



低功率射頻器材測試報告

申請廠商	: 泓澤檢測設備股份有限公司
地址	: 新北市汐止區汐萬路 3 段 199 巷 1 弄 18 號
工廠	: NeoLAB Convergence, Inc.
地址	: #1501, Mario Tower, 28, Digital-ro 30-gil, Guro-gu, Seoul, Korea 08389, Korea
產品名稱	: 智慧筆
產品型號	: NWP-F51
廠牌	: Neo smartpen
受理日期	: 110 年 11 月 22 日
完成日期	: 110 年 12 月 13 日

實驗室名稱：世騰電子科技股份有限公司測試實驗室

實驗室地址：桃園市蘆竹區聯福街 2 巷 10 號

實驗室認可證書有效期限：112 年 07 月 08 日

實驗室認可編號及範圍：1439 (9 kHz to 40 GHz)

實驗室認證資格





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修訂記錄

報告號碼.	發行日期	描述
21110169-TRNCC02	Dec. 13, 2021	Original



證 明 書

申請廠商	:	泓澤檢測設備股份有限公司
地址	:	新北市汐止區汐萬路 3 段 199 巷 1 弄 18 號
工廠	:	NeoLAB Convergence, Inc.
地址	:	#1501, Mario Tower, 28, Digital-ro 30-gil, Guro-gu, Seoul, Korea 08389, Korea
產品名稱	:	智慧筆
產品型號	:	NWP-F51
廠牌	:	Neo smartpen
該產品樣品試驗 依據之試驗標準	:	國家通訊傳播委員會低功率射頻器材技術規範(LP0002)。 規範修訂日期 109 年 07 月 01 日。
發射功率 (電場強度)	:	7.15 dBm

茲在此鄭重聲明：

本試驗報告所列之待測設備樣品已於民國 110 年 12 月 04 日在本公司的標準測試場地完成詳細及完整之量測。本試驗報告所列之量測皆依據低功率射頻器材技術規範之規定來執行。並判斷此待測設備樣品確實符合低功率射頻器材技術規範規定。

備註：本測試報告僅對受測之樣品負責。非經本公司同意，測試報告不得摘錄複印使用。(全部複製除外)。

項次	測試項目	低功率射頻器材技術 規範	量測設備	測試結果	結果判定
1	天線增益之要求	4.10.1.3 節	---	請參閱 3.2 節	合格
2	電源線傳導干擾之要求	3.3 節	請參閱 2 章	請參閱 4.4 節	合格
3	場強輻射之要求	4.10.1.5 節	請參閱 2 章	請參閱 5.4 節 及 5.5 節	合格
4	發射頻寬之要求	4.10.1.6 節(2).(A)	請參閱 2 章	請參閱 6.4 節	合格
5	最大傳導輸出功率之要求	4.10.1.2 節(1)(C)	請參閱 2 章	請參閱 7.4 節	合格
6	混附波發射限制之要求	4.10.1.5 節	請參閱 2 章	請參閱 8.4 節	合格
7	功率密度之要求	4.10.1.6 節(2)(B)	請參閱 2 章	請參閱 9.4 節	合格

本實驗室已依據合約內的標準，降低儀器、環境、人員等不確定因素。因此測試結果將直接依照標準要求判定之。

報告簽署人：



1. 一般描述

1.1. 產品規格

Operation Frequency Range	BT / BLE: 2400-2483.5MHz
Center Frequency Range	BT / BLE: 2402MHz-2480MHz
Modulation Type	BT: GFSK, $\pi/4$ -DQPSK, 8DPSK BLE: GFSK
Modulation Technology	FHSS, DTS
Data Rate	BT: GFSK: 1Mbps, $\pi/4$ -DQPSK: 2Mbps, 8DPSK: 3Mbps BLE: GFSK: 1Mbps
Antenna Type	Chip Antenna
Antenna Gain	BT / BLE: 2400-2480MHz: 2.32dBi
Battery	Brand: EVE Energy CO., LTD Model: EVE84480
micro USB cable	Brand: Shenzhen Sentime Electronics Tech Model: CA-USB2.0-MIC-2C-L600(X07)

Note: For more details, please refer to the User's manual of the EUT.

1.2. 差異說明

無。



1.3. 無線界面規格及頻道對應頻率

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
*00	2402	14	2430	28	2458
01	2404	15	2432	29	2460
02	2406	16	2434	30	2462
03	2408	17	2436	31	2464
04	2410	18	2438	32	2466
05	2412	*19	2440	33	2468
06	2414	20	2442	34	2470
07	2416	21	2444	35	2472
08	2418	22	2446	36	2474
09	2420	23	2448	37	2476
10	2422	24	2450	38	2478
11	2424	25	2452	*39	2480
12	2426	26	2454	--	--
13	2428	27	2456	--	--

*為量測之頻率



1.4. 測試模式之描述

- 電源傳導及輻射測試之測試軟體如下:
 1. 將量測系統之全部電源打開。
 2. 於測試進行的同時，在 Windows OS system 作業系統下，待測物執行” WCN Combo Toolver. W1960” 傳送及接收訊號。
- 執行以下測試模式如下：

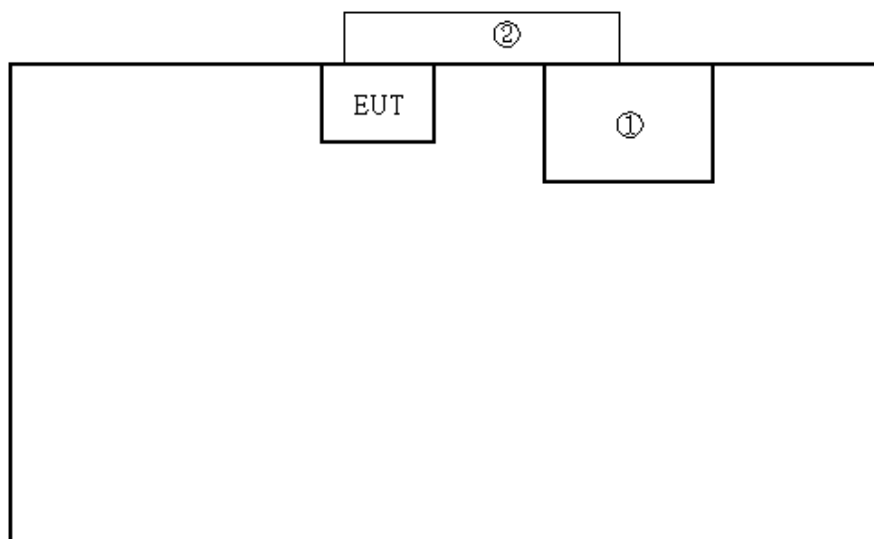
Conducted Emissions from the AC mains power ports	
Test Mode	Operating Description
1	GFSK (1Mbps) , Transmitter Mode
2	GFSK (1Mbps) , Receiver Mode
caused “Test Mode 1, 2” generated the worst case, it was reported as the final data.	
Radiation Emissions (30MHz ~ 1GHz)	
Test Mode	Operating Description
1	GFSK (1Mbps) , Transmitter Mode
2	GFSK (1Mbps) , Receiver Mode
caused “Test Mode 1, 2” generated the worst case, it was reported as the final data.	
Radiation Emissions (1GHz ~ 25GHz)	
Test Mode	Operating Description
1	GFSK (1Mbps) , Transmitter Mode
2	GFSK (1Mbps) , Receiver Mode
caused “Test Mode 1, 2” generated the worst case, it was reported as the final data.	

Modulation Type	TX CONFIGURATION
GFSK (1Mbps)	1TX



1.5. 受測裝置之系統說明

傳導干擾:



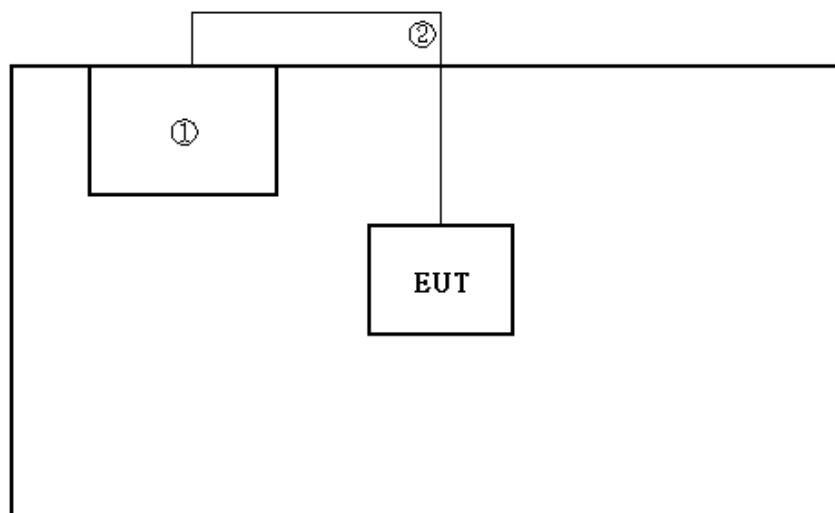
Under Table

Remote Site

①Notebook

②micro USB cable (隨貨配件)

輻射干擾:



Under Table

Remote Site

①Notebook

②micro USB cable (隨貨配件)



「本案隨貨配件與實驗室提供配件併同檢驗」，其實驗室提供配件廠牌型號資訊如下：

RF Conducted				
Equipment	Brand	Model	Length/Type	Power cord/Length/Type
Notebook	lenovo	S1GL2W	N/A	N/A
電源供應器	GWInstek	SPD-3606	N/A	N/A
Radiated Emissions				
Equipment	Brand	Model	Length/Type	Power cord/Length/Type
Notebook	lenovo	S1GL2W	N/A	N/A
AC Power Line Conducted Emission				
Equipment	Brand	Model	Length/Type	Power cord/Length/Type
Notebook	ASUS	P2430U	N/A	Adapter / 1.8m / NS



1.6. 測試場地

測試場地：	世騰電子科技股份有限公司測試實驗室 338 桃園市蘆竹區聯福街 2 巷 10 號
測試電壓：	DC 3.7V From System(AC 110V / 60Hz)
適用規範：	本測試報告之所有項目皆依據國家通訊傳播委員會低功率射頻器材技術規範以及參考 ANSI、FCC/47CFR/2.1046、2.1047、2.1049、2.1051、2.1053 及 2.1055 之檢驗法。
測試頻率：	電源傳導：從 150 kHz 到 30 MHz。 場強輻射：從 30 MHz 到 25000 MHz。
測試天線的距離：	場強輻射之測試距離為 3 M。

Test Item	Test Site	Test Period	Environmental Conditions	Tested By
RF Conducted	RFCON01-NK	2021/12/01	25°C / 45%	Dian Chen
Radiated Emissions	3M02-NK	2021/11/30	23°C / 47%	Dian Chen
AC Power Line Conducted Emission	CON01-NK	2021/12/04	22°C / 46%	Dian Chen

1.7. 量測不確定度

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

Measurement Item	Uncertainty
AC Power Line Conduction(150K~30MHz)	±3.12dB
Radiated Spurious Emission(9KHz~30MHz)	±3.4dB
Radiated Spurious Emission(30MHz~1GHz)	±5.6dB
Radiated Spurious Emission(1GHz~25GHz)	±6.6dB
Conducted Spurious Emission	±1.8dB
6dB Bandwidth	±4.4%
20dB Bandwidth	±4.4%
Occupied Bandwidth	±4.4%
Peak Output Power(Conducted Power Meter)	±1.1dB
Dwell Time / Deactivation Time	±1.2%
Power Spectral Density	±1.8dB
Duty Cycle	±1.2%



2. 測試儀器

Test Item	Radiated Emissions				
Test Site	Semi Anechoic Room(3M02-NK)				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
Bilog Antenna	Schwarzbeck	VULB9168	369	2021/04/26	2022/04/25
Active Loop Antenna	EMCO	6507	40855	2021/06/10	2022/06/09
Horn Antenna	EMCO	3115	31589	2021/04/09	2022/04/08
Horn Antenna	EMCO	3116	31970	2021/03/29	2022/03/28
EMI Receiver	ROHDE & SCHWARZ	ESCI	101423	2021/06/30	2022/06/29
Spectrum Analyzer	ROHDE & SCHWARZ	FSV 40-N	102151	2021/08/06	2022/08/05
Preamplifier	EM Electronics corp.	EM330	60660	2021/03/18	2022/03/17
Preamplifier	Agilent	8449B	3008A01954	2021/03/22	2022/03/21
Preamplifier	EMC INSTRUMENTS	EMC184045	980065	2021/11/16	2022/11/15
Bluetooth Tester	ROHDE & SCHWARZ	CBT	101133	2021/04/19	2022/04/18
Cable-3in1(30M-1G)	HARBOUR INDUSTRIES	LL142	CCE1315	2021/04/12	2022/04/11
Cable-0.5m(1G-18G)	EMEC	EM104-SMSM-0.5M	CCE1354	2021/05/06	2022/05/05
Cable-3m(1G-18G)	EMEC	EM104-SMSM-3M	CCE1355	2021/05/06	2022/05/05
Cable-8m(1G-18G)	EMEC	EM104-SMSM-8M	CCE1356	2021/05/06	2022/05/05
Cable-0.5m(30M-40G)	HUBER SUHNER	SUCOFLEX 102	28420/2	2021/04/03	2022/04/02
Cable-3m(30M-40G)	HUBER SUHNER	SUCOFLEX 102	MY2608/2	2021/04/09	2022/04/08
Cable-0.5m(1G-40G)	Rapidtek	40GHZ 50CM	38MS-38MS50314	2021/04/08	2022/04/07
Cable-6m(9k~300M)	NA	CFD300-NL	NA	2021/03/15	2022/03/14
E3	AUDIX	v8.2014-8-6	RK-000529	NA	NA

