TCT 通测检测 TESTING CENTRE TECHNOLOGY

TEST REPORT

FCC ID. ..... :	2BH9C-LPPSLFXASG	
Test Report No..... :	TCT240819E019	
Date of issue..... :	Sep. 02, 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..... :	PRISM TECH PTE. LTD	
Address..... :	996 BENDEMEER ROAD, #03-07 B CENTRAL, SINGAPORE (339944), Singapore	
Manufacturer's name ... :	PRISM TECH PTE. LTD	
Address..... :	996 BENDEMEER ROAD, #03-07 B CENTRAL, SINGAPORE (339944), Singapore	
Standard(s) ..... :	FCC CFR Title 47 Part 15 Subpart C Section 15.225	
Test item description ..... :	Sentinel Pro	
Trade Mark ..... :	PRISM+	
Model/Type reference..... :	LPPSLFXASG, LPPSLFXACR, LPPSLFXANS, LPPSLFXACG, LPPSLFXAOB	
Rating(s)..... :	Rechargeable Li-ion Battery DC 7.4V	
Date of receipt of test item ..... :	Aug. 12, 2024	
Date (s) of performance of test..... :	Aug. 12, 2024 ~ Sep. 02, 2024	
Tested by (+signature) ... :	Onnado YE	
Check by (+signature).... :	Beryl ZHAO	
Approved by (+signature):	Tomsin	

General disclaimer:

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Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

1. General Product Information

1.1. EUT description

Test item description .....:	Sentinel Pro
Model/Type reference.....:	LPPSLFXASG
Sample Number.....:	TCT240819E018-0101
Operation Frequency .....:	13.56MHz
Antenna Type.....:	PCB Antenna
Antenna Gain.....:	0dBi
Rating(s).....:	Rechargeable Li-ion Battery DC 7.4V

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	LPPSLFXASG	☒
Other models	LPPSLFXACR, LPPSLFXANS, LPPSLFXACG, LPPSLFXAOB	☐

Note: LPPSLFXASG 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 LPPSLFXASG can represent the remaining models.

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2. Test Result Summary

Requirement	CFR 47 Section IC Paragraph	Result
Antenna requirement	§15.203	PASS
AC Power Line Conducted Emission	§15.207	PASS
Spurious emissions	§15.225/ §15.209	PASS
Occupied Bandwidth	§15.215 (c)	PASS
Frequency stability	§15.225	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.

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3. General Information

3.1. Test Environment and Mode

Operating Environment:		
Condition	Conducted Emission	Radiated Emission
Temperature:	25.3 °C	24.8 °C
Humidity:	52 % RH	52 % RH
Atmospheric Pressure:	1010 mbar	1010 mbar
Test Mode:		
Operation mode:	Keep the EUT in continuous transmitting with modulation	
The sample was placed (0.8m below 1GHz, 1.5m 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
IC Card	/	/	/	/
Adapter	EP-TA200	R37R55T6KL2SE3	/	SAMSUNG

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.

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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

SHENZHEN TONGCE TESTING LAB

CAB identifier: CN0031

The testing lab has been registered by Innovation, Science and Economic Development 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 ± 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

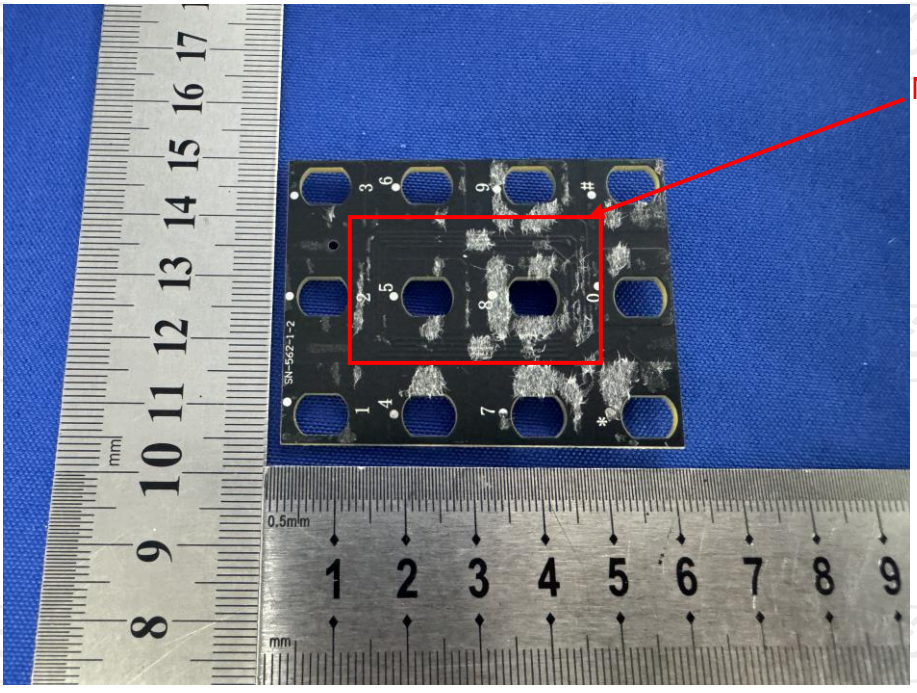
5.1. Antenna Requirement

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. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

E.U.T Antenna:	

The NFC antenna is PCB antenna which permanently attached, and the best case gain of the antenna is 0dBi.



