Test Report

Report No.: A001E20161019049-2 Date: Jan.06,2017 Page 1 of 14

Applicant: Next Thing Co.

Address: /

Report on the submitted sample(s) said to be:

Sample Name: CHIP PRO

Sample Model: 100456

Country of Origin: P.R.C

Manufacturer: Next Thing Co.

Sample Received Date: Oct.19,2016

Testing Period: Oct.19,2016 to Nov.22,2016

Test Requested: Please refer to following page(s).

Test Method: Please refer to following page(s).

Test Result: Please refer to following page(s).

Tested by: Felix.Li	Reviewed by: Jason	Approved by: Lewis
Liwenlong, Felix.Li	Jiangyuncheng, Jason	Liulinwen, Lewis
Test Engineer	Laboratory Manager	Technical Director

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Test Report

Test Requested: 1.As specified by client, to determine the Pb, Cd, Hg, Cr^{6+}, PBBs, PBDEs content in the submitted sample in accordance with EU RoHS Directive 2011/65/EU(RoHS) and its amendment directives on XRF and Chemical Method.

2.As specified by client, to determine the DBP, BBP, DEHP, DIBP content in the submitted sample in accordance with Directive 2011/65/EU (RoHS) and its amendment directive (EU) 2015/863.

Test Methods:

A: Screening by X-ray Fluorescence Spectrometry (XRF) :With reference to IEC 62321-3-1:2013 Ed 1.0 Screening – Lead, mercury, cadmium, total chromium and total bromine by X-ray fluorescence spectrometry

B: Chemical test:

Test Item	**Test Method**	**Measuring Instrument**	**MDL**
Cadmium (Cd)	IEC 62321-5:2013 Ed 1.0 Section 7	ICP-OES	2 mg/kg
Lead (Pb)	IEC 62321-5:2013 Ed 1.0 Section 7	ICP-OES	2 mg/kg
Mercury (Hg)	IEC 62321-4:2013 Ed 1.0 Section 7	ICP-OES	2 mg/kg
Non-metal Hexavalent Chromium (Cr^{6+})	IEC 62321:2008 Ed 1.0 Annex C	UV-Vis	1 mg/kg
Metal Hexavalent Chromium (Cr^{6+})	IEC 62321:2008 Ed 1.0 Annex B	UV-Vis	/
PBBs/PBDEs	IEC 62321:2008 Ed 1.0 Annex A	GC-MS	5 mg/kg

Test Report

Test Results:

1. For the Pb, Cd, Hg, Cr^{6+}, PBBs, PBDEs content

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

Seq. No.	Tested Part(s)	Results(mg/kg)				
		Cd	Pb	Hg	Cr	Br
1	Metal cover	BL	BL	BL	BL	-
2	Patch inductor	BL	BL	BL	BL	BL
3	Patch inductor(2R2)	BL	BL	BL	BL	BL
4	Patch crystal	BL	BL	BL	BL	BL
5	Patch capacitor	BL	BL	BL	BL	BL
6	Patch Antenna	BL	BL	BL	BL	BL
7	Metal ring(Antenna pedestal)	BL	BL	BL	BL	-
8	White plastic seat(Antenna pedestal)	BL	BL	BL	BL	BL
9	Patch LED	BL	BL	BL	BL	BL
10	Patch triode	BL	BL	BL	BL	BL
11	Patch IC(CR8)	BL	BL	BL	BL	BL
12	Patch IC(AxP209)	BL	BL	BL	BL	BL
13	Patch resistor(Bluetooth board)	BL	BL	BL	BL	BL
14	Patch capacitor(Bluetooth board)	BL	BL	BL	BL	BL
15	Patch IC(Bluetooth board)	BL	BL	BL	BL	BL
16	Patch crystal(Bluetooth board)	BL	BL	BL	BL	BL
17	Module PCB board(Bluetooth board)	BL	BL	BL	BL	X*
18	IC Ontology(16299AE)	BL	BL	BL	BL	BL
19	Pin(16299AE)	BL	BL	BL	BL	-
20	Patch IC	BL	BL	BL	BL	BL
21	Solder resistance(PCB board)	BL	BL	BL	BL	BL
22	Substrate(PCB board)	BL	BL	BL	BL	X*
23	Copper foil(PCB board)	BL	BL	BL	BL	-
24	Tin solder(PCB board)	BL	BL	BL	BL	-

