TCT 通测检测 TESTING CENTRE TECHNOLOGY

TEST REPORT

FCC ID. ..... :	2A85Y-PAD19	
Test Report No..... :	TCT250319E010	
Date of issue..... :	Mar. 25, 2025	
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..... :	DONGGUAN ESWN TECHNOLOGY CO., LTD	
Address..... :	Room106, No.15 chukeng Industrial Road, Dongkeng Town, Dongguan City, Guangdong Province, China	
Manufacturer's name ... :	DONGGUAN ESWN TECHNOLOGY CO., LTD	
Address..... :	Room106, No.15 chukeng Industrial Road, Dongkeng Town, Dongguan City, Guangdong Province, China	
Standard(s) ..... :	FCC CFR Title 47 Part 15 Subpart C Section 15.249 ANSI C63.10:2020	
Product Name..... :	TRIPLE MODE NUMPAD	
Trade Mark ..... :	N/A	
Model/Type reference..... :	PAD19PRO, PAD19	
Rating(s)..... :	Rechargeable Li-ion Battery DC 3.8V	
Date of receipt of test item ..... :	Mar. 19, 2025	
Date (s) of performance of test..... :	Mar. 19, 2025 ~ Mar. 25, 2025	
Tested by (+signature) ... :	Ronaldo LUO	
Check by (+signature).... :	Beryl ZHAO	
Approved by (+signature):	Tomsin	

General disclaimer:

This report shall not be reproduced except in full, without the written approval of SHENZHEN TONGCE TESTING LAB. This document may be altered or revised by SHENZHEN TONGCE TESTING LAB personnel only, and shall be noted in the revision section of the document. The test results in the report only apply to the tested sample.

Table of Contents

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

Product Name.....:	TRIPLE MODE NUMPAD
Model/Type reference.....:	PAD19PRO
Sample Number.....:	TCT250319E009-0101
Operation Frequency.....:	2404MHz~2480MHz
Channel Separation.....:	2MHz
Number of Channel.....:	40
Modulation Technology.....:	GFSK
Antenna Type.....:	PCB Antenna
Antenna Gain.....:	3.85dBi
Rating(s).....:	Rechargeable Li-ion Battery DC 3.8V

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	PAD19PRO	☒
Other models	PAD19	☐

Note: PAD19PRO 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 PAD19PRO can represent the remaining models.

1.3. Operation Frequency

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
0	2404MHz	10	2424MHz	20	2444MHz	30	2464MHz
1	2406MHz	11	2426MHz	21	2446MHz	31	2466MHz
2	2408MHz	12	2428MHz	22	2448MHz	32	2468MHz
3	2410MHz	13	2430MHz	23	2450MHz	33	2470MHz
4	2412MHz	14	2432MHz	24	2452MHz	34	2472MHz
5	2414MHz	15	2434MHz	25	2454MHz	35	2474MHz
6	2416MHz	16	2436MHz	26	2456MHz	36	2476MHz
7	2418MHz	17	2438MHz	27	2458MHz	37	2478MHz
8	2420MHz	18	2440MHz	28	2460MHz	38	2480MHz
9	2422MHz	19	2442MHz	29	2462MHz		

Remark: Channel 0, 18 & 38 have been tested.

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

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.

S

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

3. General Information

3.1. Test Environment and Mode

Operating Environment:		
Condition	Conducted Emission	Radiated Emission
Temperature:	24.2 °C	24.9 °C
Humidity:	55 % RH	50 % RH
Atmospheric Pressure:	1010 mbar	1010 mbar
Test Software:		
Software Information:	RFTest	
Power Level:	0x0B	
Test Mode:		
Engineering mode:	Keep the EUT in continuous transmitting by select channel and modulations with Fully-charged battery.	

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
Adapter	EP-TA200	R37M4PR7QD4SE3	/	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.

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

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

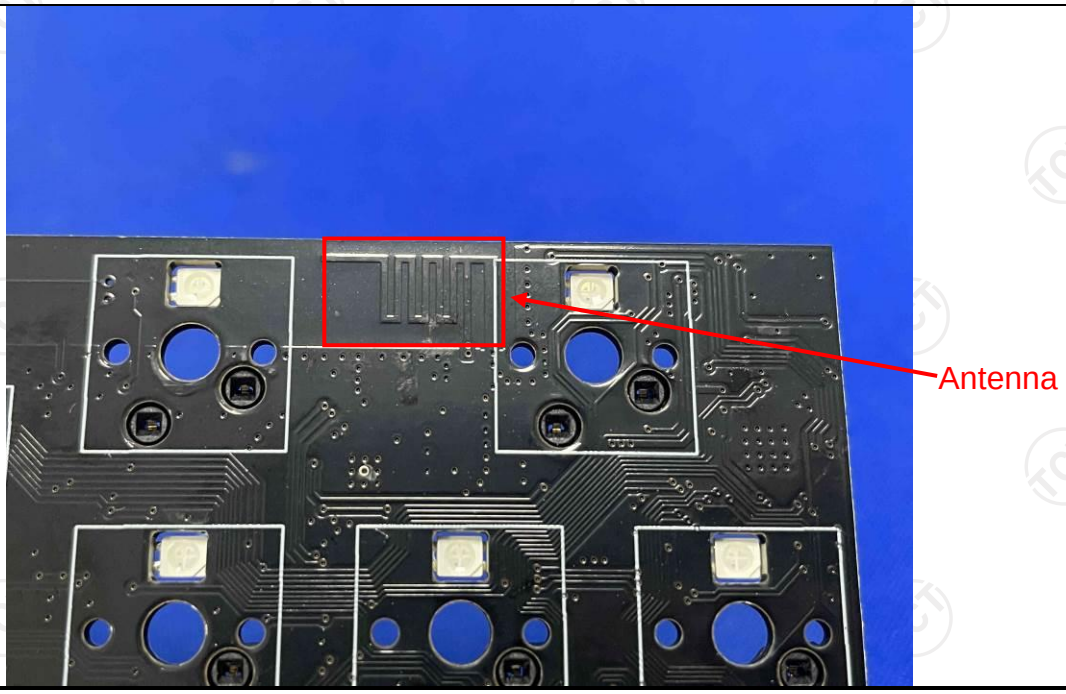
The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

