

低功率射頻器材試驗報告

申請者	固德威技術股份有限公司
申請地址	蘇州市高新區紫金路90號
製造廠商	固德威技術股份有限公司
產品名稱	Wi-Fi Kit
主 型 號	Wi-Fi Kit
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 109年版
試驗結果	合格
試驗室名稱:倍科檢驗科技有限公司(新北實驗室) 試驗室地址:新北市汐止區大同路二段 169 巷 70 號 電話:02-2647-6898 / 傳真:02-2647-6895 報告編號:RXZ211022002RF01 案件受理日期: 110 年 10 月 22 日 樣品接收日期: 110 年 10 月 22 日 測試日期: 110 年 11 月 16 日~110 年 11 月 22 日 報告發行日期: 110 年 12 月 03 日 附註: 1. 未經本實驗室書面許可, 不得部份複製本報告內容。 2. 未經授權不得對本報告的內容或外觀進行任何更改, 違者將受到法律追訴。 3. 本報告僅對檢送樣品負責, 且分離使用無效。 4. 本報告有本實驗室報告簽屬人簽名始生效。 5. 測試結果之判定, 無需考量量測不確定度符合性, 除非經由顧客約定、法規或標準文件規範才需要評估。 6. 本實驗室不對申請者所提供之影響測試結果的訊息真實性負責。	

報告發行紀錄:

版次	案號	報告號碼	發行日期	說明	文件人員
0.0	RXZ211022002	RXZ211022002RF01	2021.12.03	報告發行	徐靖雯

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1. 一般描述

產品名稱	Wi-Fi Kit
主 型 號	Wi-Fi Kit
廠 牌	GOODWE
申 請 者	固德威技術股份有限公司
地 址	蘇州市高新區紫金路90號
製造廠商	固德威技術股份有限公司
製造廠址	蘇州市高新區紫金路90號
使用頻率	IEEE 802.11b/g / IEEE 802.11n HT20 Mode: 2412 ~ 2462 MHz IEEE 802.11n HT40 Mode: 2422 ~ 2452 MHz
使用頻道數	IEEE 802.11b/g / IEEE 802.11n HT20 Mode: 11 Channels IEEE 802.11n HT40 Mode: 7 Channels
傳輸速率	IEEE 802.11b Mode: 1 - 11 Mbps IEEE 802.11g Mode: 6 - 54Mbps IEEE 802.11n HT 20 Mode: MCS 0~7 IEEE 802.11n HT 40 Mode: MCS 0~7
調變方式	IEEE 802.11b Mode: DSSS IEEE 802.11g Mode: OFDM IEEE 802.11n HT20 Mode: OFDM IEEE 802.11n HT40 Mode: OFDM
EUT供電方式	5Vdc from USB Port
備註	無。

2. 測試規範

2.1 符合性聲明

本測試報告之所有項目皆依據國家通訊傳播委員會 LP0002 低功率射頻器材技術規範適用規範及條文。

2.2 適用規範及條文

低功率射頻器材技術規範4.10節(DTS)

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

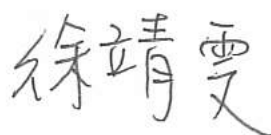
報告簽署人： 徐士珩



測試者： 何寬柏



報告製作員： 徐靖雯



2.3 限制使用之頻帶

根據低功率射頻器材技術規範，任何低功率射頻電機之主波皆不得使用下表所列各頻帶內之頻率；低功率射頻電機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。

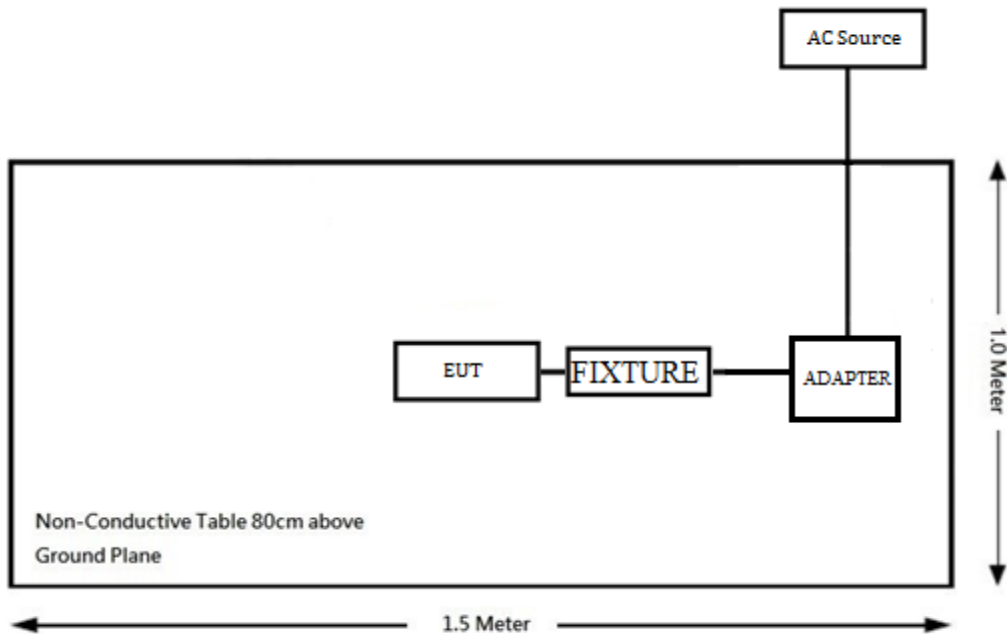
頻率 (MHz)	頻率 (MHz)	頻率 (MHz)
0.090 - 0.110	167.72 - 173.20	3260.0 - 3267.0
0.490 - 0.510	240.00 - 285.00	3332.0 - 3339.0
2.172 - 2.198	322.00 - 335.40	3345.8 - 3358.0
3.013 - 3.033	399.90 - 410.00	3500.0 - 4400.0
4.115 - 4.198	608.00 - 614.00	4500.0 - 5250.0
5.670 - 5.690	703.00 - 748.00	5350.0 - 5460.0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

3. 受測裝置之系統說明

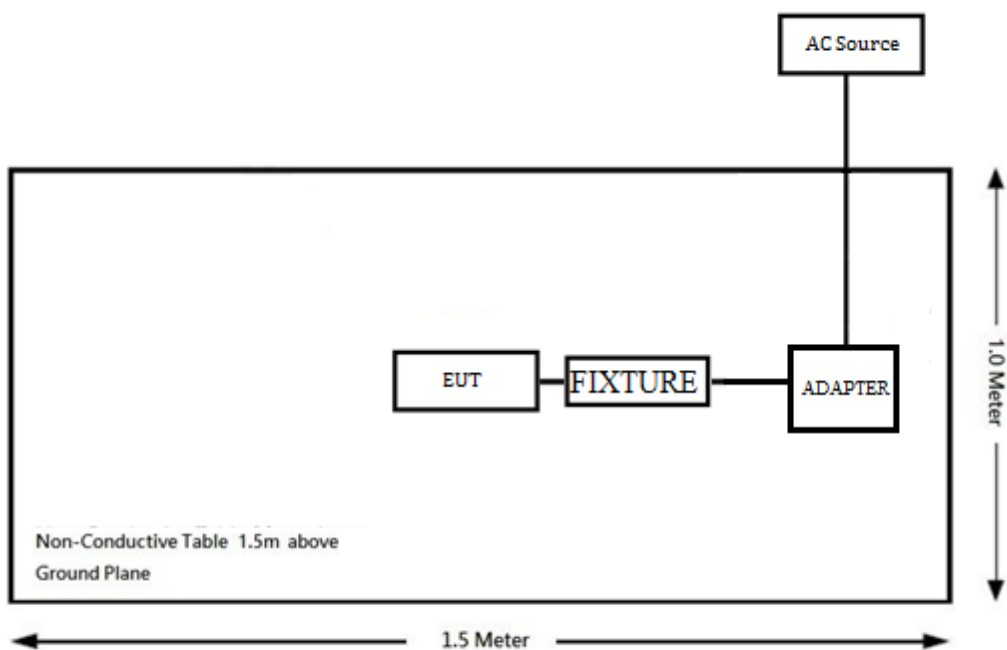
3.1 待測物與測試設備系統圖

Radiation:

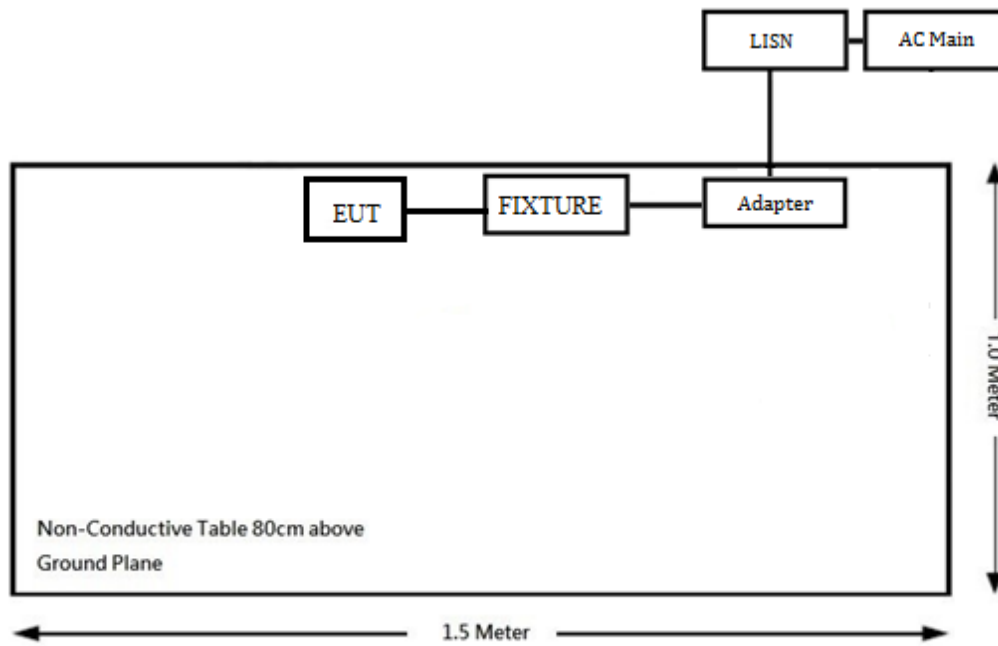
Below 1GHz



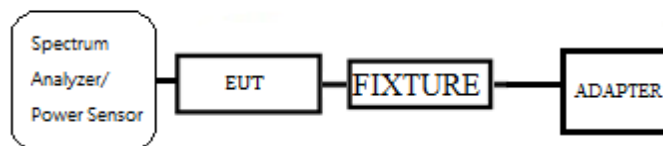
Above 1GHz:



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 X 軸
4. 本產品包含兩個供電模式：PoE 和 Adapter

3.3 測試軟件

Used "Secure CRT V7.0.0.326" software.

Test Frequency		Low	Mid	High
Power Level Setting	B Mode	0x25	0x25	0x25
	G Mode	0x25	0x25	0x25
	N20 Mode	0x25	0x25	0x25
	N40 Mode	0x25	0x25	0x25

3.4 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	FIXTURE	Vabael	N/A
2	Adapter	NEXGO	ADS-12CG-06 05010EPCU
3	USB Cable	N/A	1m(長度)
4	USB Cable	N/A	1.8m(長度)

3.5 測試描述

1. 將 EUT 透過 FIXTURE 連接到筆電之 USB Port
2. 開啟 Secure CRT V7.0.0.326 測試軟體
3. 選擇實際抓到的 USB Port, 按下 Open
4. 點選 TX
5. Channel= 1, 6, 11,
Pkt length=1024
Pkt cnt=30000000000
Tx power(dBm)=依照設定值調整
Rate=1M, 6M, MCS0
Mode=100% Duty cycle
Preamble=CCK short, Normal
Bandwidth=20MHz, 40MHz
Guard interval=800ns
6. 點選 Go
7. 訊號發射完成

3.6 占空比評估

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

Duty factor = $10 \cdot \log(1/TXon)$

	B Mode	G Mode	HT20 Mode	HT40 Mode
Duty cycle	0.97	0.94	0.95	0.89
Duty factor	0.13	0.27	0.22	0.51

4. 電源線傳導干擾之量測

4.1 適用標準

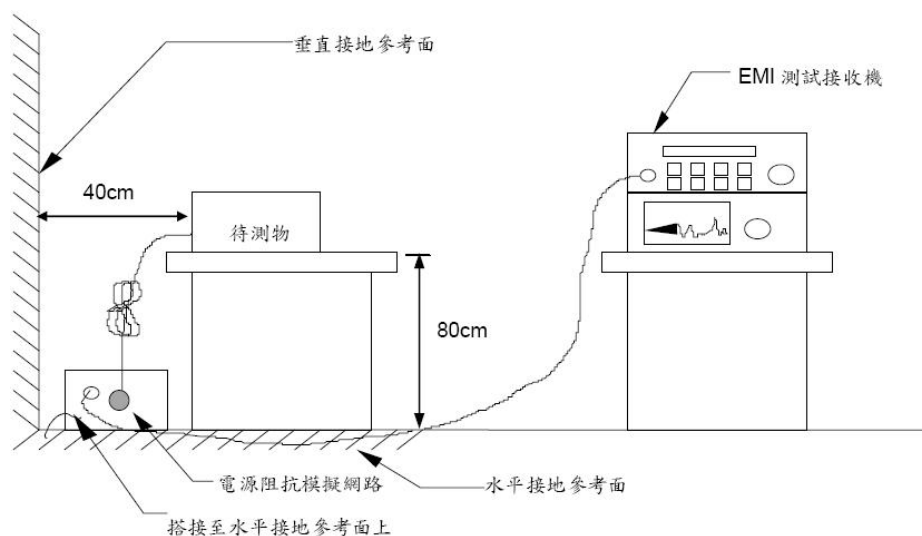
依據低功率射頻器材技術規範，電源傳導干擾之限制要求如下：

頻率 (MHz)	傳導限制值 (dB μ V)	
	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

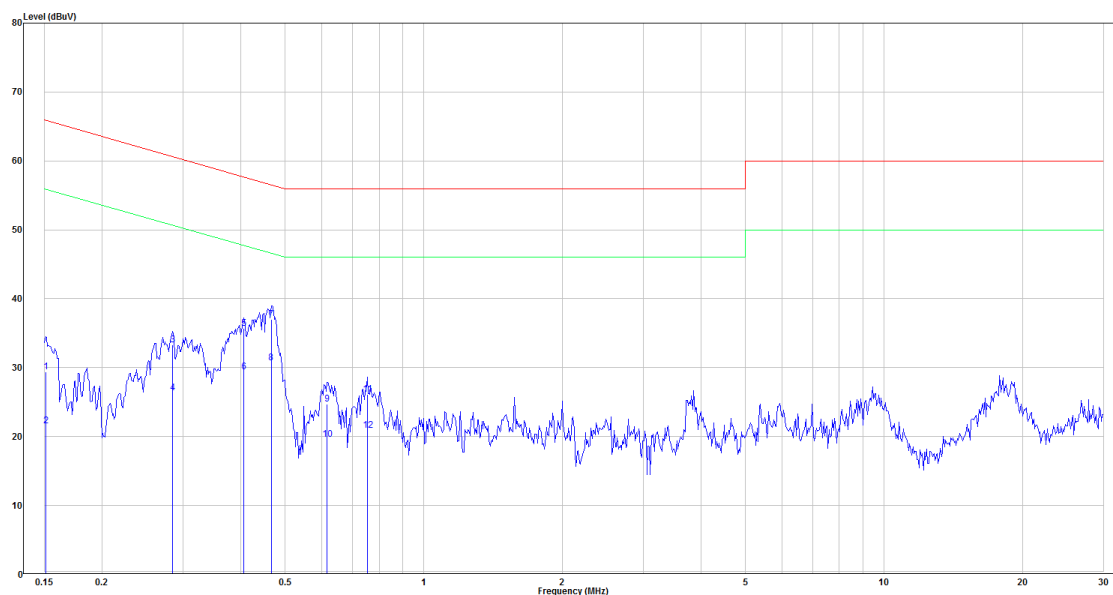
電源傳導干擾電壓之計算公式如下

$$\text{干擾值} = \text{讀值} + \text{校正因子}$$

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

Job No.:	RXZ211022002	Phase.:	Line
Standard:	limit\RF\NCC LP0002-QP.csv	Power:	AC 110V/60Hz
Test item:	Conduction Test	Test By:	ken
Temp.(°C)/Hum.(%RH):	23.7°C/45%		
Description:	Wifi-2.4G		



No.	Frequency (MHz)	Reading (dBμV)	Correct Factor(dB)	Result (dBμV)	Limit (dBμV)	Over limit (dB)	Remark
1	0.151	9.75	19.59	29.34	65.96	-36.62	QP
2	0.151	1.93	19.59	21.52	55.96	-34.44	Average
3	0.285	13.69	19.58	33.27	60.68	-27.41	QP
4	0.285	6.72	19.58	26.3	50.68	-24.38	Average
5	0.406	16.13	19.58	35.71	57.73	-22.02	QP
6	0.406	9.85	19.58	29.43	47.73	-18.3	Average
7	0.466	17.38	19.59	36.97	56.58	-19.61	QP
8	0.466	11.13	19.59	30.72	46.58	-15.86	Average
9	0.617	5.12	19.60	24.72	56.00	-31.28	QP
10	0.617	-0.01	19.60	19.59	46.00	-26.41	Average
11	0.755	6.51	19.60	26.11	56.00	-29.89	QP
12	0.755	1.32	19.60	20.92	46.00	-25.08	Average

Note:

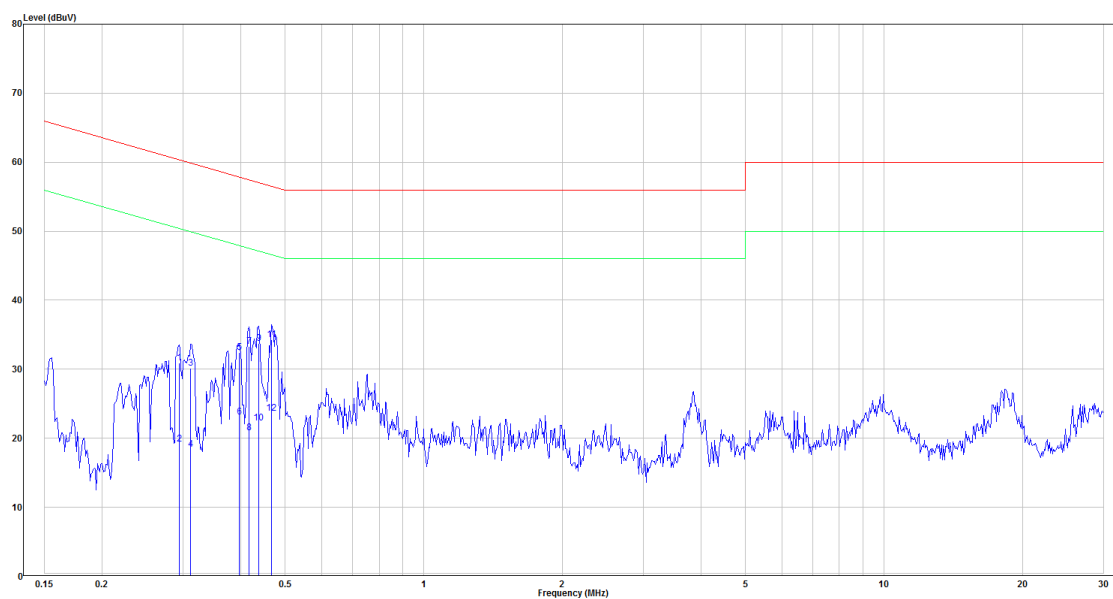
Level = Read Level + Factor

Over Limit = Level – Limit Line

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

Job No.:	RXZ211022002	Phase.:	Neutral
Standard:	limit\RF\NCC LP0002-QP.csv	Power:	AC 110V/60Hz
Test item:	Conduction Test	Test By:	ken
Temp.(°C)/Hum.(%RH):	23.7°C/45%		
Description:	Wifi-2.4G		

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No.	Frequency (MHz)	Reading (dBμV)	Correct Factor(dB)	Result (dBμV)	Limit (dBμV)	Over limit (dB)	Remark
1	0.294	11.30	19.58	30.88	60.41	-29.53	QP
2	0.294	-0.40	19.58	19.18	50.41	-31.23	Average
3	0.312	10.57	19.58	30.15	59.93	-29.78	QP
4	0.312	-1.17	19.58	18.41	49.93	-31.52	Average
5	0.398	12.88	19.58	32.46	57.90	-25.44	QP
6	0.398	3.44	19.58	23.02	47.90	-24.88	Average
7	0.417	13.77	19.58	33.35	57.51	-24.16	QP
8	0.417	1.20	19.58	20.78	47.51	-26.73	Average
9	0.437	14.11	19.59	33.7	57.11	-23.41	QP
10	0.437	2.57	19.59	22.16	47.11	-24.95	Average
11	0.466	14.73	19.59	34.32	56.58	-22.26	QP
12	0.466	4.03	19.59	23.62	46.58	-22.96	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 ($\mu\text{V/m}$)	干擾限制 (dB $\mu\text{V/m}$)
0.009 – 0.490 (含)	300	2,400/頻率(千赫)	128.5-93.8 (註1)
0.490 (不含) – 1.705 (含)	30	24,000 /頻率(千赫)	73.8-63 (註2)
1.705 (不含) – 30 (不含)	30	30	69.5 (註3)
30 (含) – 88 (含)	3	100	40.0
88 (不含) – 216 (含)	3	150	43.5
216 (不含) – 960 (含)	3	200	46.0
960 (不含)以上	3	500	54.0

註 1: 其干擾限制值 = $20 \cdot \text{LOG}(2400/F) + 40 \cdot \text{LOG}(300/\text{量測距離})$

註 2: 其干擾限制值 = $20 \cdot \text{LOG}(24000/F) + 40 \cdot \text{LOG}(30/\text{量測距離})$

註 3: 其干擾限制值 = $20 \cdot \text{LOG}(30) + 40 \cdot \text{LOG}(30/\text{量測距離})$

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

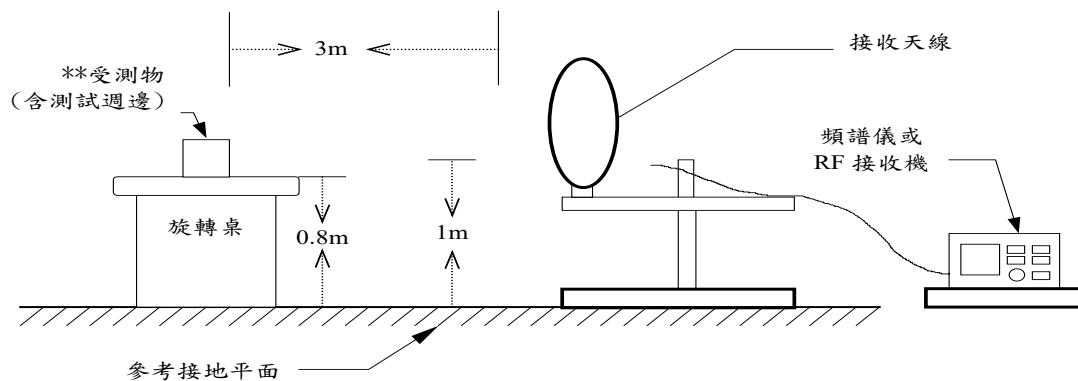


圖 2 :量測頻率30 MHz~ 1 GHz之測試配置

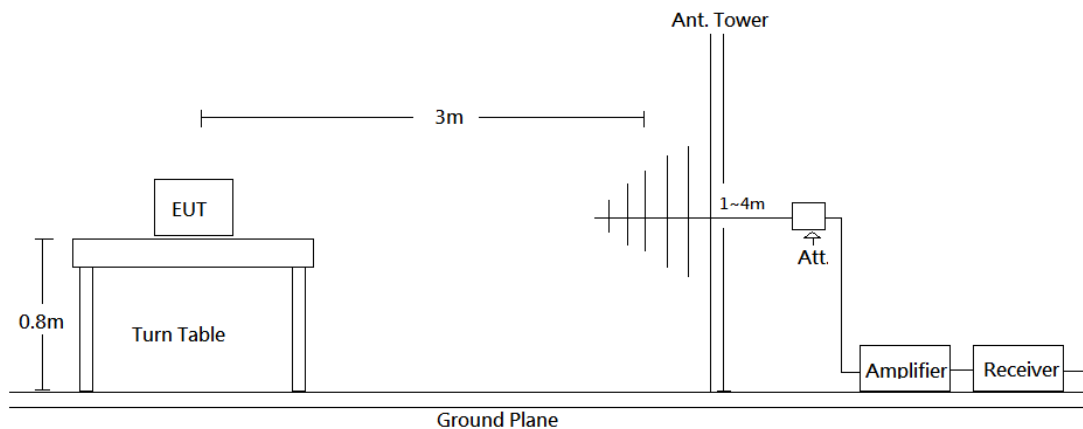
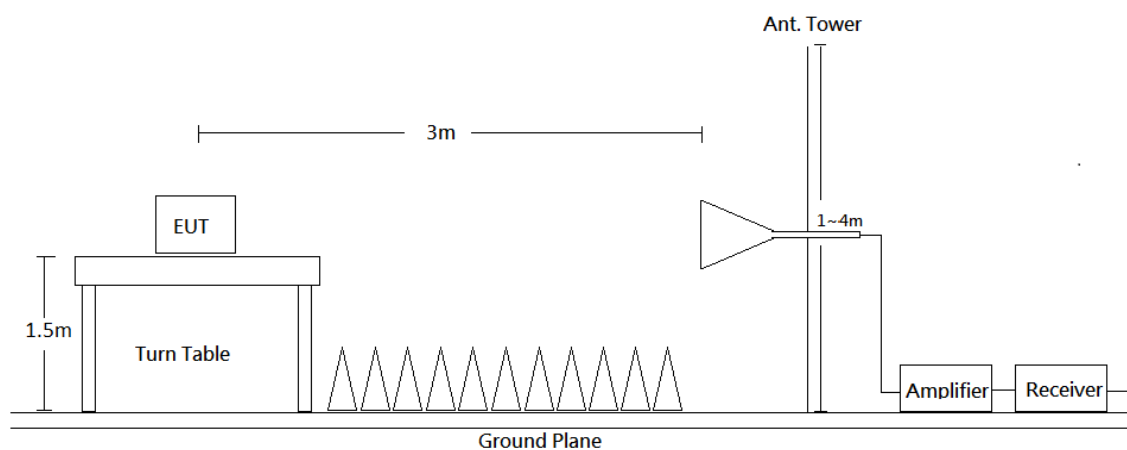


圖 3 : 量測頻率1 GHz以上之測試配置



5.4 量測設定

1 GHz以下:

頻譜分析儀設定: Quasi-Peak: RBW = VBW: 120 kHz

1 GHz以上:

頻譜分析儀設定: Peak: RBW: 1 MHz; VBW: 1 MHz

Average: RBW: 1 MHz; VBW: 10 Hz

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)

此案件測試模式分別為Worst Power。

發射機 其它不必要之訊號 (1 GHz ~ 26.5 GHz)

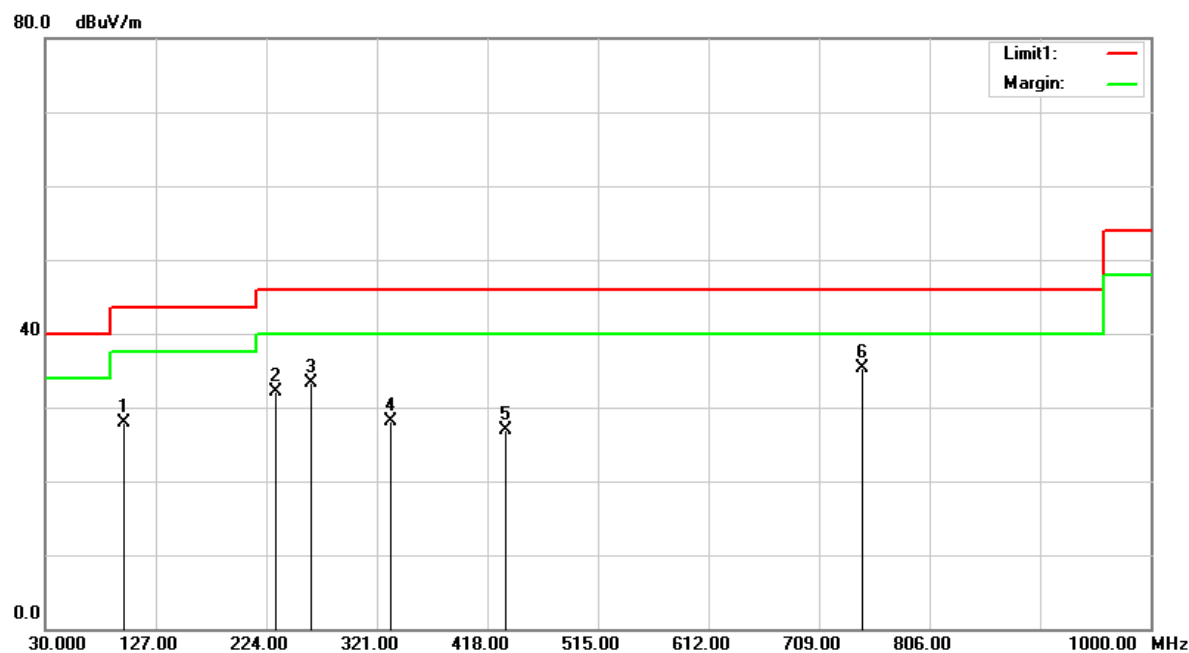
此案件測試模式分別為CH Low、Mid、High。

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。

場強輻射之量測值 (TX / 1 GHz 以下)

Job No.:	RXZ211022002	Ant.Polar.:	Horizontal
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	25.1(°C)/64%RH	Date:2021/11/16	Time:上午 09:19:58
		Test By:	Howard
Description:	B-TX-2412-X_Axis		



Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
(MHz)	(dBμV)	Factor(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	(cm)	(°)	
98.8700	42.44	-14.59	27.85	43.50	-15.65	100	197	peak
231.7600	44.78	-12.58	32.20	46.00	-13.80	100	189	peak
263.7700	44.46	-11.06	33.40	46.00	-12.60	100	96	peak
332.6400	37.58	-9.46	28.12	46.00	-17.88	100	309	peak
433.5200	33.70	-6.79	26.91	46.00	-19.09	100	83	peak
746.8300	37.59	-2.32	35.27	46.00	-10.73	100	214	peak

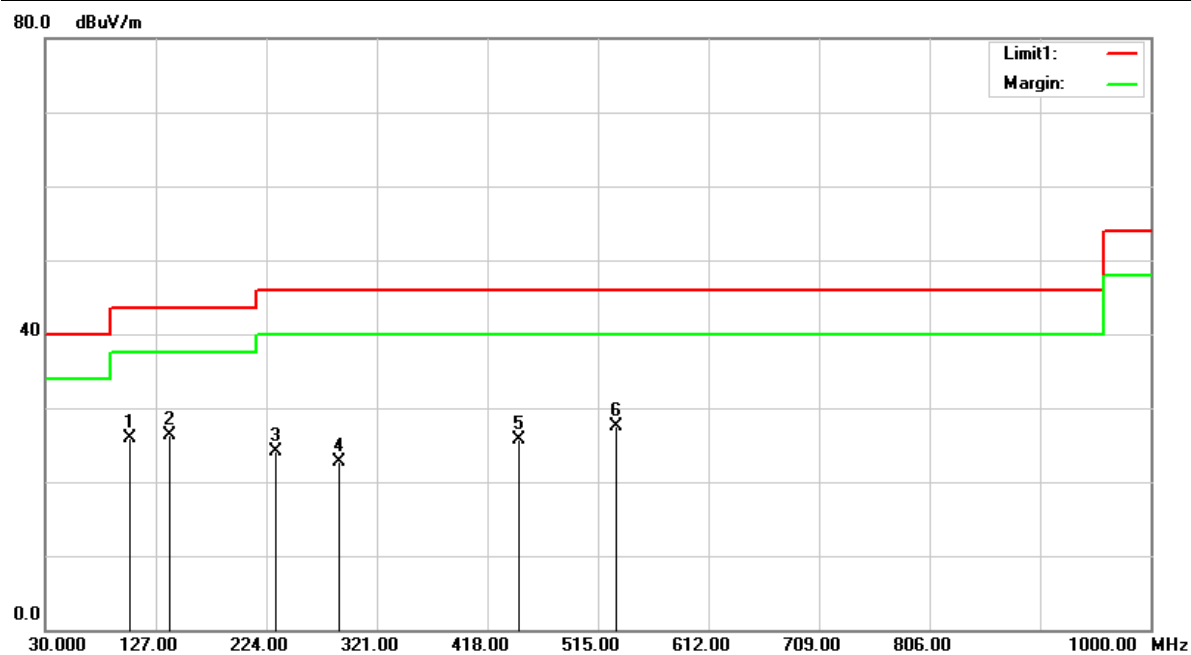
Note:

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Job No.:	RXZ211022002	Ant.Polar.:	Vertical
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	25.1(°C)/64%RH	Date:2021/11/16	Time:上午 09:25:32
		Test By:	Howard
Description:	B-TX-2412-X_Axis		



Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
(MHz)	(dBμV)	Factor(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	(cm)	(°)	
104.6900	38.71	-12.78	25.93	43.50	-17.57	100	254	peak
139.6100	37.02	-10.73	26.29	43.50	-17.21	100	24	peak
231.7600	36.73	-12.58	24.15	46.00	-21.85	100	158	peak
288.0200	32.78	-10.05	22.73	46.00	-23.27	100	12	peak
445.1600	32.30	-6.60	25.70	46.00	-20.30	100	96	peak
530.5200	33.19	-5.63	27.56	46.00	-18.44	100	111	peak

Note:

Result = Reading + Correct Factor

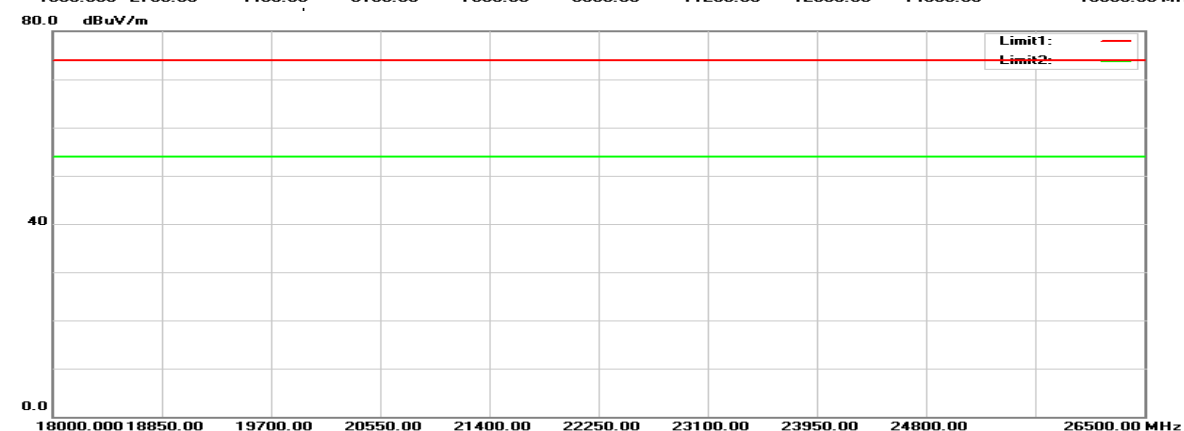
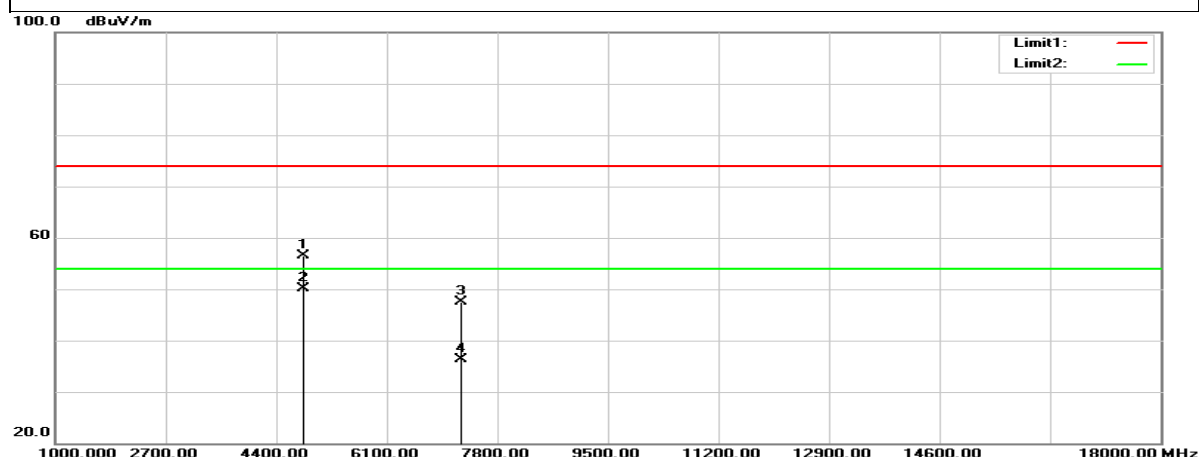
Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

發射機其它不必要之訊號 (TX / 1 GHz 以上)

場強輻射之量測值

Job No.:	RXZ211022002	Ant.Polar.:	Horizontal
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 03:13:18
		Test By:	Howard
Description:	B-TX-2412-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
4824.000	58.63	-2.15	56.48	74.00	-17.52	124	111	peak
4824.000	52.29	-2.15	50.14	54.00	-3.86	124	111	AVG
7236.000	42.98	4.55	47.53	74.00	-26.47	157	217	peak
7236.000	31.84	4.55	36.39	54.00	-17.61	157	217	AVG

Note:

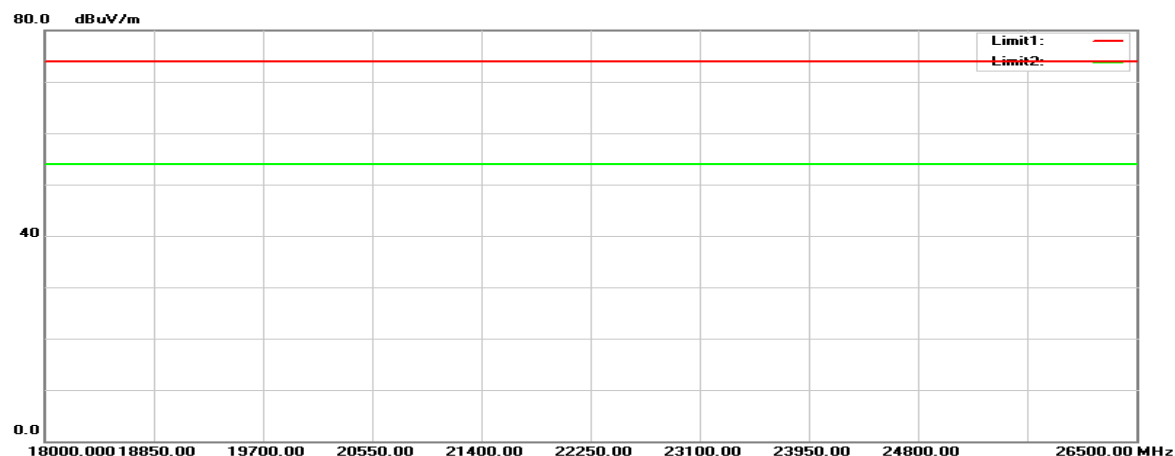
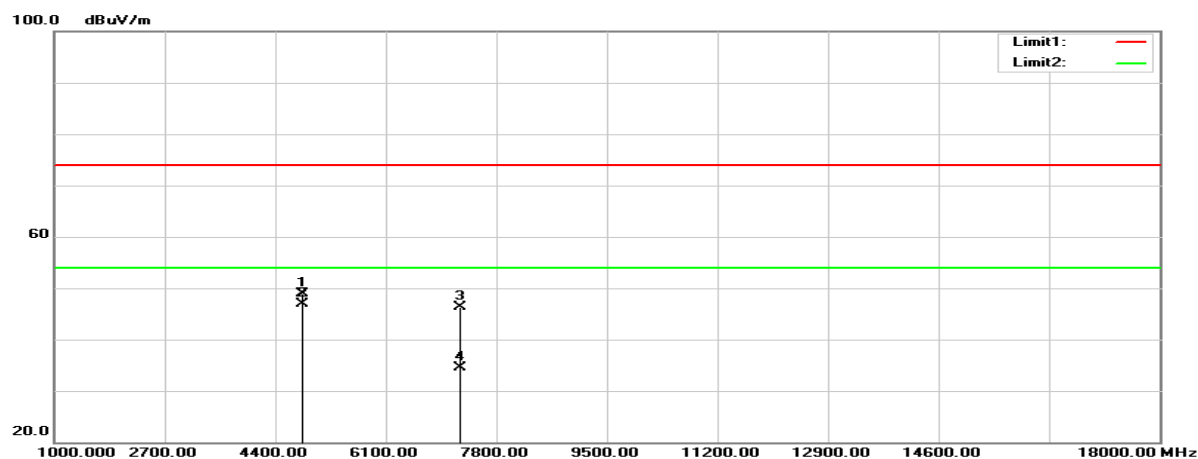
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Other emissions from 18GHz~26.5GHz are 20 dB below the limits. No recording in the test report.

