

# Test Report

**Applicant** : Huizhou Kuming Technology Co., Ltd.  
**Address** : Mingchao Science and Technology Creative Industry Park, Shiwan Town, Boluo County, Huizhou City, Guangdong Province  
**Manufacturer** : Huizhou Kuming Technology Co., Ltd.  
**Address** : Mingchao Science and Technology Creative Industry Park, Shiwan Town, Boluo County, Huizhou City, Guangdong Province

The submitted sample and sample information was/were submitted and identified by/on the behalf of the client

**Sample name** : Dc fan  
**Sample Model** : KM(S)2006(X)(Y)(Z), Adding Model See the 2 page

**Trademark** : 

## TEST INFORMATION

**Date of Receipt** : 2021-03-11  
**Date of Test** : 2021-03-11 to 2021-03-17  
**Test Method** : Please refer to the following page(s).  
**Test Result(s)** : Please refer to the following page(s).

Test Requested	Conclusion
As specified by client, according to RoHS Directive 2011/65/EU with amendment (EU) 2015/863 to test Lead (Pb), Cadmium (Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers(PBDEs), Phthalates(DBP, BBP, DEHP, DIBP) in the submitted sample(s)	Pass

**Test/Witness Engineer** : Tim Chen

**Approved & Authorized** : Andy Zhang



**Serial No. :**

KM(S)2010(X)(Y)(Z), KM(S)2507(X)(Y)(Z), KM(S)2510(X)(Y)(Z), KM(S)3004(X)(Y)(Z),  
KM(S)3007(X)(Y)(Z), KM(S)3010(X)(Y)(Z), KM(S)3507(X)(Y)(Z), KM(S)3510(X)(Y)(Z),  
KM(S)3515(X)(Y)(Z), KM(S)4007(X)(Y)(Z), KM(S)4010(X)(Y)(Z), KM(S)4015(X)(Y)(Z),  
KM(S)4020(X)(Y)(Z), KM(S)4028(X)(Y)(Z), KM(S)4508(X)(Y)(Z), KM(S)4510(X)(Y)(Z),  
KM(S)5010(X)(Y)(Z), KM(S)5015(X)(Y)(Z), KM(S)5020(X)(Y)(Z), KM(S)5025(X)(Y)(Z),  
KM(S)6010(X)(Y)(Z), KM(S)6015(X)(Y)(Z), KM(S)6020(X)(Y)(Z), KM(S)6025(X)(Y)(Z),  
KM(S)6028(X)(Y)(Z), KM(S)6038(X)(Y)(Z), KM(S)7010(X)(Y)(Z), KM(S)7015(X)(Y)(Z),  
KM(S)7020(X)(Y)(Z), KM(S)7025(X)(Y)(Z), KM(S)7515(X)(Y)(Z), KM(S)7525(X)(Y)(Z),  
KM(S)7530(X)(Y)(Z), KM(S)8010(X)(Y)(Z), KM(S)8015(X)(Y)(Z), KM(S)8020(X)(Y)(Z),  
KM(S)8025(X)(Y)(Z), KM(S)8032(X)(Y)(Z), KM(S)8038(X)(Y)(Z), KM(S)9225(X)(Y)(Z),  
KM(S)9232(X)(Y)(Z), KM(S)9238(X)(Y)(Z), KM(S)9733(X)(Y)(Z), KM(S)10025(X)(Y)(Z),  
KM(S)11025(X)(Y)(Z), KM(S)12025(X)(Y)(Z), KM(S)12032(X)(Y)(Z),  
KM(S)12038(X)(Y)(Z), KM(S)133(X)(Y)(Z), KM(S)14025(X)(Y)(Z), KM(S)15050(X)(Y)(Z),  
KM(S)17250(X)(Y)(Z), KM(S)175(X)(Y)(Z), KM(S)190(X)(Y)(Z),  
KM(S)20053(X)(Y)(Z), KM(S)20060(X)(Y)(Z), KM(S)220(X)(Y)(Z), KM(S)22580(X)(Y)(Z),  
KM(S)225(X)(Y)(Z), KM(S)250(X)(Y)(Z), KM(S)25489(X)(Y)(Z), KM(S)280(X)(Y)(Z),  
KM(S)28080(X)(Y)(Z), KM(S)310(X)(Y)(Z), KM(S)355(X)(Y)(Z), KM(S)400(X)(Y)(Z),  
KM(S)500(X)(Y)(Z)

