



低功率射頻器材測試報告

申請廠商	: 惠州高盛達科技有限公司
地址	: 惠州市惠澳大道惠南高新科技產業園金達路 2 號
工廠	: 惠州高盛達科技有限公司
地址	: 惠州市惠澳大道惠南高新科技產業園金達路 2 號
產品名稱	: WIFI+BT Module
產品型號	: DCT12R2511
廠牌	: GSD
受理日期	: 110 年 09 月 29 日
完成日期	: 110 年 11 月 01 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
21090245-TRNCC03	Nov. 01, 2021	Original



證 明 書

申請廠商	:	惠州高盛達科技有限公司
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工廠	:	惠州高盛達科技有限公司
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產品名稱	:	WIFI+BT Module
產品型號	:	DCT12R2511
廠牌	:	GSD
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)	:	5.64dBm

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 10 月 27 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 2.2 節	---
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	峰值輸出功率之要求	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

Main Chip	8822CU
IEEE Standards	IEEE 802.11a/b/g/n/ac+ BT
Operating Frequencies	2.4GHz~2.4835GHz /5.150~5.250GHz, 5.725~5.825GHz
Modulation	BT: GFSK, $\pi/4$ -DQPSK, 8DPSK BLE: GFSK 802.11b: CCK, DQPSK, DBPSK 802.11a/g: 64-QAM, 16-QAM, QPSK, BPSK 802.11n: 64-QAM, 16-QAM, QPSK, BPSK 802.11ac: 256-QAM, 64-QAM, 16-QAM, QPSK, BPSK (註: 802.11b,a,g,n,ac 可以支持 2TX 模式)
Wireless Data Rate	BT: GFSK: 1Mbps, $\pi/4$ -DQPSK: 2Mbps, 8DPSK: 3Mbps BLE: GFSK: 1Mbps, 2Mbps WIFI 2.4G: 802.11b: 1, 2, 5.5, 11Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: HT20 reach up to 144.4Mbps, HT40 reach up to 300Mbps WIFI 5G: 802.11a: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: HT20 reach up to 144.4Mbps, HT40 reach up to 300Mbps 802.11ac: VHT20 reach up to 173.3Mbps, VHT40 reach up to 400Mbps, VHT80 reach up to 866.7Mbps
Working Temperature	0°C to +70°C
Storage Temperature	-40°C to +80°C
Power Supply	3.3V +/-10%

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



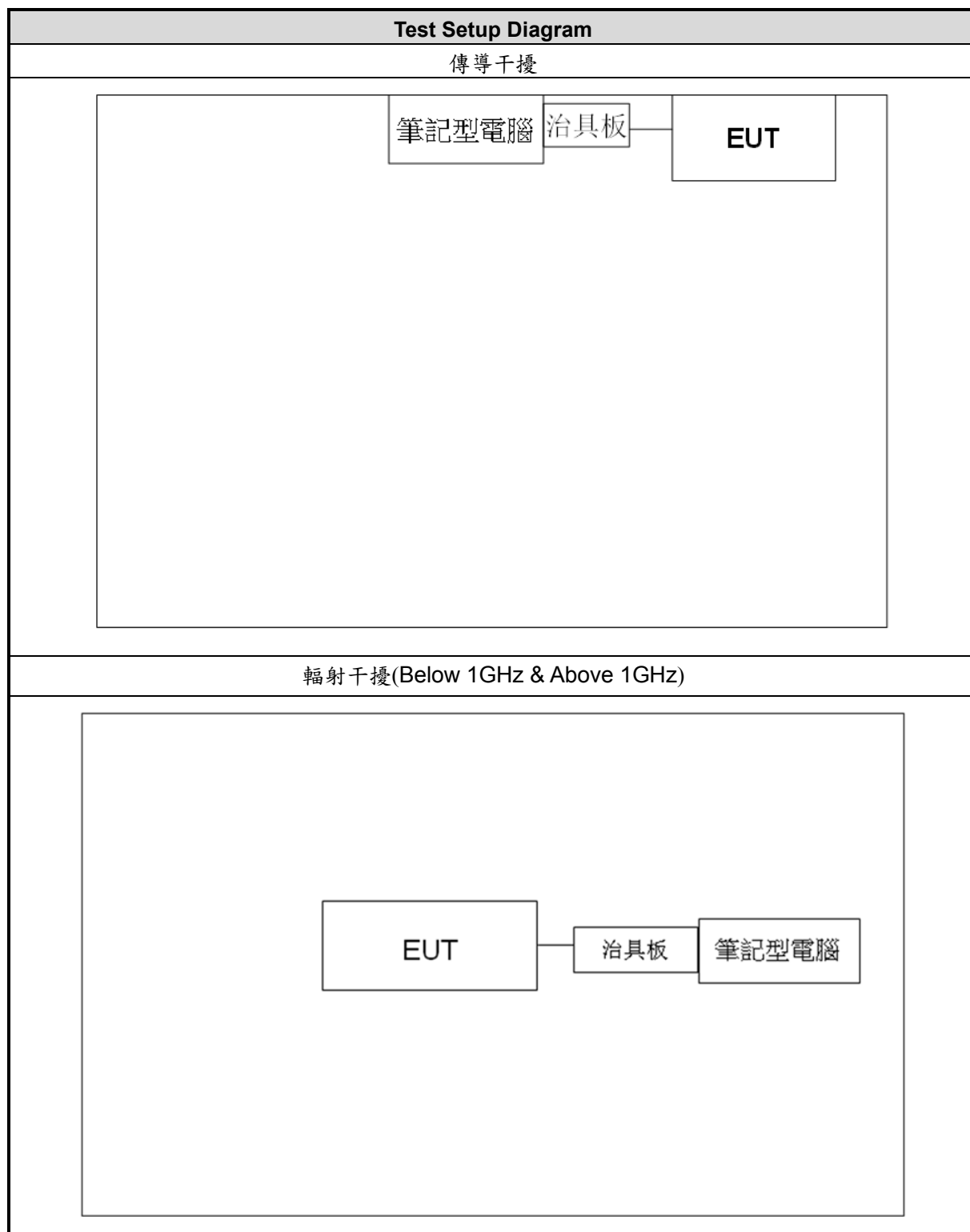
1.4. 測試模式之描述

- 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. EUT 連接治具，治具再連接電腦，電腦於 Win 7 作業系統下，EUT 進入 “RTLBTAPP.exe” 來發射與接收訊號。(軟體版本號: 5.2.2.75)
- 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 (2Mbps) ,Transmitter Mode
3	GFSK (1Mbps) ,Receiver Mode
4	GFSK (2Mbps) ,Receiver Mode
caused “Test Mode 1, 3” 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 (2Mbps) ,Transmitter Mode
3	GFSK (1Mbps) ,Receiver Mode
4	GFSK (2Mbps) ,Receiver Mode
caused “Test Mode 1, 3” 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 (2Mbps) ,Transmitter Mode
3	GFSK (1Mbps) ,Receiver Mode
4	GFSK (2Mbps) ,Receiver Mode
caused “Test Mode 1,2,3” generated the worst case, it was reported as the final data.	



1.5. 受測裝置之系統說明



[本案經申請者切結器材不提供隨貨配件，配件由實驗室提供併同檢驗]，及其廠牌型號資訊如下：

AC Power Line Conducted Emission & Radiated Emissions & RF Conducted				
Equipment	Brand	Model	Length/Type	Power cord/Length/Type
筆記型電腦	Sony	PCG-71811P	N/A	非隔離/1.8m
治具板	GSD	N/A	非隔離/0.5m	N/A



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：	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	Finish Date	Environmental Conditions	Tested By
RF Conducted	RFCON01-NK	2021/10/07~2021/10/27	22~25°C / 50~60%	Nick Guan
Radiated Emissions (LF, TX)	3M01-NK	2021/10/07~2021/10/27	22~25°C / 50~60%	Nick Guan
Radiated Emissions (LF, RX)	3M01-NK	2021/10/07~2021/10/27	22~25°C / 50~60%	Nick Guan
Radiated Emissions (HF, TX)	3M01-NK	2021/10/07~2021/10/27	22~25°C / 50~60%	Nick Guan
Radiated Emissions (HF, RX)	3M01-NK	2021/10/07~2021/10/27	22~25°C / 50~60%	Nick Guan
AC Power Line Conducted Emission	CON02-NK	2021/10/07~2021/10/27	22~25°C / 50~60%	Nick Guan

1.7. 量測不確定度

量測項目	不確定度
AC Power Line Conduction(150K~30MHz)	±1.90dB
Radiated Spurious Emission(9KHz~30MHz)	±3.405dB
Radiated Spurious Emission(30MHz~1GHz)	±5.636dB
Radiated Spurious Emission(1GHz~25GHz)	±6.621dB
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	±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(3M01-NK)				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
Active Loop Antenna	EMCO	6507	40855	2021/06/10	2022/06/09
Bilog Antenna	Sunol	JB1	A051717	2021/06/03	2022/06/02
Horn Antenna	Schwarzbeck	BBHA 9120 D	9120D-02203	2021/03/16	2022/03/15
Horn Antenna	Schwarzbeck	BBHA 9120 D	9120D-02203	2021/03/16	2022/03/15
EMI Receiver	ROHDE & SCHWARZ	ESR 7	101906	2021/05/20	2022/05/19
Spectrum Analyzer	ROHDE & SCHWARZ	FSV 40-N	102151	2021/07/14	2022/07/13
Preamplifier	EM Electronics corp.	EM330	60611	2021/03/26	2022/03/25
Preamplifier	EM Electronics corp.	EM01G18G	60700	2021/5/20	2022/05/19
Preamplifier	EMC INSTRUMENTS	EMC184045	980065	2020/11/06	2021/11/05
Cable-1m(1G-40G)	HUBER SUHNER	EM104-SMSM	MY4569/2	2021/06/29	2022/06/28
Cable-6m(9k~300M)	NA	EMC5D-BM-BM-6	130606	2021/03/15	2022/03/14
Cable-9m(1G-40G)	HUBER SUHNER	EM104-SMSM	MY5740/2	2021/06/29	2022/06/28
Cable-0.5m(30M-1G)	HUBER SUHNER	RG-214	Cable-08	2021/03/15	2022/03/14
Cable-1m(30M-1G)	HUBER SUHNER	RG-214	Cable-09	2021/03/15	2022/03/14
Cable-6m(30M-1G)	HUBER SUHNER	RG-214	Cable-10	2021/03/15	2022/03/14
Cable-1.5m(1G-40G)	HUBER SUHNER	EM104-SMSM	MY5739/2	2021/06/29	2022/06/28
Cable-3m(30M-40G)	HUBER SUHNER	SUCOFLEX 102	MY2608/2	2021/04/09	2022/04/08
Cable-0.5m(30M-40G)	HUBER SUHNER	SUCOFLEX 102	28420/2	2021/04/03	2022/04/02
E3	AUDIX	v8.2014-8-6	RK-000533	NA	NA

Test Item	RF Conducted				
Test Site	RFCON01-NK				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
Spectrum Analyzer	KEYSIGHT	N9010A	MY54200207	2021/04/21	2022/04/20
CAX Signal Analyzer	KEYSIGHT	N9000B	MY57100339	2020/11/10	2021/11/09
Attenuator	KEYSIGHT	8491B	MY39250703	2021/04/09	2022/04/08
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	CON02-NK				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
EMI Receiver	ROHDE & SCHWARZ	ESCI	100443	2021/05/20	2022/05/19
Line Impedance Stabilization Network	Schwarzbeck	NSLK 8127	8127-568	2021/06/02	2022/06/01
TWO-LINE V-NETWORK	ROHDE & SCHWARZ	ENV216	102185	2021/08/18	2022/08/17
Cable-6m(9k~300M)	NA	EMC5D-BM-BM-6	130606	2021/03/15	2022/03/14
E3	AUDIX	v8.2014-8-6	RK-000536	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 :	中天迅
1.2 Model :	DCT12
1.3 Antenna type :	PCB Antenna
1.4 Frequency Rang :	2402-2480MHz
1.5 Gain(peak) :	3dBi
(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：

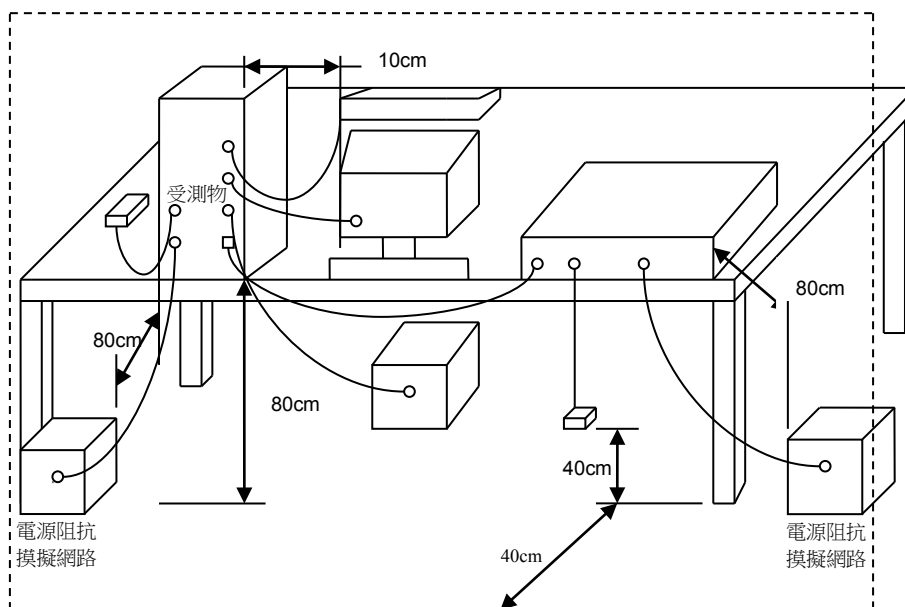
頻率範圍(MHz)	傳導限制值 (dB μ V)	
	準峰值(Quasi-peak)	平均值(Average)
0.15 ~ 0.5	66-56 (註)	56-46 (註)
0.5 ~ 5	56	46
5 ~ 30	60	50