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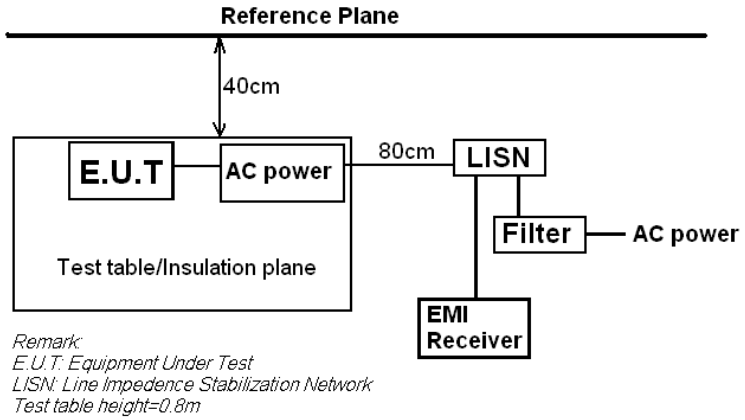
5.2. Conducted Emission

5.2.1. Test Specification

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.207</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10:2013</td></tr>
<tr><td>Frequency Range:</td><td>150 kHz to 30 MHz</td></tr>
<tr><td>Receiver setup:</td><td>RBW=9 kHz, VBW=30 kHz, Sweep time=auto</td></tr>
<tr><td>Limits:</td><td>
<table>
<tr><td rowspan="2">Frequency range (MHz)</td><td colspan="2">Limit (dBuV)</td></tr>
<tr><td>Quasi-peak</td><td>Average</td></tr>
<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>
</table>
</td></tr>
<tr><td>Test Setup:</td><td>


Remark:
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m
</td></tr>
<tr><td>Test Mode:</td><td>Refer to section 3.1 for details</td></tr>
<tr><td>Test Procedure:</td><td>1. The E.U.T is 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.</td></tr>
<tr><td>Test Result:</td><td>PASS</td></tr>
</table>

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. 26, 2025
LISN	Schwarzbeck	NSLK 8126	8126453	Jan. 31, 2025
Attenuator	N/A	10dB	164080	Jun. 26, 2025
Line-5	TCT	CE-05	/	Jun. 26, 2025
EMI Test Software	EZ_EMC	EMEC-3A1	1.1.4.2	/

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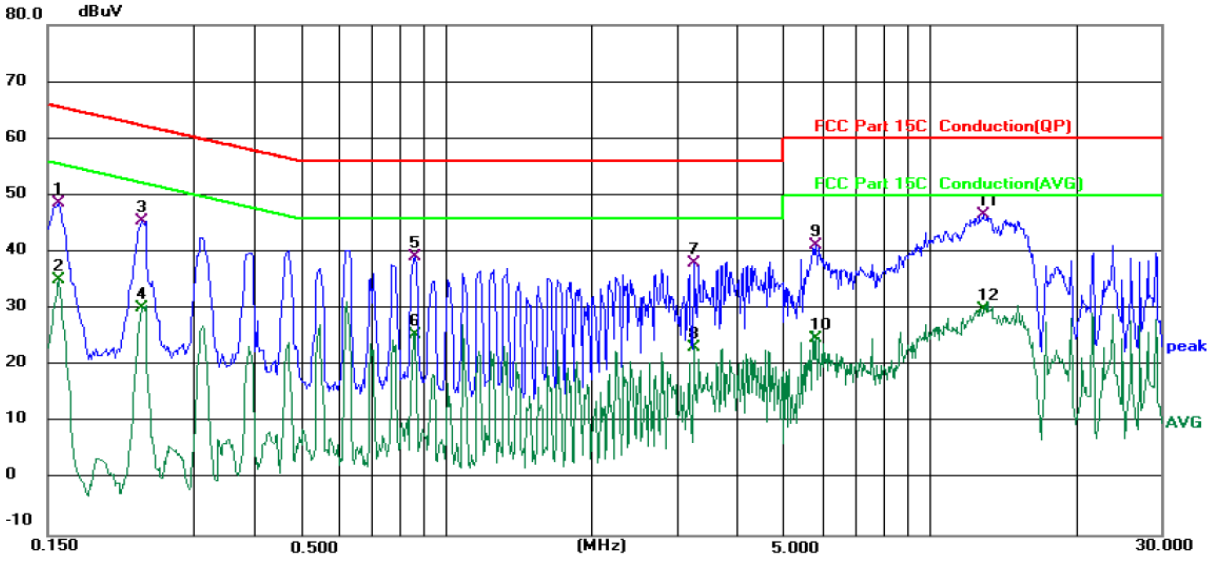
5.2.3. Test data

