

TEST REPORT

FCC ID..... :	2AUARTKX12	
Test Report No..... :	TCT240820E906	
Date of issue..... :	Aug. 28, 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..... :	THINKCAR TECH CO., LTD.	
Address..... :	2606, building 4, phase II, TiananYungu, Gangtou community, Bantian, Longgang District, Shenzhen, China	
Manufacturer's name ... :	THINKCAR TECH CO., LTD.	
Address..... :	2606, building 4, phase II, TiananYungu, Gangtou community, Bantian, Longgang District, Shenzhen, China	
Standard(s)	FCC CFR Title 47 Part 15 Subpart C Section 15.247 FCC KDB 558074 D01 15.247 Meas Guidance v05r02 ANSI C63.10:2013	
Product Name..... :	AI Automotive Diagnostic Tool	
Trade Mark	THINKCAR, XHINKCAR, MUCAR	
Model/Type reference..... :	TKX12	
Rating(s)..... :	Adapter Information: Model: PSYB0502500 Input: AC 100-240V, 50/60Hz, 0.6A Max Output: DC 5.0V, 2.5A, 12.5W Rechargeable Li-ion Battery DC 7.6V	
Date of receipt of test item	Aug. 20, 2024	
Date (s) of performance of test..... :	Aug. 20, 2024 ~ Aug. 28, 2024	
Tested by (+signature) ... :	Rleo LIU	
Check by (+signature).... :	Beryl ZHAO	
Approved by (+signature):	Tomsin	

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1. General Product Information

1.1. EUT description

Product Name.....:	AI Automotive Diagnostic Tool
Model/Type reference.....:	TKX12
Sample Number.....:	TCT240820E902-0101
Operation Frequency	2412MHz~2462MHz (802.11b/802.11g/802.11n(HT20)) 2422MHz~2452MHz (802.11n(HT40))
Channel Separation	5MHz
Number of Channel	11 for 802.11b/802.11g/802.11n(HT20) 7 for 802.11n(HT40)
Modulation Technology	802.11b: Direct Sequence Spread Spectrum (DSSS) 802.11g/802.11n: Orthogonal Frequency Division Multiplexing(OFDM)
Data speed	802.11b: 1Mbps, 2Mbps, 5.5Mbps, 11Mbps 802.11g: 6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps, 54Mbps 802.11n: Up to 150Mbps
Antenna Type.....:	Internal Antenna
Antenna Gain.....:	3.72dBi
Rating(s).....:	Adapter Information: Model: PSYB0502500 Input: AC 100-240V, 50/60Hz, 0.6A Max Output: DC 5.0V, 2.5A, 12.5W Rechargeable Li-ion Battery DC 7.6V

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

None.

1.3. Operation Frequency

For 802.11b/g/n (HT20)

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412MHz	4	2427MHz	7	2442MHz	10	2457MHz
2	2417MHz	5	2432MHz	8	2447MHz	11	2462MHz
3	2422MHz	6	2437MHz	9	2452MHz	--	--

For 802.11n (HT40)

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
--	--	4	2427MHz	7	2442MHz	--	--
--	--	5	2432MHz	8	2447MHz	--	--
3	2422MHz	6	2437MHz	9	2452MHz		

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:

802.11b/802.11g/802.11n (HT20)

Channel	Frequency
The lowest channel	2412MHz
The middle channel	2437MHz
The Highest channel	2462MHz

802.11n (HT40)

Channel	Frequency
The lowest channel	2422MHz
The middle channel	2437MHz
The Highest channel	2452MHz

2. Test Result Summary

Requirement	CFR 47 Section	Result
Antenna requirement	§15.203/§15.247 (c)	PASS
AC Power Line Conducted Emission	§15.207	PASS
Conducted Output Power	§15.247 (b)(3)	PASS
6dB Emission Bandwidth	§15.247 (a)(2)	PASS
Power Spectral Density	§15.247 (e)	PASS
Band Edge	§15.247(d)	PASS
Spurious Emission	§15.205/§15.209	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.
5. This report is issued as a supplemental report to original FCC ID: 2AUARTKX12, the difference is changing product name, model name, color, appearance and shell material in this report, conducted emission and radiated emission had been re-tested and only its data was presented in this report.

3. General Information

3.1. Test environment and mode

Operating Environment:		
Condition	Conducted Emission	Radiated Emission
Temperature:	23.5 °C	24.6 °C
Humidity:	52 % RH	53 % RH
Atmospheric Pressure:	1010 mbar	1010 mbar
Test Software:		
Software Information:	Engineering Mode	
Power Level:	20M: 18 40M: 14	
Test Mode:		
AC mode	Keep the EUT in continuous transmitting by select channel and modulations with Fully-charged battery.	
Battery mode		
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.		

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.

Mode	Data rate
802.11b	1Mbps
802.11g	6Mbps
802.11n(H20)	6.5Mbps
802.11n(H40)	13.5Mbps

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.
3. For conducted measurements (Output Power, 6dB Emission Bandwidth, Power Spectral Density, Spurious Emissions), the antenna of EUT is connected to the test equipment via temporary antenna connector, the antenna connector is soldered on the antenna port of EUT, and the temporary antenna connector is listed in the Test Instruments.

