



Verification Report

Applicant : KHADAS TECHNOLOGY CO., LTD
Address : 2709 QIANCHENG CENTER, HAICHENG ROAD, XIXIANG STREET,
BAO'AN DISTRICT, SHENZHEN, CHINA. 518101

Report on the submitted samples said to be:

Sample Name(s) : Edge2 Maker Kit
Trade Mark : Khadas
Part No. : Edge2 Basic, Edge2 Pro
Sample Received Date : August 26, 2022
Testing Period : August 26, 2022 ~ September 02, 2022
Date of Report : September 02, 2022
Results : Please refer to next page(s).

TEST REQUEST	CONCLUSION
As specified by client, based on the performed tests on submitted sample, the result of Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), PBBs, PBDEs, Dibutyl Phthalate(DBP), Butylbenzyl Phthalate(BBP), Di-2-ethylhexyl Phthalate(DEHP) and Diisobutyl phthalate(DIBP) content comply with the limits set by RoHS Directive 2011/65/EU with amendment (EU) 2015/863.	PASS

Signed for and on behalf of LCS

Young/Laboratory Manager



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

Test method: With reference to IEC 62321-1:2013&IEC 62321-2:2021&IEC 62321-3-1:2013, Screening by X-ray Fluorescence Spectroscopy (XRF)

Sample No.	Sample Description	Results						Date of sample submission/ Resubmission
		Cd	Pb	Hg	Cr [▼]	Br [▼]		
						PBBs	PBDEs	
1	Black PCB board	BL	BL	BL	BL	BL	BL	2022-08-26
2	Tin solder	BL	BL	BL	BL	/	/	2022-08-26
3	Gold metal port shell	BL	BL	BL	BL	/	/	2022-08-26
4	Black plastic thread cover	BL	BL	BL	BL	BL	BL	2022-08-26
5	Silver metal core	BL	BL	BL	BL	/	/	2022-08-26
6	Silver metal pin	BL	BL	BL	BL	/	/	2022-08-26
7	Silver metal port shell	BL	BL	BL	BL	/	/	2022-08-26
8	Blue plastic sheet	BL	BL	BL	BL	BL	BL	2022-08-26
9	Silver metal pin	BL	BL	BL	BL	/	/	2022-08-26
10	Silver metal port shell	BL	BL	BL	BL	/	/	2022-08-26
11	Black plastic sheet	BL	BL	BL	BL	BL	BL	2022-08-26
12	Silver metal port shell	BL	BL	BL	BL	/	/	2022-08-26
13	Black plastic sheet	BL	BL	BL	BL	BL	BL	2022-08-26
14	Gold metal pin	BL	BL	BL	BL	/	/	2022-08-26
15	Gold metal pin	BL	BL	BL	BL	/	/	2022-08-26
16	Black plastic sheet	BL	BL	BL	BL	BL	BL	2022-08-26
17	Silver metal port shell	BL	BL	BL	BL	/	/	2022-08-26
18	Black body	BL	BL	BL	BL	BL	BL	2022-08-26
19	Black body (electrolytic capacitor)	BL	BL	BL	BL	BL	BL	2022-08-26
20	Black gray plastic port shell	BL	BL	BL	BL	BL	BL	2022-08-26
21	Gold metal pin	BL	BL	BL	BL	/	/	2022-08-26
22	Black plastic sheet	BL	BL	BL	BL	BL	BL	2022-08-26
23	Silver metal shell	BL	BL	BL	BL	/	/	2022-08-26
24	Brown body (chip capacitor)	BL	BL	BL	BL	BL	BL	2022-08-26
25	Black body (IC)	BL	BL	BL	BL	BL	BL	2022-08-26
26	Brown core (inductance)	BL	BL	BL	BL	/	/	2022-08-26
27	Black body (IC)	BL	BL	BL	BL	BL	BL	2022-08-26



