

TEST REPORT

Report No.: BCTC2408264504E

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

Product Name: Radxa CM3I

Test Model: Radxa CM3I D2E8J1W13

Tested Date: 2024-08-27 to 2024-09-04

Issued Date: 2024-09-18

Shenzhen BCTC Testing Co., Ltd.



Product Name: Radxa CM3I

Trademark: **radxa**[®]
Radxa CM3I D2E8J1W13
Radxa CM3I D2E0J1W13, Radxa CM3I D2E16J1W13,
Radxa CM3I D4E0J1W13, Radxa CM3I D4E8J1W13,
Radxa CM3I D4E16J1W13, Radxa CM3I D4E32J1W13,
Radxa CM3I D8E0J1W13, Radxa CM3I D8E32J1W13,
Radxa CM3I D8E64J1W13

Model/Type Reference:

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: 2024-08-27

Sample tested Date: 2024-08-27 to 2024-09-04

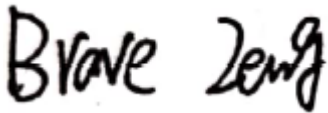
Issue Date: 2024-09-18

Report No.: BCTC2408264504E

Test Standards: FCC Part 15B
ANSI C63.4:2014

Test Results: PASS

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.

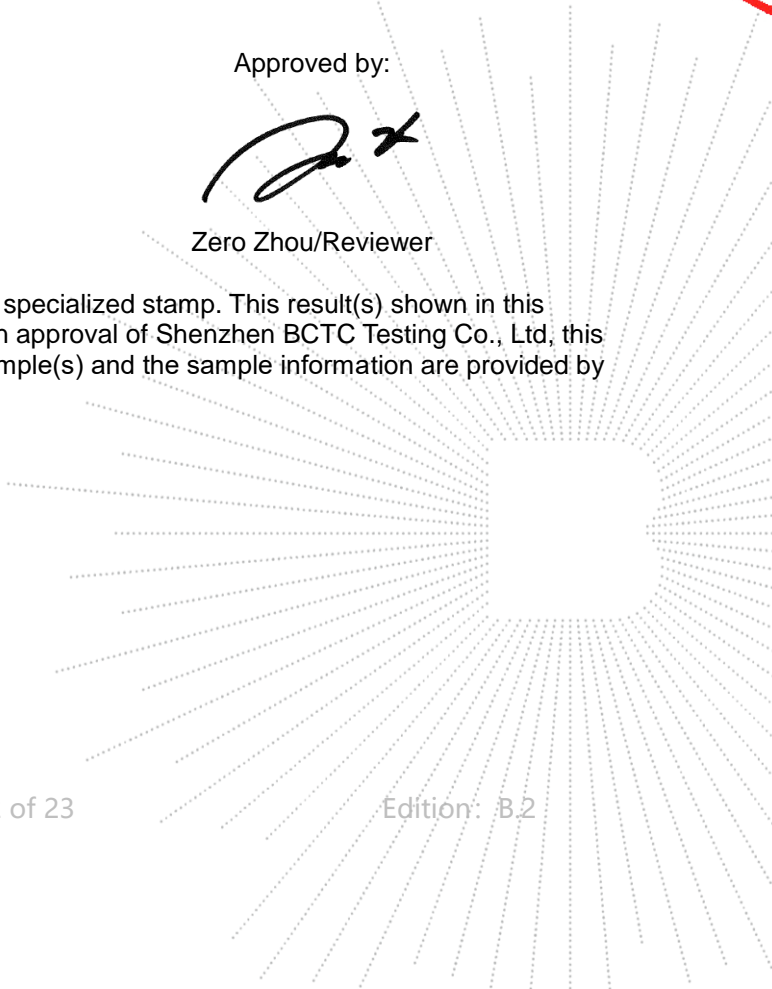
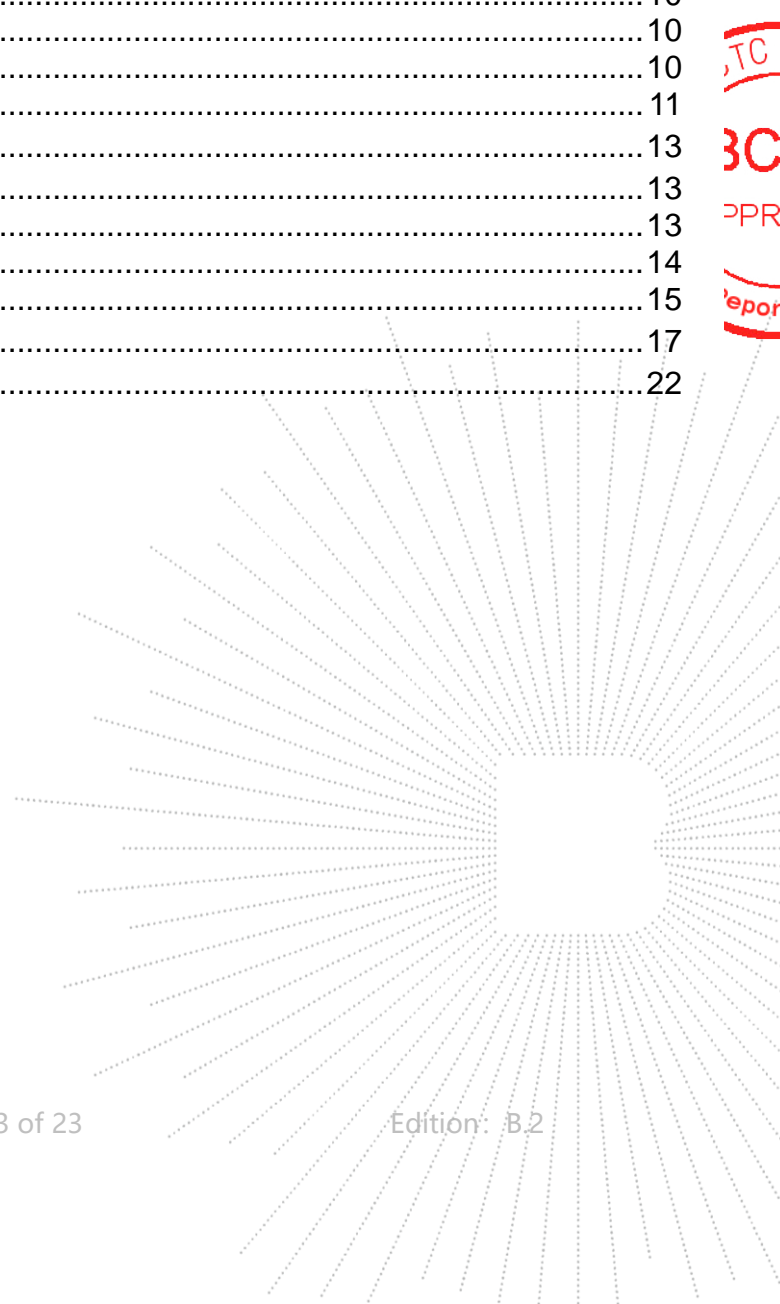


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(Note: N/A Means Not Applicable)

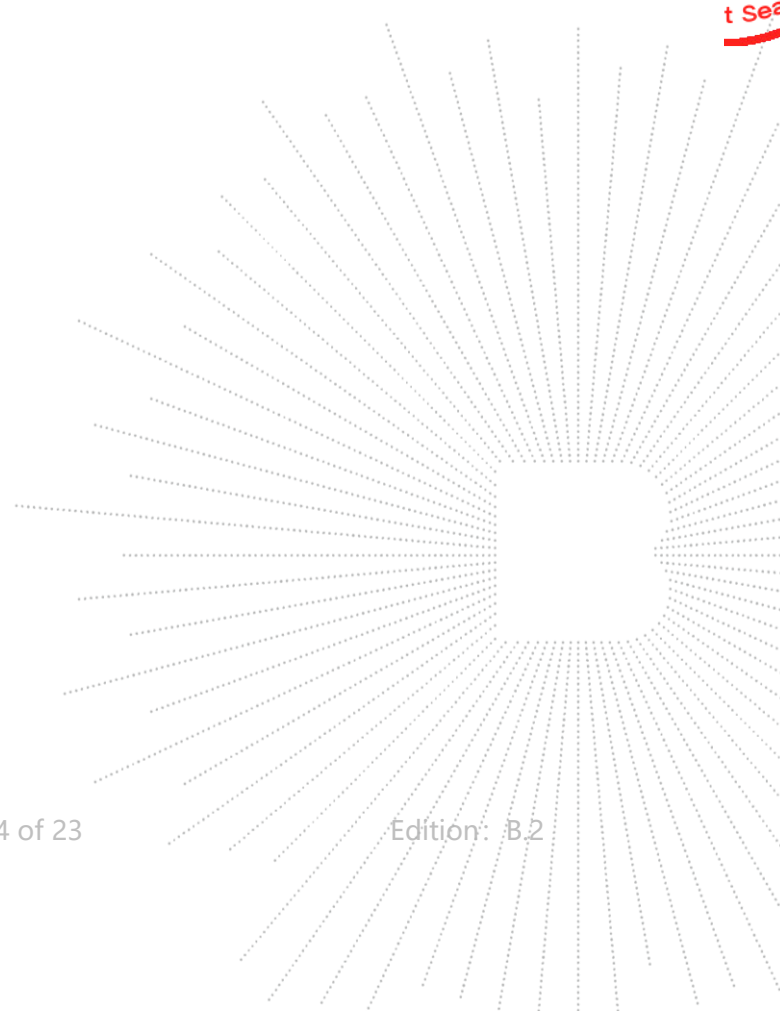


BCTC
 BCTC
 PPR
 Report

1. Version

Report No.	Issue Date	Description	Approved
BCTC2408264504E	2024-09-18	Original	Valid