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

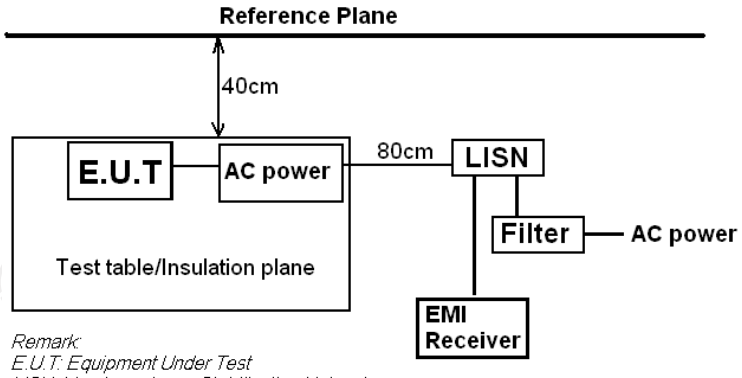
5.1. Antenna Requirement

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.	
E.U.T Antenna:	
The EUT antenna is PCB antenna which permanently attached, and the best case gain of the antenna is 3.85dBi.	



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 C63.10:2020</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>Charging + Transmitting Mode</td></tr>
<tr><td>Test Procedure:</td><td>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 C63.10:2020 on conducted measurement.</td></tr>
<tr><td>Test Result:</td><td>PASS</td></tr>
</table>

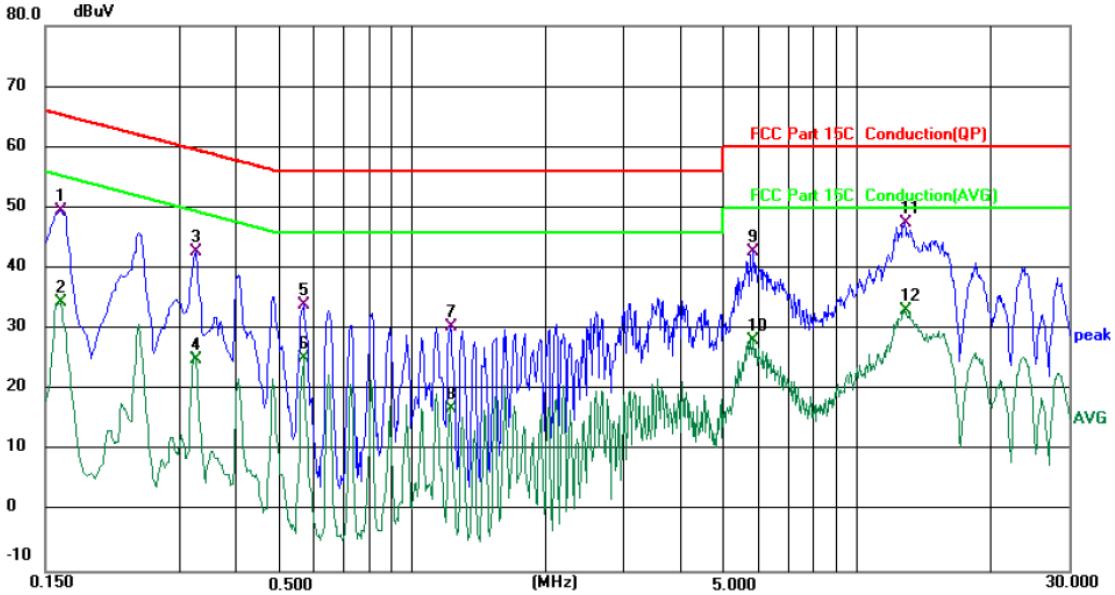
5.2.2. Test Instruments

Conducted Emission Shielding Room Test Site (843)					
Equipment	**Manufacturer**	**Model**	**Serial Number**	**Date of Cal.**	**Due Date**
EMI Test Receiver	R&S	ESCI3	100898	Jun. 27, 2024	Jun. 26, 2025
LISN	Schwarzbeck	NSLK 8126	8126453	Jan. 21, 2025	Jan. 20, 2026
Attenuator	N/A	10dB	164080	Jun. 27, 2024	Jun. 26, 2025
Line-5	TCT	CE-05	/	Jun. 27, 2024	Jun. 26, 2025
EMI Test Software	EZ_EMC	EMEC-3A1	1.1.4.2	/	/

