

Appendix A: DTS Bandwidth

Test Result

TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.676	2401.664	2402.340	0.5	PASS
		2440	0.672	2439.668	2440.340	0.5	PASS
		2480	0.676	2479.660	2480.336	0.5	PASS

Test Graphs





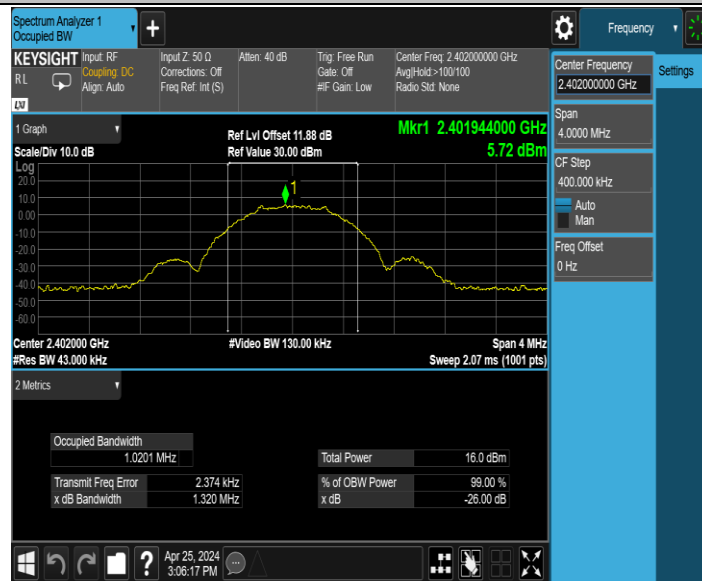
Appendix B: Occupied Channel Bandwidth

Test Result

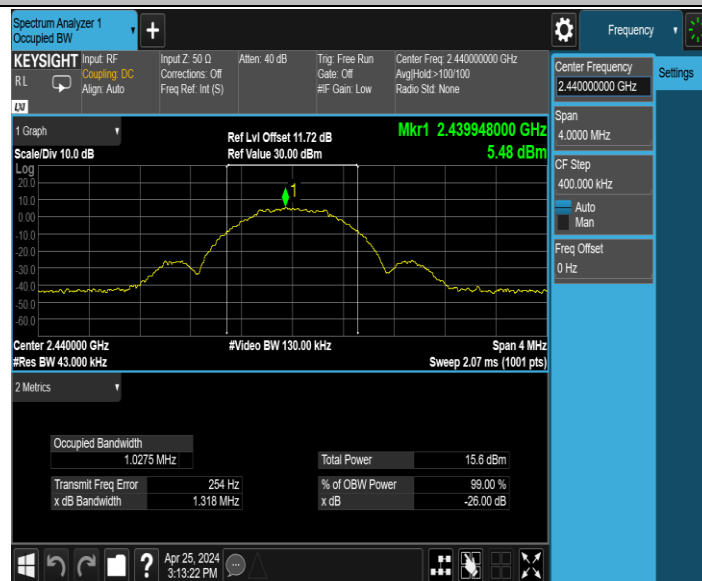
TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.0179	2401.4939	2402.5118	---	---
		2440	1.0329	2439.4832	2440.5161	---	---
		2480	1.0253	2479.4868	2480.5121	---	---

Test Graphs

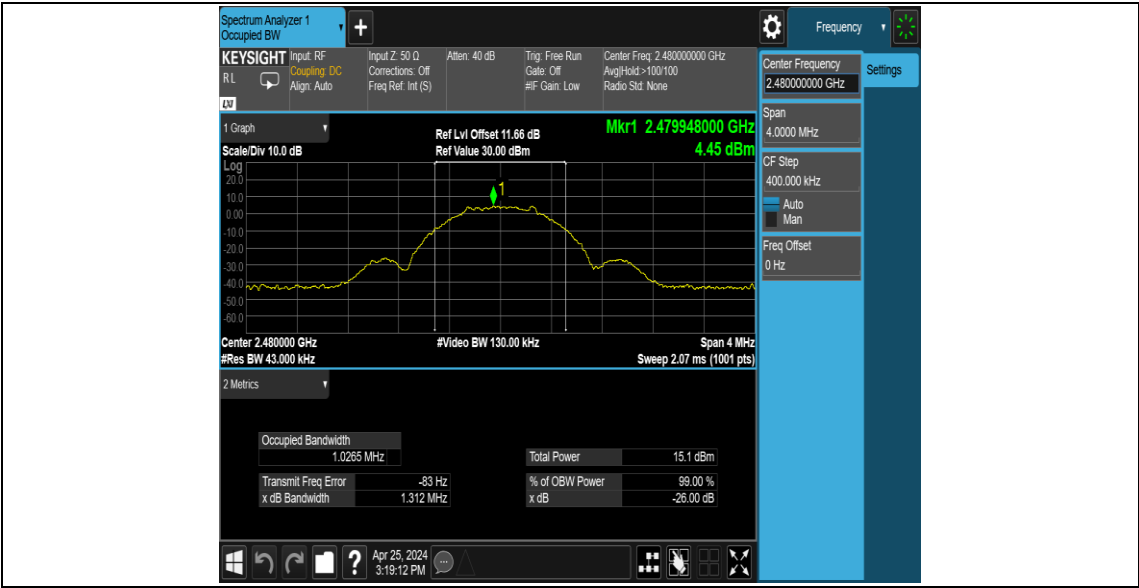
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480