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Sample No.	Sample Description	Results						Date of sample submission/ Resubmission
		Cd	Pb	Hg	Cr [▼]	Br [▼]		
						PBBs	PBDEs	
28	Black body (IC)	BL	BL	BL	BL	BL	BL	2022-08-26
29	Black body (IC)	BL	BL	BL	BL	BL	BL	2022-08-26
30	Black body (patch resistor)	BL	BL	BL	BL	BL	BL	2022-08-26
31	Silver battery body	BL	BL	BL	BL	/	/	2022-08-26
32	Silver metal pin	BL	BL	BL	BL	/	/	2022-08-26
33	Black plastic base (switch)	BL	BL	BL	BL	BL	BL	2022-08-26
34	Silver metal sheet	BL	BL	BL	BL	/	/	2022-08-26
35	Yellow transparent plastic tape	BL	BL	BL	BL	BL	BL	2022-08-26
36	White plastic key	BL	BL	BL	BL	BL	BL	2022-08-26
37	Silver metal shell	BL	BL	BL	BL	/	/	2022-08-26
38	Transparent glass body	BL	BL	BL	BL	BL	BL	2022-08-26
39	Silver crystal oscillator	BL	BL	BL	BL	/	/	2022-08-26
40	Green PCB board	BL	BL	BL	BL	BL	BL	2022-08-26
41	Black PCB board	BL	BL	BL	BL	BL	BL	2022-08-26
42	Tin solder	BL	BL	BL	BL	/	/	2022-08-26

Note:

- 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 IEC 62321-3-1:2013(Unit: mg/kg).

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

Remark:

- BL= Below Limit
- OL= Over Limit
- X= The range of needing to do further testing
- 3σ = The reproducibility of analytical instruments
- N/A= Not applicable
- LOD= Detection limit



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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 document RoHS Directive 2011/65/EU with amendment (EU) 2015/863.
4. ▼=For restricted substances PBBs and PBDEs, the results show the total Br content, the restricted substance was Cr(VI), and the results showed the total Cr content.

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
Dibutyl Phthalate(DBP)	1000
Butylbenzyl Phthalate(BBP)	1000
Di-(2-ethylhexyl) Phthalate(DEHP)	1000
Diisobutyl phthalate(DIBP)	1000

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.



**B. EU RoHS Directive 2011/65/EU with amendment (EU) 2015/863 on Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), PBBs, PBDEs, DBP, BBP, DEHP & DIBP content****Test method:****Lead(Pb) & Cadmium(Cd) Content:**

With reference to IEC 62321-5:2013, by acid digestion and analysis was performed by inductively coupled plasma atomic emission spectrometer (ICP-OES) or Atomic absorption spectrometer (AAS).

Mercury(Hg) Content:

With reference to IEC 62321-4:2013+AMD1:2017 CSV, by acid digestion and analysis was performed by inductively coupled plasma atomic emission spectrometer (ICP-OES).

Hexavalent Chromium(Cr(VI)) Content:

With reference to IEC 62321-7-1:2015 or IEC 62321-7-2:2017, analysis was performed by UV-visible spectrophotometer (UV-Vis).

PBBs & PBDEs Content:

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

Phthalates(DBP, BBP, DEHP & DIBP) Content:

With reference to IEC 62321-8:2017, by solvent extraction and analysis was performed by gas chromatographic-mass spectrometer (GC-MS).

1) The test results of Phthalates(DBP, BBP, DEHP & DIBP)

Tested Items	MDL (mg/kg)	Results (mg/kg)	Limit (mg/kg)
		1+4+8+11+13+16	
Dibutyl Phthalate(DBP) Content	600	N.D.	1000
Butylbenzyl Phthalate(BBP) Content	600	N.D.	1000
Di-(2-ethylhexyl) Phthalate(DEHP) Content	600	N.D.	1000
Diisobutyl phthalate(DIBP) Content	600	N.D.	1000

Tested Items	MDL (mg/kg)	Results (mg/kg)	Limit (mg/kg)
		18+19+20+22+24+25	
Dibutyl Phthalate(DBP) Content	600	N.D.	1000
Butylbenzyl Phthalate(BBP) Content	600	N.D.	1000
Di-(2-ethylhexyl) Phthalate(DEHP) Content	600	N.D.	1000
Diisobutyl phthalate(DIBP) Content	600	N.D.	1000





