

低功率射頻器材試驗報告

產品名稱 TE-D01q TWS Earbuds

申請廠商 Preseed Japan Corporation

廠 牌 AVIOT

型式 (號) TE-D01q

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 110 年 10 月 20 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

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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	110 年 10 月 20 日	初版發行	江玉

低功率射頻器材測試證明書

產品名稱 : TE-D01q TWS Earbuds

廠 牌 : AVIOT

型 號 : TE-D01q

申請廠商 : Preseed Japan Corporation

申請者地址 : Barbizon59, 3-62-12, Sendagaya, Shibuya-ku, Tokyo,151-0051 Japan

製造廠商 : 東莞市世威電子科技有限公司

製造商地址 : 中國廣東省東莞市常平鎮東征路251號2棟901室

待測物電壓 : DC 5 V, 500 mA

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 : 110 年 09 月 30 日

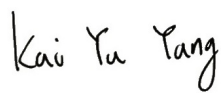
試驗日期 : 110 年 10 月 02 日 ~ 110 年 10 月 05 日

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 ！

Approved By :


(Kai Yu Yang)

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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	TE-D01q TWS Earbuds		
廠 牌	AVIOT		
型 號	TE-D01q		
額 定 電 源	DC 5 V, 500 mA		
待測物電源類別	Power Adapter / Battery		
調 變 方 式	GFSK, $\pi/4$ -DQPSK, 8DPSK		
頻 率 使 用 範 圍	2402 MHz – 2480 MHz		
天 線 廠 牌	Hetuo Technology		
天 線 型 號	HT-R1200A-L		
天 線 型 態	FPC Antenna		
天 線 增 益 值	1.4 dBi		
RF 最大輸出功率	BR, GFSK:	8.24 dBm/	0.00667 W
	EDR, $\pi/4$ -DQPSK:	8.26 dBm/	0.00670 W
	EDR, 8DPSK:	8.28 dBm/	0.00673 W
註：此產品為左耳耳機。			

輸出/輸入埠說明：

輸 出 / 入 埠		數量	介面內容說明
1	DC Power Port	1	連接至充電盒

附屬裝置表：

裝置名稱		廠牌	型號	備註
(A)	內建式固定電池	BPI 倍特力	12540	DC 3.7 V, 60 mAh
(B)	充電盒	AVIOT	TE-D01q	INPUT : DC 5 V, 500 mA OUTPUT : DC 5 V, 500 mA*2
(C)	USB Cable (For 充電盒)	Changsheng Intelligent	TE-D01q	STD-A → Type-C Shielded, 0.27 m
(D)	TE-D01q TWS Earbuds (右耳耳機)	AVIOT	TE-D01q	無線功能 : Bluetooth

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

2. 量測儀器及測試配置說明

2.1 量測設備

For Conducted Emission
Test Period: Oct. 03, 2021
Testing Engineer: JS Liao

Use	Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
☒	Test Receiver	R&S	ESCI	100367	05/21/2021	1 year
☐	Test Receiver	R&S	ESCI	100722	10/28/2020	1 year
☐	Test Receiver	R&S	ESCI	101000	11/27/2020	1 year
☒	LISN	R&S	ENV216	101040	03/29/2021	1 year
☒	LISN	R&S	ENV216	101041	04/08/2021	1 year
☒	RF Cable	Woken	00100D1380194M	TE-02-03	05/28/2021	1 year

For Conducted
Test Period: Oct. 05, 2021
Testing Engineer: Andy Lu

Use	Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
☒	Power Sensor	Anritsu	MA2411B	1126022	09/03/2021	1 year
☒	Power Meter	Anritsu	ML2495A	1135009	09/03/2021	1 year
☐	Power Sensor	Agilent	N1921A	MY45241957	12/09/2020	1 year
☐	Power Meter	Agilent	N1911A	MY45101619	12/09/2020	1 year
☐	Spectrum Analyzer (10 Hz~26.5 GHz)	Keysight	N9010B	MY59071418	03/17/2021	1 year
☐	Spectrum Analyzer (9 kHz~26.5 GHz)	Agilent	N9010A	MY48030518	07/23/2021	1 year
☒	Spectrum Analyzer (20 Hz~26.5 GHz)	Agilent	N9020A	US47520902	09/09/2021	1 year
☐	Spectrum Analyzer (3 Hz~50 GHz)	Agilent	N9030A	MY53120541	01/08/2021	1 year
☐	Temperature & Humidity Chamber	TAICHY	MHU-225LA	980729	03/30/2021	1 year
☐	Signal Generator	Keysight	N5182B	MY53052569	04/20/2021	1 year
☐	Signal Generator	Keysight	N5182BX07	MY59360221	04/20/2021	1 year
☐	Bluetooth Tester	R&S	CBT	100350	03/17/2021	2 years
☐	Wireless Connectivity Tester	R&S	CMW270	102208	06/02/2021	1 year
☐	Power Supply	KEITHLEY	2303	4045290	02/01/2021	1 year
☐	RF Communication Test Set	HP	8920A	3344A03297	08/10/2021	1 year

Note: N.C.R. = No Calibration Request.

For Radiated Emissions
Test Period: Oct. 02, 2021
Testing Engineer: JS Liao

Use	Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
☒	Spectrum Analyzer (10 Hz~44 GHz)	Keysight	N9010A	MY52221312	01/18/2021	1 year
☐	Spectrum Analyzer (3 Hz~50 GHz)	Agilent	N9030A	MY53120541	01/08/2021	1 year
☐	Amplifier (100 kHz~1.3 GHz)	Agilent	8447D	2944A11119	01/15/2021	1 year
☒	Amplifier (100 kHz~1.3 GHz)	Agilent	8447D	2944A10961	07/06/2021	1 year
☒	Pre Amplifier (1~26.5 GHz)	Agilent	8449B	3008A02455	07/12/2021	1 year
☐	Preamplifier (1 GHz~26.5 GHz)	EMCI	EMC012645SE	980289	01/15/2021	1 year
☐	Preamplifier (26.5 GHz~40 GHz)	EMCI	EMC2654045	980028	08/19/2021	1 year
☐	Loop Antenna (9 kHz~30 MHz)	COM-POWER CORPORATION	AL-130	121014	04/07/2021	1 year
☐	Trilog Broadband Antenna (30 kHz~1 GHz)	Schwarzbeck Mess-Elektronik	VULB9168	01146	07/19/2021	1 year
☒	Trilog Broadband Antenna (30 kHz~1 GHz)	Schwarzbeck Mess-Elektronik	VULB9168	416	11/11/2020	1 year
☐	Broadband Horn Antenna (1 GHz~18 GHz)	Schwarzbeck Mess-Elektronik	9120D	02207	07/09/2021	1 year
☒	Broadband Horn Antenna (1 GHz~18 GHz)	Schwarzbeck Mess-Elektronik	9120D	9120D-550	08/24/2021	1 year
☒	Broadband Horn Antenna (18 GHz~40 GHz)	Schwarzbeck Mess-Elektronik	9170	9170-320	08/24/2021	1 year
☐	Horn Antenna (18 GHz~40 GHz)	ETS	3116	00086467	12/03/2020	1 year
☒	Microwave Cable	EMCI	EMC104-SM-SM-1 3000	170814	02/19/2021	1 year
☒	Microwave Cable	SUHNER	suflex104	313229/4	02/19/2021	1 year
☒	Microwave Cable	EMCI	EMC102-KM-KM-1 4000	151001	02/19/2021	1 year

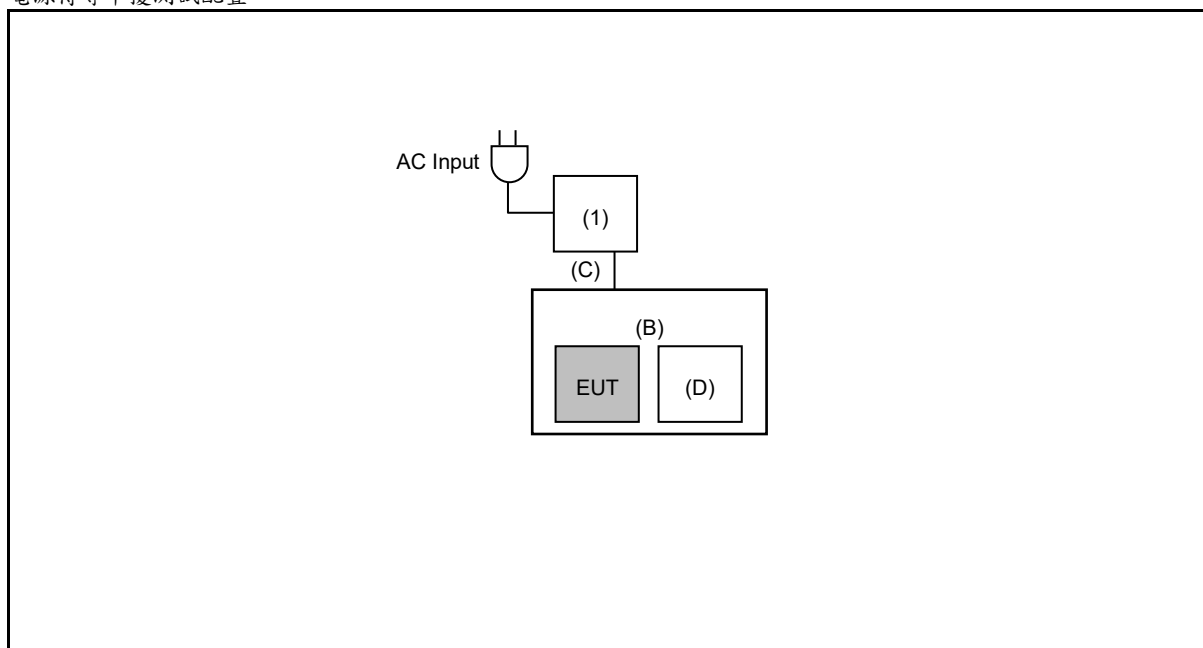
Note: N.C.R. = No Calibration Request.

Use	Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
☐	RF Cable	EMCI	EMC104-N-N-2000	TE01-2	02/19/2021	1 year
☐	RF Cable	EMCI	EMC104-N-N-6000	TE01-1	02/19/2021	1 year
☐	RF Cable	EMCI	EMC 106-SM-NM-1000	171219 (TE01-3)	02/19/2021	1 year
☐	Bluetooth Tester	R&S	CBT	100350	03/17/2021	2 years
☐	Wireless Connectivity Tester	R&S	CMW270	102208	06/02/2021	1 year
☐	Power Supply	KEITHLEY	2303	4045290	02/01/2021	1 year

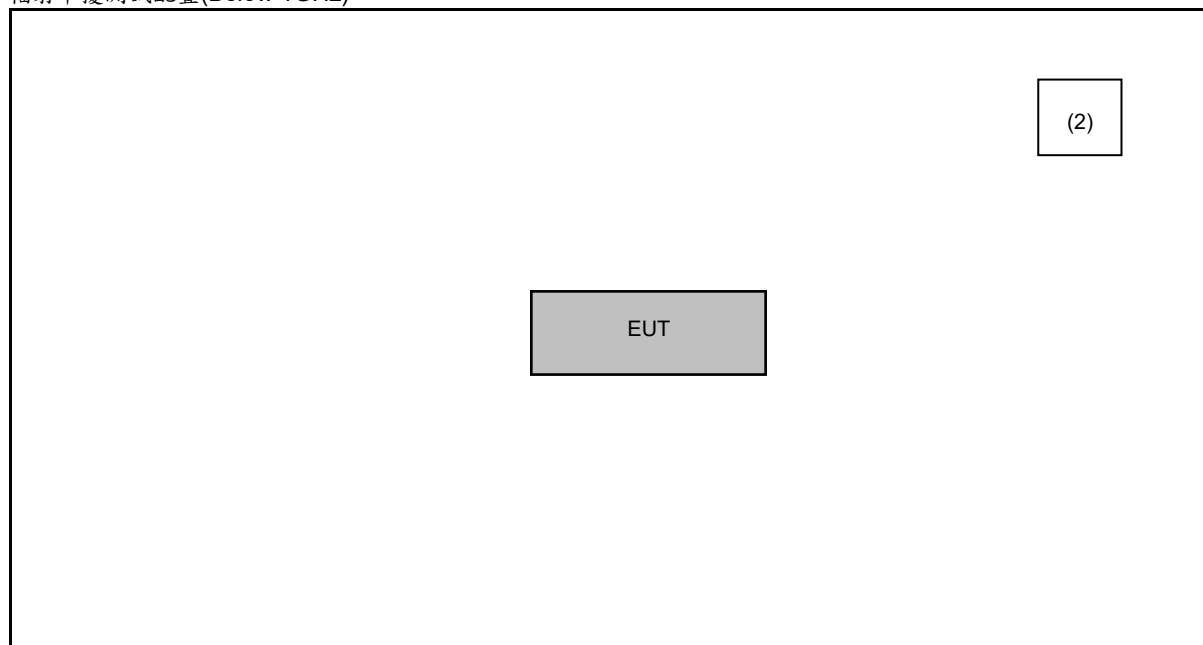
Note: N.C.R. = No Calibration Request.

2.2 檢驗系統示意圖

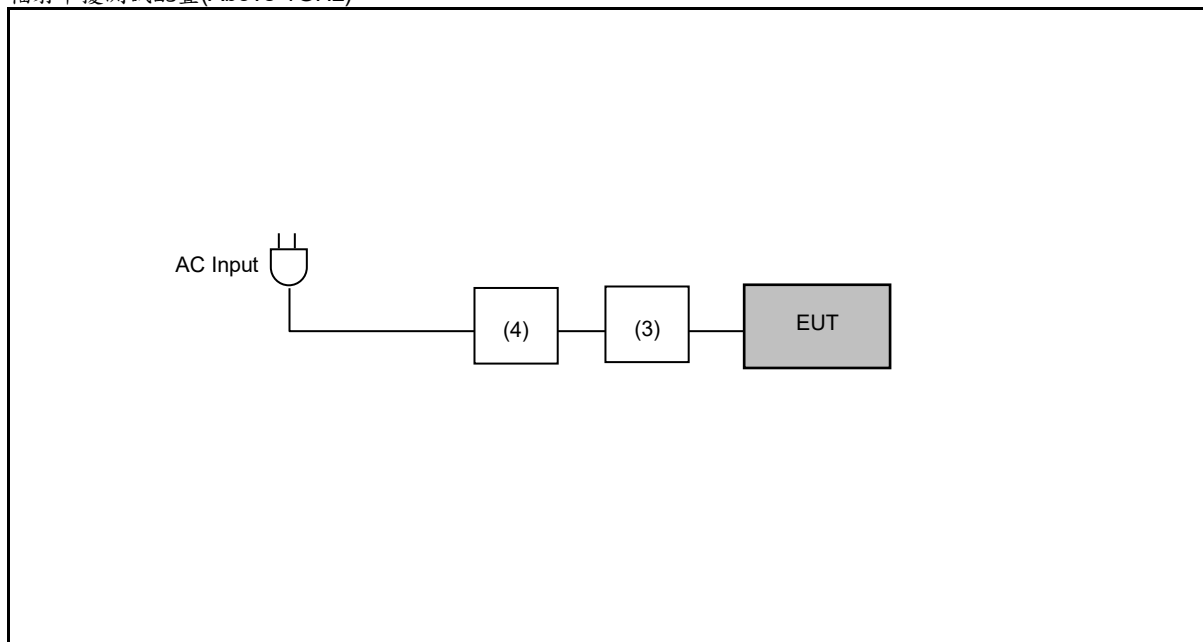
電源傳導干擾測試配置



輻射干擾測試配置(Below 1GHz)



輻射干擾測試配置(Above 1GHz)



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)	電源供應器	HUAWEI	HW-050100U01	---	---	INPUT : AC 100 V to 240 V, 50 Hz/60 Hz, 0.2 A OUTPUT : DC 5 V , 1.0 A (實驗室提供)
(2)	手持式行動電話機	SAMSUNG	SM-G960F/DS	R38JA0Q0 E1E	---	NCC ID : CCAK184G0030T4 (實驗室提供)
(3)	治具板	AIROHA	USB TO UART_OVO	---	---	(申請者提供)
(4)	Notebook	ASUS	P2430U	GANXCV0 4H86940A	---	(實驗室提供)

測試組合：

EUT Configure Mode	CE	RE<1G	RE ≥ 1G	備註
內建式固定電池	V	V	V	
充電盒 (For 充電盒)	V	X	X	
USB Cable	V	X	X	
TE-D01q TWS Earbuds (右耳耳機)	V	X	X	
電源供應器	V	X	X	測試週邊(1)
手持式行動電話機	X	V	X	測試週邊(2) Normal Link
治具板	X	X	V	測試週邊(3) Test Mode使用
Notebook	X	X	V	測試週邊(4) 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: Standby Mode
Mode 2: Transmit Mode
Mode 3: BR,GFSK Continuous TX Mode
Mode 4: EDR, $\pi/4$ -DQPSK Continuous TX Mode
Mode 5: EDR, 8DPSK Continuous TX Mode
Mode 6: Receiver Mode

Final-Test Mode
Mode 1: Standby Mode
Mode 2: Transmit Mode
Mode 3: BR,GFSK Continuous TX Mode
Mode 5: EDR, 8DPSK Continuous TX Mode
Mode 6: Receiver Mode

Test Mode	Frequency (MHz)	Packet Type	RF Power setting in Test Software	Test Software Version
Mode 3	2402	DH1	Default	Airoha.Tool.Kit V1.3.10
		DH3	Default	
		DH5	Default	
	2441	DH1	Default	
		DH3	Default	
		DH5	Default	
	2480	DH1	Default	
		DH3	Default	
		DH5	Default	
Mode 4	2402	2DH1	Default	
		2DH3	Default	
		2DH5	Default	
	2441	2DH1	Default	
		2DH3	Default	
		2DH5	Default	
	2480	2DH1	Default	
		2DH3	Default	
		2DH5	Default	
Mode 5	2402	3DH1	Default	
		3DH3	Default	
		3DH5	Default	
	2441	3DH1	Default	
		3DH3	Default	
		3DH5	Default	
	2480	3DH1	Default	
		3DH3	Default	
		3DH5	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
Conducted Emission	150 kHz ~ 30 MHz	2.7 dB
Radiated Emission	9 kHz ~ 30 MHz	2.2 dB
	30 MHz ~ 1000 MHz	5.1 dB
	1000 MHz ~ 18000 MHz	5.2 dB
	18000 MHz ~ 26500 MHz	4.6 dB
	26500 MHz ~ 40000 MHz	4.6 dB
Conducted Output Power	1.1 dB	
RF Bandwidth	4.7 %	
Power Spectral Density	1.1 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	請參閱 5.1 節	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	請參閱 5.2 節	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	請參閱 5.2 節	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	請參閱 5.3 節	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	請參閱 5.3 節	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	請參閱 5.3 節	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	請參閱 5.3 節	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	請參閱 5.3 節	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	請參閱 5.3 節	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	請參閱 5.3 節	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	請參閱 5.3 節	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4.10節	-----	符合