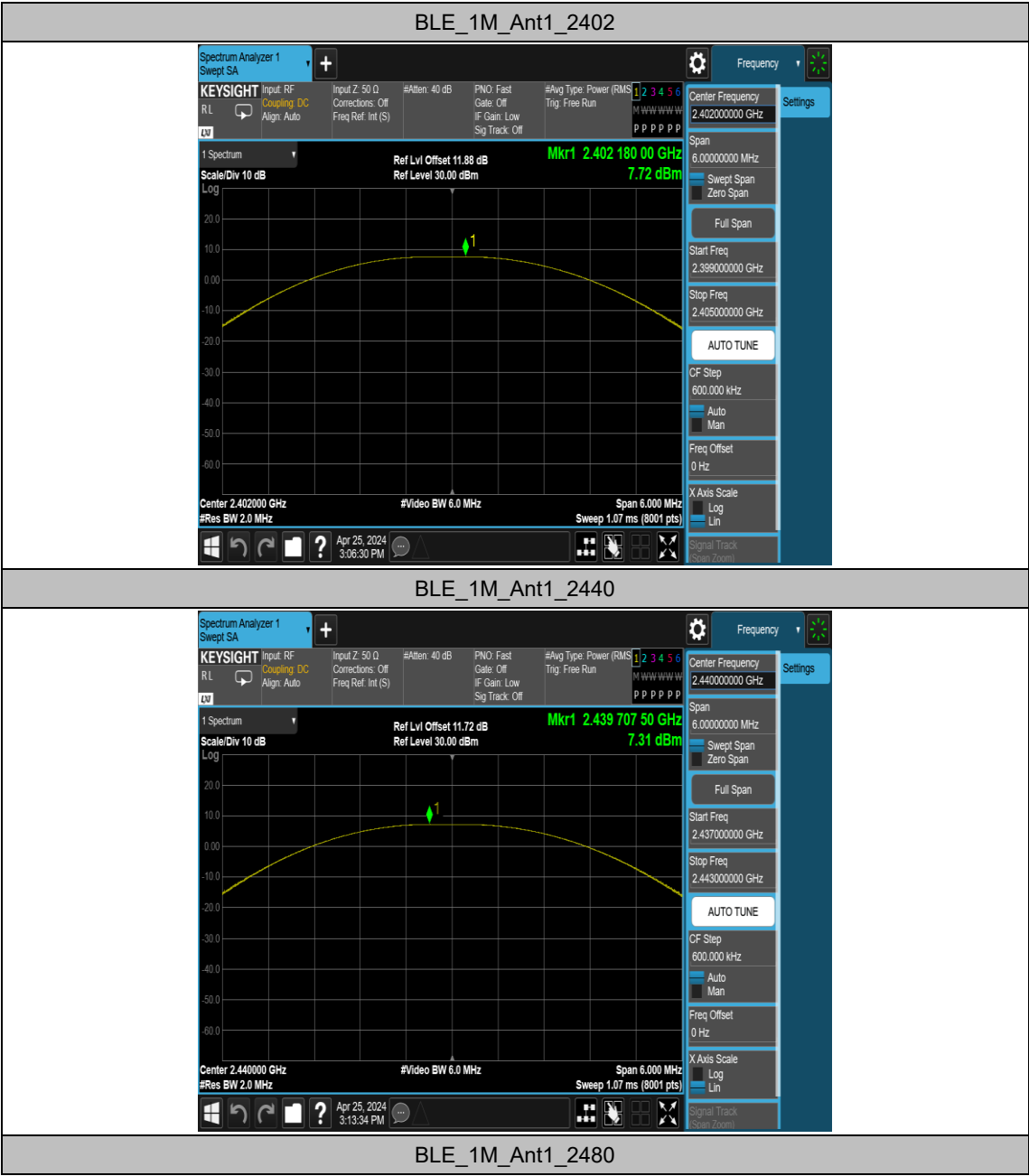


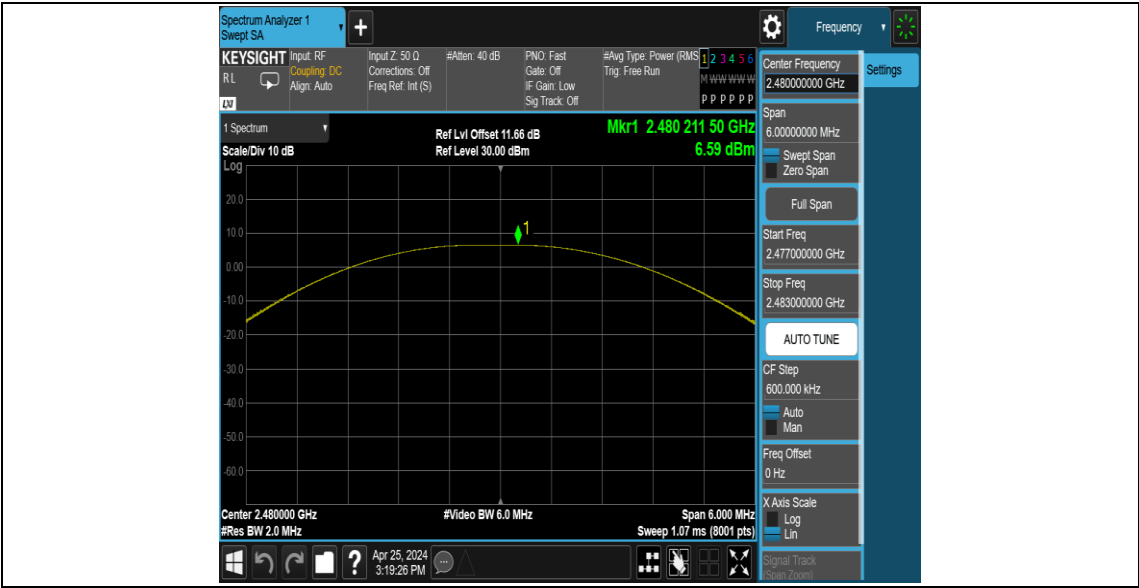
Appendix C: Maximum conducted output power

