低功率射頻器材試驗報告

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製造廠商	Renesas Design Korea Inc.
產品名稱	RRQ61051 Module
廠牌	Renesas
主 型 號	RRQ61051-010
系列型號	N/A
該產品樣品試驗依據之試驗標準	低功率射頻器材技術規範 LP0002 113年版
試驗結果	合格

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報告發行紀錄:

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目錄

1. 一般描述 5

2. 測試規範 6

2.1 適用規範及條文 6
2.2 限制使用之頻帶 7

3. 受測裝置之系統說明 8

3.1 待測物與測試設備系統圖 8
3.2 測試模式 10
3.3 測試軟件 10
3.4 隨貨附賣週邊設備名稱描述 10
3.5 未隨貨附賣，輔助測試週邊設備名稱描述 11
3.6 測試描述 11
3.7 占空比評估 11

4. 電源線傳導干擾之量測 12

4.1 適用標準 12
4.2 測試方法 12
4.3 測試場地配置圖 12
4.4 干擾值之計算 12
4.5 傳導干擾之量測結果 13

5. 場強輻射之量測 14

5.1 適用標準 14
5.2 測試方法 14
5.3 測試場地配置圖 15
5.4 量測設定 16
5.5 場強度之計算 16
5.6 場強輻射之量測結果 16

6. 天線增益之要求 36

6.1 適用標準 36

6.2 天線增益 36

7. 發射頻寬之要求 37

7.1 適用標準 37
7.2 測試方法 37
7.3 發射頻寬之量測結果 38

8. 輸出峰值功率之量測 41

8.1 適用標準 41
8.2 測試方法 41
8.3 輸出功率之量測結果 42

9. 開放頻帶邊緣 100 kHz 頻寬內之限制 44

9.1 適用標準 44
9.2 測試方法 44
9.3 測試場地配置圖 44
9.4 開放頻帶邊緣之量測結果 44

10. 功率密度之量測 52

10.1 適用標準 52
10.2 測試方法 52
10.3 功率密度之量測結果 53

11. 電波曝露量之評估 55

11.1 適用標準 55
11.2 電波曝露量之結果 56

12. 量測儀器一覽表 57

13. 試驗室之測試不確定度 59

1. 一般描述

產品名稱	RRQ61051 Module
廠　　牌	Renesas
主 型 號	RRQ61051-010
系列型號	N/A
差異說明	N/A
EUT供電方式	3.3Vdc

WiFi 2.4G

使用頻率	IEEE 802.11b/g/n20/ax20: 2412 ~ 2462 MHz
使用頻道數	IEEE 802.11b/g/n20/ax20: 11 channels
傳輸速率	IEEE 802.11b：1–11 Mbps IEEE 802.11g：6–54 Mbps IEEE 802.11n20：MCS 0–7 IEEE 802.11ax20：MCS 0–11
調變方式	IEEE 802.11b Mode: DSSS IEEE 802.11g/n20 Mode: OFDM IEEE 802.11ax20 Mode: OFDMA

**802.11ax mode only support full RU

**This device cannot run both WIFI 2.4G and WIFI 5G simultaneously.

BLE

使用頻率	2402~2480MHz
使用頻道數	40 Channels
傳輸速率	BLE(1M) Mode: 1Mbps
調變方式	GFSK

2. 測試規範

2.1 適用規範及條文

本測試報告之所有項目皆符合國家通訊傳播委員會 LP0002 低功率射頻器材技術規範及條文。

項次	測試項目	低功率射頻器材技術規範	測試結果
1	電源線傳導干擾	3.3節	符合規範
2	場強輻射	3.5節& 3.6節	符合規範
3	天線增益之要求	4.10.1.3節	符合規範
4	發射頻寬	4.10.1.6節	符合規範
5	輸出峰值功率	4.10.1.2節	符合規範
6	開放頻帶邊緣之發射	4.10.1.5節	符合規範
7	功率密度	4.10.1.6(2)(B)節	符合規範
8	電波曝露量	6.20.2.2節	符合規範

報 告 簽 署 人： 許詔強 

2.2 限制使用之頻帶

根據低功率射頻器材技術規範，任何低功率射頻器材之主波皆不得使用下表所列各頻帶內之頻率；低功率射頻器材落於下表所列頻帶內之混附發射，其電場強度必須符合限制規定。

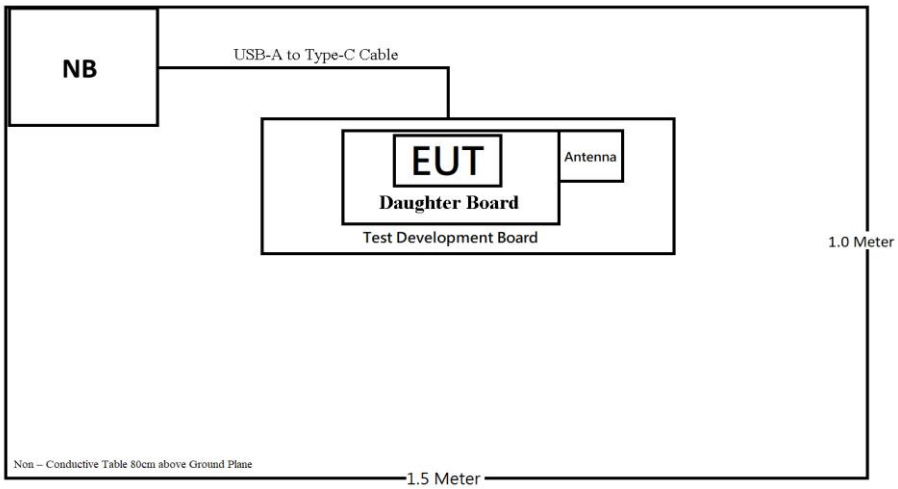
頻率 (MHz)	頻率 (MHz)	頻率 (MHz)	頻率 (MHz)
0.090 - 0.110	167.72 - 173.20	2483.5 - 2900.0	38600 以上
0.490 - 0.510	240.00 - 285.00	3260.0 - 3267.0	
2.172 - 2.198	322.00 - 335.40	3332.0 - 3339.0	
3.013 - 3.033	399.90 - 410.00	3345.8 - 3358.0	
4.115 - 4.198	485.00 - 510.00	3500.0 - 4400.0	
5.670 - 5.690	608.00 - 614.00	4500.0 - 5250.0	
6.200 - 6.300	703.00 - 748.00	5350.0 - 5460.0	
8.230 - 8.400	758.00 - 803.00	7250.0 - 7750.0	
12.265 - 12.600	825.00 - 915.00	8025.0 - 8500.0	
13.340 - 13.430	930.00 - 1240.0	9000.0 - 9200.0	
14.965 - 15.020	1300.0 - 1427.0	9300.0 - 9500.0	
16.700 - 16.755	1435.0 - 1626.5	10600 - 12700	
19.965 - 20.020	1660.0 - 1785.0	13250 - 13400	
25.500 - 25.700	1805.0 - 1880.0	14470 - 14500	
37.475 - 38.275	1885.0 - 1900.0	15350 - 16200	
73.500 - 75.400	1905.0 - 1985.0	17700 - 21400	
108.00 - 138.00	2010.0 - 2025.0	22010 - 23120	
149.90 - 150.05	2110.0 - 2170.0	23600 - 24000	
156.70 - 156.90	2200.0 - 2300.0	31200 - 31800	
162.01 - 167.17	2310.0 - 2390.0	36430 - 36500	

3. 受測裝置之系統說明

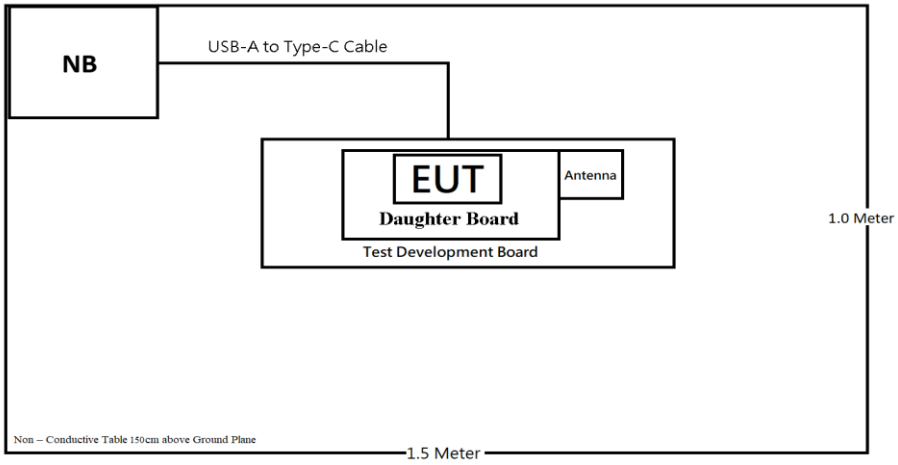
3.1 待測物與測試設備系統圖

Radiation:

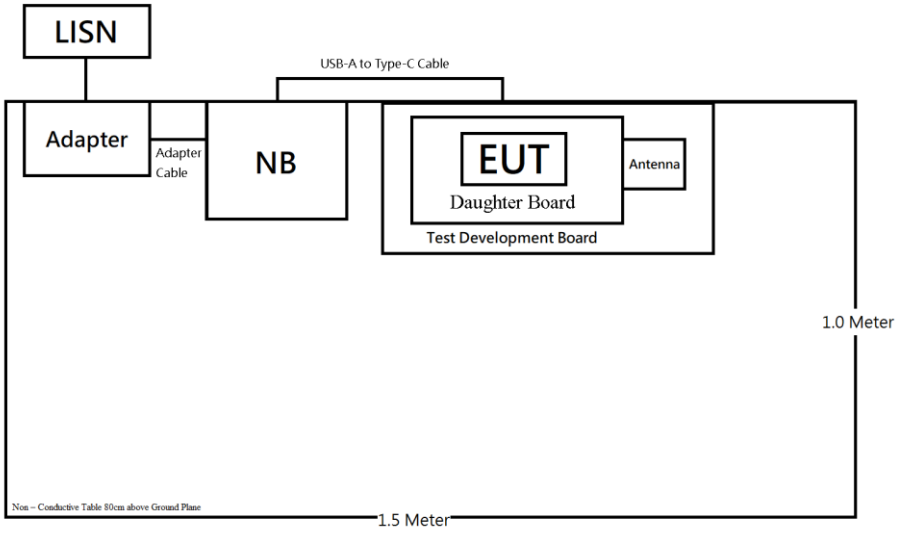
Below 1GHz



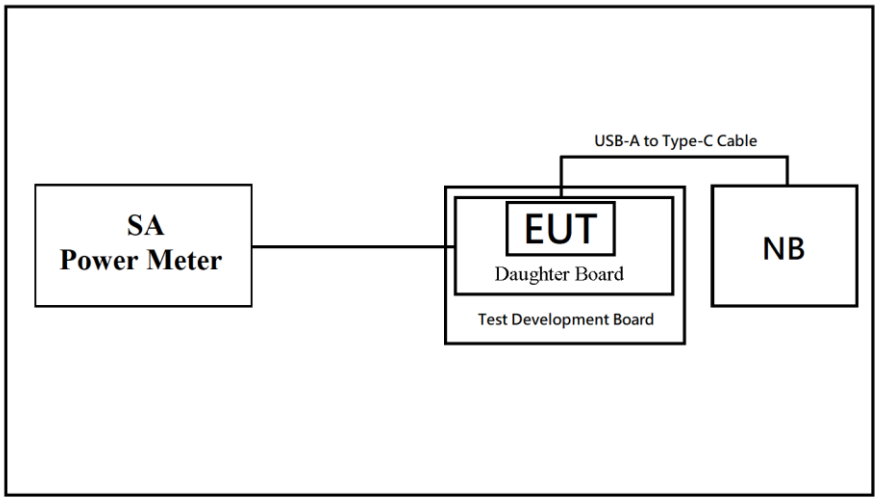
Above 1GHz:



Conduction:



Conducted:



3.2 測試模式

1. SET UP 方式請參照 SET UP Photos。
2. 樣品設定 Low, Mid 與 High Channel，並執行法規規定之測試項目。
3. 此案 Pre-scan 經三軸比對後，最差為 Z 軸。
4. 在輻射干擾部分均評估，報告中僅呈現最差模式。
5. WIFI2.4G 和 WIFI5G 不支援同時發射
6. 802.11ax mode only support full RU

Mode	測試模式	樣品序號
1	Radiated Test	RLK260119060-2
2	Conducted Test	RLK260119060-1
3	Conduction Test	RLK260119060-2

Worse	
BLE	1M-2402 MHz
WiFi 2.4G	N20-2462 MHz

3.3 測試軟件

BLE : Used "TeraTerm5 v5.5.1 " + " SmartSnippets_Toolbox_v5.0.26.4228" software.
WiFi 2.4G : Used "TeraTerm5 v5.5.1" software.

Test Frequency		Low	Mid	High
Power Level Setting	B Mode	9	9	6
	G Mode	11	11	10
	N20 Mode	9	11	9
	AX20 Mode	10	11	10
	BLE 1M	Defulat	Defulat	Defulat

3.4 隨貨附賣週邊設備名稱描述

N/A

3.5 未隨貨附賣，輔助測試週邊設備名稱描述

序號	設備名稱	廠牌	型號
1	Notebook (Lab provided)	DELL	E6410
2	Notebook (Lab provided)	Acer	N16Q1
3	USB-A to Type-C Cable (Customer provided)	VENTION	COZ
4	Test Development Board (Customer provided)	RENESAS	EK-RQ61 565-11-C-0001 Ver 3.1
5	Antenna (Customer provided)	ARISTOTLE	RFA-27-H60-U-GB70
6	Daughter Board (Customer provided)	RENESAS	RRQ610x1 565-16-B

3.6 測試描述

BLE :

1. 將 EUT 插入 Test Development Board 上，使用線材連接 Test Development Board 與筆電，點擊模組板紅色按鈕
2. 打開測試軟體”TeraTerm5”，依循步驟設定指令
3. 打開測試軟體”SmartSnippets_Toolbox_v5.0.26.4228”
4. 輸入 TX & RX 測試指令，確認訊號是否正確，開始測試

WiFi 2.4G :

1. 將 EUT 插入 Test Development Board 上，使用線材連接 Test Development Board 與筆電，點擊模組板紅色按鈕
2. 打開測試軟體”TeraTerm5”
3. 輸入 TX & RX 測試指令，確認訊號是否正確，開始測試

3.7 占空比評估

Duty cycle = Tx on(ms)/(Tx on+off(ms)

Duty factor = 10*log(1/ Duty cycle)

	B Mode	G Mode	n20 Mode	ax20 Mode	BLE Mod
Duty cycle	0.97	0.96	0.91	0.99	0.99
Duty factor	0.13	0.18	0.41	0.00	0.00

4. 電源線傳導干擾之量測

4.1 適用標準

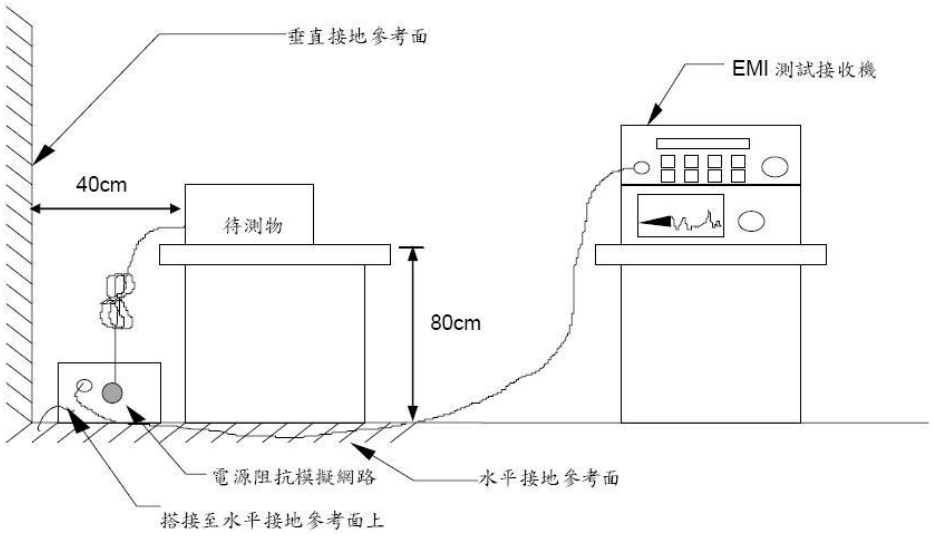
依據低功率射頻器材技術規範，電源傳導干擾之限制要求如下:

頻率 (MHz)	傳導限制值 (dBμV)	
	準峰值 (Quasi – peak)	平均值(Average)
0.15 – 0.5	66 – 56	56 - 46
0.5 – 5	56	46
5 - 30	60	50

4.2 測試方法

將待測物置於0.8米高的非金屬桌面，使其在工作狀態，待測物電源線接至電源線阻抗穩定網路上，從測試接收機記錄頻率由0.15 MHz至30 MHz之間之電源線傳導放射強度。

4.3 測試場地配置圖



4.4 干擾值之計算

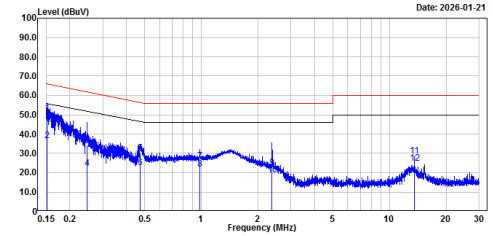
電源傳導干擾電壓之計算公式如下

干擾值 = 讀值 + 校正因子

其中校正因子為： 饋線損失 + 電源阻抗模擬網路損失

4.5 傳導干擾之量測結果

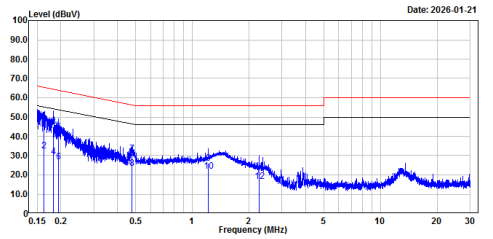
WIFI 2.4G Line



Site : Conduction
Condition: Line
Memo : WiFi-2.4G-N20-2462MHz
Job No : RLK260119060
Model : RRQ61051-010
Power : AC 110V/60Hz
Tester : Charlie Li
Temp./ Hum.: 20.6℃/48%

