Appendix A: DTS Bandwidth

Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_BT4.0	Ant1	2402	0.656	2401.628	2402.284	>=0.5	PASS
		2440	0.676	2439.612	2440.288	>=0.5	PASS
		2480	0.684	2479.608	2480.292	>=0.5	PASS

Test Graphs

BLE_BT4.0_Ant1_2402


BLE_BT4.0_Ant1_2440


BLE_BT4.0_Ant1_2480

	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	2.479 608 GHz	-8.691 dBm			
2	N	1	f	2.479 956 GHz	-2.632 dBm			
3	Δ1	1	f	(Δ) 684 kHz	(Δ) -0.01813 dB			
4								
5								
6								

Appendix B: Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_BT4.0	Ant1	2402	1.0623	2401.433	2402.495	---	PASS
		2440	1.0648	2439.430	2440.495	---	PASS
		2480	1.0758	2479.424	2480.499	---	PASS

Test Graphs

BLE_BT4.0_Ant1_2402

BLE_BT4.0_Ant1_2440

BLE_BT4.0_Ant1_2480


Appendix C: Maximum conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
BLE_BT4.0	Ant1	2402	-1.59	<=30	PASS
		2440	-1.48	<=30	PASS
		2480	-1.52	<=30	PASS

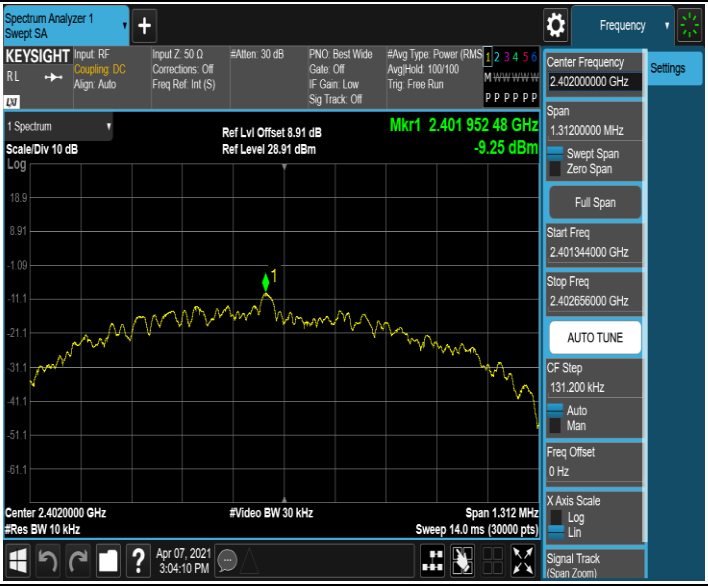
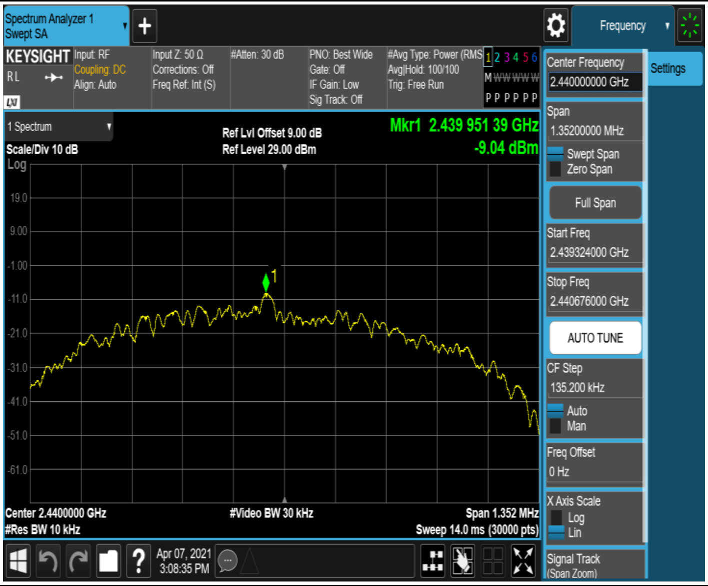
TestMode	Antenna	Channel	EIRP[dBm]	Limit[dBm]	Verdict
BLE_BT4.0	Ant1	2402	1.41	<=36	PASS
		2440	1.52	<=36	PASS
		2480	1.48	<=36	PASS

Appendix D: Maximum power spectral density

Test Result

TestMode	Antenna	Channel	Result[dBm/3-100kHz]	Limit[dBm/3kHz]	Verdict
BLE_BT4.0	Ant1	2402	-9.25	<=8	PASS
		2440	-9.04	<=8	PASS
		2480	-9.14	<=8	PASS

Test Graphs

BLE_BT4.0_Ant1_2402

BLE_BT4.0_Ant1_2440


BLE_BT4.0_Ant1_2480

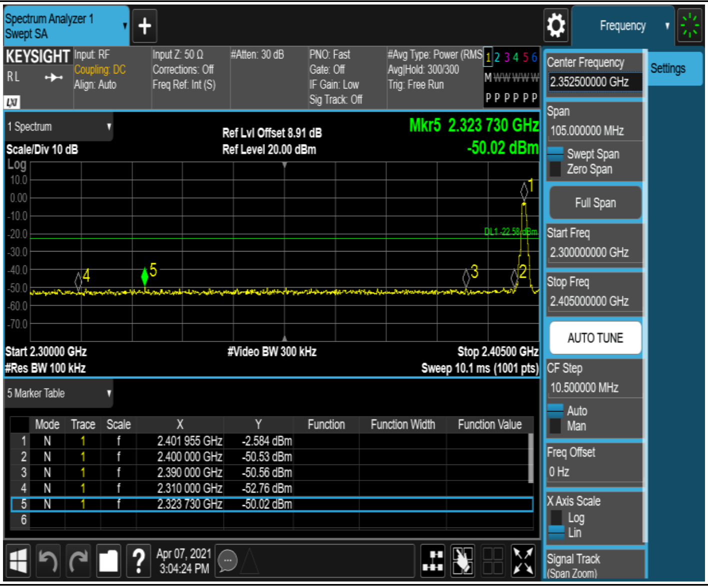
Appendix E: Band edge measurements

Test Result

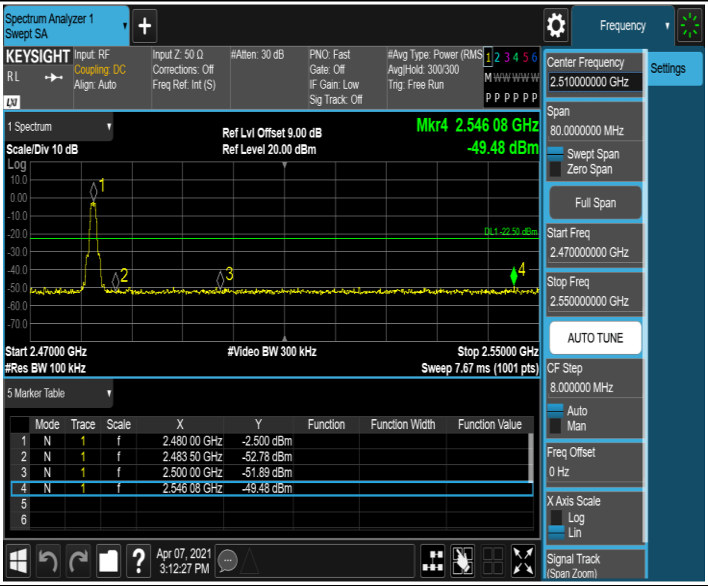
TestMode	Antenna	ChName	Channel	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_BT4.0	Ant1	Low	2402	-2.58	-50.02	<=-22.58	PASS
		High	2480	-2.50	-49.48	<=-22.5	PASS

