

TEST REPORT

Report No.: BCTC2409324172-1E

Applicant: Radxa Computer (Shenzhen) Co.,Ltd.

Product Name: Radxa ROCK 5B+

Test Model: Radxa ROCK 5B+ D16E0

Tested Date: 2024-09-20 to 2024-10-10

Issued Date: 2024-10-17

Shenzhen BCTC Testing Co., Ltd.



Product Name: Radxa ROCK 5B+

Trademark: **radxa**[®]
Radxa ROCK 5B+ D16E0
Radxa ROCK 5B+ D4E0, Radxa ROCK 5B+ D8E0, Radxa ROCK 5B+ D24E0,
Model/Type reference: Radxa ROCK 5B+ D32E0, Radxa ROCK 5B+ D4E16, Radxa ROCK 5B+ D8E32,
Radxa ROCK 5B+ D16E64, Radxa ROCK 5B+ D24E128,
Radxa ROCK 5B+ D32E256

Prepared For: Radxa Computer (Shenzhen) Co.,Ltd.

Address: 1602, Smart Valley, tiezai Road, Gongle community, Xixiang, Baoan, Shenzhen

Manufacturer: Radxa Computer (Shenzhen) Co.,Ltd.

Address: 1602, Smart Valley, tiezai Road, Gongle community, Xixiang, Baoan, Shenzhen

Prepared By: Shenzhen BCTC Testing Co., Ltd.

Address: 1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road,
Zhancheng, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China

Sample Received Date: 2024-09-20

Sample tested Date: 2024-09-20 to 2024-10-10

Issue Date: 2024-10-17

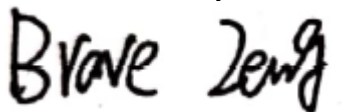
Report No.: BCTC2409324172-1E

Test Standards: EN IEC 62311:2020

Test Results: PASS

Remark: This is RED Health test report.

Tested by:



Brave Zeng/ Project Handler

Approved by:



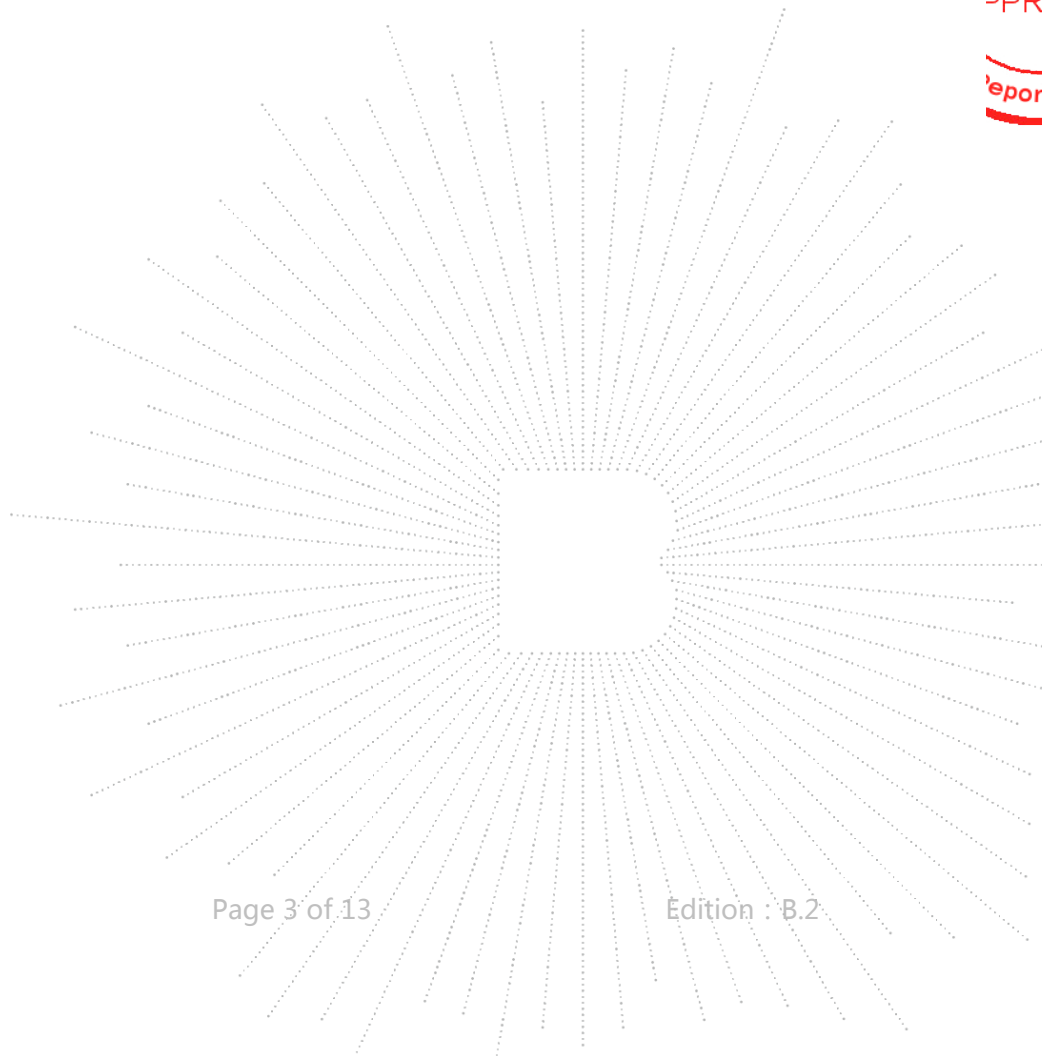
Zero Zhou/Reviewer

The test report is effective only with both signature and specialized stamp. This result(s) shown in this report refer only to the sample(s) tested. Without written approval of Shenzhen BCTC Testing Co., Ltd, this report can't be reproduced except in full. The tested sample(s) and the sample information are provided by the client.

Table Of Content

Test Report Declaration	Page
1. Version	4
2. Product Information And Test Setup	5
2.1 Product Information	5
3. Health Requirements	6
3.1 Limits	6
3.2 Exposure Evaluation	7
4. EUT Photographs	8

(Note: N/A Means Not Applicable)



1. Version

Report No.	Issue Date	Description	Approved
BCTC2409324172-1E	2024-10-17	Original	Valid

2. Product Information And Test Setup

2.1 Product Information

Model/Type reference:	Radxa ROCK 5B+ D16E0 Radxa ROCK 5B+ D4E0, Radxa ROCK 5B+ D8E0, Radxa ROCK 5B+ D24E0, Radxa ROCK 5B+ D32E0, Radxa ROCK 5B+ D4E16, Radxa ROCK 5B+ D8E32, Radxa ROCK 5B+ D16E64, Radxa ROCK 5B+ D24E128, Radxa ROCK 5B+ D32E256
Model differences:	All models are the same circuit and RF module, only the model name and memory size are different.
Bluetooth version:	5.2
Hardware Version:	N/A
Software Version:	N/A