	Freq	Read Level	Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	
1	0.1521	30.91	50.89	19.98	65.88	-14.99	QP
2	0.1521	16.73	36.71	19.98	55.88	-19.17	Average
3	0.2470	14.25	34.25	20.00	61.86	-27.61	QP
4	0.2470	2.14	22.14	20.00	51.86	-29.72	Average
5	0.4720	10.01	30.04	20.03	56.48	-26.44	QP
6	0.4720	2.52	22.55	20.03	46.48	-23.93	Average
7	0.9841	5.81	25.85	20.04	56.00	-30.15	QP
8	0.9841	1.79	21.83	20.04	46.00	-24.17	Average
9	2.3809	2.73	22.80	20.07	56.00	-33.20	QP
10	2.3809	-1.17	18.90	20.07	46.00	-27.10	Average
11	13.5664	8.15	28.65	20.50	60.00	-31.35	QP
12	13.5664	4.49	24.99	20.50	50.00	-25.01	Average

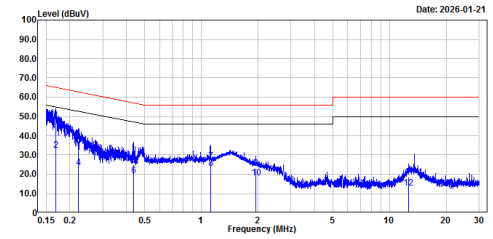
WIFI 2.4G Neutral



Site : Conduction
Condition: Neutral
Memo : WiFi-2.4G-N20-2462MHz
Job No : RLK260119060
Model : RRQ61051-010
Power : AC 110V/60Hz
Tester : Charlie Li
Temp./ Hum.: 20.6℃/48%

	Freq	Read Level	Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	
1	0.1628	28.30	48.30	20.00	65.32	-17.02	QP
2	0.1628	12.44	32.44	20.00	55.32	-22.88	Average
3	0.1828	24.84	44.83	19.99	64.36	-19.53	QP
4	0.1828	9.38	29.37	19.99	54.36	-24.99	Average
5	0.1947	22.15	42.13	19.98	63.83	-21.70	QP
6	0.1947	6.95	26.93	19.98	53.83	-26.90	Average
7	0.4796	10.77	30.76	19.99	56.35	-25.59	QP
8	0.4796	3.39	23.38	19.99	46.35	-22.97	Average
9	1.2127	5.92	25.94	20.02	56.00	-30.06	QP
10	1.2127	2.04	22.06	20.02	46.00	-23.94	Average
11	2.2671	1.69	21.74	20.05	56.00	-34.26	QP
12	2.2671	-3.36	16.69	20.05	46.00	-29.31	Average

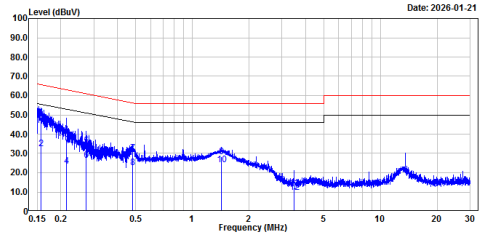
BLE Line



Site : Conduction
Condition: Line
Memo : BLE-1M-2402MHz
Job No : RLK260119060
Model : RRQ61051-010
Power : AC 110V/60Hz
Tester : Charlie Li
Temp./ Hum.: 20.6℃/48%

	Freq	Read Level	Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	
1	0.1684	27.95	47.94	19.99	65.04	-17.10	QP
2	0.1684	12.53	32.52	19.99	55.04	-22.52	Average
3	0.2226	16.96	36.94	19.98	62.72	-25.78	QP
4	0.2226	3.54	23.52	19.98	52.72	-29.20	Average
5	0.4366	5.03	25.06	20.03	57.13	-32.07	QP
6	0.4366	-0.70	19.33	20.03	47.13	-27.80	Average
7	1.1184	6.83	26.87	20.04	56.00	-29.13	QP
8	1.1184	2.93	22.97	20.04	46.00	-23.03	Average
9	1.9515	3.10	23.16	20.06	56.00	-32.84	QP
10	1.9515	-1.76	18.30	20.06	46.00	-27.70	Average
11	12.5867	-1.94	18.51	20.45	60.00	-41.49	QP
12	12.5867	-7.80	12.65	20.45	50.00	-37.35	Average

BLE Neutral



Site : Conduction
Condition: Neutral
Memo : BLE-1M-2402MHz
Job No : RLK260119060
Model : RRQ61051-010
Power : AC 110V/60Hz
Tester : Charlie Li
Temp./ Hum.: 20.6℃/48%

	Freq	Read Level	Level	Factor	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	
1	0.1566	28.57	48.57	20.00	65.64	-17.07	QP
2	0.1566	12.49	32.49	20.00	55.64	-23.15	Average
3	0.2137	17.39	37.37	19.98	63.06	-25.69	QP
4	0.2137	3.47	23.45	19.98	53.06	-29.61	Average
5	0.2724	13.84	33.82	19.98	61.04	-27.22	QP
6	0.2724	6.44	26.42	19.98	51.04	-24.62	Average
7	0.4806	10.21	30.20	19.99	56.33	-26.13	QP
8	0.4806	2.76	22.75	19.99	46.33	-23.58	Average
9	1.4244	8.44	28.48	20.04	56.00	-27.52	QP
10	1.4244	4.07	24.11	20.04	46.00	-21.89	Average
11	3.4774	-8.16	11.91	20.07	56.00	-44.09	QP
12	3.4774	-10.34	9.73	20.07	46.00	-36.27	Average

Note:

Level = Read Level + Factor

Over Limit = Level – Limit Line

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss + Attenuator

5. 場強輻射之量測

5.1 適用標準

依據低功率射頻器材技術規範，其他開放頻帶外不必要之輻射干擾需符合限制要求。

頻率 (MHz)	測試距離 (m)	干擾限制 (μV/m)	干擾限制 (dBμV/m)
0.009 ≤ f ≤ 0.490	300	2,400/頻率(千赫)	128.5-93.8 (註1)
0.490< f ≤1.705	30	24,000 /頻率(千赫)	73.8-63 (註2)
1.705< f <30	30	30	69.5 (註3)
30≤ f ≤88	3	100	40.0
88< f ≤216	3	150	43.5
216< f ≤ 960	3	200	46.0
960< f	3	500	54.0

註 1: 其干擾限制值= 20*LOG(2400/F)+40*LOG(300/量測距離)

註 2: 其干擾限制值= 20*LOG(24000/F)+40*LOG(30/量測距離)

註 3: 其干擾限制值= 20*LOG(30)+40*LOG(30/量測距離)

註 4: 其干擾限制值= 20*LOG(500)+20*LOG(3/1.5)(1.5m量測距離)

5.2 測試方法

將待測物置於0.8 或1.5米高的非金屬桌面，使其在工作狀態，接收天線置於3米外相同的高度。待測物分別要垂直或水平放置，而且桌面要360度旋轉，另外接收天線也要從1.0米至4.0米升降變化，以找出最大的輻射電場強度，接收天線置於水平、垂直極向各執行測試一次。若量測頻率低於30 MHz時，得於所規定距離以內進行測試，但應盡量避免於近場做測試。當測試距離較規定距離為近時，測試結果應以插補系數換算至規定距離之值：對同一輻射方向最少兩個距離作量測以決定適當的插補系數或線性距離平方反比(40 dB/10倍距離)。

5.3 測試場地配置圖

圖 1 :量測頻率9kHz~ 30MHz之測試配置

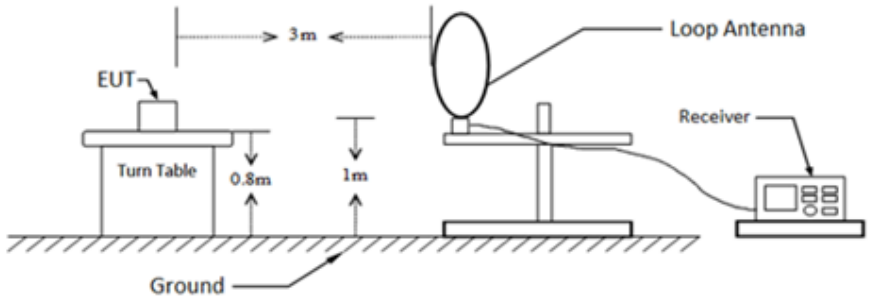


圖 2 :量測頻率30 MHz~ 1 GHz之測試配置

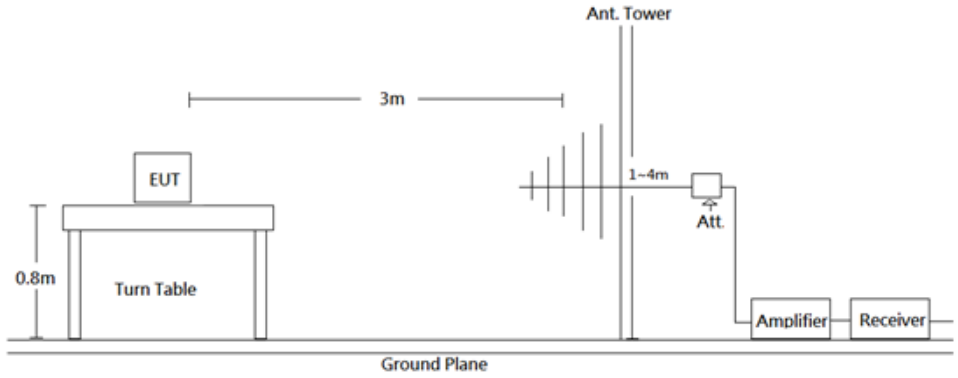


圖 3 : 量測頻率1 GHz以上之測試配置

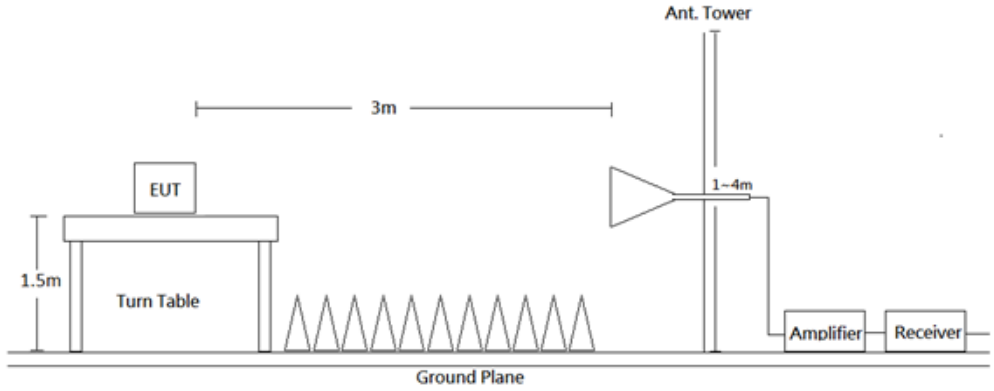
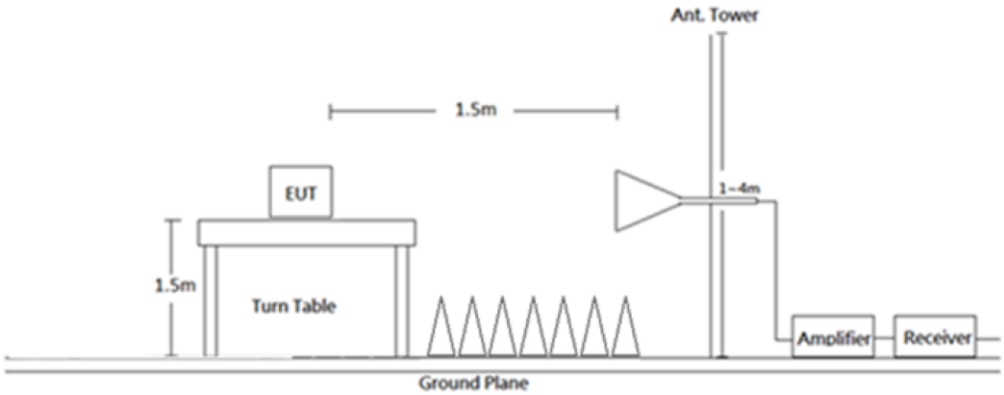


圖4: 量測頻率18GHz以上之測試配置



5.4 量測設定

1GHz以下:

頻譜分析儀設定: Quasi-Peak: RBW : 120kHz

1GHz以上:

頻譜分析儀設定: Peak: RBW: 1MHz; VBW: 3MHz

Average: RBW: 1MHz; VBW: 10Hz for Duty Cycle ≧ 98%

RBW: 1MHz; VBW: 1/T for Duty Cycle < 98%

5.5 場強度之計算

場強之計算公式如

干擾值 = 讀值 + 校正因子

其中校正因子為：

天線因子 + 饋線損失 + 濾波器損失（若有使用） - 放大器增益（若有使用）。

5.6 場強輻射之量測結果

發射機 / 接收機 其它不必要之訊號 (9 kHz ~ 30 MHz)

此頻率之干擾值低於限制值20 dB以下，被考量為背景雜訊值並不予記錄。

發射機 / 接收機 其它不必要之訊號 (30 MHz ~ 1 GHz)

測試模式: Worst Power, 此測試數據為最差模式。

發射機 其它不必要之訊號 (1 GHz ~ 18 GHz)

此案件測試模式分別為CH Low、Mid、High。

發射機 其它不必要之訊號 (18 GHz ~ 26.5 GHz)

測試模式:Worst Power，此測試數據為最差模式。

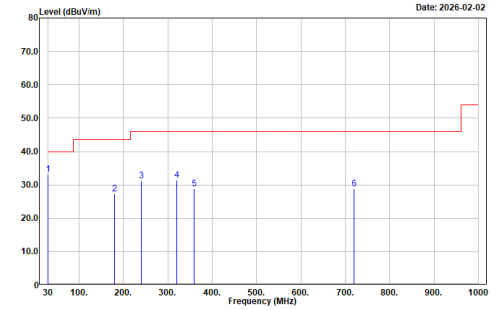
接收機 其它不必要之訊號 (1 GHz ~ 26.5 GHz)

此案件測試模式為Receiver模式。

發射機其它不必要之訊號（1 GHz 以下)

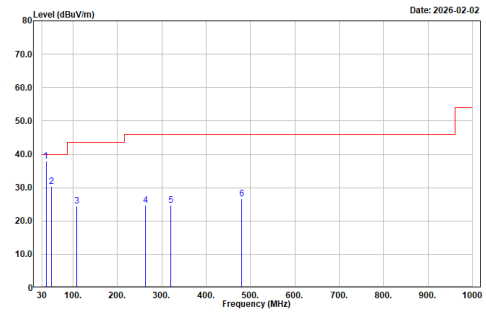
WLAN 2.4G mode:

30M-1G Horizontal	30M-1G Vertical



Site : 966B Chamber
Condition: 3m horizontal
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 17.9℃/59%
Memo : N20-TX-2462

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	30.970	36.47	-3.31	33.16	40.00	-6.84	QP
2	180.576	42.25	-14.93	27.32	43.50	-16.18	QP
3	240.005	45.85	-14.71	31.14	46.00	-14.86	QP
4	319.998	43.65	-12.25	31.40	46.00	-14.60	QP
5	359.994	40.41	-11.53	28.88	46.00	-17.12	QP
6	720.026	33.35	-4.59	28.76	46.00	-17.24	QP



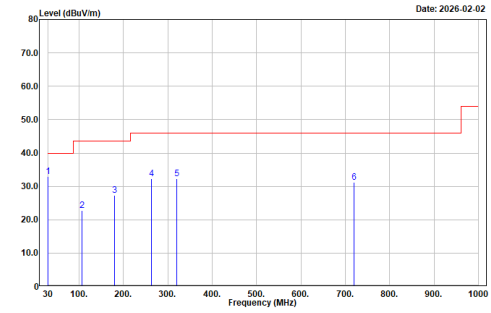
Site : 966B Chamber
Condition: 3m vertical
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 17.9℃/59%
Memo : N20-TX-2462

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1 !	39.183	47.53	-9.61	37.92	40.00	-2.08	QP
2	51.954	47.24	-16.97	30.27	40.00	-9.73	QP
3	107.762	38.16	-13.75	24.41	43.50	-19.09	QP
4	263.996	38.12	-13.35	24.77	46.00	-21.23	QP
5	319.998	37.06	-12.25	24.81	46.00	-21.19	QP
6	480.015	34.71	-8.06	26.65	46.00	-19.35	QP

Note:
Level = Read Level + Factor
Over Limit = Level – Limit Line
Factor = Antenna Factor + Cable Loss – Amplifier Gain

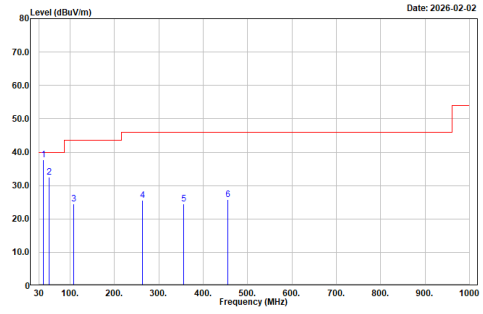
BLE mode:

30M-1G Horizontal	30M-1G Vertical



Site : 966B Chamber
Condition: 3m horizontal
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 17.9℃/59%
Memo : BLE-TX-1M-2402

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	30.614	36.14	-3.14	33.00	40.00	-7.00	QP
2	107.115	36.50	-13.68	22.82	43.50	-20.68	QP
3	180.544	42.18	-14.92	27.26	43.50	-16.24	QP
4	263.996	45.68	-13.35	32.33	46.00	-13.67	QP
5	319.998	44.59	-12.25	32.34	46.00	-13.66	QP
6	720.026	35.83	-4.59	31.24	46.00	-14.76	QP



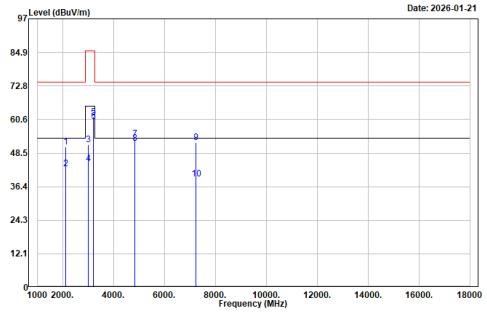
Site : 966B Chamber
Condition: 3m vertical
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 17.9℃/59%
Memo : BLE-TX-1M-2402

