



# TEST REPORT

Product: WisLink  
 Trademark: RAK  
 Applicant: Shenzhen RAKwireless Technology Co.,Ltd.  
 Address: Room 506, Bldg B, New Compark, Pingshan First Road, Taoyuan Street,XiLi town Nanshan District, Shenzhen, China  
 Manufacturer: Shenzhen RAKwireless Technology Co.,Ltd.  
 Address: Room 506, Bldg B, New Compark, Pingshan First Road, Taoyuan Street,XiLi town Nanshan District, Shenzhen, China  
 Model No: RAK2245  
 Date of Sample Received: 2020-12-09  
 Testing Period: 2020-12-09 to 2020-12-15  
 Verification Requested : With reference to RoHS Directive (EU) 2015/863 amending 2011/65/EU.  
 Verification Method : Please refer to next page(s).  
 Verification Result : Please refer to next page(s).  
 Verification Conclusion : Based on the verification results of the submitted samples, the results of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) do not exceed the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.  
 Note : The test results are related only to the tested items. The report shall not be reproduced except in full without the written approval of the testing laboratory.

Check by : Jane He Date : 2020-12-15  
 (Jane He)

Approved by : July Yan Date : 2020-12-15  
 (July Yan)





ROHS TEST REPORT  
Report No.: ATL202012091808R01

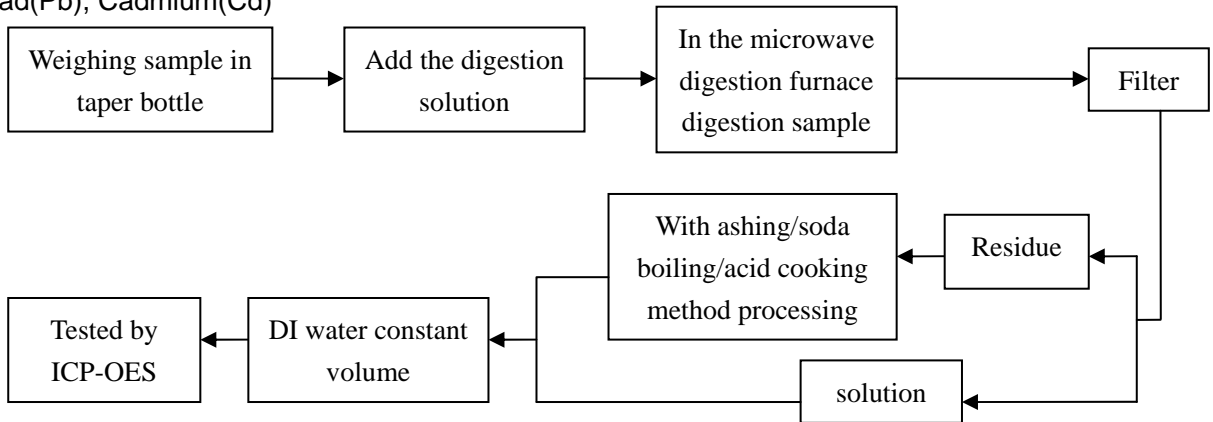
Test Method:

Testing item	Pretreatment method	Measuring instrument	MDL
Lead(Pb)	IEC 62321-5:2013	ICP-OES	2 mg/kg
Cadmium(Cd)	IEC 62321-5:2013	ICP-OES	2 mg/kg
Mercury(Hg)	IEC 62321-4:2013/AMD 1:2017	ICP-OES	2 mg/kg
Chromium(Cr VI)	IEC 62321-7-1:2015	UV-Vis	/
	IEC 62321-7-2:2017	UV-Vis	10mg/kg
PBBs	IEC 62321-6:2015	GC-MS	30 mg/kg
PBDEs	IEC 62321-6:2015	GC-MS	30 mg/kg
DIBP	IEC 62321-8:2017	GC-MS	30 mg/kg
DEHP	IEC 62321-8:2017	GC-MS	30 mg/kg
DBP	IEC 62321-8:2017	GC-MS	30 mg/kg
BBP	IEC 62321-8:2017	GC-MS	30 mg/kg

