

附錄 一

受測裝置之測試結果

目錄	頁次
1. 場強輻射之量測.....	2
1.1. 30-1000MHz 頻率範圍，其他不必要發射量測	3
1.2. 1000MHz 以上頻率範圍，其他不必要發射量測	5
1.3. 禁用頻帶量測結果 (其他不必要發射).....	7
2. 峰值輸出功率之量測.....	15
2.1. 峰值輸出功率.....	15
2.2. 峰值輸出功率之量測圖.....	15

1. 場強輻射之量測

【經實驗室評估量測後，以最差之調變方式 GFSK 進行本章節之測試】

對受測物裝置之其他不必要之發射(測至本地振盪頻率之 10 次諧波)依下列測試模式分別於電波暗室內進行量測，選擇低、中、高頻率來進行量測，並將下列測試模式之測試數據隨案件所附。所得讀值資料請見章節 1.1 ~1.2：

滿接操作模式

模式	動作狀態	基本頻率	量測頻率範圍
滿接周邊設備	藍芽操作模式	---	30-1000MHz
			1000-25000MHz

BT 測試模式

模式	動作狀態	基本頻率	量測頻率範圍
BT (GFSK)	發射	2402MHz	1000-25000MHz
		2441MHz	1000-25000MHz
		2480MHz*	30-1000MHz
			1000-25000MHz
	接收	2441MHz	30-1000MHz
			1000-25000MHz

註*: 經評估後，以最差頻率進行 30-1000MHz 量測。

對受測物裝置落於技術規範第 2.7 章節的禁用頻率之混附發射以下列測試模式依規定分別進行量測，所得量測資料請見章節 1.3。

模式	動作狀態	基本頻率	量測頻率範圍
BT (GFSK)	發射	2402MHz	2310-2410MHz
		2480MHz	2430-2530MHz
BT (8-DPSK)	發射	2402MHz	2310-2410MHz
		2480MHz	2430-2530MHz

測試日期	2019/05/30	環境溫/濕度	26°C/43%
測試電壓	DC 12V (經 DC 電源供應器)		

1.1. 30-1000MHz 頻率範圍，其他不必要發射量測

● 滿接操作模式

Mode	藍芽操作模式	Frequency	---
------	--------	-----------	-----

Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
31.94	24.34	1.23	-0.77	24.80	40.00	15.20	Peak
95.96	16.65	2.24	5.88	24.77	43.50	18.73	Peak
191.99	15.92	3.35	15.42	34.69	43.50	8.81	Peak
237.58	18.22	3.82	12.32	34.36	46.00	11.64	Peak
456.80	23.18	6.39	8.41	37.98	46.00	8.02	Peak
524.70	23.99	6.78	6.99	37.76	46.00	8.24	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
53.28	13.98	1.62	14.55	30.15	40.00	9.85	QP
94.02	16.25	2.21	15.01	33.47	43.50	10.03	Peak
164.83	16.21	3.07	9.99	29.27	43.50	14.23	Peak
490.75	23.60	6.68	9.15	39.43	46.00	6.57	Peak
524.70	23.99	6.78	7.76	38.53	46.00	7.47	Peak
631.40	24.99	7.04	3.78	35.81	46.00	10.19	Peak

● BT 測試模式

Mode	GFSK	Frequency	TX 2480MHz
------	------	-----------	------------

Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
232.73	17.98	3.77	10.90	32.65	46.00	13.35	Peak
321.97	20.37	4.78	12.42	37.57	46.00	8.43	Peak
465.53	23.29	6.47	8.82	38.58	46.00	7.42	Peak
665.35	25.22	7.20	3.45	35.87	46.00	10.13	Peak
931.13	27.56	8.64	7.77	43.97	46.00	2.03	Peak
997.09	28.04	9.02	7.01	44.07	54.00	9.93	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
94.02	16.25	2.21	15.75	34.21	43.50	9.29	Peak
127.00	18.24	2.62	7.58	28.44	43.50	15.06	Peak
232.73	17.98	3.77	4.33	26.08	46.00	19.92	Peak
403.45	22.44	5.90	3.52	31.86	46.00	14.14	Peak
490.75	23.60	6.68	8.54	38.82	46.00	7.18	Peak
524.70	23.99	6.78	8.03	38.80	46.00	7.20	Peak

Mode	GFSK	Frequency	RX 2441MHz
------	------	-----------	------------

Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
128.94	18.14	2.64	7.65	28.43	43.50	15.07	Peak
321.97	20.37	4.78	11.15	36.30	46.00	9.70	Peak
465.53	23.29	6.47	7.27	37.03	46.00	8.97	Peak
490.75	23.60	6.68	6.05	36.33	46.00	9.67	Peak
931.13	27.56	8.64	6.24	42.44	46.00	3.56	Peak
997.09	28.04	9.02	6.75	43.81	54.00	10.19	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
94.02	16.25	2.21	14.46	32.92	43.50	10.58	Peak
127.00	18.24	2.62	6.05	26.91	43.50	16.59	Peak
321.97	20.37	4.78	3.94	29.09	46.00	16.91	Peak
490.75	23.60	6.68	7.35	37.63	46.00	8.37	Peak
524.70	23.99	6.78	7.38	38.15	46.00	7.85	Peak
981.57	27.94	8.94	1.59	38.47	54.00	15.53	Peak

1.2. 1000MHz 以上頻率範圍，其他不必要發射量測

● 滿接操作模式

Mode	藍芽操作模式	Frequency	---
------	--------	-----------	-----

Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dB μ V)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector
1856.00	27.15	5.32	10.33	42.80	54.00	11.20	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dB μ V)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector
1878.00	27.25	5.35	9.66	42.26	54.00	11.74	Peak