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1 !	40.379	48.38	-10.60	37.78	40.00	-2.22	QP
2	52.472	49.63	-17.05	32.58	40.00	-7.42	QP
3	108.182	38.30	-13.72	24.58	43.50	-18.92	QP
4	263.996	38.92	-13.35	25.57	46.00	-20.43	QP
5	356.340	36.19	-11.68	24.51	46.00	-21.49	QP
6	455.992	34.62	-8.85	25.77	46.00	-20.23	QP

Note:
Level = Read Level + Factor
Over Limit = Level – Limit Line
Factor = Antenna Factor + Cable Loss – Amplifier Gain

發射機其它不必要之訊號 (1GHz-18GHz): WLAN 2.4G mode

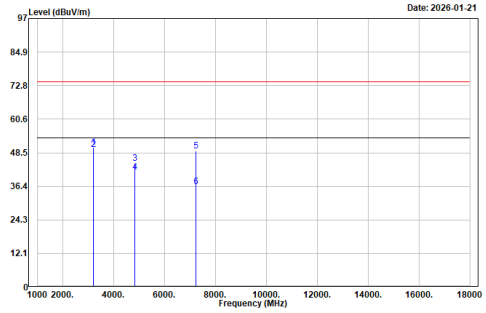
IEEE 802.11b Low Channel Horizontal



Site : 966B Chamber
Condition: 3m horizontal
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : B-TX-2412

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2110.100	52.21	-1.36	50.85	74.00	-23.15	Peak
2	2110.100	44.17	-1.36	42.81	54.00	-11.19	Average
3	3015.067	51.74	-0.18	51.56	85.37	-33.81	Peak
4	3015.067	44.89	-0.18	44.71	65.37	-20.66	Average
5	3215.667	61.08	0.34	61.42	85.37	-23.95	Peak
6	3215.667	59.70	0.34	60.04	65.37	-5.33	Average
7	4824.000	50.23	3.27	53.50	74.00	-20.50	Peak
8 !	4824.000	48.75	3.27	52.02	54.00	-1.98	Average
9	7236.000	42.97	9.42	52.39	74.00	-21.61	Peak
10	7236.000	29.88	9.42	39.30	54.00	-14.70	Average

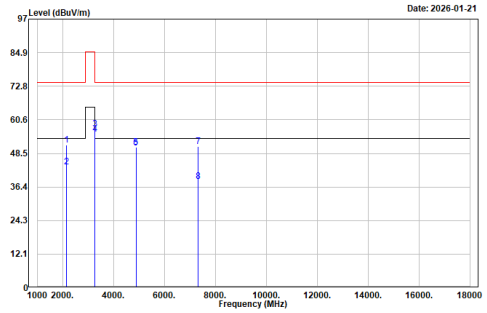
IEEE 802.11b Low Channel Vertical



Site : 966B Chamber
Condition: 3m vertical
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : B-TX-2412

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	3216.233	50.17	0.35	50.52	74.00	-23.48	Peak
2	3216.233	49.43	0.35	49.78	54.00	-4.22	Average
3	4824.000	41.30	3.27	44.57	74.00	-29.43	Peak
4	4824.000	38.15	3.27	41.42	54.00	-12.58	Average
5	7236.000	39.83	9.42	49.25	74.00	-24.75	Peak
6	7236.000	26.75	9.42	36.17	54.00	-17.83	Average

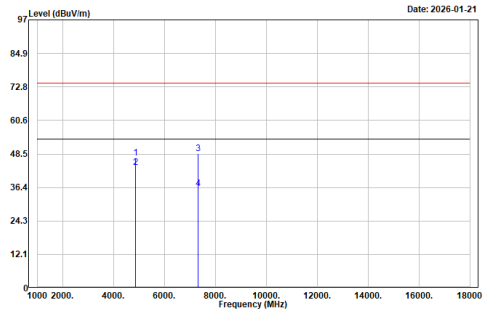
IEEE 802.11b Middle Channel Horizontal



Site : 966B Chamber
Condition: 3m horizontal
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : B-TX-2437

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2132.200	53.10	-1.68	51.42	74.00	-22.58	Peak
2	2132.200	45.24	-1.68	43.56	54.00	-10.44	Average
3	3249.100	56.82	0.54	57.36	85.12	-27.76	Peak
4	3249.100	54.97	0.54	55.51	65.12	-9.61	Average
5	4874.000	47.42	3.43	50.85	74.00	-23.15	Peak
6	4874.000	47.02	3.43	50.45	54.00	-3.55	Average
7	7311.000	41.34	9.60	50.94	74.00	-23.06	Peak
8	7311.000	28.91	9.60	38.51	54.00	-15.49	Average

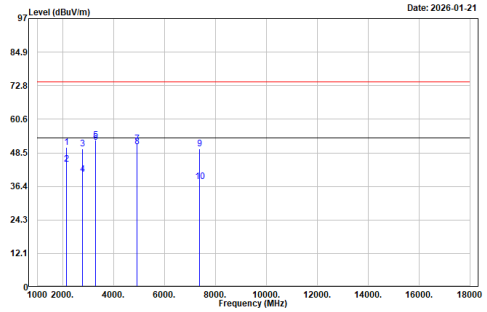
IEEE 802.11b Middle Channel Vertical



Site : 966B Chamber
Condition: 3m vertical
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : B-TX-2437

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	4871.000	43.51	3.42	46.93	74.00	-27.07	Peak
2	4871.000	40.12	3.42	43.54	54.00	-10.46	Average
3	7311.000	39.02	9.60	48.62	74.00	-25.38	Peak
4	7311.000	26.48	9.60	36.08	54.00	-17.92	Average

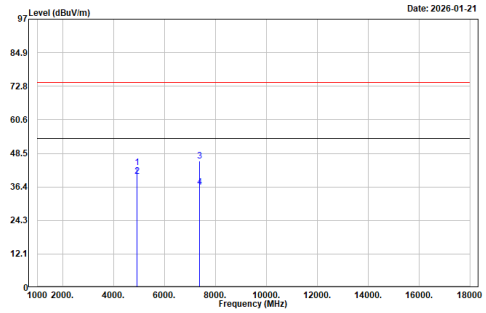
IEEE 802.11b High Channel Horizontal



Site : 966B Chamber
Condition: 3m horizontal
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : B-TX-2462

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2154.300	52.46	-1.96	50.50	74.00	-23.50	Peak
2	2154.300	46.47	-1.96	44.51	54.00	-9.49	Average
3	2769.700	50.73	-0.89	49.84	74.00	-24.16	Peak
4	2769.700	41.62	-0.89	40.73	54.00	-13.27	Average
5	3282.533	52.46	0.57	53.03	74.00	-20.97	Peak
6 !	3282.533	51.73	0.57	52.30	54.00	-1.70	Average
7	4924.000	48.21	3.54	51.75	74.00	-22.25	Peak
8	4924.000	47.30	3.54	50.84	54.00	-3.16	Average
9	7386.000	40.18	9.77	49.95	74.00	-24.05	Peak
10	7386.000	28.35	9.77	38.12	54.00	-15.88	Average

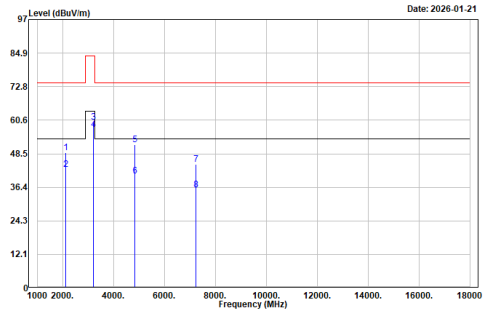
IEEE 802.11b High Channel Vertical



Site : 966B Chamber
Condition: 3m vertical
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : B-TX-2462

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	4924.000	39.72	3.54	43.26	74.00	-30.74	Peak
2	4924.000	36.72	3.54	40.26	54.00	-13.74	Average
3	7386.000	36.04	9.77	45.81	74.00	-28.19	Peak
4	7386.000	26.47	9.77	36.24	54.00	-17.76	Average

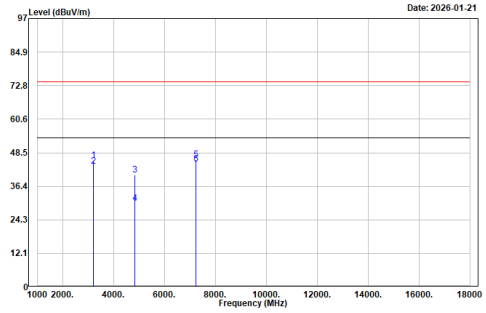
IEEE 802.11g Low Channel Horizontal



Site : 966B Chamber
Condition: 3m horizontal
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : G-TX-2412

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2110.667	50.19	-1.37	48.82	74.00	-25.18	Peak
2	2110.667	44.35	-1.37	42.98	54.00	-11.02	Average
3	3216.233	59.48	0.35	59.83	83.95	-24.12	Peak
4	3216.233	56.84	0.35	57.19	63.95	-6.76	Average
5	4824.000	48.39	3.27	51.66	74.00	-22.34	Peak
6	4824.000	37.25	3.27	40.52	54.00	-13.48	Average
7	7236.000	35.31	9.42	44.73	74.00	-29.27	Peak
8	7236.000	26.12	9.42	35.54	54.00	-18.46	Average

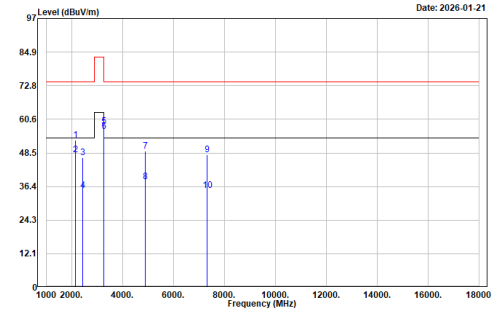
IEEE 802.11g Low Channel Vertical



Site : 966B Chamber
Condition: 3m vertical
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : G-TX-2412

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	3216.233	45.29	0.35	45.64	74.00	-28.36	Peak
2	3216.233	43.33	0.35	43.68	54.00	-10.32	Average
3	4824.000	37.13	3.27	40.40	74.00	-33.60	Peak
4	4824.000	26.95	3.27	30.22	54.00	-23.78	Average
5	7236.000	36.66	9.42	46.08	74.00	-27.92	Peak
6	7236.000	34.93	9.42	44.35	54.00	-9.65	Average

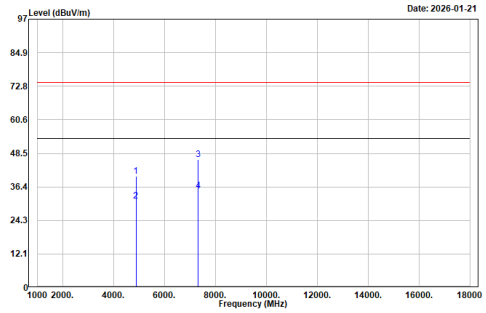
IEEE 802.11g Middle Channel Horizontal



Site : 966B Chamber
Condition: 3m horizontal
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : G-TX-2437

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2135.033	54.77	-1.74	53.03	74.00	-20.97	Peak
2	2135.033	49.61	-1.74	47.87	54.00	-6.13	Average
3	2439.333	48.92	-2.07	46.85	74.00	-27.15	Peak
4	2439.333	37.14	-2.07	35.07	54.00	-18.93	Average
5	3249.100	57.66	0.54	58.20	83.19	-24.99	Peak
6	3249.100	55.83	0.54	56.37	63.19	-6.82	Average
7	4876.000	45.68	3.43	49.11	74.00	-24.89	Peak
8	4876.000	34.62	3.43	38.05	54.00	-15.95	Average
9	7311.000	38.30	9.60	47.90	74.00	-26.10	Peak
10	7311.000	25.46	9.60	35.06	54.00	-18.94	Average

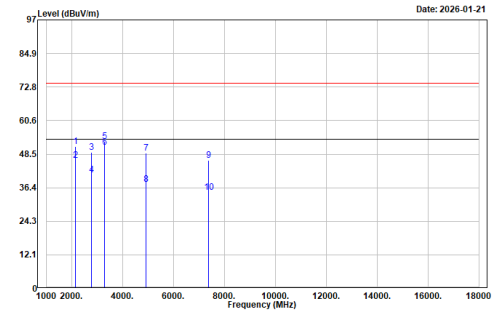
IEEE 802.11g Middle Channel Vertical



Site : 966B Chamber
Condition: 3m vertical
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : G-TX-2437

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	4874.000	36.78	3.43	40.21	74.00	-33.79	Peak
2	4874.000	27.74	3.43	31.17	54.00	-22.83	Average
3	7311.000	36.57	9.60	46.17	74.00	-27.83	Peak
4	7311.000	25.42	9.60	35.02	54.00	-18.98	Average

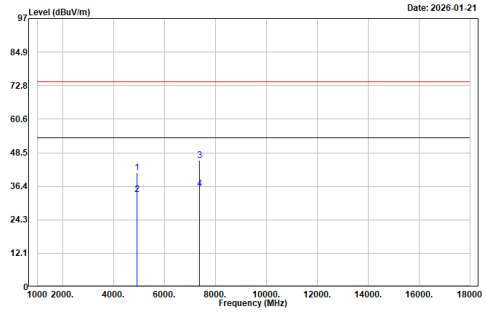
IEEE 802.11g High Channel Horizontal



Site : 966B Chamber
Condition: 3m horizontal
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : G-TX-2462

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2154.867	53.29	-1.97	51.32	74.00	-22.68	Peak
2	2154.867	48.17	-1.97	46.20	54.00	-7.80	Average
3	2769.700	49.98	-0.89	49.09	74.00	-24.91	Peak
4	2769.700	41.78	-0.89	40.89	54.00	-13.11	Average
5	3282.533	52.48	0.57	53.05	74.00	-20.95	Peak
6	3282.533	50.35	0.57	50.92	54.00	-3.08	Average
7	4924.000	45.33	3.54	48.87	74.00	-25.13	Peak
8	4924.000	34.09	3.54	37.63	54.00	-16.37	Average
9	7386.000	36.40	9.77	46.17	74.00	-27.83	Peak
10	7386.000	24.97	9.77	34.74	54.00	-19.26	Average

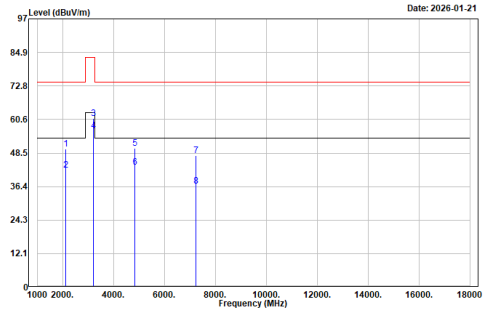
IEEE 802.11g High Channel Vertical



Site : 966B Chamber
Condition: 3m vertical
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : G-TX-2462

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	4924.000	37.70	3.54	41.24	74.00	-32.76	Peak
2	4924.000	29.97	3.54	33.51	54.00	-20.49	Average
3	7386.000	35.84	9.77	45.61	74.00	-28.39	Peak
4	7386.000	25.74	9.77	35.51	54.00	-18.49	Average

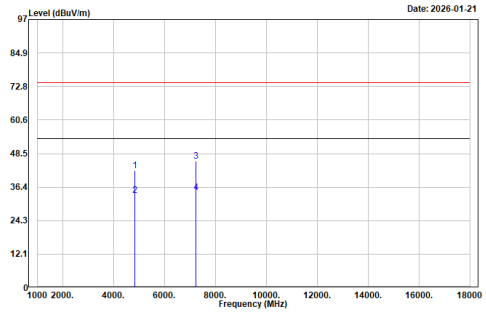
IEEE 802.11n 20 Low Channel Horizontal



Site : 966B Chamber
Condition: 3m horizontal
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : N20-TX-2412

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2110.100	51.36	-1.36	50.00	74.00	-24.00	Peak
2	2110.100	43.57	-1.36	42.21	54.00	-11.79	Average
3	3215.667	60.54	0.34	60.88	83.16	-22.28	Peak
4	3215.667	56.28	0.34	56.62	63.16	-6.54	Average
5	4824.000	46.95	3.27	50.22	74.00	-23.78	Peak
6	4824.000	40.17	3.27	43.44	54.00	-10.56	Average
7	7236.000	38.10	9.42	47.52	74.00	-26.48	Peak
8	7236.000	27.21	9.42	36.63	54.00	-17.37	Average

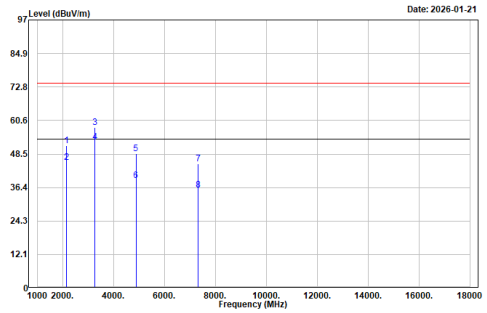
IEEE 802.11n20 Low Channel Vertical



Site : 966B Chamber
Condition: 3m vertical
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : N20-TX-2412

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	4824.000	39.01	3.27	42.28	74.00	-31.72	Peak
2	4824.000	29.99	3.27	33.26	54.00	-20.74	Average
3	7236.000	36.41	9.42	45.83	74.00	-28.17	Peak
4	7236.000	25.11	9.42	34.53	54.00	-19.47	Average

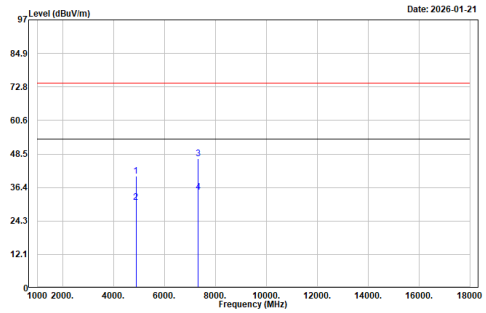
IEEE 802.11n20 Middle Channel Horizontal



Site : 966B Chamber
Condition: 3m horizontal
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : N20-TX-2437

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2132.200	53.16	-1.68	51.48	74.00	-22.52	Peak
2	2132.200	47.19	-1.68	45.51	54.00	-8.49	Average
3	3249.100	57.58	0.54	58.12	74.00	-15.88	Peak
4 !	3249.100	52.19	0.54	52.73	54.00	-1.27	Average
5	4874.000	45.31	3.43	48.74	74.00	-25.26	Peak
6	4874.000	35.48	3.43	38.91	54.00	-15.09	Average
7	7311.000	35.25	9.60	44.85	74.00	-29.15	Peak
8	7311.000	25.91	9.60	35.51	54.00	-18.49	Average