Job No.:	RXZ211022002	Ant.Polar.:	Vertical
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 03:20:27
		Test By:	Howard
Description:	B-TX-2412-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
4824.000	51.15	-2.15	49.00	74.00	-25.00	118	122	peak
4824.000	49.11	-2.15	46.96	54.00	-7.04	118	122	AVG
7236.000	41.80	4.55	46.35	74.00	-27.65	143	318	peak
7236.000	30.02	4.55	34.57	54.00	-19.43	143	318	AVG

Note:

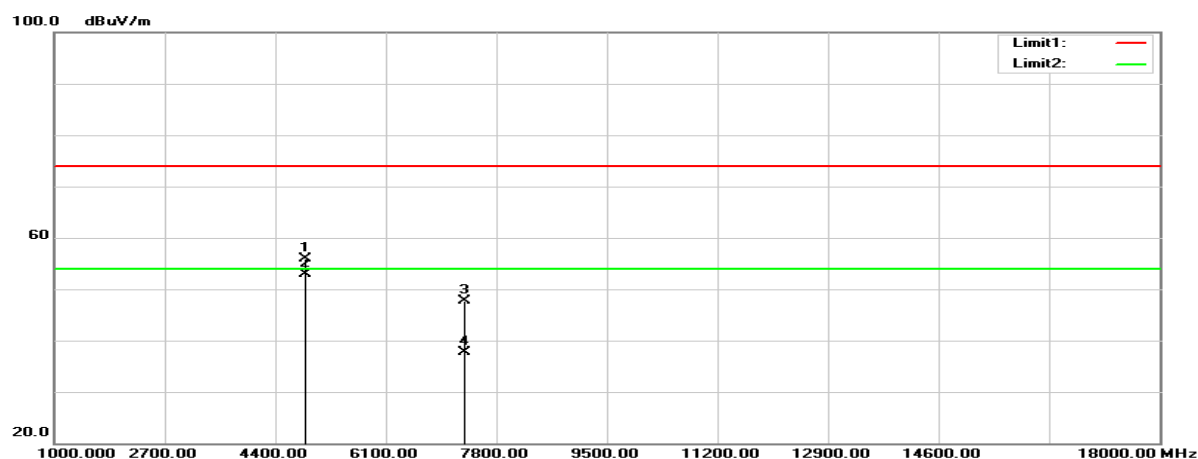
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Other emissions from 18GHz~26.5GHz are 20 dB below the limits. No recording in the test.

Job No.:	RXZ211022002	Ant.Polar.:	Horizontal
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 03:49:46
		Test By:	Howard
Description:	B-TX-2437-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
4874.000	57.89	-1.92	55.97	74.00	-18.03	106	99	peak
4874.000	54.81	-1.92	52.89	54.00	-1.11	106	99	AVG
7311.000	42.59	5.08	47.67	74.00	-26.33	143	168	peak
7311.000	32.57	5.08	37.65	54.00	-16.35	143	168	AVG

Note:

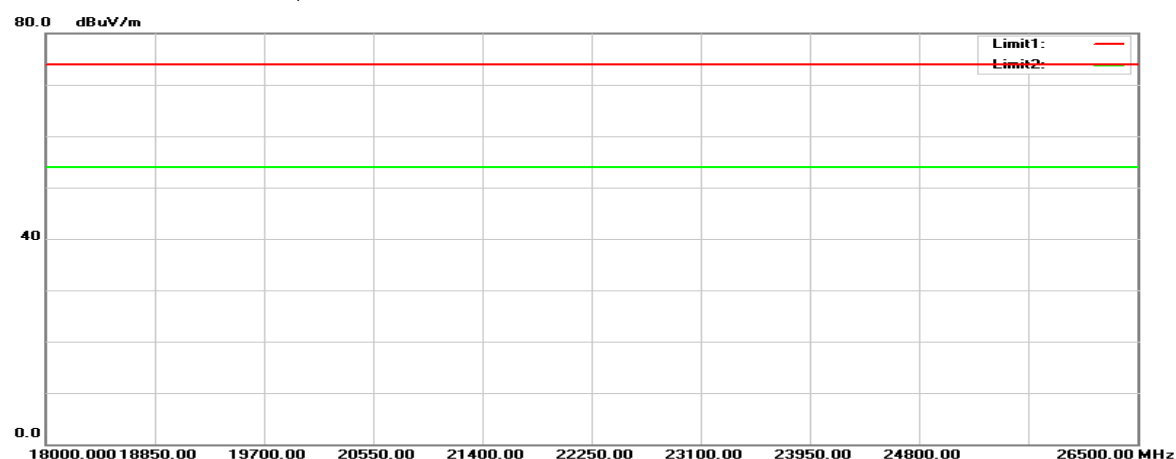
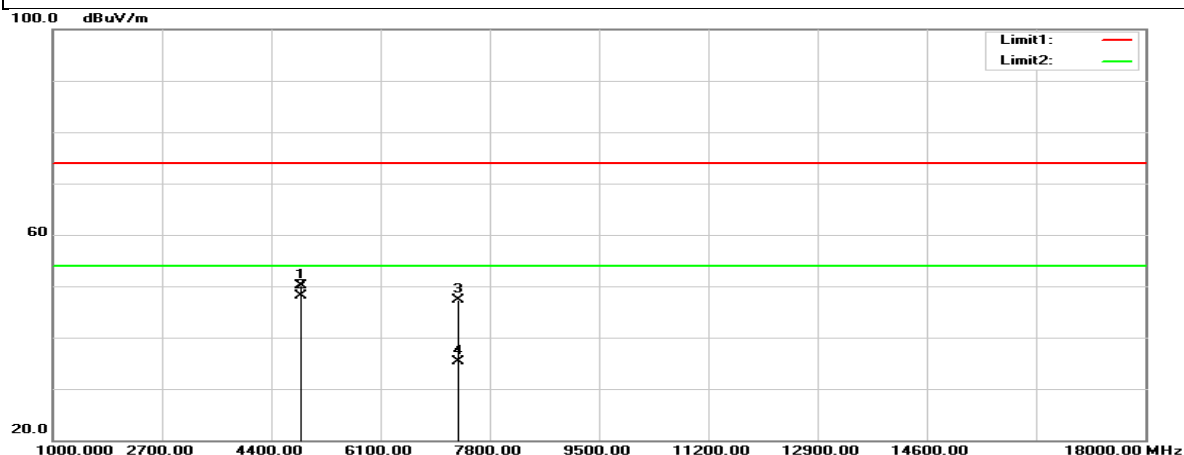
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Other emissions from 18GHz~26.5GHz are 20 dB below the limits. No recording in the test.

Job No.:	RXZ211022002	Ant.Polar.:	Vertical
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 03:44:57
		Test By:	Howard
Description:	B-TX-2437-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
4874.000	52.06	-1.92	50.14	74.00	-23.86	150	163	peak
4874.000	49.98	-1.92	48.06	54.00	-5.94	150	163	AVG
7311.000	42.17	5.08	47.25	74.00	-26.75	144	278	peak
7311.000	30.14	5.08	35.22	54.00	-18.78	144	278	AVG

Note:

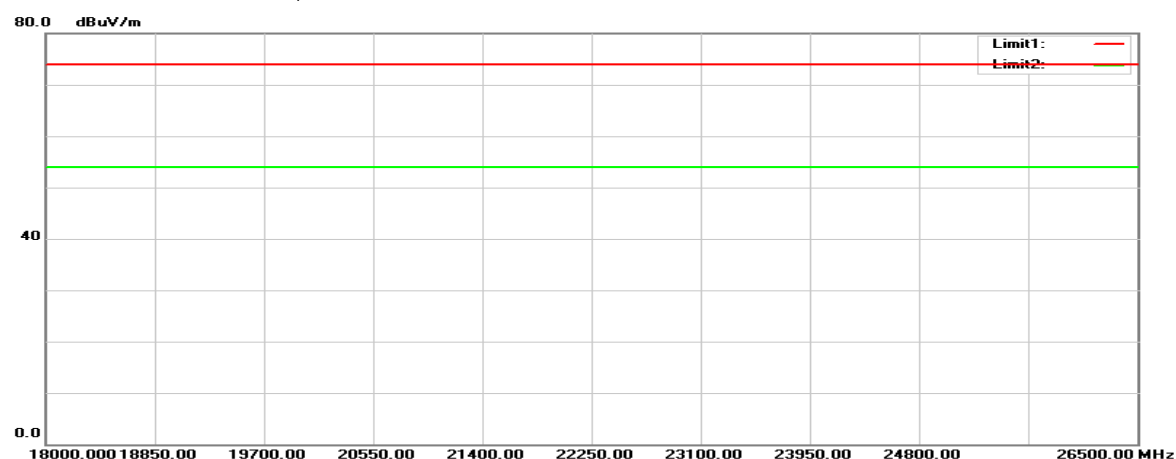
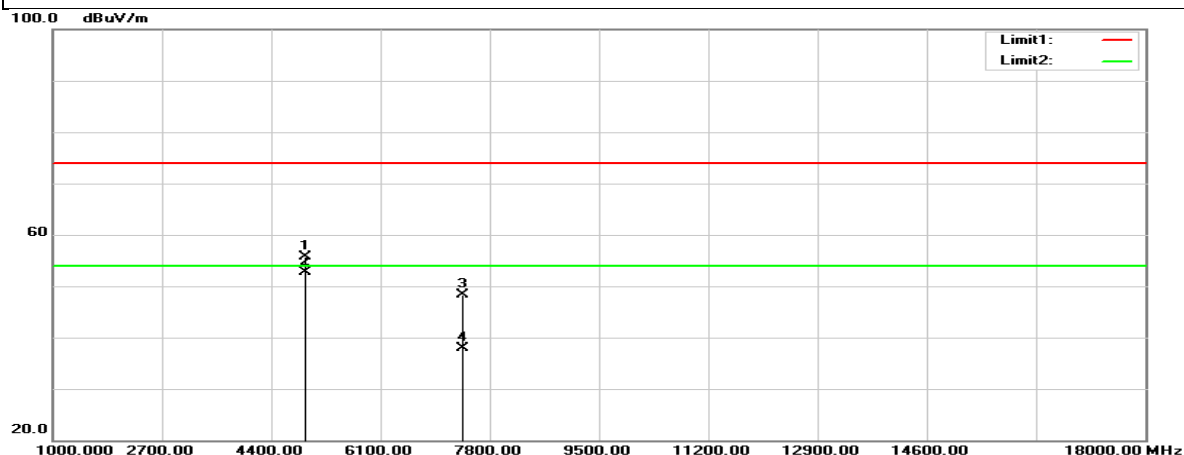
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Other emissions from 18GHz~26.5GHz are 20 dB below the limits. No recording in the test.

Job No.:	RXZ211022002	Ant.Polar.:	Horizontal
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 04:31:01
		Test By:	Howard
Description:	B-TX-2462-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
4924.000	57.43	-1.63	55.80	74.00	-18.20	101	93	peak
4924.000	54.41	-1.63	52.78	54.00	-1.22	101	93	AVG
7386.000	43.13	5.20	48.33	74.00	-25.67	153	145	peak
7386.000	32.67	5.20	37.87	54.00	-16.13	153	145	AVG

Note:

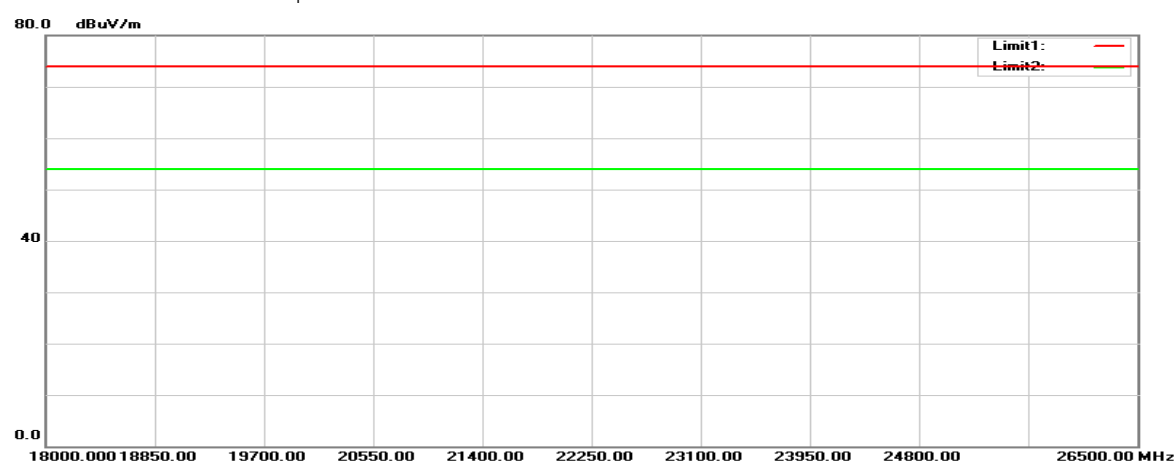
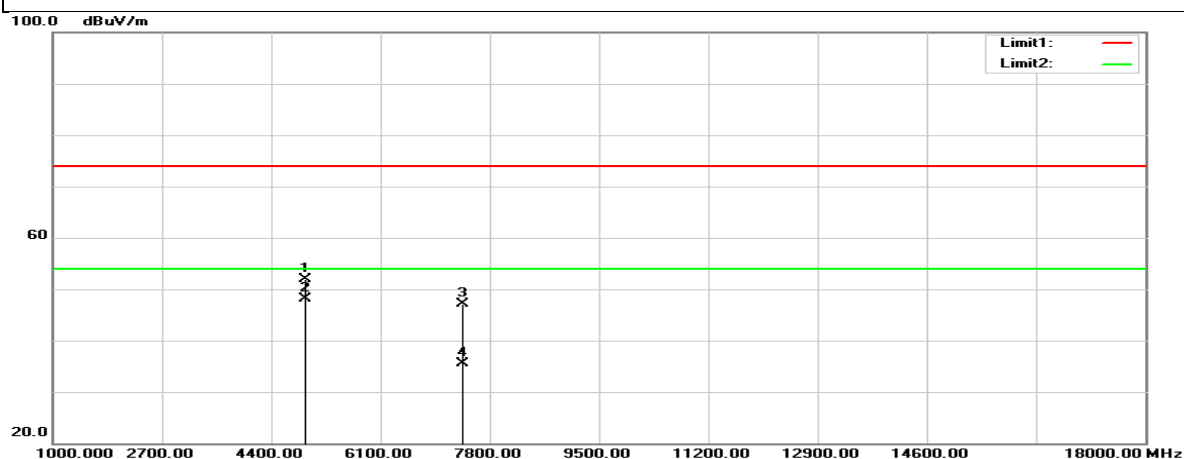
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Other emissions from 18GHz~26.5GHz are 20 dB below the limits. No recording in the test.

Job No.:	RXZ211022002	Ant.Polar.:	Vertical
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 04:25:33
		Test By:	Howard
Description:	B-TX-2462-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
4924.000	53.47	-1.63	51.84	74.00	-22.16	145	185	peak
4924.000	49.72	-1.63	48.09	54.00	-5.91	145	185	AVG
7386.000	41.92	5.20	47.12	74.00	-26.88	156	219	peak
7386.000	30.27	5.20	35.47	54.00	-18.53	156	219	AVG

Note:

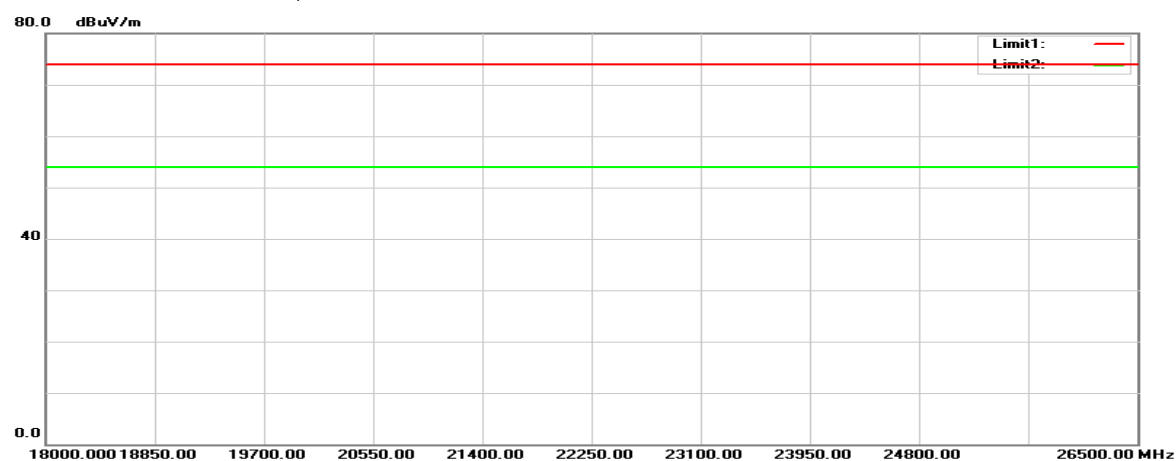
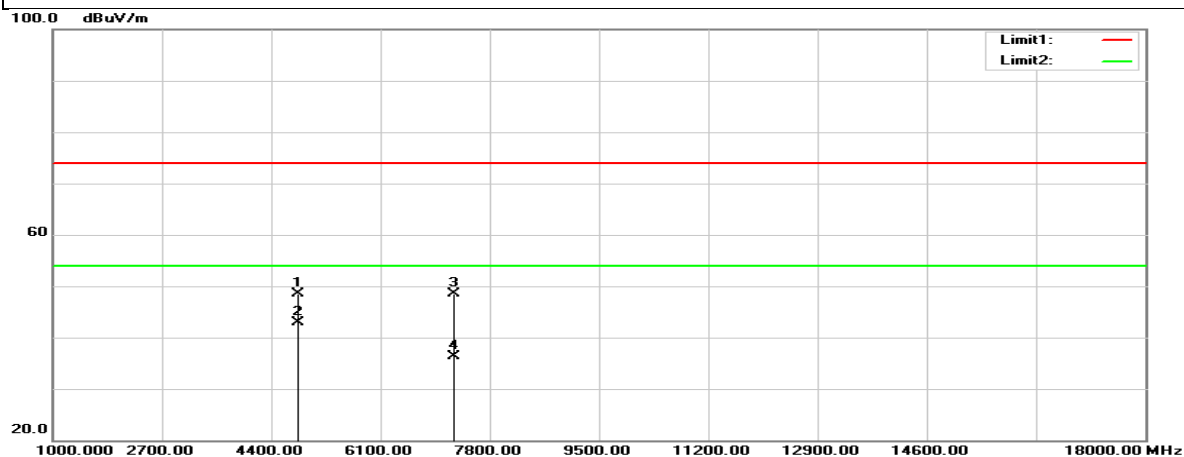
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Other emissions from 18GHz~26.5GHz are 20 dB below the limits. No recording in the test.

Job No.:	RXZ211022002	Ant.Polar.:	Horizontal
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 03:30:15
		Test By:	Howard
Description:	G-TX-2412-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
4824.000	50.59	-2.15	48.44	74.00	-25.56	132	85	peak
4824.000	44.96	-2.15	42.81	54.00	-11.19	132	85	AVG
7236.000	43.98	4.55	48.53	74.00	-25.47	152	284	peak
7236.000	31.68	4.55	36.23	54.00	-17.77	152	284	AVG

Note:

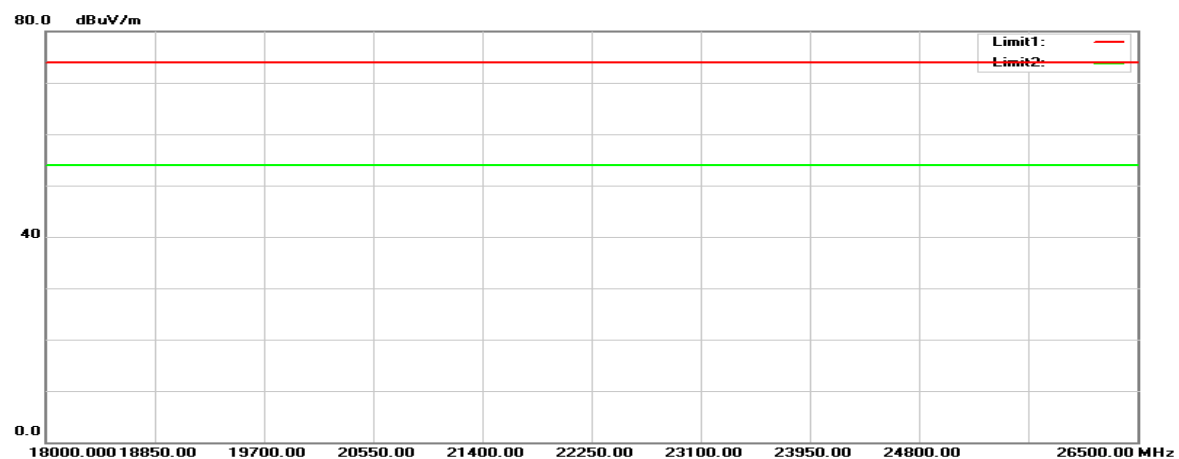
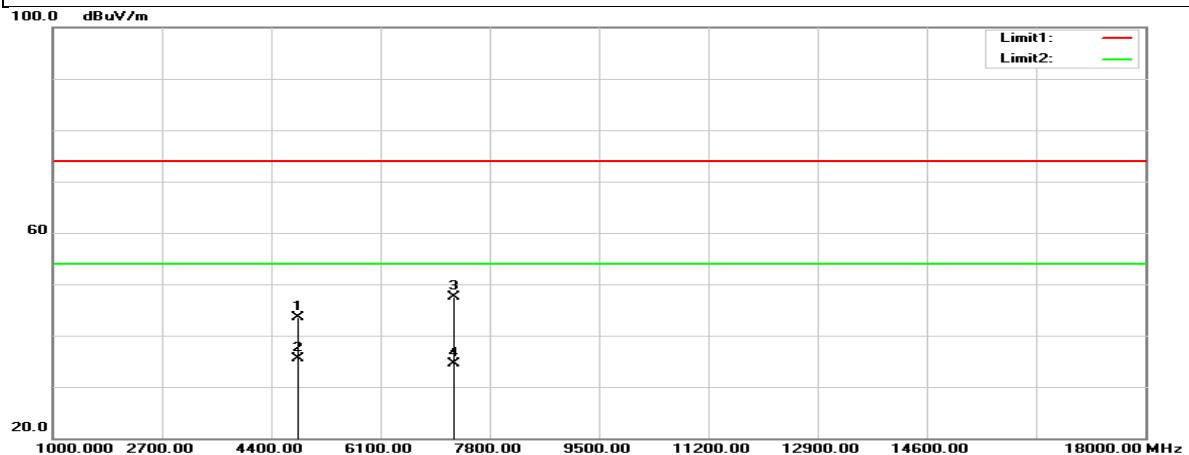
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Other emissions from 18GHz~26.5GHz are 20 dB below the limits. No recording in the test.

Job No.:	RXZ211022002	Ant.Polar.:	Vertical
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 03:25:00
		Test By:	Howard
Description:	G-TX-2412-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
4824.000	45.67	-2.15	43.52	74.00	-30.48	153	184	peak
4824.000	37.69	-2.15	35.54	54.00	-18.46	153	184	AVG
7236.000	42.87	4.55	47.42	74.00	-26.58	147	329	peak
7236.000	29.89	4.55	34.44	54.00	-19.56	147	329	AVG

Note:

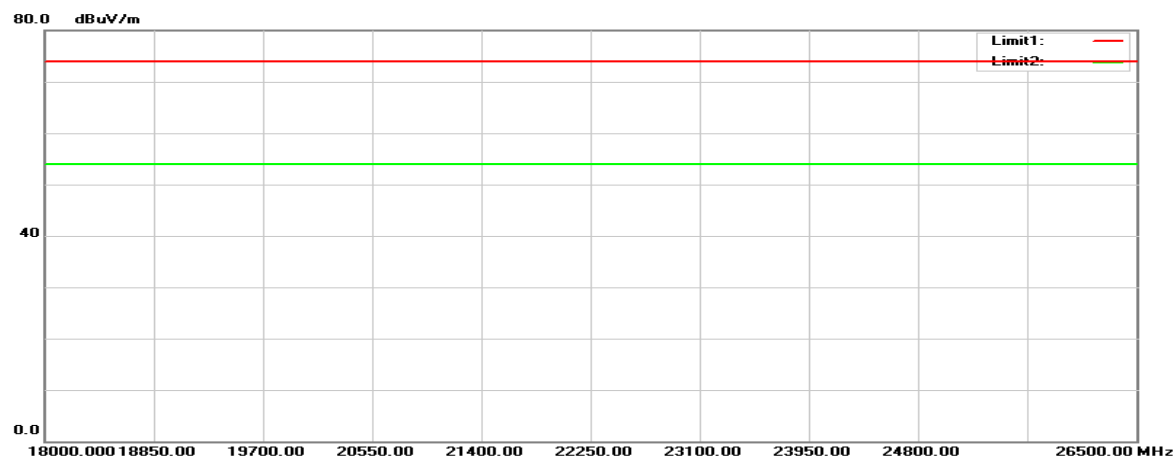
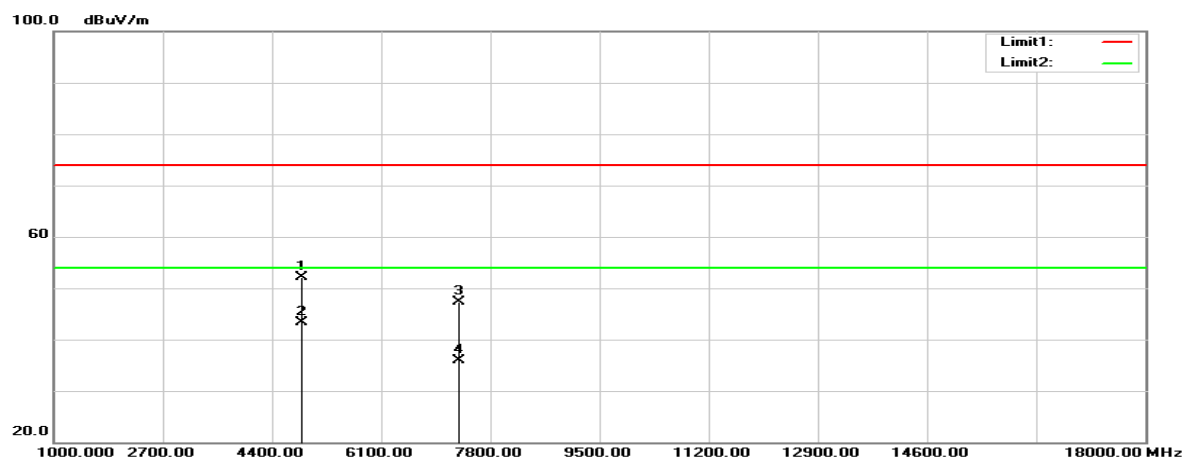
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Other emissions from 18GHz~26.5GHz are 20 dB below the limits. No recording in the test.

Job No.:	RXZ211022002	Ant.Polar.:	Horizontal
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 03:57:50
		Test By:	Howard
Description:	G-TX-2437-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
4874.000	54.10	-1.92	52.18	74.00	-21.82	113	81	peak
4874.000	45.19	-1.92	43.27	54.00	-10.73	113	81	AVG
7311.000	42.29	5.08	47.37	74.00	-26.63	153	247	peak
7311.000	30.73	5.08	35.81	54.00	-18.19	153	247	AVG

Note:

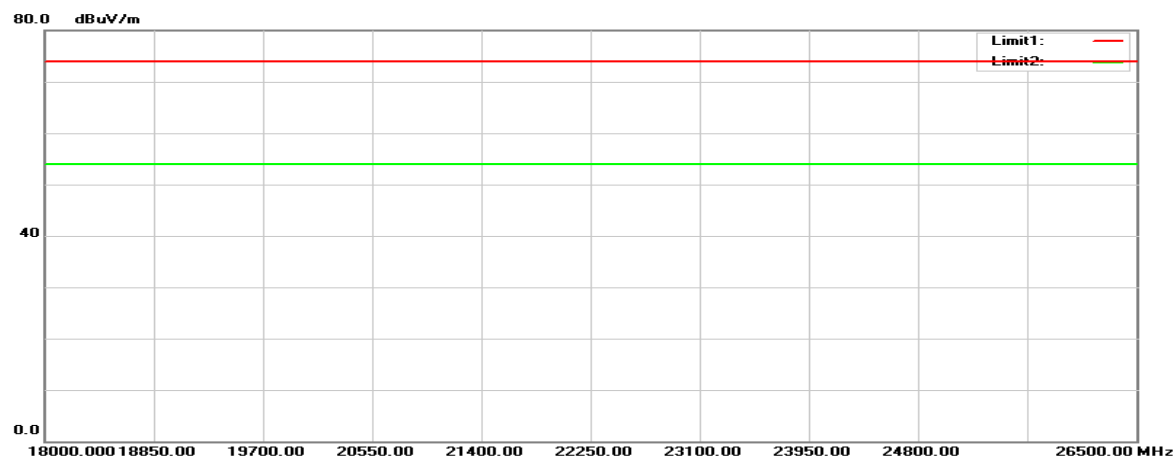
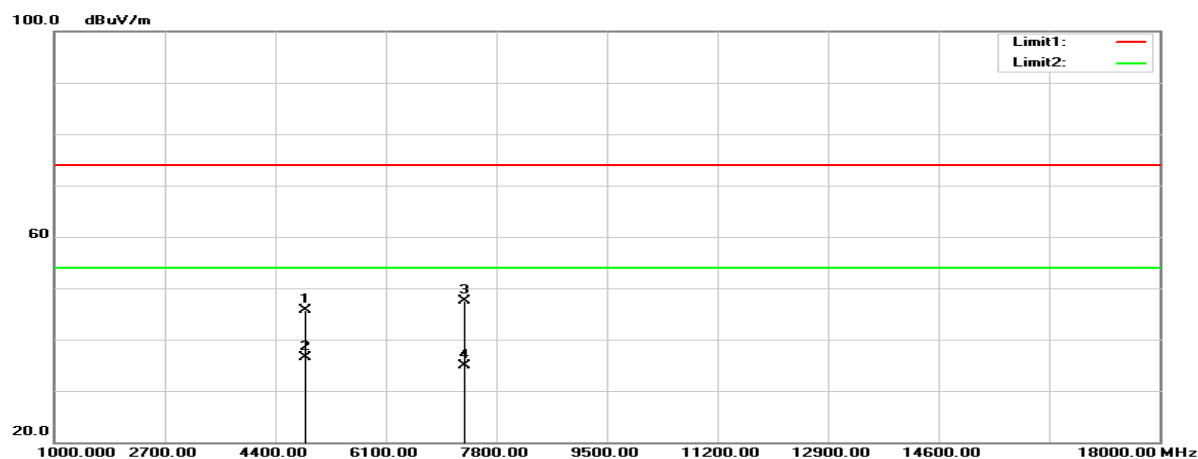
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Other emissions from 18GHz~26.5GHz are 20 dB below the limits. No recording in the test.

Job No.:	RXZ211022002	Ant.Polar.:	Vertical
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 04:02:22
		Test By:	Howard
Description:	G-TX-2437-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
4874.000	47.65	-1.92	45.73	74.00	-28.27	160	177	peak
4874.000	38.49	-1.92	36.57	54.00	-17.43	160	177	AVG
7311.000	42.43	5.08	47.51	74.00	-26.49	146	179	peak
7311.000	29.85	5.08	34.93	54.00	-19.07	146	179	AVG

Note:

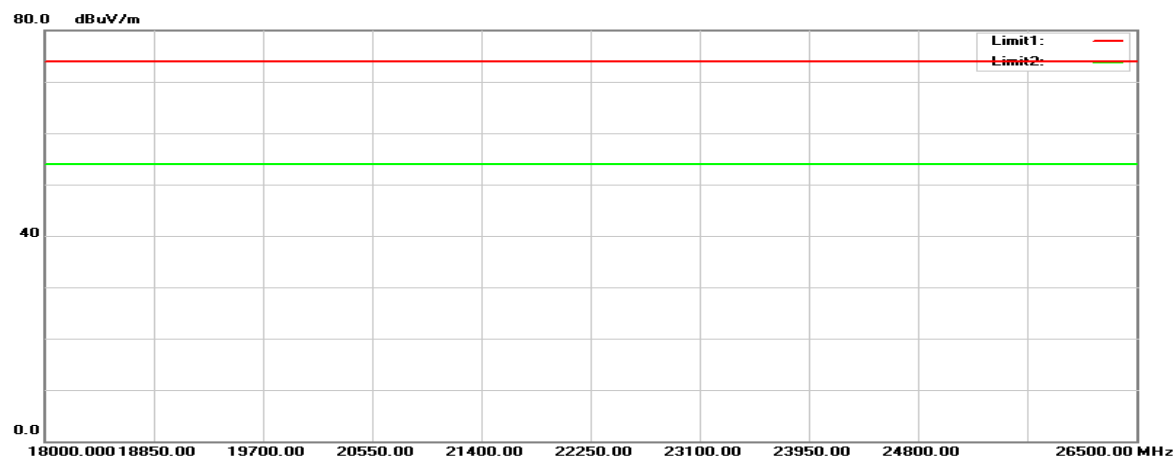
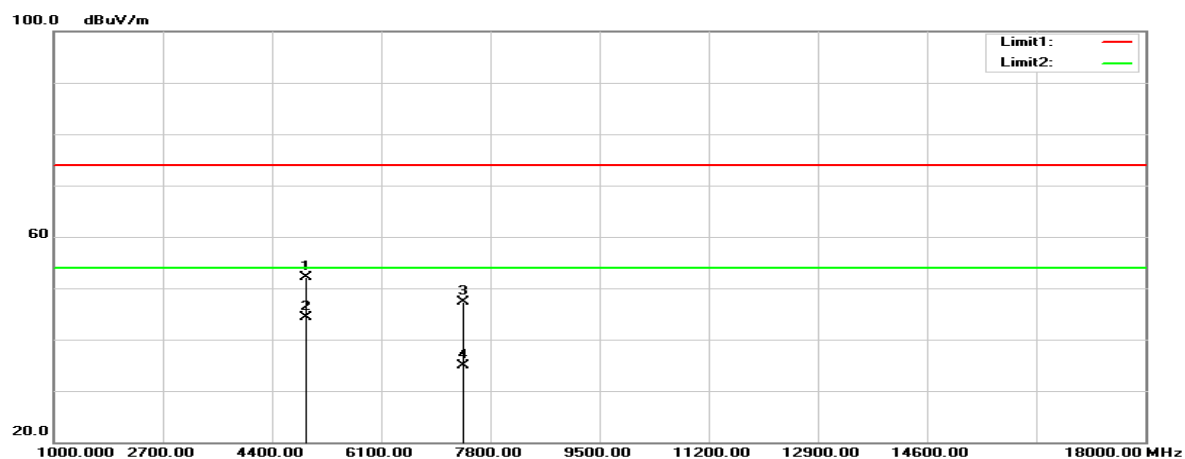
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Other emissions from 18GHz~26.5GHz are 20 dB below the limits. No recording in the test.