Test Graphs

BLE_BT4.0_Ant1_Low_2402



BLE_BT4.0_Ant1_High_2480



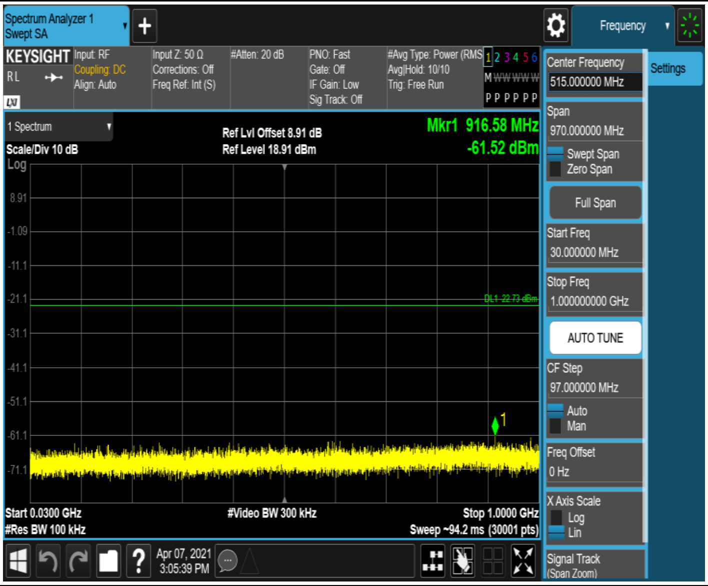
Appendix F: Conducted Spurious Emission

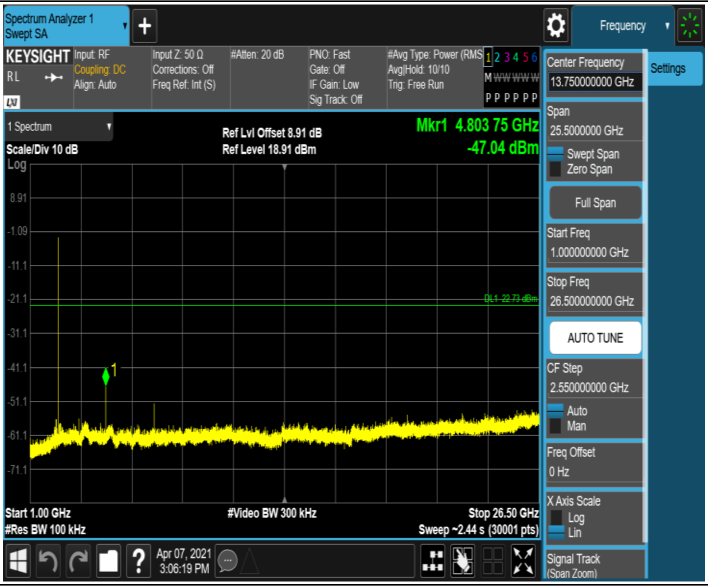
Test Result

TestMode	Antenna	Channel	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
BLE_BT4.0	Ant1	2402	Reference	-2.73	-2.73	---	PASS
			30~1000	30~1000	-61.521	<=-22.728	PASS
			1000~26500	1000~26500	-47.043	<=-22.728	PASS
		2440	Reference	-2.56	-2.56	---	PASS
			30~1000	30~1000	-60.191	<=-22.559	PASS
			1000~26500	1000~26500	-47.299	<=-22.559	PASS
		2480	Reference	-2.63	-2.63	---	PASS
			30~1000	30~1000	-61.87	<=-22.63	PASS
			1000~26500	1000~26500	-47.775	<=-22.63	PASS