Test Item	RF Conducted				
Test Site	RFCON01-NK				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
Spectrum Analyzer	ROHDE & SCHWARZ	FSV 40-N	102151	2021/08/06	2022/08/05
Bluetooth Tester	ROHDE & SCHWARZ	CBT	101133	2021/04/19	2022/04/18
CAX Signal Analyzer	KEYSIGHT	N9000B	MY57100339	2020/12/25	2021/12/24
Attenuator	KEYSIGHT	8491B	MY39250703	2021/04/09	2022/04/08
TEMP & HUMIDITY CHAMBER	T-MACHINE	TMJ-9712	T-12-040111	2021/08/27	2022/08/26
Power Meter	Anritsu	ML2495A	1224005	2021/04/14	2022/04/13
Power Sensor	Anritsu	MA2411B	1207295	2021/04/14	2022/04/13



Test Item	AC Power Line Conducted Emission				
Test Site	CON01-NK				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
EMI Receiver	ROHDE & SCHWARZ	ESCI	101402	2021/03/12	2022/03/11
Line Impedance Stabilization Network	Schwarzbeck	NSLK 8127	8127-568	2021/06/02	2022/06/01
Pulse Limiter	ROHDE & SCHWARZ	ESH3-Z2	101934	2021/03/10	2022/03/09
Cable-6m(9k~300M)	NA	CFD300-NL	NA	2021/03/15	2022/03/14
E3	AUDIX	v8.2014-8-6	RK-000531	NA	NA



3. 天線增益之要求

天線規格不受國家通訊傳播委員會低功率射頻器材技術規範(3.2)節規定之限制，其發射天線之方向性增益超過 6dBi 時，應依其所超過之 dB 數等量降低峰值輸出功率。如用於固定式點對點操作時，應符合下列情形之一：

操作於 2400-2483.5 兆赫(MHz)者，其發射天線之方向性增益超過 6dBi，應於每超過 3dB 降低 1dB 之峰值輸出功率。

操作於 5725-5850 兆赫(MHz)者，其發射天線之方向性增益超過 6dBi，不需降低峰值輸出功率。

3.1. 天線型式及其增益

1.1 Brand :	AMOTECH Co., LTD.
1.2 Model :	SHDA2112442A
1.3 Antenna type :	Chip Antenna
1.4 Frequency Rang :	2402-2480MHz
1.5 Gain(peak) :	2.32 dBi
(參照天線規格資料)	

3.2. 結果判定

其發射天線之方向性增益低於 6dBi，因此無需降低峰值輸出功率。

4. 電源線傳導干擾之量測規定

4.1. 適用標準

依據國家通訊傳播委員會低功率射頻器材技術規範之 3.3 節，電源傳導干擾之限制要求如下：

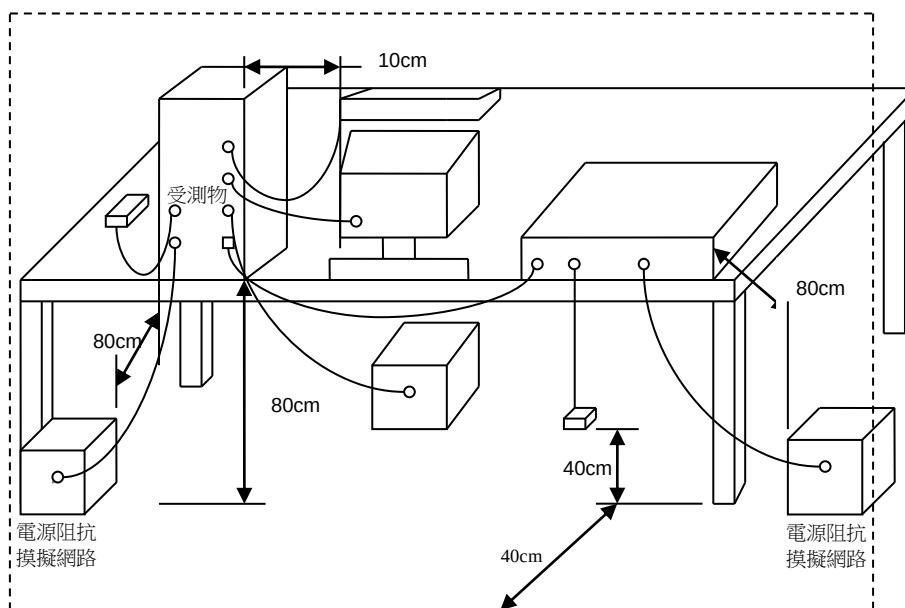
頻率範圍(MHz)	傳導限制值 (dB μ V)	
	準峰值(Quasi-peak)	平均值(Average)
0.15 ~ 0.5	66-56 (註)	56-46 (註)
0.5 ~ 5	56	46
5 ~ 30	60	50

註：隨頻率之對數遞減

4.2. 測試方法

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

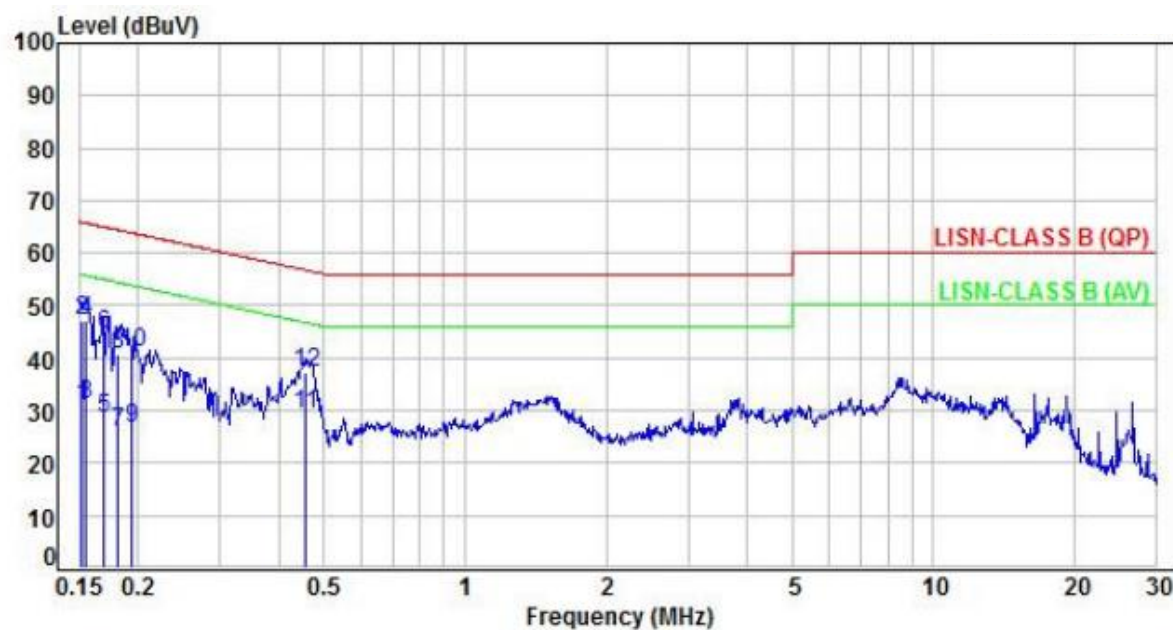
4.3. 傳導干擾之擺設





4.4. 傳導干擾之測試結果及數據

Power	:	DC 3.7V From System (AC 110V / 60Hz)	Pol/Phase	:	LINE
Test Mode	:	Mode 1		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.15	9.97	20.87	30.84	55.88	-25.04	Average	P
2	0.15	9.97	37.36	47.33	65.88	-18.55	QP	P
3	0.15	9.97	21.31	31.28	55.76	-24.48	Average	P
4	0.15	9.97	37.10	47.07	65.76	-18.69	QP	P
5	0.17	9.97	18.65	28.62	54.97	-26.35	Average	P
6	0.17	9.97	34.51	44.48	64.97	-20.49	QP	P
7	0.18	9.97	15.73	25.70	54.40	-28.70	Average	P
8	0.18	9.97	30.84	40.81	64.40	-23.59	QP	P
9	0.19	9.97	16.82	26.79	53.83	-27.04	Average	P
10	0.19	9.97	31.01	40.98	63.83	-22.85	QP	P
11	0.45	9.98	19.36	29.34	46.80	-17.46	Average	P
12	0.45	9.98	27.22	37.20	56.80	-19.60	QP	P

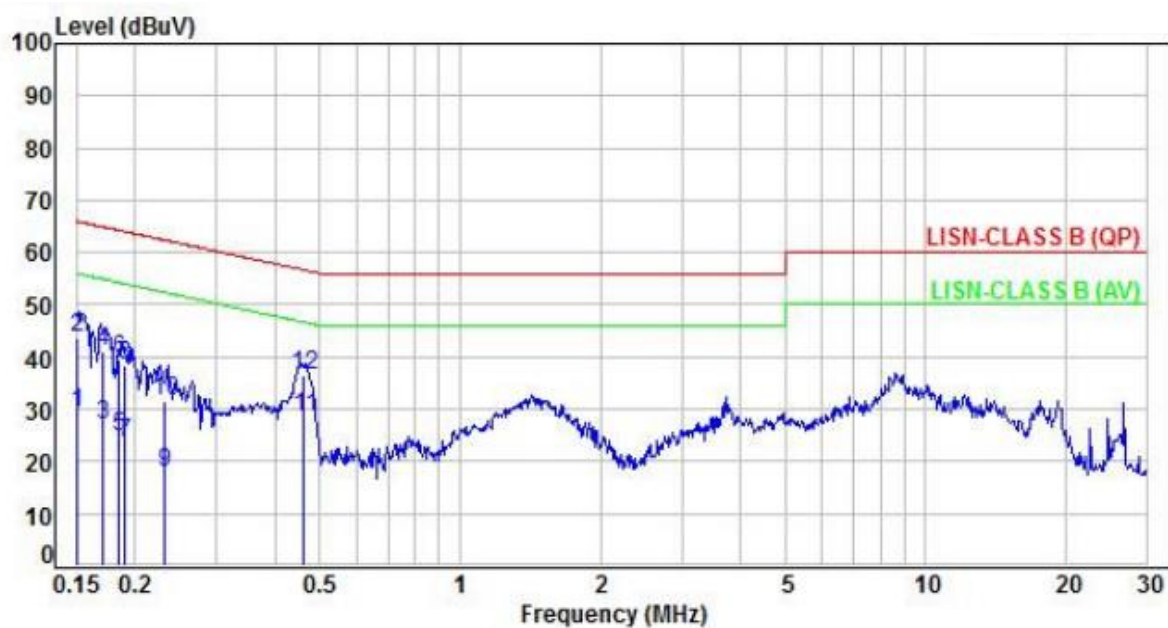
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=(LISN or ISN or Current Probe)Factor + Cable Loss



Power	:	DC 3.7V From System (AC 110V / 60Hz)	Pol/Phase	:	NEUTRAL
Test Mode	:	Mode 1		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV)	Limit (dBUV)	Margin (dB)	Detector	P/F
1	0.15	9.97	19.24	29.21	55.99	-26.78	Average	P
2	0.15	9.97	33.83	43.80	65.99	-22.19	QP	P
3	0.17	9.97	17.04	27.01	54.90	-27.89	Average	P
4	0.17	9.97	30.96	40.93	64.90	-23.97	QP	P
5	0.18	9.97	14.76	24.73	54.30	-29.57	Average	P
6	0.18	9.97	29.66	39.63	64.30	-24.67	QP	P
7	0.19	9.97	13.69	23.66	54.00	-30.34	Average	P
8	0.19	9.97	28.39	38.36	64.00	-25.64	QP	P
9	0.23	9.97	7.91	17.88	52.38	-34.50	Average	P
10	0.23	9.97	21.65	31.62	62.38	-30.76	QP	P
11	0.46	9.98	18.46	28.44	46.65	-18.21	Average	P
12	0.46	9.98	26.71	36.69	56.65	-19.96	QP	P