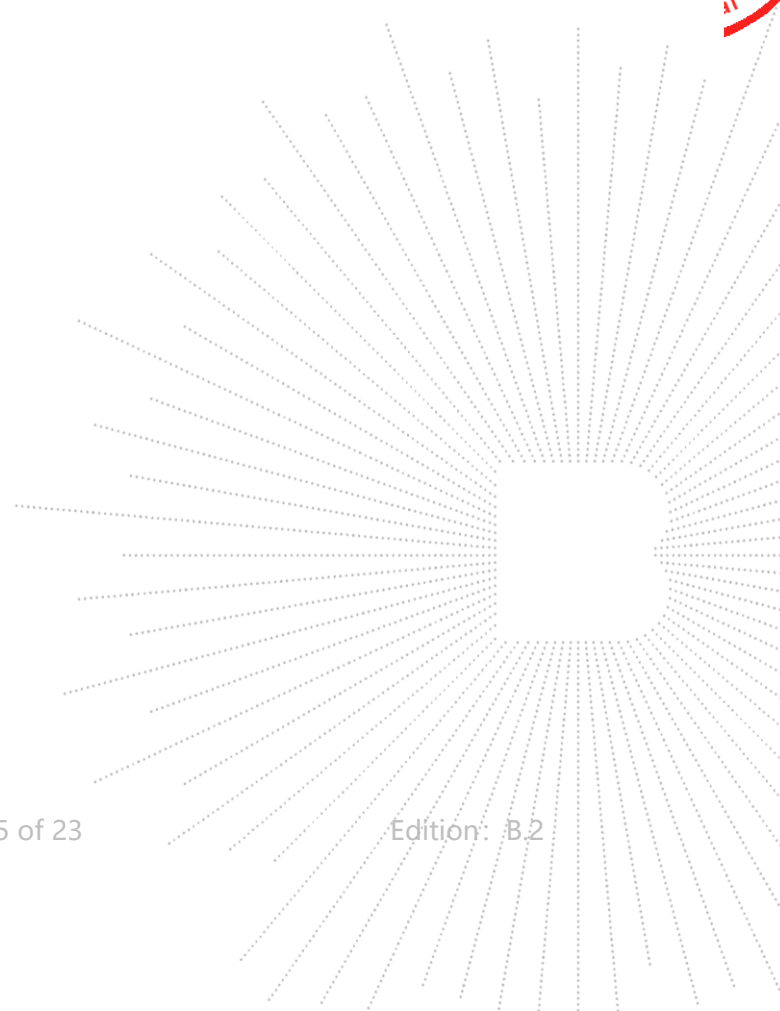
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OVB
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2. Test Summary

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

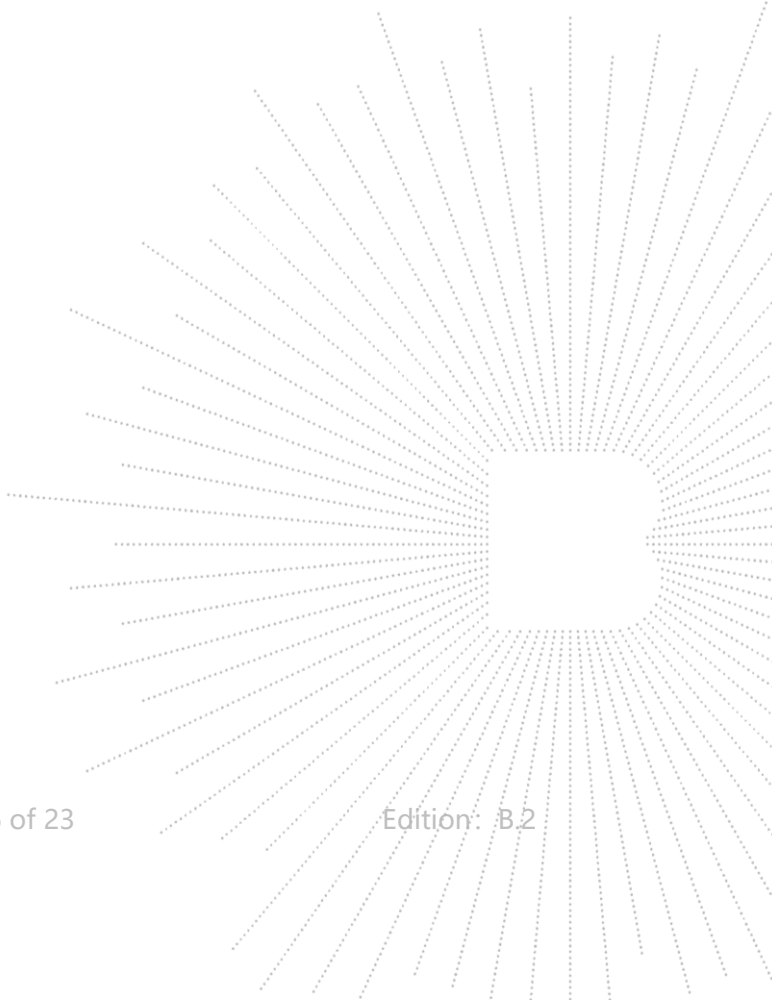


3. Measurement Uncertainty

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 Emission(30MHz~200MHz)	4.60
Radiated Emission(200MHz~1GHz)	5.20
Radiated Emission(1GHz~6GHz)	5.20

CO., LTD



4. Product Information And Test Setup

4.1 Product Information

Ratings:	DC 12V from adapter
Model differences:	All models are the same circuit and RF module, only the model name and memory size are different.
	<input type="checkbox"/> less than 1.705 MHz, the measurement shall only be made up to 30 MHz.
	<input type="checkbox"/> between 1.705 MHz and 108 MHz, the measurement shall only be made up to 1 GHz.
The highest frequency of the unintentional radiators internal sources of the EUT is above 1 GHz:	<input type="checkbox"/> between 108 MHz and 500 MHz, the measurement shall only be made up to 2 GHz.
	<input type="checkbox"/> between 500 MHz and 1 GHz, the measurement shall only be made up to 5 GHz.
	<input checked="" type="checkbox"/> above 1 GHz, the measurement shall be made up to 5 times the highest frequency or 40GHz, whichever is less.

Cable of Product

No.	Cable Type	Quantity	Provider	Length (m)	Shielded	Note
1	--	--	Applicant	---	No	--
2	--	--	BCTC	--	No	--

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	---	---	---	---
2.	Mouse	Logitech	M-U0026	---	---
3.	U disk	SanDisk	32G	---	---
4.	Router	HUAWEI	WS318	---	---
5.	HDMI Cable	Belkin	HDMI2.0	---	---
6.	Display	ChangHong	55DBK	---	---
7.	TF card	SanDisk	128G	---	---
8.	keyboard	Logitech	1641MG01DLZ8	---	---

Notes:

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

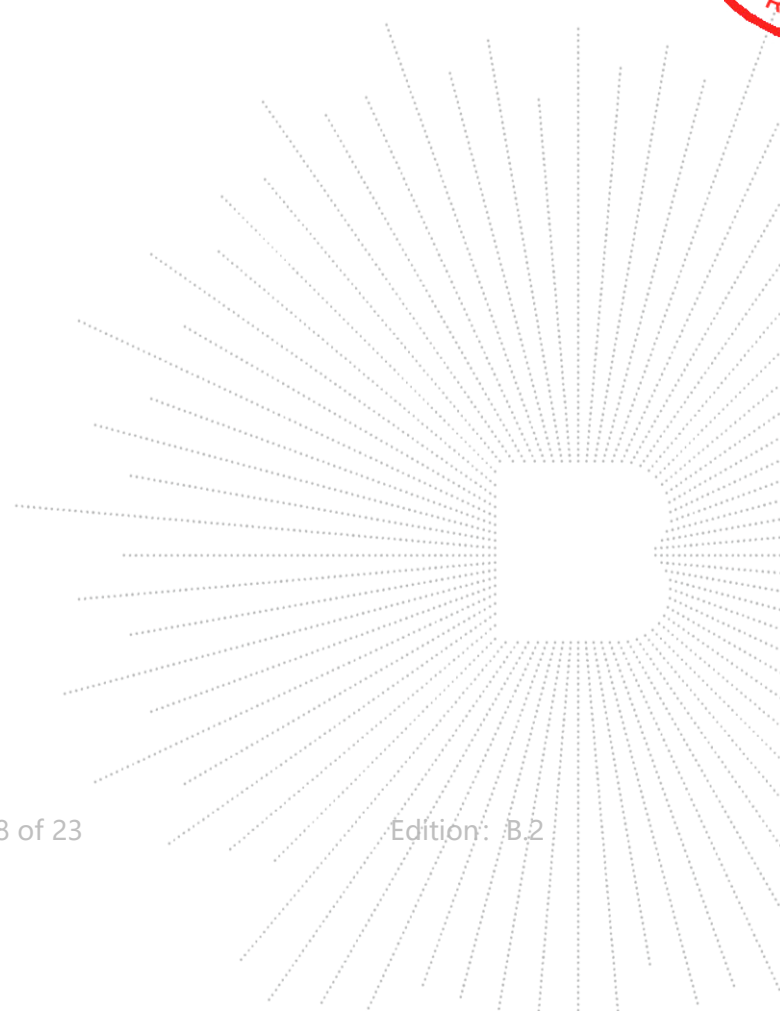


4.4 Test Mode

Test item	Test Mode	Test Voltage
Conducted Emission (150KHz-30MHz) Class B	Mode 1	AC 120V/60Hz
Radiated emission(30MHz-1GHz) Class B	Mode 1	AC 120V/60Hz
Radiated emission(1GHz-6GHz) Class B	Mode 1	AC 120V/60Hz