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。

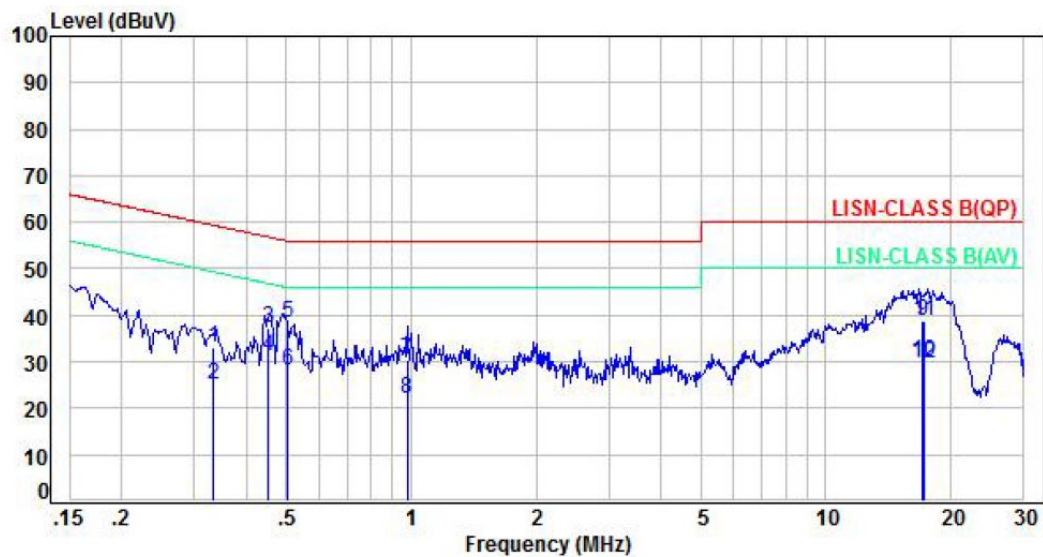
4.3. 傳導干擾之擺設





4.4. 傳導干擾之測試結果及數據

Power	: 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	0.33	9.86	23.12	32.98	59.41	-26.43	QP	P
2	0.33	9.86	15.31	25.17	49.41	-24.24	Average	P
3	0.45	9.83	27.61	37.44	56.82	-19.38	QP	P
4	0.45	9.83	21.50	31.33	46.82	-15.49	Average	P
5	0.50	9.83	28.58	38.41	56.00	-17.59	QP	P
6	0.50	9.83	18.32	28.15	46.00	-17.85	Average	P
7	0.98	9.82	20.65	30.47	56.00	-25.53	QP	P
8	0.98	9.82	12.40	22.22	46.00	-23.78	Average	P
9	17.16	10.11	28.69	38.80	60.00	-21.20	QP	P
10	17.16	10.11	19.81	29.92	50.00	-20.08	Average	P
11	17.19	10.11	28.68	38.79	60.00	-21.21	QP	P
12	17.19	10.11	19.63	29.74	50.00	-20.26	Average	P

Site: COND-02-NK

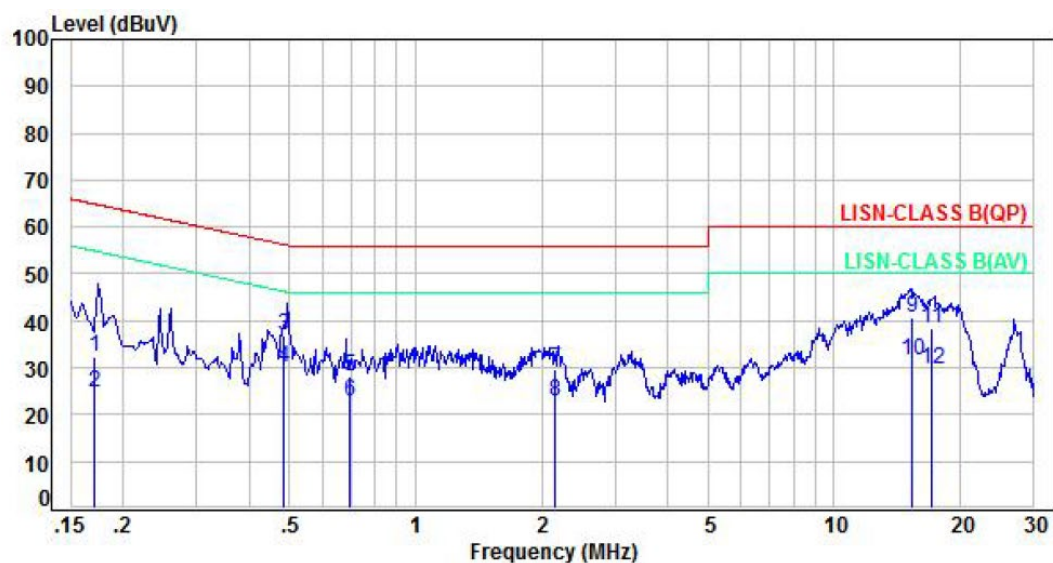
Note: Level=Reading+Factor

Margin=Level-Limit

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



Power	: 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	0.17	9.87	22.36	32.23	64.91	-32.68	QP	P
2	0.17	9.87	15.03	24.90	54.91	-30.01	Average	P
3	0.49	9.76	27.02	36.78	56.24	-19.46	QP	P
4	0.49	9.76	20.41	30.17	46.24	-16.07	Average	P
5	0.70	9.79	18.33	28.12	56.00	-27.88	QP	P
6	0.70	9.79	12.90	22.69	46.00	-23.31	Average	P
7	2.15	9.83	19.90	29.73	56.00	-26.27	QP	P
8	2.15	9.83	12.80	22.63	46.00	-23.37	Average	P
9	15.34	10.08	30.42	40.50	60.00	-19.50	QP	P
10	15.34	10.08	21.63	31.71	50.00	-18.29	Average	P
11	17.08	10.12	28.34	38.46	60.00	-21.54	QP	P
12	17.08	10.12	19.59	29.71	50.00	-20.29	Average	P

Site: COND-02-NK

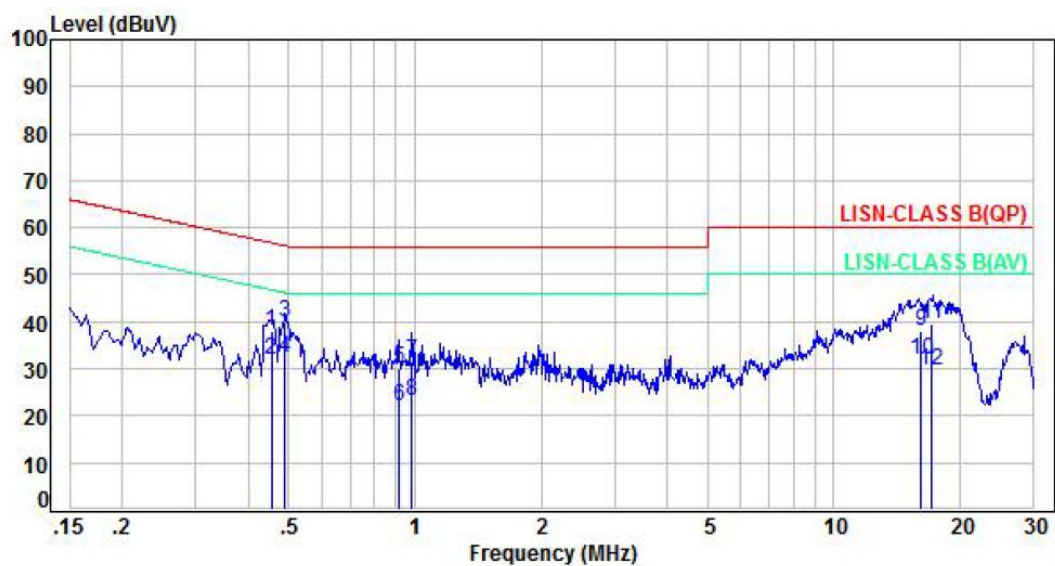
Note: Level=Reading+Factor

Margin=Level-Limit

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



Power	: AC 110V / 60Hz	Pol/Phase	: LINE
Test Mode	: Mode 3		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV)	Limit (dBUV)	Margin (dB)	Detector	P/F
1	0.45	9.83	28.19	38.02	56.80	-18.78	QP	P
2	0.45	9.83	22.20	32.03	46.80	-14.77	Average	P
3	0.49	9.83	30.18	40.01	56.16	-16.15	QP	P
4	0.49	9.83	22.58	32.41	46.16	-13.75	Average	P
5	0.92	9.82	20.13	29.95	56.00	-26.05	QP	P
6	0.92	9.82	12.23	22.05	46.00	-23.95	Average	P
7	0.98	9.82	21.76	31.58	56.00	-24.42	QP	P
8	0.98	9.82	13.38	23.20	46.00	-22.80	Average	P
9	16.08	10.09	28.10	38.19	60.00	-21.81	QP	P
10	16.08	10.09	21.99	32.08	50.00	-17.92	Average	P
11	17.03	10.11	29.54	39.65	60.00	-20.35	QP	P
12	17.03	10.11	19.70	29.81	50.00	-20.19	Average	P

Site: COND-02-NK

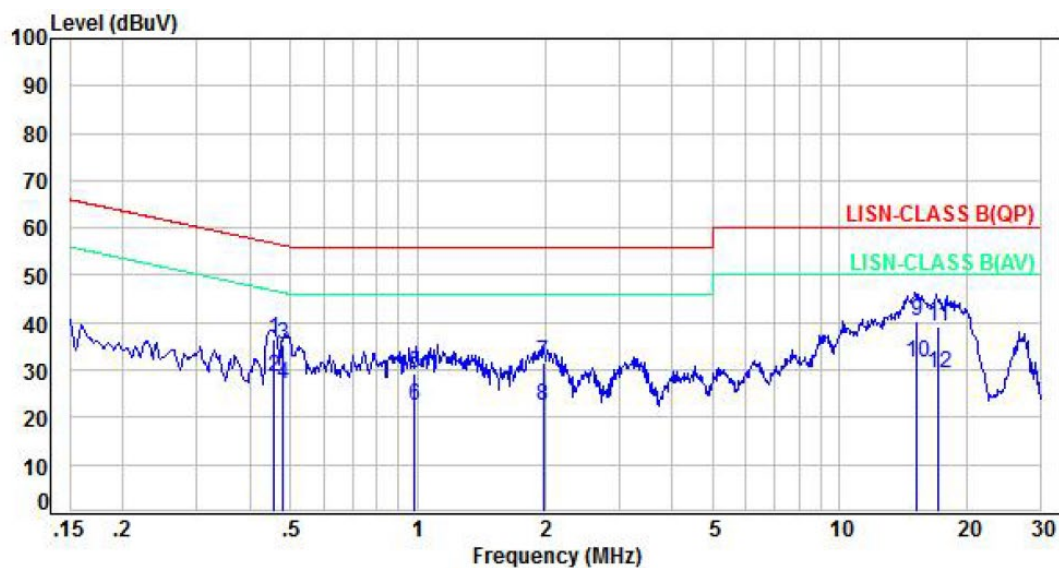
Note: Level=Reading+Factor

Margin=Level-Limit

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



Power	: AC 110V / 60Hz	Pol/Phase	: NEUTRAL
Test Mode	: Mode 3		



No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV)	Limit (dBUV)	Margin (dB)	Detector	P/F
1	0.46	9.76	26.78	36.54	56.75	-20.21	QP	P
2	0.46	9.76	18.90	28.66	46.75	-18.09	Average	P
3	0.48	9.76	25.44	35.20	56.35	-21.15	QP	P
4	0.48	9.76	17.41	27.17	46.35	-19.18	Average	P
5	0.98	9.76	19.65	29.41	56.00	-26.59	QP	P
6	0.98	9.76	12.78	22.54	46.00	-23.46	Average	P
7	1.98	9.82	21.63	31.45	56.00	-24.55	QP	P
8	1.98	9.82	12.68	22.50	46.00	-23.50	Average	P
9	15.16	10.08	30.14	40.22	60.00	-19.78	QP	P
10	15.16	10.08	21.32	31.40	50.00	-18.60	Average	P
11	17.11	10.13	28.86	38.99	60.00	-21.01	QP	P
12	17.11	10.13	18.96	29.09	50.00	-20.91	Average	P

Site: COND-02-NK

Note: Level=Reading+Factor

Margin=Level-Limit

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

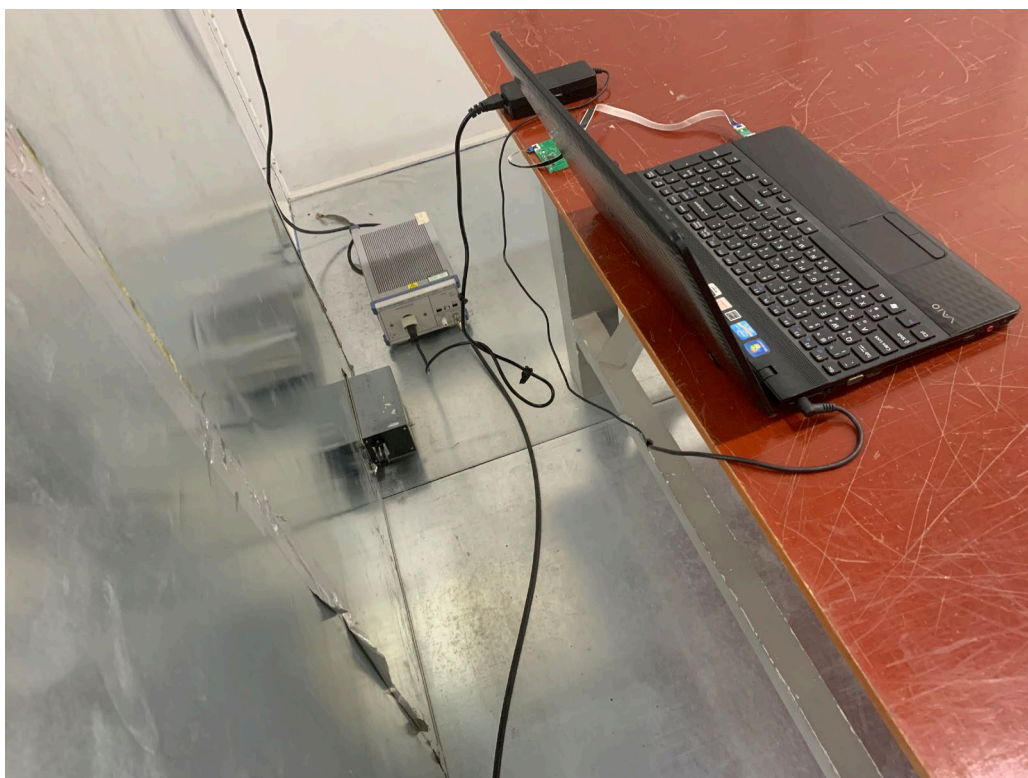


4.5. 傳導量測之配置照片

正面照



側面照





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

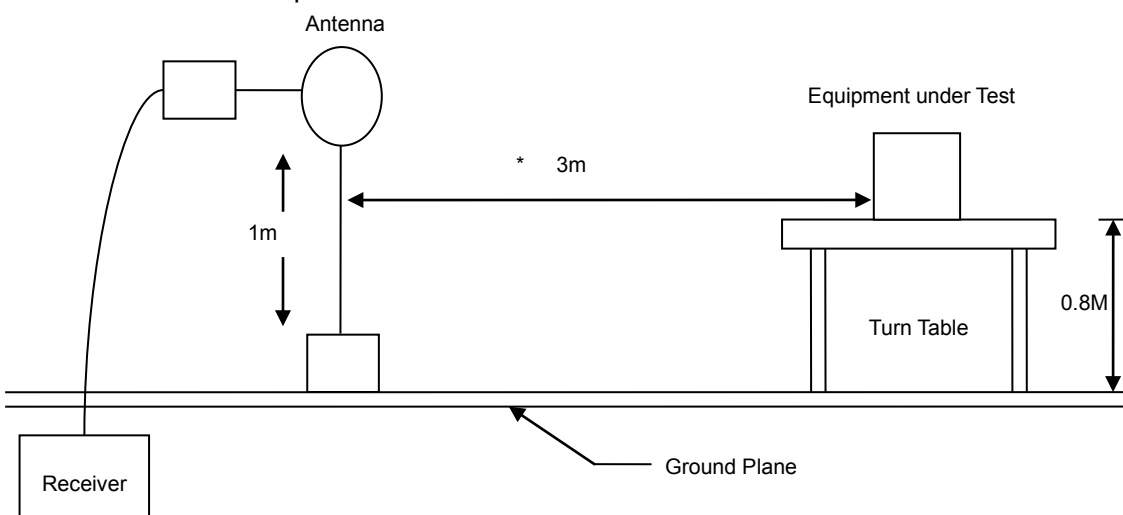
將待測物置於 0.8 米(Below 1G) & 1.5 米(Above 1G)高的非金屬桌面，使其在測試模式狀態，且設定為高、中、低各頻道產生最高峰值輸出功率的傳輸速率，接收天線置於 3 米外，且桌面要 360 度旋轉，另外接收天線也要從 1 米至 4 米升降變化，接收天線置於水平、垂直極向各執行測試一次。如待測物可以三軸相放置，並分別測試以找出最大輻射電場強度(最差的結果為 X 軸)。

