



TEST REPORT

REPORT No.: R2SH160527F0291E

Date: June 8, 2016

Page 1 of 10

Hangzhou Synway Information Engineering Co.,Ltd
No.3756, Nanhuan Road, Hangzhou, China

Report on the submitted samples said to be:

Sample Description : PCIe Digital Trunk Passive Board
Style/ Item No. : DTP-120C/PCIe+, DTP-60C/PCIe+, DTP-30C/PCIe+
Sample Receiving Date : May 30, 2016
Testing Period : From May 30, 2016 to June 8, 2016
Results : Please refer to next page(s).

Summary of Test Results:

TEST REQUEST

CONCLUSION

A EU RoHS Directive 2011/65/EU and its amendment directives -XRF and Chemical test(Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs & PBDEs content)

Pass

Signed for and on behalf of
BACL

Checked by: Jane Xu
Jane Xu
Technical Supervisor

Approved by: William Wei
William Wei
Laboratory Manager

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TEST REPORT

REPORT No.: R2SH160527F0291E

Date: June 8, 2016

Page 2 of 10

Results:

A. EU RoHS Directive 2011/65/EU and its amendment directives on XRF

Test method: With reference to IEC62321-3-1:2013 screening by X-ray Fluorescence Spectroscopy (XRF)

Seq. No.	Tested Part(s)	Results				
		Pb	Cd	Hg	Cr	Br
1	Silvery plated golden metal(shell, network plug)	BL	BL	BL	BL	---
2	Black soft plastic(shell, network plug)	BL	BL	BL	BL	BL
3	Golden metal(plate, network plug)	BL	BL	BL	BL	---
4	Transparent plastic(sleeve, network plug)	BL	BL	BL	BL	BL
5	Silvery solder(wire, network plug)	BL	BL	BL	BL	---
6	Black plastic(shell, plug)	BL	BL	BL	BL	BL
7	Silvery metal(screwed tube, plug)	BL	BL	BL	BL	---
8*	White plastic(pin holder, plug)	BL	BL	BL	BL	IN
9* ¹	Golden metal(pin, plug)	OL	BL	BL	BL	---
10	Silvery solder(pin, plug)	BL	BL	BL	BL	---
11	Translucent soft plastic(sleeve, wire, plug)	BL	BL	BL	BL	BL
12	Black soft plastic with white printing(cable jacket, connecting cable)	BL	BL	BL	BL	BL
13	Milky soft plastic(wire jacket, connecting cable)	BL	BL	BL	BL	BL
14	Silvery plated coppery metal(wire, connecting cable)	BL	BL	BL	BL	---
15	PCle digital trunk passive board	BL	BL	BL	BL	BL
16	White paper with black printing(label, PCB" DTP-30C/PCle+")	BL	BL	BL	BL	BL
17	Transparent soft plastic with bright silvery coating(label, PCB" DTP-30C/PCle+")	BL	BL	BL	BL	---
18	Silvery metal(screw, PCB" DTP-30C/PCle+")	BL	BL	BL	BL	---
19	Silvery metal(fixer, PCB" DTP-30C/PCle+")	BL	BL	BL	BL	---
20*	Silvery metal(shell, socket, PCB" DTP-30C/PCle+")	BL	BL	BL	BL	IN
21	Black plastic(pin holder, socket, PCB" DTP-30C/PCle+")	BL	BL	BL	BL	---

