

TEST REPORT

FCC ID.	2BGCO-SEMS-TC09E	
Test Report No.	TCT240325E064	
Date of issue	May 31, 2024	
Testing laboratory	SHENZHEN TONGCE TESTING LAB	
Testing location/ address:	2101 & 2201, Zhenchang Factory Renshan Industrial Zone, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, 518103, People's Republic of China	
Applicant's name	XIAMEN IOTCOMM TECHNOLOGY CO., LTD	
Address	No. 188, Tongji North Road, Tong'an District, Xiamen, Fujian, China	
Manufacturer's name	XIAMEN IOTCOMM TECHNOLOGY CO., LTD	
Address	No. 188, Tongji North Road, Tong'an District, Xiamen, Fujian, China	
Standard(s)	FCC CFR Title 47 Part 15 Subpart C Section 15.249 ANSI C63.10:2013	
Product Name	Terminal Controller	
Trade Mark	N/A	
Model/Type reference	SEMS-TC09E, SEMS-RTU09E	
Rating(s)	Input: AC 85~305V, 4A Output: AC 85~305V, 4A	
Date of receipt of test item	Mar. 25, 2024	
Date (s) of performance of test	Mar. 25, 2024 ~ May 31, 2024	
Tested by (+signature)	Aaron MO	
Check by (+signature)	Beryl ZHAO	
Approved by (+signature) :	Tomsin	

General disclaimer:

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Table of Contents

1. General Product Information	3
1.1. EUT description	3
1.2. Model(s) list.....	3
1.3. Operation Frequency	4
2. Test Result Summary	5
3. General Information.....	6
3.1. Test Environment and Mode.....	6
3.2. Description of Support Units	6
4. Facilities and Accreditations	7
4.1. Facilities	7
4.2. Location	7
4.3. Measurement Uncertainty.....	7
5. Test Results and Measurement Data	8
5.1. Antenna Requirement	8
5.2. Conducted Emission	9
5.3. Radiated Emission Measurement	13
5.4. 20dB Occupied Bandwidth	25

Appendix A: Photographs of Test Setup

Appendix B: Photographs of EUT

1. General Product Information

1.1. EUT description

Product Name.....	Terminal Controller
Model/Type reference.....	SEMS-TC09E
Sample Number.....	TCT240325E064-0101
Operation Frequency	902.40MHz~927.6MHz
Number of Channel.....	64
Modulation Technology	GFSK
Antenna Type.....	Internal Antenna
Antenna Gain.....	1.32dBi
Rating(s).....	Input: AC 85~305V, 4A Output: AC 85~305V, 4A

Note: The antenna gain listed in this report is provided by applicant, and the test laboratory is not responsible for this parameter.

1.2. Model(s) list

No.	Model No.	Tested with
1	SEMS-TC09E	<input checked="" type="checkbox"/>
Other models	SEMS-RTU09E	<input type="checkbox"/>

Note: SEMS-TC09E is tested model, other models are derivative models. The models are identical in circuit and PCB layout, only different on the model names. So the test data of SEMS-TC09E can represent the remaining models.

1.3. Operation Frequency

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	902.4MHz	17	908.8MHz	33	915.2MHz	49	921.6MHz
2	902.8MHz	18	909.2MHz	34	915.6MHz	50	922.0MHz
3	903.2MHz	19	909.6MHz	35	916.0MHz	51	922.4MHz
4	903.6MHz	20	910.0MHz	36	916.4MHz	52	922.8MHz
5	904.0MHz	21	910.4MHz	37	916.8MHz	53	923.2MHz
6	904.4MHz	22	910.8MHz	38	917.2MHz	54	923.6MHz
7	904.8MHz	23	911.2MHz	39	917.6MHz	55	924.0MHz
8	905.2MHz	24	911.6MHz	40	918.0MHz	56	924.4MHz
9	905.6MHz	25	912.0MHz	41	918.4MHz	57	924.8MHz
10	906.0MHz	26	912.4MHz	42	918.8MHz	58	925.2MHz
11	906.4MHz	27	912.8MHz	43	919.2MHz	59	925.6MHz
12	906.8MHz	28	913.2MHz	44	919.6MHz	60	926.0MHz
13	907.2MHz	29	913.6MHz	45	920.0MHz	61	926.4MHz
14	907.6MHz	30	914.0MHz	46	920.4MHz	62	926.8MHz
15	908.0MHz	31	914.4MHz	47	920.8MHz	63	927.2MHz
16	908.4MHz	32	914.8MHz	48	921.2MHz	64	927.6MHz

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The Lowest channel	902.4MHz
The Middle channel	915.2MHz
The Highest channel	927.6MHz

2. Test Result Summary

Requirement	CFR 47 Section	Result
Antenna Requirement	§15.203	PASS
AC Power Line Conducted Emission	§15.207	PASS
Field Strength of Fundamental	§15.249 (a)	PASS
Spurious Emissions	§15.249 (a) (d)/ §15.209	PASS
Band Edge	§15.249 (d)/ §15.205	PASS
20dB Occupied Bandwidth	§15.215 (c)	PASS

Note:

1. Pass: Test item meets the requirement.
2. Fail: Test item does not meet the requirement.
3. N/A: Test case does not apply to the test object.
4. The test result judgment is decided by the limit of test standard.

3. General Information

3.1. Test Environment and Mode

Operating Environment:		
Condition	Conducted Emission	Radiated Emission
Temperature:	24.8 °C	25.6 °C
Humidity:	52 % RH	53 % RH
Atmospheric Pressure:	1010 mbar	1010 mbar
Test Mode:		
Engineering mode:	Keep the EUT in continuous transmitting by select channel	
The sample was placed 0.8m & 1.5m for the measurement below & above 1GHz above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case(Z axis) are shown in Test Results of the following pages.		

3.2. Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Equipment	Model No.	Serial No.	FCC ID	Trade Name
/	/	/	/	/

Note:

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. Facilities and Accreditations

4.1. Facilities

The test facility is recognized, certified, or accredited by the following organizations:

- FCC - Registration No.: 645098

SHENZHEN TONGCE TESTING LAB

Designation Number: CN1205

The testing lab has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

- IC - Registration No.: 10668A-1

SHENZHEN TONGCE TESTING LAB

CAB identifier: CN0031

The testing lab has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing.

4.2. Location

SHENZHEN TONGCE TESTING LAB

Address: 2101 & 2201, Zhenchang Factory Renshan Industrial Zone, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, 518103, People's Republic of China

TEL: +86-755-27673339

4.3. Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

No.	Item	MU
1	Conducted Emission	± 3.10 dB
2	RF power, conducted	± 0.12 dB
3	Spurious emissions, conducted	± 0.11 dB
4	All emissions, radiated(<1 GHz)	± 4.56 dB
5	All emissions, radiated(1 GHz - 18 GHz)	± 4.22 dB
6	All emissions, radiated(18 GHz- 40 GHz)	± 4.36 dB

5. Test Results and Measurement Data

5.1. Antenna Requirement

Standard requirement:	FCC Part15 C Section 15.203
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.	
E.U.T Antenna:	
E.U.T Antenna:	The EUT antenna is Internal antenna which permanently attached, and the best case gain of the antenna is 1.32dBi.

5.2. Conducted Emission

5.2.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.207														
Test Method:	ANSI C63.10:2013														
Frequency Range:	150 kHz to 30 MHz														
Receiver setup:	RBW=9 kHz, VBW=30 kHz, Sweep time=auto														
Limits:	<table border="1"> <thead> <tr> <th rowspan="2">Frequency range (MHz)</th> <th colspan="2">Limit (dBuV)</th> </tr> <tr> <th>Quasi-peak</th> <th>Average</th> </tr> </thead> <tbody> <tr> <td>0.15-0.5</td> <td>66 to 56*</td> <td>56 to 46*</td> </tr> <tr> <td>0.5-5</td> <td>56</td> <td>46</td> </tr> <tr> <td>5-30</td> <td>60</td> <td>50</td> </tr> </tbody> </table>	Frequency range (MHz)	Limit (dBuV)		Quasi-peak	Average	0.15-0.5	66 to 56*	56 to 46*	0.5-5	56	46	5-30	60	50
Frequency range (MHz)	Limit (dBuV)														
	Quasi-peak	Average													
0.15-0.5	66 to 56*	56 to 46*													
0.5-5	56	46													
5-30	60	50													
Test Setup:	<p>Reference Plane</p> <p>Remark E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</p>														
Test Mode:	Charging														
Test Procedure:	<ol style="list-style-type: none"> 1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10:2013 on conducted measurement. 														
Test Result:	PASS														

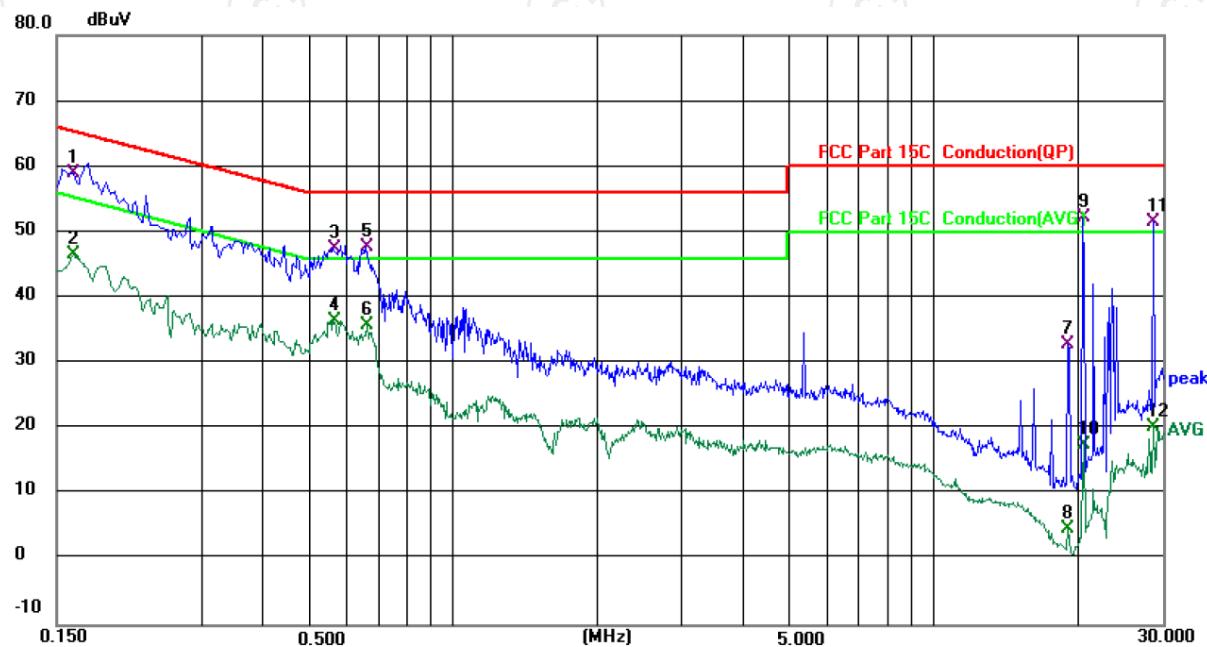
5.2.2. Test Instruments

Conducted Emission Shielding Room Test Site (843)				
Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	R&S	ESCI3	100898	Jun. 29, 2024
Line Impedance Stabilisation Newtork(LISN)	Schwarzbeck	NSLK 8126	8126453	Jan. 31, 2025
Line-5	TCT	CE-05	/	Jul. 03, 2024
EMI Test Software	Shurples Technology	EZ-EMC	/	/

5.2.3. Test data

Please refer to following diagram for individual

Conducted Emission on Line Terminal of the power line (150 kHz to 30MHz)



Site 844 Shielding Room Phase: **L1** Temperature: 24.8 (°C) Humidity: 52 %

Limit: FCC Part 15C Conduction(QP) Power: AC 120 V/60 Hz

No. Mk.	Freq. MHz	Reading Level dB μ V	Correct Factor dB	Measure- ment dB μ V	Limit dB μ V	Over	
						Detector	Comment
1 *	0.1620	49.00	10.03	59.03	65.36	-6.33	QP
2	0.1620	36.48	10.03	46.51	55.36	-8.85	AVG
3	0.5660	38.26	9.28	47.54	56.00	-8.46	QP
4	0.5660	27.21	9.28	36.49	46.00	-9.51	AVG
5	0.6660	38.59	9.19	47.78	56.00	-8.22	QP
6	0.6660	26.67	9.19	35.86	46.00	-10.14	AVG
7	19.0740	22.38	10.58	32.96	60.00	-27.04	QP
8	19.0740	-5.90	10.58	4.68	50.00	-45.32	AVG
9	20.6020	41.70	10.59	52.29	60.00	-7.71	QP
10	20.6020	7.04	10.59	17.63	50.00	-32.37	AVG
11	28.6140	40.55	11.05	51.60	60.00	-8.40	QP
12	28.6140	9.20	11.05	20.25	50.00	-29.75	AVG

Note:

Freq. = Emission frequency in MHz

Reading level (dB μ V) = Receiver reading

Corr. Factor (dB) = LISN factor + Cable loss

Measurement (dB μ V) = Reading level (dB μ V) + Corr. Factor (dB)

