

Test Report

Number: LCZC16040323-E

Date: Apr. 20, 2016

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Applicant : GuangDong HaoEr Electronics Co., LTD.

Address : 4th Floor, No. 88, TongAn Road East, DongFeng Town, ZhongShan City

Date of Received : Apr. 09, 2016

Testing Period : From Apr. 09, 2016 to Apr. 13, 2016

Report on the submitted sample said to be :

Item Name : Choking coil

Test Request

As per applicant requirement, According to European RoHS directive **2011/65/EU** and it's Amendment, Test on submitted samples

— Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent Chromium (Cr(VI)) and Polybrominated Biphenyls & Polybrominated Biphenyl Ethers (PBBs & PBDEs) content.

Conclusion:

Pass

Please see the next page(s) for details.

Signed for and on behalf of **LCTECH**

Reviewed by



Ken Lu
Project Engineer

Approved by



Robert Luo
Technical Manager

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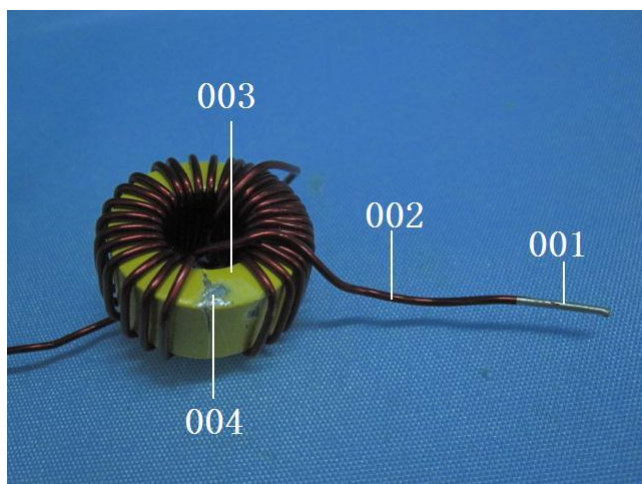
1 Submitted Sample(s) Information

1.1 Photo of submitted product



Choking coil

1.2 The test Sample(s) after disassemble the product.



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2 Test Results

2.1 XRF Screening test or(and) Chemical test on the Submitted Sample(s).

Sample No.	Sample Description	Test Results, mg/kg					
		Cd	Pb	Hg	Cr(VI)	PBBs	PBDEs
001	Silvery metal	BL	ND	BL	BL	NA	NA
002	Reddish brown plastic	BL	BL	BL	BL	BL	BL
003	Yellow coating	BL	BL	BL	BL	BL	BL
004	Silvery magnet	BL	BL	BL	BL	NA	NA
005	White coating	BL	BL	BL	BL	BL	BL

Remark:

BL = Below Limit, Comply with RoHS requirement based on XRF Screening test. please see 3.1.

ND =Not Detected (less than Report Limit);

NA= Not applicable;

Cr(VI) = Hexavalent Chromium.

PBBs = Polybrominated Biphenyls

PBDEs= Polybrominated Biphenyl Ethers

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3 Test Methods and Limit

3.1 XRF Screening test limits in mg/kg for regulated elements in different materials

Element	Judgment	Metallic and non-Metallic materials	Polymer	Complex Material
Cd	BL	$X \leq (70-3\sigma)$	$X \leq (70-3\sigma)$	$X \leq (50-3\sigma)$
	Inconclusive	$(70-3\sigma) < X < (130+3\sigma)$	$(70-3\sigma) < X < (130+3\sigma)$	$(50-3\sigma) < X < (150+3\sigma)$
	OL	$(130+3\sigma) \leq X$	$(130+3\sigma) \leq X$	$(150+3\sigma) \leq X$
Pb	BL	$X \leq (700-3\sigma)$	$X \leq (700-3\sigma)$	$X \leq (500-3\sigma)$
	Inconclusive	$(700-3\sigma) < X < (1300+3\sigma)$	$(700-3\sigma) < X < (1300+3\sigma)$	$(500-3\sigma) < X < (1500+3\sigma)$
	OL	$(1300+3\sigma) \leq X$	$(1300+3\sigma) \leq X$	$(1500+3\sigma) \leq X$
Hg	BL	$X \leq (700-3\sigma)$	$X \leq (700-3\sigma)$	$X \leq (500-3\sigma)$
	Inconclusive	$(700-3\sigma) < X < (1300+3\sigma)$	$(700-3\sigma) < X < (1300+3\sigma)$	$(500-3\sigma) < X < (1500+3\sigma)$
	OL	$(1300+3\sigma) \leq X$	$(1300+3\sigma) \leq X$	$(1500+3\sigma) \leq X$
Total Cr ^[a]	BL	$X \leq (700-3\sigma)$	$X \leq (700-3\sigma)$	$X \leq (700-3\sigma)$
	Inconclusive	$(700-3\sigma) < X$	$(700-3\sigma) < X$	$(700-3\sigma) < X$
Total Br ^[b]	BL	NA	$BL \leq (300-3\sigma)$	$BL \leq (250-3\sigma)$
	Inconclusive	NA	$(300-3\sigma) < X$	$(250-3\sigma) < X$

