



低功率射頻電機測試報告

申請廠商：香港商振光玩具有限公司台灣分公司
地址：臺北市大同區鄭州路139號10樓
器材名稱：玩具總動員4-1:24 RC無線遙控車
廠牌：Dickie
型號：DI05867；DI05868



財團法人台灣電子檢驗中心電磁相容試驗二部

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報告號碼: 19-03-RBF-004

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受理日期 : 108 年 03 月 06 日
 完成日期 : 108 年 04 月 11 日
 報告號碼 : 19-03-RBF-004
 實驗室名稱 : 財團法人台灣電子檢驗中心電磁相容試驗二部
 實驗室地址 : 新北市林口區頂福里 5 鄰 34 號
 實驗室電話 : 02-26023052
 認可編號及範圍 : 2628 (9KHz- 40GHz)
 認可證書有效期限 : 110 年 10 月 08 日
 申請廠商 : 香港商振光玩具有限公司台灣分公司
 申請廠商地址 : 臺北市大同區鄭州路 139 號 10 樓
 製造廠商 : Dickie Toys Hong Kong Ltd
 器材名稱 : 玩具總動員 4-1:24 RC 無線遙控車
 廠牌 : Dickie
 型號 : DI05867 ; DI05868
 發射功率(電場強度) : 84.76 dB μ V/m @3m Peak(電場強度)
 工作頻率及調變方式 : 2416.8~2472.0 MHz ; 3CH ; GFSK
 天線規格 : 固定式天線

備註 : 1. 本測試報告僅對受測之樣品負責。

2. 非經本中心同意，測試報告不得摘錄複印使用。(全部複製除外)

3. 本產品所適用之規範修訂日期 107 年 01 月 10 日。

項次	測試項目	適用規範	測試結果	量測設備	備註
1	場強輻射	低功率射頻電機技術規範 3.10.2.2節、2.8節	請參閱4.5節	請參閱4.3節	合格
2	電源線傳導干擾	低功率射頻電機技術規範2.3 節	請參閱5.4節	請參閱5.3節	無需實施 此項檢測
3	天線之要求	低功率射頻電機技術規範2.2 節	請參閱6.2節	----	合格
4	開放頻帶邊緣之 發射	低功率射頻電機技術規範 3.10.2.4、2.8節	請參閱7.4節	請參閱7.3節	合格
	以下空白				



報告簽署人：

(Signature)

量測員：

(Signature: 張謝南)

1 一般資料

1.1 產品描述

- a) 產品型態 : 玩具總動員 4-1:24 RC 無線遙控車
- b) 廠 牌 : Dickie
- c) 產品型號 : DI05867 ; DI05868
- d) 供應電源 : TX : DC Battery 1.5V * 2
RX : DC Battery 1.5V * 3
- e) 系列產品聲明 : **該產品確符合同系列產品技術規格及射頻性能相同**
本產品系列機種(廠牌: Dickie , 型號: DI05868)的技術規格及射頻性能與原產品 (廠牌: Dickie , 型號: DI05867)相同, 僅型號及接收機外觀不同。

1.2 產品特性

本產品為玩具總動員4-1:24 RC無線遙控車, 為2.4GHz無線裝置, 額定發射頻率為2416.8~2472.0 MHz, 共使用3個頻道。

CH1 2416.8000MHz
CH2 2461.2000MHz
CH3 2472.0000MHz

1.3 測試方法之依據

本測試報告之所有項目皆依據低功率射頻電機技術規範以及參考EIA 603、ANSI、FCC/47 CFR/2.1046、2.1047、2.1049、2.1051、2.1053及2.1055之檢驗法。

2 適用規範

2.1 規範要求

(1) 傳導之規定

依據國家通訊傳播委員會低功率射頻電機技術規範2.3節之規定，以市電為電源之低功率射頻電機，其傳導回電源線上頻率自150 kHz~30百萬赫(MHz)之射頻電壓(在電源端子每一電源線對接地點)應小於或等於下表所列之限制值。測量時應經過50微亨利(uH)及50歐姆(Ω)之電源線阻抗穩定網路(Line Impedance Stabilization Network； LISN)。頻率重疊處，以較低限制值為準。電源傳導干擾之限制要求如下：

頻率(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。

(2) 輻射之規定

依據低功率射頻電機技術規範3.10.2.2節之要求，主波與諧波發射：除3.10.2.3 外，發射之電場強度應小於或等於下表限制值：

主波頻率 (MHz)	主波電場強度 (mV/m)	諧波電場強度 (μ V/m)
2400-2483.5	50	500
5725-5875	50	500
24000-24250	250	2500

3.10.2.4 除諧波外，指定頻帶外之發射應比主波低50 dB以上或依2.8 之發射限制，兩者取其較鬆者。

接收機依據低功率射頻電機技術規範之要求，其任何輻射場強需符合2.8節之一般限制要求：

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

(3) 天線之要求

依據低功率射頻電機技術規範2.2節之規定，低功率射頻電機之發射機或收發信機所使用之天線，除本規範章節中另有規定外，應為全固定、半固定式或以獨特之耦合(unique coupling)方式連接機體。製造者可設計供使用者因損壞而替換之天線，但不得設計或使用原認證以外之天線或可供引接各類電纜之標準天線插座或電氣連接頭，如：BNC、F type、N type、M type、UG type、RCA、SMA、SMB...等及其他各類工業或通訊標準接頭。

2.2 限制使用之頻帶

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

3 受測裝置之系統說明

裝置名稱	製造者/代理者	型 號	纜線說明
玩具總動員 4-1:24 RC 無線遙控車*	Dickie Toys Hong Kong Ltd/香 港商振光玩具有限公司台灣分 公司	DI05867	---

標記“*”表欲申請之受測物。

4 場強輻射之量測

4.1 適用標準

依據低功率射頻電機技術規範3.10.2.2節之要求，主波與諧波發射：除3.10.2.3 外，發射之電場強度應小於或等於下表限制值：

主波頻率 (MHz)	主波電場強度 (mV/m)	諧波電場強度 (uV/m)
2400-2483.5	50	500
5725-5875	50	500
24000-24250	250	2500

3.10.2.4 除諧波外，指定頻帶外之發射應比主波低50 dB以上或依2.8 之發射限制，兩者取其較鬆者。

4.2 量測方法

將待測物置於0.8米高的非金屬桌面，使其在工作狀態，接收天線置於3米外相同的高度。待測物分別要垂直或水平放置，而且桌面要360度旋轉，另外接收天線也要從4米至4米升降變化，以找出最大的輻射電場強度，接收天線置於水平、垂直極向各執行測試一次。

4.3 量測場強輻射之儀器

儀器名稱	製造者	型號	本次校驗日期	下次校驗日期
EMI Test Receiver	Rohde & Schwarz	ESU 40	2018/11/01	2019/10/31
Bi-Log Antenna	ETC	MCTD 2786	2018/08/22	2019/08/21
Amplifier	HP	8447D	2018/07/03	2019/07/02
Horn Antenna	EMCO	3115	2018/10/15	2019/10/14
Horn Antenna	EMCO	3116	2018/12/05	2019/12/04
Amplifier	HP	8449B	2018/10/09	2019/10/08
Amplifier	HP	83051A	2018/09/03	2019/09/02

4.4 場強度之計算

場強之計算公式如下

$$\text{結果值} = \text{讀值} + \text{校正因子} + \text{週期因子}$$

其中校正因子為：

$$\text{天線因子} + \text{饋線損失} + \text{濾波器損失 (若有使用)} - \text{放大器增益 (若有使用)}$$

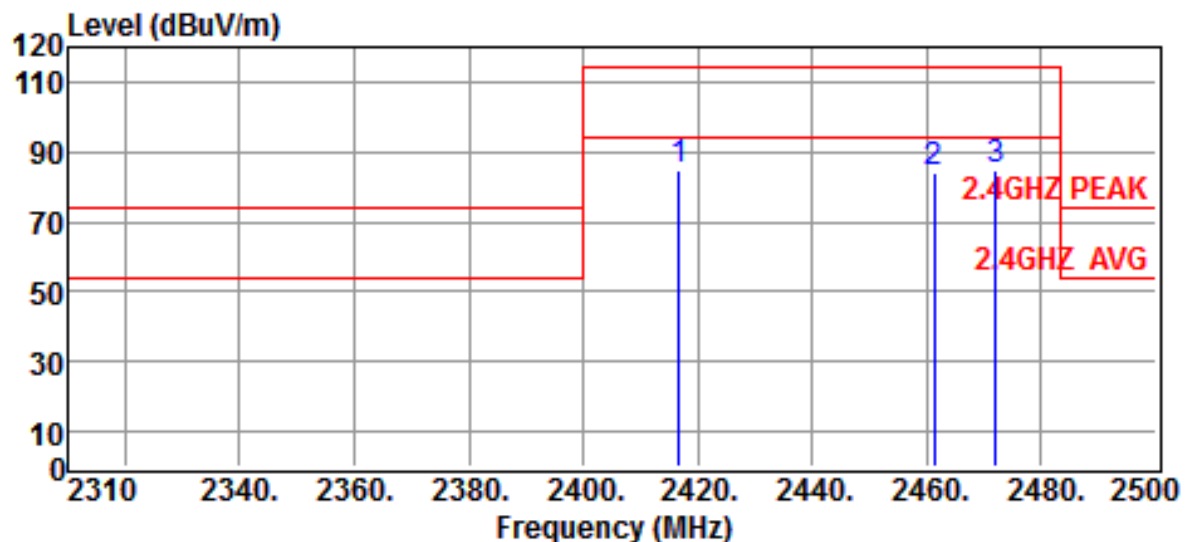
4.5 場強輻射之量測結果

4.5.1 發射主波、諧波及本地震盪

操作模式 : 發射(發射主波)

測試結果 : 合格

測試者 : 張謝南

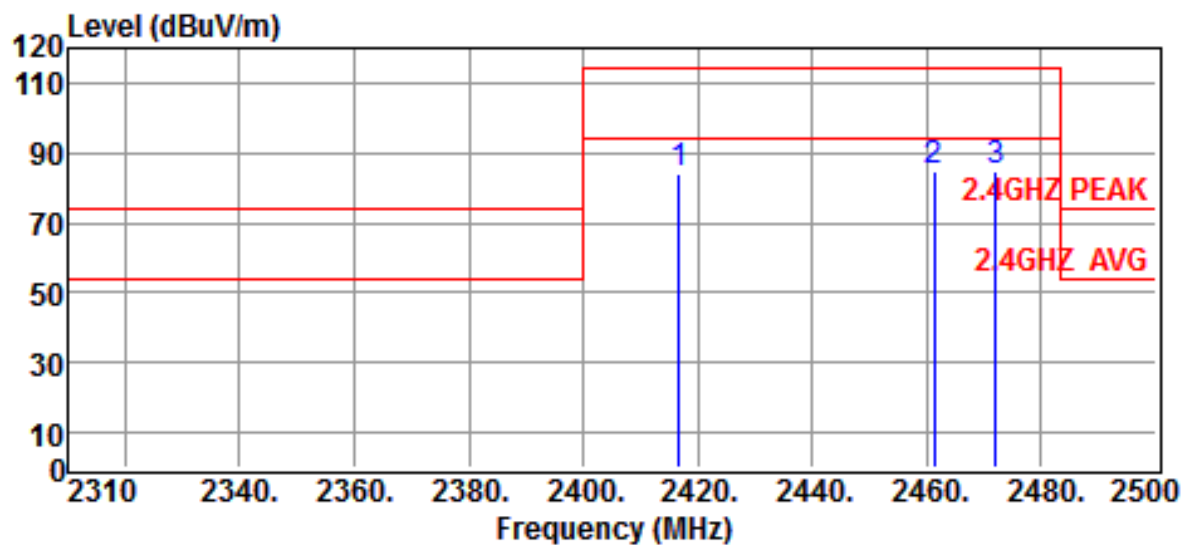


Site	:Chamber#2	Date	:2019-03-27
Limit	:2.4GHZ PEAK	Ant. Pol.	:HORIZONTAL
EUT	:玩具總動員 4-1:24 RC 無線遙控車	Model	:DI05867
Power Rating	:DC 3.0V	Temp.	:25 °C
Engineer	: Jack	Humi.	:65 %
Test Mode	:TX Mode		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
2416.8000	89.86	-5.35	84.51	114.00	-29.49	Peak
2461.2000	89.43	-5.24	84.19	114.00	-29.81	Peak
2472.0000	89.72	-5.21	84.51	114.00	-29.49	Peak

Note :

1. Result = Reading + Corrected Factor
2. Average Result = Peak Result + Duty Factor ()
3. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
4. The margin value=Limit - Result
5. Above 1Ghz : Peak measurements are compared to the average limit - as peak measurements are below the average limit, they also comply with the peak limit.



