



晶復科技股份有限公司

A Test Lab Techno Corp.

低功率射頻器材試驗報告

報告編號 2010DR35

版本(Rev.) 01

產品名稱 USB藍牙音箱

申請廠商 Plantronics, Inc.

廠 牌 plantronics

型式 (號) SY40-M

系列型式 (號) SY40

產品試驗依據之標準 低功率射頻器材技術規範(LP0002) 109 年 07 月 01 日

報告發行日期 109 年 12 月 08 日

填發本型式認可報告之試驗機構 (認可代號)

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財團法人全國認證基金會

認證編號 : 1330

認證有效期間 : 108.09.06 ~ 111.09.05

認可能量範圍 : 低功率射頻器材技術規範(LP0002) (頻率範圍:9 kHz to 40 GHz)



免責聲明

- 1.本測試報告所敘述之測試結果，僅對顧客所提供之測試樣品，在此測試報告所述及之測試條件下，所實施之量測有效。
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報告修訂紀錄

版本 (Rev.)	發行日期	修訂內容	修訂者
00	109 年 11 月 10 日	初版發行	趙翊如
01	109 年 12 月 08 日	更新 2.3 章節(P.9) 更新 3 章節(P.13~P.14) 更新 4 章節(P.23) 更新 Annex C(P.103)	江玉

低功率射頻器材測試證明書

產品名稱 : USB藍牙音箱

廠 牌 : plantronics

型 號 : SY40-M

系列型號 : SY40

申請廠商 : Plantronics, Inc.

申請者地址 : 345 Encinal Street, Santa Cruz, CA 95060, USA

製造廠商 : 東莞泰升音響科技有限公司

製造商地址 : 中國東莞市東城街道牛角坑路12號

待測物電壓 : Input: DC 5.0 V, 2.5 A Max / DC 9.0 V, 1.5 A Max / DC 12 V, 1.5 A
Output: DC 5.0 V, 1.0 A

試驗電壓 : 110 Vac, 60 Hz

量測規範 : 低功率射頻器材技術規範(LP0002) 109年07月01日

試驗實驗室 : 晶復科技股份有限公司(桃園市八德區長安街140-1號)

樣品接受日期 : 109 年 10 月 05 日

試驗日期 : 109 年 10 月 21 日 ~ 109 年 10 月 27 日

報告中所描述之測試結果與待測設備之架構組合，均根據實際量測情況作詳實的記錄。
由測試結果顯示，上述待測設備樣機確實已符合低功率射頻器材技術規範(LP0002)所規定的各項限制值。

特此證明！

審 核 者：



(呂 宗 霖)

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1. 一般敘述

1.1 待測設備一般敘述

本敘述僅針對產品簡單說明之，其他詳細之規格請參考使用說明書。

產 品 名 稱	USB 藍牙音箱		
廠 牌	plantronics		
型 號	SY40-M		
系 列 型 號	SY40		
額 定 電 源	Input: DC 5.0 V, 2.5 A Max / DC 9.0 V, 1.5 A Max / DC 12 V, 1.5 A Output: DC 5.0 V, 1.0 A		
調 變 方 式	GFSK, $\pi/4$ -DQPSK, 8DPSK		
頻 率 使 用 範 圍	2402 MHz – 2480 MHz		
天 線 廠 牌	plantronics		
天 線 型 號	SY40-M		
天 線 型 態	PCB Antenna		
天 線 增 益 值	2.25 dBi		
RF 最大輸出功率	BR, GFSK:	9.03 dBm/	0.00800 W
	EDR, $\pi/4$ -DQPSK:	11.25 dBm/	0.01334 W
	EDR, 8DPSK:	11.31 dBm/	0.01352 W
	LE, GFSK:	-0.75 dBm/	0.00084 W
	2LE, GFSK:	-0.75 dBm/	0.00084 W

輸出/輸入埠說明:

輸 出 / 入 埠		數量	介面內容說明
1	USB Port (Non-Shielded, 1 m)	1	連接至電源供應器/電腦
2	USB Port	1	連接至手機/i-Pod/多媒體終端
3	DC Power Port	1	連接至充電座

附屬裝置表:

裝置名稱	廠牌	型號	備註
內建固定式電池	VDL	765556-2P	3.7 VDC, 5000 mAh
轉接頭	Sunstrong	UL 1310	STD-A→Type-C

1.2 其他相關聲明

本測試報告屬(以下選擇一種打■)

☒	申請新的型式檢驗認可的測試。
☐	已取得型式檢驗認可之商品，因設計變更而重新測試 (變更內容請參考產品概述)。 登錄號碼： XXXXXXXX

差異說明

原機型廠牌、型號	系列機型廠牌、型號	差異敘述
plantronics / SY40-M	plantronics / SY40	因市場銷售區隔，增加系列型號，系列型號SY40與主型號SY40-M 差異為型號不同，無Teams功能。 主型號SY40-M帶有微軟軟件Teams啟動按鈕，SY40不帶此按鈕。 除上述差異外，其餘電路設計、印刷電路板等等並無變更。 測試結果說明： 經工程判定驗證電源傳導及場強輻射1 GHz以下，結果為主型號： SY40-M最Worst，因此僅呈現主型號：SY40-M並記錄結果數據。

2. 量測儀器及測試配置說明

2.1 量測設備

For Conducted

Test Period: Oct. 21, 2020

測試者: 呂迪曄

名 稱	廠 牌	型 號	序 號	本次校驗日期	校驗年限
Power Sensor	Agilent	N1921A	MY45241957	12/11/2019	1 year
Power Meter	Agilent	N1911A	MY45101619	12/11/2019	1 year
Spectrum Analyzer (20 Hz~26.5 GHz)	Agilent	N9020A	US47520902	09/24/2020	1 year

For Conducted Emission

Test Period: Oct. 26 ~ Oct. 27, 2020

測試者: 呂迪曄

名 稱	廠 牌	型 號	序 號	本次校驗日期	校驗年限
測試接收機 (9 kHz~3 GHz)	R&S	ESCI	100367	05/25/2020	1 year
線性阻抗模擬網路	R&S	ENV216	101040	03/23/2020	1 year
線性阻抗模擬網路	R&S	ENV216	101041	04/06/2020	1 year

For Radiated Emissions

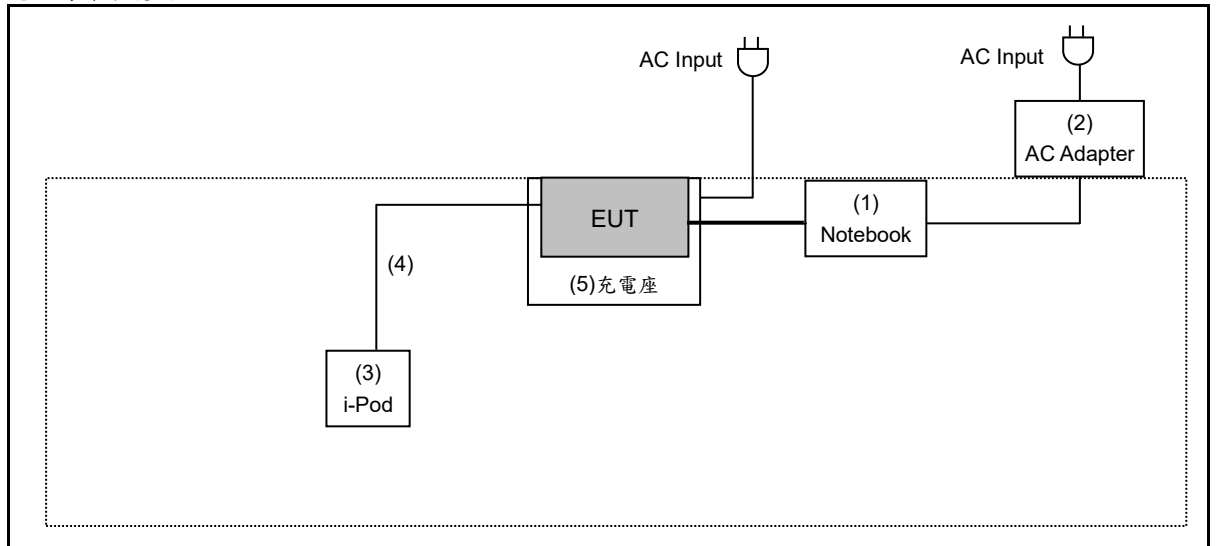
Test Period: Oct. 21 ~ Oct. 26, 2020

測試者: 劉彥聖, 葉佳原

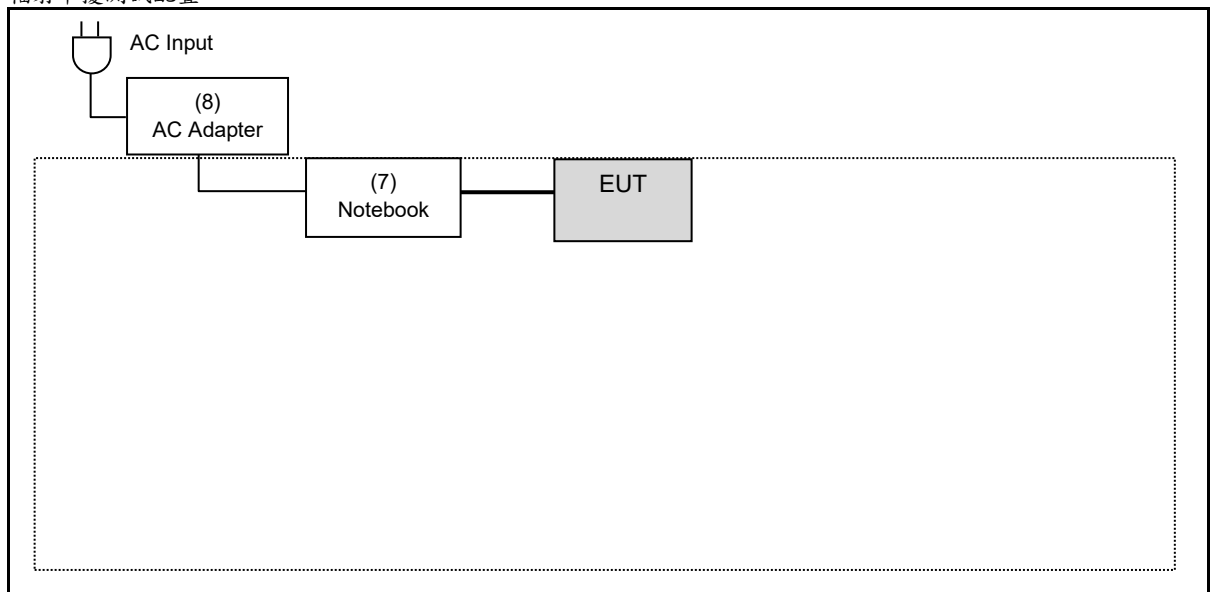
名 稱	廠 牌	型 號	序 號	本次校驗日期	校驗年限
Spectrum Analyzer	KEYSIGHT	N9030B	MY57143537	04/14/2020	1 year
Amplifier	Titan	T0912E0126302 5A1F	002	07/23/2020	1 year
Amplifier	Agilent	8447D	2944A11119	01/15/2020	1 year
天線	SCHWARZBECK MESS-ELEKTRONIK	VULB9168	01146	07/03/2020	1 year
天線(1~18 GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	02207	06/30/2020	1 year
天線(18~40 GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	08/18/2020	1 year

2.2 檢驗系統示意圖

電源傳導干擾測試配置



輻射干擾測試配置



2.3 輔助測試之週邊設備描述

下列輔助設備或配件為測試中所使用，以形成一個代表性的受測系統。

週邊名稱	廠牌	型號	序號	電源線	備註
(1) Notebook	DELL	Latitude7370	3XSPLC2	---	(實驗室提供)
(2) AC Adapter	DELL	0HDCY5	---	Non-Shielded, 0.8 m	Input: 100-240 VAC, 50/60 Hz, 1.5 A Output: 5 VDC / 20 VDC – 2 A / 2.25 A (實驗室提供)
(3) i-Pod	Apple	A1199	YM734DK EVQ5	---	(實驗室提供)
(4) Dock Cable	Apple	A1199	---	---	線長: 0.8 m (實驗室提供)
(5) 充電座	plantronics	CBSY40	---	Non-Shielded, 1.8 m	Input: 100-240 VAC, 50/60 Hz, 0.6 A Max Output: 12 VDC, 1.5 A (申請者提供)
(6) 電源供應器	PHILIPS	DLP5330C	---	---	Input: 100-240 VAC, 50/60 Hz, 1.2 A STD-A Output: 5 VDC, 3 A or 9 VDC, 2 A or 12 VDC, 1.5 A or total 5 VDC, 3.6 A Type-C Output: 5 VDC, 3 A or 9 VDC, 3 A or 12 VDC, 2.5 A or 15 VDC, 2 A or 20 VDC, 1.5 A (申請者提供)
(7) Notebook	ASUS	P1448U	K7NXCVC1 0P87329A	---	(實驗室提供)
(8) AC Adapter	ASUS	EXA1203YH	---	Non-Shielded, 0.8 m	Input: 100-240 VAC, 50/60 Hz, 1.5 A Output: 19 VDC , 3.42 A (實驗室提供)

註：本案經申請者切結器材不提供隨貨配件，配件由實驗室(或申請者)提供併同檢驗。

測試搭配組合：

EUT Configure Mode	CE	RE<1 GHz	RE ≥ 1 GHz	備註	
內建固定式電池	V	V	V		
轉接頭	V				
Notebook	V	---	---	測試週邊(1)	
AC Adapter	V	---	---	測試週邊(2)	
i-Pod	V		---	測試週邊(3)	
Dock Cable	V		---	測試週邊(4)	
充電座	V		---	測試週邊(5)	
電源供應器			---	測試週邊(6)	
Notebook	---	V	V	測試週邊(7)	Test Mode使用
AC Adapter	---	V	V	測試週邊(8)	Test Mode使用

RE ≥ 1 GHz : Radiated Emission above 1 GHz & Bandedge Measurement

RE<1 GHz : Radiated Emission below 1 GHz

CE : Conducted Emission

V : Final mode

X : Non support

--- : No evaluation required

Blank Space : Pre-test mode

2.4 測試軟體版本

Measurement Software			
No.	Description	Software	Version
1	Conducted Emission	EZ EMC	1.1.4.3
2	Radiated Emission	EZ EMC	1.1.4.4

2.5 測試模式

使用定頻模式量測

Pre-Test Mode
Mode 1: Transmit Mode
Mode 2: BR, GFSK Continuous TX Mode
Mode 3: EDR, $\pi/4$ -DQPSK Continuous TX Mode
Mode 4: EDR, 8DPSK Continuous TX Mode
Mode 5: LE, GFSK Continuous TX Mode
Mode 6: 2LE, GFSK Continuous TX Mode
Mode 7: Receive Mode

Final-Test Mode
Mode 1: Transmit Mode
Mode 2: BR, GFSK Continuous TX Mode
Mode 4: EDR, 8DPSK Continuous TX Mode
Mode 5: LE, GFSK Continuous TX Mode
Mode 6: 2LE, GFSK Continuous TX Mode
Mode 7: Receive Mode

Test Mode	Frequency (MHz)	Packet Type	RF Power setting in Test Software	Test Software Version
Mode 2	2402	DH1	7.00	Blue Test3_V3_2_3_29
		DH3	7.00	
		DH5	7.00	
	2441	DH1	7.00	
		DH3	7.00	
		DH5	7.00	
	2480	DH1	7.00	
		DH3	7.00	
		DH5	7.00	
Mode 3	2402	2DH1	7.00	
		2DH3	7.00	
		2DH5	7.00	
	2441	2DH1	7.00	
		2DH3	7.00	
		2DH5	7.00	
	2480	2DH1	7.00	
		2DH3	7.00	
		2DH5	7.00	
Mode 4	2402	3DH1	7.00	
		3DH3	7.00	
		3DH5	7.00	
	2441	3DH1	7.00	
		3DH3	7.00	
		3DH5	7.00	
	2480	3DH1	7.00	
		3DH3	7.00	
		3DH5	7.00	

Test Mode	Frequency (MHz)	RF Power setting in Test Software	Test Software Version
Mode 5	2402	Default	Blue Test3_V3_2_3_29
	2440	Default	
	2480	Default	
Mode 6	2402	Default	
	2440	Default	
	2480	Default	

2.6 量測不確定度

下列量測不確定水準是參照量測儀器 CISPR 16-4-2 所規定之不確定度。

Test Item	Frequency Range	Uncertainty (dB)
Conducted Emission	150 kHz ~ 30 MHz	2.68
Radiated Emission	9 kHz ~ 30 MHz	2.14
	30 MHz ~ 1000 MHz	4.99
	1000 MHz ~ 18000 MHz	4.99
	18000 MHz ~ 26500 MHz	4.23
	26500 MHz ~ 40000 MHz	4.39
Conducted Output Power	0.92 dB	
RF Bandwidth	4.79 %	
Power Spectral Density	0.92 dB	

2.7 試驗環境

產品測試時之實驗室環境條件如下：

項 目	測 試 項 目	需 求	實 際
溫度 Temperature (°C)	LP0002	10 - 40	20 - 30
濕度 Humidity (%RH)		10 - 90	45 - 75

3. 測試項目與結果判定總表

本測試報告之所有項目皆依據 NCC 低功率射頻器材技術規範(LP0002)之檢驗法。

BR/EDR 測試項目

項次	測試項目	適用規範	測試結果	量測設備	結果判定
1	電源線傳導干擾	低功率射頻器材技術規範 3.3節	Annex A.	請參閱2.1節	符合
2	場強輻射 (1 GHz以上)	低功率射頻器材技術規範 3.5節、3.6節、4.10.1.5節	Annex B.	請參閱2.1節	符合
3	場強輻射其它不必要之訊號 (1 GHz以下)	低功率射頻器材技術規範 3.5節、3.6節、4.10.1.5節	Annex B.	請參閱2.1節	符合
4	頻帶邊緣外之輻射發射	低功率射頻器材技術規範 4.10.1.5節	Annex B.	請參閱2.1節	符合
5	輸出峰值功率	低功率射頻器材技術規範 4.10.1.2(1)(B)節	Annex C.	請參閱2.1節	符合
6	非必要頻帶	低功率射頻器材技術規範 4.10.1.5(1)節	Annex C.	請參閱2.1節	符合
7	頻率範圍	低功率射頻器材技術規範 4.10.1.1節	Annex C.	請參閱2.1節	符合
8	發射頻寬	低功率射頻器材技術規範 4.10.1.6(1)(A)節	Annex C.	請參閱2.1節	符合
9	頻道數	低功率射頻器材技術規範 4.10.1.6(1)(A)(a)節	Annex C.	請參閱2.1節	符合
10	跳頻系統之載波頻率頻道間隔	低功率射頻器材技術規範 4.10.1.6(1)(A)節	Annex C.	請參閱2.1節	符合
11	跳頻系統之任一頻率佔用之 平均時間	低功率射頻器材技術規範 4.10.1.6(1)(A)(a)節	Annex C.	請參閱2.1節	符合
12	天線規格	低功率射頻器材技術規範 4.10.1.3(3)節、4.10.1.4節	請參閱4.11節	-----	符合
13	電波暴露量之評估	低功率射頻器材技術規範 6.20.2節	請參閱4.12節	請參閱2.1節	符合

LE/2LE 測試項目

項次	測試項目	適用規範	測試結果	量測設備	結果判定
1	電源線傳導干擾	低功率射頻器材技術規範 3.3節	Annex A.	請參閱2.1節	符合
2	場強輻射 (1 GHz以上)	低功率射頻器材技術規範 3.5節、3.6節、4.10.1.5節	Annex B.	請參閱2.1節	符合
3	場強輻射其它不必要之訊號 (1 GHz以下)	低功率射頻器材技術規範 3.5節、3.6節、4.10.1.5節	Annex B.	請參閱2.1節	符合
4	頻帶邊緣外之輻射發射	低功率射頻器材技術規範 4.10.1.5節	Annex B.	請參閱2.1節	符合
5	輸出峰值功率	低功率射頻器材技術規範 4.10.1.2(1)(C)節	Annex C.	請參閱2.1節	符合
6	非必要頻帶	低功率射頻器材技術規範 4.10.1.5節	Annex C.	請參閱2.1節	符合
7	發射頻寬	低功率射頻器材技術規範 4.10.1.6(2)(A)節	Annex C.	請參閱2.1節	符合
8	功率密度	低功率射頻器材技術規範 4.10.1.6(2)(B)節	Annex C.	請參閱2.1節	符合
9	天線規格	低功率射頻器材技術規範 4.10.1.3(3)節、4.10.1.4節	請參閱4.11節	-----	符合
10	電波暴露量之評估	低功率射頻器材技術規範 6.20.2節	請參閱4.12節	請參閱2.1節	符合

Decision Rule

☒ Uncertainty is not included.

☐ Uncertainty is included.

4. 測試項目表列

4.1 電源線傳導干擾之量測

合格標準：

依據 NCC 低功率射頻器材技術規範(LP0002)之 3.3 節，以市電為電源之低功率射頻器材，其傳導回電源線上頻率自 150 kHz 至 30 MHz 之射頻電壓 (在電源端子每一電源線對接地點) 不得超過下表所列之限值。測量時應經過 50 Ω /50 μ H 之電源線阻抗模擬網路 (LISN)。頻率重疊處，以較低限值為準。

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

註：隨頻率之對數遞減。

測試方法：

測試場地為標準傳導測試場地。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。

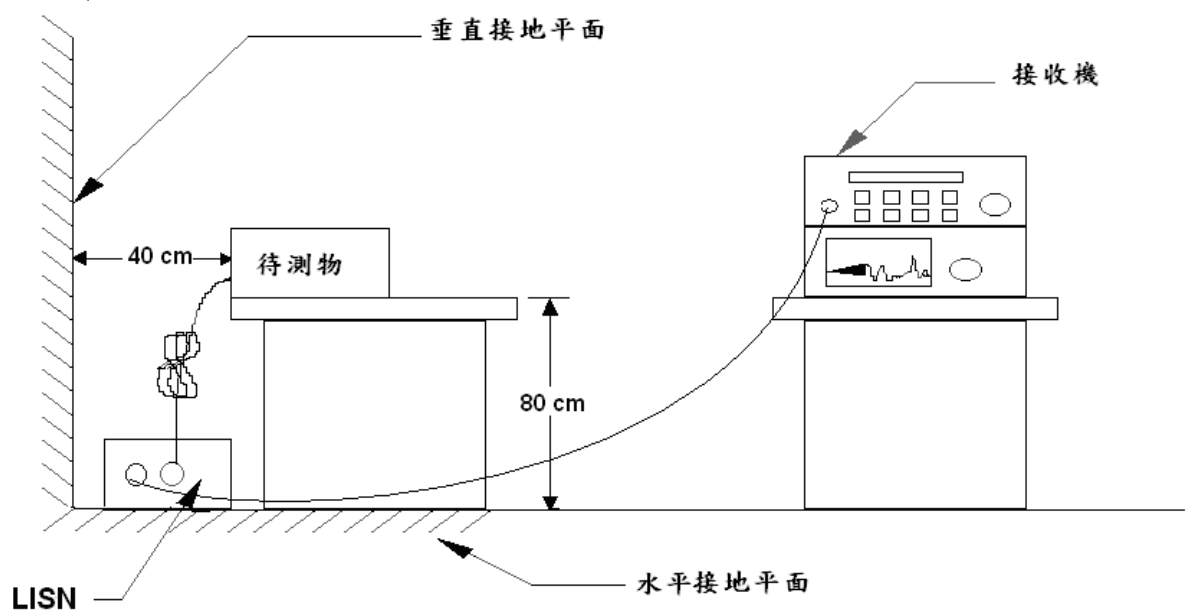
干擾值之計算

電源傳導干擾電壓之計算公式如下

結果值 = 儀器讀值(QP/AV) + 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

測試架構圖：



4.2 場強輻射之量測

合格標準：

依據 NCC 低功率射頻器材技術規範(LP0002)之使用頻帶範圍外之任意 100 千赫 (kHz)內，發射機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 千赫(kHz)內的射頻功率，至少須衰減 20 dB，以射頻傳導或輻射方式測量。如發射機以依據 NCC 低功率射頻器材技術規範(LP0002)之 4.10.1.5(2)之峰值傳導輸出功率量測方式者，至少須衰減 30 dB。此外，落於第 3.5 節禁用頻段之輻射發射，應符合第 3.6 節之規定。

依據 NCC 低功率射頻器材技術規範第 3.5 節之規定，禁用頻段如下：

頻率(MHz)	頻率(MHz)	頻率(MHz)	頻率(MHz)
0.090~0.110	108.00~138.00	1660.0~1785.0	8025.0~8500.0
0.490~0.510	149.90~150.05	1805.0~1888.0	9000.0~9200.0
2.172~2.198	156.70~156.90	1885.0~1900.0	9300.0~9500.0
3.013~3.033	162.01~167.17	1905.0~1985.0	10600~12700
4.115~4.198	167.72~173.20	2010.0~2025.0	13250~13400
5.670~5.690	240.00~285.00	2110.0~2170.0	14470~14500
6.200~6.300	322.00~335.40	2200.0~2300.0	15350~16200
8.230~8.400	399.90~410.00	2310.0~2390.0	17700~21400
12.265~12.600	485.00~510.00	2483.5~2900.0	22010~23120
13.340~13.430	608.00~614.00	3260.0~3267.0	23600~24000
14.965~15.020	703.00~748.00	3332.0~3339.0	31200~31800
16.700~16.755	758.00~803.00	3345.8~3358.0	36430~36500
19.965~20.020	825.00~915.00	3500.0~4400.0	38600 以上
25.500~25.700	930.00~1240.0	4500.0~5250.0	
37.475~38.275	1300.0~1427.0	5350.0~5460.0	
73.500~75.400	1435.0~1626.5	7250.0~7750.0	

依據 NCC 低功率射頻器材技術規範第 3.6 節之規定，除本規範各章節另有放寬規定者外，其電場強度不得超過下表之限值，且其不必要之發射皆不得大於主波發射強度。各頻段重疊處，以較嚴格之限制值為準。

頻 率 (MHz)	電場強度(μV/m)	測距(m)
0.009 - 0.490(含)	2,400/頻率(千赫)	300
0.490 (不含) – 1.705 (含)	24,000/頻率(千赫)	30
1.705(不含) – 30 (不含)	30	30
30 (含) – 88 (含)	100	3
88 (不含)- 216 (含)	150	3
216 (不含)- 960 (含)	200	3
960 (不含)以上	500	3

測試方法：

測試場地為開放測試場，將待測物置於 0.8 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。

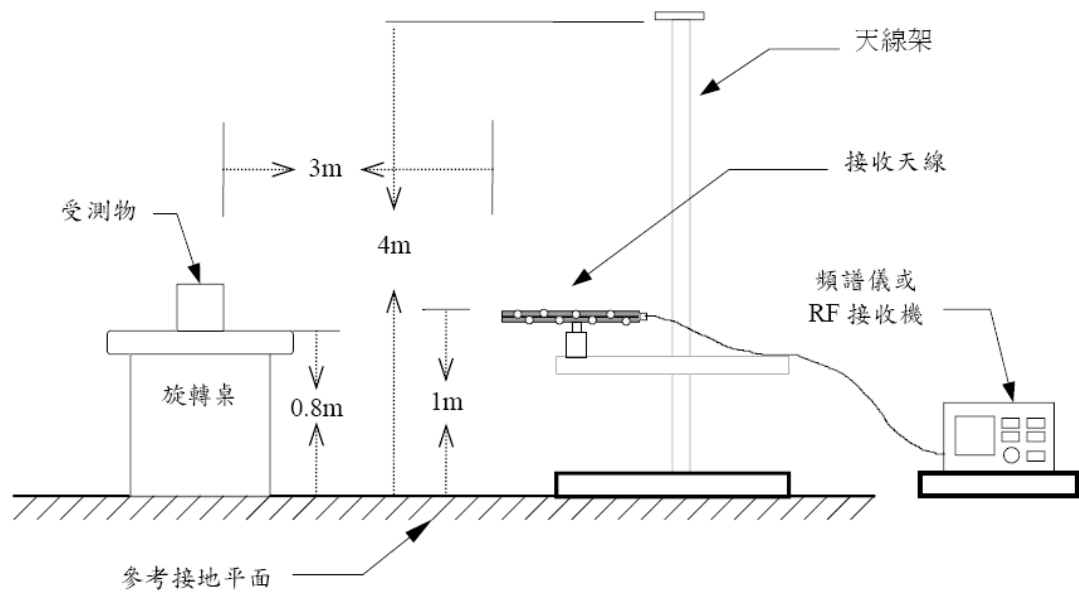
場強度之計算

場強之計算公式為：結果值 = 讀值 + 校正因子

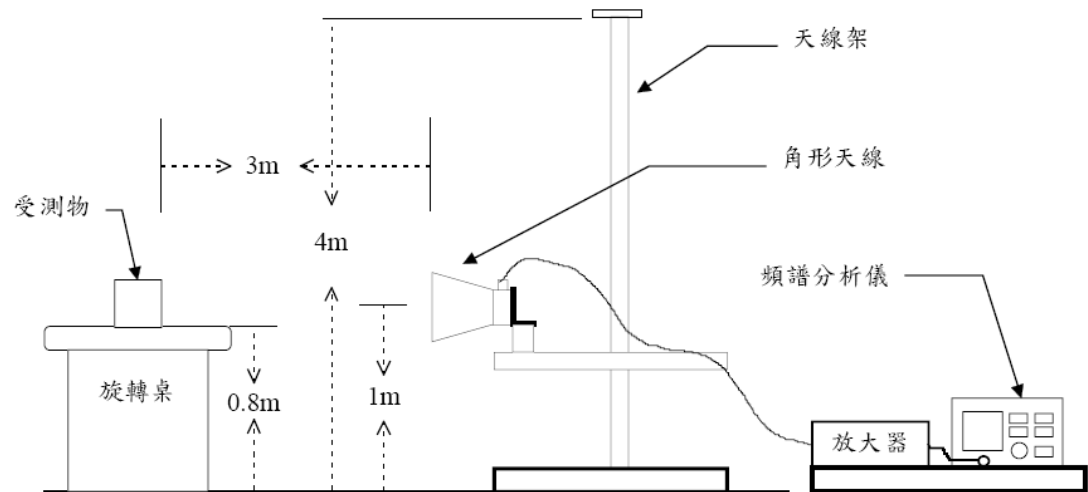
其中校正因子為：天線因子+ 饋線損失 + 濾波器損失（若有使用） - 放大器增益（若有使用）

測試架構圖：

量測頻率低於 1 GHz 以下之測試配置



量測頻率高於 1 GHz 以上之測試配置



4.3 輸出峰值功率之量測

合格標準：

BR/EDR

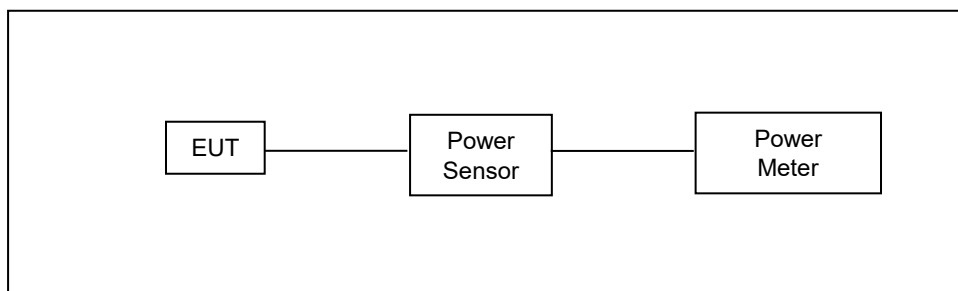
依據 NCC 低功率射頻器材技術規範(LP0002)之 4.10.1.2(1)(B)節之要求，所有操作於 2400-2483.5 兆赫且輸出功率應小於或等於 0.125 W。