Test Result Peak

TestMode	Antenna	Frequency[MHz]	Conducted Peak Power[dBm]	Conducted Limit[dBm]	EIRP[dBm]	EIRP Limit[dBm]	Verdict
BLE_1M	Ant1	2402	7.72	≤30	8.80	≤36	PASS
		2440	7.31	≤30	8.39	≤36	PASS
		2480	6.59	≤30	7.67	≤36	PASS

Test Graphs Peak





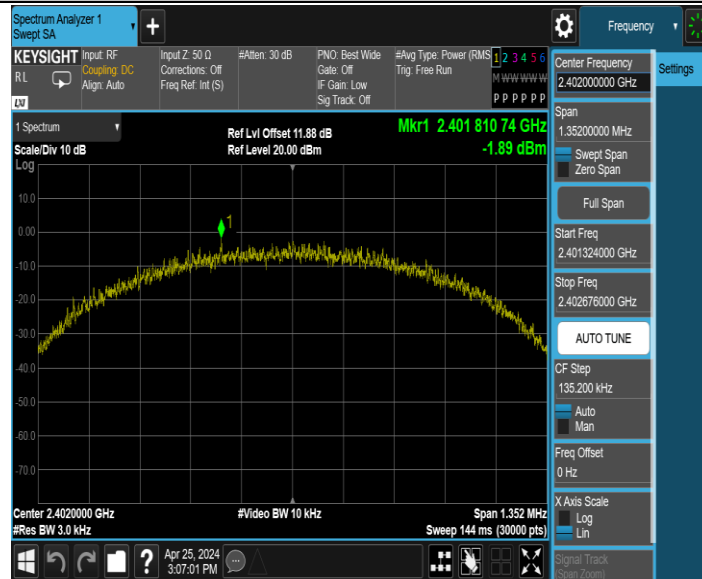
Appendix D: Maximum power spectral density

Test Result

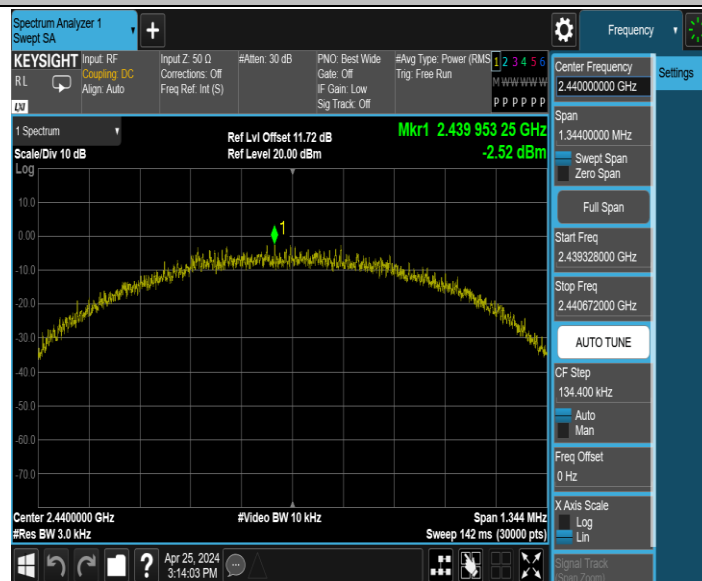
TestMode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-1.89	≤8.00	PASS
		2440	-2.53	≤8.00	PASS
		2480	-2.75	≤8.00	PASS

Test Graphs

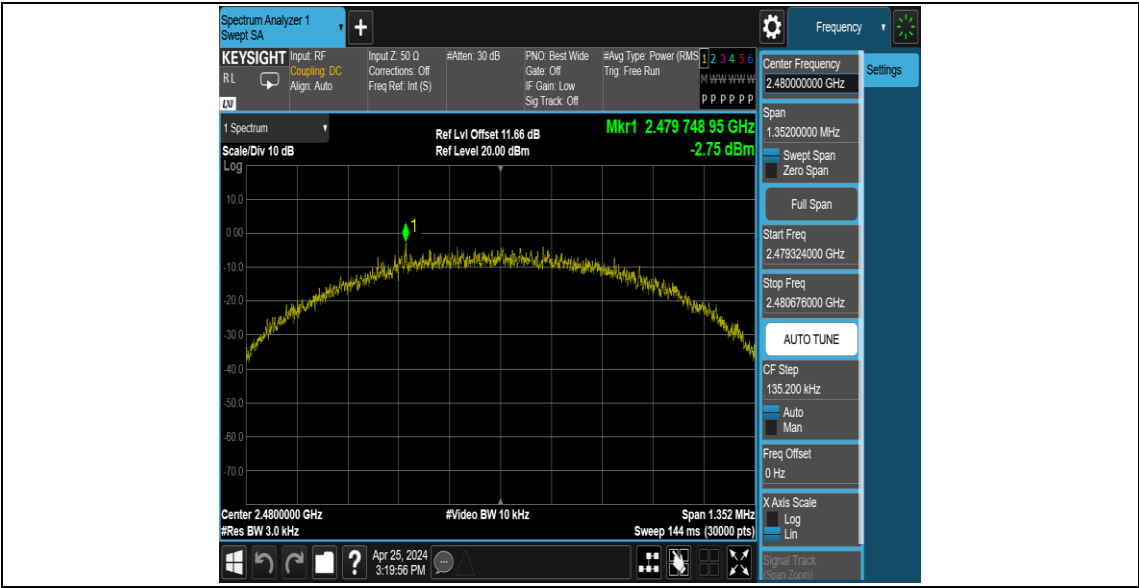
BLE_1M_Ant1_2402



BLE_1M_Ant1_2440



BLE_1M_Ant1_2480



Appendix E: Band edge measurements

Test Result

TestMode	Antenna	ChName	Frequency [MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	Low	2402	7.06	-45.46	≤-12.94	PASS
		High	2480	6.00	-46.57	≤-14	PASS

