



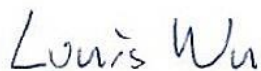
FCC RADIO TEST REPORT

FCC ID : PU5-TP00139A
Equipment : Notebook Computer
Brand Name : Lenovo
Model Name : TP00139A
Applicant : Wistron Corporation
21F, No. 88, Sec. 1, Hsin Tai Wu Rd., Hsichih
Dist, New Taipei City 221, Taiwan
Manufacturer : Lenovo PC HK Limited.
23/F, Lincoln House, Taikoo Place, 979
King's Road, Quarry Bay, Hong Kong, China
Standard : FCC Part 15 Subpart C §15.247

Equipment: Murata LBEE5QG2CX tested inside of Lenovo Notebook Computer.

The product was received on Jan. 06, 2022 and testing was performed from Jan. 14, 2022 to Feb. 17, 2022. We, Sporton International Inc. Wensan Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this variant report apply exclusively to the tested model / sample. Without written approval from Sporton International Inc. Wensan Laboratory, the test report shall not be reproduced except in full.



Approved by: Louis Wu

Sporton International Inc. Wensan Laboratory



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History of this test report

Report No.	Version	Description	Issue Date
FR1N0803B	01	Initial issue of report	Mar. 02, 2022

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
-	15.247(a)(2)	6dB Bandwidth	Not Required	-
-	2.1049	99% Occupied Bandwidth	Not Required	-
3.1	15.247(b)(3)	Output Power	Pass	-
-	15.247(e)	Power Spectral Density	Not Required	-
-	15.247(d)	Conducted Band Edges and Spurious Emission	Not Required	-
3.2	15.247(d)	Radiated Band Edges and Spurious Emission	Pass	12.01 dB under the limit at 2483.528 MHz and 2483.600 MHz
-	15.207	AC Conducted Emission	Not Required	-
3.3	15.203 & 15.247(b)	Antenna Requirement	Pass	-

Note:

1. Not required means after assessing, test items are not necessary to carry out.
2. This is a variant report by removing WWAN function. All the test cases were performed on original report which can be referred to Sporton Report Number FR1D1645-01B. Based on the original report, the test cases were verified.

Declaration of Conformity:

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers. It's means measurement values may risk exceeding the limit of regulation standards, if measurement uncertainty is include in test results.
2. The measurement uncertainty please refer to this report "Uncertainty of Evaluation".

Comments and Explanations:

The product specifications of the EUT presented in the report are declared by the manufacturer who shall take full responsibility for the authenticity.

Reviewed by: Sheng Kuo

Report Producer: Lucy Wu

1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature	
Equipment	Notebook Computer
Brand Name	Lenovo
Model Name	TP00139A
FCC ID	PU5-TP00139A
Sample 1	EUT with INPAQ Antenna
Sample 2	EUT with WNC Antenna
EUT supports Radios application	WLAN 11a/b/g/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80/VHT160 WLAN 11ax HE20/HE40/HE80/HE160 Bluetooth BR/EDR/LE

Remark:

1. The EUT's information above is declared by manufacturer.
2. Equipment: Murata LBEE5QG2CX tested inside of Lenovo Notebook Computer.

Antenna Information			
Antenna 1	Manufacturer	INPAQ	
	Antenna Type	PIFA Antenna	PIFA Antenna
	Part number	025.901YK.0011	025.901YL.0011
	Peak gain (dBi)	Main Antenna :	Aux. Antenna :
		WLAN (2.4G): 2.48 dBi	Bluetooth: 2.45 dBi WLAN (2.4G): 2.45 dBi
Antenna 2	Manufacturer	WNC	
	Antenna Type	PIFA Antenna	PIFA Antenna
	Part number	025.901YK.0001	025.901YL.0001
	Peak gain (dBi)	Main Antenna :	Aux. Antenna :
		WLAN (2.4G): 2.62 dBi	Bluetooth: 2.54 dBi WLAN (2.4G): 2.54 dBi

Remark: The EUT's information above is declared by manufacturer. Please refer to Comments and Explanations in report summary.