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 $y \pm U$, 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 /247(c)

15.203 requirement:

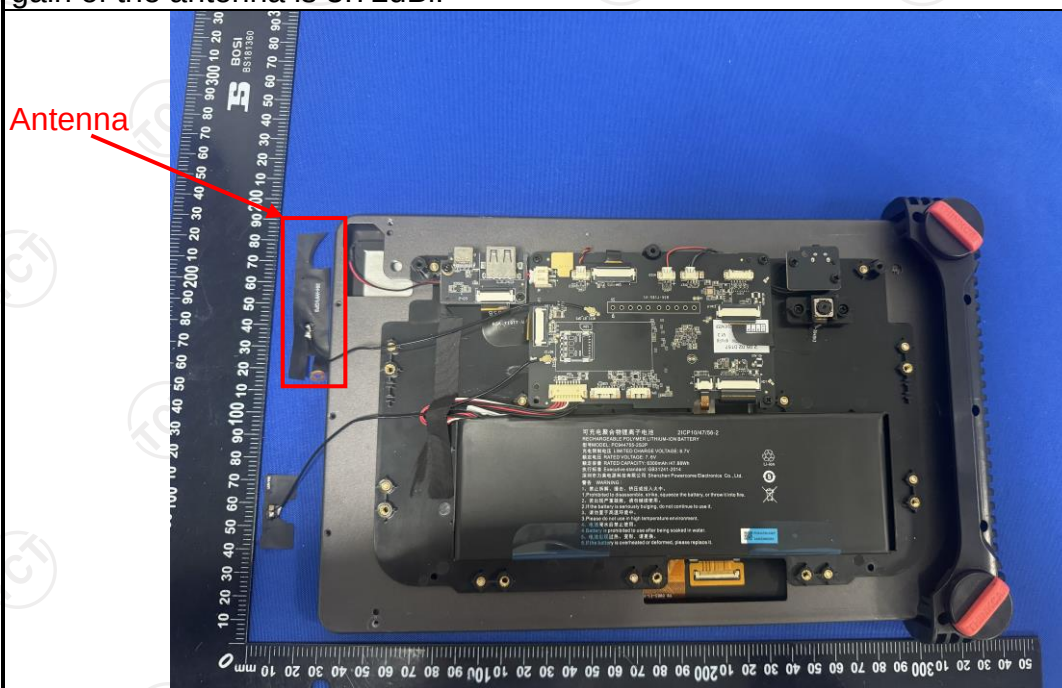
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(c) (1)(i) requirement:

(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

E.U.T Antenna:

The WIFI antenna is internal antenna which permanently attached, and the best case gain of the antenna is 3.72dBi.



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><tr><th rowspan="2">Frequency range (MHz)</th><th colspan="2">Limit (dBuV)</th></tr><tr><th>Quasi-peak</th><th>Average</th></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>	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:	Reference Plane 40cm E.U.T AC power 80cm LISN Filter AC power EMI Receiver Test table/Insulation plane Remark E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m														
Test Mode:	AC Mode														
Test Procedure:	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.														
Test Result:	PASS														

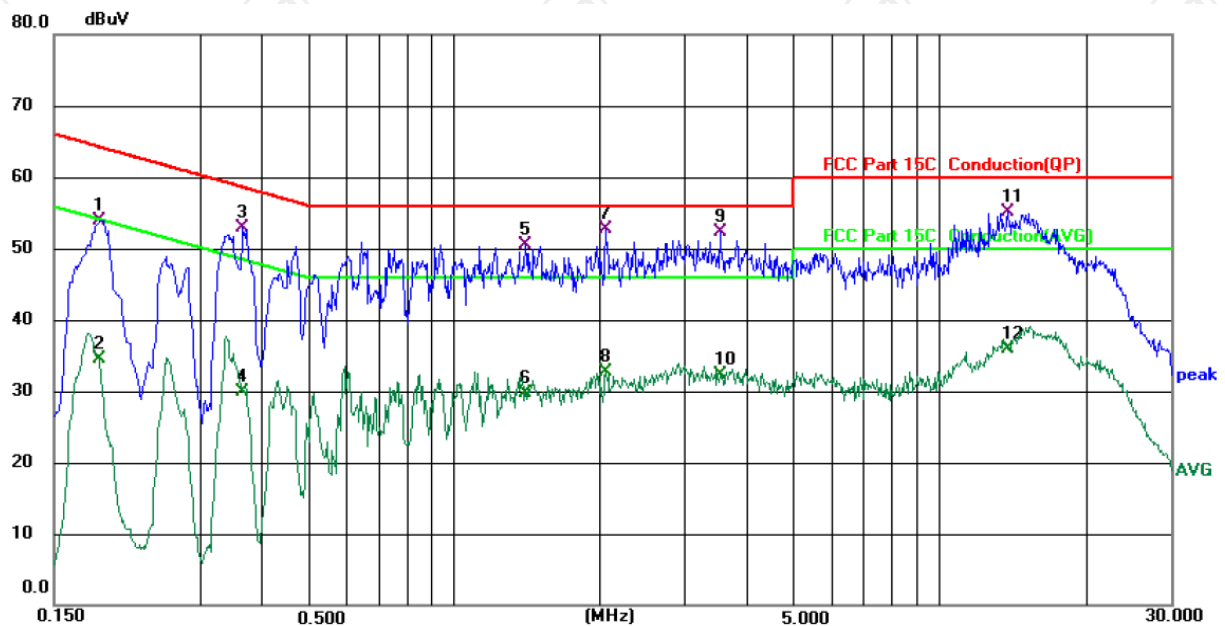
5.2.2. Test Instruments

Conducted Emission Shielding Room Test Site (843)				
Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	R&S	ESCI3	100898	Jun. 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_EMCC	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: 23.5 (°C)

Humidity: 52 %

Limit: FCC Part 15C Conduction(QP)

