

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)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
UHF SRD	發射，接收	433.20MHz	30-1000MHz
			1000-5000MHz
	發射，接收	433.64MHz	30-1000MHz
			1000-5000MHz

註：以上所有模式之掃頻圖是檢附於附錄中。

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
UHF SRD	發射	433.20MHz
		434.64MHz

測試日期	2021/03/05 ~ 08	環境溫/濕度	16~21℃/67%
測試電壓	DC 3V (經電池供電)	測試人員	Martin Chen

1.1. 30-1000MHz 頻率範圍，其他不必要發射量測

Mode	UHF SRD	Frequency	TX 433.20MHz
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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
30.000	24.21	1.18	28.14	27.92	25.17	40.00	14.83	Peak
101.780	17.43	2.29	28.04	34.26	25.94	43.50	17.56	Peak
153.190	16.84	2.89	27.82	38.58	30.49	43.50	13.01	Peak
323.910	20.40	4.64	27.79	30.08	27.33	46.00	18.67	Peak
866.140	26.77	8.24	28.95	32.39	38.45	46.00	7.55	Peak
967.020	27.57	8.79	28.66	29.39	37.09	54.00	16.91	Peak

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
31.940	23.58	1.22	28.14	34.45	31.11	40.00	8.89	Peak
97.900	16.97	2.25	28.05	37.58	28.75	43.50	14.75	Peak
171.620	16.04	3.09	27.76	34.99	26.36	43.50	17.14	Peak
540.220	24.25	6.57	29.29	31.27	32.80	46.00	13.20	Peak
851.590	26.74	8.14	28.99	29.99	35.88	46.00	10.12	Peak
987.390	27.78	8.90	28.61	28.69	36.76	54.00	17.24	Peak

Mode	UHF SRD	Frequency	RX 433.20MHz
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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
30.000	24.21	1.18	28.14	28.51	25.76	40.00	14.24	Peak
101.780	17.43	2.29	28.04	34.80	26.48	43.50	17.02	Peak
447.100	22.97	5.98	28.82	29.27	29.40	46.00	16.60	Peak
720.640	25.81	7.40	29.29	29.65	33.57	46.00	12.43	Peak
959.260	27.49	8.76	28.69	29.46	37.02	46.00	8.98	Peak
997.090	27.89	8.95	28.59	28.60	36.85	54.00	17.15	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
31.940	23.58	1.22	28.14	35.17	31.83	40.00	8.17	Peak
108.570	17.95	2.39	28.00	34.64	26.98	43.50	16.52	Peak
490.750	23.61	6.36	29.14	30.28	31.11	46.00	14.89	Peak
761.380	26.23	7.61	29.20	29.28	33.92	46.00	12.08	Peak
821.520	26.67	7.96	29.06	30.29	35.86	46.00	10.14	Peak
976.720	27.68	8.85	28.64	29.52	37.41	54.00	16.59	Peak

Mode	UHF SRD	Frequency	TX 434.64MHz
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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	23.58	1.22	28.14	28.93	25.59	40.00	14.41	Peak
154.160	16.76	2.90	27.82	38.62	30.46	43.50	13.04	Peak
540.220	24.25	6.57	29.29	31.03	32.56	46.00	13.44	Peak
724.520	25.84	7.41	29.29	32.18	36.14	46.00	9.86	Peak
869.050	26.78	8.25	28.95	31.11	37.19	46.00	8.81	Peak
980.600	27.71	8.86	28.64	29.20	37.13	54.00	16.87	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
31.940	23.58	1.22	28.14	34.03	30.69	40.00	9.31	Peak
171.620	16.04	3.09	27.76	37.01	28.38	43.50	15.12	Peak
390.840	22.03	5.43	28.37	28.58	27.67	46.00	18.33	Peak
540.220	24.25	6.57	29.29	31.64	33.17	46.00	12.83	Peak
765.260	26.29	7.64	29.20	29.24	33.97	46.00	12.03	Peak
998.060	27.89	8.95	28.59	28.60	36.85	54.00	17.15	Peak

