

TEST REPORT

Report No.: BCTC2312025702E

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

Product Name: Radxa ROCK 3B

Test Model: Radxa ROCK 3B 4GB

Tested Date: 2023-12-19 to 2023-12-21

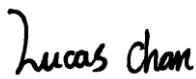
Issued Date: 2023-12-28

Shenzhen BCTC Testing Co., Ltd.



Product Name: Radxa ROCK 3B
Trademark: N/A
Model/Type Reference: Radxa ROCK 3B 4GB
Radxa ROCK 3B 1GB, Radxa ROCK 3B 2GB, Radxa ROCK 3B 4GB,
Radxa ROCK 3B 8GB
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: 2023-12-19
Sample Tested Date: 2023-12-19 to 2023-12-21
Issue Date: 2023-12-28
Report No.: BCTC2312025702E
Test Standards: FCC PART 15B
ANSI C63.4:2014
Test Results: PASS

Tested by:



Lucas Chan /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.



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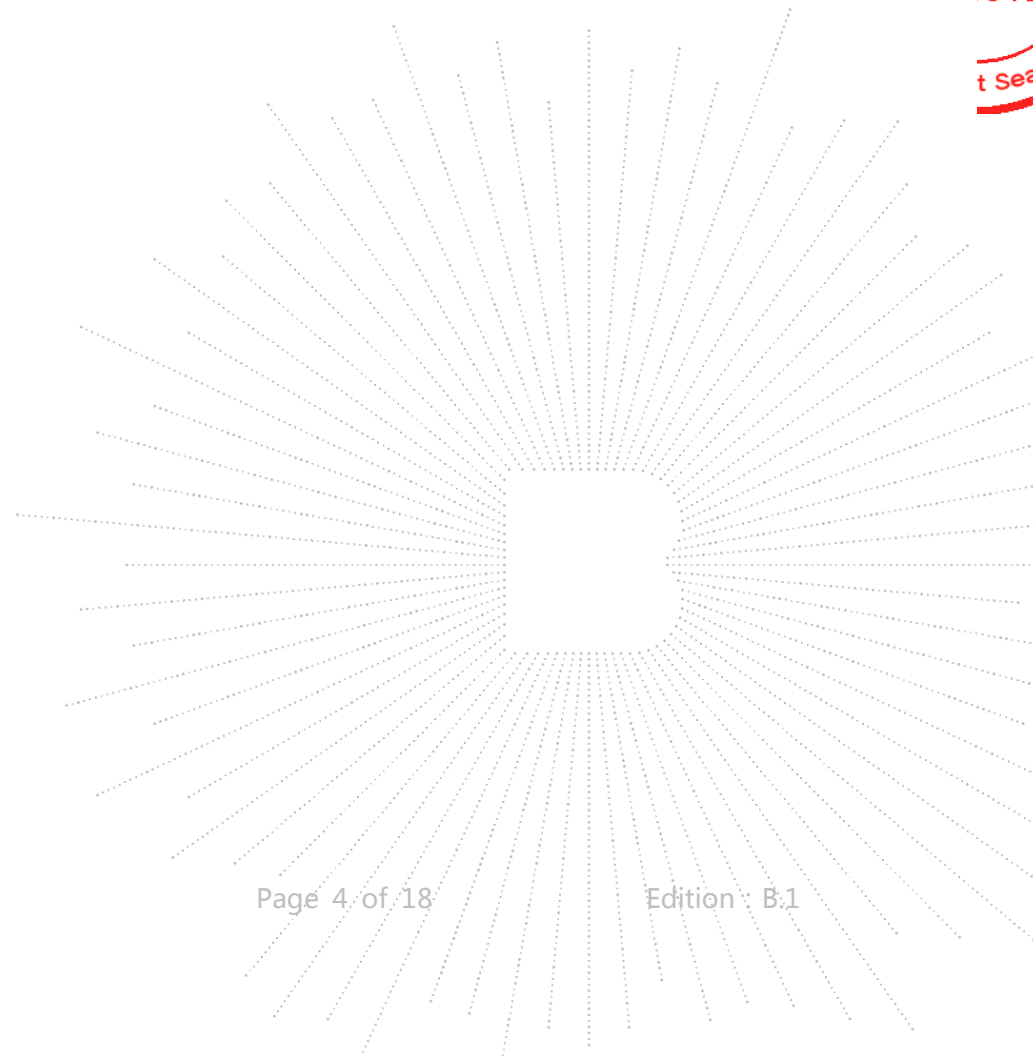
(Note: N/A Means Not Applicable)

BCTC
 BCTC
 PPR
 Report

1. Version

Report No.	Issue Date	Description	Approved
BCTC2312025702E	2023-12-28	Original	Valid