Operation Frequency:	Bluetooth(BDR+EDR)+ Bluetooth(BLE): 2402-2480MHz WIFI(2.4GHz): IEEE 802.11b/g/n HT20/ ax HT20: 2412MHz-2472MHz IEEE 802.11n HT40/ ax HT40: 2422MHz-2462MHz WIFI(5.1GHz): IEEE 802.11a/n/ac HT20/ax HT20: 5180MHz-5240MHz IEEE 802.11n/ac HT40/ax HT40: 5190 MHz-5230MHz IEEE 802.11ac HT80/ax HT80: 5210MHz WIFI(5.8GHz): IEEE 802.11a/n/ac HT20/ax HT20: 5745MHz-5825MHz IEEE 802.11n/ac HT40/ax HT40: 5755 MHz-5795MHz IEEE 802.11ac HT80/ax HT80: 5775MHz
Max. RF output power:	Bluetooth(BDR+EDR): 4.11 dBm Bluetooth(BLE): 1.38 dBm WIFI(2.4GHz) : Antenna A: 11.68 dBm, Antenna B: 11.54 dBm, MIMO: 12.97 dBm WIFI(5.1GHz): Antenna A: 10.63 dBm, Antenna B: 10.33 dBm, MIMO: 12.49 dBm WIFI(5.8GHz): Antenna A: 9.66 dBm, Antenna B: 10.07 dBm, MIMO: 11.70 dBm
Type of Modulation:	Bluetooth(BDR+EDR): GFSK, π /4DQPSK, 8DPSK Bluetooth(BLE):GFSK
Antenna installation:	WIFI(2.4GHz +5GHz+5.8GHz): DSSS, OFDM, OFDMA Bluetooth(EDR+BLE)+ WIFI(2.4GHz+5.1GHz+5.8GHz): FPC antenna
Antenna Gain:	Bluetooth(BDR+EDR)+ Bluetooth(BLE): 2.1 dBi WIFI(2.4GHz): Antenna A:2.1 dBi, Antenna B: 2.1 dBi WIFI(5.1GHz): Antenna A: 1.93 dBi, Antenna B: 1.93 dBi WIFI(5.8GHz): Antenna A: 1.93 dBi, Antenna B: 1.93 dBi
Ratings:	Remark: <input checked="" type="checkbox"/> The antenna gain of the product comes from the antenna report provided by the customer, and the test data is affected by the customer information. <input type="checkbox"/> The antenna gain of the product is provided by the customer, and the test data is affected by the customer information. DC 12V from adapter