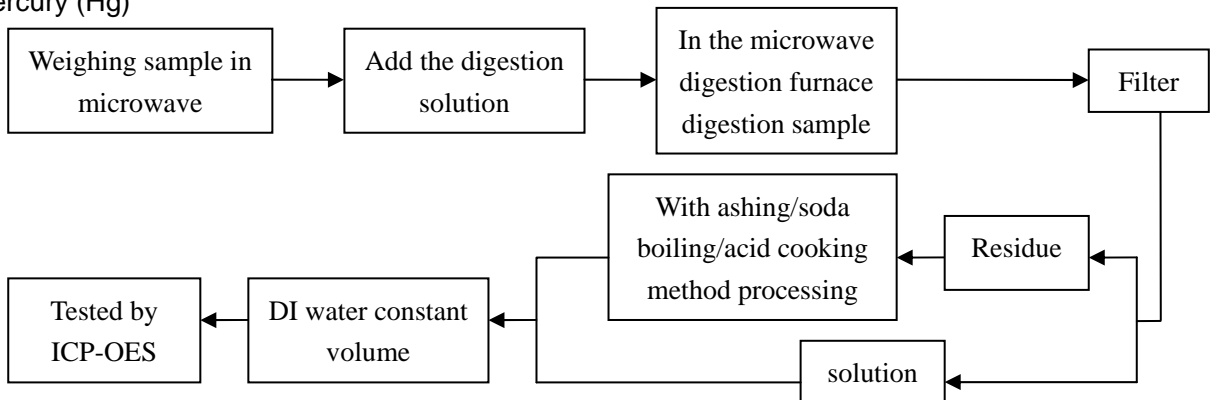


Test Flow:

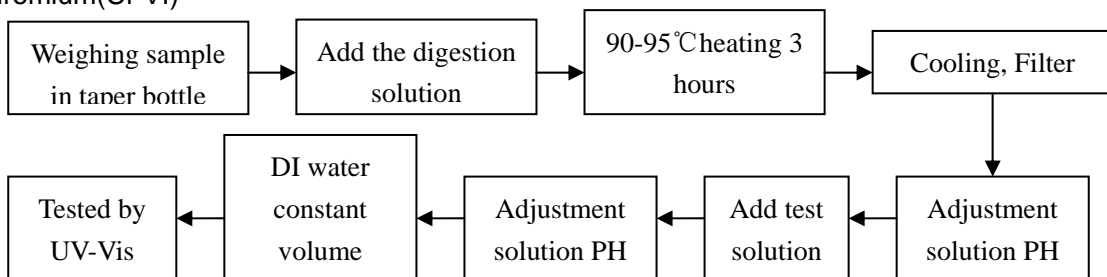
1. Lead(Pb), Cadmium(Cd)