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TEST REPORT

REPORT No.: R2SH160527F0291E

Date: June 8, 2016

Page 3 of 10

Seq. No.	Tested Part(s)	Results				
		Pb	Cd	Hg	Cr	Br
22	Green plastic(shell, LED, socket)	BL	BL	BL	BL	BL
23	Silvery metal(pin, LED, socket)	BL	BL	BL	BL	---
24	Yellow body(capacitor"E14", PCB" DTP-30C/PCle+")	BL	BL	BL	BL	BL
25	Black/white body(EC"F2", PCB" DTP-30C/PCle+")	BL	BL	BL	BL	BL
26	Grey body with white printing(inductor"L1", PCB" DTP-30C/PCle+")	BL	BL	BL	BL	BL
27	Silvery body(crystal"CYC1", PCB" DTP-30C/PCle+")	BL	BL	BL	BL	BL
28	Dark grey body with brown printing(IC"IC17", PCB" DTP-30C/PCle+")	BL	BL	BL	BL	BL
29	Black body with brown printing(IC"IC12", PCB" DTP-30C/PCle+")	BL	BL	BL	BL	BL
30*	Green PCB(base, IC"IC12")	BL	BL	BL	BL	IN
31	Silvery solder(small PCB"IC12", PCB" DTP-30C/PCle+")	BL	BL	BL	BL	---
32	Black body with brown printing(IC"IC2", PCB" DTP-30C/PCle+")	BL	BL	BL	BL	BL
33	Brown FPC(base, IC"IC2")	BL	BL	BL	BL	BL
34	Black body(transistor"Q2", PCB" DTP-30C/PCle+")	BL	BL	BL	BL	BL
35	Black plastic with white printing(shell, transformer"T1", PCB" DTP-30C/PCle+")	BL	BL	BL	BL	BL
36	Red coated coppery metal(coil, transformer"T1")	BL	BL	BL	BL	---
37	Green coated coppery metal(coil, transformer"T1")	BL	BL	BL	BL	---
38	Coppery metal(coil, transformer"T1")	BL	BL	BL	BL	---
39	Black magnet(core, transformer"T1")	BL	BL	BL	BL	BL
40	Grey glue(sticker, transformer"T1")	BL	BL	BL	BL	BL
41	Silvery solder(coil, transformer"T1")	BL	BL	BL	BL	---
42	Black body(IC"Z1", PCB" DTP-30C/PCle+")	BL	BL	BL	BL	BL
43	Black/white body(resistor"R21", PCB" DTP-30C/PCle+")	BL	BL	BL	BL	BL
44	Brown body(capacitor"C29", PCB" DTP-30C/PCle+")	BL	BL	BL	BL	BL
45*	Green PCB(PCB" DTP-30C/PCle+")	BL	BL	BL	BL	IN
46	Silvery solder(PCB" DTP-30C/PCle+")	BL	BL	BL	BL	---

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TEST REPORT

REPORT No.: R2SH160527F0291E

Date: June 8, 2016

Page 4 of 10

Seq. No.	Tested Part(s)	Results				
		Pb	Cd	Hg	Cr	Br
47	Black body(EC"FB10", PCB" DTP-30C/PCle+")	BL	BL	BL	BL	BL
48	Chocolate body with white printing(EC"F1", PCB" DTP-60C/PCle+")	BL	BL	BL	BL	BL
49*	Ly-yellow PCB(PCB" DTP-60C/PCle+")	BL	BL	BL	BL	IN
50	Silvery solder(PCB" DTP-60C/PCle+")	BL	BL	BL	BL	---
51*	Green PCB(PCB" DTP-120C/PCle+")	BL	BL	BL	BL	IN
52	Silvery solder(PCB" DTP-120C/PCle+")	BL	BL	BL	BL	---

-- = Not Conducted

* = Screening by XRF and detected by chemical method. The test results of chemical method please refer to next pages.

*1 = As claimed by the material declaration submitted by the client, the materials of the sample No. 9 is copper alloy. And according to RoHS directive2011/65/EU and its amendments, Lead is exempted as an alloying element in Copper containing up to 4% (40000ppm) by weight

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TEST REPORT

REPORT No.: R2SH160527F0291E

Date: June 8, 2016

Page 5 of 10

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 IEC62321-3-1:2013.