Remark:

Mode 1: BT+WIFI+HDMI+RJ45+Mouse+USB+TF+keyboard



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

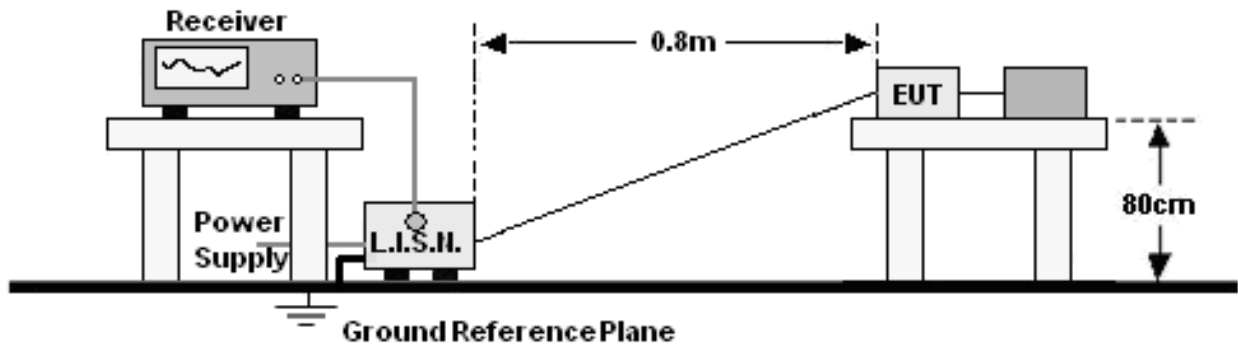
Conducted Emissions Test					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
Receiver	R&S	ESR3	102075	May 16, 2024	May 15, 2025
LISN	R&S	ENV216	101375	May 16, 2024	May 15, 2025
Software	Frad	EZ-EMC	EMC-CON 3A1	\	\
Pulse limiter	Schwarzbeck	VTSD 9561-F	01323	May 16, 2024	May 15, 2025

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 16, 2024	May 15, 2025
Receiver	R&S	ESR3	102075	May 16, 2024	May 15, 2025
Amplifier	SKET	LAPA_01G18 G-45dB	SK2021040901	May 16, 2024	May 15, 2025
Amplifier	Schwarzbeck	BBV9744	9744-0037	May 16, 2024	May 15, 2025
TRILOG Broadband Antenna	schwarzbeck	VULB9163	942	May 21, 2024	May 20, 2025
Horn Antenna	schwarzbeck	BBHA9120D	1541	May 21, 2024	May 20, 2025
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:

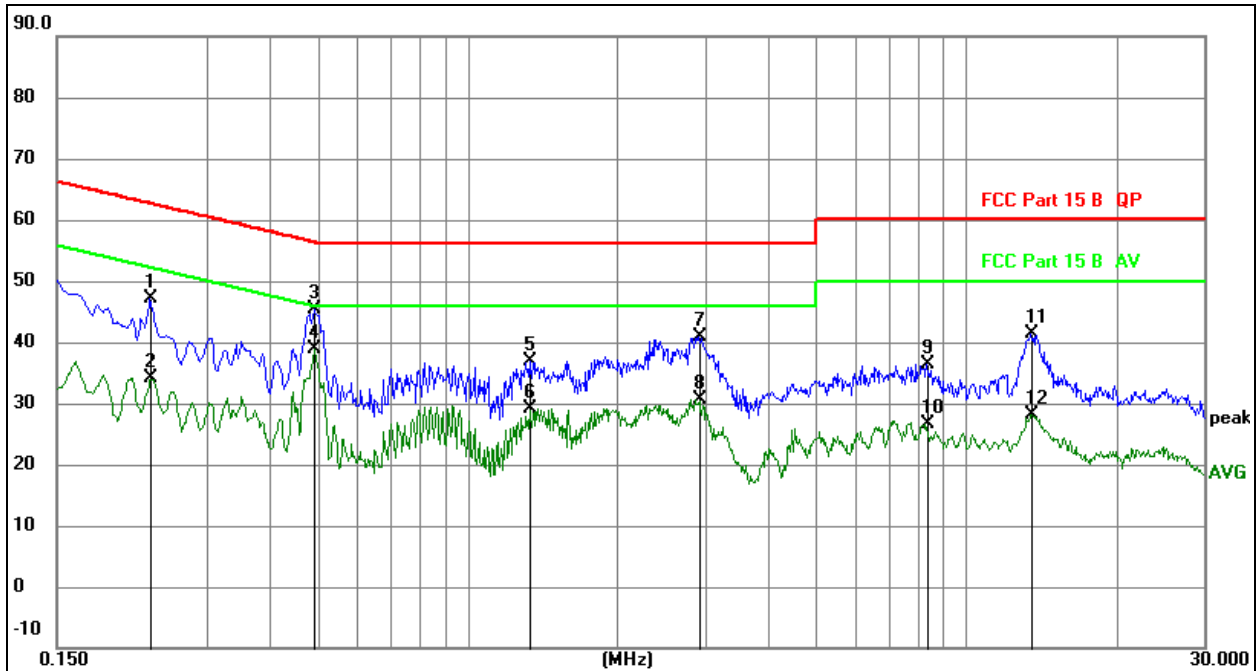
a. The Product was placed on a nonconductive table 0.8 m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).

b. 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.

c. 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:	Mode 1

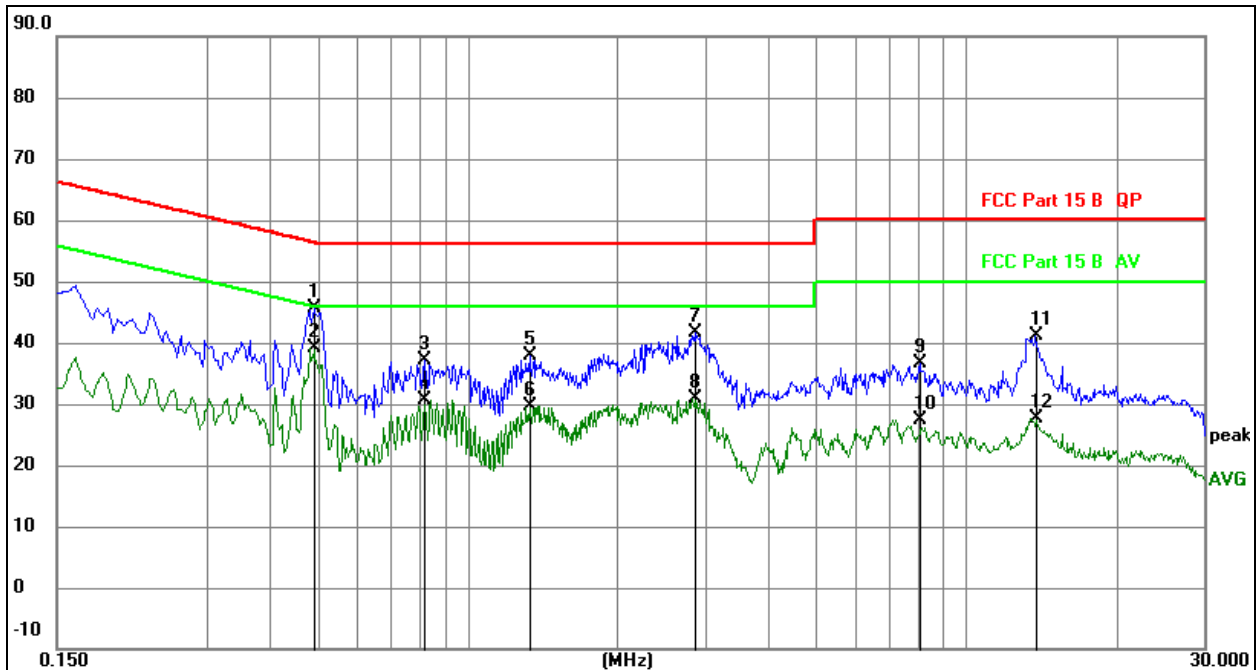


Remark:

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	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		0.2310	27.06	20.07	47.13	62.41	-15.28	QP
2		0.2310	14.03	20.07	34.10	52.41	-18.31	AVG
3		0.4920	25.34	20.08	45.42	56.13	-10.71	QP
4	*	0.4920	18.88	20.08	38.96	46.13	-7.17	AVG
5		1.3335	16.86	20.09	36.95	56.00	-19.05	QP
6		1.3335	8.96	20.09	29.05	46.00	-16.95	AVG
7		2.9130	20.78	20.12	40.90	56.00	-15.10	QP
8		2.9130	10.53	20.12	30.65	46.00	-15.35	AVG
9		8.3400	16.26	20.16	36.42	60.00	-23.58	QP
10		8.3400	6.37	20.16	26.53	50.00	-23.47	AVG
11		13.5195	21.04	20.27	41.31	60.00	-18.69	QP
12		13.5195	7.84	20.27	28.11	50.00	-21.89	AVG