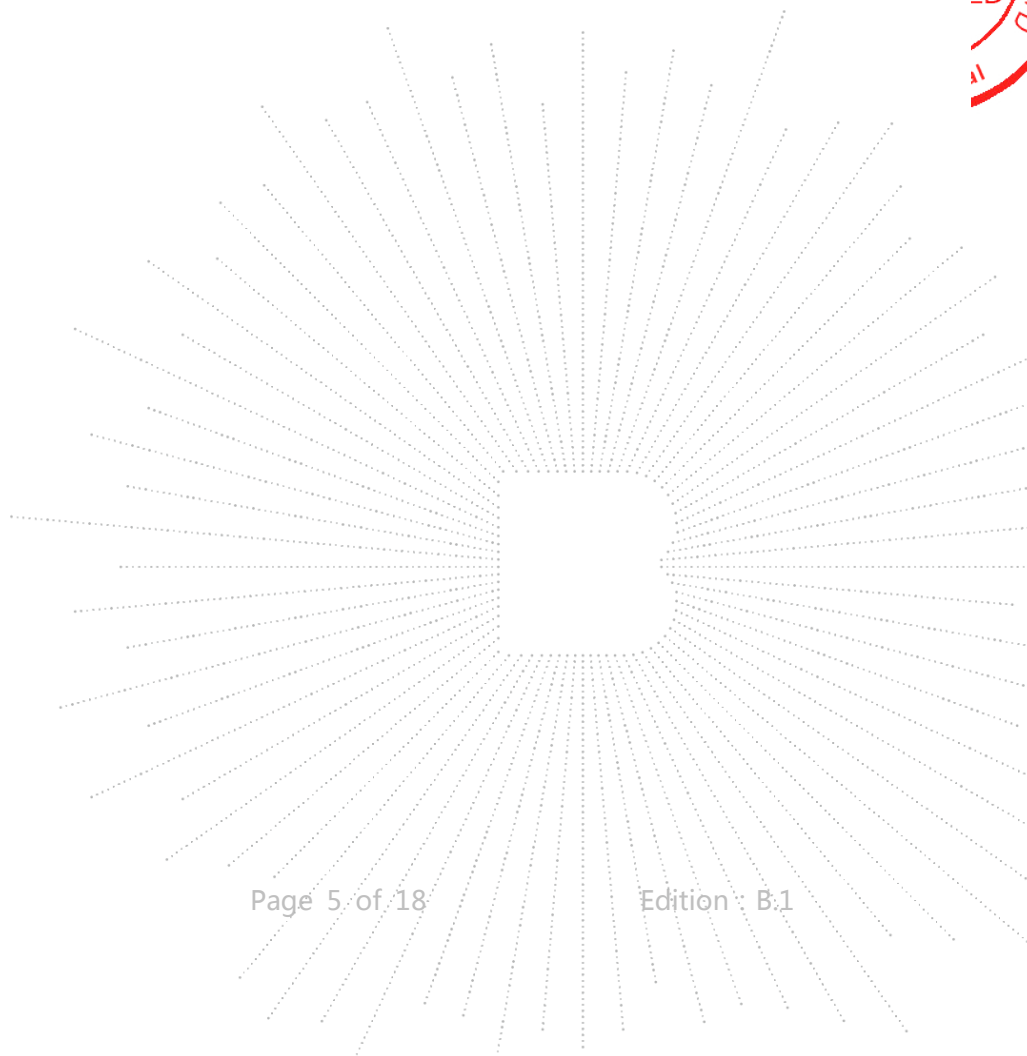
TEC
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2. Test Summary

The Product has been tested according to the following specifications:

Standard	Test Item	Test result
FCC 15.107	Conducted Emission	Pass
FCC 15.109	Radiated Emission	Pass



3. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

Test item	Value (dB)
Conducted Emission (150kHz-30MHz)	3.10
Radiated disturbance (30MHz-200MHz)	4.60
Radiated disturbance (200MHz-1000MHz)	5.20
Radiated disturbance (1GHz-6GHz)	5.20

CO., LTD.

4. Product Information And Test Setup

4.1 Product Information

Ratings: Input: DC 5V
Model difference: All models are identical except for the capacity.

4.2 Test Setup Configuration

See test photographs attached in EUT TEST SETUP Photographs for the actual connections between Product and support equipment.

4.3 Support Equipment

No.	Device Type	Brand	Model	Series No.	Note
1.	Adapter	UGREEN	CD226	---	---
2.	Router	XiaoMi	R4A	---	---

Notes:

- All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
- Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

4.4 Test Mode

Test item	Test Mode	Test Voltage
Conducted Emission (150KHz-30MHz) Class B	Working	AC 120V/60Hz
Radiated emission(30MHz-1GHz) Class B	Working	AC 120V/60Hz
Remarks: Working: DC 5V+HDMI+keyboard+mouse+ping IP		

5. Test Facility And Test Instrument Used

5.1 Test Facility

All measurement facilities used to collect the measurement data are located at 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. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.