Test Graphs



BLE_1M_Ant1_High_2480

Spectrum Analyzer 1

Swept SA

KEYSIGHT

Input: RF

Coupling: DC

Align: Auto

Input Z: 50 Ω

Corrections: Off

Freq Ref: Int (S)

#Atten: 30 dB

PNO: Fast

Gate: Off

IF Gain: Low

Sig Track: Off

#Avg Type: Power (RMS)

1 2 3 4 5 6

Trig: Free Run

Center Frequency

2.510000000 GHz

Span

80.000000 MHz

Swept Span

Zero Span

Full Span

Start Freq

2.470000000 GHz

Stop Freq

2.550000000 GHz

AUTO TUNE

CF Step

8.000000 MHz

Auto

Man

Freq Offset

0 Hz

X Axis Scale

Log

Lin

Signal Track

(Sweep Zoom)

1 Spectrum

Ref Lvl Offset 11.66 dB

Mkr4 2.501 20 GHz

-46.57 dBm

Scale/Div 10 dB

Log

10.0

0.00

-10.0

-20.0

-30.0

-40.0

-50.0

-60.0

-70.0

Start 2.47000 GHz

#Video BW 300 kHz

Stop 2.55000 GHz

#Res BW 100 kHz

Sweep 7.67 ms (1001 pts)

5 Marker Table

	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	2.479 76 GHz	5.996 dBm			
2	N	1	f	2.483 50 GHz	-49.01 dBm			
3	N	1	f	2.500 00 GHz	-48.90 dBm			
4	N	1	f	2.501 20 GHz	-46.57 dBm			
5								
6								

Apr 25, 2024

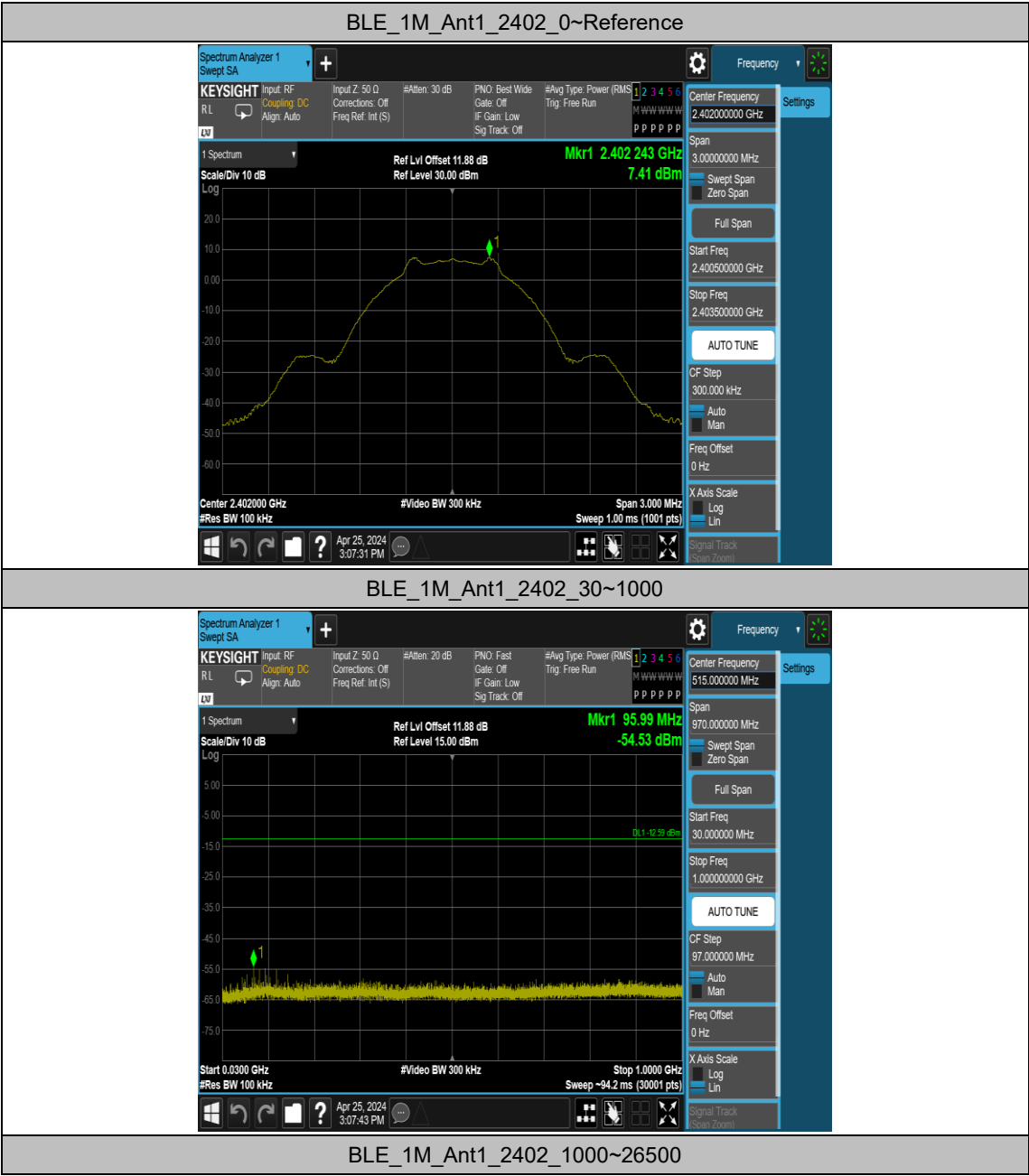
3:20:10 PM

Appendix F: Conducted Spurious Emission

Test Result

TestMode	Antenna	Frequency[MHz]	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_1M	Ant1	2402	Reference	7.41	7.41	---	PASS
			30~1000	7.41	-54.53	≤-12.59	PASS
			1000~26500	7.41	-50.07	≤-12.59	PASS
		2440	Reference	7.02	7.02	---	PASS
			30~1000	7.02	-54.55	≤-12.98	PASS
			1000~26500	7.02	-49.58	≤-12.98	PASS
		2480	Reference	6.03	6.03	---	PASS
			30~1000	6.03	-54.9	≤-13.97	PASS
			1000~26500	6.03	-50.13	≤-13.97	PASS