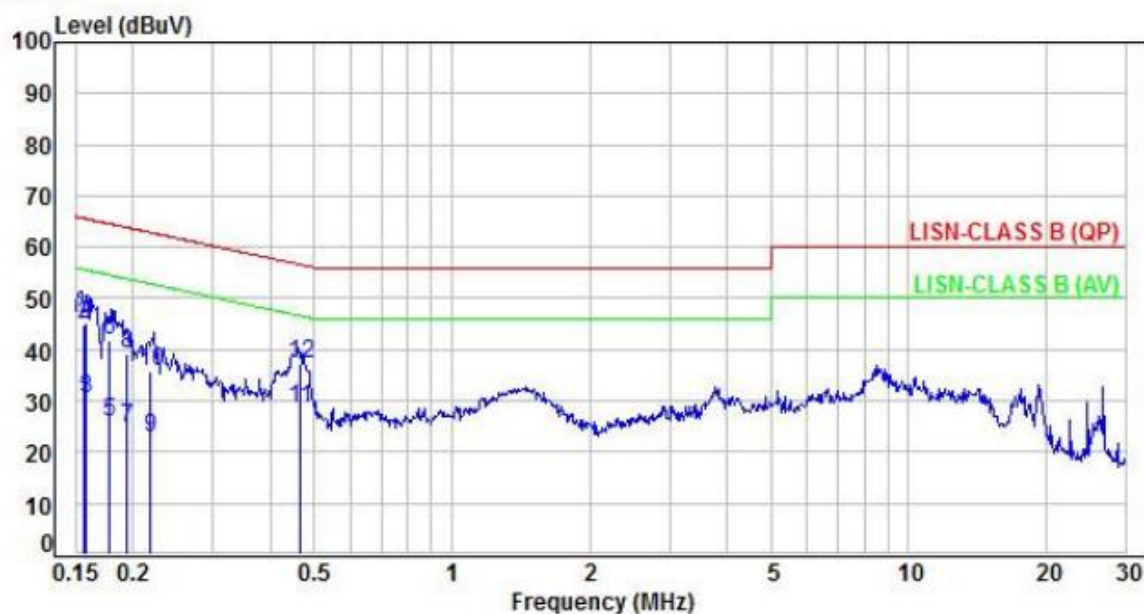
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=(LISN or ISN or Current Probe)Factor + Cable Loss



Power	:	DC 3.7V From System (AC 110V / 60Hz)	Pol/Phase	:	LINE
Test Mode	:	Mode 2		:	

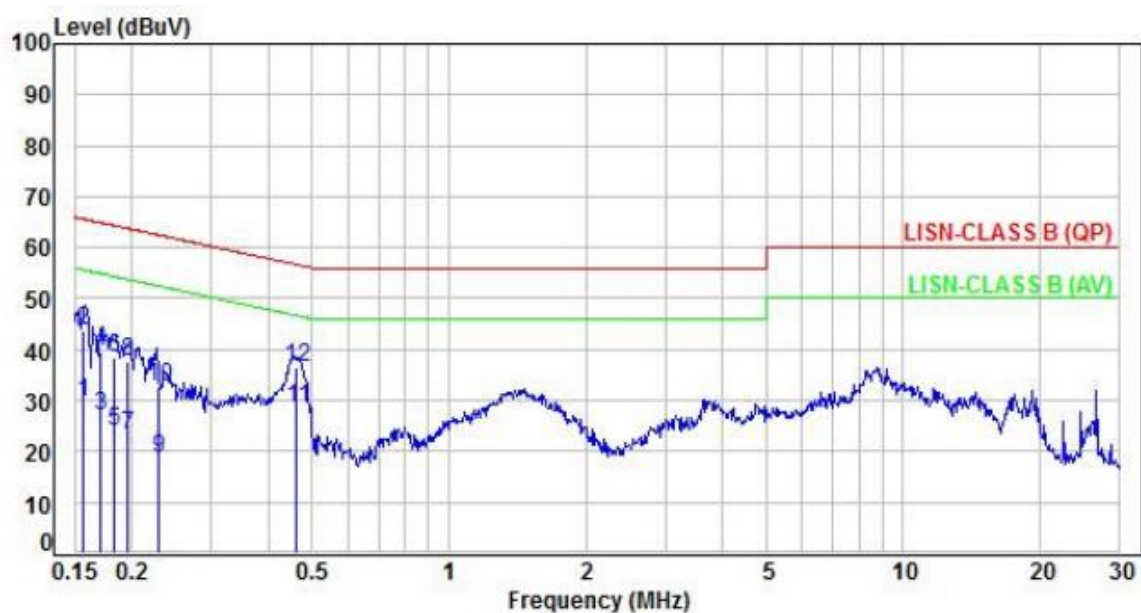


No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV)	Limit (dBUV)	Margin (dB)	Detector	P/F
1	0.16	9.97	20.22	30.19	55.64	-25.45	Average	P
2	0.16	9.97	34.91	44.88	65.64	-20.76	QP	P
3	0.16	9.97	20.39	30.36	55.55	-25.19	Average	P
4	0.16	9.97	35.16	45.13	65.55	-20.42	QP	P
5	0.18	9.97	15.87	25.84	54.60	-28.76	Average	P
6	0.18	9.97	31.69	41.66	64.60	-22.94	QP	P
7	0.19	9.97	14.64	24.61	53.84	-29.23	Average	P
8	0.19	9.97	29.34	39.31	63.84	-24.53	QP	P
9	0.22	9.97	12.98	22.95	52.86	-29.91	Average	P
10	0.22	9.97	25.88	35.85	62.86	-27.01	QP	P
11	0.46	9.98	18.47	28.45	46.62	-18.17	Average	P
12	0.46	9.98	27.42	37.40	56.62	-19.22	QP	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=(LISN or ISN or Current Probe)Factor + Cable Loss



Power	:	DC 3.7V From System (AC 110V / 60Hz)	Pol/Phase	:	NEUTRAL
Test Mode	:	Mode 2		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV)	Limit (dBUV)	Margin (dB)	Detector	P/F
1	0.16	9.97	19.86	29.83	55.67	-25.84	Average	P
2	0.16	9.97	33.74	43.71	65.67	-21.96	QP	P
3	0.17	9.97	16.86	26.83	54.91	-28.08	Average	P
4	0.17	9.97	29.73	39.70	64.91	-25.21	QP	P
5	0.18	9.97	14.04	24.01	54.34	-30.33	Average	P
6	0.18	9.97	28.51	38.48	64.34	-25.86	QP	P
7	0.20	9.97	13.27	23.24	53.77	-30.53	Average	P
8	0.20	9.97	27.84	37.81	63.77	-25.96	QP	P
9	0.23	9.97	8.68	18.65	52.45	-33.80	Average	P
10	0.23	9.97	22.86	32.83	62.45	-29.62	QP	P
11	0.46	9.98	18.66	28.64	46.66	-18.02	Average	P
12	0.46	9.98	26.65	36.63	56.66	-20.03	QP	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=(LISN or ISN or Current Probe)Factor + Cable Loss



5. 輻射之量測規定

5.1. 適用標準

依據國家通訊傳播委員會低功率射頻器材技術規範 4.10.1.5 節之要求，落於 3.5 節禁用頻段之輻射干擾需符合 3.6 節之一般限制要求：

頻率(MHz)	測試距離(m)	限制值(dB μ V)	限制值(μ V/m)
0.009 – 0.490 (含)	300	67.6 / f(kHz)	2400 / f(kHz)
0.490 (不含) – 1.705 (含)	30	87.6 / f(kHz)	24000 / f(kHz)
1.705(不含) – 30(不含)	30	29.5	30
30 (含) – 88 (含)	3	40.0	100
88(不含) – 216 (含)	3	43.5	150
216(不含) – 960 (含)	3	46.0	200
960(不含)以上	3	54.0	500

5.2. 測試方法

將待測物置於 0.8 米(Below 1G) & 1.5 米(Above 1G)高的非金屬桌面，使其在測試模式狀態，且設定為高、中、低各頻道產生最高峰值輸出功率的傳輸速率，接收天線置於 3 米外，且桌面要 360 度旋轉，另外接收天線也要從 1 米至 4 米升降變化，接收天線置於水平、垂直極向各執行測試一次。如待測物可以三軸相放置，並分別測試以找出最大輻射電場強度(最差的結果為 Z 軸)。

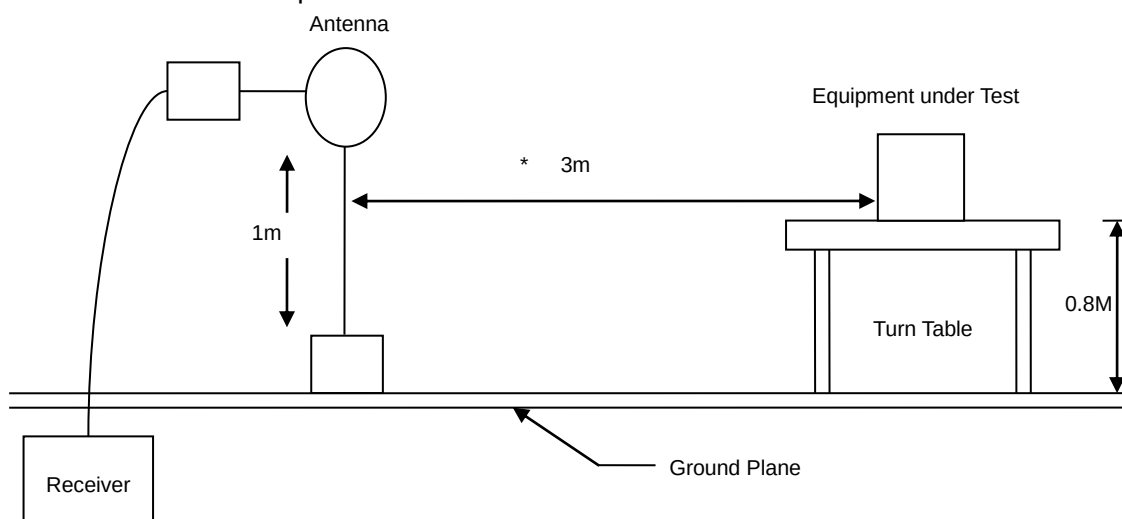
備註：

1.For Below 1G 若待測物之輻射峰值低於限制值 3dB 以上，則將終止測試，並以峰值之讀值作為報告之記錄;反之，若無 3dB 餘裕範圍之輻射，則每一訊號皆以準峰值之測試方法量測，並記錄於報告之中

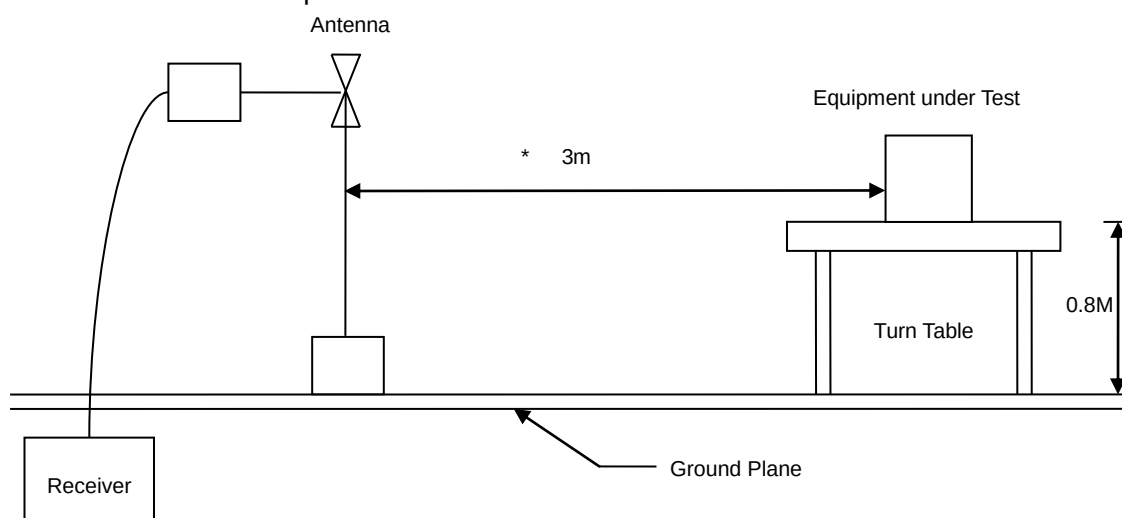
2.Due to the test software function limit the operation band setting(200dBuV/m). There's no corresponding limitation in the actual test item.

