

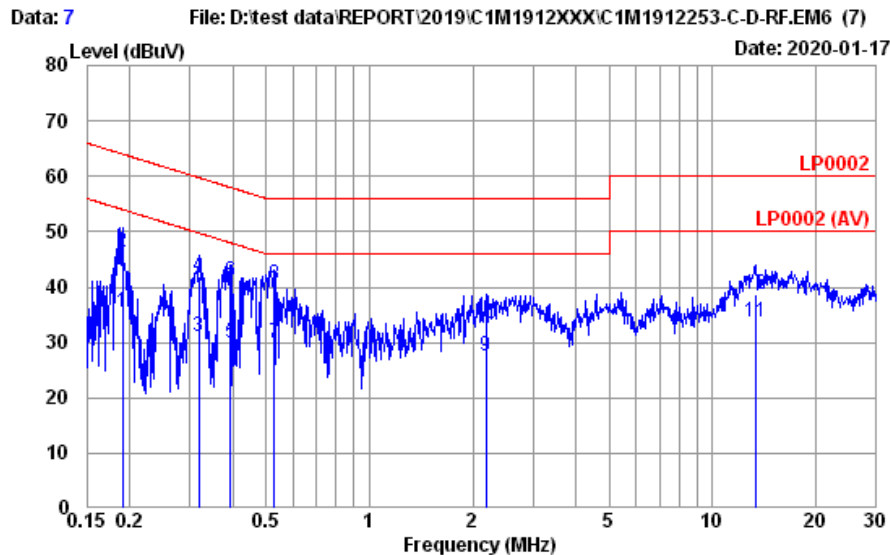
附錄一

受測裝置之測試結果

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1. 電源線傳導干擾之量測

測試日期	2020/01/07	環境溫/濕度	22°C/67%
測試電壓	DC 5V (經 USB 充電電源)	測試人員	Chucky Chiu
Tested SKU	SKU #1		

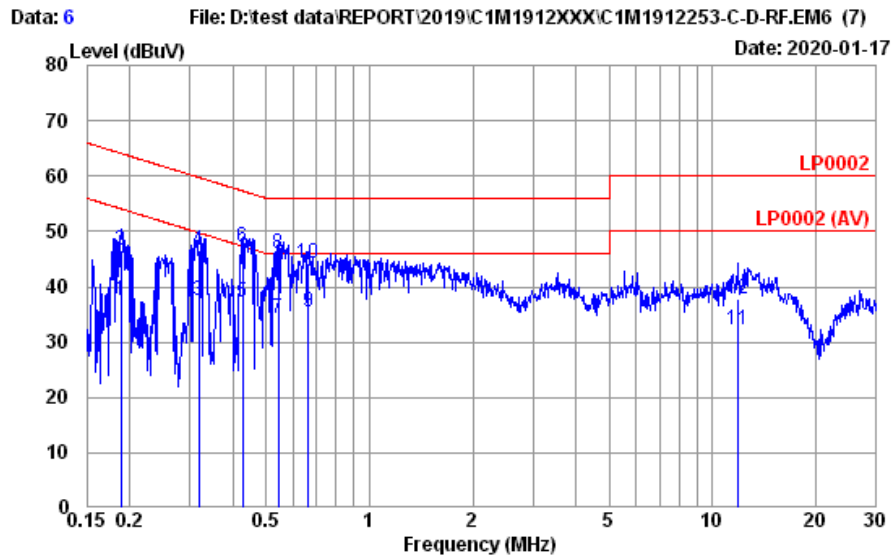


Site no. : No.8 Shielded Room Data no. : 7
Condition : ENV4200 (169) (A) LISN Phase : NEUTRAL
Limit : LP0002
Env. / Ins. : 22°C / 67% ESR3 (774) Engineer : Chucky Chiu
EUT : WH-1000XM4 (SKU #1)
Power Rating : 5V (VIA USB)
Test Mode : Charge

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Remark
1	0.190	10.66	0.04	9.86	15.01	35.57	54.02	18.45	Average
2	0.190	10.66	0.04	9.86	25.60	46.16	64.02	17.86	QP
3	0.318	10.56	0.04	9.86	10.65	31.11	49.75	18.64	Average
4	0.318	10.56	0.04	9.86	21.56	42.02	59.75	17.73	QP
5	0.393	10.52	0.04	9.86	9.47	29.89	47.99	18.10	Average
6	0.393	10.52	0.04	9.86	20.73	41.15	57.99	16.84	QP
7	0.527	10.51	0.04	9.86	9.36	29.77	46.00	16.23	Average
8	0.527	10.51	0.04	9.86	20.05	40.46	56.00	15.54	QP
9	2.190	10.56	0.07	9.86	7.20	27.69	46.00	18.31	Average
10	2.190	10.56	0.07	9.86	12.92	33.41	56.00	22.59	QP
11	13.408	12.36	0.16	9.91	11.28	33.71	50.00	16.29	Average
12	13.408	12.36	0.16	9.91	16.33	38.76	60.00	21.24	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.

測試日期	2020/01/07	環境溫/濕度	22°C/67%
測試電壓	DC 5V (經 USB 充電電源)	測試人員	Chucky Chiu
Tested SKU	SKU #1		

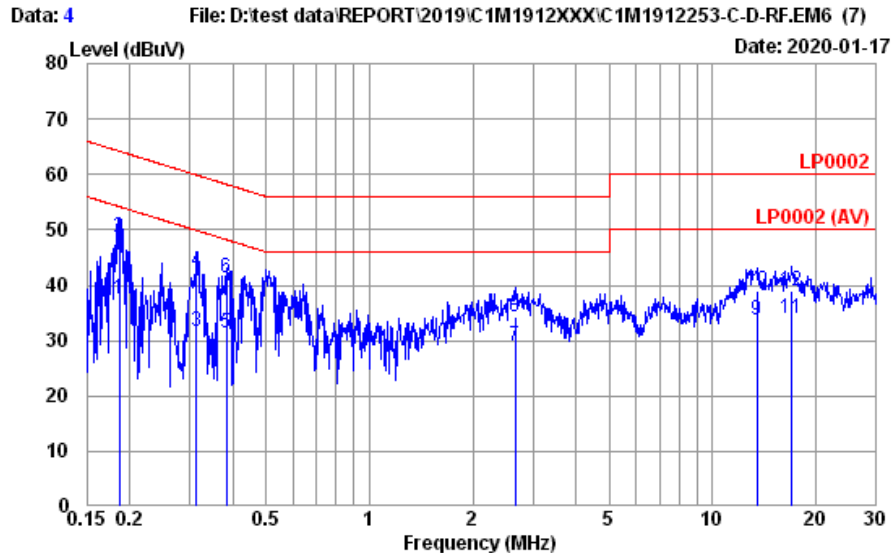


Site no. : No.8 Shielded Room Data no. : 6
Condition : ENV4200 (169) (A) LISN Phase : LINE
Limit : LP0002
Env. / Ins. : 22°C / 67% ESR3 (774) Engineer : Chucky Chiu
EUT : WH-1000XM4(SKU #1)
Power Rating : 5V(VIA USB)
Test Mode : Charge

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Remark
1	0.188	10.62	0.04	9.86	16.90	37.42	54.11	16.69	Average
2	0.188	10.62	0.04	9.86	26.15	46.67	64.11	17.44	QP
3	0.318	10.53	0.04	9.86	16.97	37.40	49.75	12.35	Average
4	0.318	10.53	0.04	9.86	26.25	46.68	59.75	13.07	QP
5	0.426	10.49	0.04	9.86	16.80	37.19	47.33	10.14	Average
6	0.426	10.49	0.04	9.86	26.87	47.26	57.33	10.07	QP
7	0.544	10.48	0.04	9.86	13.93	34.31	46.00	11.69	Average
8	0.544	10.48	0.04	9.86	25.68	46.06	56.00	9.94	QP
9	0.665	10.48	0.05	9.86	14.96	35.35	46.00	10.65	Average
10	0.665	10.48	0.05	9.86	23.71	44.10	56.00	11.90	QP
11	11.807	11.69	0.15	9.90	10.42	32.16	50.00	17.84	Average
12	11.807	11.69	0.15	9.90	16.09	37.83	60.00	22.17	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.

測試日期	2020/01/07	環境溫/濕度	22°C/67%
測試電壓	DC 5V (經 USB 充電電源)	測試人員	Chucky Chiu
Tested SKU	SKU #2		

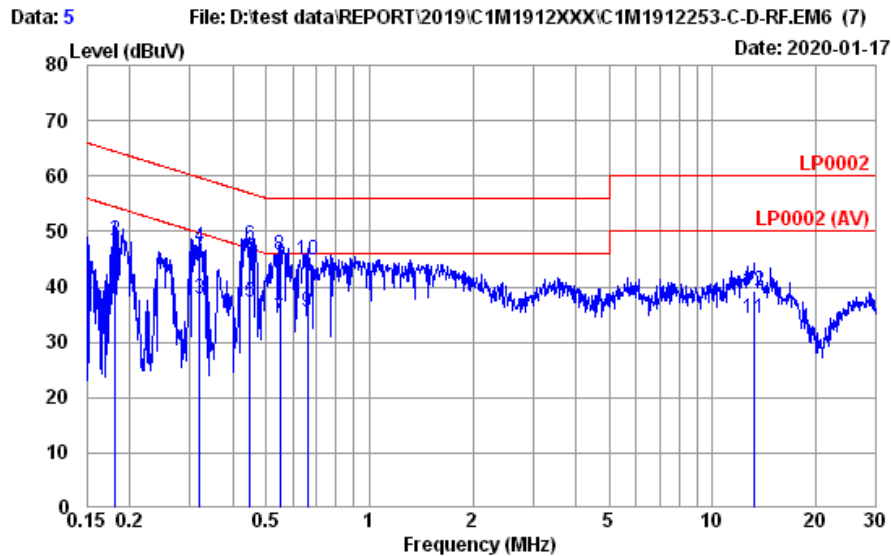


Site no. : No.8 Shielded Room Data no. : 4
Condition : ENV4200 (169) (A) LISN Phase : NEUTRAL
Limit : LP0002
Env. / Ins. : 22°C / 67% ESR3 (774) Engineer : Chucky Chiu
EUT : WH-1000XM4(SKU #2)
Power Rating : 5V(VIA USB)
Test Mode : Charge

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Remark
1	0.186	10.67	0.04	9.86	16.97	37.54	54.20	16.66	Average
2	0.186	10.67	0.04	9.86	27.94	48.51	64.20	15.69	QP
3	0.313	10.57	0.04	9.86	11.24	31.71	49.88	18.17	Average
4	0.313	10.57	0.04	9.86	22.15	42.62	59.88	17.26	QP
5	0.383	10.53	0.04	9.86	10.87	31.30	48.21	16.91	Average
6	0.383	10.53	0.04	9.86	20.77	41.20	58.21	17.01	QP
7	2.664	10.60	0.08	9.87	8.33	28.88	46.00	17.12	Average
8	2.664	10.60	0.08	9.87	13.77	34.32	56.00	21.68	QP
9	13.479	12.37	0.16	9.91	11.39	33.83	50.00	16.17	Average
10	13.479	12.37	0.16	9.91	16.46	38.90	60.00	21.10	QP
11	17.018	13.11	0.17	9.93	10.88	34.09	50.00	15.91	Average
12	17.018	13.11	0.17	9.93	15.85	39.06	60.00	20.94	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.

