

附錄一

受測裝置之測試結果

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1. 場強輻射之量測

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，實驗室先將發射機分別以三種不同的擺設方式(站立、平放、側立)進行量試評估，最後選取最大場強值的擺設方式(平放)以低、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。最後，選擇較差模式進行讀值之測量，所得讀值資料請見章節 1.1 ~1.2：

模式	動作狀態	基本頻率	量測頻率範圍
MSK	發射	2404.00MHz	30-1000MHz
			1000-25000MHz
		2441.80MHz	1000-25000MHz
	接收	2479.25MHz	1000-25000MHz
		2441.80MHz	30-1000MHz
			1000-25000MHz

註:*: 經評估後，以最差頻率進行 30-1000MHz 量測。

對受測物裝置之主波發射強度依下列測試模式分別於電波暗室內進行量測，所得量測資料請見章節 1.3：

模式	動作狀態	基本頻率
MSK	發射	2404.00MHz
		2441.80MHz
		2479.25MHz

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 1.4。

模式	動作狀態	基本頻率	量測頻率範圍
MSK	發射	2404.00MHz	2310-2410MHz
		2479.25MHz	2430-2900MHz

測試日期	2020/02/03	環境溫/濕度	18°C/63%
測試電壓	DC 3V (經 CR2450 電池 x2 供電)	測試人員	Kuper Hsu

1.1. 30-1000MHz 頻率範圍，其他不必要發射量測

Mode	MSK	Frequency	TX 2404.00MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
31.940	23.29	0.47	28.32	28.88	24.32	40.00	15.68	Peak
165.800	15.43	1.12	27.79	41.31	30.07	43.50	13.43	Peak
447.100	22.18	1.98	28.45	28.35	24.06	46.00	21.94	Peak
627.520	24.39	2.44	28.84	29.89	27.88	46.00	18.12	Peak
849.650	25.93	2.92	28.45	29.48	29.88	46.00	16.12	Peak
990.300	26.96	3.25	28.08	29.22	31.35	54.00	22.65	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
33.880	22.50	0.48	28.31	29.31	23.98	40.00	16.02	Peak
165.800	15.43	1.12	27.79	40.70	29.46	43.50	14.04	Peak
408.300	21.52	1.88	28.23	28.96	24.13	46.00	21.87	Peak
673.110	24.59	2.53	28.80	29.58	27.90	46.00	18.10	Peak
914.640	26.33	3.06	28.29	29.35	30.45	46.00	15.55	Peak
985.450	26.93	3.23	28.09	28.32	30.39	54.00	23.61	Peak

Mode	MSK	Frequency	RX 2441.80MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
31.940	23.29	0.47	28.32	28.65	24.09	40.00	15.91	Peak
118.270	18.15	0.92	28.02	28.24	19.29	43.50	24.21	Peak
404.420	21.44	1.87	28.21	29.28	24.38	46.00	21.62	Peak
536.340	23.50	2.21	28.78	29.98	26.91	46.00	19.09	Peak
811.820	25.72	2.85	28.55	29.33	29.35	46.00	16.65	Peak
968.960	26.78	3.19	28.13	29.25	31.09	54.00	22.91	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
32.910	22.91	0.47	28.31	29.75	24.82	40.00	15.18	Peak
165.800	15.43	1.12	27.79	39.69	28.45	43.50	15.05	Peak
396.660	21.27	1.85	28.16	29.04	24.00	46.00	22.00	Peak
689.600	24.66	2.57	28.78	29.47	27.92	46.00	18.08	Peak
917.550	26.33	3.06	28.28	29.35	30.46	46.00	15.54	Peak
993.210	26.98	3.25	28.07	28.24	30.40	54.00	23.60	Peak

1.2. 1000MHz 以上頻率範圍，其他不必要發射量測

Mode	MSK			Frequency	TX 2404.00MHz			
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4808.000	33.90	10.22	34.45	47.54	57.21	74.00	16.79	Peak
Frequency (MHz)	Peak Value (dBμV/m)	Duty Cycle Correction Factor (dB)		Average Value (dBμV/m)		Limit (dBμV/m)	Margin (dB)	Remark
4808.000	57.21	-27.73		29.48		54.00	24.52	Average