LE/2LE

依據 NCC 低功率射頻器材技術規範(LP0002)之 4.10.1.2(1)(C)節之要求，操作於 2400-2483.5 兆赫(MHz)之所有數位調變技術系統：1 瓦(W)以下。

除使用附件二之峰值輸出功率量測方式外，並得使用以最大傳導輸出功率(Maximum Conducted Output Power)作為量測方式。

測試架構圖：

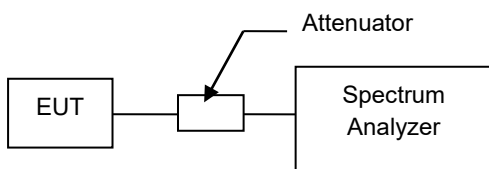


4.4 非必要頻帶之量測

合格標準：

發射限制：使用頻帶範圍外之任意 100 千赫 (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 千赫 (kHz)內的射頻功率，須衰減 20 分貝(dB)，以射頻傳導或輻射方式測量。

測試架構圖：



附註 1: 於使用頻帶範圍之任意 100 千赫 (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 千赫 (kHz)內的射頻功率，衰減 20 分貝(dB)以上，符合規定。

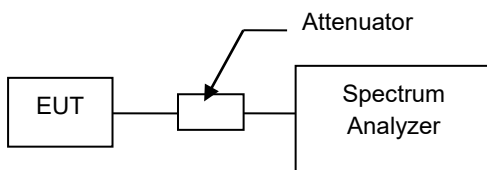
附註 2: 測試結果頻帶外之輻射雜訊皆小於主頻 TX 20 dB。

4.5 頻率範圍之要求

合格標準:

依據 NCC 低功率射頻器材技術規範(LP0002)之 4.10.1.1 節之要求, 允許使用的頻率範圍為 2400 至 2483.5 MHz。

測試架構圖：



4.6 發射頻寬之要求

合格標準:

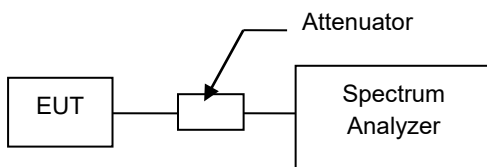
BR/EDR

對跳頻系統(Frequency Hopping System)而言, 依據 NCC 低功率射頻器材技術規範 4.10.1.6(1)(A)節之要求, 跳頻系統之載波頻率頻道間隔應至少 25 千赫(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, 且應隨所發射的信號同步偏移接收頻率。

LE/2LE

依據 NCC 低功率射頻器材技術規範 4.10.1.6(2)(A)節之要求, 對使用數位調變技術(Digital Modulation Techniques)系統而言, 6 dB 頻寬至少應有 500 千赫(kHz)。

測試架構圖：

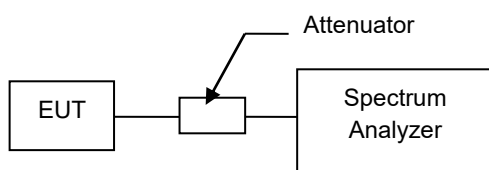


4.7 頻道數之要求

合格標準：

對跳頻系統(Frequency Hopping System)而言，依據 NCC 低功率射頻器材技術規範(LP0002)之 4.10.1.6(1)(A)(a)節之要求，至少使用 15 個無重疊之頻道(複合系統時，關閉數位調變作業狀態檢驗)。

測試架構圖：

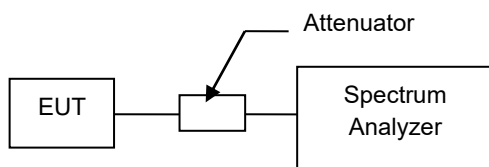


4.8 跳頻系統之載波頻率頻道間隔之量測

合格標準：

依據 NCC 低功率射頻器材技術規範(LP0002) 之 4.10.1.6(1)(A)節要求，應至少 25 kHz 或跳頻頻道之 20 dB 頻寬之三分之二，兩者取較寬者。

測試架構圖：

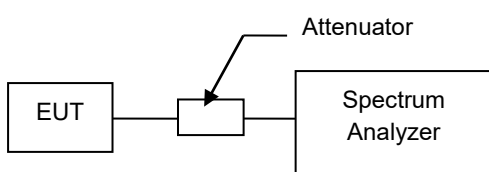


4.9 跳頻系統之任一頻率佔用之平均時間之量測

合格標準：

依據 NCC 低功率射頻器材技術規範(LP0002)之 4.10.1.6(1)(A)(a)節之要求，若使用 15 個無重疊之頻道，在 0.4 秒乘以跳頻頻道數之週期內，任一頻道佔用之平均時間不得超過 0.4 秒(複合系統時，關閉跳頻作業狀態檢驗)。

測試架構圖：

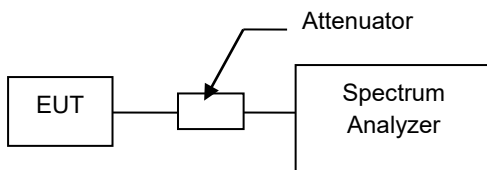


4.10 功率密度之要求

合格標準：

依據 NCC 低功率射頻器材技術規範(LP0002)之 4.10.1.6(2)(B)節之要求，數位調變技術(Digital Modulation Techniques)系統之功率密度，再使用頻率範圍之任意 3 kHz 頻寬內，由發射機傳導至天線之峰值發射電功率密度在任意期間內，皆不得大於 8 dBm(複合系統時，關閉跳頻作業狀態檢驗)。

測試架構圖：



4.11 天線規格之要求

合格標準：

依據 NCC 低功率射頻器材技術規範(LP0002)之 4.10.1.3(3)節之要求，除 4.10.1.3(1)及 4.10.1.3(2)外，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。

依據 NCC 低功率射頻器材技術規範(LP0002)之 4.10.1.4 節之要求，天線之規格不受第 3.2 節規定之限制。

判定結果：符合。

4.12 電波暴露量之評估

合格標準：

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，可測試最大暴露允許值(Maximum Permissible Exposure, MPE)以證明其符合電波暴露量之要求。限制值如下：

6.20.2.1 職業性/可控制之暴露

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 (minutes)
0.3~3.0	614	1.63	*100	6
3~30	1842/f	4.89/f	*900/f ²	6
30~300	61.4	0.163	1.0	6
300~1,500	-----	-----	f/300	6
1,500~100,000	-----	-----	5.0	6

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。

6.20.2.2 一般人/不可控制之暴露

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 (minutes)
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

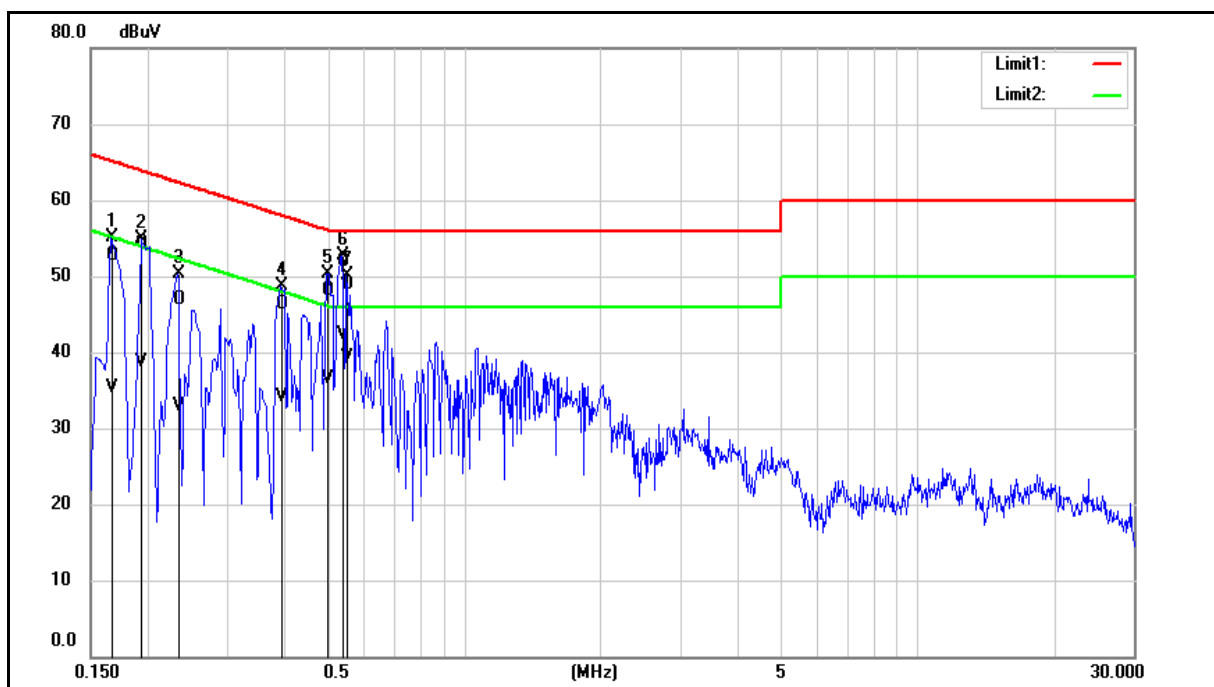
註 1：標記*表平面波等效功率密度。

註 2：f 表測試頻率，單位：MHz。

5. Test Results

Annex A. Conducted Emission

Standard:	LP0002	Line:	L1
Test item:	Conducted Emission	Power:	AC 110 V/60 Hz
Mode:	Mode 1		
Description:			

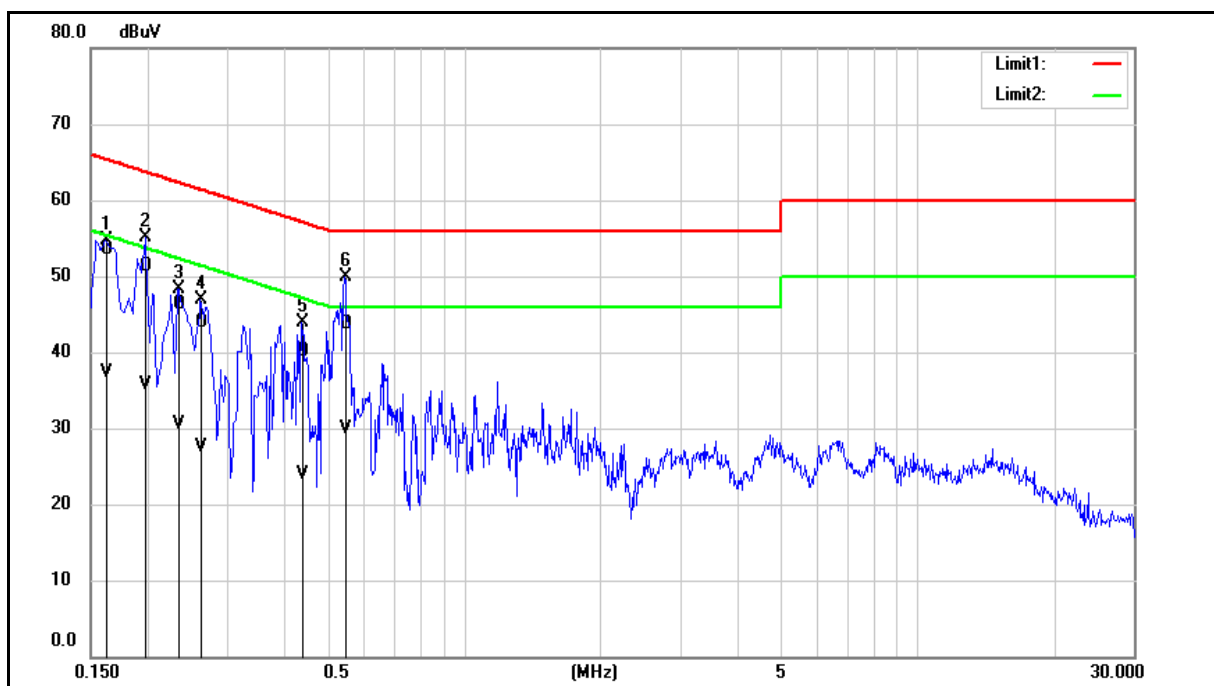


No.	Frequency (MHz)	QP reading (dBuV)	AVG reading (dBuV)	Correction factor (dB)	QP result (dBuV)	AVG result (dBuV)	QP limit (dBuV)	AVG limit (dBuV)	QP margin (dB)	AVG margin (dB)	Remark
1	0.1660	43.07	25.61	9.70	52.77	35.31	65.16	55.16	-12.39	-19.85	Pass
2	0.1940	44.57	29.01	9.70	54.27	38.71	63.86	53.86	-9.59	-15.15	Pass
3	0.2340	37.24	23.16	9.70	46.94	32.86	62.31	52.31	-15.37	-19.45	Pass
4	0.3940	36.57	24.48	9.70	46.27	34.18	57.98	47.98	-11.71	-13.80	Pass
5	0.4980	38.47	26.81	9.71	48.18	36.52	56.03	46.03	-7.85	-9.51	Pass
6	0.5380	42.27	32.58	9.71	51.98	42.29	56.00	46.00	-4.02	-3.71	Pass
7	0.5500	39.13	29.57	9.71	48.84	39.28	56.00	46.00	-7.16	-6.72	Pass

註：1. 干擾值(dBuV) = 校正係數(dB) + 讀值(dBuV)。

2. 校正係數(dB) = 量測信號線損失(dB) + 電源阻抗模擬網路係數(dB)。

Standard:	LP0002	Line:	N
Test item:	Conducted Emission	Power:	AC 110 V/60 Hz
Mode:	Mode 1		
Description:			



No.	Frequency (MHz)	QP reading (dBuV)	AVG reading (dBuV)	Correction factor (dB)	QP result (dBuV)	AVG result (dBuV)	QP limit (dBuV)	AVG limit (dBuV)	QP margin (dB)	AVG margin (dB)	Remark
1	0.1620	43.75	27.71	9.69	53.44	37.40	65.36	55.36	-11.92	-17.96	Pass
2	0.1980	41.70	25.95	9.69	51.39	35.64	63.69	53.69	-12.30	-18.05	Pass
3	0.2340	36.56	20.88	9.69	46.25	30.57	62.31	52.31	-16.06	-21.74	Pass
4	0.2620	34.21	17.79	9.69	43.90	27.48	61.37	51.37	-17.47	-23.89	Pass
5	0.4380	30.45	14.22	9.70	40.15	23.92	57.10	47.10	-16.95	-23.18	Pass
6	0.5460	33.93	20.29	9.70	43.63	29.99	56.00	46.00	-12.37	-16.01	Pass

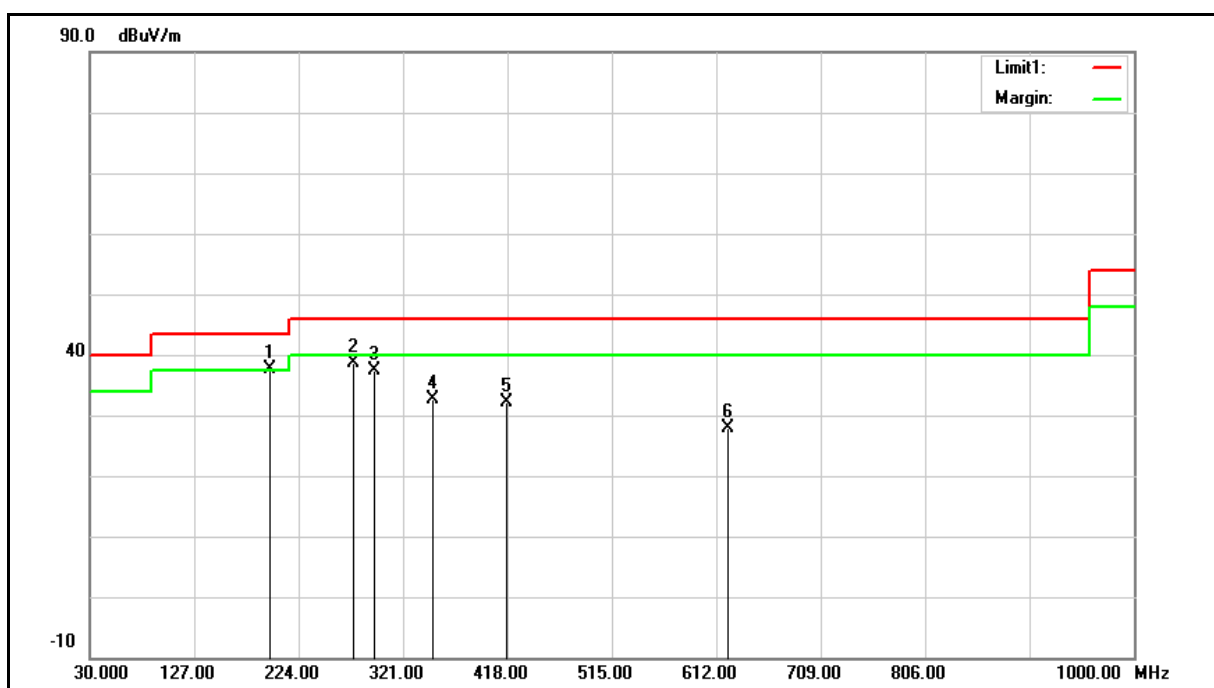
註：1. 干擾值(dBuV) = 校正係數(dB) + 讀值(dBuV)。

2. 校正係數(dB) = 量測信號線損失(dB) + 電源阻抗模擬網路係數(dB)。

Annex B. Radiated Emission Measurement

其它不必要之訊號 (1 GHz 以下)

Standard:	LP0002	Test Distance:	3 m
Test item:	Radiated Emission		
Frequency:	2480MHz		
Mode:	Mode 4		
Ant.Polar.:	Horizontal		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	196.8400	47.71	-10.01	37.70	43.50	-5.80	QP
2	274.4400	46.02	-7.32	38.70	46.00	-7.30	QP
3	293.8400	44.04	-6.73	37.31	46.00	-8.69	QP
4	349.1300	38.32	-5.67	32.65	46.00	-13.35	QP
5	417.0300	36.76	-4.53	32.23	46.00	-13.77	QP
6	622.6700	28.92	-1.08	27.84	46.00	-18.16	QP

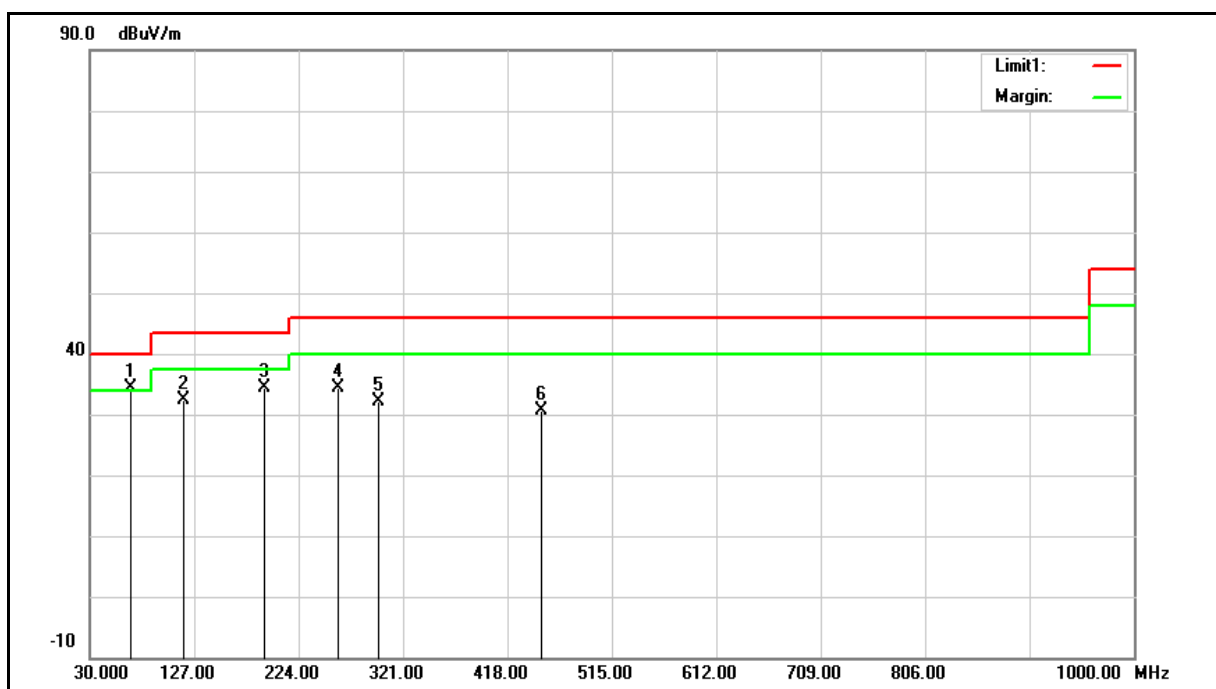
Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

Example: $37.70 = -10.01 + 47.71$

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Radiated Emission		
Frequency:	2480 MHz		
Mode:	Mode 4		
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	67.8300	44.81	-10.50	34.31	40.00	-5.69	QP
2	117.3000	42.60	-10.29	32.31	43.50	-11.19	QP
3	191.9900	44.55	-10.06	34.49	43.50	-9.01	QP
4	260.8600	42.57	-8.12	34.45	46.00	-11.55	QP
5	298.6900	38.66	-6.61	32.05	46.00	-13.95	QP
6	449.0400	34.65	-3.97	30.68	46.00	-15.32	QP

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

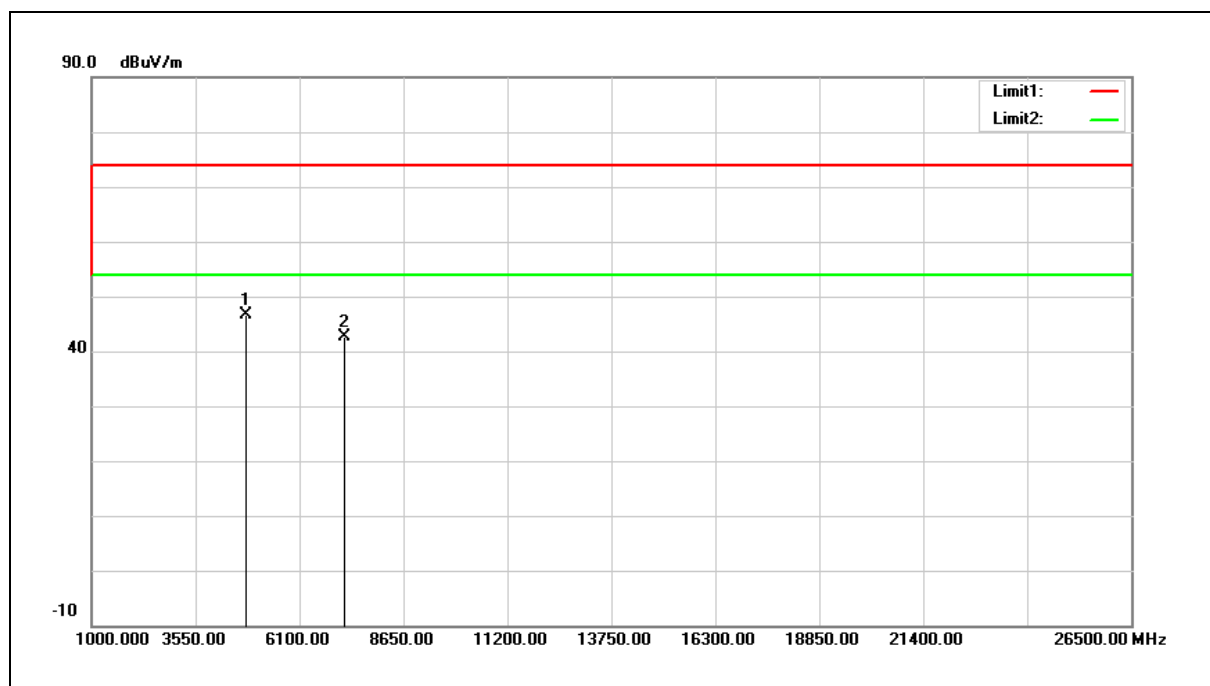
Example: $34.31 = -10.50 + 44.81$

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

場強輻射量測 (1 GHz 以上)

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2402 MHz		
Mode:	Mode 2		
Ant.Polar.:	Horizontal		



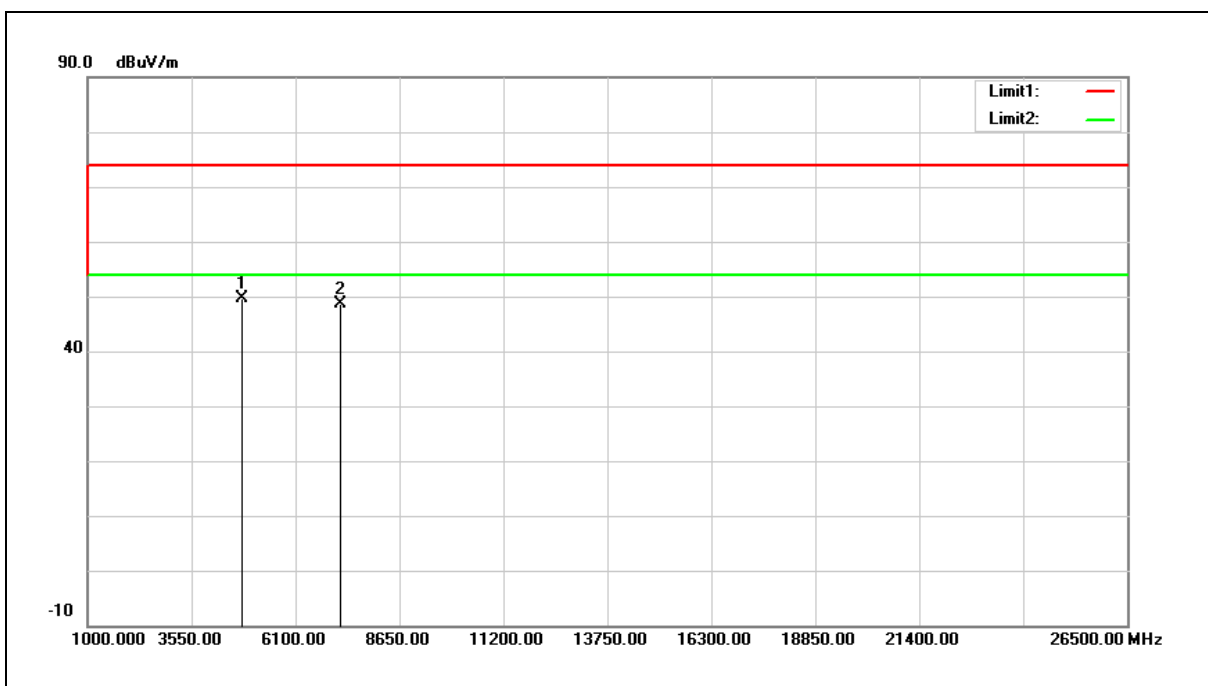
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4804.000	47.95	-1.30	46.65	74.00	-27.35	peak
2	7206.000	36.80	5.74	42.54	74.00	-31.46	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2402 MHz		
Mode:	Mode 2		
Ant.Polar.:	Vertical		



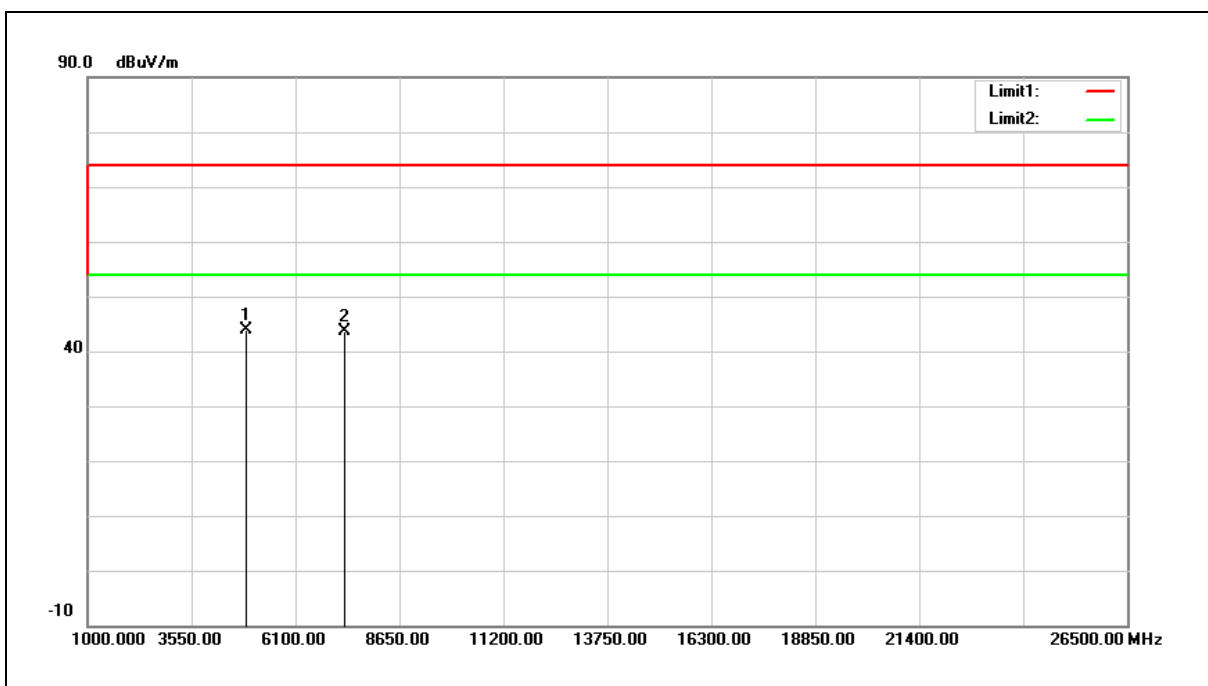
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4804.000	50.92	-1.30	49.62	74.00	-24.38	peak
2	7206.000	42.89	5.74	48.63	74.00	-25.37	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2441 MHz		
Mode:	Mode 2		
Ant.Polar.:	Horizontal		