● BT 測試模式

Mode	GFSK	Frequency	TX 2402MHz
------	------	-----------	------------

Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4805.00	32.82	8.44	4.80	46.06	54.00	7.94	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4805.00	32.82	8.44	4.57	45.83	54.00	8.17	Peak

Mode	GFSK	Frequency	TX 2441MHz
------	------	-----------	------------

Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4880.00	32.96	8.52	5.25	46.73	54.00	7.27	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4880.00	32.96	8.52	5.55	47.03	54.00	6.97	Peak

Mode	GFSK	Frequency	TX 2480MHz
------	------	-----------	------------

Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4960.00	33.12	8.60	5.40	47.12	54.00	6.88	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4960.00	33.12	8.60	5.92	47.64	54.00	6.36	Peak

Mode	GFSK	Frequency	RX 2441MHz
------	------	-----------	------------

Antenna at Horizontal Polarization

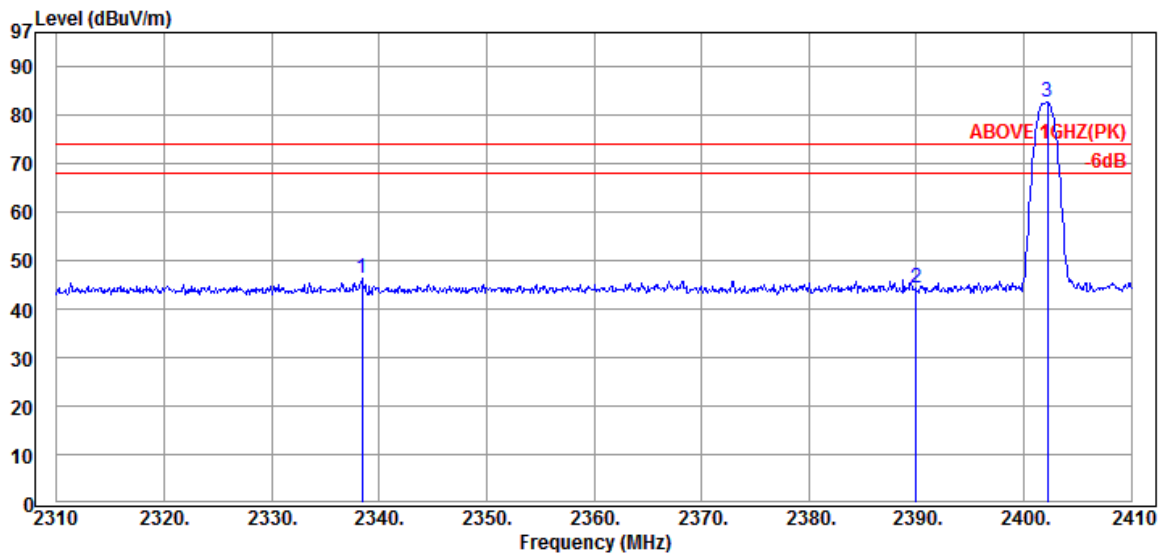
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2106.00	27.94	5.67	9.32	42.93	54.00	11.07	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2078.00	27.90	5.64	10.38	43.92	54.00	10.08	Peak

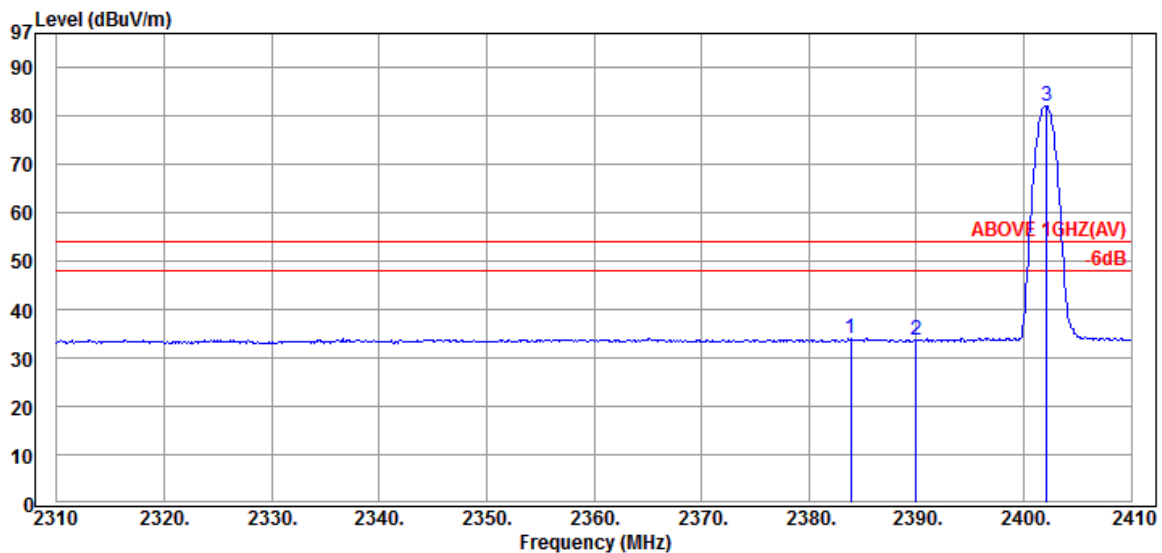
1.3. 禁用頻帶量測結果 (其他不必要發射)

Mode	GFSK	Frequency	TX 2402MHz
------	------	-----------	------------



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2338.40	28.22	5.96	12.06	46.24	74.00	27.76	Peak
2390.00	28.28	6.02	10.16	44.46	74.00	29.54	Peak
@ 2402.20	28.29	6.04	48.20	82.53	---	---	Peak