5.3. 輻射場地之擺設

Below 30MHz test setup

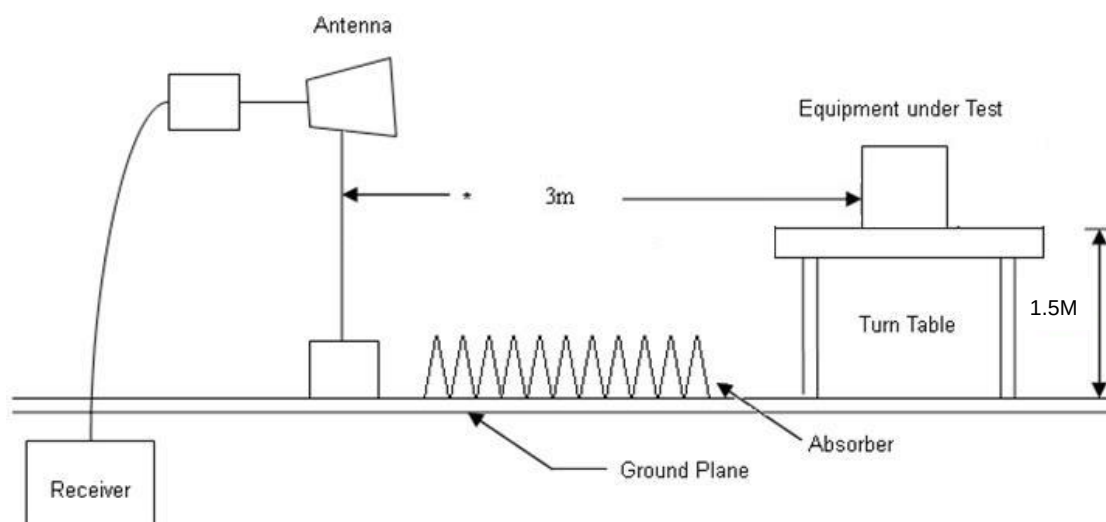


30MHz- 1GHz Test Setup





Above 1GHz Test Setup



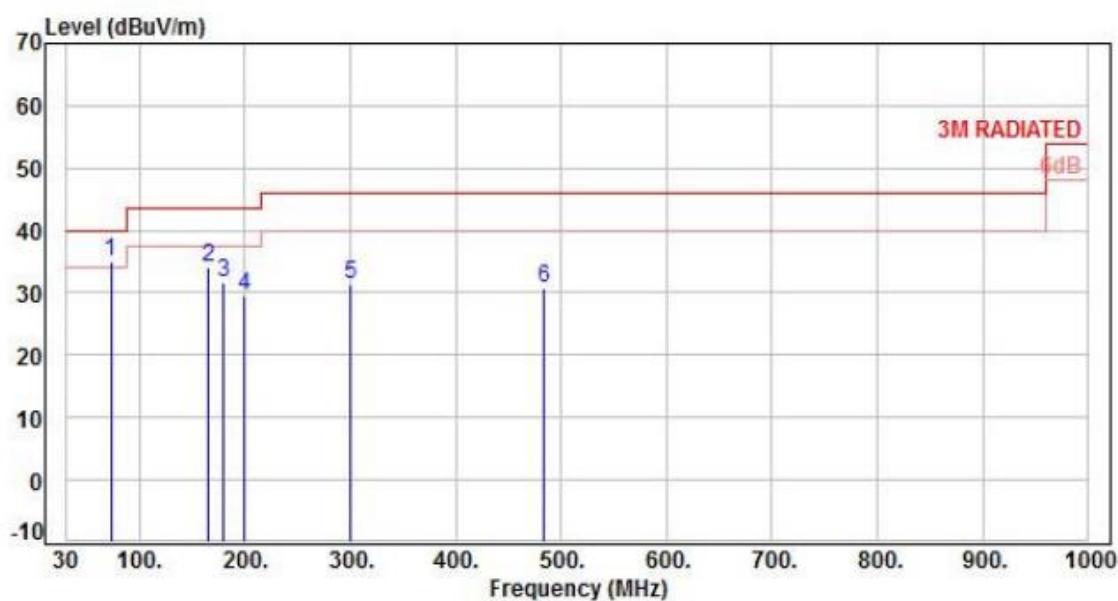


5.4. 輻射之測試結果及數據 (9kHz ~ 30MHz)

The 9kHz - 30MHz spurious emission is under limit 20dB more.

5.5. 輻射之測試結果及數據 (30MHz ~ 1GHz)

Power	:	DC 3.7V From System (AC 110V / 60Hz)	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	72.68	-14.01	49.08	35.07	40.00	-4.93	Peak	400	360	P
2	165.80	-11.96	46.07	34.11	43.50	-9.39	Peak	400	360	P
3	179.38	-13.03	44.69	31.66	43.50	-11.84	Peak	400	360	P
4	198.78	-13.37	42.93	29.56	43.50	-13.94	Peak	400	360	P
5	299.66	-10.62	42.01	31.39	46.00	-14.61	Peak	400	360	P
6	483.96	-5.99	36.89	30.90	46.00	-15.10	Peak	400	360	P

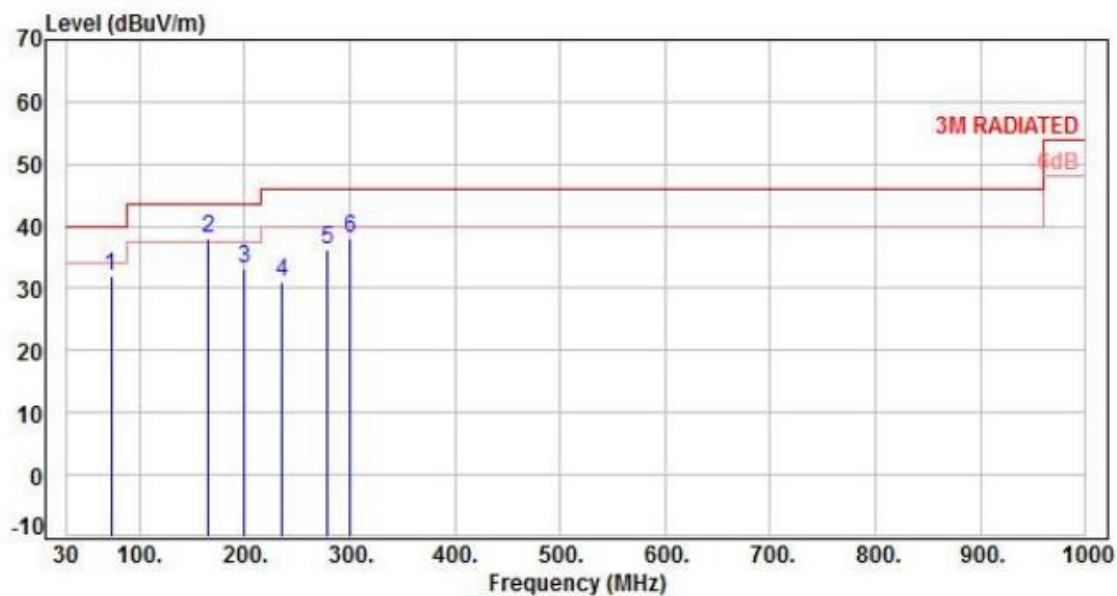
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 3.7V From System (AC 110V / 60Hz)	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 1		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	72.68	-14.01	46.11	32.10	40.00	-7.90	QP	150	178	P
2	165.80	-11.96	50.09	38.13	43.50	-5.37	Peak	400	0	P
3	198.78	-13.37	46.69	33.32	43.50	-10.18	Peak	400	0	P
4	235.64	-13.35	44.40	31.05	46.00	-14.95	Peak	400	0	P
5	278.32	-11.07	47.22	36.15	46.00	-9.85	Peak	400	0	P
6	299.66	-10.62	48.64	38.02	46.00	-7.98	Peak	400	0	P

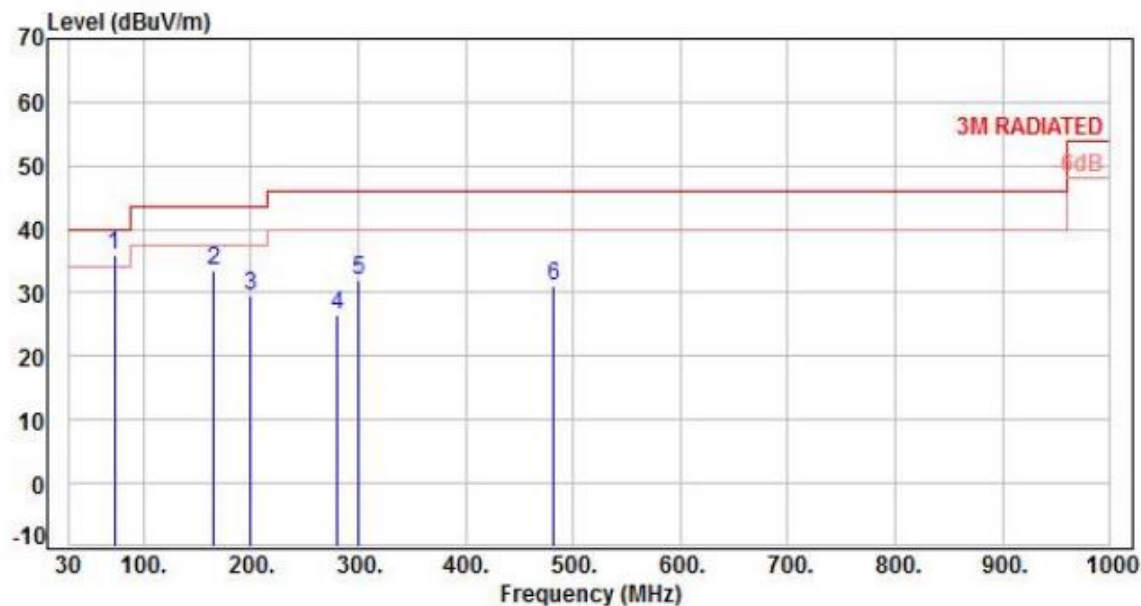
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 3.7V From System (AC 110V / 60Hz)	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 2		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	72.68	-14.01	50.04	36.03	40.00	-3.97	Peak	400	360	P
2	165.80	-11.96	45.38	33.42	43.50	-10.08	Peak	400	360	P
3	198.78	-13.37	42.95	29.58	43.50	-13.92	Peak	400	360	P
4	280.26	-11.03	37.63	26.60	46.00	-19.40	Peak	400	360	P
5	299.66	-10.62	42.60	31.98	46.00	-14.02	Peak	400	360	P
6	482.02	-6.05	37.23	31.18	46.00	-14.82	Peak	400	360	P

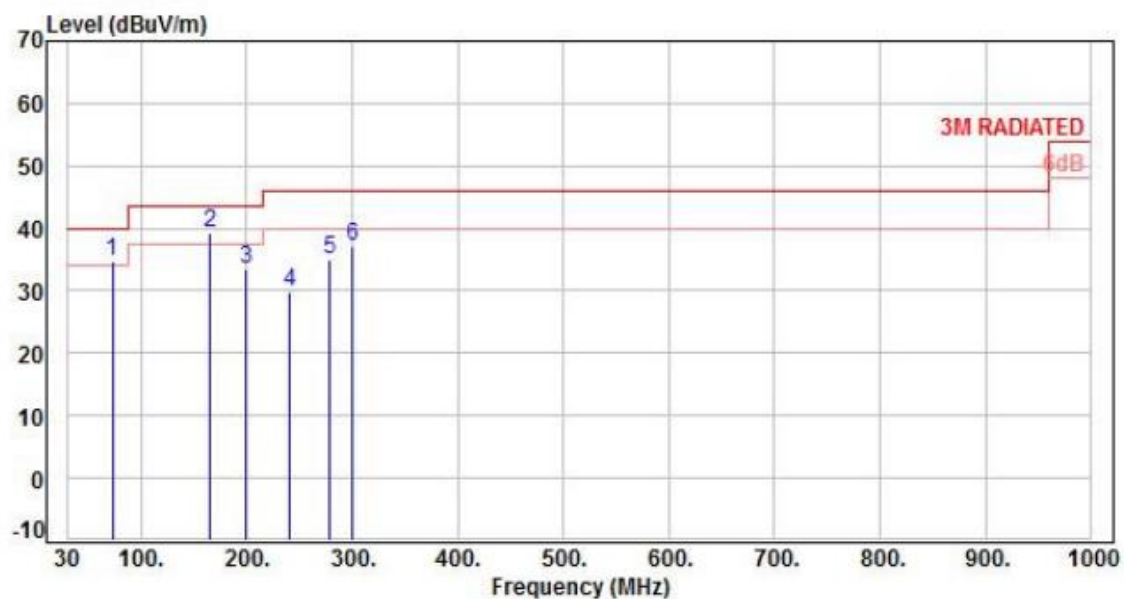
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 3.7V From System (AC 110V / 60Hz)	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 2		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	72.68	-14.01	48.81	34.80	40.00	-5.20	QP	200	174	P
2	165.80	-11.96	51.11	39.15	43.50	-4.35	Peak	400	0	P
3	198.78	-13.37	46.96	33.59	43.50	-9.91	Peak	400	0	P
4	241.46	-12.63	42.59	29.96	46.00	-16.04	Peak	400	0	P
5	278.32	-11.07	46.01	34.94	46.00	-11.06	Peak	400	0	P
6	299.66	-10.62	47.78	37.16	46.00	-8.84	Peak	400	0	P