1.2 Product Specification of Equipment Under Test

Product Specification is subject to this standard	
Tx/Rx Frequency Range	2402 MHz ~ 2480 MHz
Number of Channels	40
Carrier Frequency of Each Channel	40 Channel (37 hopping + 3 advertising channel)
Maximum Output Power to Antenna	Bluetooth – LE (2Mbps): 5.42 dBm / 0.0035 W
Type of Modulation	Bluetooth LE : GFSK

1.3 Modification of EUT

No modifications made to the EUT during the testing.

1.4 Testing Location

Test Site	Sporton International Inc. Wensan Laboratory
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010
Test Site No.	Sporton Site No.
	TH05-HY, 03CH20-HY

Note: The test site complies with ANSI C63.4 2014 requirement.

FCC designation No.: TW3786

1.5 Applicable Standards

According to the specifications declared by the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC Part 15 Subpart C §15.247
- ♦ FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v05r02
- ♦ ANSI C63.10-2013

Remark:

1. All the test items were validated and recorded in accordance with the standards without any modification during the testing.
2. The TAF code is not including all the FCC KDB listed without accreditation.

2 Test Configuration of Equipment Under Test

2.1 Carrier Frequency Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	0	2402	21	2444
	1	2404	22	2446
	2	2406	23	2448
	3	2408	24	2450
	4	2410	25	2452
	5	2412	26	2454
	6	2414	27	2456
	7	2416	28	2458
	8	2418	29	2460
	9	2420	30	2462
	10	2422	31	2464
	11	2424	32	2466
	12	2426	33	2468
	13	2428	34	2470
	14	2430	35	2472
	15	2432	36	2474
	16	2434	37	2476
	17	2436	38	2478
	18	2438	39	2480
	19	2440	-	-
	20	2442	-	-

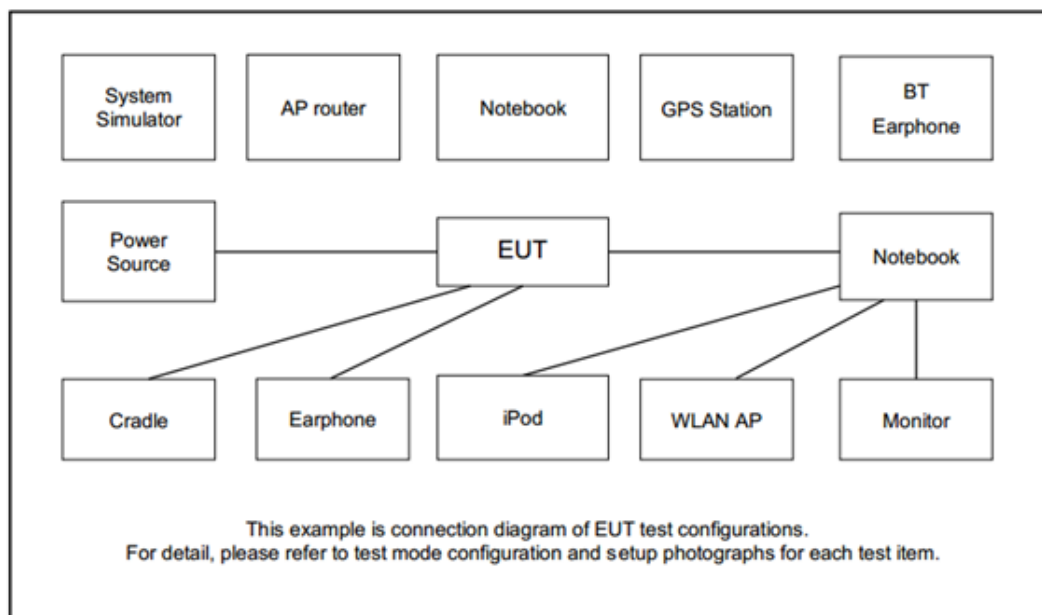
2.2 Test Mode

- a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: radiation emission (1 GHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

The following summary table is showing all test modes to demonstrate in compliance with the standard.

Summary table of Test Cases	
Test Item	Data Rate / Modulation
	Bluetooth – LE / GFSK
Radiated Test Cases	Mode 1: Bluetooth Tx CH39_2480 MHz_2Mbps
Remark: For Radiated Test Cases, the tests were performed with Sample 2	

2.3 Connection Diagram of Test System



2.4 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	iPod Earphone	Apple	N/A	Verification	Unshielded, 1.0 m	N/A

2.5 EUT Operation Test Setup

The RF test items, utility "QRCT v4.0.00194.0" was installed in EUT which was programmed in order to make the EUT get into the engineering modes to provide channel selection, power level, data rate and the application type and for continuous transmitting signals.

