



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-TRNCC01	Dec. 13, 2021	Original



證 明 書

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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)	:	7.34dBm

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, 5.5 節及 5.6 節	合格
4	發射頻寬之要求	4.10.1.6 節(1)(A)	請參閱 2 章	請參閱 6.4 節	合格
5	頻道間隔之要求	4.10.1.6 節(1)(A)	請參閱 2 章	請參閱 7.4 節	合格
6	頻道佔用時間之要求	4.10.1.6 節(1)(A)(a)	請參閱 2 章	請參閱 8.4 節	合格
7	跳頻頻道使用數量之要求	4.10.1.6 節(1)(A)(a)	請參閱 2 章	請參閱 9.4 節	合格
8	輸出功率之要求	4.10.1.2 節	請參閱 2 章	請參閱 10.4 節	合格
9	混附波發射限制之要求	4.10.1.5 節	請參閱 2 章	請參閱 11.4 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)	Channel	Frequency (MHz)
*00	2402	20	2422	40	2442	60	2462
01	2403	21	2423	41	2443	61	2463
02	2404	22	2424	42	2444	62	2464
03	2405	23	2425	43	2445	63	2465
04	2406	24	2426	44	2446	64	2466
05	2407	25	2427	45	2447	65	2467
06	2408	26	2428	46	2448	66	2468
07	2409	27	2429	47	2449	67	2469
08	2410	28	2430	48	2450	68	2470
09	2411	29	2431	49	2451	69	2471
10	2412	30	2432	50	2452	70	2472
11	2413	31	2433	51	2453	71	2473
12	2414	32	2434	52	2454	72	2474
13	2415	33	2435	53	2455	73	2475
14	2416	34	2436	54	2456	74	2476
15	2417	35	2437	55	2457	75	2477
16	2418	36	2438	56	2458	76	2478
17	2419	37	2439	57	2459	77	2479
18	2420	38	2440	58	2460	*78	2480
19	2421	*39	2441	59	2461	---	---

*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 Tool ver. W1960” 傳送及接收訊號。
- 執行以下測試模式如下：

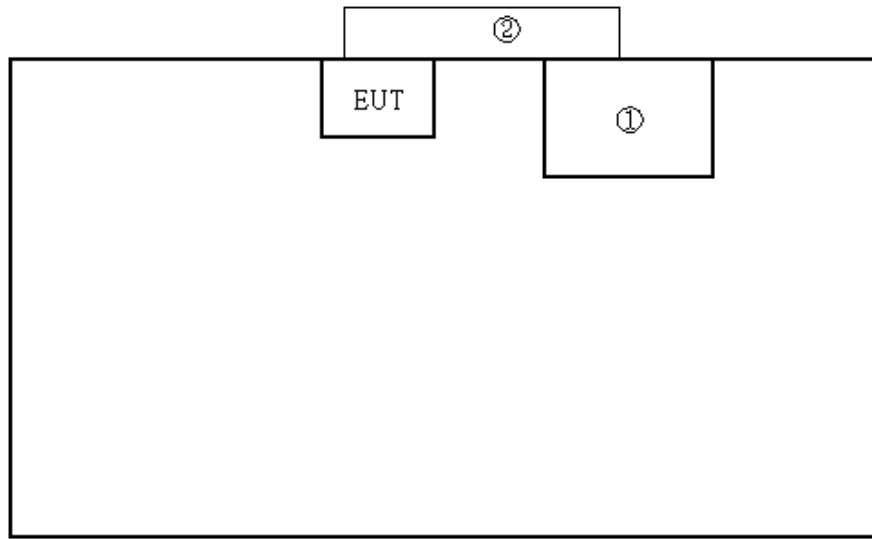
Conducted Emissions from the AC mains power ports	
Test Mode	Operating Description
1	GFSK (1Mbps) , Transmitter Mode
2	$\pi/4$ -DQPSK (2Mbps) , Transmitter Mode
3	8DPSK (3Mbps) , Transmitter Mode
4	GFSK (1Mbps) , Receiver Mode
5	$\pi/4$ -DQPSK (2Mbps) , Receiver Mode
6	8DPSK (3Mbps) , Receiver Mode
caused “Test Mode 1, 4” 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	$\pi/4$ -DQPSK (2Mbps) , Transmitter Mode
3	8DPSK (3Mbps) , Transmitter Mode
4	GFSK (1Mbps) , Receiver Mode
5	$\pi/4$ -DQPSK (2Mbps) , Receiver Mode
6	8DPSK (3Mbps) , Receiver Mode
caused “Test Mode 1, 4” 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	$\pi/4$ -DQPSK (2Mbps) , Transmitter Mode
3	8DPSK (3Mbps) , Transmitter Mode
4	GFSK (1Mbps) , Receiver Mode
5	$\pi/4$ -DQPSK (2Mbps) , Receiver Mode
6	8DPSK (3Mbps) , Receiver Mode
caused “Test Mode 1~3, 4” generated the worst case, they were reported as the final data.	

Modulation Type	TX CONFIGURATION
GFSK	1TX
$\pi/4$ -DQPSK	1TX
8DPSK	1TX



1.5. 受測裝置之系統說明

傳導干擾:



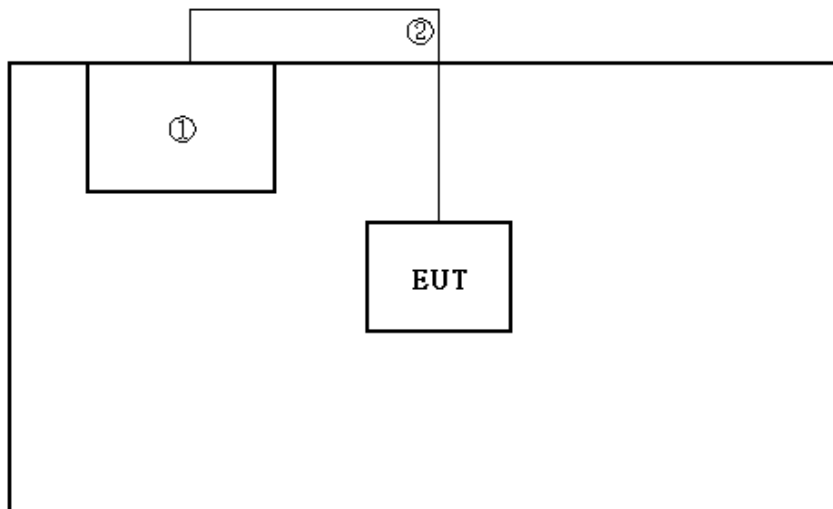
Under Table

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 / 48%	Dian Chen
Radiated Emissions	3M02-NK	2021/11/27~2018/11/30	23~25°C / 43~47%	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 & HUMI 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。

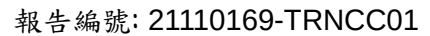
操作於 5725-5850 兆赫(MHz)者，其發射天線之方向性增益超過 6dBi，不需降低峰值輸出功率。

3.1. 天線型式及其增益

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

3.2. 結果判定

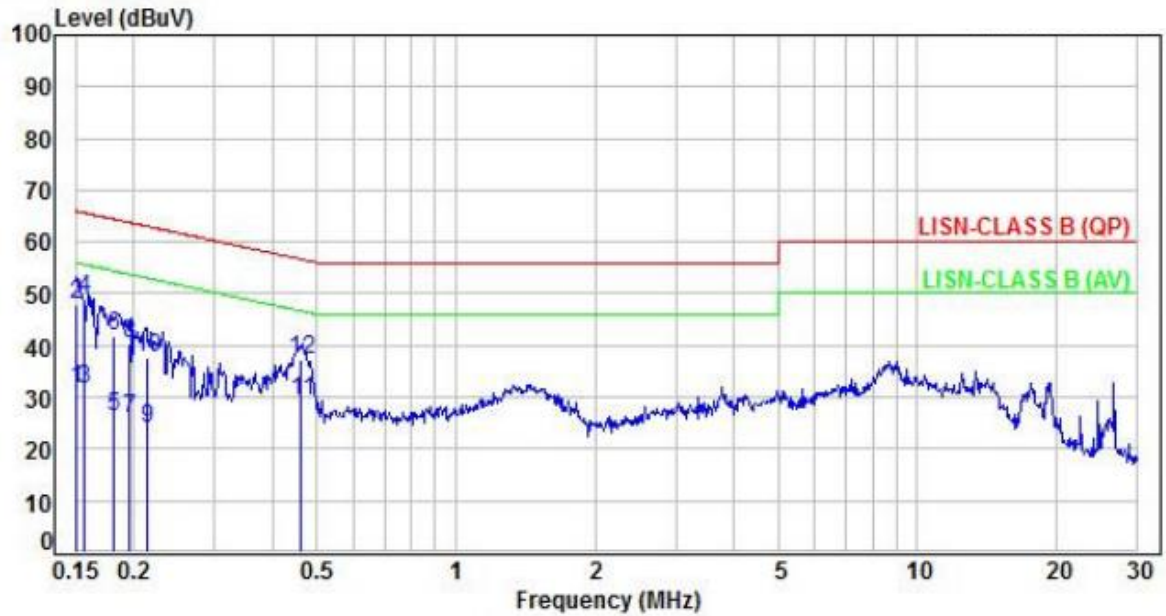
其發射天線之方向性增益低於 6dBi，因此無需降低峰值輸出功率。





4.4. 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	21.45	31.42	55.98	-24.56	Average	P
2	0.15	9.97	37.92	47.89	65.98	-18.09	QP	P
3	0.16	9.97	21.61	31.58	55.69	-24.11	Average	P
4	0.16	9.97	39.16	49.13	65.69	-16.56	QP	P
5	0.18	9.97	16.38	26.35	54.41	-28.06	Average	P
6	0.18	9.97	31.83	41.80	64.41	-22.61	QP	P
7	0.20	9.97	15.85	25.82	53.78	-27.96	Average	P
8	0.20	9.97	30.47	40.44	63.78	-23.34	QP	P
9	0.21	9.97	14.08	24.05	53.07	-29.02	Average	P
10	0.21	9.97	27.67	37.64	63.07	-25.43	QP	P
11	0.46	9.98	19.47	29.45	46.67	-17.22	Average	P
12	0.46	9.98	27.10	37.08	56.67	-19.59	QP	P

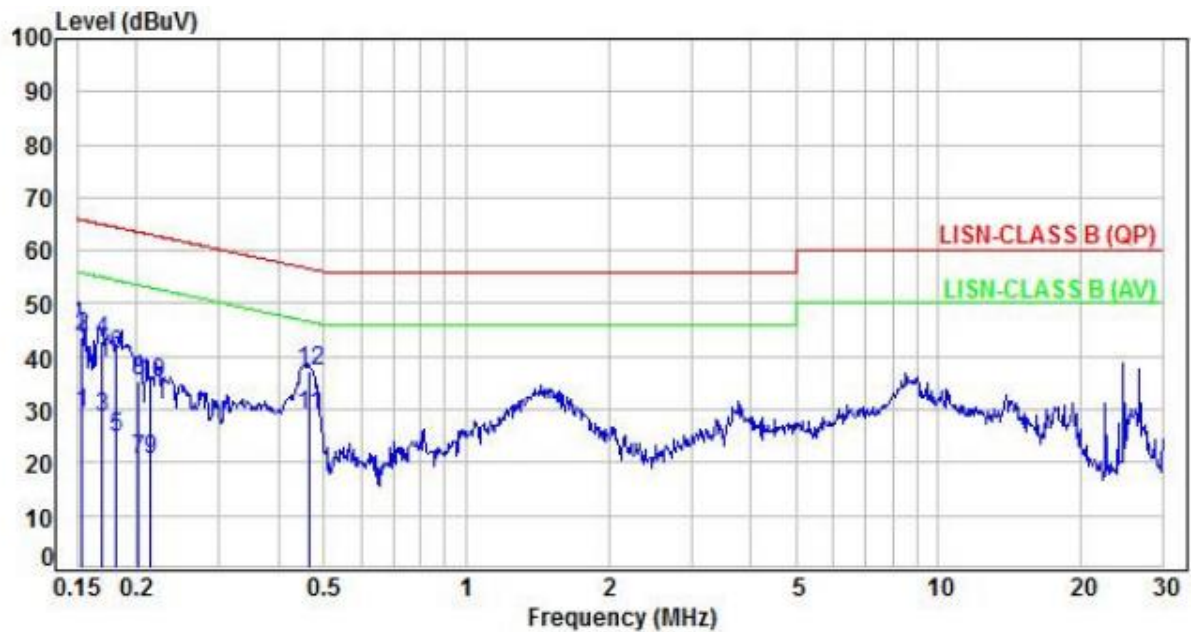
Note: Level=Reading+Factor

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	19.48	29.45	55.84	-26.39	Average	P
2	0.15	9.97	33.57	43.54	65.84	-22.30	QP	P
3	0.17	9.97	18.54	28.51	55.02	-26.51	Average	P
4	0.17	9.97	32.82	42.79	65.02	-22.23	QP	P
5	0.18	9.97	14.81	24.78	54.41	-29.63	Average	P
6	0.18	9.97	30.34	40.31	64.41	-24.10	QP	P
7	0.20	9.97	10.45	20.42	53.50	-33.08	Average	P
8	0.20	9.97	25.26	35.23	63.50	-28.27	QP	P
9	0.22	9.97	10.74	20.71	53.01	-32.30	Average	P
10	0.22	9.97	24.92	34.89	63.01	-28.12	QP	P
11	0.46	9.98	19.00	28.98	46.62	-17.64	Average	P
12	0.46	9.98	27.29	37.27	56.62	-19.35	QP	P

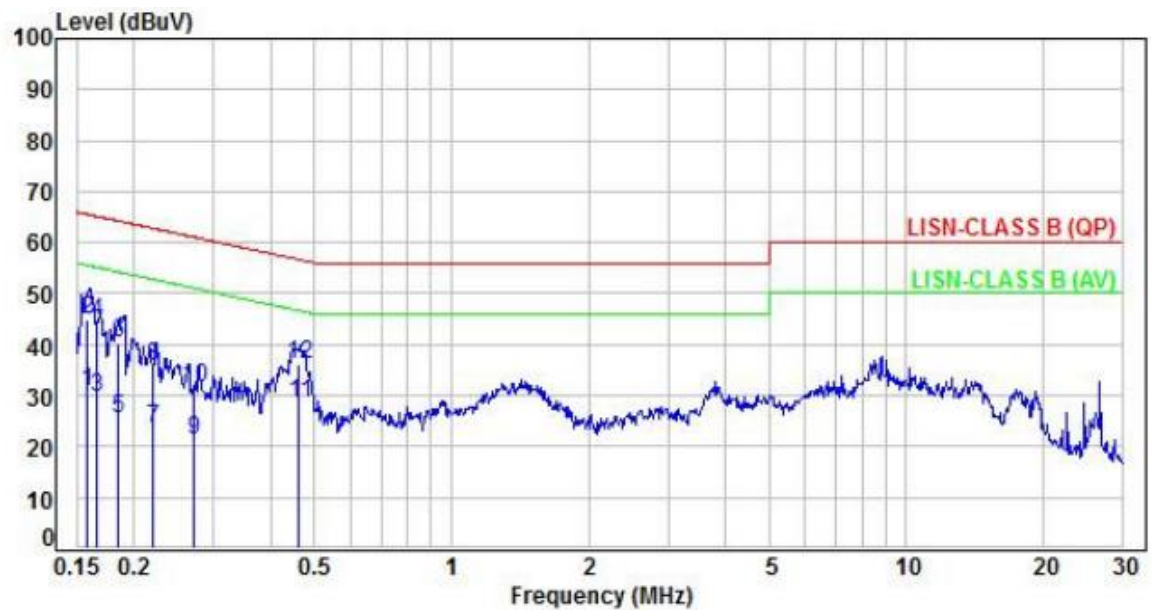
Note: Level=Reading+Factor

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 4		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV)	Limit (dBUV)	Margin (dB)	Detector	P/F
1	0.16	9.97	20.76	30.73	55.54	-24.81	Average	P
2	0.16	9.97	35.08	45.05	65.54	-20.49	QP	P
3	0.17	9.97	19.55	29.52	55.20	-25.68	Average	P
4	0.17	9.97	34.55	44.52	65.20	-20.68	QP	P
5	0.18	9.97	15.63	25.60	54.26	-28.66	Average	P
6	0.18	9.97	30.22	40.19	64.26	-24.07	QP	P
7	0.22	9.97	13.53	23.50	52.78	-29.28	Average	P
8	0.22	9.97	25.93	35.90	62.78	-26.88	QP	P
9	0.27	9.97	11.22	21.19	51.05	-29.86	Average	P
10	0.27	9.97	21.43	31.40	61.05	-29.65	QP	P
11	0.46	9.98	18.63	28.61	46.67	-18.06	Average	P
12	0.46	9.98	26.16	36.14	56.67	-20.53	QP	P

