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Applicant: DONGGUAN BETTER ELECTRONICS TECHNOLOGY CO., LTD.

Address: Room 601 of 16 Block, No.1 Headquarters Valley, Hisinchu Road, Songshan Lake High-tech

Industrial Development Zone, Dongguan City, Guangdong Province

Manufacturer: FoShan Wholesome Electronics Co., Ltd.

Address: NO.17, WuFeng Industrial District, Zhangcha of FOSHAN City, GUANGDONG Province

Sample Name: Thermostat

Model No.: KST series, ATM series, KSD series

Date of Sample Received: October 29, 2014

Test period: October 29, 2014 to November 03, 2014

Test requested: In accordance with RoHS Directive 2011/65/EU.

Test method: With reference to IEC 62321-2008 Procedures for the Determination of Levels of

Regulated Substances in Electrotechnical Products, XRF scanning first test, then using

chemical test method to confirm.

Test result: Please refer to next page.

Conclusion: Based on the test results, the submitted sample(s) comply with the RoHS Directive

2011/65/EU.

ked by:

Approved by:





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Test method:

Testing Item	Pretreatment Method	Measuring Instrument	MDL (
Lead (Pb)	IEC 62321: section 8/9/10	ICP-OES	2mg/kg
Cadmium (Cd)	IEC 62321: section 8/9/10	ICP-OES	2mg/kg
Mercury (Hg)	IEC 62321: section 7	ICP-OES	2mg/kg
01	○ IEC 62321: Annex C	\(\sigma_0 \) \(\simma_0 \) \(\sigma_0 \) \(\sigma_0 \) \(\simma_0 \) \(\s	2mg/kg <
Chromium (Cr ⁶⁺)	IEC 62321: Annex B	UV-Vis	0 , 0 ,0
PBBs/PBDEs	IEC 62321: Annex A	GC-MS	5mg/kg





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Details of test results(Unit: mg/kg):

Part No.	Test Part Name	Restricted Substances	Results of EDXRF	Result of Chemical	Conclusion on RoHS
<u> </u>	b. b. b.	Cr ⁶⁺	BL	Testing	
fic fic fic			C 20 , 20 x	Comply	
		Cd	BL	, b, l b, b	Comply
λ 1 2	Golden metal axis	Pb	BL	$C \rightarrow C \rightarrow C \rightarrow C$	Comply
	of knob switch	Hg	BL	, b, b, b	Comply
	ا کے کے ک	PBBs BL		Comply	
<i>P</i> 1	8 6 6	PBDEs >	P. P		Comply
	0 0 0	Cr ⁶⁺	BL	0 010	Comply
	E E	Cd	BL v	P I P P	Comply
2	Silvery-gray	o Pbo	BL	ر ن ل ن ن	Comply
× 2	metal block	Hg	BL	PIPP	Comply
	0 20 20	PBBs	BĽ	,0 ,01 ,0 ,	Comply
	by by	PBDEs	PL P	· PIP P	Comply
رن	0 20 20	Cr ⁶⁺	, BL	,0 ,01,0 ,	Comply
	E P P	Cd P	BL	· b, 1 b, b	Comply
ري	Silvery-gray	O PbO	5 BL	,0 ,01,0	Comply
3	metal reflective sheet	Hg	BL	· P. I P. P	Comply
	Sheet	PRRs	,0 ,01 ,0 ,	Comply	
	E E	PBDEs	BL	PPP	Comply
₂ C)	O, O, O.	Cr ⁶⁺	D BLO	(0 (0 1 (0)	Comply
	by by by	Cd	BL	PPP	Comply
χC)	Silvery aluminium	∠ ^O Pb ^O ∠	BLO	(0 40 1 40 4	Comply
4	sheet	Hg	BL	PIPP	Comply
	0 20 20	∠ PBBs	. C . C	() () () ()	Comply
	PBDEs BL	BL	1 7	Comply	
χ0	0 20 20	Cr ⁶⁺	- IN	Negative	Comply
	by by	Cd	BL	/	Comply
Silvery-	Gilvery-gray	∠ Pb	BL	(0	Comply
	metal sheet	Hg	BL		Comply
	0 20 20	PBBs		(O KO I KO K	Comply
E E E	PBDEs	BL		Comply	
χ0	0 0 0	Cr ⁶⁺	IN	Nogativo	
Silvery metal 6 gasket of knob switch	b, b, b,			Negative	Comply
	Silvery metal	Cd	BL	C	Comply
	Pb	BL		Comply	
		Hg	BL		Comply
	P P	PBBs	BL		Comply
	C. C. C.	PBDEs	c. c.		Comply





