TCT 通测检测
TESTING CENTRE TECHNOLOGY

TEST REPORT

FCC ID. ..... :	2BBVL-AION7XX01
Test Report No..... :	TCT240523E021
Date of issue..... :	Jul. 22, 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..... :	TES Touch Embedded Solutions Inc. Taiwan Branch
Address..... :	7F., No.141, Sec. 3, Ren ai Rd., Da an Dist., Taipei City 106, Taiwan, 222106 China
Manufacturer's name ... :	TES Touch Embedded Solutions Inc. Taiwan Branch
Address..... :	7F., No.141, Sec. 3, Ren ai Rd., Da an Dist., Taipei City 106, Taiwan, 222106 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..... :	AIO Core Board module
Trade Mark ..... :	TES/MicroTouch
Model/Type reference..... :	AION7XX01
Rating(s)..... :	DC 4.2V
Date of receipt of test item ..... :	May 23, 2024
Date (s) of performance of test..... :	May 23, 2024 ~ Jul. 22, 2024
Tested by (+signature) ... :	Aaron MO
Check by (+signature).... :	Beryl ZHAO
Approved by (+signature):	Tomsin

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1. General Product Information

1.1. EUT description

Product Name.....:	AIO Core Board module
Model/Type reference.....:	AION7XX01
Sample Number.....:	TCT240523E013-0101
Operation Frequency .....:	2412MHz~2462MHz (802.11b/802.11g/802.11n(HT20)/802.11ax(HE20)) 2422MHz~2452MHz (802.11n(HT40)/802.11ax(HE40))
Channel Separation .....:	5MHz
Number of Channel .....:	11 for 802.11b/802.11g/802.11n(HT20)/802.11ax(HE20) 7 for 802.11n(HT40)/802.11ax(HE40)
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/ax: Up to 300Mbps
Antenna Type.....:	External Antenna
Antenna Gain.....:	Support two antenna: Antenna a: Antenna 0: -7.15dBi Antenna 1: -7.75dBi Antenna b: Antenna 0: 2.11dBi Antenna 1: -7.15dBi
Rating(s).....:	DC 4.2V

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)/ax(HE20)

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)/ax(HE40)

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)/802.11ax(HE20)

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

802.11n(HT40)/802.11ax(HE40)

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

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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. *Those test results (Conducted Emission, Conducted Output Power, 6dB Emission Bandwidth, Power Spectral Density, Band Edge) was based on FCC ID: 2BBVL-AION7XX01; Change antenna.*

3. General Information

3.1. Test environment and mode

Operating Environment:	
Condition	Radiated Emission
Temperature:	25.1 °C
Humidity:	53 % RH
Atmospheric Pressure:	1010 mbar
Voltage:	DC 4.2V by Mainboard (Mainboard power by adapter)
Test Software:	
Software Information:	ADB Tool
Power Level:	15
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.	

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(HT20)	6.5Mbps
802.11n(HT40)	13.5Mbps
802.11ax(HE20)	6.5Mbps
802.11ax(HE40)	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
BOX PC	TBX-100N7020011002	/	/	MicroTouch
Media Player	IDX-300	/	/	MicroTouch

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-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 ± 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