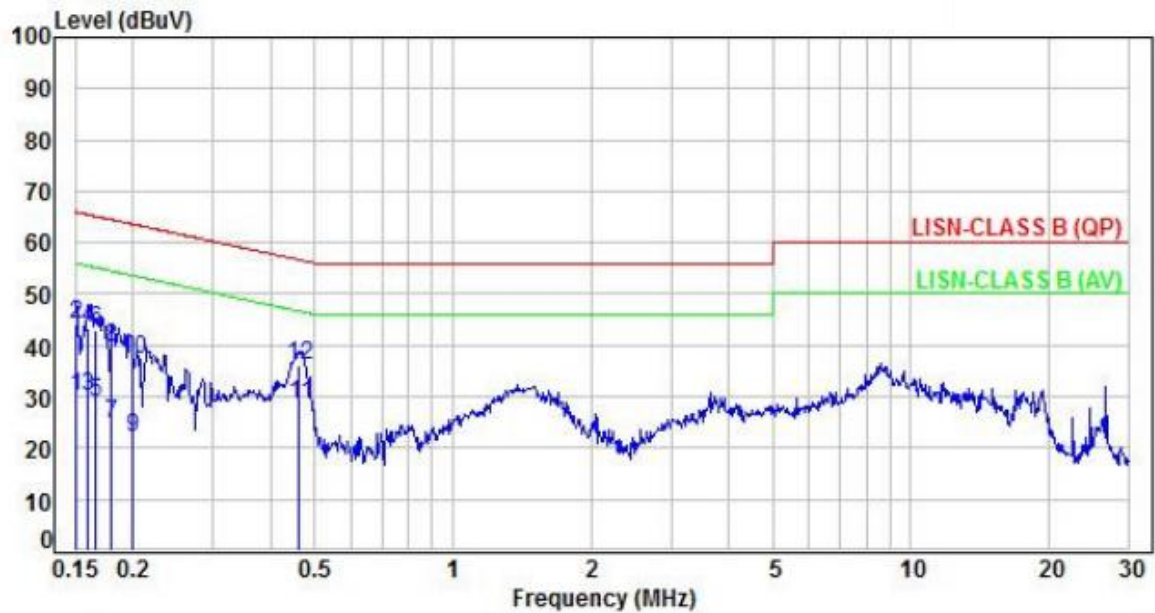
Note: Level=Reading+Factor

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 4		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.15	9.97	19.92	29.89	55.98	-26.09	Average	P
2	0.15	9.97	34.24	44.21	65.98	-21.77	QP	P
3	0.16	9.97	19.99	29.96	55.50	-25.54	Average	P
4	0.16	9.97	33.31	43.28	65.50	-22.22	QP	P
5	0.17	9.97	18.82	28.79	55.14	-26.35	Average	P
6	0.17	9.97	32.95	42.92	65.14	-22.22	QP	P
7	0.18	9.97	14.84	24.81	54.54	-29.73	Average	P
8	0.18	9.97	29.62	39.59	64.54	-24.95	QP	P
9	0.20	9.97	12.08	22.05	53.65	-31.60	Average	P
10	0.20	9.97	27.25	37.22	63.65	-26.43	QP	P
11	0.46	9.98	18.48	28.46	46.65	-18.19	Average	P
12	0.46	9.98	25.99	35.97	56.65	-20.68	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 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：

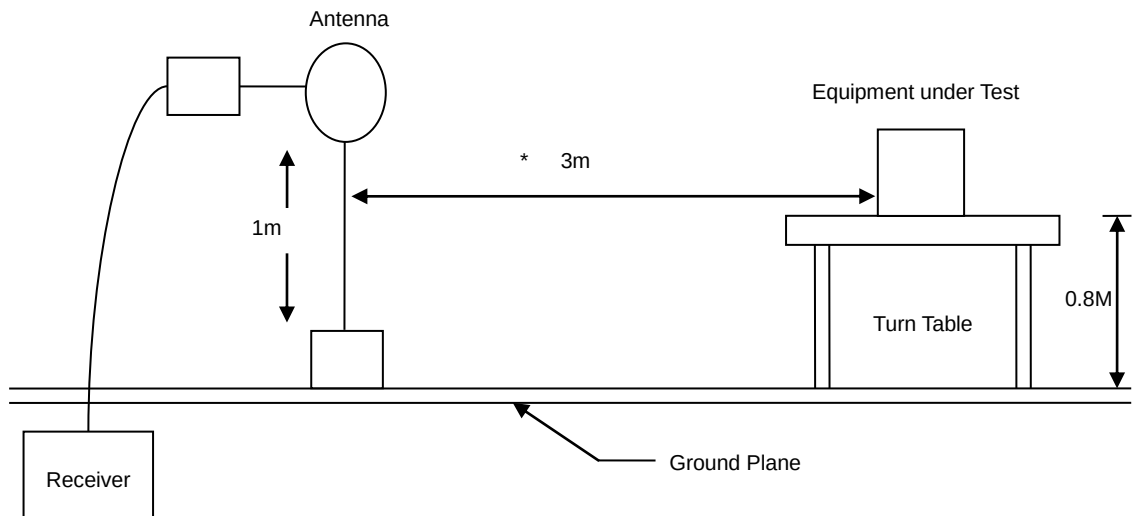
1.For Below 1G 若待測物之輻射峰值低於限制值 3dB 以上，則將終止測試，並以峰值之讀值作為報告之記錄;反之，若無 3dB 餘裕範圍之輻射，則每一訊號皆以準峰值之測試方法量測，並記錄於報告之中

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

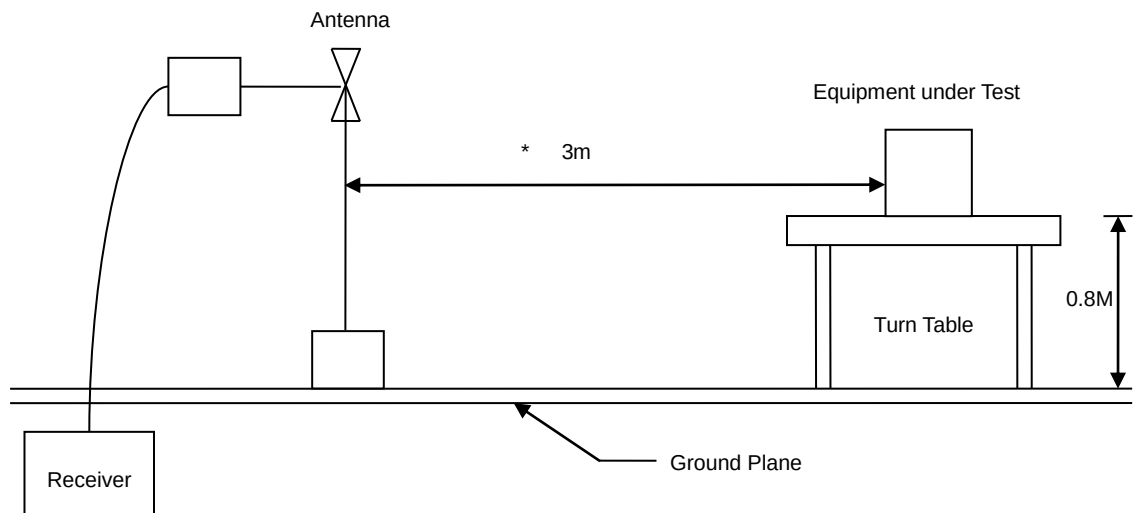


5.3. 輻射場地之擺設

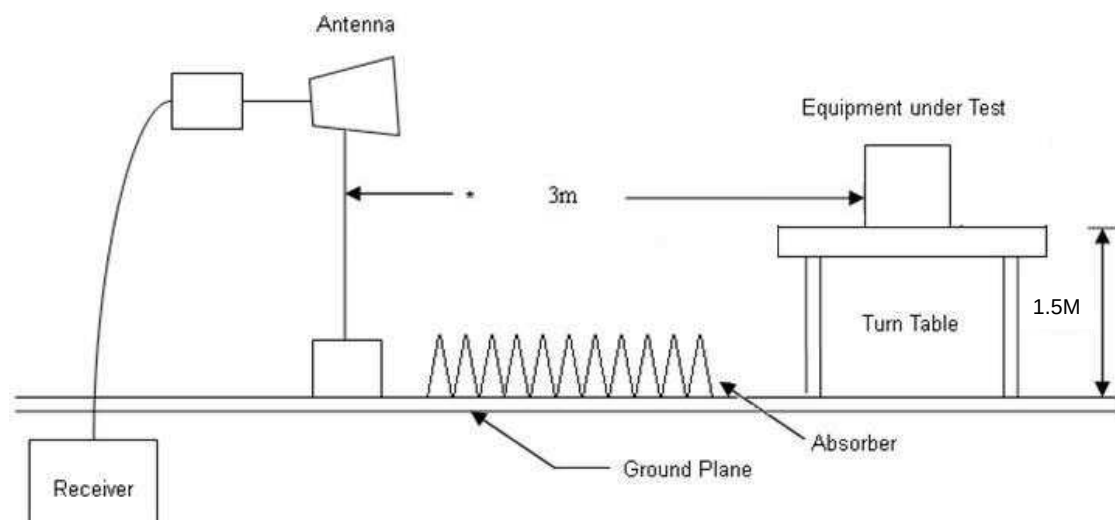
Below 30MHz test setup



30MHz- 1GHz Test Setup



Above 1GHz Test Setup



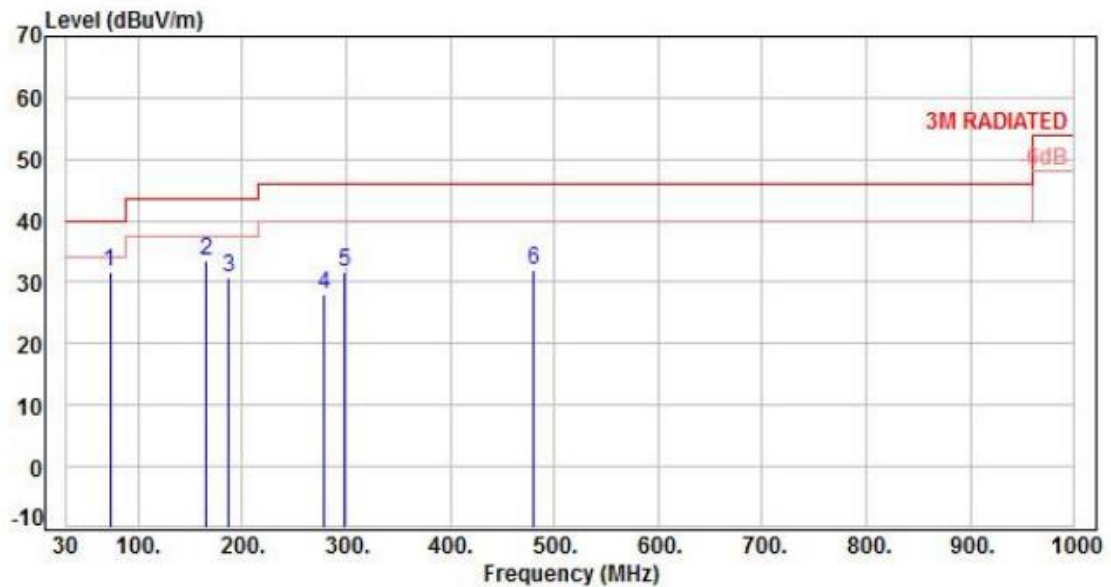


5.4. 輻射之測試結果及數據 (9kHz ~ 30MHz)

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	45.72	31.71	40.00	-8.29	QP	300	237	P
2	165.80	-11.96	45.43	33.47	43.50	-10.03	Peak	400	360	P
3	187.14	-13.54	44.35	30.81	43.50	-12.69	Peak	400	360	P
4	278.32	-11.07	39.14	28.07	46.00	-17.93	Peak	400	360	P
5	297.72	-10.67	42.27	31.60	46.00	-14.40	Peak	400	360	P
6	480.08	-6.09	38.15	32.06	46.00	-13.94	Peak	400	360	P

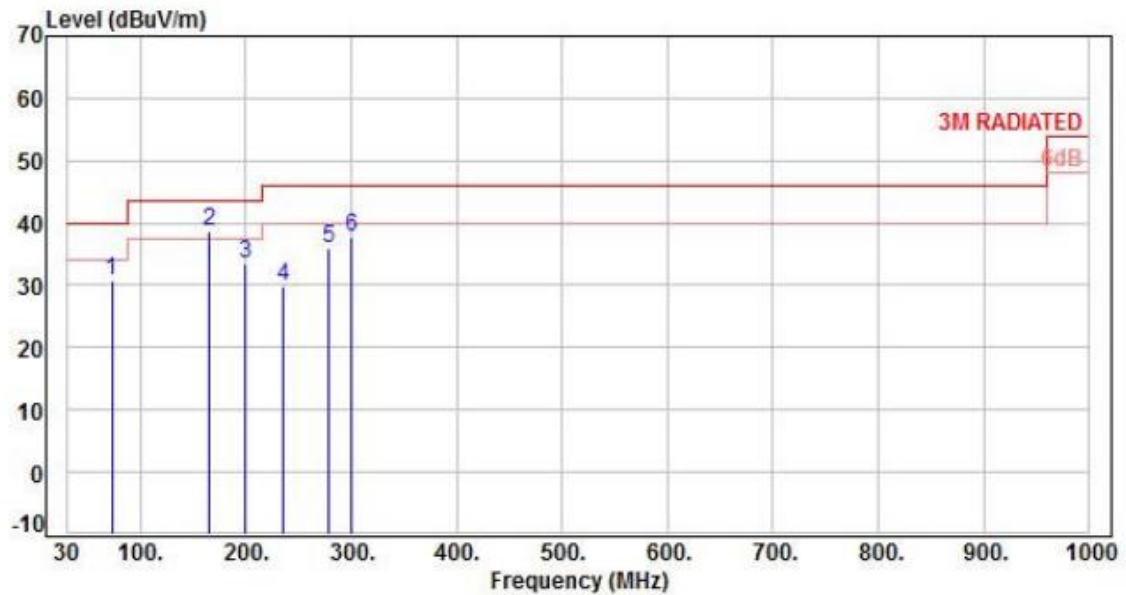
Note: Level=Reading+Factor

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	44.71	30.70	40.00	-9.30	QP	100	178	P
2	165.80	-11.96	50.65	38.69	43.50	-4.81	Peak	400	0	P
3	198.78	-13.37	46.76	33.39	43.50	-10.11	Peak	400	0	P
4	235.64	-13.35	43.19	29.84	46.00	-16.16	Peak	400	0	P
5	278.32	-11.07	47.12	36.05	46.00	-9.95	Peak	400	0	P
6	299.66	-10.62	48.23	37.61	46.00	-8.39	Peak	400	0	P

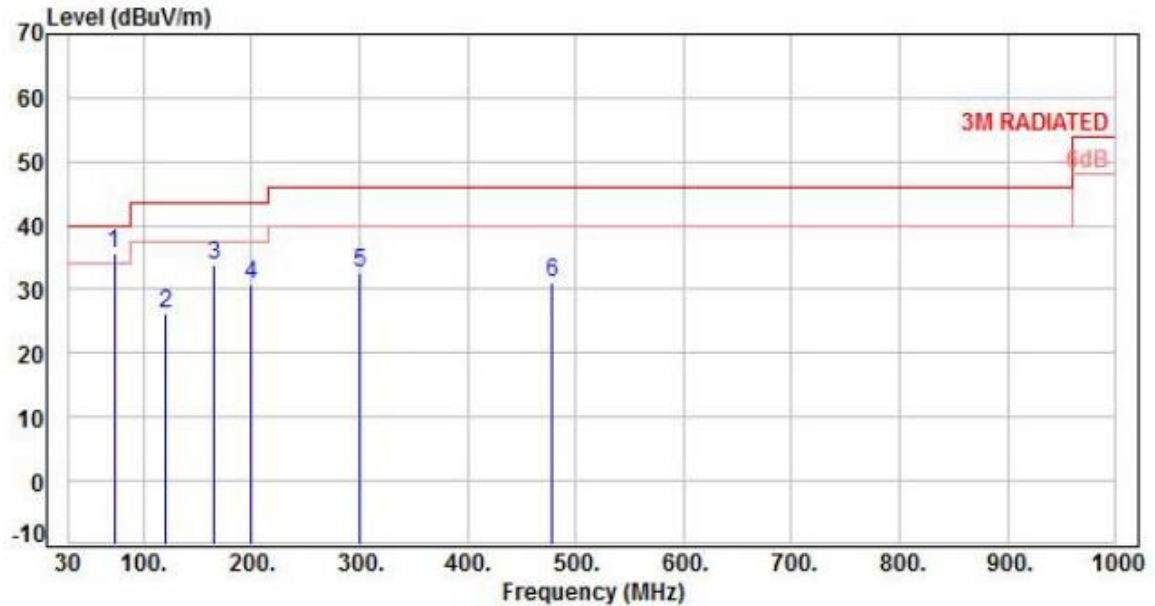
Note: Level=Reading+Factor

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 4		:	