Tested Items	MDL (mg/kg)	Results (mg/kg)	Limit (mg/kg)
		27+28+29+30+33+35	
Dibutyl Phthalate(DBP) Content	600	N.D.	1000
Butylbenzyl Phthalate(BBP) Content	600	N.D.	1000
Di-(2-ethylhexyl) Phthalate(DEHP) Content	600	N.D.	1000
Diisobutyl phthalate(DIBP) Content	600	N.D.	1000

Tested Items	MDL (mg/kg)	Results (mg/kg)	Limit (mg/kg)
		36+38+40+41	
Dibutyl Phthalate(DBP) Content	600	N.D.	1000
Butylbenzyl Phthalate(BBP) Content	600	N.D.	1000
Di-(2-ethylhexyl) Phthalate(DEHP) Content	600	N.D.	1000
Diisobutyl phthalate(DIBP) Content	600	N.D.	1000

Note:

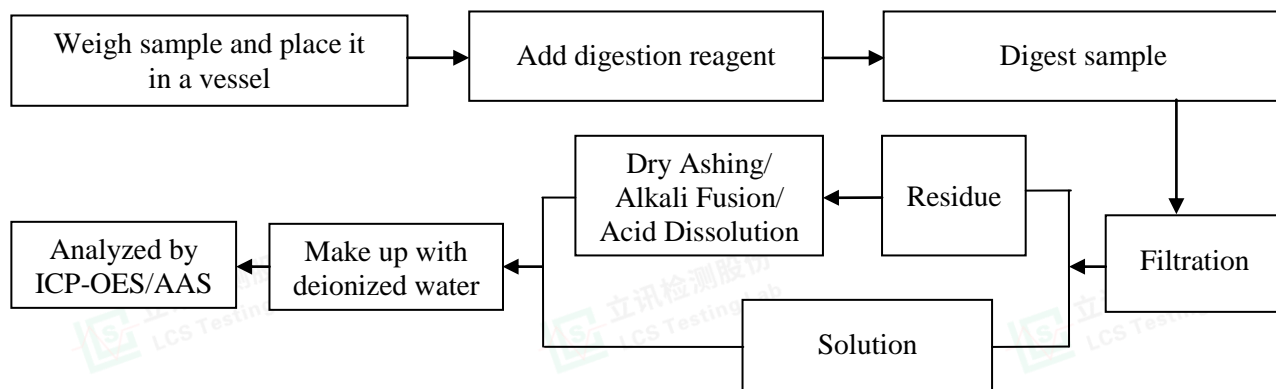
- MDL = Method Detection Limit
- N.D. = Not Detected (<MDL)
- mg/kg = milligrams per kilogram
- According to customer's requirement, only the appointed materials have been tested.