Limit (dB μ V) = Limit stated in standard

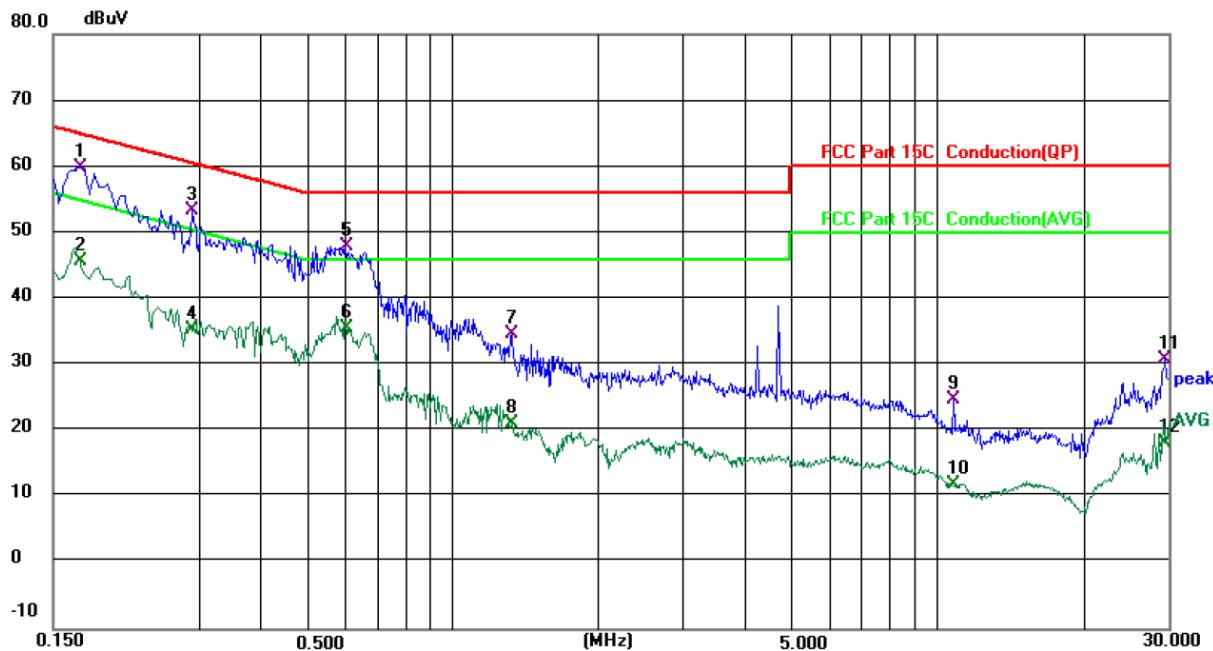
Margin (dB) = Measurement (dB μ V) – Limits (dB μ V)

Q.P. =Quasi-Peak

AVG =average

* is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz

Conducted Emission on Neutral Terminal of the power line (150 kHz to 30MHz)



Site 844 Shielding Room

 Phase: **N**

Temperature: 24.8 (°C)

Humidity: 52 %

Limit: FCC Part 15C Conduction(QP)

Power: AC 120 V/60 Hz

No.	Mk.	Freq. MHz	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level dBuV	Factor dB	ment dBuV				
1	*	0.1700	49.95	10.00	59.95	64.96	-5.01	QP	
2		0.1700	35.58	10.00	45.58	54.96	-9.38	AVG	
3		0.2900	43.59	9.83	53.42	60.52	-7.10	QP	
4		0.2900	25.44	9.83	35.27	50.52	-15.25	AVG	
5		0.6019	38.76	9.23	47.99	56.00	-8.01	QP	
6		0.6019	26.42	9.23	35.65	46.00	-10.35	AVG	
7		1.3260	24.72	9.91	34.63	56.00	-21.37	QP	
8		1.3260	11.36	9.91	21.27	46.00	-24.73	AVG	
9		10.8139	14.12	10.62	24.74	60.00	-35.26	QP	
10		10.8139	1.21	10.62	11.83	50.00	-38.17	AVG	
11		29.6340	19.85	11.07	30.92	60.00	-29.08	QP	
12		29.6340	7.08	11.07	18.15	50.00	-31.85	AVG	

Note:

Freq. = Emission frequency in MHz

 Reading level (dB μ V) = Receiver reading

Corr. Factor (dB) = LISN factor + Cable loss

 Measurement (dB μ V) = Reading level (dB μ V) + Corr. Factor (dB)

 Limit (dB μ V) = Limit stated in standard

 Margin (dB) = Measurement (dB μ V) – Limits (dB μ V)

Q.P. = Quasi-Peak AVG = average

* is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz.

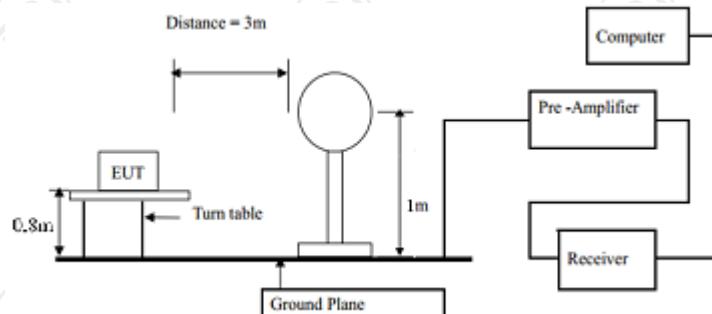
5.3. Radiated Emission Measurement

5.3.1. Test Specification

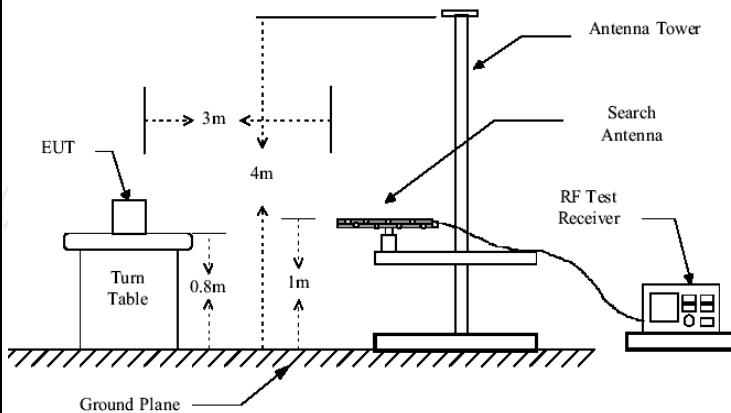
Test Requirement:	FCC Part15 C Section 15.209								
Test Method:	ANSI C63.10:2013								
Frequency Range:	9 kHz to 25 GHz								
Measurement Distance:	3 m								
Antenna Polarization:	Horizontal & Vertical								
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark				
	9kHz- 150kHz	Quasi-peak	200Hz	1kHz	Quasi-peak Value				
	150kHz- 30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value				
	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value				
	Above 1GHz	Peak	1MHz	3MHz	Peak Value				
		Peak	1MHz	10Hz	Average Value				
Limit(Field strength of the fundamental signal):	Frequency	Limit (dBuV/m @3m)		Remark					
	902MHz-928MHz	94.00		Average Value					
		114.00		Peak Value					
Limit(Spurious Emissions):	Frequency	Limit (dBuV/m @3m)		Remark					
	0.009-0.490	2400/F(KHz)		Quasi-peak Value					
	0.490-1.705	24000/F(KHz)		Quasi-peak Value					
	1.705-30	30		Quasi-peak Value					
	30MHz-88MHz	40.0		Quasi-peak Value					
	88MHz-216MHz	43.5		Quasi-peak Value					
	216MHz-960MHz	46.0		Quasi-peak Value					
	960MHz-1GHz	54.0		Quasi-peak Value					
	Above 1GHz	54.0		Average Value					
		74.0		Peak Value					
Limit (band edge) :	Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.								
Test Procedure:	<ol style="list-style-type: none"> 1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber in below 1GHz, 1.5m above the ground in above 1GHz. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 								

4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

For radiated emissions below 30MHz

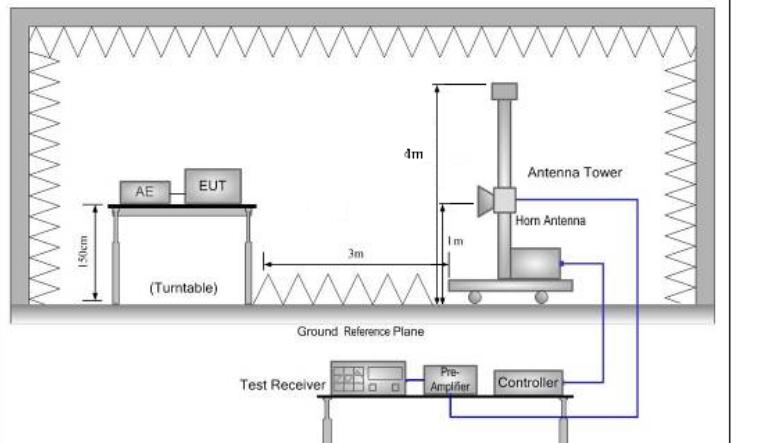


30MHz to 1GHz



Above 1GHz

(The diagram below shows the test setup that is utilized to make the measurements for emission from 1GHz to the tenth harmonic of the highest fundamental frequency or to 40GHz emissions, whichever is lower.)

**Test results:**

PASS

5.3.2. Test Instruments

Radiated Emission Test Site (966)				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	R&S	ESIB7	100197	Jun. 29, 2024
Spectrum Analyzer	R&S	FSQ40	200061	Jun. 29, 2024
Pre-amplifier	SKET	LNPA_0118G-45	SK2021012102	Jan. 31, 2025
Pre-amplifier	SKET	LNPA_1840G-50	SK202109203500	Jan. 31, 2025
Pre-amplifier	HP	8447D	2727A05017	Jun. 27, 2024
Loop antenna	Schwarzbeck	FMZB1519B	00191	Jul. 02, 2024
Broadband Antenna	Schwarzbeck	VULB9163	340	Jul. 01, 2024
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Jul. 01, 2024
Horn Antenna	Schwarzbeck	BBHA 9170	00956	Feb. 02, 2025
Antenna Mast	Keleto	RE-AM	/	/
Coaxial cable	SKET	RC-18G-N-M	/	Jan. 31, 2025
Coaxial cable	SKET	RC_40G-K-M	/	Jan. 31, 2025
EMI Test Software	Shurples Technology	EZ-EMC	/	/

5.3.3. Test Data

Field Strength of Fundamental

Frequency (MHz)	Emission PK (dBuV/m)	Horizontal /Vertical	Limits PK (dBuV/m)	Margin (dB)
902.25	93.38	H	114	-27.19
902.25	84.66	V	114	-36.22
915	92.94	H	114	-28.01
915	84.17	V	114	-35.31
927.6	92.30	H	114	-26.14
927.6	83.74	V	114	-37.09

Frequency (MHz)	Emission AV (dBuV/m)	Horizontal /Vertical	Limits AV (dBuV/m)	Margin (dB)
902.25	91.87	H	94	-29.69
902.25	82.94	V	94	-35.24
915	90.41	H	94	-30.82
915	82.66	V	94	-34.76
927.6	90.37	H	94	-29.89
927.6	82.01	V	94	-34.94

Spurious Emissions

Frequency Range (9 kHz-30MHz)

Frequency (MHz)	Level@3m (dB μ V/m)	Limit@3m (dB μ V/m)
--	--	--
--	--	--
--	--	--
--	--	--

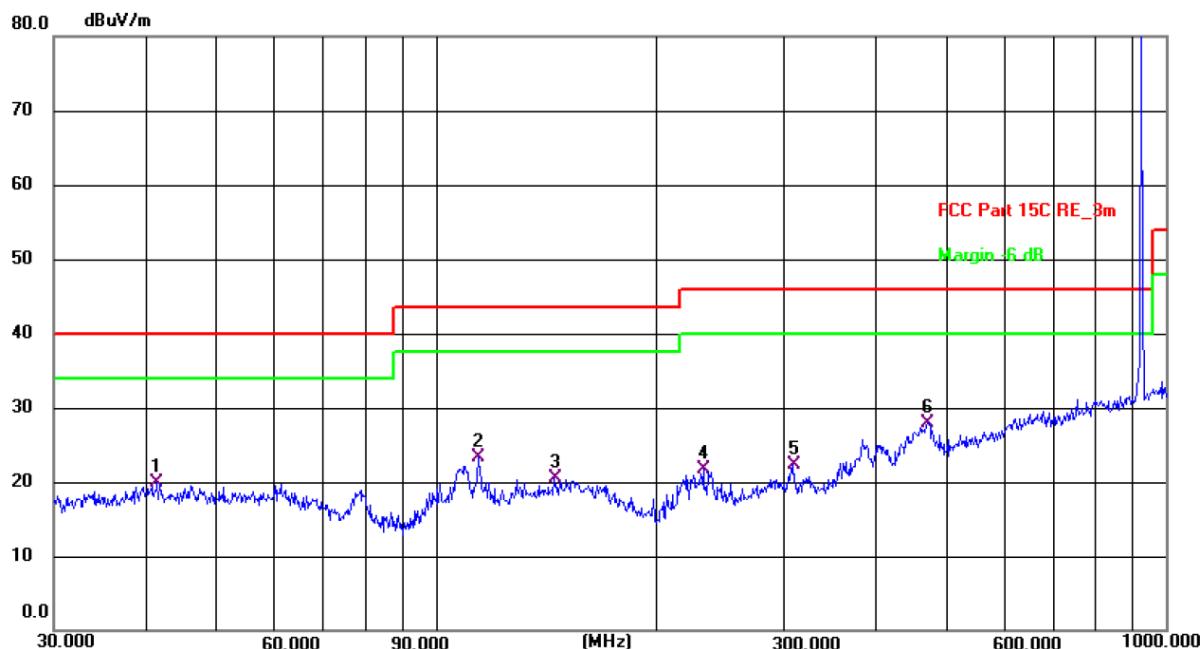
Note: 1. Emission Level=Reading+ Cable loss-Antenna factor-Amp factor.

