

# TEST REPORT

Report No.: BCTC2304399883E

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Applicant: MINIX Technology Limited

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Product Name: Mini PC

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Model/Type  
Reference: RIC SJ64-4W

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Tested Date: 2023-04-13 to 2023-04-17

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Issued Date: 2023-06-29

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**Shenzhen BCTC Technology Co., Ltd.**



Product Name: Mini PC

Trademark: MINIX

Model/Type Reference: RIC SJ64-4W, RIC SJ64-8W, RIC SJ64-16W, RIC SJ64-4U,  
RIC SJ64-8U, RIC SJ64-16U, RIC SJ64-MB, RIC SJ64xxxxxxxxx  
(x can be 0-9, A-Z, a-z, "-", "\_", "/" or blank for marketing purpose)

Prepared For: MINIX Technology Limited

Address: Unit 01, 15/F, Chevalier Commercial Center, No.8 Wang Hoi Road, Kowloon Bay, Kowloon, Hong Kong.

Manufacturer: MINIX Technology Limited

Address: Unit 01, 15/F, Chevalier Commercial Center, No.8 Wang Hoi Road, Kowloon Bay, Kowloon, Hong Kong.

Prepared By: Shenzhen BCTC Technology Co., Ltd.

Address: 1 Floor, Building 2, Huayou Industrial, Yousong Road, Fukang Community, Longhua Street, Longhua District, Shenzhen, Guangdong, China

Sample Received Date: 2023-04-11

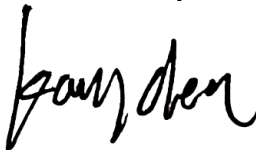
Sample Tested Date: 2023-04-13 to 2023-04-17

Report No.: BCTC2304399883E

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

Test Results: PASS

Tested by:



Kang Chen/ Project Handler

Approved by:



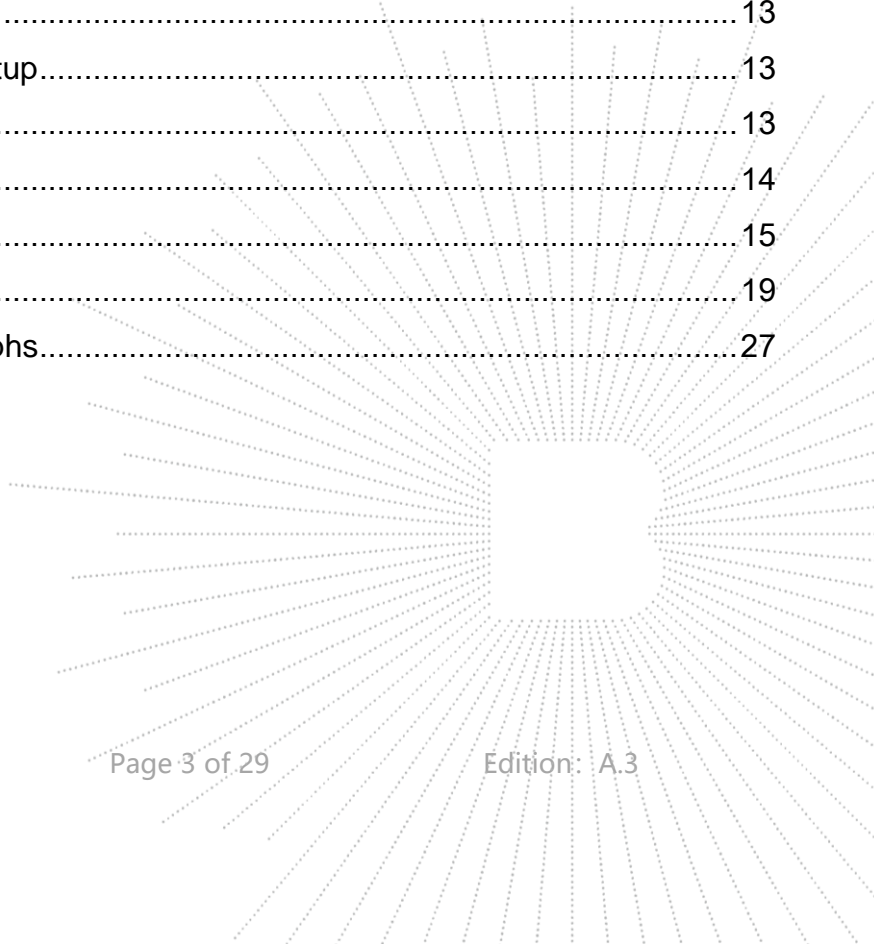
Sewen Guo /Reviewer

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 Technology 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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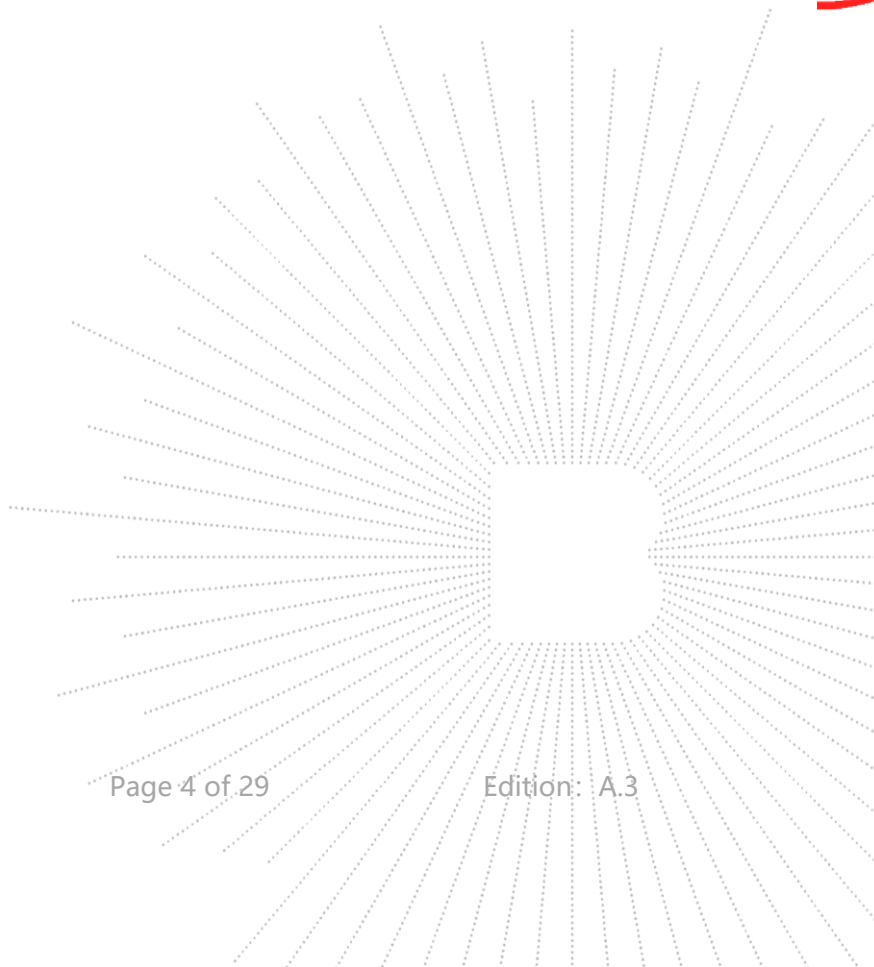
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**1. Version**

Report No.	Issue Date	Description	Approved
BCTC2304399883E	2023-06-29	Original	Valid

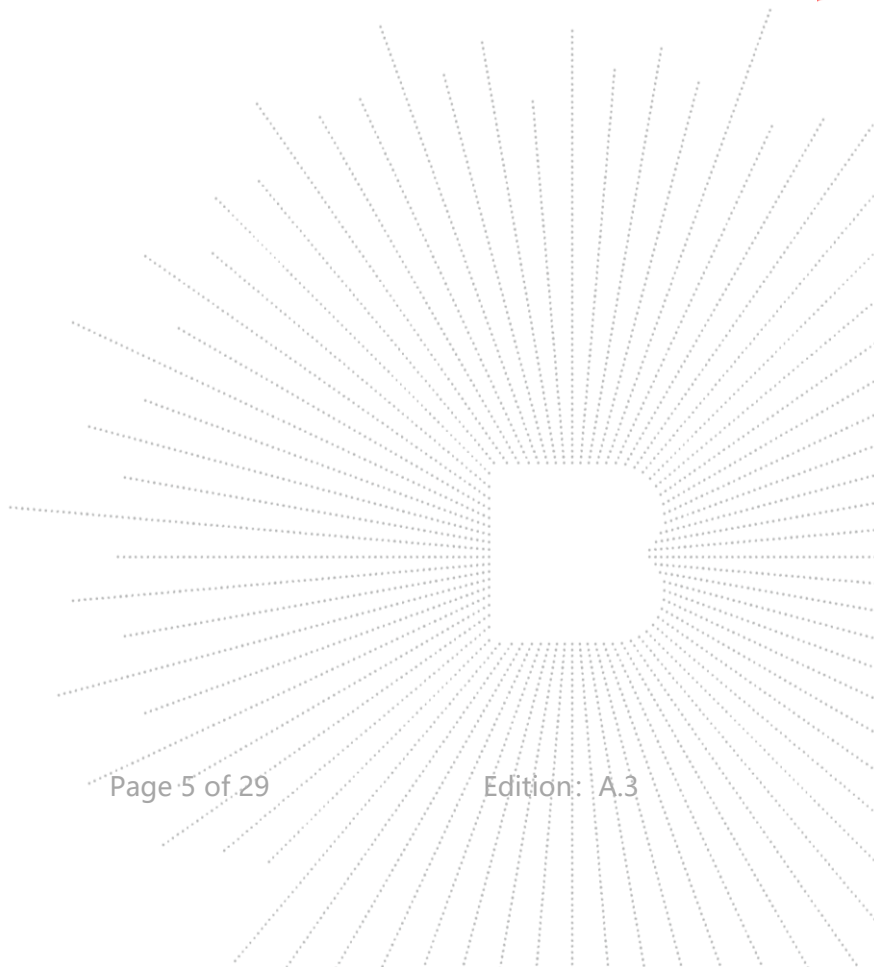
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## 2. Test Summary

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)
Disturbance voltages (150K-30MHz)	3.20
Radiated disturbance30MHz-1000MHz	4.80
Radiated disturbance1GHz -6GMHz	4.90
Radiated disturbance6GHz -18GMHz	4.90

## 4. Product Information And Test Setup

### 4.1 Product Information

<b>Ratings:</b>	AC 100-240V/50-60Hz
<b>Adapter input/output (voltage, current):</b>	Input: AC 100-240V/50-60Hz Output: 19V/3.42A
<b>The highest frequency of the internal sources of the EUT is (above 1 GHz):</b>	<input type="checkbox"/> less than 108 MHz, the measurement shall only be made up to 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 6 GHz, whichever is less.
<b>Model differences:</b>	Our production units bearing the following model numbers are identical in circuitry and electrical, mechanical and physical construction; The difference is only in model names.

