

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，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
FSK	發射	433.92MHz	30-1000MHz
			1000-5000MHz
		434.36MHz	30-1000MHz
			1000-5000MHz
	接收	433.46MHz	30-1000MHz
			1000-5000MHz
		433.92MHz	30-1000MHz
			1000-5000MHz
		434.36MHz	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
FSK	發射	433.92MHz
		434.36MHz

測試日期	2021/04/12~26	環境溫/濕度	21~24℃/62~70%
測試電壓	DC 12V (經直流電源供應器)	測試人員	Sean Wang

1.1. 30-1000MHz 頻率範圍，其他不必要發射量測

Mode	FSK	Frequency	TX 433.92MHz
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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
36.790	15.27	1.40	26.52	44.72	34.87	40.00	5.13	Peak
135.730	11.45	2.89	26.12	38.24	26.46	43.50	17.04	Peak
216.240	10.36	3.70	25.83	36.79	25.02	46.00	20.98	Peak
540.220	17.75	6.97	27.33	38.16	35.55	46.00	10.45	Peak
* 868.080	26.78	8.25	27.13	44.79	52.69	46.00	-6.69	Peak
988.360	21.23	9.11	26.87	34.70	38.17	54.00	15.83	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
* 868.080	52.69	-20.45	32.24	46.00	13.76	Average

*: 主波發射之諧波

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
40.670	13.10	1.50	26.51	43.56	31.65	40.00	8.35	Peak
120.210	11.90	2.68	26.20	43.82	32.20	43.50	11.30	Peak
378.230	15.02	5.71	26.39	35.20	29.54	46.00	16.46	Peak
540.220	17.75	6.97	27.33	37.90	35.29	46.00	10.71	Peak
* 868.080	20.28	8.53	27.24	44.03	45.60	46.00	0.40	Peak
982.540	21.16	9.08	26.90	34.39	37.73	54.00	16.27	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
* 868.080	45.60	-20.45	25.15	46.00	20.85	Average

*: 主波發射之諧波

Mode	FSK	Frequency	TX 434.36MHz
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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
40.670	13.10	1.50	26.51	43.69	31.78	40.00	8.22	Peak
120.210	11.90	2.68	26.20	43.58	31.96	43.50	11.54	Peak
378.230	15.02	5.71	26.39	35.32	29.66	46.00	16.34	Peak
809.880	20.05	8.19	27.39	35.94	36.79	46.00	9.21	Peak
*869.050	20.28	8.54	27.24	46.41	47.99	46.00	-1.99	Peak
979.630	21.13	9.07	26.90	34.89	38.19	54.00	15.81	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
* 869.050	47.99	-20.45	27.54	46.00	18.46	Average

*: 主波發射之諧波

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
42.610	11.65	1.54	26.51	41.50	28.18	40.00	11.82	Peak
120.210	11.90	2.68	26.20	39.98	28.36	43.50	15.14	Peak
216.240	10.36	3.70	25.83	35.83	24.06	46.00	21.94	Peak
540.220	17.75	6.97	27.33	37.40	34.79	46.00	11.21	Peak
*869.050	20.28	8.54	27.24	52.56	54.14	46.00	-8.14	Peak
977.690	21.13	9.06	26.90	35.49	38.78	54.00	15.22	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
* 869.050	54.14	-20.45	33.69	46.00	12.31	Average

*: 主波發射之諧波

Mode	FSK	Frequency	RX 433.46MHz
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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
42.610	11.65	1.54	26.51	39.04	25.72	40.00	14.28	Peak
161.920	9.84	3.19	26.01	32.99	20.01	43.50	23.49	Peak
334.580	13.98	5.06	26.03	32.59	25.60	46.00	20.40	Peak
552.830	17.91	6.98	27.37	33.33	30.85	46.00	15.15	Peak
677.960	18.75	7.49	27.50	33.35	32.09	46.00	13.91	Peak
977.690	21.13	9.06	26.90	33.79	37.08	54.00	16.92	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
43.580	10.99	1.56	26.51	42.59	28.63	40.00	11.37	Peak
99.840	11.35	2.43	26.32	38.76	26.22	43.50	17.28	Peak
365.620	14.72	5.52	26.28	32.98	26.94	46.00	19.06	Peak
607.150	18.46	7.07	27.48	34.16	32.21	46.00	13.79	Peak
944.710	20.82	8.92	27.01	32.46	35.19	46.00	10.81	Peak
992.240	21.26	9.13	26.87	33.77	37.29	54.00	16.71	Peak