Power: AC 120 V/60 Hz

No.	Mk.	Freq. MHz	Reading Level dBμV	Correct Factor dB	Measure- ment dBμV	Limit dBμV	Over dB	Detector	Comment
1		0.1859	43.75	10.14	53.89	64.22	-10.33	QP	
2		0.1859	24.42	10.14	34.56	54.22	-19.66	AVG	
3		0.3659	43.36	9.57	52.93	58.59	-5.66	QP	
4		0.3659	20.39	9.57	29.96	48.59	-18.63	AVG	
5		1.4100	40.53	10.00	50.53	56.00	-5.47	QP	
6		1.4100	19.76	10.00	29.76	46.00	-16.24	AVG	
7	*	2.0619	42.74	10.01	52.75	56.00	-3.25	QP	
8		2.0619	22.77	10.01	32.78	46.00	-13.22	AVG	
9		3.5379	42.30	10.07	52.37	56.00	-3.63	QP	
10		3.5379	22.19	10.07	32.26	46.00	-13.74	AVG	
11		13.9016	44.95	10.16	55.11	60.00	-4.89	QP	
12		13.9016	25.74	10.16	35.90	50.00	-14.10	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

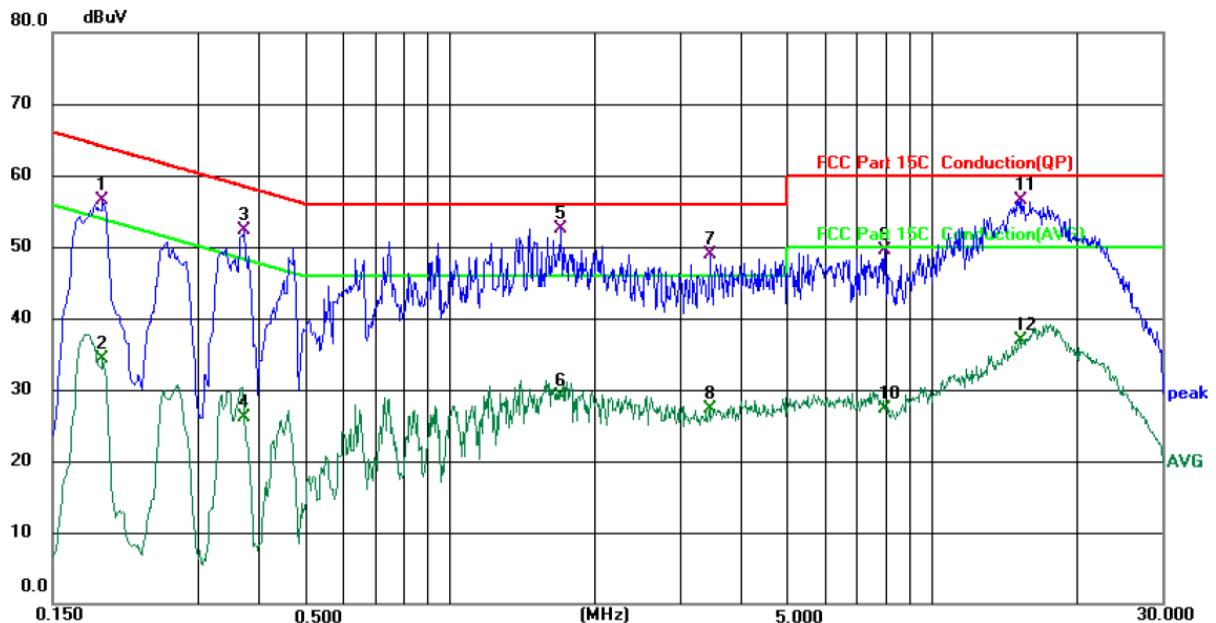
Margin (dB) = Measurement (dBμV) – Limits (dBμV)

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: 23.5 (°C)

Humidity: 52 %

Limit: FCC Part 15C Conduction(QP)

Power: AC 120 V/60 Hz

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1900	46.30	10.14	56.44	64.04	-7.60	QP	
2		0.1900	24.09	10.14	34.23	54.04	-19.81	AVG	
3		0.3738	42.65	9.58	52.23	58.42	-6.19	QP	
4		0.3738	16.62	9.58	26.20	48.42	-22.22	AVG	
5	*	1.7056	42.54	10.00	52.54	56.00	-3.46	QP	
6		1.7056	19.19	10.00	29.19	46.00	-16.81	AVG	
7		3.4620	38.82	10.06	48.88	56.00	-7.12	QP	
8		3.4620	17.16	10.06	27.22	46.00	-18.78	AVG	
9		7.9858	39.42	10.16	49.58	60.00	-10.42	QP	
10		7.9858	17.08	10.16	27.24	50.00	-22.76	AVG	
11		15.3500	46.25	10.26	56.51	60.00	-3.49	QP	
12		15.3500	26.73	10.26	36.99	50.00	-13.01	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)