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	49.53	35.52	40.00	-4.48	Peak	400	360	P
2	121.18	-13.85	40.07	26.22	43.50	-17.28	Peak	400	360	P
3	165.80	-11.96	45.67	33.71	43.50	-9.79	Peak	400	360	P
4	198.78	-13.37	44.26	30.89	43.50	-12.61	Peak	400	360	P
5	299.66	-10.62	43.22	32.60	46.00	-13.40	Peak	400	360	P
6	478.14	-6.10	37.21	31.11	46.00	-14.89	Peak	400	360	P

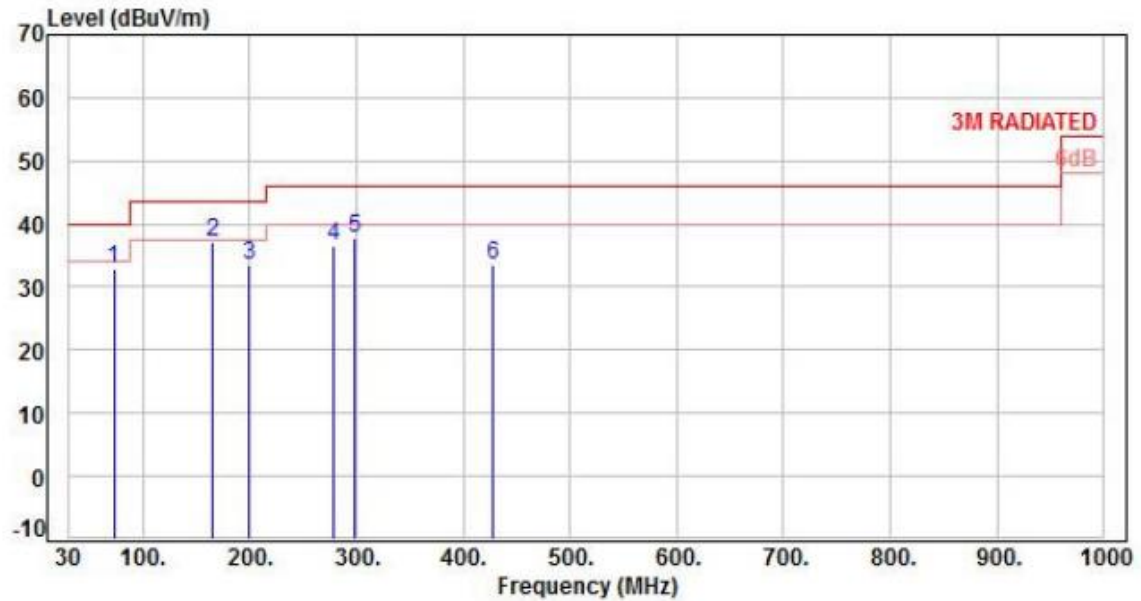
Note: Level=Reading+Factor

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 4		:	



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	46.81	32.80	40.00	-7.20	QP	125	152	P
2	165.80	-11.96	49.16	37.20	43.50	-6.30	Peak	400	360	P
3	198.78	-13.37	46.87	33.50	43.50	-10.00	Peak	400	360	P
4	278.32	-11.07	47.63	36.56	46.00	-9.44	Peak	400	360	P
5	297.72	-10.67	48.56	37.89	46.00	-8.11	Peak	400	360	P
6	427.70	-7.08	40.61	33.53	46.00	-12.47	Peak	400	360	P

Note: Level=Reading+Factor

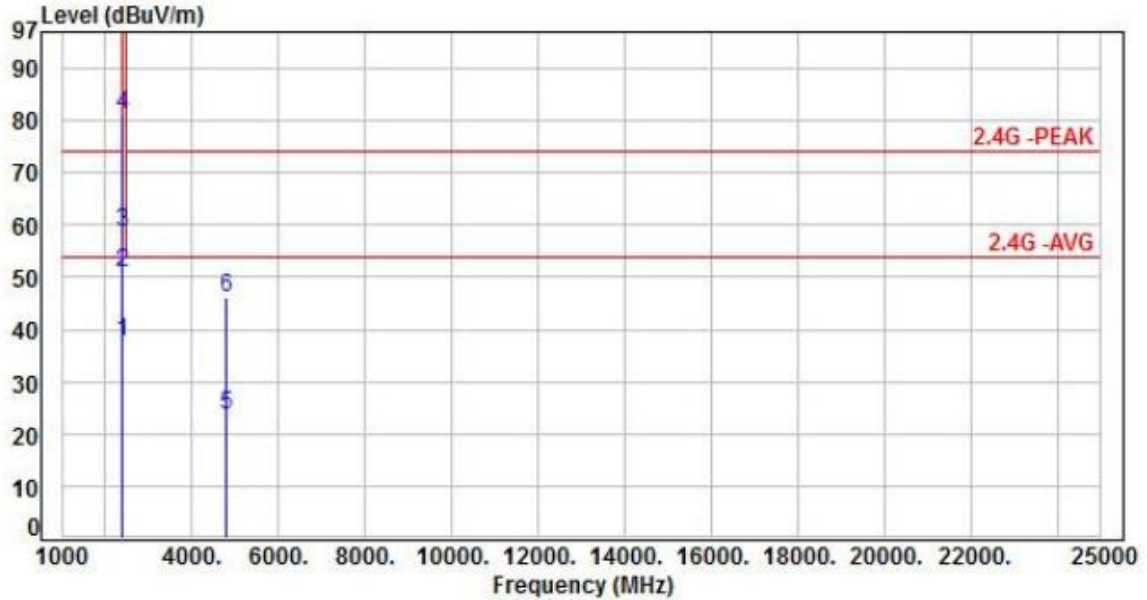
Margin=Level-Limit

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	41.04	37.50	54.00	-16.50	Average	100	161	P
2	2390.00	-3.54	54.43	50.89	74.00	-23.11	Peak	100	161	P
3	2402.00	-3.51	61.99	58.48	200.00	-141.52	Average	100	161	P
4	2402.00	-3.51	84.49	80.98	200.00	-119.02	Peak	100	161	P
5	4804.00	3.76	19.95	23.71	54.00	-30.29	Average	100	153	P
6	4804.00	3.76	42.45	46.21	74.00	-27.79	Peak	100	153	P

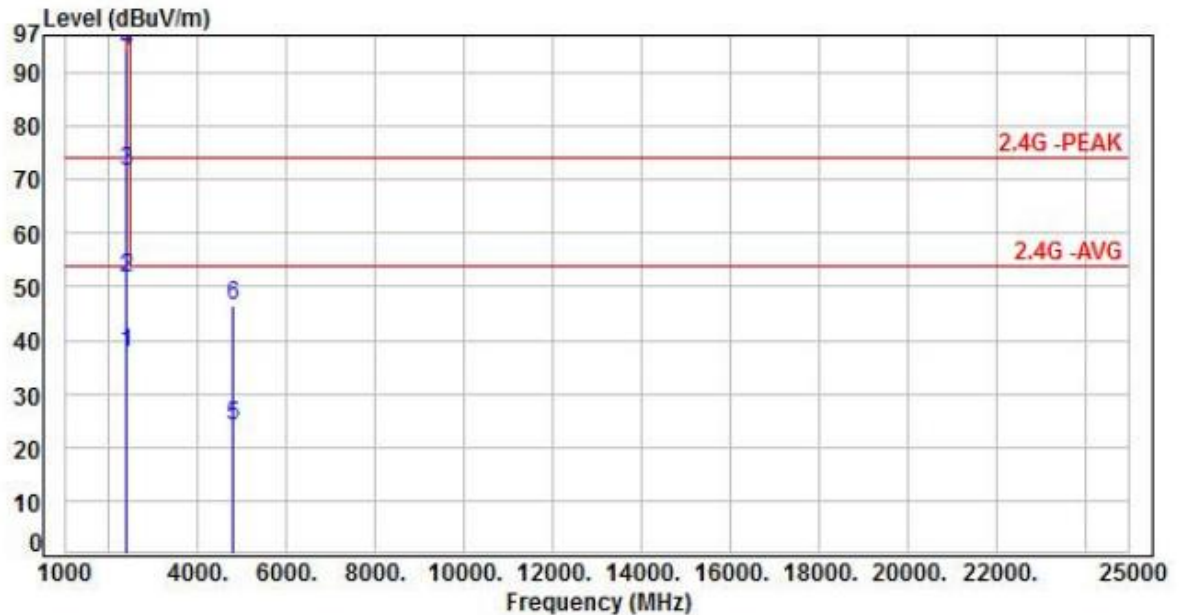
Note: Level=Reading+Factor

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	41.12	37.58	54.00	-16.42	Average	263	281	P
2	2390.00	-3.54	55.02	51.48	74.00	-22.52	Peak	263	281	P
3	2402.00	-3.51	75.17	71.66	200.00	-128.34	Average	263	281	P
4	2402.00	-3.51	97.67	94.16	200.00	-105.84	Peak	263	281	P
5	4804.00	3.76	20.37	24.13	54.00	-29.87	Average	100	269	P
6	4804.00	3.76	42.87	46.63	74.00	-27.37	Peak	100	269	P

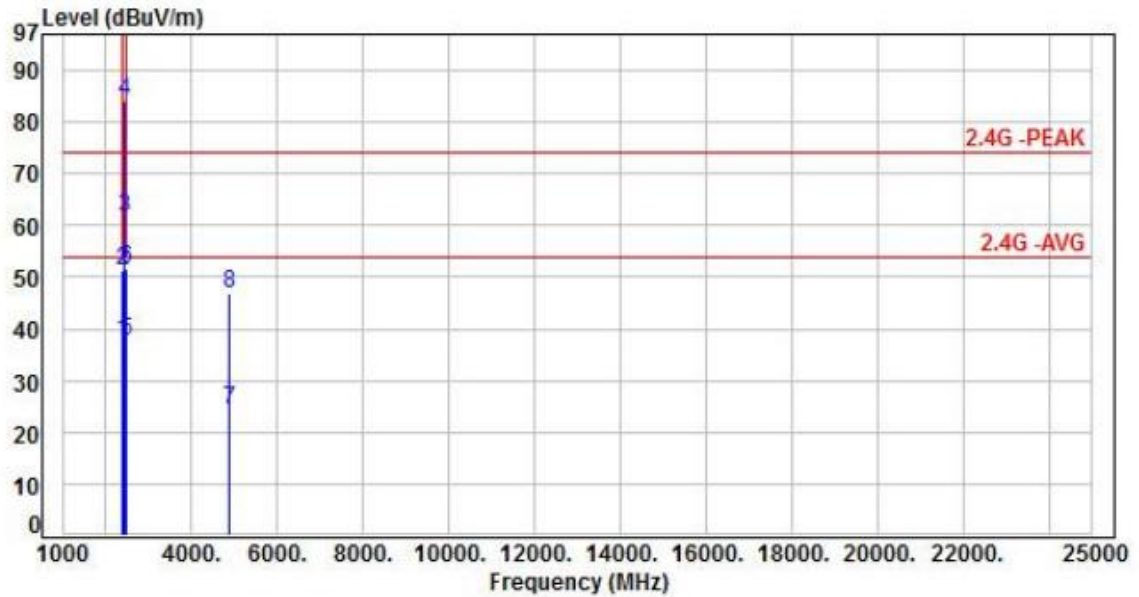
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 3.7V From System (AC 110V / 60Hz)	Pol/Phase	:	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	2390.00	-3.54	41.07	37.53	54.00	-16.47	Average	369	305	P
2	2390.00	-3.54	54.65	51.11	74.00	-22.89	Peak	369	305	P
3	2441.00	-3.47	64.88	61.41	200.00	-138.59	Average	369	305	P
4	2441.00	-3.47	87.38	83.91	200.00	-116.09	Peak	369	305	P
5	2483.50	-3.30	41.06	37.76	54.00	-16.24	Average	369	305	P
6	2483.50	-3.30	54.85	51.55	74.00	-22.45	Peak	369	305	P
7	4882.00	4.01	20.51	24.52	54.00	-29.48	Average	100	201	P
8	4882.00	4.01	43.01	47.02	74.00	-26.98	Peak	100	201	P

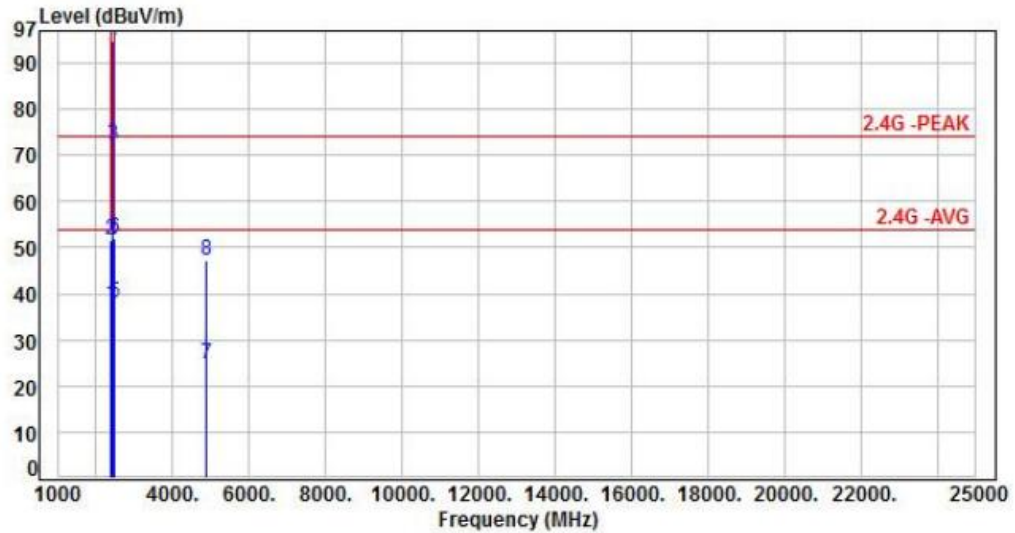
Note: Level=Reading+Factor

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	2390.00	-3.54	41.11	37.57	54.00	-16.43	Average	125	256	P
2	2390.00	-3.54	55.08	51.54	74.00	-22.46	Peak	125	256	P
3	2441.00	-3.47	75.86	72.39	200.00	-127.61	Average	125	256	P
4	2441.00	-3.47	98.36	94.89	200.00	-105.11	Peak	125	256	P
5	2483.50	-3.30	41.17	37.87	54.00	-16.13	Average	125	256	P
6	2483.50	-3.30	55.31	52.01	74.00	-21.99	Peak	125	256	P
7	4882.00	4.01	20.61	24.62	54.00	-29.38	Average	100	210	P
8	4882.00	4.01	43.11	47.12	74.00	-26.88	Peak	100	210	P

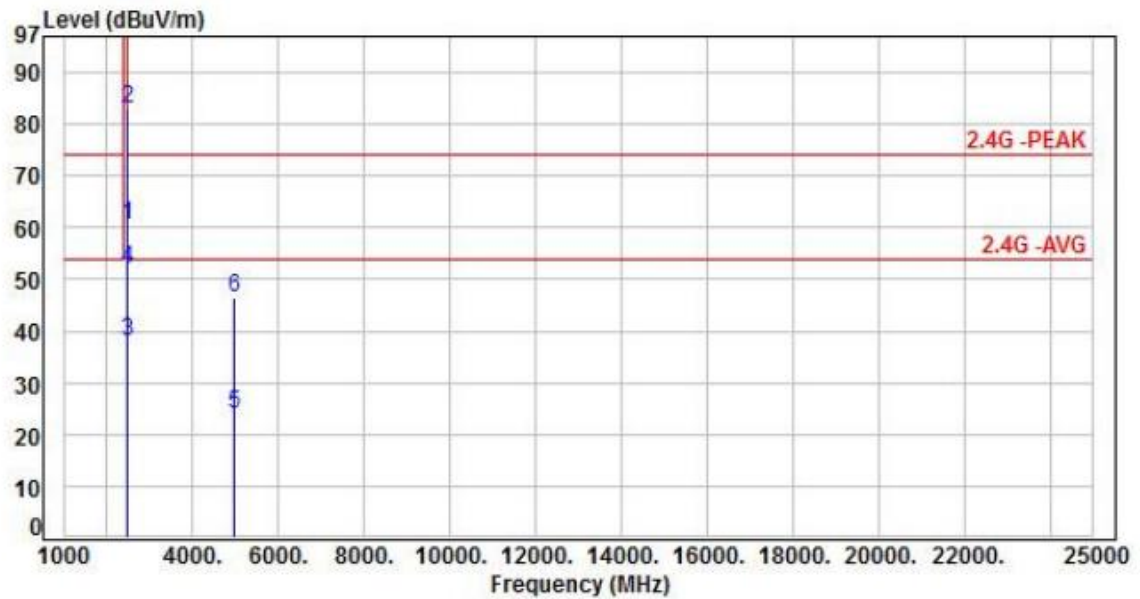
Note: Level=Reading+Factor

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, CH78		:	