### 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.	Data Cable	Power Cord	Calibration
1.	---	---	---	---	---	---	---
2.	---	---	---	---	---	---	---

**Notes:**

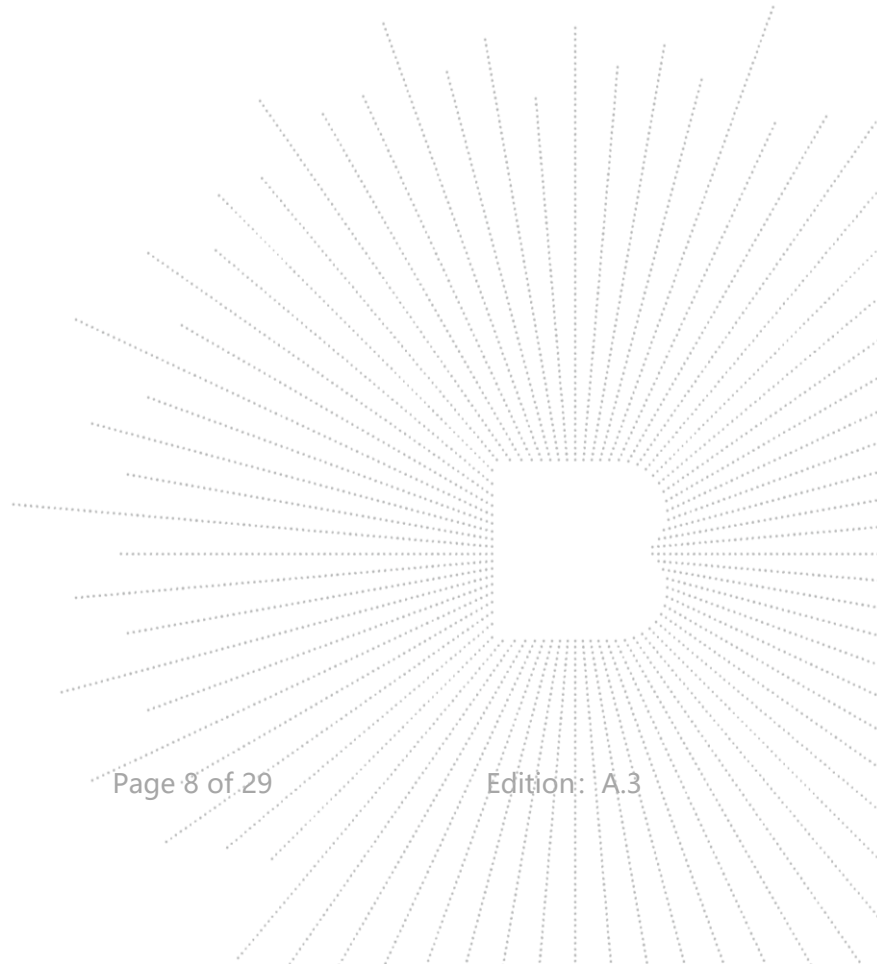
1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

#### 4.4 Test Mode

Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Mode	
Mode 1:	HDMI Output
Mode 2:	DP Output
Mode 3:	IP ping

Test item	Test Mode	Test Voltage
Conducted Emission(150KHz-30MHz) Class B	Mode 1*	AC 120V/60Hz
Radiated Emission(30MHz-6GHz) Class B	Mode 1*	AC 120V/60Hz
All test mode were tested and passed, only Conducted Emissions, Radiated Emissions shows (*) is the worst case mode which were recorded in this report.		



## 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 Technology Co., Ltd. Address: 1 Floor, Building 2, Huayou Industrial, Yousong Road, Fukang Community, Longhua Street, Longhua 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	ESCI	101421	2022-06-01	2023-05-31
AMN	SCHWHRZBECK	NNBM8127	8127739	2022-06-01	2023-05-31
Pulse Limiter	SCHWHRZBECK	VTSD 9561-F-N	00547	2022-06-01	2023-05-31
Software	EZ-EMC	Ver.EMC-CON 3A1	/	/	/

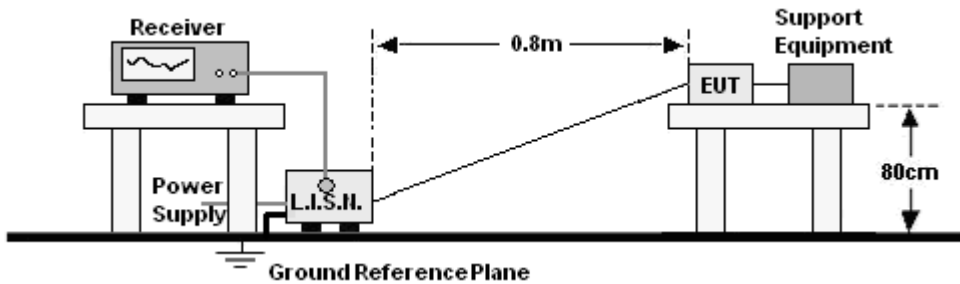
Radiated disturbance					
Equipment	Manufacturer	Model#	Serial#	Last Cal.	Next Cal.
Broadband antenna	SCHWHRZBECK	VULB9160	3369	2022-06-06	2023-06-05
Receiver	R&S	ESPI	1164.6407. 07	2022-06-01	2023-05-31
Preamplifier	SCHWHRZBECK	BBV9743	/	2022-06-01	2023-05-31
Horn antenna	SCHWARZBECK	BBHA 9120 D	2792	2022-12-23	2023-12-22
Preamplifier	EMC INSTRUMENTS CORPORATION	EMC0518A45SE E	EMT-SZ22 33	2022-11-21	2023-11-20
RF cable 1#	SKET	5M	#10	2022-12-23	2023-12-22
RF cable 2#	/	5M	18038628	2022-12-23	2023-12-22
RF cable 3#	/	8.5M	18038631	2022-12-23	2023-12-22
RF cable 4#	/	9M	18038626	2022-12-23	2023-12-22
Software	EZ-EMC	Ver.FA-03A2	/	/	/

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## 6. Conducted Emissions

### 6.1 Block Diagram Of Test Setup

For mains ports:



### 6.2 Limit

Limits for Class B devices

Frequency (MHz)	Limits dB( $\mu$ V)	
	Quasi-peak	Average
0,15 ~ 0,50	66 ~ 56*	56 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