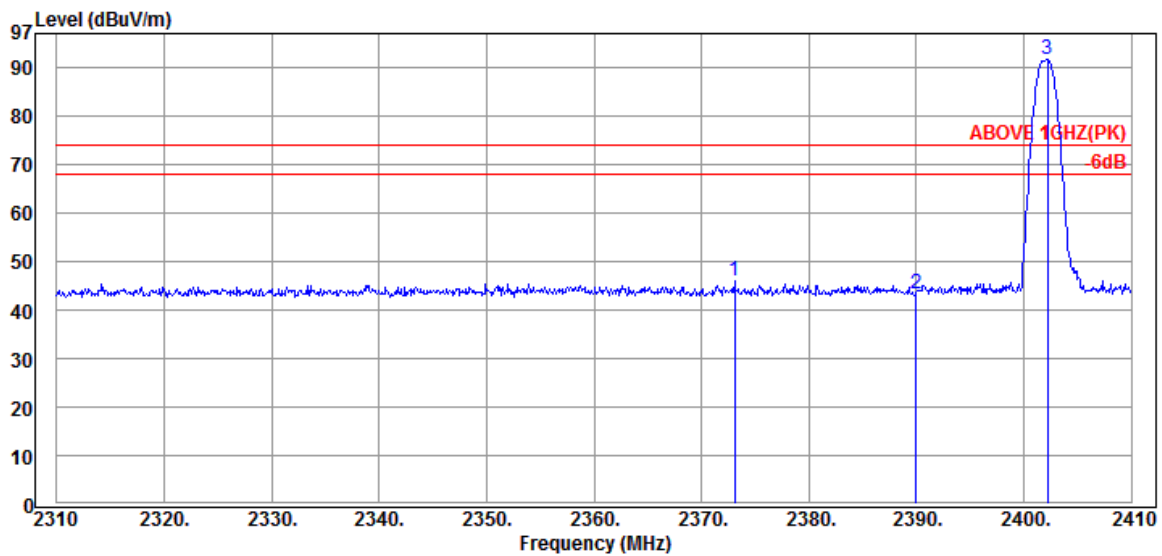


Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2383.90	28.28	6.02	-0.29	34.01	54.00	19.99	Average
2390.00	28.28	6.02	-0.75	33.55	54.00	20.45	Average
@ 2402.10	28.29	6.04	47.80	82.13	---	---	Average

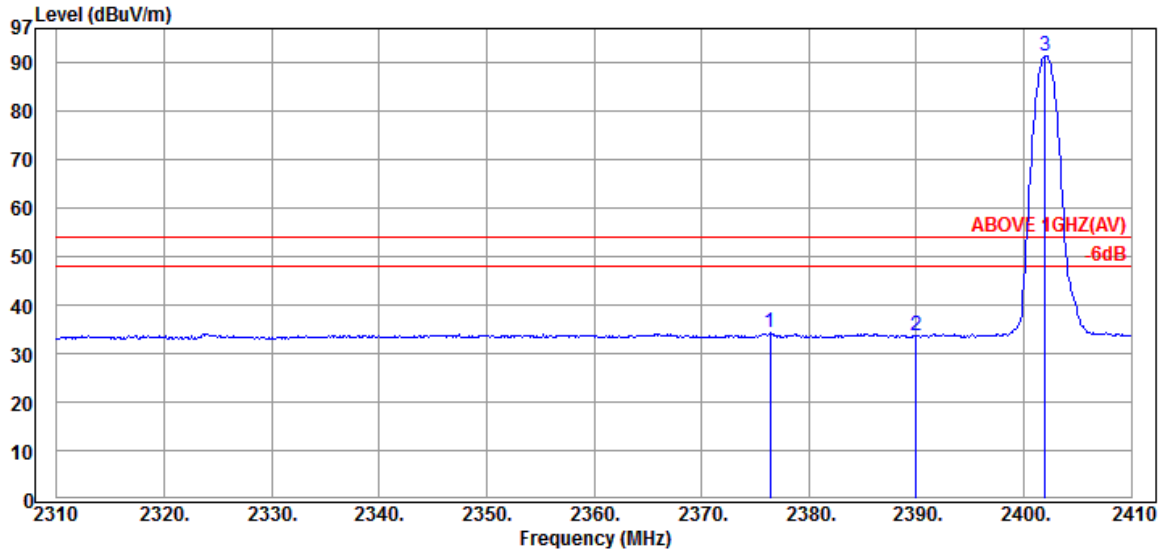
備註: “@”為主波，在此章節是不予以判定。

Mode	GFSK	Frequency	TX 2402MHz
------	------	-----------	------------



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2373.10	28.26	6.01	11.59	45.86	74.00	28.14	Peak
2390.00	28.28	6.02	8.96	43.26	74.00	30.74	Peak
@ 2402.20	28.29	6.04	57.21	91.54	---	---	Peak