Site	:Chamber#2	Date	:2019-03-27
Limit	:2.4GHZ PEAK	Ant. Pol.	:VERTICAL
EUT	:玩具總動員 4-1:24 RC 無線遙控車	Model	:DI05867
Power Rating	:DC 3.0V	Temp.	:25 °C
Engineer	: Jack	Humi.	:65 %
Test Mode	:TX Mode		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
2416.8000	89.32	-5.35	83.97	114.00	-30.03	Peak
2461.2000	90.00	-5.24	84.76	114.00	-29.24	Peak
2472.0000	89.71	-5.21	84.50	114.00	-29.50	Peak

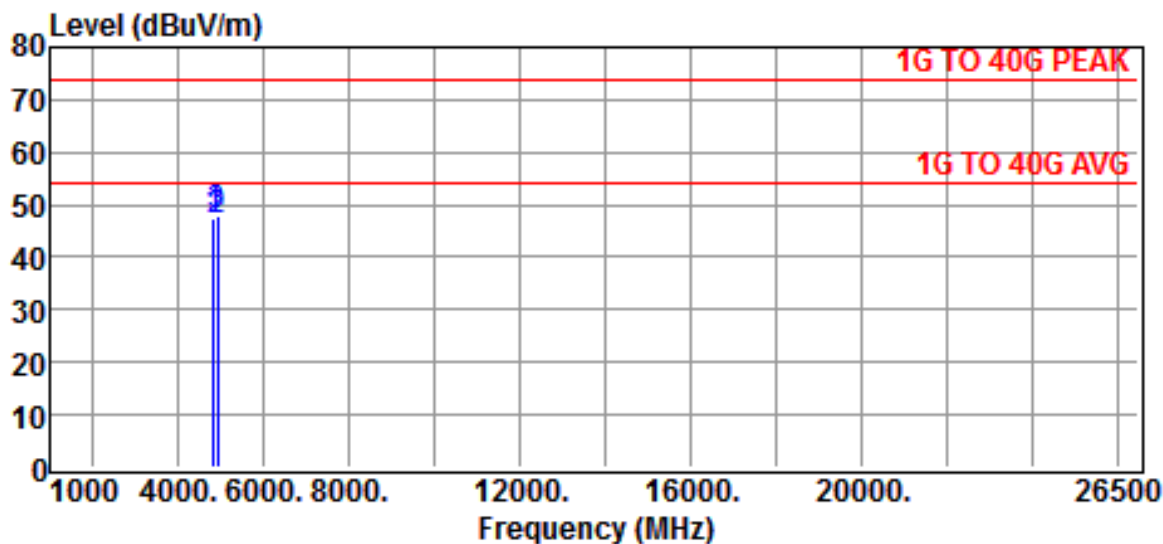
Note :

1. Result = Reading + Corrected Factor
2. Average Result = Peak Result + Duty Factor ()
3. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
4. The margin value=Limit - Result
5. Above 1Ghz : Peak measurements are compared to the average limit - as peak measurements are below the average limit, they also comply with the peak limit.

操作模式 : 發射(諧波及本地震盪)

測試結果 : 合格

測試者 : 張謝南

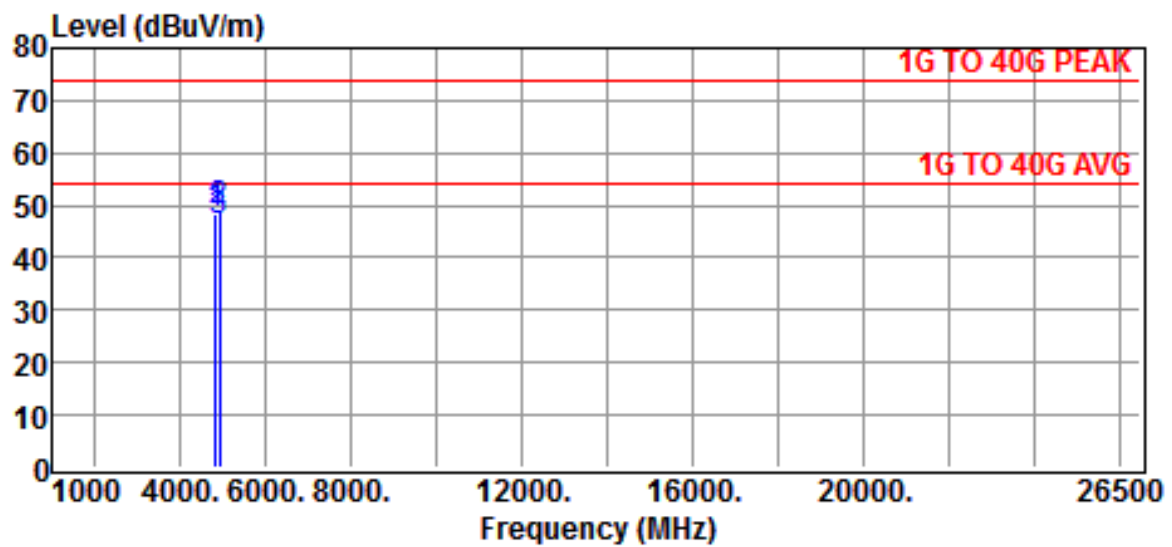


Site	:Chamber#2	Date	:2019-03-27
Limit	:1G TO 40G PEAK	Ant. Pol.	:HORIZONTAL
EUT	:玩具總動員 4-1:24 RC 無線遙控車	Model	:DI05867
Power Rating	:DC 3.0V	Temp.	:25 °C
Engineer	: Jack	Humi.	:65 %
Test Mode	:TX MODE		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
4833.6000	45.70	1.68	47.38	74.00	-26.62	Peak
4922.4000	45.11	1.94	47.05	74.00	-26.95	Peak
4944.0000	46.04	2.01	48.05	74.00	-25.95	Peak

Note :

1. Result = Reading + Corrected Factor
2. Average Result = Peak Result + Duty Factor ()
3. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
4. The margin value=Limit - Result
5. Above 1Ghz : Peak measurements are compared to the average limit - as peak measurements are below the average limit, they also comply with the peak limit.



Site	:Chamber#2	Date	:2019-03-27
Limit	:1G TO 40G PEAK	Ant. Pol.	:VERTICAL
EUT	:玩具總動員 4-1:24 RC 無線遙控車	Model	:DI05867
Power Rating	:DC 3.0V	Temp.	:25 °C
Engineer	: Jack	Humi.	:65 %
Test Mode	:TX MODE		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
4833.6000	46.50	1.68	48.18	74.00	-25.82	Peak
4922.4000	46.82	1.94	48.76	74.00	-25.24	Peak
4944.0000	45.07	2.01	47.08	74.00	-26.92	Peak

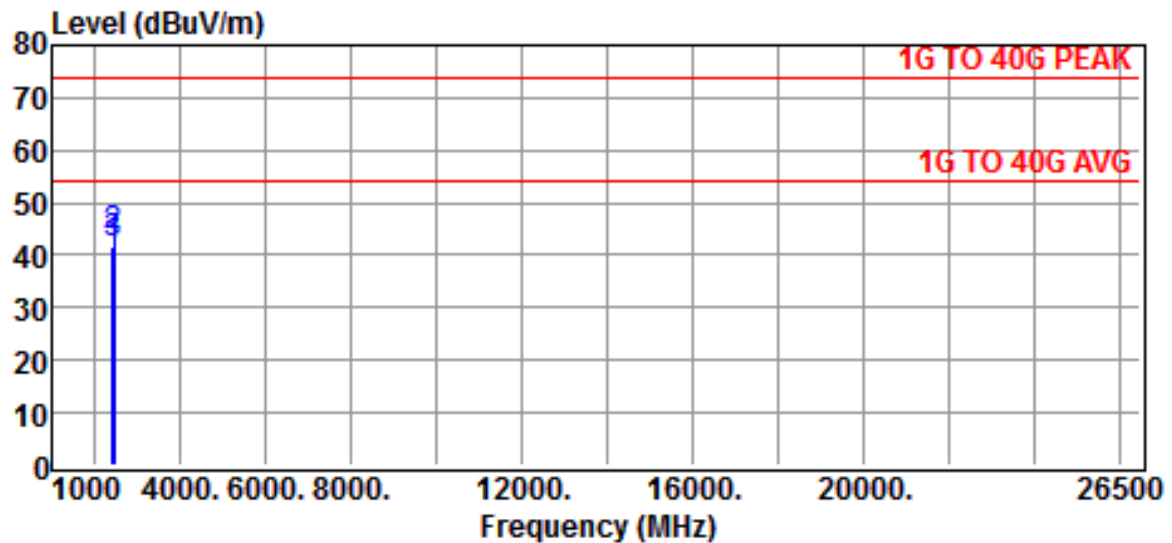
Note :

1. Result = Reading + Corrected Factor
2. Average Result = Peak Result + Duty Factor ()
3. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
4. The margin value=Limit - Result
5. Above 1Ghz : Peak measurements are compared to the average limit - as peak measurements are below the average limit, they also comply with the peak limit.