5.2 Test Instrument Used

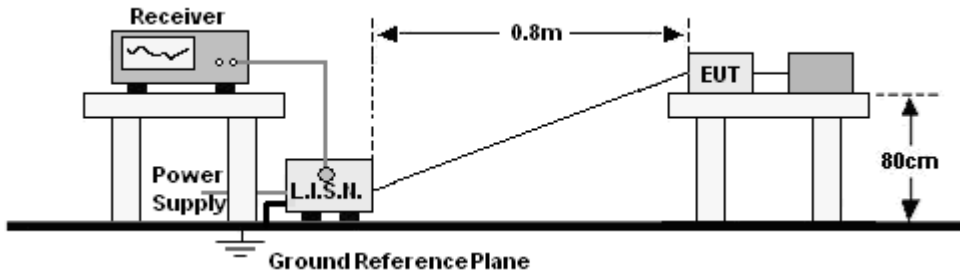
Conducted Emissions Test					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
Receiver	R&S	ESR3	102075	May 15, 2023	May 14, 2024
LISN	R&S	ENV216	101375	May 15, 2023	May 14, 2024
Software	Frad	EZ-EMC	EMC-CON 3A1	\	\
Pulse limiter	Schwarzbeck	VTSD 9561-F	01323	Sept. 22, 2023	Sept. 21, 2024

Radiated Emissions Test (966 Chamber#01)					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
966 chamber	ChengYu	966 Room	966	May 15, 2023	May 14, 2026
Receiver	R&S	ESRP	101154	May 15, 2023	May 14, 2024
Receiver	R&S	ESR3	102075	May 15, 2023	May 14, 2024
Amplifier	SKET	LAPA_01G18 G-45dB	SK202104090 1	May 15, 2023	May 14, 2024
Amplifier	Schwarzbeck	BBV9744	9744-0037	May 15, 2023	May 14, 2024
TRILOG Broadband Antenna	schwarzbeck	VULB9163	942	May 29, 2023	May 28, 2024
Horn Antenna	schwarzbeck	BBHA9120D	1541	May 31, 2023	May 30, 2024
Software	Frad	EZ-EMC	FA-03A2 RE	\	\

6. Conducted Emission At The Mains Terminals Test

6.1 Block Diagram Of Test Setup

For mains ports:



6.2 Limit

Limits for Class B devices

Frequency range (MHz)	Limits dB(μV)	
	Quasi-peak	Average
0,15 to 0,50	66 to 56*	56 to 46*
0,50 to 5	56	46
5 to 30	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

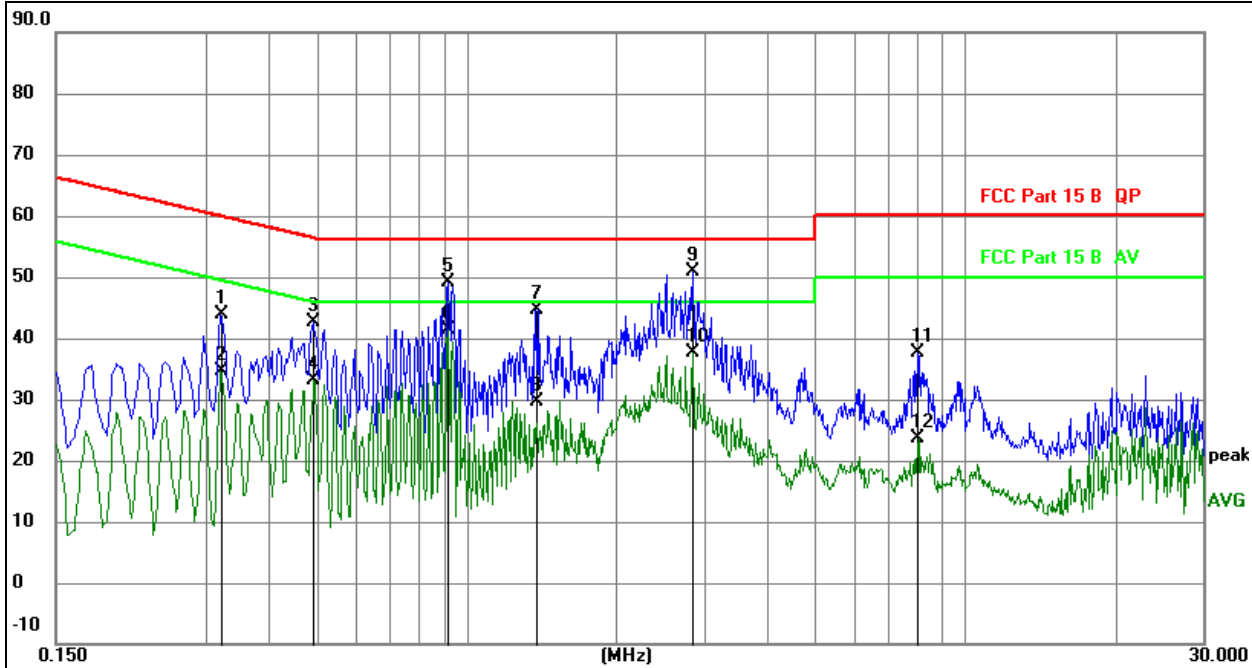
6.3 Test procedure

For mains ports:

- The Product was placed on a nonconductive table 0.8 m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).
- The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak and AVG detector in Max Hold mode. Run the receiver's pre-scan to record the maximum disturbance generated from Product in all power lines in the full band.
- For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.

6.4 Test Result

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Phase :	Line
Test Voltage :	AC 120V/60Hz	Test Mode:	Working

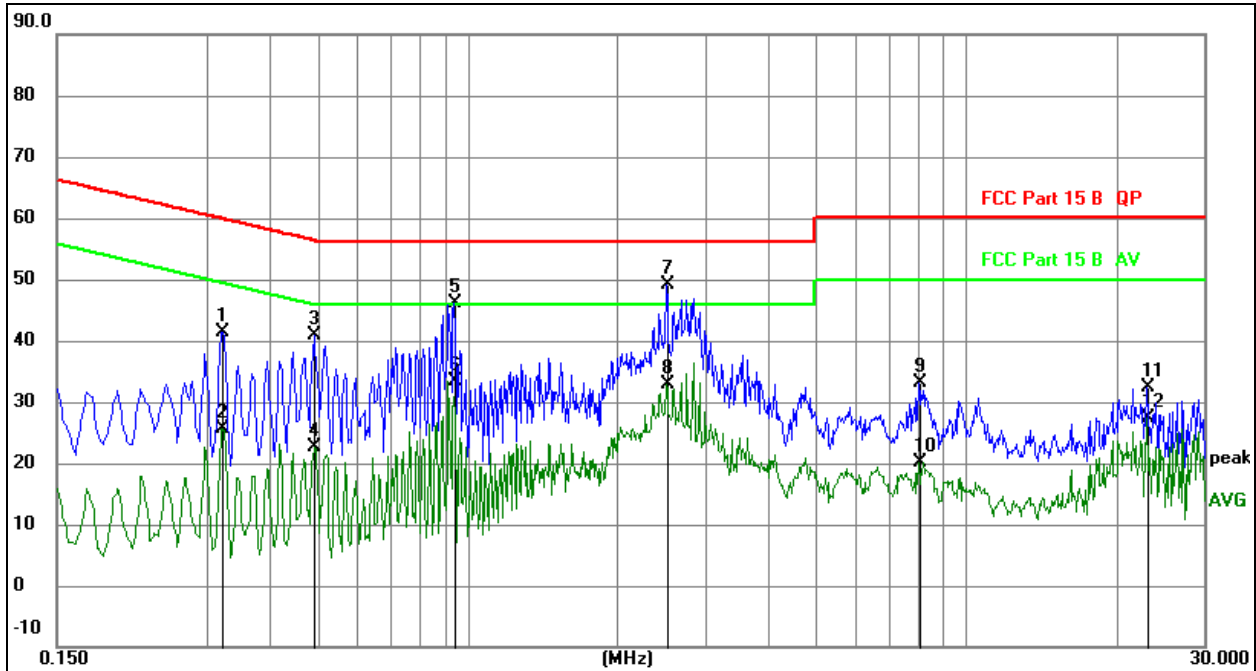


Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. Measurement = Reading Level + Correct Factor
4. Over = Measurement - Limit

No.	Mk.	Freq. MHz	Reading Level dB	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		0.3200	23.94	19.83	43.77	59.71	-15.94	QP
2		0.3200	14.90	19.83	34.73	49.71	-14.98	AVG
3		0.4915	22.75	19.84	42.59	56.14	-13.55	QP
4		0.4915	13.35	19.84	33.19	46.14	-12.95	AVG
5		0.9184	29.24	19.92	49.16	56.00	-6.84	QP
6	*	0.9184	21.48	19.92	41.40	46.00	-4.60	AVG
7		1.3738	24.69	19.95	44.64	56.00	-11.36	QP
8		1.3738	9.69	19.95	29.64	46.00	-16.36	AVG
9		2.8389	30.62	20.25	50.87	56.00	-5.13	QP
10		2.8389	17.49	20.25	37.74	46.00	-8.26	AVG
11		8.0198	17.65	19.93	37.58	60.00	-22.42	QP
12		8.0198	3.68	19.93	23.61	50.00	-26.39	AVG