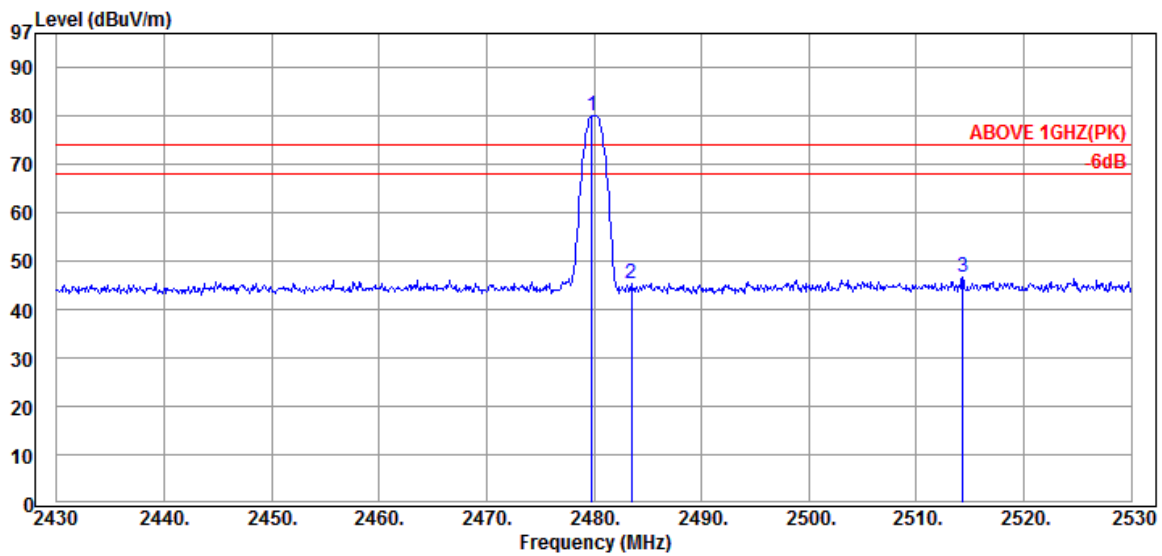


Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2376.40	28.26	6.01	0.21	34.48	54.00	19.52	Average
2390.00	28.28	6.02	-0.71	33.59	54.00	20.41	Average
@ 2402.00	28.29	6.04	57.05	91.38	---	---	Average

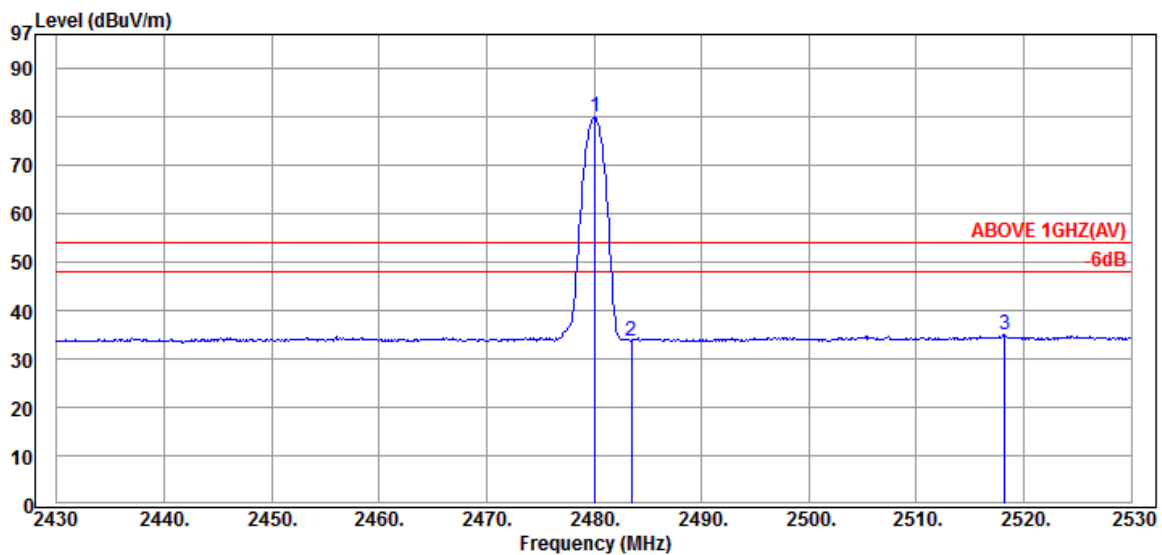
備註：“@”為主波，在此章節是不予以判定。

Mode	GFSK	Frequency	TX 2480MHz
------	------	-----------	------------



Antenna at Horizontal Polarization

	Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@	2479.80	28.38	6.13	45.58	80.09	---	---	Peak
	2483.50	28.38	6.13	10.88	45.39	74.00	28.61	Peak
	2514.30	28.45	6.17	12.08	46.70	74.00	27.30	Peak

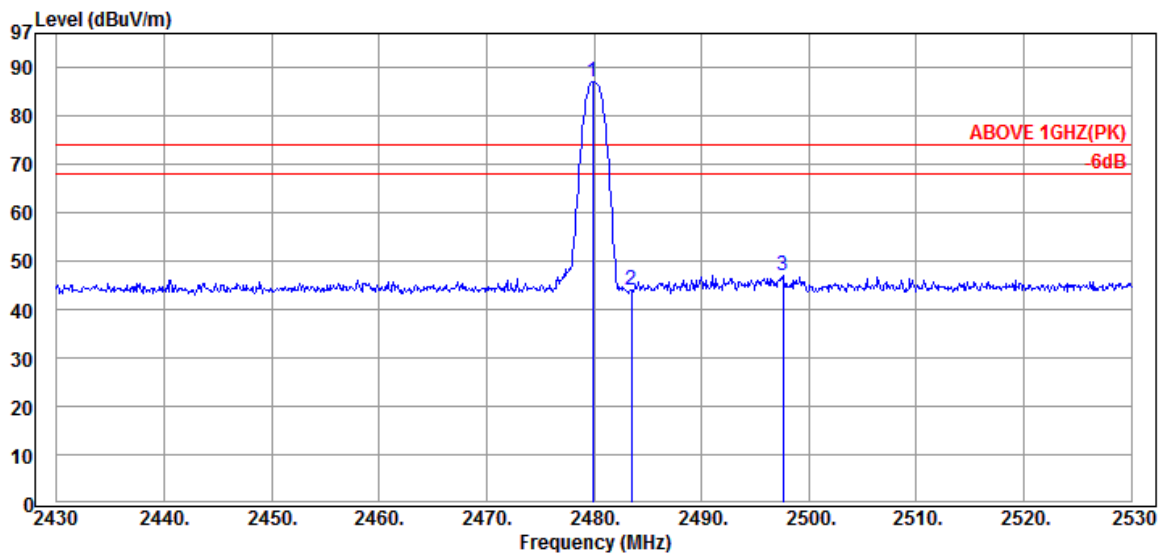


Antenna at Horizontal Polarization

	Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@	2480.10	28.38	6.13	45.37	79.88	---	---	Average
	2483.50	28.38	6.13	-0.76	33.75	54.00	20.25	Average
	2518.20	28.48	6.17	0.51	35.16	54.00	18.84	Average