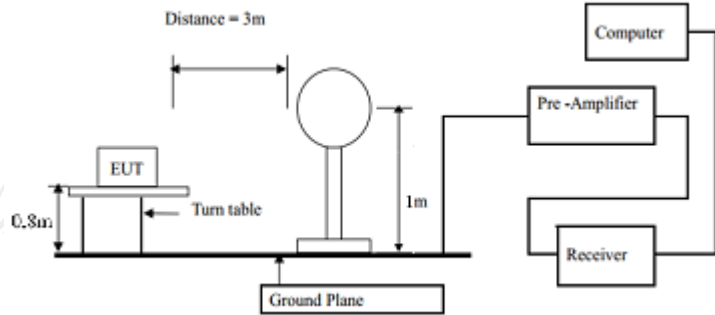
Q.P. =Quasi-Peak

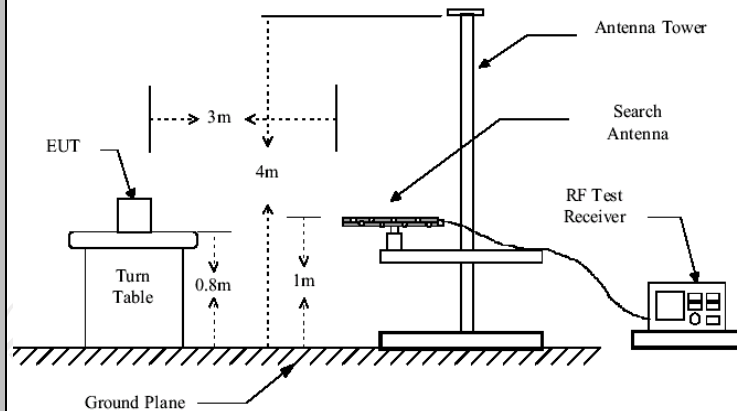
AVG =average

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

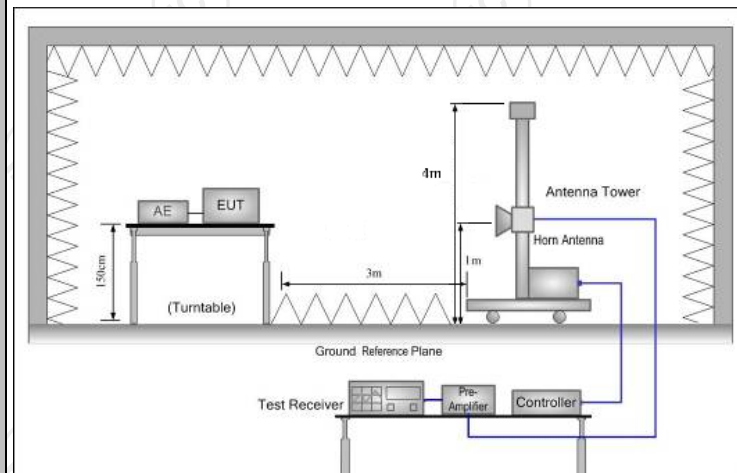
5.3. Radiated Spurious Emission Measurement

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				
Operation mode:	Transmitting mode with modulation				
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:	Frequency		Field Strength (microvolts/meter)		Measurement Distance (meters)
	0.009-0.490		2400/F(KHz)		300
	0.490-1.705		24000/F(KHz)		30
	1.705-30		30		30
	30-88		100		3
	88-216		150		3
	216-960		200		3
	Above 960		500		3
	Frequency		Field Strength (microvolts/meter)		Measurement Distance (meters)
	Above 1GHz		500		3
		5000		3	
Test setup:	For radiated emissions below 30MHz				
					
Test setup:	30MHz to 1GHz				



Above 1GHz



Test Procedure:

1. For the radiated emission test below 1GHz:

The EUT was placed on a turntable with 0.8 meter above ground. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high PASS filter are used for the test in order to get better signal level.

For the radiated emission test above 1GHz:

Place the measurement antenna on a turntable with 1.5 meter above ground, which is away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which

	maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane. 3. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level 4. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported. 5. Use the following spectrum analyzer settings: (1) Span shall wide enough to fully capture the emission being measured; (2) Set RBW=120 kHz for $f < 1$ GHz; VBW $\geq$ RBW; Sweep = auto; Detector function = peak; Trace = max hold; (3) Set RBW = 1 MHz, VBW= 3MHz for $f > 1$ GHz for peak measurement. For average measurement: VBW = 10 Hz, when duty cycle is no less than 98 percent. VBW $\geq 1/T$, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
Test results:	PASS

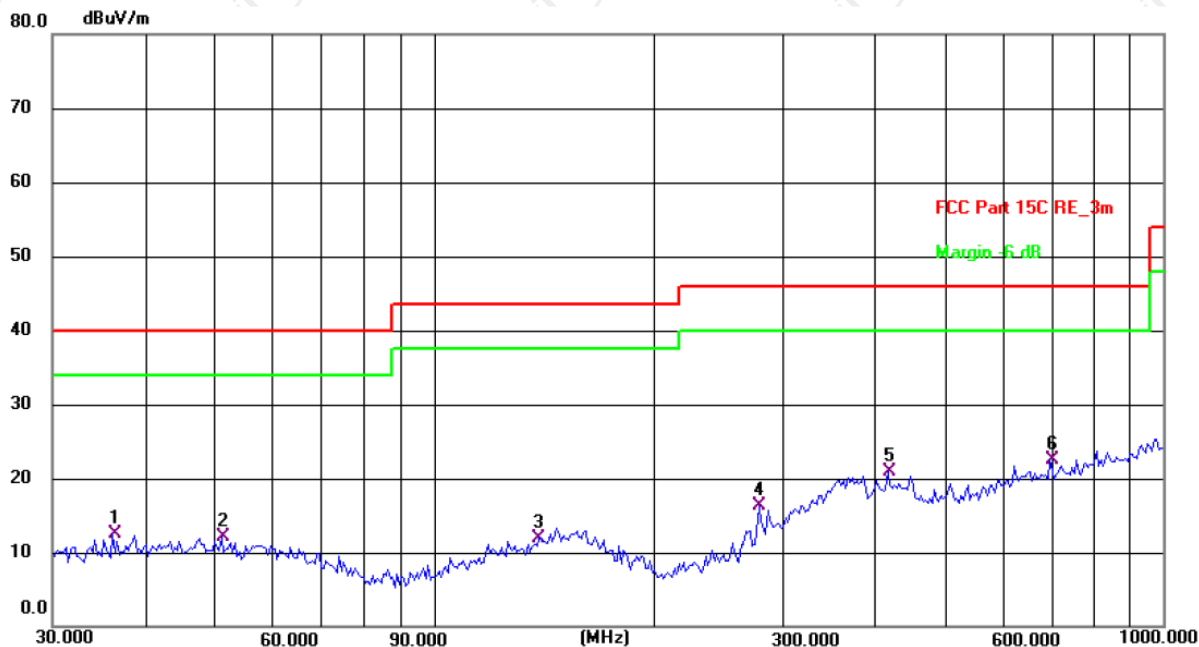
5.3.2. Test Instruments

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	/

5.3.3. Test Data

Please refer to following diagram for individual
Below 1GHz

Horizontal:



Site: 3m Anechoic Chamber1

Polarization: **Horizontal**

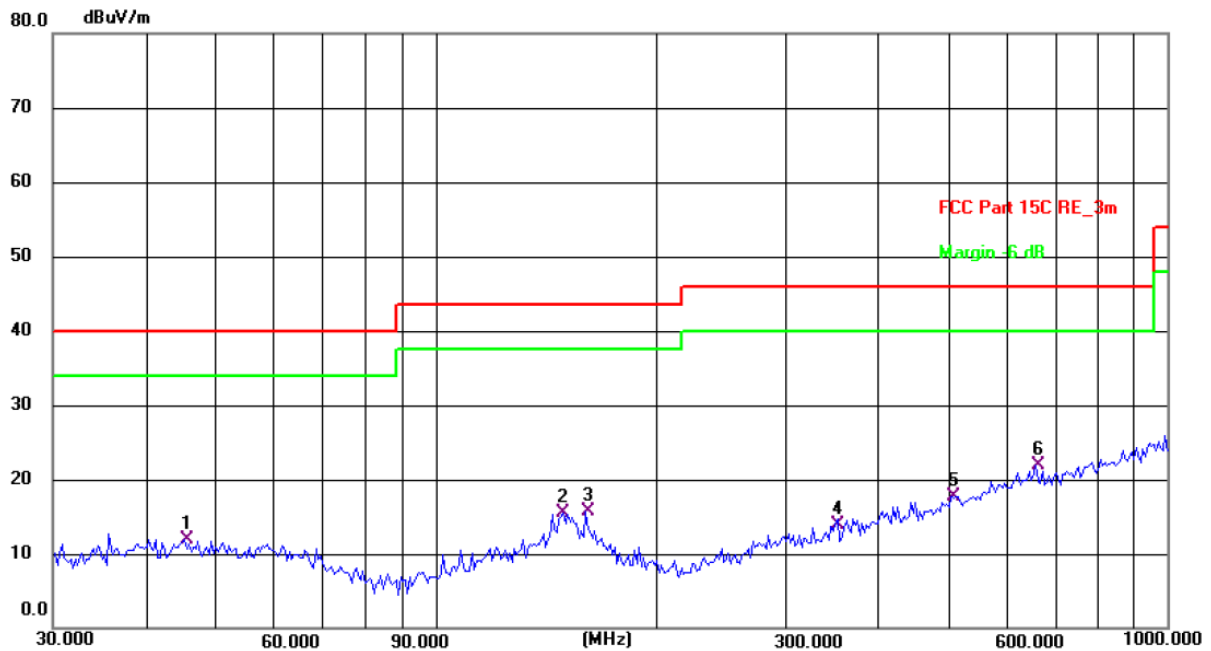
Temperature: 24.6(C) Humidity: 53 %

Limit: FCC Part 15C RE_3m

Power: DC 7.6 V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	36.2540	24.95	-12.41	12.54	40.00	-27.46	QP	P	
2	51.1209	24.39	-12.38	12.01	40.00	-27.99	QP	P	
3	139.3611	24.04	-12.18	11.86	43.50	-31.64	QP	P	
4	279.0436	27.99	-11.71	16.28	46.00	-29.72	QP	P	
5	419.1081	29.51	-8.66	20.85	46.00	-25.15	QP	P	
6 *	699.3045	26.70	-4.29	22.41	46.00	-23.59	QP	P	

Vertical:



Site: 3m Anechoic Chamber1

Polarization: **Vertical**

Temperature: 24.6(C) Humidity: 53 %

Limit: FCC Part 15C RE_3m

Power: DC 7.6 V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	45.3754	24.20	-12.20	12.00	40.00	-28.00	QP	P	
2	149.4857	26.85	-11.38	15.47	43.50	-28.03	QP	P	
3	160.3456	27.14	-11.37	15.77	43.50	-27.73	QP	P	
4	351.7079	24.01	-10.02	13.99	46.00	-32.01	QP	P	
5	506.4790	25.07	-7.29	17.78	46.00	-28.22	QP	P	
6 *	661.1504	25.91	-3.98	21.93	46.00	-24.07	QP	P	

Note: 1. The low frequency, which started from 9KHz~30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported

2. Measurements were conducted in all three channels (high, middle, low) and all modulation(802.11b, 802.11g, 802.11n(HT20), 802.11n(HT40)), and the worst case Mode (Lowest channel and 802.11b) was submitted only.

3. Freq. = Emission frequency in MHz

Measurement (dBuV/m) = Reading level (dBuV) + Corr. Factor (dB)

Correction Factor= Antenna Factor + Cable loss – Pre-amplifier

Limit (dBuV/m) = Limit stated in standard

Margin (dB) = Measurement (dBuV/m) – Limits (dBuV/m)