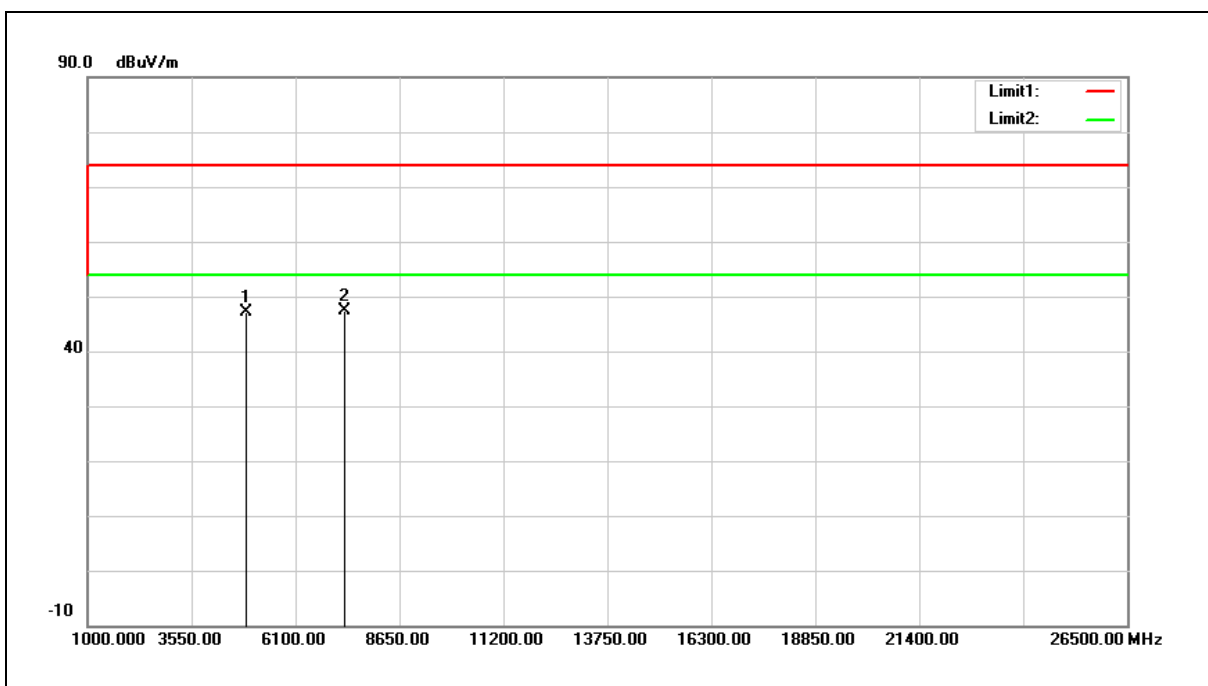
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4882.000	44.96	-1.10	43.86	74.00	-30.14	peak
2	7323.000	37.47	6.15	43.62	74.00	-30.38	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2441 MHz		
Mode:	Mode 2		
Ant.Polar.:	Vertical		



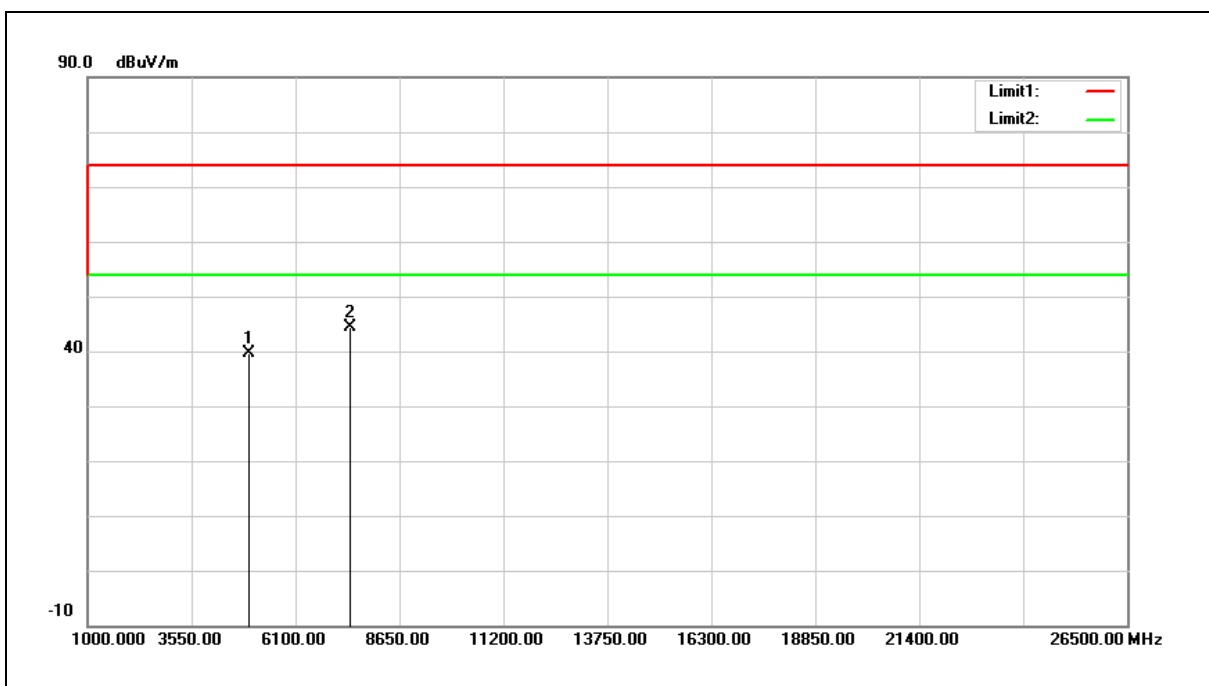
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4882.000	48.27	-1.10	47.17	74.00	-26.83	peak
2	7323.000	41.12	6.15	47.27	74.00	-26.73	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2480 MHz		
Mode:	Mode 2		
Ant.Polar.:	Horizontal		



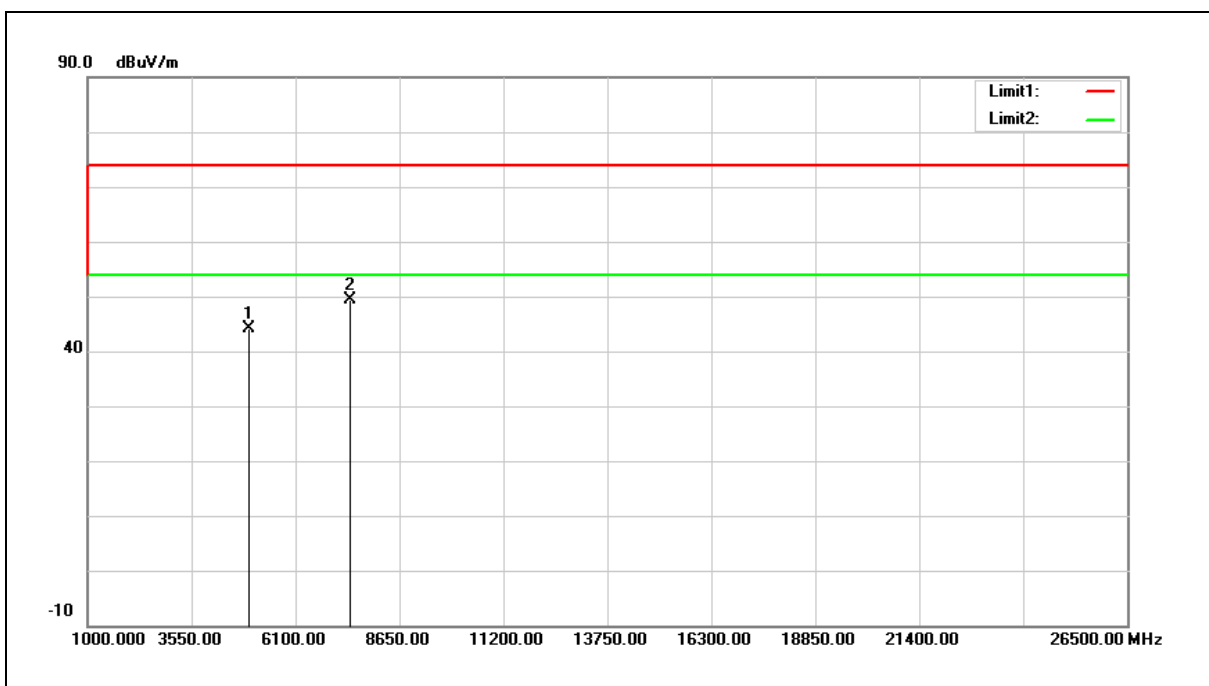
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4960.000	40.49	-0.88	39.61	74.00	-34.39	peak
2	7440.000	37.92	6.56	44.48	74.00	-29.52	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2480 MHz		
Mode:	Mode 2		
Ant.Polar.:	Vertical		



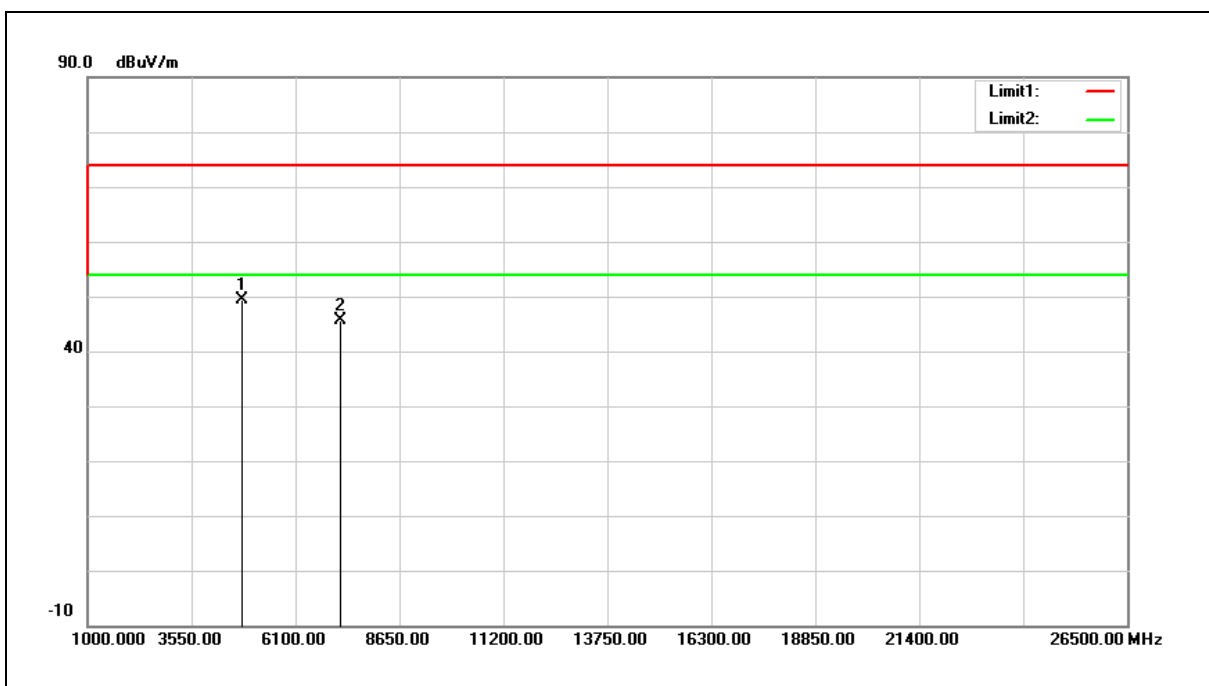
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4960.000	45.11	-0.88	44.23	74.00	-29.77	peak
2	7440.000	42.89	6.56	49.45	74.00	-24.55	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2402 MHz		
Mode:	Mode 4		
Ant.Polar.:	Horizontal		



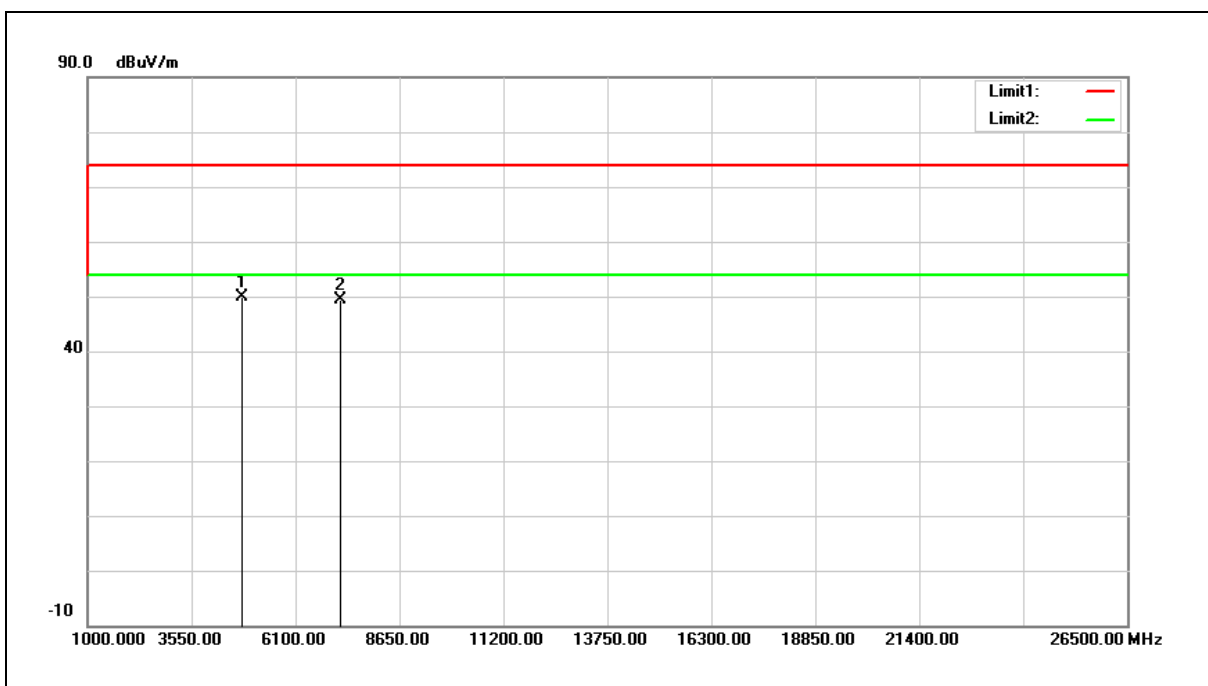
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4804.000	50.66	-1.30	49.36	74.00	-24.64	peak
2	7206.000	39.88	5.74	45.62	74.00	-28.38	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2402 MHz		
Mode:	Mode 4		
Ant.Polar.:	Vertical		



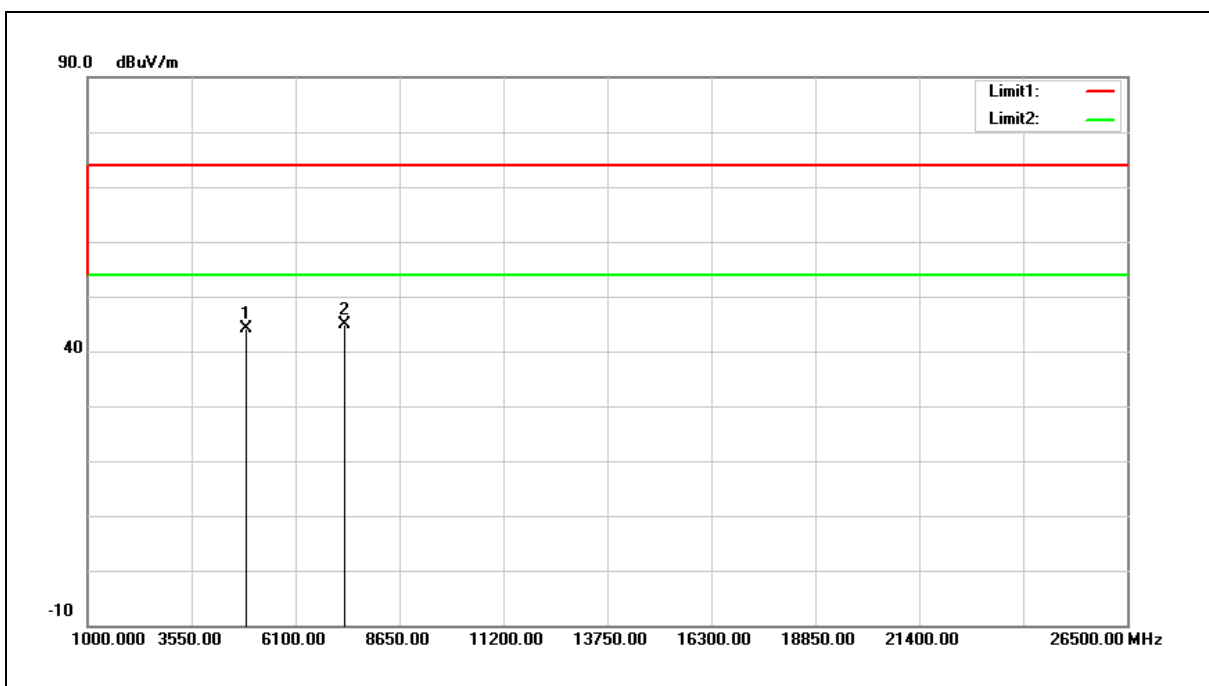
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4804.000	51.07	-1.30	49.77	74.00	-24.23	peak
2	7206.000	43.58	5.74	49.32	74.00	-24.68	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2441 MHz		
Mode:	Mode 4		
Ant.Polar.:	Horizontal		



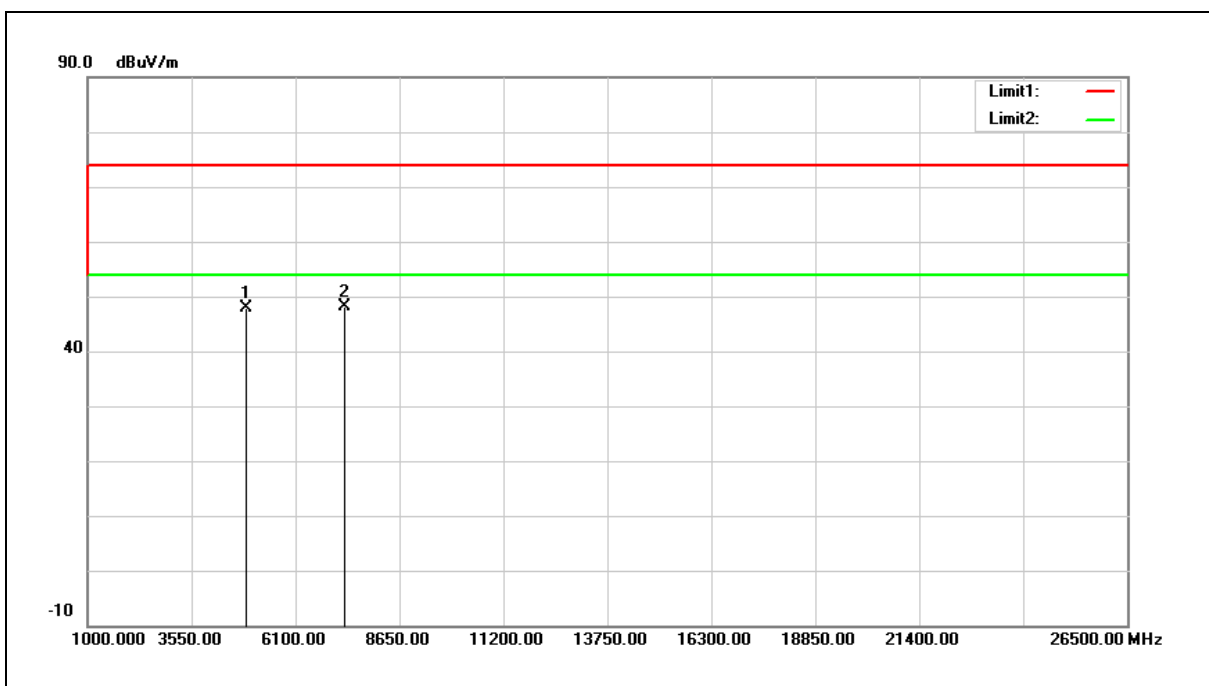
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4882.000	45.13	-1.10	44.03	74.00	-29.97	peak
2	7323.000	38.70	6.15	44.85	74.00	-29.15	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2441 MHz		
Mode:	Mode 4		
Ant.Polar.:	Vertical		



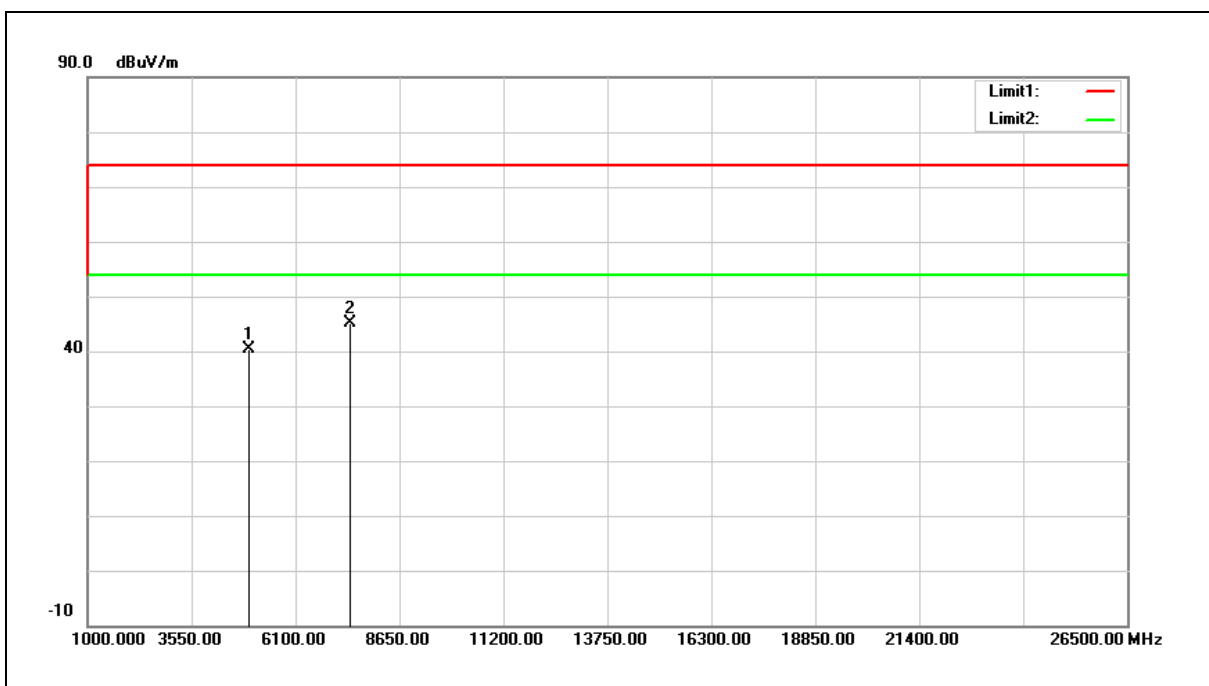
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4882.000	49.10	-1.10	48.00	74.00	-26.00	peak
2	7323.000	41.88	6.15	48.03	74.00	-25.97	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2480 MHz		
Mode:	Mode 4		
Ant.Polar.:	Horizontal		



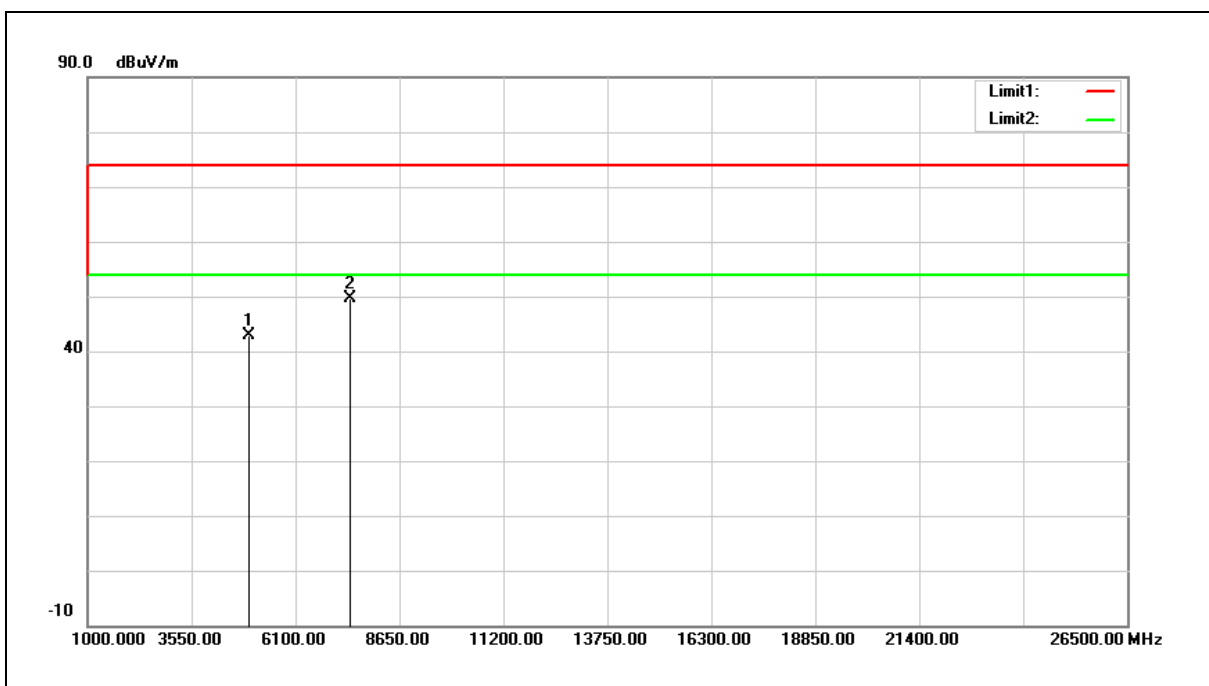
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4960.000	41.23	-0.88	40.35	74.00	-33.65	peak
2	7440.000	38.58	6.56	45.14	74.00	-28.86	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2480 MHz		
Mode:	Mode 4		
Ant.Polar.:	Vertical		



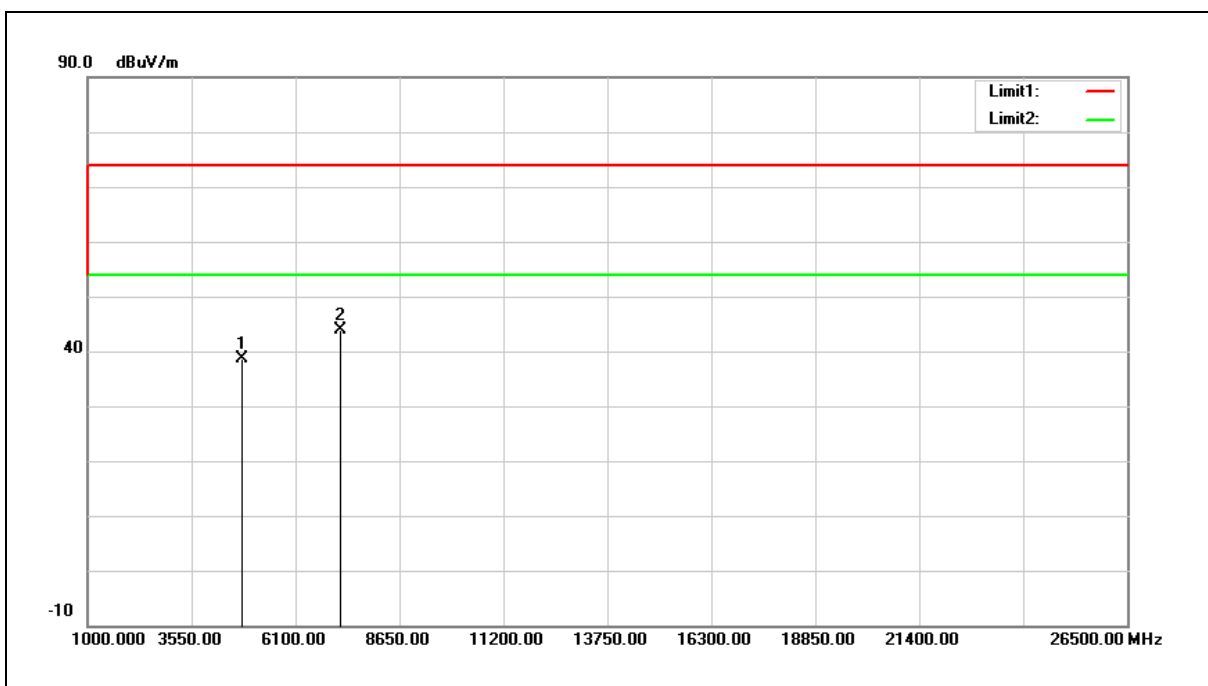
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4960.000	43.86	-0.88	42.98	74.00	-31.02	peak
2	7440.000	43.14	6.56	49.70	74.00	-24.30	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2402 MHz		
Mode:	Mode 5		
Ant.Polar.:	Horizontal		



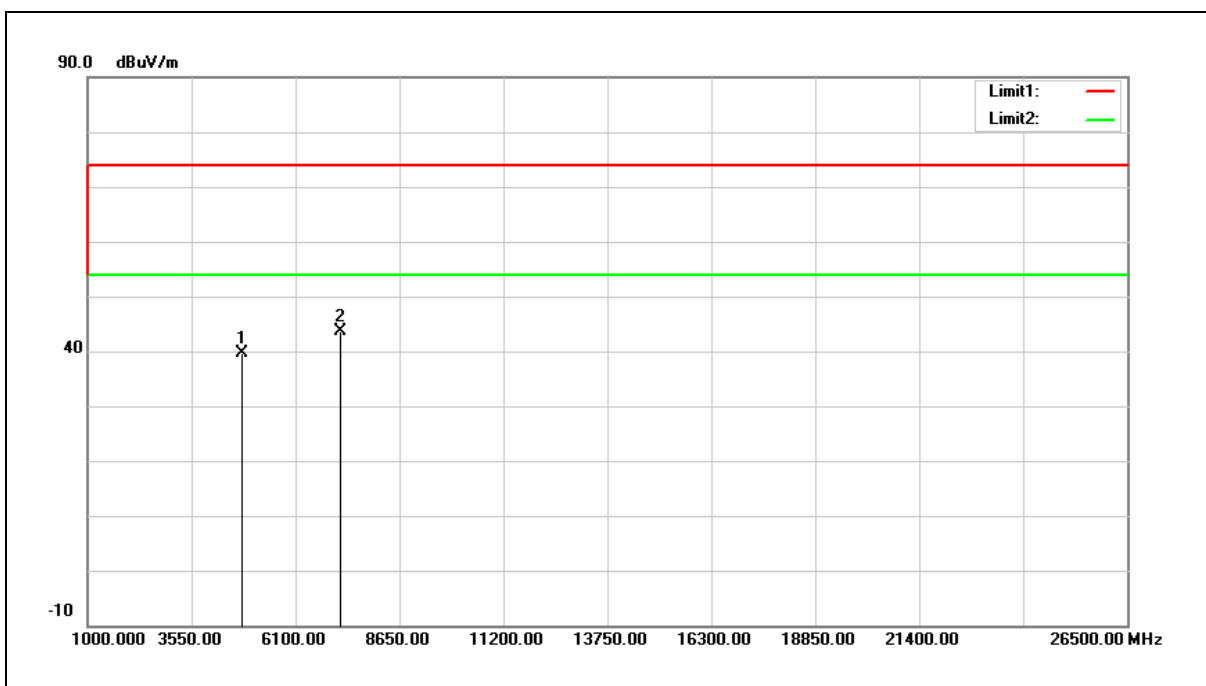
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4804.000	40.00	-1.30	38.70	74.00	-35.30	peak
2	7206.000	38.13	5.74	43.87	74.00	-30.13	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2402 MHz		
Mode:	Mode 5		
Ant.Polar.:	Vertical		