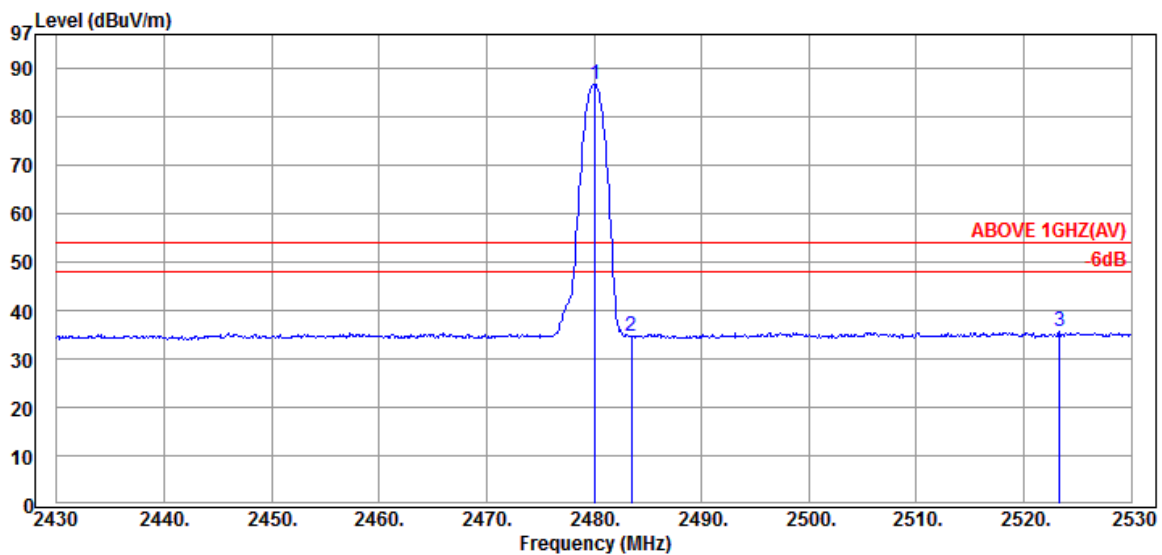
備註：“@”為主波，在此章節是不予以判定。

Mode	GFSK	Frequency	TX 2480MHz
------	------	-----------	------------



Antenna at Vertical Polarization

	Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@	2479.90	28.38	6.13	52.47	86.98	---	---	Peak
	2483.50	28.38	6.13	9.33	43.84	74.00	30.16	Peak
	2497.60	28.40	6.15	12.37	46.92	74.00	27.08	Peak

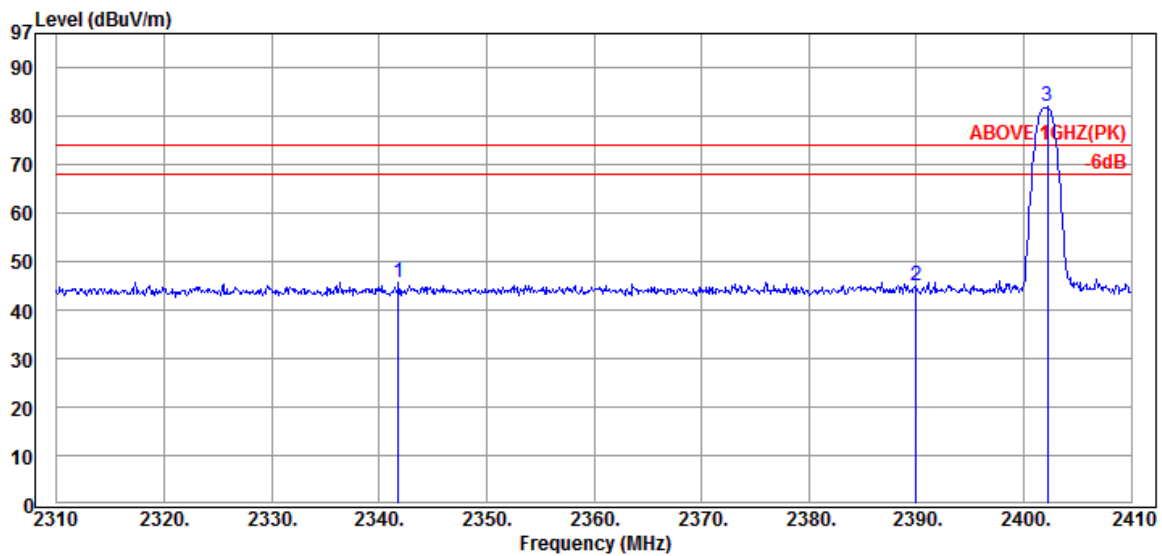


Antenna at Vertical Polarization

	Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@	2480.10	28.38	6.13	52.30	86.81	---	---	Average
	2483.50	28.38	6.13	0.17	34.68	54.00	19.32	Average
	2523.30	28.48	6.18	0.94	35.60	54.00	18.40	Average

