TEST REPORT

Report No.	:	WTD22X12262162C
Applicant	:	Seeed Technology Co., Ltd.
Address	:	9F, G3 Building, TCL International E City, Zhongshanyuan Road, Nanshan District, Shenzhen, Guangdong Province, P.R.C
Manufacturer	:	Seeed Technology Co., Ltd.
Address	:	9F, G3 Building, TCL International E City, Zhongshanyuan Road, Nanshan District, Shenzhen, Guangdong Province, P.R.C
Sample Name	:	Edgebox
Model No.	:	EdgeBox-RPI-200
Reference Model No.	:	NA
Brand	:	NA
Test Requested	:	In accordance with the RoHS Directive 2011/65/EU and its amendment (EU) No. 2015/863, to determine the 10 restricted substances content in the submitted sample.
Test Conclusion	:	**Pass** (Based on the performed tests on the submitted samples, the results comply with the requirement of EU RoHS Directive 2011/65/EU and its amendment (EU) No. 2015/863).
Date of Receipt sample	:	2023-02-06
Testing period	:	2023-02-06 ~ 2023-02-09
Date of Issue	:	2023-02-15
Test Result	:	Refer to next page (s)

Prepared By:

Waltek Testing Group (Shenzhen) Co., Ltd.

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Signed for and on behalf of
Waltek Testing Group (Shenzhen) Co., Ltd.

Hugo Chen

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Test Method：

- IEC 62321-3-1:2013, screening - Lead, mercury, cadmium, total chromium and total bromine by X-ray fluorescence spectrometry (XRF)
- IEC 62321-42017 for mercury (Hg), analyzed by ICP-OES
- IEC 62321-5:2013 for lead (Pb) and cadmium (Cd), analyzed by ICP-OES
- IEC 62321-7-2:2017 and/or IEC 62321-7-1:2015 for hexavalent chromium (Cr^{6+}), analyzed by UV-Vis
- IEC 62321-6:2015 for PBBs and PBDEs, analyzed by GC-MS
- IEC 62321-8:2017 for phthalates, analyzed by GC-MS

Test Results:

1. Lead, Mercury, Cadmium, Hexavalent Chromium, PBBs and PBDEs

No.	Part Description (See Photograph of parts tested)	Result of XRF					Result of Chemical Testing (mg/kg)
		Pb	Cd	Hg	Cr	Br	
1	Black cladding metal shell	BL	BL	BL	IN	NA	Cr^{6+}：Negative
2	Black cladding metal	BL	BL	BL	BL	NA	NA
3	Black plastic	BL	BL	BL	BL	BL	NA
4	Black rubber	BL	BL	BL	BL	BL	NA
5	Blue glue	BL	BL	BL	BL	BL	NA
6	Silvery metal spring	BL	BL	BL	BL	NA	NA
7	Silvery metal screw	BL	BL	BL	IN	NA	Cr^{6+}：Negative
8	Black cladding metal screw	BL	BL	BL	IN	NA	Cr^{6+}：Negative
9	Silvery metal screw	BL	BL	BL	BL	NA	NA
10	Black cladding metal screw	BL	BL	BL	IN	NA	Cr^{6+}：Negative
11	Green plastic shell	BL	BL	BL	BL	BL	NA
12	Orange plastic	BL	BL	BL	BL	BL	NA

No.	Part Description (See Photograph of parts tested)	Result of XRF					Result of Chemical Testing (mg/kg)
		Pb	Cd	Hg	Cr	Br	
13	Silvery metal PIN	BL	BL	BL	BL	NA	NA
14	Black rubber cover（capacitor）	BL	BL	BL	BL	BL	NA
15	Silvery metal shell（capacitor）	BL	BL	BL	BL	NA	NA
16	Cream wet paper（capacitor）	BL	BL	BL	BL	BL	NA
17	Silvery metal PIN（capacitor）	BL	BL	BL	BL	NA	NA
18	Black diode SMD	BL	BL	BL	BL	BL	NA
19	Gray solid material（Inductance）	BL	BL	BL	BL	BL	NA
20	Coppery metal coil（Inductance）	BL	BL	BL	BL	NA	NA
21	Black plastic shell	BL	BL	BL	BL	BL	NA
22	Silvery metal PIN	BL	BL	BL	BL	NA	NA
23	Black body	BL	BL	BL	BL	BL	NA
24	Black IC SMD	BL	BL	BL	BL	BL	NA