Job No.:	RXZ211022002	Ant.Polar.:	Horizontal
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 04:36:41
		Test By:	Howard
Description:	G-TX-2462-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
4924.000	53.73	-1.63	52.10	74.00	-21.90	136	85	peak
4924.000	45.95	-1.63	44.32	54.00	-9.68	136	85	AVG
7386.000	42.20	5.20	47.40	74.00	-26.60	153	197	peak
7386.000	29.79	5.20	34.99	54.00	-19.01	153	197	AVG

Note:

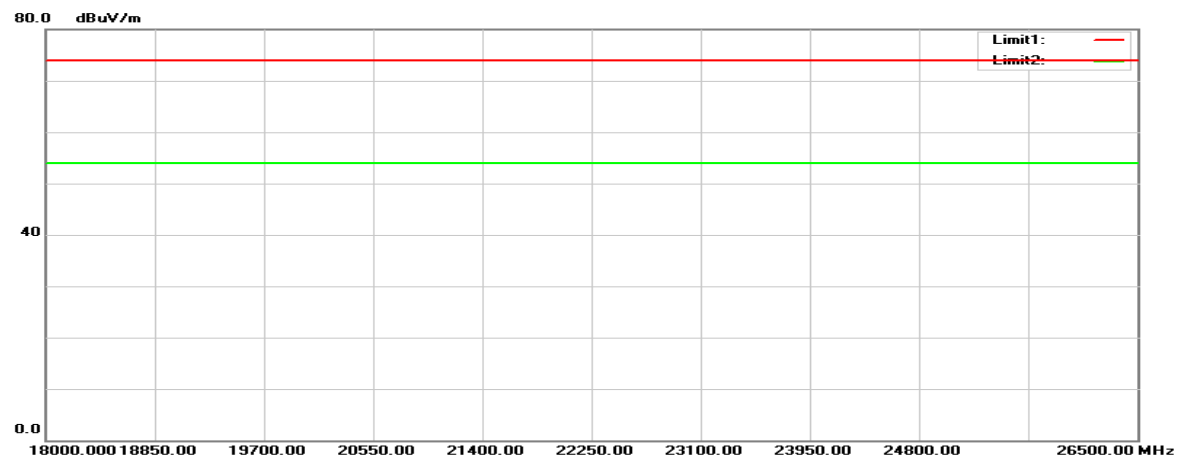
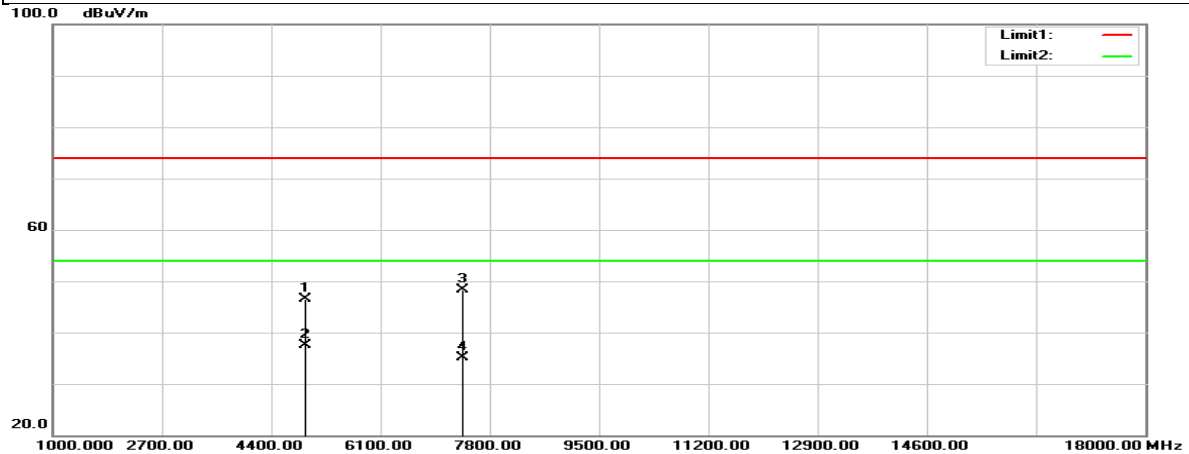
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Other emissions from 18GHz~26.5GHz are 20 dB below the limits. No recording in the test.

Job No.:	RXZ211022002	Ant.Polar.:	Vertical
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 04:41:21
		Test By:	Howard
Description:	G-TX-2462-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
4924.000	48.17	-1.63	46.54	74.00	-27.46	130	183	peak
4924.000	39.16	-1.63	37.53	54.00	-16.47	130	183	AVG
7386.000	43.14	5.20	48.34	74.00	-25.66	157	246	peak
7386.000	29.99	5.20	35.19	54.00	-18.81	157	246	AVG

Note:

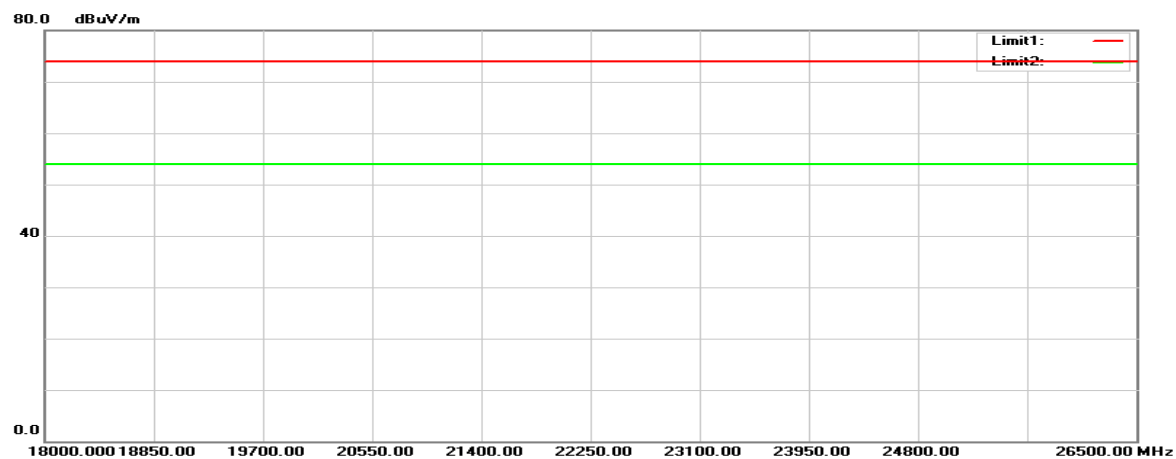
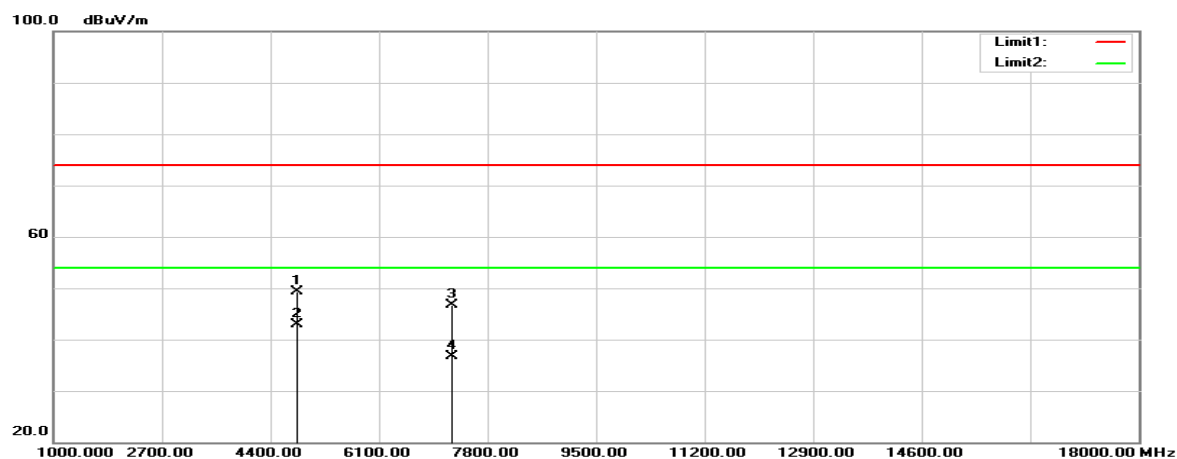
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Other emissions from 18GHz~26.5GHz are 20 dB below the limits. No recording in the test.

Job No.:	RXZ211022002	Ant.Polar.:	Horizontal
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 03:34:32
		Test By:	Howard
Description:	N20-TX-2412-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
4824.000	51.53	-2.15	49.38	74.00	-24.62	114	85	peak
4824.000	45.06	-2.15	42.91	54.00	-11.09	114	85	AVG
7236.000	42.10	4.55	46.65	74.00	-27.35	156	174	peak
7236.000	32.23	4.55	36.78	54.00	-17.22	156	174	AVG

Note:

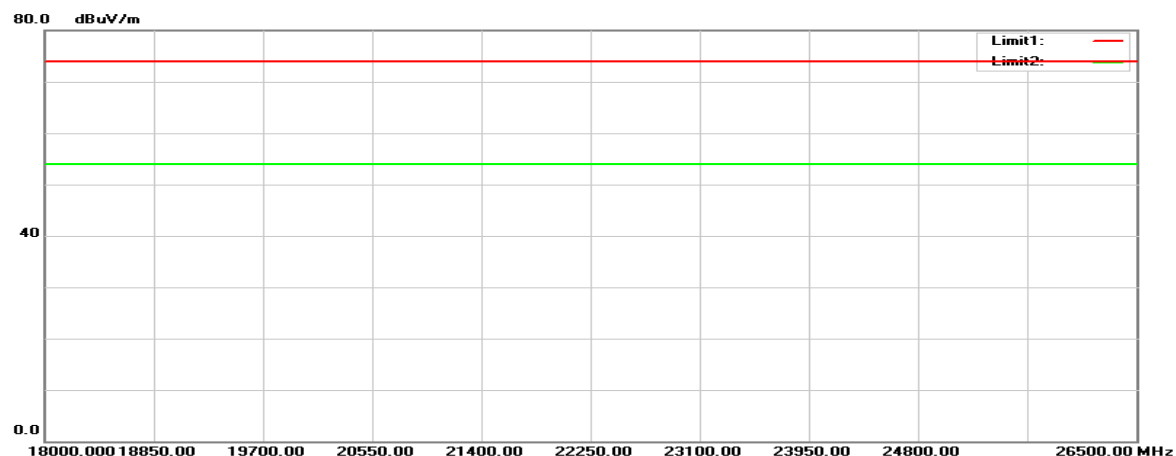
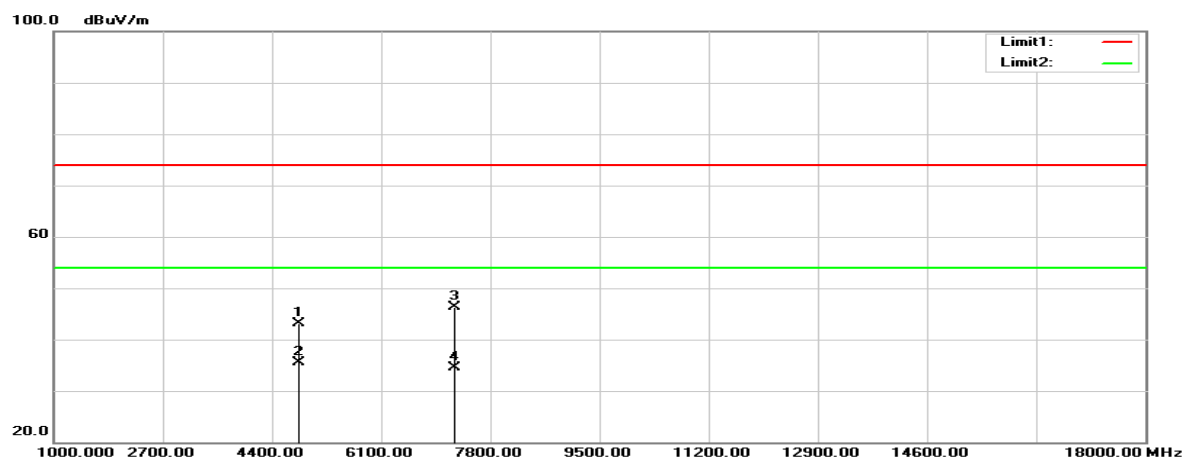
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Other emissions from 18GHz~26.5GHz are 20 dB below the limits. No recording in the test.

Job No.:	RXZ211022002	Ant.Polar.:	Vertical
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 03:38:59
		Test By:	Howard
Description:	N20-TX-2412-X_Axis		



Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
(MHz)	(dBμV)	Factor(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	(cm)	(°)	
4824.000	45.19	-2.15	43.04	74.00	-30.96	150	183	peak
4824.000	37.68	-2.15	35.53	54.00	-18.47	150	183	AVG
7236.000	41.76	4.55	46.31	74.00	-27.69	145	167	peak
7236.000	29.89	4.55	34.44	54.00	-19.56	145	167	AVG

Note:

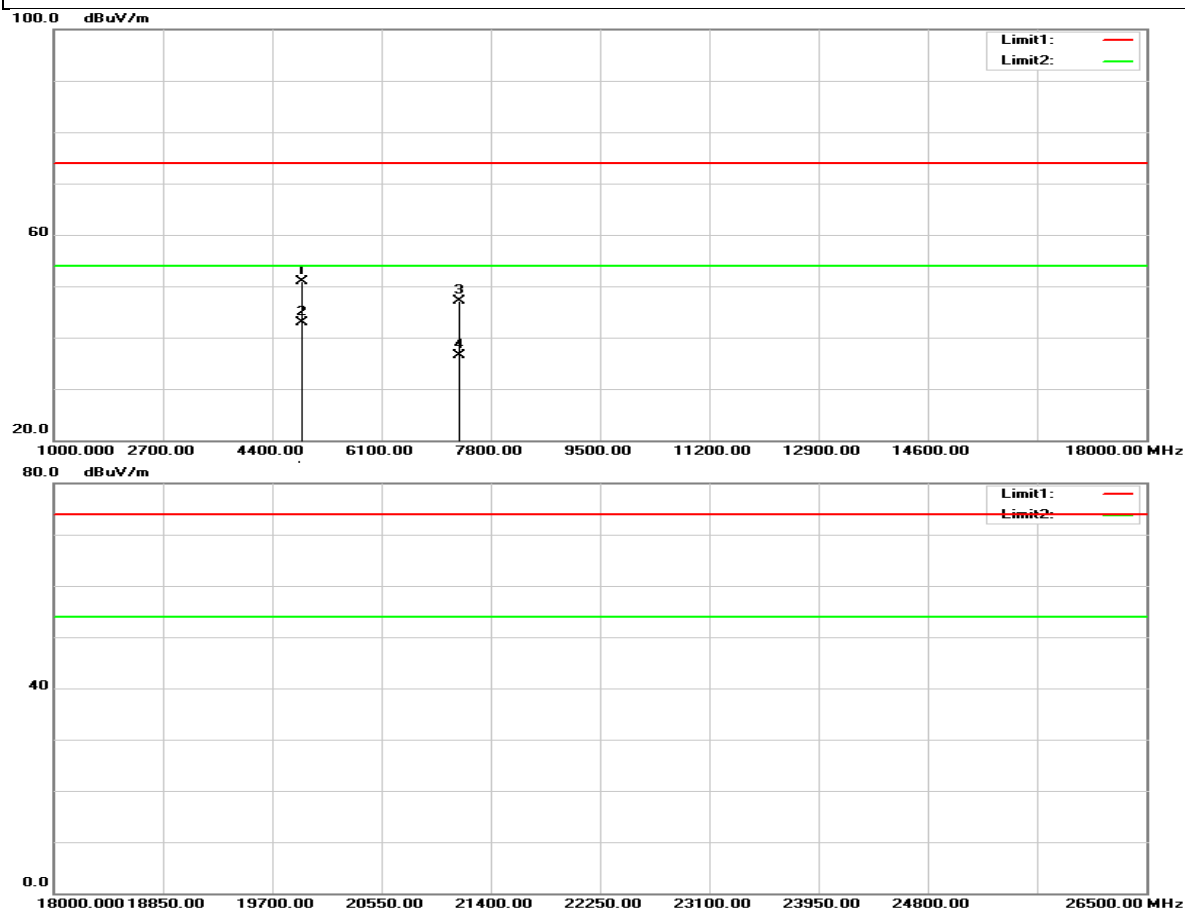
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Other emissions from 18GHz~26.5GHz are 20 dB below the limits. No recording in the test.

Job No.:	RXZ211022002	Ant.Polar.:	Horizontal
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 04:12:18
		Test By:	Howard
Description:	N20-TX-2437-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
4874.000	52.73	-1.92	50.81	74.00	-23.19	100	92	peak
4874.000	44.81	-1.92	42.89	74.00	-31.11	100	92	AVG
7311.000	42.06	5.08	47.14	74.00	-26.86	148	284	peak
7311.000	31.34	5.08	36.42	74.00	-37.58	148	284	AVG

Note:

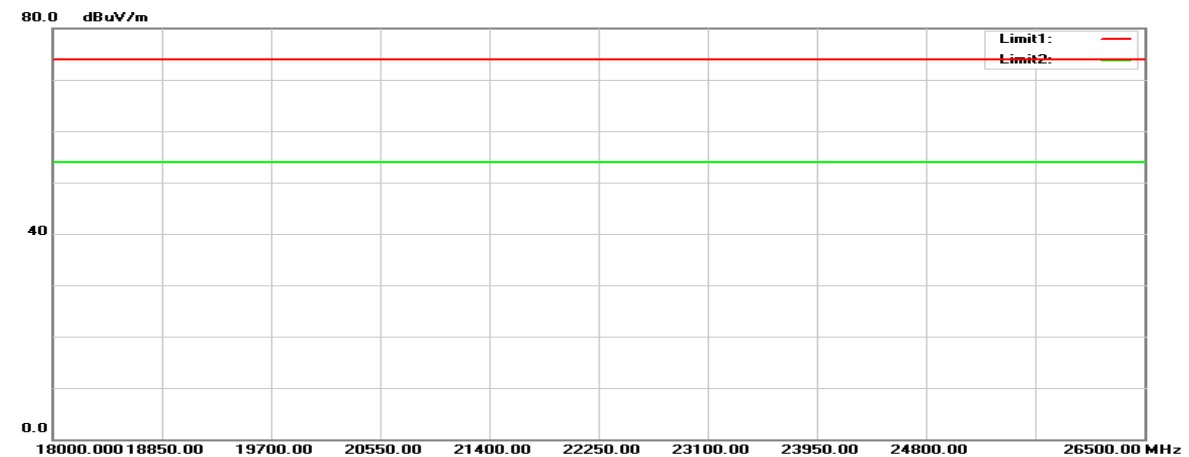
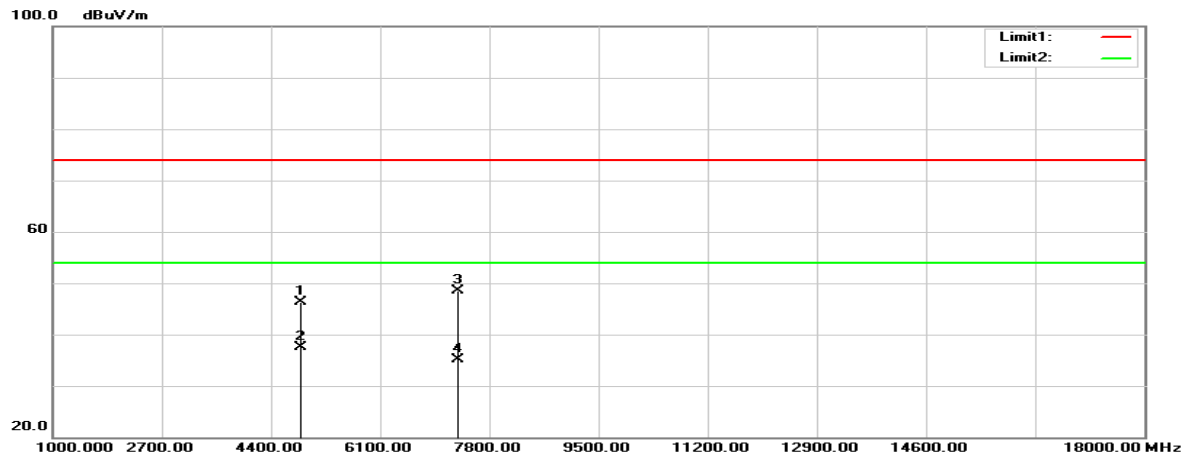
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Other emissions from 18GHz~26.5GHz are 20 dB below the limits. No recording in the test.

Job No.:	RXZ211022002	Ant.Polar.:	Vertical
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 04:07:05
		Test By:	Howard
Description:	N20-TX-2437-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
4874.000	48.19	-1.92	46.27	74.00	-27.73	151	177	peak
4874.000	39.34	-1.92	37.42	54.00	-16.58	151	177	AVG
7311.000	43.38	5.08	48.46	74.00	-25.54	159	238	peak
7311.000	30.07	5.08	35.15	54.00	-18.85	159	238	AVG

Note:

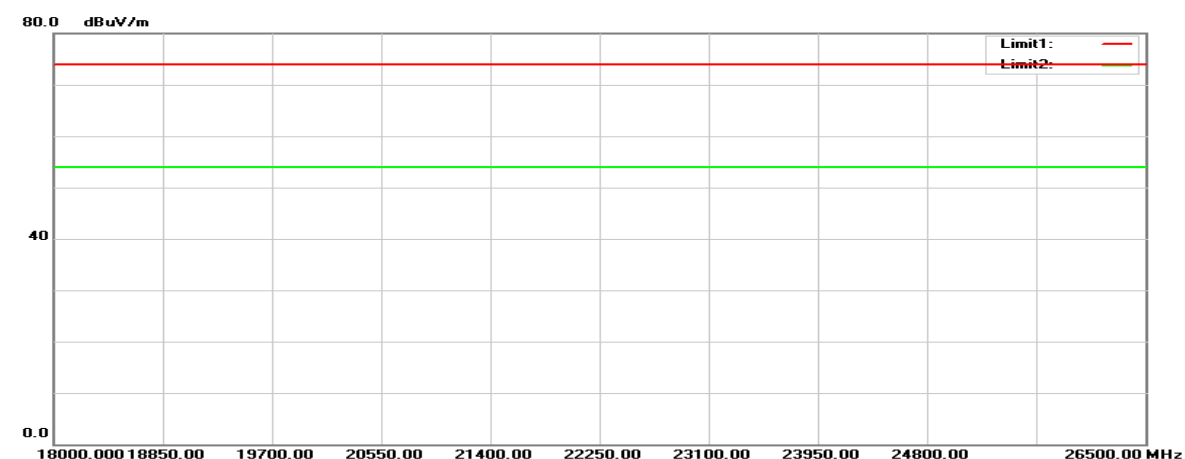
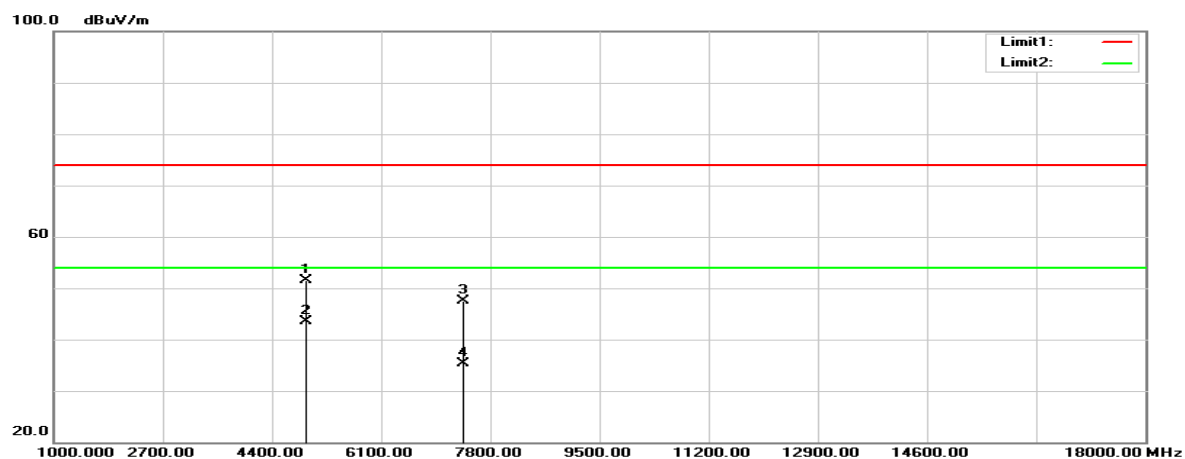
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Other emissions from 18GHz~26.5GHz are 20 dB below the limits. No recording in the test.

Job No.:	RXZ211022002	Ant.Polar.:	Horizontal
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 04:50:29
		Test By:	Howard
Description:	N20-TX-2462-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
4924.000	53.08	-1.63	51.45	74.00	-22.55	122	115	peak
4924.000	45.10	-1.63	43.47	54.00	-10.53	122	115	AVG
7386.000	42.32	5.20	47.52	74.00	-26.48	151	355	peak
7386.000	30.19	5.20	35.39	54.00	-18.61	151	355	AVG

Note:

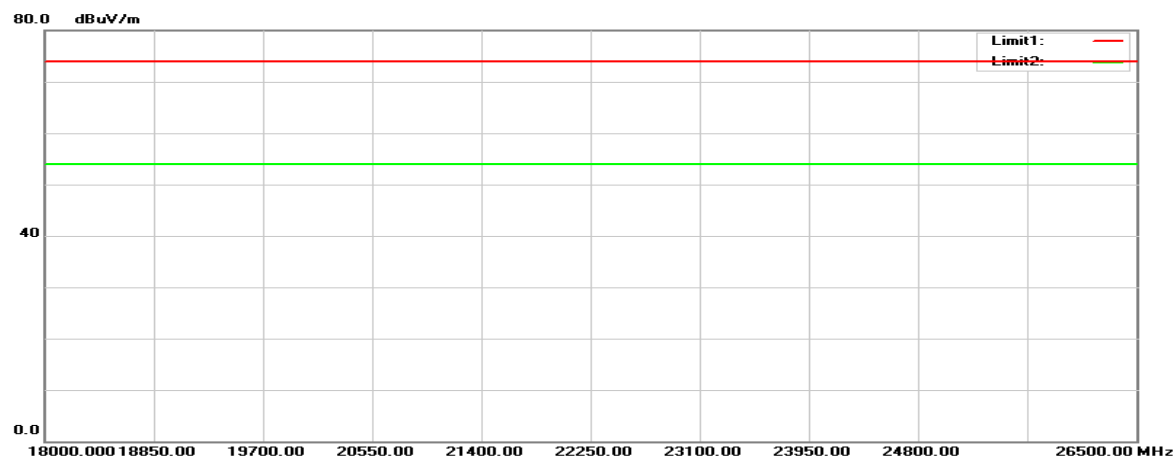
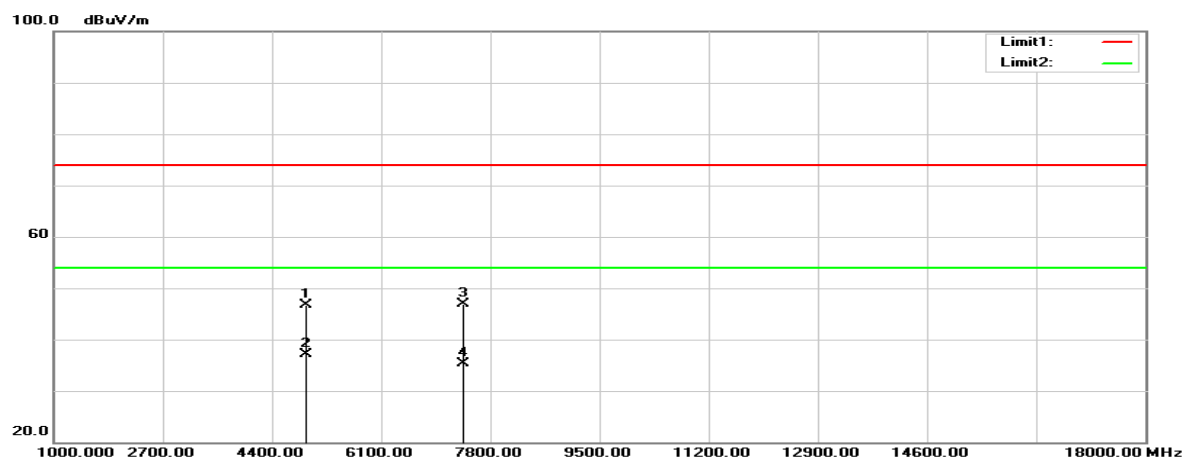
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Other emissions from 18GHz~26.5GHz are 20 dB below the limits. No recording in the test.

Job No.:	RXZ211022002	Ant.Polar.:	Vertical
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 04:45:57
		Test By:	Howard
Description:	N20-TX-2462-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
4924.000	48.37	-1.63	46.74	74.00	-27.26	150	296	peak
4924.000	38.81	-1.63	37.18	54.00	-16.82	150	296	AVG
7386.000	41.76	5.20	46.96	74.00	-27.04	143	174	peak
7386.000	30.04	5.20	35.24	54.00	-18.76	143	174	AVG

Note:

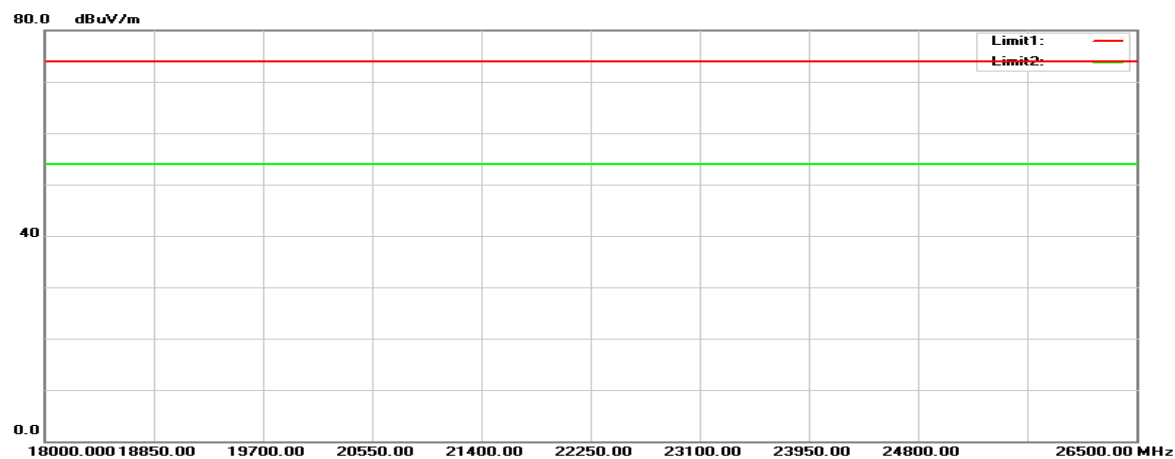
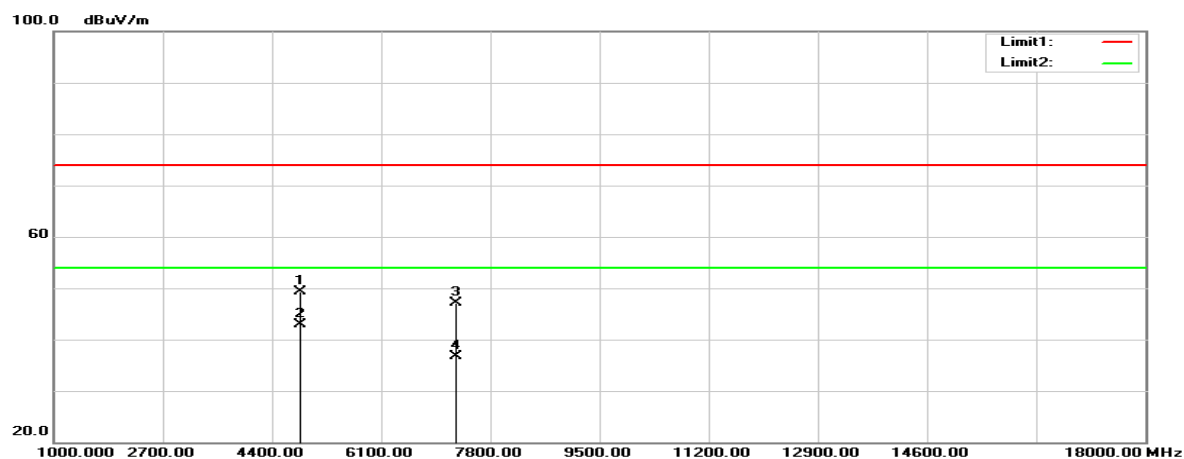
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Other emissions from 18GHz~26.5GHz are 20 dB below the limits. No recording in the test.

Job No.:	RXZ211022002	Ant.Polar.:	Horizontal
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 05:06:26
		Test By:	Howard
Description:	N40-TX-2422-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
4844.000	51.42	-2.11	49.31	74.00	-24.69	106	94	peak
4844.000	44.92	-2.11	42.81	54.00	-11.19	106	94	AVG
7266.000	42.36	4.83	47.19	74.00	-26.81	141	254	peak
7266.000	31.84	4.83	36.67	54.00	-17.33	141	254	AVG

Note:

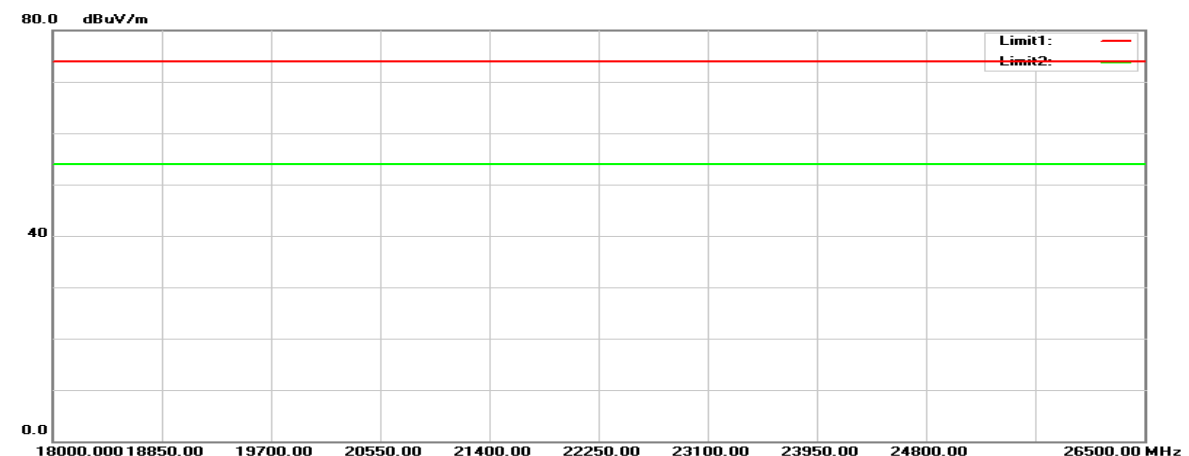
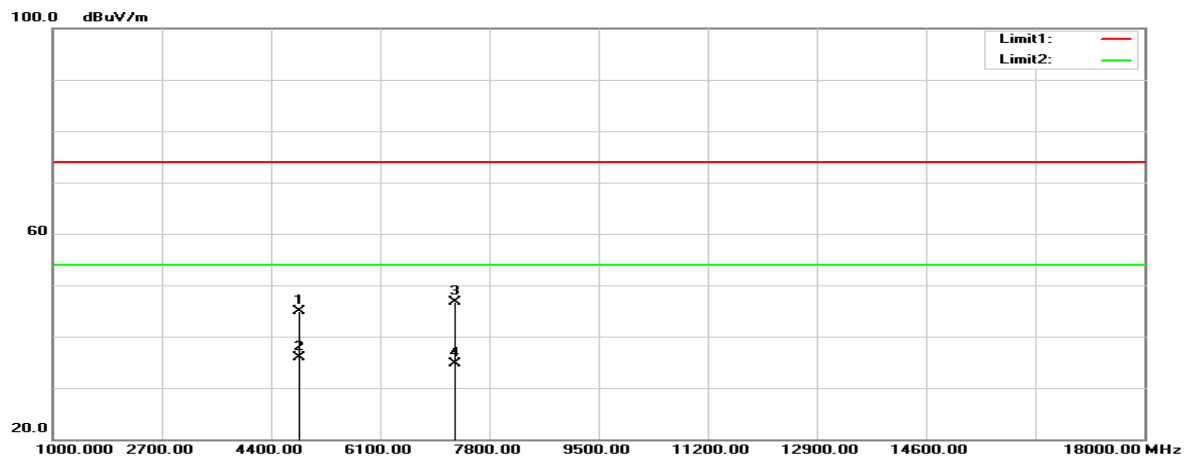
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Other emissions from 18GHz~26.5GHz are 20 dB below the limits. No recording in the test.

