

Appendix B: Test Results of Bluetooth Low Energy

APPENDIX B: TEST RESULTS OF BLUETOOTH LOW ENERGY	1
APPENDIX B.1: TEST RESULTS OF 6DB BANDWIDTH.....	2
Test Result.....	2
Test Graphs.....	3
APPENDIX B.2: TEST RESULTS OF 99% BANDWIDTH.....	6
Test Result.....	6
Test Graphs.....	7
APPENDIX B.3: TEST RESULTS OF CONDUCTED POWER SPECTRAL DENSITY	10
Test Result.....	10
Test Graphs.....	11
APPENDIX B.4: TEST RESULTS OF BAND EDGE MEASUREMENTS.....	14
Test Result.....	14
Test Graphs.....	15
APPENDIX B.5: TEST RESULTS OF CONDUCTED SPURIOUS EMISSION.....	17
Test Result.....	17
Test Graphs.....	18
APPENDIX B.6: TEST RESULTS OF RADIATED SPURIOUS EMISSIONS	25
30 MHz - 1GHz (EUT1#)	25
1GHz - 18GHz (EUT1#)	27
1GHz - 18GHz (EUT2#)	31
APPENDIX B.7: TEST RESULTS OF RADIATED EMISSIONS IN RESTRICTED BANDS	35
EUT1#.....	35
EUT2#.....	43

Appendix B.1: Test Results of 6dB Bandwidth

Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.712	2401.628	2402.340	0.5	PASS
		2440	0.676	2439.652	2440.328	0.5	PASS
		2480	0.680	2479.648	2480.328	0.5	PASS
BLE_2M	Ant1	2402	1.168	2401.400	2402.568	0.5	PASS
		2440	1.164	2439.396	2440.560	0.5	PASS
		2480	1.164	2479.400	2480.564	0.5	PASS

Test Graphs





BLE 2M Ant1 2402



BLE 2M Ant1 2440



BLE 2M Ant1 2480



Appendix B.2: Test Results of 99% Bandwidth

Test Result

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0332	2401.4773	2402.5105	---	PASS
		2440	1.0335	2439.4793	2440.5128	---	PASS
		2480	1.0416	2479.4723	2480.5139	---	PASS
BLE_2M	Ant1	2402	2.0721	2400.9661	2403.0382	---	PASS
		2440	2.0660	2438.9767	2441.0427	---	PASS
		2480	2.0686	2478.9717	2481.0403	---	PASS