The letters in ( ) above include the following classifications that meet the relevant safety requirements:

(KM) ---- Company Name

(S) ---- L centrifugal fan G blower Z-axial fan H cross flow fan

(\*\*\*\*)----specifications size

(X) ---- L low M transfer H high turn V turn super

(Y) ----A communication D dc E ac dc interchange

(Z) ---- 1 100~130V/50~60HZ 2 220~240V/50~60HZ 3 380~420V/50~60HZ

(Z) ---- 1 12V 2 24V 3 36V 4 48V 5 5V

### Tested Sample/Part Description

No.	Component Description(non-metallic)	No.	Component Description(metal)
1	Enameled wire	12	Screw
2	Lead wire	13	stator
3	Fan blade	14	Rotor
4	Heat shrinkable sleeve	15	Shaft core
5	Capacitance	16	Huasi
6	Terminal cover	17	Aluminum frame
7	Wire rack	18	Snap ring
8	Wire wrapping shield	19	Fixed blade of fan blade
9	Glue	20	Bearing
10	Strap	21	Spring
11	Temperature control switch		

### Test Result of XRF (1)XRF

Tested Item(s)	Result										
	1	2	3	4	5	6	7	8	9	10	11
Lead (Pb)	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL
Cadmium (Cd)	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL
Mercury (Hg)	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL
Total Chromium (Cr)	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL
Total Bromine (Br)	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL

Tested Item(s)	Result										
	12	13	14	15	16	17	18	19	20	21	
Lead (Pb)	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL	
Cadmium (Cd)	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL	
Mercury (Hg)	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL	
Total Chromium (Cr)	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL	

## (1)Test Method

Tested Item(s)	Test Method	Test instrument
Lead (Pb) Cadmium (Cd) Mercury (Hg) Total Chromium (Cr) Total Bromine (Br)	IEC 62321-2:2013, IEC 62321-1:2013, IEC 62321-3-1:2013,	XRF

### Remark:

- (a) BL = Below Limit, OL = Over Limit, LOD = Limit of Detection, -- = Not Regulated,  
 $3\sigma$  = The reproducibility of analytical instruments  
 X: the region where further investigation is necessary,  
 \*=The screened result was found by XRF and further chemical test was suggested
- (b) 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).
- (c) Results are obtained by EDXRF for primary screening, and further chemical testing by  
 ICP-OES (for Cd, Pb, 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 IEC62321 (unit:  
 mg/kg).

Element	Polymer materials	Metallic materials	Composite materials
Cadmium ( Cd )	$BL \leq (70-3\delta) < X < (130+3\delta) \leq OL$	$BL \leq (70-3\delta) < X < (130+3\delta) \leq OL$	$LOD < X < (150+3\delta) \leq OL$
Lead ( Pb )	$BL \leq (700-3\delta) < X < (1300+3\delta) \leq OL$	$BL \leq (700-3\delta) < X < (1300+3\delta) \leq OL$	$BL \leq (500-3\delta) < X < (1500+3\delta) \leq OL$
Mercury ( Hg )	$BL \leq (700-3\delta) < X < (1300+3\delta) \leq OL$	$BL \leq (700-3\delta) < X < (1300+3\delta) \leq OL$	$BL \leq (500-3\delta) < X < (1500+3\delta) \leq OL$
Chromium (Cr)	$BL \leq (700-3\delta) < X$	$BL \leq (700-3\delta) < X$	$BL \leq (500-3\delta) < X$
Bromine (Br)	$BL \leq (300-3\delta) < X$	Not Applicable	$BL \leq (250-3\delta) < X$

### RoHS Requirement

Restricted substances	Limits
Lead(Pb)	0.1%(1000 ppm)
Cadmium(Cd)	0.01%(100 ppm)
Mercury(Hg)	0.1%(1000 ppm)
Chromium(VI)( Cr6+)	0.1%(1000 ppm)
Polybrominated biphenyls(PBBs)	0.1%(1000 ppm)
Polybrominated diphenyl ethers (PBDEs)	0.1%(1000 ppm)

The above limits were quoted from 2011/65/EU with amendment (EU) 2015/863.

