TEST REPORT

Applicant:	**RTSCAN TECHNOLOGY LIMITED**
Address:	**553-555, Dongming Building, Minzhi Street, Longhua District, Shenzhen 518109, China**

The following sample(s) and sample information was/were submitted and identified by/on the behalf of the client:

Sample Name	OEM BARCODE SCANNER
Model No.	RT218
Reference Information	RT218A,RT218B,RT218C
Trademark	RTscan
Sample Received Date	October 08, 2022
Testing Period	October 09 – 13, 2022
Test Method & Test Result	Please refer to following pages.

Test Requested	**Result**
As specified by client, according to RoHS Directive 2011/65/EU with amendment (EU) 2015/863, to test Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers(PBDEs), Phthalates(DBP, BBP, DEHP, DIBP) in the tested materials of the submitted sample(s).	**Pass**

Tested by: ..... **Approved by:** .....

Reviewed by: ..... **Date of issue:** October 13, 2022

SHENZHEN ALPHA PRODUCT TESTING CO.,LTD. ALPHA PRODUCT TESTING

Test Method

(1) XRF screening limits for regulated elements according to IEC 62321-3-1:2013 (Unit: mg/kg)

Element	Polymers	Metals	Composite material
Pb	BL≤(700-3σ) <X <(1300+3σ)≤OL	BL≤(700-3σ) <X <(1300+3σ)≤OL	BL≤(500-3σ)<X <(1500+3σ)≤OL
Cd	BL≤(70-3σ)<X <(130+3σ)≤OL	BL≤(70-3σ)<X <(130+3σ)≤OL	LOD<X<(150+3σ) ≤OL
Hg	BL≤(700-3σ)<X <(1300+3σ)≤OL	BL≤(700-3σ)<X <(1300+3σ)≤OL	BL≤(500-3σ)<X <(1500+3σ)≤OL
Cr	BL≤(700-3σ)< X	BL≤(700-3σ)< X	BL≤(500-3σ)< X
Br	BL≤(300-3σ)< X	N/A	BL≤(250-3σ)< X

(2) Chemical screening limits for PBBs, PBDEs

Test Item(s)	Screening limits(Unit: mg/kg)
Polybrominated Biphenyls (PBBs)	BL*≤200 <IN
Polybrominated Diphenyl Ethers (PBDEs)	BL*≤200 <IN

(3) Chemical screening limits for Phthalates

Test Item(s)	Screening limits(Unit: mg/kg)
Dibutyl phthalate(DBP)	BL≤600 <IN
Benzylbutyl phthalate(BBP)	BL≤600 <IN
Di-2-ethylhexyl phthalate(DEHP)	BL≤600 <IN
Diisobutyl phthalate(DIBP)	BL≤600 <IN

(4) Chemical Test

Test Item	Test Method	Test Instrument	MDL (mg/kg)	EU RoHS Limit (mg/kg)
Lead (Pb)	IEC 62321-5:2013	ICP-OES	2	1000
Cadmium (Cd)	IEC 62321-5:2013	ICP-OES	2	100
Mercury (Hg)	IEC 62321-4:2013 +AMD1:2017	ICP-OES	2	1000
Hexavalent Chromium (Cr(VI))	IEC 62321-7-2:2017 (non-metal)	UV-Vis	8	1000
	IEC 62321-7-1:2015 (metal)	UV-Vis	0.1(μg/cm^2)	1000
Polybrominated Biphenyls (PBBs)	IEC 62321-6:2015	GC-MS	5	1000
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS	5	1000
Phthalates(DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS	50	1000