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Test Report

Seq. No.	Tested Part(s)	Results(mg/kg)				
		Cd	Pb	Hg	Cr	Br
25	Metal shell(Android plug)	BL	BL	BL	BL	-
26	Black inner glue(Android plug)	BL	BL	BL	BL	BL
27	Pin(Android plug)	BL	BL	BL	BL	-
28	Black plastic button(Light touch switch)	BL	BL	BL	BL	BL
29	Metal shell(Light touch switch)	BL	BL	BL	X*	-
30	Brown adhesive tape(Light touch switch)	BL	BL	BL	BL	BL
31	Shrapnel(Light touch switch)	BL	BL	BL	X*	-
32	Black plastic seat(Light touch switch)	BL	BL	BL	BL	BL
33	Pin(Light touch switch)	BL	BL	BL	BL	-

Element	Unit	Non-metal	Metal	Composite Material
Cd	mg/kg	BL≤70-3σ<X <130+3σ≤OL	BL≤70-3σ<X <130+3σ≤OL	BL≤50-3σ<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 limited
X= Inconclusive
"-"= Not regulated
*= Scanning by XRF and detected by chemical method. The test results of chemical method please refer to next pages.

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Remark:

i Results were obtained by XRF for primary scanning, 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 above warning value according to IEC 62321-3-1:2013 Ed 1.0.

ii The XRF scanning test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.

iii The maximum permissible limit is quoted from the document 2005/618/EC amending 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
Polybrominated diphenylethers (PBDEs)	1000

Disclaimers:

This XRF Scanning 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 scanning 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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Test Report

B、The Test Results of Chemical Method:

1)The Test Results of metal Cr^{6+}

Test Item(s)	MDL	Result(s)		Limit
		29	31	
Metal Hexavalent Chromium (Cr^{6+})	**	Negative	Negative	#

Note:

- Negative = Absence of Cr(Ⅵ) on the tested areas
- MDL = Method Detection Limit
- ** = Spot-test:
  Negative = Absence of Cr(Ⅵ) coating/ surface layer
  Positive = Presence of Cr(Ⅵ) coating/ surface layer
  (The tested sample should be further verified by boiling-water-extraction method if the spot test result cannot be confirmed)
  Boiling-water-extraction:
  Negative = Absence of Cr(Ⅵ) coating/ surface layer
  The detected concentration in boiling- water-extraction solution is less than 0.02 mg/kg with 50cm^2 sample surface areas.
  Positive = Presence of Cr(Ⅵ) coating/ surface layer
  The detected concentration in boiling- water-extraction solution is equal or greater than 0.02 mg/kg with 50cm^2 sample surface areas.
- # =
  Negative indicates the absence of Cr(Ⅵ) on the tested areas and result be regarded as no conflict with RoHS requirement.
  Positive indicates the presence of Cr(Ⅵ) on the tested areas.
  Storage conditions and production date of the tested sample are unavailable and thus result of Cr(VI) represent status of the sample at the time of testing.

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2）The Test Results of PBBs & PBDEs

Unit:mg/kg

Item(s)	MDL	Result(s)		Limit
		17	22	
Polybrominated Biphenyls (PBBs)				
Monobromobiphenyl	5	N.D.	N.D.	Total PBBs Content <1000
Dibromobiphenyl	5	N.D.	N.D.	
Tribromobiphenyl	5	N.D.	N.D.	
Tetrabromobiphenyl	5	N.D.	N.D.	
Pentabromobiphenyl	5	N.D.	N.D.	
Hexabromobiphenyl	5	N.D.	N.D.	
Heptabromobiphenyl	5	N.D.	N.D.	
Octabromobiphenyl	5	N.D.	N.D.	
Nonabromodiphenyl	5	N.D.	N.D.	
Decabromodiphenyl	5	N.D.	N.D.	
Total content	/	N.D.	N.D.	
Polybrominated Diphenylethers (PBDEs)				
Monobromodiphenyl ether	5	N.D.	N.D.	Total PBDEs Content <1000
Dibromodiphenyl ether	5	N.D.	N.D.	
Tribromodiphenyl ether	5	N.D.	N.D.	
Tetrabromodiphenyl ether	5	N.D.	N.D.	
Pentabromodiphenyl ether	5	N.D.	N.D.	
Hexabromodiphenyl ether	5	N.D.	N.D.	
Heptabromodiphenyl ether	5	N.D.	N.D.	
Octabromodiphenyl ether	5	N.D.	N.D.	
Nonabromodiphenyl ether	5	N.D.	N.D.	
Decabromodiphenyl ether	5	N.D.	N.D.	
Total content	/	N.D.	N.D.	
Conclusion	/	**Pass**	**Pass**	/