備註：

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

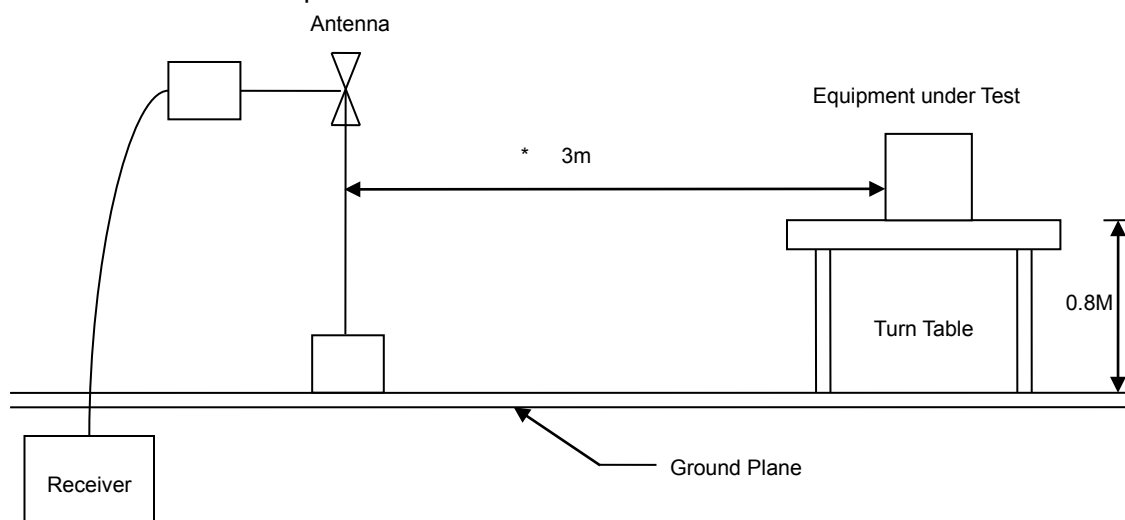
5.3. 輻射場地之擺設

Below 30MHz test setup

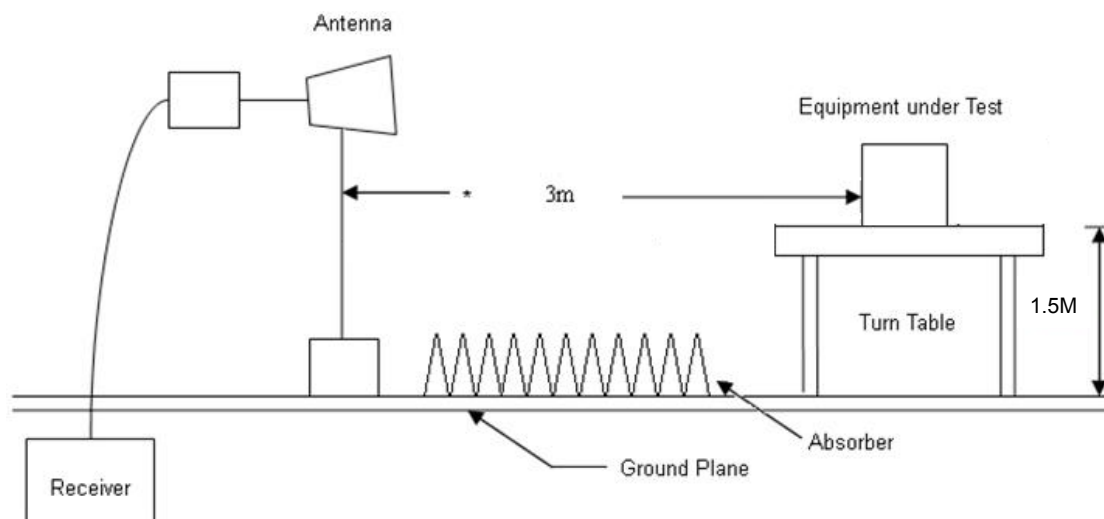




30MHz- 1GHz Test Setup



Above 1GHz Test Setup



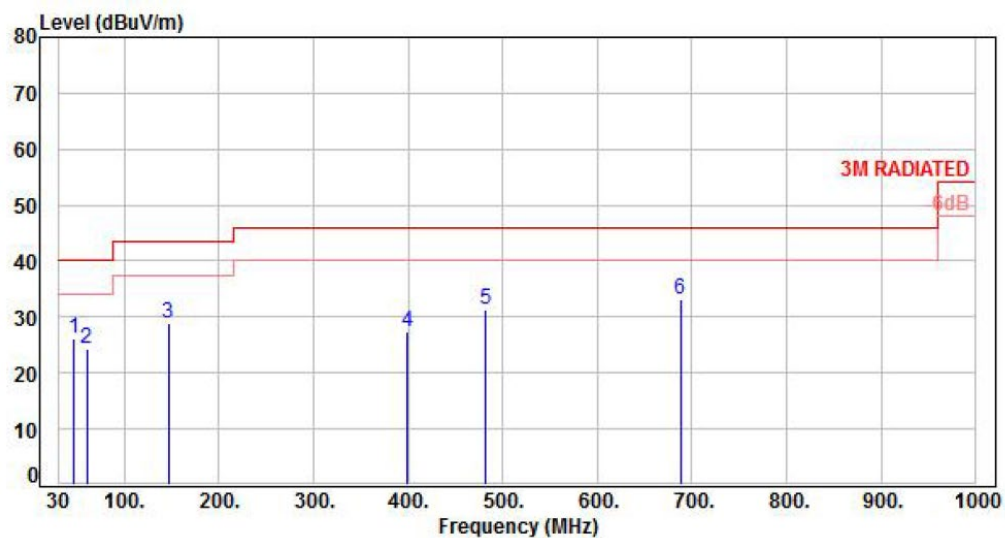


5.4. 輻射之測試結果及數據 (9kHz ~ 30MHz)

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	: AC 110V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 1		:



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	46.49	-14.40	40.65	26.25	40.00	-13.75	Peak	200	352	P
2	60.07	-16.96	41.36	24.40	40.00	-15.60	Peak	100	197	P
3	146.40	-11.10	40.09	28.99	43.50	-14.51	Peak	100	357	P
4	398.60	-7.20	34.63	27.43	46.00	-18.57	Peak	200	206	P
5	482.02	-4.95	36.33	31.38	46.00	-14.62	Peak	100	179	P
6	687.66	-2.00	35.28	33.28	46.00	-12.72	Peak	100	201	P

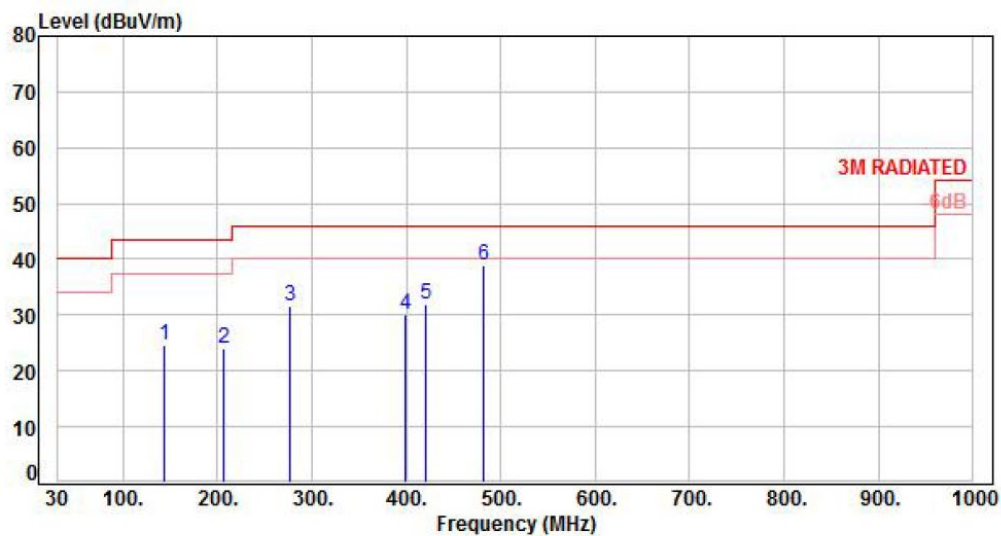
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 110V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	143.49	-10.85	35.45	24.60	43.50	-18.90	Peak	100	311	P
2	206.54	-12.33	36.44	24.11	43.50	-19.39	Peak	200	269	P
3	276.38	-9.77	41.54	31.77	46.00	-14.23	Peak	200	117	P
4	399.57	-7.18	37.23	30.05	46.00	-15.95	Peak	200	264	P
5	419.94	-6.42	38.42	32.00	46.00	-14.00	Peak	100	183	P
6	481.05	-5.00	44.03	39.03	46.00	-6.97	Peak	200	348	P

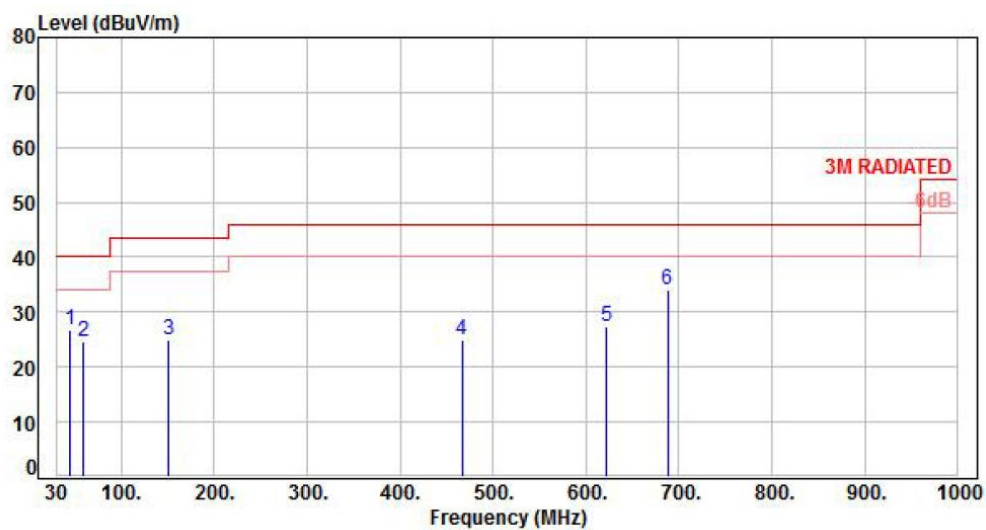
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 110V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 3		:



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	45.52	-14.15	40.99	26.84	40.00	-13.16	Peak	200	265	P
2	59.10	-17.11	41.80	24.69	40.00	-15.31	Peak	200	317	P
3	151.25	-11.18	35.98	24.80	43.50	-18.70	Peak	100	326	P
4	466.50	-5.55	30.53	24.98	46.00	-21.02	Peak	100	132	P
5	622.67	-2.82	30.18	27.36	46.00	-18.64	Peak	200	214	P
6	687.66	-2.00	35.99	33.99	46.00	-12.01	Peak	100	199	P

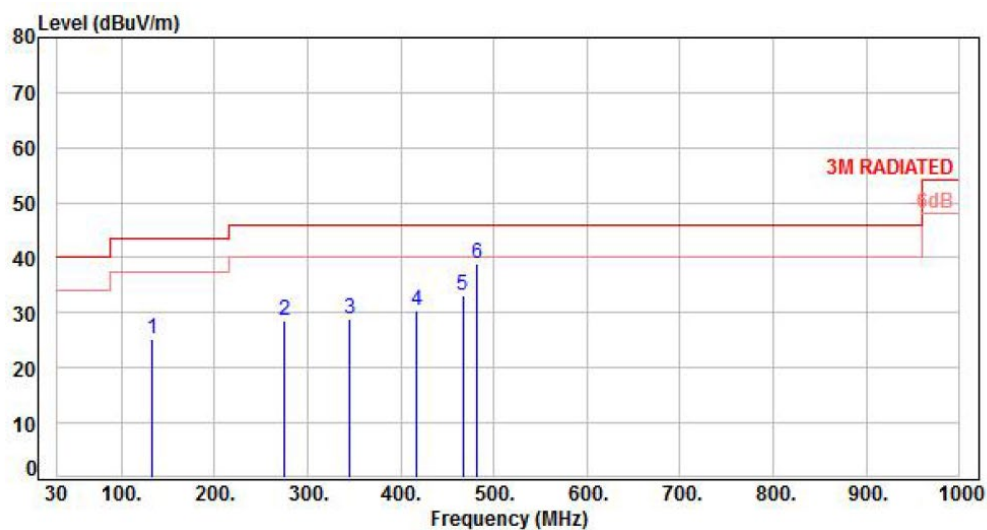
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 110V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 3		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	132.82	-10.15	35.39	25.24	43.50	-18.26	Peak	200	238	P
2	275.41	-9.78	38.48	28.70	46.00	-17.30	Peak	200	201	P
3	345.25	-8.53	37.28	28.75	46.00	-17.25	Peak	100	124	P
4	417.03	-6.49	36.93	30.44	46.00	-15.56	Peak	200	328	P
5	466.50	-5.55	38.59	33.04	46.00	-12.96	Peak	200	199	P
6	481.05	-5.00	44.08	39.08	46.00	-6.92	Peak	200	267	P