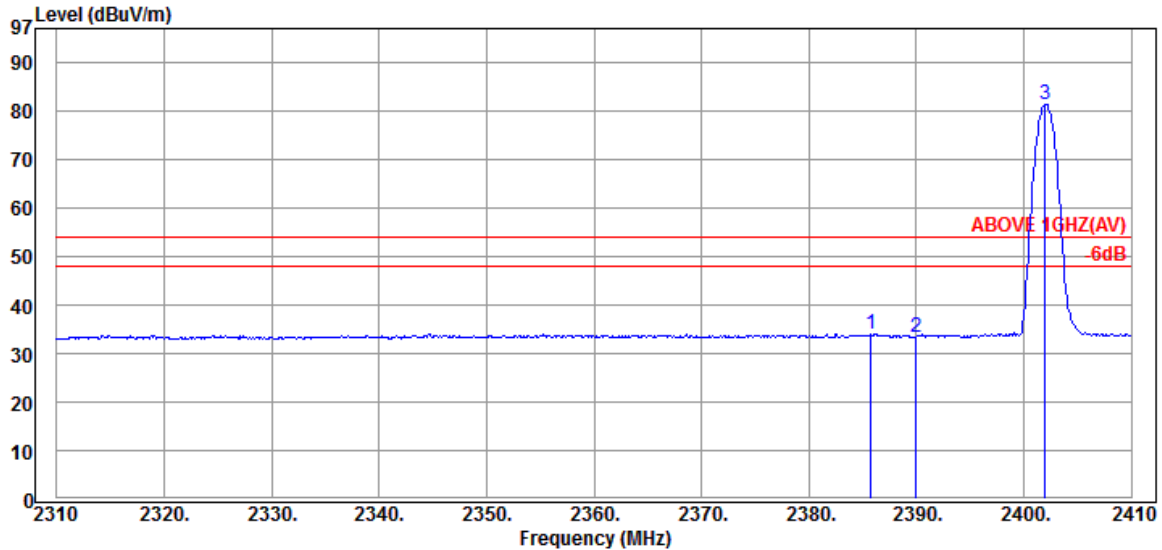
備註：“@”為主波，在此章節是不予以判定。

Mode	8-DPSK	Frequency	TX 2402MHz
------	--------	-----------	------------



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2341.80	28.22	5.97	11.62	45.81	74.00	28.19	Peak
2390.00	28.28	6.02	10.66	44.96	74.00	29.04	Peak
@ 2402.20	28.29	6.04	47.50	81.83	---	---	Peak

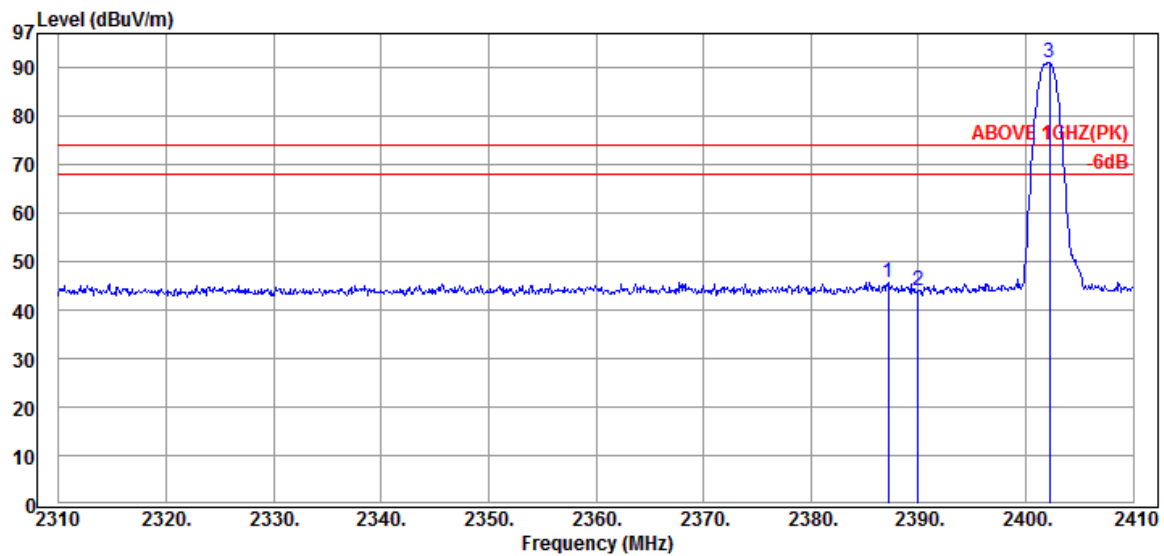


Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2385.80	28.28	6.02	-0.20	34.10	54.00	19.90	Average
2390.00	28.28	6.02	-0.80	33.50	54.00	20.50	Average
@ 2402.00	28.29	6.04	47.10	81.43	---	---	Average