測試日期	2020/01/07	環境溫/濕度	22°C/67%
測試電壓	DC 5V (經 USB 充電電源)	測試人員	Chucky Chiu
Tested SKU	SKU #2		



Site no. : No.8 Shielded Room Data no. : 5
Condition : ENV4200 (169) (A) LISN Phase : LINE
Limit : LP0002
Env. / Ins. : 22°C / 67% ESR3 (774) Engineer : Chucky Chiu
EUT : WH-1000XM4(SKU #2)
Power Rating : 5V(VIA USB)
Test Mode : Charge

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Remark
1	0.182	10.63	0.04	9.86	16.18	36.71	54.42	17.71	Average
2	0.182	10.63	0.04	9.86	27.73	48.26	64.42	16.16	QP
3	0.320	10.53	0.04	9.86	17.25	37.68	49.71	12.03	Average
4	0.320	10.53	0.04	9.86	26.81	47.24	59.71	12.47	QP
5	0.449	10.49	0.04	9.86	16.74	37.13	46.89	9.76	Average
6	0.449	10.49	0.04	9.86	27.18	47.57	56.89	9.32	QP
7	0.549	10.48	0.04	9.86	14.01	34.39	46.00	11.61	Average
8	0.549	10.48	0.04	9.86	25.35	45.73	56.00	10.27	QP
9	0.661	10.48	0.05	9.86	15.16	35.55	46.00	10.45	Average
10	0.661	10.48	0.05	9.86	24.40	44.79	56.00	11.21	QP
11	13.197	12.02	0.15	9.91	12.08	34.16	50.00	15.84	Average
12	13.197	12.02	0.15	9.91	17.26	39.34	60.00	20.66	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.

2. 場強輻射之量測

本裝置有兩種電源供應模式分別為(1)電池(DC 3.7V)、(2)USB 供電(DC 5V)，實驗室依下列測試模式進行量測，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 2.1 ~ 2.2：

模式	動作狀態	基本頻率	量測頻率範圍
SKU #1 Charge	Charging	---	30-1000MHz
SKU #2 Charge	Charging	---	30-1000MHz
模式	動作狀態	基本頻率	量測頻率範圍
SKU #1 Normal (BT)	BT Playing	---	30-1000MHz
			1000-25000MHz
SKU #2 Normal (BT)	BT Playing	---	30-1000MHz
模式	動作狀態	基本頻率	量測頻率範圍
SKU #1 Normal (Audio)	Audio Playing	---	30-1000MHz
			1000-25000MHz
SKU #2 Normal (Audio)	Audio Playing	---	30-1000MHz
模式	動作狀態	基本頻率	量測頻率範圍
SKU #1 BLE (1M)	發射	2402MHz	1000-25000MHz
	發射	2440MHz*	30-1000MHz
			1000-25000MHz
	發射	2480MHz	1000-25000MHz
SKU #1 BLE	接收	2440MHz	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 章節的禁用頻帶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 2.3。

模式	動作狀態	基本頻率	量測頻率範圍
SKU #1 BLE (1M)	發射	2402MHz	2310-2410MHz
		2480MHz	2430-2900MHz
SKU #1 BLE (2M)	發射	2402MHz	2310-2410MHz
		2480MHz	2430-2900MHz

測試日期	2020/01/10~15	環境溫/濕度	20~22℃/48~58%
測試電壓	(1)DC 5V (經 USB 充電電源) (2)DC 3.7V (經電池供電)	測試人員	Brian Hsieh

2.1. 30-1000MHz 頻率範圍，其他不必要發射量測

Mode	SKU #1 Charge	Frequency	---
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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
50.37	14.26	0.59	44.26	30.82	40.00	9.18	Peak
96.93	16.44	0.84	36.61	25.75	43.50	17.75	Peak
278.32	19.18	1.50	44.23	37.41	46.00	8.59	Peak
359.80	21.30	1.74	38.73	33.86	46.00	12.14	Peak
518.88	23.84	2.16	36.00	33.25	46.00	12.75	Peak
708.03	25.66	2.61	34.91	34.43	46.00	11.57	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
44.55	16.93	0.55	48.21	37.39	40.00	2.61	Peak
95.96	16.31	0.83	36.42	25.42	43.50	18.08	Peak
164.83	16.10	1.12	37.09	26.52	43.50	16.98	Peak
270.56	19.03	1.48	36.24	29.24	46.00	16.76	Peak
520.82	23.87	2.17	37.87	35.16	46.00	10.84	Peak
721.61	25.76	2.64	34.59	34.26	46.00	11.74	Peak

Mode	SKU #2 Charge	Frequency	---
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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
47.45	15.51	0.57	45.94	33.73	40.00	6.27	Peak
147.37	17.13	1.05	36.90	27.21	43.50	16.29	Peak
276.38	19.14	1.50	43.81	36.95	46.00	9.05	Peak
517.91	23.82	2.16	36.19	33.42	46.00	12.58	Peak
678.93	25.42	2.55	34.23	33.41	46.00	12.59	Peak
804.06	26.44	2.84	33.50	34.21	46.00	11.79	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
44.55	16.93	0.55	48.51	37.69	40.00	2.31	Peak
96.93	16.44	0.84	37.23	26.37	43.50	17.13	Peak
168.71	15.86	1.13	38.28	27.49	43.50	16.01	Peak
216.24	17.04	1.31	35.84	26.57	46.00	19.43	Peak
403.45	22.38	1.87	32.72	28.77	46.00	17.23	Peak
663.41	25.28	2.51	36.50	35.49	46.00	10.51	Peak

Mode	SKU #1 Normal (BT)	Frequency	---
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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
39.70	19.69	0.52	33.99	25.90	40.00	14.10	Peak
84.32	14.14	0.78	33.20	19.95	40.00	20.05	Peak
115.36	18.18	0.91	29.53	20.59	43.50	22.91	Peak
140.58	17.58	1.02	33.38	24.08	43.50	19.42	Peak
164.83	16.10	1.12	37.10	26.53	43.50	16.97	Peak
184.23	15.47	1.19	34.80	23.74	43.50	19.76	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	13.65	0.61	42.35	28.33	40.00	11.67	Peak
93.05	15.73	0.82	34.08	22.48	43.50	21.02	Peak
114.39	18.12	0.91	30.13	21.12	43.50	22.38	Peak
146.40	17.20	1.05	37.66	28.04	43.50	15.46	Peak
166.77	15.99	1.12	38.65	27.98	43.50	15.52	Peak
576.11	24.49	2.32	30.24	28.21	46.00	17.79	Peak

Mode	SKU #2 Normal (BT)	Frequency	---
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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
32.91	23.50	0.47	32.86	28.52	40.00	11.48	Peak
91.11	15.34	0.81	31.91	19.91	43.50	23.59	Peak
141.55	17.51	1.03	36.22	26.87	43.50	16.63	Peak
166.77	15.99	1.12	36.52	25.85	43.50	17.65	Peak
184.23	15.47	1.19	35.46	24.40	43.50	19.10	Peak
362.71	21.40	1.75	30.15	25.36	46.00	20.64	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	13.65	0.61	42.23	28.21	40.00	11.79	Peak
88.20	14.82	0.80	34.06	21.52	43.50	21.98	Peak
118.27	18.38	0.92	30.93	22.21	43.50	21.29	Peak
140.58	17.58	1.02	36.93	27.63	43.50	15.87	Peak
164.83	16.10	1.12	40.28	29.71	43.50	13.79	Peak
856.44	26.86	2.94	30.25	31.61	46.00	14.39	Peak

Mode	SKU #1 Normal (Audio)	Frequency	---
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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
33.88	22.90	0.48	32.04	27.11	40.00	12.89	Peak
120.21	18.47	0.93	28.09	19.48	43.50	24.02	Peak
154.16	16.72	1.08	31.89	21.85	43.50	21.65	Peak
171.62	15.72	1.14	31.13	20.23	43.50	23.27	Peak
310.33	19.88	1.60	26.81	20.75	46.00	25.25	Peak
869.05	26.95	2.96	27.38	28.89	46.00	17.11	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
54.25	13.47	0.61	41.13	26.94	40.00	13.06	Peak
139.61	17.61	1.02	31.68	22.41	43.50	21.09	Peak
169.68	15.82	1.13	38.28	27.46	43.50	16.04	Peak
183.26	15.41	1.18	33.23	22.10	43.50	21.40	Peak
283.17	19.27	1.52	26.23	19.53	46.00	26.47	Peak
880.69	27.05	2.98	27.21	28.86	46.00	17.14	Peak

Mode	SKU #2 Normal (Audio)	Frequency	---
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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
39.70	19.69	0.52	34.13	26.04	40.00	13.96	Peak
117.30	18.32	0.92	27.36	18.58	43.50	24.92	Peak
157.07	16.56	1.09	32.58	22.41	43.50	21.09	Peak
171.62	15.72	1.14	33.59	22.69	43.50	20.81	Peak
403.45	22.38	1.87	27.84	23.89	46.00	22.11	Peak
744.89	25.96	2.70	27.96	27.94	46.00	18.06	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
49.40	14.64	0.59	38.95	25.89	40.00	14.11	Peak
82.38	13.77	0.77	34.04	20.41	40.00	19.59	Peak
146.40	17.20	1.05	35.60	25.98	43.50	17.52	Peak
160.95	16.33	1.10	37.67	27.29	43.50	16.21	Peak
312.27	19.95	1.60	29.76	23.75	46.00	22.25	Peak
850.62	26.81	2.93	30.56	31.85	46.00	14.15	Peak