No.	Part Description (See Photograph of parts tested)	Result of XRF					Result of Chemical Testing (mg/kg)
		Pb	Cd	Hg	Cr	Br	
25	Silvery metal shell	BL	BL	BL	IN	NA	Cr^{6+}：Negative
26	Black plastic	BL	BL	BL	BL	BL	NA
27	Silvery metal PIN	BL	BL	BL	BL	NA	NA
28	Yellow/transparent plastic film	BL	BL	BL	BL	BL	NA
29	Coppery metal body	IN	BL	BL	BL	NA	Pb:23900#
30	Yellow/transparent plastic film	BL	BL	BL	BL	BL	NA
31	Silvery metal shell	BL	BL	BL	BL	NA	NA
32	Black plastic	BL	BL	BL	BL	BL	NA
33	Silvery metal PIN	BL	BL	BL	BL	NA	NA
34	Silvery metal shell	BL	BL	BL	BL	NA	NA
35	Black plastic	BL	BL	BL	BL	BL	NA
36	Silvery metal PIN	BL	BL	BL	BL	NA	NA

No.	Part Description (See Photograph of parts tested)	Result of XRF					Result of Chemical Testing (mg/kg)
		Pb	Cd	Hg	Cr	Br	
37	Silvery metal shell	BL	BL	BL	BL	NA	NA
38	Black plastic	BL	BL	BL	BL	BL	NA
39	Silvery metal PIN	BL	BL	BL	BL	NA	NA
40	Green LED lamp	BL	BL	BL	BL	BL	NA
41	Yellow LED lamp	BL	BL	BL	BL	BL	NA
42	Black IC SMD	BL	BL	BL	BL	BL	NA
43	Silvery metal PIN	BL	BL	BL	BL	NA	NA
44	Blue body	BL	BL	BL	BL	BL	NA
45	Silvery metal PIN	BL	BL	BL	BL	NA	NA
46	Yellow body	BL	BL	BL	BL	BL	NA
47	Silvery metal cap	BL	BL	BL	BL	NA	NA
48	White ceramic	BL	BL	BL	BL	BL	NA

No.	Part Description (See Photograph of parts tested)	Result of XRF					Result of Chemical Testing (mg/kg)
		Pb	Cd	Hg	Cr	Br	
49	Black body	BL	BL	BL	BL	BL	NA
50	Black plastic sheet	BL	BL	BL	BL	BL	NA
51	Black solid material	BL	BL	BL	BL	BL	NA
52	Coppery metal coil	BL	BL	BL	BL	NA	NA
53	Black resistance SMD	BL	BL	BL	BL	BL	NA
54	Gray cladding metal	BL	BL	BL	BL	NA	NA
55	Silvery metal shell	BL	BL	BL	IN	NA	Cr^{6+}：Negative
56	Black plastic	BL	BL	BL	BL	BL	NA
57	Silvery metal PIN	BL	BL	BL	BL	NA	NA
58	Solder	BL	BL	BL	BL	NA	NA
59	Black cladding PCB board	BL	BL	BL	BL	IN	PBBs：ND PBDEs：ND
60	Yellow capacitor SMD	BL	BL	BL	BL	BL	NA

No.	Part Description (See Photograph of parts tested)	Result of XRF					Result of Chemical Testing (mg/kg)
		Pb	Cd	Hg	Cr	Br	
61	Black diode SMD	BL	BL	BL	BL	BL	NA
62	Black capacitor SMD	BL	BL	BL	BL	BL	NA
63	Silvery metal	BL	BL	BL	IN	NA	Cr^{6+}：Negative

Note:

(1) Results are obtained by EDXRF for primary screening, and further chemical testing by ICP (for Cd, Pb, Hg), UV-VIS (for Cr^{6+}) and GC-MS (for PBBs, PBDEs) is recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321-3-1: 2013 (unit: mg/kg)