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

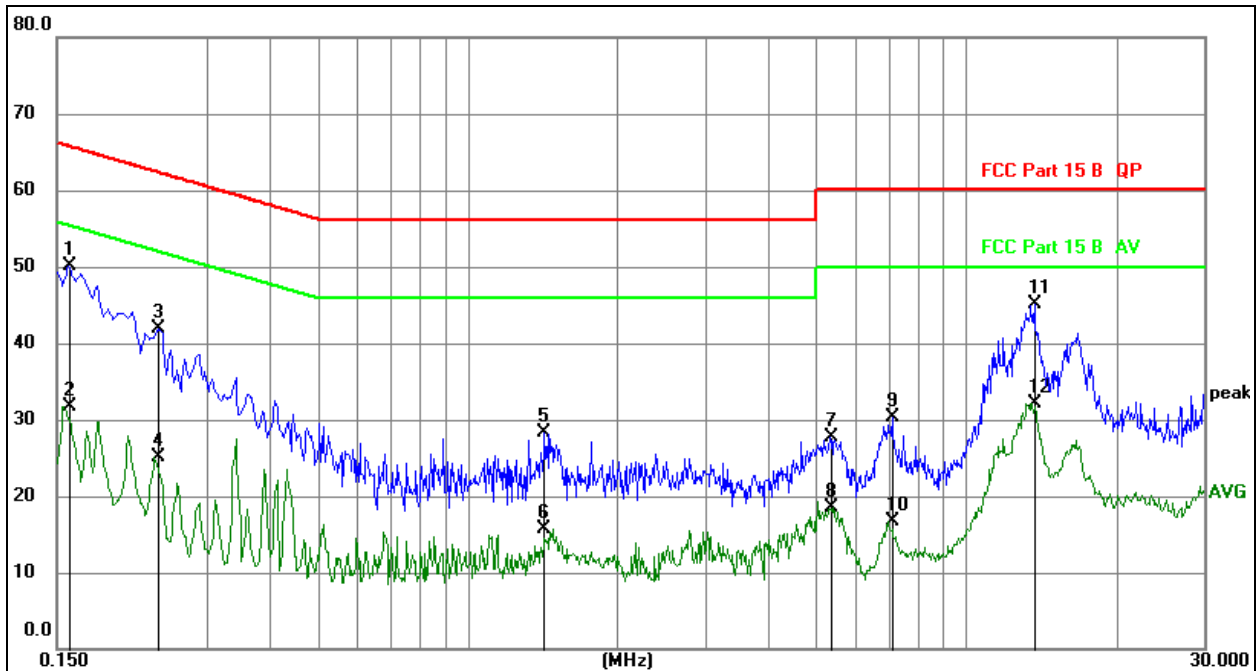
### 6.3 Test procedure

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:	Mode 1

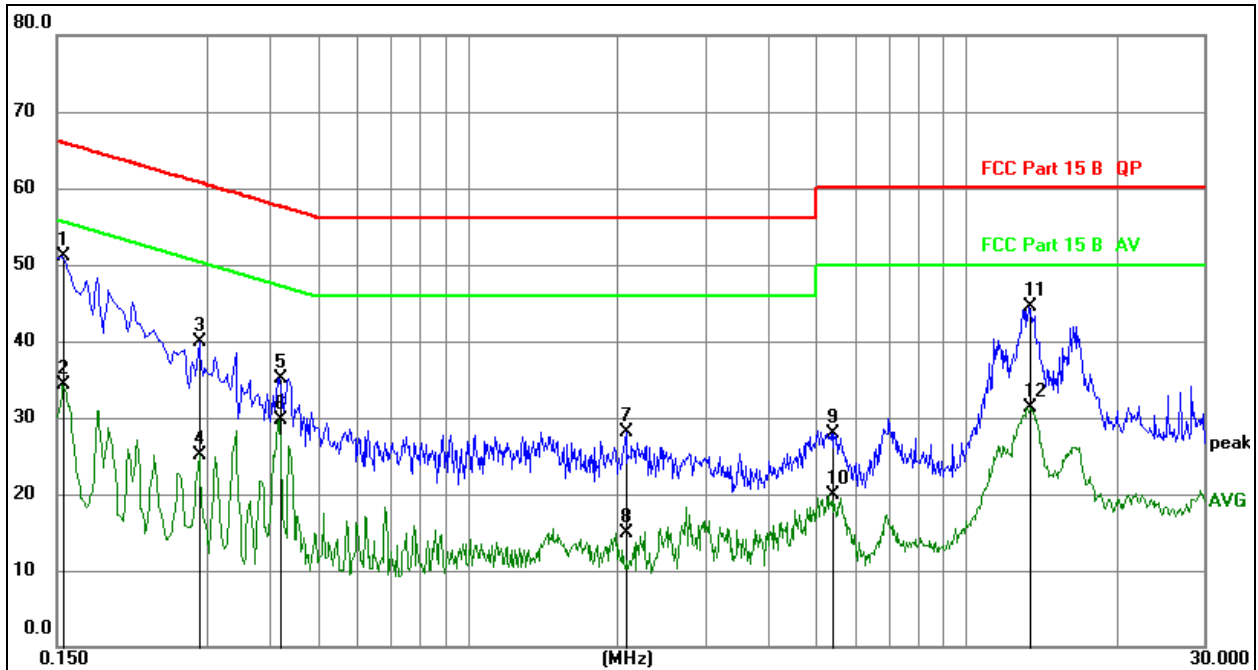


**Remark:**

- All readings are Quasi-Peak and Average values.
- Factor = Insertion Loss + Cable Loss.

No. Mk.	Freq. MHz	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
			dB	dB $\mu$ V	dB $\mu$ V	dB		
1	0.1582	39.92	10.23	50.15	65.56	-15.41	QP	
2	0.1582	21.56	10.23	31.79	55.56	-23.77	AVG	
3	0.2391	31.60	10.24	41.84	62.13	-20.29	QP	
4	0.2391	14.92	10.24	25.16	52.13	-26.97	AVG	
5	1.4256	18.18	10.17	28.35	56.00	-27.65	QP	
6	1.4256	5.47	10.17	15.64	46.00	-30.36	AVG	
7	5.3332	17.42	10.29	27.71	60.00	-32.29	QP	
8	5.3332	8.26	10.29	18.55	50.00	-31.45	AVG	
9	7.0997	19.87	10.38	30.25	60.00	-29.75	QP	
10	7.0997	6.23	10.38	16.61	50.00	-33.39	AVG	
11 *	13.6952	34.67	10.42	45.09	60.00	-14.91	QP	
12	13.6952	21.65	10.42	32.07	50.00	-17.93	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.

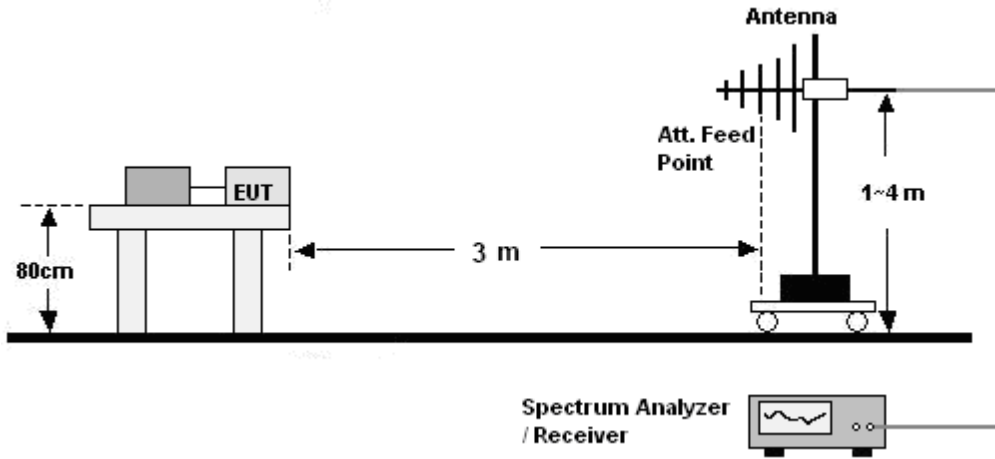
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dB	dB	dB	dB	dB		
1	*	0.1545	40.84	10.23	51.07	65.75	-14.68	QP	
2		0.1545	24.11	10.23	34.34	55.75	-21.41	AVG	
3		0.2895	29.68	10.24	39.92	60.54	-20.62	QP	
4		0.2895	14.81	10.24	25.05	50.54	-25.49	AVG	
5		0.4200	24.91	10.23	35.14	57.45	-22.31	QP	
6		0.4200	19.39	10.23	29.62	47.45	-17.83	AVG	
7		2.0850	17.98	10.19	28.17	56.00	-27.83	QP	
8		2.0850	4.79	10.19	14.98	46.00	-31.02	AVG	
9		5.3835	17.62	10.29	27.91	60.00	-32.09	QP	
10		5.3835	9.61	10.29	19.90	50.00	-30.10	AVG	
11		13.4070	34.00	10.42	44.42	60.00	-15.58	QP	
12		13.4070	20.91	10.42	31.33	50.00	-18.67	AVG	

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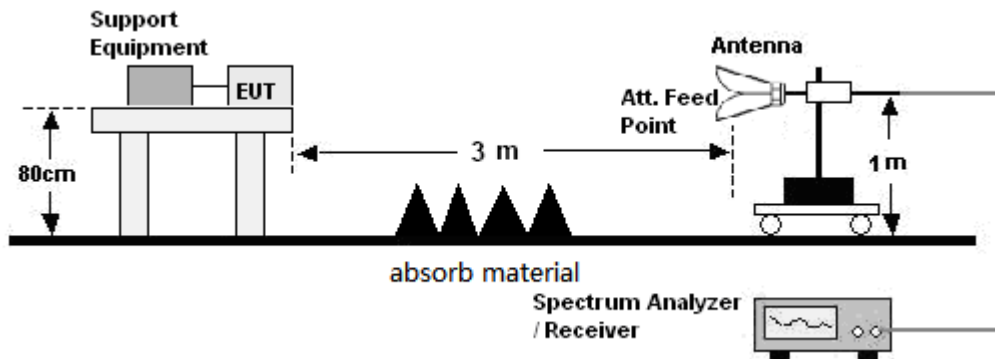
## 7. Radiated Disturbance Test

### 7.1 Block Diagram Of Test Setup

30MHz ~ 1GHz:



Above 1GHz:



### 7.2 Limits

Limits for Class B devices

Frequency (MHz)	limits at 3m dB( $\mu$ 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 0.8m above the ground in a semi anechoic 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.

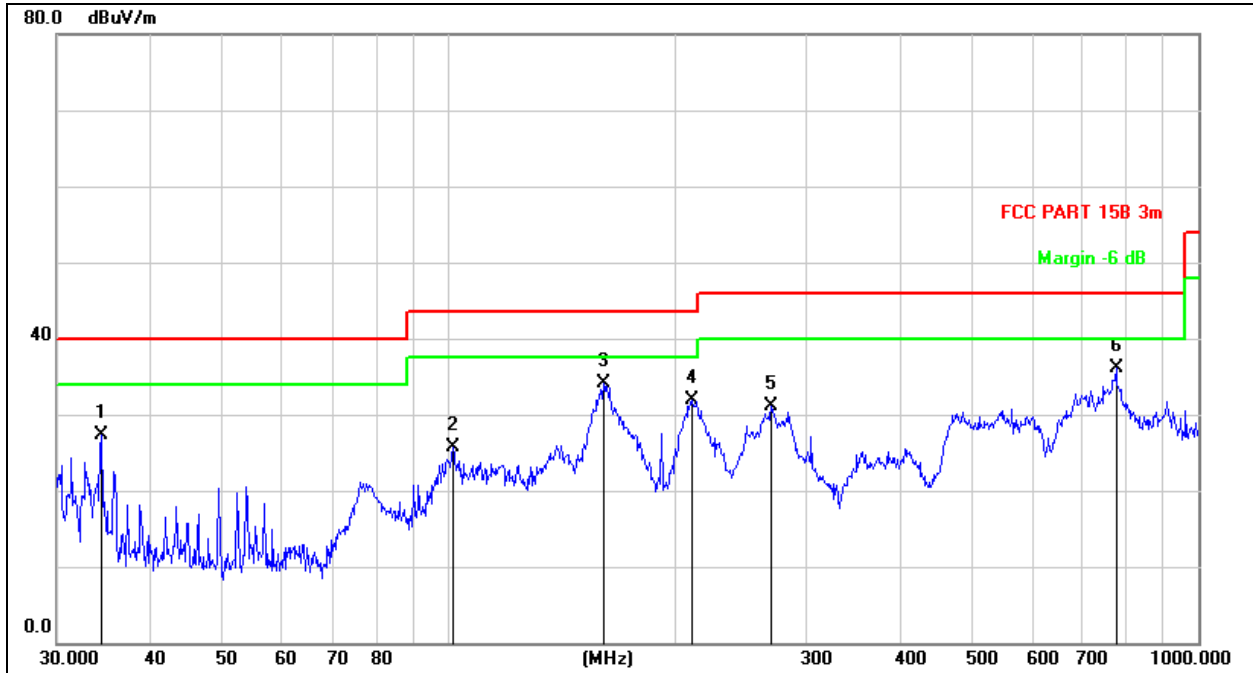
#### Above 1GHz:

- 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 record the maximum value.