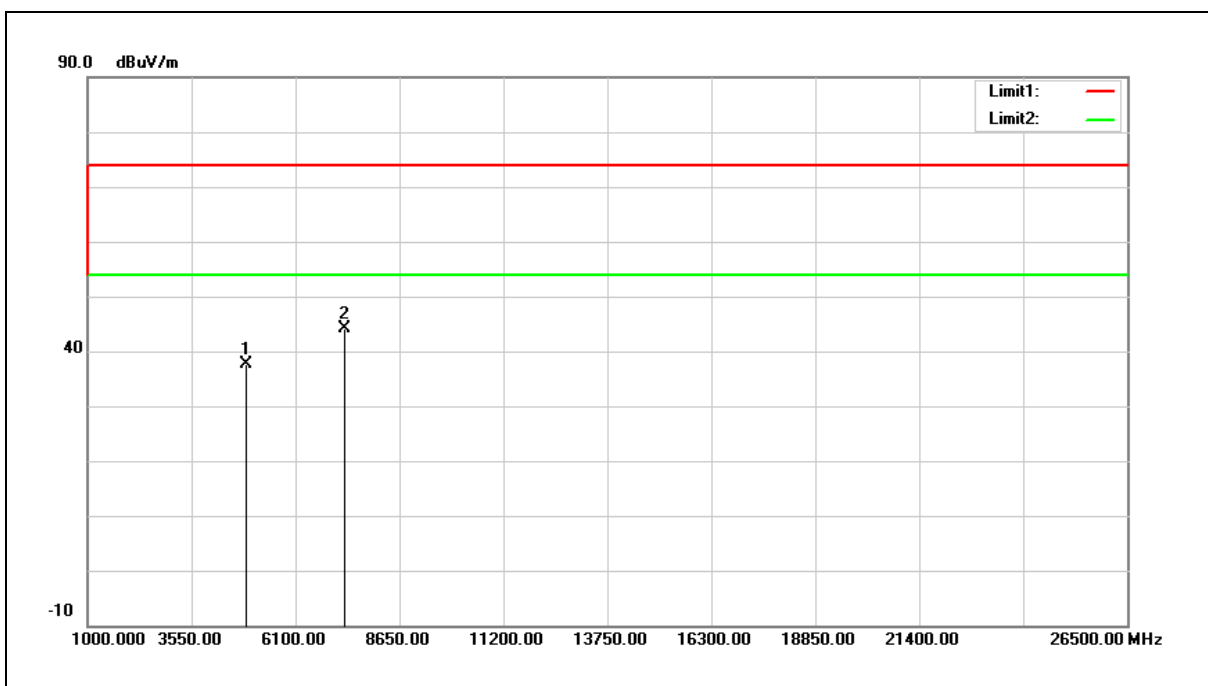
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4804.000	41.02	-1.30	39.72	74.00	-34.28	peak
2	7206.000	37.86	5.74	43.60	74.00	-30.40	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2440 MHz		
Mode:	Mode 5		
Ant.Polar.:	Horizontal		



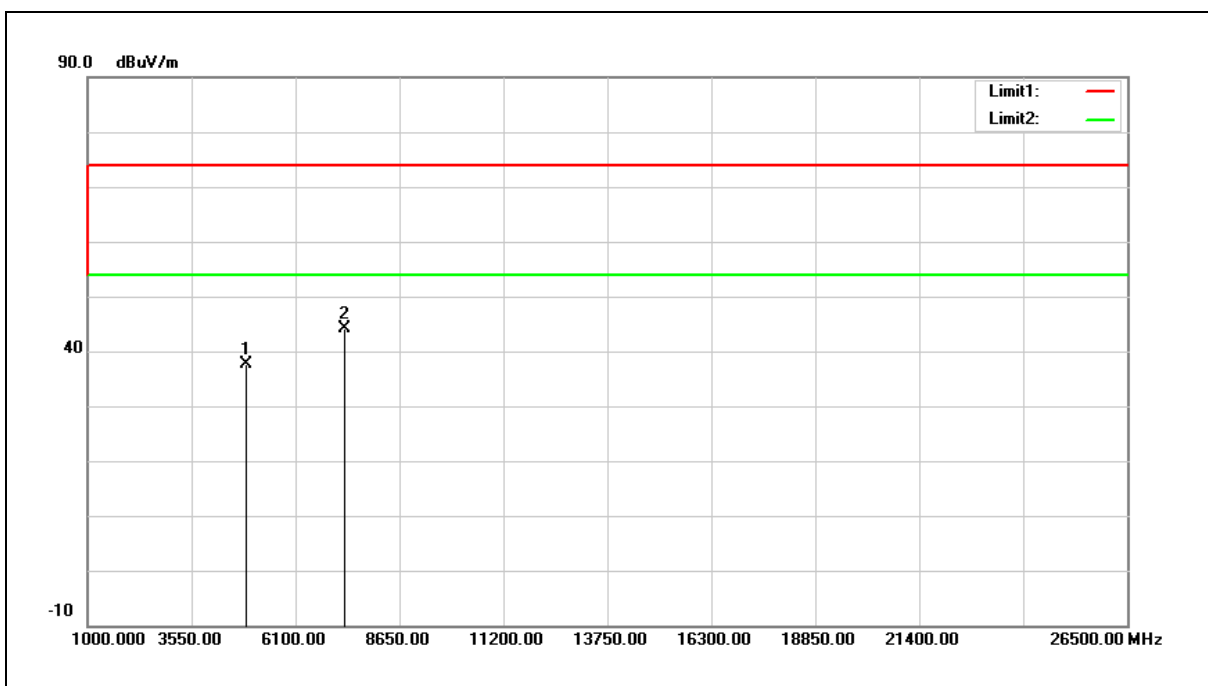
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4880.000	38.67	-1.11	37.56	74.00	-36.44	peak
2	7320.000	37.97	6.15	44.12	74.00	-29.88	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2440 MHz		
Mode:	Mode 5		
Ant.Polar.:	Vertical		



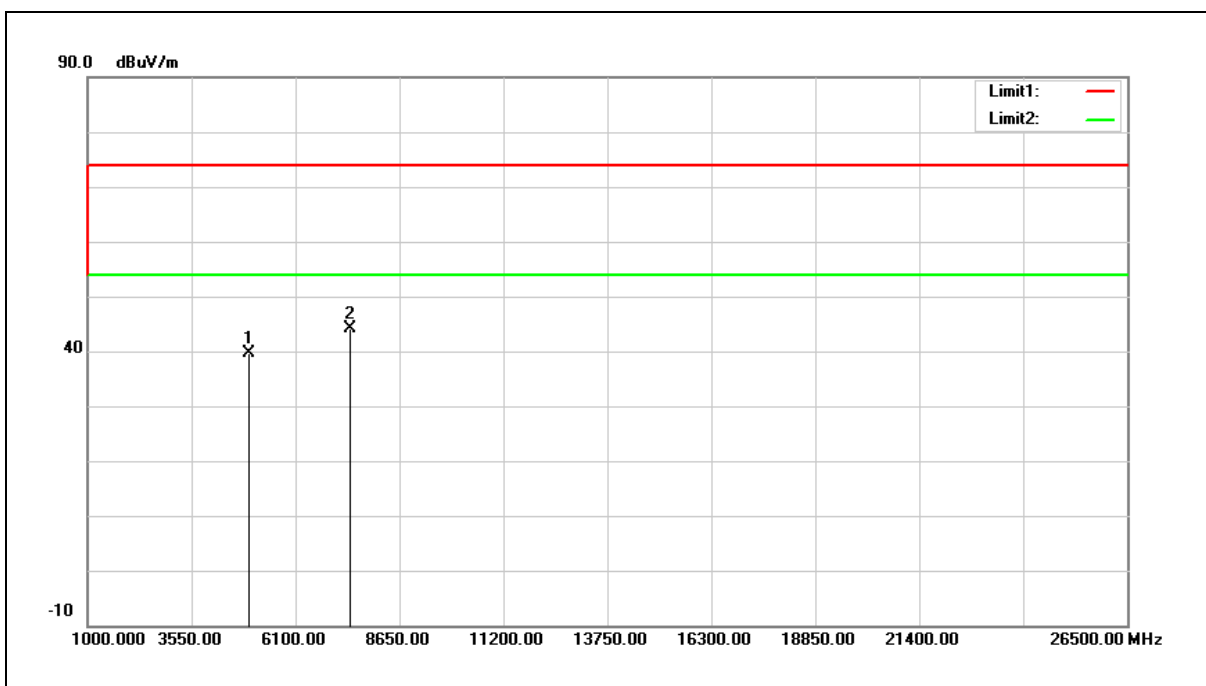
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4880.000	38.73	-1.11	37.62	74.00	-36.38	peak
2	7320.000	38.05	6.15	44.20	74.00	-29.80	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2480 MHz		
Mode:	Mode 5		
Ant.Polar.:	Horizontal		



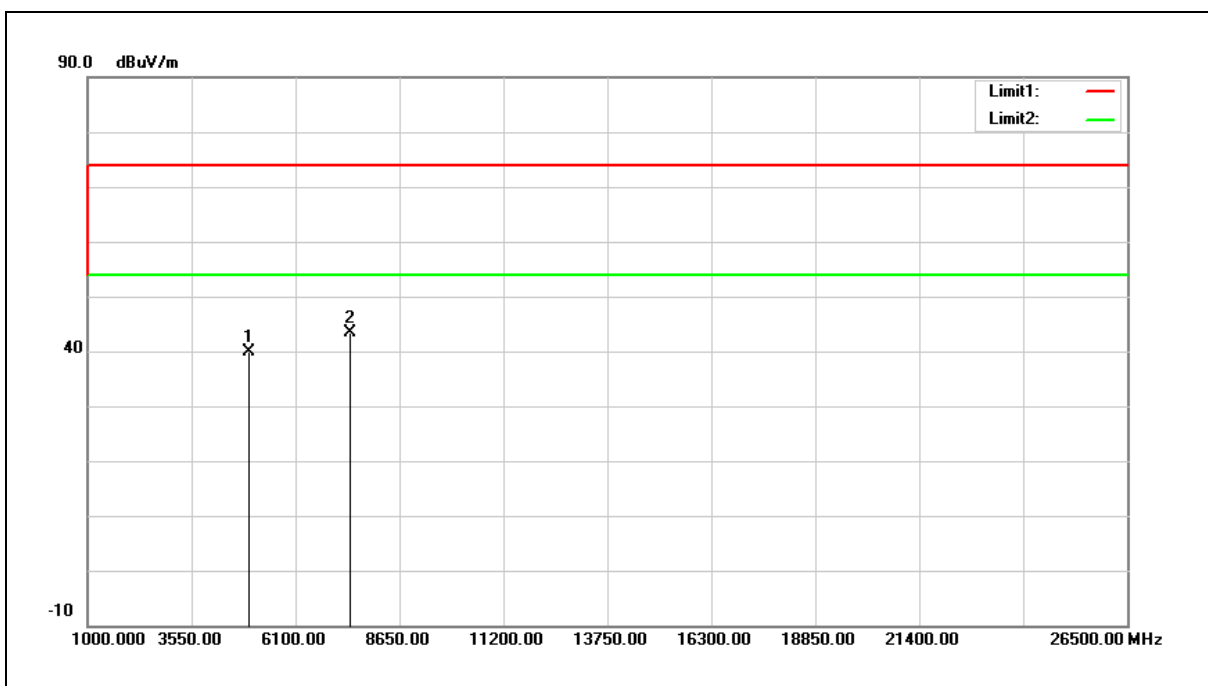
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4960.000	40.56	-0.88	39.68	74.00	-34.32	peak
2	7440.000	37.68	6.56	44.24	74.00	-29.76	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2480 MHz		
Mode:	Mode 5		
Ant.Polar.:	Vertical		



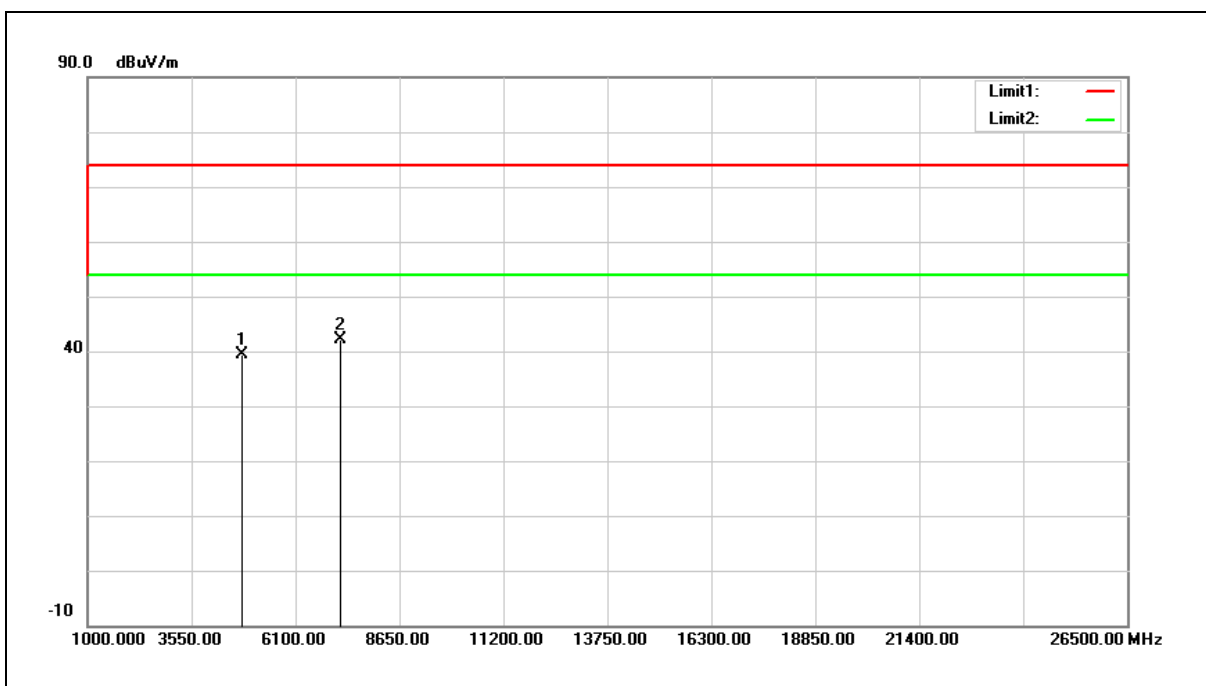
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4960.000	40.72	-0.88	39.84	74.00	-34.16	peak
2	7440.000	36.90	6.56	43.46	74.00	-30.54	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2402 MHz		
Mode:	Mode 6		
Ant.Polar.:	Horizontal		



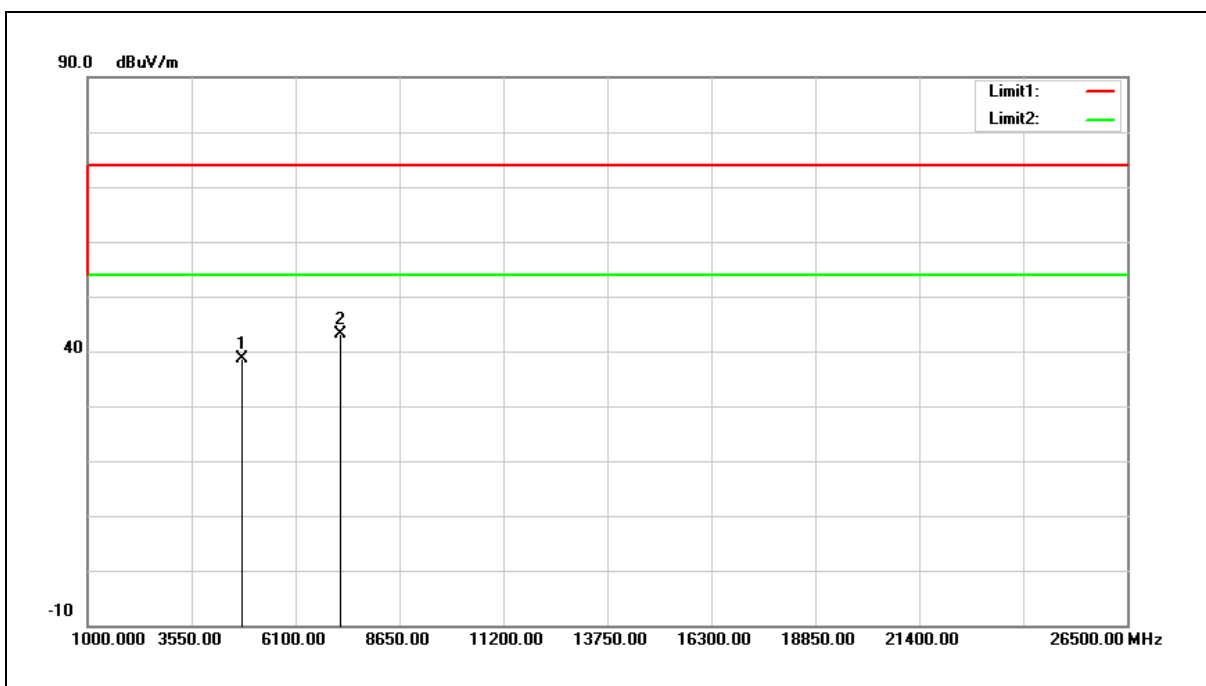
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4804.000	40.64	-1.30	39.34	74.00	-34.66	peak
2	7206.000	36.51	5.74	42.25	74.00	-31.75	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2402 MHz		
Mode:	Mode 6		
Ant.Polar.:	Vertical		



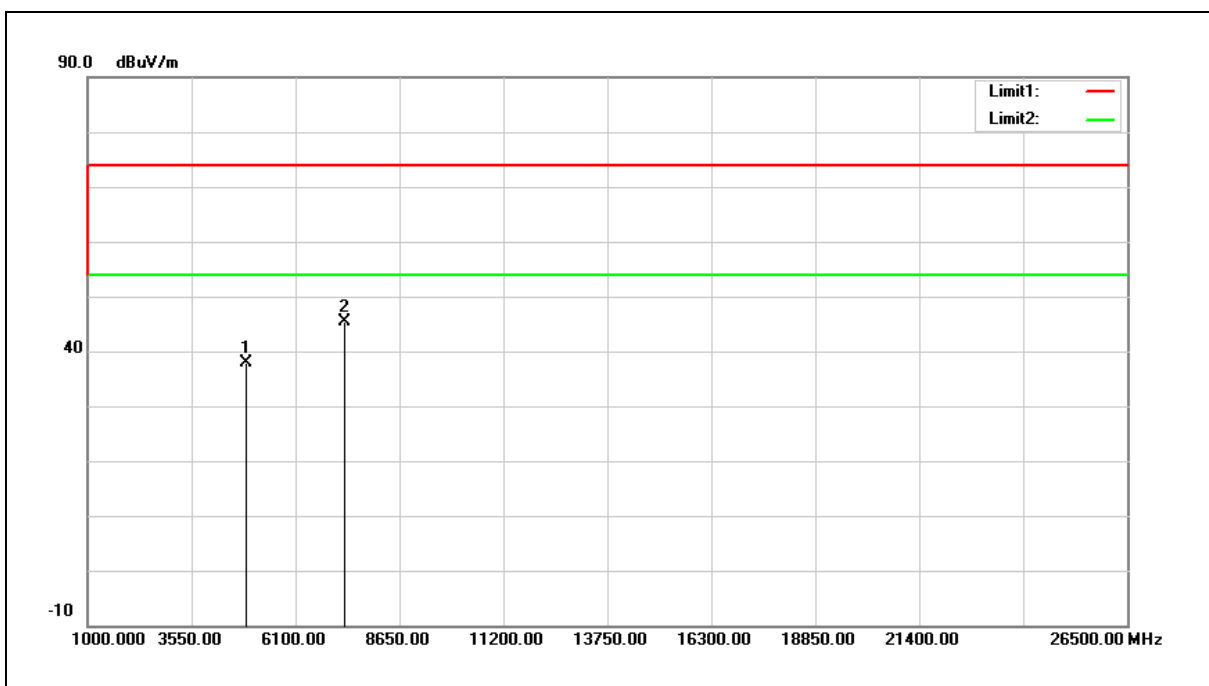
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4804.000	40.03	-1.30	38.73	74.00	-35.27	peak
2	7206.000	37.28	5.74	43.02	74.00	-30.98	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2440 MHz		
Mode:	Mode 6		
Ant.Polar.:	Horizontal		



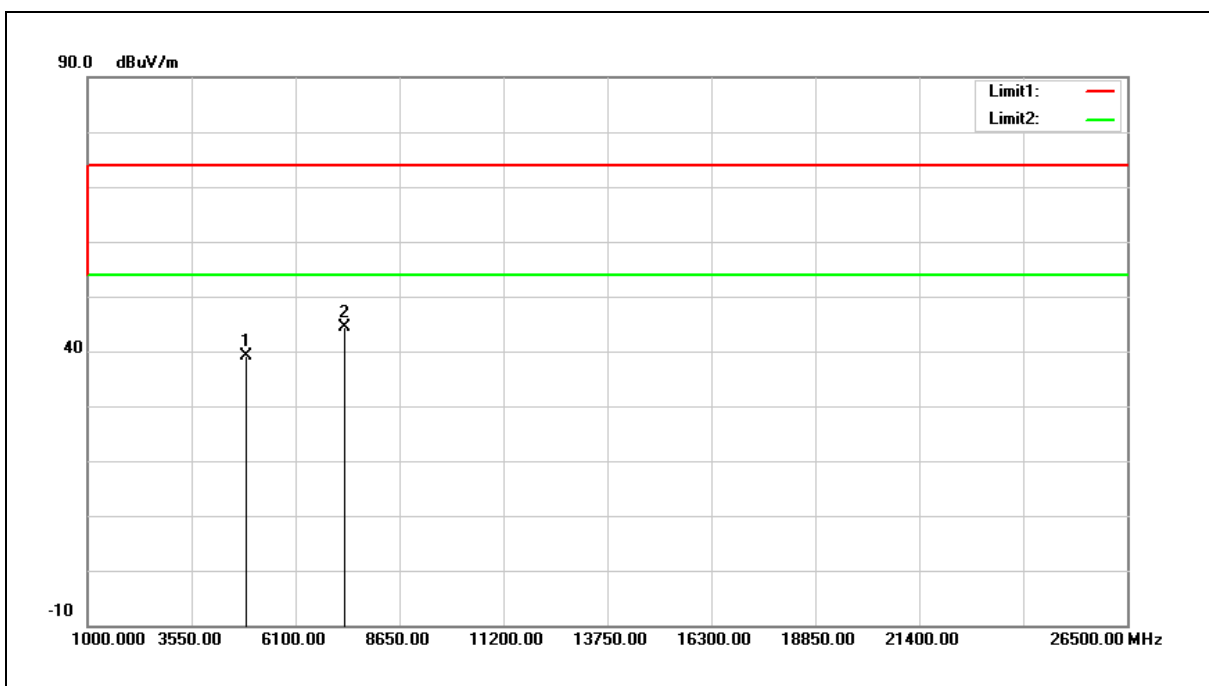
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4880.000	39.08	-1.11	37.97	74.00	-36.03	peak
2	7320.000	39.21	6.15	45.36	74.00	-28.64	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2440 MHz		
Mode:	Mode 6		
Ant.Polar.:	Vertical		



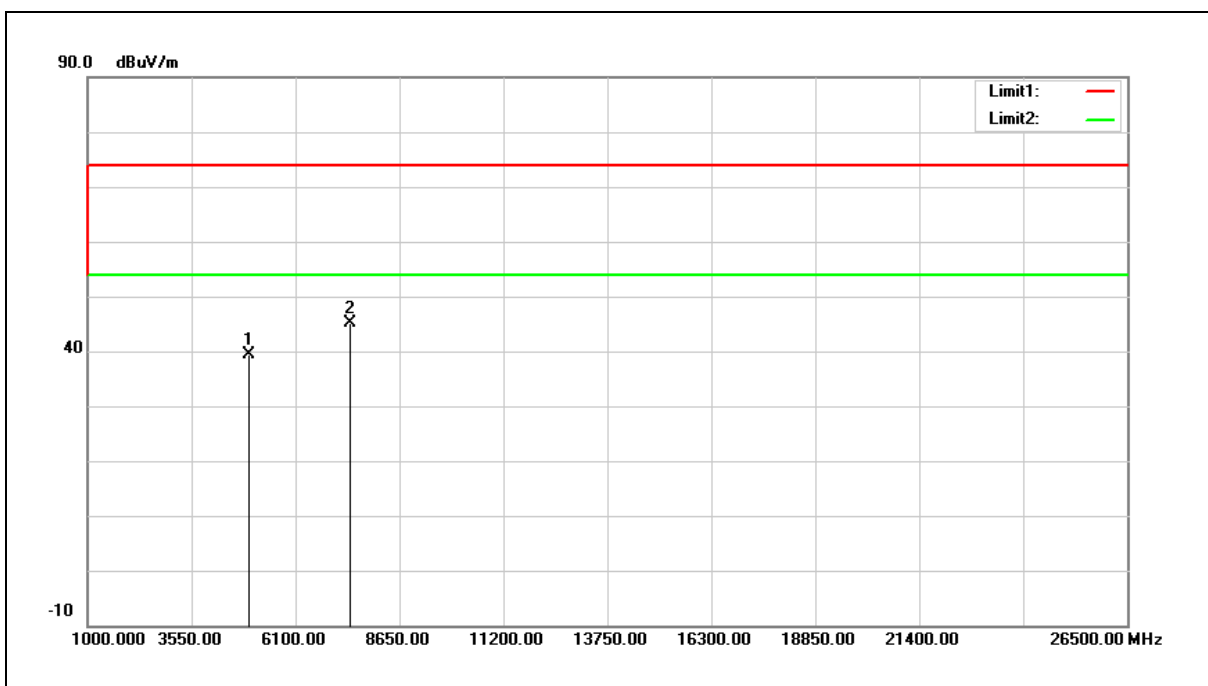
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4880.000	40.15	-1.11	39.04	74.00	-34.96	peak
2	7320.000	38.11	6.15	44.26	74.00	-29.74	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2480 MHz		
Mode:	Mode 6		
Ant.Polar.:	Horizontal		



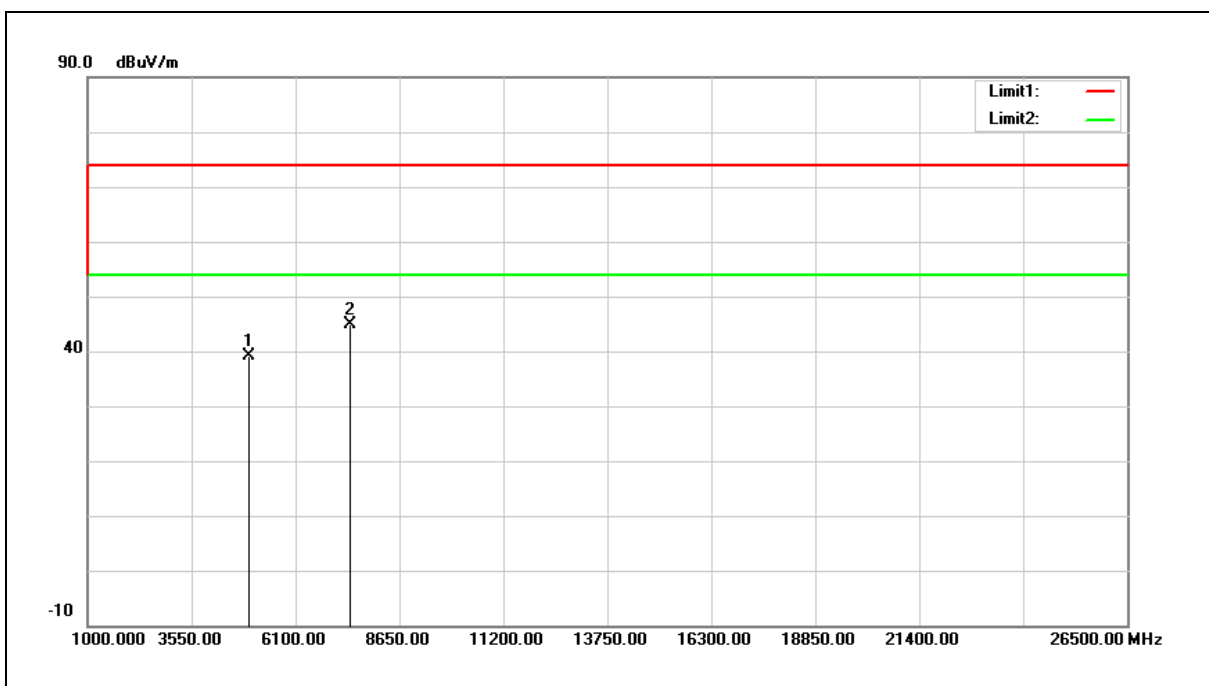
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4960.000	40.35	-0.88	39.47	74.00	-34.53	peak
2	7440.000	38.64	6.56	45.20	74.00	-28.80	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Frequency:	2480 MHz		
Mode:	Mode 6		
Ant.Polar.:	Vertical		



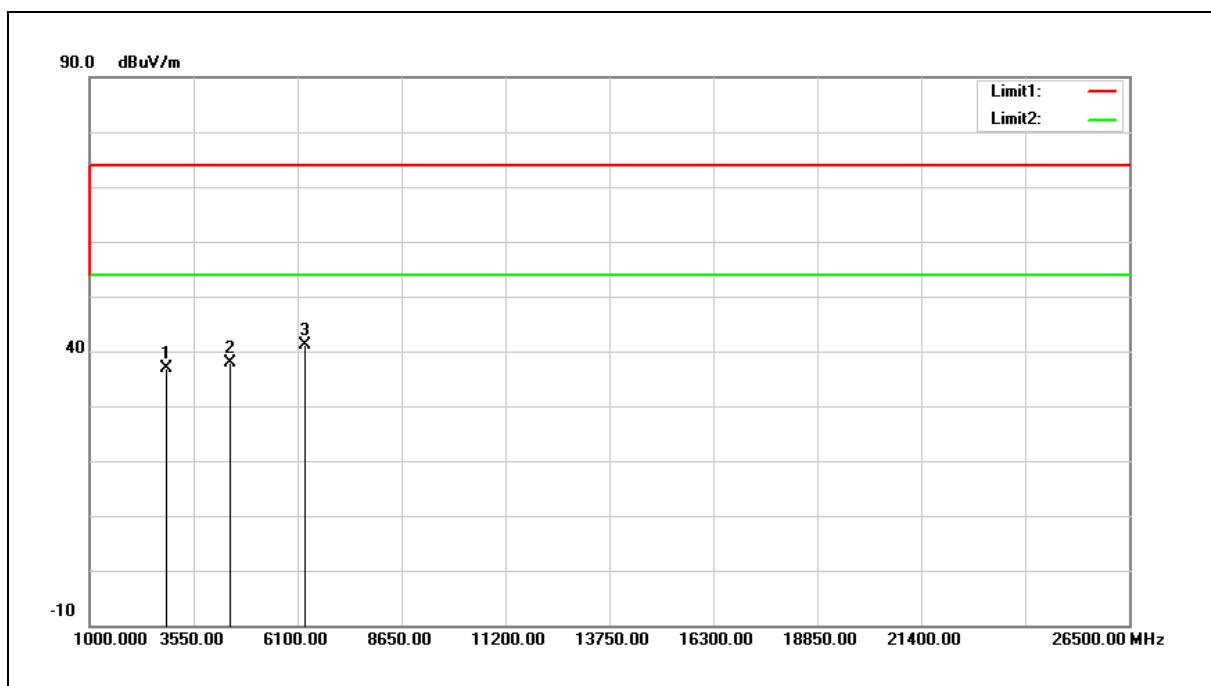
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4960.000	40.10	-0.88	39.22	74.00	-34.78	peak
2	7440.000	38.42	6.56	44.98	74.00	-29.02	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Mode:	Mode 7		
Ant.Polar.:	Horizontal		
Description:			