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: 24.2 (℃) | Humidity: 55 %

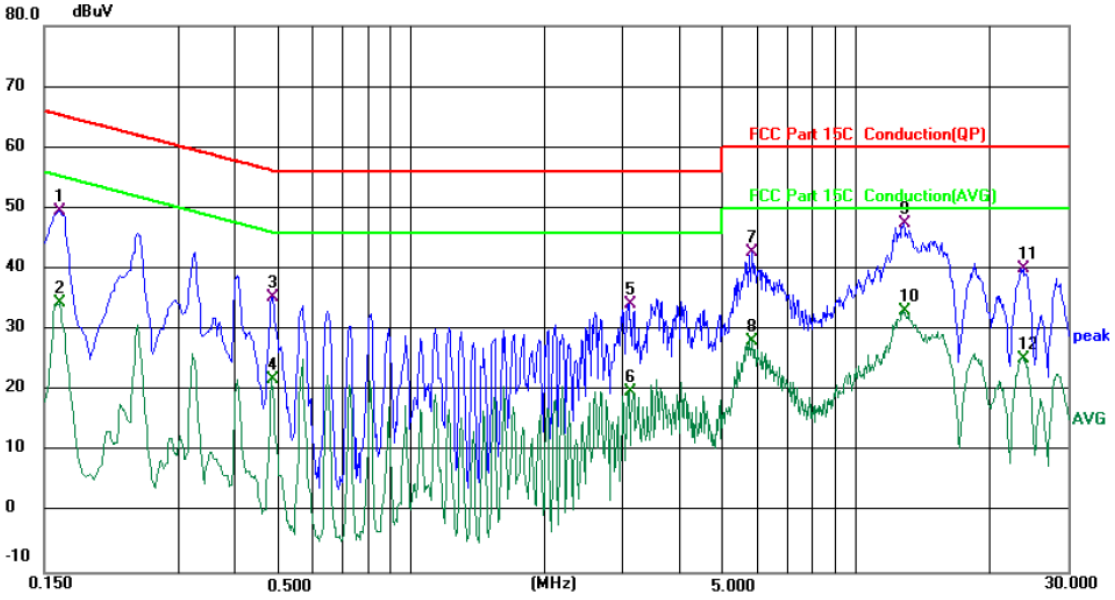
Limit: FCC Part 15C Conduction(QP) | Power: DC 5 V(Adapter Input AC 120 V/60 Hz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1620	39.58	9.95	49.53	65.36	-15.83	QP	
2		0.1620	24.40	9.95	34.35	55.36	-21.01	AVG	
3		0.3260	32.81	9.93	42.74	59.55	-16.81	QP	
4		0.3260	15.04	9.93	24.97	49.55	-24.58	AVG	
5		0.5700	23.99	9.90	33.89	56.00	-22.11	QP	
6		0.5700	15.33	9.90	25.23	46.00	-20.77	AVG	
7		1.2219	20.40	9.95	30.35	56.00	-25.65	QP	
8		1.2219	6.97	9.95	16.92	46.00	-29.08	AVG	
9		5.8500	32.50	10.17	42.67	60.00	-17.33	QP	
10		5.8500	17.90	10.17	28.07	50.00	-21.93	AVG	
11	*	12.8379	37.14	10.36	47.50	60.00	-12.50	QP	
12		12.8379	22.83	10.36	33.19	50.00	-16.81	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: 24.2 (℃) Humidity: 55 %

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		0.1620	39.59	9.94	49.53	65.36	-15.83	QP	
2		0.1620	24.41	9.94	34.35	55.36	-21.01	AVG	
3		0.4860	25.42	9.93	35.35	56.24	-20.89	QP	
4		0.4860	12.00	9.93	21.93	46.24	-24.31	AVG	
5		3.0940	24.20	10.07	34.27	56.00	-21.73	QP	
6		3.0940	9.71	10.07	19.78	46.00	-26.22	AVG	
7		5.8500	32.49	10.18	42.67	60.00	-17.33	QP	
8		5.8500	17.89	10.18	28.07	50.00	-21.93	AVG	
9	*	12.8380	37.08	10.42	47.50	60.00	-12.50	QP	
10		12.8380	22.77	10.42	33.19	50.00	-16.81	AVG	
11		23.7660	29.25	10.84	40.09	60.00	-19.91	QP	
12		23.7660	14.45	10.84	25.29	50.00	-24.71	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)

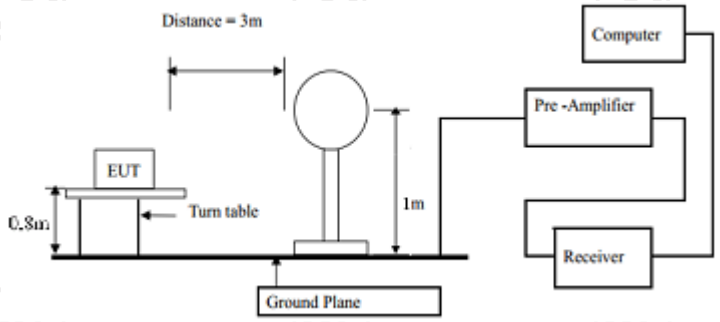
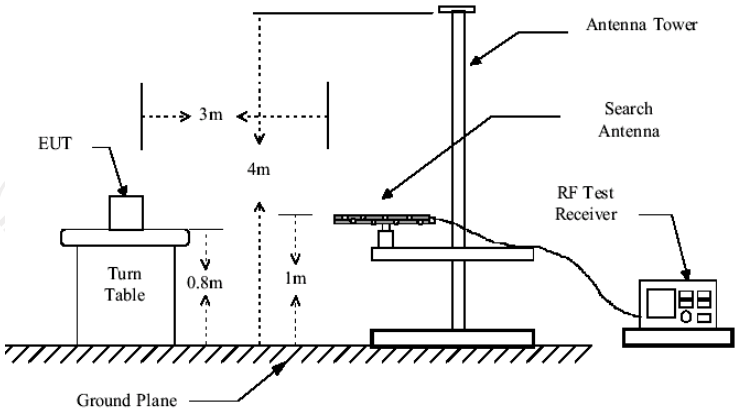
Q.P. =Quasi-Peak AVG =average

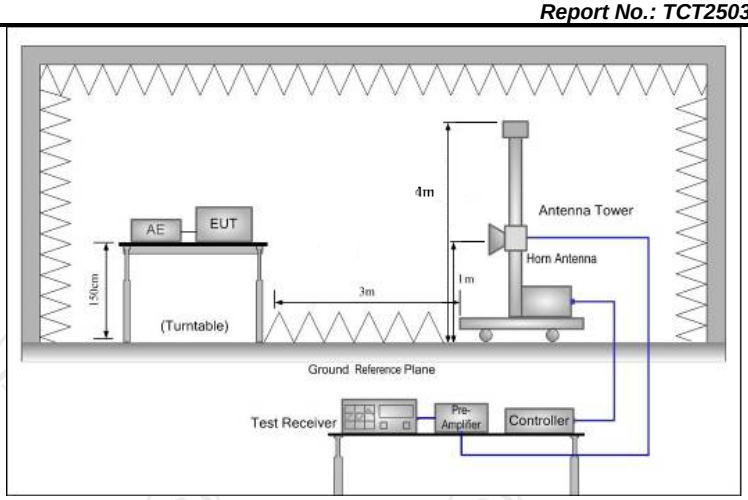
** is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz.*