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	63.78	60.47	200.00	-139.53	Average	100	180	P
2	2480.00	-3.31	86.28	82.97	200.00	-117.03	Peak	100	180	P
3	2483.50	-3.30	41.19	37.89	54.00	-16.11	Average	100	180	P
4	2483.50	-3.30	55.38	52.08	74.00	-21.92	Peak	100	180	P
5	4960.00	4.35	19.67	24.02	54.00	-29.98	Average	100	199	P
6	4960.00	4.35	42.17	46.52	74.00	-27.48	Peak	100	199	P

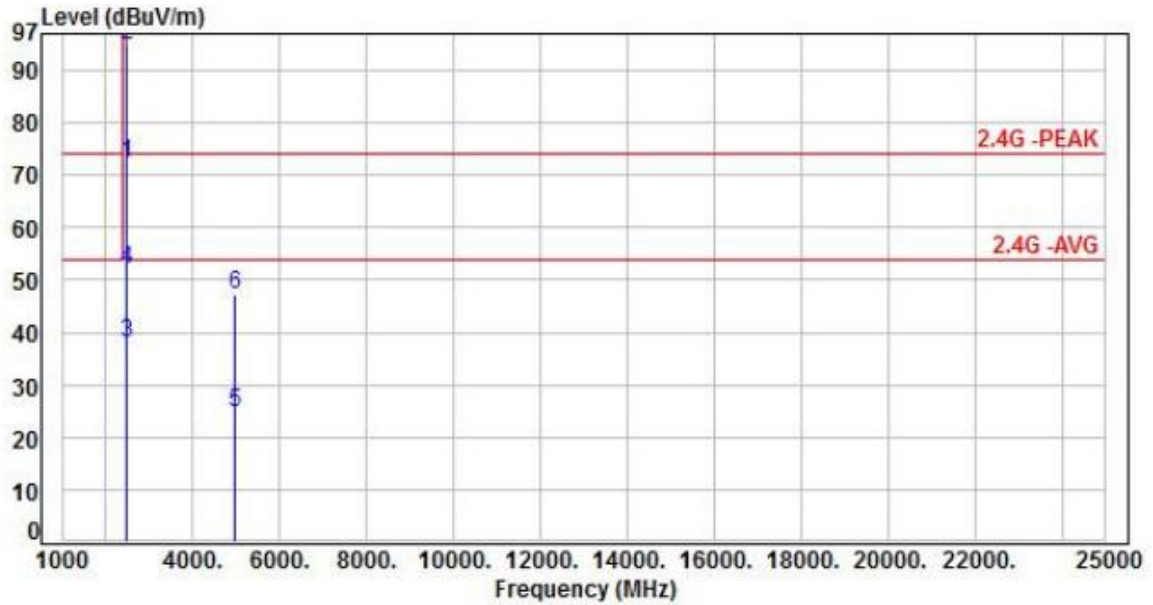
Note: Level=Reading+Factor

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, CH78		:	



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	75.78	72.47	200.00	-127.53	Average	259	271	P
2	2480.00	-3.31	98.28	94.97	200.00	-105.03	Peak	259	271	P
3	2483.50	-3.30	41.23	37.93	54.00	-16.07	Average	259	271	P
4	2483.50	-3.30	55.46	52.16	74.00	-21.84	Peak	259	271	P
5	4960.00	4.35	20.24	24.59	54.00	-29.41	Average	126	324	P
6	4960.00	4.35	42.74	47.09	74.00	-26.91	Peak	126	324	P

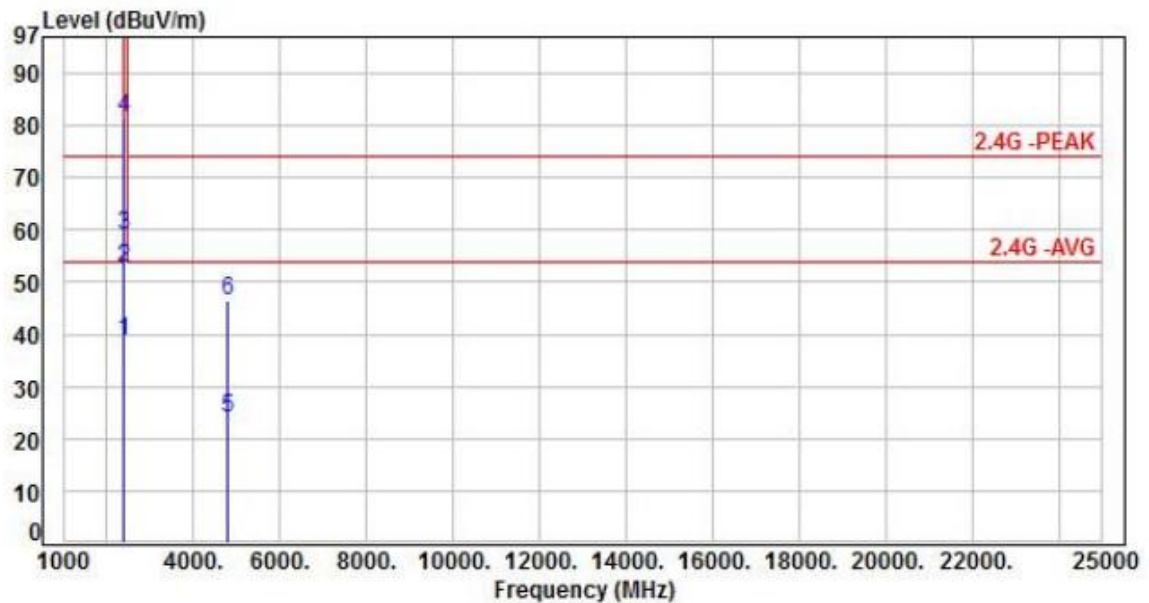
Note: Level=Reading+Factor

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	2390.00	-3.54	42.10	38.56	54.00	-15.44	Average	117	190	P
2	2390.00	-3.54	56.21	52.67	74.00	-21.33	Peak	117	190	P
3	2402.00	-3.51	62.65	59.14	200.00	-140.86	Average	117	190	P
4	2402.00	-3.51	85.15	81.64	200.00	-118.36	Peak	117	190	P
5	4804.00	3.76	20.08	23.84	54.00	-30.16	Average	100	200	P
6	4804.00	3.76	42.58	46.34	74.00	-27.66	Peak	100	200	P

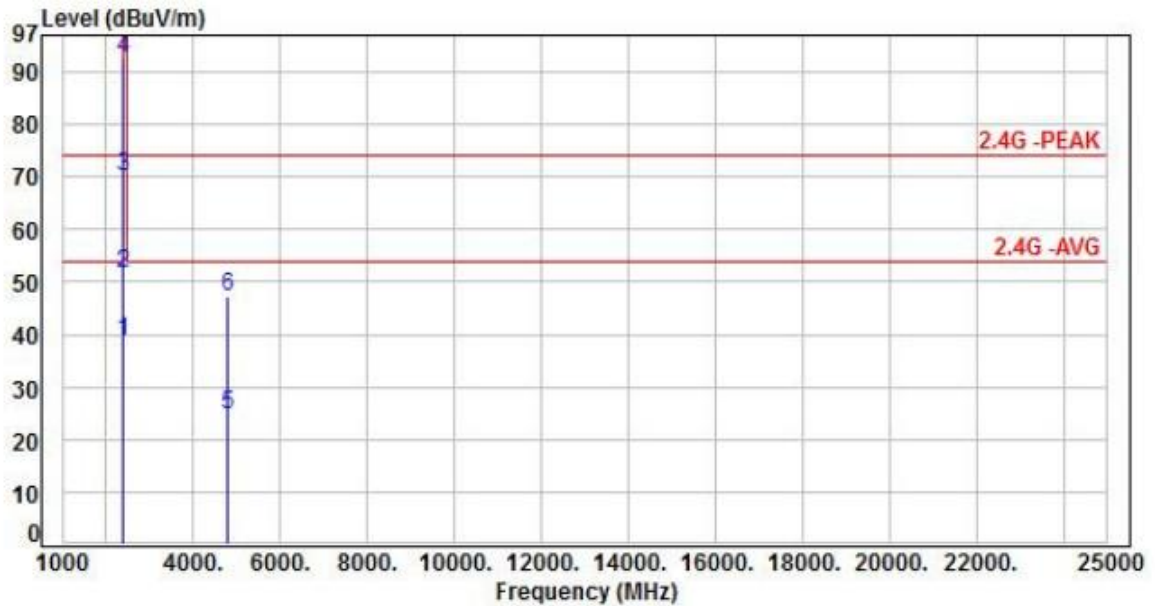
Note: Level=Reading+Factor

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	2390.00	-3.54	42.33	38.79	54.00	-15.21	Average	391	85	P
2	2390.00	-3.54	55.08	51.54	74.00	-22.46	Peak	391	85	P
3	2402.00	-3.51	73.43	69.92	200.00	-130.08	Average	391	85	P
4	2402.00	-3.51	95.93	92.42	200.00	-107.58	Peak	391	85	P
5	4804.00	3.76	21.00	24.76	54.00	-29.24	Average	100	213	P
6	4804.00	3.76	43.50	47.26	74.00	-26.74	Peak	100	213	P

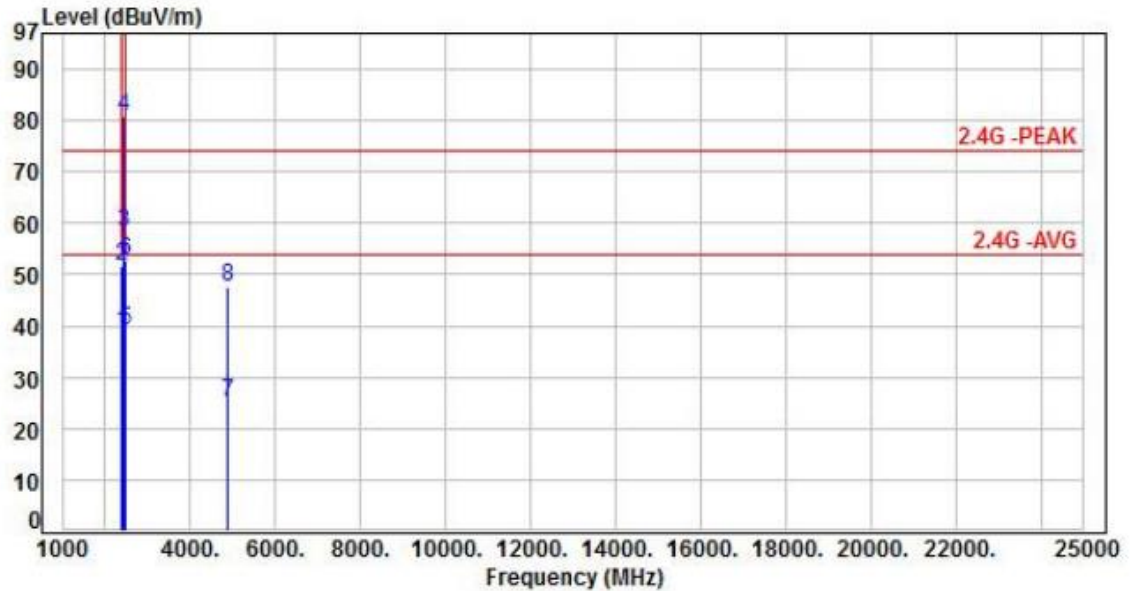
Note: Level=Reading+Factor

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/F
1	2390.00	-3.54	42.43	38.89	54.00	-15.11	Average	100	192	P
2	2390.00	-3.54	55.28	51.74	74.00	-22.26	Peak	100	192	P
3	2441.00	-3.47	61.86	58.39	200.00	-141.61	Average	100	192	P
4	2441.00	-3.47	84.36	80.89	200.00	-119.11	Peak	100	192	P
5	2483.50	-3.30	42.25	38.95	54.00	-15.05	Average	100	192	P
6	2483.50	-3.30	56.22	52.92	74.00	-21.08	Peak	100	192	P
7	4882.00	4.01	20.97	24.98	54.00	-29.02	Average	100	200	P
8	4882.00	4.01	43.47	47.48	74.00	-26.52	Peak	100	200	P

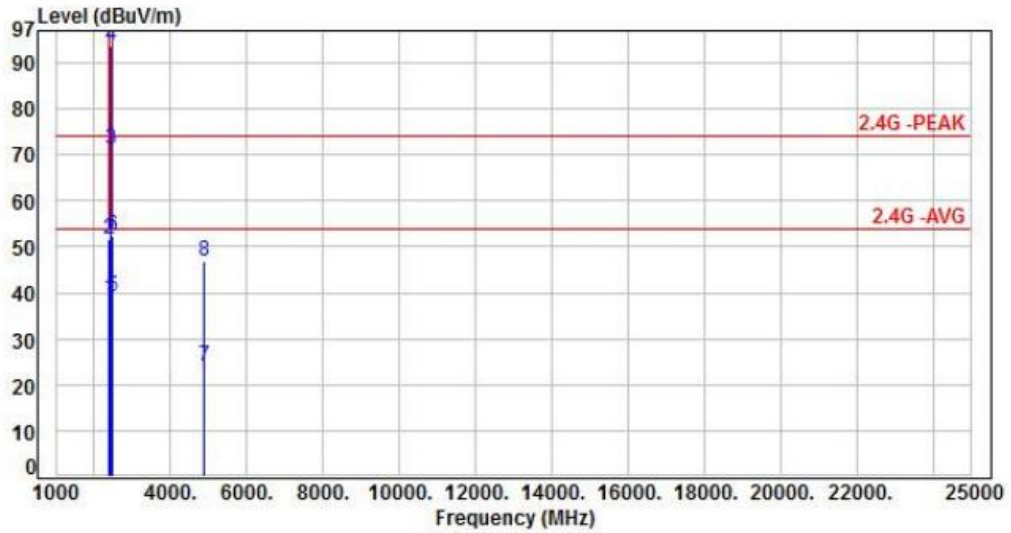
Note: Level=Reading+Factor

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		:	

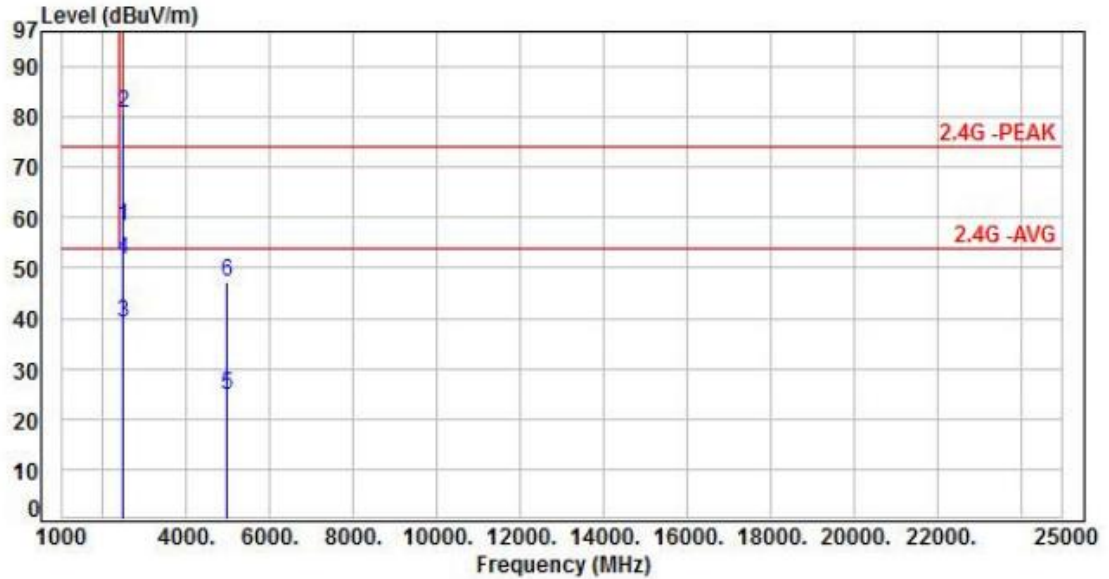


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-3.54	42.43	38.89	54.00	-15.11	Average	269	272	P
2	2390.00	-3.54	55.22	51.68	74.00	-22.32	Peak	269	272	P
3	2441.00	-3.47	74.64	71.17	200.00	-128.83	Average	269	272	P
4	2441.00	-3.47	97.14	93.67	200.00	-106.33	Peak	269	272	P
5	2483.50	-3.30	42.35	39.05	54.00	-14.95	Average	269	272	P
6	2483.50	-3.30	55.72	52.42	74.00	-21.58	Peak	269	272	P
7	4882.00	4.01	20.15	24.16	54.00	-29.84	Average	100	212	P
8	4882.00	4.01	42.65	46.66	74.00	-27.34	Peak	100	212	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, CH78		:	