Tested Material Description

No.	Description	No.	Description
1	Black plastic shell	24	IC
2	Black adhesive of shell	25	IC
3	Black metal frame of lens	26	IC
4	Transparent plastic lens	27	IC
5	Ferrous metal screw	28	Soldering tin on PCB board
6	White FPC flexible circuit board	29	Black main PCB board
7	Grey plastic of FPC row base	30	Black conductive silica gel block
8	Copper metal pin of FPC row base	31	Silvery metal sheet
9	Black plastic of FPC row base	32	Chip LED lamp
10	Black plastic of FPC interface row seat	33	Black plastic of FPC connector row seat
11	Copper metal pin of FPC interface row seat	34	Copper metal pin of FPC connector row seat
12	Copper metal shrapnel	35	FPC flexible circuit board
13	White sticker	36	Black plastic shell of signal receiver
14	Chip crystal	37	Black plastic gasket of signal receiver
15	Chip crystal	38	Black plastic base of signal receiver
16	Chip diode	39	Transparent glass lens of signal receiver
17	Chip triode	40	Signal receiver imaging screen
18	Chip capacitor	41	Copper metal cap of laser transmitter
19	Chip capacitor	42	Transparent plastic spacer of laser transmitter
20	Chip capacitor	43	Copper metal body of laser transmitter
21	Chip resistor	44	Soldering tin on PCB board
22	Chip resistor	45	Black laser generator PCB board
23	Chip resistor		

Tested Result
(1)Screening Result

Tested Item(s)	Screening Result									
	1	2	3	4	5	6	7	8	9	10
Lead (Pb)	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL
Cadmium (Cd)	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL
Mercury (Hg)	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL
Total Chromium (Cr(VI))	BL	BL	X	BL	BL	BL	BL	BL	BL	BL
Total Bromine (PBBs & PBDEs)	BL	BL	N/A	BL	N/A	BL*	BL	N/A	BL	BL
Dibutyl phthalate(DBP)	BL	BL	N/A	BL	N/A	BL	BL	N/A	BL	BL
Benzylbutyl phthalate(BBP)	BL	BL	N/A	BL	N/A	BL	BL	N/A	BL	BL
Di-2-ethylhexyl phthalate(DEHP)	BL	BL	N/A	BL	N/A	BL	BL	N/A	BL	BL
Diisobutyl phthalate(DIBP)	BL	BL	N/A	BL	N/A	BL	BL	N/A	BL	BL

Tested Item(s)	Screening Result									
	11	12	13	14	15	16	17	18	19	20
Lead (Pb)	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL
Cadmium (Cd)	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL
Mercury (Hg)	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL
Total Chromium (Cr(VI))	BL	X	BL	BL	BL	BL	BL	BL	BL	BL
Total Bromine (PBBs & PBDEs)	N/A	N/A	BL	N/A	N/A	BL	BL	BL	BL	BL
Dibutyl phthalate(DBP)	N/A	N/A	BL	N/A	N/A	BL	BL	BL	BL	BL
Benzylbutyl phthalate(BBP)	N/A	N/A	BL	N/A	N/A	BL	BL	BL	BL	BL
Di-2-ethylhexyl phthalate(DEHP)	N/A	N/A	BL	N/A	N/A	BL	BL	BL	BL	BL
Diisobutyl phthalate(DIBP)	N/A	N/A	BL	N/A	N/A	BL	BL	BL	BL	BL

Tested Item(s)	Screening Result									
	21	22	23	24	25	26	27	28	29	30
Lead (Pb)	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL
Cadmium (Cd)	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL
Mercury (Hg)	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL
Total Chromium (Cr(VI))	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL
Total Bromine (PBBs & PBDEs)	BL	BL	BL	BL	BL	BL	BL	N/A	BL*	BL
Dibutyl phthalate(DBP)	BL	BL	BL	BL	BL	BL	BL	N/A	BL	BL
Benzylbutyl phthalate(BBP)	BL	BL	BL	BL	BL	BL	BL	N/A	BL	BL
Di-2-ethylhexyl phthalate(DEHP)	BL	BL	BL	BL	BL	BL	BL	N/A	BL	BL
Diisobutyl phthalate(DIBP)	BL	BL	BL	BL	BL	BL	BL	N/A	BL	BL

(1)Screening Result

Tested Item(s)	Screening Result									
	31	32	33	34	35	36	37	38	39	40
Lead (Pb)	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL
Cadmium (Cd)	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL
Mercury (Hg)	BL	BL	BL	BL	BL	BL	BL	BL	BL	BL
Total Chromium (Cr(VI))	X	BL	BL	BL	BL	BL	BL	BL	BL	BL
Total Bromine (PBBs & PBDEs)	N/A	BL	BL	BL	BL	BL*	BL	BL	BL	BL
Dibutyl phthalate(DBP)	N/A	BL	BL	BL	BL	BL	BL	BL	BL	BL
Benzylbutyl phthalate(BBP)	N/A	BL	BL	BL	BL	BL	BL	BL	BL	BL
Di-2-ethylhexyl phthalate(DEHP)	N/A	BL	BL	BL	BL	BL	BL	BL	BL	BL
Diisobutyl phthalate(DIBP)	N/A	BL	BL	BL	BL	BL	BL	BL	BL	BL