操作模式 : 接收(諧波及本地震盪)

測試結果 : 合格

測試者 : 張謝南

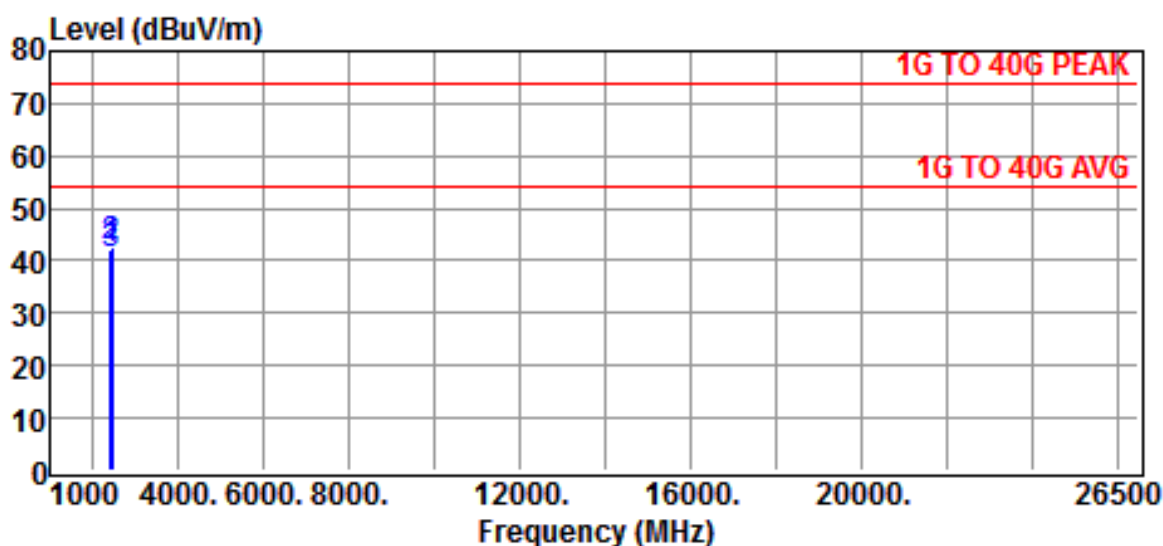


Site	:Chamber#2	Date	:2019-03-27
Limit	:1G TO 40G PEAK	Ant. Pol.	:HORIZONTAL
EUT	:玩具總動員 4-1:24 RC 無線遙控車	Model	:DI05867
Power Rating	:DC4.5V	Temp.	:25 °C
Engineer	: Jack	Humi.	:65 %
Test Mode	:RX MODE		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
2416.8000	47.21	-5.35	41.86	74.00	-32.14	Peak
2461.2000	48.68	-5.24	43.44	74.00	-30.56	Peak
2472.0000	47.45	-5.21	42.24	74.00	-31.76	Peak

Note :

1. Result = Reading + Corrected Factor
2. Average Result = Peak Result + Duty Factor ()
3. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
4. The margin value=Limit - Result
5. Above 1Ghz : Peak measurements are compared to the average limit - as peak measurements are below the average limit, they also comply with the peak limit.



Site	:Chamber#2	Date	:2019-03-27
Limit	:1G TO 40G PEAK	Ant. Pol.	:VERTICAL
EUT	:玩具總動員 4-1:24 RC 無線遙控車	Model	:DI05867
Power Rating	:DC4.5V	Temp.	:25 °C
Engineer	: Jack	Humi.	:65 %
Test Mode	:RX MODE		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
2416.8000	47.71	-5.35	42.36	74.00	-31.64	Peak
2461.2000	47.93	-5.24	42.69	74.00	-31.31	Peak
2472.0000	46.62	-5.21	41.41	74.00	-32.59	Peak

Note :

1. Result = Reading + Corrected Factor
2. Average Result = Peak Result + Duty Factor ()
3. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
4. The margin value=Limit - Result
5. Above 1Ghz : Peak measurements are compared to the average limit - as peak measurements are below the average limit, they also comply with the peak limit.

4.5.2 其它不必要之訊號

A. 1GHz以下

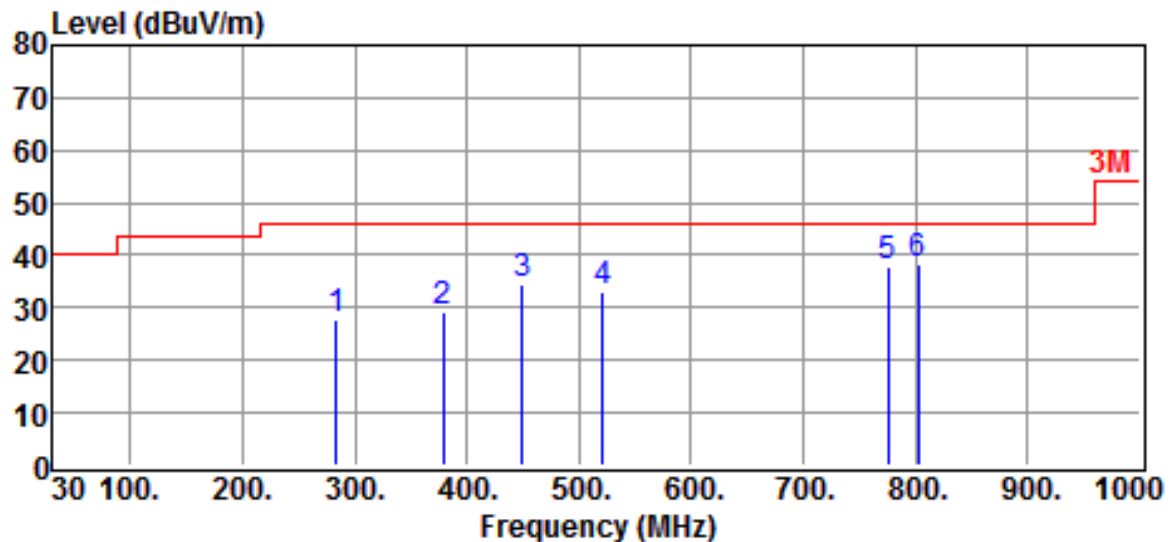
操作模式 : TX Mode

測試日期 : Mar.27, 2019 環境溫度 : 25°C

環境濕度 : 65 %

測試結果 : 合格

測試者 : 張謝南



Site : Chamber#2

Date : 2019-03-27

Limit : 3M

Ant. Pol. : HORIZONTAL

EUT : 玩具總動員 4-1:24 RC 無線遙控車

Model : DI05867

Power Rating : DC 3.0V

Temp. : 25 °C

Engineer : Jack

Humi. : 65 %

Test Mode : TX Mode

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
284.1400	30.95	-3.38	27.57	46.00	-18.43	QP
379.2000	30.62	-1.47	29.15	46.00	-16.85	QP
449.0400	35.03	-0.37	34.66	46.00	-11.34	QP
520.8200	32.22	0.92	33.14	46.00	-12.86	QP
774.9600	32.77	5.25	38.02	46.00	-7.98	QP
802.1200	32.41	5.90	38.31	46.00	-7.69	QP

Note :

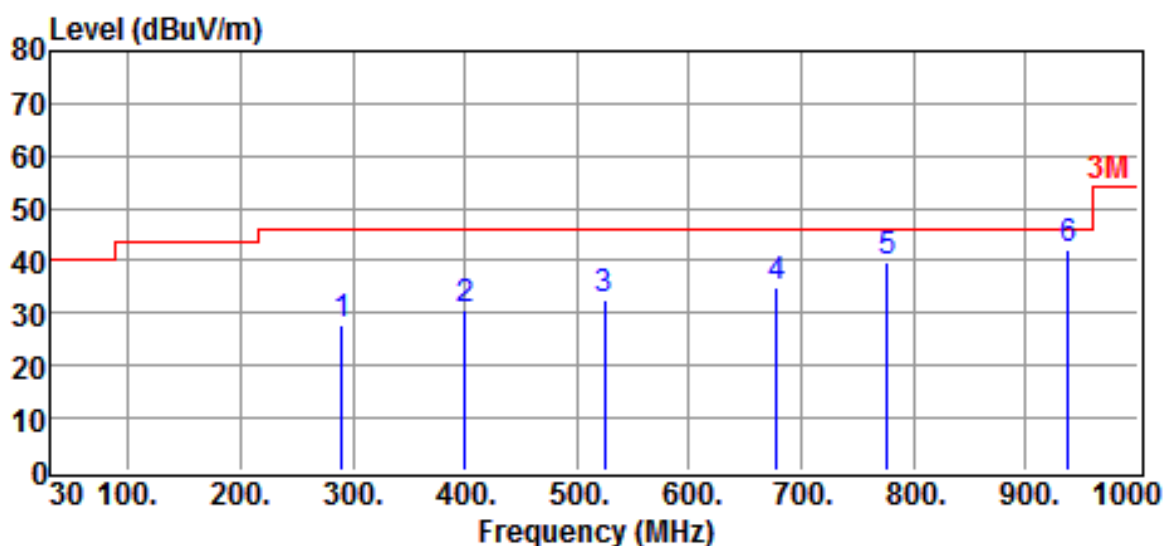
1. Result = Reading + Corrected Factor

2. Average Result = Peak Result + Duty Factor ()

3. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)

4. The margin value=Limit - Result

5. Above 1Ghz : Peak measurements are compared to the average limit - as peak measurements are below the average limit, they also comply with the peak limit.



Site	:Chamber#2	Date	:2019-03-27
Limit	:3M	Ant. Pol.	:VERTICAL
EUT	:玩具總動員 4-1:24 RC 無線遙控車	Model	:DI05867
Power Rating	:DC 3.0 V	Temp.	:25 °C
Engineer	: Jack	Humi.	:65 %
Test Mode	:TX Mode		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
289.9600	30.94	-3.05	27.89	46.00	-18.11	QP
400.5400	31.76	-1.18	30.58	46.00	-15.42	QP
524.7000	31.80	1.00	32.80	46.00	-13.20	QP
677.9600	30.79	4.29	35.08	46.00	-10.92	QP
776.9000	34.32	5.30	39.62	46.00	-6.38	QP
937.9200	33.26	8.96	42.22	46.00	-3.78	QP

Note :

1. Result = Reading + Corrected Factor
2. Average Result = Peak Result + Duty Factor ()
3. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
4. The margin value=Limit - Result
5. Above 1Ghz : Peak measurements are compared to the average limit - as peak measurements are below the average limit, they also comply with the peak limit.