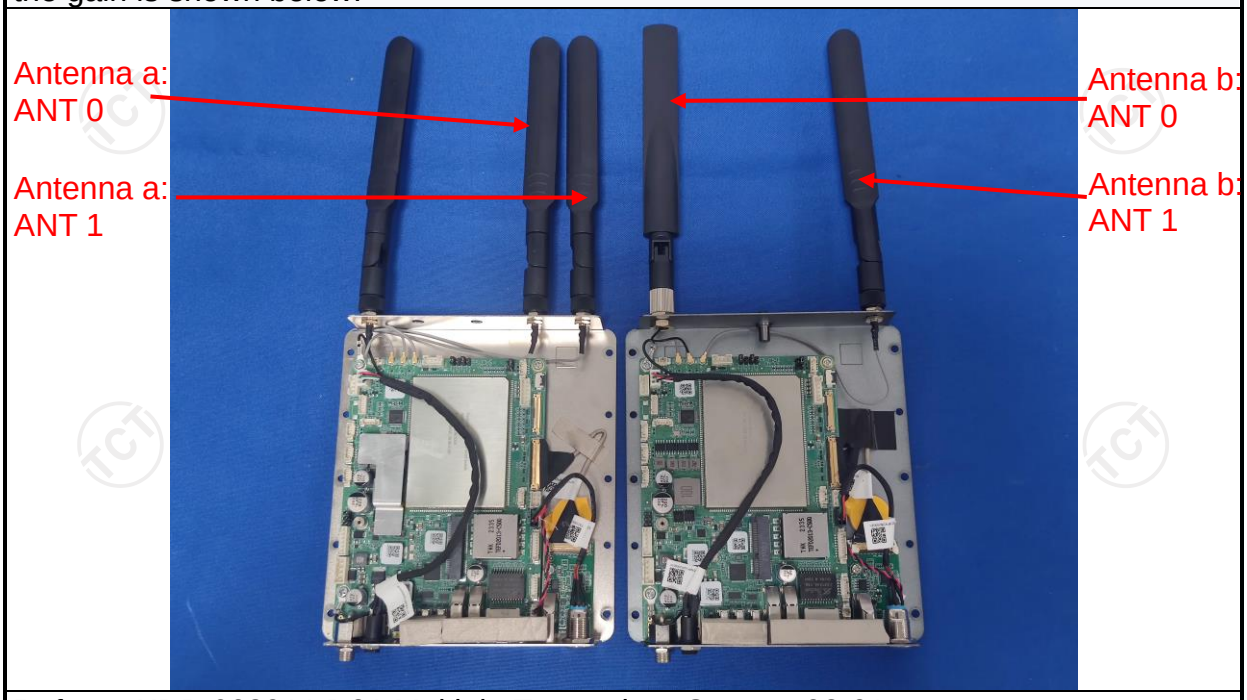
5.1. Antenna requirement

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 EUT test with two external antennas for maximum gain which are detachable, and the gain is shown below.



Refer to KDB 662911 D01 Multiple Transmitter Output v02r01:
Unequal antenna gains, with equal transmit powers, if transmit signals are correlated, then antenna a directional gain = $10\log[(10^{-7.15/20}+10^{-7.75/20})^2/2]$ = -4.43dBi;
antenna b directional gain = $10\log[(10^{2.11/20}+10^{-7.15/20})^2/2]$ = 1.67dBi.

Note: Above directional gain not applicable to power measurements.

5.2. Radiated Spurious Emission Measurement

5.2.1. 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

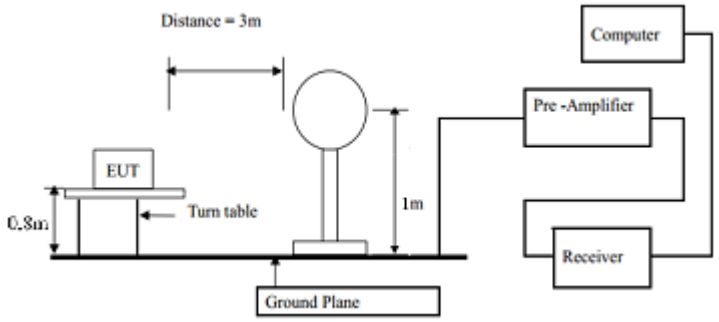
Limit:

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)	Detector
Above 1GHz	500	3	Average
	5000	3	Peak

Test setup:

For radiated emissions below 30MHz



30MHz to 1GHz

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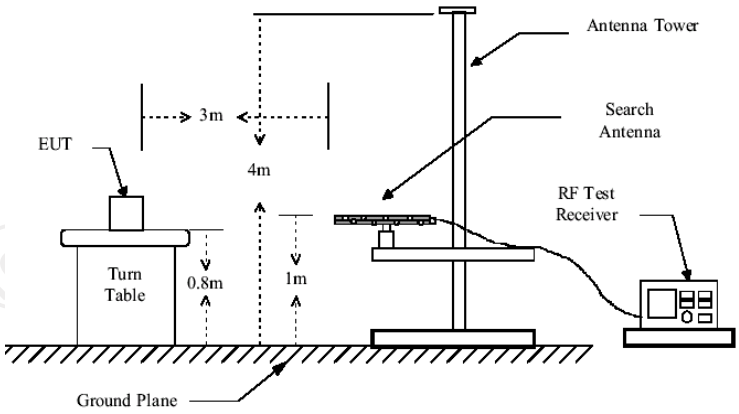
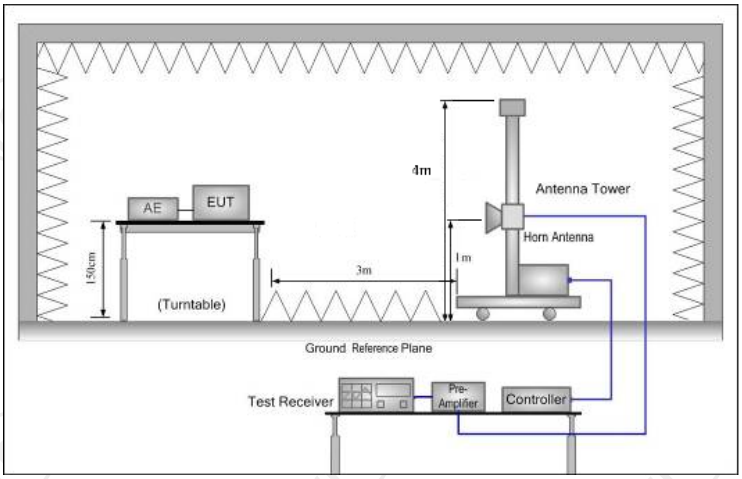