Note: Level=Reading+Factor

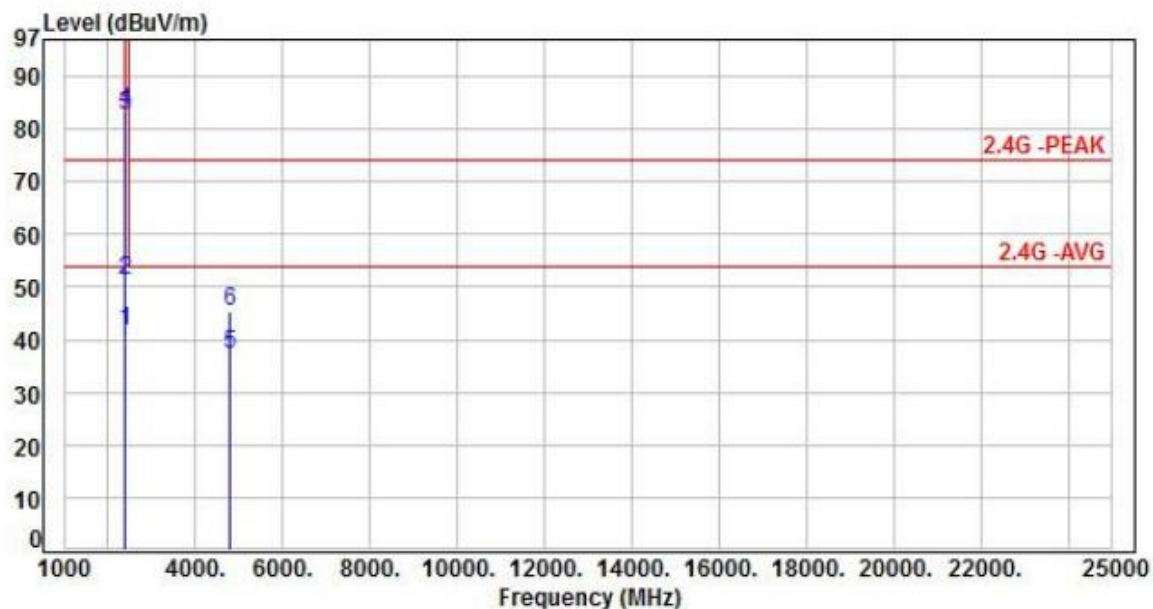
Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



5.6. 輻射之測試結果及數據 (1GHz ~ 25GHz)

Power	:	DC 3.7V From System (AC 110V / 60Hz)	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1, CH00		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.54	45.31	41.77	54.00	-12.23	Average	100	169	P
2	2390.00	-3.54	54.71	51.17	74.00	-22.83	Peak	100	169	P
3	2402.00	-3.51	86.06	82.55	200.00	-117.45	Average	100	169	P
4	2402.00	-3.51	86.92	83.41	200.00	-116.59	Peak	100	169	P
5	4804.00	3.76	33.44	37.20	54.00	-16.80	Average	100	157	P
6	4804.00	3.76	41.61	45.37	74.00	-28.63	Peak	100	157	P

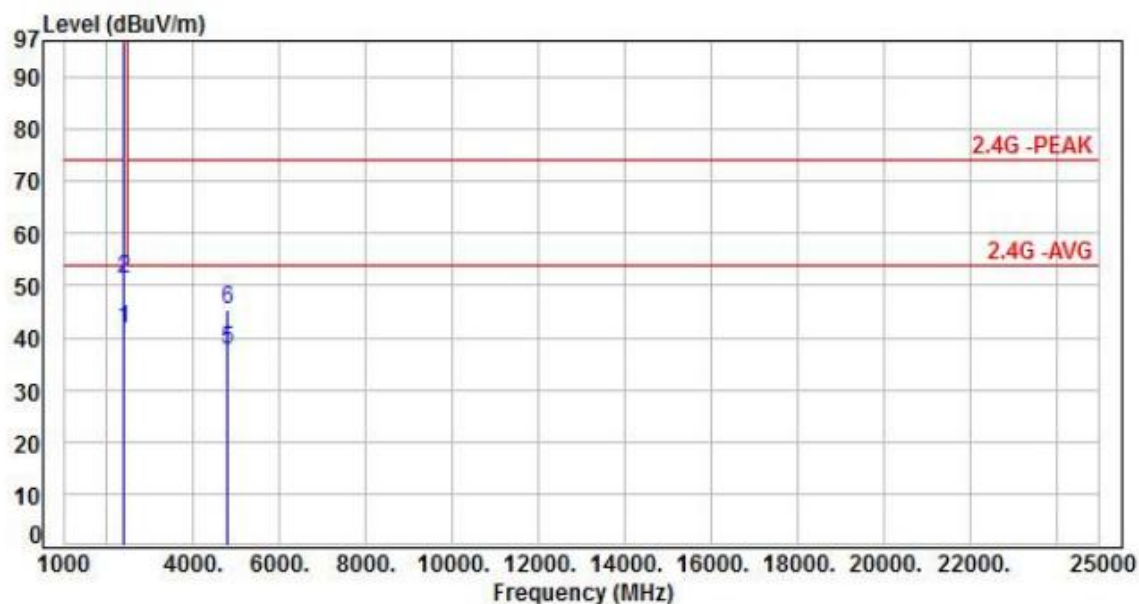
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 3.7V From System (AC 110V / 60Hz)	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 1, CH00		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.54	45.19	41.65	54.00	-12.35	Average	297	261	P
2	2390.00	-3.54	54.93	51.39	74.00	-22.61	Peak	297	261	P
3	2402.00	-3.51	99.51	96.00	200.00	-104.00	Average	297	261	P
4	2402.00	-3.51	100.03	96.52	200.00	-103.48	Peak	297	261	P
5	4804.00	3.76	33.85	37.61	54.00	-16.39	Average	100	190	P
6	4804.00	3.76	41.77	45.53	74.00	-28.47	Peak	100	190	P

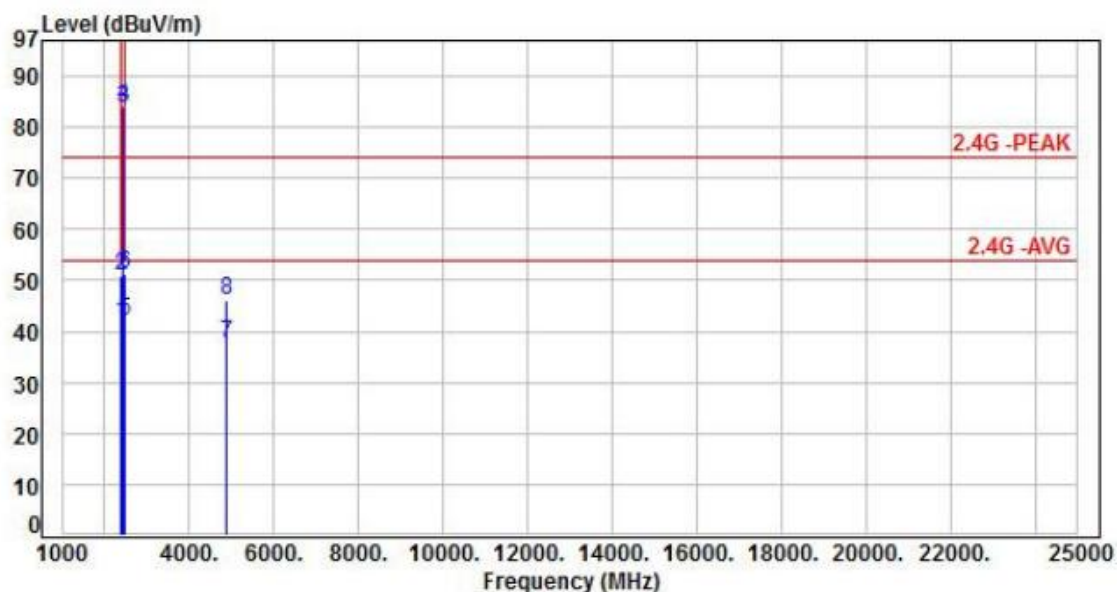
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 3.7V From System (AC 110V / 60Hz)	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1, CH19		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.54	45.22	41.68	54.00	-12.32	Average	100	171	P
2	2390.00	-3.54	54.33	50.79	74.00	-23.21	Peak	100	171	P
3	2440.00	-3.47	87.03	83.56	200.00	-116.44	Average	100	171	P
4	2440.00	-3.47	87.74	84.27	200.00	-115.73	Peak	100	171	P
5	2483.50	-3.30	45.18	41.88	54.00	-12.12	Average	100	171	P
6	2483.50	-3.30	54.44	51.14	74.00	-22.86	Peak	100	171	P
7	4880.00	4.01	33.75	37.76	54.00	-16.24	Average	100	203	P
8	4880.00	4.01	41.97	45.98	74.00	-28.02	Peak	100	203	P

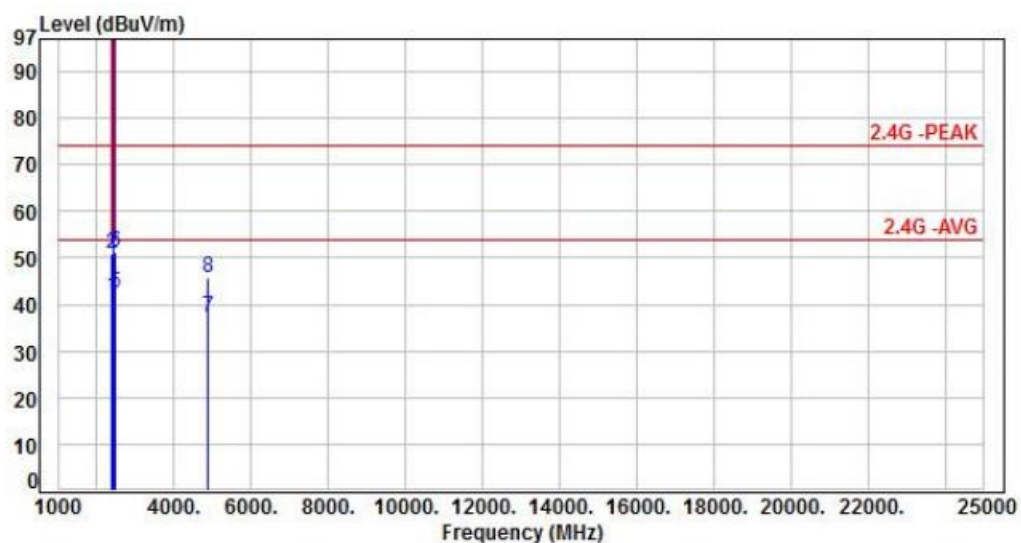
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 3.7V From System (AC 110V / 60Hz)	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 1, CH19		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.54	45.16	41.62	54.00	-12.38	Average	223	269	P
2	2390.00	-3.54	54.41	50.87	74.00	-23.13	Peak	223	269	P
3	2440.00	-3.47	99.90	96.43	200.00	-103.57	Average	223	269	P
4	2440.00	-3.47	100.57	97.10	200.00	-102.90	Peak	223	269	P
5	2483.50	-3.30	45.63	42.33	54.00	-11.67	Average	223	269	P
6	2483.50	-3.30	54.51	51.21	74.00	-22.79	Peak	223	269	P
7	4880.00	4.01	33.17	37.18	54.00	-16.82	Average	100	191	P
8	4880.00	4.01	41.78	45.79	74.00	-28.21	Peak	100	191	P

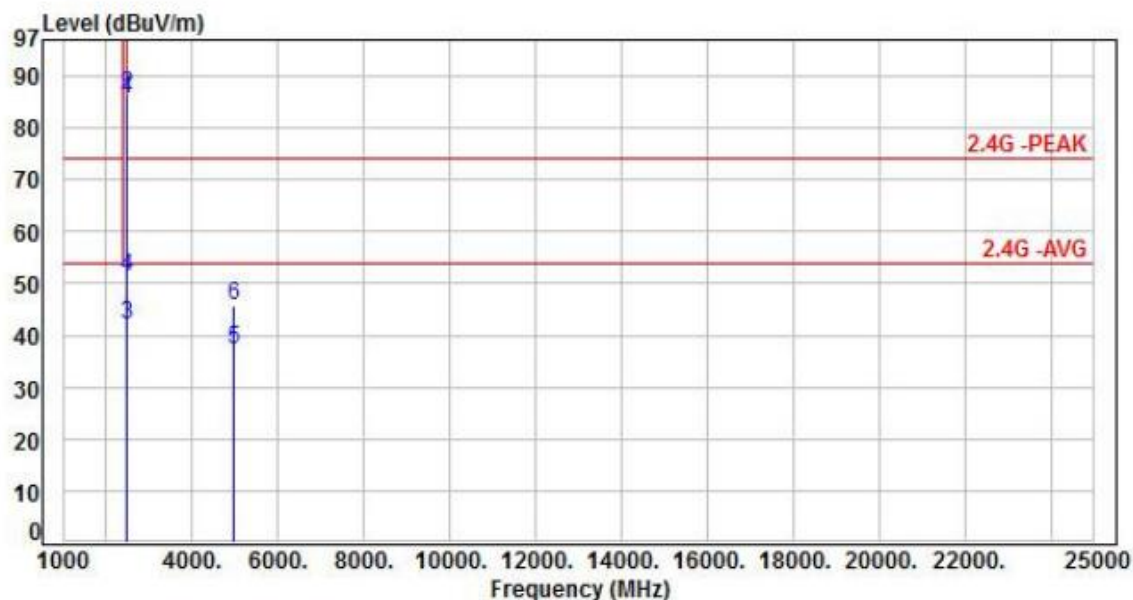
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 3.7V From System (AC 110V / 60Hz)	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1, CH39		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2480.00	-3.31	89.06	85.75	200.00	-114.25	Average	100	169	P
2	2480.00	-3.31	89.76	86.45	200.00	-113.55	Peak	100	169	P
3	2483.50	-3.30	45.25	41.95	54.00	-12.05	Average	100	169	P
4	2483.50	-3.30	54.69	51.39	74.00	-22.61	Peak	100	169	P
5	4960.00	4.35	33.04	37.39	54.00	-16.61	Average	100	158	P
6	4960.00	4.35	41.53	45.88	74.00	-28.12	Peak	100	158	P