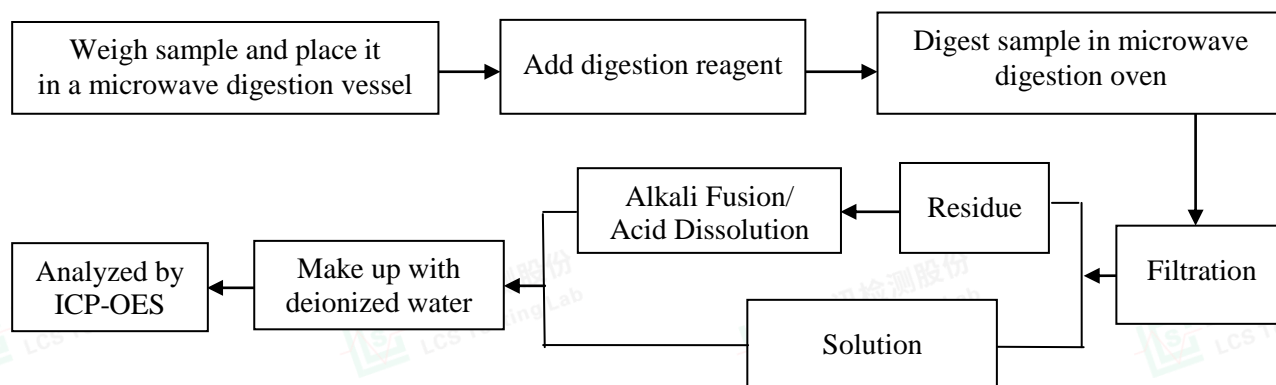


Test Process

1. Lead(Pb) & Cadmium(Cd): IEC 62321-5:2013

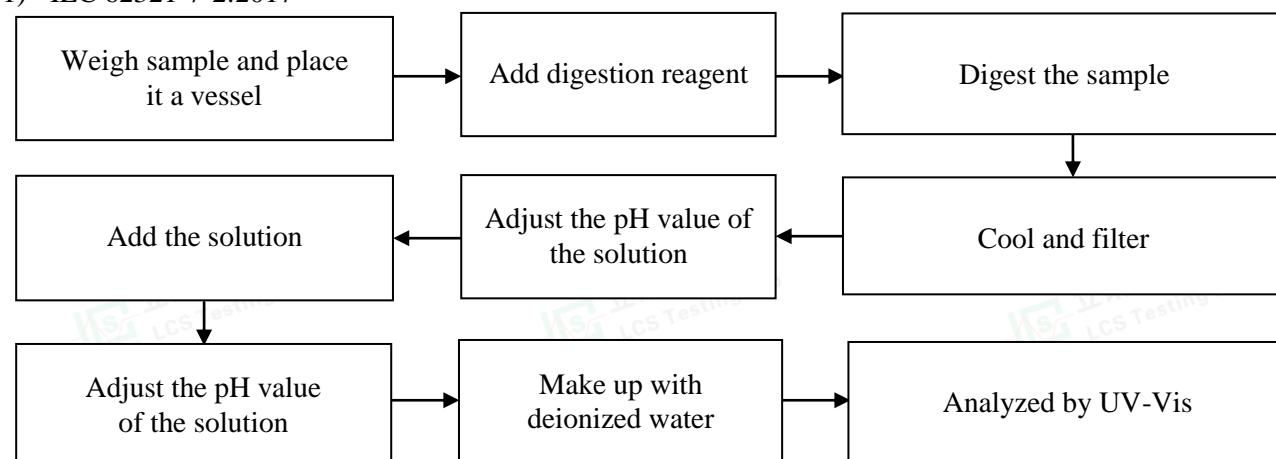


2. Mercury(Hg): IEC 62321-4:2013+AMD1:2017 CSV



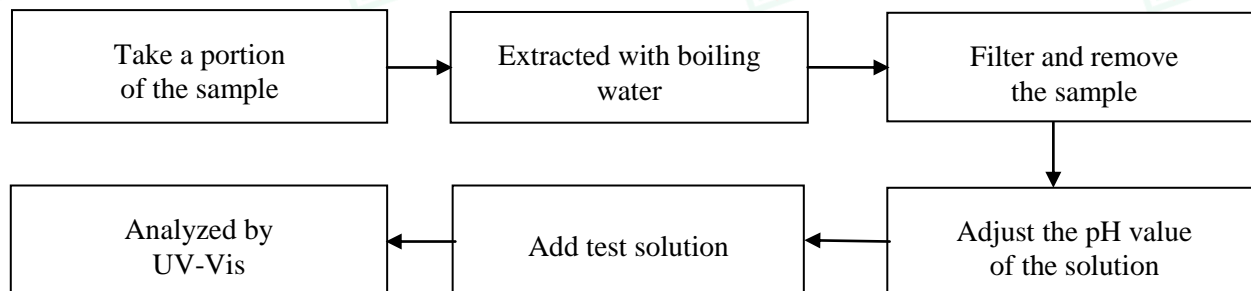
3. Hexavalent Chromium(Cr(VI))