Note: N.D. = Not Detected or less than MDL
mg/kg = ppm= parts per million
MDL = Method Detection Limit

Test Report

2. For the DBP, BBP, DEHP, DIBP content

Unit: mg/kg

Test Item(s)	Test Method/ Equipment	MDL	Result(s)					Limit
			2	3	4	5	6	
Di-(2-ethylhexyl) Phthalate (DEHP)	Refer to EN 14372:2004 GC-MS	100	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Dibutyl phthalate (DBP)		100	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Butylbenzyl phthalate (BBP)		100	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Di-iso-butyl phthalate (DIBP)		100	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Conclusion		/	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	/

Unit: mg/kg

Test Item(s)	Test Method/ Equipment	MDL	Result(s)					Limit
			8	9	10	11	12	
Di-(2-ethylhexyl) Phthalate (DEHP)	Refer to EN 14372:2004 GC-MS	100	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Dibutyl phthalate (DBP)		100	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Butylbenzyl phthalate (BBP)		100	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Di-iso-butyl phthalate (DIBP)		100	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Conclusion		/	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	/

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Unit: mg/kg

Test Item(s)	Test Method/ Equipment	MDL	Result(s)					Limit
			13	14	15	16	17	
Di-(2-ethylhexyl) Phthalate (DEHP)	Refer to EN 14372:2004 GC-MS	100	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Dibutyl phthalate (DBP)		100	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Butylbenzyl phthalate (BBP)		100	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Di-iso-butyl phthalate (DIBP)		100	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Conclusion		/	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	/

Unit: mg/kg

Test Item(s)	Test Method/ Equipment	MDL	Result(s)					Limit
			18	20	21	22	26	
Di-(2-ethylhexyl) Phthalate (DEHP)	Refer to EN 14372:2004 GC-MS	100	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Dibutyl phthalate (DBP)		100	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Butylbenzyl phthalate (BBP)		100	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Di-iso-butyl phthalate (DIBP)		100	N.D.	N.D.	N.D.	N.D.	N.D.	1000
Conclusion		/	**Pass**	**Pass**	**Pass**	**Pass**	**Pass**	/