### 7.4 Test Results

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

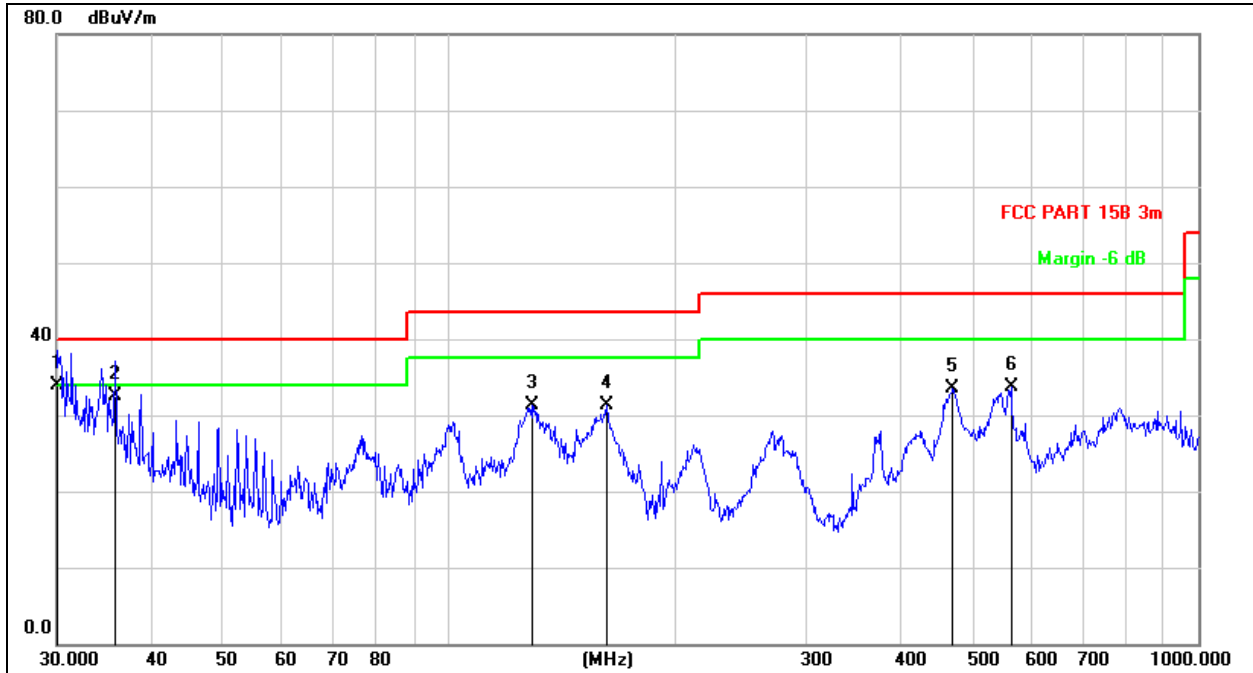


Remark:  
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Table	Table	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector	Height	Degree
1		34.3964	35.53	-8.29	27.24	40.00	-12.76	QP		
2		101.2885	35.45	-9.84	25.61	43.50	-17.89	QP		
3	*	160.9089	40.40	-6.39	34.01	43.50	-9.49	QP		
4		210.7860	40.87	-8.92	31.95	43.50	-11.55	QP		
5		269.4284	37.75	-6.70	31.05	46.00	-14.95	QP		
6		776.8778	31.32	4.71	36.03	46.00	-9.97	QP		

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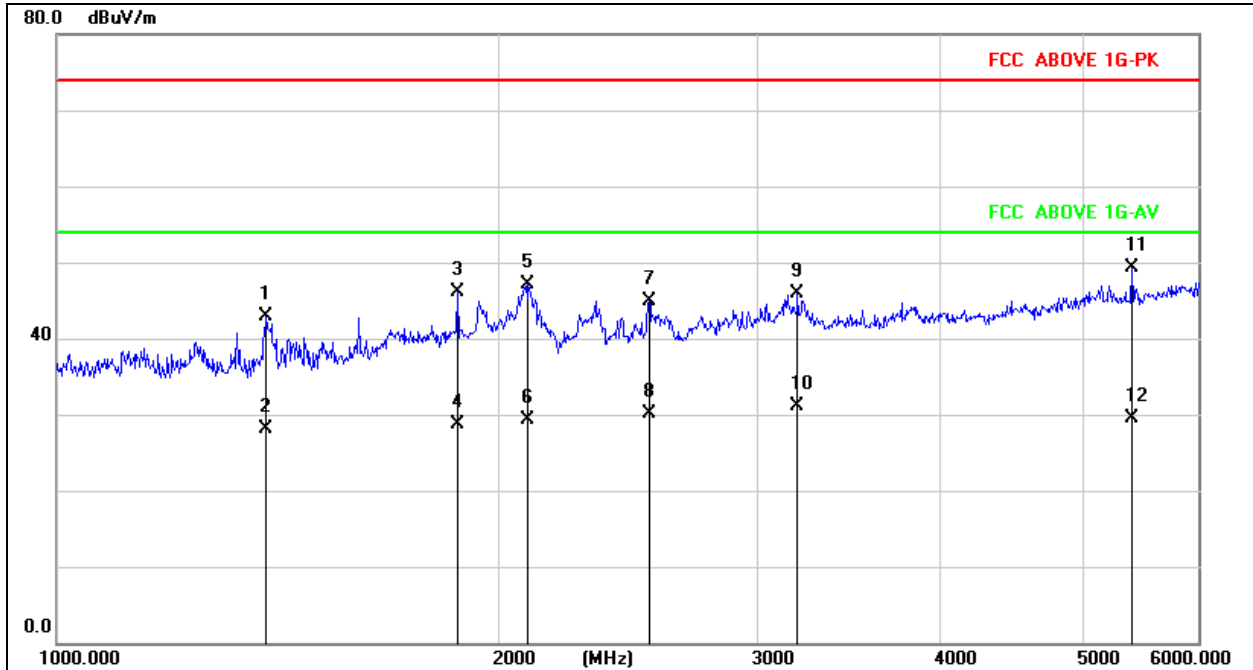
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Vertical
Test Voltage :	AC 120V/60Hz	Test Mode:	Mode 1



Remark:  
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	cm	degree	Comment
1	*	30.0000	42.05	-8.18	33.87	40.00	-6.13	QP		
2		35.8746	40.86	-8.33	32.53	40.00	-7.47	QP		
3		129.0146	38.70	-7.41	31.29	43.50	-12.21	QP		
4		162.6106	37.75	-6.52	31.23	43.50	-12.27	QP		
5		470.5232	34.55	-1.08	33.47	46.00	-12.53	QP		
6		562.6624	33.11	0.67	33.78	46.00	-12.22	QP		

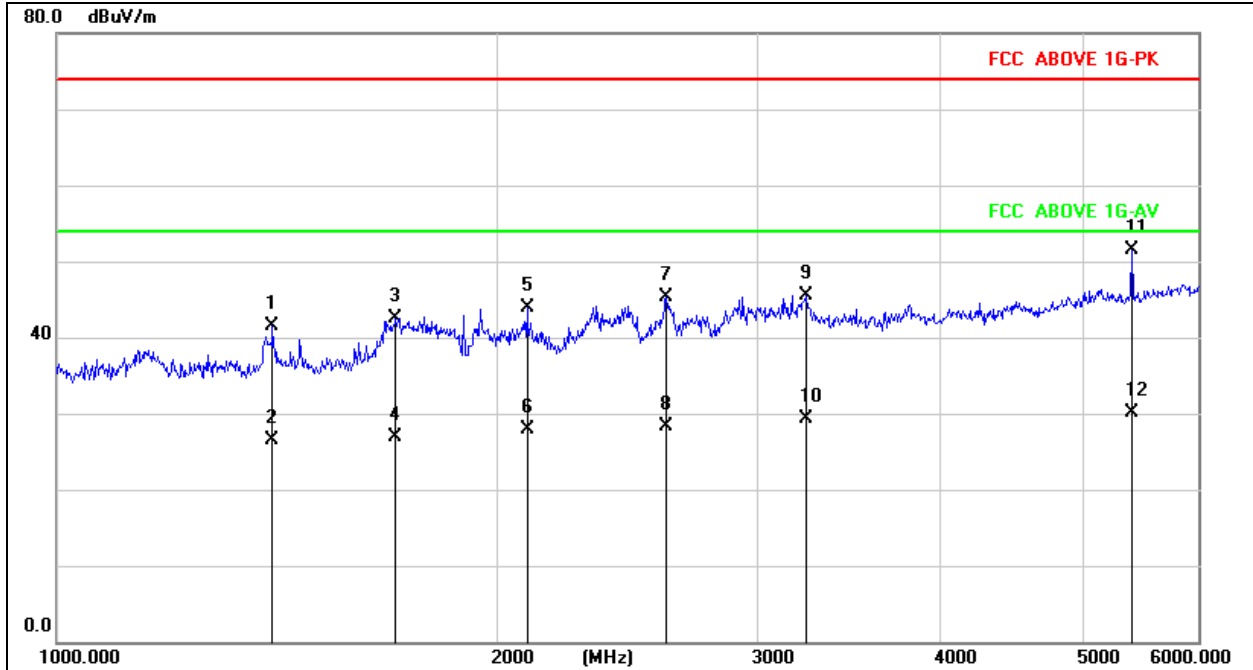
Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Vertical
Test Voltage :	AC 120V/60Hz	Test Mode:	Mode 1