1) IEC 62321-7-2:2017

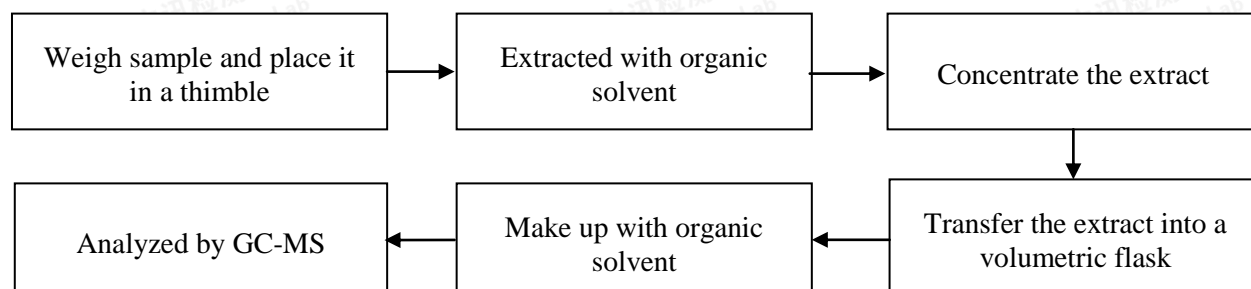




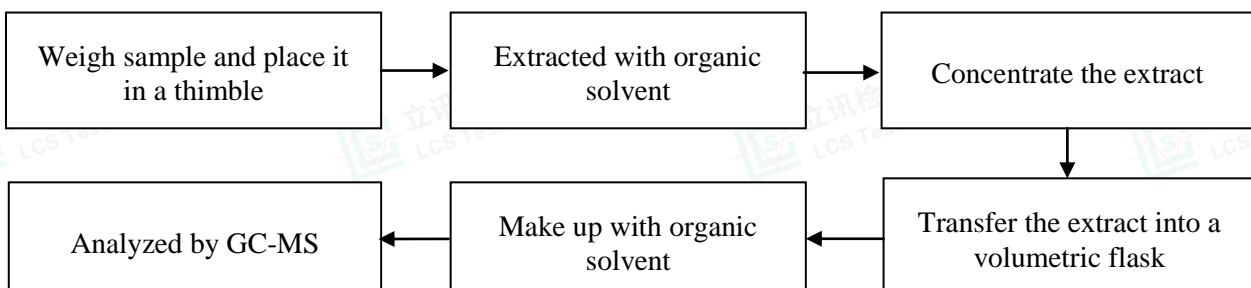
2) IEC 62321-7-1:2015



4. Polybrominated