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: 25.3 (℃)
Humidity: 52 %

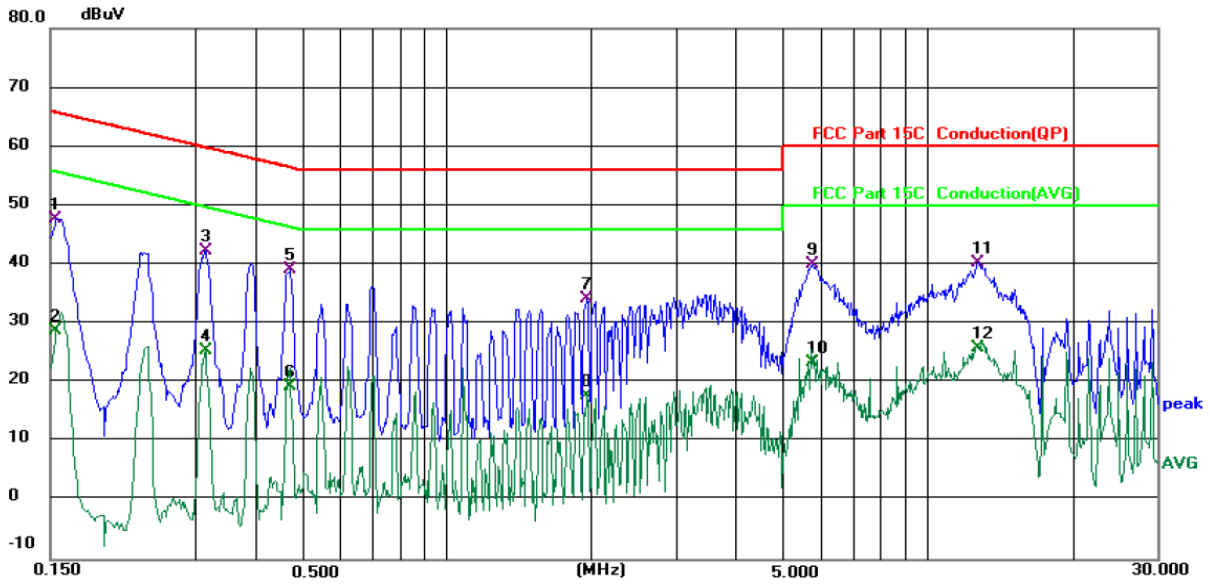
Limit: FCC Part 15C Conduction(QP)
Power: DC 5 V(Adapter Input AC 120 V/ 60 Hz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1580	38.85	9.67	48.52	65.57	-17.05	QP	
2		0.1580	25.38	9.67	35.05	55.57	-20.52	AVG	
3		0.2340	35.87	9.65	45.52	62.31	-16.79	QP	
4		0.2340	20.45	9.65	30.10	52.31	-22.21	AVG	
5		0.8659	28.53	10.59	39.12	56.00	-16.88	QP	
6		0.8659	14.78	10.59	25.37	46.00	-20.63	AVG	
7		3.2580	28.03	10.00	38.03	56.00	-17.97	QP	
8		3.2580	13.29	10.00	23.29	46.00	-22.71	AVG	
9		5.8100	30.99	10.22	41.21	60.00	-18.79	QP	
10		5.8100	14.63	10.22	24.85	50.00	-25.15	AVG	
11	*	12.8700	36.19	10.29	46.48	60.00	-13.52	QP	
12		12.8700	19.55	10.29	29.84	50.00	-20.16	AVG	

Note:

Freq. = Emission frequency in MHz
Reading level (dBμV) = Receiver reading
Corr. Factor (dB) = LISN factor + Cable loss
Measurement (dBμV) = Reading level (dBμV) + Corr. Factor (dB)
Limit (dBμV) = Limit stated in standard
Margin (dB) = Measurement (dBμV) – Limits (dBμV)
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: 25.3 (℃) Humidity: 52 %

Limit: FCC Part 15C Conduction(QP) Power: DC 5 V(Adapter Input AC 120 V/ 60 Hz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1539	38.02	9.65	47.67	65.79	-18.12	QP	
2		0.1539	19.13	9.65	28.78	55.79	-27.01	AVG	
3		0.3140	32.69	9.64	42.33	59.86	-17.53	QP	
4		0.3140	15.71	9.64	25.35	49.86	-24.51	AVG	
5	*	0.4737	29.01	10.11	39.12	56.45	-17.33	QP	
6		0.4737	9.29	10.11	19.40	46.45	-27.05	AVG	
7		1.9616	24.34	9.79	34.13	56.00	-21.87	QP	
8		1.9616	7.94	9.79	17.73	46.00	-28.27	AVG	
9		5.7500	29.94	10.15	40.09	60.00	-19.91	QP	
10		5.7500	13.36	10.15	23.51	50.00	-26.49	AVG	
11		12.7378	30.00	10.28	40.28	60.00	-19.72	QP	
12		12.7378	15.59	10.28	25.87	50.00	-24.13	AVG	

Note:

Freq. = Emission frequency in MHz

Reading level (dBμV) = Receiver reading

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

Measurement (dBμV) = Reading level (dBμV) + Corr. Factor (dB)

Limit (dBμV) = Limit stated in standard

Margin (dB) = Measurement (dBμV) – Limits (dBμV)

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

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.225</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10: 2013</td></tr>
<tr><td>Frequency Range:</td><td>9 kHz to 1000 MHz</td></tr>
<tr><td>Measurement Distance:</td><td>3 m</td></tr>
<tr><td>Antenna Polarization:</td><td>Horizontal & Vertical</td></tr>
<tr><td>Receiver Setup:</td><td>
<table>
<tr><th>Frequency</th><th>Detector</th><th>RBW</th><th>VBW</th><th>Remark</th></tr>
<tr><td>9kHz- 150kHz</td><td>Quasi-peak</td><td>200Hz</td><td>1kHz</td><td>Quasi-peak Value</td></tr>
<tr><td>150kHz-30MHz</td><td>Quasi-peak</td><td>9kHz</td><td>30kHz</td><td>Quasi-peak Value</td></tr>
<tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>120kHz</td><td>300kHz</td><td>Quasi-peak Value</td></tr>
</table>
</td></tr>
<tr><td>Limit:</td><td>
FCC Part15 C Section 15.225
<table>
<tr><th>Frequency (MHz)</th><th>Limit (uV/m @30m)</th><th>Limit (dBuV/m @3m)</th><th>Detector</th></tr>
<tr><td>13.110-13.410</td><td>106</td><td>80.5</td><td>QP</td></tr>
<tr><td>13.410-13.553</td><td>334</td><td>90.5</td><td>QP</td></tr>
<tr><td>13.553-13.567</td><td>15848</td><td>124.0</td><td>QP</td></tr>
<tr><td>13.567-13.710</td><td>334</td><td>90.5</td><td>QP</td></tr>
<tr><td>13.710-14.010</td><td>106</td><td>80.5</td><td>QP</td></tr>
</table>
Note: RF Voltage (dBuV) = 20 log RF Voltage (uV)
Limit (dBuV/m @3m) = 20log(Limit (uV/m @30m)) + 40
FCC Part15 C Section 15.209
<table>
<tr><th>Frequency Range (MHz)</th><th>Distance (m)</th><th>Field strength (dB μ V/m)</th><th>Detector</th></tr>
<tr><td>0.009-0.490</td><td>3</td><td>20log 2400/F (kHz) + 80</td><td>QP</td></tr>
<tr><td>0.490-1.705</td><td>3</td><td>20log 24000/F (kHz) + 40</td><td>QP</td></tr>
<tr><td>1.705-30</td><td>3</td><td>20log 30 + 40</td><td>QP</td></tr>
<tr><td>30-88</td><td>3</td><td>40.0</td><td>QP</td></tr>
<tr><td>88-216</td><td>3</td><td>43.5</td><td>QP</td></tr>
<tr><td>216-960</td><td>3</td><td>46.0</td><td>QP</td></tr>
<tr><td>Above 960</td><td>3</td><td>54.0</td><td>QP</td></tr>
</table>
Note:
1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
2. In the Above Table, the tighter limit applies at the band edges.
3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT
4. The radiated emissions should be tested under 3-axes position (Lying, Side, and Stand), After pre-test. It was found that the worse radiated emission was get at the lying position.
5. If measurement is made at 3m distance, then F.S Limitation at 3m distance is adjusted by using the formula Ld1 = Ld2 * (d2/d1)
</td></tr>
</table>