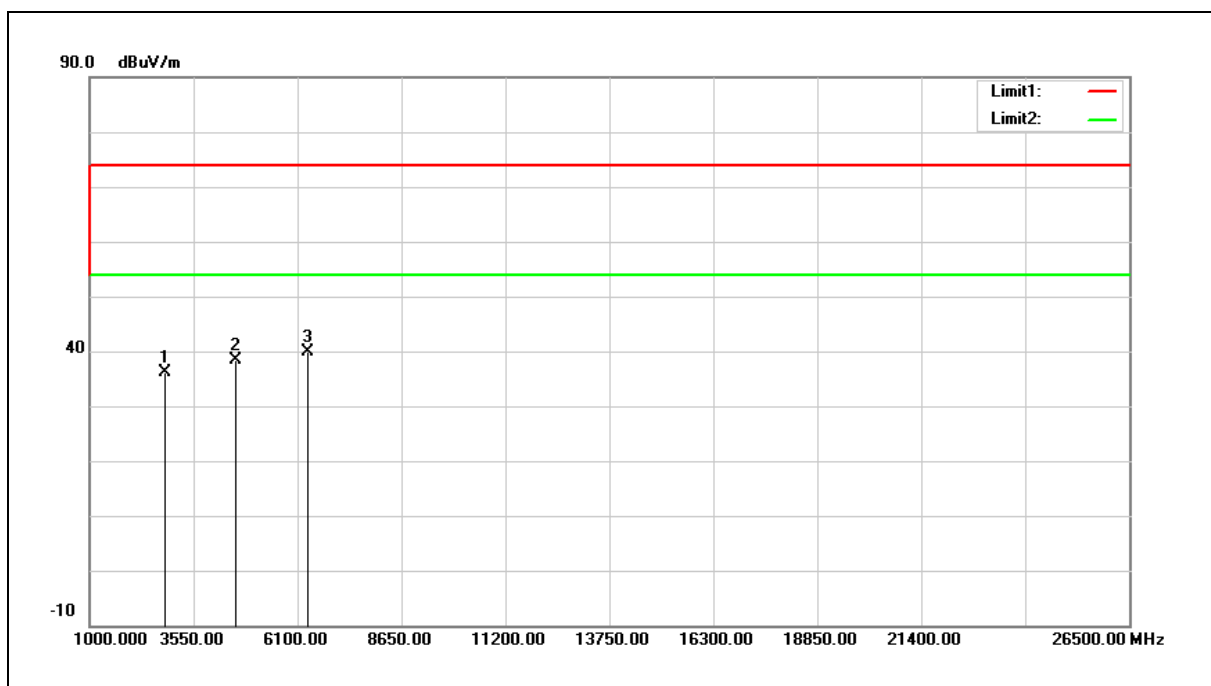
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2870.000	42.58	-5.76	36.82	74.00	-37.18	peak
2	4434.000	40.28	-2.33	37.95	74.00	-36.05	peak
3	6270.000	38.53	2.53	41.06	74.00	-32.94	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Harmonic		
Mode:	Mode 7		
Ant.Polar.:	Vertical		
Description:			



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2836.000	42.00	-5.91	36.09	74.00	-37.91	peak
2	4570.000	40.44	-1.95	38.49	74.00	-35.51	peak
3	6338.000	37.21	2.76	39.97	74.00	-34.03	peak

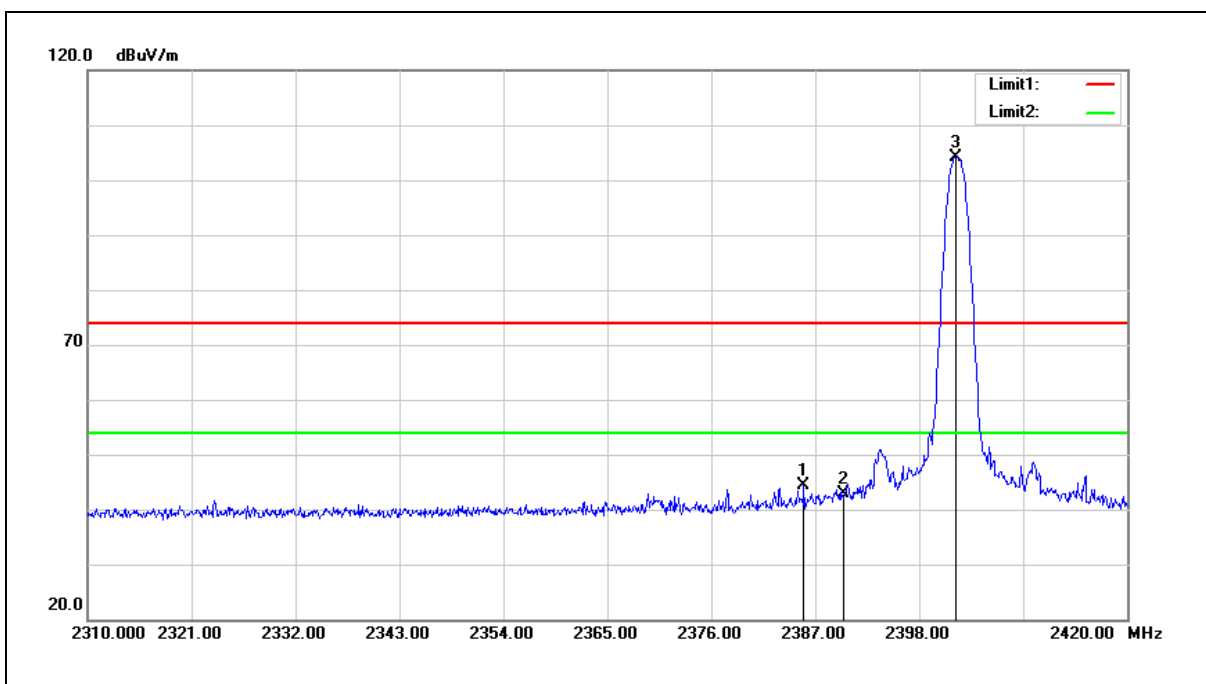
Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

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Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2402 MHz		
Mode:	Mode 2		
Ant.Polar.:	Horizontal		



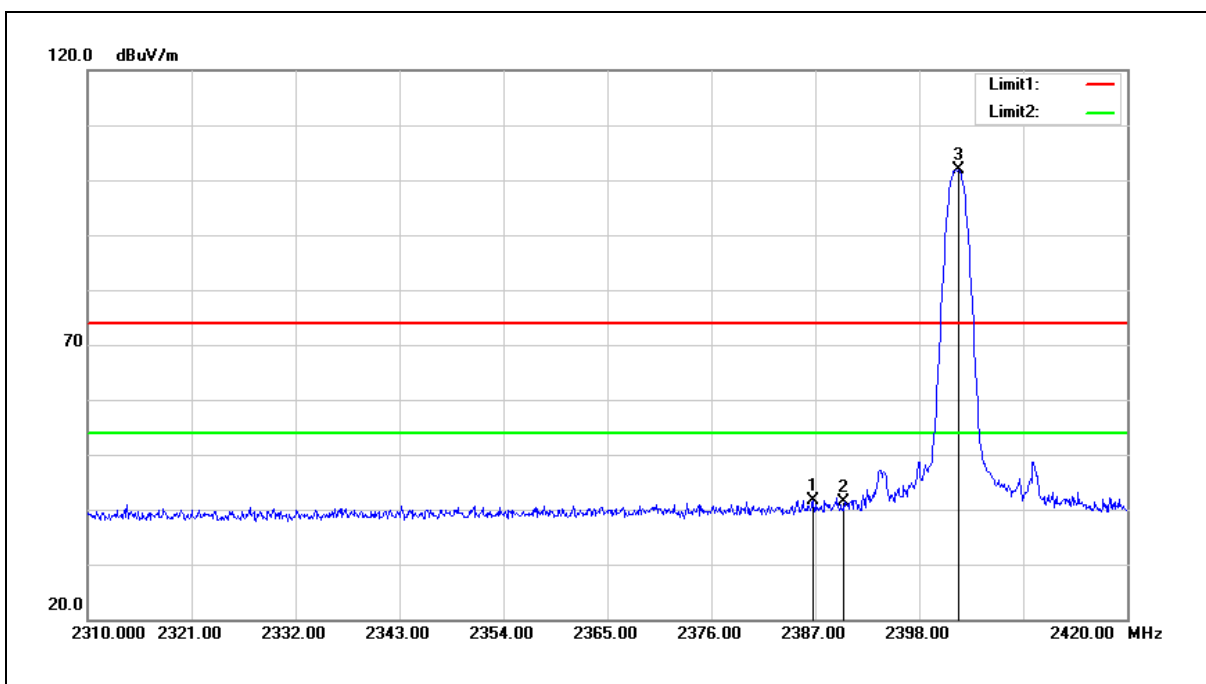
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2385.790	52.00	-7.73	44.27	74.00	-29.73	peak
2	2390.000	50.55	-7.72	42.83	74.00	-31.17	peak
3	2401.850	111.80	-7.66	104.14	--	--	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2402 MHz		
Mode:	Mode 2		
Ant.Polar.:	Vertical		



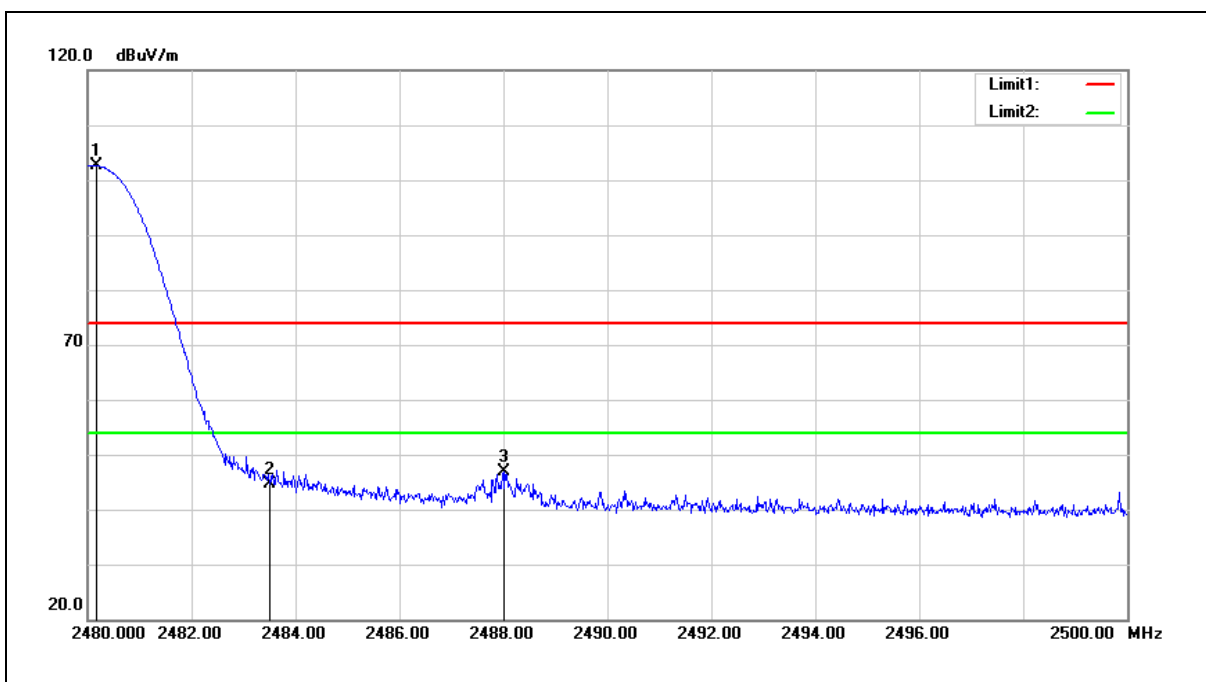
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2386.780	49.48	-7.73	41.75	74.00	-32.25	peak
2	2390.000	49.20	-7.72	41.48	74.00	-32.52	peak
3	2402.180	109.42	-7.66	101.76	--	--	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2480 MHz		
Mode:	Mode 2		
Ant.Polar.:	Horizontal		



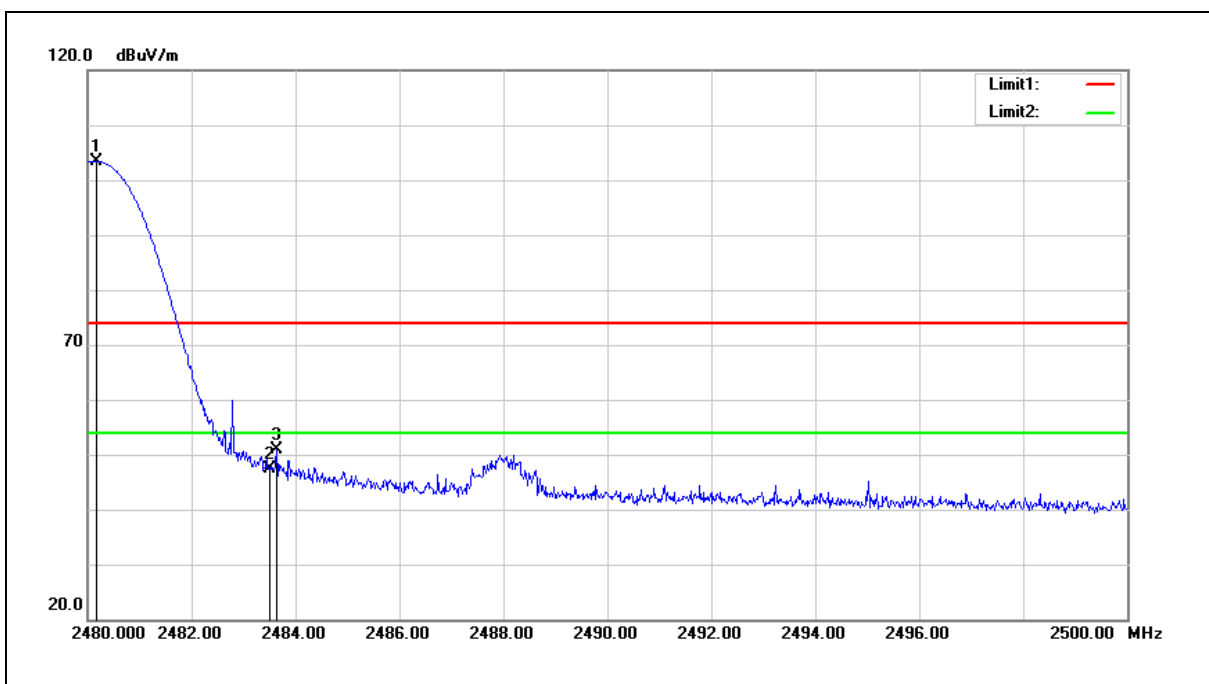
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2480.160	109.90	-7.35	102.55	--	--	peak
2	2483.500	52.04	-7.34	44.70	74.00	-29.30	peak
3	2488.000	54.13	-7.32	46.81	74.00	-27.19	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2480 MHz		
Mode:	Mode 2		
Ant.Polar.:	Vertical		



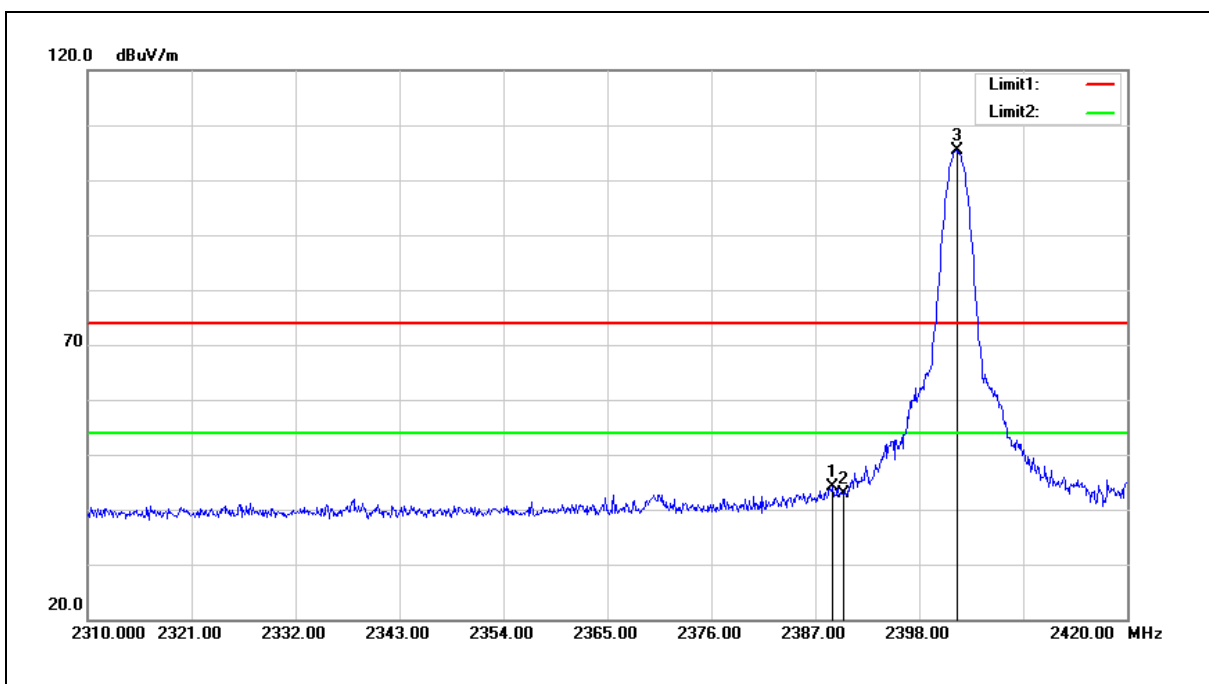
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2480.160	110.77	-7.35	103.42	--	--	peak
2	2483.500	54.79	-7.34	47.45	74.00	-26.55	peak
3	2483.640	58.26	-7.34	50.92	74.00	-23.08	peak

Note: 1. Result (dBuV/m) = Correct Factor (dB/m) + Reading (dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) - Pre-Amplifier gain (dB).

3. When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2402 MHz		
Mode:	Mode 4		
Ant.Polar.:	Horizontal		



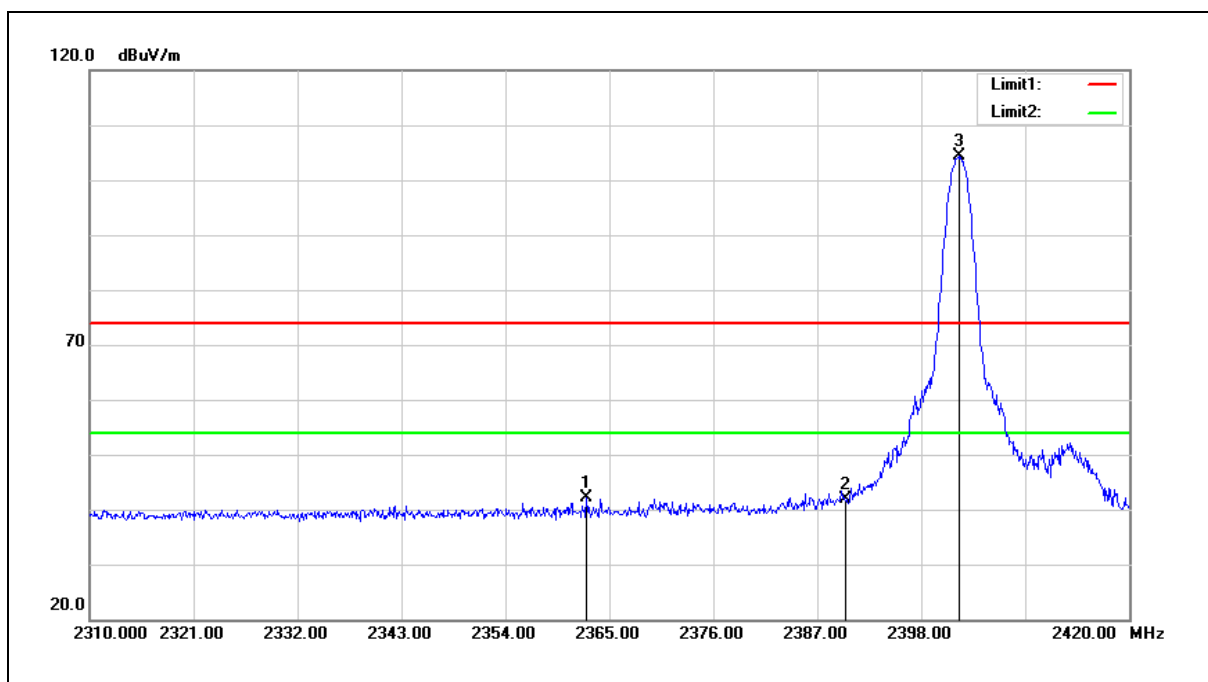
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2388.870	51.77	-7.72	44.05	74.00	-29.95	peak
2	2390.000	50.60	-7.72	42.88	74.00	-31.12	peak
3	2401.960	113.08	-7.66	105.42	--	--	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2402 MHz		
Mode:	Mode 4		
Ant.Polar.:	Vertical		



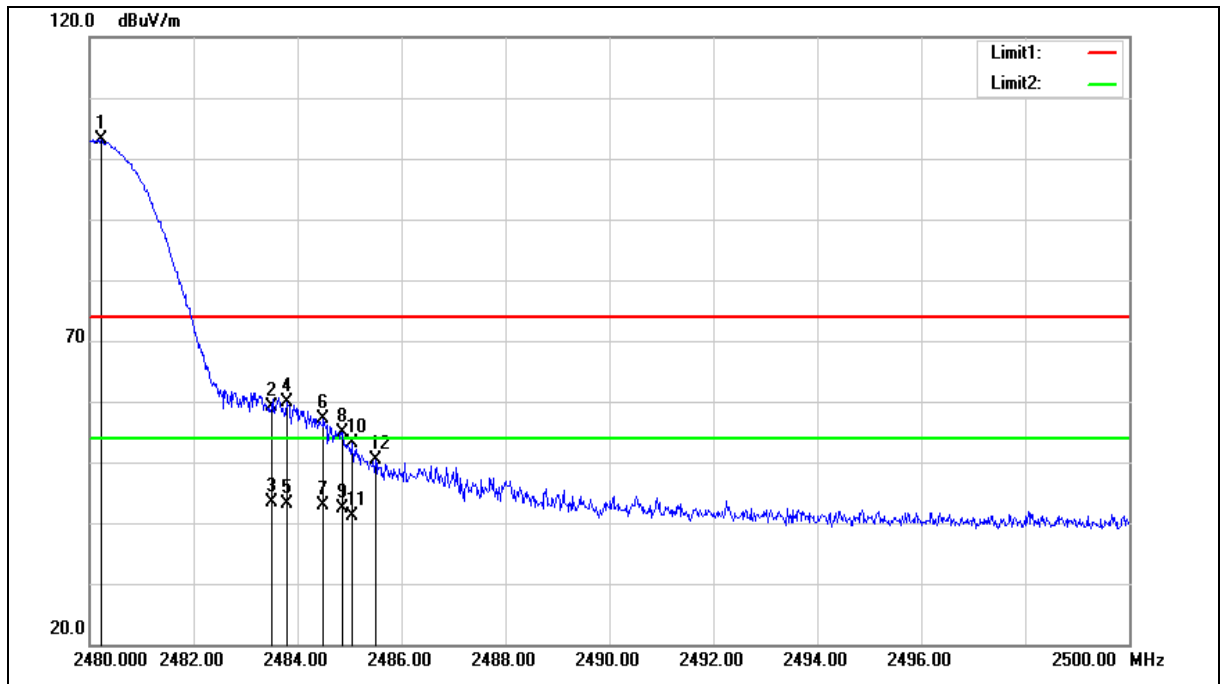
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2362.580	49.95	-7.83	42.12	74.00	-31.88	peak
2	2390.000	49.65	-7.72	41.93	74.00	-32.07	peak
3	2401.960	111.96	-7.66	104.30	--	--	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2480 MHz		
Mode:	Mode 4		
Ant.Polar.:	Horizontal		



Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2480 MHz		
Mode:	Mode 4		
Ant.Polar.:	Horizontal		

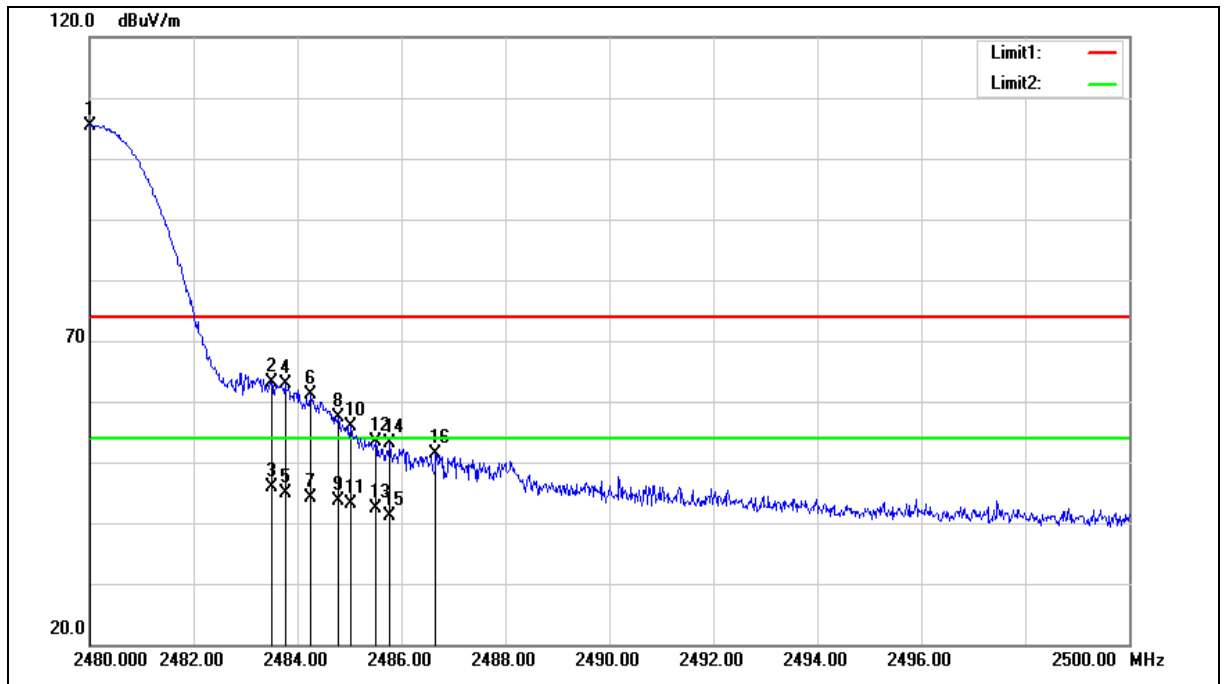
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2480.220	110.40	-7.35	103.05	--	--	peak
2	2483.500	66.50	-7.34	59.16	74.00	-14.84	peak
3	2483.500	50.69	-7.34	43.35	54.00	-10.65	AVG
4	2483.800	67.22	-7.34	59.88	74.00	-14.12	peak
5	2483.800	50.51	-7.34	43.17	54.00	-10.83	AVG
6	2484.500	64.51	-7.34	57.17	74.00	-16.83	peak
7	2484.500	50.14	-7.34	42.80	54.00	-11.20	AVG
8	2484.860	62.13	-7.34	54.79	74.00	-19.21	peak
9	2484.860	49.78	-7.34	42.44	54.00	-11.56	AVG
10	2485.060	60.55	-7.33	53.22	74.00	-20.78	peak
11	2485.060	48.40	-7.33	41.07	54.00	-12.93	AVG
12	2485.500	57.62	-7.32	50.30	74.00	-23.70	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2480 MHz		
Mode:	Mode 4		
Ant.Polar.:	Vertical		



Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2480 MHz		
Mode:	Mode 4		
Ant.Polar.:	Vertical		

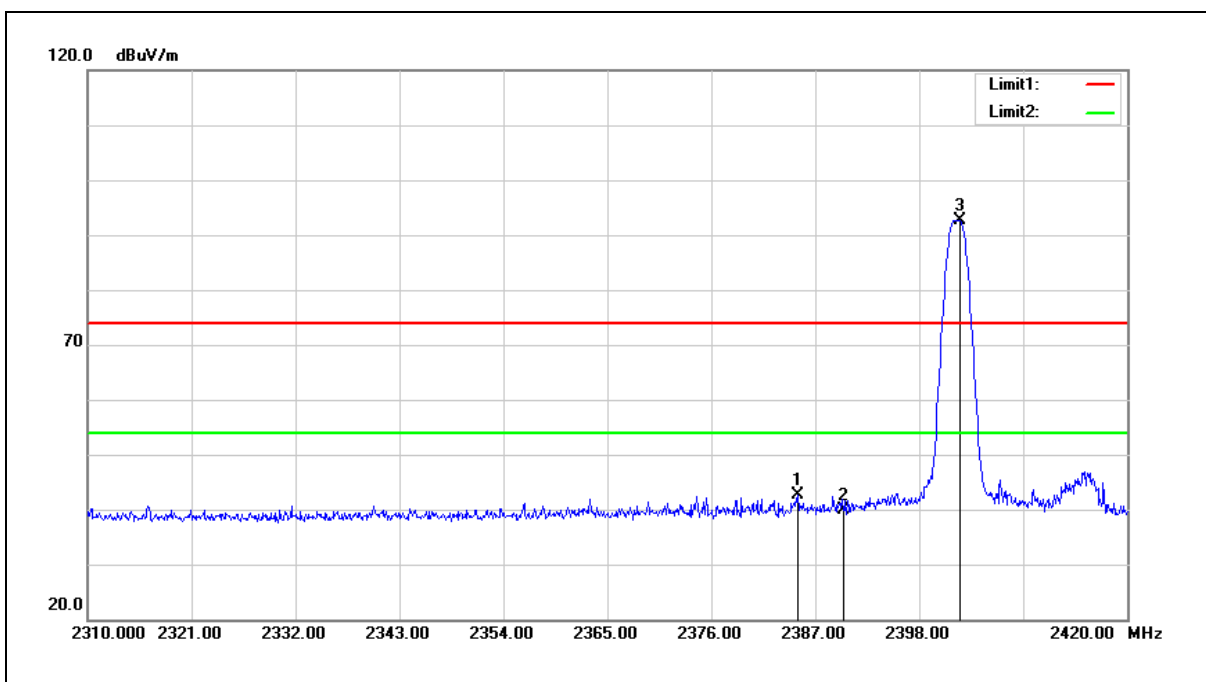
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2480.000	112.85	-7.35	105.50	--	--	peak
2	2483.500	70.39	-7.34	63.05	74.00	-10.95	peak
3	2483.500	53.10	-7.34	45.76	54.00	-8.24	AVG
4	2483.760	70.17	-7.34	62.83	74.00	-11.17	peak
5	2483.760	52.17	-7.34	44.83	54.00	-9.17	AVG
6	2484.240	68.41	-7.34	61.07	74.00	-12.93	peak
7	2484.240	51.53	-7.34	44.19	54.00	-9.81	AVG
8	2484.780	64.73	-7.34	57.39	74.00	-16.61	peak
9	2484.780	51.05	-7.34	43.71	54.00	-10.29	AVG
10	2485.020	63.32	-7.33	55.99	74.00	-18.01	peak
11	2485.020	50.41	-7.33	43.08	54.00	-10.92	AVG
12	2485.500	60.77	-7.32	53.45	74.00	-20.55	peak
13	2485.500	49.82	-7.32	42.50	54.00	-11.50	AVG
14	2485.780	60.38	-7.32	53.06	74.00	-20.94	peak
15	2485.780	48.57	-7.32	41.25	54.00	-12.75	AVG
16	2486.660	58.77	-7.32	51.45	74.00	-22.55	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2402 MHz		
Mode:	Mode 5		
Ant.Polar.:	Horizontal		