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Phase :	Neutral
Test Voltage :	AC 120V/60Hz	Test Mode:	Working


Remark:

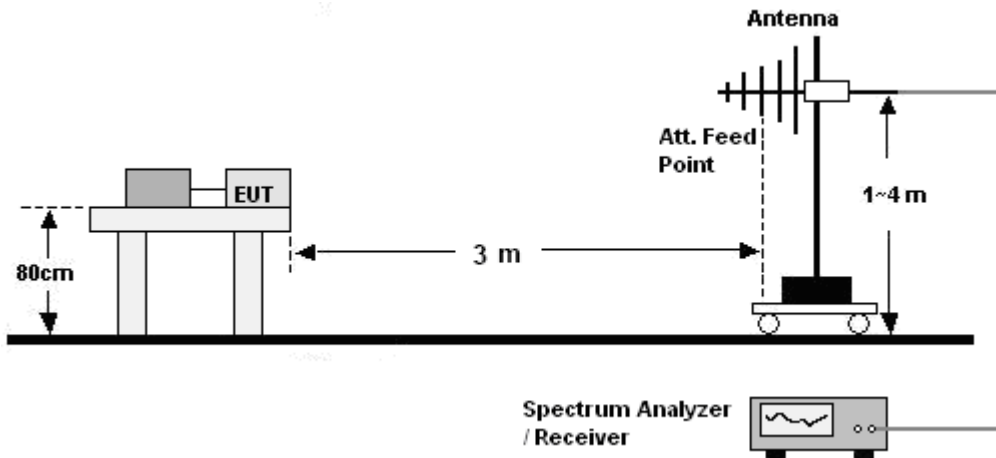
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. Measurement = Reading Level + Correct Factor
4. Over = Measurement - Limit

No.	Mk.	Freq. MHz	Reading Level dB	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		0.3209	21.66	19.83	41.49	59.68	-18.19	QP
2		0.3209	5.78	19.83	25.61	49.68	-24.07	AVG
3		0.4920	21.05	19.84	40.89	56.13	-15.24	QP
4		0.4920	2.84	19.84	22.68	46.13	-23.45	AVG
5		0.9420	26.31	19.93	46.24	56.00	-9.76	QP
6		0.9420	13.34	19.93	33.27	46.00	-12.73	AVG
7	*	2.5125	28.97	20.13	49.10	56.00	-6.90	QP
8		2.5125	12.63	20.13	32.76	46.00	-13.24	AVG
9		8.0475	13.08	19.93	33.01	60.00	-26.99	QP
10		8.0475	0.27	19.93	20.20	50.00	-29.80	AVG
11		23.1270	12.30	19.99	32.29	60.00	-27.71	QP
12		23.1270	7.46	19.99	27.45	50.00	-22.55	AVG

7. Radiation Emission Test

7.1 Block Diagram Of Test Setup

30MHz ~ 1GHz:



7.2 Limit

Limits for Class B devices

Frequency (MHz)	limits at 3m dB(μ V/m)		
	QP Detector	PK Detector	AV Detector
30-88	40.0	--	--
88-216	43.5	--	--
216-960	46.0	--	--
960 to 1000	54.0	--	--
Above 1000	--	74.0	54.0

Note: The lower limit shall apply at the transition frequencies.

7.3 Test Procedure

30MHz ~ 1GHz:

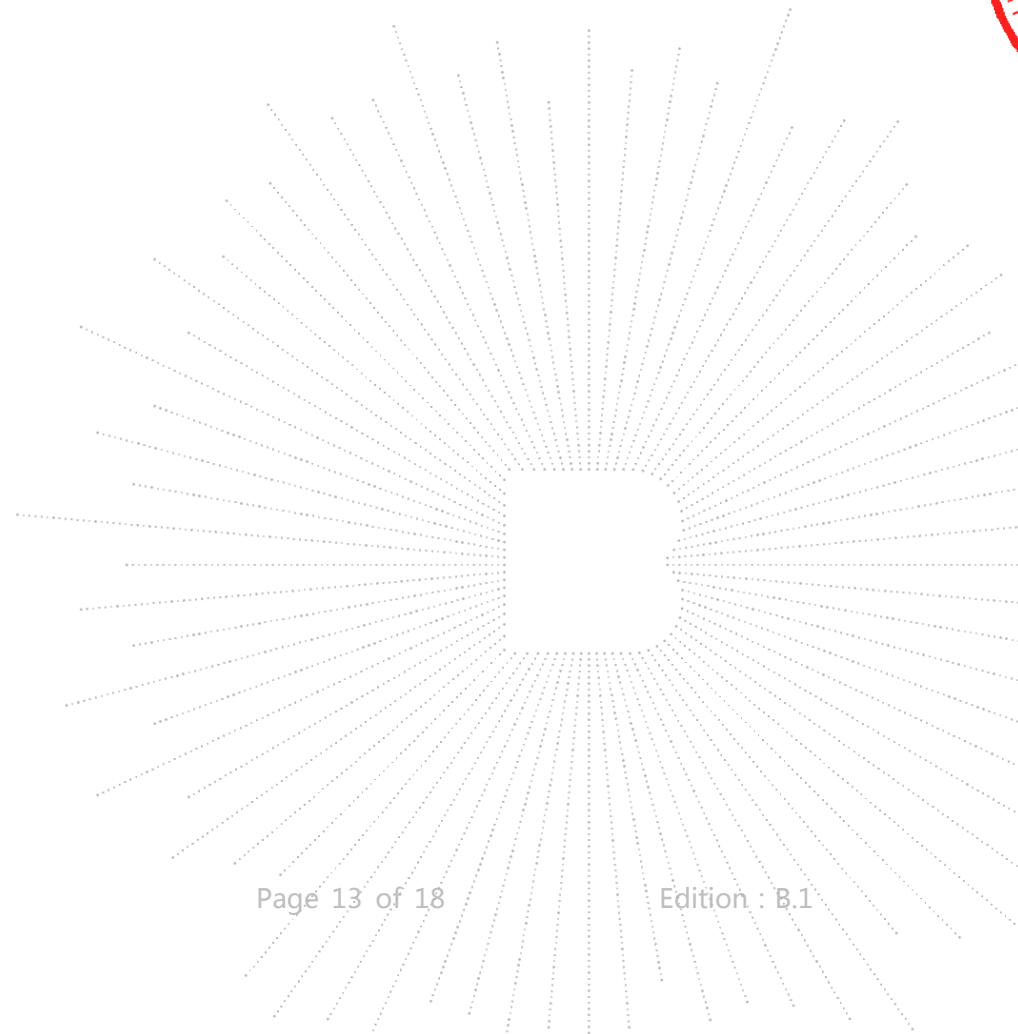
- a. The Product was placed on the nonconductive turntable 0.8 m above the ground at a chamber.
- b. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 120 kHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied between 1~4 m in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.
- c. For each frequency whose maximum record was higher or close to limit, measure its QP value: vary the antenna's height and rotate the turntable from 0 to 360 degrees to find the height and degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to QP Detector and specified bandwidth with Maximum Hold Mode, and record the maximum value.

Above 1GHz:

- a. The Product was placed on the non-conductive turntable 0.8 m above the ground at a chamber.
- b. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 1MHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.
- c. For each frequency whose maximum record was higher or close to limit, measure its AV value: rotate the turntable from 0 to 360 degrees to find the degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to AV value and specified bandwidth with Maximum Hold Mode, and record the maximum value.

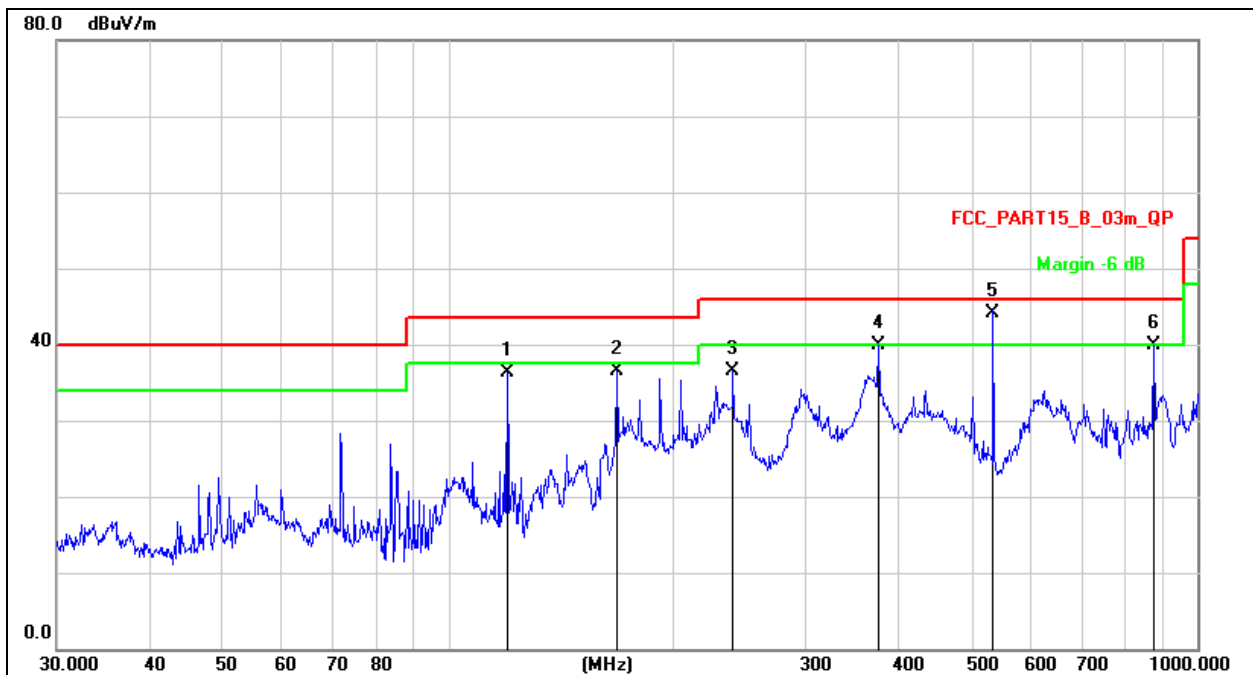
Above 1GHz:

The amplitude of spurious emissions which are attenuated by more than 20Db below the permissible value has no need to be reported.



7.4 Test Result

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Horizontal
Test Voltage :	AC 120V/60Hz	Test Mode:	Working

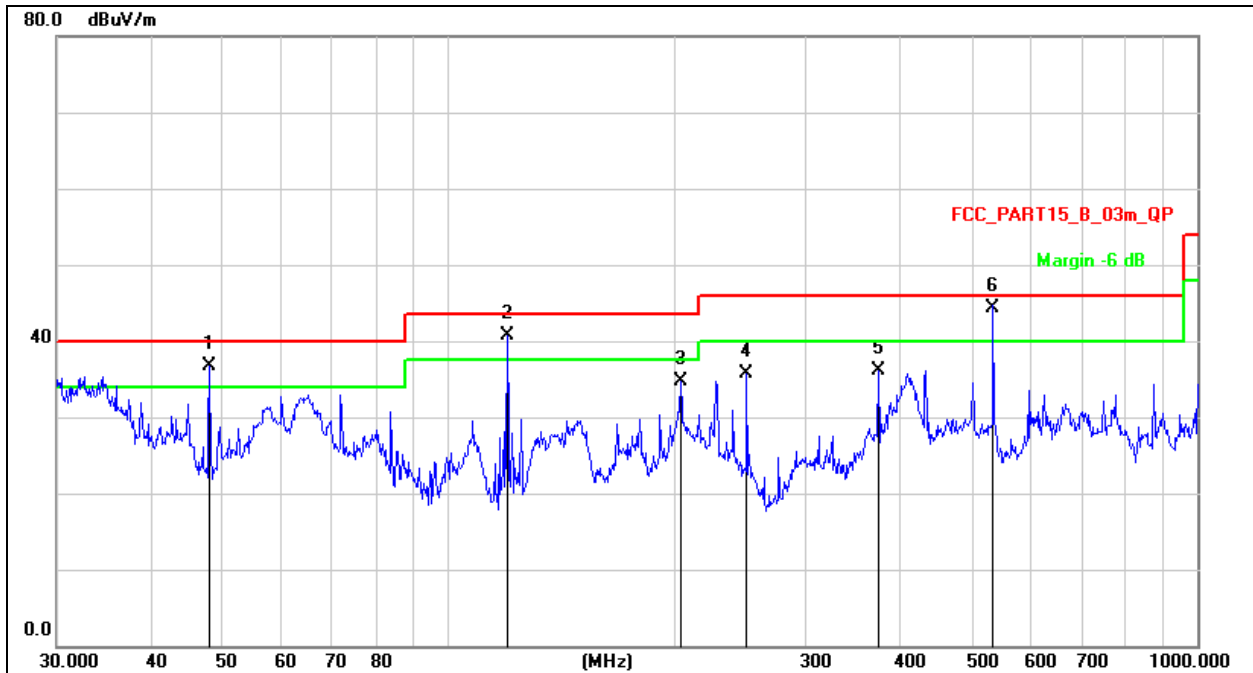


Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Measurement = Reading Level + Correct Factor
3. Over = Measurement - Limit

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	dBuV	dB	dBuV/m	dB/m	dB	
1		119.8556	53.67	-17.32	36.35	43.50	-7.15	QP
2		167.8243	54.68	-18.11	36.57	43.50	-6.93	QP
3		239.9874	51.14	-14.58	36.56	46.00	-9.44	QP
4		374.6225	51.09	-11.16	39.93	46.00	-6.07	QP
5	*	533.8321	53.95	-9.81	44.14	46.00	-1.86	QP
6		875.2470	43.49	-3.55	39.94	46.00	-6.06	QP

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Vertical
Test Voltage :	AC 120V/60Hz	Test Mode:	Working

