TEST REPORT

Report No.:	BCTC2409825918-1E
Applicant:	Radxa Computer (Shenzhen) Co.,Ltd.
Product Name:	Radxa X4
Test Model:	Radxa X4 D8E64R30W16
Tested Date:	2024-09-30 to 2024-10-18
Issued Date:	2024-10-29

Shenzhen BCTC Testing Co., Ltd.

Product Name:	Radxa X4
Trademark:	radxa®
Model/Type reference:	Radxa X4 D8E64R30W16 Radxa X4 D4E32R30W16, Radxa X4 D4E0R30W16, Radxa X4 D8E64R30W16, Radxa X4 D8E0R30W16, Radxa X4 D12E128R30W16, Radxa X4 D12E0R30W16, Radxa X4 D16E256R30W16, Radxa X4 D16E0R30W16
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:	2024-09-30
Sample tested Date:	2024-09-30 to 2024-10-18
Issue Date:	2024-10-29
Report No.:	BCTC2409825918-1E
Test Standards:	EN IEC 62311:2020
Test Results:	PASS
Remark:	This is RED Health test report.

Tested by:

Shanshan Zhang/ 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

(Note: N/A Means Not Applicable)

1. Version

Report No.	Issue Date	Description	Approved
BCTC2409825918-1E	2024-10-29	Original	Valid

2. Product Information And Test Setup

2.1 Product Information

Model/Type reference:	Radxa X4 D8E64R30W16 Radxa X4 D4E32R30W16, Radxa X4 D4E0R30W16, Radxa X4 D8E64R30W16, Radxa X4 D8E0R30W16, Radxa X4 D12E128R30W16, Radxa X4 D12E0R30W16, Radxa X4 D16E256R30W16, Radxa X4 D16E0R30W16
Model differences:	All the model are the same circuit and RF module, except model names and internal storage.
Bluetooth version:	5.0
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): 7.98 dBm Bluetooth(BLE): 5.86 dBm WIFI(2.4GHz) : Antenna A: 11.23 dBm, Antenna B: 11.26 dBm, MIMO: 12.83 dBm WIFI(5.1GHz): Antenna A: 10.51 dBm, Antenna B: 10.27 dBm, MIMO: 12.47 dBm WIFI(5.8GHz): Antenna A: 10.91 dBm, Antenna B: 10.33 dBm, MIMO: 12.46 dBm
Type of Modulation:	Bluetooth(BDR+EDR): GFSK, π/4DQPSK, 8DPSK Bluetooth(BLE):GFSK WIFI(2.4GHz +5GHz+5.8GHz): DSSS, OFDM, OFDMA
Antenna installation:	Bluetooth(EDR+BLE)+ WIFI(2.4GHz+5.1GHz+5.8GHz): FPC antenna
Antenna Gain:	Bluetooth(BDR+EDR)+ Bluetooth(BLE): 1.65 dBi WIFI(2.4GHz): Antenna A: 1.65 dBi, Antenna B: 1.65 dBi WIFI(5.1GHz): Antenna A: 1.4 dBi, Antenna B: 1.4 dBi WIFI(5.8GHz): Antenna A: 1.44 dBi, Antenna B: 1.44 dBi Remark: ☒ 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. ☐ The antenna gain of the product is provided by the customer, and the test data is affected by the customer information.
Ratings:	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	$3.2\times10^4/f^2$	$4\times10^4/f^2$	-
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, E^2, H^2 and B^2 are to be averaged over any six-minute period.
3. For frequencies exceeding 10 GHz, Seq, E^2, H^2 and B^2 are to be averaged over any $68 / f^{1.05}$ minute period (f in GHz).