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4808.000	33.90	10.22	34.45	42.69	52.36	74.00	21.64	Peak
Frequency (MHz)	Peak Value (dBμV/m)	Duty Cycle Correction Factor (dB)		Average Value (dBμV/m)		Limit (dBμV/m)	Margin (dB)	Remark
4808.000	52.36	-27.73		24.63		54.00	29.37	Average

Mode	MSK			Frequency	TX 2441.80MHz			
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4884.000	34.37	10.24	34.43	42.04	52.22	74.00	21.78	Peak
Frequency (MHz)	Peak Value (dBμV/m)	Duty Cycle Correction Factor (dB)		Average Value (dBμV/m)		Limit (dBμV/m)	Margin (dB)	Remark
4884.000	52.22	-27.73		24.49		54.00	29.51	Average

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4884.000	34.37	10.24	34.43	38.16	48.34	74.00	25.66	Peak
Frequency (MHz)	Peak Value (dBμV/m)	Duty Cycle Correction Factor (dB)		Average Value (dBμV/m)		Limit (dBμV/m)	Margin (dB)	Remark
4884.000	48.34	-27.73		20.61		54.00	33.39	Average

Mode	MSK	Frequency	TX 2479.25MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4958.560	34.27	10.27	34.42	40.15	50.27	74.00	23.73	Peak
Frequency (MHz)	Peak Value (dBμV/m)	Duty Cycle Factor (dB)	Average Value (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark		
4958.560	50.27	-27.73	22.54	54.00	31.46	Average		

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4958.560	34.27	10.27	34.42	36.91	47.03	74.00	26.97	Peak
Frequency (MHz)	Peak Value (dBμV/m)	Duty Cycle Factor (dB)	Average Value (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark		
4958.560	47.03	-27.73	19.30	54.00	34.70	Average		

Mode	MSK	Frequency	RX 2441.80MHz
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Antenna at Horizontal Polarization

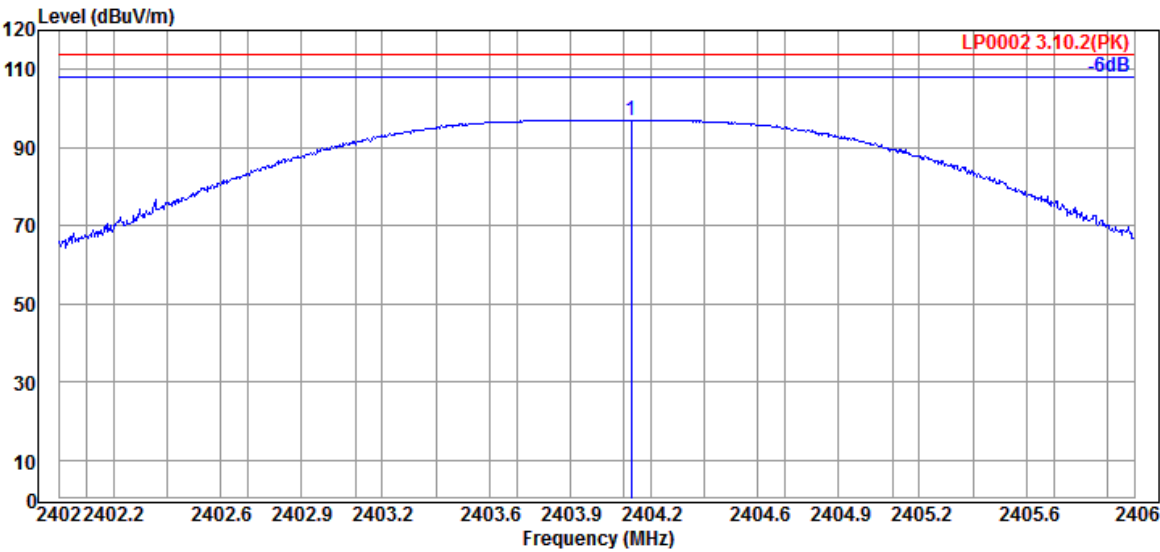
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4884.000	34.37	10.24	34.43	30.86	41.04	74.00	32.96	Peak
Frequency (MHz)	Peak Value (dBμV/m)	Duty Cycle Factor (dB)	Average Value (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark		
4884.000	41.04	-27.73	13.31	54.00	40.69	Average		

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4884.000	34.37	10.24	34.43	30.55	40.73	74.00	33.27	Peak
Frequency (MHz)	Peak Value (dBμV/m)	Duty Cycle Factor (dB)	Average Value (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark		
4884.000	40.73	-27.73	13.00	54.00	41.00	Average		