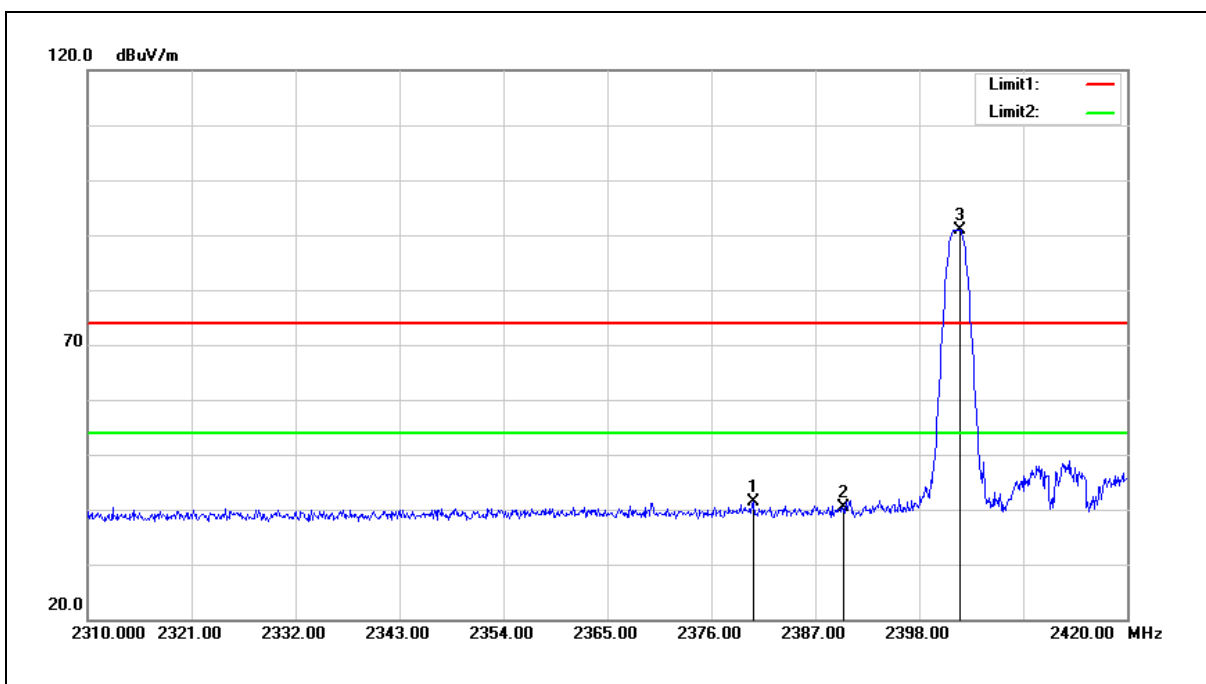
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2385.130	50.41	-7.74	42.67	74.00	-31.33	peak
2	2390.000	47.67	-7.72	39.95	74.00	-34.05	peak
3	2402.290	100.30	-7.66	92.64	--	--	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2402 MHz		
Mode:	Mode 5		
Ant.Polar.:	Vertical		



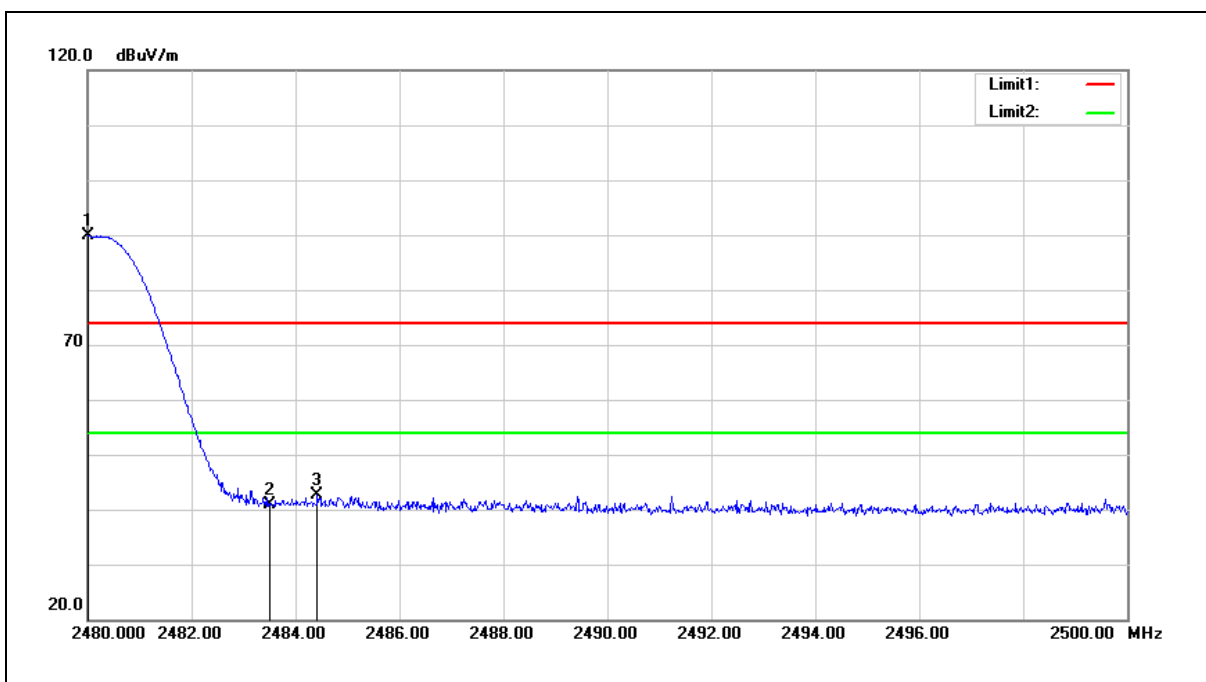
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2380.400	49.26	-7.76	41.50	74.00	-32.50	peak
2	2390.000	48.17	-7.72	40.45	74.00	-33.55	peak
3	2402.290	98.65	-7.66	90.99	--	--	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2480 MHz		
Mode:	Mode 5		
Ant.Polar.:	Horizontal		



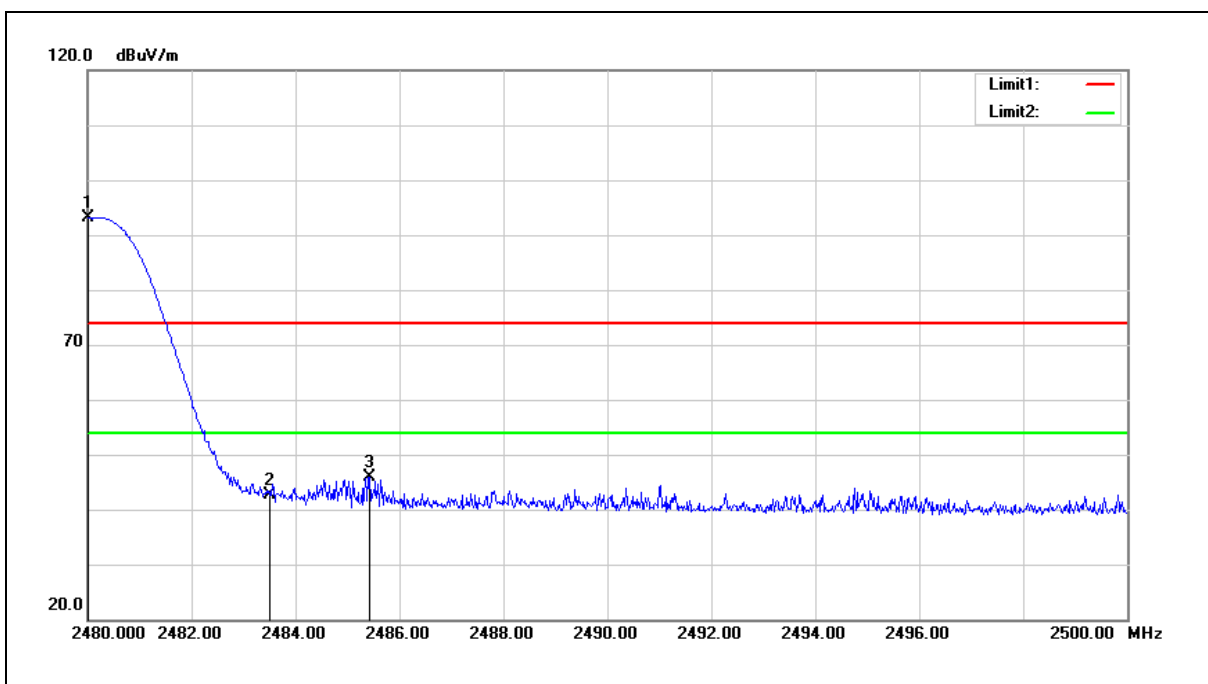
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2480.000	97.14	-7.35	89.79	--	--	peak
2	2483.500	48.31	-7.34	40.97	74.00	-33.03	peak
3	2484.420	50.04	-7.34	42.70	74.00	-31.30	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2480 MHz		
Mode:	Mode 5		
Ant.Polar.:	Vertical		



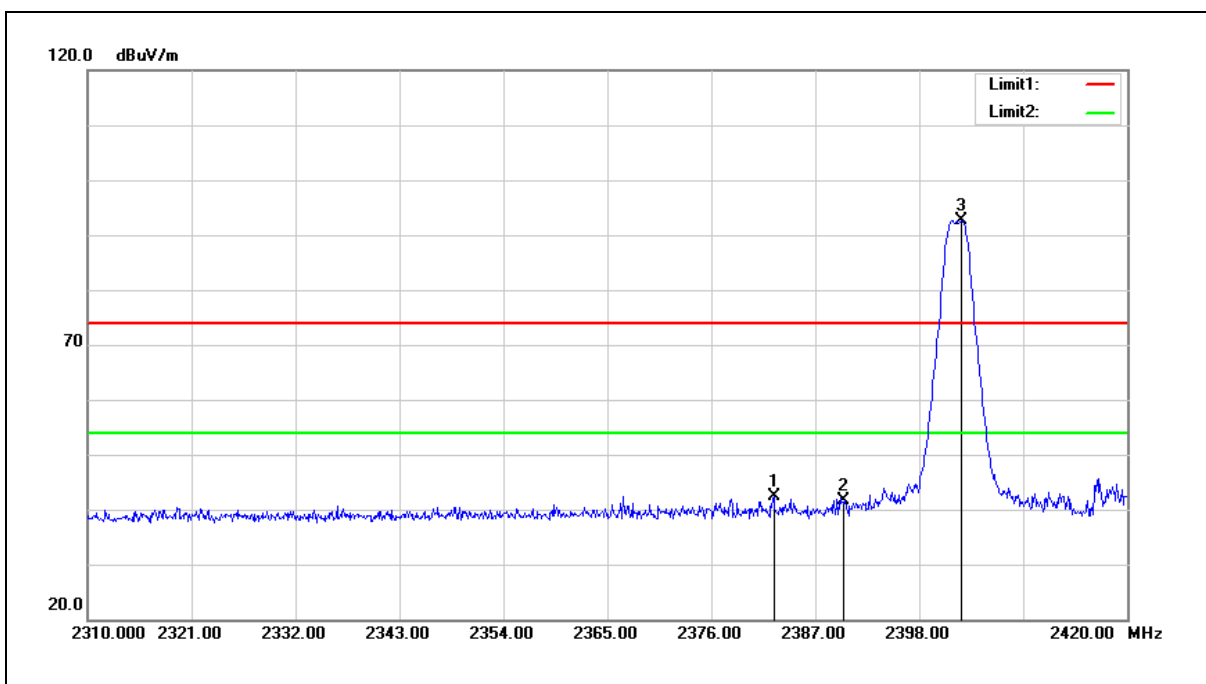
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2480.000	100.43	-7.35	93.08	--	--	peak
2	2483.500	50.05	-7.34	42.71	74.00	-31.29	peak
3	2485.420	53.19	-7.32	45.87	74.00	-28.13	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2402 MHz		
Mode:	Mode 6		
Ant.Polar.:	Horizontal		



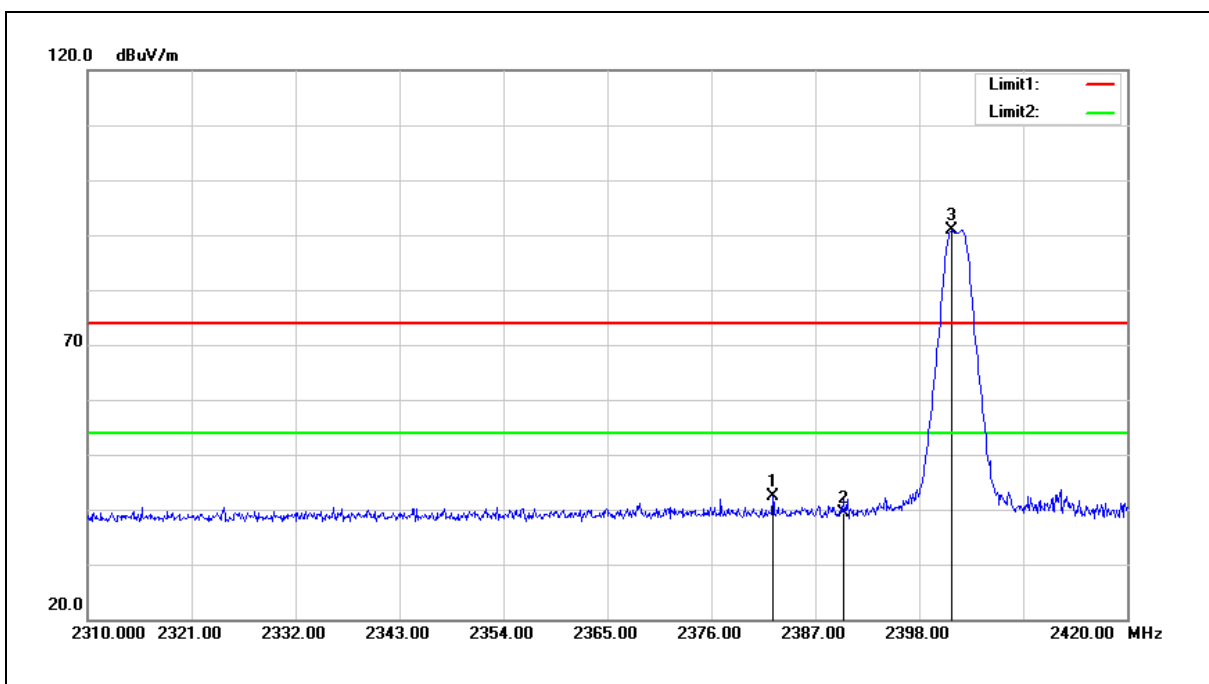
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2382.600	50.11	-7.75	42.36	74.00	-31.64	peak
2	2390.000	49.37	-7.72	41.65	74.00	-32.35	peak
3	2402.510	100.23	-7.66	92.57	--	--	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2402 MHz		
Mode:	Mode 6		
Ant.Polar.:	Vertical		



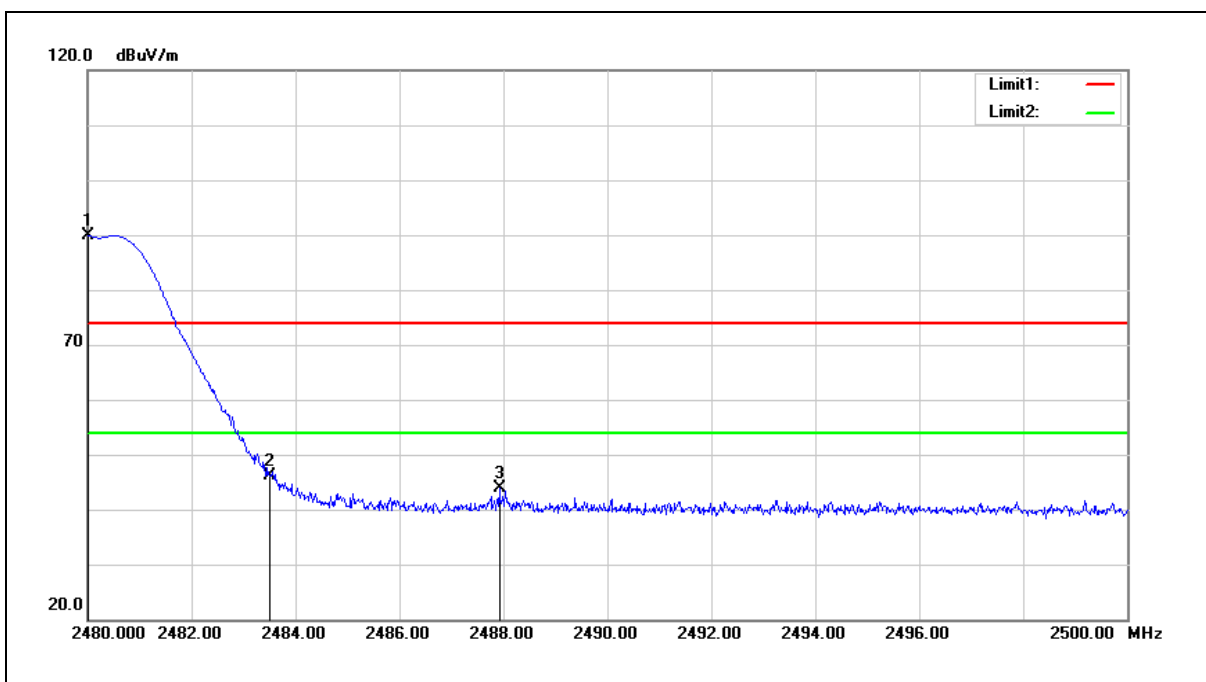
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2382.490	50.20	-7.75	42.45	74.00	-31.55	peak
2	2390.000	47.12	-7.72	39.40	74.00	-34.60	peak
3	2401.410	98.49	-7.67	90.82	--	--	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2480 MHz		
Mode:	Mode 6		
Ant.Polar.:	Horizontal		



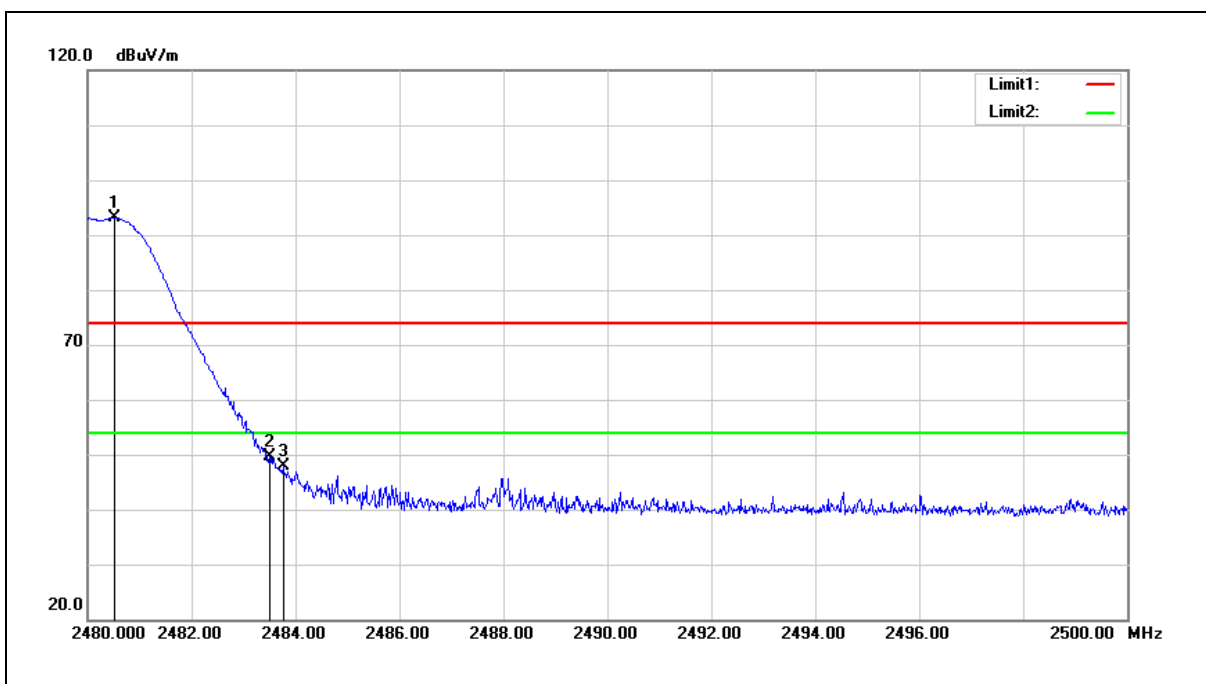
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2480.000	97.27	-7.35	89.92	--	--	peak
2	2483.500	53.54	-7.34	46.20	74.00	-27.80	peak
3	2487.920	51.27	-7.32	43.95	74.00	-30.05	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Standard:	LP0002	Test Distance:	3 m
Test item:	Band edge		
Frequency:	2480 MHz		
Mode:	Mode 6		
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2480.520	100.46	-7.35	93.11	--	--	peak
2	2483.500	57.01	-7.34	49.67	74.00	-24.33	peak
3	2483.760	55.32	-7.34	47.98	74.00	-26.02	peak

Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

3.When the peak results are less than average limit, so not need to evaluate the average.

Annex C. Conducted Test Results

輸出峰值功率之量測

操作模式 : Mode 2: BR,GFSK Continuous TX Mode						
頻道		輸出功率(Average)		輸出功率(Peak)		限制值
		dBm	W	dBm	W	W
低頻道	DH1	8.52	0.00711	8.84	0.00766	≤0.125
	DH3	8.60	0.00724	8.91	0.00778	≤0.125
	DH5	8.67	0.00736	8.96	0.00787	≤0.125
中頻道	DH1	8.59	0.00723	8.91	0.00778	≤0.125
	DH3	8.65	0.00733	8.98	0.00791	≤0.125
	DH5	8.71	0.00743	9.03	0.00800	≤0.125
高頻道	DH1	8.35	0.00684	8.65	0.00733	≤0.125
	DH3	8.41	0.00693	8.71	0.00743	≤0.125
	DH5	8.45	0.00700	8.77	0.00753	≤0.125

操作模式 : Mode 3: EDR, π/4-DQPSK Continuous TX Mode						
頻道		輸出功率(Average)		輸出功率(Peak)		限制值
		dBm	W	dBm	W	W
低頻道	2DH1	8.36	0.00685	11.04	0.01271	≤0.125
	2DH3	8.48	0.00705	11.13	0.01297	≤0.125
	2DH5	8.60	0.00724	11.22	0.01324	≤0.125
中頻道	2DH1	8.51	0.00710	11.06	0.01276	≤0.125
	2DH3	8.60	0.00724	11.18	0.01312	≤0.125
	2DH5	8.68	0.00738	11.25	0.01334	≤0.125
高頻道	2DH1	8.23	0.00665	10.80	0.01202	≤0.125
	2DH3	8.32	0.00679	10.88	0.01225	≤0.125
	2DH5	8.40	0.00692	10.95	0.01245	≤0.125

操作模式 : Mode 4:EDR, 8DPSK Continuous TX Mode						
頻道		輸出功率(Average)		輸出功率(Peak)		限制值
		dBm	W	dBm	W	W
低頻道	3DH1	8.45	0.00700	11.11	0.01291	≤0.125
	3DH3	8.52	0.00711	11.20	0.01318	≤0.125
	3DH5	8.65	0.00733	11.28	0.01343	≤0.125
中頻道	3DH1	8.58	0.00721	11.17	0.01309	≤0.125
	3DH3	8.65	0.00733	11.24	0.01330	≤0.125
	3DH5	8.73	0.00746	11.31	0.01352	≤0.125
高頻道	3DH1	8.28	0.00673	10.88	0.01225	≤0.125
	3DH3	8.36	0.00685	10.96	0.01247	≤0.125
	3DH5	8.45	0.00700	11.06	0.01276	≤0.125

操作模式 : Mode 5: LE, GFSK Continuous TX Mode					
頻道	輸出功率(Average)		輸出功率(Peak)		限制值
	dBm	W	dBm	W	W
低頻道	-1.09	0.00078	-0.75	0.00084	≤ 1
中頻道	-1.23	0.00075	-0.87	0.00082	≤ 1
高頻道	-1.56	0.00070	-1.22	0.00076	≤ 1

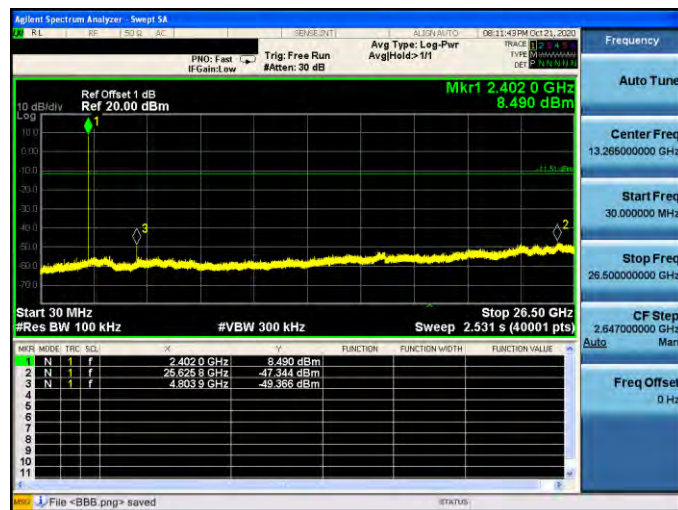
操作模式 : Mode 6: 2LE, GFSK Continuous TX Mode					
頻道	輸出功率(Average)		輸出功率(Peak)		限制值
	dBm	W	dBm	W	W
低頻道	-1.08	0.00078	-0.75	0.00084	≤ 1
中頻道	-1.21	0.00076	-0.89	0.00081	≤ 1
高頻道	-1.51	0.00071	-1.19	0.00076	≤ 1