Above 1GHz


</td>
</tr>
<tr>
<td>Test Procedure:</td>
<td>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</td>
</tr>
</table>

	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 ≥ 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 ≥ 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

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5.2.2. Test Instruments

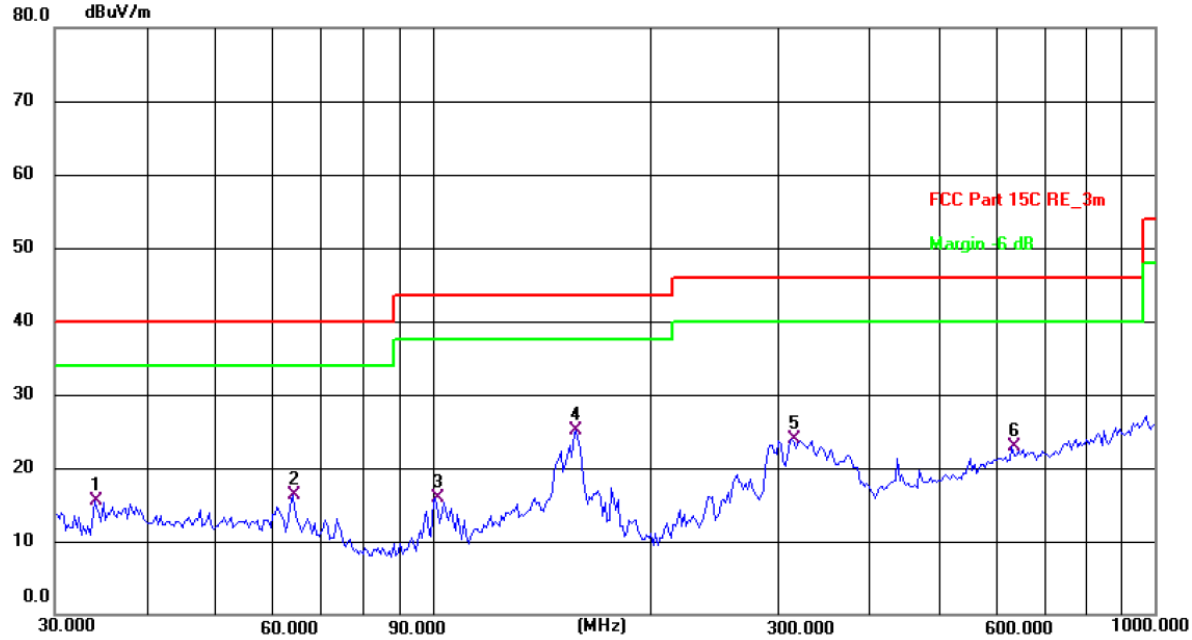
Radiated Emission Test Site (966)				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
EMI Test Receiver	R&S	ESCI7	100529	Jan. 31, 2025
Spectrum Analyzer	R&S	FSQ40	200061	Jun. 26, 2025
Pre-amplifier	HP	8447D	2727A05017	Jun. 26, 2025
Pre-amplifier	SKET	LNPA_0118G-45	SK2021012102	Jan. 31, 2025
Pre-amplifier	SKET	LNPA_1840G-50	SK202109203500	Jan. 31, 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	/

5.2.3. Test Data

Please refer to following diagram for individual

Below 1GHz

Horizontal:

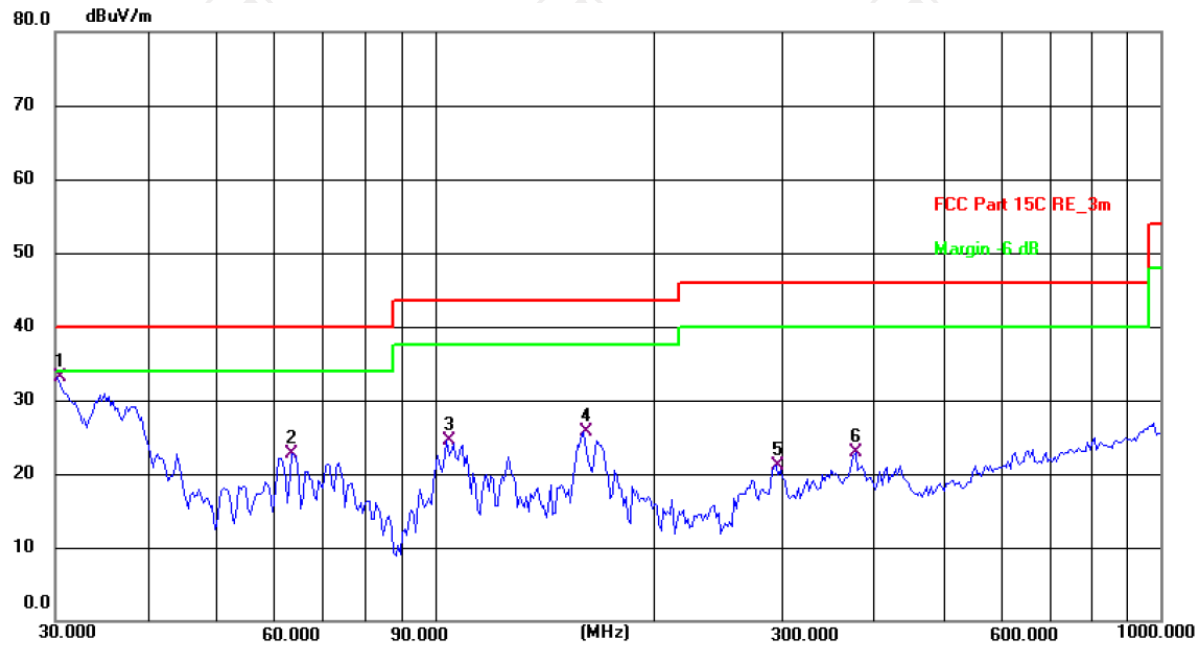


Site: 3m Anechoic Chamber1 Polarization: ***Horizontal*** Temperature: 25.1(C) Humidity: 53 %

Limit: FCC Part 15C RE_3m Power: DC 4.2 V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	34.0365	28.18	-12.76	15.42	40.00	-24.58	QP	P	
2	63.9828	29.60	-13.27	16.33	40.00	-23.67	QP	P	
3	100.9339	31.25	-15.32	15.93	43.50	-27.57	QP	P	
4 *	158.1123	36.49	-11.29	25.20	43.50	-18.30	QP	P	
5	314.3765	34.35	-10.46	23.89	46.00	-22.11	QP	P	
6	633.9073	27.14	-4.19	22.95	46.00	-23.05	QP	P	

Vertical:



Site: 3m Anechoic Chamber1 Polarization: ***Vertical*** Temperature: 25.1(C) Humidity: 53 %

Limit: FCC Part 15C RE_3m Power: DC 4.2 V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1 *	30.2111	46.12	-13.00	33.12	40.00	-6.88	QP	P	
2	63.5356	35.81	-13.18	22.63	40.00	-17.37	QP	P	
3	103.8055	39.64	-15.09	24.55	43.50	-18.95	QP	P	
4	160.3456	37.15	-11.37	25.78	43.50	-17.72	QP	P	
5	295.1469	32.03	-10.99	21.04	46.00	-24.96	QP	P	
6	379.9141	32.38	-9.55	22.83	46.00	-23.17	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), 802.11ax(HE20), 802.11ax(HE40)), and the worst case Mode (Highest channel and 802.1 ax(HE20) transmit with antenna 1) was submitted only.

Antenna a and Antenna b have been tested, but the test data only show the worst case model (Antenna b) in this report.

3. Freq. = Emission frequency in MHz

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

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

Limit (dBμV/m) = Limit stated in standard

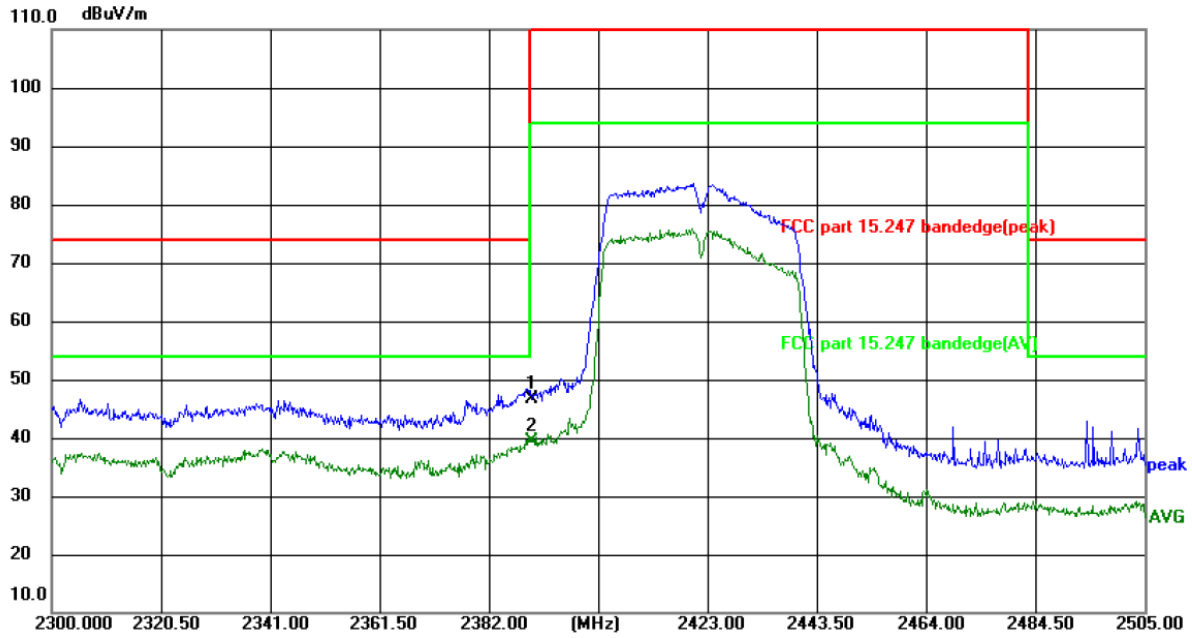
Margin (dB) = Measurement (dBμV/m) – Limits (dBμV/m)