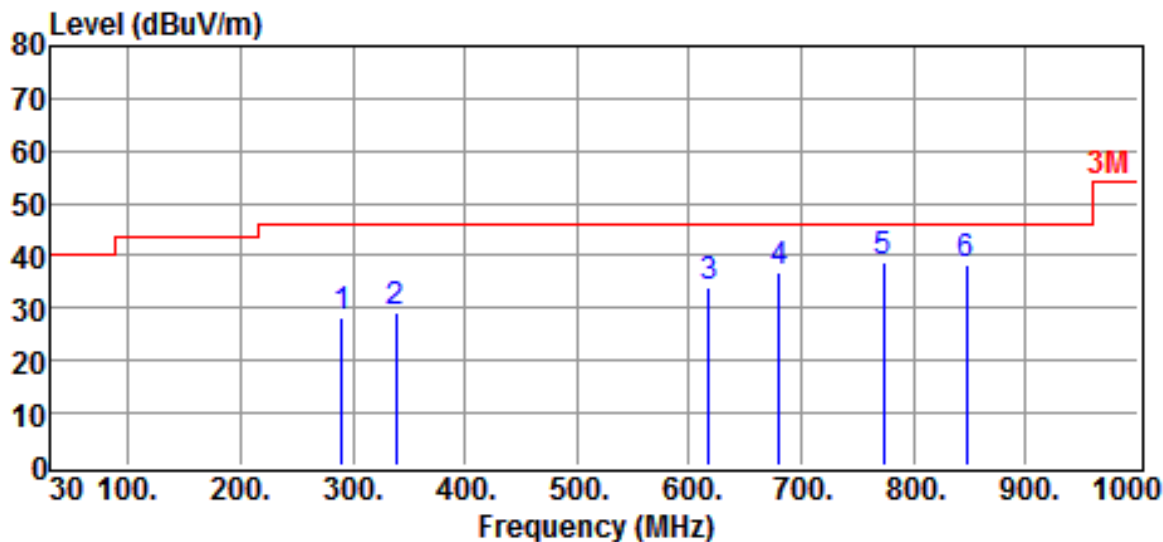
操作模式 : RX Mode

測試日期 : Mar.27, 2019 環境溫度 : 25°C

環境濕度 : 65 %

測試結果 : 合格

測試者 : 張謝南



Site : Chamber#2

Date : 2019-03-27

Limit : 3M

Ant. Pol. : HORIZONTAL

EUT : 玩具總動員 4-1:24 RC 無線遙控車

Model : DI05867

Power Rating : DC 4.5 V

Temp. : 25 °C

Engineer : Jack

Humi. : 65 %

Test Mode : RX Mode

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
289.9600	31.13	-3.05	28.08	46.00	-17.92	QP
338.4600	31.50	-2.34	29.16	46.00	-16.84	QP
617.8200	31.64	2.54	34.18	46.00	-11.82	QP
679.9000	32.43	4.29	36.72	46.00	-9.28	QP
773.0200	33.43	5.23	38.66	46.00	-7.34	QP
846.7400	31.51	6.84	38.35	46.00	-7.65	QP

Note :

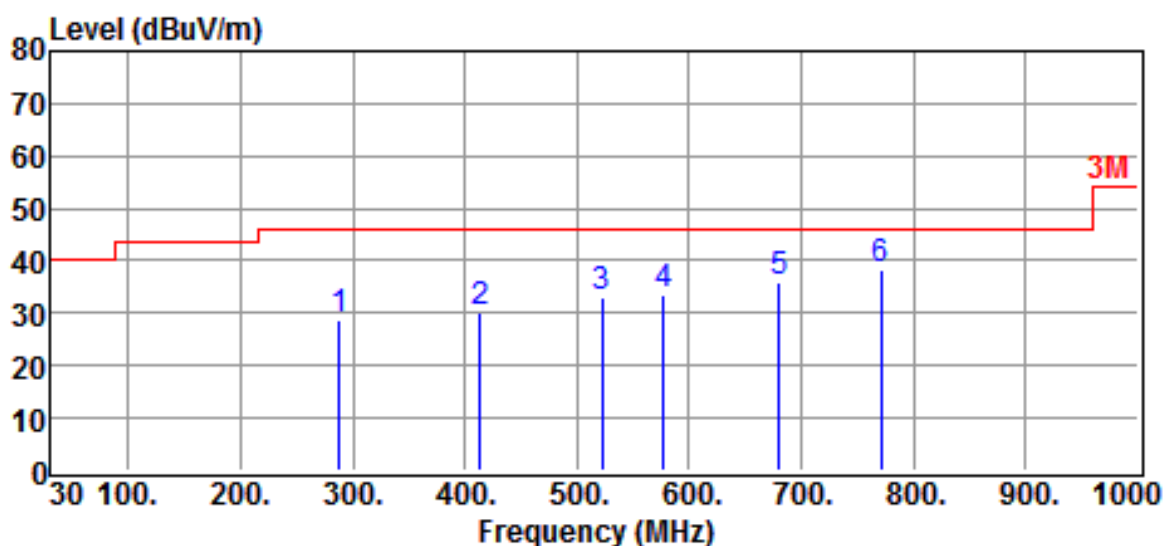
1. Result = Reading + Corrected Factor

2. Average Result = Peak Result + Duty Factor ()

3. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)

4. The margin value=Limit - Result

5. Above 1Ghz : Peak measurements are compared to the average limit - as peak measurements are below the average limit, they also comply with the peak limit.



Site	:Chamber#2	Date	:2019-03-27
Limit	:3M	Ant. Pol.	:VERTICAL
EUT	:玩具總動員 4-1:24 RC 無線遙控車	Model	:DI05867
Power Rating	:DC 4.5V	Temp.	:25 °C
Engineer	: Jack	Humi.	:65 %
Test Mode	:RX Mode		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
288.0200	31.79	-3.16	28.63	46.00	-17.37	QP
414.1200	31.10	-1.05	30.05	46.00	-15.95	QP
522.7600	31.97	0.96	32.93	46.00	-13.07	QP
577.0800	32.02	1.65	33.67	46.00	-12.33	QP
679.9000	31.56	4.29	35.85	46.00	-10.15	QP
771.0800	32.95	5.20	38.15	46.00	-7.85	QP

Note :

1. Result = Reading + Corrected Factor
2. Average Result = Peak Result + Duty Factor ()
3. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
4. The margin value=Limit - Result
5. Above 1Ghz : Peak measurements are compared to the average limit - as peak measurements are below the average limit, they also comply with the peak limit.

b. 1GHz以上

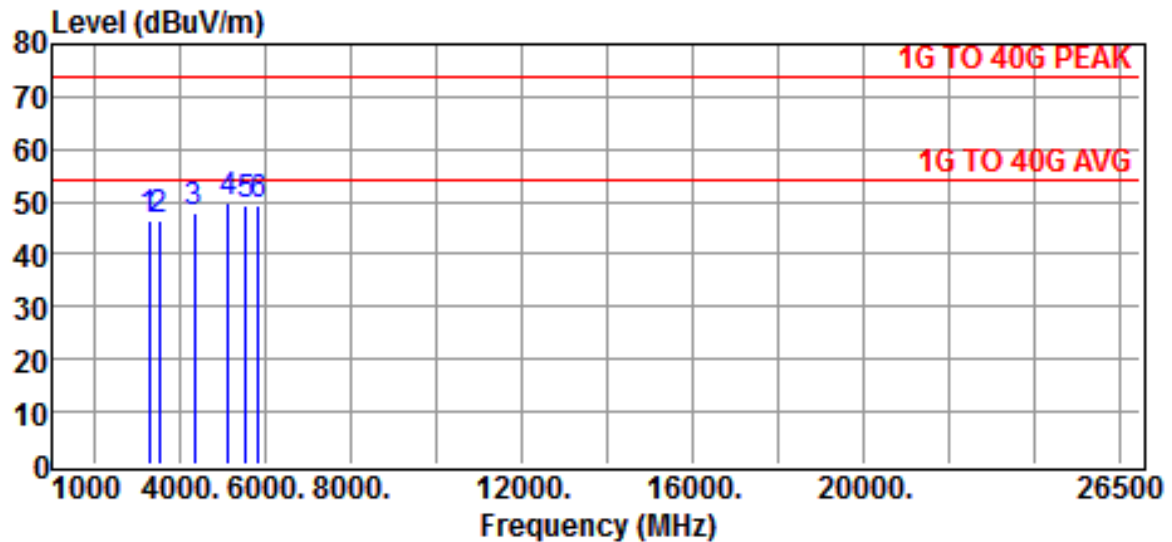
操作模式 : TX Mode

測試日期 : Mar.27, 2019 環境溫度 : 25°C

環境濕度 : 65 %

測試結果 : 合格

測試者 : 張謝南



Site : Chamber#2

Date : 2019-03-27

Limit : 1G TO 40G PEAK

Ant. Pol. : HORIZONTAL

EUT : 玩具總動員 4-1:24 RC 無線遙控車

Model : DI05867

Power Rating : DC 3.0V

Temp. : 25 °C

Engineer : Jack

Humi. : 65 %

Test Mode : TX MODE

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
3270.0000	48.50	-2.23	46.27	74.00	-27.73	Peak
3520.0000	48.03	-1.39	46.64	74.00	-27.36	Peak
4350.0000	47.53	0.56	48.09	74.00	-25.91	Peak
5130.0000	47.36	2.46	49.82	74.00	-24.18	Peak
5550.0000	46.10	3.33	49.43	74.00	-24.57	Peak
5830.0000	45.62	3.71	49.33	74.00	-24.67	Peak

Note :

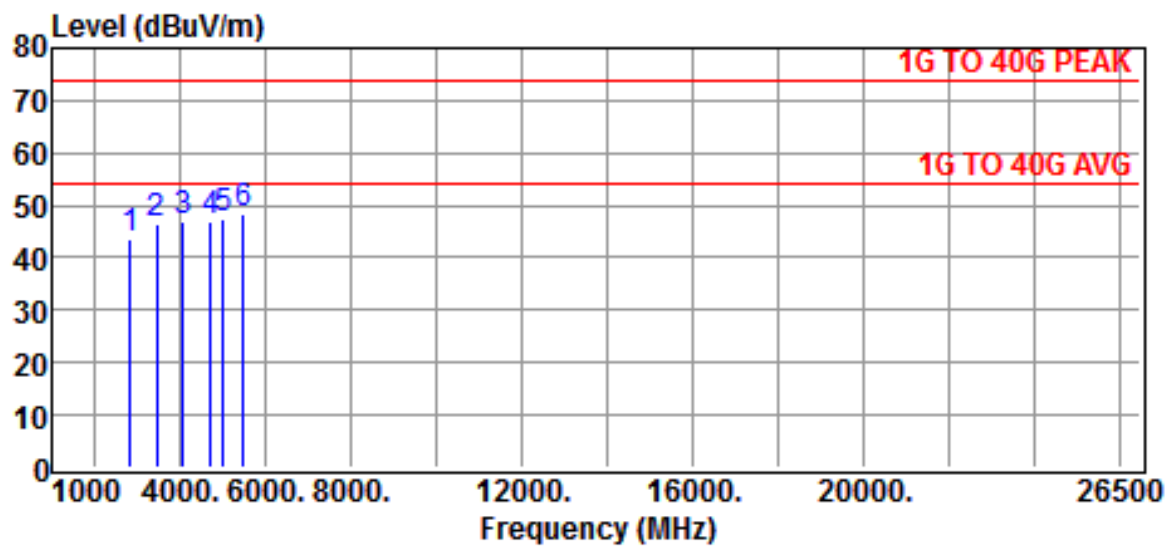
1. Result = Reading + Corrected Factor

2. Average Result = Peak Result + Duty Factor ()

3. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)

4. The margin value=Limit - Result

5. Above 1Ghz : Peak measurements are compared to the average limit - as peak measurements are below the average limit, they also comply with the peak limit.