*此項目為在 RF 功能作動下進行

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。

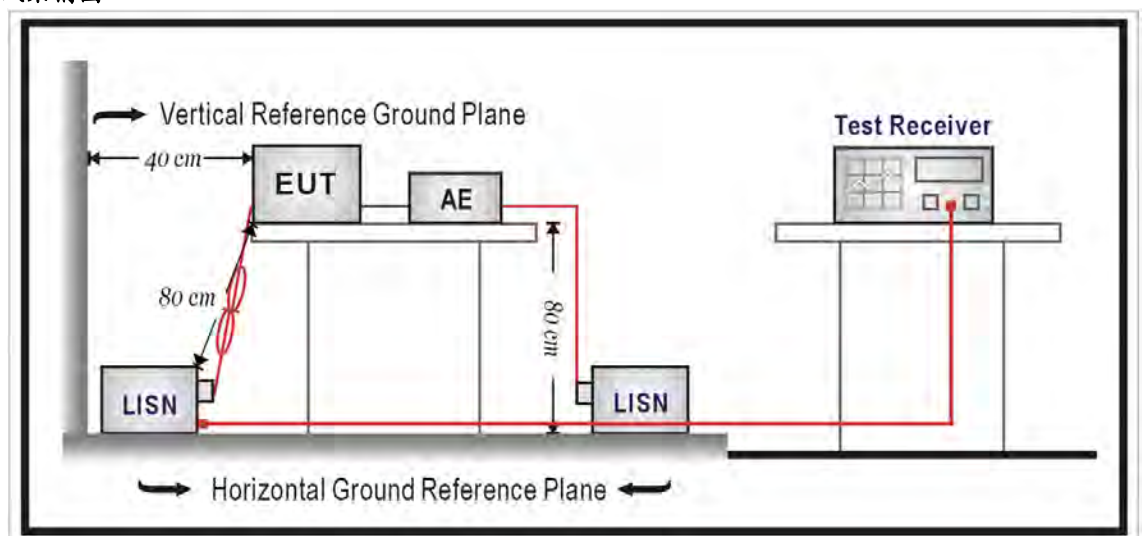
干擾值之計算

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。

頻 率 (MHz)	電場強度(μ V/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。

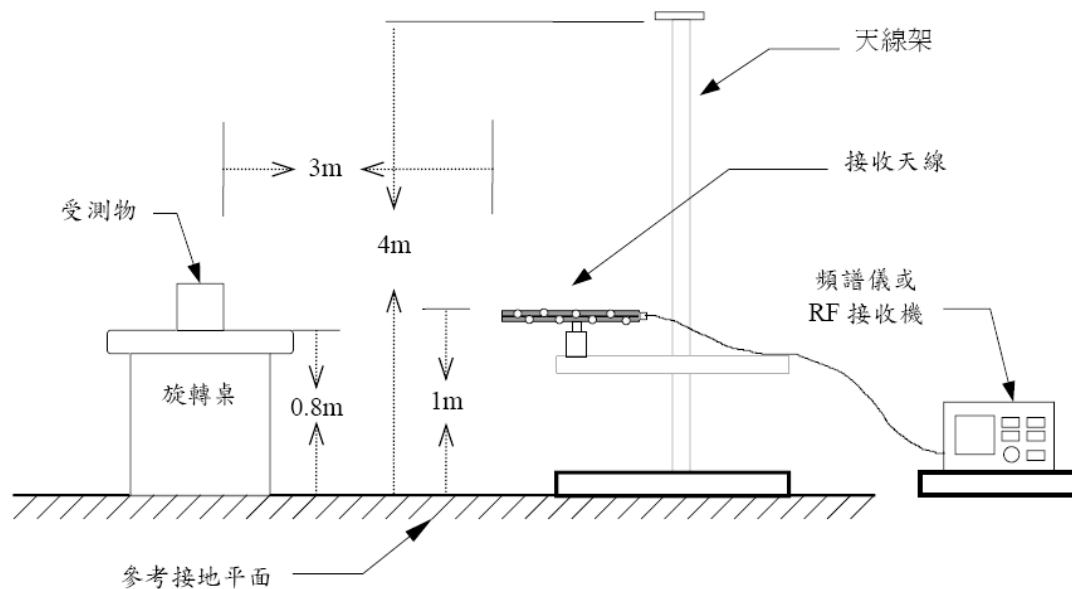
場強度之計算

場強之計算公式為：結果值 = 讀值 + 校正因子

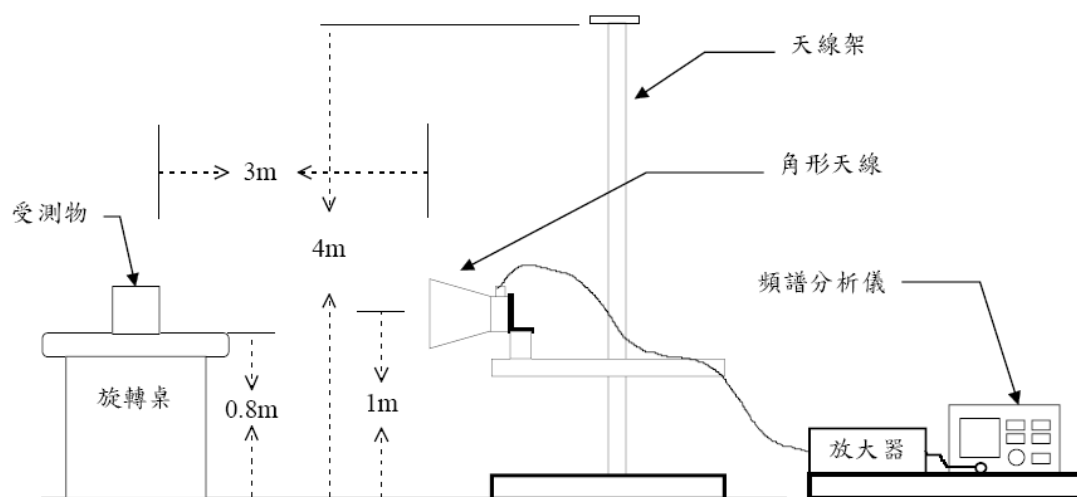
其中校正因子為：天線因子+ 饋線損失 + 濾波器損失（若有使用） - 放大器增益（若有使用）

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

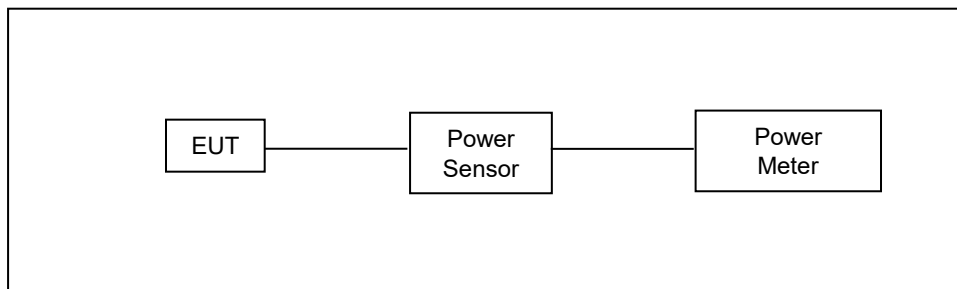


4.3 輸出峰值功率之量測

合格標準：

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 。

測試架構圖：

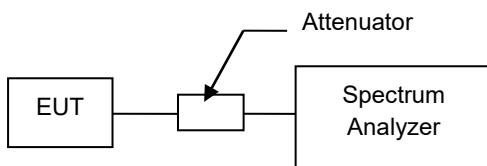


4.4 非必要頻帶之量測

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。

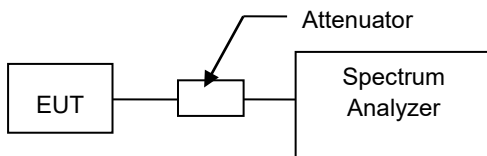
附註 2: 測試結果頻帶外之輻射雜訊皆小於主頻 TX 20 dB。

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：

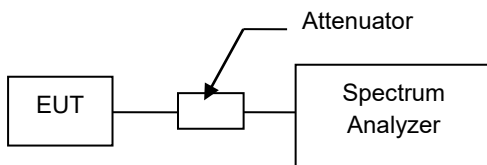


4.6 發射頻寬之要求

合格標準：

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。

測試架構圖：

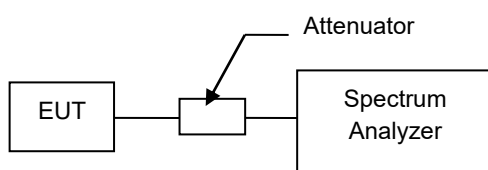


4.7 頻道數之要求

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：

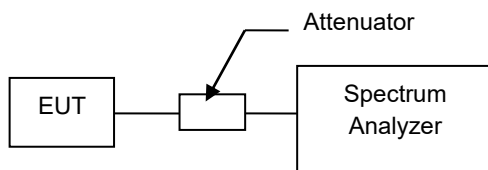


4.8 跳頻系統之載波頻率頻道間隔之量測

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：

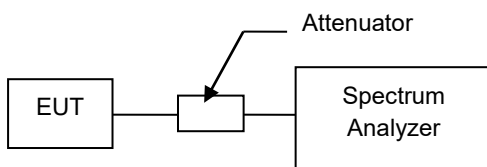


4.9 跳頻系統之任一頻率佔用之平均時間之量測

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 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。

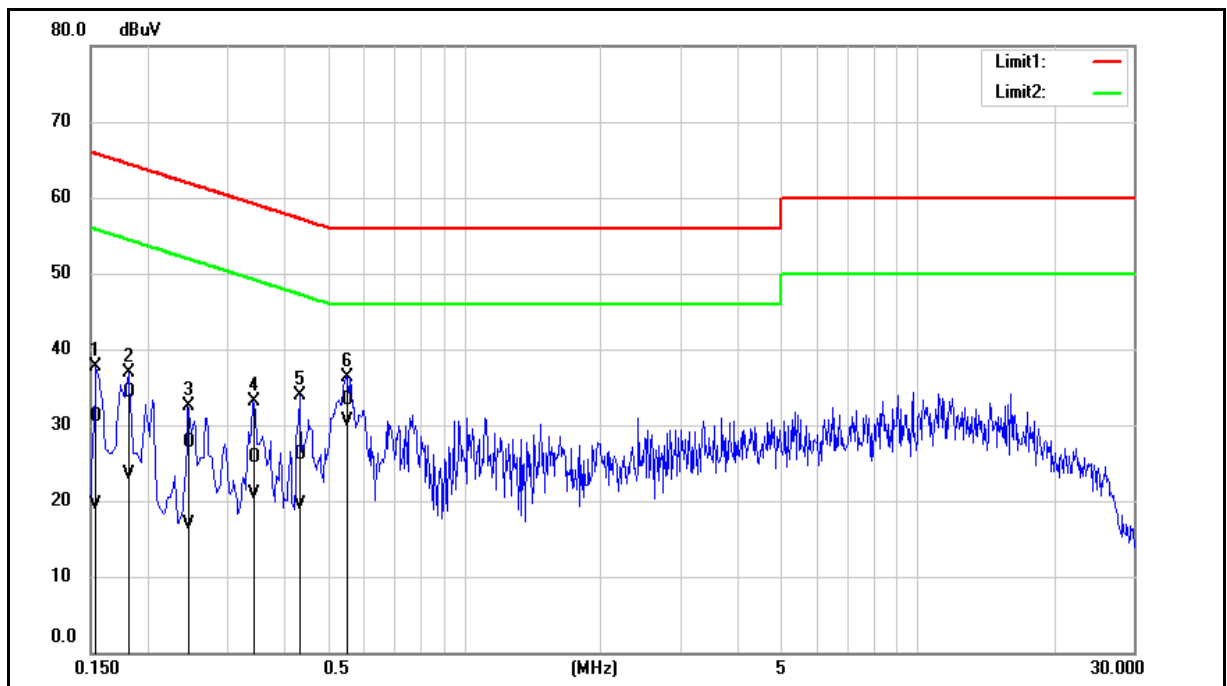
依據 NCC 低功率射頻器材技術規範(LP0002)之 4.10.1.4 節之要求，天線之規格不受第 3.2 節規定之限制

判定結果： 符合。

5. Test Results

5.1 Conducted Emission

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

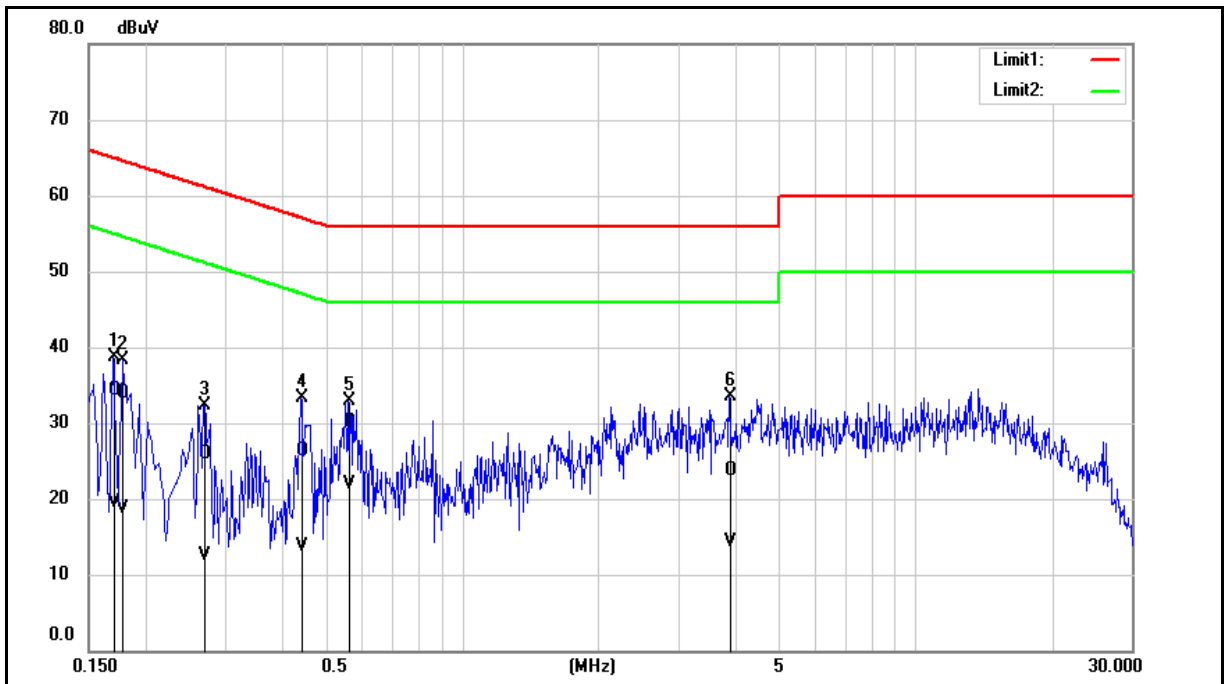


No.	Frequency (MHz)	QP reading (dBuV)	AVG reading (dBuV)	Correction factor (dB)	QP result (dBuV)	AVG result (dBuV)	QP limit (dBuV)	AVG limit (dBuV)	QP margin (dB)	AVG margin (dB)	Remark
1	0.1540	21.33	9.79	9.74	31.07	19.53	65.78	55.78	-34.71	-36.25	Pass
2	0.1820	24.61	13.70	9.74	34.35	23.44	64.39	54.39	-30.04	-30.95	Pass
3	0.2460	17.97	7.15	9.74	27.71	16.89	61.89	51.89	-34.18	-35.00	Pass
4	0.3420	15.91	11.10	9.73	25.64	20.83	59.15	49.15	-33.51	-28.32	Pass
5	0.4340	16.41	9.86	9.74	26.15	19.60	57.18	47.18	-31.03	-27.58	Pass
6	0.5500	23.56	20.73	9.74	33.30	30.47	56.00	46.00	-22.70	-15.53	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	0.1700	24.56	9.86	9.74	34.30	19.60	64.96	54.96	-30.66	-35.36	Pass
2	0.1780	24.17	8.88	9.73	33.90	18.61	64.58	54.58	-30.68	-35.97	Pass
3	0.2700	16.08	2.70	9.73	25.81	12.43	61.12	51.12	-35.31	-38.69	Pass
4	0.4420	16.58	3.91	9.73	26.31	13.64	57.02	47.02	-30.71	-33.38	Pass
5	0.5620	20.38	12.20	9.73	30.11	21.93	56.00	46.00	-25.89	-24.07	Pass
6	3.8980	13.90	4.46	9.85	23.75	14.31	56.00	46.00	-32.25	-31.69	Pass

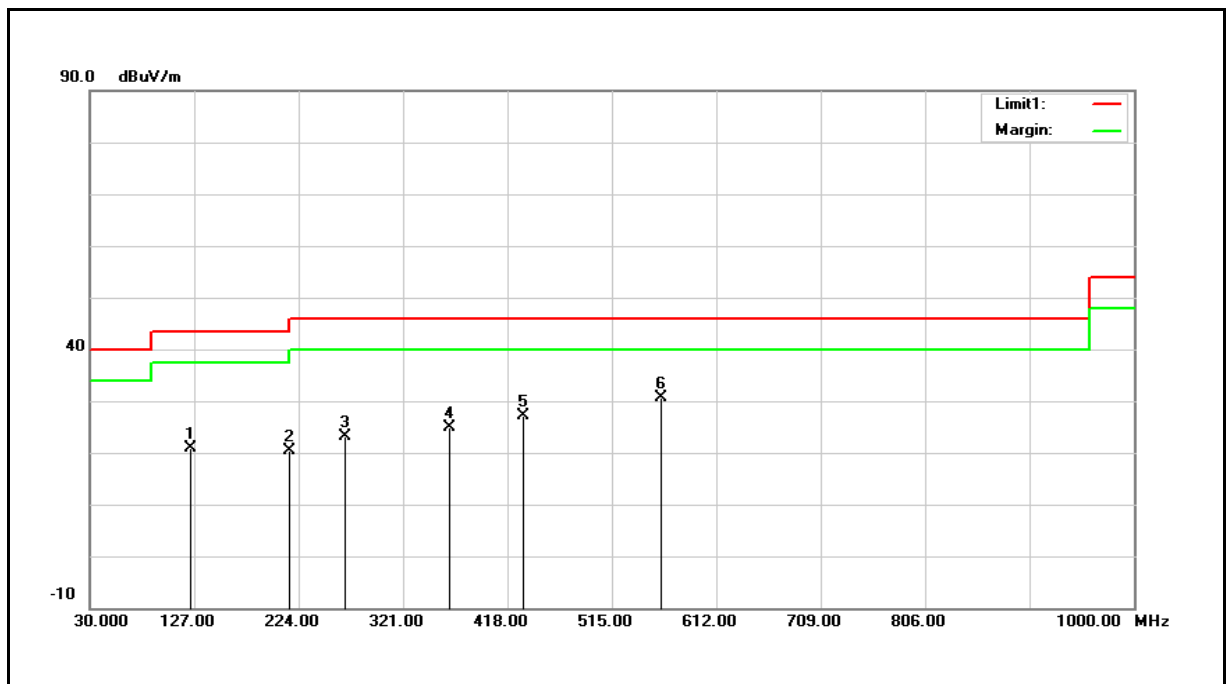
註：1. 干擾值(dBuV) = 校正係數(dB) + 讀值(dBuV)。

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)。

5.2 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		
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	124.0900	28.50	-7.54	20.96	43.50	-22.54	QP
2	215.2700	27.88	-7.52	20.36	43.50	-23.14	QP
3	267.6500	28.36	-5.27	23.09	46.00	-22.91	QP
4	364.6500	28.41	-3.52	24.89	46.00	-21.11	QP
5	432.5500	28.70	-1.61	27.09	46.00	-18.91	QP
6	560.5900	29.55	1.14	30.69	46.00	-15.31	QP

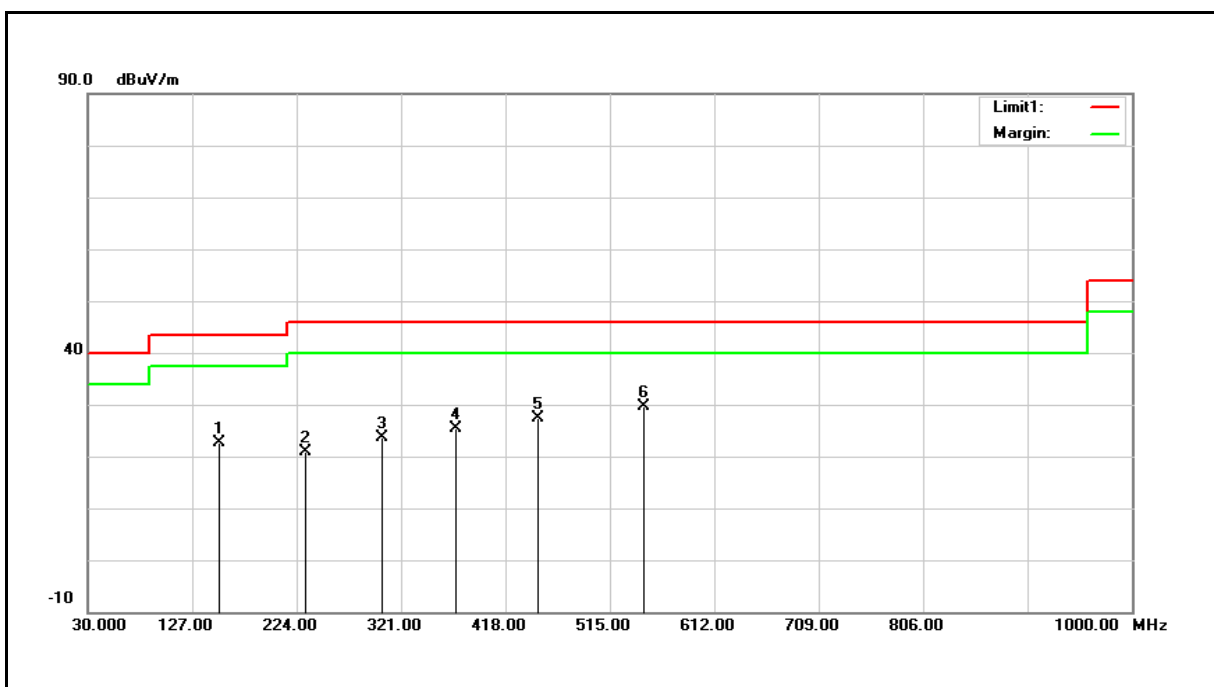
Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

Example: $20.96 = -7.54 + 28.50$.