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

Test Result of Radiated Spurious at Band edges

Lowest channel 2422:

Horizontal:

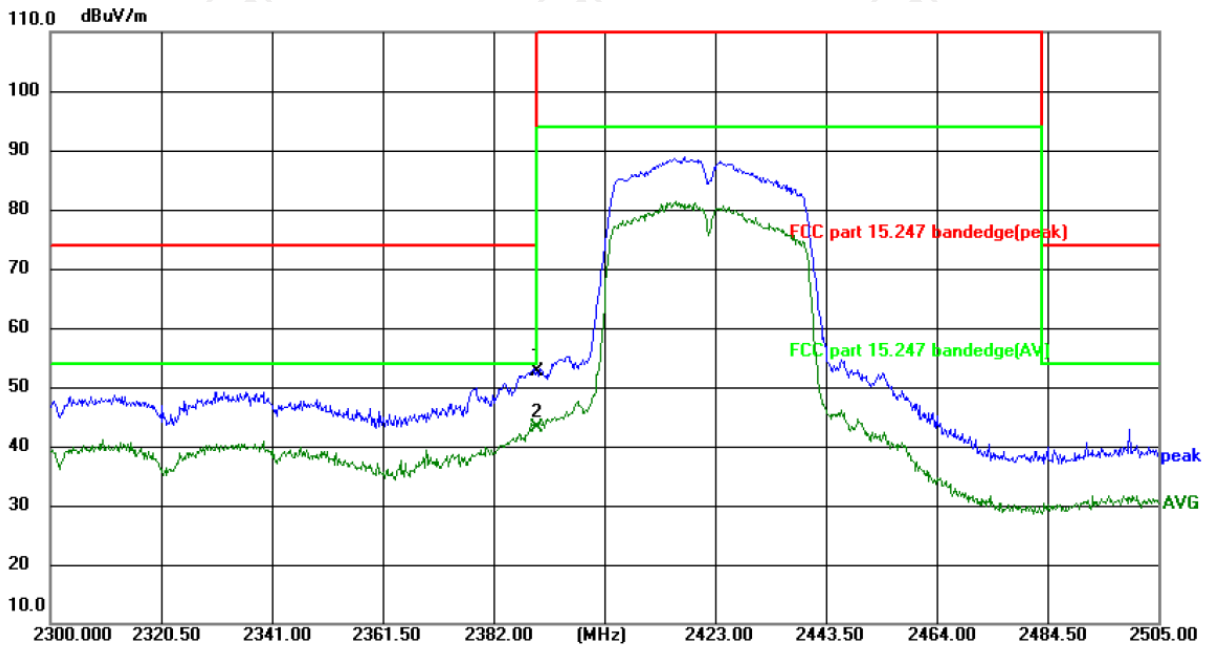


Site: 3m Anechoic Chamber Polarization: ***Horizontal*** Temperature: 23.1(℃) Humidity: 60 %

Limit: FCC part 15.247 bandedge(peak) Power: DC 4.2 V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	2390.000	62.37	-15.86	46.51	74.00	-27.49	peak	P	
2 *	2390.000	55.17	-15.86	39.31	54.00	-14.69	AVG	P	

Vertical:



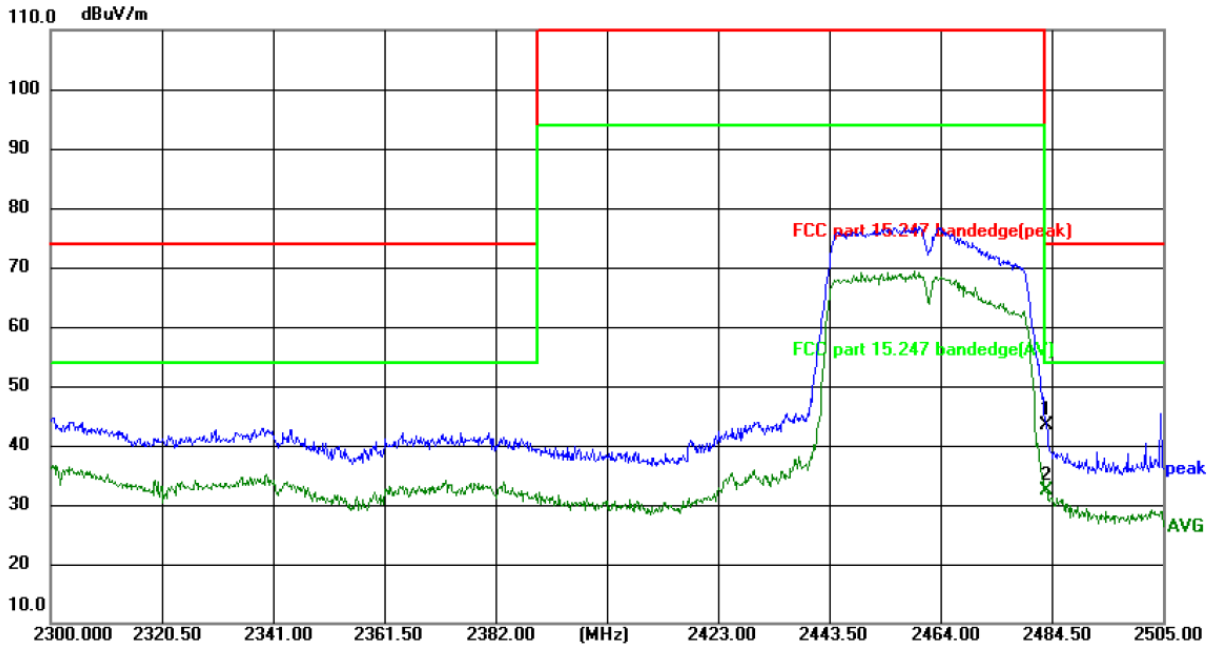
Site: 3m Anechoic Chamber Polarization: ***Vertical*** Temperature: 23.1(℃) Humidity: 60 %

Limit: FCC part 15.247 bandedge(peak) Power: DC 4.2 V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	2390.000	68.43	-15.86	52.57	74.00	-21.43	peak	P	
2 *	2390.000	59.06	-15.86	43.20	54.00	-10.80	AVG	P	

Highest channel 2452:

Horizontal:

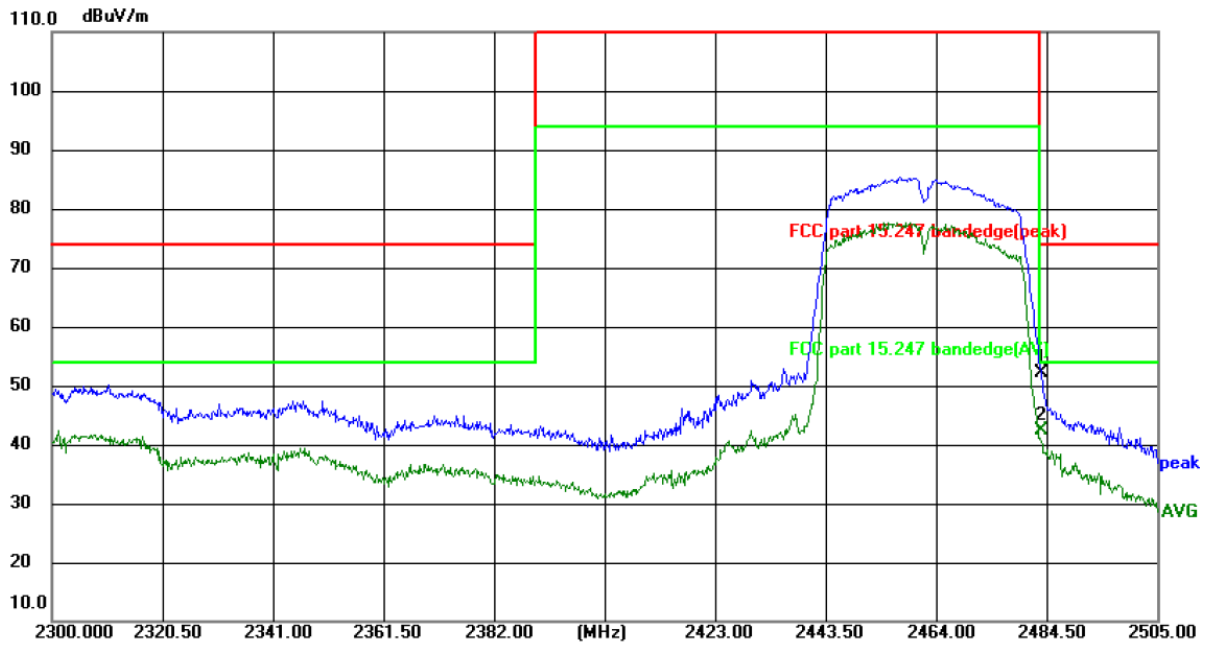


Site: 3m Anechoic Chamber Polarization: ***Horizontal*** Temperature: 23.1(℃) Humidity: 60 %