Site	:Chamber#2	Date	:2019-03-27
Limit	:1G TO 40G PEAK	Ant. Pol.	:VERTICAL
EUT	:玩具總動員 4-1:24 RC 無線遙控車	Model	:DI05867
Power Rating	:DC 3.0V	Temp.	:25 °C
Engineer	: Jack	Humi.	:65 %
Test Mode	:TX MODE		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
2840.0000	47.51	-3.77	43.74	74.00	-30.26	Peak
3470.0000	47.84	-1.56	46.28	74.00	-27.72	Peak
4080.0000	46.39	0.39	46.78	74.00	-27.22	Peak
4720.0000	45.57	1.33	46.90	74.00	-27.10	Peak
5020.0000	45.20	2.23	47.43	74.00	-26.57	Peak
5500.0000	44.96	3.27	48.23	74.00	-25.77	Peak

Note :

1. Result = Reading + Corrected Factor
2. Average Result = Peak Result + Duty Factor ()
3. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
4. The margin value=Limit - Result
5. Above 1Ghz : Peak measurements are compared to the average limit - as peak measurements are below the average limit, they also comply with the peak limit.

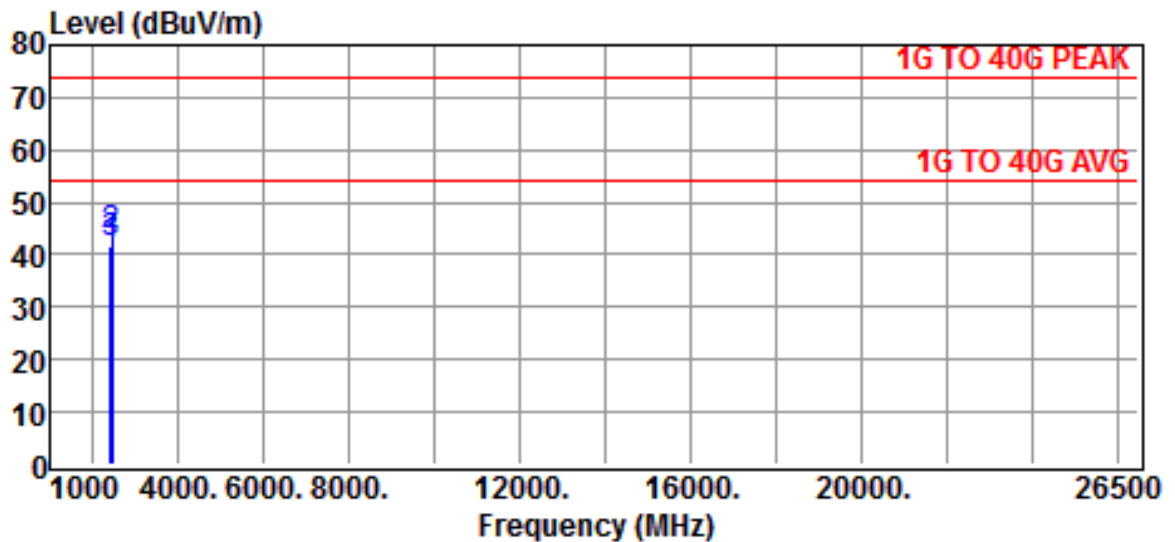
操作模式 : RX Mode

測試日期 : Mar.27, 2019 環境溫度 : 25°C

環境濕度 : 65 %

測試結果 : 合格

測試者 : 張謝南



Site : Chamber#2

Date : 2019-03-27

Limit : 1G TO 40G PEAK

Ant. Pol. : HORIZONTAL

EUT : 玩具總動員 4-1:24 RC 無線遙控車

Model : DI05867

Power Rating : DC4.5V

Temp. : 25°C

Engineer : Jack

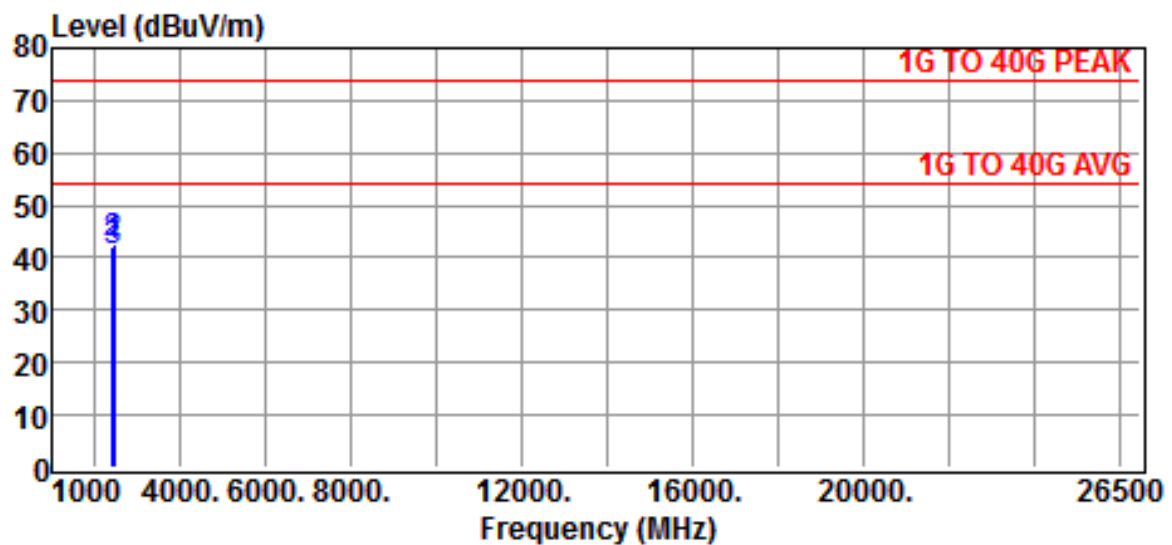
Humi. : 65 %

Test Mode : RX MODE

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
2416.8000	47.21	-5.35	41.86	74.00	-32.14	Peak
2461.2000	48.68	-5.24	43.44	74.00	-30.56	Peak
2472.0000	47.45	-5.21	42.24	74.00	-31.76	Peak

Note :

1. Result = Reading + Corrected Factor
2. Average Result = Peak Result + Duty Factor ()
3. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
4. The margin value = Limit - Result
5. Above 1Ghz : Peak measurements are compared to the average limit - as peak measurements are below the average limit, they also comply with the peak limit.



Site	:Chamber#2	Date	:2019-03-27
Limit	:1G TO 40G PEAK	Ant. Pol.	:VERTICAL
EUT	:玩具總動員 4-1:24 RC 無線遙控車	Model	:DI05867
Power Rating	:DC4.5V	Temp.	:25 °C
Engineer	: Jack	Humi.	:65 %
Test Mode	:RX MODE		

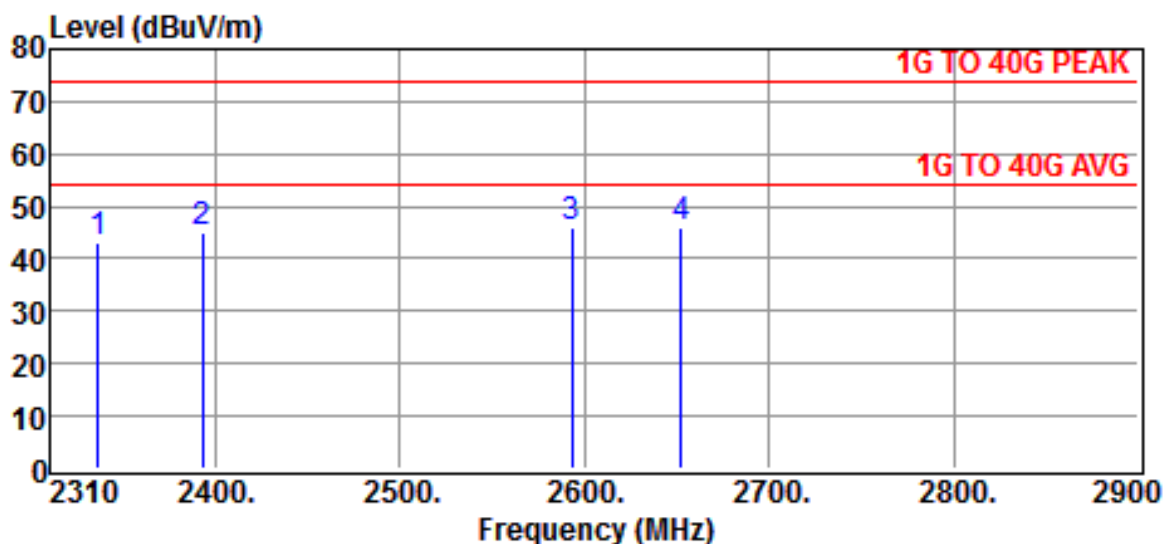
Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
2416.8000	47.71	-5.35	42.36	74.00	-31.64	Peak
2461.2000	47.93	-5.24	42.69	74.00	-31.31	Peak
2472.0000	46.62	-5.21	41.41	74.00	-32.59	Peak

Note :

1. Result = Reading + Corrected Factor
2. Average Result = Peak Result + Duty Factor ()
3. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
4. The margin value=Limit - Result
5. Above 1Ghz : Peak measurements are compared to the average limit - as peak measurements are below the average limit, they also comply with the peak limit.

4.5.3 限制頻帶之場強輻射測量

測試日期 : Mar.27, 2019 環境溫度 : 25 °C 環境溼度 : 65 %
 測試結果 : 合格 測試者 : 張謝南

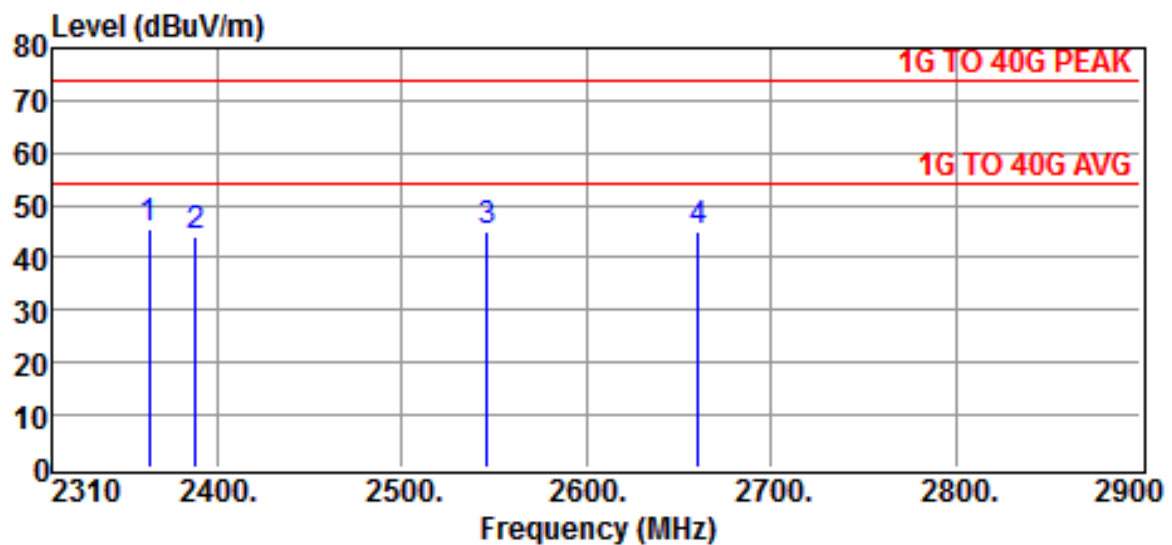


Site : Chamber#2 Date : 2019-03-27
 Limit : 1G TO 40G PEAK Ant. Pol. : HORIZONTAL
 EUT : 玩具總動員 4-1:24 RC 無線遙控車 Model : DI05867
 Power Rating : DC3.0V Temp. : 25 °C
 Engineer : Jack Humi. : 65 %
 Test Mode : TX MODE

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
2335.9600	48.59	-5.55	43.04	74.00	-30.96	Peak
2392.6000	50.37	-5.41	44.96	74.00	-29.04	Peak
2593.2000	50.82	-4.77	46.05	74.00	-27.95	Peak
2652.2000	50.44	-4.53	45.91	74.00	-28.09	Peak

Note :

1. Result = Reading + Corrected Factor
2. Average Result = Peak Result + Duty Factor ()
3. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
4. The margin value = Limit - Result
5. Above 1Ghz : Peak measurements are compared to the average limit - as peak measurements are below the average limit, they also comply with the peak limit.