3 Test Result

3.1 Output Power Measurement

3.1.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5 MHz, the limit for output power is 30 dBm. If transmitting antenna of directional gain greater than 6 dBi is used, the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

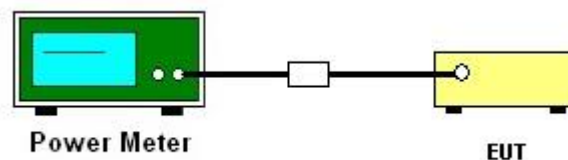
3.1.2 Measuring Instruments

Please refer to the measuring equipment list in this test report.

3.1.3 Test Procedures

1. For Average Power, the testing follows ANSI C63.10 Section 11.9.2.3.2 Method AVGPM-G
2. The RF output of EUT is connected to the power meter by RF cable and attenuator.
3. The path loss is compensated to the results for each measurement.
4. Set the maximum power setting and enable the EUT to transmit continuously.
5. Measure the conducted output power and record the results in the test report.

3.1.4 Test Setup



3.1.5 Test Result of Average Output Power

Please refer to Appendix A.

3.2 Radiated Band Edges and Spurious Emission Measurement

3.2.1 Limit of Radiated Band Edges and Spurious Emission

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device is measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the limits as below.

Frequency (MHz)	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 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.2.2 Measuring Instruments

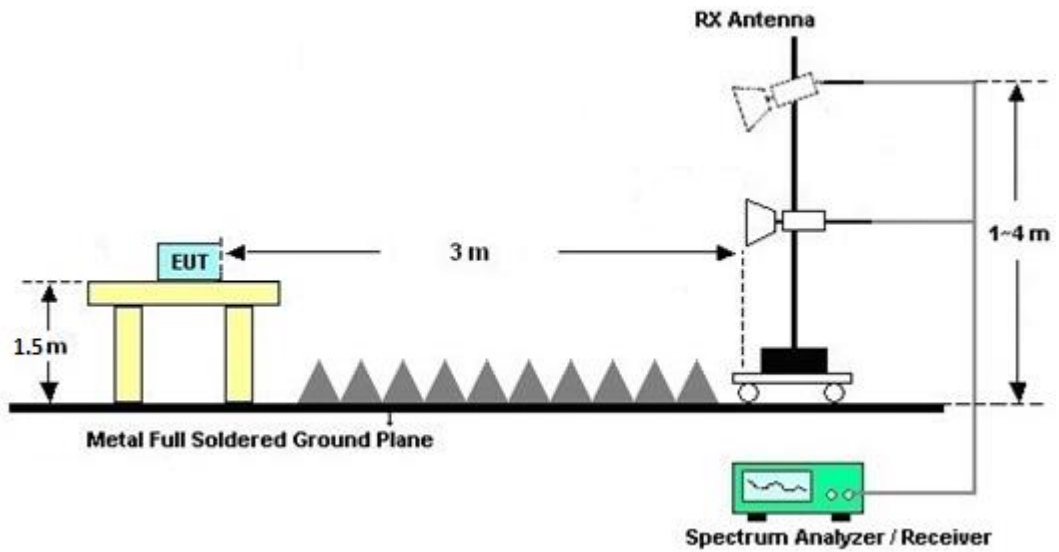
Please refer to the measuring equipment list in this test report.