## (2)Chemical Test

### (a)The test result of PBBs, PBDEs

Tested Item	Result(mg/kg)										
	1	2	3	4	5	6	7	8	9	10	11
Monobromobiphenyl (MonoBB)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Dibromobiphenyl (DiBB)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Tribromobiphenyl (TriBB)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Tetrabromobiphenyl (TetraBB)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Pentabromobiphenyl (PentaBB)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Hexabromobiphenyl (HexaBB)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Heptabromobiphenyl (HeptaBB)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Octabromobiphenyl (OctaBB)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Nonabromobiphenyl (NonaBB)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Decabromobiphenyl (DecaBB)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Sum of polybrominated Biphenyls(PBBs)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Monobromodiphenyl ether (MonoBDE)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Dibromodiphenyl ether (DiBDE)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Tribromodiphenyl ether (TriBDE)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Tetrabromodiphenyl ether (TetraBDE)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Pentabromodiphenyl ether (PentaBDE)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Hexabromodiphenyl ether (HexaBDE)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Heptabromodiphenyl ether (HeptaBDE)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Octabromodiphenyl ether (OctaBDE)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Nonabromodiphenyl ether (NonaBDE)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Decabromodiphenyl ether (DecaBDE)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Sum of polybrominated diphenyl ethers(PBDEs)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.

**(b) The test result of DBP, BBP, DEHP, DIBP**

Tested Item(s)	Result										
	1	2	3	4	5	6	7	8	9	10	11
Dibutyl phthalate(DBP)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Benzylbutyl phthalate(BBP)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Di-2-ethylhexyl phthalate(DEHP)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Diisobutyl phthalate(DIBP)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.

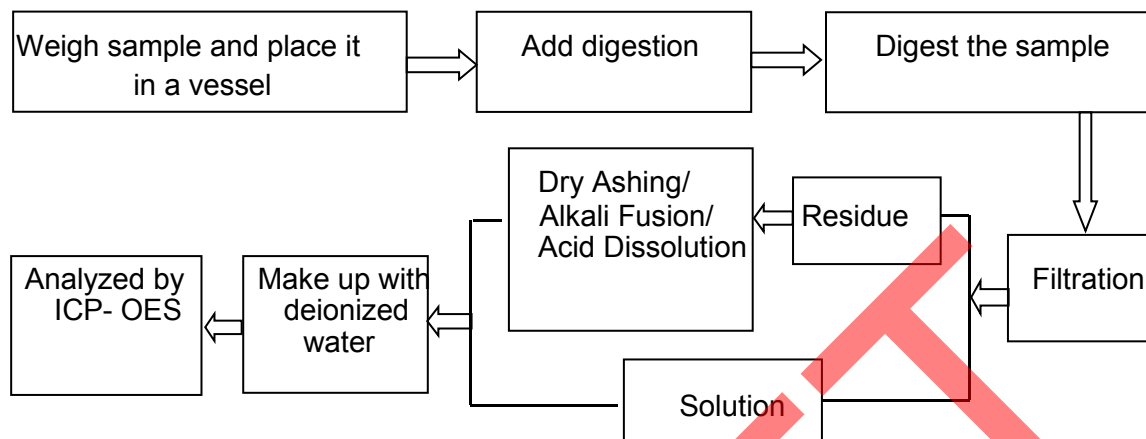
**(c) Test Method for Chemical Confirmation**