Site	:Chamber#2	Date	:2019-03-27
Limit	:1G TO 40G PEAK	Ant. Pol.	:VERTICAL
EUT	:玩具總動員 4-1:24 RC 無線遙控車	Model	:DI05867
Power Rating	:DC3.0V	Temp.	:25 °C
Engineer	: Jack	Humi.	:65 %
Test Mode	:TX MODE		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
2363.1000	51.14	-5.48	45.66	74.00	-28.34	Peak
2387.8800	49.43	-5.42	44.01	74.00	-29.99	Peak
2546.0000	49.92	-4.97	44.95	74.00	-29.05	Peak
2660.4600	49.30	-4.50	44.80	74.00	-29.20	Peak

Note :

1. Result = Reading + Corrected Factor
2. Average Result = Peak Result + Duty Factor ()
3. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
4. The margin value=Limit - Result
5. Above 1Ghz : Peak measurements are compared to the average limit - as peak measurements are below the average limit, they also comply with the peak limit.

4.6 輻射之測試配置

圖 1：量測頻率低於1GHz之測試配置

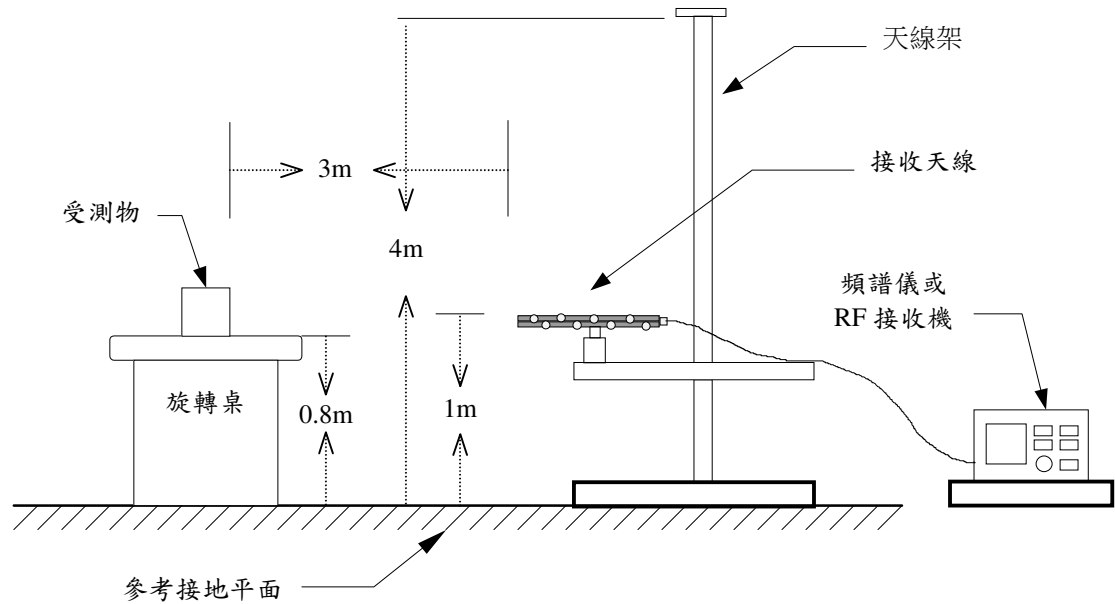
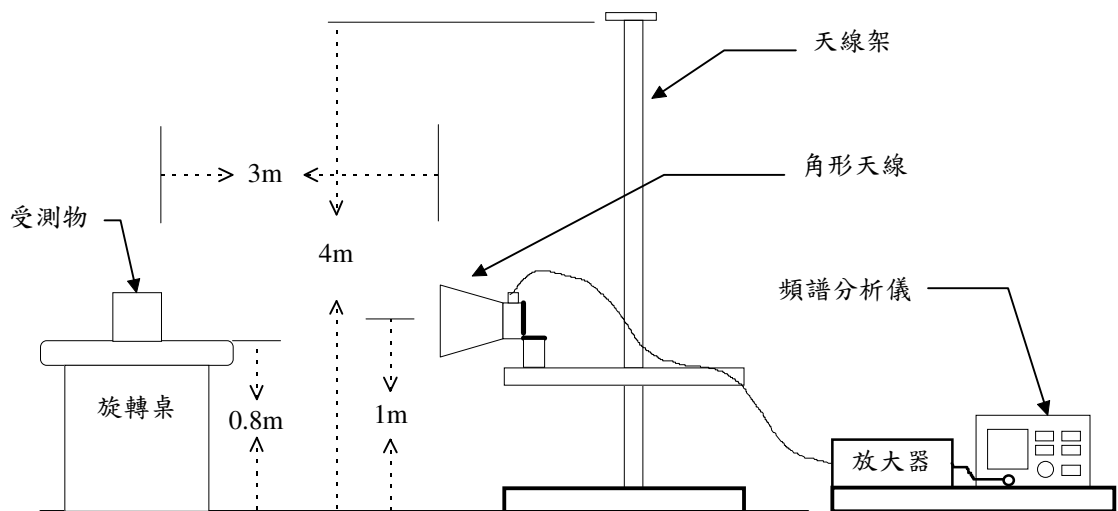
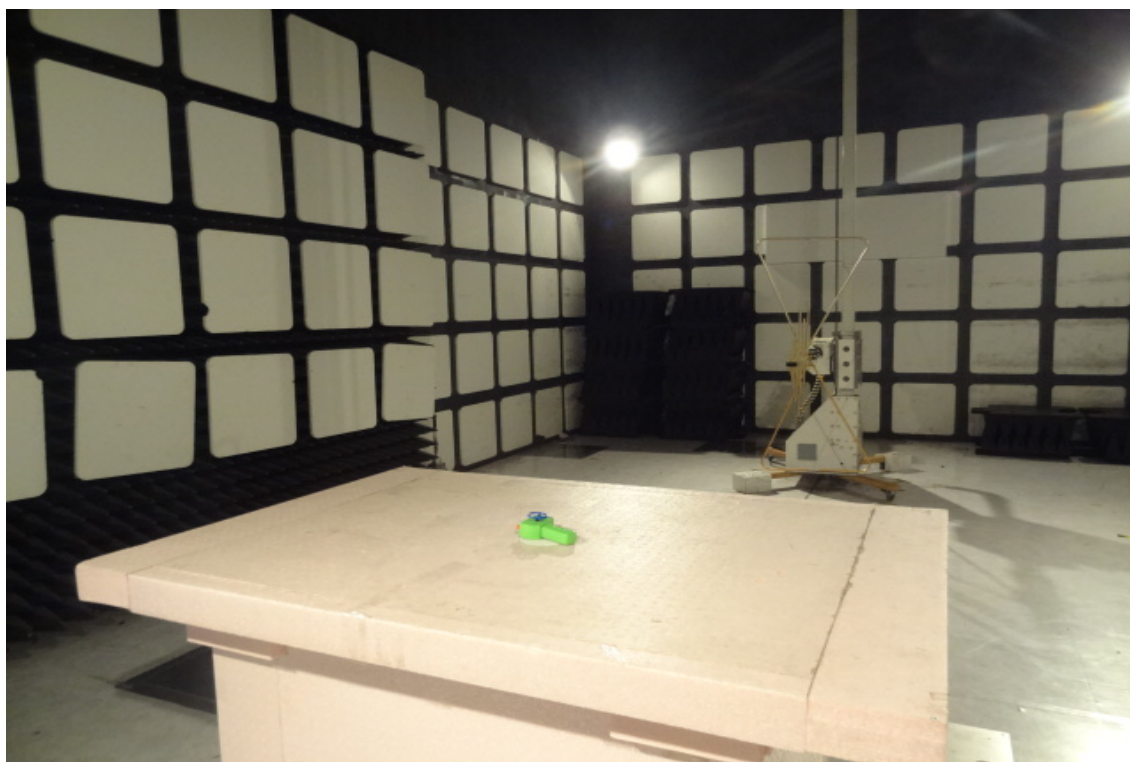
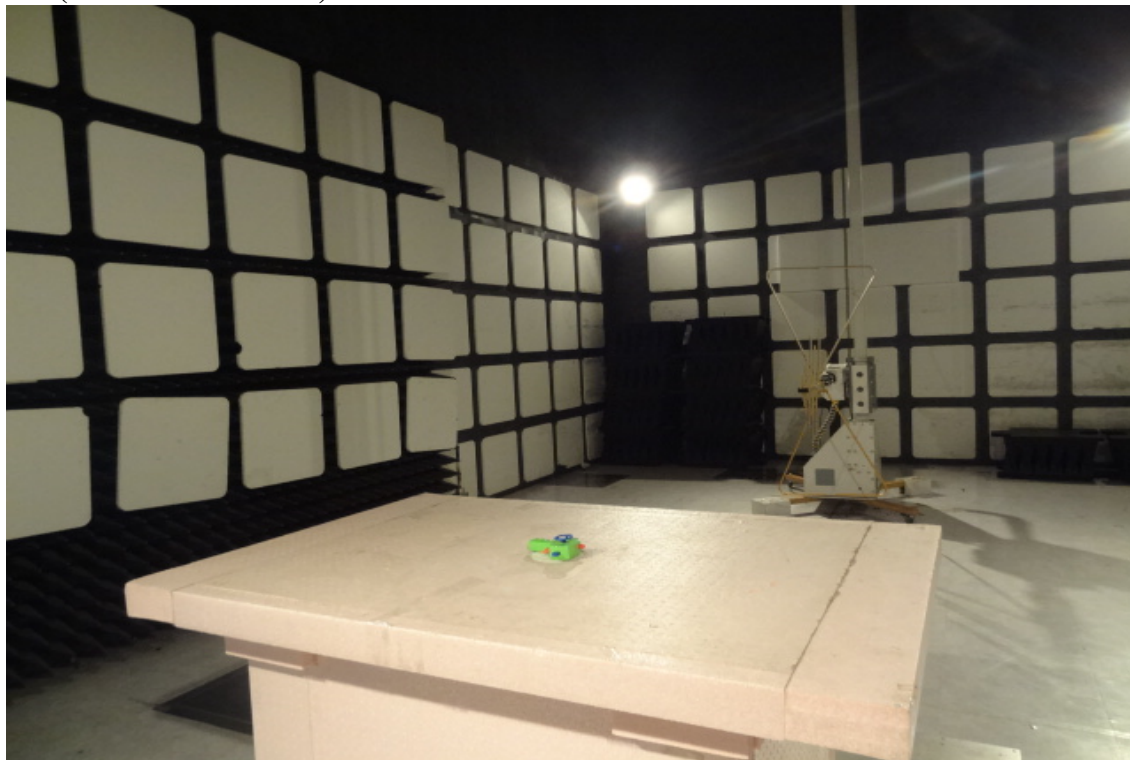