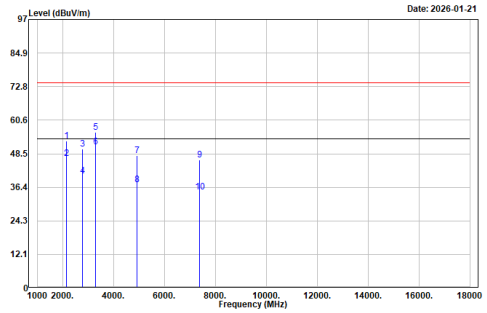
IEEE 802.11n 20 Middle Channel Vertical



Site : 966B Chamber
Condition: 3m vertical
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : N20-TX-2437

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	4874.000	37.16	3.43	40.59	74.00	-33.41	Peak
2	4874.000	27.48	3.43	30.91	54.00	-23.09	Average
3	7311.000	37.14	9.60	46.74	74.00	-27.26	Peak
4	7311.000	25.17	9.60	34.77	54.00	-19.23	Average

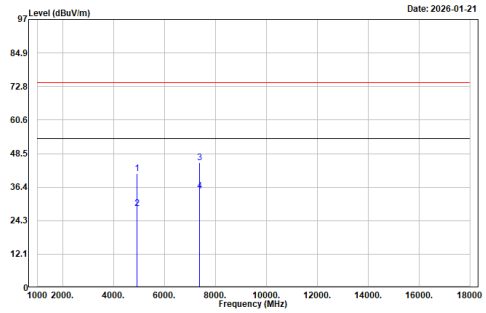
IEEE 802.11n20 High Channel Horizontal




```
Site     : 966B Chamber
Condition: 3m horizontal
Job No   : RLK260119060
Model    : RRQ61051-010
Power    : From Test Development Board
Tester   : Derek
Temp./ Hum.: 18.1℃/57%
Memo     : N20-TX-2462
```

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2154.300	55.15	-1.96	53.19	74.00	-20.81	Peak
2	2154.300	48.83	-1.96	46.87	54.00	-7.13	Average
3	2768.567	51.18	-0.89	50.29	74.00	-23.71	Peak
4	2768.567	41.30	-0.89	40.41	54.00	-13.59	Average
5	3282.533	55.77	0.57	56.34	74.00	-17.66	Peak
6 !	3282.533	50.45	0.57	51.02	54.00	-2.98	Average
7	4924.000	44.40	3.54	47.94	74.00	-26.06	Peak
8	4924.000	33.74	3.54	37.28	54.00	-16.72	Average
9	7386.000	36.46	9.77	46.23	74.00	-27.77	Peak
10	7386.000	24.88	9.77	34.65	54.00	-19.35	Average

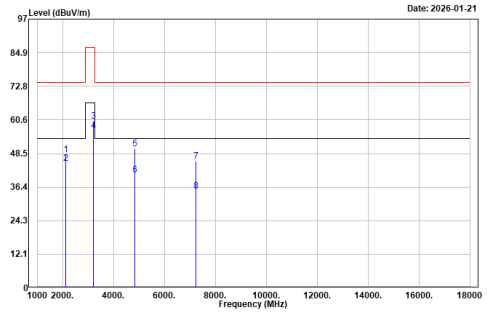
IEEE 802.11n20 High Channel Vertical




```
Site     : 966B Chamber
Condition: 3m vertical
Job No   : RLK260119060
Model    : RRQ61051-010
Power    : From Test Development Board
Tester   : Derek
Temp./ Hum.: 18.1℃/57%
Memo     : N20-TX-2462
```

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	4924.000	37.82	3.54	41.36	74.00	-32.64	Peak
2	4924.000	25.16	3.54	28.70	54.00	-25.30	Average
3	7386.000	35.48	9.77	45.25	74.00	-28.75	Peak
4	7386.000	25.28	9.77	35.05	54.00	-18.95	Average

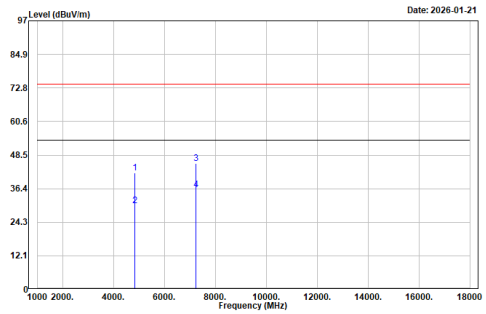
IEEE 802.11ax20 Low Channel Horizontal




```
Site     : 966B Chamber
Condition: 3m horizontal
Job No   : RLK260119060
Model    : RRQ61051-010
Power    : From Test Development Board
Tester   : Derek
Temp./ Hum.: 18.1℃/57%
Memo     : AX20-TX-2412
```

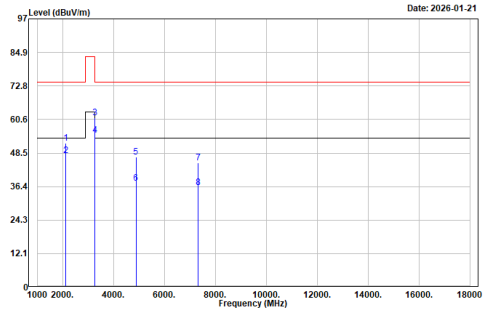
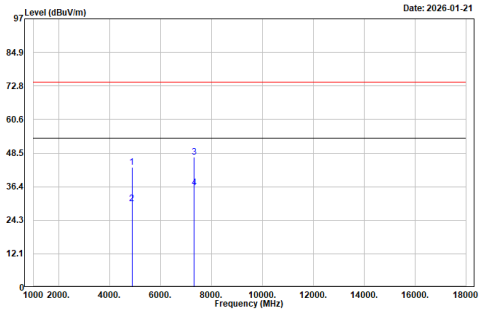
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2110.100	49.37	-1.36	48.01	74.00	-25.99	Peak
2	2110.100	46.20	-1.36	44.84	54.00	-9.16	Average
3	3215.667	59.80	0.34	60.14	86.87	-26.73	Peak
4	3215.667	56.55	0.34	56.89	66.87	-9.98	Average
5	4824.000	46.93	3.27	50.20	74.00	-23.80	Peak
6	4824.000	37.47	3.27	40.74	54.00	-13.26	Average
7	7236.000	36.34	9.42	45.76	74.00	-28.24	Peak
8	7236.000	25.50	9.42	34.92	54.00	-19.08	Average

IEEE 802.11ax20 Low Channel Vertical




```
Site     : 966B Chamber
Condition: 3m vertical
Job No   : RLK260119060
Model    : RRQ61051-010
Power    : From Test Development Board
Tester   : Derek
Temp./ Hum.: 18.1℃/57%
Memo     : AX20-TX-2412
```

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	4824.000	38.67	3.27	41.94	74.00	-32.06	Peak
2	4824.000	27.06	3.27	30.33	54.00	-23.67	Average
3	7236.000	36.07	9.42	45.49	74.00	-28.51	Peak
4	7236.000	26.56	9.42	35.98	54.00	-18.02	Average

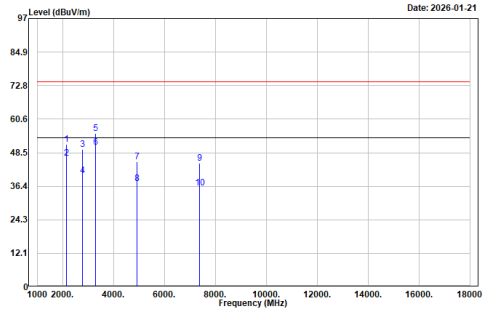
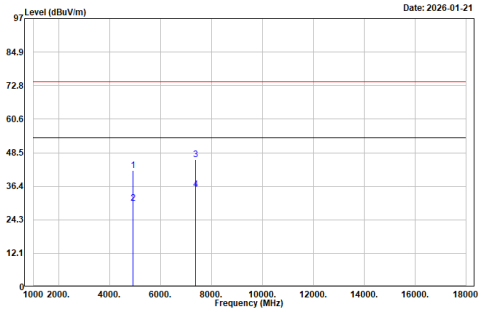
IEEE 802.11ax20 Middle Channel Horizontal	IEEE 802.11ax20 Middle Channel Vertical
	

Site : 966B Chamber
Condition: 3m horizontal
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : AX20-TX-2437

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2129.933	53.67	-1.64	52.03	74.00	-21.97	Peak
2	2129.933	49.23	-1.64	47.59	54.00	-6.41	Average
3	3249.100	60.77	0.54	61.31	83.37	-22.06	Peak
4	3249.100	54.42	0.54	54.96	63.37	-8.41	Average
5	4874.000	43.61	3.43	47.04	74.00	-26.96	Peak
6	4874.000	34.10	3.43	37.53	54.00	-16.47	Average
7	7311.000	35.23	9.60	44.83	74.00	-29.17	Peak
8	7311.000	26.42	9.60	36.02	54.00	-17.98	Average

Site : 966B Chamber
Condition: 3m vertical
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : AX20-TX-2437

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	4874.000	39.99	3.43	43.42	74.00	-30.58	Peak
2	4874.000	26.87	3.43	30.30	54.00	-23.70	Average
3	7311.000	37.54	9.60	47.14	74.00	-26.86	Peak
4	7311.000	26.42	9.60	36.02	54.00	-17.98	Average

IEEE 802.11ax20 High Channel Horizontal	IEEE 802.11ax20 High Channel Vertical
	

Site : 966B Chamber
Condition: 3m horizontal
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : AX20-TX-2462

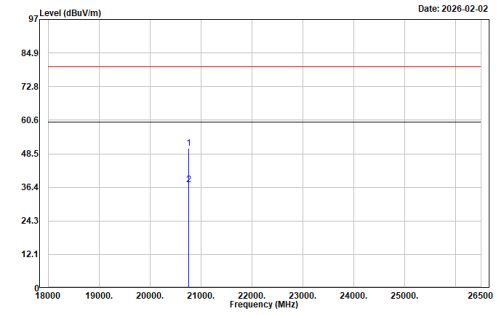
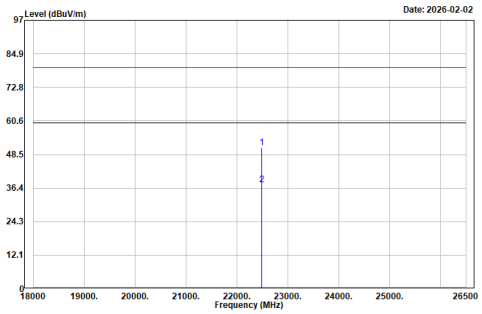
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2154.867	53.57	-1.97	51.60	74.00	-22.40	Peak
2	2154.867	48.53	-1.97	46.56	54.00	-7.44	Average
3	2770.267	50.61	-0.89	49.72	74.00	-24.28	Peak
4	2770.267	41.10	-0.89	40.21	54.00	-13.79	Average
5	3282.533	54.91	0.57	55.48	74.00	-18.52	Peak
6	3282.533	49.88	0.57	50.45	54.00	-3.55	Average
7	4924.000	41.59	3.54	45.13	74.00	-28.87	Peak
8	4924.000	33.88	3.54	37.42	54.00	-16.58	Average
9	7386.000	34.99	9.77	44.76	74.00	-29.24	Peak
10	7386.000	25.89	9.77	35.66	54.00	-18.34	Average

Site : 966B Chamber
Condition: 3m vertical
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : AX20-TX-2462

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	4924.000	38.39	3.54	41.93	74.00	-32.07	Peak
2	4924.000	26.78	3.54	30.32	54.00	-23.68	Average
3	7386.000	36.11	9.77	45.88	74.00	-28.12	Peak
4	7386.000	25.41	9.77	35.18	54.00	-18.82	Average

Note:
Level = Read Level + Factor
Over Limit = Level – Limit Line
Factor = Antenna Factor + Cable Loss – Amplifier Gain

發射機其它不必要之訊號 (18GHz-26.5GHz) : WLAN 2.4G mode

Horizontal	Vertical
	


```
Site     : 966B Chamber
Condition: 1.5m horizontal
Job No   : RLK260119060
Model    : RRQ61051-010
Power    : From Test Development Board
Tester   : Derek
Temp./ Hum.: 17.9℃/59%
Memo     : N20-TX-2462
```

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	20755.420	51.88	-1.40	50.48	80.00	-29.52	Peak
2	20755.420	38.78	-1.40	37.38	60.00	-22.62	Average

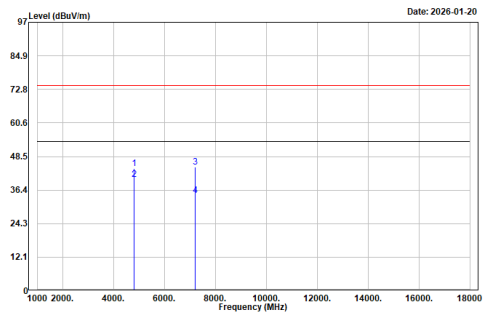

```
Site     : 966B Chamber
Condition: 1.5m vertical
Job No   : RLK260119060
Model    : RRQ61051-010
Power    : From Test Development Board
Tester   : Derek
Temp./ Hum.: 17.9℃/59%
Memo     : N20-TX-2462
```

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	22491.400	50.00	1.09	51.09	80.00	-28.91	Peak
2	22491.400	36.53	1.09	37.62	60.00	-22.38	Average

Note:
Level = Read Level + Factor
Over Limit = Level – Limit Line
Factor = Antenna Factor + Cable Loss – Amplifier Gain

發射機其它不必要之訊號 (1GHz-18GHz): BLE 1M Mode

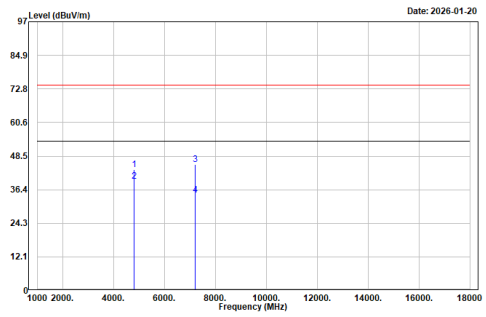
BLE Low Channel Horizontal



Site : 966B Chamber
Condition: 3m horizontal
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 19.7℃/58%
Memo : BLE-TX-1M-2402

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	4804.000	40.89	3.18	44.07	74.00	-29.93	Peak
2	4804.000	36.94	3.18	40.12	54.00	-13.88	Average
3	7206.000	35.52	9.27	44.79	74.00	-29.21	Peak
4	7206.000	25.25	9.27	34.52	54.00	-19.48	Average

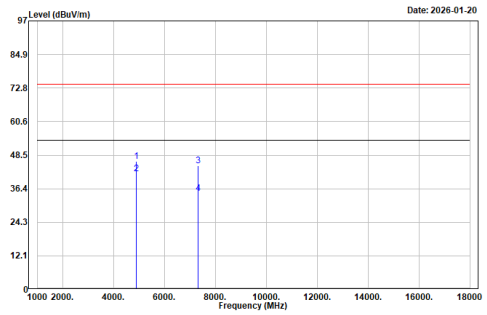
BLE Low Channel Vertical



Site : 966B Chamber
Condition: 3m vertical
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 19.7℃/58%
Memo : BLE-TX-1M-2402

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	4804.000	40.44	3.18	43.62	74.00	-30.38	Peak
2	4804.000	36.38	3.18	39.56	54.00	-14.44	Average
3	7206.000	36.20	9.27	45.47	74.00	-28.53	Peak
4	7206.000	25.19	9.27	34.46	54.00	-19.54	Average

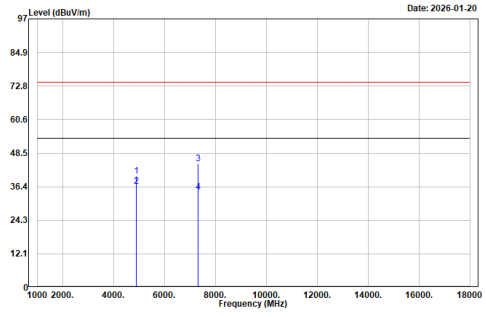
BLE Middle Channel Horizontal



Site : 966B Chamber
Condition: 3m horizontal
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 19.7℃/58%
Memo : BLE-TX-1M-2440

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	4880.000	42.72	3.44	46.16	74.00	-27.84	Peak
2	4880.000	38.43	3.44	41.87	54.00	-12.13	Average
3	7320.000	35.12	9.63	44.75	74.00	-29.25	Peak
4	7320.000	25.17	9.63	34.80	54.00	-19.20	Average

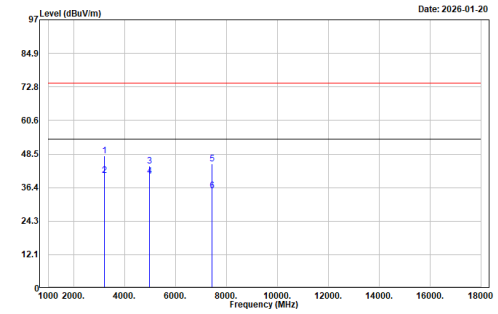
BLE Middle Channel Vertical



Site : 966B Chamber
Condition: 3m vertical
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 19.7℃/58%
Memo : BLE-TX-1M-2440

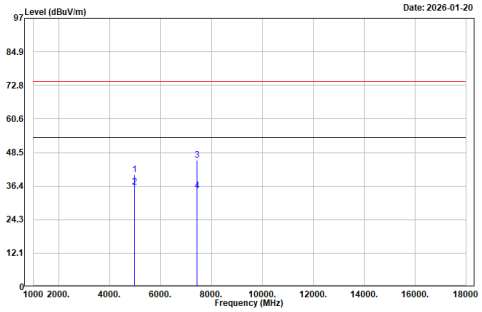
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	4880.000	36.76	3.44	40.20	74.00	-33.80	Peak
2	4880.000	32.98	3.44	36.42	54.00	-17.58	Average
3	7320.000	35.17	9.63	44.80	74.00	-29.20	Peak
4	7320.000	24.89	9.63	34.52	54.00	-19.48	Average