Test Item	Test Method	Test Instrument	MDL (mg/kg)	EU RoHS Limit (mg/kg)
Cadmium (Cd)	IEC 62321-5:2013	ICP-OES	10	100
Lead (Pb)	IEC 62321-5:2013	ICP-OES	10	1000
Mercury (Hg)	IEC 62321-4:2013	ICP-OES	10	1000
Hexavalent Chromium (Cr(VI))	IEC 62321-7-2:2017 (non-metal)	UV-Vis	10	1000
	IEC 62321-7-1:2015 (metal)	UV-Vis	0.1(μg/cm <sup>2</sup> )	1000
Polybrominated Biphenyls (PBBs)	IEC 62321-6:2015	GC-MS	10	1000
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS	10	1000
Phthalates(DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS	50	1000

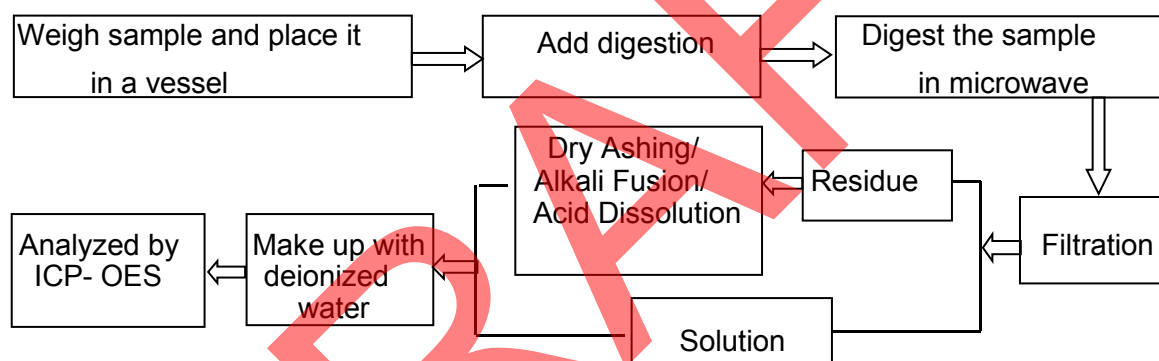
**Remark:** MDL = Method Detection Limit  
N.D. = Not Detected (<MDL)  
mg/kg = ppm = parts per million