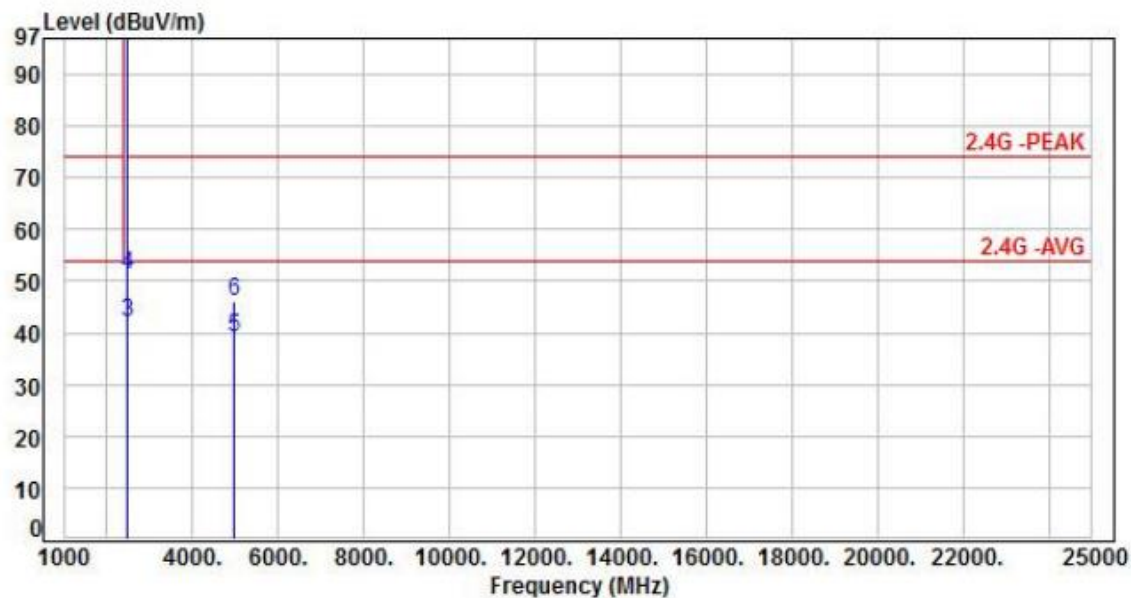
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 3.7V From System (AC 110V / 60Hz)	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 1, CH39		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2480.00	-3.31	102.03	98.72	200.00	-101.28	Average	247	264	P
2	2480.00	-3.31	102.74	99.43	200.00	-100.57	Peak	247	264	P
3	2483.50	-3.30	45.18	41.88	54.00	-12.12	Average	247	264	P
4	2483.50	-3.30	54.40	51.10	74.00	-22.90	Peak	247	264	P
5	4960.00	4.35	34.66	39.01	54.00	-14.99	Average	100	326	P
6	4960.00	4.35	41.76	46.11	74.00	-27.89	Peak	100	326	P

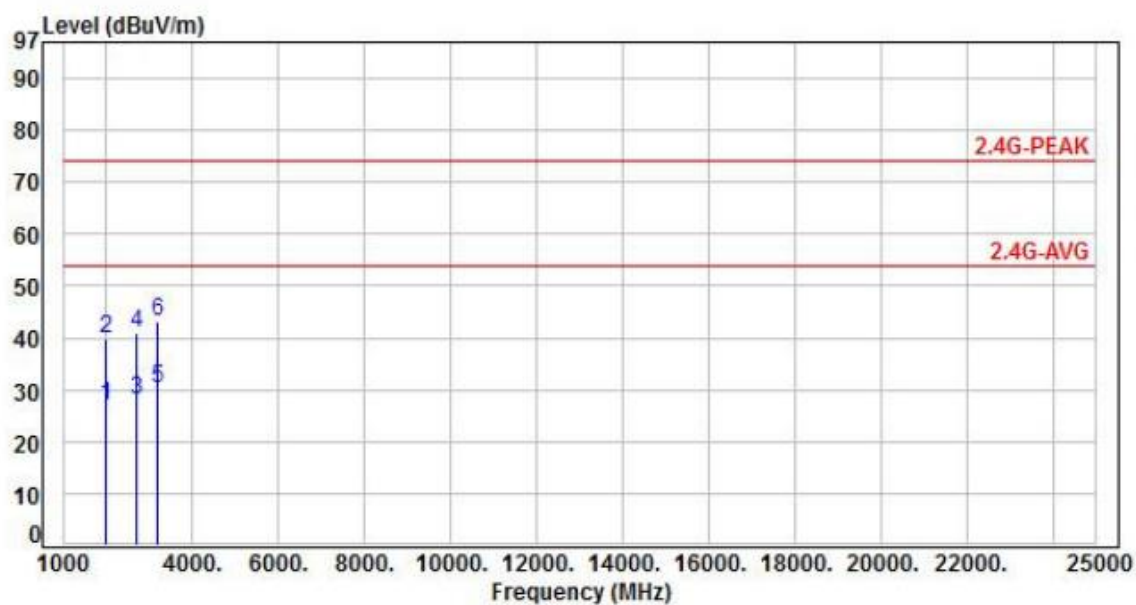
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 3.7V From System (AC 110V / 60Hz)	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 2, CH00		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2000.00	-4.72	31.59	26.87	54.00	-27.13	Average	100	129	P
2	2000.00	-4.72	44.64	39.92	74.00	-34.08	Peak	100	129	P
3	2700.00	-2.83	30.95	28.12	54.00	-25.88	Average	100	220	P
4	2700.00	-2.83	43.94	41.11	74.00	-32.89	Peak	100	220	P
5	3200.00	-0.23	30.48	30.25	54.00	-23.75	Average	100	288	P
6	3200.00	-0.23	43.50	43.27	74.00	-30.73	Peak	100	288	P

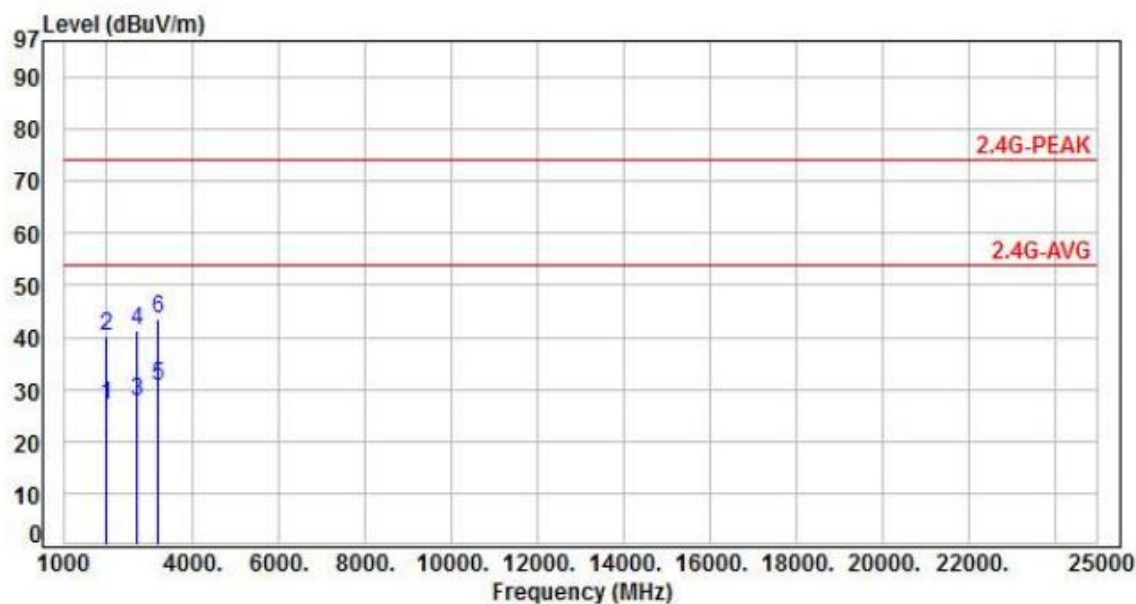
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 3.7V From System (AC 110V / 60Hz)	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 2, CH00		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2000.00	-4.72	31.46	26.74	54.00	-27.26	Average	100	254	P
2	2000.00	-4.72	44.92	40.20	74.00	-33.80	Peak	100	254	P
3	2700.00	-2.83	30.67	27.84	54.00	-26.16	Average	100	312	P
4	2700.00	-2.83	44.07	41.24	74.00	-32.76	Peak	100	312	P
5	3200.00	-0.23	30.66	30.43	54.00	-23.57	Average	100	236	P
6	3200.00	-0.23	43.57	43.34	74.00	-30.66	Peak	100	236	P

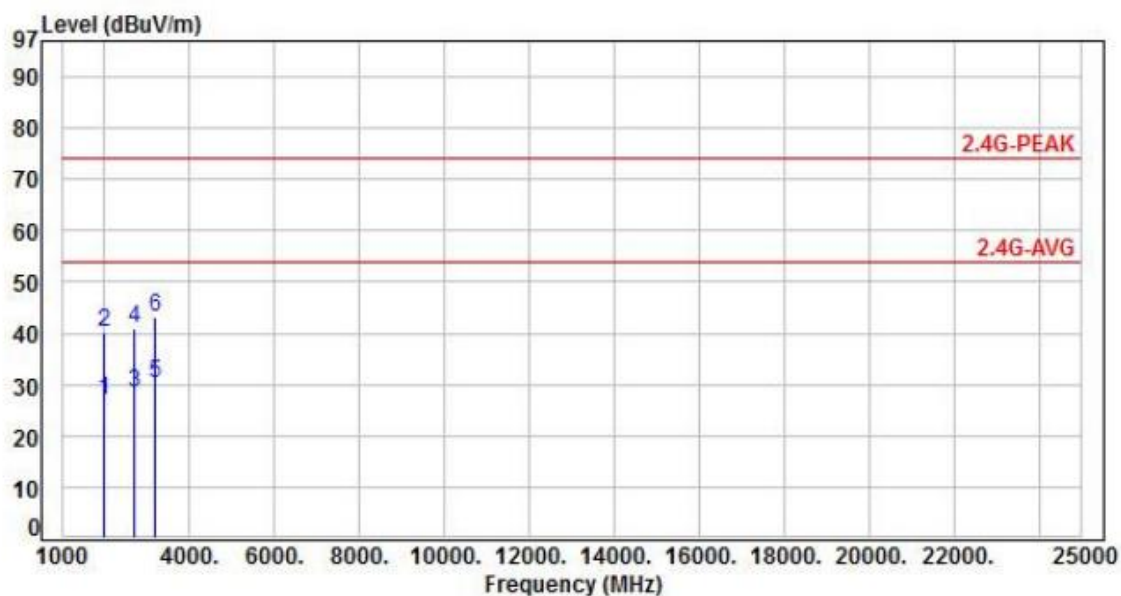
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 3.7V From System (AC 110V / 60Hz)	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 2, CH19		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2000.00	-4.72	31.69	26.97	54.00	-27.03	Average	100	146	P
2	2000.00	-4.72	45.02	40.30	74.00	-33.70	Peak	100	146	P
3	2700.00	-2.83	31.24	28.41	54.00	-25.59	Average	100	251	P
4	2700.00	-2.83	43.77	40.94	74.00	-33.06	Peak	100	251	P
5	3200.00	-0.23	30.47	30.24	54.00	-23.76	Average	100	306	P
6	3200.00	-0.23	43.33	43.10	74.00	-30.90	Peak	100	306	P

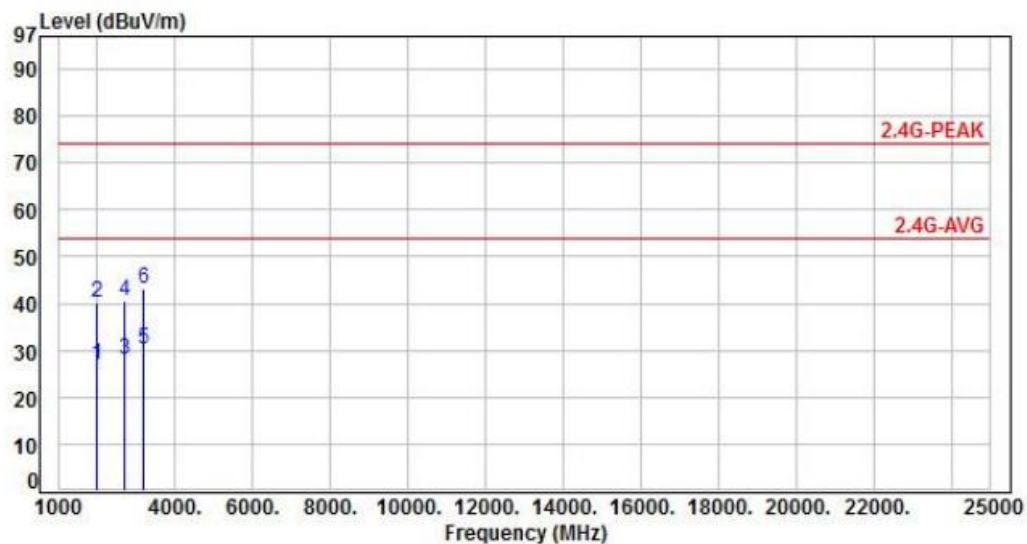
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 3.7V From System (AC 110V / 60Hz)	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 2, CH19		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2000.00	-4.72	31.65	26.93	54.00	-27.07	Average	100	271	P
2	2000.00	-4.72	44.92	40.20	74.00	-33.80	Peak	100	271	P
3	2700.00	-2.83	30.91	28.08	54.00	-25.92	Average	100	337	P
4	2700.00	-2.83	43.48	40.65	74.00	-33.35	Peak	100	337	P
5	3200.00	-0.23	30.59	30.36	54.00	-23.64	Average	100	214	P
6	3200.00	-0.23	43.46	43.23	74.00	-30.77	Peak	100	214	P