Note: Level=Reading+Factor

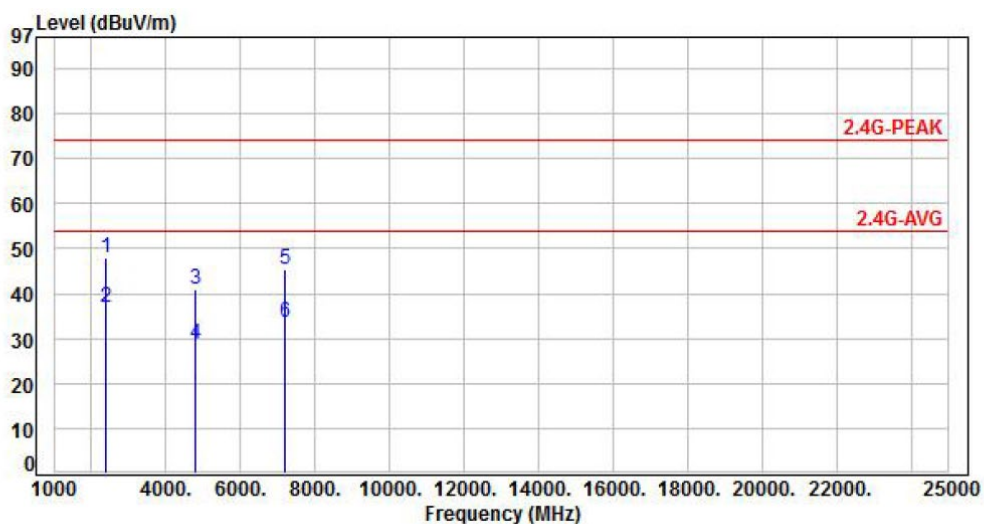
Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



5.6. 輻射之測試結果及數據 (1GHz ~ 25GHz)

Power	: AC 110V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 1, CH00		:



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-30.60	78.61	48.01	74.00	-25.99	Peak	100	205	P
2	2390.00	-30.60	67.32	36.72	54.00	-17.28	Average	100	205	P
3	4804.00	-25.35	66.19	40.84	74.00	-33.16	Peak	100	102	P
4	4804.00	-25.35	53.97	28.62	54.00	-25.38	Average	100	102	P
5	7206.00	-19.76	65.07	45.31	74.00	-28.69	Peak	100	341	P
6	7206.00	-19.76	53.25	33.49	54.00	-20.51	Average	100	341	P

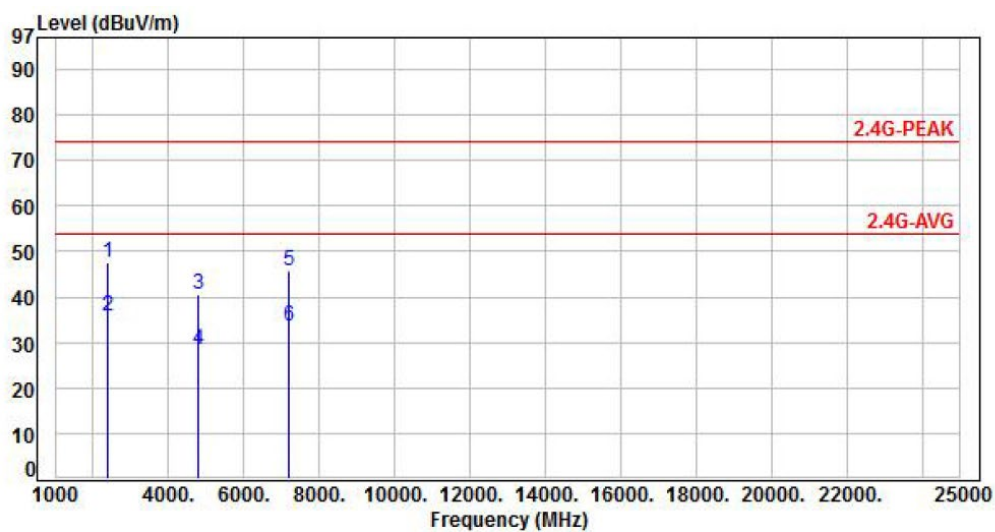
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 110V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1, CH00		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-30.60	78.26	47.66	74.00	-26.34	Peak	100	267	P
2	2390.00	-30.60	66.22	35.62	54.00	-18.38	Average	100	267	P
3	4804.00	-25.35	65.86	40.51	74.00	-33.49	Peak	100	163	P
4	4804.00	-25.35	53.72	28.37	54.00	-25.63	Average	100	163	P
5	7206.00	-19.76	65.67	45.91	74.00	-28.09	Peak	100	307	P
6	7206.00	-19.76	53.34	33.58	54.00	-20.42	Average	100	307	P

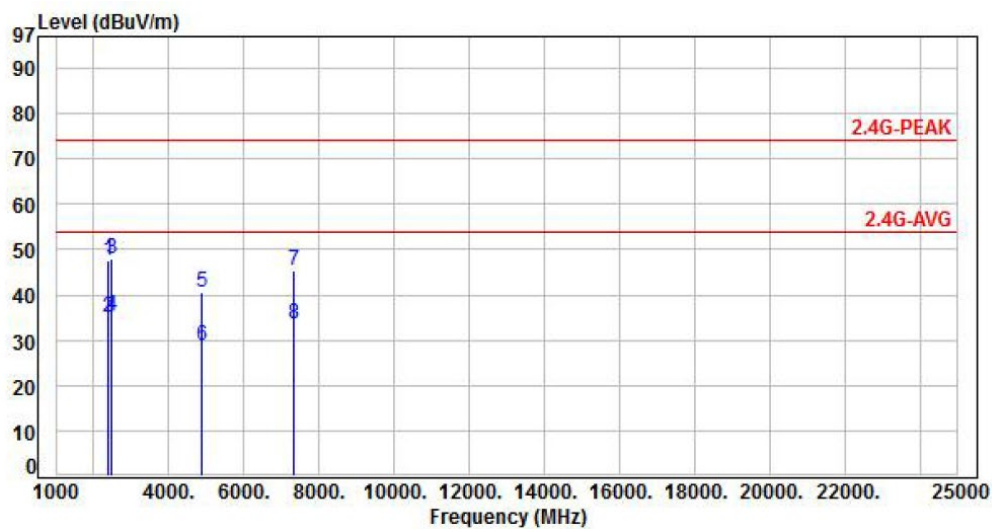
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 110V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 1, CH19		:



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-30.60	78.31	47.71	74.00	-26.29	Peak	100	316	P
2	2390.00	-30.60	65.67	35.07	54.00	-18.93	Average	100	316	P
3	2483.50	-30.72	78.59	47.87	74.00	-26.13	Peak	100	183	P
4	2483.50	-30.72	66.00	35.28	54.00	-18.72	Average	100	183	P
5	4880.00	-25.29	66.02	40.73	74.00	-33.27	Peak	100	322	P
6	4880.00	-25.29	53.91	28.62	54.00	-25.38	Average	100	322	P
7	7320.00	-19.59	65.11	45.52	74.00	-28.48	Peak	100	103	P
8	7320.00	-19.59	53.01	33.42	54.00	-20.58	Average	100	103	P

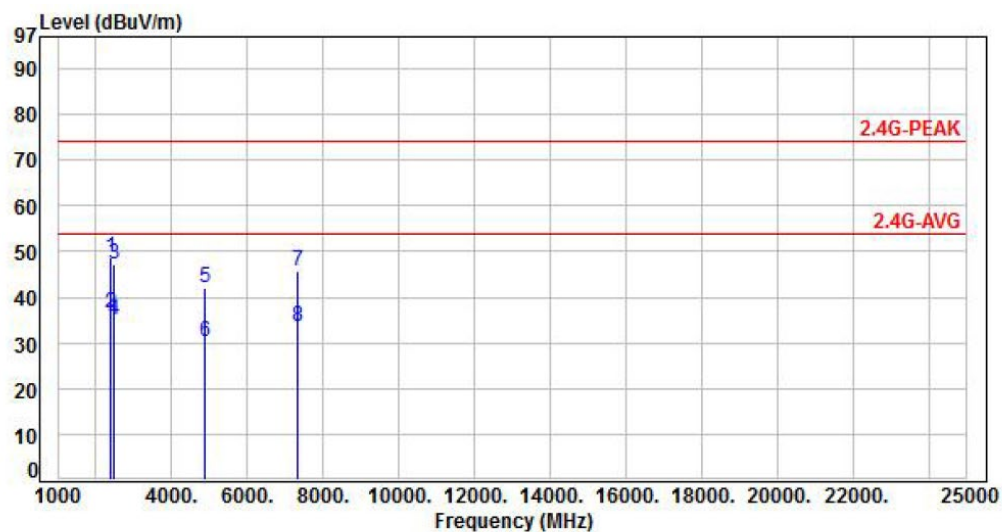
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 110V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1, CH19		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-30.60	79.45	48.85	74.00	-25.15	Peak	100	62	P
2	2390.00	-30.60	66.93	36.33	54.00	-17.67	Average	100	62	P
3	2483.50	-30.72	78.01	47.29	74.00	-26.71	Peak	100	284	P
4	2483.50	-30.72	65.91	35.19	54.00	-18.81	Average	100	284	P
5	4880.00	-25.29	67.33	42.04	74.00	-31.96	Peak	100	307	P
6	4880.00	-25.29	55.66	30.37	54.00	-23.63	Average	100	307	P
7	7320.00	-19.59	65.14	45.55	74.00	-28.45	Peak	100	102	P
8	7320.00	-19.59	53.16	33.57	54.00	-20.43	Average	100	102	P

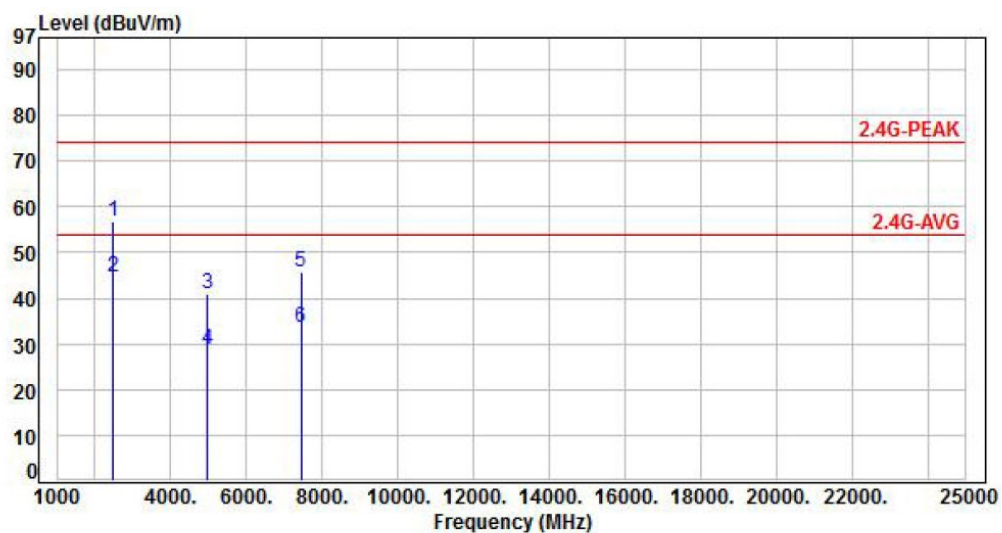
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 110V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 1, CH39		:

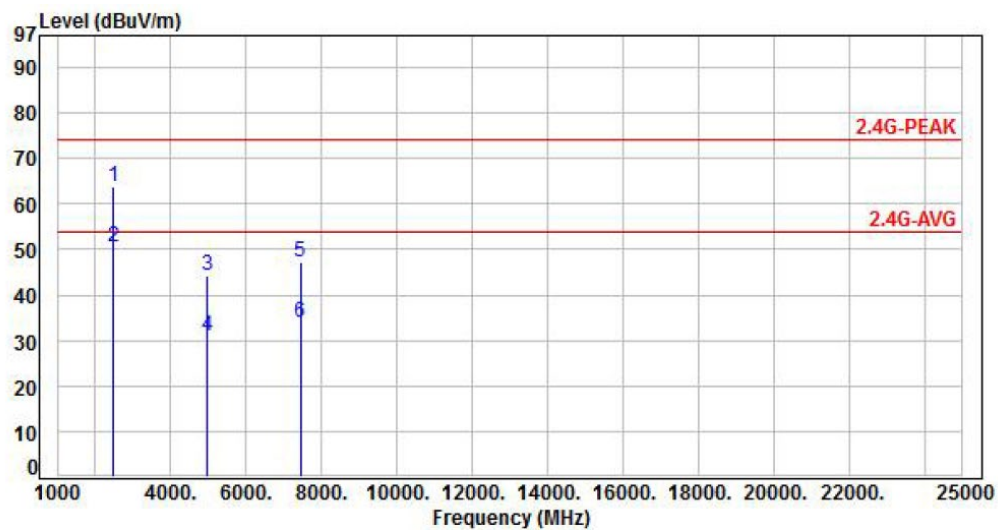


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-30.72	87.42	56.70	74.00	-17.30	Peak	100	203	P
2	2483.50	-30.72	75.43	44.71	54.00	-9.29	Average	100	203	P
3	4960.00	-25.09	65.95	40.86	74.00	-33.14	Peak	100	238	P
4	4960.00	-25.09	53.96	28.87	54.00	-25.13	Average	100	238	P
5	7440.00	-19.68	65.48	45.80	74.00	-28.20	Peak	100	311	P
6	7440.00	-19.68	53.21	33.53	54.00	-20.47	Average	100	311	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 110V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1, CH39		:

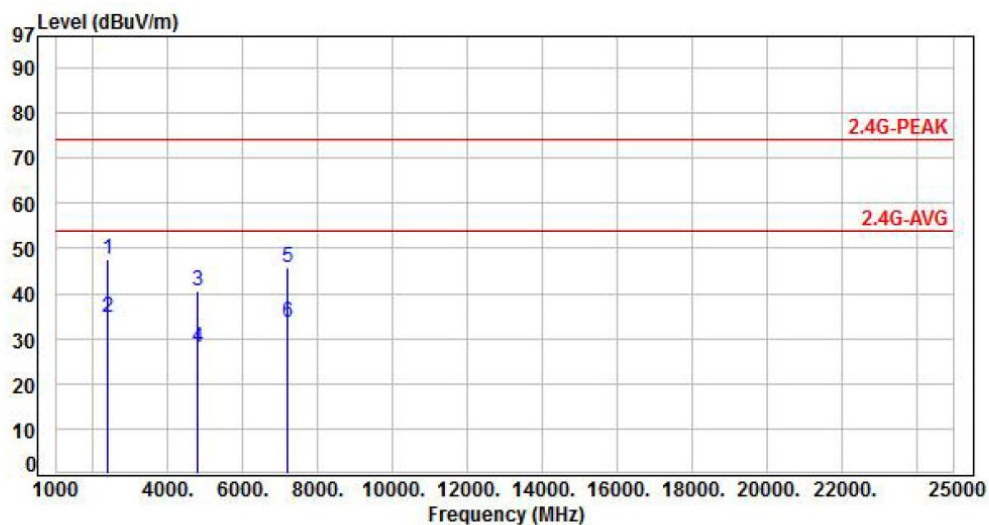


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-30.72	94.50	63.78	74.00	-10.22	Peak	100	104	P
2	2483.50	-30.72	81.08	50.36	54.00	-3.64	Average	100	104	P
3	4960.00	-25.09	69.23	44.14	74.00	-29.86	Peak	100	287	P
4	4960.00	-25.09	56.16	31.07	54.00	-22.93	Average	100	287	P
5	7440.00	-19.68	66.79	47.11	74.00	-26.89	Peak	100	338	P
6	7440.00	-19.68	53.76	34.08	54.00	-19.92	Average	100	338	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 110V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 2, CH00		:



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-30.60	78.03	47.43	74.00	-26.57	Peak	100	251	P
2	2390.00	-30.60	65.23	34.63	54.00	-19.37	Average	100	251	P
3	4804.00	-25.35	65.95	40.60	74.00	-33.40	Peak	100	327	P
4	4804.00	-25.35	53.48	28.13	54.00	-25.87	Average	100	327	P
5	7206.00	-19.76	65.42	45.66	74.00	-28.34	Peak	100	284	P
6	7206.00	-19.76	53.27	33.51	54.00	-20.49	Average	100	284	P

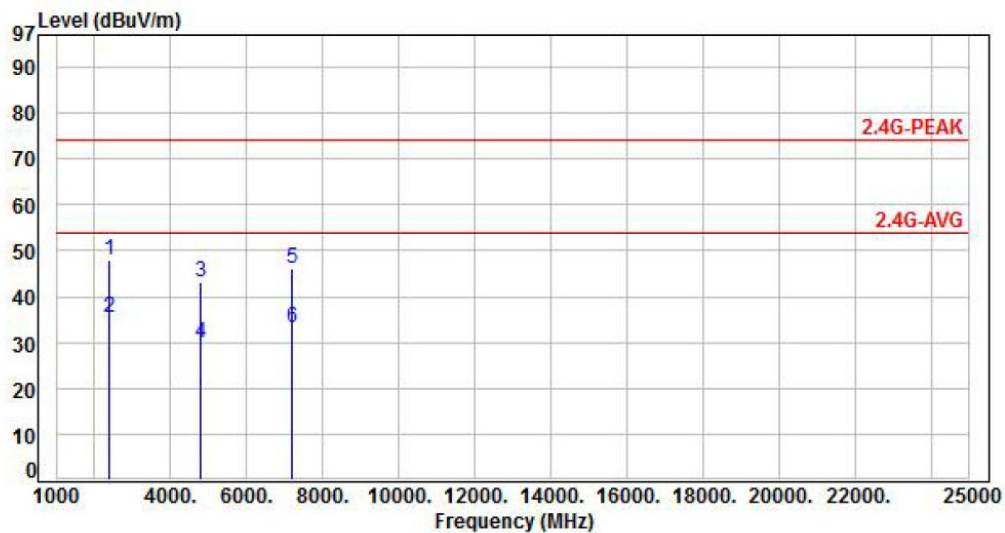
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 110V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 2, CH00		:



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-30.60	78.57	47.97	74.00	-26.03	Peak	100	132	P
2	2390.00	-30.60	65.92	35.32	54.00	-18.68	Average	100	132	P
3	4804.00	-25.35	68.33	42.98	74.00	-31.02	Peak	100	307	P
4	4804.00	-25.35	55.22	29.87	54.00	-24.13	Average	100	307	P
5	7206.00	-19.76	65.73	45.97	74.00	-28.03	Peak	100	139	P
6	7206.00	-19.76	52.99	33.23	54.00	-20.77	Average	100	139	P

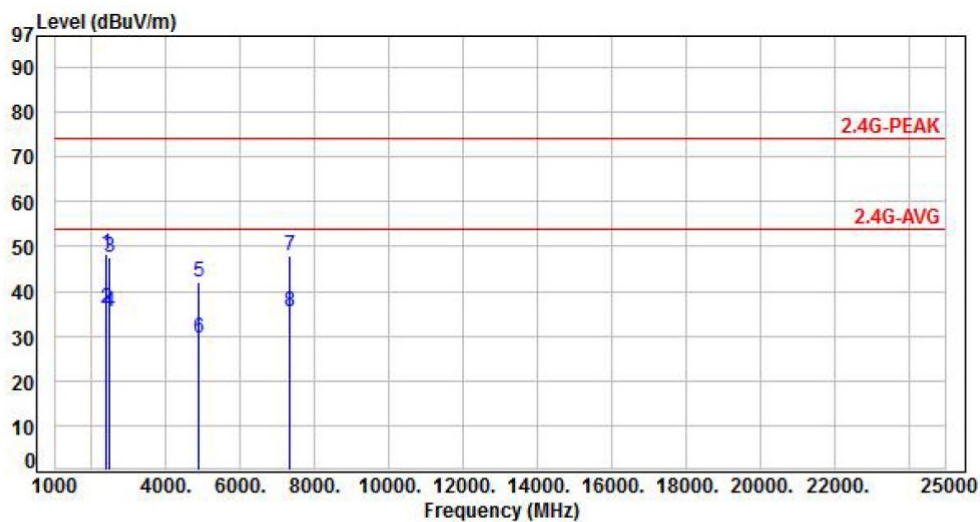
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 110V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 2, CH19		:

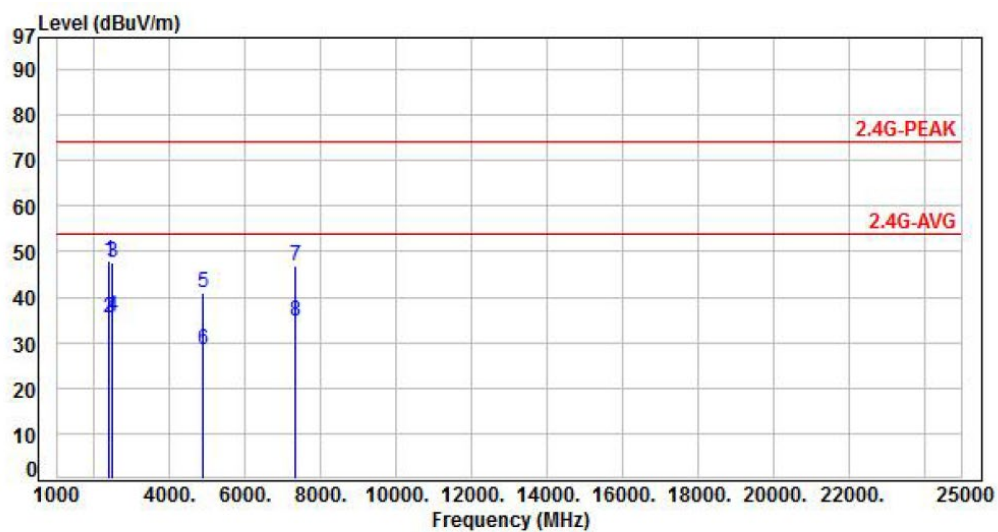


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBUV)	Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-30.60	78.92	48.32	74.00	-25.68	Peak	100	354	P
2	2390.00	-30.60	66.92	36.32	54.00	-17.68	Average	100	354	P
3	2483.50	-30.72	78.36	47.64	74.00	-26.36	Peak	100	307	P
4	2483.50	-30.72	66.00	35.28	54.00	-18.72	Average	100	307	P
5	4880.00	-25.29	67.22	41.93	74.00	-32.07	Peak	100	189	P
6	4880.00	-25.29	54.63	29.34	54.00	-24.66	Average	100	189	P
7	7320.00	-19.59	67.41	47.82	74.00	-26.18	Peak	100	286	P
8	7320.00	-19.59	54.86	35.27	54.00	-18.73	Average	100	286	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 110V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 2, CH19		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-30.60	78.41	47.81	74.00	-26.19	Peak	100	227	P
2	2390.00	-30.60	66.02	35.42	54.00	-18.58	Average	100	227	P
3	2483.50	-30.72	78.34	47.62	74.00	-26.38	Peak	100	106	P
4	2483.50	-30.72	66.35	35.63	54.00	-18.37	Average	100	106	P
5	4880.00	-25.29	66.24	40.95	74.00	-33.05	Peak	100	214	P
6	4880.00	-25.29	53.71	28.42	54.00	-25.58	Average	100	214	P
7	7320.00	-19.59	66.44	46.85	74.00	-27.15	Peak	100	32	P
8	7320.00	-19.59	54.31	34.72	54.00	-19.28	Average	100	32	P

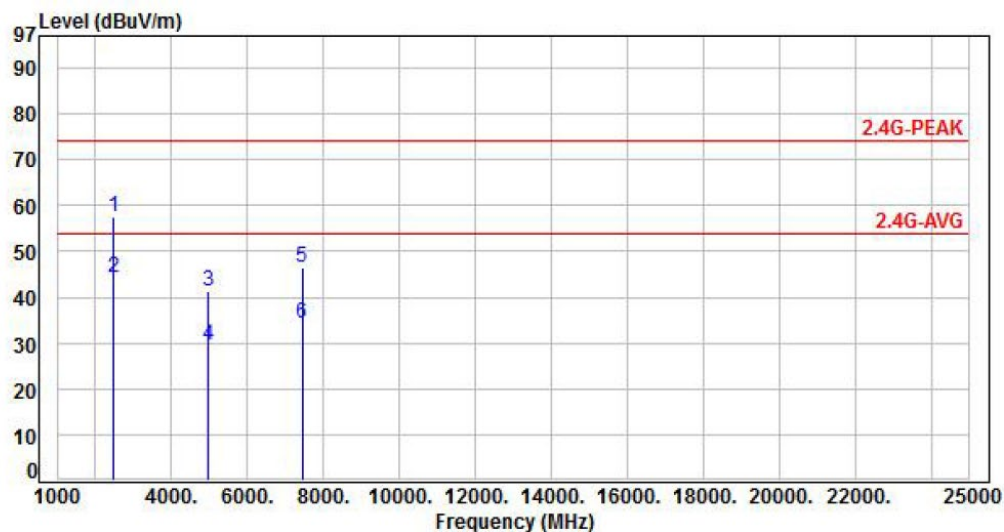
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 110V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 2, CH39		:



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-30.72	88.37	57.65	74.00	-16.35	Peak	100	257	P
2	2483.50	-30.72	75.08	44.36	54.00	-9.64	Average	100	257	P
3	4960.00	-25.09	66.47	41.38	74.00	-32.62	Peak	100	176	P
4	4960.00	-25.09	54.76	29.67	54.00	-24.33	Average	100	176	P
5	7440.00	-19.68	66.03	46.35	74.00	-27.65	Peak	100	304	P
6	7440.00	-19.68	53.91	34.23	54.00	-19.77	Average	100	304	P

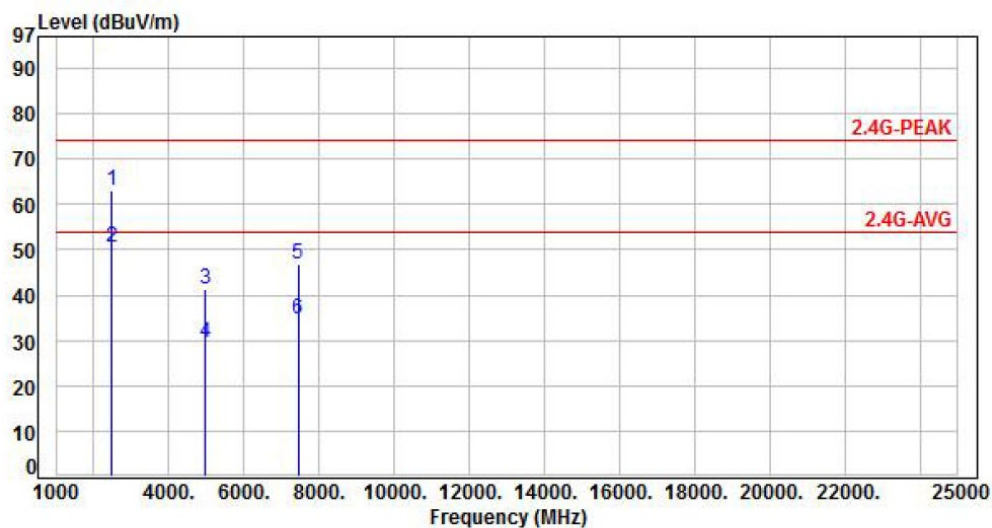
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 110V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 2, CH39		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-30.72	93.77	63.05	74.00	-10.95	Peak	100	167	P
2	2483.50	-30.72	81.07	50.35	54.00	-3.65	Average	100	167	P
3	4960.00	-25.09	66.58	41.49	74.00	-32.51	Peak	100	227	P
4	4960.00	-25.09	54.74	29.65	54.00	-24.35	Average	100	227	P
5	7440.00	-19.68	66.63	46.95	74.00	-27.05	Peak	100	324	P
6	7440.00	-19.68	54.26	34.58	54.00	-19.42	Average	100	324	P

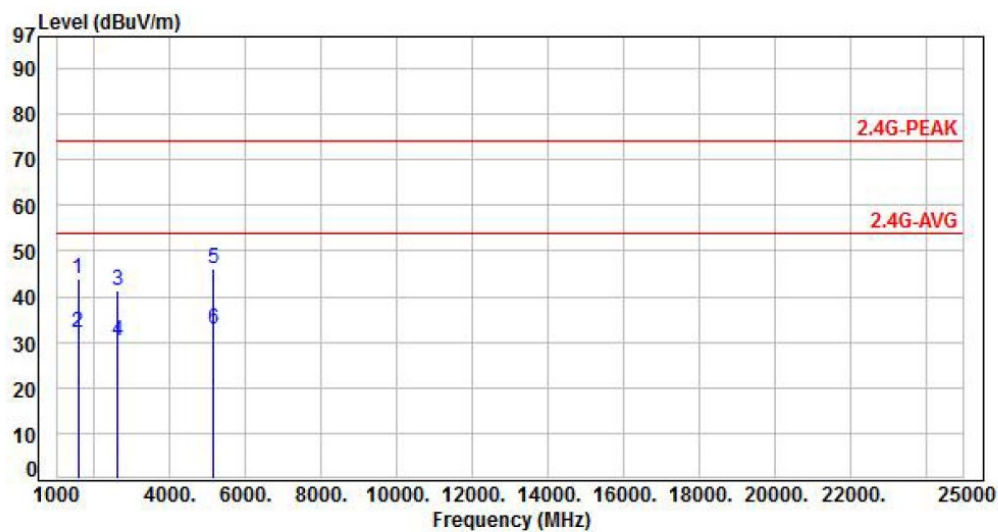
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 110V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 3, CH00		:



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBUV)	Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	1567.00	-33.87	77.92	44.05	74.00	-29.95	Peak	100	325	P
2	1567.00	-33.87	65.80	31.93	54.00	-22.07	Average	100	325	P
3	2597.00	-30.55	71.87	41.32	74.00	-32.68	Peak	100	182	P
4	2597.00	-30.55	60.71	30.16	54.00	-23.84	Average	100	182	P
5	5138.00	-24.45	70.42	45.97	74.00	-28.03	Peak	100	294	P
6	5138.00	-24.45	57.32	32.87	54.00	-21.13	Average	100	294	P

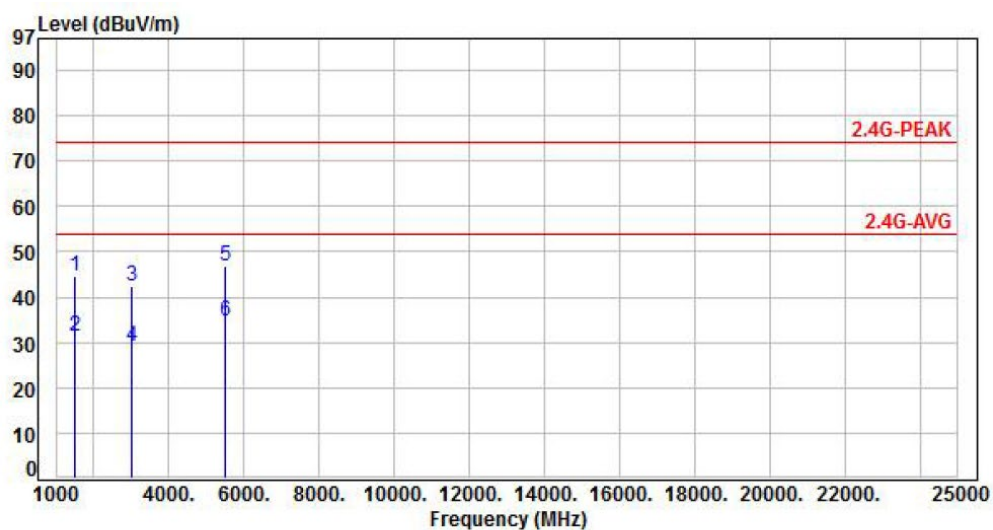
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 110V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 3, CH00		

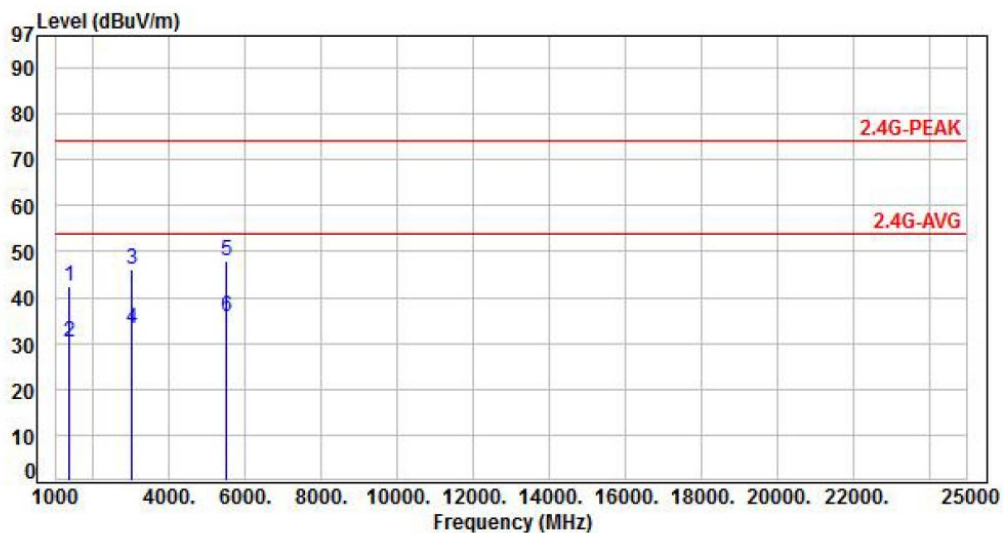


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	1503.00	-33.55	78.27	44.72	74.00	-29.28	Peak	100	139	P
2	1503.00	-33.55	64.80	31.25	54.00	-22.75	Average	100	139	P
3	3017.00	-29.30	71.68	42.38	74.00	-31.62	Peak	100	264	P
4	3017.00	-29.30	58.48	29.18	54.00	-24.82	Average	100	264	P
5	5515.00	-24.35	71.17	46.82	74.00	-27.18	Peak	100	349	P
6	5515.00	-24.35	59.07	34.72	54.00	-19.28	Average	100	349	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 110V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 3, CH19		:



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	1362.00	-33.27	75.61	42.34	74.00	-31.66	Peak	100	168	P
2	1362.00	-33.27	63.34	30.07	54.00	-23.93	Average	100	168	P
3	3018.00	-29.30	75.57	46.27	74.00	-27.73	Peak	100	261	P
4	3018.00	-29.30	62.39	33.09	54.00	-20.91	Average	100	261	P
5	5503.00	-24.37	72.19	47.82	74.00	-26.18	Peak	100	357	P
6	5503.00	-24.37	60.09	35.72	54.00	-18.28	Average	100	357	P

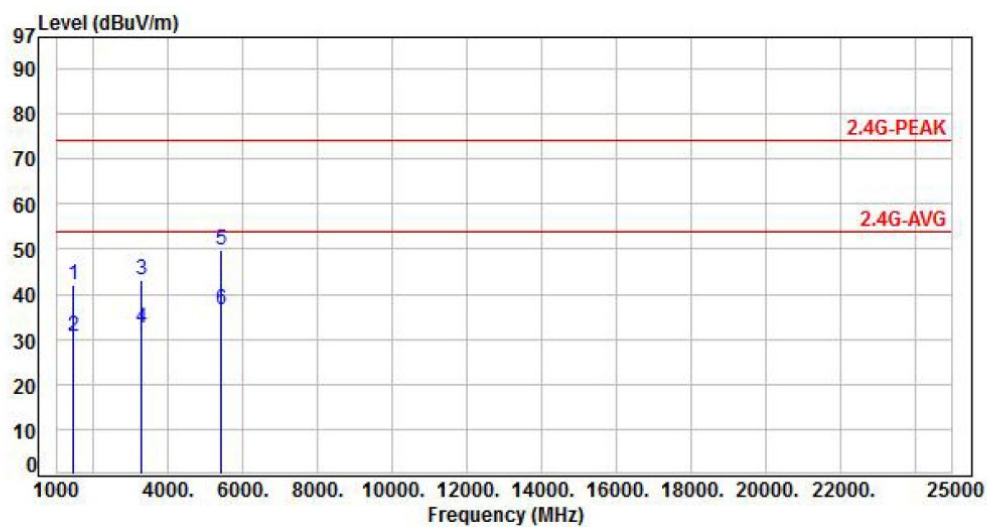
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 110V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 3, CH19		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	1472.00	-33.40	75.53	42.13	74.00	-31.87	Peak	100	304	P
2	1472.00	-33.40	64.02	30.62	54.00	-23.38	Average	100	304	P
3	3296.00	-29.14	72.22	43.08	74.00	-30.92	Peak	100	254	P
4	3296.00	-29.14	61.51	32.37	54.00	-21.63	Average	100	254	P
5	5418.00	-24.59	74.44	49.85	74.00	-24.15	Peak	100	132	P
6	5418.00	-24.59	60.97	36.38	54.00	-17.62	Average	100	132	P

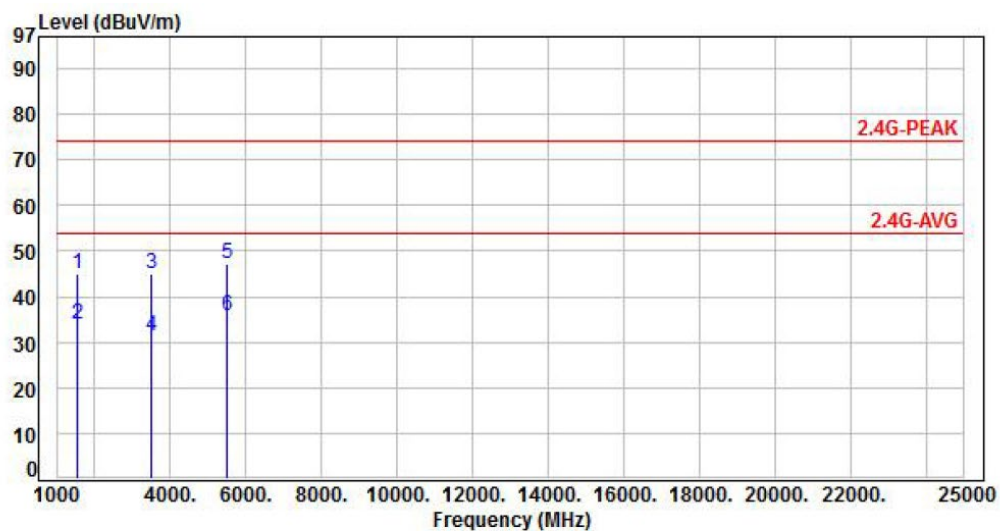
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 110V / 60Hz	Pol/Phase	: VERTICAL
Test Mode	: Mode 3, CH39		:



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	1538.00	-33.72	78.89	45.17	74.00	-28.83	Peak	100	308	P
2	1538.00	-33.72	67.47	33.75	54.00	-20.25	Average	100	308	P
3	3506.00	-28.61	73.56	44.95	74.00	-29.05	Peak	100	171	P
4	3506.00	-28.61	60.00	31.39	54.00	-22.61	Average	100	171	P
5	5497.00	-24.39	71.44	47.05	74.00	-26.95	Peak	100	276	P
6	5497.00	-24.39	60.00	35.61	54.00	-18.39	Average	100	276	P

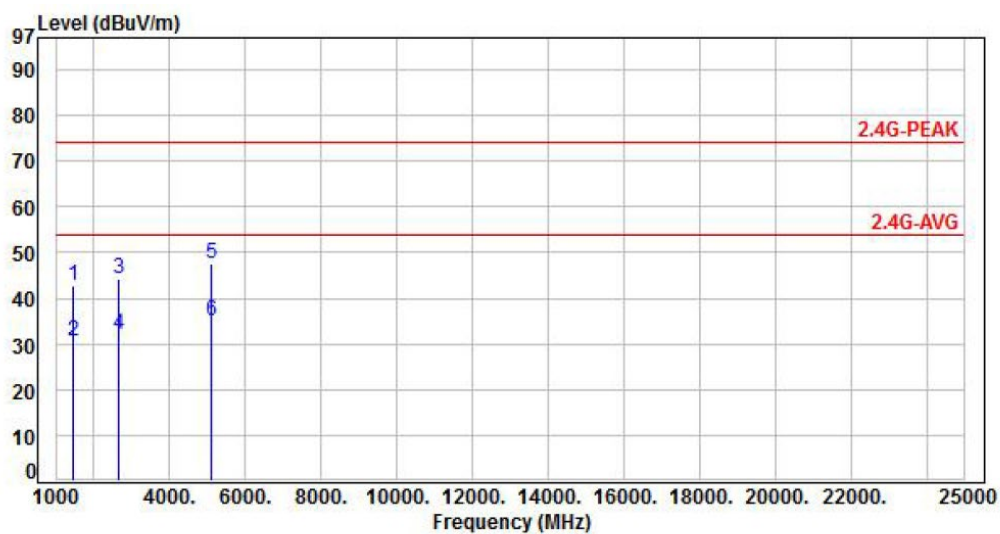
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 110V / 60Hz	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 3, CH39		



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	1438.00	-33.26	75.88	42.62	74.00	-31.38	Peak	100	94	P
2	1438.00	-33.26	63.98	30.72	54.00	-23.28	Average	100	94	P
3	2638.00	-30.22	74.61	44.39	74.00	-29.61	Peak	100	327	P
4	2638.00	-30.22	62.39	32.17	54.00	-21.83	Average	100	327	P
5	5097.00	-24.42	72.04	47.62	74.00	-26.38	Peak	100	264	P
6	5097.00	-24.42	59.64	35.22	54.00	-18.78	Average	100	264	P

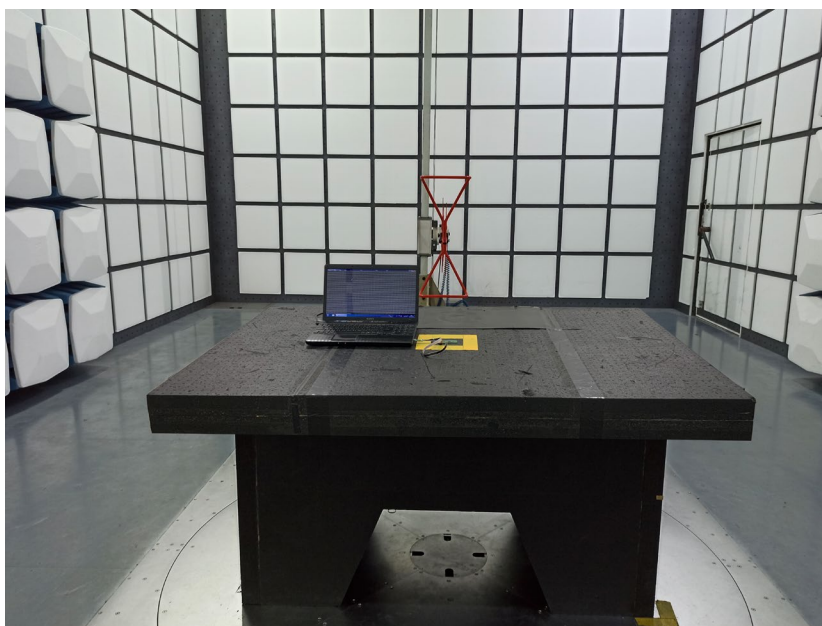
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor

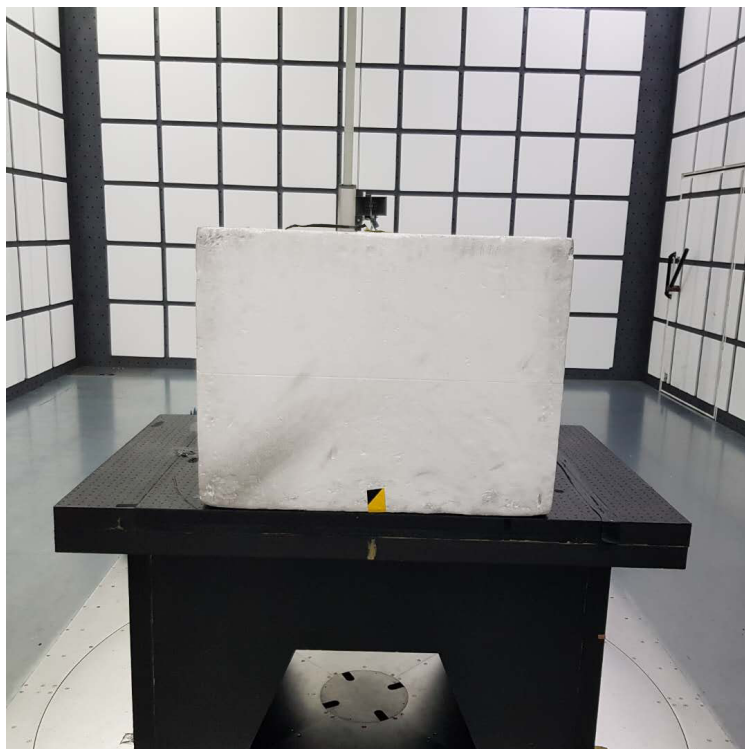


5.7. 輻射量測之配置照片(30MHz ~ 1GHz)





5.8. 輻射量測之配置照片 (1GHz ~ 25GHz)





6. On Time, Duty Cycle and Measurement methods

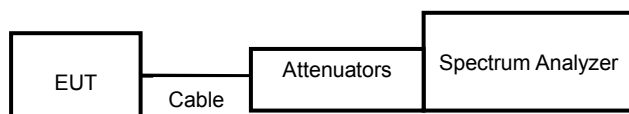
6.1. 適用標準

None; for reporting purposes only.