1.3. 主波發射強度量測

Mode	MSK	Frequency	TX 2404.00MHz
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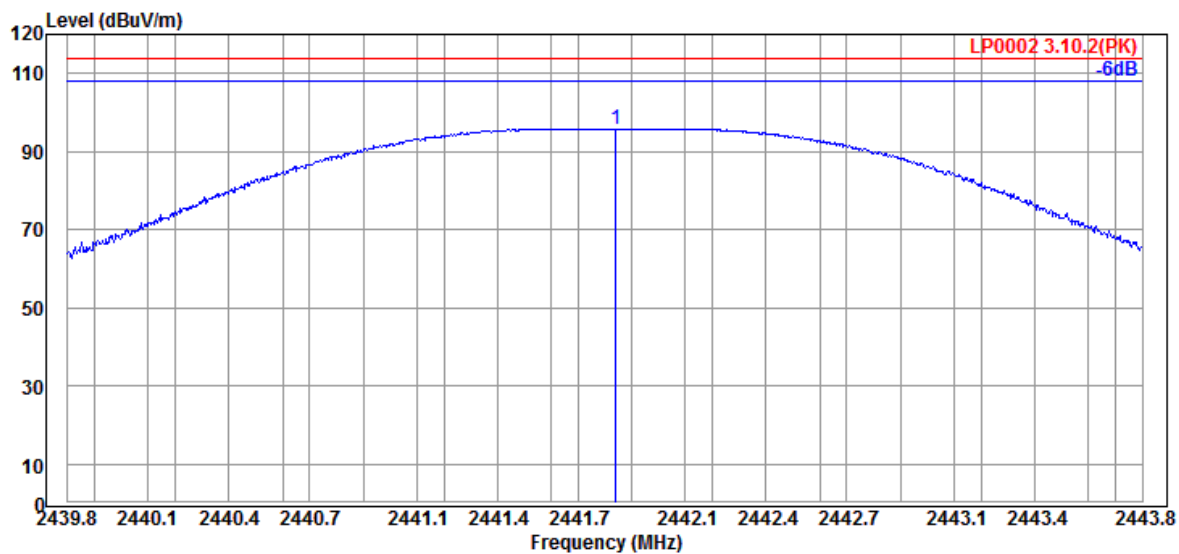


Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2404.128	32.23	8.53	34.55	90.59	96.80	114.00	17.20	Peak
Frequency (MHz)	Peak Value (dBμV/m)	Duty Cycle Correction Factor (dB)		Average Value (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark	
2404.128	96.80	-27.73		69.07	94.00	24.93	Average	

備註： Antenna at Horizontal polarization is the worst.

Mode	MSK	Frequency	TX 2441.80MHz
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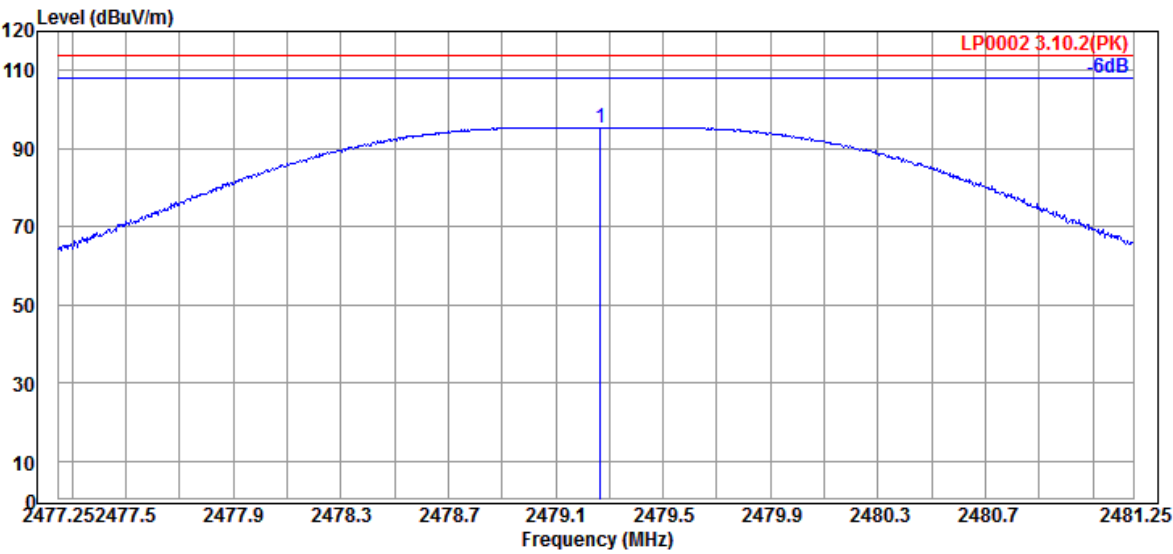


Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2441.840	32.70	8.55	34.56	89.04	95.73	114.00	18.27	Peak
Frequency (MHz)	Peak Value (dBμV/m)	Duty Cycle Correction Factor (dB)		Average Value (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark	
2441.840	95.73	-27.73		68.00	94.00	26.00	Average	

備註： Antenna at Horizonta polarization is the worst.

Mode	MSK	Frequency	TX 2479.25MHz
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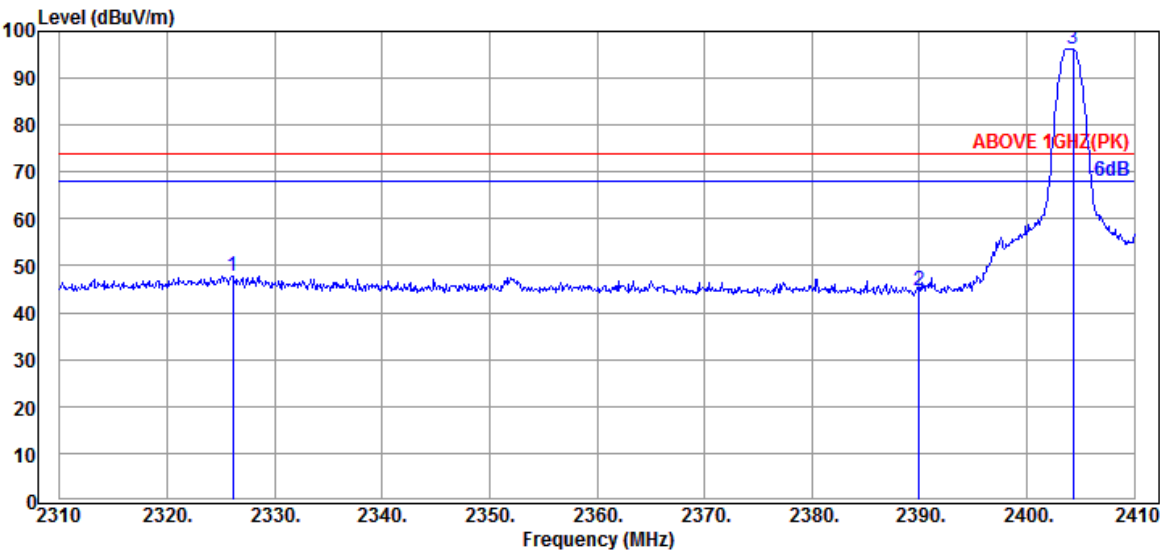
Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2479.266	32.57	8.58	34.57	88.75	95.33	114.00	18.67	Peak
Frequency (MHz)	Peak Value (dBμV/m)	Duty Cycle Correction Factor (dB)		Average Value (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark	
2479.266	95.33	-27.73		67.60	94.00	26.40	Average	

備註： Antenna at Horizonta polarization is the worst.

1.4. 禁用頻帶量測結果 (其他不必要發射)