Tested Item(s)	Screening Result				
	41	42	43	44	45
Lead (Pb)	OL*	BL	BL	BL	BL
Cadmium (Cd)	BL	BL	BL	BL	BL
Mercury (Hg)	BL	BL	BL	BL	BL
Total Chromium (Cr(VI))	BL	BL	BL	BL	BL
Total Bromine (PBBs & PBDEs)	N/A	BL	N/A	N/A	BL*
Dibutyl phthalate(DBP)	N/A	BL	N/A	N/A	BL
Benzylbutyl phthalate(BBP)	N/A	BL	N/A	N/A	BL
Di-2-ethylhexyl phthalate(DEHP)	N/A	BL	N/A	N/A	BL
Diisobutyl phthalate(DIBP)	N/A	BL	N/A	N/A	BL

(2) Test result for Chemical Confirmation

(a) The test result of Lead(Pb):

Testing item	**Result (mg/kg)**
	41
Lead(Pb):	30104<1>

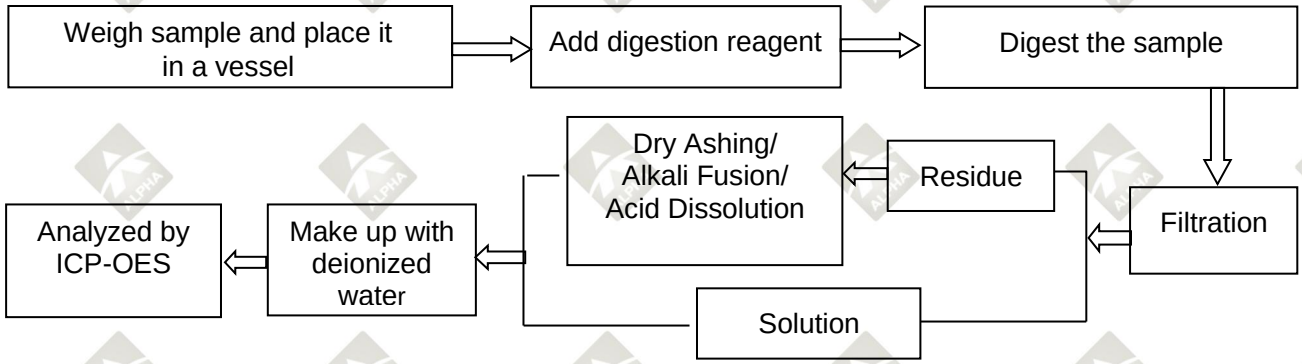
(b) The test result of Hexavalent Chromium (Cr(VI)):

Testing item	**Result (mg/kg)**		
	3	**12**	**31**
Hexavalent Chromium (Cr(VI))	N.D	N.D	N.D