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	61.63	58.32	200.00	-141.68	Average	100	166	P
2	2480.00	-3.31	84.13	80.82	200.00	-119.18	Peak	100	166	P
3	2483.50	-3.30	42.51	39.21	54.00	-14.79	Average	100	166	P
4	2483.50	-3.30	55.03	51.73	74.00	-22.27	Peak	100	166	P
5	4960.00	4.35	20.28	24.63	54.00	-29.37	Average	100	146	P
6	4960.00	4.35	42.78	47.13	74.00	-26.87	Peak	100	146	P

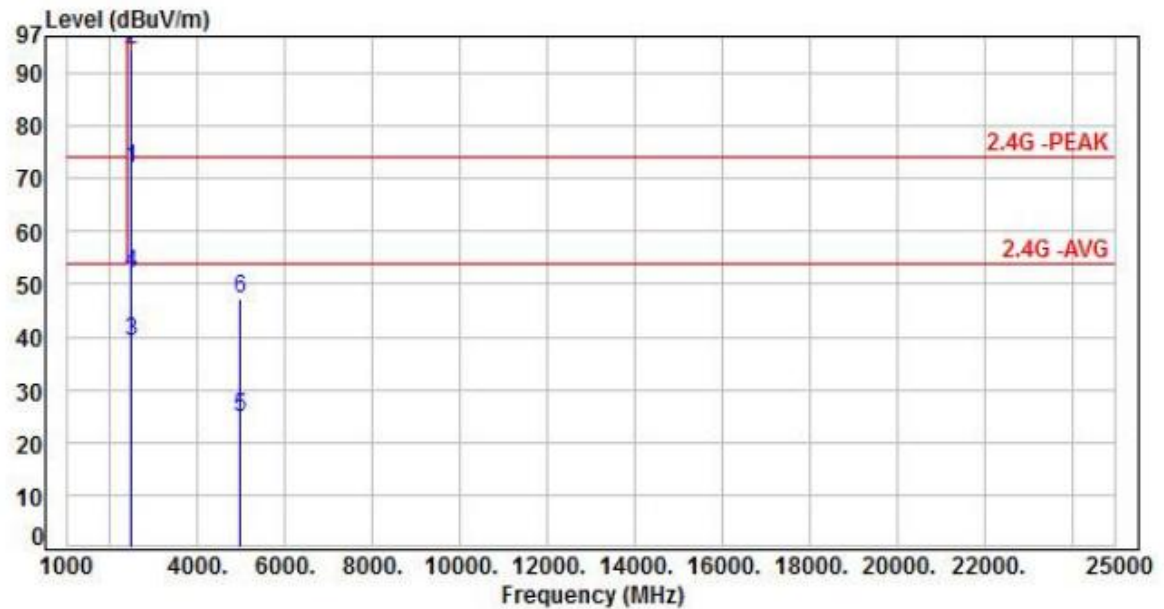
Note: Level=Reading+Factor

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, CH78		:	



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	75.14	71.83	200.00	-128.17	Average	258	270	P
2	2480.00	-3.31	97.64	94.33	200.00	-105.67	Peak	258	270	P
3	2483.50	-3.30	42.38	39.08	54.00	-14.92	Average	258	270	P
4	2483.50	-3.30	55.27	51.97	74.00	-22.03	Peak	258	270	P
5	4960.00	4.35	20.46	24.81	54.00	-29.19	Average	100	329	P
6	4960.00	4.35	42.96	47.31	74.00	-26.69	Peak	100	329	P

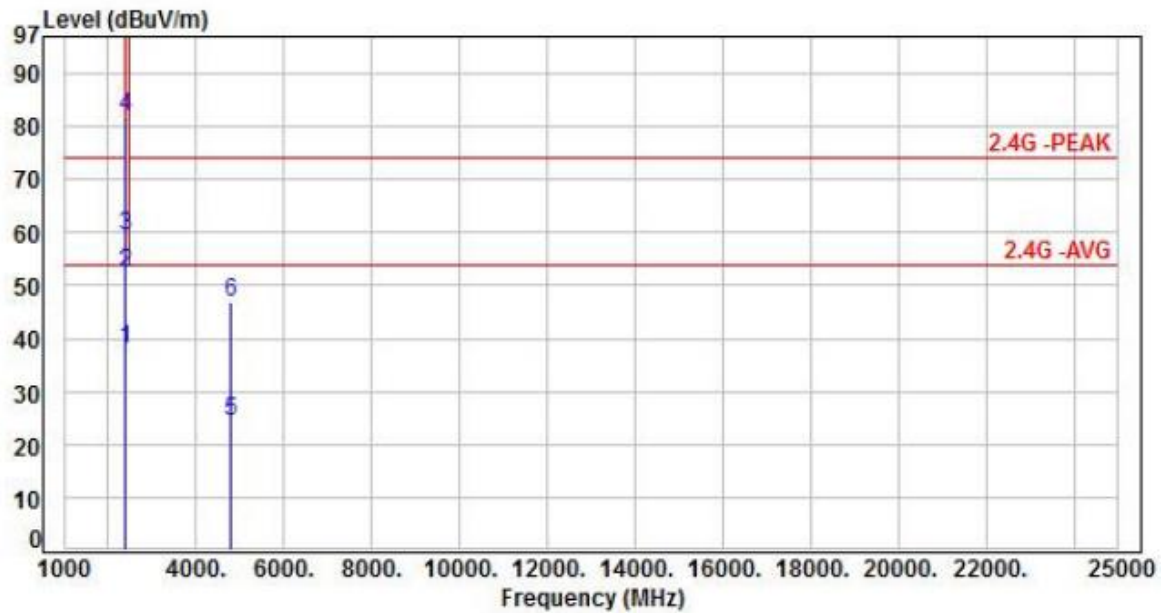
Note: Level=Reading+Factor

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 3, 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	41.39	37.85	54.00	-16.15	Average	114	186	P
2	2390.00	-3.54	55.97	52.43	74.00	-21.57	Peak	114	186	P
3	2402.00	-3.51	62.71	59.20	200.00	-140.80	Average	114	186	P
4	2402.00	-3.51	85.21	81.70	200.00	-118.30	Peak	114	186	P
5	4804.00	3.76	20.46	24.22	54.00	-29.78	Average	100	159	P
6	4804.00	3.76	42.96	46.72	74.00	-27.28	Peak	100	159	P

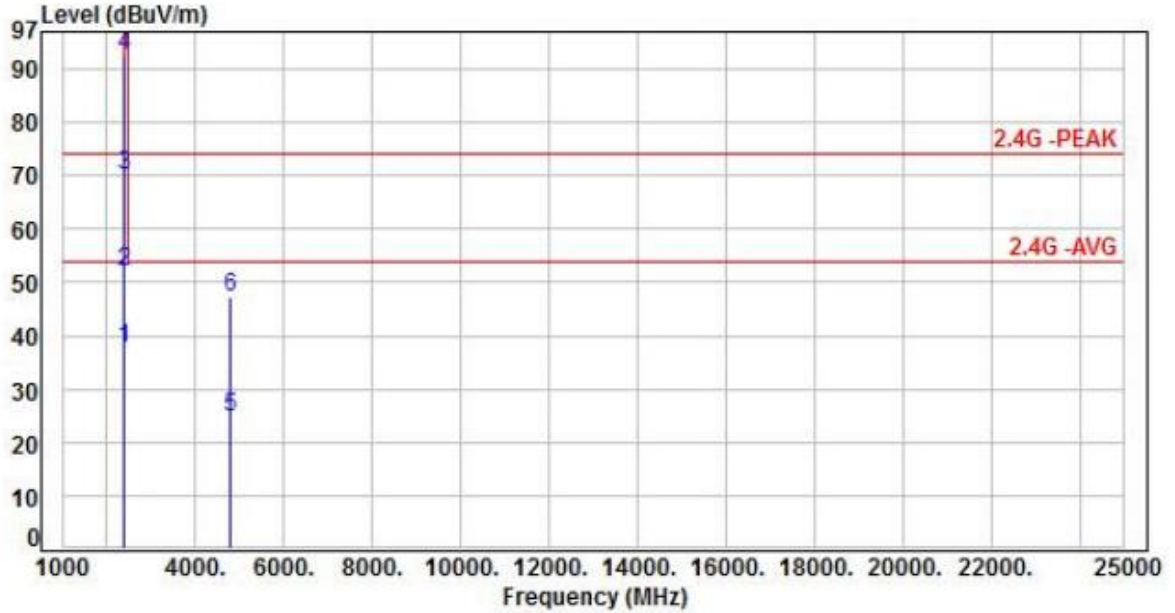
Note: Level=Reading+Factor

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 3, 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	41.30	37.76	54.00	-16.24	Average	393	84	P
2	2390.00	-3.54	55.69	52.15	74.00	-21.85	Peak	393	84	P
3	2402.00	-3.51	73.49	69.98	200.00	-130.02	Average	393	84	P
4	2402.00	-3.51	95.99	92.48	200.00	-107.52	Peak	393	84	P
5	4804.00	3.76	20.81	24.57	54.00	-29.43	Average	100	212	P
6	4804.00	3.76	43.31	47.07	74.00	-26.93	Peak	100	212	P

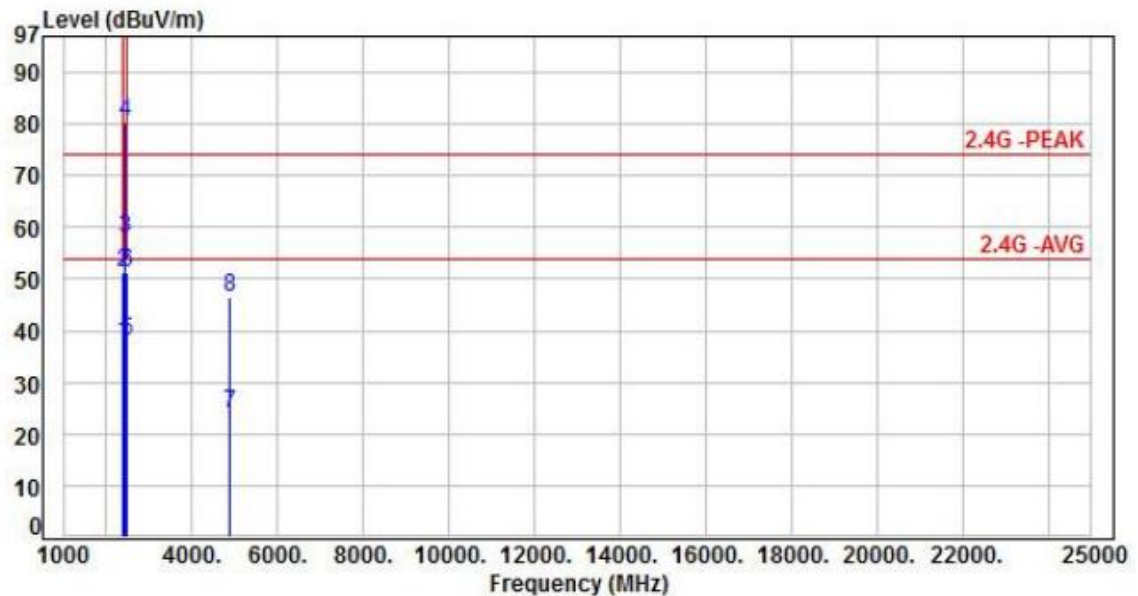
Note: Level=Reading+Factor

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 3, CH39		:	



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	41.29	37.75	54.00	-16.25	Average	100	190	P
2	2390.00	-3.54	54.96	51.42	74.00	-22.58	Peak	100	190	P
3	2441.00	-3.47	61.34	57.87	200.00	-142.13	Average	100	190	P
4	2441.00	-3.47	83.84	80.37	200.00	-119.63	Peak	100	190	P
5	2483.50	-3.30	41.15	37.85	54.00	-16.15	Average	100	190	P
6	2483.50	-3.30	54.65	51.35	74.00	-22.65	Peak	100	190	P
7	4882.00	4.01	19.87	23.88	54.00	-30.12	Average	100	157	P
8	4882.00	4.01	42.37	46.38	74.00	-27.62	Peak	100	157	P

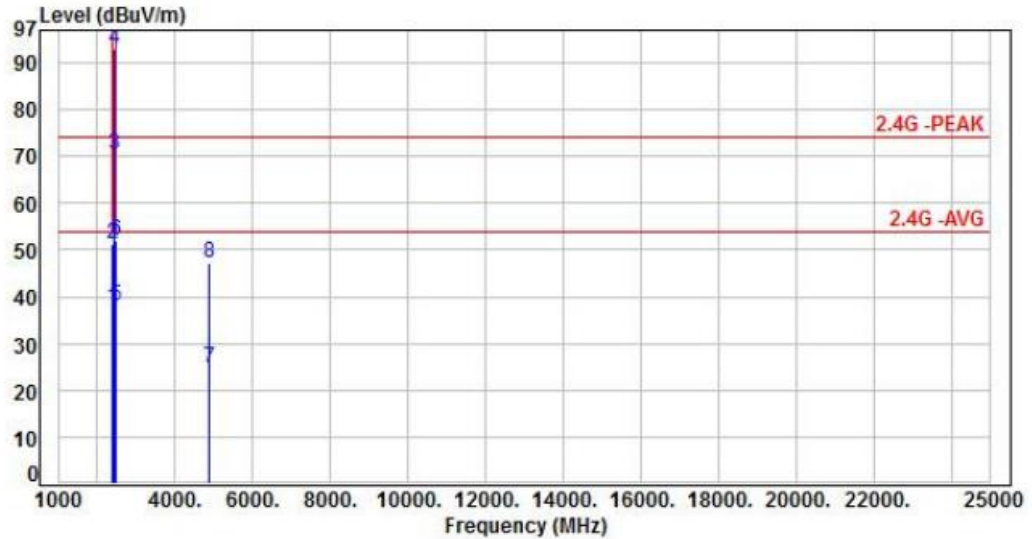
Note: Level=Reading+Factor

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 3, CH39		:	



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	41.16	37.62	54.00	-16.38	Average	301	268	P
2	2390.00	-3.54	54.72	51.18	74.00	-22.82	Peak	301	268	P
3	2441.00	-3.47	73.97	70.50	200.00	-129.50	Average	301	268	P
4	2441.00	-3.47	96.47	93.00	200.00	-107.00	Peak	301	268	P
5	2483.50	-3.30	41.18	37.88	54.00	-16.12	Average	301	268	P
6	2483.50	-3.30	55.33	52.03	74.00	-21.97	Peak	301	268	P
7	4882.00	4.01	20.70	24.71	54.00	-29.29	Average	100	322	P
8	4882.00	4.01	43.20	47.21	74.00	-26.79	Peak	100	322	P