Element	Polymer	Metal	Composite Materials
Cd	BL ≤ (70-3σ) < IN < (130+3σ) ≤ OL	BL ≤ (70-3σ) < IN < (130+3σ) ≤ OL	LOD < IN < (150+3σ) ≤ OL
Pb	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (500-3σ) < IN < (1500+3σ) ≤ OL
Hg	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (500-3σ) < IN < (1500+3σ) ≤ OL
Cr	BL ≤ (700-3σ) < IN	BL ≤ (700-3σ) <IN	BL ≤ (500-3σ) < IN
Br	BL ≤ (300-3σ) < IN	--	BL ≤ (250-3σ) < IN

BL= Below Limit OL= Over Limit LOD = Limit of Detection -- = Not Regulated

(2) “IN” expresses the inconclusive region, and further chemical testing to confirm whether it complies with the requirement of RoHS Directive.

(3) The XRF screening test for RoHS elements – the reading may be different to the actual content in the sample be of non-uniformity composition.

(4) mg / kg =milligram per kilogram=ppm, μg/cm²= Micrograms per square centimeter.

(5) ND = Not Detected, less than the value of Method Detection Limit.

(6) NA = Not Applicable, as the XRF screening test result was below the limit, it was not need to conduct the chemical testing.

(7) MDL= Method Detection Limit in chemical test.

Test Items	Pb	Cd	Hg	Cr^{6+}		PBB	PBDE
Units	mg/kg	mg/kg	mg/kg	mg/kg	μg/cm²	mg/kg	mg/kg
MDL	10	10	10	10	0.1	10	10

The MDL for single compound of PBBs and PBDEs is 10mg/kg, MDL of Cr^{6+} for polymer and composite sample is 10mg/kg and MDL of Cr^{6+} for metal sample is 0.1μg/cm².

(8) Requirement as per RoHS Directive 2011/65/EU and its amendment (EU) No. 2015/863

Restricted Substances	Limits
Cadmium (Cd)	0.01% (100 mg/kg)
Lead (Pb)	0.1% (1000 mg/kg)
Mercury (Hg)	0.1% (1000 mg/kg)
Chromium (VI) (Cr^{6+})	0.1% (1000 mg/kg)
Polybrominated Biphenyls (PBBs)	0.1% (1000 mg/kg)
Polybrominated Diphenyl Ethers (PBDEs)	0.1% (1000 mg/kg)

(9) According to IEC 62321-7-1:2015, determined of Cr^{6+} on metal sample by boiling water extraction test method, and result is shown as Positive/Negative.

Boiling water extraction:

Negative = Absence of Cr^{6+} coating, the detected concentration in boiling water extraction solution is less than 0.10μg/cm².

Positive = Presence of Cr^{6+} coating, the detected concentration in boiling water extraction solution is greater than 0.13μg/cm^2.

Information on storage conditions and production date of the tested sample is unavailable and thus Cr^{6+} results represent status of the sample at the time of testing.

(10) Abbreviation:

"Pb" denotes Lead, "Cd" denotes Cadmium, "Hg" denotes Mercury, "Cr" denotes Chromium, "Cr^{6+}" denotes Hexavalent Chromium, "Br" denotes Bromine, "PBBs" denotes Total Polybrominated Biphenyls, "PBDEs" denotes Total Polybrominated Diphenyl Ethers.

(11) #= Sample is copper alloy. The lead content which is under 4% (40000ppm) is exempted from the requirement of RoHS Directive (2011/65/EU).

(12) All results shown in this report were copied from the former report WTD22X12262142C.

2. Phthalates (DEHP, BBP, DBP, DIBP)

Serial No.	Part No. (See Photograph of parts tested)	Result (mg/kg)			
		DIBP	DBP	BBP	DEHP
T01	3+11+12△	ND	ND	ND	ND
T02	4+5△	ND	ND	ND	ND
T03	14+16+18△	ND	ND	ND	ND
T04	19+21+23△	ND	ND	ND	ND
T05	24+26△	ND	ND	ND	ND
T06	28+30△	ND	ND	ND	ND
T07	32+35+38△	ND	ND	ND	ND
T08	40+41+42△	ND	ND	ND	ND
T09	44+46+48△	ND	ND	ND	ND
T10	49+50+51△	ND	ND	ND	ND
T11	53+56+59△	ND	ND	ND	ND
T12	60+61+62△	ND	ND	ND	ND

Note:

(1) mg/kg =milligram per kilogram= ppm.