Test Graphs





BLE 2M Ant1 2402



BLE 2M Ant1 2440



BLE 2M Ant1 2480

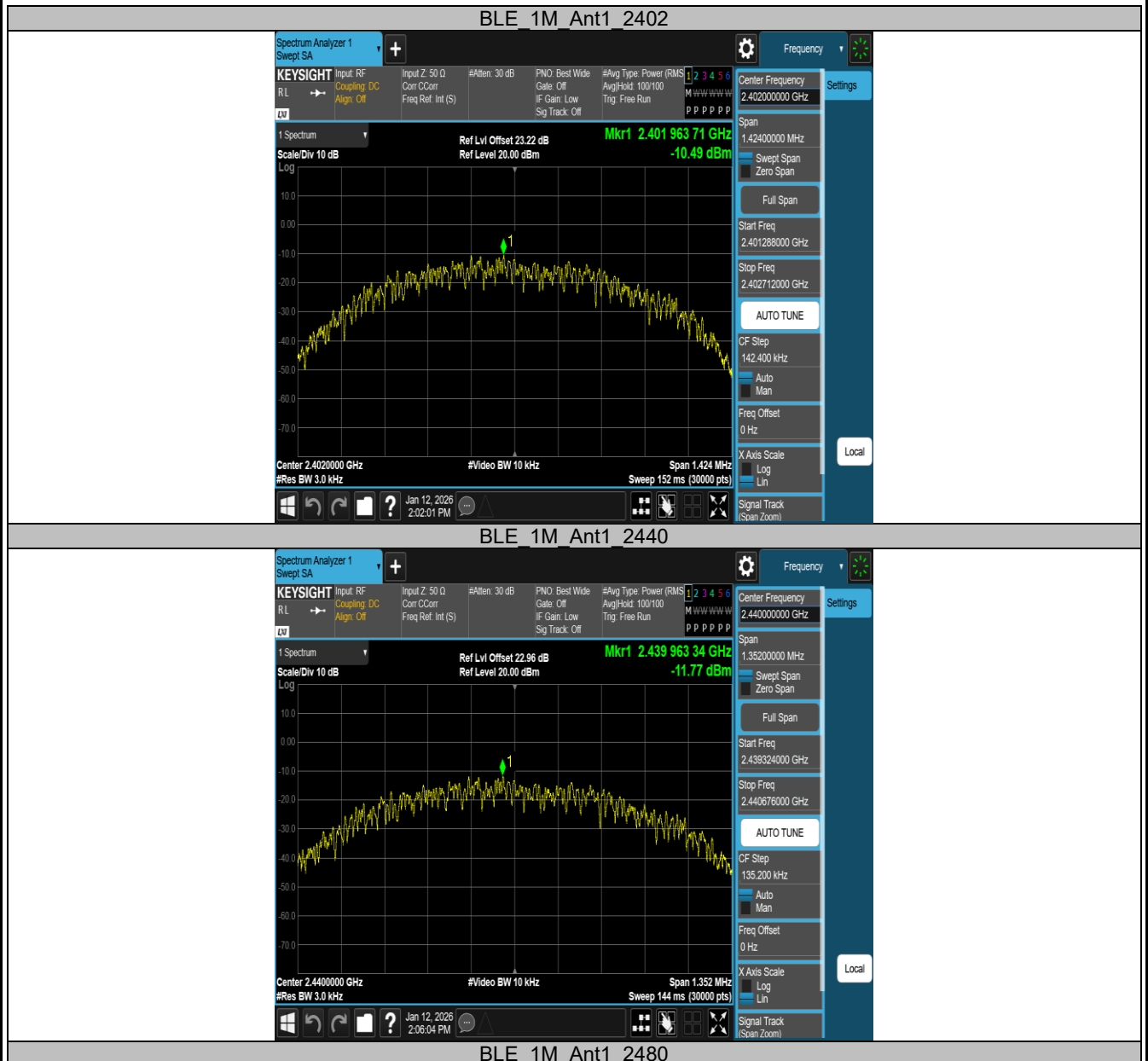


Appendix B.3: Test Results of Conducted Power Spectral Density

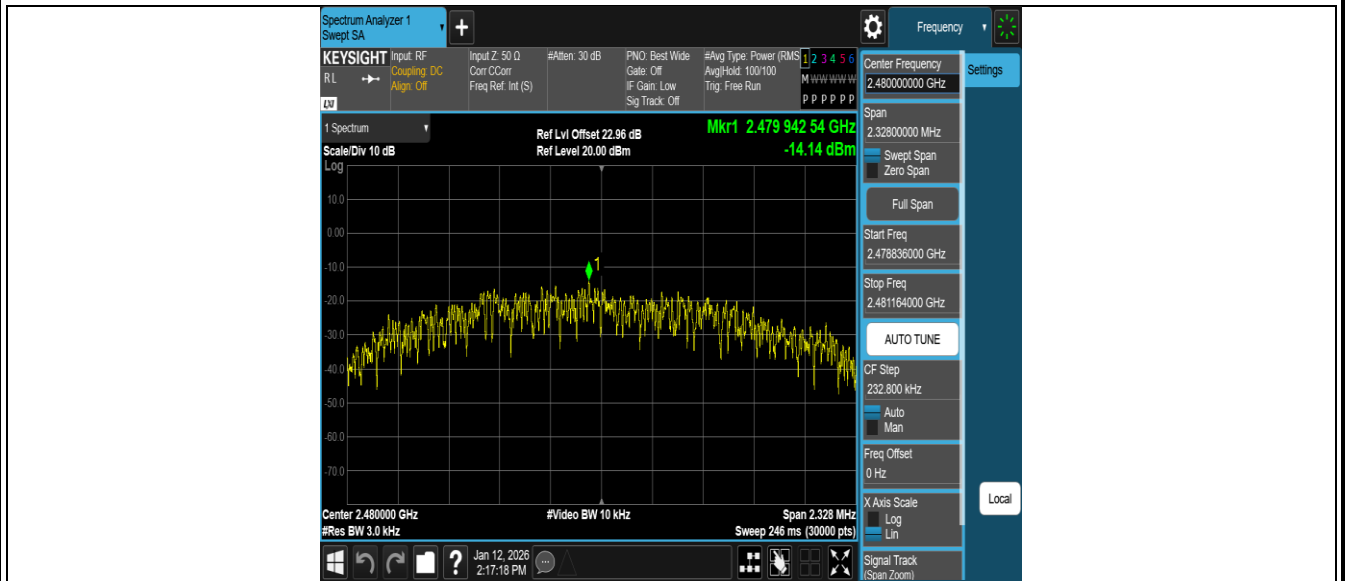
Test Result

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-10.49	≤8.00	PASS
		2440	-11.77	≤8.00	PASS
		2480	-11.35	≤8.00	PASS
BLE_2M	Ant1	2402	-13.49	≤8.00	PASS
		2440	-14.58	≤8.00	PASS
		2480	-14.14	≤8.00	PASS