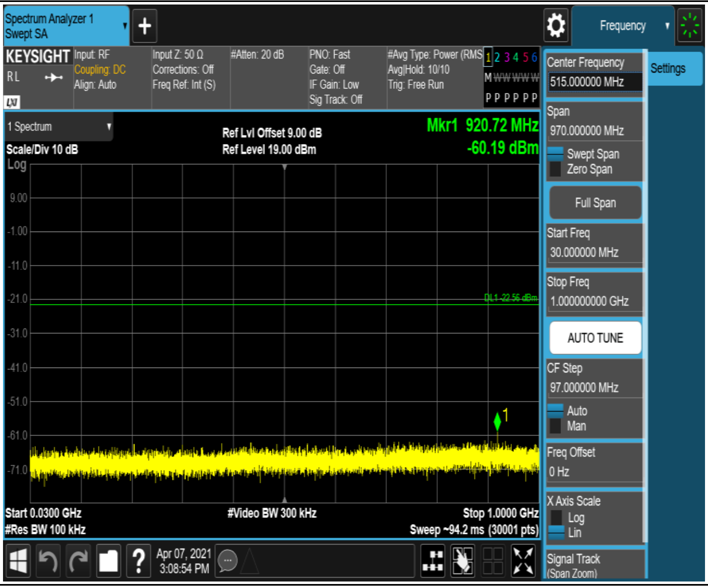
Test Graphs

BLE_BT4.0_Ant1_2402_0~Reference

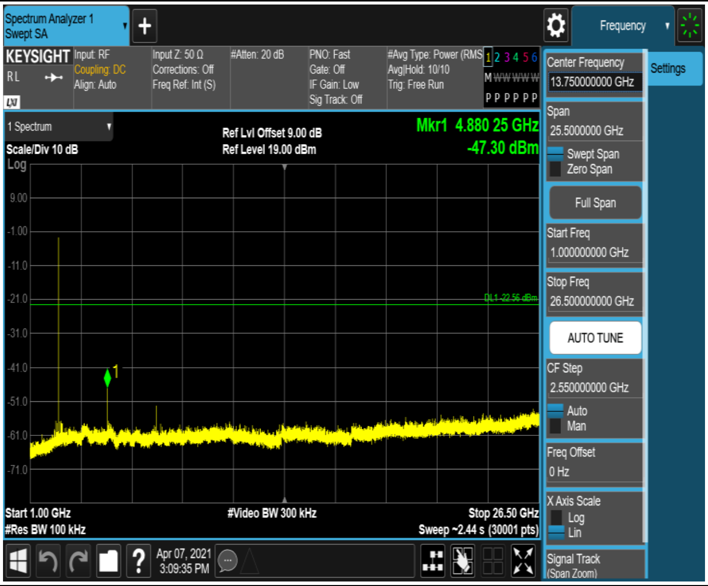
BLE_BT4.0_Ant1_2402_30~1000


BLE_BT4.0_Ant1_2402_1000~26500

BLE_BT4.0_Ant1_2440_0~Reference

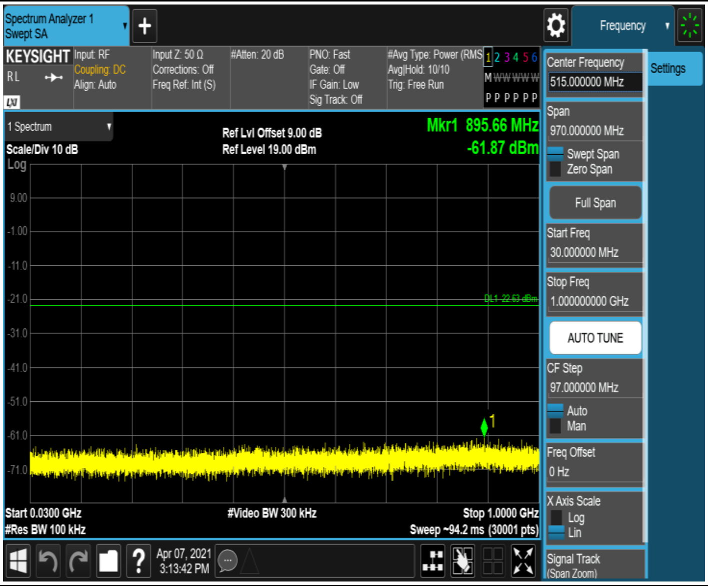

BLE_BT4.0_Ant1_2440_30~1000

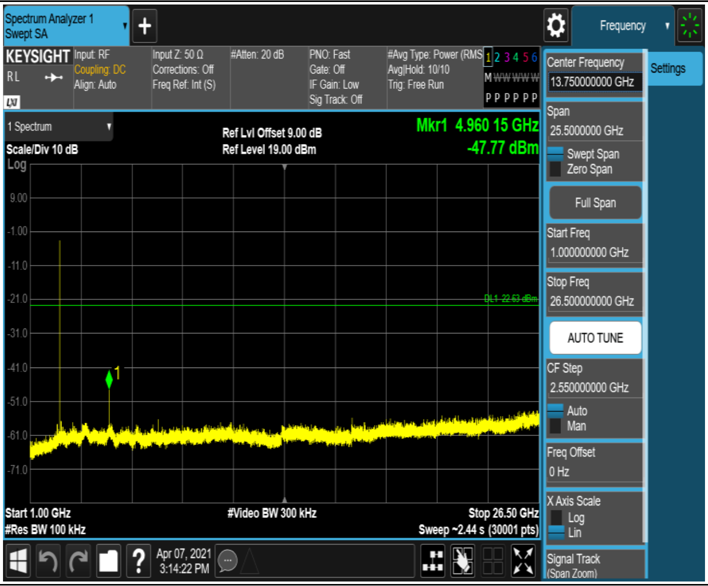


BLE_BT4.0_Ant1_2440_1000~26500



BLE_BT4.0_Ant1_2480_0~Reference


BLE_BT4.0_Ant1_2480_30~1000


BLE_BT4.0_Ant1_2480_1000~26500


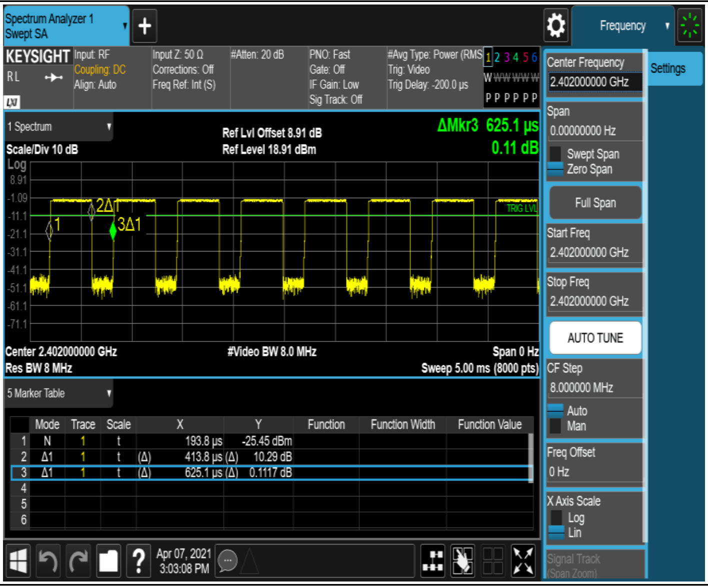
Appendix G: Duty Cycle

Test Result

TestMode	Antenna	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Limit	Verdict
BLE_BT4.0	Ant1	2402	0.41	0.63	66.20	---	PASS
		2440	0.41	0.63	66.20	---	PASS
		2480	0.41	0.63	66.20	---	PASS

Test Graphs

BLE_BT4.0_Ant1_2402



BLE_BT4.0_Ant1_2440

BLE_BT4.0_Ant1_2480


Appendix H: Transmitter frequency stability

TestMode	Antenna	Channel	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_BT4.0	Ant1	2402	2401.433	2402.495	±80% of Permitted operating frequency	PASS
		2440	2439.430	2440.495		PASS
		2480	2479.424	2480.499		PASS