BLE High Channel Horizontal	BLE High Channel Vertical



Site : 966B Chamber
Condition: 3m horizontal
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 19.7℃/58%
Memo : BLE-TX-1M-2480

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	3215.667	47.56	0.34	47.90	74.00	-26.10	Peak
2	3215.667	40.32	0.34	40.66	54.00	-13.34	Average
3	4960.000	40.65	3.62	44.27	74.00	-29.73	Peak
4	4960.000	36.81	3.62	40.43	54.00	-13.57	Average
5	7440.000	35.08	9.93	45.01	74.00	-28.99	Peak
6	7440.000	25.18	9.93	35.11	54.00	-18.89	Average

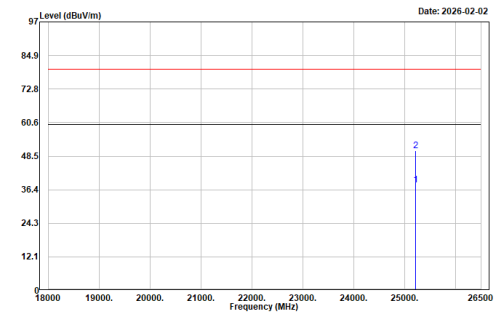
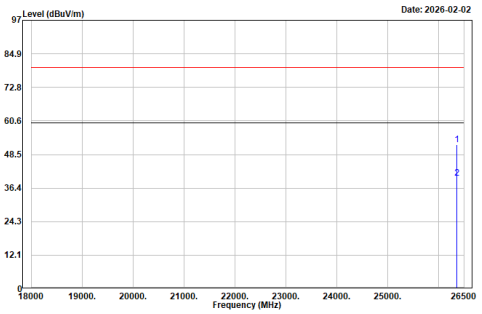


Site : 966B Chamber
Condition: 3m vertical
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 19.7℃/58%
Memo : BLE-TX-1M-2480

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	4960.000	36.77	3.62	40.39	74.00	-33.61	Peak
2	4960.000	32.52	3.62	36.14	54.00	-17.86	Average
3	7440.000	35.68	9.93	45.61	74.00	-28.39	Peak
4	7440.000	24.83	9.93	34.76	54.00	-19.24	Average

Note:
Level = Read Level + Factor
Over Limit = Level – Limit Line
Factor = Antenna Factor + Cable Loss – Amplifier Gain

發射機其它不必要之訊號 (18GHz-26.5GHz) : BLE 1M Mode

Horizontal	Vertical
	

Site : 966B Chamber
Condition: 1.5m horizontal
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 17.9℃/59%
Memo : BLE-TX-1M-2402

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	25214.230	35.29	2.75	38.04	60.00	-21.96	Average
2	25214.230	47.74	2.75	50.49	80.00	-29.51	Peak

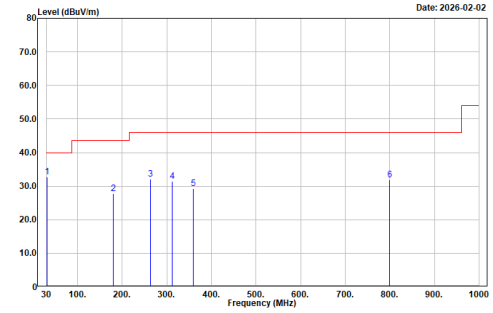
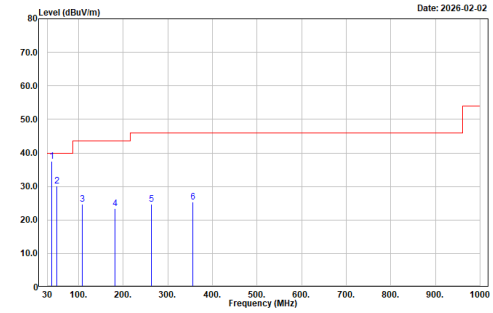
Site : 966B Chamber
Condition: 1.5m vertical
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 17.9℃/59%
Memo : BLE-TX-1M-2402

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	26352.950	46.64	5.42	52.06	80.00	-27.94	Peak
2	26352.950	34.59	5.42	40.01	60.00	-19.99	Average

Note:
Level = Read Level + Factor
Over Limit = Level – Limit Line
Factor = Antenna Factor + Cable Loss – Amplifier Gain

接收機其它不必要之訊號 (1 GHz 以下)

WLAN 2.4G mode:

30M-1G Horizontal	30M-1G Vertical
	

Site : 966B Chamber
Condition: 3m horizontal
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 17.9℃/59%
Memo : N20-RX-2462

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	32.102	36.65	-3.96	32.69	40.00	-7.31	QP
2	180.803	42.62	-14.95	27.67	43.50	-15.83	QP
3	263.996	45.51	-13.35	32.16	46.00	-13.84	QP
4	312.011	43.80	-12.41	31.39	46.00	-14.61	QP
5	359.994	40.78	-11.53	29.25	46.00	-16.75	QP
6	800.018	35.57	-3.71	31.86	46.00	-14.14	QP

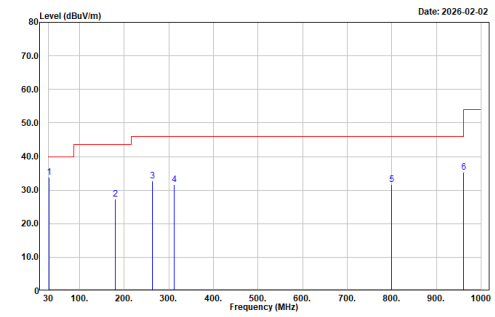
Site : 966B Chamber
Condition: 3m vertical
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 17.9℃/59%
Memo : N20-RX-2462

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1 !	39.829	47.71	-10.11	37.60	40.00	-2.40	QP
2	51.502	46.97	-16.82	30.15	40.00	-9.85	QP
3	108.505	38.23	-13.62	24.61	43.50	-18.89	QP
4	181.643	38.34	-14.98	23.36	43.50	-20.14	QP
5	263.996	38.08	-13.35	24.73	46.00	-21.27	QP
6	356.340	37.12	-11.68	25.44	46.00	-20.56	QP

Note:
Level = Read Level + Factor
Over Limit = Level – Limit Line
Factor = Antenna Factor + Cable Loss – Amplifier Gain

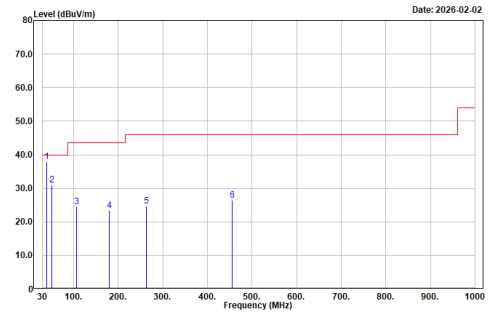
BLE mode:

30M-1G Horizontal	30M-1G Vertical



Site : 966B Chamber
Condition: 3m horizontal
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 17.9℃/59%
Memo : BLE-RX-1M-2402

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	31.326	37.36	-3.50	33.86	40.00	-6.14	QP
2	180.803	42.25	-14.95	27.30	43.50	-16.20	QP
3	263.996	46.04	-13.35	32.69	46.00	-13.31	QP
4	312.011	43.96	-12.41	31.55	46.00	-14.45	QP
5	800.018	35.26	-3.71	31.55	46.00	-14.45	QP
6	960.036	37.01	-1.70	35.31	54.00	-18.69	QP



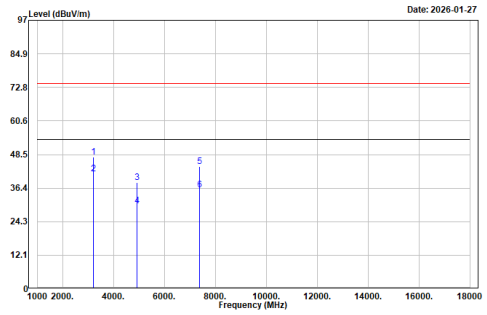
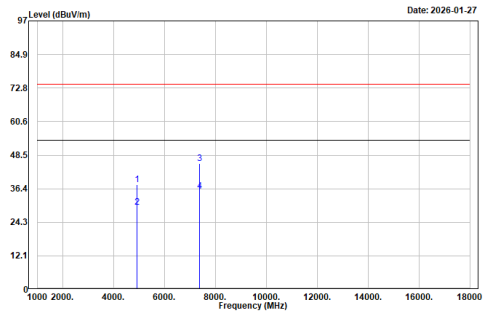
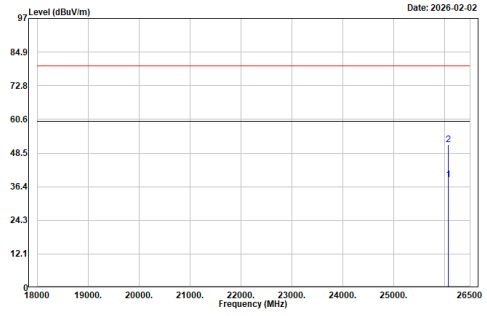
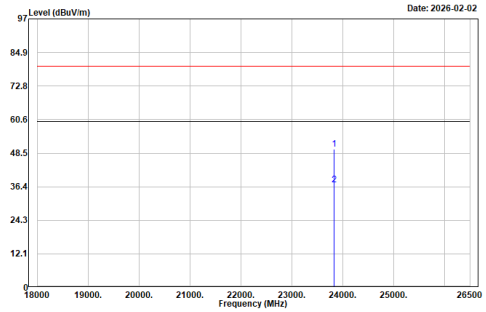
Site : 966B Chamber
Condition: 3m vertical
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 17.9℃/59%
Memo : BLE-RX-1M-2402

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1 !	39.797	48.08	-10.09	37.99	40.00	-2.01	QP
2	51.114	47.60	-16.69	30.91	40.00	-9.09	QP
3	107.180	38.21	-13.69	24.52	43.50	-18.98	QP
4	180.609	38.32	-14.93	23.39	43.50	-20.11	QP
5	263.996	38.02	-13.35	24.67	46.00	-21.33	QP
6	455.992	35.38	-8.85	26.53	46.00	-19.47	QP

Note:
Level = Read Level + Factor
Over Limit = Level – Limit Line
Factor = Antenna Factor + Cable Loss – Amplifier Gain

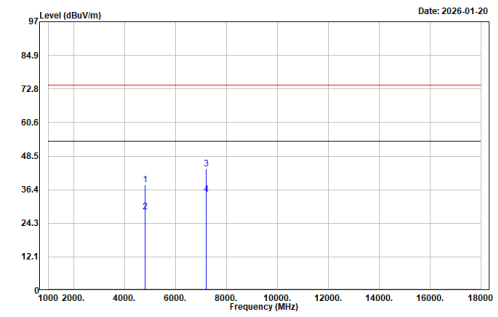
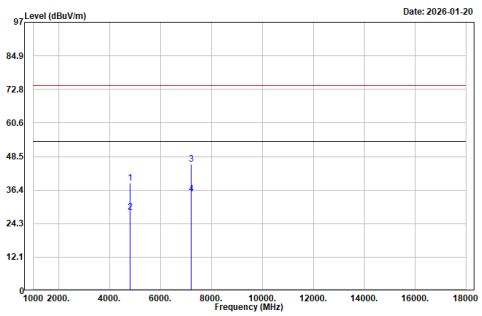
接收機其它不必要之訊號 (1GHz 以上)

WLAN 2.4G mode:

Horizontal (1GHz-18GHz)	Vertical (1GHz-18GHz)
 Site : 966B Chamber Condition: 3m horizontal Job No : RLK260119060 Model : RRQ61051-010 Power : From Test Development Board Tester : Derek Temp./ Hum.: 20.0℃/57% Memo : N20-RX-2462 Freq / Read Level / Factor / Level / Limit Line / Over Limit / Remark 1 3216.233 47.27 0.35 47.62 74.00 -26.38 Peak 2 3216.233 41.13 0.35 41.48 54.00 -12.52 Average 3 4924.000 34.91 3.54 38.45 74.00 -35.55 Peak 4 4924.000 26.36 3.54 29.90 54.00 -24.10 Average 5 7386.000 34.31 9.77 44.08 74.00 -29.92 Peak 6 7386.000 25.86 9.77 35.63 54.00 -18.37 Average	 Site : 966B Chamber Condition: 3m vertical Job No : RLK260119060 Model : RRQ61051-010 Power : From Test Development Board Tester : Derek Temp./ Hum.: 20.0℃/57% Memo : N20-RX-2462 Freq / Read Level / Factor / Level / Limit Line / Over Limit / Remark 1 4924.000 34.44 3.54 37.98 74.00 -36.02 Peak 2 4924.000 26.29 3.54 29.83 54.00 -24.17 Average 3 7386.000 35.75 9.77 45.52 74.00 -28.48 Peak 4 7386.000 25.61 9.77 35.38 54.00 -18.62 Average
Horizontal (18GHz – 26.5GHz)	**Vertical (18GHz – 26.5GHz)**
 Site : 966B Chamber Condition: 1.5m horizontal Job No : RLK260119060 Model : RRQ61051-010 Power : From Test Development Board Tester : Derek Temp./ Hum.: 17.9℃/59% Memo : N20-RX-2462 Freq / Read Level / Factor / Level / Limit Line / Over Limit / Remark 1 26075.280 34.27 4.61 38.88 60.00 -21.12 Average 2 26075.280 46.95 4.61 51.56 80.00 -28.44 Peak	 Site : 966B Chamber Condition: 1.5m vertical Job No : RLK260119060 Model : RRQ61051-010 Power : From Test Development Board Tester : Derek Temp./ Hum.: 17.9℃/59% Memo : N20-RX-2462 Freq / Read Level / Factor / Level / Limit Line / Over Limit / Remark 1 23821.650 48.24 1.75 49.99 80.00 -30.01 Peak 2 23821.650 35.37 1.75 37.12 60.00 -22.88 Average

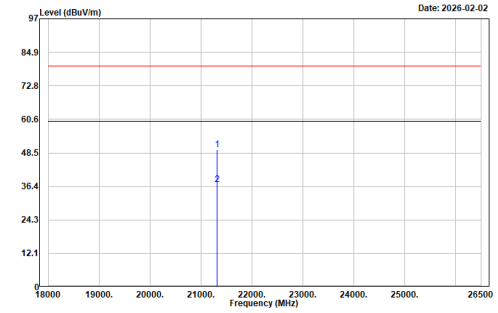
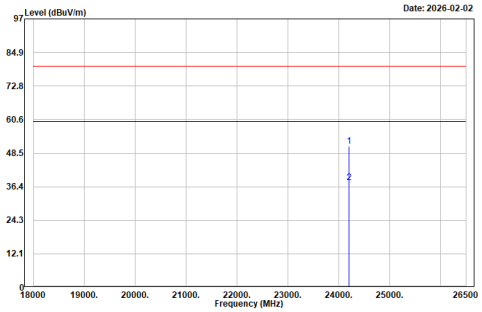
Note:
Level = Read Level + Factor
Over Limit = Level – Limit Line
Factor = Antenna Factor + Cable Loss – Amplifier Gain

BLE mode:

Horizontal (1GHz-18GHz)	Vertical (1GHz-18GHz)
	
Site : 966B Chamber Condition: 3m horizontal Job No : RLK260119060 Model : RRQ61051-010 Power : From Test Development Board Tester : Derek Temp./ Hum.: 19.7℃/58% Memo : BLE-RX-1M-2402	Site : 966B Chamber Condition: 3m vertical Job No : RLK260119060 Model : RRQ61051-010 Power : From Test Development Board Tester : Derek Temp./ Hum.: 19.7℃/58% Memo : BLE-RX-1M-2402

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	4804.000	34.84	3.18	38.02	74.00	-35.98	Peak
2	4804.000	25.18	3.18	28.36	54.00	-25.64	Average
3	7206.000	34.69	9.27	43.96	74.00	-30.04	Peak
4	7206.000	25.49	9.27	34.76	54.00	-19.24	Average

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	4804.000	35.67	3.18	38.85	74.00	-35.15	Peak
2	4804.000	25.26	3.18	28.44	54.00	-25.56	Average
3	7206.000	36.52	9.27	45.79	74.00	-28.21	Peak
4	7206.000	25.59	9.27	34.86	54.00	-19.14	Average

Horizontal (18GHz – 26.5GHz)	Vertical (18GHz – 26.5GHz)
	
Site : 966B Chamber Condition: 1.5m horizontal Job No : RLK260119060 Model : RRQ61051-010 Power : From Test Development Board Tester : Derek Temp./ Hum.: 17.9℃/59% Memo : BLE-RX-1M-2402	Site : 966B Chamber Condition: 1.5m vertical Job No : RLK260119060 Model : RRQ61051-010 Power : From Test Development Board Tester : Derek Temp./ Hum.: 17.9℃/59% Memo : BLE-RX-1M-2402

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	21310.470	50.52	-0.87	49.65	80.00	-30.35	Peak
2	21310.470	37.96	-0.87	37.09	60.00	-22.91	Average

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	24199.050	49.39	1.70	51.09	80.00	-28.91	Peak
2	24199.050	36.22	1.70	37.92	60.00	-22.08	Average

Note:
Level = Read Level + Factor
Over Limit = Level – Limit Line
Factor = Antenna Factor + Cable Loss – Amplifier Gain

Conducted Spurious Emissions:

環境溫度	21.8℃	測試日期	2026-01-20
環境濕度	55%	測試人員	Alan

WLAN 2.4G mode:

Channel	Frequency (MHz)	Delta Peak to Band Emission (dBc)	Limit (dBc)	Result
B mode				
Low	2412	32.07	≥ 20	PASS
Mid	2437	34.44	≥ 20	PASS
High	2462	36.70	≥ 20	PASS
G mode				
Low	2412	33.79	≥ 20	PASS
Mid	2437	32.92	≥ 20	PASS
High	2462	33.54	≥ 20	PASS
N20 mode				
Low	2412	34.93	≥ 20	PASS
Mid	2437	33.18	≥ 20	PASS
High	2462	36.02	≥ 20	PASS
AX20 mode				
Low	2412	31.15	≥ 20	PASS
Mid	2437	29.14	≥ 20	PASS
High	2462	31.50	≥ 20	PASS