5.3. Radiated Emission Measurement

5.3.1. Test Specification

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.209</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10:2020</td></tr>
<tr><td>Frequency Range:</td><td>9 kHz to 25 GHz</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><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Remark</td></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>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td>Peak</td><td>1MHz</td><td>10Hz</td><td>Average Value</td></tr>
</table>
</td></tr>
<tr><td>Limit(Field strength of the fundamental signal):</td><td>
<table>
<tr><td>Frequency</td><td>Limit (dBuV/m @3m)</td><td>Remark</td></tr>
<tr><td rowspan="2">2400MHz-2483.5MHz</td><td>94.00</td><td>Average Value</td></tr>
<tr><td>114.00</td><td>Peak Value</td></tr>
</table>
</td></tr>
<tr><td>Limit(Spurious Emissions):</td><td>
<table>
<tr><td>Frequency</td><td>Limit (dBuV/m @3m)</td><td>Remark</td></tr>
<tr><td>0.009-0.490</td><td>2400/F(KHz)</td><td>Quasi-peak Value</td></tr>
<tr><td>0.490-1.705</td><td>24000/F(KHz)</td><td>Quasi-peak Value</td></tr>
<tr><td>1.705-30</td><td>30</td><td>Quasi-peak Value</td></tr>
<tr><td>30MHz-88MHz</td><td>40.0</td><td>Quasi-peak Value</td></tr>
<tr><td>88MHz-216MHz</td><td>43.5</td><td>Quasi-peak Value</td></tr>
<tr><td>216MHz-960MHz</td><td>46.0</td><td>Quasi-peak Value</td></tr>
<tr><td>960MHz-1GHz</td><td>54.0</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>54.0</td><td>Average Value</td></tr>
<tr><td>74.0</td><td>Peak Value</td></tr>
</table>
</td></tr>
<tr><td>Limit (band edge) :</td><td>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.</td></tr>
<tr><td>Test Procedure:</td><td>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.</td></tr>
</table>

	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  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)					
Equipment	**Manufacturer**	**Model**	**Serial Number**	**Date of Cal.**	**Due Date**
EMI Test Receiver	R&S	ESCI7	100529	Jan. 21, 2025	Jan. 20, 2026
Spectrum Analyzer	R&S	FSQ40	200061	Jun. 27, 2024	Jun. 26, 2025
Pre-amplifier	SKET	LNPA_0118G-45	SK2021012102	Jan. 21, 2025	Jan. 20, 2026
Pre-amplifier	SKET	LNPA_1840G-50	SK202109203500	Jan. 21, 2025	Jan. 20, 2026
Pre-amplifier	HP	8447D	2727A05017	Jun. 27, 2024	Jun. 26, 2025
Loop antenna	Schwarzbeck	FMZB1519B	00191	Jun. 27, 2024	Jun. 26, 2025
Broadband Antenna	Schwarzbeck	VULB9163	340	Jun. 29, 2024	Jun. 28, 2025
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Jun. 29, 2024	Jun. 28, 2025
Horn Antenna	Schwarzbeck	BBHA 9170	00956	Jan. 23, 2025	Jan. 22, 2026
Coaxial cable	SKET	RE-03-D	/	Jun. 27, 2024	Jun. 26, 2025
Coaxial cable	SKET	RE-03-M	/	Jun. 27, 2024	Jun. 26, 2025
Coaxial cable	SKET	RE-03-L	/	Jun. 27, 2024	Jun. 26, 2025
Coaxial cable	SKET	RE-04-D	/	Jun. 27, 2024	Jun. 26, 2025
Coaxial cable	SKET	RE-04-M	/	Jun. 27, 2024	Jun. 26, 2025
Coaxial cable	SKET	RE-04-L	/	Jun. 27, 2024	Jun. 26, 2025
Antenna Mast	Keleto	RE-AM	/	/	/
EMI Test Software	EZ_EMC	FA-03A2 RE+	1.1.4.2	/	/

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

5.3.3. Test Data

Field Strength of Fundamental

Frequency (MHz)	Emission PK (dBuV/m)	Horizontal /Vertical	Limits PK (dBuV/m)	Margin (dB)
2404	93.74	H	114	-20.26
2404	86.93	V	114	-27.07
2440	94.21	H	114	-19.79
2440	89.01	V	114	-24.99
2480	93.49	H	114	-20.51
2480	89.15	V	114	-24.85

Frequency (MHz)	Emission AV (dBuV/m)	Horizontal /Vertical	Limits AV (dBuV/m)	Margin (dB)
2404	93.49	H	94	-0.51
2404	86.68	V	94	-7.32
2440	93.85	H	94	-0.15
2440	88.70	V	94	-5.30
2480	93.06	H	94	-0.94
2480	88.80	V	94	-5.20

Spurious Emissions

Frequency Range (9 kHz-30MHz)

Frequency (MHz)	Level@3m (dBμV/m)	Limit@3m (dBμV/m)
--	--	--
--	--	--
--	--	--
--	--	--

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

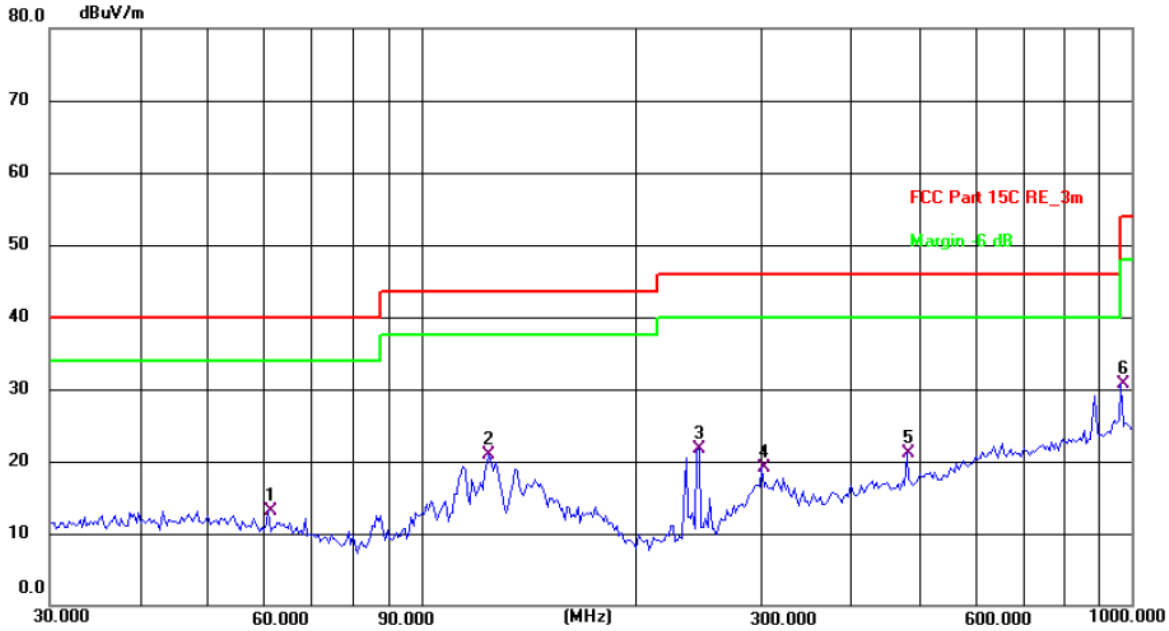
2. The emission levels are 20 dB below the limit value, which are not reported. It is deemed to comply with the requirement.