(2) Requirement as per RoHS Directive 2011/65/EU and its amendment (EU) No. 2015/863

Test Item(s)	Limit（mg/kg）
Bis (2-ethylhexyl)- phthalate (DEHP)	1000
Dibutyl phthalate (DBP)	1000
Benzylbutyl phthalate (BBP)	1000
Diisobutyl phthalate (DIBP)	1000

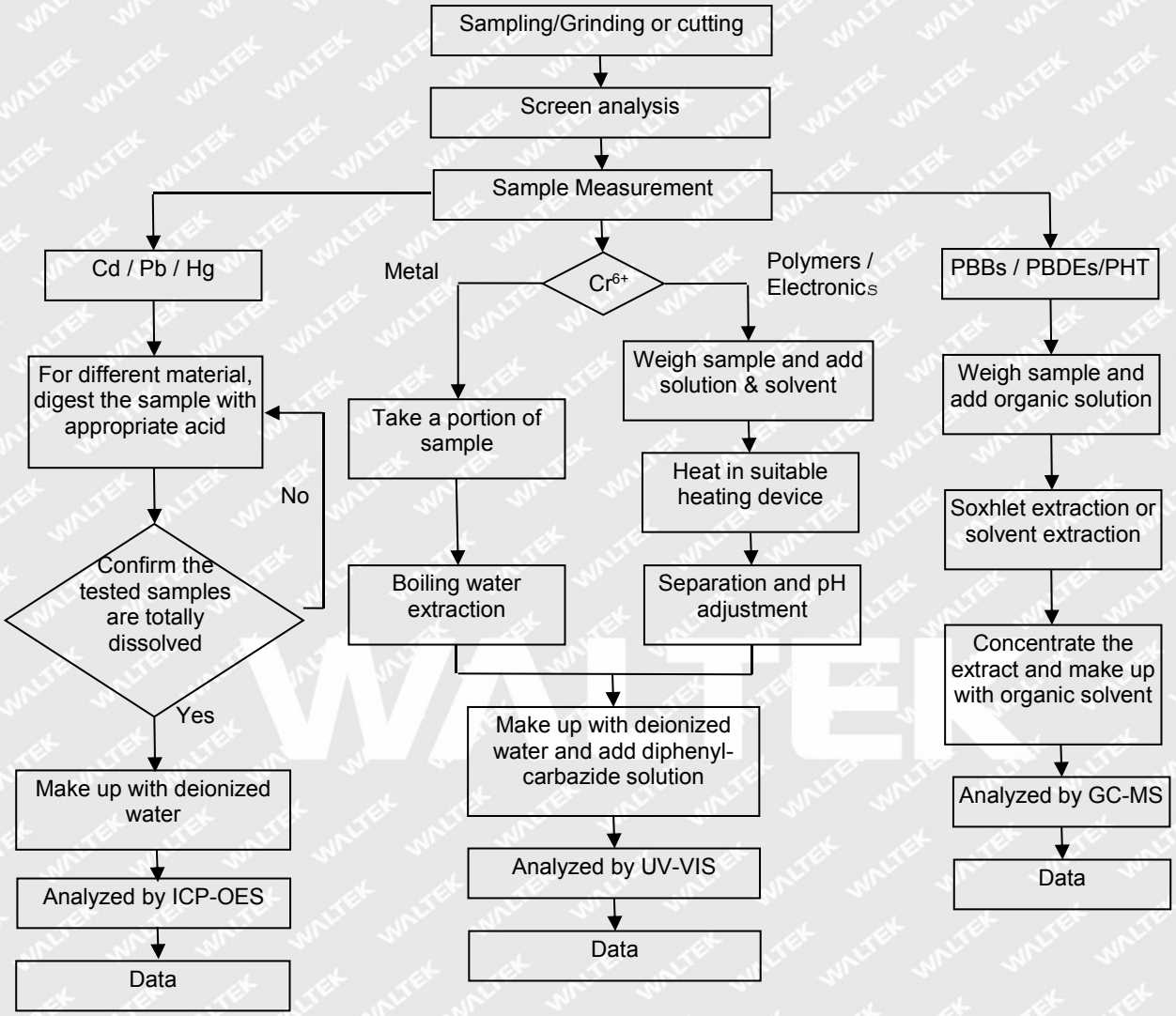
(3) Abbreviation:
"DBP" denotes Dibutyl phthalate, "BBP" denotes Benzyl butyl phthalate (BBP), "DEHP" denotes Bis(2-ethylhexyl)-phthalate, "DIBP" denotes Diisobutyl phthalate, "PHT" denotes Phthalates.