Test Graphs

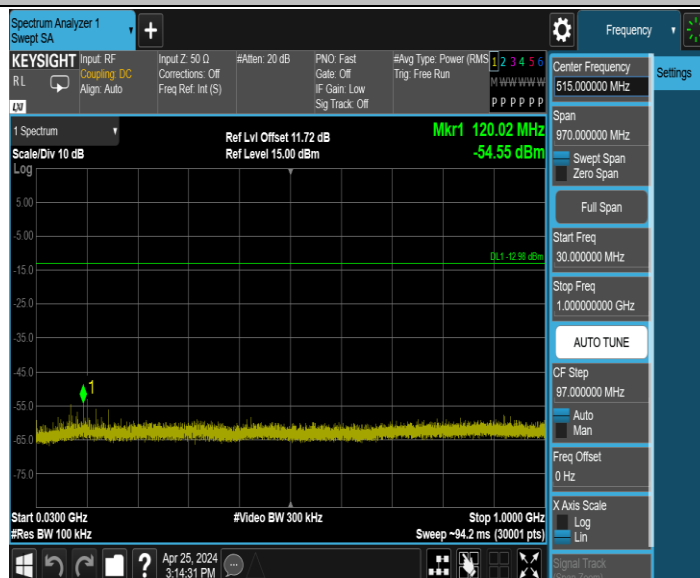




BLE_1M_Ant1_2440_0~Reference



BLE_1M_Ant1_2440_30~1000



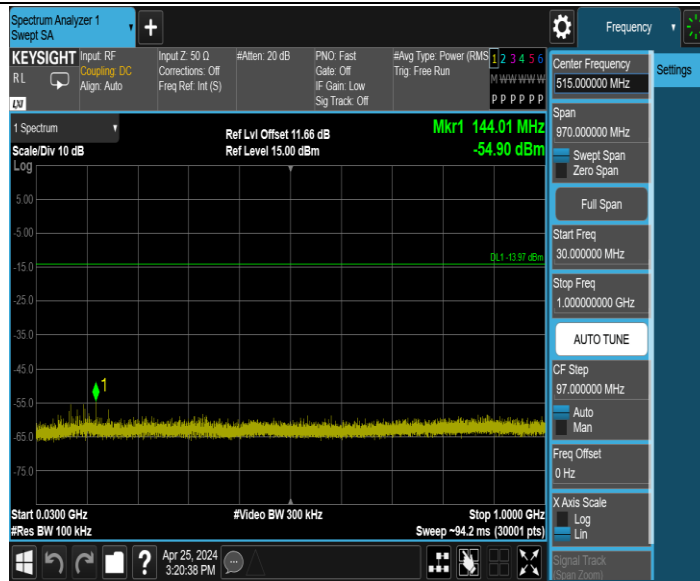
BLE_1M_Ant1_2440_1000~26500



BLE_1M_Ant1_2480_0~Reference



BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500



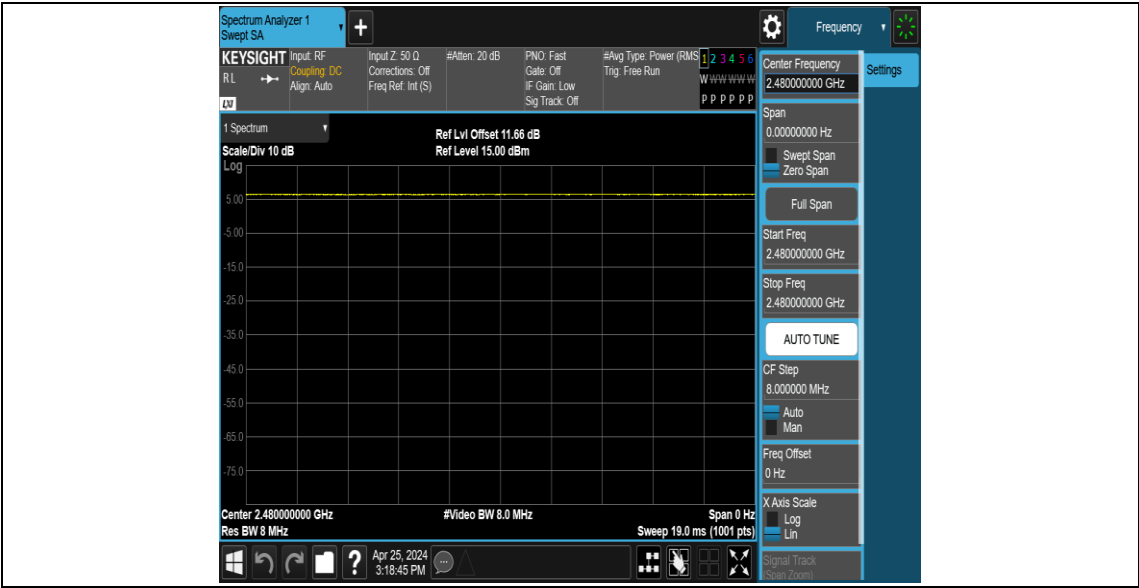
Appendix G: Duty Cycle

Test Result

TestMode	Antenna	Frequency[MHz]	Duty Cycle [%]
BLE_1M	Ant1	2402	100
		2440	100
		2480	100