2. Mercury (Hg)

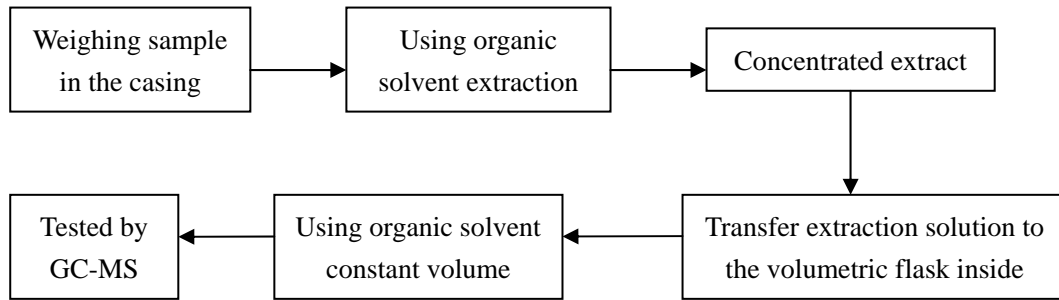


3. Chromium(Cr VI)

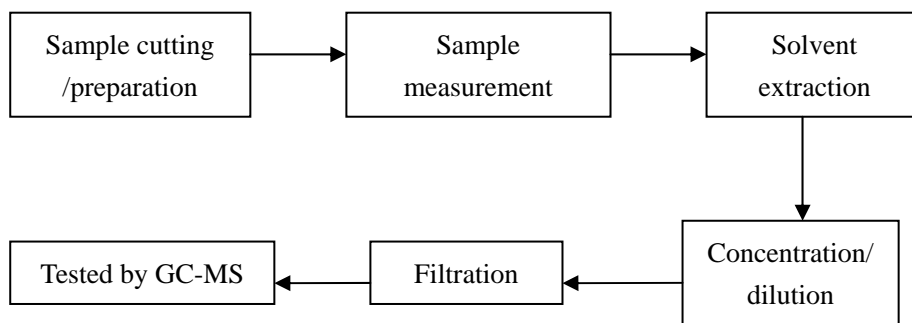




4. PBBs/ PBDEs



5. DEHP/ BBP/ DBP/ DIBP





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Test Results:

Testing Item	Unit	ROHS Limit	Result					
			1	2	3	4	5	6
Lead(Pb)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Cadmium(Cd)	mg/kg	100	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Mercury(Hg)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Chromium(Cr VI)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Sum of PBBs	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Monobromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Dibromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Tribromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Tetrabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Pentabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Hexabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Heptabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Octabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Nonabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Decabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Sum of PBDEs	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Monobromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Dibromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Tribromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Tetrabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Pentabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Hexabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Heptabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Octabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Nonabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Decabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Diisobutyl phthalate(DIBP)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Bis-(2-ethylhexyl) Phthalate (DEHP)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Benzylbutyl Phthalate (BBP)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Dibutyl Phthalate (DBP)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.



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Testing Item	Unit	ROHS Limit	Result					
			7	8	9	10	11	12
Lead(Pb)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Cadmium(Cd)	mg/kg	100	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Mercury(Hg)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Chromium(Cr VI)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Sum of PBBs	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Monobromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Dibromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Tribromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Tetrabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Pentabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Hexabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Heptabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Octabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Nonabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Decabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Sum of PBDEs	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Monobromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Dibromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Tribromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Tetrabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Pentabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Hexabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Heptabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Octabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Nonabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Decabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Diisobutyl phthalate(DIBP)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Bis-(2-ethylhexyl) Phthalate (DEHP)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Benzylbutyl Phthalate (BBP)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Dibutyl Phthalate (DBP)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.



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Testing Item	Unit	ROHS Limit	Result					
			13	14	15	16	17	18
Lead(Pb)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Cadmium(Cd)	mg/kg	100	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Mercury(Hg)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Chromium(Cr VI)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Sum of PBBs	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Monobromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Dibromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Tribromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Tetrabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Pentabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Hexabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Heptabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Octabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Nonabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Decabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Sum of PBDEs	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Monobromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Dibromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Tribromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Tetrabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Pentabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Hexabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Heptabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Octabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Nonabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Decabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Diisobutyl phthalate(DIBP)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Bis-(2-ethylhexyl) Phthalate (DEHP)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Benzylbutyl Phthalate (BBP)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Dibutyl Phthalate (DBP)	mg/kg	1000	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.