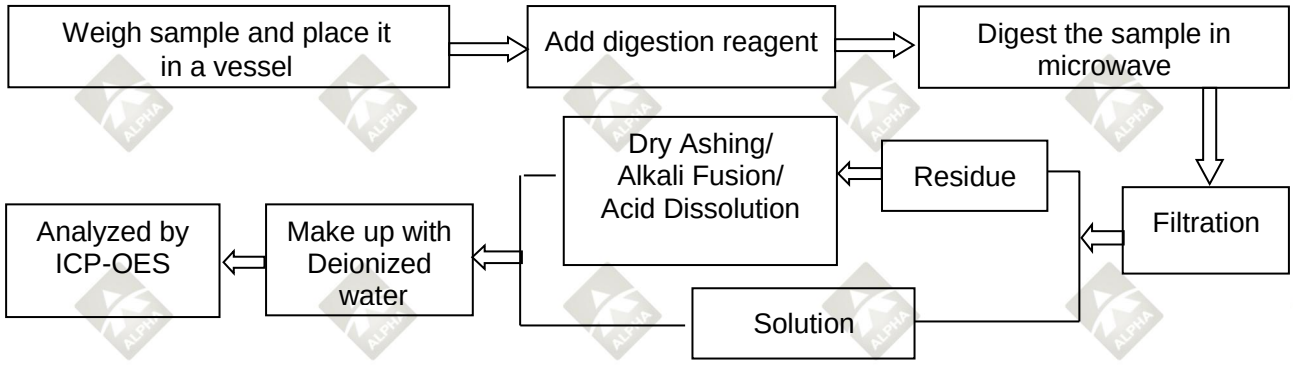
Remark: N.D = Not Detected (< MDL or LOQ), MDL = Method Detection Limit
IN= Inconclusive, Further chemical test, X = The range of needing to do further testing
BL = Below the screening limit, OL = Over the screening limit.
N/A= Not applicable
3σ= The reproducibility of analytical instruments
* = The screened result was found and further chemical test
When conducting the test for PBBs&PBDEs, XRF was introduced to screen Br exclusively, and then chemical screening was conducted if the XRF result is X.
When conducting the test for Hexavalent Chromium, XRF was introduced to screen Chromium exclusively.
LOQ = Limit of Quantification, The LOQ of Hexavalent chromium is 0.10 μg/cm^2
LOD= Detection limit
mg/kg = ppm = parts per million, 1000 mg/kg = 0.1%
<1>: According to the declaration from the client, Lead (Pb) in the sample is exempted by EU RoHS Directive 2011/65/EU based on 6(c): Copper alloy containing up to 4% (40000mg/kg) lead by weight