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Part No.	Test Part Name	Restricted Substances	Results of EDXRF	Result of Chemical Testing	Conclusion on RoHS
· .	C C C	Cr ⁶⁺	IN	N.D.	Comply
		Cd	BL		Comply
· .c,	Co ic ici	c Pbc	BL	$c_1 c_1 c_2 .$	Comply
√ 7 ′ ,	Purple material	Hg	BL	P I P P	Comply
	.000.	PBBs	. D. D. O	.0 .01 .0	Comply
	A P	PBDEs	BL	PIPP	Comply
₂ O	.0 ,0 ,0	Cr ⁶⁺	o BLo	ر ن ان ان	Comply
	P P	Cd P	BL	· P, I b, b	Comply
460	Beige-white	o Pbo	BL	ر کړ ۱ کړ ک	Comply
8	material	Hg	BL	. b. l b. b	Comply
	کے کے ک	O PBBs	O NO	ر کے اکر ک	Comply
	P P	PBDEs	BL	6 1 6 6	Comply
ړن	رن کن کن	∠○ Cr ⁶⁺	D BL	(0 ,01,0 ,	Comply
	, b, b,	Cd	BL	-	Comply
ζ0 .	Golden metal	∠O PbO ∠	BL	$\langle 0 \rangle \langle 0 \rangle \langle 1 \rangle \langle 0 \rangle \langle 0 \rangle$	Comply
9	spring sheet	Hg	BL		Comply
	∠ PBBs	BL N	(° 4° 1 4° 4	Comply	
b 6	b. b.	PBDEs	BL		Comply
\(\frac{1}{2}\)	(°	Cr ⁶⁺	IN	Negative	Comply
		Cd	BL	1 4	Comply
10	Silvery metal	∠ Pb ∠	BL	6 50150 S	Comply
V-10 V	spring sheet	Hg	BL	1	Comply
	KO KO KO	PBBs	BL N		Comply
	Y Y	PBDEs	BL	1	Comply
ر ا		Cr ⁶⁺	BL		Comply
		Cd	BL		Comply
11	Copper-colored	Pb	BL		Comply
11 metal spring sheet	Hg	BL		Comply	
	Sileet	PBBs	BL		Comply
	PBDEs	DL	c. c.l c.	Comply	
P 1		Cr ⁶⁺	BL		Comply
12 White cerami	.0 .0 .0	Cd	BL	c, c , l , c ,	Comply
	White coramic	Pb	BL		Comply
	Write defailing	Hg	BL	$c_1 = c_1 I$	Comply
		PBBs	BL	P P P	Comply
		PBDEs	DL	0 010	Comply