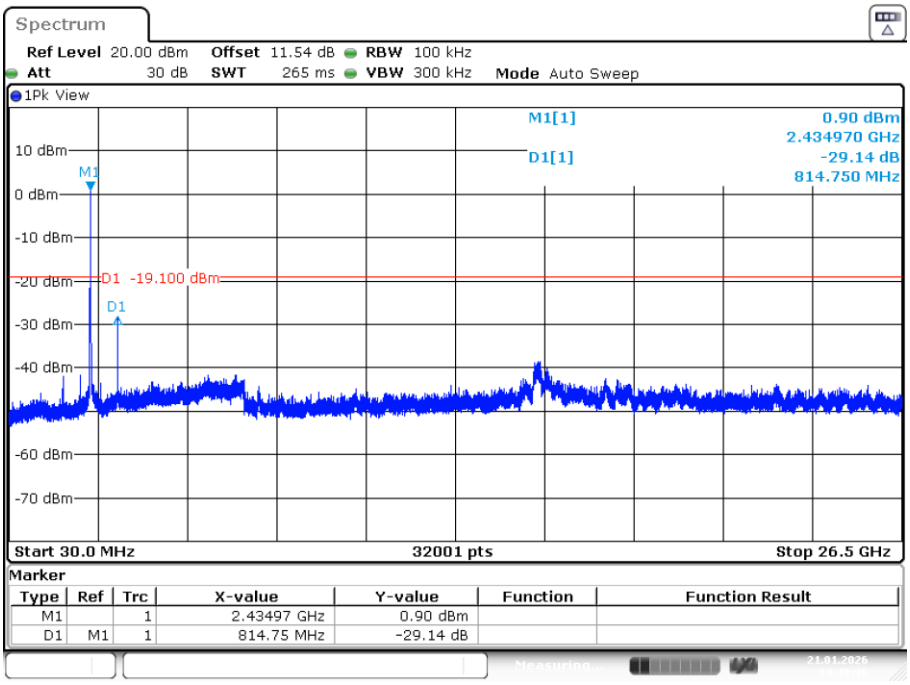
環境溫度	21.8℃	測試日期	2026-01-20
環境濕度	55%	測試人員	Alan

BLE mode:

Channel	Frequency (MHz)	Delta Peak to Band Emission (dBc)	Limit (dBc)	Result
BLE(1M) mode				
Low	2402	38.30	≥ 20	PASS
Mid	2440	38.14	≥ 20	PASS
High	2480	38.07	≥ 20	PASS

WiFi 2.4G

****此測試圖僅放測試結果最差的頻道。**

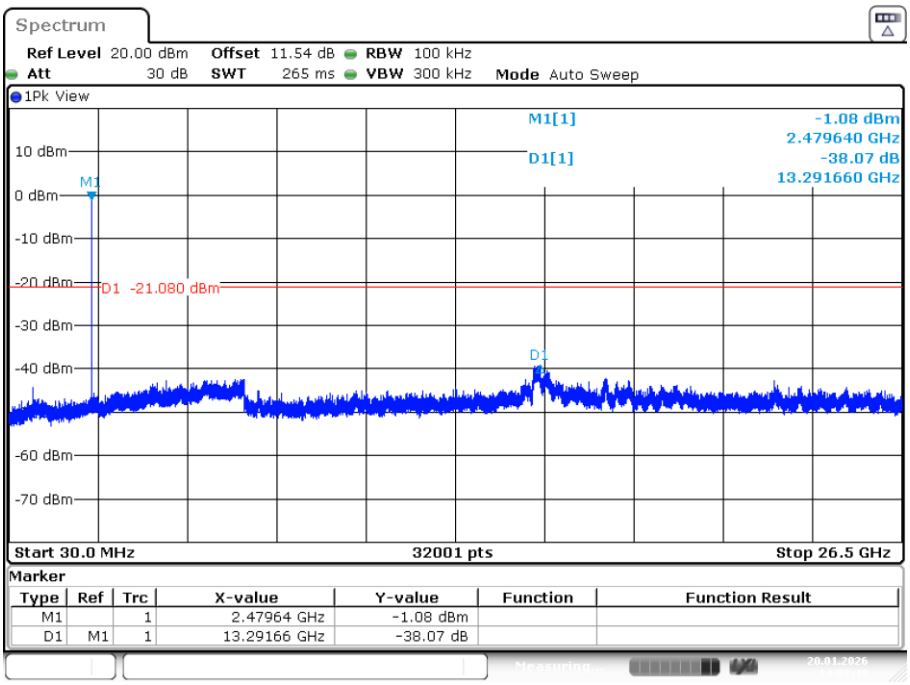


ProjectNo.:RLK260119060 Tester:Alan Huang
Date: 21.JAN.2026 14:49:37

依據測試數據結果，符合低功率射頻器材技術規範之要求。

BLE

****此測試圖僅放測試結果最差的頻道。**



ProjectNo.:RLK260119060 Tester:Alan Huang
Date: 20.JAN.2026 14:08:49

依據測試數據結果，符合低功率射頻器材技術規範之要求。

6. 天線增益之要求

6.1 適用標準

依據低功率射頻器材技術規範之規定，應符合下列敘述其中之一：

進行固定式點對點操作時，其發射天線之方向性增益超過6 dBi，每超過3 dBi，最大傳導輸出功率限制值應降低1 dB。

操作頻率為5725 MHz ~ 5850 MHz且進行固定式點對點操作時，其發射天線之方向性增益超過6 dBi，不需降低最大傳導輸出功率。

使用超過6 dBi方向增益之發射天線時，應依超過6 dBi天線方向增益的dBi總量，等量減少最大傳導輸出功率限制值。

6.2 天線增益

此裝置使用的天線明細如下:

天線型態	廠牌	型號	Gain
Dipole Antenna	ARISTOTLE	RFA-27-H60-U-GB70	3.3 dBi

** 其詳細規格資料，請參見：天線規格。

判定結果: 符合規範

7. 發射頻寬之要求

7.1 適用標準

對使用跳頻系統之低功率發射機依據低功率射頻器材技術規範之規定，跳頻系統之載波頻率頻道間隔應大於或等於25 kHz或跳頻頻道之20 dB頻寬，兩者取較寬者。但操作頻率為2400 MHz～2483.5 MHz頻段且輸出功率應小於或等於125 mW跳頻系統，其載波頻率頻道間隔不得小於25 kHz或跳頻頻道20 dB頻寬之三分之二，兩者取較寬者。系統之跳頻頻道應依虛擬亂數排列，在各頻率之跳頻頻道上跳躍。每一發射機必須均等的使用每一頻率。系統接收機應具有與發射機跳躍頻道頻寬相匹配之輸入頻寬，且應隨所發射之訊號同步偏移接收頻率。

對使用數位調變技術之低功率發射機，依據低功率射頻器材技術規範之規定，6 dB之頻寬至少應有500 kHz。

7.2 測試方法

測量時，頻譜分析儀之解析頻寬為100kHz，視訊頻寬不小於解析頻寬。為求得精確測量，頻率掃描範圍(Span)遠大於解析頻寬。

7.3 發射頻寬之量測結果

環境溫度	21.8℃	測試日期	2026-01-20
環境濕度	55%	測試人員	Alan

WLAN 2.4G mode:

Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	Limit (kHz)	Result
B mode				
Low	2412	7.12	>500	PASS
Mid	2437	6.08		PASS
High	2462	7.12		PASS
G mode				
Low	2412	15.20	>500	PASS
Mid	2437	15.20		PASS
High	2462	15.20		PASS
N20 mode				
Low	2412	15.20	>500	PASS
Mid	2437	15.20		PASS
High	2462	15.20		PASS
AX20 mode				
Low	2412	16.28	>500	PASS
Mid	2437	18.28		PASS
High	2462	17.24		PASS

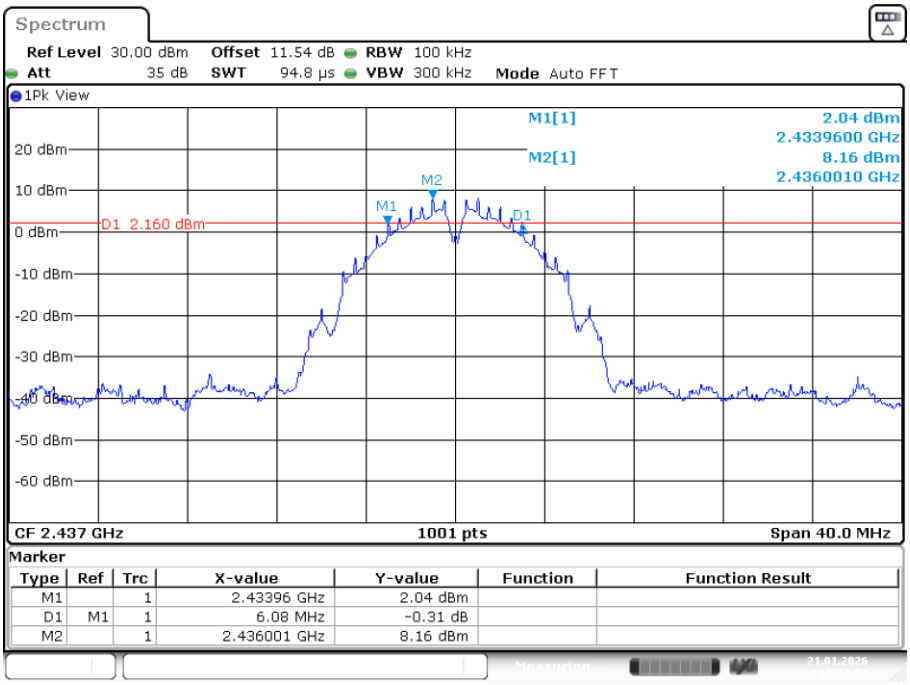
環境溫度	21.8℃	測試日期	2026-01-20
環境濕度	55%	測試人員	Alan

BLE mode:

Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	Limit (kHz)	Result
BLE(1M) mode				
Low	2402	0.738	>500	PASS
Mid	2440	0.741		PASS
High	2480	0.774		PASS

WiFi 2.4G

****此測試圖僅放測試結果最差的頻道。**



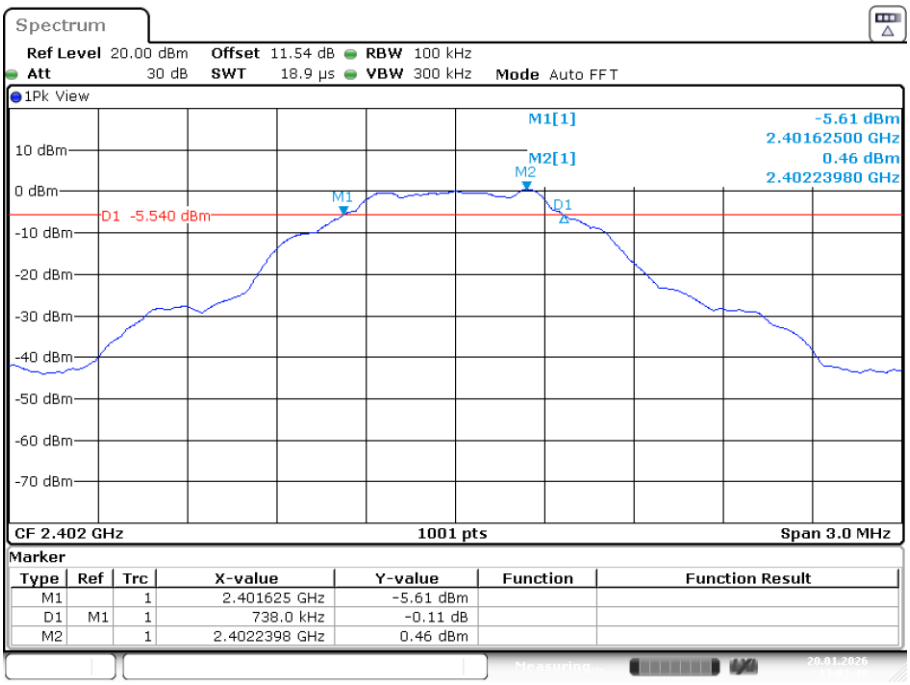
ProjectNo.:RLK260119060 Tester:Alan Huang

Date: 21.JAN.2026 12:28:00

依據測試數據結果，符合低功率射頻器材技術規範之要求。

BLE

****此測試圖僅放測試結果最差的頻道。**



ProjectNo.:RLK260119060 Tester:Alan Huang

Date: 20.JAN.2026 13:02:48

依據測試數據結果，符合低功率射頻器材技術規範之要求。

8. 輸出峰值功率之量測

8.1 適用標準

依據低功率射頻器材技術規範之規定，跳頻系統至少使用75個跳頻頻道：1 W(含)以下；跳頻系統依規定操作於2400 MHz ~ 2483.5 MHz之展頻跳頻系統，須使用至少15個無重疊的頻道，在0.4秒乘以跳頻頻道數之週期內，任一頻率占用之平均時間應小於或等於0.4秒，應使用智慧型跳頻技術：0.125 W(含)以下；數位調變技術系統：1 W(含)以下。

8.2 測試方法

1. 將受測物的RF埠經由一條50歐姆纜線連接至功率分析儀。
2. 設定量測頻率為量測頻道。
3. 紀錄最大峰值輸出功率。

上述之測試步驟應注意外接之衰減與纜線損失。

8.3 輸出功率之量測結果

環境溫度	21.8℃	測試日期	2026-01-20
環境濕度	55%	測試人員	Alan

WLAN 2.4G mode:

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (dBm)	Result
B mode					
Low	2412	18.34	0.068	30	PASS
Mid	2437	17.51	0.056	30	PASS
High	2462	16.62	0.045	30	PASS
G mode					
Low	2412	18.35	0.068	30	PASS
Mid	2437	18.51	0.071	30	PASS
High	2462	18.48	0.070	30	PASS
N20 mode					
Low	2412	18.40	0.069	30	PASS
Mid	2437	18.51	0.071	30	PASS
High	2462	18.71	0.074	30	PASS
AX20 mode					
Low	2412	18.41	0.069	30	PASS
Mid	2437	18.53	0.071	30	PASS
High	2462	18.59	0.072	30	PASS

環境溫度	21.8℃	測試日期	2026-01-20
環境濕度	55%	測試人員	Alan

BLE mode:

Channel	Frequency (MHz)	Peak Output Power (dBm)	Output Power (W)	Limit (W)	Result
BLE(1M) mode					
Low	2402	1.40	0.0014	1	PASS
Mid	2440	1.11	0.0013		PASS
High	2480	0.88	0.0012		PASS

9. 開放頻帶邊緣 100 kHz 頻寬內之限制

9.1 適用標準

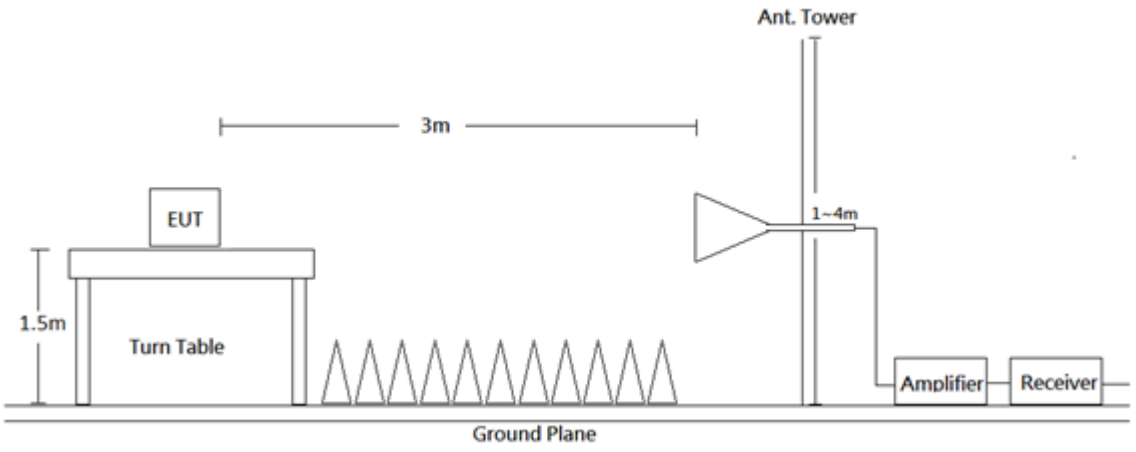
依據低功率射頻器材技術規範之規定，使用頻帶範圍外之任意100 kHz內，發射器所產生的射頻功率相較於使用頻帶範圍中包含最高所需功率之100 kHz內的射頻功率，峰值輸出功率方式測量者須衰減20分貝(dB)，以射頻傳導或輻射方式測量。最大傳導輸出功率測量方式者，至少須衰減30 dB。此外，落於禁用頻段之輻射發射，應符合規定。

9.2 測試方法

1. 頻率掃描範圍足以涵蓋操作在最靠近頻帶邊緣之頻道的發射波峰位準以及任何落於許可頻帶外之調變產物。
2. 解析頻寬大於1%頻率掃描範圍寬度，視訊頻寬不小於解析頻寬。掃描時間為自動，檢波功能為峰值，訊號軌跡為最大保留(Max Hold)。
3. 將標記設定於在頻帶邊緣上的發射，或將標記設定於最大之頻帶外調變產物上若其位準大於頻帶邊緣上的發射。啟動標記差值之功能，利用標記至波峰功能(Marker to Peak)功能以標記頻帶內發射之波峰，所顯示之標記差值必須符合指定之限制值。

以上述相同的步驟決定由跳頻功能所產生的任何混附波是否亦符合規定之限制值。

9.3 測試場地配置圖



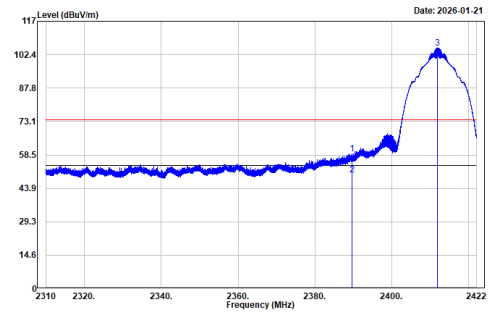
9.4 開放頻帶邊緣之量測結果

請參考附圖

判定結果: 符合規範

發射限制測試: IEEE 802.11b

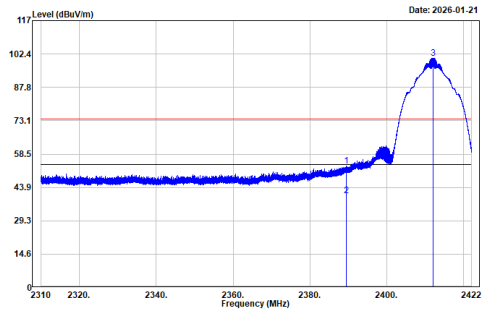
Low Channel / Horizontal



Site : 966B Chamber
Condition: 3m Horizontal
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : B-TX-2412