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

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

Frequency Range (30MHz-1GHz)

Horizontal:

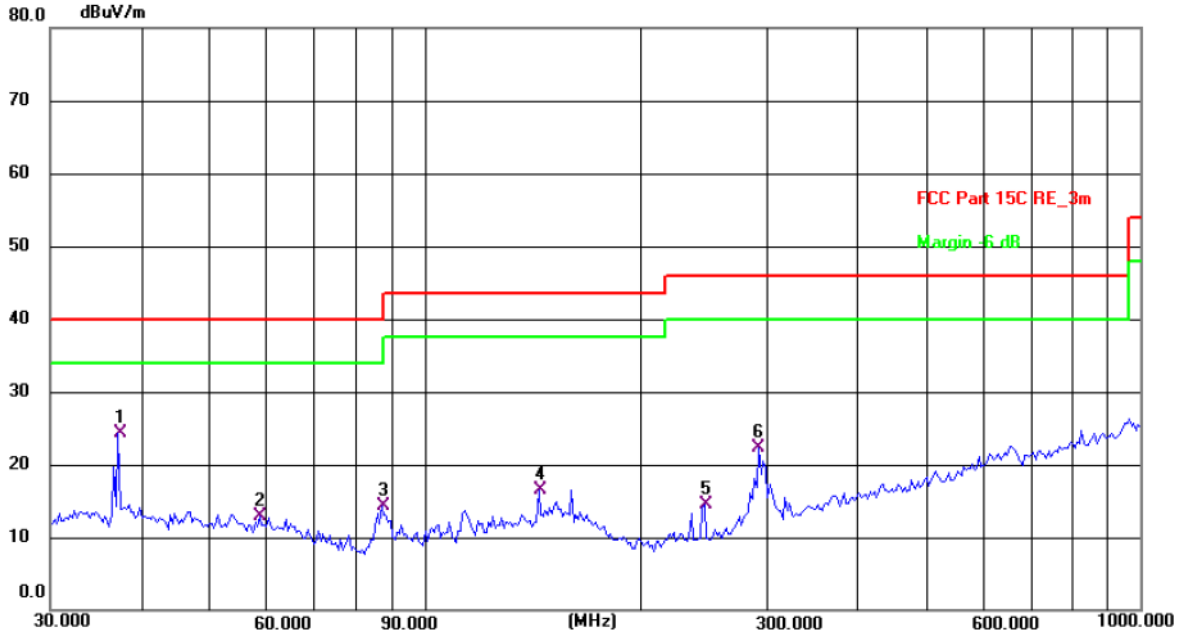


Site: 3m Anechoic Chamber1 Polarization: *Horizontal* Temperature: 24.9(C) Humidity: 50 %

Limit: FCC Part 15C RE_3m Power: DC 3.8 V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	60.9176	26.01	-12.88	13.13	40.00	-26.87	QP	P	
2 *	124.5690	34.02	-13.07	20.95	43.50	-22.55	QP	P	
3	245.9509	35.34	-13.66	21.68	46.00	-24.32	QP	P	
4	301.4224	30.04	-10.95	19.09	46.00	-26.91	QP	P	
5	482.2156	28.92	-7.91	21.01	46.00	-24.99	QP	P	
6	965.5421	30.80	-0.07	30.73	54.00	-23.27	QP	P	

Vertical:



Site: 3m Anechoic Chamber1 Polarization: *Vertical* Temperature: 24.9(C) Humidity: 50 %

Limit: FCC Part 15C RE_3m Power: DC 3.8 V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1 *	37.2855	36.68	-12.32	24.36	40.00	-15.64	QP	P	
2	58.8185	25.64	-12.68	12.96	40.00	-27.04	QP	P	
3	87.1117	30.92	-16.56	14.36	40.00	-25.64	QP	P	
4	144.3348	28.44	-11.92	16.52	43.50	-26.98	QP	P	
5	245.9509	28.11	-13.66	14.45	46.00	-31.55	QP	P	
6	293.0842	33.59	-11.19	22.40	46.00	-23.60	QP	P	

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

Above 1GHz

Low channel: 2404MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBµV)	AV reading (dBuV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBµV/m)	AV limit (dBµV/m)	Margin (dB)
					Peak (dBµV/m)	AV (dBµV/m)			
4808	H	56.04	---	-9.51	46.53	---	74	54	-7.47
7212	H	46.39	---	-1.41	44.98	---	74	54	-9.02
---	---	---	---	---	---	---	---	---	---
4808	V	56.43	---	-9.51	46.92	---	74	54	-7.08
7212	V	46.74	---	-1.41	45.33	---	74	54	-8.67
---	---	---	---	---	---	---	---	---	---