Test Graphs





Appendix H: Emissions in Restricted Bands

Test Result

Mode:	BLE 1M-2402
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NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1	2310	49.00	9.07	74.00	25.00	150	103	Horizontal	PASS
2	2322.48	50.17	9.19	74.00	23.83	150	177	Horizontal	PASS
3	2335.92	51.01	9.19	74.00	22.99	150	66	Horizontal	PASS
4	2355.36	50.62	9.27	74.00	23.38	150	37	Horizontal	PASS
5	2372.72	50.74	9.65	74.00	23.26	150	94	Horizontal	PASS
6	2390	49.59	10.38	74.00	24.41	150	34	Horizontal	PASS

NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1	2310	47.91	9.07	74.00	26.09	150	79	Vertical	PASS
2	2331.36	50.65	9.24	74.00	23.35	150	96	Vertical	PASS
3	2342.8	50.23	9.26	74.00	23.77	150	1	Vertical	PASS
4	2360.56	50.51	9.33	74.00	23.49	150	96	Vertical	PASS
5	2375.2	50.74	9.83	74.00	23.26	150	134	Vertical	PASS
6	2390	49.49	10.38	74.00	24.51	150	73	Vertical	PASS

Mode:	BLE 1M-2480
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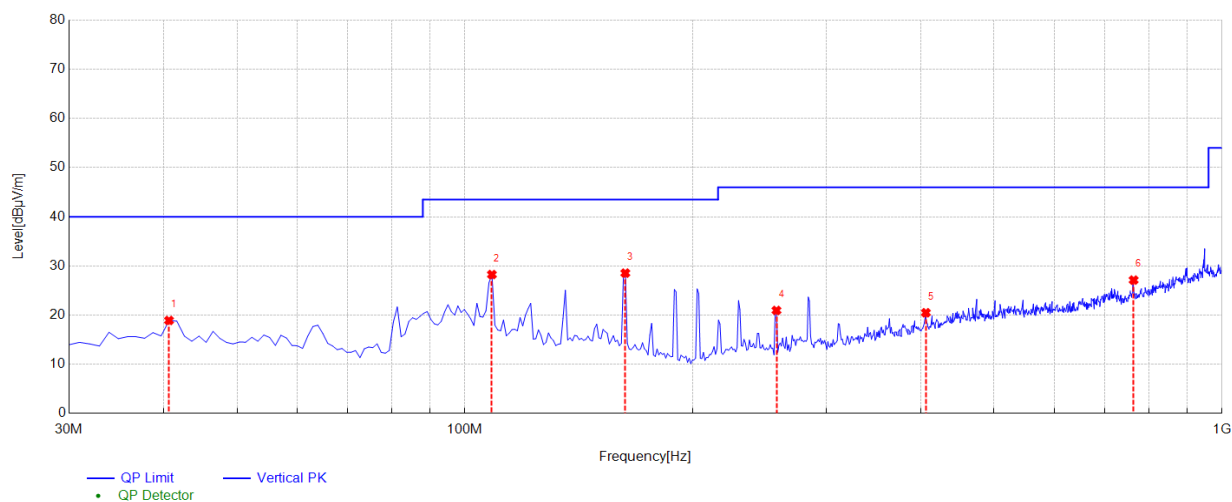
NO.	Freq. [MHz]	Level [dB μ V/m]	Factor [dB/m]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1	2483.5	50.33	10.62	74.00	23.67	150	84	Horizontal	PASS
2	2487.09	53.00	10.33	74.00	21.00	150	108	Horizontal	PASS
3	2489.96	51.59	10.27	74.00	22.41	150	17	Horizontal	PASS
4	2495.89	51.38	10.39	74.00	22.62	150	108	Horizontal	PASS
5	2496.78	51.54	10.32	74.00	22.46	150	14	Horizontal	PASS
6	2500	50.09	10.10	74.00	23.91	150	44	Horizontal	PASS

NO.	Freq. [MHz]	Level [dB μ V/m]	Factor [dB/m]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1	2483.5	51.22	10.62	74.00	22.78	150	158	Vertical	PASS
2	2485.95	51.44	10.39	74.00	22.56	150	4	Vertical	PASS
3	2489.12	52.02	10.25	74.00	21.98	150	170	Vertical	PASS
4	2491.99	51.28	10.40	74.00	22.72	150	101	Vertical	PASS
5	2496.66	50.96	10.33	74.00	23.04	150	77	Vertical	PASS
6	2500	50.17	10.10	74.00	23.83	150	74	Vertical	PASS

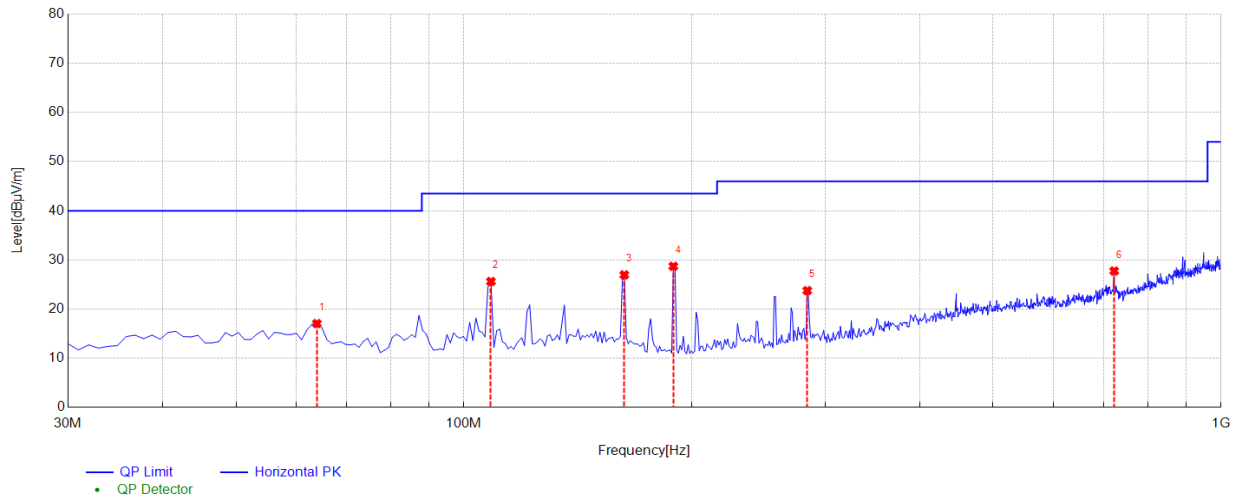
Note:

1. The Antenna Gain is compensated in the graph.
2. The limit in dBm for average detector is conversion from 54dB μ V/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

Appendix I: Spurious emissions



NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1	40.6700	18.92	-15.69	40.00	21.08	100	270	Vertical	PASS
2	108.570	28.26	-18.65	43.50	15.24	100	180	Vertical	PASS
3	162.890	28.55	-16.56	43.50	14.95	100	23	Vertical	PASS
4	257.950	20.96	-17.31	46.00	25.04	100	287	Vertical	PASS
5	406.360	20.49	-12.75	46.00	25.51	100	100	Vertical	PASS
6	764.290	27.13	-5.56	46.00	18.87	100	256	Vertical	PASS



NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1	63.9500	17.07	-17.31	40.00	22.93	100	117	Horizontal	PASS
2	108.570	25.62	-18.65	43.50	17.88	100	263	Horizontal	PASS
3	162.890	26.97	-16.56	43.50	16.53	100	348	Horizontal	PASS
4	189.080	28.72	-18.88	43.50	14.78	100	87	Horizontal	PASS
5	284.140	23.77	-15.87	46.00	22.23	100	87	Horizontal	PASS
6	722.580	27.76	-6.62	46.00	18.24	100	0	Horizontal	PASS

Mode:	BLE 1M-2402
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NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1	1258	41.64	1.06	74.00	32.36	150	115	Horizontal	PASS
2	2004	45.90	6.14	74.00	28.10	150	149	Horizontal	PASS
3	5655	43.48	-13.04	74.00	30.52	150	64	Horizontal	PASS
4	7032	43.99	-11.92	74.00	30.01	150	138	Horizontal	PASS
5	9765	45.87	-7.92	74.00	28.13	150	138	Horizontal	PASS
6	13140	47.45	-3.07	74.00	26.55	150	141	Horizontal	PASS

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1	1372	41.23	1.15	74.00	32.77	150	16	Vertical	PASS
2	1844	44.11	4.66	74.00	29.89	150	64	Vertical	PASS
3	4986	43.39	-14.93	74.00	30.61	150	128	Vertical	PASS
4	5955	44.08	-11.91	74.00	29.92	150	1	Vertical	PASS
5	9810	45.01	-8.11	74.00	28.99	150	45	Vertical	PASS
6	13596	48.85	-2.94	74.00	25.15	150	51	Vertical	PASS

Mode:	BLE 1M-2440
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NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1	1168	41.55	1.05	74.00	32.45	150	106	Horizontal	PASS
2	1988	45.23	5.98	74.00	28.77	150	178	Horizontal	PASS
3	5169	43.31	-14.34	74.00	30.69	150	125	Horizontal	PASS
4	6711	43.92	-12.32	74.00	30.08	150	13	Horizontal	PASS
5	8838	44.58	-10.07	74.00	29.42	150	61	Horizontal	PASS
6	12756	47.31	-3.71	74.00	26.69	150	151	Horizontal	PASS

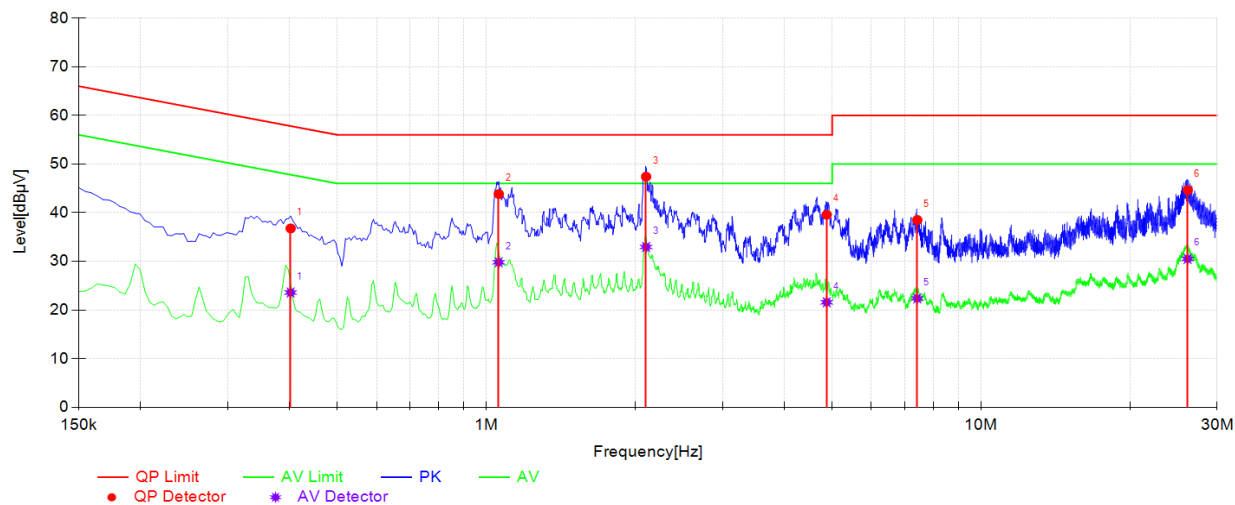
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1	1396	41.67	1.22	74.00	32.33	150	146	Vertical	PASS
2	1898	45.68	5.24	74.00	28.32	150	7	Vertical	PASS
3	4722	42.23	-14.97	74.00	31.77	150	176	Vertical	PASS
4	5943	43.78	-12.01	74.00	30.22	150	44	Vertical	PASS
5	8796	45.28	-9.42	74.00	28.72	150	10	Vertical	PASS
6	12912	48.41	-3.21	74.00	25.59	150	36	Vertical	PASS