Test Process

1. Lead(Pb), Cadmium(Cd), Chromium(Cr)

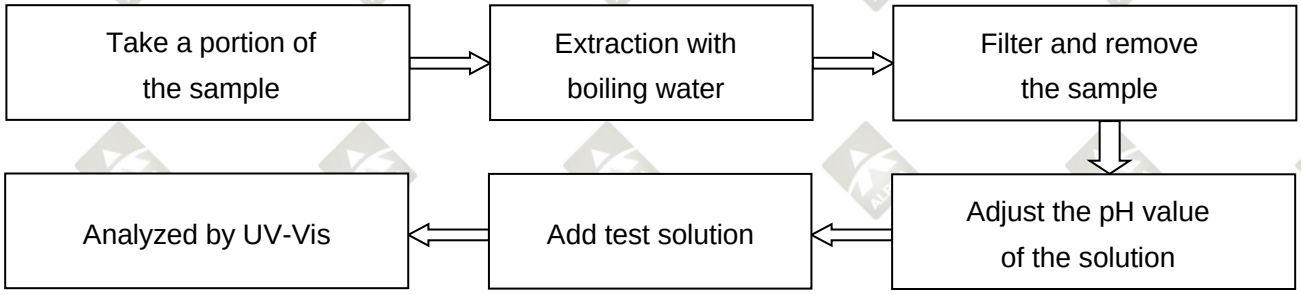


2. Mercury(Hg)

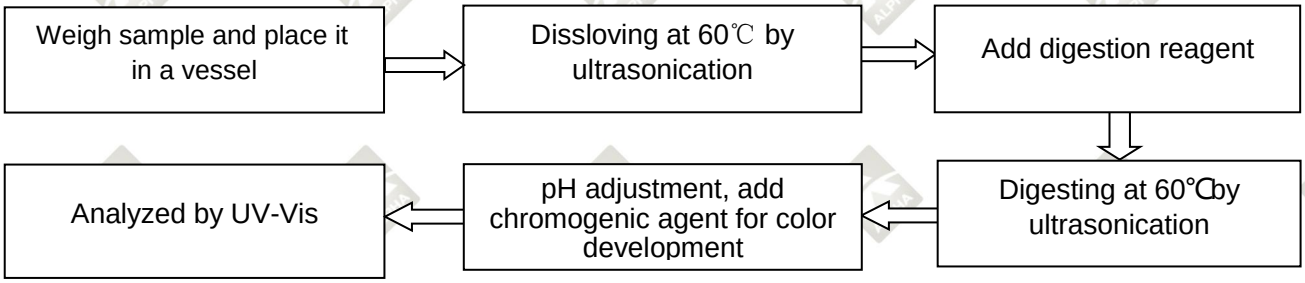


3. Hexavalent Chromium (Cr (VI))

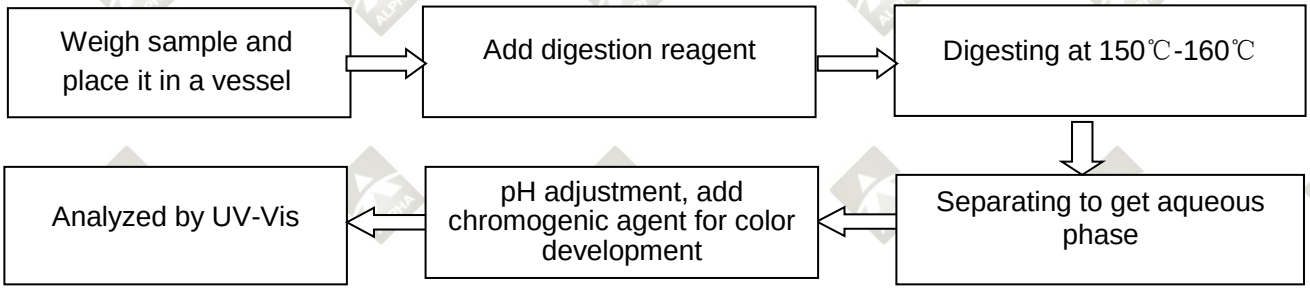
(1) IEC 62321-7-1:2015
Plating/Metal sample(s)



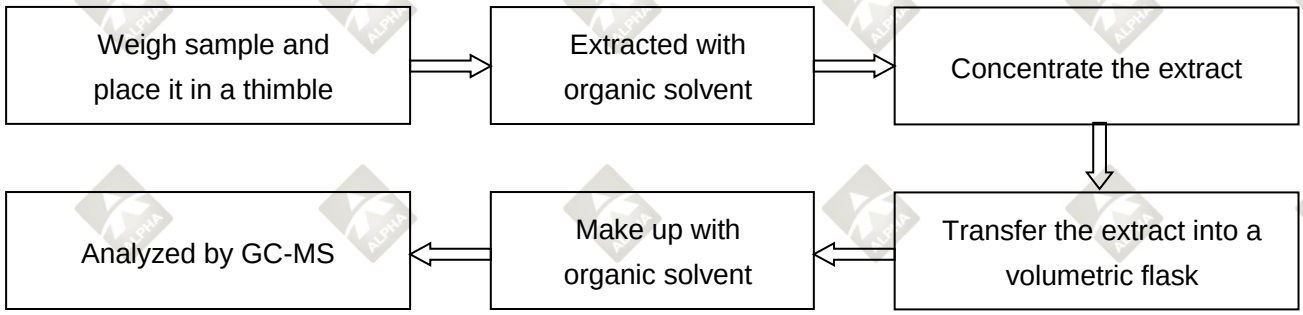
(2) IEC 62321-7-2:2017
Non-metal sample(s) (Material ABS/PC/PVC)



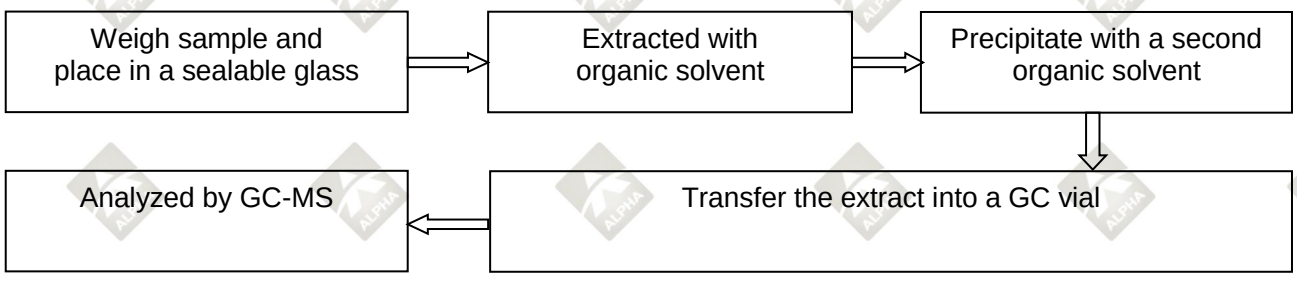
(3) IEC 62321-7-2:2017
Non-metal sample(s) (Others)