Middle channel: 2440MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBµV)	AV reading (dBµV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBµV/m)	AV limit (dBµV/m)	Margin (dB)
					Peak (dBµV/m)	AV (dBµV/m)			
4880	H	55.67	---	-9.36	46.31	---	74	54	-7.69
7320	H	46.04	---	-1.15	44.89	---	74	54	-9.11
---	---	---	---	---	---	---	---	---	---
4880	V	57.18	---	-9.36	47.82	---	74	54	-6.18
7320	V	47.86	---	-1.15	46.71	---	74	54	-7.29
---	---	---	---	---	---	----	---	---	---

High channel: 2479MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBµV)	AV reading (dBµV)	Correction Factor (dB/m)	Emission Level		Peak limit (dBµV/m)	AV limit (dBµV/m)	Margin (dB)
					Peak (dBµV/m)	AV (dBµV/m)			
4960	H	57.12	---	-9.20	47.92	---	74	54	-6.08
7440	H	46.49	---	-0.96	45.53	---	74	54	-8.47
---	---	---	---	---	---	---	---	---	---
4960	V	56.30	---	-9.20	47.10	---	74	54	-6.90
7440	V	45.61	---	-0.96	44.65	---	74	54	-9.35
---	---	---	---	---	---	---	---	---	---

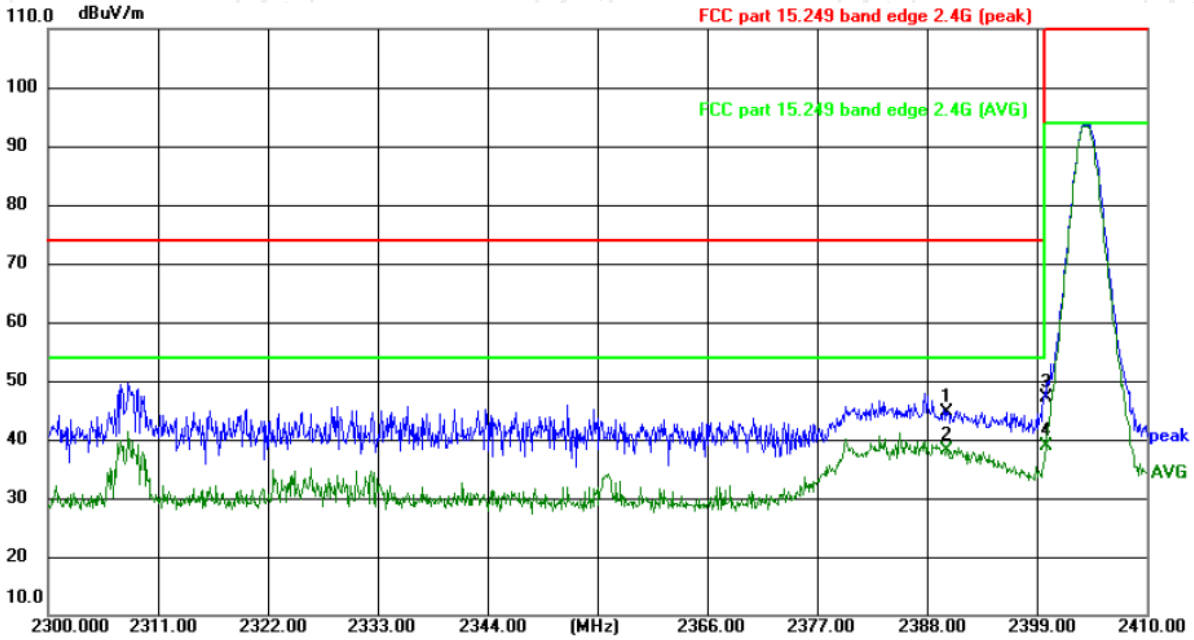
Note:

1. *Emission Level=Peak Reading + Correction Factor; Correction Factor= Antenna Factor + Cable loss – Pre-amplifier*
2. *Margin (dB) = Emission Level (Peak) (dBµV/m)-Average limit (dBµV/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 2404:

Horizontal:

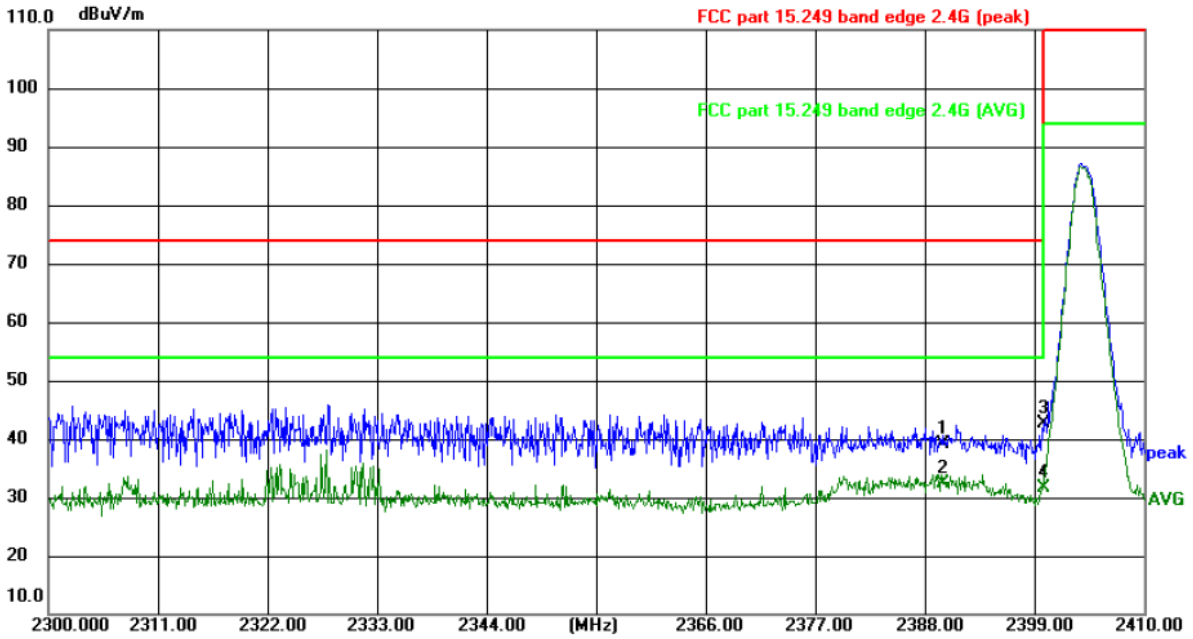


Site: 3m Anechoic Chamber Polarization: *Horizontal* Temperature: 24.1(℃) Humidity: 50 %