Job No.:	RXZ211022002	Ant.Polar.:	Vertical
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 05:00:12
		Test By:	Howard
Description:	N40-TX-2422-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
4844.000	46.99	-2.11	44.88	74.00	-29.12	152	179	peak
4844.000	37.97	-2.11	35.86	54.00	-18.14	152	179	AVG
7266.000	41.84	4.83	46.67	74.00	-27.33	145	117	peak
7266.000	29.81	4.83	34.64	54.00	-19.36	145	117	AVG

Note:

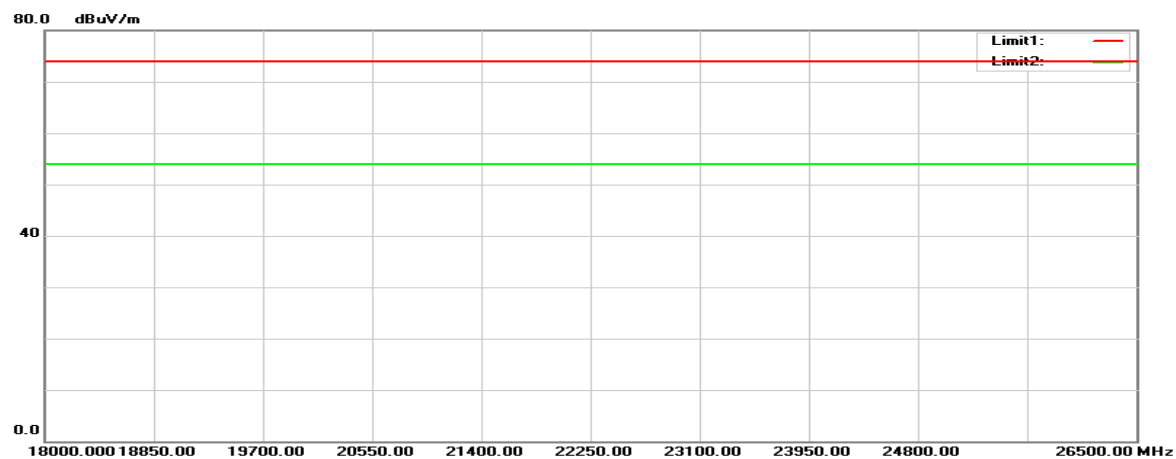
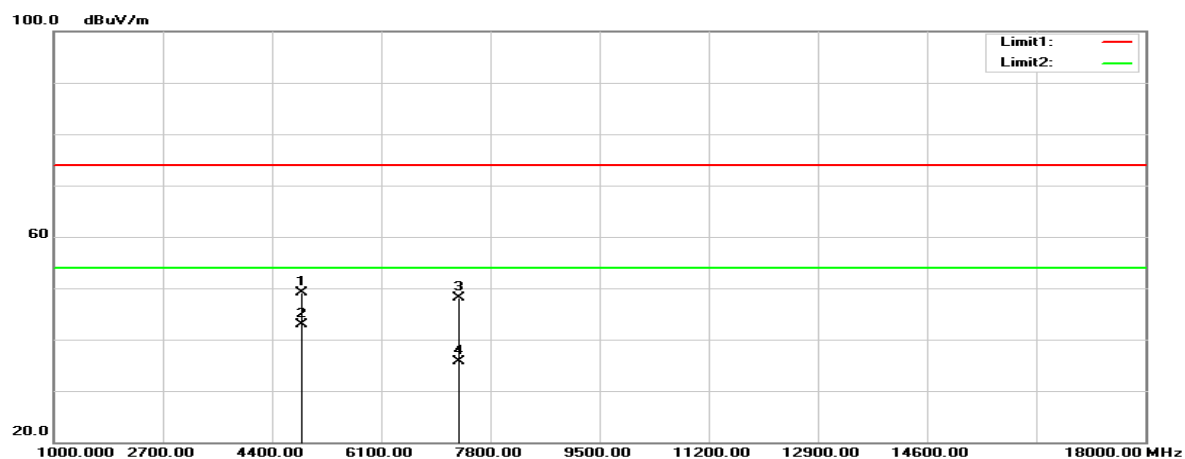
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Other emissions from 18GHz~26.5GHz are 20 dB below the limits. No recording in the test.

Job No.:	RXZ211022002	Ant.Polar.:	Horizontal
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 04:16:47
		Test By:	Howard
Description:	N40-TX-2437-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
4874.000	51.11	-1.92	49.19	74.00	-24.81	133	94	peak
4874.000	44.77	-1.92	42.85	54.00	-11.15	133	94	AVG
7311.000	42.93	5.08	48.01	74.00	-25.99	153	319	peak
7311.000	30.58	5.08	35.66	54.00	-18.34	153	319	AVG

Note:

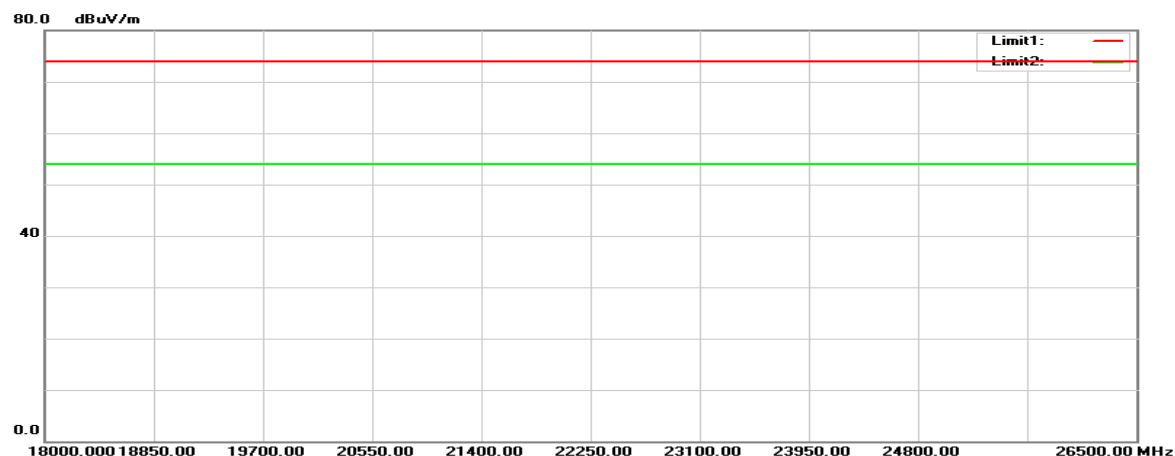
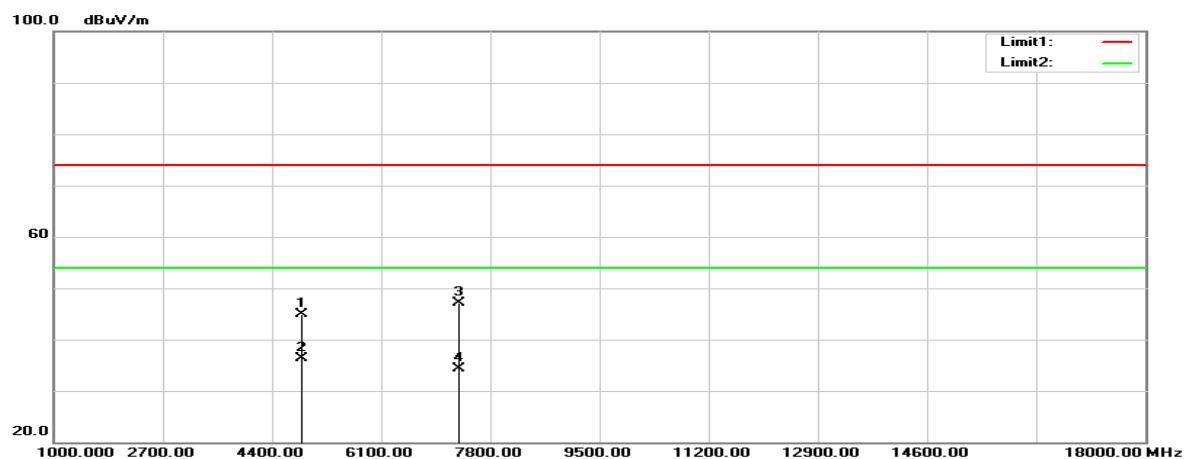
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Other emissions from 18GHz~26.5GHz are 20 dB below the limits. No recording in the test.

Job No.:	RXZ211022002	Ant.Polar.:	Vertical
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 04:21:08
		Test By:	Howard
Description:	N40-TX-2437-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
4874.000	46.74	-1.92	44.82	74.00	-29.18	150	180	peak
4874.000	38.27	-1.92	36.35	54.00	-17.65	150	180	AVG
7311.000	42.00	5.08	47.08	74.00	-26.92	142	217	peak
7311.000	29.29	5.08	34.37	54.00	-19.63	142	217	AVG

Note:

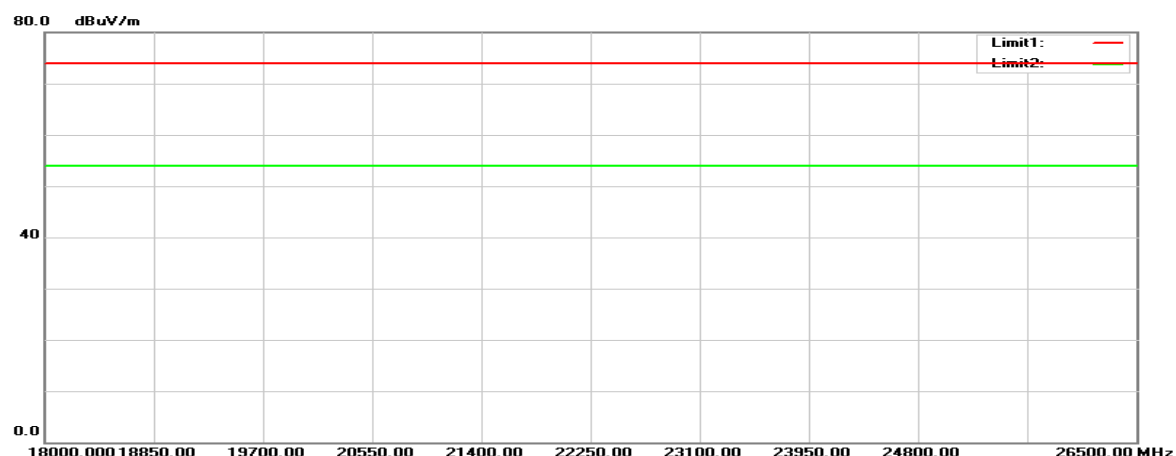
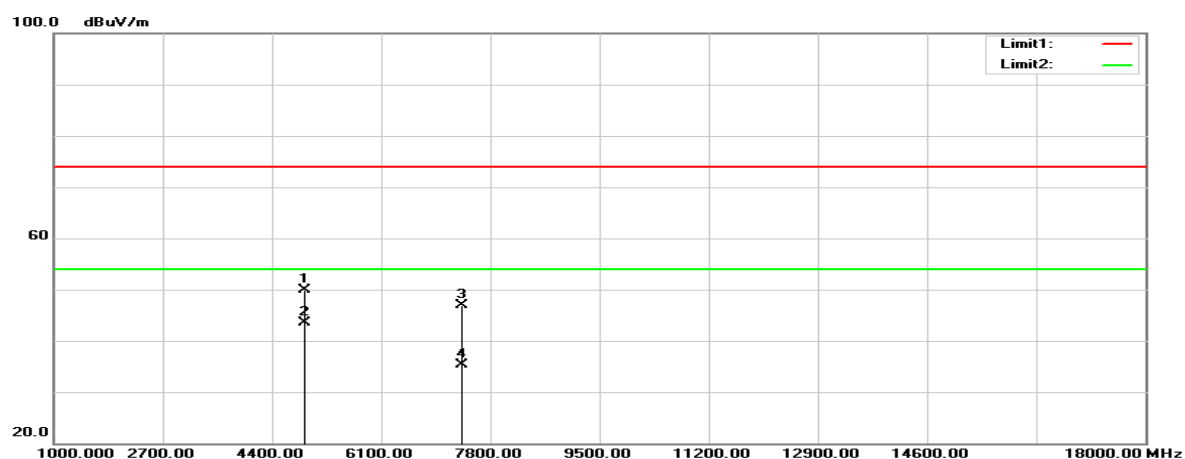
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Other emissions from 18GHz~26.5GHz are 20 dB below the limits. No recording in the test.

Job No.:	RXZ211022002	Ant.Polar.:	Horizontal
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 05:38:00
		Test By:	Howard
Description:	N40-TX-2452-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
4904.000	51.52	-1.71	49.81	74.00	-24.19	133	84	peak
4904.000	45.30	-1.71	43.59	54.00	-10.41	133	84	AVG
7356.000	41.65	5.18	46.83	74.00	-27.17	154	216	peak
7356.000	30.08	5.18	35.26	54.00	-18.74	154	216	AVG

Note:

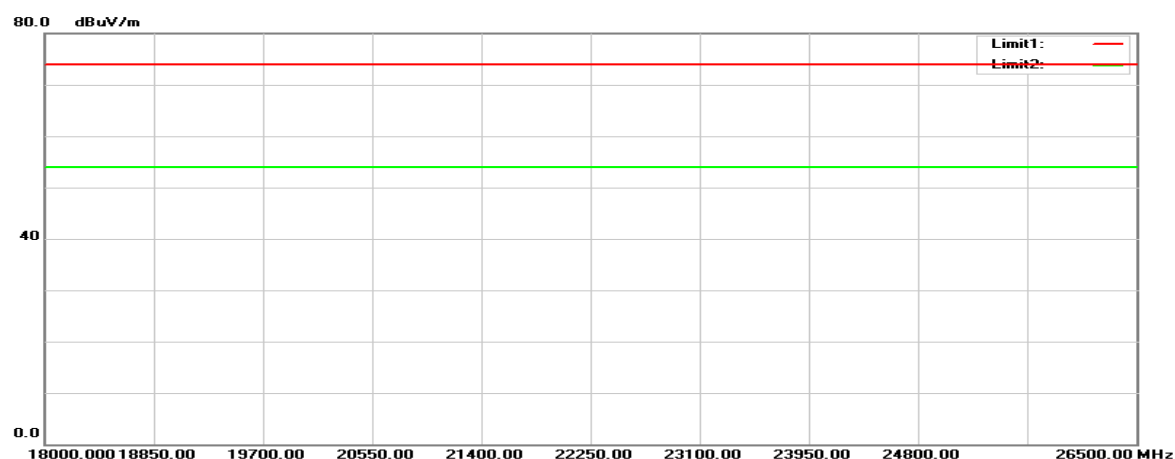
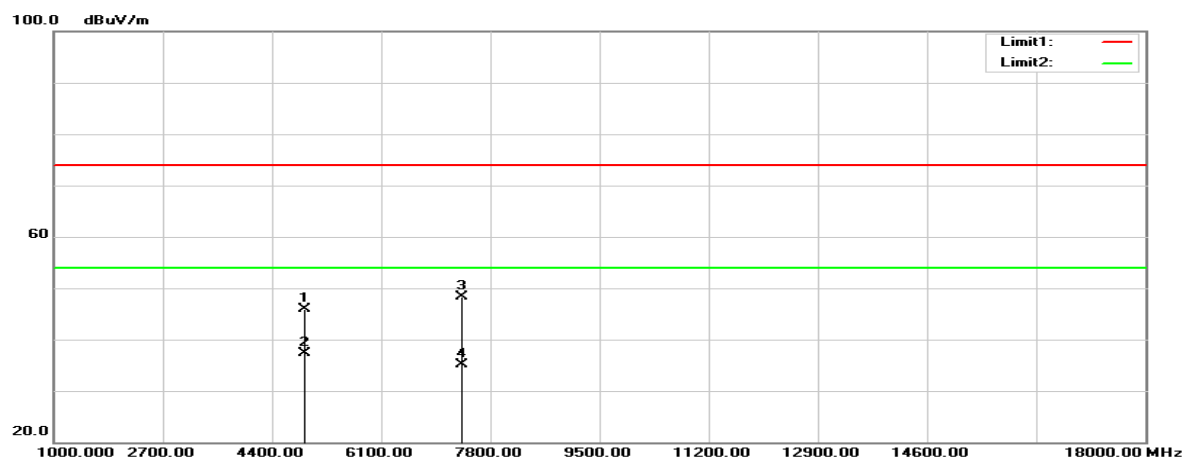
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Other emissions from 18GHz~26.5GHz are 20 dB below the limits. No recording in the test.

Job No.:	RXZ211022002	Ant.Polar.:	Vertical
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 05:43:31
		Test By:	Howard
Description:	N40-TX-2452-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
4904.000	47.54	-1.71	45.83	74.00	-28.17	150	179	peak
4904.000	38.95	-1.71	37.24	54.00	-16.76	150	179	AVG
7356.000	43.21	5.18	48.39	74.00	-25.61	156	317	peak
7356.000	29.90	5.18	35.08	54.00	-18.92	156	317	AVG

Note:

Result = Reading + Correct Factor

Margin = Result – Limit

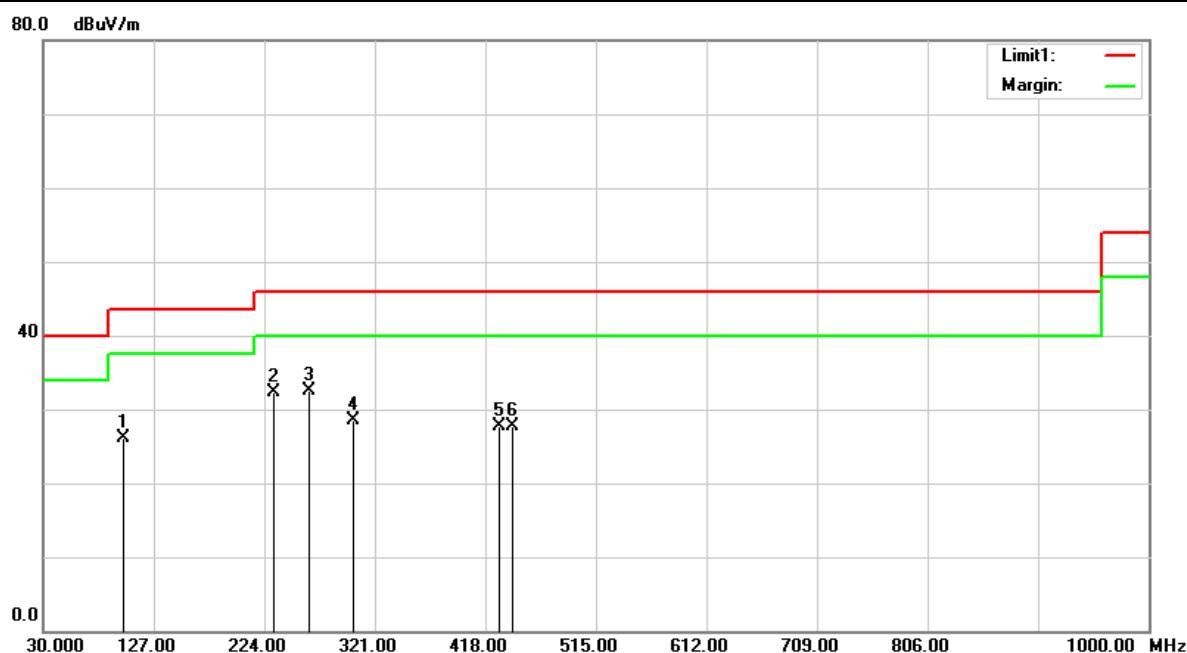
Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Other emissions from 18GHz~26.5GHz are 20 dB below the limits. No recording in the test.

接收機其它不必要之訊號 (RX / 1GHz 以下)

場強輻射之量測值

Job No.:	RXZ211022002	Ant.Polar.:	Horizontal
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	25.1(°C)/64%RH	Date:2021/11/16	Time:上午 09:30:25
		Test By:	Howard
Description:	B-RX-2412-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
99.8400	40.26	-14.06	26.20	43.50	-17.30	100	214	peak
232.7300	44.90	-12.54	32.36	46.00	-13.64	100	147	peak
263.7700	43.61	-11.06	32.55	46.00	-13.45	100	111	peak
301.6000	38.47	-10.06	28.41	46.00	-17.59	100	125	peak
430.6100	34.51	-6.90	27.61	46.00	-18.39	100	15	peak
442.2500	34.28	-6.62	27.66	46.00	-18.34	100	61	peak

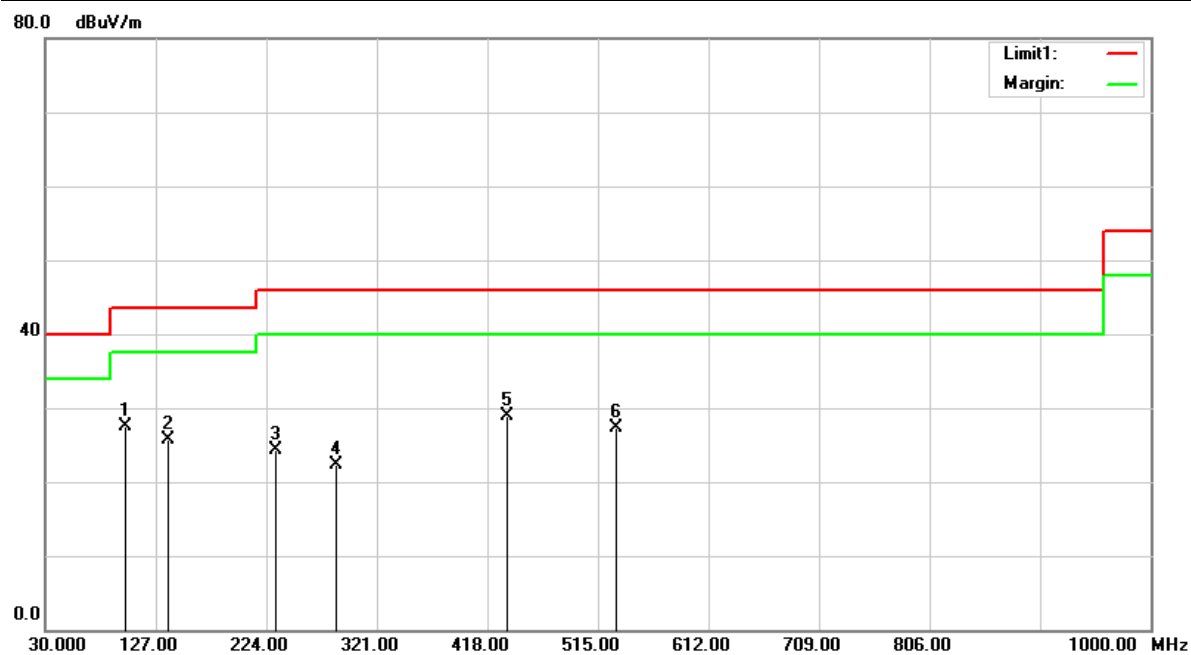
Note:

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Job No.:	RXZ211022002	Ant.Polar.:	Vertical
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	25.1(°C)/64%RH	Date:2021/11/16	Time:上午 09:28:07
		Test By:	Howard
Description:	B-RX-2412-X_Axis		



Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
(MHz)	(dBμV)	Factor(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	(cm)	(°)	
99.8400	41.57	-14.06	27.51	43.50	-15.99	100	254	peak
137.6700	36.43	-10.66	25.77	43.50	-17.73	100	124	peak
232.7300	36.89	-12.54	24.35	46.00	-21.65	100	148	peak
285.1100	32.57	-10.20	22.37	46.00	-23.63	100	52	peak
435.4600	35.68	-6.71	28.97	46.00	-17.03	100	65	peak
531.4900	33.03	-5.63	27.40	46.00	-18.60	100	154	peak

Note:

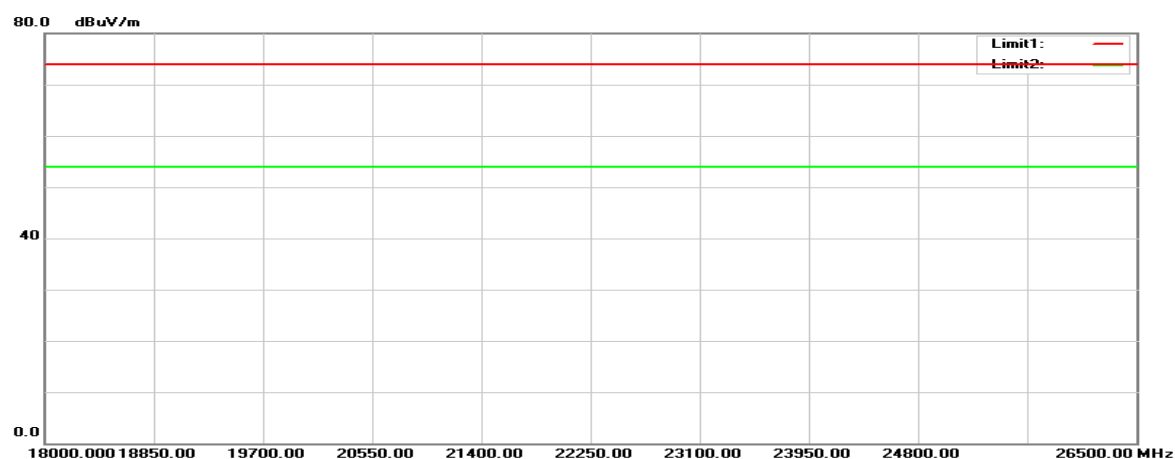
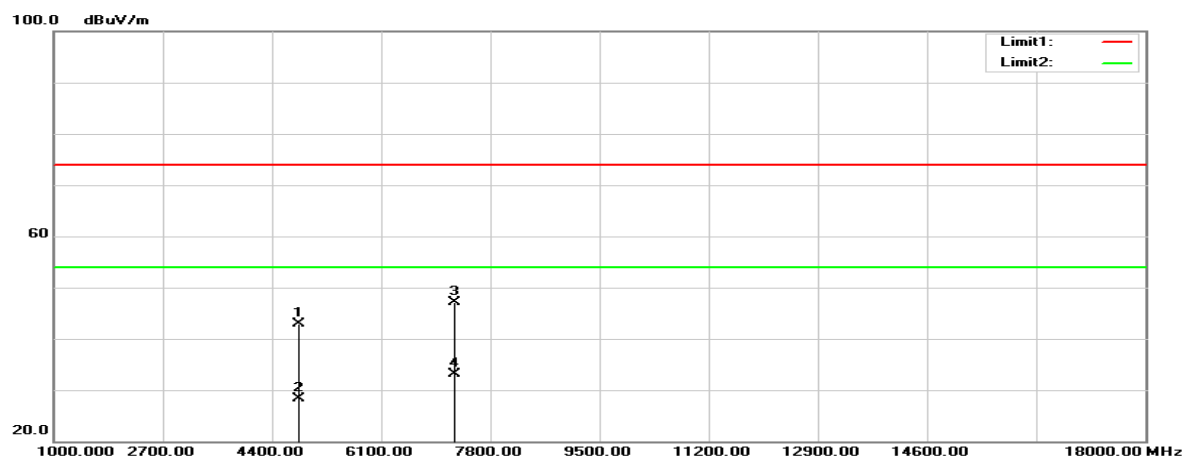
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

場強輻射之量測值 (RX / 1GHz 以上)

Job No.:	RXZ211022002	Ant.Polar.:	Horizontal
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	25.1(°C)/64%RH	Date:2021/11/16	Time:上午 09:50:11
		Test By:	Howard
Description:	B-RX-2412-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
4824.000	44.98	-2.15	42.83	74.00	-31.17	150	24	peak
4824.000	30.39	-2.15	28.24	54.00	-25.76	150	24	AVG
7236.000	42.50	4.55	47.05	74.00	-26.95	150	145	peak
7236.000	28.61	4.55	33.16	54.00	-20.84	150	145	AVG

Note:

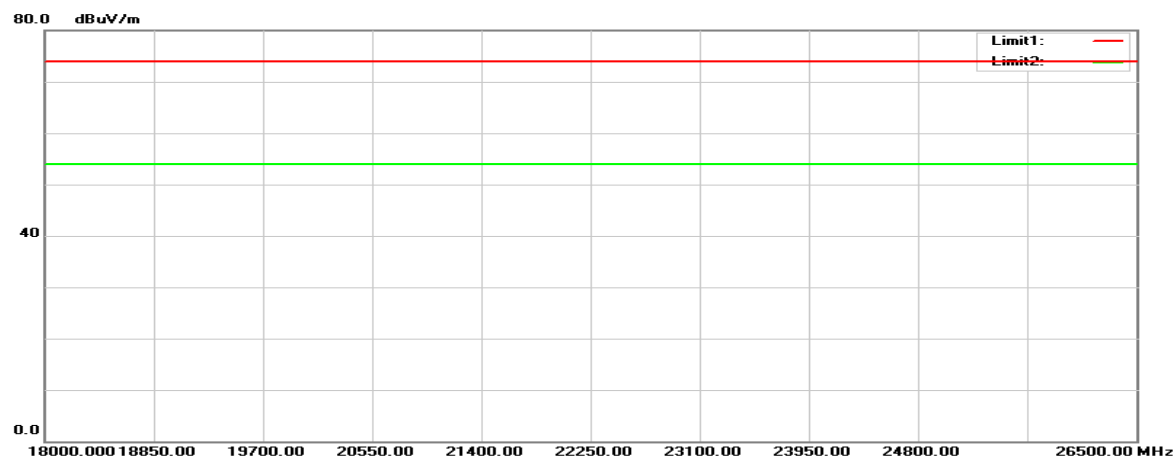
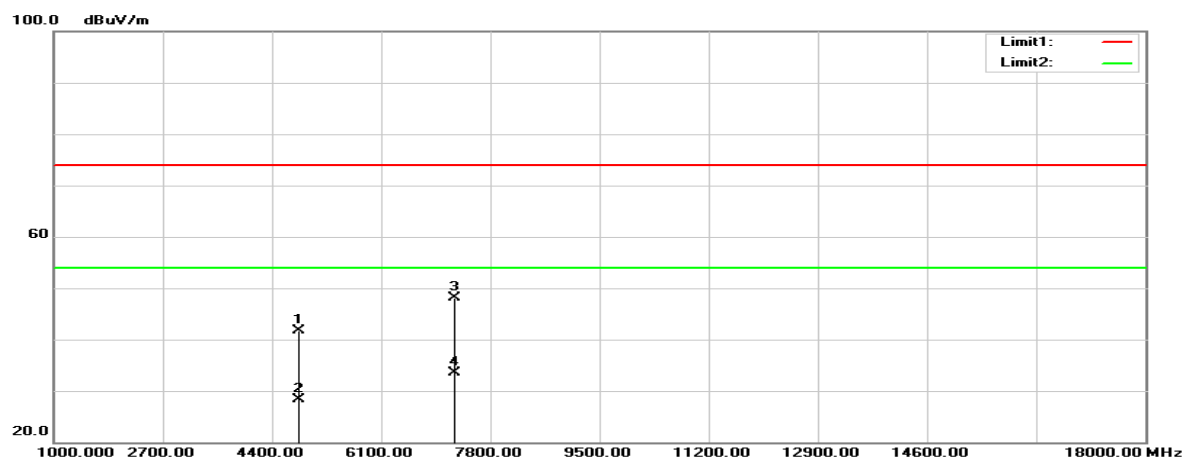
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Other emissions from 18GHz~26.5GHz are 20 dB below the limits. No recording in the test.

Job No.:	RXZ211022002	Ant.Polar.:	Vertical
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	25.1(°C)/64%RH	Date:2021/11/16	Time:上午 09:57:47
		Test By:	Howard
Description:	B-RX-2412-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
4824.000	43.86	-2.15	41.71	74.00	-32.29	150	241	peak
4824.000	30.39	-2.15	28.24	54.00	-25.76	150	241	AVG
7236.000	43.56	4.55	48.11	74.00	-25.89	150	265	peak
7236.000	29.04	4.55	33.59	54.00	-20.41	150	265	AVG

Note:

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

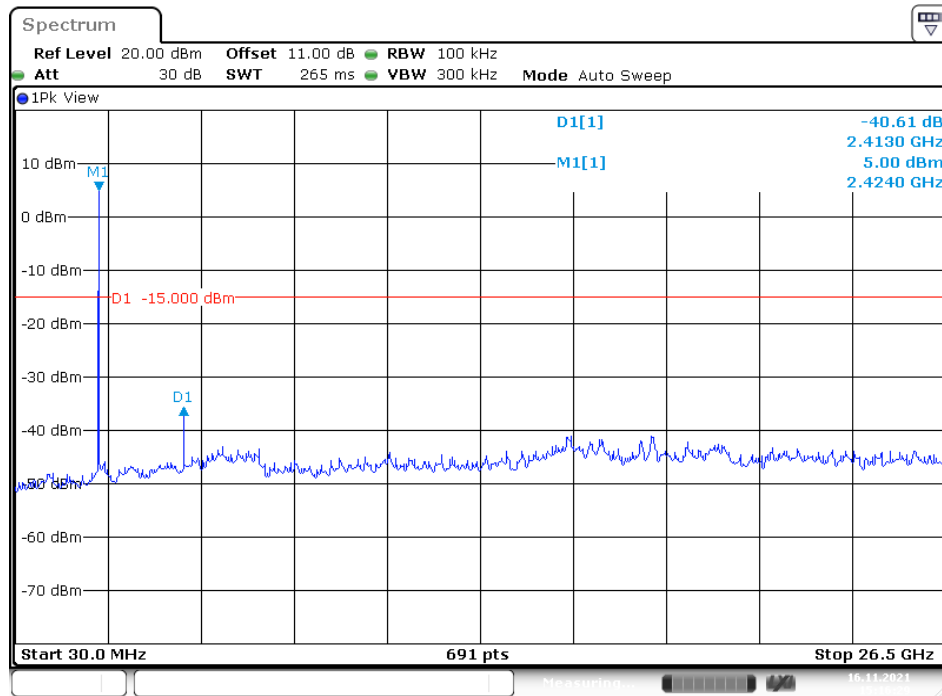
Other emissions from 18GHz~26.5GHz are 20 dB below the limits. No recording in the test.