Mode	FSK	Frequency	RX 433.92MHz
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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
44.550	10.21	1.58	26.51	40.59	25.87	40.00	14.13	Peak
133.790	11.50	2.86	26.13	36.75	24.98	43.50	18.52	Peak
340.400	14.13	5.15	26.08	32.07	25.27	46.00	20.73	Peak
757.500	19.54	7.91	27.45	33.46	33.46	46.00	12.54	Peak
933.070	20.70	8.87	27.04	32.91	35.44	46.00	10.56	Peak
995.150	21.29	9.14	26.84	33.56	37.15	54.00	16.85	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
58.130	6.64	1.79	26.46	36.33	18.30	40.00	21.70	Peak
138.640	11.36	2.93	26.10	33.28	21.47	43.50	22.03	Peak
305.480	13.22	4.64	25.75	31.95	24.06	46.00	21.94	Peak
554.770	17.93	6.98	27.37	33.88	31.42	46.00	14.58	Peak
705.120	18.90	7.64	27.50	33.78	32.82	46.00	13.18	Peak
982.540	21.16	9.08	26.90	33.77	37.11	54.00	16.89	Peak

Mode	FSK	Frequency	RX 434.36MHz
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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
39.700	13.79	1.48	26.51	38.74	27.50	40.00	12.50	Peak
138.640	11.36	2.93	26.10	35.08	23.27	43.50	20.23	Peak
348.160	14.31	5.26	26.14	33.52	26.95	46.00	19.05	Peak
555.740	17.93	6.99	27.37	33.45	31.00	46.00	15.00	Peak
836.070	20.15	8.34	27.32	33.50	34.67	46.00	11.33	Peak
973.810	21.07	9.04	26.90	33.88	37.09	54.00	16.91	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
36.790	15.27	1.40	26.52	33.65	23.80	40.00	16.20	Peak
165.800	9.68	3.22	25.99	33.42	20.33	43.50	23.17	Peak
318.090	13.54	4.82	25.86	32.35	24.85	46.00	21.15	Peak
541.190	17.77	6.97	27.33	34.15	31.56	46.00	14.44	Peak
765.260	19.63	7.95	27.44	35.03	35.17	46.00	10.83	Peak
979.630	21.13	9.07	26.90	34.61	37.91	54.00	16.09	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	FSK	Frequency	TX 433.92MHz
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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
1302.000	27.50	6.82	34.94	49.75	49.13	74.00	24.87	Peak
1736.000	30.43	7.35	34.60	46.20	49.38	74.00	24.62	Peak
2170.000	31.73	7.83	34.53	43.33	48.36	74.00	25.64	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
1302.000	49.13	-20.45	28.68	54.00	25.32	Average
1736.000	49.38	-20.45	28.93	54.00	25.07	Average
2170.000	48.36	-20.45	27.91	54.00	26.09	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
1302.000	27.50	6.82	34.94	45.14	44.52	74.00	29.48	Peak
1736.000	30.43	7.35	34.60	42.89	46.07	74.00	27.93	Peak
2170.000	31.73	7.83	34.53	40.00	45.03	74.00	28.97	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
1302.000	44.52	-20.45	24.07	54.00	29.93	Average
1736.000	46.07	-20.45	25.62	54.00	28.38	Average
2170.000	45.03	-20.45	24.58	54.00	29.42	Average

Mode	FSK	Frequency	TX 434.36MHz
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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
1302.000	27.50	6.82	34.94	47.32	46.70	74.00	27.30	Peak
1738.000	30.43	7.36	34.60	46.36	49.55	74.00	24.45	Peak
2172.000	31.73	7.83	34.53	44.27	49.30	74.00	24.70	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
1302.000	46.70	-20.45	26.25	54.00	27.75	Average
1738.000	49.55	-20.45	29.10	54.00	24.90	Average
2172.000	49.30	-20.45	28.85	54.00	25.15	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
1738.000	30.43	7.36	34.60	42.10	45.29	74.00	28.71	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
1738.000	45.29	-20.45	24.84	54.00	29.16	Average

