



No. L4672

Test Report

No.: DGC13012317J

Date: January 25, 2013

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Aplicant:

Address:

Manufacturer: /**Address:** /**Sample Name:** Hub**Model No.:** USB hub**Item No.:** ygh-383**Test period:** January 23, 2013 to January 25, 2013**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.

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
Chromium (Cr ⁶⁺)	IEC 62321: Annex C	UV-Vis	2mg/kg
	IEC 62321: Annex B		---
PBBs/PBDEs	IEC 62321: Annex A	GC-MS	5mg/kg

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.

Written by:*Jenny***Checked by:***Ken***Approved by:**

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

Part No.	Test Part Name	Restricted Substances	Results of EDXRF	Result of Chemical Testing	Conclusion on RoHS
1	Crystal oscillator	Cr ⁶⁺	N.D.	/	Comply
		Cd	N.D.	/	Comply
		Pb	N.D.	/	Comply
		Hg	N.D.	/	Comply
		PBBs	---	/	Comply
		PBDEs		/	Comply
2	Chip	Cr ⁶⁺	N.D.	/	Comply
		Cd	N.D.	/	Comply
		Pb	N.D.	/	Comply
		Hg	N.D.	/	Comply
		PBBs	7	/	Comply
		PBDEs		/	Comply
3	USB socket metal	Cr ⁶⁺	N.D.	/	Comply
		Cd	N.D.	/	Comply
		Pb	N.D.	/	Comply
		Hg	N.D.	/	Comply
		PBBs	---	/	Comply
		PBDEs		/	Comply
4	USB socket metal pin	Cr ⁶⁺	N.D.	/	Comply
		Cd	N.D.	/	Comply
		Pb	N.D.	/	Comply
		Hg	N.D.	/	Comply
		PBBs	---	/	Comply
		PBDEs		/	Comply
5	USB socket white plastic	Cr ⁶⁺	N.D.	/	Comply
		Cd	N.D.	/	Comply
		Pb	10	/	Comply
		Hg	N.D.	/	Comply
		PBBs	73	/	Comply
		PBDEs		/	Comply
6	SMD resistor	Cr ⁶⁺	N.D.	/	Comply
		Cd	N.D.	/	Comply
		Pb	N.D.	/	Comply
		Hg	N.D.	/	Comply
		PBBs	N.D.	/	Comply
		PBDEs		/	Comply

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Part No.	Test Part Name	Restricted Substances	Results of EDXRF	Result of Chemical Testing	Conclusion on RoHS
7	SMD capacitance	Cr ⁶⁺	N.D.	/	Comply
		Cd	N.D.	/	Comply
		Pb	N.D.	/	Comply
		Hg	N.D.	/	Comply
		PBBs	N.D.	/	Comply
		PBDEs		/	Comply
8	Red enameled wire	Cr ⁶⁺	N.D.	/	Comply
		Cd	N.D.	/	Comply
		Pb	N.D.	/	Comply
		Hg	N.D.	/	Comply
		PBBs	---	/	Comply
		PBDEs		/	Comply
9	Green enameled wire	Cr ⁶⁺	N.D.	/	Comply
		Cd	N.D.	/	Comply
		Pb	N.D.	/	Comply
		Hg	N.D.	/	Comply
		PBBs	---	/	Comply
		PBDEs		/	Comply
10	USB interface metal	Cr ⁶⁺	N.D.	/	Comply
		Cd	N.D.	/	Comply
		Pb	N.D.	/	Comply
		Hg	N.D.	/	Comply
		PBBs	---	/	Comply
		PBDEs		/	Comply
11	USB interface white plastic	Cr ⁶⁺	127	/	Comply
		Cd	N.D.	/	Comply
		Pb	N.D.	/	Comply
		Hg	N.D.	/	Comply
		PBBs	2705	N.D.	Comply
		PBDEs		51	Comply
12	USB interface metal pin	Cr ⁶⁺	N.D.	/	Comply
		Cd	N.D.	/	Comply
		Pb	N.D.	/	Comply
		Hg	N.D.	/	Comply
		PBBs	---	/	Comply
		PBDEs		/	Comply