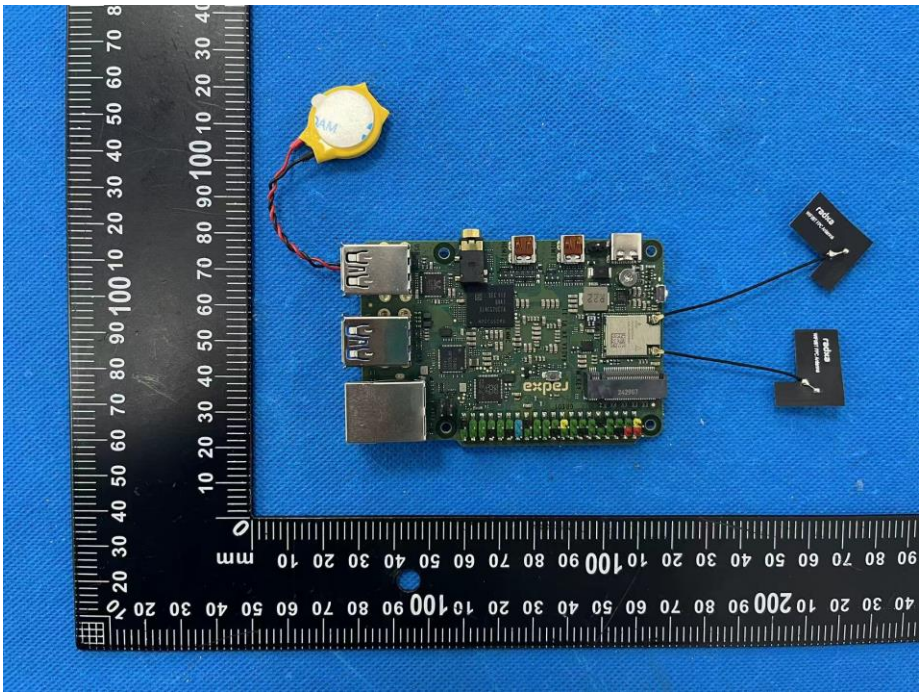
3.2 Exposure Evaluation

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* Duty factor / 4πR²
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 (Watts)=(10 ^ (dBm /10))/1000
2) G (Antenna gain in numeric) = 10^ (Antenna gain in dBi /10)
3) Duty factor=1.0
4) π=3.142

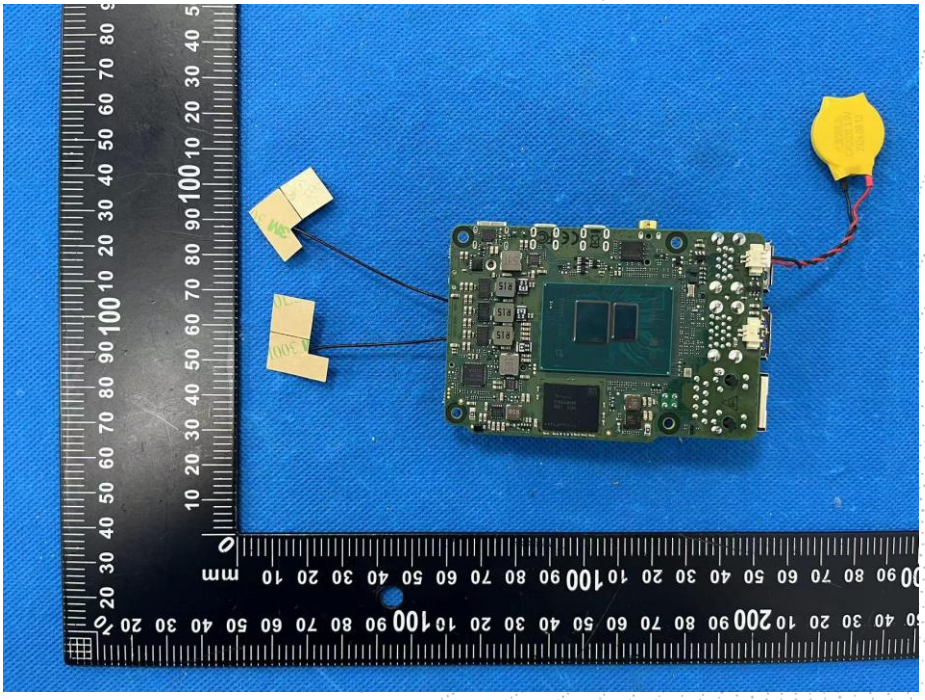
Mode	Total Antenna Gain (dBi)	Total Antenna Gain (numeric)	Max. Total Output Power (dBm)	Max. Total Output Power (W)	Duty factor	Calculated RF Exposure (W/ m²)	Limit (W/ m²)
BT	1.65	1.4622	7.98	0.0063	1.00	0.0183	10
BLE	1.65	1.4622	5.86	0.0039	1.00	0.0113	10
2.4GHz ANT A	1.65	1.4622	11.23	0.0133	1.00	0.0387	10
2.4GHz ANT B	1.65	1.4622	11.26	0.0134	1.00	0.0390	10
MIMO	1.65	1.4622	12.83	0.0192	1.00	0.0559	10
5.1GHz ANT A	1.4	1.3804	10.51	0.0112	1.00	0.0308	10
5.1GHz ANT B	1.4	1.3804	10.27	0.0106	1.00	0.0291	10
MIMO	1.4	1.3804	12.47	0.0177	1.00	0.0486	10
5.8GHz ANT A	1.44	1.3932	10.91	0.0123	1.00	0.0341	10
5.8GHz ANT B	1.44	1.3932	10.33	0.0108	1.00	0.0299	10
MIMO	1.44	1.3932	12.46	0.0176	1.00	0.0488	10