2. The emission levels are 20 dB below the limit value, which are not reported. It is deemed to comply with the requirement.

3. For fundamental frequency, RBW >20dB BW , VBW>=RBW, PK detector is for PK value, RMS detector is for AV value.

Frequency Range (30MHz-1GHz)

Horizontal:



Site 3m Anechoic Chamber

 Polarization: **Horizontal**

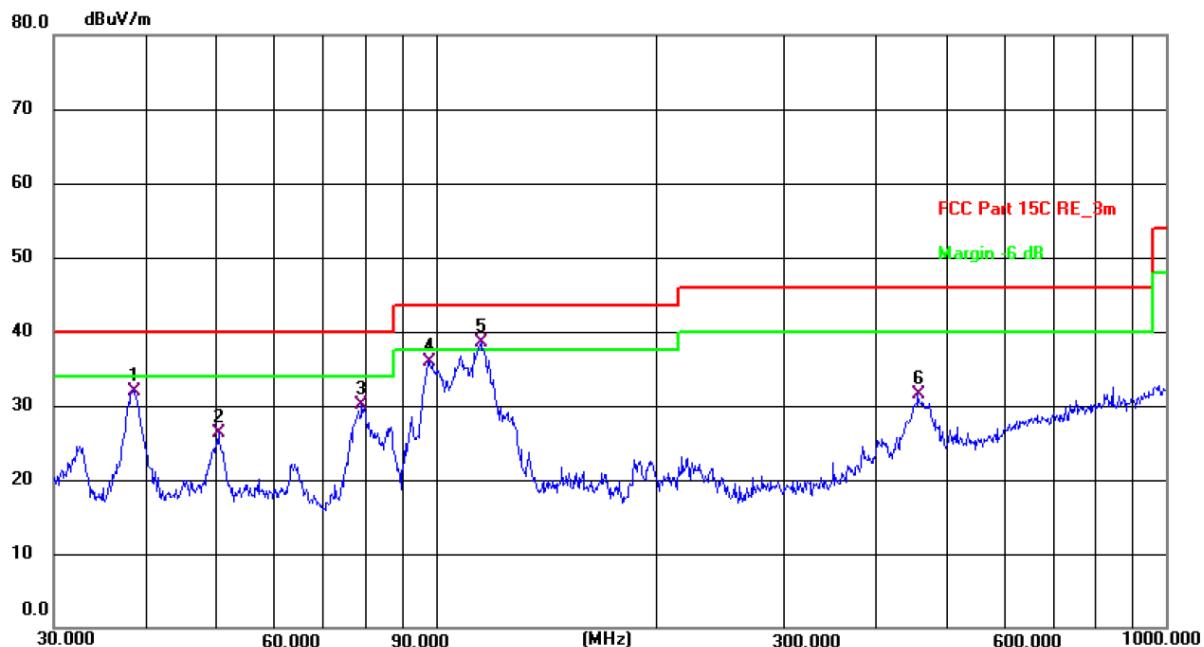
Temperature: 25.6(C) Humidity: 53 %

Limit: FCC Part 15C RE_3m

Power: AC 120 V/60 Hz

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	41.5670	5.94	14.01	19.95	40.00	-20.05	QP	P	
2	114.5146	11.28	12.10	23.38	43.50	-20.12	QP	P	
3	145.3506	6.01	14.44	20.45	43.50	-23.05	QP	P	
4	232.5318	9.82	11.92	21.74	46.00	-24.26	QP	P	
5	308.9126	8.26	14.08	22.34	46.00	-23.66	QP	P	
6 *	472.1760	9.12	18.70	27.82	46.00	-18.18	QP	P	

Vertical:



Site 3m Anechoic Chamber

Polarization: **Vertical**

Temperature: 25.6(C) Humidity: 53 %

Limit: FCC Part 15C RE_3m

Power: AC 120 V/60 Hz

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	38.4809	17.99	13.91	31.90	40.00	-8.10	QP	P	
2	50.4089	12.70	13.57	26.27	40.00	-13.73	QP	P	
3	79.2425	19.91	10.13	30.04	40.00	-9.96	QP	P	
4	98.1418	25.11	10.79	35.90	43.50	-7.60	QP	P	
5 *	115.3205	26.32	12.25	38.57	43.50	-4.93	QP	P	
6	457.5073	13.25	18.29	31.54	46.00	-14.46	QP	P	

Note: Measurements were conducted in all channels (high, middle, low), and the worst case (Lowest channel) was submitted only.

Above 1GHz

Low channel: 902.25MHz

Frequency (MHz)	Ant. Pol. H/V	Peak reading (dB μ V)	AV reading (dB μ V)	Correction Factor (dB/m)	Emission Level		Peak limit (dB μ V/m)	AV limit (dB μ V/m)	Margin (dB)
					Peak (dB μ V/m)	AV (dB μ V/m)			
4804	H	49.88	---	-3.94	45.94	---	74	54	-8.06
7206	H	44.54	---	0.52	45.06	---	74	54	-8.94
---	---	---	---	---	---	---	---	---	---
4804	V	50.17	---	-3.94	46.23	---	74	54	-7.77
7206	V	45.69	---	0.52	46.21	---	74	54	-7.79
---	---	---	---	---	---	---	---	---	---

Middle channel: 915MHz

Frequency (MHz)	Ant. Pol. H/V	Peak reading (dB μ V)	AV reading (dB μ V)	Correction Factor (dB/m)	Emission Level		Peak limit (dB μ V/m)	AV limit (dB μ V/m)	Margin (dB)
					Peak (dB μ V/m)	AV (dB μ V/m)			
4882	H	49.12	---	-3.98	45.14	---	74	54	-8.86
7323	H	44.26	---	0.57	44.83	---	74	54	-9.17
---	---	---	---	---	---	---	---	---	---
4882	V	49.89	---	-3.98	45.91	---	74	54	-8.09
7323	V	43.54	---	0.57	44.11	---	74	54	-9.89
---	---	---	---	---	---	---	---	---	---

High channel: 927.6MHz

Frequency (MHz)	Ant. Pol. H/V	Peak reading (dB μ V)	AV reading (dB μ V)	Correction Factor (dB/m)	Emission Level		Peak limit (dB μ V/m)	AV limit (dB μ V/m)	Margin (dB)
					Peak (dB μ V/m)	AV (dB μ V/m)			
4960	H	48.69	---	-3.98	44.71	---	74	54	-9.29
7440	H	43.11	---	0.57	43.68	---	74	54	-10.32
---	---	---	---	---	---	---	---	---	---
4960	V	51.92	---	-3.98	47.94	---	74	54	-6.06
7440	V	44.34	---	0.57	44.91	---	74	54	-9.09
---	---	---	---	---	---	---	---	---	---

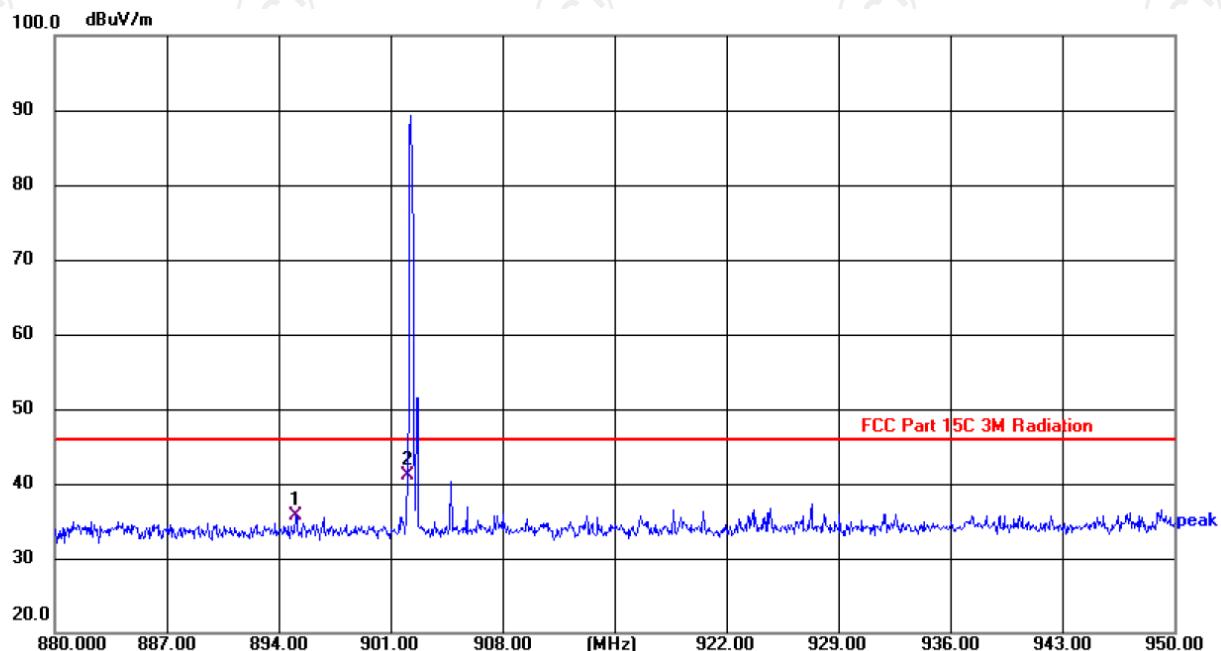
Note:

1. Emission Level=Peak Reading + Correction Factor; Correction Factor= Antenna Factor + Cable loss – Pre-amplifier
2. Margin (dB) = Emission Level (Peak) (dB μ V/m)-Average limit (dB μ V/m)
3. The emission levels of other frequencies are very lower than the limit and not show in test report.
4. Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency.
5. Data of measurement shown “---” in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.
6. All the restriction bands are compliance with the limit of 15.209.

Band Edge Requirement

Lowest channel 902.25:

Horizontal:



Site: 3m Anechoic Chamber

Polarization: **Horizontal**

Temperature: 25.6(°C)

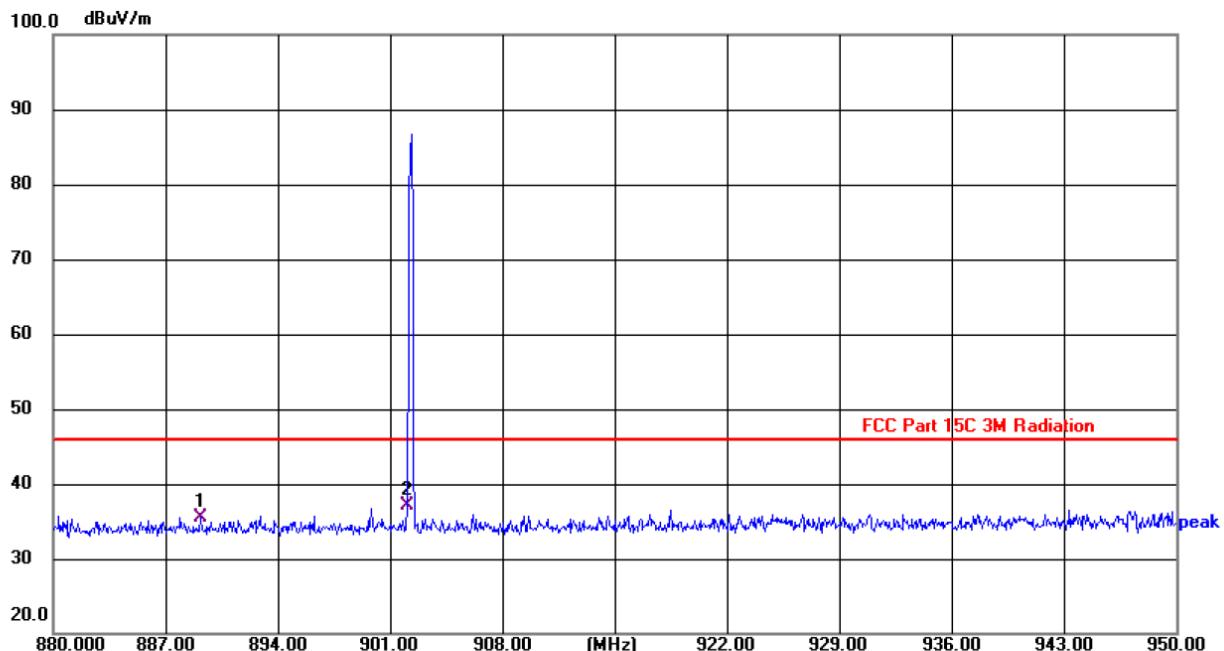
Humidity: 53 %

Limit: FCC Part 15C 3M Radiation

Power: AC 120 V/60 Hz

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	895.0500	10.53	25.17	35.70	46.00	-10.30	QP	P	
2 *	902.0000	15.70	25.33	41.03	46.00	-4.97	QP	P	

Vertical:



Site: 3m Anechoic Chamber

 Polarization: **Vertical**

Temperature: 25.6(°C)