Test Graphs







Appendix B.4: Test Results of Band Edge Measurements

Test Result

TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	3.93	-38.01	≤-16.07	PASS
		High	2480	3.19	-37.72	≤-16.81	PASS
BLE_2M	Ant1	Low	2402	4.15	-28.32	≤-15.85	PASS
		High	2480	3.42	-37.91	≤-16.58	PASS

Test Graphs





BLE 2M Ant1 High 2480

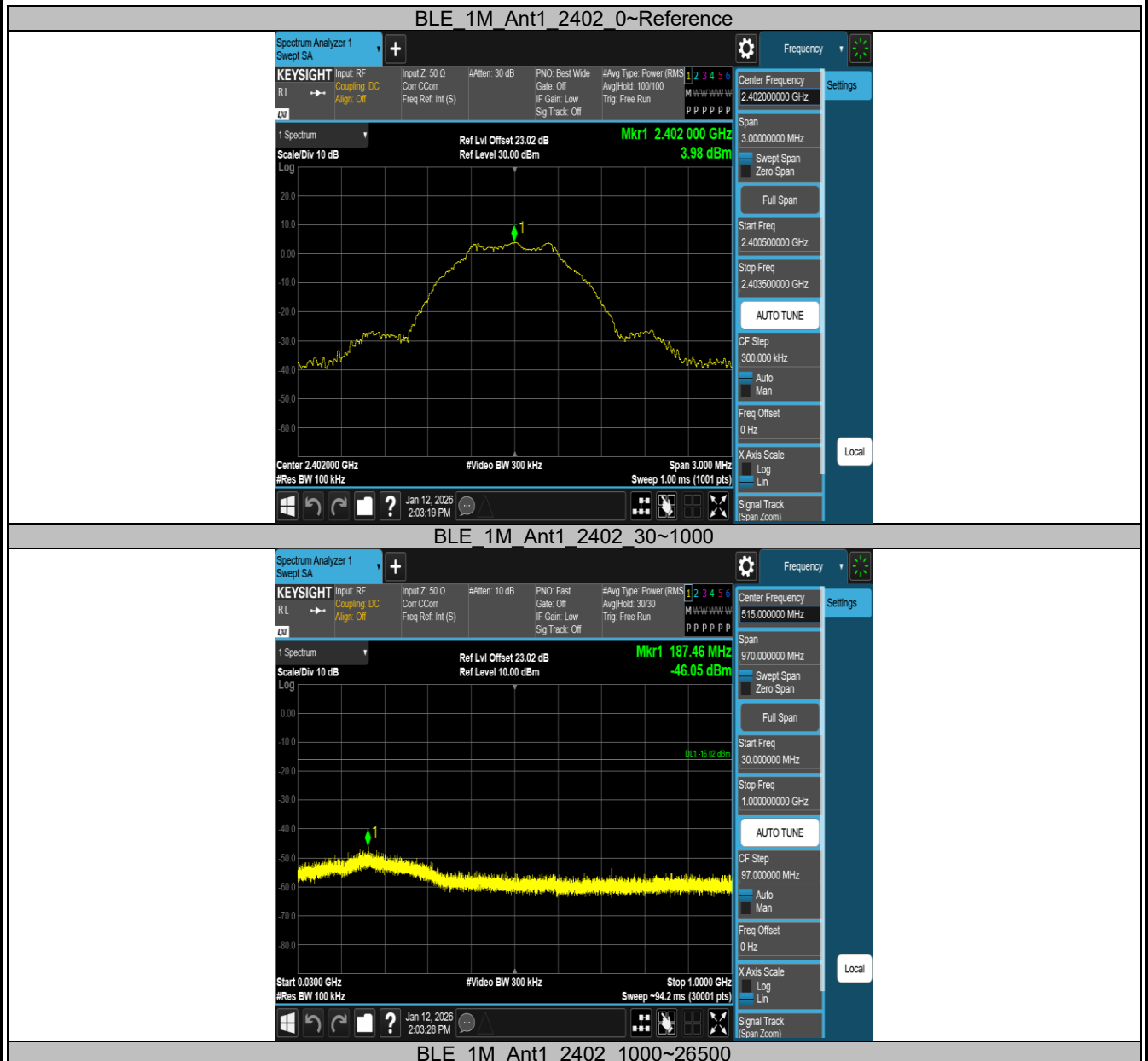


Appendix B.5: Test Results of Conducted Spurious Emission

Test Result

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	3.98	3.98	---	PASS
			30~1000	3.98	-46.05	≤-16.02	PASS
			1000~26500	3.98	-49.72	≤-16.02	PASS
		2440	Reference	2.89	2.89	---	PASS
			30~1000	2.89	-47.16	≤-17.11	PASS
			1000~26500	2.89	-49.85	≤-17.11	PASS
		2480	Reference	3.34	3.34	---	PASS
			30~1000	3.34	-46.27	≤-16.66	PASS
			1000~26500	3.34	-49.89	≤-16.66	PASS
BLE_2M	Ant1	2402	Reference	3.84	3.84	---	PASS
			30~1000	3.84	-47.04	≤-16.16	PASS
			1000~26500	3.84	-49.58	≤-16.16	PASS
		2440	Reference	3.00	3.00	---	PASS
			30~1000	3.00	-47.52	≤-17	PASS
			1000~26500	3.00	-49.32	≤-17	PASS
		2480	Reference	2.68	2.68	---	PASS
			30~1000	2.68	-47.03	≤-17.32	PASS
			1000~26500	2.68	-49.88	≤-17.32	PASS