Mode:	BLE 1M-2480
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NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1	1456	41.23	1.35	74.00	32.77	150	31	Horizontal	PASS
2	1994	45.93	6.05	74.00	28.07	150	53	Horizontal	PASS
3	5121	42.67	-14.59	74.00	31.33	150	150	Horizontal	PASS
4	5892	43.95	-12.73	74.00	30.05	150	173	Horizontal	PASS
5	7014	44.24	-11.71	74.00	29.76	150	150	Horizontal	PASS
6	11751	47.28	-5.41	74.00	26.72	150	91	Horizontal	PASS

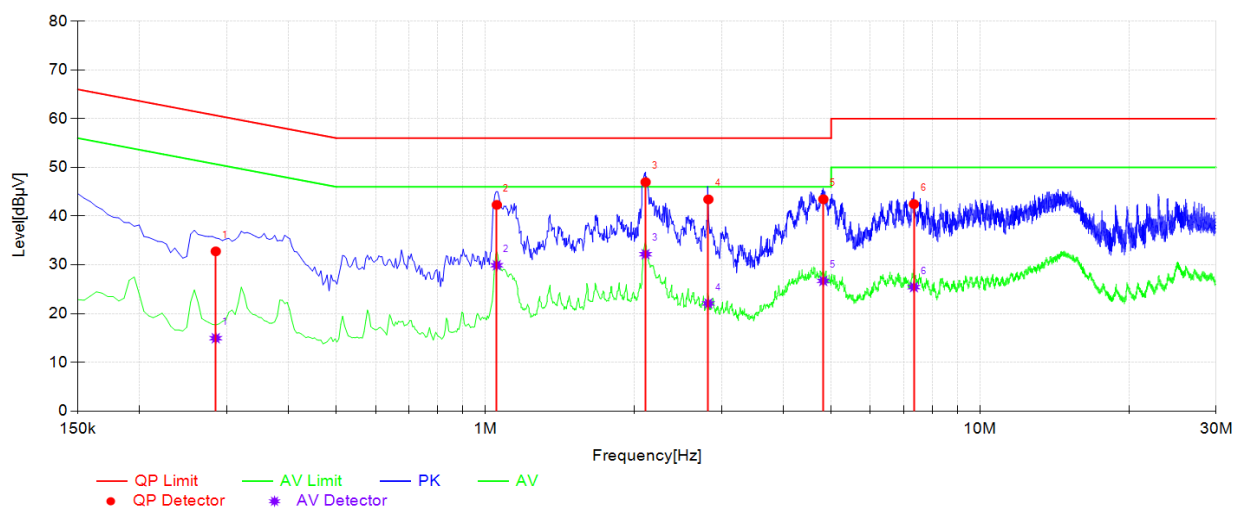
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Verdict
1	1338	41.91	1.10	74.00	32.09	150	50	Vertical	PASS
2	2024	46.33	6.23	74.00	27.67	150	165	Vertical	PASS
3	4716	42.42	-15.07	74.00	31.58	150	91	Vertical	PASS
4	5928	43.79	-12.26	74.00	30.21	150	85	Vertical	PASS
5	8376	44.61	-10.15	74.00	29.39	150	176	Vertical	PASS
6	13200	48.09	-2.40	74.00	25.91	150	127	Vertical	PASS

Appendix J: Conducted emission AC power port



Final Data List

NO.	Freq. [MHz]	Factor [dB]	QP Value [dBμV]	QP Limit [dBμV]	QP Margin [dB]	AV Value [dBμV]	AV Limit [dBμV]	AV Margin [dB]	Type	Verdict
1	0.402	10.26	36.78	57.81	21.03	23.60	47.81	24.21	N	PASS
2	1.059	10.28	43.85	56.00	12.15	29.82	46.00	16.18	N	PASS
3	2.103	10.30	47.42	56.00	8.58	32.96	46.00	13.04	N	PASS
4	4.875	10.41	39.59	56.00	16.41	21.59	46.00	24.41	N	PASS
5	7.431	10.43	38.51	60.00	21.49	22.39	50.00	27.61	N	PASS
6	26.16	10.74	44.66	60.00	15.34	30.51	50.00	19.49	N	PASS



Final Data List										
NO.	Freq. [MHz]	Factor [dB]	QP Value [dBμV]	QP Limit [dBμV]	QP Margin [dB]	AV Value [dBμV]	AV Limit [dBμV]	AV Margin [dB]	Type	Verdict
1	0.285	10.27	32.78	60.67	27.89	14.95	50.67	35.72	L1	PASS
2	1.0545	10.28	42.32	56.00	13.68	29.92	46.00	16.08	L1	PASS
3	2.1075	10.29	46.99	56.00	9.01	32.19	46.00	13.81	L1	PASS
4	2.823	10.30	43.44	56.00	12.56	22.08	46.00	23.92	L1	PASS
5	4.821	10.34	43.47	56.00	12.53	26.71	46.00	19.29	L1	PASS
6	7.35	10.43	42.48	60.00	17.52	25.44	50.00	24.56	L1	PASS