Conducted Spurious Emissions:

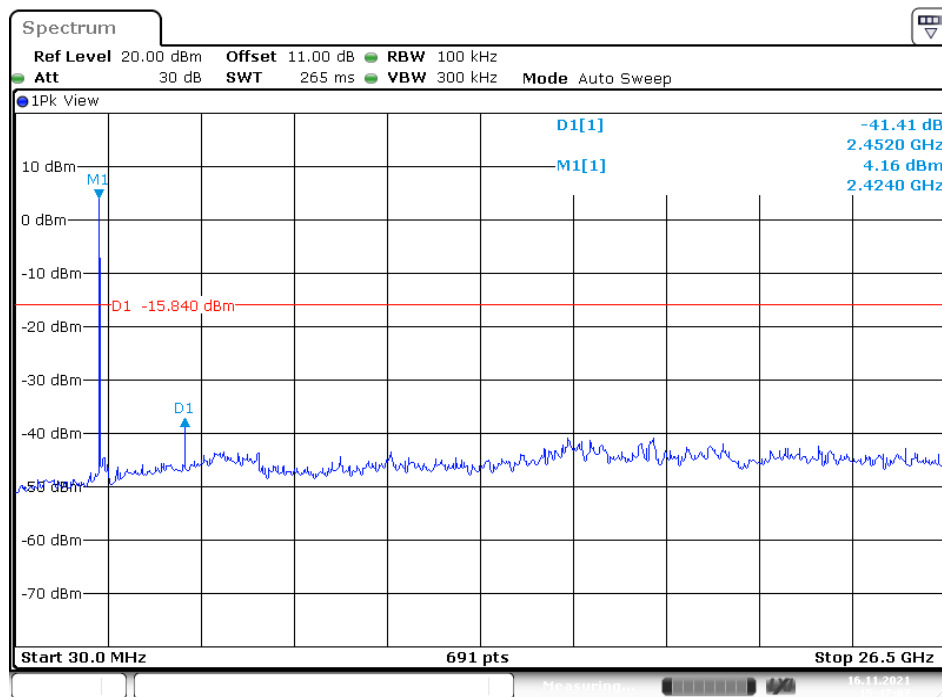
環境溫度	24.6°C~24.7°C	測試日期	2021 年 11 月 16 日 ~2021 年 11 月 17 日
環境濕度	53%~55%	測試人員	余梓誠

Channel	Frequency (MHz)	Delta Peak to Band Emission (dBc)	Limit (dBc)	Result
B mode				
Low	2412	40.61	≥ 20	PASS
Mid	2437	41.41	≥ 20	PASS
High	2462	43.50	≥ 20	PASS
G mode				
Low	2412	36.60	≥ 20	PASS
Mid	2437	37.47	≥ 20	PASS
High	2462	35.72	≥ 20	PASS
N20 mode				
Low	2412	35.32	≥ 20	PASS
Mid	2437	39.18	≥ 20	PASS
High	2462	36.43	≥ 20	PASS
N40 mode				
Low	2422	36.41	≥ 20	PASS
Mid	2437	34.15	≥ 20	PASS
High	2452	35.53	≥ 20	PASS

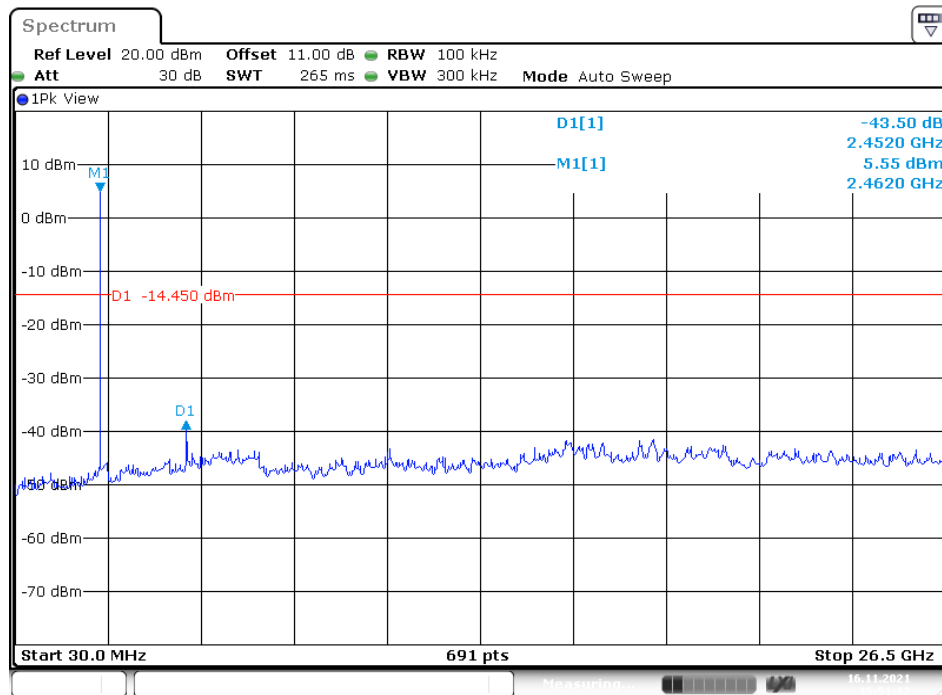
B Mode Low Channel



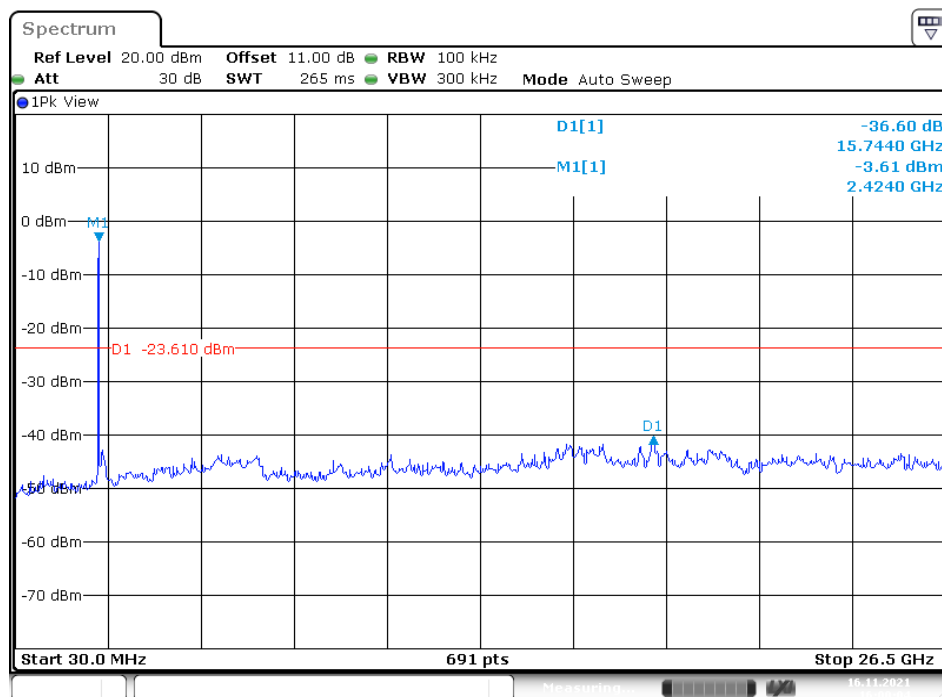
B Mode Middle Channel



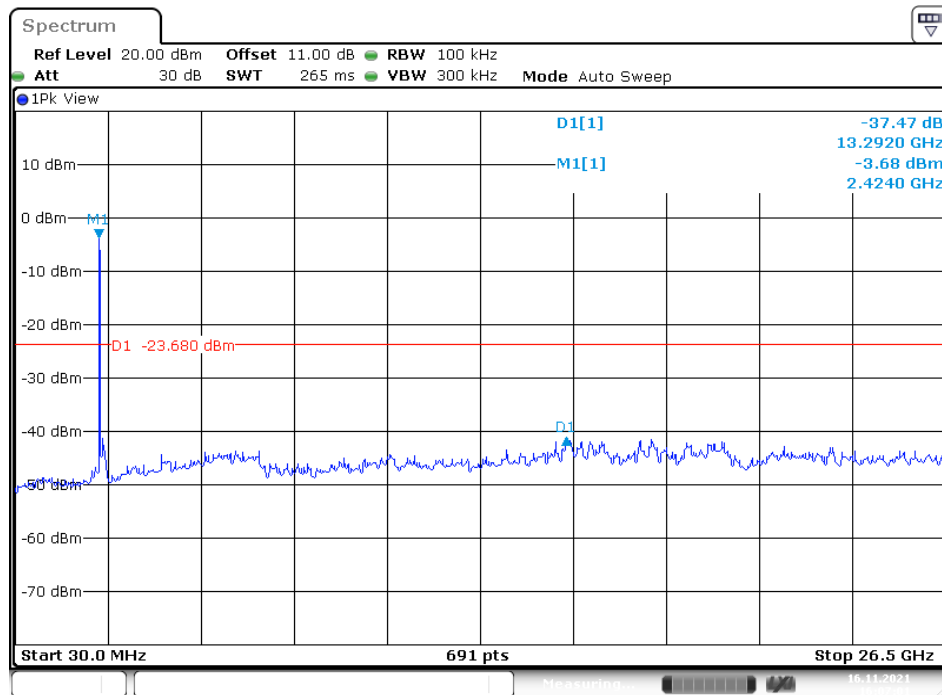
B Mode High Channel



G Mode Low Channel

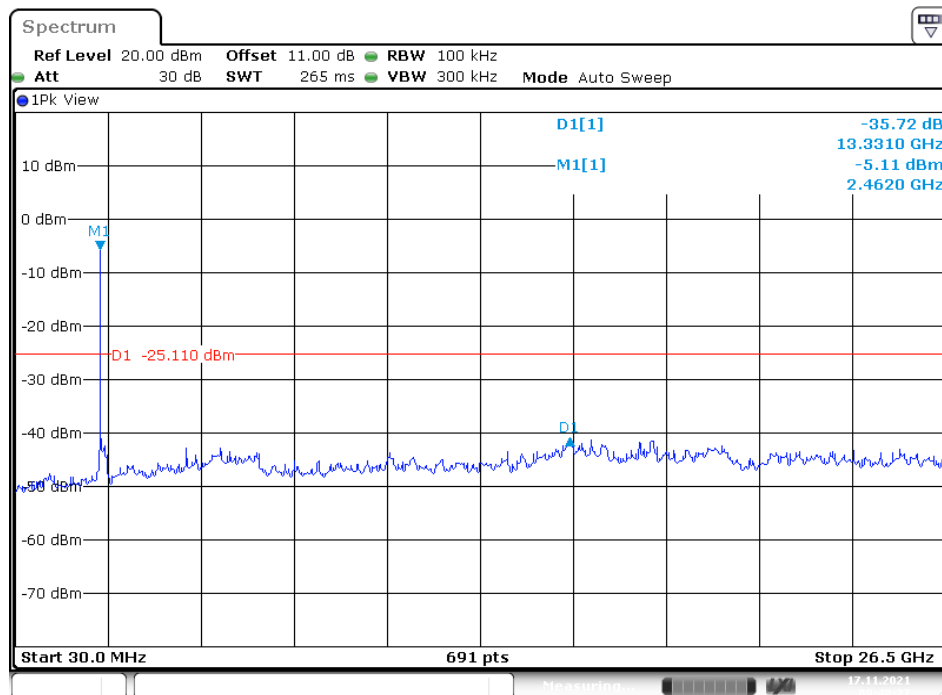


G Mode Middle Channel



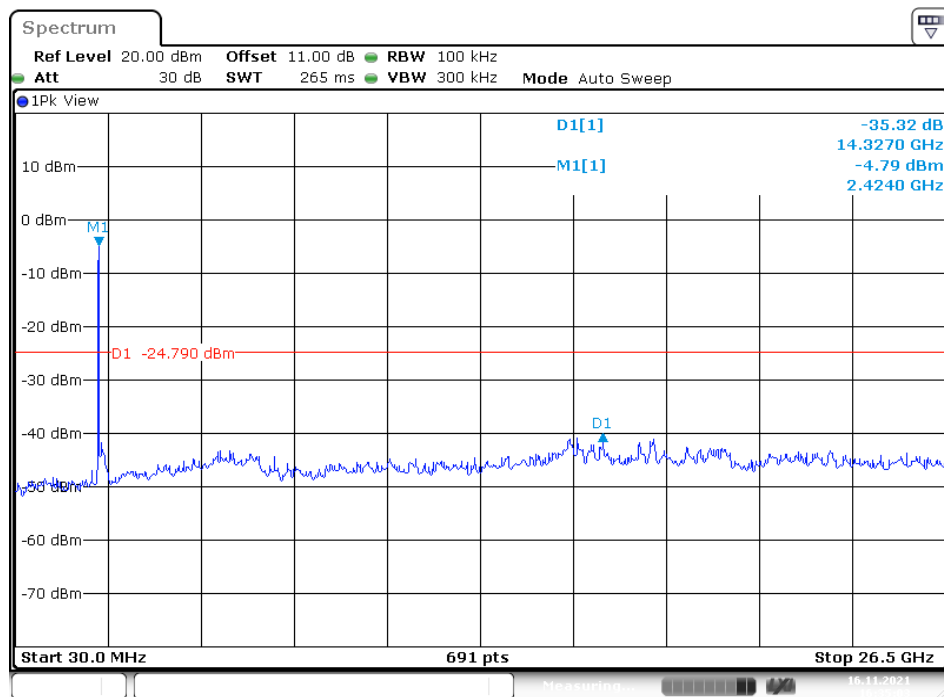
Date: 16.NOV.2021 16:07:01

G Mode High Channel



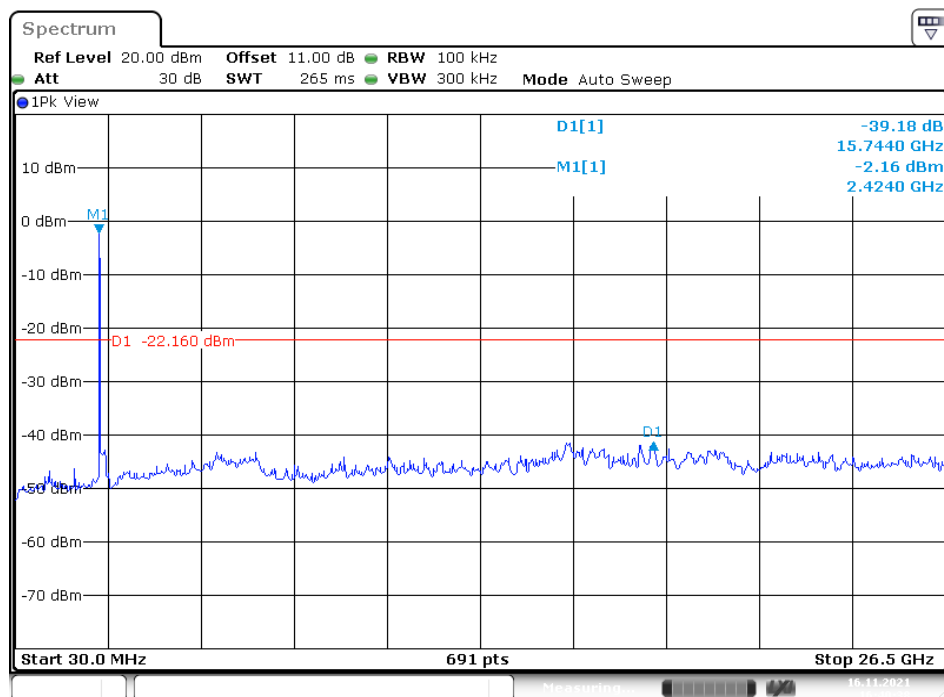
Date: 17.NOV.2021 09:48:27

N20 Mode Low Channel



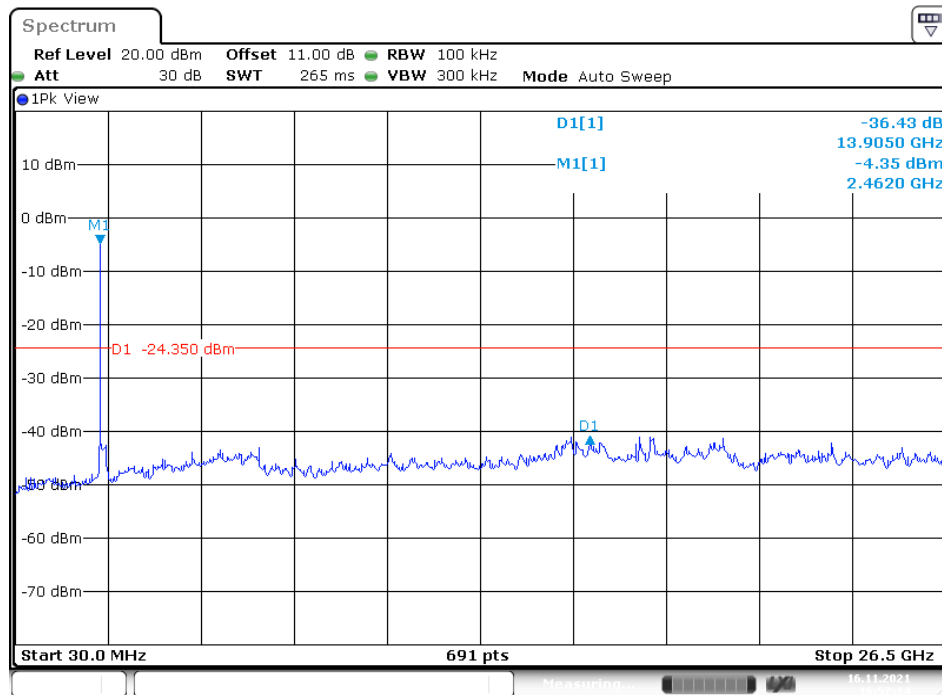
Date: 16.NOV.2021 16:35:03

N20 Mode Middle Channel



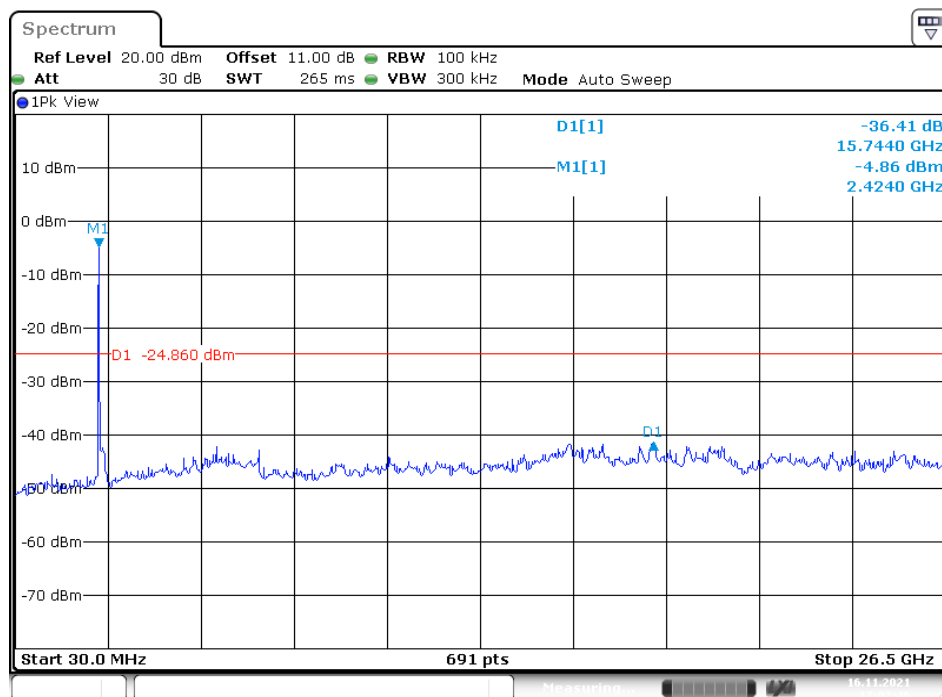
Date: 16.NOV.2021 16:40:37

N20 Mode High Channel



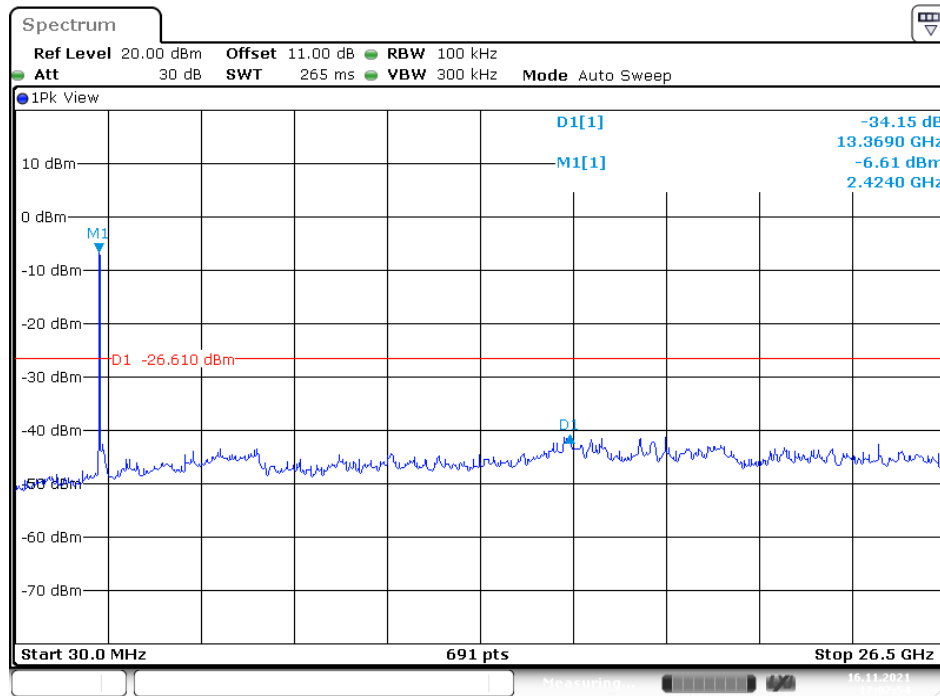
Date: 16.NOV.2021 16:57:14

N40 Mode Low Channel



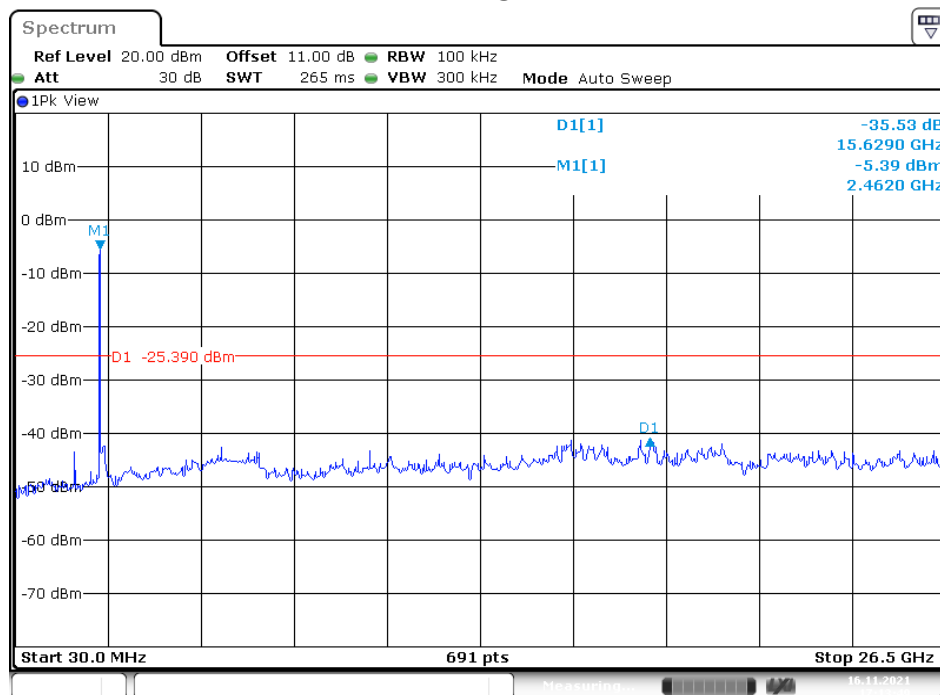
Date: 16.NOV.2021 17:02:46

N40 Mode Middle Channel



Date: 16.NOV.2021 17:07:53

N40 Mode High Channel



Date: 16.NOV.2021 17:13:48

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：

2.4GHz 天線型態	廠牌	型號	Gain
PCB Antenna	固德威	WTTX180673B	2.66 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。

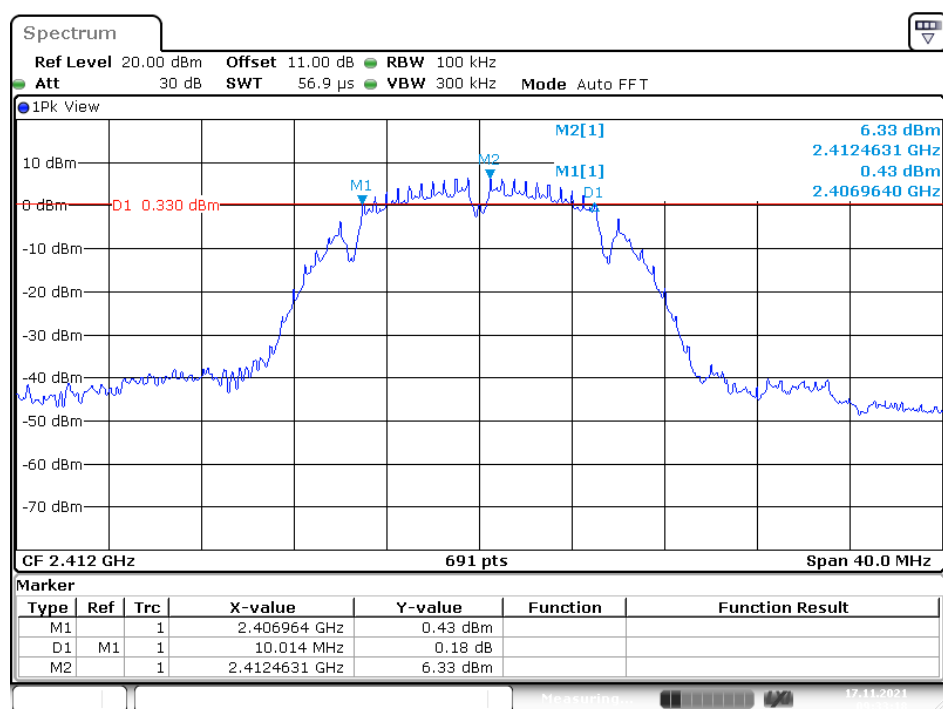
7.3 發射頻寬之量測結果

環境溫度	24.6°C	測試日期	2021 年 11 月 16 日
環境濕度	53%	測試人員	余梓誠

Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	Limit (kHz)	Result
B mode				
Low	2412	10.01	> 500	PASS
Mid	2437	10.01		PASS
High	2462	10.01		PASS
G mode				
Low	2412	15.97	> 500	PASS
Mid	2437	15.74		PASS
High	2462	15.68		PASS
N20 mode				
Low	2412	15.10	> 500	PASS
Mid	2437	15.10		PASS
High	2462	15.10		PASS
N40 mode				
Low	2422	34.96	> 500	PASS
Mid	2437	34.96		PASS
High	2452	34.96		PASS