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2389.583	60.86	-2.03	58.83	74.00	-15.17	Peak
2	2389.583	51.74	-2.03	49.71	54.00	-4.29	Average
3	2411.883	107.49	-2.12	105.37	------	------	Peak

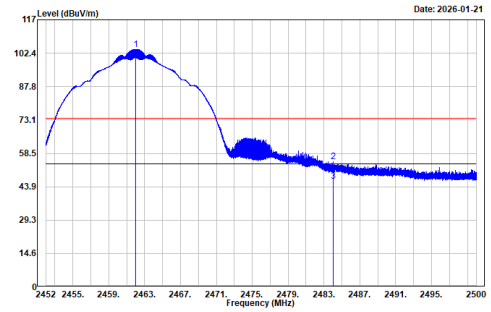
Low Channel / Vertical



Site : 966B Chamber
Condition: 3m Vertical
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : B-TX-2412

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2389.385	55.19	-2.03	53.16	74.00	-20.84	Peak
2	2389.385	42.28	-2.03	40.25	54.00	-13.75	Average
3	2411.991	102.79	-2.12	100.67	------	------	Peak

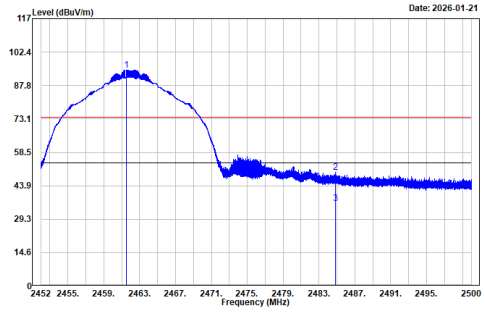
High Channel / Horizontal



Site : 966B Chamber
Condition: 3m Horizontal
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : B-TX-2462

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2462.021	106.43	-2.33	104.10	------	------	Peak
2	2484.022	56.79	-2.09	54.70	74.00	-19.30	Peak
3	2484.022	48.50	-2.09	46.41	54.00	-7.59	Average

High Channel / Vertical



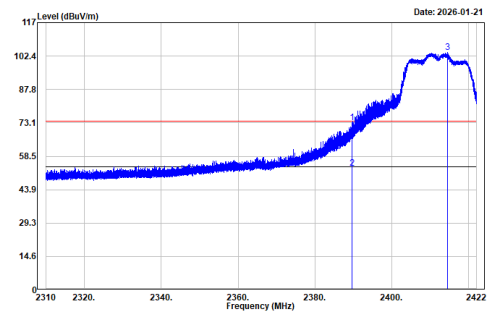
Site : 966B Chamber
Condition: 3m Vertical
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : B-TX-2462

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2461.541	96.86	-2.33	94.53	------	------	Peak
2	2484.854	51.87	-2.08	49.79	74.00	-24.21	Peak
3	2484.854	38.20	-2.08	36.12	54.00	-17.88	Average

Note:
Level = Read Level + Factor
Over Limit = Level – Limit Line
Factor = Antenna Factor + Cable Loss – Amplifier Gain

發射限制測試: IEEE 802.11g

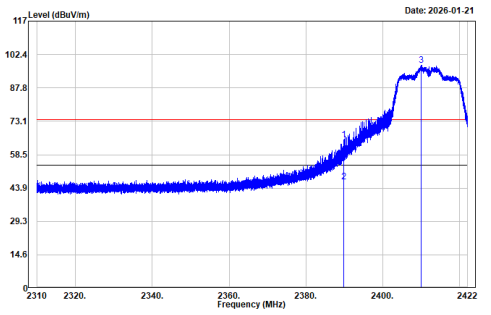
Low Channel / Horizontal



Site : 966B Chamber
Condition: 3m Horizontal
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : G-TX-2412

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1 !	2389.554	75.27	-2.03	73.24	74.00	-0.76	Peak
2 !	2389.554	55.15	-2.03	53.12	54.00	-0.88	Average
3	2414.373	106.09	-2.14	103.95	------	------	Peak

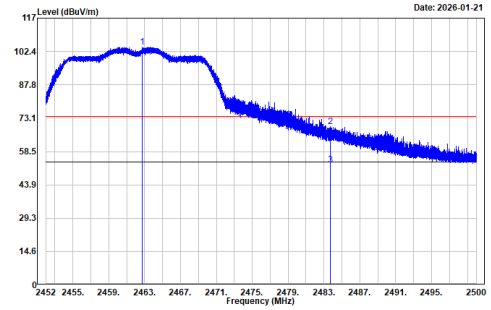
Low Channel / Vertical



Site : 966B Chamber
Condition: 3m Vertical
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : G-TX-2412

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2389.785	67.08	-2.02	65.06	74.00	-8.94	Peak
2	2389.785	48.52	-2.02	46.50	54.00	-7.50	Average
3	2409.982	99.90	-2.10	97.80	------	------	Peak

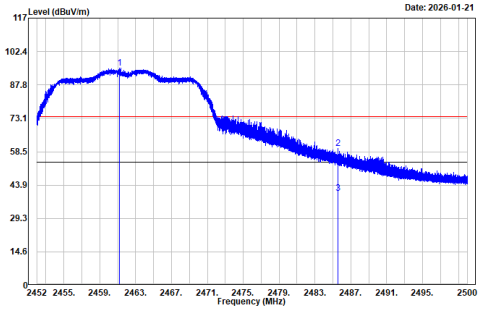
High Channel / Horizontal



Site : 966B Chamber
Condition: 3m Horizontal
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : G-TX-2462

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2462.738	106.69	-2.32	104.37	------	------	Peak
2	2483.694	71.37	-2.09	69.28	74.00	-4.72	Peak
3 !	2483.694	54.71	-2.09	52.62	54.00	-1.38	Average

High Channel / Vertical



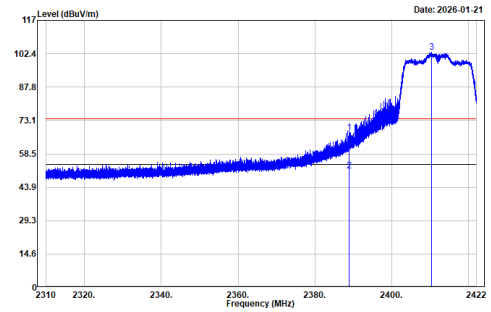
Site : 966B Chamber
Condition: 3m Vertical
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : G-TX-2462

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2461.232	97.60	-2.34	95.26	------	------	Peak
2	2485.579	62.07	-2.07	60.00	74.00	-14.00	Peak
3	2485.579	42.22	-2.07	40.15	54.00	-13.85	Average

Note:
Level = Read Level + Factor
Over Limit = Level – Limit Line
Factor = Antenna Factor + Cable Loss – Amplifier Gain

發射限制測試: IEEE 802.11n HT20

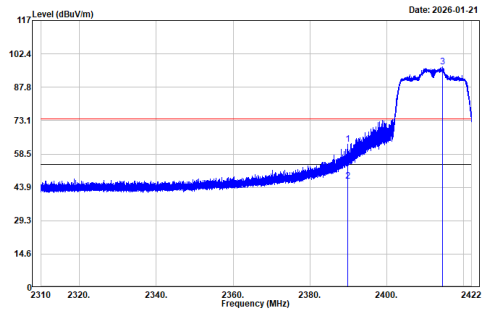
Low Channel / Horizontal



Site : 966B Chamber
Condition: 3m Horizontal
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : N20-TX-2412

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2388.927	69.84	-2.04	67.80	74.00	-6.20	Peak
2 !	2388.927	53.19	-2.04	51.15	54.00	-2.85	Average
3	2410.259	105.26	-2.10	103.16	------	------	Peak

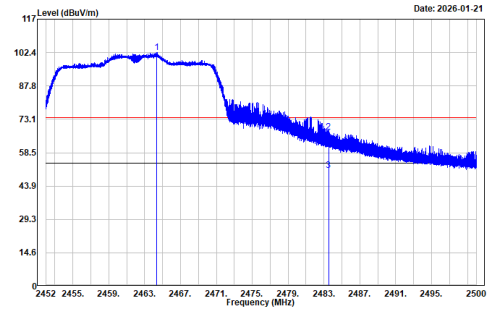
Low Channel / Vertical



Site : 966B Chamber
Condition: 3m Vertical
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : N20-TX-2412

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2389.875	64.80	-2.02	62.78	74.00	-11.22	Peak
2	2389.875	48.72	-2.02	46.70	54.00	-7.30	Average
3	2414.421	98.73	-2.14	96.59	------	------	Peak

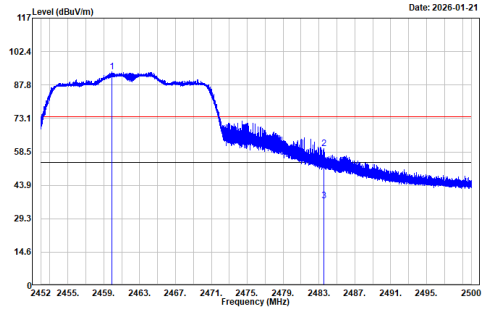
High Channel / Horizontal



Site : 966B Chamber
Condition: 3m Horizontal
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : N20-TX-2462

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2464.320	104.59	-2.31	102.28	------	------	Peak
2	2483.501	69.65	-2.09	67.56	74.00	-6.44	Peak
3	2483.501	52.70	-2.09	50.61	54.00	-3.39	Average

High Channel / Vertical



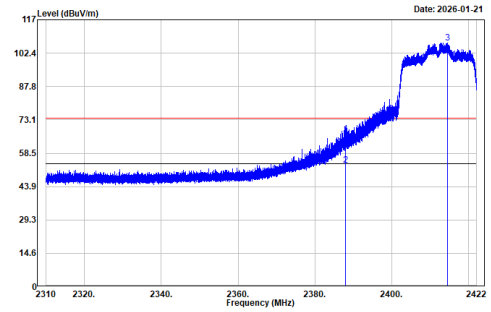
Site : 966B Chamber
Condition: 3m Vertical
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : N20-TX-2462

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2459.878	95.76	-2.36	93.40	------	------	Peak
2	2483.538	62.14	-2.09	60.05	74.00	-13.95	Peak
3	2483.538	39.31	-2.09	37.22	54.00	-16.78	Average

Note:
Level = Read Level + Factor
Over Limit = Level – Limit Line
Factor = Antenna Factor + Cable Loss – Amplifier Gain

發射限制測試: IEEE 802.11 ax20

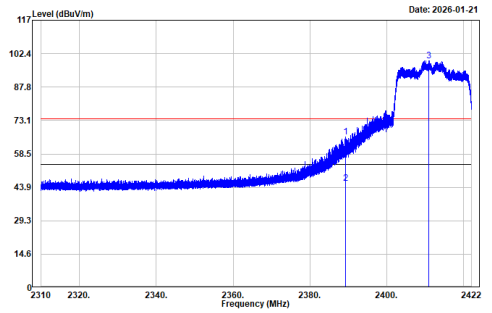
Low Channel / Horizontal



Site : 966B Chamber
Condition: 3m Horizontal
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : AX20-TX-2412

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2388.015	68.87	-2.06	66.81	74.00	-7.19	Peak
2 !	2388.015	55.17	-2.06	53.11	54.00	-0.89	Average
3	2414.492	109.01	-2.14	106.87	------	------	Peak

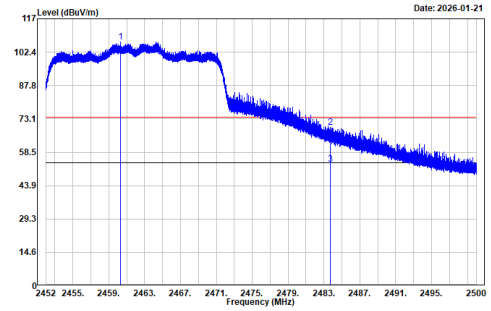
Low Channel / Vertical



Site : 966B Chamber
Condition: 3m Vertical
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : AX20-TX-2412

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2389.180	67.91	-2.04	65.87	74.00	-8.13	Peak
2	2389.180	47.66	-2.04	45.62	54.00	-8.38	Average
3	2410.878	101.46	-2.11	99.35	------	------	Peak

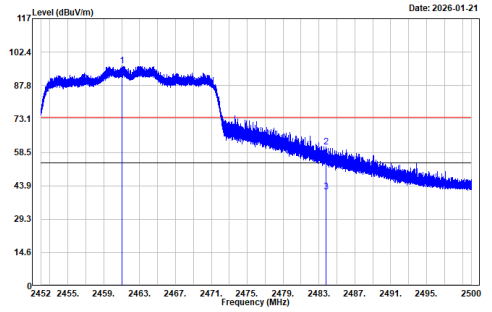
High Channel / Horizontal



Site : 966B Chamber
Condition: 3m Horizontal
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : AX20-TX-2462

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2460.288	109.15	-2.36	106.79	------	------	Peak
2	2483.707	71.56	-2.09	69.47	74.00	-4.53	Peak
3 !	2483.707	55.36	-2.09	53.27	54.00	-0.73	Average

High Channel / Vertical

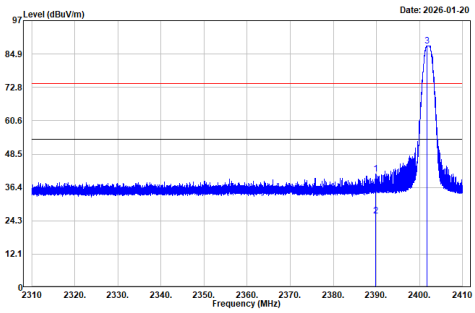
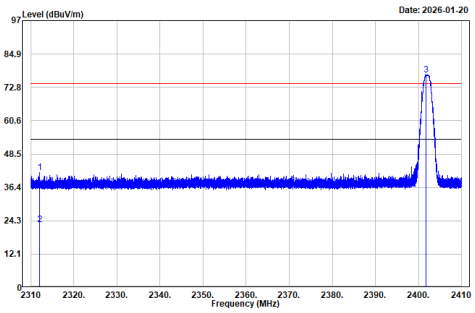


Site : 966B Chamber
Condition: 3m Vertical
Job No : RLK260119060
Model : RRQ61051-010
Power : From Test Development Board
Tester : Derek
Temp./ Hum.: 18.1℃/57%
Memo : AX20-TX-2462

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2461.022	98.84	-2.35	96.49	------	------	Peak
2	2483.768	63.09	-2.09	61.00	74.00	-13.00	Peak
3	2483.768	43.25	-2.09	41.16	54.00	-12.84	Average

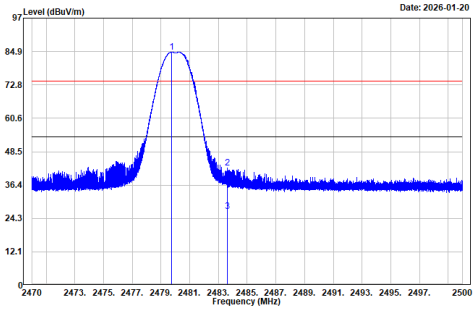
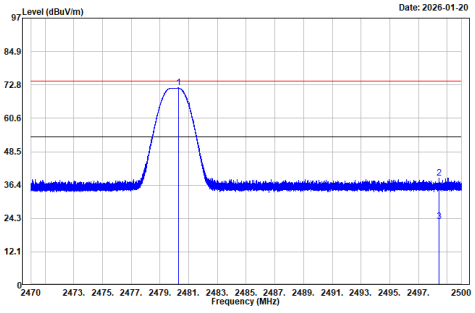
Note:
Level = Read Level + Factor
Over Limit = Level – Limit Line
Factor = Antenna Factor + Cable Loss – Amplifier Gain

發射限制測試: BLE 1M

Low Channel / Horizontal	Low Channel / Vertical
	
Site : 966B Chamber Condition: 3m Horizontal Job No : RLK260119060 Model : RRQ61051-010 Power : From Test Development Board Tester : Derek Temp./ Hum.: 19.7℃/58% Memo : BLE-TX-1M-2402	Site : 966B Chamber Condition: 3m Vertical Job No : RLK260119060 Model : RRQ61051-010 Power : From Test Development Board Tester : Derek Temp./ Hum.: 19.7℃/58% Memo : BLE-TX-1M-2402

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2389.747	43.42	-2.03	41.39	74.00	-32.61	Peak
2	2389.747	28.15	-2.03	26.12	54.00	-27.88	Average
3	2401.740	89.95	-2.03	87.92	------	------	Peak

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2312.100	44.10	-2.27	41.83	74.00	-32.17	Peak
2	2312.100	25.26	-2.27	22.99	54.00	-31.01	Average
3	2401.747	79.28	-2.03	77.25	------	------	Peak

High Channel / Horizontal	High Channel / Vertical
	
Site : 966B Chamber Condition: 3m Horizontal Job No : RLK260119060 Model : RRQ61051-010 Power : From Test Development Board Tester : Derek Temp./ Hum.: 19.7℃/58% Memo : BLE-TX-1M-2480	Site : 966B Chamber Condition: 3m Vertical Job No : RLK260119060 Model : RRQ61051-010 Power : From Test Development Board Tester : Derek Temp./ Hum.: 19.7℃/58% Memo : BLE-TX-1M-2480

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2479.725	86.76	-2.14	84.62	------	------	Peak
2	2483.608	44.78	-2.09	42.69	74.00	-31.31	Peak
3	2483.608	28.90	-2.09	26.81	54.00	-27.19	Average

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2480.266	73.80	-2.14	71.66	------	------	Peak
2	2498.444	40.92	-2.02	38.90	74.00	-35.10	Peak
3	2498.444	25.20	-2.02	23.18	54.00	-30.82	Average

Note:
Level = Read Level + Factor
Over Limit = Level – Limit Line
Factor = Antenna Factor + Cable Loss – Amplifier Gain

Conducted Bandedge

環境溫度	21.8℃	測試日期	2026-01-20
環境濕度	55%	測試人員	Alan

WLAN 2.4G mode:

Channel	Frequency (MHz)	Delta Peak to Band Emission (dBc)	Limit (dBc)	Result
B mode				
Low	2412	39.79	≥ 20	PASS
High	2462	49.68	≥ 20	PASS
G mode				
Low	2412	28.00	≥ 20	PASS
High	2462	40.41	≥ 20	PASS
N20 mode				
Low	2412	31.43	≥ 20	PASS
High	2462	39.93	≥ 20	PASS
AX20 mode				
Low	2412	27.79	≥ 20	PASS
High	2462	37.96	≥ 20	PASS

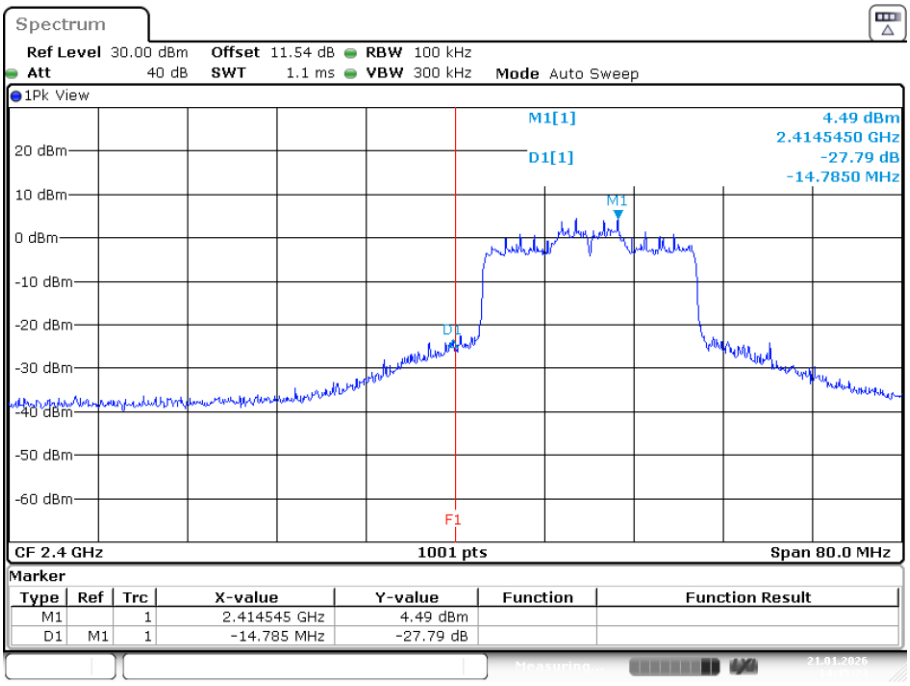
環境溫度	21.8℃	測試日期	2026-01-20
環境濕度	55%	測試人員	Alan

BLE mode:

Channel	Frequency (MHz)	Delta Peak to Band Emission (dBc)	Limit (dBc)	Result
BLE (1M) mode				
Low	2402	40.37	≥ 20	PASS
High	2480	45.49	≥ 20	PASS

WiFi 2.4G

****此測試圖僅放測試結果最差的頻道。**



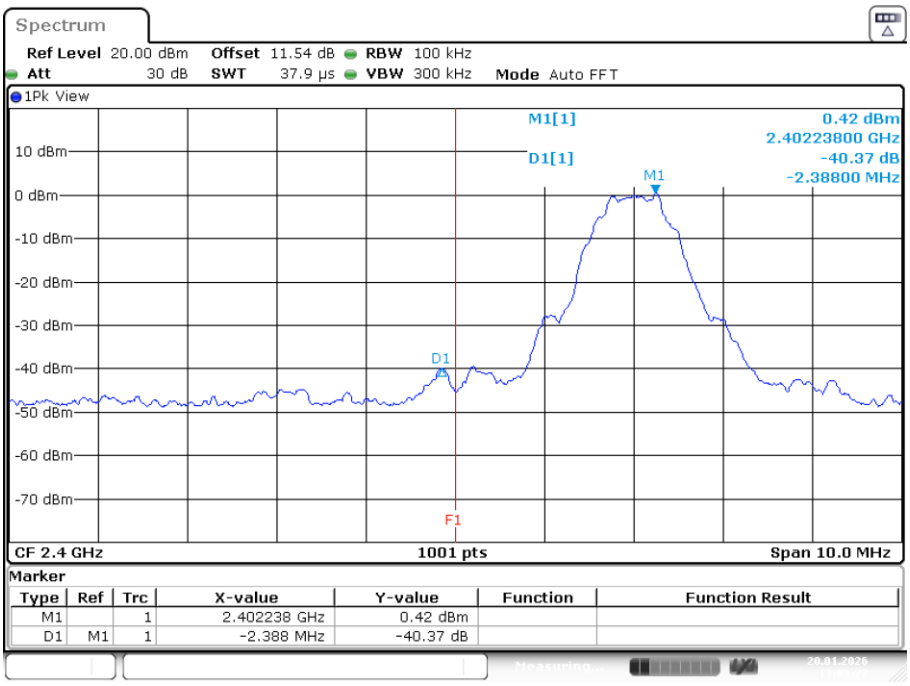
ProjectNo.:RLK260119060 Tester:Alan Huang

Date: 21.JAN.2026 14:45:23

依據測試數據結果，符合低功率射頻器材技術規範之要求。

BLE

****此測試圖僅放測試結果最差的頻道。**



ProjectNo.:RLK260119060 Tester:Alan Huang

Date: 20.JAN.2026 13:03:27

依據測試數據結果，符合低功率射頻器材技術規範之要求。

10. 功率密度之量測

10.1 適用標準

依據低功率射頻器材技術規範規定，在使用頻率範圍之任一3 kHz頻寬內，由發射機傳導至天線之功率頻譜密度在任意傳輸期間內，皆小於或等於8毫分貝(dBm)，且應依規定方式降低功率頻譜密度限制值。

10.2 測試方法

1. 將發射機之天線埠經由適當之衰減直接連至測試儀器。找出發射峰值並擴展於通帶內，設定解析頻寬為3 kHz，視訊頻寬大於解析頻寬，掃描時間為頻率掃描範圍除以3 kHz。所測得之峰值位準必須應小於或等於8 dBm。
2. 若受測裝置之頻譜線間隔小於3 kHz，測量時應將解析頻寬降低以使頻譜線間隔大於3 kHz，所測得之數據再藉加總3 kHz頻帶內所有個別頻譜線之功率(即標準化至3 kHz)以決定是否符合規定。

10.3 功率密度之量測結果

環境溫度	21.8℃	測試日期	2026-01-20
環境濕度	55%	測試人員	Alan

WLAN 2.4G mode:

Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Result
B mode				
Low	2412	-0.59	8	PASS
Mid	2437	-2.30		PASS
High	2462	-3.07		PASS
G mode				
Low	2412	-7.89	8	PASS
Mid	2437	-7.65		PASS
High	2462	-8.74		PASS
N20 mode				
Low	2412	-10.00	8	PASS
Mid	2437	-8.19		PASS
High	2462	-8.43		PASS
AX20 mode				
Low	2412	-8.96	8	PASS
Mid	2437	-8.43		PASS
High	2462	-8.56		PASS

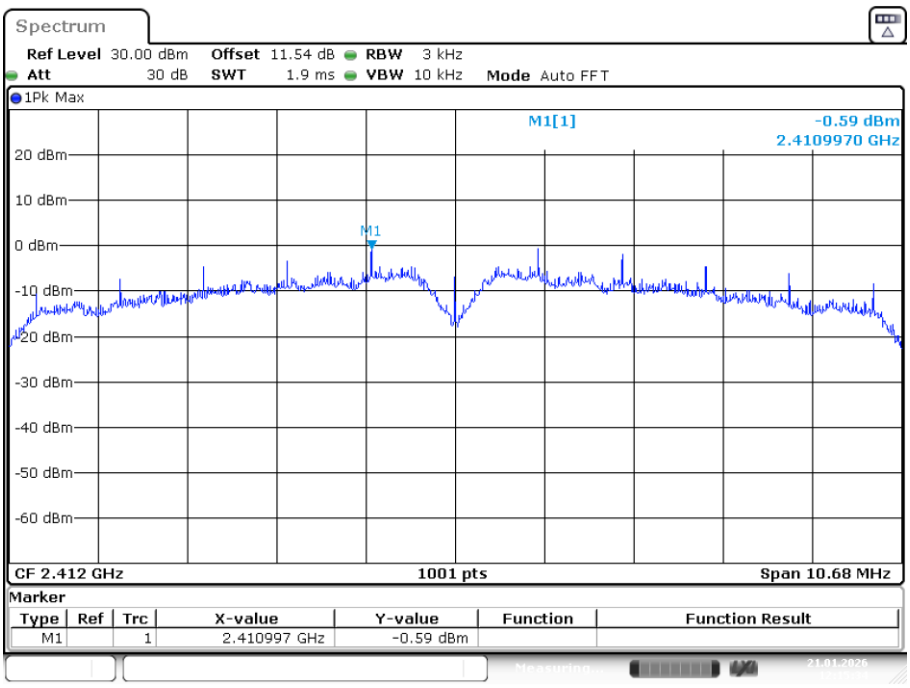
環境溫度	21.8℃	測試日期	2026-01-20
環境濕度	55%	測試人員	Alan

BLE mode:

Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Result
BLE (1M) mode				
Low	2402	-15.10	8	PASS
Mid	2440	-15.59		PASS
High	2480	-15.83		PASS

WiFi 2.4G

****此測試圖僅放測試結果最差的頻道。**

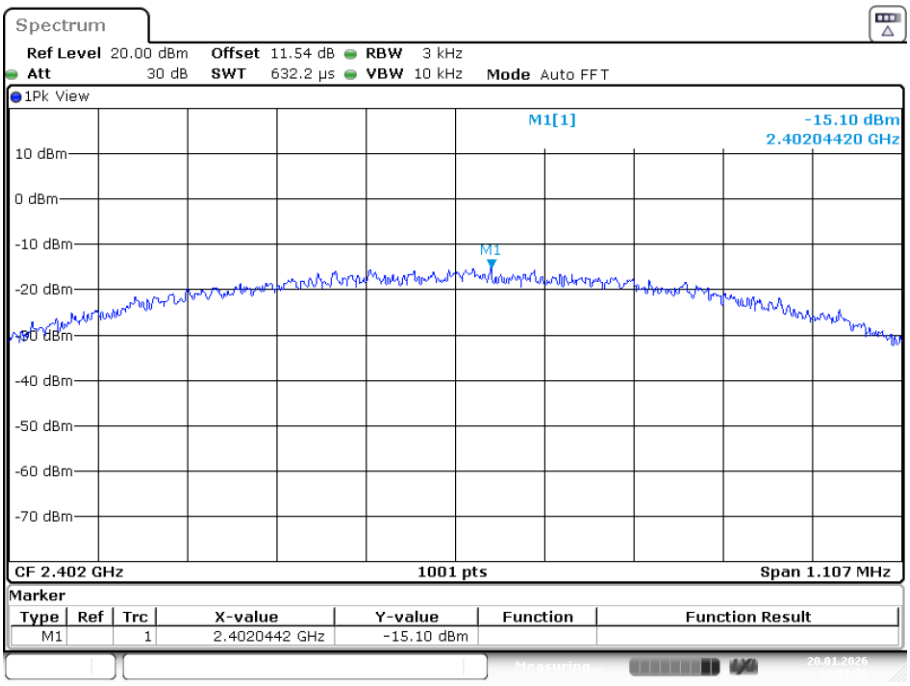


ProjectNo.:RLK260119060 Tester:Alan Huang
Date: 21.JAN.2026 12:15:34

依據測試數據結果，符合低功率射頻器材技術規範之要求。

BLE

****此測試圖僅放測試結果最差的頻道。**



ProjectNo.:RLK260119060 Tester:Alan Huang
Date: 20.JAN.2026 13:03:37

依據測試數據結果，符合低功率射頻器材技術規範之要求。

11. 電波曝露量之評估

11.1 適用標準

依據低功率射頻器材技術規範之規定，若受測物於正常操作模式下，其發射機距離人體 20 公分以上者，可測試最大曝露允許值(Maximum Permissible Exposure，MPE)以證明其符合電波曝露量之要求。

限制值

6.20.2.2 一般人/不可控制之曝露

頻率範圍 (MHz)	電場強度 (V/m)	磁場強度 (A/m)	功率密度 (mW/cm^2)	平均時間 (分)
0.3~1.34	614	1.63	*100	30
1.34~30	824/f	2.19/f	*180/f^2	30
30~300	27.5	0.073	0.2	30
300~1,500	-	-	f/1500	30
1,500~100,000	-	-	1.0	30

註 1：標記*表平面波等效功率密度。

註 2：f 表測試頻率，單位：MHz。

Calculated Formulary:

Predication of MPE limit at a given distance

$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm^2);

P = power input to the antenna (in appropriate units, e.g., mW);

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

For simultaneously transmit system, the calculated power density should comply with:

$$\sum_i \frac{S_i}{S_{Limit,i}} \leq 1$$

11.2 電波曝露量之結果

Test mode: WLAN 2.4G mode

Frequency (MHz)	Power		Antenna Gain		Evaluation Distrance (cm)	Power Density (mW/cm²)	MPE Limit (mW/cm²)
	(dBm)	(mW)	(dBi)	(numeric.)			
2402-2480	18.71	74.302	3.30	2.138	20	0.03160	1

Test mode: BLE mode

Frequency (MHz)	Power		Antenna Gain		Evaluation Distrance (cm)	Power Density (mW/cm²)	MPE Limit (mW/cm²)
	(dBm)	(mW)	(dBi)	(numeric.)			
2402-2480	1.4	1.38	3.3	2.14	20	0.00059	1

WLAN 2.4G mode:

電磁波曝露量 MPE 標準值 1mW/cm^2，送測產品實測值為：**0.03160** mW/cm^2

BLE mode:

電磁波曝露量 MPE 標準值 1mW/cm^2，送測產品實測值為：**0.00059** mW/cm^2

12. 量測儀器一覽表

儀器名稱	廠商	型號	序號	校驗日期	下次校驗日期
AC Line Conduction Room (CON-A)					
Pulse Limiter	SCHWARZBECK	VTSD 9561-F	00432	2025/08/14	2026/8/14
ESR EMI Test Receiver	Rohde & Schwarz	ESCI7	100769	2025/04/02	2026/4/2
RF Cable	EMCI	EMCCFD300-BM-BM-3000	221013	2025/10/16	2026/10/16
Two-Line V-Network	Rohde & Schwarz	ENV216	100037	2025/09/15	2026/9/15
Software	Audix	e3 v9	E3LK-03	N.C.R	N.C.R
Radiation 3M Room (966-B)					
Bilog Antenna & 6 dB Attenuator	SUNOL SCIENCES & EMCI	JB3 & N-6-06	A071318 & AT-N0670	2025/08/14	2026/08/14
Active Loop Antenna	ETS-Lindgren	6502	0001-3322	2025/03/27	2026/03/27
Horn Antenna	ETS-Lindgren	3115	85775	2025/10/03	2026/10/03
Horn Antenna	ETS-Lindgren	3160-09	123853	2025/08/28	2026/08/28
Horn Antenna	ETS-Lindgren	3160-10	123856	2025/08/28	2026/08/28
18-40GHz Preamplifier	GLOBAL	1313-A1840	5031371	2025/04/28	2026/04/28
30M-18GHz Preamplifier	A.H. Systems	PAM-0118P	479	2025/09/05	2026/09/05
ESR EMI Test Receiver	Rohde & Schwarz	ESR3	102447	2025/12/10	2026/12/10
Spectrum Analyzer	Rohde & Schwarz	FSV40	101456	2025/06/05	2026/06/05
Microflex Cable (1m)	EMCI	EMCI02-KM-KM-1000	180524	2025/08/01	2026/08/01
Microflex Cable (2m)	EMCI	EMCI06-SM-SM-2000	180516	2025/08/01	2026/08/01
Microflex Cable (8m)	UTIFLEX	UFA210A-1-3149-300300	MFR 64639 232490-002	2025/08/01	2026/08/01

Software	AUDIX	E3 V9	E3LK-02	N.C.R	N.C.R
-10dB Attenuator	MTJ	MTJ604-10	004	2025/04/07	2026/04/07
Band Reject Filter	MICRO-TRONICS	BRM50702	G613	2025/04/30	2026/04/30
Conducted Room					
Cable	MTJ	MT40S	620620-MT40S-100	2026/01/05	2027/01/05
Signal and Spectrum Analyzer	Rohde & Schwarz	FSV40	101457	2025/12/03	2026/12/03
USB Wideband Power Sensor	AGILENT	U2021XA	MY54080011	2025/08/26	2026/08/26
10dB Attenuator	MCL	BW-S10W5+	605	2025/04/14	2026/04/14

***Statement of Traceability:** BACL Corp. attests that all of the calibrations on the equipment items listed above were traceable to the SI System of Units via the R.O.C. Center for Measurement Standards of the Electronics Testing Center, Taiwan (ETC) or to another internationally recognized National Metrology Institute (NMI), and were compliant with the current Taiwan Accreditation Foundation (TAF) requirements.

13. 試驗室之測試不確定度

測試項目	測試場地 / 測試頻率	不確定度
傳導干擾電壓量測	AC Line Conduction	±2.98 (dB)
輻射干擾場強量測 (測試距離: 3m)	3m Chamber / 30~1000MHz	±3.30 (dB)
	3m Chamber / 1~18GHz	±4.99 (dB)
	3m Chamber / 18~40GHz	±4.52 (dB)
	3m Chamber /9k~30MHz	±3.20 (dB)
佔用頻寬	Conducted	±0.09 (%)
輸出功率	Conducted	±3.73 (dB)
直量雜散	Conducted	±1.03 (dB)
開放頻帶邊緣	Conducted	±1.03 (dB)
功率密度	Conducted	±0.45 (dBm/kHz)

a) 必要為試驗結果作解釋時，依 ISO/IEC 17025 第 7.8.3.1 要求，實驗室得決定是否在測試報告上包含量測不確定度評估結果。

b) 測試證書/報告中提供量測不確定度資訊時，通常應使用 “y± U (y 和 U 的單位)” 或類似的表述方式；量測結果的數值與其量測不確定度亦可以列表方式表達。視需要，擴充不確定度也可以用相對擴充不確定度 U / |y|的方式表達，如指數或百分比。應在證書/報告中註明不確定度的涵蓋因子及涵蓋機率(或信賴水準)，可以使用以下文字描述：

「本報告的擴充不確定度，係以組合標準不確定度乘以涵蓋因子 k (k=2)來表示，相應之涵蓋機率(或信賴水準)約為 95 %。」

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