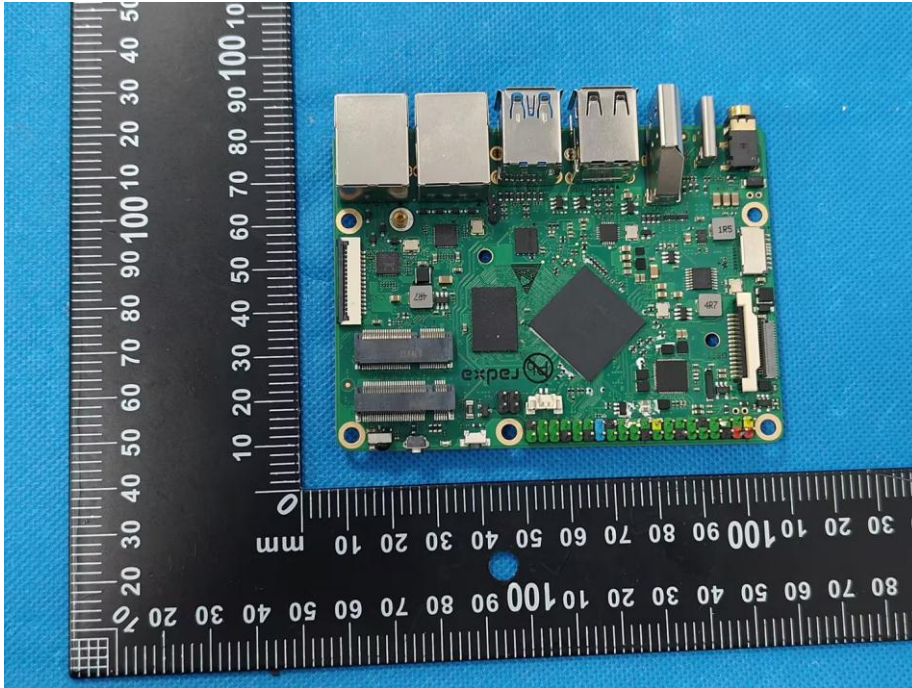

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Measurement = Reading Level + Correct Factor
3. Over = Measurement - Limit

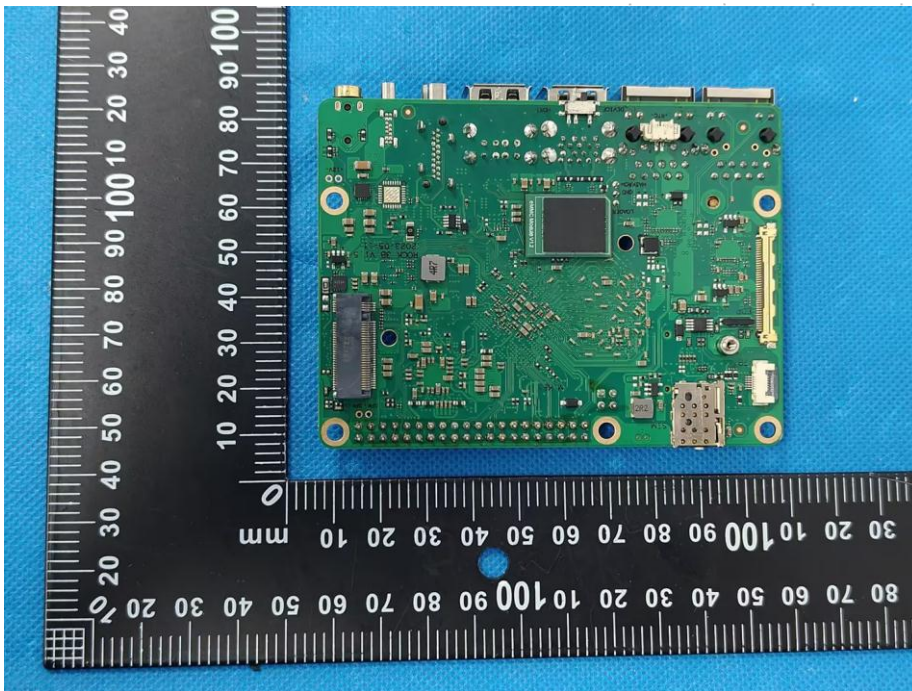
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1	!	47.9939	50.82	-14.06	36.76	40.00	-3.24	QP
2	!	119.8555	57.98	-17.32	40.66	43.50	-2.84	QP
3		204.2376	50.36	-15.60	34.76	43.50	-8.74	QP
4		250.3011	50.00	-14.28	35.72	46.00	-10.28	QP
5		375.9384	47.18	-11.15	36.03	46.00	-9.97	QP
6	*	533.8320	54.11	-9.81	44.30	46.00	-1.70	QP

8. EUT Photographs

EUT Photo 1



EUT Photo 2



9. EUT Test Setup Photographs

Conducted emissions



Radiated emissions



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.

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

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