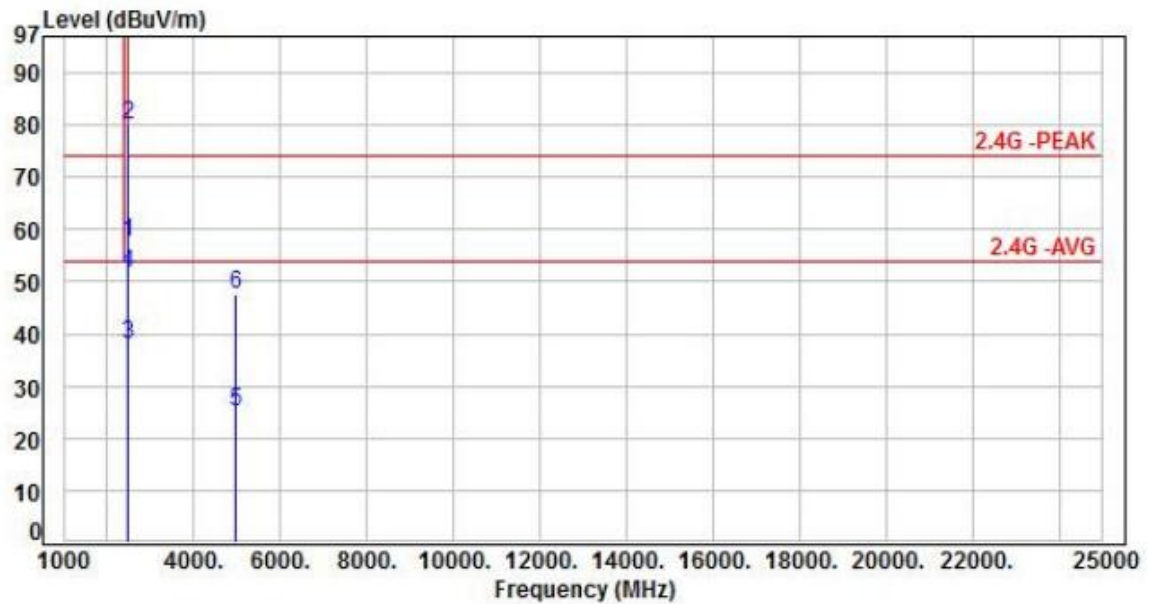
Note: Level=Reading+Factor

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 3, CH78		:	



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	60.70	57.39	200.00	-142.61	Average	100	166	P
2	2480.00	-3.31	83.20	79.89	200.00	-120.11	Peak	100	166	P
3	2483.50	-3.30	41.17	37.87	54.00	-16.13	Average	100	166	P
4	2483.50	-3.30	54.84	51.54	74.00	-22.46	Peak	100	166	P
5	4960.00	4.35	20.59	24.94	54.00	-29.06	Average	100	158	P
6	4960.00	4.35	43.09	47.44	74.00	-26.56	Peak	100	158	P

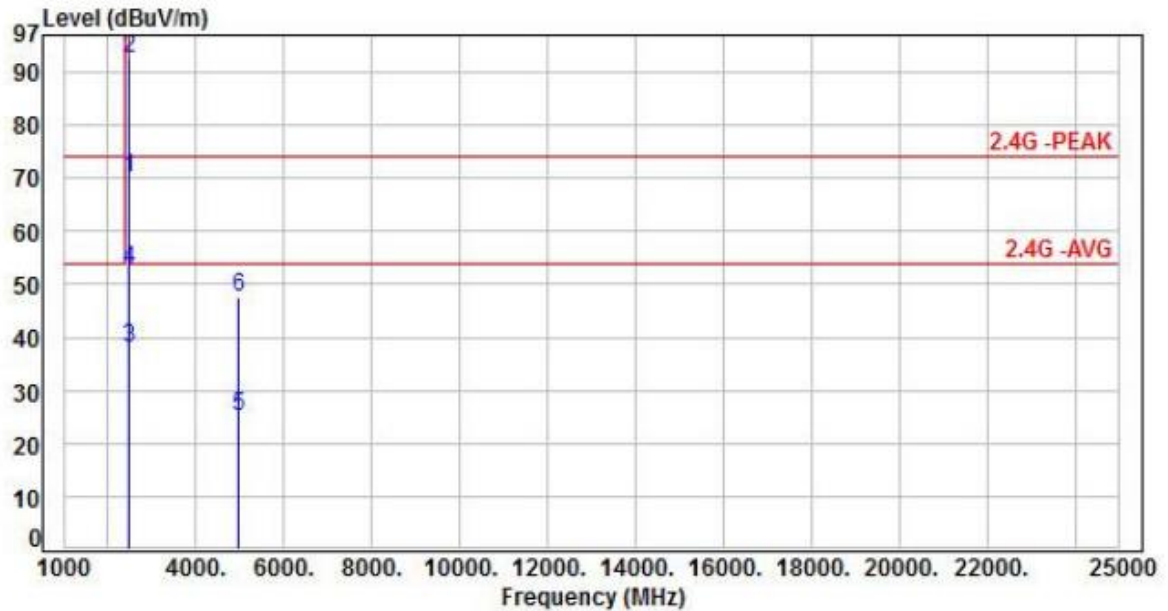
Note: Level=Reading+Factor

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 3, CH78		:	



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	73.53	70.22	200.00	-129.78	Average	369	84	P
2	2480.00	-3.31	96.03	92.72	200.00	-107.28	Peak	369	84	P
3	2483.50	-3.30	41.13	37.83	54.00	-16.17	Average	369	84	P
4	2483.50	-3.30	56.02	52.72	74.00	-21.28	Peak	369	84	P
5	4960.00	4.35	20.78	25.13	54.00	-28.87	Average	100	320	P
6	4960.00	4.35	43.28	47.63	74.00	-26.37	Peak	100	320	P

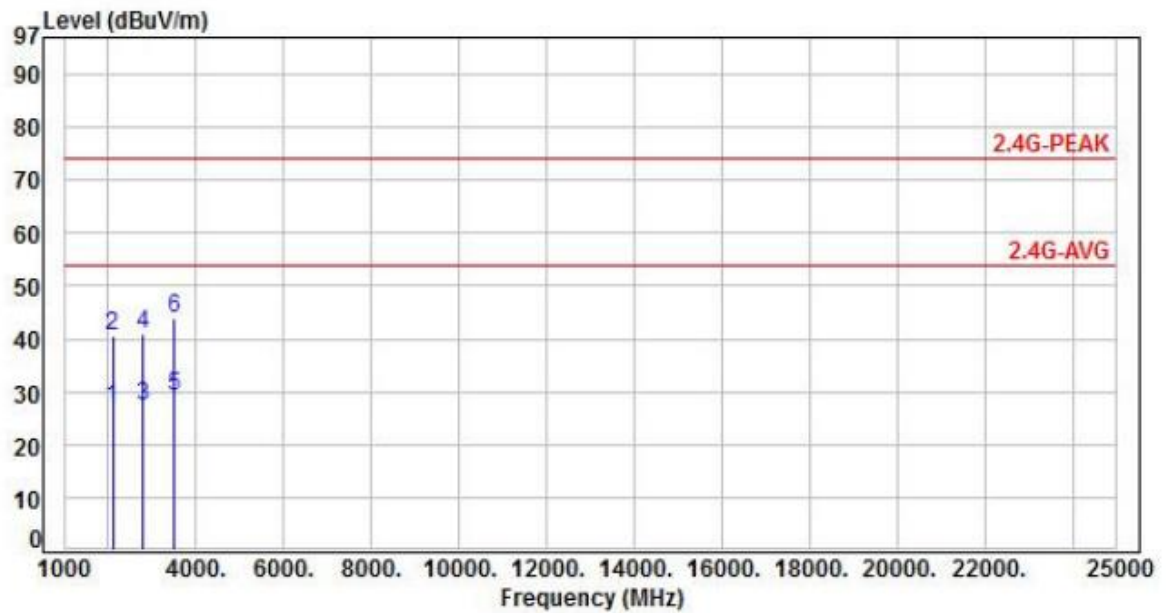
Note: Level=Reading+Factor

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 4, CH00		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2100.00	-4.12	30.95	26.83	54.00	-27.17	Average	100	256	P
2	2100.00	-4.12	44.67	40.55	74.00	-33.45	Peak	100	256	P
3	2800.00	-2.33	29.67	27.34	54.00	-26.66	Average	100	301	P
4	2800.00	-2.33	43.43	41.10	74.00	-32.90	Peak	100	301	P
5	3500.00	0.60	28.70	29.30	54.00	-24.70	Average	100	150	P
6	3500.00	0.60	43.15	43.75	74.00	-30.25	Peak	100	150	P

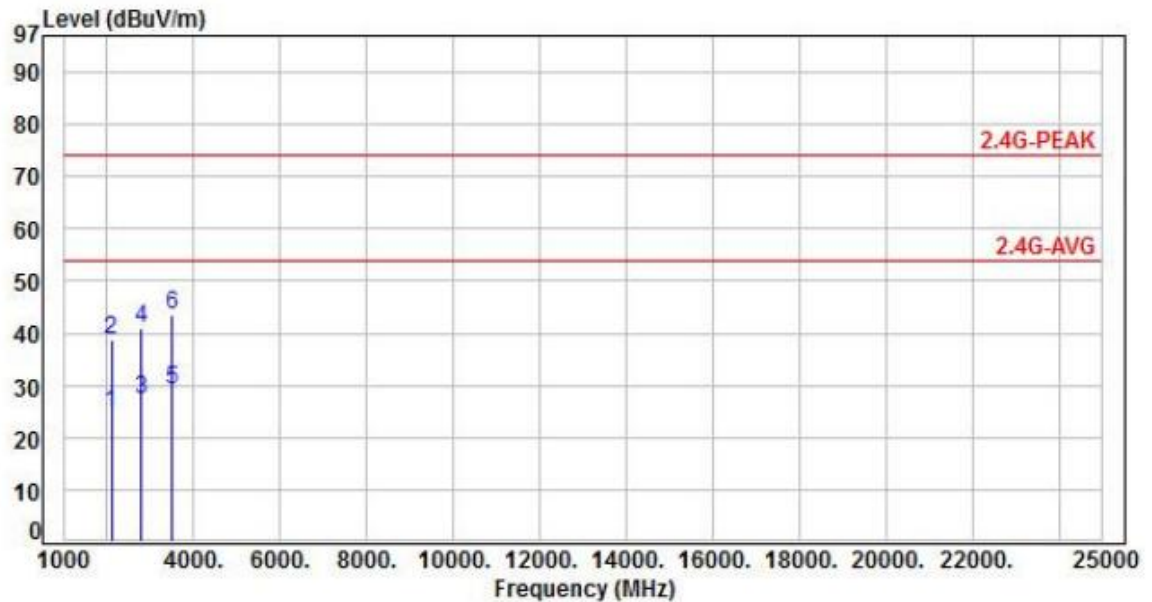
Note: Level=Reading+Factor

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 4, CH00		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2100.00	-4.12	28.76	24.64	54.00	-29.36	Average	100	199	P
2	2100.00	-4.12	42.89	38.77	74.00	-35.23	Peak	100	199	P
3	2800.00	-2.33	29.51	27.18	54.00	-26.82	Average	100	273	P
4	2800.00	-2.33	43.40	41.07	74.00	-32.93	Peak	100	273	P
5	3500.00	0.60	28.57	29.17	54.00	-24.83	Average	100	245	P
6	3500.00	0.60	42.82	43.42	74.00	-30.58	Peak	100	245	P

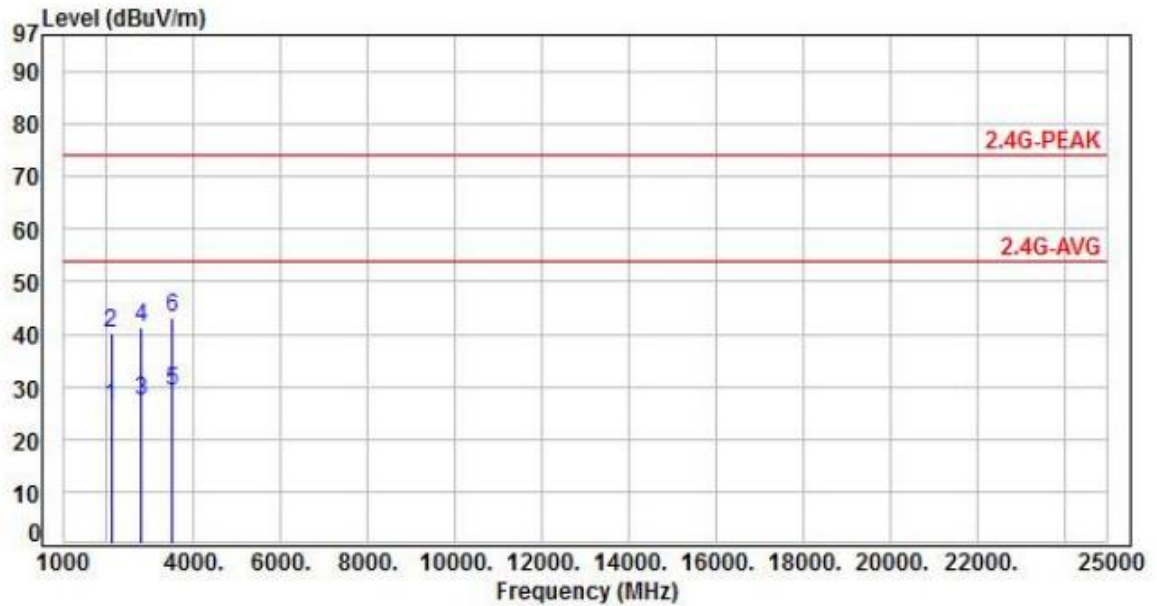
Note: Level=Reading+Factor

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 4, CH39		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2100.00	-4.12	30.23	26.11	54.00	-27.89	Average	100	214	P
2	2100.00	-4.12	44.21	40.09	74.00	-33.91	Peak	100	214	P
3	2800.00	-2.33	29.54	27.21	54.00	-26.79	Average	100	333	P
4	2800.00	-2.33	43.54	41.21	74.00	-32.79	Peak	100	333	P
5	3500.00	0.60	28.65	29.25	54.00	-24.75	Average	100	136	P
6	3500.00	0.60	42.59	43.19	74.00	-30.81	Peak	100	136	P

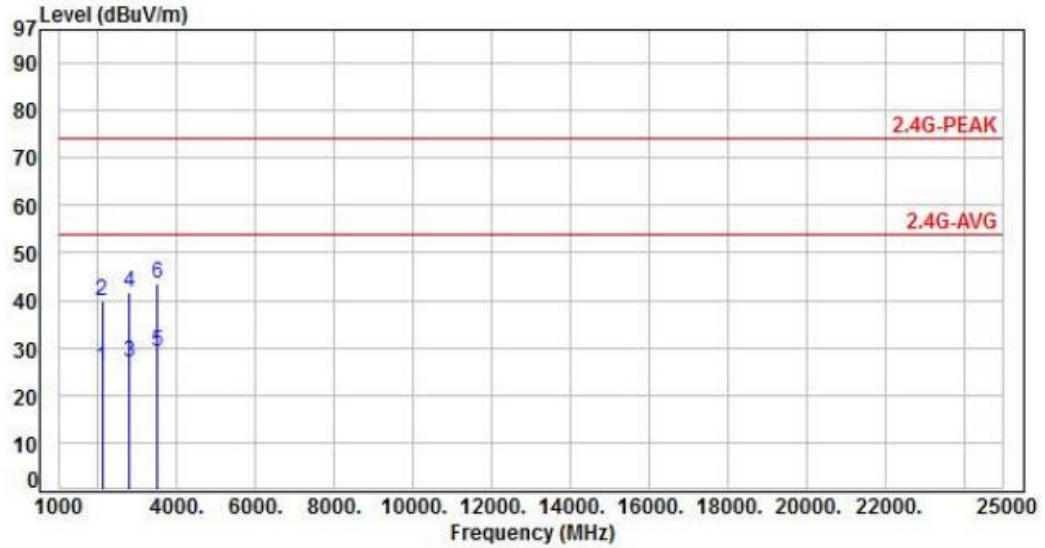
Note: Level=Reading+Factor

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 4, CH39		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2100.00	-4.12	29.93	25.81	54.00	-28.19	Average	100	235	P
2	2100.00	-4.12	43.96	39.84	74.00	-34.16	Peak	100	235	P
3	2800.00	-2.33	29.38	27.05	54.00	-26.95	Average	100	235	P
4	2800.00	-2.33	44.04	41.71	74.00	-32.29	Peak	100	235	P
5	3500.00	0.60	28.66	29.26	54.00	-24.74	Average	100	279	P
6	3500.00	0.60	42.84	43.44	74.00	-30.56	Peak	100	279	P