Mode	SKU #1 BLE (1M)	Frequency	TX 2440MHz
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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
47.46	15.51	0.57	45.56	33.35	40.00	6.65	Peak
96.93	16.44	0.84	36.39	25.53	43.50	17.97	Peak
146.40	17.20	1.05	36.93	27.31	43.50	16.19	Peak
191.99	15.82	1.22	42.32	31.67	43.50	11.83	Peak
274.44	19.10	1.49	44.91	38.00	46.00	8.00	Peak
510.15	23.74	2.14	36.35	33.49	46.00	12.51	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
47.46	15.51	0.57	50.98	38.77	40.00	1.23	Peak
96.93	16.44	0.84	37.02	26.16	43.50	17.34	Peak
140.58	17.58	1.02	37.71	28.41	43.50	15.09	Peak
161.92	16.26	1.11	37.53	27.10	43.50	16.40	Peak
276.38	19.14	1.50	36.17	29.31	46.00	16.69	Peak
518.88	23.84	2.16	38.99	36.24	46.00	9.76	Peak

Mode	SKU #1 BLE	Frequency	RX 2440MHz
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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
47.46	15.51	0.57	45.67	33.46	40.00	6.54	Peak
96.93	16.44	0.84	36.85	25.99	43.50	17.51	Peak
146.40	17.20	1.05	37.98	28.36	43.50	15.14	Peak
274.44	19.10	1.49	44.91	38.00	46.00	8.00	Peak
359.80	21.30	1.74	38.73	33.86	46.00	12.14	Peak
708.03	25.66	2.61	34.91	34.43	46.00	11.57	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
47.46	15.51	0.57	49.89	37.68	40.00	2.32	Peak
96.93	16.44	0.84	36.19	25.33	43.50	18.17	Peak
140.58	17.58	1.02	38.26	28.96	43.50	14.54	Peak
276.38	19.14	1.50	36.04	29.18	46.00	16.82	Peak
605.21	24.78	2.39	36.56	34.87	46.00	11.13	Peak
721.61	25.76	2.64	34.61	34.28	46.00	11.72	Peak

2.2. 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	SKU #1 Normal (BT)	Frequency	---
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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
4882.000	34.36	10.24	30.69	40.86	54.00	13.14	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
4882.000	34.36	10.24	30.00	40.17	54.00	13.83	Peak

Mode	SKU #1 Normal (Audio)	Frequency	---
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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
4882.000	34.36	10.24	30.92	41.09	54.00	12.91	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
4882.000	34.36	10.24	30.31	40.48	54.00	13.52	Peak

Mode	SKU #1 BLE (1M)	Frequency	TX 2402MHz
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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
4804.00	33.92	10.22	32.37	42.06	54.00	11.94	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
4804.00	33.92	10.22	31.50	41.19	54.00	12.81	Peak

Mode	SKU #1 BLE (1M)	Frequency	TX 2440MHz
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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	34.34	10.24	30.15	40.30	54.00	13.70	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	34.34	10.24	29.72	39.87	54.00	14.13	Peak

Mode	SKU #1 BLE (1M)	Frequency	TX 2480MHz
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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	34.32	10.27	30.23	40.40	54.00	13.60	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	34.32	10.27	30.25	40.42	54.00	13.58	Peak

Mode	SKU #1 BLE	Frequency	RX2440MHz
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Antenna at Horizontal Polarization

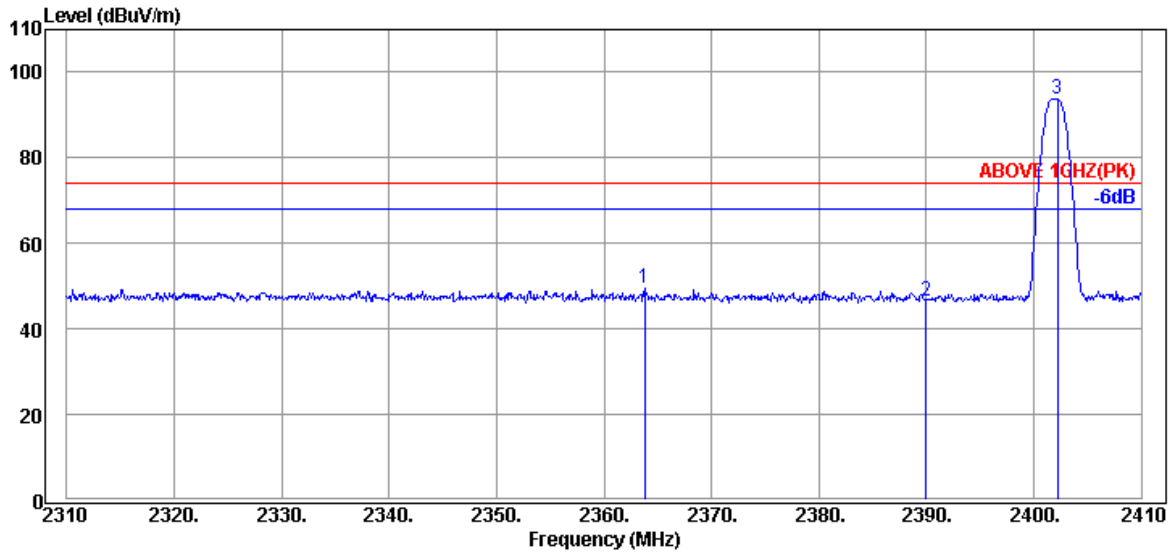
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4880.00	34.36	10.24	30.02	40.20	54.00	13.80	Peak

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	34.34	10.24	30.12	40.27	54.00	13.73	Peak

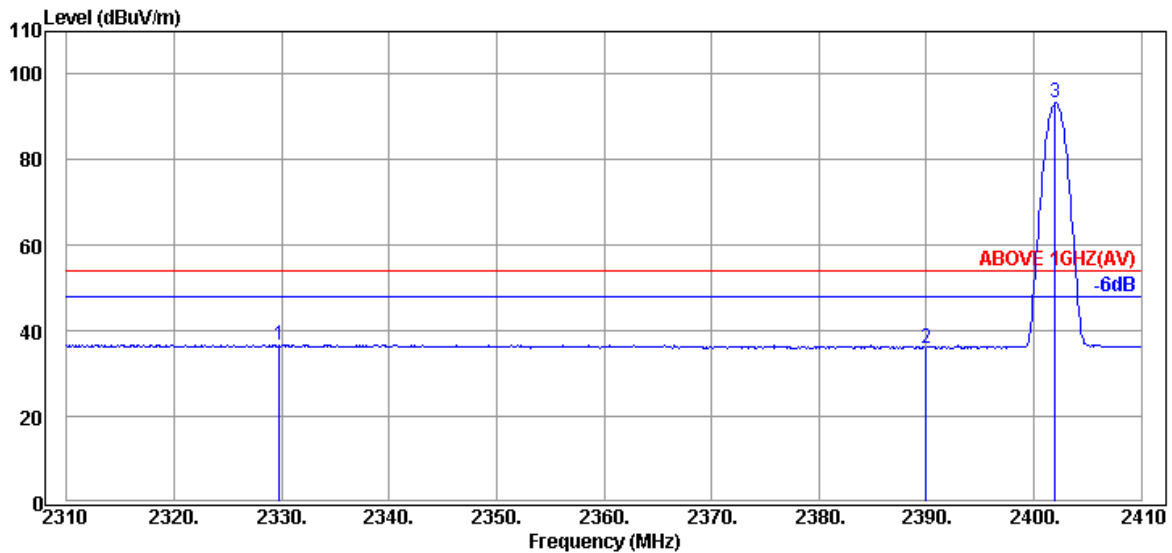
2.3. 禁用頻帶量測結果 (其他不必要發射)

Mode	SKU #1 BLE (1M)	Frequency	TX 2402MHz
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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
2363.80	32.00	8.49	43.65	49.59	74.00	24.41	Peak
2390.00	32.00	8.52	40.41	46.38	74.00	27.62	Peak
@ 2402.20	32.03	8.52	87.75	93.75	---	---	Peak

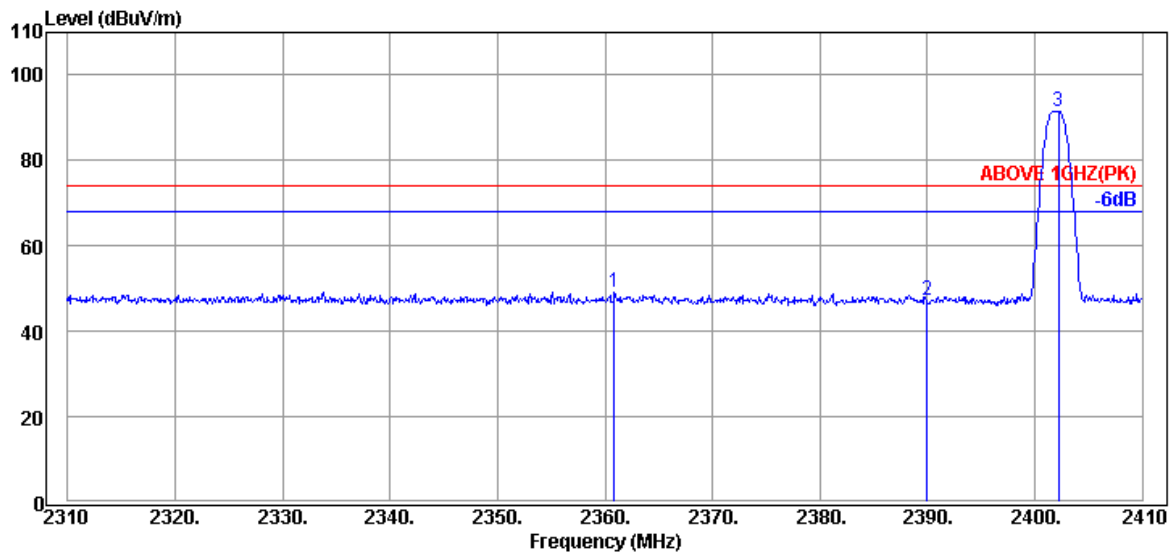


Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2329.80	32.00	8.47	30.88	36.81	54.00	17.19	Average
2390.00	32.00	8.52	30.08	36.05	54.00	17.95	Average
@ 2402.00	32.03	8.52	87.25	93.25	---	---	Average