## Test Process

### 1. Lead(Pb), Cadmium(Cd), Chromium(Cr)

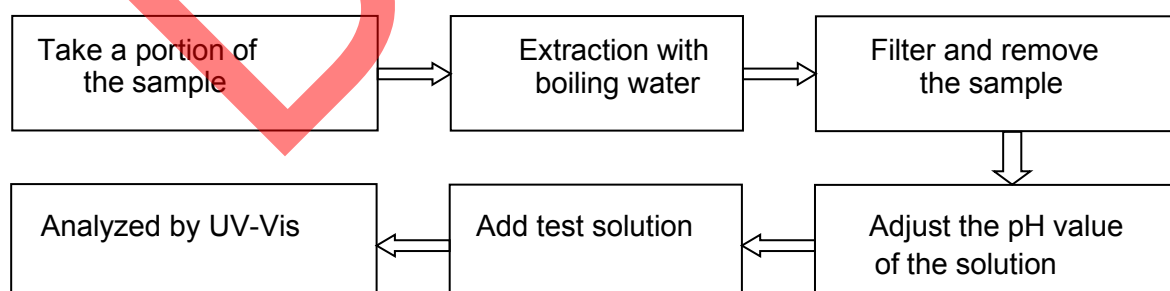


### 2. Mercury(Hg)



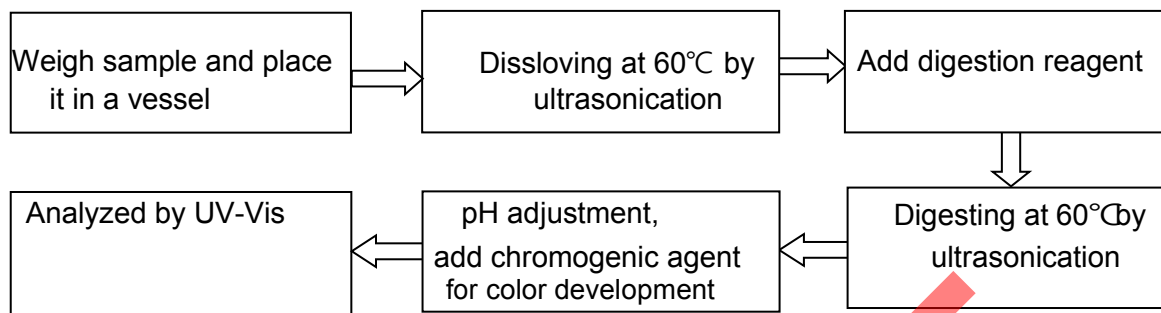
### 3. Hexavalent Chromium (Cr (VI))

(1) IEC 62321-7-1:2015  
Plating/Metal sample(s)