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		
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	152.2200	28.22	-5.66	22.56	43.50	-20.94	QP
2	231.7600	27.84	-6.88	20.96	46.00	-25.04	QP
3	303.5400	27.76	-4.06	23.70	46.00	-22.30	QP
4	371.4400	28.60	-3.30	25.30	46.00	-20.70	QP
5	448.0700	28.72	-1.27	27.45	46.00	-18.55	QP
6	547.0100	28.78	0.76	29.54	46.00	-16.46	QP

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

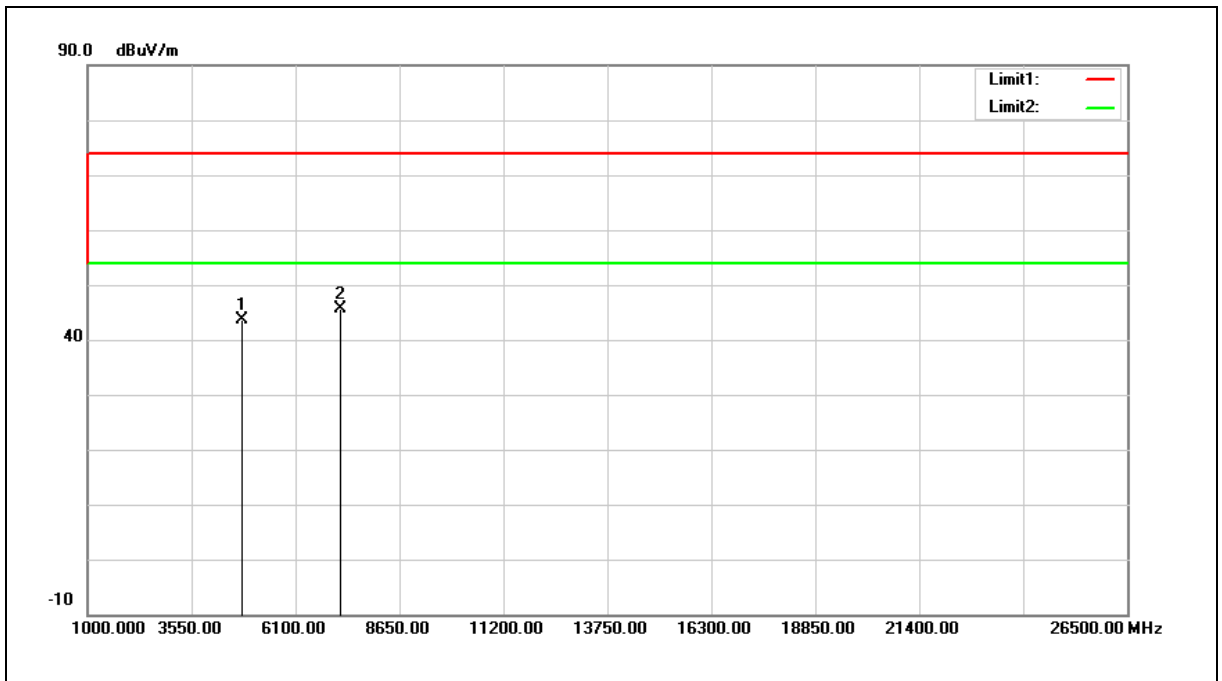
Example: $22.56 = -5.66 + 28.22$.

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 3		
Ant.Polar.:	Horizontal		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4804.000	38.60	5.00	43.60	74.00	-30.40	peak
2	7206.000	33.36	12.19	45.55	74.00	-28.45	peak

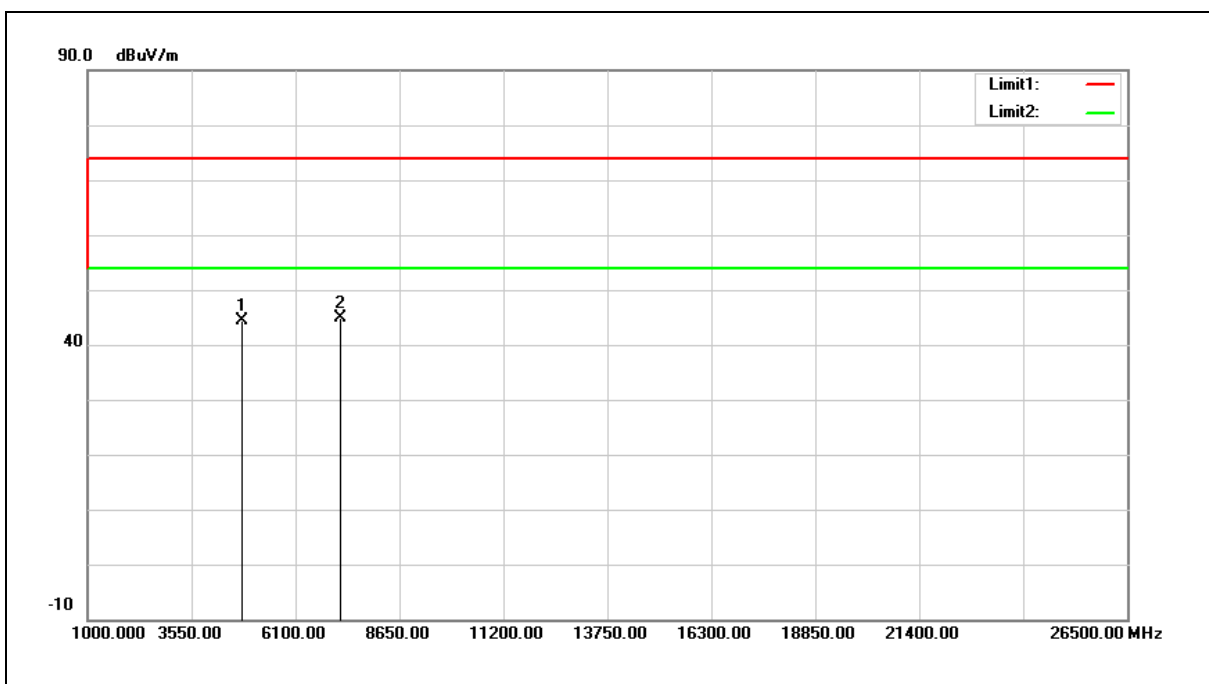
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

Example: 43.60 = 5.00 + 38.60.

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 3		
Ant.Polar.:	Vertical		



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4804.000	39.34	5.00	44.34	74.00	-29.66	peak
2	7206.000	32.65	12.19	44.84	74.00	-29.16	peak

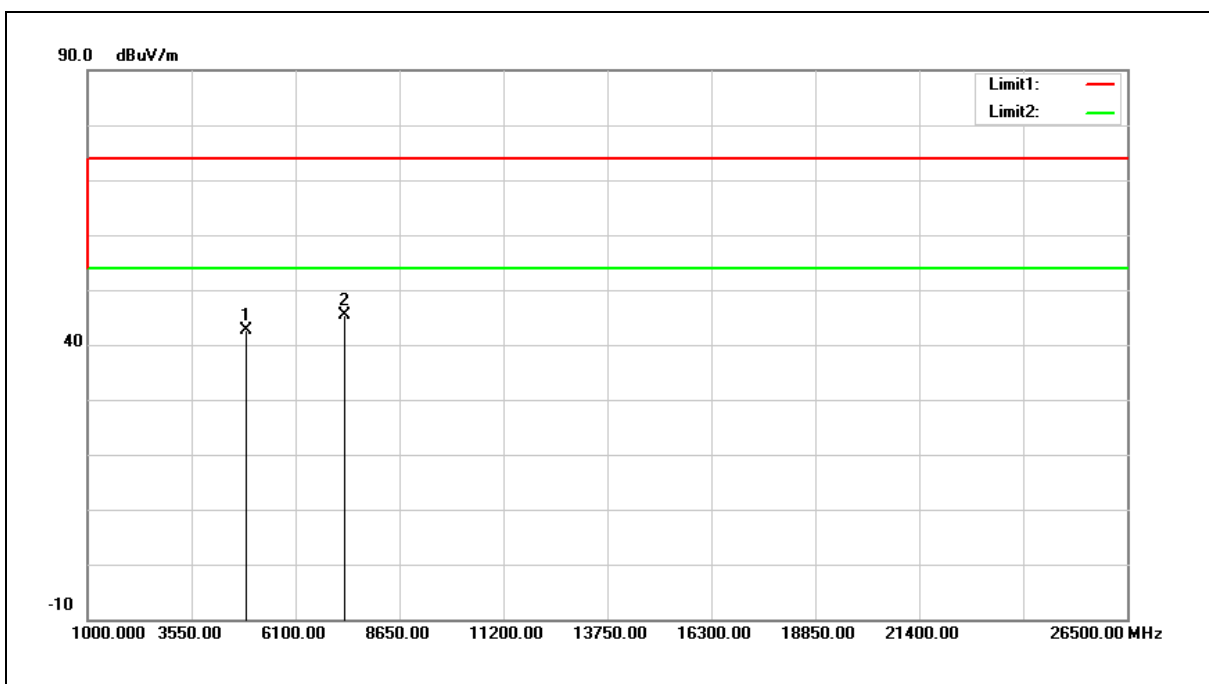
Note:1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

Example: $44.34 = 5.00 + 39.34$.

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 3		
Ant.Polar.:	Horizontal		



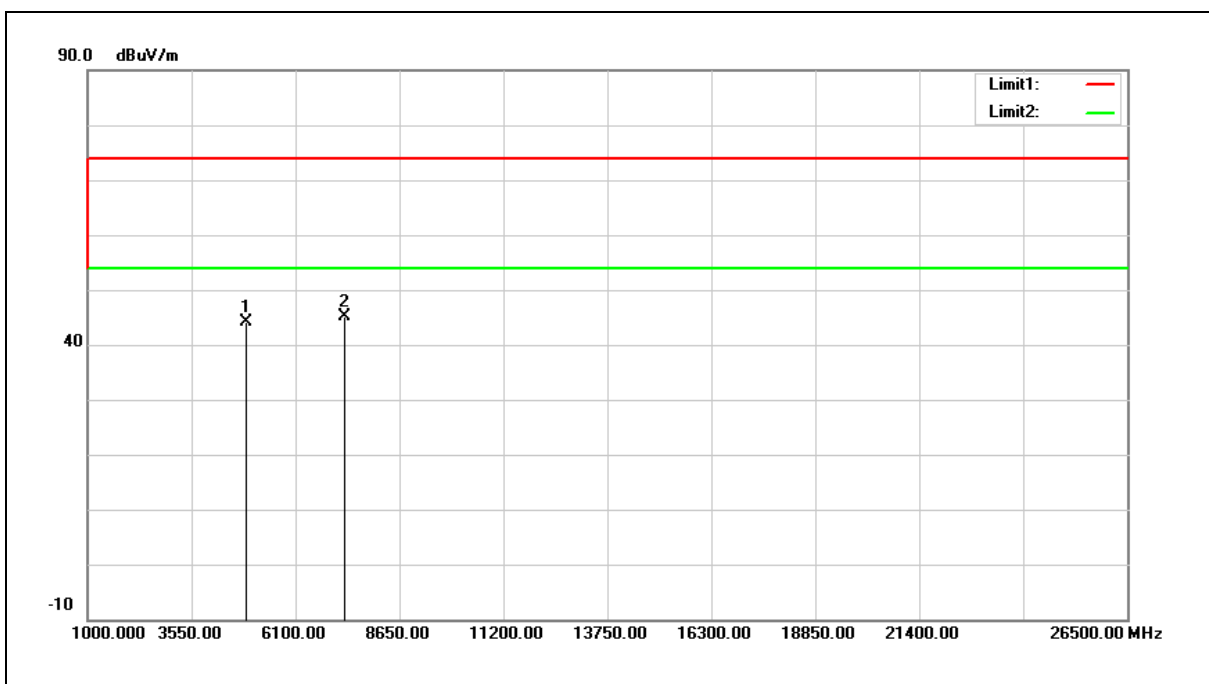
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4882.000	37.26	5.26	42.52	74.00	-31.48	peak
2	7323.000	32.98	12.41	45.39	74.00	-28.61	peak

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 3		
Ant.Polar.:	Vertical		



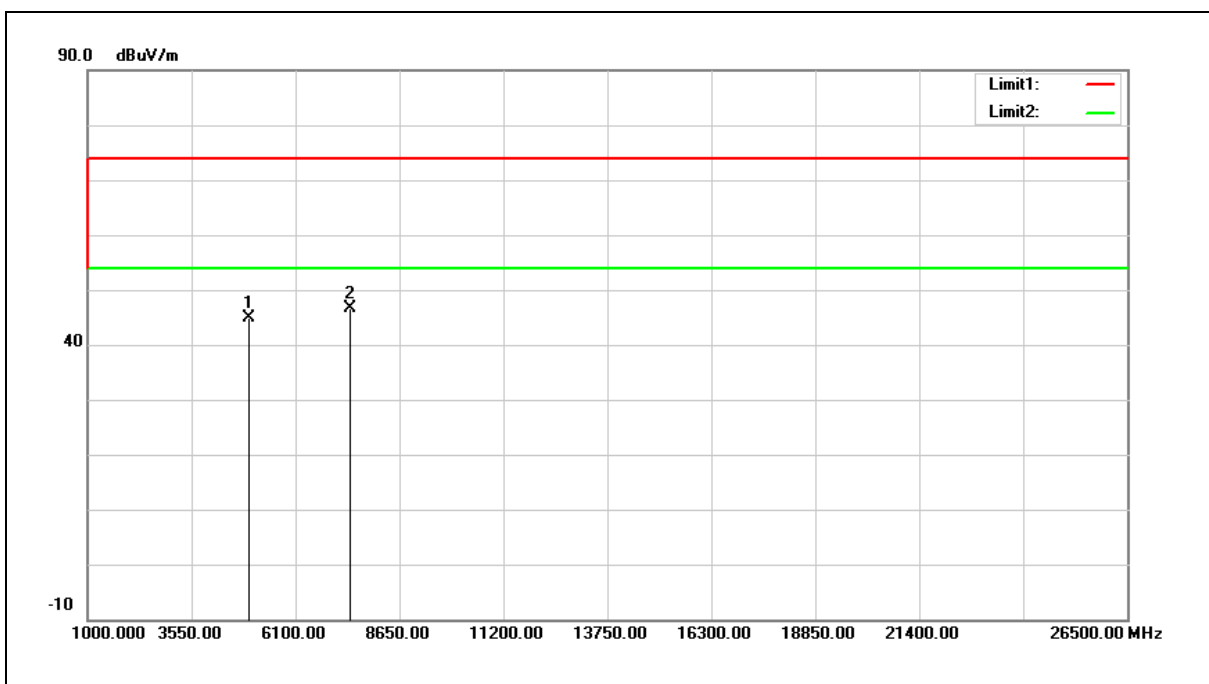
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4882.000	38.75	5.26	44.01	74.00	-29.99	peak
2	7323.000	32.65	12.41	45.06	74.00	-28.94	peak

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		
Frequency:	2480 MHz		
Mode:	Mode 3		
Ant.Polar.:	Horizontal		



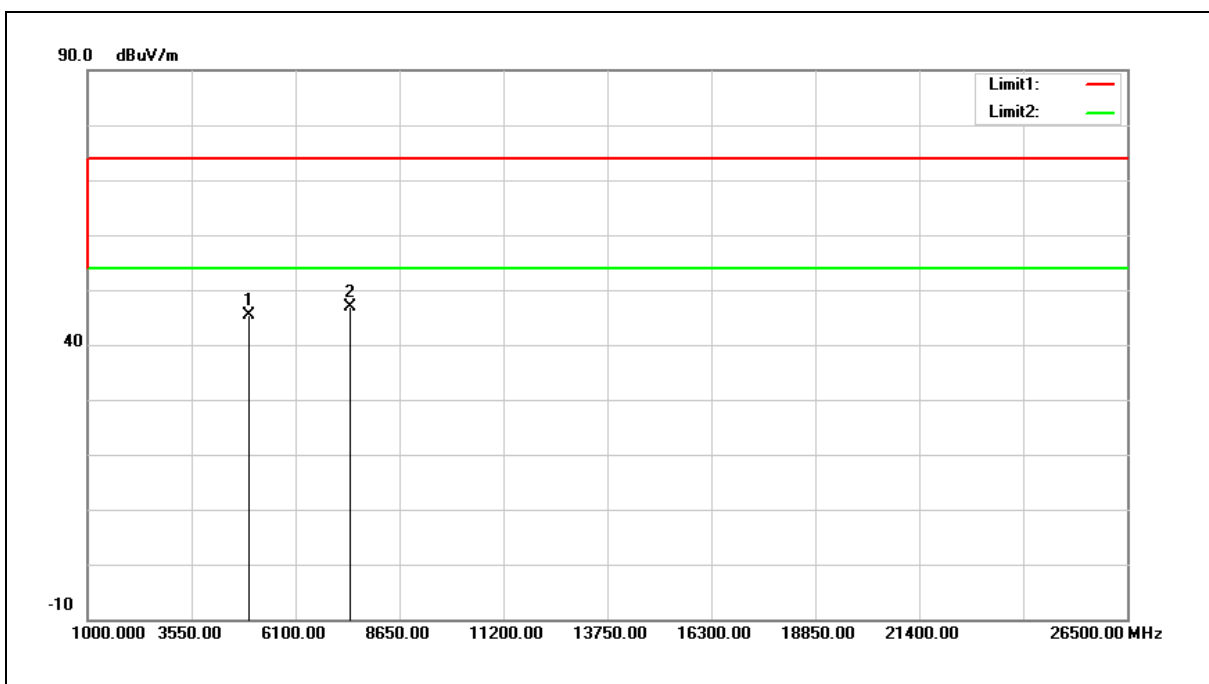
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4960.000	39.44	5.51	44.95	74.00	-29.05	peak
2	7440.000	33.95	12.62	46.57	74.00	-27.43	peak

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 3		
Ant.Polar.:	Vertical		



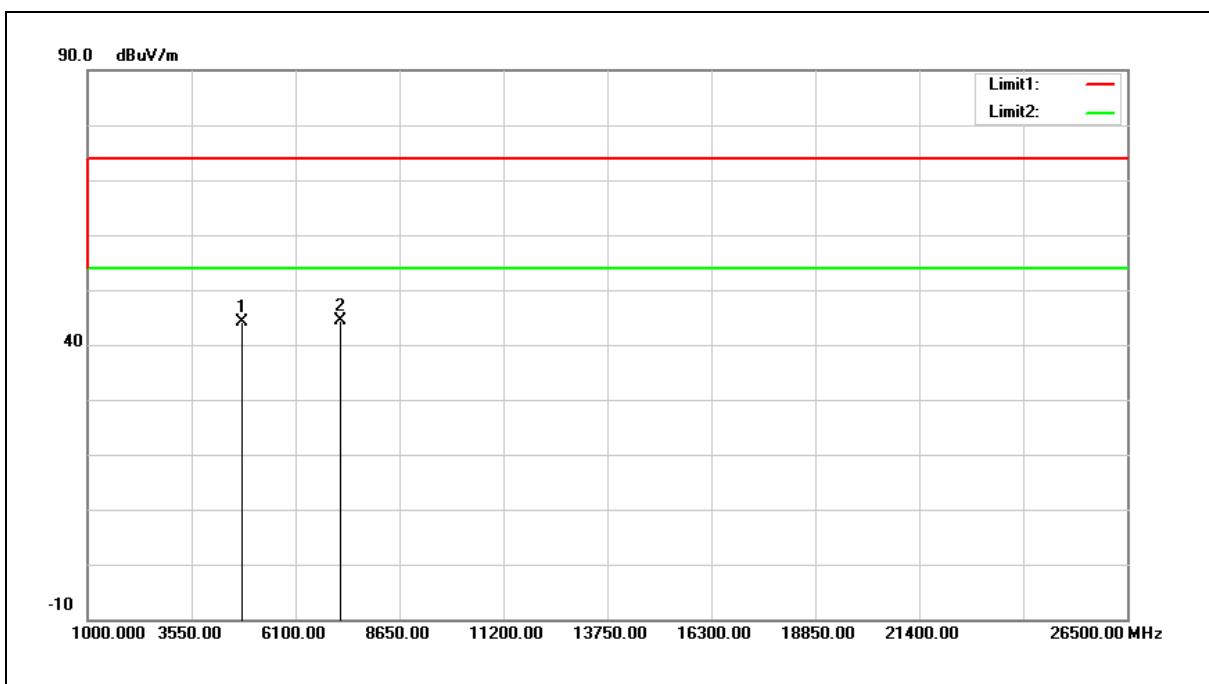
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4960.000	39.92	5.51	45.43	74.00	-28.57	peak
2	7440.000	34.32	12.62	46.94	74.00	-27.06	peak