4. EUT Photographs

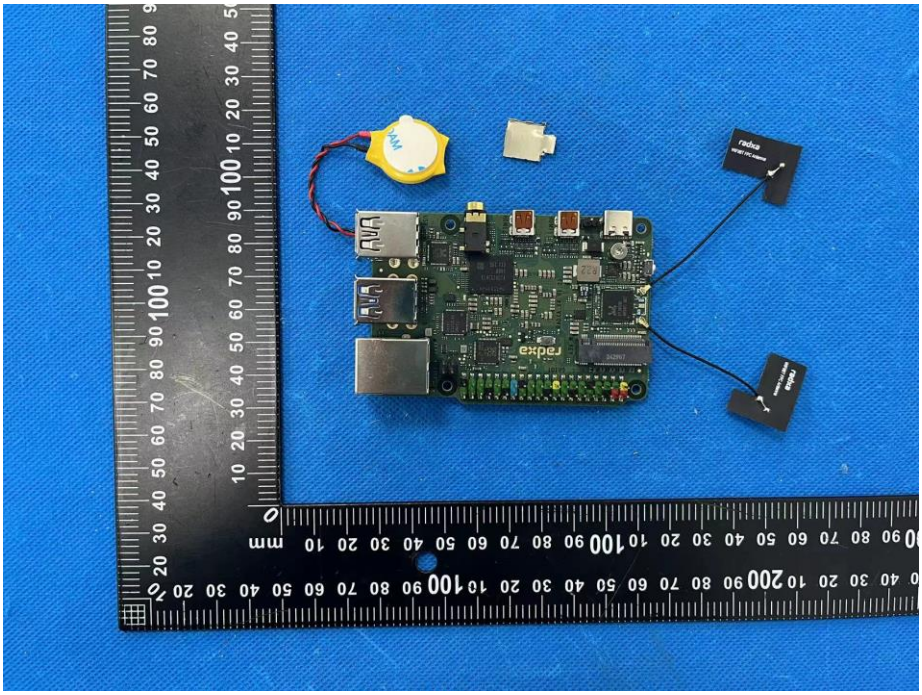
EUT Photo 1



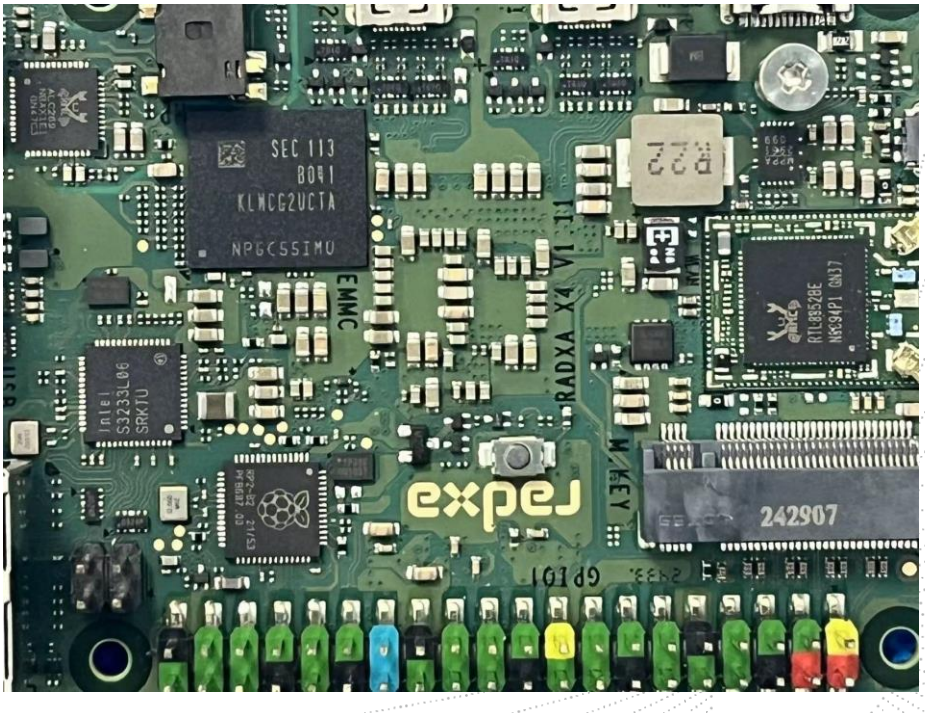
EUT Photo 2



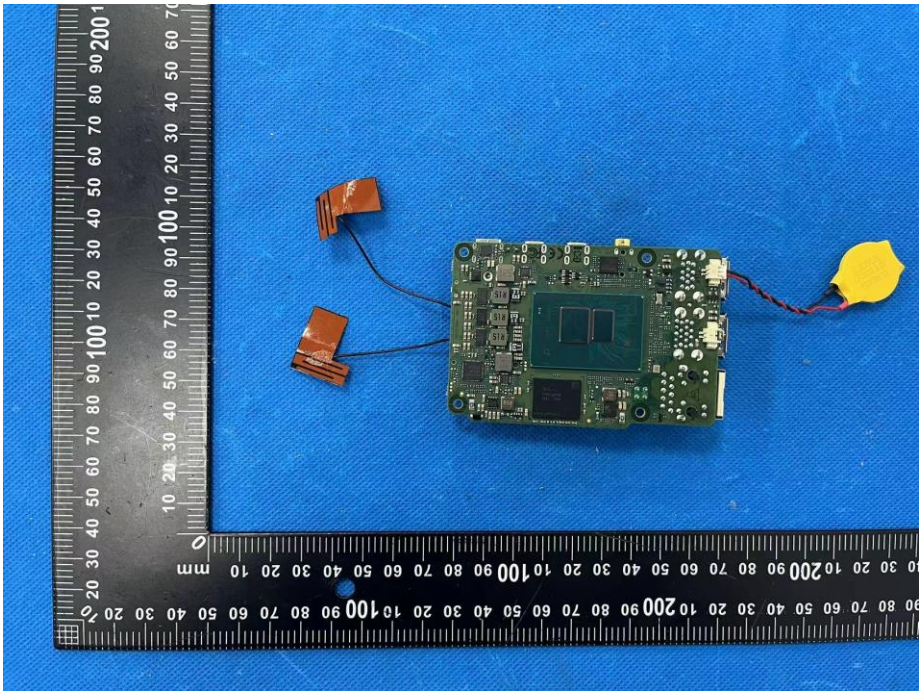
EUT Photo 3