Humidity: 53 %

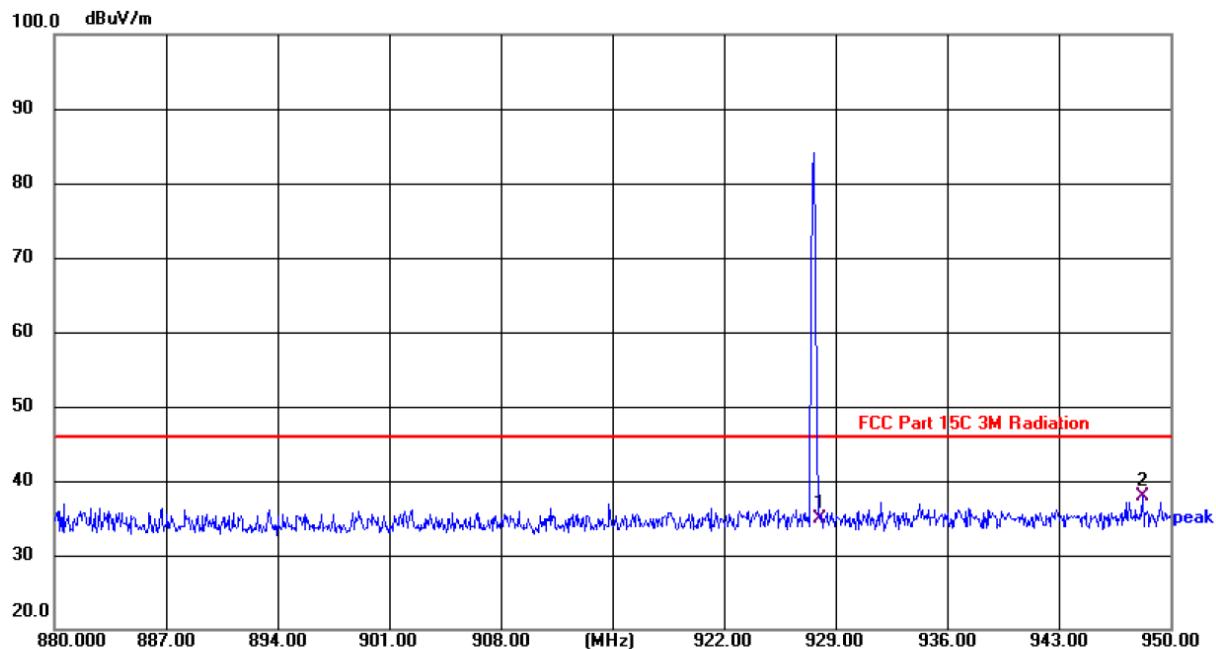
Limit: FCC Part 15C 3M Radiation

Power: AC 120 V/60 Hz

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	889.1700	10.40	25.14	35.54	46.00	-10.46	QP	P	
2 *	902.0000	11.77	25.33	37.10	46.00	-8.90	QP	P	

Highest channel 927.6:

Horizontal:



Site: 3m Anechoic Chamber

Polarization: **Horizontal**

Temperature: 25.6(°C)

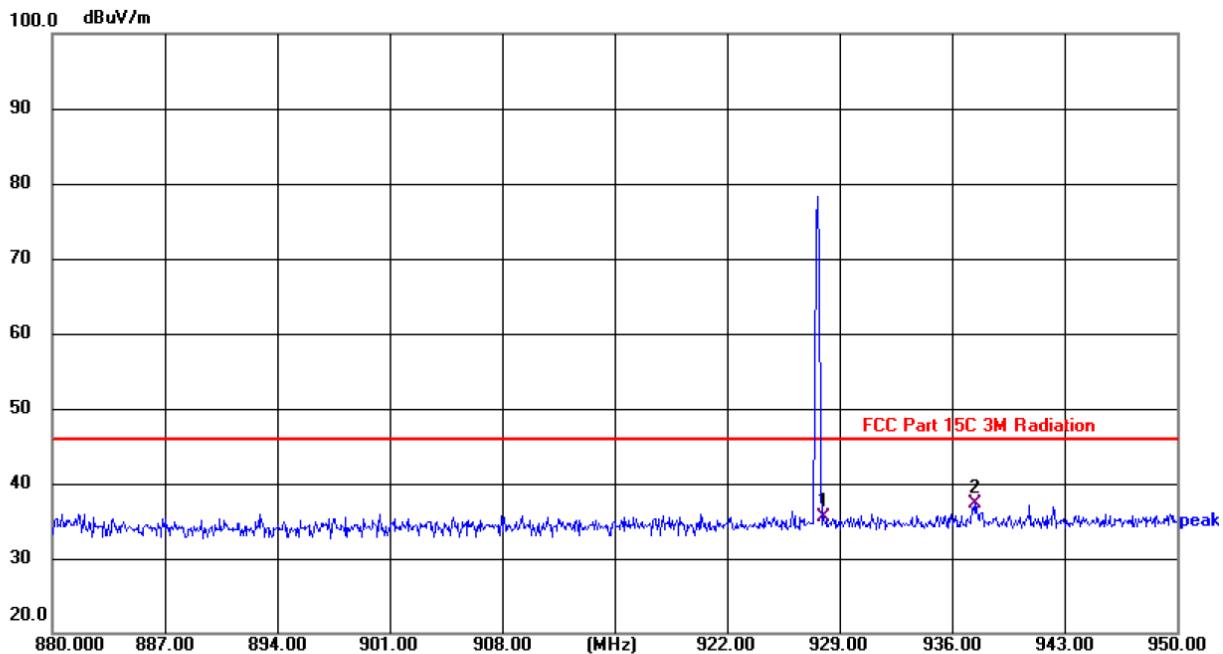
Humidity: 53 %

Limit: FCC Part 15C 3M Radiation

Power: AC 120 V/60 Hz

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	928.0000	8.98	25.84	34.82	46.00	-11.18	QP	P	
2 *	948.2500	11.58	26.25	37.83	46.00	-8.17	QP	P	

Vertical:



Site: 3m Anechoic Chamber

 Polarization: **Vertical**

Temperature: 25.6(°C)

Humidity: 53 %

Limit: FCC Part 15C 3M Radiation

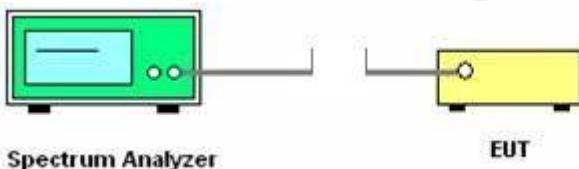
Power: AC 120 V/60 Hz

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	928.0000	9.61	25.84	35.45	46.00	-10.55	QP	P	
2 *	937.4700	11.32	26.06	37.38	46.00	-8.62	QP	P	

Note: Measurements were conducted in all channels (high, middle, low), and the worst case (Lowest channel) was submitted only.

5.4.20dB Occupied Bandwidth

5.4.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.215(c)
Test Method:	ANSI C63.10: 2013
Limit:	N/A
	<ol style="list-style-type: none"> 1. According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT. 2. Set to the maximum power setting and enable the EUT transmit continuously. 3. Use the following spectrum analyzer settings for 20dB Bandwidth measurement. Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel; RBW\geq1% of the 20 dB bandwidth; VBW\geqRBW; Sweep = auto; Detector function = peak; Trace = max hold. 4. Measure and record the results in the test report.
Test setup:	 <p>The diagram illustrates the test setup. A green 'Spectrum Analyzer' is connected to a yellow 'EUT' (Equipment Under Test) via a grey cable. The analyzer has a screen and two control knobs. The EUT is a simple yellow rectangular device with a circular port for connection.</p>
Test Mode:	Transmitting mode with modulation
Test results:	PASS

5.4.2. Test Instruments

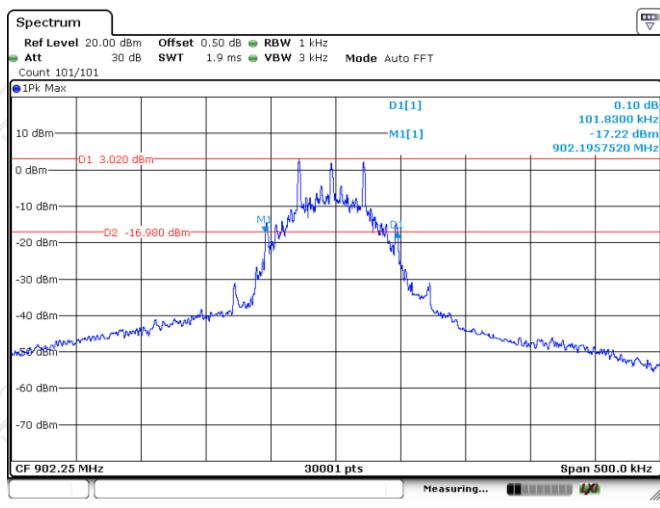
Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	R&S	FSU	200054	Jun. 27, 2024

5.4.3. Test data

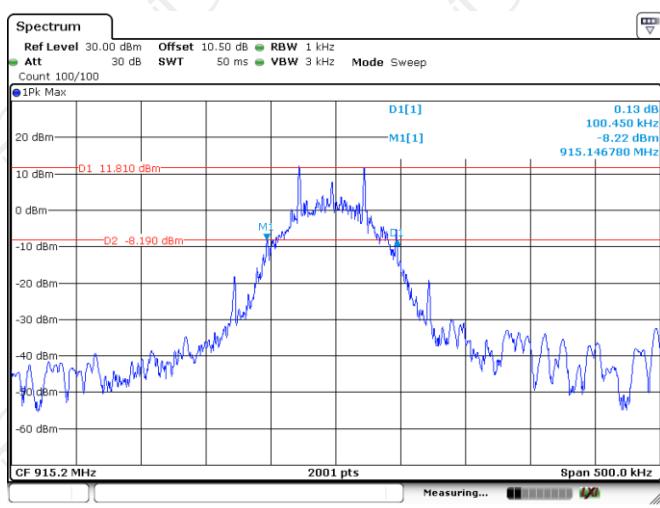
Test Channel	20dB Occupy Bandwidth (kHz)	Limit	Conclusion
Lowest	101.70	---	PASS
Middle	100.45	---	PASS
Highest	101.20	---	PASS

Test plots as follows:

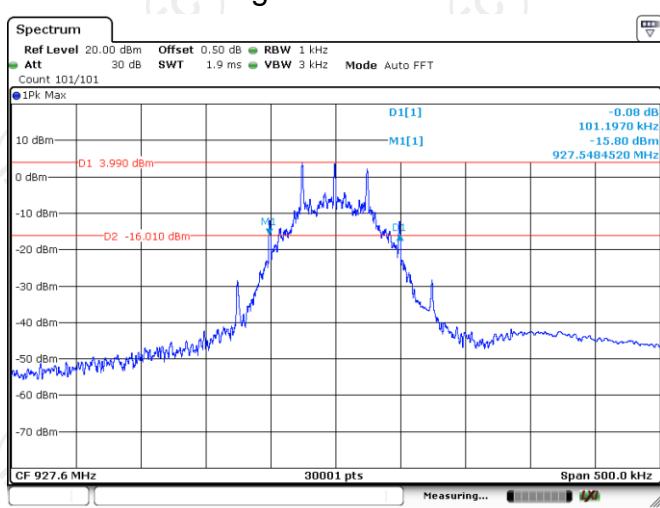
Lowest channel



Middle channel



Highest channel

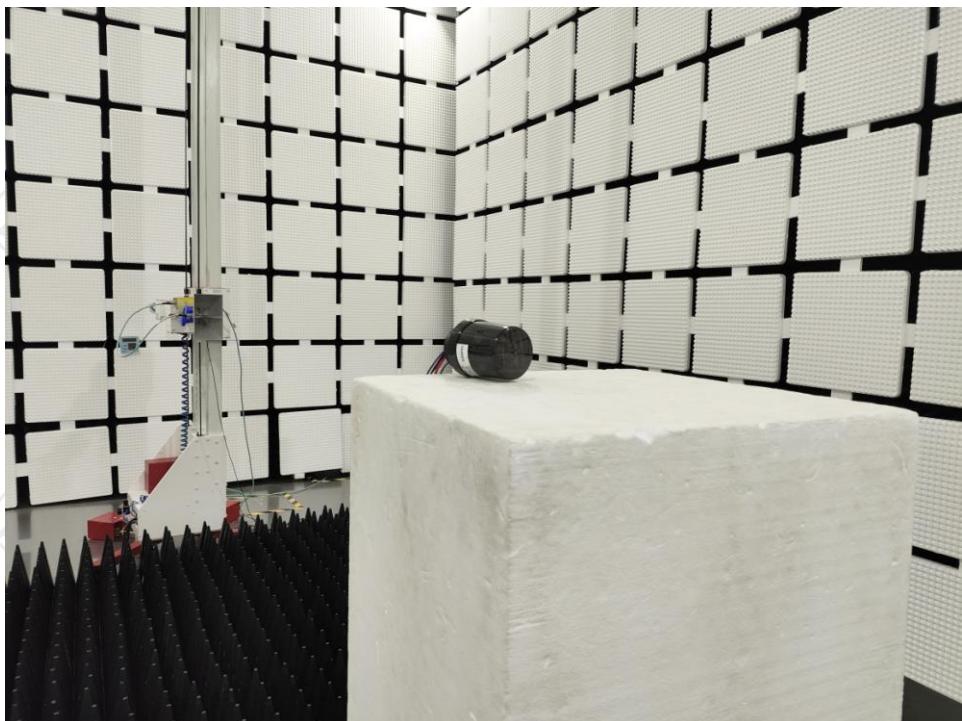
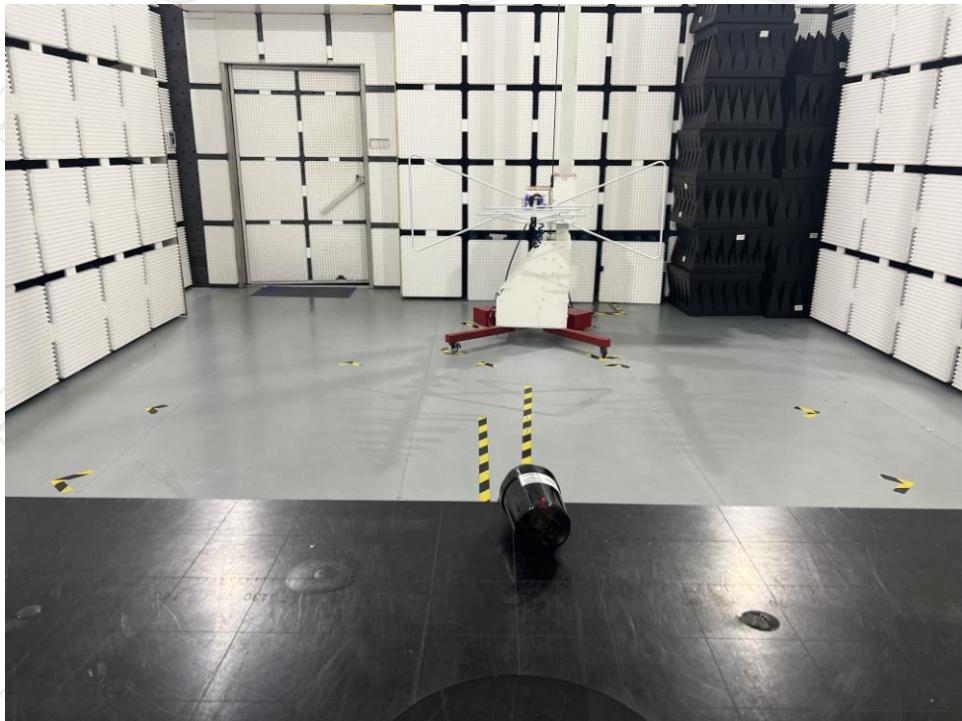