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		



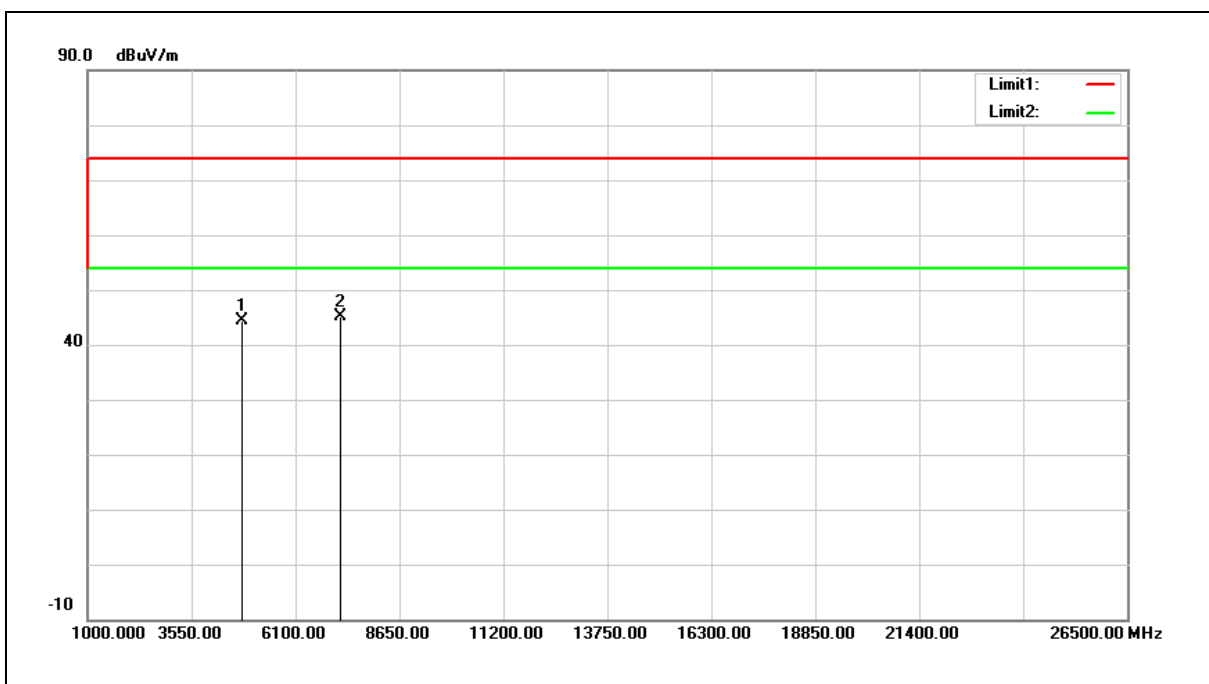
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4804.000	39.09	5.00	44.09	74.00	-29.91	peak
2	7206.000	32.14	12.19	44.33	74.00	-29.67	peak

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		



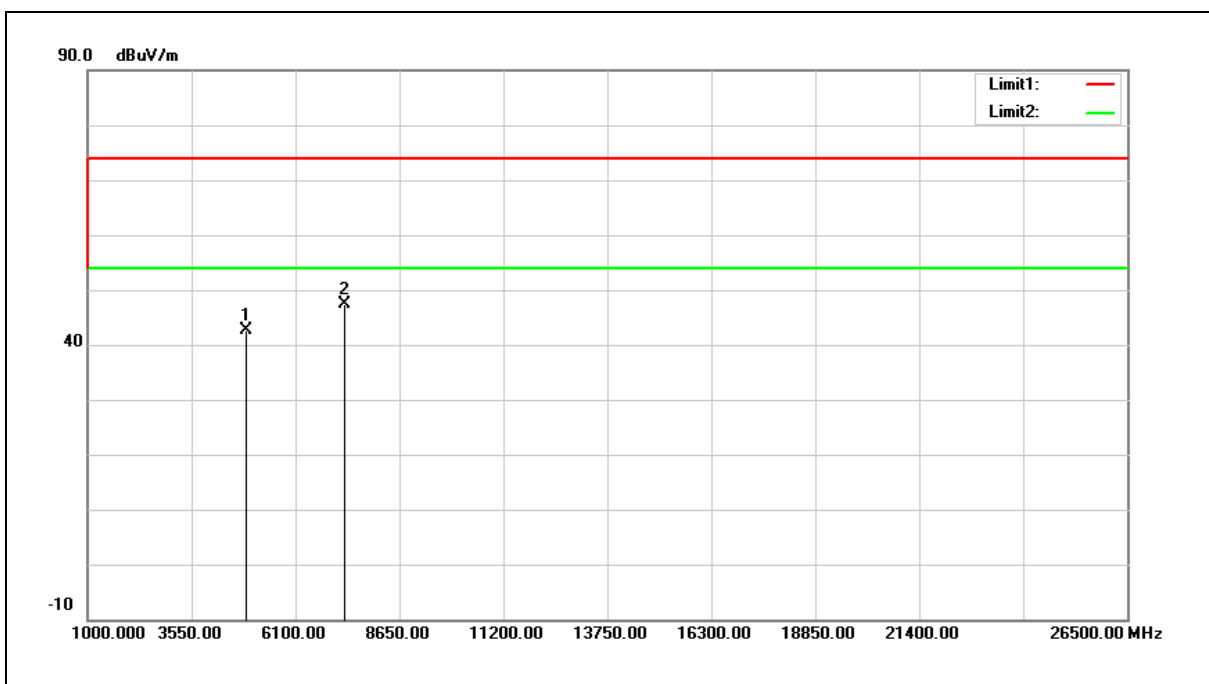
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4804.000	39.30	5.00	44.30	74.00	-29.70	peak
2	7206.000	32.85	12.19	45.04	74.00	-28.96	peak

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 5		
Ant.Polar.:	Horizontal		



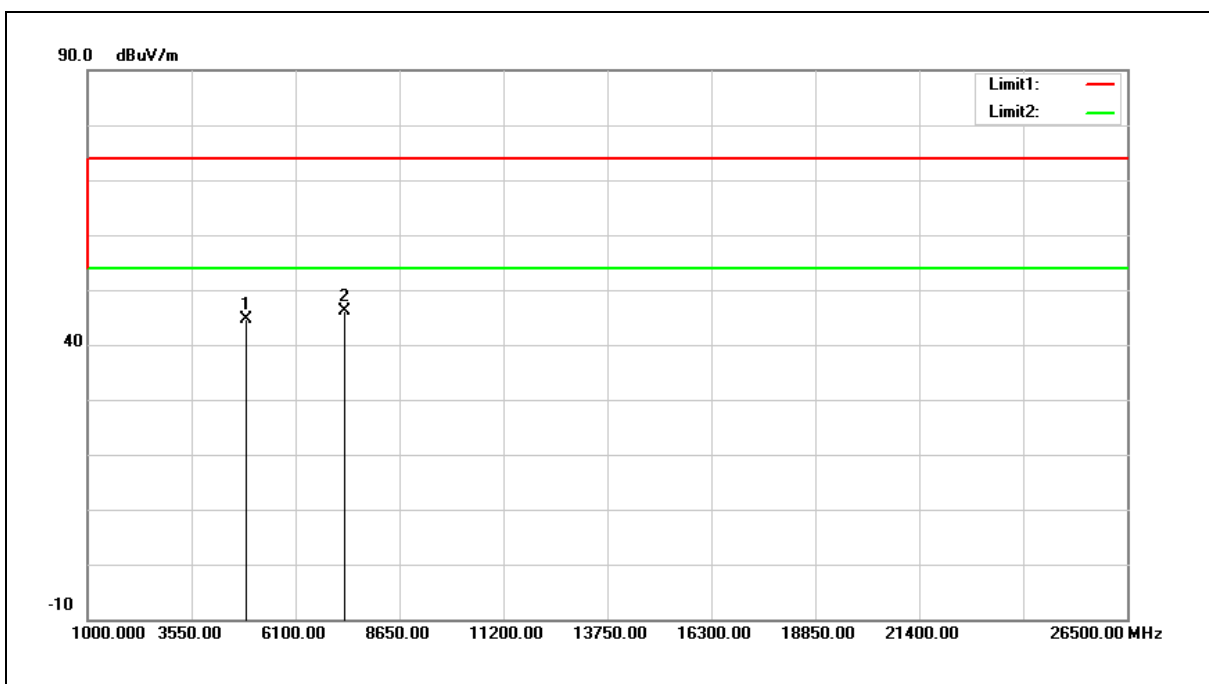
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4882.000	37.34	5.26	42.60	74.00	-31.40	peak
2	7323.000	35.02	12.41	47.43	74.00	-26.57	peak

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:	Harmonic		
Frequency:	2441 MHz		
Mode:	Mode 5		
Ant.Polar.:	Vertical		



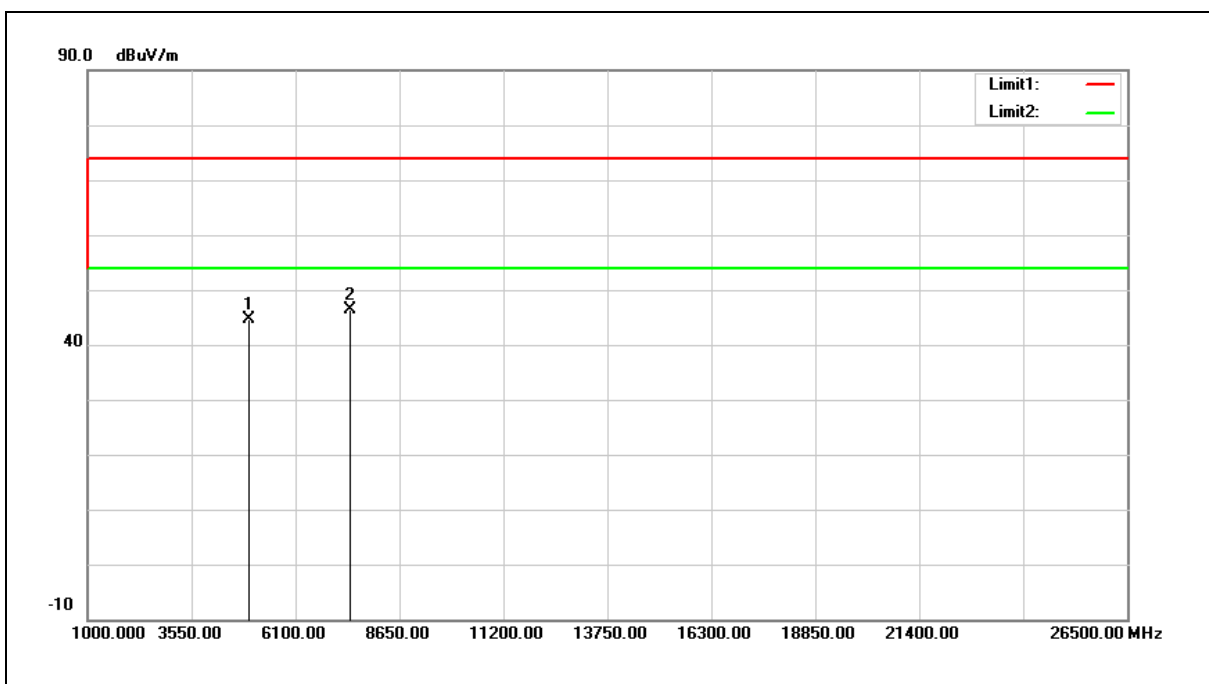
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4882.000	39.46	5.26	44.72	74.00	-29.28	peak
2	7323.000	33.82	12.41	46.23	74.00	-27.77	peak

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		



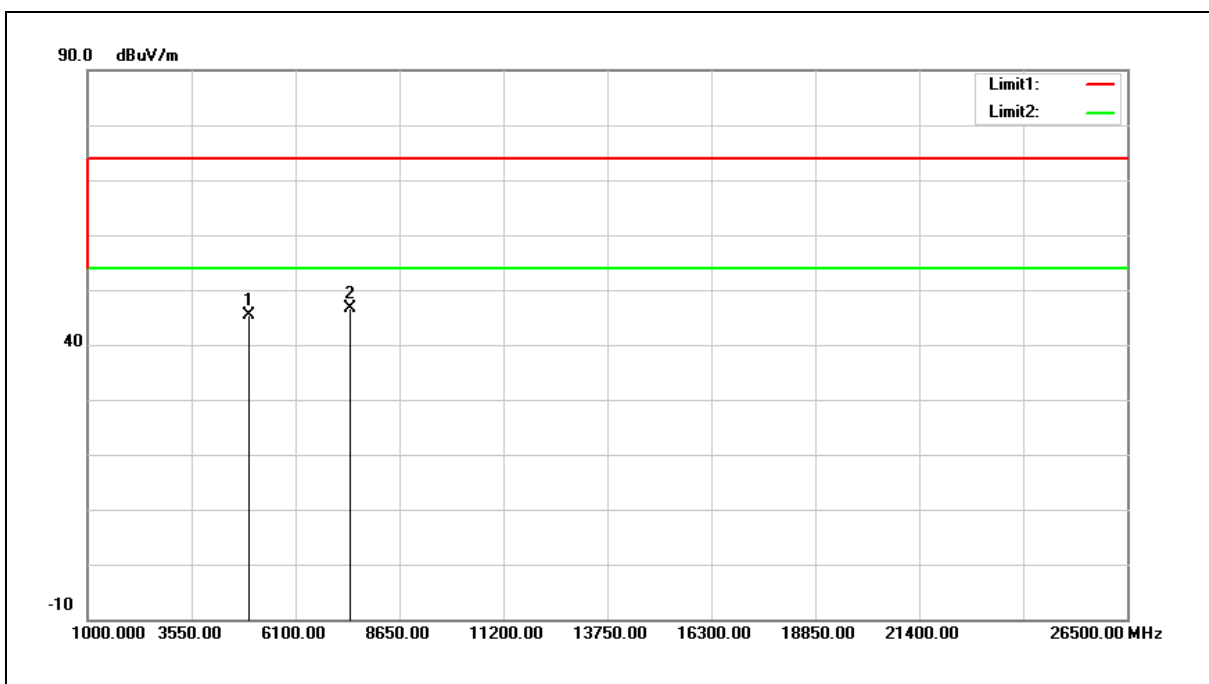
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4960.000	39.04	5.51	44.55	74.00	-29.45	peak
2	7440.000	33.69	12.62	46.31	74.00	-27.69	peak

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		



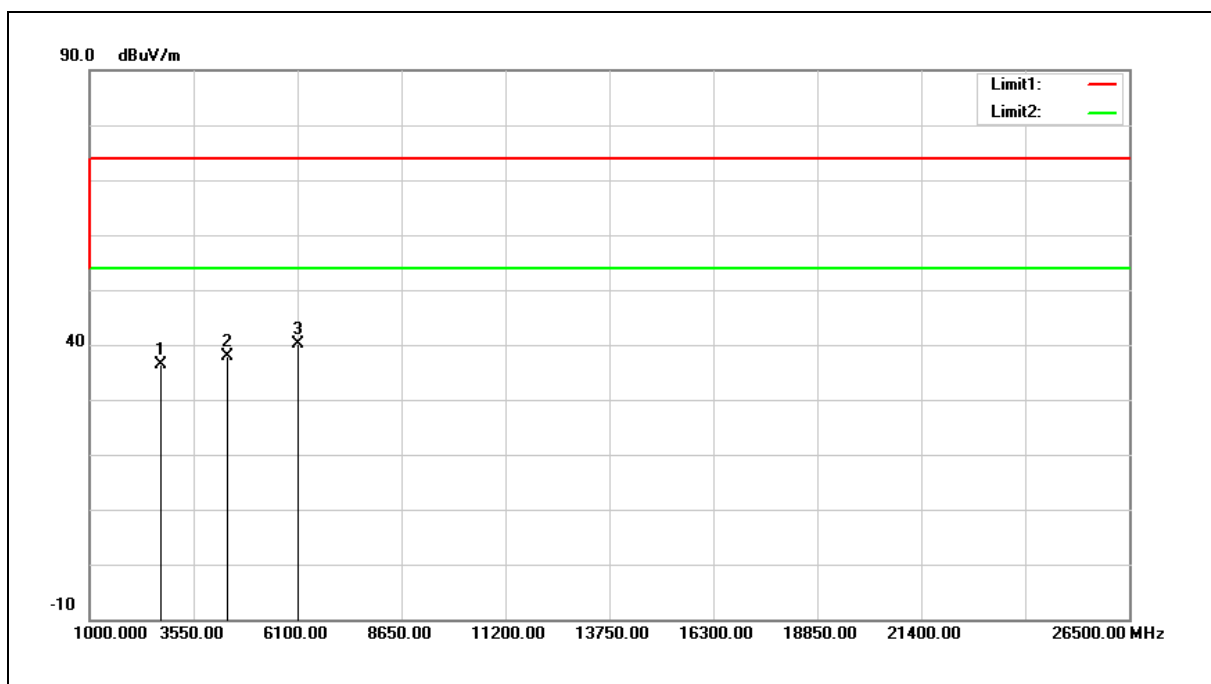
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4960.000	39.80	5.51	45.31	74.00	-28.69	peak
2	7440.000	33.89	12.62	46.51	74.00	-27.49	peak

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 6		
Ant.Polar.:	Horizontal		
Description:			



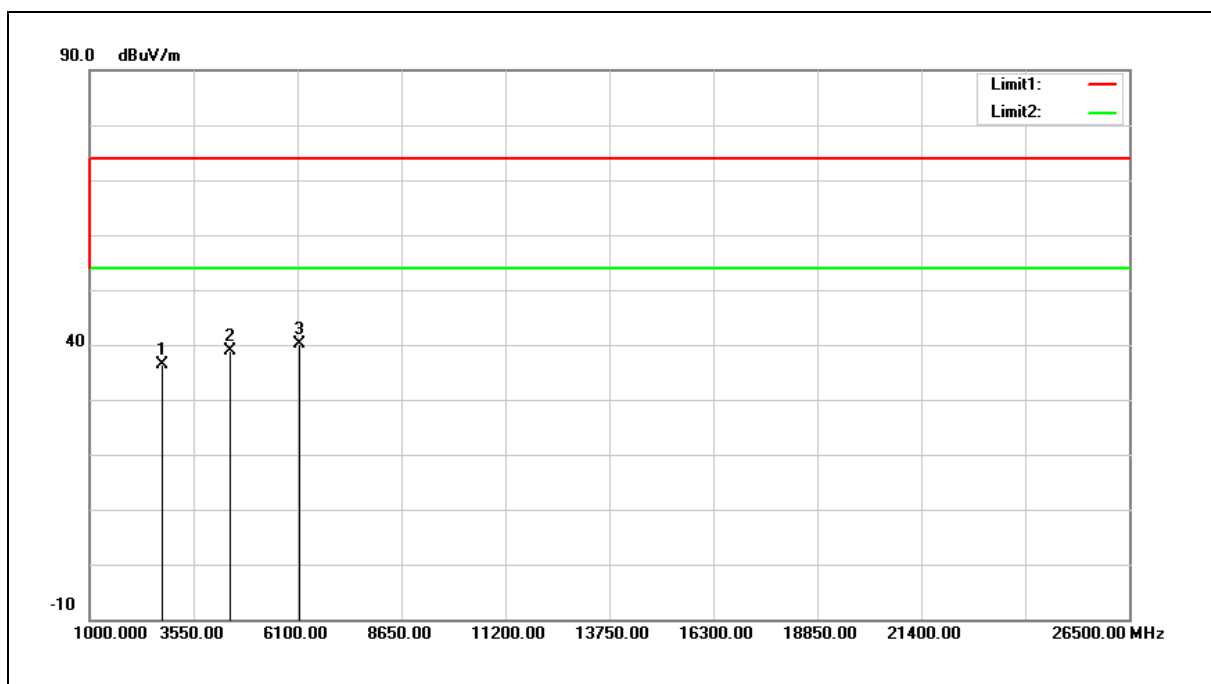
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2751.000	37.23	-0.90	36.33	74.00	-37.67	peak
2	4366.000	34.12	3.78	37.90	74.00	-36.10	peak
3	6117.000	32.03	8.05	40.08	74.00	-33.92	peak