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101kPa	Phase :	Neutral
Test Voltage:	AC 120V/60Hz	Test Mode:	Mode 1


Remark:

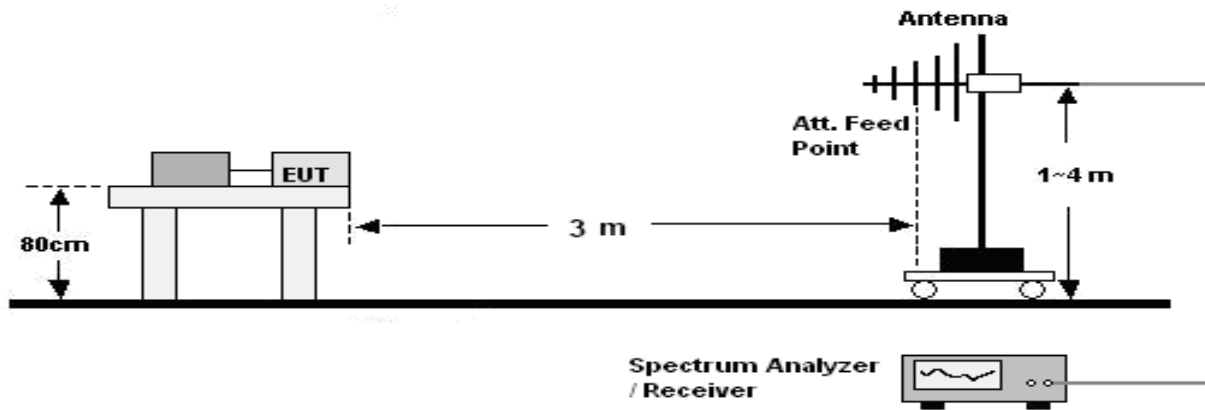
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.
3. Measurement=Reading Level+ Correct Factor
4. Over= Measurement-Limit

No.	Mk.	Freq. MHz	Reading Level	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		0.4920	25.50	20.08	45.58	56.13	-10.55	QP
2	*	0.4920	18.99	20.08	39.07	46.13	-7.06	AVG
3		0.8205	17.11	20.09	37.20	56.00	-18.80	QP
4		0.8205	10.65	20.09	30.74	46.00	-15.26	AVG
5		1.3335	17.68	20.09	37.77	56.00	-18.23	QP
6		1.3335	9.60	20.09	29.69	46.00	-16.31	AVG
7		2.8545	21.52	20.12	41.64	56.00	-14.36	QP
8		2.8545	10.70	20.12	30.82	46.00	-15.18	AVG
9		8.1015	16.41	20.16	36.57	60.00	-23.43	QP
10		8.1015	7.11	20.16	27.27	50.00	-22.73	AVG
11		13.7940	20.80	20.28	41.08	60.00	-18.92	QP
12		13.7940	7.33	20.28	27.61	50.00	-22.39	AVG

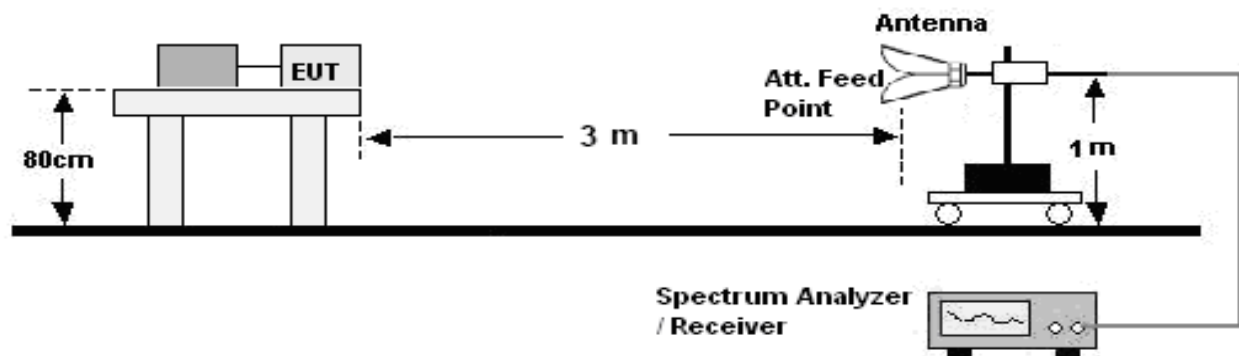
7. Radiation Emission Test

7.1 Block Diagram Of Test Setup

30MHz ~ 1GHz:



Above 1GHz:



7.2 Limit

Limits for Class B devices

Frequency (MHz)	limits at 3m dB(μV/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:

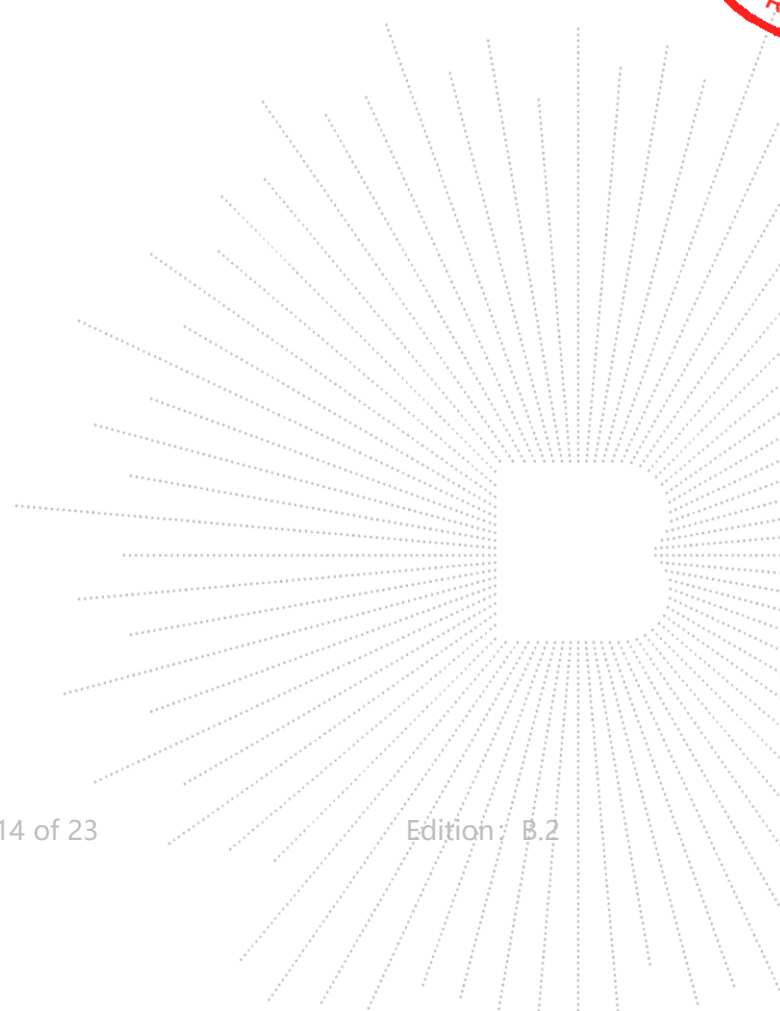
- a. The Product was placed on the nonconductive turntable 0.8 m above the ground at a chamber.
- b. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 120 kHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied between 1~4 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 in a full anechoic 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

Above 1GHz

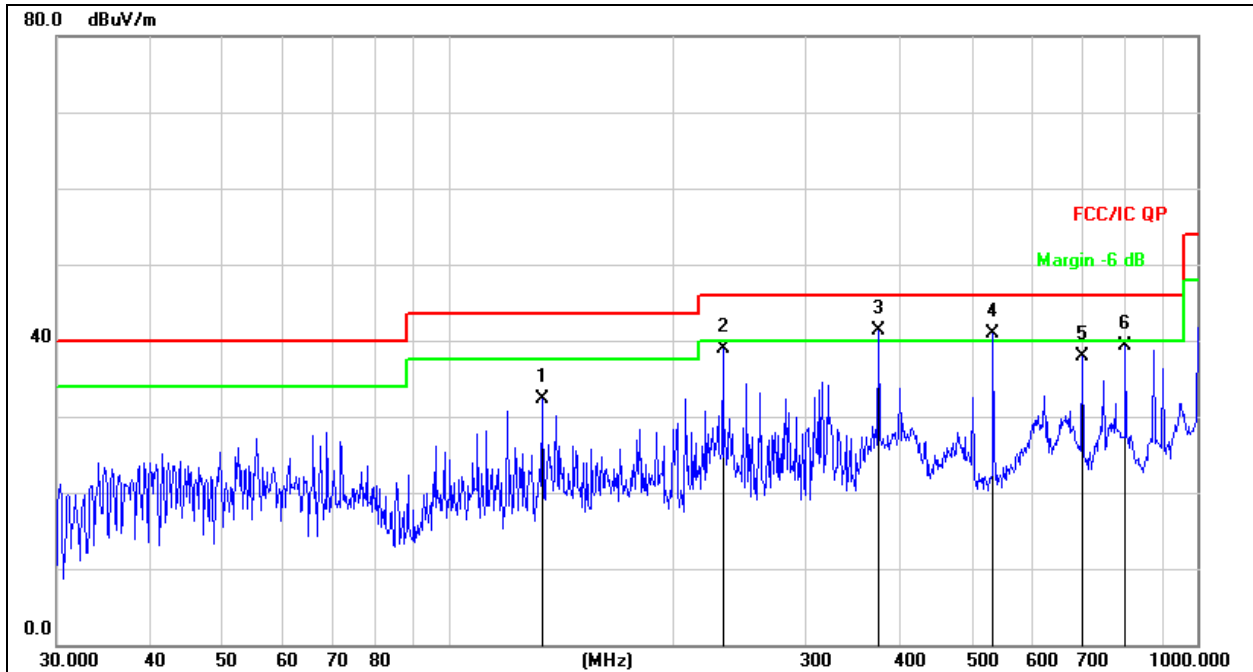
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