3.2.3 Test Procedures

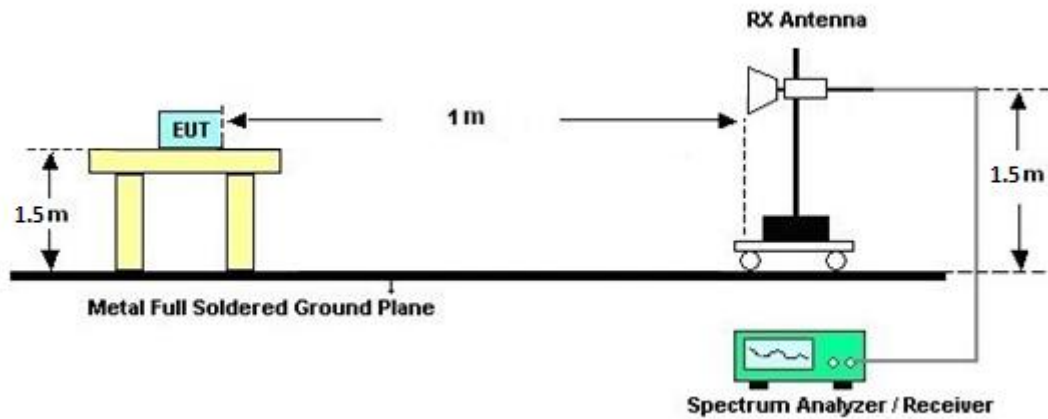
1. The testing follows the ANSI C63.10 Section 11.12.1 Radiated emission measurements.
2. The EUT is arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT is placed on a turntable with 1.5 meter for frequency above 1 GHz respectively above ground.
4. The EUT is set 3 meters away from the receiving antenna, which is mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamplifier Factor = Level
6. Radiated testing above 1 GHz is performed by adjusting the antenna tower from 1 m to 4 m and by rotating the turn table from 0 degree to 360 degrees to find the peak maximum hold reading for scanning all frequencies. When there is no suspected emission found and the harmonic emission level is with at least 6 dB margin against average limit line, the position is marked as “-”.
7. Use the following spectrum analyzer settings:
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Set RBW = 1 MHz, VBW = 3 MHz for $f \geq 1$ 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.

3.2.4 Test Setup

For radiated test from 1GHz to 18GHz



For radiated test above 18GHz



**3.2.5 Test Results of Radiated Spurious Emissions (above 18 GHz)**

For frequency above 18GHz, the pre-scanned result is 20dB lower than the limit line is not reported.

3.2.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix B and C.

3.2.7 Duty Cycle

Please refer to Appendix D.

3.2.8 Test Result of Radiated Spurious Emission

Please refer to Appendix B and C.

3.3 Antenna Requirements

3.3.1 Standard Applicable

If directional gain of transmitting antennas is greater than 6 dBi, the power shall be reduced by the same level in dB comparing to gain minus 6 dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the rule.

3.3.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.3.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.



4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Test Receiver	Keysight	N9010B	MY60241055	10Hz~44GHz	Jul. 12, 2021	Feb. 14, 2022~ Feb. 17, 2022	Jul. 11, 2022	Radiation (03CH20-HY)
Amplifier	EMCI	EMC118A45SE	980792	N/A	Nov. 15, 2021	Feb. 14, 2022~ Feb. 17, 2022	Nov. 14, 2022	Radiation (03CH20-HY)
Preamplifier	EMEC	EM18G40G	060801	18GHz~40GHz	Jun. 22, 2021	Feb. 14, 2022~ Feb. 17, 2022	Jun. 21, 2022	Radiation (03CH20-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-02294	1GHz~18GHz	Jun. 23, 2021	Feb. 14, 2022~ Feb. 17, 2022	Jun. 22, 2022	Radiation (03CH20-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA9170	00991	18GHz~40GHz	May 12, 2021	Feb. 14, 2022~ Feb. 17, 2022	May 11, 2022	Radiation (03CH20-HY)
Hygrometer	TECPEL	DTM-303B	TP200728	N/A	Mar. 09, 2021	Feb. 14, 2022~ Feb. 17, 2022	Mar. 08, 2022	Radiation (03CH20-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	519229/2,804 015/2,804027 /2	N/A	Jan. 19, 2022	Feb. 14, 2022~ Feb. 17, 2022	Jan. 18, 2023	Radiation (03CH20-HY)
1.53GHz Low Pass Filter	Wainwright	WLK4-1000-1530-8000-40SS	SN27	N/A	May 25, 2021	Feb. 14, 2022~ Feb. 17, 2022	May 24, 2022	Radiation (03CH20-HY)
Filter	Wainwright	WHKX12-2700-3000-18000-60ST	SN8	N/A	Mar. 26, 2021	Feb. 14, 2022~ Feb. 17, 2022	Mar. 25, 2022	Radiation (03CH20-HY)
Software	Audix	E3 6.2009-8-24	RK-002156	N/A	N/A	Feb. 14, 2022~ Feb. 17, 2022	N/A	Radiation (03CH20-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Feb. 14, 2022~ Feb. 17, 2022	N/A	Radiation (03CH20-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Feb. 14, 2022~ Feb. 17, 2022	N/A	Radiation (03CH20-HY)
Controller	EMEC	EM1000	N/A	Control Turn table & Ant Mast	N/A	Feb. 14, 2022~ Feb. 17, 2022	N/A	Radiation (03CH20-HY)
Hygrometer	TECPEL	DTM-303A	TP201996	N/A	Nov. 16, 2021	Jan. 14, 2022~ Feb. 11, 2022	Nov. 15, 2022	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP40	100057	9kHz~40GHz	Dec. 30, 2021	Jan. 14, 2022~ Feb. 11, 2022	Dec. 29, 2022	Conducted (TH05-HY)
Switch Control Manframe	E-IUSTRUMENT	ETF-1405-0	EC1900067 (BOX7)	N/A	Aug. 12, 2021	Jan. 14, 2022~ Feb. 11, 2022	Aug. 11, 2022	Conducted (TH05-HY)
Power Meter	Anritsu	ML2495A	1036004	N/A	Aug. 01, 2021	Jan. 14, 2022~ Feb. 11, 2022	Jul. 31, 2022	Conducted (TH05-HY)
Power Sensor	Anritsu	MA2411B	1027253	300MHz~40GHz	Aug. 01, 2021	Jan. 14, 2022~ Feb. 11, 2022	Jul. 31, 2022	Conducted (TH05-HY)