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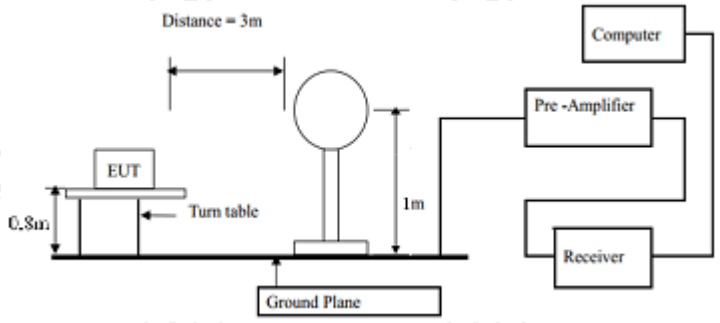
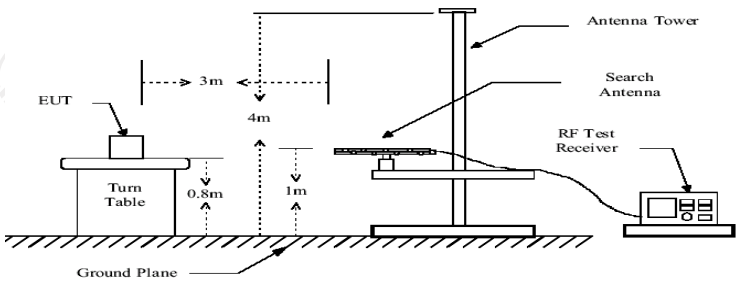
Test Procedure:	1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber in below 1GHz. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was 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.
Test setup:	For radiated emissions below 30MHz  30MHz to 1GHz 
Test Mode:	Refer to section 3.1 for details

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	ESCI7	100529	Jan. 31, 2025
Spectrum Analyzer	R&S	FSQ40	200061	Jun. 26, 2025
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. 26, 2025
Loop antenna	Schwarzbeck	FMZB1519B	00191	Jun. 26, 2025
Broadband Antenna	Schwarzbeck	VULB9163	340	Jun. 28, 2025
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Jun. 28, 2025
Horn Antenna	Schwarzbeck	BBHA 9170	00956	Feb. 02, 2025
Coaxial cable	SKET	RE-03-D	/	Jun. 26, 2025
Coaxial cable	SKET	RE-03-M	/	Jun. 26, 2025
Coaxial cable	SKET	RE-03-L	/	Jun. 26, 2025
Coaxial cable	SKET	RE-04-D	/	Jun. 26, 2025
Coaxial cable	SKET	RE-04-M	/	Jun. 26, 2025
Coaxial cable	SKET	RE-04-L	/	Jun. 26, 2025
Antenna Mast	Keleto	RE-AM	/	/
EMI Test Software	EZ_EMC	FA-03A2 RE+	1.1.4.2	/

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5.3.3. Test Data

Field Strength of Fundamental

Frequency (MHz)	Emission (dBuV/m)	Limits (dBuV/m)	Detector	Margin (dB)
13.56	53.79	124.0	QP	-70.21

Field Strength Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz

Frequency (MHz)	Emission Level dBuV/m@3m	Emission Level dBuV/m@30m	Limits dBuV/m@30m	Result
13.506	45.39	5.39	50.47	PASS
13.589	47.54	7.54	50.47	PASS

Field Strength Within the bands 13.110-13.410 MHz and 13.710-14.010

Frequency (MHz)	Emission Level dBuV/m@3m	Emission Level dBuV/m@30m	Limits dBuV/m@30m	Result
13.215	46.71	6.71	40.50	PASS
13.865	46.36	6.36	40.50	PASS