Remark:  
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dBm	Over dB	Detector	Antenna Height cm	Table Degree	Comment
1	1388.039	62.58	-19.69	42.89	74.00	-31.11	peak			
2	1388.039	47.89	-19.69	28.20	54.00	-25.80	AVG			
3	1875.561	64.71	-18.66	46.05	74.00	-27.95	peak			
4	1875.561	47.31	-18.66	28.65	54.00	-25.35	AVG			
5	2095.928	65.03	-17.98	47.05	74.00	-26.95	peak			
6	2095.928	47.31	-17.98	29.33	54.00	-24.67	AVG			
7	2534.314	60.99	-16.05	44.94	74.00	-29.06	peak			
8	2534.314	46.15	-16.05	30.10	54.00	-23.90	AVG			
9	3199.044	59.36	-13.54	45.82	74.00	-28.18	peak			
10 *	3199.044	44.56	-13.54	31.02	54.00	-22.98	AVG			
11	5407.773	57.55	-8.27	49.28	74.00	-24.72	peak			
12	5407.773	37.87	-8.27	29.60	54.00	-24.40	AVG			

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



Remark:  
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV/m	Limit dB/m	Over dB	Detector	Antenna Height cm	Table Degree	Comment
1	1403.042	61.20	-19.65	41.55	74.00	-32.45	peak			
2	1403.042	46.25	-19.65	26.60	54.00	-27.40	AVG			
3	1702.593	61.52	-19.02	42.50	74.00	-31.50	peak			
4	1702.593	45.84	-19.02	26.82	54.00	-27.18	AVG			
5	2092.177	61.90	-17.99	43.91	74.00	-30.09	peak			
6	2092.177	45.89	-17.99	27.90	54.00	-26.10	AVG			
7	2603.351	61.12	-15.75	45.37	74.00	-28.63	peak			
8	2603.351	44.06	-15.75	28.31	54.00	-25.69	AVG			
9	3245.229	58.85	-13.44	45.41	74.00	-28.59	peak			
10	3245.229	42.77	-13.44	29.33	54.00	-24.67	AVG			
11 *	5407.773	59.84	-8.27	51.57	74.00	-22.43	peak			
12	5407.773	38.47	-8.27	30.20	54.00	-23.80	AVG			

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### 8. EUT Photographs

EUT Photo 1



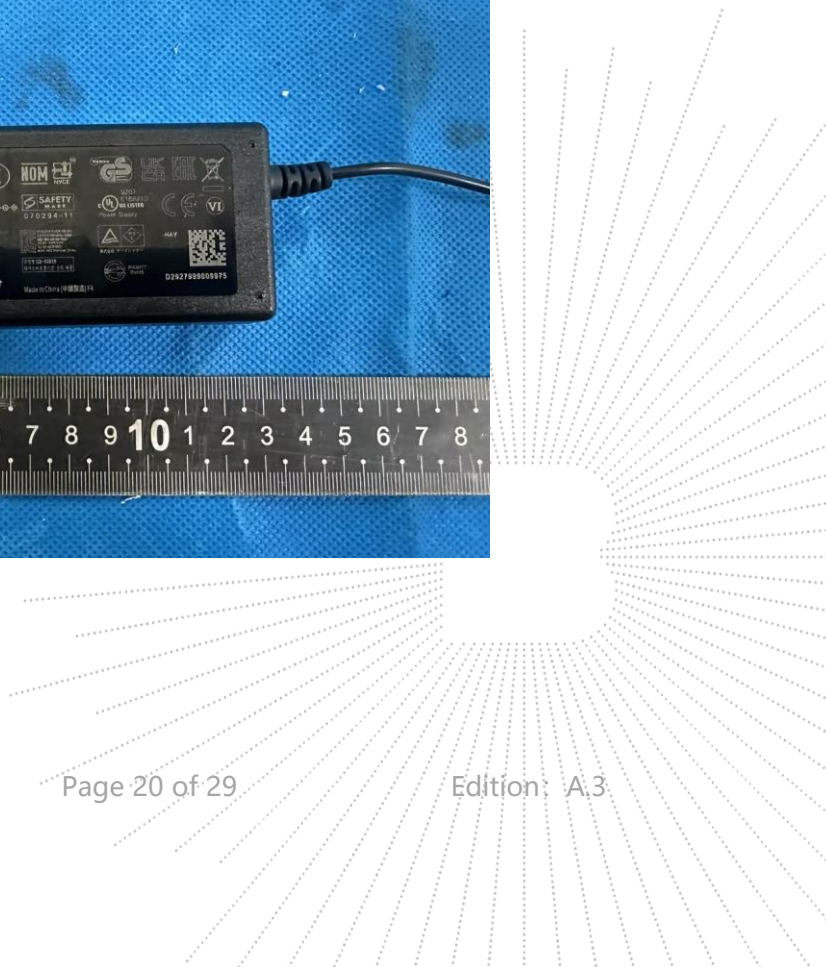
EUT Photo 2



EUT Photo 3



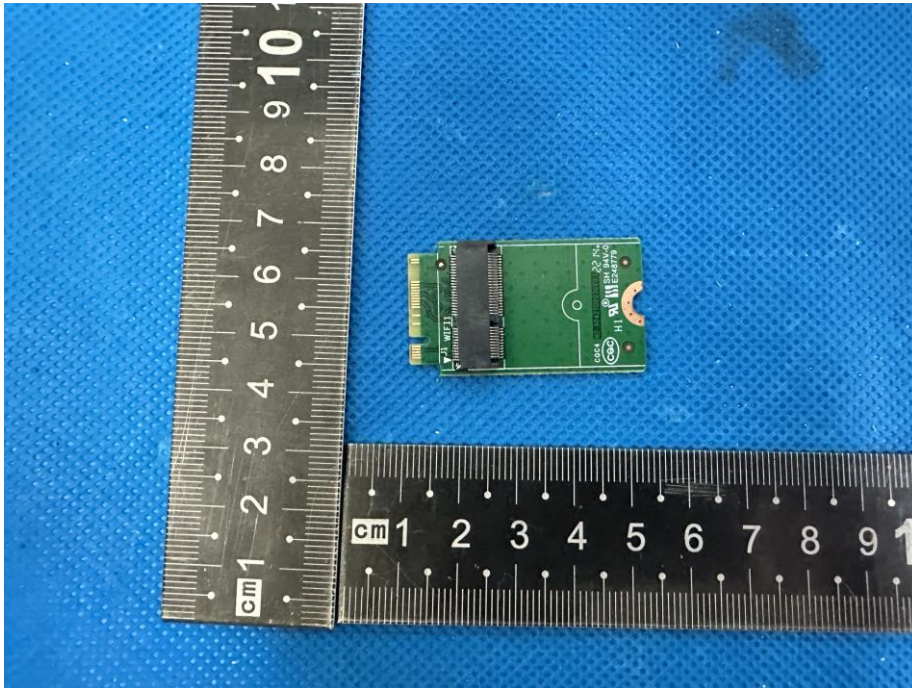
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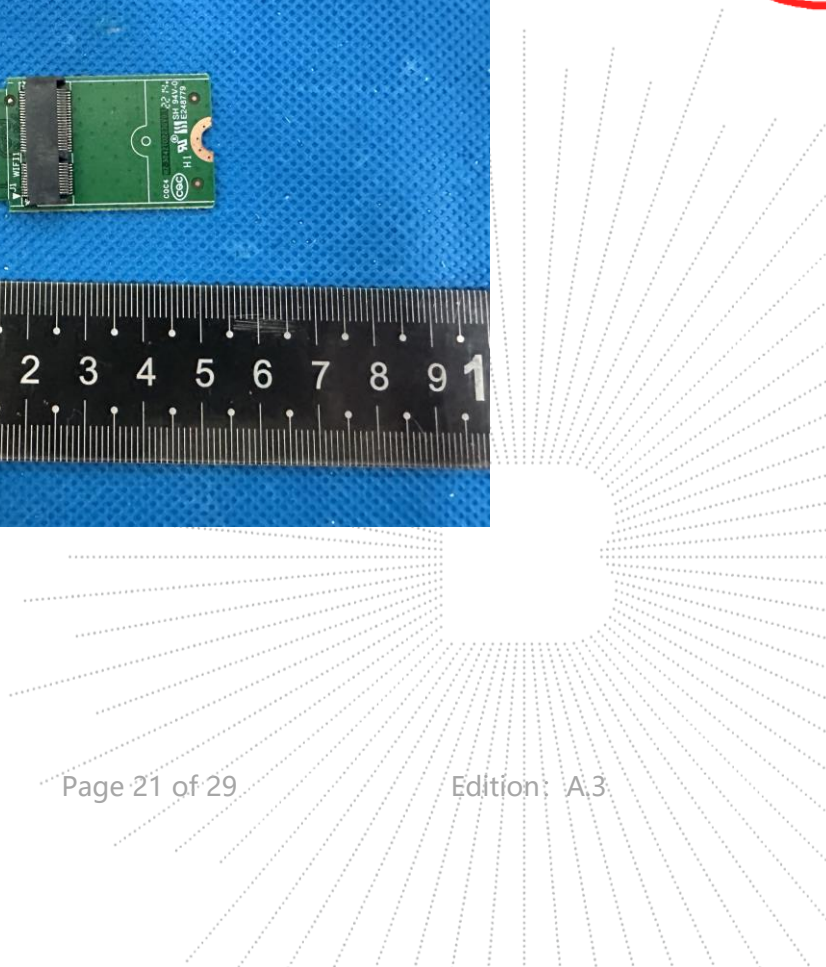
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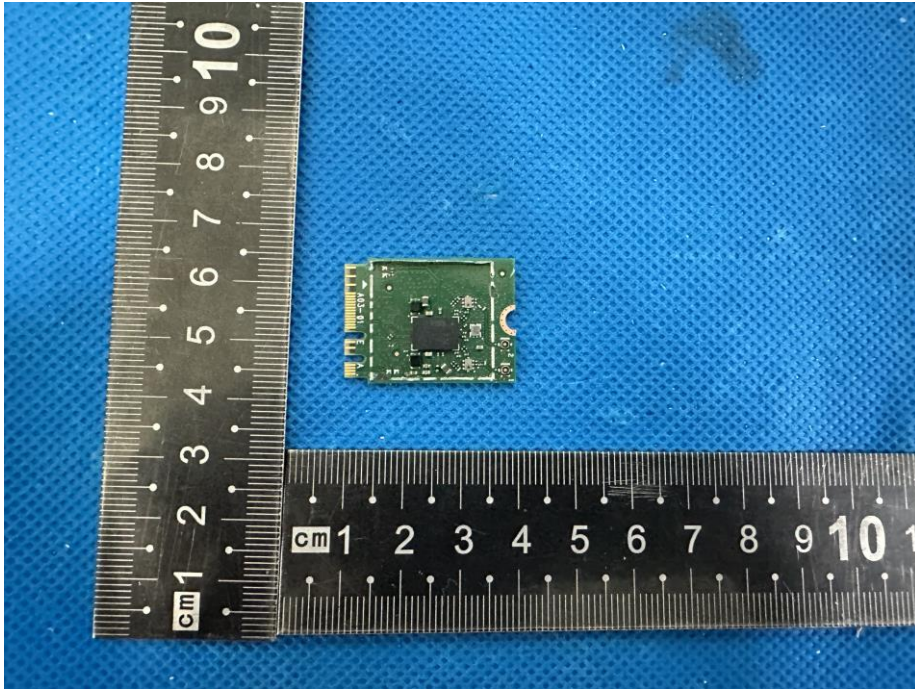
EUT Photo 6