5 Uncertainty of Evaluation

Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.2 dB
--	--------

Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	5.7 dB
--	--------

Appendix A. Test Result of Conducted Test Items

Test Engineer:	Benny Ku	Temperature:	21~25	°C
Test Date:	2022/1/14~2022/2/11	Relative Humidity:	51~54	%

TEST RESULTS DATA**Average Power Table**

Mod.	Data Rate	N _{TX}	CH.	Freq. (MHz)	Average Conducted Power (dBm)	Conducted Power Limit (dBm)	DG (dBi)	EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail
BLE	2Mbps	1	39	2480	5.42	30.00	2.54	7.96	36.00	Pass



Appendix B. Radiated Spurious Emission

Test Engineer :	Bill Chang and JC Liang	Temperature :	20~25°C
		Relative Humidity :	50~60%

<Sample 2>

<2Mbps>

2.4GHz 2400~2483.5MHz

BLE (Band Edge @ 3m)

BLE	Note	Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Path Loss	Preamp Factor	Ant Pos	Table Pos	Peak Avg.	Pol.
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BLE CH 39 2480MHz	*	2480	101.73	-	-	91.57	27.62	18.85	36.31	303	252	P	H
	*	2480	100.52	-	-	90.36	27.62	18.85	36.31	303	252	A	H
		2496.32	49.42	-24.58	74	39.17	27.69	18.88	36.32	303	252	P	H
		2483.6	41.99	-12.01	54	31.81	27.63	18.86	36.31	303	252	A	H
													H
													H
	*	2480	104.11	-	-	93.95	27.62	18.85	36.31	337	124	P	V
	*	2480	102.82	-	-	92.66	27.62	18.85	36.31	337	124	A	V
		2483.52	51.3	-22.7	74	41.12	27.63	18.86	36.31	337	124	P	V
		2483.52	41.99	-12.01	54	31.81	27.63	18.86	36.31	337	124	A	V
													V
													V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



2.4GHz 2400~2483.5MHz

BLE (Harmonic @ 3m)