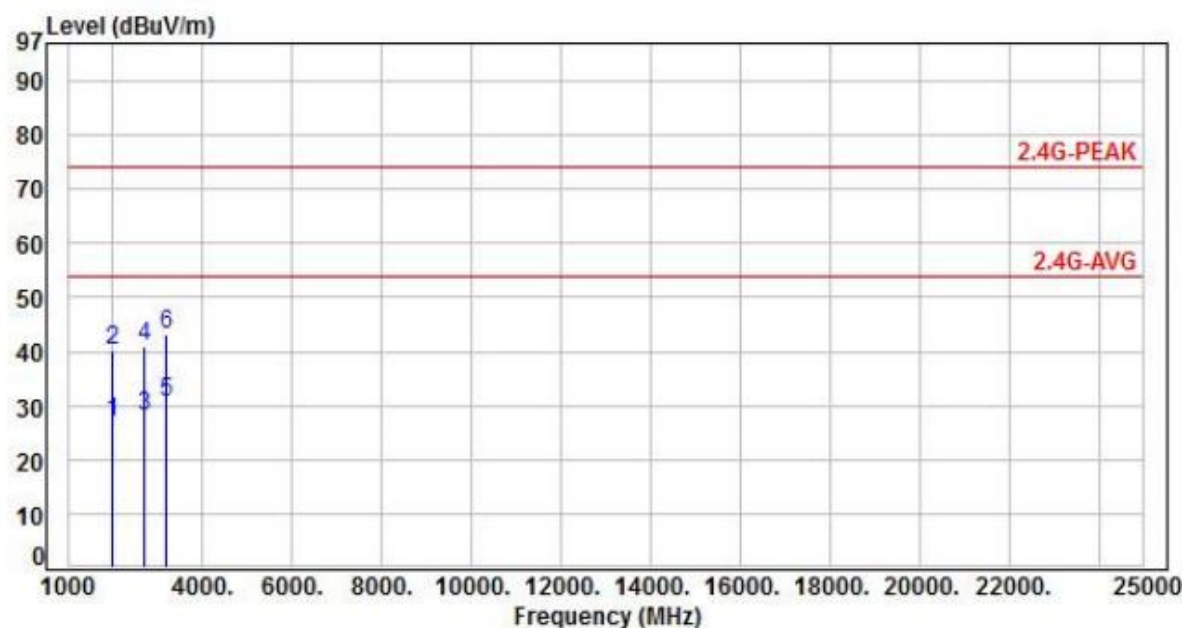
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 3.7V From System (AC 110V / 60Hz)	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 2, CH39		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/I
1	2000.00	-4.72	31.57	26.85	54.00	-27.15	Average	100	134	P
2	2000.00	-4.72	44.74	40.02	74.00	-33.98	Peak	100	134	P
3	2700.00	-2.83	30.93	28.10	54.00	-25.90	Average	100	239	P
4	2700.00	-2.83	43.81	40.98	74.00	-33.02	Peak	100	239	P
5	3200.00	-0.23	30.74	30.51	54.00	-23.49	Average	100	269	P
6	3200.00	-0.23	43.22	42.99	74.00	-31.01	Peak	100	269	P

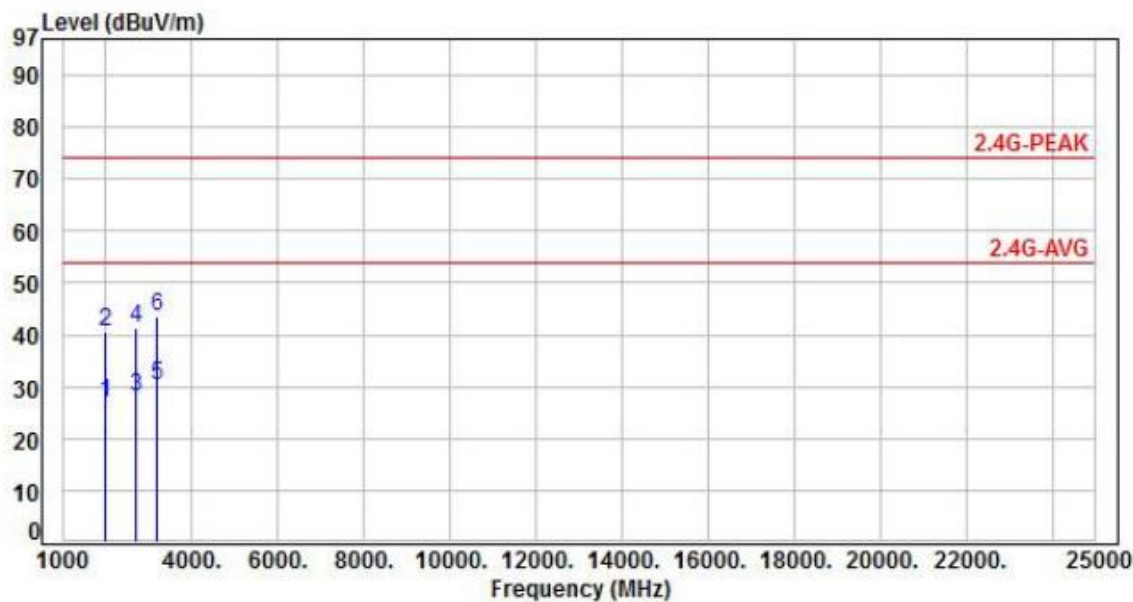
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 3.7V From System (AC 110V / 60Hz)	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 2, CH39		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2000.00	-4.72	31.75	27.03	54.00	-26.97	Average	100	240	P
2	2000.00	-4.72	45.17	40.45	74.00	-33.55	Peak	100	240	P
3	2700.00	-2.83	30.82	27.99	54.00	-26.01	Average	100	296	P
4	2700.00	-2.83	44.02	41.19	74.00	-32.81	Peak	100	296	P
5	3200.00	-0.23	30.40	30.17	54.00	-23.83	Average	100	242	P
6	3200.00	-0.23	43.85	43.62	74.00	-30.38	Peak	100	242	P

Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



6. On Time, Duty Cycle and Measurement methods

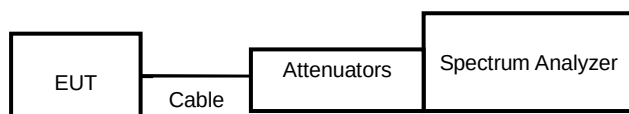
6.1. 適用標準

None; for reporting purposes only.

6.2. 測試方法

ANSI 63.10 第11.6節 Duty cycle zero-span mode Method.

6.3. 測試配置



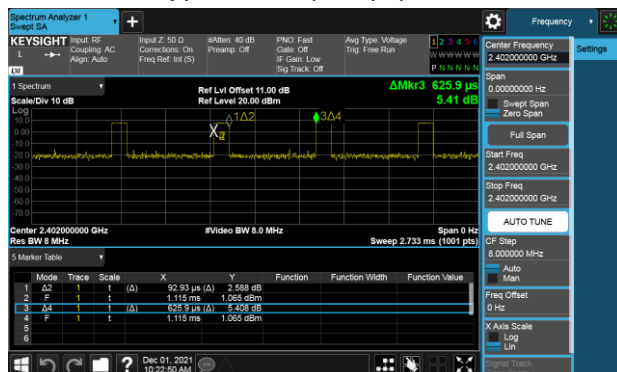
6.4. 測試結果及數據

Modulation Type	On Time (ms)	Period Time (ms)	Duty Cycle (%)
GFSK	0.09	0.63	14.85%

備註：繪圖資料請參考下頁。



Modulation Type: GFSK(1Mbps)





7. 6dB 頻寬之規定

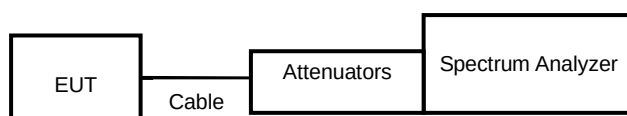
7.1. 適用標準

對使用數位調變技術之低功率發射機，依據國家通訊傳播委員會低功率射頻器材技術規範 4.10.1.6 節之(2)(A)規定，6dB 頻寬至少應有 500 kHz。

7.2. 測試方法

- 將待測物和儀器相連接。
- 設定儀器解析頻寬 100KHz 和視訊頻寬為 300KHz。
- 量測峰值減去 6 dB 之頻寬並記錄於報告中。

7.3. 測試配置



7.4. 6dB 頻寬之測試結果及數據

Modulation Type	Channel	Frequency (MHz)	6dB Bandwidth (KHz)	Limit (KHz)
GFSK(1Mbps)	0	2402	684.00	500
	19	2440	684.00	500
	39	2480	684.00	500

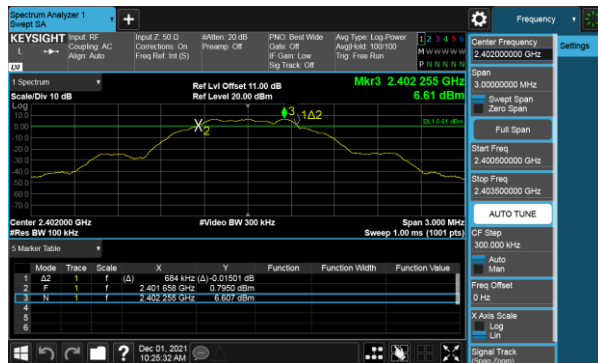
備註：繪圖資料請參考下頁。

7.5. 結果判定

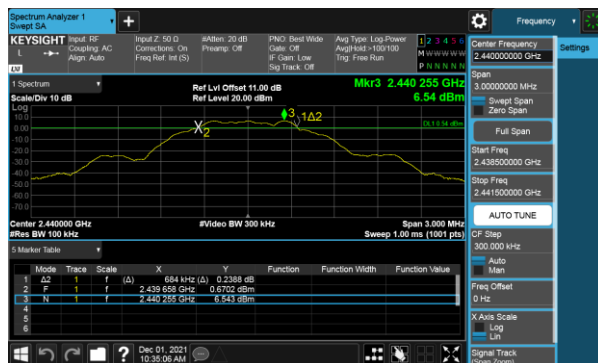
高、中、低頻段的 6dB 頻寬皆大於 500 KHz，合乎標準規定。



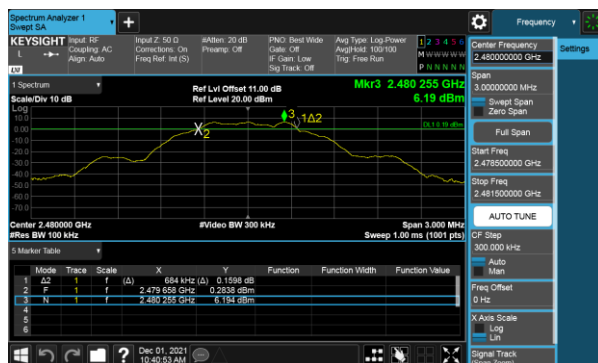
Modulation Type: GFSK(1Mbps) CH00



Modulation Type: GFSK(1Mbps) CH19



Modulation Type: GFSK(1Mbps) CH39





8. 最大傳導輸出功率之規定

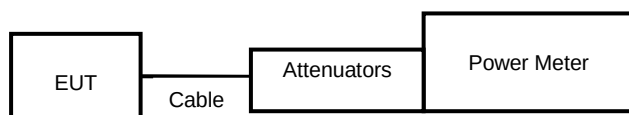
8.1. 適用標準

依據國家通訊傳播委員會低功率射頻器材技術規範 4.10.1.2 節(1)(C)之規定，對使用數位調變技術之低功率發射機，其輸出功率不得大於 1 Watt，且其所使用天線之增益不可大於 6dBi，若使用大於 6dBi 增益之天線，則其輸出功率相對需衰減天線增益所增加之量(單位為 dB)。放寬之條件請參考天線增益之要求。

8.2. 測試方法

- 將待測物和儀器相連接。
- 量測輸出功率並記錄於報告中。

8.3. 測試配置



8.4. 輸出功率之測試結果及數據

BT5(1M bps)

Power Set	Modulation Type	Channel	Frequency (MHz)	Power Output (dBm)	Power Output (mW)
				Average	Average
7	GFSK	0	2402	7.15	5.188
7		19	2440	7.06	5.082
7		39	2480	6.61	4.581

8.5. 結果判定

高、中、低頻段的最大傳導輸出功率皆低於 30 dBm，合乎標準規定。



9. 混附波發射限制之規定

9.1. 適用方法

依據國家通訊傳播委員會低功率射頻器材技術規範 4.10.1.5 節之規定，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，其衰減值限制如下：