Limit: FCC part 15.249 band edge 2.4G (peak) Power:DC 3.8V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	2390.000	61.00	-16.26	44.74	74.00	-29.26	peak	P	
2	2390.000	54.35	-16.26	38.09	54.00	-15.91	AVG	P	
3	2400.000	63.37	-16.35	47.02	74.00	-26.98	peak	P	
4 *	2400.000	55.15	-16.35	38.80	54.00	-15.20	AVG	P	

Vertical:



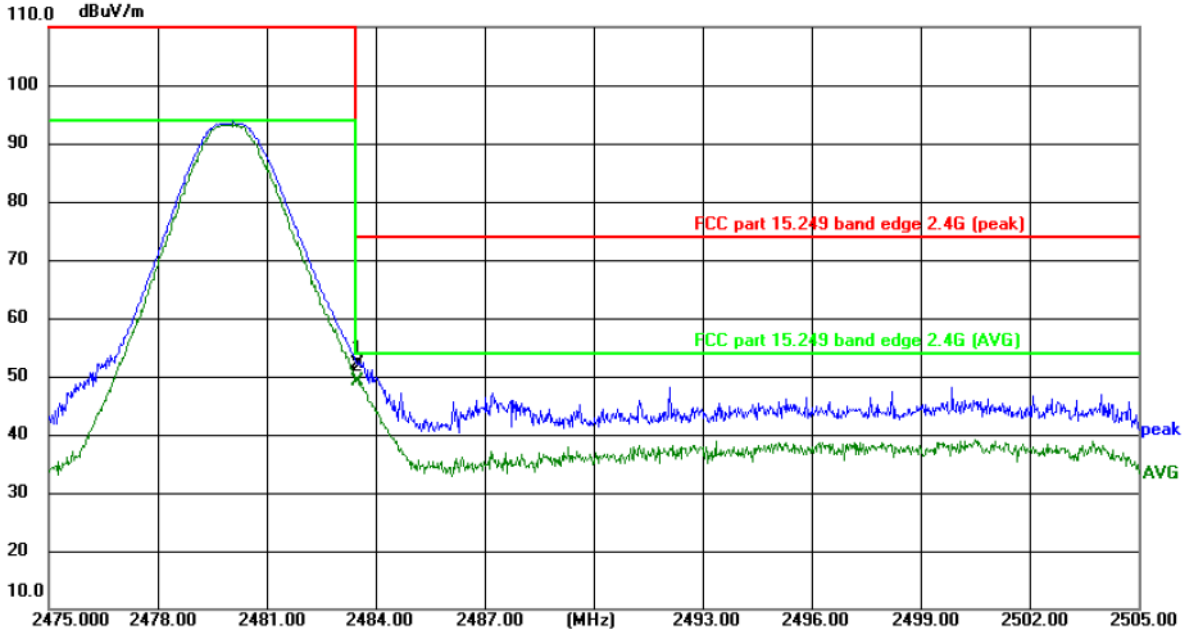
Site: 3m Anechoic Chamber Polarization: *Vertical* Temperature: 24.1(℃) Humidity: 50 %

Limit: FCC part 15.249 band edge 2.4G (peak) Power:DC 3.8V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	2390.000	55.32	-16.26	39.06	74.00	-34.94	peak	P	
2 *	2390.000	48.70	-16.26	32.44	54.00	-21.56	AVG	P	
3	2400.000	59.00	-16.35	42.65	74.00	-31.35	peak	P	
4	2400.000	48.05	-16.35	31.70	54.00	-22.30	AVG	P	

Highest channel 2480:

Horizontal:

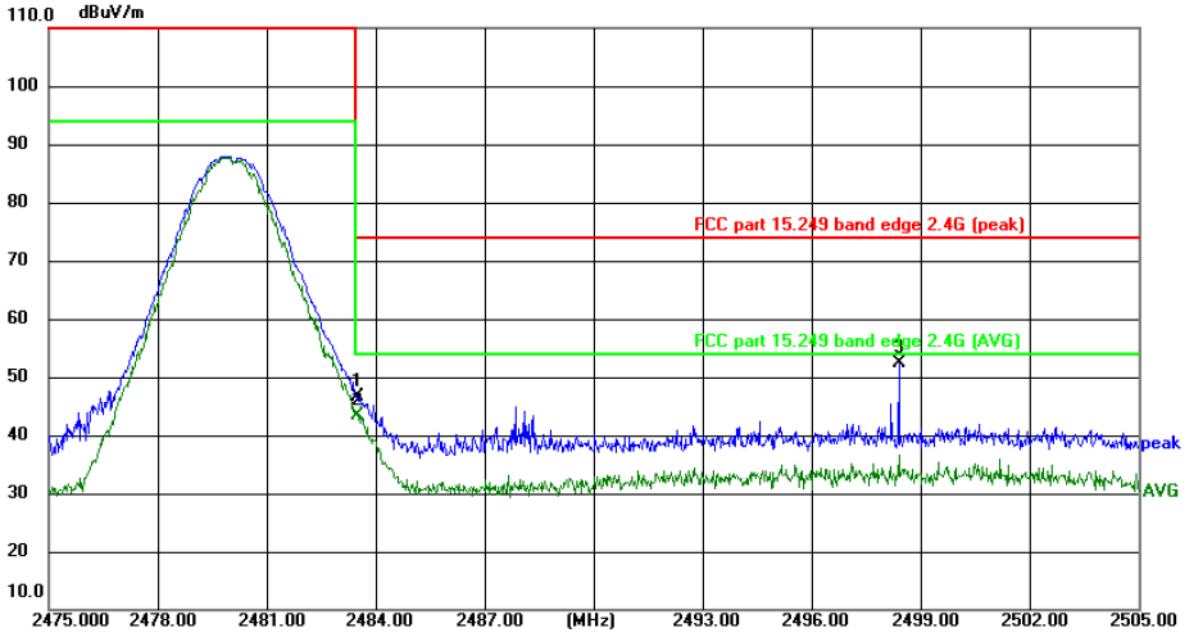


Site: 3m Anechoic Chamber Polarization: *Horizontal* Temperature: 24.1(℃) Humidity: 50 %