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Part No.	Test Part Name	Restricted Substances	Results of EDXRF	Result of Chemical Testing	Conclusior on RoHS
C.	C. C. C.	Cr ⁶⁺	BL	a ala	Comply
	Cd	BL		Comply	
	Gray-white	Pb	OL	Note (6)	Comply
13	ceramic	Hg	BL	· 6 1 6 6	Comply
	.0 .0 .0	o PBBs	0 50	.0 .01 .0	Comply
		PBDEs BL		P 1 P P	Comply
,O	.0 ,0 ,0	Cr ⁶⁺	o BLo	,0 ,01 ,0 ,	Comply
		Cd P	OL	Note (5)	Comply
49	Silvery metal	O PbO	b BL	0 20 1 20 2	Comply
14	contacted point of spring sheet	Hg	BL	. b. l b. b	Comply
	Spring sheet	O PBBs	0 50	ر ۵٫ ۱۵٫ ۵٫	Comply
	, b, b,	PBDEs	BL	. 6 16 6	Comply
ζC		Cr ⁶⁺	D BLO	(O (C) (O) (A	Comply
	, _ b, b,	Cd	BL	P 1 P P	Comply
15	Transparent rubber sleeve of	∠ ^O Pb ^O ∠	D BL	(0	Comply
610	thermostat	Hg	BL		Comply
themostat	∠ PBBs	BL S	(0 , 1 , 1 , 1 , 1	Comply	
	PBDEs] BL		Comply	
ζ0 .		Cr ⁶⁺	BL	(° < ' < ' <	Comply
	- b b b	Cd	BL	1 7 7	Comply
16	Brown plastic	Z Pb	BL		Comply
\~10	jacket of thermostat	Hg	BL	1	Comply
	tricimostat	PBBs	ВL		Comply
Y .	Y Y	PBDEs	BL	1	Comply
ر د ا		Cr ⁶⁺	BL		Comply
	C. C. C.	Cd	BL	I	Comply
Silvery copper wire of thermostat		∠ Pb ∠	BL	5 5 1 5 5	Comply
	wire of thermostat	Hg	BL	1	Comply
	A A A A	PBBs	BL		Comply
	PBDEs	DL	c. c.l c.	Comply	
White plastic 18 crust of thermostat	Cr ⁶⁺	BL		Comply	
	() (Mbito plantin	Cd	BL	c. c. 1 c.	Comply
		Pb	BL		Comply
		Hg	BL	co col co	Comply
	thomotor	PBBs	ÎN	N.D.	Comply
	C. C. C.	PBDEs	il V	N.D.	Comply





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Part No.	Test Part Name	Restricted Substances	Results of EDXRF	Result of Chemical Testing	Conclusion on RoHS
ی.	.0 .0 .0	Cr ⁶⁺	BL	.6 .61 .6	Comply
		Cd	BL		Comply
19	Silvery metal	,o Pbo	BL	ر ن لن ن	Comply
619	crust of thermostat	Hg	BL 9		Comply
	0 20 20	, PBBs	BLO	ر در ایر د	Comply
<i>P</i> 1	, b, b,	PBDEs	BL N	· P / P P	Comply
χÜ	ان کی ان	Cr ⁶⁺	BL	0 20 1 20 2	Comply
	Circinal	Cd C	BL	· P' 1 P' P	Comply
20	silvery-gray metal	ζΟ PbO χ	BL	ر کے ایک ک	Comply
20	gasket of thermostat	Hg	BL	· P P P	Comply
		∠○ PBBs	BL	ر کے ایک ک	Comply
b. 1		PBDEs	PL 7	· P P P	Comply
رک		Cr ⁶⁺	BL	$\langle \mathcal{O} \rangle \langle \mathcal{O} \rangle \langle$	Comply
	b, b, b, b,	Cd	BL	P 1 P P	Comply
21	Black rubber core	∠O PbO ∠	BL		Comply
21	of thermostat	Hg	BL		Comply
		PBBs	BL		Comply
		PBDEs	BL		Comply
<0 .	10 X0 X0	Cr ⁶⁺	BL	(O XO 1 XO X	Comply
r y r r	Cd	BL		Comply	
22	Black solid glue	∠ [∪] Pb [∪] ∠	BL	6 20 1 20 X	Comply
of thermostat	of thermostat	Hg	BL	1	Comply
	10 20 20	PBBs	BL	0 20120 2	Comply
Y	A. A.	PBDEs	DL DL	1	Comply