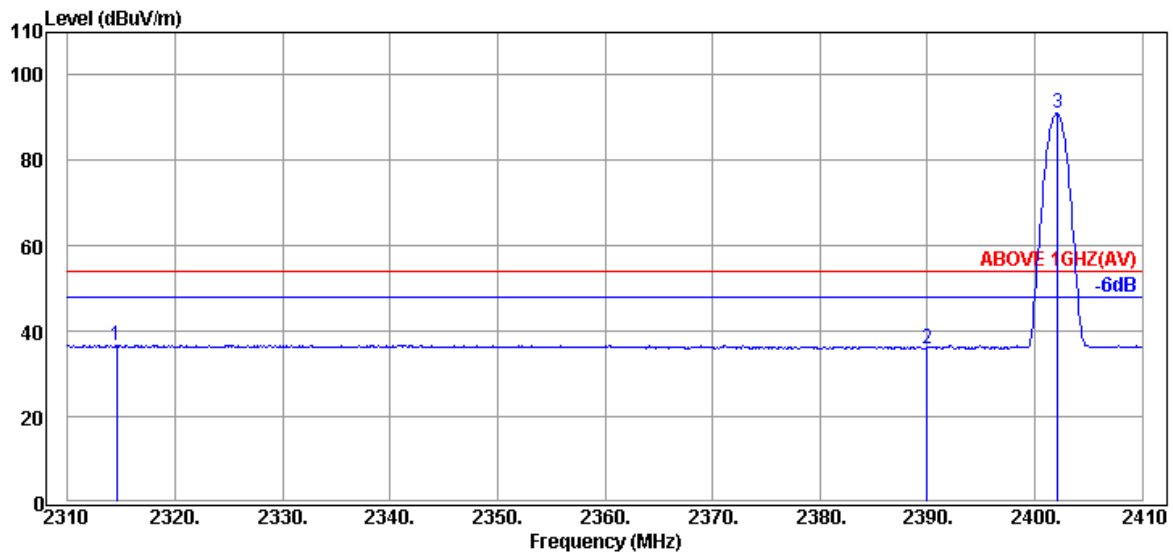
備註：“@”為主波，在此章節是不予以判定。

Mode	SKU #1 BLE (1M)	Frequency	TX 2402MHz
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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
2360.90	32.00	8.49	43.21	49.16	74.00	24.84	Peak
2390.00	32.00	8.52	41.39	47.36	74.00	26.64	Peak
@ 2402.20	32.03	8.52	85.53	91.53	---	---	Peak

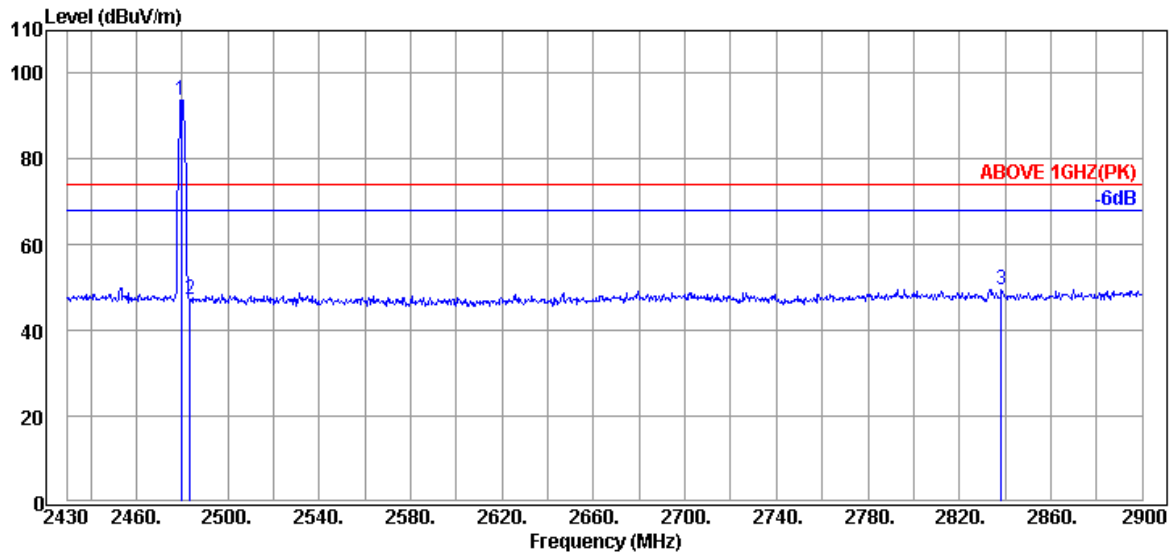


Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2314.60	32.00	8.46	30.80	36.72	54.00	17.28	Average
2390.00	32.00	8.52	30.06	36.03	54.00	17.97	Average
@ 2402.10	32.03	8.52	84.97	90.97	---	---	Average

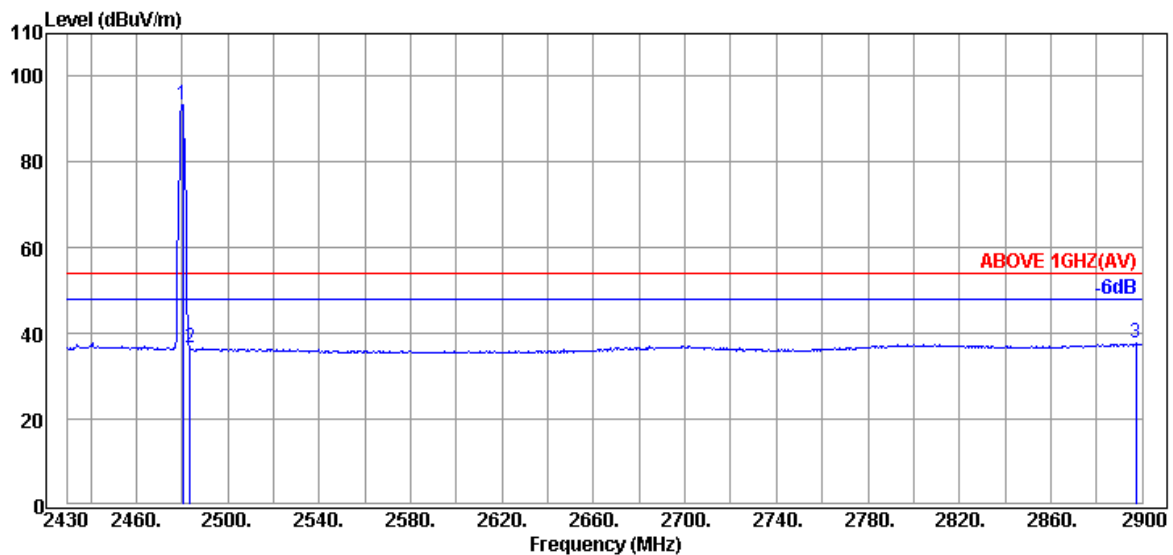
備註：“@”為主波，在此章節是不予以判定。

Mode	SKU #1 BLE (1M)	Frequency	TX 2480MHz
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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
@	2479.82	32.58	8.58	87.31	93.90	---	---	Peak
	2483.58	32.57	8.58	40.52	47.10	74.00	26.90	Peak
	2838.43	32.75	8.67	42.68	49.46	74.00	24.54	Peak

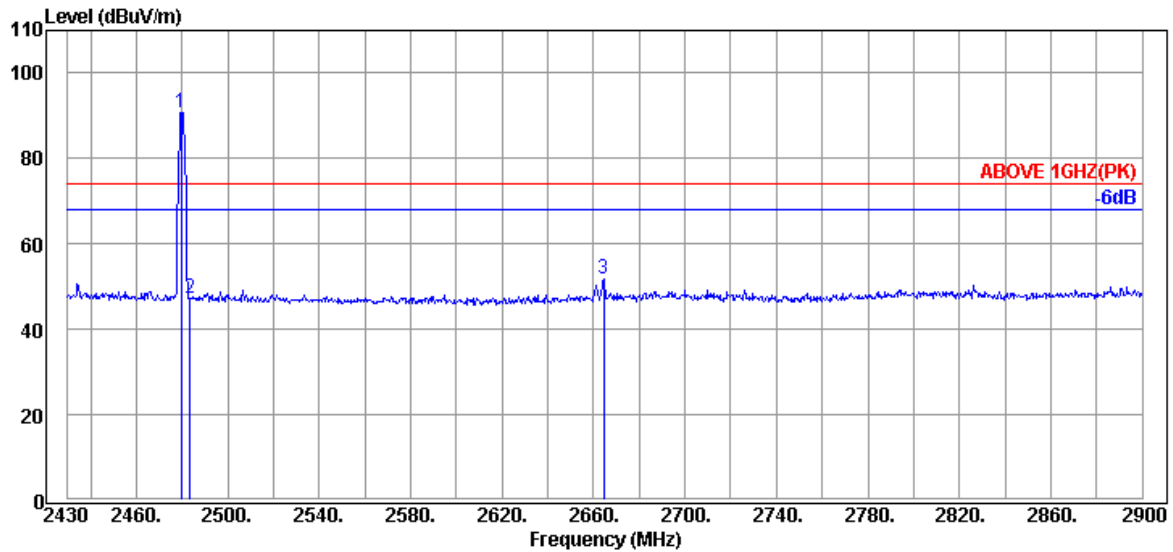


Antenna at Horizontal Polarization

	Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@	2480.29	32.58	8.58	86.66	93.25	---	---	Average
	2483.58	32.57	8.58	29.97	36.55	54.00	17.45	Average
	2897.18	32.98	8.69	30.67	37.69	54.00	16.31	Average

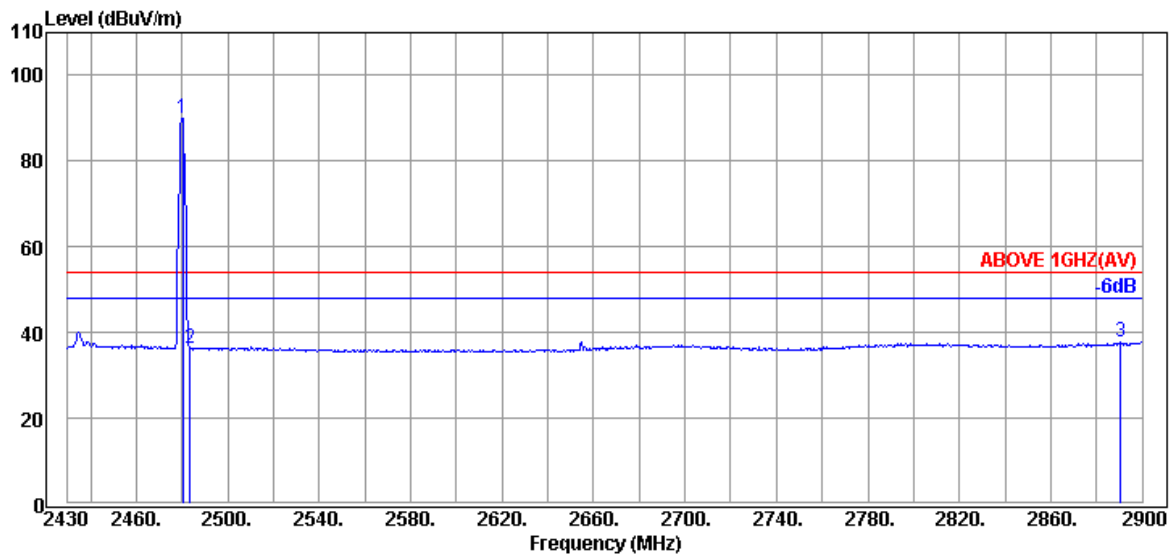
備註：“@”為主波，在此章節是不予以判定。

Mode	SKU #1 BLE (1M)	Frequency	TX 2480MHz
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Antenna at Vertical Polarization

	Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Detector
@	2479.82	32.58	8.58	84.15	90.74	---	---	Peak
	2483.58	32.57	8.58	40.60	47.18	74.00	26.82	Peak
	2664.53	32.23	8.63	45.42	51.68	74.00	22.32	Peak

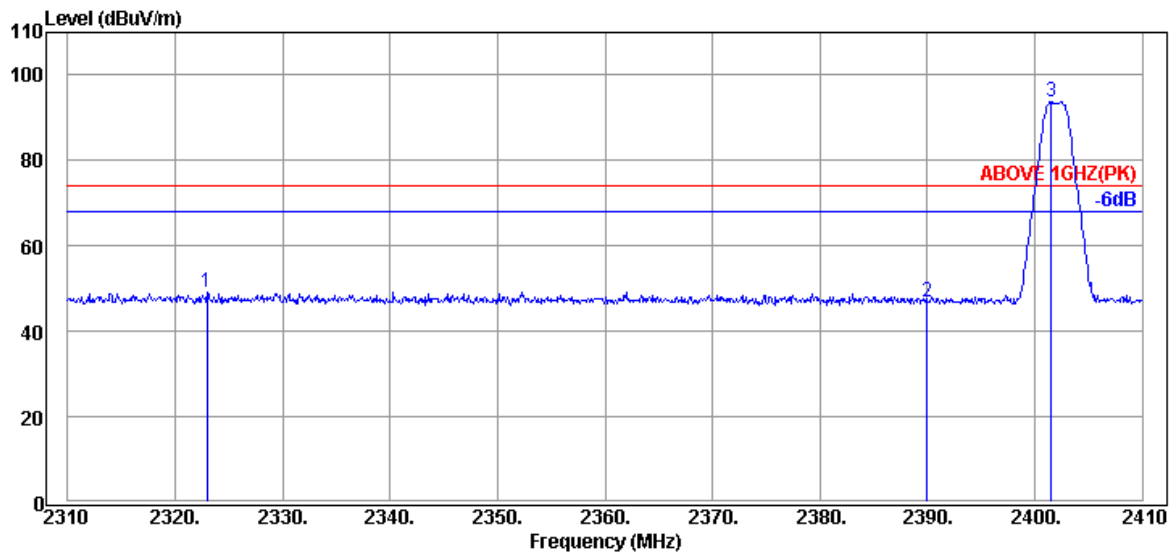


Antenna at Vertical Polarization

	Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Detector
@	2480.29	32.58	8.58	83.55	90.14	---	---	Average
	2483.58	32.57	8.58	29.68	36.26	54.00	17.74	Average
	2890.60	32.94	8.68	30.75	37.72	54.00	16.28	Average

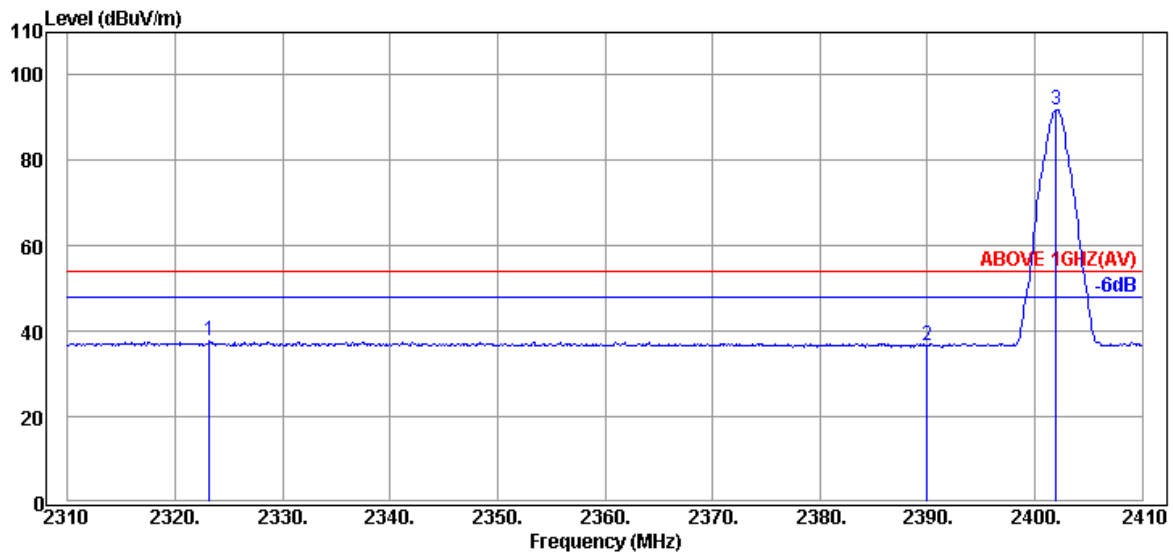
備註：“@”為主波，在此章節是不予以判定。

Mode	SKU #1 BLE (2M)	Frequency	TX 2402MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Detector
2323.00	32.00	8.47	43.27	49.20	74.00	24.80	Peak
2390.00	32.00	8.52	40.91	46.88	74.00	27.12	Peak
@ 2401.50	32.02	8.52	87.65	93.64	---	---	Peak

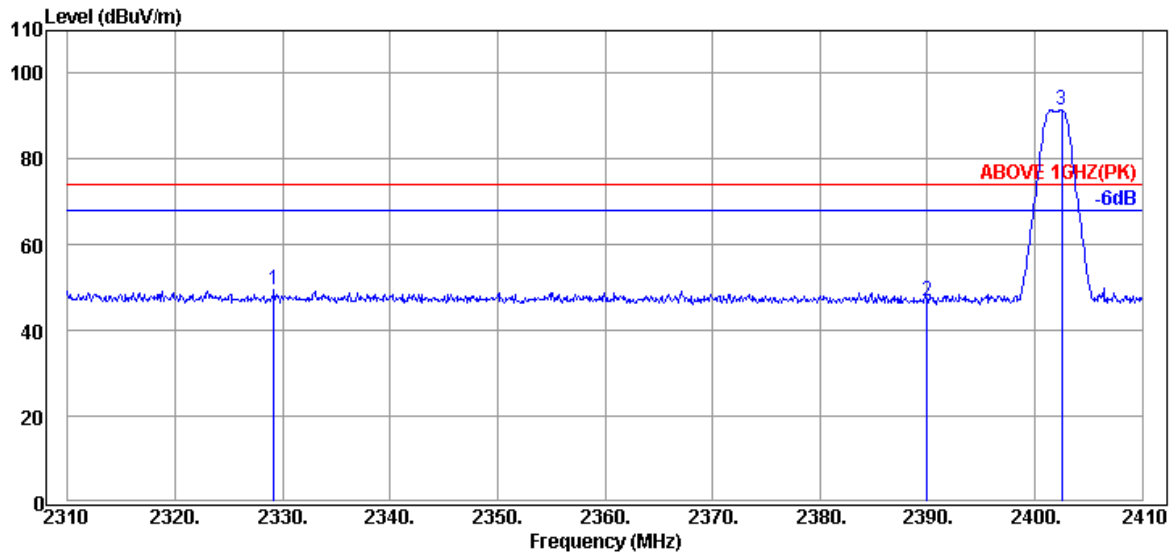


Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Detector
2323.20	32.00	8.47	31.72	37.65	54.00	16.35	Average
2390.00	32.00	8.52	30.78	36.75	54.00	17.25	Average
@ 2402.00	32.03	8.52	85.95	91.95	---	---	Average

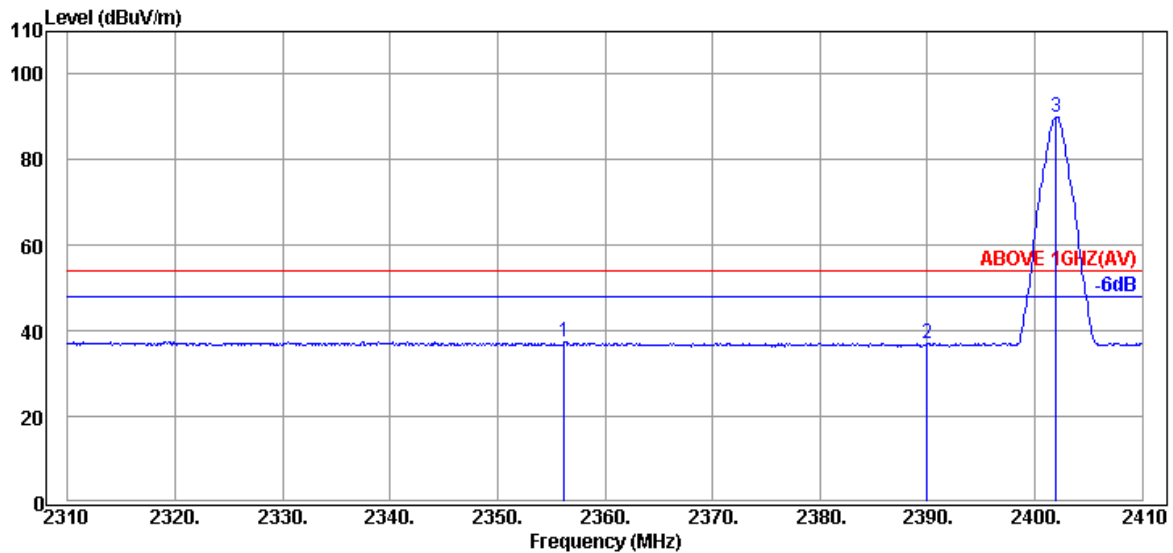
備註：“@”為主波，在此章節是不予以判定。

Mode	SKU #1 BLE (2M)	Frequency	TX 2402MHz
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Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Detector
2329.20	32.00	8.47	43.66	49.59	74.00	24.41	Peak
2390.00	32.00	8.52	40.92	46.89	74.00	27.11	Peak
@ 2402.50	32.03	8.52	85.48	91.48	---	---	Peak