Test Graphs

BLE_BT4.0_Ant1_2402

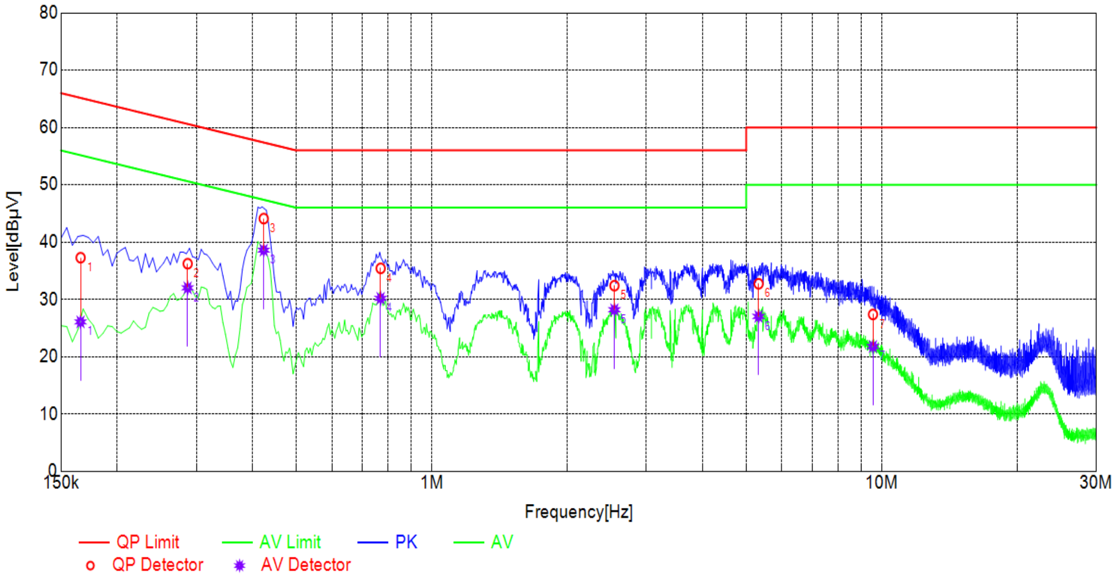
BLE_BT4.0_Ant1_2440

BLE_BT4.0_Ant1_2480

Appendix I: Conducted emission AC power port

Mode:	BLE	Voltage:	120V~

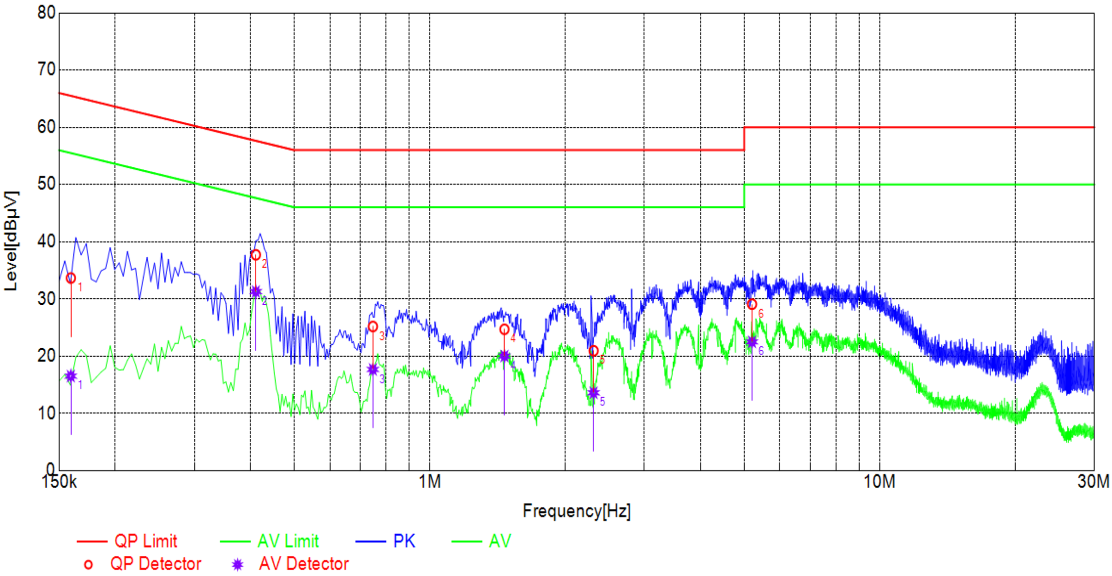
Test Graph



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]	Polarity	Verdict
1	0.1658	10.25	37.28	65.17	27.89	26.07	55.17	29.10	L	PASS
2	0.2868	10.25	36.23	60.62	24.39	32.01	50.62	18.61	L	PASS
3	0.4233	10.27	44.10	57.38	13.28	38.59	47.38	8.79	L	PASS
4	0.7699	10.28	35.42	56.00	20.58	30.18	46.00	15.82	L	PASS
5	2.5466	10.37	32.39	56.00	23.61	28.19	46.00	17.81	L	PASS
6	5.3256	10.41	32.72	60.00	27.28	27.02	50.00	22.98	L	PASS
7	9.5622	10.52	27.37	60.00	32.63	21.77	50.00	28.23	L	PASS

Mode:	BLE	Voltage:	120V~

Test Graph



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]	Polarity	Verdict
1	0.1594	10.24	33.64	65.49	31.85	16.49	55.49	39.00	N	PASS
2	0.4108	10.27	37.70	57.63	19.93	31.27	47.63	16.36	N	PASS
3	0.7477	10.27	25.17	56.00	30.83	17.66	46.00	28.34	N	PASS
4	1.4657	10.28	24.68	56.00	31.32	20.00	46.00	26.00	N	PASS
5	2.3129	10.30	20.93	56.00	35.07	13.58	46.00	32.42	N	PASS
6	5.2039	10.36	29.07	60.00	30.93	22.48	50.00	27.52	N	PASS

Appendix J: Radiated emissions for transmitter

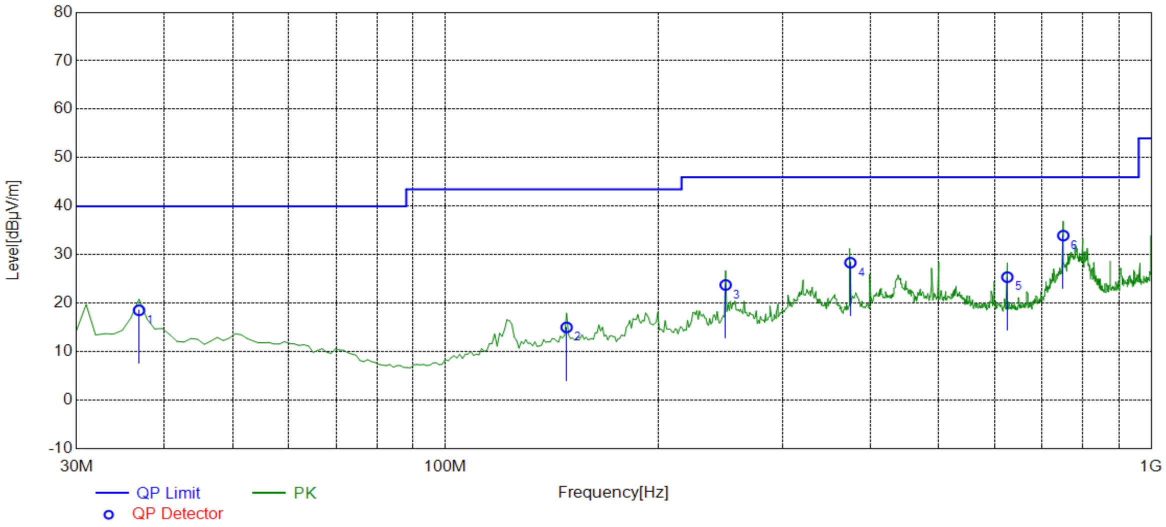
The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in below table if the peak value complies with average limit.