6.2. 測試方法

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

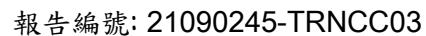
6.3. 測試配置



6.4. 測試結果及數據

Modulation Mode	On Time (ms)	Period Time (ms)	Duty Cycle (%)
GFSK(1Mbps)	2.17	2.51	86.59%
GFSK(2Mbps)	1.09	1.87	58.27%

備註：繪圖資料請參考下頁。

[illegible]

Keyight Spectrum Analyzer - Screenshot

Marker 3 Δ 780.000 μ s

SENSE INT

ALIGN AUTO

Avg Type: Log-Pwr

03:59:14 PM Oct 16, 2023

TRACE 1 2 3 4 5 6

TYPE: DWWWWWWW

DEP: NNNNNNN

Ref OffSet 11 dB

Ref 20.00 dBm

PNO: Fast IF Gain: Low

Tripp: Free Run

Atten: 20 dB

Δ Mkr3 780.0 μ s

-0.49 dB

Center 2.402000000 GHz

Res BW 3.0 MHz

#VBW 3.0 MHz

Sweep 3.000 ms (1001 pts)

Span 0 Hz

MARK	MODE	TRIG	SEL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	A2	t	(A)	1.089 ms	(A)	0.58 dB		
2	F	t	(A)	120.0 μ s	(A)	-49.07 dBm		
3	A4	t	(A)	780.0 μ s	(A)	-48.51 dBm		
4	F	t	(A)	1.209 ms	(A)	-48.51 dBm		
5								
6								
7								
8								
9								
10								
11								

MSG

STATUS



7. 6dB 頻寬之規定

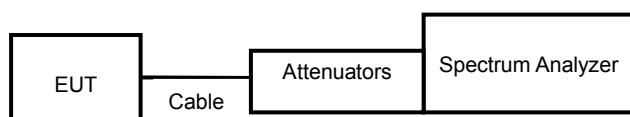
7.1. 適用標準

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



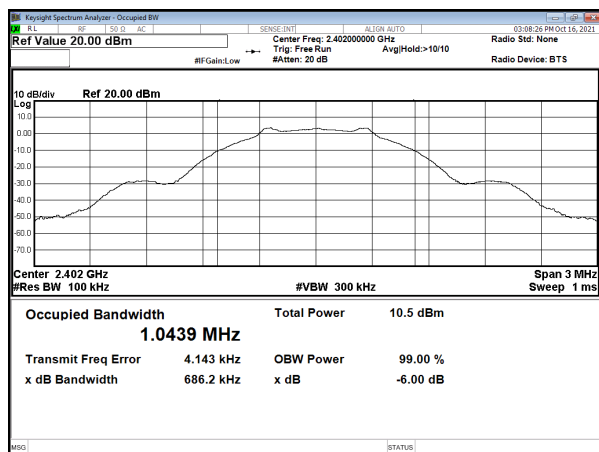
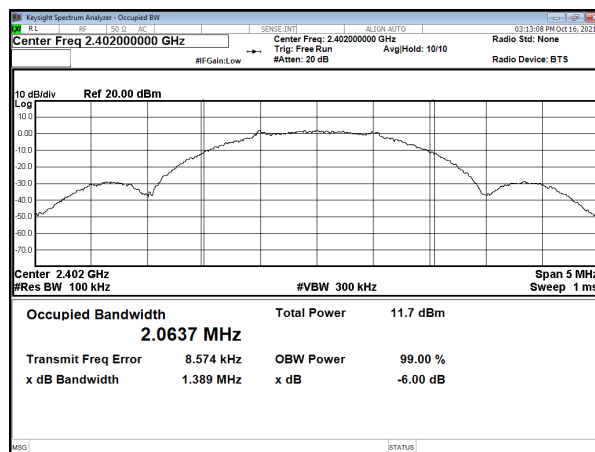
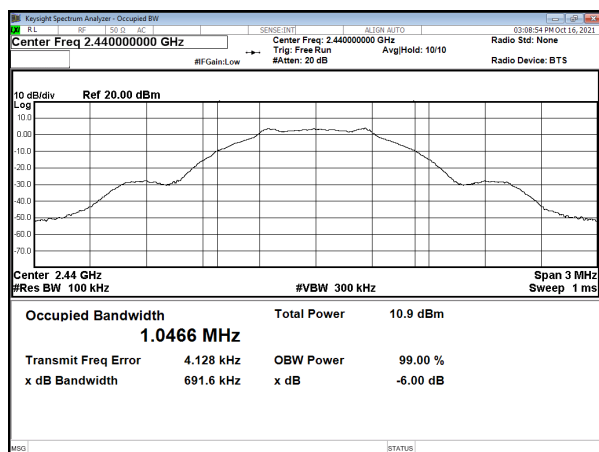
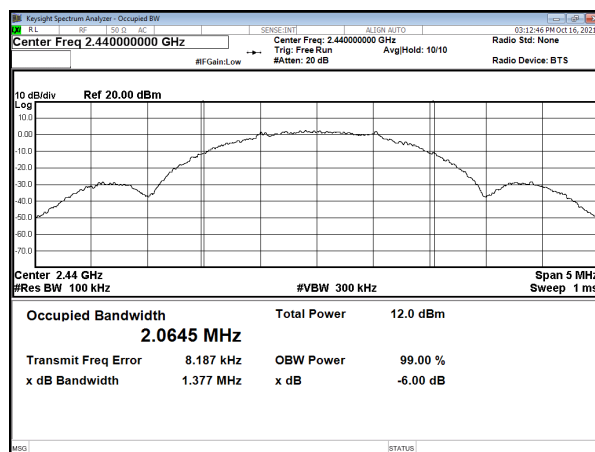
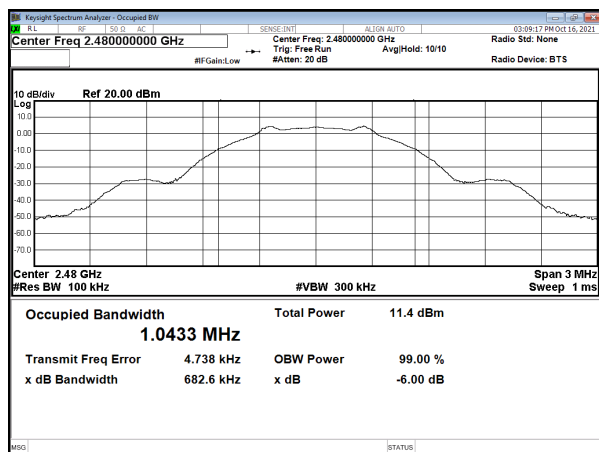
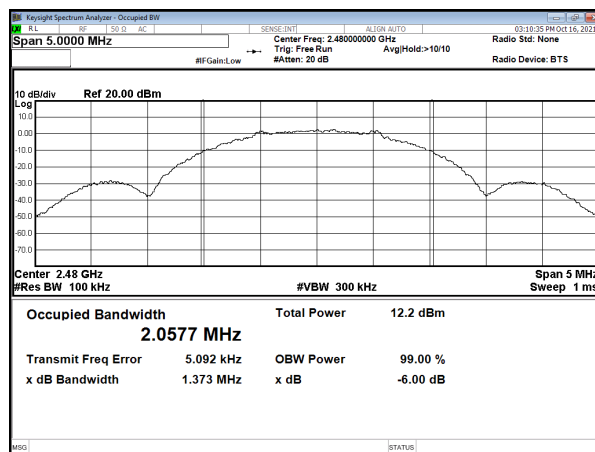
7.4. 6dB 頻寬之測試結果及數據

Modulation Type	Channel	Frequency (MHz)	6dB Bandwidth (KHz)	Limit (KHz)
GFSK(1Mbps)	0	2402	686.20	500
	19	2440	691.60	500
	39	2480	682.60	500
GFSK(2Mbps)	0	2402	1389.00	500
	19	2440	1377.00	500
	39	2480	1373.00	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)
CH00Modulation Type: GFSK(2Mbps)
CH00Modulation Type: GFSK(1Mbps)
CH19Modulation Type: GFSK(2Mbps)
CH19Modulation Type: GFSK(1Mbps)
CH39Modulation Type: GFSK(2Mbps)
CH39



8. 峰值輸出功率之規定

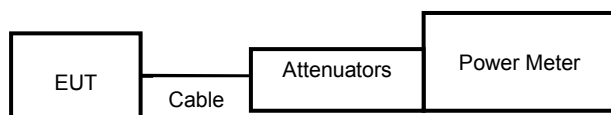
8.1. 適用標準

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，其輸出峰值功率不得大於 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，則其輸出峰值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. 峰值輸出功率之測試結果及數據

(BT 1Mbps)

Modulation Standard	Channel	Frequency (MHz)	Power Output (dBm)	Peak Power Output (mW)
GFSK	00	2402	4.48	2.805
	19	2440	4.59	2.877
	39	2480	5.00	3.162

(BT 2Mbps)

Modulation Standard	Channel	Frequency (MHz)	Power Output (dBm)	Peak Power Output (mW)
GFSK	00	2402	4.89	3.083
	19	2440	5.64	3.664
	39	2480	5.53	3.573

8.5. 結果判定

高、中、低頻段的峰值輸出功率皆低於 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：

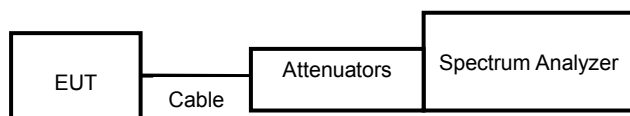
- (1) 輸出功率以峰值輸出功率方式量測者，至少需衰減 20dB，可使用射頻傳導或輻射方式測量。
- (2) 輸出功率以 4.10.1.2(1)(C)之最大傳導輸出功率測量方式者，至少需衰減 30dB，可使用射頻傳導或輻射方式測量。

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

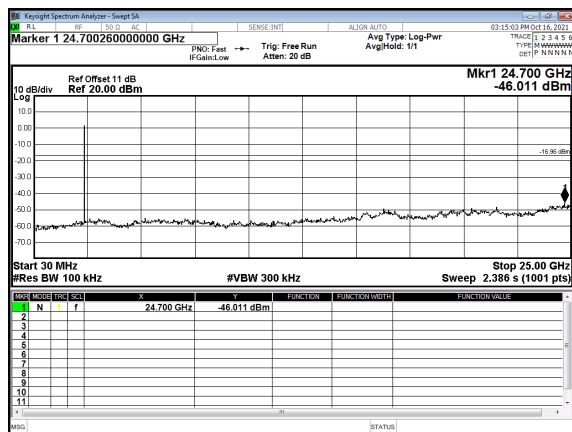
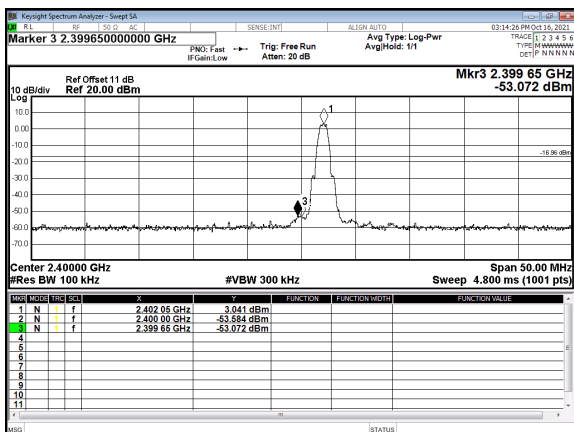
7.6.1 下邊緣頻帶：距下頻帶邊緣 40MHz 內最大混附波比主波低 20dB 以上，合乎標準規定。

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 20dB 以上，合乎標準規定。

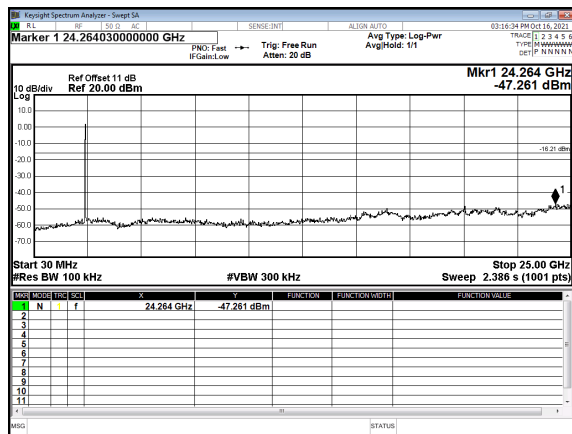
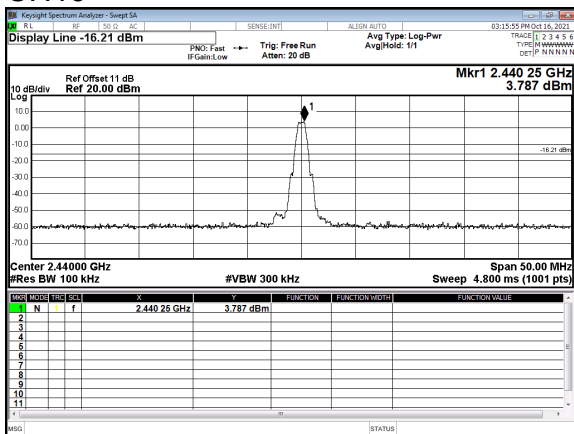
備註：繪圖資料請參考下頁。