Element	Unit	Polymers	Metal	Composite Material
Cd	mg/kg	BL≤70-3σ<X <130+3σ≤OL	BL≤70-3σ<X <130+3σ≤OL	LOD<X <150+3σ≤OL
Pb	mg/kg	BL≤700-3σ<X <1300+3σ≤OL	BL≤700-3σ<X <1300+3σ≤OL	BL≤500-3σ<X <1500+3σ≤OL
Hg	mg/kg	BL≤700-3σ<X <1300+3σ≤OL	BL≤700-3σ<X <1300+3σ≤OL	BL≤500-3σ<X <1500+3σ≤OL
Cr	mg/kg	BL≤700-3σ<X	BL≤700-3σ<X	BL≤500-3σ<X
Br	mg/kg	BL≤300-3σ<X	--	BL≤250-3σ<X

Note:

- BL = Below Limit
- OL = Over Limit
- IN = Inconclusive (questionable, need further chemical analysis)
- LOD = Limit of Detection

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

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TEST REPORT

REPORT No.: R2SH160527F0291E

Date: June 8, 2016

Page 6 of 10

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 diphenylethers (PBDEs)	1000

Remark :

(4) As requested by applicant, only components shown in this report were screened by XRF spectroscopy for 2011/65/EU and its amendment directives, other components were not screened included in this report.

(5) Photo appendix is included.

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.

The Test Results of Chemical Method:

Test method:

PBBs & PBDEs Content:

With reference to IEC 62321-6:2015, by solvent extraction and analysis was performed by gas chromatographic-mass spectrometer (GC-MS)

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TEST REPORT

REPORT No.: R2SH160527F0291E

Date: June 8, 2016

Page 7 of 10

1) The test results of PBBs & PBDEs

Item	Unit	MDL	Results			Limit
			8	20	30	
Polybrominated Biphenyls (PBBs)						
Monobromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	
Dibromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	
Tribromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	
Tetrabromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	
Pentabromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	
Hexabromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	
Heptabromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	
Octabromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	
Nonabromodiphenyl	mg/kg	5	N.D.	N.D.	N.D.	
Decabromodiphenyl	mg/kg	5	N.D.	N.D.	N.D.	
Total content	mg/kg	/	N.D.	N.D.	N.D.	1000 mg/kg
Polybrominated Diphenylethers (PBDEs)(Mon-Deca)						
Monobromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	
Dibromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	
Tribromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	
Tetrabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	
Pentabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	
Hexabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	
Heptabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	
Octabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	
Nonabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	
Decabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	
Total content	mg/kg	/	N.D.	N.D.	N.D.	1000 mg/kg
Conclusion	/	/	Pass	Pass	Pass	/

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TEST REPORT

REPORT No.: R2SH160527F0291E

Date: June 8, 2016

Page 8 of 10

Item	Unit	MDL	Results			Limit
			45	49	51	
Polybrominated Biphenyls (PBBs)						
Monobromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	
Dibromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	
Tribromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	
Tetrabromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	
Pentabromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	
Hexabromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	
Heptabromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	
Octabromobiphenyl	mg/kg	5	N.D.	N.D.	N.D.	
Nonabromodiphenyl	mg/kg	5	N.D.	N.D.	N.D.	
Decabromodiphenyl	mg/kg	5	N.D.	N.D.	N.D.	
Total content	mg/kg	/	N.D.	N.D.	N.D.	1000 mg/kg
Polybrominated Diphenylethers (PBDEs)(Mon-Deca)						
Monobromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	
Dibromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	
Tribromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	
Tetrabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	
Pentabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	
Hexabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	
Heptabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	
Octabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	
Nonabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	
Decabromodiphenyl ether	mg/kg	5	N.D.	N.D.	N.D.	
Total content	mg/kg	/	N.D.	N.D.	N.D.	1000 mg/kg
Conclusion	/	/	Pass	Pass	Pass	/

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TEST REPORT

REPORT No.: R2SH160527F0291E

Date: June 8, 2016

Page 9 of 10

Note:

- N.D. = Not Detected or less than MDL
- mg/kg = ppm
- MDL = Method Detection Limit
- The results less than MDL are not taken into account while calculating the sum contents.
- Photo appendix is included.