(4) Method Detection Limit (MDL) : 50mg/kg for each of phthalate.

(5) "△"= As client's requirement, the testing was conducted based on mixed components. Results are calculated by the minimum weight of mixed components.

(6) All results shown in this report were copied from the former report WTD22X12262142C.

Measurement Flow chart:

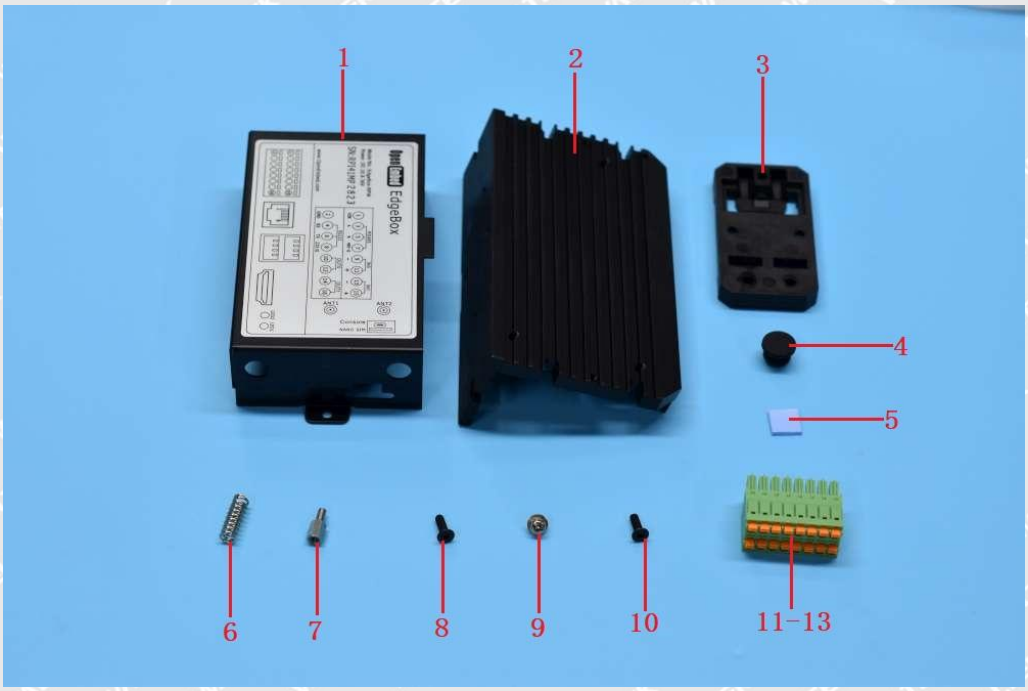