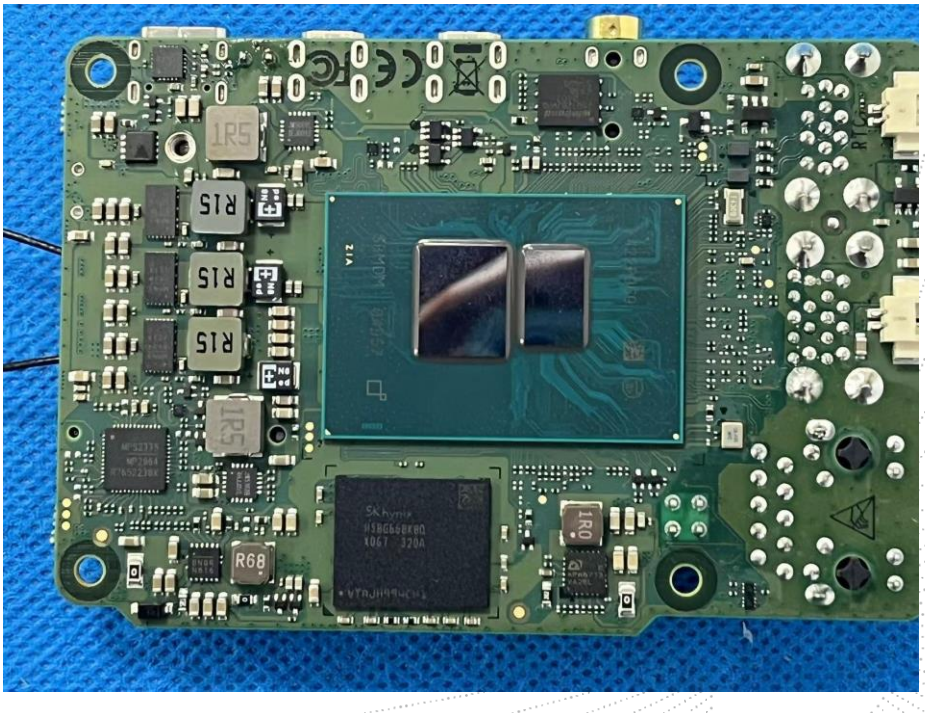
EUT Photo 4



EUT Photo 5



EUT Photo 6



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

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