Biphenyls(PBBs) & Polybrominated Diphenyl Ethers(PBDEs) : IEC 62321-6:2015

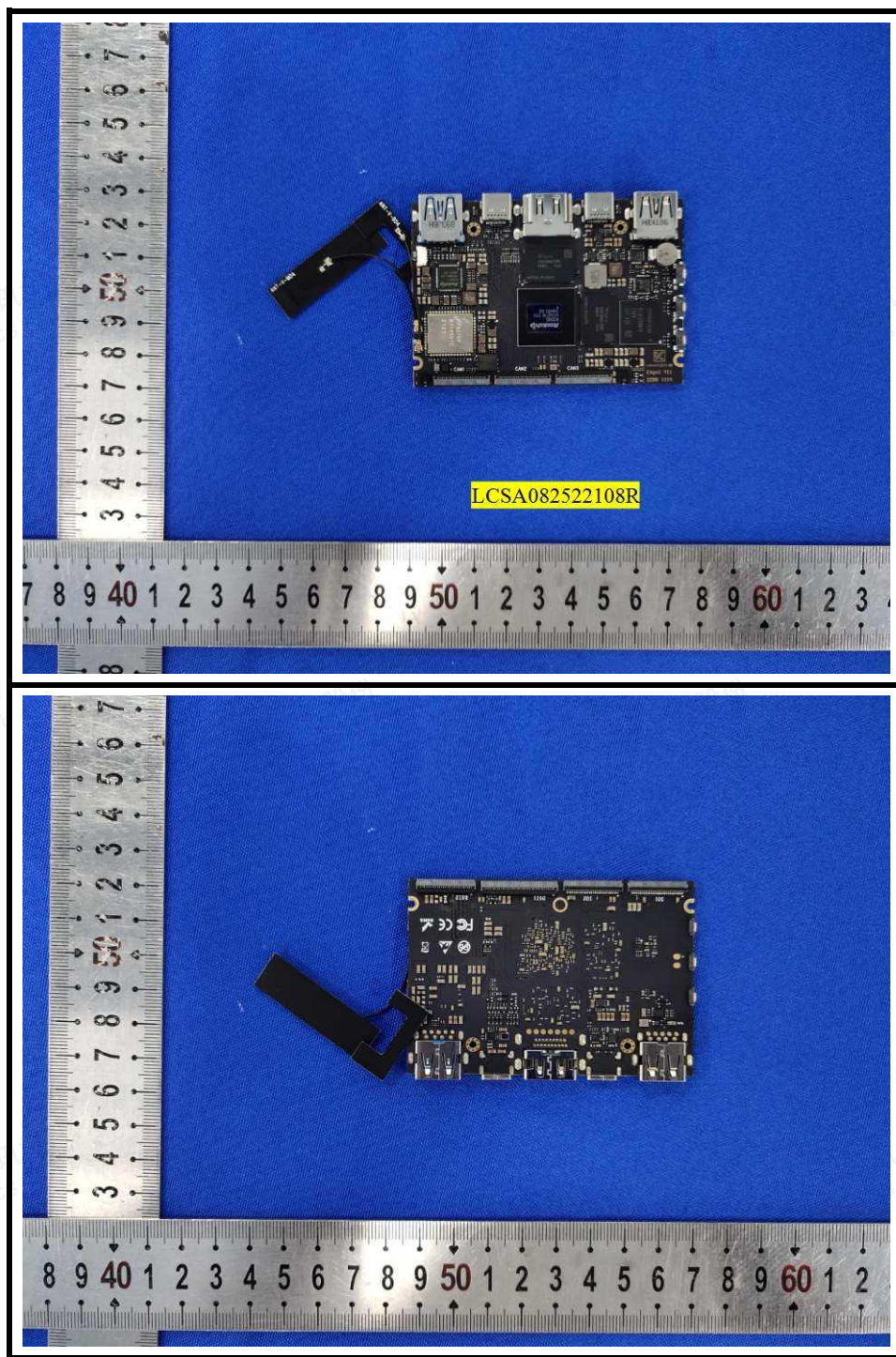


5. Phthalates(DBP, BBP, DEHP & DIBP) : IEC 62321-8:2017