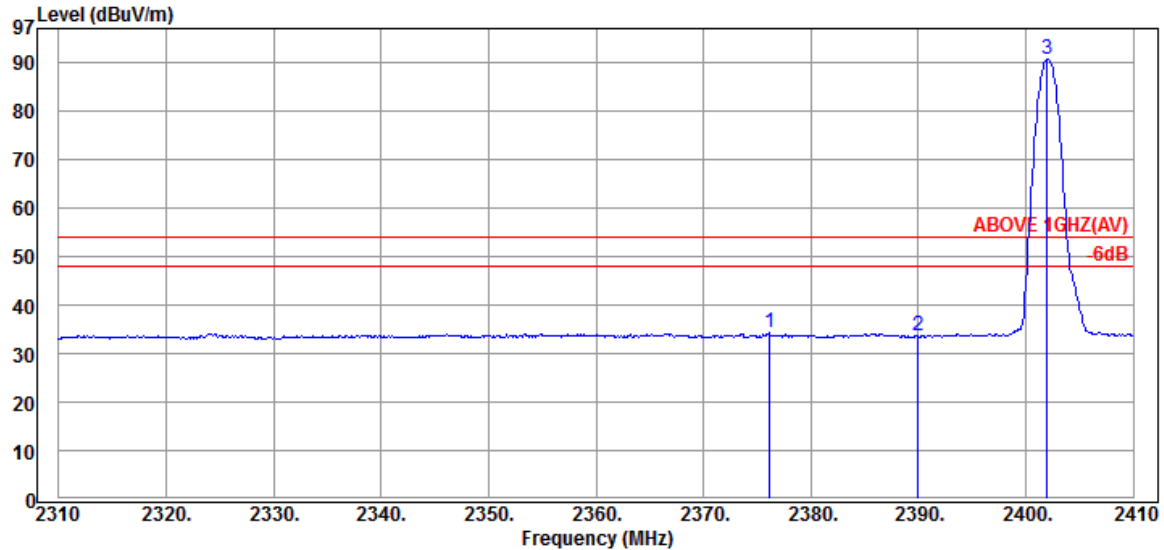
備註：“@”為主波，在此章節是不予以判定。

Mode	8-DPSK	Frequency	TX 2402MHz
------	--------	-----------	------------



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2387.20	28.28	6.02	11.43	45.73	74.00	28.27	Peak
2390.00	28.28	6.02	9.80	44.10	74.00	29.90	Peak
@ 2402.20	28.29	6.04	56.60	90.93	---	---	Peak

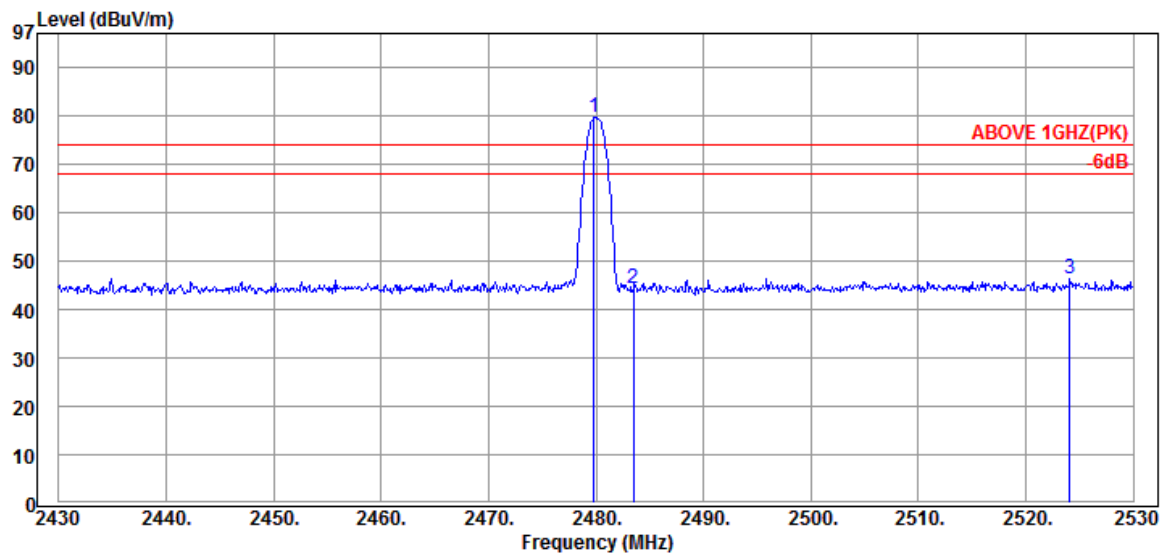


Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2376.20	28.26	6.01	-0.09	34.18	54.00	19.82	Average
2390.00	28.28	6.02	-0.77	33.53	54.00	20.47	Average
@ 2402.00	28.29	6.04	56.28	90.61	---	---	Average

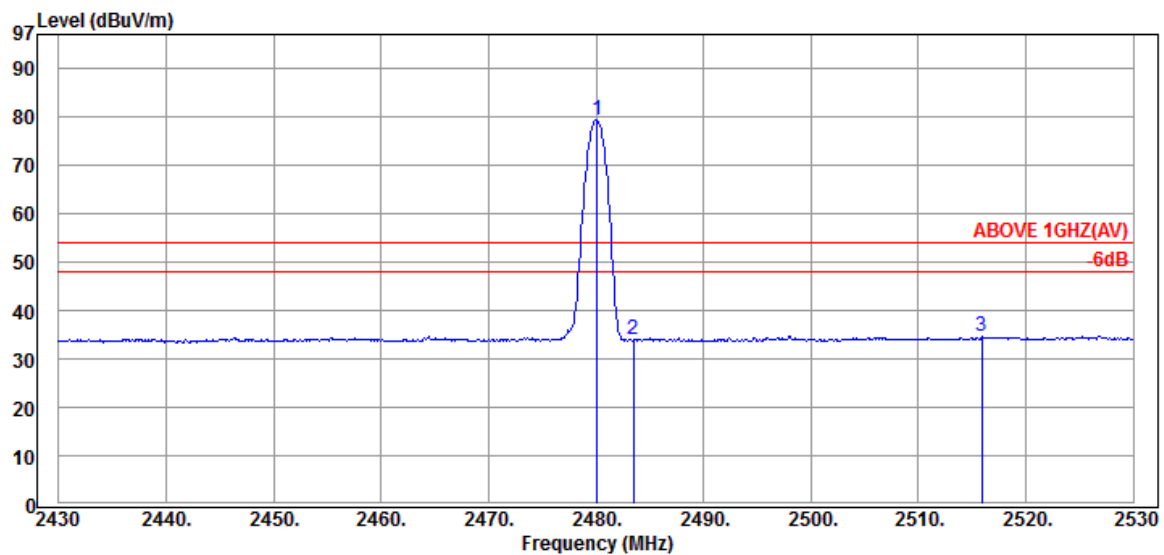
備註：“@”為主波，在此章節是不予以判定。

Mode	8-DPSK	Frequency	TX 2480MHz
------	--------	-----------	------------



Antenna at Horizontal Polarization

	Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@	2479.80	28.38	6.13	45.12	79.63	---	---	Peak
	2483.50	28.38	6.13	9.92	44.43	74.00	29.57	Peak
	2524.10	28.48	6.18	11.66	46.32	74.00	27.68	Peak