Test Graphs





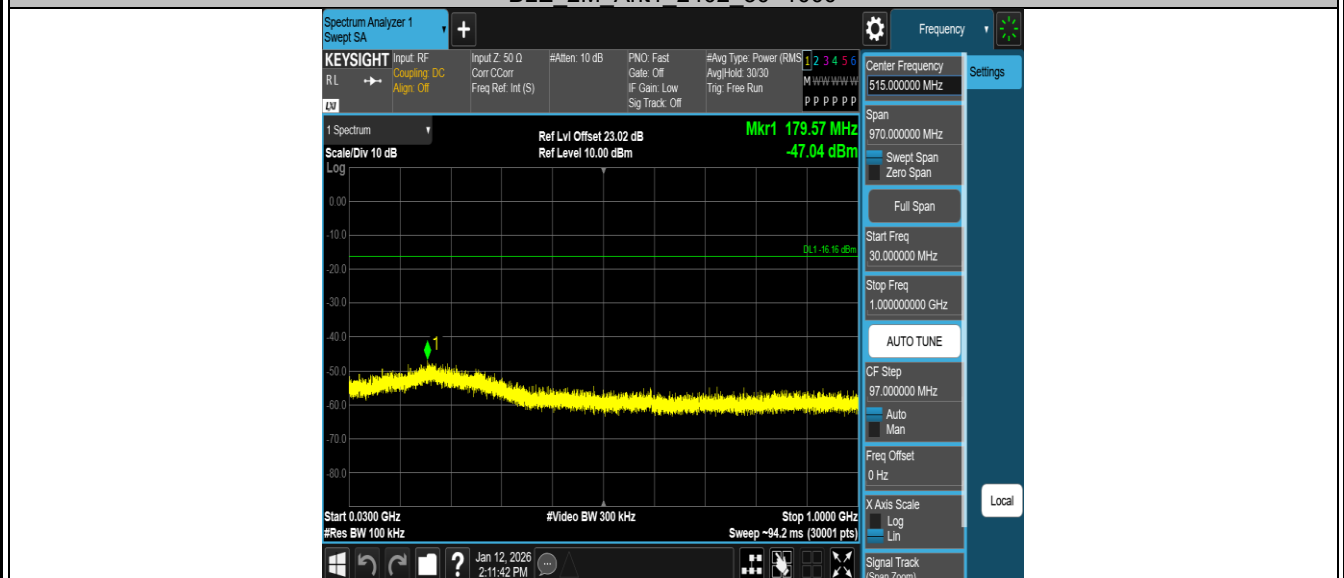




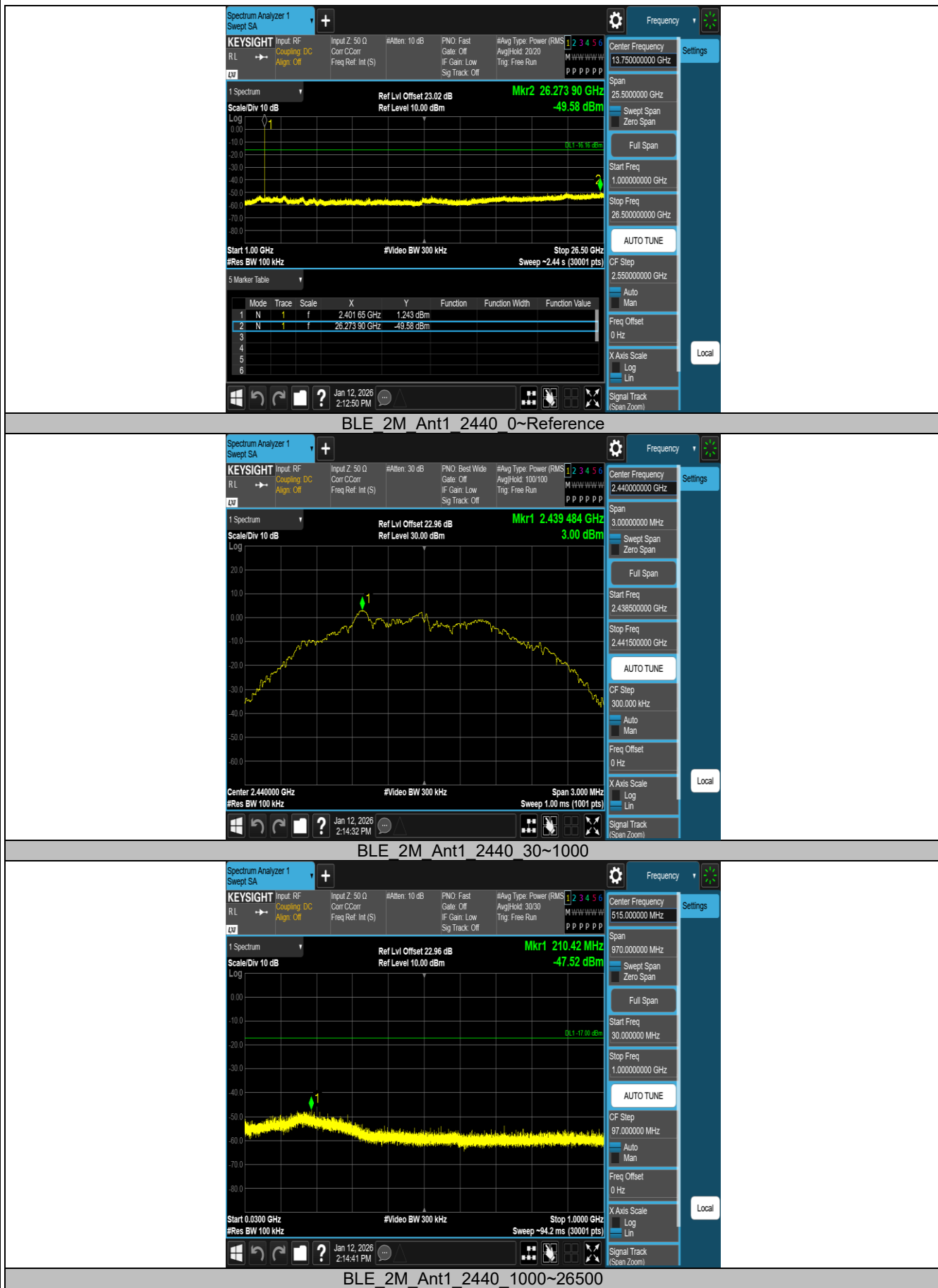
BLE 2M Ant1 2402 0~Reference

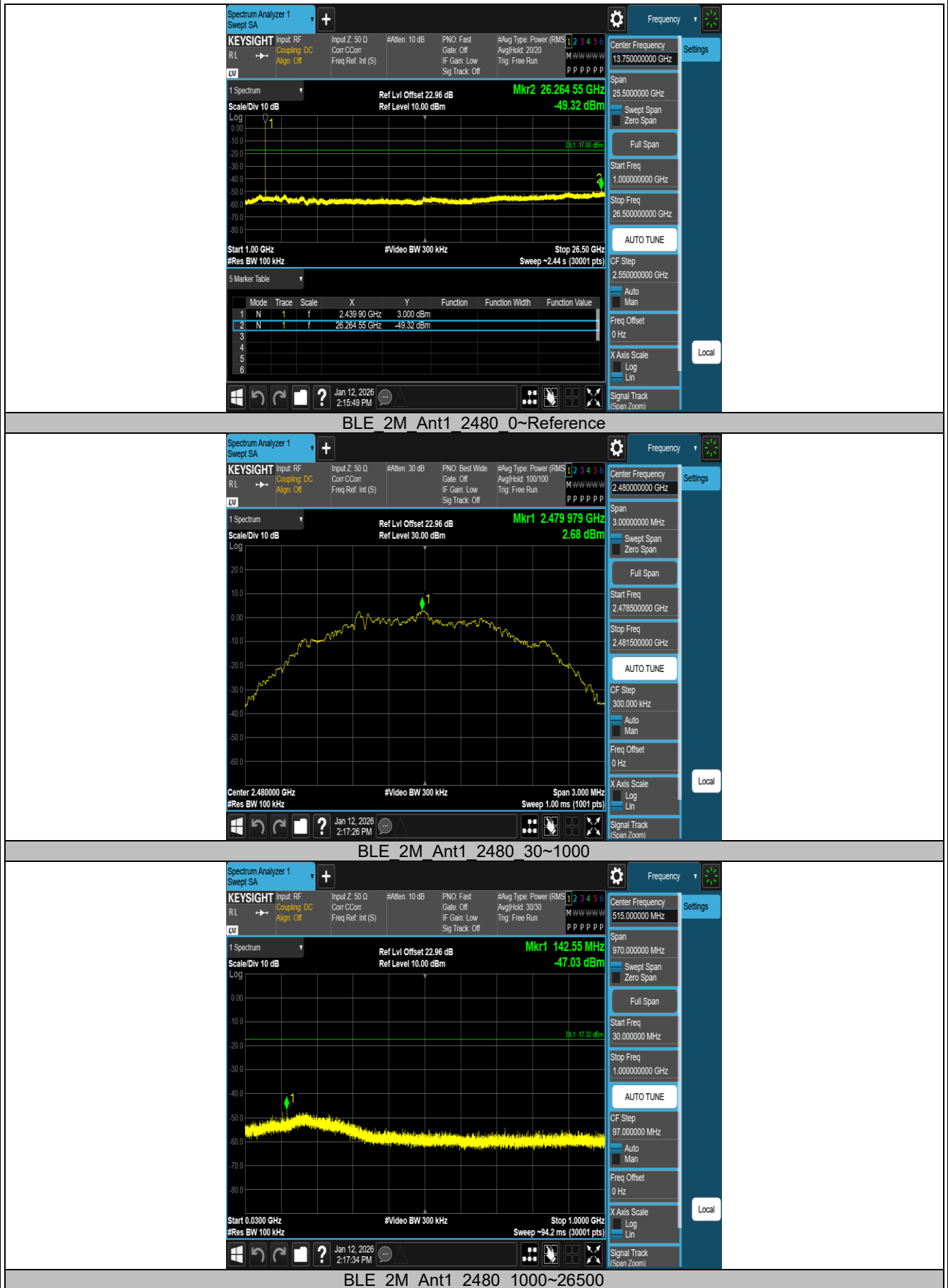


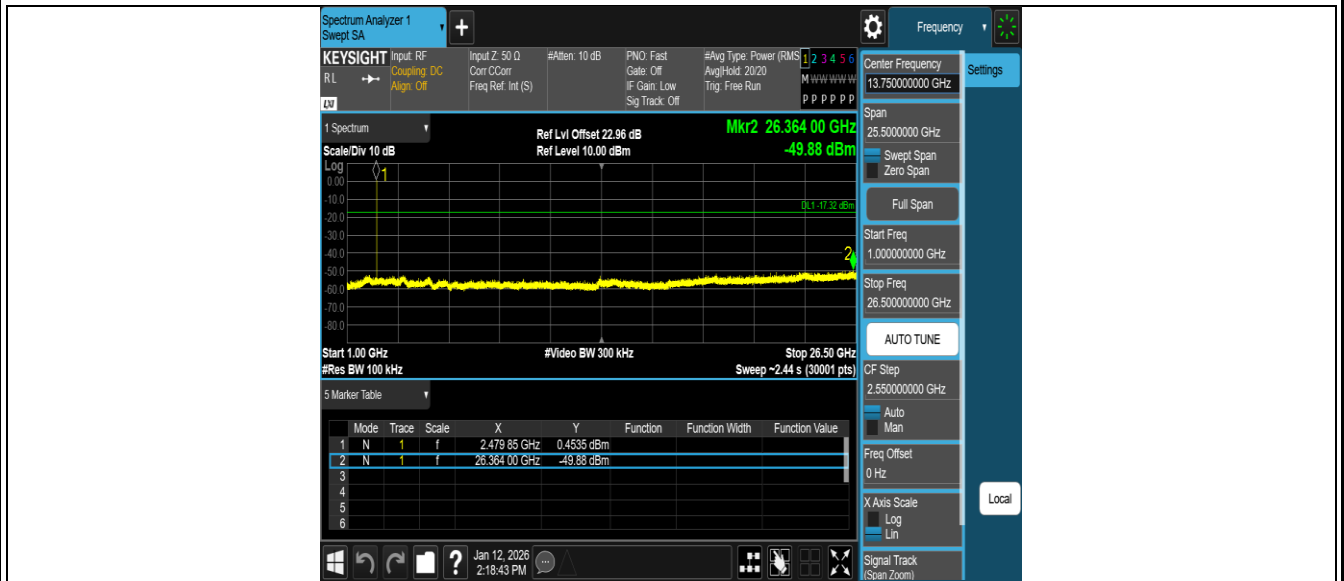
BLE 2M Ant1 2402 30~1000



BLE 2M Ant1 2402 1000~26500







Appendix B.6: Test Results of Radiated Spurious Emissions

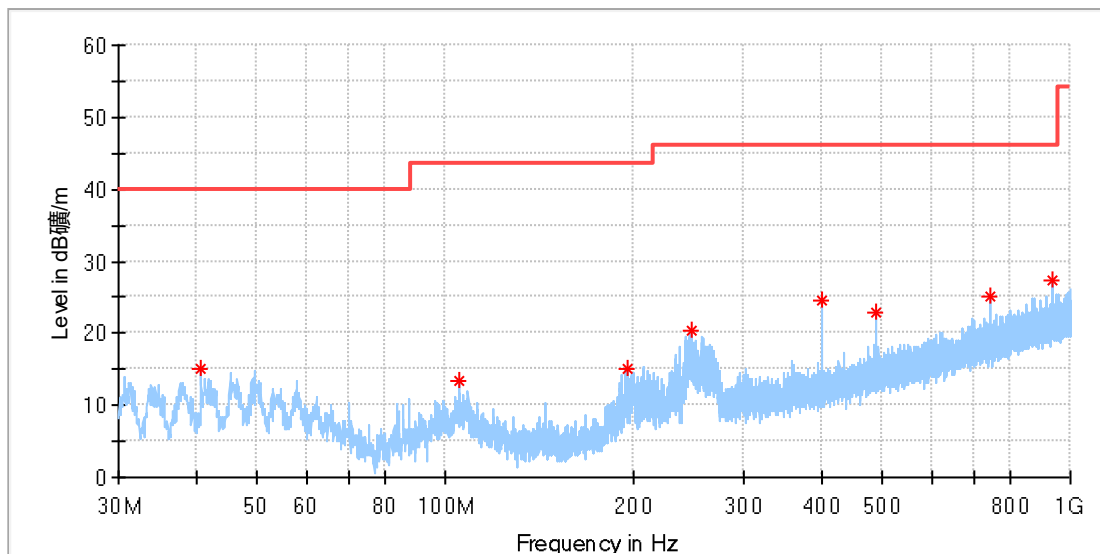