Limit: FCC part 15.247 bandedge(peak) Power: DC 4.2 V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	2483.500	59.19	-15.87	43.32	74.00	-30.68	peak	P	
2 *	2483.500	48.37	-15.87	32.50	54.00	-21.50	AVG	P	

Vertical:



Site: 3m Anechoic Chamber Polarization: ***Vertical*** Temperature: 23.1(℃) Humidity: 60 %

Limit: FCC part 15.247 bandedge(peak) Power: DC 4.2 V

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	2483.500	67.92	-15.87	52.05	74.00	-21.95	peak	P	
2 *	2483.500	58.21	-15.87	42.34	54.00	-11.66	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 two channels (high, low) and all modulation (802.11b, 802.11g, 802.11n(HT20), 802.11n(HT40), 802.11ax(HE20), 802.11ax(HE40)), and the worst case Mode 802.11ax(HE40) was submitted only.*
4. *Antenna a and Antenna b have been tested, but the test data only show the worst case model (Antenna b) in this report.*

Above 1GHz

Modulation Type: 802.11b

Low channel: 2412 MHz									
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)			
4824	H	45.96	---	0.75	46.71	---	74	54	-7.29
7236	H	35.28	---	9.87	45.15	---	74	54	-8.85
---	H	---	---	---	---	---	---	---	---
4824	V	46.11	---	0.75	46.86	---	74	54	-7.14
7236	V	35.49	---	9.87	45.36	---	74	54	-8.64
---	V	---	---	---	---	---	---	---	---

Middle channel: 2437MHz									
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	45.37	---	0.97	46.34	---	74	54	-7.66
7311	H	35.25	---	9.83	45.08	---	74	54	-8.92
---	H	---	---	---	---	---	---	---	---
4874	V	44.79	---	0.97	45.76	---	74	54	-8.24
7311	V	34.48	---	9.83	44.31	---	74	54	-9.69
---	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	45.65	---	1.18	46.83	---	74	54	-7.17
7386	H	35.08	---	10.07	45.15	---	74	54	-8.85
---	H	---	---	---	---	---	---	---	---
4924	V	45.21	---	1.18	46.39	---	74	54	-7.61
7386	V	34.96	---	10.07	45.03	---	74	54	-8.97
---	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. *802.11b is SISO mode and the worst case Antenna (ANT1) was submitted only.*
7. *Antenna a and Antenna b have been tested, but the test data only show the worst case model (Antenna b) in this report.*

Modulation Type: 802.11g

Low channel: 2412 MHz									
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)			
4824	H	47.47	---	0.75	48.22	---	74	54	-5.78
7236	H	36.58	---	9.87	46.45	---	74	54	-7.55
---	H	---	---	---	---	---	---	---	---
4824	V	46.94	---	0.75	47.69	---	74	54	-6.31
7236	V	36.16	---	9.87	46.03	---	74	54	-7.97
---	V	---	---	---	---	---	---	---	---

Middle channel: 2437MHz									
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	46.25	---	0.97	47.22	---	74	54	-6.78
7311	H	35.71	---	9.83	45.54	---	74	54	-8.46
---	H	---	---	---	---	---	---	---	---
4874	V	44.56	---	0.97	45.53	---	74	54	-8.47
7311	V	34.42	---	9.83	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	45.15	---	1.18	46.33	---	74	54	-7.67
7386	H	34.97	---	10.07	45.04	---	74	54	-8.96
---	H	---	---	---	---	---	---	---	---
4924	V	44.05	---	1.18	45.23	---	74	54	-8.77
7386	V	34.89	---	10.07	44.96	---	74	54	-9.04
---	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. *802.11g is SISO mode and the worst case Antenna (ANT1) was submitted only.*
7. *Antenna a and Antenna b have been tested, but the test data only show the worst case model (Antenna b) in this report.*

Modulation Type: 802.11n(HT20)

Low channel: 2412 MHz									
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)			
4824	H	46.12	---	0.75	46.87	---	74	54	-7.13
7236	H	36.07	---	9.87	45.94	---	74	54	-8.06
---	H	---	---	---	---	---	---	---	---
4824	V	45.23	---	0.75	45.98	---	74	54	-8.02
7236	V	34.41	---	9.87	44.28	---	74	54	-9.72
---	V	---	---	---	---	---	---	---	---