7.4 Test Result

30MHz ~ 1GHz

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Horizontal
Test Voltage:	AC 120V/60Hz	Test Mode:	Mode 1

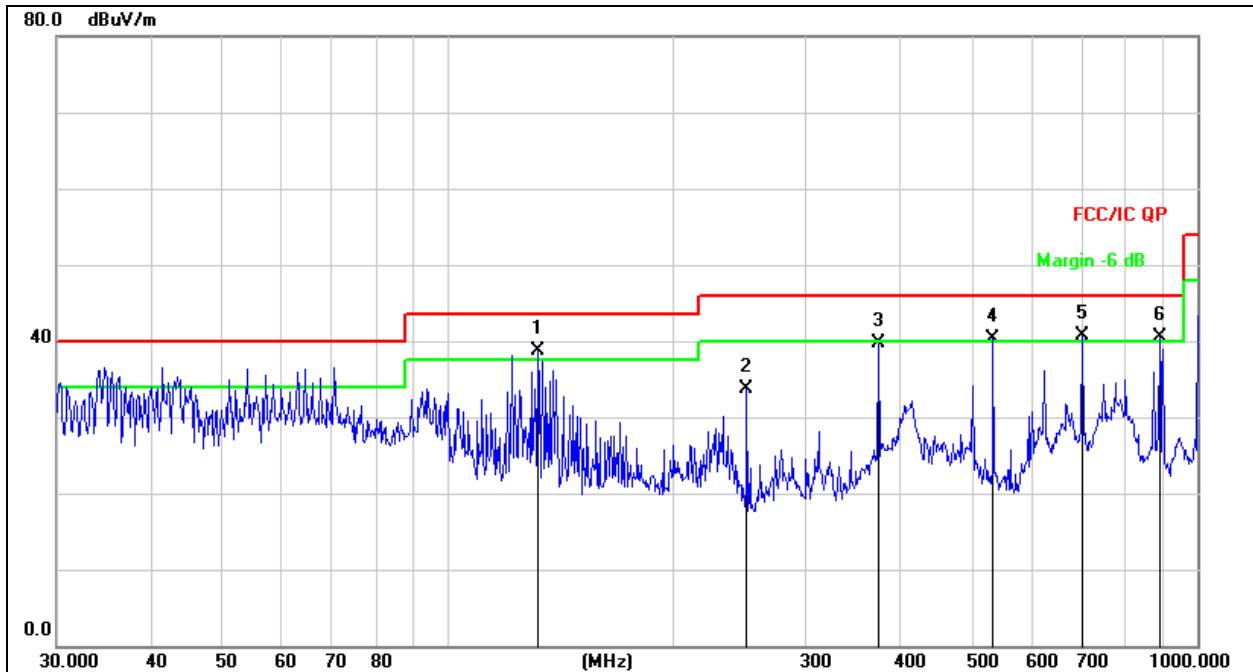


Remark:

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		133.6188	50.50	-18.28	32.22	43.50	-11.28	QP
2		232.5318	53.74	-14.79	38.95	46.00	-7.05	QP
3	*	375.9385	52.54	-11.15	41.39	46.00	-4.61	QP
4	!	533.8321	50.77	-9.81	40.96	46.00	-5.04	QP
5		701.7610	43.59	-5.68	37.91	46.00	-8.09	QP
6		801.7863	43.74	-4.38	39.36	46.00	-6.64	QP

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Vertical
Test Voltage:	AC 120V/60Hz	Test Mode:	Mode 1

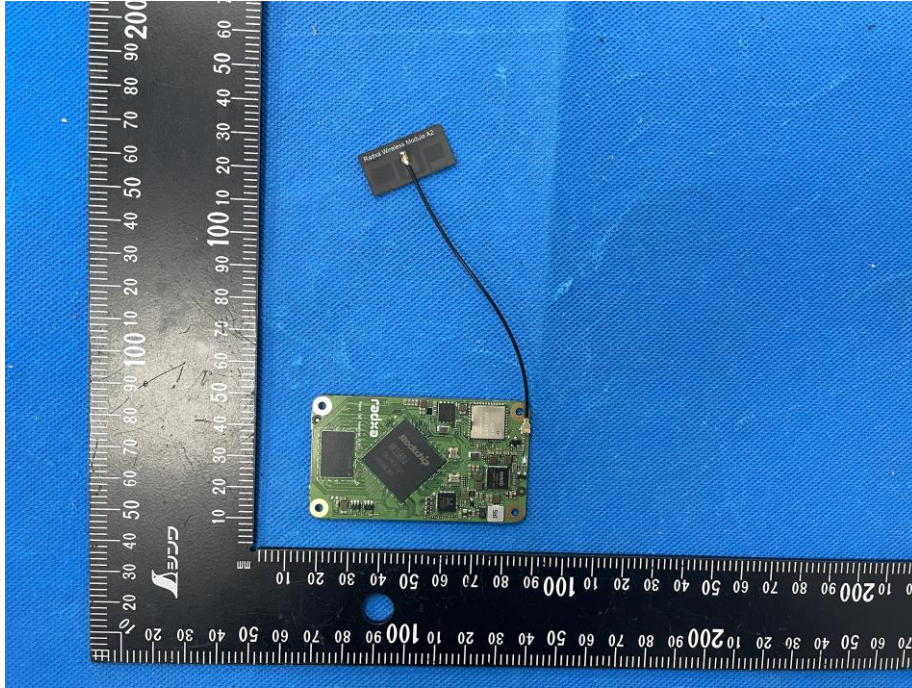


Remark:
 1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
 2. Measurement=Reading Level+ Correct Factor
 3. Over= Measurement-Limit

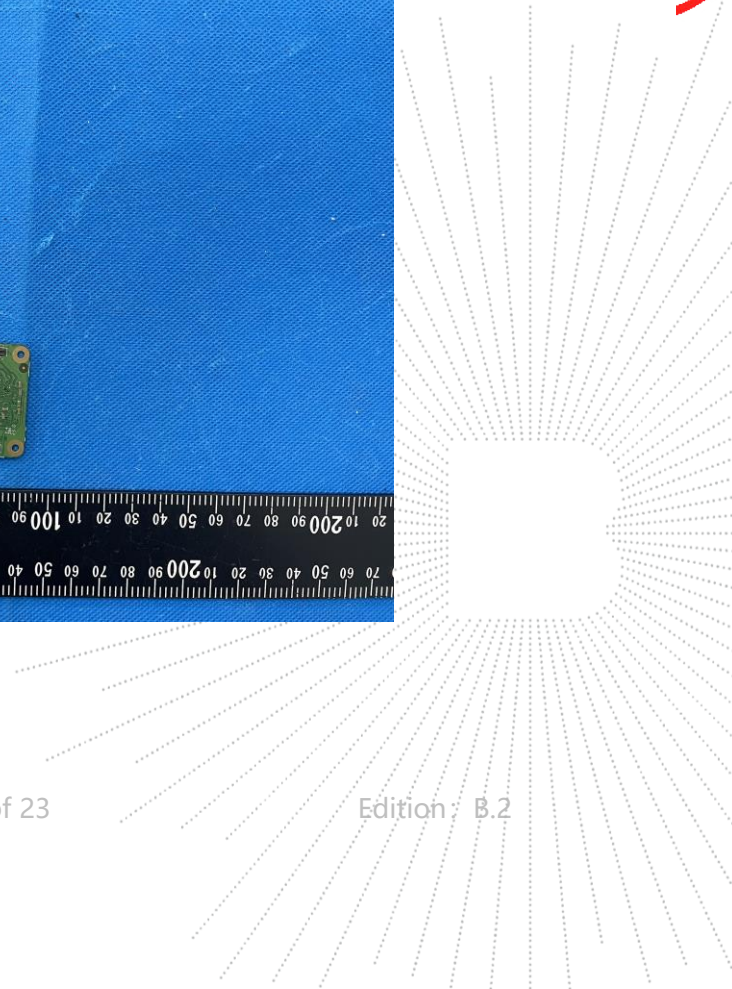
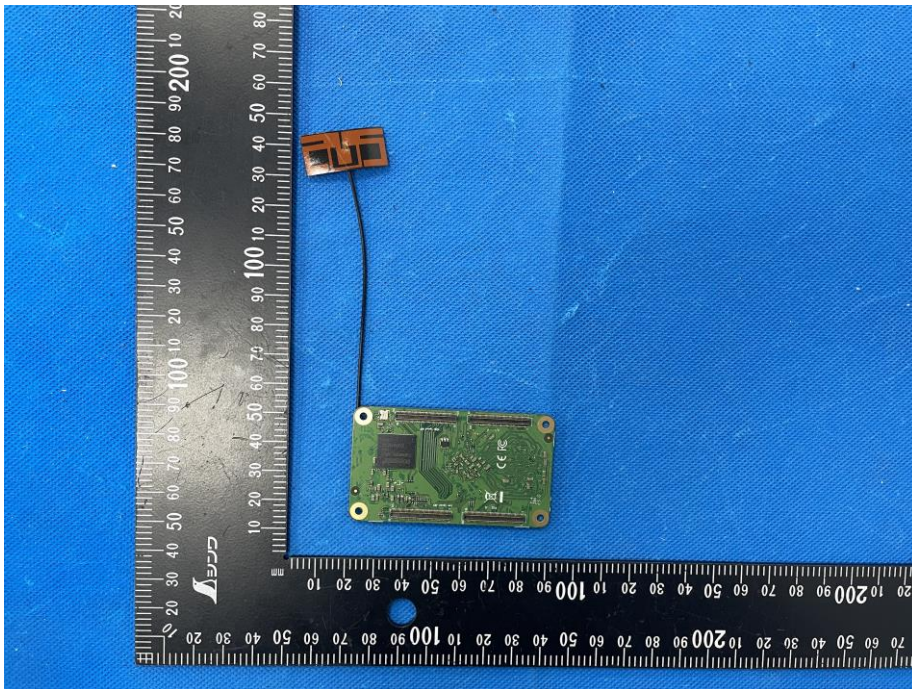
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector
1	*	131.7577	56.78	-18.15	38.63	43.50	-4.87	QP
2		250.3012	48.05	-14.28	33.77	46.00	-12.23	QP
3		375.9385	50.83	-11.15	39.68	46.00	-6.32	QP
4	!	533.8321	50.12	-9.81	40.31	46.00	-5.69	QP
5	!	701.7610	46.47	-5.68	40.79	46.00	-5.21	QP
6	!	890.7278	43.84	-3.28	40.56	46.00	-5.44	QP