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 6		
Ant.Polar.:	Vertical		
Description:			



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2785.000	37.25	-0.77	36.48	74.00	-37.52	peak
2	4434.000	34.90	3.90	38.80	74.00	-35.20	peak
3	6151.000	31.91	8.19	40.10	74.00	-33.90	peak

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

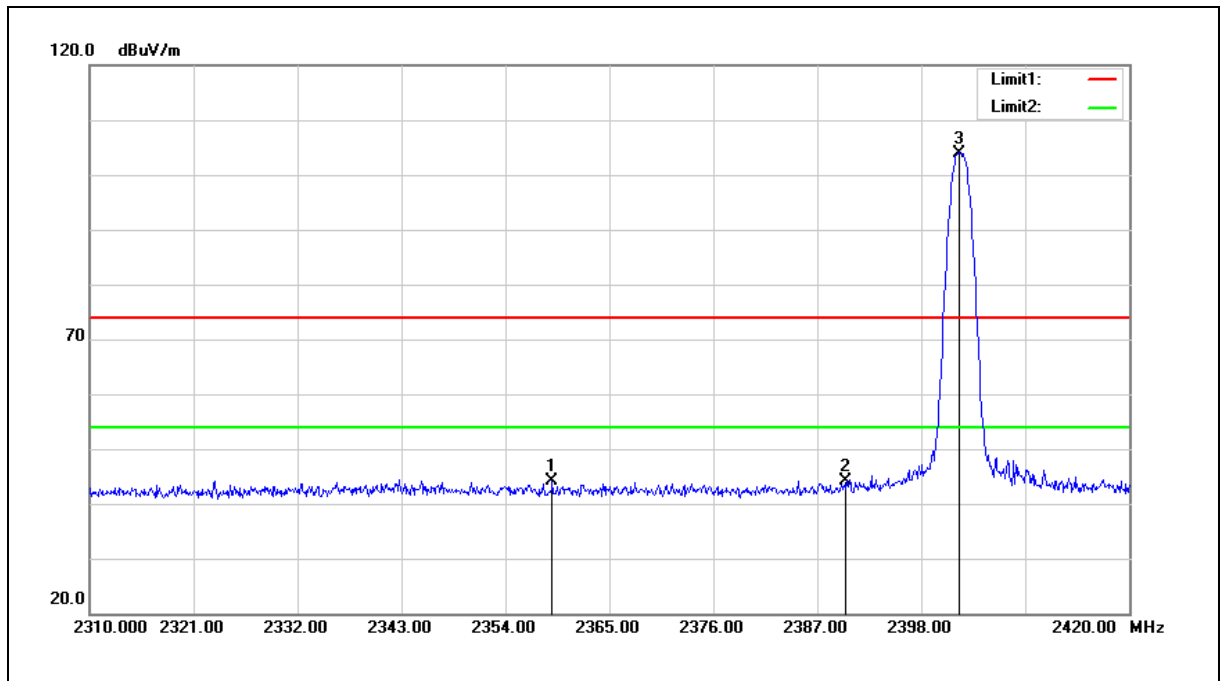
2.Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

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

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Peak

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



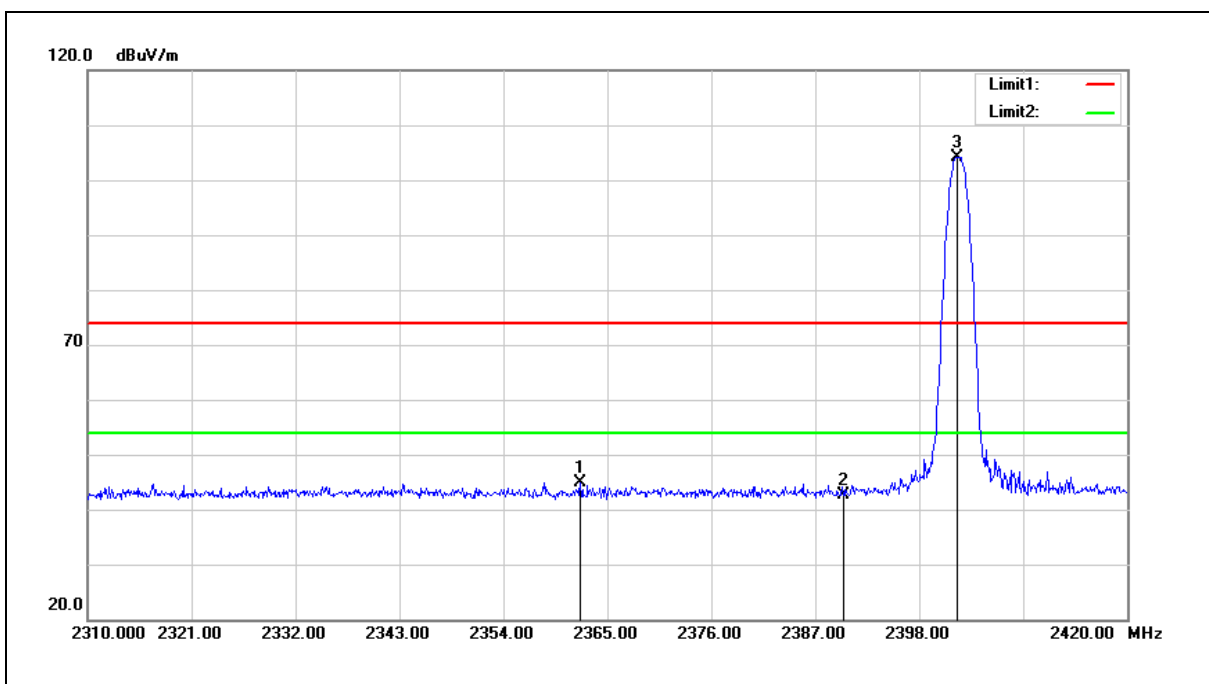
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2358.950	46.62	-2.41	44.21	74.00	-29.79	peak
2	2390.000	46.48	-2.28	44.20	74.00	-29.80	peak
3	2401.960	106.22	-2.22	104.00	--	--	peak

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 3		
Ant.Polar.:	Vertical		



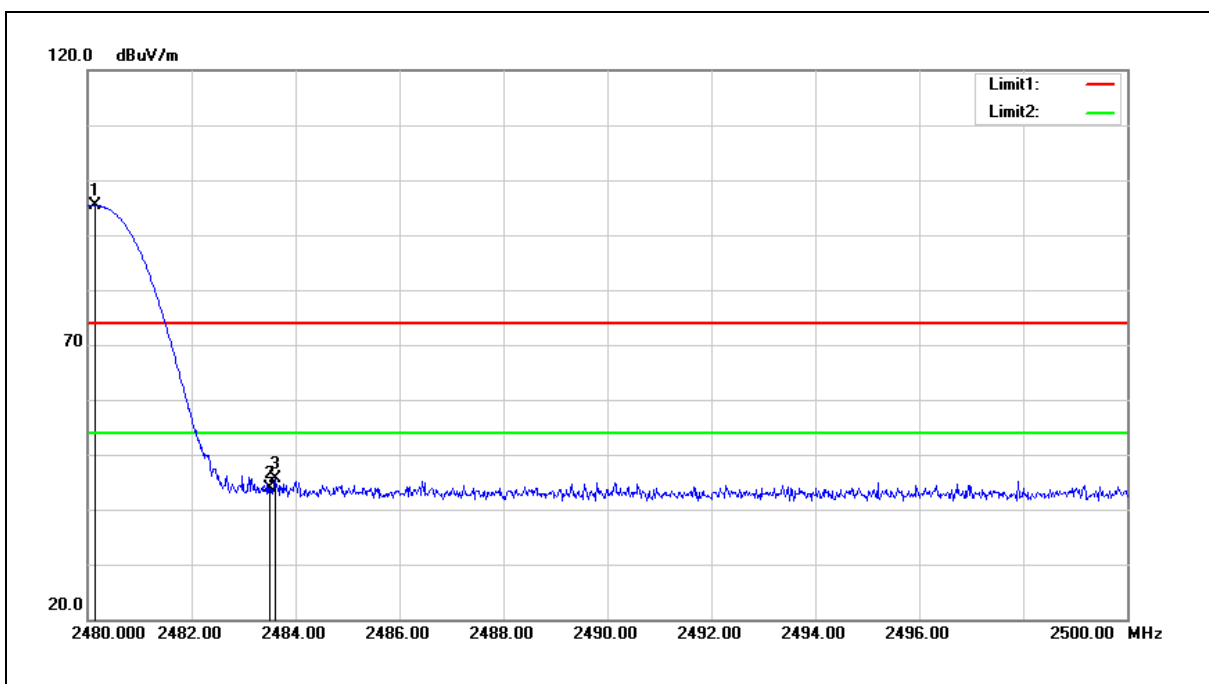
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2362.140	47.38	-2.40	44.98	74.00	-29.02	peak
2	2390.000	44.87	-2.28	42.59	74.00	-31.41	peak
3	2401.960	106.33	-2.22	104.11	--	--	peak

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 3		
Ant.Polar.:	Horizontal		



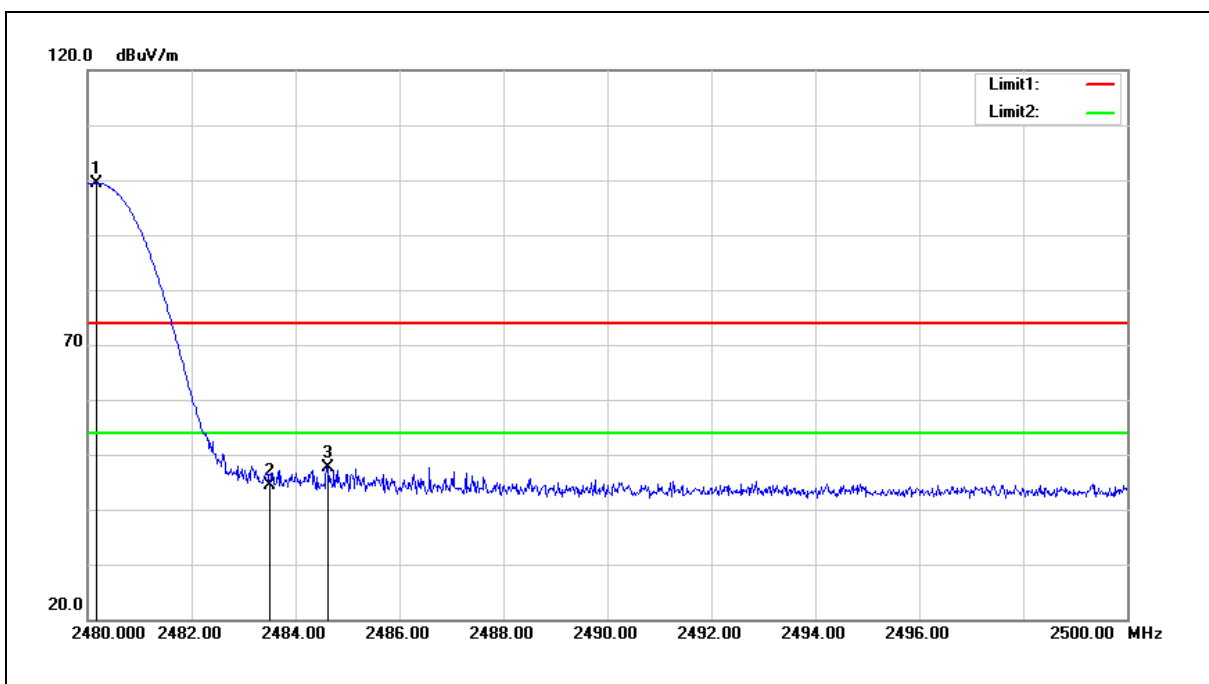
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2480.140	97.22	-1.91	95.31	--	--	peak
2	2483.500	45.86	-1.89	43.97	74.00	-30.03	peak
3	2483.600	47.50	-1.89	45.61	74.00	-28.39	peak

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 3		
Ant.Polar.:	Vertical		



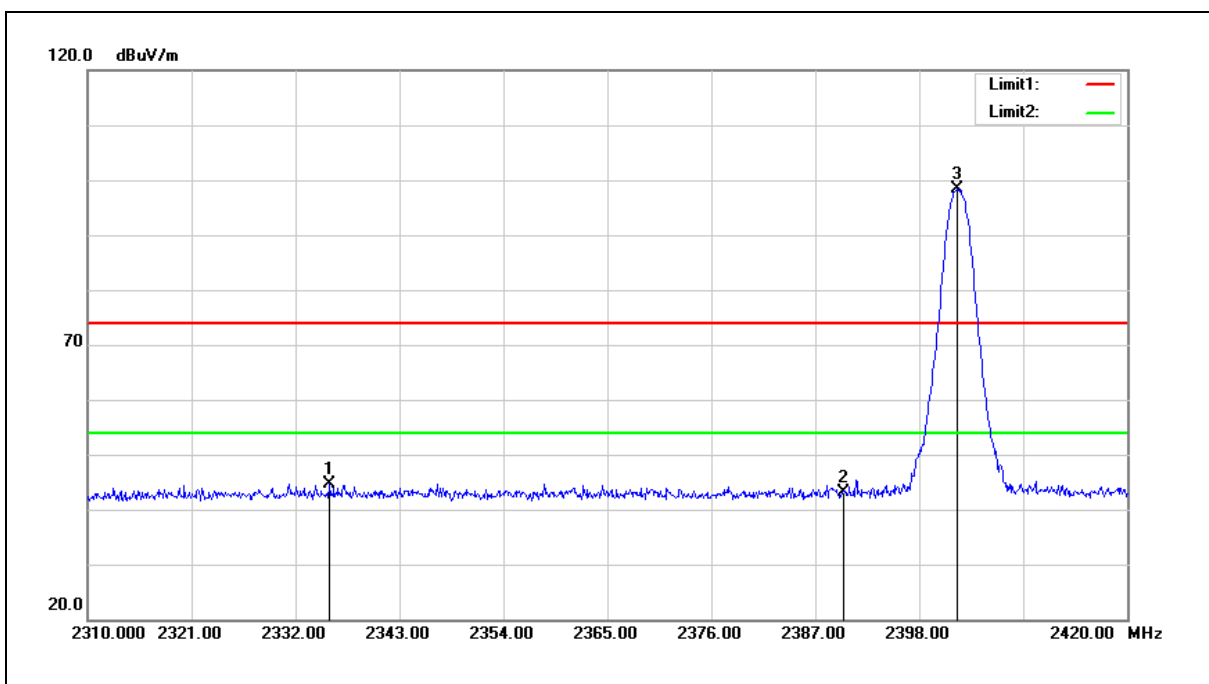
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2480.160	101.34	-1.91	99.43	--	--	peak
2	2483.500	46.24	-1.89	44.35	74.00	-29.65	peak
3	2484.620	49.53	-1.88	47.65	74.00	-26.35	peak

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		



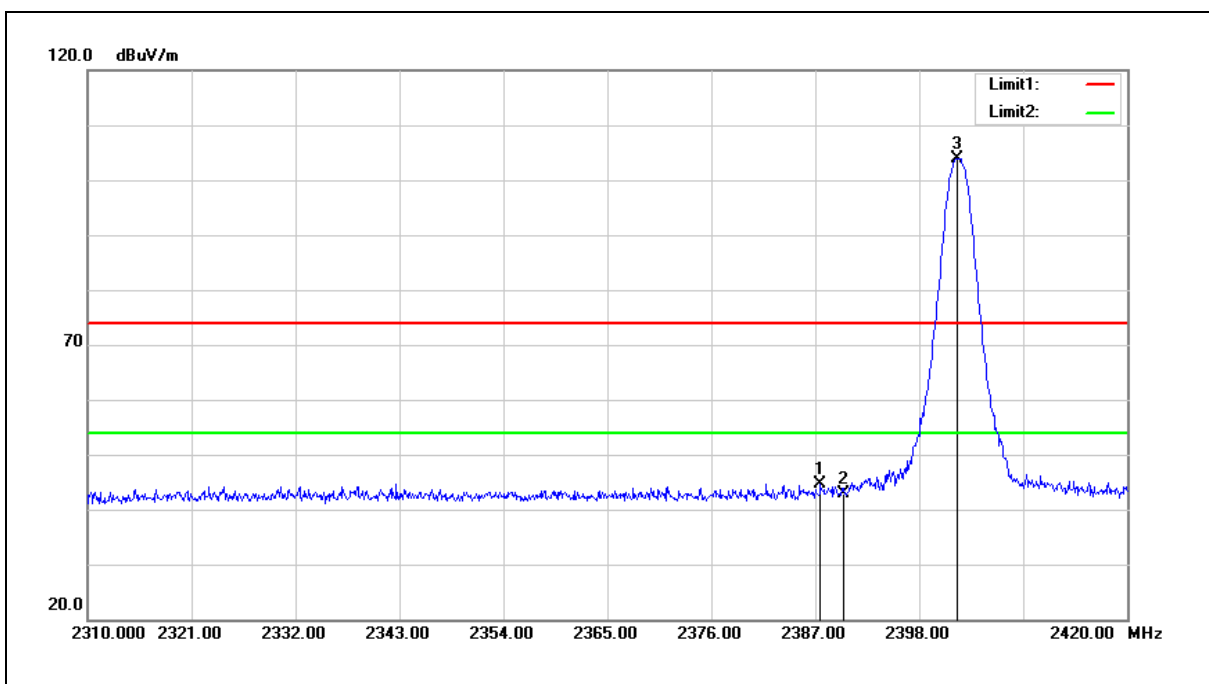
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2335.630	47.20	-2.51	44.69	74.00	-29.31	peak
2	2390.000	45.47	-2.28	43.19	74.00	-30.81	peak
3	2401.960	100.50	-2.22	98.28	--	--	peak

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		



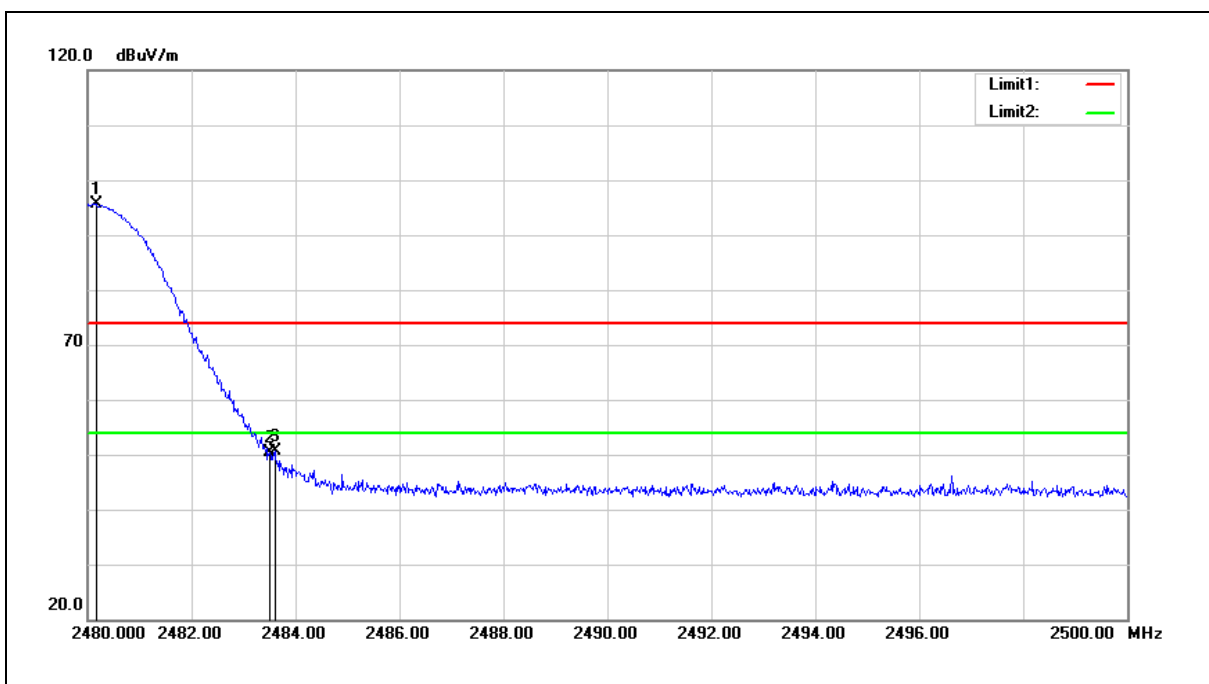
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2387.550	47.01	-2.28	44.73	74.00	-29.27	peak
2	2390.000	45.13	-2.28	42.85	74.00	-31.15	peak
3	2401.960	106.10	-2.22	103.88	--	--	peak