非必要頻帶之量測

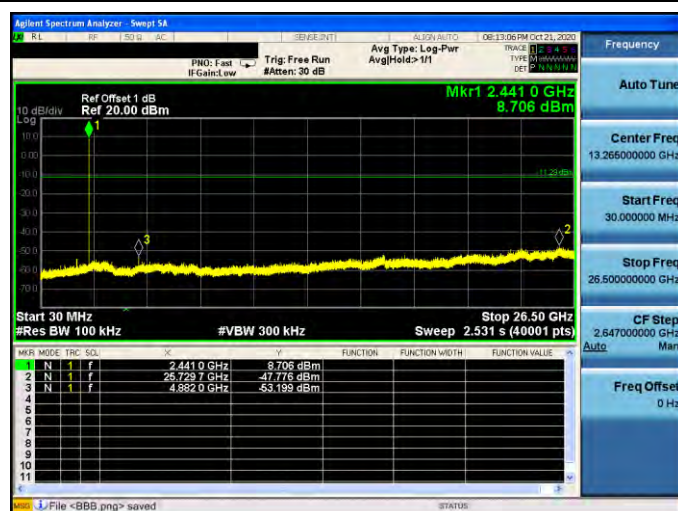
Out of Band Conducted Spurious Emission

Mode 2: BR, GFSK Continuous TX Mode

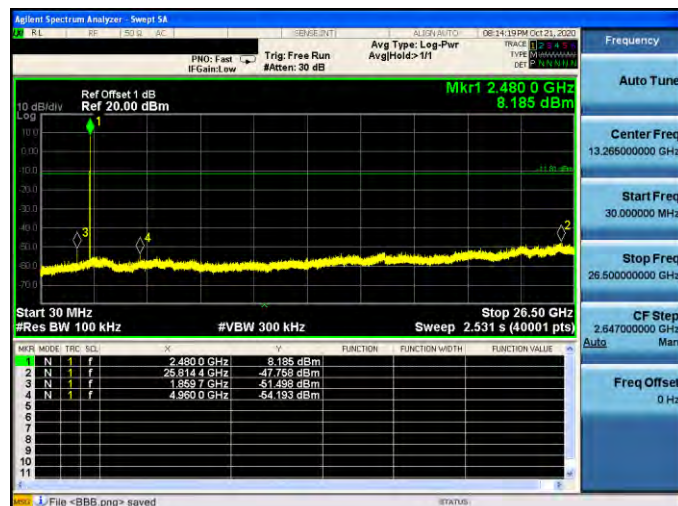
低頻道



中頻道

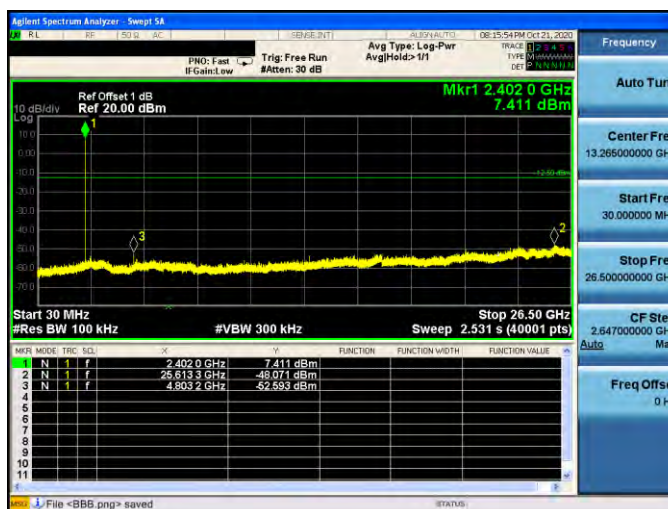


高頻道

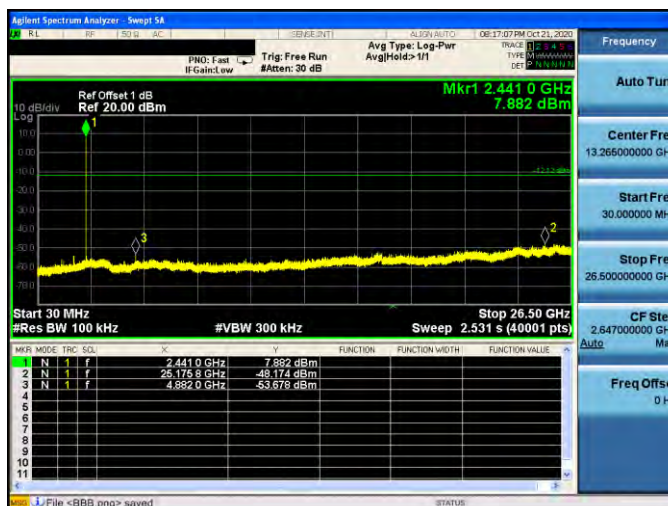


Mode 4: EDR, 8DPSK Continuous TX Mode

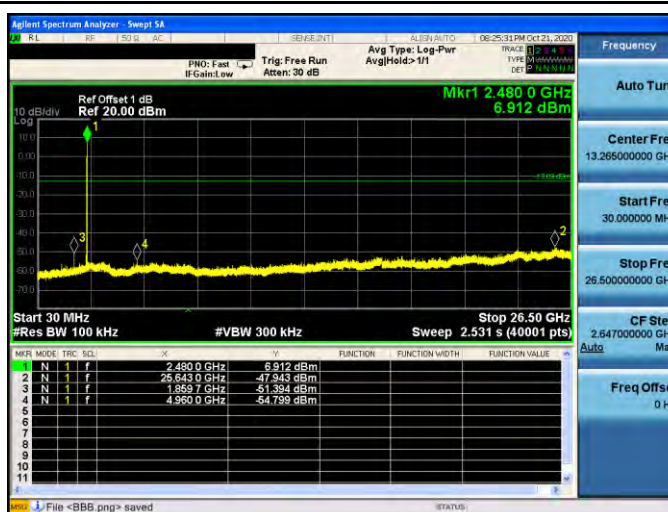
低頻道



中頻道

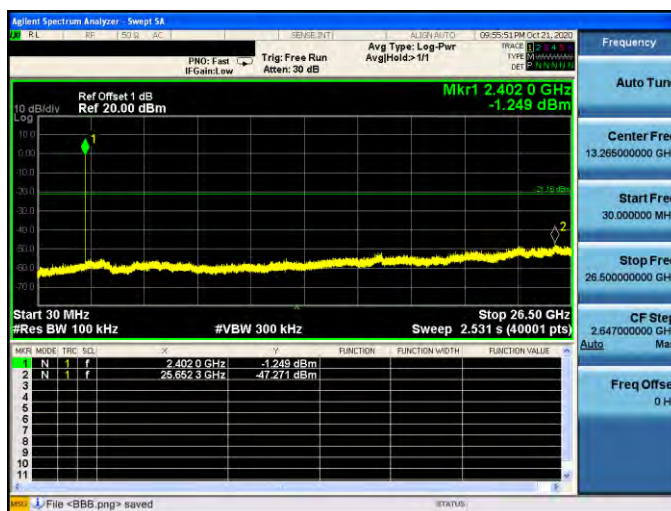


高頻道

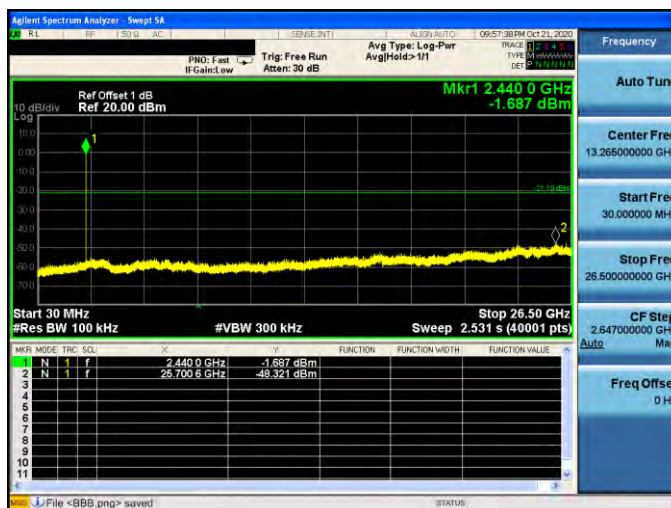


Mode 5: LE, GFSK Continuous TX Mode

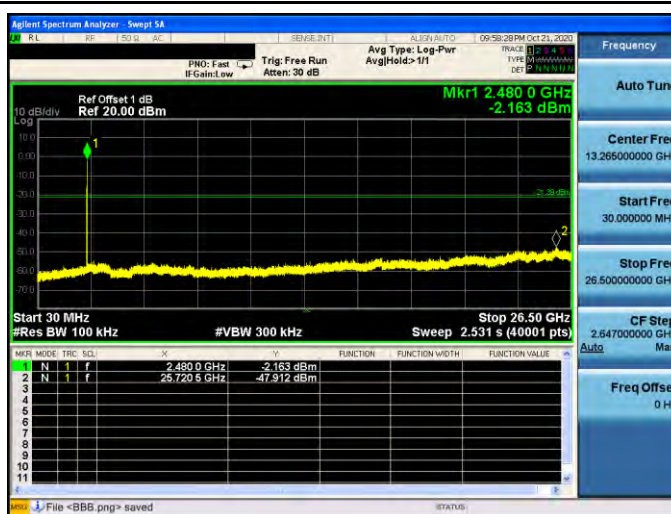
低頻道



中頻道

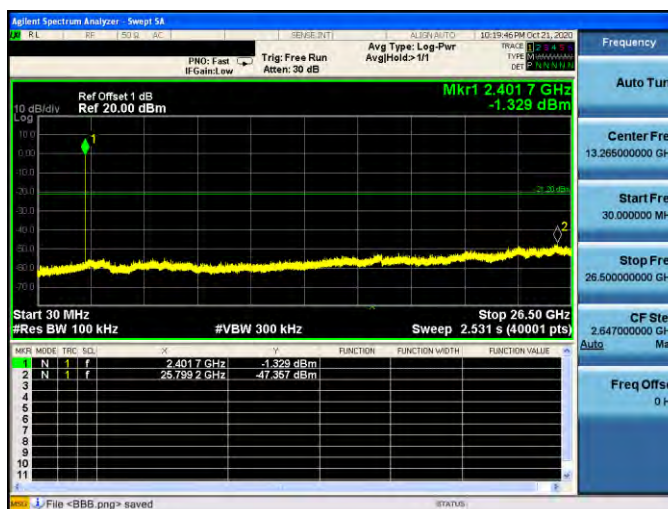


高頻道

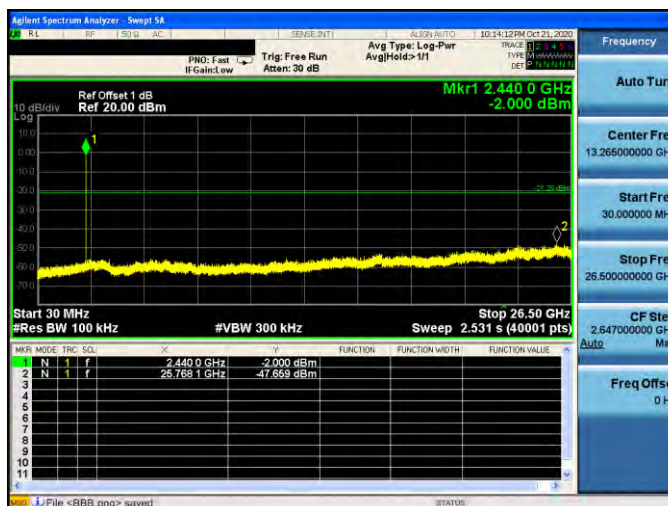


Mode 6: 2LE, GFSK Continuous TX Mode

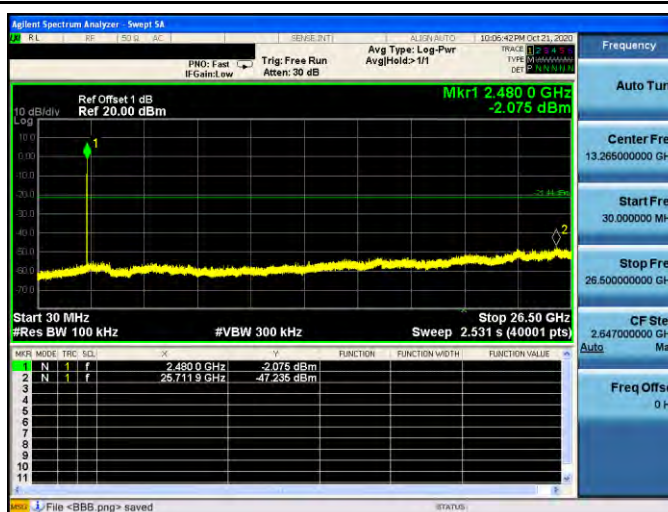
低頻道



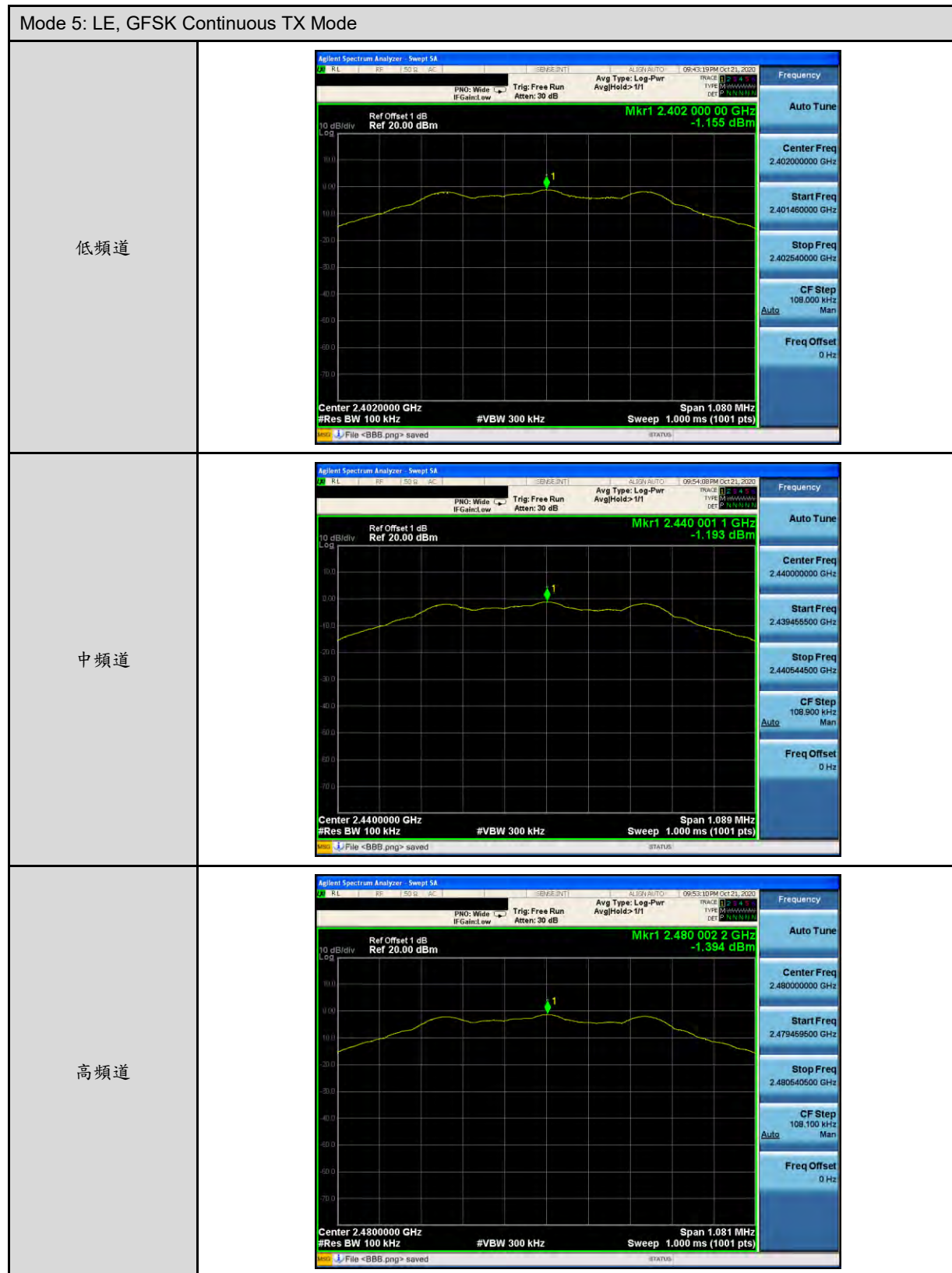
中頻道

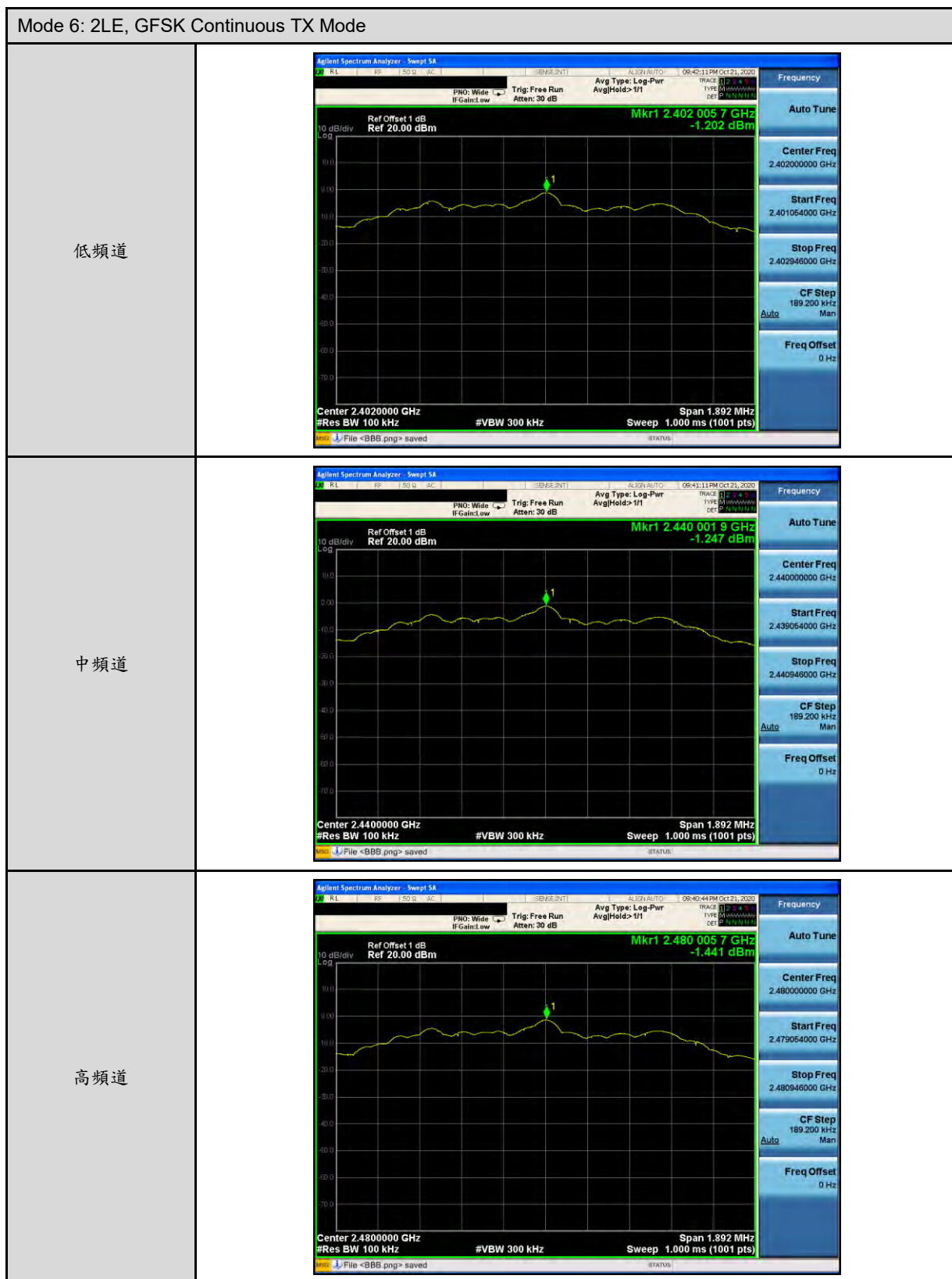


高頻道



Reference level

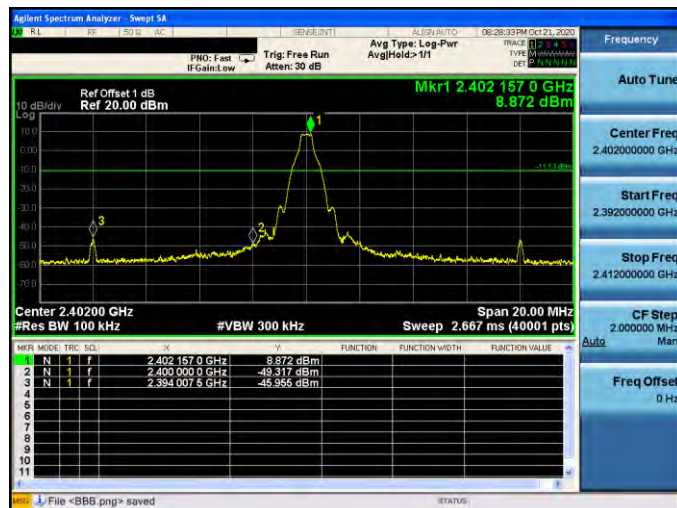




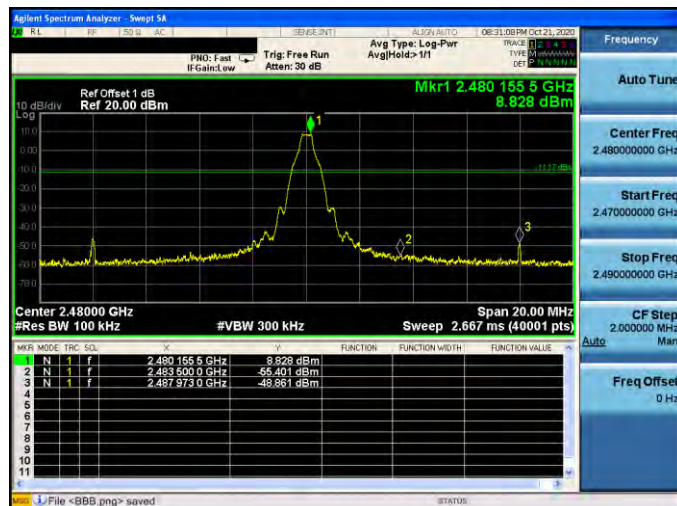
Conducted Band Edge

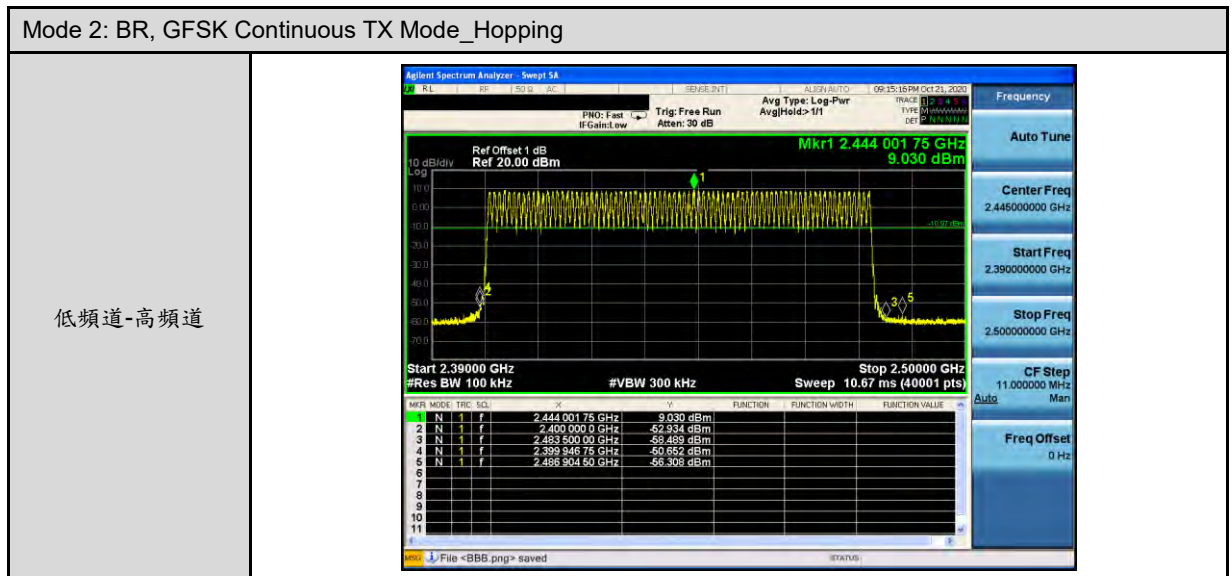
Mode 2: BR, GFSK Continuous TX Mode_Un-hopping

低頻道



高頻道



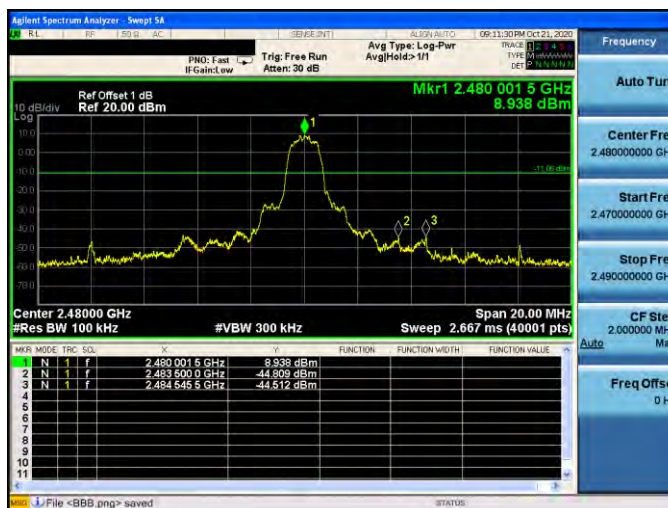


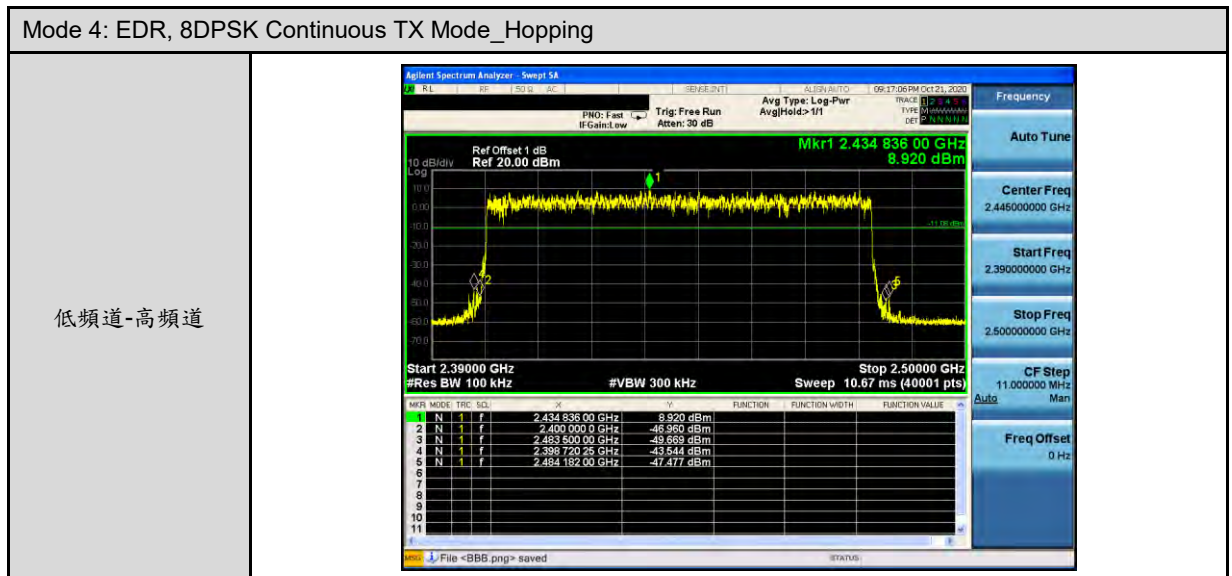
Mode 4: EDR, 8DPSK Continuous TX Mode_Un-hopping

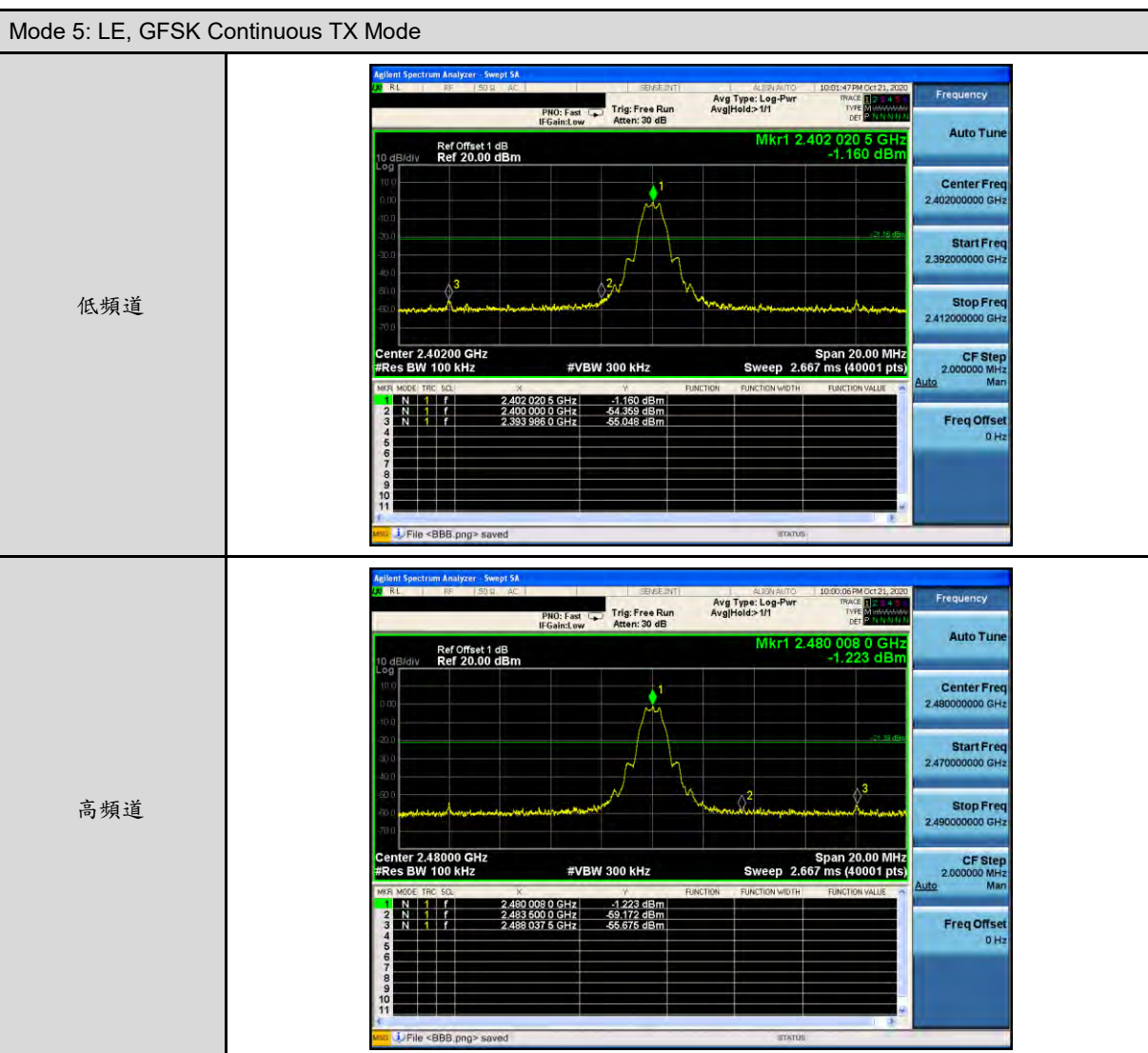
低頻道

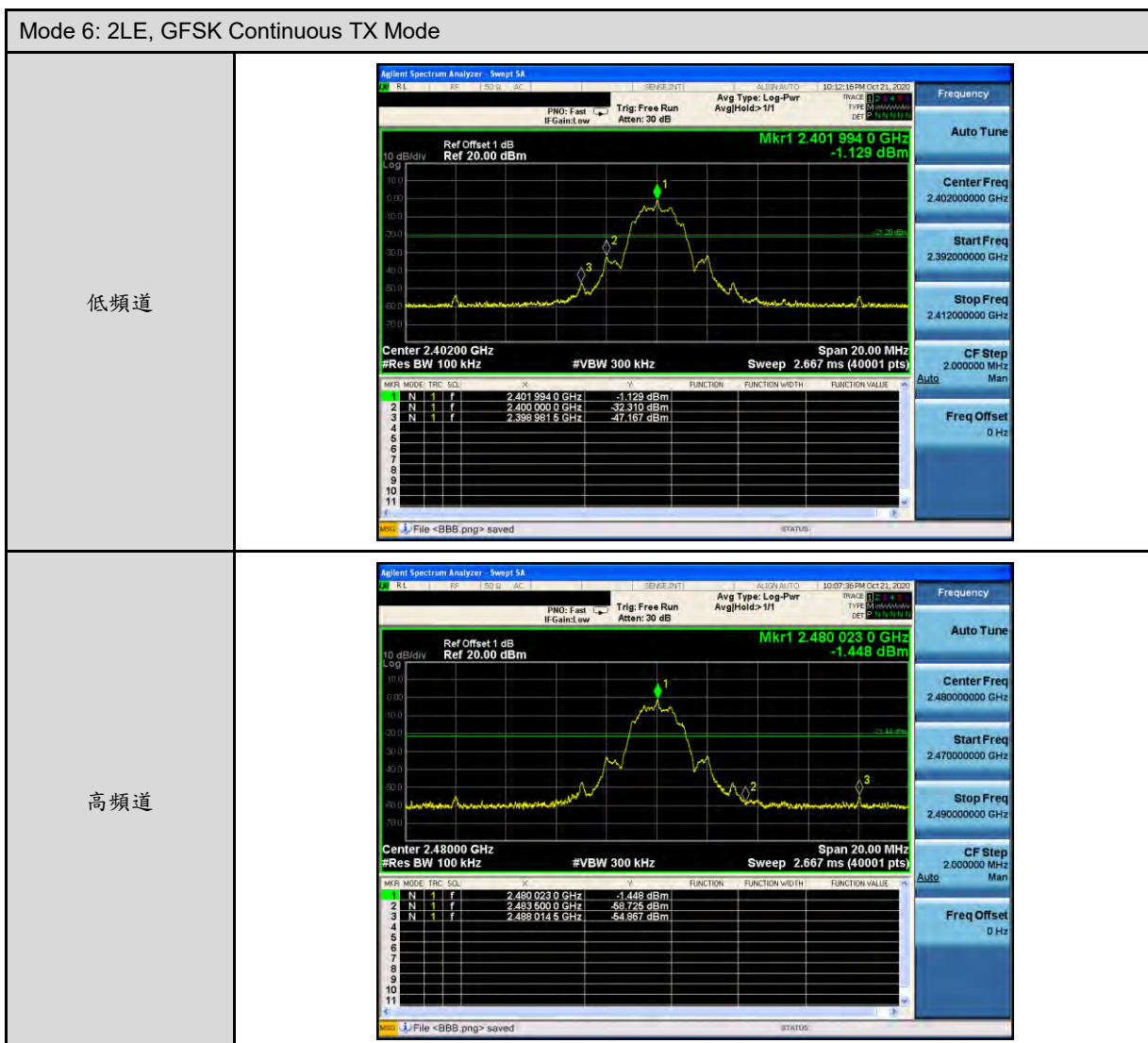


高頻道



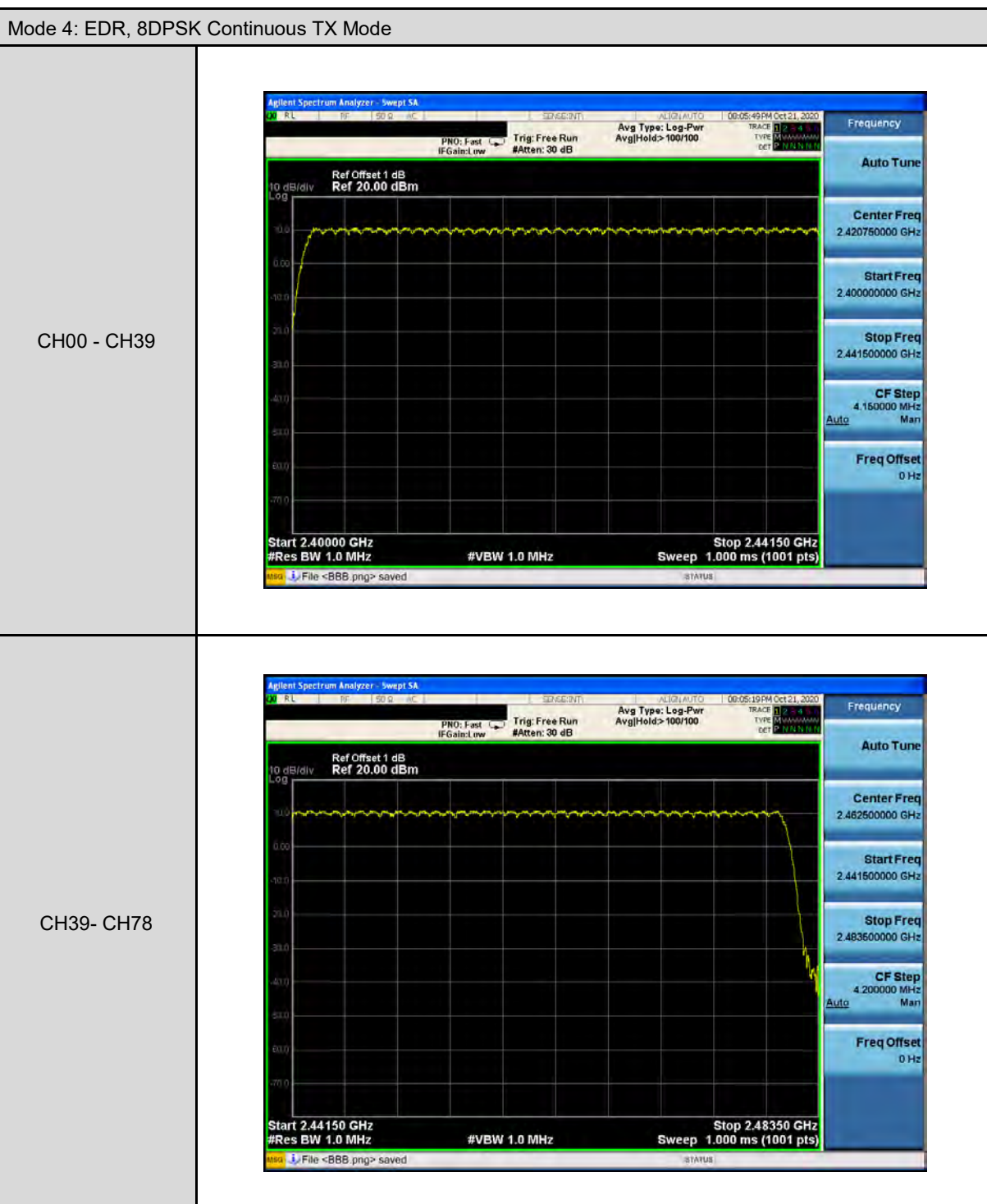






頻率範圍及頻道數之要求

Mode 2: BR, GFSK Continuous TX Mode	
CH00 - CH39	
CH39- CH78	



發射頻寬之要求

操作模式 : Mode 2: BR, GFSK Continuous TX Mode Mode 4: EDR, 8DPSK Continuous TX Mode				
操作模式	頻道	發射頻寬(20 dB)		
		量測值 (MHz)	2/3 量測值 (MHz)	限制值 (MHz)
Mode 2	低頻道	0.964	0.643	-----
	中頻道	0.964	0.643	-----
	高頻道	0.962	0.641	-----
Mode 4	低頻道	1.311	0.874	-----
	中頻道	1.311	0.874	-----
	高頻道	1.311	0.874	-----
註: 發射頻寬(20 dB) 之 2/3 量測值 = 量測值 x 2 / 3				