The photo(s) of the sample

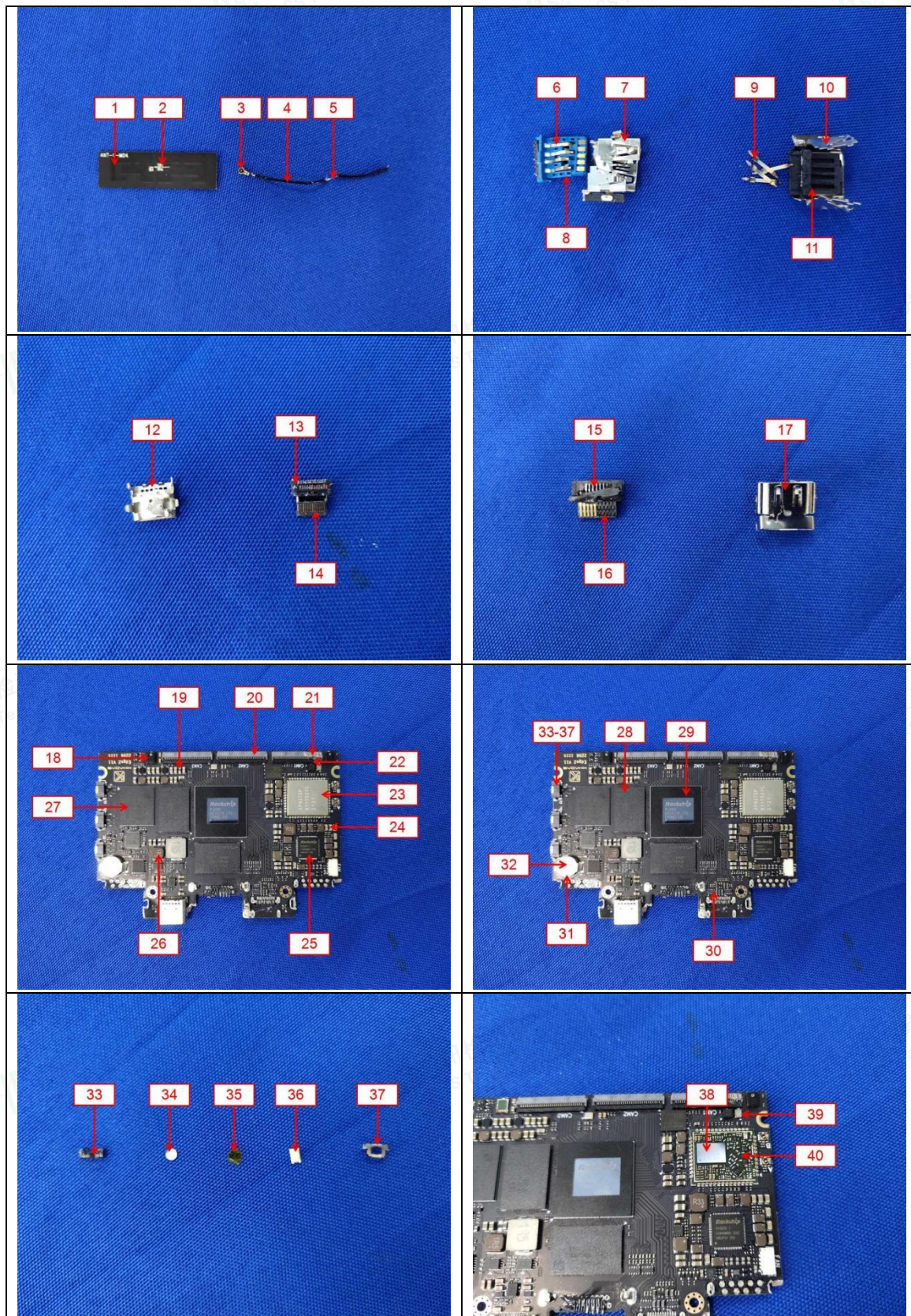


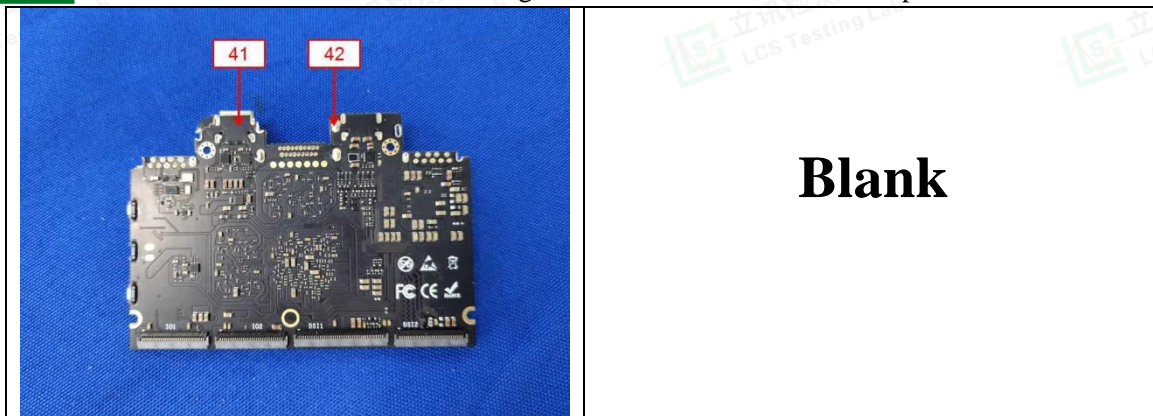
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