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:	Band edge		
Frequency:	2480 MHz		
Mode:	Mode 5		
Ant.Polar.:	Horizontal		



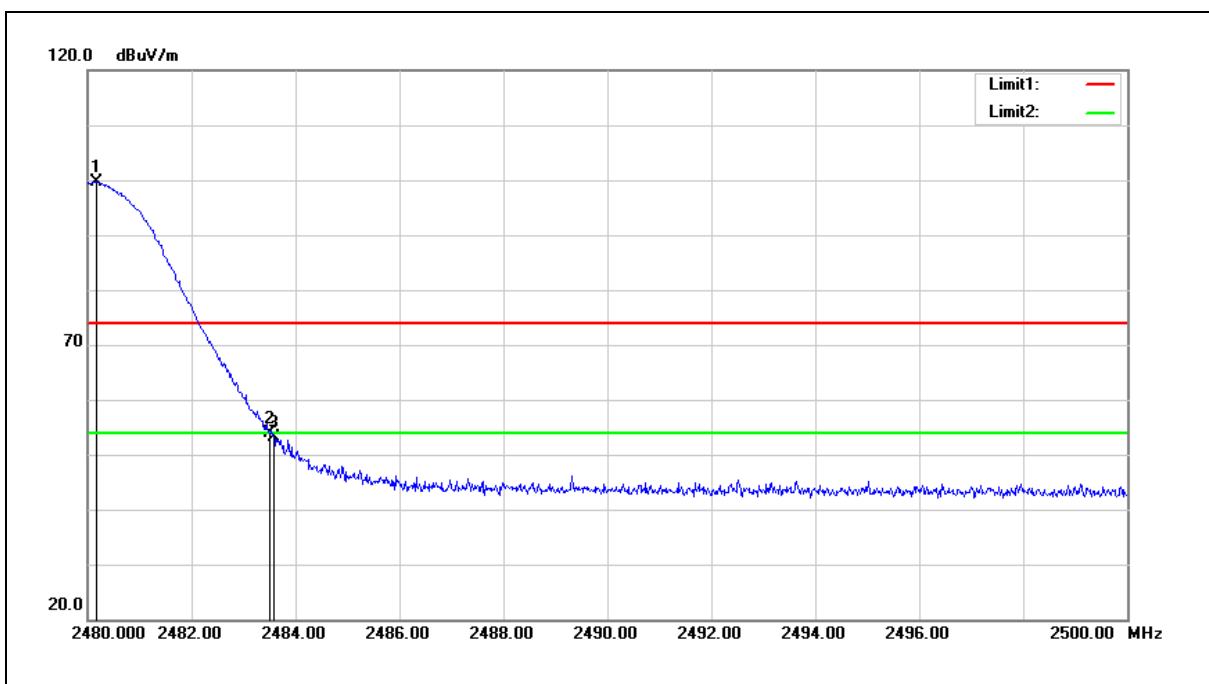
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2480.160	97.47	-1.91	95.56	--	--	peak
2	2483.500	52.23	-1.89	50.34	74.00	-23.66	peak
3	2483.600	52.49	-1.89	50.60	74.00	-23.40	peak

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:	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	2480.180	101.50	-1.91	99.59	--	--	peak
2	2483.500	55.82	-1.89	53.93	74.00	-20.07	peak
3	2483.580	54.99	-1.89	53.10	74.00	-20.90	peak

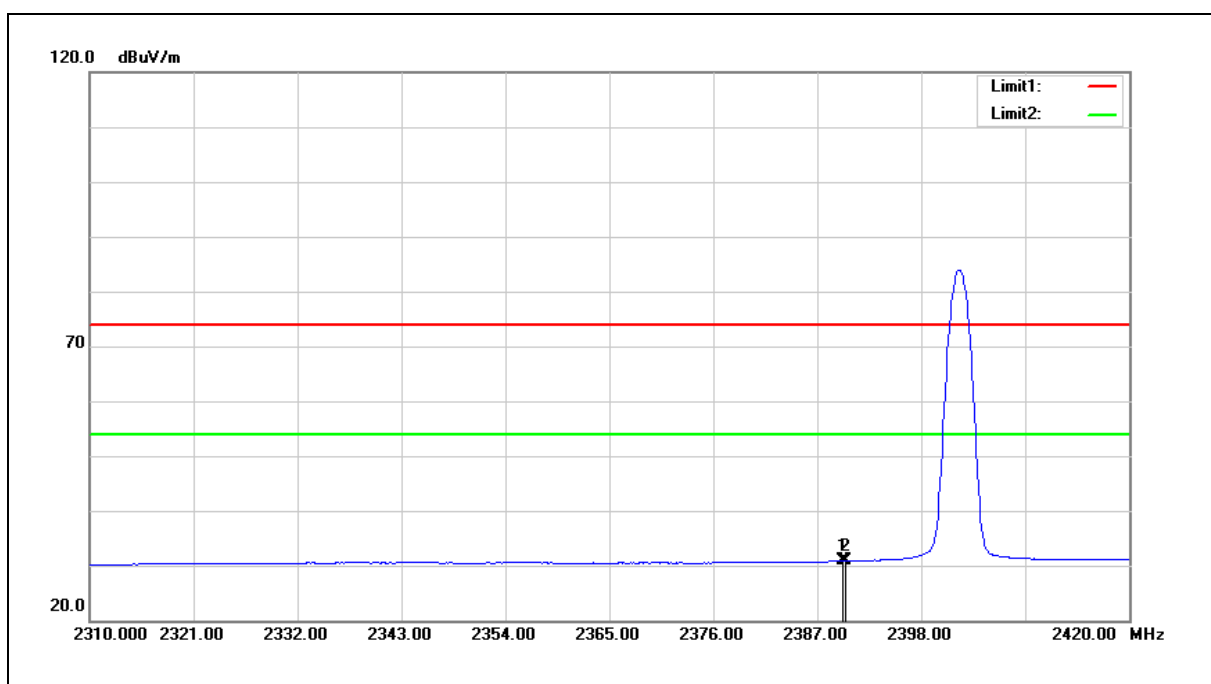
Note: 1.Result (dBuV/m) = Correct Factor (dB/m) + Reading(dBuV).

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.

Average

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



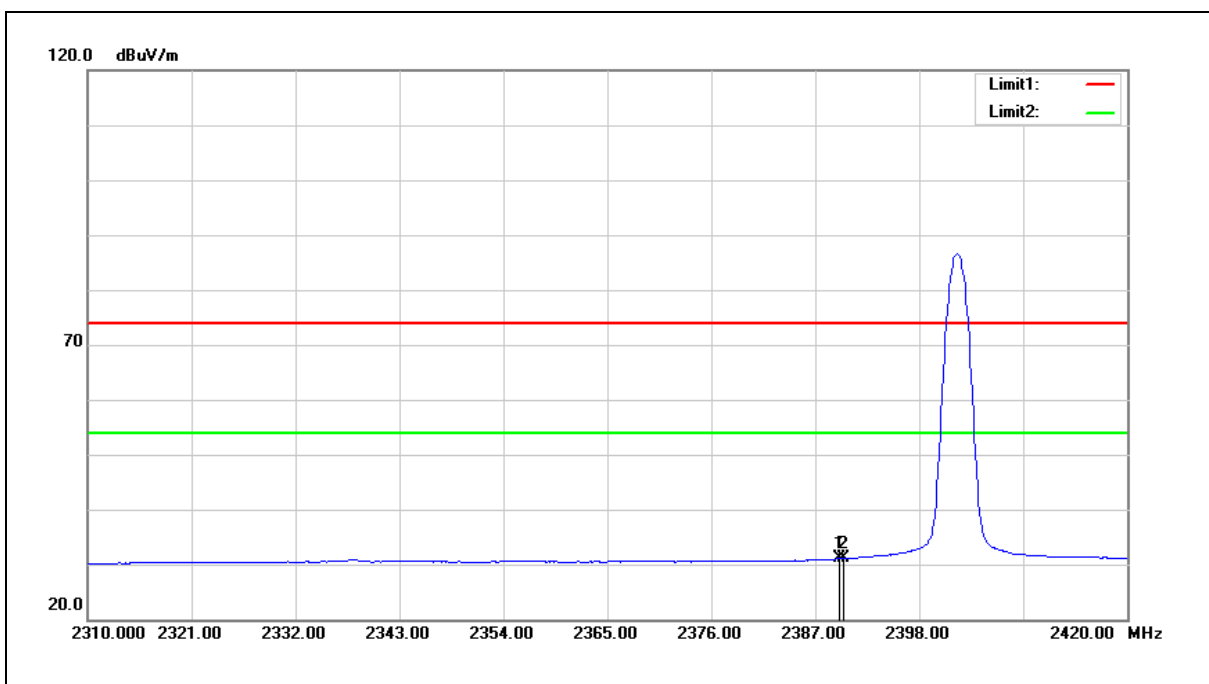
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.750	33.17	-2.28	30.89	54.00	-23.11	AVG
2	2390.000	33.18	-2.28	30.90	54.00	-23.10	AVG

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 3		
Ant.Polar.:	Vertical		



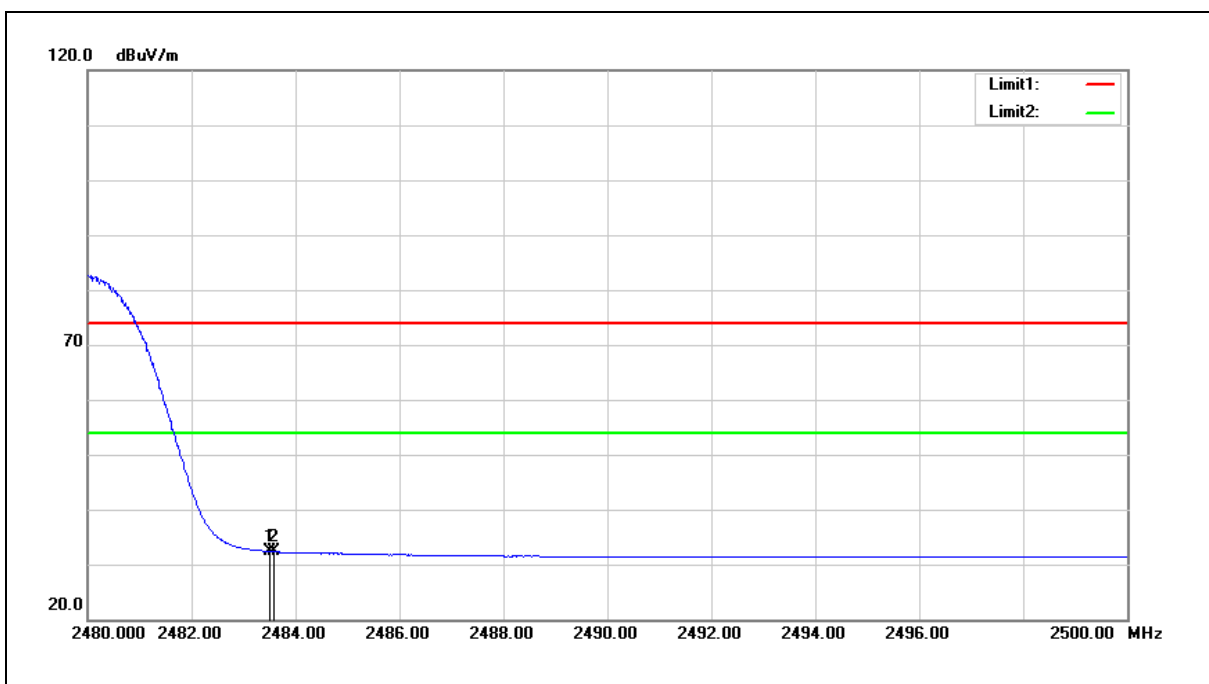
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.530	33.34	-2.28	31.06	54.00	-22.94	AVG
2	2390.000	33.42	-2.28	31.14	54.00	-22.86	AVG

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 3		
Ant.Polar.:	Horizontal		



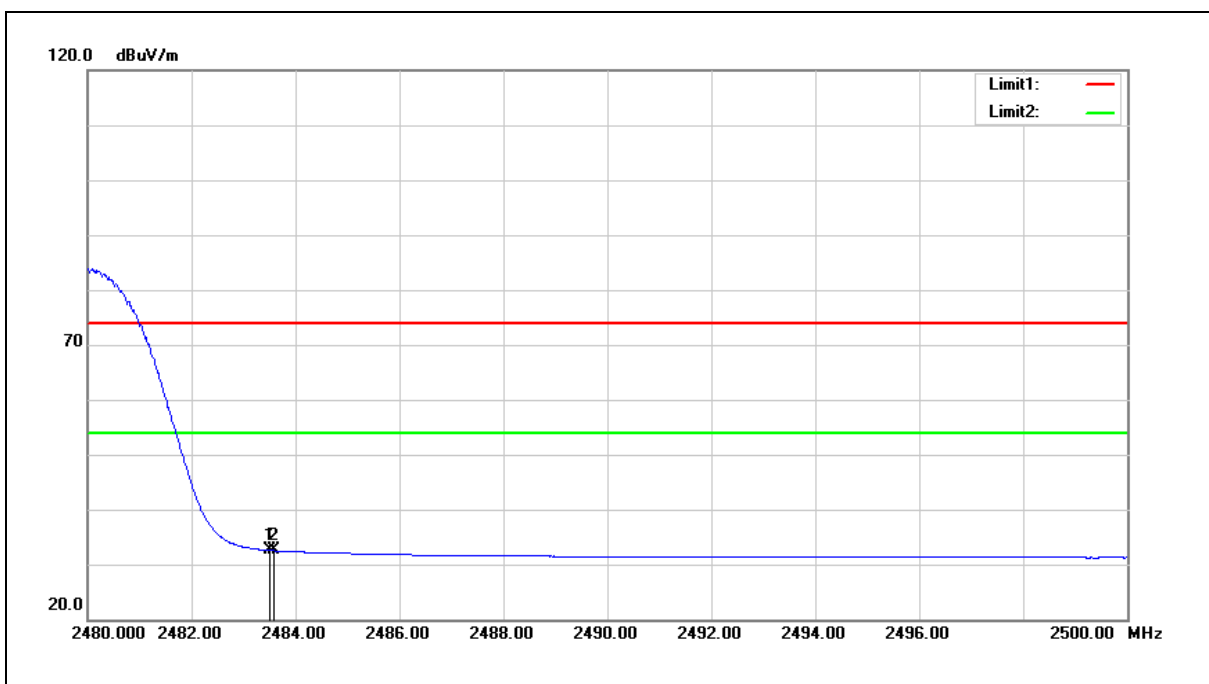
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	34.28	-1.89	32.39	54.00	-21.61	AVG
2	2483.580	34.23	-1.89	32.34	54.00	-21.66	AVG

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 3		
Ant.Polar.:	Vertical		



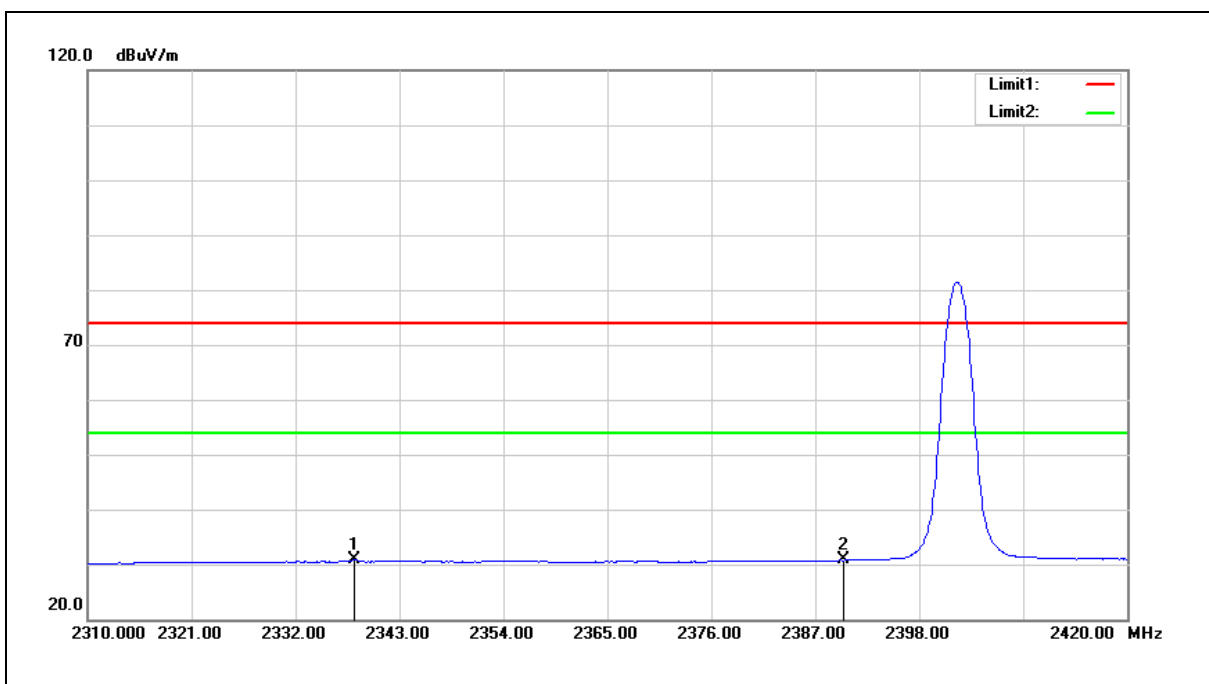
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	34.44	-1.89	32.55	54.00	-21.45	AVG
2	2483.580	34.41	-1.89	32.52	54.00	-21.48	AVG

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		



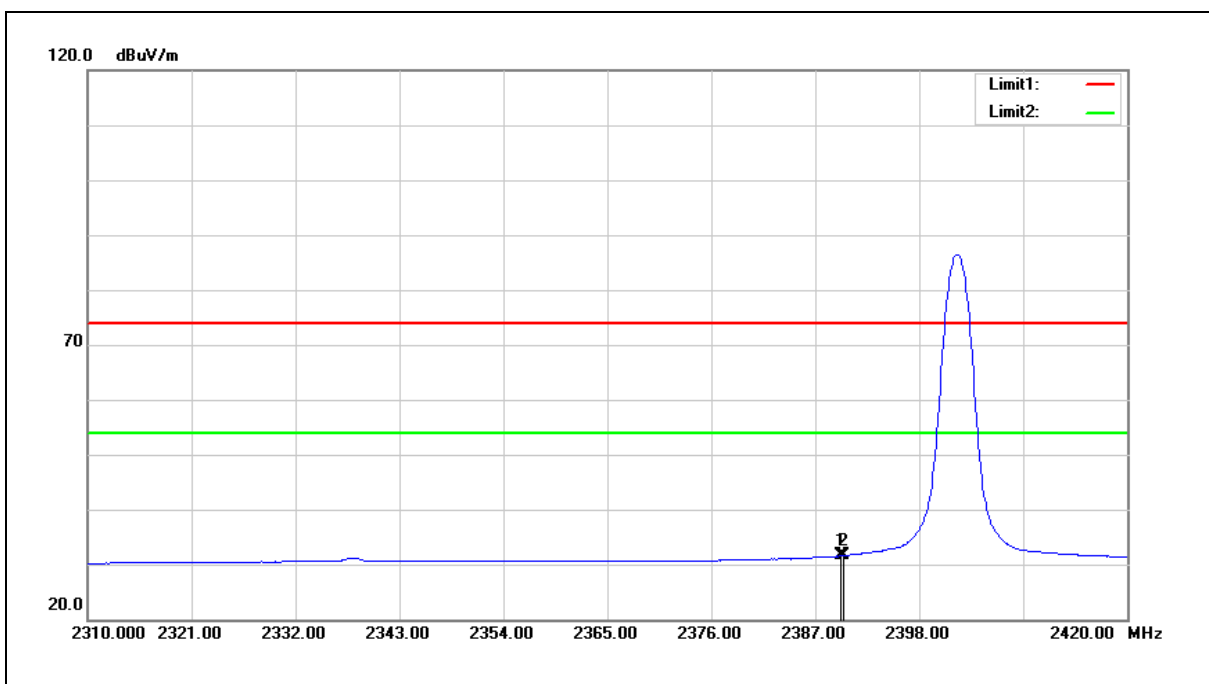
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2338.270	33.28	-2.50	30.78	54.00	-23.22	AVG
2	2390.000	33.04	-2.28	30.76	54.00	-23.24	AVG