Appendix A: Photographs of Test Setup

Product: Terminal Controller

Model: SEMS-TC09E

Radiated Emission



CE

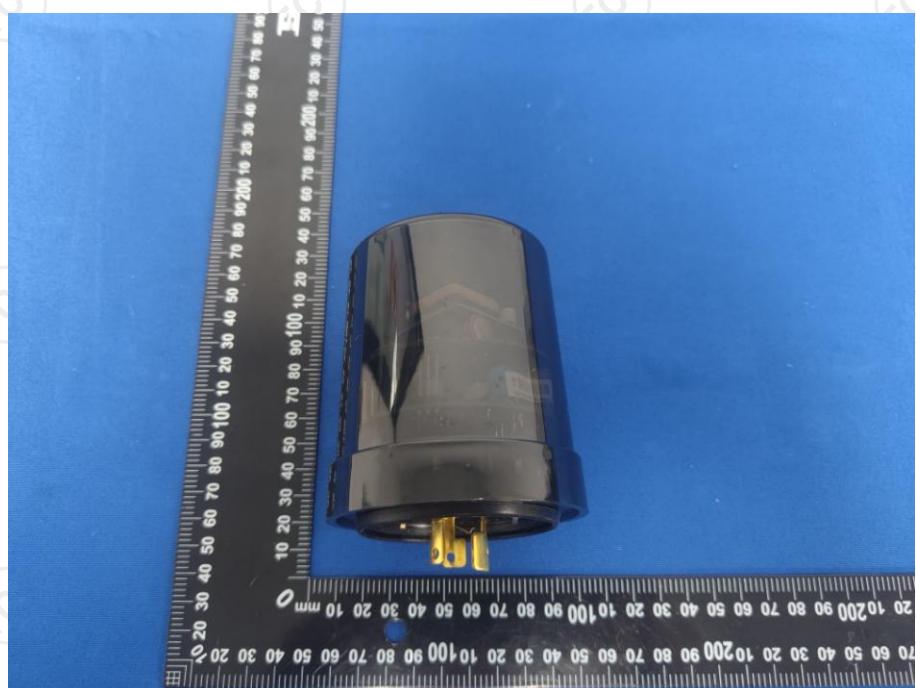
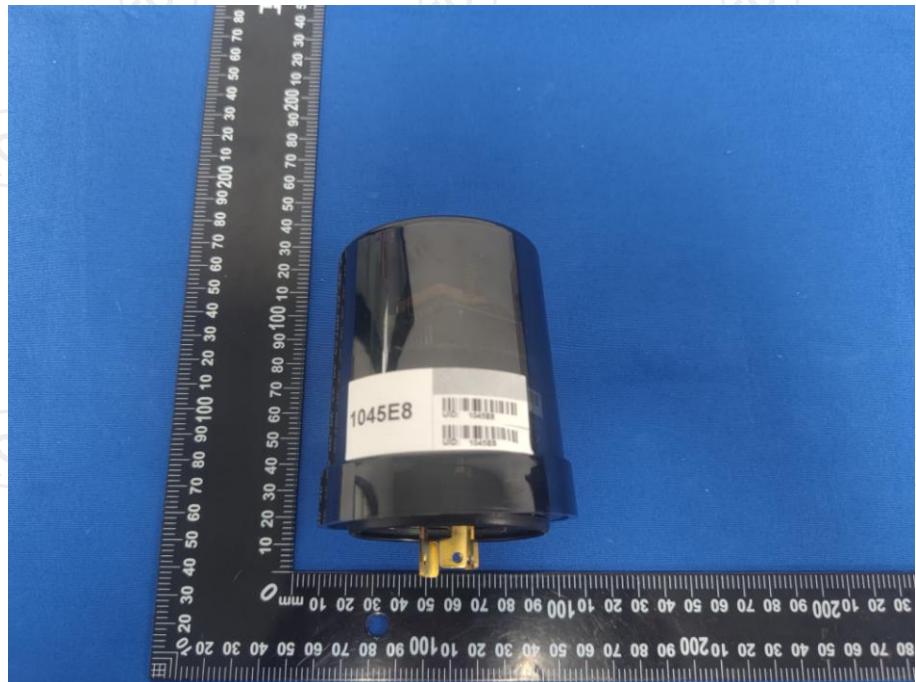


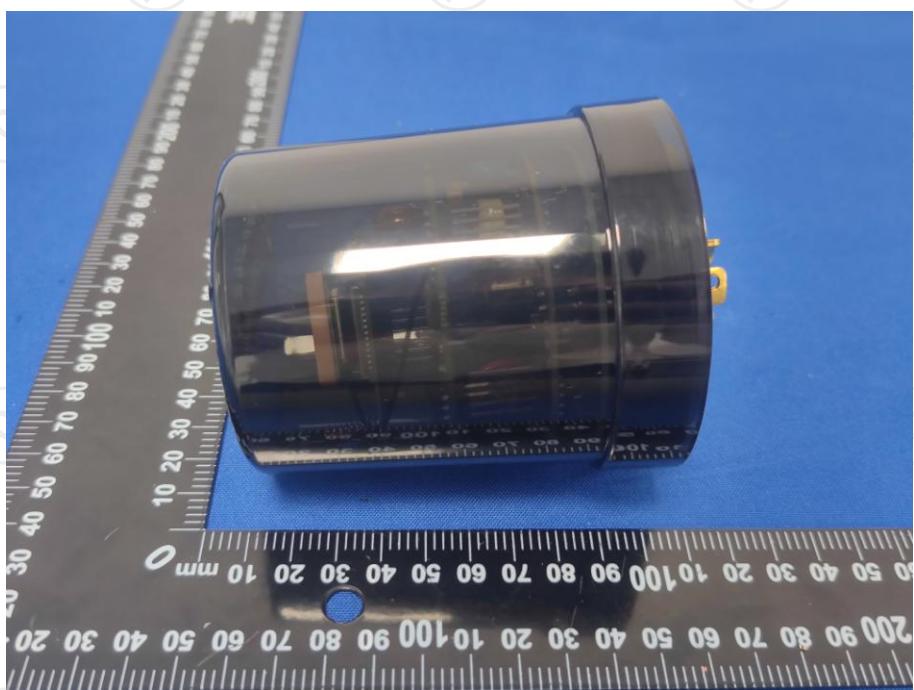
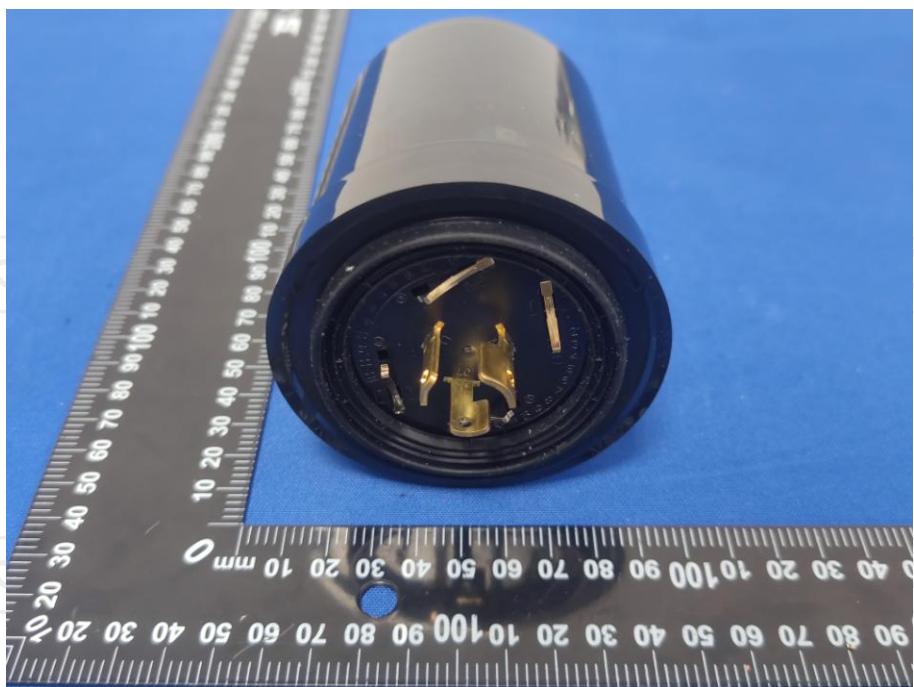
Appendix B: Photographs of EUT

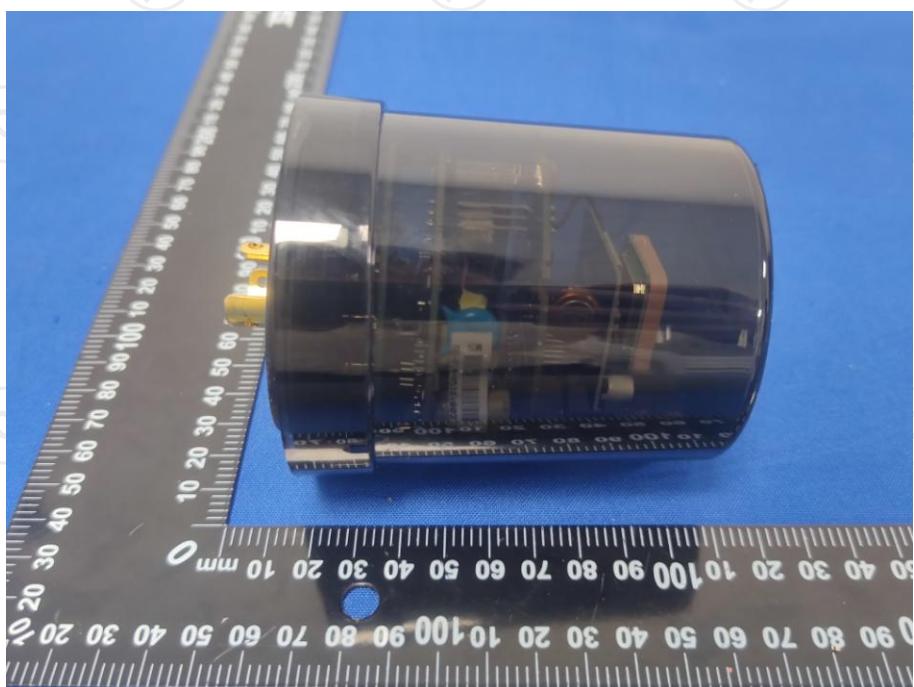
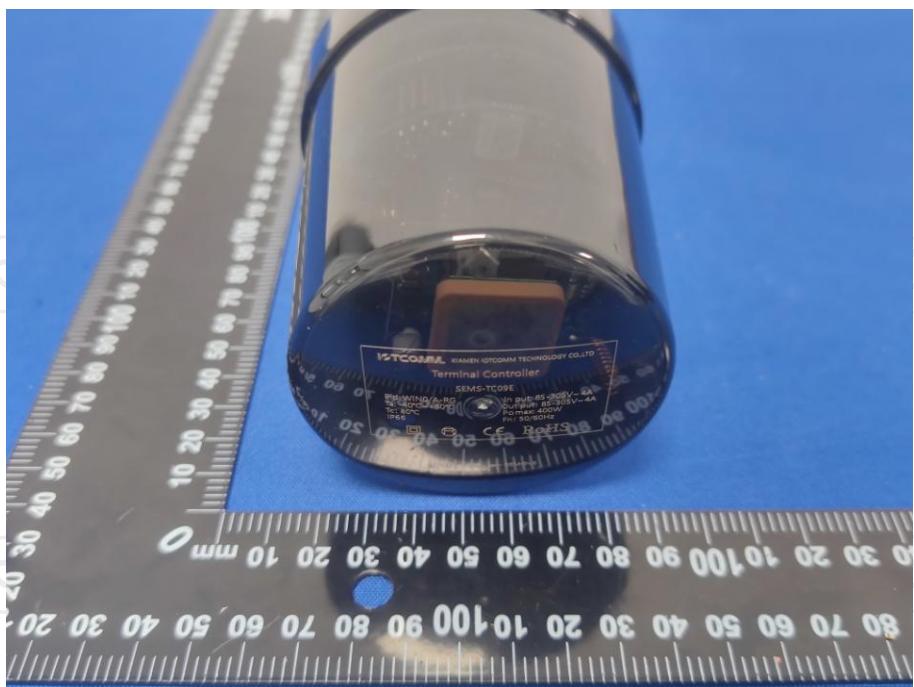
Product: Terminal Controller