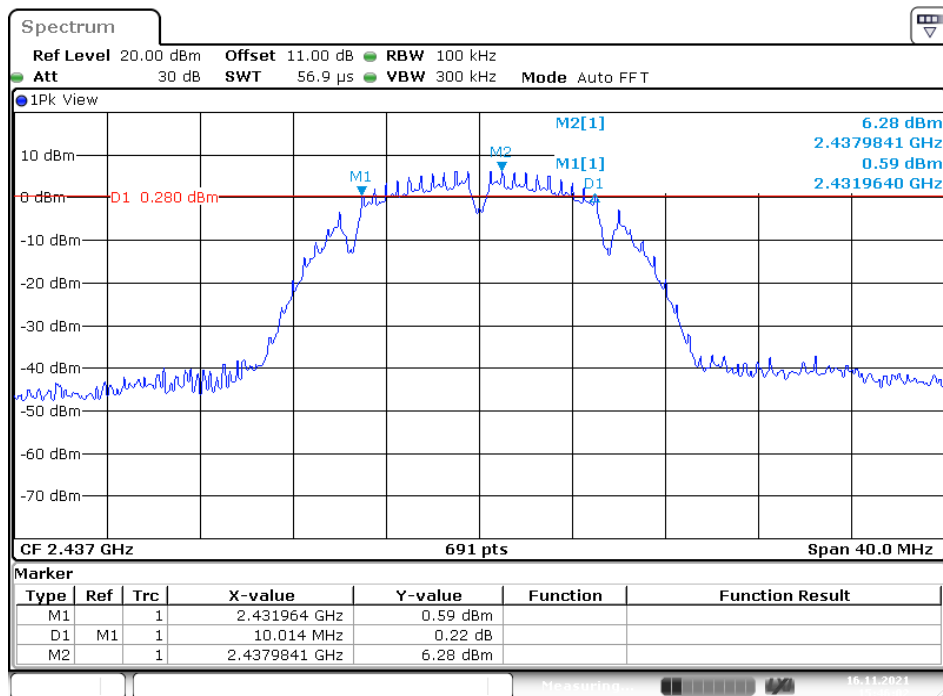
6 dB Emission Bandwidth

B Mode Low Channel



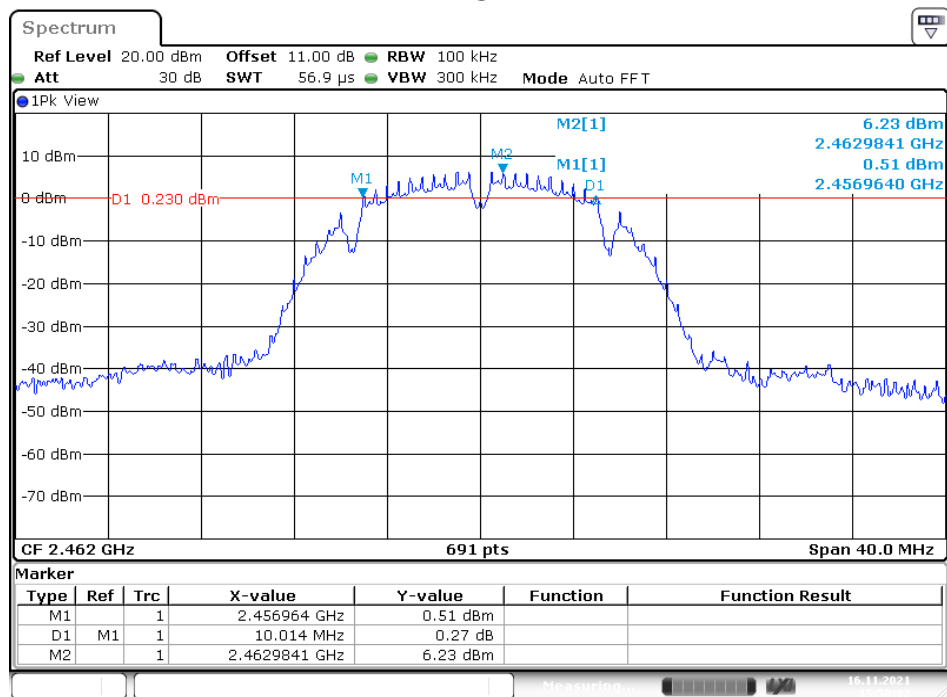
Date: 17.NOV.2021 09:33:19

B Mode Middle Channel



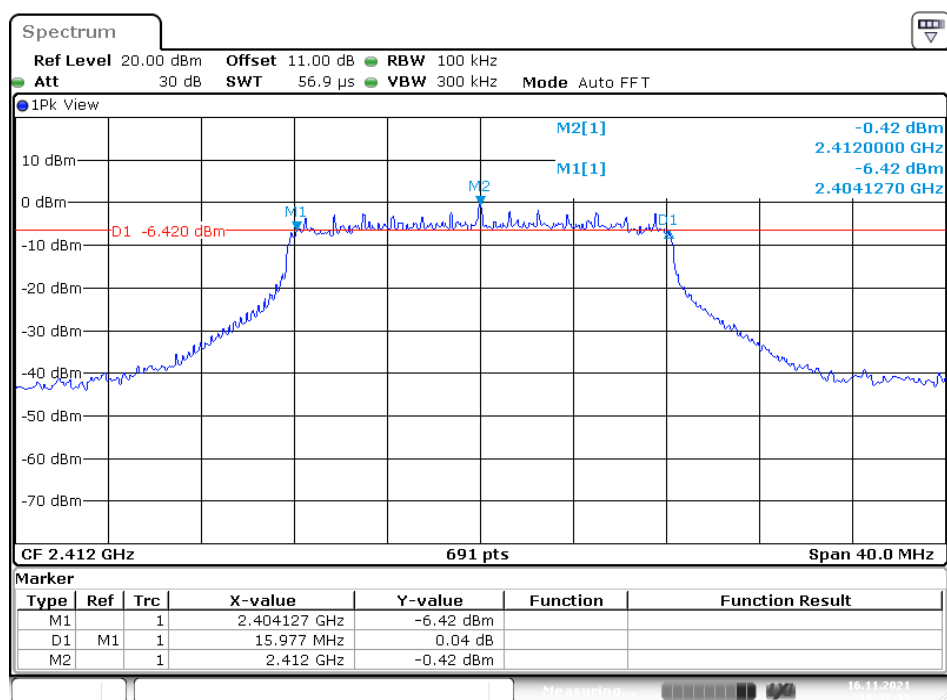
Date: 16.NOV.2021 15:46:02

B Mode High Channel



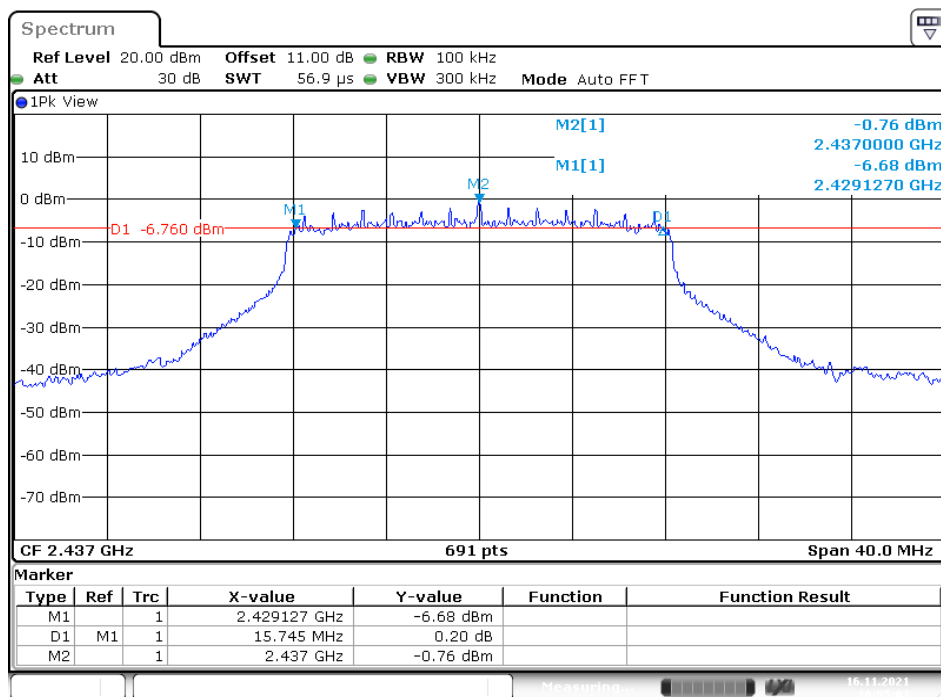
Date: 16.NOV.2021 15:50:12

G Mode Low Channel



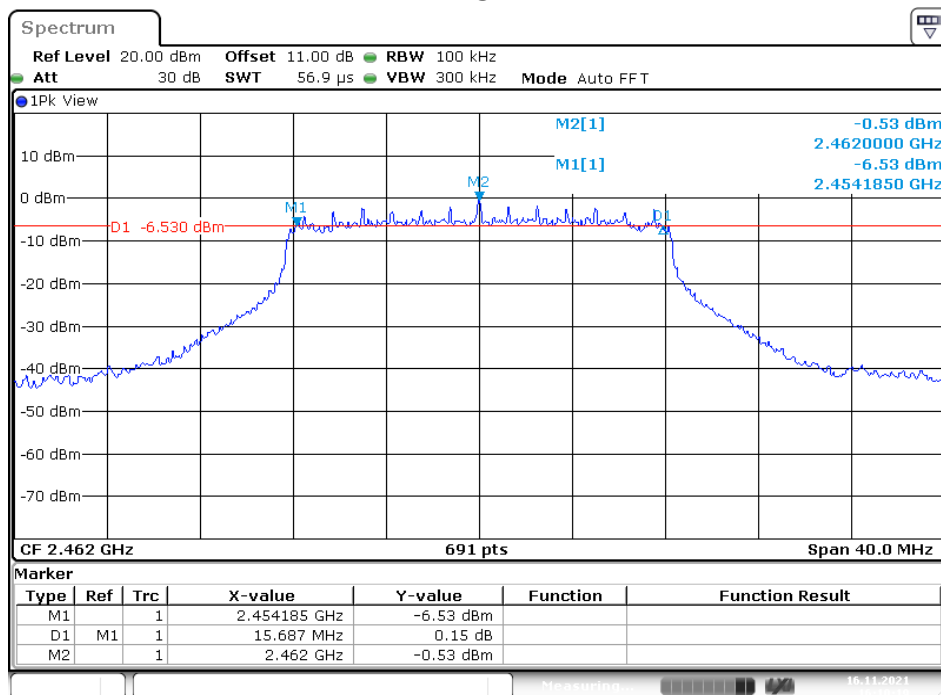
Date: 16.NOV.2021 15:57:34

G Mode Middle Channel



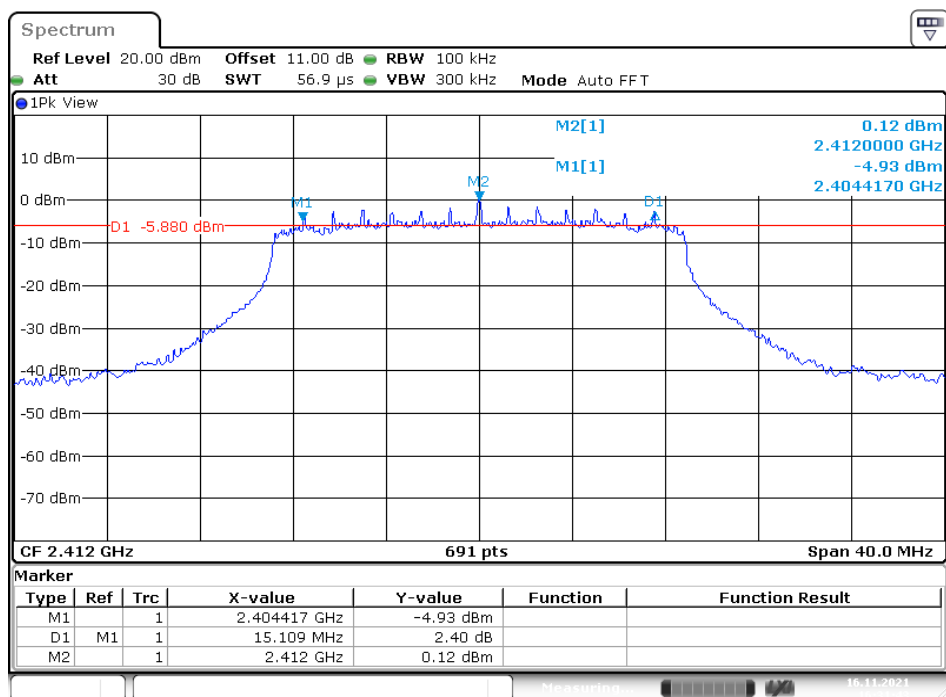
Date: 16.NOV.2021 16:05:03

G Mode High Channel



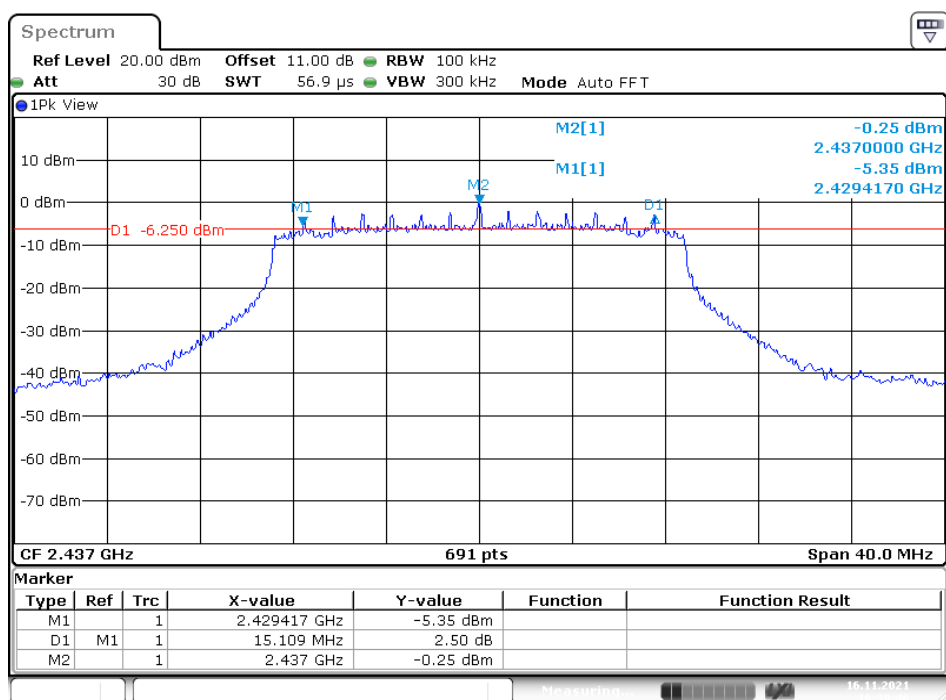
Date: 16.NOV.2021 16:10:19

N20 Mode Low Channel



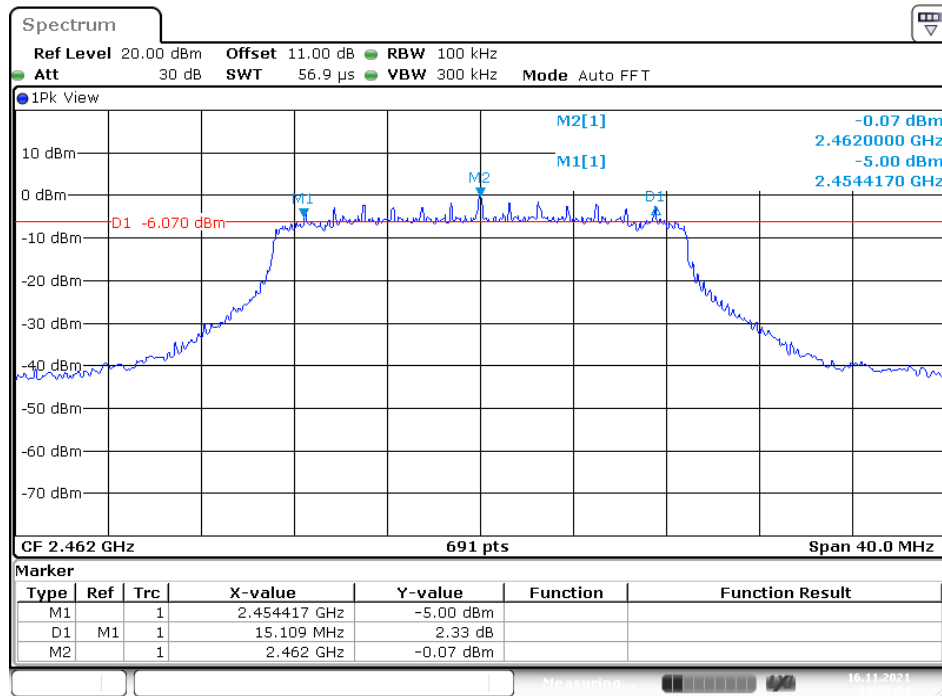
Date: 16.NOV.2021 16:31:43

N20 Mode Middle Channel



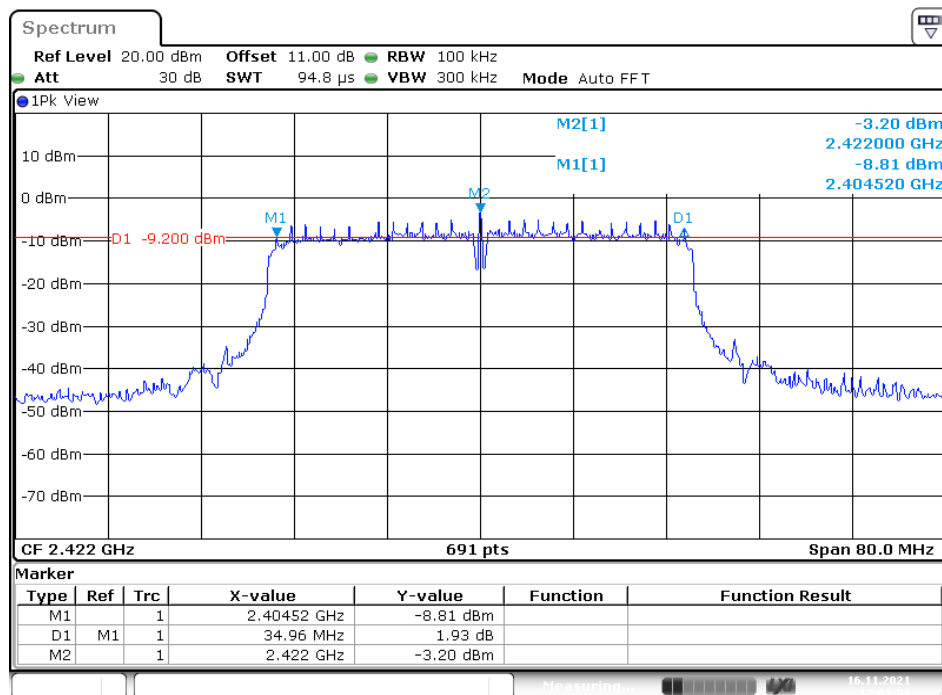
Date: 16.NOV.2021 16:39:45

N20 Mode High Channel



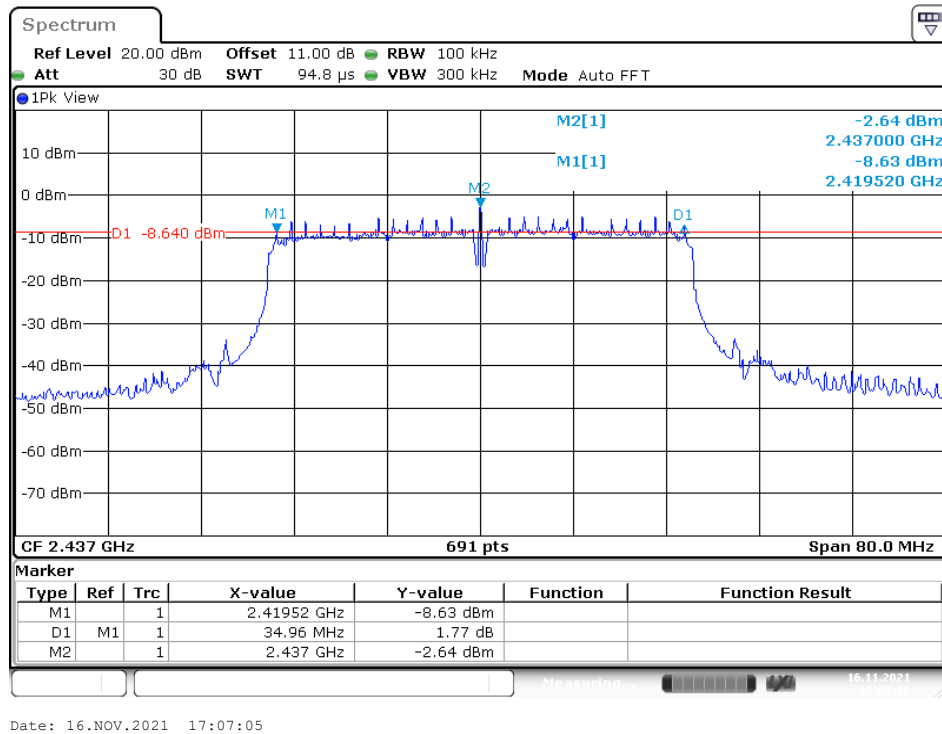
Date: 16.NOV.2021 16:56:24

N40 Mode Low Channel

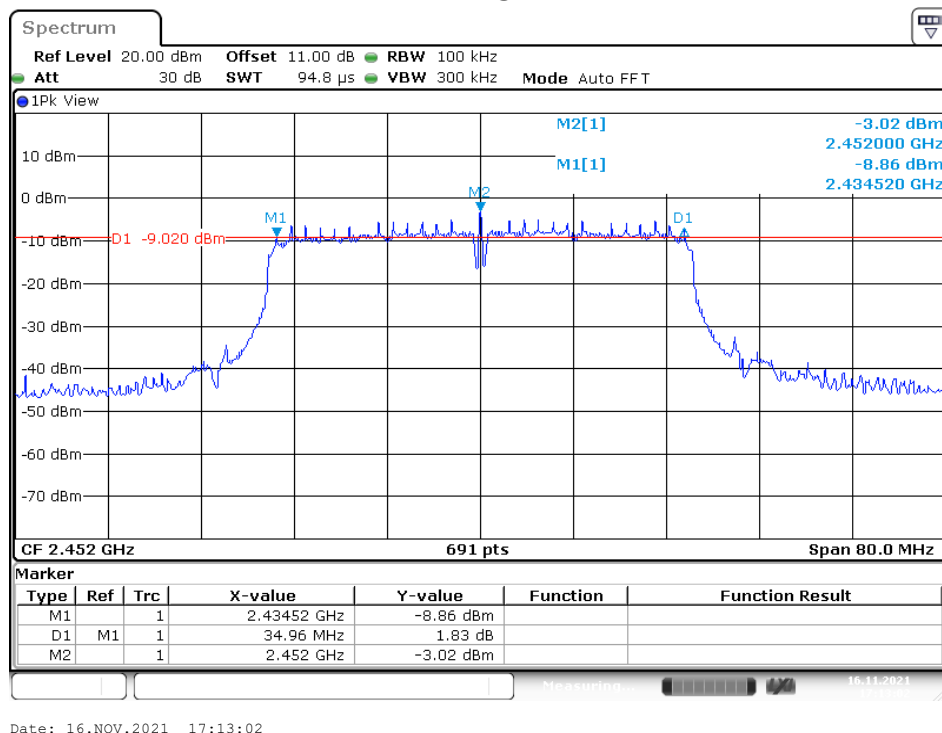


Date: 16.NOV.2021 17:01:51

N40 Mode Middle Channel



N40 Mode High Channel



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	24.6°C	測試日期	2021 年 11 月 16 日
環境濕度	53%	測試人員	余梓誠

Peak Power

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Limit (W)	Result
B mode					
Low	2412	18.27	0.067	1	PASS
Mid	2437	18.35	0.068	1	PASS
High	2462	18.03	0.064	1	PASS
G mode					
Low	2412	19.73	0.094	1	PASS
Mid	2437	18.92	0.078	1	PASS
High	2462	19.48	0.089	1	PASS
N20 mode					
Low	2412	19.28	0.085	1	PASS
Mid	2437	18.81	0.076	1	PASS
High	2462	19.47	0.089	1	PASS
N40 mode					
Low	2422	19.93	0.098	1	PASS
Mid	2437	19.76	0.095	1	PASS
High	2452	19.49	0.089	1	PASS

9. 開放頻帶邊緣 100 kHz 頻寬內之限制

9.1 適用標準

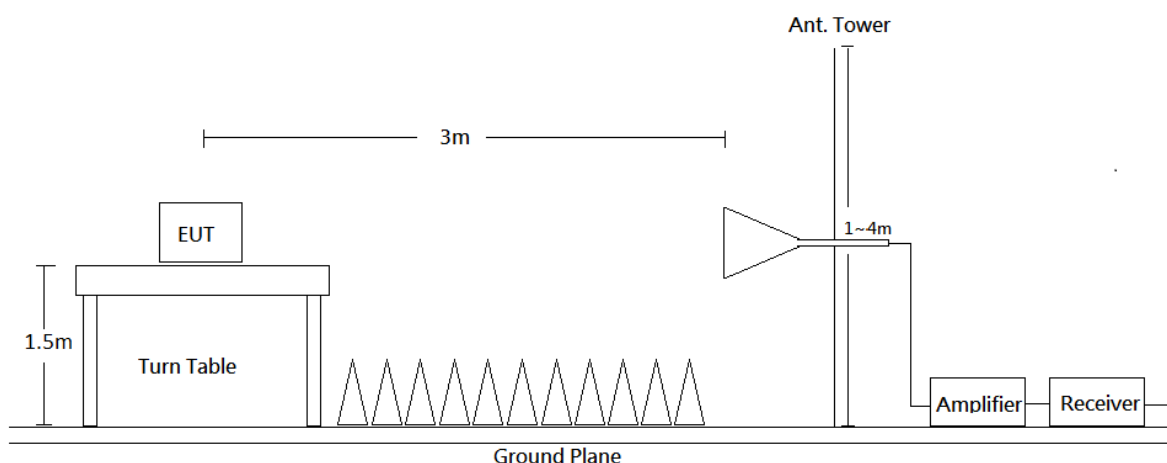
依據低功率射頻器材技術規範之規定，使用頻帶範圍外之任意100 kHz內，發射器所產生的射頻功率相較於使用頻帶範圍中包含最高所需功率之100 kHz內的射頻功率，峰值輸出功率方式測量者須衰減20分貝(dB)，以射頻傳導或輻射方式測量。最大傳導輸出功率測量方式者，至少須衰減30 dB。此外，落於禁用頻段之輻射發射，應符合規定。

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



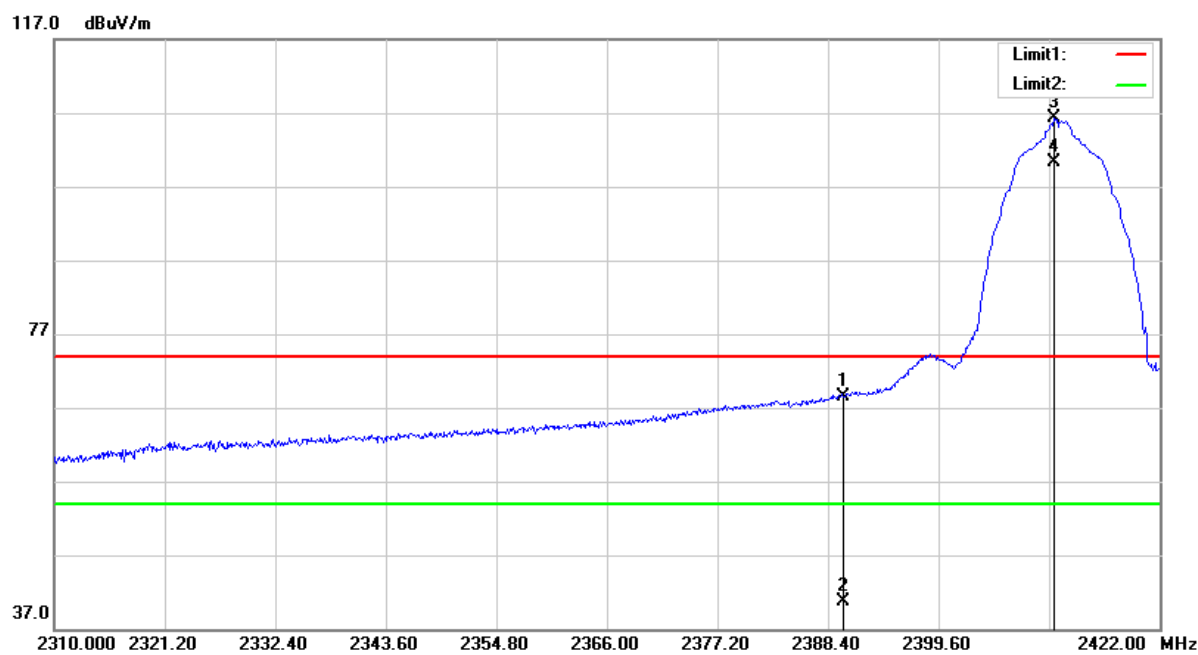
9.4 開放頻帶邊緣之量測結果

請參考附圖

判定結果: 符合規範

發射限制測試 B Mode / CH Low

Job No.:	RXZ211022002	Ant.Polar.:	Horizontal
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 01:34:45
		Test By:	Howard
Description:	B-TX-2412-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
2390.000	77.91	-9.46	68.45	74.00	-5.55	146	98	peak
2390.000	50.23	-9.46	40.77	54.00	-13.23	146	98	AVG
2412.000	115.55	-9.28	106.27	N/A	N/A	146	98	peak
2412.000	109.55	-9.28	100.27	N/A	N/A	146	98	AVG

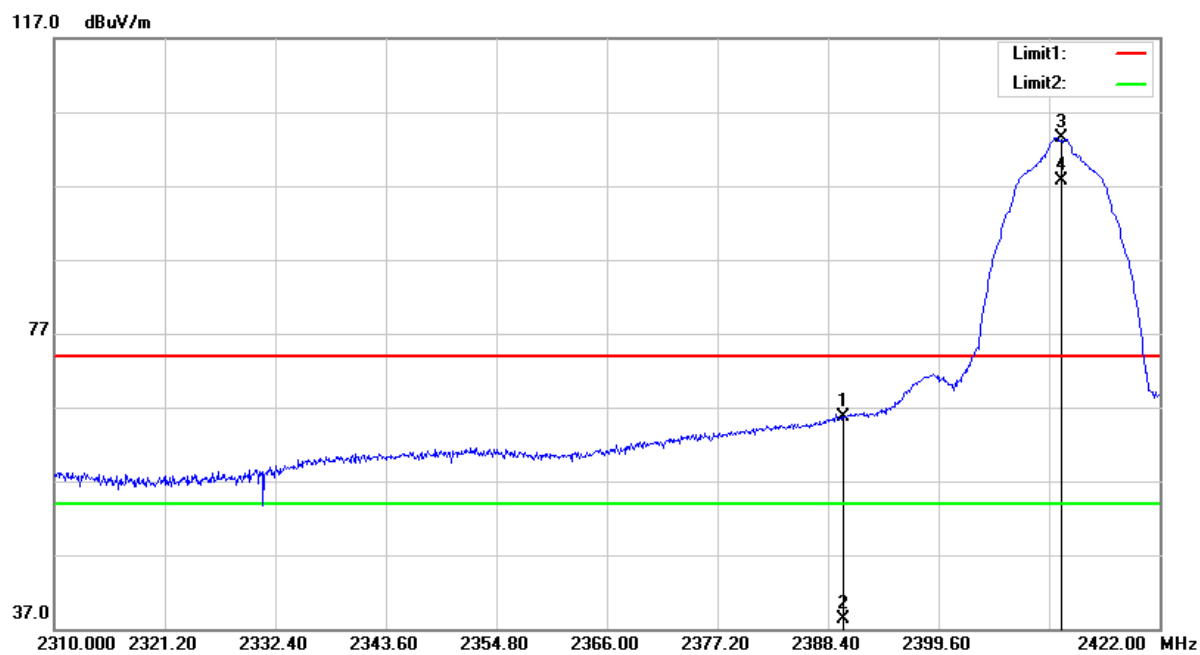
Note:

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Job No.:	RXZ211022002	Ant.Polar.:	Vertical
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum. (%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 01:26:48
		Test By:	Howard
Description:	B-TX-2412-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
2390.000	75.18	-9.46	65.72	74.00	-8.28	155	292	peak
2390.000	47.67	-9.46	38.21	54.00	-15.79	155	292	AVG
2412.000	112.86	-9.28	103.58	N/A	N/A	155	292	peak
2412.000	106.89	-9.28	97.61	N/A	N/A	155	292	AVG

Note:

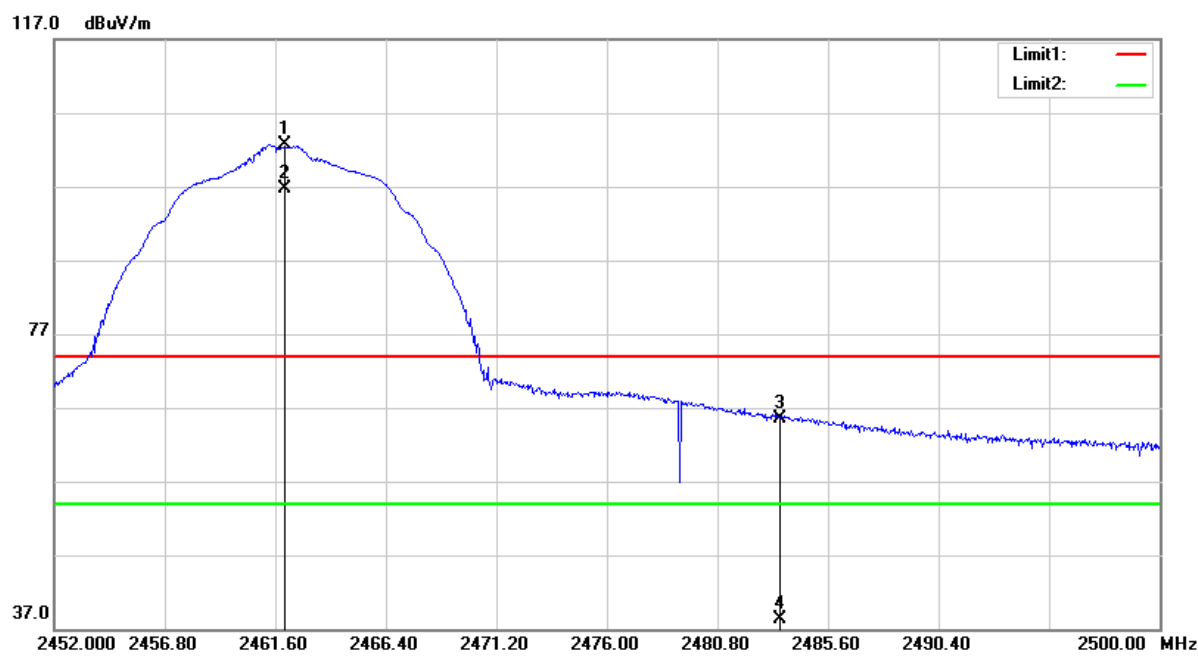
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

發射限制測試 B Mode / CH High

Job No.:	RXZ211022002	Ant.Polar.:	Horizontal
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 01:52:56
		Test By:	Howard
Description:	B-TX-2462-X_Axis		



Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
(MHz)	(dBμV)	Factor(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	(cm)	(°)	
2462.000	111.40	-8.77	102.63	N/A	N/A	145	101	peak
2462.000	105.48	-8.77	96.71	N/A	N/A	145	101	AVG
2483.500	73.88	-8.45	65.43	74.00	-8.57	145	101	peak
2483.500	46.67	-8.45	38.22	54.00	-15.78	145	101	AVG

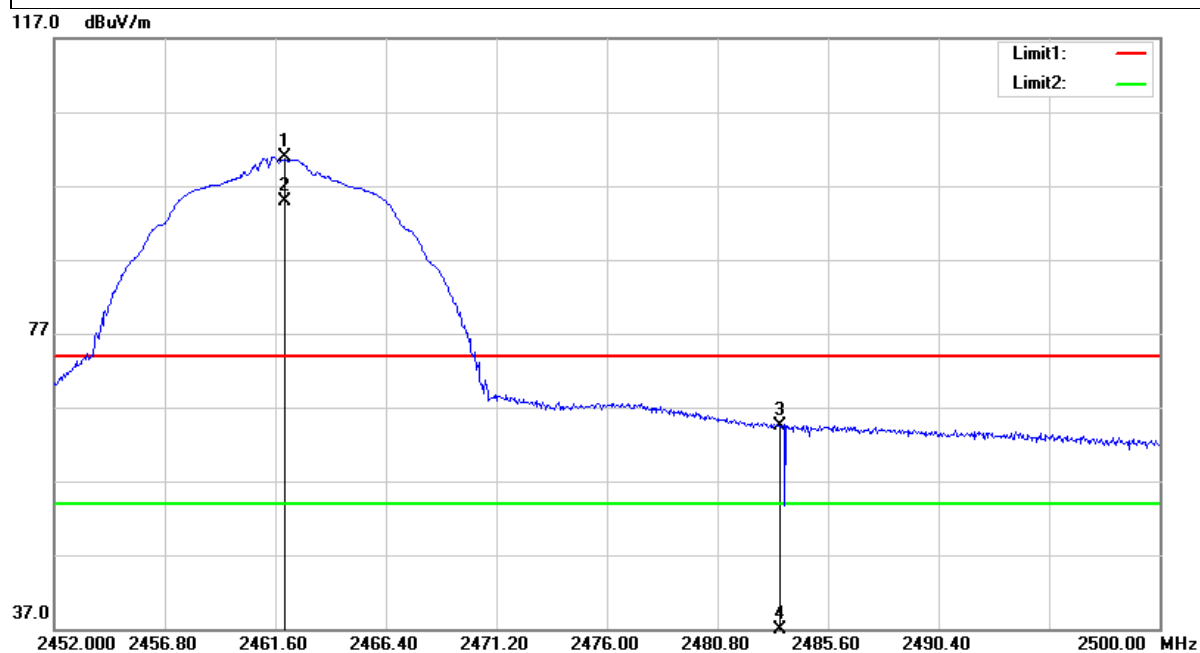
Note:

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Job No.:	RXZ211022002	Ant.Polar.:	Vertical
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 01:48:32
		Test By:	Howard
Description:	B-TX-2462-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
2462.000	109.69	-8.77	100.92	N/A	N/A	162	295	peak
2462.000	103.77	-8.77	95.00	N/A	N/A	162	295	AVG
2483.500	72.96	-8.45	64.51	74.00	-9.49	162	295	peak
2483.500	45.03	-8.45	36.58	54.00	-17.42	162	295	AVG

Note:

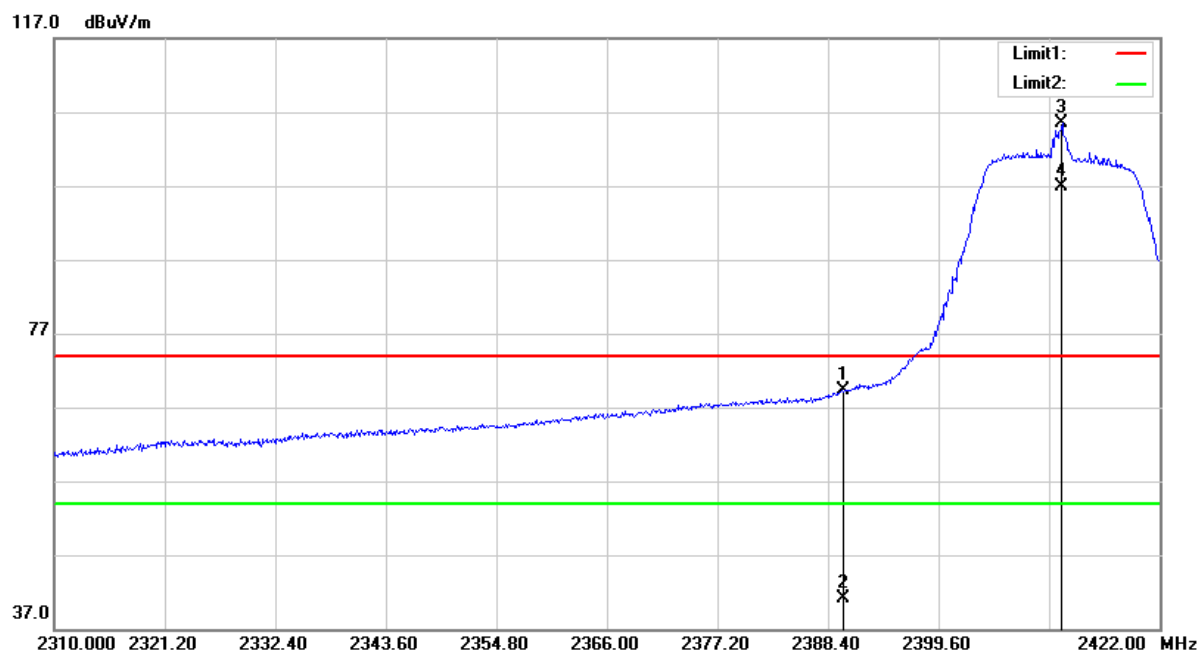
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

發射限制測試 G Mode / CH Low

Job No.:	RXZ211022002	Ant.Polar.:	Horizontal
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 01:56:19
		Test By:	Howard
Description:	G-TX-2412-X_Axis		



Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
(MHz)	(dBμV)	Factor(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	(cm)	(°)	
2390.000	78.69	-9.46	69.23	74.00	-4.77	144	93	peak
2390.000	50.54	-9.46	41.08	54.00	-12.92	144	93	AVG
2412.000	114.80	-9.28	105.52	N/A	N/A	144	93	peak
2412.000	106.10	-9.28	96.82	N/A	N/A	144	93	AVG

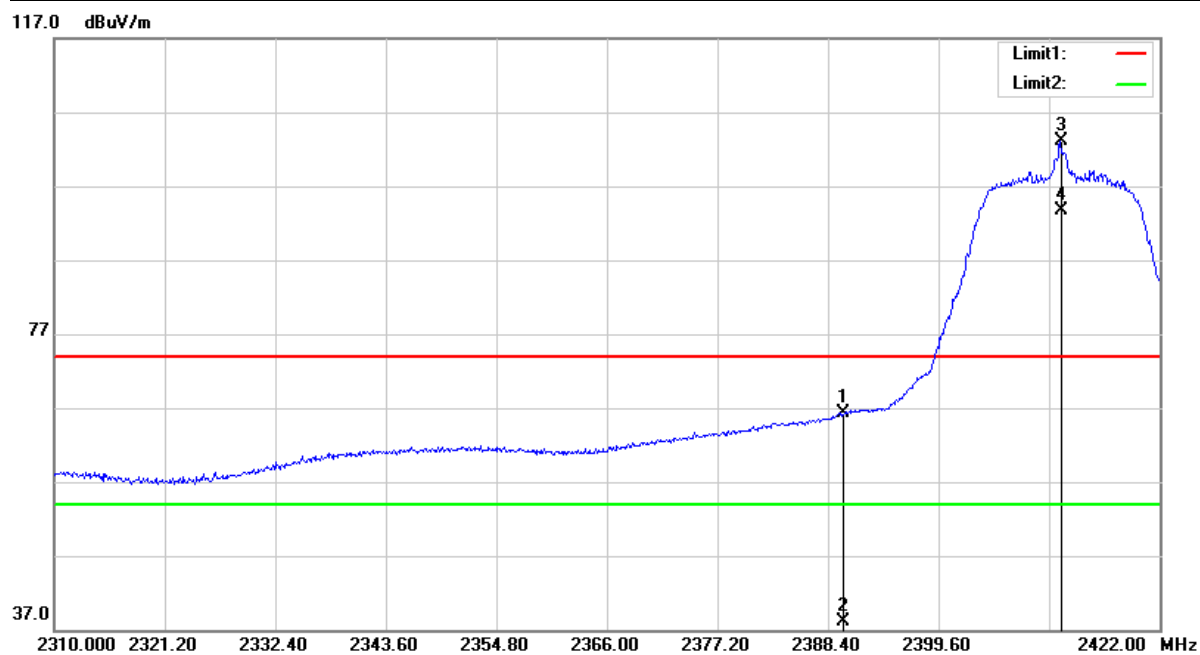
Note:

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Job No.:	RXZ211022002	Ant.Polar.:	Vertical
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 02:04:42
		Test By:	Howard
Description:	G-TX-2412-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
2390.000	75.69	-9.46	66.23	74.00	-7.77	157	296	peak
2390.000	47.60	-9.46	38.14	54.00	-15.86	157	296	AVG
2412.000	112.35	-9.28	103.07	N/A	N/A	157	296	peak
2412.000	103.04	-9.28	93.76	N/A	N/A	157	296	AVG

Note:

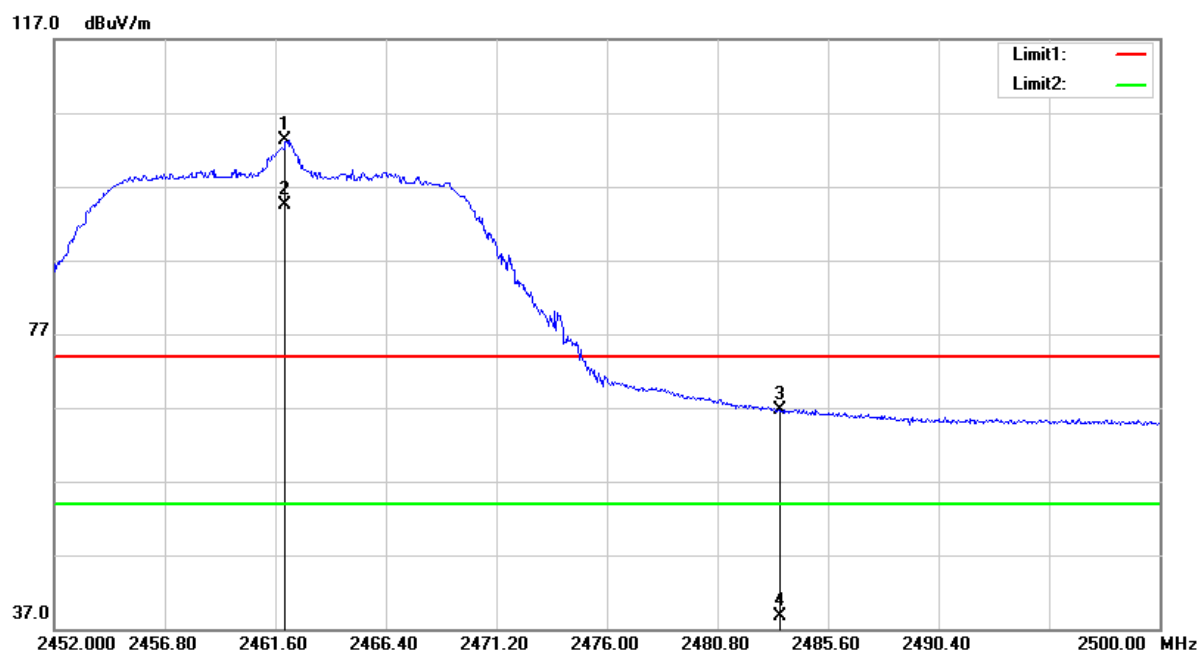
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

發射限制測試 G Mode / CH High

Job No.:	RXZ211022002	Ant.Polar.:	Horizontal
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 02:13:15
		Test By:	Howard
Description:	G-TX-2462-X_Axis		



Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
(MHz)	(dBμV)	Factor(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	(cm)	(°)	
2462.000	112.08	-8.77	103.31	N/A	N/A	138	90	peak
2462.000	103.29	-8.77	94.52	N/A	N/A	138	90	AVG
2483.500	75.08	-8.45	66.63	74.00	-7.37	138	90	peak
2483.500	47.14	-8.45	38.69	54.00	-15.31	138	90	AVG