8. EUT Photographs

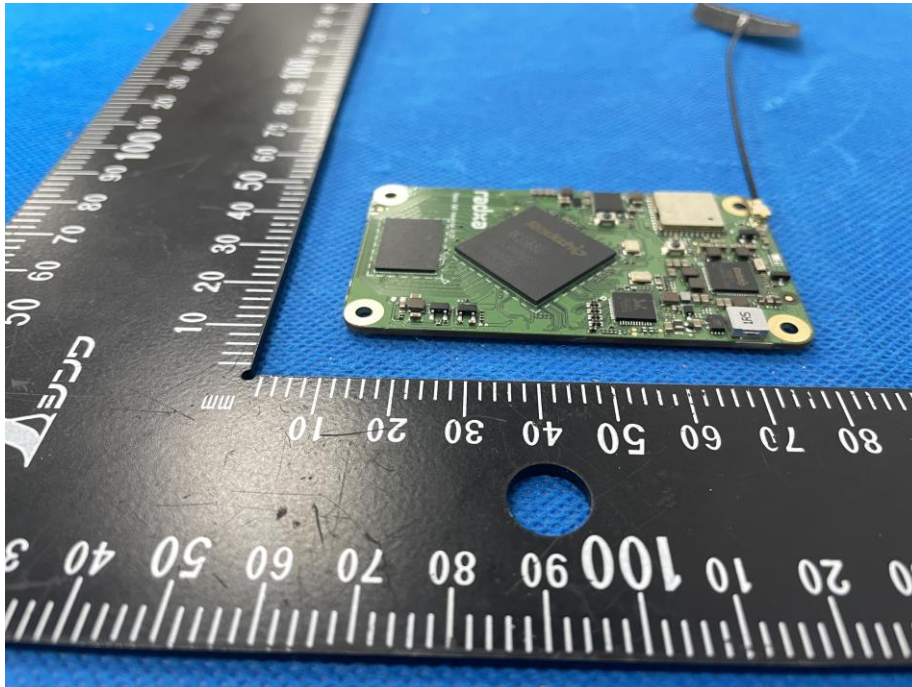
EUT Photo 1



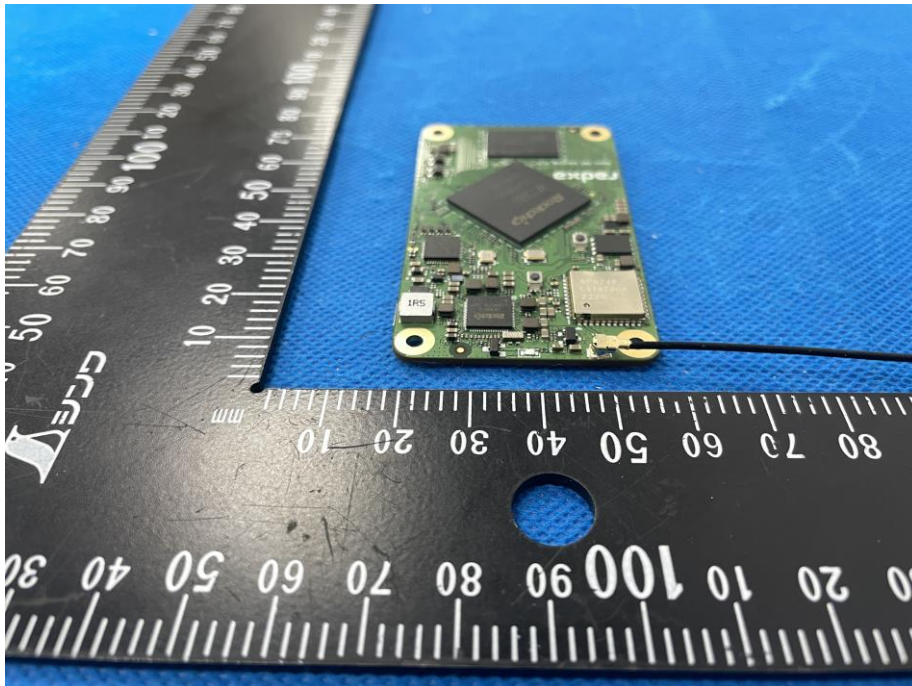
EUT Photo 2



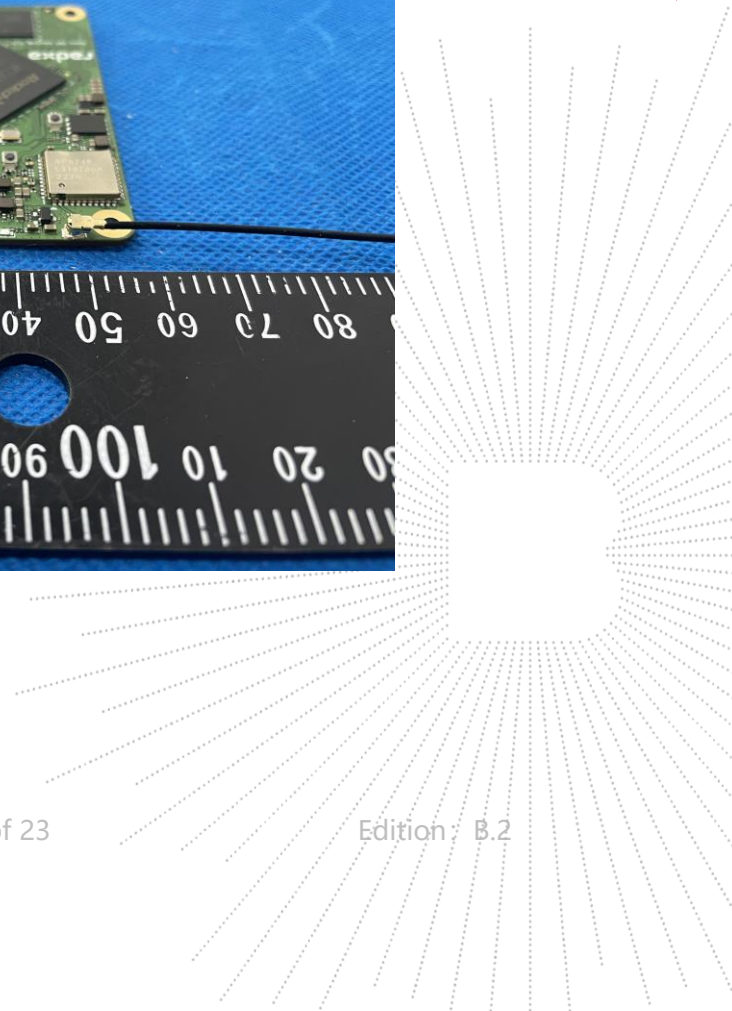
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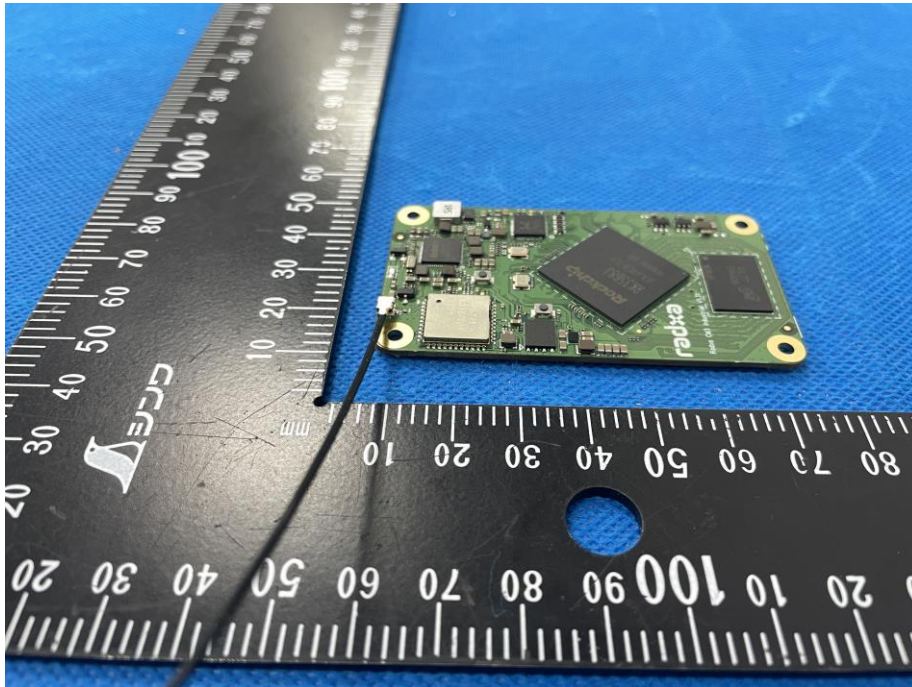
EUT Photo 4