3. Health Requirements

3.1 Limits

According to Council Recommendation: the criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation.

Reference levels for electric, magnetic and electromagnetic fields (0Hz to 300GHz, unperturbed RMS values)

Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (μT)	Equivalent plane wave power density Seq (W/m2)
0-1 Hz	-	3.2×10^4	4×10^4	-
1-8 Hz	10000	$3.2 \times 10^4 / f^2$	$4 \times 10^4 / f^2$	-
8-25 Hz	10000	$4000 / f$	$5000 / f$	-
0.025-0.8 kHz	$250 / f$	$4 / f$	$5 / f$	-
0.8-3 kHz	$250 / f$	5	6.25	-
3-150 kHz	87	5	6.25	-
0.15-1 MHz	87	$0.73 / f$	$0.92 / f$	-
1-10 MHz	$87 / f^{1/2}$	$0.73 / f$	$0.92 / f$	-
10-400 MHz	28	0.073	0.095	2
400-2000 MHz	$1.375 f^{1/2}$	$0.0037 f^{1/2}$	$0.0046 f^{1/2}$	$f / 200$
2-300 GHz	61	0.16	0.2	10

Note:

1. f as indicated in the frequency range column.
2. For frequencies between 100 kHz and 10 GHz, Seq, E², H² and B² are to be averaged over any six-minute period.
3. For frequencies exceeding 10 GHz, Seq, E², H² and B² are to be averaged over any $68 / f^{1.05}$ minute period (f in GHz).

3.2 Exposure Evaluation

From Council Recommendation 1999/519/EC table 2, the maximum power density is 10 W/m².

Power density (S) is calculated by the following formula:

$$S = PG \cdot \text{Duty factor} / 4\pi R^2$$

P = Peak Power Input to antenna (Watts)

G =Antenna Gain (numeric)

R = distance to the center of radiation of antenna (in meter) = 0.20 m

Note:

1) $P \text{ (Watts)} = (10^{(\text{dBm} / 10)}) / 1000$

2) $G \text{ (Antenna gain in numeric)} = 10^{(\text{Antenna gain in dBi} / 10)}$