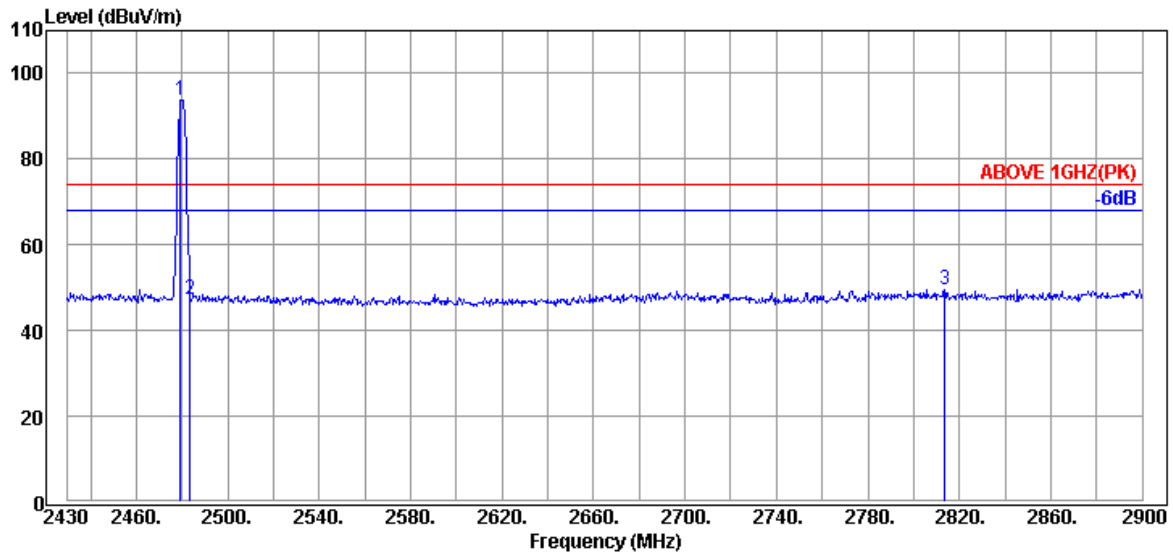


Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Detector
2356.20	32.00	8.49	31.54	37.49	54.00	16.51	Average
2390.00	32.00	8.52	31.25	37.22	54.00	16.78	Average
@ 2402.00	32.03	8.52	84.00	90.00	---	---	Average

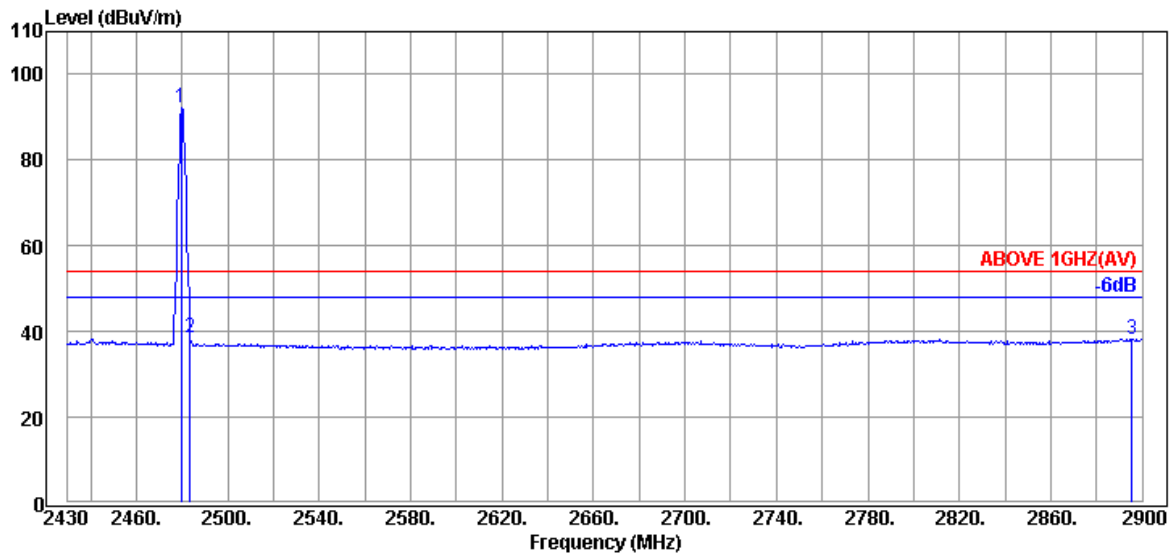
備註：“@”為主波，在此章節是不予以判定。

Mode	SKU #1 BLE (2M)	Frequency	TX 2480MHz
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Antenna at Horizontal Polarization

	Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Detector
@	2479.35	32.58	8.58	87.23	93.82	---	---	Peak
	2483.58	32.57	8.58	40.57	47.15	74.00	26.85	Peak
	2813.52	32.85	8.67	42.74	49.63	74.00	24.37	Peak

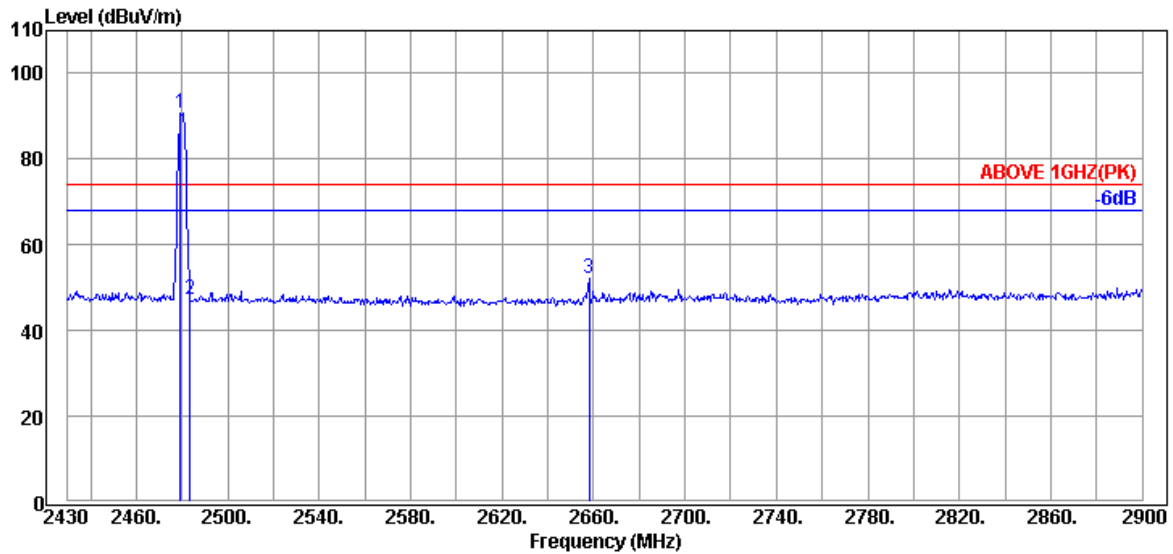


Antenna at Horizontal Polarization

	Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Detector
@	2479.82	32.58	8.58	85.47	92.06	---	---	Average
	2483.58	32.57	8.58	31.96	38.54	54.00	15.46	Average
	2895.30	32.97	8.68	31.24	38.24	54.00	15.76	Average

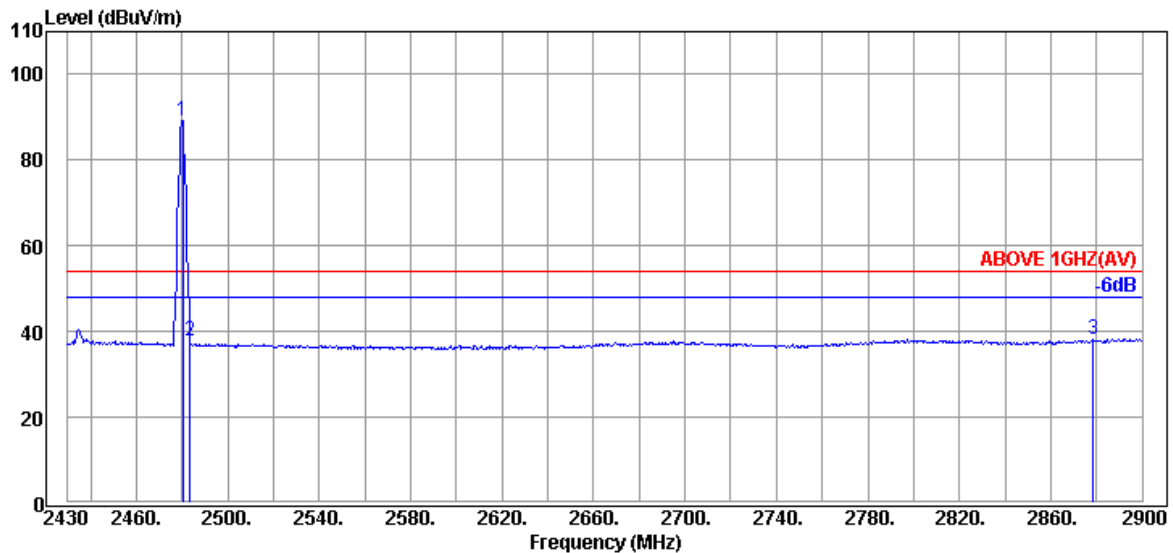
備註：“@”為主波，在此章節是不予以判定。

Mode	SKU #1 BLE (2M)	Frequency	TX 2480MHz
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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
@	2479.35	32.58	8.58	84.12	90.71	---	---	Peak
	2483.58	32.57	8.58	40.75	47.33	74.00	26.67	Peak
	2657.95	32.13	8.63	46.17	52.33	74.00	21.67	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
@	2480.29	32.58	8.58	82.56	89.15	---	---	Average
	2483.58	32.57	8.58	31.13	37.71	54.00	16.29	Average
	2878.38	32.87	8.68	31.45	38.35	54.00	15.65	Average