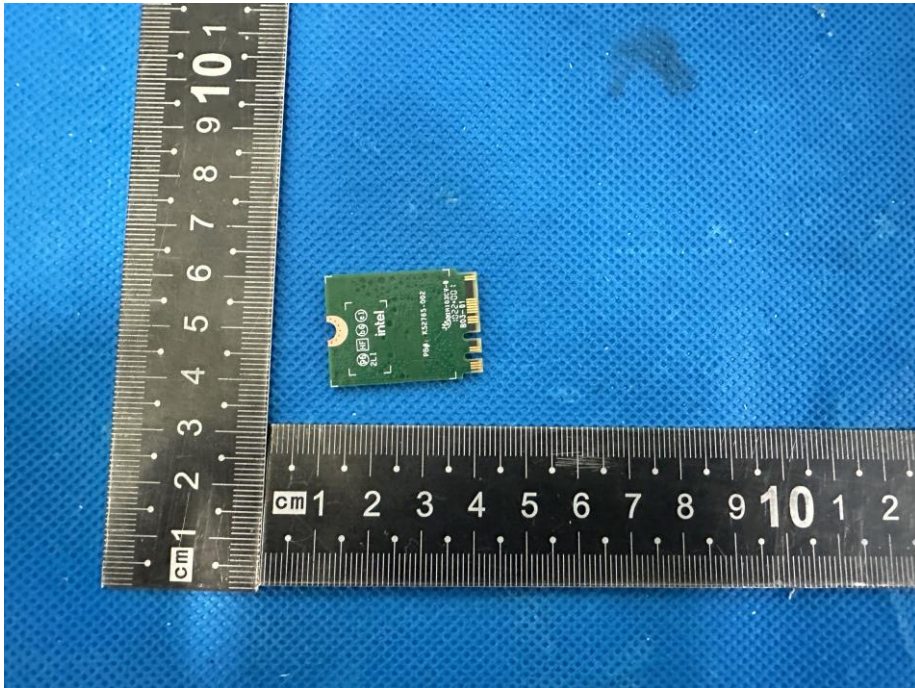
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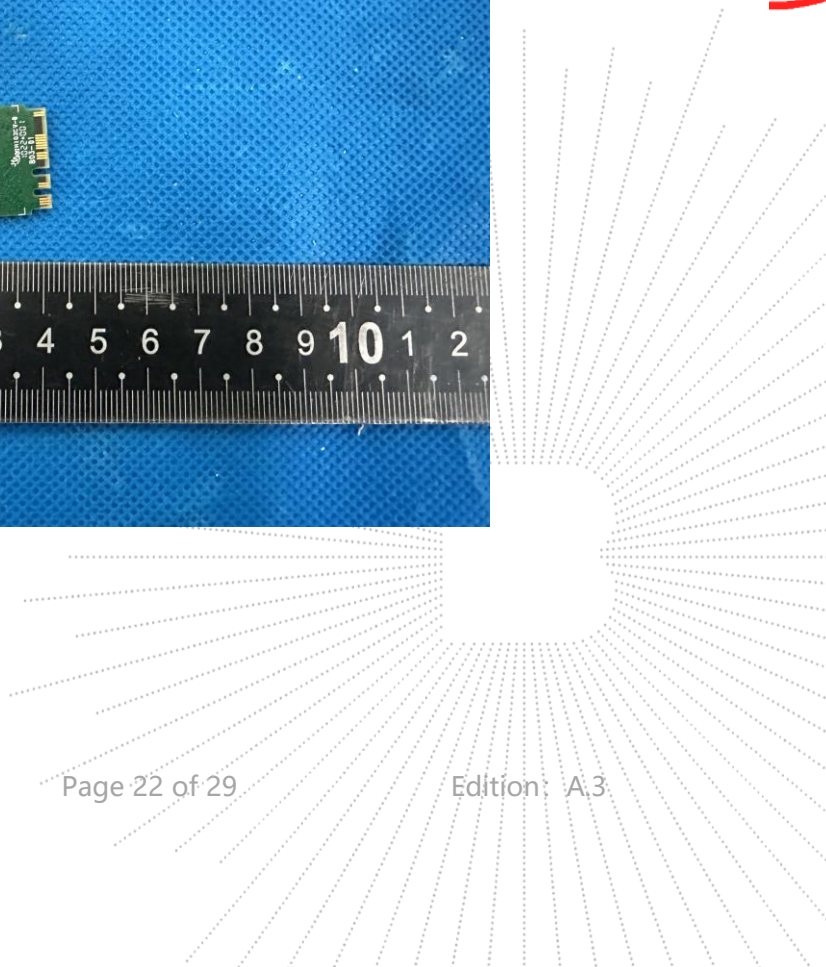
EUT Photo 7