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Test Report

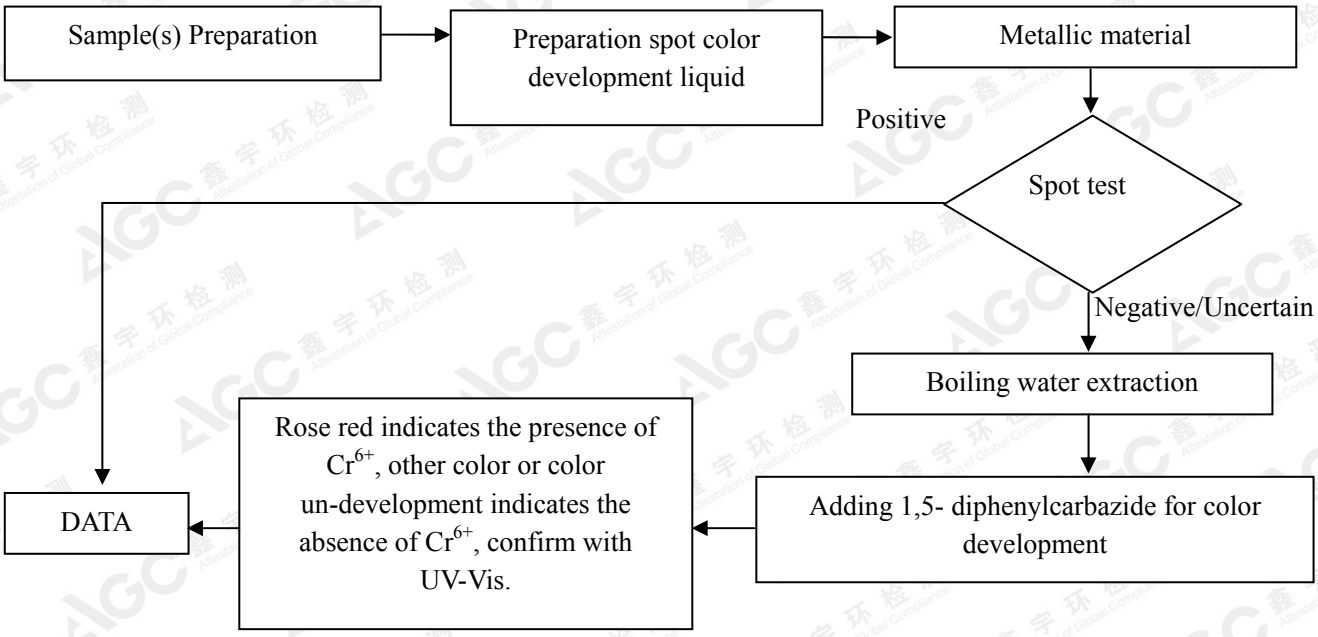
Unit: mg/kg

Test Item(s)	Test Method/ Equipment	MDL	Result(s)			Limit
			28	30	32	
Di-(2-ethylhexyl) Phthalate (DEHP)	Refer to EN 14372:2004 GC-MS	100	N.D.	N.D.	N.D.	1000
Dibutyl phthalate (DBP)		100	N.D.	N.D.	N.D.	1000
Butylbenzyl phthalate (BBP)		100	N.D.	N.D.	N.D.	1000
Di-iso-butyl phthalate (DIBP)		100	N.D.	N.D.	N.D.	1000
Conclusion		/	**Pass**	**Pass**	**Pass**	/

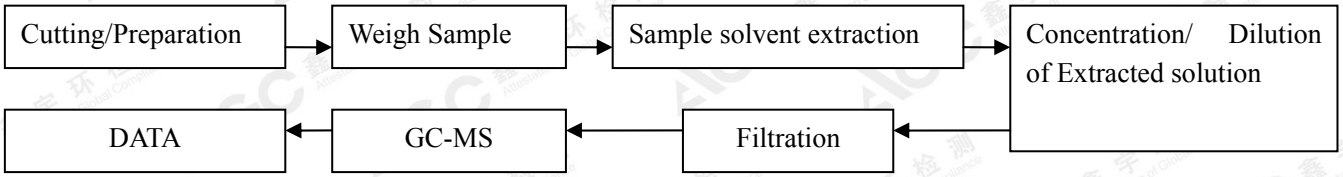
Note: 1. MDL＝Method Detection Limit
2. N.D.=Not Detected(less than method detection limit)
3. mg/kg = ppm=parts per million

Test Flow Chart

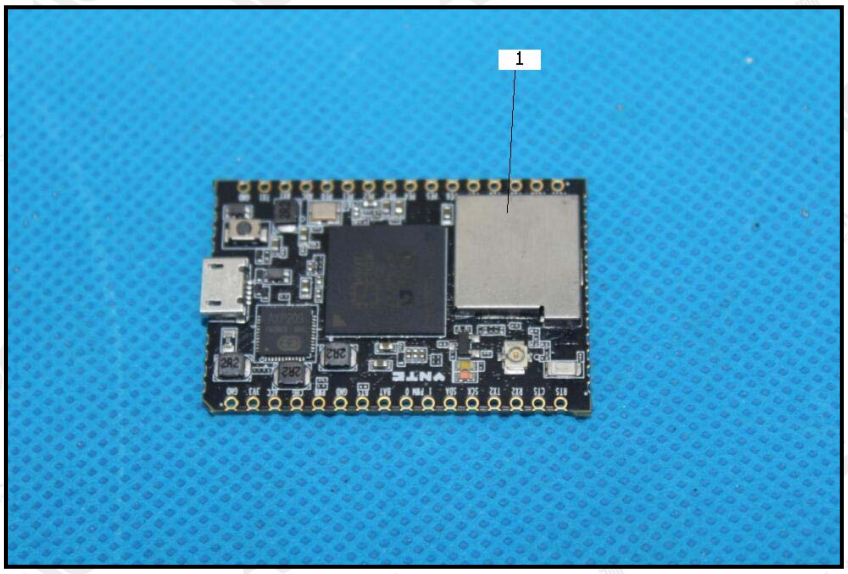
1.For metal Cr(Ⅵ)