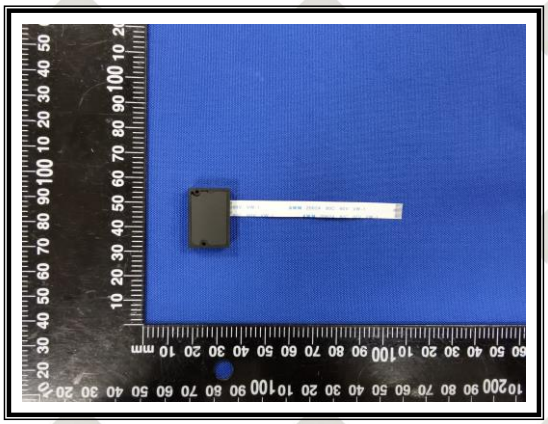
4. Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs)

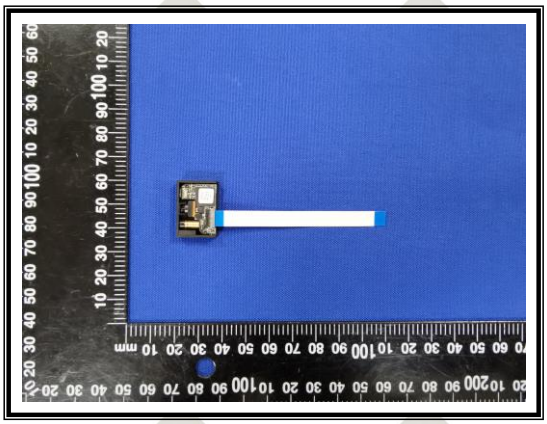


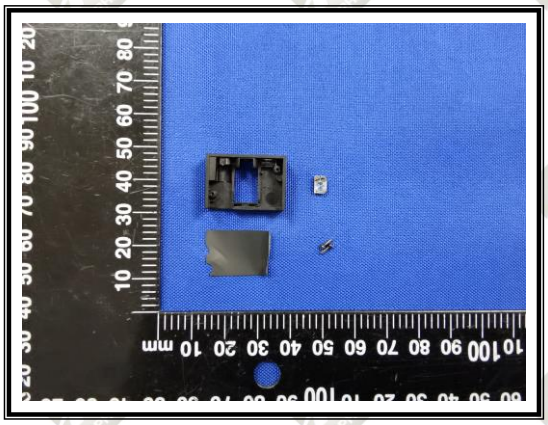
5. Phthalates(DBP/BBP/DEHP/DIBP)

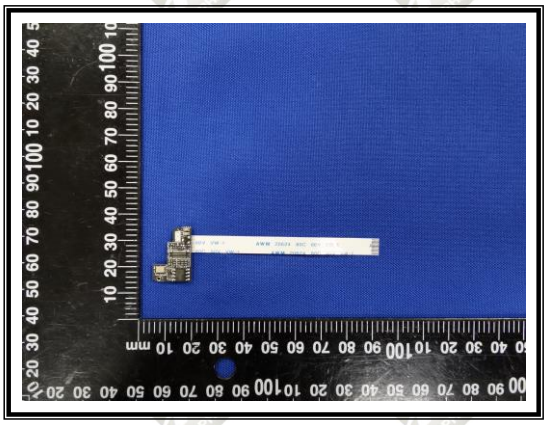


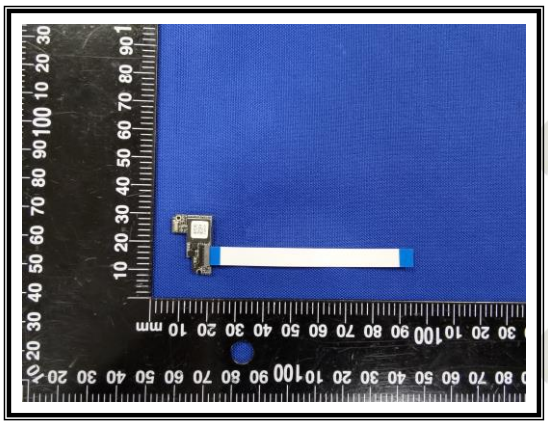
Tested sample photo(s)