Middle channel: 2437MHz									
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	45.07	---	0.97	46.04	---	74	54	-7.96
7311	H	35.56	---	9.83	45.39	---	74	54	-8.61
---	H	---	---	---	---	---	---	---	---
4874	V	45.81	---	0.97	46.78	---	74	54	-7.22
7311	V	35.25	---	9.83	45.08	---	74	54	-8.92
---	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	45.66	---	1.18	46.84	---	74	54	-7.16
7386	H	35.04	---	10.07	45.11	---	74	54	-8.89
---	H	---	---	---	---	---	---	---	---
4924	V	45.21	---	1.18	46.39	---	74	54	-7.61
7386	V	35.39	---	10.07	45.46	---	74	54	-8.54
---	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. *802.11n(HT20) is MIMO mode.*
7. *Antenna a and Antenna b have been tested, but the test data only show the worst case model (Antenna b) in this report.*

Modulation Type: 802.11n(HT40)

Low channel: 2422 MHz									
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)			
4844	H	45.31	---	0.75	46.06	---	74	54	-7.94
7266	H	34.86	---	9.87	44.73	---	74	54	-9.27
---	H	---	---	---	---	---	---	---	---
4824	V	46.01	---	0.75	46.76	---	74	54	-7.24
7236	V	34.57	---	9.87	44.44	---	74	54	-9.56
---	V	---	---	---	---	---	---	---	---

Middle channel: 2437MHz									
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	46.08	---	0.97	47.05	---	74	54	-6.95
7311	H	36.62	---	9.83	46.45	---	74	54	-7.55
---	H	---	---	---	---	---	---	---	---
4874	V	46.49	---	0.97	47.46	---	74	54	-6.54
7311	V	35.88	---	9.83	45.71	---	74	54	-8.29
---	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	44.64	---	1.18	45.82	---	74	54	-8.18
7356	H	34.52	---	10.07	44.59	---	74	54	-9.41
---	H	---	---	---	---	---	---	---	---
4904	V	44.85	---	1.18	46.03	---	74	54	-7.97
7356	V	35.29	---	10.07	45.36	---	74	54	-8.64
---	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. *802.11n(HT40) is MIMO mode.*
7. *Antenna a and Antenna b have been tested, but the test data only show the worst case model (Antenna b) in this report.*

Modulation Type: 802.11ax(HE20)

Low channel: 2412 MHz									
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)			
4824	H	46.23	---	0.75	46.98	---	74	54	-7.02
7236	H	35.66	---	9.87	45.53	---	74	54	-8.47
---	H	---	---	---	---	---	---	---	---
4824	V	46.08	---	0.75	46.83	---	74	54	-7.17
7236	V	35.29	---	9.87	45.16	---	74	54	-8.84
---	V	---	---	---	---	---	---	---	---

Middle channel: 2437MHz									
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	45.16	---	0.97	46.13	---	74	54	-7.87
7311	H	35.32	---	9.83	45.15	---	74	54	-8.85
---	H	---	---	---	---	---	---	---	---
4874	V	45.06	---	0.97	46.03	---	74	54	-7.97
7311	V	35.33	---	9.83	45.16	---	74	54	-8.84
---	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	45.08	---	1.18	46.26	---	74	54	-7.74
7386	H	34.52	---	10.07	44.59	---	74	54	-9.41
---	H	---	---	---	---	---	---	---	---
4924	V	45.06	---	1.18	46.24	---	74	54	-7.76
7386	V	34.77	---	10.07	44.84	---	74	54	-9.16
---	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. *802.11ax(HT20) is MIMO mode.*
7. *Antenna a and Antenna b have been tested, but the test data only show the worst case model (Antenna b) in this report.*

Modulation Type: 802.11ax(HE40)

Low channel: 2422 MHz									
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)			
4844	H	46.59	---	0.75	47.34	---	74	54	-6.66
7266	H	35.37	---	9.87	45.24	---	74	54	-8.76
---	H	---	---	---	---	---	---	---	---
4824	V	46.04	---	0.75	46.79	---	74	54	-7.21
7236	V	34.81	---	9.87	44.68	---	74	54	-9.32
---	V	---	---	---	---	---	---	---	---

Middle channel: 2437MHz									
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	45.79	---	0.97	46.76	---	74	54	-7.24
7311	H	34.68	---	9.83	44.51	---	74	54	-9.49
---	H	---	---	---	---	---	---	---	---
4874	V	46.07	---	0.97	47.04	---	74	54	-6.96
7311	V	36.83	---	9.83	46.66	---	74	54	-7.34
---	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	45.38	---	1.18	46.56	---	74	54	-7.44
7356	H	35.04	---	10.07	45.11	---	74	54	-8.89
---	H	---	---	---	---	---	---	---	---
4904	V	45.47	---	1.18	46.65	---	74	54	-7.35
7356	V	35.26	---	10.07	45.33	---	74	54	-8.67
---	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. *802.11ax(HT40) is MIMO mode.*
7. *Antenna a and Antenna b have been tested, but the test data only show the worst case model (Antenna b) in this report.*

Appendix B: Photographs of Test Setup

Refer to the test report No. TCT240523E013

Appendix C: Photographs of EUT

Refer to the test report No. TCT240523E013

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