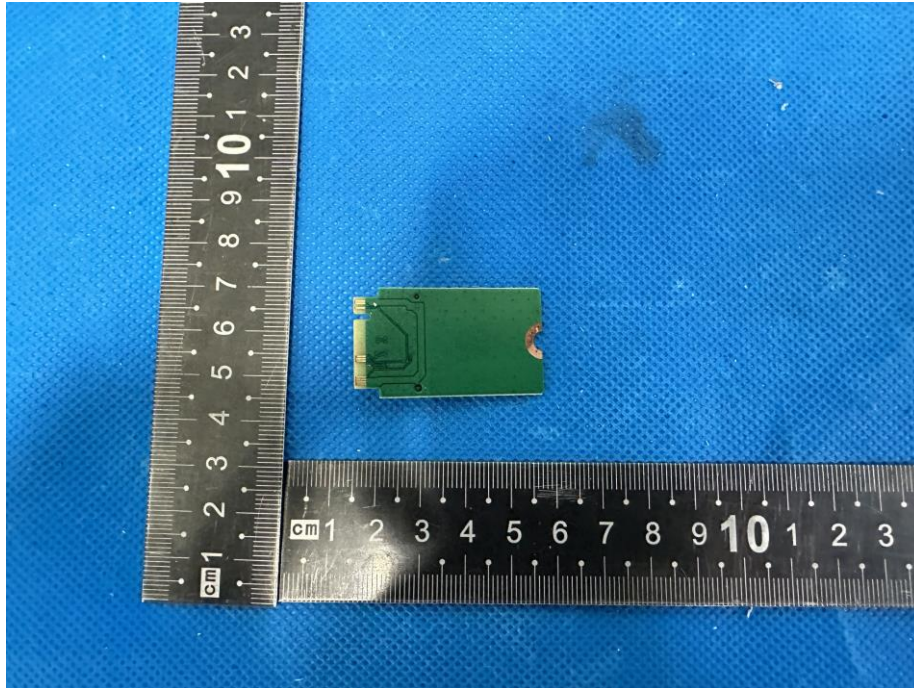
EUT Photo 8



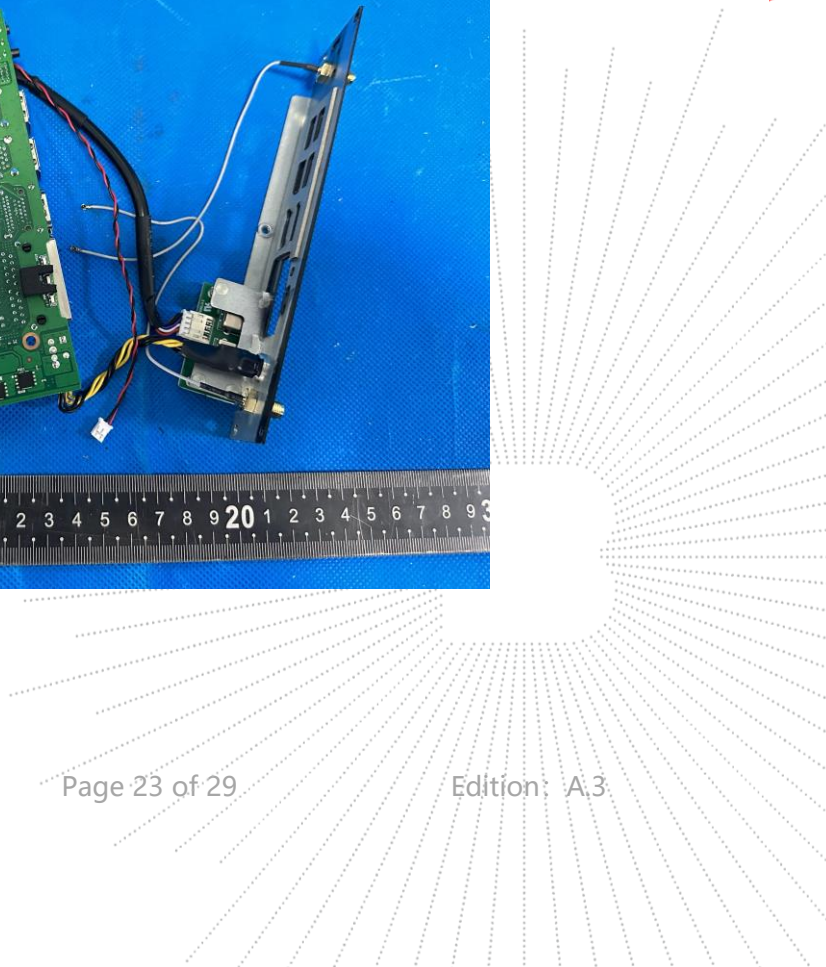
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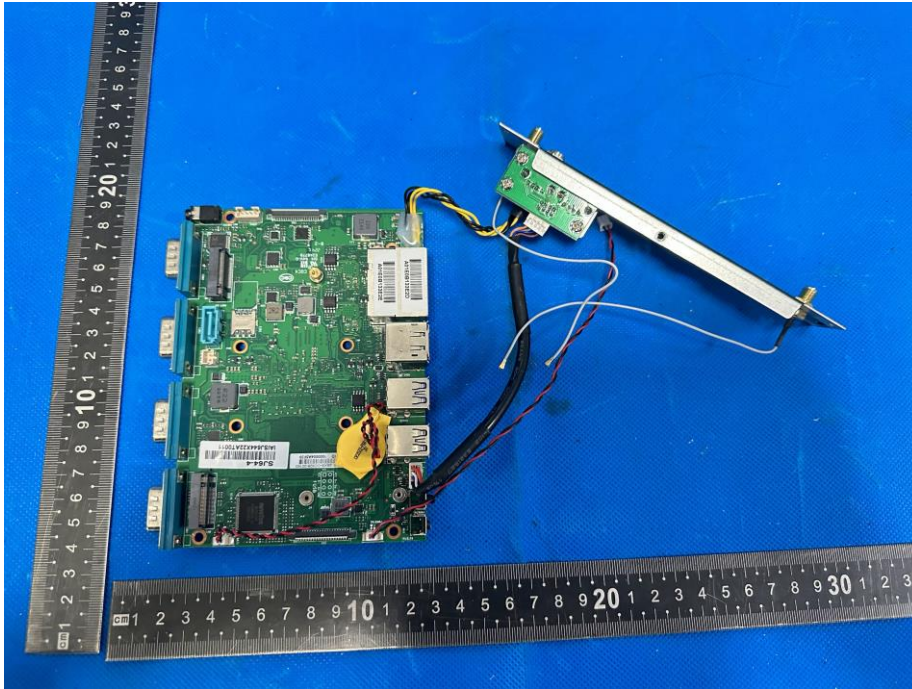
**EUT Photo 9**