30MHz-1GHz

Mode:	BLE 2402	Voltage:	120V/60Hz

Test Graph

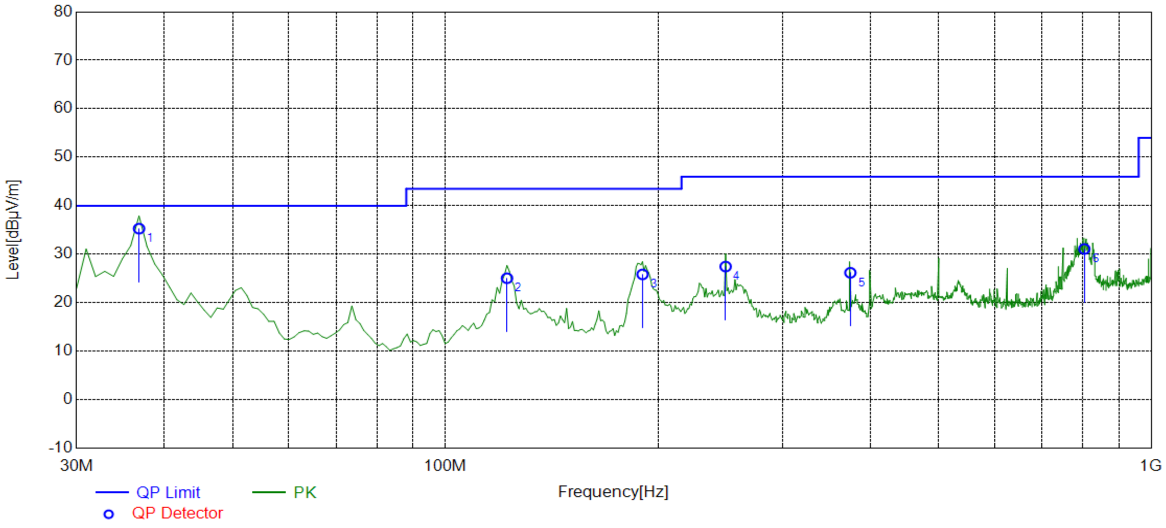


Final Data List

NO.	Freq. [MHz]	Factor [dB/m]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	36.7968	-16.35	18.55	40.00	21.45	100	249	Horizontal
2	148.458	-15.91	15.02	43.50	28.48	100	1	Horizontal
3	249.439	-17.33	23.77	46.00	22.23	100	294	Horizontal
4	374.694	-14.09	28.36	46.00	17.64	100	332	Horizontal
5	625.205	-9.13	25.39	46.00	20.61	100	332	Horizontal
6	750.460	-7.42	33.96	46.00	12.04	100	13	Horizontal

Mode:	BLE 2402	Voltage:	120V/60Hz

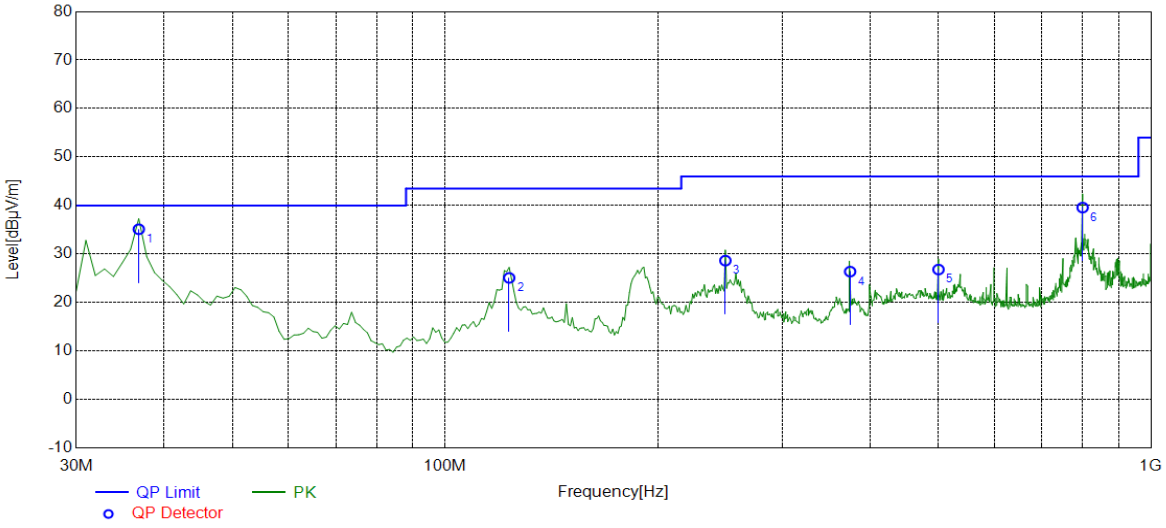
Test Graph



Final Data List								
NO.	Freq. [MHz]	Factor [dB/m]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	36.7968	-16.35	35.28	40.00	4.72	100	28	Vertical
2	122.242	-18.41	25.06	43.50	18.44	100	294	Vertical
3	190.210	-18.18	25.85	43.50	17.65	100	185	Vertical
4	249.439	-17.33	27.46	46.00	18.54	100	99	Vertical
5	374.694	-14.09	26.18	46.00	19.82	100	75	Vertical
6	803.863	-6.43	31.09	46.00	14.91	100	360	Vertical