備註：“@”為主波，在此章節是不予以判定。

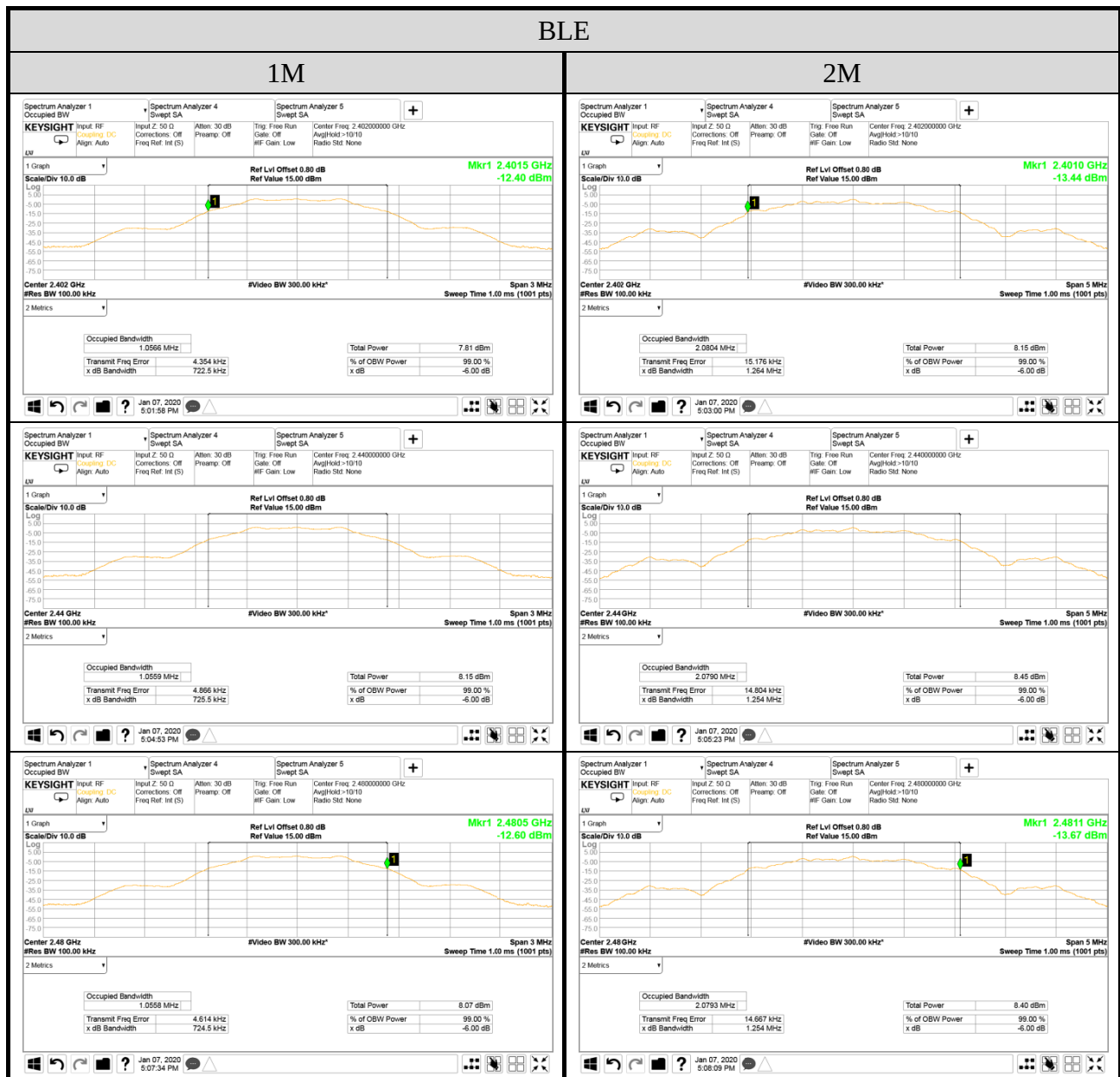
3. 發射頻寬之量測

測試日期	2020/01/07	環境溫/濕度	22°C/60%
電纜損失	0.80dB	測試人員	Brian Hsieh
測試電壓	DC 3.7V (經電池供電)	Test SKU	SKU #1

3.1. 發射頻寬

模式	測試頻率 (MHz)	6dB 頻寬 (MHz)	限制值 (kHz)
BLE (1M)	2402	0.7225	>500
	2440	0.7255	
	2480	0.7245	
BLE (2M)	2402	1.264	>500
	2440	1.254	
	2480	1.254	

3.2. 發射頻寬之量測圖



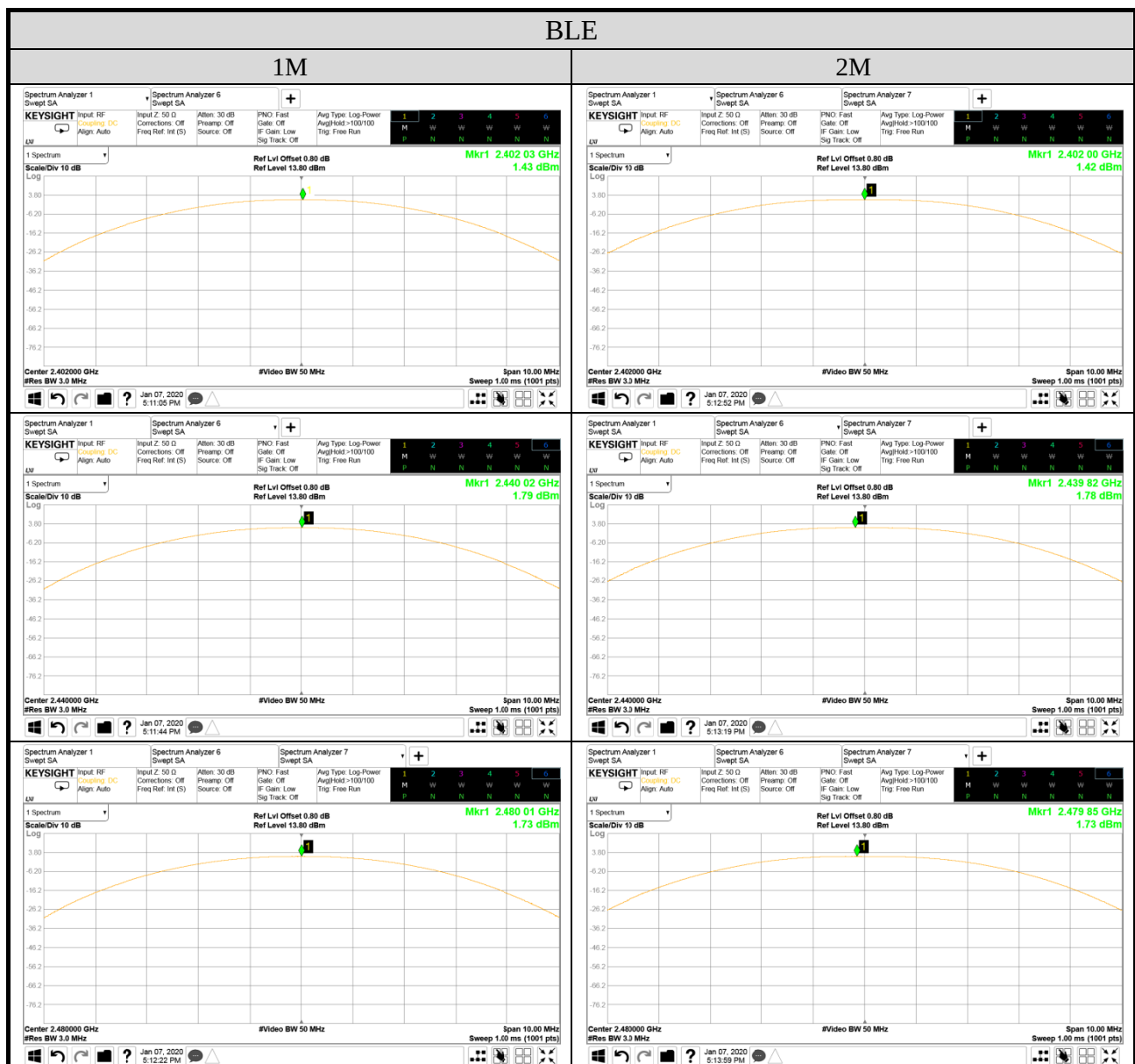
4. 峰值輸出功率之量測

測試日期	2020/01/07	環境溫/濕度	22°C/60%
電纜損失	0.80dB	測試人員	Brian Hsieh
測試電壓	DC 3.7V (經電池供電)	Test SKU	SKU #1

4.1. 峰值輸出功率

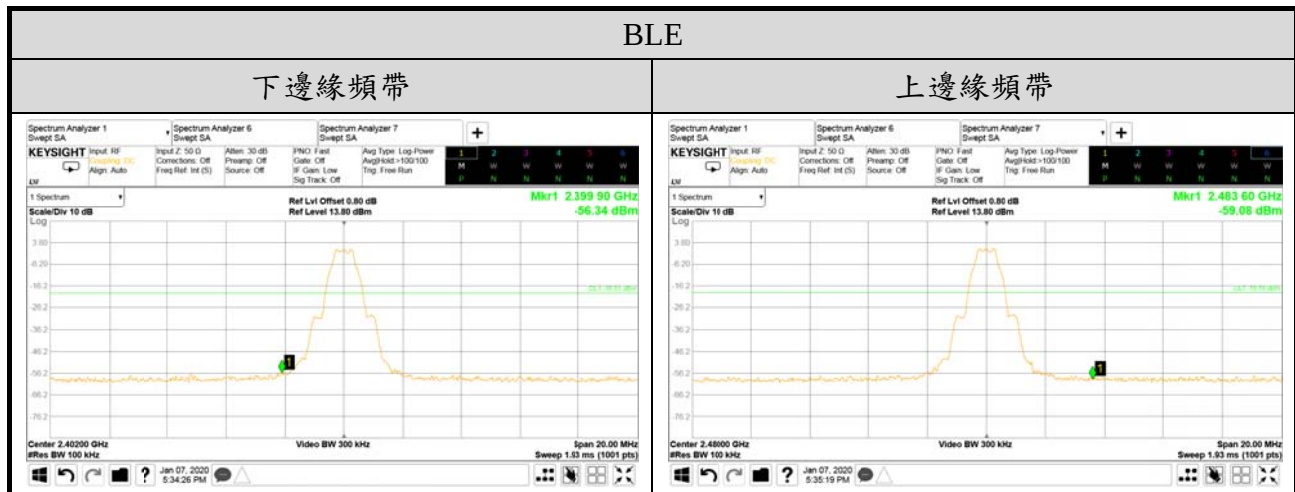
模式 (Mode)	測試頻率 (MHz)	最大輸出功率(dBm)	限制值 (dBm)
BLE (1M)	2402	1.43	30
	2440	1.79	
	2480	1.73	
BLE (2M)	2402	1.42	30
	2440	1.78	
	2480	1.73	