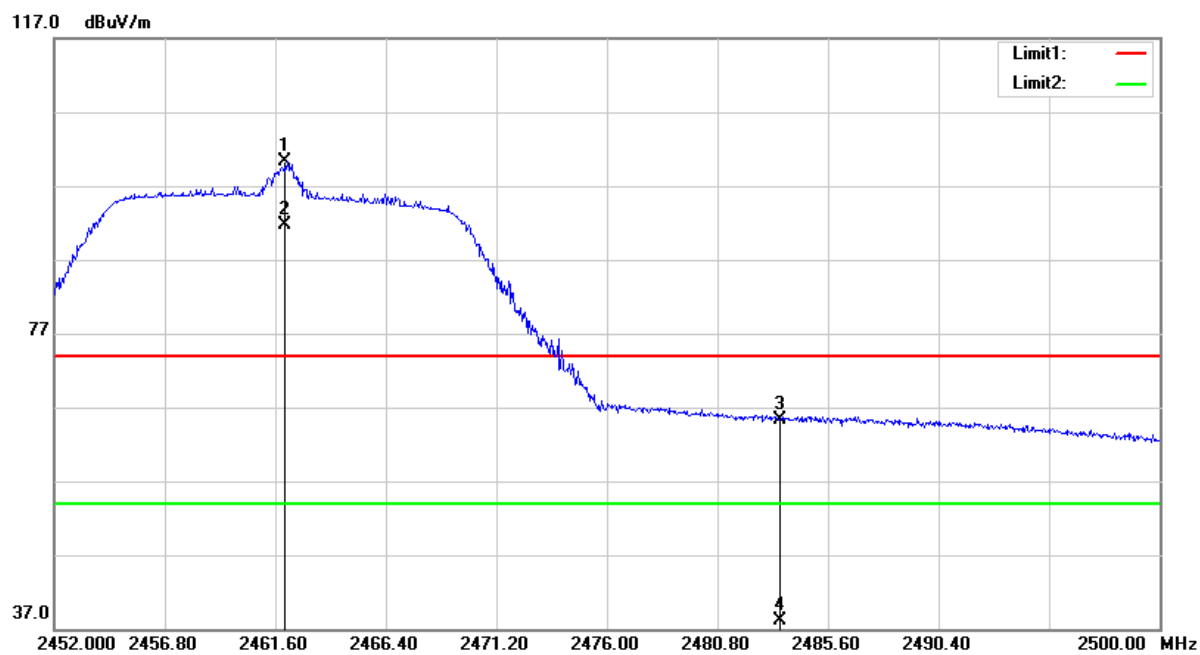
Note:

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Job No.:	RXZ211022002	Ant.Polar.:	Vertical
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 02:16:46
		Test By:	Howard
Description:	G-TX-2462-X_Axis		



Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
(MHz)	(dBμV)	Factor(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	(cm)	(°)	
2462.000	109.00	-8.77	100.23	N/A	N/A	151	294	peak
2462.000	100.57	-8.77	91.80	N/A	N/A	151	294	AVG
2483.500	73.81	-8.45	65.36	74.00	-8.64	151	294	peak
2483.500	46.63	-8.45	38.18	54.00	-15.82	151	294	AVG

Note:

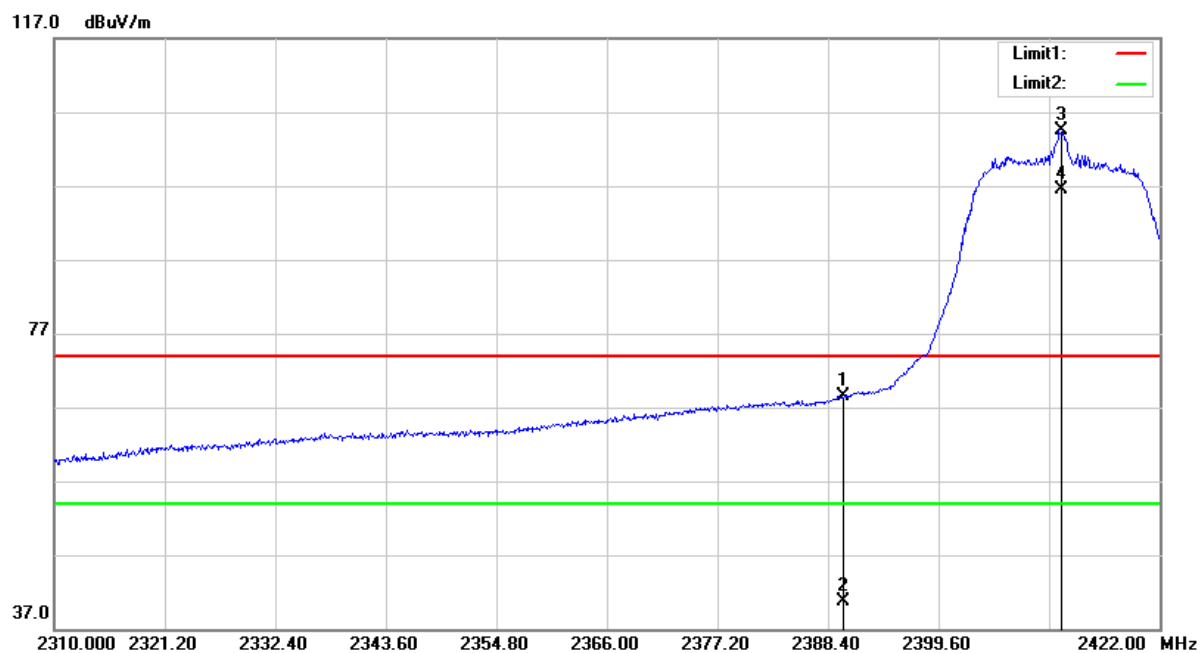
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

發射限制測試 N20 Mode / CH Low

Job No.:	RXZ211022002	Ant.Polar.:	Horizontal
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 02:25:28
		Test By:	Howard
Description:	N20-TX-2412-X_Axis		



Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
(MHz)	(dBμV)	Factor(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	(cm)	(°)	
2390.000	78.02	-9.46	68.56	74.00	-5.44	143	97	peak
2390.000	50.08	-9.46	40.62	54.00	-13.38	143	97	AVG
2412.000	113.72	-9.28	104.44	N/A	N/A	143	97	peak
2412.000	105.86	-9.28	96.58	N/A	N/A	143	97	AVG

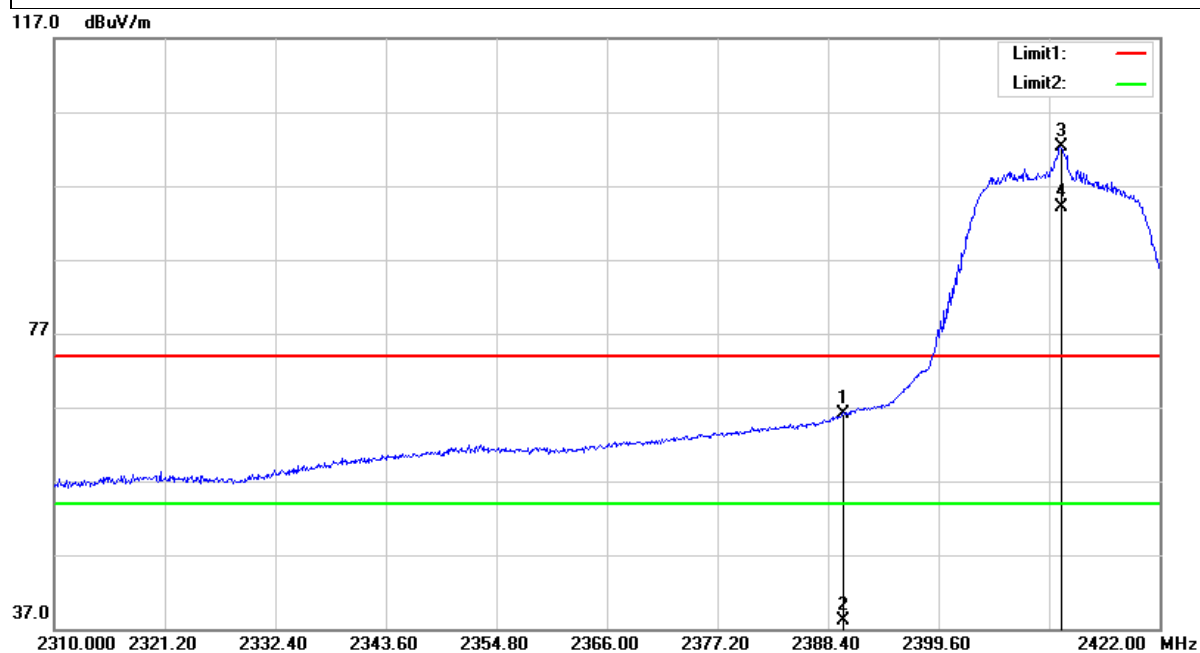
Note:

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Job No.:	RXZ211022002	Ant.Polar.:	Vertical
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 02:19:52
		Test By:	Howard
Description:	N20-TX-2412-X_Axis		



Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
(MHz)	(dBμV)	Factor(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	(cm)	(°)	
2390.000	75.51	-9.46	66.05	74.00	-7.95	148	297	peak
2390.000	47.60	-9.46	38.14	54.00	-15.86	148	297	AVG
2412.000	111.53	-9.28	102.25	N/A	N/A	148	297	peak
2412.000	103.43	-9.28	94.15	N/A	N/A	148	297	AVG

Note:

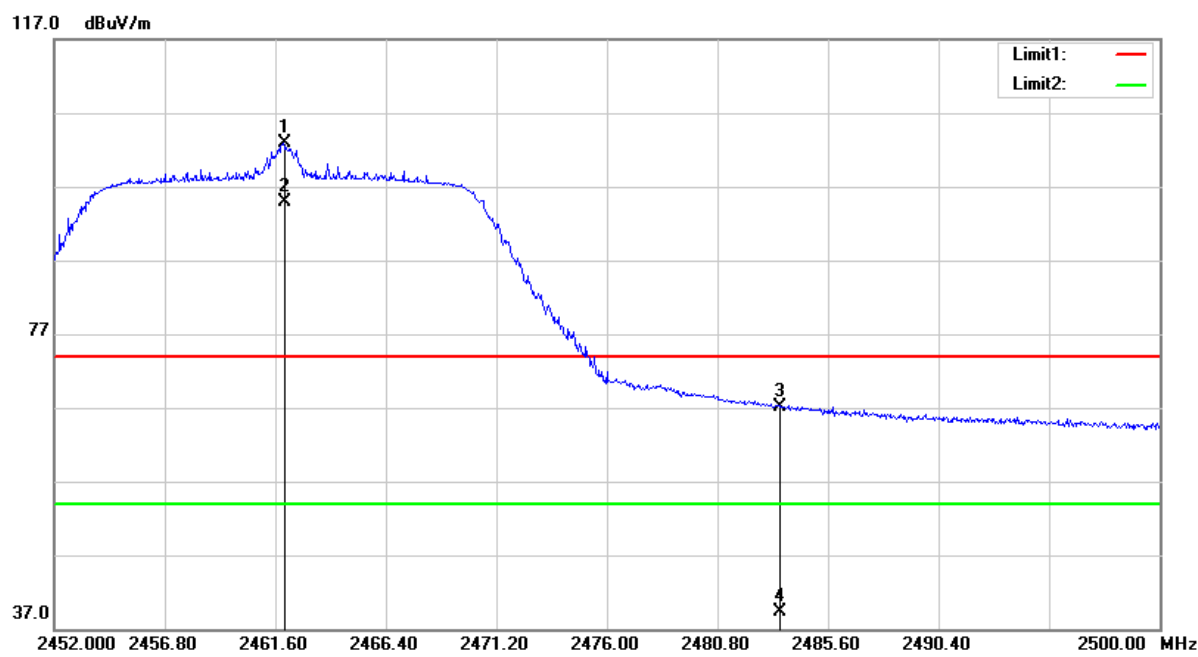
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

發射限制測試 N20 Mode / CH High

Job No.:	RXZ211022002	Ant.Polar.:	Horizontal
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 02:36:48
		Test By:	Howard
Description:	N20-TX-2462-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
2462.000	111.62	-8.77	102.85	N/A	N/A	143	91	peak
2462.000	103.77	-8.77	95.00	N/A	N/A	143	91	AVG
2483.500	75.47	-8.45	67.02	74.00	-6.98	143	91	peak
2483.500	47.69	-8.45	39.24	54.00	-14.76	143	91	AVG

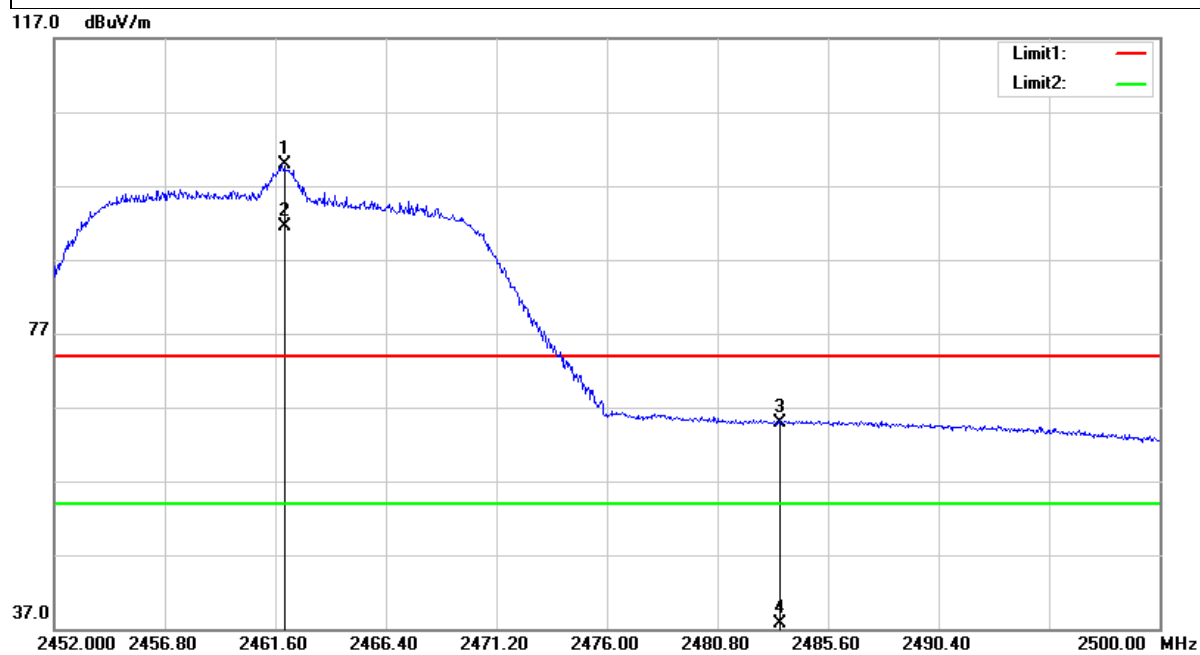
Note:

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Job No.:	RXZ211022002	Ant.Polar.:	Vertical
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 02:33:38
		Test By:	Howard
Description:	N20-TX-2462-X_Axis		



Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
(MHz)	(dBμV)	Factor(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	(cm)	(°)	
2462.000	108.64	-8.77	99.87	N/A	N/A	148	290	peak
2462.000	100.28	-8.77	91.51	N/A	N/A	148	290	AVG
2483.500	73.44	-8.45	64.99	74.00	-9.01	148	290	peak
2483.500	46.19	-8.45	37.74	54.00	-16.26	148	290	AVG

Note:

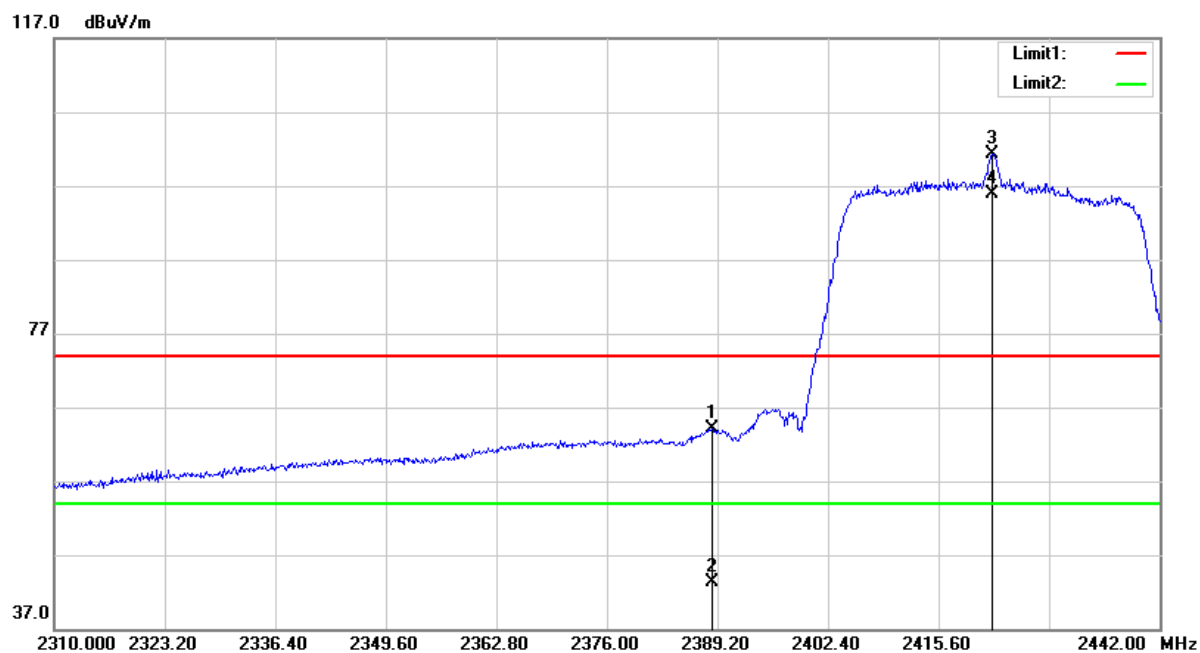
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

發射限制測試 N40 Mode / CH Low

Job No.:	RXZ211022002	Ant.Polar.:	Horizontal
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 02:41:43
		Test By:	Howard
Description:	N40-TX-2422-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
2388.540	73.60	-9.47	64.13	74.00	-9.87	139	89	peak
2388.540	52.84	-9.47	43.37	54.00	-10.63	139	89	AVG
2422.000	110.50	-9.18	101.32	N/A	N/A	139	89	peak
2422.000	105.01	-9.18	95.83	N/A	N/A	139	89	AVG

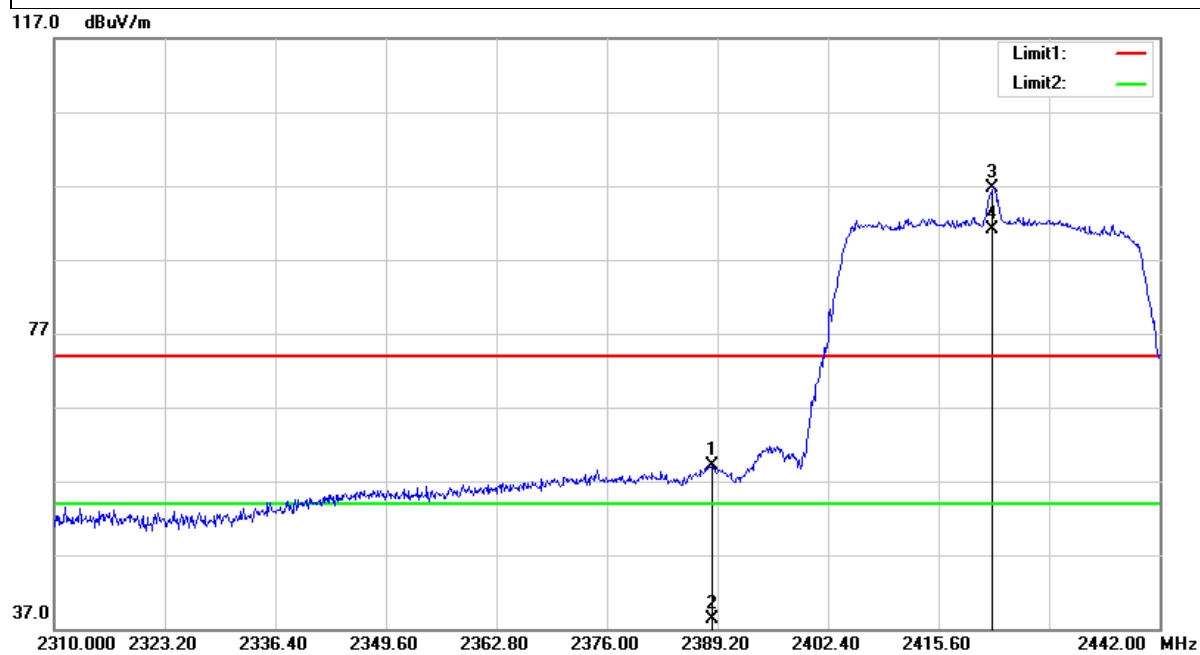
Note:

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Job No.:	RXZ211022002	Ant.Polar.:	Vertical
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 02:46:03
		Test By:	Howard
Description:	N40-TX-2422-X_Axis		



Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
(MHz)	(dBμV)	Factor(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	(cm)	(°)	
2388.540	68.51	-9.47	59.04	74.00	-14.96	165	287	peak
2388.540	47.80	-9.47	38.33	54.00	-15.67	165	287	AVG
2422.000	105.93	-9.18	96.75	N/A	N/A	165	287	peak
2422.000	100.34	-9.18	91.16	N/A	N/A	165	287	AVG

Note:

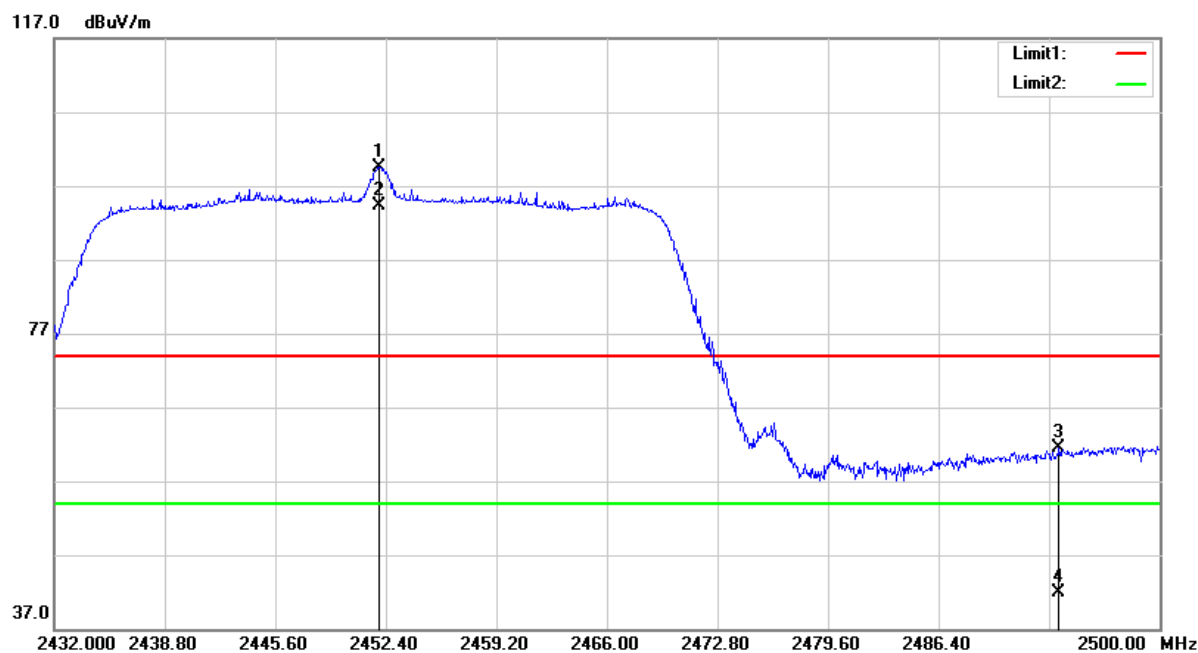
Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

發射限制測試 N40 Mode / CH High

Job No.:	RXZ211022002	Ant.Polar.:	Horizontal
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 02:53:19
		Test By:	Howard
Description:	N40-TX-2452-X_Axis		



Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
(MHz)	(dBμV)	Factor(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	(cm)	(°)	
2452.000	108.42	-8.92	99.50	N/A	N/A	151	90	peak
2452.000	103.31	-8.92	94.39	N/A	N/A	151	90	AVG
2493.812	69.84	-8.30	61.54	74.00	-12.46	151	90	peak
2493.812	50.27	-8.30	41.97	54.00	-12.03	151	90	AVG

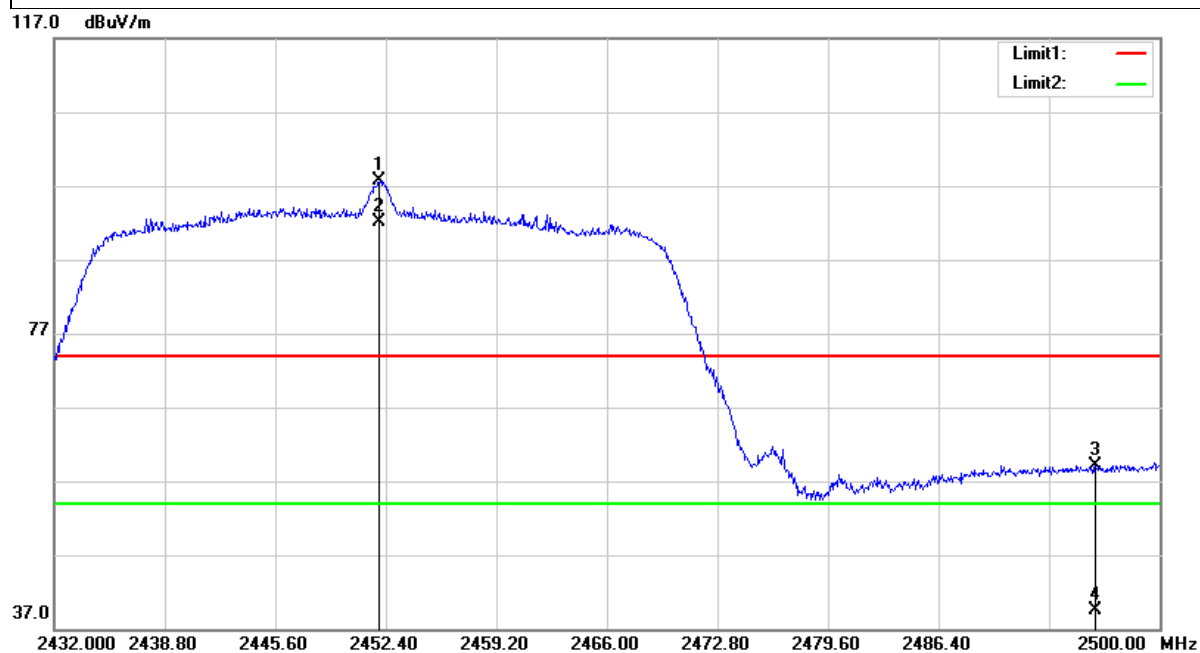
Note:

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Job No.:	RXZ211022002	Ant.Polar.:	Vertical
Standard:	NCC LP0002 4.10.1 Peak 3m	Test Distance:	3m
Test item:	Radiation Test	Power:	AC 110V/60Hz
Temp.(°C)/Hum.(%RH):	21.2(°C)/61%RH	Date:2021/11/16	Time:上午 02:57:37
		Test By:	Howard
Description:	N40-TX-2452-X_Axis		



Frequency (MHz)	Reading (dBμV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
2452.000	106.59	-8.92	97.67	N/A	N/A	157	290	peak
2452.000	101.12	-8.92	92.20	N/A	N/A	157	290	AVG
2496.056	67.44	-8.27	59.17	74.00	-14.83	157	290	peak
2496.056	47.86	-8.27	39.59	54.00	-14.41	157	290	AVG

Note:

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

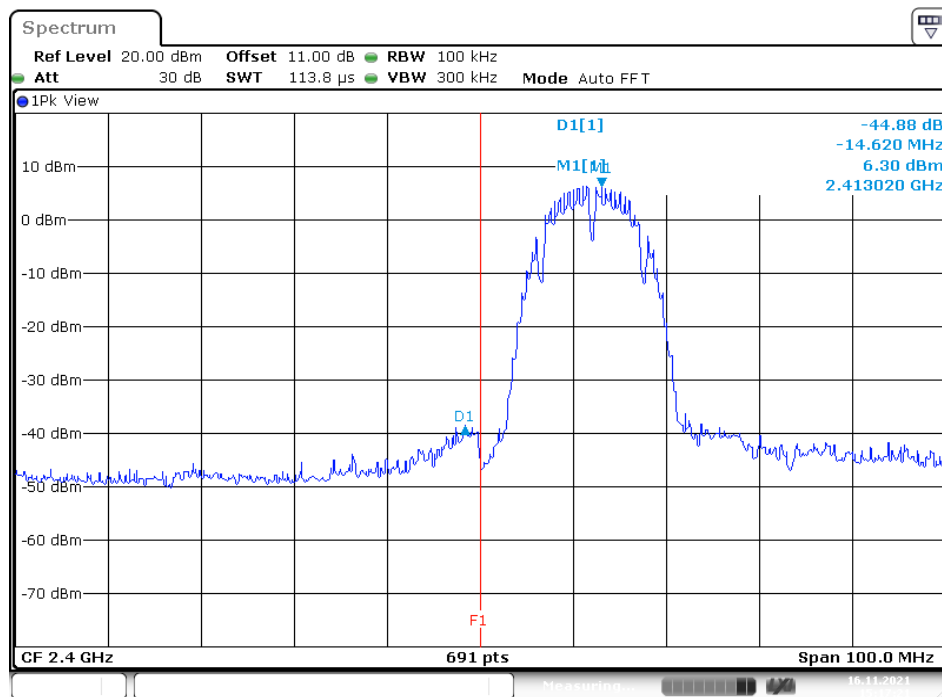
Conducted Bandedge

環境溫度	24.6°C	測試日期	2021 年 11 月 16 日
環境濕度	53%	測試人員	余梓誠

Channel	Frequency (MHz)	Delta Peak to Band Emission (dBc)	Limit (dBc)	Result
B mode				
Low	2412	44.88	≥ 20	PASS
High	2462	49.29	≥ 20	PASS
G mode				
Low	2412	35.26	≥ 20	PASS
High	2462	40.72	≥ 20	PASS
N20 mode				
Low	2412	33.84	≥ 20	PASS
High	2462	39.92	≥ 20	PASS
N40 mode				
Low	2422	34.37	≥ 20	PASS
High	2452	37.22	≥ 20	PASS