Mode:	BLE 2440	Voltage:	120V/60Hz

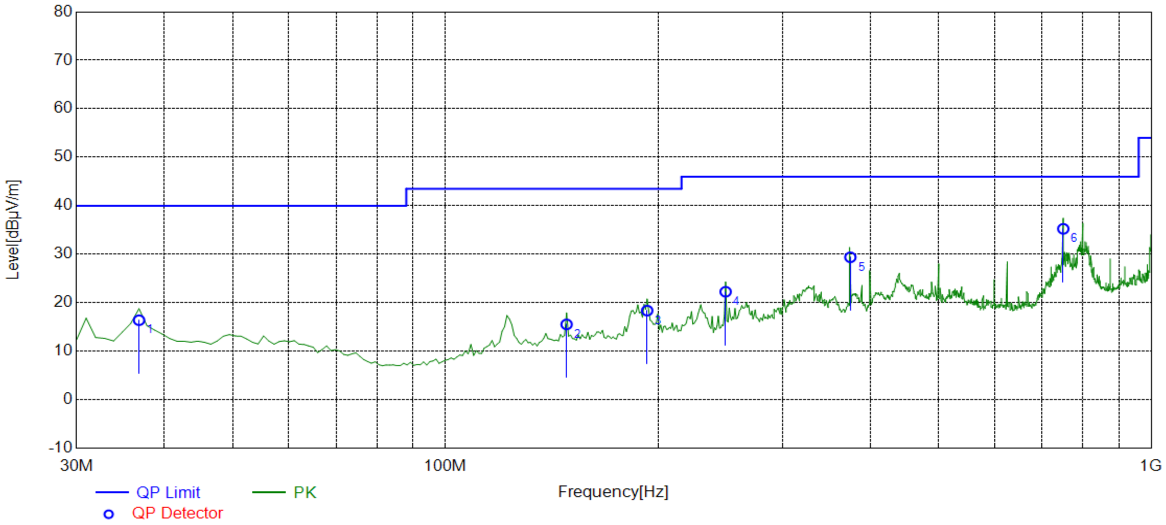
Test Graph



Final Data List								
NO.	Freq. [MHz]	Factor [dB/m]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	36.7968	-16.35	35.11	40.00	4.89	100	71	Vertical
2	123.213	-18.29	25.07	43.50	18.43	100	94	Vertical
3	249.439	-17.33	28.64	46.00	17.36	100	48	Vertical
4	374.694	-14.09	26.37	46.00	19.63	100	62	Vertical
5	499.950	-11.45	26.80	46.00	19.20	100	38	Vertical
6	799.980	-6.46	39.58	46.00	6.42	100	275	Vertical

Mode:	BLE 2440	Voltage:	120V/60Hz

Test Graph

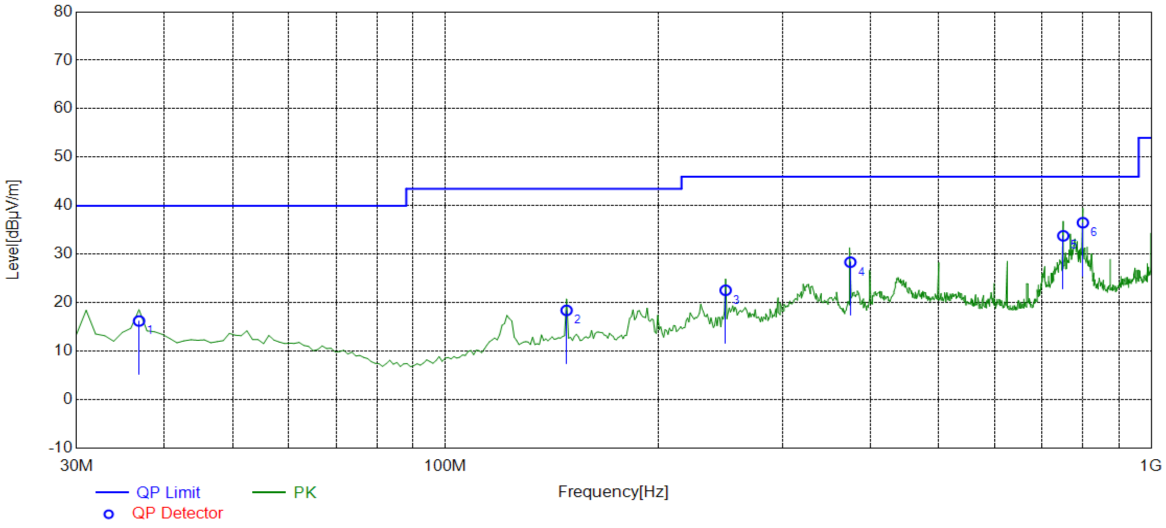


Final Data List

NO.	Freq. [MHz]	Factor [dB/m]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	36.7968	-16.35	16.40	40.00	23.60	100	265	Horizontal
2	148.458	-15.91	15.53	43.50	27.97	100	29	Horizontal
3	193.123	-18.42	18.38	43.50	25.12	100	279	Horizontal
4	249.439	-17.33	22.27	46.00	23.73	100	298	Horizontal
5	374.694	-14.09	29.37	46.00	16.63	100	354	Horizontal
6	750.460	-7.42	35.24	46.00	10.76	100	29	Horizontal

Mode:	BLE 2480	Voltage:	120V/60Hz

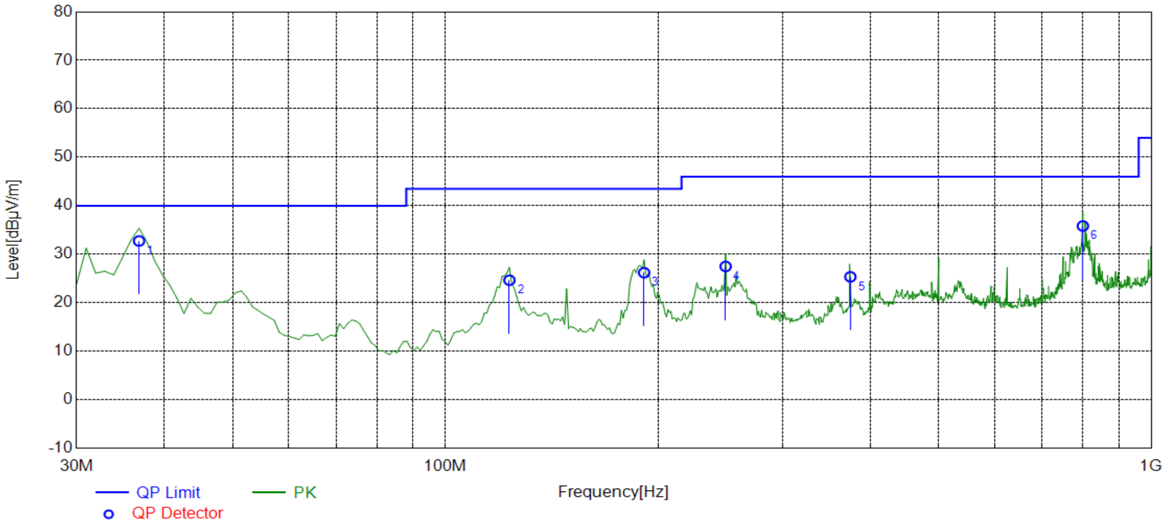
Test Graph



Final Data List								
NO.	Freq. [MHz]	Factor [dB/m]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	36.7968	-16.35	16.23	40.00	23.77	100	247	Horizontal
2	148.458	-15.91	18.42	43.50	25.08	100	261	Horizontal
3	249.439	-17.33	22.57	46.00	23.43	100	280	Horizontal
4	374.694	-14.09	28.36	46.00	17.64	100	332	Horizontal
5	750.460	-7.42	33.81	46.00	12.19	100	21	Horizontal
6	799.980	-6.46	36.51	46.00	9.49	100	59	Horizontal

Mode:	BLE 2480	Voltage:	120V/60Hz

Test Graph



Final Data List								
NO.	Freq. [MHz]	Factor [dB/m]	QP Value [dBµV/m]	QP Limit [dBµV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	36.7968	-16.35	32.74	40.00	7.26	100	28	Vertical
2	123.213	-18.29	24.64	43.50	18.86	100	122	Vertical
3	191.181	-18.26	26.20	43.50	17.30	100	173	Vertical
4	249.439	-17.33	27.49	46.00	18.51	100	108	Vertical
5	374.694	-14.09	25.34	46.00	20.66	100	70	Vertical
6	799.980	-6.46	35.83	46.00	10.17	100	286	Vertical