4.2. 峰值輸出功率之量測圖



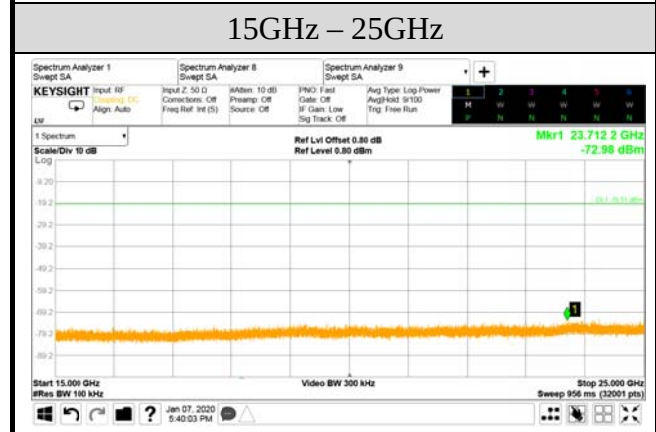
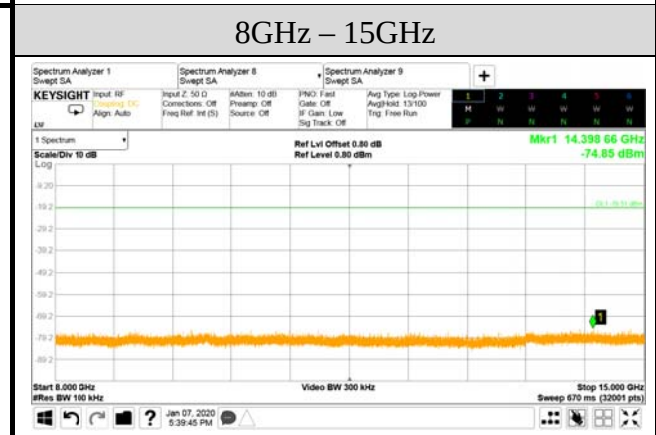
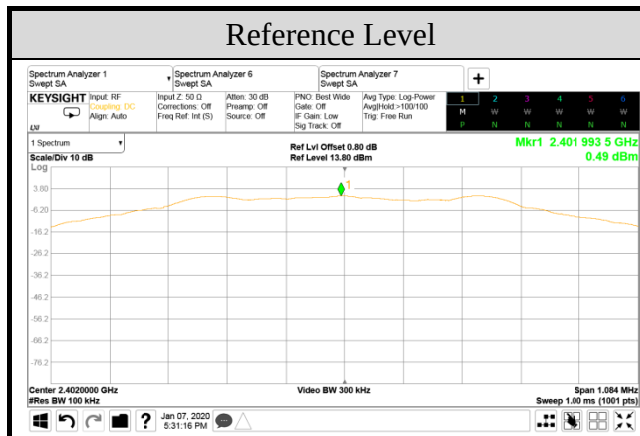
5. 頻帶邊緣之 RF 傳導發射之量測

測試日期	2020/01/07	環境溫/濕度	22°C/60%
電纜損失	0.80dB	測試人員	Brian Hsieh
測試電壓	DC 3.7V (經電池供電)	Test SKU	SKU #1

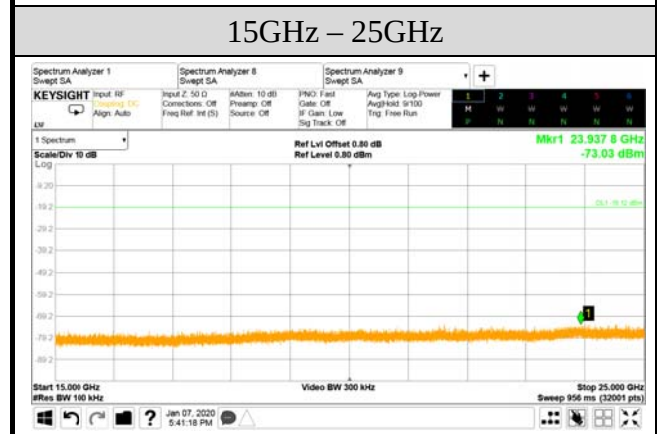
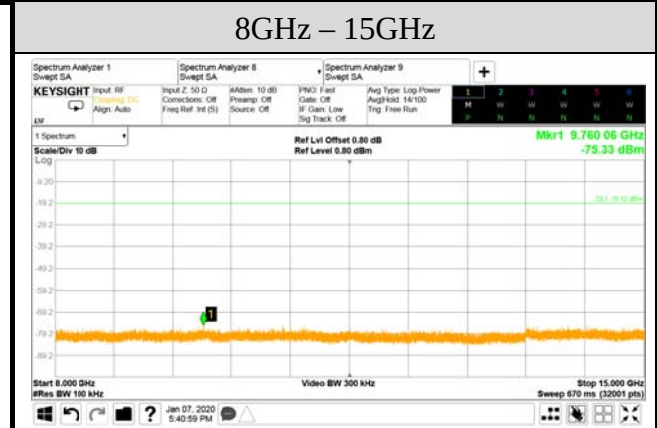
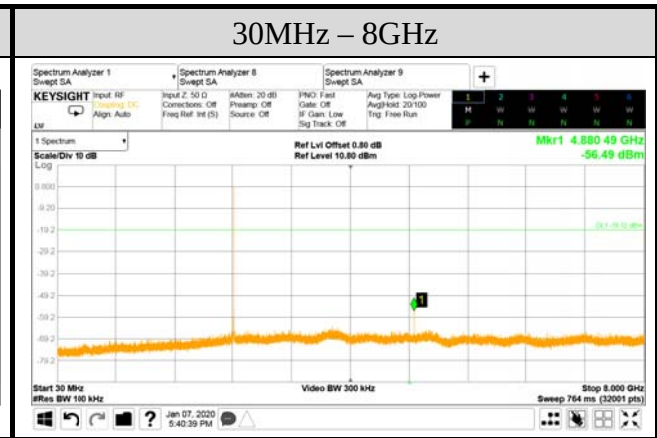
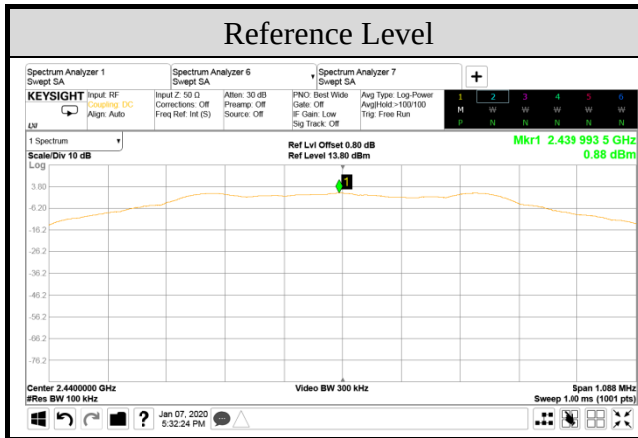


6. 混附發射之 RF 傳導發射之量測

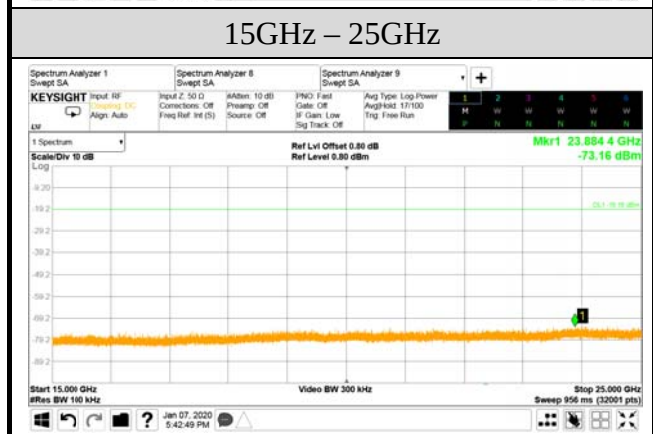
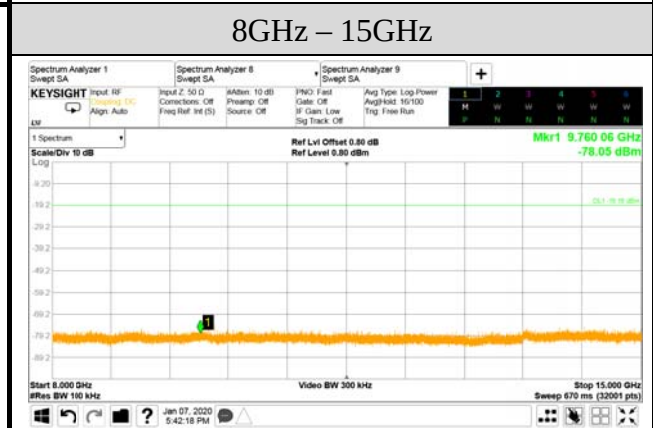
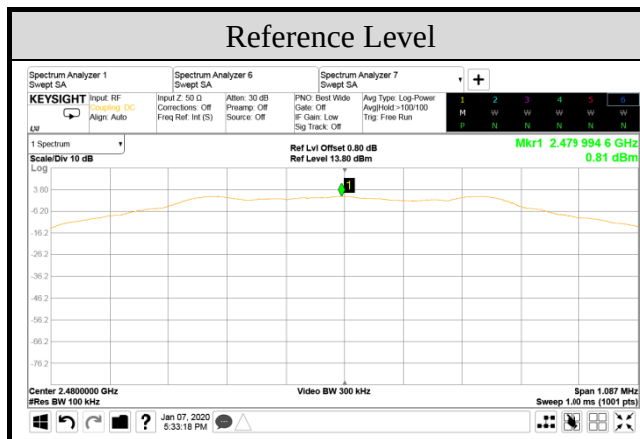
測試日期	2020/01/07	環境溫/濕度	22°C/60%
電纜損失	0.80dB	測試人員	Brian Hsieh
測試電壓	DC 3.7V (經電池供電)	模式	BLE (1M)
Test SKU	SKU #1	測試頻率	2402MHz



測試日期	2020/01/07	環境溫/濕度	22°C/60%
電纜損失	0.80dB	測試人員	Brian Hsieh
測試電壓	DC 3.7V (經電池供電)	模式	BLE (1M)
Test SKU	SKU #1	測試頻率	2440MHz



測試日期	2020/01/07	環境溫/濕度	22°C/60%
電纜損失	0.80dB	測試人員	Brian Hsieh
測試電壓	DC 3.7V (經電池供電)	模式	BLE (1M)
Test SKU	SKU #1	測試頻率	2480MHz



7. 功率密度之量測

測試日期	2020/01/07	環境溫/濕度	22°C/60%
電纜損失	0.80dB	測試人員	Brian Hsieh
測試電壓	DC 3.7V (經電池供電)	Test SKU	SKU #1

7.1. 功率密度

模式	測試頻率 (MHz)	功率密度(dBm)	限制值 (dBm)
BLE (1M)	2402	0.49	<8 dBm/3kHz
	2440	0.88	
	2480	0.81	

測試結果係依照 FCC 公告之 KDB558074 D01V04，且解析頻寬以 100kHz 量測其測試結果較 3kHz 嚴格

7.2. 功率密度之量測圖