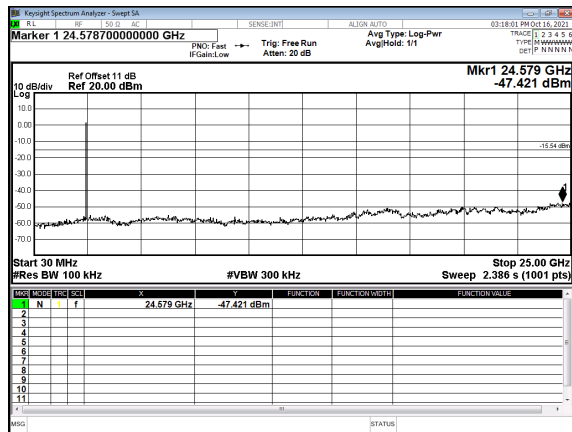
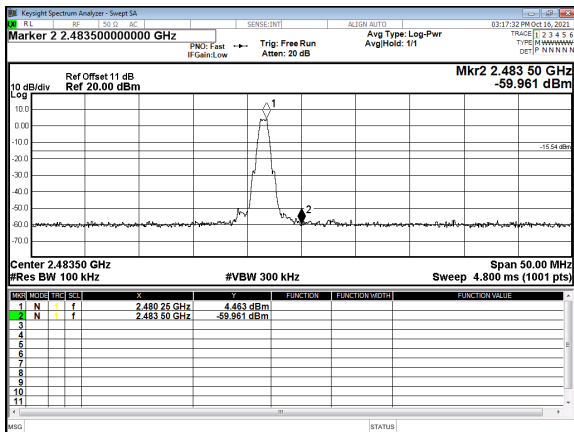
Modulation Type: GFSK(1Mbps) Channel 00



Modulation Type: GFSK(1Mbps) CH19

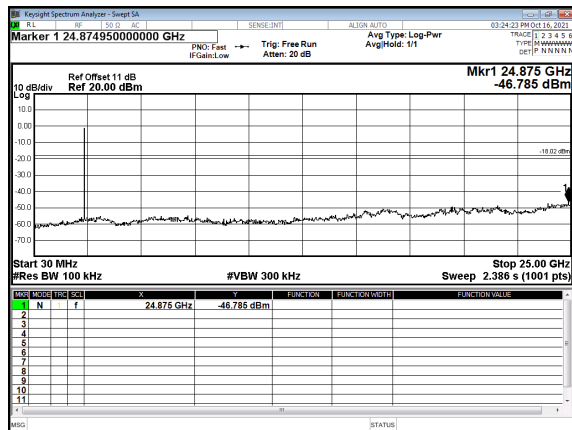
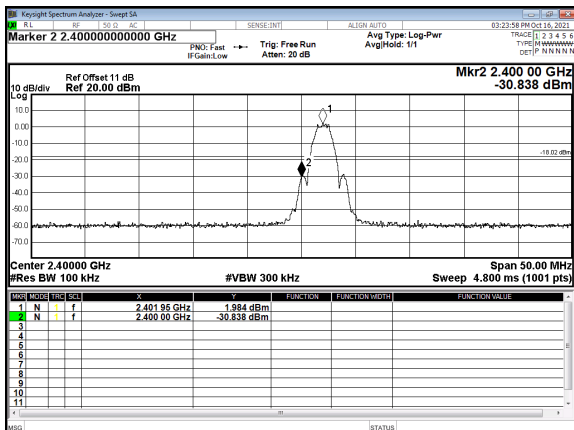


Modulation Type: GFSK(1Mbps) CH39

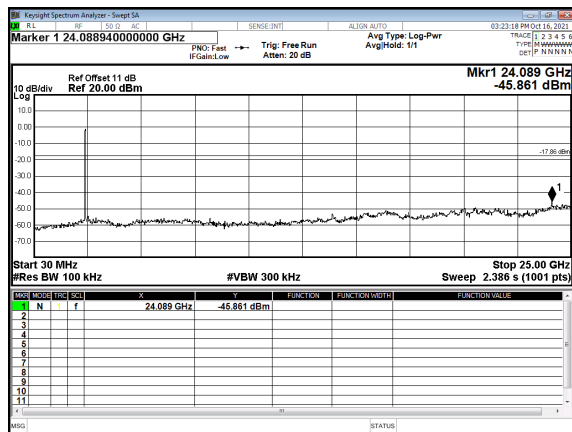
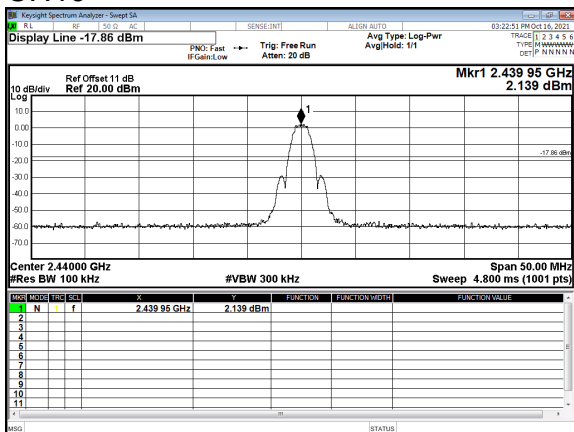




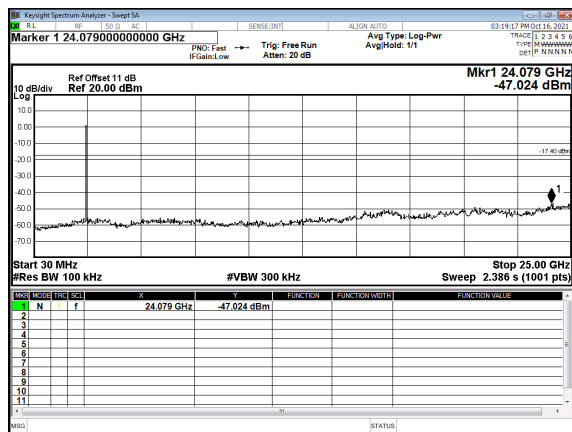
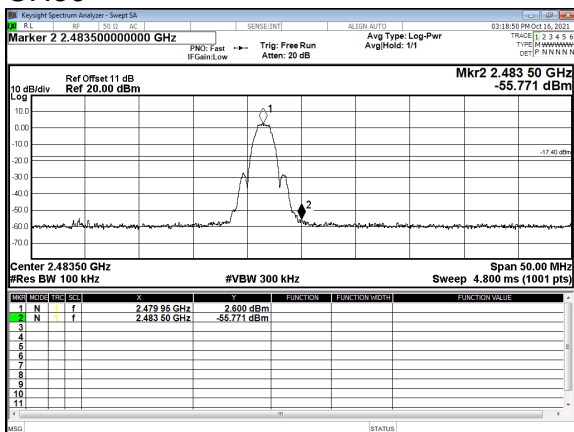
Modulation Type: GFSK(2Mbps) Channel 00



Modulation Type: GFSK(2Mbps) CH19



Modulation Type: GFSK(2Mbps) CH39





10. 功率密度之規定

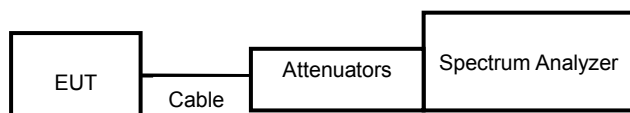
10.1. 適用標準

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，在使用任意 3 kHz 之頻寬內，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 8dBm，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 3kHz、視訊頻寬為 10 kHz。
3. 量測並記錄於報告中。

10.3. 測試配置



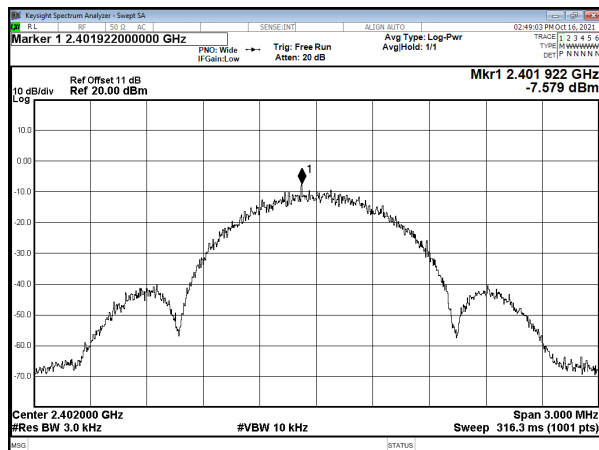
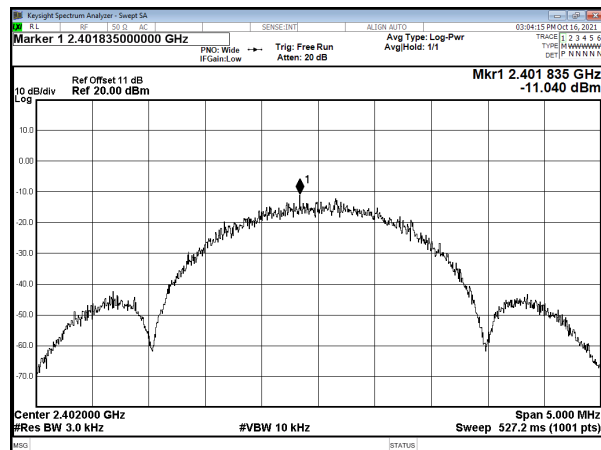
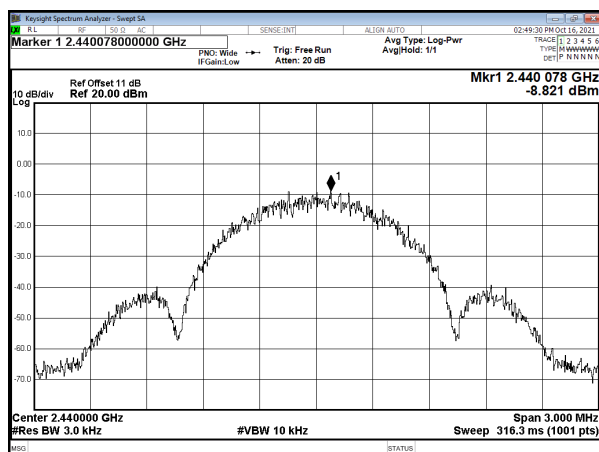
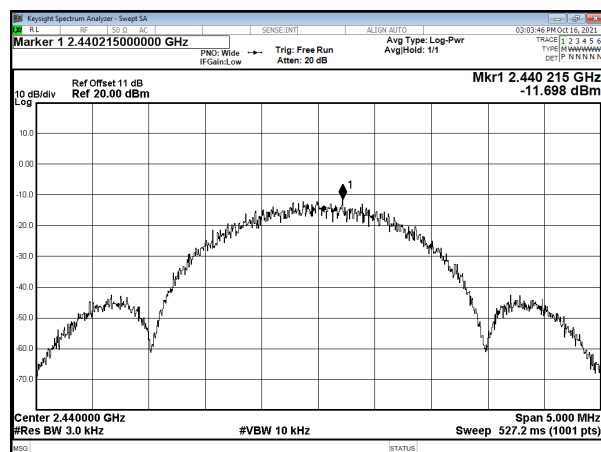
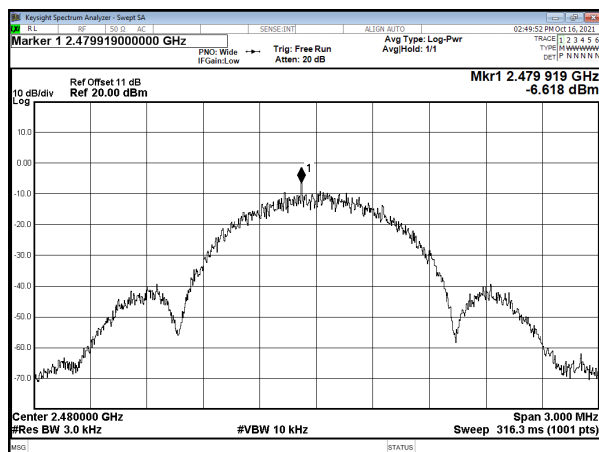
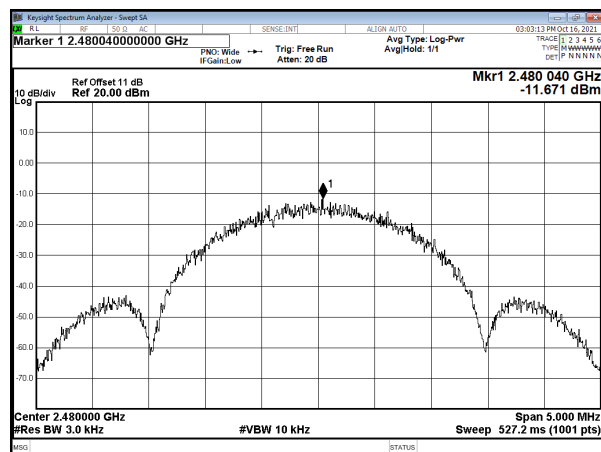
10.4. 功率密度之量測結果及數據

Modulation Type	Channel	Frequency (MHz)	Maximum Power Density of 3KHz Bandwidth(dBm)	Limit
GFSK(1Mbps)	0	2402	-7.579	8.00
	19	2440	-8.821	8.00
	39	2480	-6.618	8.00
GFSK(2Mbps)	0	2402	-11.04	8.00
	19	2440	-11.698	8.00
	39	2480	-11.671	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3 kHz功率密度皆低於 8 dBm，合乎標準規定。

Modulation Type: GFSK(1Mbps)
CH00Modulation Type: GFSK(2Mbps)
CH00Modulation Type: GFSK(1Mbps)
CH19Modulation Type: GFSK(2Mbps)
CH19Modulation Type: GFSK(1Mbps)
CH39Modulation Type: GFSK(2Mbps)
CH39



11. 電波暴露量之評估

11.1. 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 6.20 節之(6.20.2)規定，若受測物於正常操作模式下，其發射機距離人體 20 公分以上者，可測試最大暴露允許值(Maximum Permissible Exposure, MPE)以證明其符電波暴露量之要求。限制值如下：

(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：百萬赫(MHz)。

(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)
0.3-3.0	614	1.63	*100	30
3-30	1842/f	4.89/f	*180/f ²	30
30-300	27.5	0.073	1.0	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：百萬赫(MHz)。

11.2. 電波暴露量之評估結果及數據

Modulation Mode	Channel Frequency (MHz)	Max. Conducted output power (dBm)	Max. Tune up power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
GFSK(1Mbps)	2402-2480	5.00	7.00	3	20	0.002	1
GFSK(1Mbps)	2402-2480	5.64	7.64	3	20	0.002	1

11.3. 結果判定

高、中、低頻段的電波暴露量皆低於限制值，合乎標準規定。



12. 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-----