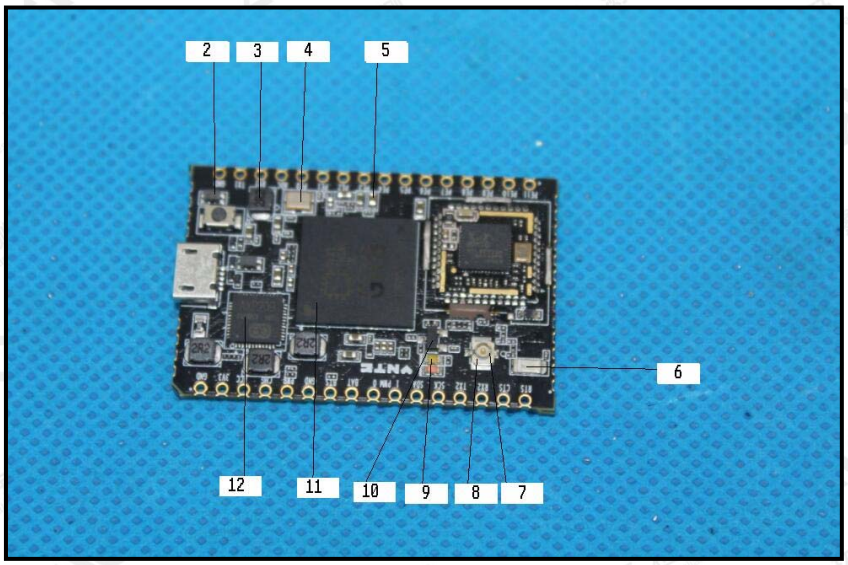


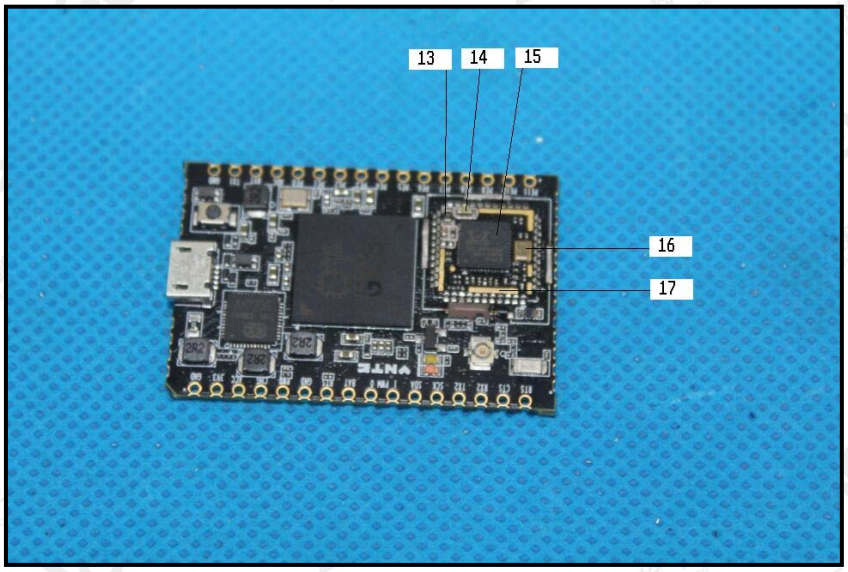
2.For PBBs,PBDEs DBP, BBP, DEHP and DIBP