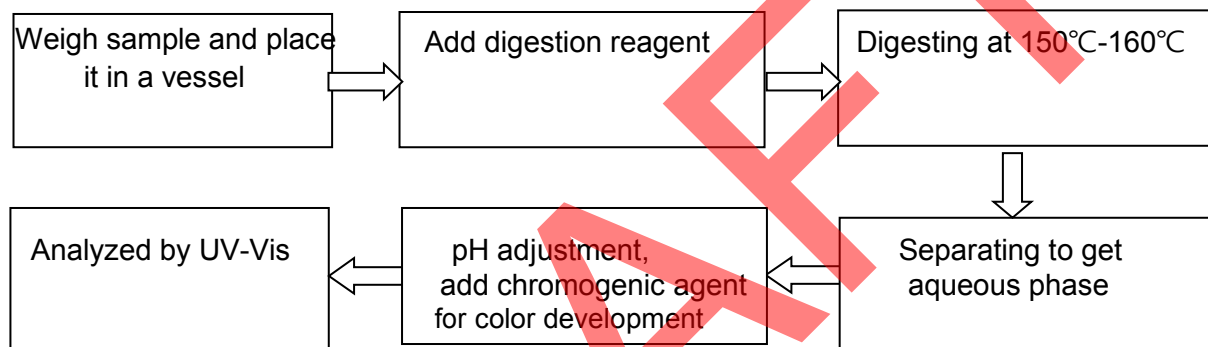
**(2) IEC 62321-7-2:2017**

**Non-metal sample(s) (Material ABS/PC/PVC)**

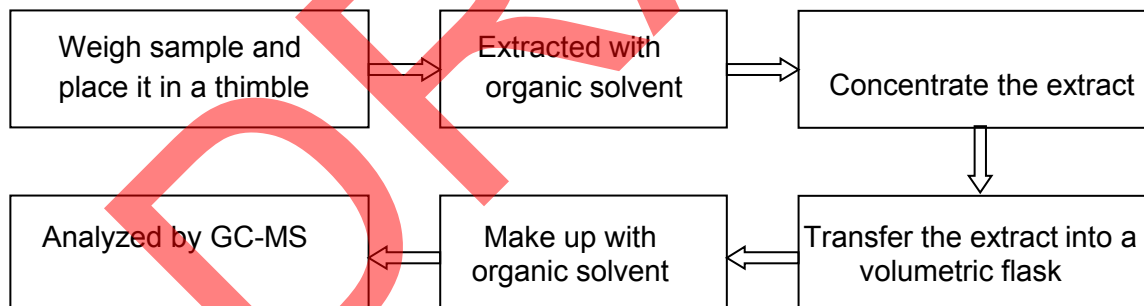


**(3) IEC 62321-7-2:2017**

**Non-metal sample(s) (Others)**

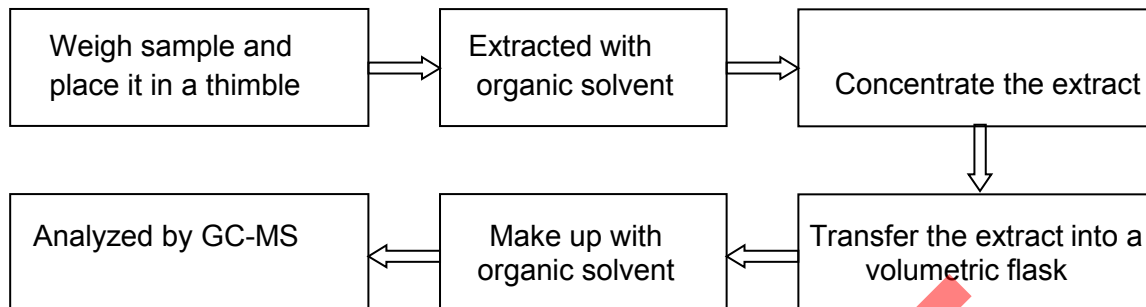


**4. Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs)**





## 5. Phthalates(DBP/BBP/DEHP/DIBP)



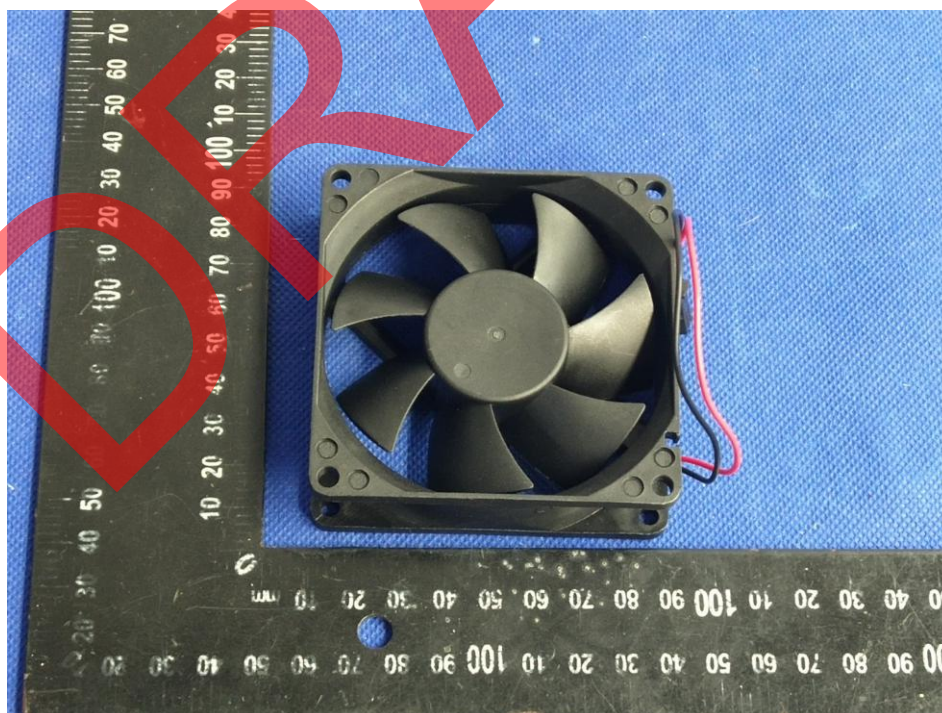
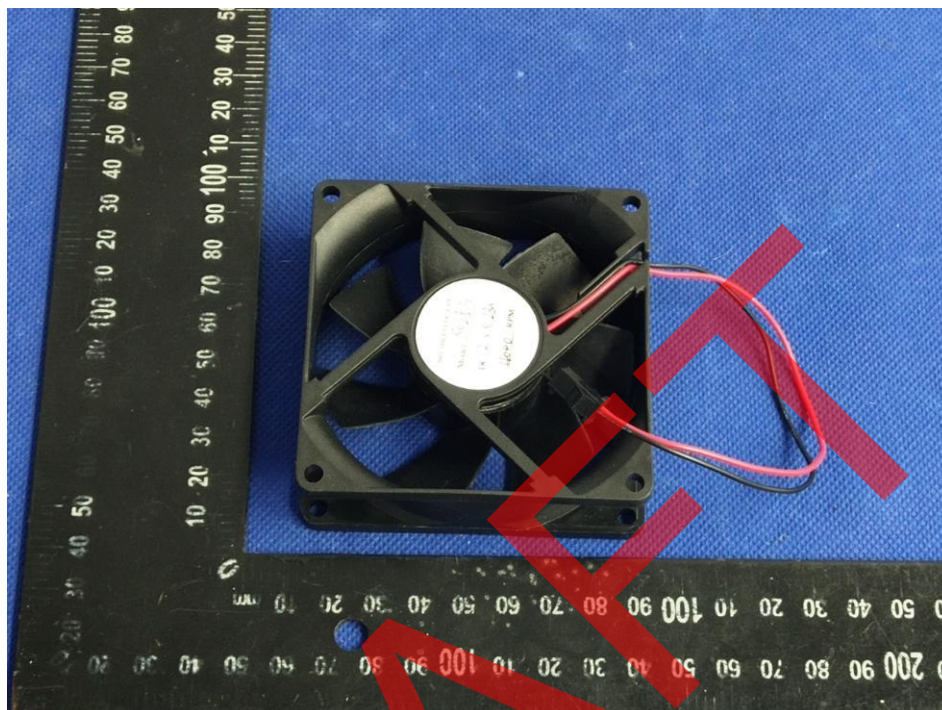
### Remark:

