

TEST REPORT

REPORT No.: R2SH170724F0330E

Date: July 31, 2017

Page 1 of 6

High-Flying Electronics Technology Co., Ltd
Room 1002, Building 1, No.3000, Longdong Avenue, Pudong New Area, Shanghai, China

Report on the submitted samples said to be:

Sample Name : WIFI Module
Style/ Item No. : HF-LPB100
Manufacturer : High-Flying Electronics Technology Co., Ltd
Sample Receiving Date : July 24, 2017
Testing Period : From July 24, 2017 to July 31, 2017
Results : Please refer to next page(s).

Summary of Test Results:


TEST REQUEST


CONCLUSION

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

Pass

Signed for and on behalf of
BACL


Checked by: _____
Jane Xu
Technical Supervisor


Approved by: _____
William Wei
Laboratory Manager

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Date: July 31, 2017

Page 2 of 6

Results:

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

XRF screening test

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	White/brown adhesive plastic with black printing(label)	BL	BL	BL	BL	BL
2	Silvery metal(shield)	BL	BL	BL	BL	---
3	Black body with brown printing(IC, PCB)	BL	BL	BL	BL	BL
4	Brown body(capacitor, PCB)	BL	BL	BL	BL	BL
5	Black/white body(resister, PCB)	BL	BL	BL	BL	BL
6	Silvery body(crystal, PCB)	BL	BL	BL	BL	BL
7	Black body with brown printing(EC, PCB)	BL	BL	BL	BL	BL
8	White body(inductor, PCB)	BL	BL	BL	BL	BL
9	Black body(EC, PCB)	BL	BL	BL	BL	BL
10	Silvery solder(PCB)	BL	BL	BL	BL	---
11*	Black PCB(Module)	BL	BL	BL	BL	IN

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Page 3 of 6

Remark:

(1)

-- = Not Conducted

* 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	$BL \leq 70 - 3\sigma < X < 130 + 3\sigma \leq OL$	$BL \leq 70 - 3\sigma < X < 130 + 3\sigma \leq OL$	$LOD < X < 150 + 3\sigma \leq OL$
Pb	mg/kg	$BL \leq 700 - 3\sigma < X < 1300 + 3\sigma \leq OL$	$BL \leq 700 - 3\sigma < X < 1300 + 3\sigma \leq OL$	$BL \leq 500 - 3\sigma < X < 1500 + 3\sigma \leq OL$
Hg	mg/kg	$BL \leq 700 - 3\sigma < X < 1300 + 3\sigma \leq OL$	$BL \leq 700 - 3\sigma < X < 1300 + 3\sigma \leq OL$	$BL \leq 500 - 3\sigma < X < 1500 + 3\sigma \leq OL$
Cr	mg/kg	$BL \leq 700 - 3\sigma < X < 1300 + 3\sigma \leq OL$	$BL \leq 700 - 3\sigma < X < 1300 + 3\sigma \leq OL$	$BL \leq 500 - 3\sigma < X < 1500 + 3\sigma \leq OL$
Br	mg/kg	$BL \leq 300 - 3\sigma < X < 1300 + 3\sigma \leq OL$	--	$BL \leq 250 - 3\sigma < X < 1500 + 3\sigma \leq OL$

BL = Below Limit

OL = Over Limit

IN = Inconclusive

LOD = Limit of Detection

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REPORT No.: R2SH170724F0330E

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Page 4 of 6

(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 RoHS directive 2011/65/EU:

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
Polybrominate ddiphenylethers (PBDEs)	1000

(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.