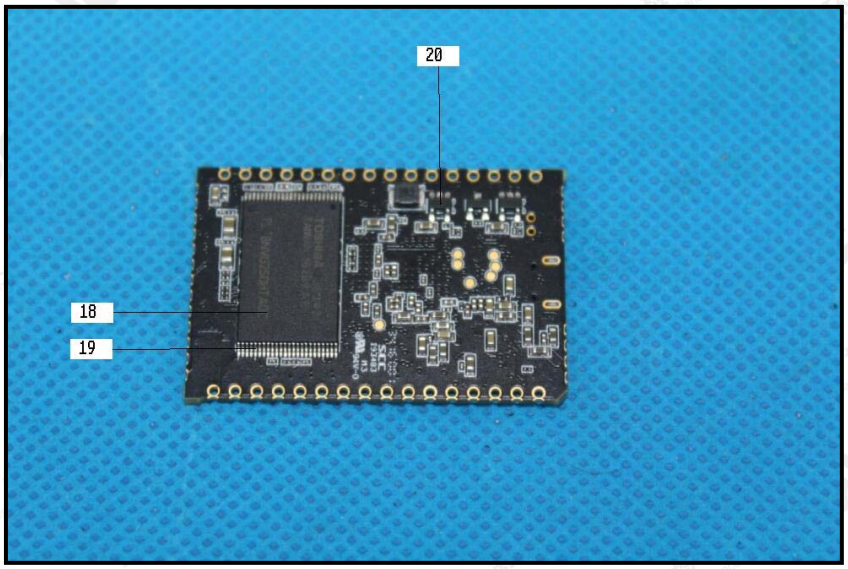


The photo of the sample









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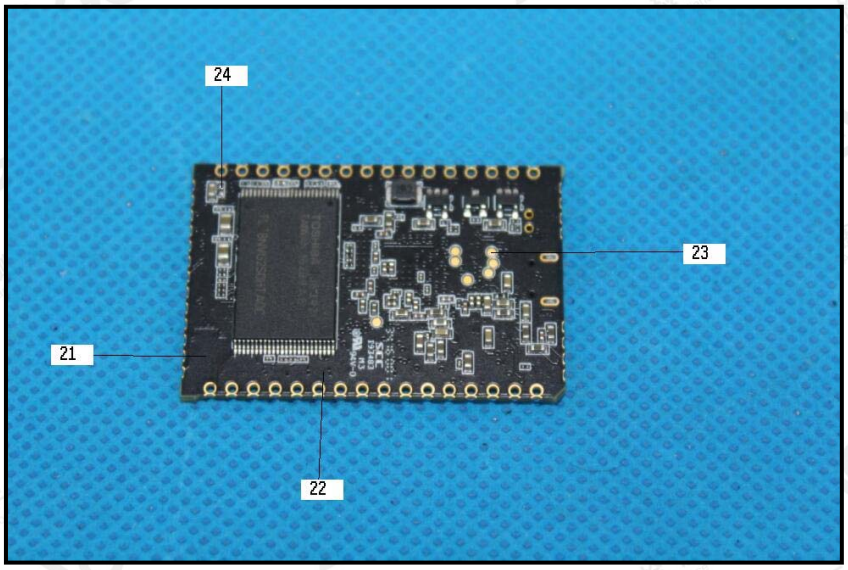