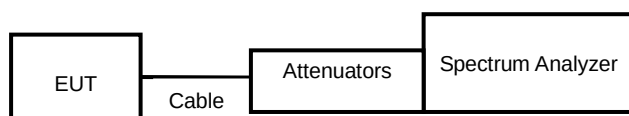
- (1) 輸出功率以峰值輸出功率方式量測者，至少需衰減 20dB，可使用射頻傳導或輻射方式測量。
- (2) 輸出功率以 4.10.1.2(1)(C)之最大傳導輸出功率測量方式者，至少需衰減 30dB，可使用射頻傳導或輻射方式測量。

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。

9.2. 測試方法

1. 將待測物和儀器相連接。
2. 設定儀器解析頻寬為 100 kHz 和視訊頻寬為 300 kHz。
3. 將頻寬展開至 100 MHz。
4. 量測並記錄於報告中。

9.3. 測試配置

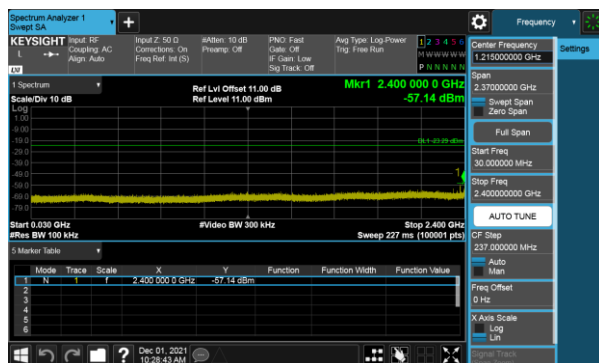
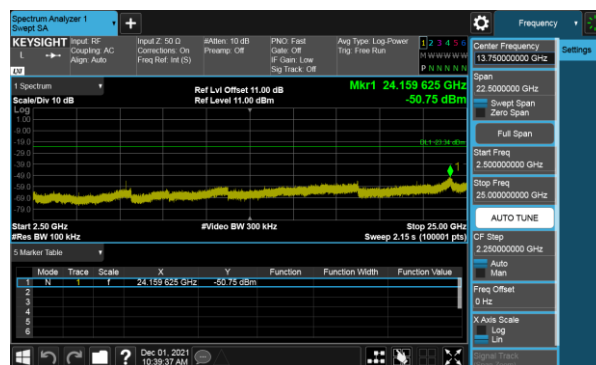
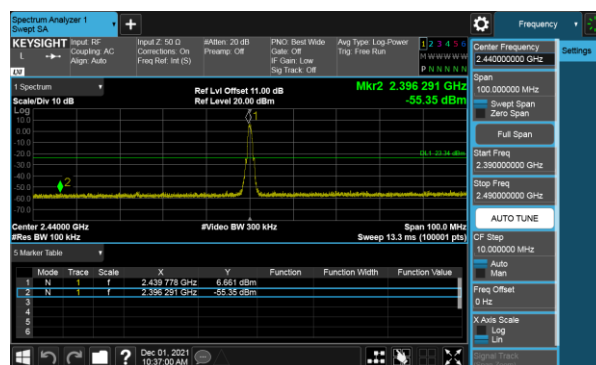
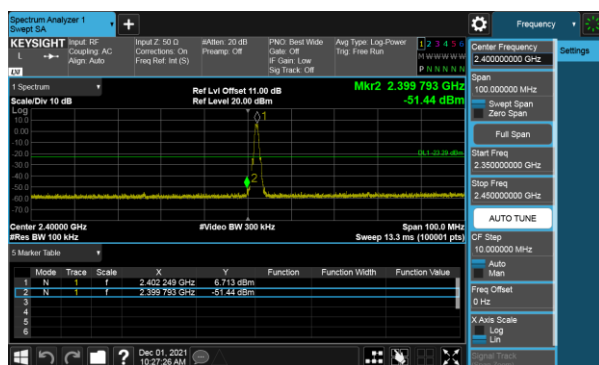
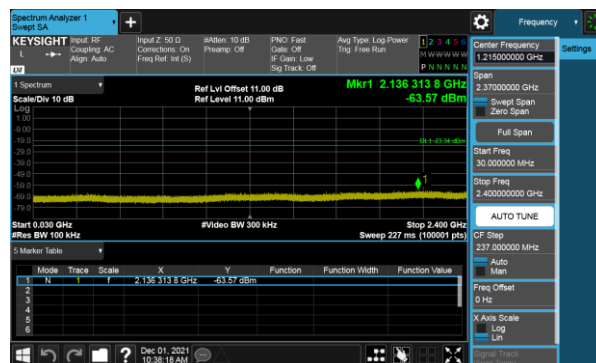


9.4. 結果判定

7.6.1 下邊緣頻帶：距下頻帶邊緣 40MHz 內最大混附波比主波低 30dB 以上，合乎標準規定。

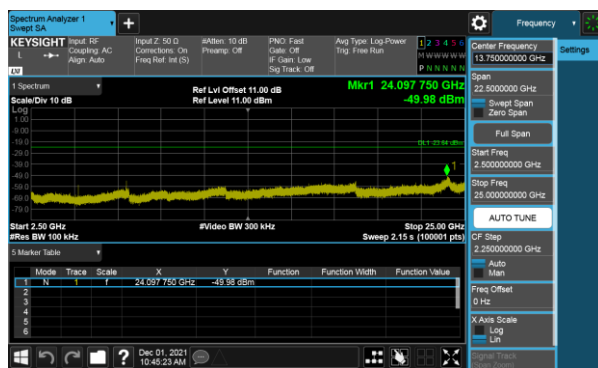
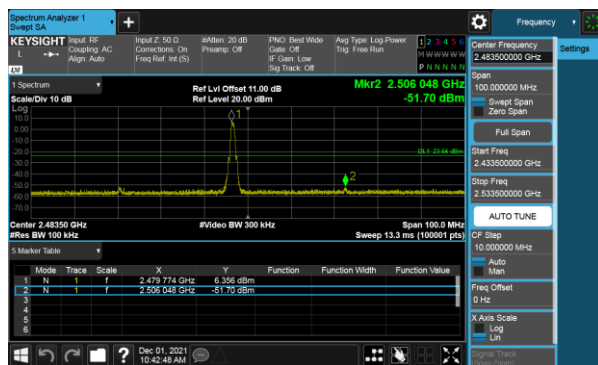
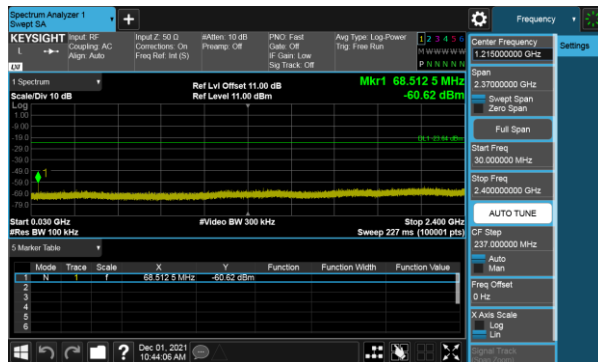
7.6.2 上邊緣頻帶：距上頻帶邊緣 40MHz 內最大混附波比主波低 30dB 以上，合乎標準規定。

備註：繪圖資料請參考下頁。

Modulation Type: GFSK(1Mbps)
CH00Modulation Type: GFSK(1Mbps)
CH19



Modulation Type: GFSK(1Mbps) CH39





10. 功率密度之規定

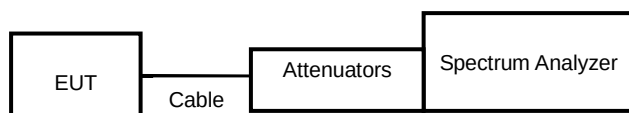
10.1. 適用標準

依據國家通訊傳播委員會低功率射頻器材技術規範 4.10.1.6 節之(2)(B)規定，對數位調變技術系統，由發射機傳導至天線之功率頻譜密度在任意傳輸期間內，皆小於或等於 8 毫分貝(dBm)，且應依 4.10.1.3 之方式降低功率頻譜密度限制值。

10.2. 測試方法

1. 將待測物和儀器相連接。
2. 設定儀器解析頻寬為 10kHz、視訊頻寬為 30 kHz。
3. 量測並記錄於報告中。

10.3. 測試配置



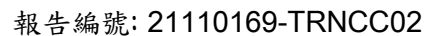
10.4. 功率密度之量測結果及數據

Modulation Type	Channel	Frequency (MHz)	Maximum Power Density of 3KHz Bandwidth(dBm)	Limit
GFSK(1Mbps)	0	2402	-12.357	8.00
	19	2440	-12.369	8.00
	39	2480	-13.088	8.00

備註：繪圖資料請參考下頁。

10.5. 結果判定

高、中、低頻段的功率密度皆低於 8 dBm，合乎標準規定。



The screenshot displays the Keysight Spectrum Analyzer software interface. The main window shows a spectrum plot with a yellow trace. The plot is titled "Spectrum" and has a scale of 10 dB. The frequency range is from 2.402000 GHz to 2.403500 GHz. The span is 3.000 MHz. The center frequency is 2.402000 GHz. The plot shows a peak at 2.401805 GHz with a power of -12.357 dBm. The plot is labeled "Video BW 30 kHz".

Key interface elements include:

- Top Bar:** Spectrum Analyzer 1, Sweep SA, Frequency, and various icons.
- Left Panel:** KEYSIGHT, Input: RF, Coupling: AC, Align: Auto, Input 2: 50 Ω, Center Freq: On, Freq Ref: Off, #Bands: 20 dB, Preamp: Off, PNC: Best Wide, Gate: Off, IF Gain: Low, Sig Track: Off, Avg Type: Power (RMS), Resolution: 1 Hz, Trig: Free Run.
- Right Panel:** Settings, Span: 3.000000000 MHz, Start Freq: 2.402000000 GHz, Stop Freq: 2.403500000 GHz, AUTO TUNE, OF Step: 300.000 kHz, Auto Man, Freq Offset: 0 Hz, X-Axis Scale: Log Lin, Signal Track: 2000000000.
- Main Plot:** Scale/Div 10 dB, Log, Ref Lvl Offset 11.00 dB, Ref Level 20.00 dBm, Mkr1 2.401 805 GHz -12.357 dBm, Center 2.402000 GHz, Span 3.000 MHz, #Bands BW 10 kHz, Video BW 30 kHz, RSweep 6.00 s (601 pts).
- Bottom Bar:** Windows, Home, Help, Dec 01, 2021 10:26:05 AM, and various icons.

The screenshot shows the Spectrum Analyzer 1 window in Keysight ADS. The main plot displays a noisy signal with a peak labeled "Mkr1 2.439 805 GHz -12.369 dBm". The plot is titled "Spectrum" and has a scale of 10 dB. The center frequency is 2.440000 GHz, and the span is 3.000 MHz. The plot is titled "Video BW 30 kHz".

The screenshot displays the Keysight Spectrum Analyzer software interface. The main window shows a spectrum plot with a yellow trace. The plot is titled "Spectrum" and has a scale of "Div 10 dB". The frequency range is from 2.478500000 GHz to 2.481500000 GHz, with a span of 3.000 MHz. A marker "Mkr1" is placed at 2.479 805 GHz, showing a power level of -13.086 dBm. The plot is labeled "Video BW 30 kHz" and "BW 10 kHz". The interface includes various control panels on the right for settings like Center Frequency, Span, and Auto Tune.



11. 限制使用之頻帶

Only spurious emissions are permitted in any of the frequency bands listed below:

頻率(兆赫)	頻率(兆赫)	頻率(兆赫)
0.090 - 0.110	240.00 - 285.00	3332.0 - 3339.0
0.490 - 0.510	322.00 - 335.40	3345.8 - 3358.0
2.172 - 2.198	399.90 - 410.00	3500.0 - 4400.0
3.013 - 3.033	485.00 - 510.00	4500.0 - 5250.0
4.115 - 4.198	608.00 - 614.00	5350.0 - 5460.0
5.670 - 5.690	703.00 - 748.00	7250.0 - 7750.0
6.200 - 6.300	758.00 - 803.00	8025.0 - 8500.0
8.230 - 8.400	825.00 - 915.00	9000.0 - 9200.0
12.265 - 12.600	930.00 - 1240.0	9300.0 - 9500.0
13.340 - 13.430	1300.0 - 1427.0	10600 - 12700
14.965 - 15.020	1435.0 - 1626.5	13250 - 13400
16.700 - 16.755	1660.0 - 1785.0	14470 - 14500
19.965 - 20.020	1805.0 - 1880.0	15350 - 16200
25.500 - 25.700	1885.0 - 1900.0	17700 - 21400
37.475 - 38.275	1905.0 - 1985.0	22010 - 23120
73.500 - 75.400	2010.0 - 2025.0	23600 - 24000
108.00 - 138.00	2110.0 - 2170.0	31200 - 31800
149.90 - 150.05	2200.0 - 2300.0	36430 - 36500
156.70 - 156.90	2310.0 - 2390.0	38600 以上
162.01 - 167.17	2483.5 - 2900.0	
167.72 - 173.20	3260.0 - 3267.0	

-----THE END OF REPORT-----