Note:

- 1) This testing was carried out on different modulations, but only the worst case was presented in this report.
- 2) Testing was carried out within frequency range 9kHz to the tenth harmonics. The measurement results below 30MHz and 18GHz - 26.5GHz were greater than 20dB below the limit, so only the radiated spurious emissions from 30MHz to 18GHz were reported.

30 MHz - 1GHz (EUT1#)

EUT Information

EUT Name: reMarkable RM12A
Model: RM12A
Test Mode: BLE 1M_Mid channel
Order No/Sample No: 168564257/A004156581-003
Test Voltage: Battery
Remark: Temp 22 Humi:55%
Test Standard: FCC 15.247
Tested By: Kei Zhang
Reviewed By: Terry Yin



Critical_Freqs

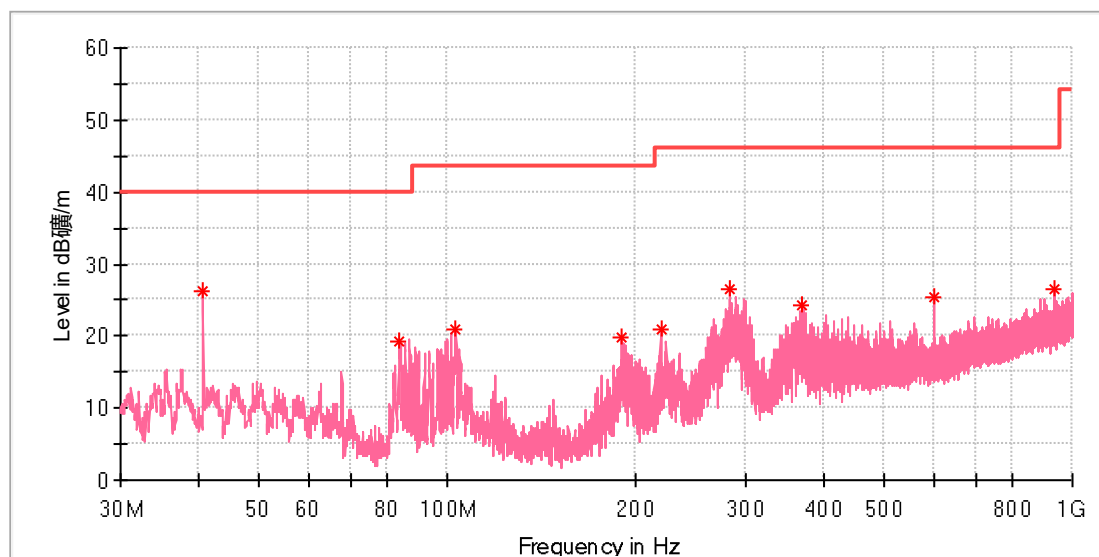
Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
40.670000	14.98	40.00	25.02	100.0	H	37.0	-20.0
105.013333	13.26	43.50	30.24	100.0	H	292.0	-18.9
195.492778	15.09	43.50	28.41	100.0	H	232.0	-19.3
247.818889	20.46	46.00	25.54	100.0	H	0.0	-17.4
400.001111	24.45	46.00	21.55	100.0	H	325.0	-13.8
488.163333	22.85	46.00	23.15	100.0	H	171.0	-12.0
742.518889	25.12	46.00	20.88	100.0	H	45.0	-7.2
936.950000	27.47	46.00	18.53	100.0	H	224.0	-4.4