Remark:

- σ = Standard Deviation.

- [a] The content of Cr(VI) is always less than total Cr, and BL means that the content of Cr(VI) <1000 mg/kg.

- [b] The limit for total Br, with a 30 % margin of safety, is calculated based on the stoichiometry of Br in the most common congeners of PBB/PBDE, and BL means that the content of PBB/PBDE <1000 mg/kg.

- BL = Below Limit, Comply with RoHS requirement based on XRF Screening test.

- OL= Over Limit, Not comply with RoHS requirement (100ppm for Cd, and 1000ppm for Pb/Hg) based on XRF Screening test.

- Inconclusive =Not to be confirmed by XRF Screening test, Chemical test need to be done.

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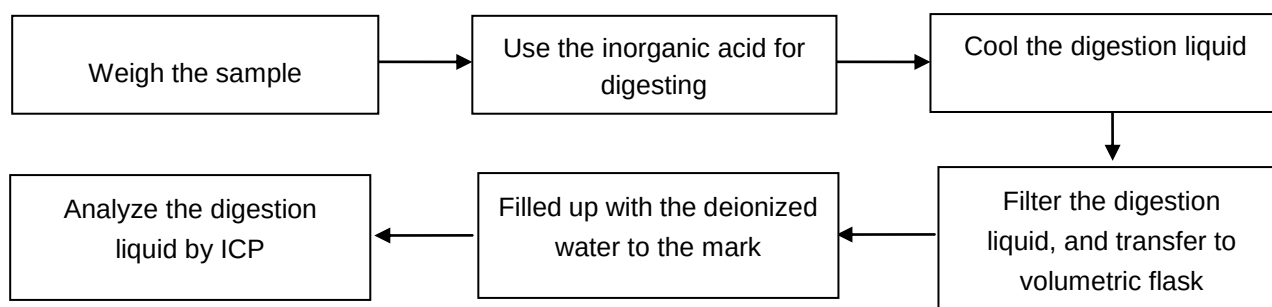
3.2 Test methods , Report limit (RL) and Maximum Limit

Testing Item	Testing Method	RL (mg/kg)	Maximum Limit (mg/kg)
Cd / Pb / Hg Total Cr / Br	With reference to IEC 62321-3-1:2013, Determined by XRF	-	-
Cadmium (Cd)	With reference to IEC 62321-5:2013, Determined by ICP-OES	5	100
Lead (Pb)		5	1000
Mercury (Hg)	With reference to IEC 62321-4:2013, Determined by ICP-OES	5	1000
Chromium (VI)	With reference to IEC 62321(Edition 1.0 2008-12), Annex C. Determined by UV-VIS.	2	1000
	With reference to IEC 62321(Edition 1.0 2008-12), Annex B. Determined by UV-VIS.	Negative Positive	Negative Positive
PBBs/PBDEs	With reference to IEC 62321(Edition 1.0 2008-12), Annex A. Determined by GC/MS	5	1000

Remark:

Negative= The absence of Cr(VI).

 Positive= The presence of Cr(VI) by spot test, or the detected concentration in boiling-water-extraction solution is equal or greater than 0.02mg/kg with 50cm² sample surface area.

4 Flow Charts
4.1 To Determine Lead(Pb) / Cadmium (Cd) / Mercury (Hg) Content



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End of Report

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