Mode	FSK	Frequency	RX 433.46MHz
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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
3086.000	33.10	8.36	34.68	37.13	43.91	54.00	10.09	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
3250.000	32.60	8.65	34.63	37.27	43.89	54.00	10.11	Peak

Mode	FSK	Frequency	RX 433.92MHz
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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
3342.000	33.08	8.82	34.61	34.23	41.52	54.00	12.48	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
3154.000	32.80	8.50	34.66	35.25	41.89	54.00	12.11	Peak

Mode	FSK	Frequency	RX 434.36MHz
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Antenna at Horizontal Polarization

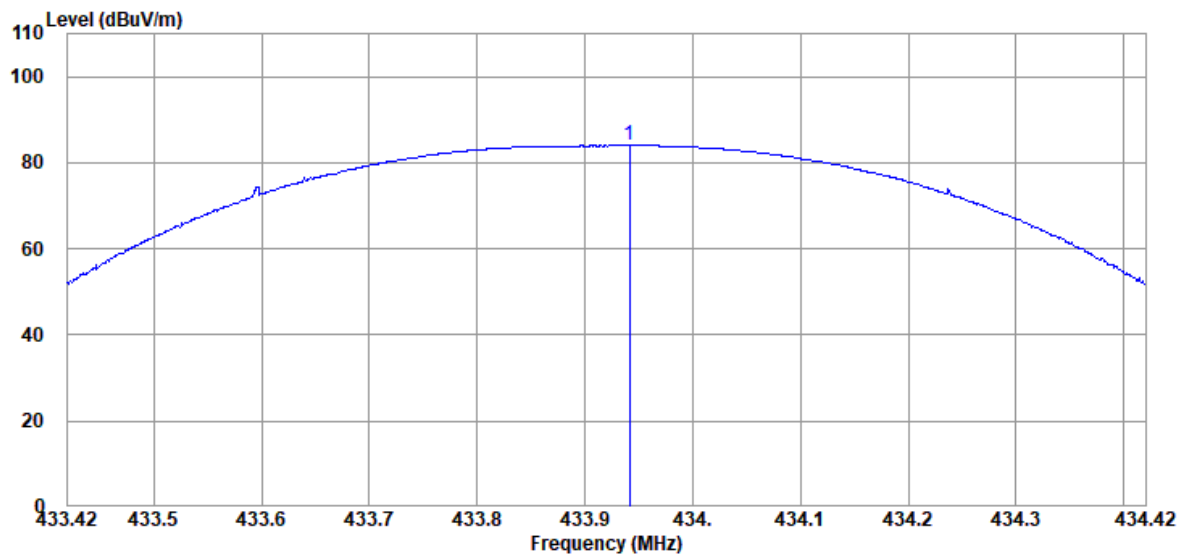
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
3046.000	33.12	8.29	34.69	36.06	42.78	54.00	11.22	Peak

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
3032.000	33.13	8.29	34.69	35.55	42.28	54.00	11.72	Peak