Limit: FCC part 15.249 band edge 2.4G (peak) Power:DC 3.8V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	2483.500	68.08	-15.91	52.17	74.00	-21.83	peak	P	
2 *	2483.500	65.12	-15.91	49.21	54.00	-4.79	AVG	P	

Vertical:



Site: 3m Anechoic Chamber Polarization: *Vertical* Temperature: 24.1(℃) Humidity: 50 %

Limit: FCC part 15.249 band edge 2.4G (peak) Power:DC 3.8V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	2483.500	62.42	-15.91	46.51	74.00	-27.49	peak	P	
2 *	2483.500	59.33	-15.91	43.42	54.00	-10.58	AVG	P	
3	2498.427	68.49	-16.03	52.46	74.00	-21.54	peak	P	

5.4. 20dB Occupied Bandwidth

5.4.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.215(c)
Test Method:	ANSI C63.10: 2020
Limit:	N/A
	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:	Transmitting mode with modulation
Test results:	PASS

5.4.2. Test Instruments

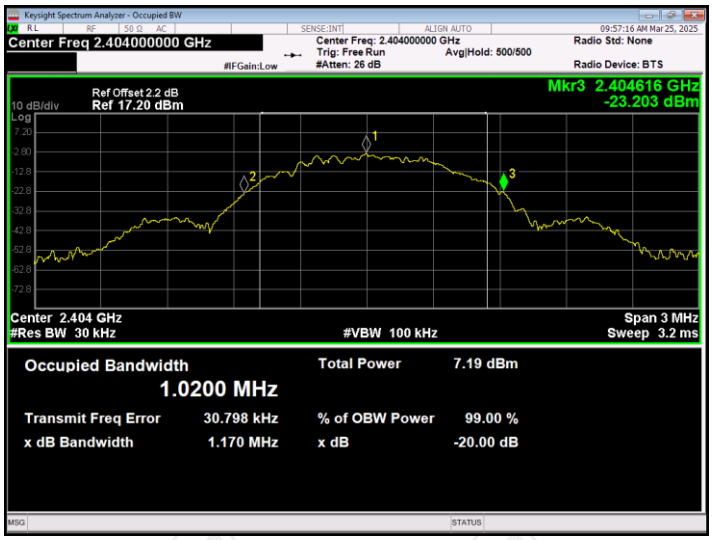
Equipment	Manufacturer	Model No.	Serial Number	Date of Cal.	Due Date
Spectrum Analyzer	Agilent	N9020A	MY49100619	Jun. 27, 2024	Jun. 26, 2025

5.4.3. Test data

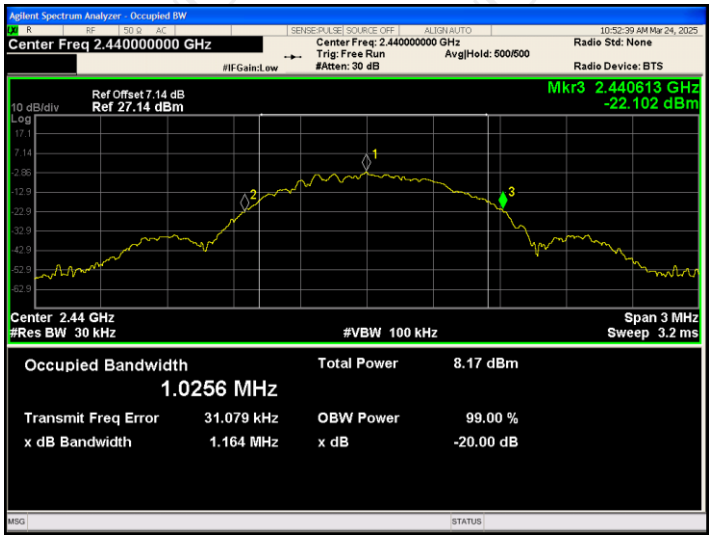
Test Channel	20dB Occupy Bandwidth (kHz)	Limit	Conclusion
Lowest	1170	---	PASS
Middle	1164	---	PASS
Highest	1174	---	PASS

Test plots as follows:

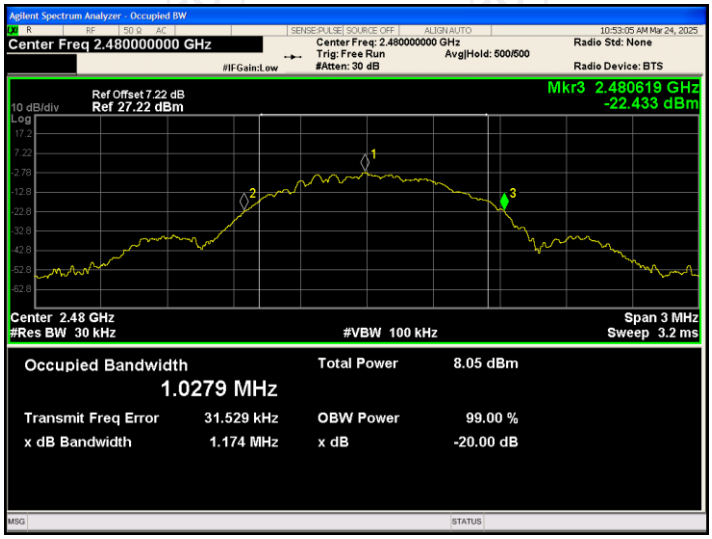
Lowest channel



Middle channel



Highest channel



Appendix B: Photographs of Test Setup

Please refer to document Appendix No.: TCT250319E009-A

Appendix C: Photographs of EUT

Please refer to document Appendix No.: TCT250319E009-B & TCT250319E009-C

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

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