Above 1 GHz

Mode:	2402	Voltage:	120V/60Hz

PK Final Data List

NO.	Freq. [MHz]	Factor [dB/m]	PK Value [dBμV/m]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4803.92	-14.77	65.82	74.00	8.18	110	350	Horizontal
2	7206.65	-12.00	59.66	74.00	14.34	110	340	Horizontal

AV Final Data List

NO.	Freq. [MHz]	Factor [dB/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4803.92	-14.77	50.31	54.00	3.69	110	350	Horizontal
2	7206.65	-12.00	44.75	54.00	9.25	110	340	Horizontal

Mode:	2402	Voltage:	120V/60Hz

PK Final Data List

NO.	Freq. [MHz]	Factor [dB/m]	PK Value [dBµV/m]	PK Limit [dBµV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4804.43	-14.77	66.52	74.00	7.48	180	270	Vertical
2	7205.26	-12.01	55.32	74.00	18.68	210	350	Vertical

AV Final Data List

NO.	Freq. [MHz]	Factor [dB/m]	AV Value [dBµV/m]	AV Limit [dBµV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4804.43	-14.77	47.41	54.00	6.59	180	270	Vertical
2	7205.26	-12.01	41.50	54.00	12.50	210	350	Vertical

Mode:	2440	Voltage:	120V/60Hz

PK Final Data List								
NO.	Freq. [MHz]	Factor [dB/m]	PK Value [dBµV/m]	PK Limit [dBµV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4879.93	-14.84	70.13	74.00	3.87	200	210	Horizontal
2	7319.88	-11.66	61.59	74.00	12.41	300	300	Horizontal

AV Final Data List								
NO.	Freq. [MHz]	Factor [dB/m]	AV Value [dBµV/m]	AV Limit [dBµV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4879.93	-14.84	46.33	54.00	7.67	200	210	Horizontal
2	7319.88	-11.66	46.76	54.00	7.24	300	300	Horizontal

Mode:	2440	Voltage:	120V/60Hz

PK Final Data List

NO.	Freq. [MHz]	Factor [dB/m]	PK Value [dBμV/m]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4879.43	-14.83	67.78	74.00	6.22	290	160	Vertical
2	7320.64	-11.66	57.60	74.00	16.40	210	270	Vertical

AV Final Data List

NO.	Freq. [MHz]	Factor [dB/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4879.43	-14.83	45.78	54.00	8.22	290	160	Vertical
2	7320.64	-11.66	43.27	54.00	10.73	210	270	Vertical

Mode:	2480	Voltage:	120V/60Hz

PK Final Data List								
NO.	Freq. [MHz]	Factor [dB/m]	PK Value [dBµV/m]	PK Limit [dBµV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4959.92	-14.57	68.60	74.00	5.40	110	60	Horizontal
2	7439.16	-11.27	64.07	74.00	9.93	110	350	Horizontal

AV Final Data List								
NO.	Freq. [MHz]	Factor [dB/m]	AV Value [dBµV/m]	AV Limit [dBµV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4959.92	-14.57	50.99	54.00	3.01	110	60	Horizontal
2	7439.16	-11.27	49.57	54.00	4.43	110	350	Horizontal

Mode:	2480	Voltage:	120V/60Hz

PK Final Data List

NO.	Freq. [MHz]	Factor [dB/m]	PK Value [dBµV/m]	PK Limit [dBµV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4959.91	-14.57	65.49	74.00	8.51	290	10	Vertical
2	7439.11	-11.27	59.68	74.00	14.32	100	0	Vertical

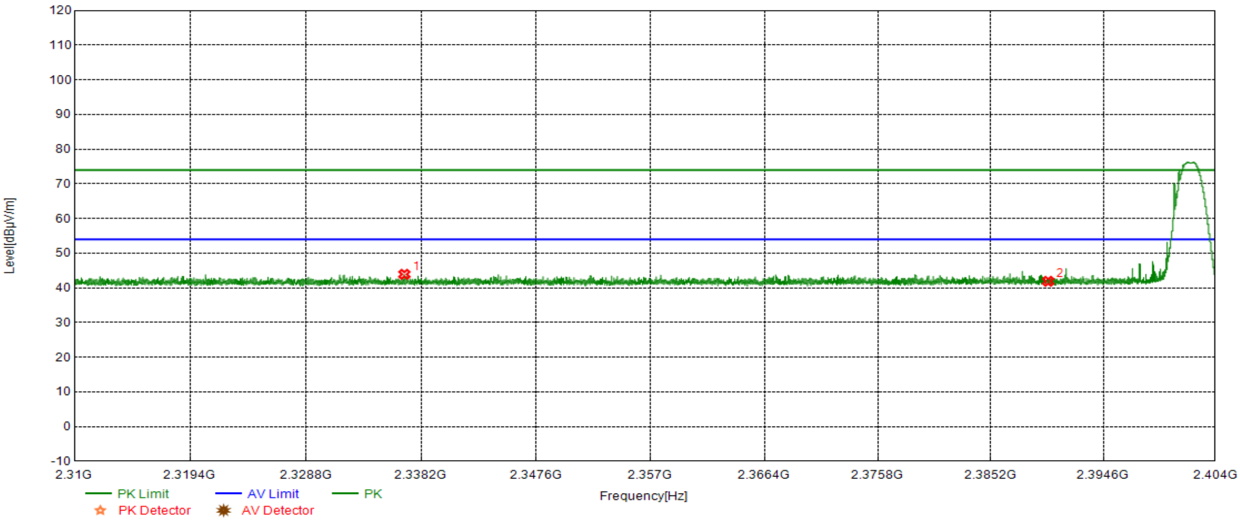
AV Final Data List

NO.	Freq. [MHz]	Factor [dB/m]	AV Value [dBµV/m]	AV Limit [dBµV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4959.91	-14.57	49.97	54.00	4.03	290	10	Vertical
2	7439.11	-11.27	45.66	54.00	8.34	100	0	Vertical