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REPORT No.: R2SH170724F0330E

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Page 5 of 6

Wet Chemical Testing:

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)

1) The test results of PBBs & PBDEs

Item	Unit	MDL	Results	Limit
			11	
Polybrominated Biphenyls				
Monobromobiphenyl	mg/kg	5	N.D.	
Dibromobiphenyl	mg/kg	5	N.D.	
Tribromobiphenyl	mg/kg	5	N.D.	
Tetrabromobiphenyl	mg/kg	5	N.D.	
Pentabromobiphenyl	mg/kg	5	N.D.	
Hexabromobiphenyl	mg/kg	5	N.D.	
Heptabromobiphenyl	mg/kg	5	N.D.	
Octabromobiphenyl	mg/kg	5	N.D.	
Nonabromodiphenyl	mg/kg	5	N.D.	
Decabromodiphenyl	mg/kg	5	N.D.	
Total content	mg/kg	/	N.D.	1000
Polybrominated Diphenylethers				
Monobromodiphenyl ether	mg/kg	5	N.D.	
Dibromodiphenyl ether	mg/kg	5	N.D.	
Tribromodiphenyl ether	mg/kg	5	N.D.	
Tetrabromodiphenyl ether	mg/kg	5	N.D.	
Pentabromodiphenyl ether	mg/kg	5	N.D.	
Hexabromodiphenyl ether	mg/kg	5	N.D.	
Heptabromodiphenyl ether	mg/kg	5	N.D.	
Octabromodiphenyl ether	mg/kg	5	N.D.	
Nonabromodiphenyl ether	mg/kg	5	N.D.	
Decabromodiphenyl ether	mg/kg	5	N.D.	
Total content	mg/kg	/	N.D.	1000
Conclusion	/	/	Pass	/

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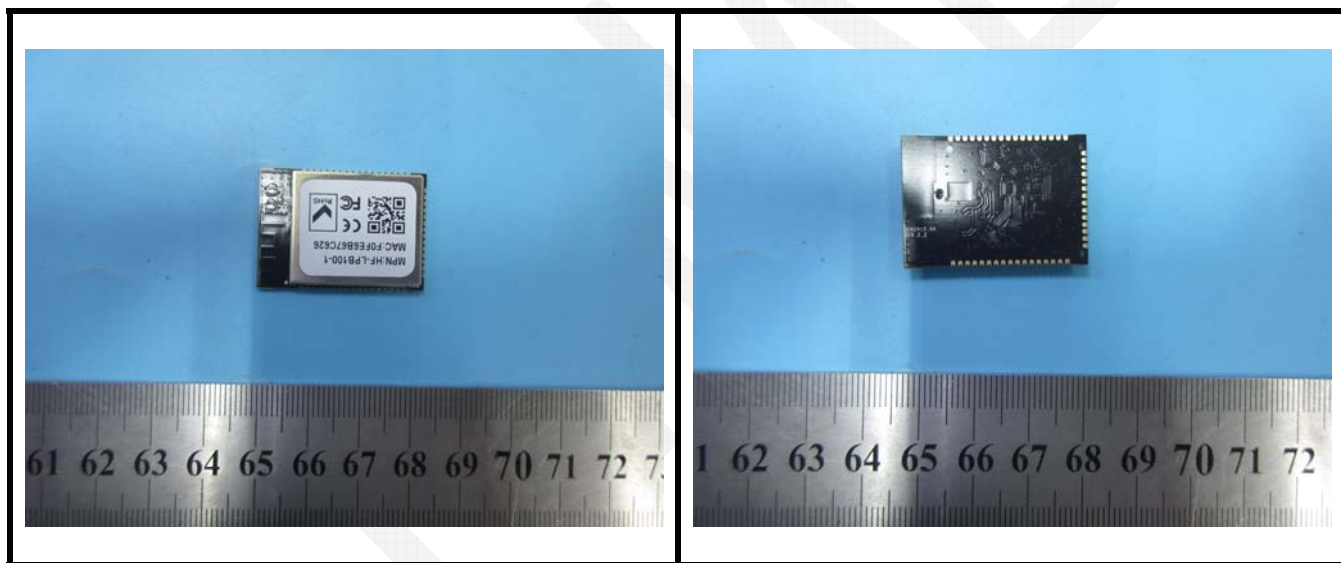
Date: July 31, 2017

Page 6 of 6

Note:

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

Photograph of Sample



BACL authenticate the photo on original report only

*** End of Report ***

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