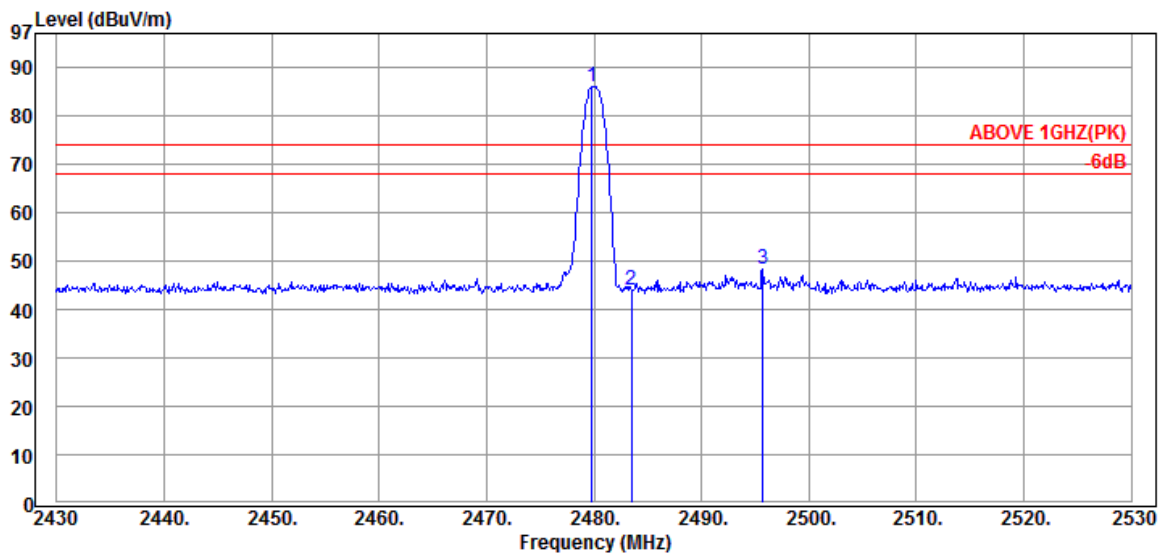


Antenna at Horizontal Polarization

	Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@	2480.10	28.38	6.13	44.80	79.31	---	---	Average
	2483.50	28.38	6.13	-0.59	33.92	54.00	20.08	Average
	2515.90	28.45	6.17	0.06	34.68	54.00	19.32	Average

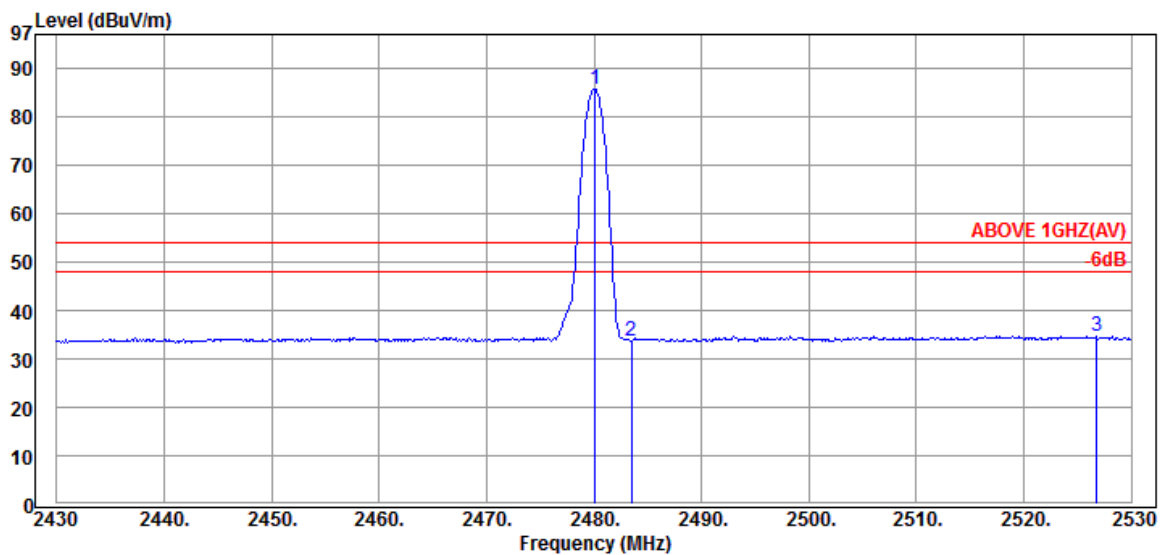
備註：“@”為主波，在此章節是不予以判定。

Mode	8-DPSK	Frequency	TX 2480MHz
------	--------	-----------	------------



Antenna at Vertical Polarization

	Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@	2479.80	28.38	6.13	51.56	86.07	---	---	Peak
	2483.50	28.38	6.13	9.54	44.05	74.00	29.95	Peak
	2495.70	28.39	6.15	13.68	48.22	74.00	25.78	Peak



Antenna at Vertical Polarization

	Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@	2480.10	28.38	6.13	51.21	85.72	---	---	Average
	2483.50	28.38	6.13	-0.69	33.82	54.00	20.18	Average
	2526.80	28.51	6.19	-0.02	34.68	54.00	19.32	Average

備註：“@”為主波，在此章節是不予以判定。

2. 峰值輸出功率之量測

測試日期	2019/05/20	環境溫/濕度	21°C/54%
測試電壓	DC 12V (經 DC 電源供應器)		

2.1. 峰值輸出功率

模式	測試頻率 (MHz)	峰值輸出功率(dBm)
GFSK	2402	1.91
	2441	3.54
	2480	3.76
8DPSK	2402	-1.36
	2441	0.64
	2480	0.78

2.2. 峰值輸出功率之量測圖