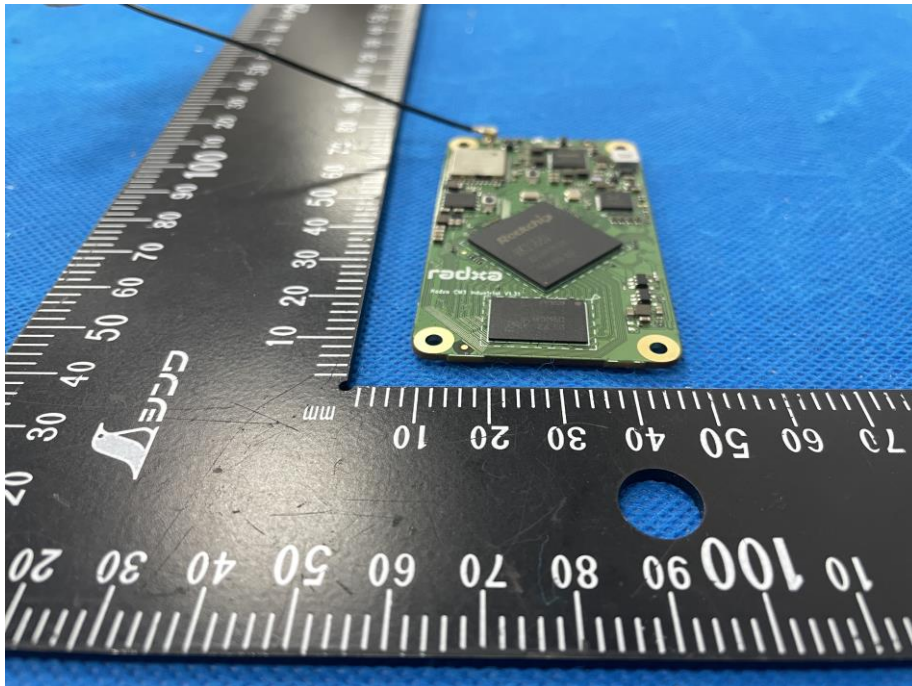
CO., LTD



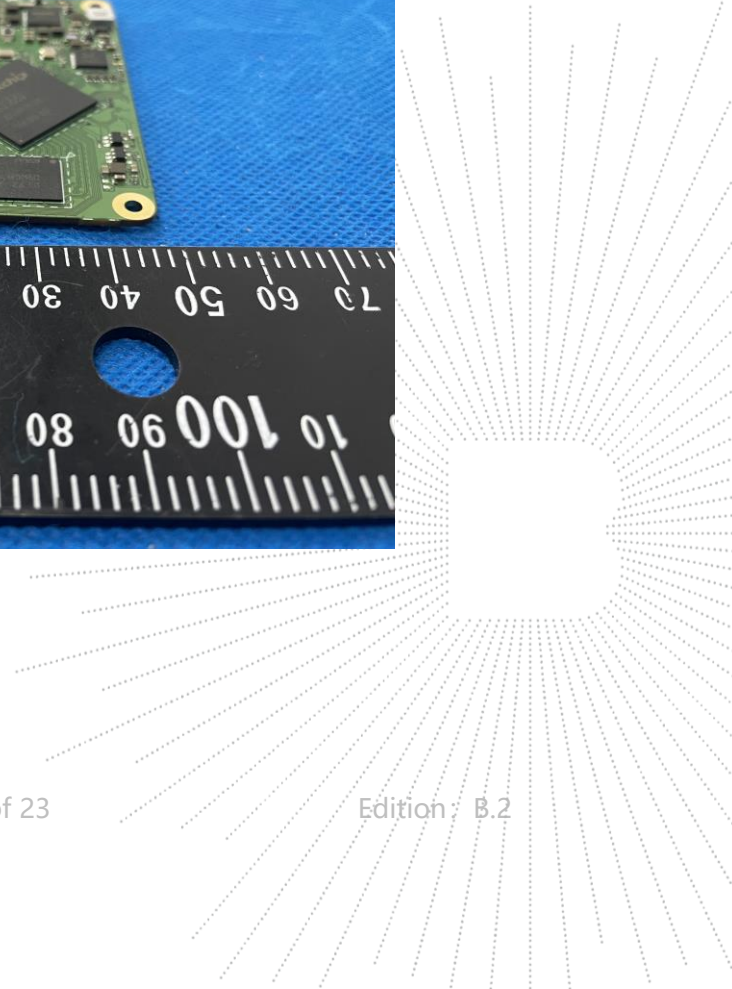
EUT Photo 5



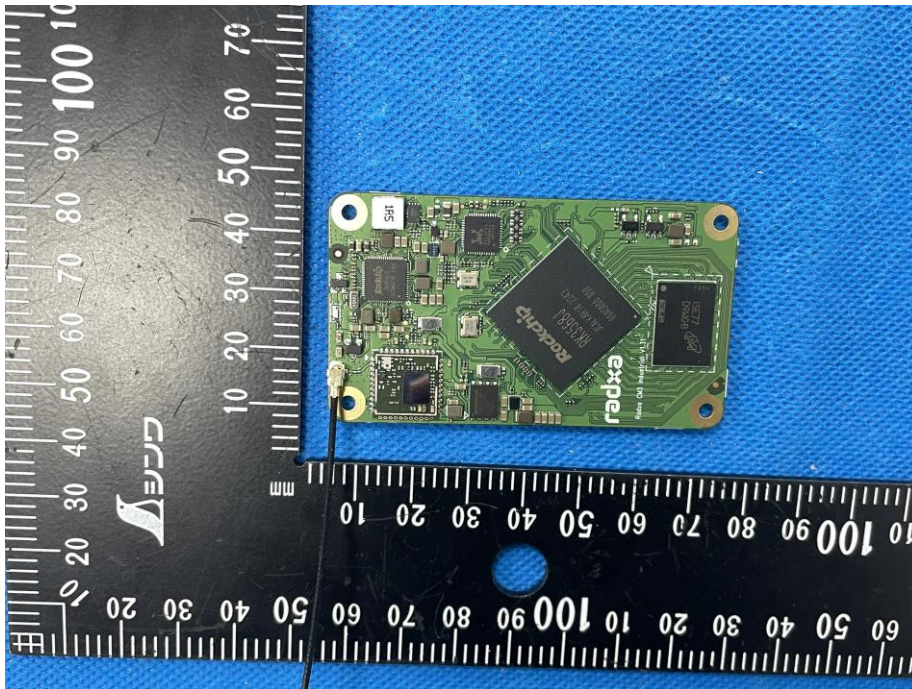
EUT Photo 6



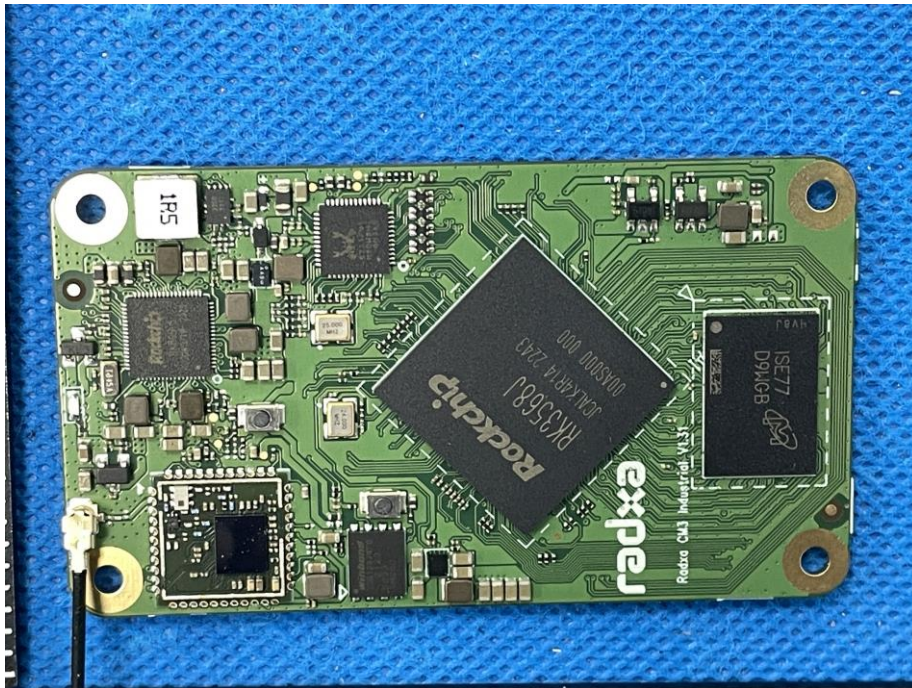
SHENZHEN



EUT Photo 7

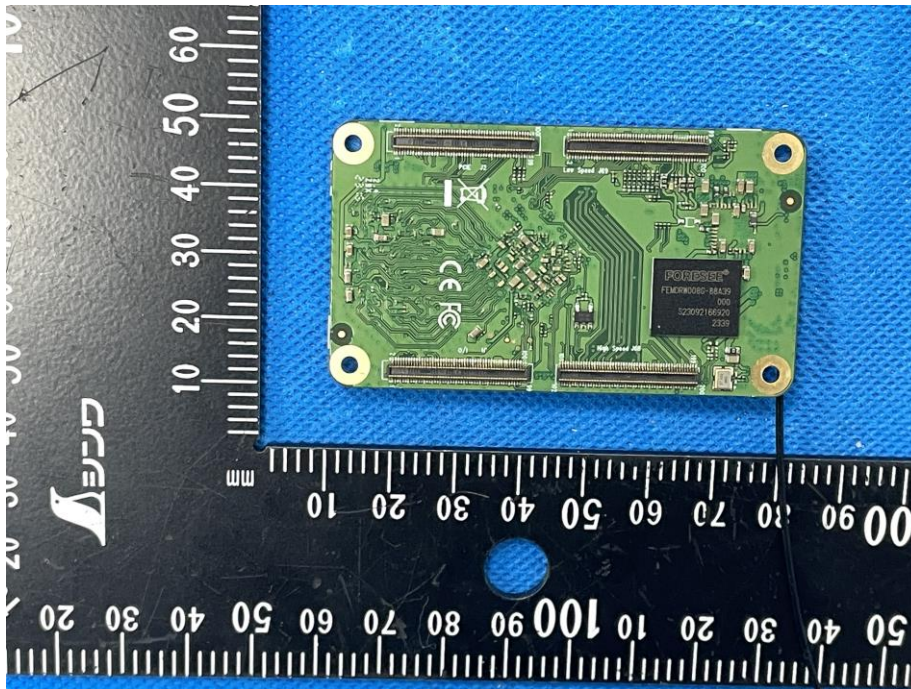


EUT Photo 8

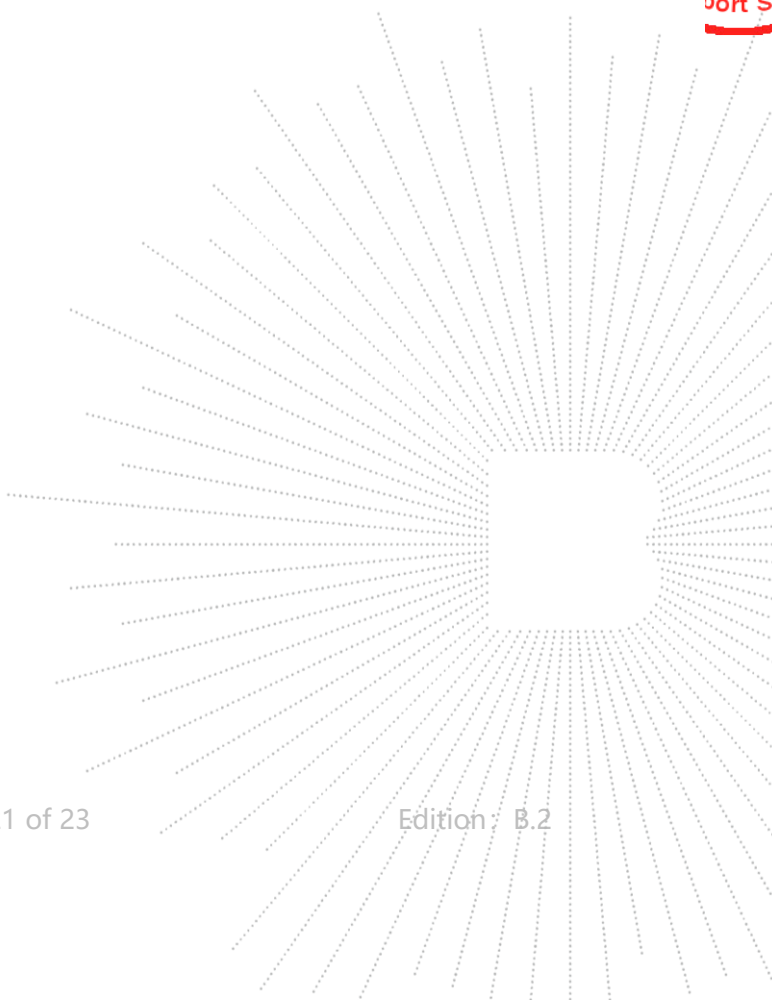