ROHS TEST REPORT  
Report No.: ATL202012091808R01

Testing Item	Unit	ROHS Limit	Result					
			19	20	21	22	23	24
Lead(Pb)	mg/kg	1000	N.D.	N.D.	N.D.	---	---	---
Cadmium(Cd)	mg/kg	100	N.D.	N.D.	N.D.	---	---	---
Mercury(Hg)	mg/kg	1000	N.D.	N.D.	N.D.	---	---	---
Chromium(Cr VI)	mg/kg	1000	N.D.	N.D.	N.D.	---	---	---
Sum of PBBs	mg/kg	1000	N.D.	N.D.	N.D.	---	---	---
Monobromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	---	---	---
Dibromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	---	---	---
Tribromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	---	---	---
Tetrabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	---	---	---
Pentabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	---	---	---
Hexabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	---	---	---
Heptabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	---	---	---
Octabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	---	---	---
Nonabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	---	---	---
Decabromobiphenyl	mg/kg	/	N.D.	N.D.	N.D.	---	---	---
Sum of PBDEs	mg/kg	1000	N.D.	N.D.	N.D.	---	---	---
Monobromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	---	---	---
Dibromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	---	---	---
Tribromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	---	---	---
Tetrabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	---	---	---
Pentabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	---	---	---
Hexabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	---	---	---
Heptabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	---	---	---
Octabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	---	---	---
Nonabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	---	---	---
Decabromodiphenyl ether	mg/kg	/	N.D.	N.D.	N.D.	---	---	---
Diisobutyl phthalate(DIBP)	mg/kg	1000	N.D.	N.D.	N.D.	---	---	---
Bis-(2-ethylhexyl) Phthalate (DEHP)	mg/kg	1000	N.D.	N.D.	N.D.	---	---	---
Benzylbutyl Phthalate (BBP)	mg/kg	1000	N.D.	N.D.	N.D.	---	---	---
Dibutyl Phthalate (DBP)	mg/kg	1000	N.D.	N.D.	N.D.	---	---	---





ROHS TEST REPORT  
Report No.: ATL202012091808R01

Sample Description:

1. Make board
2. SMD ceramic capacitor
3. Sheet capacitor
4. LED
5. EM magnetic beads
6. Band pass filter
7. Low pass filter
8. RF coaxial connector
9. Shield clamp
10. SMD inductor
11. Triode
12. Chip thick film resistor
13. Power module
14. RF switch
15. RF low noise amplifier
16. GPS module
17. RF coupler
18. Voltage regulator
19. Temperature compensated bell vibration
20. PCB
21. Main control chip

Notes:

1mg/kg=1ppm = 0.0001%

N.D. = Not Detected (<MDL)

MDL = Method Detection Limit

/=Not Regulated

---=Not Applicable

SAMPLE PHOTO



Fig. 1

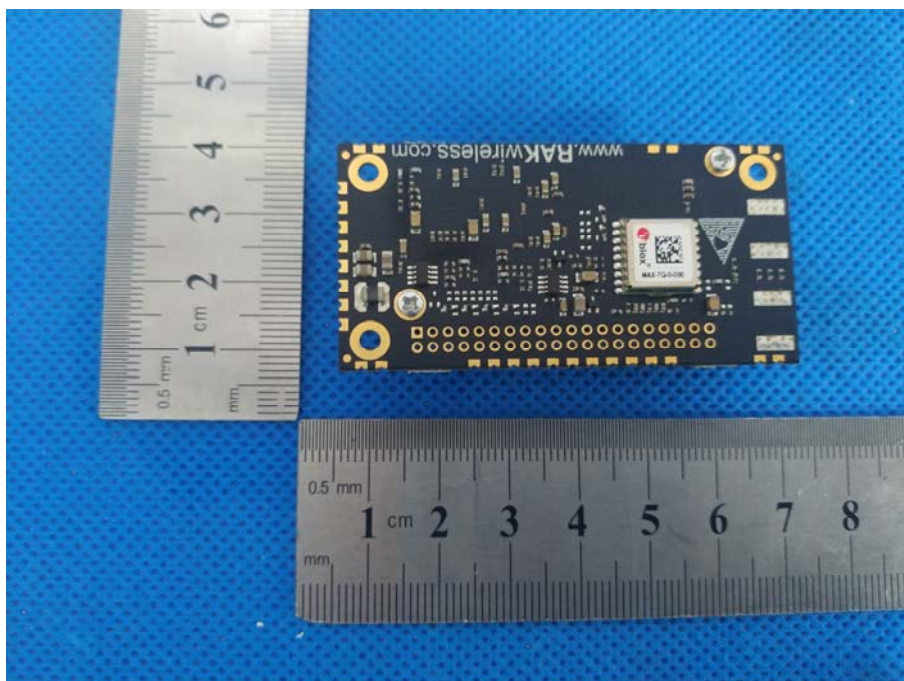


Fig. 2

\*\*\*\*End of Report\*\*\*\*