Mode	UHF SRD	Frequency	RX 434.64MHz
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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
33.880	22.99	1.26	28.13	28.93	25.05	40.00	14.95	Peak
101.780	17.43	2.29	28.04	34.94	26.62	43.50	16.88	Peak
408.300	22.38	5.62	28.53	29.33	28.80	46.00	17.20	Peak
716.760	25.76	7.37	29.30	29.93	33.76	46.00	12.24	Peak
884.570	26.81	8.35	28.91	29.76	36.01	46.00	9.99	Peak
990.300	27.82	8.92	28.61	28.67	36.80	54.00	17.20	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
31.940	23.58	1.22	28.14	36.13	32.79	40.00	7.21	Peak
118.270	18.61	2.50	27.96	34.67	27.82	43.50	15.68	Peak
540.220	24.25	6.57	29.29	30.95	32.48	46.00	13.52	Peak
678.930	25.45	7.18	29.35	30.27	33.55	46.00	12.45	Peak
786.600	26.51	7.75	29.16	29.92	35.02	46.00	10.98	Peak
992.240	27.86	8.93	28.61	29.40	37.58	54.00	16.42	Peak

1.2. 1000MHz 以上頻率範圍，其他不必要發射量測

頻率範圍量測至主波發射的 10 倍諧波，其他未列在報告上乃因訊號太小無法量測。

Mode	UHF SRD	Frequency	TX 433.20MHz
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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
1300.000	25.50	6.82	34.93	49.39	46.78	74.00	27.22	Peak
1732.000	26.44	7.35	34.58	46.26	45.47	74.00	28.53	Peak
2164.000	27.68	7.83	34.49	43.91	44.93	74.00	29.07	Peak
2600.000	29.10	8.05	34.58	41.58	44.15	74.00	29.85	Peak
3032.000	30.67	8.29	34.65	42.69	47.00	74.00	27.00	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	Duty Cycle Correction Factor (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1300.000	46.78	-8.54	38.24	54.00	15.76	Average
1732.000	45.47	-8.54	36.93	54.00	17.07	Average
2164.000	44.93	-8.54	36.39	54.00	17.61	Average
2600.000	44.15	-8.54	35.61	54.00	18.39	Average
3032.000	47.00	-8.54	38.46	54.00	15.54	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
3032.000	30.67	8.29	34.65	42.91	47.22	74.00	26.78	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	Duty Cycle Correction Factor (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
3032.000	47.22	-8.54	38.68	54.00	15.32	Average

Mode	UHF SRD	Frequency	RX 433.20MHz
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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
1996.000	27.51	7.72	34.45	39.26	40.04	54.00	13.96	Peak

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
2068.000	27.77	7.78	34.47	37.93	39.01	54.00	14.99	Peak

Mode	UHF SRD	Frequency	TX 434.64MHz
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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
1304.000	25.53	6.83	34.93	49.48	46.91	74.00	27.09	Peak
1740.000	26.52	7.36	34.58	46.23	45.53	74.00	28.47	Peak
2172.000	27.66	7.83	34.49	43.90	44.90	74.00	29.10	Peak
2608.000	29.07	8.05	34.58	41.74	44.28	74.00	29.72	Peak
3044.000	30.68	8.29	34.65	43.72	48.04	74.00	25.96	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	Duty Cycle Correction Factor (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1304.000	46.91	-8.54	38.37	54.00	15.63	Average
1740.000	45.53	-8.54	36.99	54.00	17.01	Average
2172.000	44.90	-8.54	36.36	54.00	17.64	Average
2608.000	44.28	-8.54	35.74	54.00	18.26	Average
3044.000	48.04	-8.54	39.50	54.00	14.50	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
3044.000	30.68	8.29	34.65	41.99	46.31	74.00	27.69	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	Duty Cycle Correction Factor (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
3044.000	46.31	-8.54	37.77	54.00	16.23	Average

Mode	UHF SRD	Frequency	RX 434.64MHz
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Antenna at Horizontal Polarization