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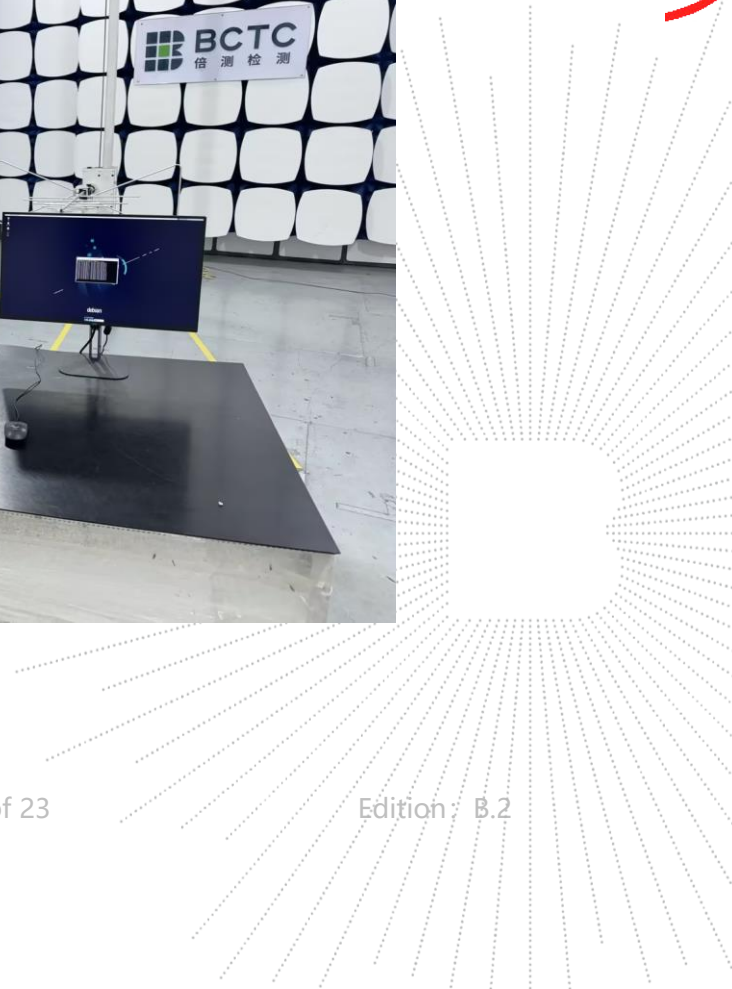
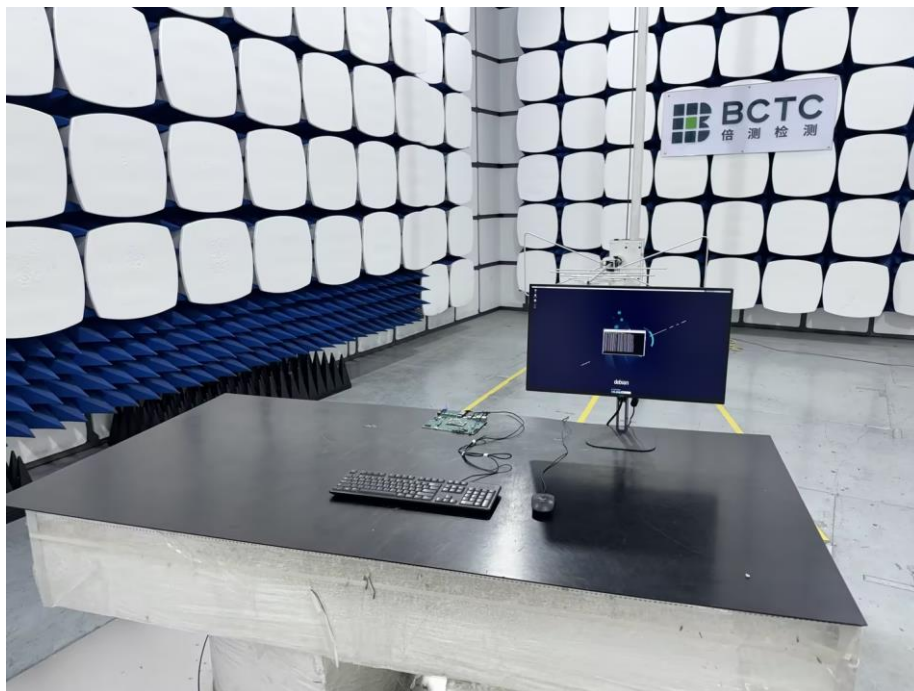


9. EUT Test Setup Photographs

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.

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

※※※※※ END ※※※※※