圖 2：量測頻率高於1GHz之測試配置



4.7 輻射量測之配置照片

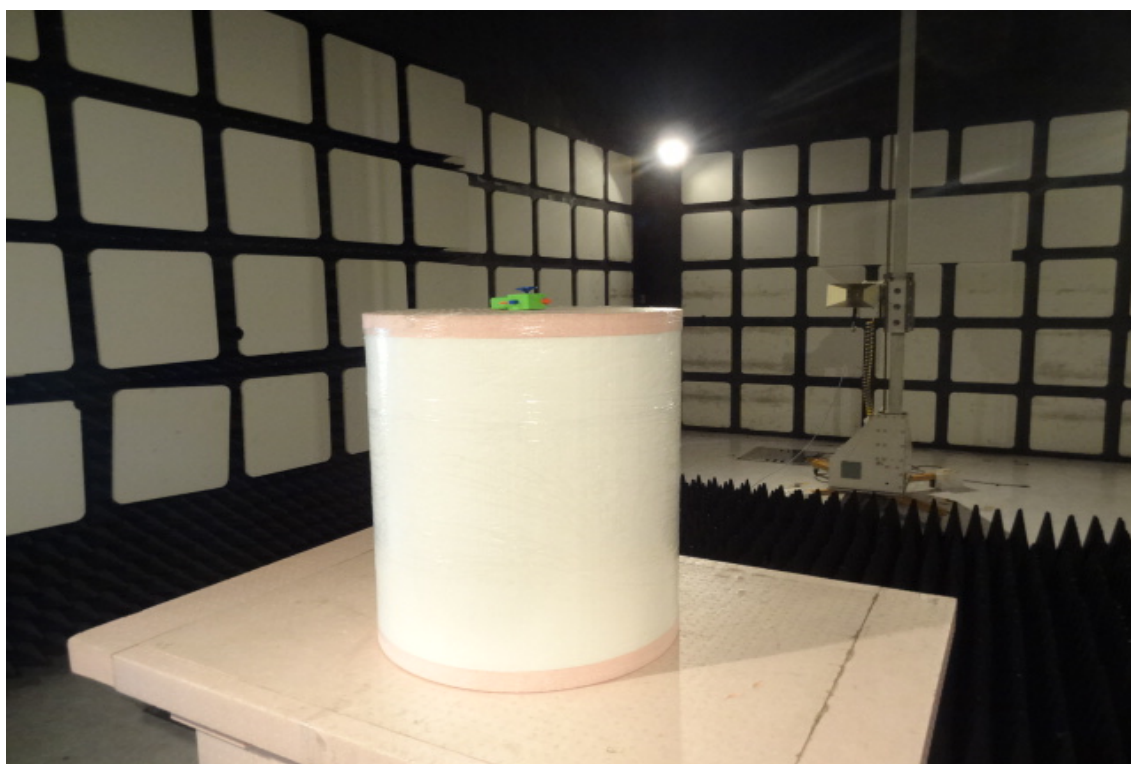
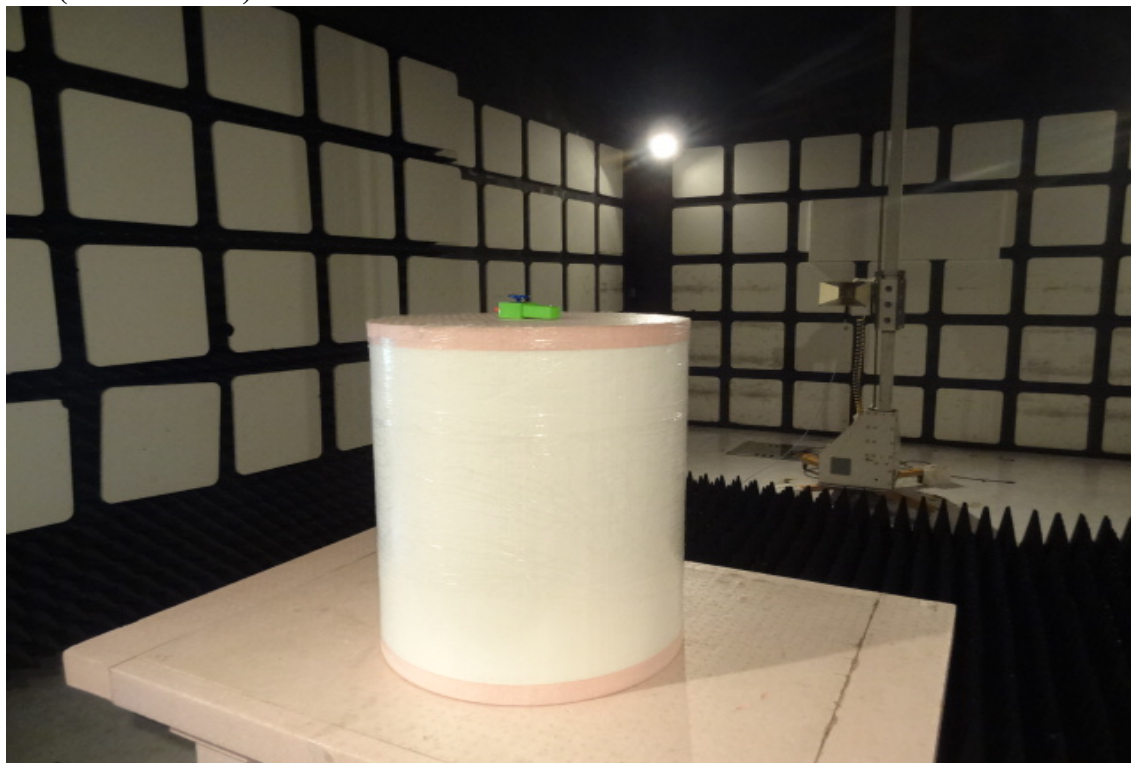
a. 發射機 (30MHz~1000MHz)



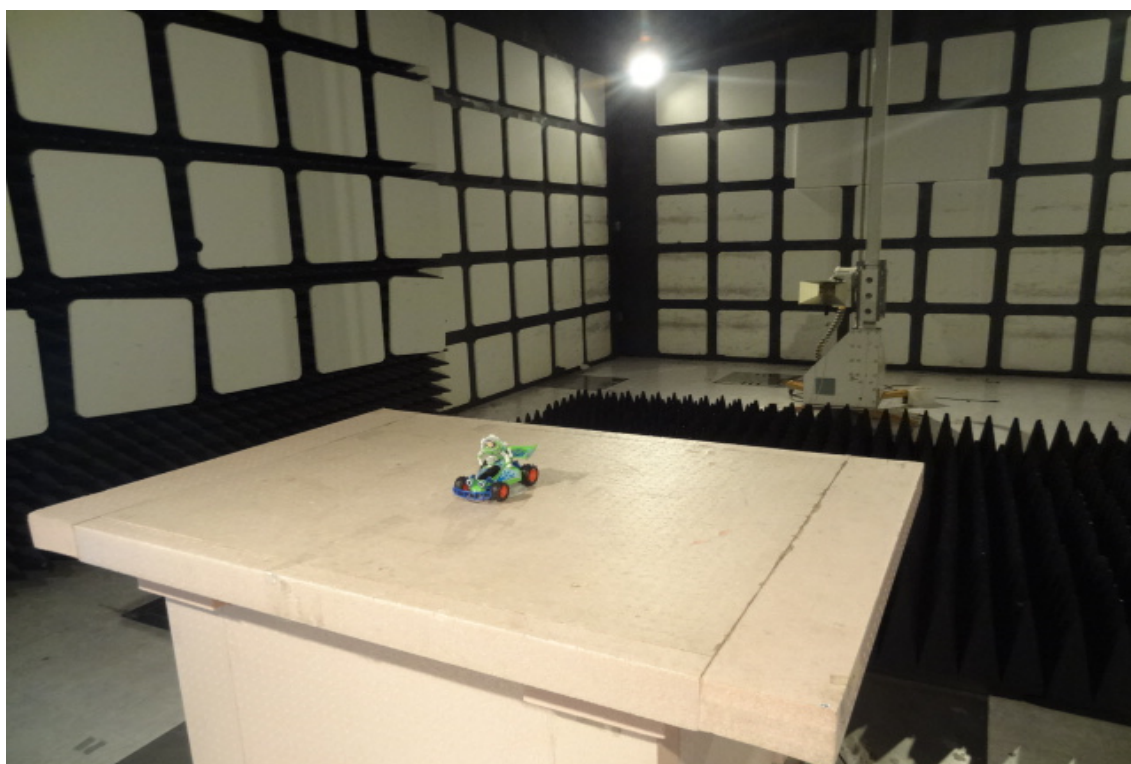
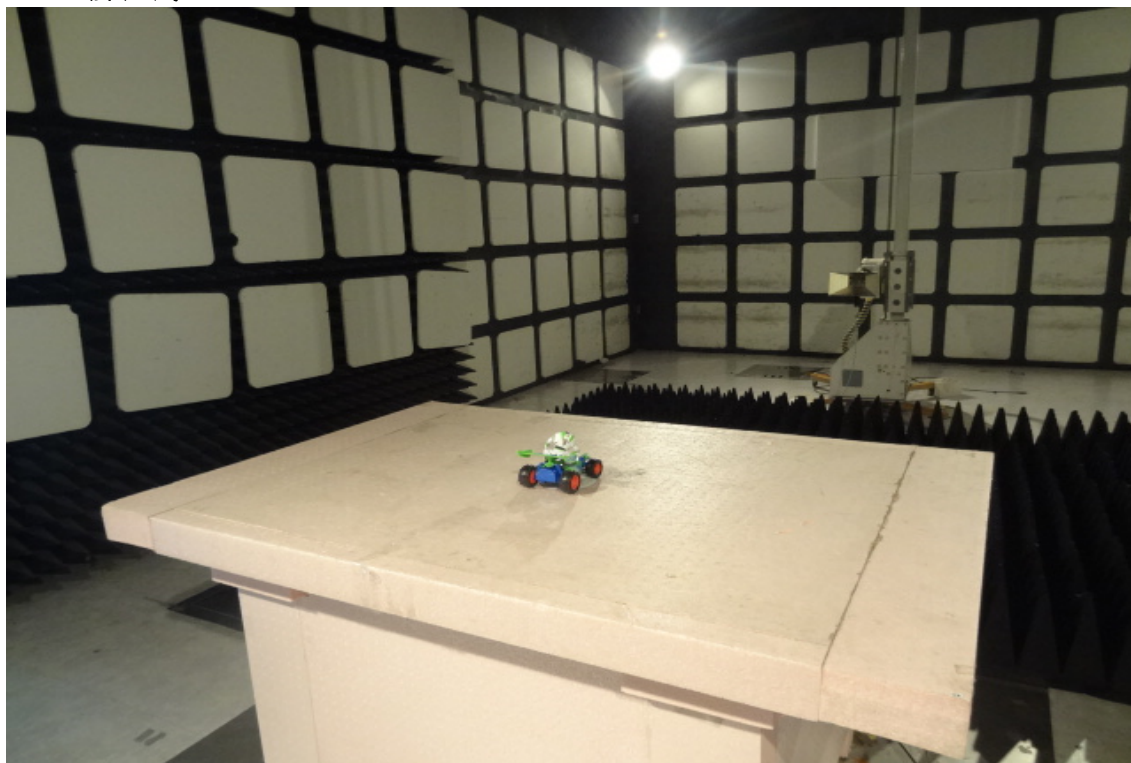
b.接收機