BLE	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Path Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (H/V)
BLE CH 39 2480MHz		4960	43.23	-30.77	74	34.91	33.02	12.96	37.66	-	-	P	H
		7440	46.34	-27.66	74	32.77	36.22	15.98	38.63	-	-	P	H
		12345	52.7	-21.3	74	36.02	39.06	20.84	43.22	-	-	P	H
		12345	40.95	-13.05	54	24.27	39.06	20.84	43.22	-	-	A	H
		13320	53.01	-20.99	74	34.49	39.84	21.84	43.16	-	-	P	H
		13320	42.9	-11.1	54	24.38	39.84	21.84	43.16	-	-	A	H
		17880	54.41	-19.59	74	34.06	40.92	24.81	45.38	-	-	P	H
		17880	45.68	-8.32	54	25.33	40.92	24.81	45.38	-	-	A	H
													H
													H
													H
													H
		4960	43.7	-30.3	74	35.38	33.02	12.96	37.66	-	-	P	V
		7440	46.84	-27.16	74	33.27	36.22	15.98	38.63	-	-	P	V
		12690	52.16	-21.84	74	34.69	39.48	21.21	43.22	-	-	P	V
		12690	41.68	-12.32	54	24.21	39.48	21.21	43.22	-	-	A	V
		13335	53.54	-20.46	74	34.98	39.87	21.85	43.16	-	-	P	V
		13335	43.18	-10.82	54	24.62	39.87	21.85	43.16	-	-	A	V
		17865	54.68	-19.32	74	34.47	40.78	24.8	45.37	-	-	P	V
		17865	45.43	-8.57	54	25.22	40.78	24.8	45.37	-	-	A	V
													V
													V
													V
													V
Remark	1. No other spurious found.												
	2. All results are PASS against Peak and Average limit line.												
	3. The emission position marked as "-" means no suspected emission found with sufficient margin against limit line or noise floor only.												
	4. The emission level close to 18GHz is checked that the average emission level is noise floor only.												



Note symbol

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
!	Test result is over limit line.
P/A	P eak or A verage
H/V	H orizontal or V ertical

A calculation example for radiated spurious emission is shown as below:

BLE	Note	Frequency	Level	Over	Limit	Read	Antenna	Path	Preamp	Ant	Table	Peak	Pol.
				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
BLE CH 00 2402MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

- Path Loss(dB) = Cable loss(dB) + Filter loss(dB) + Attenuator loss(dB)
- Level(dBμV/m) =
Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
- Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

- Level(dBμV/m)
= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)
= 55.45 (dBμV/m)
- Over Limit(dB)
= Level(dBμV/m) – Limit Line(dBμV/m)
= 55.45(dBμV/m) – 74(dBμV/m)
= -18.55(dB)

For Average Limit @ 2390MHz:

- Level(dBμV/m)
= Antenna Factor(dB/m) + Path Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)
= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)
= 43.54 (dBμV/m)
- Over Limit(dB)
= Level(dBμV/m) – Limit Line(dBμV/m)
= 43.54(dBμV/m) – 54(dBμV/m)
= -10.46(dB)

Both peak and average measured complies with the limit line, so test result is “PASS”.



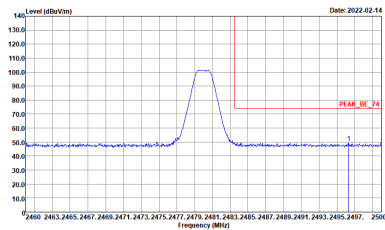
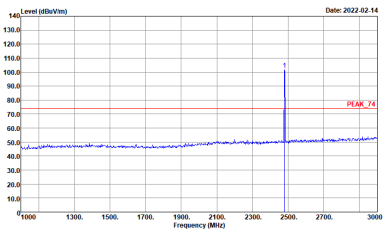
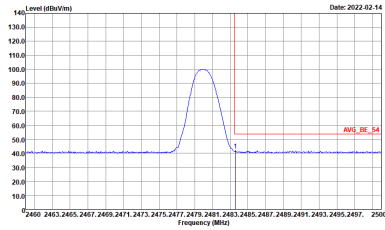
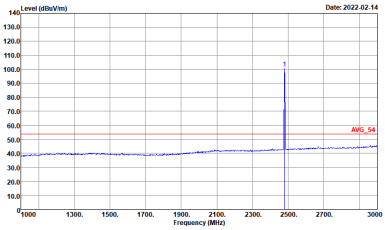
Appendix C. Radiated Spurious Emission Plots