Mode	MSK	Frequency	TX 2404.00MHz
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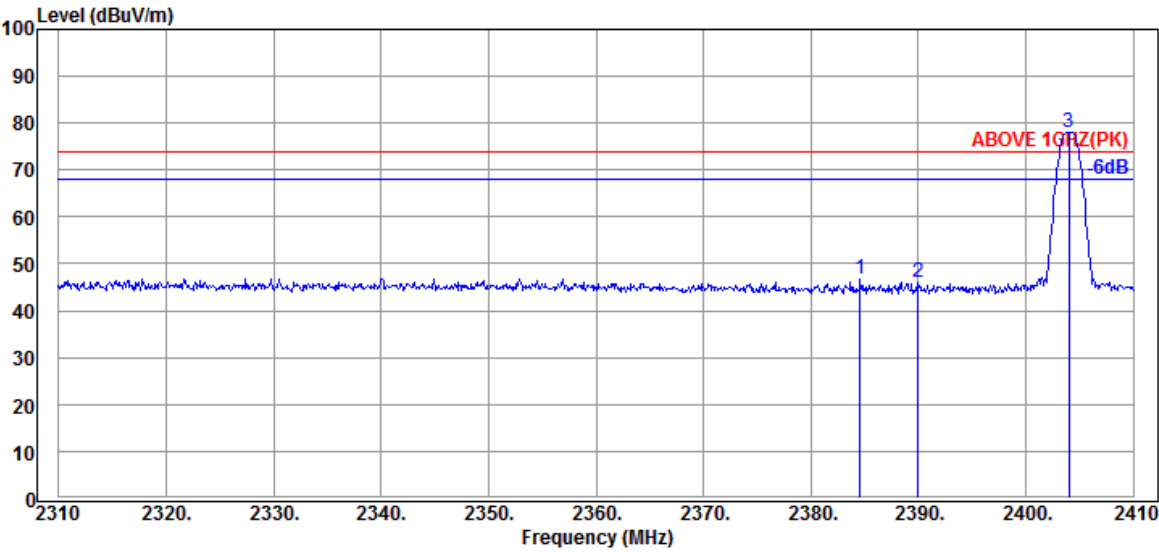


Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2326.100	32.00	8.47	34.54	41.84	47.77	74.00	26.23	Peak
2390.000	32.00	8.52	34.55	38.78	44.75	74.00	29.25	Peak
@ 2404.300	32.23	8.53	34.55	90.12	96.33	---	---	Peak
Frequency (MHz)	Peak Value (dBμV/m)	Duty Cycle Correction Factor (dB)		Average Value (dBμV/m)		Limit (dBμV/m)	Margin (dB)	Remark
2326.100	47.77	-27.73		20.04		54.00	33.96	Average
2390.000	44.75	-27.73		17.02		54.00	36.98	Average

備註：“@”為主波，在此章節是不予以判定。

Mode	MSK	Frequency	TX 2404.00MHz
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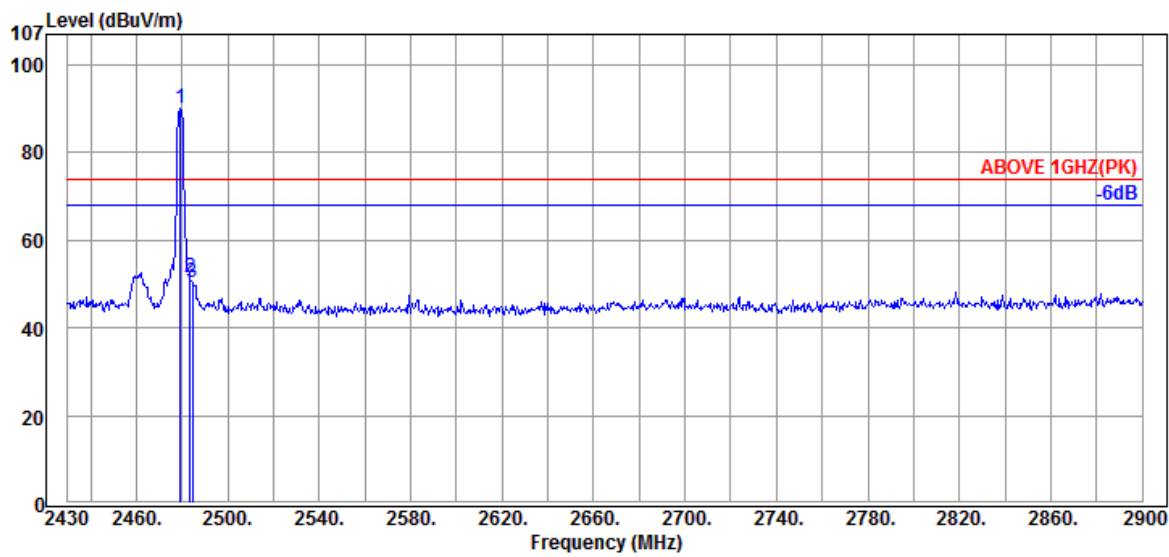
Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2384.600	32.00	8.51	34.55	40.80	46.76	74.00	27.24	Peak
2390.000	32.00	8.52	34.55	39.91	45.88	74.00	28.12	Peak
@ 2404.000	32.23	8.53	34.55	71.92	78.13	---	---	Peak