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		



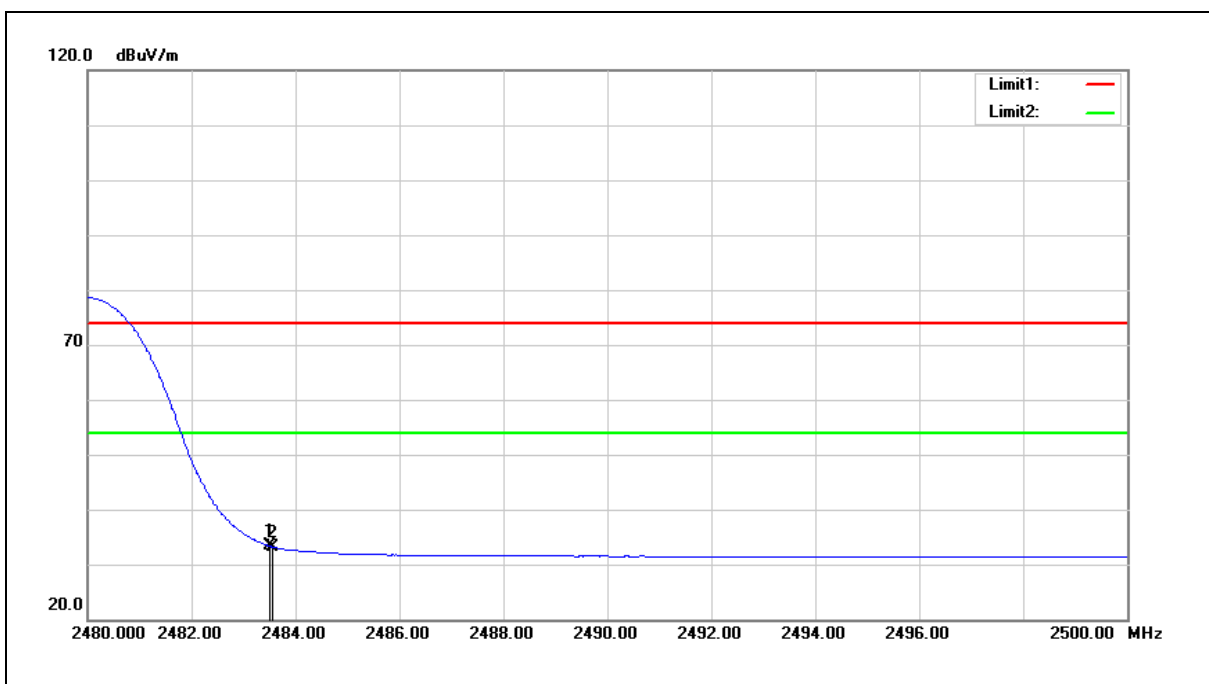
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2389.750	33.83	-2.28	31.55	54.00	-22.45	AVG
2	2390.000	33.89	-2.28	31.61	54.00	-22.39	AVG

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		



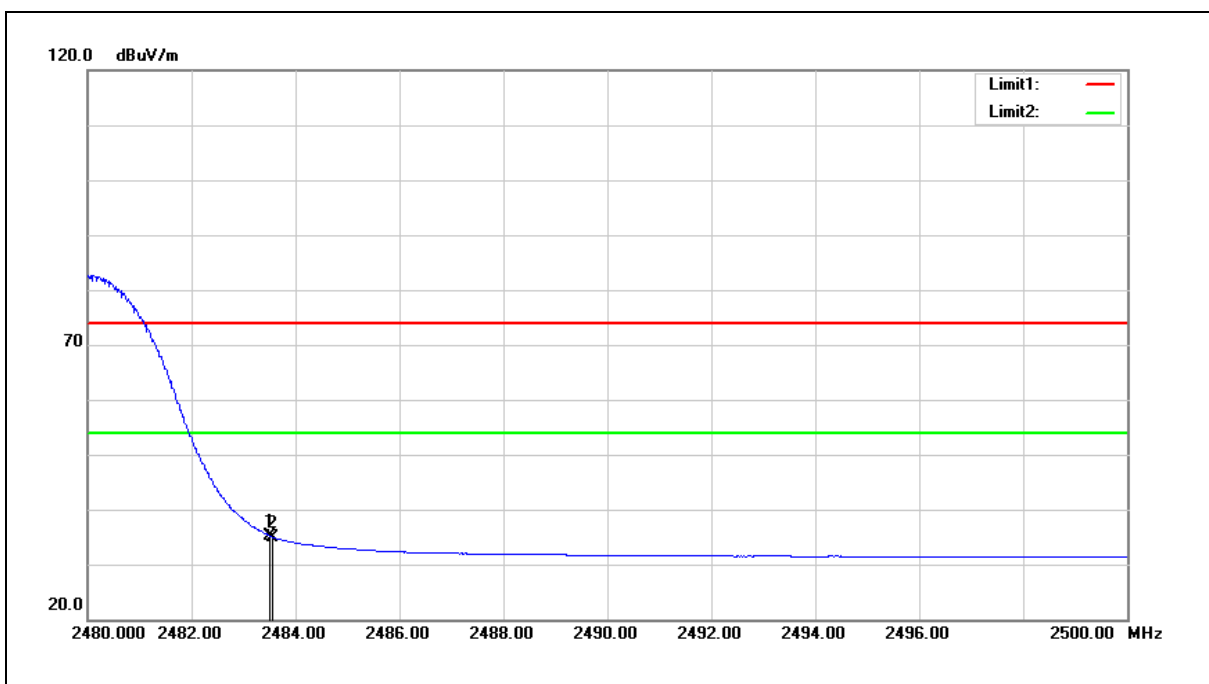
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2483.500	35.23	-1.89	33.34	54.00	-20.66	AVG
2	2483.560	35.12	-1.89	33.23	54.00	-20.77	AVG

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	2483.500	37.01	-1.89	35.12	54.00	-18.88	AVG
2	2483.560	36.85	-1.89	34.96	54.00	-19.04	AVG

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.

5.3 Conducted Test Results

輸出峰值功率之量測

操作模式 : Mode 3: 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	8.11	0.00647	8.16	0.00655	≤0.125
	DH3	8.16	0.00655	8.21	0.00662	≤0.125
	DH5	8.19	0.00659	8.24	0.00667	≤0.125
中頻道	DH1	7.70	0.00589	7.79	0.00601	≤0.125
	DH3	7.76	0.00597	7.82	0.00605	≤0.125
	DH5	7.81	0.00604	7.86	0.00611	≤0.125
高頻道	DH1	7.35	0.00543	7.42	0.00552	≤0.125
	DH3	7.40	0.00550	7.45	0.00556	≤0.125
	DH5	7.44	0.00555	7.49	0.00561	≤0.125

操作模式 : Mode 4: EDR, $\pi/4$ -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	7.33	0.00541	8.20	0.00661	≤0.125
	2DH3	7.36	0.00545	8.23	0.00665	≤0.125
	2DH5	7.40	0.00550	8.26	0.00670	≤0.125
中頻道	2DH1	6.86	0.00485	7.48	0.00560	≤0.125
	2DH3	6.90	0.00490	7.82	0.00605	≤0.125
	2DH5	6.95	0.00495	7.85	0.00610	≤0.125
高頻道	2DH1	6.44	0.00441	7.41	0.00551	≤0.125
	2DH3	6.48	0.00445	7.45	0.00556	≤0.125
	2DH5	6.51	0.00448	7.48	0.00560	≤0.125

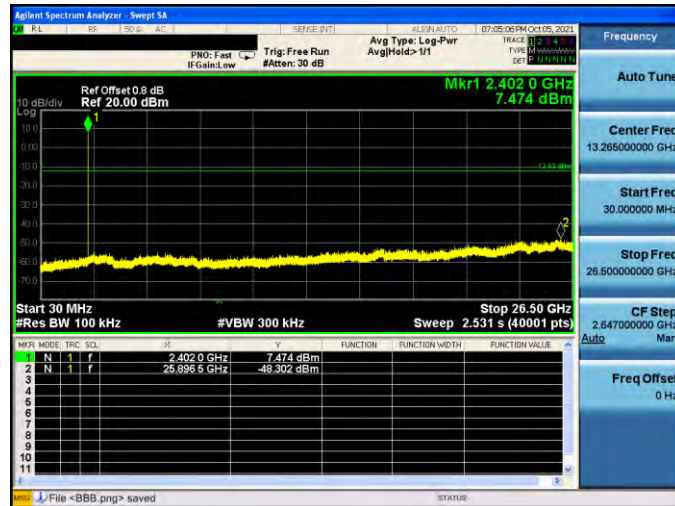
操作模式 : Mode 5:EDR, 8DPSK Continuous TX Mode						
頻道		輸出功率(Average)		輸出功率(Peak)		限制值
		dBm	W	dBm	W	W
低頻道	3DH1	7.40	0.00550	8.22	0.00664	≤0.125
	3DH3	7.43	0.00553	8.25	0.00668	≤0.125
	3DH5	7.45	0.00556	8.28	0.00673	≤0.125
中頻道	3DH1	6.90	0.00490	7.82	0.00605	≤0.125
	3DH3	6.93	0.00493	7.85	0.00610	≤0.125
	3DH5	6.97	0.00498	7.88	0.00614	≤0.125
高頻道	3DH1	6.51	0.00448	7.45	0.00556	≤0.125
	3DH3	6.54	0.00451	7.49	0.00561	≤0.125
	3DH5	6.56	0.00453	7.51	0.00564	≤0.125

非必要頻帶之量測

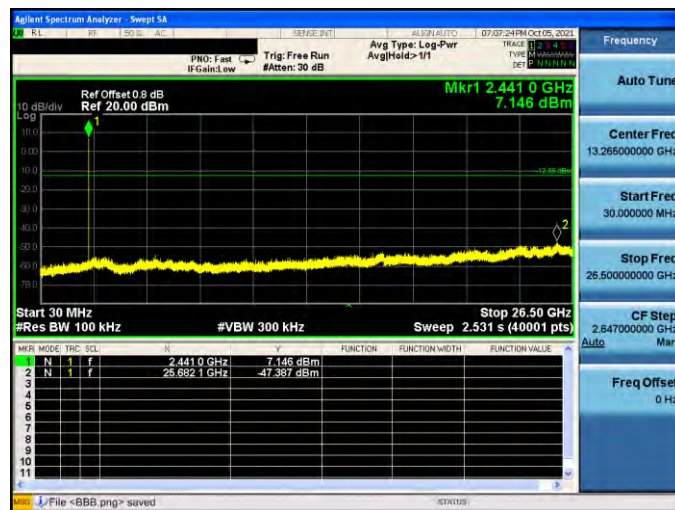
Out of Band Conducted Spurious Emission

Mode 3: BR,GFSK Continuous TX Mode

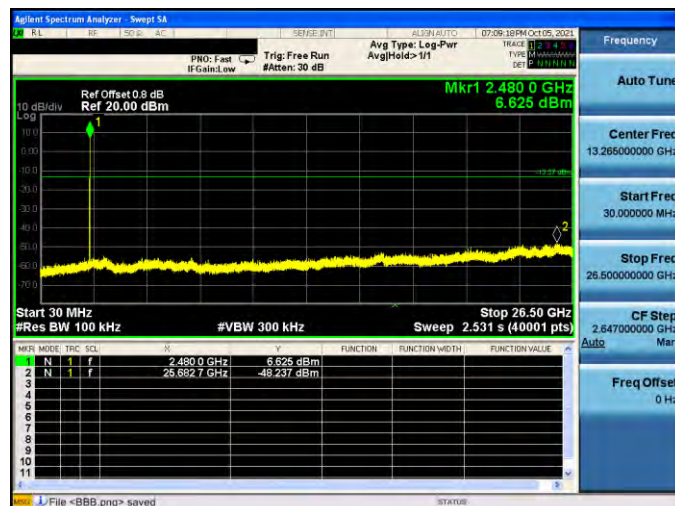
低頻道

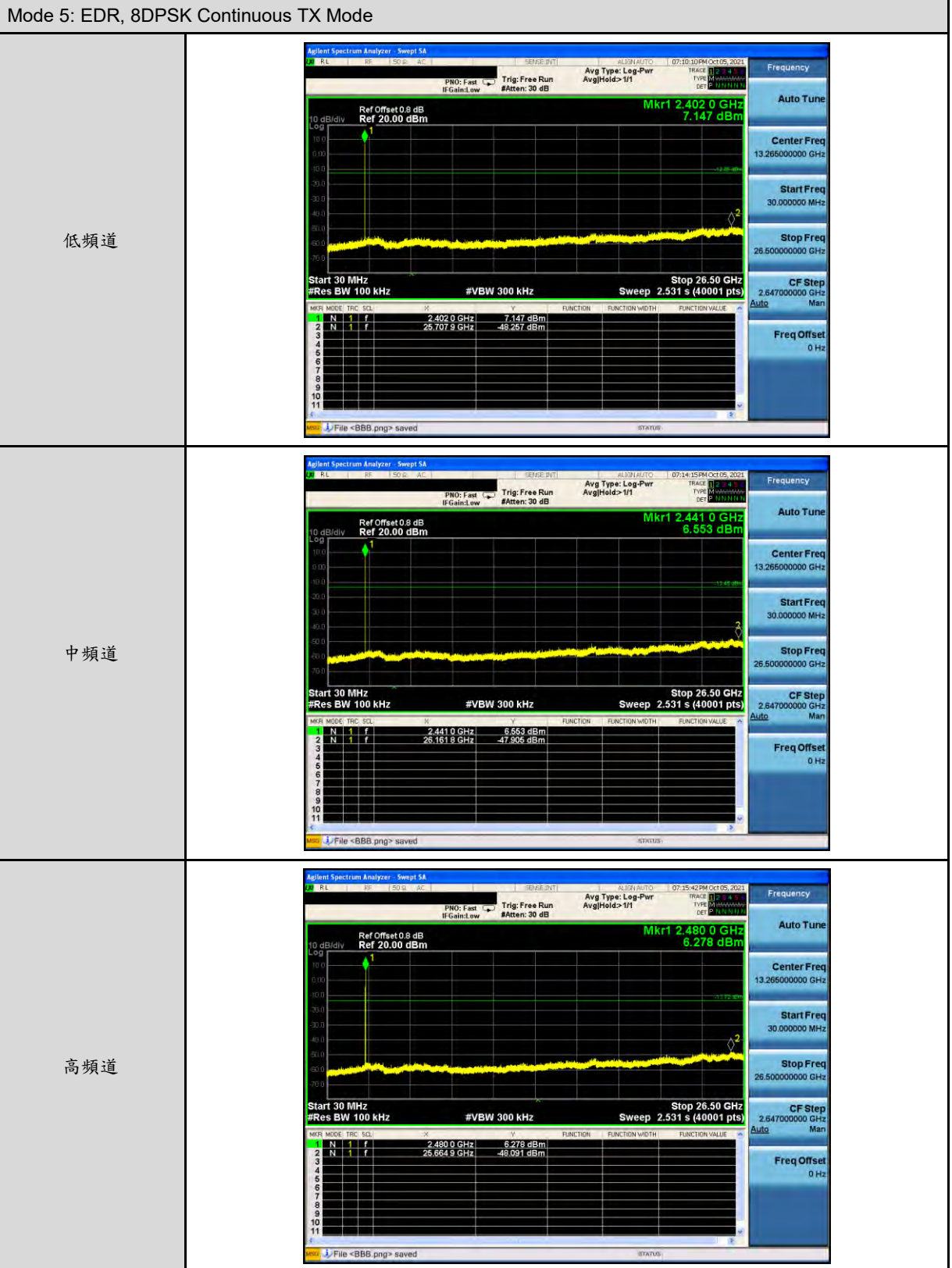


中頻道



高頻道

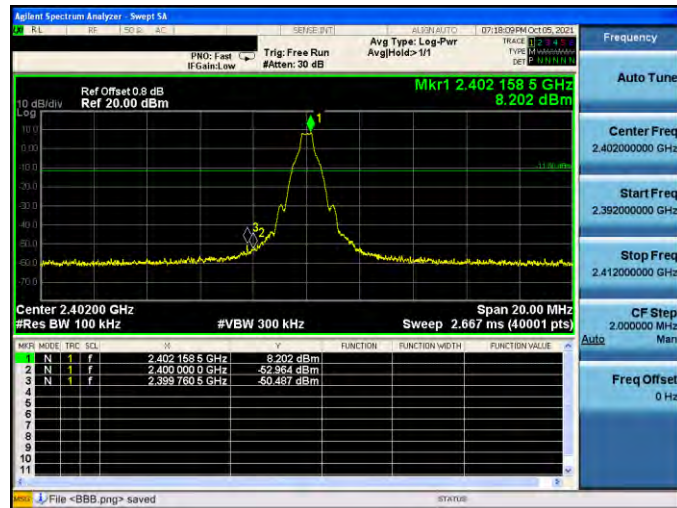




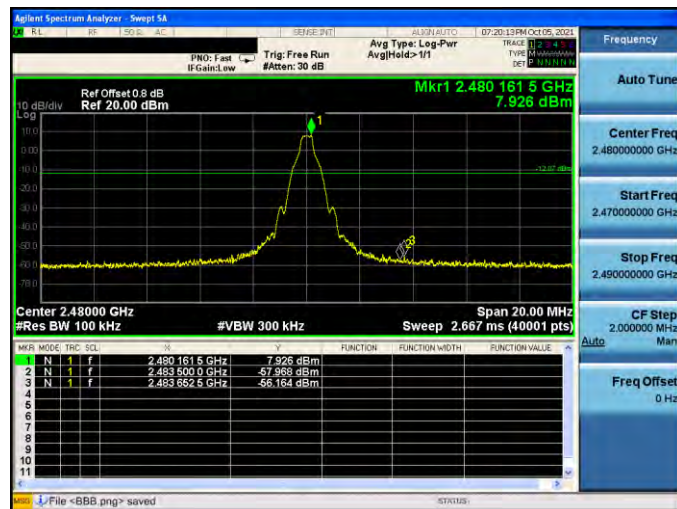
Conducted Band Edge

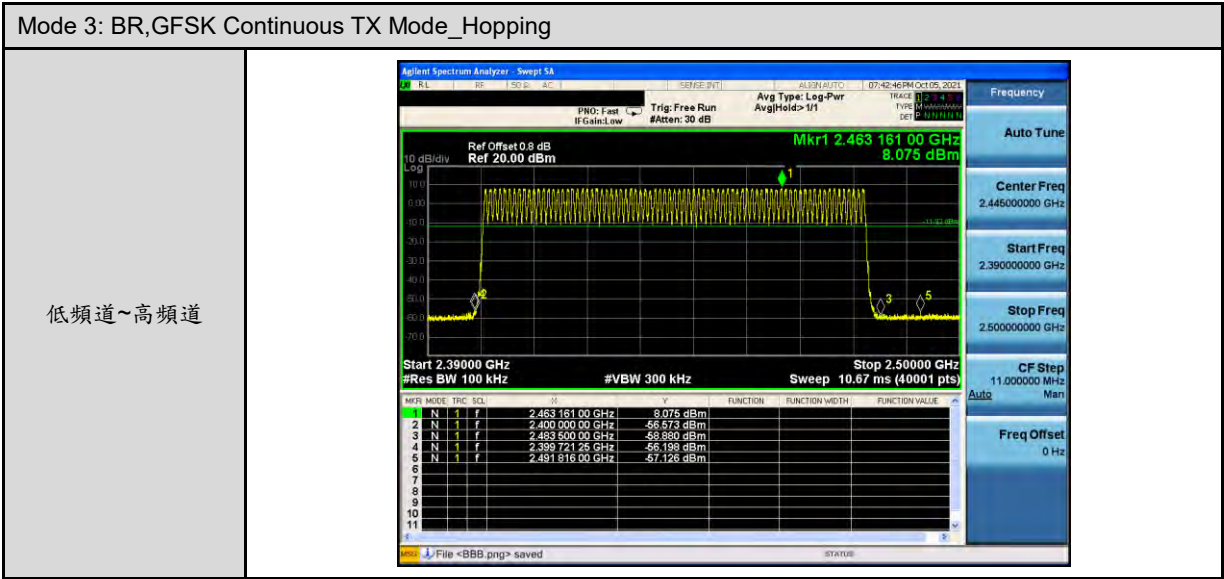
Mode 3: BR,GFSK Continuous TX Mode_Un-hopping