a.發射機
(Above 1GHz)



b.接收機



5 電源線傳導干擾之量測

5.1 適用標準

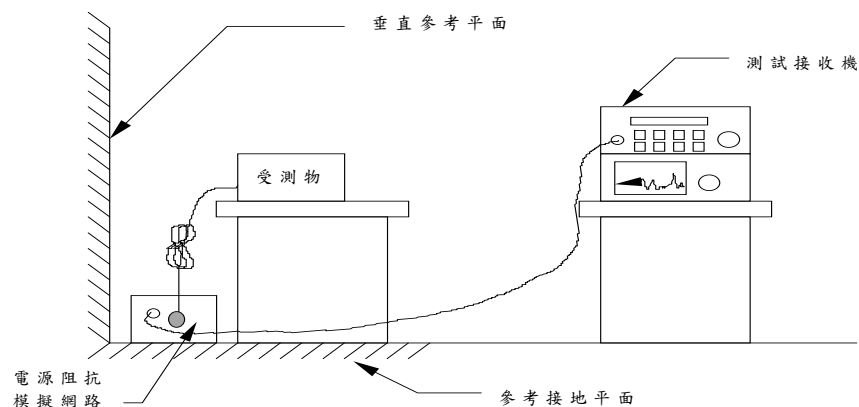
依據低功率射頻電機技術規範2.3節之要求。

5.2 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 之間之電源線傳導放射強度。

5.3 測試配置

圖 3：傳導干擾之量測配置



5.4 傳導干擾之量測結果

此樣品為 Battery 供電，故無需此試驗

5.5 干擾值之計算

電源傳導干擾電壓之計算公式如下

$$\text{結果值} = \text{儀器讀值} + \text{校正因子}$$

其中校正因子為：

$$\text{饋線損失} + \text{電源阻抗模擬網路損失}$$

5.6 傳導干擾之量測儀器

儀器名稱	製造者	型號	本次校驗日期	下次校驗日期
EMI Test Receiver	Rohde & Schwarz	ESCI	2018/10/08	2019/10/07
LISN	Rohde & Schwarz	ESH2-Z5	2019/04/10	2020/04/09
Attenuator(6dB)	WEINSCHEL ENG	AS3696	2018/12/13	2019/12/12
Monitor	BENQ	-	N.C.R.	N.C.R.
Printer	HP	LaserJet 1000	N.C.R.	N.C.R.
Shielded Room	Riken	---	N.C.R.	N.C.R.
Computer	Acer	Veriton	N.C.R.	N.C.R.

5.7 傳導量測之配置照片

此樣品為 Battery 供電，故無需此試驗

6 天線之要求

6.1 適用標準

依據低功率射頻電機技術規範2.2節之規定，低功率射頻電機之發射機或收發信機所使用之天線，除本規範章節中另有規定外，應為全固定、半固定式或以獨特之耦合(unique coupling)方式連接機體。製造者可設計供使用者因損壞而替換之天線，但不得設計或使用原認證以外之天線或可供引接各類電纜之標準天線插座或電氣連接頭，如：BNC、F type、N type、M type、UG type、RCA、SMA、SMB...等及其他各類工業或通訊標準接頭。

6.2 天線增益

此裝置使用固定式天線，其天線增益未超過6dBi之規定值，不需降低峰值發射功率以及峰值功率頻譜密度。

7 開放頻帶邊緣之量測

7.1 適用標準

3.10.2.4 除諧波外，指定頻帶外之發射應比主波低50 dB以上或依2.8 之發射限制，兩者取其較鬆者。

7.2 開放頻帶邊緣之測試配置

如圖2所示。

7.3 量測開放頻帶邊緣之儀器

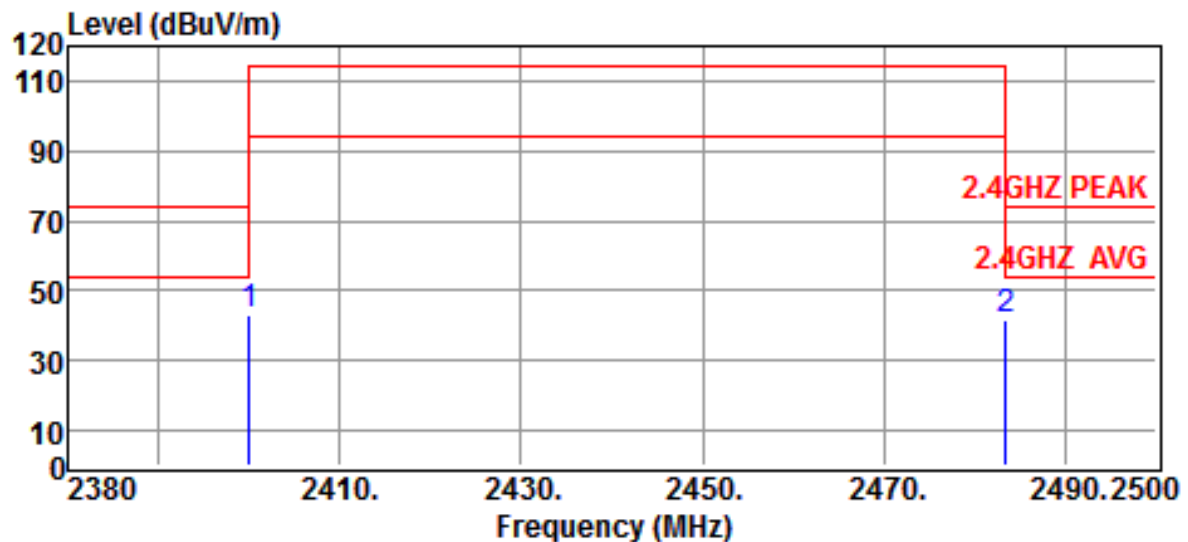
儀器名稱	製造者	型號	本次校驗日期	下次校驗日期
EMI Test Receiver	Rohde & Schwarz	ESU 40	2018/11/01	2019/10/31
Bi-Log Antenna	ETC	MCTD 2786	2018/08/22	2019/08/21
Amplifier	HP	8447D	2018/07/03	2019/07/02
Horn Antenna	EMCO	3115	2018/10/15	2019/10/14
Horn Antenna	EMCO	3116	2018/12/05	2019/12/04
Amplifier	HP	8449B	2018/10/09	2019/10/08
Amplifier	HP	83051A	2018/09/03	2019/09/02

7.4 開放頻帶邊緣之量測結果

操作模式 : 發射接收(帶外發射)

測試結果 : 合格

測試者 : 張謝南

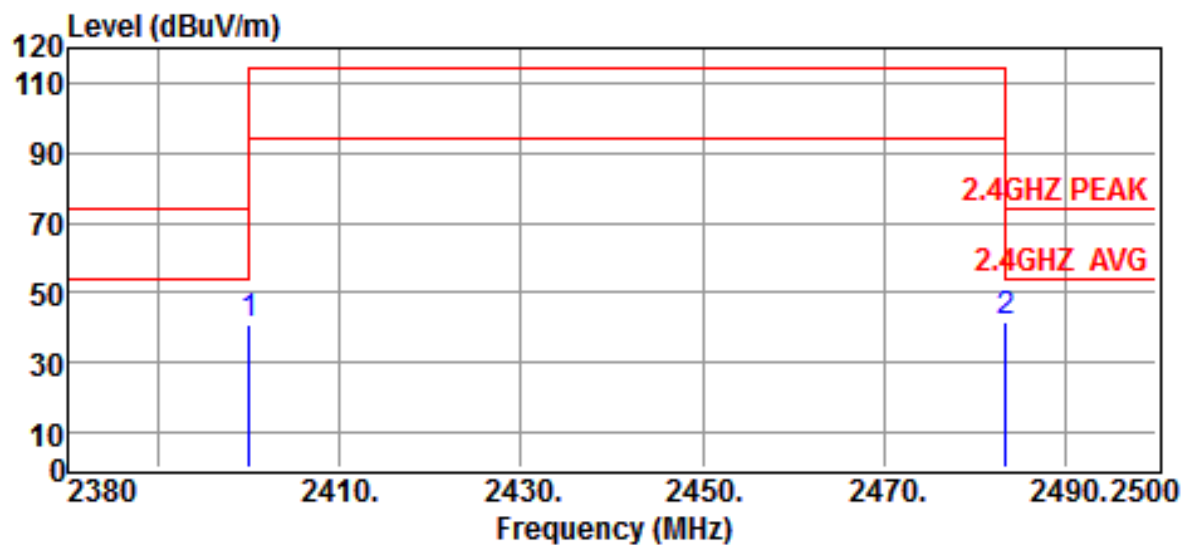


Site	:Chamber#2	Date	:2019-03-27
Limit	:2.4GHZ PEAK	Ant. Pol.	:HORIZONTAL
EUT	:玩具總動員 4-1:24 RC 無線遙控車	Model	:DI05867
Power Rating	:DC 3.0V	Temp.	:25 °C
Engineer	: Jack	Humi.	:65 %
Test Mode	:TX MODE		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
2400.0000	48.70	-5.39	43.31	74.00	-30.69	Peak
2483.5000	46.99	-5.19	41.80	74.00	-32.20	Peak

Note :

1. Result = Reading + Corrected Factor
2. Average Result = Peak Result + Duty Factor ()
3. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
4. The margin value=Limit - Result
5. Above 1Ghz : Peak measurements are compared to the average limit - as peak measurements are below the average limit, they also comply with the peak limit.



Site	:Chamber#2	Date	:2019-03-27
Limit	:2.4GHZ PEAK	Ant. Pol.	:VERTICAL
EUT	:玩具總動員 4-1:24 RC 無線遙控車	Model	:DI05867
Power Rating	:DC 3.0V	Temp.	:25 °C
Engineer	: Jack	Humi.	:65 %
Test Mode	:TX MODE		

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
2400.0000	46.42	-5.39	41.03	74.00	-32.97	Peak
2483.5000	46.70	-5.19	41.51	74.00	-32.49	Peak

Note :

1. Result = Reading + Corrected Factor
2. Average Result = Peak Result + Duty Factor ()
3. Corrected Factor = Antenna Factor + Cable Loss - Amplifier Gain (if any)
4. The margin value=Limit - Result
5. Above 1Ghz : Peak measurements are compared to the average limit - as peak measurements are below the average limit, they also comply with the peak limit.