Frequency (MHz)	Peak Value (dBμV/m)	Duty Cycle Correction Factor (dB)	Average Value (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
2384.600	46.76	-27.73	19.03	54.00	34.97	Average
2390.000	45.88	-27.73	18.15	54.00	35.85	Average

備註：“@”為主波，在此章節是不予以判定。

Mode	MSK	Frequency	TX 2479.25MHz
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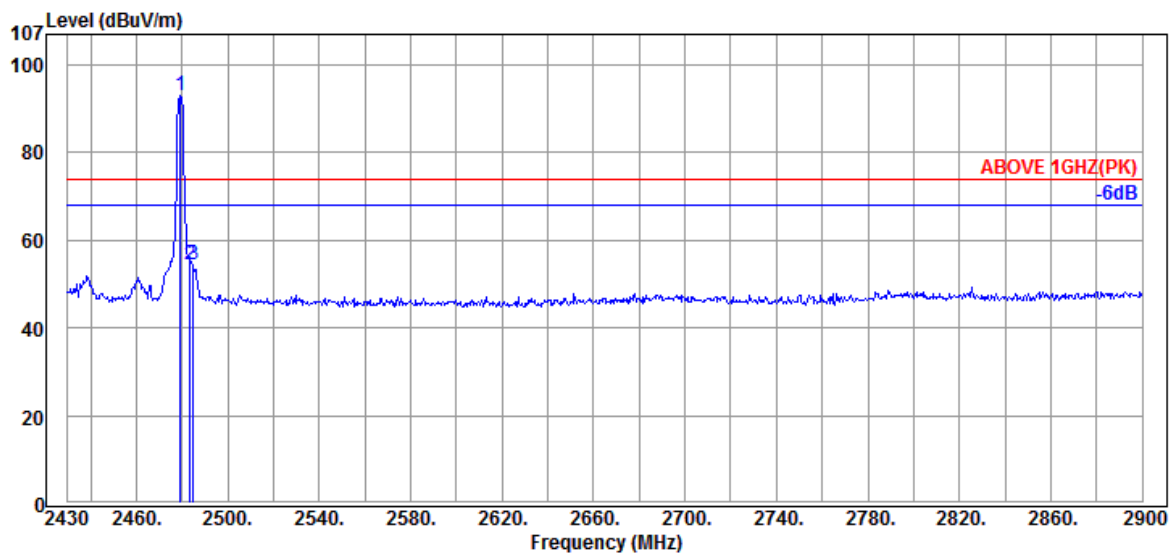


Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@ 2479.350	32.57	8.58	34.57	83.41	89.99	---	---	Peak
2483.500	32.57	8.58	34.57	45.04	51.62	74.00	22.38	Peak
2484.520	32.57	8.58	34.57	43.87	50.45	74.00	23.55	Peak
Frequency (MHz)	Peak Value (dBμV/m)	Duty Cycle Correction Factor (dB)		Average Value (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark	
2483.500	51.62	-27.73		23.89	54.00	30.11	Average	
2484.520	50.45	-27.73		22.72	54.00	31.28	Average	

備註：“@”為主波，在此章節是不予以判定。

Mode	MSK	Frequency	TX 2479.25MHz
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Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@ 2479.350	32.57	8.58	34.57	86.42	93.00	---	---	Peak
2483.580	32.57	8.58	34.57	47.86	54.44	74.00	19.56	Peak
2484.990	32.57	8.58	34.57	47.68	54.26	74.00	19.74	Peak

Frequency (MHz)	Peak Value (dBμV/m)	Duty Cycle Correction Factor (dB)	Average Value (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
2483.580	54.44	-27.73	26.71	54.00	27.29	Average
2484.990	54.26	-27.73	26.53	54.00	27.47	Average

備註：“@”為主波，在此章節是不予以判定。

2. 發射頻寬之量測

測試日期	2020/04/13	環境溫/濕度	18°C/56%
測試電壓	DC 3V (經 CR2450 電池 x2 供電)	測試人員	Kuper Hsu

2.1. 發射頻寬

模式	測試頻率 (MHz)	99% 頻寬 (MHz)
MSK	2404.00	0.76204
	2441.80	0.76789
	2479.25	0.77269

2.2. 發射頻寬之量測圖