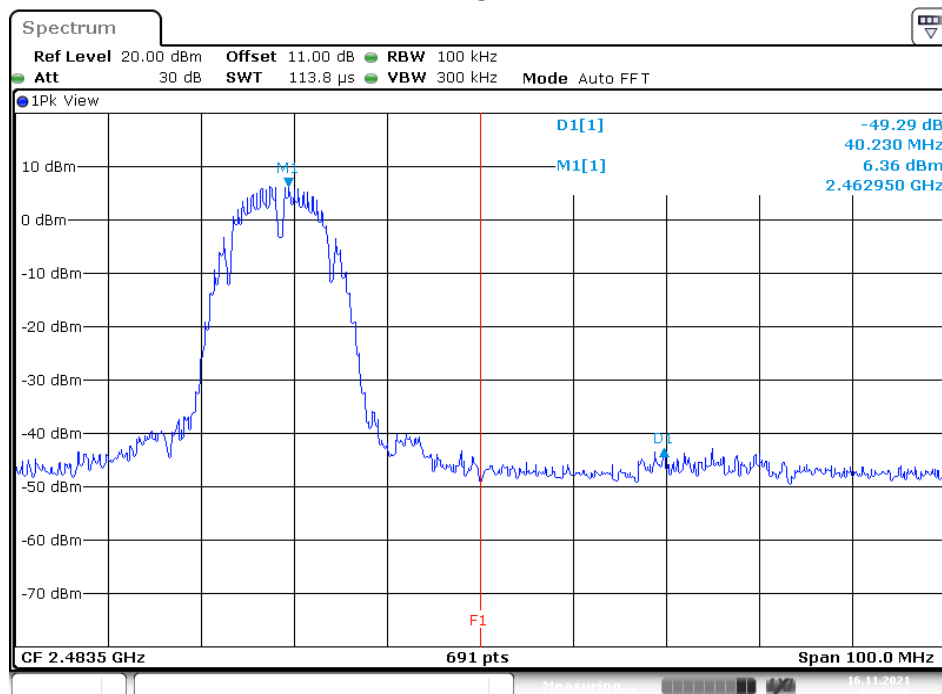
Conducted Band Edges

B Mode Low Channel



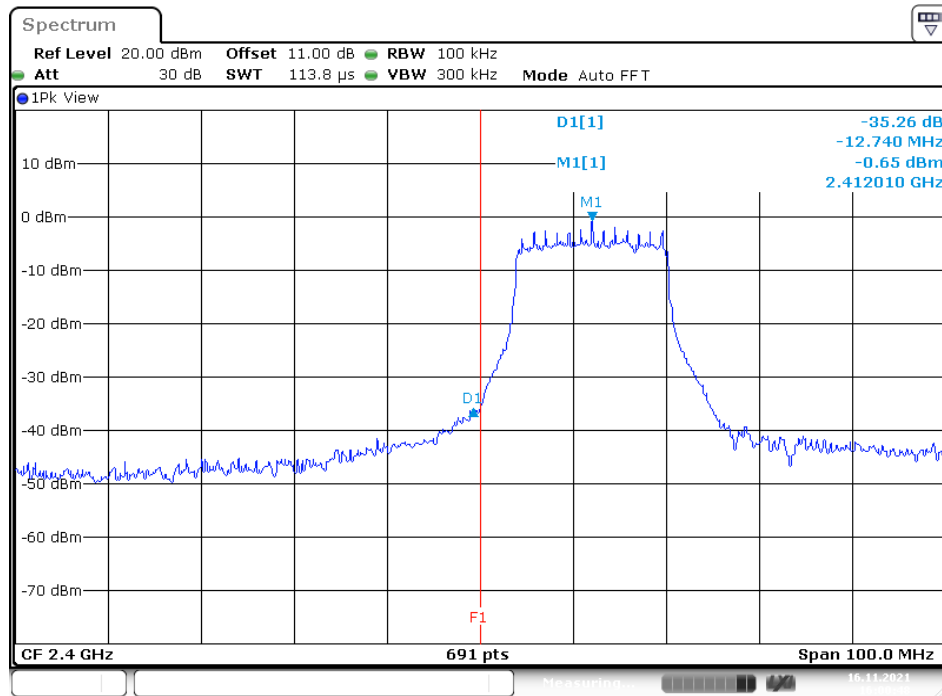
Date: 16.NOV.2021 15:17:21

B Mode High Channel



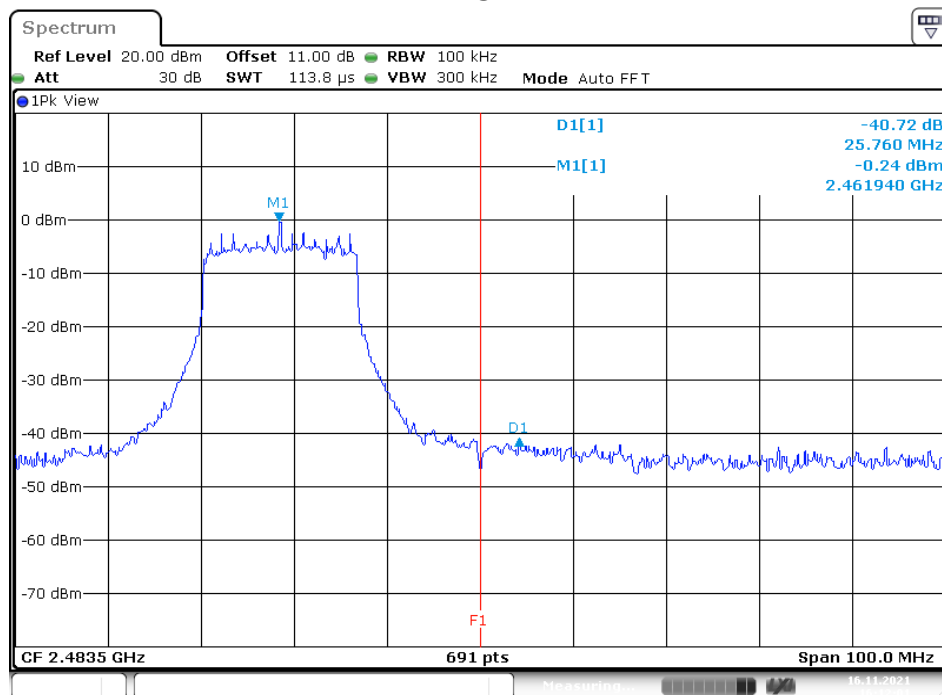
Date: 16.NOV.2021 15:52:00

G Mode Low Channel



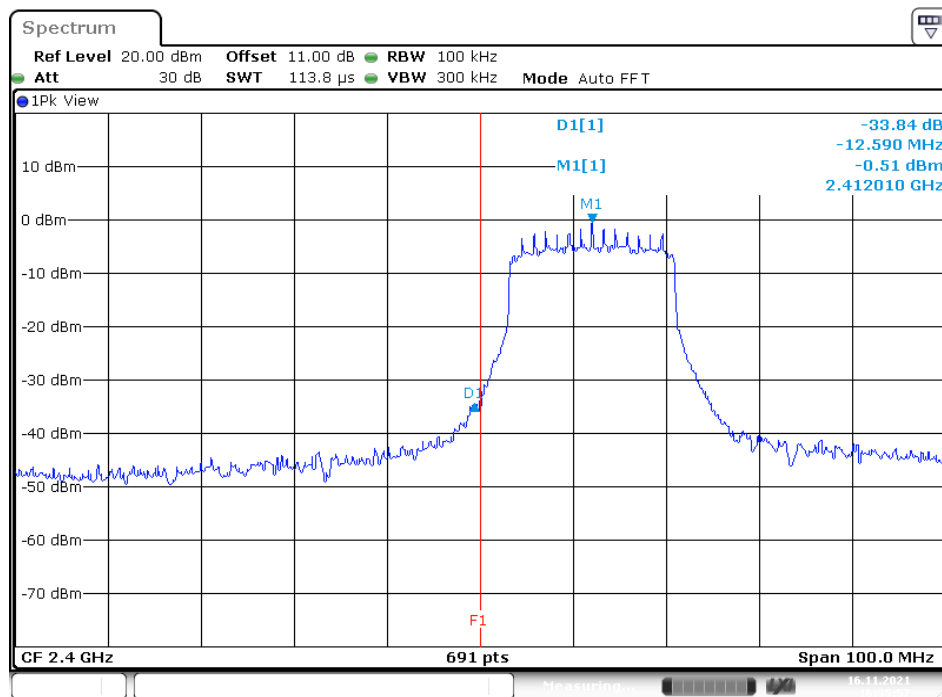
Date: 16.NOV.2021 16:00:48

G Mode High Channel

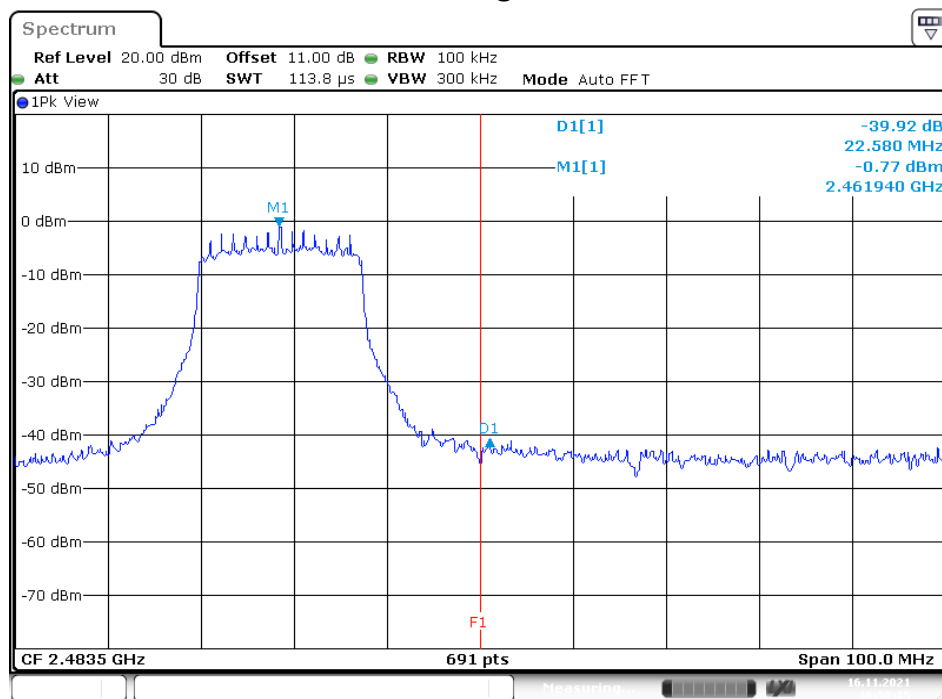


Date: 16.NOV.2021 16:12:01

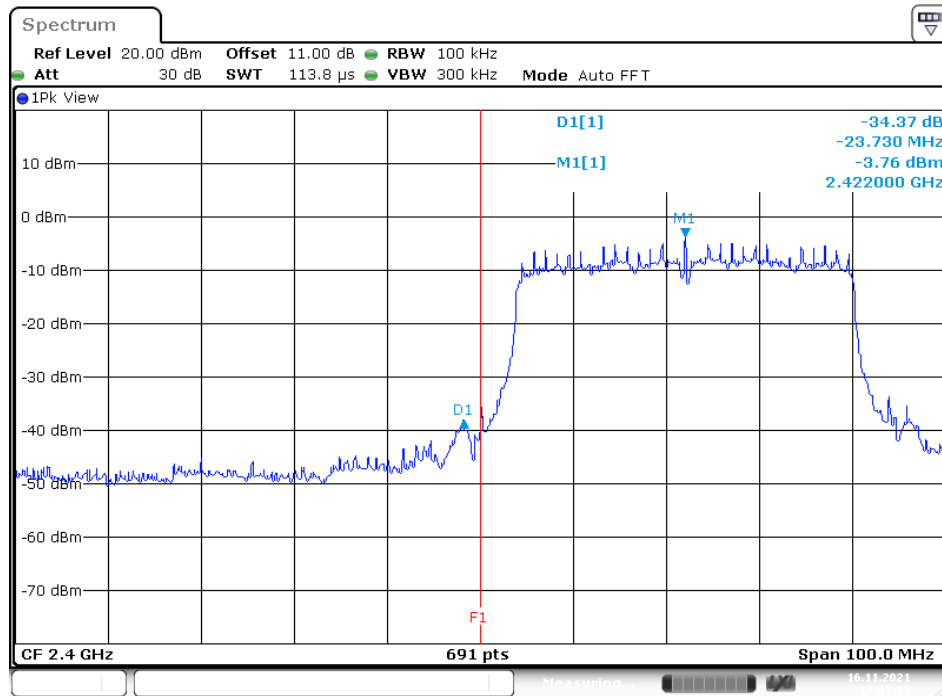
N20 Mode Low Channel



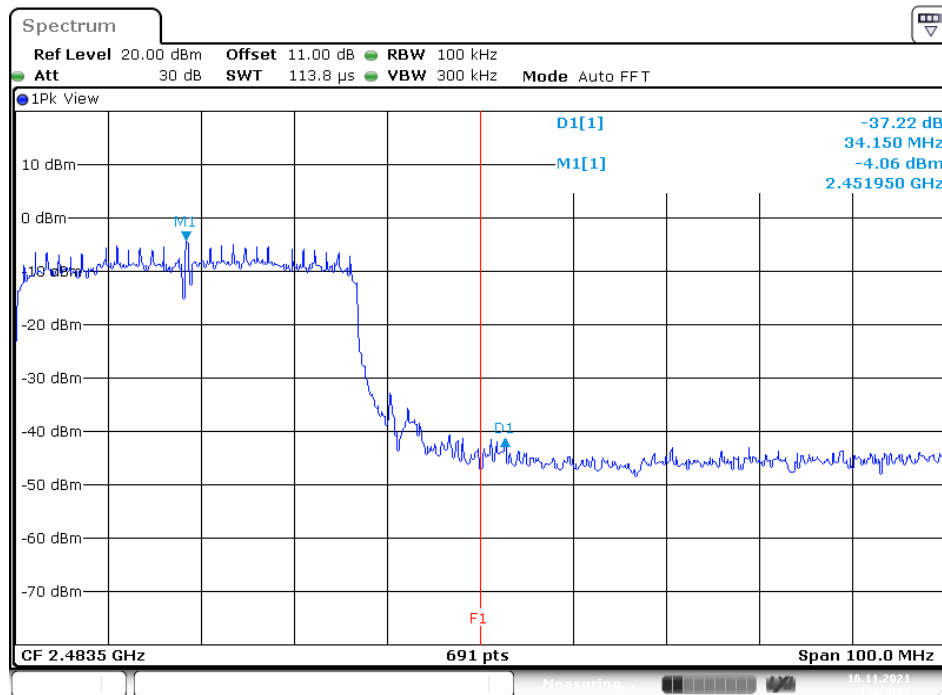
N20 Mode High Channel



N40 Mode Low Channel



N40 Mode High Channel



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。

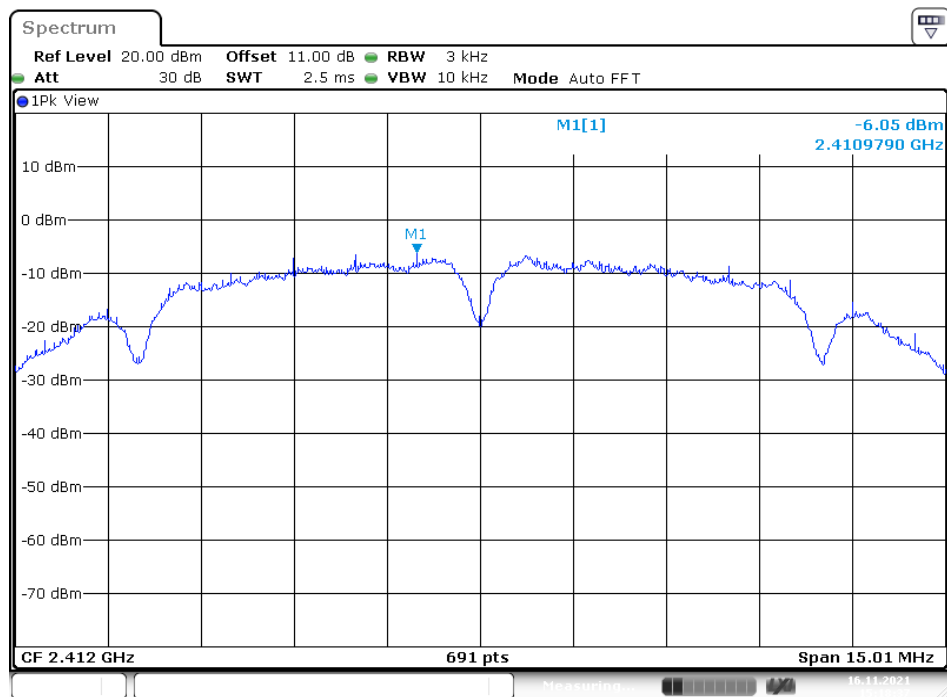
10.3 功率密度之量測結果

環境溫度	24.6℃	測試日期	2021 年 11 月 16 日
環境濕度	53%	測試人員	余梓誠

Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Result
B mode				
Low	2412	-6.05	8	PASS
Mid	2437	-5.81		PASS
High	2462	-7.16		PASS
G mode				
Low	2412	-14.72	8	PASS
Mid	2437	-14.88		PASS
High	2462	-14.74		PASS
N20 mode				
Low	2412	-14.88	8	PASS
Mid	2437	-14.80		PASS
High	2462	-14.33		PASS
N40 mode				
Low	2422	-17.06	8	PASS
Mid	2437	-17.51		PASS
High	2452	-17.96		PASS

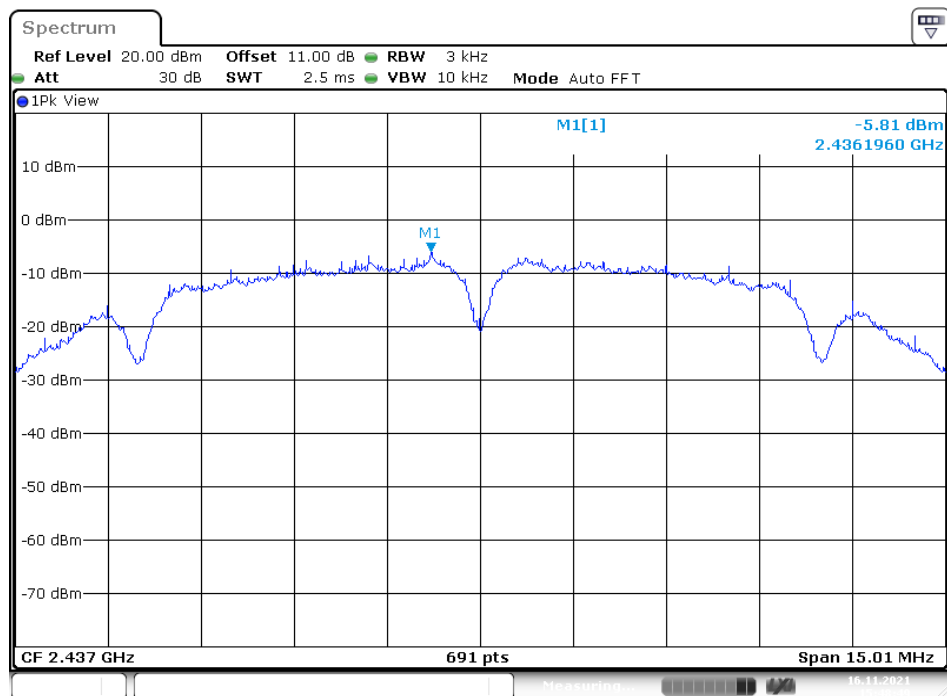
PSD

B Mode Low Channel



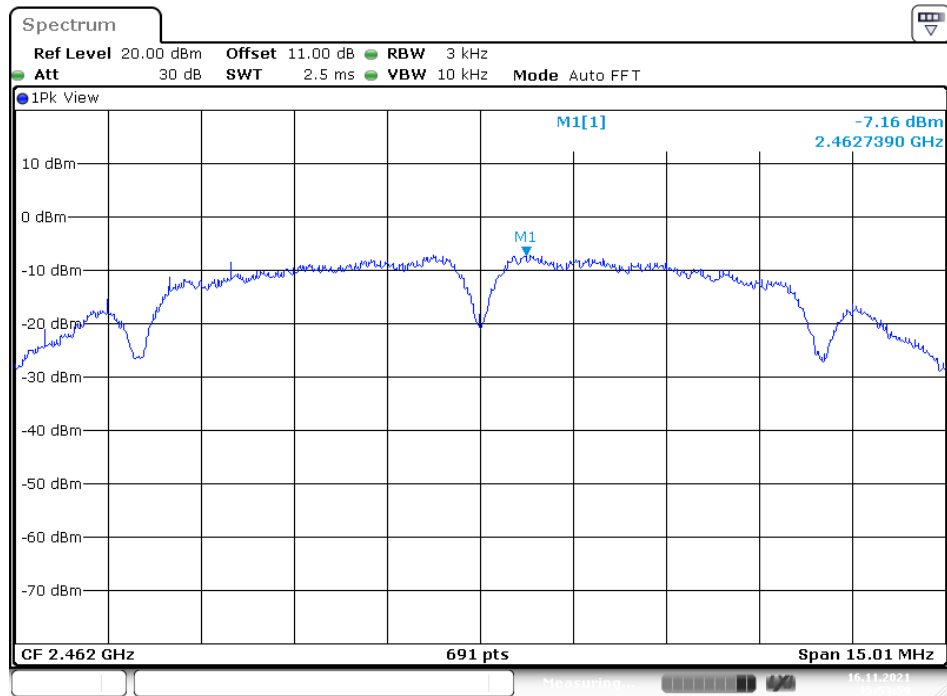
Date: 16.NOV.2021 15:18:37

B Mode Middle Channel



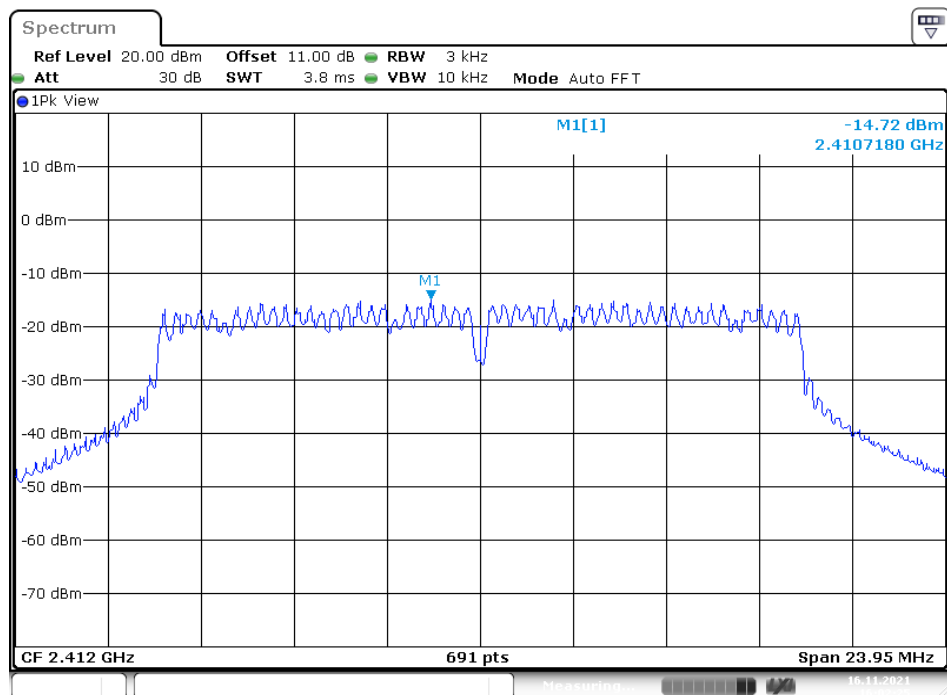
Date: 16.NOV.2021 15:48:48

B Mode High Channel



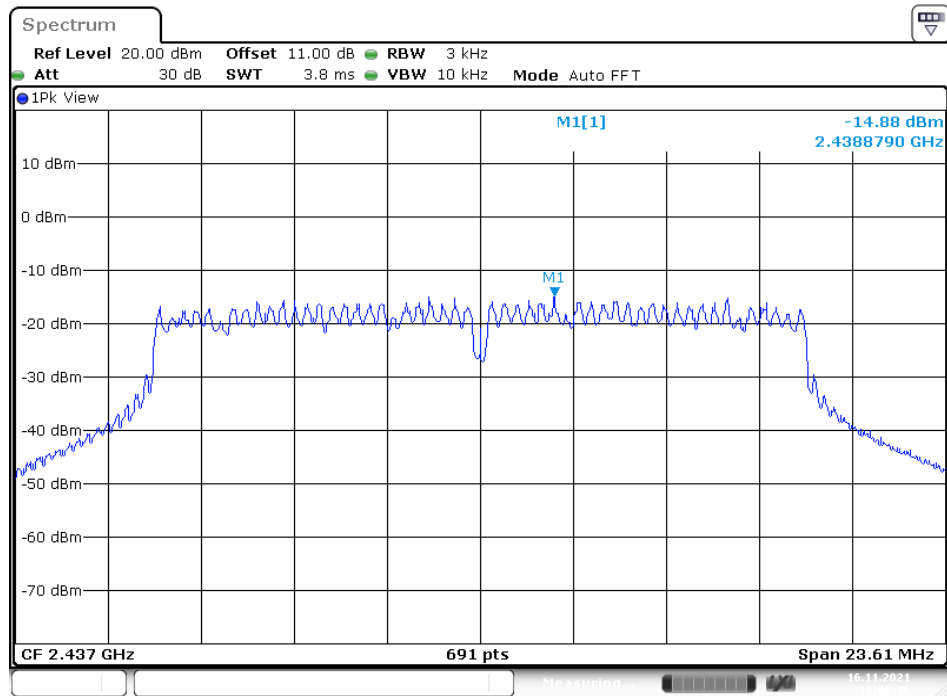
Date: 16.NOV.2021 15:53:59

G Mode Low Channel



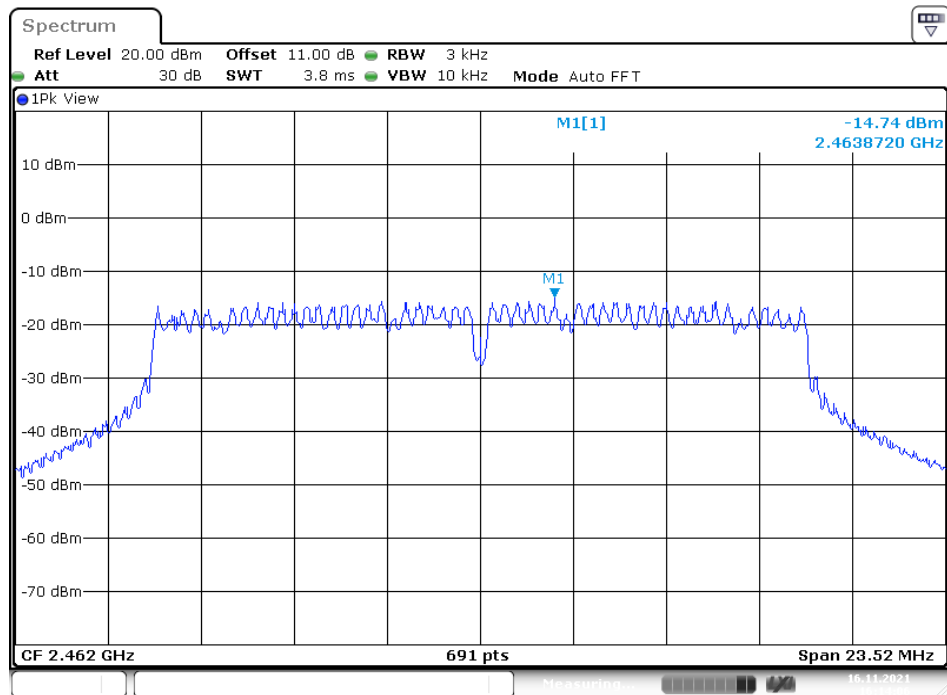
Date: 16.NOV.2021 16:02:25

G Mode Middle Channel



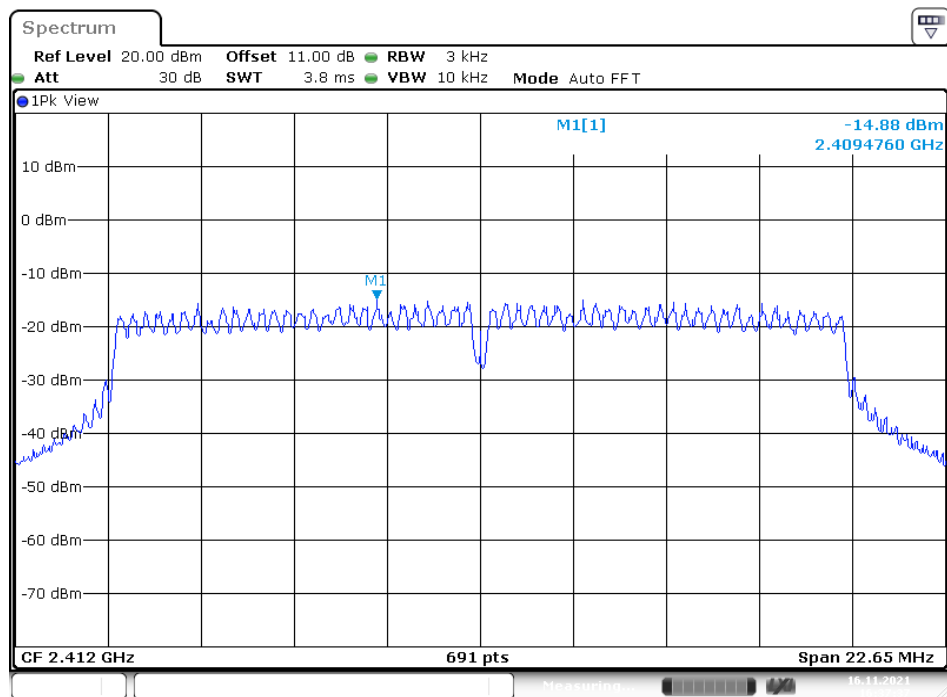
Date: 16.NOV.2021 16:08:46

G Mode High Channel



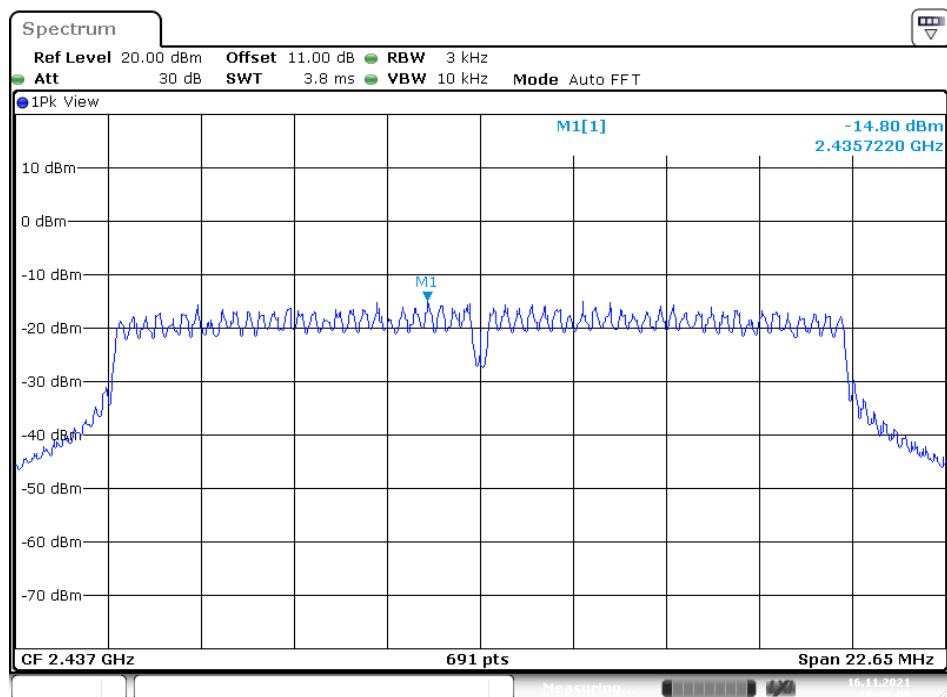
Date: 16.NOV.2021 16:14:06

N20 Mode Low Channel



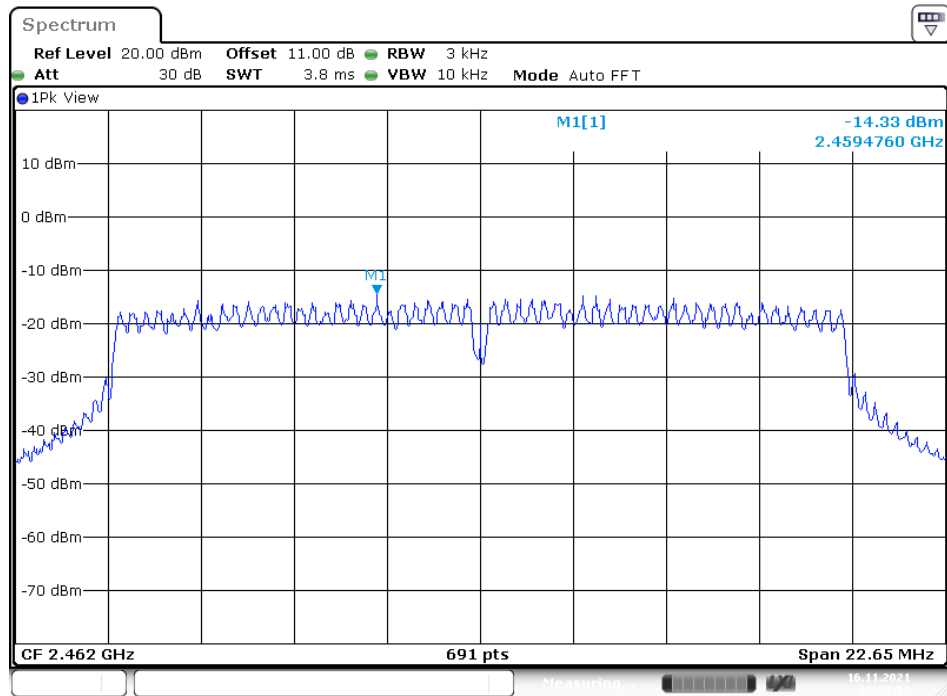
Date: 16.NOV.2021 16:37:37

N20 Mode Middle Channel



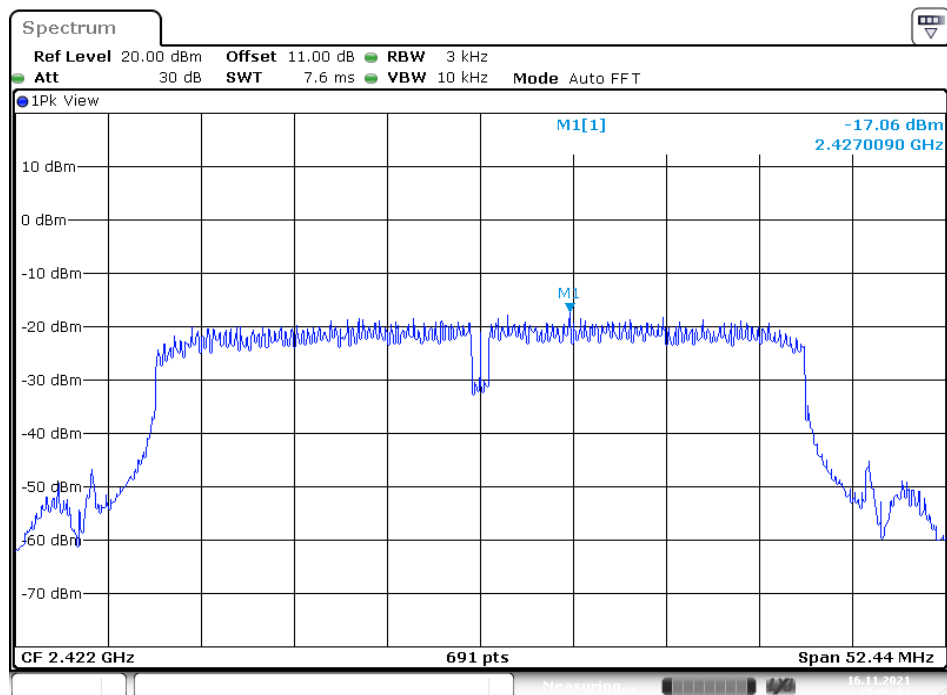
Date: 16.NOV.2021 16:42:07

N20 Mode High Channel



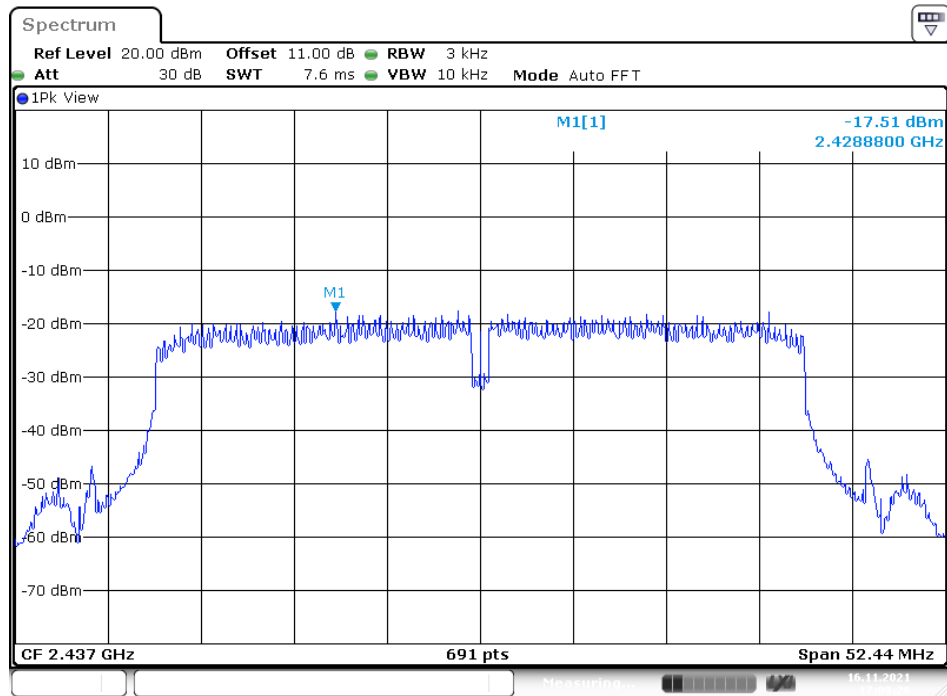
Date: 16.NOV.2021 16:59:52

N40 Mode Low Channel



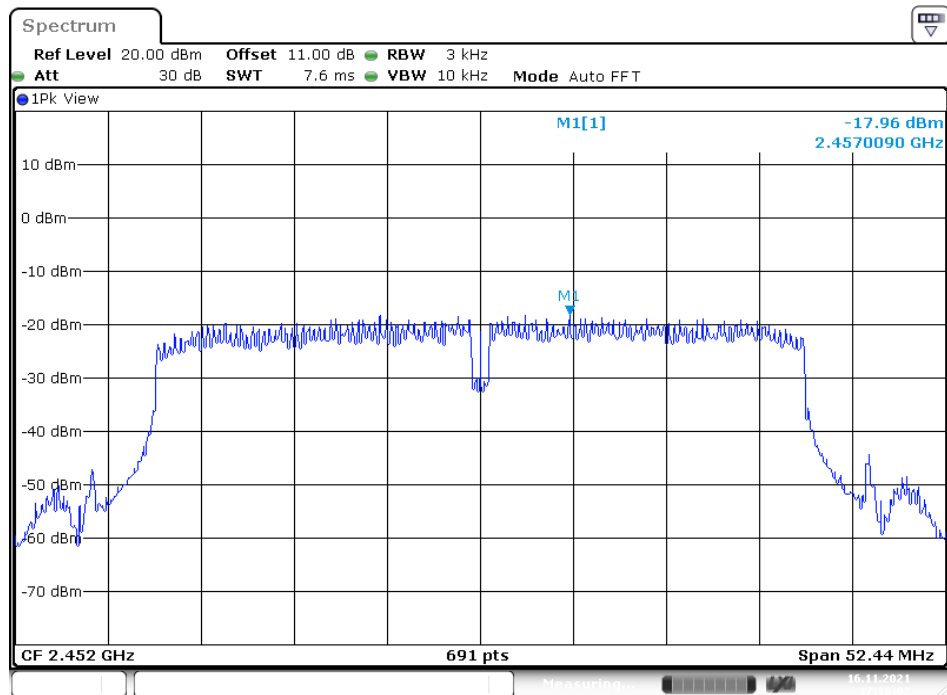
Date: 16.NOV.2021 17:05:31

N40 Mode Middle Channel



Date: 16.NOV.2021 17:09:28

N40 Mode High Channel



Date: 16.NOV.2021 17:16:02

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

5.20.2.2 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/cm²);

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 Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
	(dBm)	(mW)	(dBi)	(numeric.)			
2412-2462	19.93	98.401	2.66	1.845	20	0.0361	1

電磁波曝露量 MPE 標準值

1mW/cm²，送測產品實測值為：0.0361 mW/cm²

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
AC Line Conduction Room (CON-A)					
LISN	Rohde & Schwarz	ENV216	101612	2020/12/30	2021/12/29
LISN	Rohde & Schwarz	ENV216	101248	2021/6/8	2022/6/7
LISN	COM-POWER	LI-550A	211726	2020/12/30	2021/12/29
LISN	COM-POWER	LI-550A	211727	2020/12/30	2021/12/29
EMI Test Receiver	Rohde & Schwarz	ESR3	102099	2021/6/9	2022/6/8
Pulse Limiter	Rohde & Schwarz	ESH3Z2	TXZEM104	2021/7/29	2022/7/29
RF Cable	EMEC	EM-CB5D	1	2021/6/11	2022/6/11
Software	AUDIX	E3	V9.150826k	N.C.R	N.C.R
Radiation 3M Room (966-A)					
Active Loop Antenna	ETS-Lindgren	6502	35796	2021/3/16	2022/3/15
Bilog Antenna with 6 dB Attenuator	SUNOL SCIENCES & MINI-CIRCUITS	JB6/UNAT-6+	A050115/155 42_01	2021/1/19	2022/1/18
EMI Test Receiver	Rohde & Schwarz	ESR7	101419	2021/10/27	2022/10/26
Horn Antenna	EMCO	SAS-571	1020	2021/4/23	2022/4/22
Horn Antenna	ETS-Lindgren	3116	62638	2021/8/11	2022/8/10
Preamplifier	Sonoma	310N	130602	2021/6/8	2022/6/7
Preamplifier	A.H. system Inc.	PAM-0118P	466	2021/11/4	2022/11/3
Microwave Preamplifier	EM Electronics Corporation	EM18G40G	60656	2020/12/30	2021/12/29
Spectrum Analyzer	Rohde & Schwarz	FSV40	101435	2021/1/7	2022/1/6
Micro flex Cable	UTIFLEX	UFB197C-1-2362-70U-70U	225757-001	2021/2/1	2022/1/31
Coaxial Cable	COMMATE	PEWC	8Dr	2020/12/25	2021/12/24

Coaxial Cable	UTIFLEX	UFB311A-Q-1440-300300	220490-006	2021/2/1	2022/1/31
Coaxial Cable	JUNFLON	J12J102248-00-B-5	AUG-07-15-044	2020/12/25	2021/12/24
Cable	EMC	EMC105-SM-SM-10000	201003	2021/2/3	2022/2/2
Preamplifier	A.H. system Inc.	PAM-0118P	470	2021/3/15	2022/3/14
Software	Farad	EZ_EMC	BACL-03A1	N.C.R	N.C.R
Conducted Room					
Spectrum Analyzer	Rohde & Schwarz	FSV40	101140	2021/1/7	2022/1/6
Cable	UTIFLEX	UFA210A	9435	2021/10/5	2022/10/4
Power Sensor	KEYSIGHT	U2021XA	MY54080018	2021/1/28	2022/1/27
Attenuator	MINI-CIRCUITS	BW-S10W5+	1419	2021/1/28	2022/1/27

***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	± 2.36 (dB)
輻射干擾場強量測 (測試距離: 3m)	3M Chamber / 30~1000MHz(H)	± 3.88 (dB)
	3M Chamber / 30~1000MHz(V)	± 5.22 (dB)
	3M Chamber / 1~18GHz(H)	± 5.60 (dB)
	3M Chamber / 1~18GHz(V)	± 6.12 (dB)
	3M Chamber / 18~40GHz(H)	± 4.97 (dB)
	3M Chamber / 18~40GHz(V)	± 4.99 (dB)
佔用頻寬	Conducted	± 0.35 (MHz)
輸出功率	Conducted	± 0.93 (dB)
直量雜散	Conducted	± 1.69 (dB)
功率密度	Conducted	± 0.93 (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 “ $y \pm U$ (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 *****