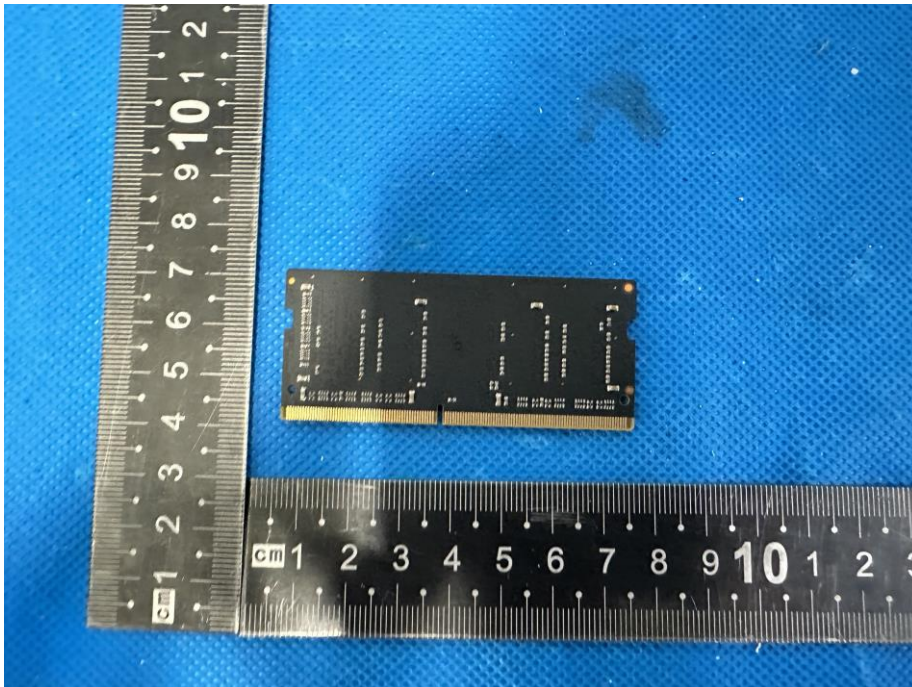
**EUT Photo 10**



EUT Photo 11

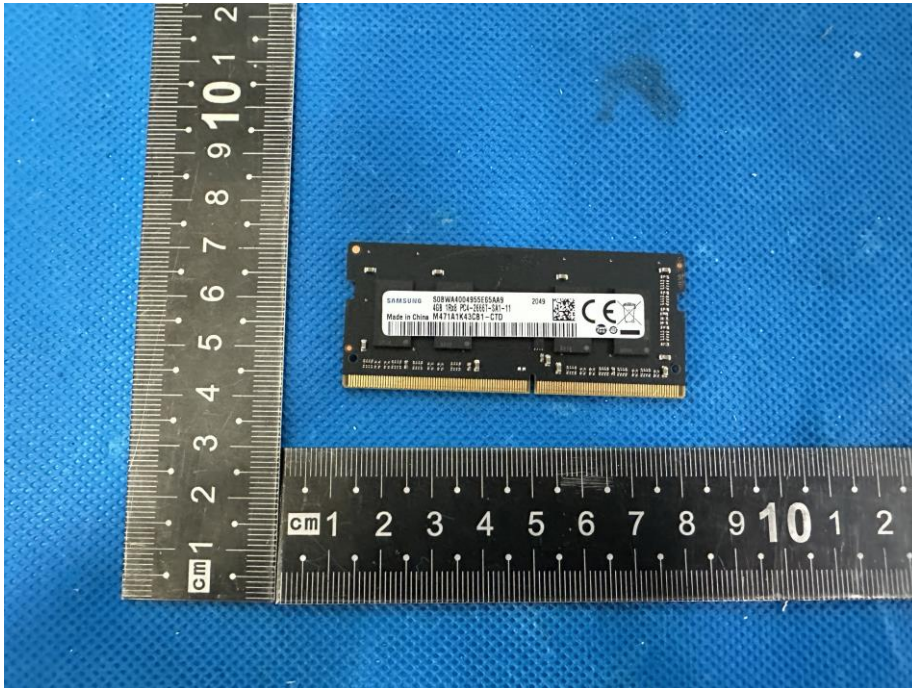


EUT Photo 12

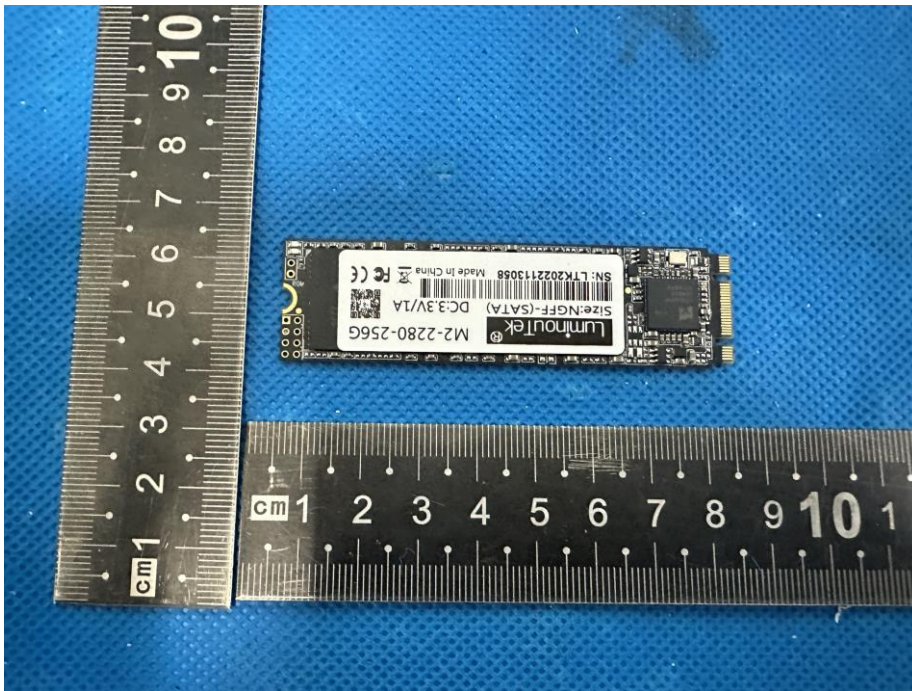


CO., LTD

EUT Photo 13

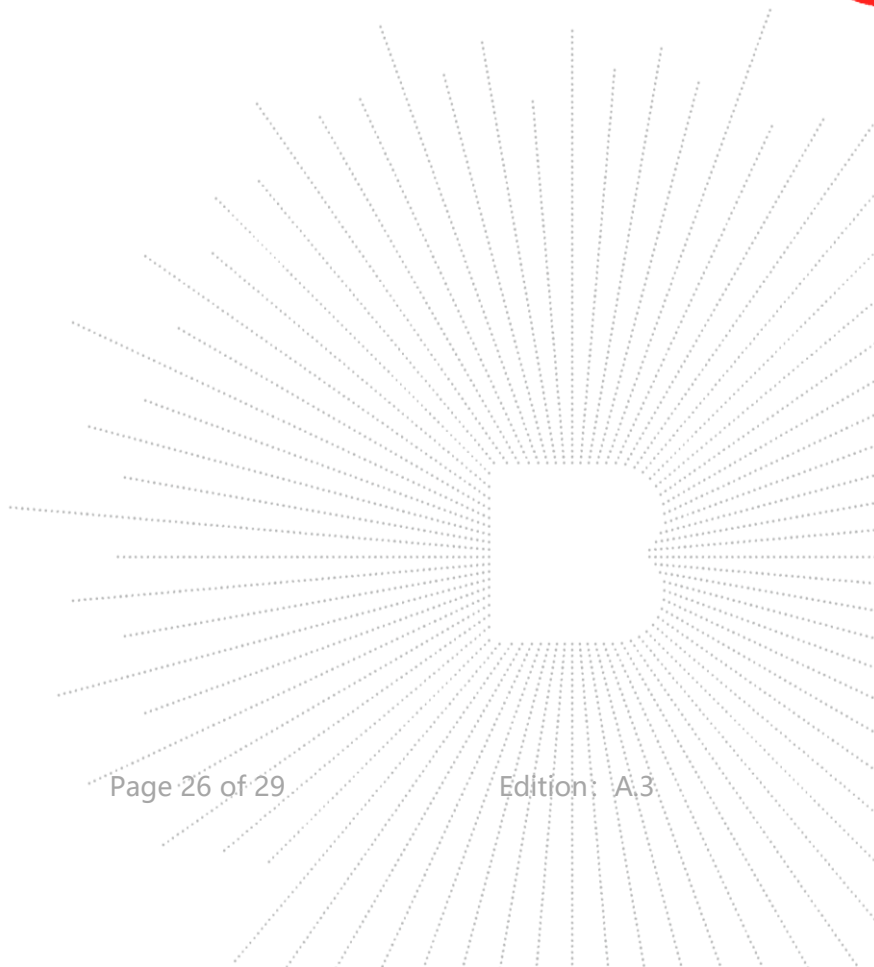
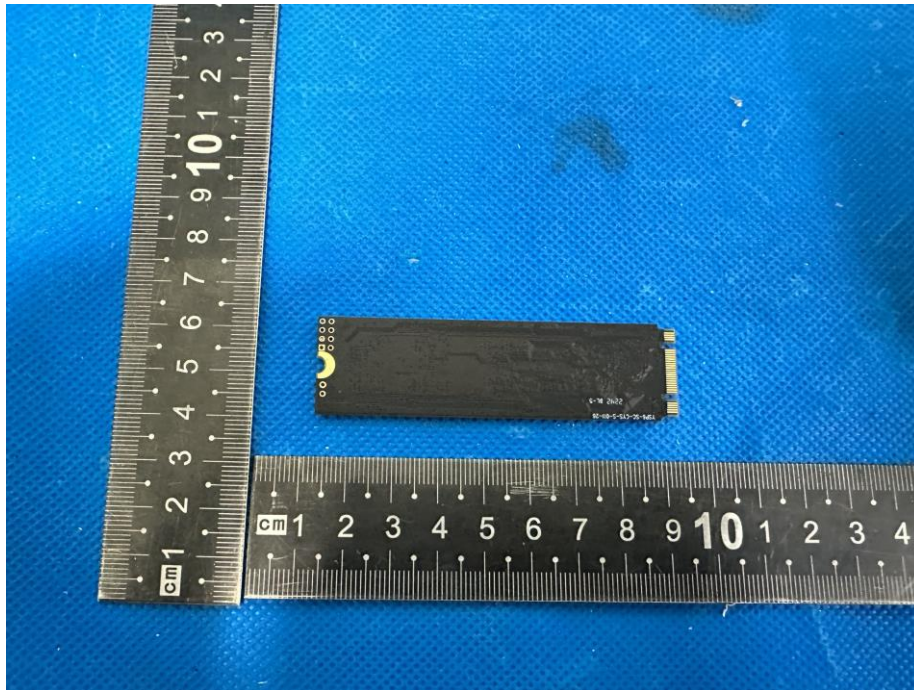


EUT Photo 14



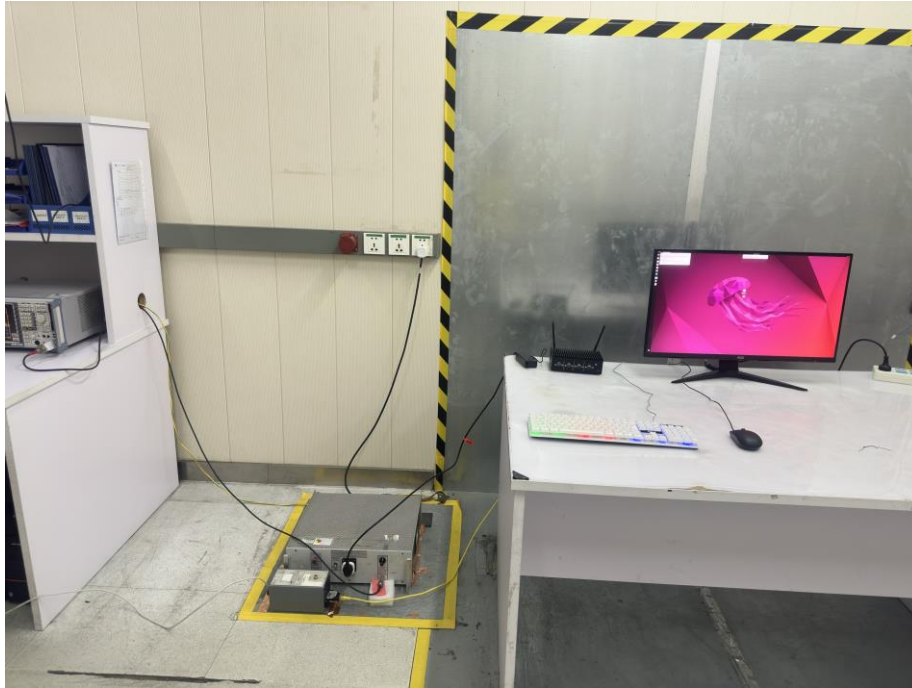
SHENZHEN

EUT Photo 15



## 9. EUT Test Setup Photographs

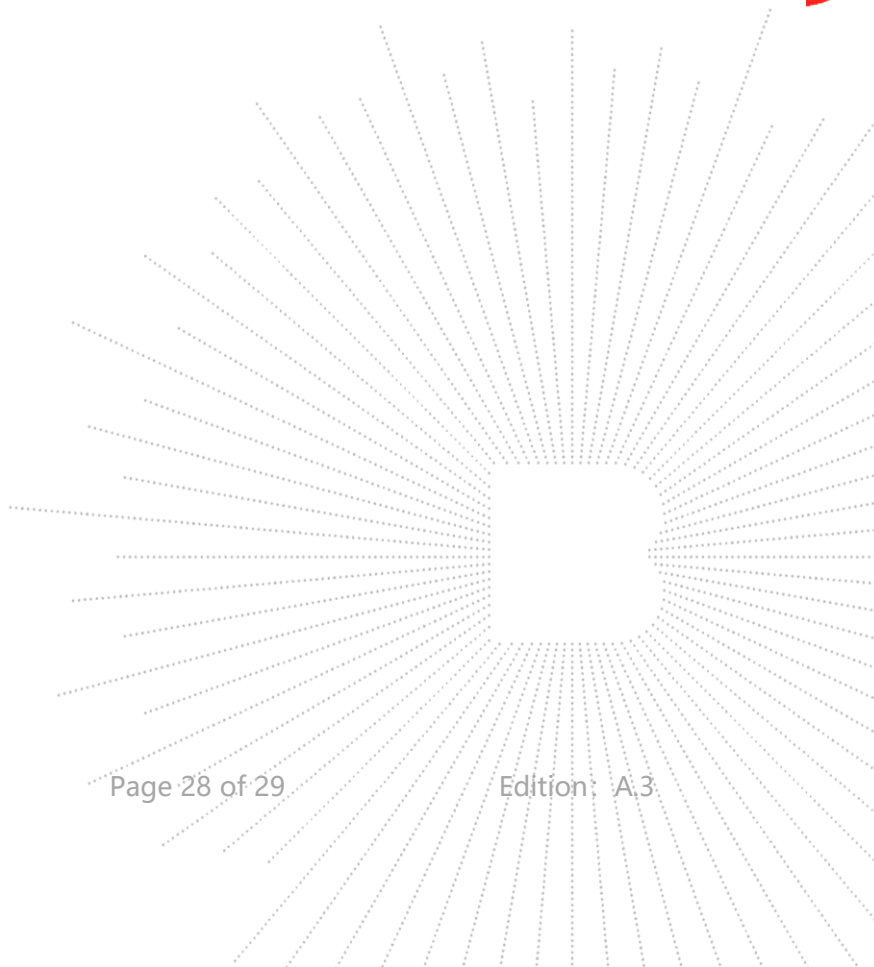
### Conducted Emission



### Radiated Emissions



TEC  
CT  
PROV  
测科



## 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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\*\*\*\*\* END \*\*\*\*\*