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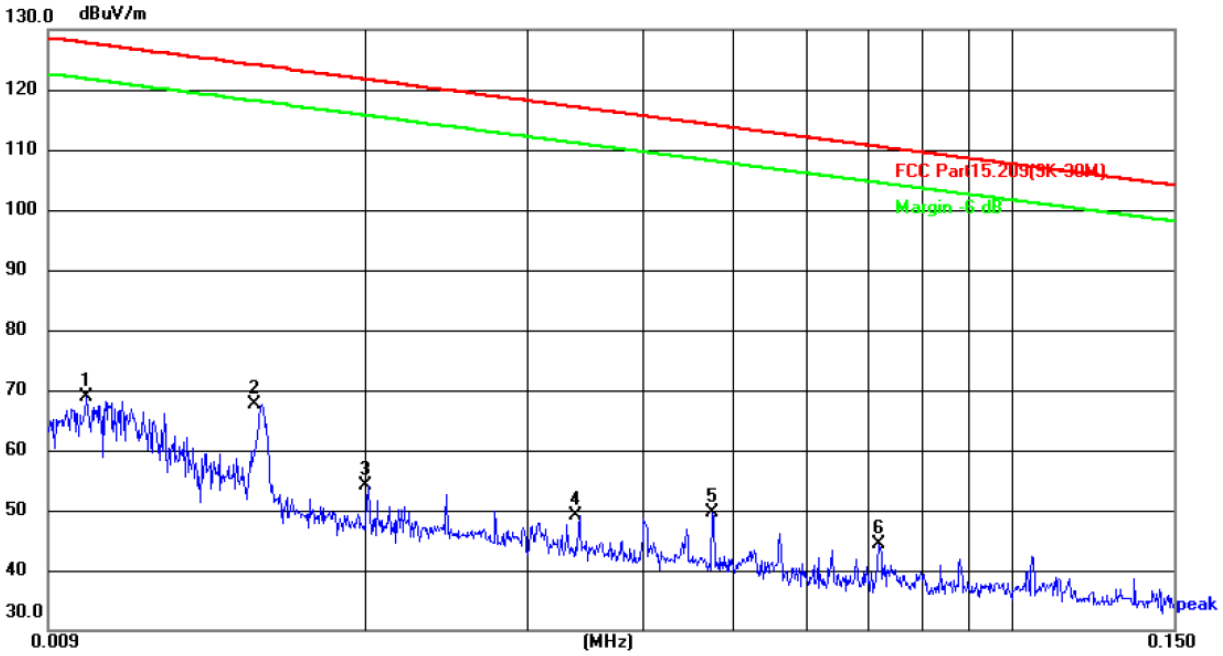
Spurious Emissions

9KHz-30MHz

9KHz-150KHz:

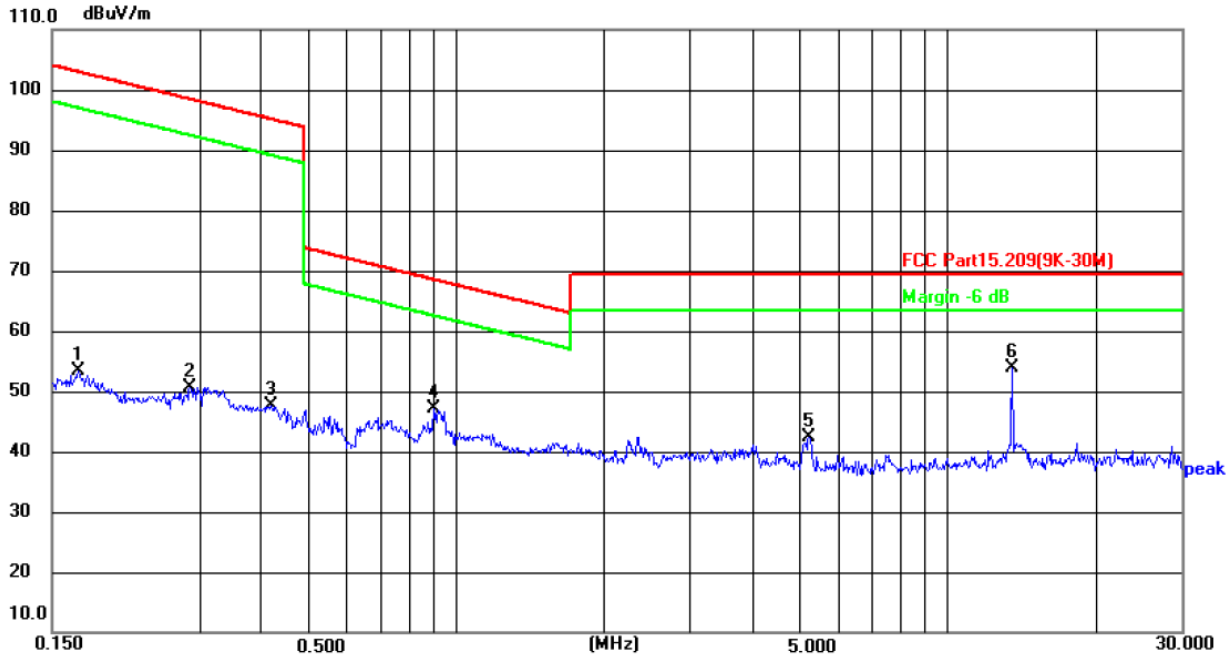


Site: 3m Anechoic Chamber Polarization: *Horizontal* Temperature: 24.8(℃) Humidity: 51 %

Limit: FCC Part15.209(9K-30M) Power:DC 7.4 V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	0.0100	48.24	20.53	68.77	127.60	-58.83	peak	P	
2 *	0.0151	47.20	20.55	67.75	124.03	-56.28	peak	P	
3	0.0200	33.48	20.56	54.04	121.58	-67.54	peak	P	
4	0.0337	28.58	20.52	49.10	117.05	-67.95	peak	P	
5	0.0473	29.27	20.36	49.63	114.11	-64.48	peak	P	
6	0.0719	24.18	20.28	44.46	110.47	-66.01	peak	P	

150KHz-30MHz:



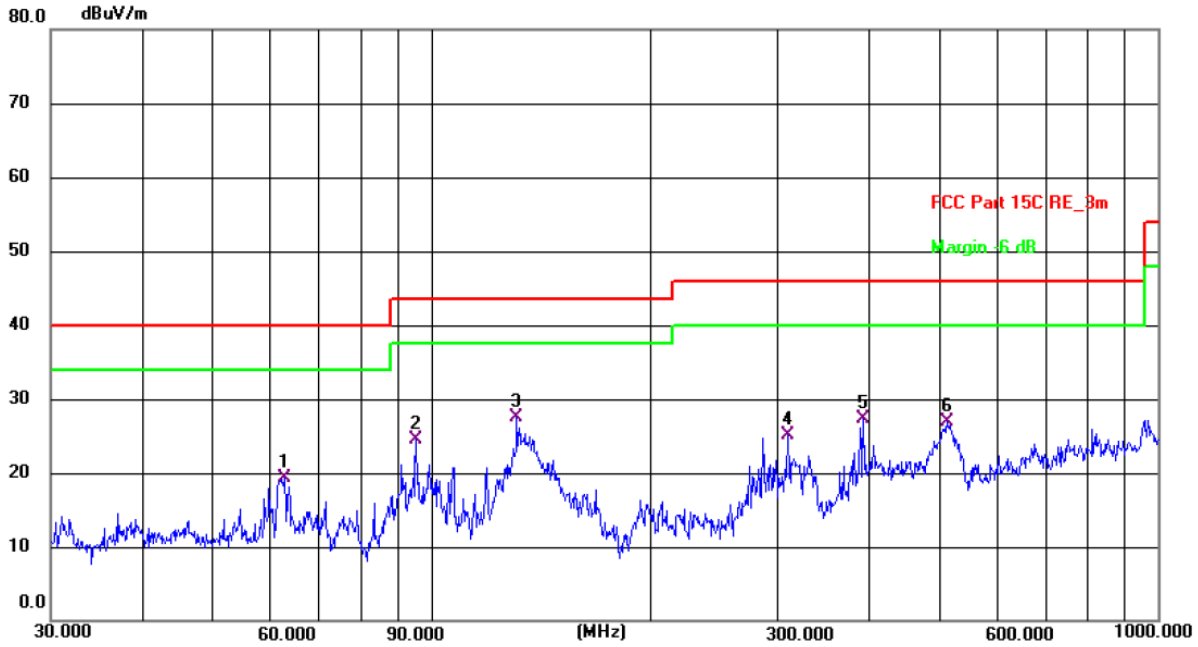
Site: 3m Anechoic Chamber Polarization: ***Horizontal*** Temperature: 24.8(℃) Humidity: 51 %

Limit: FCC Part15.209(9K-30M) Power:DC 7.4 V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	0.1701	32.72	20.76	53.48	102.99	-49.51	peak	P	
2	0.2872	29.62	20.98	50.60	98.44	-47.84	peak	P	
3	0.4212	26.34	21.21	47.55	95.11	-47.56	peak	P	
4	0.9039	24.87	22.16	47.03	68.50	-21.47	peak	P	
5	5.2419	11.34	30.99	42.33	69.50	-27.17	peak	P	
6 *	13.6227	33.33	20.46	53.79	69.50	-15.71	peak	P	

Note *: 1) Emission Level=Peak Reading + Correction Factor;*
Correction Factor= Antenna Factor + Cable loss – Pre-amplifier

Horizontal:



Site 3m Anechoic Chamber2 Polarization: *Horizontal* Temperature: 24.8(C) Humidity: 52 %

Limit: FCC Part 15C RE_3m Power: DC 7.4V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	62.8706	38.40	-19.10	19.30	40.00	-20.70	QP	P	
2	95.4269	46.36	-21.89	24.47	43.50	-19.03	QP	P	
3 *	131.2965	45.82	-18.38	27.44	43.50	-16.06	QP	P	
4	309.9977	43.11	-18.01	25.10	46.00	-20.90	QP	P	
5	393.4723	42.30	-15.03	27.27	46.00	-18.73	QP	P	
6	513.6331	38.86	-11.97	26.89	46.00	-19.11	QP	P	

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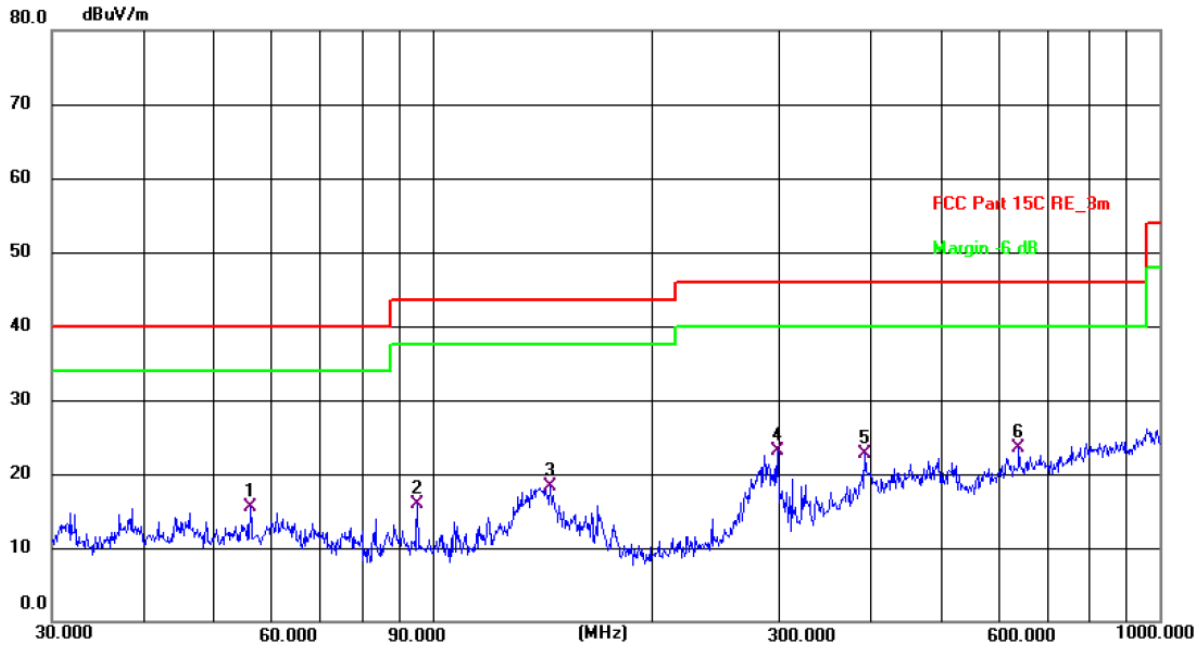
Vertical:



Site 3m Anechoic Chamber2 Polarization: *Vertical* Temperature: 24.8(C) Humidity: 52 %

Limit: FCC Part 15C RE_3m Power: DC 7.4V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	56.1974	34.26	-18.76	15.50	40.00	-24.50	QP	P	
2	95.4269	37.85	-21.89	15.96	43.50	-27.54	QP	P	
3	145.3505	36.01	-17.72	18.29	43.50	-25.21	QP	P	
4	298.2681	40.73	-17.69	23.04	46.00	-22.96	QP	P	
5	393.4723	37.67	-15.03	22.64	46.00	-23.36	QP	P	
6 *	640.6109	32.39	-8.85	23.54	46.00	-22.46	QP	P	

Note *: 1) Emission Level=Peak Reading + Correction Factor;*
Correction Factor= Antenna Factor + Cable loss – Pre-amplifier

5.4. 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
Test Procedure:	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≥1% of the 20 dB bandwidth; VBW≥RBW; Sweep = auto; Detector function = peak; Trace = max hold. 4. Measure and record the results in the test report.
Test setup:	
Test Mode:	Refer to section 3.1 for details
Test results:	PASS

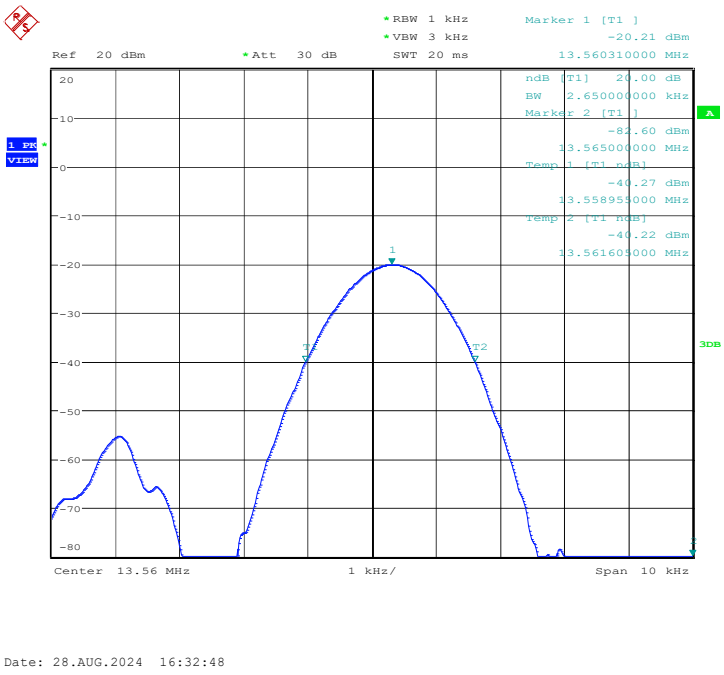
5.4.2. Test Instruments

RF Test Room				
Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	R&S	FSU	200054	Jun. 26, 2025

5.4.3. Test data

Frequency(MHz)	20dB Occupy Bandwidth (kHz)	Limit (kHz)	Conclusion
13.56	2.65	---	PASS

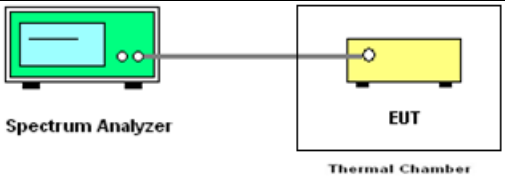
Test plots as follows:



Date: 28.AUG.2024 16:32:48

5.5. Frequency stability

5.5.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.225
Test Method:	ANSI C63.10 : 2013
Operation mode:	Refer to item 3.1
Limit:	+/-0.01%
Test Setup:	
Test Procedure:	1. The equipment under test was connected to an external DC power supply and input rated voltage. 2. RF output was connected to a spectrum analyzer. 3. The EUT was placed inside the temperature chamber. 4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20℃ operating frequency as reference frequency. 5. Turn EUT off and set the chamber temperature to -20℃. After the temperature stabilized for approximately 30 minutes recorded the frequency. 6. Repeat step measure with 10℃ increased per stage until the highest temperature of +55℃ reached. 7. Repeat step measure with a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C
Test Result:	PASS

5.5.2. Test Instruments

RF Test Room				
Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	R&S	FSU	200054	Jun. 26, 2025
DC power supply	Kingrang	KR3005K	/	Jun. 26, 2025