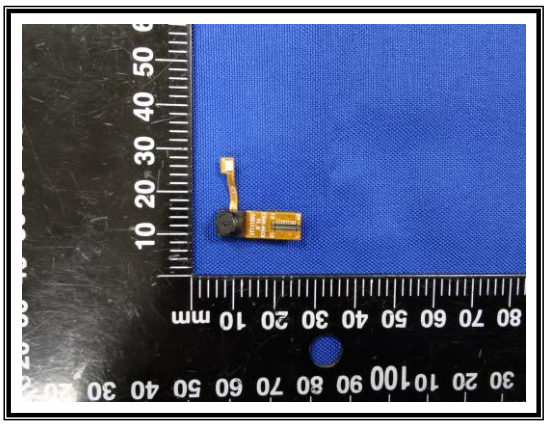




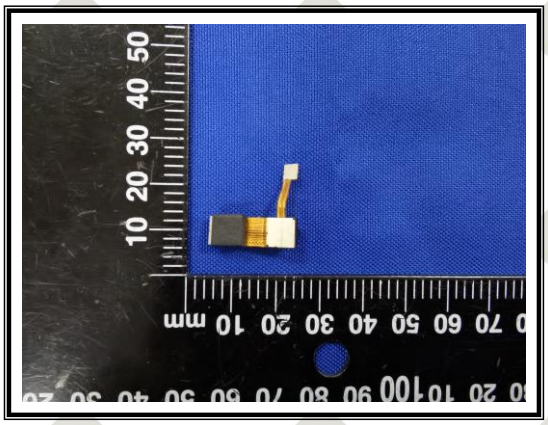


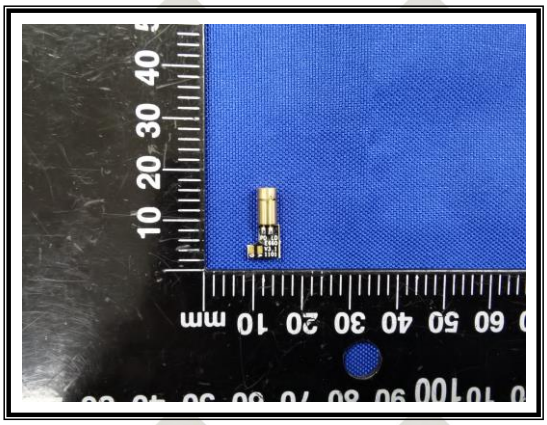


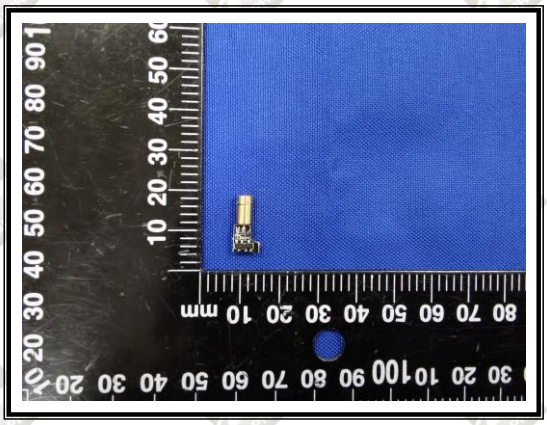




Tested sample photo(s)







--- End of report ---

Statement:
1. The sample(s) and sample Information was/were provided by the client who should be responsible for the authenticity which ALPHA hasn't verified.
2. The result(s) shown in this report refer(s) only to the sample(s) tested.
3. Without written approval of ALPHA, this report can't be reproduced except in full.
4. Decision rules for the conclusion of this test report: decision by actual test data without considering measurement uncertainty.