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Part No.	Test Part Name	Restricted Substances	Results of EDXRF	Result of Chemical Testing	Conclusion on RoHS
13	PCB board	Cr ⁶⁺	347	/	Comply
		Cd	N.D.	/	Comply
		Pb	N.D.	/	Comply
		Hg	N.D.	/	Comply
		PBBs	11668	N.D.	Comply
		PBDEs		N.D.	Comply
14	PCB board solder	Cr ⁶⁺	N.D.	/	Comply
		Cd	N.D.	/	Comply
		Pb	N.D.	/	Comply
		Hg	N.D.	/	Comply
		PBBs	---	/	Comply
		PBDEs		/	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 Cr^{6+} 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 Cr^{6+}) 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	Polymer	Metal	Composite Materials
Cd	$\text{BL} \leq (70 - 3\sigma) < X < (130 + 3\sigma) \leq \text{OL}$	$\text{BL} \leq (70 - 3\sigma) < X < (70 + 3\sigma) \leq \text{OL}$	$\text{LOD} < X < (150 + 3\sigma) \leq \text{OL}$
Pb	$\text{BL} \leq (700 - 3\sigma) < X < (1300 + 3\sigma) \leq \text{OL}$	$\text{BL} \leq (700 - 3\sigma) < X < (1300 + 3\sigma) \leq \text{OL}$	$\text{BL} \leq (500 - 3\sigma) < X < (1500 + 3\sigma) \leq \text{OL}$
Hg	$\text{BL} \leq (700 - 3\sigma) < X < (1300 + 3\sigma) \leq \text{OL}$	$\text{BL} \leq (700 - 3\sigma) < X < (1300 + 3\sigma) \leq \text{OL}$	$\text{BL} \leq (500 - 3\sigma) < X < (1500 + 3\sigma) \leq \text{OL}$
Cr	$\text{BL} \leq (700 - 3\sigma) < X$	$\text{BL} \leq (700 - 3\sigma) < X$	$\text{BL} \leq (500 - 3\sigma) < X$
Br	$\text{BL} \leq (300 - 3\sigma) < X$	---	$\text{BL} \leq (250 - 3\sigma) < X$

(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 Cr^{6+} for metal coating sample is shown as Positive/Negative.
 Negative= Absence of Cr^{6+} coating, Positive= Presence of Cr^{6+} 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.

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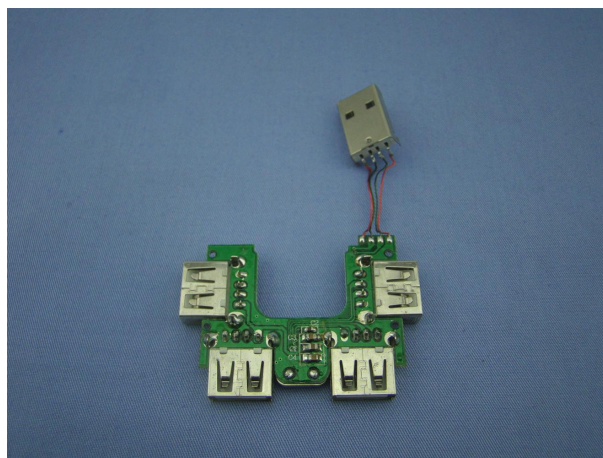
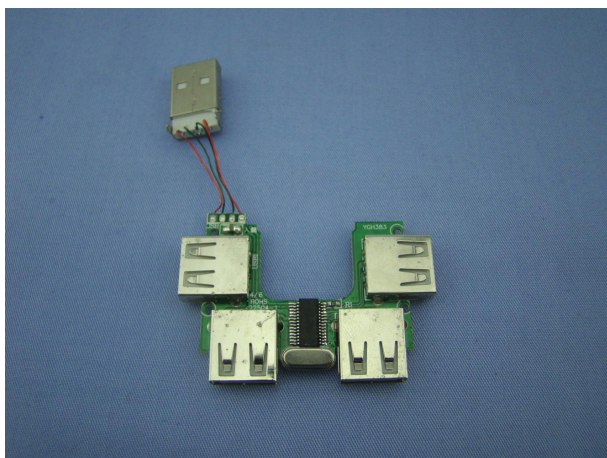
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Photographs of Sample:

End of Report

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