5.5.3. Test Data

Voltage (Vdc)	Temperature (℃)	Frequency (MHz)	Deviation (%)	Limit (%)
7.4	-20	13.559768	-0.00171	+/-0.01%
7.4	-10	13.559756	-0.00180	
7.4	0	13.559760	-0.00177	
7.4	10	13.559755	-0.00181	
7.4	20	13.559763	-0.00175	
7.4	30	13.559758	-0.00179	
7.4	40	13.559754	-0.00181	
7.4	50	13.559757	-0.00179	
7.4	55	13.559753	-0.00182	
8.51	20	13.559765	-0.00173	
6.29	20	13.559760	-0.00177	

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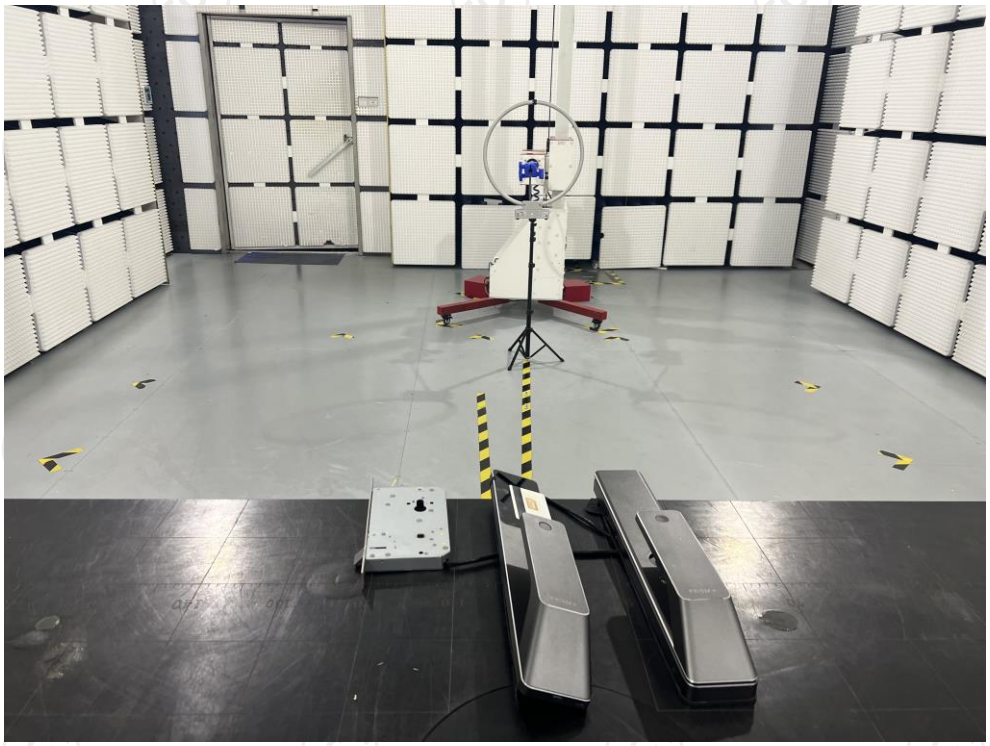
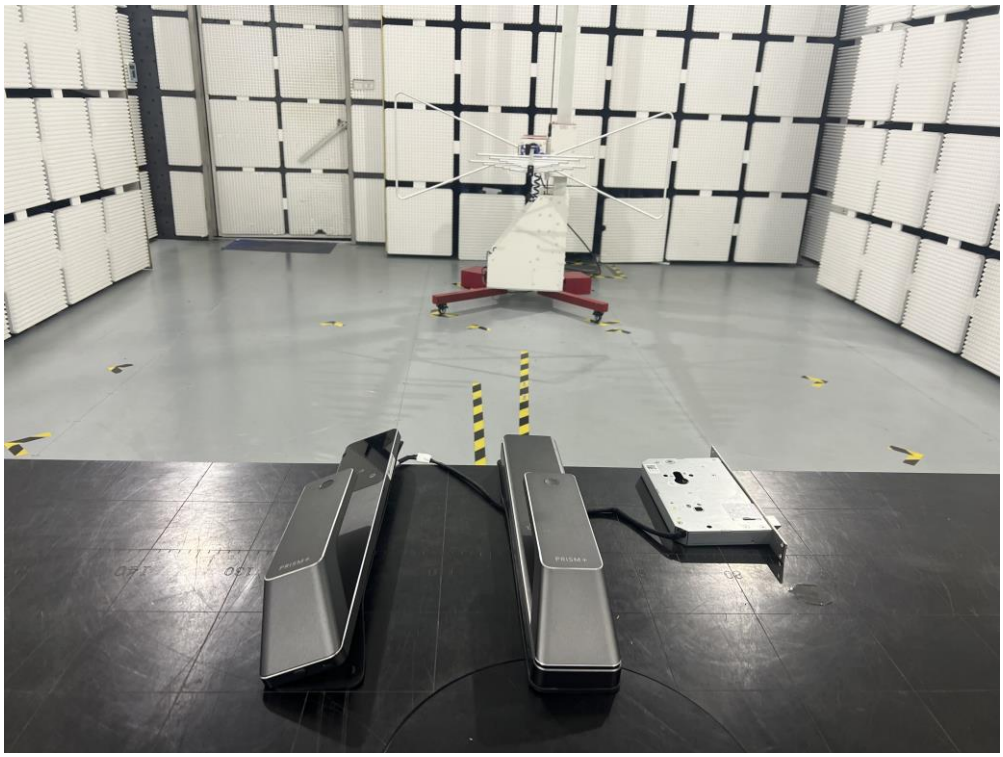
Appendix A: Photographs of Test Setup

Product: Sentinel Pro
Model: LPPSLFXASG
Radiated Emission





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Conducted Emission

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Appendix B: Photographs of EUT

Refer to the test report No. TCT240819E018

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

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