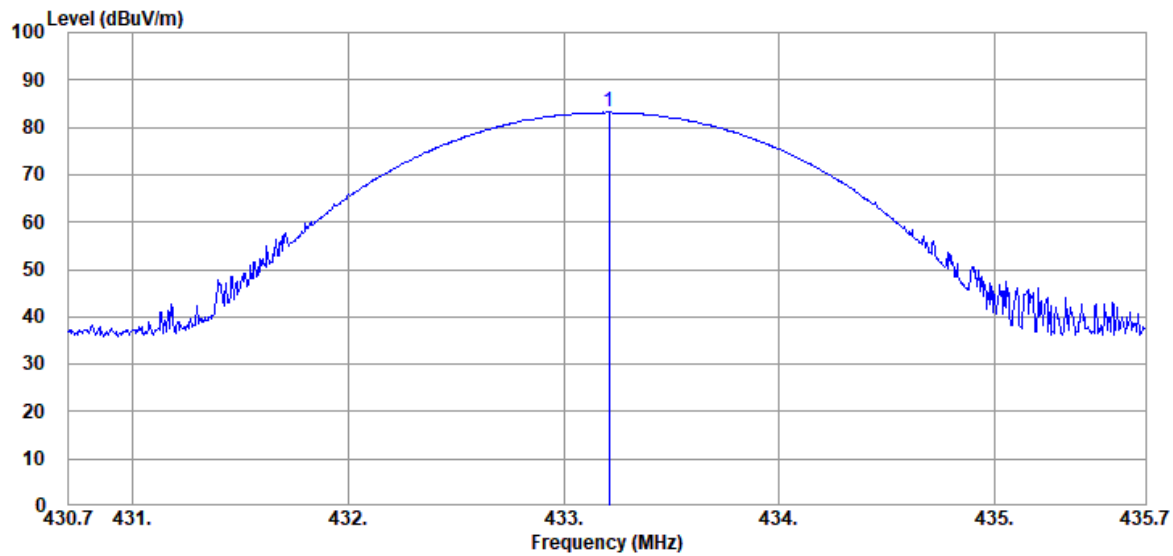
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
1172.000	27.03	6.71	35.08	41.84	40.50	54.00	13.50	Peak

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
1396.000	25.53	6.89	34.81	39.98	37.59	54.00	16.41	Peak

1.3. 主波發射強度量測

Mode	UHF SRD	Frequency	TX 433.20MHz
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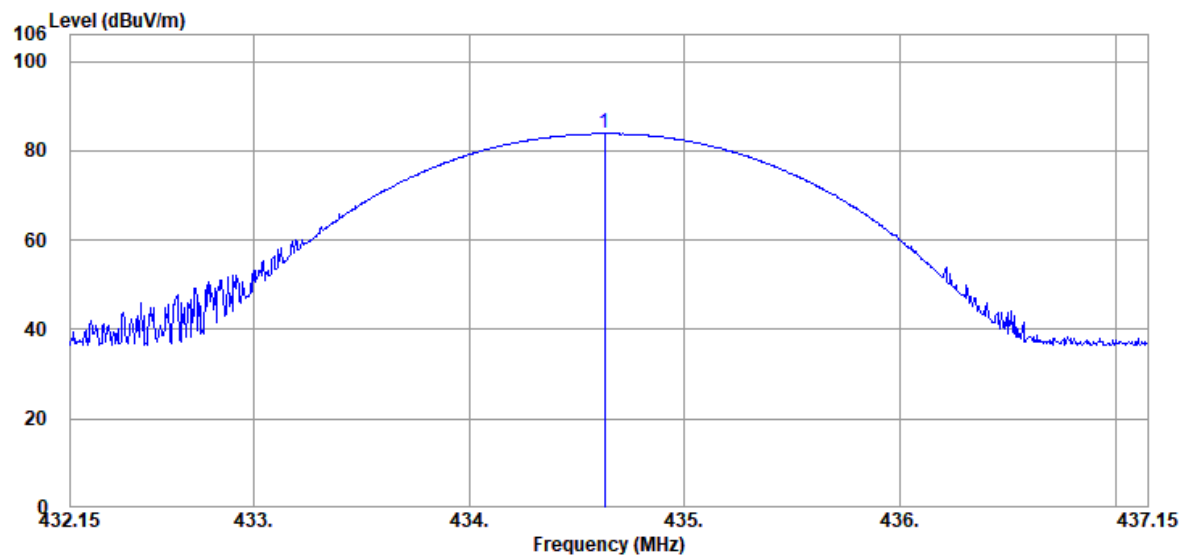
Antenna at Horizontal Polarization