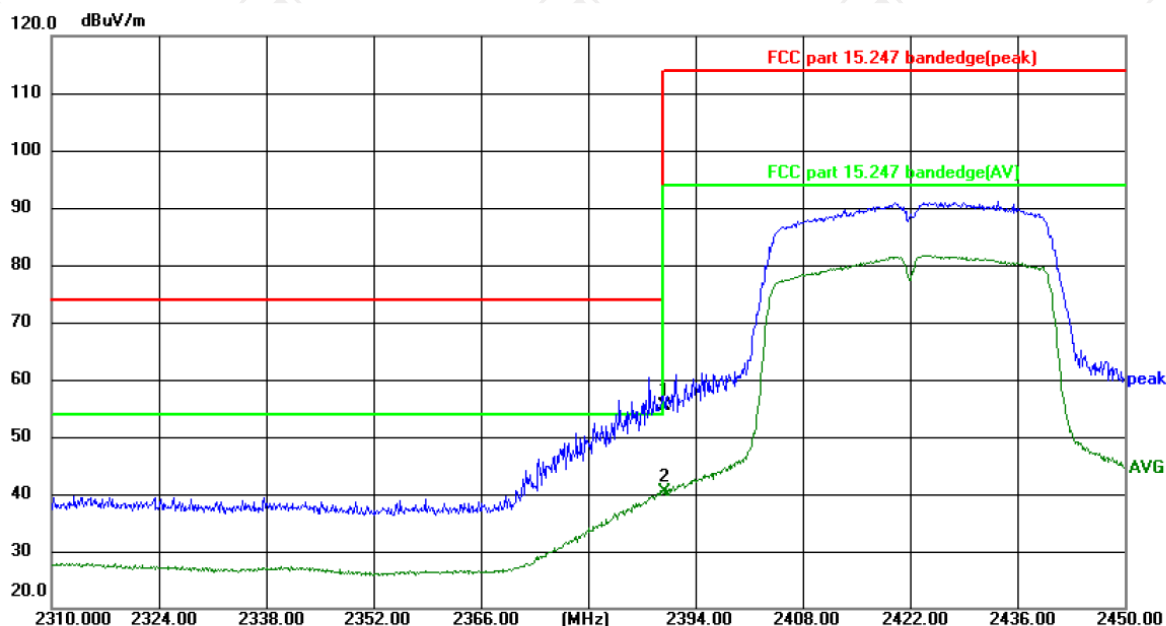
* is meaning the worst frequency has been tested in the test frequency range.

4. Both AC mode and Battery mode were tested, only the worse mode (Battery mode) is reported.

Test Result of Radiated Spurious at Band edges

Lowest channel 2422:

Horizontal:



Site: #3 3m Anechoic Chamber

Polarization: **Horizontal**

Temperature: 25.3(°C)

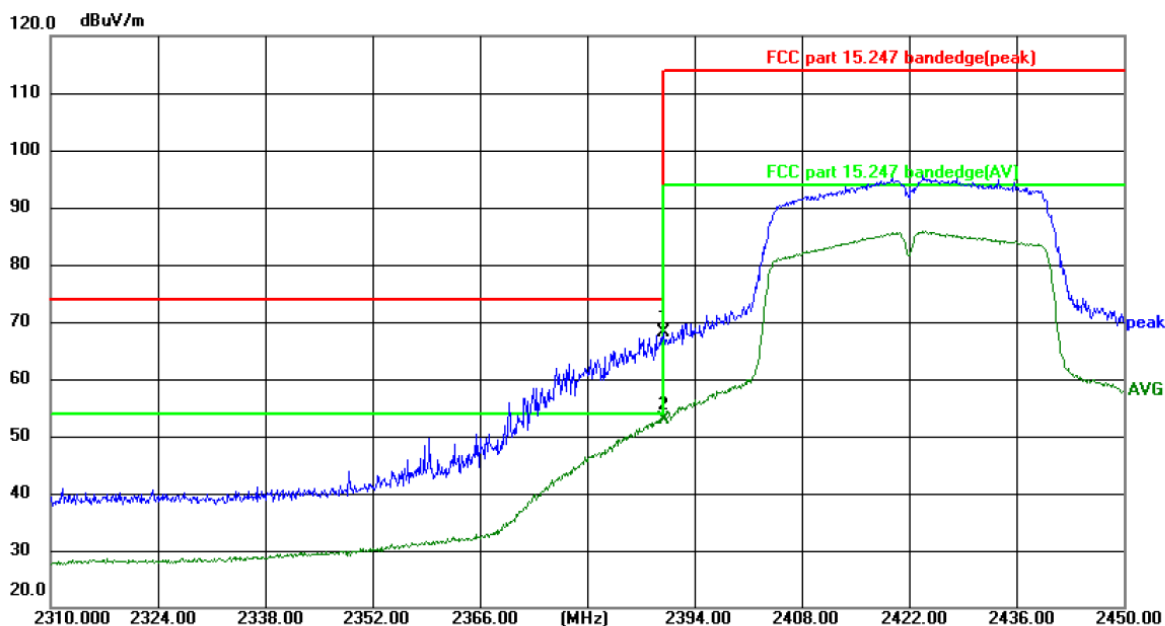
Humidity: 50 %

Limit: FCC part 15.247 bandedge(peak)

Power: DC 7.6 V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	2390.000	72.44	-17.10	55.34	74.00	-18.66	peak	P	
2 *	2390.000	57.51	-17.10	40.41	54.00	-13.59	AVG	P	

Vertical:



Site: #3 3m Anechoic Chamber

Polarization: **Vertical**

Temperature: 25.3(°C)

Humidity: 50 %

Limit: FCC part 15.247 bandedge(peak)