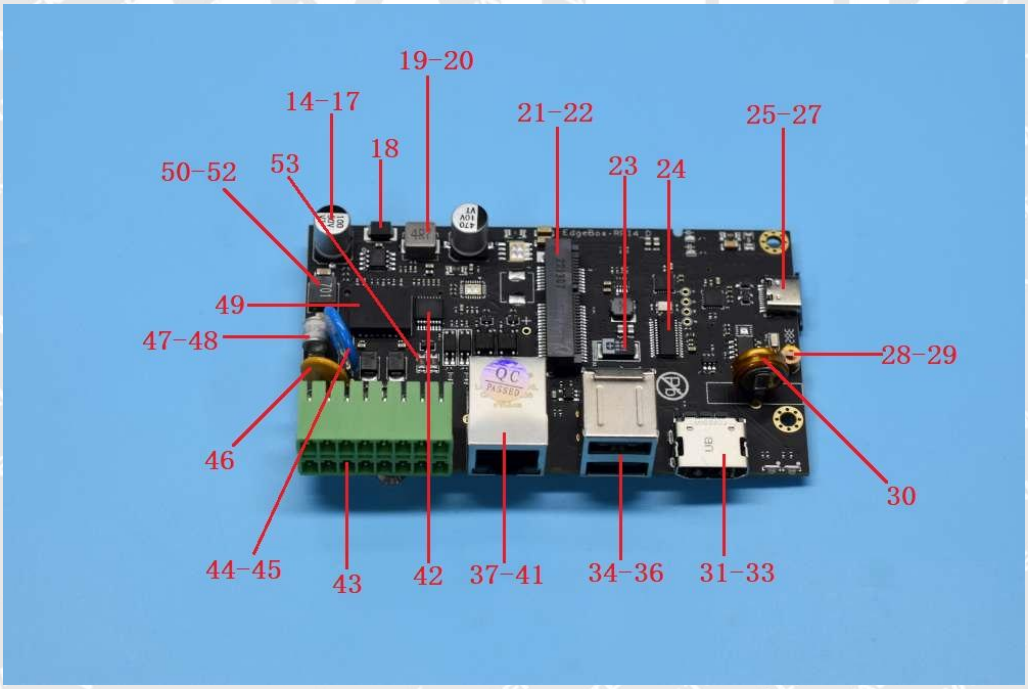
Sample Photo:

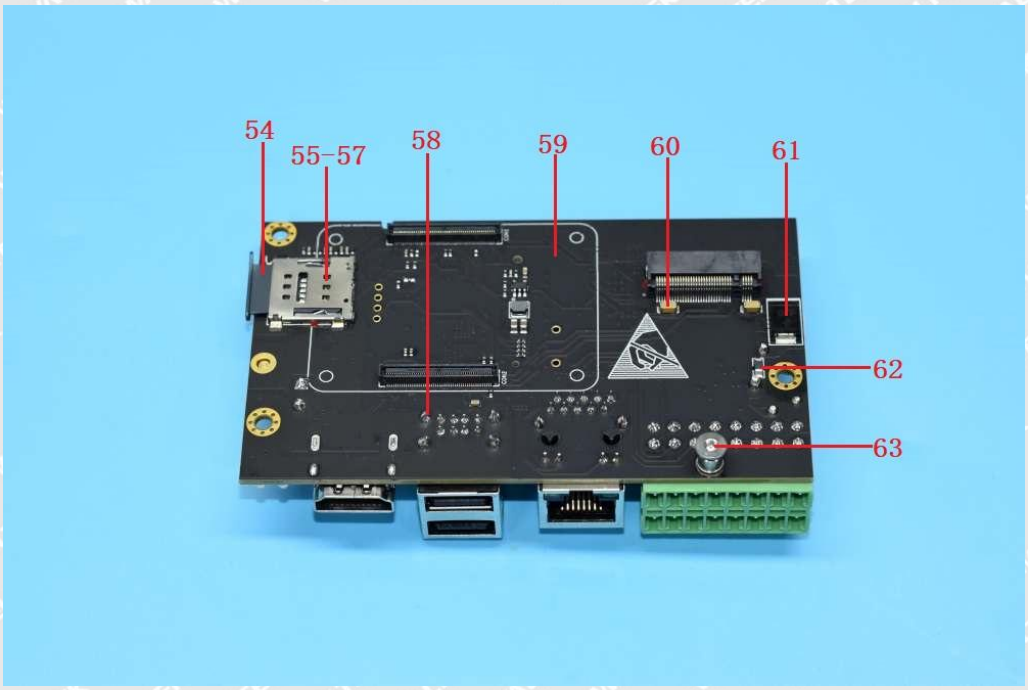




Photograph of parts tested ：






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55-57
58
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63

Remarks:

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====== End of Report ======