操作模式 : Mode 5: LE, GFSK Continuous TX Mode Mode 6: 2LE, GFSK Continuous TX Mode			
操作模式	頻道	發射頻寬(6dB)	
		量測值 (kHz)	限制值 (kHz)
Mode 5	低頻道	719.400	≥ 500
	中頻道	725.700	≥ 500
	高頻道	720.500	≥ 500
Mode 6	低頻道	1261.000	≥ 500
	中頻道	1261.000	≥ 500
	高頻道	1261.000	≥ 500

Mode 2: BR, GFSK Continuous TX Mode

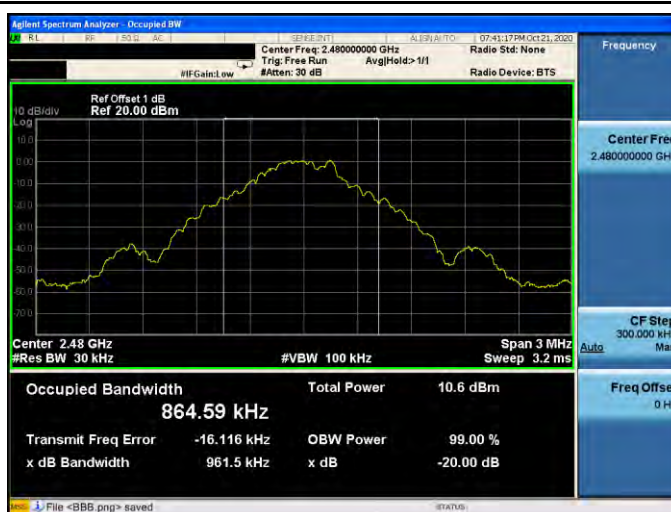
低頻道



中頻道



高頻道



Mode 4: EDR,8DPSK Continuous TX Mode

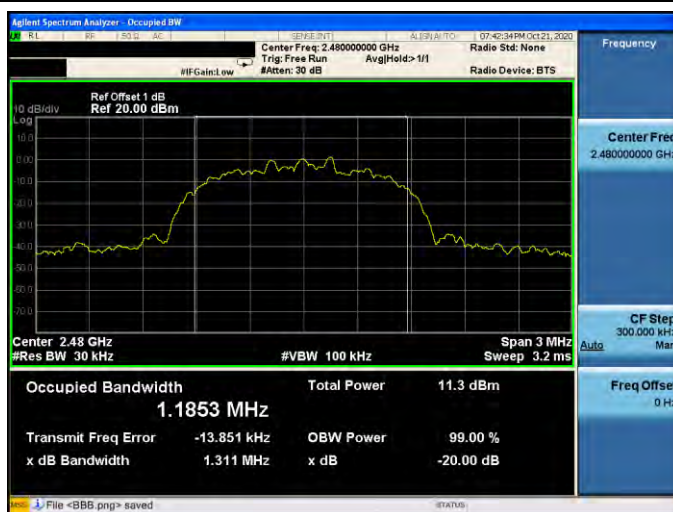
低頻道



中頻道



高頻道

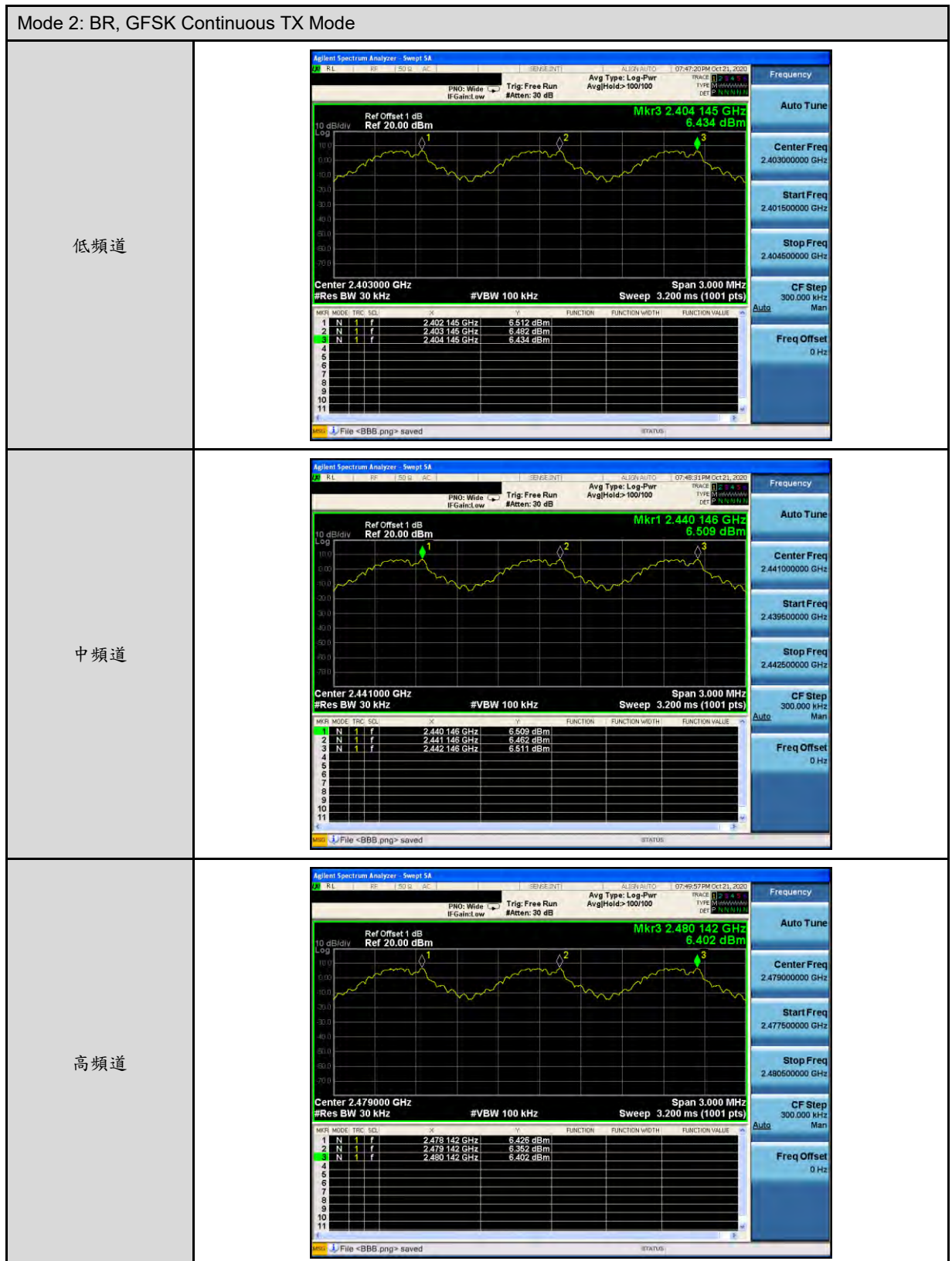






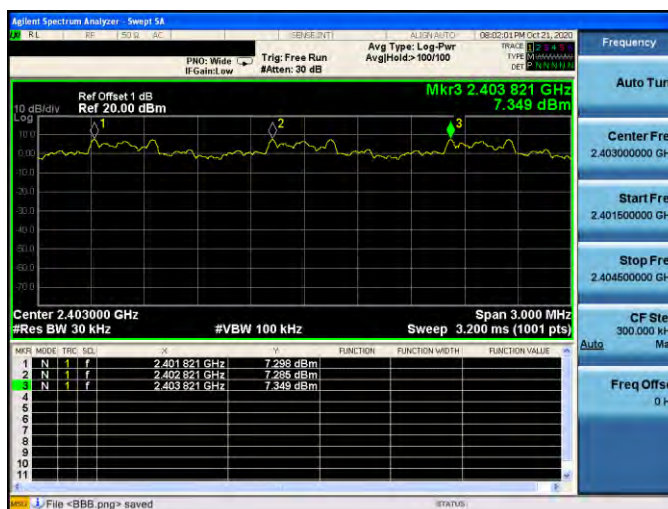
跳頻系統之載波頻率頻道間隔之量測

操作模式 : Mode 2: BR, GFSK Continuous TX Mode Mode 4: EDR, 8DPSK Continuous TX Mode			
操作模式	頻道	相鄰頻道載波間隔	
		量測值 (MHz)	限制值 (MHz)
Mode 2	低頻道	1.000	≥ 0.643
	中頻道	1.000	≥ 0.643
	高頻道	1.000	≥ 0.641
Mode 4	低頻道	1.000	≥ 0.874
	中頻道	1.000	≥ 0.874
	高頻道	1.000	≥ 0.874



Mode 4: EDR, 8DPSK Continuous TX Mode

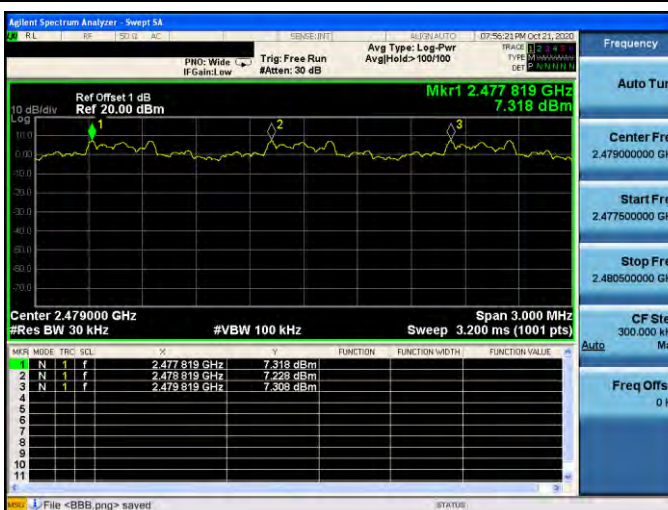
低頻道



中頻道



高頻道

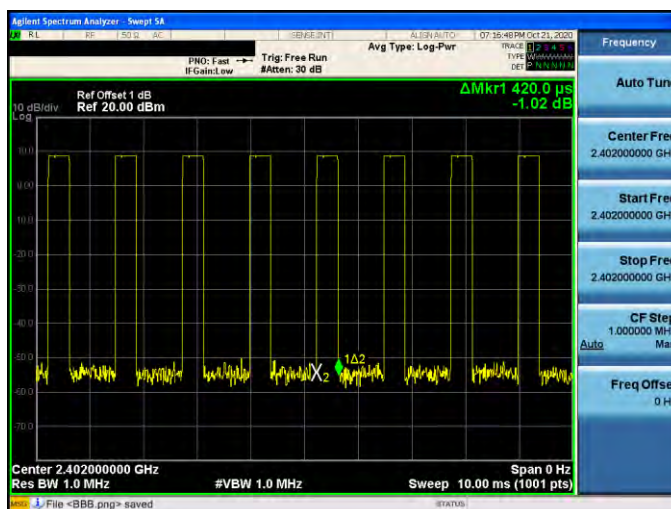


跳頻系統之任一頻率佔用之平均時間之量測

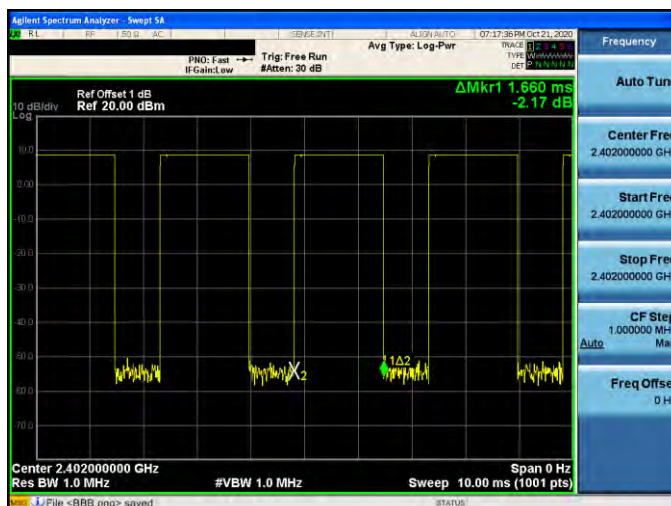
Mode 2: BR, GFSK Continuous TX Mode	
DH1 模式	
需量測之週期(秒)	$79CH * 0.4 = 31.6$ (秒)
待測物每秒跳頻之總次數	1600(藍牙通訊協定標準)
頻道每秒佔用之次數	$800/79CH = 10.13$ (次/秒)
頻道每次佔用之時間(1)	0.420 ms (秒)
週期內頻道佔用之總次數(2)	$31.6 * 10.13 = 320.108$ (次)
週期內佔用的平均時間(1) * (2)	134.445 ms (秒)
LIMIT(msec)	≤ 400
DH3 模式	
需量測之週期(秒)	$79CH * 0.4 = 31.6$ (秒)
待測物每秒跳頻之總次數	1600(藍牙通訊協定標準)
頻道每秒佔用之次數	$400/79CH = 5.06$ (次/秒)
頻道每次佔用之時間(1)	1.660 ms (秒)
週期內頻道佔用之總次數(2)	$31.6 * 5.06 = 159.896$ (次)
週期內佔用的平均時間(1) * (2)	265.427 ms (秒)
LIMIT(msec)	≤ 400
DH5 模式	
需量測之週期(秒)	$79CH * 0.4 = 31.6$ (秒)
待測物每秒跳頻之總次數	1600(藍牙通訊協定標準)
頻道每秒佔用之次數	$266.7/79CH = 3.38$ (次/秒)
頻道每次佔用之時間(1)	2.930 ms (秒)
週期內頻道佔用之總次數(2)	$31.6 * 3.38 = 106.808$ (次)
週期內佔用的平均時間(1) * (2)	312.947 ms (秒)
LIMIT(msec)	≤ 400

Mode 2: BR, GFSK Continuous TX Mode

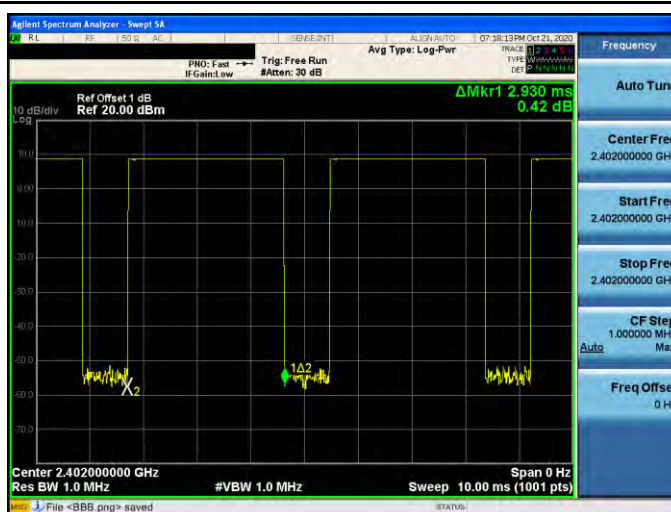
DH1



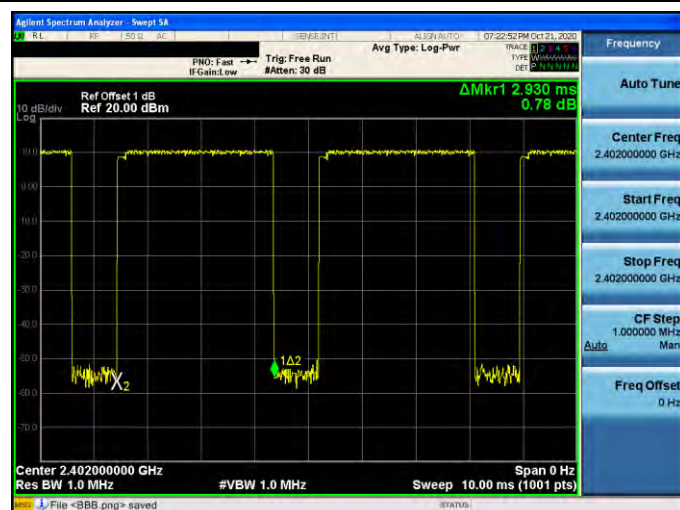
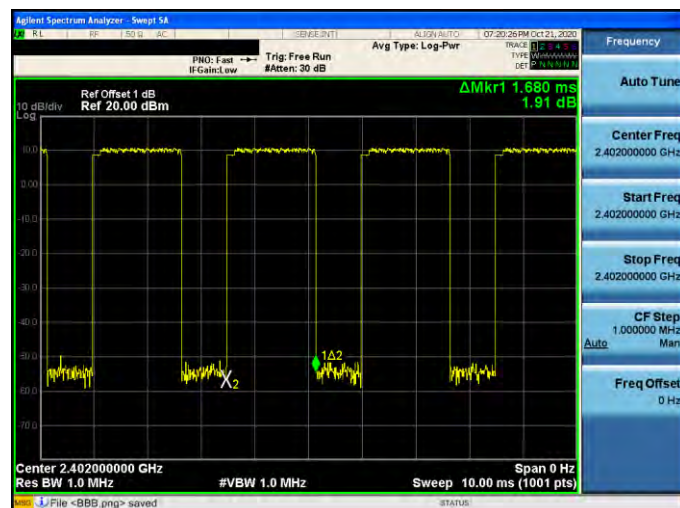
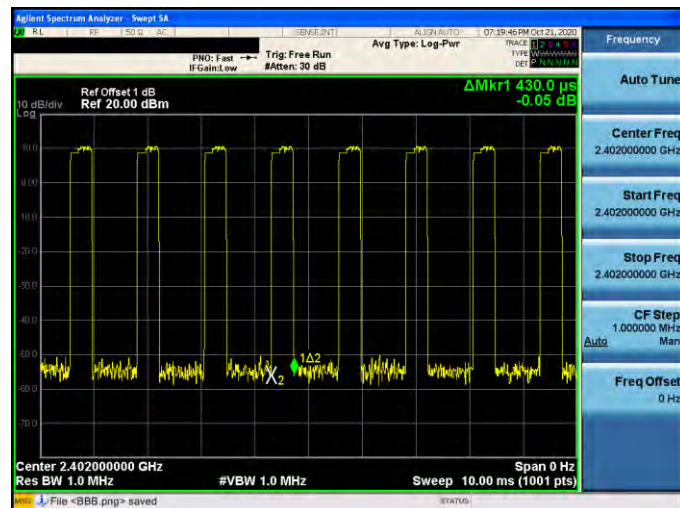
DH3



DH5

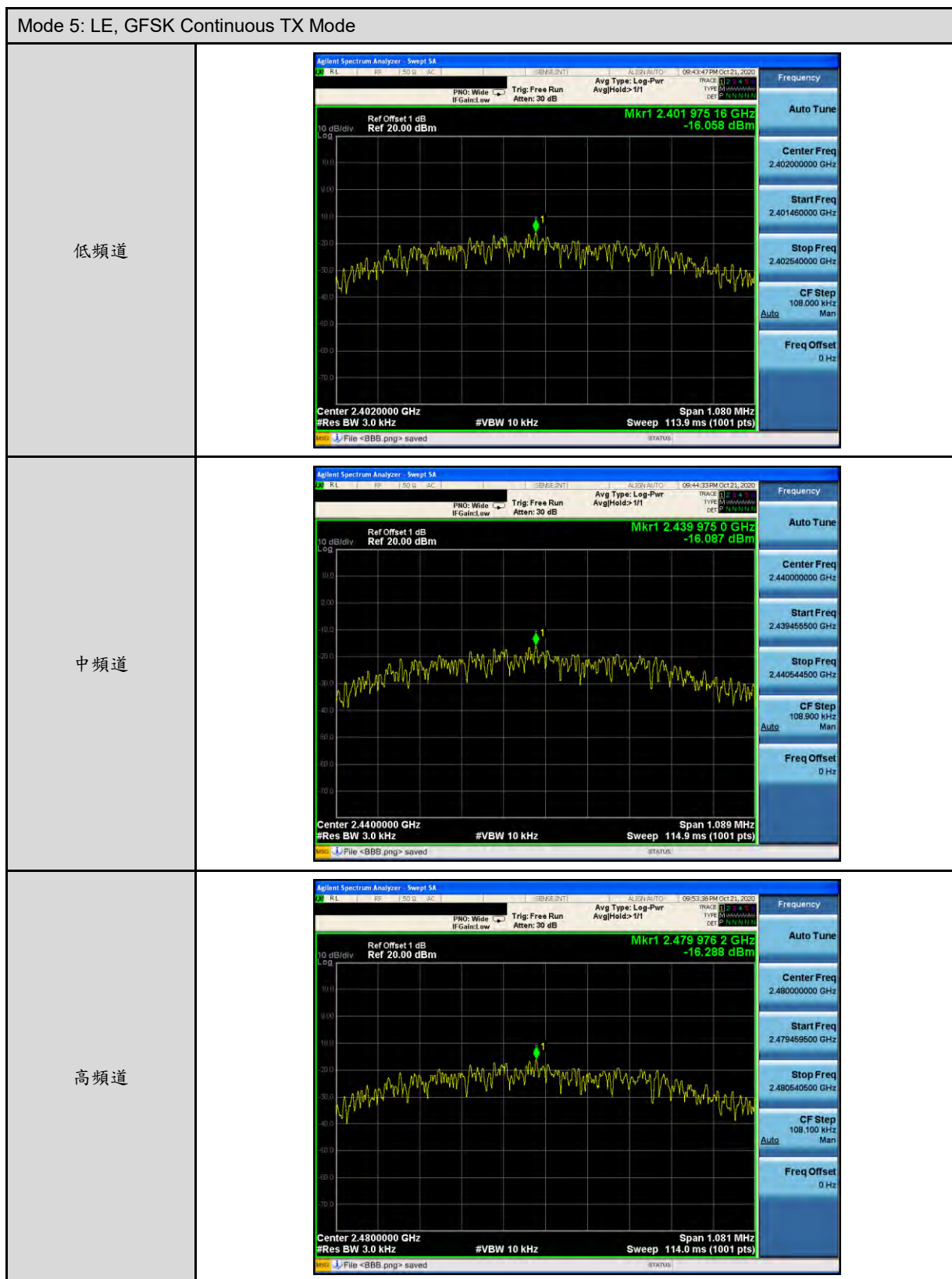


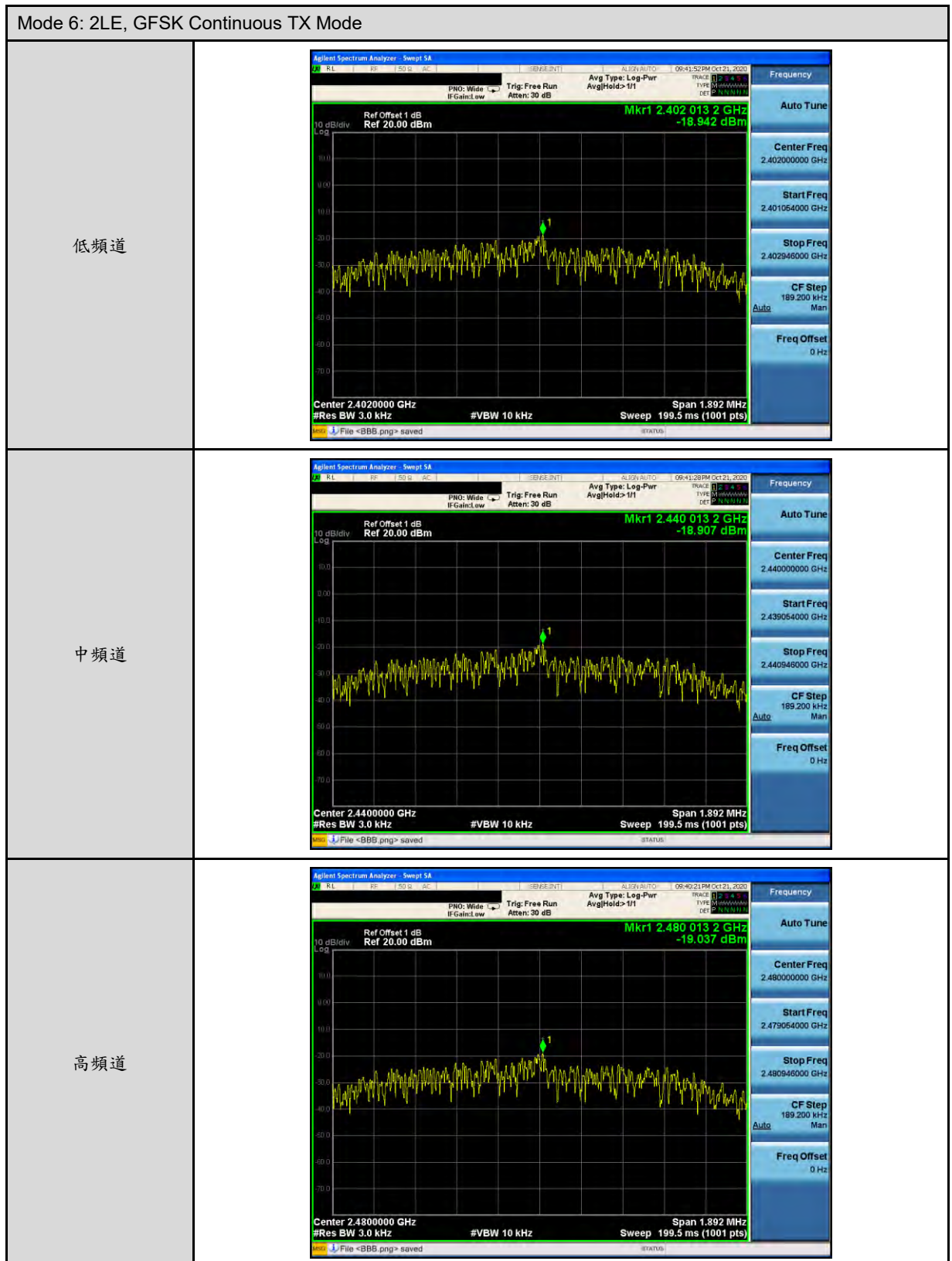
Mode 4: EDR, 8DPSK Continuous TX Mode	
3DH1 模式	
需量測之週期(秒)	$79\text{CH} * 0.4 = 31.6$ (秒)
待測物每秒跳頻之總次數	1600(藍牙通訊協定標準)
頻道每秒佔用之次數	$800/79\text{CH} = 10.13$ (次/秒)
頻道每次佔用之時間(1)	0.430 ms (秒)
週期內頻道佔用之總次數(2)	$31.6 * 10.13 = 320.108$ (次)
週期內佔用的平均時間(1) * (2)	137.646 ms (秒)
LIMIT(msec)	≤ 400
3DH3 模式	
需量測之週期(秒)	$79\text{CH} * 0.4 = 31.6$ (秒)
待測物每秒跳頻之總次數	1600(藍牙通訊協定標準)
頻道每秒佔用之次數	$400/79\text{CH} = 5.06$ (次/秒)
頻道每次佔用之時間(1)	1.680 ms (秒)
週期內頻道佔用之總次數(2)	$31.6 * 5.06 = 159.896$ (次)
週期內佔用的平均時間(1) * (2)	268.625 ms (秒)
LIMIT(msec)	≤ 400
3DH5 模式	
需量測之週期(秒)	$79\text{CH} * 0.4 = 31.6$ (秒)
待測物每秒跳頻之總次數	1600(藍牙通訊協定標準)
頻道每秒佔用之次數	$266.7/79\text{CH} = 3.38$ (次/秒)
頻道每次佔用之時間(1)	2.930 ms (秒)
週期內頻道佔用之總次數(2)	$31.6 * 3.38 = 106.808$ (次)
週期內佔用的平均時間(1) * (2)	312.947 ms (秒)
LIMIT(msec)	≤ 400



功率密度之要求

操作模式 : Mode 5: LE, GFSK Continuous TX Mode Mode 6: 2LE, GFSK Continuous TX Mode			
操作模式	頻道	量測值 (dBm/3 kHz)	限制值 (dBm/3 kHz)
Mode 5	低頻道	-16.058	≤ 8
	中頻道	-16.087	≤ 8
	高頻道	-16.288	≤ 8
Mode 6	低頻道	-18.942	≤ 8
	中頻道	-18.907	≤ 8
	高頻道	-19.037	≤ 8





電波暴露量之評估

Band	Frequency (MHz)	Limit (mW/cm ²)	Distance [R] (cm)	Power [P] (dBm)	ANT Gain (dBi)	Numeric Gain [G] (dBi)	Duty Cycle	With Duty cycle [P] x [G] (mW)	Power Density [S] (mW/cm ²)
BT	2402~2480	1	20	8.73	2.25	1.68	1	12.540	0.0025

---END---