FINAL

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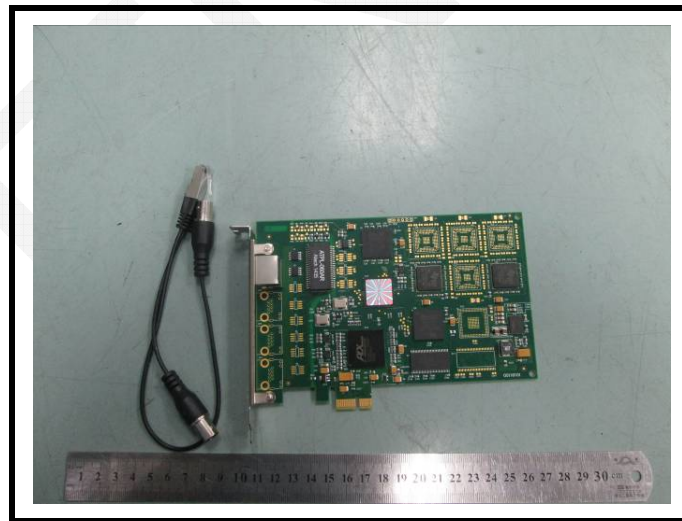
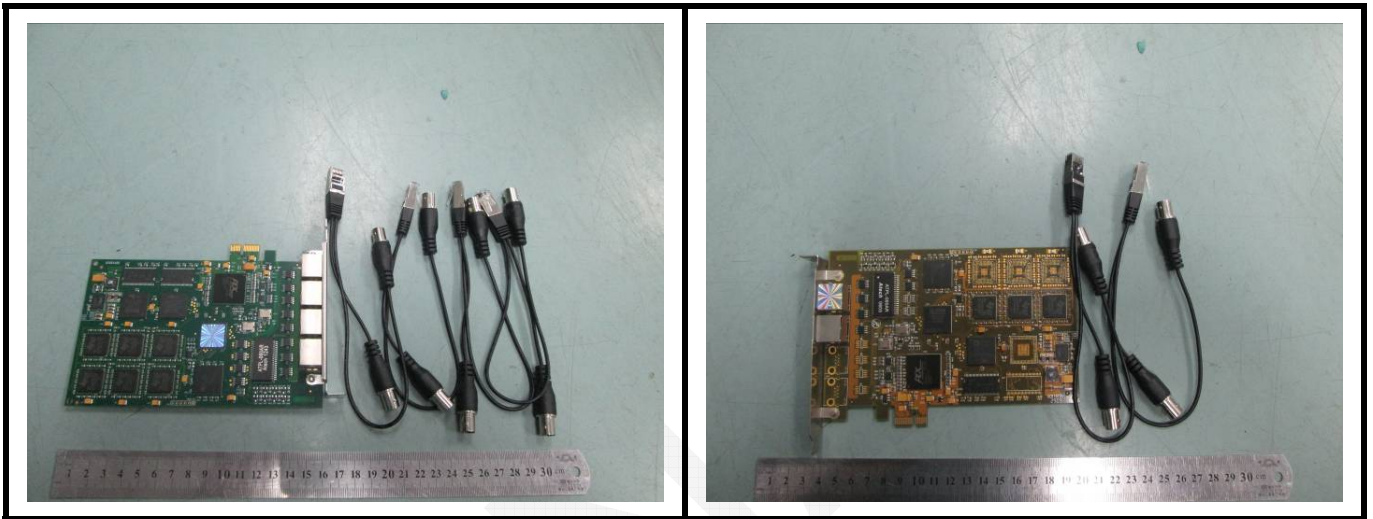
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Date: June 8, 2016

Page 10 of 10

Appendix

Photograph of Sample



BACL authenticate the photo on original report only

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