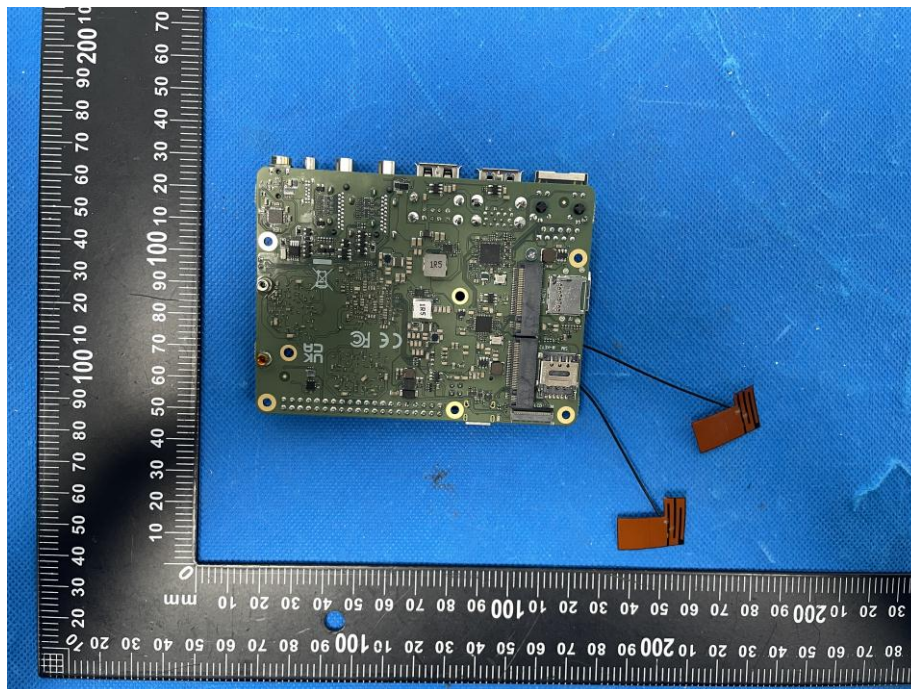
3) Duty factor=1.0

4) $\pi = 3.142$

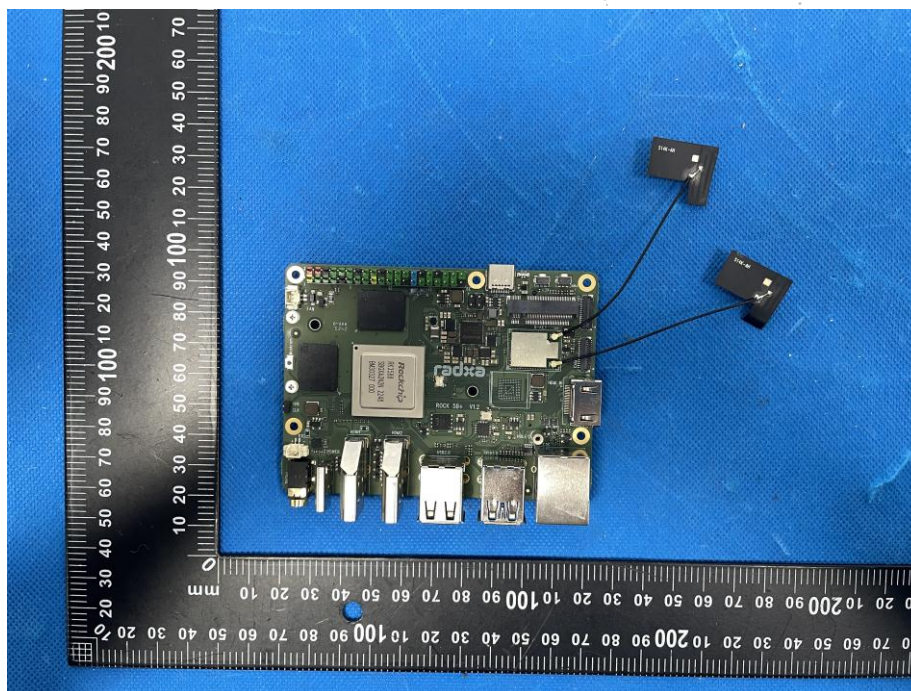
Mode	Total Antenna Gain (dBi)	Total Antenna Gain (numeric)	Max. Total Output Power (dBm)	Max. Total Output Power (W)	Duty factor	Calculate d RF Exposure (W/ m ²)	Limit (W/ m ²)
BT	2.10	1.6218	4.11	0.0026	1.00	0.0083	10
BLE	2.10	1.6218	1.38	0.0014	1.00	0.0044	10
2.4GHz ANT A	2.10	1.6218	11.68	0.0147	1.00	0.0475	10
2.4GHz ANT B	2.10	1.6218	11.54	0.0198	1.00	0.0639	10
MIMO	2.10	1.6218	12.97	0.0116	1.00	0.0373	10
5.1GHz ANT A	1.93	1.5596	10.63	0.0108	1.00	0.0335	10
5.1GHz ANT B	1.93	1.5596	10.33	0.0177	1.00	0.0550	10
MIMO	1.93	1.5596	12.49	0.0092	1.00	0.0287	10
5.8GHz ANT A	1.93	1.5596	9.66	0.0102	1.00	0.0315	10
5.8GHz ANT B	1.93	1.5596	10.07	0.0148	1.00	0.0459	10
MIMO	1.93	1.5596	11.70	0.0010	1.00	0.0031	10