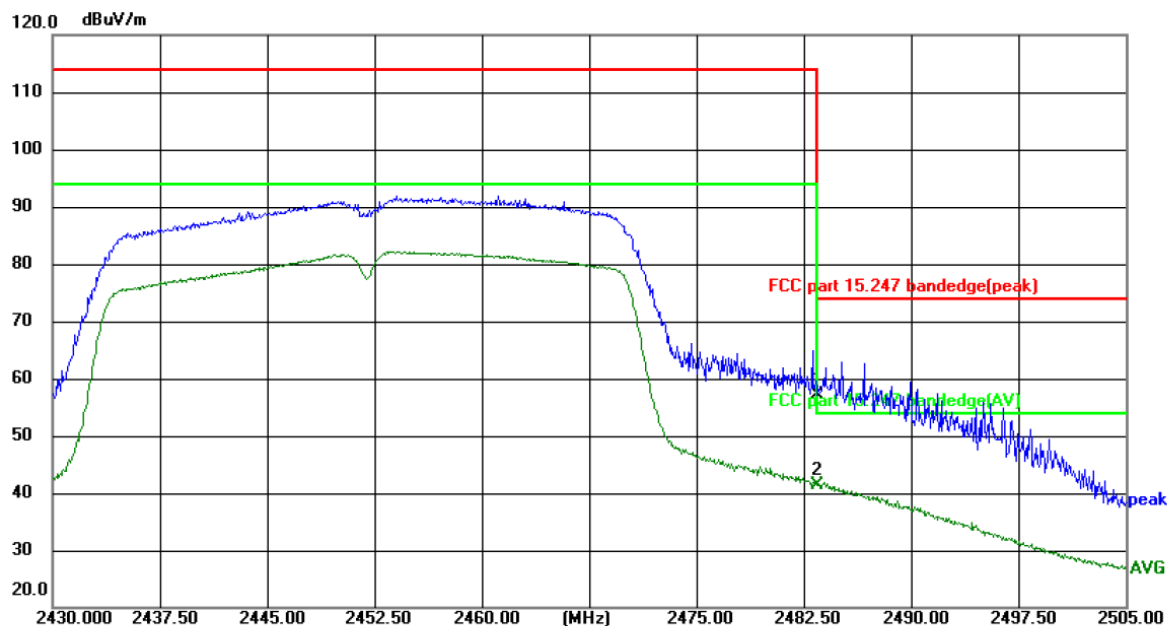
Power:DC 7.6 V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	2390.000	85.18	-17.10	68.08	74.00	-5.92	peak	P	
2 *	2390.000	70.04	-17.10	52.94	54.00	-1.06	AVG	P	

Note: Measurements were conducted in all two channels (high, low) and all modulation (802.11b, 802.11g, 802.11n(HT20), 802.11n(HT40)), and the worst case Mode 802.11n(HT40)) was submitted only.

Highest channel 2452:

Horizontal:



Site: #3 3m Anechoic Chamber

Polarization: **Horizontal**

Temperature: 25.3(°C)

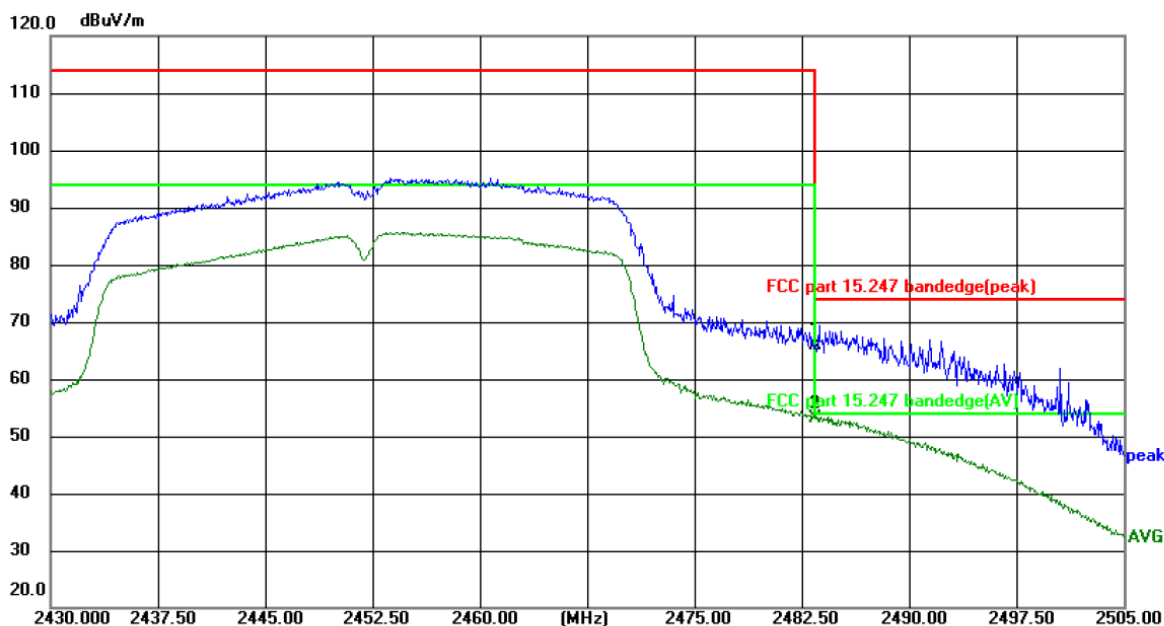
Humidity: 50 %

Limit: FCC part 15.247 bandedge(peak)

Power:DC 7.6 V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	2483.500	73.90	-16.88	57.02	74.00	-16.98	peak	P	
2 *	2483.500	58.15	-16.88	41.27	54.00	-12.73	AVG	P	

Vertical:



Site: #3 3m Anechoic Chamber

Polarization: **Vertical**

Temperature: 25.3(°C)

Humidity: 50 %

Limit: FCC part 15.247 bandedge(peak)

Power:DC 7.6 V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	2483.500	82.80	-16.88	65.92	74.00	-8.08	peak	P	
2 *	2483.500	70.07	-16.88	53.19	54.00	-0.81	AVG	P	

Note:

1. Peak Final Emission Level=Peak Reading + Correction Factor;
2. Correction Factor= Antenna Factor + Cable loss – Pre-amplifier
3. Measurements were conducted in all modulation(802.11b, 802.11g, 802.11n(HT20), 802.11n(HT40)), and the worst case Mode 802.11n(HT40)) was submitted only.