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
433.210	22.76	5.85	28.72	83.24	83.13	100.80	17.67	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	Duty Cycle Correction Factor (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
433.210	83.13	-8.54	74.59	80.80	6.21	Average

Remark: Horizontal is the strongest polarization and peak value has complied with average limit, so vertical won't be listed in test report.

Mode	UHF SRD	Frequency	TX 434.64MHz
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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
434.630	22.78	5.86	28.72	84.01	83.93	100.85	16.92	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	Duty Cycle Correction Factor (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
434.630	83.93	-8.54	75.39	80.85	5.46	Average

Remark: Horizontal is the strongest polarization and peak value has complied with average limit, so vertical won't be listed in test report.

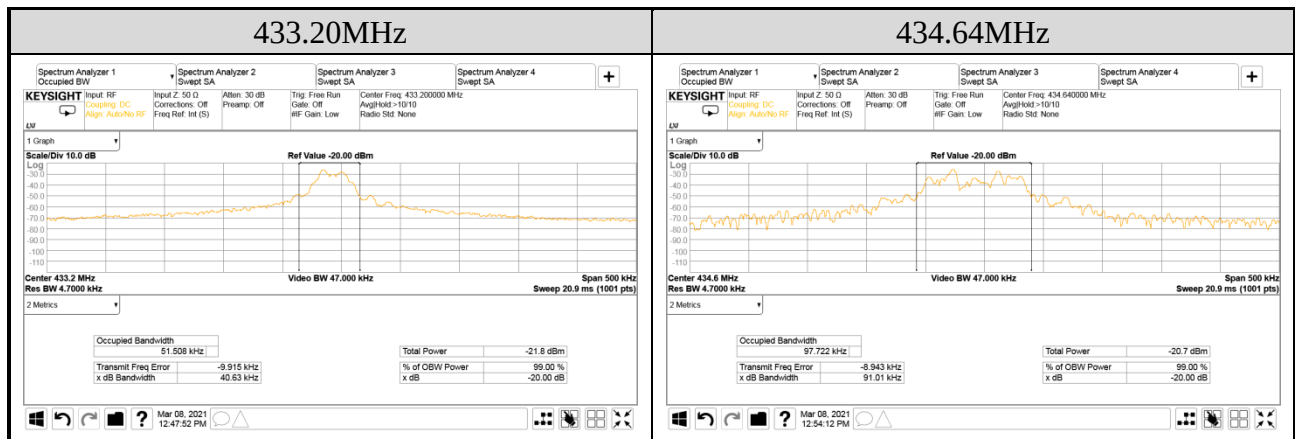
2. 發射頻寬之量測

測試日期	2021/03/08	環境溫/濕度	17°C/75%
測試電壓	DC 3V (經電池)	測試人員	Martin Chen

2.1. 發射頻寬

主波頻率 (MHz)	20dB 頻寬 (MHz)	中心頻率百分比 (%)	限制值 (%)
433.20	0.04063	0.0094	0.25
434.64	0.09101	0.0209	0.25

2.2. 發射頻寬之量測圖



3. 發射器之自動發射時間之量測

測試日期	2021/03/08	環境溫/濕度	17°C/75%
測試電壓	DC 3V (經電池)	測試人員	Martin Chen

3.1. 發射器之自動發射時間

主波頻率 (MHz)	測得發射週期 (Sec.)	限制值(Sec.)	限制週期
433.975	0.540	< 5	手動發射器材須有一開關，按下此開關後 5 秒內應自動停止發射。
	0.540		

3.2. 發射器之自動發射時間之量測圖