4. EUT Photographs

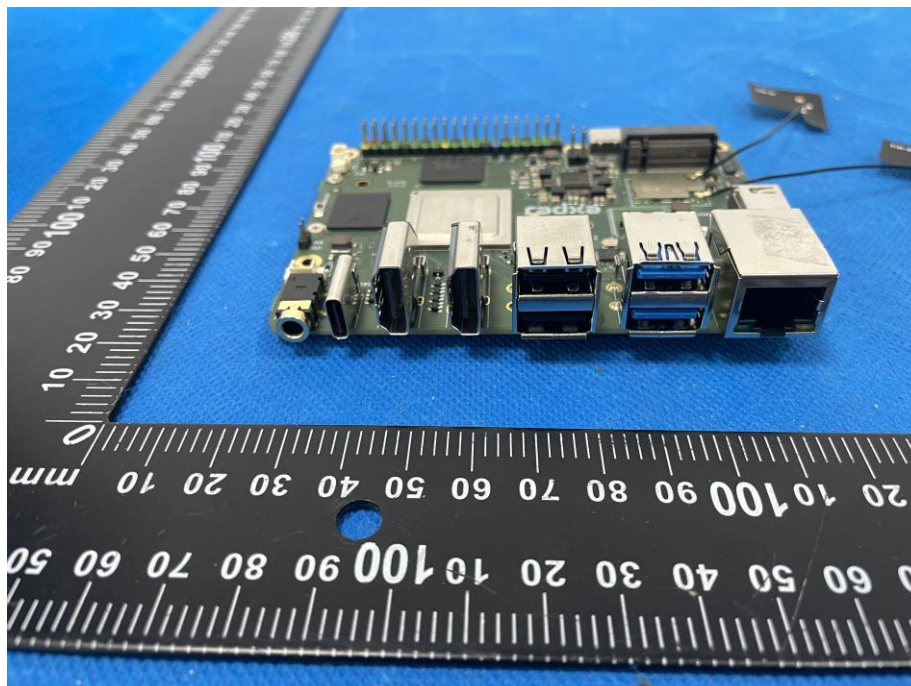
EUT Photo 1



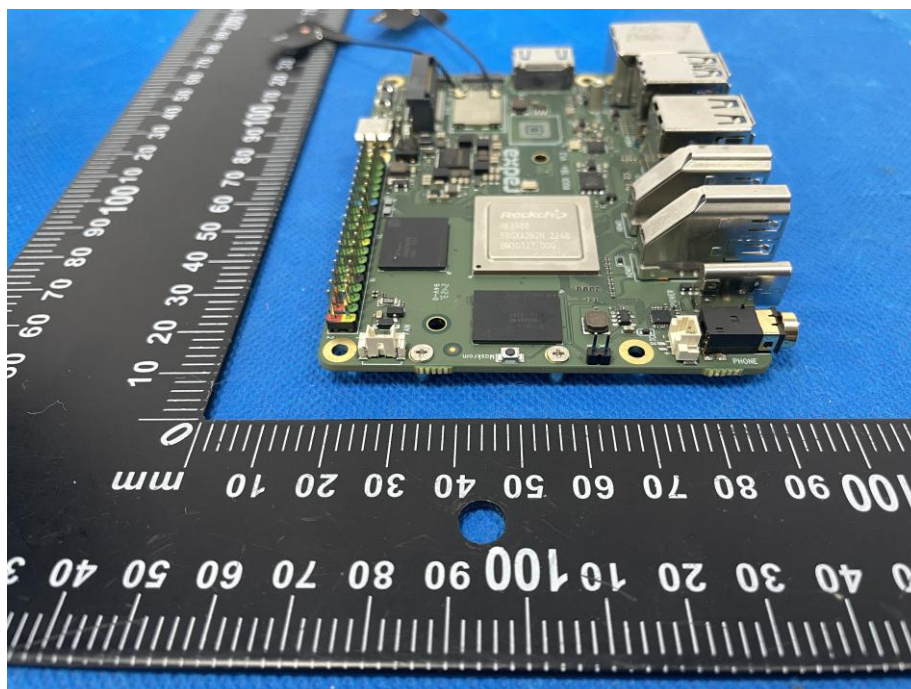
EUT Photo 2



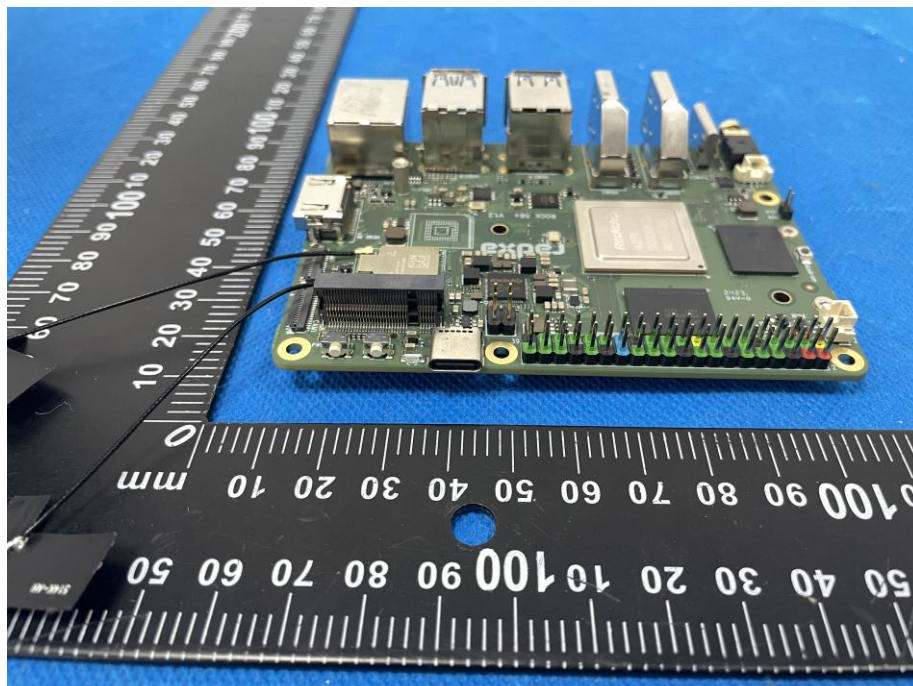
EUT Photo 3



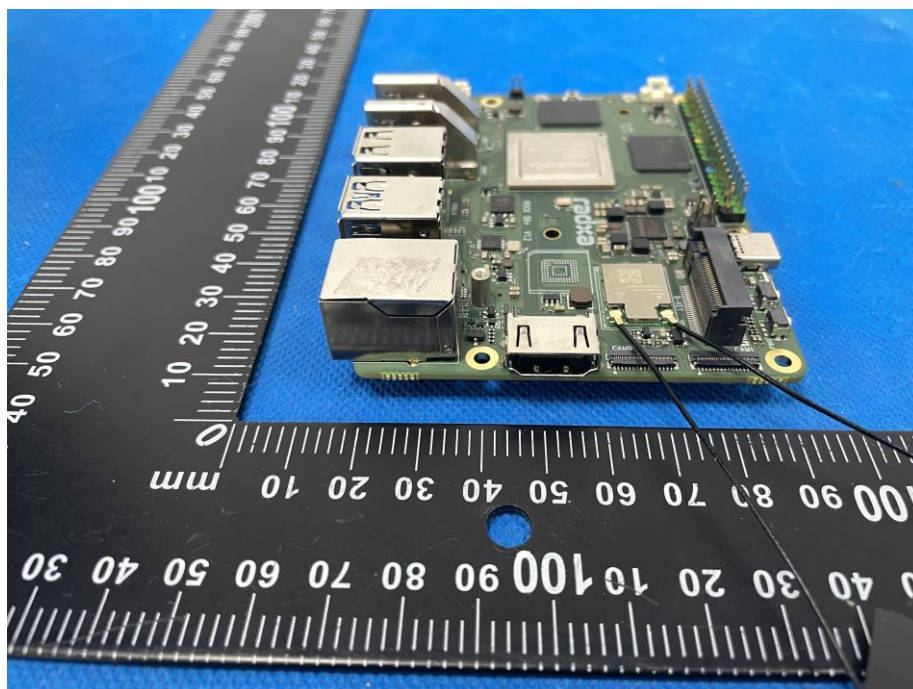
EUT Photo 4



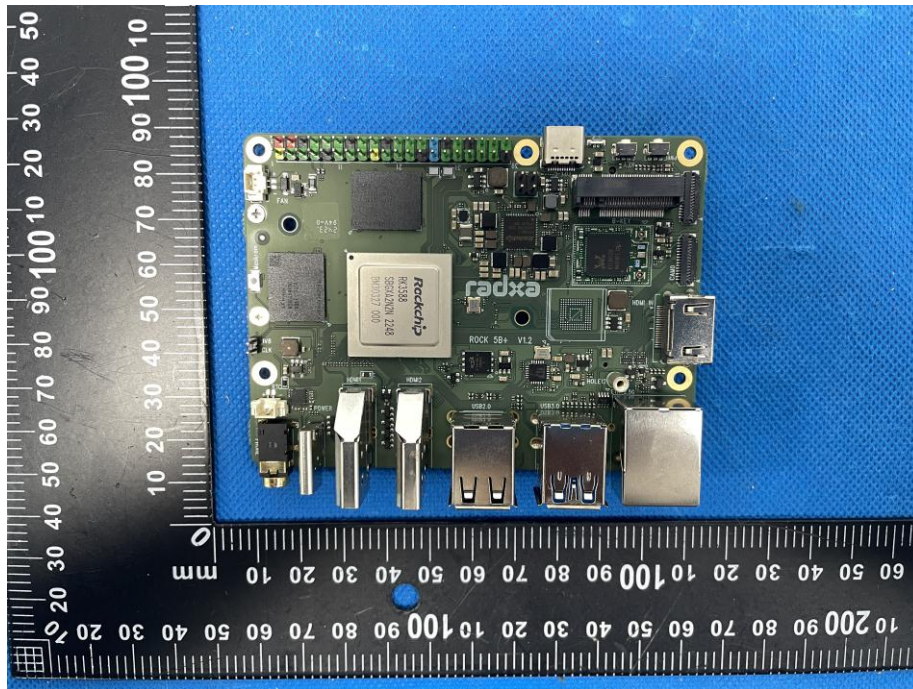
EUT Photo 5



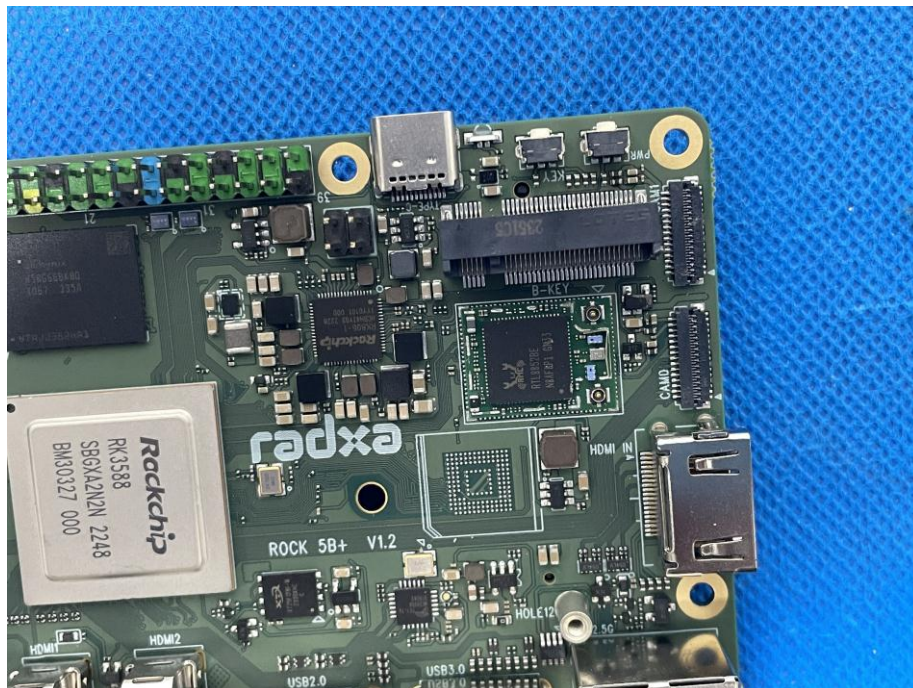
EUT Photo 6



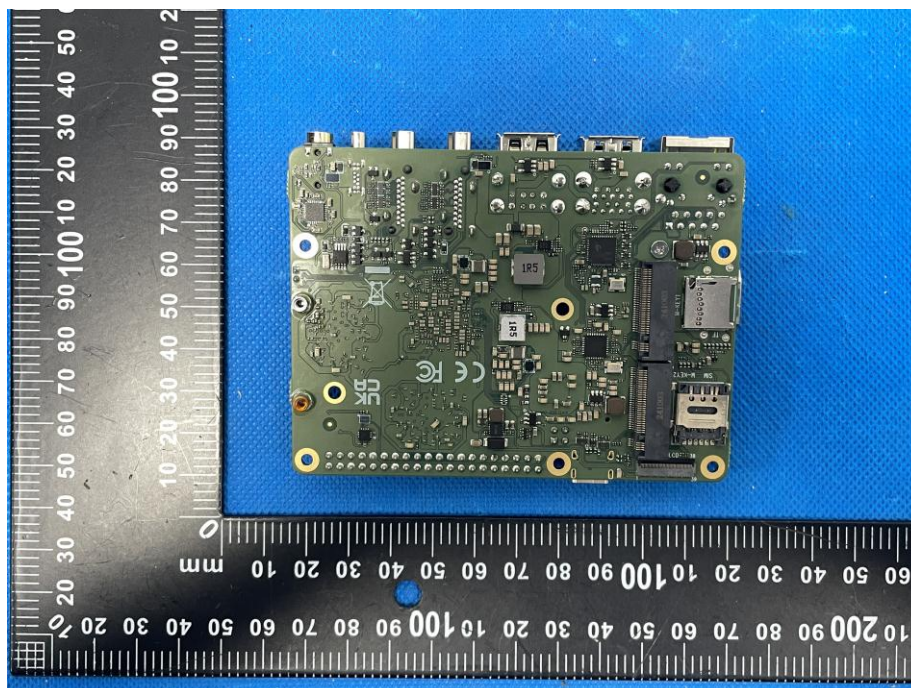
EUT Photo 7



EUT Photo 8



EUT Photo 9



STATEMENT

1. The equipment lists are traceable to the national reference standards.
2. The test report can not be partially copied unless prior written approval is issued from our lab.
3. The test report is invalid without the "special seal for inspection and testing".
4. The test report is invalid without the signature of the approver.
5. The test process and test result is only related to the Unit Under Test.
6. Sample information is provided by the client and the laboratory is not responsible for its authenticity.
7. The quality system of our laboratory is in accordance with ISO/IEC17025.
8. If there is any objection to this test report, the client should inform issuing laboratory within 15 days from the date of receiving test report.

Address:

1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Zhancheng, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China

TEL: 400-788-9558

P.C.: 518103

FAX: 0755-33229357

Website: <http://www.chnbctc.com>

Consultation E-mail: bctc@bctc-lab.com.cn

Complaint/Advice E-mail: advice@bctc-lab.com.cn

***** END *****