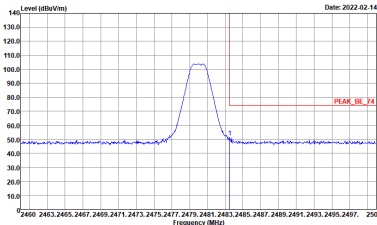
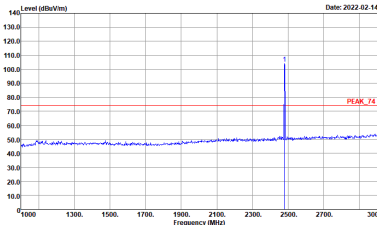
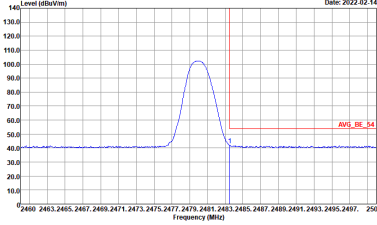
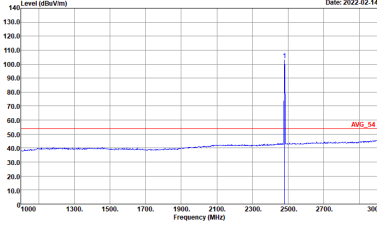
Test Engineer :	Bill Chang and JC Liang	Temperature :	20~25°C
		Relative Humidity :	50~60%

<Sample 2>
<2Mbps>

2.4GHz 2400~2483.5MHz

BLE (Band Edge @ 3m)

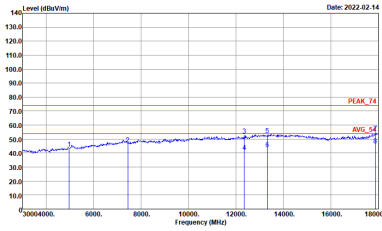
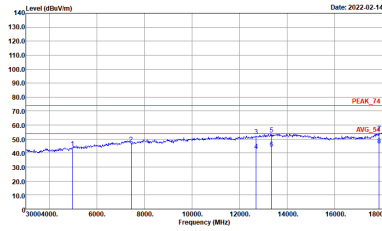
BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH39 2480MHz	
	Horizontal	Fundamental
Peak	 Site : 03CH20-HY Condition : PEAK_BE_74 3m 91200_02294_1110622 HORIZONTAL RBW:1000.0000Hz VBW:3000.0000Hz SWT:Auto Detector : Peak Project : IN0803	 Site : 03CH20-HY Condition : PEAK_74 3m 91200_02294_1110622 HORIZONTAL RBW:1000.0000Hz VBW:3000.0000Hz SWT:Auto Detector : Peak Project : IN0803
Avg.	 Site : 03CH20-HY Condition : AVG_BE_54 3m 91200_02294_1110622 HORIZONTAL RBW:1000.0000Hz VBW:10.0000Hz SWT:Auto Detector : Peak Project : IN0803	 Site : 03CH20-HY Condition : AVG_54 3m 91200_02294_1110622 HORIZONTAL RBW:1000.0000Hz VBW:10.0000Hz SWT:Auto Detector : Peak Project : IN0803

BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
	BLE CH39 2480MHz	
	Vertical	Fundamental
Peak	 Site : 03CH20-HY Condition : PEAK_BE_74 3m 91200_02294_1110622 VERTICAL Detector : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Project : IN0803	 Site : 03CH20-HY Condition : PEAK_F4 3m 91200_02294_1110622 VERTICAL Detector : RBW:1000.000kHz VBW:3000.000kHz SWT:Auto Project : IN0803
Avg.	 Site : 03CH20-HY Condition : AVG_BE_54 3m 91200_02294_1110622 VERTICAL Detector : RBW:1000.000kHz VBW:10.000kHz SWT:Auto Project : IN0803	 Site : 03CH20-HY Condition : AVG_F4 3m 91200_02294_1110622 VERTICAL Detector : RBW:1000.000kHz VBW:10.000kHz SWT:Auto Project : IN0803



2.4GHz 2400~2483.5MHz

BLE (Harmonic @ 3m)

BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
	BLE CH39 2480MHz	
	Horizontal	Vertical
Peak Avg.	 Site : 03CH20-HY Condition : PEAK_74 3m 91200_02294_1110622 HORIZONTAL Detector : Peak Project : IN0803	 Site : 03CH20-HY Condition : PEAK_74 3m 91200_02294_1110622 VERTICAL Detector : Peak Project : IN0803



Appendix D. Duty Cycle Plots

Band	Duty Cycle(%)	T(us)	1/T(kHz)	VBW Setting
Bluetooth –LE for 2Mbps	32.59	204	4.90	10kHz

