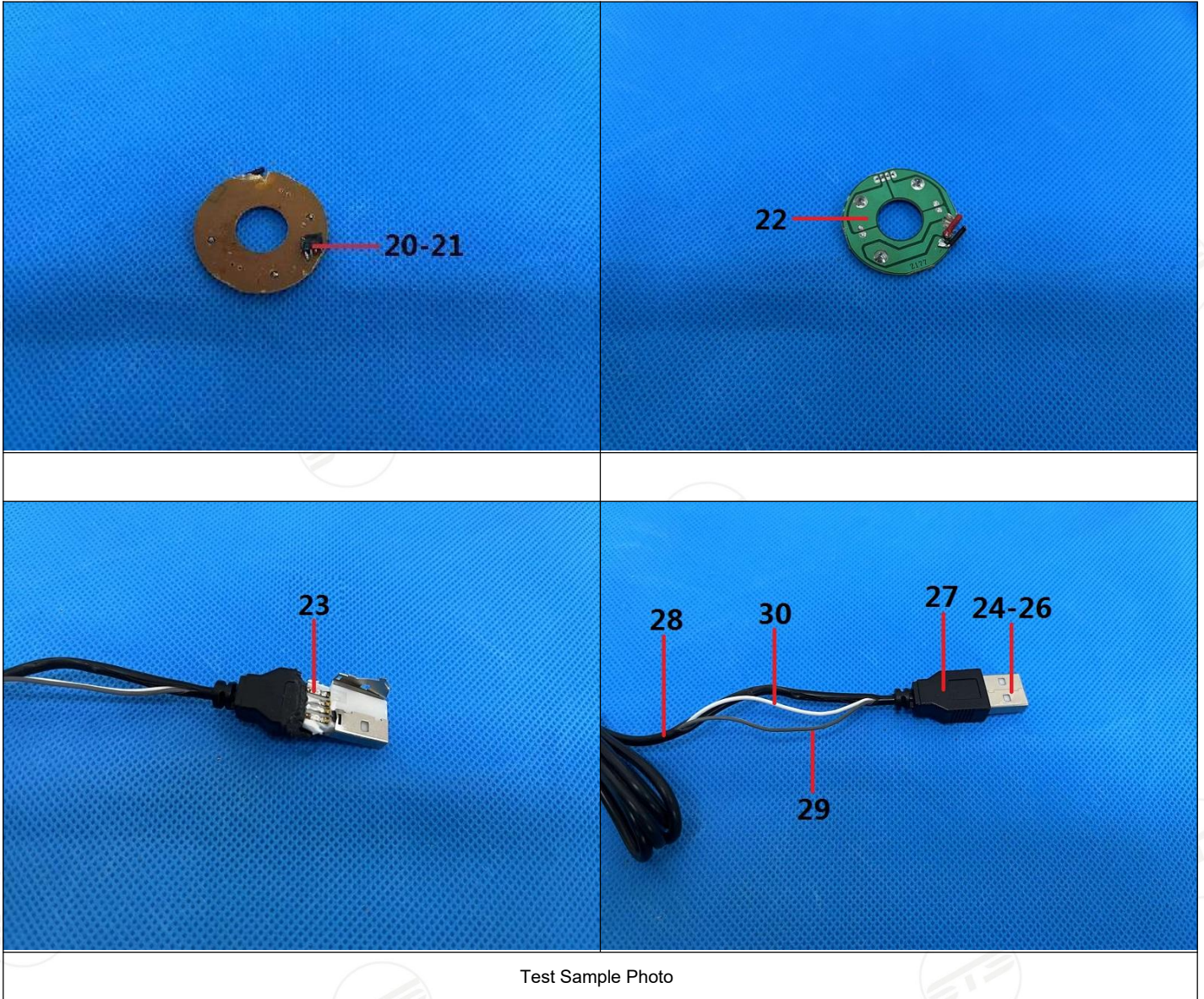
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Test Sample Photo

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Customer additional photo

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Clients wishing to use the Report in court proceedings or arbitration shall inform the Company to that effect prior to submitting the sample for testing.
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Subject to the variable length of retention time for test data and report stored hereinto as otherwise specifically required by individual accreditation authorities, the Company will only keep the supporting test data and information of the test report for a period of ten years. The data and information will be disposed of after the aforementioned retention period has elapsed. Under no circumstances shall we provide any data and information which has been disposed of after retention period. Under no circumstances shall we be liable for damage of any kind, including (but not limited to) compensatory damages, lost profits, lost data, or any form of special, incidental, indirect, consequential or punitive damages of any kind, whether based on breach of contract of warranty, tort (including negligence), product liability or otherwise, even if we are informed in advance of the possibility of such damages.
10. 报告的签发记录可通过登录 www.stsgz.com 查询。如需进一步查询报告有效性或核实报告,需与本公司联系。

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