Model: SEMS-TC09E

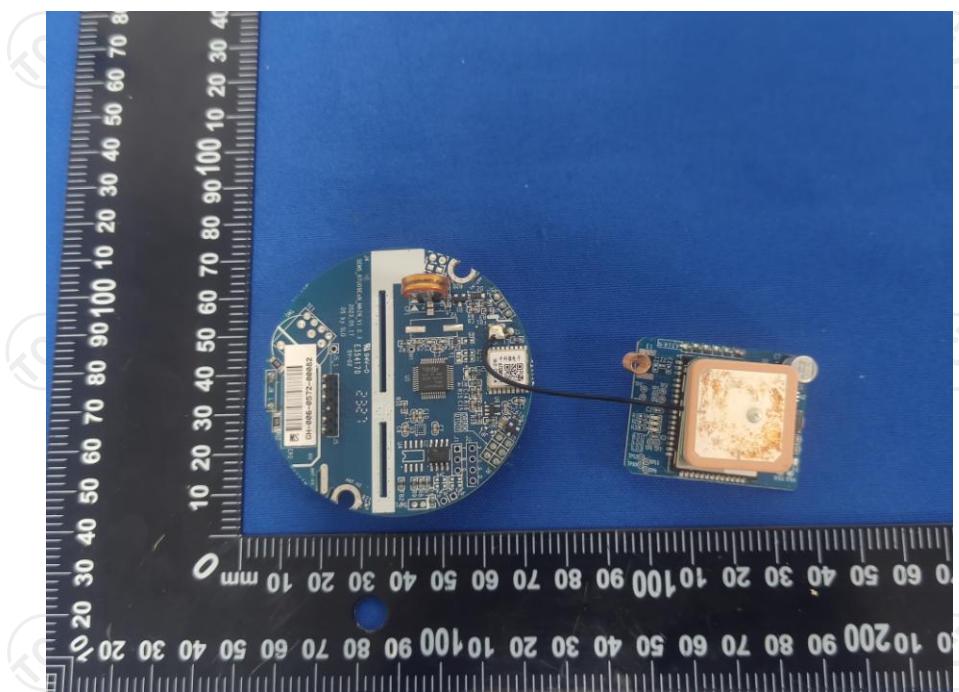
External Photos

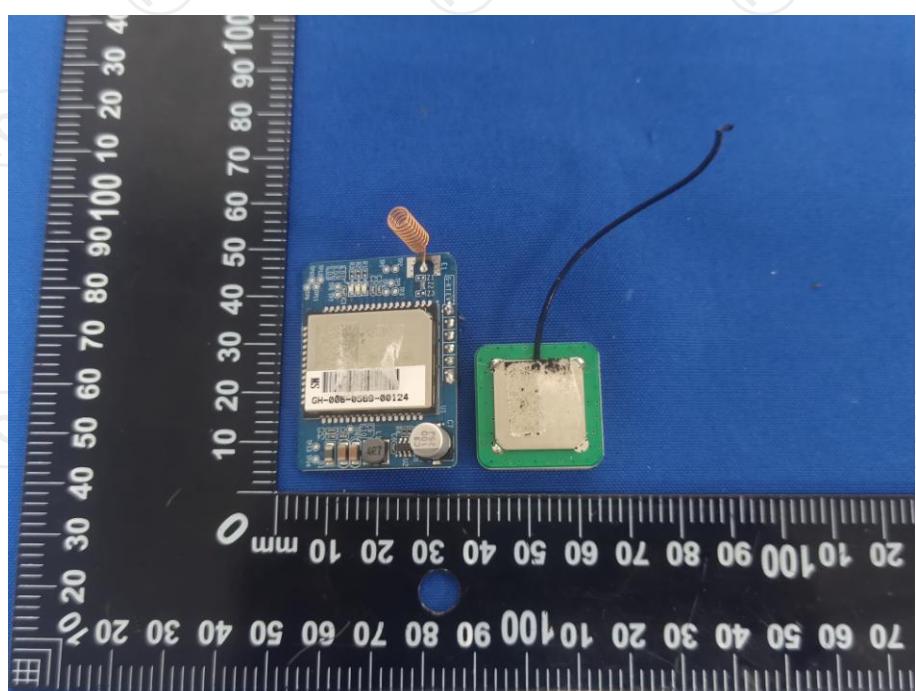
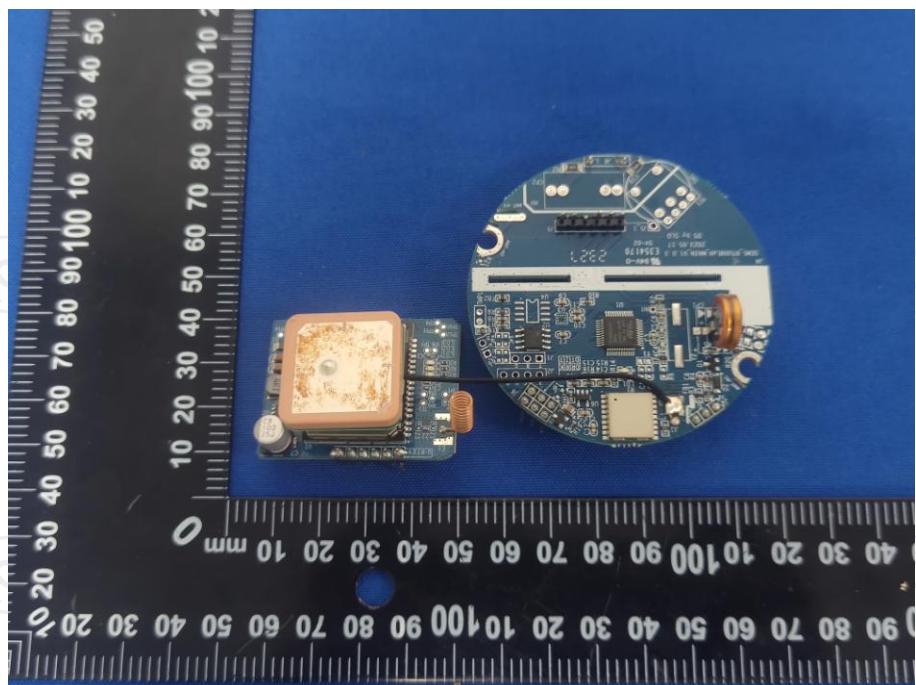


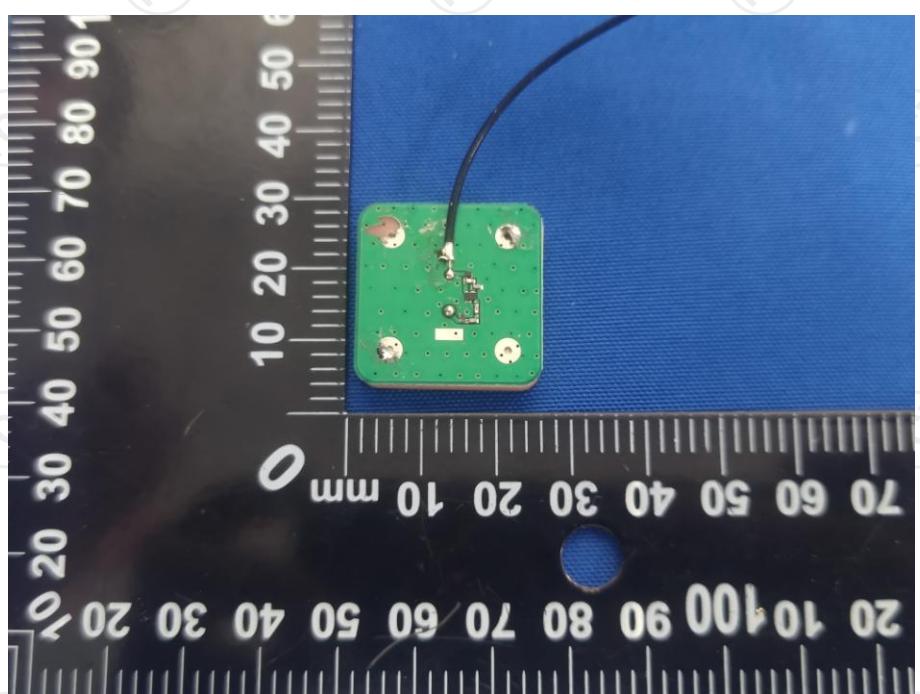
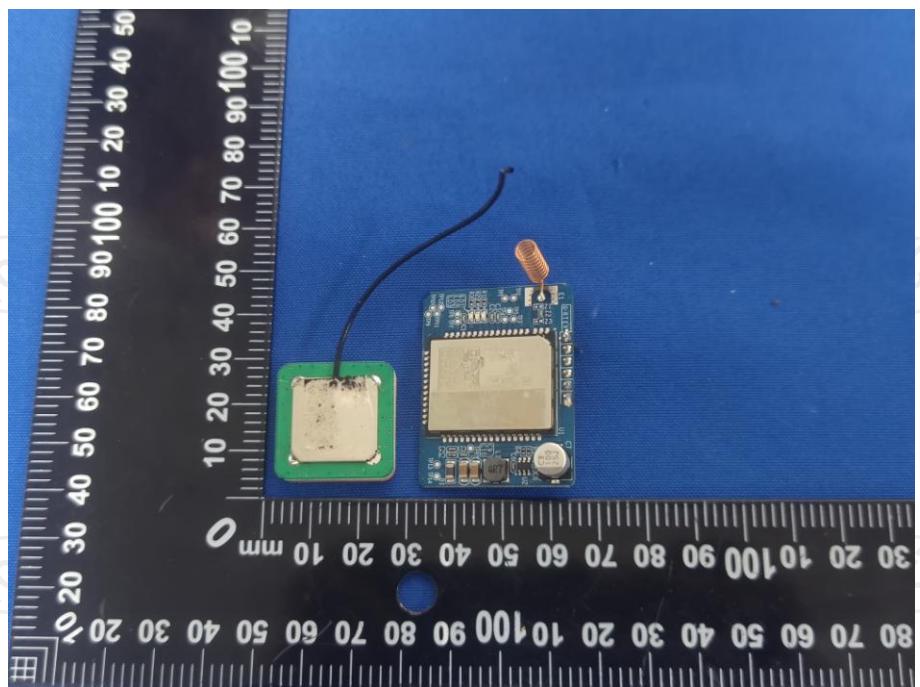


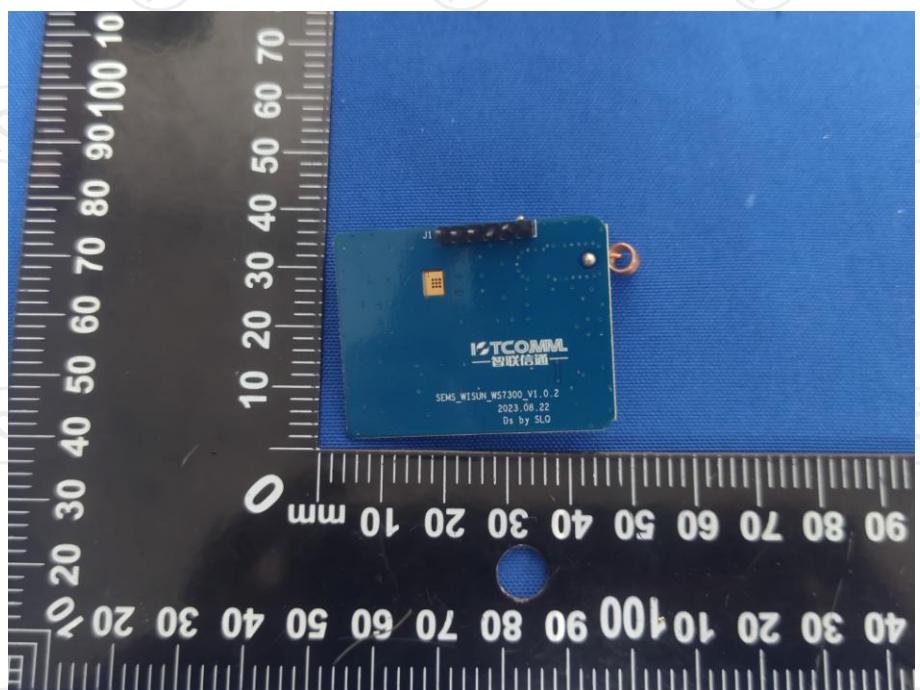
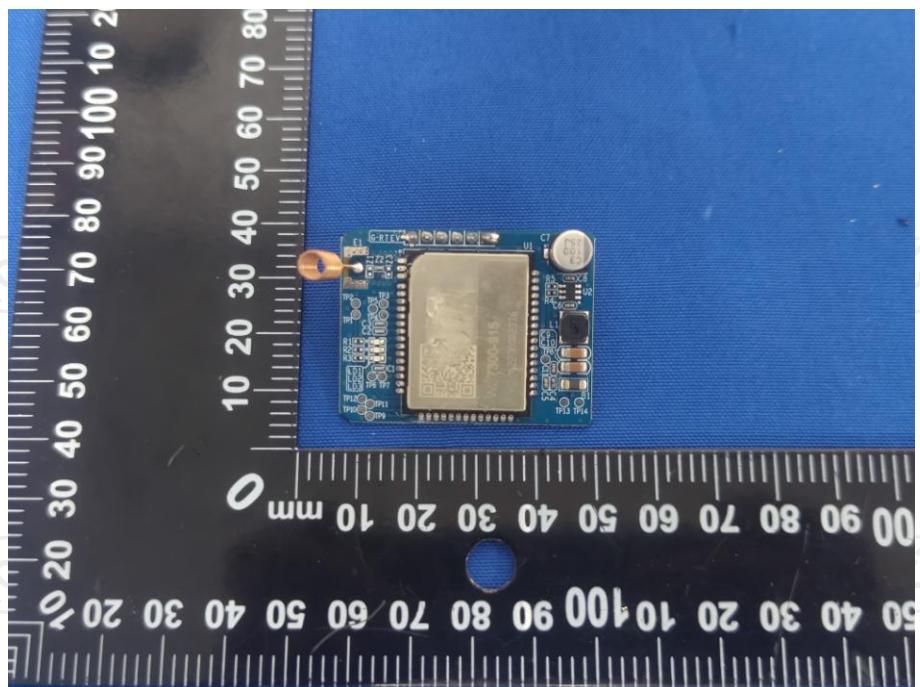