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Note:

(1) (a) It is the result on total Br while test PBBs/PBDEs by XRF, It is the result on total Cr while test Cr⁶⁺ by XRF;

(b) Results are obtained by XRF for primary screening and further chemical testing by ICP-OES (for Pb, Cd and Hg), UV-Vis (for Cr⁶⁺) and GC-MS (for PBBs, PBDEs) is recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321-2008 (unit: mg/kg);

Element	Z ^O Z ^O Polymer Z ^O Z	○	Composite Materials
Cd	BL≤(70 -3σ) <x<(130+3σ)≤ol< td=""><td>BL≤(70-3σ)<x<(70+3σ)≤ol< td=""><td>LOD<x<(150+3σ)≤ol< td=""></x<(150+3σ)≤ol<></td></x<(70+3σ)≤ol<></td></x<(130+3σ)≤ol<>	BL≤(70-3σ) <x<(70+3σ)≤ol< td=""><td>LOD<x<(150+3σ)≤ol< td=""></x<(150+3σ)≤ol<></td></x<(70+3σ)≤ol<>	LOD <x<(150+3σ)≤ol< td=""></x<(150+3σ)≤ol<>
Pb	BL≤(700-3σ) <x<(1300+3σ)≤ OL</x<(1300+3σ)≤ 	BL≤(700-3σ) <x<(1300+3σ)≤ OL</x<(1300+3σ)≤ 	BL≤(500-3σ) <x<(1500+3σ)≤ OL</x<(1500+3σ)≤
Hg	BL≤(700-3σ) <x<(1300+3σ)≤ OL</x<(1300+3σ)≤ 	BL≤(700-3σ) <x<(1300+3σ)≤ OL</x<(1300+3σ)≤ 	BL≤(500-3σ) <x<(1500+3σ)≤ OL</x<(1500+3σ)≤
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<>
Br	BL≤(300-3σ) <x< td=""><td></td><td>BL≤(250-3σ)<x< td=""></x<></td></x<>		BL≤(250-3σ) <x< td=""></x<>

(c) OL=Over Limit, BL=Below 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.
- (2) (a) mg/kg=ppm=0.0001%, N.D.=Not detected(<MDL), MDL=Method Detection Limit, "---"=Not conducted, "/"=Not available.
- (b) According to IEC 62321-2008, result on Cr⁶⁺ for metal coating sample is shown as Positive/Negative. Negative= Absence of Cr⁶⁺ coating, Positive= Presence of Cr⁶⁺ coating

(3) RoHS Requirement

Restricted substances	Limits (
Lead (Pb)	0.1% (1000 ppm)
Cadmium (Cd)	0.01% (100 ppm)
Chromium(VI) (Cr ⁶⁺)	0.1% (1000 ppm)
Mercury (Hg)	0.1% (1000 ppm)
Polybrominated biphenyls (PBBs)	0.1% (1000 ppm)
Polybrominated diphenyl ethers (PBDEs)	0.1% (1000 ppm) 🛴 🗸

The above limits are reference with 2011/65/EU.

- (4) Specimens, which requested to determine Cadmium, Mercury and Lead Content, have been dissolved completely.
- (5) Cadmium and its compounds and cadmium plating in electrical contact is exempted.
- (6) In accordance with RoHS Directive (2011/65/EU), the lead content in ceramic of electronic components is exempted.





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Photographs of Sample:













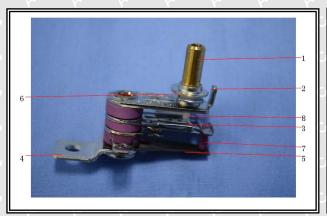


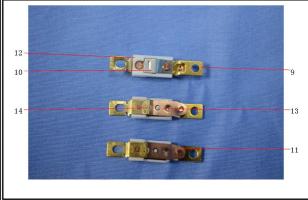
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