Final_Result

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---

EUT Information

EUT Name: reMarkable RM12A
 Model: RM12A
 Test Mode: BLE 1M_Mid channel
 Order No/Sample No: 168564257/A004156581-003
 Test Voltage: Battery
 Remark: Temp 22 Humi:55%
 Test Standard: FCC 15.247
 Tested By: Kei Zhang
 Reviewed By: Terry Yin



Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
40.670000	26.29	40.00	13.71	100.0	V	145.0	-20.0
83.835000	19.16	40.00	20.84	100.0	V	31.0	-22.7
102.965556	20.94	43.50	22.56	100.0	V	316.0	-19.0
189.565000	19.88	43.50	23.62	100.0	V	0.0	-19.7
219.419444	20.88	46.00	25.12	100.0	V	55.0	-18.7
282.415556	26.58	46.00	19.42	100.0	V	105.0	-16.7
369.877222	24.23	46.00	21.77	100.0	V	0.0	-14.4
600.036667	25.35	46.00	20.65	100.0	V	80.0	-9.7
938.458889	26.48	46.00	19.52	100.0	V	316.0	-4.4

Final_Result

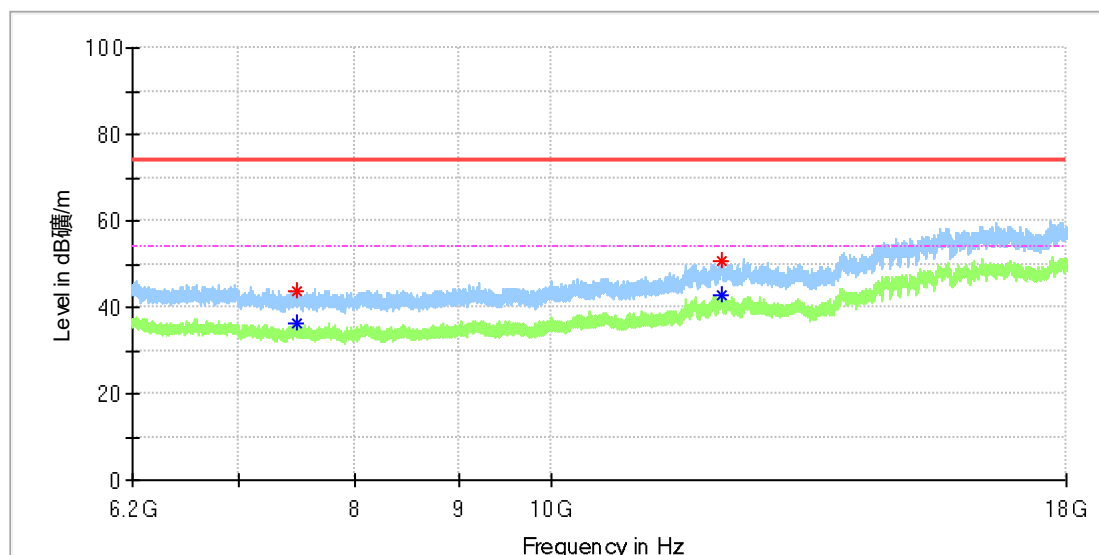
Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---	---	---	---

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---	---		---	---

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---	---		---	---

EUT Information

EUT Name:	reMarkable RM12A
Model:	RM12A
Test Mode:	BLE 1M_Mid channel
Order No/Sample No:	168564257/A004156581-003
Test Voltage:	Battery
Remark:	Temp 22 Humi:55%
Test Standard:	FCC 15.247
Tested By:	Kei Zhang
Reviewed By:	Terry Yin



Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
7478.333333	---	36.12	54.00	17.88	150.0	H	341.0	8.7
7485.708333	43.90	---	74.00	30.10	150.0	H	193.0	8.7
12145.233333	50.48	---	74.00	23.52	150.0	H	129.0	16.6
12153.100000	---	43.00	54.00	11.00	150.0	H	182.0	16.6

Final Result

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---	---		---	---

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---	---		---	---

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---	---		---	---

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---	---		---	---

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---	---		---	---

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
----	----	----	----	----	----		----	----

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
---	---	---	---	---	---		---	---