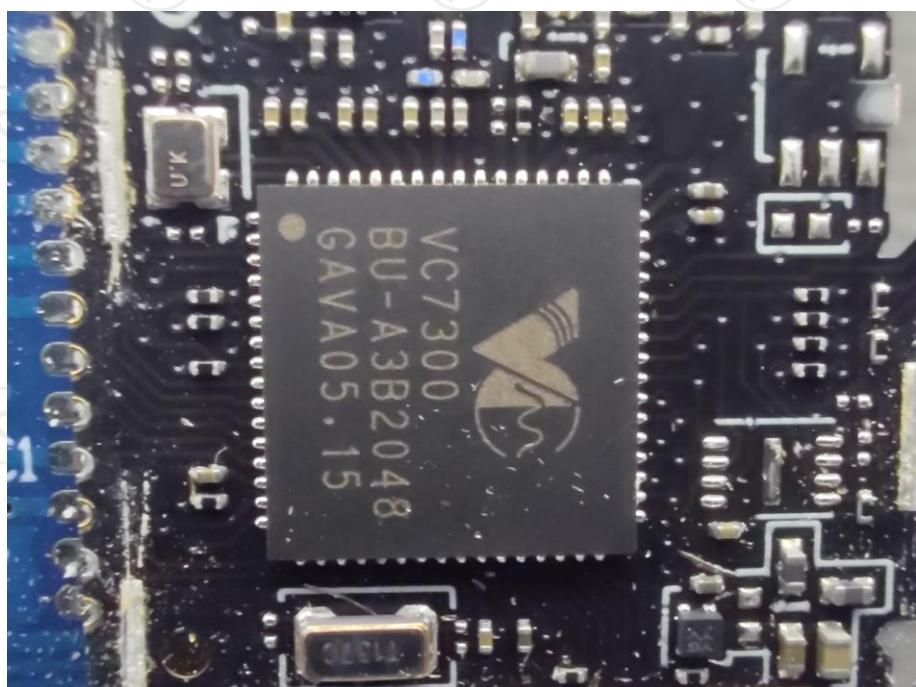
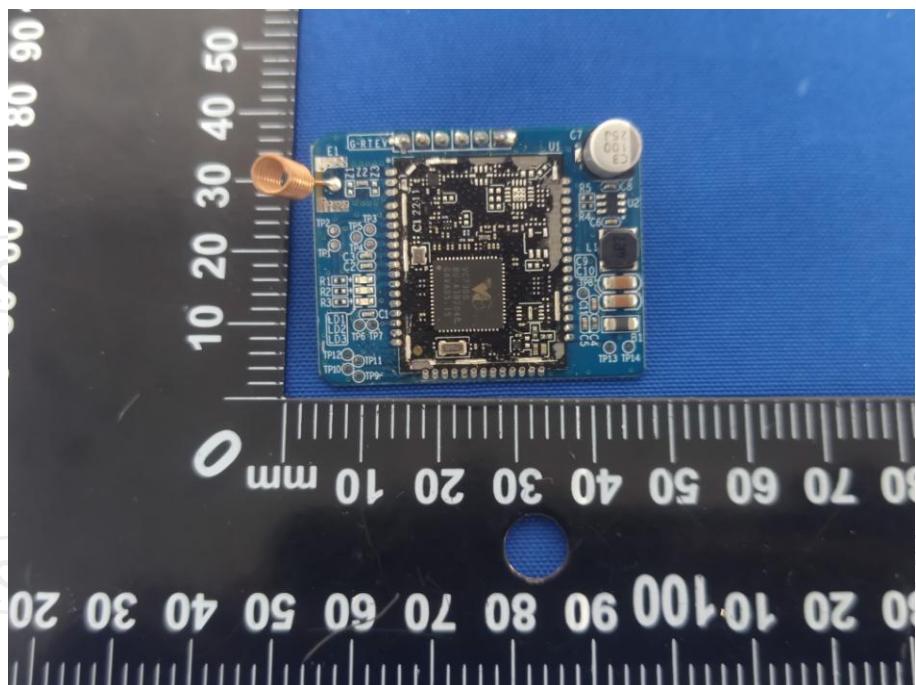
**Product: Terminal Controller
Model: SEMS-TC09E
Internal Photos**

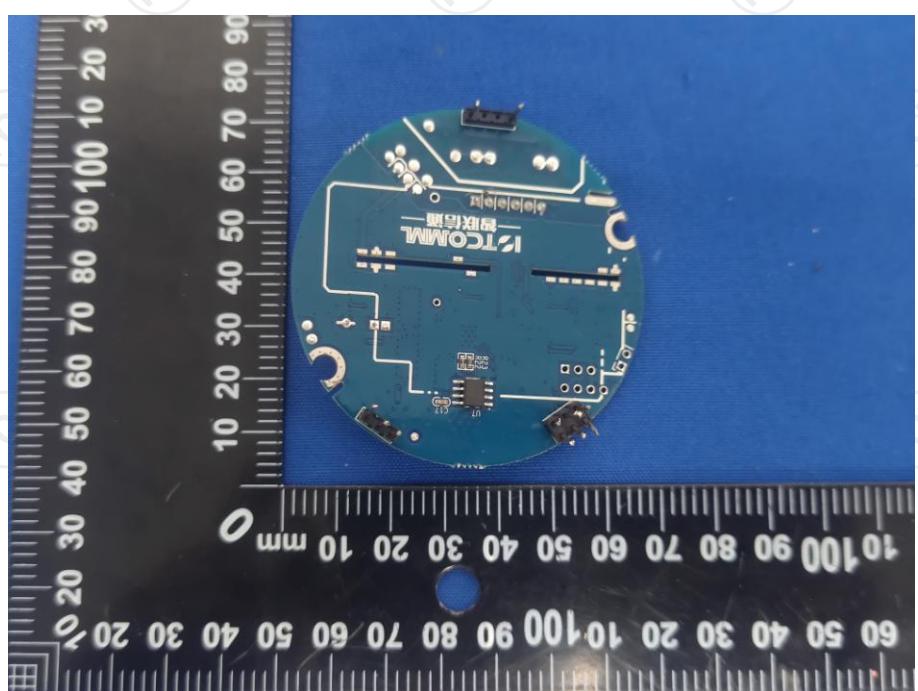
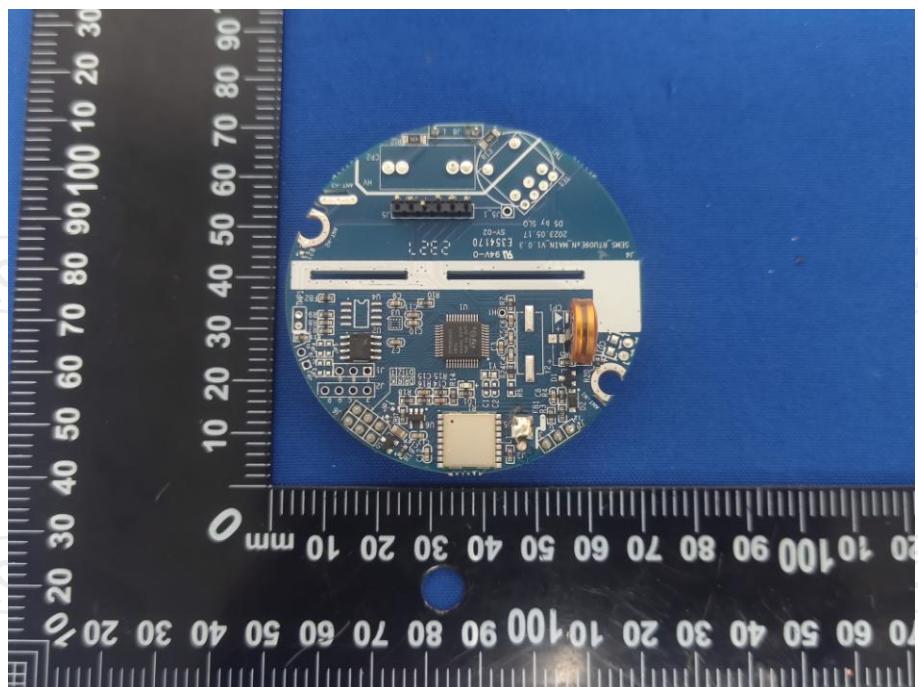


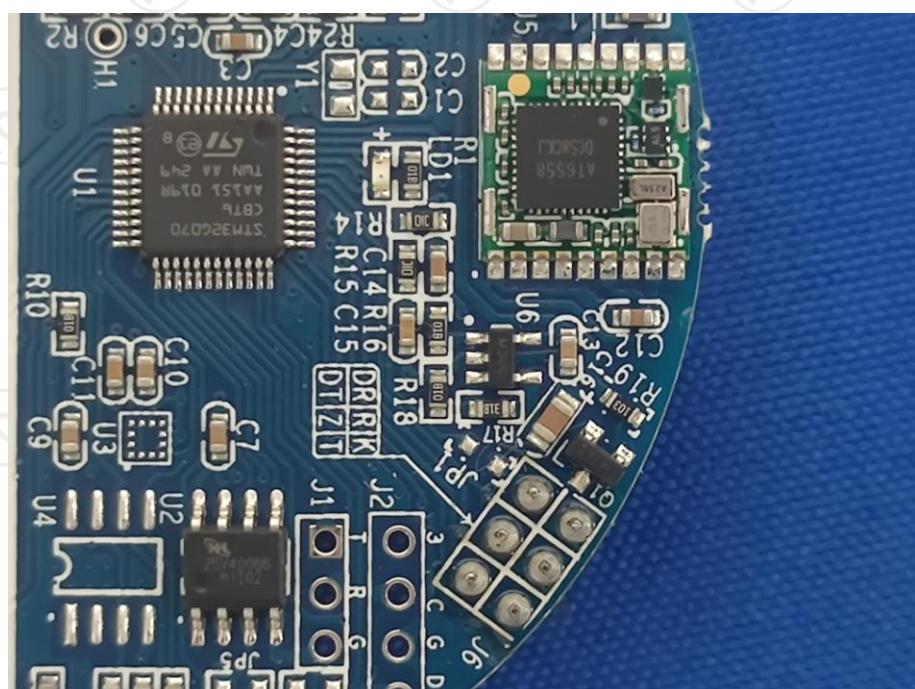
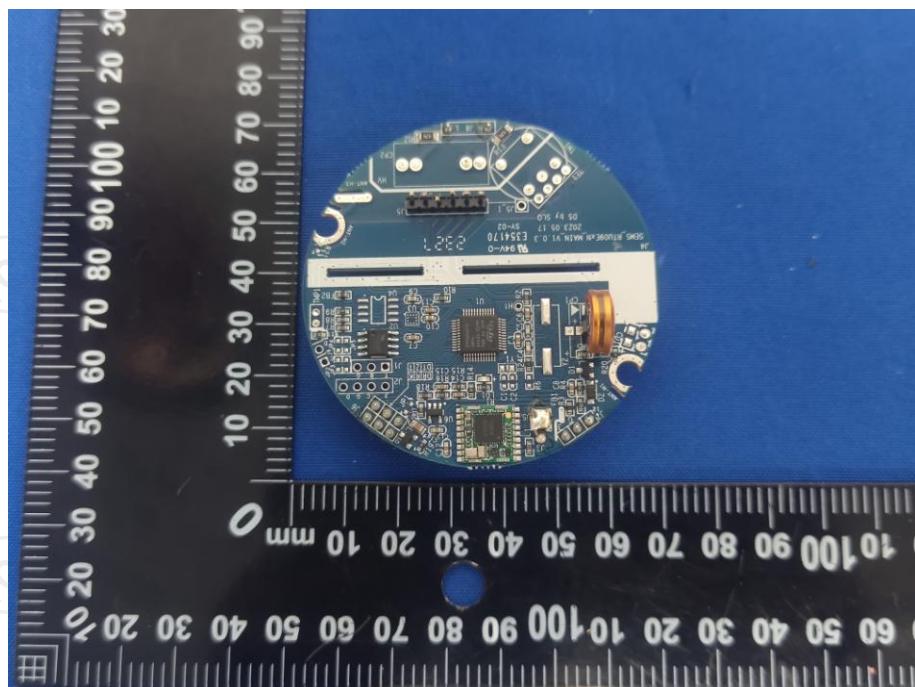