Band Edge

Mode:	2402	Voltage:	120V/60Hz

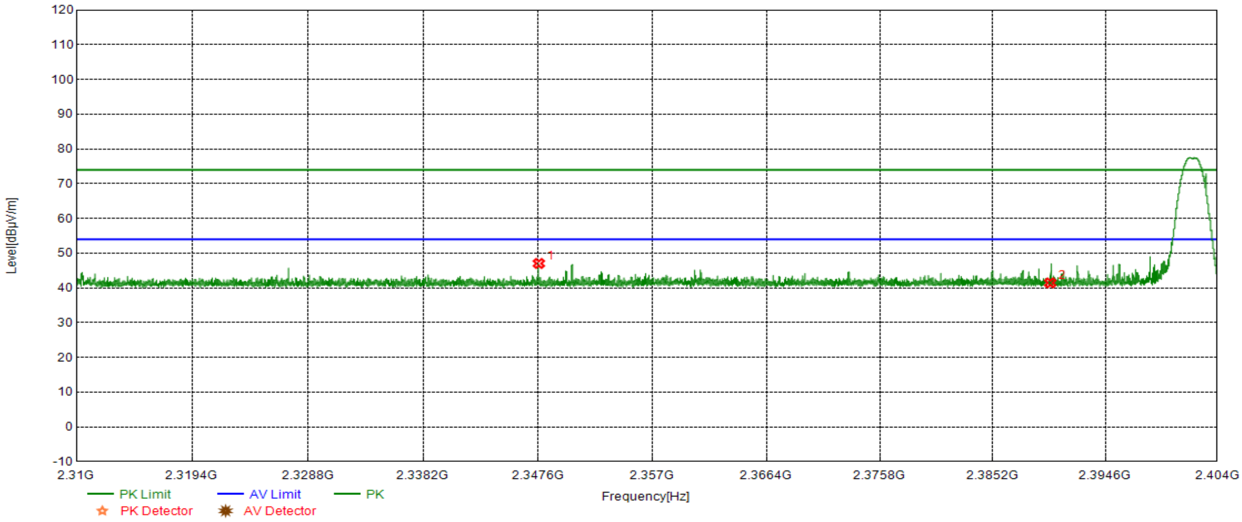
Test Graph



PK Final Data List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2336.80	43.92	-22.97	74.00	30.08	158.9	50	Horizontal
2	2390.00	41.91	-22.81	74.00	32.09	158.9	50	Horizontal

Mode:	2402	Voltage:	120V/60Hz

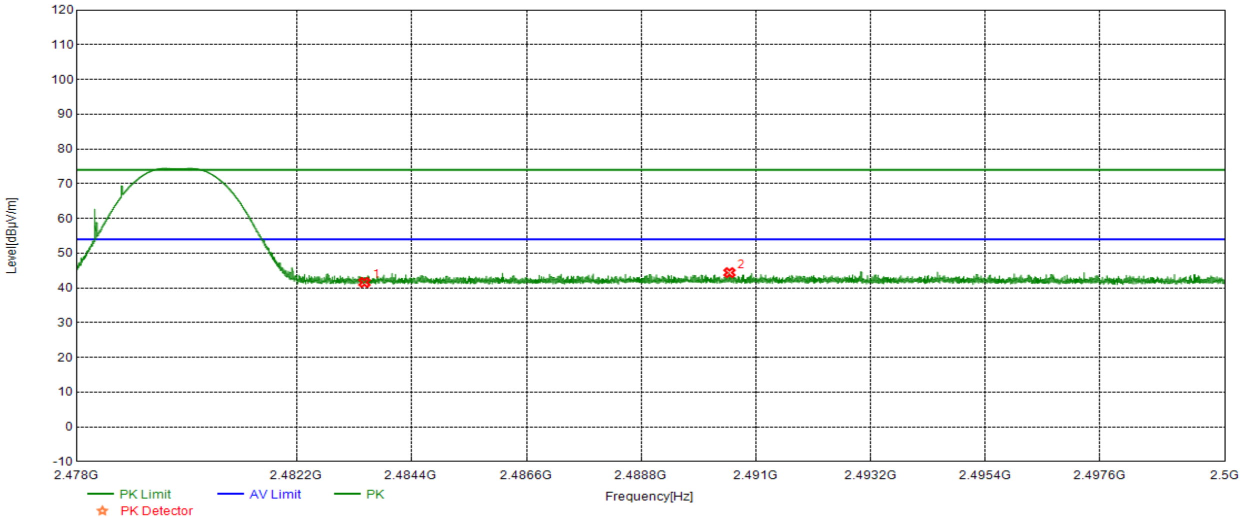
Test Graph



PK Final Data List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2347.65	47.05	-22.94	74.00	26.95	235.7	90	Vertical
2	2390.00	41.46	-22.81	74.00	32.54	235.7	40	Vertical

Mode:	2480	Voltage:	120V/60Hz

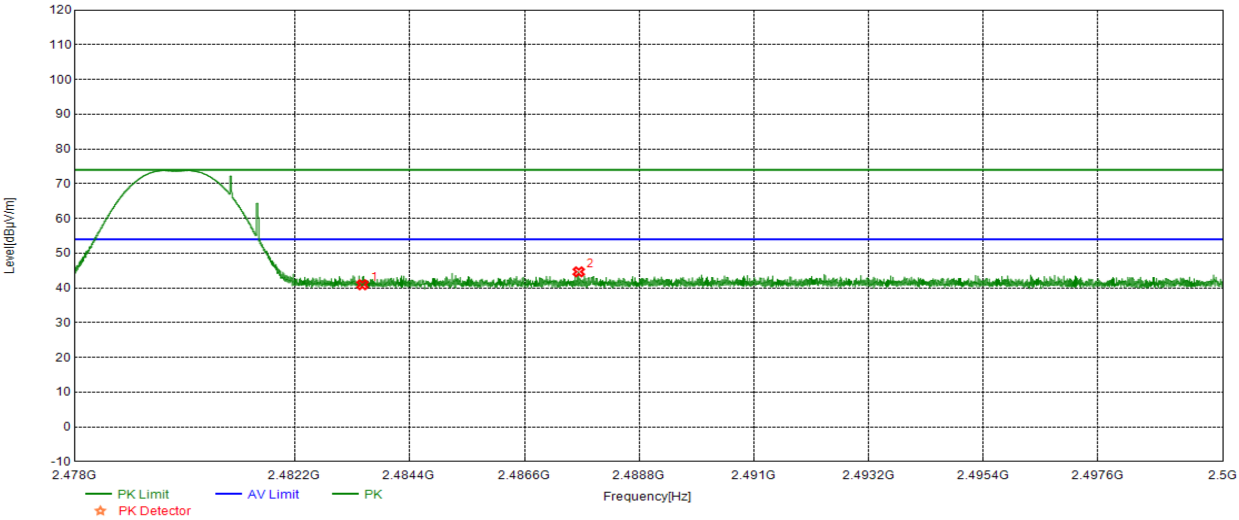
Test Graph



PK Final Data List								
NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2483.50	41.58	-22.52	74.00	32.42	158.9	140	Horizontal
2	2490.48	44.40	-22.50	74.00	29.60	158.9	40	Horizontal

Mode:	2480	Voltage:	120V/60Hz

Test Graph



PK Final Data List								
NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2483.50	40.93	-22.52	74.00	33.07	235.7	330	Vertical
2	2487.63	44.65	-22.51	74.00	29.35	235.7	240	Vertical

--End--