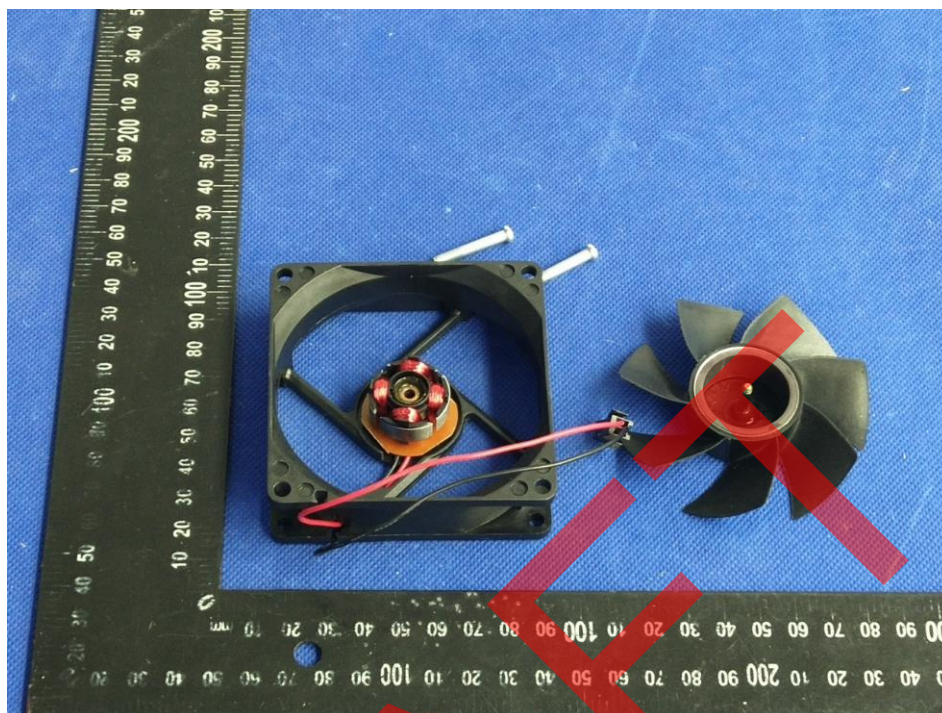
- Chemical confirmation tests were conducted to verify the inconclusive, Chromium (VI) ( $\text{Cr}^{6+}$ ), Polybrominated biphenyls (PBBS) and Polybrominated included in this report.
- As requested by the applicant, only components shown in this report were screened by XFR spectroscopy for 2011/65/EU & (EU) 2015/863, other components were not screened included in this report.

### Disclaimers:

- This XRF Screening Report tests were reference purposes only. The applicant shall make its/his/her purposes.
- The results shown in this XRF screening Report will 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.
- Photo is included.

### Photograph of Sample





\*\*\*\*\* End of Report \*\*\*\*\*

DRAFT