低頻道



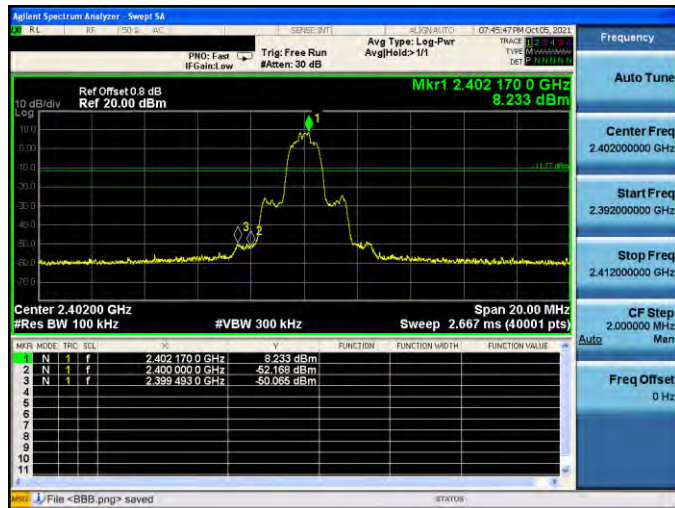
高頻道



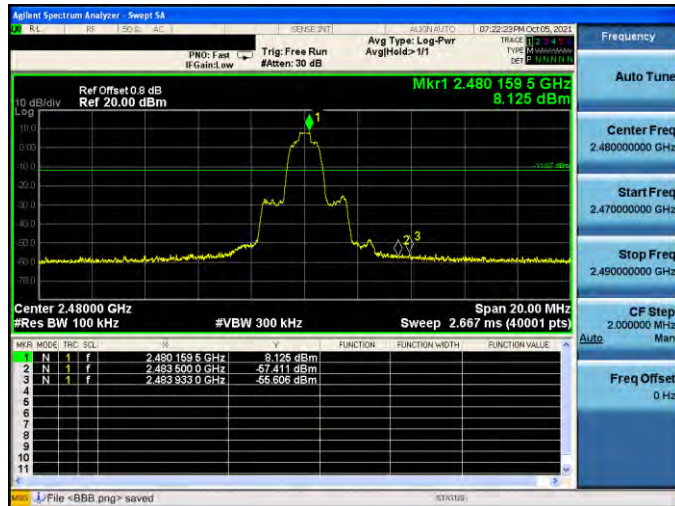


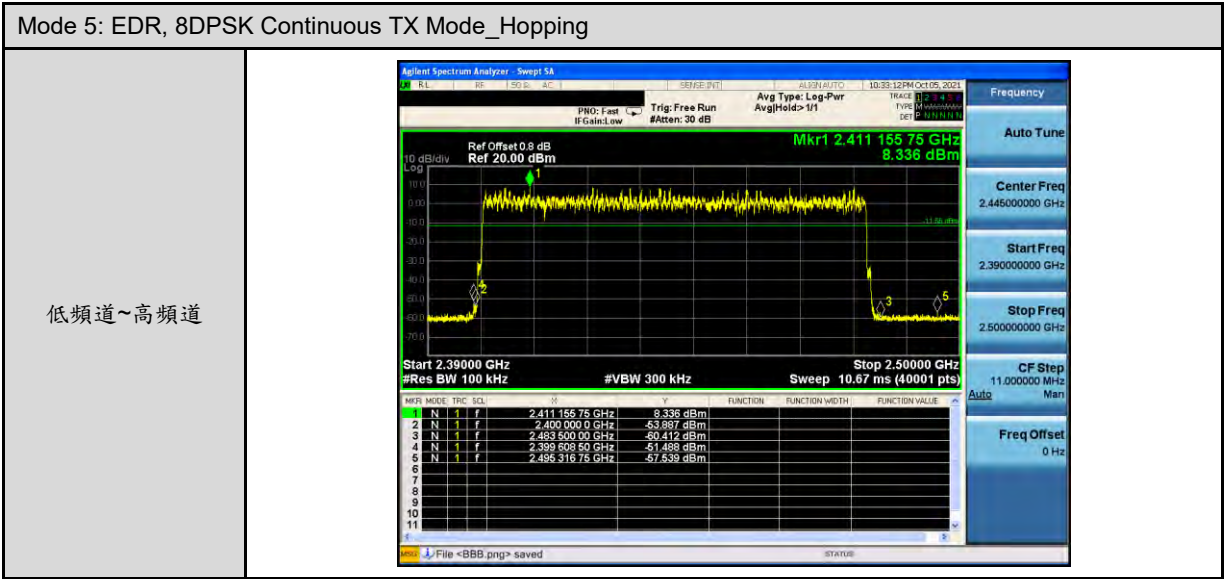
Mode 5: EDR, 8DPSK Continuous TX Mode_Un-hopping

低頻道



高頻道





頻率範圍及頻道數之要求

Mode 3: BR, GFSK Continuous TX Mode

CH00 - CH39

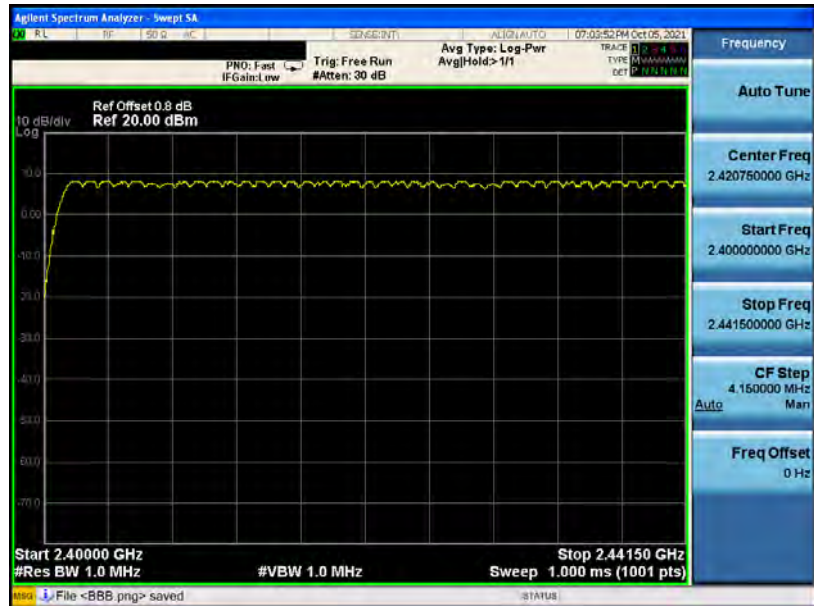


CH39- CH78

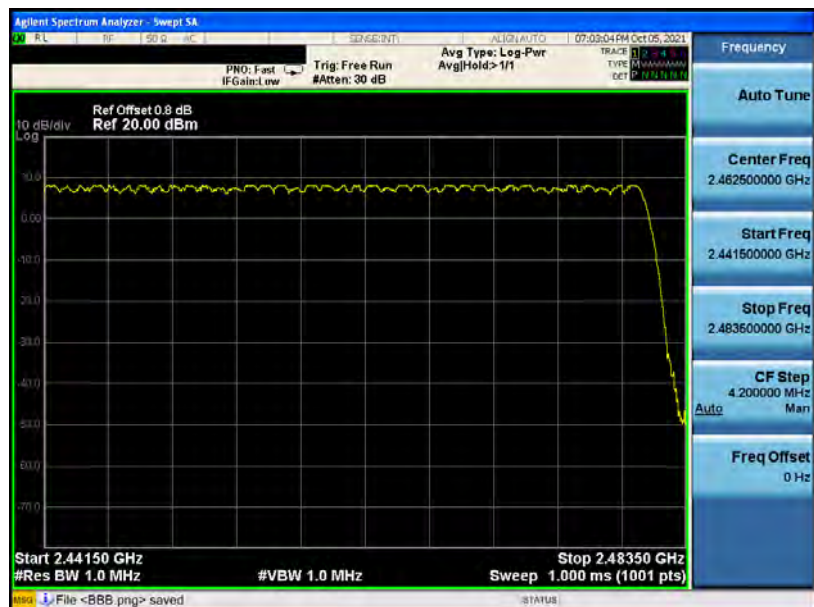


Mode 5: EDR, 8DPSK Continuous TX Mode

CH00 - CH39



CH39- CH78



發射頻寬之要求

操作模式 : Mode 3: BR, GFSK Continuous TX Mode Mode 5: 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 3	低頻道	0.963	0.642	-----
	中頻道	0.965	0.643	-----
	高頻道	0.966	0.644	-----
Mode 5	低頻道	1.298	0.865	-----
	中頻道	1.292	0.861	-----
	高頻道	1.289	0.859	-----
註: 發射頻寬(20 dB) 之 2/3 量測值 = 量測值 x 2 / 3				

Mode 3: BR, GFSK Continuous TX Mode

低頻道



中頻道



高頻道



Mode 5: 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 3: BR, GFSK Continuous TX Mode Mode 5: EDR, 8DPSK Continuous TX Mode			
操作模式	頻道	鄰頻道載波間隔	
		量測值 (MHz)	限制值 (MHz)
Mode 3	低頻道	1.000	≥ 0.642
	中頻道	1.000	≥ 0.643
	高頻道	1.000	≥ 0.644
Mode 5	低頻道	1.000	≥ 0.865
	中頻道	1.000	≥ 0.861
	高頻道	1.000	≥ 0.859

Mode 3: BR, GFSK Continuous TX Mode

低頻道



中頻道

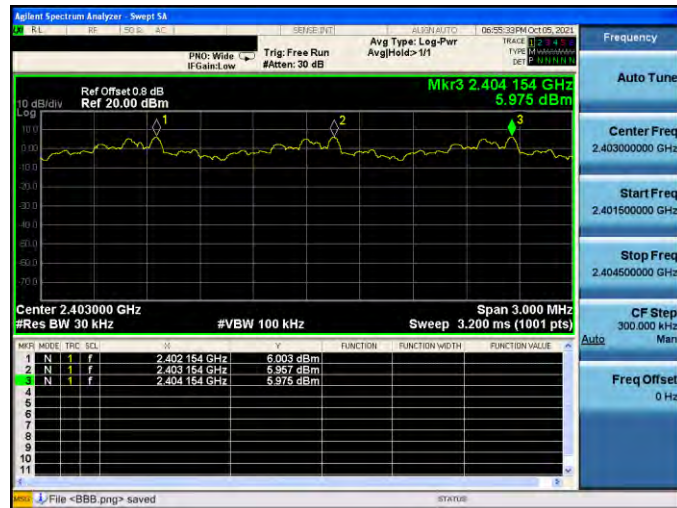


高頻道

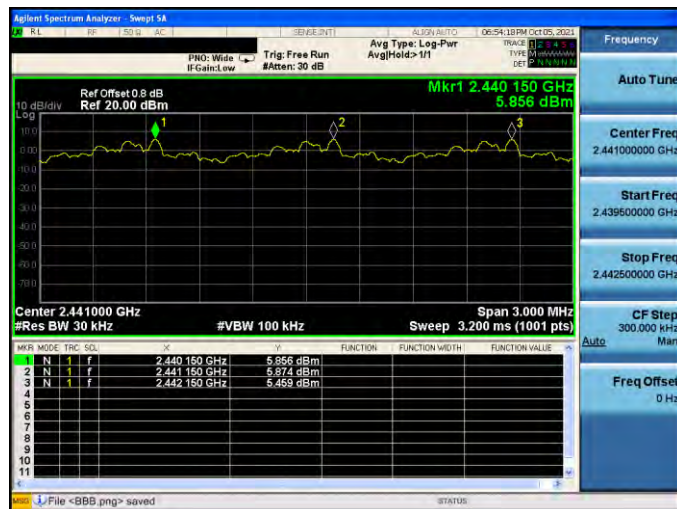


Mode 5: EDR, 8DPSK Continuous TX Mode

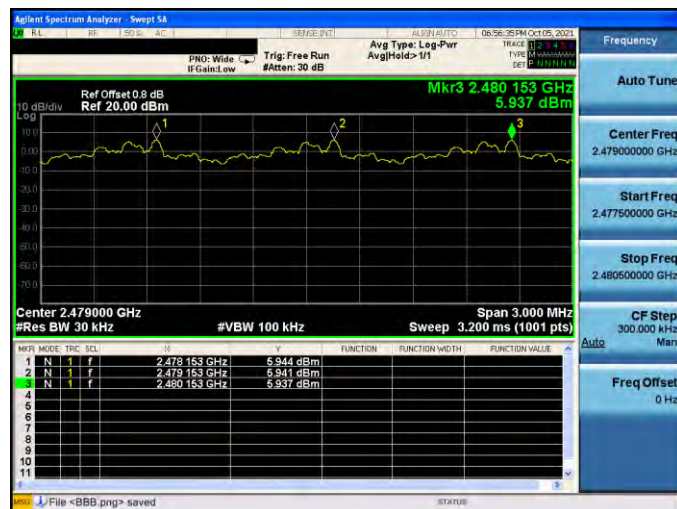
低頻道



中頻道



高頻道

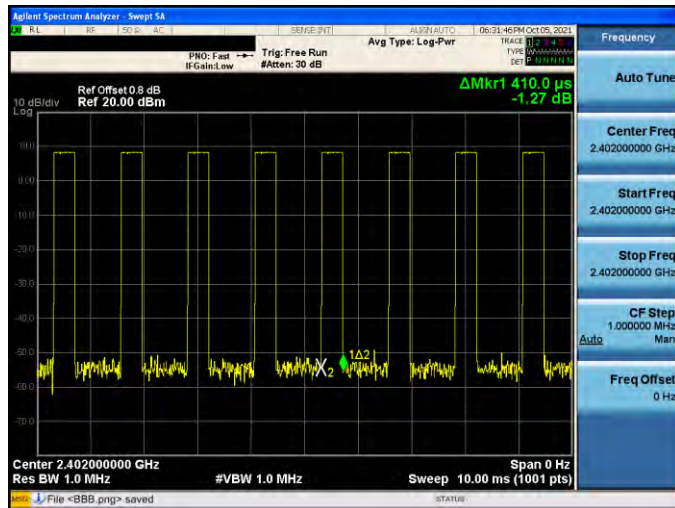


跳頻系統之任一頻率佔用之平均時間之量測

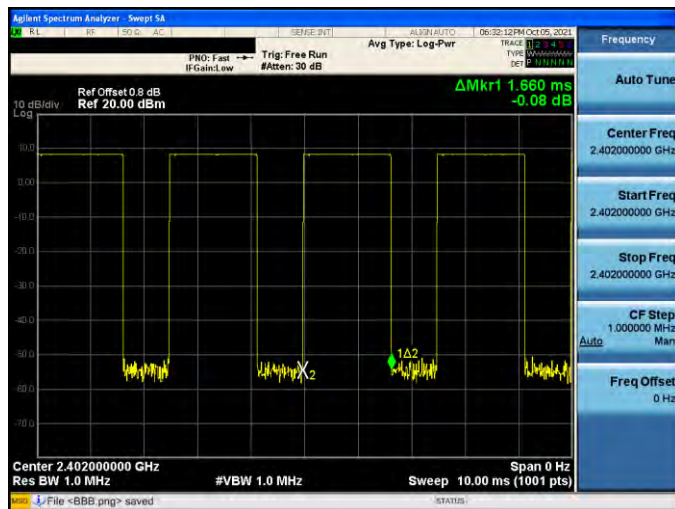
Mode 3: BR, GFSK Continuous TX Mode	
DH1 模式	
需量測之週期(秒)	$79CH * 0.4 = 31.6$ (秒)
待測物每秒跳頻之總次數	1600(藍牙通訊協定標準)
頻道每秒佔用之次數	$800/79CH = 10.13$ (次/秒)
頻道每次佔用之時間(1)	0.410 ms (秒)
週期內頻道佔用之總次數(2)	$31.6 * 10.13 = 320.108$ (次)
週期內佔用的平均時間(1) * (2)	131.244 ms (秒)
LIMIT(msec)	≤ 400
DH3 模式	
需量測之週期(秒)	$79CH * 0.4 = 31.6$ (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 3: BR, GFSK Continuous TX Mode

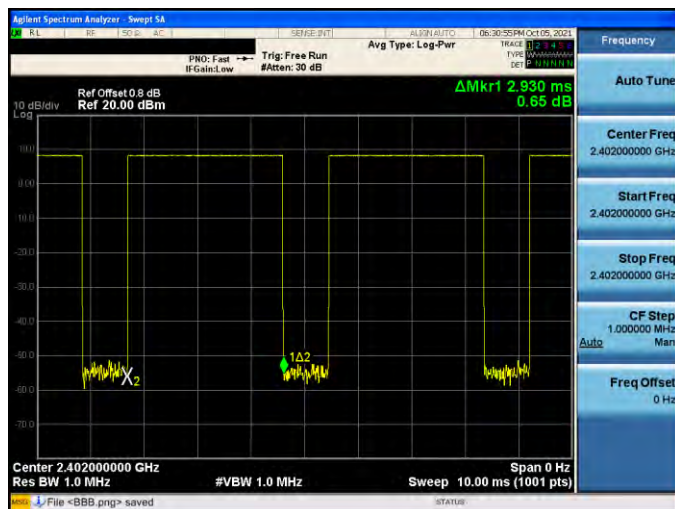
DH1



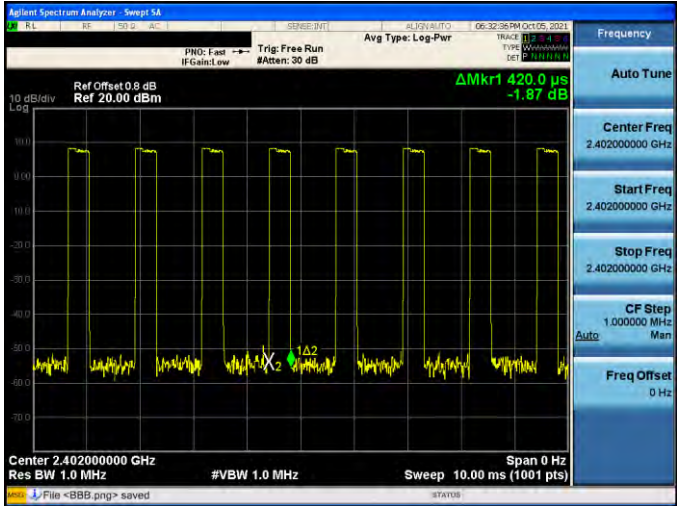
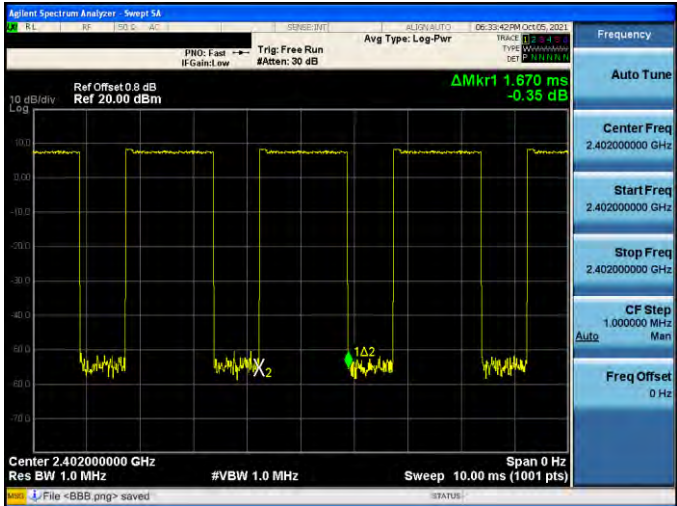
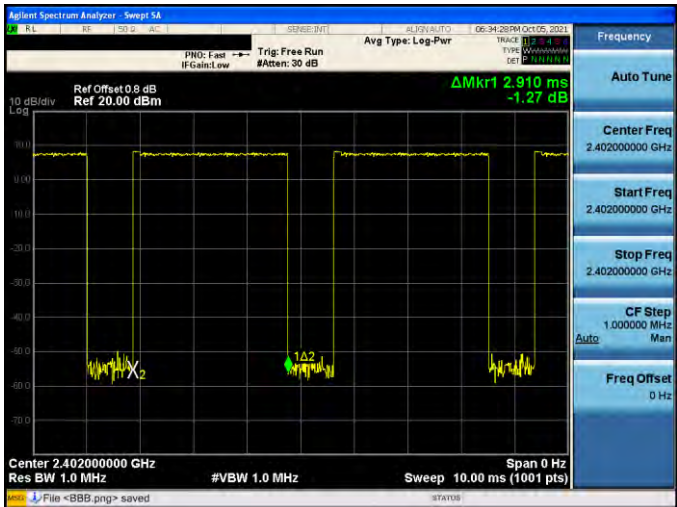
DH3



DH5



Mode 5: 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)	0.420 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
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)	1.670 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)	267.026 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)	2.910 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)	310.811 ms (秒)
LIMIT(msec)	≤ 400

Mode 5: EDR, 8DPSK Continuous TX Mode	
3DH1	
3DH3	
3DH5	

6. EUT Photos

請參照 文件編號: 21-1404_External Photos 和 21-1404_Internal Photos 。

Appendix A. Test Setup Photographs

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