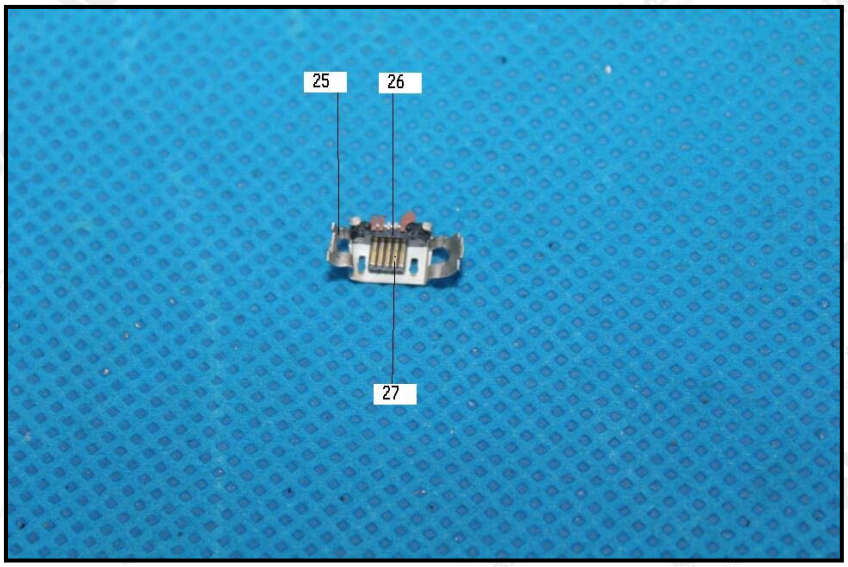

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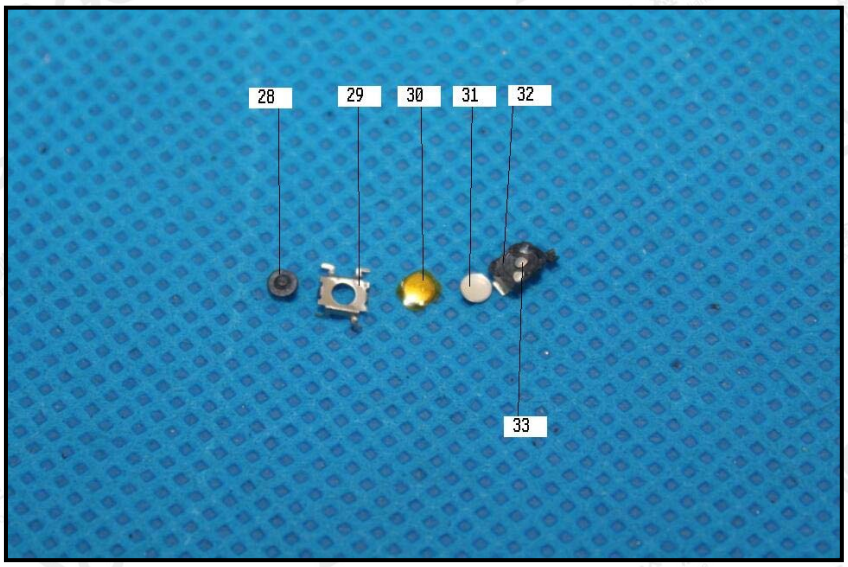

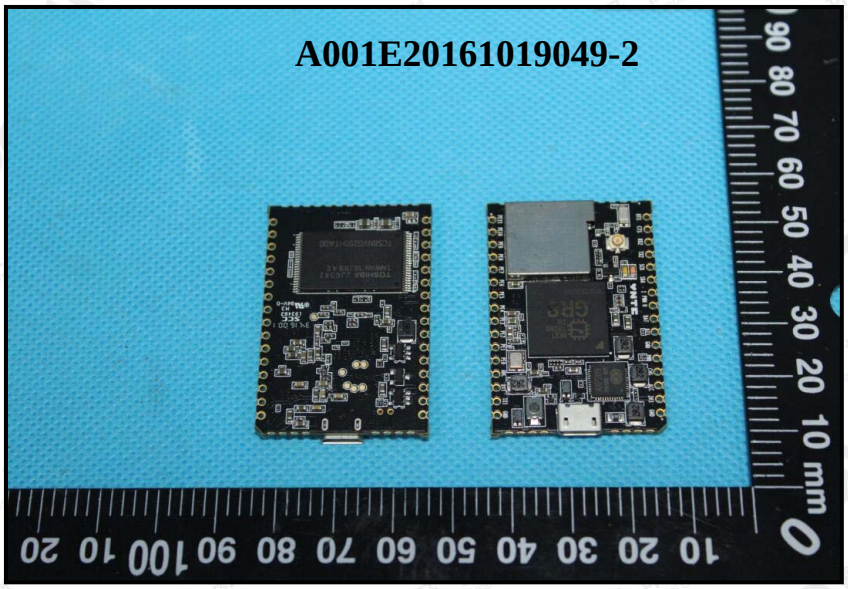

AGC authenticate the photo only on original report

*** End of Report ***

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