Above 1GHz

Modulation Type: 802.11b

Low channel: 2412 MHz

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)			
4824	H	55.44	---	-9.48	45.96	---	74	54	-8.04
7236	H	43.30	---	-1.34	41.96	---	74	54	-12.04
---	H	---	---	---	---	---	---	---	---
4824	V	54.45	---	-9.48	44.97	---	74	54	-9.03
7236	V	44.20	---	-1.34	42.86	---	74	54	-11.14
---	V	---	---	---	---	---	---	---	---

Middle channel: 2437 MHz

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)			
4874	H	54.85	---	-9.37	45.48	---	74	54	-8.52
7311	H	43.83	---	-1.17	42.66	---	74	54	-11.34
---	H	---	---	---	---	---	---	---	---
4874	V	54.15	---	-9.37	44.78	---	74	54	-9.22
7311	V	44.04	---	-1.17	42.87	---	74	54	-11.13
---	V	---	---	---	---	---	---	---	---

High channel: 2462 MHz

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)			
4924	H	54.95	---	-9.26	45.69	---	74	54	-8.31
7386	H	43.68	---	-1.01	42.67	---	74	54	-11.33
---	H	---	---	---	---	---	---	---	---
4924	V	55.16	---	-9.26	45.90	---	74	54	-8.10
7386	V	44.59	---	-1.01	43.58	---	74	54	-10.42
---	V	---	---	---	---	---	---	---	---

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. The highest test frequency is 25GHz.
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.
7. Both AC mode and Battery mode were tested, only the worse mode (Battery mode) is reported.

Modulation Type: 802.11g

Low channel: 2412 MHz

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)			
4824	H	55.03	---	-9.48	45.55	---	74	54	-8.45
7236	H	44.78	---	-1.34	43.44	---	74	54	-10.56
---	H	---	---	---	---	---	---	---	---
4824	V	56.24	---	-9.48	46.76	---	74	54	-7.24
7236	V	44.88	---	-1.34	43.54	---	74	54	-10.46
---	V	---	---	---	---	---	---	---	---

Middle channel: 2437 MHz

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)			
4874	H	55.07	---	-9.37	45.70	---	74	54	-8.30
7311	H	45.86	---	-1.17	44.69	---	74	54	-9.31
---	H	---	---	---	---	---	---	---	---
4874	V	54.68	---	-9.37	45.31	---	74	54	-8.69
7311	V	45.42	---	-1.17	44.25	---	74	54	-9.75
---	V	---	---	---	---	---	---	---	---

High channel: 2462 MHz

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)			
4924	H	54.85	---	-9.26	45.59	---	74	54	-8.41
7386	H	45.59	---	-1.01	44.58	---	74	54	-9.42
---	H	---	---	---	---	---	---	---	---
4924	V	56.34	---	-9.26	47.08	---	74	54	-6.92
7386	V	46.12	---	-1.01	45.11	---	74	54	-8.89
---	V	---	---	---	---	---	---	---	---

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. The highest test frequency is 25GHz.
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.
7. Both AC mode and Battery mode were tested, only the worse mode (Battery mode) is reported.

Modulation Type: 802.11n (HT20)

Low channel: 2412 MHz

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)			
4824	H	55.59	---	-9.48	46.11	---	74	54	-7.89
7236	H	44.67	---	-1.34	43.33	---	74	54	-10.67
---	H	---	---	---	---	---	---	---	---
4824	V	56.27	---	-9.48	46.79	---	74	54	-7.21
7236	V	45.82	---	-1.34	44.48	---	74	54	-9.52
---	V	---	---	---	---	---	---	---	---

Middle channel: 2437 MHz

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)			
4874	H	54.86	---	-9.37	45.49	---	74	54	-8.51
7311	H	45.49	---	-1.17	44.32	---	74	54	-9.68
---	H	---	---	---	---	---	---	---	---
4874	V	55.45	---	-9.37	46.08	---	74	54	-7.92
7311	V	45.46	---	-1.17	44.29	---	74	54	-9.71
---	V	---	---	---	---	---	---	---	---

High channel: 2462 MHz

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)			
4924	H	54.95	---	-9.26	45.69	---	74	54	-8.31
7386	H	45.69	---	-1.01	44.68	---	74	54	-9.32
---	H	---	---	---	---	---	---	---	---
4924	V	54.29	---	-9.26	45.03	---	74	54	-8.97
7386	V	44.82	---	-1.01	43.81	---	74	54	-10.19
---	V	---	---	---	---	---	---	---	---

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. The highest test frequency is 25GHz.
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.
7. Both AC mode and Battery mode were tested, only the worse mode (Battery mode) is reported.

Modulation Type: 802.11n (HT40)

Low channel: 2422 MHz

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)			
4844	H	55.25	---	-9.43	45.82	---	74	54	-8.18
7266	H	44.87	---	-1.28	43.59	---	74	54	-10.41
---	H	---	---	---	---	---	---	---	---
4824	V	55.38	---	-9.43	45.95	---	74	54	-8.05
7236	V	44.44	---	-1.28	43.16	---	74	54	-10.84
---	V	---	---	---	---	---	---	---	---

Middle channel: 2437 MHz

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)			
4874	H	54.64	---	-9.37	45.27	---	74	54	-8.73
7311	H	44.55	---	-1.17	43.38	---	74	54	-10.62
---	H	---	---	---	---	---	---	---	---
4874	V	55.47	---	-9.37	46.10	---	74	54	-7.90
7311	V	44.54	---	-1.17	43.37	---	74	54	-10.63
---	V	---	---	---	---	---	---	---	---

High channel: 2452 MHz

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)			
4904	H	55.38	---	-9.30	46.08	---	74	54	-7.92
7356	H	43.72	---	-1.08	42.64	---	74	54	-11.36
---	H	---	---	---	---	---	---	---	---
4904	V	54.99	---	-9.30	45.69	---	74	54	-8.31
7356	V	43.47	---	-1.08	42.39	---	74	54	-11.61
---	V	---	---	---	---	---	---	---	---

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. The highest test frequency is 25GHz.
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.
7. Both AC mode and Battery mode were tested, only the worse mode (Battery mode) is reported.

Appendix B: Photographs of Test Setup

Refer to the test report No. TCT240820E902

Appendix C: Photographs of EUT

Refer to the test report No. TCT240820E902

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