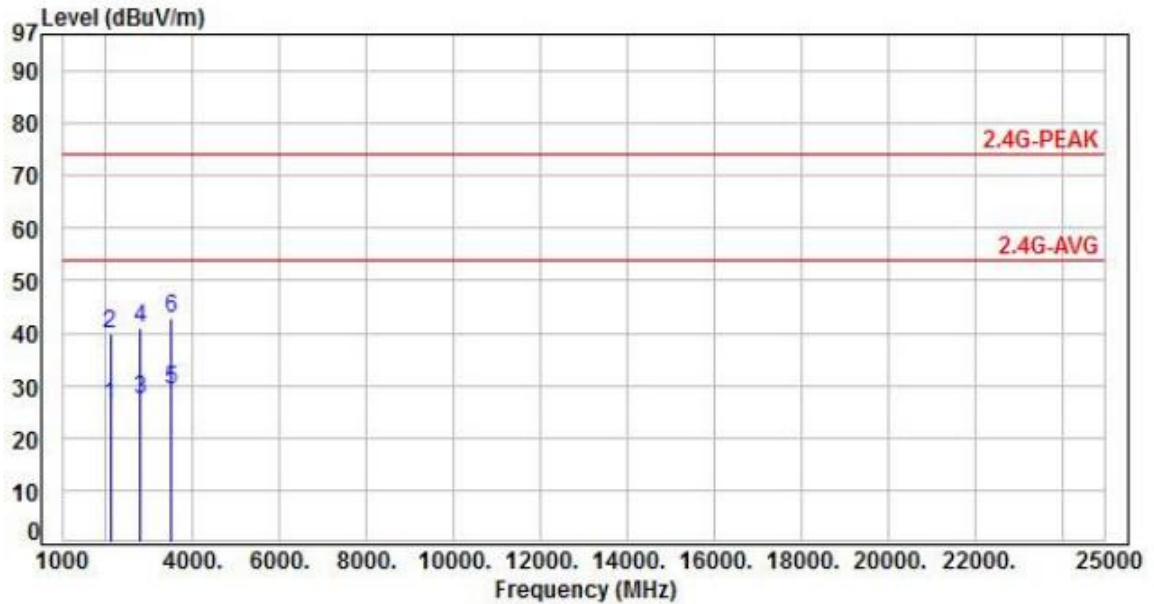
Note: Level=Reading+Factor

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 4, CH78		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2100.00	-4.12	30.48	26.36	54.00	-27.64	Average	100	289	P
2	2100.00	-4.12	44.08	39.96	74.00	-34.04	Peak	100	289	P
3	2800.00	-2.33	29.49	27.16	54.00	-26.84	Average	100	314	P
4	2800.00	-2.33	43.11	40.78	74.00	-33.22	Peak	100	314	P
5	3500.00	0.60	28.64	29.24	54.00	-24.76	Average	100	178	P
6	3500.00	0.60	42.33	42.93	74.00	-31.07	Peak	100	178	P

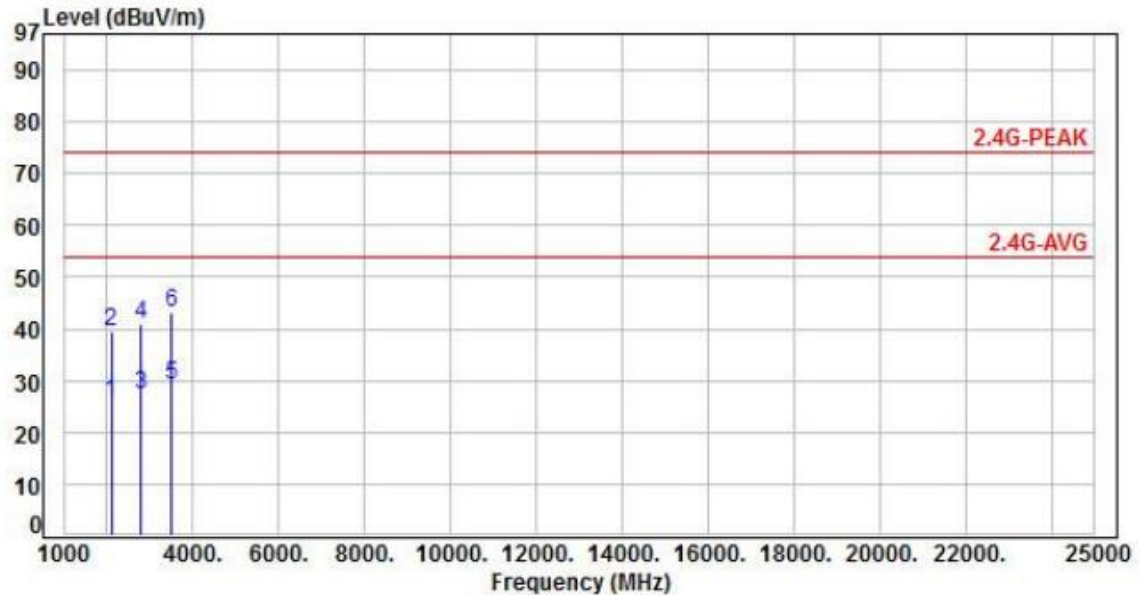
Note: Level=Reading+Factor

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 4, CH78		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2100.00	-4.12	29.81	25.69	54.00	-28.31	Average	100	184	P
2	2100.00	-4.12	43.66	39.54	74.00	-34.46	Peak	100	184	P
3	2800.00	-2.33	29.60	27.27	54.00	-26.73	Average	100	253	P
4	2800.00	-2.33	43.45	41.12	74.00	-32.88	Peak	100	253	P
5	3500.00	0.60	28.63	29.23	54.00	-24.77	Average	100	232	P
6	3500.00	0.60	42.62	43.22	74.00	-30.78	Peak	100	232	P

Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



6. 20dB 頻寬之規定

6.1. 適用標準

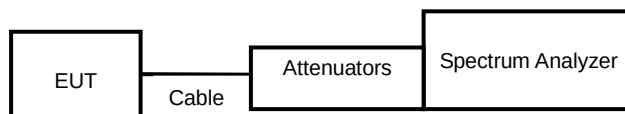
對使用跳頻系統之低功率發射機，依據國家通訊傳播委員會低功率射頻器材技術規範 4.10.1.6 節之(1)(A)規定，載波頻率頻道間隔不得低於 25 千赫 (kHz)或跳頻頻道之 20dB 頻寬，兩者取較寬者。

但操作頻率為 2400-2483.5 兆赫(MHz)頻帶且輸出功率不大於 125 毫瓦(mW)跳頻系統，其載波頻率頻道間隔不得小於 25 千赫 (kHz)或跳頻頻道 20dB 頻寬之三分之二，兩者取較寬者。系統之跳頻頻道應依虛擬亂數排列，在各頻率之跳頻頻道上跳躍。每一發射機必須均等的使用每一頻率。系統接收機應具有與發射機跳躍頻道頻寬相匹配之輸入頻寬，且應隨所發射之信號同步偏移接收頻率。

6.2. 測試方法

- 將待測物和儀器相連接。
- 設定儀器解析頻寬 30KHz 和視訊頻寬為 100 KHz。
- 量測峰值減去 20 dB 之頻寬並記錄於報告中。

6.3. 測試配置



6.4. 20dB 頻寬之測試結果及數據

Modulation Type	Channel	Frequency (MHz)	20dB Bandwidth (MHz)	2/3 20dB Bandwidth (MHz)
GFSK	0	2402	0.967	0.645
	39	2441	0.969	0.646
	78	2480	0.967	0.644
$\pi/4$ -DQPSK	0	2402	1.288	0.859
	39	2441	1.288	0.859
	78	2480	1.285	0.857
8DPSK	0	2402	1.290	0.860
	39	2441	1.290	0.860
	78	2480	1.291	0.861

備註：繪圖資料請參考下頁。

6.5. 結果判定

高、中、低頻段的 20dB 頻寬皆大於 25 KHz，合乎標準規定。



Modulation Type: GFSK (1Mbps)
Channel: 00



Modulation Type: $\pi/4$ -DQPSK (2Mbps)
Channel: 00



CH39



CH39



CH78



CH78





Modulation Type: 8DPSK (3Mbps)
Channel: 00



CH39



CH78





7. 頻道間隔之規定

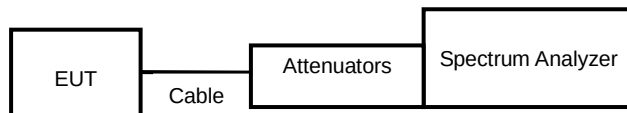
7.1. 適用標準

對使用跳頻系統之低功率發射機，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(1)(A)規定，跳頻系統之載波頻率頻道間隔應大於或等於 25 千赫 (kHz)或跳頻頻道之 20 分貝(dB) 頻寬，兩者取較寬者。但操作頻率為 2400MHz~2483.5MHz 頻段且輸出功率小於或等於 125 毫瓦(mW)跳頻系統，其載波頻率頻道間隔不得小於 25 千赫 (kHz)或跳頻頻道 20 分貝(dB)頻寬之三分之二，兩者取較寬者。

7.2. 測試方法

- 將待測物和儀器相連接。
- 設定儀器解析頻寬 300KHz 和視訊頻寬為 1000 KHz。
- 量測頻率間隔並記錄於報告中。

7.3. 測試配置



7.4. 頻道間隔之測試結果及數據

Modulation Type	Channel	Frequency (MHz)	Channel Separation (MHz)	Limit (MHz)
GFSK	0	2402	1.002	0.645
	39	2441	1.002	0.646
	78	2480	1.002	0.644
$\pi/4$ -DQPSK	0	2402	1.002	0.859
	39	2441	1.002	0.859
	78	2480	1.002	0.857
8DPSK	0	2402	1.002	0.860
	39	2441	1.002	0.860
	78	2480	1.002	0.861

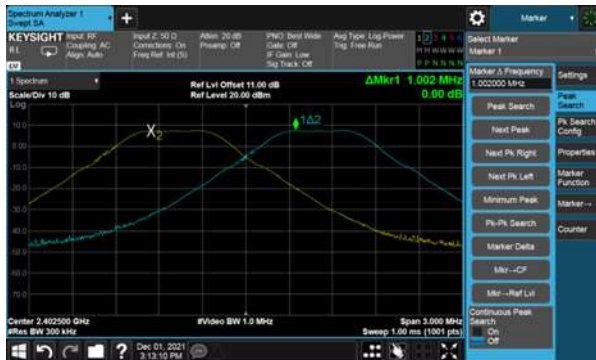
備註：繪圖資料請參考下頁。

7.5. 結果判定

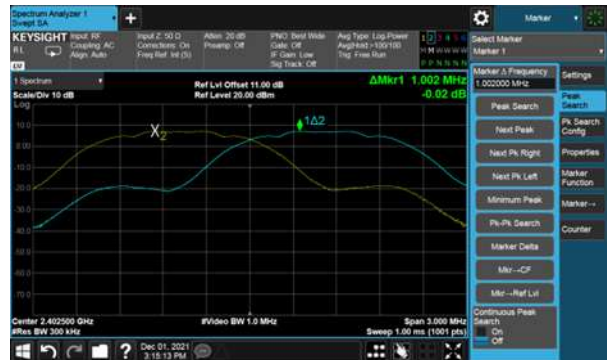
高、中、低頻段的頻道間隔皆大於 25 KHz，合乎標準規定。



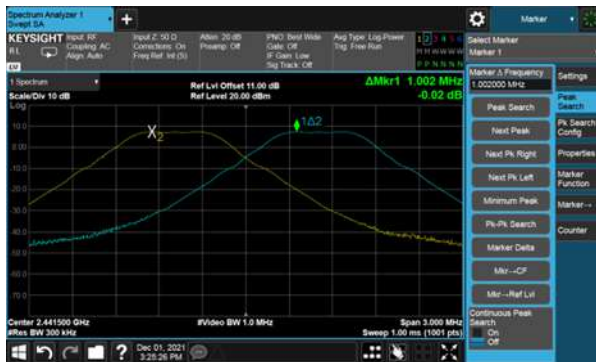
Modulation Type: GFSK (1Mbps)
Channel: 00



Modulation Type: $\pi/4$ -DQPSK (2Mbps)
Channel: 00



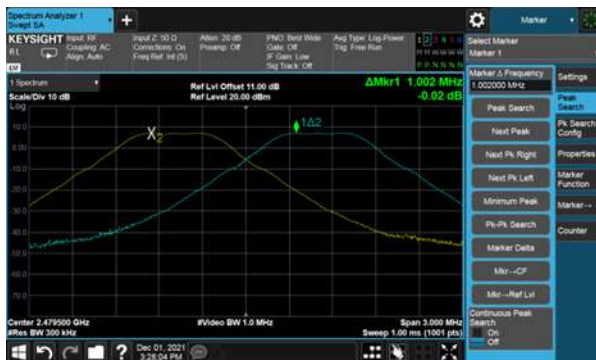
CH39



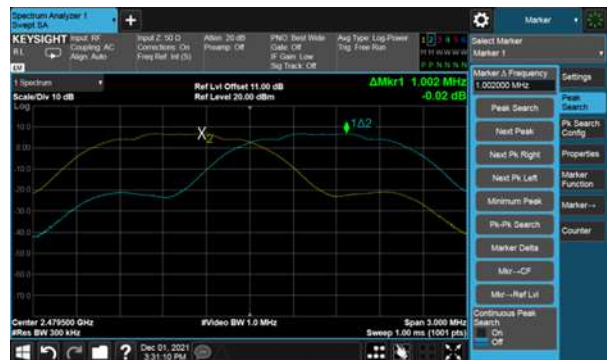
CH39



CH78

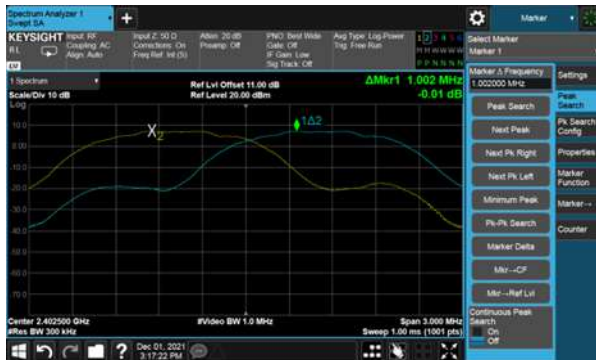


CH78





Modulation Type: 8DPSK (3Mbps)
Channel: 00



CH39



CH78





8. 頻率佔用時間之規定

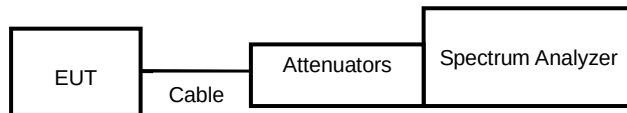
8.1. 適用標準

對使用跳頻系統之低功率發射機，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(1)(A)(a)規定，操作於 2400MHz~2483.5MHz 之展頻跳頻系統，須使用至少 15 個無重疊的頻道，在 0.4 秒乘以跳頻頻道數之週期內，任一頻率佔用之平均時間應小於或等於 0.4 秒。應使用智慧型跳頻技術，以避免占用於特定跳頻頻道。

8.2. 測試方法

- 將待測物和儀器相連接。
- 設定儀器解析頻寬 300KHz 和視訊頻寬為 1000 KHz。
- 量測頻率佔用時間並記錄於報告中。

8.3. 測試配置





8.4. 頻率佔用時間之測試結果及數據

Modulation Type	Frequency (MHz)	Length of transmission time (ms)	Number of transmission in a 31.6 (79 Hopping*0.4)	Dwell Time (ms)	Limit (ms)
GFSK-DH1	2402	0.375	320.00	120.00	400
GFSK-DH3	2402	1.632	160.00	261.12	400
GFSK-DH5	2402	2.880	106.67	307.20	400
$\pi/4$ -DQPSK-DH1	2402	0.380	320.00	121.60	400
$\pi/4$ -DQPSK-DH3	2402	1.632	160.00	261.12	400
$\pi/4$ -DQPSK-DH5	2402	2.880	106.67	307.20	400
8DPSK-DH1	2402	0.380	320.00	121.60	400
8DPSK-DH3	2402	1.632	160.00	261.12	400
8DPSK-DH5	2402	2.895	106.67	308.80	400

Modulation Type	Frequency (MHz)	Length of transmission time (ms)	Number of transmission in a 8 (20 Hopping*0.4)	Dwell Time (ms)	Limit (ms)
AFH-DH1	2402-2421	0.373	160.00	59.73	400
AFH-DH3	2402-2421	1.632	80.00	130.56	400
AFH-DH5	2402-2421	2.880	53.33	153.59	400

備註：繪圖資料請參考下頁。

DH1 模式:

本系統每秒跳頻 1600 次，故每次跳頻時間 $1/1600=0.625\text{ms}$ 。而每個 package 需要 1 次發射及 1 次接收，故每秒於 79 個頻道中只發射 800 次，平均每秒每個頻道之發射次數為 $800/79=10.12$ 次。故於週期(31.6 秒)內每個頻道發射次數為 $10.12 \times 31.6 = 320$ 次。

DH3 模式:

本系統每秒跳頻 1600 次，故每次跳頻時間 $3/1600=1.875\text{ms}$ 。而每個 package 需要 3 次發射及 1 次接收，故每秒於 79 個頻道中只發射 400 次，平均每秒每個頻道之發射次數為 $400/79=5.06$ 次。故於週期(31.6 秒)內每個頻道發射次數為 $5.06 \times 31.6 = 160$ 次。

DH5 模式:

本系統每秒跳頻 1600 次，故每次跳頻時間 $5/1600=3.125\text{ms}$ 。而每個 package 需要 5 次發射及 1 次接收，故每秒於 79 個頻道中只發射 266.67 次，平均每秒每個頻道之發射次數為 $266.67/79=3.37$ 次。故於週期(31.6 秒)內每個頻道發射次數為 $3.37 \times 31.6 = 106.67$ 次。

8.5. 結果判定

高、中、低頻段的頻率佔用時間皆小於 0.4 秒，合乎標準規定。



Modulation Type: GFSK-DH1
Channel: 00



Modulation Type: $\pi/4$ -DQPSK-DH1
Channel: 00



Modulation Type: GFSK-DH3
Channel: 00



Modulation Type: $\pi/4$ -DQPSK-DH3
Channel: 00

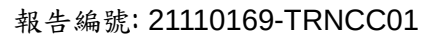


Modulation Type: GFSK-DH5
Channel: 00



Modulation Type: $\pi/4$ -DQPSK-DH5
Channel: 00





Modulation Type: AFH (DH1)



Modulation Type: AFH (DH3)



Modulation Type: AFH (DH5)





9. 跳頻頻道使用數量之規定

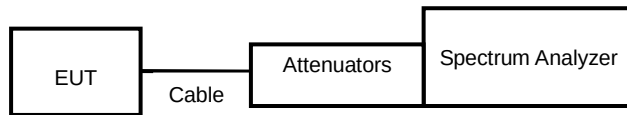
9.1. 適用標準

對使用跳頻系統之低功率發射機，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(1)(A)(a)規定，須使用至少 15 個無重疊的頻道。

9.2. 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 300 KHz。
- 將待測物設定於跳頻模式，並記錄每個頻道之所有訊號。

9.3. 測試配置



9.4. 跳頻頻道使用數量之測試結果及數據

Modulation Type	Hopping Channels
GFSK	79
$\pi/4$ -DQPSK	79
8DPSK	79

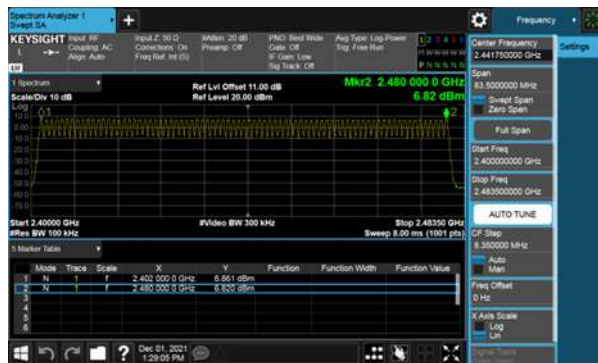
備註：繪圖資料請參考下頁。

9.5. 結果判定

高、中、低頻段的跳頻頻道使用數量皆多於 15 個無重疊的頻道，合乎標準規定。



Modulation Type: GFSK (1Mbps)

Modulation Type: $\pi/4$ -DQPSK (2Mbps)

Modulation Type: 8DPSK (3Mbps)





10. 輸出功率之規定

10.1. 適用標準

對使用跳頻系統之低功率發射機，依據國家通訊傳播委員會低功率射頻器材技術規範 4.10.1.2 節之(1)規定，操作於 2400MHz~2483.5MHz 者，

(A)：至少使用 75 個跳頻頻道之跳頻系統：1W(含)以下。

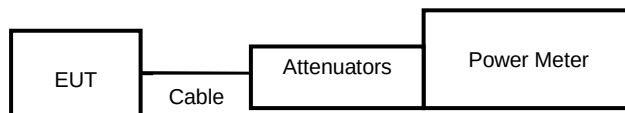
(B)：除(A)外，依 3.10.1.6(A)(a)之跳頻系統：0.125 瓦(W)(含)以下。

(C)：數位調變技術系統：1W(含)以下。

10.2. 測試方法

- a. 將待測物和儀器相連接。
- b. 量測輸出功率並記錄於報告中。

10.3. 測試配置



10.4. 輸出功率之測試結果及數據

Modulation Type	Setting	Channel	Frequency (MHz)	AV Output Power (dBm)	AV Output Power (mW)
GFSK	7	0	2402	7.34	5.420
	7	39	2441	7.25	5.309
	7	78	2480	6.85	4.842
$\pi/4$ -DQPSK	7	0	2402	5.19	3.304
	7	39	2441	5.07	3.214
	7	78	2480	4.63	2.904
8DPSK	7	0	2402	5.70	3.715
	7	39	2441	5.12	3.251
	7	78	2480	4.61	2.891

AFH Mode

Modulation Type	Setting	Channel	Frequency (MHz)	AV Output Power (dBm)	AV Output Power (mW)
GFSK	7	0-19	2402-2421	7.32	5.395
$\pi/4$ -DQPSK	7	0-19	2402-2421	5.17	3.289
8DPSK	7	0-19	2402-2421	5.68	3.698

10.5. 結果判定

高、中、低頻段的輸出功率皆低於 21 dBm，合乎標準規定。



11. 混附波發射限制之規定

11.1. 適用方法

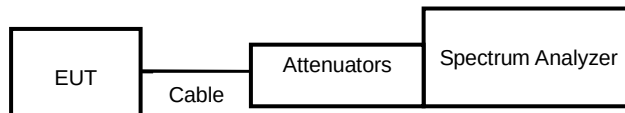
對使用跳頻系統之低功率發射機，依據國家通訊傳播委員會低功率射頻器材技術規範 4.10.1.5 節之規定，操作頻帶範圍外之任意 100 千赫(kHz)內，發射機所產生的射頻功率相較於使用頻帶範圍中包含最高所需功率之 100 千赫(kHz)內的射頻功率，其衰減值限制如下：

- (1) 輸出功率以附件二峰值輸出功率方式測量者，至少須衰減 20 分貝(dB)，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，至少須衰減 30 分貝(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。

11.2. 測試方法

1. 將待測物和儀器相連接。
2. 設定儀器解析頻寬 100KHz 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。

11.3. 測試配置



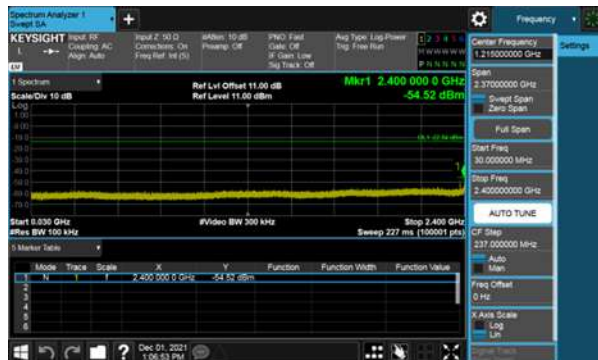
11.4. 結果判定

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。
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。

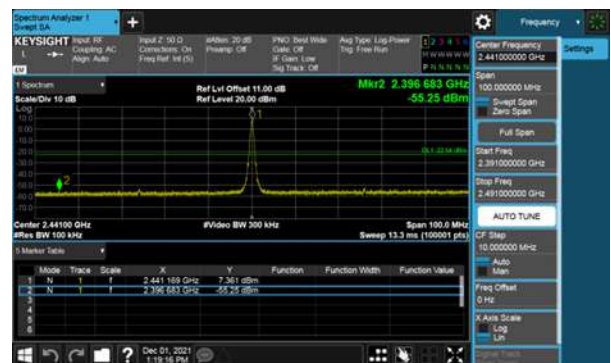
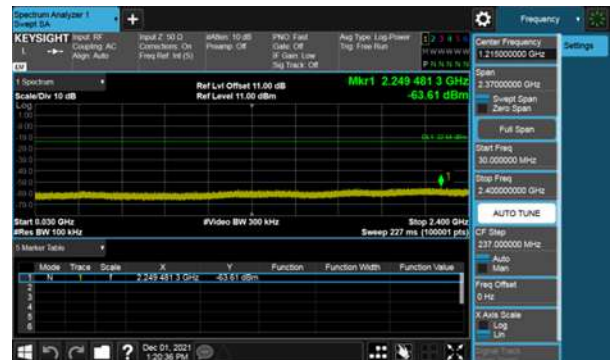


11.5. 混附波發射限制之測試結果及數據

Modulation Type: GFSK (1Mbps)
Channel: 00

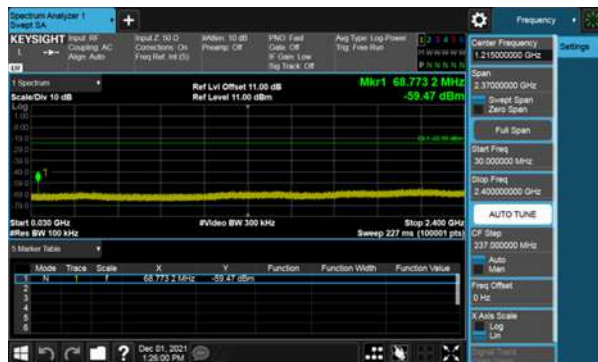


Modulation Type: GFSK (1Mbps)
Channel: 39

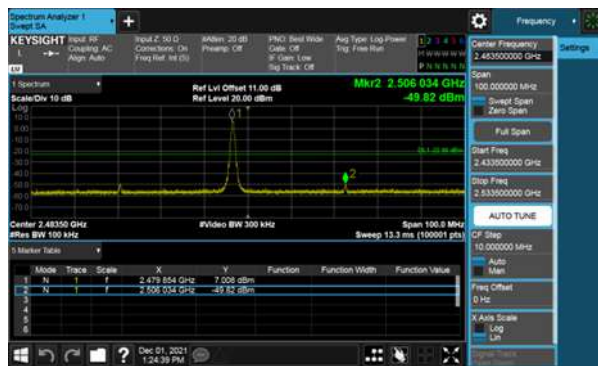
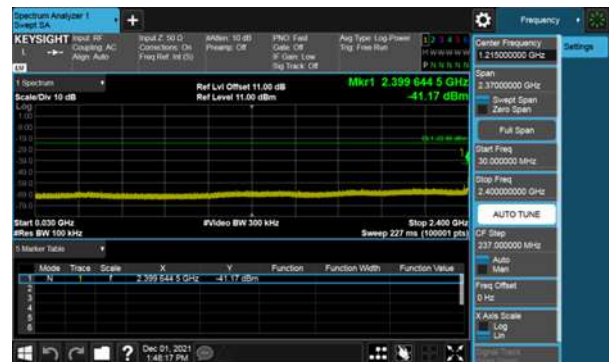




Modulation Type: GFSK (1Mbps)
Channel: 78



Modulation Type: $\pi/4$ -DQPSK (2Mbps)
Channel: 00

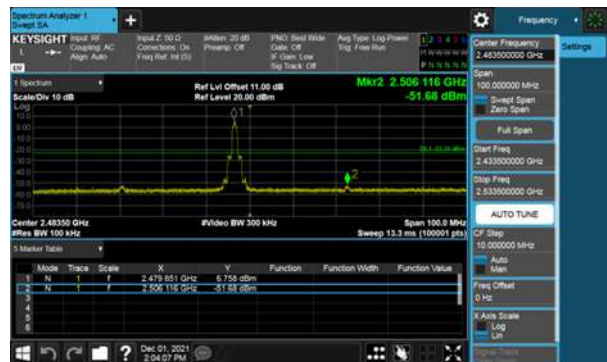
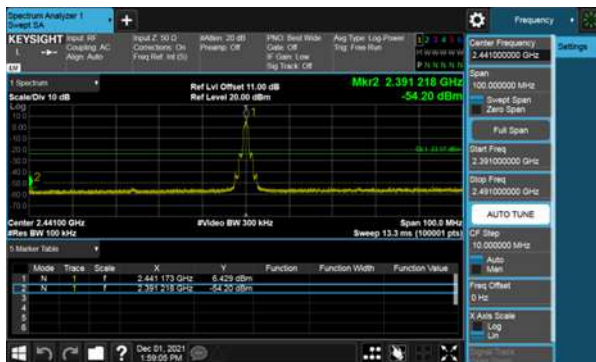




Modulation Type: $\pi/4$ -DQPSK (2Mbps)
Channel: 39

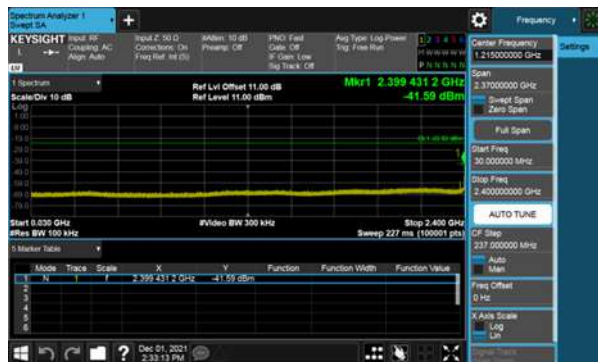


Modulation Type: $\pi/4$ -DQPSK (2Mbps)
Channel: 78

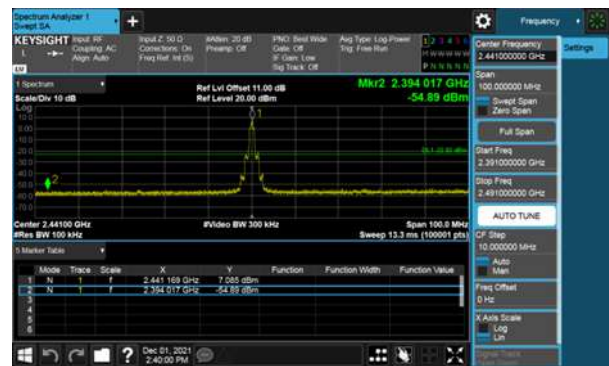
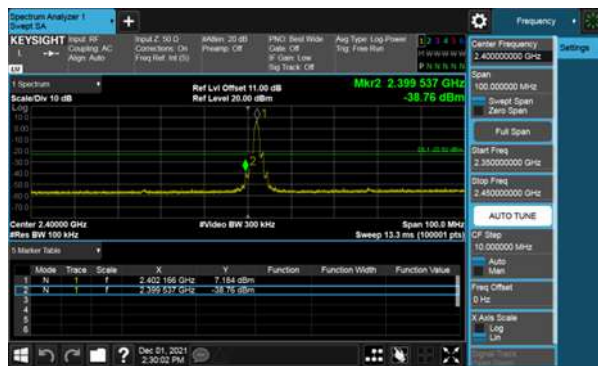




Modulation Type: 8DPSK (3Mbps)
Channel: 00



Modulation Type: 8DPSK (3Mbps)
Channel: 39



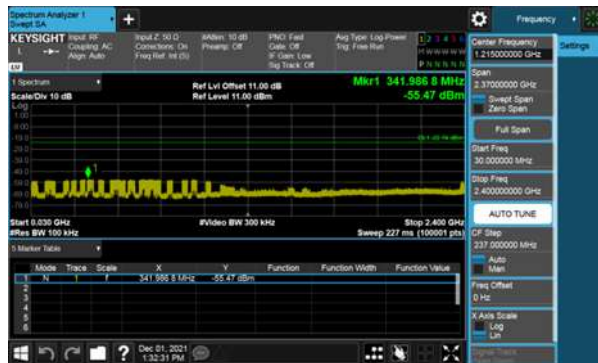


Modulation Type: 8DPSK (3Mbps)
Channel: 78

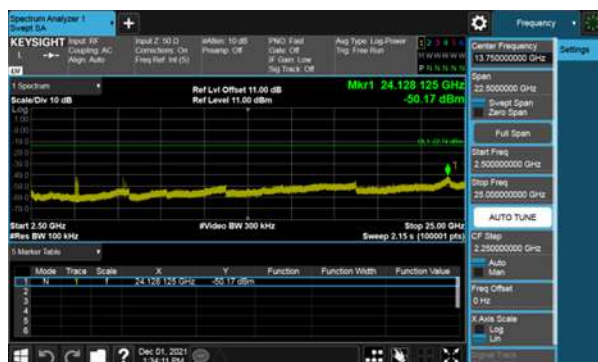
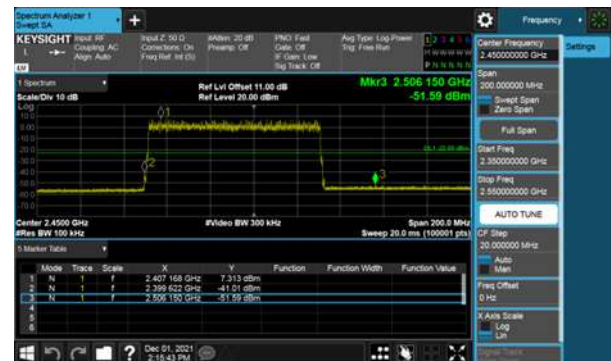




Hopping Mode: Modulation Type: GFSK



Modulation Type: $\pi/4$ -DQPSK





Modulation Type: 8DPSK





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-----