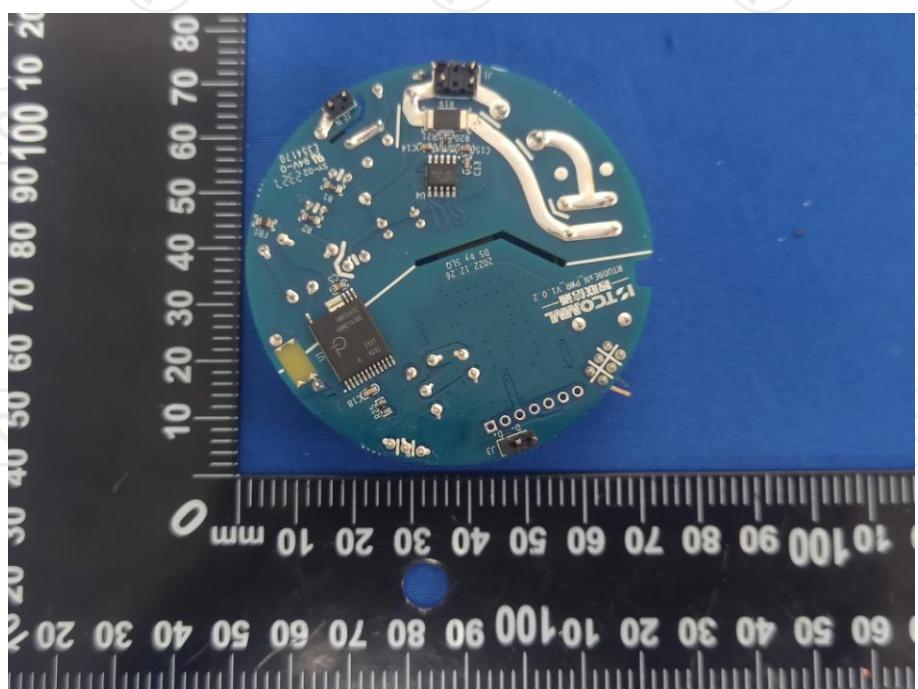
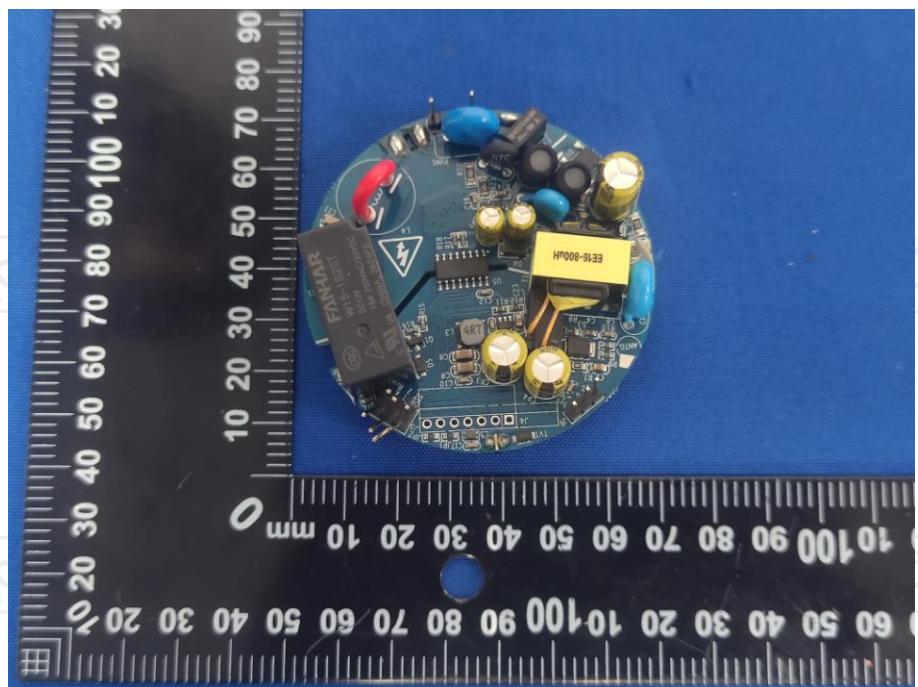


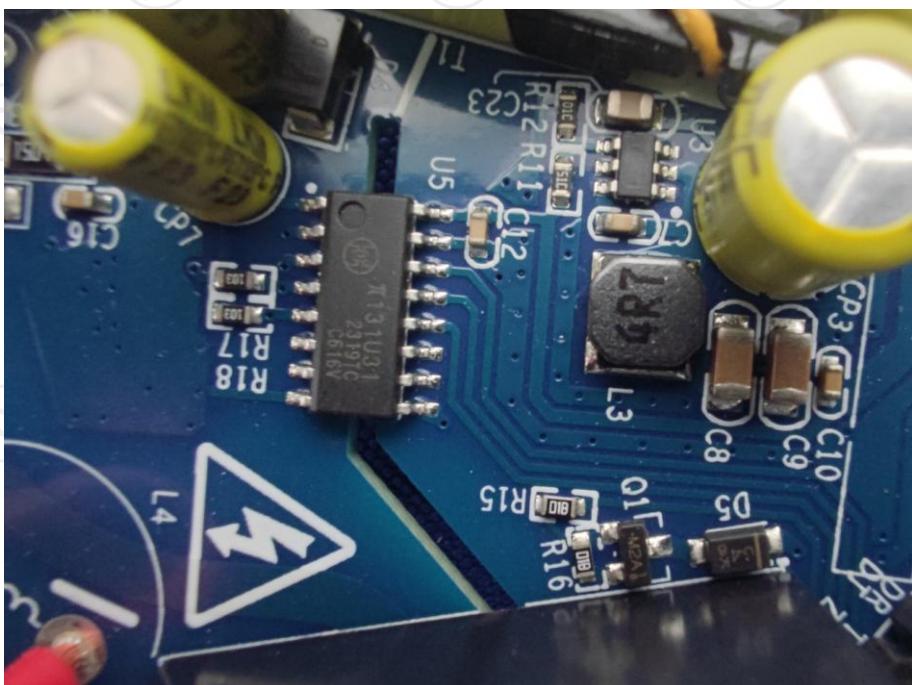
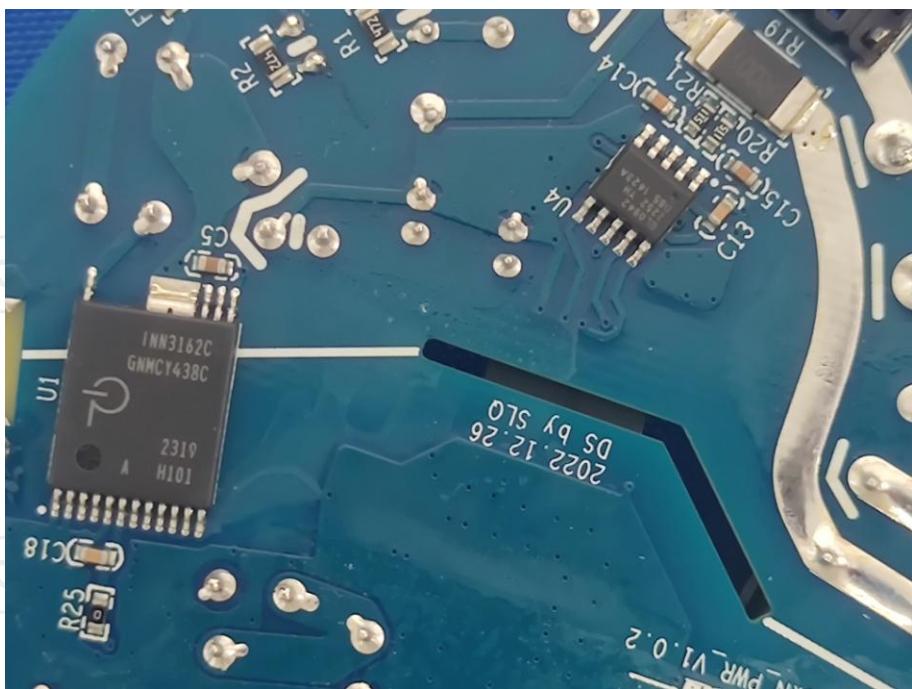


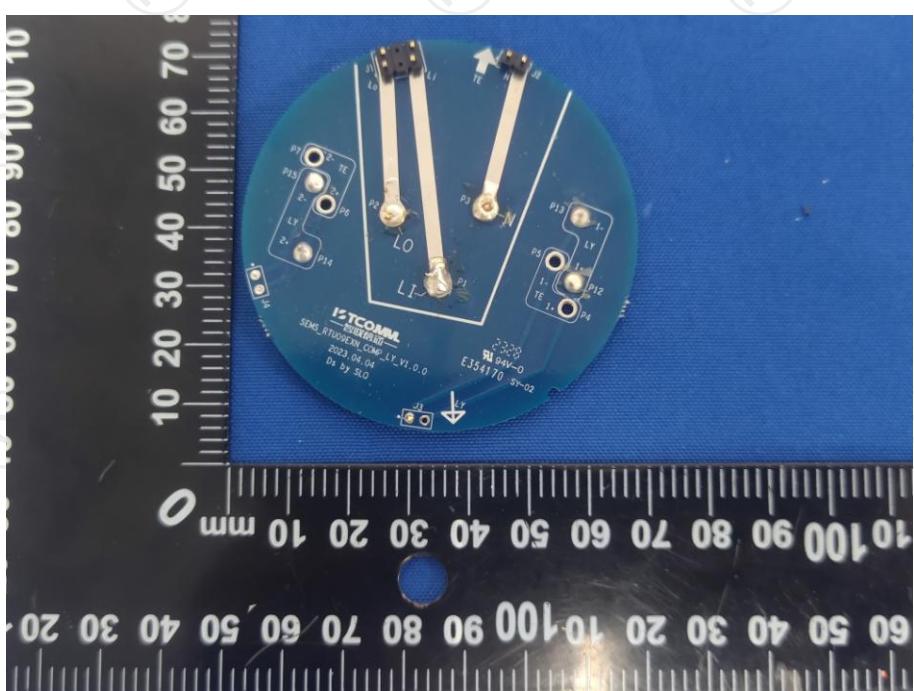
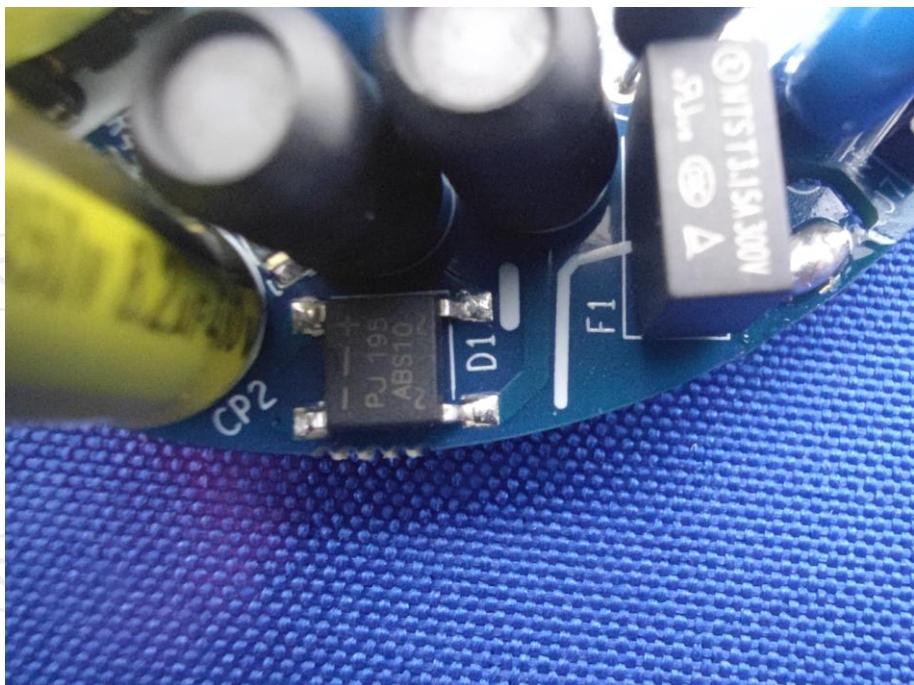


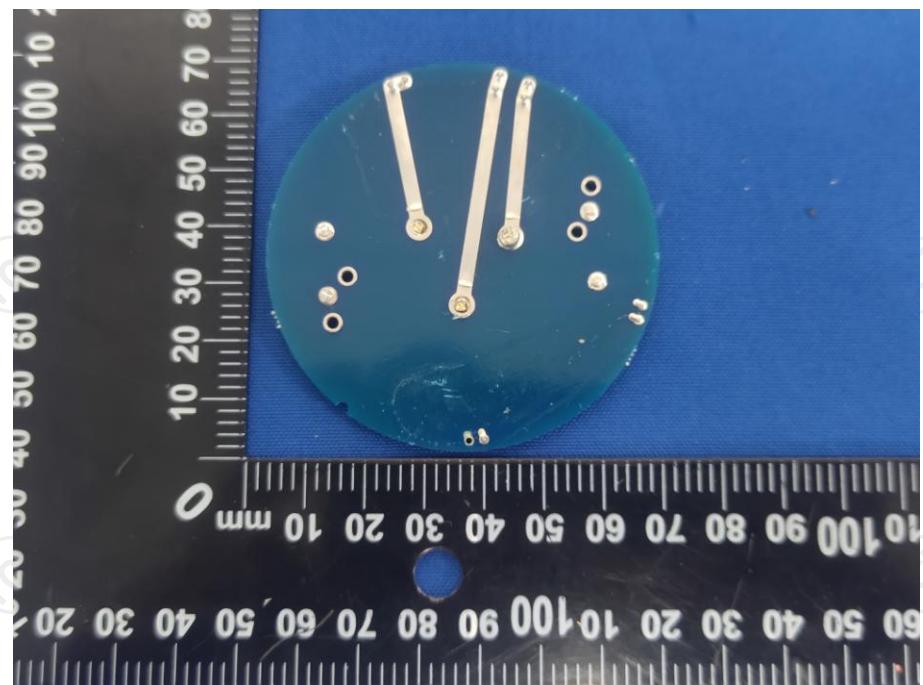












*******END OF REPORT*******