1.3. 主波發射強度量測

Mode	FSK	Frequency	TX 433.92MHz
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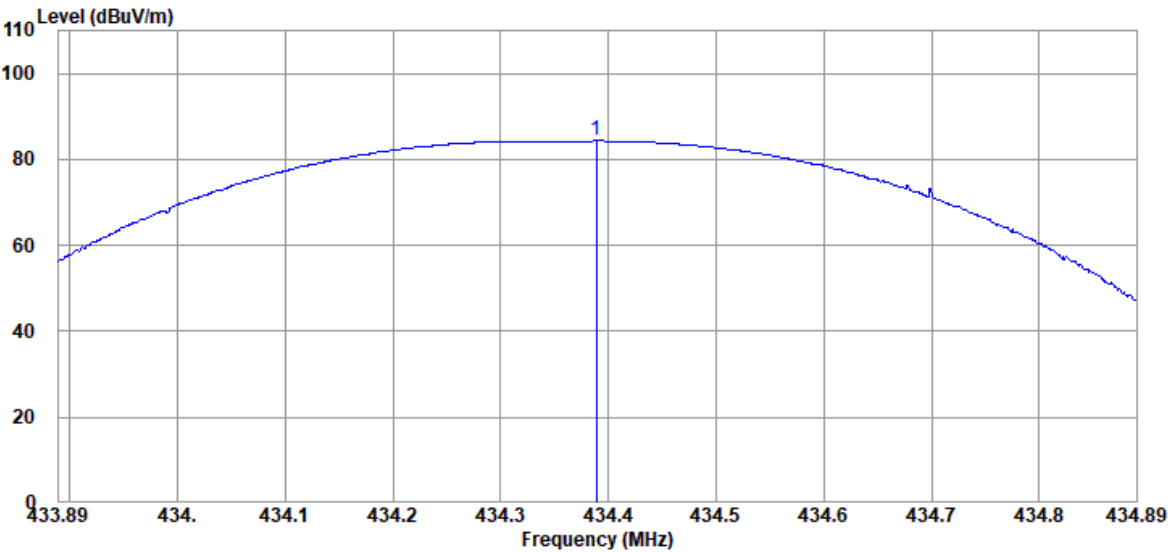
Antenna at VerticalPolarization

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
433.941	22.78	5.86	26.75	82.06	83.95	100.83	16.88	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
433.941	83.95	-20.45	63.50	80.83	17.33	Average

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

Mode	FSK	Frequency	TX 434.36MHz
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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
434.389	22.78	5.86	26.75	82.40	84.29	100.84	16.55	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
434.389	84.29	-20.45	63.84	80.84	17.00	Average

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

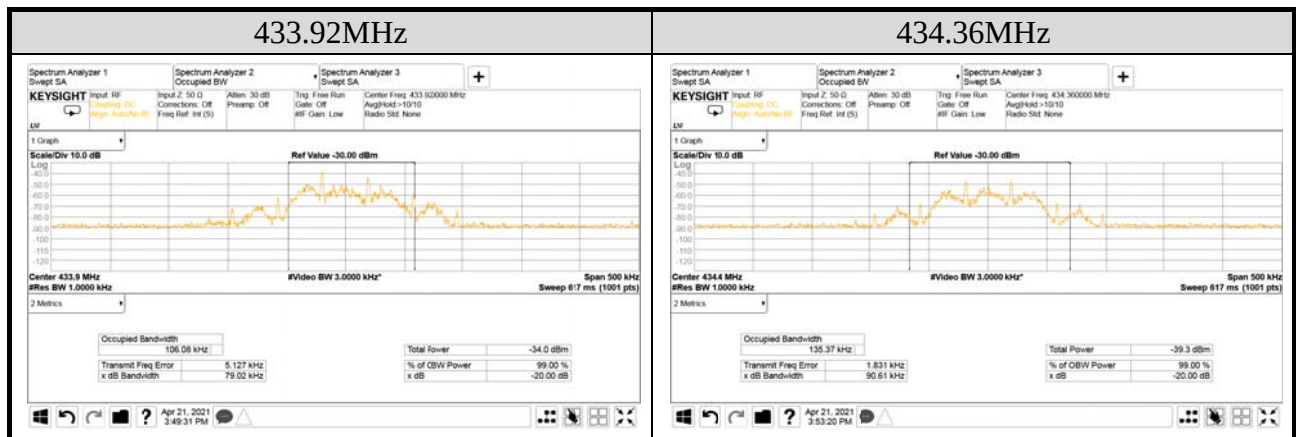
2. 發射頻寬之量測

測試日期	2021/04/21	環境溫/濕度	22°C/59%
測試電壓	DC 12V (經直流電源供應器)	測試人員	Sean Wang

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 (%)
433.92	0.07902	0.0182	0.25
434.36	0.09061	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	2021/04/21	環境溫/濕度	22°C/59%
測試電壓	DC 12V (經直流電源供應器)	測試人員	Sean Wang

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
434.36	0.010	< 5	器材具自動發射者，每次發射時間應少於 5 秒。

3.2. 發射器之自動發射時間之量測圖

